93204

REMEDIAL INVESTIGATION

AT THE

FRONTIER CHEMICAL - PENDLETON SITE

PENDLETON (T), NIAGARA (C), NEW YORK

DEPARTMENT OF ENVIRONMENTAL CONSERVATION • NEW YORK STATE •

NYSDEC SITE NO. 9-32-043
WORK ASSIGNMENT NO. D002340-4

Prepared for:

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 Wolf Road, Albany, New York

Thomas C. Jorling, Commissioner

DIVISION OF HAZARDOUS WASTE REMEDIATION

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Buffalo, New York 14202

APPENDICES M-R

JUNE 1991

1122

APPENDIX M

HYDRAULIC CONDUCTIVITY CALCULATIONS

BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	-5.36	0.000	0	ERR
2	0.03	-5.90	0.540	2	-0.6162
3	0.05	-5.81	0.450	3	-0.7985
4	0.06	-5.78	0.420	4	-0.8675
5	0.11	-5.77	0.410	7	-0.8916
6	0.13	-5.76	0.400	8	-0.9163
7	0.16	-5.75	0.390	10	-0.9416
8	0.20	-5.74	0.380	12	-0.9676
9	0.26	-5.73	0.380	16	-0.9676
10	0.41	-5.72	0.360	25	-1.0217
11	1.33	-5.71	0.350	80	-1.0498
12	18.00	-5.70	0.340	1080	-1.0788
13	24.00	-5.69	0.330	1440	-1.1087
14	28.00	-5.68	0.320	1680	-1.1394
15	30.00	-5.67	0.310	1800	-1.1712
16	42.00	-5.66	0.300	2520	-1.2040
17	46.00	-5.65	0.290	2760	-1.2379
18	48.00	-5.64	0.280	2880	-1.2730
19	58.00	-5.63	0.270	3480	-1.3093

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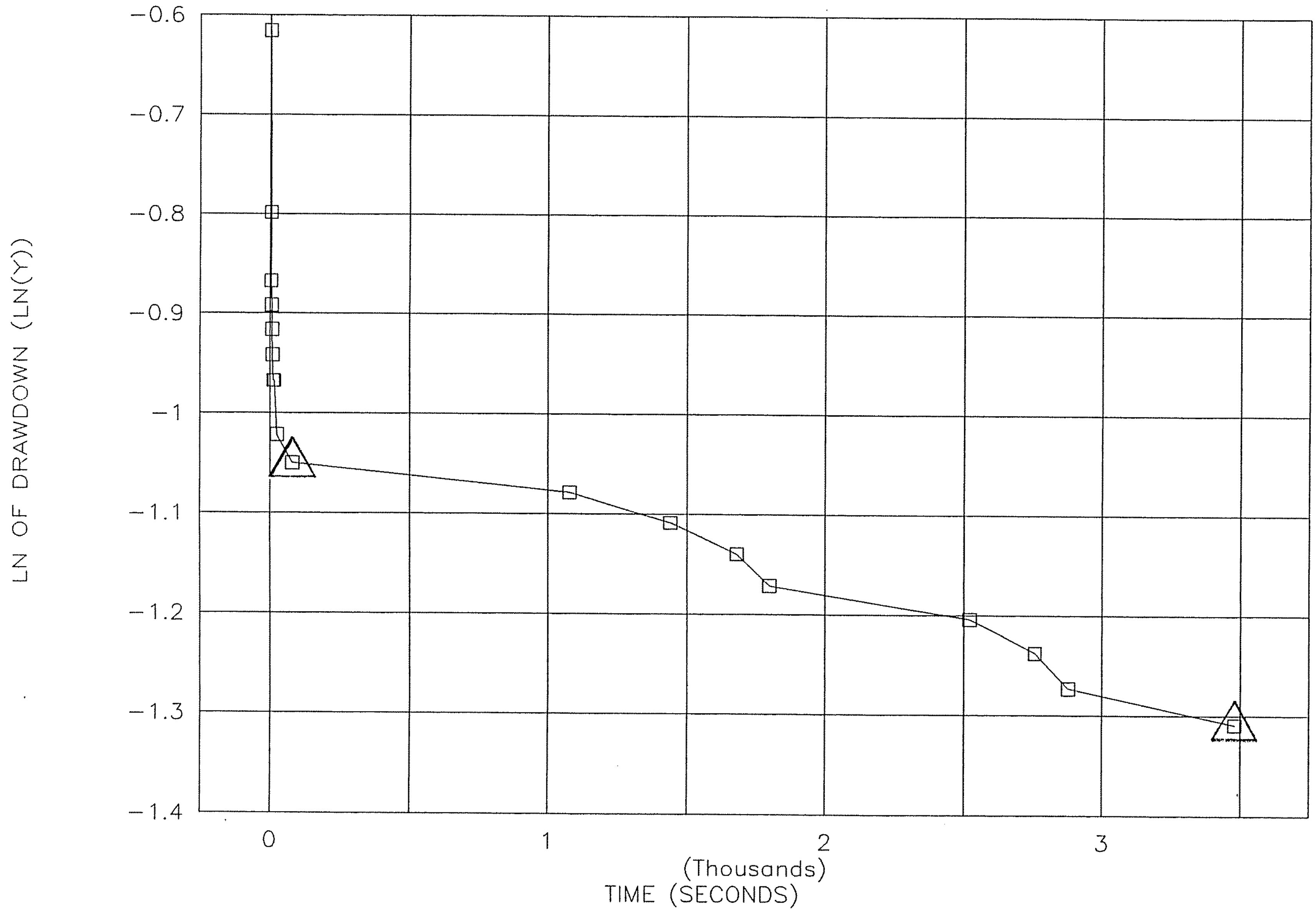
*PROJECT NAME        :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO          :35230
*WELL NO             :WELL 85 - 2S (SLUG OUT)
*ANALYST             :OSTROWSKI             CHECKED BY : ·HMJ
*DATE COLLECTED      :8-21-90
*RISER PIPE (ID):            (2 r sub c) =       2.0 in. =       0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) =       7.5 in. =       0.3125 (radius in ft.)
*EFFECTIVE SCREEN LENGTH:    (L)        =      2.00 Ft.
*MAX DRAWDOWN (IN SUBSET):   (Ymax)     =      0.54 Ft.
*STATIC WATER LEVEL:         (SWL)      =     -5.36 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM:  (H)  =          4.53 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM):  (D) =              10.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)?          1
*SANDPACK'S SPECIFIC YIELD (Sy) =               0.15
-------------------------------------------------------------------------
 BOUWER AND RICE CURVE COEFFICIENTS:
   RATIO OF L/(r sub w) =                        6.40
     ---LOG OF L/(r sub w) =                   0.8062
   FOR PARTIALLY PENETRATING WELLS--
              A =                 1.73
              B =                 0.27
   FOR FULLY PENETRATING WELLS--
              C =                 1.10

     ---EVALUATION OF LN(Re/(r sub w)):
          CONST.1 =             0.4114
          CONST.2 =             2.8624  =(MAX. OF 6.0)=      2.8624
          LN(Re/(r sub w) =                1.25
-------------------------------------------------------------------------
   EFFECTIVE r sub c (for sandpack dewatering) =      0.1434
   (1/T)(LN(Yo/Yt))  (SLOPE) =          -8.26E-05 sec^(-1)
 |---------------------------------------------------|
 |HYDRAULIC CONDUCTIVITY    (K)   =      5.29E-07 ft/sec  |  <==================
 |                                       1.61E-05 cm/sec  |  <==================
 |---------------------------------------------------|
                   Regression Output:
 Constant                                      -1.01E+00
 Std Err of Y Est                                 0.0211
 R Squared                                        0.9507
 No. of Observations                                   9
 Degrees of Freedom                                    7

 X Coefficient(s)                   -8.26E-05
 Std Err of Coef.                      0.0000
```

RATE OF RECOVERY TEST: WELL 85 – 2S

SLUG OUT



BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	11.31	0.000	0	ERR
2	0.15	12.38	1.070	9	0.0677
3	0.16	12.31	1.000	10	0.0000
4	0.20	12.29	0.980	12	-0.0202
5	0.21	12.27	0.960	13	-0.0408
6	0.25	12.23	0.920	15	-0.0834
7	0.26	12.21	0.900	16	-0.1054
8	0.28	12.19	0.880	17	-0.1278
9	0.30	12.18	0.880	18	-0.1278
10	0.31	12.16	0.850	19	-0.1625
11	0.33	12.14	0.830	20	-0.1863
12	0.41	12.02	0.710	25	-0.3425
13	0.50	11.99	0.680	30	-0.3857
14	0.58	11.93	0.620	35	-0.4780
15	0.66	11.87	0.560	40	-0.5798
16	0.75	11.82	0.510	45	-0.6733
17	0.83	11.77	0.460	50	-0.7765
18	0.91	11.72	0.410	55	-0.8916
19	1.00	11.69	0.380	60	-0.9676
20	1.08	11.65	0.340	65	-1.0788
21	1.16	11.62	0.310	70	-1.1712
22	1.28	11.59	0.280	77	-1.2730
23	1.33	11.56	0.250	80	-1.3863
24	1.41	11.53	0.220	85	-1.5141
25	1.50	11.51	0.200	90	-1.6094
26	1.58	11.49	0.180	95	-1.7148
27	1.66	11.48	0.170	100	-1.7720
28	1.75	11.46	0.150	105	-1.8971
29	1.83	11.44	0.130	110	-2.0402
30	1.91	11.43	0.120	115	-2.1203
31	2.00	11.41	0.100	120	-2.3026
32	2.50	11.37	0.060	150	-2.8134
33	3.00	11.34	0.030	180	-3.5066
34	3.50	11.33	0.020	210	-3.9120
35	4.00	11.32	0.010	240	-4.6052

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL 85 - 2R (SLUG IN)
*ANALYST :OSTROWSKI CHECKED BY : KMJ
*DATE COLLECTED :8-21-90
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 2.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 1.07 Ft.
*STATIC WATER LEVEL: (SWL) = 11.31 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 27.24 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 50.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 0
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 24.00
---LOG OF L/(r sub w) = 1.3802
FOR PARTIALLY PENETRATING WELLS--
A = 2.23
B = 0.31
FOR FULLY PENETRATING WELLS--
C = 1.64

---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.1900
CONST.2 = 5.6099 =(MAX. OF 6.0)= 5.6099
LN(Re/(r sub w) = 2.81

EFFECTIVE r sub c (for sandpack dewatering) = 0.0833
(1/T)(LN(Yo/Yt)) (SLOPE) = -2.08E-02 sec^(-1)

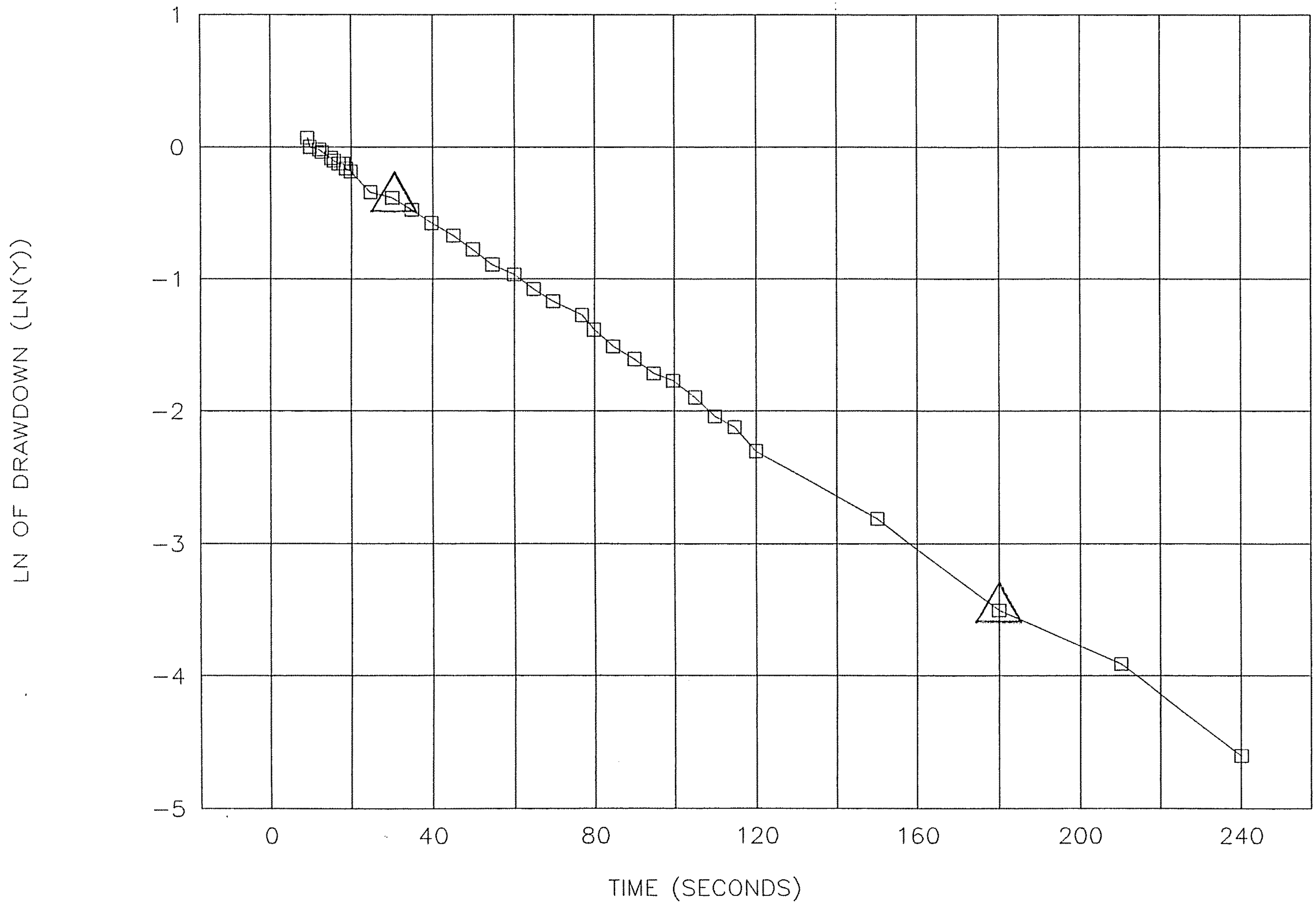
HYDRAULIC CONDUCTIVITY (K) = 1.01E-04 ft/sec <==================
3.09E-03 cm/sec <==================

Regression Output:

Constant	2.60E-01
Std Err of Y Est	0.0291
R Squared	0.9987
No. of Observations	21
Degrees of Freedom	19
X Coefficient(s)	-2.08E-02
Std Err of Coef.	0.0002

RATE OF RECOVERY TEST: WELL 85 — 2R

SLUG IN



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TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	-0.56	0.000	0	ERR
2	0.23	-0.13	0.430	14	-0.8440
3	0.25	-0.14	0.420	15	-0.8675
4	0.41	-0.15	0.410	25	-0.8916
5	1.50	-0.16	0.400	90	-0.9163
6	3.00	-0.17	0.390	180	-0.9416
7	4.50	-0.18	0.380	270	-0.9676
8	6.50	-0.19	0.370	390	-0.9943
9	9.00	-0.20	0.360	540	-1.0217
10	16.00	-0.21	0.350	960	-1.0498

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL 85 - 5S (SLUG IN)
*ANALYST :OSTROWSKI CHECKED BY : HMS
*DATE COLLECTED :8-22-90
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 2.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 0.43 Ft.
*STATIC WATER LEVEL: (SWL) = -0.56 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 5.00 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 10.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 0
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 24.00
---LOG OF L/(r sub w) = 1.3802
FOR PARTIALLY PENETRATING WELLS--
A = 2.23
B = 0.31
FOR FULLY PENETRATING WELLS--
C = 1.64

---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.2687
CONST.2 = 4.0943 =(MAX. OF 6.0)= 4.0943
LN(Re/(r sub w) = 2.41

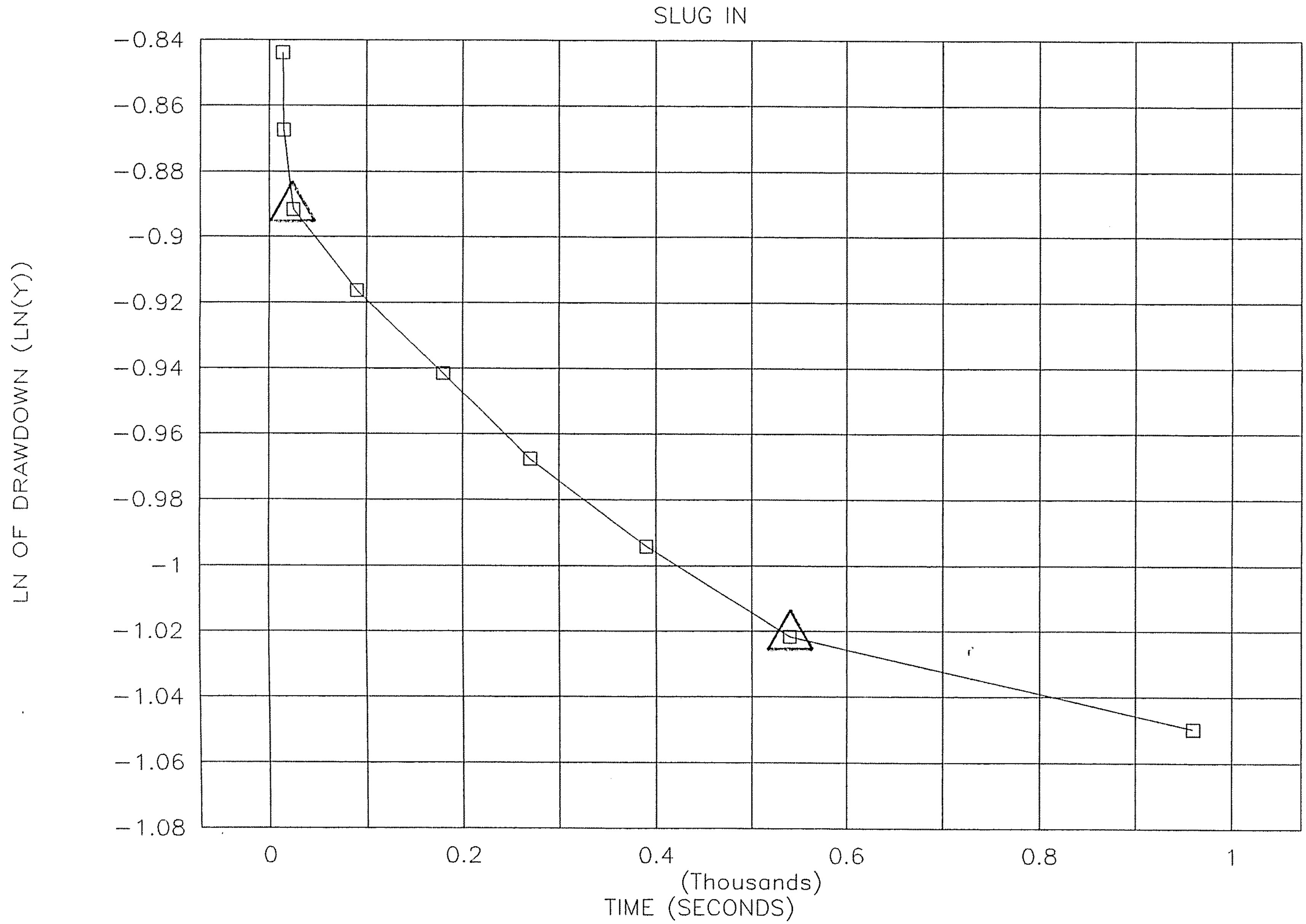
EFFECTIVE r sub c (for sandpack dewatering) = 0.0833
(1/T)(LN(Yo/Yt)) (SLOPE) = -2.51E-04 sec^(-1)

HYDRAULIC CONDUCTIVITY (K) = 1.05E-06 ft/sec <==================
3.20E-05 cm/sec <==================

Regression Output:

Constant	-8.93E-01
Std Err of Y Est	0.0066
R Squared	0.9852
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s)	-2.51E-04
Std Err of Coef.	0.0000

RATE OF RECOVERY TEST: WELL 85 – 5S



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#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	10.37	0.000	0	ERR
2	0.11	11.83	1.460	7	0.3784
3	0.13	11.66	1.290	8	0.2546
4	0.15	11.59	1.220	9	0.1989
5	0.16	11.57	1.200	10	0.1823
6	0.20	11.56	1.190	12	0.1740
7	0.21	11.55	1.180	13	0.1655
8	0.23	11.54	1.170	14	0.1570
9	0.26	11.53	1.170	16	0.1570
10	0.28	11.52	1.150	17	0.1398
11	0.30	11.51	1.140	18	0.1310
12	0.33	11.50	1.130	20	0.1222
13	0.41	11.47	1.100	25	0.0953
14	0.50	11.44	1.070	30	0.0677
15	0.58	11.41	1.040	35	0.0392
16	0.66	11.38	1.010	40	0.0100
17	0.75	11.35	0.980	45	-0.0202
18	0.83	11.32	0.950	50	-0.0513
19	0.91	11.29	0.920	55	-0.0834
20	1.00	11.27	0.900	60	-0.1054
21	1.08	11.25	0.880	65	-0.1278
22	1.16	11.22	0.850	70	-0.1625
23	1.25	11.20	0.830	75	-0.1863
24	1.33	11.17	0.800	80	-0.2231
25	1.41	11.15	0.780	85	-0.2485
26	1.50	11.13	0.760	90	-0.2744
27	1.58	11.11	0.740	95	-0.3011
28	1.66	11.09	0.720	100	-0.3285
29	1.75	11.06	0.690	105	-0.3711
30	1.83	11.05	0.680	110	-0.3857
31	1.91	11.03	0.660	115	-0.4155
32	2.00	11.01	0.640	120	-0.4463
33	2.50	10.90	0.530	150	-0.6349
34	3.00	10.81	0.440	180	-0.8210
35	3.50	10.73	0.360	210	-1.0217
36	4.00	10.66	0.290	240	-1.2379
37	4.50	10.59	0.220	270	-1.5141
38	5.00	10.53	0.160	300	-1.8326
39	5.50	10.48	0.110	330	-2.2073
40	6.00	10.44	0.070	360	-2.6593
41	6.50	10.40	0.030	390	-3.5066

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL 85 - 5R (SLUG IN)
*ANALYST :OSTROWSKI CHECKED BY : HMJ
*DATE COLLECTED :8-22-90
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 2.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 1.46 Ft.
*STATIC WATER LEVEL: (SWL) = 10.37 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 29.97 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 50.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 0
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 24.00
---LOG OF L/(r sub w) = 1.3802
FOR PARTIALLY PENETRATING WELLS--
A = 2.23
B = 0.31
FOR FULLY PENETRATING WELLS--
C = 1.64

---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.1869
CONST.2 = 5.4821 =(MAX. OF 6.0)= 5.4821
LN(Re/(r sub w) = 2.85

EFFECTIVE r sub c (for sandpack dewatering) = 0.0833
(1/T)(LN(Yo/Yt)) (SLOPE) = -6.46E-03 sec^(-1)

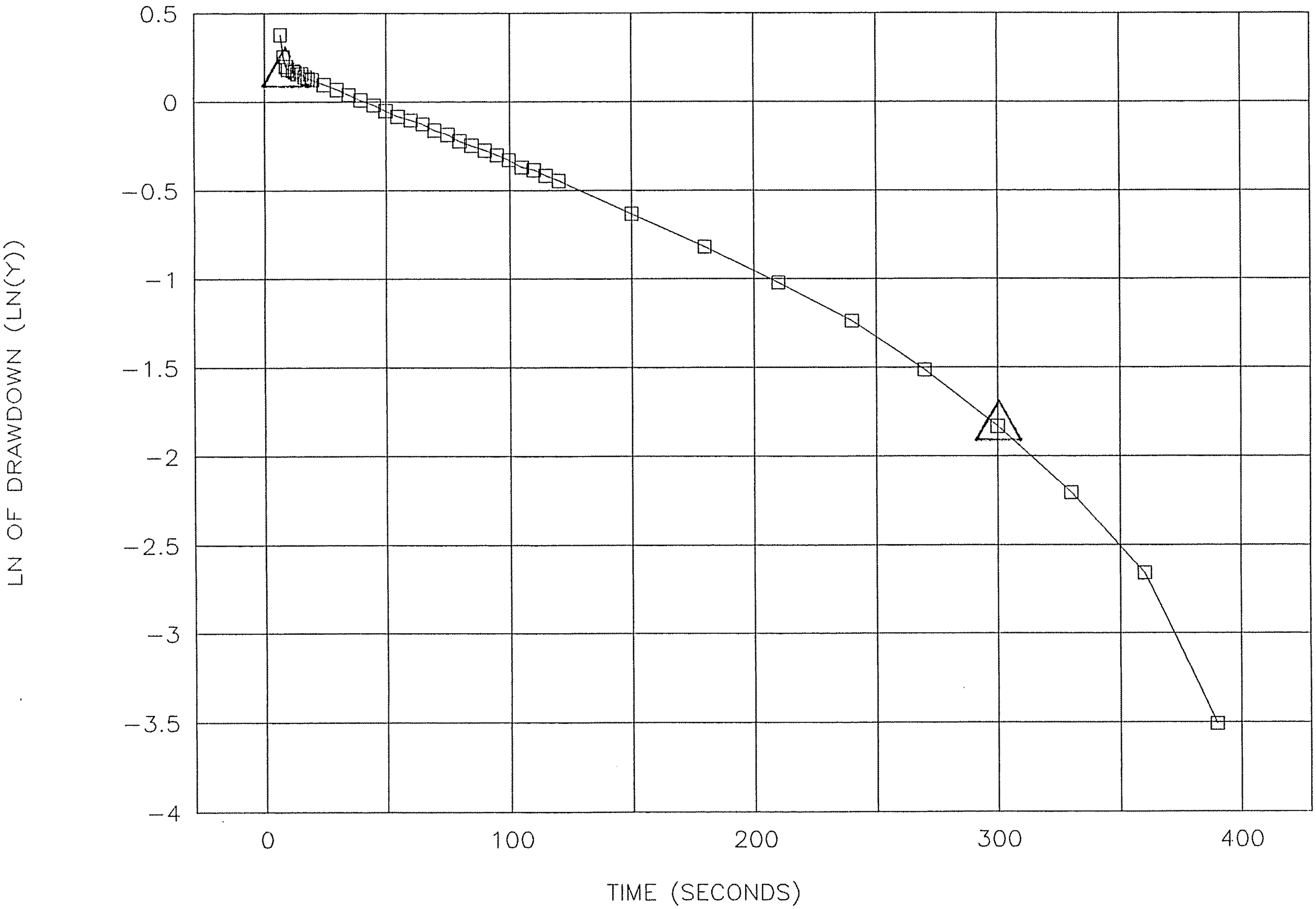
HYDRAULIC CONDUCTIVITY (K) =	3.20E-05 ft/sec	<==================
	9.75E-04 cm/sec	<==================

Regression Output:

Constant	2.80E-01
Std Err of Y Est	0.0451
R Squared	0.9920
No. of Observations	33
Degrees of Freedom	31
X Coefficient(s)	-6.46E-03
Std Err of Coef.	0.0001

RATE OF RECOVERY TEST: WELL 85 – 5R

SLUG IN



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PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	-2.87	0.000	0	ERR
2	0.26	-2.48	0.390	16	-0.9416
3	0.66	-2.57	0.300	40	-1.2040
4	1.91	-2.58	0.290	115	-1.2379
5	4.00	-2.59	0.280	240	-1.2730
6	6.50	-2.60	0.270	390	-1.3093
7	8.50	-2.61	0.260	510	-1.3471
8	10.00	-2.62	0.250	600	-1.3863
9	12.00	-2.63	0.250	720	-1.3863

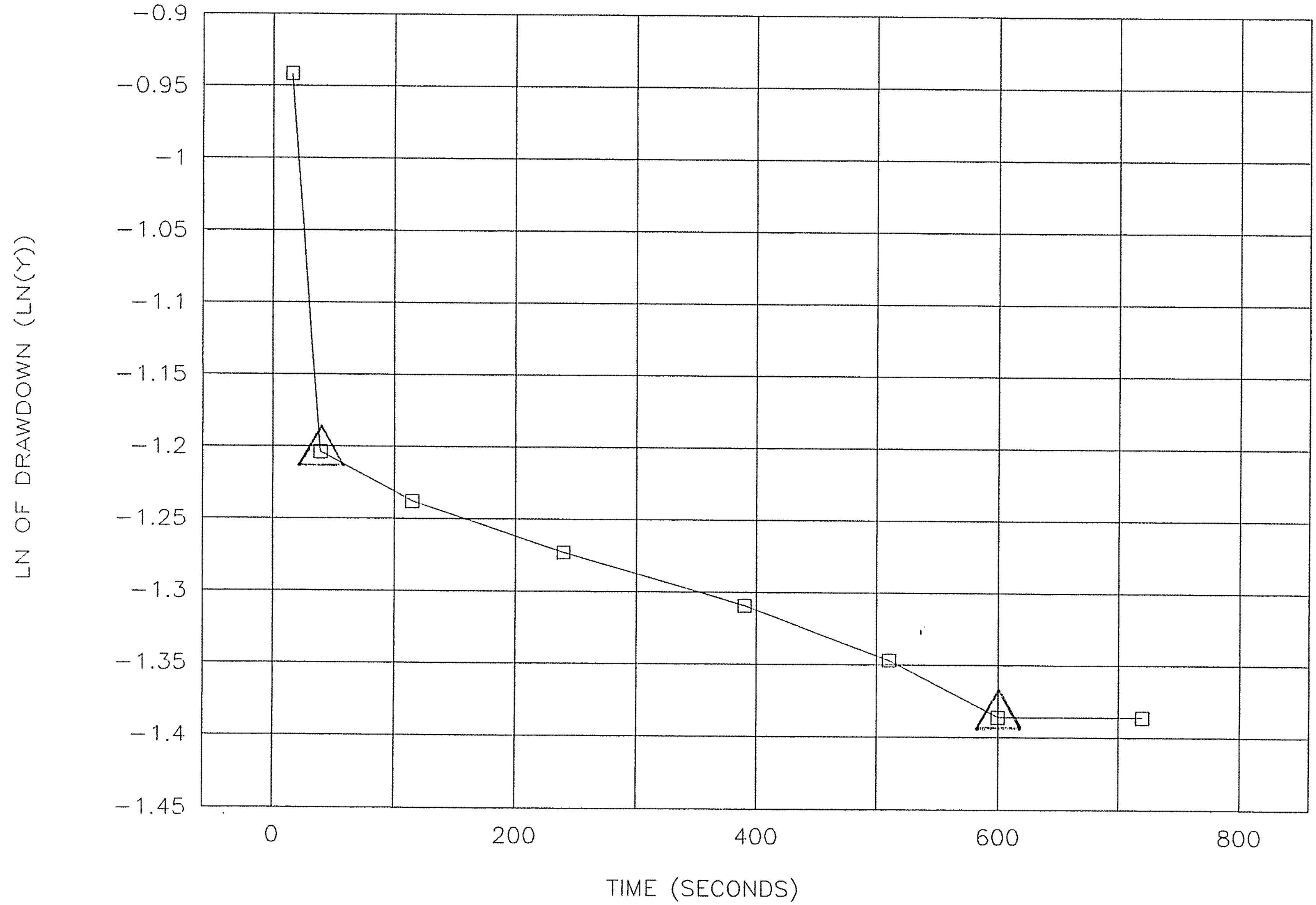
```
*PROJECT NAME        :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO          :35230
*WELL NO             :WELL 85 - 7S (SLUG IN)
*ANALYST             :OSTROWSKI          CHECKED BY : [illegible]
*DATE COLLECTED      :8-22-90
*RISER PIPE (ID):              (2 r sub c) =      2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) =          2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH:    (L)       =      2.00 Ft.
*MAX DRAWDOWN (IN SUBSET):   (Ymax)    =      0.39 Ft.
*STATIC WATER LEVEL:         (SWL)     =     -2.87 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM:  (H)  =         5.41 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM):  (D) =         10.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)?        0
*SANDPACK'S SPECIFIC YIELD (Sy) =          0.15
--------------------------------------------------------------------
 BOUWER AND RICE CURVE COEFFICIENTS:
   RATIO OF L/(r sub w) =                   24.00
     ---LOG OF L/(r sub w) =                1.3802
   FOR PARTIALLY PENETRATING WELLS--
              A =             2.23
              B =             0.31
   FOR FULLY PENETRATING WELLS--
              C =             1.64

     ---EVALUATION OF LN(Re/(r sub w)):
         CONST.1 =          0.2636
         CONST.2 =          4.0088  =(MAX. OF 6.0)=      4.0088
         LN(Re/(r sub w) =                2.45
--------------------------------------------------------------------
   EFFECTIVE r sub c (for sandpack dewatering) =      0.0833
   (1/T)(LN(Yo/Yt))  (SLOPE) =           -3.06E-04 sec^(-1)
 |-----------------------------------------------------|
 |HYDRAULIC CONDUCTIVITY    (K)   =      1.30E-06 ft/sec  |  <==================
 |                                       3.96E-05 cm/sec  |  <==================
 |-----------------------------------------------------|
                    Regression Output:
 Constant                                       -1.20E+00
 Std Err of Y Est                                  0.0067
 R Squared                                         0.9922
 No. of Observations                                    6
 Degrees of Freedom                                     4

 X Coefficient(s)                     -3.06E-04
 Std Err of Coef.                        0.0000
```

RATE OF RECOVERY TEST: WELL 85 – 7S

SLUG IN



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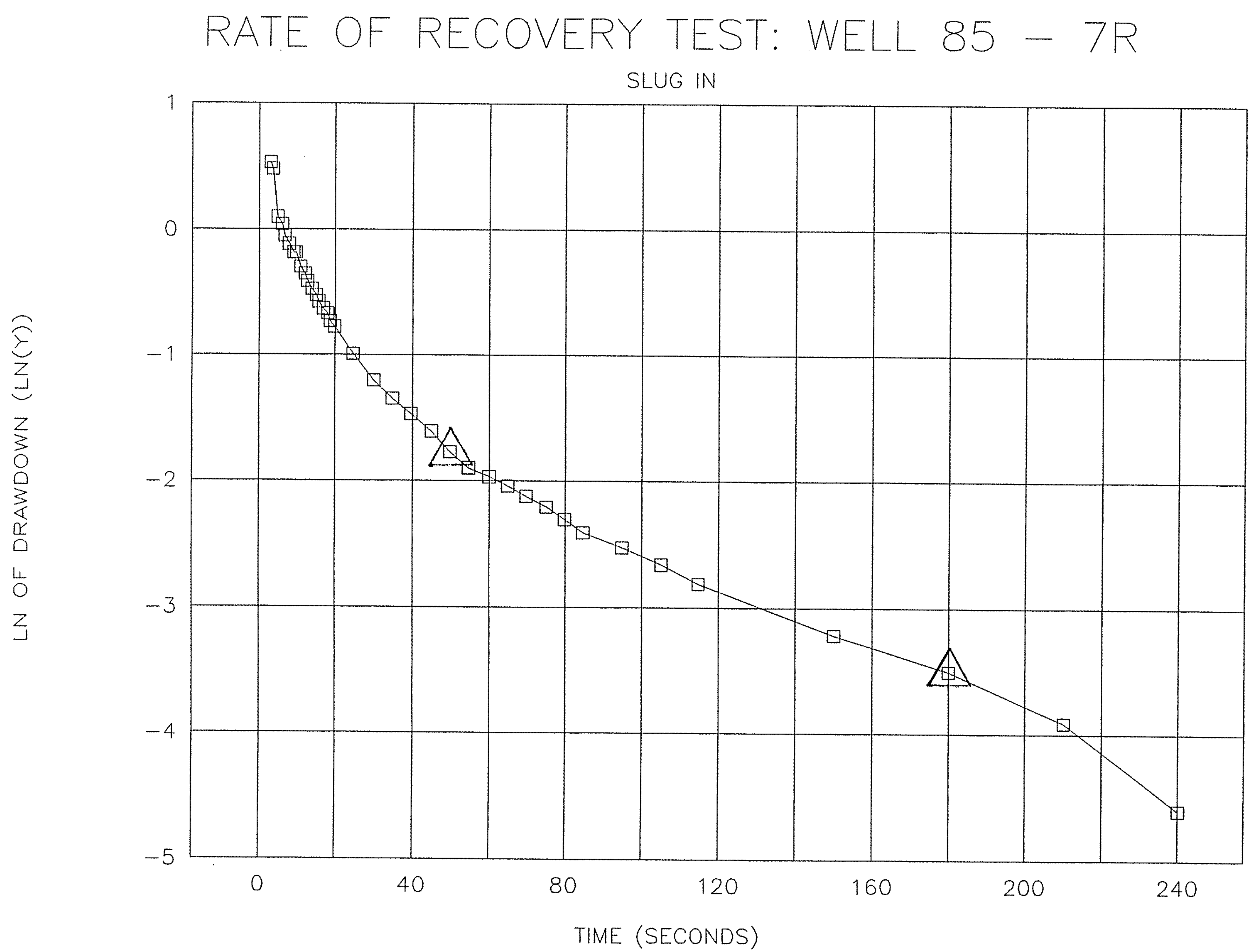
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	10.22	0.000	0	ERR
2	0.05	11.92	1.700	3	0.5306
3	0.06	11.83	1.610	4	0.4762
4	0.08	11.32	1.100	5	0.0953
5	0.10	11.26	1.040	6	0.0392
6	0.11	11.17	0.950	7	-0.0513
7	0.13	11.11	0.890	8	-0.1165
8	0.15	11.05	0.830	9	-0.1863
9	0.16	11.00	0.830	10	-0.1863
10	0.18	10.96	0.740	11	-0.3011
11	0.20	10.92	0.700	12	-0.3567
12	0.21	10.88	0.660	13	-0.4155
13	0.23	10.84	0.620	14	-0.4780
14	0.25	10.81	0.590	15	-0.5276
15	0.26	10.78	0.560	16	-0.5798
16	0.28	10.75	0.530	17	-0.6349
17	0.30	10.73	0.510	18	-0.6733
18	0.31	10.70	0.480	19	-0.7340
19	0.33	10.68	0.460	20	-0.7765
20	0.41	10.59	0.370	25	-0.9943
21	0.50	10.52	0.300	30	-1.2040
22	0.58	10.48	0.260	35	-1.3471
23	0.66	10.45	0.230	40	-1.4697
24	0.75	10.42	0.200	45	-1.6094
25	0.83	10.39	0.170	50	-1.7720
26	0.91	10.37	0.150	55	-1.8971
27	1.00	10.36	0.140	60	-1.9661
28	1.08	10.35	0.130	65	-2.0402
29	1.16	10.34	0.120	70	-2.1203
30	1.25	10.33	0.110	75	-2.2073
31	1.33	10.32	0.100	80	-2.3026
32	1.41	10.31	0.090	85	-2.4079
33	1.58	10.30	0.080	95	-2.5257
34	1.75	10.29	0.070	105	-2.6593
35	1.91	10.28	0.060	115	-2.8134
36	2.50	10.26	0.040	150	-3.2189
37	3.00	10.25	0.030	180	-3.5066
38	3.50	10.24	0.020	210	-3.9120
39	4.00	10.23	0.010	240	-4.6052

```
*PROJECT NAME       :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO         :35230
*WELL NO            :WELL 85 - 7R (SLUG IN)
*ANALYST            :OSTROWSKI           CHECKED BY : [illegible]
*DATE COLLECTED     :8-22-90
*RISER PIPE (ID):             (2 r sub c) =      2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) =      2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH:     (L)         =      2.00 Ft.
*MAX DRAWDOWN (IN SUBSET):    (Ymax)      =      1.70 Ft.
*STATIC WATER LEVEL:          (SWL)       =     10.22 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM:  (H)  =        24.98 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM):  (D) =           50.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)?          0
*SANDPACK'S SPECIFIC YIELD (Sy) =               0.15
-----------------------------------------------------------------------
 BOUWER AND RICE CURVE COEFFICIENTS:
   RATIO OF L/(r sub w) =                         24.00
     ---LOG OF L/(r sub w) =                     1.3802
   FOR PARTIALLY PENETRATING WELLS--
                A =                2.23
                B =                0.31
   FOR FULLY PENETRATING WELLS--
                C =                1.64

     ---EVALUATION OF LN(Re/(r sub w)):
          CONST.1 =              0.1929
          CONST.2 =              5.7046  =(MAX. OF 6.0)=       5.7046
          LN(Re/(r sub w) =                2.78
-----------------------------------------------------------------------
   EFFECTIVE r sub c (for sandpack dewatering) =      0.0833
   (1/T)(LN(Yo/Yt))  (SLOPE) =            -1.34E-02 sec^(-1)
 |----------------------------------------------------|
 |HYDRAULIC CONDUCTIVITY     (K)   =      6.48E-05 ft/sec  |  <==================
 |                                        1.97E-03 cm/sec  |  <==================
 |----------------------------------------------------|
                      Regression Output:
 Constant                                          -1.20E+00
 Std Err of Y Est                                     0.0620
 R Squared                                            0.9869
 No. of Observations                                      13
 Degrees of Freedom                                       11

 X Coefficient(s)                       -1.34E-02
 Std Err of Coef.                          0.0005
-----------------------------------------------------------------------
```


RATE OF RECOVERY TEST: WELL 85 – 7R
SLUG IN
1
0
–1
–2
–3
–4
–5
LN OF DRAWDOWN (LN(Y))
0
40
80
120
160
200
240
TIME (SECONDS)

BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	7.99	0.000	0	ERR
2	0.23	8.95	0.960	14	-0.0408
3	0.25	8.94	0.950	15	-0.0513
4	0.26	8.92	0.930	16	-0.0726
5	0.28	8.91	0.920	17	-0.0834
6	0.30	8.90	0.910	18	-0.0943
7	0.31	8.89	0.900	19	-0.1054
8	0.33	8.88	0.890	20	-0.1165
9	0.41	8.84	0.850	25	-0.1625
10	0.50	8.79	0.800	30	-0.2231
11	0.66	8.71	0.720	40	-0.3285
12	0.75	8.66	0.670	45	-0.4005
13	0.83	8.63	0.640	50	-0.4463
14	0.91	8.59	0.600	55	-0.5108
15	1.00	8.56	0.570	60	-0.5621
16	1.08	8.52	0.530	65	-0.6349
17	1.16	8.49	0.500	70	-0.6931
18	1.25	8.46	0.470	75	-0.7550
19	1.37	8.43	0.440	82	-0.8210
20	1.41	8.40	0.410	85	-0.8916
21	1.50	8.37	0.380	90	-0.9676
22	1.58	8.35	0.360	95	-1.0217
23	1.66	8.32	0.330	100	-1.1087
24	1.75	8.30	0.310	105	-1.1712
25	1.83	8.28	0.290	110	-1.2379
26	1.91	8.26	0.270	115	-1.3093
27	2.00	8.24	0.250	120	-1.3863
28	2.50	8.15	0.160	150	-1.8326
29	3.00	8.09	0.100	180	-2.3026
30	3.50	8.05	0.060	210	-2.8134
31	4.00	8.03	0.040	240	-3.2189
32	4.50	8.01	0.020	270	-3.9120
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					

```
*PROJECT NAME       :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO         :35230
*WELL NO            :WELL URS - 2D (SLUG IN)
*ANALYST            :OSTROWSKI              CHECKED BY : NMJ
*DATE COLLECTED     :8-21-90
*RISER PIPE (ID):            (2 r sub c) =      2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) =      2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH:   (L)        =      5.00 Ft.
*MAX DRAWDOWN (IN SUBSET):  (Ymax)     =      0.96 Ft.
*STATIC WATER LEVEL:        (SWL)      =      7.99 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM:  (H)  =        39.64 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM):  (D) =            50.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)?           0
*SANDPACK'S SPECIFIC YIELD (Sy) =              0.15
---------------------------------------------------------------------------------
 BOUWER AND RICE CURVE COEFFICIENTS:
   RATIO OF L/(r sub w) =                       60.00
     ---LOG OF L/(r sub w) =                   1.7782
   FOR PARTIALLY PENETRATING WELLS--
                  A =                3.38
                  B =                0.50
   FOR FULLY PENETRATING WELLS--
                  C =                3.01

     ---EVALUATION OF LN(Re/(r sub w)):
          CONST.1 =                0.1784
          CONST.2 =                4.8229  =(MAX. OF 6.0)=       4.8229
          LN(Re/(r sub w) =                     3.63
---------------------------------------------------------------------------------
   EFFECTIVE r sub c (for sandpack dewatering) =      0.0833
   (1/T)(LN(Yo/Yt))  (SLOPE) =              -1.44E-02 sec^(-1)
 |-----------------------------------------------------|
 |HYDRAULIC CONDUCTIVITY     (K)   =       3.64E-05 ft/sec   |  <==================
 |                                         1.11E-03 cm/sec   |  <==================
 |-----------------------------------------------------|
                      Regression Output:
 Constant                                          3.09E-01
 Std Err of Y Est                                    0.0415
 R Squared                                           0.9960
 No. of Observations                                     20
 Degrees of Freedom                                      18

 X Coefficient(s)                         -1.44E-02
 Std Err of Coef.                            0.0002
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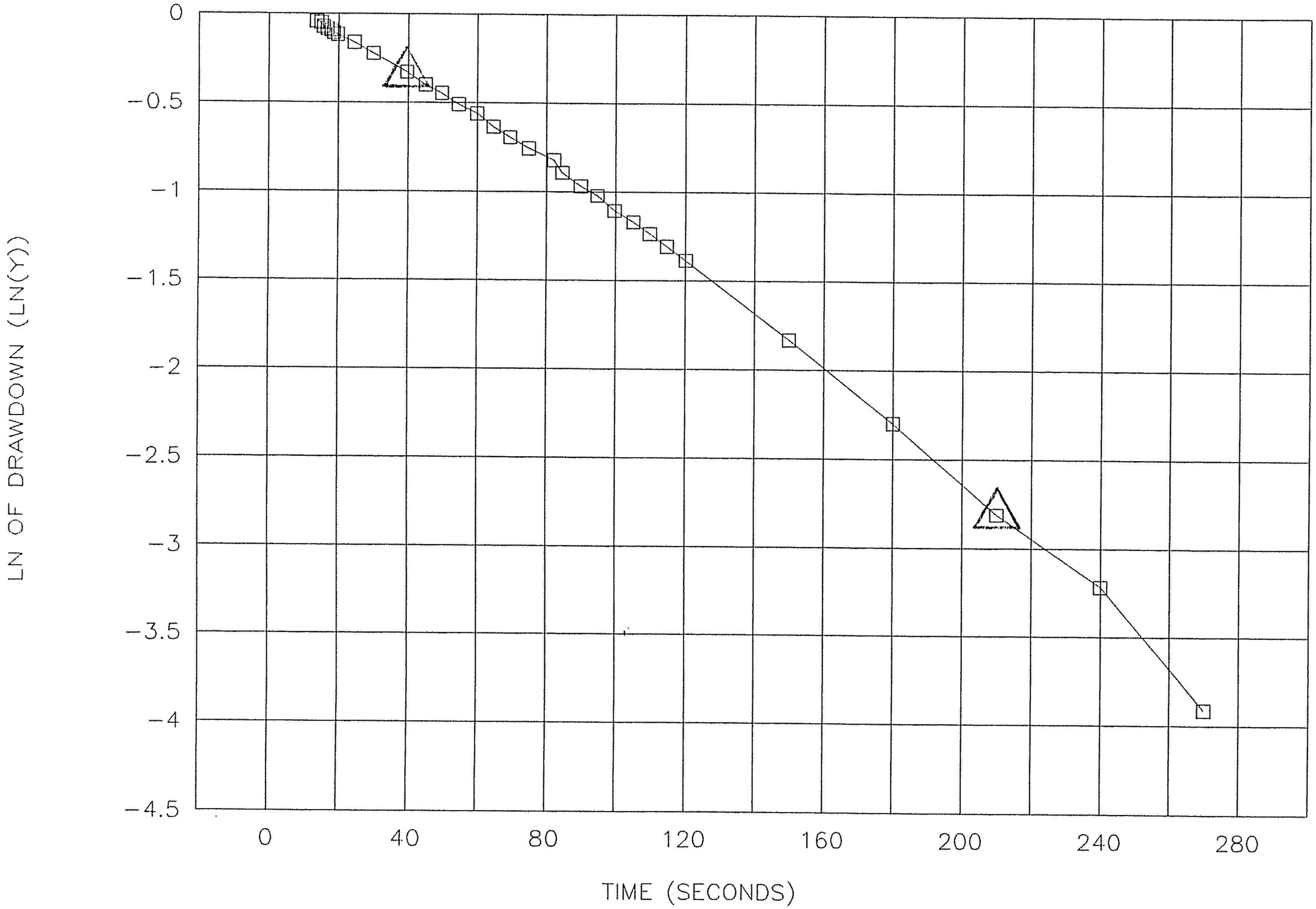
RATE OF RECOVERY TEST: WELL URS – 2D

SLUG IN



BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	0.38	0.000	0	ERR
2	0.11	1.38	1.000	7	-0.0000
3	0.13	1.35	0.970	8	-0.0305
4	0.15	1.34	0.960	9	-0.0408
5	0.21	1.33	0.950	13	-0.0513
6	0.33	1.32	0.940	20	-0.0619
7	0.50	1.31	0.930	30	-0.0726
8	0.58	1.30	0.920	35	-0.0834
9	0.66	1.29	0.920	40	-0.0834
10	0.83	1.28	0.900	50	-0.1054
11	0.91	1.27	0.890	55	-0.1165
12	1.00	1.26	0.880	60	-0.1278
13	1.16	1.25	0.870	70	-0.1393
14	1.25	1.24	0.860	75	-0.1508
15	1.33	1.23	0.850	80	-0.1625
16	1.50	1.22	0.840	90	-0.1744
17	1.58	1.21	0.830	95	-0.1863
18	1.63	1.20	0.820	98	-0.1985
19	1.83	1.19	0.810	110	-0.2107
20	2.00	1.18	0.800	120	-0.2231
21	2.50	1.14	0.760	150	-0.2744
22	3.00	1.10	0.720	180	-0.3285
23	3.50	1.06	0.680	210	-0.3857
24	4.00	1.03	0.650	240	-0.4308
25	4.50	0.99	0.610	270	-0.4943
26	5.00	0.96	0.580	300	-0.5447
27	5.50	0.93	0.550	330	-0.5978
28	6.00	0.89	0.510	360	-0.6733
29	6.50	0.87	0.490	390	-0.7133
30	7.00	0.83	0.450	420	-0.7985
31	7.50	0.81	0.430	450	-0.8440
32	8.00	0.78	0.400	480	-0.9163
33	8.50	0.75	0.370	510	-0.9943
34	9.00	0.73	0.350	540	-1.0498
35	9.50	0.71	0.330	570	-1.1087
36	10.00	0.68	0.300	600	-1.2040
37	12.00	0.60	0.220	720	-1.5141
38	14.00	0.53	0.150	840	-1.8971
39	16.00	0.48	0.100	960	-2.3026
40	18.00	0.43	0.050	1080	-2.9957
41	20.00	0.39	0.010	1200	-4.6052

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL URS - 5D (SLUG IN)
*ANALYST :OSTROWSKI CHECKED BY : RJMJ
*DATE COLLECTED :8-17-90
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 5.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 1.00 Ft.
*STATIC WATER LEVEL: (SWL) = 0.38 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 43.60 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 50.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 0
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 60.00
---LOG OF L/(r sub w) = 1.7782
FOR PARTIALLY PENETRATING WELLS--
A = 3.38
B = 0.50
FOR FULLY PENETRATING WELLS--
C = 3.01

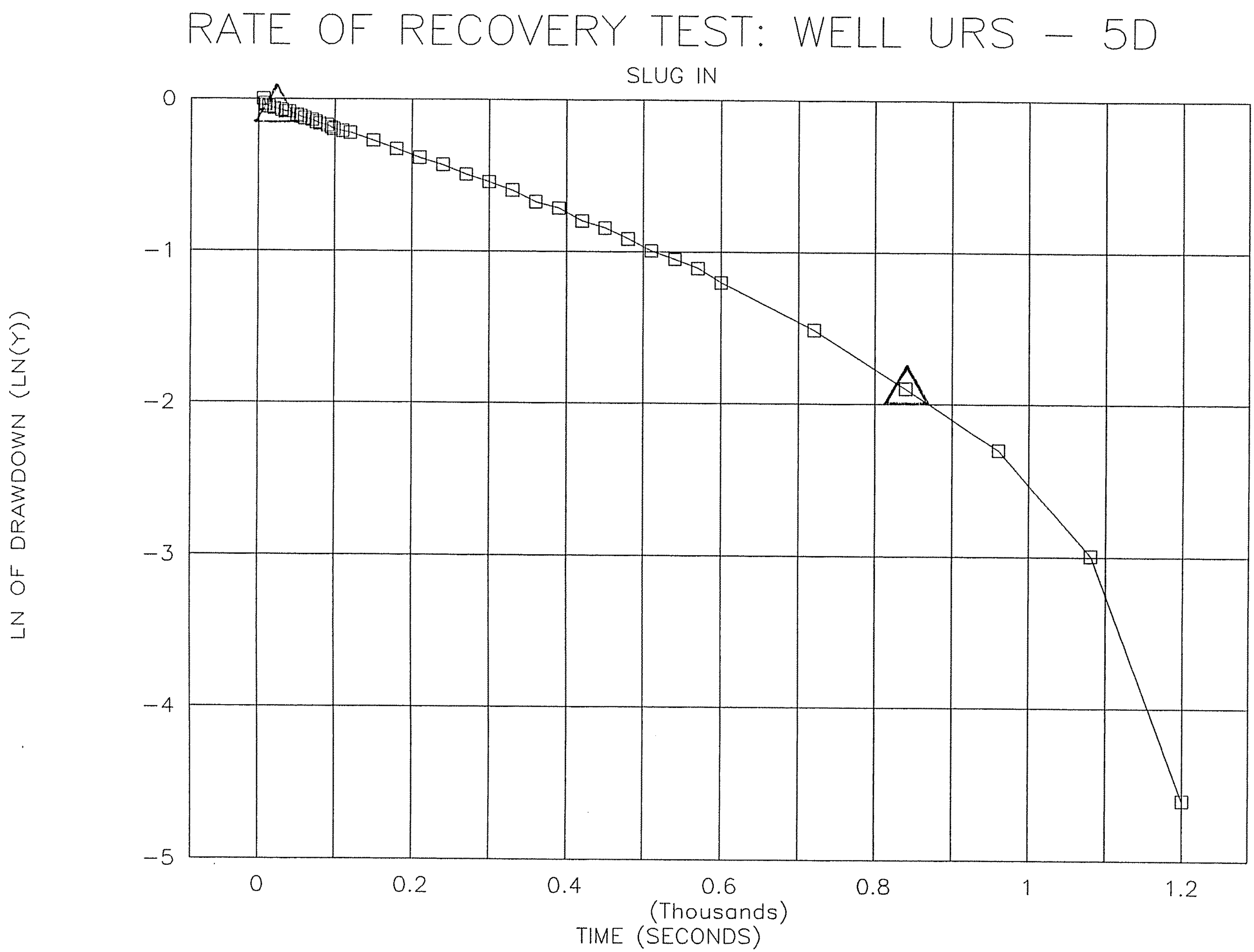
---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.1757
CONST.2 = 4.3412 =(MAX. OF 6.0)= 4.3412
LN(Re/(r sub w) = 3.72

EFFECTIVE r sub c (for sandpack dewatering) = 0.0833
(1/T)(LN(Yo/Yt)) (SLOPE) = -2.07E-03 sec^(-1)

HYDRAULIC CONDUCTIVITY (K) = 5.36E-06 ft/sec <==================
1.63E-04 cm/sec <==================

Regression Output:

Constant	3.22E-02
Std Err of Y Est	0.0506
R Squared	0.9886
No. of Observations	30
Degrees of Freedom	28
X Coefficient(s)	-2.07E-03
Std Err of Coef.	0.0000


RATE OF RECOVERY TEST: WELL URS – 5D
SLUG IN
0
–1
–2
–3
–4
–5
LN OF DRAWDOWN (LN(Y))
0
0.2
0.4
0.6
0.8
1
1.2
(Thousands)
TIME (SECONDS)

BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME sec (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	11.47	0.000	0	ERR
2	0.28	12.40	0.930	17	-0.0726
3	0.30	12.38	0.910	18	-0.0943
4	0.33	12.37	0.900	20	-0.1054
5	0.41	12.35	0.880	25	-0.1278
6	0.50	12.33	0.860	30	-0.1508
7	0.59	12.32	0.850	35	-0.1625
8	0.66	12.30	0.830	40	-0.1863
9	0.75	12.28	0.810	45	-0.2107
10	0.83	12.26	0.790	50	-0.2357
11	0.91	12.24	0.770	55	-0.2614
12	1.00	12.22	0.750	60	-0.2877
13	1.08	12.18	0.710	65	-0.3425
14	1.16	12.17	0.700	70	-0.3567
15	1.25	12.16	0.690	75	-0.3711
16	1.33	12.14	0.670	80	-0.4005
17	1.41	12.13	0.660	85	-0.4155
18	1.50	12.11	0.640	90	-0.4463
19	1.58	12.09	0.620	95	-0.4780
20	1.66	12.08	0.610	100	-0.4943
21	1.75	12.07	0.600	105	-0.5108
22	1.83	12.05	0.580	110	-0.5447
23	1.91	12.04	0.570	115	-0.5621
24	2.00	12.02	0.550	120	-0.5978
25	2.50	11.95	0.480	150	-0.7340
26	3.00	11.88	0.410	180	-0.8916
27	3.50	11.83	0.360	210	-1.0217
28	4.00	11.78	0.310	240	-1.1712
29	4.50	11.74	0.270	270	-1.3093
30	5.00	11.70	0.230	300	-1.4697
31	5.50	11.66	0.190	330	-1.6607
32	6.00	11.64	0.170	360	-1.7720
33	6.50	11.61	0.140	390	-1.9661
34	7.00	11.59	0.120	420	-2.1203
35	7.50	11.57	0.100	450	-2.3026
36	8.00	11.55	0.080	480	-2.5257
37	8.50	11.53	0.060	510	-2.8134
38	9.00	11.52	0.050	540	-2.9957
39	9.50	11.50	0.030	570	-3.5066
40	10.00	11.49	0.020	600	-3.9120

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL URS - 7D (SLUG IN)
*ANALYST :OSTROWSKI CHECKED BY : JmT
*DATE COLLECTED :8-22-90
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 5.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 0.93 Ft.
*STATIC WATER LEVEL: (SWL) = 11.47 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 35.52 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 50.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 0
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 60.00
---LOG OF L/(r sub w) = 1.7782
FOR PARTIALLY PENETRATING WELLS--
A = 3.38
B = 0.50
FOR FULLY PENETRATING WELLS--
C = 3.01

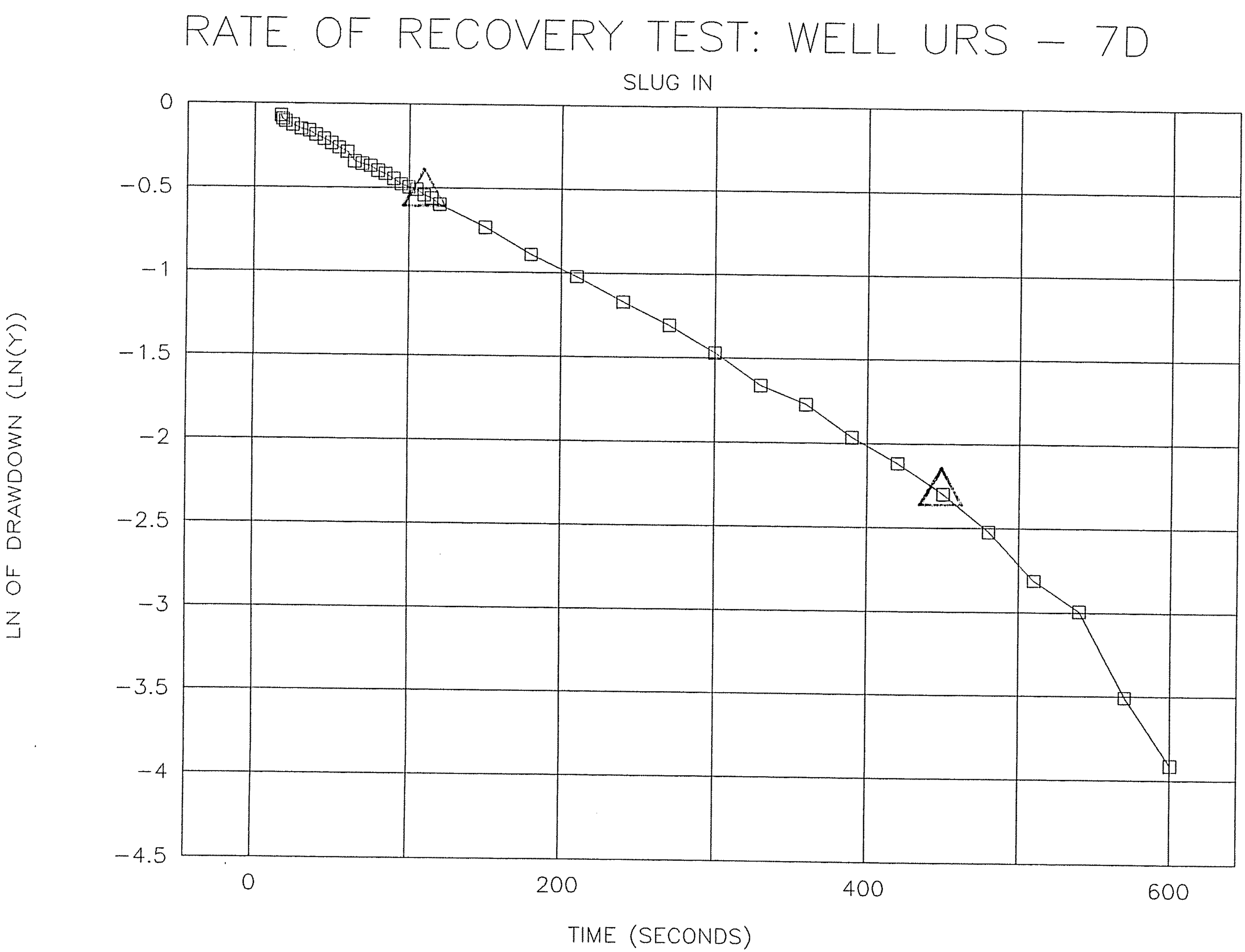
---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.1817
CONST.2 = 5.1577 =(MAX. OF 6.0)= 5.1577
LN(Re/(r sub w) = 3.56

EFFECTIVE r sub c (for sandpack dewatering) = 0.0833
(1/T)(LN(Yo/Yt)) (SLOPE) = -5.10E-03 sec^(-1)

HYDRAULIC CONDUCTIVITY (K) = 1.26E-05 ft/sec <==================
3.84E-04 cm/sec <==================

Regression Output:

Constant	3.40E-02
Std Err of Y Est	0.0231
R Squared	0.9986
No. of Observations	14
Degrees of Freedom	12
X Coefficient(s)	-5.10E-03
Std Err of Coef.	0.0001


RATE OF RECOVERY TEST: WELL URS – 7D
SLUG IN
LN OF DRAWDOWN (LN(Y))
TIME (SECONDS)
0
–0.5
–1
–1.5
–2
–2.5
–3
–3.5
–4
–4.5
0
200
400
600

HVORSLEV METHOD FOR INTERPRETATION OF SLUG TESTS (ASSUMES ISOTROPIC CONDITIONS)
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	TIME min (X)	DEPTH TO WATER Ft.	DELT DEPTH (H-h)	H-h/H-Ho RATIO	LOG (Y)	TIME min (ADJUSTED)
1	0.000	11.47	0.000	0.00	ERR	0.00
2	0.280	12.40	0.930	1.00	-0.0000	0.28
3	0.300	12.38	0.910	0.98	-0.0094	0.30
4	0.330	12.37	0.900	0.97	-0.0142	0.33
5	0.410	12.35	0.880	0.95	-0.0240	0.41
6	0.500	12.33	0.860	0.92	-0.0340	0.50
7	0.580	12.32	0.850	0.91	-0.0391	0.58
8	0.660	12.30	0.830	0.89	-0.0494	0.66
9	0.750	12.28	0.810	0.87	-0.0600	0.75
10	0.830	12.26	0.790	0.85	-0.0709	0.83
11	0.910	12.24	0.770	0.83	-0.0820	0.91
12	1.000	12.22	0.750	0.81	-0.0934	1.00
13	1.080	12.18	0.710	0.76	-0.1172	1.08
14	1.160	12.17	0.700	0.75	-0.1234	1.16
15	1.250	12.16	0.690	0.74	-0.1296	1.25
16	1.330	12.14	0.670	0.72	-0.1424	1.33
17	1.410	12.13	0.660	0.71	-0.1489	1.41
18	1.500	12.11	0.640	0.69	-0.1623	1.50
19	1.580	12.09	0.620	0.67	-0.1761	1.58
20	1.660	12.08	0.610	0.66	-0.1832	1.66
21	1.750	12.07	0.600	0.65	-0.1903	1.75
22	1.830	12.05	0.580	0.62	-0.2051	1.83
23	1.910	12.04	0.570	0.61	-0.2126	1.91
24	2.000	12.02	0.550	0.59	-0.2281	2.00
25	2.500	11.95	0.480	0.52	-0.2872	2.50
26	3.000	11.88	0.410	0.44	-0.3557	3.00
27	3.500	11.83	0.360	0.39	-0.4122	3.50
28	4.000	11.78	0.310	0.33	-0.4771	4.00
29	4.500	11.74	0.270	0.29	-0.5371	4.50
30	5.000	11.70	0.230	0.25	-0.6068	5.00
31	5.500	11.66	0.190	0.20	-0.6897	5.50
32	6.000	11.64	0.170	0.18	-0.7380	6.00
33	6.500	11.61	0.140	0.15	-0.8224	6.50
34	7.000	11.59	0.120	0.13	-0.8893	7.00
35	7.500	11.57	0.100	0.11	-0.9685	7.50
36	8.000	11.55	0.080	0.09	-1.0654	8.00
37	8.500	11.53	0.060	0.06	-1.1903	8.50
38	9.000	11.52	0.050	0.05	-1.2695	9.00
39	9.500	11.50	0.030	0.03	-1.4914	9.50
40	10.000	11.49	0.020	0.02	-1.6675	10.00
41	12.000	11.46	0.010	0.01	-1.9685	12.00

PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
PROJECT NO :35230
WELL NO :URS-7D (SLUG IN)
ANALYST :OSTROWSKI CHECKED BY : RJ/JT
DATE COLLECTED :8-22-90
RISER PIPE (ID): (d) = 2.0 in.
EFFECTIVE SCREEN DIAMETER: (D) = 2.0 in.
EFFECTIVE SCREEN LENGTH: (L) = 5.00 Ft.
MAX DRAWDOWN (IN SUBSET): (H-Ho)= 0.93 Ft.
STATIC WATER LEVEL : (H) = 11.47 Ft.
INCLUDE SANDPACK DEWATERING? (1 IF YES, 0 IF NO) = 0.00
SPECIFIC YIELD OF SANDPACK = 0.15
ADJUSTED RISER PIPE ID (d) = 2.000 in.

