



**U.S. Army
Environmental
Center**

**FORT DEVENS
SITE INVESTIGATION
FOR GROUPS 2, 7 &
HISTORIC GAS STATIONS**

**REVISED FINAL SITE INVESTIGATION REPORT
DATA ITEM A009**

**VOLUME III OF IV
APPENDICES A THROUGH D**

CONTRACT DAAA15-91-D-0008

**U.S. ARMY ENVIRONMENTAL CENTER
ABERDEEN PROVING GROUND, MARYLAND**

OCTOBER 1995

DTIC QUALITY INSPECTED 3

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**FORT DEVENS
REVISED FINAL SITE INVESTIGATION REPORT
GROUPS 2, 7 & HISTORIC GAS STATIONS**

Volume III of IV
Appendices A Through D

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U.S. Army Environmental Center
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AQUIFER TEST DATA/CALCULATIONS

APPENDIX A: HYDRAULIC CONDUCTIVITY TEST RESULTS

ABB-ES has performed a series of falling and rising head slug tests on monitoring wells installed during the Groups 2 and 7 SI and SSI. Two tests were performed at each well with water depressions ranging from one to three feet. This appendix discusses the analytical procedure and presents estimated values of hydraulic conductivity. The test methodology is presented in Subsections 3.1.8, Aquifer Characterization. Field data from all tests were analyzed to estimate hydraulic conductivity using a derivation of the method of Hvorslev (1951)¹ and the method of Bouwer and Rice (1976)².

The form of the Hvorslev equation that was used relates the hydraulic conductivity, K , of an unconfined aquifer to the well geometry and the rate of head recovery by:

$$-K = \left[\frac{\text{Log}(H_1) - \text{Log}(H_2)}{t_1 - t_2} \right] \frac{r^2 \text{Log}(L / R)}{2L}$$

Parameters in this equation included: r (radius of the well casing), R (radius of the borehole), L (length of the aquifer tested), as well as time (t) and water level (H) data. Test data were also analyzed using AQTESOLV^{TM3}, an aquifer test analysis program by Geraghty Miller, Inc. AQTESOLVTM utilizes the Bouwer and Rice method for estimating hydraulic conductivities in unconfined aquifers.

¹Hvorslev, M.J., 1951. "Time Lag and Soil Permeability in Groundwater Observations;" U.S. Army Corps of Engineers, Waterways Experiment Station, Bulletin 36; Vicksburg, Mississippi.

²Bouwer, H. and R.C. Rice, 1976. A Slug Test Method for Determining Hydraulic Conductivity of Unconfined Aquifers with Completely or Partially Penetrating Wells, Water Resources Research, Vol. 12, No. 3, pp 423-428.

³AQTESOLV, 1991 "ATESOLV, Aquifer Test Solver Version 1.00;" Geraghty and Miller Modeling Group; Reston, VA.

ABB Environmental Services, Inc.

Estimates of hydraulic conductivity for the wells tested range between 1.1×10^{-3} cm/sec and 2.1×10^{-6} cm/sec for the Hvorslev method while Bouwer and Rice method yields values from 1.2×10^{-3} cm/sec to 6.4×10^{-6} cm/sec. Typically the Bouwer and Rice method provided hydraulic conductivity values which were approximately twice the values obtained with the Hvorslev equation.

The results of hydraulic conductivity testing are provided in Table A-1. The data for each test are also provided. The first sheet is a semi-log plot of water level vs. time with the values selected for analysis being circled. The second sheet presents the well geometry and raw data with values selected for analysis underlined. The third sheet is the Field Data Sheet. Following the recovery plots, well geometry, raw data, and Field Data Sheets are the Hvorslev equations and the AQTESOLV™ plots.

Hydraulic conductivity values are expressed in centimeters per second (cm/sec) while the raw data and recovery plots are referenced to feet and minutes. Static water levels in each well were referenced to zero with head stress being expressed as a positive change.

TABLE A-1
FIELD HYDRAULIC CONDUCTIVITY TEST RESULTS
GROUPS 2 AND 7
FORT DEVENS, MA

WELL	TEST NO.	TYPE OF WELL	HYDRAULIC CONDUCTIVITY	
			HVORSLEV (cm/sec)	BOUWER AND RICE (cm/sec)
58M-92-01X	1	BEDROCK	6.9E-06	2.2E-05
	2		8.4E-06	2.6E-05
58M-92-02X	1	BEDROCK	7.6E-05	2.4E-04
	2		7.8E-05	2.5E-04
58M-92-03X	1	BEDROCK	3.4E-06	9.5E-06
	2		8.6E-06	2.4E-05
58M-92-04X	1	BEDROCK	9.3E-06	2.6E-05
	2		9.0E-06	2.5E-05
13M-92-01X	1	OVERBURDEN	3.2E-05	5.6E-05
	2		8.7E-06	1.4E-05
41M-92-01X	1	OVERBURDEN	9.7E-06	3.0E-05
	2		1.0E-05	3.1E-05
49M-92-01X	1	OVERBURDEN	2.1E-06	6.4E-06
	2		2.7E-06	8.3E-06
3602W-1	1	OVERBURDEN	1.1E-03	3.3E-03
	2		1.1E-03	3.3E-03
28M-92-01X	1	OVERBURDEN	5.5E-04	1.8E-03
	2		5.7E-04	1.8E-03
28M-92-02X	1	OVERBURDEN	1.2E-04	3.7E-04
	2		1.2E-04	3.7E-04
28M-92-03X	1	OVERBURDEN	3.7E-04	1.2E-03
	2		3.8E-04	1.2E-03
28M-92-04X	1	OVERBURDEN	6.9E-04	2.2E-03
	2		7.2E-04	2.3E-03
12M-92-01X	1	BEDROCK	6.0E-04	2.4E-03
	2		6.1E-04	2.4E-03
27M-92-01X	1	OVERBURDEN	5.7E-04	1.7E-03
	2		5.0E-04	1.5E-03
27M-92-02X	1	OVERBURDEN	1.0E-04	3.0E-04
	2		1.0E-04	2.9E-04
27M-92-03X	1	OVERBURDEN	2.5E-03	7.5E-03
	2		2.1E-03	6.2E-03
27M-92-04X	1	OVERBURDEN	1.6E-03	5.0E-03
	2		1.5E-03	4.7E-03

CALCULATION OF HYDRAULIC CONDUCTIVITIES USING THE HVORSLEV EQUATION
 GROUPS 2 AND 7 WELLS
 SUPPLEMENTAL SI

$$K = \frac{-(\log Ht1 - \log Ht2)/(t1 - t2)}{[(r \wedge 2 \log (L/R))/2L]}$$

WHERE:

- t1 = TIME 1 (MINUTES)
- t2 = TIME 2 (MINUTES)
- Ht1 = HEAD STRESS AT TIME 1 (FEET)
- Ht2 = HEAD STRESS AT TIME 2 (FEET)
- r = RADIUS OF WELL CASING (FEET)
- R = RADIUS OF BOREHOLE (FEET)
- L = EFFECTIVE SATURATED LENGTH OF SCREEN (FEET)

WELL	t1	t2	Ht1	Ht2	r	R	L	TEST #	K (FT/MIN)	K (CM/SEC)
41M-93-02B	20	40	0.287	0.18	0.167	0.417	5.8	1	2.8E-05	1.4E-05
41M-93-03X	10	30	0.455	0.24	0.167	0.417	7.6	1	3.2E-05	1.6E-05
41M-93-04X	0.04	0.0566	0.616	0.218	0.083	0.333	3.4	1	2.8E-02	1.4E-02
41M-93-04X	0.0333	0.05	0.6	0.205	0.083	0.333	3.4	2	2.9E-02	1.5E-02
41M-93-05X	0.04	0.1133	0.344	0.126	0.083	0.333	2.1	1	7.8E-03	4.0E-03
41M-93-05X	0.05	0.1	0.417	0.218	0.083	0.333	2.1	2	7.4E-03	3.8E-03
XDM-93-01X	1.4	7	0.575	0.139	0.167	0.417	8.68	1	2.3E-04	1.2E-04
XDM-93-01X	1.4	7	0.471	0.117	0.167	0.417	8.68	2	2.3E-04	1.2E-04
XDM-93-02X	0.5	2	0.556	0.205	0.167	0.417	7.75	1	6.6E-04	3.4E-04
XDM-93-02X	0.5	2	0.578	0.196	0.167	0.417	7.75	2	7.2E-04	3.6E-04
XDM-93-03X	0.2	1	0.642	0.224	0.167	0.417	8.23	1	1.3E-03	6.4E-04
XDM-93-03X	0.2	1	0.657	0.221	0.167	0.417	8.23	2	1.3E-03	6.6E-04
XDM-93-04X	1	4	0.262	0.05	0.167	0.417	6.8	1	6.0E-04	3.0E-04
XDM-93-04X	1	4	0.278	0.06	0.167	0.417	6.8	2	5.5E-04	2.8E-04
XGM-93-01X	5	50	0.92	0.253	0.167	0.25	6.99	1	3.6E-05	1.8E-05
XGM-93-02X	20	80	0.499	0.306	0.167	0.25	6.96	1	1.0E-05	5.2E-06
XIM-93-01X	0.07	0.1166	0.917	0.392	0.167	0.25	7.76	1	2.1E-02	1.1E-02
XIM-93-01X	0.05	0.1	1.394	0.534	0.167	0.25	7.76	2	2.2E-02	1.1E-02
XIM-93-02X	0.2	0.3	0.648	0.316	0.167	0.25	11.5	1	6.3E-03	3.2E-03
XIM-93-02X	0.2	0.3	0.645	0.347	0.167	0.25	11.5	2	5.4E-03	2.7E-03
XIM-93-04X	0.0533	0.0766	0.98	0.341	0.167	0.25	6.99	1	5.7E-02	2.9E-02
XIM-93-04X	0.06	0.08	0.895	0.354	0.167	0.25	6.99	2	5.8E-02	3.0E-02
XIM-93-05X	1	2	0.844	0.537	0.167	0.25	5.25	1	6.9E-04	3.5E-04
XIM-93-05X	1	2	0.822	0.499	0.167	0.25	5.25	2	7.6E-04	3.9E-04
XIM-93-06X	240	600	0.341	0.18	0.167	0.25	15	1	1.3E-06	6.5E-07
XJM-93-01X	20	100	0.926	0.37	0.167	0.25	9.54	1	1.2E-05	5.8E-06

CALCULATION OF HYDRAULIC CONDUCTIVITIES USING THE HVORSLEV EQUATION
 GROUPS 2 AND 7 WELLS
 SUPPLEMENTAL SI

$$K = -\frac{[(\text{LOG } Ht1 - \text{LOG } Ht2)]}{(t1 - t2)} \left\{ \frac{r}{L} \right\}^2 \text{LOG} \left(\frac{L/R}{2L} \right)$$

WHERE:

t1 = TIME 1 (MINUTES)

t2 = TIME 2 (MINUTES)

Ht1 = HEAD STRESS AT TIME 1 (FEET)

Ht2 = HEAD STRESS AT TIME 2 (FEET)

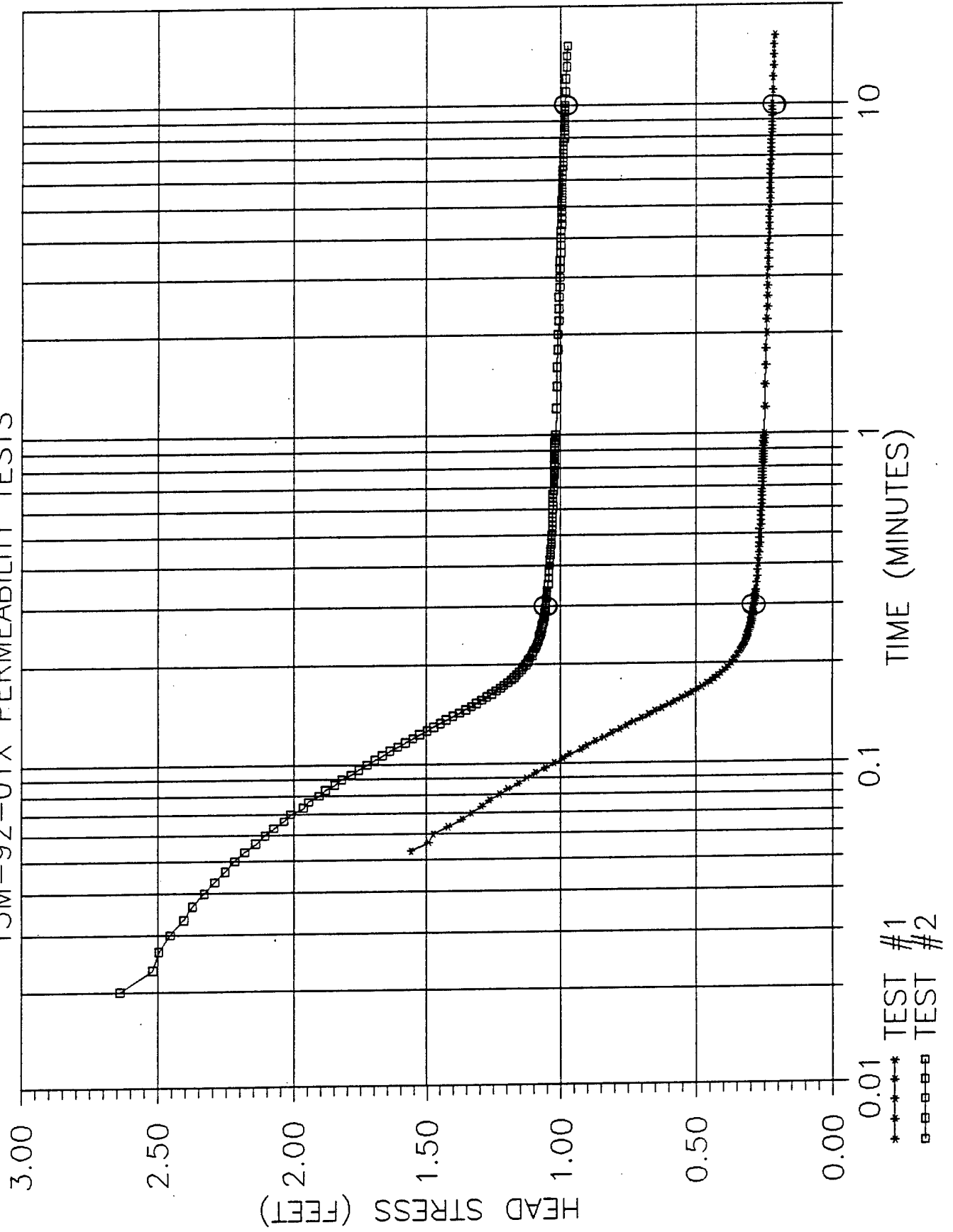
r = RADIUS OF WELL CASING (FEET)

R = RADIUS OF BOREHOLE (FEET)

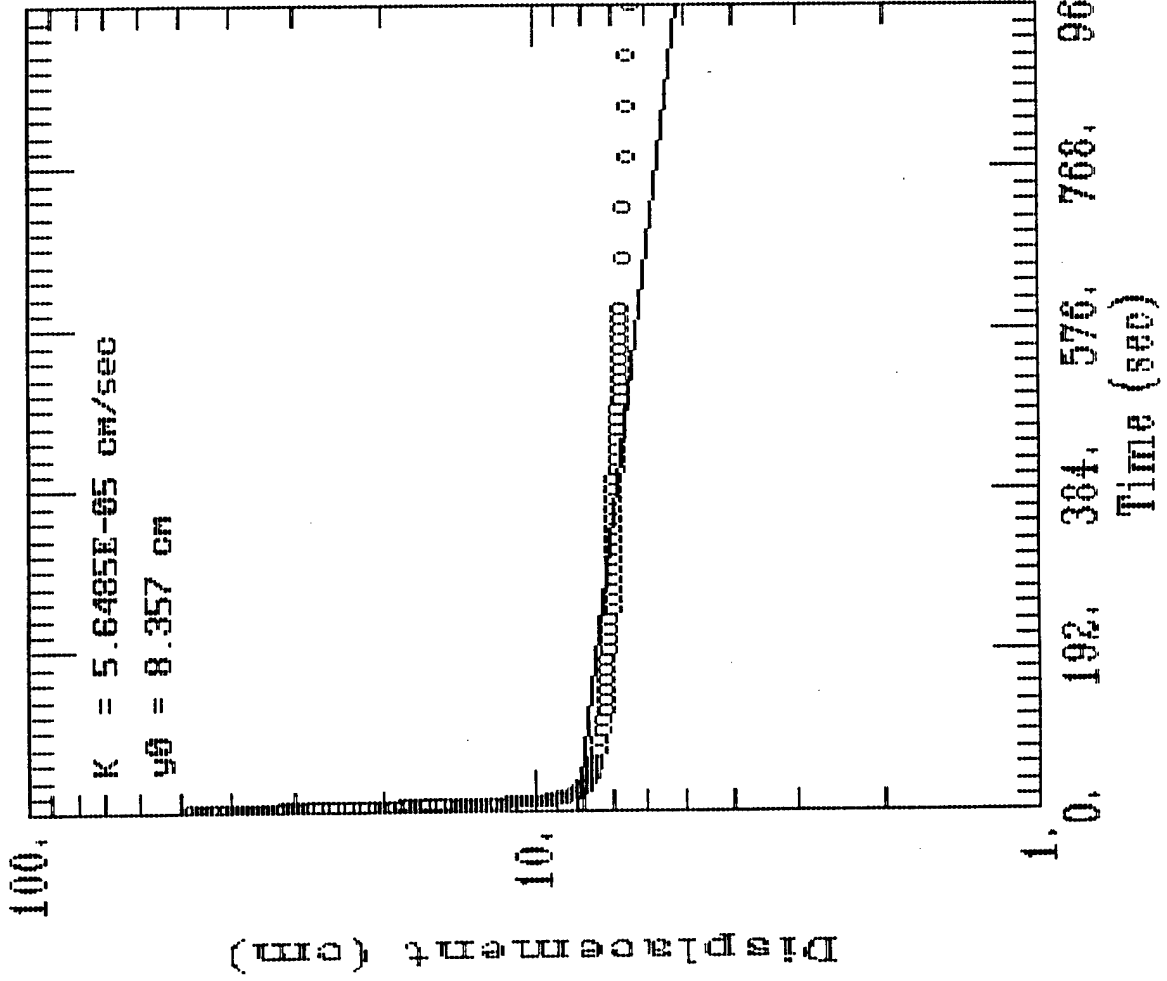
L = EFFECTIVE SATURATED LENGTH OF SCREEN (FEET)

WELL	t1	t2	Ht1	Ht2	r	R	L	TEST #	K (FT/MIN)	K (CM/SEC)
XJM-93-03X	10	40	0.354	0.132	0.167	0.25	6.61	1	4.3E-05	2.2E-05
XJM-93-04X	40	120	0.749	0.246	0.167	0.25	7.38	1	1.7E-05	8.5E-06
XNM-93-01X	20	40	0.303	0.129	0.167	0.25	9.11	1	4.4E-05	2.3E-05
XNM-93-02X	0.2	1	0.952	0.281	0.167	0.25	9.24	1	1.6E-03	8.0E-04
XNM-93-02X	0.2	0.8	1.129	0.436	0.167	0.25	9.24	2	1.6E-03	8.3E-04
XNM-93-03X	0.5	1	0.825	0.414	0.167	0.25	5.54	1	2.0E-03	1.0E-03
XNM-93-03X	0.5	1	0.816	0.401	0.167	0.25	5.54	2	2.1E-03	1.1E-03
XNM-93-04X	24	160	1.227	1.138	0.167	0.25	7.75	1	6.5E-07	3.3E-07
XOM-93-01X	1	3	0.61	0.246	0.167	0.25	6.99	1	5.7E-04	2.9E-04
XOM-93-01X	0.3	2	1.122	0.426	0.167	0.25	6.99	2	7.1E-04	3.6E-04
XOM-93-02X	2.4	10	0.42	0.151	0.167	0.25	8.61	1	1.5E-04	7.4E-05
XOM-93-02X	2.4	10	0.452	0.177	0.167	0.25	8.61	2	1.3E-04	6.8E-05
XOM-93-03X	5	18	0.695	0.234	0.167	0.25	6.21	1	1.1E-04	5.8E-05

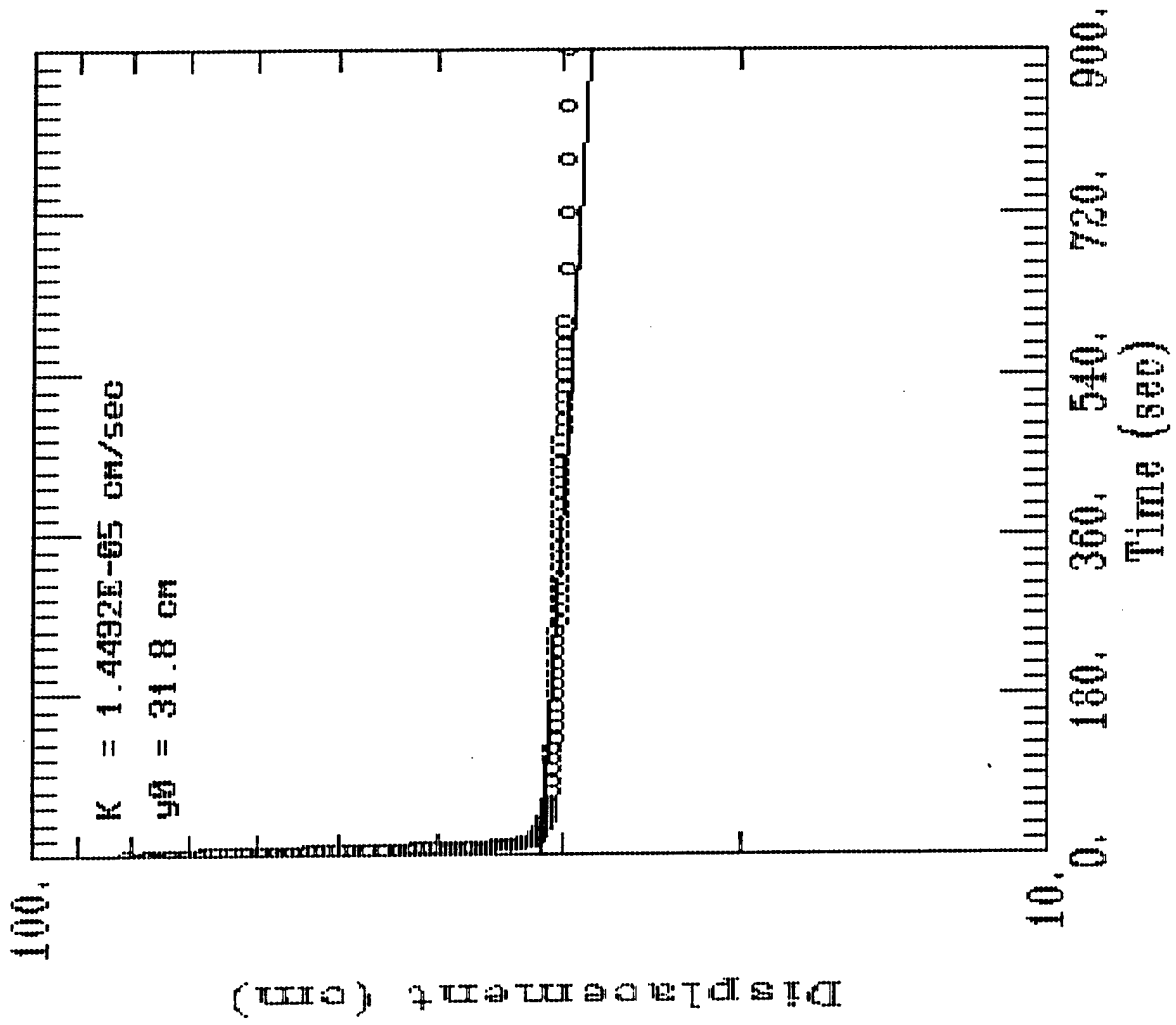
13M-92-01X PERMEABILITY TESTS



13M-92-01X PERMEABILITY TEST #1



13M-92-01X PERMEABILITY TEST #2



WELL 13M-92-01X

WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= 5.7 FT, BORING DIAMETER= 0.833 FT

TEST 1		TEST 2	
MINUTES	FEET	MINUTES	FEET
0	0.003	0	0.886
0.0033	0.132	0.0033	1.221
0.0066	0.277	0.0066	1.755
0.01	0.41	0.01	2.124
0.0133	0.675	0.0133	1.291
0.0166	0.464	0.0166	2.133
0.02	0.29	0.02	2.638
0.0233	0.561	0.0233	2.518
0.0266	0.482	0.0266	2.496
0.03	0.779	0.03	2.455
0.0333	0.997	0.0333	2.405
0.0366	0.962	0.0366	2.373
0.04	1.212	0.04	2.329
0.0433	1.635	0.0433	2.291
0.0466	1.392	0.0466	2.253
0.05	1.546	0.05	2.218
0.0533	1.559	0.0533	2.181
0.0566	1.493	0.0566	2.14
0.06	1.474	0.06	2.105
0.0633	1.42	0.0633	2.073
0.0666	1.369	0.0666	2.035
0.07	1.332	0.07	2.01
0.0733	1.294	0.0733	1.983
0.0766	1.265	0.0766	1.944
0.08	1.227	0.08	1.903
0.0833	1.196	0.0833	1.881
0.0866	1.158	0.0866	1.846
0.09	1.126	0.09	1.818
0.0933	1.095	0.0933	1.783
0.0966	1.057	0.0966	1.755
0.1	1.025	0.1	1.723
0.1033	0.991	0.1033	1.695
0.1066	0.969	0.1066	1.666
0.11	0.924	0.11	1.638
0.1133	0.902	0.1133	1.609
0.1166	0.871	0.1166	1.581
0.12	0.839	0.12	1.552
0.1233	0.811	0.1233	1.527
0.1266	0.782	0.1266	1.499
0.13	0.754	0.13	1.474
0.1333	0.729	0.1333	1.446
0.1366	0.7	0.1366	1.426
0.14	0.675	0.14	1.401
0.1433	0.65	0.1433	1.376
0.1466	0.624	0.1466	1.354
0.15	0.599	0.15	1.332
0.1533	0.577	0.1533	1.313
0.1566	0.555	0.1566	1.294
0.16	0.533	0.16	1.275
0.1633	0.514	0.1633	1.256
0.1666	0.495	0.1666	1.24
0.17	0.479	0.17	1.224
0.1733	0.46	0.1733	1.212
0.1766	0.445	0.1766	1.196
0.18	0.432	0.18	1.183
0.1833	0.419	0.1833	1.174
0.1866	0.407	0.1866	1.164
0.19	0.397	0.19	1.155
0.1933	0.388	0.1933	1.145
0.1966	0.378	0.1966	1.139
0.2	0.369	0.2	1.13
0.2033	0.362	0.2033	1.123
0.2066	0.356	0.2066	1.12
0.21	0.35	0.21	1.114
0.2133	0.344	0.2133	1.107
0.2166	0.34	0.2166	1.104
0.22	0.334	0.22	1.101
0.2233	0.331	0.2233	1.095
0.2266	0.325	0.2266	1.092
0.23	0.321	0.23	1.088
0.2333	0.318	0.2333	1.085
0.2366	0.315	0.2366	1.082
0.24	0.312	0.24	1.082
0.2433	0.312	0.2433	1.079
0.2466	0.309	0.2466	1.076
0.25	0.306	0.25	1.073
0.2533	0.303	0.2533	1.073
0.2566	0.303	0.2566	1.07
0.26	0.299	0.26	1.07
0.2633	0.299	0.2633	1.07
0.2666	0.296	0.2666	1.066
0.27	0.296	0.27	1.063
0.2733	0.296	0.2733	1.063
0.2766	0.293	0.2766	1.063
0.28	0.293	0.28	1.06
0.2833	0.29	0.2833	1.06
0.2866	0.29	0.2866	1.06
0.29	0.29	0.29	1.057
0.2933	0.29	0.2933	1.057
0.2966	0.287	0.2966	1.057
0.3	0.287	0.3	1.054
0.3033	0.287	0.3033	1.054
0.3066	0.284	0.3066	1.054
0.31	0.284	0.31	1.054
0.3133	0.284	0.3133	1.054
0.3166	0.284	0.3166	1.054
0.32	0.284	0.32	1.051
0.3233	0.284	0.3233	1.051
0.3266	0.28	0.3266	1.051
0.33	0.28	0.33	1.051
0.3333	0.28	0.3333	1.051
0.35	0.277	0.35	1.047
0.3666	0.274	0.3666	1.044
0.3833	0.274	0.3833	1.044
0.4	0.271	0.4	1.041
0.4166	0.271	0.4166	1.041
0.4333	0.268	0.4333	1.038
0.45	0.268	0.45	1.038
0.4666	0.265	0.4666	1.035
0.4833	0.265	0.4833	1.035
0.5	0.265	0.5	1.035
0.5166	0.265	0.5166	1.032
0.5333	0.261	0.5333	1.032
0.55	0.261	0.55	1.032

0.5666	0.261	0.5666	1.032
0.5833	0.261	0.5833	1.032
0.6	0.258	0.6	1.029
0.6166	0.258	0.6166	1.029
0.6333	0.258	0.6333	1.029
0.65	0.258	0.65	1.029
0.6666	0.258	0.6666	1.029
0.6833	0.258	0.6833	1.025
0.7	0.255	0.7	1.025
0.7166	0.255	0.7166	1.025
0.7333	0.255	0.7333	1.025
0.75	0.255	0.75	1.025
0.7666	0.255	0.7666	1.022
0.7833	0.255	0.7833	1.025
0.8	0.255	0.8	1.022
0.8166	0.252	0.8166	1.022
0.8333	0.252	0.8333	1.022
0.85	0.252	0.85	1.022
0.8666	0.252	0.8666	1.022
0.8833	0.252	0.8833	1.022
0.9	0.252	0.9	1.022
0.9166	0.252	0.9166	1.022
0.9333	0.249	0.9333	1.022
0.95	0.252	0.95	1.022
0.9666	0.249	0.9666	1.019
0.9833	0.249	0.9833	1.019
1	0.249	1	1.019
1.2	0.246	1.2	1.016
1.4	0.246	1.4	1.013
1.6	0.243	1.6	1.013
1.8	0.243	1.8	1.01
2	0.239	2	1.01
2.2	0.239	2.2	1.006
2.4	0.236	2.4	1.006
2.6	0.236	2.6	1.006
2.8	0.236	2.8	1.003
3	0.236	3	1.003
3.2	0.233	3.2	1.003
3.4	0.233	3.4	1.003
3.6	0.233	3.6	1
3.8	0.233	3.8	1
4	0.23	4	1
4.2	0.23	4.2	1
4.4	0.23	4.4	0.997
4.6	0.23	4.6	0.997
4.8	0.23	4.8	0.997
5	0.227	5	0.997
5.2	0.227	5.2	0.997
5.4	0.227	5.4	0.994
5.6	0.227	5.6	0.994
5.8	0.227	5.8	0.994
6	0.227	6	0.994
6.2	0.227	6.2	0.994
6.4	0.227	6.4	0.994
6.6	0.227	6.6	0.991
6.8	0.224	6.8	0.991
7	0.224	7	0.991
7.2	0.224	7.2	0.991
7.4	0.224	7.4	0.991
7.6	0.224	7.6	0.991
7.8	0.224	7.8	0.991
8	0.224	8	0.987
8.2	0.22	8.2	0.987
8.4	0.22	8.4	0.987
8.6	0.22	8.6	0.987
8.8	0.22	8.8	0.987
9	0.22	9	0.987
9.2	0.22	9.2	0.987
9.4	0.22	9.4	0.984
9.6	0.22	9.6	0.984
9.8	0.22	9.8	0.984
10	0.22	10	0.984
11	0.217	11	0.981
12	0.217	12	0.981
13	0.214	13	0.978
14	0.214	14	0.978
15	0.214	15	0.975
16	0.211		

07-085110224

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 13M-92-01X	P. RUSTAD
DATE OF TEST	10-19-92	
TYPE OF TEST	RISE HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEL 0 / 1 OF 2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	16.33 (PVC)	
WELL DEPTH (FT./TOC)	22.00 (PVC)	
XD DEPTH (FT./TOC)	15.33 21.00 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	19.00 (PVC)	
TIME OF SLUG PLACEMENT	1035	
TIME OF WL EQUILIBRATION	1045	
NEW XD REFERENCE	0.20	
START TIME OF TEST	1046	
END TIME OF TEST	1101	
NOTES: 3' x 3"	B-12 STOCK	PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

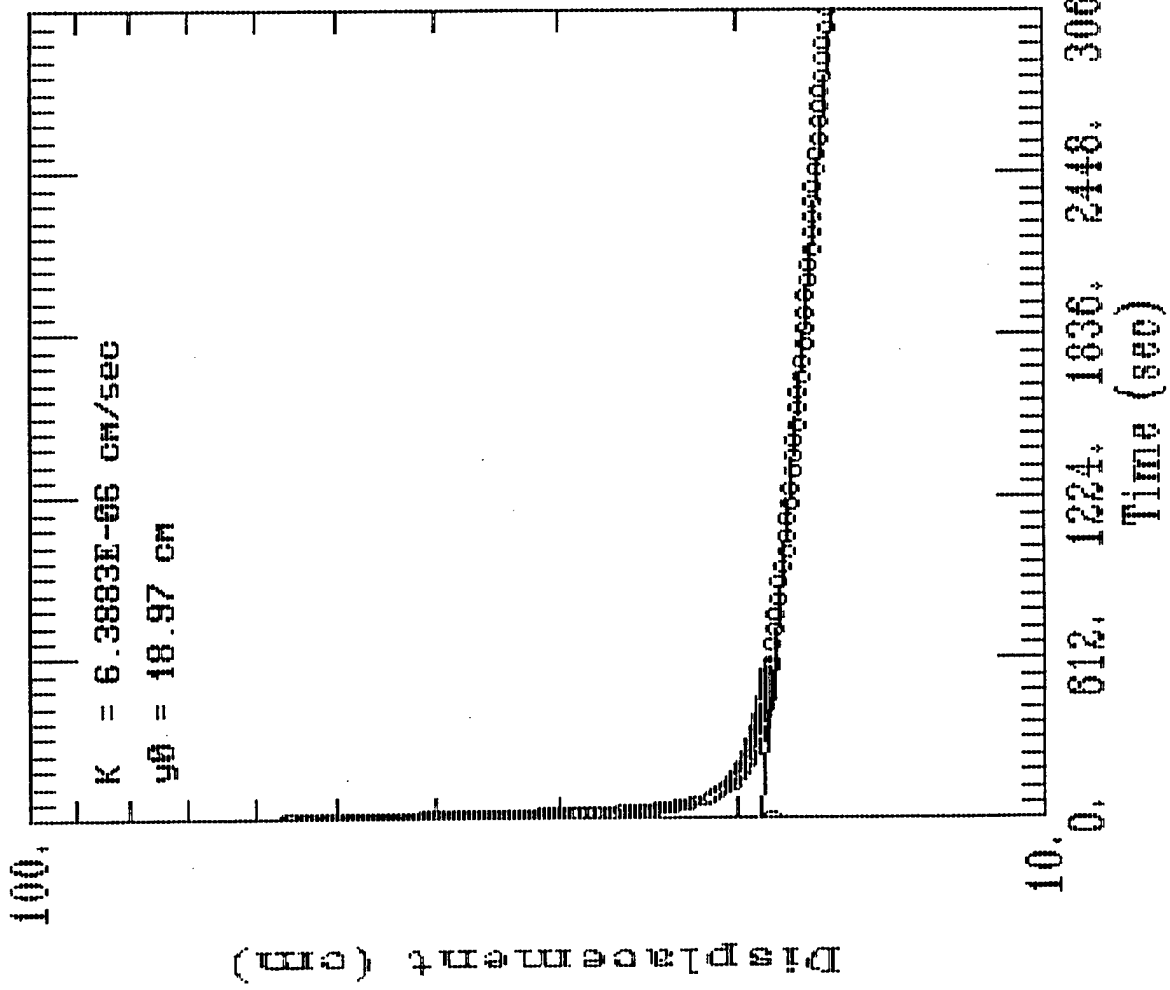
AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

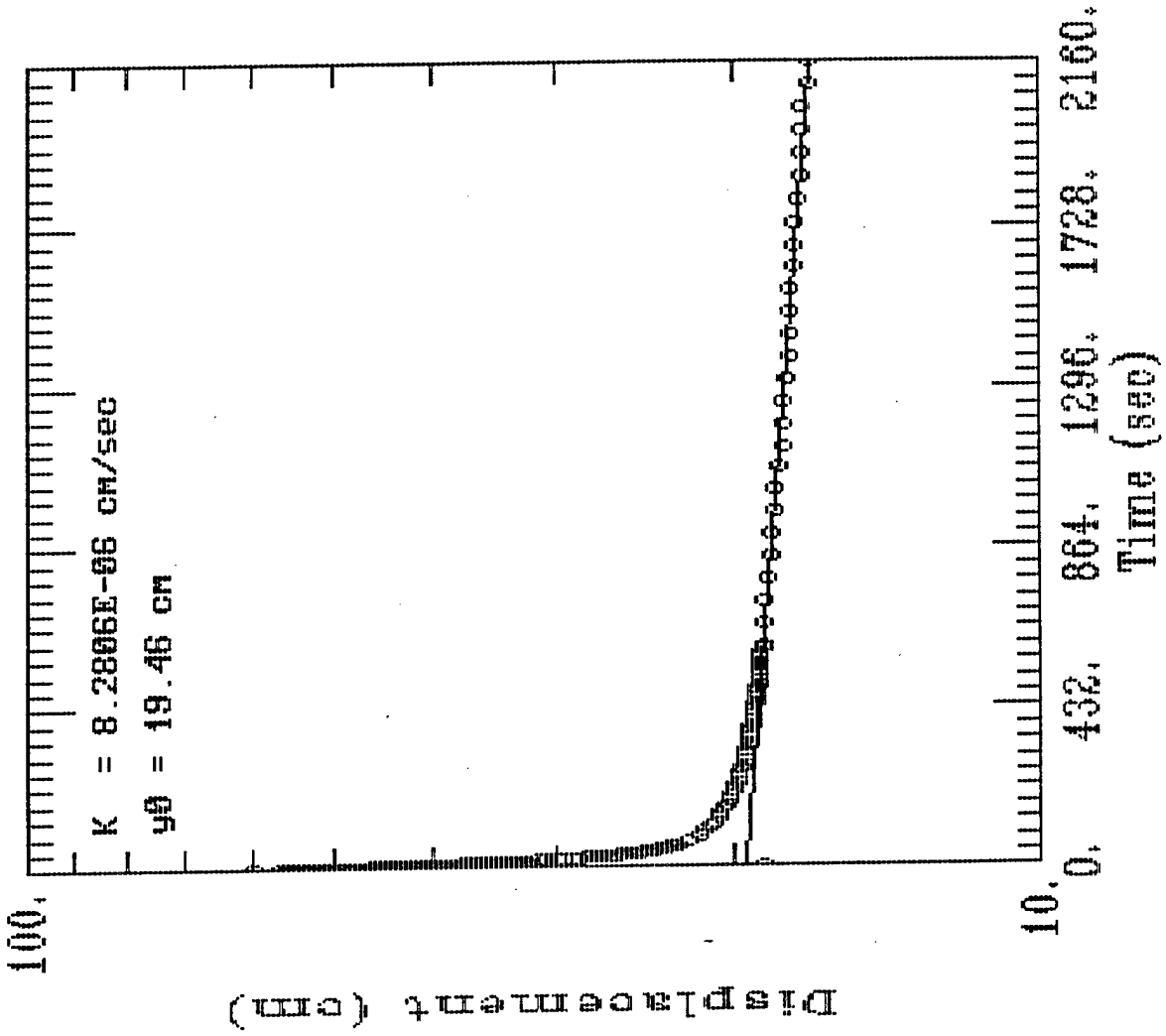
SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 13M.92.01X	R. RUSTAD
DATE OF TEST	10.19.92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEL 1 / 2 OF 2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	- 0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	16.33 (PVC)	
WELL DEPTH (FT./TOC)	22.00 (PVC)	
XD DEPTH (FT./TOC)	(21.00) (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	19.00 (PVC)	
TIME OF SLUG PLACEMENT	1103	
TIME OF WL EQUILIBRATION	1107	
NEW XD REFERENCE	0.20	
START TIME OF TEST	1108	
END TIME OF TEST	1126	
NOTES: 3' x 3"	BAR STOCK	PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

