

APPENDIX F

SLUG TEST DATA EVALUATION and

PESTICIDE ROOT ZONE MODEL (PZRM-2)

CALCULATIONS

SLUG TEST DATA EVALUATION

Rising head permeability tests were conducted on all four monitoring wells (i.e., MW S-113-94, S-114-94, S-115-94 and S-116-94) installed at SWMU 19 during the 1994 Phase II field activities. (Details of the methods and procedures used in conducting the slug tests are presented in Section 3.2.7.) These tests were conducted to obtain data to help determine characteristics of the aquifer underlying the site. These tests recorded the recovery of groundwater in the wells, and the results were used to calculate the hydraulic conductivity (K) values for each sample point. The calculations were made using a computer application designed by Geraghty and Miller called AQTESOLV™ (Geraghty & Miller 1989). This application uses statistical parameter estimation methods and graphical curve-matching techniques. The methods are based on equations developed by Bouwer and Rice (1989) for an unconfined aquifer and methods developed by Cooper et al. (1967) for confined aquifers.

The aquifer beneath SWMU 19 exhibited both confined (S-116-94) and unconfined conditions (S-113-94, S-114-94 and S-115-94) during field tests. The method used for analysis was specific to the aquifer conditions at the tested well location. Original field permeability test data, their associated graphical plots, and a summary of aquifer properties are included in this Appendix. The calculated coefficients of hydraulic conductivity for the SWMU 19 wells ranged from 8.84 E-03 to 3.45 E-05 cm/sec with a geometric average of 3.83 E-04 cm/sec.

Hydraulic gradient (i) is the change in hydraulic head per unit of horizontal distance measured along a groundwater flowline (i.e., the slope of the water table). This parameter was calculated using the general slope equation:

$$i = \nabla \Delta h / \Delta l$$

where: Δh = difference in hydraulic head between two points located on the same groundwater flowline

Δl = horizontal distance between these same two points measured along the same groundwater flowline.

Based on the January 2000 groundwater level measurements, an average values was found for SWMU 19 from values calculated at random points in the general site area. An average value of 0.019 ft/ft, or 100 ft/mile, was calculated as the hydraulic gradient for the SWMU 19 area.

Groundwater flow rate (v) represents the macroscopic velocity of groundwater in the horizontal plane. The groundwater flow rate was calculated using the Darcy Flow equation:

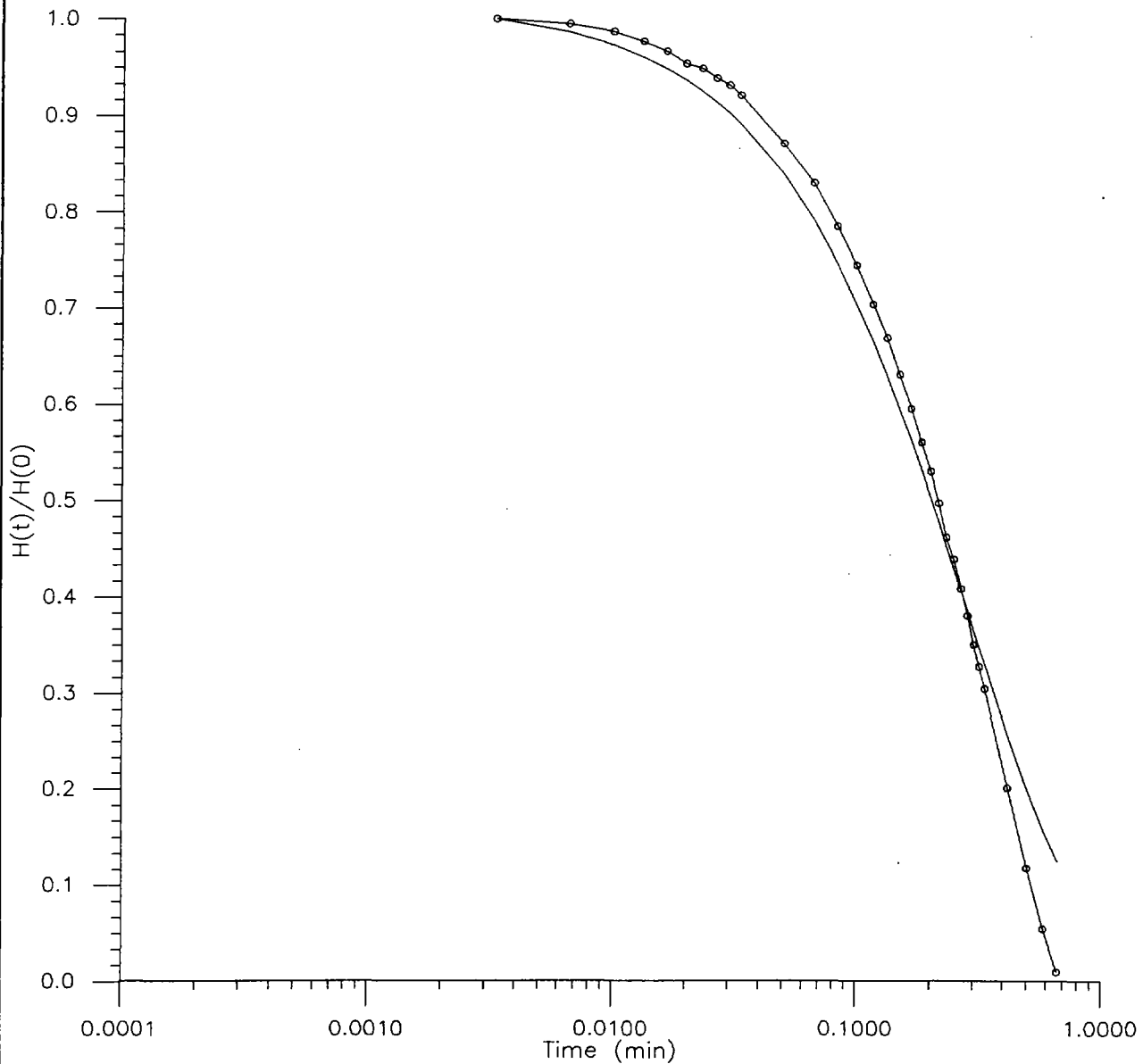
$$v = Ki/n$$

where: K = Hydraulic conductivity

i = Hydraulic gradient

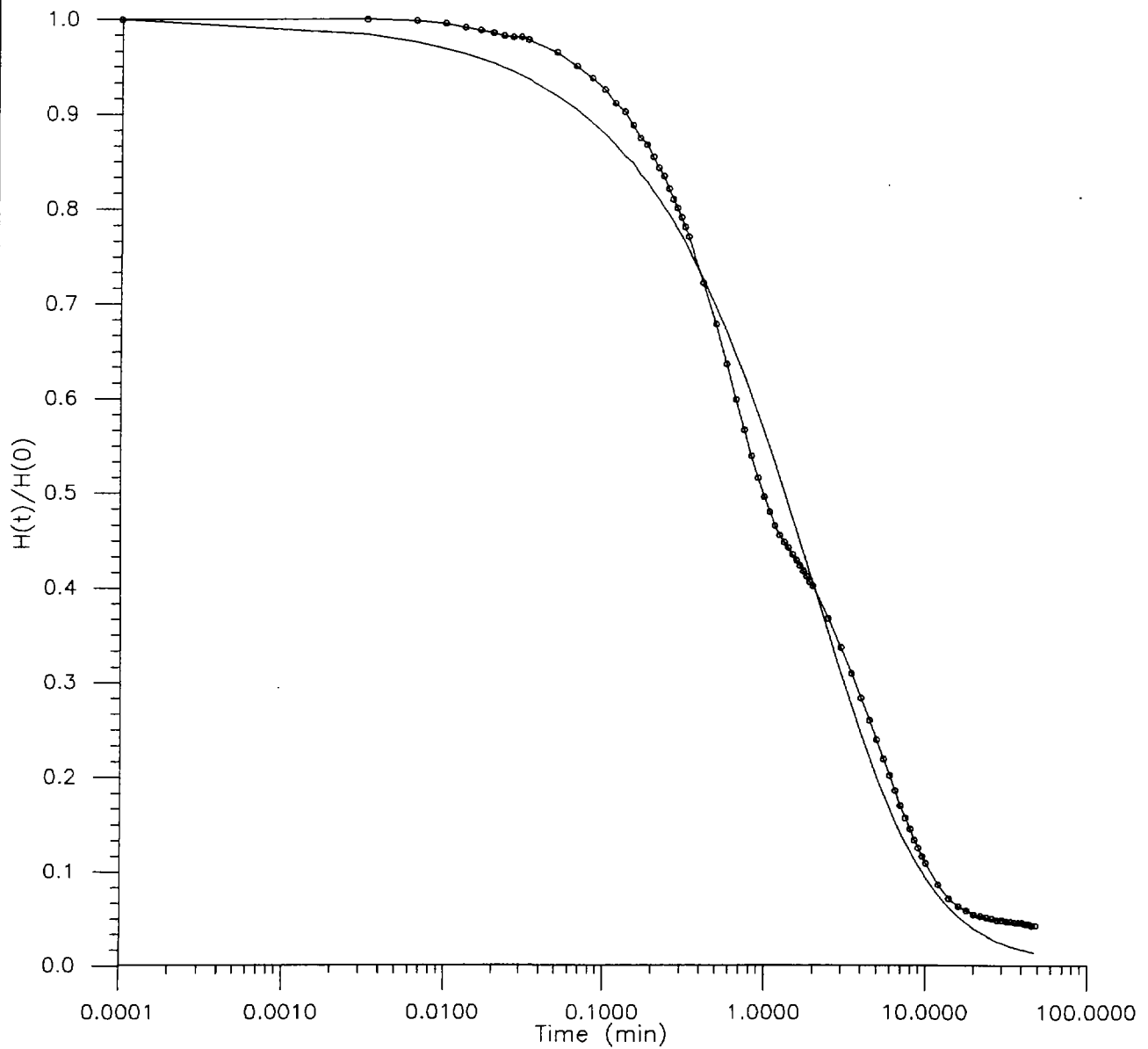
n = Porosity (values ranged from 0.25 to 0.4 to represent a sand media [Driscoll 1986] [a conservative approach])

Using the average hydraulic conductivity (K = 3.83 E-04 cm/sec) and hydraulic gradient (i = 0.019) values calculated for SWMU 19, the average horizontal groundwater flow rate for this area ranged from 30 ft/year (n=0.25) to 19 ft/year (n=0.40).



Transmissivity calculated using Aqtesolv software (Geraghty and Miller, 1989).

Calculated Hydraulic Conductivity (cm/sec): 8.84 E-03 Initial head (ft): 6.638 radius of Well Casing (ft): .16 Effective radius of well (ft): .42 Saturated aquifer thickness(ft): 15.0 Length of screen (ft): 15.0 Type curve method: Cooper et al (1973)	U.S. Army Environmental Center Aberdeen Proving Ground, MD		
	SLUG TEST - MW -113		
PROJECT:	TEST DATE:	FILE NAME:	FIGURE:
Tooele-South	04/18/95	MW-113A.GRF	B-1



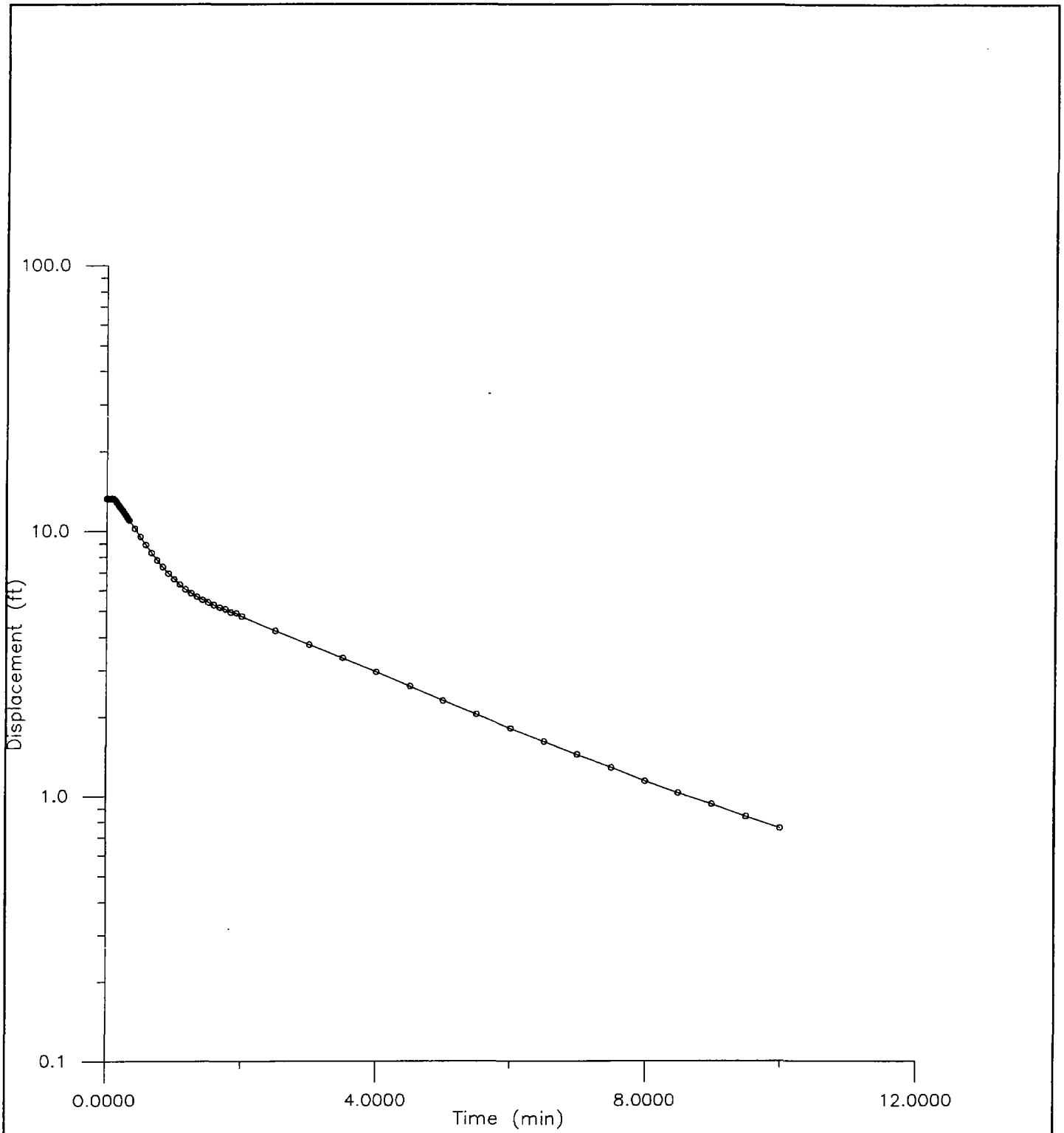
Transmissivity calculated using Aqtesolv software (Geraghty and Miller, 1989).