BASIC TIME LAG: (To) = 3.53 min.
HYDRAULIC CONDUCTIVITY (K) = 4.09E-04 cm/sec

Regression Output:

Constant	3.77E-02
Std Err of Y Est	0.0112
R Squared	0.9987
No. of Observations	35
Degrees of Freedom	33
X Coefficient(s)	-1.33E-01
Std Err of Coef.	0.0008

LINEAR REGRESSION DATA RANGE: 1 TO 10

ALTERNATE TWO POINT METHOD OF COMPUTATION:
SEE NAVFAC Table 4-3 (Piezometer in Isotropic Soil for method's reference)

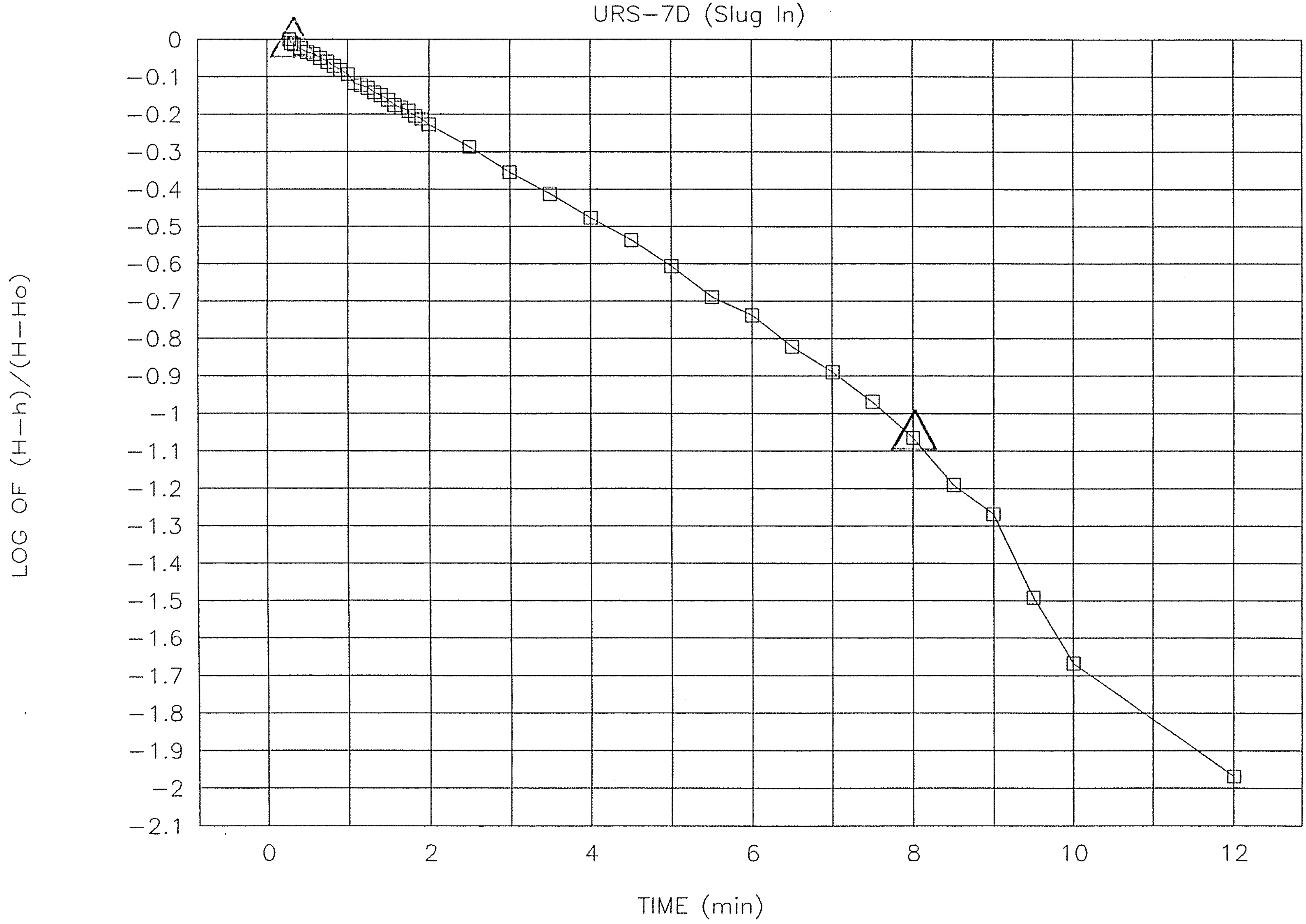
SELECT TWO POINTS FROM DATA AND INPUT VALUES FOR H AND t:
(H values are normalized heads and t is in minutes)

H1 = 0.59 t1 = 2.00 min
H2 = 0.09 t2 = 8.00 min

HYDRAULIC CONDUCTIVITY = 1.49E-05 ft/sec
= 4.53E-04 cm/sec

SLUG TEST ANALYSIS (HVORSLEV)

URS-7D (Slug In)



BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL URS - 7D (SLUG OUT)
*ANALYST :OSTROWSKI CHECKED BY : RMJ
*DATE COLLECTED :8-22-90
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 5.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 1.12 Ft.
*STATIC WATER LEVEL: (SWL) = 11.43 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 35.52 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 50.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 0
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 60.00
---LOG OF L/(r sub w) = 1.7782
FOR PARTIALLY PENETRATING WELLS--
A = 3.38
B = 0.50
FOR FULLY PENETRATING WELLS--
C = 3.01

---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.1817
CONST.2 = 5.1577 =(MAX. OF 6.0)= 5.1577
LN(Re/(r sub w) = 3.56

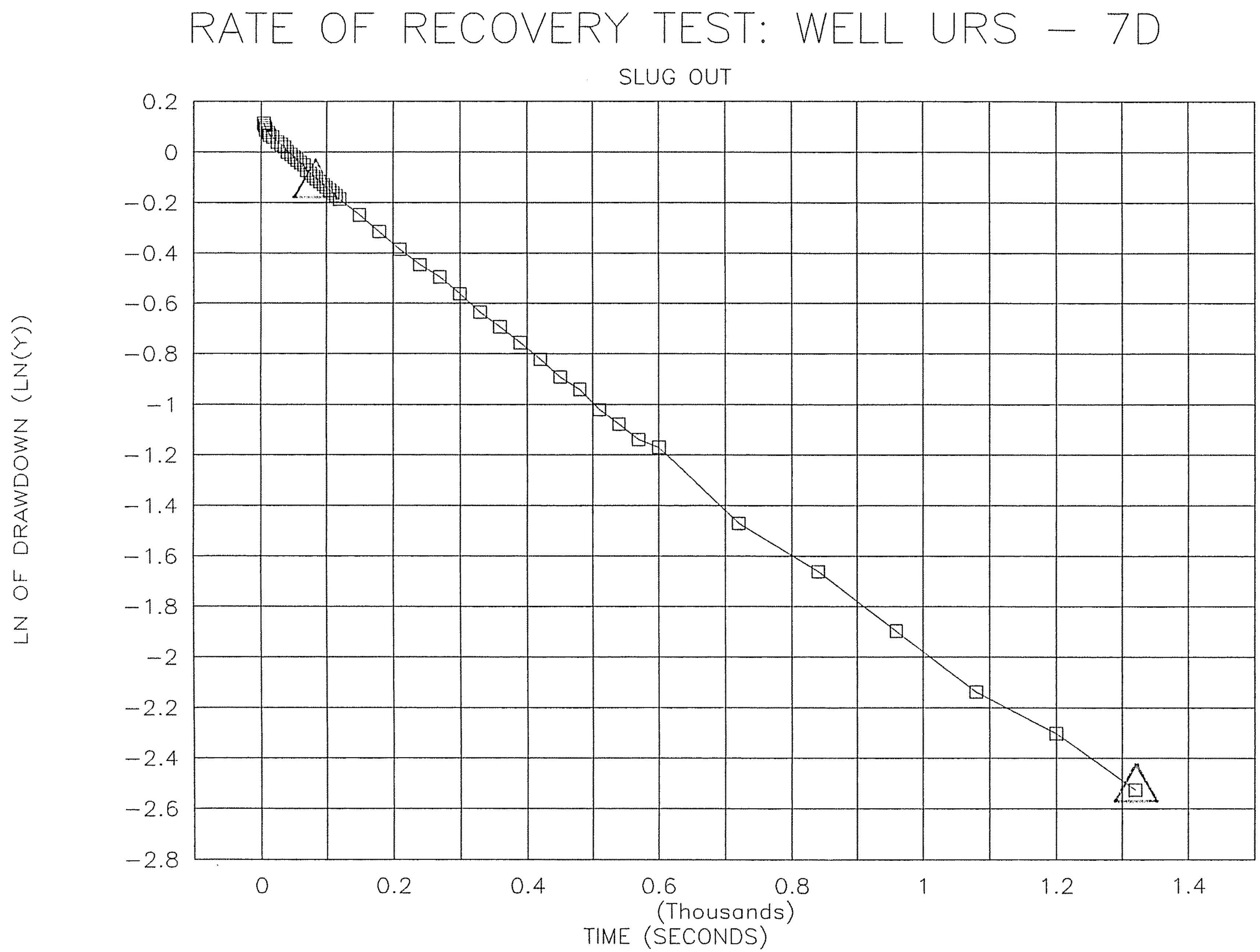
EFFECTIVE r sub c (for sandpack dewatering) = 0.0833
(1/T)(LN(Yo/Yt)) (SLOPE) = -2.01E-03 sec^(-1)

HYDRAULIC CONDUCTIVITY (K) = 4.96E-06 ft/sec <==================
1.51E-04 cm/sec <==================

Regression Output:

Constant	4.34E-02
Std Err of Y Est	0.0296
R Squared	0.9983
No. of Observations	33
Degrees of Freedom	31
X Coefficient(s)	-2.01E-03
Std Err of Coef.	0.0000

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	11.43	0.000	0	ERR
2	0.06	10.31	1.120	4	0.1133
3	0.08	10.32	1.110	5	0.1044
4	0.10	10.33	1.100	6	0.0953
5	0.11	10.34	1.090	7	0.0862
6	0.18	10.35	1.080	11	0.0770
7	0.21	10.36	1.070	13	0.0677
8	0.28	10.37	1.060	17	0.0583
9	0.41	10.39	1.040	25	0.0392
10	0.50	10.40	1.030	30	0.0296
11	0.58	10.41	1.020	35	0.0198
12	0.66	10.43	1.000	40	0.0000
13	0.75	10.44	0.990	45	-0.0101
14	0.83	10.45	0.980	50	-0.0202
15	0.91	10.46	0.970	55	-0.0305
16	1.00	10.47	0.960	60	-0.0408
17	1.08	10.48	0.950	65	-0.0513
18	1.16	10.50	0.930	70	-0.0726
19	1.25	10.51	0.920	75	-0.0834
20	1.33	10.52	0.910	80	-0.0943
21	1.41	10.53	0.900	85	-0.1054
22	1.50	10.54	0.890	90	-0.1165
23	1.58	10.55	0.880	95	-0.1278
24	1.66	10.56	0.870	100	-0.1393
25	1.75	10.57	0.860	105	-0.1508
26	1.83	10.58	0.850	110	-0.1625
27	1.91	10.59	0.840	115	-0.1744
28	2.00	10.60	0.830	120	-0.1863
29	2.50	10.65	0.780	150	-0.2485
30	3.00	10.70	0.730	180	-0.3147
31	3.50	10.75	0.680	210	-0.3857
32	4.00	10.79	0.640	240	-0.4463
33	4.50	10.82	0.610	270	-0.4943
34	5.00	10.86	0.570	300	-0.5621
35	5.50	10.90	0.530	330	-0.6349
36	6.00	10.93	0.500	360	-0.6931
37	6.50	10.96	0.470	390	-0.7550
38	7.00	10.99	0.440	420	-0.8210
39	7.50	11.02	0.410	450	-0.8916
40	8.00	11.04	0.390	480	-0.9416
41	8.50	11.07	0.360	510	-1.0217
42	9.00	11.09	0.340	540	-1.0788
43	9.50	11.11	0.320	570	-1.1394
44	10.00	11.12	0.310	600	-1.1712
45	12.00	11.20	0.230	720	-1.4697
46	14.00	11.24	0.190	840	-1.6607
47	16.00	11.28	0.150	960	-1.8971
48	18.00	11.31	0.118	1080	-2.1371
49	20.00	11.33	0.100	1200	-2.3026
50	22.00	11.35	0.080	1320	-2.5257


RATE OF RECOVERY TEST: WELL URS – 7D
SLUG OUT
LN OF DRAWDOWN (LN(Y))
0.2
0
–0.2
–0.4
–0.6
–0.8
–1
–1.2
–1.4
–1.6
–1.8
–2
–2.2
–2.4
–2.6
–2.8
0
0.2
0.4
0.6
0.8
1
1.2
1.4
(Thousands)
TIME (SECONDS)

BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	-6.10	0.000	0	ERR
2	0.02	-6.51	0.410	1	-0.8916
3	0.03	-6.49	0.390	2	-0.9416
4	0.05	-6.45	0.350	3	-1.0498
5	0.06	-6.43	0.330	4	-1.1087
6	0.08	-6.41	0.310	5	-1.1712
7	0.10	-6.39	0.290	6	-1.2379
8	0.11	-6.38	0.280	7	-1.2730
9	0.13	-6.36	0.280	8	-1.2730
10	0.15	-6.35	0.250	9	-1.3863
11	0.16	-6.34	0.240	10	-1.4271
12	0.18	-6.33	0.230	11	-1.4697
13	0.21	-6.32	0.220	13	-1.5141
14	0.23	-6.31	0.210	14	-1.5606
15	0.26	-6.30	0.200	16	-1.6094
16	0.31	-6.29	0.190	19	-1.6607
17	0.41	-6.28	0.180	25	-1.7148
18	0.91	-6.27	0.170	55	-1.7720
19	4.00	-6.26	0.160	240	-1.8326
20	12.00	-6.25	0.150	720	-1.8971
21	20.00	-6.24	0.140	1200	-1.9661
22	26.00	-6.22	0.120	1560	-2.1203
23	28.00	-6.20	0.100	1680	-2.3026
24	38.00	-6.19	0.090	2280	-2.4079
25	48.00	-6.18	0.080	2880	-2.5257
26	72.00	-6.17	0.070	4320	-2.6593

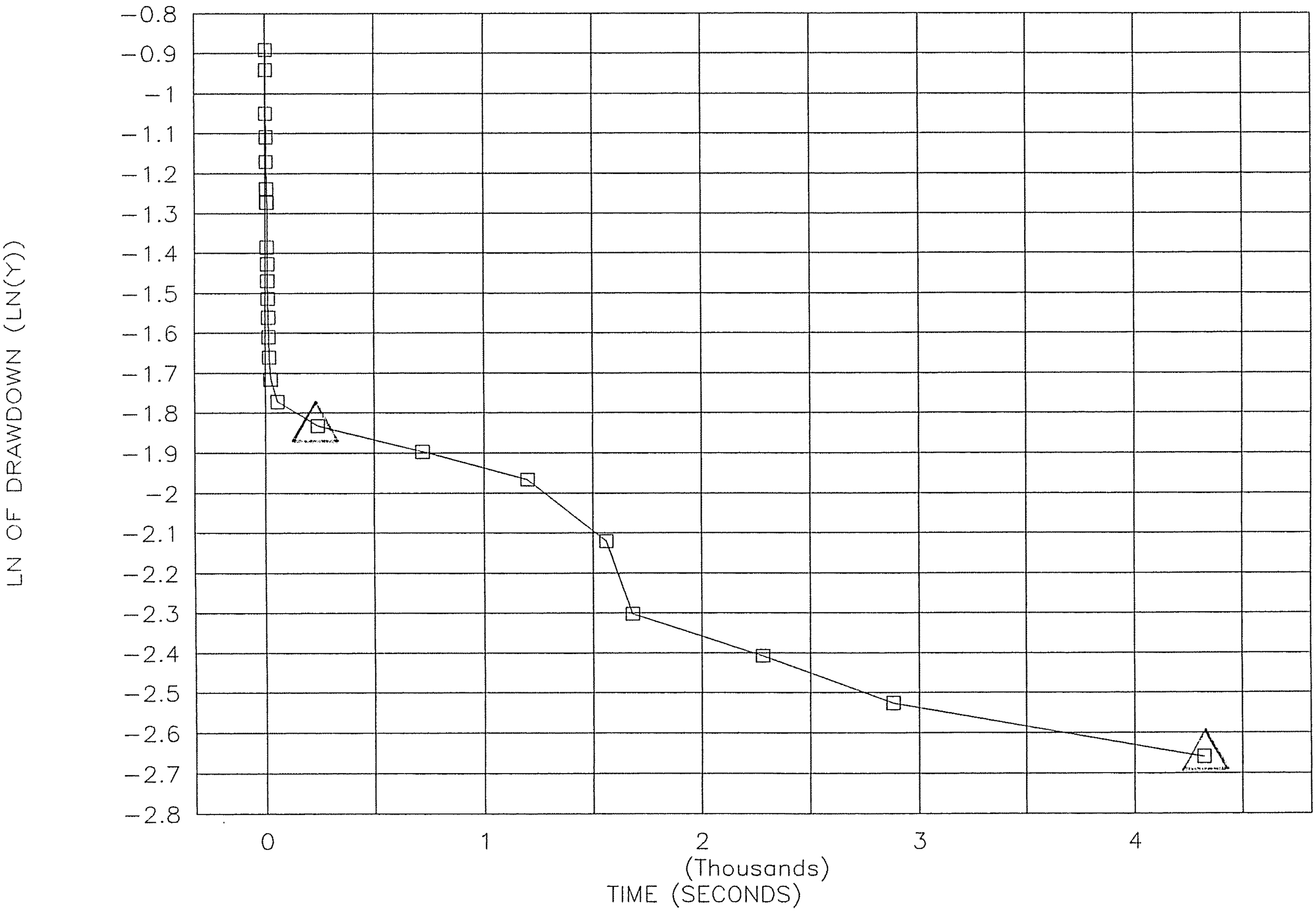
```
*PROJECT NAME      :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO        :35230
*WELL NO           :WELL URS - 8S (SLUG OUT)
*ANALYST           :OSTROWSKI          CHECKED BY : WMJ
*DATE COLLECTED    :8-16-90
*RISER PIPE (ID):              (2 r sub c) =      2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) =          9.5 in. =      0.3958 (radius in ft.)
*EFFECTIVE SCREEN LENGTH:    (L)       =         3.04 Ft.
*MAX DRAWDOWN (IN SUBSET):  (Ymax)     =         0.41 Ft.
*STATIC WATER LEVEL:         (SWL)     =        -6.10 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM:  (H)  =           3.04 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM):  (D) =         10.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)?         1
*SANDPACK'S SPECIFIC YIELD (Sy) =             0.15
---------------------------------------------------------------------------
 BOUWER AND RICE CURVE COEFFICIENTS:
   RATIO OF L/(r sub w) =                      7.68
     ---LOG OF L/(r sub w) =                 0.8854
   FOR PARTIALLY PENETRATING WELLS--
               A =              1.75
               B =              0.28
   FOR FULLY PENETRATING WELLS--
               C =              1.19

     ---EVALUATION OF LN(Re/(r sub w)):
          CONST.1 =           0.5396
          CONST.2 =           2.8669  =(MAX. OF 6.0)=       2.8669
          LN(Re/(r sub w) =             1.15
---------------------------------------------------------------------------
   EFFECTIVE r sub c (for sandpack dewatering) =       0.1715
   (1/T)(LN(Yo/Yt))  (SLOPE) =           -2.25E-04 sec^(-1)
 |---------------------------------------------------------|
 |HYDRAULIC CONDUCTIVITY     (K)   =        1.25E-06 ft/sec |   <==================
 |                                          3.81E-05 cm/sec |   <==================
 |---------------------------------------------------------|
                     Regression Output:
 Constant                                        -1.79E+00
 Std Err of Y Est                                   0.0996
 R Squared                                          0.9094
 No. of Observations                                     8
 Degrees of Freedom                                      6

 X Coefficient(s)                      -2.25E-04
 Std Err of Coef.                         0.0000
---------------------------------------------------------------------------
```

RATE OF RECOVERY TEST: WELL URS – 8S

SLUG OUT



BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	4.92	0.000	0	ERR
2	0.08	5.77	0.850	5	-0.1625
3	0.10	5.72	0.800	6	-0.2231
4	0.11	5.61	0.690	7	-0.3711
5	0.13	5.59	0.670	8	-0.4005
6	0.15	5.56	0.640	9	-0.4463
7	0.16	5.51	0.590	10	-0.5276
8	0.18	5.47	0.550	11	-0.5978
9	0.20	5.43	0.550	12	-0.5978
10	0.21	5.39	0.470	13	-0.7550
11	0.23	5.36	0.440	14	-0.8210
12	0.25	5.32	0.400	15	-0.9163
13	0.26	5.29	0.370	16	-0.9943
14	0.28	5.26	0.340	17	-1.0788
15	0.30	5.23	0.310	18	-1.1712
16	0.31	5.21	0.290	19	-1.2379
17	0.33	5.18	0.260	20	-1.3471
18	0.41	5.09	0.170	25	-1.7720
19	0.50	5.03	0.110	30	-2.2073
20	0.58	4.99	0.070	35	-2.6593
21	0.66	4.96	0.040	40	-3.2189
22	0.75	4.94	0.020	45	-3.9120
23	0.83	4.93	0.010	50	-4.6052

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL URS - 8I (SLUG IN)
*ANALYST :OSTROWSKI CHECKED BY : RMJ
*DATE COLLECTED :8-16-90
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 5.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 0.85 Ft.
*STATIC WATER LEVEL: (SWL) = 4.92 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 30.72 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 50.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 0
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 60.00
---LOG OF L/(r sub w) = 1.7782
FOR PARTIALLY PENETRATING WELLS--
A = 3.38
B = 0.50
FOR FULLY PENETRATING WELLS--
C = 3.01

---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.1861
CONST.2 = 5.4440 =(MAX. OF 6.0)= 5.4440
LN(Re/(r sub w) = 3.47

EFFECTIVE r sub c (for sandpack dewatering) = 0.0833
(1/T)(LN(Yo/Yt)) (SLOPE) = -8.70E-02 sec^(-1)

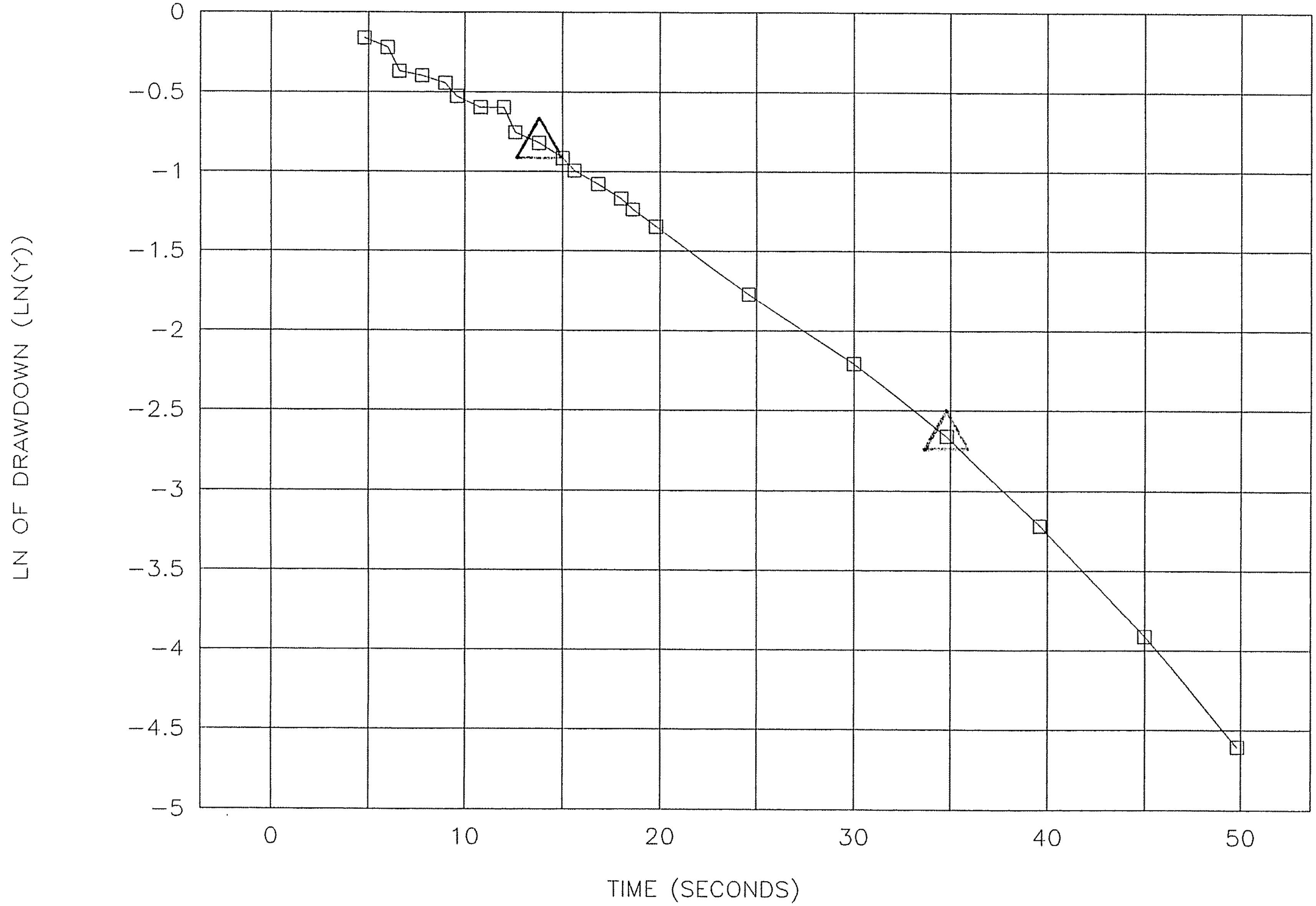
HYDRAULIC CONDUCTIVITY (K) = 2.10E-04 ft/sec <==================
6.39E-03 cm/sec <==================

Regression Output:

Constant	3.81E-01
Std Err of Y Est	0.0132
R Squared	0.9996
No. of Observations	10
Degrees of Freedom	8
X Coefficient(s)	-8.70E-02
Std Err of Coef.	0.0006

RATE OF RECOVERY TEST: WELL URS – 81

SLUG IN



HVORSLEV METHOD FOR INTERPRETATION OF SLUG TESTS (ASSUMES ISOTROPIC CONDITIONS)
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	TIME min (X)	DEPTH TO WATER Ft.	DELT DEPTH (H-h)	H-h/H-Ho RATIO	LOG (Y)	TIME min (ADJUSTED)
1	0.000	4.92	0.000	0.00	ERR	-0.12
2	0.080	5.77	0.850	1.00	-0.0000	-0.04
3	0.100	5.72	0.800	0.94	-0.0263	-0.02
4	0.110	5.61	0.690	0.81	-0.0906	-0.01
5	0.130	5.59	0.670	0.79	-0.1033	0.01
6	0.150	5.56	0.640	0.75	-0.1232	0.03
7	0.160	5.51	0.590	0.69	-0.1586	0.04
8	0.180	5.47	0.550	0.65	-0.1891	0.06
9	0.200	5.43	0.510	0.60	-0.2218	0.08
10	0.210	5.39	0.470	0.55	-0.2573	0.09
11	0.230	5.36	0.440	0.52	-0.2860	0.11
12	0.250	5.32	0.400	0.47	-0.3274	0.13
13	0.260	5.29	0.370	0.44	-0.3612	0.14
14	0.280	5.26	0.340	0.40	-0.3979	0.16
15	0.300	5.23	0.310	0.36	-0.4381	0.18
16	0.310	5.21	0.290	0.34	-0.4670	0.19
17	0.330	5.18	0.260	0.31	-0.5144	0.21
18	0.410	5.09	0.170	0.20	-0.6990	0.29
19	0.500	5.03	0.110	0.13	-0.8880	0.38
20	0.580	4.99	0.070	0.08	-1.0843	0.46
21	0.660	4.96	0.040	0.05	-1.3274	0.54
22	0.750	4.94	0.020	0.02	-1.6284	0.63
23	0.830	4.93	0.010	0.01	-1.9294	0.71

PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
PROJECT NO :35230
WELL NO :URS-8I (SLUG IN)
ANALYST :OSTROWSKI CHECKED BY : HMJ
DATE COLLECTED :8-16-90

RISER PIPE (ID):	(d)	=	2.0 in.
EFFECTIVE SCREEN DIAMETER:	(D)	=	2.0 in.
EFFECTIVE SCREEN LENGTH:	(L)	=	5.00 Ft.
MAX DRAWDOWN (IN SUBSET):	(H-Ho)	=	0.85 Ft.
STATIC WATER LEVEL :	(H)	=	4.92 Ft.

INCLUDE SANDPACK DEWATERING? (1 IF YES, 0 IF NO) = 0.00
SPECIFIC YIELD OF SANDPACK = 0.15
ADJUSTED RISER PIPE ID (d) = 2.000 in.

BASIC TIME LAG:	(To)	=	0.17 min.
HYDRAULIC CONDUCTIVITY	(K)	=	8.71E-03 cm/sec

Regression Output:

Constant	-1.37E-02
Std Err of Y Est	0.0524
R Squared	0.9908
No. of Observations	19
Degrees of Freedom	17
X Coefficient(s)	-2.51E+00
Std Err of Coef.	0.0585

LINEAR REGRESSION DATA RANGE: 1 TO 10

ALTERNATE TWO POINT METHOD OF COMPUTATION:
SEE NAVFAC Table 4-3 (Piezometer in
Isotropic Soil for method's reference)

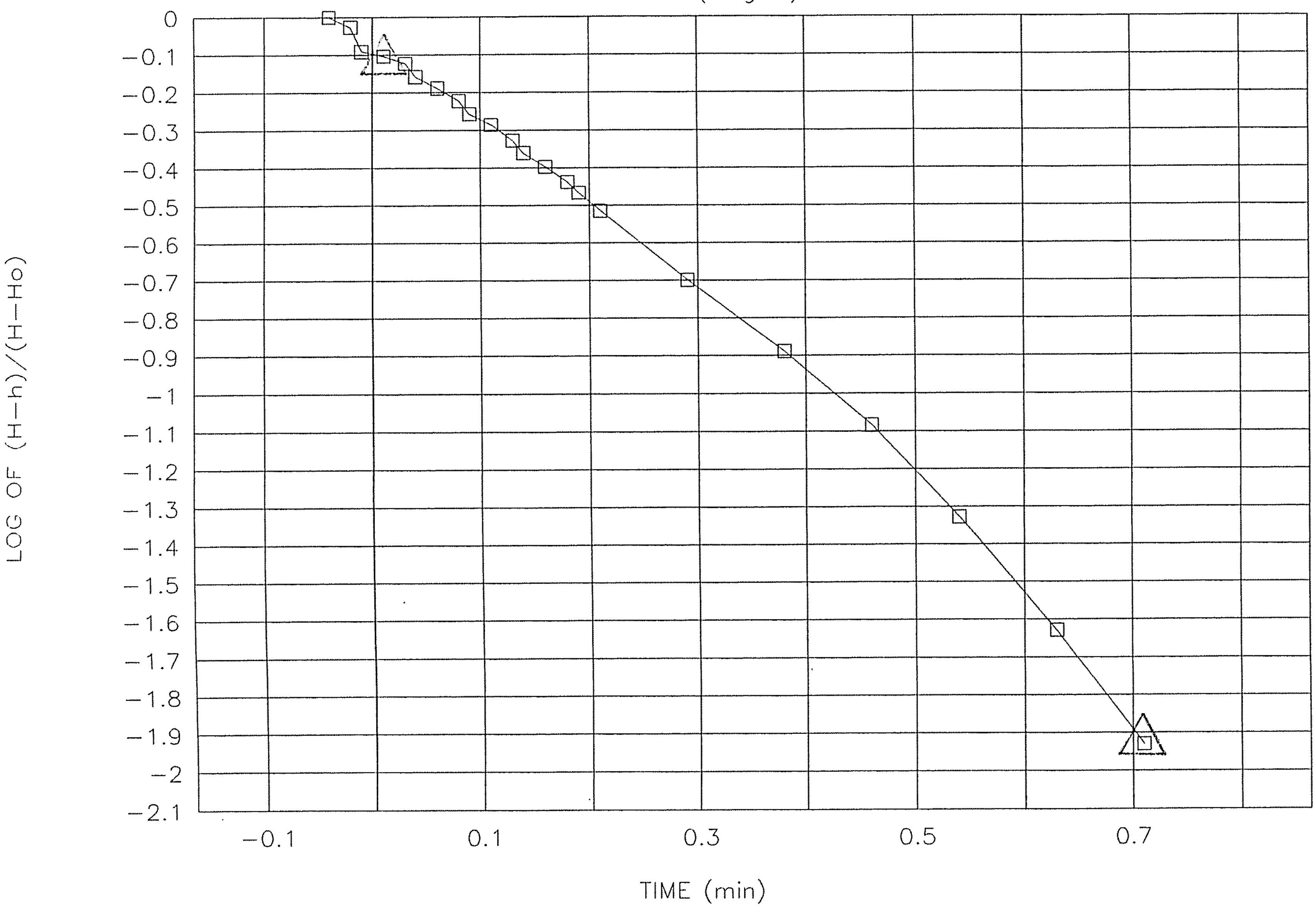
SELECT TWO POINTS FROM DATA AND INPUT VALUES FOR H AND t:
(H values are normalized heads and t is in minutes)

H1 = 0.79 t1 = 0.01 min
H2 = 0.20 t2 = 0.29 min

HYDRAULIC CONDUCTIVITY = 2.32E-04 ft/sec
= 7.09E-03 cm/sec

SLUG TEST ANALYSIS (HVORSLEV)

URS-8I (Slug In)



BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	4.92	0.000	0	ERR
2	0.05	4.03	0.890	3	-0.1165
3	0.06	4.10	0.820	4	-0.1985
4	0.08	4.16	0.760	5	-0.2744
5	0.10	4.22	0.700	6	-0.3567
6	0.11	4.28	0.640	7	-0.4463
7	0.13	4.32	0.600	8	-0.5108
8	0.15	4.37	0.550	9	-0.5978
9	0.16	4.41	0.550	10	-0.5978
10	0.18	4.45	0.470	11	-0.7550
11	0.20	4.49	0.430	12	-0.8440
12	0.21	4.52	0.400	13	-0.9163
13	0.23	4.55	0.370	14	-0.9943
14	0.25	4.58	0.340	15	-1.0788
15	0.26	4.61	0.310	16	-1.1712
16	0.28	4.63	0.290	17	-1.2379
17	0.30	4.66	0.260	18	-1.3471
18	0.31	4.68	0.240	19	-1.4271
19	0.33	4.70	0.220	20	-1.5141
20	0.41	4.78	0.140	25	-1.9661
21	0.50	4.83	0.090	30	-2.4079
22	0.58	4.86	0.060	35	-2.8134
23	0.66	4.88	0.040	40	-3.2189
24	0.75	4.90	0.020	45	-3.9120
25	0.91	4.91	0.010	55	-4.6052

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL URS - 8I (SLUG OUT)
*ANALYST :OSTROWSKI CHECKED BY : JMT
*DATE COLLECTED :8-16-90
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 5.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 0.89 Ft.
*STATIC WATER LEVEL: (SWL) = 4.92 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 30.72 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 50.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 0
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 60.00
---LOG OF L/(r sub w) = 1.7782
FOR PARTIALLY PENETRATING WELLS--
A = 3.38
B = 0.50
FOR FULLY PENETRATING WELLS--
C = 3.01

---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.1861
CONST.2 = 5.4440 =(MAX. OF 6.0)= 5.4440
LN(Re/(r sub w) = 3.47

EFFECTIVE r sub c (for sandpack dewatering) = 0.0833
(1/T)(LN(Yo/Yt)) (SLOPE) = -8.75E-02 sec^(-1)

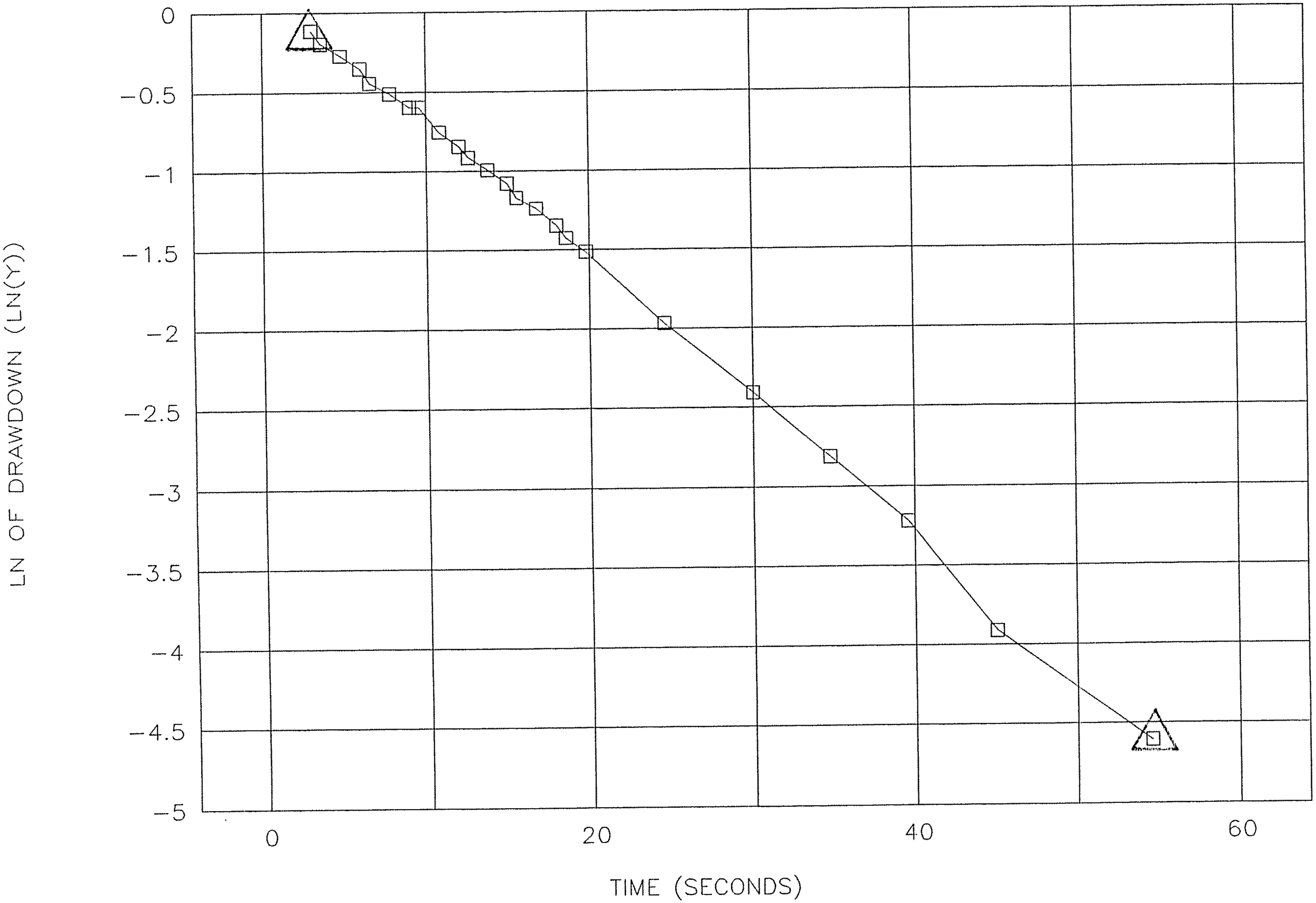
HYDRAULIC CONDUCTIVITY (K) = 2.11E-04 ft/sec <==================
6.43E-03 cm/sec <==================

Regression Output:

Constant	1.88E-01
Std Err of Y Est	0.0504
R Squared	0.9983
No. of Observations	24
Degrees of Freedom	22
X Coefficient(s)	-8.75E-02
Std Err of Coef.	0.0008

RATE OF RECOVERY TEST: WELL URS – 81

SLUG OUT



BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	0.02	0.000	0	ERR
2	0.10	0.38	0.360	6	-1.0217
3	0.11	0.35	0.330	7	-1.1087
4	0.13	0.31	0.290	8	-1.2379
5	0.15	0.30	0.280	9	-1.2730
6	0.16	0.29	0.270	10	-1.3093
7	0.18	0.28	0.260	11	-1.3471
8	0.30	0.27	0.250	18	-1.3863
9	1.00	0.26	0.250	60	-1.3863
10	3.50	0.25	0.230	210	-1.4697
11	6.50	0.24	0.220	390	-1.5141
12	7.50	0.23	0.210	450	-1.5606
13	10.00	0.22	0.200	600	-1.6094

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL URS - 9S (SLUG IN)
*ANALYST :OSTROWSKI CHECKED BY : 2JmT
*DATE COLLECTED :8-17-90
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) = 9.5 in. = 0.3958 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 8.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 0.36 Ft.
*STATIC WATER LEVEL: (SWL) = 0.02 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 10.84 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 20.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 1
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 20.21
---LOG OF L/(r sub w) = 1.3056
FOR PARTIALLY PENETRATING WELLS--
A = 2.10
B = 0.30
FOR FULLY PENETRATING WELLS--
C = 1.52

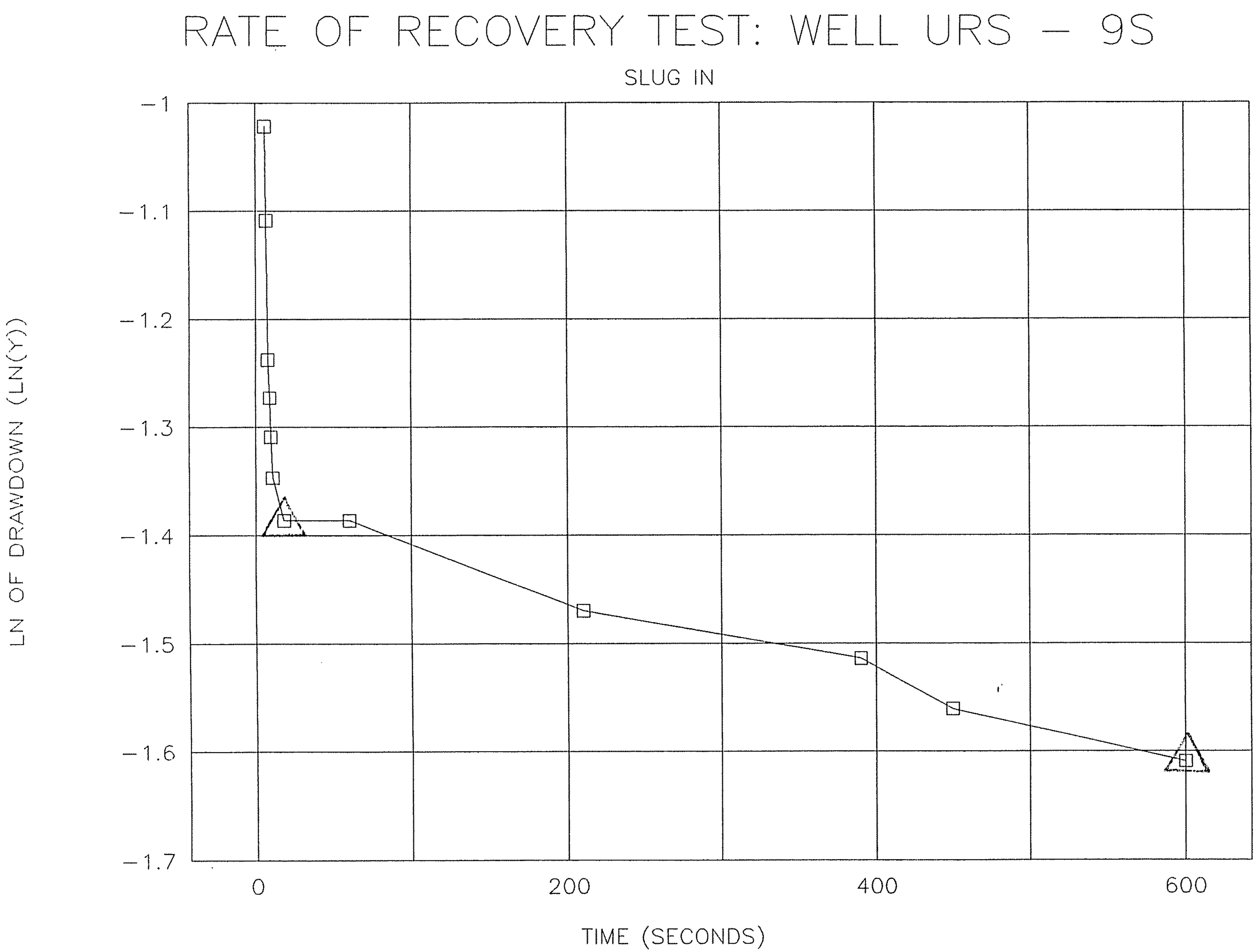
---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.3323
CONST.2 = 3.1416 =(MAX. OF 6.0)= 3.1416
LN(Re/(r sub w) = 2.07

EFFECTIVE r sub c (for sandpack dewatering) = 0.1715
(1/T)(LN(Yo/Yt)) (SLOPE) = -3.94E-04 sec^(-1)

HYDRAULIC CONDUCTIVITY (K) = 1.50E-06 ft/sec <==================
4.57E-05 cm/sec <==================

Regression Output:

Constant	-1.37E+00
Std Err of Y Est	0.0122
R Squared	0.9858
No. of Observations	6
Degrees of Freedom	4
X Coefficient(s)	-3.94E-04
Std Err of Coef.	0.0000


RATE OF RECOVERY TEST: WELL URS – 9S
SLUG IN
LN OF DRAWDOWN (LN(Y))
−1
−1.1
−1.2
−1.3
−1.4
−1.5
−1.6
−1.7
0
200
400
600
TIME (SECONDS)

BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	4.40	0.000	0	ERR
2	0.13	5.29	0.890	8	-0.1165
3	0.18	5.21	0.810	11	-0.2107
4	0.20	5.20	0.800	12	-0.2231
5	0.21	5.18	0.780	13	-0.2485
6	0.23	5.17	0.770	14	-0.2614
7	0.25	5.15	0.750	15	-0.2877
8	0.26	5.14	0.740	16	-0.3011
9	0.28	5.13	0.740	17	-0.3011
10	0.30	5.12	0.720	18	-0.3285
11	0.31	5.10	0.700	19	-0.3567
12	0.33	5.09	0.690	20	-0.3711
13	0.41	5.03	0.630	25	-0.4620
14	0.50	4.98	0.580	30	-0.5447
15	0.58	4.93	0.530	35	-0.6349
16	0.66	4.89	0.490	40	-0.7133
17	0.75	4.85	0.450	45	-0.7985
18	0.83	4.81	0.410	50	-0.8916
19	0.91	4.77	0.370	55	-0.9943
20	1.00	4.74	0.340	60	-1.0788
21	1.08	4.71	0.310	65	-1.1712
22	1.16	4.69	0.290	70	-1.2379
23	1.25	4.66	0.260	75	-1.3471
24	1.33	4.64	0.240	80	-1.4271
25	1.41	4.62	0.220	85	-1.5141
26	1.50	4.59	0.190	90	-1.6607
27	1.58	4.58	0.180	95	-1.7148
28	1.63	4.56	0.160	98	-1.8326
29	1.75	4.54	0.140	105	-1.9661
30	1.83	4.53	0.130	110	-2.0402
31	1.91	4.52	0.120	115	-2.1203
32	2.00	4.50	0.100	120	-2.3026
33	2.50	4.44	0.040	150	-3.2189

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL URS - 9I (SLUG IN)
*ANALYST :OSTROWSKI CHECKED BY : HMT
*DATE COLLECTED :8-16-90
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 10.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 0.89 Ft.
*STATIC WATER LEVEL: (SWL) = 4.40 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 38.88 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 50.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 0
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 120.00
---LOG OF L/(r sub w) = 2.0792
FOR PARTIALLY PENETRATING WELLS--
A = 4.73
B = 0.85
FOR FULLY PENETRATING WELLS--
C = 4.98

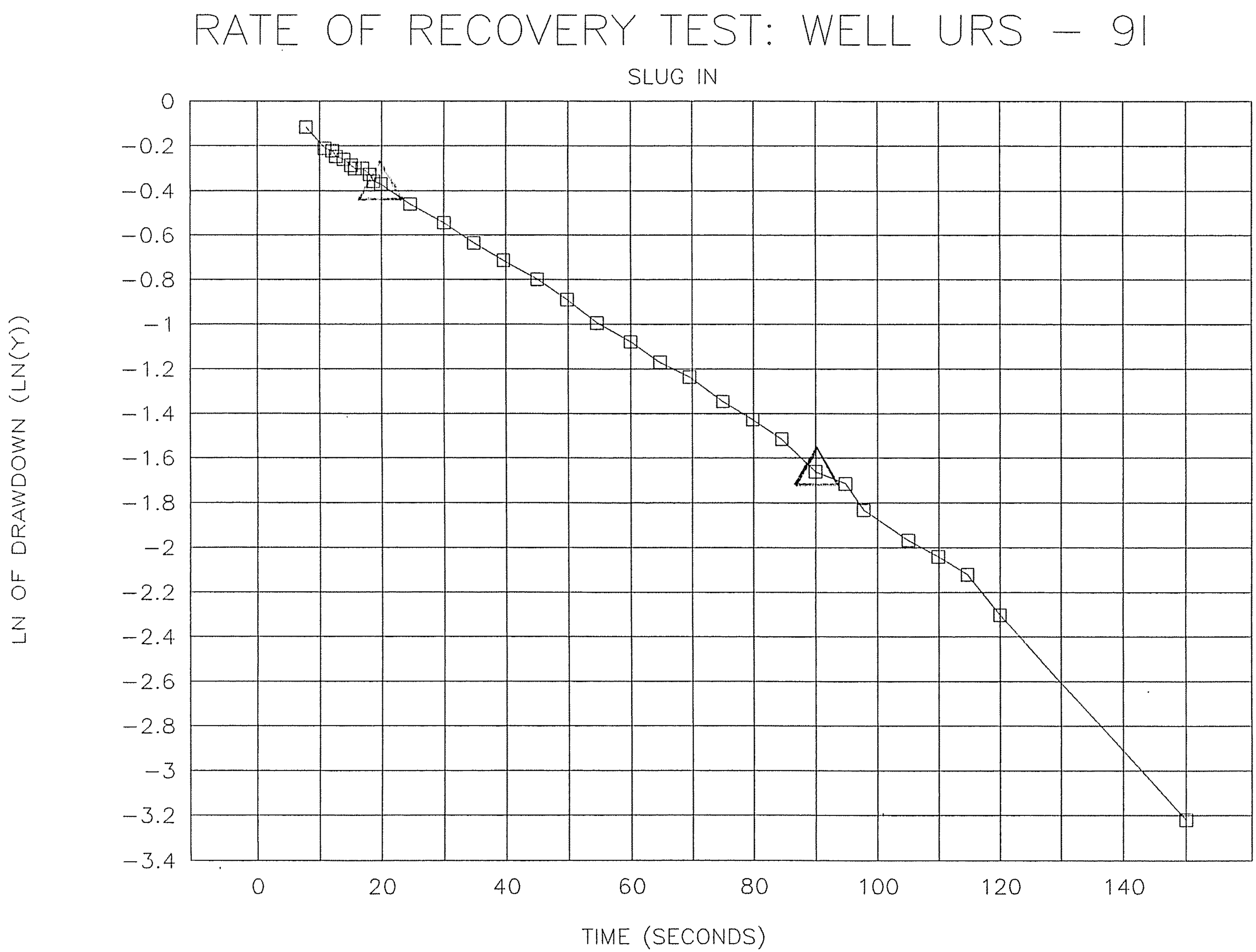
---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.1790
CONST.2 = 4.8937 =(MAX. OF 6.0)= 4.8937
LN(Re/(r sub w) = 3.95

EFFECTIVE r sub c (for sandpack dewatering) = 0.0833
(1/T)(LN(Yo/Yt)) (SLOPE) = -1.79E-02 sec^(-1)

HYDRAULIC CONDUCTIVITY (K) = 2.46E-05 ft/sec <==================
7.49E-04 cm/sec <==================

Regression Output:

Constant	-7.72E-03
Std Err of Y Est	0.0147
R Squared	0.9987
No. of Observations	15
Degrees of Freedom	13
X Coefficient(s)	-1.79E-02
Std Err of Coef.	0.0002


RATE OF RECOVERY TEST: WELL URS – 91
SLUG IN
LN OF DRAWDOWN (LN(Y))
TIME (SECONDS)
0
–0.2
–0.4
–0.6
–0.8
–1
–1.2
–1.4
–1.6
–1.8
–2
–2.2
–2.4
–2.6
–2.8
–3
–3.2
–3.4
0
20
40
60
80
100
120
140

HVORSLEV METHOD FOR INTERPRETATION OF SLUG TESTS (ASSUMES ISOTROPIC CONDITIONS)
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	TIME min (X)	DEPTH TO WATER Ft.	DELT DEPTH (H-h)	H-h/H-Ho RATIO	LOG (Y)	TIME min (ADJUSTED)
1	0.000	4.40	0.000	0.00	ERR	-0.17
2	0.160	5.29	0.890	1.00	-0.0000	-0.01
3	0.180	5.21	0.810	0.91	-0.0409	0.01
4	0.200	5.20	0.800	0.90	-0.0463	0.03
5	0.210	5.18	0.780	0.88	-0.0573	0.04
6	0.230	5.17	0.770	0.87	-0.0629	0.06
7	0.250	5.15	0.750	0.84	-0.0743	0.08
8	0.260	5.14	0.740	0.83	-0.0802	0.09
9	0.280	5.13	0.730	0.82	-0.0861	0.11
10	0.300	5.12	0.720	0.81	-0.0921	0.13
11	0.310	5.10	0.700	0.79	-0.1043	0.14
12	0.330	5.09	0.690	0.78	-0.1105	0.16
13	0.410	5.03	0.630	0.71	-0.1500	0.24
14	0.500	4.98	0.580	0.65	-0.1860	0.33
15	0.580	4.93	0.530	0.60	-0.2251	0.41
16	0.660	4.89	0.490	0.55	-0.2592	0.49
17	0.750	4.85	0.450	0.51	-0.2962	0.58
18	0.830	4.81	0.410	0.46	-0.3366	0.66
19	0.910	4.77	0.370	0.42	-0.3812	0.74
20	1.000	4.74	0.340	0.38	-0.4179	0.83
21	1.080	4.71	0.310	0.35	-0.4580	0.91
22	1.160	4.69	0.290	0.33	-0.4870	0.99
23	1.250	4.66	0.260	0.29	-0.5344	1.08
24	1.330	4.64	0.240	0.27	-0.5692	1.16
25	1.410	4.62	0.220	0.25	-0.6070	1.24
26	1.500	4.59	0.190	0.21	-0.6706	1.33
27	1.580	4.58	0.180	0.20	-0.6941	1.41
28	1.630	4.56	0.160	0.18	-0.7453	1.46
29	1.750	4.54	0.140	0.16	-0.8033	1.58
30	1.830	4.53	0.130	0.15	-0.8354	1.66
31	1.910	4.52	0.120	0.13	-0.8702	1.74
32	2.000	4.50	0.100	0.11	-0.9494	1.83

PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
PROJECT NO :35230
WELL NO :URS-9I (SLUG IN)
ANALYST :OSTROWSKI CHECKED BY : JMT
DATE COLLECTED :8-16-90
RISER PIPE (ID): (d) = 2.0 in.
EFFECTIVE SCREEN DIAMETER: (D) = 2.0 in.
EFFECTIVE SCREEN LENGTH: (L) = 10.00 Ft.
MAX DRAWDOWN (IN SUBSET): (H-Ho)= 0.89 Ft.
STATIC WATER LEVEL : (H) = 4.40 Ft.
INCLUDE SANDPACK DEWATERING? (1 IF YES, 0 IF NO) = 0.00
SPECIFIC YIELD OF SANDPACK = 0.15
ADJUSTED RISER PIPE ID (d) = 2.000 in.