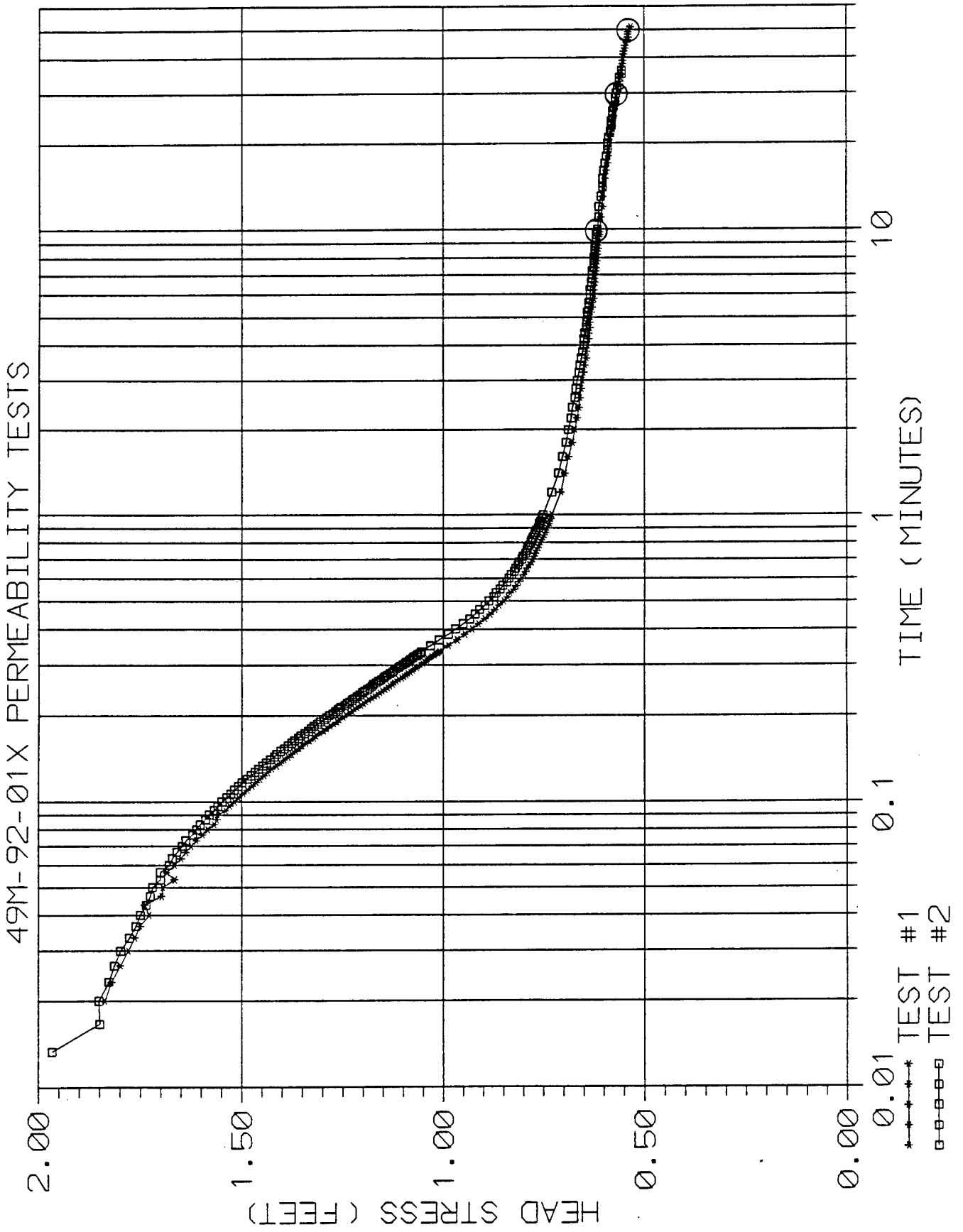
49M-92-01X PERMEABILITY TEST #1



49M-92-01X PERMEABILITY TEST #2



49M-92-01X PERMEABILITY TESTS



WELL 49M-92-01X

WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= 4.9 FT, BORING DIAMETER= 0.833 FT

TEST 1		TEST 2	
MINUTES	FEET	MINUTES	FEET
0	0.11	0	0.063
0.0033	0.972	0.0033	2.083
0.0066	1.019	0.0066	0.823
0.01	1.287	0.01	1.284
0.0133	2.08	0.0133	1.966
0.0166	1.777	0.0166	1.849
0.02	1.837	0.02	1.852
0.0233	1.821	0.0233	1.827
0.0266	1.799	0.0266	1.814
0.03	1.78	0.03	1.799
0.0333	1.764	0.0333	1.777
0.0366	1.751	0.0366	1.761
0.04	1.729	0.04	1.751
0.0433	1.739	0.0433	1.736
0.0466	1.698	0.0466	1.726
0.05	1.695	0.05	1.72
0.0533	1.666	0.0533	1.701
0.0566	1.685	0.0566	1.701
0.06	1.666	0.06	1.679
0.0633	1.65	0.0633	1.672
0.0666	1.638	0.0666	1.66
0.07	1.625	0.07	1.647
0.0733	1.612	0.0733	1.638
0.0766	1.597	0.0766	1.622
0.08	1.584	0.08	1.612
0.0833	1.568	0.0833	1.603
0.0866	1.562	0.0866	1.59
0.09	1.559	0.09	1.581
0.0933	1.54	0.0933	1.568
0.0966	1.53	0.0966	1.559
0.1	1.518	0.1	1.549
0.1033	1.508	0.1033	1.537
0.1066	1.496	0.1066	1.527
0.11	1.486	0.11	1.518
0.1133	1.474	0.1133	1.508
0.1166	1.464	0.1166	1.499
0.12	1.455	0.12	1.486
0.1233	1.445	0.1233	1.477
0.1266	1.436	0.1266	1.467
0.13	1.426	0.13	1.458
0.1333	1.414	0.1333	1.448
0.1366	1.404	0.1366	1.439
0.14	1.395	0.14	1.429
0.1433	1.385	0.1433	1.42
0.1466	1.376	0.1466	1.414
0.15	1.366	0.15	1.404
0.1533	1.357	0.1533	1.395
0.1566	1.35	0.1566	1.385
0.16	1.341	0.16	1.376
0.1633	1.332	0.1633	1.369
0.1666	1.322	0.1666	1.36
0.17	1.316	0.17	1.354
0.1733	1.306	0.1733	1.344
0.1766	1.297	0.1766	1.335
0.18	1.29	0.18	1.328
0.1833	1.281	0.1833	1.322
0.1866	1.272	0.1866	1.313
0.19	1.265	0.19	1.306
0.1933	1.259	0.1933	1.297
0.1966	1.249	0.1966	1.291
0.2	1.243	0.2	1.284
0.2033	1.234	0.2033	1.275
0.2066	1.227	0.2066	1.268
0.21	1.221	0.21	1.262
0.2133	1.215	0.2133	1.256
0.2166	1.205	0.2166	1.246
0.22	1.199	0.22	1.24
0.2233	1.193	0.2233	1.234
0.2266	1.186	0.2266	1.227
0.23	1.177	0.23	1.221
0.2333	1.171	0.2333	1.215
0.2366	1.164	0.2366	1.208
0.24	1.158	0.24	1.202
0.2433	1.152	0.2433	1.196
0.2466	1.145	0.2466	1.189
0.25	1.139	0.25	1.183
0.2533	1.133	0.2533	1.177
0.2566	1.126	0.2566	1.174
0.26	1.123	0.26	1.167
0.2633	1.117	0.2633	1.161
0.2666	1.111	0.2666	1.155
0.27	1.104	0.27	1.148
0.2733	1.098	0.2733	1.145
0.2766	1.092	0.2766	1.139
0.28	1.088	0.28	1.133
0.2833	1.082	0.2833	1.126
0.2866	1.076	0.2866	1.123
0.29	1.073	0.29	1.117
0.2933	1.066	0.2933	1.111
0.2966	1.063	0.2966	1.107
0.3	1.057	0.3	1.101
0.3033	1.051	0.3033	1.095
0.3066	1.047	0.3066	1.092
0.31	1.041	0.31	1.085
0.3133	1.036	0.3133	1.082
0.3166	1.032	0.3166	1.076
0.32	1.029	0.32	1.073
0.3233	1.022	0.3233	1.066
0.3266	1.019	0.3266	1.063
0.33	1.013	0.33	1.057
0.3333	1.01	0.3333	1.054
0.35	0.987	0.35	1.032
0.3666	0.965	0.3666	1.01
0.3833	0.946	0.3833	0.987
0.4	0.928	0.4	0.969
0.4166	0.912	0.4166	0.95
0.4333	0.896	0.4333	0.934
0.45	0.883	0.45	0.921
0.4666	0.871	0.4666	0.909
0.4833	0.861	0.4833	0.896
0.5	0.849	0.5	0.886
0.5166	0.839	0.5166	0.874
0.5333	0.833	0.5333	0.868
0.55	0.823	0.55	0.858

0.5666	0.817	0.5666	0.852
0.5833	0.811	0.5833	0.842
0.6	0.804	0.6	0.836
0.6166	0.798	0.6166	0.83
0.6333	0.795	0.6333	0.823
0.65	0.789	0.65	0.82
0.6666	0.785	0.6666	0.814
0.6833	0.779	0.6833	0.811
0.7	0.776	0.7	0.804
0.7166	0.773	0.7166	0.801
0.7333	0.77	0.7333	0.795
0.75	0.767	0.75	0.792
0.7666	0.763	0.7666	0.789
0.7833	0.76	0.7833	0.785
0.8	0.757	0.8	0.782
0.8166	0.754	0.8166	0.779
0.8333	0.751	0.8333	0.776
0.85	0.748	0.85	0.773
0.8666	0.744	0.8666	0.77
0.8833	0.744	0.8833	0.767
0.9	0.741	0.9	0.763
0.9166	0.738	0.9166	0.76
0.9333	0.735	0.9333	0.76
0.95	0.735	0.95	0.757
0.9666	0.732	0.9666	0.754
0.9833	0.732	0.9833	0.754
1	0.729	1	0.751
1.2	0.707	1.2	0.729
1.4	0.697	1.4	0.713
1.6	0.688	1.6	0.703
1.8	0.678	1.8	0.694
2	0.672	2	0.688
2.2	0.666	2.2	0.681
2.4	0.662	2.4	0.678
2.6	0.659	2.6	0.672
2.8	0.656	2.8	0.669
3	0.653	3	0.666
3.2	0.65	3.2	0.662
3.4	0.647	3.4	0.659
3.6	0.643	3.6	0.656
3.8	0.643	3.8	0.653
4	0.64	4	0.65
4.2	0.637	4.2	0.65
4.4	0.637	4.4	0.647
4.6	0.634	4.6	0.643
4.8	0.634	4.8	0.643
5	0.631	5	0.64
5.2	0.631	5.2	0.64
5.4	0.628	5.4	0.637
5.6	0.628	5.6	0.637
5.8	0.624	5.8	0.634
6	0.624	6	0.634
6.2	0.624	6.2	0.634
6.4	0.624	6.4	0.631
6.6	0.621	6.6	0.631
6.8	0.621	6.8	0.628
7	0.621	7	0.628
7.2	0.618	7.2	0.628
7.4	0.618	7.4	0.624
7.6	0.618	7.6	0.624
7.8	0.615	7.8	0.624
8	0.615	8	0.624
8.2	0.615	8.2	0.621
8.4	0.615	8.4	0.621
8.6	0.612	8.6	0.621
8.8	0.612	8.8	0.621
9	0.612	9	0.618
9.2	0.612	9.2	0.618
9.4	0.612	9.4	0.618
9.6	0.609	9.6	0.618
9.8	0.609	9.8	0.615
10	0.609	10	0.615
11	0.606	11	0.612
12	0.602	12	0.612
13	0.602	13	0.606
14	0.599	14	0.602
15	0.596	15	0.602
16	0.593	16	0.599
17	0.59	17	0.596
18	0.587	18	0.593
19	0.587	19	0.59
20	0.583	20	0.59
21	0.583	21	0.587
22	0.58	22	0.583
23	0.577	23	0.58
24	0.577	24	0.58
25	0.574	25	0.577
26	0.574	26	0.577
27	0.571	27	0.574
28	0.568	28	0.571
29	0.568	29	0.571
30	0.564	30	0.568
31	0.564	31	0.565
32	0.561	32	0.561
33	0.561	33	0.561
34	0.558	34	0.561
35	0.558	35	0.555
36	0.555	36	0.555
37	0.555		
38	0.552		
39	0.552		
40	0.552		
41	0.549		
42	0.549		
43	0.546		
44	0.546		
45	0.542		
46	0.542		
47	0.539		
48	0.539		
49	0.539		
50	0.536		
51	0.533		

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 49M-92-01X	R. RUSTAD
DATE OF TEST	10-20-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / KCO1732	
TEST #	SEL 4 / 1052	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	15.14 (PVC)	
WELL DEPTH (FT./TOC)	20.00 (PVC)	
XD DEPTH (FT./TOC)	19.00 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	18.00 (PVC)	
TIME OF SLUG PLACEMENT	0803	
TIME OF WL EQUILIBRATION	0850	
NEW XD REFERENCE	0.22	
START TIME OF TEST	0900	
END TIME OF TEST	1000	
NOTES:	3'x3' PVC BAR STOCK	PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

07-004-10224

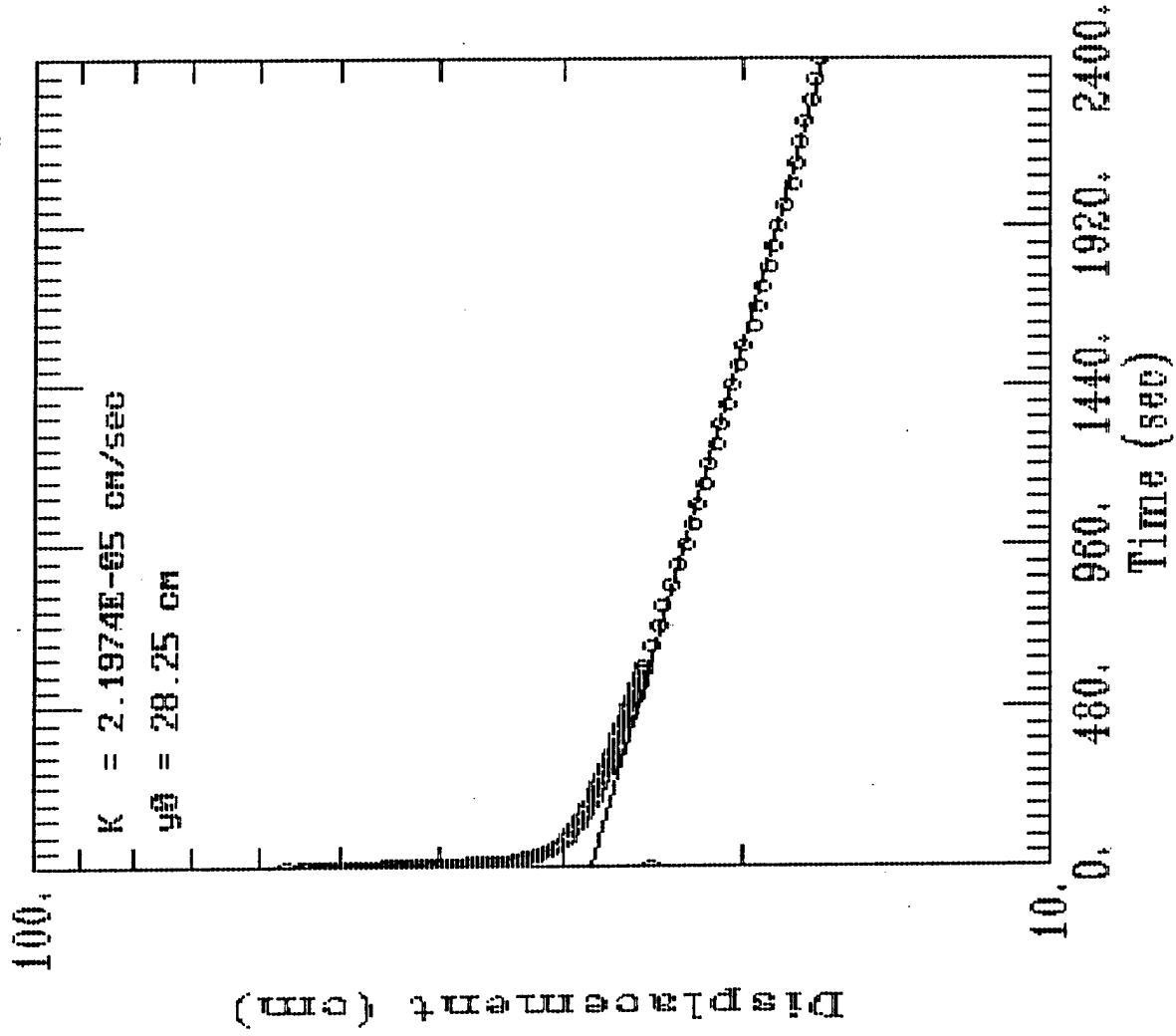
AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

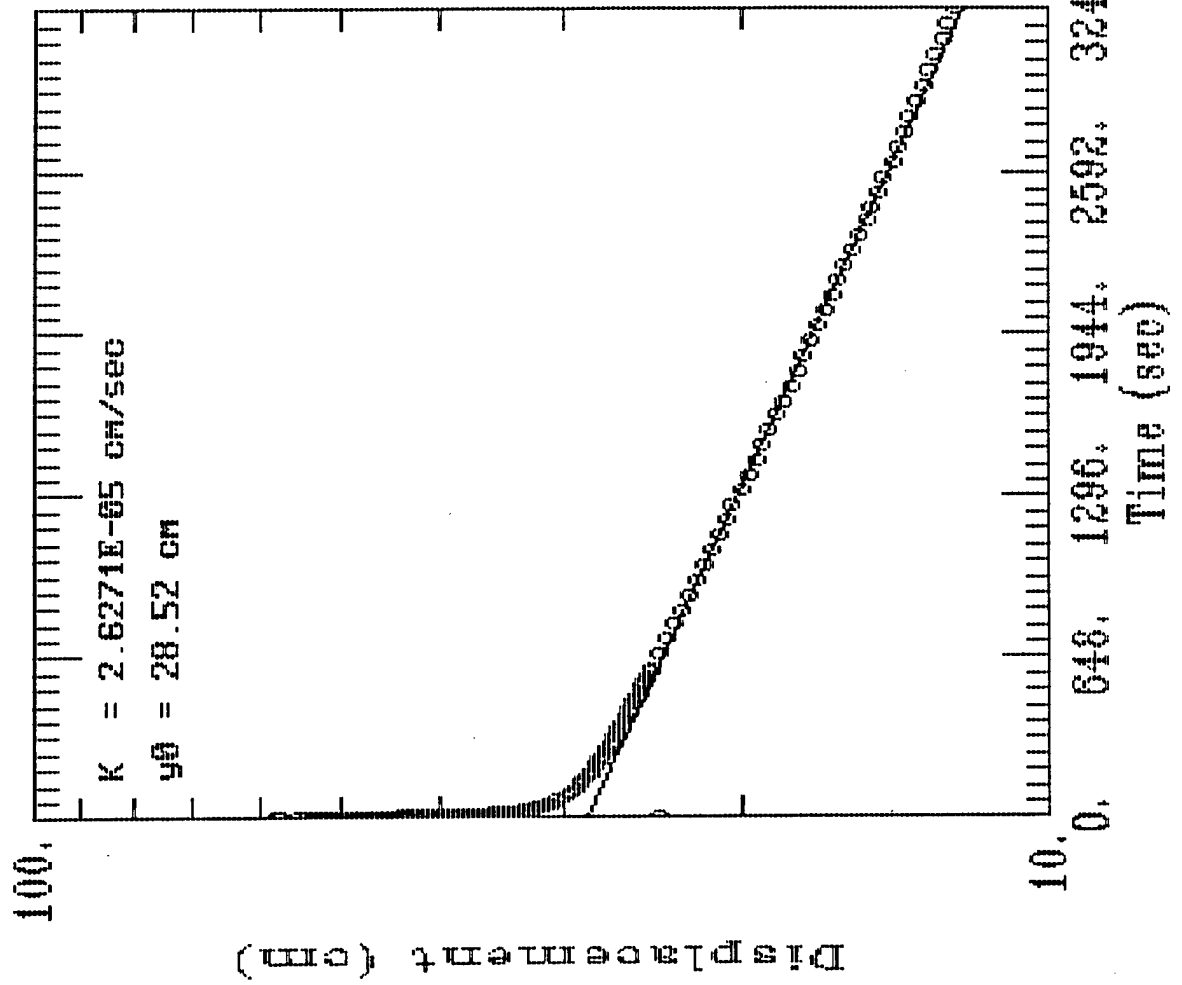
SETUP	DATE	BY WHOM
MONITORING WELL ID	41" 49M-92-01X	R. ZUSTAS
DATE OF TEST	10-20-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / KCO1732	
TEST #	SEL 5 / 2042	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	15.14	
WELL DEPTH (FT./TOC)	20.00	
XD DEPTH (FT./TOC)	19.00	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	18.00	
TIME OF SLUG PLACEMENT	1002	
TIME OF WL EQUILIBRATION	1035	
NEW XD REFERENCE	0.00	
START TIME OF TEST	1038	
END TIME OF TEST	1113	
NOTES:	BAR STOCK	PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

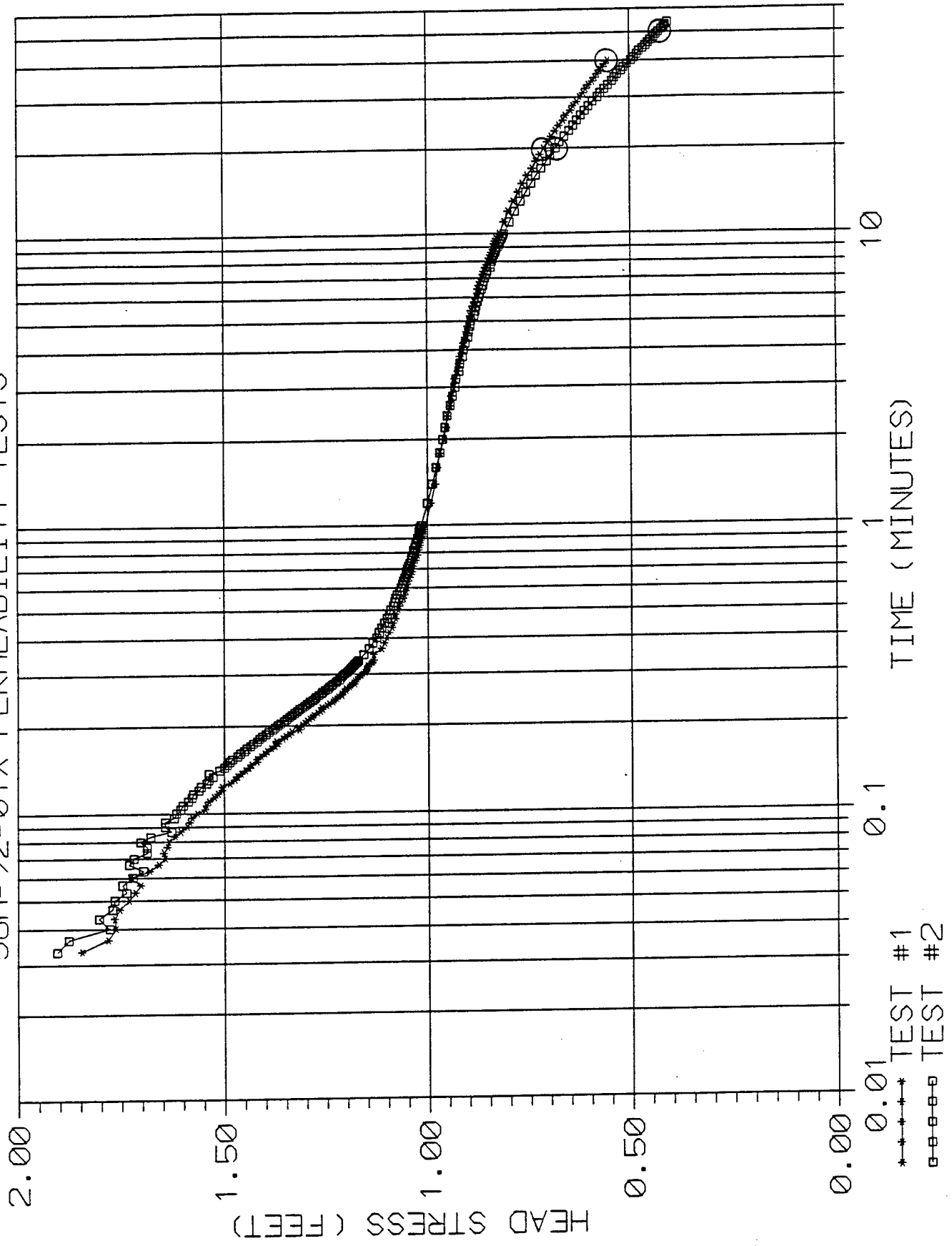
58M-92-01X PERMEABILITY TEST #1



58M-92-01X PERMEABILITY TEST #2



58M-92-01X PERMEABILITY TESTS



WELL 56M-92-01X

WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= 7.2 FT, BORING DIAMETER= 0.833 FT

TEST 1 MINUTES	FEET	TEST 2 MINUTES	FEET
0	0.183	0	0.119
0.0033	2.064	0.0033	1.698
0.0066	1.742	0.0066	2.392
0.01	2.039	0.01	1.865
0.0133	1.881	0.0133	2.613
0.0166	-0.233	0.0166	-1.3
0.02	1.72	0.02	0.798
0.0233	2.136	0.0233	2.13
0.0266	1.773	0.0266	1.758
0.03	1.761	0.03	1.833
0.0333	1.846	0.0333	1.906
0.0366	1.783	0.0366	1.878
0.04	1.764	0.04	1.78
0.0433	1.767	0.0433	1.805
0.0466	1.755	0.0466	1.773
0.05	1.792	0.05	1.767
0.0533	1.717	0.0533	1.739
0.0566	1.704	0.0566	1.748
0.06	1.729	0.06	1.723
0.0633	1.682	0.0633	1.698
0.0666	1.66	0.0666	1.732
0.07	1.644	0.07	1.72
0.0733	1.647	0.0733	1.688
0.0766	1.638	0.0766	1.688
0.08	1.635	0.08	1.704
0.0833	1.619	0.0833	1.679
0.0866	1.606	0.0866	1.628
0.09	1.59	0.09	1.644
0.0933	1.584	0.0933	1.644
0.0966	1.578	0.0966	1.622
0.1	1.565	0.1	1.616
0.1033	1.546	0.1033	1.606
0.1066	1.543	0.1066	1.6
0.11	1.537	0.11	1.587
0.1133	1.524	0.1133	1.578
0.1166	1.515	0.1166	1.575
0.12	1.505	0.12	1.562
0.1233	1.505	0.1233	1.556
0.1266	1.486	0.1266	1.543
0.13	1.474	0.13	1.537
0.1333	1.467	0.1333	1.527
0.1366	1.458	0.1366	1.537
0.14	1.448	0.14	1.511
0.1433	1.439	0.1433	1.499
0.1466	1.433	0.1466	1.493
0.15	1.42	0.15	1.486
0.1533	1.42	0.1533	1.48
0.1566	1.41	0.1566	1.467
0.16	1.401	0.16	1.461
0.1633	1.395	0.1633	1.451
0.1666	1.385	0.1666	1.445
0.17	1.376	0.17	1.436
0.1733	1.369	0.1733	1.429
0.1766	1.373	0.1766	1.42
0.18	1.357	0.18	1.414
0.1833	1.35	0.1833	1.407
0.1866	1.341	0.1866	1.398
0.19	1.335	0.19	1.391
0.1933	1.316	0.1933	1.382
0.1966	1.319	0.1966	1.376
0.2	1.309	0.2	1.369
0.2033	1.303	0.2033	1.363
0.2066	1.297	0.2066	1.354
0.21	1.291	0.21	1.347
0.2133	1.284	0.2133	1.341
0.2166	1.281	0.2166	1.335
0.22	1.272	0.22	1.328
0.2233	1.265	0.2233	1.322
0.2266	1.259	0.2266	1.316
0.23	1.262	0.23	1.309
0.2333	1.249	0.2333	1.303
0.2366	1.243	0.2366	1.297
0.24	1.234	0.24	1.291
0.2433	1.231	0.2433	1.284
0.2466	1.224	0.2466	1.278
0.25	1.221	0.25	1.275
0.2533	1.212	0.2533	1.268
0.2566	1.212	0.2566	1.262
0.26	1.208	0.26	1.259
0.2633	1.202	0.2633	1.253
0.2666	1.202	0.2666	1.246
0.27	1.193	0.27	1.243
0.2733	1.19	0.2733	1.237
0.2766	1.18	0.2766	1.234
0.28	1.183	0.28	1.227
0.2833	1.18	0.2833	1.224
0.2866	1.174	0.2866	1.218
0.29	1.171	0.29	1.215
0.2933	1.171	0.2933	1.212
0.2966	1.164	0.2966	1.208
0.3	1.161	0.3	1.205
0.3033	1.155	0.3033	1.199
0.3066	1.152	0.3066	1.196
0.31	1.152	0.31	1.193
0.3133	1.148	0.3133	1.189
0.3166	1.148	0.3166	1.186
0.32	1.148	0.32	1.183
0.3233	1.142	0.3233	1.18
0.3266	1.136	0.3266	1.177
0.33	1.136	0.33	1.174
0.3333	1.133	0.3333	1.171
0.35	1.133	0.35	1.158
0.3666	1.114	0.3666	1.145
0.3833	1.107	0.3833	1.136
0.4	1.101	0.4	1.126
0.4166	1.095	0.4166	1.12
0.4333	1.088	0.4333	1.114
0.45	1.085	0.45	1.107
0.4666	1.079	0.4666	1.101
0.4833	1.079	0.4833	1.095
0.5	1.073	0.5	1.092
0.5166	1.07	0.5166	1.085
0.5333	1.066	0.5333	1.082
0.55	1.06	0.55	1.079

0.5666	1.057	0.5666	1.076
0.5833	1.054	0.5833	1.07
0.6	1.051	0.6	1.066
0.6166	1.051	0.6166	1.063
0.6333	1.047	0.6333	1.06
0.65	1.044	0.65	1.057
0.6666	1.041	0.6666	1.054
0.6833	1.038	0.6833	1.054
0.7	1.038	0.7	1.051
0.7166	1.035	0.7166	1.047
0.7333	1.035	0.7333	1.044
0.75	1.029	0.75	1.041
0.7666	1.029	0.7666	1.041
0.7833	1.025	0.7833	1.038
0.8	1.025	0.8	1.035
0.8166	1.022	0.8166	1.035
0.8333	1.022	0.8333	1.032
0.85	1.019	0.85	1.029
0.8666	1.019	0.8666	1.029
0.8833	1.016	0.8833	1.025
0.9	1.016	0.9	1.025
0.9166	1.013	0.9166	1.022
0.9333	1.013	0.9333	1.022
0.95	1.01	0.95	1.022
0.9666	1.01	0.9666	1.019
0.9833	1.01	0.9833	1.019
1	1.006	1	1.016
1.2	0.991	1.2	1
1.4	0.981	1.4	0.988
1.6	0.975	1.6	0.978
1.8	0.969	1.8	0.969
2	0.959	2	0.962
2.2	0.953	2.2	0.956
2.4	0.95	2.4	0.95
2.6	0.943	2.6	0.943
2.8	0.94	2.8	0.937
3	0.934	3	0.931
3.2	0.931	3.2	0.928
3.4	0.924	3.4	0.921
3.6	0.921	3.6	0.918
3.8	0.918	3.8	0.912
4	0.912	4	0.909
4.2	0.909	4.2	0.905
4.4	0.905	4.4	0.899
4.6	0.902	4.6	0.896
4.8	0.899	4.8	0.893
5	0.896	5	0.89
5.2	0.893	5.2	0.883
5.4	0.89	5.4	0.88
5.6	0.886	5.6	0.877
5.8	0.883	5.8	0.874
6	0.877	6	0.871
6.2	0.874	6.2	0.868
6.4	0.874	6.4	0.864
6.6	0.871	6.6	0.861
6.8	0.868	6.8	0.858
7	0.864	7	0.855
7.2	0.861	7.2	0.852
7.4	0.858	7.4	0.849
7.6	0.855	7.6	0.842
7.8	0.852	7.8	0.842
8	0.849	8	0.839
8.2	0.845	8.2	0.836
8.4	0.842	8.4	0.833
8.6	0.839	8.6	0.83
8.8	0.836	8.8	0.827
9	0.836	9	0.823
9.2	0.833	9.2	0.82
9.4	0.83	9.4	0.817
9.6	0.827	9.6	0.814
9.8	0.823	9.8	0.811
10	0.82	10	0.808
11	0.806	11	0.795
12	0.798	12	0.782
13	0.785	13	0.767
14	0.773	14	0.754
15	0.763	15	0.741
16	0.751	16	0.729
17	0.738	17	0.716
18	0.729	18	0.703
19	0.719	19	0.694
20	0.71	20	0.681
21	0.7	21	0.672
22	0.691	22	0.659
23	0.681	23	0.647
24	0.672	24	0.637
25	0.662	25	0.628
26	0.656	26	0.618
27	0.643	27	0.609
28	0.637	28	0.599
29	0.628	29	0.59
30	0.621	30	0.577
31	0.612	31	0.571
32	0.606	32	0.561
33	0.599	33	0.552
34	0.59	34	0.542
35	0.583	35	0.536
36	0.577	36	0.53
37	0.571	37	0.52
38	0.565	38	0.514
39	0.558	39	0.505
40	0.552	40	0.495
		41	0.489
		42	0.482
		43	0.476
		44	0.467
		45	0.46
		46	0.454
		47	0.448
		48	0.441
		49	0.435
		50	0.429
		51	0.422
		52	0.416
		53	0.413
		54	0.407

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 58M-92-01x	R. RUSTAD
DATE OF TEST	10.20.92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEL 8 / 10P-2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	- 0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	12.15' (PVC)	
WELL DEPTH (FT./TOC)	19.37' (PVC)	
XD DEPTH (FT./TOC)	19.00 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	18.00 (PVC)	
TIME OF SLUG PLACEMENT	1510	
TIME OF WL EQUILIBRATION	1615	
NEW XD REFERENCE	REFERENCED TO 0	
START TIME OF TEST	1615	
END TIME OF TEST	1653	
NOTES:	2' x 3" BAR STOCK	PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

09 05 11 0024

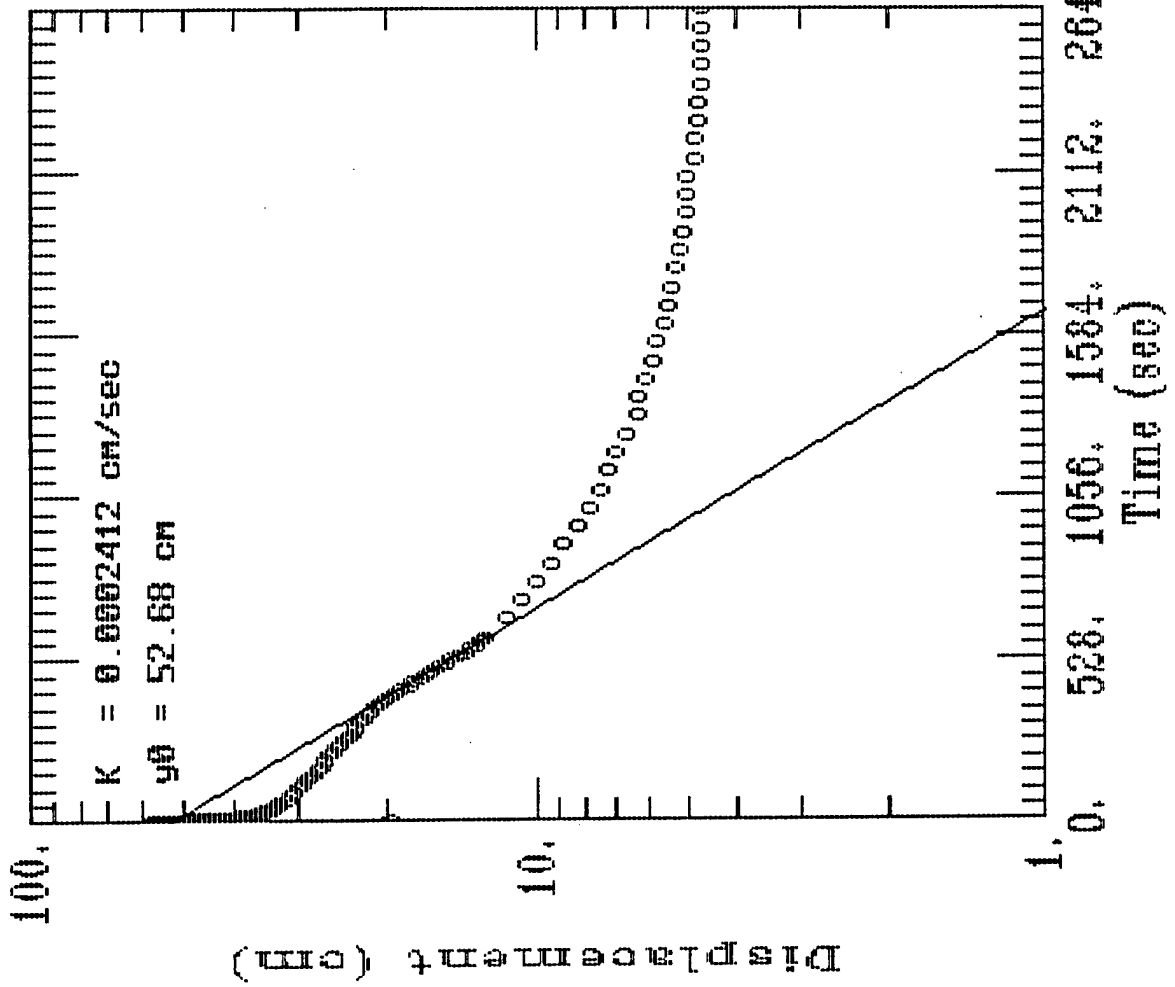
AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

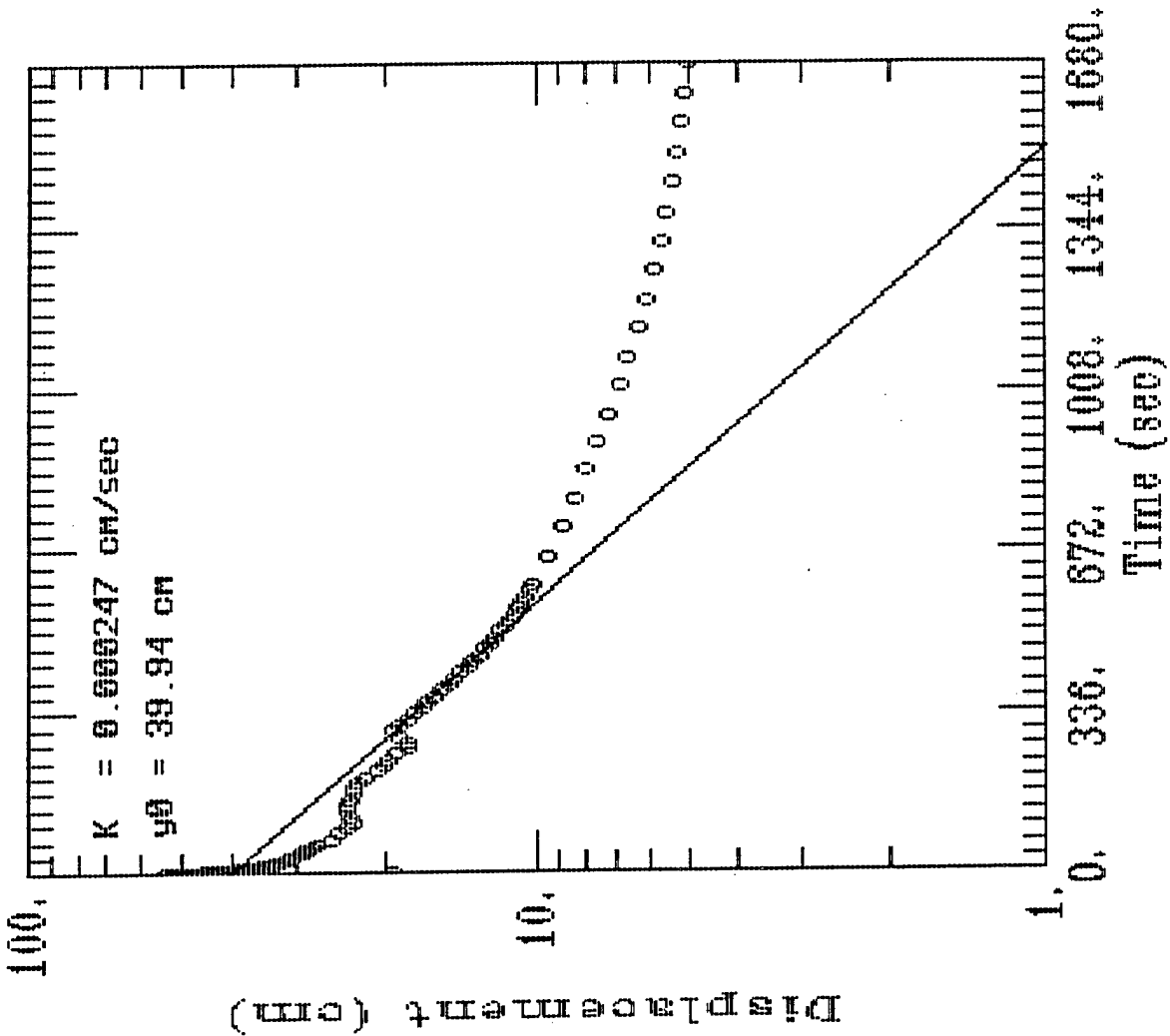
SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 58M.92.01X	R. RUSTAD
DATE OF TEST	10-21-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEL 9 / 2 OF 2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	12.15 (PVC)	
WELL DEPTH (FT./TOC)	19.37 (PVC)	
XD DEPTH (FT./TOC)	19.00 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	18.00 (PVC)	
TIME OF SLUG PLACEMENT	0812	
TIME OF WL EQUILIBRATION	0927	
NEW XD REFERENCE	0.00	
START TIME OF TEST	0930	
END TIME OF TEST	1024	
NOTES: 3' x 3"	BAR STOCK	PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