Calculated Hydraulic Conductivity (cm/sec): 2.33 E-04
 Initial drawdown (ft): 10.947
 Radius of Well Casing (ft): .1667
 Effective radius of well (ft): .4167
 Saturated aquifer thickness(ft): 15.00
 Length of screen (ft): 15
 Type curve method: Cooper et al (1973)

U.S. Army Environmental Center
 Aberdeen Proving Ground, MD

SLUG TEST - MW -114
 Tooele Army Depot- South Area
 SWMU 19

PROJECT:	TEST DATE:	FILE NAME:	FIGURE:
Tooele-South		MW114A.GRF	B-2



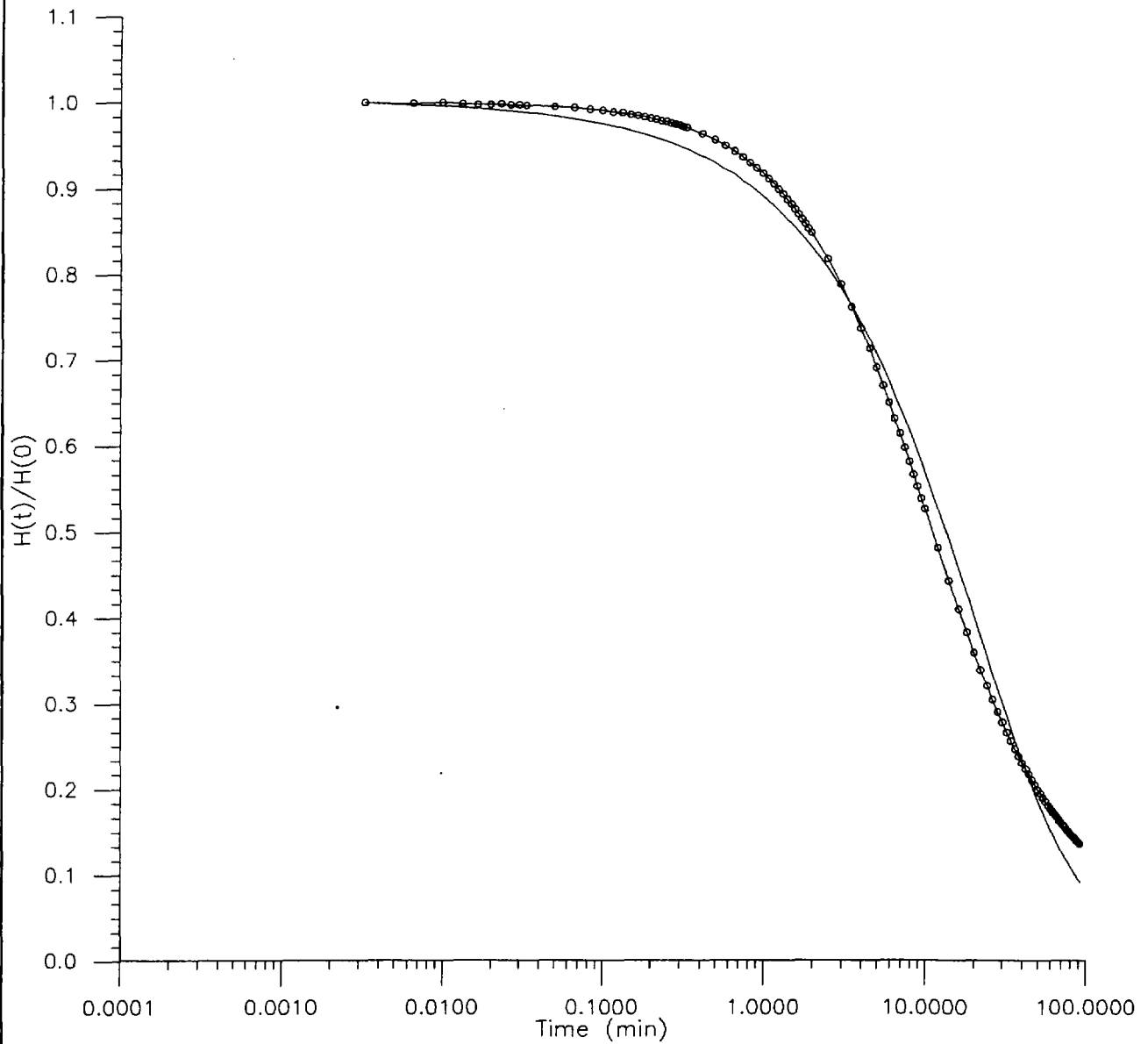
Transmissivity calculated using Aqtesolv software (Geraghty and Miller, 1989).

Calculated Hydraulic Conductivity (cm/sec): 3.0231 E-04
 Initial drawdown (ft): 13.276
 Radius of Well Casing (ft): .16
 Effective radius of well (ft): .42
 Saturated aquifer thickness(ft): 17
 Length of screen (ft): 17
 Type curve method: Bouwer and Rice (1976)

U.S. Army Environmental Center
Aberdeen Proving Ground, MD

SLUG TEST - MW -115

PROJECT: Tooele-South	TEST DATE:	FILE NAME: MW-115B.GRF	FIGURE: B-5
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Transmissivity calculated using Aqtesolv software (Geraghty and Miller, 1989).

Calculated Hydraulic Conductivity (cm/sec): 3.45 E-05 Initial head (ft): 25.65 Radius of Well Casing (ft): .167 Effective radius of well (ft): .42 Saturated aquifer thickness(ft): 21.0 Length of screen (ft): 21.0 Type curve method: Cooper et al (1973)	U.S. Army Environmental Center Aberdeen Proving Ground, MD		
	SLUG TEST - MW -116		
PROJECT: Tooele-South	TEST DATE:	FILE NAME: MW-116a.GRF	FIGURE: B-6

SE1000C
Environmental Logger
11/02 13:36

Unit# 00001 Test 113

Setups: INPUT 1

Type Level (F)
Mode TOC
I.D. 00000

Reference 0.000
Linearity 0.000
Scale factor 50.120
Offset 0.000
Delay mSEC 50.000

Step 0 10/22 10:17:16

Elapsed Time INPUT 1

0.0000 -0.031
0.0033 -0.031
0.0066 -0.016
0.0100 -0.016
0.0133 -0.031
0.0166 -0.031
0.0200 -0.016
0.0233 -0.016
0.0266 -0.016
0.0300 -0.016
0.0333 -0.016
0.0500 -0.016
0.0666 -0.016
0.0833 -0.016
0.1000 0.000
0.1166 0.000
0.1333 0.015
0.1500 0.015
0.1666 0.031
0.1833 0.031
0.2000 0.047
0.2166 0.047
0.2333 0.063
0.2500 0.079
0.2666 0.095
0.2833 0.110
0.3000 0.110
0.3166 0.126
0.3333 0.142
0.4166 0.205
0.5000 0.253
0.5833 0.301
0.6666 0.332
0.7500 0.348
0.8333 0.380
0.9166 0.380
1.0000 0.380