BASIC TIME LAG: (To) = 0.83 min.
HYDRAULIC CONDUCTIVITY (K) = 1.01E-03 cm/sec

Regression Output:

Constant		-2.89E-02
Std Err of Y Est		0.0124
R Squared		0.9982
No. of Observations		30
Degrees of Freedom		28
X Coefficient(s)	-4.82E-01	
Std Err of Coef.	0.0038	

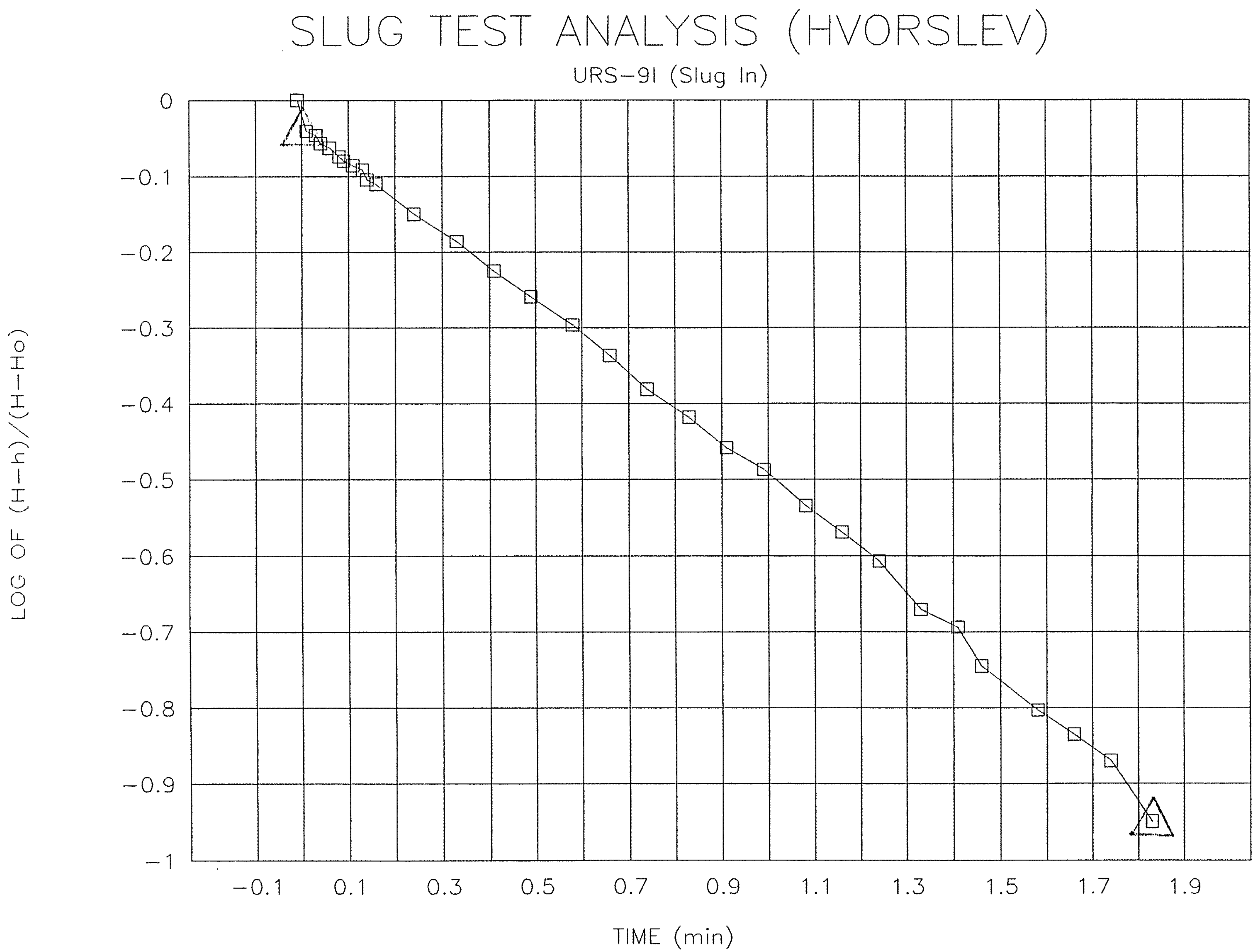
LINEAR REGRESSION DATA RANGE: 1 TO 10

ALTERNATE TWO POINT METHOD OF COMPUTATION:
SEE NAVFAC Table 4-3 (Piezometer in Isotropic Soil for method's reference)

SELECT TWO POINTS FROM DATA AND INPUT VALUES FOR H AND t:
(H values are normalized heads and t is in minutes)

H1 = 0.91 t1 = 0.01 min
H2 = 0.33 t2 = 0.99 min

HYDRAULIC CONDUCTIVITY = 2.87E-05 ft/sec
= 8.74E-04 cm/sec


SLUG TEST ANALYSIS (HVORSLEV)
URS-9I (Slug In)
LOG OF (H-h)/(H-Ho)
0
-0.1
-0.2
-0.3
-0.4
-0.5
-0.6
-0.7
-0.8
-0.9
-1
-0.1
0.1
0.3
0.5
0.7
0.9
1.1
1.3
1.5
1.7
1.9
TIME (min)

BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	4.27	0.000	0	ERR
2	0.08	3.23	1.040	5	0.0392
3	0.10	3.33	0.940	6	-0.0619
4	0.11	3.34	0.930	7	-0.0726
5	0.13	3.36	0.910	8	-0.0943
6	0.15	3.38	0.890	9	-0.1165
7	0.16	3.40	0.870	10	-0.1393
8	0.18	3.42	0.850	11	-0.1625
9	0.20	3.43	0.850	12	-0.1625
10	0.21	3.44	0.830	13	-0.1863
11	0.23	3.46	0.810	14	-0.2107
12	0.25	3.47	0.800	15	-0.2231
13	0.26	3.48	0.790	16	-0.2357
14	0.28	3.50	0.770	17	-0.2614
15	0.30	3.51	0.760	18	-0.2744
16	0.31	3.52	0.750	19	-0.2877
17	0.33	3.53	0.740	20	-0.3011
18	0.41	3.59	0.680	25	-0.3857
19	0.50	3.64	0.630	30	-0.4620
20	0.58	3.68	0.590	35	-0.5276
21	0.66	3.73	0.540	40	-0.6162
22	0.75	3.76	0.510	45	-0.6733
23	0.83	3.80	0.470	50	-0.7550
24	0.91	3.83	0.440	55	-0.8210
25	1.00	3.86	0.410	60	-0.8916
26	1.08	3.89	0.380	65	-0.9676
27	1.16	3.91	0.360	70	-1.0217
28	1.25	3.94	0.330	75	-1.1087
29	1.33	3.96	0.310	80	-1.1712
30	1.41	3.98	0.290	85	-1.2379
31	1.50	4.00	0.270	90	-1.3093
32	1.58	4.02	0.250	95	-1.3863
33	1.66	4.03	0.240	100	-1.4271
34	1.75	4.05	0.220	105	-1.5141
35	1.83	4.06	0.210	110	-1.5606
36	1.91	4.07	0.200	115	-1.6094
37	2.00	4.08	0.190	120	-1.6607
38	2.50	4.14	0.130	150	-2.0402
39	3.00	4.17	0.100	180	-2.3026
40	3.50	4.19	0.080	210	-2.5257
41	4.00	4.21	0.060	240	-2.8134
42	5.00	4.22	0.050	300	-2.9957
43	18.00	4.23	0.040	1080	-3.2189
44	20.00	4.25	0.020	1200	-3.9120

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL URS - 9I (SLUG OUT)
*ANALYST :OSTROWSKI CHECKED BY : RjmT
*DATE COLLECTED :8-16-90
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 10.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 1.04 Ft.
*STATIC WATER LEVEL: (SWL) = 4.27 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 38.88 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 50.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 0
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 120.00
---LOG OF L/(r sub w) = 2.0792
FOR PARTIALLY PENETRATING WELLS--
A = 4.73
B = 0.85
FOR FULLY PENETRATING WELLS--
C = 4.98

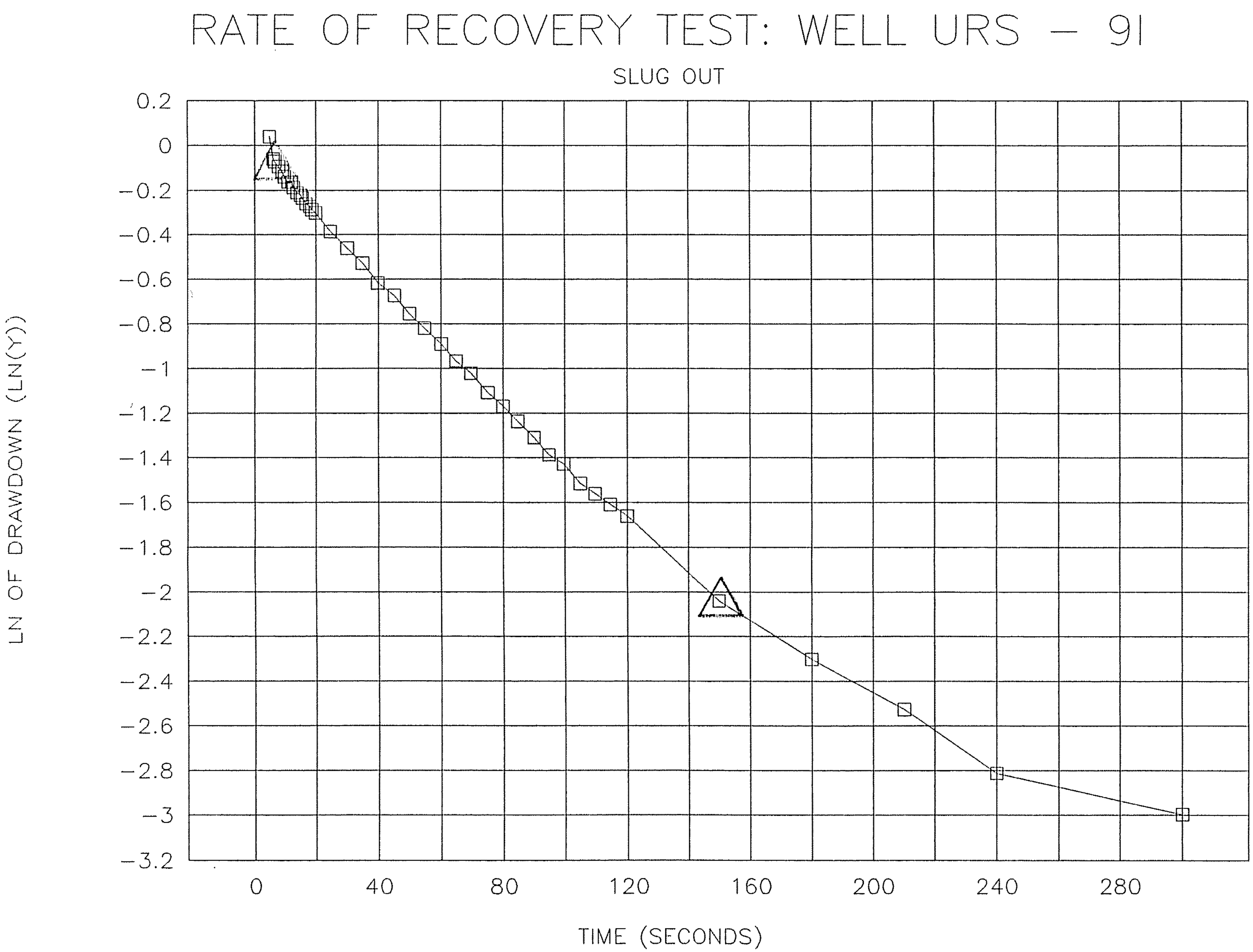
---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.1790
CONST.2 = 4.8937 =(MAX. OF 6.0)= 4.8937
LN(Re/(r sub w) = 3.95

EFFECTIVE r sub c (for sandpack dewatering) = 0.0833
(1/T)(LN(Yo/Yt)) (SLOPE) = -1.39E-02 sec^(-1)

HYDRAULIC CONDUCTIVITY (K) = 1.91E-05 ft/sec <==================
5.81E-04 cm/sec <==================

Regression Output:

Constant		-3.65E-02
Std Err of Y Est		0.0272
R Squared		0.9977
No. of Observations		31
Degrees of Freedom		29
X Coefficient(s)	-1.39E-02	
Std Err of Coef.	0.0001	


RATE OF RECOVERY TEST: WELL URS – 9I
SLUG OUT
LN OF DRAWDOWN (LN(Y))
0.2
0
−0.2
−0.4
−0.6
−0.8
−1
−1.2
−1.4
−1.6
−1.8
−2
−2.2
−2.4
−2.6
−2.8
−3
−3.2
0
40
80
120
160
200
240
280
TIME (SECONDS)

BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	9.03	0.000	0	ERR
2	0.05	7.99	1.040	3	0.0392
3	0.06	8.03	1.000	4	0.0000
4	0.09	8.05	0.980	5	-0.0202
5	0.10	8.06	0.970	6	-0.0305
6	0.11	8.08	0.950	7	-0.0513
7	0.13	8.09	0.940	8	-0.0619
8	0.15	8.10	0.930	9	-0.0726
9	0.16	8.12	0.930	10	-0.0726
10	0.18	8.13	0.900	11	-0.1054
11	0.20	8.14	0.890	12	-0.1165
12	0.21	8.15	0.880	13	-0.1278
13	0.23	8.16	0.870	14	-0.1393
14	0.25	8.17	0.860	15	-0.1508
15	0.26	8.19	0.840	16	-0.1744
16	0.29	8.20	0.830	17	-0.1863
17	0.30	8.21	0.820	18	-0.1985
18	0.33	8.22	0.810	20	-0.2107
19	0.41	8.27	0.760	25	-0.2744
20	0.50	8.31	0.720	30	-0.3285
21	0.58	8.35	0.680	35	-0.3857
22	0.66	8.39	0.640	40	-0.4463
23	0.75	8.42	0.610	45	-0.4943
24	0.83	8.46	0.570	50	-0.5621
25	0.91	8.49	0.540	55	-0.6162
26	1.00	8.51	0.520	60	-0.6539
27	1.08	8.54	0.490	65	-0.7133
28	1.16	8.57	0.460	70	-0.7765
29	1.25	8.59	0.440	75	-0.8210
30	1.33	8.62	0.410	80	-0.8916
31	1.41	8.64	0.390	85	-0.9416
32	1.50	8.66	0.370	90	-0.9943
33	1.58	8.68	0.350	95	-1.0498
34	1.66	8.70	0.330	100	-1.1087
35	1.75	8.72	0.310	105	-1.1712
36	1.73	8.73	0.300	104	-1.2040
37	1.91	8.75	0.280	115	-1.2730
38	2.00	8.77	0.260	120	-1.3471
39	2.50	8.84	0.190	150	-1.6607
40	3.00	8.89	0.140	180	-1.9661
41	3.50	8.94	0.090	210	-2.4079
42	4.00	8.97	0.060	240	-2.8134
43	4.50	8.99	0.040	270	-3.2189
44	5.00	9.01	0.020	300	-3.9120
45	5.50	9.02	0.010	330	-4.6052

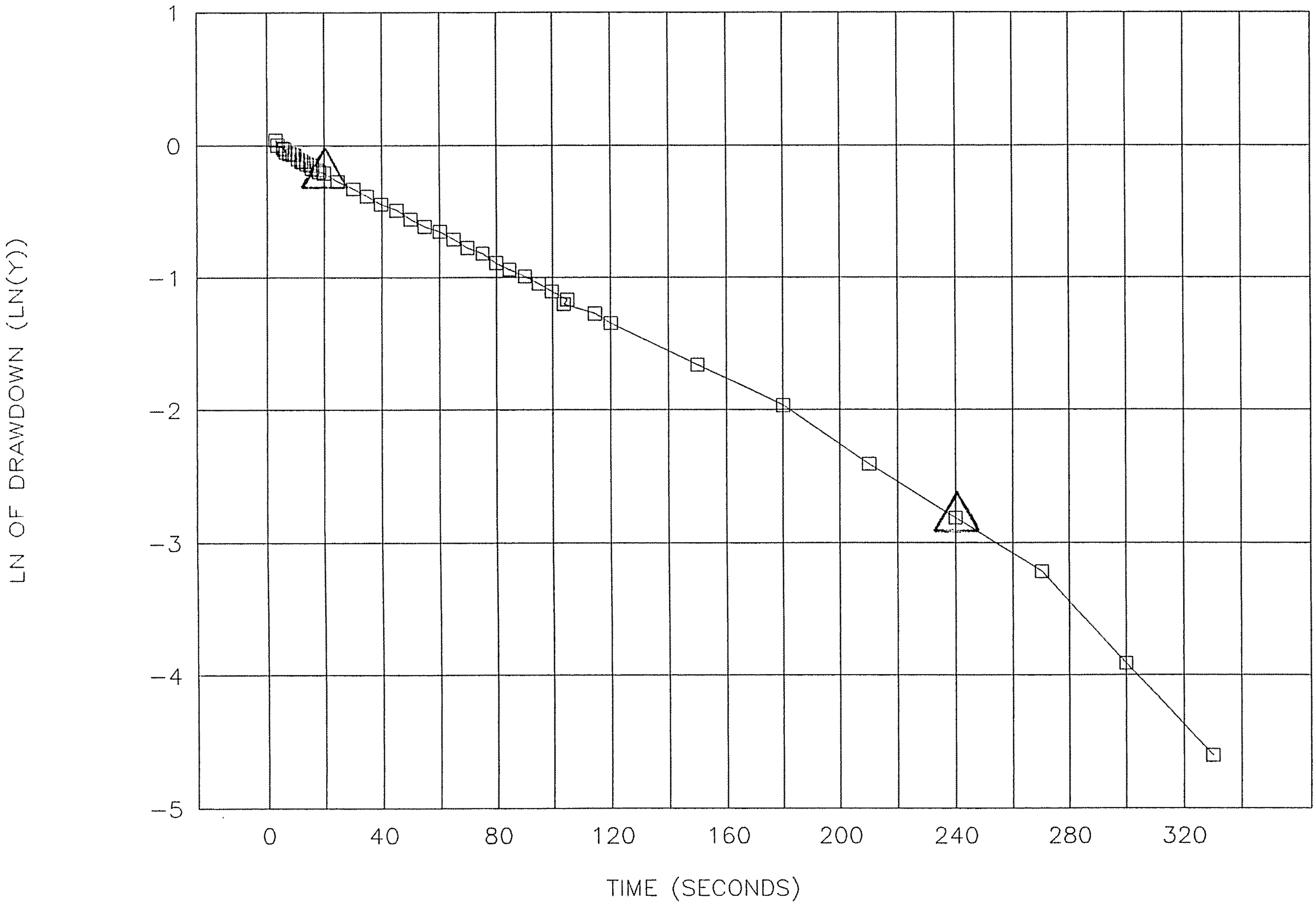
```
*PROJECT NAME        :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO          :35230
*WELL NO             :WELL URS - 9D (SLUG OUT)
*ANALYST             :OSTROWSKI              CHECKED BY :  JK-2015
*DATE COLLECTED      :8-17-90
*RISER PIPE (ID):             (2 r sub c) =       2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) =       2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH:    (L)        =      5.00 Ft.
*MAX DRAWDOWN (IN SUBSET):  (Ymax)      =      1.04 Ft.
*STATIC WATER LEVEL:         (SWL)      =      9.03 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM:  (H)  =         48.30 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM):  (D) =              60.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)?             0
*SANDPACK'S SPECIFIC YIELD (Sy) =              0.15
-----------------------------------------------------------------------------
 BOUWER AND RICE CURVE COEFFICIENTS:
   RATIO OF L/(r sub w) =                         60.00
     ---LOG OF L/(r sub w) =                     1.7782
   FOR PARTIALLY PENETRATING WELLS--
              A =                  3.38
              B =                  0.50
   FOR FULLY PENETRATING WELLS--
              C =                  3.01

     ---EVALUATION OF LN(Re/(r sub w)):
          CONST.1 =              0.1729
          CONST.2 =              4.9445  =(MAX. OF 6.0)=       4.9445
          LN(Re/(r sub w) =                  3.69
-----------------------------------------------------------------------------
   EFFECTIVE r sub c (for sandpack dewatering) =      0.0833
   (1/T)(LN(Yo/Yt))  (SLOPE) =            -1.15E-02 sec^(-1)
 |--------------------------------------------------------|
 |HYDRAULIC CONDUCTIVITY     (K)    =       2.95E-05 ft/sec   |  <==================
 |                                          8.99E-04 cm/sec   |  <==================
 |--------------------------------------------------------|
                      Regression Output:
 Constant                                          2.58E-02
 Std Err of Y Est                                    0.0282
 R Squared                                           0.9982
 No. of Observations                                     25
 Degrees of Freedom                                      23

 X Coefficient(s)                        -1.15E-02
 Std Err of Coef.                           0.0001
-----------------------------------------------------------------------------
```

RATE OF RECOVERY TEST: WELL URS – 9D

SLUG OUT



BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	9.79	0.000	0	ERR
2	0.18	8.74	1.050	11	0.0488
3	0.20	8.77	1.020	12	0.0198
4	0.21	8.80	0.990	13	-0.0101
5	0.31	8.84	0.950	19	-0.0513
6	0.40	8.89	0.900	24	-0.1054
7	0.48	8.93	0.860	29	-0.1508
8	0.56	8.97	0.820	34	-0.1985
9	0.65	9.01	0.780	39	-0.2485
10	0.73	9.04	0.750	44	-0.2877
11	0.81	9.07	0.720	49	-0.3285
12	0.90	9.10	0.690	54	-0.3711
13	0.98	9.13	0.660	59	-0.4155
14	1.06	9.16	0.630	64	-0.4620
15	1.15	9.18	0.610	69	-0.4943
16	1.23	9.20	0.590	74	-0.5276
17	1.31	9.23	0.560	79	-0.5798
18	1.40	9.25	0.540	84	-0.6162
19	1.48	9.27	0.520	89	-0.6539
20	1.56	9.29	0.500	94	-0.6931
21	1.65	9.31	0.480	99	-0.7340
22	1.73	9.33	0.460	104	-0.7765
23	1.81	9.35	0.440	109	-0.8210
24	1.90	9.36	0.430	114	-0.8440
25	2.40	9.44	0.350	144	-1.0498
26	2.90	9.49	0.300	174	-1.2040
27	3.40	9.53	0.260	204	-1.3471
28	3.90	9.56	0.230	234	-1.4697
29	4.40	9.58	0.210	264	-1.5606
30	4.90	9.59	0.200	294	-1.6094
31	5.40	9.61	0.180	324	-1.7148
32	5.90	9.62	0.170	354	-1.7720
33	6.40	9.63	0.160	384	-1.8326
34	7.40	9.64	0.150	444	-1.8971
35	8.40	9.65	0.140	504	-1.9661
36	8.90	9.66	0.130	534	-2.0402
37	11.90	9.68	0.110	714	-2.2073
38	13.90	9.69	0.100	834	-2.3026
39	17.90	9.71	0.080	1074	-2.5257
40	19.90	9.72	0.070	1194	-2.6593
41	25.90	9.73	0.060	1554	-2.8134
42	33.90	9.74	0.050	2034	-2.9957
43					

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL 88 - 10D (SLUG OUT)
*ANALYST :PRZYBYL CHECKED BY :
*DATE COLLECTED :2-27-91
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) = 5.0 in. = 0.2083 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 8.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 1.05 Ft.
*STATIC WATER LEVEL: (SWL) = 9.79 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 48.40 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 60.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 0
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 38.40
---LOG OF L/(r sub w) = 1.5843
FOR PARTIALLY PENETRATING WELLS--
A = 2.72
B = 0.38
FOR FULLY PENETRATING WELLS--
C = 2.17

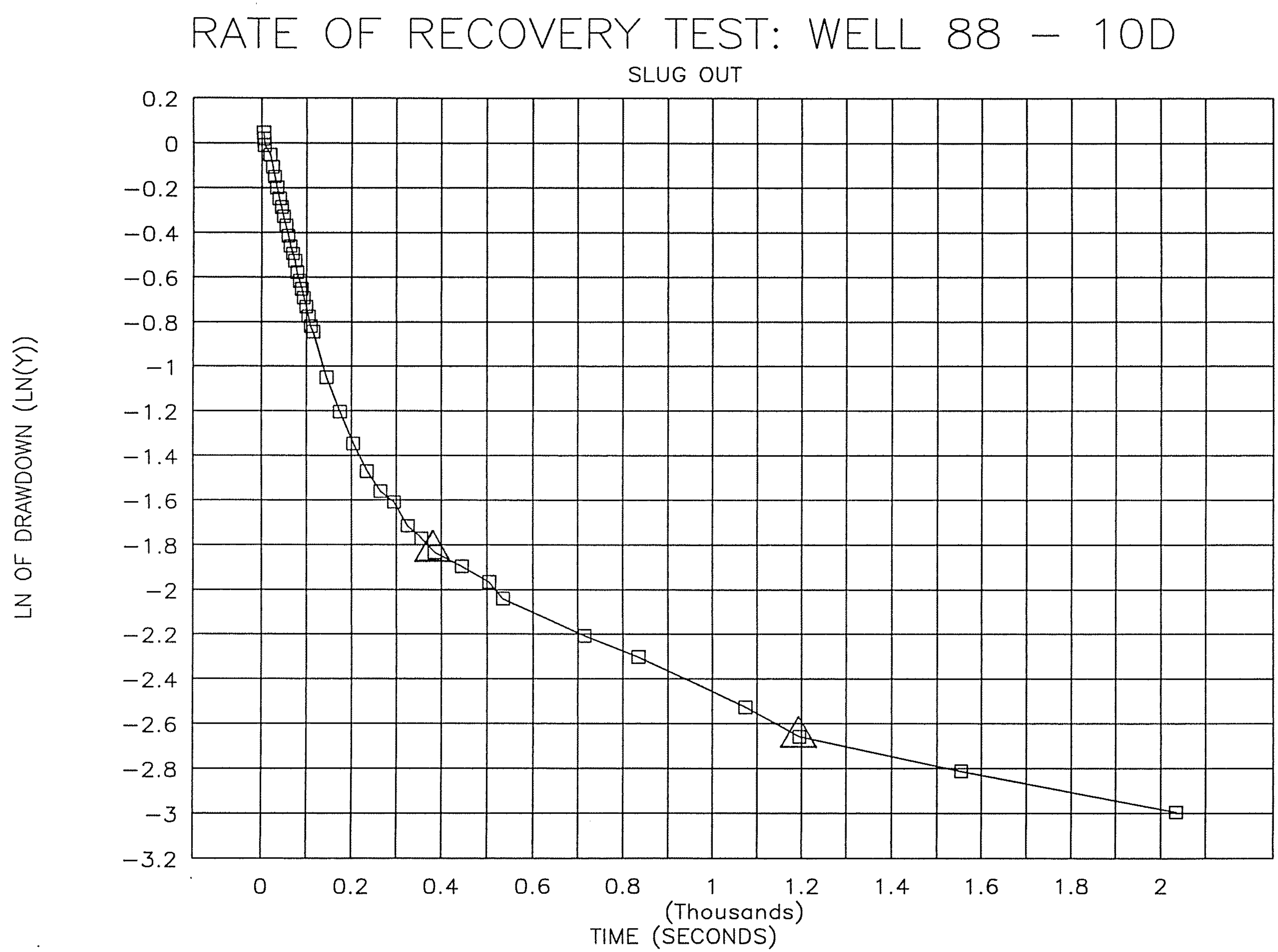
---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.2019
CONST.2 = 4.0196 =(MAX. OF 6.0)= 4.0196
LN(Re/(r sub w) = 3.20

EFFECTIVE r sub c (for sandpack dewatering) = 0.0833
(1/T)(LN(Yo/Yt)) (SLOPE) = -8.54E-03 sec^(-1)

HYDRAULIC CONDUCTIVITY (K) = 1.19E-05 ft/sec <==================
3.62E-04 cm/sec <==================

Regression Output:

Constant	9.05E-02
Std Err of Y Est	0.0070
R Squared	0.9978
No. of Observations	11
Degrees of Freedom	9
X Coefficient(s)	-8.54E-03
Std Err of Coef.	0.0001


RATE OF RECOVERY TEST: WELL 88 — 10D
SLUG OUT
LN OF DRAWDOWN (LN(Y))
0.2
0
-0.2
-0.4
-0.6
-0.8
-1
-1.2
-1.4
-1.6
-1.8
-2
-2.2
-2.4
-2.6
-2.8
-3
-3.2
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
2
(Thousands)
TIME (SECONDS)

BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	7.09	0.000	0	ERR
2	0.08	6.68	0.410	5	-0.8916
3	0.10	6.70	0.390	6	-0.9416
4	0.12	6.71	0.380	7	-0.9676
5	0.13	6.72	0.370	8	-0.9943
6	0.15	6.73	0.360	9	-1.0217
7	0.18	6.74	0.350	11	-1.0498
8	0.22	6.75	0.340	13	-1.0788
9	0.27	6.76	0.330	16	-1.1087
10	0.38	6.78	0.310	23	-1.1712
11	0.47	6.80	0.290	28	-1.2379
12	0.55	6.82	0.270	33	-1.3093
13	0.63	6.84	0.250	38	-1.3863
14	0.72	6.85	0.240	43	-1.4271
15	0.80	6.87	0.220	48	-1.5141
16	0.88	6.88	0.210	53	-1.5606
17	0.97	6.89	0.200	58	-1.6094
18	1.05	6.91	0.180	63	-1.7148
19	1.13	6.92	0.170	68	-1.7720
20	1.30	6.93	0.160	78	-1.8326
21	1.38	6.94	0.150	83	-1.8971
22	1.47	6.95	0.140	88	-1.9661
23	1.55	6.96	0.130	93	-2.0402
24	1.72	6.97	0.120	103	-2.1203
25	1.87	6.98	0.110	112	-2.2073
26	1.97	6.99	0.100	118	-2.3026
27	2.47	7.02	0.070	148	-2.6593
28	2.97	7.03	0.060	178	-2.8134
29	3.47	7.05	0.040	208	-3.2189
30	3.97	7.06	0.030	238	-3.5066
31	4.97	7.07	0.020	298	-3.9120
32	6.47	7.08	0.010	388	-4.6052
33			7.090	0	1.9587
34			7.090	0	1.9587
35			7.090	0	1.9587
36			7.090	0	1.9587
37			7.090	0	1.9587
38			7.090	0	1.9587
39			7.090	0	1.9587
40			7.090	0	1.9587
41					
42					
43					

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL 88 - 3A (SLUG OUT)
*ANALYST :PRZYBYL CHECKED BY : HMJ
*DATE COLLECTED :2-15-91
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 5.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 0.41 Ft.
*STATIC WATER LEVEL: (SWL) = 7.09 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 8.80 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 17.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 0
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 60.00
---LOG OF L/(r sub w) = 1.7782
FOR PARTIALLY PENETRATING WELLS--
A = 3.38
B = 0.50
FOR FULLY PENETRATING WELLS--
C = 3.01

---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.2361
CONST.2 = 4.5890 =(MAX. OF 6.0)= 4.5890
LN(Re/(r sub w) = 3.02

EFFECTIVE r sub c (for sandpack dewatering) = 0.0833
(1/T)(LN(Yo/Yt)) (SLOPE) = -1.17E-02 sec^(-1)

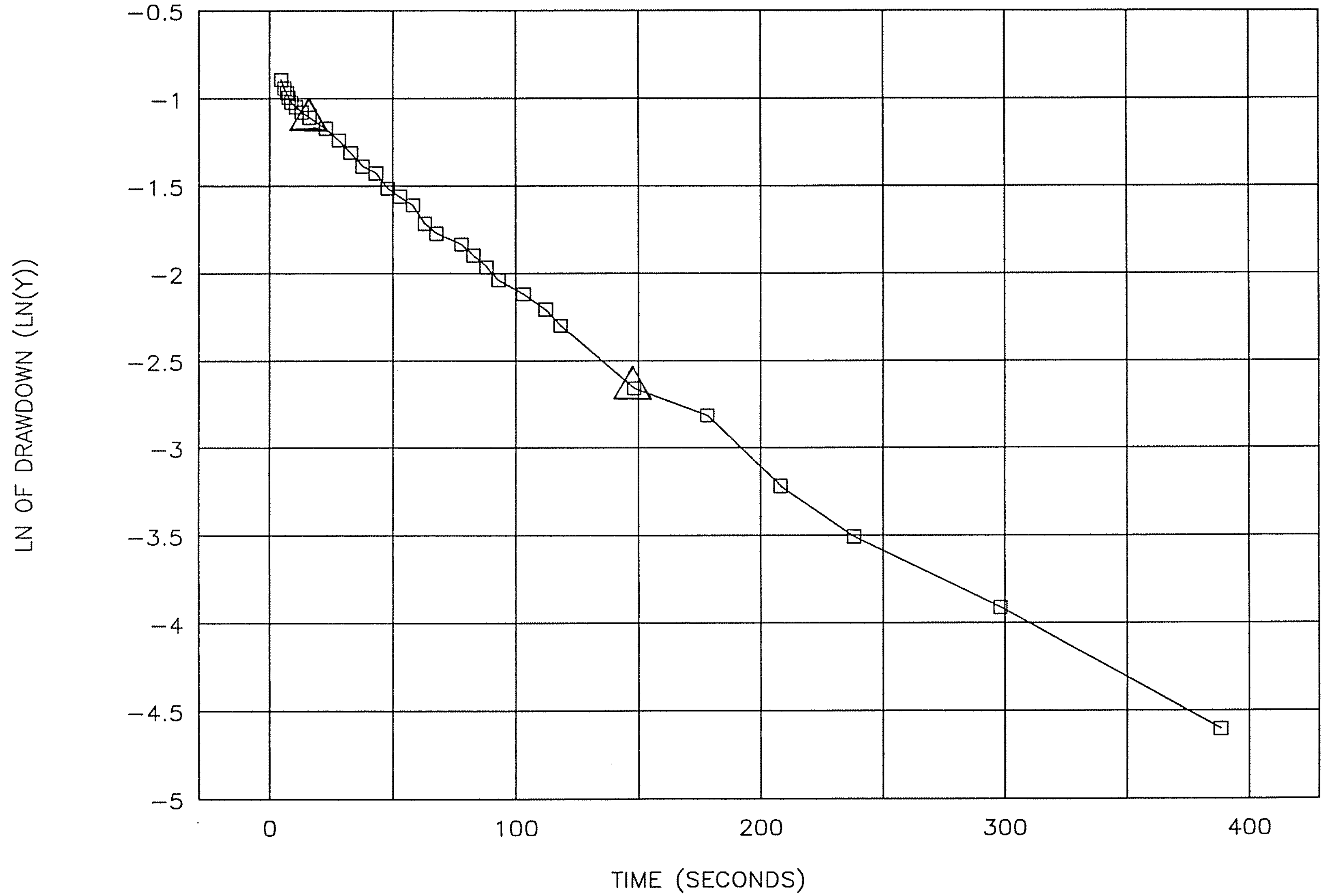
HYDRAULIC CONDUCTIVITY (K) = 2.45E-05 ft/sec <==================
7.46E-04 cm/sec <==================

Regression Output:

Constant	-9.33E-01
Std Err of Y Est	0.0232
R Squared	0.9971
No. of Observations	19
Degrees of Freedom	17
X Coefficient(s)	-1.17E-02
Std Err of Coef.	0.0002

RATE OF RECOVERY TEST: WELL 88 — 3A

SLUG OUT



BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	7.80	0.000	0	ERR
2	0.04	8.91	1.110	2	0.1044
3	0.08	8.84	1.040	5	0.0392
4	0.09	8.74	0.940	5	-0.0619
5	0.11	8.69	0.890	7	-0.1165
6	0.13	8.68	0.880	8	-0.1278
7	0.14	8.66	0.860	8	-0.1508
8	0.16	8.64	0.840	10	-0.1744
9	0.18	8.62	0.820	11	-0.1985
10	0.19	8.61	0.810	11	-0.2107
11	0.21	8.59	0.790	13	-0.2357
12	0.23	8.58	0.780	14	-0.2485
13	0.24	8.56	0.760	14	-0.2744
14	0.26	8.54	0.740	16	-0.3011
15	0.28	8.53	0.730	17	-0.3147
16	0.29	8.51	0.710	17	-0.3425
17	0.31	8.50	0.700	19	-0.3567
18	0.39	8.43	0.630	23	-0.4620
19	0.48	8.36	0.560	29	-0.5798
20	0.56	8.30	0.500	34	-0.6931
21	0.64	8.25	0.450	38	-0.7985
22	0.73	8.20	0.400	44	-0.9163
23	0.81	8.16	0.360	49	-1.0217
24	0.89	8.12	0.320	53	-1.1394
25	0.98	8.09	0.290	59	-1.2379
26	1.06	8.06	0.260	64	-1.3471
27	1.14	8.03	0.230	68	-1.4697
28	1.23	8.01	0.210	74	-1.5606
29	1.31	7.99	0.190	79	-1.6607
30	1.39	7.97	0.170	83	-1.7720
31	1.48	7.95	0.150	89	-1.8971
32	1.56	7.93	0.130	94	-2.0402
33	1.64	7.92	0.120	98	-2.1203
34	1.73	7.91	0.110	104	-2.2073
35	1.81	7.90	0.100	109	-2.3026
36	1.89	7.88	0.080	113	-2.5257
37	1.98	7.87	0.070	119	-2.6593
38	2.48	7.84	0.040	149	-3.2189
39	2.98	7.81	0.010	179	-4.6052
40	3.48	7.80	0.000	209	ERR
41					
42					
43					

```
*PROJECT NAME      :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO        :35230
*WELL NO           :WELL URS - 14D (SLUG IN)
*ANALYST           :PRZYBYL              CHECKED BY :  HMJ
*DATE COLLECTED    :2-12-91
*RISER PIPE (ID):              (2 r sub c) =      2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) =      2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH:   (L)        =      5.00 Ft.
*MAX DRAWDOWN (IN SUBSET):  (Ymax)     =      1.11 Ft.
*STATIC WATER LEVEL:        (SWL)      =      7.80 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM:  (H)  =         35.41 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM):  (D) =            50.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)?              0
*SANDPACK'S SPECIFIC YIELD (Sy) =           0.15
-----------------------------------------------------------------------------
 BOUWER AND RICE CURVE COEFFICIENTS:
   RATIO OF L/(r sub w) =                       60.00
     ---LOG OF L/(r sub w) =                    1.7782
   FOR PARTIALLY PENETRATING WELLS--
                A =             3.38
                B =             0.50
   FOR FULLY PENETRATING WELLS--
                C =             3.01

     ---EVALUATION OF LN(Re/(r sub w)):
          CONST.1 =            0.1818
          CONST.2 =            5.1652  =(MAX. OF 6.0)=        5.1652
          LN(Re/(r sub w) =                3.55
-----------------------------------------------------------------------------
   EFFECTIVE r sub c (for sandpack dewatering) =      0.0833
   (1/T)(LN(Yo/Yt))  (SLOPE) =          -2.18E-02 sec^(-1)
 ------------------------------------------------------
 HYDRAULIC CONDUCTIVITY     (K)    =       5.38E-05 ft/sec      <==================
                                           1.64E-03 cm/sec      <==================
 ------------------------------------------------------
                      Regression Output:
 Constant                                          4.07E-02
 Std Err of Y Est                                    0.0122
 R Squared                                           0.9997
 No. of Observations                                     30
 Degrees of Freedom                                      28

 X Coefficient(s)                     -2.18E-02
 Std Err of Coef.                        0.0001
-----------------------------------------------------------------------------
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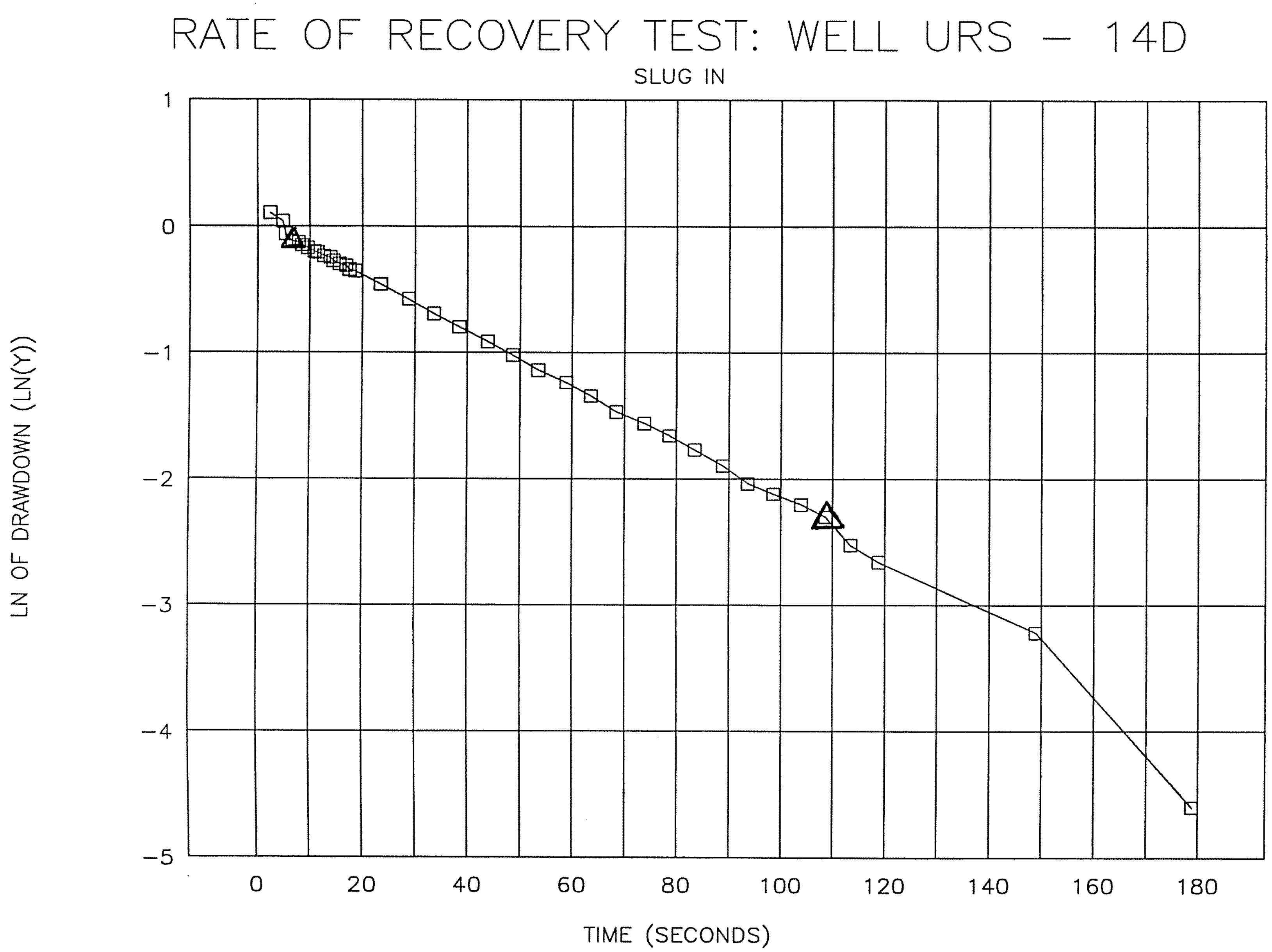
RATE OF RECOVERY TEST: WELL URS – 14D
SLUG IN
LN OF DRAWDOWN (LN(Y))
TIME (SECONDS)
1
0
–1
–2
–3
–4
–5
0
20
40
60
80
100
120
140
160
180

BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	5.45	0.000	0	ERR
2	0.05	5.04	0.410	3	-0.8916
3	0.06	5.07	0.380	4	-0.9676
4	0.15	5.08	0.370	9	-0.9943
5	0.41	5.09	0.360	25	-1.0217
6	0.50	5.10	0.350	30	-1.0498
7	0.75	5.11	0.340	45	-1.0788
8	0.83	5.12	0.330	50	-1.1087
9	1.08	5.13	0.320	65	-1.1394
10	1.25	5.14	0.310	75	-1.1712
11	1.41	5.15	0.300	85	-1.2040
12	1.58	5.16	0.290	95	-1.2379
13	1.83	5.17	0.280	110	-1.2730
14	2.50	5.20	0.250	150	-1.3863
15	3.00	5.22	0.230	180	-1.4697
16	3.50	5.24	0.210	210	-1.5606
17	4.00	5.26	0.190	240	-1.6607
18	4.50	5.27	0.180	270	-1.7148
19	5.00	5.29	0.160	300	-1.8326
20	5.50	5.31	0.140	330	-1.9661
21	6.00	5.32	0.130	360	-2.0402
22	6.50	5.33	0.120	390	-2.1203
23	7.00	5.34	0.110	420	-2.2073
24	7.50	5.35	0.100	450	-2.3026
25	8.00	5.36	0.090	480	-2.4079
26	9.00	5.37	0.080	540	-2.5257
27	10.00	5.38	0.070	600	-2.6593
28	12.00	5.40	0.050	720	-2.9957
29	14.00	5.42	0.030	840	-3.5066
30	18.00	5.43	0.020	1080	-3.9120
31	24.00	5.44	0.010	1440	-4.6052
32			5.450	0	1.6956
33			5.450	0	1.6956
34			5.450	0	1.6956
35			5.450	0	1.6956
36			5.450	0	1.6956
37			5.450	0	1.6956
38			5.450	0	1.6956
39			5.450	0	1.6956
40			5.450	0	1.6956
41					
42					
43					

```
*PROJECT NAME      :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO        :35230
*WELL NO           :WELL 88 - 11A (SLUG OUT)
*ANALYST           :PRZYBYL             CHECKED BY : NmJ
*DATE COLLECTED    :2-15-91
*RISER PIPE (ID):             (2 r sub c) =      2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) =      2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH:   (L)        =      5.00 Ft.
*MAX DRAWDOWN (IN SUBSET):  (Ymax)     =      0.41 Ft.
*STATIC WATER LEVEL:        (SWL)      =      5.45 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM:  (H)  =        8.36 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM):  (D) =          20.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)?         0
*SANDPACK'S SPECIFIC YIELD (Sy) =             0.15
------------------------------------------------------------------------
 BOUWER AND RICE CURVE COEFFICIENTS:
   RATIO OF L/(r sub w) =                        60.00
      ---LOG OF L/(r sub w) =                   1.7782
   FOR PARTIALLY PENETRATING WELLS--
                A =              3.38
                B =              0.50
   FOR FULLY PENETRATING WELLS--
                C =              3.01

     ---EVALUATION OF LN(Re/(r sub w)):
          CONST.1 =             0.2387
          CONST.2 =             4.9394  =(MAX. OF 6.0)=      4.9394
          LN(Re/(r sub w) =                2.97
------------------------------------------------------------------------
   EFFECTIVE r sub c (for sandpack dewatering) =      0.0833
   (1/T)(LN(Yo/Yt))  (SLOPE) =          -2.95E-03 sec^(-1)
 --------------------------------------------------------
 HYDRAULIC CONDUCTIVITY     (K)   =      6.09E-06 ft/sec      <==================
                                         1.86E-04 cm/sec      <==================
 --------------------------------------------------------
                      Regression Output:
 Constant                                        -9.52E-01
 Std Err of Y Est                                   0.0319
 R Squared                                          0.9978
 No. of Observations                                    25
 Degrees of Freedom                                     23

 X Coefficient(s)                    -2.95E-03
 Std Err of Coef.                       0.0000
------------------------------------------------------------------------
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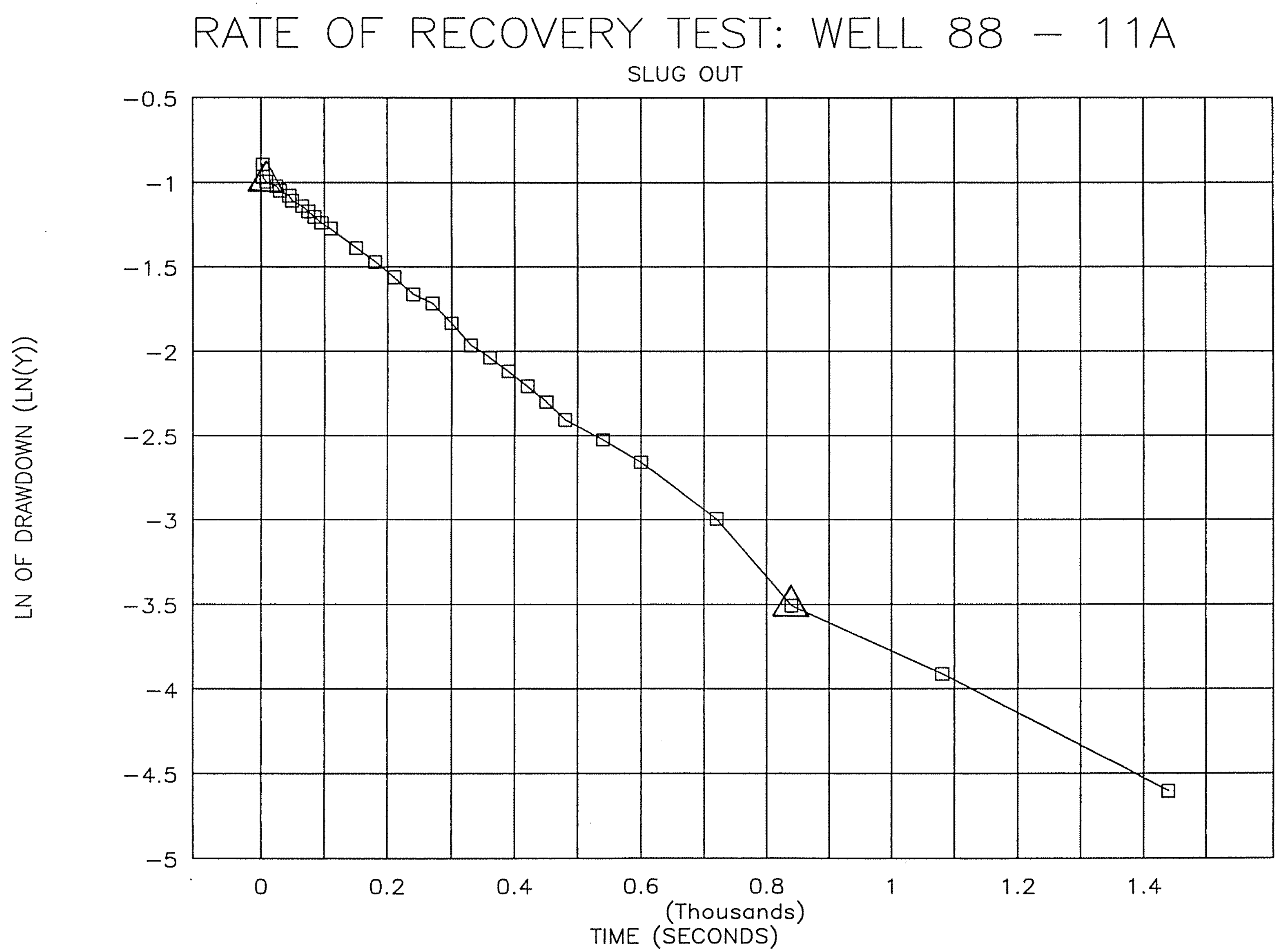

RATE OF RECOVERY TEST: WELL 88 — 11A
SLUG OUT
LN OF DRAWDOWN (LN(Y))
-0.5
-1
-1.5
-2
-2.5
-3
-3.5
-4
-4.5
-5
0
0.2
0.4
0.6
0.8
1
1.2
1.4
(Thousands)
TIME (SECONDS)

BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	6.01	0.000	0	ERR
2	0.06	5.60	0.410	4	-0.8916
3	0.10	5.62	0.390	6	-0.9416
4	0.11	5.64	0.370	7	-0.9943
5	0.13	5.65	0.360	8	-1.0217
6	0.15	5.66	0.350	9	-1.0498
7	0.16	5.68	0.330	10	-1.1087
8	0.18	5.69	0.320	11	-1.1394
9	0.20	5.70	0.310	12	-1.1712
10	0.21	5.71	0.300	13	-1.2040
11	0.23	5.72	0.290	14	-1.2379
12	0.25	5.73	0.280	15	-1.2730
13	0.26	5.74	0.270	16	-1.3093
14	0.28	5.75	0.260	17	-1.3471
15	0.30	5.76	0.250	18	-1.3863
16	0.31	5.77	0.240	19	-1.4271
17	0.41	5.81	0.200	25	-1.6094
18	0.50	5.84	0.170	30	-1.7720
19	0.58	5.87	0.140	35	-1.9661
20	0.75	5.90	0.110	45	-2.2073
21	0.83	5.91	0.100	50	-2.3026
22	0.91	5.92	0.090	55	-2.4079
23	1.00	5.94	0.070	60	-2.6593
24	1.16	5.95	0.060	70	-2.8134
25	1.33	5.96	0.050	80	-2.9957
26	1.58	5.97	0.040	95	-3.2189
27	2.50	5.98	0.030	150	-3.5066
28	8.00	5.99	0.020	480	-3.9120
29			6.010	0	1.7934
30			6.010	0	1.7934
31			6.010	0	1.7934
32			6.010	0	1.7934
33			6.010	0	1.7934
34			6.010	0	1.7934
35			6.010	0	1.7934
36			6.010	0	1.7934
37			6.010	0	1.7934
38			6.010	0	1.7934
39			6.010	0	1.7934
40			6.010	0	1.7934
41					
42					
43					

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL 88 - 10A (SLUG OUT)
*ANALYST :PRZYBYL CHECKED BY : QMJ
*DATE COLLECTED :2-15-91
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 5.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 0.41 Ft.
*STATIC WATER LEVEL: (SWL) = 6.01 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 8.98 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 20.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 0
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 60.00
---LOG OF L/(r sub w) = 1.7782
FOR PARTIALLY PENETRATING WELLS--
A = 3.38
B = 0.50
FOR FULLY PENETRATING WELLS--
C = 3.01

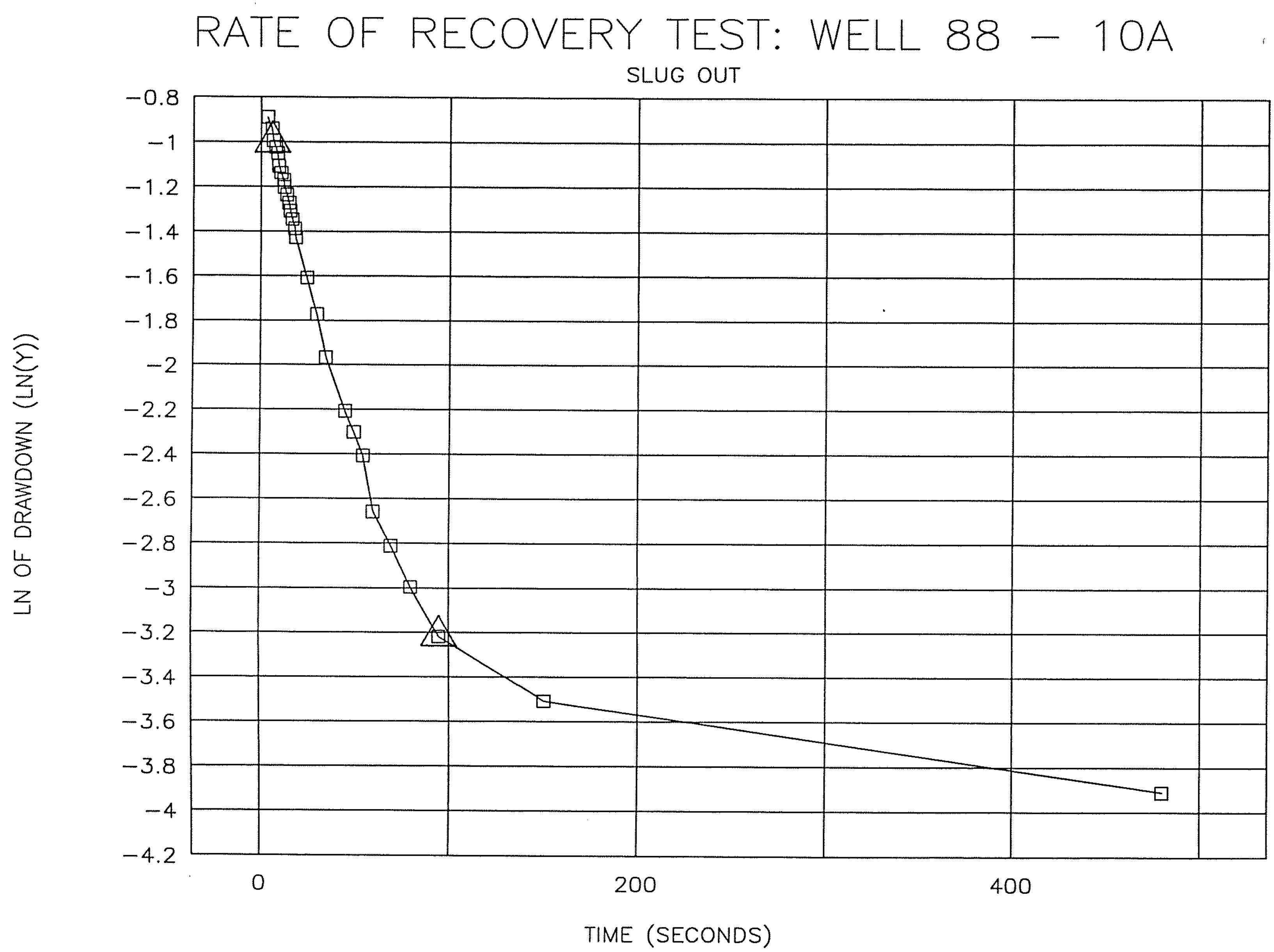
---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.2350
CONST.2 = 4.8846 =(MAX. OF 6.0)= 4.8846
LN(Re/(r sub w) = 3.01

EFFECTIVE r sub c (for sandpack dewatering) = 0.0833
(1/T)(LN(Yo/Yt)) (SLOPE) = -2.70E-02 sec^(-1)

HYDRAULIC CONDUCTIVITY (K) = 5.63E-05 ft/sec <==================
1.72E-03 cm/sec <==================

Regression Output:

Constant	-8.95E-01
Std Err of Y Est	0.0851
R Squared	0.9858
No. of Observations	22
Degrees of Freedom	20
X Coefficient(s)	-2.70E-02
Std Err of Coef.	0.0007


RATE OF RECOVERY TEST: WELL 88 — 10A
SLUG OUT
LN OF DRAWDOWN (LN(Y))
−0.8
−1
−1.2
−1.4
−1.6
−1.8
−2
−2.2
−2.4
−2.6
−2.8
−3
−3.2
−3.4
−3.6
−3.8
−4
−4.2
0
200
400
TIME (SECONDS)

BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	6.52	0.000	0	ERR
2	0.06	6.16	0.360	4	-1.0217
3	0.08	6.21	0.310	5	-1.1712
4	0.10	6.26	0.260	6	-1.3471
5	0.11	6.30	0.220	7	-1.5141
6	0.13	6.34	0.180	8	-1.7148
7	0.15	6.36	0.160	9	-1.8326
8	0.16	6.39	0.130	10	-2.0402
9	0.18	6.41	0.110	11	-2.2073
10	0.20	6.42	0.100	12	-2.3026
11	0.21	6.44	0.080	13	-2.5257
12	0.23	6.45	0.070	14	-2.6593
13	0.25	6.46	0.060	15	-2.8134
14	0.26	6.47	0.050	16	-2.9957
15	0.36	6.49	0.030	22	-3.5066
16	0.45	6.51	0.010	27	-4.6052
17			6.520	0	1.8749
18			6.520	0	1.8749
19			6.520	0	1.8749
20			6.520	0	1.8749
21			6.520	0	1.8749
22			6.520	0	1.8749
23			6.520	0	1.8749
24			6.520	0	1.8749
25			6.520	0	1.8749
26			6.520	0	1.8749
27			6.520	0	1.8749
28			6.520	0	1.8749
29			6.520	0	1.8749
30			6.520	0	1.8749
31			6.520	0	1.8749
32			6.520	0	1.8749
33			6.520	0	1.8749
34			6.520	0	1.8749
35			6.520	0	1.8749
36			6.520	0	1.8749
37			6.520	0	1.8749
38			6.520	0	1.8749
39			6.520	0	1.8749
40			6.520	0	1.8749
41					
42					
43					

```
*PROJECT NAME        :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO          :35230
*WELL NO             :WELL 88 - 7A (SLUG OUT)
*ANALYST             :PRZYBYL              CHECKED BY : HMJ
*DATE COLLECTED      :2-27-91
*RISER PIPE (ID):              (2 r sub c) =      2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) =          2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN LENGTH:     (L)       =         5.00 Ft.
*MAX DRAWDOWN (IN SUBSET):  (Ymax)      =         0.36 Ft.
*STATIC WATER LEVEL:          (SWL)     =         6.52 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM:  (H)  =          8.18 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM):  (D) =             18.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)?             0
*SANDPACK'S SPECIFIC YIELD (Sy) =                 0.15
--------------------------------------------------------------------------------
 BOUWER AND RICE CURVE COEFFICIENTS:
   RATIO OF L/(r sub w) =                        60.00
     ---LOG OF L/(r sub w) =                    1.7782
   FOR PARTIALLY PENETRATING WELLS--
                A =                  3.38
                B =                  0.50
   FOR FULLY PENETRATING WELLS--
                C =                  3.01

     ---EVALUATION OF LN(Re/(r sub w)):
           CONST.1 =               0.2398
           CONST.2 =               4.7693  =(MAX. OF 6.0)=       4.7693
           LN(Re/(r sub w) =                  2.97
--------------------------------------------------------------------------------
   EFFECTIVE r sub c (for sandpack dewatering) =       0.0833
   (1/T)(LN(Yo/Yt))  (SLOPE) =              -1.50E-01 sec^(-1)
 |------------------------------------------------------------|
 |HYDRAULIC CONDUCTIVITY     (K)   =        3.09E-04 ft/sec    |   <==================
 |                                          9.43E-03 cm/sec    |   <==================
 |------------------------------------------------------------|
                          Regression Output:
 Constant                                          -5.28E-01
 Std Err of Y Est                                     0.0993
 R Squared                                            0.9900
 No. of Observations                                      15
 Degrees of Freedom                                       13

 X Coefficient(s)                          -1.50E-01
 Std Err of Coef.                             0.0042
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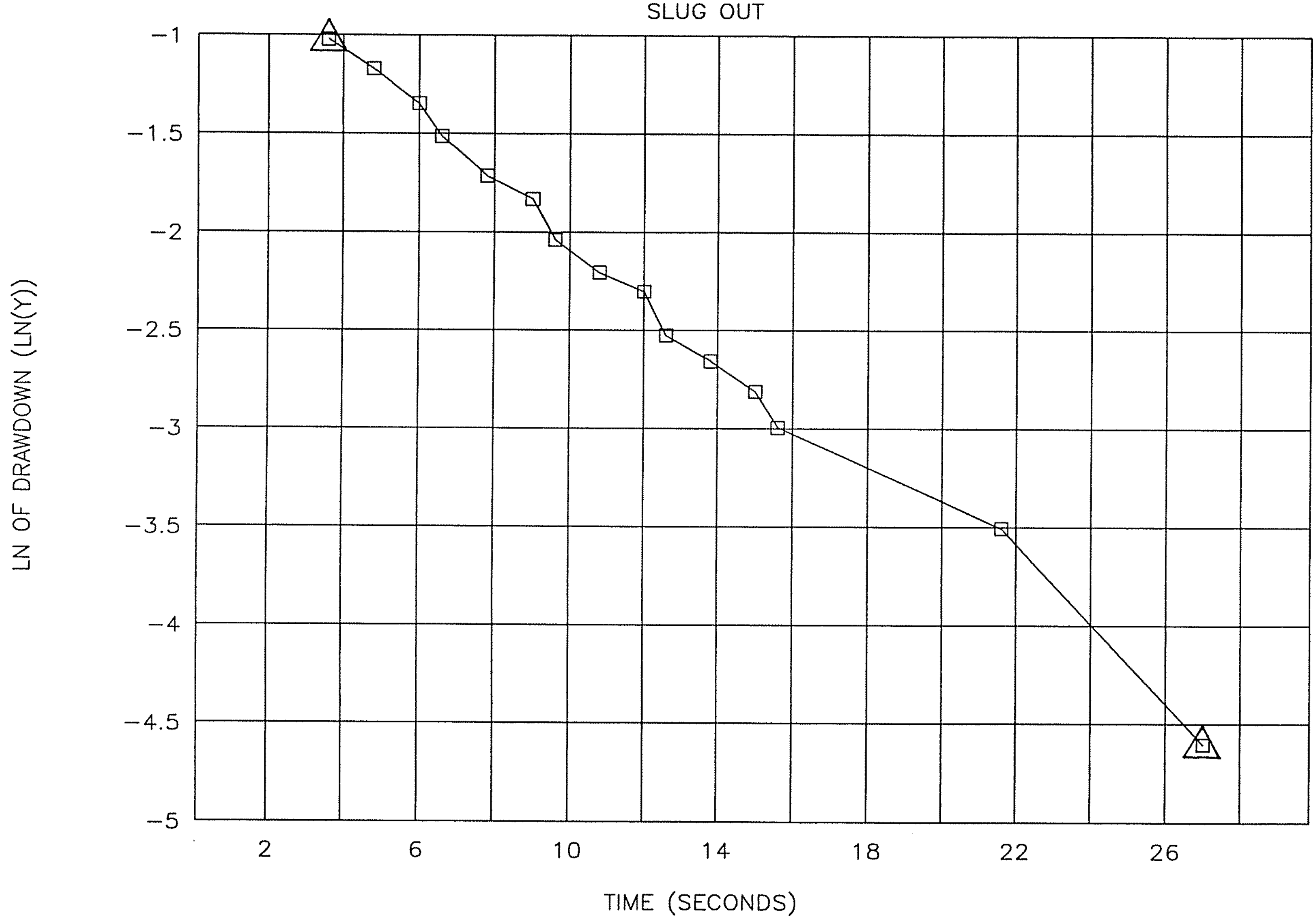
RATE OF RECOVERY TEST: WELL 88 – 7A

SLUG OUT



BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	5.41	0.000	0	ERR
2	0.01	4.97	0.440	1	-0.8210
3	0.02	5.08	0.330	1	-1.1087
4	0.04	5.13	0.280	2	-1.2730
5	0.05	5.14	0.270	3	-1.3093
6	0.09	5.15	0.260	5	-1.3471
7	0.20	5.16	0.250	12	-1.3863
8	0.90	5.17	0.240	54	-1.4271
9	2.99	5.18	0.230	179	-1.4697
10	4.49	5.19	0.220	269	-1.5141
11	6.99	5.20	0.210	419	-1.5606
12	9.99	5.21	0.200	599	-1.6094
13	11.99	5.22	0.190	719	-1.6607
14	13.99	5.23	0.180	839	-1.7148
15	17.99	5.24	0.170	1079	-1.7720
16	19.99	5.25	0.160	1199	-1.8326
17	21.99	5.26	0.150	1319	-1.8971
18	23.99	5.27	0.140	1439	-1.9661
19	27.99	5.28	0.130	1679	-2.0402
20	29.99	5.29	0.120	1799	-2.1203
21			5.410	0	1.6882
22			5.410	0	1.6882
23			5.410	0	1.6882
24			5.410	0	1.6882
25			5.410	0	1.6882
26			5.410	0	1.6882
27			5.410	0	1.6882
28			5.410	0	1.6882
29			5.410	0	1.6882
30			5.410	0	1.6882
31			5.410	0	1.6882
32			5.410	0	1.6882
33			5.410	0	1.6882
34			5.410	0	1.6882
35			5.410	0	1.6882
36			5.410	0	1.6882
37			5.410	0	1.6882
38			5.410	0	1.6882
39			5.410	0	1.6882
40			5.410	0	1.6882
41					
42					
43					

```
*PROJECT NAME        :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO          :35230
*WELL NO             :WELL URS - 14S (SLUG OUT)
*ANALYST             :PRZYBYL              CHECKED BY : HMJ
*DATE COLLECTED      :2-14-91
*RISER PIPE (ID):             (2 r sub c) =       2.0 in. =      0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER:(2 r sub w) =       9.0 in. =      0.3750 (radius in ft.)
*EFFECTIVE SCREEN LENGTH:   (L)        =      8.70 Ft.
*MAX DRAWDOWN (IN SUBSET):  (Ymax)     =      0.44 Ft.
*STATIC WATER LEVEL:        (SWL)      =      5.41 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM:  (H)  =          10.30 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM):  (D) =              15.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)?              1
*SANDPACK'S SPECIFIC YIELD (Sy) =             0.15
-------------------------------------------------------------------------------
 BOUWER AND RICE CURVE COEFFICIENTS:
   RATIO OF L/(r sub w) =                     23.20
     ---LOG OF L/(r sub w) =                 1.3655
   FOR PARTIALLY PENETRATING WELLS--
                 A =                2.20
                 B =                0.31
   FOR FULLY PENETRATING WELLS--
                 C =                1.61

     ---EVALUATION OF LN(Re/(r sub w)):
          CONST.1 =               0.3320
          CONST.2 =               2.5284  =(MAX. OF 6.0)=      2.5284
          LN(Re/(r sub w) =                 2.17
-------------------------------------------------------------------------------
   EFFECTIVE r sub c (for sandpack dewatering) =      0.1643
   (1/T)(LN(Yo/Yt))  (SLOPE) =          -3.86E-04 sec^(-1)
 |-----------------------------------------------------------|
 |HYDRAULIC CONDUCTIVITY     (K)   =       1.30E-06 ft/sec   |   <==================
 |                                         3.96E-05 cm/sec   |   <==================
 |-----------------------------------------------------------|
                         Regression Output:
 Constant                                          -1.39E+00
 Std Err of Y Est                                     0.0197
 R Squared                                            0.9929
 No. of Observations                                      13
 Degrees of Freedom                                       11

 X Coefficient(s)                      -3.86E-04
 Std Err of Coef.                         0.0000
-------------------------------------------------------------------------------
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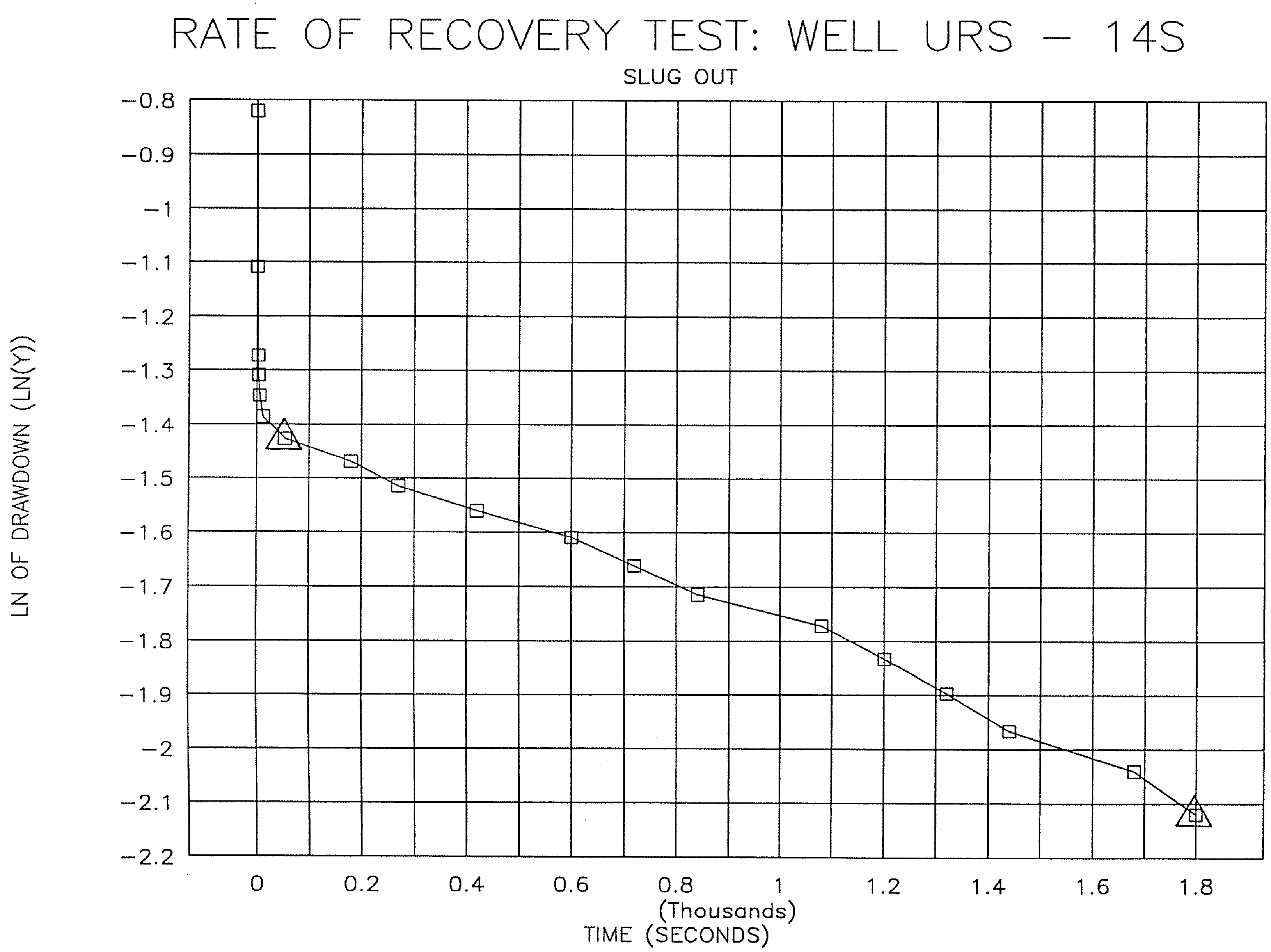

RATE OF RECOVERY TEST: WELL URS – 14S
SLUG OUT
LN OF DRAWDOWN (LN(Y))
-0.8
-0.9
-1
-1.1
-1.2
-1.3
-1.4
-1.5
-1.6
-1.7
-1.8
-1.9
-2
-2.1
-2.2
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
(Thousands)
TIME (SECONDS)

BOUWER AND RICE METHOD FOR INTERPRETATION OF SLUG TESTS: FOR UNCONFINED AND LEAKY CONFINED AQUIFERS.
TO UTILIZE THIS WORKSHEET, ENTER YOUR DATA AT LOCATIONS MARKED BY AN "*".
PROGRAM CAN INCLUDE EFFECTS OF SANDPACK DEWATERING (ASSUMING WATER IS RISING WITHIN THE SANDPACK).