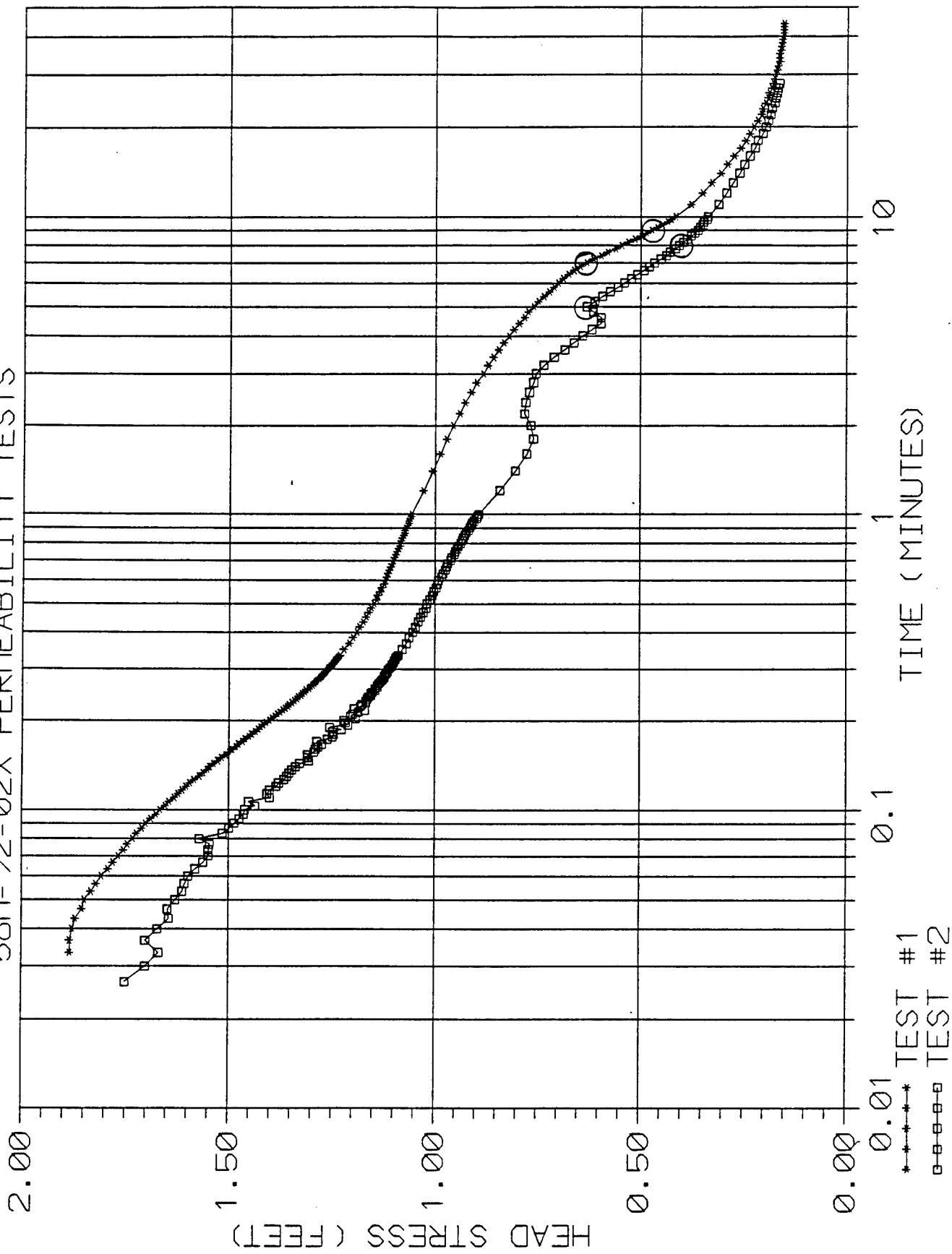
58M-92-02X PERMEABILITY TEST #1



58M-92-02X PERMEABILITY TEST #2



58M-92-02X PERMEABILITY TESTS



WELL 58M-92-02X

WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= 7.1 FT, BORING DIAMETER= 0.833 FT

TEST 1 MINUTES	FEET	TEST 2 MINUTES	FEET
0	0.097	0	-0.129
0.0033	2.054	0.0033	-0.129
0.0066	1.694	0.0066	0.839
0.01	2.089	0.01	2.294
0.0133	2.462	0.0133	0.874
0.0166	1.231	0.0166	2.102
0.02	1.433	0.02	0.735
0.0233	2.039	0.0233	2.177
0.0266	1.893	0.0266	1.751
0.03	1.931	0.03	1.701
0.0333	1.884	0.0333	1.669
0.0366	1.884	0.0366	1.701
0.04	1.878	0.04	1.672
0.0433	1.871	0.0433	1.644
0.0466	1.855	0.0466	1.647
0.05	1.849	0.05	1.628
0.0533	1.833	0.0533	1.612
0.0566	1.821	0.0566	1.606
0.06	1.808	0.06	1.597
0.0633	1.792	0.0633	1.581
0.0666	1.78	0.0666	1.562
0.07	1.767	0.07	1.549
0.0733	1.754	0.0733	1.549
0.0766	1.745	0.0766	1.546
0.08	1.732	0.08	1.571
0.0833	1.723	0.0833	1.515
0.0866	1.71	0.0866	1.499
0.09	1.701	0.09	1.486
0.0933	1.688	0.0933	1.474
0.0966	1.676	0.0966	1.464
0.1	1.666	0.1	1.461
0.1033	1.653	0.1033	1.436
0.1066	1.644	0.1066	1.451
0.11	1.631	0.11	1.401
0.1133	1.622	0.1133	1.407
0.1166	1.612	0.1166	1.401
0.12	1.603	0.12	1.385
0.1233	1.594	0.1233	1.379
0.1266	1.584	0.1266	1.366
0.13	1.571	0.13	1.36
0.1333	1.562	0.1333	1.354
0.1366	1.552	0.1366	1.347
0.14	1.546	0.14	1.338
0.1433	1.537	0.1433	1.328
0.1466	1.527	0.1466	1.306
0.15	1.518	0.15	1.309
0.1533	1.508	0.1533	1.309
0.1566	1.499	0.1566	1.294
0.16	1.492	0.16	1.29
0.1633	1.483	0.1633	1.284
0.1666	1.477	0.1666	1.275
0.17	1.467	0.17	1.287
0.1733	1.461	0.1733	1.262
0.1766	1.451	0.1766	1.249
0.18	1.445	0.18	1.246
0.1833	1.436	0.1833	1.249
0.1866	1.429	0.1866	1.227
0.19	1.423	0.19	1.256
0.1933	1.417	0.1933	1.212
0.1966	1.41	0.1966	1.218
0.2	1.401	0.2	1.221
0.2033	1.395	0.2033	1.193
0.2066	1.388	0.2066	1.205
0.21	1.382	0.21	1.199
0.2133	1.376	0.2133	1.186
0.2166	1.369	0.2166	1.171
0.22	1.363	0.22	1.196
0.2233	1.357	0.2233	1.18
0.2266	1.354	0.2266	1.177
0.23	1.347	0.23	1.167
0.2333	1.341	0.2333	1.167
0.2366	1.335	0.2366	1.164
0.24	1.332	0.24	1.161
0.2433	1.325	0.2433	1.155
0.2466	1.322	0.2466	1.155
0.25	1.316	0.25	1.152
0.2533	1.313	0.2533	1.145
0.2566	1.306	0.2566	1.145
0.26	1.303	0.26	1.139
0.2633	1.297	0.2633	1.139
0.2666	1.294	0.2666	1.136
0.27	1.29	0.27	1.133
0.2733	1.287	0.2733	1.129
0.2766	1.281	0.2766	1.126
0.28	1.278	0.28	1.123
0.2833	1.275	0.2833	1.123
0.2866	1.272	0.2866	1.12
0.29	1.268	0.29	1.117
0.2933	1.265	0.2933	1.114
0.2966	1.262	0.2966	1.114
0.3	1.259	0.3	1.111
0.3033	1.256	0.3033	1.107
0.3066	1.253	0.3066	1.104
0.31	1.249	0.31	1.104
0.3133	1.246	0.3133	1.101
0.3166	1.243	0.3166	1.098
0.32	1.243	0.32	1.098
0.3233	1.24	0.3233	1.095
0.3266	1.237	0.3266	1.095
0.33	1.234	0.33	1.092
0.3333	1.231	0.3333	1.088
0.35	1.221	0.35	1.079
0.3666	1.208	0.3666	1.07
0.3833	1.199	0.3833	1.063
0.4	1.189	0.4	1.054
0.4166	1.183	0.4166	1.047
0.4333	1.174	0.4333	1.041
0.45	1.167	0.45	1.035
0.4666	1.161	0.4666	1.028
0.4833	1.155	0.4833	1.022
0.5	1.148	0.5	1.019
0.5166	1.142	0.5166	1.013
0.5333	1.139	0.5333	1.006
0.55	1.133	0.55	1.003

0.5666 1.129
0.5833 1.123
0.6 1.12
0.6166 1.117
0.6333 1.114
0.65 1.111
0.6666 1.107
0.6833 1.104
0.7 1.101
0.7166 1.098
0.7333 1.095
0.75 1.092
0.7666 1.088
0.7833 1.085
0.8 1.085
0.8166 1.082
0.8333 1.079
0.85 1.076
0.8666 1.073
0.8833 1.073
0.9 1.07
0.9166 1.066
0.9333 1.063
0.95 1.063
0.9666 1.06
0.9833 1.057
1 1.057
1.2 1.028
1.4 1.006
1.6 0.987
1.8 0.972
2 0.956
2.2 0.94
2.4 0.927
2.6 0.912
2.8 0.899
3 0.883
3.2 0.871
3.4 0.858
3.6 0.845
3.8 0.833
4 0.82
4.2 0.808
4.4 0.795
4.6 0.782
4.8 0.773
5 0.76
5.2 0.748
5.4 0.735
5.6 0.722
5.8 0.71
6 0.7
6.2 0.688
6.4 0.675
6.6 0.662
6.8 0.647
7 0.631
7.2 0.615
7.4 0.596
7.6 0.58
7.8 0.561
8 0.546
8.2 0.53
8.4 0.514
8.6 0.498
8.8 0.486
9 0.473
9.2 0.46
9.4 0.448
9.6 0.435
9.8 0.426
10 0.416
11 0.378
12 0.35
13 0.328
14 0.306
15 0.29
16 0.274
17 0.258
18 0.246
19 0.236
20 0.227
21 0.217
22 0.208
23 0.205
24 0.198
25 0.192
26 0.189
27 0.183
28 0.179
29 0.176
30 0.173
31 0.17
32 0.167
33 0.164
34 0.164
35 0.164
36 0.16
37 0.16
38 0.157
39 0.157
40 0.154
41 0.154
42 0.154
43 0.154
44 0.154

0.5666 0.997
0.5833 0.994
0.6 0.991
0.6166 0.984
0.6333 0.981
0.65 0.975
0.6666 0.972
0.6833 0.969
0.7 0.962
0.7166 0.959
0.7333 0.953
0.75 0.95
0.7666 0.946
0.7833 0.943
0.8 0.937
0.8166 0.934
0.8333 0.931
0.85 0.927
0.8666 0.924
0.8833 0.918
0.9 0.915
0.9166 0.912
0.9333 0.909
0.95 0.905
0.9666 0.899
0.9833 0.896
1 0.893
1.2 0.842
1.4 0.804
1.6 0.776
1.8 0.76
2 0.766
2.2 0.782
2.4 0.779
2.6 0.77
2.8 0.76
3 0.754
3.2 0.735
3.4 0.71
3.6 0.684
3.8 0.662
4 0.64
4.2 0.618
4.4 0.596
4.6 0.596
4.8 0.615
5 0.631
5.2 0.612
5.4 0.593
5.6 0.574
5.8 0.555
6 0.539
6.2 0.523
6.4 0.508
6.6 0.492
6.8 0.479
7 0.467
7.2 0.451
7.4 0.438
7.6 0.429
7.8 0.416
8 0.407
8.2 0.397
8.4 0.388
8.6 0.378
8.8 0.369
9 0.362
9.2 0.356
9.4 0.35
9.6 0.347
9.8 0.34
10 0.337
11 0.312
12 0.293
13 0.277
14 0.261
15 0.249
16 0.236
17 0.224
18 0.217
19 0.205
20 0.198
21 0.192
22 0.186
23 0.183
24 0.176
25 0.173
26 0.17
27 0.167
28 0.164

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 58M.92.02X	R. RUSTAD
DATE OF TEST	10.21.92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEL 10 / 10F2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	10.02 (PVC)	
WELL DEPTH (FT./TOC)	17.09 (PVC)	
XD DEPTH (FT./TOC)	16.50 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	15.00 (PVC)	
TIME OF SLUG PLACEMENT	10 0825	
TIME OF WL EQUILIBRATION	1030	
NEW XD REFERENCE	0.00	
START TIME OF TEST	1034	
END TIME OF TEST	1118	
NOTES:	3'x3" BAR STOCK	PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

09-0811024

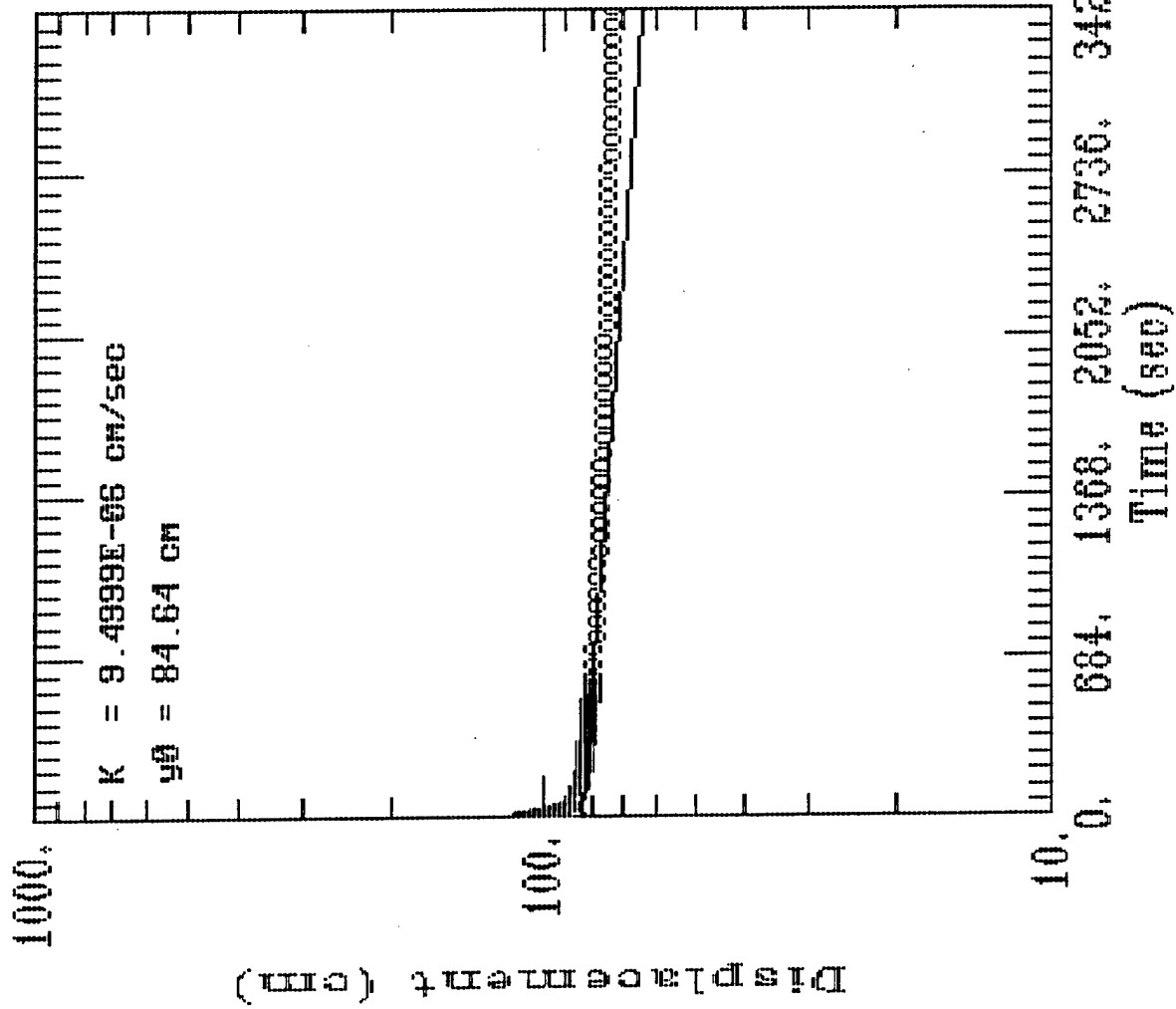
AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

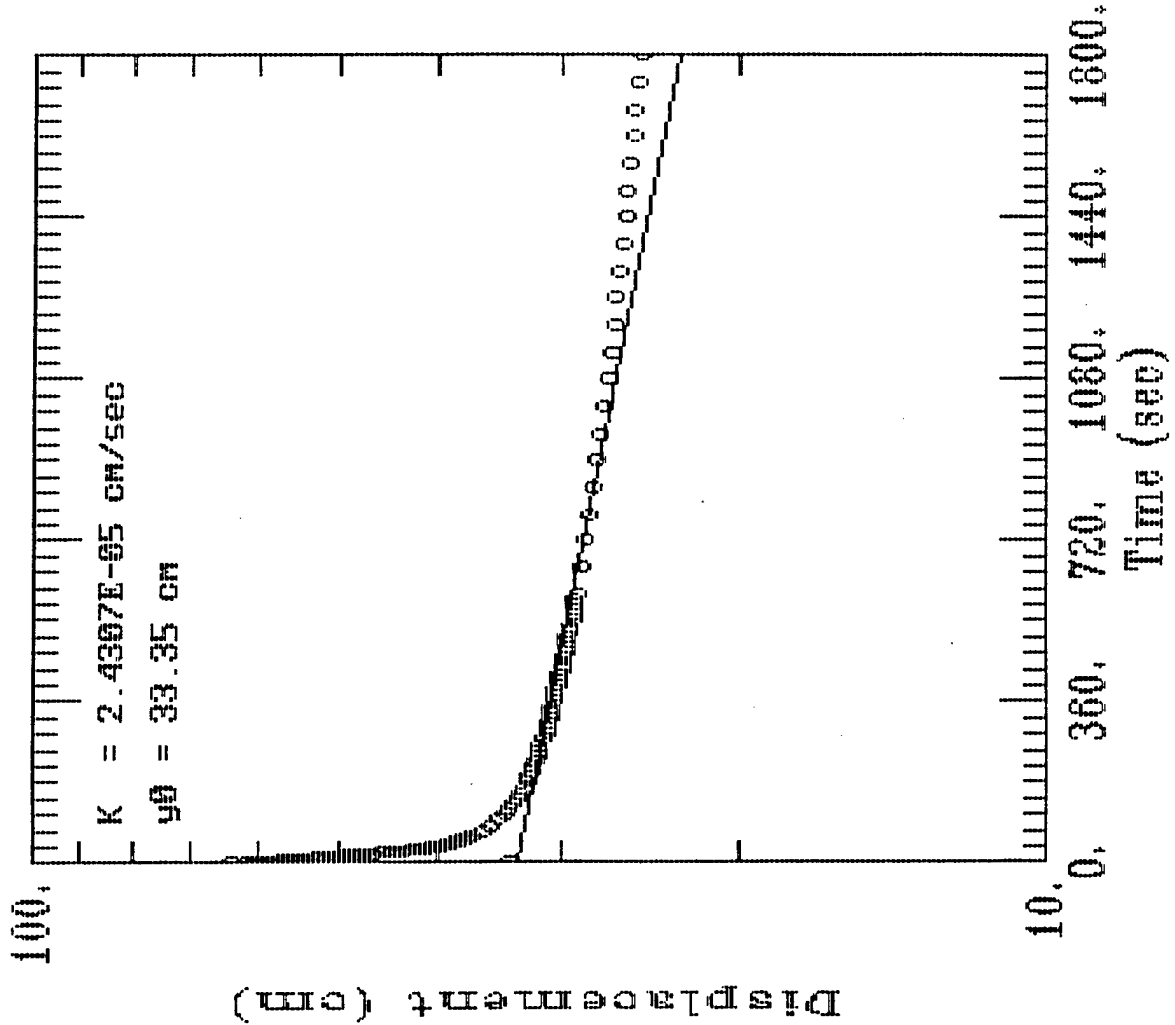
SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 58M-92-02A	R. RUSTAD
DATE OF TEST	10.21.92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 11KCO1732	
TEST #	SEL 11 / 20F 2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	10.02 (PVC)	
WELL DEPTH (FT./TOC)	17.09 (PVC)	
XD DEPTH (FT./TOC)	16.50 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	15.00	
TIME OF SLUG PLACEMENT	1120	
TIME OF WL EQUILIBRATION	1150	
NEW XD REFERENCE	REFERENCED TO 0	
START TIME OF TEST	1131	
END TIME OF TEST	1200	
NOTES:	3' x 3"	BAR STOCK PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

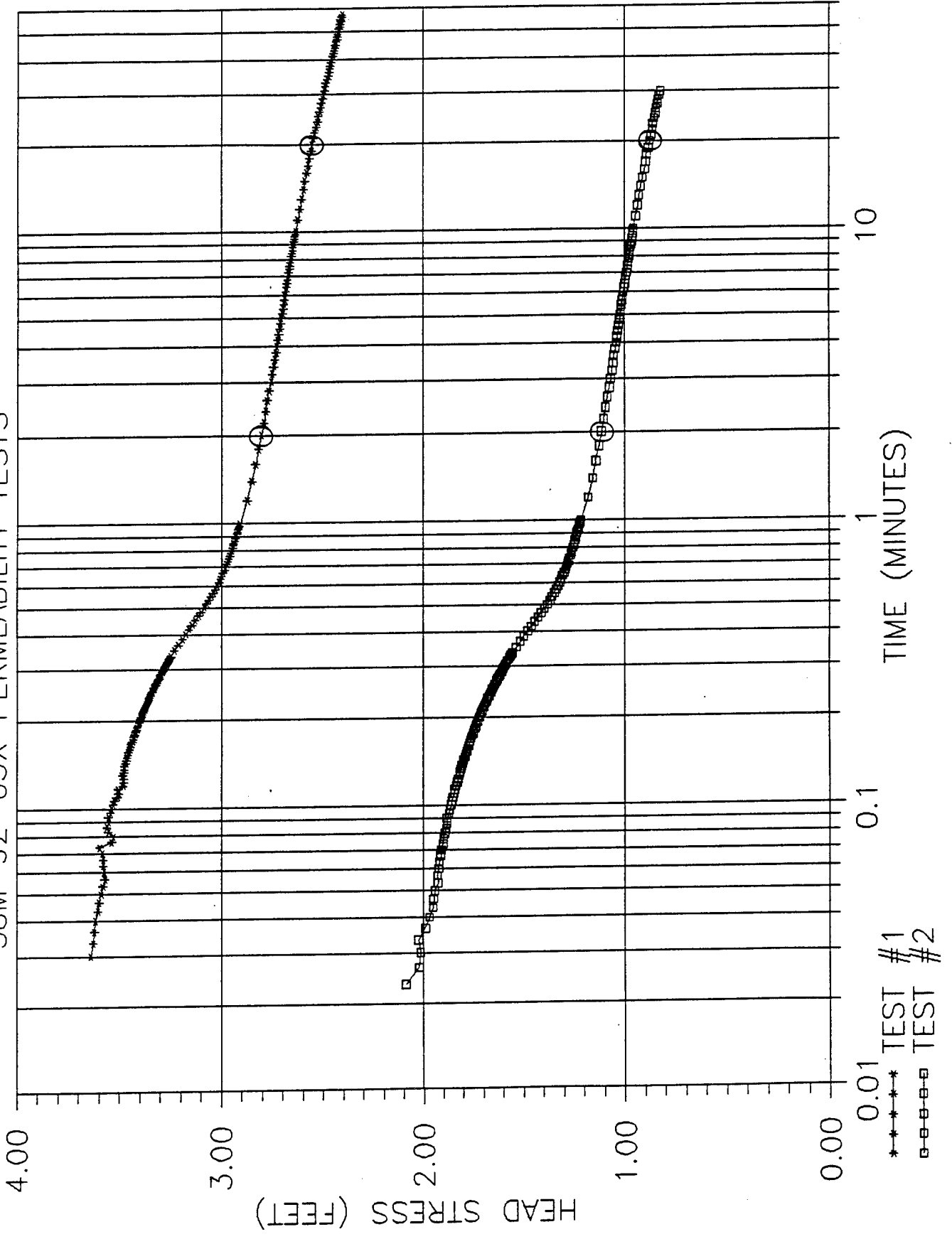
58M-92-03X PERMEABILITY TEST #1



58M-92-03X PERMEABILITY TEST #2



58M-92-03X PERMEABILITY TESTS



WELL 56M-92-03X

WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= 5.2 FT, BORING DIAMETER= 0.833 FT

TEST 1		TEST 2	
MINUTES	FEET	MINUTES	FEET
0	1.707	0	0.003
0.0033	2.064	0.0033	0.154
0.0066	3.664	0.0066	1.84
0.01	4.021	0.01	1.511
0.0133	2.127	0.0133	2.108
0.0166	3.746	0.0166	0.296
0.02	3.607	0.02	2.127
0.0233	3.633	0.0233	2.089
0.0266	3.629	0.0266	2.023
0.03	3.639	0.03	2.016
0.0333	3.626	0.0333	2.026
0.0366	3.62	0.0366	1.991
0.04	3.617	0.04	1.972
0.0433	3.604	0.0433	1.953
0.0466	3.598	0.0466	1.95
0.05	3.588	0.05	1.944
0.0533	3.579	0.0533	1.928
0.0566	3.569	0.0566	1.931
0.06	3.573	0.06	1.925
0.0633	3.576	0.0633	1.922
0.0666	3.576	0.0666	1.915
0.07	3.582	0.07	1.912
0.0733	3.595	0.0733	1.903
0.0766	3.535	0.0766	1.9
0.08	3.528	0.08	1.893
0.0833	3.551	0.0833	1.887
0.0866	3.56	0.0866	1.881
0.09	3.551	0.09	1.884
0.0933	3.551	0.0933	1.874
0.0966	3.541	0.0966	1.868
0.1	3.535	0.1	1.862
0.1033	3.528	0.1033	1.859
0.1066	3.522	0.1066	1.852
0.11	3.506	0.11	1.846
0.1133	3.503	0.1133	1.843
0.1166	3.503	0.1166	1.837
0.12	3.481	0.12	1.83
0.1233	3.478	0.1233	1.827
0.1266	3.478	0.1266	1.821
0.13	3.481	0.13	1.818
0.1333	3.478	0.1333	1.814
0.1366	3.475	0.1366	1.808
0.14	3.475	0.14	1.802
0.1433	3.468	0.1433	1.799
0.1466	3.465	0.1466	1.792
0.15	3.462	0.15	1.789
0.1533	3.456	0.1533	1.783
0.1566	3.453	0.1566	1.78
0.16	3.449	0.16	1.773
0.1633	3.443	0.1633	1.77
0.1666	3.44	0.1666	1.767
0.17	3.437	0.17	1.761
0.1733	3.431	0.1733	1.758
0.1766	3.427	0.1766	1.751
0.18	3.424	0.18	1.748
0.1833	3.418	0.1833	1.742
0.1866	3.415	0.1866	1.739
0.19	3.412	0.19	1.736
0.1933	3.408	0.1933	1.729
0.1966	3.402	0.1966	1.726
0.2	3.399	0.2	1.72
0.2033	3.396	0.2033	1.717
0.2066	3.393	0.2066	1.713
0.21	3.386	0.21	1.707
0.2133	3.383	0.2133	1.704
0.2166	3.38	0.2166	1.698
0.22	3.377	0.22	1.695
0.2233	3.371	0.2233	1.691
0.2266	3.367	0.2266	1.685
0.23	3.364	0.23	1.682
0.2333	3.358	0.2333	1.679
0.2366	3.355	0.2366	1.672
0.24	3.352	0.24	1.669
0.2433	3.348	0.2433	1.663
0.2466	3.345	0.2466	1.66
0.25	3.339	0.25	1.657
0.2533	3.336	0.2533	1.65
0.2566	3.333	0.2566	1.647
0.26	3.33	0.26	1.644
0.2633	3.323	0.2633	1.638
0.2666	3.32	0.2666	1.635
0.27	3.317	0.27	1.631
0.2733	3.314	0.2733	1.628
0.2766	3.307	0.2766	1.622
0.28	3.304	0.28	1.619
0.2833	3.301	0.2833	1.616
0.2866	3.298	0.2866	1.609
0.29	3.295	0.29	1.606
0.2933	3.289	0.2933	1.603
0.2966	3.285	0.2966	1.6
0.3	3.282	0.3	1.594
0.3033	3.279	0.3033	1.59
0.3066	3.276	0.3066	1.587
0.31	3.273	0.31	1.584
0.3133	3.266	0.3133	1.581
0.3166	3.263	0.3166	1.575
0.32	3.26	0.32	1.571
0.3233	3.257	0.3233	1.568
0.3266	3.254	0.3266	1.565
0.33	3.251	0.33	1.559
0.3333	3.247	0.3333	1.556
0.35	3.229	0.35	1.537
0.3666	3.21	0.3666	1.518
0.3833	3.191	0.3833	1.499
0.4	3.175	0.4	1.48
0.4166	3.159	0.4166	1.461
0.4333	3.143	0.4333	1.445
0.45	3.128	0.45	1.429
0.4666	3.112	0.4666	1.414
0.4833	3.099	0.4833	1.398
0.5	3.083	0.5	1.382
0.5166	3.071	0.5166	1.369
0.5333	3.061	0.5333	1.36
0.55	3.049	0.55	1.347

0.5666	3.039	0.5666	1.338
0.5833	3.03	0.5833	1.328
0.6	3.02	0.6	1.319
0.6166	3.011	0.6166	1.313
0.6333	3.004	0.6333	1.306
0.65	2.998	0.65	1.297
0.6666	2.992	0.6666	1.291
0.6833	2.982	0.6833	1.287
0.7	2.979	0.7	1.281
0.7166	2.973	0.7166	1.275
0.7333	2.967	0.7333	1.272
0.75	2.963	0.75	1.265
0.7666	2.957	0.7666	1.262
0.7833	2.954	0.7833	1.259
0.8	2.951	0.8	1.253
0.8166	2.944	0.8166	1.249
0.8333	2.941	0.8333	1.246
0.85	2.938	0.85	1.243
0.8666	2.932	0.8666	1.24
0.8833	2.929	0.8833	1.237
0.9	2.926	0.9	1.234
0.9166	2.922	0.9166	1.231
0.9333	2.919	0.9333	1.227
0.95	2.916	0.95	1.224
0.9666	2.913	0.9666	1.221
0.9833	2.91	0.9833	1.218
1	2.907	1	1.215
1.2	2.872	1.2	1.18
1.4	2.85	1.4	1.158
1.6	2.831	1.6	1.142
1.8	2.815	1.8	1.126
2	2.802	2	1.114
2.2	2.79	2.2	1.104
2.4	2.78	2.4	1.095
2.6	2.774	2.6	1.085
2.8	2.765	2.8	1.076
3	2.755	3	1.07
3.2	2.749	3.2	1.063
3.4	2.742	3.4	1.057
3.6	2.736	3.6	1.054
3.8	2.73	3.8	1.047
4	2.727	4	1.041
4.2	2.72	4.2	1.038
4.4	2.717	4.4	1.035
4.6	2.711	4.6	1.029
4.8	2.708	4.8	1.025
5	2.705	5	1.022
5.2	2.698	5.2	1.019
5.4	2.695	5.4	1.016
5.6	2.692	5.6	1.013
5.8	2.689	5.8	1.01
6	2.686	6	1.006
6.2	2.682	6.2	1.003
6.4	2.679	6.4	1
6.6	2.676	6.6	0.997
6.8	2.673	6.8	0.994
7	2.67	7	0.991
7.2	2.667	7.2	0.987
7.4	2.664	7.4	0.987
7.6	2.664	7.6	0.984
7.8	2.66	7.8	0.981
8	2.657	8	0.978
8.2	2.654	8.2	0.975
8.4	2.651	8.4	0.975
8.6	2.648	8.6	0.972
8.8	2.648	8.8	0.969
9	2.645	9	0.965
9.2	2.641	9.2	0.965
9.4	2.638	9.4	0.962
9.6	2.638	9.6	0.959
9.8	2.635	9.8	0.959
10	2.632	10	0.956
11	2.623	11	0.946
12	2.613	12	0.937
13	2.604	13	0.931
14	2.594	14	0.921
15	2.588	15	0.912
16	2.578	16	0.902
17	2.572	17	0.896
18	2.566	18	0.893
19	2.556	19	0.883
20	2.553	20	0.877
21	2.547	21	0.871
22	2.54	22	0.864
23	2.531	23	0.861
24	2.525	24	0.855
25	2.522	25	0.849
26	2.515	26	0.845
27	2.509	27	0.839
28	2.506	28	0.836
29	2.499	29	0.83
30	2.496	30	0.823
31	2.49		
32	2.487		
33	2.484		
34	2.477		
35	2.471		
36	2.468		
37	2.465		
38	2.462		
39	2.458		
40	2.455		
41	2.449		
42	2.446		
43	2.443		
44	2.439		
45	2.436		
46	2.433		
47	2.427		
48	2.427		
49	2.424		
50	2.42		
51	2.417		
52	2.414		
53	2.414		
54	2.408		
55	2.408		
56	2.405		
57	2.402		

0 051222

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 58M.92.03x	R. RUSTAD
DATE OF TEST	10.21.92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / KCO1732	
TEST #	SEL 12 / 10F 2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	12.03 (PVC)	
WELL DEPTH (FT./TOC)	17.28 (PVC)	
XD DEPTH (FT./TOC)	16.50 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	15.00 (PVC)	
TIME OF SLUG PLACEMENT	1145	
TIME OF WL EQUILIBRATION	1245	
NEW XD REFERENCE	0.00	
START TIME OF TEST	1247	
END TIME OF TEST	1340	
NOTES: 3' x 3'	BAR STOCK	PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

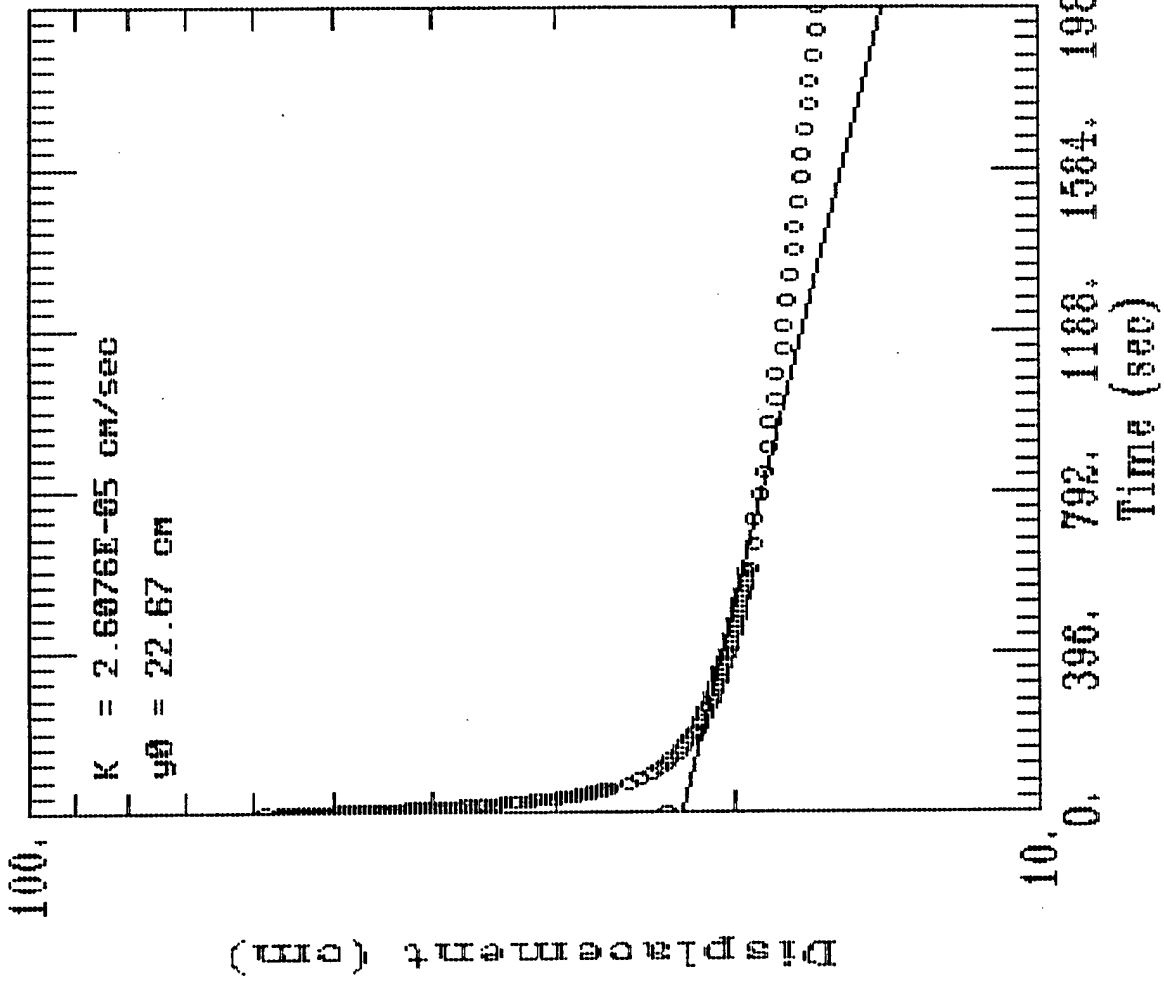
AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

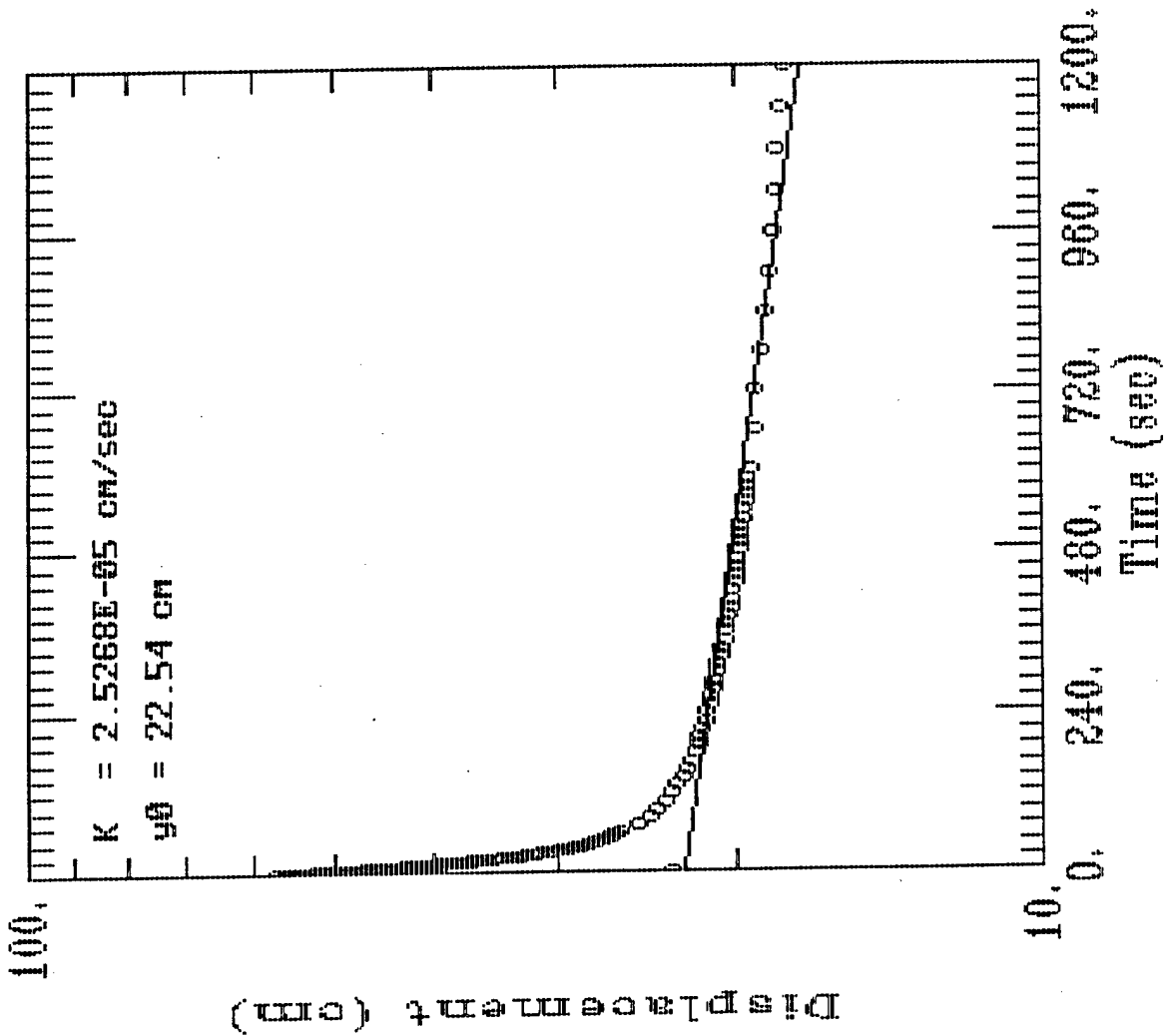
SETUP	DATE	BY WHOM
MONITORING WELL ID	4" SEM. 92.03X	R. RUSTAD
DATE OF TEST	10.21.92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEL15 / 20FZ	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	- 0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	12.08 (PVC)	
WELL DEPTH (FT./TOC)	17.28 (PVC)	
XD DEPTH (FT./TOC)	16.50 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	15.00 (PVC)	
TIME OF SLUG PLACEMENT	—	
TIME OF WL EQUILIBRATION	—	
NEW XD REFERENCE	0.00	
START TIME OF TEST	1315	
END TIME OF TEST	1345	
NOTES: 3' x 3"	BAR STOCK	PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