1.0833	0.396
1.1666	0.396
1.2500	0.396
1.3333	0.396
1.4166	0.396
1.5000	0.396
1.5833	0.396
1.6666	0.380
1.7500	0.380
1.8333	0.380
1.9166	0.380
2.0000	0.364
2.5000	0.348
3.0000	0.316
3.5000	0.301
4.0000	0.285
4.5000	0.269
5.0000	0.253
5.5000	0.253
6.0000	0.237
6.5000	0.221
7.0000	0.205
7.5000	0.205
8.0000	0.190
8.5000	0.190
9.0000	0.174
9.5000	0.174
10.0000	0.174
12.0000	0.158
14.0000	0.142
16.0000	0.110
18.0000	0.110
20.0000	0.079
22.0000	0.095
24.0000	0.047
26.0000	0.063
28.0000	0.047
30.0000	0.047
32.0000	0.047
34.0000	0.031
36.0000	0.031
38.0000	0.015
40.0000	0.015
42.0000	0.015

SE1000C
Environmental Logger
11/02 13:42

Unit# 00001 Test 114

Setups: INPUT 1

Type Level (F)
Mode TOC
I.D. 00000

Reference 0.000
Linearity 0.000
Scale factor 50.120
Offset 0.000
Delay mSEC 50.000

Step 0 10/22 14:17:49

Elapsed Time INPUT 1

0.0000 10.947
0.0033 10.947
0.0066 10.931
0.0100 10.899
0.0133 10.852
0.0166 10.820
0.0200 10.789
0.0233 10.757
0.0266 10.741
0.0300 10.741
0.0333 10.709
0.0500 10.567
0.0666 10.408
0.0833 10.266
0.1000 10.139
0.1166 9.981
0.1333 9.885
0.1500 9.727
0.1666 9.584
0.1833 9.505
0.2000 9.363
0.2166 9.236
0.2333 9.141
0.2500 8.998
0.2666 8.872
0.2833 8.776
0.3000 8.666
0.3166 8.555
0.3333 8.444
0.4166 7.905
0.5000 7.430
0.5833 6.970
0.6666 6.558
0.7500 6.210
0.8333 5.909
0.9166 5.655
1.0000 5.434

1.0833	5.259
1.1666	5.101
1.2500	4.990
1.3333	4.911
1.4166	4.848
1.5000	4.768
1.5833	4.705
1.6666	4.642
1.7500	4.578
1.8333	4.515
1.9166	4.451
2.0000	4.404
2.5000	4.024
3.0000	3.691
3.5000	3.390
4.0000	3.105
4.5000	2.851
5.0000	2.629
5.5000	2.408
6.0000	2.218
6.5000	2.043
7.0000	1.869
7.5000	1.726
8.0000	1.600
8.5000	1.473
9.0000	1.378
9.5000	1.283
10.0000	1.204
12.0000	0.950
14.0000	0.792
16.0000	0.697
18.0000	0.649
20.0000	0.602
22.0000	0.586
24.0000	0.570
26.0000	0.554
28.0000	0.538
30.0000	0.538
32.0000	0.523
34.0000	0.523
36.0000	0.507
38.0000	0.507
40.0000	0.507
42.0000	0.491
44.0000	0.491
46.0000	0.475
48.0000	0.475

SLUG TEST - MW 115
11/02/94

0.0000	7.572
0.0033	7.667
0.0066	7.699
0.0100	7.747
0.0133	7.620
0.0166	7.636
0.0200	7.620
0.0233	7.588
0.0266	7.556
0.0300	7.525
0.0333	7.509
0.0500	7.335
0.0666	7.145
0.0833	7.018
0.1000	6.875
0.1166	6.701
0.1333	6.606
0.1500	6.463
0.1666	6.257
0.1833	6.131
0.2000	5.988
0.2166	5.861
0.2333	5.719
0.2500	5.608
0.2666	5.481
0.2833	5.386
0.3000	5.243
0.3166	5.117
0.3333	5.006
0.4166	4.436
0.5000	3.897
0.5833	3.437
0.6666	3.010
0.7500	2.629
0.8333	2.313
0.9166	2.059
1.0000	1.869
1.0833	1.679
1.1666	1.552
1.2500	1.473
1.3333	1.410
1.4166	1.410
1.5000	1.394
1.5833	1.378
1.6666	1.362
1.7500	1.362
1.8333	1.346
1.9166	1.330
2.0000	1.330
2.5000	1.267
3.0000	1.220
3.5000	1.188
4.0000	1.140
4.5000	1.093
5.0000	1.061
5.5000	1.029
6.0000	0.998

6.5000	0.966
7.0000	0.950
7.5000	0.918
8.0000	0.903
8.5000	0.903
9.0000	0.855
9.5000	0.839
10.0000	0.792
12.0000	0.760
14.0000	0.697
16.0000	0.665
18.0000	0.617
20.0000	0.586
22.0000	0.538
24.0000	0.538

SE1000C
Environmental Logger
11/02 13:45

Unit# 00001 Test 116

Setups: INPUT 1

Type Level (F)
Mode TOC
I.D. 00000

Reference 0.000
Linearity 0.000
Scale factor 50.120
Offset 0.000
Delay mSEC 50.000

Step 0 10/23 12:38:46

Elapsed Time INPUT 1

0.0000 25.649
0.0033 25.665
0.0066 25.649
0.0100 25.680
0.0133 25.633
0.0166 25.617
0.0200 25.617
0.0233 25.633
0.0266 25.601
0.0300 25.601
0.0333 25.585
0.0500 25.554
0.0666 25.522
0.0833 25.475
0.1000 25.443
0.1166 25.395
0.1333 25.364
0.1500 25.316
0.1666 25.284
0.1833 25.253
0.2000 25.205
0.2166 25.174
0.2333 25.126
0.2500 25.110
0.2666 25.063
0.2833 25.031
0.3000 24.999
0.3166 24.952
0.3333 24.920
0.4166 24.730
0.5000 24.556
0.5833 24.381
0.6666 24.223
0.7500 24.049
0.8333 23.874
0.9166 23.716
1.0000 23.558

1.0833	23.399
1.1666	23.241
1.2500	23.082
1.3333	22.940
1.4166	22.781
1.5000	22.639
1.5833	22.480
1.6666	22.338
1.7500	22.195
1.8333	22.053
1.9166	21.910
2.0000	21.783
2.5000	20.991
3.0000	20.246
3.5000	19.565
4.0000	18.916
4.5000	18.314
5.0000	17.743
5.5000	17.205
6.0000	16.698
6.5000	16.222
7.0000	15.779
7.5000	15.351
8.0000	14.939
8.5000	14.559
9.0000	14.195
9.5000	13.846
10.0000	13.529
12.0000	12.357
14.0000	11.375
16.0000	10.535
18.0000	9.838
20.0000	9.236
22.0000	8.713
24.0000	8.254
26.0000	7.842
28.0000	7.477
30.0000	7.160
32.0000	6.859
34.0000	6.606
36.0000	6.368
38.0000	6.146
40.0000	5.940
42.0000	5.766
44.0000	5.608
46.0000	5.434
48.0000	5.291
50.0000	5.148
52.0000	5.038
54.0000	4.911
56.0000	4.800
58.0000	4.689
60.0000	4.594
62.0000	4.499
64.0000	4.420
66.0000	4.340
68.0000	4.245
70.0000	4.166
72.0000	4.103
74.0000	4.039