#	*TIME min (X)	*DEPTH TO WATER Ft.	DRAWDOWN (Y)	TIME sec (X')	LN (Y)
1	0.00	10.26	0.000	0	ERR
2	0.10	9.28	0.980	6	-0.0202
3	0.11	9.31	0.950	7	-0.0513
4	0.13	9.33	0.930	8	-0.0726
5	0.20	9.34	0.920	12	-0.0834
6	0.45	9.35	0.910	27	-0.0943
7	1.11	9.36	0.900	67	-0.1054
8	2.95	9.37	0.890	177	-0.1165
9	4.95	9.38	0.880	297	-0.1278
10	7.95	9.39	0.870	477	-0.1393
11	9.95	9.40	0.860	597	-0.1508
12	13.95	9.41	0.850	837	-0.1625
13	15.95	9.42	0.840	957	-0.1744
14	19.95	9.43	0.830	1197	-0.1863
15	21.95	9.44	0.820	1317	-0.1985
16	23.95	9.45	0.810	1437	-0.2107
17	27.95	9.46	0.800	1677	-0.2231
18	29.95	9.47	0.790	1797	-0.2357
19			10.260	0	2.3283
20			10.260	0	2.3283
21			10.260	0	2.3283
22			10.260	0	2.3283
23			10.260	0	2.3283
24			10.260	0	2.3283
25			10.260	0	2.3283
26			10.260	0	2.3283
27			10.260	0	2.3283
28			10.260	0	2.3283
29			10.260	0	2.3283
30			10.260	0	2.3283
31			10.260	0	2.3283
32			10.260	0	2.3283
33			10.260	0	2.3283
34			10.260	0	2.3283
35			10.260	0	2.3283
36			10.260	0	2.3283
37			10.260	0	2.3283
38			10.260	0	2.3283
39			10.260	0	2.3283
40			10.260	0	2.3283
41					
42					
43					

*PROJECT NAME :FRONTIER CHEMICAL - PENDELTON RI/FS
*PROJECT NO :35230
*WELL NO :WELL 88 - 11C (SLUG OUT)
*ANALYST :PRZYBYL CHECKED BY : HMJ
*DATE COLLECTED :2-27-91
*RISER PIPE (ID): (2 r sub c) = 2.0 in. = 0.0833 (radius in ft.)
*EFFECTIVE SCREEN DIAMETER: (2 r sub w) = 9.0 in. = 0.3750 (radius in ft.)
*EFFECTIVE SCREEN LENGTH: (L) = 8.00 Ft.
*MAX DRAWDOWN (IN SUBSET): (Ymax) = 0.98 Ft.
*STATIC WATER LEVEL: (SWL) = 10.26 Ft.
*DEPTH FROM SWL TO EFF. SCREEN BOTTOM: (H) = 29.18 Ft.
*EST. AQUIFER DEPTH (SWL TO AQUIFER BOTTOM): (D) = 50.00 Ft.
*INCLUDE SANDPACK DEWATERING (ENTER 1 IF YES, 0 IF NO)? 1
*SANDPACK'S SPECIFIC YIELD (Sy) = 0.15

BOUWER AND RICE CURVE COEFFICIENTS:
RATIO OF L/(r sub w) = 21.33
---LOG OF L/(r sub w) = 1.3291
FOR PARTIALLY PENETRATING WELLS--
A = 2.14
B = 0.30
FOR FULLY PENETRATING WELLS--
C = 1.56

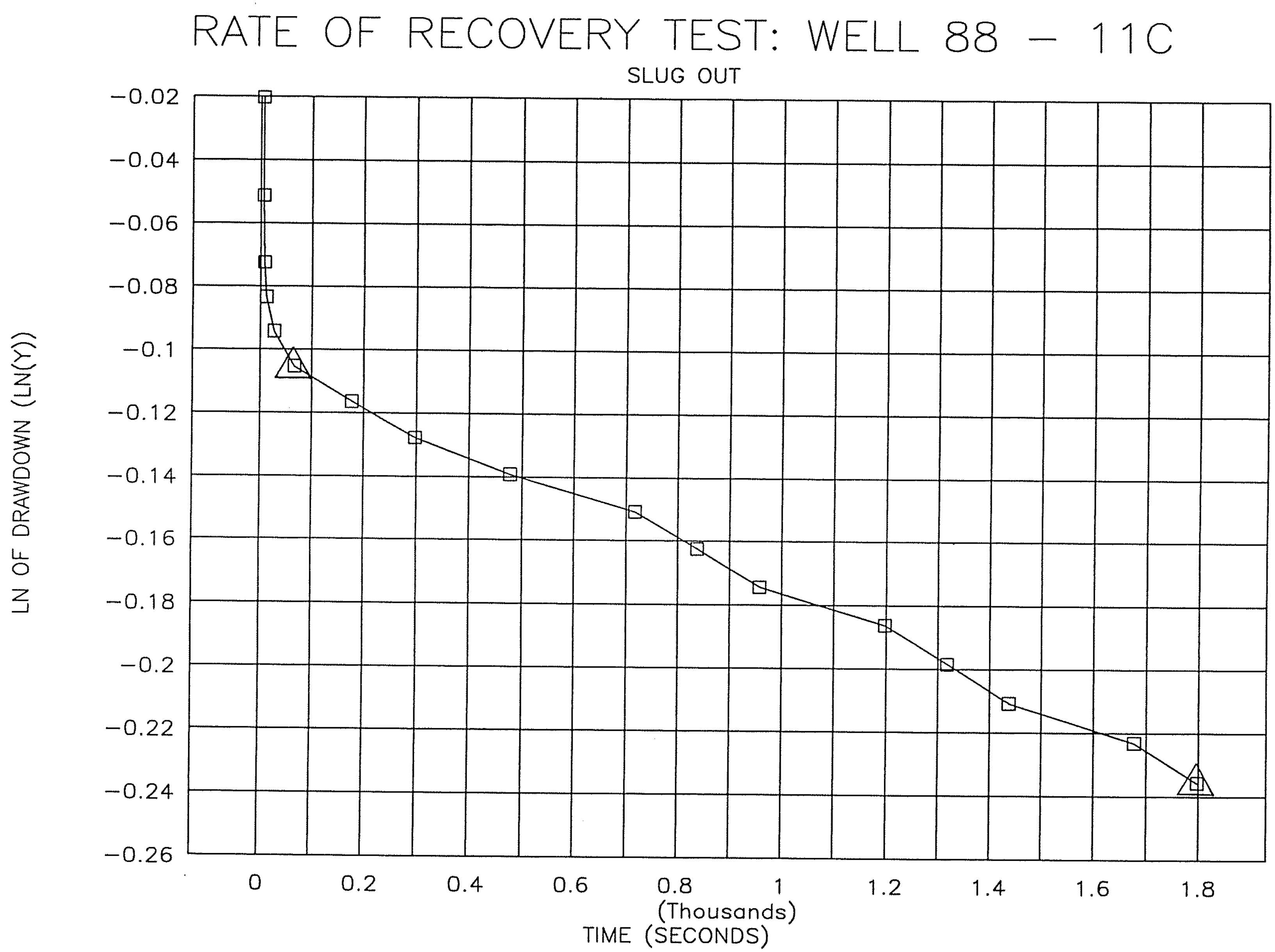
---EVALUATION OF LN(Re/(r sub w)):
CONST.1 = 0.2526
CONST.2 = 4.0167 =(MAX. OF 6.0)= 4.0167
LN(Re/(r sub w) = 2.44

EFFECTIVE r sub c (for sandpack dewatering) = 0.1643
(1/T)(LN(Yo/Yt)) (SLOPE) = -7.24E-05 sec^(-1)

HYDRAULIC CONDUCTIVITY (K) = 2.98E-07 ft/sec <==================
9.08E-06 cm/sec <==================

Regression Output:

Constant	-1.04E-01
Std Err of Y Est	0.0027
R Squared	0.9965
No. of Observations	12
Degrees of Freedom	10
X Coefficient(s)	-7.24E-05
Std Err of Coef.	0.0000


RATE OF RECOVERY TEST: WELL 88 – 11C
SLUG OUT
LN OF DRAWDOWN (LN(Y))
−0.02
−0.04
−0.06
−0.08
−0.1
−0.12
−0.14
−0.16
−0.18
−0.2
−0.22
−0.24
−0.26
0
0.2
0.4
0.6
0.8
1
1.2
1.4
1.6
1.8
(Thousands)
TIME (SECONDS)

APPENDIX N

WATER BALANCE CALCULATIONS

URS CONSULTANTS, INC.

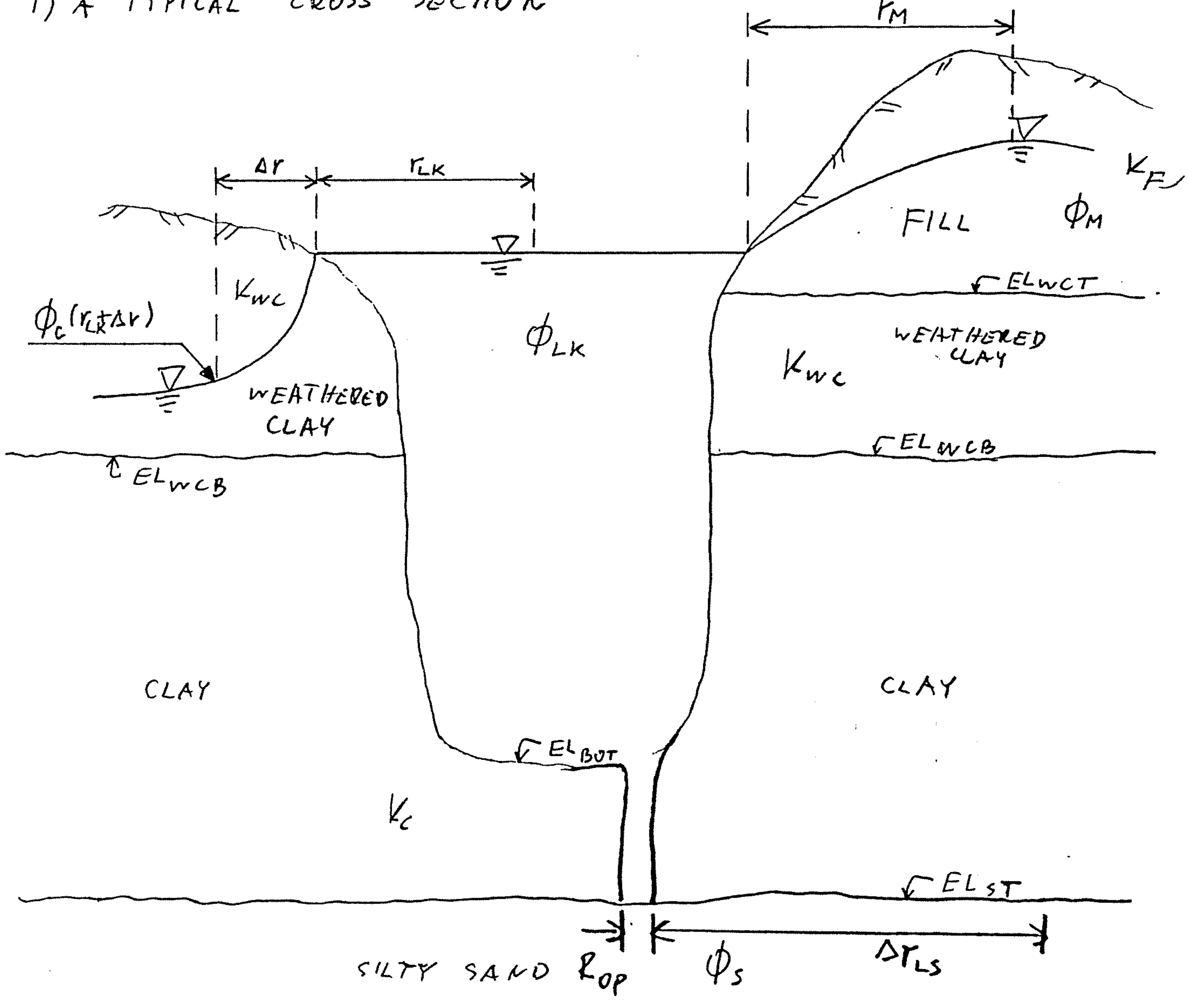
PROJECT FRONTIER
SUBJECT

PAGE ... OF ...
SHEET NO. 1 OF ...
JOB NO. 35207.00.
MADE BY MO DATE 01/11/91
CHKD. BY ... DATE ...

REF. PAGE

WATER BALANCE FOR THE LAKE

1) A TYPICAL CROSS SECTION



ϕ_{LK} - PIEZOMETRIC HEAD IN THE LAKE
r_{LK} - RADIOUS OF THE LAKE
ϕ_M - PIEZOMETRIC HEAD OF THE RECHARGE MOUND
r_M - DISTANCE FROM THE LAKE TO THE RECHARGE MOUND
Δr - DISTANCE FROM THE LAKE TO THE LOCATION OF KNOWN PIEZOMETRIC HEAD WITHIN CLAY
ϕ_c - PIEZOMETRIC HEAD IN THE CLAY
ϕ_s - PIEZOMETRIC HEAD IN SILTY SAND

URS CONSULTANTS, INC.

PROJECT FRONTIER
SUBJECT

PAGE ..... OF .....
SHEET NO. 2 OF .....
JOB NO. 35207.00
MADE BY MO DATE 01/11/91
CHKD. BY ..... DATE .....

REF. PAGE

EL_{BOT} - ELEVATION OF THE BOTTOM OF THE LAKE

EL_{WCB} - ELEVATION OF THE BOTTOM OF WEATHERED CLAY

EL_{WCT} - ELEVATION OF THE TOP OF WEATHERED CLAY

EL_{ST} - ELEVATION OF THE TOP OF SILTY SAND

K_F - HYDR. COND. OF THE FILL

K_C - HYDR. COND. OF THE CLAY

K_{WC} - HYDR. COND. OF THE WEATHERED CLAY

L_m - LENGTH OF THE RECHARGE MOUND

R_{op} - RADIOUS OF THE OPENING IN LAKE BOTTOM

Δr_{LS} - DISTANCE FROM THE OPENING IN LAKE BOTTOM TO THE MEASURED ϕ IN A SAND AQUIFER

C_{ev} - COEFFICENT RELATING LAKE EVAPORATION TO PENN EVAPORATION

H_{ev} - EVAPORATION (PEN EVAP) FOR THE PERIOD

H_r - RAINFALL — " — "

N_{DAYS} - NUMBER OF DAYS IN THE TIME PERIOD

A_{tr} - TRIBUTARY AREA FOR STORM RUNOFF

C - RUNOFF COEFF

I - RAINFAL INTENSITY

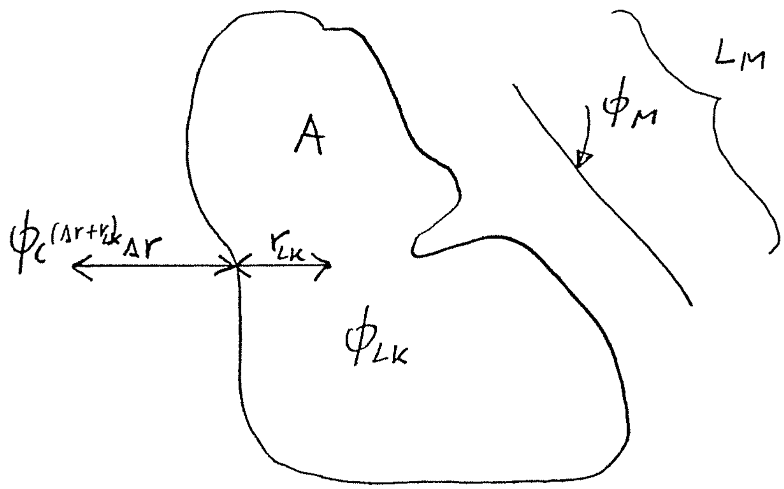
URS CONSULTANTS, INC.

PAGE .... OF ....
SHEET NO. 3 OF ....
JOB NO. 35207.00
MADE BY MO DATE 01/11/91
CHKD. BY .... DATE ....

PROJECT FRONTIER
SUBJECT

REF. PAGE

2) PLAN VIEW



L_M - LENGHT OF A RECHARGE MOUND
P - PERIMETER OF THE LAKE
A - AREA OF THE LAKE

3) APPROACH

- STEADY STATE WAS ASSUMED. THE PERIOD OF 07/09 - 08/02 1990 WAS SELECTED BECAUSE OF THE SMALL VARIATIONS IN OBSERVED WATER LEVELS AND THEREFOR CAN CLOSELY APPROXIMATE THE STEADY STATE

- THE SHAPE OF THE LAKE WAS APPROXIMATED BY A CIRCLE WITH SUCH r_{LK} THAT THE ACTUAL PERIMETER OF THE LAKE IS KEPT. THIS WAS DONE IN ORDER TO APPLY THE RECHARGING WELL FORMULA

$$2\pi r_{LK} = P$$

r_{LK} - LAKE RADIOUS
P - ACTUAL LAKE PERIMETER

$$r_{LK} = \frac{P}{2\pi}$$

RECHARGING WELL FORMULAE

$$\left[\phi_c(r_{LK}+\Delta r) - EL_{WCB}\right]^2 - \left[\phi_{LK} - EL_{WCB}\right]^2 = \frac{Q'_{W_1}}{\pi K_{WC}} \ln\left(\frac{r_{LK}+\Delta r}{r_{LK}}\right)$$

UNCONF, FOR A WEATHERED CLAY (REF1), P. 310, FORM 8

$$Q_{W_1} = \frac{P - L_M}{P} \times Q'_{W_1}$$

$$\left[\phi_c(r_{LK}+\Delta r) - EL_{BOT}\right] - \left[\phi_{LK} - EL_{BOT}\right] = \frac{Q'_{W_2}}{2\pi(EL_{WCB} - EL_{BOT})K_c} \ln\left(\frac{r_{LK}+\Delta r}{r_{LK}}\right)$$

CONFINED, FOR A CLAY LAYER (REF1), P 3[illegible] FORM 8-[illegible]

$$Q_{W_2} = \frac{P - L_M}{P} Q'_{W_2}$$

$Q_{W_{1,2}}$ - FLOW LOST BY THE LAKE THROUGH UNCONFINED/CONFINED AQUIFERS

- THE FLOW THROUGH THE BOTTOM WAS CALCULATED AS

$$Q_{W3} = A K_c \frac{(\phi_{LK} - \phi_S)}{EL_{BOT} - EL_{ST}} \times (-1)$$

- THE RECHARGE WAS APPROXIMATED BY A DUPUIT DISCHARGE FORMULA FOR A STRATIFIED AQUIFER

$$Q_6 = L_M \left\{ \left[K_{WC} (EL_{WCT} - EL_{WCB}) \frac{(\phi_M - EL_{WCB}) - (\phi_{LK} - EL_{WCB})}{r_M} \right] + \right.$$

$$\left. + \frac{K_F}{2 r_M} \left[(\phi_M - EL_{WCT})^2 - (\phi_{LK} - EL_{WCT})^2 \right] \right\}$$

(REF1, P80, FORM 4-67)

- ~~THE EVAPORATION WAS TAKEN FROM A MAP OF AVG. ANNUAL LAKE EVAPORATION FOR BUFFALO. SINCE THE PERIOD SIMULATED IS JULY - AUGUST, THE AVG. EVAPORATION WAS MULTIPLIED BY 2~~

$$i_{EV_{AVG}} = 27 \text{ in/YR} = 2.2 \times 10^{-8} \text{ M/S} \rightarrow i_{EV} = 4.4E-8 \text{ M/S}$$

$$Q_{EV} = i_{EV} \times A$$

- ~~THE STORM RUNOFF~~ Q_{R2}

$$Q_{R2} = \frac{V \cdot R_c}{t}$$

~~V - VOLUME OF RAINFALL~~

V = ~~INTENSITY × ARE OF WATERSHED~~

~~t - TIME OF SIMULATION~~

~~R_c - RUNOFF COEFFICIENT~~

$$I_{JULY} = 3.14 \text{ IN} \rightarrow I_{07/9-08/2} = \frac{3.14}{31} \times (31-9+2) = 2.64 \text{ IN} =$$

$$= 0.067 \text{ M}$$

PROJECT FRONTIER
SUBJECT

REF. PAGE

- FLOW THROUGH THE OPENINGS IN THE LAKE BOTTOM CALCULATED AS FOLLOWS

$$Q_4 = \frac{2\pi\,(\phi_{LS} - \phi_{LK})\,K_{LS}}{\frac{1}{R_{OP}} - \frac{1}{R_{OP} + \Delta r_{LS}}}$$

(REF 1, P. 345, FORM 8-118)

- THE EVAPORATION WAS FROM THE CLIMATOLOGICAL DATA FOR THE LOCPORT STATION.

$$Q_5 = A \times I_{ev} = A \times \frac{H_{ev}}{12} \times C_{ev} / N_{DAYS}$$

- RAINFALL WAS TAKEN FROM THE CLIMATOLOGICAL DATA FOR THE LOCPORT STATION

$$Q_7 = A \times I_{rain} = A \times \frac{H_r}{12} / N_{DAYS}$$

- STORM RUNOFF

$$Q_8 = C\, I\, A_{TR}$$

REFERENCES

REF 1. HYDRAULICS OF GROUNDWATER, BEAR

FRONTIER CHEMICAL
QUARRY LAKE WATER BALANCE FOR THE PERIOD OF
07/11/90 TO 08/09/90

1. FLOW THROUGH THE WEATHERED CLAY

* LENGTH OF THE RECHARGE MOUND
  Lm = 400 FT — (REF 1, FIGURES 3-14 & 3-15)
* LAKE PERIMETER AND CORRESPONDING AVG. RADIUS
  P = 4000 FT — (REF 2)
  Rlk = 637 FT
* AVG. HYDRAULIC HEAD IN THE LAKE FOR THE ENTIRE PERIOD
  PHIlk = 576.62 FT — (REF 1, TABLE 3-4)
* DISTANCE FROM THE LAKE TO THE WELL SCREENED IN SHALLOW CLAY WITH KNOWN HYDRAULIC HEAD (URS - 8S)
  DEL R = 230 FT — (REF 1, FIG 3-12)
* HYDRAULIC HEAD IN THE WELL (URS - 8S)
  PHIc = 570.65 FT — (REF 1, TABLE 3-4)
* ELEVATION OF THE WEATHERED CLAY BOTTOM
  ELwcb = 570 FT — (REF 1, FIGURES 3-8 & 3-9)
* HYDRAULIC CONDUCTIVITY OF THE WEATHERED CLAY
  Kwc = 4.80E-06 CM/SEC = 0.01 FT/DAY — (REF 1, TABLE 3-3)

FLOW CALCULATED AS FOLLOWS :

Q1 = 3.14*[(P-Lm)/P]*[(PHIc-ELwcb)^2-(PHIlk-ELwcb)^2]*Kwc/ln[(Rlk+DEL R)/Rlk]

Q1 = -5 CU FT/DAY

** NOTE : MINUS SIGN (-) DENOTES FLOW OUT OF THE LAKE
PLUS SIGN (+) DENOTES FLOW INTO THE LAKE

2. FLOW THROUGH THE CLAY LAYER

* AVG. ELEVATION OF THE BOTTOM OF THE LAKE
  ELbot = 565 FT — (REF 1, FIGURES 3-8 & 3-9)
* HYDRAULIC CONDUCTIVITY OF THE CLAY LAYER
  Kc = 2.30E-07 CM/SEC = 0.0007 FT/DAY — (REF 1, TABLE 3-3)

FLOW CALCULATED AS FOLLOWS :

Q2 = 6.28*[(P-Lm)/P]*[(PHIc-ELbot)-(PHIlk-ELbot)]*Kc*(ELwcb-ELbot)/ln[(Rlk+DEL R)/Rlk]

Q2 = 0 CU FT/DAY

** NOTE : MINUS SIGN (-) DENOTES FLOW OUT OF THE LAKE
PLUS SIGN (+) DENOTES FLOW INTO THE LAKE

3. FLOW THROUGH THE BOTTOM OF THE LAKE

* HYDRAULIC HEAD IN THE LACUSTRINE SAND LAYER (AVG. OF LEVELS IN WELLS 85-1R, 85-5R, 85-7R)

  PHIls = 574.78 FT (REF 1, TABLE 3-4)

* AREA OF THE LAKE

  A = 15.5 ACRES = 6.75E+05 SQ FT (REF 2)

FLOW CALCULATED AS FOLLOWS :

Q3 = A*Kc*(PHIls-PHIlk)*SUM({(%)i/[(ELlake bot)i-(ELsand top)i]}

i NUMBER OF INCREM. AREA [-]	ELEV. OF LAKE BOTTOM [FT]	ELEV. OF SAND TOP [FT]	PERCENT OF BOTTOM AREA [-]	FLOW [FT^3/D]	
1	565	550	0.99	-53	
2					
			0.99	-53	CU FT/DAY

Q3 = -53 CU FT/DAY

** NOTE : MINUS SIGN (-) DENOTES FLOW OUT OF THE LAKE
PLUS SIGN (+) DENOTES FLOW INTO THE LAKE

4. FLOW THROUGH THE OPENINGS IN THE BOTTOM OF THE LAKE

* AREA OF THE OPENINGS AS A PERCCNTAGE OF THE LAKE BOTOM AND THE CORRESPONDING AVG. RADIUS

  Aop = 0.01 OF A (ASSUMED)

  Rop = 46 FT

* DISTANCE FROM THE LAKE TO THE WELL SCREENED IN THE LACUSTRINE SAND WITH KNOWN HYDRAULIC HEAD (85-2R)

  DEL Rls = 300 FT (REF 1, FIG 3-11)

* HYDRAULIC HEAD IN LACUSTRINE SAND AWAY FROM THE LAKE (WELL 85-2R)

  PHIlsa = 574.35 FT (REF 1, TABLE 3-4)

* HYDRAULIC CONDUCTIVITY OF THE LACUSTRINE SAND

  Kls = 3.20E-04 CM/SEC = 0.9066 FT/DAY (REF 1, TABLE 3-3)

FLOW CALCULATED AS FOLLOWS :

Q4 = 6.28*(PHIlsa-PHIlk)*Kls/(1/Rop+1/(Rop+DEL Rls))

Q4 = -692 CU FT/DAY

* TOTAL AREA OF THE BOTTOM USED AS A FRACTION OF THE ACTUAL BOTTOM AREA

  FRC = 1.00 OF A

** NOTE : MINUS SIGN (-) DENOTES FLOW OUT OF THE LAKE
PLUS SIGN (+) DENOTES FLOW INTO THE LAKE

5. EVAPORATION

* COEFFICIENT RELATING PAN EVAP. TO LAKE EVAP.

Cev = 0.7 (REF 3, PAGE 36)

* TOTAL PAN EVAP. FOR THE PERIOD

Hev = 5.68 INCH = 0.4733 FT (REF 4)

* AVG. EVAPORATION FOR THE PERIOD

Iev = Cev * Hev/N

Iev = 0.0114 FT/DAY

EVAPORATION CALCULATED AS FOLLOWS

Q5 = A * Iev

Q5 = -7714 CU FT/DAY

** NOTE : MINUS SIGN (-) DENOTES FLOW OUT OF THE LAKE
PLUS SIGN (+) DENOTES FLOW INTO THE LAKE

4. RECHARGE FROM THE RECHARGE MOUND

* DISTANCE FROM THE LAKE TO THE TOP OF THE RECHARGE MOUND

Rm = 200 FT (REF 1, FIGURES 3-14 & 3-15)

* ELEVATION OF THE WEATHERED CLAY TOP

ELwct = 575 FT (REF 1, FIGURES 3-9 & 3-8)

* HYDRAULIC CONDUCTIVITY OF THE FILL

Kf = 4.90E-05 CM/SEC = 0.1388 FT/DAY (REF 1, TABLE 3-3)

* HYDRAULIC HEAD ON TOP OF THE RECHARGE MOUND (WELLS 88-8A,88-3A,88-10A)

PHIm = 579.06 FT (REF 1, TABLE 3-4)

FLOW CALCULATED AS FOLLOWS :

Q6 = Lm*{[Kwc*(ELwct-ELwcb)*(PHIm-PHIlk)/Rm]+Kf*[(PHIm-ELwct)^2-(PHIlk-ELwct^2)]/(2*Rm)}

Q6 = 2 CU FT/DAY

** NOTE : MINUS SIGN (-) DENOTES FLOW OUT OF THE LAKE
PLUS SIGN (+) DENOTES FLOW INTO THE LAKE

7. DIRECT RECHARGE FROM THE RAINFALL

* TOTAL RAINFALL FOR THE PERIOD

Hr = 2.2 INCH = 0.1833 FT (REF 4)

* RAINFALL INTENSITY

Irain = 0.0063 FT/DAY = 0.0032 IN/HR

FLOW CALCULATED AS FOLLOWS :

Q7 = A * Irain

Q7 = 4268 CU FT/DAY

** NOTE : MINUS SIGN (-) DENOTES FLOW OUT OF THE LAKE
PLUS SIGN (+) DENOTES FLOW INTO THE LAKE

8. STORM RUNOFF

* TRIBUTARY AREA

Atr = 25 ACRES = 1.09E+06 SQ FT (REF 2)

* RUNOFF COEFFICIENT

C = 0.15 (REF 3, PAGE 362)

FLOW CALCULATED AS FOLLOWS :

Q8 = C * Irain *Atr

Q8 = 1033 CU FT/DAY

** NOTE : MINUS SIGN (-) DENOTES FLOW OUT OF THE LAKE
PLUS SIGN (+) DENOTES FLOW INTO THE LAKE

9. TOTAL FLOW INTO/OUT OF THE LAKE

Q = SUM(Q1 THROUGH Q8)

Q = -3161.92 CU FT/DAY

** NOTE : MINUS SIGN (-) DENOTES FLOW OUT OF THE LAKE
PLUS SIGN (+) DENOTES FLOW INTO THE LAKE

10. CHANGE IN STORAGE

* LAKE WATER LEVEL AT THE BEGINNING OF THE PERIOD

ELlkst = 576.72 FT (REF 1, TABLE 3-4)

* LAKE WATER LEVEL AT THE END OF THE PERIOD

ELlkend = 576.49 FT (REF 1, TABLE 3-4)

* LAKE VOLUME AT THE BEGINNING OF THE PERIOD

V(ELlkst = 194243 CY (REF 5)

* LAKE VOLUME AT THE END OF THE PERIOD

V(ELlkend) = 191139 CY (REF 5)

CHANGE IN STORAGE CALCULATED AS FOLLOWS

DEL STOR = V(ELlkend) - V(ELlkst)

DEL STOR = -83808 CU FT

** NOTE : MINUS SIGN (-) DENOTES NET LOSS OF WATER
PLUS SIGN (+) DENOTES NET GAIN OF WATER

11. WATER BALANCE

WATER BALANCE BASED ON :

ABS[DEL STOR/TIME] - ABS[SUM OF FLOWS] = ABS[FLOW IMBALANCE]

*	DEL STOR/TIME =	-2890	CU FT/DAY
*	SUM OF FLOWS =	-3162	CU FT/DAY
	FLOW IMBALANCE =	-272	CU FT/DAY

THE FLOW IMBALANCE REPRESENTS 9% OF THE CHANGE IN STORAGE

<u>LIST OF REFERENCES :</u>

1. RI REPORT, URS CONSULTANTS, MARCH 1991
2. TOPOGRAPHIC MAP
3. HYDROLOGY AND FLOODPLAIN ANALYSIS, BEDIENT & HUBER
4. CLIMATOLOGICAL DATA, LOCKPORT STATION
5. CADD CALCS. OF VOLUME VS. ELEVATION

<u>NOTE :</u>

PRECEEDING CALCULATIONS WERE BASED ON SEVERAL ASSUMPTIONS (SEE REFERENCES) THEREFORE, THEY SHOULD BE TREATED AS APPROXIMATE.

APPENDIX O

DATA VERIFICATION REPORT

ANALYTICAL DATA ASSESSMENT

FOR

FIRST-ROUND CHEMICAL ANALYSES FOR FRONTIER CHEMICAL

Performed by:

YORK LABORATORIES, INC., MONROE, CT

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

By:

URS CONSULTANTS, INC.

JANUARY 1991

INTRODUCTION: This assessment represents the best judgement of URS Consultants, Inc. (URS) concerning the useability and defensibility of chemical data produced by York Laboratories, Inc., a subcontractor to URS, as part of a Remedial Investigation/Feasibility Study at Frontier Chemical in the Township of Pendleton, New York. This project is being funded by the New York State Department of Environmental Conservation (NYSDEC), State Superfund Standby Work Assignment No. D002340-4. The data being evaluated is from first-round sampling of lake sediment, shallow probe soils, surface waters, surface sediments, trench samples, and groundwater samples. All analyses performed by York Laboratories, Inc. were subject to NYSDEC Analytical Services Protocol - September 1989.

Data documentation and Chain-of-Custody procedures were performed in accordance with NYSDEC Analytical Services Protocol - September 1989. Data validation, reduction, and determination of useability, were performed in accordance with USEPA SOP No. HW-3 CLP Organic Data Review. The inorganic data validation processes were performed in accordance with USEPA SOP No. 788 for Inorganic Analysis including Revisions 2/89 and 6/89.

CATEGORIES: The following table summarizes our assessment of data useability on a sample-by-sample and fraction-by-fraction basis. In evaluating this data, we have established four (4) categories which are, for the most part, gradational in nature. The categories are defined as follows:

Category 1a - Useable and Defensible - Fully useable, despite possible minor deviations from ASP criteria.

Category 1b - Useable Though Not Fully Defensible - Useable with caution; cumulative deviations from ASP criteria are greater than Category 1a, though not considered so significant as to jeopardize the chemical representativeness of the sample results.

Category 2a - Rejected Fractions/Compounds Due to Holding Time Violations - Did not comply with ASP holding times.

Category 2b - Rejected Fraction(s)/Compound(s) Due to Various ASP Deviations - In a sample fraction, some compounds may be useable and defensible, other compounds may be rejected, or the sample fraction may be rejected due to various deviations from ASP. See Table Notes for rationale of rejected fractions and Tables 2, 4, 6, 8, 10, 12, and 14 for list of rejected compounds.

In Tables 1, 3, 5, 7, 9, 11, and 13, some fractions are assigned single categories, indicating that they are either considered useable in their entirety or rejected in their entirety. The notes accompanying this table indicate the reason for rejections (Categories 2a, 2b) and for only conditional acceptances (Category 1b). Also on Tables 1, 3, 5, 7, 9, 11, and 13, some fractions are assigned dual categories. This indicates that, while some compounds within the fraction are useable, others are rejected due to contamination in one or more of the QC blanks. Tables 2, 4, 6, 8, 10, 12, and 14 identify the specific compounds within each sample which are rejected due to blank contamination.

SUMMARY ASSESSMENT: In summary, we feel that the analytical data is useable. Of the total analyses performed (by sample and fraction), we would categorize the overall data package as follows:

Laboratory Report No. 3090-1355

Category	VOA	SVOA	Pest/ PCB	Metals	Cyanide	Phenols	Wet Chem.	RCRA	EP Tox Metals	EP Tox Pest.	EP Tox Herb.
1a	8	0	17	17	15	15	6	3	3	4	4
1a,2b	9	17	0	0	0	0	0	0	0	0	0
1b,2b	1	0	0	0	0	0	0	0	0	0	0
2a	4	0	0	0	0	0	0	0	0	0	0
Total	22	17	17	17	15	15	6	3	3	4	4

Laboratory Report No. 3090-1423

Category	VOA	SVOA	Pest/ PCB	Metals	Cyanide	Phenols	Wet Chem.	RCRA	EP Tox Metals	EP Tox Pest.	EP Tox Herb.
1a	0	0	16	20	20	18	5	2	3	3	3
1a,2b	22	16	0	0	0	0	0	0	0	0	0
1b	2	0	1	0	0	0	0	0	0	0	0
1b,2b	0	3	0	0	0	0	0	0	0	0	0
2a	0	1	0	0	0	0	0	0	0	0	0
2b	0	0	2	0	0	0	0	0	0	0	0
Total	24	20	19	20	20	18	5	2	3	3	3

Laboratory Report No. 3090-1423A

Category	VOA	SVOA	Pest/ PCB	Metals	Cyanide	Phenols	Wet Chem.	RCRA	EP Tox Metals	EP Tox Pest.	EP Tox Herb.
1a	5	4	12	19	17	18	10	3	5	5	5
1a,2b	6	14	0	0	0	0	0	0	0	0	0
1b	1	0	6	0	0	0	0	0	0	0	0
1b,2b	10	0	0	0	0	0	0	0	0	0	0
Total	22	18	18	19	17	18	10	3	5	5	5

Laboratory Report No. 3090-1423B

Category	VOA	SVOA	Pest/ PCB	Metals	Cyanide	Phenols	Wet Chem.	RCRA	EP Tox Metals	EP Tox Pest.	EP Tox Herb.
1a	0	3	11	15	13	13	3	6	6	6	6
1a,2b	15	9	0	0	0	0	0	0	0	0	0
1b	0	1	2	0	0	0	0	0	0	0	0
1b,2b	1	1	0	0	0	0	0	0	0	0	0
Total	16	14	13	15	13	13	3	6	6	6	6

Laboratory Report No. 3090-1676

Category	VOA	SVOA	Pest/ PCB	Metals	Cyanide	Phenols	Wet Chem.
1a	8	5	8	12	11	11	11
1a,2b	3	3	0	0	0	0	0
1b	2	3	2	0	0	0	0
1b,2b	1	0	0	0	0	0	0
2b	0	2	0	0	0	0	0
Total	14	13	10	12	11	11	11

Laboratory Report No. 3090-1676A

Category	VOA	SVOA	Pest/ PCB	Metals	Cyanide	Phenols	Wet Chem.
1a	8	1	14	13	11	12	12
1b	5	2	0	0	0	0	0
1b,2b	5	12	0	0	0	0	0
2b	0	2	0	0	0	0	0
Total	18	17	14	13	11	12	12

Laboratory Report No. 3090-1676B

Category	VOA	SVOA	Pest/ PCB	Metals	Cyanide	Phenols	Wet Chem.
1a	3	0	8	10	6	5	6
1a,2b	3	0	0	0	0	0	0
1b	1	0	0	0	0	0	0
1b,2b	3	7	0	0	0	0	0
Total	10	7	8	10	6	5	6

We recommend acceptance and use of all data in Category 1a and 1b. It is understood, however, that the use of Category 1b data involves some risk in the event of a legalistic challenge based upon noncompliance with strict ASP criteria. We recommend rejection of all data in Categories 2a and 2b.

Bruce [illegible] for C.W.H.
Charles W. Hurley
Project Manager

Mary E. Betka for
Thomas Knickerbocker
QA/QC Officer

TABLE 1

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Surface Water, Surface Sediment, Shallow Probe Soils, Soil Borings

Laboratory Report Number: 3090-1355
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	RCRA	EP-Tox Metals	EP-Tox Pest	EP-Tox Herb	Notes
SW-TB	1a	--	--	--	--	--	--	--	--	--	--	
SW1	1a	1a,2b	1a	1a	1a	1a	1a	--	--	--	--	1
SW1-MS	1a	1a,2b	1a	1a	1a	1a	1a	--	--	--	--	1
SW1-MSD	1a	1a,2b	1a	--	--	--	--	--	--	--	--	1
SW1-MSB	1a	1a,2b	1a	--	--	--	--	--	--	--	--	1
SW1-DUP	--	--	--	1a	1a	1a	1a	--	--	--	--	
SW1-L	--	--	--	1a	--	--	--	--	--	--	--	
SW2	1a	1a,2b	1a	1a	1a	1a	1a	--	--	--	--	1
HB, Ref. 34	1a	--	--	--	--	--	--	--	--	--	--	
HB	1a	--	--	--	--	--	--	--	--	--	--	
HB, Ref. 34	2a	--	--	--	--	--	--	--	--	--	--	
SPS1	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
SPS2	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1

TABLE 1 - Continued

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Surface Water, Surface Sediment, Shallow Probe Soils, Soil Borings

Laboratory Report Number: 3090-1355
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	RCRA	EP-Tox Metals	EP-Tox Pest	EP-Tox Herb	Notes
SPS5	2a	1a,2b	1a	1a	1a	1a	1a	1a	1a	1a	1a	1,3
SPS5-RE	2a	--	--	--	--	--	--	--	--	--	--	3
SPS5-MS	--	--	--	--	--	--	--	--	1a	--	--	
SPS6	1b,2b	1a,2b	1a	1a	1a	1a	1a	1a	1a	1a	1a	1,4
SPS6-DUP	--	--	--	--	--	--	--	1a	--	--	--	
SPS10	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
SPS10-MS	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	1a	1a	1
SPS10-MSD	1a,2b	1a,2b	1a	--	--	--	--	--	--	1a	1a	1
SPS10-MSB	1a,2b	1a,2b	1a	--	--	--	--	--	--	--	--	1
SPS10-DUP	--	--	--	1a	1a	1a	--	--	--	--	--	
SPS10-L	--	--	--	1a	--	--	--	--	--	--	--	
SS1	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
SS2	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1

TABLE 1 - Continued

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Surface Water, Surface Sediment, Shallow Probe Soils, Soil Borings

Laboratory Report Number: 3090-1355
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	RCRA	EP-Tox Metals	EP-Tox Pest	EP-Tox Herb	Notes
MW2-SB-1-4'	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
MW9-I-2-4'	2a	--	--	--	--	--	--	--	--	--	--	
MW9-I-2-6'	--	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1

Abbreviation/Legend

VOA - Target Compound List (TCL) Volatiles
SVOA - TCL Semivolatiles
Pest/PCB - TCL Pesticides/PCBs
Metals - Target Analyte List (TAL) Metals
CN - Cyanide
Phenols - Total Phenols
Wet Chem. - Wet Chemistry Parameters include Schedule B waters, Schedule C soils
EP-Tox Metals - Extraction Procedure Toxicity Metals
EP-Tox Pesticides - Extraction Procedure Toxicity Pesticides
EP-Tox Herbicides - Extraction Procedure Toxicity Herbicides
RCRA - Corrosivity, Reactivity, Ignitability

L - Serial Dilution
SB - Soil Boring
SPS - Shallow Probe Soil
MW - Monitoring Well
MS - Matrix Spike
MSD - Matrix Spike Duplicate
MSB - Matrix Spike Blank
SW - Surface Water
HB - Holding Blank
TB - Trip Blank
SS - Stream Sediment
I - Intermediate
DUP - Duplicate

NOTES FOR TABLE 1

1. See Table 2 for list of rejected compounds.

2. The volatile fraction was initially analyzed as a medium concentration sample due to suspected high concentrations of compounds. After analysis it was determined by the laboratory that the sample should have been analyzed as a low concentration sample. The subsequent low level analysis was done outside the analysis holding time.

3. The initial analysis of the volatile fraction resulted in one of the surrogate recoveries outside acceptable control limits. The sample was reanalyzed outside the analysis holding time with acceptable surrogate recoveries. The volatile sample is non-compliant with NYSDEC ASP.

4. Medium level matrix spike/matrix spike duplicate was not performed on this volatile sample, which is required by NYSDEC ASP. Laboratory "batch" QC was submitted and is within acceptable recovery limits.

TABLE 2*

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Notes
FC-MW2-SB-1-4'	Methylene Chloride (VOA)	4	--	0	1	2	
"	Acetone (VOA)	48	--	0	2	16	
FC-SPS-1	Acetone (VOA)	25	--	4	--	8	
"	2-Butanone (VOA)	6	--	0	--	4	
FC-SPS-2	Acetone (VOA)	35	--	4	--	8	
"	2-Butanone (VOA)	7	--	0	--	4	
FC-SPS-6	Methylene Chloride (VOA)	680	--	2	--	0	1
"	Acetone (VOA)	4100	--	4	--	1100	1
FC-SPS-10	Methylene Chloride (VOA)	23	--	2	--	5	2
"	Acetone (VOA)	410	--	4	--	14	2
FC-SS-1	Acetone (VOA)	94	--	--	--	6	3
FC-SS-2	Acetone (VOA)	20	--	--	--	6	
FC-SPS-10-MSB	Acetone (VOA)	6	--	4	--	6	
FC-SPS-10-MS	Methylene Chloride (VOA)	25	--	2	--	5	2
"	Acetone (VOA)	230	--	4	--	14	2
FC-SPS-10-MSD	Methylene Chloride (VOA)	11	--	2	--	5	2
"	Acetone (VOA)	86	--	4	--	14	2

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 2* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Notes
FC-MW2-SB-1-4'	Diethylphthalate (SVOA)	39	--	0	10	31	
"	Di-n-butylphthalate (SVOA)	97	--	0	20	83	
"	Bis(2-ethylhexyl)phthalate (SVOA)	4100	--	100	130	1000	
FC-MW9-I-2-6'	Di-n-butylphthalate (SVOA)	67	--	0	20	68	
"	Bis(2-ethylhexyl)phthalate (SVOA)	1400	--	100	130	740	
FC-SPS-1	Benzoic Acid (SVOA)	110	--	0	--	110	
"	Di-n-butylphthalate (SVOA)	100	--	23	--	54	
"	Bis(2-ethylhexyl)phthalate (SVOA)	840	--	100	--	390	
FC-SPS-2	Benzoic Acid (SVOA)	79	--	0	--	64	
"	Di-n-butylphthalate (SVOA)	56	--	23	--	54	
"	Bis(2-ethylhexyl)phthalate (SVOA)	1300	--	100	--	390	
FC-SPS-5	Diethylphthalate (SVOA)	79	--	15	--	39	
"	Di-n-butylphthalate (SVOA)	200	--	34	--	100	
"	Bis(2-ethylhexyl)phthalate (SVOA)	8400	--	150	--	1100	
"	Fluoranthene (SVOA)	93	--	10	--	0	
"	Di-n-octylphthalate (SVOA)	58	--	15	--	0	
FC-SPS-6	Benzoic Acid (SVOA)	96	--	0	--	55	
"	Diethylphthalate (SVOA)	62	--	17	--	45	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 2* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Notes
FC-SPS-6	Di-n-butylphthalate (SVOA)	110	--	40	--	120	
"	Bis(2-ethylhexyl)phthalate (SVOA)	2000	--	170	--	1300	
FC-SPS-10	Benzoic Acid (SVOA)	140	--	0	--	88	
"	Di-n-butylphthalate (SVOA)	94	--	32	--	74	
"	Fluoranthene (SVOA)	31	--	10	--	0	
"	Pyrene (SVOA)	35	--	10	--	0	
"	Bis(2-ethylhexyl)phthalate (SVOA)	1000	--	140	--	530	
FC-SS-1	Benzoic Acid (SVOA)	740	--	--	--	110	
"	Diethylphthalate (SVOA)	140	--	--	--	87	
"	Di-n-butylphthalate (SVOA)	260	--	--	--	230	
"	Bis(2-ethylhexyl)phthalate (SVOA)	3500	--	--	--	2500	
FC-SS-2	Benzoic Acid (SVOA)	140	--	--	--	49	
"	Diethylphthalate (SVOA)	180	--	--	--	40	
"	Di-n-butylphthalate (SVOA)	130	--	--	--	100	
"	Bis(2-ethylhexyl)phthalate (SVOA)	1800	--	--	--	1100	
FC-SW-1	Di-n-butylphthalate (SVOA)	1	--	--	--	1	
"	Bis(2-ethylhexyl)phthalate (SVOA)	9	--	--	--	5	
FC-SW-2	Di-n-butylphthalate (SVOA)	8	--	--	--	1	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 2* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Notes
FC-SW-2	Bis(2-ethylhexyl)phthalate (SVOA)	43	--	--	--	5	
FC-SPS-10-MSB	Benzoic Acid (SVOA)	87	--	0	--	64	
"	Di-n-butylphthalate (SVOA)	50	--	23	--	54	
"	Bis(2-ethylhexyl)phthalate (SVOA)	390	--	100	--	390	
FC-SW-1-MSB	Bis(2-ethylhexyl)phthalate (SVOA)	3	--	--	--	5	
FC-SPS-10-MS	Benzoic Acid (SVOA)	97	--	0	--	88	
"	Di-n-butylphthalate (SVOA)	71	--	32	--	74	
"	Bis(2-ethylhexyl)phthalate (SVOA)	790	--	140	--	530	
FC-SW-1-MS	Bis(2-ethylhexyl)phthalate (SVOA)	5	--	--	--	5	
"	Di-n-butylphthalate (SVOA)	0.9	--	--	--	1	
FC-SPS-10-MSD	Benzoic Acid (SVOA)	120	--	0	--	88	
"	Di-n-butylphthalate (SVOA)	81	--	32	--	74	
"	Bis(2-ethylhexyl)phthalate (SVOA)	1100	--	140	--	530	
FC-SW-1-MSD	Bis(2-ethylhexyl)phthalate (SVOA)	4	--	--	--	5	
"	Di-n-butylphthalate (SVOA)	1	--	--	--	1	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

<u>Notes</u>:

1. The sample was analyzed as a medium level soil and has a dry weight of 65%.
2. The sample was diluted by a factor of 5 and has a dry weight of 75%.
3. The sample has a dry weight of 47%.

TABLE 3

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Lake Sediment, Soil Boring, Shallow Probe Soil, Surface Water

Laboratory Report Number: 3090-1423
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	RCRA	EP-Tox Metals	EP-Tox Pest	EP-Tox Herb	Notes
DW-1	1a,2b	1a,2b	2b	1a	1a	1a	--	--	--	--	--	1,6
LS-1	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
LS-2	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
LS-3	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
LS-4	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
LS-5	1a,2b	1a,2b	1a	1a	1a	1a	--	1a	1a	1a	1a	1
LS-5-MS	1a,2b	1a,2b	1a	1a	1a	1a	--	--	1a	1a	1a	1
LS-5-MSD	1a,2b	1a,2b	1a	--	--	--	--	--	--	1a	1a	1
LS-5-MSB	1a,2b	1a,2b	1a	--	--	--	--	--	--	--	--	1
LS-5-DUP	--	--	--	1a	1a	1a	--	1a	1a	--	--	
LS-5-L	--	--	--	1a	--	--	--	--	--	--	--	
LS-6	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
MW5-SB-1-4'	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1

TABLE 3 - Continued

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Lake Sediment, Soil Boring, Shallow Probe Soil, Surface Water

Laboratory Report Number: 3090-1423
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	RCRA	EP-Tox Metals	EP-Tox Pest	EP-Tox Herb	Notes
MW8-SB-2-4'	1a,2b	2a	1a	1a	1a	1a	--	--	--	--	--	1,3
SPS-RB-1	1a,2b	1a,2b	2b	1a	1a	1a	--	--	--	--	--	1,6
SPS-3	1a,2b	1a,2b	1a	1a	1a	1a	1a	--	--	--	--	1
SPS-4	1a,2b	1a,2b	1a	1a	1a	1a	1a	--	--	--	--	1
SPS-7	1a,2b	1b,2b	1b	1a	1a	1a	--	--	--	--	--	1,4,7
SPS-7-RE	--	1b,2b	--	--	--	--	--	--	--	--	--	1,4
SPS-8	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
MW7-SB	1a,2b	1b,2b	1a	1a	1a	1a	--	--	--	--	--	1,5
SW-3	1a,2b	1a,2b	1a	1a	1a	1a	1a	--	--	--	--	1
SW-3-MS	--	--	--	--	1a	--	1a	--	--	--	--	
SW-3-DUP	--	--	--	--	1a	--	1a	--	--	--	--	
SW-3-L	--	--	--	1a	--	--	--	--	--	--	--	

TABLE 3 - Continued

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Lake Sediment, Soil Boring, Shallow Probe Soil, Surface Water

Laboratory Report Number: 3090-1423
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	RCRA	EP-Tox Metals	EP-Tox Pest	EP-Tox Herb	Notes
HB-REF-34-7-11-90	1a,2b	--	--	--	--	--	--	--	--	--	--	1
HB-REF-35	1a,2b	--	--	--	--	--	--	--	--	--	--	1
HB-REF-35-7-14-90	1b	--	--	--	--	--	--	--	--	--	--	2
HB-REF-34	1a,2b	--	--	--	--	--	--	--	--	--	--	1
HB-REF-35-7-25-90	1b	--	--	--	--	--	--	--	--	--	--	2

Abbreviation/Legend

VOA - Target Compound List (TCL) Volatiles
SVOA - TCL Semivolatiles
Pest/PCB - TCL Pesticides/PCBs
Metals - Target Analyte List (TAL) Metals
CN - Cyanide
Phenols - Total Phenols
Wet Chem. - Wet Chemistry Parameters include Schedule B waters, Schedule C soils
EP-Tox Metals - Extraction Procedure Toxicity Metals
EP-Tox Pesticides - Extraction Procedure Toxicity Pesticides
EP-Tox Herbicides - Extraction Procedure Toxicity Herbicides
RCRA - Corrosivity, Reactivity, Ignitability

L - Serial Dilution
RB - Rinse Blank
SB - Soil Boring
SPS - Shallow Probe Soil
MW - Monitoring Well
MS - Matrix Spike
MSD - Matrix Spike Duplicate
DW - Drill Water Supply
LS - Lake Sediment
RE - Reanalysis
SW - Surface Water
HB - Holding Blank
DUP - Duplicate

NOTES FOR TABLE 3

1. See Table 4 for list of rejected compounds.

2. The standard associated with this volatile sample is non-compliant with both NYSDEC ASP-1989 and the USEPA 3/90 Statement of Work.

3. The semivolatile fraction required reanalysis because the surrogates were inadvertently omitted during the initial extraction. Re-extraction occurred outside acceptable holding, therefore, the data is not useable.

4. The interval standard recoveries were elevated during the initial analysis. As per NYSDEC ASP, the sample required reanalysis, which had the same results substantiating a matrix interference.

5. The semivolatile fraction was initially extracted within holding time. The sample was put through GPC, but the instrument became clogged and the sample was lost. NYSDEC and URS were contacted to authorize re-extraction one day past holding time and permission was granted.

6. The method blank associated to this pesticide/PCB sample has heptachlor present above the contract required quantitation limit. As per NYSDEC ASP, the blank and samples must be re-extracted and reanalyzed when the method blank is out of control. This was not done, therefore, the data is not useable.

7. The presence of PCBs in the sample extract required confirmation by GC/MS. The protocol for confirmation was not followed (i.e., the reference standard was not analyzed with the semivolatile extract), therefore, the data is useable with caution.

TABLE 4*

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Notes
FC-DW-1	Methylene Chloride (VOA)	--	3	--	--	--	0	
"	Acetone (VOA)	--	11	--	--	2	20	
FC-LS-1	Methylene Chloride (VOA)	6	4	--	--	--	0	
"	Acetone (VOA)	52	14	--	3	--	21	
"	2-Butanone (VOA)	4	0	--	0	--	3	
FC-LS-2	Methylene Chloride (VOA)	8	4	--	0	--	0	
"	Acetone (VOA)	69	14	--	3	--	3	
"	2-Butanone (VOA)	8	0	--	0	--	20	
FC-LS-3	Methylene Chloride (VOA)	8	4	--	--	--	0	
"	Acetone (VOA)	30	14	--	3	--	3	
"	2-Butanone (VOA)	3	0	--	0	--	14	
FC-LS-4	Methylene Chloride (VOA)	3	4	--	0	--	0	
"	Acetone (VOA)	13	14	--	2	--	14	
"	2-Butanone (VOA)	3	0	--	0	--	5	
FC-LS-5	Methylene Chloride (VOA)	8	--	--	0	--	7	
"	Acetone (VOA)	66	--	--	4	--	42	
"	2-Butanone (VOA)	6	--	--	0	--	2	
"	Toluene (VOA)	3	--	--	0.7	--	0	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 4* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Notes
FC-LS-6	Methylene Chloride (VOA)	6	--	--	0	--	7	
"	Acetone (VOA)	85	--	--	3	--	41	
"	2-Butanone (VOA)	8	--	--	0	--	2	
FC-MW5-SB-1-4'	Methylene Chloride (VOA)	2	4	--	0	1	0	
"	Acetone (VOA)	22	13	--	0	2	20	
FC-MW8-SB-2-4'	Acetone (VOA)	14	--	--	0	3	21	
FC-SPS-RB-1	Acetone (VOA)	--	11	--	4	--	5	
"	Methylene Chloride (VOA)	--	3	--	2	--	0	
FC-SPS-3	Acetone (VOA)	35	19	--	7	--	30	
FC-SPS-4	Acetone (VOA)	32	14	--	5	--	22	
FC-SPS-7	Acetone (VOA)	86	20	--	7	--	33	
FC-SPS-8	Acetone (VOA)	12	--	--	5	--	19	
"	2-Hexanone (VOA)	1	--	--	0	--	2	
URS-MW-7SB	Methylene Chloride (VOA)	4	2	--	0	1	2	
"	Acetone (VOA)	42	16	--	0	2	6	
"	2-Butanone (VOA)	7	0	--	0	0	4	
"	Toluene (VOA)	0.9	0	--	0	0	0.6	
URS-SW-3	Acetone (VOA)	7	10	0	--	--	15	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 4* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Notes
HB-REF-34-7-11-90	Acetone (VOA)	--	11	--	--	--	5	
HB-REF-35	Methylene Chloride (VOA)	--	3	--	--	--	5	
"	Acetone (VOA)	--	11	--	--	--	6	
HB-REF-34	Methylene Chloride (VOA)	--	2	--	--	--	8	
"	Acetone (VOA)	--	10	--	--	--	23	
FC-LS-5-MS	Methylene Chloride (VOA)	5	--	--	0	--	4	
"	Acetone (VOA)	18	--	--	4	--	12	
"	2-Butanone (VOA)	7	--	--	0	--	4	
"	1,1,1-trichloroethane (VOA)	4	--	--	0	--	2	
FC-LS-5-MSD	Methylene Chloride (VOA)	5	--	--	0	--	4	
"	Acetone (VOA)	39	--	--	4	--	12	
"	2-Butanone (VOA)	6	--	--	0	--	4	
"	1,1,1-trichloroethane (VOA)	3	--	--	0	--	2	
FC-LS-5-MSB	Methylene Chloride (VOA)	2	--	--	0	--	2	
"	Acetone (VOA)	6	--	--	2	--	5	
"	2-Butanone (VOA)	3	--	--	0	--	3	
FC-DW-1	Diethylphthalate (SVOA)	--	--	--	--	0.3	0.3	
"	Di-n-butylphthalate (SVOA)	--	--	--	--	0.6	0.9	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 4* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Notes
FC-DW-1	Bis(2-ethylhexyl)phthalate (SVOA)	--	--	--	--	0.4	4	
FC-LS-1	"	280	--	--	120	--	220	
"	Diethylphthalate (SVOA)	30	--	--	160	--	22	
"	Di-n-butylphthalate (SVOA)	39	--	--	0	--	50	
FC-LS-2	"	42	--	--	0	--	52	
"	Diethylphthalate (SVOA)	31	--	--	170	--	23	
"	Bis(2-ethylhexyl)phthalate (SVOA)	180	--	--	130	--	230	
FC-LS-3	"	370	--	--	140	--	250	
"	Diethylphthalate (SVOA)	33	--	--	180	--	25	
"	Di-n-butylphthalate (SVOA)	40	--	--	0	--	55	
FC-LS-4	Diethylphthalate (SVOA)	29	--	--	160	--	22	
"	Di-n-butylphthalate (SVOA)	47	--	--	0	--	49	
"	Bis(2-ethylhexyl)phthalate (SVOA)	180	--	--	120	--	220	
FC-LS-5	Diethylphthalate (SVOA)	56	--	--	240	--	40	
"	Di-n-butylphthalate (SVOA)	160	--	--	0	--	57	
"	Bis(2-ethylhexyl)phthalate (SVOA)	1300	--	--	190	--	660	
FC-LS-6	Diethylphthalate (SVOA)	87	--	--	240	--	39	
"	Di-n-butylphthalate (SVOA)	51	--	--	0	--	56	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of any rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 4* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Notes
FC-LS-6	Bis(2-ethylhexyl)phthalate (SVOA)	730	--	--	180	--	650	
FC-MW5-SB-1-4'	Diethylphthalate (SVOA)	27	--	--	0	12	22	
"	Di-n-butylphthalate (SVOA)	60	--	--	0	24	49	
"	Butylbenzylphthalate (SVOA)	10	--	--	0	12	0	
"	Bis(2-ethylhexyl)phthalate (SVOA)	160	--	--	120	160	220	
FC-SPS-RB-1	Diethylphthalate (SVOA)	--	--	--	0.3	--	0.3	
"	Di-n-butylphthalate (SVOA)	--	--	--	0.7	--	0.9	
"	Bis(2-ethylhexyl)phthalate (SVOA)	--	--	--	3	--	4	
FC-SPS-3	Diethylphthalate (SVOA)	31	--	--	12	--	29	
"	Di-n-butylphthalate (SVOA)	76	--	--	29	--	39	
"	Bis(2-ethylhexyl)phthalate (SVOA)	350	--	--	120	--	390	
"	Di-n-octylphthalate (SVOA)	11	--	--	12	--	0	
FC-SPS-4	Di-n-butylphthalate (SVOA)	62	--	--	29	--	39	
"	Di-n-octylphthalate (SVOA)	74	--	--	12	--	0	
FC-SPS-7	Diethylphthalate (SVOA)	69	--	--	14	--	33	
"	Di-n-butylphthalate (SVOA)	170	--	--	33	--	44	
FC-SPS-7-RE	Diethylphthalate (SVOA)	91	--	--	28	--	66	1
"	Di-n-butylphthalate (SVOA)	170	--	--	66	--	88	1

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

<u>Notes</u>:

1. The sample was diluted by a factor of 2.

TABLE 4* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Notes
FC-SPS-8	Diethylphthalate (SVOA)	120	--	--	12	--	0	
"	Di-n-butylphthalate (SVOA)	62	--	--	27	--	0	
"	Bis(2-ethylhexyl)phthalate (SVOA)	340	--	--	120	--	250	
URS-MW7-SB	Diethylphthalate (SVOA)	100	--	--	0	13	45	
"	Di-n-butylphthalate (SVOA)	70	--	--	0	26	39	
"	Bis(2-ethylhexyl)phthalate (SVOA)	970	--	--	130	170	250	
"	Di-n-octylphthalate (SVOA)	13	--	--	0	13	0	
URS-SW-3	Diethylphthalate (SVOA)	0.5	--	--	--	--	0.4	
"	Di-n-butylphthalate (SVOA)	0.6	--	--	--	--	0.5	
"	Bis(2-ethylhexyl)phthalate (SVOA)	12	--	--	--	--	7	
FC-LS-5-MS	Diethylphthalate (SVOA)	40	--	--	240	--	40	
"	Di-n-butylphthalate (SVOA)	75	--	--	0	--	57	
"	Bis(2-ethylhexyl)phthalate (SVOA)	860	--	--	190	--	660	
FC-LS-5-MSD	Diethylphthalate (SVOA)	38	--	--	240	--	40	
"	Di-n-butylphthalate (SVOA)	86	--	--	0	--	57	
"	Bis(2-ethylhexyl)phthalate (SVOA)	960	--	--	190	--	660	
FC-LS-5-MSB	Diethylphthalate (SVOA)	17	--	--	130	--	21	
"	Di-n-butylphthalate (SVOA)	37	--	--	0	--	30	
"	Bis(2-ethylhexyl)phthalate (SVOA)	310	--	--	100	--	350	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of any rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 5

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Boring Samples, Lake Sediment

Laboratory Report Number: 3090-1423A
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	RCRA	EP-Tox Metals	EP-Tox Pest	EP-Tox Herb	Notes
B1-0-6′	1b,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1,3
B2-5-6′	1a,2b	1a,2b	1b	1a	1a	1a	--	--	--	--	--	1,4
B3-0-5′	1b,2b	1a	1b	1a	1a	1a	1a	--	--	--	--	1,2,4
B4-0-4.5′	1b,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1,3
B4-0-4.5′-L	--	--	--	1a	--	--	--	--	--	--	--	
B5-0-6′	1b,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1,3
B6-0-10′	1b	1a,2b	1a	1a	1a	1a	1a	1a	1a	1a	1a	
B6-0-10′-MS	--	--	--	--	--	--	--	--	1a	1a	1a	
B6-0-10′-MSD	--	--	--	--	--	--	--	--	--	1a	1a	
B6-0-10′-MSB	--	--	--	--	--	--	--	--	--	1a	1a	
B6-0-10′-DUP	--	--	--	--	--	--	1a	1a	1a	--	--	
B6-0-10′-L	--	--	--	1a	--	--	--	--	1a	--	--	
B6-RB	1a	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1

TABLE 5 - Continued

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Boring Samples, Lake Sediment

Laboratory Report Number: 3090-1423A
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	RCRA	EP-Tox Metals	EP-Tox Pest	EP-Tox Herb	Notes
B7-0.5-5'	1b,2b	1a,2b	1b	1a	1a	1a	1a	--	--	--	--	1,3,4
B7-05.-5'-MS	--	--	--	--	--	1a	--	--	--	--	--	
B7-0.5-5'-DUP	--	--	--	--	--	--	1a	--	--	--	--	
B8-0-6'	1a,2b	1a	1b	1a	1a	1a	--	--	--	--	--	1,4
B8-0-6'-MS	1a,2b	1a	1a	1a	1a	1a	1a	--	--	--	--	1
B8-0-6'-MSD	1a,2b	1a	1a	--	--	--	--	--	--	--	--	1
B8-0-6'-MSB	1a,2b	1a,2b	1a	--	--	--	--	--	--	--	--	1
B8-0-6'-DUP	--	--	--	1a	1a	--	--	--	--	--	--	
B9-0-4.2'	1b,2b	1a,2b	1b	1a	1a	1a	1a	--	--	--	--	1,3,4
B10-0-4'	1a,2b	1a,2b	1b	1a	1a	1a	1a	1a	1a	1a	1a	1
LS-07	1b,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1,3
LS-08	1b,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1,3
LS-09	1b,2b	1a,2b	1a	1a	1a	1a	1a	--	--	--	--	1,3

TABLE 5 - Continued

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Boring Samples, Lake Sediment

Laboratory Report Number: 3090-1423A
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	RCRA	EP-Tox Metals	EP-Tox Pest	EP-Tox Herb	Notes
LS-09-MS	--	--	--	--	--	1a	--	--	--	--	--	
LS-09-DUP	--	--	--	--	--	--	1a	--	--	--	--	
LS-10	1b,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1,3
HB-REF-35-72690	1a	--	--	--	--	--	--	--	--	--	--	
HB-REF-35-72790	1a	--	--	--	--	--	--	--	--	--	--	
HB-REF-35-72890	1a	--	--	--	--	--	--	--	--	--	--	
HB-REF-35-73190	1a	--	--	--	--	--	--	--	--	--	--	

Abbreviation/Legend

VOA - Target Compound List (TCL) Volatiles
SVOA - TCL Semivolatiles
Pest/PCB - TCL Pesticides/PCBs
Metals - Target Analyte List (TAL) Metals
CN - Cyanide
Phenols - Total Phenols
Wet Chem. - Wet Chemistry Parameters include Schedule C soils
EP-Tox Metals - Extraction Procedure Toxicity Metals
EP-Tox Pesticides - Extraction Procedure Toxicity Pesticides
EP-Tox Herbicides - Extraction Procedure Toxicity Herbicides
RCRA - Corrosivity, Reactivity, Ignitability

L - Serial Dilution
RB - Rinse Blank
B - Boring Samples
LS - Lake Sediment
MS - Matrix Spike
MSD - Matrix Spike Duplicate
MSB - Matrix Spike Blank
HB - Holding Blank
DUP - Duplicate

NOTES FOR TABLE 5

1. See Table 6 for list of rejected compounds.

2. Several volatile compounds exceeded the linear range of calibration and one of the surrogates was outside acceptable limits of recovery due to severe matrix interference. The sample was not reanalyzed because it would have exceeded analyses holding time. Therefore, the data is useable with caution.