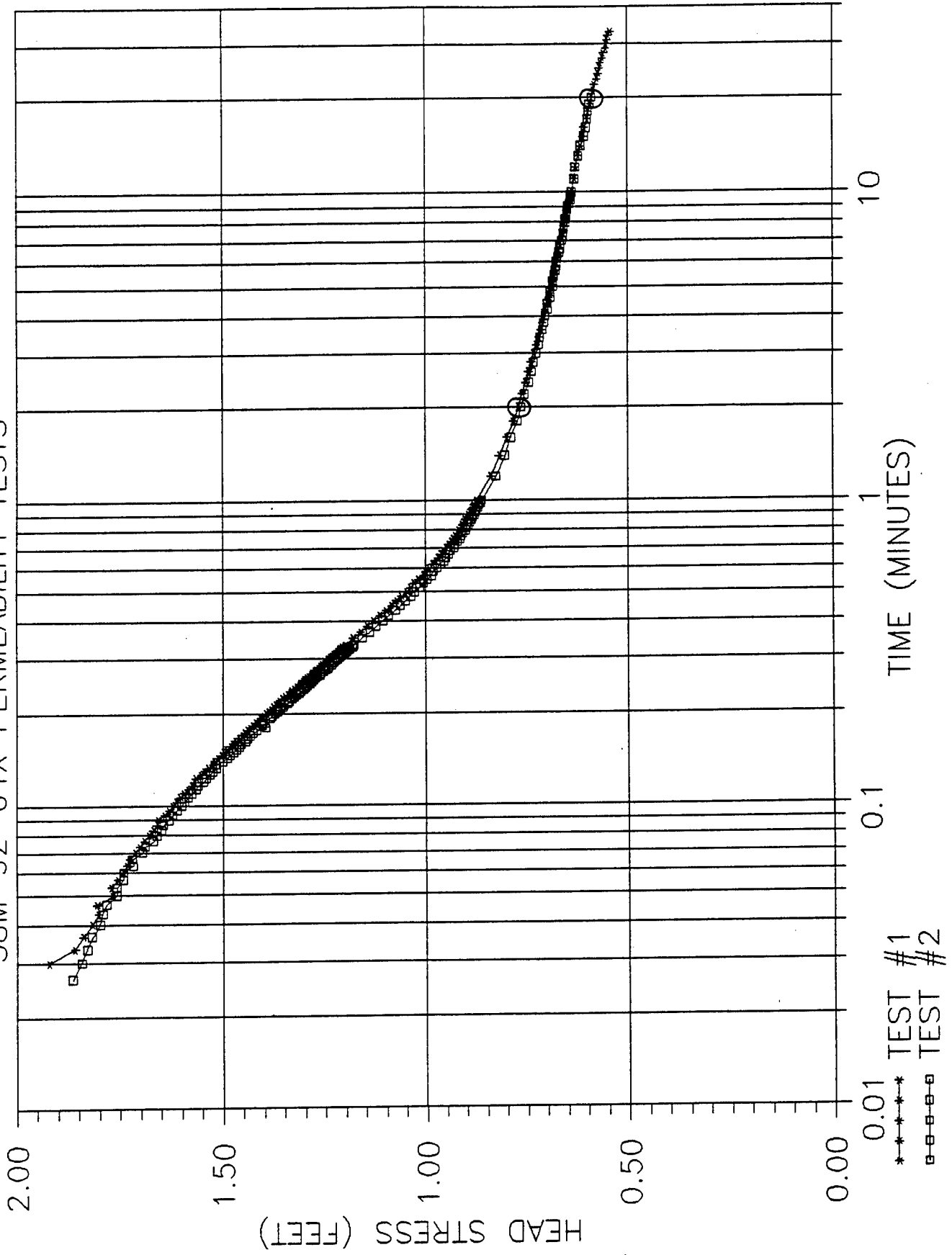
58M-92-04X PERMEABILITY TEST #1



50M-92-04X PERMEABILITY TEST #2



58M-92-04X PERMEABILITY TESTS



WELL 58M-92-04X

WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= 5.6 FT, BORING DIAMETER= 0.833 FT

TEST 1		TEST 2	
MINUTES	FEET	MINUTES	FEET
0	0.132	0	0
0.0033	0.363	0.0033	0.811
0.0066	1.852	0.0066	2.323
0.01	1.407	0.01	0.956
0.0133	2.376	0.0133	1.218
0.0166	1.006	0.0166	1.237
0.02	1.676	0.02	2.035
0.0233	2.007	0.0233	1.852
0.0266	1.856	0.0266	1.865
0.03	1.922	0.03	1.843
0.0333	1.859	0.0333	1.83
0.0366	1.84	0.0366	1.818
0.04	1.818	0.04	1.799
0.0433	1.802	0.0433	1.792
0.0466	1.805	0.0466	1.783
0.05	1.767	0.05	1.758
0.0533	1.77	0.0533	1.758
0.0566	1.755	0.0566	1.742
0.06	1.742	0.06	1.742
0.0633	1.732	0.0633	1.717
0.0666	1.726	0.0666	1.72
0.07	1.713	0.07	1.695
0.0733	1.701	0.0733	1.688
0.0766	1.691	0.0766	1.669
0.08	1.679	0.08	1.66
0.0833	1.669	0.0833	1.65
0.0866	1.66	0.0866	1.644
0.09	1.657	0.09	1.631
0.0933	1.641	0.0933	1.622
0.0966	1.631	0.0966	1.612
0.1	1.622	0.1	1.6
0.1033	1.612	0.1033	1.594
0.1066	1.603	0.1066	1.584
0.11	1.594	0.11	1.575
0.1133	1.584	0.1133	1.565
0.1166	1.575	0.1166	1.559
0.12	1.568	0.12	1.546
0.1233	1.565	0.1233	1.54
0.1266	1.552	0.1266	1.53
0.13	1.543	0.13	1.524
0.1333	1.534	0.1333	1.515
0.1366	1.524	0.1366	1.518
0.14	1.518	0.14	1.499
0.1433	1.511	0.1433	1.489
0.1466	1.502	0.1466	1.483
0.15	1.496	0.15	1.474
0.1533	1.489	0.1533	1.467
0.1566	1.48	0.1566	1.461
0.16	1.474	0.16	1.455
0.1633	1.467	0.1633	1.445
0.1666	1.458	0.1666	1.439
0.17	1.451	0.17	1.433
0.1733	1.445	0.1733	1.426
0.1766	1.439	0.1766	1.417
0.18	1.433	0.18	1.395
0.1833	1.426	0.1833	1.404
0.1866	1.42	0.1866	1.398
0.19	1.41	0.19	1.401
0.1933	1.407	0.1933	1.385
0.1966	1.398	0.1966	1.379
0.2	1.395	0.2	1.373
0.2033	1.388	0.2033	1.366
0.2066	1.382	0.2066	1.36
0.21	1.376	0.21	1.354
0.2133	1.369	0.2133	1.35
0.2166	1.363	0.2166	1.341
0.22	1.36	0.22	1.338
0.2233	1.354	0.2233	1.332
0.2266	1.347	0.2266	1.325
0.23	1.341	0.23	1.319
0.2333	1.335	0.2333	1.313
0.2366	1.332	0.2366	1.309
0.24	1.325	0.24	1.303
0.2433	1.319	0.2433	1.297
0.2466	1.313	0.2466	1.294
0.25	1.309	0.25	1.287
0.2533	1.303	0.2533	1.281
0.2566	1.3	0.2566	1.278
0.26	1.294	0.26	1.272
0.2633	1.291	0.2633	1.268
0.2666	1.284	0.2666	1.262
0.27	1.281	0.27	1.259
0.2733	1.275	0.2733	1.253
0.2766	1.272	0.2766	1.249
0.28	1.265	0.28	1.243
0.2833	1.262	0.2833	1.24
0.2866	1.256	0.2866	1.234
0.29	1.253	0.29	1.231
0.2933	1.249	0.2933	1.227
0.2966	1.243	0.2966	1.221
0.3	1.24	0.3	1.218
0.3033	1.237	0.3033	1.212
0.3066	1.231	0.3066	1.208
0.31	1.227	0.31	1.205
0.3133	1.224	0.3133	1.199
0.3166	1.218	0.3166	1.196
0.32	1.215	0.32	1.193
0.3233	1.212	0.3233	1.189
0.3266	1.208	0.3266	1.183
0.33	1.202	0.33	1.18
0.3333	1.199	0.3333	1.177
0.35	1.18	0.35	1.158
0.3666	1.161	0.3666	1.139
0.3833	1.145	0.3833	1.123
0.4	1.13	0.4	1.107
0.4166	1.114	0.4166	1.092
0.4333	1.098	0.4333	1.076
0.45	1.085	0.45	1.063
0.4666	1.073	0.4666	1.051
0.4833	1.06	0.4833	1.038
0.5	1.047	0.5	1.029
0.5166	1.038	0.5166	1.016
0.5333	1.029	0.5333	1.006
0.55	1.019	0.55	0.997

0.5666	1.006	0.5666	0.987
0.5833	1	0.5833	0.981
0.6	0.991	0.6	0.972
0.6166	0.984	0.6166	0.965
0.6333	0.975	0.6333	0.956
0.65	0.969	0.65	0.95
0.6666	0.962	0.6666	0.943
0.6833	0.956	0.6833	0.94
0.7	0.95	0.7	0.931
0.7166	0.943	0.7166	0.928
0.7333	0.937	0.7333	0.921
0.75	0.931	0.75	0.915
0.7666	0.928	0.7666	0.912
0.7833	0.921	0.7833	0.909
0.8	0.916	0.8	0.902
0.8166	0.912	0.8166	0.899
0.8333	0.909	0.8333	0.896
0.85	0.905	0.85	0.89
0.8666	0.902	0.8666	0.886
0.8833	0.899	0.8833	0.883
0.9	0.893	0.9	0.88
0.9166	0.89	0.9166	0.877
0.9333	0.886	0.9333	0.874
0.95	0.883	0.95	0.871
0.9666	0.88	0.9666	0.868
0.9833	0.877	0.9833	0.864
1	0.874	1	0.861
1.2	0.839	1.2	0.826
1.4	0.817	1.4	0.804
1.6	0.798	1.6	0.789
1.8	0.782	1.8	0.773
2	0.77	2	0.763
2.2	0.76	2.2	0.754
2.4	0.751	2.4	0.744
2.6	0.744	2.6	0.736
2.8	0.738	2.8	0.732
3	0.732	3	0.725
3.2	0.725	3.2	0.719
3.4	0.719	3.4	0.716
3.6	0.713	3.6	0.71
3.8	0.71	3.8	0.707
4	0.707	4	0.703
4.2	0.703	4.2	0.697
4.4	0.697	4.4	0.697
4.6	0.694	4.6	0.691
4.8	0.691	4.8	0.691
5	0.688	5	0.684
5.2	0.684	5.2	0.684
5.4	0.681	5.4	0.681
5.6	0.681	5.6	0.678
5.8	0.678	5.8	0.675
6	0.675	6	0.675
6.2	0.672	6.2	0.672
6.4	0.669	6.4	0.669
6.6	0.669	6.6	0.666
6.8	0.666	6.8	0.666
7	0.662	7	0.662
7.2	0.659	7.2	0.659
7.4	0.659	7.4	0.659
7.6	0.656	7.6	0.656
7.8	0.656	7.8	0.656
8	0.653	8	0.653
8.2	0.653	8.2	0.653
8.4	0.65	8.4	0.65
8.6	0.65	8.6	0.65
8.8	0.647	8.8	0.647
9	0.647	9	0.647
9.2	0.643	9.2	0.643
9.4	0.643	9.4	0.64
9.6	0.64	9.6	0.64
9.8	0.64	9.8	0.64
10	0.637	10	0.637
11	0.631	11	0.631
12	0.628	12	0.628
13	0.621	13	0.621
14	0.615	14	0.615
15	0.609	15	0.606
16	0.606	16	0.602
17	0.599	17	0.599
18	0.596	18	0.596
19	0.59	19	0.593
20	0.587	20	0.587
21	0.583		
22	0.58		
23	0.574		
24	0.571		
25	0.568		
26	0.565		
27	0.561		
28	0.558		
29	0.552		
30	0.552		
31	0.549		
32	0.546		
33	0.542		

0151224

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 58M 92.04X	R. RUSTAS
DATE OF TEST	10.21.92	
TYPE OF TEST	RISEING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / KCO1732	
TEST #	SEL 13 / 10F2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	10.92' (PVC)	
WELL DEPTH (FT./TOC)	16.56' (PVC)	
XD DEPTH (FT./TOC)	16.00 (PVC)	
INITIAL XD REFERENCE	0.00 15.00 (PVC)	
SLUG DEPTH (FT./TOC)	14.00 (PVC)	
TIME OF SLUG PLACEMENT	1300	
TIME OF WL EQUILIBRATION	1350	
NEW XD REFERENCE	REFERENCED TO 0	
START TIME OF TEST	1350	
END TIME OF TEST	1320	
NOTES:	BAR STOCK	PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

09-085-12024

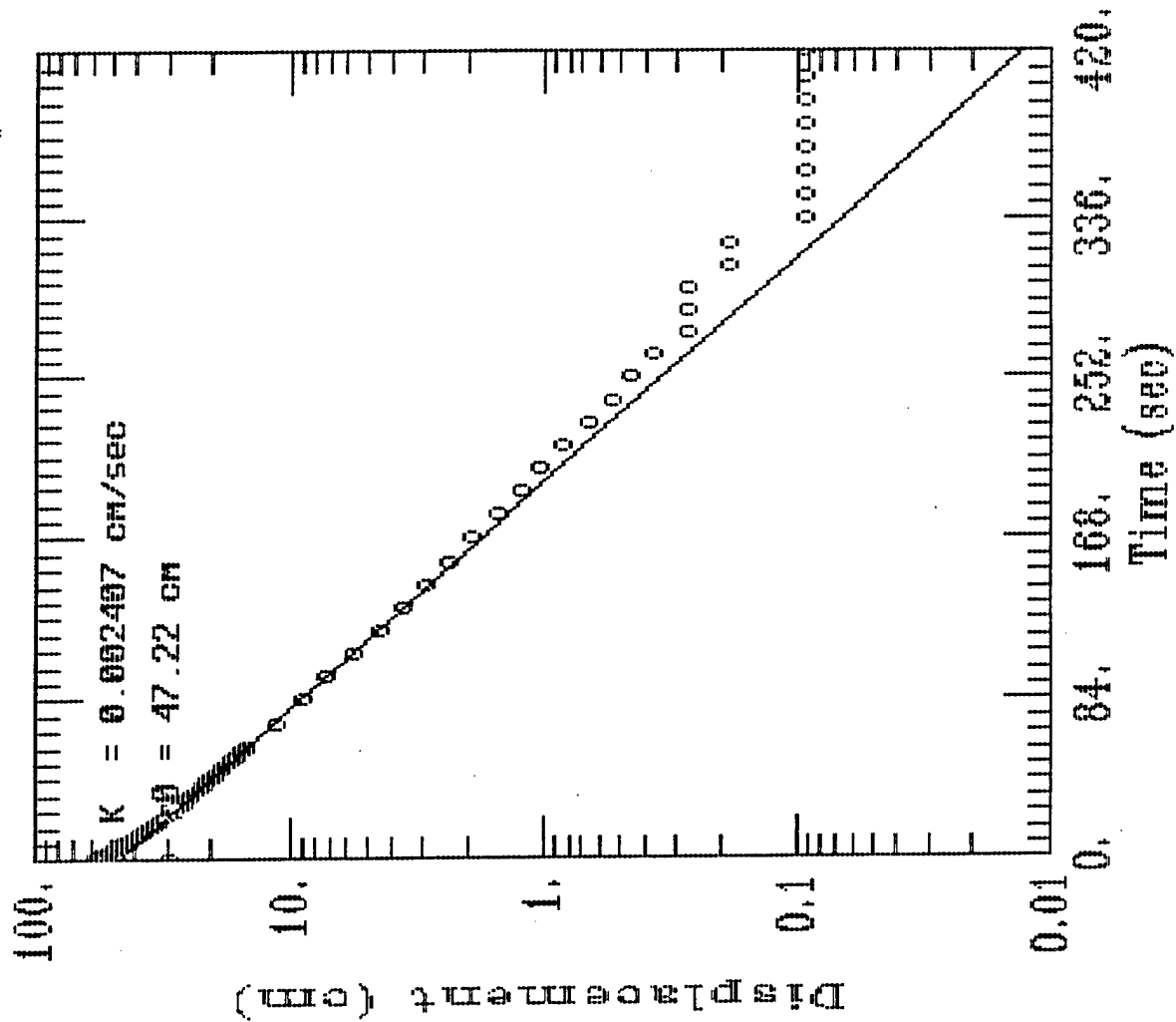
AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

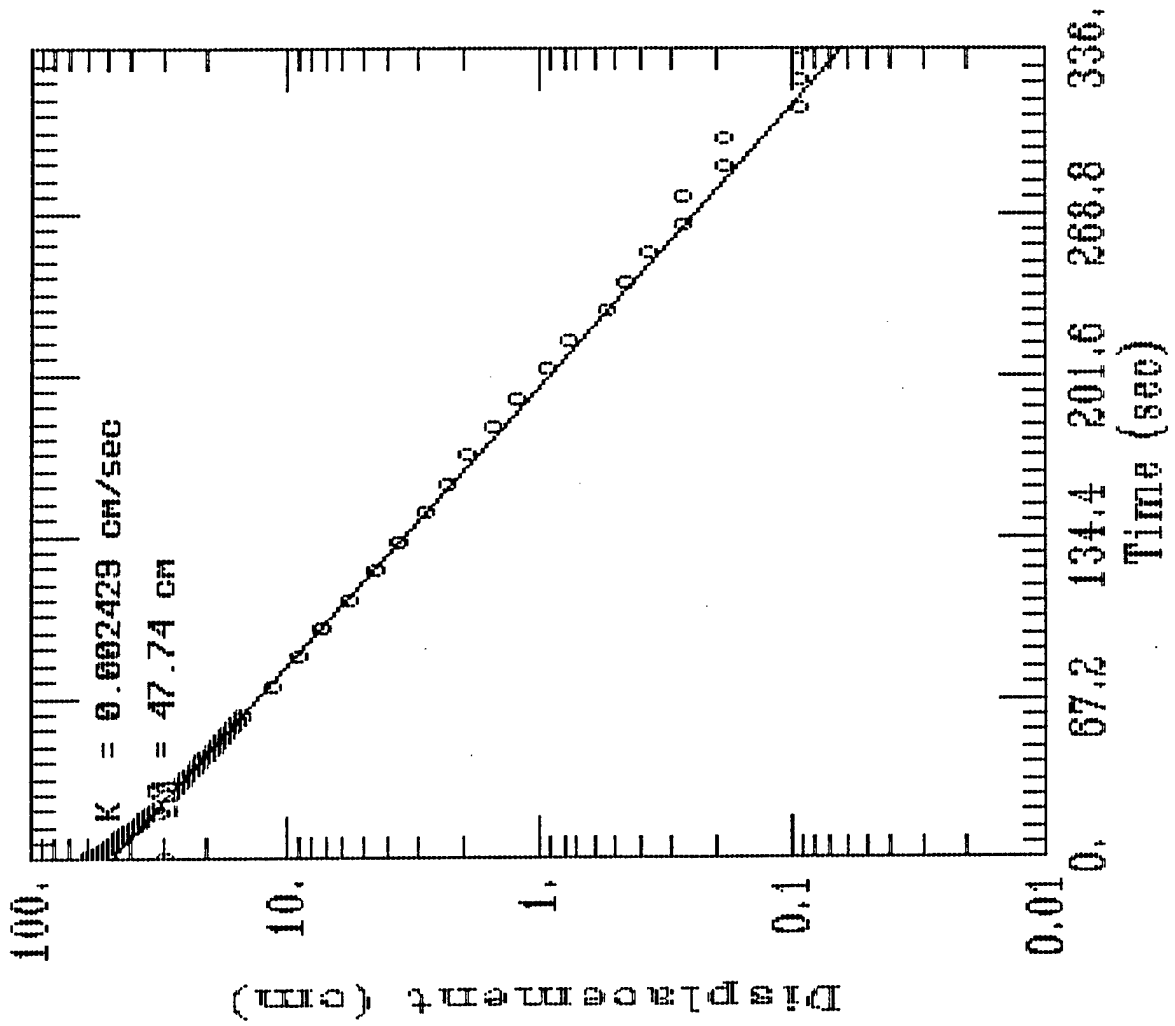
SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 58M-92-04X	ROD R. RUSTAD
DATE OF TEST	10-21-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1K001932	
TEST #	SEL 14 / 2 OF 2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	10.92	
WELL DEPTH (FT./TOC)	16.56	
XD DEPTH (FT./TOC)	16.00	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	14.00	
TIME OF SLUG PLACEMENT	1430	
TIME OF WL EQUILIBRATION	1445	
NEW XD REFERENCE	REFERENCED TO 0	
START TIME OF TEST	1445	
END TIME OF TEST	1505	
NOTES: 3' x 3"	BAR STOCK	PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

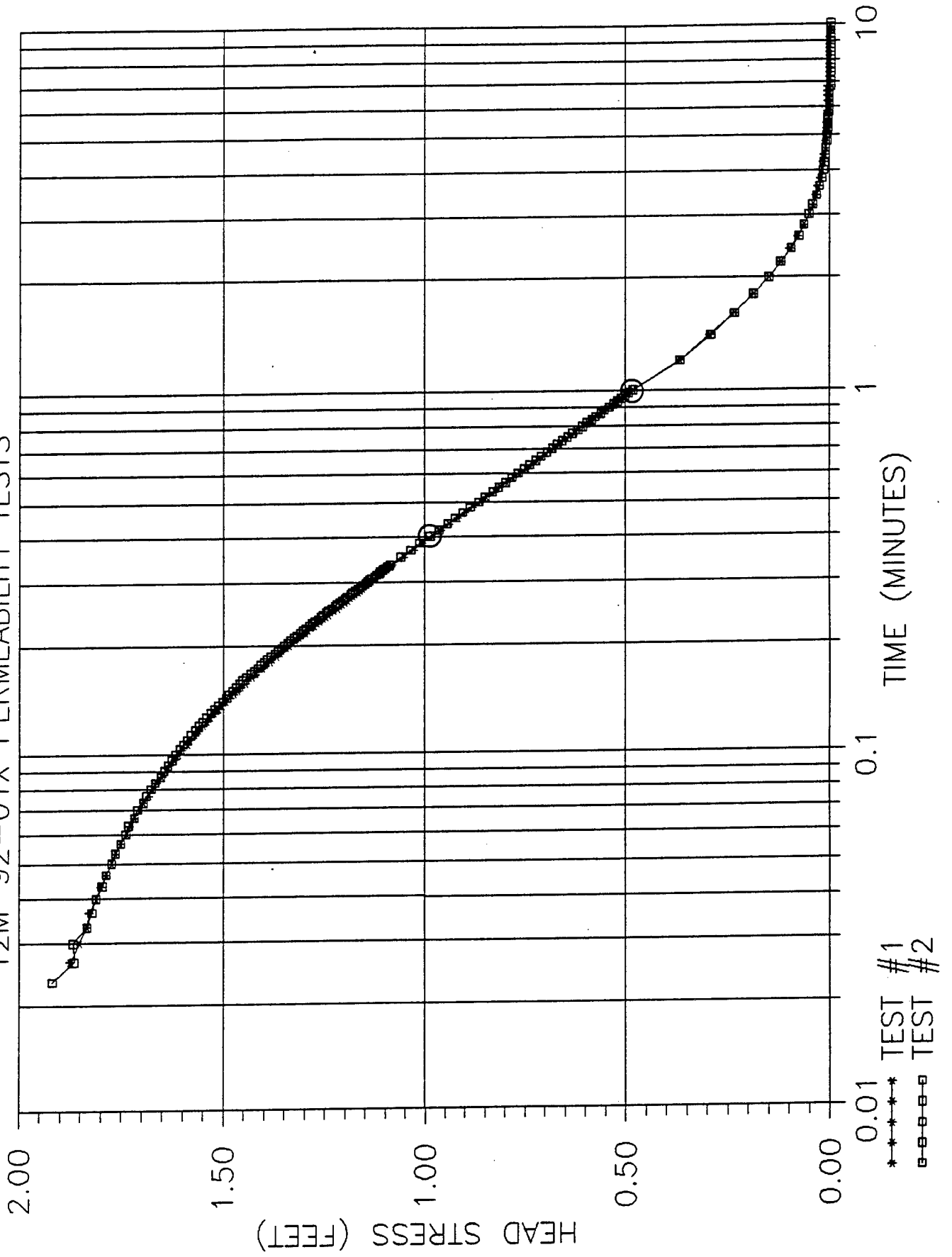
12M-92-01X PERMEABILITY TEST #1



12M-92-01X PERMEABILITY TEST #2



12M-92-01X PERMEABILITY TESTS



WELL 12M-92-01X

WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= 7.6 FT, BORING DIAMETER= 0.633 FT

TEST 1		TEST 2	
MINUTES	FEET	MINUTES	FEET
0	0.006	0	0.015
0.0033	0.236	0.0033	1.038
0.0066	2.285	0.0066	1.12
0.01	0.303	0.01	1.47
0.0133	0.991	0.0133	0.126
0.0166	1.063	0.0166	1.006
0.02	2.007	0.02	1.909
0.0233	1.849	0.0233	1.919
0.0266	1.874	0.0266	1.865
0.03	1.852	0.03	1.868
0.0333	1.833	0.0333	1.833
0.0366	1.827	0.0366	1.821
0.04	1.811	0.04	1.811
0.0433	1.799	0.0433	1.796
0.0466	1.786	0.0466	1.786
0.05	1.773	0.05	1.773
0.0533	1.764	0.0533	1.764
0.0566	1.751	0.0566	1.751
0.06	1.736	0.06	1.739
0.0633	1.729	0.0633	1.732
0.0666	1.717	0.0666	1.717
0.07	1.704	0.07	1.71
0.0733	1.695	0.0733	1.695
0.0766	1.682	0.0766	1.688
0.08	1.672	0.08	1.676
0.0833	1.663	0.0833	1.666
0.0866	1.65	0.0866	1.653
0.09	1.641	0.09	1.644
0.0933	1.631	0.0933	1.635
0.0966	1.619	0.0966	1.625
0.1	1.609	0.1	1.616
0.1033	1.6	0.1033	1.606
0.1066	1.587	0.1066	1.597
0.11	1.581	0.11	1.587
0.1133	1.568	0.1133	1.578
0.1166	1.559	0.1166	1.568
0.12	1.549	0.12	1.559
0.1233	1.54	0.1233	1.549
0.1266	1.53	0.1266	1.54
0.13	1.521	0.13	1.53
0.1333	1.511	0.1333	1.521
0.1366	1.502	0.1366	1.511
0.14	1.493	0.14	1.502
0.1433	1.483	0.1433	1.492
0.1466	1.474	0.1466	1.486
0.15	1.464	0.15	1.477
0.1533	1.455	0.1533	1.467
0.1566	1.445	0.1566	1.458
0.16	1.439	0.16	1.451
0.1633	1.429	0.1633	1.442
0.1666	1.42	0.1666	1.433
0.17	1.414	0.17	1.423
0.1733	1.404	0.1733	1.414
0.1766	1.395	0.1766	1.407
0.18	1.385	0.18	1.398
0.1833	1.379	0.1833	1.392
0.1866	1.369	0.1866	1.382
0.19	1.36	0.19	1.373
0.1933	1.354	0.1933	1.366
0.1966	1.344	0.1966	1.357
0.2	1.338	0.2	1.35
0.2033	1.328	0.2033	1.341
0.2066	1.322	0.2066	1.335
0.21	1.313	0.21	1.325
0.2133	1.306	0.2133	1.319
0.2166	1.297	0.2166	1.309
0.22	1.291	0.22	1.303
0.2233	1.284	0.2233	1.297
0.2266	1.275	0.2266	1.287
0.23	1.268	0.23	1.281
0.2333	1.262	0.2333	1.275
0.2366	1.253	0.2366	1.265
0.24	1.246	0.24	1.259
0.2433	1.24	0.2433	1.253
0.2466	1.234	0.2466	1.246
0.25	1.227	0.25	1.24
0.2533	1.218	0.2533	1.231
0.2566	1.212	0.2566	1.224
0.26	1.205	0.26	1.218
0.2633	1.199	0.2633	1.212
0.2666	1.193	0.2666	1.205
0.27	1.186	0.27	1.199
0.2733	1.18	0.2733	1.193
0.2766	1.174	0.2766	1.186
0.28	1.167	0.28	1.18
0.2833	1.161	0.2833	1.174
0.2866	1.155	0.2866	1.167
0.29	1.152	0.29	1.161
0.2933	1.145	0.2933	1.155
0.2966	1.139	0.2966	1.148
0.3	1.133	0.3	1.142
0.3033	1.126	0.3033	1.139
0.3066	1.123	0.3066	1.133
0.31	1.117	0.31	1.126
0.3133	1.111	0.3133	1.12
0.3166	1.107	0.3166	1.114
0.32	1.101	0.32	1.111
0.3233	1.095	0.3233	1.104
0.3266	1.092	0.3266	1.101
0.33	1.085	0.33	1.095
0.3333	1.082	0.3333	1.088
0.35	1.054	0.35	1.06
0.3666	1.029	0.3666	1.035
0.3833	1.006	0.3833	1.013
0.4	0.981	0.4	0.987
0.4166	0.959	0.4166	0.965
0.4333	0.94	0.4333	0.943
0.45	0.918	0.45	0.924
0.4666	0.899	0.4666	0.905
0.4833	0.88	0.4833	0.886
0.5	0.861	0.5	0.864
0.5166	0.845	0.5166	0.849
0.5333	0.826	0.5333	0.83
0.55	0.811	0.55	0.814

0.5666	0.795
0.5833	0.779
0.6	0.763
0.6166	0.748
0.6333	0.732
0.65	0.719
0.6666	0.703
0.6833	0.691
0.7	0.678
0.7166	0.666
0.7333	0.653
0.75	0.64
0.7666	0.628
0.7833	0.618
0.8	0.606
0.8166	0.593
0.8333	0.583
0.85	0.571
0.8666	0.561
0.8833	0.552
0.9	0.539
0.9166	0.53
0.9333	0.52
0.95	0.511
0.9666	0.501
0.9833	0.492
1	0.482
1.2	0.366
1.4	0.293
1.6	0.233
1.8	0.186
2	0.148
2.2	0.119
2.4	0.097
2.6	0.078
2.8	0.063
3	0.05
3.2	0.041
3.4	0.034
3.6	0.028
3.8	0.022
4	0.018
4.2	0.015
4.4	0.012
4.6	0.009
4.8	0.009
5	0.009
5.2	0.006
5.4	0.006
5.6	0.003
5.8	0.003
6	0.003
6.2	0.003
6.4	0.003
6.6	0.003
6.8	0.003
7	0.003
7.2	0
7.4	0
7.6	0
7.8	0
8	0
8.2	0
8.4	0
8.6	0
8.8	0
9	0
9.2	0

0.5666	0.798
0.5833	0.782
0.6	0.767
0.6166	0.751
0.6333	0.738
0.65	0.722
0.6666	0.71
0.6833	0.694
0.7	0.681
0.7166	0.669
0.7333	0.656
0.75	0.643
0.7666	0.631
0.7833	0.618
0.8	0.606
0.8166	0.596
0.8333	0.583
0.85	0.574
0.8666	0.561
0.8833	0.552
0.9	0.539
0.9166	0.53
0.9333	0.52
0.95	0.511
0.9666	0.501
0.9833	0.492
1	0.482
1.2	0.366
1.4	0.29
1.6	0.233
1.8	0.186
2	0.148
2.2	0.119
2.4	0.094
2.6	0.075
2.8	0.063
3	0.05
3.2	0.041
3.4	0.031
3.6	0.025
3.8	0.018
4	0.015
4.2	0.012
4.4	0.009
4.6	0.009
4.8	0.006
5	0.006
5.2	0.003
5.4	0.003
5.6	0.003
5.8	0
6	0
6.2	0
6.4	0
6.6	0
6.8	-0.003
7	-0.003
7.2	-0.003
7.4	-0.003
7.6	-0.003
7.8	-0.003
8	-0.003
8.2	-0.003
8.4	-0.003
8.6	-0.003
8.8	-0.003
9	-0.003
9.2	-0.003
9.4	-0.003
9.6	-0.003
9.8	-0.003
10	-0.003

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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 12M-92-01X 12M-9	T. Langley
DATE OF TEST	10-16-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SEI000C/1K00732	
TEST #	SEL 18/102	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045 DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	47.01 (PVC)	
WELL DEPTH (FT./TOC)	54.57 (PVC)	
XD DEPTH (FT./TOC)	53.57 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	50 (PVC)	
TIME OF SLUG PLACEMENT	10:46	
TIME OF WL EQUILIBRATION	10:55	
NEW XD REFERENCE	0.00	
START TIME OF TEST	10:58	
END TIME OF TEST	11:07	
NOTES: SLUG: 3" x 3'	BAR STOCK PVC	

6.80
6.52

FIGURE 4-14
 AQUIFER TEST COMPLETION CHECKLIST
 PROJECT OPERATIONS PLAN
 FORT DEVENS, MASSACHUSETTS
 ABB Environmental Services, Inc.

02/01/02

DL

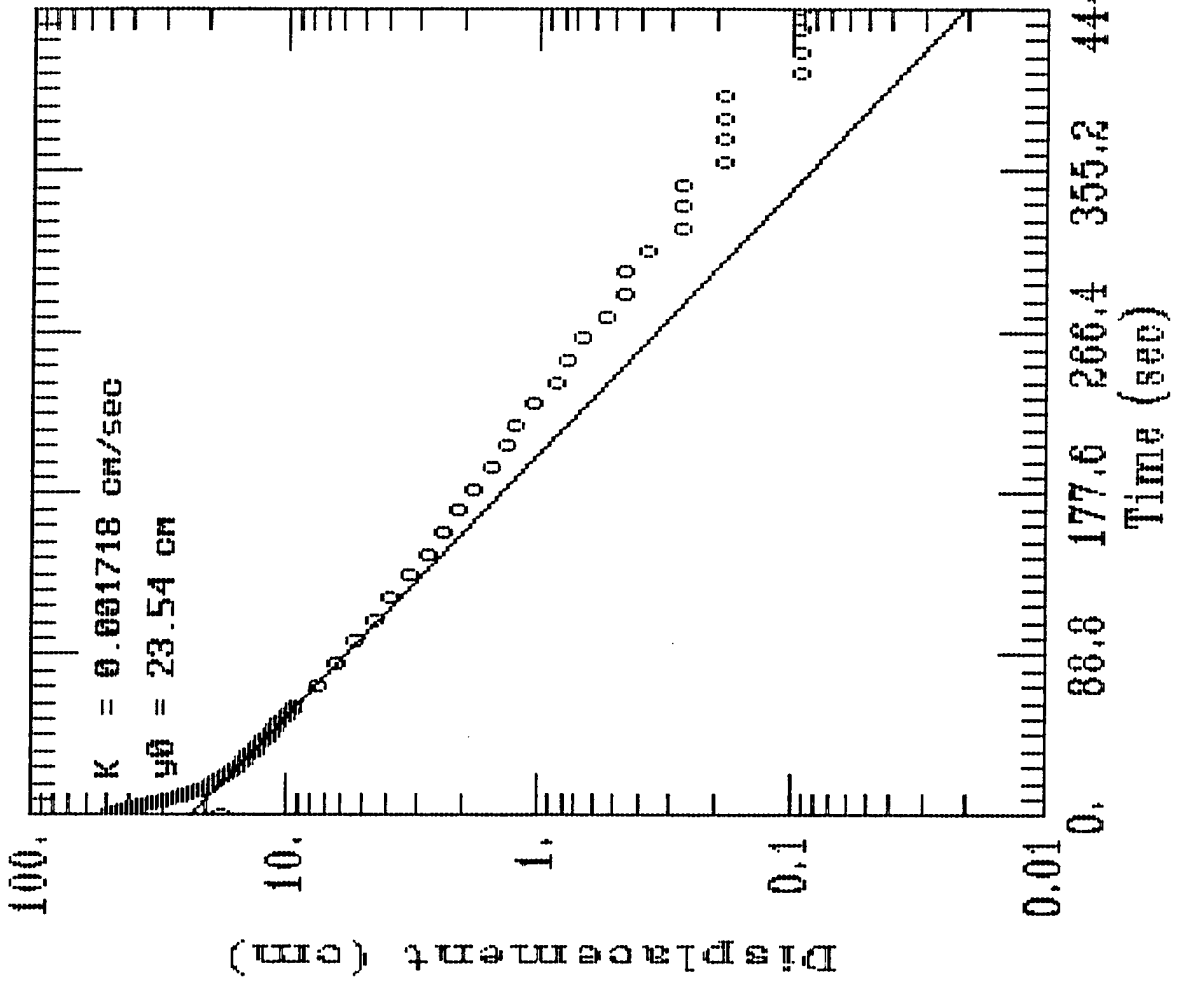
AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

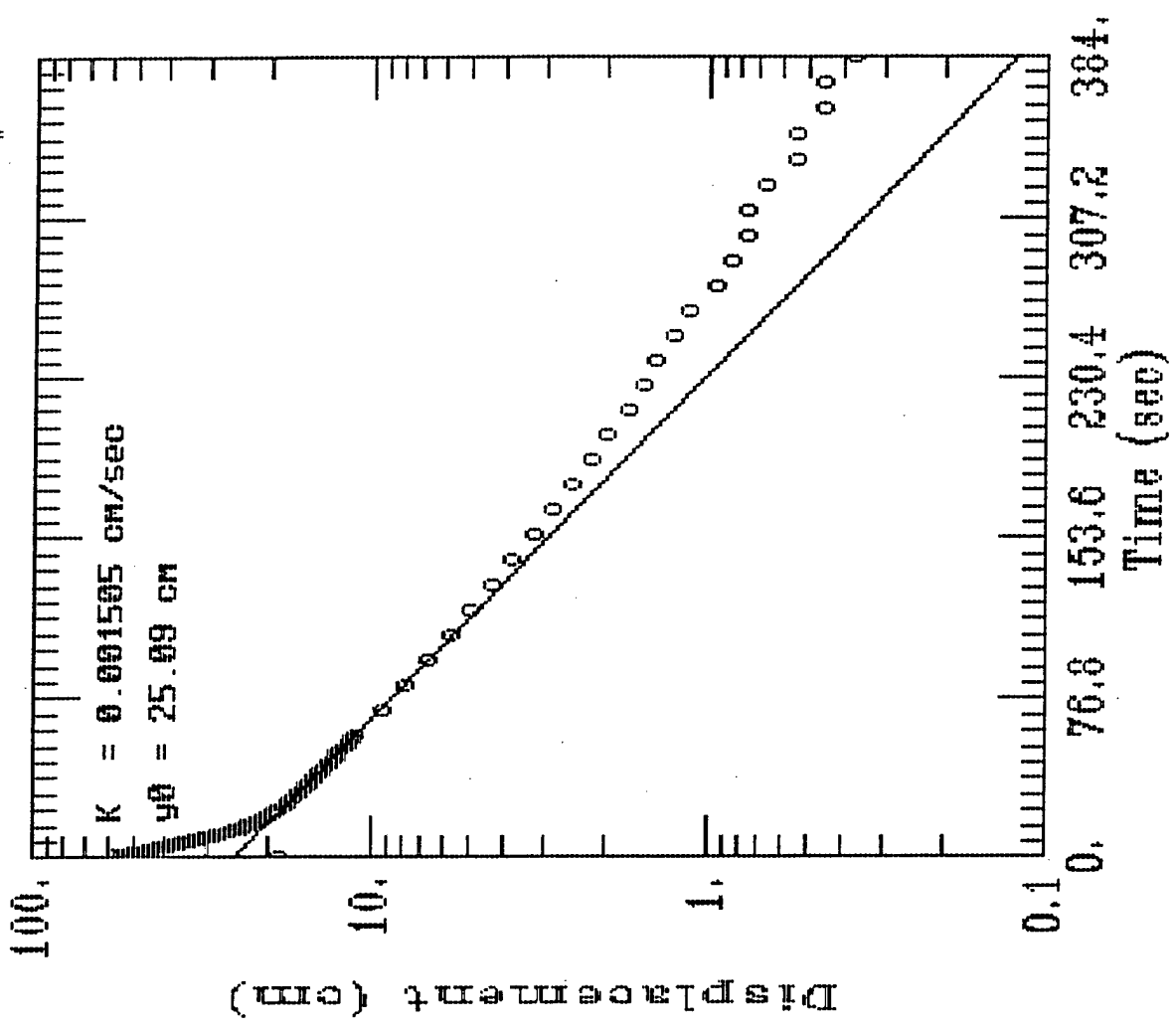
SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 12M-92-01X	T. Langley
DATE OF TEST	10-16-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C/IKC01732	
TEST #	SEL 19 / 2092	
DATA COLLECTION RATE	Log 1	
TRANSDUCER		
SERIAL #	2045 DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	47.01 (PVC)	
WELL DEPTH (FT./TOC)	54.57 (PVC)	
XD DEPTH (FT./TOC)	53.57 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	50 (PVC)	
TIME OF SLUG PLACEMENT	10:11:07	
TIME OF WL EQUILIBRATION	11:15	
NEW XD REFERENCE	0.00	
START TIME OF TEST	11:17	
END TIME OF TEST	11:27	
NOTES: SLUG: 3" x 3"	BAR STALK PVC	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