76.0000	3.960
78.0000	3.913
80.0000	3.849
82.0000	3.786
84.0000	3.738
86.0000	3.691
88.0000	3.628
90.0000	3.580
92.0000	3.532

PESTICIDE ROOT ZONE MODEL (PRZM-2) CALCUATIONS

1 CHEMICAL, NO TEMPERATURE CORRECTION, PRZM INPUT FOR ZONE 1

HYDOLGY PARAMETERS (CROP DATA FROM USDA NO.283 HANDBOOK)

0.70	0.50	0	15.000	1	3				
0									
1									
1	0.05	10.0	1.000	3	72	72	72	0.0	0.0 0.0
1									0.0

110582 300982 151082 1

PESTICIDE TRANSPORT AND TRANSFORMATION AND APPLICATION PARAMETERS

5	1	0				
IMPA						
120548	0	2.5	0.20			
010149	0	2.5	0.20			
010150	0	2.5	0.20			
010151	0	2.5	0.20			
010152	0	2.5	0.20			

SOILS PARAMETERS

609.6	0.0	0	0	0	0	0	0	0	0
8.857E03	2.8E-07	2.0E01							

1	1						
1	609.6	1.60	0.233	0.0	0.0	0.0	
	0.00288	0.00288	2.24E-5				
	5.08	.333	.050	1.0	0.12		

1300	1300	1300	1300	1300	1300	7.02	7.02
7.02	7.02	7.02	7.02	0.5	0.5	0.5	0.5
0.5	0.5	17.2	17.2	17.2	17.2	17.2	17.2
1.78	1.78	1.78	1.78	1.78	1.78	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

WATR	YEAR	1					CONC	YEAR	1
3	YEAR								
TPST1	TCUM	30							
TPST2	TCUM	30							
INFL	TCUM	30							

1 CHEMICAL, NO TEMPERATURE CORRECTION, PRZM INPUT FOR ZONE 1
HYDOLOGY PARAMETERS (CROP DATA FROM USDA NO.283 HANDBOOK)

0.70	0.50	0	15.000	1	3				
0									
1									
1	0.05	10.0	1.000	3	72	72	72	0.0	0.0 0.0 0.0
1									0.0
110582	300982	151082	1						

PESTICIDE TRANSPORT AND TRANSFORMATION AND APPLICATION PARAMETERS
5 1 0

BENZO(a)PYRENE
120548 0 2.5 0.00
010149 0 2.5 0.00
010150 0 2.5 0.00
010151 0 2.5 0.00
010152 0 2.5 0.00
1 1

SOILS PARAMETERS

609.6	0.0	0	0	0	0	0	0	0	0
5.829E03	9.8E-05	2.0E01							
1									
1	609.6	1.60	0.233	0.0	0.0	0.0			
	0.00131	0.00131	1.51E01						
	5.08	.333	.050	1.0	8912.5				
1	0								
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.14	4.14	4.14	4.14	4.14	4.14	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
WATR	YEAR	1				CONC	YEAR		1
3	YEAR								
TPST1	TCUM	30							
TPST2	TCUM	30							
INFL	TCUM	30							

1 CHEMICAL, NO TEMPERATURE CORRECTION, PRZM INPUT FOR ZONE 1
 HYDROLOGY PARAMETERS (CROP DATA FROM USDA NO.283 HANDBOOK)

0.70 0.50 0 15.000 1 3
 0
 1
 1 0.05 10.0 1.000 3 72 72 72 0.0 0.0 0.0 0.0
 1
 110582 300982 151082 1

PESTICIDE TRANSPORT AND TRANSFORMATION AND APPLICATION PARAMETERS

5 1 0
 Mercury
 120548 0 2.5 0.00
 010149 0 2.5 0.00
 010150 0 2.5 0.00
 010151 0 2.5 0.00
 010152 0 2.5 0.00
 1 1

SOILS PARAMETERS

609.6 0.0 0 0 0 0 0 0 0 0
 4.700E03 2.9E-08 2.0E01
 1
 1 609.6 1.60 0.233 0.0 0.0 0.0
 3.3E-06 3.3E-06 0.00E00
 5.08 .333 .050 1.0 58000.0
 1 0
 192.0 192.0 192.0 192.0 192.0 192.0 1.12 1.12
 1.12 1.12 1.12 1.12 1.12 1.12 1.12 1.12
 1.12 1.12 1.12 1.12 1.12 1.12 1.12 1.12
 1.12 1.12 1.12 1.12 1.12 1.12 0.68 0.68
 0.68 0.68 0.68 0.68 0.68 0.68 0.68 0.68
 0.68 0.68 0.68 0.68 0.68 0.68 0.68 0.68
 0.68 0.68 0.68 0.68 0.68 0.68 0.68 0.68
 0.68 0.68 0.68 0.68 0.0 0.0 0.0 0.0
 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0
 WATR YEAR 1 CONC YEAR 1
 3 YEAR
 TPST1 TCUM 30
 TPST2 TCUM 30
 INFL TCUM 30