3. The volatile samples were analyzed at a low level concentration and a matrix spike/matrix spike duplicate is required as per NYSDEC ASP. Batch QC was submitted and appears to be compliant.

4. The presence of PCBs in the sample extracts required confirmation of GC/MS. The protocol for confirmation was not followed (i.e., neither the reference standard nor the method blank was analyzed), therefore, the data is useable with caution.

TABLE 6*

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING FOR FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Note
FC-B1-0-6'	Acetone (VOA)	40	--	--	0	--	33	
"	2-Butanone (VOA)	5	--	--	0	--	6	
"	Toluene (VOA)	8	--	--	0	--	4	
"	Xylene (Total) (VOA)	2	--	--	0	--	2	
FC-B2-5-6'	Methylene Chloride (VOA)	340	--	--	0	--	590	
"	Acetone (VOA)	3900	--	--	0	--	1900	
"	2-Butanone (VOA)	1300	--	--	0	--	540	
FC-B3-0-5'	Methylene Chloride (VOA)	790	--	--	0	--	450	
"	Acetone (VOA)	3700	--	--	0	--	1600	
"	2-Butanone (VOA)	5600	--	--	0	--	1300	
FC-B4-0-4.5'	Acetone (VOA)	650	--	--	0	--	200	1
"	2-Butanone (VOA)	110	--	--	0	--	36	1
"	Toluene (VOA)	55	--	--	0	--	6	1
FC-B5-0-6'	Methylene Chloride (VOA)	3	0	--	0	--	2	
"	Acetone (VOA)	7	0	--	0	--	6	
FC-B7-0.5-5'	Acetone (VOA)	80	0	--	0	--	43	
"	2-Butanone (VOA)	14	0	--	0	--	8	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

Notes:

1. The sample was diluted by a factor of 5 and has a dry weight of 82%.

TABLE 6* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING FOR FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (pb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Note
FC-B7-0.5-5'	4-Methyl-2-Pentanone (VOA)	6	0	--	0	--	6	
"	Toluene (VOA)	3	0	--	0	--	1	
"	Xylene (Total) (VOA)	6	0	--	0	--	3	
FC-B8-0-6'	Methylene Chloride (VOA)	800	0	--	0	--	850	
"	Acetone (VOA)	3900	0	--	0	--	2800	
"	2-Butanone (VOA)	1000	0	--	0	--	780	
"	Toluene (VOA)	1300	0	--	0	--	200	
FC-B9-0-4.2'	Acetone (VOA)	950	0	--	0	--	280	
"	2-Butanone (VOA)	260	0	--	0	--	52	
FC-B10-0-4'	Methylene Chloride (VOA)	830	0	--	0	--	490	
"	Acetone (VOA)	8300	0	--	0	--	1700	
"	2-Butanone (VOA)	1900	0	--	0	--	1300	
"	Toluene (VOA)	1700	0	--	0	--	220	
FC-URS-LS-07	Acetone (VOA)	9	8	--	3	--	7	
FC-URS-LS-08	Acetone (VOA)	10	9	--	3	--	8	
FC-URS-LS-09	Acetone (VOA)	110	10	--	3	--	44	
"	2-Butanone (VOA)	22	0	--	0	--	8	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of any rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 6* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING FOR FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (pb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Note
FC-URS-LS-9	Xylene (Total) (VOA)	1	0	--	0	--	1	
FC-URS-LS-10	Acetone (VOA)	91	12	--	4	--	55	
"	2-Butanone (VOA)	14	0	--	0	--	10	
FC-B8-0-6'-MS	Methylene Chloride (VOA)	1200	0	--	0	--	390	
"	Acetone (VOA)	2200	0	--	0	--	1300	
"	2-Butanone (VOA)	1200	0	--	0	--	1100	
FC-B8-0-6'-MSD	Methylene Chloride (VOA)	1100	0	--	0	--	390	
"	Acetone (VOA)	3800	0	--	0	--	1300	
"	2-Butanone (VOA)	2100	0	--	0	--	1100	
FC-B8-0-6'-MSB	Methylene Chloride (VOA)	540	0	--	0	--	550	
"	Acetone (VOA)	3800	0	--	0	--	3700	
"	2-Butanone (VOA)	520	0	--	0	--	470	
FC-B1-0-6'	Bis(2-ethylhexyl)phthalate (SVOA)	490	--	--	140	--	280	
FC-B2-5-6'	"	950	--	--	130	--	270	
FC-B4-0-4.5'	"	610	--	--	120	--	260	
FC-B5-0-6'	"	410	--	--	130	--	270	
FC-B6-RB	Bis(2-ethylhexyl)phthalate (SVOA)	--	--	--	100	--	100	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 6* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING FOR FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (pb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Note
FC-B6-0-10'	Bis(2-ethylhexyl)phthalate (SVOA)	1000	--	--	140	--	280	
FC-B7-.5-5'	"	930	--	--	130	--	270	
FC-B9-0-4.2'	"	1600	--	--	120	--	280	
FC-B10-0-4'	"	2100	--	--	140	--	300	
FC-URS-LS-07	"	960	--	--	200	--	1300	
FC-URS-LS-08	"	670	--	--	160	--	1000	
FC-URS-LS-09	"	1200	--	--	160	--	1100	
FC-URS-LS-10	"	990	--	--	180	--	1200	
FC-B8-0-6'-MSB	"	210	--	--	100	--	210	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 7

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Lake Sediments, Trench, Rinse Blank

Laboratory Report Number: 3090-1423B
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	RCRA	EP-Tox Metals	EP-Tox Pest	EP-Tox Herb	Notes
LS-11	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
LS-12	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
LS-13	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
LS-14	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
LS-14-L	--	--	--	1a	--	--	--	--	--	--	--	
LS-15	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
LS-16	1a,2b	1a,2b	1a	1a	1a	1a	1a	--	--	--	--	1
LS-17	1a,2b	1a,2b	1a	1a	1a	1a	--	1a	1a	1a	1a	1
RB-LS	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	1
URS-T3	1a,2b	1a	1a	1a	1a	1a	1a	1a	1a	1a	1a	1
URS-T3-L	--	--	--	1a	--	--	--	--	--	--	--	
URS-T4	1a,2b	1a	1b	1a	1a	1a	1a	1a	1a	1a	1a	1,4
URS-T5	1a,2b	1a	1a	1a	1a	1a	--	1a	1a	1a	1a	1

TABLE 7 - Continued

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Lake Sediments, Trench, Rinse Blank

Laboratory Report Number: 3090-1423B
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	RCRA	EP-Tox Metals	EP-Tox Pest	EP-Tox Herb	Notes
URS-T7	1a,2b	1a,2b	1a	1a	1a	1a	--	1a	1a	1a	1a	1
URS-T8	1a,2b	1b	1b	1a	1a	1a	--	1a	1a	1a	1a	1,3,4
URS-T8-RE	--	1b,2b	--	--	--	--	--	--	--	--	--	1,3
HB-REF-35-80290	1b,2b	--	--	--	--	--	--	--	--	--	--	1,2
HB-REF-35-80890	1a,2b	--	--	--	--	--	--	--	--	--	--	1
HB-REF-34	1a,2b	--	--	--	--	--	--	--	--	--	--	1

Abbreviation/Legend

VOA - Target Compound List (TCL) Volatiles
SVOA - TCL Semivolatiles
Pest/PCB - TCL Pesticides/PCBs
Metals - Target Analyte List (TAL) Metals
CN - Cyanide
Phenols - Total Phenols
Wet Chem. - Wet Chemistry Parameters include Schedule C soils and Schedule D soils
EP-Tox Metals - Extraction Procedure Toxicity Metals
EP-Tox Pesticides - Extraction Procedure Toxicity Pesticides
EP-Tox Herbicides - Extraction Procedure Toxicity Herbicides
RCRA - Corrosivity, Reactivity, Ignitability

L - Serial Dilution
RB - Rinse Blank
T - Trench Sample
DUP - Duplicate
LS - Lake Sediment
HB - Holding Blank
RE- Reanalysis

NOTES FOR TABLE 7

1. See Table 8 for list of rejected compounds.

2. The standard associated to this volatile sample is not within NYSDEC ASP 1989 criteria or USEPA 3/90 Statement of Work.

3. The internal standards were suppressed in the semivolatile sample during initial analysis. The sample was reanalyzed as per NYSDEC ASP with the same results, substantiating a matrix interference.

4. The presence of PCBs in the sample extract required confirmation by GC/MS. The protocol for confirmation was not followed (i.e., the reference standard was not analyzed with the semivolatile extract), therefore, the data is useable with caution.

TABLE 8*

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING FOR FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Note
FC-RB-LS	Acetone (VOA)	--	3	--	2	--	11	
"	Toluene (VOA)	--	0	--	0.4	--	0.4	
FC-URS-LS-11	Methylene Chloride (VOA)	6	4	--	0	--	4	
"	Acetone (VOA)	32	10	--	4	--	10	
FC-URS-LS-12	Methylene Chloride (VOA)	5	3	--	0	--	3	
"	Acetone (VOA)	70	8	--	3	--	8	
FC-URS-LS-13	Methylene Chloride (VOA)	6	5	--	0	--	0	
"	Acetone (VOA)	170	13	--	5	--	69	
"	2-Butanone (VOA)	26	0	--	0	--	13	
FC-URS-LS-14	Acetone (VOA)	200	12	--	5	--	64	
"	2-Butanone (VOA)	38	0	--	0	--	12	
"	Toluene (VOA)	2	0	--	1	--	1	
FC-URS-LS-15	Methylene Chloride (VOA)	4	2	--	0	--	0	
"	Acetone (VOA)	59	5	--	3	--	44	
"	2-Butanone (VOA)	5	0	--	0	--	8	
"	Toluene (VOA)	2	0	--	0.6	--	1	
FC-URS-LS-16	Methylene Chloride (VOA)	4	2	--	0	--	3	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of any rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the method blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 8* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING FOR FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Note
FC-URS-LS-16	Acetone (VOA)	49	5	--	3	--	8	
FC-URS-LS-17	Acetone (VOA)	180	7	--	4	--	60	
"	2-Butanone (VOA)	34	0	--	0	--	11	
"	Toluene (VOA)	3	0	--	0.9	--	1	
"	Xylene (Total) (VOA)	6	0	--	0	--	2	
FC-URS-T3	Methylene Chloride (VOA)	4	3	--	--	--	0	
"	Acetone (VOA)	32	9	--	--	--	12	
"	Toluene (VOA)	3	0	--	--	--	0	
FC-URS-T4	Acetone (VOA)	3200	1100	--	--	--	1900	
FC-URS-T5	Methylene Chloride (VOA)	89,000	34,000	--	--	--	64,000	1
"	Acetone (VOA)	270,000	120,000	--	--	--	200,000	1
FC-URS-T7	Acetone (VOA)	5600	--	--	--	--	2000	
FC-URS-T8	"	2600	--	--	--	--	1700	
HB-REF-3580890	Methylene Chloride (VOA)	--	2	--	--	--	2	
"	Acetone (VOA)	--	7	--	--	--	10	
HB-REF-34	Methylene Chloride (VOA)	--	1	--	--	--	2	
"	Acetone (VOA)	--	3	--	--	--	11	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

Notes:

1. The sample was diluted by a factor of 100 and has a dry weight of 74%.

TABLE 8* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING FOR FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Method Blank	Note
HB-REF-3580290	Acetone (VOA)	--	5	--	--	--	6	
FC-RB-LS	Bis(2-ethylhexyl)phthalate (SVOA)	--	--	--	3	--	2	
FC-URS-LS-11	"	700	--	--	170	--	1100	
FC-URS-LS-12	"	920	--	--	160	--	1000	
FC-URS-LS-13	"	400	--	--	180	--	1200	
FC-URS-LS-14	"	560	--	--	200	--	1300	
FC-URS-LS-15	"	820	--	--	160	--	1100	
FC-URS-LS-16	"	1000	--	--	160	--	1100	
FC-URS-LS-17	"	920	--	--	190	--	1300	
FC-URS-T7	"	910	--	--	--	--	200	
FC-URS-T8-RE	Di-n-butylphthalate (SVOA)	150	--	--	--	--	57	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of any rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 9

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: GROUNDWATER

Laboratory Report Number: 3090-1676
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	Notes
GW-85-7S	1b,2b	1b	--	1a	1a	1a	1a	1,2,4,5
GW-85-7R	1b	1b	1b	1a	1a	1a	1a	2,4,5
GW-URS-7D	1a	1b	1b	1a	1a	1a	1a	4,5
GW-URS-9I	1a,2b	1a,2b	1a	1a	1a	1a	1a	1,4
GW-URS-9I-MS	1b	1a	1a	1a	1a	1a	1a	3,4
GW-URS-9I-MSD	1a	1a	1a	--	--	--	--	4
GW-URS-9I-MSB	1a	1a	1a	--	--	--	--	4
GW-URS-9I-DUP	--	--	--	1a	1a	1a	1a	
GW-URS-9I-L	--	--	--	1a	--	--	---	
GW-URS-5D	1a	1a,2b	--	1a	1a	1a	1a	1,4
GW-URS-9D	1a,2b	1a	1a	1a	1a	1a	1a	1,4
GW-URS-9S	1a	2b	1a	1a	1a	1a	1a	6
GW-URS-9S-RE	--	2b	--	--	--	--	--	6
GW-85-5S	1a	1a,2b	1a	1a	1a	1a	1a	1,4
GW-85-5R	1a,2b	1a	1a	1a	1a	1a	1a	1,4
TB 8/27/90	1a	--	--	--	--	--	--	
HB-REF-35	1a	--	--	--	--	--	--	

Abbreviations/Legend:

VOA - Target Compound List (TCL) Volatiles
SVOA - TCL Semivolatiles
Pest/PCB - TCL Pesticides/PCBs
Metals - Target Compound List (TAL) Metals
CN - Cyanide
Phenols - Total Phenols
Wet Chem. - Includes Schedule B waters

GW - Groundwater
S - Shallow
R - Intermediate
D - Bedrock
L - Serial Dilution
MS - Matrix Spike
MSD - Matrix Spike Duplicate
MSB - Matrix Spike Blank
DUP - Duplicate
RE - Reanalysis
HB - Holding Blank
TB - Trip Blank

NOTES FOR TABLE 9

1. See Table 10 for list of rejected compounds.

2. The standard associated to this volatile sample is not within NYSDEC ASP 1989 criteria or USEPA 3/90 Statement of Work.

3. The volatile matrix spike had one surrogate outside acceptable recovery limits. The associated sample and matrix spike duplicate were within control limits. The matrix spike was not reanalyzed, as per NYSDEC ASP, therefore, the data is useable with caution.

4. For the semivolatile fraction, no instrument detection limit studies were performed within the quarterly requirement.

5. The semivolatile and pesticide extracts were concentrated one day past the five (5) day requirement.

6. The semivolatile fraction had poor phenol surrogate recoveries during the initial analysis. The sample was re-extracted outside extraction holding time and upon re-analysis the phenol surrogate recoveries were within acceptable recovery limits. The data is therefore not useable.

TABLE 10*

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Con. (ppb) of Compound in the Method Blank
FC-GW-85-5R	Acetone (VOA)	16	0	0	0	6
FC-GW-85-7S	Acetone (VOA)	5	0	0	0	6
FC-URS-9D	Acetone (VOA)	22	0	0	0	6
FC-URS-9I	Acetone (VOA)	13	0	0	0	6
FC-GW-85-5S	Bis(2-ethylhexyl)phthalate (SVOA)	6	--	2	--	0
FC-MW-5D-URS	Bis(2-ethylhexyl)phthalate (SVOA)	3	--	2	--	0
FC-URS-9I	Bis(2-ethylhexyl)phthalate (SVOA)	4	--	2	--	0
FC-URS-9I-MSD	Bis(2-ethylhexyl)phthalate (SVOA)	11	--	2	--	0

* For volatile and semivolatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of any rinse or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 11

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: GROUNDWATER

Laboratory Report Number: 3090-1676A
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	Notes
GW-88-12C	1a	1b,2b	1a	1a	1a	1a	1a	1,5
GW-88-11A	1a	--	--	--	--	--	--	
GW-88-11D	1a	1b,2b	1a	1a	1a	1a	1a	1,4
GW-88-11D-MS	1a	1b,2b	1a	1a	1a	1a	1a	1,4
GW-88-11D-MSD	1b	1b,2b	1a	--	--	--	--	1,3,4
GW-88-11D-MSB	1b,2b	1b,2b	1a	--	--	--	--	1,2,4
GW-88-11D-DUP	--	--	--	1a	1a	1a	1a	
GW-88-11D-L	--	--	--	1a	--	--	--	
GW-88-11C	1a	1b,2b	1a	1a	1a	1a	1a	1,4
GW-88-1A	1a	2b	--	--	--	1a	1a	7
GW-88-1A-RE	--	2b	--	--	--	--	--	7
GW-88-2A	1a	--	--	--	--	--	--	
GW-88-3S	1a	1b	1a	1a	1a	1a	1a	4
GW-URS-8S	1b	1b,2b	1a	1a	1a	1a	1a	1,2,5,6
GW-URS-8S-RE	--	1b,2b	--	--	--	--	--	1,5,6
GW-URS-2D	1b,2b	1b,2b	1a	1a	1a	1a	1a	1,2,5
GW-85-2R	1b	1b,2b	1a	1a	1a	1a	1a	1,2,5

TABLE 11 - Continued

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: GROUNDWATER

Laboratory Report Number: 3090-1676A
Assessment Categories: 1a,2a,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	Notes
GW-URS-8I	1b,2b	1b	1a	1a	1a	1a	1a	1,2,5
GW-85-2S	1b	1b,2b	1a	1a	--	--	--	1,2,5
GW-TB-2	1b,2b	--	--	--	--	--	--	1,2
GW-85-7S	--	--	1a	--	--	--	--	
GW-88-12D	1b,2b	1b,2b	1a	1a	1a	1a	1a	1,2,5
GW-88-12A	1b	1a	--	--	--	--	--	2,5,8

Abbreviations/Legend:

VOA - Target Compound List (TCL) Volatiles
SVOA - TCL Semivolatiles
Pest/PCB - TCL Pesticides/PCBs
Metals - Target Compound List (TAL) Metals
CN - Cyanide
Phenols - Total Phenols
Wet Chem. - Includes Schedule B waters

RE - Reanalysis
GW - Groundwater Blank
TB - Trip Blank
L - Serial Dilution
MS - Matrix Spike
MSD - Matrix Spike Duplicate
MSB - Matrix Spike Blank
DUP - Duplicate
A or S - Shallow
R, C or I - Intermediate
D - Bedrock

NOTES FOR TABLE 11

1. See Table 12 for list of rejected compounds.

2. The standard associated to this volatile sample is not within NYSDEC ASP 1989 criteria or USEPA 3/90 Statement of Work.

3. The volatile matrix spike duplicate had one surrogate outside acceptable recovery limits. The associated sample and matrix spike were within control limits. The matrix spike duplicate was not reanalyzed, as per NYSDEC ASP, and therefore the data is useable with caution.

4. The standard associated to this semivolatile sample is not within NYSDEC ASP 1989 criteria or USEPA 3/90 Statement of Work.

5. For the semivolatile fraction, no instrument detection limit studies were performed within the quarterly requirement.

6. The semivolatile sample had poor surrogate recoveries. The sample was re-extracted, as per NYSDEC ASP, outside the extraction holding time. The surrogate recoveries were outside control limits for the reanalysis, substantiating a matrix interference.

7. The semivolatile sample fraction had suppressed phenol surrogate recoveries and could not be re-extracted due to insufficient sample volume. Therefore, the data is not useable.

8. The semivolatile fraction was analyzed for pyridine only.

TABLE 12*

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Con. (ppb) of Compound in the Method Blank
FC-GW-85-2R	Methylene Chloride (VOA)	1	0	1	3
"	Acetone (VOA)	14	0	4	10
FC-GW-TB-2TB	Methylene Chloride (VOA)	--	0	1	3
"	Acetone (VOA)	--	0	4	10
FC-GW-88-12D	Toluene (VOA)	2	0	1	0
FC-URS-2D	Methylene Chloride (VOA)	2	0	1	3
"	Acetone (VOA)	8	0	4	10
"	Toluene (VOA)	0.8	0	1	0
FC-URS-8I	Acetone (VOA)	4	0	4	10
FC-GW-88-11D-MSB	Acetone (VOA)	2	0	4	10
FC-GW-85-2R	Bis(2-ethylhexyl)phthalate (SVOA)	7	2	--	0
FC-GW-85-2S	Bis(2-ethylhexyl)phthalate (SVOA)	4	2	--	0

* For volatile and semivolatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of any rinse or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 12* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Con. (ppb) of Compound in the Method Blank
FC-GW-88-11C	Diethylphthalate (SVOA)	0.7	1	--	0.5
"	Bis(2-ethylhexyl)phthalate (SVOA)	7	2	--	3
FC-GW-88-11D	Diethylphthalate (SVOA)	0.5	1	--	0.5
"	Bis(2-ethylhexyl)phthalate (SVOA)	8	2	--	3
"	Di-n-octylphthalate (SVOA)	1	2	--	0
FC-GW-88-12C	Bis(2-ethylhexyl)phthalate (SVOA)	3	2	--	0
GC-GW-88-12D	Di-n-octylphthalate (SVOA)	5	2	--	0
FC-URS-2D	Bis(2-ethylhexyl)phthalate (SVOA)	6	2	--	0
FC-URS-8S	Bis(2-ethylhexyl)phthalate (SVOA)	4	2	--	0
FC-URS-8S-RE	Bis(2-ethylhexyl)phthalate (SVOA)	4	2	--	0
FC-GW-88-11D-MSB	Diethylphthalate (SVOA)	0.6	1	--	0.5
"	Bis(2-ethylhexyl)phthalate (SVOA)	2	2	--	3

* For volatile and semivolatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> rinse or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 12* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Con. (ppb) of Compound in the Method Blank
FC-GW-88-11D-MSB	Di-n-octylphthalate (SVOA)	0.2	2	--	0
FC-GW-88-11D-MS	Diethylphthalate (SVOA)	3	1	--	0.5
"	Bis(2-ethylhexyl)phthtlate (SVOA)	5	2	--	3
"	Di-n-octylphthalate (SVOA)	0.8	2	--	0
FC-GW-88-11D-MSD	Diethylphthalate (SVOA)	0.4	1	--	0.5
"	Bis(2-ethylhexyl)phthalate (SVOA)	16	2	--	3
"	Di-n-octylphthalate (SVOA)	0.8	2	--	0

* For volatile and semivolatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of any rinse or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

TABLE 13

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Groundwater

Laboratory Report Number: 3090-1676B
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	Notes
GW-85-1R	1b,2b	1b,2b	1a	1a	1a	1a	1a	1,2,3
GW-88-4A	1b	1b,2b	1a	1a	1a	1a	1a	2,3,4
GW-88-4A-RE	--	1b,2b	--	--	--	--	--	3,4
GW-88-8A	1b,2b	1b,2b	1a	1a	1a	1a	1a	1,2,3
GW-RB-1	1a,2b	1b,2b	1a	1a	1a	--	--	1,3
GW-88-13A	1a	1b,2b	1a	1a	1a	1a	1a	1,3
GW-88-13A-MS	--	--	--	1a	--	--	--	
GW-88-13A-DUP	--	--	--	1a	--	--	--	
GW-88-13A-L	--	--	--	1a	--	--	--	
GW-85-1S	1a	1b,2b	1a	1a	1a	--	--	1,3
GW-88-11B	1a	--	1a	1a	--	--	--	
GW-TB3	1b,2b	--	--	--	--	--	--	1,2
GW-TB4	1a,2b	--	--	--	--	--	--	1
HB-REF-35	1a,2b	--	--	--	--	--	--	1
GW-88-1A	--	--	1a	--	--	1a	1a	
GW-88-11C	--	--	--	--	--	--	1a	

Abbreviation/Legend

VOA - Target Compound List (TCL) Volatiles
SVOA - TCL Semivolatiles
Pest/PCB - TCL Pesticides/PCBs
Metals - Target Analyte List (TAL) Metals
CN - Cyanide
Phenols - Total Phenols
Wet Chem. - Includes Schedule B waters

GW - Groundwater
TB - Trip Blank
RB - Rinse Blank
L - Serial Dilution
MS - Matrix Spike
MSD - Matrix Spike Duplicate
MSB - Matrix Spike Blank
DUP - Duplicate
RE - Reanalysis
HB - Holding Blank

NOTES FOR TABLE 13

1. See Table 14 for list of rejected compounds.

2. The standard associated to this volatile sample is not within NYSDEC ASP 1989 criteria or USEPA 3/90 Statement of Work.

3. The standard associated to this semivolatile sample is not within NYSDEC ASP 1989 criteria or USEPA 3/90 Statement of Work.

4. The semivolatile sample had poor internal standard and surrogate recoveries requiring re-extraction and reanalysis. The re-extraction was outside of holding time, but the same results were obtained, substantiating a matrix interference.

TABLE 14*

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Method Blank	Notes
FC-GW-RB1	Chloroform (VOA)	--	1	1	1	0	
FC-GW-TB-3	"	--	1	1	1	0	
FC-GW-TB-4	"	--	1	1	1	0	
HB-REF-35	"	--	1	1	--	0	
FC-GW-88-8A	"	950	1	250	250	0	1
FC-GW-85-1R	Diethylphthalate (SVOA)	1	--	1	--	0.5	
"	Bis(2-ethylhexyl)phthalate (SVOA)	4	--	2	--	3	
FC-GW-RB-1	Diethylphthalate (SVOA)	--	--	1	--	0.5	
"	Bis(2-ethylhexyl)phthalate (SVOA)	--	--	2	--	3	
FC-GW-88-8A	Diethylphthalate (SVOA)	2	--	1	--	0.5	
"	Bis(2-ethylhexyl)phthalate (SVOA)	21	--	2	--	3	
"	Di-n-octylphthalate (SVOA)	2	--	2	--	0	
FC-GW-88-13A	Diethylphthalate (SVOA)	2	--	1	--	0.5	
"	Bis(2-ethylhexyl)phthalate (SVOA)	5	--	2	--	3	
"	Di-n-octylphthalate (SVOA)	0.6	--	2	--	0	
FS-GW-85-1S	Diethylphthalate (SVOA)	2	--	1	--	0.5	
"	Bis(2-ethylhexyl_phthalate (SVOA)	10	--	2	--	3	
"	Di-n-octylphthalate (SVOA)	0.4	--	2	--	0	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

<u>Notes</u>:
1. The sample was diluted by a factor of 250.

TABLE 14* - Continued

ORGANIC COMPOUNDS REJECTED FROM THE FIRST ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Method Blank	Notes
FC-GW-88-4A	Di-n-octylphthalate (SVOA)	2	--	2	--	0	
FC-GW-88-4A-RE	Di-n-butylphthalate (SVOA)	3	--	1	--	0.7	
"	Bis(2-ethylhexyl)phthalate (SVOA)	49	--	2	--	5	
"	Di-n-octylphthalate (SVOA)	4	--	2	--	0	

* For volatile and semi-volatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of any rinse blank or method blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the blanks. Rinse and trip blanks should be treated the same as samples, except that any rejected rinse or trip blank can still be utilized to reject sample data.

ANALYTICAL DATA ASSESSMENT

FOR

SECOND-ROUND CHEMICAL ANALYSES FOR FRONTIER CHEMICAL

Performed by:

IEA, INC., MONROE, CT

Prepared for:

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

By:

URS CONSULTANTS, INC.

JUNE 1991

INTRODUCTION: This assessment represents the best judgement of URS Consultants, Inc. (URS) concerning the useability and defensibility of chemical data produced by IEA, Inc., a subcontractor to URS, as part of a Remedial Investigation/Feasibility Study at Frontier Chemical in the Township of Pendleton, New York. This project is being funded by the New York State Department of Environmental Conservation (NYSDEC), State Superfund Standby Work Assignment No. D002340-4. The data being evaluated is from first-round sampling of tank waste, shallow probe soils, surface waters, surface sediments, soil borings, and groundwater samples. All analyses performed by IEA, Inc. were subject to NYSDEC Analytical Services Protocol - September 1989.

Data documentation and chain-of-custody procedures were performed in accordance with NYSDEC Analytical Services Protocol - September 1989. Data validation, reduction, and determination of useability, were performed in accordance with USEPA SOP No. HW-3 CLP Organic Data Review. The inorganic data validation processes were performed in accordance with USEPA SOP No. HW-2 Evaluation of Metals Data for the Contract Laboratory Program, Revision IV, August 1986. Other non-ASP parameters will be validated against the methods.

CATEGORIES: The following table summarizes our assessment of data useability on a sample-by-sample and fraction-by-fraction basis. In evaluating this data, we have established four (4) categories which are, for the most part, gradational in nature. The categories are defined as follows:

<u>Category 1a - Useable and Defensible</u> - Fully useable, despite possible minor deviations from ASP criteria.

<u>Category 1b - Useable Though Not Fully Defensible</u> - Useable with caution; cumulative deviations from ASP criteria are greater than Category 1a, though not considered so significant as to jeopardize the chemical representativeness of the sample results.

<u>Category 2a - Rejected Fractions/Compounds Due to Holding Time Violations</u> - Did not comply with ASP holding times.

<u>Category 2b - Rejected Fraction(s)/Compound(s) Due to Various ASP Deviations</u> - In a sample fraction, some compounds may be useable and defensible, other compounds may be rejected, or the sample fraction may be rejected due to various deviations from ASP. See Table Notes for rationale of rejected fractions and Tables 2, 4, and 6 for lists of rejected compounds.

In Tables 1, 3, 5, and 7 some fractions are assigned single categories, indicating that they are either considered useable in their entirety or rejected in their entirety. The notes accompanying this table indicate the reason for rejections (Categories 2a, 2b) and for only conditional acceptances (Category 1b). Also on Tables 1, 3, 5, and 7 some fractions are assigned dual categories. This indicates that, while some compounds within the fraction are useable, others are rejected due to contamination in one or more of the QC blanks. Tables 2, 4, and 6 identify the specific compounds within each sample which are rejected due to blank contamination.

SUMMARY ASSESSMENT: In summary, we feel that the analytical data is useable for Category 1a, useable with caution for Category 1b and rejected for Categories 2a and 2b. It should be noted that the use of Category 1b involves some risk in the event of a legalistic challenge based upon noncompliance with strict ASP criteria. Of the total analyses performed (by sample and fraction), the overall data package is categorized as follows:

Laboratory Report No. 3091-0396

Category	VOA	SVOA	Pest/ PCB	Metals	Cyanide	Phenols	Wet Chem.	TCLP VOA	TCLP SVOA	TCLP Pest.	TCLP Herb.	TCLP Metals
1a	13	2	19	20	18	18	9	1	3	0	3	4
1b	0	0	1	0	0	0	0	0	0	3	0	0
1a,2b	4	17	0	0	0	0	0	2	0	0	0	0
1b,2b	6	0	0	0	0	0	0	0	0	0	0	0
2a	0	1	0	0	0	0	0	0	0	0	0	0
2b	0	1	0	0	0	0	0	0	0	0	0	0
Total	23	21	19	20	18	18	9	3	3	3	3	4

Laboratory Report No. 3091-0590

Category	VOA	Pest/ SVOA	PCB	Metals	Cyanide	Phenols	Wet Chem.	TCLP VOA	TCLP SVOA	TCLP Pest.	TCLP Herb.	TCLP Metals
1a	3	0	12	16	15	16	3	2	2	2	2	2
1a,2b	17	10	0	0	0	0	0	0	0	0	0	0
1b	0	1	0	0	0	0	0	0	0	0	0	0
1b,2b	2	0	0	0	0	0	0	0	0	0	0	0
Total	22	11	12	16	15	16	3	2	2	2	2	2

Laboratory Report No. 3091-0590A

Category	VOA	SVOA	Pest/ PCB	Metals	Cyanide	Phenols	Wet Chem.
1a	6	0	2	25	25	24	6
1a,2b	21	2	0	0	0	0	0
1b	0	0	0	0	0	0	0
1b,2b	1	0	0	0	0	0	0
Total	28	2	2	25	25	24	6

Laboratory Report No. 3091-0721

Category	Pest/ PCB	Dioxin/ Furan
1b	1	6
Total	1	6

The Laboratory Reports identified above are in compliance with the terms and conditions of the laboratory contract, other than the conditions detailed in the following tables. Release of the data for this phase of the investigation has been authorized by the Project Manager and QA/QC Officer by the following signatures.

Charles W. Hurley
Project Manager

Thomas Knickerbocker
QA/QC Officer

TABLE 1

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Stream Sediments, Surface Waters, and Shallow Probe Soils

Laboratory Report Number: 3091-0396
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	TCLP VOA	TCLP SVOA	TCLP Pest	TCLP Herb	TCLP Metals	Notes
FC-SS-11	1b,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	--	1,2
FC-SS-12	1b,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	--	1,2
FC-SS-12-MS	1b,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	--	1,2
FC-SS-12-MSD	1b,2b	1a,2b	1a	--	--	--	--	--	--	--	--	--	1,2
FC-SS-12-Dup	--	--	--	1a	1a	1a	--	--	--	--	--	--	
FC-SS-12-MSB	1b,2b	1a,2b	1a	--	--	--	--	--	--	--	--	--	1,2
FC-SS-10	1b,2b	1a,2b	1a	1a	1a	1a	1a	--	--	--	--	--	1,2,5
FC-SS-9	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	--	1
FC-SS-9-L	--	--	--	1a	--	--	--	--	--	--	--	--	
FC-SS-8	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	--	1
FC-SS-7	1a,2b	1a,2b	1a	1a	1a	1a	--	--	--	--	--	--	1
FC-SW-4	1a	2b	1a	1a	1a	1a	1a	--	--	--	--	--	3
FC-SW-4-RE	--	2a	--	--	--	--	--	--	--	--	--	--	3
FC-SW-5	1a,2b	1a,2b	1a	1a	1a	1a	1a	--	--	--	--	--	1
FC-SW-6	1a	1a,2b	1a	1a	1a	1a	1a	--	--	--	--	--	1
FC-SW-6-MS	1a	1a,2b	1a	1a	1a	1a	1a	--	--	--	--	--	1
FC-SW-6-MSD	1a	1a,2b	1a	--	--	--	--	--	--	--	--	--	1
FC-SW-6-Dup	--	--	--	1a	1a	1a	1a	--	--	--	--	--	
FC-SW-6-MSB	1a	1a,2b	1a	--	--	--	--	--	--	--	--	--	1
FC-SW-7	1a	1a,2b	1b	1a	1a	1a	--	--	--	--	--	--	1,4
FC-SW-7-L	--	--	--	1a	--	--	--	--	--	--	--	--	

TABLE 1 (Continued)

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Stream Sediments, Surface Waters, and Shallow Probe Soils

Laboratory Report Number: 3091-0396
Assessment Categories: 1a,1b,2a,2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	TCLP VOA	TCLP SVOA	TCLP Pest	TCLP Herb	TCLP Metals	Notes
FC-SW-8	1a	1a,2b	1a	1a	1a	1a	--	--	--	--	--	--	1
FC-SW-9	1a	1a,2b	1a	1a	1a	1a	--	--	--	--	--	--	1
FC-FB-R2-SS	1a	1a	1a	1a	1a	1a	--	--	--	--	--	--	
FC-FB-R2-SW	1a	1a	1a	1a	1a	1a	--	--	--	--	--	--	
FC-SPS-9	--	--	--	--	--	--	1a	1a,2b	1a	1b	1a	1a	1,4,5
FC-SPS-12	--	--	--	--	--	--	1a	1a,2b	1a	1b	1a	1a	1,4,5
FC-SPS-12-MS	--	--	--	--	--	--	--	1a	1a	1b	1a	1a	4
FC-SPS-12-L	--	--	--	--	--	--	--	--	--	--	--	1a	
FC-TB-SW-2	1a	--	--	--	--	--	--	--	--	--	--	--	
HB1-R35	1a	--	--	--	--	--	--	--	--	--	--	--	
FC-SPS-11	--	--	--	--	--	--	1a	--	--	--	--	--	5
FC-TB-SW-1	1a	--	--	--	--	--	--	--	--	--	--	--	

Abbreviation/Legend

VOA - Target Compound List (TCL) Volatiles
SVOA - TCL Semivolatiles
Pest/PCB - TCL Pesticides/PCBs
Metals - Target Analyte List (TAL) Metals
CN - Cyanide
Phenols - Total Phenols
Wet Chem. - Wet Chemistry Parameters includes Schedule B for aqueous samples
TCLP VOA - Toxicity Characteristic Leaching Procedure Volatiles
TCLP SVOA - Toxicity Characteristic Leaching Procedure Semivolatiles
TCLP Pest - Toxicity Characteristic Leaching Procedure Pesticides
TCLP Herb - Toxicity Characteristic Leaching Procedure Herbicides
TCLP Metals - Toxicity Characteristic Leaching Procedure Metals

RE - Reanalysis
FB - Field Blank
TB - Trip Blank
SPS - Shallow Probe Soil
MS - Matrix Spike
MSD - Matrix Spike Duplicate
MSB - Matrix Spike Blank
DUP - Duplicate
SS - Stream Sediment
HB - Holding Blank
SW - Surface Water
L - Serial Dilution

NOTES FOR TABLE 1

1) See Table 2 for list of rejected compounds.

2) The initial calibration curve associated to this volatile sample is not within NYSDEC ASP 1989 criteria or USEPA 3/90 Statement of Work criteria.

3) Upon initial analysis, the semivolatile sample had surrogates outside recovery limits. The sample was then reextracted outside NYSDEC ASP holding times, with all surrogates within acceptable recovery limits.

4) The standards associated to this pesticide/PCB sample were not within the NYSDEC ASP 1989 criteria.

5) The wet chemistry analysis applies to hexavalent chromium only.

TABLE 2*

ORGANIC COMPOUNDS REJECTED FROM THE SECOND ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Method Blank
FC-SS-11	Methylene Chloride (VOA)	7	42	--	0	8
"	Acetone (VOA)	72	0	--	0	50
FC-SS-12	Methylene Chloride (VOA)	5	38	--	0	7
"	Acetone (VOA)	58	0	--	0	45
FC-SW-5	Acetone (VOA)	22	0	--	0	17
FC-SS-9	Methylene Chloride (VOA)	8	36	2	0	8
"	Acetone (VOA)	18	0	0	0	18
FC-SPS-9 TCLP	Trichloroethene (VOA)	5	0	0	0	5
FC-SPS-12 TCLP	Trichloroethene (VOA)	6	0	0	0	5
FC-SS-10	Acetone (VOA)	17	0	0	0	43
FC-SS-8	Methylene Chloride (VOA)	7	29	4	0	5
"	Acetone (VOA)	60	0	0	0	45
"	2-Butanone (VOA)	14	0	0	0	20
FC-SS-7	Methylene Chloride (VOA)	9	37	5	0	7
"	Acetone (VOA)	130	0	0	0	58
"	2-Butanone (VOA)	31	0	0	0	26
FC-SS-12-MSB	Methylene Chloride (VOA)	3	--	--	0	3

TABLE 2* (Continued)

ORGANIC COMPOUNDS REJECTED FROM THE SECOND ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Method Blank
FC-SS-12-MSB	Acetone (VOA)	25	--	--	0	19
FC-SS-12-MS	Acetone	78	0	0	0	52
FC-SS-12-MSD	Acetone (VOA)	58	0	0	0	52
"	2-Butanone (VOA)	23	0	0	0	24
FC-SS-11	Di-n-butylphthalate (SVOA)	80	0	--	--	65
"	Bis(2-ethylhexyl)phthalate (SVOA)	1100	7	--	--	600
FC-SS-12	Di-n-butylphthalate (SVOA)	53	0	--	--	57
"	Bis(2-ethylhexyl)phthalate (SVOA)	1000	6	--	--	530
FC-SW-6	Bis(2-ethylhexyl)phthalate (SVOA)	2	3	--	--	5
FC-SW-6	Bis(2-ethylhexyl)phthalate (SVOA)	4	2	--	--	4
FC-SW-5	Bis(2-ethylhexyl)phthalate (SVOA)	3	3	--	--	4
FC-SS-9	Di-n-butylphthalate (SVOA)	76	-	--	--	89
"	Bis(2-ethylhexyl)phthalate (SVOA)	510	8	--	--	230
FC-SW-9	Di-n-butylphthalate (SVOA)	1	0	--	--	0.4

TABLE 2* (Continued)

ORGANIC COMPOUNDS REJECTED FROM THE SECOND ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Method Blank
FC-SW-9	Bis(2-ethylhexyl)phthalate (SVOA)	2	2	--	--	1
FC-SS-10	Di-n-butylphthalate (SVOA)	47	0	--	--	65
"	Bis(2-ethylhexyl)phthalate (SVOA)	260	6	--	--	170
FC-SW-8	Bis(2-ethylhexyl)phthalate (SVOA)	11	2	--	--	14
FC-SS-8	Di-n-butylphthalate (SVOA)	48	0	--	--	51
"	Bis(2-ethylhexyl)phthalate (SVOA)	370	5	--	--	250
FC-SS-7	Di-n-butylphthalate (SVOA)	78	0	--	--	46
"	Bis(2-ethylhexyl)phthalate (SVOA)	440	3	--	--	230
FC-SW-7	Bis(2-ethylhexyl)phthalate (SVOA)	9	2	--	--	14
FC-SS-12-MSB	Di-n-butylphthalate (SVOA)	24	--	--	--	28
"	Bis(2-ethylhexyl)phthalate (SVOA)	140	--	--	--	260
FC-SS-12-MS	Di-n-butylphthalate (SVOA)	66	0	--	--	57

TABLE 2* (Continued)

ORGANIC COMPOUNDS REJECTED FROM THE SECOND ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Method Blank
FC-SS-12-MS	Bis(2-ethylhexyl)phthalate (SVOA)	1300	6	--	--	530
FC-SS-12-MSD	Di-n-butylphalate (SVOA)	61	0	--	--	57
FC-SS-12-MSD	Bis(2-ethylhexyl)phthalate (SVOA)	1100	6	--	--	530
FC-SW-6-MSB	Bis(2-ethylhexyl)phthalate (SVOA)	2	2	--	--	4
FC-SW-6-MS	Bis(2-ethylhexyl)phthalate (SVOA)	3	2	--	--	4
FC-SW-6-MSD	Bis(2-ethylhexyl)phthalate (SVOA)	2	2	--	--	4

* For volatile and semivolatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> quality control blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the quality control blanks. Rinse, trip, or holding blanks should be treated the same as samples, except that any rejected rinse, trip, or holding blank can still be utilized to reject sample data.

TABLE 3

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Groundwaters, Soil Borings, Tank Waste and Drill Water

Laboratory Report Number: 3091-0590
Assessment Categories: 1a, 1b, 2a, 2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	TCLP VOA	TCLP SVOA	TCLP Pest	TCLP Herb	TCLP Metals	Notes
FC-DW-2	1a, 2b	1a, 2b	1a	1a	1a	1a	--	--	--	--	--	--	1
HB-1-R34	1a, 2b	--	--	--	--	--	--	--	--	--	--	--	1
FC-B-11	1a, 2b	1a, 2b	1a	1a	1a	1a	--	--	--	--	--	--	1
FC-B-12	1a, 2b	1a, 2b	1a	1a	1a	1a	--	--	--	--	--	--	1
FC-B-12-MS	1b, 2b	1a, 2b	1a	1a	1a	1a	--	--	--	--	--	--	1,2
FC-B-12-MSD	1b, 2b	1b	1a	--	--	--	--	--	--	--	--	--	1,2,3
FC-B-12-Dup	--	--	--	1a	1a	1a	--	--	--	--	--	--	
FC-B-12-MSB	--	1a, 2b	1a	--	--	--	--	--	--	--	--	--	
HB-2-R35	1a, 2b	--	--	--	--	--	--	--	--	--	--	--	1
SB-RB-2	1a	1a, 2b	1a	1a	1a	1a	--	--	--	--	--	--	1
GW-URS-9S	1a, 2b	--	--	1a	1a	1a	--	--	--	--	--	--	1
GW-85-7S	1a, 2b	--	--	1a	1a	1a	--	--	--	--	--	--	1
GW-85-2S	1a, 2b	--	--	1a	1a	1a	--	--	--	--	--	--	1
GW-85-5S	1a, 2b	--	1a	1a	1a	1a	--	--	--	--	--	--	1
GW-TB-1 2/19/91	1a, 2b	--	--	--	--	--	--	--	--	--	--	--	1
GW-URS-9D	1a, 2b	--	--	1a	1a	1a	--	--	--	--	--	--	1
GW-URS-9I	1a, 2b	--	--	1a	1a	1a	--	--	--	--	--	--	1
GW-85-5R	1a	--	--	1a	1a	1a	--	--	--	--	--	--	
GW-URS-14D	1a, 2b	1a, 2b	1a	1a	1a	1a	1a	--	--	--	--	--	1
GW-URS-14D-MS	1a, 2b	1a, 2b	1a	1a	1a	1a	1a	--	--	--	--	--	1

TABLE 3

ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Groundwaters, Soil Borings, Tank Waste and Drill Water

Laboratory Report Number: 3091-0590
Assessment Categories: 1a, 1b, 2a, 2b

Sample ID	VOA	SVOA	Pest/ PCB	Metals	CN	Phenols	Wet Chem.	TCLP VOA	TCLP SVOA	TCLP Pest	TCLP Herb	TCLP Metals	Notes
GW-URS-14D-MSD	1a, 2b	1a, 2b	1a	--	--	--	--	--	--	--	--	--	1
GW-URS-14D-Dup	--	--	--	1a	--	1a	1a	--	--	--	--	--	
GW-URS-14D-MSB	1a, 2b	1a, 2b	1a	--	--	--	--	--	--	--	--	--	1
GW-TB-2 2/20/91	1a	--	--	--	--	--	--	--	--	--	--	--	
HB-3-R34	1a, 2b	--	--	--	--	--	--	--	--	--	--	--	1
FC-TK-1	--	--	--	--	--	--	1a	1a	1a	1a	1a	1a	4,5,6
FC-TK-1-MS	--	--	---	--	--	--	--	1a	1a	1a	1a	1a	4

Abbreviation/Legend

VOA - Target Compound List (TCL) Volatiles
SVOA - TCL Semivolatiles
Pest/PCB - TCL Pesticides/PCBs
Metals - Target Analyte List (TAL) Metals
CN - Cyanide
Phenols - Total Phenols
Wet Chem. - Wet Chemistry Parameters Schedule B waters
TCLP VOA - Toxicity Characteristic Leaching Procedure Volatiles
TCLP SVOA - Toxicity Characteristic Leaching Procedure Semivolatiles
TCLP Pest - Toxicity Characteristic Leaching Procedure Pesticides
TCLP Herb - Toxicity Characteristic Leaching Procedure Herbicides
TCLP Metals - Toxicity Characteristic Leaching Procedure Metals

HB - Holding Blank
RB - Rinse Blank
TB - Trip Blank
MS - Matrix Spike
MSD - Matrix Spike Duplicate
MSB - Matrix Spike Blank
GW - Groundwater
SB - Soil Boring
S - Shallow
B - Within Confining Unit
DW - Drill Water Supply
D - Deep (Bedrock)
I and R - Intermediate (Bedrock/Overburden Interface)
TK - Tank Waste

TABLE 4*

ORGANIC COMPOUNDS REJECTED FROM THE SECOND ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Method Blank
FC-B-11	Methylene Chloride (VOA)	11	1	0	--	4	5
FC-B-11	Acetone (VOA)	65	13	0	--	21	43
FC-B-11	2-Butanone (VOA)	6	4	0	--	0	5
FC-B-11	Toluene (VOA)	2	0	0	--	0	3
FC-B-12	Methylene Chloride (VOA)	14	1	0	--	4	6
FC-B-12	Acetone (VOA)	83	14	0	--	22	44
FC-B-12	2-Butanone (VOA)	9	4	0	--	0	6
FC-B-12	Toluene (VOA)	5	0	0	--	0	3
FC-B-12	Xylene (total) (VOA)	3	1	0	--	0	0
FC-B-12-MS	Methylene Chloride (VOA)	15	1	0	--	4	6
FC-B-12-MS	Acetone (VOA)	57	14	0	--	22	44
FC-B-12-MS	2-Butanone (VOA)	6	4	0	--	0	6
FC-B-12-MS	Xylene (total) (VOA)	2	1	0	--	0	0
FC-B-12-MSD	Methylene Chloride (VOA)	15	1	0	--	4	6
FC-B-12-MSD	Acetone (VOA)	76	14	0	--	22	44

TABLE 4* (Continued)

ORGANIC COMPOUNDS REJECTED FROM THE SECOND ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Method Blank
FC-B-12-MSD	2-Butanone (VOA)	8	4	0	--	0	6
FC-B-12-MSD	Xylene (total) (VOA)	2	1	0	--	0	0
GW-URS-9S	Methylene Chloride (VOA)	2	--	--	3	4	5
GW-URS-9S	Acetone (VOA)	28	--	--	8	10	36
GW-85-7S	Acetone (VOA)	14	--	--	8	10	36
GW-85-2S	Methylene Chloride (VOA)	2	--	--	3	4	5
GW-85-2S	Acetone (VOA)	17	--	--	8	10	36
GW-85-5S	Methylene Chloride (VOA)	2	--	--	3	4	5
GW-85-5S	Acetone (VOA)	8	--	--	8	10	36
GW-URS-9D	Acetone (VOA)	70	--	--	0	10	9
GW-URS-9I	Acetone (VOA)	10	--	--	0	10	9
GW-URS-14D	Methylene Chloride (VOA)	3	1	--	0	4	0
GW-URS-14D-MS	Acetone (VOA)	12	10	--	0	10	9
GW-URS-14D-MSD	Acetone (VOA)	9	10	--	0	10	9

TABLE 4* (Continued)

ORGANIC COMPOUNDS REJECTED FROM THE SECOND ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Method Blank
GW-URS-14D-MSB	Methylene Chloride (VOA)	4	1	--	0	4	4
GW-URS-14D-MSB	Acetone (VOA)	16	10	--	0	10	12
GW-URS-14D-MSB	Chloroform (VOA)	2	18	--	0	0	0
FC-DW-2	Methylene Chloride (VOA)	1	--	0	--	3	3
FC-DW-2	Acetone (VOA)	10	--	0	--	10	10
FC-DW-2	Xylene (total) (VOA)	0.7	--	0	--	0	0.7
GW-TB-1 2/19/91	Methylene Chloride (VOA)	--	--	--	3	4	5
GW-TB-1 2/19/91	Acetone (VOA)	--	--	--	8	10	36
HB-1-R34	Methylene Chloride (VOA)	--	1	0	--	3	3
HB-1-R34	Acetone (VOA)	--	10	0	--	10	13
HB-2-R35	Methylene Chloride (VOA)	--	--	--	--	3	4
HB-2-R35	Acetone (VOA)	--	--	--	--	16	23

TABLE 4* (Continued)

ORGANIC COMPOUNDS REJECTED FROM THE SECOND ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Method Blank
HB-3-R34	Methylene Chloride (VOA)	--	--	--	3	4	5
HB-3-R34	Acetone (VOA)	--	--	--	8	10	36
FC-B-11	Bis(2-ethylhexyl) phthalate (SVOA)	2500	11	3	--	--	360
FC-B-12	Bis(2-ethylhexyl) phthalate (SVOA)	300	11	3	--	--	370
FC-B-12-MS	Di-n-octylphthalate (SVOA)	41	4	0	--	--	0
FC-B-12-MSB	Bis(2-ethylhexyl) phthalate (SVOA)	890	11	3	--	--	370
FC-B-12-MSB	Di-n-octylphthalate (SVOA)	32	4	0	--	--	0
GW-URS-14D	Bis(2-ethylhexyl) phthalate (SVOA)	73	8	2	--	--	2
GW-URS-14D-MS	Bis(2-ethylhexyl) phthalate (SVOA)	11	8	2	--	--	1
GW-URS-14D-MSD	Bis(2-ethylhexyl) phthalate (SVOA)	36	8	2	--	--	2

TABLE 4* (Continued)

ORGANIC COMPOUNDS REJECTED FROM THE SECOND ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Drill Water	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Method Blank
GW-URS-14D-MSB	Bis(2-ethylhexyl) phthalate (SVOA)	1	8	2	--	--	2
FC-DW-2	Bis(2-ethylhexyl) phthalate (SVOA)	8	--	2	--	--	0
SC-RB-2	Phenanthrene (SVOA)	--	0	2	--	--	0.6
SC-RB-2	Fluoranthene (SVOA)	--	0	4	--	--	0.8
SC-RB-2	Pyrene (SVOA)	--	0	2	--	--	0.5
SC-RB-2	Bis(2-ethylhexyl) phthalate (SVOA)	--	8	2	--	--	2

* For volatile and semivolatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of any quality control blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the quality control blank. Rinse, trip, or holding blanks should be treated the same as samples, except that any rinse, trip, or holding blank can still be utilized to reject sample data.

NOTES FOR TABLE 3

1. See Table 4 for list of rejected compounds.

2. No volatile matrix spike blank was performed with this set of matrix spike/matrix spike duplicate.

3. In the semivolatile fraction bis(2-ethylhexyl)phthalate exceeded the linear calibration range, however, this compound was rejected in both the sample and matrix spike analyses.

4. The sample consisted of two phases. The upper (organic) phase was not analyzed for TCLP parameters because it was miscibile with the extraction solvents. The organic phase was determined by the laboratory to be ignitable, and was also identified as diesel fuel.

5. The mercury analysis exceeded the holding time of 26 days. The analysis was performed eight (8) days past holding time requirements.

6. The wet chemistry parameters include ignitability, reactivity and corrosivity.

TABLE 5
ANALYTICAL DATA ASSESSMENT SUMMARY
MATRIX: Groundwater
LABORATORY REPORT NUMBER: 3091-0590A
ASSESSMENT CATEGORIES: 1a, 1b, 2a, 2b

Sample ID	VOA	SVOA	Pest/PCB	Metals	CN	Phenols	Wet Chem	Notes
GW-8I	1a,2b	-	-	1a	1a	1a	-	1
GW-2D	1a,2b	-	-	1a	1a	1a	-	1
GW-5D	1a,2b	-	-	1a	1a	1a	-	1
GW-88-12A	1a	-	-	1a	1a	1a	1a	3
GW-88-12A-MS	-	-	-	-	-	-	1a	3
GW-88-12A-DUP	-	-	-	-	-	-	1a	3
GW-14S	1a,2b	1a,2b	1a	1a	1a	1a	1a	1
GW-14S-MS	-	-	-	-	-	-	1a	
GW-14S-DUP	-	-	-	-	-	-	1a	
GW-8S	1a	-	-	1a	1a	1a	-	
GW-88-10A	1a,2b	-	-	1a	1a	1a	-	1, 3
GW-88-11A	1a,2b	-	-	1a	1a	1a	-	1, 3
GW-7D	1a,2b	-	-	1a	1a	1a	-	1
GW-85-7R	1a,2b	-	-	1a	1a	1a	-	1
GW-88-10B	1a,2b	-	-	1a	1a	1a	-	1
GW-88-10C	1a,2b	-	-	1a	1a	1a	-	1
GW-88-10C-MS	-	-	-	-	-	1a	-	
GW-88-10D	1a,2b	-	-	1a	1a	1a	-	1
GW-88-11B	1a,2b	-	-	1a	1a	1a	-	1
GW-14I	1a	-	-	1a	1a	1a	-	
GW-88-11C	1a,2b	-	-	1a	1a	1a	-	1

Table 5 (Continued)

Sample ID	VOA	SVOA	Pest/PCB	Metals	CN	Phenols	Wet Chem	Notes
GW-88-11C-MS	-	-	-	1a	1a	-	-	
GW-88-11C-DUP	-	-	-	1a	1a	1a	-	
GW-88-11D	1a,2b	-	-	1a	1a	1a	-	1
GW-88-12C	1a	-	-	1a	1a	1a	-	
GW-88-12D	1a	-	-	1a	1a	1a	-	
GW-85-2R	1a,2b	-	-	1a	1a	1a	-	1
GW-85-2R-MS	1a	-	-	1a	1a	1a	-	
GW-85-2R-MSD	1a,2b	-	-	-	-	-	-	1
GW-85-2R-MSB	1b,2b	-	-	-	-	-	-	1,2
GW-85-2R-DUP	-	-	-	1a	1a	1a	-	
GW-TB-3	1a,2b	-	-	-	-	-	-	1
GW-TB-4	1a,2b	-	-	-	-	-	-	1
GW-TB-5	1a,2b	-	-	-	-	-	-	1
GW-RB-R2	1a,2b	1a,2b	1a	1a	1a	-	-	1
HB4-R35	1a,2b	-	-	-	-	-	-	1

Abbreviation/Legend:

VOA - Target Compound List (TCL) Volatiles
SVOA - TCL Semivolatiles
Pest/PCB - TCL Pesticides/PCBs
Metals - Target Analyte List (TAL) Metals
CN - Cyanide
Phenols - Total Phenols
Wet Chem - Wet Chemistry Parameters include Schedule B Waters

GW - Groundwater
TB - Trip Blank
RB - Rinse Blank
L - Serial Dilution
MS - Matrix Spike
MSD - Matrix Spike Duplicate
DUP - Duplicate
MSB - Matrix Spike Blank
I - Intermediate
HB - Holding Blank
S - Shallow
D - Bedrock

Notes For Table 5

1. See Table 6 for list of rejected compounds.
2. The volatile matrix spike blank had one surrogate outside NYSDEC QC limits.
3. The wet chemistry applies to hexavalent chromium only.

TABLE 6*

ORGANIC COMPOUNDS REJECTED FROM THE
SECOND ROUND SAMPLING OF FRONTIER CHEMICAL

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Method Blank
GW-8I	Methylene Chloride (VOA)	2	0	3	3	4
GW-8I	Acetone (VOA)	15	6	9	7	12
GW-2D	Acetone (VOA)	17	6	9	7	12
GW-5D	Methylene Chloride (VOA)	2	0	3	3	0
GW-5D	Acetone (VOA)	26	6	9	7	8
GW-5D	2-Butanone (VOA)	4	0	0	6	0
GW-85-2R	Acetone (VOA)	13	6	9	7	12
GW-85-2R-MSD	Acetone (VOA)	10	6	9	7	12
GW-85-2R-MSB	Methylene Chloride (VOA)	3	0	3	3	4
GW-85-2R-MSB	Acetone (VOA)	19	6	9	7	12
GW-14S	Methylene Chloride (VOA)	2	0	3	3	0
GW-14S	Acetone (VOA)	5	6	9	7	8
GW-88-10A	Methylene Chloride (VOA)	3800	0	1500	1500	0
GW-88-10A	Acetone (VOA)	7800	3000	4500	3500	4000
GW-88-10A	2-Butanone (VOA)	2000	0	0	3000	0
GW-88-11A	Methylene Chloride (VOA)	410	0	600	600	0
GW-88-11A	Acetone (VOA)	1800	1200	1800	1400	1600
GW-7D	Acetone (VOA)	6	6	6	7	12
GW-85-7R	Acetone (VOA)	6	6	6	7	12
GW-88-10D	Acetone (VOA)	7	6	6	7	12

Table 6* (Continued)

Sample ID	Compound Rejected	Conc. (ppb) of Compound in the Sample	Conc. (ppb) of Compound in the Rinse Blank	Conc. (ppb) of Compound in the Trip Blank	Conc. (ppb) of Compound in the Holding Blank	Conc. (ppb) of Compound in the Method Blank
GW-88-10C	Acetone (VOA)	9	6	6	7	12
GW-88-10B	Acetone (VOA)	15	6	6	7	12
GW-88-10B	Carbon Dislufide (VOA)	1	0	1	0	0
GW-88-11C	Methylene Chloride (VOA)	1	0	2	3	0
GW-88-11C	Acetone (VOA)	110	6	55	7	0
GW-88-11D	Acetone (VOA)	5	6	55	7	0
GW-88-11B	Acetone (VOA)	7	6	6	7	12
GW-88-11B	Carbon Disulfide (VOA)	2	0	1	0	0
HB4-R-35	Acetone (VOA)	-	6	9	7	8
GW-TB3	Acetone (VOA)	-	6	9	7	8
GW-RB-R2	Acetone (VOA)	-	6	9	7	8
GW-TB-4	Methylene Chloride (VOA)	-	0	2	3	2
GW-TB-4	Acetone (VOA)	-	6	6	7	12
GW-TB-5	Methylene Chloride (VOA)	-	0	2	3	0
GW-TB-5	Acetone (VOA)	-	6	55	7	0
GW-14S	Bis(2-ethylhexyl)phthalate (SVOA)	2	0.7	-	-	0.8
GW-RB-R2	Bis(2-ethylhexyl)phthalate (SVOA)	-	0.7	-	-	0.8

* For volatile and semivolatile samples, no positive results are reported unless the concentration of the compound in the sample exceeds ten times the concentration of <u>any</u> quality control blank for common laboratory contaminants (methylene chloride, acetone, 2-butanone, toluene, and phthalates), or five times the concentration for other compounds. Diluted samples and dry weights must be accounted for in the quality control blanks. Rinse, trip or holding blanks should be treated the same as samples, except that any rejected rinse, trip or holding blank can still be utilized to reject sample data.

TABLE 7

ANALYTICAL DATA ASSESSMENT SUMMARY

MATRIX: Shallow Probe Soil
LABORATORY REPORT NUMBER: 3091-0721
ASSESSMENT CATEGORIES: 1a, 1b, 2a, 2b

Sample ID	Pest/PCB	Dioxin/Furan	Notes
FC-SPS-11	1b	1b	1,2
FC-SPS-12	-	1b	2,3
FC-SPS-12D	-	1b	2
FC-SPS-12B	-	1b	2
FC-SPS-12KB	-	1b	2
FC-RB-1	-	1b	2

Abbreviation/Legend:

Pest/PCB - TCL Pesticides/PCBs
Dioxin/Furan - Polychlorinated Dibenzo-p-dioxins and furans

SPS - Shallow Probe Soil
RB - Rinse Blank
KB - Known Blank
B - Soil Blank
D - Duplicate

NOTES:

1. The sample was analyzed on two separate 72-hour sequences. In both instances it was bracketted by standards that were non-compliant with NYSDEC ASP guidelines.

2. As per SW-846 Method 8280, the laboratory should document GC column performance on a daily basis for peak resolution of tetrachlorinated dibenzo-p-dioxin (TCDD) isomers. This was only done prior to initial calibration and not on a daily basis unless the presence of TCDD was suspected. The laboratory did not detect any TCDD isomers in the sample.

3. The ion abundance ratio for total HpCDD does not meet Method 8280 identification criteria. The laboratory feels that this deviation is due to matrix interference and that the compounds presence is strongly suspected.

APPENDIX P

BENTHIC SPECIES LIST

Table 1. Bull Creek - Collected Macroinvertebrates (Composite Samples)

Taxon	Upstream (UP)	On-Site (OS)	Down-I (DI)	Down-II (DII)
Nematoda				1
Annelida				
Hirudinea				
Helobdella stagnalis			2	6
Unknown			1	
Crustacea				
Amphipoda				
Gammarus sp.	278	173	537	63
Crangonyx sp.	108	29	296	21
Isopoda				
Asellus sp.	82	90	337	47
Lirceus sp.	1		4	15
Decapoda				
Astacidae	6	2	13	
Insecta				
Hemiptera				
Belostomatidae	1			
Belostoma sp.				
Tichoptera				
Hydropsychidae				
Potamyia flava	4			
Limnephilidae				
Anabola sp.		7	16	
Platycentropus sp.			5	
Coleoptera				
Elmidae				
Dubiraphia sp.			2	2
Diptera				
Chironomidae				
Brillia sp.			1	
Microtendipes caelum	35	5	53	75
Chironomus sp.				1
Phaenospectra flavipes				1
Stictochironomus sp.				4
Cricotopus bicinctus	1			
Conchapelopia sp.	1			
Clinotanypus sp.			8	
Simuliidae				
Simulium sp.		1		
Molusca				
Gastropoda				
Viviparus sp.	1	1		
Physella sp.	2	2		
Bivalvia				
Sphaerium sp.	77	61	1	7
Pisidium sp.		15		10
Musculium sp.	9	26	1	
Number of Taxa	14	12	15	13
Number of Individuals	606	412	1277	253

Table 2. Bull Creek - Collected Macroinvertebrates (All Samples)

	Upstream			On-site		
Taxon	UP1	UP2	UP3	OS1	OS2	OS3
Nematoda						
Annelida						
Hirudinea						
Helobdella stagnalis						
Unknown						
Crustacea						
Amphipoda						
Gammarus sp.	95	146	37	140	29	4
Crangonyx sp.	18	62	28	15	11	3
Isopoda						
Asellus sp.	48	24	10	85	4	1
Lirceus sp.		1				
Decapoda						
Astacidae	1	3	2	1	1	
Insecta						
Hemiptera						
Belostomatidae	1					
Belostoma sp.						
Tichoptera						
Hydropsychidae						
Potamyia flava	3	1				
Limnephilidae						
Anabola sp.				4	1	2
Platycentropus sp.						
Coleoptera						
Elmidae						
Dubiraphia sp.						
Diptera						
Chironomidae						
Brillia sp.						
Microtendipes caelum	8	25	2	3		2
Chironomus sp.						
Phaenospectra flavipes						
Stictochironomus sp.						
Cricotopus bicinctus	1					
Conchapelopia sp.		1				
Clinotanypus sp.						
Simuliidae						
Simulium sp.				1		
Molusca						
Gastropoda						
Viviparus sp.	1			1		
Physella sp.		2		2		
Bivalvia						
Sphaerium sp.	38	32	7	35	14	12
Pisidium sp.				14	1	
Musculium sp.	2		7	6	15	5
Number of Taxa	11	10	7	12	8	7
Number of Individuals	216	297	93	307	76	29

Table 2. (continued) Bull Creek - Collected Macroinvertebrates (All Samples)

Taxon	Downstream-I DI1	DI2	DI3	Downstream-II DII1	DII2	DII3
Nematoda						1
Annelida						
Hirudinea						
Helobdella stagnalis	2			2	3	1
Unknown	1					
Crustacea						
Amphipoda						
Gammarus sp.	244	67	226	49	10	4
Crangonyx sp.	87	40	169	10	1	10
Isopoda						
Asellus sp.	120	48	169	22	13	12
Lirceus sp.	2		2	6	7	2
Decapoda						
Astacidae	6	1	6			
Insecta						
Hemiptera						
Belostomatidae						
Belostoma sp.						
Tichoptera						
Hydropsychidae						
Potamyia flava						
Limnephilidae						
Anabola sp.	6	4	6			
Platycentropus sp.	2		3			
Coleoptera						
Elmidae						
Dubiraphia sp.		1	1		2	
Diptera						
Chironomidae						
Brillia sp.	1					
Microtendipes caelum	14	3	36	54	12	9
Chironomus sp.					1	
Phaenospectra flavipes						1
Stictochironomus sp.						4
Cricotopus bicinctus						
Conchapelopia sp.						
Clinotanypus sp.	5		3			
Simuliidae						
Simulium sp.						
Molusca						
Gastropoda						
Viviparus sp.						
Physella sp.						
Bivalvia						
Sphaerium sp.	1			1	4	2
Pisidium sp.				4	3	3
Musculium sp.	1					
Number of Taxa	14	7	10	8	10	11
Number of Individuals	492	164	621	148	56	49

APPENDIX Q
ANALYTICAL RESULTS FROM PREVIOUS INVESTIGATIONS

GROUNDWATER ANALYTICAL RESULTS

FROM MONITORING WELLS

INSTALLED BY EARTH DIMENSIONS, INC.