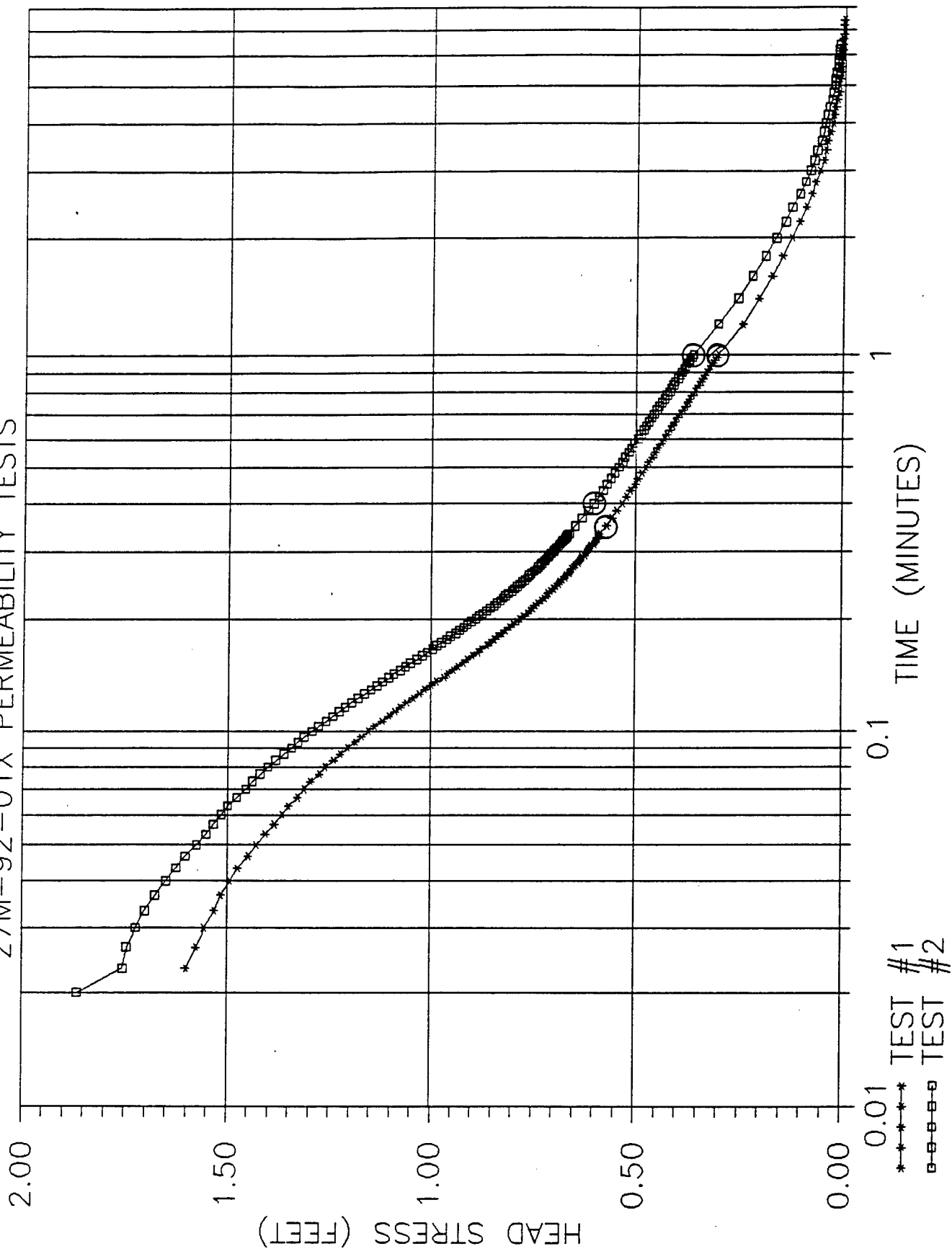
27M-92-01X PERMEABILITY TEST #1



27M-92-01X PERMEABILITY TEST #2



27M-92-01X PERMEABILITY TESTS



WELL 27M-92-01X
 WELL DIAMETER = 0.333 FT, SATURATED SCREEN LENGTH = 6.1 FT, BORING DIAMETER = 0.833 FT

TEST 1		TEST 2	
MINUTES	FEET	MINUTES	FEET
0	0.012	0	0
0.0033	1.208	0.0033	0.025
0.0066	-0.416	0.0066	0.77
0.01	1.306	0.01	0.912
0.0133	1.237	0.0133	1.183
0.0166	1.884	0.0166	1.234
0.02	1.597	0.02	1.865
0.0233	1.6	0.0233	1.754
0.0266	1.575	0.0266	1.745
0.03	1.556	0.03	1.723
0.0333	1.53	0.0333	1.701
0.0366	1.515	0.0366	1.676
0.04	1.492	0.04	1.65
0.0433	1.474	0.0433	1.625
0.0466	1.448	0.0466	1.603
0.05	1.429	0.05	1.575
0.0533	1.407	0.0533	1.552
0.0566	1.385	0.0566	1.534
0.06	1.366	0.06	1.515
0.0633	1.35	0.0633	1.499
0.0666	1.328	0.0666	1.477
0.07	1.313	0.07	1.455
0.0733	1.297	0.0733	1.439
0.0766	1.275	0.0766	1.42
0.08	1.262	0.08	1.401
0.0833	1.24	0.0833	1.382
0.0866	1.224	0.0866	1.363
0.09	1.205	0.09	1.344
0.0933	1.186	0.0933	1.328
0.0966	1.171	0.0966	1.313
0.1	1.155	0.1	1.294
0.1033	1.139	0.1033	1.278
0.1066	1.12	0.1066	1.259
0.11	1.104	0.11	1.243
0.1133	1.089	0.1133	1.227
0.1166	1.076	0.1166	1.212
0.12	1.06	0.12	1.196
0.1233	1.044	0.1233	1.18
0.1266	1.029	0.1266	1.164
0.13	1.016	0.13	1.148
0.1333	1	0.1333	1.133
0.1366	0.987	0.1366	1.12
0.14	0.969	0.14	1.104
0.1433	0.959	0.1433	1.092
0.1466	0.946	0.1466	1.076
0.15	0.934	0.15	1.063
0.1533	0.921	0.1533	1.051
0.1566	0.912	0.1566	1.035
0.16	0.899	0.16	1.022
0.1633	0.886	0.1633	1.01
0.1666	0.877	0.1666	0.997
0.17	0.864	0.17	0.987
0.1733	0.855	0.1733	0.975
0.1766	0.845	0.1766	0.962
0.18	0.836	0.18	0.953
0.1833	0.826	0.1833	0.94
0.1866	0.817	0.1866	0.931
0.19	0.808	0.19	0.921
0.1933	0.798	0.1933	0.912
0.1966	0.789	0.1966	0.902
0.2	0.782	0.2	0.89
0.2033	0.773	0.2033	0.883
0.2066	0.763	0.2066	0.874
0.21	0.757	0.21	0.864
0.2133	0.751	0.2133	0.855
0.2166	0.744	0.2166	0.845
0.22	0.738	0.22	0.839
0.2233	0.729	0.2233	0.83
0.2266	0.722	0.2266	0.823
0.23	0.716	0.23	0.817
0.2333	0.713	0.2333	0.811
0.2366	0.707	0.2366	0.801
0.24	0.7	0.24	0.795
0.2433	0.694	0.2433	0.789
0.2466	0.688	0.2466	0.782
0.25	0.684	0.25	0.776
0.2533	0.678	0.2533	0.77
0.2566	0.672	0.2566	0.763
0.26	0.669	0.26	0.76
0.2633	0.662	0.2633	0.754
0.2666	0.659	0.2666	0.748
0.27	0.656	0.27	0.741
0.2733	0.65	0.2733	0.738
0.2766	0.647	0.2766	0.732
0.28	0.64	0.28	0.729
0.2833	0.637	0.2833	0.722
0.2866	0.634	0.2866	0.719
0.29	0.631	0.29	0.713
0.2933	0.624	0.2933	0.71
0.2966	0.621	0.2966	0.707
0.3	0.618	0.3	0.7
0.3033	0.615	0.3033	0.697
0.3066	0.612	0.3066	0.694
0.31	0.609	0.31	0.688
0.3133	0.602	0.3133	0.684
0.3166	0.599	0.3166	0.681
0.32	0.596	0.32	0.678
0.3233	0.593	0.3233	0.672
0.3266	0.593	0.3266	0.669
0.33	0.59	0.33	0.666
0.3333	0.587	0.3333	0.662
0.35	0.571	0.35	0.647
0.3666	0.558	0.3666	0.631
0.3833	0.546	0.3833	0.615
0.4	0.533	0.4	0.602
0.4166	0.523	0.4166	0.59
0.4333	0.514	0.4333	0.58
0.45	0.501	0.45	0.571
0.4666	0.495	0.4666	0.561
0.4833	0.486	0.4833	0.552
0.5	0.476	0.5	0.542
0.5166	0.47	0.5166	0.533
0.5333	0.46	0.5333	0.527
0.55	0.454	0.55	0.517

0.5666	0.448	0.5666	0.511
0.5833	0.438	0.5833	0.505
0.6	0.432	0.6	0.495
0.6166	0.426	0.6166	0.489
0.6333	0.419	0.6333	0.482
0.65	0.413	0.65	0.476
0.6666	0.407	0.6666	0.47
0.6833	0.4	0.6833	0.463
0.7	0.394	0.7	0.457
0.7166	0.388	0.7166	0.451
0.7333	0.381	0.7333	0.445
0.75	0.375	0.75	0.438
0.7666	0.372	0.7666	0.432
0.7833	0.366	0.7833	0.426
0.8	0.359	0.8	0.419
0.8166	0.356	0.8166	0.416
0.8333	0.35	0.8333	0.41
0.85	0.344	0.85	0.407
0.8666	0.34	0.8666	0.4
0.8833	0.334	0.8833	0.394
0.9	0.331	0.9	0.391
0.9166	0.325	0.9166	0.385
0.9333	0.321	0.9333	0.381
0.95	0.315	0.95	0.375
0.9666	0.312	0.9666	0.372
0.9833	0.306	0.9833	0.366
1	0.303	1	0.363
1.2	0.243	1.2	0.303
1.4	0.205	1.4	0.255
1.6	0.173	1.6	0.22
1.8	0.148	1.8	0.189
2	0.126	2	0.164
2.2	0.107	2.2	0.142
2.4	0.091	2.4	0.126
2.6	0.078	2.6	0.107
2.8	0.069	2.8	0.094
3	0.059	3	0.082
3.2	0.05	3.2	0.072
3.4	0.044	3.4	0.066
3.6	0.041	3.6	0.056
3.8	0.034	3.8	0.05
4	0.028	4	0.047
4.2	0.025	4.2	0.041
4.4	0.022	4.4	0.037
4.6	0.018	4.6	0.031
4.8	0.015	4.8	0.028
5	0.015	5	0.025
5.2	0.012	5.2	0.025
5.4	0.009	5.4	0.022
5.6	0.009	5.6	0.018
5.8	0.009	5.8	0.018
6	0.006	6	0.015
6.2	0.006	6.2	0.015
6.4	0.006	6.4	0.012
6.6	0.006		
6.8	0.003		
7	0.003		
7.2	0.003		
7.4	0.003		

Dumbbell

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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	27M-92-01X ^{4"}	T. Longley
DATE OF TEST	10-15-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 10000 / 1K001732	
TEST #	SEL 8 / 192	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045 DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	12.98 (PVC)	
WELL DEPTH (FT./TOC)	19.12 (PVC)	
XD DEPTH (FT./TOC)	18.12 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	17 (PVC)	
TIME OF SLUG PLACEMENT	14:18	
TIME OF WL EQUILIBRATION	14:25	
NEW XD REFERENCE	0.00	
START TIME OF TEST	14:28	
END TIME OF TEST	14:36	
NOTES: slug: 5' x 1.5' x 3' x 3'	BAR STOCK PVC	

5.3')
4' x 2.5'

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

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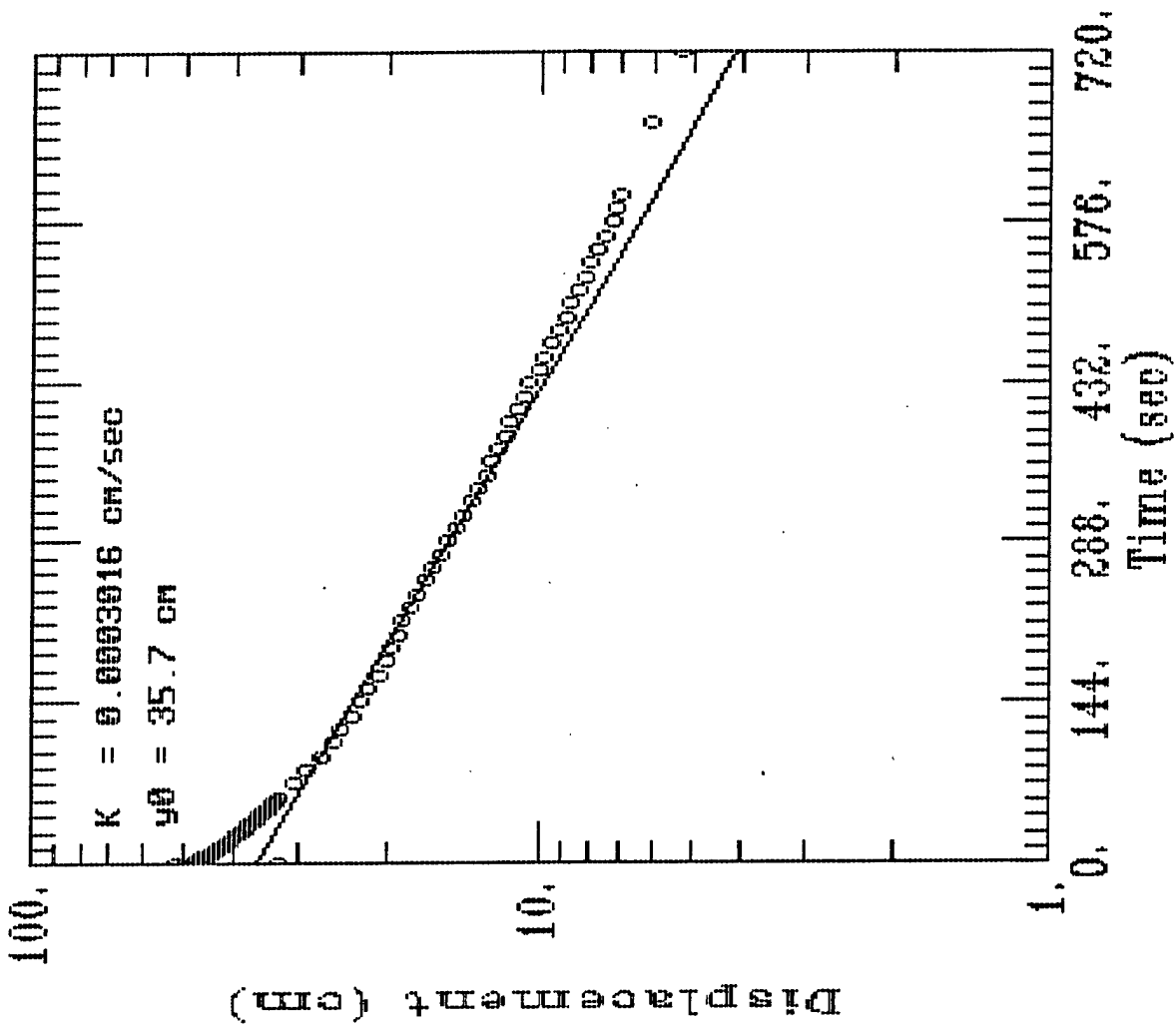
AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

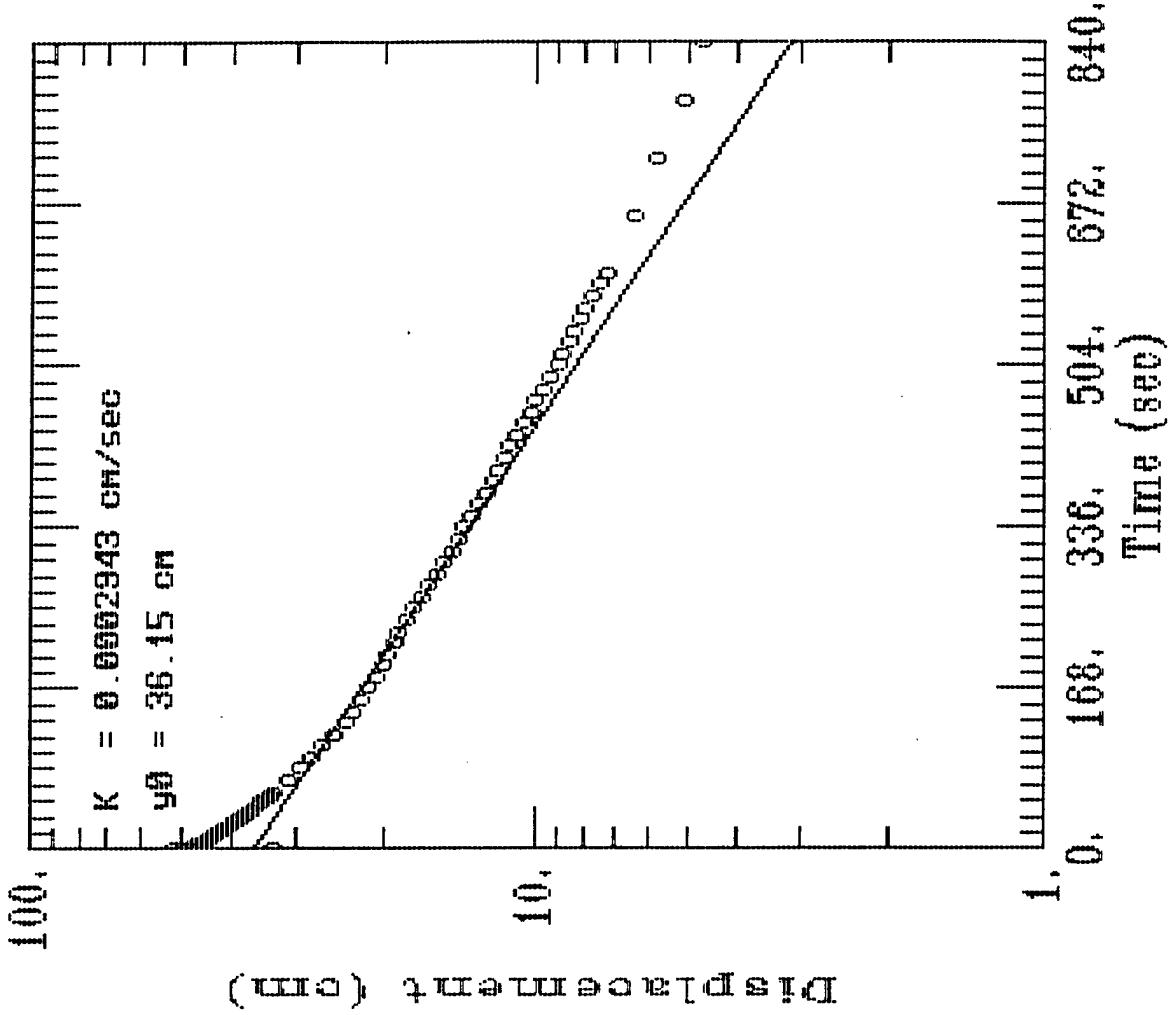
SETUP	DATE	BY WHOM
MONITORING WELL ID	4 ² 27M-92-01X	T. Long
DATE OF TEST	10-15-92	
TYPE OF TEST	Rising Head	
HERMIT TYPE/SERIAL#	SE 1000C / 1K001732	
TEST #	SEL9 / 292	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	12.98 (PVC)	
WELL DEPTH (FT./TOC)	11.12 (PVC)	
XD DEPTH (FT./TOC)	18.12 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	17 (PVC)	
TIME OF SLUG PLACEMENT	14:37	
TIME OF WL EQUILIBRATION	14:45	
NEW XD REFERENCE	0.00	
START TIME OF TEST	14:46	
END TIME OF TEST	14:52	
NOTES: Slug: 3" x 3'	3/8" stock PVC	

**FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.**

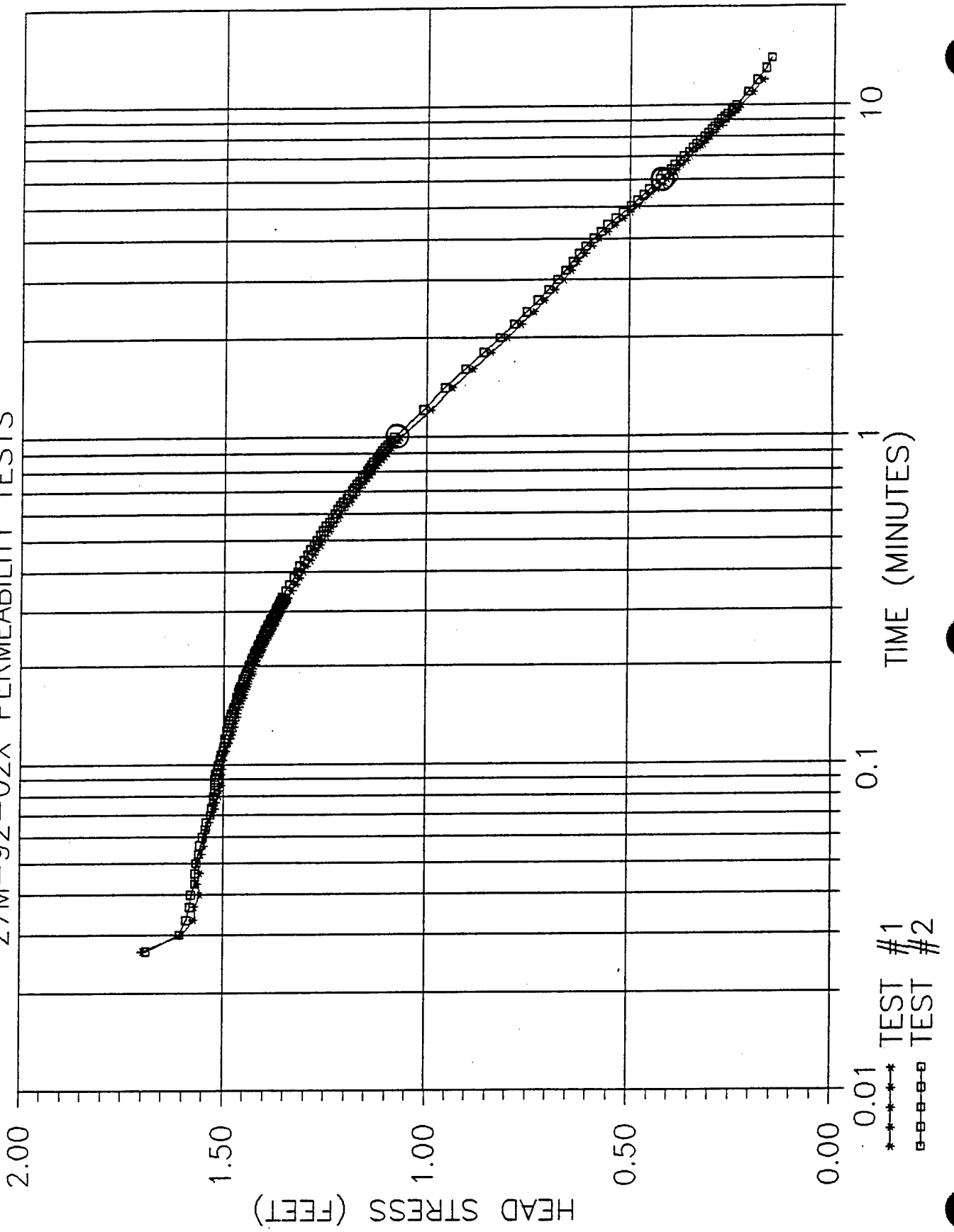
27M-92-02X PERMEABILITY TEST #1



27M-92-02X PERMEABILITY TEST #2



27M-92-02X PERMEABILITY TESTS



WELL 27M-92-02X

WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= FT, BORING DIAMETER= 0.833 FT

TEST 1		TEST 2	
MINUTES	FEET	MINUTES	FEET
0	0.003	0	0.006
0.0033	1.521	0.0033	0.003
0.0066	0.546	0.0066	1.249
0.01	0.441	0.01	0.593
0.0133	0.356	0.0133	0.366
0.0166	1.006	0.0166	0.735
0.02	1.426	0.02	1.183
0.0233	1.638	0.0233	1.41
0.0266	1.698	0.0266	1.688
0.03	1.6	0.03	1.606
0.0333	1.571	0.0333	1.59
0.0366	1.568	0.0366	1.581
0.04	1.556	0.04	1.578
0.0433	1.562	0.0433	1.568
0.0466	1.556	0.0466	1.568
0.05	1.562	0.05	1.565
0.0533	1.552	0.0533	1.559
0.0566	1.546	0.0566	1.556
0.06	1.543	0.06	1.549
0.0633	1.54	0.0633	1.543
0.0666	1.534	0.0666	1.54
0.07	1.527	0.07	1.53
0.0733	1.521	0.0733	1.527
0.0766	1.518	0.0766	1.524
0.08	1.511	0.08	1.524
0.0833	1.508	0.0833	1.521
0.0866	1.505	0.0866	1.521
0.09	1.502	0.09	1.521
0.0933	1.505	0.0933	1.518
0.0966	1.502	0.0966	1.515
0.1	1.502	0.1	1.511
0.1033	1.499	0.1033	1.508
0.1066	1.499	0.1066	1.505
0.11	1.493	0.11	1.502
0.1133	1.493	0.1133	1.499
0.1166	1.486	0.1166	1.496
0.12	1.483	0.12	1.496
0.1233	1.48	0.1233	1.493
0.1266	1.477	0.1266	1.493
0.13	1.474	0.13	1.489
0.1333	1.474	0.1333	1.486
0.1366	1.47	0.1366	1.486
0.14	1.467	0.14	1.483
0.1433	1.467	0.1433	1.48
0.1466	1.464	0.1466	1.477
0.15	1.461	0.15	1.474
0.1533	1.458	0.1533	1.47
0.1566	1.455	0.1566	1.467
0.16	1.451	0.16	1.467
0.1633	1.448	0.1633	1.464
0.1666	1.448	0.1666	1.464
0.17	1.445	0.17	1.461
0.1733	1.442	0.1733	1.458
0.1766	1.439	0.1766	1.455
0.18	1.439	0.18	1.451
0.1833	1.436	0.1833	1.451
0.1866	1.433	0.1866	1.448
0.19	1.429	0.19	1.445
0.1933	1.429	0.1933	1.442
0.1966	1.426	0.1966	1.439
0.2	1.423	0.2	1.439
0.2033	1.42	0.2033	1.436
0.2066	1.42	0.2066	1.433
0.21	1.417	0.21	1.433
0.2133	1.414	0.2133	1.429
0.2166	1.41	0.2166	1.426
0.22	1.41	0.22	1.426
0.2233	1.407	0.2233	1.423
0.2266	1.404	0.2266	1.42
0.23	1.404	0.23	1.417
0.2333	1.401	0.2333	1.417
0.2366	1.398	0.2366	1.414
0.24	1.398	0.24	1.41
0.2433	1.395	0.2433	1.41
0.2466	1.392	0.2466	1.407
0.25	1.388	0.25	1.404
0.2533	1.388	0.2533	1.404
0.2566	1.385	0.2566	1.401
0.26	1.382	0.26	1.398
0.2633	1.382	0.2633	1.398
0.2666	1.379	0.2666	1.395
0.27	1.376	0.27	1.392
0.2733	1.376	0.2733	1.392
0.2766	1.373	0.2766	1.388
0.28	1.369	0.28	1.385
0.2833	1.369	0.2833	1.385
0.2866	1.366	0.2866	1.382
0.29	1.366	0.29	1.379
0.2933	1.363	0.2933	1.379
0.2966	1.36	0.2966	1.376
0.3	1.36	0.3	1.373
0.3033	1.357	0.3033	1.373
0.3066	1.354	0.3066	1.369
0.31	1.354	0.31	1.369
0.3133	1.35	0.3133	1.366
0.3166	1.35	0.3166	1.366
0.32	1.347	0.32	1.363
0.3233	1.344	0.3233	1.36
0.3266	1.344	0.3266	1.36
0.33	1.341	0.33	1.357
0.3333	1.341	0.3333	1.357
0.35	1.332	0.35	1.347
0.3666	1.322	0.3666	1.338
0.3833	1.313	0.3833	1.328
0.4	1.303	0.4	1.319
0.4166	1.297	0.4166	1.313
0.4333	1.287	0.4333	1.303
0.45	1.278	0.45	1.294
0.4666	1.272	0.4666	1.287
0.4833	1.262	0.4833	1.278
0.5	1.256	0.5	1.272
0.5166	1.249	0.5166	1.262
0.5333	1.24	0.5333	1.256
0.55	1.234	0.55	1.249

0.5666 1.227
0.5833 1.218
0.6 1.212
0.6166 1.205
0.6333 1.199
0.65 1.189
0.6666 1.183
0.6833 1.177
0.7 1.171
0.7166 1.164
0.7333 1.158
0.75 1.152
0.7666 1.145
0.7833 1.139
0.8 1.133
0.8166 1.126
0.8333 1.123
0.85 1.117
0.8666 1.111
0.8833 1.104
0.9 1.098
0.9166 1.092
0.9333 1.085
0.95 1.082
0.9666 1.076
0.9833 1.07
1 1.066
1.2 0.991
1.4 0.937
1.6 0.886
1.8 0.842
2 0.801
2.2 0.767
2.4 0.735
2.6 0.71
2.8 0.684
3 0.662
3.2 0.643
3.4 0.628
3.6 0.609
3.8 0.593
4 0.574
4.2 0.555
4.4 0.536
4.6 0.517
4.8 0.498
5 0.482
5.2 0.467
5.4 0.451
5.6 0.435
5.8 0.422
6 0.41
6.2 0.397
6.4 0.385
6.6 0.375
6.8 0.362
7 0.353
7.2 0.344
7.4 0.331
7.6 0.321
7.8 0.312
8 0.303
8.2 0.293
8.4 0.287
8.6 0.277
8.8 0.268
9 0.261
9.2 0.252
9.4 0.246
9.6 0.236
9.8 0.233
10 0.227
11 0.198
12 0.173

0.5666 1.234
0.5833 1.227
0.6 1.221
0.6166 1.215
0.6333 1.208
0.65 1.199
0.6666 1.193
0.6833 1.186
0.7 1.18
0.7166 1.174
0.7333 1.167
0.75 1.161
0.7666 1.155
0.7833 1.148
0.8 1.142
0.8166 1.139
0.8333 1.133
0.85 1.126
0.8666 1.12
0.8833 1.117
0.9 1.111
0.9166 1.104
0.9333 1.098
0.95 1.092
0.9666 1.089
0.9833 1.082
1 1.01
1.2 0.956
1.4 0.905
1.6 0.861
1.8 0.82
2 0.785
2.2 0.754
2.4 0.726
2.6 0.7
2.8 0.678
3 0.659
3.2 0.64
3.4 0.624
3.6 0.609
3.8 0.59
4 0.571
4.2 0.555
4.4 0.536
4.6 0.517
4.8 0.498
5 0.482
5.2 0.467
5.4 0.454
5.6 0.438
5.8 0.426
6 0.413
6.2 0.4
6.4 0.391
6.6 0.378
6.8 0.369
7 0.356
7.2 0.347
7.4 0.337
7.6 0.328
7.8 0.318
8 0.309
8.2 0.299
8.4 0.293
8.6 0.284
8.8 0.277
9 0.268
9.2 0.261
9.4 0.252
9.6 0.246
9.8 0.239
10 0.211
11 0.189
12 0.167
13 0.154

1.24
1.234
1.227
1.221
1.215
1.208
1.199
1.193
1.186
1.18
1.174
1.167
1.161
1.155
1.148
1.142
1.139
1.133
1.126
1.12
1.117
1.111
1.104
1.098
1.092
1.089
1.082
1.01
0.956
0.905
0.861
0.82
0.785
0.754
0.726
0.7
0.678
0.659
0.64
0.624
0.609
0.59
0.571
0.555
0.536
0.517
0.498
0.482
0.467
0.454
0.438
0.426
0.413
0.4
0.391
0.378
0.369
0.356
0.347
0.337
0.328
0.318
0.309
0.299
0.293
0.284
0.277
0.268
0.261
0.252
0.246
0.239
0.211
0.189
0.167
0.154

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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 27M-92-024	T. Langley
DATE OF TEST	10.15.92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE1000C/1KCO1732	
TEST #	27 SEL4/192	
DATA COLLECTION RATE	Log 1	
TRANSDUCER		
SERIAL #	2045 DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	18.14 (PVC)	
WELL DEPTH (FT./TOC)	25.14 (PVC)	
XD DEPTH (FT./TOC)	24 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	24 (PVC)	
TIME OF SLUG PLACEMENT	1020	
TIME OF WL EQUILIBRATION	10:32	
NEW XD REFERENCE	0.00	
START TIME OF TEST	10:32	
END TIME OF TEST	10:45	
NOTES:	SLUG: 3" x 3" 2.5" x 4"	BAR Stock PVC

FIGURE 4-14
 AQUIFER TEST COMPLETION CHECKLIST
 PROJECT OPERATIONS PLAN
 FORT DEVENS, MASSACHUSETTS
 ABB Environmental Services, Inc.

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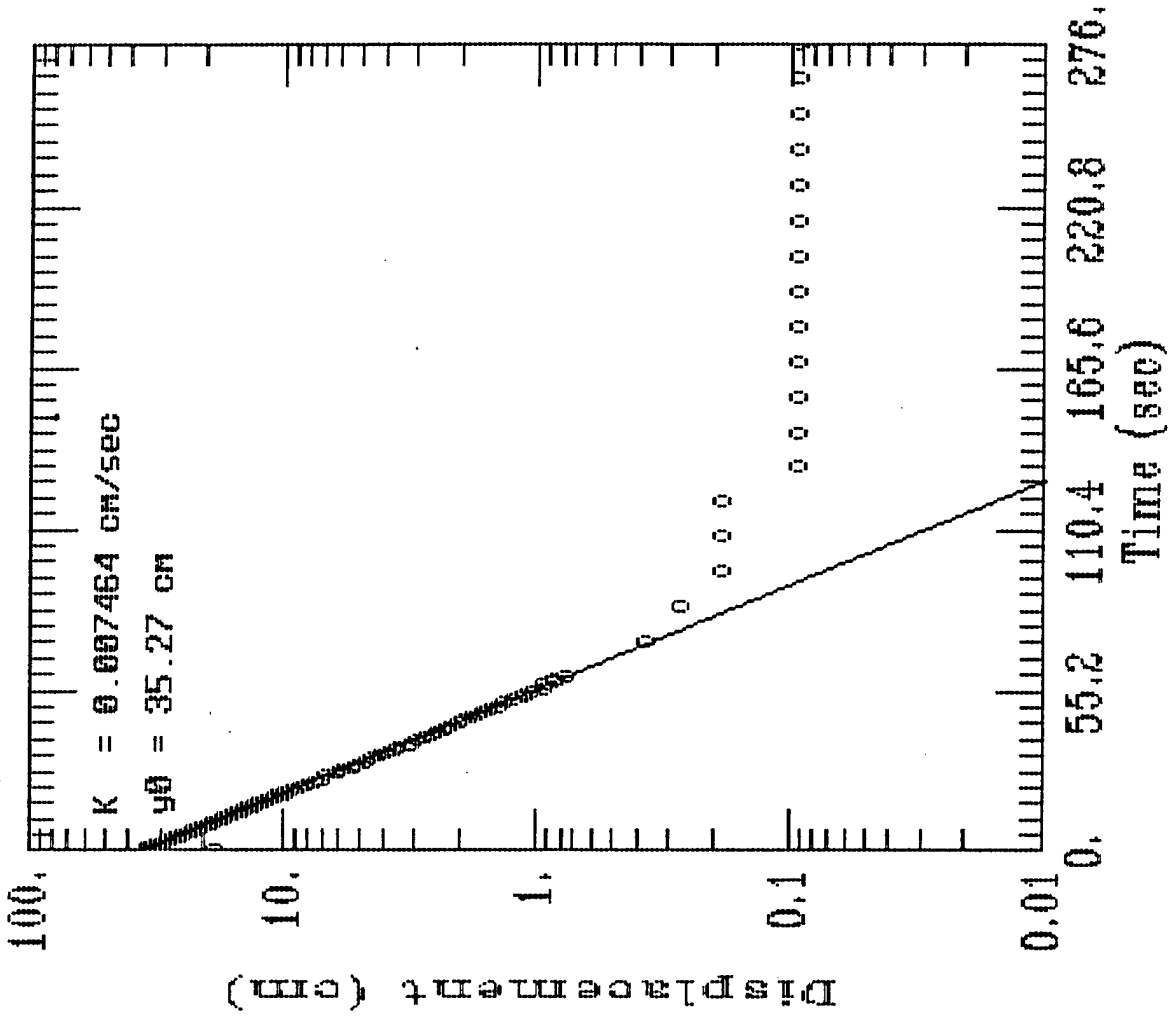
AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

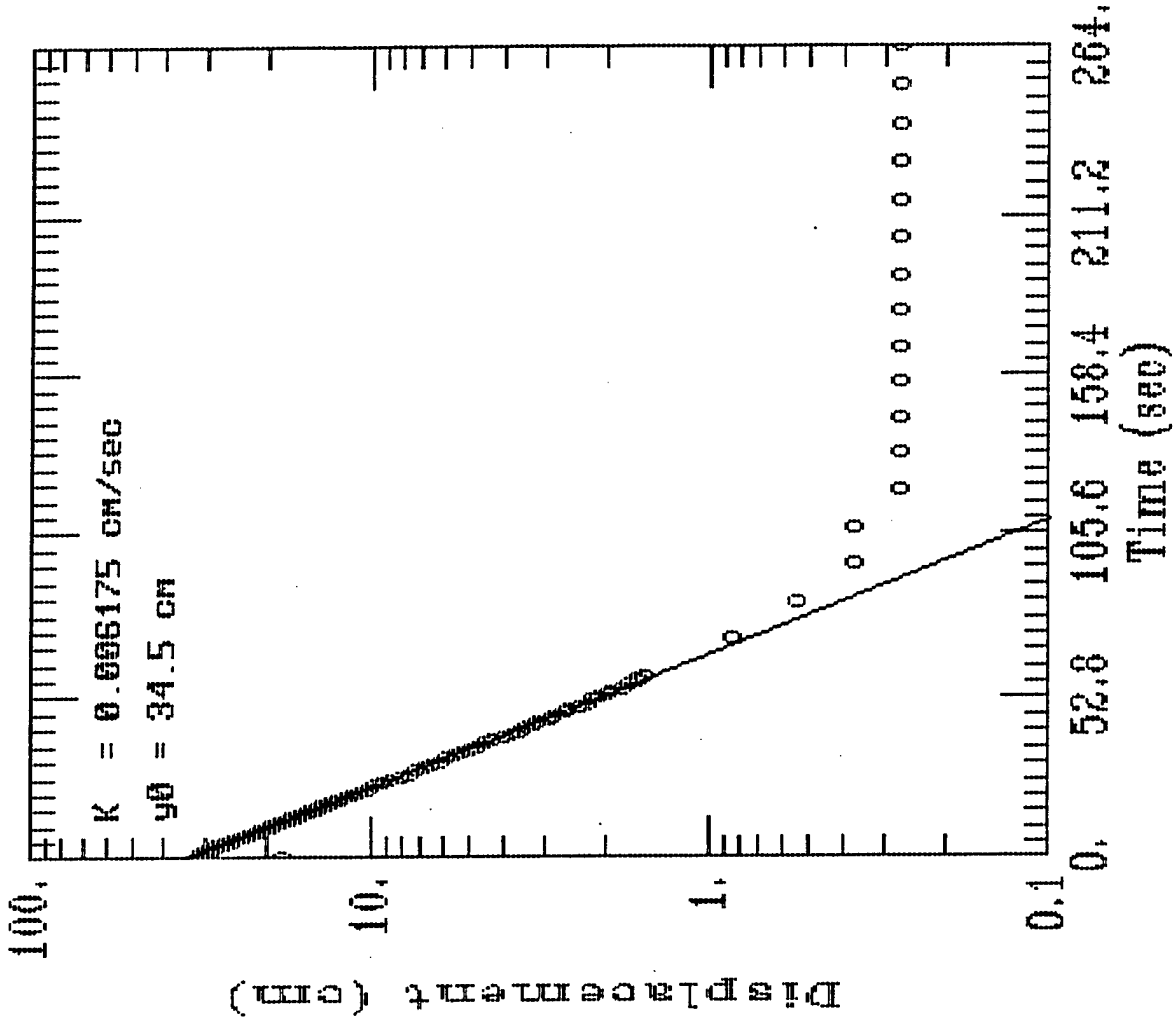
SETUP	DATE	BY WHOM
MONITORING WELL ID	⁴⁰ 27M-92-02X	T. LONGLEY
DATE OF TEST	10-15-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE1000C / 1Kc 01732	
TEST #	SEL 5 / 2 of 2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	FX 20.033 9.983	
OFFSET	-0.035	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	18.14 (PVC)	
WELL DEPTH (FT./TOC)	25.14 (PVC)	
XD DEPTH (FT./TOC)	24 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	24 (PVC)	
TIME OF SLUG PLACEMENT	10:45	
TIME OF WL EQUILIBRATION	10:58	
NEW XD REFERENCE	0.00	
START TIME OF TEST	10:59	
END TIME OF TEST	11:13	
NOTES:	SLUG: 3" x 3" 2.5 x 4" BAR STOCK (PVC)	

FIGURE 4-14
 AQUIFER TEST COMPLETION CHECKLIST
 PROJECT OPERATIONS PLAN
 FORT DEVENS, MASSACHUSETTS
 ABB Environmental Services, Inc.