**Table F-2. Estimated IMPA Concentrations (mg/kg)- SWMU 33a,
Deseret Chemical Depot, Tooele, Utah**

Cell	Depth (ft)	YEAR										
		Initial	1	2	3	4	5	6	7	10	20	30
1	0.17			3.25E-04	2.50E-04	1.61E-05	1.97E-05	4.28E-07	3.76E-08	2.12E-13	6.64E-25	0
2	0.33			0.3722	1.96E-02	1.72E-03	2.17E-03	1.68E-04	2.17E-05	1.52E-10	2.90E-21	0
3	0.50					5.00E-02	1.00E-02	1.34E-03	5.03E-04	1.96E-08	1.53E-18	0
4	0.67					0.2361	1.56E-02	2.94E-03	1.03E-03	1.41E-07	2.84E-17	0
5	0.83						2.69E-02	5.37E-03	1.88E-03	5.50E-07	2.68E-16	0
6	1.00						5.56E-02	1.04E-02	3.64E-03	1.58E-06	1.72E-15	0
7	1.17						0.1241	2.20E-02	7.71E-03	3.83E-06	8.47E-15	0
8	1.33						0.2623	4.69E-02	1.64E-02	8.48E-06	3.42E-14	0
9	1.50							9.35E-02	3.27E-02	1.80E-05	1.19E-13	0
10	1.67							0.1699	5.95E-02	3.72E-05	3.64E-13	0
11	1.83							0.281	9.84E-02	7.43E-05	1.01E-12	0
12	2.00							0.4254	0.1489	1.42E-04	2.59E-12	0
13	2.17	0.5	0.175						0.208	2.57E-04	6.23E-12	0
14	2.33	0.5	0.1745						0.2699	4.39E-04	1.42E-11	0
15	2.50	0.5	0.1745						0.3278	7.06E-04	3.08E-11	0
16	2.67	0.5	0.1745						0.3747	1.07E-03	6.41E-11	1.35E-24
17	2.83	0.5	0.1745						0.4052	1.54E-03	1.29E-10	5.40E-24
18	3.00	0.5	0.1757						0.4165	2.09E-03	2.48E-10	1.85E-23
19	3.17								0.4085	2.70E-03	4.61E-10	5.91E-23
20	3.33								0.3836	3.34E-03	8.26E-10	1.79E-22
21	3.50								0.3461	3.95E-03	1.43E-09	5.17E-22
22	3.67								0.3009	4.48E-03	2.37E-09	1.43E-21
23	3.83								0.2527	4.88E-03	3.80E-09	3.79E-21
24	4.00								0.2056	5.14E-03	5.88E-09	9.69E-21
25	4.17					0.3594			0.1626	5.22E-03	8.78E-09	2.39E-20
26	4.33					0.3083		0.3583	0.1254	5.14E-03	1.27E-08	5.70E-20
27	4.50			0.3459	0.4499	0.2688		0.2707	9.48E-02	4.90E-03	1.77E-08	1.32E-19
28	4.67			0.2402	0.305	0.2284	0.3312	0.2015	7.06E-02	4.55E-03	2.40E-08	2.96E-19
29	4.83			0.2175	0.2067	0.1856	0.2434	0.1489	5.21E-02	4.10E-03	3.15E-08	6.46E-19
30	5.00			0.2174	0.1494	0.1443	0.1823	0.11	3.85E-02	3.60E-03	4.01E-08	1.37E-18
31	5.17	0	1.27E-04	8.85E-05	9.30E-02	0.1079	0.1394	8.18E-02	2.86E-02	3.09E-03	4.97E-08	2.84E-18
32	5.33	0	1.30E-08	1.81E-08	4.94E-02	7.77E-02	0.1084	6.16E-02	2.16E-02	2.59E-03	5.99E-08	5.73E-18
33	5.50	0	8.85E-13	2.46E-12	2.33E-02	5.35E-02	8.52E-02	4.70E-02	1.64E-02	2.13E-03	7.04E-08	1.13E-17
34	5.67	0	4.55E-17	2.51E-16	9.49E-03	3.51E-02	6.69E-02	3.62E-02	1.27E-02	1.72E-03	8.06E-08	2.17E-17
35	5.83	0	1.87E-21	2.06E-20	3.25E-03	2.18E-02	5.20E-02	2.81E-02	9.84E-03	1.37E-03	9.01E-08	4.08E-17
36	6.00	0	0	0	9.35E-04	1.27E-02	3.99E-02	2.18E-02	7.63E-03	1.07E-03	9.84E-08	7.50E-17
37	6.17	0	0	0	2.03E-04	7.05E-03	2.99E-02	1.68E-02	5.87E-03	8.31E-04	1.05E-07	1.35E-16
38	6.33	0	0	0	2.33E-05	3.69E-03	2.19E-02	1.27E-02	4.46E-03	6.39E-04	1.10E-07	2.37E-16
39	6.50	0	0	0	6.24E-11	1.83E-03	1.57E-02	9.52E-03	3.33E-03	4.89E-04	1.12E-07	4.09E-16
40	6.67	0	0	0	7.37E-16	8.61E-04	1.09E-02	6.98E-03	2.44E-03	3.73E-04	1.12E-07	6.91E-16
41	6.83	0	0	0	6.17E-21	3.87E-04	7.34E-03	5.00E-03	1.75E-03	2.84E-04	1.10E-07	1.14E-15
42	7.00	0	0	0	0	1.67E-04	4.82E-03	3.50E-03	1.23E-03	2.16E-04	1.06E-07	1.86E-15
43	7.17	0	0	0	0	6.87E-05	3.07E-03	2.39E-03	8.37E-04	1.64E-04	1.01E-07	2.95E-15

**Table F-2. Estimated IMPA Concentrations (mg/kg)- SWMU 33a,
Deseret Chemical Depot, Tooele, Utah**

Cell	Depth (ft)	YEAR										
		Initial	1	2	3	4	5	6	7	10	20	30
44	7.33	0	0	0	0	2.72E-05	1.91E-03	1.60E-03	5.58E-04	1.25E-04	9.37E-08	4.61E-15
45	7.50	0	0	0	0	1.04E-05	1.16E-03	1.04E-03	3.64E-04	9.48E-05	8.57E-08	7.06E-15
46	7.67	0	0	0	0	3.85E-06	6.81E-04	6.61E-04	2.31E-04	7.16E-05	7.71E-08	1.06E-14
47	7.83	0	0	0	0	1.37E-06	3.92E-04	4.11E-04	1.44E-04	5.37E-05	6.84E-08	1.57E-14
48	8.00	0	0	0	0	4.72E-07	2.20E-04	2.50E-04	8.74E-05	3.99E-05	5.97E-08	2.28E-14
49	8.17	0	0	0	0	1.46E-07	1.21E-04	1.49E-04	5.20E-05	2.94E-05	5.14E-08	3.25E-14
50	8.33	0	0	0	0	3.71E-08	6.54E-05	8.66E-05	3.03E-05	2.14E-05	4.37E-08	4.57E-14
51	8.50	0	0	0	0	7.63E-09	3.45E-05	4.95E-05	1.73E-05	1.54E-05	3.67E-08	6.30E-14
52	8.67	0	0	0	0	6.01E-10	1.79E-05	2.78E-05	9.71E-06	1.09E-05	3.04E-08	8.56E-14
53	8.83	0	0	0	0	1.71E-16	9.14E-06	1.53E-05	5.35E-06	7.59E-06	2.50E-08	1.14E-13
54	9.00	0	0	0	0	1.43E-22	4.59E-06	8.28E-06	2.90E-06	5.23E-06	2.03E-08	1.51E-13
55	9.17	0	5.64E-21	6.19E-20	1.64E-19	2.40E-19	2.27E-06	4.41E-06	1.55E-06	3.54E-06	1.63E-08	1.95E-13
56	9.33	0	1.37E-16	7.56E-16	1.33E-15	1.47E-15	1.11E-06	2.32E-06	8.11E-07	2.36E-06	1.30E-08	2.49E-13
57	9.50	0	2.66E-12	7.40E-12	8.71E-12	7.22E-12	5.32E-07	1.20E-06	4.19E-07	1.55E-06	1.03E-08	3.14E-13
58	9.67	0	3.90E-08	5.44E-08	4.27E-08	2.66E-08	2.53E-07	6.11E-07	2.14E-07	1.01E-06	8.11E-09	3.89E-13
59	9.83	0	3.81E-04	2.67E-04	1.40E-04	6.52E-05	1.73E-06	4.84E-07	1.70E-07	6.43E-07	6.33E-09	4.76E-13
60	10.00					8.02E-02	2.32E-03	2.54E-04	8.88E-05	4.08E-07	4.92E-09	5.75E-13
61	10.17					8.03E-02	7.76E-03	1.09E-03	3.83E-04	2.82E-07	3.80E-09	6.84E-13
62	10.33					8.03E-02	1.48E-02	2.59E-03	9.08E-04	3.07E-07	2.92E-09	8.04E-13
63	10.50					8.03E-02	2.14E-02	4.51E-03	1.58E-03	6.17E-07	2.23E-09	9.32E-13
64	10.67					8.03E-02	2.65E-02	6.49E-03	2.27E-03	1.45E-06	1.69E-09	1.07E-12
65	10.83					8.04E-02	3.00E-02	8.23E-03	2.88E-03	3.08E-06	1.28E-09	1.21E-12
66	11.00					0.3142	5.00E-02	1.15E-02	4.04E-03	5.81E-06	9.63E-10	1.35E-12
67	11.17					0.3144	7.79E-02	1.73E-02	6.06E-03	9.91E-06	7.20E-10	1.49E-12
68	11.33					0.3144	0.1015	2.45E-02	8.58E-03	1.57E-05	5.35E-10	1.63E-12
69	11.50					0.3144	0.1174	3.15E-02	1.10E-02	2.38E-05	3.96E-10	1.75E-12
70	11.67					0.3144	0.1269	3.72E-02	1.30E-02	3.47E-05	2.92E-10	1.87E-12
71	11.83					0.3141	0.1317	4.14E-02	1.45E-02	4.90E-05	2.15E-10	1.97E-12
72	12.00	0	1.49E-03	1.04E-03	5.48E-04	2.56E-04	7.43E-02	3.75E-02	1.31E-02	6.68E-05	1.61E-10	2.06E-12
73	12.17	0	1.53E-07	2.13E-07	1.67E-07	1.04E-07	3.15E-02	2.80E-02	9.81E-03	8.72E-05	1.26E-10	2.12E-12
74	12.33	0	1.04E-11	2.90E-11	3.41E-11	2.83E-11	1.01E-02	1.79E-02	6.25E-03	1.08E-04	1.07E-10	2.17E-12
75	12.50	0	5.37E-16	2.96E-15	5.23E-15	5.77E-15	2.22E-03	1.00E-02	3.50E-03	1.27E-04	1.06E-10	2.19E-12
76	12.67	0	2.21E-20	2.43E-19	6.40E-19	9.41E-19	2.49E-04	5.08E-03	1.78E-03	1.39E-04	1.22E-10	2.20E-12
77	12.83	0	0	0	0	0	3.12E-09	2.39E-03	8.38E-04	1.44E-04	1.58E-10	2.18E-12
78	13.00	0	0	0	0	0	2.39E-13	1.05E-03	3.67E-04	1.40E-04	2.19E-10	2.14E-12
79	13.17	0	0	0	0	0	1.23E-17	4.47E-04	1.56E-04	1.28E-04	3.08E-10	2.08E-12
80	13.33	0	0	0	0	0	4.64E-22	1.74E-04	6.10E-05	1.11E-04	4.30E-10	2.00E-12
81	13.50	0	0	0	0	0	0	6.01E-05	2.10E-05	9.07E-05	5.88E-10	1.91E-12
82	13.67	0	0	0	0	0	0	2.01E-05	7.04E-06	7.08E-05	7.83E-10	1.81E-12
83	13.83	0	0	0	0	0	0	4.25E-06	1.49E-06	5.27E-05	1.01E-09	1.70E-12
84	14.00	0	0	0	0	0	0	1.16E-07	4.04E-08	3.76E-05	1.28E-09	1.58E-12
85	14.17	0	0	0	0	0	0	1.44E-11	1.04E-11	2.58E-05	1.55E-09	1.46E-12
86	14.33	0	0	0	0	0	0	1.39E-15	2.06E-15	1.70E-05	1.84E-09	1.33E-12