JULY 1985

TABLE 3-1 FRONTIER CHEMICALS EPA PRIORITY POLLUTANTS: VOLATILES (ug/L)

Concentrations (ppb)	DETECTION LIMIT	1R	2R	3R	5R	7R	1S	2S	3S	5S	6S	7S
Acrolein	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acrylonitrite	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromodichloromethane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bromoethane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloroethylvinylether	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibromochloromethane	30	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	1	ND	ND	ND	ND	ND	ND	ND	39000	ND	ND	ND
1,1-Dichloroethylene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,2-Dichloroethylene	1	ND	ND	ND	ND	ND	ND	ND	1400	ND	ND	ND
Cis-1,3-Dichloropropylene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trans-1,3-Dichloropropylene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	5	ND	ND	ND	ND	ND	ND	ND	2700	ND	ND	ND
1,1,2,2-Tetrachloroethane	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	5	ND	ND	ND	ND	ND	ND	ND	ND	7	19	34
1,1,1-Trichloroethane	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	0.1	ND	ND	ND	ND	ND	ND	ND	580	ND	ND	ND
Trichlorofluoromethane	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 3-2 FRONTIER CHEMICALS EPA PRIORITY POLLUTANTS: EXTRACTABLES (ug/L)

ACID EXTRACTABLES Concentration (ppb)	DETECTION LIMIT	1R	2R	3R	5R	7R	1S	2S	3S	5S	6S	7S	BLANK
4-Chloro-3-methylphenol	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chlorophenol	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dichlorophenol	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dimethylphenol	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrophenol	5	ND	ND	ND	ND	ND	ND	ND	42	ND	ND	ND	ND
2-Methyl-4,6-dinitrophenol	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Nitrophenol	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Nitrophenol	5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenol	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4,6-Trichlorophenol	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
d3- DICHLOROPHENOL % REC.		44	12	16	13	37	53	61	NA	26	ND	26	57

TABLE 3-2 FRONTIER CHEMICALS EPA PRIORITY POLLUTANTS: EXTRACTABLES (ug/L)

Concentrations (ppb)	DETECTION LIMIT	1R	2R	3R	5R	7R	1S	2S	3S	5S	6S	7S	BLANK
Acenaphthene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Acenaphthylene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Anthracene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzidine	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)anthracene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(b)fluoranthene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(k)fluoranthene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(a)pyrene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzo(ghi)perylene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Benzylbutylphthalate	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	9.3
a-BHC	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
b-BHC	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
c-BHC	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-chloroethyl)ether	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-chloroethyloxy)methane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-ethylhexyl)phthalate	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Bis(2-chloroisopropyl)ether	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Bromodiphenylether	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlordane	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-Chloronaphthalene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-Chlorodiphenylether	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chrysene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDD	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4,4'-DDT	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dibenzo(a,h)anthracene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-butylphthalate	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Di-n-octylphthalate	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichlorobenzene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
3,3'-Dichlorobenzidine	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Diethylphthalate	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Dimethylphthalate	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,4-Dinitrotoluene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

TABLE 3-2 FRONTIER CHEMICALS EPA PRIORITY POLLUTANTS: EXTRACTABLES (ug/L)

Concentrations (ppb)	DETECTION LIMIT	1R	2R	3R	5R	7R	1S	2S	3S	5S	6S	7S	
2,6-Dinitrotoluene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan I	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan II	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulfate	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Endrin Aldehyde	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlor	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Heptachlorepoxide	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobenzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Hexachloroethane	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Indeno(1,2,3-cd)pyrene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nitrobenzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodi-n-propylamine	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-Nitrosodimethylamine	1	ND	ND	ND	ND	ND	ND	ND	270	ND	ND	ND	ND
N-Nitrosodiphenylamine	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1016	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1221	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1232	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1242	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1248	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1254	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PCB-1260	20	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pyrene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toxaphene	10	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2,3,7,8-TCDD	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
d-10 ANTHRACENE % REC.		94	80	81	88	75	88	110	NA	114	ND	82	92

TABLE 3-3 ORGANOCHLORINE HYDROCARBONS AND POLYCHLORINATED BIPHENYLS (ug/L)

COMPOUND	1-R	1-S	2-R	2-S	3-R	3-S
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
HEXACHLOROBENZENE	0.0039	0.0012	0.0014	0.0011	ND	0.0031
alpha-BENZENEHEXACHLORIDE	0.0004	0.0003	0.0002	0.0002	ND	0.032
beta-BENZENEHEXACHLORIDE	ND	ND	ND	ND	ND	ND
gamma-BENZENEHEXACHLORIDE	0.0002	0.0010	0.0008	ND	0.0003	0.086
HEPTACHLOR	ND	ND	ND	ND	ND	ND
ALDRIN	ND	ND	ND	ND	ND	ND
OXYCHLORDANE	0.0004	ND	ND	ND	ND	ND
HEPTACHLOR EPOXIDE	0.0003	0.0004	ND	0.0006	0.0007	0.0022
alpha-CHLORDANE	ND	0.0002	ND	0.0004	ND	ND
gamma-CHLORDANE	ND	ND	ND	ND	ND	0.016
alpha-ENDOSULFAN	0.0003	0.0004	ND	0.0007	ND	ND
p,p'-DDE	ND	ND	ND	ND	ND	ND
DIELDRIN	0.0001	0.0001	0.0002	ND	ND	ND
ENDRIN	ND	ND	ND	ND	ND	0.0039
beta-ENDOSULFAN	ND	ND	ND	ND	ND	ND
p,p'-DDD	ND	ND	ND	ND	ND	0.0012
o,p'-DDP	ND	ND	ND	ND	ND	ND
p,p'-DDT	ND	ND	ND	ND	ND	ND
ENDRIN ALDEHYDE	ND	ND	ND	ND	ND	ND
ENDOSULFAN CYCLIC SULFATE	ND	ND	ND	ND	ND	ND
PHOTOMIREX	ND	ND	ND	ND	ND	ND
MIREX	ND	ND	ND	ND	ND	ND
METHOXYCHLOR	ND	ND	ND	ND	ND	ND
TOTAL PCB	ND	ND	ND	ND	ND	

TABLE 3-3 ORGANOCHLORINE HYDROCARBONS AND POLYCHLORINATED BIPHENYLS (ug/L)

COMPOUND	5-R	5-S	6-S	7-R	7-S	BLANK
	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
HEXACHLOROBENZENE	0.0011	0.0010	0.0026	0.0013	0.0010	0.0016
alpha-BENZENEHEXACHLORIDE	0.0001	0.0002	0.0004	0.0002	0.0002	0.0013
beta-BENZENEHEXACHLORIDE	ND	ND	ND	ND	ND	ND
gamma-BENZENEHEXACHLORIDE	0.0002	0.0006	0.0007	0.0003	0.0004	0.0015
HEPTACHLOR	ND	ND	ND	ND	ND	ND
ALDRIN	ND	ND	ND	ND	ND	ND
OXYCHLORDANE	0.0001	ND	ND	0.0002	0.0004	0.0003
HEPTACHLOR EPOXIDE	0.0005	0.0006	0.0006	0.0007	0.0014	0.0022
alpha-CHLORDANE	ND	ND	0.0002	ND	0.0004	ND
gamma-CHLORDANE	0.0002	0.0002	0.0003	ND	ND	ND
alpha-ENDOSULFAN	0.0004	0.0006	0.0006	0.0001	0.0006	0.0003
p,p'-DDE	ND	ND	ND	ND	ND	ND
DIELDRIN	ND	ND	0.0004	ND	0.0003	ND
ENDRIN	ND	ND	0.0003	ND	0.0003	ND
beta-ENDOSULFAN	ND	ND	0.0009	ND	ND	ND
p,p'-DDD	ND	ND	ND	ND	0.0002	ND
o,p'-DDP	ND	ND	ND	ND	ND	ND
p,p'-DDT	ND	ND	0.0003	ND	0.0006	ND
ENDRIN ALDEHYDE	ND	ND	ND	ND	ND	ND
ENDOSULFAN CYCLIC SULFATE	ND	ND	ND	ND	ND	ND
PHOTOMIREX	ND	ND	ND	ND	ND	ND
MIREX	ND	ND	ND	ND	ND	ND
METHOXYCHLOR	ND	ND	ND	ND	ND	ND
TOTAL PCB	ND	ND	ND	ND	ND	ND

TABLE 3-3 ORGANOCHLORINE HYDROCARBONS AND POLYCHLORINATED BIPHENYLS

COMPOUND	DETECTION LIMIT ug/l	SPIKE ADDED pg/ul	SPIKE FOUND pg/ul
HEXACHLOROBENZENE	0.0001	5	4.30
alpha-BENZENEHEXACHLORIDE	0.0001	5	4.26
beta-BENZENEHEXACHLORIDE	0.0001	5	4.05
gamma-BENZENEHEXACHLORIDE	0.0001	5	4.87
HEPTACHLOR	0.0001	10	7.35
ALDRIN	0.0001	10	8.13
OXYCHLORDANE	0.0001	10	8.97
HEPTACHLOR EPOXIDE	0.0001	10	10.1
alpha-CHLORDANE	0.0001	10	9.24
gamma-CHLORDANE	0.0001	10	9.30
alpha-ENDOSULFAN	0.0001	20	18.9
p,p'-DDE	0.0001	10	5.02
DIELDRIN	0.0001	10	9.58
ENDRIN	0.0001	20	20.7
beta-ENDOSULFAN	0.0001	20	19.7
p,p'-DDD	0.0001	20	16.9
o,p'-DDP	0.0001	30	27.5
p,p'-DDT	0.0001	40	46.3
ENDRIN ALDEHYDE	0.0001	20	16.5
ENDOSULFAN CYCLIC SULFATE	0.0001	20	15.0
PHOTOMIREX	0.0001	20	17.1
MIREX	0.0001	20	18.6
METHOXYCHLOR	0.001	100	115
TOTAL PCB	0.001	600	609

TABLE 3-4 INORGANIC PARAMETERS (mg/L)

PARAMETER	BLANK	1-R	1-S	2-R	2-S	3-R	3-S	5-R	5-S	6-S	7-R	7-S	EPA REFER.
PHENOLS (ug/L)	2	5	ND	10	1	<1	94000	3	11	ND	4	5	12(15)
CYANIDE (mg/L)	<.02	<.02	<.02	<.02	<.02	1.4	1.62	<.02	<.02	<.02	<.02	<.02	.53(.56)
ANIONS													
FLUORIDE	0.01	1.2	0.6	1.1	0.6	1.1	5	1.3	0.8	0.6	1.2	0.6	.42(.43)
CHLORIDE	0.05	1.4	80	12.4	10.8	6.9	850	95	184	48	96	320	11(11.5)
NITRITE-N	<.1	<.1	<.1	<.1	<.1	<.1	3	<.1	<.1	<.1	<.1	0.1	
O-PHOSPHATE-P	<.1	<.1	<1	<1	<1	<.1	<1	<1	<1	<1	<1	<1	
BROMIDE	<.05	<.5	0.8	<.5	<.5	0.05	13	1	1.5	1	1.1	3.1	
NITRATE-N	<.01	<.3	<.5	<.1	<.5	<.1	<1	<.5	<.1	<.5	<.5	<1	
SULPHATE	0.8	820	1760	155	2100	174	4200	1660	5400	3300	1540	4500	7.4(7.2)
METALS													
BERYLLIUM	<.005	<.005	<.005	,.005	<.005	0.01	0.01	<.005	<.005	<.005	<.005	<.005	
MOLYBDENUM	<.01	0.05	0.08	<.01	0.08	0.28	0.32	0.09	0.1	0.1	0.14	0.1	
CALCIUM	0.1	240	480	50	500	1860	800	380	450	490	490	510	42(41)
VANADIUM	<.005	0.02	0.03	0.02	0.035	0.42	0.31	0.035	0.05	0.04	0.035	0.045	
ALUMINUM	0.02	0.93	1.67	0.54	2.6	138	101	1.06	4.7	1.02	1.2	1.28	
MAGNESIUM	0.03	106	240	57	320	590	210	179	1070	620	131	900	10(8.4)
BARIUM	<.005	0.05	0.04	0.08	0.05	2	0.78	0.02	0.06	0.03	0.03	0.03	
POTASSIUM	0.06	12.3	9.7	5	6.5	51	113	9.5	8.9	4.6	28	8.1	10.7(9.8)
STRONTIUM	<.01	9.4	4.5	31	7.3	47	9.4	9.9	10.7	8.8	10.1	11.2	
SODIUM	<.1	37	79	24	50	53	2200	126	380	130	107	290	44(46.5)
ZINC	0.005	0.065	0.055	0.02	0.055	1.16	0.65	0.075	0.13	0.075	0.065	0.1	.44(.42)
CADMIUM	<.005	<.005	0.01	<.005	0.015	0.09	0.08	0.005	0.02	0.01	0.005	0.01	.04(.04)
MANGANESE	<.01	0.1	0.18	0.04	0.47	10.8	2.4	0.1	1.26	2	0.11	1.37	.34(.35)
COBALT	<.01	<.01	0.03	<.01	0.03	0.24	0.16	0.02	0.05	0.04	0.02	0.04	.25(.26)
COPPER	<.005	0.01	0.02	0.005	0.015	0.4	0.28	0.01	0.025	0.02	0.01	0.01	.33(.34)
SILVER	<.01	<.01	0.03	<.01	0.02	0.09	0.08	0.03	0.04	0.03	0.01	0.04	
IRON	0.03	2.4	1.9	0.48	2.5	260	109	1.02	6.9	9.8	0.92	1.18	.78(.80)
LEAD	<.01	0.01	0.18	<.01	0.19	0.92	0.6	0.15	0.27	0.22	0.12	0.24	.45(.44)
CHROMIUM	<.01	<.01	0.03	<.01	0.04	0.45	360	0.04	0.08	0.04	0.02	0.04	.27(.26)
NICKEL	<.01	0.01	0.02	<.01	0.02	0.35	0.53	0.01	0.04	0.02	<.01	0.03	.2(.21)

AN858045

TABLE 3-5 FRONTIER CHEMICALS ADDITIONAL EXTRACTABLE ORGANICS (ug/L)

PARAMETER	3S	7S
Hydroxy Benzaldehyde	1400	--
Methoxy Benzaldehyde	10	--
Methyl Phenol	800	--
Methyl Nitrophenol	140	--
Benzoic Acid	130	--
C6-C8 Acid	300	--
C9-C11 Acid	60	--
1,3-Benzodioxole-5-Carboxaldehyde	75	--
Biphenyl	20	--
Sulphur	25	--
Nonachlor	--	0.3

TABLE 3-5 FRONTIER CHEMICALS ADDITIONAL VOLATILE ORGANICS (ug/L)

Compound	DETECTION LIMIT	1-R	2-R	3-R	5-R	7-R	1-S	2-S	3-S	5-S	6-S	7-S
Carbon Disulfide	30	60	ND	ND	ND	71	ND	ND	ND	ND	ND	ND
OxyBis methane	1	ND	4.3	ND	2.2	2.7	3.6	5.1	ND	ND	8.8	ND
Carene	1	ND	ND	9.0	ND	ND	ND	ND	ND	ND	ND	ND
Dichloroacetic acid	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloropyridine	1	ND	ND	ND	ND	ND	ND	ND	38	ND	ND	ND
Benzene Methanol	1	ND	ND	ND	ND	ND	ND	ND	510	ND	ND	ND
Xylene	1	ND	ND	ND	ND	ND	ND	ND	18	ND	ND	ND
Oxybis chloroethane	1	ND	ND	ND	ND	ND	ND	ND	450	ND	ND	ND

GROUNDWATER ANALYTICAL RESULTS

FROM GOLDER ASSOCIATES (1989)

EPA PRIORITY HEAVY METALS

August, 1989

861-1219

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
85-1S	Antimony	EPA SW-846 (7040)	0.01	0.08
	Arsenic	" " (7060)	0.01	0.02
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	<DL
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	<DL
	Nickel	" " (7520)	0.05	<DL
	Selenium	" " (7740)	0.005	0.010
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	<DL
	Zinc	" " (7950)	0.01	0.02

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
85-1R	Antimony	EPA SW-846 (7040)	0.01	0.06
	Arsenic	" " (7060)	0.01	0.02
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	<DL
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0005
	Nickel	" " (7520)	0.05	0.06
	Selenium	" " (7740)	0.005	0.01
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.008
	Zinc	" " (7950)	0.01	<DL

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
85-2S	Antimony	EPA SW-846 (7040)	0.01	0.13
	Arsenic	" " (7060)	0.01	0.03
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	<DL
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0002
	Nickel	" " (7520)	0.05	<DL
	Selenium	" " (7740)	0.005	0.029
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.037
	Zinc	" " (7950)	0.01	<DL

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

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4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method		Detection limit	Results
85-2R	Antimony	EPA SW-846	(7040)	0.01	0.02
	Arsenic	" "	(7060)	0.01	0.05
	Beryllium	" "	(7090)	0.005	<DL
	Cadmium	" "	(7130)	0.03	<DL
	Chromium	" "	(7190)	0.07	<DL
	Copper	" "	(7210)	0.02	0.03
	Lead	" "	(7420)	0.05	<DL
	Mercury	" "	(7470)	0.0002	0.0002
	Nickel	" "	(7520)	0.05	0.06
	Selenium	" "	(7740)	0.005	0.009
	Silver	" "	(7760)	0.01	<DL
	Thallium	" "	(7840)	0.005	<DL
	Zinc	" "	(7950)	0.01	0.11

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
85-3S	Antimony	EPA SW-846 (7040)	0.01	0.55
	Arsenic	" " (7060)	0.01	0.16
	Beryllium	" " (7090)	0.005	0.005
	Cadmium	" " (7130)	0.03	0.61
	Chromium	" " (7190)	0.07	318
	Copper	" " (7210)	0.02	0.15
	Lead	" " (7420)	0.05	0.06
	Mercury	" " (7470)	0.0002	0.0004
	Nickel	" " (7520)	0.05	0.48
	Selenium	" " (7740)	0.005	0.285
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	<DL
	Zinc	" " (7950)	0.01	0.06

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT TECHNICAL SERVICES, INC.
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Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
85-5S	Antimony	EPA SW-846 (7040)	0.01	0.34
	Arsenic	" " (7060)	0.01	0.07
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	<DL
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0008
	Nickel	" " (7520)	0.05	<DL
	Selenium	" " (7740)	0.005	0.105
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.162
	Zinc	" " (7950)	0.01	0.01

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

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ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method		Detection limit	Results
85-5R	Antimony	EPA SW-846	(7040)	0.01	0.14
	Arsenic	" "	(7060)	0.01	0.07
	Beryllium	" "	(7090)	0.005	<DL
	Cadmium	" "	(7130)	0.03	<DL
	Chromium	" "	(7190)	0.07	<DL
	Copper	" "	(7210)	0.02	0.03
	Lead	" "	(7420)	0.05	<DL
	Mercury	" "	(7470)	0.0002	0.0009
	Nickel	" "	(7520)	0.05	0.06
	Selenium	" "	(7740)	0.005	0.060
	Silver	" "	(7760)	0.01	<DL
	Thallium	" "	(7840)	0.005	0.009
	Zinc	" "	(7950)	0.01	0.09

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method			Detection limit	Results
85-6S	Antimony	EPA SW-846		(7040)	0.01	0.09
	Arsenic	"	"	(7060)	0.01	0.07
	Beryllium	"	"	(7090)	0.005	<DL
	Cadmium	"	"	(7130)	0.03	<DL
	Chromium	"	"	(7190)	0.07	0.14
	Copper	"	"	(7210)	0.02	<DL
	Lead	"	"	(7420)	0.05	<DL
	Mercury	"	"	(7470)	0.0002	0.0002
	Nickel	"	"	(7520)	0.05	0.13
	Selenium	"	"	(7740)	0.005	0.028
	Silver	"	"	(7760)	0.101	<DL
	Thallium	"	"	(7840)	0.005	<DL
	Zinc	"	"	(7950)	0.01	0.04

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
85-6R	Antimony	EPA SW-846 (7040)	0.01	0.12
	Arsenic	" " (7060)	0.01	0.33
	Beryllium	" " (7090)	0.005	0.010
	Cadmium	" " (7130)	0.03	0.08
	Chromium	" " (7190)	0.07	7.10
	Copper	" " (7210)	0.02	0.61
	Lead	" " (7420)	0.05	0.14
	Mercury	" " (7470)	0.0002	0.0005
	Nickel	" " (7520)	0.05	0.69
	Selenium	" " (7740)	0.005	0.182
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	<DL
	Zinc	" " (7950)	0.01	0.78

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

TECHNICAL SERVICES, INC.
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Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
85-7S	Antimony	EPA SW-846 (7040)	0.01	0.36
	Arsenic	" " (7060)	0.01	0.06
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	<DL
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0007
	Nickel	" " (7520)	0.05	0.06
	Selenium	" " (7740)	0.005	0.088
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.160
	Zinc	" " (7950)	0.01	0.01

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
85-7R	Antimony	EPA SW-846 (7040)	0.01	0.12
	Arsenic	" " (7060)	0.01	0.03
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	<DL
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0007
	Nickel	" " (7520)	0.05	<DL
	Selenium	" " (7740)	0.005	0.040
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.028
	Zinc	" " (7950)	0.01	0.02

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

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Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method		Detection limit	Results
88-12~~B~~C 28.	Antimony	EPA SW-846	(7040)	0.01	0.06
	Arsenic	" "	(7060)	0.01	<DL
	Beryllium	" "	(7090)	0.005	<DL
	Cadmium	" "	(7130)	0.03	<DL
	Chromium	" "	(7190)	0.07	<DL
	Copper	" "	(7210)	0.02	<DL
	Lead	" "	(7420)	0.05	<DL
	Mercury	" "	(7470)	0.0002	<DL
	Nickel	" "	(7520)	0.05	0.06
	Selenium	" "	(7740)	0.005	<DL
	Silver	" "	(7760)	0.01	<DL
	Thallium	" "	(7840)	0.005	<DL
	Zinc	" "	(7950)	0.01	0.04

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

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Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-1A	Antimony	EPA SW-846 (7040)	0.01	0.12
	Arsenic	" " (7060)	0.01	0.05
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	0.09
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	<DL
	Nickel	" " (7520)	0.05	0.41
	Selenium	" " (7740)	0.005	0.066
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	<DL
	Zinc	" " (7950)	0.01	0.11

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

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Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-2A	Antimony	EPA SW-846 (7040)	0.01	0.14
	Arsenic	" " (7060)	0.01	0.55
	Beryllium	" " (7090)	0.005	0.127
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	1.15
	Copper	" " (7210)	0.02	0.85
	Lead	" " (7420)	0.05	0.68
	Mercury	" " (7470)	0.0002	0.0014
	Nickel	" " (7520)	0.05	0.83
	Selenium	" " (7740)	0.005	0.283
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.009
	Zinc	" " (7950)	0.01	1.67

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

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Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-3A	Antimony	EPA SW-846 (7040)	0.01	0.12
	Arsenic	" " (7060)	0.01	0.08
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	0.14
	Copper	" " (7210)	0.02	0.03
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0002
	Nickel	" " (7520)	0.05	0.27
	Selenium	" " (7740)	0.005	0.042
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	<DL
	Zinc	" " (7950)	0.01	1.07

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

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Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-4A	Antimony	EPA SW-846 (7040)	0.01	0.08
	Arsenic	" " (7060)	0.01	<DL
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	0.03
	Chromium	" " (7190)	0.07	0.74
	Copper	" " (7210)	0.02	0.06
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0002
	Nickel	" " (7520)	0.05	0.34
	Selenium	" " (7740)	0.005	<DL
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	<DL
	Zinc	" " (7950)	0.01	0.11

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

TECHNICAL SERVICES, INC.
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Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-5A	Antimony	EPA SW-846 (7040)	0.01	0.25
	Arsenic	" " (7060)	0.01	0.05
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	0.06
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0004
	Nickel	" " (7520)	0.05	0.27
	Selenium	" " (7740)	0.005	0.058
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.122
	Zinc	" " (7950)	0.01	0.06

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT

TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-6A	Antimony	EPA SW-846 (7040)	0.01	0.10
	Arsenic	" " (7060)	0.01	0.03
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	0.03
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0004
	Nickel	" " (7520)	0.05	0.06
	Selenium	" " (7740)	0.005	0.033
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.053
	Zinc	" " (7950)	0.01	0.01

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT TECHNICAL SERVICES, INC.
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Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-7A	Antimony	EPA SW-846 (7040)	0.01	0.10
	Arsenic	" " (7060)	0.01	0.18
	Beryllium	" " (7090)	0.005	0.011
	Cadmium	" " (7130)	0.03	0.06
	Chromium	" " (7190)	0.07	6.02
	Copper	" " (7210)	0.02	0.61
	Lead	" " (7420)	0.05	0.22
	Mercury	" " (7470)	0.0002	0.0003
	Nickel	" " (7520)	0.05	0.83
	Selenium	" " (7740)	0.005	0.187
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	<DL
	Zinc	" " (7950)	0.01	0.79

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-8A	Antimony	EPA SW-846 (7040)	0.01	0.24
	Arsenic	" " (7060)	0.01	0.16
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	0.03
	Chromium	" " (7190)	0.07	54.8
	Copper	" " (7210)	0.02	0.09
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0002
	Nickel	" " (7520)	0.05	0.06
	Selenium	" " (7740)	0.005	0.109
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	<DL
	Zinc	" " (7950)	0.01	0.14

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-9A	Antimony	EPA SW-846 (7040)	0.01	0.06
	Arsenic	" " (7060)	0.01	0.04
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	0.07
	Copper	" " (7210)	0.02	<DL
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0002
	Nickel	" " (7520)	0.05	0.27
	Selenium	" " (7740)	0.005	0.045
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.015
	Zinc	" " (7950)	0.01	0.04

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-10A	Antimony	EPA SW-846 (7040)	0.01	0.06
	Arsenic	" " (7060)	0.01	0.15
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	5.21
	Copper	" " (7210)	0.02	0.12
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0006
	Nickel	" " (7520)	0.05	0.27
	Selenium	" " (7740)	0.005	0.092
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	<DL
	Zinc	" " (7950)	0.01	0.20

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-10B	Antimony	EPA SW-846 (7040)	0.01	0.15
	Arsenic	" " (7060)	0.01	0.05
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	0.03
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0004
	Nickel	" " (7520)	0.05	0.06
	Selenium	" " (7740)	0.005	0.037
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.038
	Zinc	" " (7950)	0.01	0.08

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method		Detection limit	Results
88-10C	Antimony	EPA SW-846	(7040)	0.01	0.07
	Arsenic	" "	(7060)	0.01	<DL
	Beryllium	" "	(7090)	0.005	<DL
	Cadmium	" "	(7130)	0.03	<DL
	Chromium	" "	(7190)	0.07	0.07
	Copper	" "	(7210)	0.02	<DL
	Lead	" "	(7420)	0.05	<DL
	Mercury	" "	(7470)	0.0002	0.0002
	Nickel	" "	(7520)	0.05	0.13
	Selenium	" "	(7740)	0.005	<DL
	Silver	" "	(7760)	0.01	<DL
	Thallium	" "	(7840)	0.005	<DL
	Zinc	" "	(7950)	0.01	0.01

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-10D	Antimony	EPA SW-846 (7040)	0.01	0.08
	Arsenic	" " (7060)	0.01	0.02
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	<DL
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	<DL
	Nickel	" " (7520)	0.05	0.06
	Selenium	" " (7740)	0.005	0.017
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.028
	Zinc	" " (7950)	0.01	0.04

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method			Detection limit	Results
88-11A	Antimony	EPA	SW-846	(7040)	0.01	0.13
	Arsenic	"	"	(7060)	0.01	0.04
	Beryllium	"	"	(7090)	0.005	<DL
	Cadmium	"	"	(7130)	0.03	<DL
	Chromium	"	"	(7190)	0.07	0.20
	Copper	"	"	(7210)	0.02	0.03
	Lead	"	"	(7420)	0.05	<DL
	Mercury	"	"	(7470)	0.0002	0.0009
	Nickel	"	"	(7520)	0.05	0.55
	Selenium	"	"	(7740)	0.005	0.057
	Silver	"	"	(7760)	0.01	<DL
	Thallium	"	"	(7840)	0.005	0.005
	Zinc	"	"	(7950)	0.01	0.04

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-11B	Antimony	EPA SW-846 (7040)	0.01	0.20
	Arsenic	" " (7060)	0.01	0.04
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	0.34
	Copper	" " (7210)	0.02	0.03
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0003
	Nickel	" " (7520)	0.05	0.13
	Selenium	" " (7740)	0.005	0.058
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.056
	Zinc	" " (7950)	0.01	0.02

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

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4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method		Detection limit	Results
88-11C	Antimony	EPA SW-846	(7040)	0.01	0.12
	Arsenic	" "	(7060)	0.01	0.02
	Beryllium	" "	(7090)	0.005	<DL
	Cadmium	" "	(7130)	0.03	<DL
	Chromium	" "	(7190)	0.07	<DL
	Copper	" "	(7210)	0.02	<DL
	Lead	" "	(7420)	0.05	<DL
	Mercury	" "	(7470)	0.0002	0.0005
	Nickel	" "	(7520)	0.05	0.06
	Selenium	" "	(7740)	0.005	0.018
	Silver	" "	(7760)	0.01	<DL
	Thallium	" "	(7840)	0.005	0.017
	Zinc	" "	(7950)	0.01	0.01

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-11D	Antimony	EPA SW-846 (7040)	0.01	0.04
	Arsenic	" " (7060)	0.01	0.06
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	0.06
	Lead	" " (7420)	0.05	0.06
	Mercury	" " (7470)	0.0002	0.0009
	Nickel	" " (7520)	0.05	0.06
	Selenium	" " (7740)	0.005	0.023
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.005
	Zinc	" " (7950)	0.01	0.13

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-12A	Antimony	EPA SW-846 (7040)	0.01	0.20
	Arsenic	" " (7060)	0.01	0.05
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	0.03
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0007
	Nickel	" " (7520)	0.05	0.13
	Selenium	" " (7740)	0.005	0.050
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.005
	Zinc	" " (7950)	0.01	0.06

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-12~~0~~8 RB.	Antimony	EPA SW-846 (7040)	0.01	<DL
	Arsenic	" " (7060)	0.01	<DL
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	0.06
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0002
	Nickel	" " (7520)	0.05	0.06
	Selenium	" " (7740)	0.005	<DL
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	<DL
	Zinc	" " (7950)	0.01	<DL

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

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Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method			Detection limit	Results
88-12D	Antimony	EPA	SW-846	(7040)	0.01	0.11
	Arsenic	"	"	(7060)	0.01	0.03
	Beryllium	"	"	(7090)	0.005	<DL
	Cadmium	"	"	(7130)	0.03	<DL
	Chromium	"	"	(7190)	0.07	0.74
	Copper	"	"	(7210)	0.02	0.03
	Lead	"	"	(7420)	0.05	<DL
	Mercury	"	"	(7470)	0.0002	0.0006
	Nickel	"	"	(7520)	0.05	0.41
	Selenium	"	"	(7740)	0.005	0.032
	Silver	"	"	(7760)	0.01	<DL
	Thallium	"	"	(7840)	0.005	0.017
	Zinc	"	"	(7950)	0.01	0.01

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-12DD	Antimony	EPA SW-846 (7040)	0.01	0.05
	Arsenic	" " (7060)	0.01	0.03
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	0.47
	Copper	" " (7210)	0.02	0.03
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0006
	Nickel	" " (7520)	0.05	0.27
	Selenium	" " (7740)	0.005	0.031
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	<DL
	Zinc	" " (7950)	0.01	<DL

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit	Results
88-13A	Antimony	EPA SW-846 (7040)	0.01	0.18
	Arsenic	" " (7060)	0.01	0.04
	Beryllium	" " (7090)	0.005	<DL
	Cadmium	" " (7130)	0.03	<DL
	Chromium	" " (7190)	0.07	<DL
	Copper	" " (7210)	0.02	0.03
	Lead	" " (7420)	0.05	<DL
	Mercury	" " (7470)	0.0002	0.0004
	Nickel	" " (7520)	0.05	0.27
	Selenium	" " (7740)	0.005	0.046
	Silver	" " (7760)	0.01	<DL
	Thallium	" " (7840)	0.005	0.089
	Zinc	" " (7950)	0.01	0.02

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method		Detection limit	Results
88-14A	Antimony	EPA SW-846	(7040)	0.01	0.47
	Arsenic	" "	(7060)	0.01	0.10
	Beryllium	" "	(7090)	0.005	0.005
	Cadmium	" "	(7130)	0.03	0.04
	Chromium	" "	(7190)	0.07	0.14
	Copper	" "	(7210)	0.02	0.03
	Lead	" "	(7420)	0.05	0.14
	Mercury	" "	(7470)	0.0002	0.0005
	Nickel	" "	(7520)	0.05	7.96
	Selenium	" "	(7740)	0.005	0.083
	Silver	" "	(7760)	0.01	<DL
	Thallium	" "	(7840)	0.005	0.015
	Zinc	" "	(7950)	0.01	0.39

Digestion Method Reference for Total Metals: EPA SW-846 Method (3010)

TOTAL CYANIDE

August, 1989

861-1219

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: December 30, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-01/35

Sample ID	Test	Test Method	Detection limit	Results ppm
85-1S	Cyanide	EPA SW-846(9010)	0.002	0.472
85-1R	"	" "	0.002	41.0
85-2S	"	" "	0.002	<DL
85-2R	"	" "	0.002	0.045
85-3S	"	" "	0.002	0.660
85-5S	"	" "	0.002	<DL
85-5R	"	" "	0.002	<DL
85-6S	"	" "	0.002	0.062
85-6R	"	" "	0.002	0.283
85-7S	"	" "	0.002	<DL
85-7R	"	" "	0.002	<DL
88-1A	"	" "	0.002	0.528
88-2A	"	" "	0.002	<DL
88-3A	"	" "	0.002	<DL
88-4A	"	" "	0.002	0.038
88-5A	"	" "	0.002	<DL
88-6A	"	" "	0.002	<DL
88-7A	"	" "	0.002	<DL
88-8A	"	" "	0.002	0.880
88-9A	"	" "	0.002	<DL
88-10A	"	" "	0.002	0.226
88-10B	"	" "	0.002	<DL
88-10C	"	" "	0.002	<DL
88-10D	"	" "	0.002	<DL
88-11A	"	" "	0.002	<DL
88-11B	"	" "	0.002	0.596
88-11C	"	" "	0.002	<DL
88-11D	"	" "	0.002	0.048
88-12A	"	" "	0.002	0.021
88-12~~B~~ C R.B.	"	" "	0.002	0.119
88-12~~0~~ B	"	" "	0.002	0.365
88-12D	"	" "	0.002	0.009
88-12DD	"	" "	0.002	<DL
88-13A	"	" "	0.002	2.63
88-14A	"	" "	0.002	<DL

TOTAL PHENOL

August, 1989 861-1219

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-8208

Date: December 13, 1988

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425

Sample ID	Test	Test Method	Detection limit ppb	Results ppb
85-1S	Phenol	EPA SW-846 (9065)	5.4	<DL
85-1R	"	" "	5.4	6.7
85-2S	"	" "	5.4	<DL
85-2R	"	" "	5.4	5.4
85-3S	"	" "	5.4	21,200
85-5S	"	" "	5.4	5.4
85-5R	"	" "	5.4	<DL
85-6S	"	" "	5.4	490
85-6R	"	" "	5.4	2600
85-7S	"	" "	5.4	5.4
85-7R	"	" "	5.4	<DL
88-1A	"	" "	5.4	5.4
88-2A	"	" "	5.4	6.3
88-3A	"	" "	5.4	440
88-4A	"	" "	5.4	30
88-5A	"	" "	5.4	22
88-6A	"	" "	5.4	6.8
88-7A	"	" "	5.4	3000
88-8A	"	" "	5.4	7500
88-9A	"	" "	5.4	570
88-10A	"	" "	5.4	5300
88-10B	"	" "	5.4	12
88-10C	"	" "	5.4	5.4
88-10D	"	" "	5.4	5.8
88-11A	"	" "	5.4	1200
88-11B	"	" "	5.4	14
88-11C	"	" "	5.4	6.8
88-11D	"	" "	5.4	<DL
88-12A	"	" "	5.4	<DL
88-12~~B~~ C 2.B.	"	" "	5.4	<DL
88-12 B	"	" "	5.4	12
88-12D	"	" "	5.4	5.8
88-12DD	"	" "	5.4	<DL
88-13A	"	" "	5.4	5.4
88-14A	"	" "	5.4	18,000

EPA-624 VOLATILE ORGANIC COMPOUNDS

August, 1989

861-1219

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-01

Sample ID # 85-1S

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	<DL
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	102
Toluene D8	99
4-Bromofluorobenzene	99

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-02

Sample ID # 85-1R

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	<DL
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	101
Toluene D8	99
4-Bromofluorobenzene	101

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-03

Sample ID # 85-2S

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	940
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	93
Toluene D8	96
4-Bromofluorobenzene	96

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-04

Sample ID # 85-2R

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	<DL
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	103
Toluene D8	102
4-Bromofluorobenzene	105

TECHNICAL SERVICES, INC.
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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-05

Sample ID # 85-3S

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	20,000	<DL
Bromomethane	20,000	<DL
Vinyl Chloride	20,000	<DL
Chloroethane	20,000	<DL
Methylene Chloride	4	71,000
Acetone	4	30,000
Carbon Disulfide	20,000	<DL
1,1-Dichloroethene	20,000	<DL
1,1-Dichloroethane	20,000	<DL
Trans-1,2-Dichloroethylene	4	2000
Chloroform	4	3000
2-Butanone	4	3000
1,2-Dichloroethane	4	26,000
1,1,1-Trichloroethane	4	3000
Carbon Tetrachloride	20,000	<DL
Vinyl Acetate	20,000	<DL
Bromodichloromethane	20,000	<DL
1,2-Dichloropropane	20,000	<DL
Trans-1,3-Dichloropropene	20,000	<DL
Trichloroethene	20,000	<DL
Benzene	4	6000
Dibromochloromethane	20,000	<DL
Cis-1,3-Dichloropropene	20,000	<DL
1,1,2-Trichloroethane	20,000	<DL
2-Chlorovinyl Ether	20,000	<DL
Bromoform	20,000	<DL
2-Hexanone	20,000	<DL
Tetrachloroethene	20,000	<DL
1,1,2,2-Tetrachloroethane	20,000	<DL
4-Methyl-2-Pentanone	4	11,000
Toluene	4	210,000
Chlorobenzene	20,000	<DL
Ethylbenzene	4	2000
Styrene	20,000	<DL
Total Xylenes	12	3000

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	102
Toluene D8	102
4-Bromofluorobenzene	102

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-06

Sample ID # 85-5S

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	<DL
Carbon Disulfide	4	1800
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	97
Toluene D8	98
4-Bromofluorobenzene	98

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-07

Sample ID # 85-5R

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	1100
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	97
Toluene D8	99
4-Bromofluorobenzene	99

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-08

Sample ID # 85-6S

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	1000	<DL
Bromomethane	1000	<DL
Vinyl Chloride	4	2400
Chloroethane	1000	<DL
Methylene Chloride	4	14,000
Acetone	4	1500
Carbon Disulfide	1000	<DL
1,1-Dichloroethene	4	300
1,1-Dichloroethane	4	1200
Trans-1,2-Dichloroethylene	4	11,000
Chloroform	4	350
2-Butanone	1000	<DL
1,2-Dichloroethane	4	6500
1,1,1-Trichloroethane	4	6000
Carbon Tetrachloride	1000	<DL
Vinyl Acetate	1000	<DL
Bromodichloromethane	1000	<DL
1,2-Dichloropropane	1000	<DL
Trans-1,3-Dichloropropene	1000	<DL
Trichloroethene	4	5500
Benzene	4	650
Dibromochloromethane	1000	<DL
Cis-1,3-Dichloropropene	1000	<DL
1,1,2-Trichloroethane	1000	<DL
2-Chlorovinyl Ether	1000	<DL
Bromoform	1000	<DL
2-Hexanone	1000	<DL
Tetrachloroethene	4	7500
1,1,2,2-Tetrachloroethane	1000	<DL
4-Methyl-2-Pentanone	4	500
Toluene	4	6500
Chlorobenzene	1000	<DL
Ethylbenzene	4	200
Styrene	1000	<DL
Total Xylenes	12	1900

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	94
Toluene D8	90
4-Bromofluorobenzene	94

BLT TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-09

Sample ID # 85-6R

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	1000	<DL
Bromomethane	1000	<DL
Vinyl Chloride	4	6000
Chloroethane	1000	<DL
Methylene Chloride	4	550
Acetone	4	1500
Carbon Disulfide	1000	<DL
1,1-Dichloroethene	1000	<DL
1,1-Dichloroethane	1000	<DL
Trans-1,2-Dichloroethylene	4	3200
Chloroform	4	350
2-Butanone	4	450
1,2-Dichloroethane	4	9000
1,1,1-Trichloroethane	4	600
Carbon Tetrachloride	1000	<DL
Vinyl Acetate	1000	<DL
Bromodichloromethane	1000	<DL
1,2-Dichloropropane	1000	<DL
Trans-1,3-Dichloropropene	1000	<DL
Trichloroethene	4	550
Benzene	4	2800
Dibromochloromethane	1000	<DL
Cis-1,3-Dichloropropene	1000	<DL
1,1,2-Trichloroethane	1000	<DL
2-Chlorovinyl Ether	1000	<DL
Bromoform	1000	<DL
2-Hexanone	1000	<DL
Tetrachloroethene	4	250
1,1,2,2-Tetrachloroethane	1000	<DL
4-Methyl-2-Pentanone	4	3200
Toluene	4	18,000
Chlorobenzene	1000	<DL
Ethylbenzene	4	1300
Styrene	1000	<DL
Total Xylenes	12	11,000

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	98
Toluene D8	94
4-Bromofluorobenzene	95

BLT TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-10

Sample ID # 85-7S

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	1300
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	94
Toluene D8	92
4-Bromofluorobenzene	96

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-11

Sample ID # 85-7R

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	4400
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	97
Toluene D8	98
4-Bromofluorobenzene	98

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-12 Sample ID # 88-1A

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	100
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	9
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	103
Toluene D8	101
4-Bromofluorobenzene	103

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-13

Sample ID # 88-2A

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	92
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	12
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	105
Toluene D8	101
4-Bromofluorobenzene	103

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-14

Sample ID # 88-3A

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	400	<DL
Bromomethane	400	<DL
Vinyl Chloride	4	2600
Chloroethane	400	<DL
Methylene Chloride	4	4200
Acetone	4	400
Carbon Disulfide	400	<DL
1,1-Dichloroethene	4	320
1,1-Dichloroethane	4	1200
Trans-1,2-Dichloroethylene	4	12,000
Chloroform	4	280
2-Butanone	400	<DL
1,2-Dichloroethane	4	6800
1,1,1-Trichloroethane	4	6200
Carbon Tetrachloride	400	<DL
Vinyl Acetate	400	<DL
Bromodichloromethane	400	<DL
1,2-Dichloropropane	400	<DL
Trans-1,3-Dichloropropene	400	<DL
Trichloroethene	4	6000
Benzene	4	640
Dibromochloromethane	400	<DL
Cis-1,3-Dichloropropene	400	<DL
1,1,2-Trichloroethane	400	<DL
2-Chlorovinyl Ether	400	<DL
Bromoform	400	<DL
2-Hexanone	400	<DL
Tetrachloroethene	4	8000
1,1,2,2-Tetrachloroethane	400	<DL
4-Methyl-2-Pentanone	4	460
Toluene	4	6600
Chlorobenzene	400	<DL
Ethylbenzene	4	140
Styrene	400	<DL
Total Xylenes	12	1800

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	109
Toluene D8	102
4-Bromofluorobenzene	106

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-15

Sample ID # Well-4A

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	80	<DL
Bromomethane	80	<DL
Vinyl Chloride	4	40
Chloroethane	80	<DL
Methylene Chloride	4	220
Acetone	4	36
Carbon Disulfide	80	<DL
1,1-Dichloroethene	4	32
1,1-Dichloroethane	4	40
Trans-1,2-Dichloroethylene	4	92
Chloroform	4	32
2-Butanone	4	200
1,2-Dichloroethane	4	100
1,1,1-Trichloroethane	4	150
Carbon Tetrachloride	80	<DL
Vinyl Acetate	80	<DL
Bromodichloromethane	80	<DL
1,2-Dichloropropane	80	<DL
Trans-1,3-Dichloropropene	80	<DL
Trichloroethene	4	100
Benzene	4	28
Dibromochloromethane	80	<DL
Cis-1,3-Dichloropropene	80	<DL
1,1,2-Trichloroethane	80	<DL
2-Chlorovinyl Ether	80	<DL
Bromoform	80	<DL
2-Hexanone	80	<DL
Tetrachloroethene	4	76
1,1,2,2-Tetrachloroethane	80	<DL
4-Methyl-2-Pentanone	4	16
Toluene	4	640
Chlorobenzene	4	100
Ethylbenzene	4	16
Styrene	80	<DL
Total Xylenes	12	180

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	92
Toluene D8	98
4-Bromofluorobenzene	101

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-16

Sample ID # 88-5A

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	40	<DL
Bromomethane	40	<DL
Vinyl Chloride	40	<DL
Chloroethane	40	<DL
Methylene Chloride	4	240
Acetone	4	120
Carbon Disulfide	40	<DL
1,1-Dichloroethene	4	96
1,1-Dichloroethane	4	120
Trans-1,2-Dichloroethylene	4	6
Chloroform	4	14
2-Butanone	4	8
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	600
Carbon Tetrachloride	40	<DL
Vinyl Acetate	40	<DL
Bromodichloromethane	4	12
1,2-Dichloropropane	40	<DL
Trans-1,3-Dichloropropene	40	<DL
Trichloroethene	4	340
Benzene	40	<DL
Dibromochloromethane	4	720
Cis-1,3-Dichloropropene	40	<DL
1,1,2-Trichloroethane	40	<DL
2-Chlorovinyl Ether	40	<DL
Bromoform	4	8000
2-Hexanone	40	<DL
Tetrachloroethene	4	72
1,1,2,2-Tetrachloroethane	40	<DL
4-Methyl-2-Pentanone	40	<DL
Toluene	4	28
Chlorobenzene	40	<DL
Ethylbenzene	4	6
Styrene	40	<DL
Total Xylenes	12	22

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	101
Toluene D8	102
4-Bromofluorobenzene	106

BLT TECHNICAL SERVICES, INC.
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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-17

Sample ID # 88-6A

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	170
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	98
Toluene D8	97
4-Bromofluorobenzene	98

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-18

Sample ID # 88-7A

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	1000	<DL
Bromomethane	1000	<DL
Vinyl Chloride	4	8000
Chloroethane	1000	<DL
Methylene Chloride	4	20,000
Acetone	4	3000
Carbon Disulfide	1000	<DL
1,1-Dichloroethene	1000	<DL
1,1-Dichloroethane	4	1300
Trans-1,2-Dichloroethylene	4	3600
Chloroform	4	400
2-Butanone	1000	<DL
1,2-Dichloroethane	4	9500
1,1,1-Trichloroethane	4	600
Carbon Tetrachloride	1000	<DL
Vinyl Acetate	1000	<DL
Bromodichloromethane	1000	<DL
1,2-Dichloropropane	1000	<DL
Trans-1,3-Dichloropropene	1000	<DL
Trichloroethene	4	600
Benzene	4	2700
Dibromochloromethane	1000	<DL
Cis-1,3-Dichloropropene	1000	<DL
1,1,2-Trichloroethane	1000	<DL
2-Chlorovinyl Ether	1000	<DL
Bromoform	1000	<DL
2-Hexanone	1000	<DL
Tetrachloroethene	4	400
1,1,2,2-Tetrachloroethane	1000	<DL
4-Methyl-2-Pentanone	4	2500
Toluene	4	18,000
Chlorobenzene	1000	<DL
Ethylbenzene	1000	1200
Styrene	1000	<DL
Total Xylenes	12	11,000

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	106
Toluene D8	97
4-Bromofluorobenzene	102

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-19

Sample ID # 88-8A

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	2000	<DL
Bromomethane	2000	<DL
Vinyl Chloride	4	4200
Chloroethane	2000	<DL
Methylene Chloride	4	5000
Acetone	4	21,000
Carbon Disulfide	2000	<DL
1,1-Dichloroethene	2000	<DL
1,1-Dichloroethane	2000	<DL
Trans-1,2-Dichloroethylene	4	22,000
Chloroform	4	1000
2-Butanone	4	7100
1,2-Dichloroethane	4	71,000
1,1,1-Trichloroethane	4	1300
Carbon Tetrachloride	2000	<DL
Vinyl Acetate	2000	<DL
Bromodichloromethane	2000	<DL
1,2-Dichloropropane	2000	<DL
Trans-1,3-Dichloropropene	2000	<DL
Trichloroethene	4	49,000
Benzene	4	10,000
Dibromochloromethane	2000	<DL
Cis-1,3-Dichloropropene	2000	<DL
1,1,2-Trichloroethane	2000	<DL
2-Chlorovinyl Ether	2000	<DL
Bromoform	2000	<DL
2-Hexanone	2000	<DL
Tetrachloroethene	2000	<DL
1,1,2,2-Tetrachloroethane	2000	<DL
4-Methyl-2-Pentanone	4	2600
Toluene	4	14,000
Chlorobenzene	2000	<DL
Ethylbenzene	4	500
Styrene	2000	<DL
Total Xylenes	12	4300

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	111
Toluene D8	98
4-Bromofluorobenzene	99

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-20

Sample ID # 88-9A

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	1000	<DL
Bromomethane	1000	<DL
Vinyl Chloride	4	750
Chloroethane	1000	<DL
Methylene Chloride	4	6000
Acetone	4	4000
Carbon Disulfide	1000	<DL
1,1-Dichloroethene	1000	<DL
1,1-Dichloroethane	4	400
Trans-1,2-Dichloroethylene	4	29,000
Chloroform	4	300
2-Butanone	1000	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	850
Carbon Tetrachloride	1000	<DL
Vinyl Acetate	1000	<DL
Bromodichloromethane	1000	<DL
1,2-Dichloropropane	1000	<DL
Trans-1,3-Dichloropropene	1000	<DL
Trichloroethene	4	5000
Benzene	4	850
Dibromochloromethane	1000	<DL
Cis-1,3-Dichloropropene	1000	<DL
1,1,2-Trichloroethane	1000	<DL
2-Chlorovinyl Ether	1000	<DL
Bromoform	1000	<DL
2-Hexanone	1000	<DL
Tetrachloroethene	4	150
1,1,2,2-Tetrachloroethane	1000	<DL
4-Methyl-2-Pentanone	1000	<DL
Toluene	4	6000
Chlorobenzene	1000	<DL
Ethylbenzene	4	250
Styrene	1000	<DL
Total Xylenes	12	6000

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	103
Toluene D8	102
4-Bromofluorobenzene	102

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-21

Sample ID # 88-10A

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	1000	<DL
Bromomethane	1000	<DL
Vinyl Chloride	4	650
Chloroethane	1000	<DL
Methylene Chloride	4	1500
Acetone	4	10,000
Carbon Disulfide	1000	<DL
1,1-Dichloroethene	4	150
1,1-Dichloroethane	4	1500
Trans-1,2-Dichloroethylene	4	2400
Chloroform	4	1000
2-Butanone	4	14,000
1,2-Dichloroethane	4	2800
1,1,1-Trichloroethane	4	5500
Carbon Tetrachloride	1000	<DL
Vinyl Acetate	1000	<DL
Bromodichloromethane	1000	<DL
1,2-Dichloropropane	1000	<DL
Trans-1,3-Dichloropropene	1000	<DL
Trichloroethene	4	16,000
Benzene	4	3800
Dibromochloromethane	1000	<DL
Cis-1,3-Dichloropropene	1000	<DL
1,1,2-Trichloroethane	1000	<DL
2-Chlorovinyl Ether	1000	<DL
Bromoform	1000	<DL
2-Hexanone	1000	<DL
Tetrachloroethene	4	3450
1,1,2,2-Tetrachloroethane	1000	<DL
4-Methyl-2-Pentanone	4	29,000
Toluene	4	65,000
Chlorobenzene	1000	<DL
Ethylbenzene	4	400
Styrene	1000	<DL
Total Xylenes	12	7000

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	99
Toluene D8	94
4-Bromofluorobenzene	96

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-22

Sample ID # 88-10B

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	96
Acetone	4	42
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	94
Toluene D8	90
4-Bromofluorobenzene	94

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-23

Sample ID # 88-10C

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	<DL
Carbon Disulfide	4	180
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	92
Toluene D8	90
4-Bromofluorobenzene	93

BLT TECHNICAL SERVICES, INC.
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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-24

Sample ID # 88-10D

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	560
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	98
Toluene D8	98
4-Bromofluorobenzene	100

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-25

Sample ID # 88-11A

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	1000	<DL
Bromomethane	1000	<DL
Vinyl Chloride	4	900
Chloroethane	1000	<DL
Methylene Chloride	4	1000
Acetone	4	1000
Carbon Disulfide	1000	<DL
1,1-Dichloroethene	4	150
1,1-Dichloroethane	4	600
Trans-1,2-Dichloroethylene	4	22,000
Chloroform	4	350
2-Butanone	4	9500
1,2-Dichloroethane	4	450
1,1,1-Trichloroethane	4	750
Carbon Tetrachloride	1000	<DL
Vinyl Acetate	1000	<DL
Bromodichloromethane	1000	<DL
1,2-Dichloropropane	1000	<DL
Trans-1,3-Dichloropropene	1000	<DL
Trichloroethene	4	34,000
Benzene	4	1400
Dibromochloromethane	1000	<DL
Cis-1,3-Dichloropropene	1000	<DL
1,1,2-Trichloroethane	1000	<DL
2-Chlorovinyl Ether	1000	<DL
Bromoform	1000	<DL
2-Hexanone	1000	<DL
Tetrachloroethene	4	1200
1,1,2,2-Tetrachloroethane	1000	<DL
4-Methyl-2-Pentanone	4	4000
Toluene	4	9000
Chlorobenzene	1000	<DL
Ethylbenzene	4	900
Styrene	1000	<DL
Total Xylenes	12	14,000

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	106
Toluene D8	109
4-Bromofluorobenzene	110

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-26

Sample ID # 88-11B

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	52
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	6
1,1-Dichloroethane	4	12
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	9
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	100
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	140
Benzene	4	9
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	1400
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	40
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	28

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	101
Toluene D8	98
4-Bromofluorobenzene	103

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-27 Sample ID # 88-11C

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	400
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	13
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	32
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	320
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	11
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	104
Toluene D8	106
4-Bromofluorobenzene	107

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-28

Sample ID # 88-11D

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	150
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	13
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	28
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	320
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	14
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	100
Toluene D8	103
4-Bromofluorobenzene	104

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-29

Sample ID # 88-12A

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	130
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	107
Toluene D8	101
4-Bromofluorobenzene	103

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-31 Sample ID # 88-12~~0~~3 R.B

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	<DL
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	108
Toluene D8	107
4-Bromofluorobenzene	110

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-30

Sample ID # 88-12~~B~~C LB.