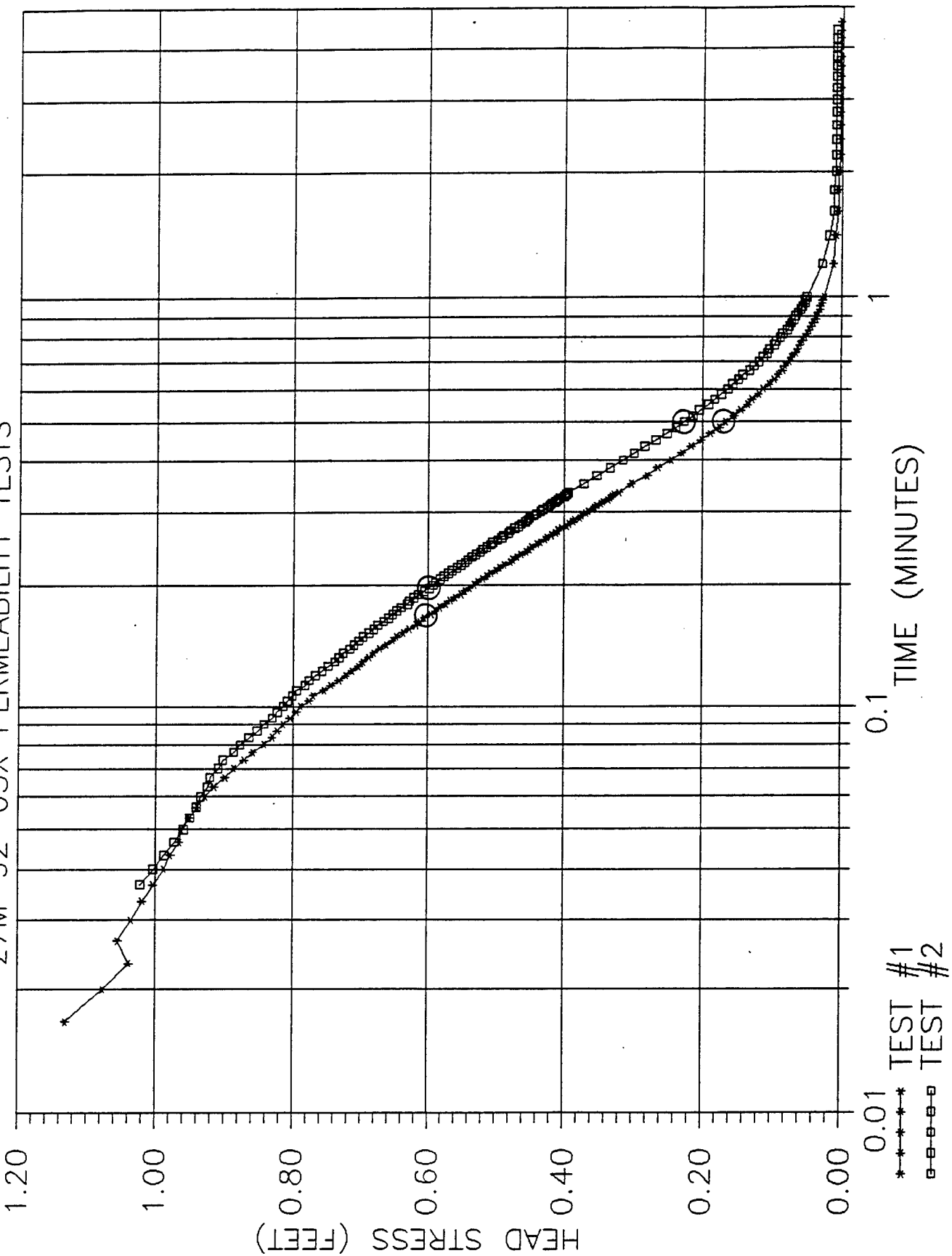
27M-92-03X PERMEABILITY TEST #1



27M-92-03X PERMEABILITY TEST #2



27M-92-03X PERMEABILITY TESTS



WELL 27M-92-03X

WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= 5.3 FT, BORING DIAMETER= 0.833 FT

TEST 1		TEST 2	
MINUTES	FEET	MINUTES	FEET
0	0.306	0	0.003
0.0033	0.179	0.0033	0.003
0.0066	0.542	0.0066	1.06
0.01	0.482	0.01	0.243
0.0133	0.804	0.0133	0.29
0.0166	1.13	0.0166	0.729
0.02	1.076	0.02	1.278
0.0233	1.038	0.0233	0.975
0.0266	1.054	0.0266	0.849
0.03	1.035	0.03	1.063
0.0333	1.019	0.0333	1.019
0.0366	1.003	0.0366	1.022
0.04	0.988	0.04	1.003
0.0433	0.978	0.0433	0.987
0.0466	0.965	0.0466	0.972
0.05	0.962	0.05	0.959
0.0533	0.95	0.0533	0.95
0.0566	0.94	0.0566	0.94
0.06	0.928	0.06	0.934
0.0633	0.915	0.0633	0.924
0.0666	0.899	0.0666	0.921
0.07	0.886	0.07	0.909
0.0733	0.871	0.0733	0.902
0.0766	0.858	0.0766	0.886
0.08	0.842	0.08	0.877
0.0833	0.83	0.0833	0.864
0.0866	0.823	0.0866	0.852
0.09	0.814	0.09	0.842
0.0933	0.804	0.0933	0.83
0.0966	0.795	0.0966	0.823
0.1	0.789	0.1	0.814
0.1033	0.776	0.1033	0.808
0.1066	0.77	0.1066	0.801
0.11	0.754	0.11	0.795
0.1133	0.744	0.1133	0.782
0.1166	0.732	0.1166	0.776
0.12	0.722	0.12	0.767
0.1233	0.719	0.1233	0.757
0.1266	0.703	0.1266	0.748
0.13	0.697	0.13	0.738
0.1333	0.688	0.1333	0.732
0.1366	0.681	0.1366	0.726
0.14	0.672	0.14	0.716
0.1433	0.662	0.1433	0.71
0.1466	0.653	0.1466	0.703
0.15	0.647	0.15	0.697
0.1533	0.637	0.1533	0.688
0.1566	0.628	0.1566	0.681
0.16	0.618	0.16	0.675
0.1633	0.612	0.1633	0.666
0.1666	0.606	0.1666	0.659
0.17	0.596	0.17	0.653
0.1733	0.59	0.1733	0.647
0.1766	0.583	0.1766	0.64
0.18	0.574	0.18	0.631
0.1833	0.568	0.1833	0.628
0.1866	0.561	0.1866	0.621
0.19	0.552	0.19	0.615
0.1933	0.546	0.1933	0.606
0.1966	0.539	0.1966	0.599
0.2	0.533	0.2	0.593
0.2033	0.527	0.2033	0.59
0.2066	0.52	0.2066	0.583
0.21	0.514	0.21	0.577
0.2133	0.508	0.2133	0.571
0.2166	0.501	0.2166	0.565
0.22	0.495	0.22	0.558
0.2233	0.489	0.2233	0.552
0.2266	0.479	0.2266	0.546
0.23	0.476	0.23	0.542
0.2333	0.47	0.2333	0.536
0.2366	0.464	0.2366	0.53
0.24	0.457	0.24	0.523
0.2433	0.451	0.2433	0.52
0.2466	0.448	0.2466	0.514
0.25	0.441	0.25	0.508
0.2533	0.435	0.2533	0.505
0.2566	0.429	0.2566	0.498
0.26	0.426	0.26	0.492
0.2633	0.419	0.2633	0.489
0.2666	0.413	0.2666	0.482
0.27	0.41	0.27	0.479
0.2733	0.404	0.2733	0.473
0.2766	0.397	0.2766	0.467
0.28	0.394	0.28	0.463
0.2833	0.388	0.2833	0.457
0.2866	0.385	0.2866	0.454
0.29	0.378	0.29	0.451
0.2933	0.375	0.2933	0.445
0.2966	0.369	0.2966	0.441
0.3	0.366	0.3	0.435
0.3033	0.359	0.3033	0.432
0.3066	0.356	0.3066	0.426
0.31	0.353	0.31	0.422
0.3133	0.347	0.3133	0.419
0.3166	0.344	0.3166	0.413
0.32	0.337	0.32	0.41
0.3233	0.334	0.3233	0.407
0.3266	0.331	0.3266	0.4
0.33	0.328	0.33	0.397
0.3333	0.321	0.3333	0.394
0.35	0.303	0.35	0.372
0.3666	0.28	0.3666	0.353
0.3833	0.265	0.3833	0.334
0.4	0.246	0.4	0.315
0.4166	0.23	0.4166	0.299
0.4333	0.217	0.4333	0.284
0.45	0.202	0.45	0.268
0.4666	0.189	0.4666	0.252
0.4833	0.176	0.4833	0.239
0.5	0.167	0.5	0.227
0.5166	0.154	0.5166	0.214
0.5333	0.145	0.5333	0.205
0.55	0.135	0.55	0.192

0.5666	0.129	0.5666	0.183
0.5833	0.119	0.5833	0.173
0.6	0.113	0.6	0.164
0.6166	0.104	0.6166	0.157
0.6333	0.097	0.6333	0.148
0.65	0.091	0.65	0.142
0.6666	0.085	0.6666	0.132
0.6833	0.082	0.6833	0.126
0.7	0.075	0.7	0.119
0.7166	0.072	0.7166	0.113
0.7333	0.066	0.7333	0.107
0.75	0.063	0.75	0.104
0.7666	0.06	0.7666	0.097
0.7833	0.056	0.7833	0.094
0.8	0.053	0.8	0.088
0.8166	0.05	0.8166	0.085
0.8333	0.047	0.8333	0.078
0.85	0.044	0.85	0.075
0.8666	0.041	0.8666	0.072
0.8833	0.037	0.8833	0.069
0.9	0.037	0.9	0.066
0.9166	0.034	0.9166	0.063
0.9333	0.031	0.9333	0.059
0.95	0.031	0.95	0.056
0.9666	0.028	0.9666	0.053
0.9833	0.028	0.9833	0.053
1	0.025	1	0.05
1.2	0.012	1.2	0.028
1.4	0.009	1.4	0.018
1.6	0.006	1.6	0.012
1.8	0.006	1.8	0.012
2	0.006	2	0.009
2.2	0.003	2.2	0.009
2.4	0.003	2.4	0.009
2.6	0.003	2.6	0.009
2.8	0.003	2.8	0.009
3	0.003	3	0.009
3.2	0.003	3.2	0.009
3.4	0.003	3.4	0.009
3.6	0.003	3.6	0.009
3.8	0.003	3.8	0.009
4	0.003	4	0.009
4.2	0.003	4.2	0.009
4.4	0.003	4.4	0.009
4.6	0.003		

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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	⁴ 27M-92-034	T. Layley
DATE OF TEST	10-15-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE1000C / IKC01732	
TEST #	SEL 2 / 1082	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045 DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	20.21 (PVC)	
WELL DEPTH (FT./TOC)	25.48 (PVC)	
XD DEPTH (FT./TOC)	24.4 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	19 (PVC)	
TIME OF SLUG PLACEMENT	0940	
TIME OF WL EQUILIBRATION	0945	
NEW XD REFERENCE	0.00	
START TIME OF TEST	0946	
END TIME OF TEST	0951	
NOTES: SLUG: 5' x 1.5" J2	BAR STOCK PVC	

3' x 3'
2.5' x 4'

FIGURE 4-14
 AQUIFER TEST COMPLETION CHECKLIST
 PROJECT OPERATIONS PLAN
 FORT DEVENS, MASSACHUSETTS
 ABB Environmental Services, Inc.

Don Lewis ✓ 2

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	27M-92-03K ⁴⁶	T. Layley
DATE OF TEST	10.15.92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE1000C / IKC01732	
TEST #	SER 3 / 292	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045 DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	20.21 (PVC)	
WELL DEPTH (FT./TOC)	25.48 (PVC)	
XD DEPTH (FT./TOC)	24.4 PVC	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	19 (PVC)	
TIME OF SLUG PLACEMENT	0952	
TIME OF WL EQUILIBRATION	1000	
NEW XD REFERENCE	0.00	
START TIME OF TEST	1057 0957	
END TIME OF TEST	1001	
NOTES: 2.5" x 4"	3" x 3"	BAR STOCK PVC

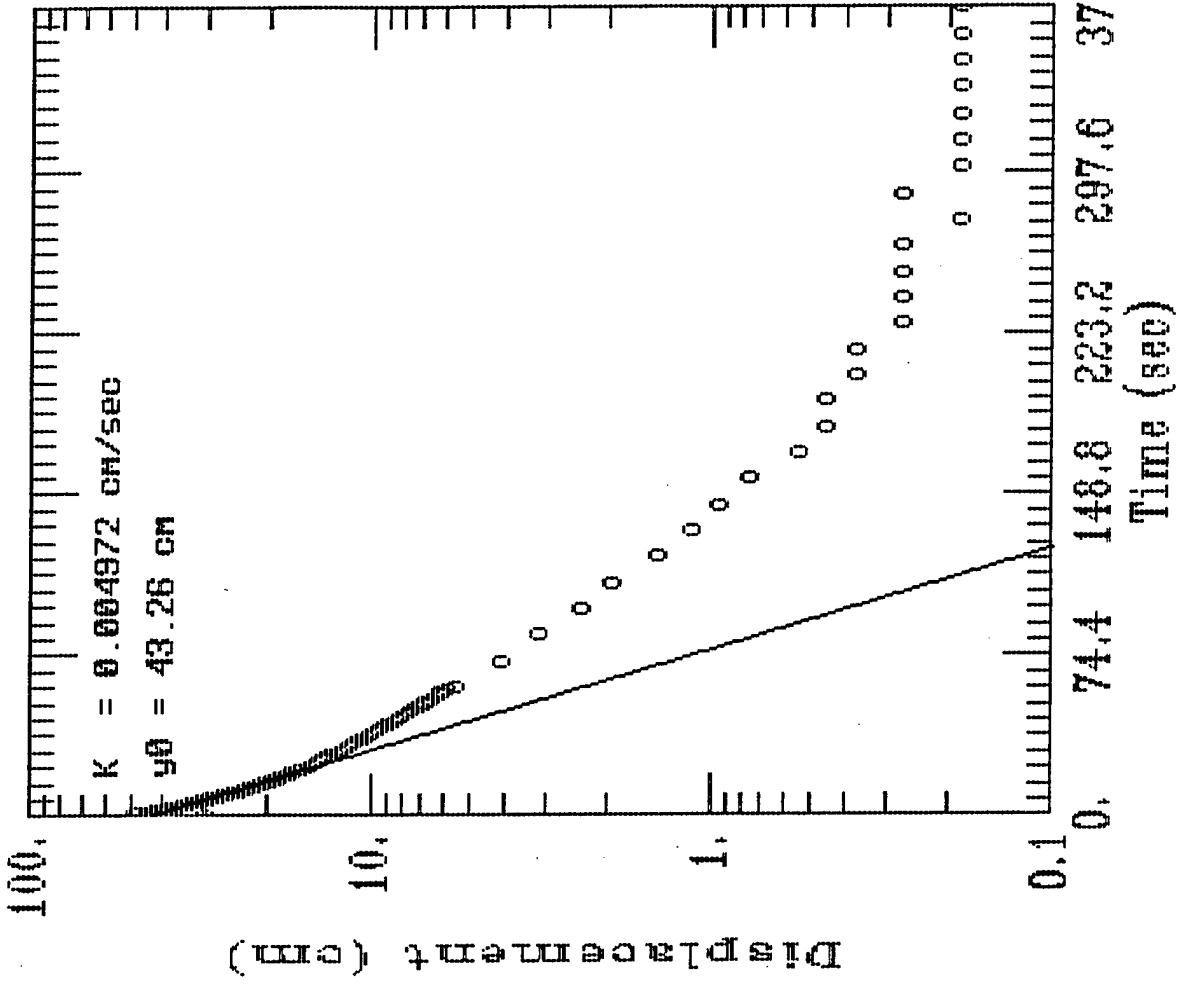
2.5" x 4"

FIGURE 4-14
 AQUIFER TEST COMPLETION CHECKLIST
 PROJECT OPERATIONS PLAN
 FORT DEVENS, MASSACHUSETTS
 ABB Environmental Services, Inc.

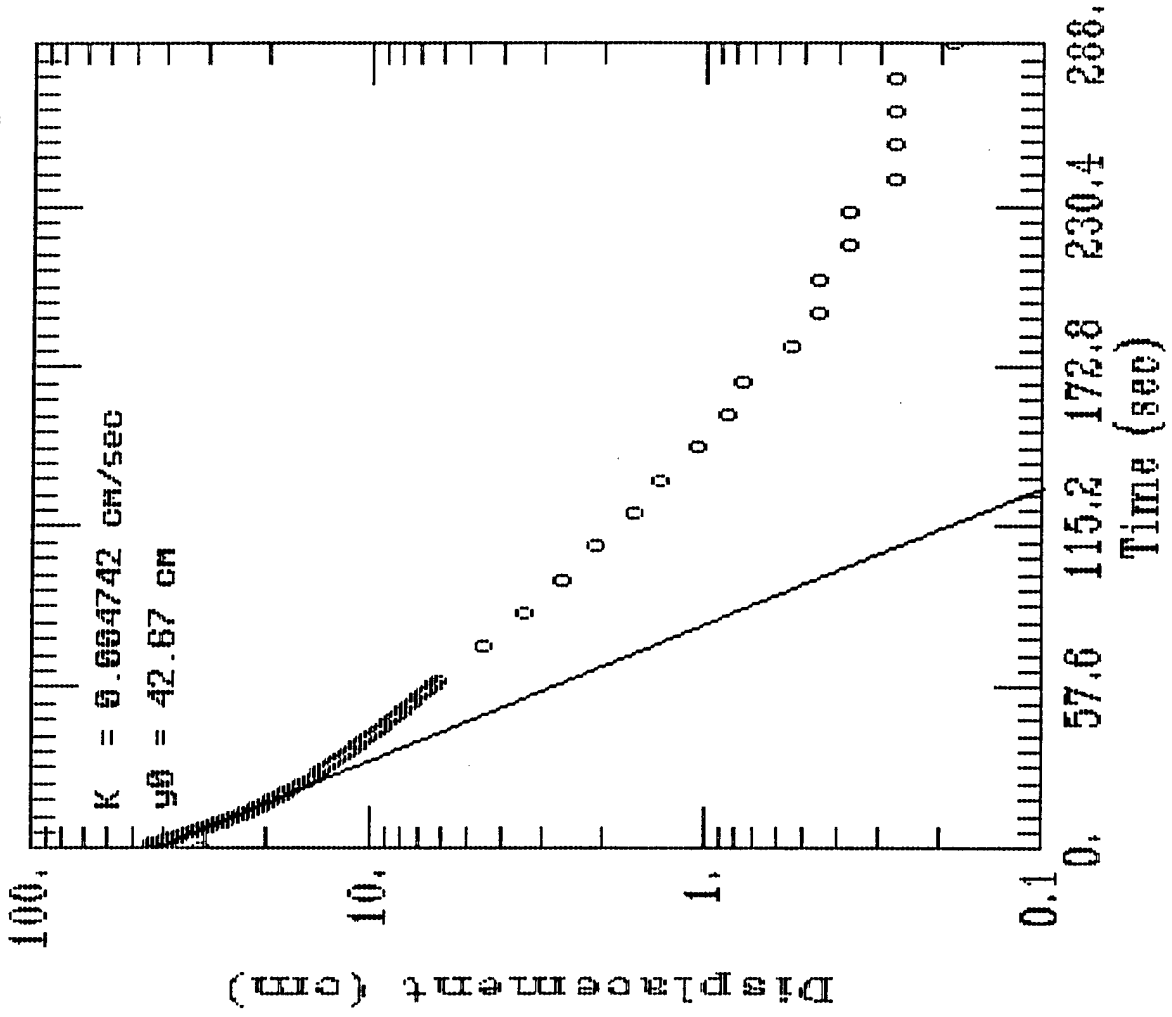
27M-92-04X PERMEABILITY TEST #1

$K = 0.004972 \text{ cm/sec}$

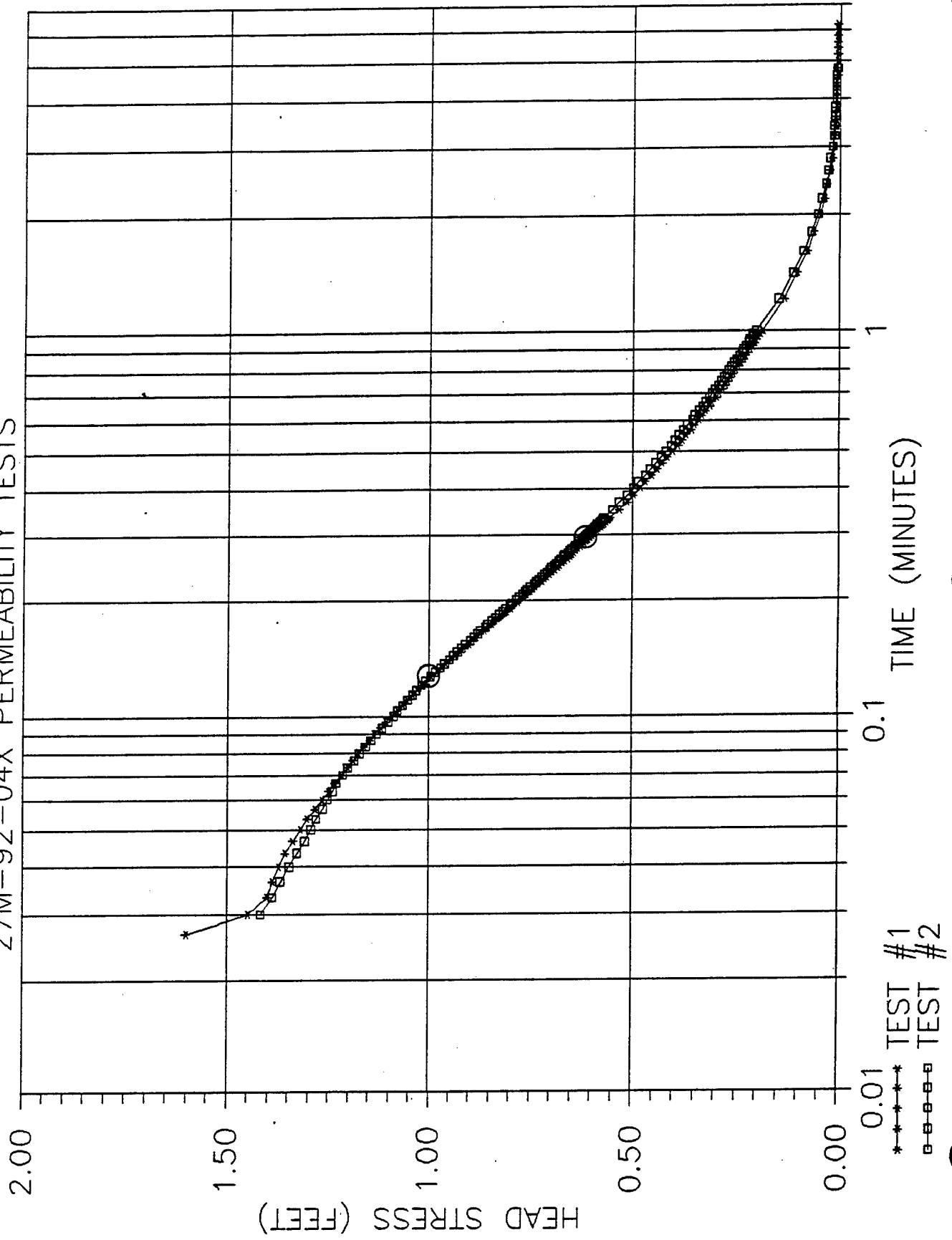
$y_0 = 43.26 \text{ cm}$



27M-92-04X PERMEABILITY TEST #2



27M-92-04X PERMEABILITY TESTS



WELL 27M-92-04X

WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= 7.1 FT, BORING DIAMETER= 0.833 FT

TEST 1 MINUTES	FEET	TEST 2 MINUTES	FEET
0	0	0	0
0.0033	0	0.0033	0.261
0.0066	0	0.0066	1.221
0.01	1.275	0.01	0.154
0.0133	0.89	0.0133	0.53
0.0166	0.116	0.0166	1.253
0.02	1.171	0.02	1.59
0.0233	1.142	0.0233	1.294
0.0266	1.6	0.0266	1.354
0.03	1.448	0.03	1.417
0.0333	1.401	0.0333	1.388
0.0366	1.388	0.0366	1.369
0.04	1.373	0.04	1.347
0.0433	1.357	0.0433	1.328
0.0466	1.338	0.0466	1.309
0.05	1.319	0.05	1.294
0.0533	1.303	0.0533	1.281
0.0566	1.284	0.0566	1.265
0.06	1.265	0.06	1.253
0.0633	1.249	0.0633	1.24
0.0666	1.234	0.0666	1.231
0.07	1.218	0.07	1.215
0.0733	1.202	0.0733	1.202
0.0766	1.189	0.0766	1.186
0.08	1.174	0.08	1.174
0.0833	1.161	0.0833	1.158
0.0866	1.148	0.0866	1.145
0.09	1.136	0.09	1.13
0.0933	1.12	0.0933	1.117
0.0966	1.107	0.0966	1.101
0.1	1.092	0.1	1.088
0.1033	1.079	0.1033	1.079
0.1066	1.066	0.1066	1.066
0.11	1.054	0.11	1.054
0.1133	1.041	0.1133	1.041
0.1166	1.029	0.1166	1.032
0.12	1.016	0.12	1.019
0.1233	1.003	0.1233	1.01
0.1266	0.994	0.1266	0.997
0.13	0.981	0.13	0.984
0.1333	0.969	0.1333	0.972
0.1366	0.959	0.1366	0.962
0.14	0.946	0.14	0.95
0.1433	0.937	0.1433	0.94
0.1466	0.924	0.1466	0.931
0.15	0.915	0.15	0.921
0.1533	0.902	0.1533	0.912
0.1566	0.893	0.1566	0.899
0.16	0.883	0.16	0.89
0.1633	0.874	0.1633	0.88
0.1666	0.864	0.1666	0.874
0.17	0.855	0.17	0.861
0.1733	0.845	0.1733	0.855
0.1766	0.836	0.1766	0.845
0.18	0.826	0.18	0.836
0.1833	0.817	0.1833	0.826
0.1866	0.808	0.1866	0.817
0.19	0.798	0.19	0.811
0.1933	0.792	0.1933	0.801
0.1966	0.782	0.1966	0.795
0.2	0.776	0.2	0.785
0.2033	0.767	0.2033	0.779
0.2066	0.76	0.2066	0.77
0.21	0.751	0.21	0.763
0.2133	0.744	0.2133	0.757
0.2166	0.738	0.2166	0.751
0.22	0.729	0.22	0.741
0.2233	0.722	0.2233	0.735
0.2266	0.716	0.2266	0.729
0.23	0.71	0.23	0.722
0.2333	0.703	0.2333	0.716
0.2366	0.697	0.2366	0.71
0.24	0.691	0.24	0.703
0.2433	0.684	0.2433	0.697
0.2466	0.678	0.2466	0.691
0.25	0.672	0.25	0.688
0.2533	0.666	0.2533	0.681
0.2566	0.659	0.2566	0.675
0.26	0.653	0.26	0.669
0.2633	0.65	0.2633	0.666
0.2666	0.643	0.2666	0.659
0.27	0.64	0.27	0.653
0.2733	0.634	0.2733	0.65
0.2766	0.628	0.2766	0.643
0.28	0.624	0.28	0.64
0.2833	0.618	0.2833	0.634
0.2866	0.615	0.2866	0.631
0.29	0.609	0.29	0.624
0.2933	0.606	0.2933	0.621
0.2966	0.599	0.2966	0.615
0.3	0.596	0.3	0.612
0.3033	0.593	0.3033	0.606
0.3066	0.587	0.3066	0.602
0.31	0.583	0.31	0.599
0.3133	0.577	0.3133	0.593
0.3166	0.574	0.3166	0.59
0.32	0.571	0.32	0.587
0.3233	0.565	0.3233	0.58
0.3266	0.561	0.3266	0.577
0.33	0.558	0.33	0.574
0.3333	0.555	0.3333	0.571
0.35	0.533	0.35	0.549
0.3666	0.514	0.3666	0.533
0.3833	0.498	0.3833	0.514
0.4	0.482	0.4	0.498
0.4166	0.47	0.4166	0.486
0.4333	0.454	0.4333	0.47
0.45	0.441	0.45	0.457
0.4666	0.429	0.4666	0.445
0.4833	0.416	0.4833	0.432
0.5	0.404	0.5	0.419
0.5166	0.391	0.5166	0.407
0.5333	0.381	0.5333	0.397
0.55	0.372	0.55	0.388

0.5666	0.359
0.5833	0.353
0.6	0.34
0.6166	0.334
0.6333	0.325
0.65	0.315
0.6666	0.309
0.6833	0.299
0.7	0.293
0.7166	0.284
0.7333	0.277
0.75	0.271
0.7666	0.265
0.7833	0.258
0.8	0.252
0.8166	0.246
0.8333	0.239
0.85	0.233
0.8666	0.227
0.8833	0.224
0.9	0.217
0.9166	0.211
0.9333	0.205
0.95	0.202
0.9666	0.198
0.9833	0.192
1	0.186
1.2	0.135
1.4	0.104
1.6	0.078
1.8	0.063
2	0.047
2.2	0.037
2.4	0.031
2.6	0.025
2.8	0.018
3	0.015
3.2	0.015
3.4	0.012
3.6	0.012
3.8	0.009
4	0.009
4.2	0.009
4.4	0.009
4.6	0.006
4.8	0.009
5	0.006
5.2	0.006
5.4	0.006
5.6	0.006
5.8	0.006
6	0.006
6.2	0.006

0.5666	0.378
0.5833	0.369
0.6	0.356
0.6166	0.35
0.6333	0.34
0.65	0.331
0.6666	0.325
0.6833	0.315
0.7	0.309
0.7166	0.303
0.7333	0.293
0.75	0.287
0.7666	0.28
0.7833	0.274
0.8	0.268
0.8166	0.261
0.8333	0.255
0.85	0.249
0.8666	0.243
0.8833	0.236
0.9	0.233
0.9166	0.227
0.9333	0.22
0.95	0.217
0.9666	0.211
0.9833	0.208
1	0.202
1.2	0.148
1.4	0.113
1.6	0.088
1.8	0.069
2	0.053
2.2	0.044
2.4	0.034
2.6	0.028
2.8	0.025
3	0.018
3.2	0.015
3.4	0.015
3.6	0.012
3.8	0.012
4	0.009
4.2	0.009
4.4	0.009
4.6	0.009
4.8	0.006

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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	⁴⁴ 27M-92-04X	T. Longley
DATE OF TEST	10-15-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE1000C/KC01732	
TEST #	SEL 86/1032	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045 DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	20.80 (PVC)	
WELL DEPTH (FT./TOC)	27.94 (PVC)	
XD DEPTH (FT./TOC)	26.919-8 (PVC)	
INITIAL XD REFERENCE	2 0.00	
SLUG DEPTH (FT./TOC)	24 (PVC)	
TIME OF SLUG PLACEMENT	11:31	
TIME OF WL EQUILIBRATION	11:36	
NEW XD REFERENCE	0.00	
START TIME OF TEST	11:37	
END TIME OF TEST	11:44	
NOTES: SLUG: 3" x 3"	BAR STOCK (PVC)	

2.5" x 4"

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

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AQUIFER TESTING COMPLETION CHECKLIST

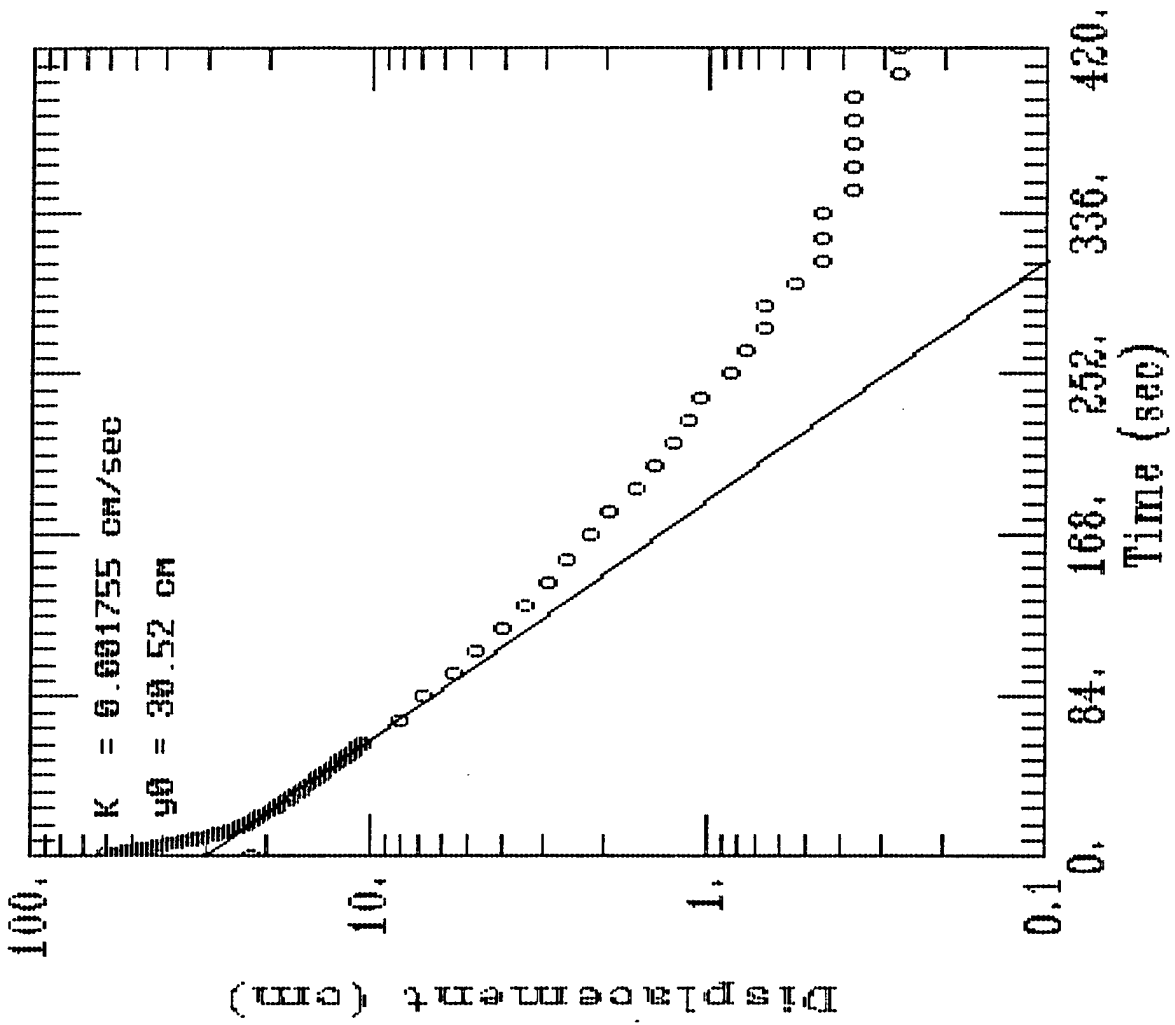
AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	42 27M-92-044	T. Langley
DATE OF TEST	10-15-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE10000/1KCO 1732	
TEST #	SEL 7/ 2082	
DATA COLLECTION RATE	Log 1	
TRANSDUCER		
SERIAL #	2045 DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	20.80 (PVC)	
WELL DEPTH (FT./TOC)	27.94 (PVC)	
XD DEPTH (FT.TOC)	26.9 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	24 (PVC)	
TIME OF SLUG PLACEMENT	11:45	
TIME OF WL EQUILIBRATION	11:51	
NEW XD REFERENCE	0.00	
START TIME OF TEST	11:52	
END TIME OF TEST	11:56	
NOTES: SLUG: 3" x 3"	BAR stock PVC	

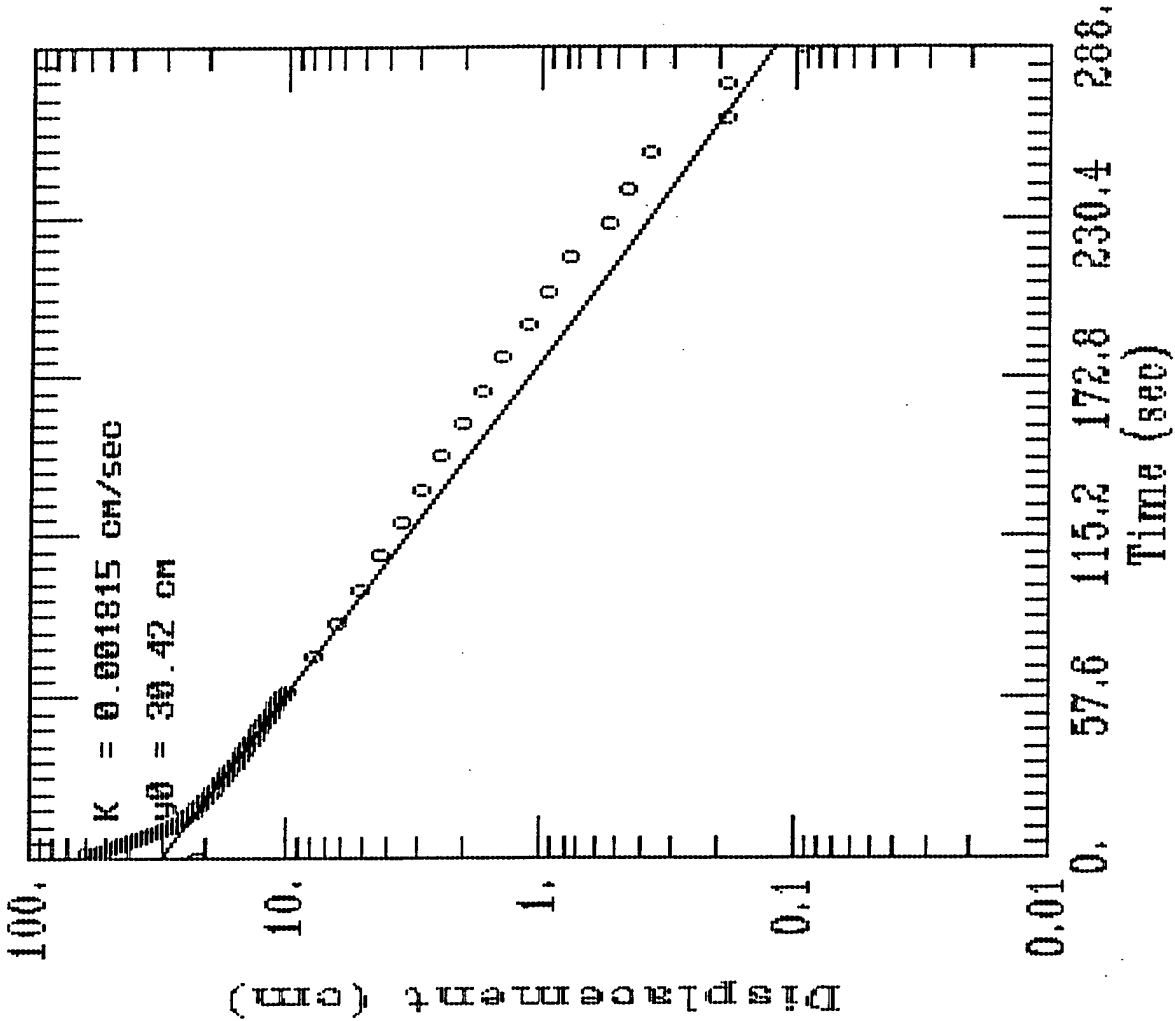
2.5" x 4"

FIGURE 4-14
 AQUIFER TEST COMPLETION CHECKLIST
 PROJECT OPERATIONS PLAN
 FORT DEVENS, MASSACHUSETTS
 ABB Environmental Services, Inc.

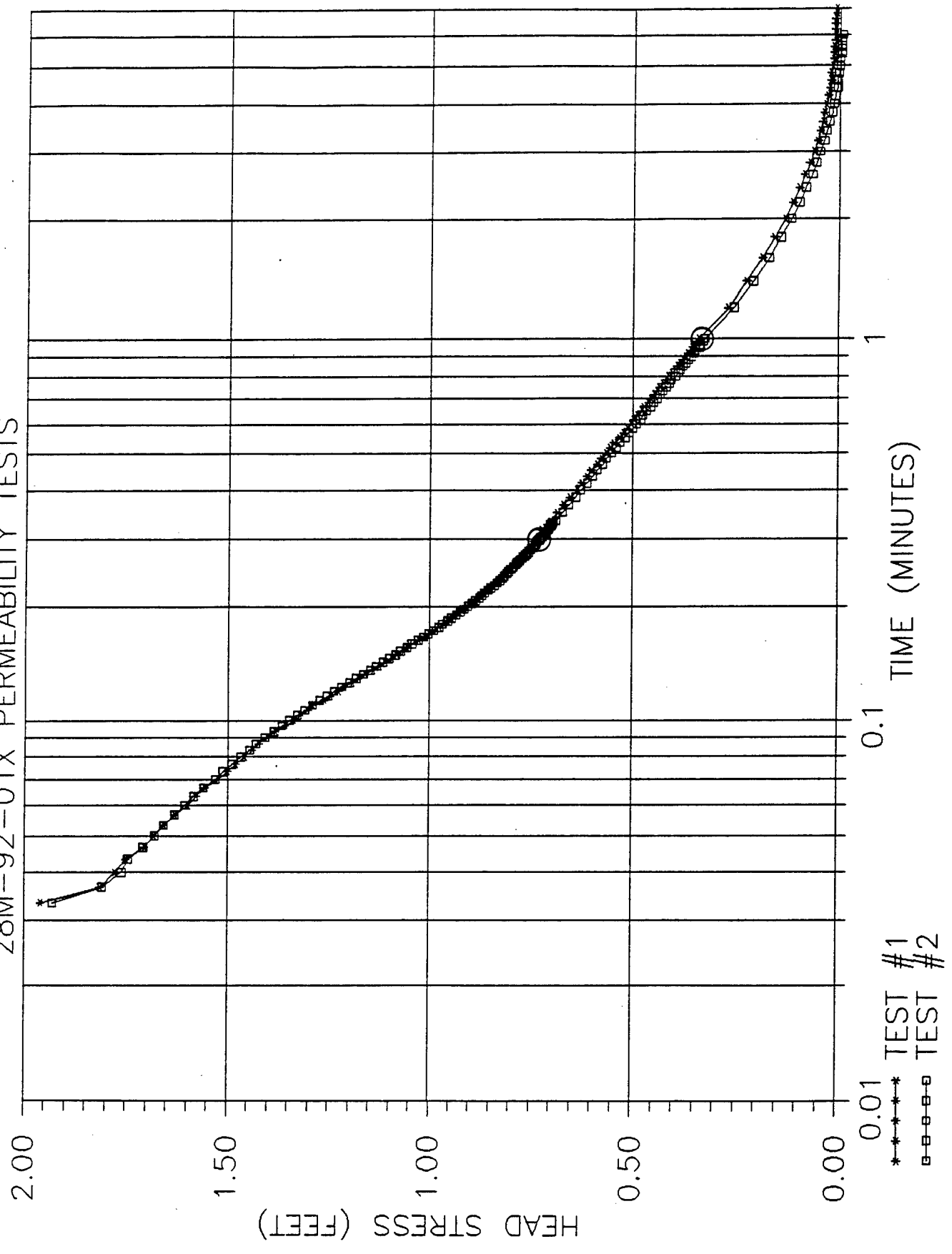
28M-92-01X PERMEABILITY TEST #1



20M-92-01X PERMEABILITY TEST #2



28M-92-01X PERMEABILITY TESTS



WELL 28M-92-01X

WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= 7.9 FT, BORING DIAMETER= 0.833 FT

TEST 1		TEST 2	
MINUTES	FEET	MINUTES	FEET
0	0	0	0.003
0.0033	-0.009	0.0033	0.003
0.0066	1.745	0.0066	0.003
0.01	1.057	0.01	1.155
0.0133	0.678	0.0133	1.736
0.0166	0.741	0.0166	0.915
0.02	1.448	0.02	1.502
0.0233	0.22	0.0233	1.395
0.0266	0.893	0.0266	1.3
0.03	1.669	0.03	1.458
0.0333	1.96	0.0333	1.931
0.0366	1.814	0.0366	1.808
0.04	1.777	0.04	1.761
0.0433	1.751	0.0433	1.745
0.0466	1.704	0.0466	1.707
0.05	1.682	0.05	1.679
0.0533	1.657	0.0533	1.657
0.0566	1.631	0.0566	1.631
0.06	1.597	0.06	1.606
0.0633	1.578	0.0633	1.584
0.0666	1.556	0.0666	1.559
0.07	1.524	0.07	1.53
0.0733	1.499	0.0733	1.511
0.0766	1.48	0.0766	1.489
0.08	1.458	0.08	1.467
0.0833	1.439	0.0833	1.445
0.0866	1.423	0.0866	1.429
0.09	1.401	0.09	1.407
0.0933	1.382	0.0933	1.385
0.0966	1.357	0.0966	1.366
0.1	1.338	0.1	1.347
0.1033	1.322	0.1033	1.328
0.1066	1.303	0.1066	1.309
0.11	1.29	0.11	1.29
0.1133	1.262	0.1133	1.272
0.1166	1.246	0.1166	1.253
0.12	1.227	0.12	1.237
0.1233	1.212	0.1233	1.218
0.1266	1.193	0.1266	1.199
0.13	1.177	0.13	1.183
0.1333	1.161	0.1333	1.164
0.1366	1.142	0.1366	1.148
0.14	1.126	0.14	1.133
0.1433	1.111	0.1433	1.117
0.1466	1.095	0.1466	1.101
0.15	1.082	0.15	1.085
0.1533	1.066	0.1533	1.073
0.1566	1.057	0.1566	1.057
0.16	1.051	0.16	1.044
0.1633	1.028	0.1633	1.029
0.1666	1.013	0.1666	1.016
0.17	1	0.17	1.003
0.1733	0.991	0.1733	0.991
0.1766	0.978	0.1766	0.978
0.18	0.965	0.18	0.969
0.1833	0.956	0.1833	0.956
0.1866	0.946	0.1866	0.946
0.19	0.937	0.19	0.934
0.1933	0.928	0.1933	0.924
0.1966	0.915	0.1966	0.915
0.2	0.909	0.2	0.905
0.2033	0.899	0.2033	0.896
0.2066	0.886	0.2066	0.886
0.21	0.88	0.21	0.877
0.2133	0.874	0.2133	0.871
0.2166	0.868	0.2166	0.864
0.22	0.858	0.22	0.855
0.2233	0.855	0.2233	0.849
0.2266	0.845	0.2266	0.839
0.23	0.839	0.23	0.833
0.2333	0.83	0.2333	0.827
0.2366	0.826	0.2366	0.82
0.24	0.82	0.24	0.814
0.2433	0.814	0.2433	0.808
0.2466	0.804	0.2466	0.804
0.25	0.804	0.25	0.798
0.2533	0.798	0.2533	0.792
0.2566	0.792	0.2566	0.785
0.26	0.789	0.26	0.782
0.2633	0.782	0.2633	0.776
0.2666	0.779	0.2666	0.77
0.27	0.773	0.27	0.763
0.2733	0.77	0.2733	0.76
0.2766	0.763	0.2766	0.754
0.28	0.76	0.28	0.751
0.2833	0.754	0.2833	0.744
0.2866	0.751	0.2866	0.741
0.29	0.748	0.29	0.738
0.2933	0.741	0.2933	0.735
0.2966	0.738	0.2966	0.729
0.3	0.735	0.3	0.726
0.3033	0.732	0.3033	0.722
0.3066	0.722	0.3066	0.716
0.31	0.725	0.31	0.713
0.3133	0.719	0.3133	0.71
0.3166	0.722	0.3166	0.707
0.32	0.713	0.32	0.703
0.3233	0.707	0.3233	0.7
0.3266	0.707	0.3266	0.697
0.33	0.703	0.33	0.694
0.3333	0.7	0.3333	0.688
0.35	0.684	0.35	0.672
0.3666	0.669	0.3666	0.656
0.3833	0.653	0.3833	0.64
0.4	0.637	0.4	0.628
0.4166	0.624	0.4166	0.612
0.4333	0.612	0.4333	0.599
0.45	0.602	0.45	0.587
0.4666	0.587	0.4666	0.574
0.4833	0.577	0.4833	0.565
0.5	0.565	0.5	0.552
0.5166	0.555	0.5166	0.542
0.5333	0.546	0.5333	0.533
0.55	0.533	0.55	0.52

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0.353
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0.34
0.337
0.331
0.325
0.255
0.208
0.17
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0.097
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0.066
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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 28M-92-01X	T. Longley
DATE OF TEST	10-15-92	
TYPE OF TEST	Rising Head	
HERMIT TYPE/SERIAL#	SE1000/1K001732	
TEST #	SEL 10/1072	
DATA COLLECTION RATE	Log 1	
TRANSDUCER		
SERIAL #	2045 DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	10.16 (PVC)	
WELL DEPTH (FT./TOC)	17 18.04 (PVC)	
XD DEPTH (FT./TOC)	17 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	13 (PVC)	
TIME OF SLUG PLACEMENT	15:20	
TIME OF WL EQUILIBRATION	15:27	
NEW XD REFERENCE	0.00	
START TIME OF TEST	15:27	
END TIME OF TEST	15:34	
NOTES: Slug: 3" x 3"	BAR STOCK PVC	

(7.03)

FIGURE 4-14
 AQUIFER TEST COMPLETION CHECKLIST
 PROJECT OPERATIONS PLAN
 FORT DEVENS, MASSACHUSETTS
 ABB Environmental Services, Inc.