**Table F-2. Estimated IMPA Concentrations (mg/kg)- SWMU 33a,
Deseret Chemical Depot, Tooele, Utah**

Cell	Depth (ft)	Initial	YEAR										
			1	2	3	4	5	6	7	10	20	30	
87	14.50	0	0	0	0	0	0	0	8.96E-20	2.72E-19	1.09E-05	2.11E-09	1.21E-12
88	14.67	0	0	0	0	0	0	0	0	0	6.73E-06	2.35E-09	1.09E-12
89	14.83	0	0	0	0	0	0	0	0	0	4.04E-06	2.54E-09	9.72E-13
90	15.00	0	0	0	0	0	0	0	0	0	2.36E-06	2.66E-09	8.62E-13
91	15.17	0	0	0	0	0	0	0	0	0	1.34E-06	2.72E-09	7.58E-13
92	15.33	0	0	0	0	0	0	0	0	0	7.44E-07	2.70E-09	6.63E-13
93	15.50	0	0	0	0	0	0	0	0	0	4.04E-07	2.61E-09	5.75E-13
94	15.67	0	0	0	0	0	0	0	0	0	2.14E-07	2.45E-09	4.95E-13
95	15.83	0	0	0	0	0	0	0	0	0	1.11E-07	2.25E-09	4.24E-13
96	16.00	0	0	0	0	0	0	0	0	0	5.67E-08	2.02E-09	3.61E-13
97	16.17	0	0	0	0	0	0	0	0	0	2.84E-08	1.76E-09	3.05E-13
98	16.33	0	0	0	0	0	0	0	0	0	1.39E-08	1.51E-09	2.56E-13
99	16.50	0	0	0	0	0	0	0	0	0	6.73E-09	1.26E-09	2.14E-13
100	16.67	0	0	0	0	0	0	0	0	0	3.20E-09	1.03E-09	1.77E-13
101	16.83	0	0	0	0	0	0	0	0	0	1.50E-09	8.24E-10	1.47E-13
102	17.00	0	0	0	0	0	0	0	0	0	6.91E-10	6.47E-10	1.21E-13
103	17.17	0	0	0	0	0	0	0	0	0	3.14E-10	4.98E-10	9.87E-14
104	17.33	0	0	0	0	0	0	0	0	0	1.41E-10	3.77E-10	8.07E-14
105	17.50	0	0	0	0	0	0	0	0	0	6.27E-11	2.80E-10	6.60E-14
106	17.67	0	0	0	0	0	0	0	0	0	2.75E-11	2.04E-10	5.41E-14
107	17.83	0	0	0	0	0	0	0	0	0	1.19E-11	1.46E-10	4.47E-14
108	18.00	0	0	0	0	0	0	0	0	0	5.09E-12	1.03E-10	3.74E-14
109	18.17	0	0	0	0	0	0	0	0	0	2.14E-12	7.16E-11	3.19E-14
110	18.33	0	0	0	0	0	0	0	0	0	8.76E-13	4.89E-11	2.81E-14
111	18.50	0	0	0	0	0	0	0	0	0	3.50E-13	3.29E-11	2.56E-14
112	18.67	0	0	0	0	0	0	0	0	0	1.36E-13	2.19E-11	2.43E-14
113	18.83	0	0	0	0	0	0	0	0	0	5.12E-14	1.43E-11	2.40E-14
114	19.00	0	0	0	0	0	0	0	0	0	1.85E-14	9.24E-12	2.45E-14
115	19.17	0	0	0	0	0	0	0	0	0	6.28E-15	5.89E-12	2.58E-14
116	19.33	0	0	0	0	0	0	0	0	0	1.98E-15	3.70E-12	2.76E-14
117	19.50	0	0	0	0	0	0	0	0	0	5.84E-16	2.30E-12	2.99E-14
118	19.67	0	0	0	0	0	0	0	0	0	1.64E-16	1.41E-12	3.24E-14
119	19.83	0	0	0	0	0	0	0	0	0	3.76E-17	8.57E-13	3.52E-14
120	20.00	0	0	0	0	0	0	0	0	0	3.77E-18	5.14E-13	3.79E-14