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	<DL
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	104
Toluene D8	100
4-Bromofluorobenzene	101

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-32

Sample ID # 88-12D

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	<DL
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	105
Toluene D8	99
4-Bromofluorobenzene	92

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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-33

Sample ID # 88-12DD

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	<DL
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	107
Toluene D8	103
4-Bromofluorobenzene	104

BLT TECHNICAL SERVICES, INC.
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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-34

Sample ID # 88-13A

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	<DL
Acetone	4	<DL
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	110
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	22
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	7
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	99
Toluene D8	97
4-Bromofluorobenzene	100

BLT TECHNICAL SERVICES, INC.
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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-35 Sample ID # 88-14A

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	400	<DL
Bromomethane	400	<DL
Vinyl Chloride	400	<DL
Chloroethane	400	<DL
Methylene Chloride	4	2800
Acetone	4	5000
Carbon Disulfide	400	<DL
1,1-Dichloroethene	400	<DL
1,1-Dichloroethane	4	1100
Trans-1,2-Dichloroethylene	400	<DL
Chloroform	4	80
2-Butanone	4	600
1,2-Dichloroethane	400	<DL
1,1,1-Trichloroethane	4	180
Carbon Tetrachloride	400	<DL
Vinyl Acetate	400	<DL
Bromodichloromethane	400	<DL
1,2-Dichloropropane	400	<DL
Trans-1,3-Dichloropropene	400	<DL
Trichloroethene	4	340
Benzene	4	60
Dibromochloromethane	400	<DL
Cis-1,3-Dichloropropene	400	<DL
1,1,2-Trichloroethane	400	<DL
2-Chlorovinyl Ether	400	<DL
Bromoform	400	<DL
2-Hexanone	400	<DL
Tetrachloroethene	4	100
1,1,2,2-Tetrachloroethane	400	<DL
4-Methyl-2-Pentanone	4	560
Toluene	4	360
Chlorobenzene	400	<DL
Ethylbenzene	4	220
Styrene	400	<DL
Total Xylenes	12	2800

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	97
Toluene D8	98
4-Bromofluorobenzene	101

BLT TECHNICAL SERVICES, INC.
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Date: January 3, 1989
ELAP #10797
ANALYSIS FOR: TBL
BLT # 2425-36

Sample ID # Trip Blank

PARAMETER	DETECTION LIMIT ug/L	RESULT ug/L
Chloromethane	4	<DL
Bromomethane	4	<DL
Vinyl Chloride	4	<DL
Chloroethane	4	<DL
Methylene Chloride	4	230
Acetone	4	19
Carbon Disulfide	4	<DL
1,1-Dichloroethene	4	<DL
1,1-Dichloroethane	4	<DL
Trans-1,2-Dichloroethylene	4	<DL
Chloroform	4	<DL
2-Butanone	4	<DL
1,2-Dichloroethane	4	<DL
1,1,1-Trichloroethane	4	<DL
Carbon Tetrachloride	4	<DL
Vinyl Acetate	4	<DL
Bromodichloromethane	4	<DL
1,2-Dichloropropane	4	<DL
Trans-1,3-Dichloropropene	4	<DL
Trichloroethene	4	<DL
Benzene	4	<DL
Dibromochloromethane	4	<DL
Cis-1,3-Dichloropropene	4	<DL
1,1,2-Trichloroethane	4	<DL
2-Chlorovinyl Ether	4	<DL
Bromoform	4	<DL
2-Hexanone	4	<DL
Tetrachloroethene	4	<DL
1,1,2,2-Tetrachloroethane	4	<DL
4-Methyl-2-Pentanone	4	<DL
Toluene	4	<DL
Chlorobenzene	4	<DL
Ethylbenzene	4	<DL
Styrene	4	<DL
Total Xylenes	12	<DL

SURROGATE RECOVERIES	%RECOVERY
1,2-Dichloroethane D5	107
Toluene D8	107
4-Bromofluorobenzene	111

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

QUALITY ASSURANCE/QUALITY CONTROL DATA

CUSTOMER NAME: TBL

BLT # 2425

SAMPLE ID #	PARAMETER	SPIKE %,RECOVERY	QUANTITY OF SPIKE ADDED
85-5S	Trans-1,2-Dichloroethylene	95	200 ng
	1,2-Dichloroethane	90	200 ng
	1,1,1-Trichloroethane	90	200 ng
	Bromodichloromethane	90	200 ng
	Trans-1,3 Dichloropropene	90	200 ng
	Benzene	90	200 ng
	Cis-1,3 Dichloropropene	65	200 ng
	Bromoform	75	200 ng
	1,1,2,2-Tetrachloroethane	75	200 ng
	Toluene	90	200 ng
	Ethylbenzene	95	200 ng

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QUALITY ASSURANCE/QUALITY CONTROL DATA

CUSTOMER NAME: TBL

BLT # 2425

SAMPLE ID #	PARAMETER	SPIKE %,RECOVERY	QUANTITY OF SPIKE ADDED
88-10B	Trans-1,2-Dichloroethylene	85	200 ng
	1,2-Dichloroethane	85	200 ng
	1,1,1-Trichloroethane	85	200 ng
	Bromodichloromethane	80	200 ng
	Trans-1,3 Dichloropropene	75	200 ng
	Benzene	80	200 ng
	Cis-1,3 Dichloropropene	75	200 ng
	Bromoform	75	200 ng
	1,1,2,2-Tetrachloroethane	75	200 ng
	Toluene	85	200 ng
	Ethylbenzene	80	200 ng

BLT TECHNICAL SERVICES, INC.
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QUALITY ASSURANCE/QUALITY CONTROL DATA

CUSTOMER NAME: TBL

BLT # 2425

SAMPLE ID #	PARAMETER	SPIKE %,RECOVERY	QUANTITY OF SPIKE ADDED
88-10C	Trans-1,2-Dichloroethylene	90	200 ng
	1,2-Dichloroethane	90	200 ng
	1,1,1-Trichloroethane	85	200 ng
	Bromodichloromethane	85	200 ng
	Trans-1,3 Dichloropropene	90	200 ng
	Benzene	85	200 ng
	Cis-1,3 Dichloropropene	80	200 ng
	Bromoform	75	200 ng
	1,1,2,2-Tetrachloroethane	80	200 ng
	Toluene	85	200 ng
	Ethylbenzene	85	200 ng

BLT TECHNICAL SERVICES, INC.
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QUALITY ASSURANCE/QUALITY CONTROL DATA

CUSTOMER NAME: TBL

BLT # 2425

SAMPLE ID #	PARAMETER	SPIKE %,RECOVERY	QUANTITY OF SPIKE ADDED
88-13A	Trans-1,2-Dichloroethylene	35	200 ng
	1,2-Dichloroethane	100	200 ng
	1,1,1-Trichloroethane	95	200 ng
	Bromodichloromethane	95	200 ng
	Trans-1,3 Dichloropropene	90	200 ng
	Benzene	95	200 ng
	Cis-1,3 Dichloropropene	85	200 ng
	Bromoform	90	200 ng
	1,1,2,2-Tetrachloroethane	85	200 ng
	Toluene	85	200 ng
	Ethylbenzene	95	200 ng

EPA-625 BASE/NEUTRAL AND
ACID EXTRACTABLE COMPOUNDS

August, 1989

861-1219

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-01

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-1S	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-01

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-1S	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	75
2-Fluorobiphenyl	69
4-Terphenyl-d14	94

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-01

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-1S	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	56
2-Fluorophenol	88
2,4,6-Tribromophenol	220

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-02

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-1R	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	66
2-Fluorobiphenyl	72
4-Terphenyl-d14	89

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-02

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-1R	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	53
2-Fluorophenol	78
2,4,6-Tribromophenol	188

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-03

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-2S	Bis-(2-Chloroethyl) ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl) ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy) Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-03

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-2S	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	63
2-Fluorobiphenyl	65
4-Terphenyl-d14	43

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-03

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-2S	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	62
2-Fluorophenol	65
2,4,6-Tribromophenol	197

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-04

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-2R	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-04

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-2R	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	66
2-Fluorobiphenyl	71
4-Terphenyl-d14	86

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-04

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-2R	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	49
2-Fluorophenol	81
2,4,6-Tribromophenol	390

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-05

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-3S	Bis-(2-Chloroethyl)ether	200	<DL
	1,3-Dichlorobenzene	200	<DL
	1,4-Dichlorobenzene	200	<DL
	1,2-Dichlorobenzene	200	<DL
	Bis-(2-Chloroisopropyl)ether	200	<DL
	N-Nitroso-Di-Propylamine	200	<DL
	Hexachloroethane	200	<DL
	Nitrobenzene	20	2000
	Isophorone	200	<DL
	Bis-(2-Chloroethyoxy)Methane	200	<DL
	1,2,4-Trichlorobenzene	200	<DL
	Naphthalene	200	<DL
	4-Chloroaniline	200	<DL
	Hexachlorobutadiene	200	<DL
	2-Methylnaphthalene	200	<DL
	Hexachlorocyclopentadiene	200	<DL
	2-Chloronaphthalene	200	<DL
	Dimethyl Phthalate	200	<DL
	Acenaphthylene	200	<DL
	3-Nitroaniline	200	<DL
	2-Nitroaniline	200	<DL
	Acenaphthene	200	<DL
	Dibenzofuran	200	<DL
	2,4-Dinitrotoluene	200	<DL
	2,6-Dinitrotoluene	200	<DL
	Diethylphthalate	200	<DL
	4-Chlorophenyl-phenylether	200	<DL
	Fluorene	200	<DL
	4-Nitroaniline	200	<DL
	N-Nitrosodiphenylamine	200	<DL
	4-Bromophenyl-phenylether	200	<DL
	Hexachlorobenzene	200	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-05

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-3S	Phenanthrene	200	<DL
	Anthracene	200	<DL
	Di-N-Butylphthalate	200	<DL
	Fluoranthene	200	<DL
	Pyrene	200	<DL
	Butylbenzylphthalate	200	<DL
	3,3'-Dichlorobezidine	200	<DL
	Benzo(a) Anthracene	200	<DL
	Bis(2-ethylhexyl) Phthalate	200	<DL
	Chrysene	200	<DL
	di-N-Octyl Phthalate	200	<DL
	Benzo(d) & Benzo(k) Fluoranthene	200	<DL
	Benzo(a) Pyrene	200	<DL
	Indeno(1,2,3-ad) Pyrene	200	<DL
	Dibenzo(a,h) anthracene	200	<DL
	Benzo(g,h,i) Perylene	200	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	57
2-Fluorobiphenyl	42
4-Terphenyl-d14	43

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-05

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-3S	Phenol	20	17,000
	2-Chlorophenol	200	<DL
	Benzyl Alcohol	20	180
	2-Methylphenol	20	770
	4-Methylphenol	20	2800
	2-Nitrophenol	200	<DL
	2,4-Dimethylphenol	200	<DL
	Benzoic Acid	200	<DL
	2,4-Dichlorophenol	200	<DL
	4-Chloro-3-Methylphenol	200	<DL
	2,4,6-Trichlorophenol	200	<DL
	2,4,5-Trichlorophenol	200	<DL
	2,4-Dinitrophenol	20	200
	4-Nitrophenol	200	<DL
	4-6-Dinitro-2-Methylphenol	200	<DL
	Pentachlorophenol	200	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	74
2-Fluorophenol	82
2,4,6-Tribromophenol	156

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-06

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-5S	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #1Ø797

ANALYSIS FOR: TBL

BLT # 2425-Ø6

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-5S	Phenanthrene	2Ø	<DL
	Anthracene	2Ø	<DL
	Di-N-Butylphthalate	2Ø	<DL
	Fluoranthene	2Ø	<DL
	Pyrene	2Ø	<DL
	Butylbenzylphthalate	2Ø	<DL
	3,3'-Dichlorobezidine	2Ø	<DL
	Benzo(a) Anthracene	2Ø	<DL
	Bis(2-ethylhexyl) Phthalate	2Ø	72
	Chrysene	2Ø	<DL
	di-N-Octyl Phthalate	2Ø	<DL
	Benzo(d) & Benzo(k) Fluoranthene	2Ø	<DL
	Benzo(a) Pyrene	2Ø	<DL
	Indeno(1,2,3-ad) Pyrene	2Ø	<DL
	Dibenzo(a,h) anthracene	2Ø	<DL
	Benzo(g,h,i) Perylene	2Ø	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	45
2-Fluorobiphenyl	5Ø
4-Terphenyl-d14	68

METHOD REFERENCE: EPA SW-846 (827Ø)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-06

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-5S	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	28
2-Fluorophenol	37
2,4,6-Tribromophenol	97

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-07

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-5R	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy) Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-07

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-5R	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	49
2-Fluorobiphenyl	53
4-Terphenyl-d14	62

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-07

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-5R	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	60
2-Fluorophenol	74
2,4,6-Tribromophenol	133

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-08

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-6S	Bis-(2-Chloroethyl) ether	200	<DL
	1,3-Dichlorobenzene	200	<DL
	1,4-Dichlorobenzene	200	<DL
	1,2-Dichlorobenzene	200	<DL
	Bis-(2-Chloroisopropyl) ether	200	<DL
	N-Nitroso-Di-Propylamine	200	<DL
	Hexachloroethane	200	<DL
	Nitrobenzene	200	<DL
	Isophorone	200	<DL
	Bis-(2-Chloroethyoxy) Methane	200	<DL
	1,2,4-Trichlorobenzene	200	<DL
	Naphthalene	200	<DL
	4-Chloroaniline	200	<DL
	Hexachlorobutadiene	200	<DL
	2-Methylnaphthalene	200	<DL
	Hexachlorocyclopentadiene	200	<DL
	2-Chloronaphthalene	200	<DL
	Dimethyl Phthalate	200	<DL
	Acenaphthylene	200	<DL
	3-Nitroaniline	200	<DL
	2-Nitroaniline	200	<DL
	Acenaphthene	200	<DL
	Dibenzofuran	200	<DL
	2,4-Dinitrotoluene	200	<DL
	2,6-Dinitrotoluene	200	<DL
	Diethylphthalate	200	<DL
	4-Chlorophenyl-phenylether	200	<DL
	Fluorene	200	<DL
	4-Nitroaniline	200	<DL
	N-Nitrosodiphenylamine	200	<DL
	4-Bromophenyl-phenylether	200	<DL
	Hexachlorobenzene	200	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-08

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-6S	Phenanthrene	200	<DL
	Anthracene	200	<DL
	Di-N-Butylphthalate	200	<DL
	Fluoranthene	200	<DL
	Pyrene	200	<DL
	Butylbenzylphthalate	200	<DL
	3,3'-Dichlorobezidine	200	<DL
	Benzo(a) Anthracene	200	<DL
	Bis(2-ethylhexyl) Phthalate	200	<DL
	Chrysene	200	<DL
	di-N-Octyl Phthalate	200	<DL
	Benzo(d) & Benzo(k) Fluoranthene	200	<DL
	Benzo(a) Pyrene	200	<DL
	Indeno(1,2,3-ad) Pyrene	200	<DL
	Dibenzo(a,h) anthracene	200	<DL
	Benzo(g,h,i) Perylene	200	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	58
2-Fluorobiphenyl	59
4-Terphenyl-d14	54

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-08

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-6S	Phenol	20	130
	2-Chlorophenol	200	<DL
	Benzyl Alcohol	200	<DL
	2-Methylphenol	20	130
	4-Methylphenol	20	220
	2-Nitrophenol	200	<DL
	2,4-Dimethylphenol	200	<DL
	Benzoic Acid	200	<DL
	2,4-Dichlorophenol	200	<DL
	4-Chloro-3-Methylphenol	200	<DL
	2,4,6-Trichlorophenol	200	<DL
	2,4,5-Trichlorophenol	200	<DL
	2,4-Dinitrophenol	200	<DL
	4-Nitrophenol	200	<DL
	4-6-Dinitro-2-Methylphenol	200	<DL
	Pentachlorophenol	200	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	59
2-Fluorophenol	67
2,4,6-Tribromophenol	179

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-09

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-6R	Bis-(2-Chloroethyl)ether	200	<DL
	1,3-Dichlorobenzene	200	<DL
	1,4-Dichlorobenzene	200	<DL
	1,2-Dichlorobenzene	20	130
	Bis-(2-Chloroisopropyl)ether	200	<DL
	N-Nitroso-Di-Propylamine	200	<DL
	Hexachloroethane	200	<DL
	Nitrobenzene	200	<DL
	Isophorone	200	<DL
	Bis-(2-Chloroethyoxy)Methane	200	<DL
	1,2,4-Trichlorobenzene	200	<DL
	Naphthalene	200	<DL
	4-Chloroaniline	200	<DL
	Hexachlorobutadiene	200	<DL
	2-Methylnaphthalene	200	<DL
	Hexachlorocyclopentadiene	200	<DL
	2-Chloronaphthalene	200	<DL
	Dimethyl Phthalate	200	<DL
	Acenaphthylene	200	<DL
	3-Nitroaniline	200	<DL
	2-Nitroaniline	200	<DL
	Acenaphthene	200	<DL
	Dibenzofuran	200	<DL
	2,4-Dinitrotoluene	200	<DL
	2,6-Dinitrotoluene	200	<DL
	Diethylphthalate	200	<DL
	4-Chlorophenyl-phenylether	200	<DL
	Fluorene	200	<DL
	4-Nitroaniline	200	<DL
	N-Nitrosodiphenylamine	200	<DL
	4-Bromophenyl-phenylether	200	<DL
	Hexachlorobenzene	200	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-09

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-6R	Phenanthrene	200	<DL
	Anthracene	200	<DL
	Di-N-Butylphthalate	200	<DL
	Fluoranthene	200	<DL
	Pyrene	200	<DL
	Butylbenzylphthalate	200	<DL
	3,3'-Dichlorobezidine	200	<DL
	Benzo(a)Anthracene	200	<DL
	Bis(2-ethylhexyl)Phthalate	200	<DL
	Chrysene	200	<DL
	di-N-Octyl Phthalate	200	<DL
	Benzo(d) & Benzo(k) Fluoranthene	200	<DL
	Benzo(a)Pyrene	200	<DL
	Indeno(1,2,3-ad)Pyrene	200	<DL
	Dibenzo(a,h)anthracene	200	<DL
	Benzo(g,h,i)Perylene	200	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	55
2-Fluorobiphenyl	58
4-Terphenyl-d14	54

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-09

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-6R	Phenol	20	580
	2-Chlorophenol	200	<DL
	Benzyl Alcohol	200	<DL
	2-Methylphenol	20	800
	4-Methylphenol	20	1300
	2-Nitrophenol	200	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	200	<DL
	2,4-Dichlorophenol	200	400
	4-Chloro-3-Methylphenol	200	<DL
	2,4,6-Trichlorophenol	200	<DL
	2,4,5-Trichlorophenol	200	<DL
	2,4-Dinitrophenol	200	<DL
	4-Nitrophenol	200	<DL
	4-6-Dinitro-2-Methylphenol	200	<DL
	Pentachlorophenol	200	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	79
2-Fluorophenol	88
2,4,6-Tribromophenol	224

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-10

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-7S	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-10

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-7S	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	60
2-Fluorobiphenyl	51
4-Terphenyl-d14	71

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-10

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-7S	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	47
2-Fluorophenol	52
2,4,6-Tribromophenol	86

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-11

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-7R	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-11

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-7R	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	60
2-Fluorobiphenyl	65
4-Terphenyl-d14	68

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-11

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
85-7R	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	55
2-Fluorophenol	64
2,4,6-Tribromophenol	99

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-12

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-1A	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-12

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-1A	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	69
2-Fluorobiphenyl	63
4-Terphenyl-d14	62

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-12

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-1A	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	47
2-Fluorophenol	40
2,4,6-Tribromophenol	72

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-13

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-2A	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-13

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-2A	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	53
2-Fluorobiphenyl	54
4-Terphenyl-d14	85

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-13

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-2A	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	14
2-Fluorophenol	11
2,4,6-Tribromophenol	41

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-14

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-3A	Bis-(2-Chloroethyl)ether	200	<DL
	1,3-Dichlorobenzene	200	<DL
	1,4-Dichlorobenzene	200	<DL
	1,2-Dichlorobenzene	200	<DL
	Bis-(2-Chloroisopropyl)ether	200	<DL
	N-Nitroso-Di-Propylamine	200	<DL
	Hexachloroethane	200	<DL
	Nitrobenzene	200	<DL
	Isophorone	200	<DL
	Bis-(2-Chloroethyoxy)Methane	200	<DL
	1,2,4-Trichlorobenzene	200	<DL
	Naphthalene	200	<DL
	4-Chloroaniline	200	<DL
	Hexachlorobutadiene	200	<DL
	2-Methylnaphthalene	200	<DL
	Hexachlorocyclopentadiene	200	<DL
	2-Chloronaphthalene	200	<DL
	Dimethyl Phthalate	200	<DL
	Acenaphthylene	200	<DL
	3-Nitroaniline	200	<DL
	2-Nitroaniline	200	<DL
	Acenaphthene	200	<DL
	Dibenzofuran	200	<DL
	2,4-Dinitrotoluene	200	<DL
	2,6-Dinitrotoluene	200	<DL
	Diethylphthalate	200	<DL
	4-Chlorophenyl-phenylether	200	<DL
	Fluorene	200	<DL
	4-Nitroaniline	200	<DL
	N-Nitrosodiphenylamine	200	<DL
	4-Bromophenyl-phenylether	200	<DL
	Hexachlorobenzene	200	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-14

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-3A	Phenanthrene	200	<DL
	Anthracene	200	<DL
	Di-N-Butylphthalate	200	<DL
	Fluoranthene	200	<DL
	Pyrene	200	<DL
	Butylbenzylphthalate	200	<DL
	3,3'-Dichlorobezidine	200	<DL
	Benzo(a) Anthracene	200	<DL
	Bis(2-ethylhexyl) Phthalate	200	<DL
	Chrysene	200	<DL
	di-N-Octyl Phthalate	200	<DL
	Benzo(d) & Benzo(k) Fluoranthene	200	<DL
	Benzo(a) Pyrene	200	<DL
	Indeno(1,2,3-ad) Pyrene	200	<DL
	Dibenzo(a,h) anthracene	200	<DL
	Benzo(g,h,i) Perylene	200	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	58
2-Fluorobiphenyl	86
4-Terphenyl-d14	54

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-14

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-3A	Phenol	20	170
	2-Chlorophenol	200	<DL
	Benzyl Alcohol	200	<DL
	2-Methylphenol	20	150
	4-Methylphenol	20	230
	2-Nitrophenol	200	<DL
	2,4-Dimethylphenol	20	67
	Benzoic Acid	200	<DL
	2,4-Dichlorophenol	200	<DL
	4-Chloro-3-Methylphenol	200	<DL
	2,4,6-Trichlorophenol	200	<DL
	2,4,5-Trichlorophenol	200	<DL
	2,4-Dinitrophenol	200	<DL
	4-Nitrophenol	200	<DL
	4-6-Dinitro-2-Methylphenol	200	<DL
	Pentachlorophenol	200	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	76
2-Fluorophenol	86
2,4,6-Tribromophenol	247

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-15

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-4A	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	190
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	300
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-15

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-4A	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	280
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	84
2-Fluorobiphenyl	64
4-Terphenyl-d14	81

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-15

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-4A	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	55
2-Fluorophenol	33
2,4,6-Tribromophenol	47

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-16

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-5A	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-16

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-5A	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	47
2-Fluorobiphenyl	46
4-Terphenyl-d14	54

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-16

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-5A	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	41
2-Fluorophenol	38
2,4,6-Tribromophenol	42

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-17

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-6A	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-17

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-6A	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	96
2-Fluorobiphenyl	82
4-Terphenyl-d14	112

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-17

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-6A	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	79
2-Fluorophenol	83
2,4,6-Tribromophenol	112

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-18

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-7A	Bis-(2-Chloroethyl)ether	200	<DL
	1,3-Dichlorobenzene	200	<DL
	1,4-Dichlorobenzene	200	<DL
	1,2-Dichlorobenzene	20	130
	Bis-(2-Chloroisopropyl)ether	200	<DL
	N-Nitroso-Di-Propylamine	200	<DL
	Hexachloroethane	200	<DL
	Nitrobenzene	200	<DL
	Isophorone	200	<DL
	Bis-(2-Chloroethyoxy)Methane	200	<DL
	1,2,4-Trichlorobenzene	200	<DL
	Naphthalene	200	<DL
	4-Chloroaniline	200	<DL
	Hexachlorobutadiene	200	<DL
	2-Methylnaphthalene	200	<DL
	Hexachlorocyclopentadiene	200	<DL
	2-Chloronaphthalene	200	<DL
	Dimethyl Phthalate	200	<DL
	Acenaphthylene	200	<DL
	3-Nitroaniline	200	<DL
	2-Nitroaniline	200	<DL
	Acenaphthene	200	<DL
	Dibenzofuran	200	<DL
	2,4-Dinitrotoluene	200	<DL
	2,6-Dinitrotoluene	200	<DL
	Diethylphthalate	200	<DL
	4-Chlorophenyl-phenylether	200	<DL
	Fluorene	200	<DL
	4-Nitroaniline	200	<DL
	N-Nitrosodiphenylamine	200	<DL
	4-Bromophenyl-phenylether	200	<DL
	Hexachlorobenzene	200	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-18

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-7A	Phenanthrene	200	<DL
	Anthracene	200	<DL
	Di-N-Butylphthalate	200	<DL
	Fluoranthene	200	<DL
	Pyrene	200	<DL
	Butylbenzylphthalate	200	<DL
	3,3'-Dichlorobezidine	200	<DL
	Benzo(a) Anthracene	200	<DL
	Bis(2-ethylhexyl) Phthalate	200	<DL
	Chrysene	200	<DL
	di-N-Octyl Phthalate	200	<DL
	Benzo(d) & Benzo(k) Fluoranthene	200	<DL
	Benzo(a) Pyrene	200	<DL
	Indeno(1,2,3-ad) Pyrene	200	<DL
	Dibenzo(a,h) anthracene	200	<DL
	Benzo(g,h,i) Perylene	200	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	57
2-Fluorobiphenyl	60
4-Terphenyl-d14	50

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-18

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-7A	Phenol	20	450
	2-Chlorophenol	200	<DL
	Benzyl Alcohol	200	<DL
	2-Methylphenol	20	550
	4-Methylphenol	20	1100
	2-Nitrophenol	200	<DL
	2,4-Dimethylphenol	20	350
	Benzoic Acid	200	<DL
	2,4-Dichlorophenol	200	<DL
	4-Chloro-3-Methylphenol	200	<DL
	2,4,6-Trichlorophenol	200	<DL
	2,4,5-Trichlorophenol	200	<DL
	2,4-Dinitrophenol	200	<DL
	4-Nitrophenol	200	<DL
	4-6-Dinitro-2-Methylphenol	200	<DL
	Pentachlorophenol	200	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	76
2-Fluorophenol	94
2,4,6-Tribromophenol	244

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-19

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-8A	Bis-(2-Chloroethyl)ether	200	<DL
	1,3-Dichlorobenzene	200	<DL
	1,4-Dichlorobenzene	200	<DL
	1,2-Dichlorobenzene	200	<DL
	Bis-(2-Chloroisopropyl)ether	200	<DL
	N-Nitroso-Di-Propylamine	200	<DL
	Hexachloroethane	200	<DL
	Nitrobenzene	200	<DL
	Isophorone	200	<DL
	Bis-(2-Chloroethyoxy)Methane	200	<DL
	1,2,4-Trichlorobenzene	200	<DL
	Naphthalene	200	<DL
	4-Chloroaniline	200	<DL
	Hexachlorobutadiene	200	<DL
	2-Methylnaphthalene	200	<DL
	Hexachlorocyclopentadiene	200	<DL
	2-Chloronaphthalene	200	<DL
	Dimethyl Phthalate	200	<DL
	Acenaphthylene	200	<DL
	3-Nitroaniline	200	<DL
	2-Nitroaniline	200	<DL
	Acenaphthene	200	<DL
	Dibenzofuran	200	<DL
	2,4-Dinitrotoluene	200	<DL
	2,6-Dinitrotoluene	200	<DL
	Diethylphthalate	200	<DL
	4-Chlorophenyl-phenylether	200	<DL
	Fluorene	200	<DL
	4-Nitroaniline	200	<DL
	N-Nitrosodiphenylamine	200	<DL
	4-Bromophenyl-phenylether	200	<DL
	Hexachlorobenzene	200	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-19

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-8A	Phenanthrene	200	<DL
	Anthracene	200	<DL
	Di-N-Butylphthalate	200	<DL
	Fluoranthene	200	<DL
	Pyrene	200	<DL
	Butylbenzylphthalate	200	<DL
	3,3'-Dichlorobezidine	200	<DL
	Benzo(a)Anthracene	200	<DL
	Bis(2-ethylhexyl)Phthalate	200	<DL
	Chrysene	200	<DL
	di-N-Octyl Phthalate	200	<DL
	Benzo(d) & Benzo(k) Fluoranthene	200	<DL
	Benzo(a)Pyrene	200	<DL
	Indeno(1,2,3-ad)Pyrene	200	<DL
	Dibenzo(a,h)anthracene	200	<DL
	Benzo(g,h,i)Perylene	200	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	102
2-Fluorobiphenyl	94
4-Terphenyl-d14	72

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-19

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-8A	Phenol	20	3000
	2-Chlorophenol	200	<DL
	Benzyl Alcohol	200	<DL
	2-Methylphenol	20	210
	4-Methylphenol	20	270
	2-Nitrophenol	200	<DL
	2,4-Dimethylphenol	200	<DL
	Benzoic Acid	200	<DL
	2,4-Dichlorophenol	200	<DL
	4-Chloro-3-Methylphenol	200	<DL
	2,4,6-Trichlorophenol	200	<DL
	2,4,5-Trichlorophenol	200	<DL
	2,4-Dinitrophenol	200	<DL
	4-Nitrophenol	200	<DL
	4-6-Dinitro-2-Methylphenol	200	<DL
	Pentachlorophenol	200	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	99
2-Fluorophenol	80
2,4,6-Tribromophenol	84

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-20

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-9A	Bis-(2-Chloroethyl) ether	100	<DL
	1,3-Dichlorobenzene	100	<DL
	1,4-Dichlorobenzene	100	<DL
	1,2-Dichlorobenzene	100	<DL
	Bis-(2-Chloroisopropyl) ether	100	<DL
	N-Nitroso-Di-Propylamine	100	<DL
	Hexachloroethane	100	<DL
	Nitrobenzene	100	<DL
	Isophorone	100	<DL
	Bis-(2-Chloroethyoxy) Methane	100	<DL
	1,2,4-Trichlorobenzene	100	<DL
	Naphthalene	100	<DL
	4-Chloroaniline	100	<DL
	Hexachlorobutadiene	100	<DL
	2-Methylnaphthalene	100	<DL
	Hexachlorocyclopentadiene	100	<DL
	2-Chloronaphthalene	100	<DL
	Dimethyl Phthalate	100	<DL
	Acenaphthylene	100	<DL
	3-Nitroaniline	100	<DL
	2-Nitroaniline	100	<DL
	Acenaphthene	100	<DL
	Dibenzofuran	100	<DL
	2,4-Dinitrotoluene	100	<DL
	2,6-Dinitrotoluene	100	<DL
	Diethylphthalate	100	<DL
	4-Chlorophenyl-phenylether	100	<DL
	Fluorene	100	<DL
	4-Nitroaniline	100	<DL
	N-Nitrosodiphenylamine	100	<DL
	4-Bromophenyl-phenylether	100	<DL
	Hexachlorobenzene	100	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-20

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-9A	Phenanthrene	100	<DL
	Anthracene	100	<DL
	Di-N-Butylphthalate	100	<DL
	Fluoranthene	100	<DL
	Pyrene	100	<DL
	Butylbenzylphthalate	100	<DL
	3,3'-Dichlorobezidine	100	<DL
	Benzo(a)Anthracene	100	<DL
	Bis(2-ethylhexyl)Phthalate	100	<DL
	Chrysene	100	<DL
	di-N-Octyl Phthalate	100	<DL
	Benzo(d) & Benzo(k) Fluoranthene	100	<DL
	Benzo(a)Pyrene	100	<DL
	Indeno(1,2,3-ad)Pyrene	100	<DL
	Dibenzo(a,h)anthracene	100	<DL
	Benzo(g,h,i)Perylene	100	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	29
2-Fluorobiphenyl	57
4-Terphenyl-d14	55

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-20

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-9A	Phenol	20	67
	2-Chlorophenol	100	<DL
	Benzyl Alcohol	100	<DL
	2-Methylphenol	20	210
	4-Methylphenol	20	75
	2-Nitrophenol	100	<DL
	2,4-Dimethylphenol	20	83
	Benzoic Acid	100	<DL
	2,4-Dichlorophenol	100	<DL
	4-Chloro-3-Methylphenol	100	<DL
	2,4,6-Trichlorophenol	100	<DL
	2,4,5-Trichlorophenol	100	<DL
	2,4-Dinitrophenol	100	<DL
	4-Nitrophenol	100	<DL
	4-6-Dinitro-2-Methylphenol	100	<DL
	Pentachlorophenol	100	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	86
2-Fluorophenol	102
2,4,6-Tribromophenol	253

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-21

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-10A	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	220
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-21

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-10A	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a)Anthracene	20	<DL
	Bis(2-ethylhexyl)Phthalate	20	62
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a)Pyrene	20	<DL
	Indeno(1,2,3-ad)Pyrene	20	<DL
	Dibenzo(a,h)anthracene	20	<DL
	Benzo(g,h,i)Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	87
2-Fluorobiphenyl	63
4-Terphenyl-d14	54

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-21

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-10A	Phenol	20	1800
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	200
	4-Methylphenol	20	530
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	100
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	80
2-Fluorophenol	97
2,4,6-Tribromophenol	168

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-22

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-10B	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-22

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-10B	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	48
2-Fluorobiphenyl	55
4-Terphenyl-d14	113

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-22

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-10B	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	38
2-Fluorophenol	45
2,4,6-Tribromophenol	101

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-23

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-10C	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-23

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-10C	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a)Anthracene	20	<DL
	Bis(2-ethylhexyl)Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a)Pyrene	20	<DL
	Indeno(1,2,3-ad)Pyrene	20	<DL
	Dibenzo(a,h)anthracene	20	<DL
	Benzo(g,h,i)Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	69
2-Fluorobiphenyl	78
4-Terphenyl-d14	74

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-23

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-10C	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	76
2-Fluorophenol	99
2,4,6-Tribromophenol	176

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-24

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-10D	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-24

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-10D	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a)Anthracene	20	<DL
	Bis(2-ethylhexyl)Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a)Pyrene	20	<DL
	Indeno(1,2,3-ad)Pyrene	20	<DL
	Dibenzo(a,h)anthracene	20	<DL
	Benzo(g,h,i)Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	56
2-Fluorobiphenyl	61
4-Terphenyl-d14	82

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-25

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-11A	Bis-(2-Chloroethyl) ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	110
	Bis-(2-Chloroisopropyl) ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy) Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-25

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-11A	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a)Anthracene	20	<DL
	Bis(2-ethylhexyl)Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a)Pyrene	20	<DL
	Indeno(1,2,3-ad)Pyrene	20	<DL
	Dibenzo(a,h)anthracene	20	<DL
	Benzo(g,h,i)Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	59
2-Fluorobiphenyl	59
4-Terphenyl-d14	37

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-25

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-11A	Phenol	20	150
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	60
	4-Methylphenol	20	90
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	50
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	38
2-Fluorophenol	40
2,4,6-Tribromophenol	74

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-26

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-11B	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-26

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-11B	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	46
2-Fluorobiphenyl	49
4-Terphenyl-d14	82

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-26

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-11B	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	25
2-Fluorophenol	17
2,4,6-Tribromophenol	27

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-27

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-11C	Bis-(2-Chloroethyl) ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl) ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy) Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-27

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-11C	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	64
2-Fluorobiphenyl	64
4-Terphenyl-d14	70

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-27

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-11C	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	43
2-Fluorophenol	47
2,4,6-Tribromophenol	97

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-28

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-11D	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-28

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-11D	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a)Anthracene	20	<DL
	Bis(2-ethylhexyl)Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a)Pyrene	20	<DL
	Indeno(1,2,3-ad)Pyrene	20	<DL
	Dibenzo(a,h)anthracene	20	<DL
	Benzo(g,h,i)Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	53
2-Fluorobiphenyl	62
4-Terphenyl-d14	72

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-28

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-11D	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	66
2-Fluorophenol	83
2,4,6-Tribromophenol	177

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-29

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-12A	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-29

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-12A	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a)Anthracene	20	<DL
	Bis(2-ethylhexyl)Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a)Pyrene	20	<DL
	Indeno(1,2,3-ad)Pyrene	20	<DL
	Dibenzo(a,h)anthracene	20	<DL
	Benzo(g,h,i)Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	54
2-Fluorobiphenyl	55
4-Terphenyl-d14	66

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-29

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-12A	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	39
2-Fluorophenol	40
2,4,6-Tribromophenol	52

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-30

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-12B	Bis-(2-Chloroethyl) ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl) ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy) Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-30

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-12B	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a)Anthracene	20	<DL
	Bis(2-ethylhexyl)Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a)Pyrene	20	<DL
	Indeno(1,2,3-ad)Pyrene	20	<DL
	Dibenzo(a,h)anthracene	20	<DL
	Benzo(g,h,i)Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	61
2-Fluorobiphenyl	47
4-Terphenyl-d14	62

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-30

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-12B	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	40
2-Fluorophenol	54
2,4,6-Tribromophenol	164

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-31

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-12C	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-31

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-12C	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	55
2-Fluorobiphenyl	50
4-Terphenyl-d14	79

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-31

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-12C	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	67
2-Fluorophenol	81
2,4,6-Tribromophenol	73

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-32

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-12D	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy) Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-32

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-12D	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	17
2-Fluorophenol	14
2,4,6-Tribromophenol	27

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-33

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-12DD	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-33

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-12DD	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a) Anthracene	20	<DL
	Bis(2-ethylhexyl) Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a) Pyrene	20	<DL
	Indeno(1,2,3-ad) Pyrene	20	<DL
	Dibenzo(a,h) anthracene	20	<DL
	Benzo(g,h,i) Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	58
2-Fluorobiphenyl	58
4-Terphenyl-d14	79

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-33

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-12DD	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	42
2-Fluorophenol	56
2,4,6-Tribromophenol	132

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-34

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-13A	Bis-(2-Chloroethyl)ether	20	<DL
	1,3-Dichlorobenzene	20	<DL
	1,4-Dichlorobenzene	20	<DL
	1,2-Dichlorobenzene	20	<DL
	Bis-(2-Chloroisopropyl)ether	20	<DL
	N-Nitroso-Di-Propylamine	20	<DL
	Hexachloroethane	20	<DL
	Nitrobenzene	20	<DL
	Isophorone	20	<DL
	Bis-(2-Chloroethyoxy)Methane	20	<DL
	1,2,4-Trichlorobenzene	20	<DL
	Naphthalene	20	<DL
	4-Chloroaniline	20	<DL
	Hexachlorobutadiene	20	<DL
	2-Methylnaphthalene	20	<DL
	Hexachlorocyclopentadiene	20	<DL
	2-Chloronaphthalene	20	<DL
	Dimethyl Phthalate	20	<DL
	Acenaphthylene	20	<DL
	3-Nitroaniline	20	<DL
	2-Nitroaniline	20	<DL
	Acenaphthene	20	<DL
	Dibenzofuran	20	<DL
	2,4-Dinitrotoluene	20	<DL
	2,6-Dinitrotoluene	20	<DL
	Diethylphthalate	20	<DL
	4-Chlorophenyl-phenylether	20	<DL
	Fluorene	20	<DL
	4-Nitroaniline	20	<DL
	N-Nitrosodiphenylamine	20	<DL
	4-Bromophenyl-phenylether	20	<DL
	Hexachlorobenzene	20	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-34

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-13A	Phenanthrene	20	<DL
	Anthracene	20	<DL
	Di-N-Butylphthalate	20	<DL
	Fluoranthene	20	<DL
	Pyrene	20	<DL
	Butylbenzylphthalate	20	<DL
	3,3'-Dichlorobezidine	20	<DL
	Benzo(a)Anthracene	20	<DL
	Bis(2-ethylhexyl)Phthalate	20	<DL
	Chrysene	20	<DL
	di-N-Octyl Phthalate	20	<DL
	Benzo(d) & Benzo(k) Fluoranthene	20	<DL
	Benzo(a)Pyrene	20	<DL
	Indeno(1,2,3-ad)Pyrene	20	<DL
	Dibenzo(a,h)anthracene	20	<DL
	Benzo(g,h,i)Perylene	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	65
2-Fluorobiphenyl	64
4-Terphenyl-d14	100

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-34

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-13A	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	13
2-Fluorophenol	13
2,4,6-Tribromophenol	63

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-35

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-14A	Bis-(2-Chloroethyl)ether	200	<DL
	1,3-Dichlorobenzene	200	<DL
	1,4-Dichlorobenzene	200	<DL
	1,2-Dichlorobenzene	200	<DL
	Bis-(2-Chloroisopropyl)ether	200	<DL
	N-Nitroso-Di-Propylamine	200	<DL
	Hexachloroethane	200	<DL
	Nitrobenzene	200	<DL
	Isophorone	200	<DL
	Bis-(2-Chloroethyoxy)Methane	200	<DL
	1,2,4-Trichlorobenzene	20	270
	Naphthalene	200	<DL
	4-Chloroaniline	200	<DL
	Hexachlorobutadiene	200	<DL
	2-Methylnaphthalene	200	<DL
	Hexachlorocyclopentadiene	200	<DL
	2-Chloronaphthalene	200	<DL
	Dimethyl Phthalate	200	<DL
	Acenaphthylene	200	<DL
	3-Nitroaniline	200	<DL
	2-Nitroaniline	200	<DL
	Acenaphthene	200	<DL
	Dibenzofuran	200	<DL
	2,4-Dinitrotoluene	200	<DL
	2,6-Dinitrotoluene	200	<DL
	Diethylphthalate	200	<DL
	4-Chlorophenyl-phenylether	200	<DL
	Fluorene	200	<DL
	4-Nitroaniline	200	<DL
	N-Nitrosodiphenylamine	200	<DL
	4-Bromophenyl-phenylether	200	<DL
	Hexachlorobenzene	200	<DL

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALYSIS FOR: TBL

BLT # 2425-35

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-14A	Phenanthrene	200	<DL
	Anthracene	200	<DL
	Di-N-Butylphthalate	200	<DL
	Fluoranthene	200	<DL
	Pyrene	200	<DL
	Butylbenzylphthalate	200	<DL
	3,3'-Dichlorobezidine	200	<DL
	Benzo(a) Anthracene	200	<DL
	Bis(2-ethylhexyl) Phthalate	200	<DL
	Chrysene	200	<DL
	di-N-Octyl Phthalate	200	<DL
	Benzo(d) & Benzo(k) Fluoranthene	200	<DL
	Benzo(a) Pyrene	200	<DL
	Indeno(1,2,3-ad) Pyrene	200	<DL
	Dibenzo(a,h) anthracene	200	<DL
	Benzo(g,h,i) Perylene	200	<DL

SURROGATE RECOVERIES	%RECOVERY
Nitrobenzene -d5	56
2-Fluorobiphenyl	50
4-Terphenyl-d14	31

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-35

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-14A	Phenol	20	4700
	2-Chlorophenol	200	<DL
	Benzyl Alcohol	200	<DL
	2-Methylphenol	20	280
	4-Methylphenol	20	67
	2-Nitrophenol	200	<DL
	2,4-Dimethylphenol	20	250
	Benzoic Acid	200	<DL
	2,4-Dichlorophenol	200	<DL
	4-Chloro-3-Methylphenol	200	<DL
	2,4,6-Trichlorophenol	200	<DL
	2,4,5-Trichlorophenol	200	<DL
	2,4-Dinitrophenol	200	<DL
	4-Nitrophenol	200	<DL
	4-6-Dinitro-2-Methylphenol	200	<DL
	Pentachlorophenol	200	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	94
2-Fluorophenol	89
2,4,6-Tribromophenol	160

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

BLT TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: January 5, 1989

ELAP #10797

ANALAYSIS FOR: TBL

BLT # 2425-24

Sample ID	Parameter	Detection Limit ug/L	Quantity Detected ug/L
88-10D	Phenol	20	<DL
	2-Chlorophenol	20	<DL
	Benzyl Alcohol	20	<DL
	2-Methylphenol	20	<DL
	4-Methylphenol	20	<DL
	2-Nitrophenol	20	<DL
	2,4-Dimethylphenol	20	<DL
	Benzoic Acid	20	<DL
	2,4-Dichlorophenol	20	<DL
	4-Chloro-3-Methylphenol	20	<DL
	2,4,6-Trichlorophenol	20	<DL
	2,4,5-Trichlorophenol	20	<DL
	2,4-Dinitrophenol	20	<DL
	4-Nitrophenol	20	<DL
	4-6-Dinitro-2-Methylphenol	20	<DL
	Pentachlorophenol	20	<DL

SURROGATE RECOVERIES	%RECOVERY
Phenol-d6	80
2-Fluorophenol	107
2,4,6-Tribromophenol	113

METHOD REFERENCE: EPA SW-846 (8270)
DL: Detection Limit

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: July 13, 1988

ANALYTICAL RESULTS
FOR

TBL ENTERPRISES

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM (ELAP)
CERTIFICATION #10797

INVOICE #

FIELD INFORMATION

Name of Collector: M. Glynn

ASSIGNED BLT# I.D.	SAMPLE I.D.#	SAMPLE TYPE	Site, Time and Date of Collection
2219-02	88-7S	Aqueous/Organic	Site: Pendleton Time: Not Available Date: June 23, 1988

Laboratory Information

Sample ID	Preservation Status Upon Acceptance	Date/Time Received
88-7S	Properly preserved and collected	Date: June 24, 1988 Time: Not Available

RELEASED BY: Husein Sitabkhan

Black oil sample from Tile Drain Seep

PCB analysis

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: July 11, 1988

ELAP #10797

ANALYSIS FOR: TBL Enterprises
4626 Royal Avenue
Niagara Falls, NY 14303

BLT # 2219-02

Sample ID	Test	Aroclor	Test Method	Detection limit ppm	Results ppm
88-7S*	PCB	1260**	EPA SW-846 (8080)	500	2160

* Analysis was performed on the organic layer only.

** Both aroclor 1254 and 1260 were detected. Results were calculated off of aroclor 1260.

Extraction Procedure: EPA SW-846 (3550)
DL: Detection Limit
NA: Not Applicable

WATER QUALITY ANALYTICAL RESULTS FROM

DRAIN TILE SEEPS

GOLDER ASSOCIATES (1989)

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

FIRST TILE DRAIN SEEP

Date: June 6, 1988

ANALYTICAL ANALYSIS
FOR

GOLDER ASSOCIATES

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM (ELAP)
CERTIFICATION #10797

INVOICE TO FRONTIER

FIELD INFORMATION

Name of Collector: Rob Blair

ASSIGNED BLT# I.D.	SAMPLE I.D.#	SAMPLE TYPE	Site, Time and Date of Collection
2150-01	1	Seepage	Site: Not Available Time: 17:00 EST Date: May 26, 1988

Laboratory Information

Sample ID	Preservation Status Upon Acceptance	Date/Time Received
1	Properly preserved and collected	Date: May 26, 1988 Time: Not Available

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

First Tile Drain Samp.

Date: June 6, 1988

ELAP #10797

ANALYSIS FOR: Golder Associates

BLT# 2150-01

Sample ID	Parameter	Detection Limit ppb	Quantity Detected ppb
1	Chloromethane	1000	<DL
	Bromomethane	1000	<DL
	Vinyl chloride	1000	<DL
	Chloroethane	1000	<DL
	Methylene chloride	280	12,400
	Trichlorofluoromethane	1000	<DL
	1,1-Dichloroethene	280	<DL
	1,1-Dichloroethane	470	<DL
	trans-1,2-Dichloroethene	160	13,500
	Chloroform	160	<DL
	1,2-Dichloroethane	280	<DL
	1,1,1-Trichloroethane	380	3,400
	Carbon tetrachloride	280	<DL
	Bromodichloromethane	220	<DL
	1,2-Dichloropropane	600	<DL
	2-Butanone	260	31,000

METHOD REFERENCE: EPA SW-846 8240 or 40 CFR (624)
Extraction Procedure: Head Space(5020) Or Purge and Trap(5030)
ND: Not Determined
NE: Not Established
DL: Detection Limit

QA/QC Beverly A. Cavagnaro
Beverly Cavagnaro

Released By: Husein Sitabkhan
Husein Sitabkhan, Ph.D.

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: June 6, 1988

First Tile Drain Seep

ELAP #10797

ANALYSIS FOR: Golder Associates

BLT# 2150-01

Sample ID	Parameter	Detection Limit ppb	Quantity Detected ppb
1	trans-1,3-Dichloropropene	500	<DL
	Trichloroethene	190	26,500
	Benzene	440	1,400
	Dibromochloromethane	310	<DL
	1,1,2-Trichloroethane	500	<DL
	cis-1,3-Dichloropropene	1000	<DL
	2-Chloroethylvinyl ether	1000	<DL
	Bromoform	470	<DL
	1,1,2,2-Tetrachloroethane	690	116,000
	Tetrachloroethene	410	134,000
	Toluene	600	18,200
	Chlorobenzene	600	<DL
	Ethyl benzene	720	<DL
	1,3-Dichlorobenzene	1000	<DL
	1,2-Dichlorobenzene	1000	<DL
	1,4-Dichlorobenzene	1000	<DL

METHOD REFERENCE: EPA SW-846 (8240)
Extraction Method:EPA SW-846 (5030)
NE: Not Established
ND: None Detected
DL: Detection Limit

QA/QC Beverly A Cavagnaro
Quality Control Officer
Beverly Cavagnaro

Released By: Husein Sitabkhan
Husein Sitabkhan, Ph.D.

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: July 12, 1988

ANALYTICAL RESULTS
FOR

GOLDER ASSOCIATES

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM (ELAP)
CERTIFICATION #10797

INVOICE #

FIELD INFORMATION

Name of Collector: Lori Lozier

ASSIGNED BLT# I.D.	SAMPLE I.D.#	SAMPLE TYPE	Site, Time and Date of Collection
2201-01	S ~~S~~-88-1	Sludge	Site: Drain east of building Time: 14:40 Date: June 14, 1988
2201-02	S ~~S~~-88-2	"	Site: Drain further east of building Time: 11:00 Date: June 15, 1988
2201-03	S ~~S~~-88-3	"	Site: Ground along road Time: 14:00 Date: June 15, 1988
2201-04	S ~~S~~-88-4	"	Site: Collection system in bottom Catch Basin Time: 11:00 Date: June 16, 1988

RB

Laboratory Information

Sample ID	Preservation Status Upon Acceptance	Date/Time Received
2201-(01-04)	Properly preserved & collected	Date: June 16, 1988 Time: 17:00 EST

RELEASED BY: Husein Sitabkhan

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: July 12, 1988

ELAP #10797

ANALYSIS FOR: Golder Associates (Pendleton)

BLT# 2201-01

Sample ID	Parameter	Detection Limit ppb	Quantity Detected ppb
S-88-1	Chloromethane	500	<DL
	Bromomethane	500	<DL
	Vinyl chloride	500	<DL
	Chloroethane	500	<DL
	Methylene chloride	140	1845
	Trichlorofluoromethane	500	<DL
	1,1-Dichloroethene	140	<DL
	1,1-Dichloroethane	240	268
	trans-1,2-Dichloroethene	80	17,500
	Chloroform	80	1260
	1,2-Dichloroethane	140	<DL
	1,1,1-Trichloroethane	190	8090
	Carbon tetrachloride	140	<DL
	Bromodichloromethane	110	<DL
	1,2-Dichloropropane	300	<DL
	trans-1,3-Dichloropropene	250	<DL
	Trichloroethene	95	<DL
	Benzene	220	<DL
	Dibromochloromethane	155	<DL
	1,1,2-Trichloroethane	250	<DL
	cis-1,3-Dichloropropene	500	<DL
	2-Chloroethylvinyl ether	500	<DL
	Bromoform	240	<DL
	1,1,2,2-Tetrachloroethane	350	14,400
	Tetrachloroethene	220	16,600
	Toluene	300	<DL
	Chlorobenzene	300	1210
	Ethyl benzene	360	5200
	1,3-Dichlorobenzene	500	<DL
	1,2-Dichlorobenzene	500	<DL
	1,4-Dichlorobenzene	500	<DL
	Total Xylenes	500	<DL

METHOD REFERENCE: EPA SW-846 (8240)
Extraction Method:EPA SW-846 (5030)
NE: Not Established
ND: None Detected
DL: Detection Limit

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

FIRST TILE DRAIN SEEP

Date: July 12, 1988

ELAP #10797

ANALYSIS FOR: Golder Associates (Pendleton)

BLT# 2201-02

Sample ID	Parameter	Detection Limit ppb	Quantity Detected ppb
S-88-2	Chloromethane	5000	<DL
	Bromomethane	5000	<DL
	Vinyl chloride	5000	<DL
	Chloroethane	5000	<DL
	Methylene chloride	1400	7,050
	Trichlorofluoromethane	5000	<DL
	1,1-Dichloroethene	1400	<DL
	1,1-Dichloroethane	2400	<DL
	trans-1,2-Dichloroethene	800	9,940
	Chloroform	800	4,030
	1,2-Dichloroethane	1400	<DL
	1,1,1-Trichloroethane	1900	27,840
	Carbon tetrachloride	1400	<DL
	Bromodichloromethane	1100	<DL
	1,2-Dichloropropane	3000	<DL
	trans-1,3-Dichloropropene	2500	<DL
	Trichloroethene	950	296,000
	Benzene	2200	29,000
	Dibromochloromethane	1550	<DL
	1,1,2-Trichloroethane	2500	<DL
	cis-1,3-Dichloropropene	5000	<DL
	2-Chloroethylvinyl ether	5000	<DL
	Bromoform	2400	<DL
	1,1,2,2-Tetrachloroethane	3500	114,000
	Tetrachloroethene	2200	131,800
	Toluene	3000	226,000
	Chlorobenzene	3000	<DL
	Ethyl benzene	3600	<DL
	1,3-Dichlorobenzene	5000	<DL
	1,2-Dichlorobenzene	5000	<DL
	1,4-Dichlorobenzene	5000	<DL
	Total Xylenes	5000	<DL

METHOD REFERENCE: EPA SW-846 (8240)
Extraction Method:EPA SW-846 (5030)
NE: Not Established
ND: None Detected
DL: Detection Limit

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: July 12, 1988

ELAP #10797

ANALYSIS FOR: Golder Associates (Pendleton)

BLT# 2201-03

Sample ID	Parameter	Detection Limit ppb	Quantity Detected ppb
S-88-3	Chloromethane	500	<DL
	Bromomethane	500	<DL
	Vinyl chloride	500	<DL
	Chloroethane	500	<DL
	Methylene chloride	140	220
	Trichlorofluoromethane	500	<DL
	1,1-Dichloroethene	140	<DL
	1,1-Dichloroethane	240	<DL
	trans-1,2-Dichloroethene	80	<DL
	Chloroform	80	<DL
	1,2-Dichloroethane	140	<DL
	1,1,1-Trichloroethane	190	<DL
	Carbon tetrachloride	140	<DL
	Bromodichloromethane	110	<DL
	1,2-Dichloropropane	300	<DL
	trans-1,3-Dichloropropene	250	<DL
	Trichloroethene	95	<DL
	Benzene	220	<DL
	Dibromochloromethane	155	<DL
	1,1,2-Trichloroethane	250	<DL
	cis-1,3-Dichloropropene	500	<DL
	2-Chloroethylvinyl ether	500	<DL
	Bromoform	240	<DL
	1,1,2,2-Tetrachloroethane	350	<DL
	Tetrachloroethene	220	<DL
	Toluene	300	930
	Chlorobenzene	300	<DL
	Ethyl benzene	360	<DL
	1,3-Dichlorobenzene	500	<DL
	1,2-Dichlorobenzene	500	<DL
	1,4-Dichlorobenzene	500	<DL
	Total Xylenes	500	<DL

METHOD REFERENCE: EPA SW-846 (8240)
Extraction Method: EPA SW-846 (5030)
NE: Not Established
ND: None Detected
DL: Detection Limit

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: July 12, 1988

ELAP #10797

ANALYSIS FOR: Golder Associates (Pendleton)

BLT# 2201-04

Sample ID	Parameter	Detection Limit ppb	Quantity Detected ppb
S-88-4	Chloromethane	100	<DL
	Bromomethane	100	<DL
	Vinyl chloride	100	300
	Chloroethane	100	<DL
	Methylene chloride	30	240
	Trichlorofluoromethane	100	<DL
	1,1-Dichloroethene	30	190
	1,1-Dichloroethane	50	900
	trans-1,2-Dichloroethene	20	3,570
	Chloroform	20	110
	1,2-Dichloroethane	30	<DL
	1,1,1-Trichloroethane	40	<DL
	Carbon tetrachloride	30	<DL
	Bromodichloromethane	20	<DL
	1,2-Dichloropropane	60	<DL
	trans-1,3-Dichloropropene	50	<DL
	Trichloroethene	20	<DL
	Benzene	50	1,020
	Dibromochloromethane	30	<DL
	1,1,2-Trichloroethane	50	<DL
	cis-1,3-Dichloropropene	100	<DL
	2-Chloroethylvinyl ether	100	<DL
	Bromoform	50	<DL
	1,1,2,2-Tetrachloroethane	70	5,330
	Tetrachloroethene	50	6,200
	Toluene	60	<DL
	Chlorobenzene	60	320
	Ethyl benzene	70	<DL
	1,3-Dichlorobenzene	100	<DL
	1,2-Dichlorobenzene	100	<DL
	1,4-Dichlorobenzene	100	<DL
	Total Xylenes	100	<DL

METHOD REFERENCE: EPA SW-846 (8240)
Extraction Method:EPA SW-846 (5030)
NE: Not Established
ND: None Detected
DL: Detection Limit

SOIL SAMPLE ANALYTICAL RESULTS

FROM TEST PITS

GOLDER ASSOCIATES (1989)

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: July 28, 1988

ANALYTICAL RESULTS
FOR

GOLDER ASSOCIATES

ENVIRONMENTAL LABORATORY ACCREDITATION PROGRAM (ELAP)
CERTIFICATION #10797

INVOICE #

FIELD INFORMATION

Name of Collector: Rob Blair

ASSIGNED BLT# I.D.	SAMPLE I.D.#	SAMPLE TYPE	Site, Time and Date of Collection	
2189-01	TP 88-2	Soil	Site: Pendleton Project 861-1219 Time: Not Available Date: June 10, 1988	
2189-02	TP 88-3	Soil	"	"
2189-03	TP 88-4	Soil	"	"
2189-04	TP 88-5	Soil	"	"
~~2189-05~~	~~Steel Tank Sludge~~	~~Sludge~~	~~"~~	"
~~2189-06~~	~~Black Oil Seep Water~~	~~Water/Oil~~	~~"~~	~~"~~
~~2189-07~~	~~Dugwell Water~~	~~Water~~	~~"~~	"
~~2189-08~~	~~Black Oil Seep Water~~	~~Water/Oil~~	~~"~~	~~"~~

Laboratory Information

Sample ID	Preservation Status Upon Acceptance	Date/Time Received
2189-(01-08)	Large Void Space in Bottles	Date: June 10, 1988 Time: Not Available

RELEASED BY: Husein Sitabkhan

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: July 24, 1988

ELAP #10797

ANALYSIS FOR: Golder Associates (Pendleton Site)

BLT# 2189-01

Sample ID	Parameter	Detection Limit ppb	Quantity Detected ppb
TP 88-2	Chloromethane	1000	<DL
	Bromomethane	1000	<DL
	Vinyl chloride	1000	<DL
	Chloroethane	1000	<DL
	Methylene chloride	280	15,520
	Trichlorofluoromethane	1000	<DL
	1,1-Dichloroethene	280	<DL
	1,1-Dichloroethane	470	<DL
	trans-1,2-Dichloroethene	160	<DL
	Chloroform	160	2310
	1,2-Dichloroethane	280	<DL
	1,1,1-Trichloroethane	380	<DL
	Carbon tetrachloride	280	<DL
	Bromodichloromethane	220	<DL
	1,2-Dichloropropane	600	<DL
	trans-1,3-Dichloropropene	500	<DL
	Trichloroethene	190	620
	Benzene	440	1540
	Dibromochloromethane	310	<DL
	1,1,2-Trichloroethane	500	<DL
	cis-1,3-Dichloropropene	1000	<DL
	2-Chloroethylvinyl ether	1000	<DL
	Bromoform	470	<DL
	1,1,2,2-Tetrachloroethane	690	580
	Tetrachloroethene	410	730
	Toluene	600	<DL
	Chlorobenzene	600	<DL
	Ethyl benzene	720	1245
	1,3-Dichlorobenzene	1000	48,430
	1,2-Dichlorobenzene	1000	<DL
	1,4-Dichlorobenzene	1000	<DL
	Total Xylenes	1000	2880

METHOD REFERENCE: EPA SW-846 (8240)
Extraction Method:EPA SW-846 (5030)
NE: Not Established
ND: None Detected
DL: Detection Limit

TECHNICAL SERVICES, INC.
4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: July 24, 1988

ELAP #10797

ANALYSIS FOR: Golder Associates (Pendleton Site)

BLT# 2189-02

Sample ID	Parameter	Detection Limit ppb	Quantity Detected ppb
TP 88-3	Chloromethane	500	<DL
	Bromomethane	500	<DL
	Vinyl chloride	500	<DL
	Chloroethane	500	<DL
	Methylene chloride	140	2840
	Trichlorofluoromethane	500	<DL
	1,1-Dichloroethene	140	<DL
	1,1-Dichloroethane	235	815
	trans-1,2-Dichloroethene	80	1620
	Chloroform	80	200
	1,2-Dichloroethane	140	<DL
	1,1,1-Trichloroethane	190	4365
	Carbon tetrachloride	140	<DL
	Bromodichloromethane	110	<DL
	1,2-Dichloropropane	300	<DL
	trans-1,3-Dichloropropene	250	<DL
	Trichloroethene	95	7120
	Benzene	220	<DL
	Dibromochloromethane	155	<DL
	1,1,2-Trichloroethane	250	<DL
	cis-1,3-Dichloropropene	500	<DL
	2-Chloroethylvinyl ether	500	<DL
	Bromoform	235	<DL
	1,1,2,2-Tetrachloroethane	345	<DL
	Tetrachloroethene	205	<DL
	Toluene	300	1680
	Chlorobenzene	300	<DL
	Ethyl benzene	360	<DL
	1,3-Dichlorobenzene	500	<DL
	1,2-Dichlorobenzene	500	<DL
	1,4-Dichlorobenzene	500	<DL
	Total Xylenes	500	910
	Chlorotoluene	500	2200

METHOD REFERENCE: EPA SW-846 (8240)
Extraction Method:EPA SW-846 (5030)
NE: Not Established
ND: None Detected
DL: Detection Limit

TECHNICAL SERVICES, INC.

4626 Royal Avenue, Niagara Falls, New York 14303 • Phone (716) 285-2587

Date: July 24, 1988

ELAP #10797

ANALYSIS FOR: Golder Associates (Pendleton Site)

BLT# 2189-03

Sample ID	Parameter	Detection Limit ppb	Quantity Detected ppb
TP 88-4	Chloromethane	500	<DL
	Bromomethane	500	<DL
	Vinyl chloride	500	<DL
	Chloroethane	500	<DL
	Methylene chloride	140	3170
	Trichlorofluoromethane	500	<DL
	1,1-Dichloroethene	140	<DL
	1,1-Dichloroethane	235	<DL
	trans-1,2-Dichloroethene	80	530
	Chloroform	80	90
	1,2-Dichloroethane	140	<DL
	1,1,1-Trichloroethane	190	<DL
	Carbon tetrachloride	140	<DL
	Bromodichloromethane	110	<DL
	1,2-Dichloropropane	300	<DL
	trans-1,3-Dichloropropene	250	<DL
	Trichloroethene	95	600
	Benzene	220	<DL
	Dibromochloromethane	155	<DL
	1,1,2-Trichloroethane	250	<DL
	cis-1,3-Dichloropropene	500	<DL
	2-Chloroethylvinyl ether	500	<DL
	Bromoform	235	<DL
	1,1,2,2-Tetrachloroethane	345	690
	Tetrachloroethene	205	855
	Toluene	300	1280
	Chlorobenzene	300	<DL
	Ethyl benzene	360	<DL
	1,3-Dichlorobenzene	500	2800
	1,2-Dichlorobenzene	500	1340
	1,4-Dichlorobenzene	500	<DL
	Total Xylenes	500	1000
	Chlorotoluene	500	1660

METHOD REFERENCE: EPA SW-846 (8240)
Extraction Method: EPA SW-846 (5030)
NE: Not Established
ND: None Detected
DL: Detection Limit

APPENDIX R

CONTAMINATION FATE AND TRANSPORT CALCULATIONS

URS CONSULTANTS, INC.

PROJECT FRONTIER CHEMICAL

SUBJECT SOLUTE TRANSPORT

PAGE ____ OF ____

SHEET NO. 1 OF ____

JOB NO. 35230.03.

MADE BY MO DATE 05/20/91

CHKD. BY HT DATE 6/

Note: Calculations herein were checked HT. Numbers in RI report which were based on were not reviewed by HT.

REF. PAGE

SOLUTE TRANSPORT

- BACKGROUND INFORMATIONS

A contamination of the shallow groundwater has been detected in the area between the old railroad bed and the Quarry Lake. The source of the contamination seems to be located in the center of the old process area, along the access road. (REF 1, SEE SHEETS 22,23). In that area, the total concentration of CHC's and total concentration of benzene, toluene, ethylbenzene and xylene exceed 240,000 ppb.

URS CONSULTANTS, INC.

PROJECT FRONTIER CHEMICAL
SUBJECT SOLUTE TRANSPORT

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SHEET NO. 2 OF ___
JOB NO. 35230.03
MADE BY MO DATE 05/20/91
CHKD. BY ___ DATE ___

REF. PAGE

• GROUNDWATER FLOW REGIME

o Shallow Water Bearing Zone (fill, weathered clay)

A radially divergent flow pattern is present on site, between the lake and the old railroad bed (REF 1, SEE SHEETS 24, 25). A recharge mound is formed at the center of the site, in the area roughly corresponding to the location of the source of the contamination. The presence of the recharge mound is probably due to the fact that this area is covered mostly by the permeable and unvegetated fill. ~~which offers little resistance to the infiltration.~~ From the mound, the groundwater is flowing in all directions in the radially divergent pattern.

To the west and north, the groundwater flow is intercepted by the Quarry Lake.

The water levels monitored on 3/6/91 indicate, that to the east the groundwater flow does not cross the old railroad bed. Instead, flows from the site and from the area east of the site seem to be intercepted by by a ditch located along the railroad bed (REF 1, SEE SHEET 25).

To the south, the flow away from the recharge mound is not inhibited by any barriers or boundries.

URS CONSULTANTS, INC.

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MADE BY MO DATE 05/20/91
CHKD. BY ..... DATE .....

PROJECT FRONTIER CHEMICAL
SUBJECT SOLUTE TRANSPORT

REF. PAGE

o Clay / Silty Clay
This layer is charachterized by very small values of the hydraulic conductivities - 10^{-7} - 10^{-8} cm/sec (REF1, SEE SHEET 27). therefore, the groundwater flow in the horizontal direction within this layer is considered to be of no significant importance.

o Intermediate Aquifer (silty sand)
The groundwater flow within this unit is generally in the southwestern direction (REF 1, SEE SHEET 29). The formation can be charachterized by moderate hydraulic gradients (0.0026) and relatively high hydraulic conductivities (1.-9.E-3 cm/s). Because of that, if contaminated, it would provide for sufficiently fast solute migration.

o Bedrock Aquifer (dolostone)
The apparent hydraulic conductivities are sufficiently high (2E-4 - 1E-3 cm/s) but the hydraulic gradients are extremely low (0.0005). A slight westward flow was observed. (REF 1, SEE SHEETS 29).

URS CONSULTANTS, INC.

PROJECT	FRONTIER CHEMICAL
SUBJECT	SOLUTE TRANSPORT

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CHKD. BY ... DATE ...

REF. PAGE

o Vertical gradients

As determined by the water level measurments, strong downward gradients exist between the shallow and intermediate aquifers south of the Quarry Lake. Both upward and downward gradients can be observed between the intermediate and bedrock aquifers. For these calcs., a downward flow was assumed as a conservative case (Ref 1, SEE SHEET 29)

DETERMINATION OF POSSIBLE CONTAMINANT MIGRATION PATHWAYS

The following contaminant migration pathways will be investigated:

- Horizontal within the upper water bearing zone
- Vertical from the upper water bearing zone to the intermediate aquifer
- Horizontal within the intermediate aquifer
- Vertical from the intermediate to the bedrock aquifer
- Horizontal within the bedrock aquifer

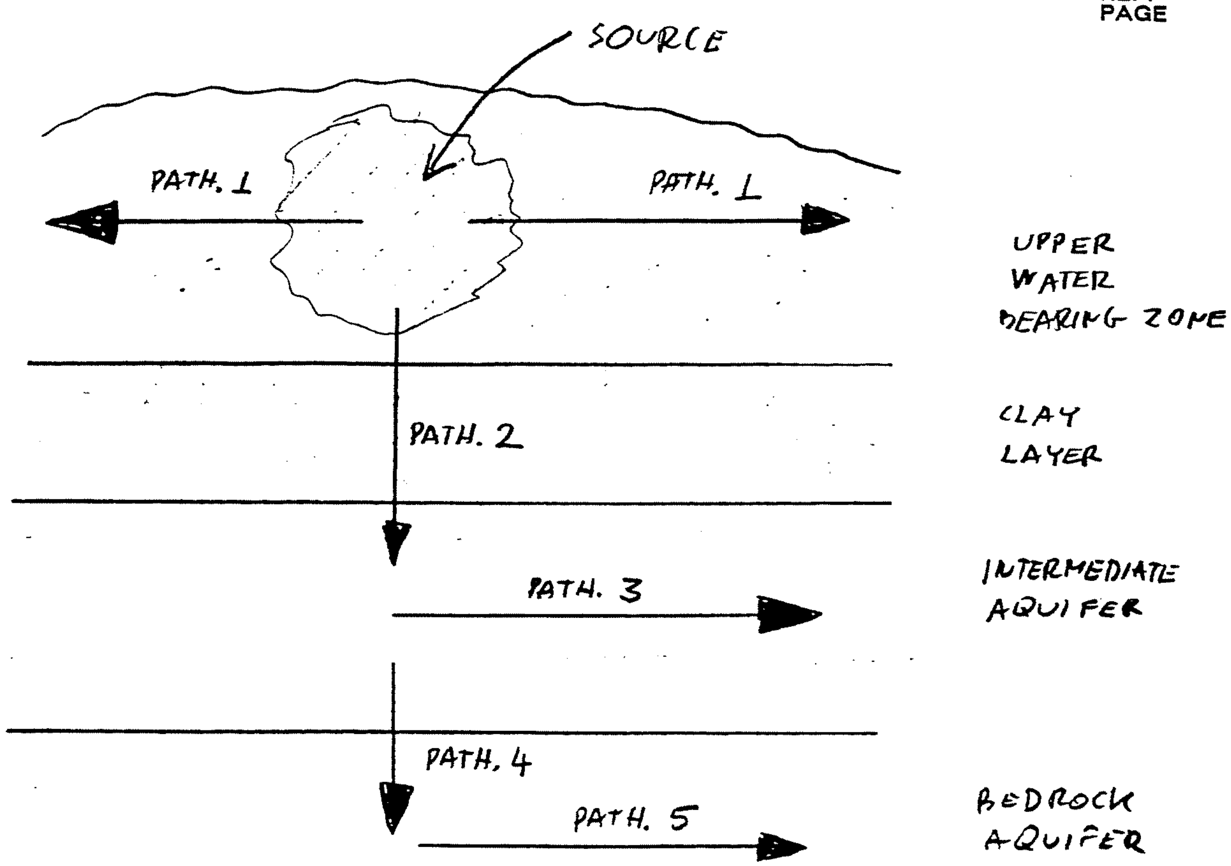
A schematic of that approach is shown on sheet 5 .

URS CONSULTANTS, INC.

PROJECT FRONTIER CHEMICAL
SUBJECT SOLUTE TRANSPORT

PAGE ... OF ...
SHEET NO. 5 OF ...
JOB NO. 35230.03
MADE BY MO DATE 05/20/91
CHKD. BY ... DATE ...

REF. PAGE



REF. PAGE

° Upper Water Bearing Zone (Patway 1)
The radially divergent flow pattern within the shallow water bearing zone indicates the possibility of widespread contamination. However, the flows to the west and north are intercepted by the Quarry Lake. Also, the water levels recorded in well URS-14 (east of the site) were higher than water levels at the eastern site's boundry. This seems to indicate, that the ditch along the old railroad bed intercepts the eastward flow from the site.
Therefore, the assumption was made that the groundwater flow within the shallow water bearing zone can continue uninhibited only in the southward direction. The potential receptor was placed south of the site, about 600 ft from the center of contamination. The concentration of the contaminant in the groundwater at that receptor was investigated as a function of time.

URS CONSULTANTS, INC.

PROJECT FRONTIER CHEMICAL
SUBJECT SOLUTE TRANSPORT

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SHEET NO. 7 OF ___
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MADE BY MO DATE 05/20/91
CHKD. BY ___ DATE ___

REF. PAGE

The flow pattern in the shallow water bearing zone between the Quarry Lake and the old railroad bed can be approximated by a divergent radial flow. The recharge mound causing this flow pattern is located approximately in the center of the site, along the access road (REF 1, SEE SHEETS 24, 25) The contaminant propagation will be calculated assuming the case of dispersion in a radial flow where the effect of the recharge mound will be approximated by a recharge well. This approach utilizes the following assumptions:

- the tracer distribution is normal
- tracer distribution is produced by two effects: longitudinal dispersion and divergence of streamlines
- confined flow
- fully penetrating recharge well
- no preexisting chemicals in background
- no adsorption or decay
- constant conc. of contaminant in the recharge

This approach should be considered conservative, since no recharge effects are included to dilute at receptor. Also, if receptor is a well, more dilution will occur from pumping a 360° cone. Moreover, the decay and adsorption processes neglected in this approach would produce further decrease in the contaminant concentration.

REF. PAGE

The solution for a tracer concentration at the distance "r" from the well and at time "t" is:

$$c(r,t) = \frac{C_0}{2}\,\mathrm{erfc}\left\{\frac{r-\bar{r}}{\left[\frac{4}{3}a_L\bar{r}\right]^{1/2}}\right\} \quad , \quad r_w \le \bar{r}$$

$$\bar{r} = \sqrt{\frac{\int_0^t Q(t)\,dt}{\pi B n}}$$

where:

$Q(t)$ - recharge flow
C_0 - conc. of contaminant in the recharge flow
B - average saturated thickness used to approximate thickness of confined layer
n - aquifer porosity
r - radial distance from the well
t - time
a_L - hydrodynamic dispersivity

(REF 2, SHEETS 36, 37)

REF. PAGE

~~n - aquifer porosity~~
~~r - distance from the well~~
~~t - time~~
~~a_L - hydrodynamic dispersivity~~
~~(REF 2, SHEETS 36, 37)~~

The following parameters were determined:

- $B = 10$ FT (REF 1, SEE SHEET 32)
- $n = 0.5$ (REF 2, SEE SHEET 35)
- $Q = 50\ Ft^3/DAY$
  The value of "Q" was determined based on the water balance calculations for the Quarry Lake. The flow reaching the lake from the recharge mound was calculated as being 2.3 FT^3/DAY (REF 1, SEE SHEET 33). The flow from the recharge mound in the other direction was assumed to be the same. The total flow from the recharge mound of $2 \times 2.3 = 4.6\ FT^3/DAY$ was brought up 1 order of magnitude to about $Q = 50\ FT^3/DAY$ (for conserv. estimate; as this is the parameter to which the transport formula is most sensitive)
- a_L was calibrated using the existing analytical data of contaminant conc. in various wells. (SEE SHEET 38)
- $t = 10$ yrs
  The time of the deposition of the hazardous substance was assumed to

REF. PAGE

be late 70's - early 80's

- $r = 600$ FT

A potential receptor was assumed to be located 600 FT from the discharge

The calibrated value of a_L is

$$a_L = 20 \text{ FT}$$ (SEE SHEET 11)

Based on the preceeding values of parameters, the concentration of the contaminant at the receptor was calculated as a function of time. (SEE SHEETS 12, 13). Also, a case of the recharge flow 3 times greater than estimated was considered. (SEE SHEET 14)

For the calculated values of parameters, the concentration of $10^{-5} C_o$ will show up at the receptor after approximately 80 - 90 yrs. For the "worst case" scenarios (Q increased three times), the concentration of $10^{-5} C_o$ will show up at the receptor after 20 - 30 yrs.