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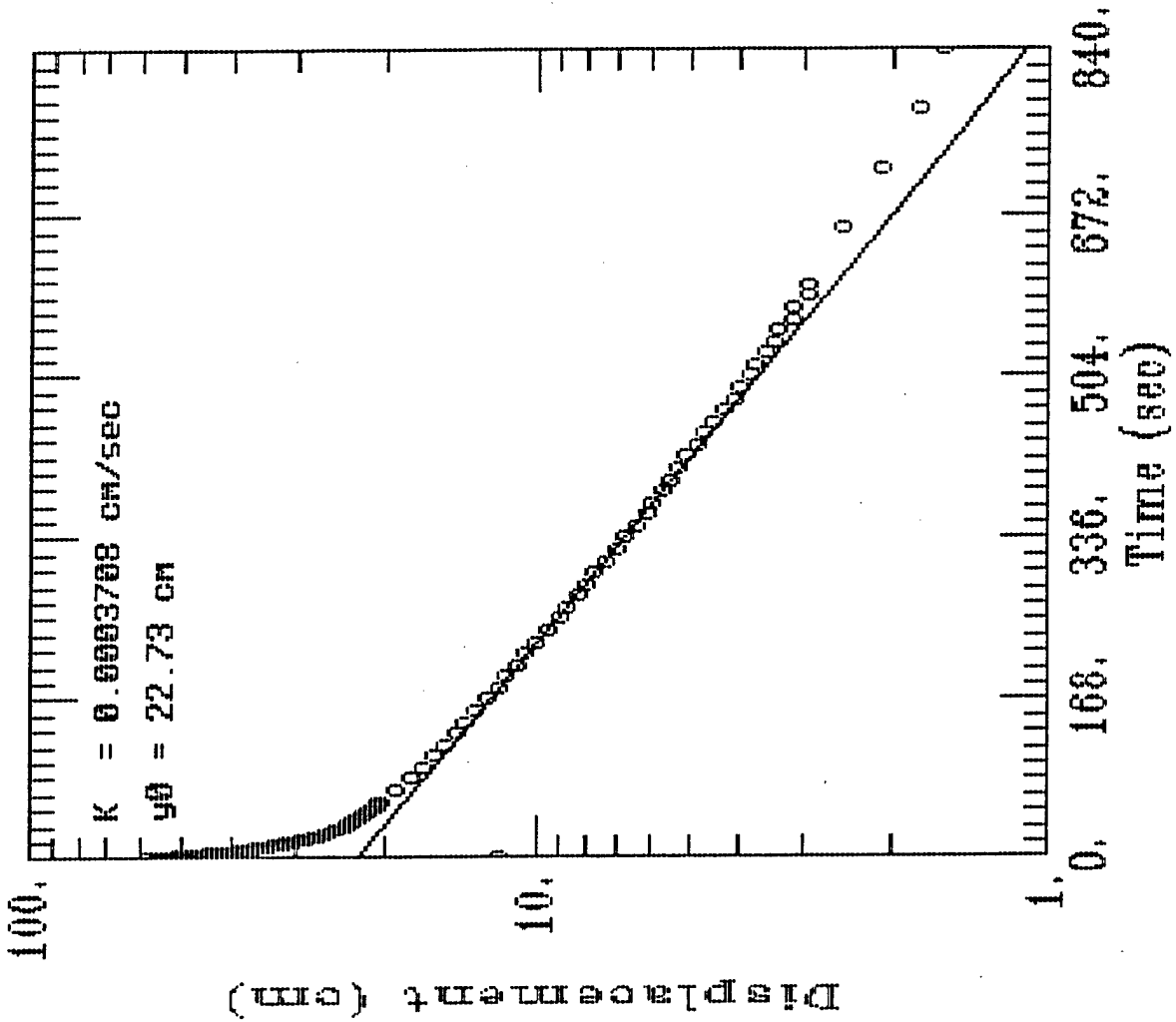
AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

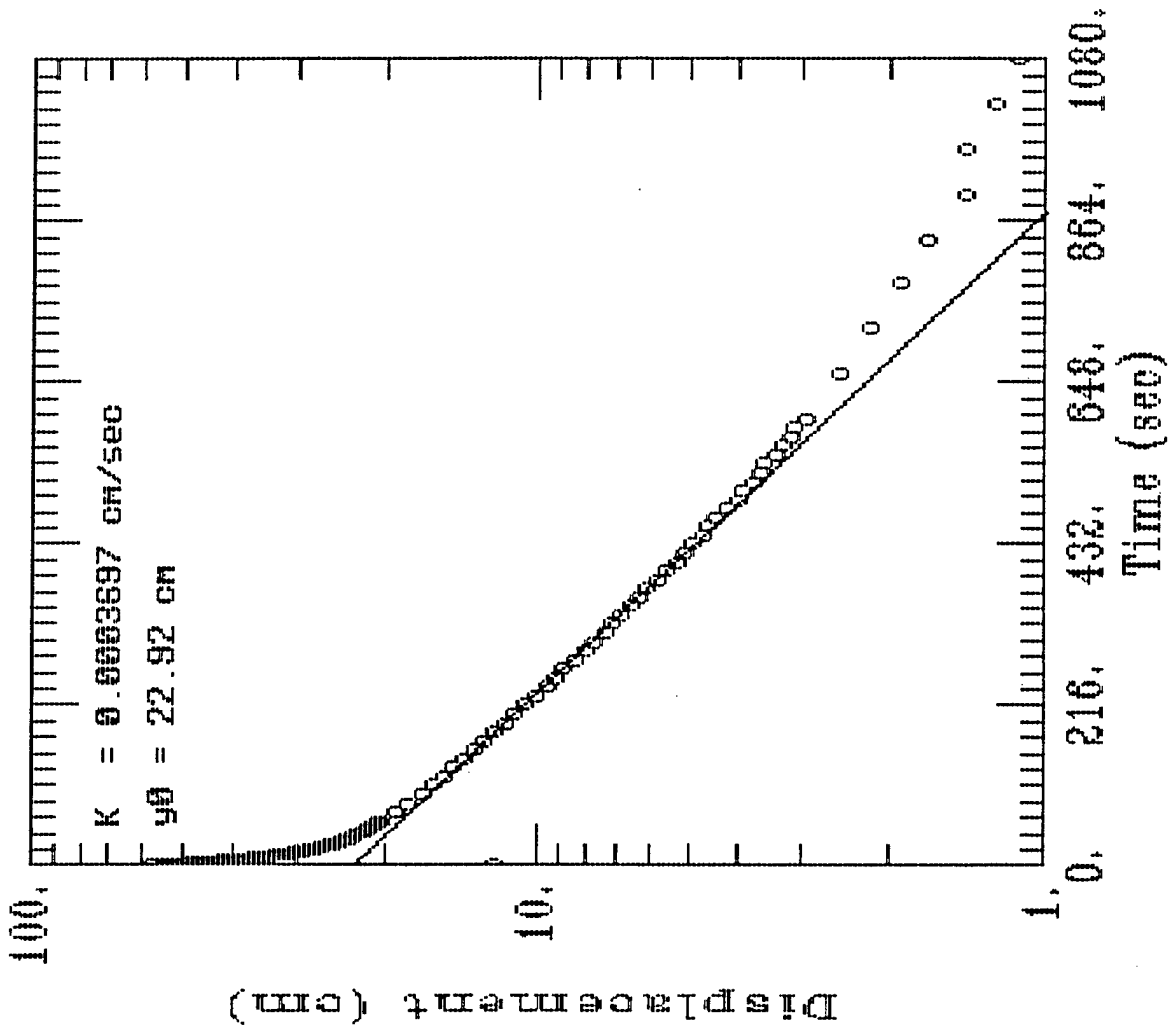
SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 28M-92-01x	T. Loyley
DATE OF TEST	10-15-92	
TYPE OF TEST	Rising head	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEL 11 / 2083	
DATA COLLECTION RATE	Lo 1	
TRANSDUCER		
SERIAL #	2045 DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	10.16 (PVC)	
WELL DEPTH (FT./TOC)	18.04 (PVC)	
XD DEPTH (FT./TOC)	17 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	13 (PVC)	
TIME OF SLUG PLACEMENT	15:35	
TIME OF WL EQUILIBRATION	15:42	
NEW XD REFERENCE	0.00	
START TIME OF TEST	15:43	
END TIME OF TEST	15:49	
NOTES: SLUG: 3" x 3'	BAR stock PVC	

FIGURE 4-14
 AQUIFER TEST COMPLETION CHECKLIST
 PROJECT OPERATIONS PLAN
 FORT DEVENS, MASSACHUSETTS
 ABB Environmental Services, Inc.

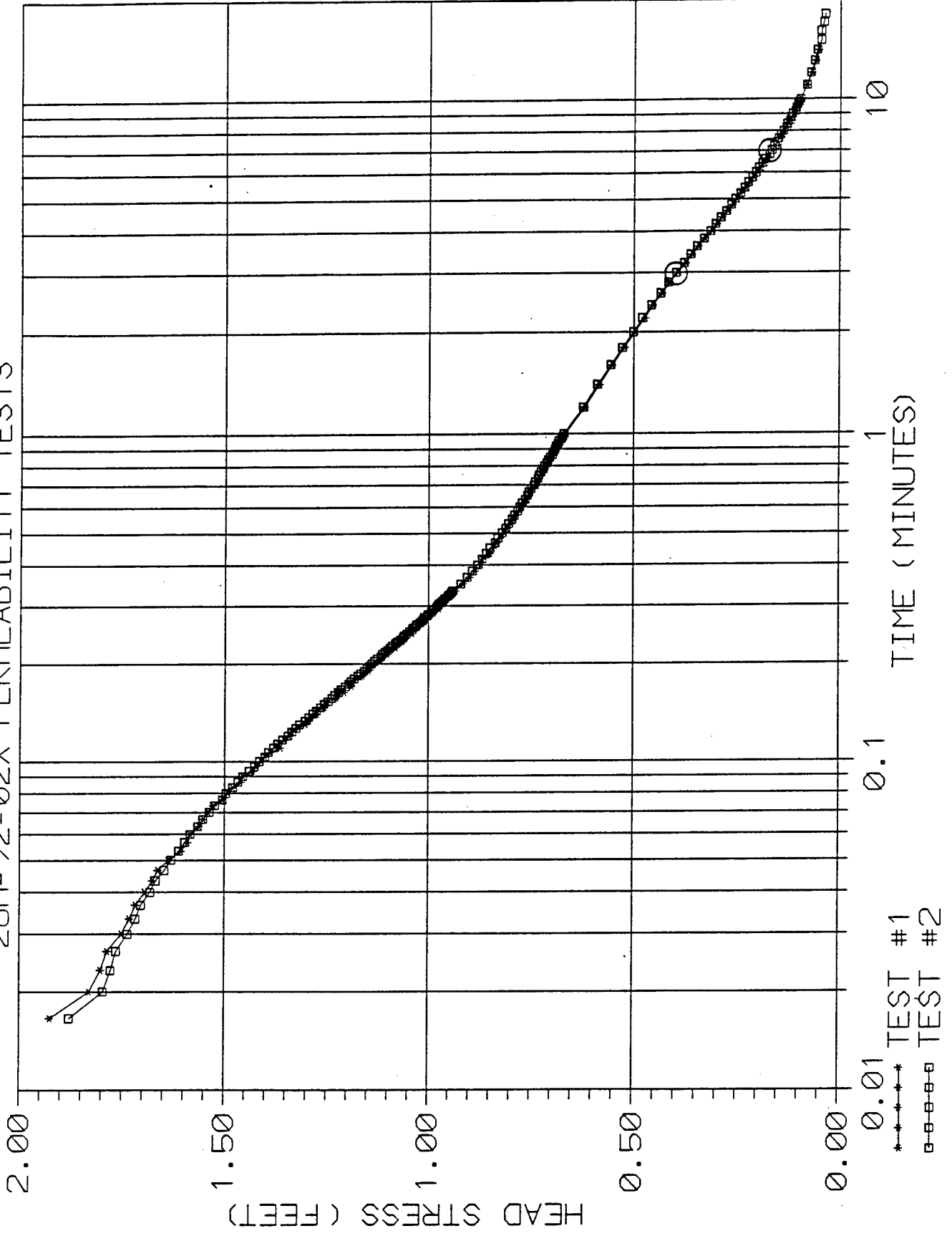
28M-92-02X PERMEABILITY TEST #1



28M-92-02X PERMEABILITY TEST #2



28M-92-02X PERMEABILITY TESTS



WELL 28M-92-02X

WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= 6.8 FT, BORING DIAMETER= 0.833 FT

TEST 1 MINUTES	FEET	TEST 2 MINUTES	FEET
0	1.546	0	0.94
0.0033	1.167	0.0033	1.041
0.0066	1.499	0.0066	1.098
0.01	0.691	0.01	1.846
0.0133	1.72	0.0133	1.824
0.0166	1.925	0.0166	1.878
0.02	1.83	0.02	1.796
0.0233	1.802	0.0233	1.777
0.0266	1.786	0.0266	1.764
0.03	1.751	0.03	1.736
0.0333	1.732	0.0333	1.717
0.0366	1.717	0.0366	1.704
0.04	1.695	0.04	1.682
0.0433	1.676	0.0433	1.669
0.0466	1.663	0.0466	1.647
0.05	1.638	0.05	1.631
0.0533	1.606	0.0533	1.612
0.0566	1.59	0.0566	1.597
0.06	1.584	0.06	1.584
0.0633	1.562	0.0633	1.565
0.0666	1.552	0.0666	1.553
0.07	1.54	0.07	1.537
0.0733	1.527	0.0733	1.524
0.0766	1.505	0.0766	1.505
0.08	1.492	0.08	1.496
0.0833	1.48	0.0833	1.48
0.0866	1.461	0.0866	1.467
0.09	1.455	0.09	1.455
0.0933	1.429	0.0933	1.439
0.0966	1.423	0.0966	1.426
0.1	1.41	0.1	1.414
0.1033	1.401	0.1033	1.401
0.1066	1.388	0.1066	1.392
0.11	1.363	0.11	1.379
0.1133	1.366	0.1133	1.369
0.1166	1.354	0.1166	1.357
0.12	1.341	0.12	1.344
0.1233	1.335	0.1233	1.335
0.1266	1.319	0.1266	1.325
0.13	1.303	0.13	1.316
0.1333	1.294	0.1333	1.303
0.1366	1.291	0.1366	1.294
0.14	1.275	0.14	1.284
0.1433	1.275	0.1433	1.275
0.1466	1.256	0.1466	1.265
0.15	1.253	0.15	1.256
0.1533	1.253	0.1533	1.246
0.1566	1.227	0.1566	1.237
0.16	1.224	0.16	1.231
0.1633	1.208	0.1633	1.221
0.1666	1.218	0.1666	1.215
0.17	1.189	0.17	1.205
0.1733	1.189	0.1733	1.196
0.1766	1.189	0.1766	1.19
0.18	1.177	0.18	1.183
0.1833	1.164	0.1833	1.174
0.1866	1.158	0.1866	1.167
0.19	1.148	0.19	1.158
0.1933	1.148	0.1933	1.152
0.1966	1.139	0.1966	1.145
0.2	1.129	0.2	1.139
0.2033	1.12	0.2033	1.133
0.2066	1.12	0.2066	1.126
0.21	1.114	0.21	1.117
0.2133	1.104	0.2133	1.114
0.2166	1.101	0.2166	1.107
0.22	1.092	0.22	1.101
0.2233	1.082	0.2233	1.095
0.2266	1.082	0.2266	1.089
0.23	1.073	0.23	1.082
0.2333	1.066	0.2333	1.076
0.2366	1.063	0.2366	1.07
0.24	1.06	0.24	1.063
0.2433	1.054	0.2433	1.06
0.2466	1.041	0.2466	1.054
0.25	1.041	0.25	1.047
0.2533	1.035	0.2533	1.041
0.2566	1.029	0.2566	1.038
0.26	1.025	0.26	1.032
0.2633	1.022	0.2633	1.029
0.2666	1.016	0.2666	1.022
0.27	1.01	0.27	1.016
0.2733	1.006	0.2733	1.013
0.2766	1.006	0.2766	1.01
0.28	1	0.28	1.003
0.2833	0.994	0.2833	1
0.2866	0.987	0.2866	0.994
0.29	0.984	0.29	0.991
0.2933	0.975	0.2933	0.987
0.2966	0.975	0.2966	0.981
0.3	0.972	0.3	0.978
0.3033	0.972	0.3033	0.975
0.3066	0.962	0.3066	0.969
0.31	0.959	0.31	0.965
0.3133	0.956	0.3133	0.962
0.3166	0.95	0.3166	0.959
0.32	0.95	0.32	0.953
0.3233	0.943	0.3233	0.95
0.3266	0.94	0.3266	0.946
0.33	0.937	0.33	0.943
0.3333	0.934	0.3333	0.94
0.35	0.915	0.35	0.921
0.3666	0.899	0.3666	0.905
0.3833	0.886	0.3833	0.893
0.4	0.871	0.4	0.88
0.4166	0.868	0.4166	0.868
0.4333	0.849	0.4333	0.858
0.45	0.842	0.45	0.849
0.4666	0.833	0.4666	0.836
0.4833	0.823	0.4833	0.83
0.5	0.814	0.5	0.82
0.5166	0.808	0.5166	0.811
0.5333	0.798	0.5333	0.804
0.55	0.792	0.55	0.795

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0.255
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0.167
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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 28M-92-02x	T. Layley
DATE OF TEST	10-15-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE1000/1KCC1732	
TEST #	SEL 12/1 of 2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045 DG	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	9.20 (PVC)	
WELL DEPTH (FT./TOC)	16.00 (PVC)	
XD DEPTH (FT./TOC)	15.00 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	12.2 (PVC)	
TIME OF SLUG PLACEMENT	16:00	
TIME OF WL EQUILIBRATION	16:27	
NEW XD REFERENCE	0.00	
START TIME OF TEST	16:28	
END TIME OF TEST	16:43	
NOTES: Slug: 3" x 3'	BAR Stock PVC	

5.53

FIGURE 4-14
 AQUIFER TEST COMPLETION CHECKLIST
 PROJECT OPERATIONS PLAN
 FORT DEVENS, MASSACHUSETTS
 ABB Environmental Services, Inc.

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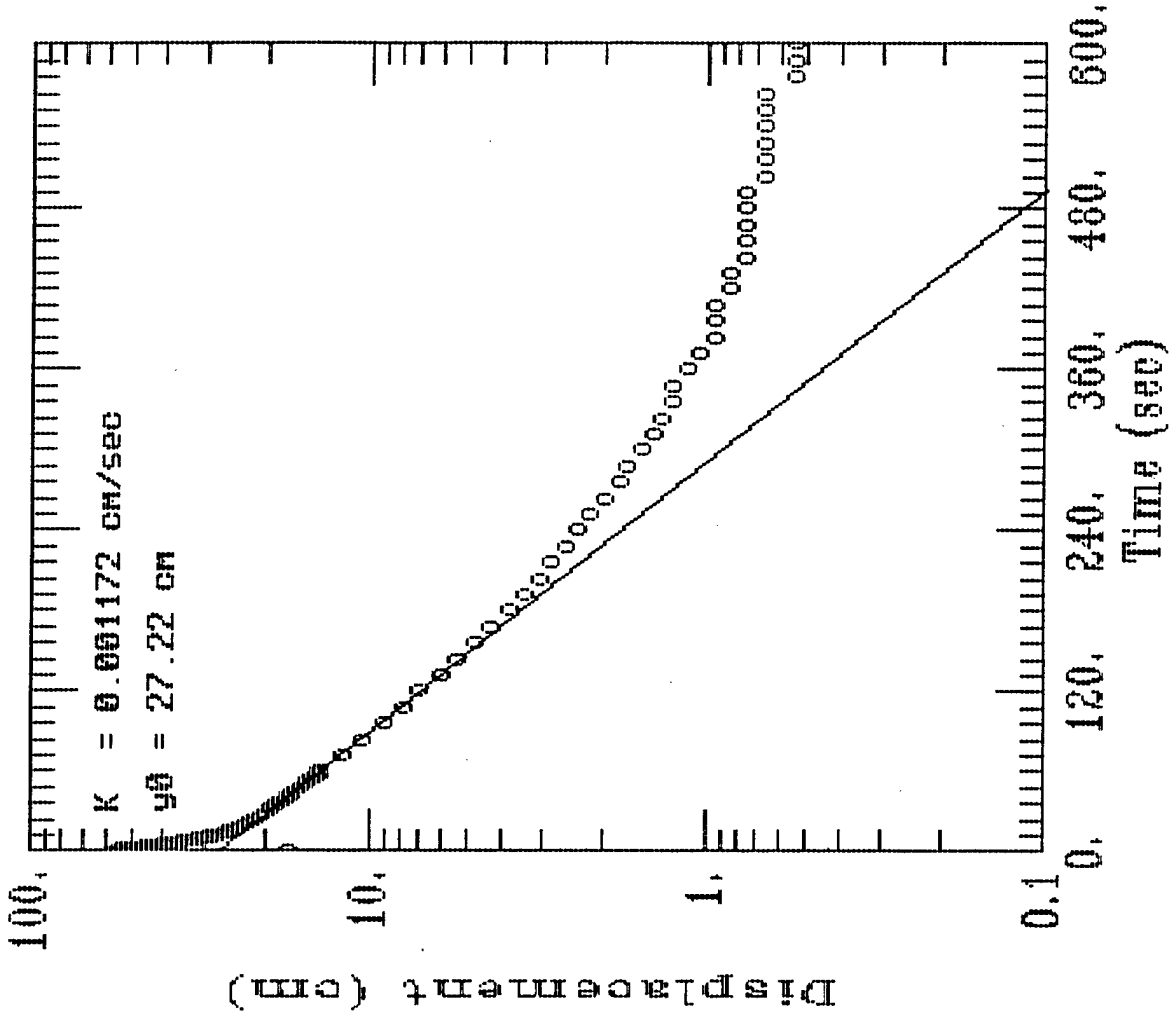
AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

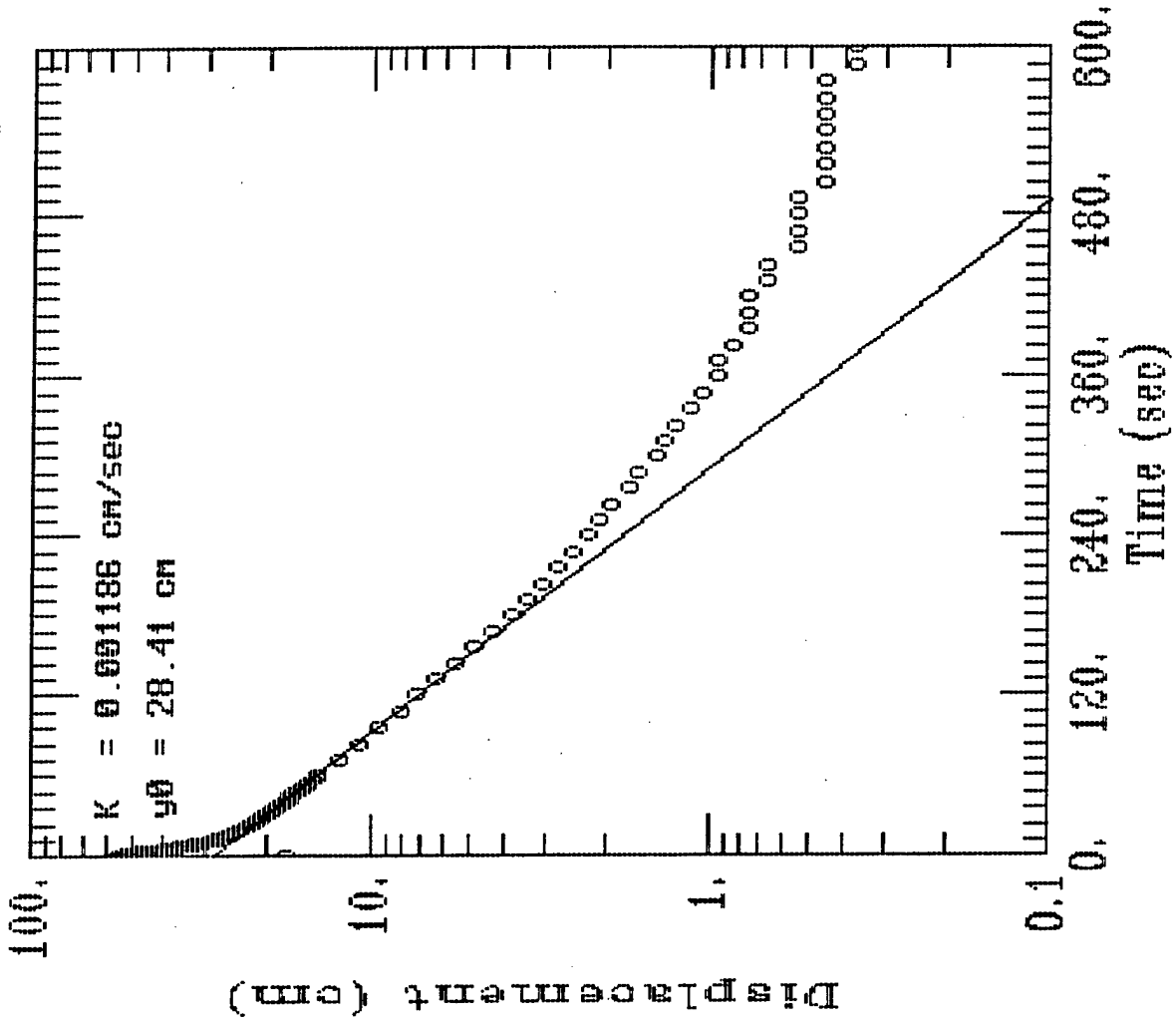
SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 25M-97-024	
DATE OF TEST	10-15-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C/1 KC01732	
TEST #	SEL13/2 of 2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045 DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	9.20 (PVC)	
WELL DEPTH (FT./TOC)	16.00 (PVC)	
XD DEPTH (FT./TOC)	15.00 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	16.99 12.2 (PVC)	
TIME OF SLUG PLACEMENT	16:44	
TIME OF WL EQUILIBRATION	17:00	
NEW XD REFERENCE	0.00	
START TIME OF TEST	17:00	
END TIME OF TEST	17:19	
NOTES: SLUG: 3" x 3'	BAR STOCK PVC	

FIGURE 4-14
 AQUIFER TEST COMPLETION CHECKLIST
 PROJECT OPERATIONS PLAN
 FORT DEVENS, MASSACHUSETTS
 ABB Environmental Services, Inc.

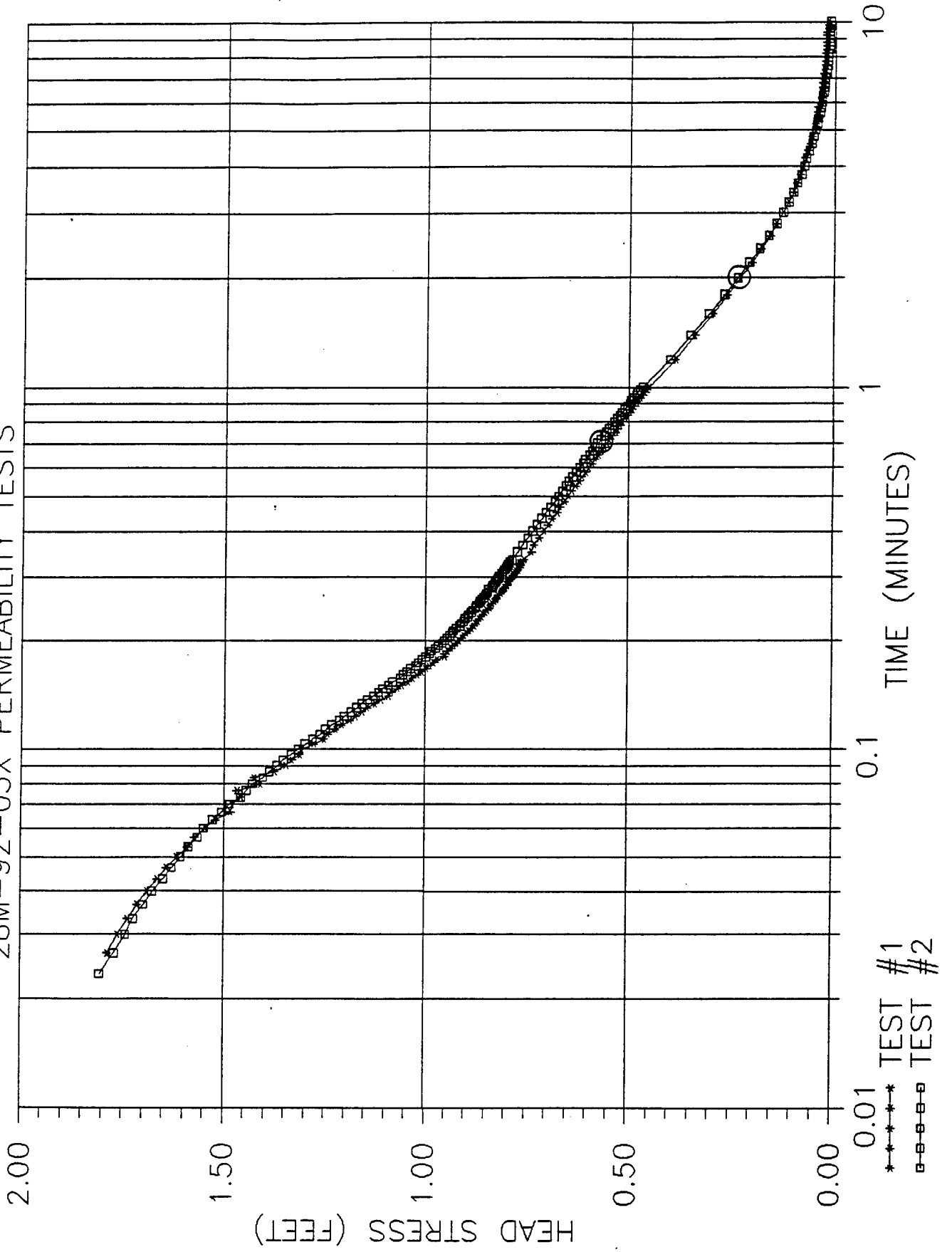
28M-92-03X PERMEABILITY TEST #1



20M-92-03X PERMEABILITY TEST #2



28M-92-03X PERMEABILITY TESTS



WELL 26M-92-03X

WELL DIAMETER = 0.333 FT, SATURATED SCREEN LENGTH = 6.8 FT, BORING DIAMETER = 0.833 FT

TEST 1		TEST 2	
MINUTES	FEET	MINUTES	FEET
0	0.006	0	0.006
0.0033	-0.018	0.0033	-0.044
0.0066	1.546	0.0066	3.235
0.01	1.698	0.01	1.786
0.0133	1.534	0.0133	0.208
0.0166	1.511	0.0166	0.792
0.02	0.647	0.02	2.061
0.0233	1.982	0.0233	1.805
0.0266	1.786	0.0266	1.77
0.03	1.761	0.03	1.742
0.0333	1.736	0.0333	1.723
0.0366	1.713	0.0366	1.698
0.04	1.688	0.04	1.676
0.0433	1.663	0.0433	1.65
0.0466	1.641	0.0466	1.628
0.05	1.616	0.05	1.606
0.0533	1.59	0.0533	1.587
0.0566	1.571	0.0566	1.565
0.06	1.546	0.06	1.549
0.0633	1.521	0.0633	1.527
0.0666	1.483	0.0666	1.505
0.07	1.48	0.07	1.486
0.0733	1.458	0.0733	1.458
0.0766	1.467	0.0766	1.445
0.08	1.41	0.08	1.429
0.0833	1.426	0.0833	1.404
0.0866	1.376	0.0866	1.388
0.09	1.347	0.09	1.369
0.0933	1.332	0.0933	1.354
0.0966	1.313	0.0966	1.335
0.1	1.309	0.1	1.316
0.1033	1.278	0.1033	1.3
0.1066	1.253	0.1066	1.281
0.11	1.243	0.11	1.262
0.1133	1.224	0.1133	1.249
0.1166	1.208	0.1166	1.234
0.12	1.189	0.12	1.215
0.1233	1.174	0.1233	1.202
0.1266	1.158	0.1266	1.186
0.13	1.145	0.13	1.171
0.1333	1.126	0.1333	1.158
0.1366	1.111	0.1366	1.145
0.14	1.092	0.14	1.13
0.1433	1.085	0.1433	1.117
0.1466	1.07	0.1466	1.107
0.15	1.06	0.15	1.092
0.1533	1.044	0.1533	1.082
0.1566	1.032	0.1566	1.063
0.16	1.022	0.16	1.057
0.1633	1.01	0.1633	1.047
0.1666	1	0.1666	1.038
0.17	0.991	0.17	1.025
0.1733	0.981	0.1733	1.019
0.1766	0.972	0.1766	1.01
0.18	0.953	0.18	1
0.1833	0.953	0.1833	0.991
0.1866	0.946	0.1866	0.987
0.19	0.937	0.19	0.975
0.1933	0.931	0.1933	0.969
0.1966	0.924	0.1966	0.959
0.2	0.918	0.2	0.953
0.2033	0.909	0.2033	0.946
0.2066	0.905	0.2066	0.94
0.21	0.898	0.21	0.934
0.2133	0.893	0.2133	0.931
0.2166	0.886	0.2166	0.924
0.22	0.88	0.22	0.915
0.2233	0.877	0.2233	0.912
0.2266	0.871	0.2266	0.905
0.23	0.868	0.23	0.902
0.2333	0.861	0.2333	0.896
0.2366	0.858	0.2366	0.893
0.24	0.852	0.24	0.886
0.2433	0.849	0.2433	0.883
0.2466	0.842	0.2466	0.877
0.25	0.839	0.25	0.874
0.2533	0.836	0.2533	0.868
0.2566	0.83	0.2566	0.864
0.26	0.826	0.26	0.861
0.2633	0.823	0.2633	0.855
0.2666	0.82	0.2666	0.852
0.27	0.814	0.27	0.849
0.2733	0.811	0.2733	0.845
0.2766	0.808	0.2766	0.845
0.28	0.804	0.28	0.836
0.2833	0.798	0.2833	0.833
0.2866	0.798	0.2866	0.83
0.29	0.795	0.29	0.826
0.2933	0.792	0.2933	0.823
0.2966	0.789	0.2966	0.82
0.3	0.785	0.3	0.817
0.3033	0.782	0.3033	0.811
0.3066	0.779	0.3066	0.811
0.31	0.776	0.31	0.808
0.3133	0.77	0.3133	0.804
0.3166	0.767	0.3166	0.801
0.32	0.767	0.32	0.798
0.3233	0.767	0.3233	0.795
0.3266	0.767	0.3266	0.792
0.33	0.76	0.33	0.792
0.3333	0.757	0.3333	0.785
0.35	0.738	0.35	0.773
0.3666	0.732	0.3666	0.76
0.3833	0.719	0.3833	0.748
0.4	0.707	0.4	0.735
0.4166	0.697	0.4166	0.725
0.4333	0.688	0.4333	0.713
0.45	0.675	0.45	0.703
0.4666	0.669	0.4666	0.691
0.4833	0.656	0.4833	0.681
0.5	0.647	0.5	0.672
0.5166	0.64	0.5166	0.662
0.5333	0.631	0.5333	0.653
0.55	0.621	0.55	0.647

0.5666	0.615	0.5666	0.637
0.5833	0.606	0.5833	0.628
0.6	0.599	0.6	0.621
0.6166	0.59	0.6166	0.612
0.6333	0.583	0.6333	0.606
0.65	0.574	0.65	0.596
0.6666	0.568	0.6666	0.59
0.6833	0.561	0.6833	0.583
0.7	0.555	0.7	0.577
0.7166	0.549	0.7166	0.568
0.7333	0.542	0.7333	0.561
0.75	0.533	0.75	0.555
0.7666	0.53	0.7666	0.549
0.7833	0.523	0.7833	0.542
0.8	0.517	0.8	0.536
0.8166	0.511	0.8166	0.53
0.8333	0.505	0.8333	0.523
0.85	0.498	0.85	0.517
0.8666	0.492	0.8666	0.511
0.8833	0.489	0.8833	0.505
0.9	0.482	0.9	0.498
0.9166	0.476	0.9166	0.495
0.9333	0.473	0.9333	0.489
0.95	0.467	0.95	0.482
0.9666	0.46	0.9666	0.479
0.9833	0.457	0.9833	0.473
1	0.451	1	0.467
1.2	0.388	1.2	0.4
1.4	0.34	1.4	0.35
1.6	0.296	1.6	0.306
1.8	0.261	1.8	0.268
2	0.23	2	0.236
2.2	0.201	2.2	0.208
2.4	0.179	2.4	0.183
2.6	0.157	2.6	0.16
2.8	0.142	2.8	0.142
3	0.126	3	0.126
3.2	0.113	3.2	0.113
3.4	0.101	3.4	0.101
3.6	0.094	3.6	0.091
3.8	0.085	3.8	0.082
4	0.078	4	0.075
4.2	0.072	4.2	0.069
4.4	0.066	4.4	0.063
4.6	0.059	4.6	0.056
4.8	0.056	4.8	0.053
5	0.05	5	0.047
5.2	0.047	5.2	0.044
5.4	0.044	5.4	0.041
5.6	0.041	5.6	0.037
5.8	0.041	5.8	0.034
6	0.037	6	0.031
6.2	0.034	6.2	0.031
6.4	0.031	6.4	0.028
6.6	0.031	6.6	0.025
6.8	0.031	6.8	0.025
7	0.028	7	0.025
7.2	0.028	7.2	0.022
7.4	0.025	7.4	0.022
7.6	0.025	7.6	0.018
7.8	0.025	7.8	0.018
8	0.025	8	0.018
8.2	0.025	8.2	0.018
8.4	0.022	8.4	0.015
8.6	0.022	8.6	0.015
8.8	0.022	8.8	0.015
9	0.022	9	0.015
9.2	0.022	9.2	0.015
9.4	0.022	9.4	0.015
9.6	0.018	9.6	0.015
9.8	0.018	9.8	0.012
10	0.018	10	0.012

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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	4 th 23M-92-03X	T. Longley
DATE OF TEST	10-16-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KC01732	
TEST #	SEL 14 / 1062	
DATA COLLECTION RATE	Lo 1	
TRANSDUCER		
SERIAL #	2045 DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	14.17 (PVC)	
WELL DEPTH (FT./TOC)	20.99 (PVC)	
XD DEPTH (FT./TOC)	19 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	17.2 (PVC)	
TIME OF SLUG PLACEMENT	0821	
TIME OF WL EQUILIBRATION	0829	
NEW XD REFERENCE	0.00	
START TIME OF TEST	0829	
END TIME OF TEST	0840	
NOTES: SLUG: 3" x 3'	BAR STOCK PVC	

6.15
6.17

FIGURE 4-14
 AQUIFER TEST COMPLETION CHECKLIST
 PROJECT OPERATIONS PLAN
 FORT DEVENS, MASSACHUSETTS
 ABB Environmental Services, Inc.