**Table F-3. Estimated Mercury Concentrations (mg/kg) - SWMU 33b
Deseret Chemical Depot, Tooele, Utah**

Cell	Depth (ft)	Initial	YEAR				
			1	5	10	20	30
1	0.17	192	191.8	190.6	189.4	187.1	184.7
2	0.33	192	191.8	190.6	189.5	187.3	185.1
3	0.50	192	191.8	190.6	189.5	187.2	185.0
4	0.67	192	191.8	190.6	189.5	187.2	185.0
5	0.83	192	191.8	190.6	189.5	187.2	185.0
6	1.00	192	191.8	190.6	189.5	187.2	185.0
7	1.17	1.12	1.119	1.128	1.128	1.115	1.154
8	1.33	1.12	1.119	1.112	1.105	1.092	1.079
9	1.50	1.12	1.119	1.112	1.105	1.092	1.079
10	1.67	1.12	1.119	1.112	1.105	1.092	1.079
11	1.83	1.12	1.119	1.112	1.105	1.092	1.079
12	2.00	1.12	1.119	1.112	1.105	1.092	1.079
13	2.17	1.12	1.119	1.112	1.105	1.092	1.079
14	2.33	1.12	1.119	1.112	1.105	1.092	1.079
15	2.50	1.12	1.119	1.112	1.105	1.092	1.079
16	2.67	1.12	1.119	1.112	1.105	1.092	1.079
17	2.83	1.12	1.119	1.112	1.105	1.092	1.079
18	3.00	1.12	1.119	1.112	1.105	1.092	1.079
19	3.17	1.12	1.119	1.112	1.105	1.092	1.079
20	3.33	1.12	1.119	1.112	1.105	1.092	1.079
21	3.50	1.12	1.119	1.112	1.105	1.092	1.079
22	3.67	1.12	1.119	1.112	1.105	1.092	1.079
23	3.83	1.12	1.119	1.112	1.105	1.092	1.079
24	4.00	1.12	1.119	1.112	1.105	1.092	1.079
25	4.17	1.12	1.119	1.112	1.105	1.092	1.079
26	4.33	1.12	1.119	1.112	1.105	1.092	1.079
27	4.50	1.12	1.119	1.112	1.105	1.092	1.079
28	4.67	1.12	1.119	1.112	1.105	1.092	1.079
29	4.83	1.12	1.119	1.112	1.105	1.092	1.079
30	5.00	1.12	1.119	1.112	1.105	1.092	1.079
31	5.17	0.68	0.675	0.675	0.675	0.675	0.675
32	5.33	0.68	0.675	0.675	0.675	0.675	0.675
33	5.50	0.68	0.675	0.675	0.675	0.675	0.675
34	5.67	0.68	0.675	0.675	0.675	0.675	0.675
35	5.83	0.68	0.675	0.675	0.675	0.675	0.675
36	6.00	0.68	0.675	0.675	0.675	0.675	0.675
37	6.17	0.68	0.675	0.675	0.675	0.675	0.675
38	6.33	0.68	0.675	0.675	0.675	0.675	0.675
39	6.50	0.68	0.675	0.675	0.675	0.675	0.675
40	6.67	0.68	0.675	0.675	0.675	0.675	0.675
41	6.83	0.68	0.675	0.675	0.675	0.675	0.675
42	7.00	0.68	0.675	0.675	0.675	0.675	0.675
43	7.17	0.68	0.675	0.675	0.675	0.675	0.675
44	7.33	0.68	0.675	0.675	0.675	0.675	0.675
45	7.50	0.68	0.675	0.675	0.675	0.675	0.675
46	7.67	0.68	0.675	0.675	0.675	0.675	0.675
47	7.83	0.68	0.675	0.675	0.675	0.675	0.675
48	8.00	0.68	0.675	0.675	0.675	0.675	0.675
49	8.17	0.68	0.675	0.675	0.675	0.675	0.675
50	8.33	0.68	0.675	0.675	0.675	0.675	0.675
51	8.50	0.68	0.675	0.675	0.675	0.675	0.675
52	8.67	0.68	0.675	0.675	0.675	0.675	0.675
53	8.83	0.68	0.675	0.675	0.675	0.675	0.675
54	9.00	0.68	0.675	0.675	0.675	0.675	0.675

**Table F-3. Estimated Mercury Concentrations (mg/kg) - SWMU 33b
Deseret Chemical Depot, Tooele, Utah**

Cell	Depth (ft)	Initial	YEAR				
			1	5	10	20	30
55	9.17	0.68	0.6792	0.6751	0.6711	0.665	0.6551
56	9.33	0.68	0.6792	0.6751	0.6711	0.665	0.6551
57	9.50	0.68	0.6792	0.6751	0.6711	0.665	0.6551
58	9.67	0.68	0.6792	0.6751	0.6711	0.665	0.6551
59	9.83	0.68	0.6792	0.6751	0.6711	0.665	0.6551
60	10.00	0.68	0.6792	0.6751	0.6711	0.665	0.6551
61	10.17	0	3.50E-11	1.68E-05	4.31E-05	9.74E-05	2.30E-04
62	10.33	0	0	2.31E-10	1.43E-09	7.24E-09	4.06E-08
63	10.50	0	0	2.30E-15	3.25E-14	3.64E-13	4.81E-12
64	10.67	0	0	0	4.08E-19	1.37E-17	4.29E-16
65	10.83	0	0	0	0	0	0
66	11.00	0	0	0	0	0	0
67	11.17	0	0	0	0	0	0
68	11.33	0	0	0	0	0	0
69	11.50	0	0	0	0	0	0
70	11.67	0	0	0	0	0	0
71	11.83	0	0	0	0	0	0
72	12.00	0	0	0	0	0	0
73	12.17	0	0	0	0	0	0
74	12.33	0	0	0	0	0	0
75	12.50	0	0	0	0	0	0
76	12.67	0	0	0	0	0	0
77	12.83	0	0	0	0	0	0
78	13.00	0	0	0	0	0	0
79	13.17	0	0	0	0	0	0
80	13.33	0	0	0	0	0	0
81	13.50	0	0	0	0	0	0
82	13.67	0	0	0	0	0	0
83	13.83	0	0	0	0	0	0
84	14.00	0	0	0	0	0	0
85	14.17	0	0	0	0	0	0
86	14.33	0	0	0	0	0	0
87	14.50	0	0	0	0	0	0
88	14.67	0	0	0	0	0	0
89	14.83	0	0	0	0	0	0
90	15.00	0	0	0	0	0	0
91	15.17	0	0	0	0	0	0
92	15.33	0	0	0	0	0	0
93	15.50	0	0	0	0	0	0
94	15.67	0	0	0	0	0	0
95	15.83	0	0	0	0	0	0
96	16.00	0	0	0	0	0	0
97	16.17	0	0	0	0	0	0
98	16.33	0	0	0	0	0	0
99	16.50	0	0	0	0	0	0
100	16.67	0	0	0	0	0	0
101	16.83	0	0	0	0	0	0
102	17.00	0	0	0	0	0	0
103	17.17	0	0	0	0	0	0
104	17.33	0	0	0	0	0	0
105	17.50	0	0	0	0	0	0
106	17.67	0	0	0	0	0	0
107	17.83	0	0	0	0	0	0
108	18.00	0	0	0	0	0	0

**Table F-3. Estimated Mercury Concentrations (mg/kg) - SWMU 33b
Deseret Chemical Depot, Tooele, Utah**

Cell	Depth (ft)	YEAR					
		Initial	1	5	10	20	30
109	18.17	0	0	0	0	0	0
110	18.33	0	0	0	0	0	0
111	18.50	0	0	0	0	0	0
112	18.67	0	0	0	0	0	0
113	18.83	0	0	0	0	0	0
114	19.00	0	0	0	0	0	0
115	19.17	0	0	0	0	0	0
116	19.33	0	0	0	0	0	0
117	19.50	0	0	0	0	0	0
118	19.67	0	0	0	0	0	0
119	19.83	0	0	0	0	0	0
120	20.00	0	0	0	0	0	0