C(R,t) – CONCENTRATION AT TIME t AND DISTANCE R FROM RECHARGE
n – AQUIFER POROSITY
R – DISTANCE FROM RECHARGE
Q – RECHARGE RATE
t – TIME

Q*t = 3.14*B*n*Rbar^2
Rbar = SQRT{(Q*t)/(B*n*3.14)}

DEFINITION OF TERMS

al – HYDRODYNAMIC DISPERSIVITY
ARG – ARGUMENT OF THE ERFC FUNCTION
B – AVERAGE AQUIFER THICKNESS
ERFC – VALUE OF THE ERFC FUNCTION
Co – CONCENTRATION IN THE RECHARGE
Ccalc – CALCULATED CONCENTRATION AS A FRACTION OF Co
Cobs – OBSERVED CONCENTRATION AS A FRACTION OF Co
C(R,t) – CONCENTRATION AT TIME t AND DISTANCE R FROM RECHARGE
n – AQUIFER POROSITY
R – DISTANCE FROM RECHARGE
Q – RECHARGE RATE
t – TIME

Q*t = 3.14*B*n*Rbar^2
Rbar = SQRT{(Q*t)/(B*n*3.14)}
C(R,t) = Co*0.5*ERFC[(R–Rbar)/SQRT(1.3333*al*Rbar)]

NOTE :

* MOLECULAR DIFFUSION IS NEGLECTED
* RADIAL FLOW IS ASSUMED
* TRACER DISTRIBUTION IS NORMAL AND IS A LINEAR SUM OF TWO EFFECTS – LONGITUDINAL DISPERSION AND DIVERGENCE OF STREAMLINES
* DECAY POCESSES ARE NEGLECTED
* ADSORPTION IS NEGLECTED
* CONFINED FLOW IS ASSUMED
* FULLY PENETRATING RECHARGE WELL IS ASSUMED
* BACKGROUND CONCENTRATIONS OF CONTAMINANTS ARE ASSUMED AS ZERO
* NO INFILTRATION OTHER THAN FROM THE RECHARGE WELL IS ASSUMED

REF :

"HYDRAULICS OF GROUNDWATER" J.BEAR, McGraw–Hill Inc., 1979
PAGES 275–276

FRONTIER CHEMICAL

CALIBRATION

al =	20.0	FT
t =	10.0	YRS
Q =	50.0	FT^3/DAY
B =	10.0	FT
n =	0.5	-
Rbar =	107.8	FT

WELL	R [FT]	Cobs [–]	ARG [–]	ERFC [–]	Ccalc [–]
85–3S	0	1.00E+00	–2.01	2.00E+00	1.00E+00
88–8A	100	1.05E–01	–0.15	1.17E+00	5.85E–01
88–11A	180	1.97E–02	1.35	5.00E–02	2.50E–02
88–4A	250	7.69E–05	2.65	2.00E–04	1.00E–04

	BTX		CHC	
Ccalc [–]	Cobs [–]	(Cobs–Ccalc)^2	Cobs [–]	(Cobs–Ccalc)^2
1.00E+00	1.00E+00	0.00E+00	1.00E+00	0.00E+00
5.85E–01	1.05E–01	2.30E–01	4.52E–01	1.77E–02
2.50E–02	1.97E–02	2.81E–05	1.83E–01	2.50E–02
1.00E–04	7.69E–05	5.34E–10	9.03E–05	9.41E–11

FRONTIER CHEMICAL

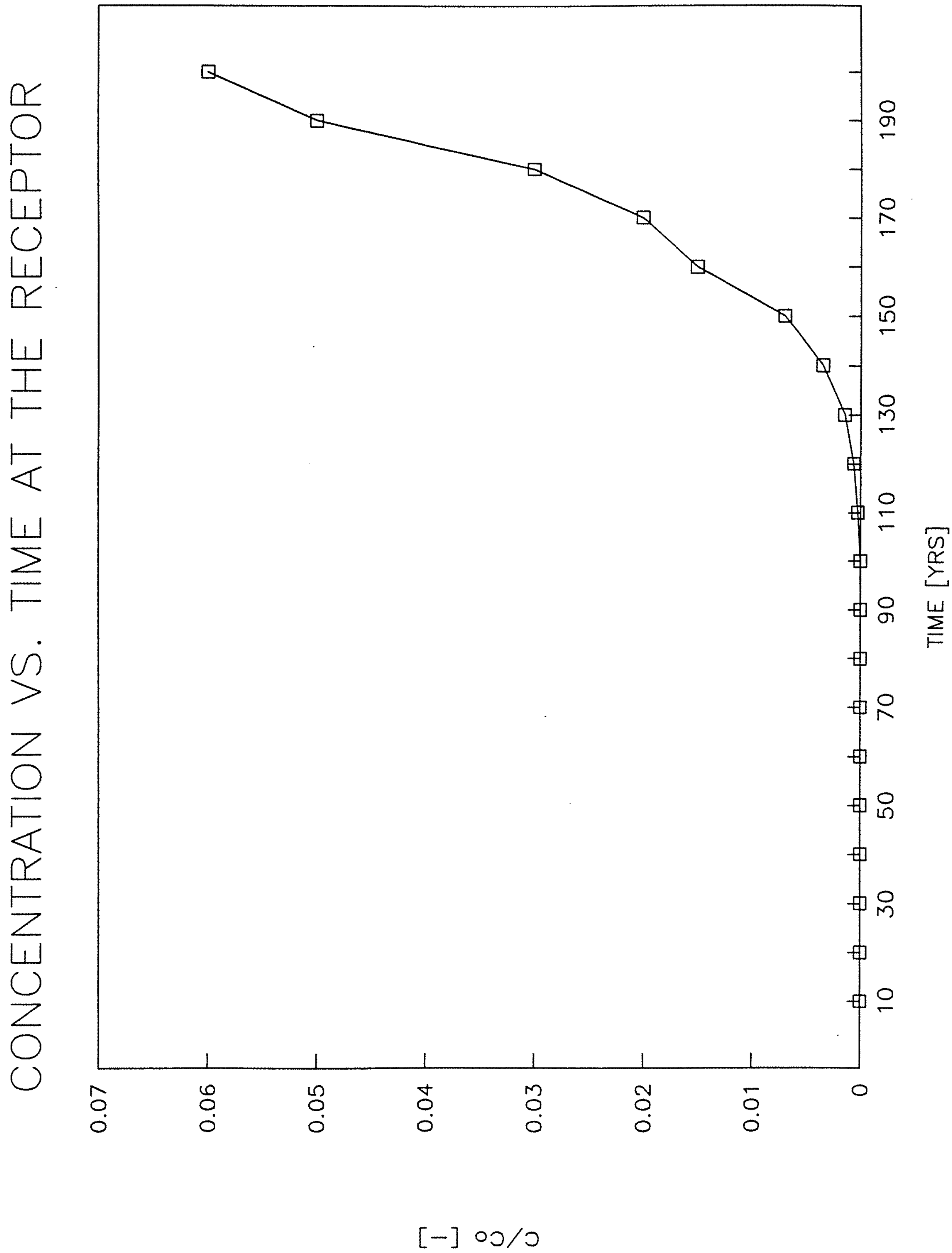
CALCULATION OF TIME HISTORY OF THE CONTAMINANT CONCENTRATION IN THE GROUNDWATER AT THE RECEPTOR

al =	20.0	FT
R =	600.0	~~YRS~~ FT
Q =	50.0	FT^3/DAY
B =	10.0	FT
n =	0.5	-

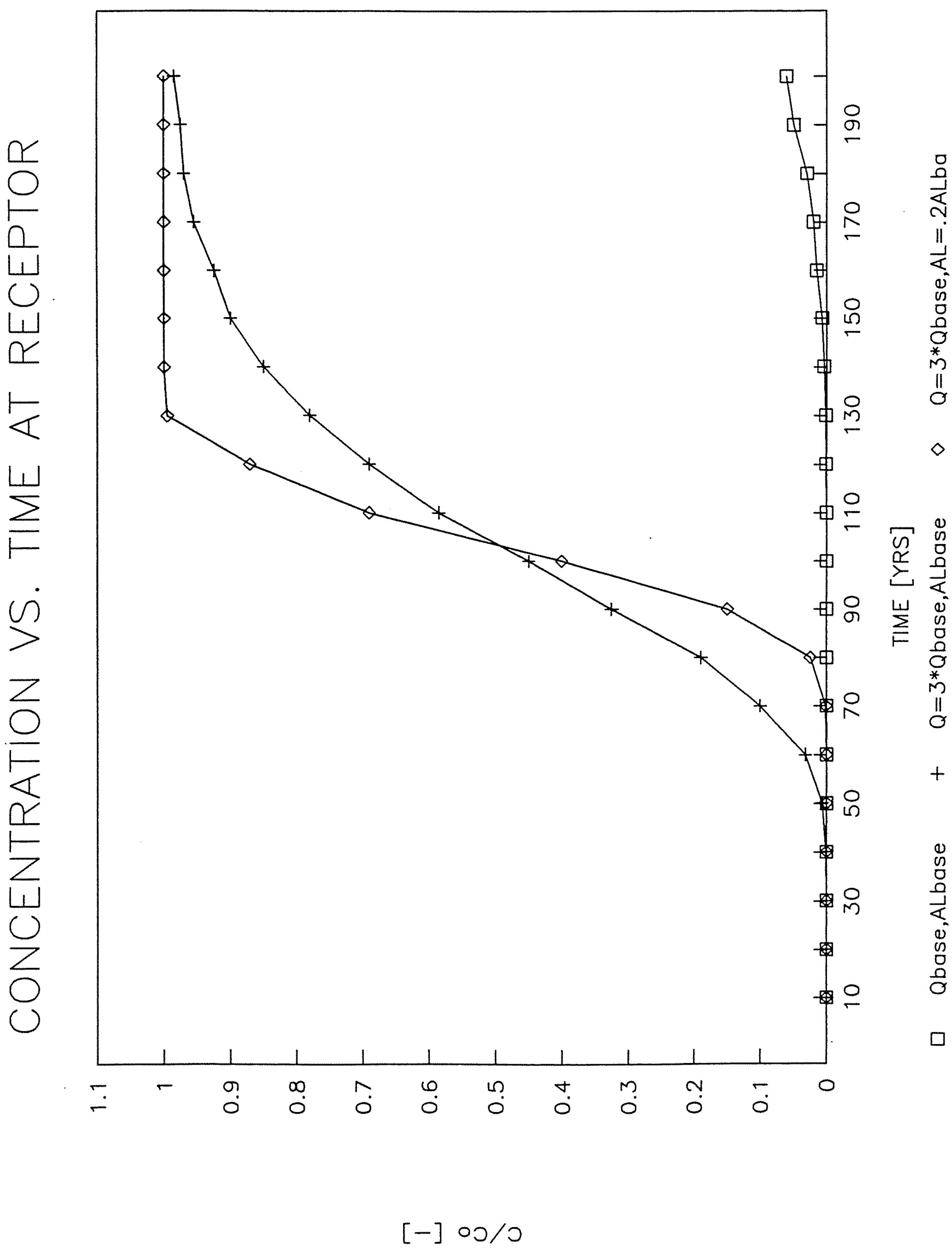
t [YRS]	Rbar [FT]	ARG [-]	ERFC [-]	C(R,t)/Co [-]
10	107.8	9.18	0.00E+00	~0.00E+00
20	152.5	7.02	0.00E+00	~0.00E+00
30	186.7	5.86	0.00E+00	~0.00E+00
40	215.6	5.07	0.00E+00	~0.00E+00
50	241.1	4.48	0.00E+00	~0.00E+00
60	264.1	4.00	0.00E+00	~0.00E+00
70	285.3	3.61	0.00E+00	~0.00E+00
80	304.9	3.27	0.00E+00	~0.00E+00
90	323.4	2.98	3.00E-05	1.50E-05
100	340.9	2.72	1.00E-04	5.00E-05
110	357.6	2.48	5.00E-04	2.50E-04
120	373.5	2.27	1.30E-03	6.50E-04
130	388.7	2.07	3.00E-03	1.50E-03
140	403.4	1.90	7.00E-03	3.50E-03
150	417.6	1.73	1.40E-02	7.00E-03
160	431.3	1.57	3.00E-02	1.50E-02
170	444.5	1.43	4.00E-02	2.00E-02
180	457.4	1.29	6.00E-02	3.00E-02
190	470.0	1.16	1.00E-01	5.00E-02
200	482.2	1.04	1.20E-01	6.00E-02

FRONTIER CHEMICAL

SHEET 13



FRONTIER CHEMICAL SHEET 14



REF. PAGE

o Horizontal migration from the shallow water bearing zone to intermediate aquifer (Pathway 2)

Downward gradients were observed in the area between the Quarry Lake and the old railroad bed. (REF 1, SEE SHEET 29).
The flow downward through the clay layer separating those two aquifers was calculated as follows:

$$V = K_{VCLAY} \cdot \frac{H_{UPPER} - H_{INT}}{B_{CLAY}} \cdot \frac{1}{n_{CLAY}}$$

$$t_{travel} = B_{CLAY} / V$$

where:

V - velocity of seapage

K_{VCLAY} - vertical conductivity of clay layer

H_{UPPER} - hydraulic head in the upper aquifer

H_{INT} - hydraulic head in the intermediate aquifer

B_{CLAY} - thickness of the clay layer

n_{CLAY} - porosity of the clay layer

The following parameters were determined

- $K_{VCLAY} = 1.E-7$ cm/s (REF 1, SEE SHEET 27)
- $B_{CLAY} = 15$ FT (REF 1, SEE SHEET 32)
- $n_{CLAY} = 0.5$ (REF 2, SEE SHEET 35)
- $\frac{H_{UPPER} - H_{INT}}{B_{CLAY}} \cong 0.2$ (REF 1, SEE SHEET 30)

REF. PAGE

$$V = 1E\text{-}7 \cdot 2833 \frac{FT}{DAY} \cdot 0.2 \cdot \frac{1}{0.5}$$

$$V = 1.1\,E\text{-}4 \ FT/DAY$$

$$t_{travel} = \frac{15 \ FT}{1.1E\text{-}4 \ FT/DAY}$$

$$t_{travel} = 1.32E{+}5 \ DAYS \cong 362 \ yrs$$

Because of the large travel time, the downward migration can be neglected when considering the period from the constaminant release (late 1970's) to the present. For that period, the migration through pathways 3, 4, 5 can also be neglected.

SUMMARY

1) The groundwater flow patterns were evaluated based on the monitored water levels. the following was found:
   - Radially divergent flow within the shallow water bearing zone on site.
   - Downward vertical flow from the shallow water bearing zone to the intermediate aquifer
   - Southwestward flow within the intermediate aquifer
   - Slight downward gradients from the intermediate to the bedrock aquifer
   - Very small westward flow within the bedrock aquifer

2) The center of contamination was located in the old process area along the access road

3) Five potential contaminant migration pathways were determined:
   - Horizontal within the shallow water bearing zone (Path. 1)
   - Vertical from the shallow water bearing zone to intermediate aquifer (Path. 2)
   - Horizontal within the intermediate aquifer (Path, 3)
   - Vertical from the intermediate to the bedrock aquifer (Path. 4)
   - Horizontal within the bedrock aquifer (Path. 5)

REF. PAGE

4) Through the calculation process it was determined that the migration via pathways 2,3,4,5 is very unlikely to occur. The results for pathway 1 (Horizontal within the shallow water bearing zone) indicate that a receptor 600 ft south of the contaminant source will start receiving detectable concentrations of contaminant ($10^{-5} C_{SOURCE}$) after about 80-90 yrs.
This was based on assumptions of radially divergent flow from the recharge mound, no infiltration, no degradation and no adsorption.
Also, the approach does not take into account a prefferential flow - flow through permeable lenses and large fractures or channels in the soil matrix.
This calculation is an order of magnitude estimate used to evaluate a magnitude of threat to potential receptors.

URS CONSULTANTS, INC.

PAGE .... OF ....
SHEET NO. 19 OF ....
JOB NO. 35230.03
MADE BY MO DATE 05/20/9
CHKD. BY .... DATE ....

PROJECT FRONTIER CHEMICAL
SUBJECT SOLUTE TRANSPORT

REF. PAGE

VOID

REF. PAGE

REFERENCES

1) Remedial Investigation at the Frontier Chemical - Pendelton Site, URS Consultants, Inc., March 1991

2) Hydraulics of Groundwater, Jacob Bear, 1979

SHEET 21

REMEDIAL INVESTIGATION

AT THE

FRONTIER CHEMICAL – PENDLETON SITE

PENDLETON (T), NIAGARA (C), NEW YORK

NYSDEC SITE NO. 9-32-043
WORK ASSIGNMENT NO. D002340-4

Prepared for:

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
50 Wolf Road, Albany, New York

Thomas C. Jorling, Commissioner

DIVISION OF HAZARDOUS WASTE REMEDIATION

Michael J. O'Toole, Jr., P.E. – Director

URS Consultants, Inc.

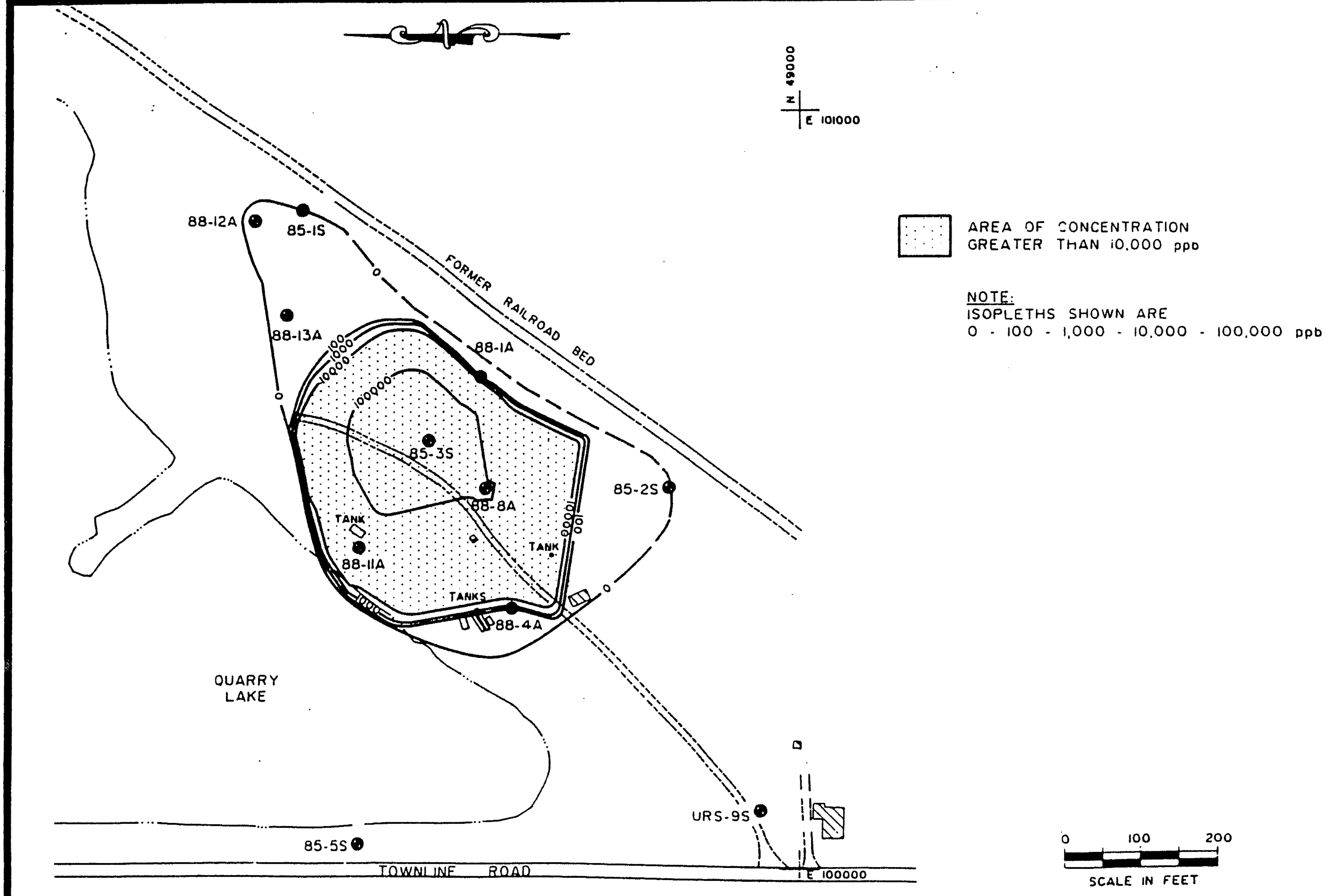
570 Delaware Avenue
Buffalo, New York 14202

DRAFT REPORT & APPENDIX A

MARCH 1991

AC-3607

1=100 01/18/91



SHEET 22

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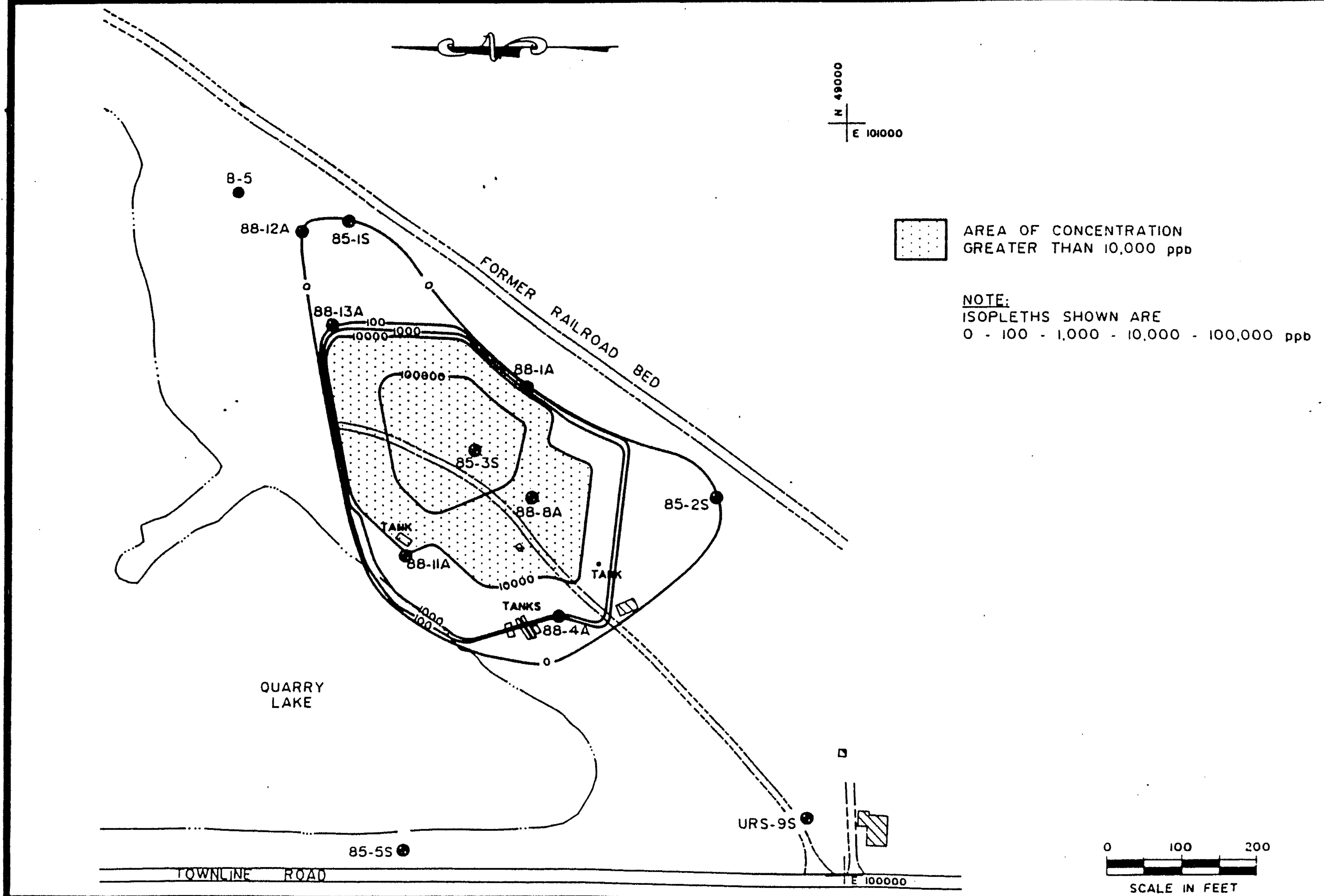
TOTAL CHLORINATED HYDROCARBONS CONCENTRATION IN SHALLOW GROUNDWATER

FIGURE 4-7

AC-3606

1=100 01/18/91

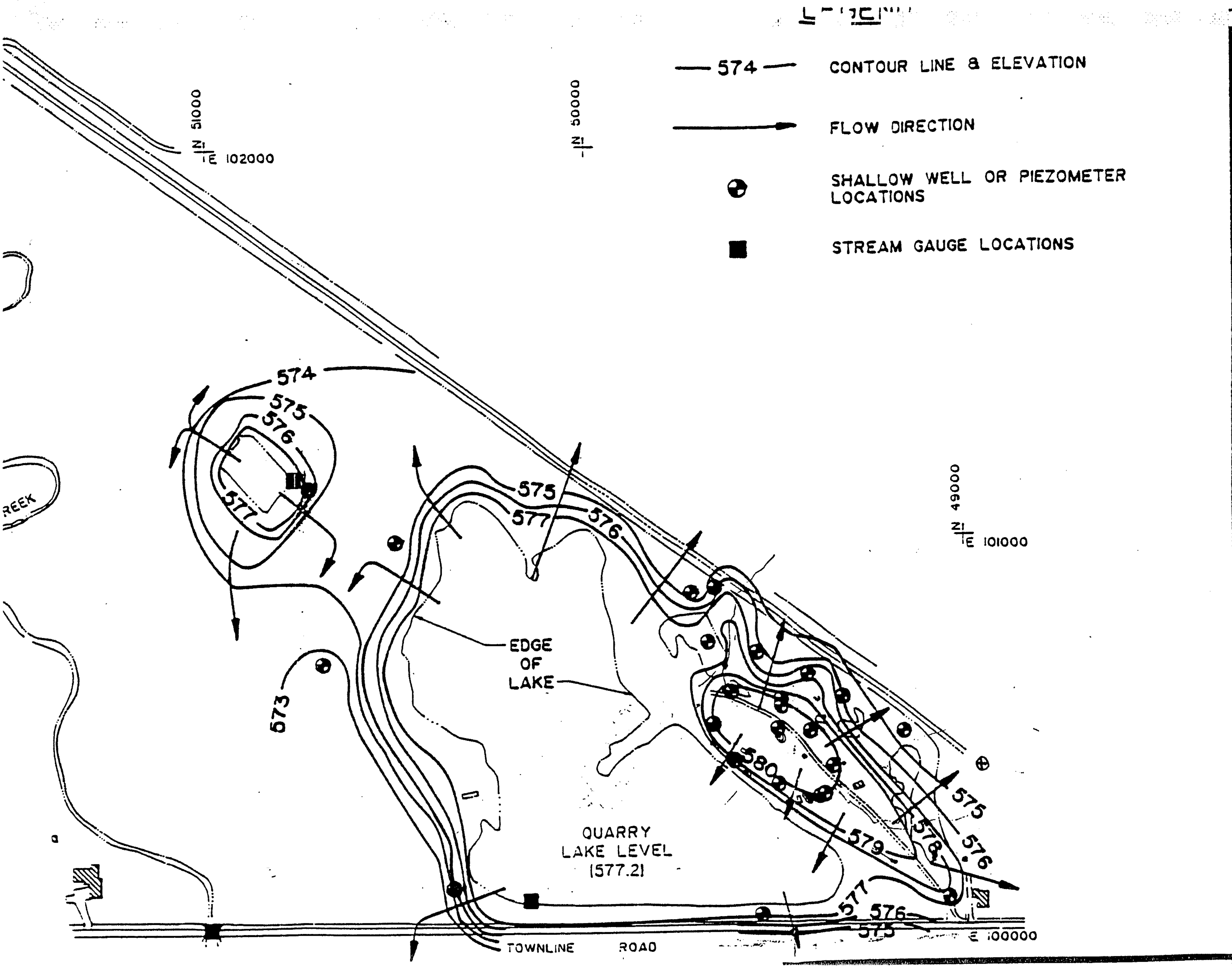


URS CONSULTANTS, INC.

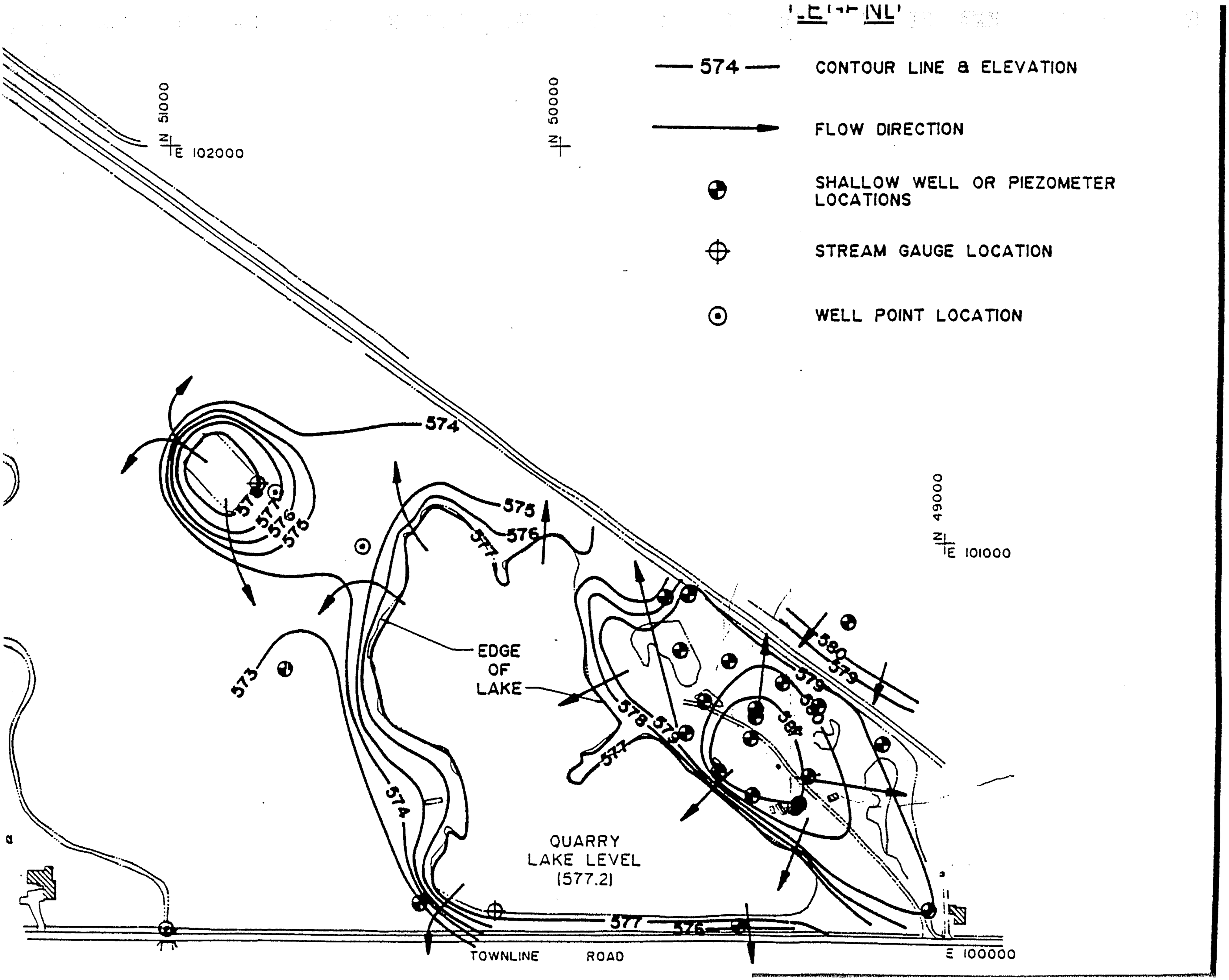
TOTAL BENZENE, TOLUENE, ETHYLBENZENE AND XYLENE CONCENTRATION IN SHALLOW GROUNDWATER

FIGURE 4-8

SHEET 23


LEGEND
574 CONTOUR LINE & ELEVATION
FLOW DIRECTION
SHALLOW WELL OR PIEZOMETER LOCATIONS
STREAM GAUGE LOCATIONS
N 51000 E 102000
N 50000
N 49000 E 101000
E 100000
574
575
576
577
573
578
579
580
EDGE OF LAKE
QUARRY LAKE LEVEL (577.2)
TOWNLINE ROAD
REEK

SHEET 24


LEGEND
574 CONTOUR LINE & ELEVATION
FLOW DIRECTION
SHALLOW WELL OR PIEZOMETER LOCATIONS
STREAM GAUGE LOCATION
WELL POINT LOCATION
N 51000 E 102000
N 50000
N 49000 E 101000
E 100000
574
575
576
577
578
579
580
573
EDGE OF LAKE
QUARRY LAKE LEVEL (577.2)
TOWNLINE ROAD

means of a stainless-steel slug, and electronically monitoring the water level over time as it returned to static level. Field data was used to calculate hydraulic conductivity by using methods developed by Bauer and Rice (1976) and cross checked by Hvorslev (1951). The results of this analysis are presented in Table 3-3. Hydraulic conductivity calculations are given in Appendix M.

Vertical hydraulic conductivity of the clay confining unit were determined in laboratory tests performed on undisturbed Shelby tube samples. The test samples were extruded from the tube and tested in a triaxial chamber using differential heads. The values derived as summarized on Table 3-2. The geotechnical testing report is given in Appendix K.

The ranges of hydraulic conductivities measured were generally similar within the individual units defined. The hydraulic conductivity of the clay confining unit is 1-3 orders of magnitude less than that of the upper water bearing zone and 3-4 orders of magnitude less than that of the lower aquifer. There appears to be a great variation in hydraulic conductivity values within the fill unit.

Specific properties of each unit are described below:

(1) <u>Fill</u> - Slug tests from four wells screened in fill reveal hydraulic conductivity values that range from 9.2×10^{-3} to 1.8×10^{-4}. Golder Associates (1988) slug tested eleven wells screened in fill. Their results indicate a range of hydraulic conductivity values from 3.5×10^{-4} to 7.3×10^{-7} cm/sec. These values likely vary with changes in the nature of the fill material (i.e. loose C&D type debris and brick mixtures will have a significantly higher hydraulic conductivity when compared to sludge/clay mixtures). The Golder results must be compared with caution, as their results tend to yield hydraulic conductivity values an order of

magnitude or more lower than the values derived in this study, when comparing data from the same wells.

(2) Weathered Clay - Four of five wells tested that were screened in the weathered clay yielded hydraulic conductivity values between 9.0 x 10^{-5} and 7.2 x 10^{-6} cm/sec. The single anomalous value was 2.0 x 10^{-3} cm/sec. Flow through this unit is likely controlled by secondary porosity (i.e. flow through fractures). The primary conductivity of the weathered clay is likely on the order of 10^{-7} or 10^{-8} cm/sec, similar to the underlying unfractured clay.

(3) Confining Clay - Golder (1988) reports hydraulic conductivity values from slug tests from two wells screened in this unit as on the order of magnitude of 1 x 10^{-7} cm/sec. One of these wells, sampled during this investigation (88-11B), did not recover fully from purging to dryness until after a one month time period. Laboratory permeability tests from samples taken within this unit yield values on the order of 1 x 10^{-8} cm/sec. These samples reveal a small increase in k with depth in all cases. This correlates with the observed coarsening with depth of this unit observed in borings.

(4) Silty Sand - Slug tests from wells screened in this interval for the most part reveal hydraulic conductivity values of 8.7 x 10^{-3} to 9.8 x 10^{-4} cm/sec. An anomalous value of 9.2 x 10^{-6} was observed at one location. A single laboratory permeability run on a test sample taken in a tight compact till layer within this unit revealed a value of 7.2 x 10^{-7} cm/sec. Compact layers of till were only encountered in two of five deep borings.

(5) Dense Silt - Although no hydraulic conductivity testing of this unit was completed, values on the order of 10^{-6} or 10^{-7} are likely based upon the slow rate of recovery observed in the single well screened in this interval.

(6) Dolostone - The primary porosity of unfractured limestones and dolomites can be extremely low (as little as 1%; Fetter, 1980). Secondary porosity in these rocks, in the form of fractures, increases porosity and may increase hydraulic conductivity many orders of magnitude (Davis, 1969). Hydraulic conductivity values for the bedrock unit obtained from slug test data ranged from 1.1×10^{-3} to 1.6×10^{-4} cm/sec. The measured hydraulic conductivity is likely attributable to secondary porosity (fractures).

3.7.4 Groundwater Flow Patterns

Groundwater elevations presented in Table 3-4 were used to evaluate horizontal and vertical gradients. Groundwater contours and interpreted flow direction for the water table aquifer on October 16, 1990 (Fall conditions) are presented in Figure 3-14 and for the same aquifer on March 6, 1991 (spring conditions) in Figure 3-15. The shallow flow at the site is quite complex. During all dates monitored between June 1990 and March 1991, radial flow occurred away from a groundwater mound in the process area (reflecting the topographic mound and recharge tendency of this area), away from Quarry Lake, and away from, the rectangular shallow pond NE of the lake. The steep gradients (as much as .0555 ft/ft) at the perimeter of these features shown on Figure 3-14 are likely caused by the relatively low horizontal hydraulic conductivities of the weathered clay unit of the upper water bearing zone. Although the gradients are steep, actual horizontal flow is of low volume (See Water Balance; Section 3.8). Shallow flow is also apparently away from the elongated ridge that underlies Beach Ridge Road based on the information from the single shallow well installed at the base of the ridge (URS-14S). The water levels in shallow wells exhibited a drop of up to 2 feet between June and September 1990 and recovered from 2 to 3 feet between September 1990 and March 1991.

Table 3-5 summarizes vertical hydraulic gradients, as determined from water level readings at monitoring well pairs. These data indicate a strong downward (discharge) gradient between the upper water bearing zone and the lower aquifer at all locations to the south and west of Quarry Lake and a strong upward (recharge) gradient to the north of the lake. The data also generally indicates a slight downward gradient within the lower aquifer, between wells screened within the silty sand unit (intermediate wells) and those screened within bedrock (deep wells).

Horizontal groundwater flow in the silty sand unit of the lower aquifer is generally southwestward, away from a consistently high anomaly at URS-8I. The magnitude of the gradient is approximately .0026 ft/ft. The groundwater levels in wells screened in this unit were lowered from 1.5 to 2.5 feet from June to October 1990 and raised by approximately 1.5 feet from October 1990 to March 1991. Irregular fluctuations of level were observed at URS-9I and 85-5R. These fluctuations are currently unexplainable, although interaction with the lower aquifer and Quarry Lake through the lake bottom may provide a hypothesis as the water level database expands.

Horizontal groundwater flow gradients in the bedrock aquifer are extremely low (approximately .0005 ft/ft), although the data indicate a slight flow to the west. Groundwater levels in wells screened in bedrock typically dropped approximately 1 foot from June to October 1990 and rose by approximately 1 foot from October 1990 to March 1991.

3.8 Quarry Lake Water Balance

A water balance for Quarry Lake was performed to determine the relative contributions of all hydrologic components contributing to the lake (including rainfall, runoff, evaporation, and groundwater flow) and to verify estimates of aquifer parameters (thicknesses, hydraulic conductivities, etc.).

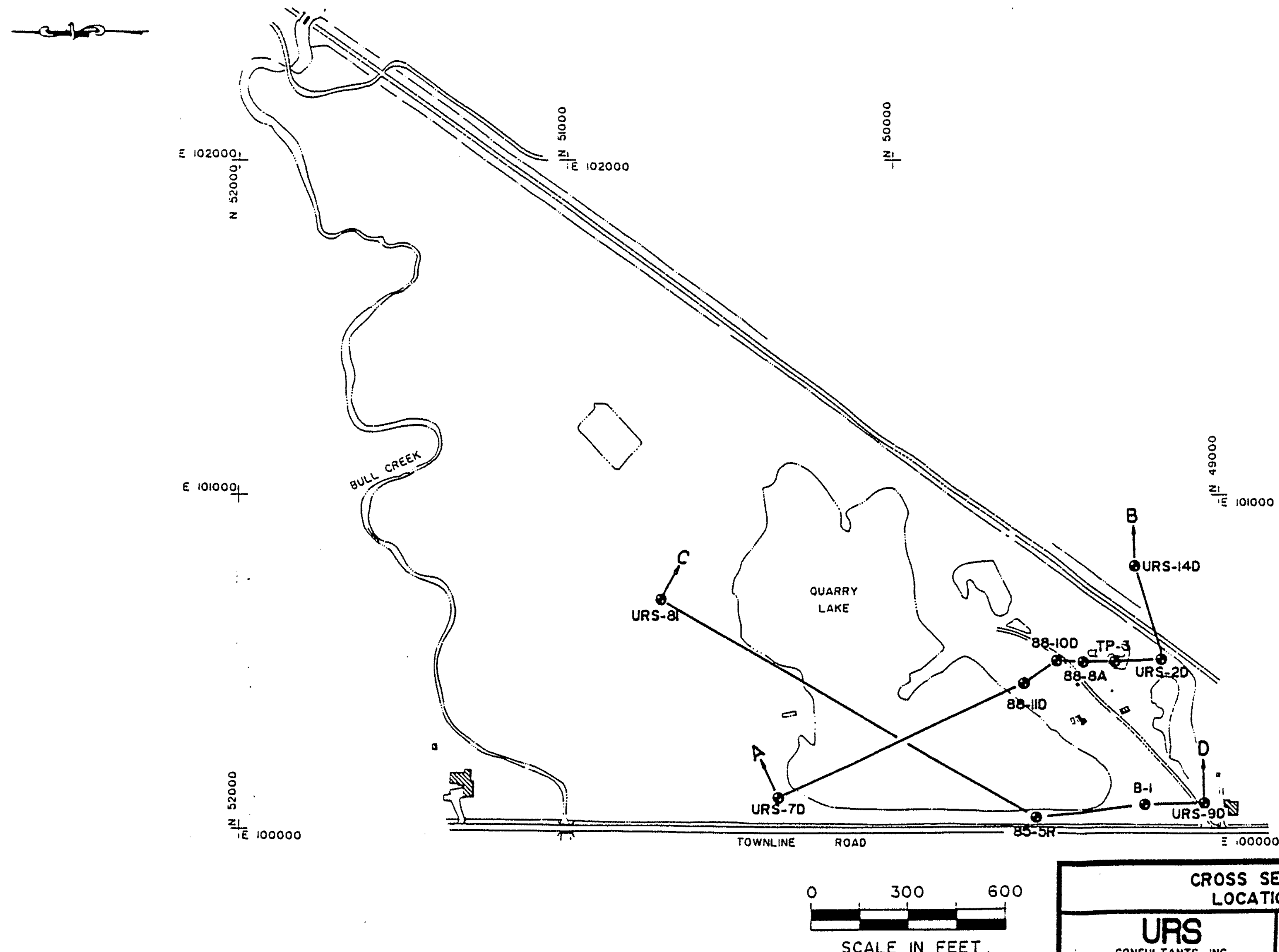
SHEET 30

Table 3 - 5

FRONTIER CHEMICAL - VERTICAL HYDRAULIC GRADIENTS

WELL CLUSTER	WELL	SCREENED IN AQUIFER	ELEV. OF SCREEN BOTTOM	ELEV. OF SCREEN TOP	DATE	ELEV. OF WATER TABLE	ELEV. OF SATURATED SCREEN CENTER	WATER TABLE ELEV. DIFFERENCE	SCREEN CENTER ELEV. DIFFERENCE	HYDRAULIC GRADIENT
			[FT]	[FT]		[FT]	[FT]	[FT]	[FT]	[FT/FT]
URS-8	URS-8S	SHALLOW	568.50	573.50	09/20/90	572.94	570.72	-3.64	21.34	-0.171
	URS-8I	INTER.	546.88	551.88		576.58	549.38			
7	85-7S	SHALLOW	566.56	568.56	09/20/90	571.47	567.56	-2.05	16.26	-0.126
	85-7R	INTER.	550.30	552.30		573.52	551.30	0.02	10.30	0.002
	URS-7D	DEEP	538.50	543.50		573.50	541.00			
5	85-5S	SHALLOW	566.20	568.20	08/21/90	576.34	567.20	2.53	22.73	0.111
	85-5R	INTER.	543.47	545.47		573.81	544.47	-0.07	11.77	-0.006
	URS-5D	DEEP	530.20	535.20		573.88	532.70			
2	85-2S	SHALLOW	569.39	571.39	07/06/90	577.18	570.39	2.63	22.99	0.114
	85-2R	INTER.	546.40	548.40		574.55	547.40	0.03	10.66	0.003
	URS-2D	DEEP	534.24	539.24		574.52	536.74			
12	88-12A	SHALLOW	569.27	574.27	08/02/90	576.17	571.77	2.84	18.48	0.154
	88-12C	INTER.	552.29	554.29		573.33	553.29	-0.50	22.19	-0.023
	88-12D	DEEP	528.60	533.60		573.83	531.10			
11	88-11A	SHALLOW	572.15	577.15	06/15/90	580.43	574.65	5.14	29.15	0.176
	88-11C	INTER.	543.00	548.00		575.29	545.50	0.34	14.90	0.023
	88-11D	DEEP	528.10	533.10		574.95	530.60			AVG ≅ .
10	88-10A	SHALLOW	571.50	576.50	09/20/90	579.71	574.00	6.60	27.90	0.237
	88-10C	INTER.	543.60	548.60		573.11	546.10	-0.52	18.50	-0.028
	88-10D	DEEP	525.10	530.10		573.63	527.60			
URS-9	URS-9S	SHALLOW	567.17	572.17	09/20/90	577.54	569.67	2.18	31.87	0.068
	URS-9I	INTER.	535.30	540.30		575.36	537.80	2.01	9.80	0.205
	URS-9D	DEEP	525.50	530.50		573.35	528.00			

NOTE : - UPWARD FLOW
+ DOWNWARD FLOW



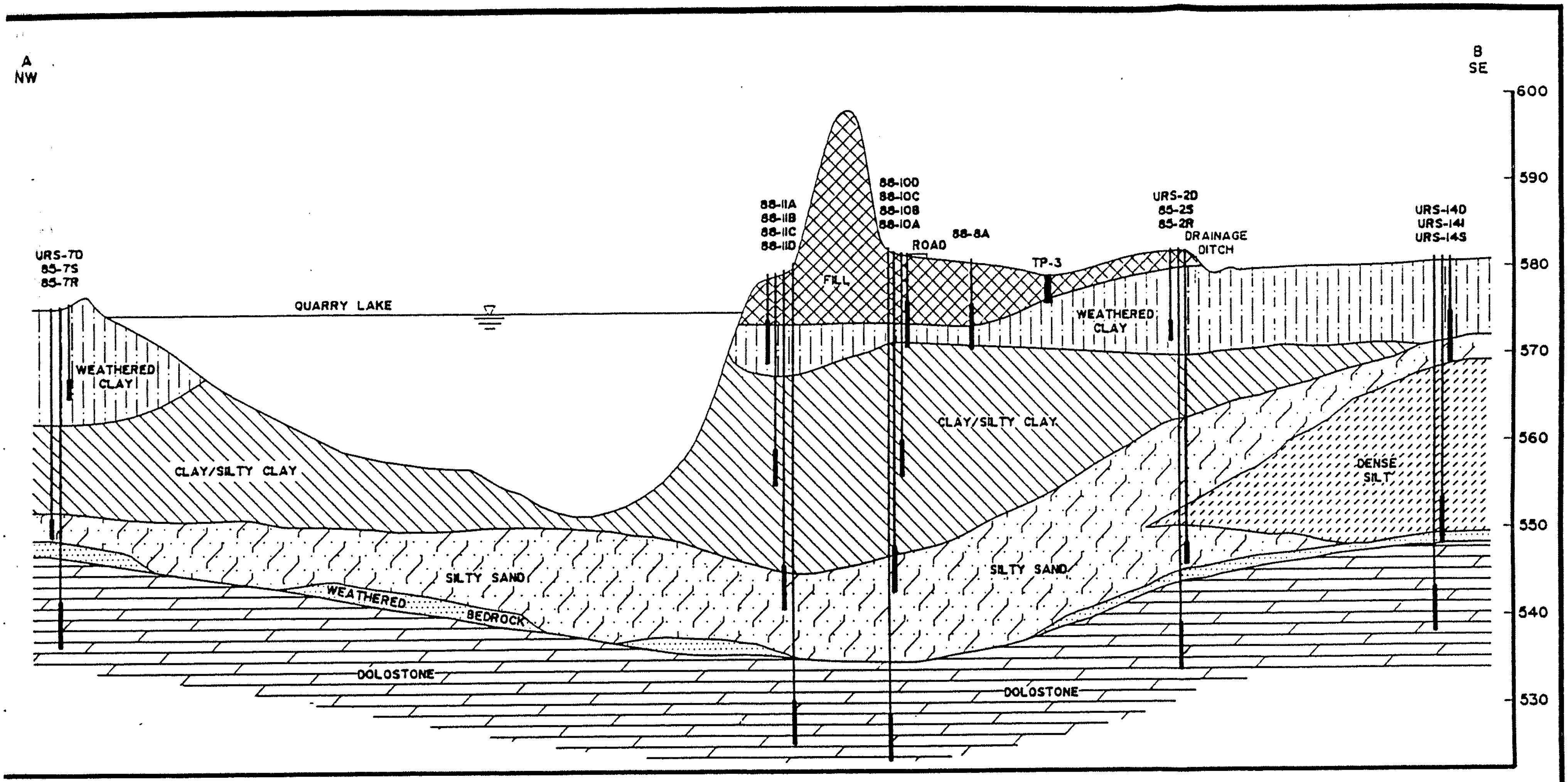
CROSS SECTION LOCATIONS

URS CONSULTANTS, INC.

FIGURE 3-7

SHEET 31

SHEET 32



SECTION A-B

LEGEND

URS-8S —— BORING AND MONITORING WELL NUMBER

—— SCREENED INTERVAL OF MONITORING WELL

—— BOTTOM OF BORING

0 100 200
SCALE IN FEET

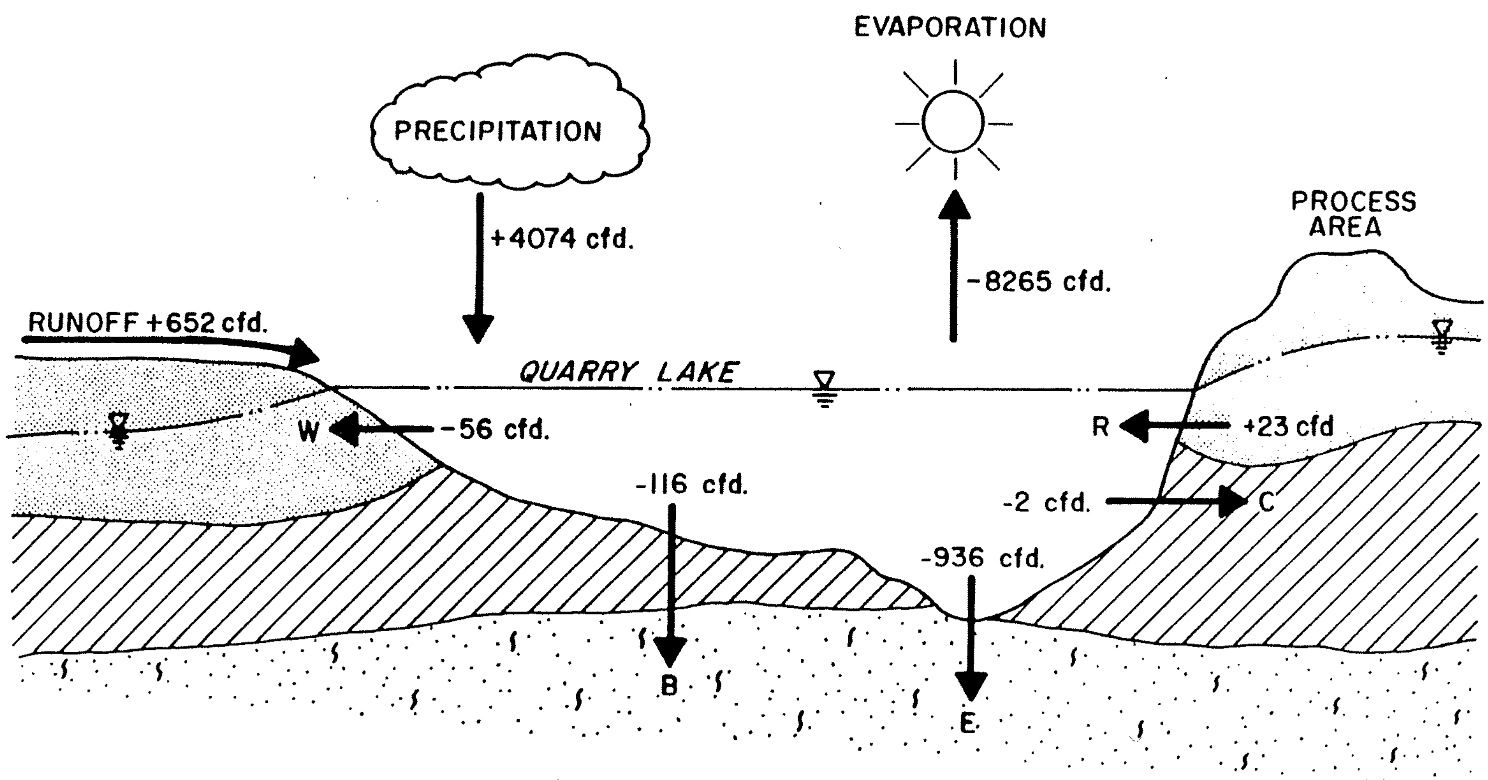
...OGIC CONDITIONS SHOWN ARE REPRESENTATIVE OF ...TIONS ENCOUNTERED AT EACH BORING LOCATION TO ...DEPTH DRILLED. EXTRAPOLATIONS BETWEEN BORINGS ... BEEN INTERPRETED USING STANDARD ACCEPTED ...OGIC PRACTICES AND PRINCIPLES. ACTUAL CONDITIONS ...VARY BETWEEN BORINGS FROM THOSE SHOWN.

GEOLOGIC CROSS SECTION
A - B

URS
CONSULTANTS, INC.

FIGURE 3-8

A-3582



CALCULATED BALANCE OF FLOW = -4626 cfd.
OBSERVED LAKE BALANCE (7/11/90 - 8/9/90) = -5355 cfd.
ALL VALUES GIVEN IN ft^3/DAY (cfd.)

HYDROGEOLOGIC UNITS

- UPPER WATER BEARING ZONE
- CLAY CONFINING UNIT
- LOWER AQUIFER
- WATER TABLE SURFACE

KEY

R – RECHARGE FROM PROCESS AREA MOUND
W – FLOW THROUGH WEATHERED CLAY
C – FLOW THROUGH CLAY LAYER
B – FLOW THROUGH CLAY LINED BOTTOM
E – FLOW THROUGH EXCAVATED AREA OF LAKE BOTTOM

NOT TO SCALE

URS CONSULTANTS, INC.

QUARRY LAKE WATER BALANCE 7/11/90 - 8/9/90

FIGURE 3-16

SHEET 33

SHEET 34

McGRAW-HILL BOOK COMPANY

New York
St. Louis
San Francisco
Auckland
Bogotá
Hamburg
London
Madrid
Mexico
Montreal
New Delhi
Panama
Paris
São Paulo
Singapore
Sydney
Tokyo
Toronto

JACOB BEAR

Department of Civil Engineering
Technion—Israel Institute of Technology
Haifa
Israel

Hydraulics of Groundwater

from the volume of pore space between the two positions of the phreatic surface. The storativity of a phreatic aquifer is, therefore, sometimes referred to as *specific yield*, S_y; it gives the yield of an aquifer per unit area and unit drop of the water table (see further discussion in Sec. 6-1).

Recalling that actually the water table is an approximate concept, we understand that water is actually being drained from the entire column of soil up to the ground surface. Bear (1972, p. 485) shows that when the soil is homogeneous and the fluctuating water table is sufficiently deep, the above definition for specific yield still holds (see Sec. 6-1).

One should be careful not to identify the specific yield with the porosity of a phreatic aquifer. As water is being drained from the interstices of the soil, the drainage is never a complete one. A certain amount of water is retained in the soil against gravity by capillary forces. After drainage has stopped, the volume of water retained in an aquifer per unit (horizontal) area and unit drop of the water table is called *specific retention*, S_r. Thus

$$S_y + S_r = n \tag{5-12}$$

For this reason S_y ($<n$) is sometimes called *effective porosity*. Here, again, one should note that we have been referring to the approximate concept of a water table. However, for a homogeneous soil and a sufficiently deep water table, the above definition for S_r holds (see Sec. 6-1).

Figure 5-4 shows the relationships between S_y, S_r, and particle size.

When drainage occurs, it takes time for the water to flow, partly under unsaturated flow conditions, out of the soil volume between two positions of a water table, at t and at $t + \Delta t$. This is especially true if the lowering of the water table is rapid. Under such conditions, the specific yield becomes time dependent, gradually approaching its ultimate value (Fig. 5-5). When the water level is rising or falling slowly, the changes in moisture distribution have time to adjust continuously and the time lag vanishes. This phenomenon of time dependency of the

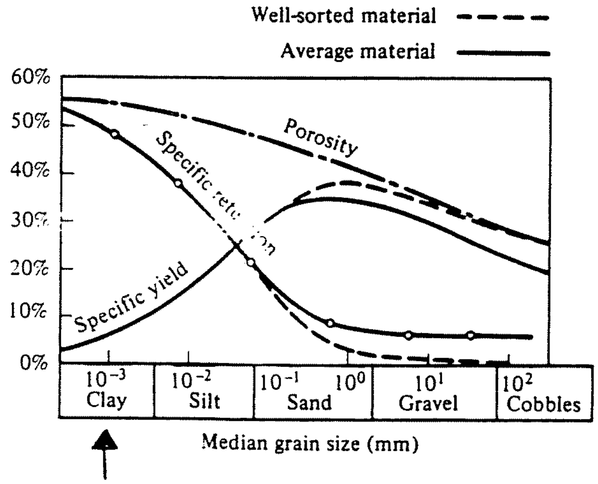


Figure 5-4 Relationship between specific yield and grain size (*from Conkling et. al., 1934, as modified by Davis and DeWiest, 1966*).

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Case 10. Dispersion in radial flow; molecular diffusion is neglected Consider the case of a fully penetrating well in a confined aquifer, recharging water at a constant rate Q_w. The concentrations of the indigenous water in the aquifer and of the recharge water are 0 and C_0, respectively. Let the governing equation for dispersion in this case be (7-65)

$$\frac{\partial C}{\partial t} = a_L V \frac{\partial^2 C}{\partial r^2} - V \frac{\partial C}{\partial r}; \qquad Q_w = 2\pi r B n V \tag{7-159}$$

Because $V = V(r) = (Q_w/2\pi Bn)/r$, (7-159) is nonlinear and an analytic solution is most difficult.

Ogata (1958; see Bear, 1972, p. 636) gives an analytic solution for the case

$$t \le 0, \quad r > r_w, \quad C = 0; \qquad t > 0, \quad r = r_w, \quad C = C_0$$
$$r \to \infty, \quad C = 0 \tag{7-160}$$

His solution is

$$\frac{C}{C_0} = 1 + \frac{2}{\pi} \exp\left\{\frac{r - r_w}{2a_L}\right\} \int_0^\infty \frac{\exp(-\nu^2 t)}{\nu} \left(\frac{\nu^2 r - G/4a_L}{\nu^2 r_w - G/4a_L}\right) M(\nu)\, d\nu \tag{7-161}$$

where

$$M(\nu) = \frac{J_{1/3}(\sigma)\, Y_{1/3}(\sigma') - Y_{1/3}(\sigma)\, J_{1/3}(\sigma')}{J_{1/3}^2(\sigma') + Y_{1/3}^2(\sigma')}; \qquad G = Q_w/2\pi Bn = Vr$$

$$\sigma = \frac{2}{3\sqrt{a_L G}} \frac{(\nu^2 r - G/4a_L)^{3/2}}{\nu^2}; \qquad \sigma' = \frac{2}{3\sqrt{a_L G}} \frac{(\nu^2 r_w - G/4a_L)^{3/2}}{\nu^2}$$

and $J_{1/3}$, $Y_{1/3}$ are Bessel functions of order 1/3, of the first and second kinds, respectively.

Bondarev and Nikolaevskii (1962) give for $Q_w = Q_w(t)$ the solution

$$\frac{C}{C_0} = 1 - \frac{1 - \exp(r/a_L) + (r/a_L)\exp\sqrt{6\tau}}{1 - \exp\sqrt{6\tau} + \sqrt{6\tau}\exp\sqrt{6\tau}}; \qquad \tau = \frac{1}{a_L^2}\int_0^t \frac{Q_w(t)}{2\pi Bnr}\, dt \tag{7-162}$$

valid except during the first period of injection.

Because of the difficulties involved in trying to derive an exact analytical solution, attempts have been made to obtain an approximate one. For example, de Josselin de Jong (in Lau *et al.*, 1959) suggests an approximate solution for dispersion in radially diverging flow from a well. His solution is based on two assumptions: that the tracer distribution is sufficiently near a normal one, and that it is produced as a linear sum of two effects—one due to longitudinal dispersion and the other due to the divergence of streamlines. The corresponding solution is

$$\frac{C(r,t)}{C_0} = \frac{1}{2}\operatorname{erfc}\left\{\frac{r - \bar{r}}{[\frac{4}{3}a_L \bar{r}]^{1/2}}\right\}, \qquad \sigma_r^2 = \frac{2}{3}a_L\left(\bar{r} - \frac{r_w^3}{\bar{r}^2}\right) \tag{7-163}$$

where the total volume recharged during time t through a well of radius r_w is

$$U_r = \int_0^t Q_w(t)\,dt = \pi \bar{r}^2 Bn; \qquad r_w \ll \bar{r}$$

Accordingly, $C/C_0 = 0.5$ when $r = \bar{r}$.

Mercado and Bear (1965) extend de Josselin de Jong's approach also to the pumping stage, which follows a certain period of recharge. For the variance of the distribution after a volume U_p has been pumped from the aquifer, they obtain

$$\sigma_r^2 = \frac{2}{3} a_L \left(\frac{U_r}{\pi Bn} \right) \left[\frac{2}{1 - \alpha_0} - (1 - \alpha_0)^{1/2} \right]; \qquad \alpha_0 = \frac{U_p}{U_r} \tag{7-164}$$

and for the entire distribution

$$\frac{C}{C_0} = \frac{1}{2} \operatorname{erfc} \left[\frac{r - \bar{r}}{[(4/3)\, a_L R \{ 2(R/\bar{r})^2 - (r/R) \}]^{1/2}} \right]; \qquad \bar{r}^2 \doteq \frac{U_r - U_p}{\pi Bn}$$

$$R^2 = \frac{U_r}{\pi Bn} \tag{7-165}$$

where U_r is the volume of injected water.

Equation (7-165) can also be written as $C = C(U_p)$, so that it can be used for determining a_L by using data from laboratory or field experiments (e.g., Mercado and Bear, 1965).

Numerical solutions for the radial case are presented, among others, by Ogata (1958), Shamir and Harleman (1966), Hoopes and Harleman (1967), and Prakash (1976).

7-10 MOVEMENT OF WATER BODIES INJECTED INTO AQUIFERS

So far in this chapter, we have been dealing with a single inhomogeneous fluid, water, where the inhomogeneity is due to variations in the concentration of dissolved matter. Sometimes, this concentration affects the density and the viscosity of the water. Our objective was to predict the areal and temporal variations of concentration of any dissolved species as it is carried with the water and spreads in the aquifer. This objective is achieved by solving the appropriate equations of hydrodynamic dispersion for $c(x, y, z, t)$, given initial and boundary conditions, as well as inputs and outputs of both water and the considered species. We have seen that when water characterized by the concentration of some dissolved species is introduced into an aquifer with indigenous water at a different concentration, through part of its boundary (e.g., sea water intrusion; Chap. 9), or through wells (artificial recharge; Sec. 3-4), a transition zone is created (e.g., Fig. 7-1) across which the concentration varies. The width of the transition zone increases with the length of flow of the advancing front.

100 000
100000
1000
100

← Some

Same ←

0

0 100 1000 10000 100000 NO

SAMPLE LOCATION	TOTAL ORGANICS	BTEX	CHLORINATED HYDROCARBONS	PAHs
85-2S ✓	1	0	1	0
85-3S ✓	559,077	260,000	243,610	0
88-1A ✓	5	0	5	0
~~88-2A~~* DO NOT USE →	~~155~~	~~0~~	~~15~~	0
88-4A ✓	444	20	22	1
88-8A ✓	173,463	27,300	110,005	[illegible]
88-11A** ✓	49,610	5,120	44,490	[illegible]
88-12A** ✓	2	0	2	[illegible]
88-13A	112	0.7	109	[illegible]
85-1S ✓	0	0	0	[illegible]

NO O OUTLINE

* ~~[illegible]~~ SVOA were not analyzed
** Only VOA were analyzed