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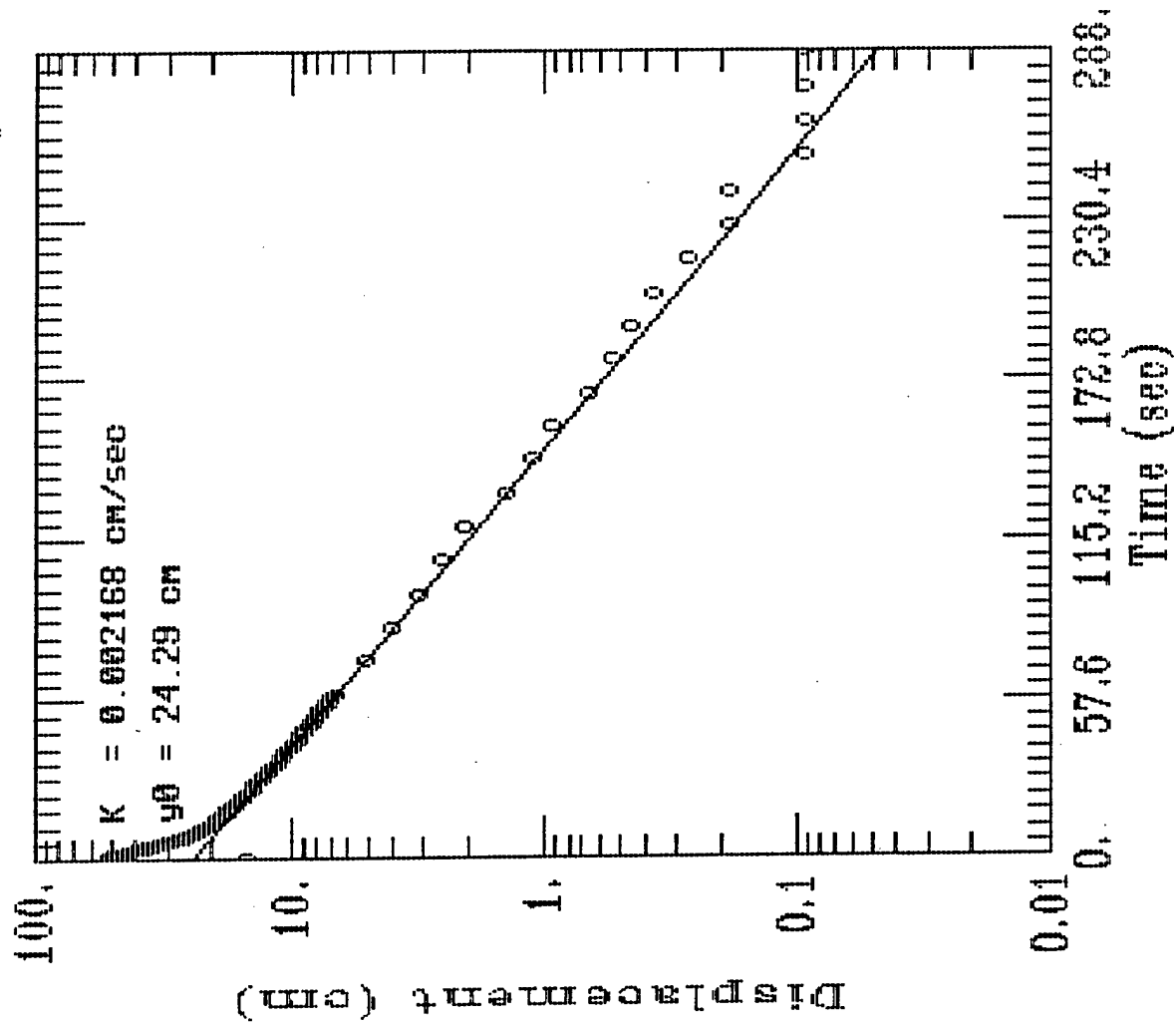
AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

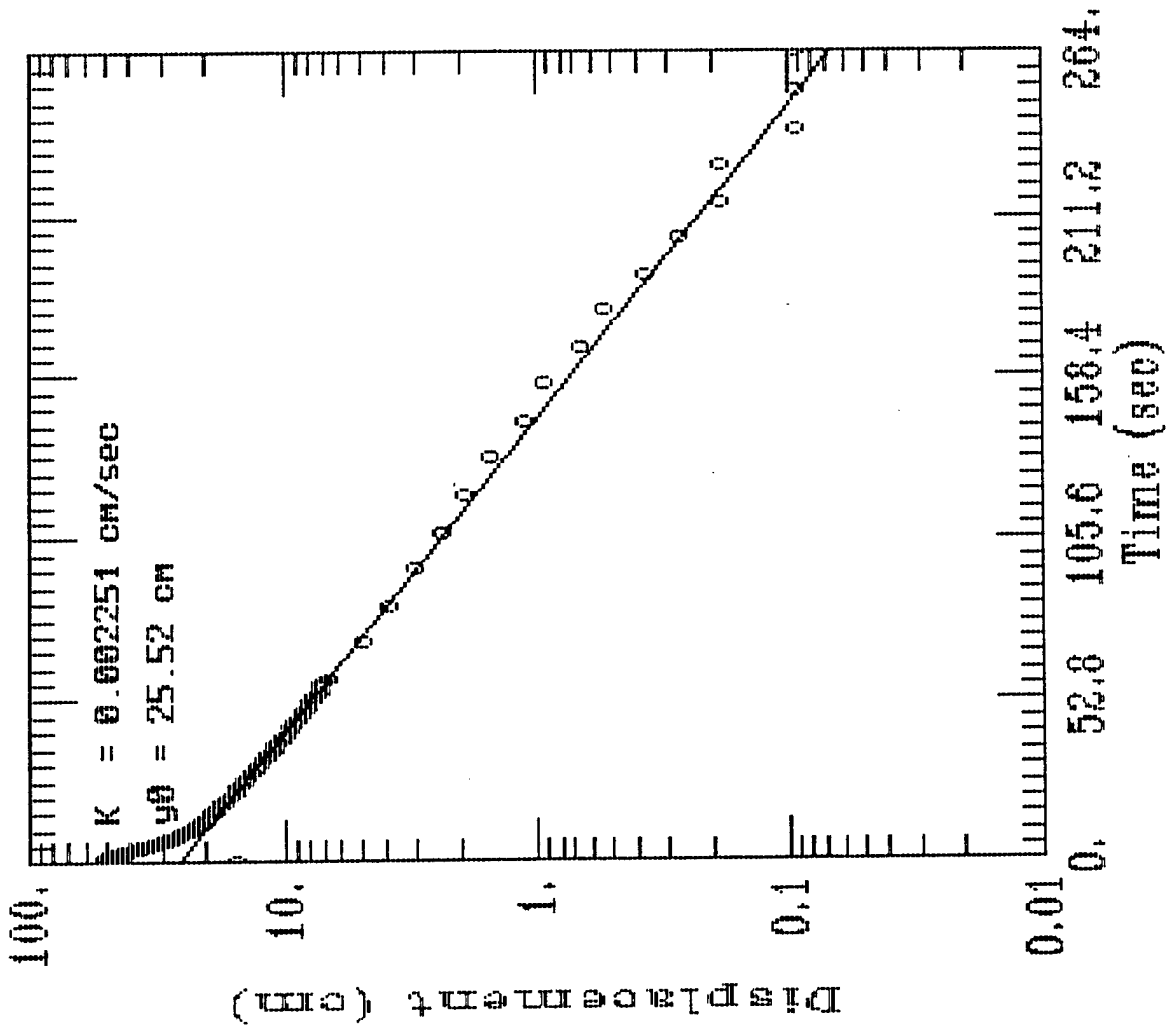
SETUP	DATE	BY WHOM
MONITORING WELL ID	4 ² 28M-92-03X	T. Longley
DATE OF TEST	10-16-92	
TYPE OF TEST	Rising Head	
HERMIT TYPE/SERIAL#	SE1000C/1KCO1732	
TEST #	SEL15/2082	
DATA COLLECTION RATE	LOG1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	14.17 (PVC)	
WELL DEPTH (FT./TOC)	20.79 (PVC)	
XD DEPTH (FT./TOC)	19 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	17.2 (PVC)	
TIME OF SLUG PLACEMENT	08:41	
TIME OF WL EQUILIBRATION	08:54	
NEW XD REFERENCE	0.00	
START TIME OF TEST	08:54	
END TIME OF TEST	09:05	
NOTES: B.T. STOCK SLUG (PVC)	3" x 3"	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

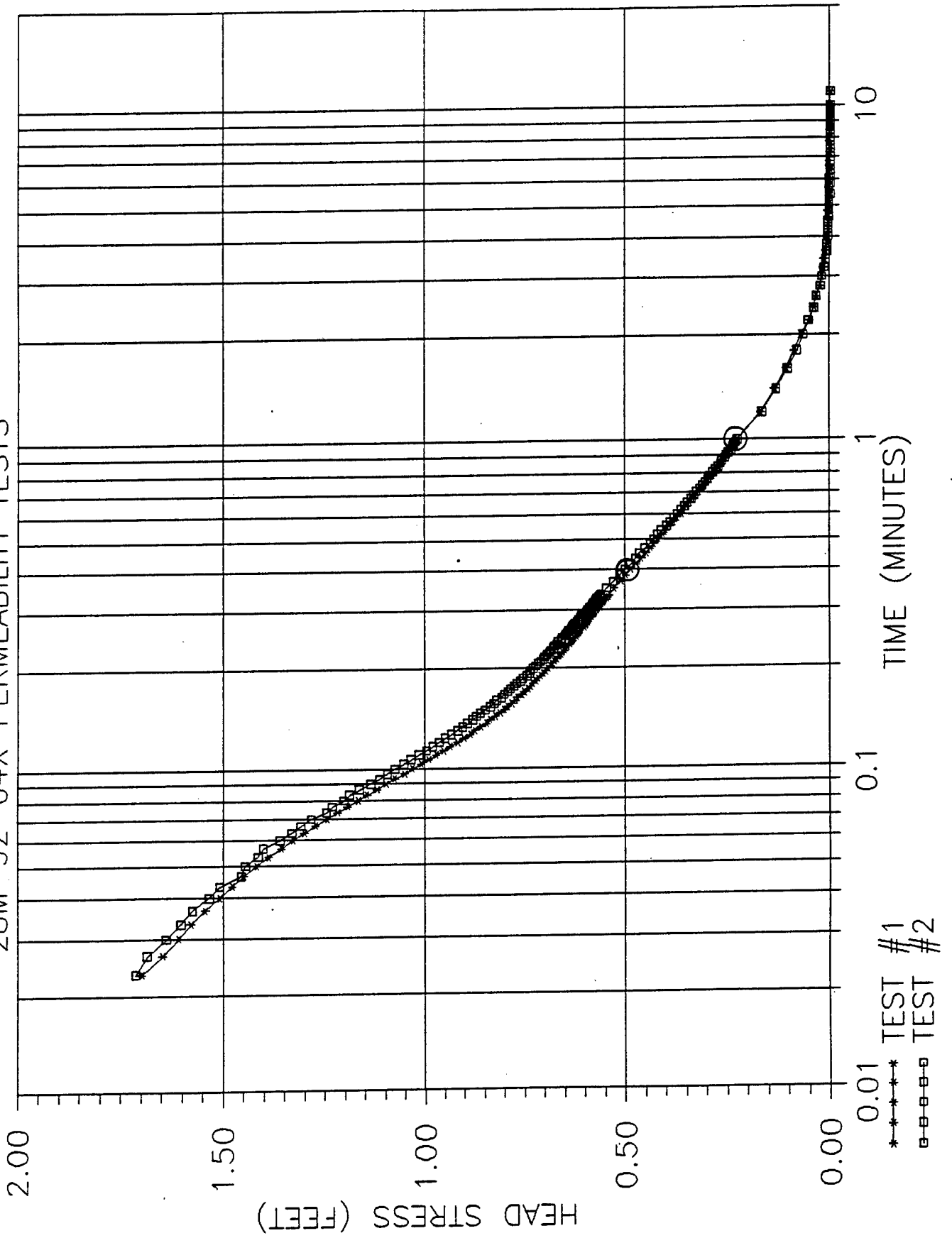
28M-92-04X PERMEABILITY TEST #1



20M-92-04X PERMEABILITY TEST #2



28M-92-04X PERMEABILITY TESTS



WELL 28M-92-04X

WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= 7.1 FT, BORING DIAMETER= 0.833 FT

TEST 1 MINUTES	FEET	TEST 2 MINUTES	FEET
0	-0.022	0	-0.003
0.0033	1.761	0.0033	-0.012
0.0066	1.439	0.0066	1.89
0.01	0.707	0.01	1.212
0.0133	1.578	0.0133	0.574
0.0166	1.947	0.0166	1.796
0.02	1.691	0.02	1.691
0.0233	1.698	0.0233	1.713
0.0266	1.647	0.0266	1.685
0.03	1.609	0.03	1.638
0.0333	1.578	0.0333	1.603
0.0366	1.543	0.0366	1.575
0.04	1.508	0.04	1.534
0.0433	1.477	0.0433	1.508
0.0466	1.448	0.0466	1.455
0.05	1.417	0.05	1.445
0.0533	1.388	0.0533	1.414
0.0566	1.357	0.0566	1.401
0.06	1.328	0.06	1.36
0.0633	1.3	0.0633	1.332
0.0666	1.272	0.0666	1.309
0.07	1.243	0.07	1.284
0.0733	1.218	0.0733	1.246
0.0766	1.193	0.0766	1.231
0.08	1.167	0.08	1.202
0.0833	1.145	0.0833	1.189
0.0866	1.12	0.0866	1.164
0.09	1.098	0.09	1.136
0.0933	1.076	0.0933	1.114
0.0966	1.051	0.0966	1.095
0.1	1.032	0.1	1.076
0.1033	1.01	0.1033	1.054
0.1066	0.991	0.1066	1.035
0.11	0.972	0.11	1.016
0.1133	0.953	0.1133	0.997
0.1166	0.937	0.1166	0.981
0.12	0.918	0.12	0.965
0.1233	0.902	0.1233	0.95
0.1266	0.886	0.1266	0.934
0.13	0.874	0.13	0.918
0.1333	0.858	0.1333	0.905
0.1366	0.845	0.1366	0.893
0.14	0.836	0.14	0.88
0.1433	0.823	0.1433	0.871
0.1466	0.811	0.1466	0.861
0.15	0.801	0.15	0.849
0.1533	0.792	0.1533	0.836
0.1566	0.782	0.1566	0.827
0.16	0.773	0.16	0.82
0.1633	0.767	0.1633	0.808
0.1666	0.757	0.1666	0.801
0.17	0.751	0.17	0.792
0.1733	0.741	0.1733	0.785
0.1766	0.735	0.1766	0.776
0.18	0.729	0.18	0.77
0.1833	0.722	0.1833	0.76
0.1866	0.716	0.1866	0.754
0.19	0.71	0.19	0.744
0.1933	0.703	0.1933	0.738
0.1966	0.697	0.1966	0.735
0.2	0.691	0.2	0.729
0.2033	0.684	0.2033	0.722
0.2066	0.681	0.2066	0.716
0.21	0.675	0.21	0.71
0.2133	0.669	0.2133	0.703
0.2166	0.666	0.2166	0.7
0.22	0.659	0.22	0.694
0.2233	0.656	0.2233	0.688
0.2266	0.65	0.2266	0.684
0.23	0.647	0.23	0.678
0.2333	0.643	0.2333	0.675
0.2366	0.637	0.2366	0.669
0.24	0.634	0.24	0.666
0.2433	0.631	0.2433	0.659
0.2466	0.628	0.2466	0.656
0.25	0.621	0.25	0.65
0.2533	0.618	0.2533	0.647
0.2566	0.615	0.2566	0.643
0.26	0.612	0.26	0.64
0.2633	0.609	0.2633	0.634
0.2666	0.602	0.2666	0.631
0.27	0.599	0.27	0.628
0.2733	0.596	0.2733	0.624
0.2766	0.593	0.2766	0.618
0.28	0.59	0.28	0.615
0.2833	0.587	0.2833	0.612
0.2866	0.583	0.2866	0.609
0.29	0.58	0.29	0.606
0.2933	0.577	0.2933	0.602
0.2966	0.574	0.2966	0.596
0.3	0.571	0.3	0.593
0.3033	0.568	0.3033	0.59
0.3066	0.564	0.3066	0.587
0.31	0.561	0.31	0.583
0.3133	0.558	0.3133	0.58
0.3166	0.555	0.3166	0.577
0.32	0.552	0.32	0.574
0.3233	0.549	0.3233	0.571
0.3266	0.546	0.3266	0.568
0.33	0.542	0.33	0.564
0.3333	0.539	0.3333	0.561
0.35	0.527	0.35	0.546
0.3666	0.511	0.3666	0.53
0.3833	0.498	0.3833	0.514
0.4	0.486	0.4	0.501
0.4166	0.473	0.4166	0.486
0.4333	0.46	0.4333	0.473
0.45	0.448	0.45	0.464
0.4666	0.438	0.4666	0.451
0.4833	0.429	0.4833	0.438
0.5	0.419	0.5	0.429
0.5166	0.407	0.5166	0.419
0.5333	0.4	0.5333	0.41
0.55	0.391	0.55	0.397

0.5666	0.381	0.5666	0.388
0.5833	0.372	0.5833	0.381
0.6	0.362	0.6	0.372
0.6166	0.356	0.6166	0.363
0.6333	0.35	0.6333	0.353
0.65	0.34	0.65	0.347
0.6666	0.334	0.6666	0.337
0.6833	0.328	0.6833	0.331
0.7	0.318	0.7	0.325
0.7166	0.309	0.7166	0.315
0.7333	0.306	0.7333	0.309
0.75	0.299	0.75	0.303
0.7666	0.293	0.7666	0.296
0.7833	0.287	0.7833	0.29
0.8	0.28	0.8	0.284
0.8166	0.274	0.8166	0.277
0.8333	0.268	0.8333	0.271
0.85	0.265	0.85	0.265
0.8666	0.258	0.8666	0.261
0.8833	0.255	0.8833	0.255
0.9	0.249	0.9	0.252
0.9166	0.246	0.9166	0.246
0.9333	0.239	0.9333	0.239
0.95	0.236	0.95	0.236
0.9666	0.23	0.9666	0.233
0.9833	0.227	0.9833	0.227
1	0.224	1	0.224
1.2	0.167	1.2	0.164
1.4	0.132	1.4	0.129
1.6	0.104	1.6	0.101
1.8	0.085	1.8	0.078
2	0.069	2	0.063
2.2	0.047	2.2	0.05
2.4	0.037	2.4	0.037
2.6	0.031	2.6	0.031
2.8	0.022	2.8	0.022
3	0.018	3	0.018
3.2	0.015	3.2	0.012
3.4	0.012	3.4	0.009
3.6	0.009	3.6	0.006
3.8	0.006	3.8	0.006
4	0.006	4	0.003
4.2	0.003	4.2	0.003
4.4	0.003	4.4	0.003
4.6	0.003	4.6	0
4.8	0.003	4.8	0
5	0	5	0
5.2	0	5.2	0
5.4	0	5.4	-0.003
5.6	0	5.6	0
5.8	0	5.8	-0.003
6	0	6	0
6.2	0	6.2	-0.003
6.4	-0.003	6.4	-0.003
6.6	0	6.6	-0.003
6.8	0	6.8	-0.003
7	0	7	-0.003
7.2	-0.003	7.2	-0.003
7.4	-0.003	7.4	-0.003
7.6	-0.003	7.6	-0.003
7.8	0	7.8	-0.003
8	0	8	-0.003
8.2	-0.003	8.2	-0.003
8.4	-0.003	8.4	-0.003
8.6	-0.003	8.6	-0.003
8.8	-0.003	8.8	-0.003
9	-0.003	9	-0.003
9.2	-0.003	9.2	-0.003
9.4	-0.003	9.4	-0.003
9.6	-0.003	9.6	-0.003
9.8	-0.003	9.8	-0.003
10	-0.003	10	-0.003
11	-0.003	11	-0.003

DL

07-08-10-26

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 2EM-92-04x	T. Longley
DATE OF TEST	15-16-92	10-16-92
TYPE OF TEST	Rising Head	
HERMIT TYPE/SERIAL#	SE1000C/1KCO1732	
TEST #	SEL 16/1 of 2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045 DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	9.07' (PVC)	
WELL DEPTH (FT./TOC)	16.13' (PVC)	
XD DEPTH (FT./TOC)	15.13' (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	12' (PVC)	
TIME OF SLUG PLACEMENT	09:22	
TIME OF WL EQUILIBRATION	09:28	
NEW XD REFERENCE	0.00	
START TIME OF TEST	09:28	
END TIME OF TEST	09:40	
NOTES: Slug: 3" x 3'	BAR STOCK PVC	

6.18

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

DL

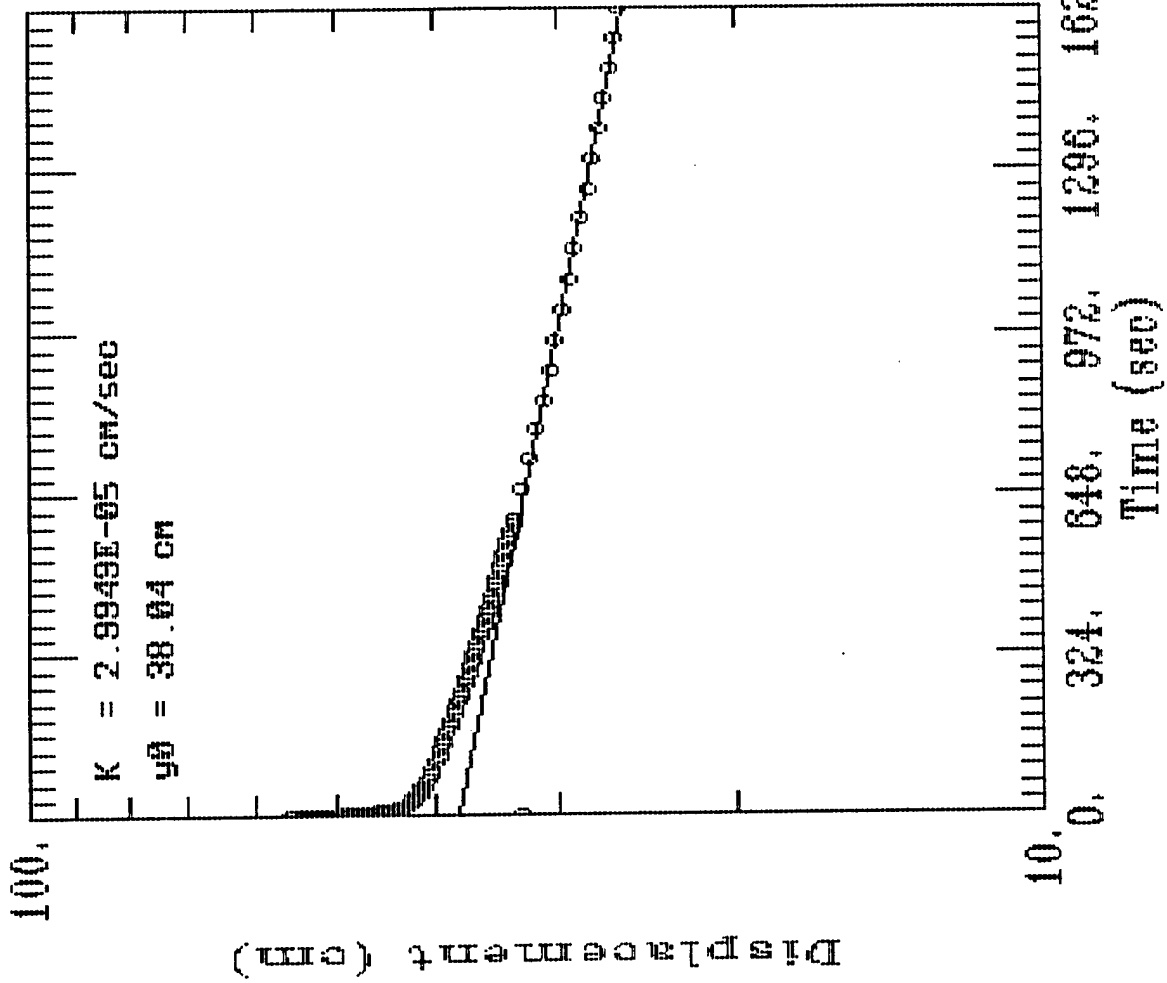
AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

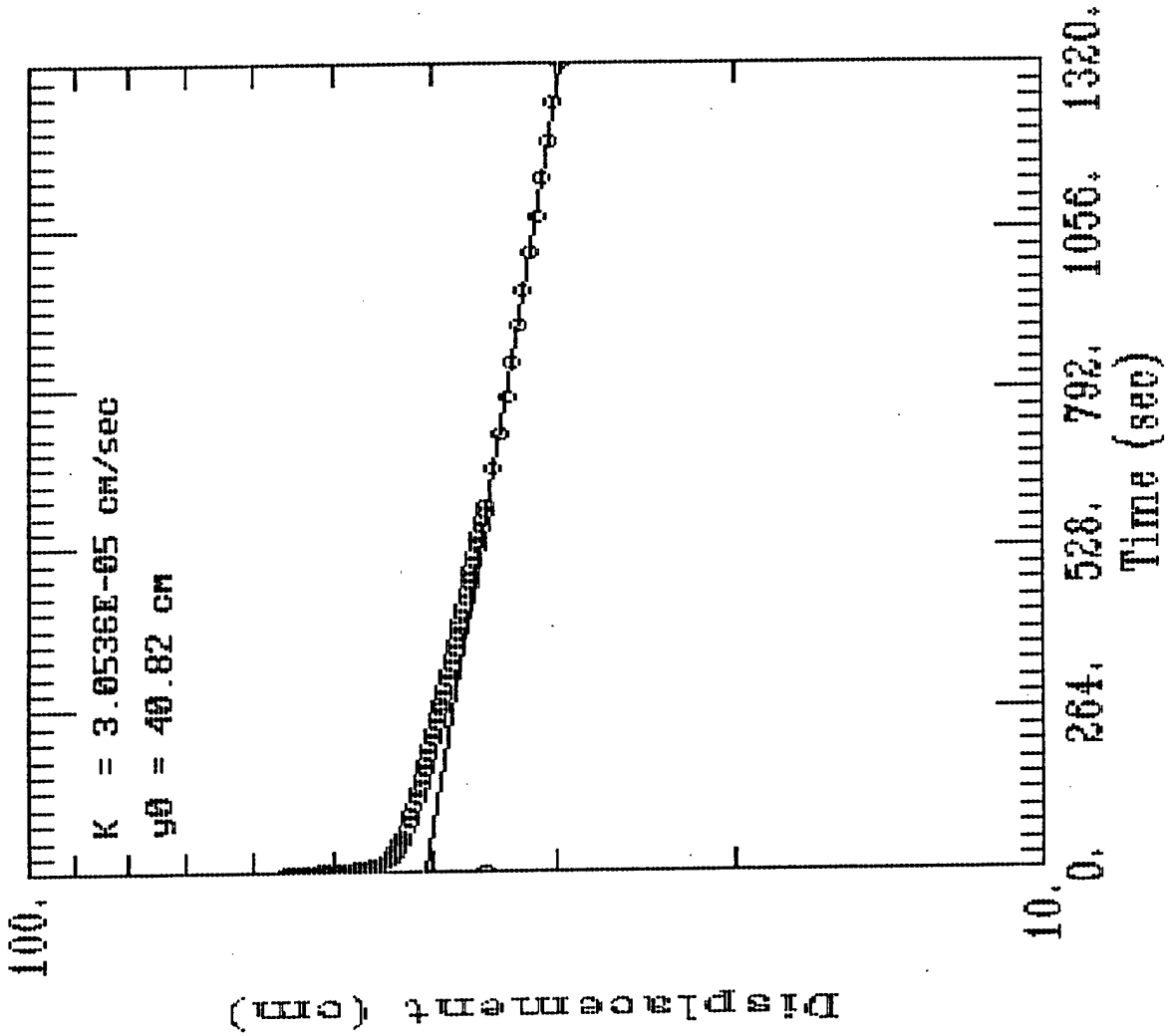
SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 23M-92-04X	T. Longly
DATE OF TEST	10-16-92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE1000C/1K00732	
TEST #	SEL17/2062	
DATA COLLECTION RATE	LOG1	
TRANSDUCER		
SERIAL #	2045 DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	9.07 (PVC)	
WELL DEPTH (FT./TOC)	16.13 (PVC)	
XD DEPTH (FT./TOC)	15.13 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	12 (PVC)	
TIME OF SLUG PLACEMENT	09:40	
TIME OF WL EQUILIBRATION	09:54	
NEW XD REFERENCE	0.00	
START TIME OF TEST	09:55	
END TIME OF TEST	10:06	
NOTES: SLUG: 3" x 3"	BAR STOCK PVC	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

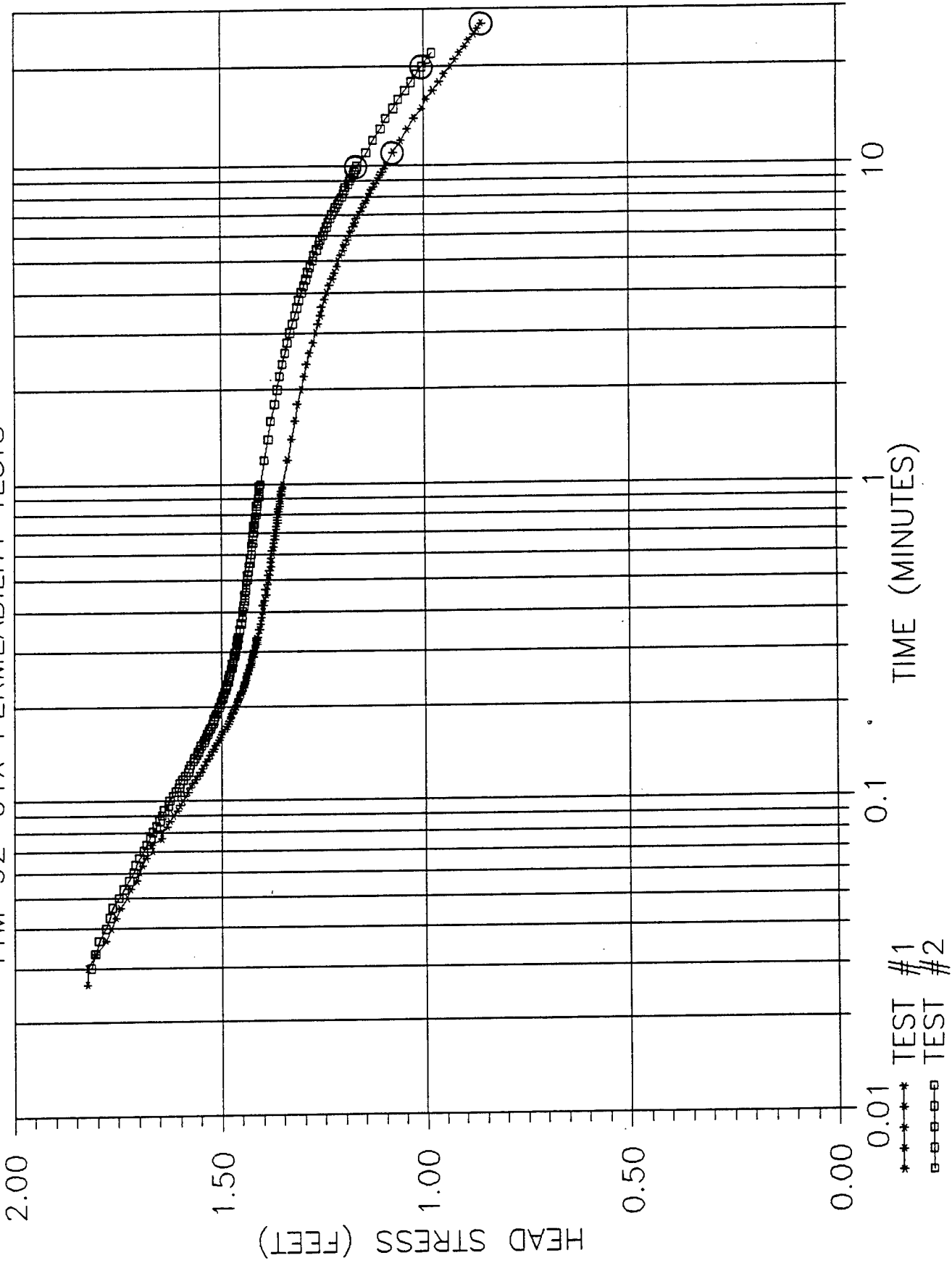
41M-92-01X PERMEABILITY TEST #1



41M-92-01X PERMEABILITY TEST #2



41M-92-01X PERMEABILITY TESTS



WELL 41M-92-01X

WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= 4.7 FT, BORING DIAMETER= 0.833 FT

TEST 1 MINUTES	FEET	TEST 2 MINUTES	FEET
0	0.022	0	0.151
0.0033	0.1	0.0033	1.41
0.0066	0.41	0.0066	0.435
0.01	0.662	0.01	1.259
0.0133	1.72	0.0133	1.486
0.0166	0.59	0.0166	1.994
0.02	2.064	0.02	1.808
0.0233	1.808	0.0233	1.789
0.0266	1.824	0.0266	1.811
0.03	1.824	0.03	1.815
0.0333	1.805	0.0333	1.805
0.0366	1.78	0.0366	1.796
0.04	1.767	0.04	1.78
0.0433	1.755	0.0433	1.77
0.0466	1.745	0.0466	1.764
0.05	1.729	0.05	1.748
0.0533	1.72	0.0533	1.736
0.0566	1.704	0.0566	1.723
0.06	1.698	0.06	1.713
0.0633	1.691	0.0633	1.707
0.0666	1.682	0.0666	1.698
0.07	1.666	0.07	1.688
0.0733	1.669	0.0733	1.682
0.0766	1.644	0.0766	1.672
0.08	1.644	0.08	1.666
0.0833	1.631	0.0833	1.657
0.0866	1.625	0.0866	1.65
0.09	1.616	0.09	1.644
0.0933	1.606	0.0933	1.638
0.0966	1.6	0.0966	1.628
0.1	1.594	0.1	1.625
0.1033	1.587	0.1033	1.616
0.1066	1.581	0.1066	1.609
0.11	1.575	0.11	1.603
0.1133	1.568	0.1133	1.6
0.1166	1.562	0.1166	1.594
0.12	1.556	0.12	1.587
0.1233	1.549	0.1233	1.581
0.1266	1.546	0.1266	1.578
0.13	1.54	0.13	1.575
0.1333	1.537	0.1333	1.568
0.1366	1.53	0.1366	1.565
0.14	1.527	0.14	1.559
0.1433	1.521	0.1433	1.556
0.1466	1.518	0.1466	1.553
0.15	1.515	0.15	1.549
0.1533	1.508	0.1533	1.543
0.1566	1.505	0.1566	1.54
0.16	1.502	0.16	1.537
0.1633	1.499	0.1633	1.534
0.1666	1.496	0.1666	1.53
0.17	1.489	0.17	1.527
0.1733	1.486	0.1733	1.524
0.1766	1.483	0.1766	1.521
0.18	1.48	0.18	1.518
0.1833	1.477	0.1833	1.518
0.1866	1.477	0.1866	1.515
0.19	1.474	0.19	1.511
0.1933	1.47	0.1933	1.508
0.1966	1.467	0.1966	1.508
0.2	1.464	0.2	1.505
0.2033	1.464	0.2033	1.502
0.2066	1.461	0.2066	1.502
0.21	1.458	0.21	1.499
0.2133	1.458	0.2133	1.496
0.2166	1.455	0.2166	1.496
0.22	1.451	0.22	1.493
0.2233	1.451	0.2233	1.493
0.2266	1.448	0.2266	1.489
0.23	1.445	0.23	1.489
0.2333	1.445	0.2333	1.486
0.2366	1.442	0.2366	1.486
0.24	1.442	0.24	1.483
0.2433	1.439	0.2433	1.483
0.2466	1.439	0.2466	1.483
0.25	1.439	0.25	1.48
0.2533	1.436	0.2533	1.48
0.2566	1.436	0.2566	1.477
0.26	1.433	0.26	1.477
0.2633	1.433	0.2633	1.477
0.2666	1.429	0.2666	1.474
0.27	1.429	0.27	1.474
0.2733	1.429	0.2733	1.474
0.2766	1.426	0.2766	1.47
0.28	1.426	0.28	1.47
0.2833	1.426	0.2833	1.47
0.2866	1.423	0.2866	1.47
0.29	1.423	0.29	1.467
0.2933	1.423	0.2933	1.467
0.2966	1.42	0.2966	1.467
0.3	1.42	0.3	1.464
0.3033	1.42	0.3033	1.464
0.3066	1.417	0.3066	1.464
0.31	1.417	0.31	1.464
0.3133	1.417	0.3133	1.461
0.3166	1.414	0.3166	1.461
0.32	1.414	0.32	1.461
0.3233	1.414	0.3233	1.461
0.3266	1.414	0.3266	1.461
0.33	1.414	0.33	1.458
0.3333	1.41	0.3333	1.458
0.35	1.407	0.35	1.455
0.3666	1.404	0.3666	1.451
0.3833	1.401	0.3833	1.448
0.4	1.398	0.4	1.448
0.4166	1.398	0.4166	1.445
0.4333	1.395	0.4333	1.442
0.45	1.391	0.45	1.442
0.4666	1.391	0.4666	1.439
0.4833	1.388	0.4833	1.439
0.5	1.385	0.5	1.436
0.5166	1.385	0.5166	1.436
0.5333	1.382	0.5333	1.433
0.55	1.379	0.55	1.433

0.5666 1.379
0.5833 1.379
0.6 1.376
0.6166 1.376
0.6333 1.373
0.65 1.373
0.6666 1.369
0.6833 1.369
0.7 1.369
0.7166 1.366
0.7333 1.366
0.75 1.363
0.7666 1.363
0.7833 1.363
0.8 1.36
0.8166 1.36
0.8333 1.36
0.85 1.357
0.8666 1.357
0.8833 1.357
0.9 1.354
0.9166 1.354
0.9333 1.354
0.95 1.354
0.9666 1.35
0.9833 1.35
1 1.35
1.2 1.338
1.4 1.328
1.6 1.319
1.8 1.313
2 1.303
2.2 1.297
2.4 1.291
2.6 1.284
2.8 1.275
3 1.268
3.2 1.262
3.4 1.256
3.6 1.253
3.8 1.246
4 1.24
4.2 1.234
4.4 1.227
4.6 1.221
4.8 1.215
5 1.212
5.2 1.205
5.4 1.199
5.6 1.196
5.8 1.189
6 1.189
6.2 1.18
6.4 1.174
6.6 1.171
6.8 1.167
7 1.161
7.2 1.155
7.4 1.152
7.6 1.145
7.8 1.142
8 1.139
8.2 1.133
8.4 1.13
8.6 1.123
8.8 1.12
9 1.114
9.2 1.111
9.4 1.107
9.6 1.104
9.8 1.098
10 1.095
11 1.076
12 1.057
13 1.041
14 1.025
15 1.006
16 0.994
17 0.978
18 0.962
19 0.95
20 0.934
21 0.924
22 0.912
23 0.899
24 0.89
25 0.877
26 0.868
27 0.858

0.5666 1.429
0.5833 1.429
0.6 1.426
0.6166 1.426
0.6333 1.426
0.65 1.423
0.6666 1.423
0.6833 1.423
0.7 1.42
0.7166 1.42
0.7333 1.42
0.75 1.417
0.7666 1.417
0.7833 1.417
0.8 1.414
0.8166 1.414
0.8333 1.414
0.85 1.414
0.8666 1.41
0.8833 1.41
0.9 1.41
0.9166 1.407
0.9333 1.407
0.95 1.407
0.9666 1.407
0.9833 1.407
1 1.404
1.2 1.395
1.4 1.385
1.6 1.379
1.8 1.369
2 1.363
2.2 1.357
2.4 1.35
2.6 1.344
2.8 1.338
3 1.332
3.2 1.325
3.4 1.319
3.6 1.313
3.8 1.309
4 1.303
4.2 1.297
4.4 1.291
4.6 1.287
4.8 1.281
5 1.275
5.2 1.272
5.4 1.265
5.6 1.259
5.8 1.256
6 1.249
6.2 1.246
6.4 1.24
6.6 1.237
6.8 1.231
7 1.227
7.2 1.221
7.4 1.218
7.6 1.212
7.8 1.208
8 1.202
8.2 1.199
8.4 1.196
8.6 1.193
8.8 1.186
9 1.183
9.2 1.18
9.4 1.174
9.6 1.171
9.8 1.167
10 1.164
11 1.142
12 1.126
13 1.107
14 1.095
15 1.076
16 1.063
17 1.047
18 1.032
19 1.019
20 1.006
21 0.994
22 0.981

7/20/11/02/04

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 41M.92.01X	R. RUSTAD
DATE OF TEST	10.19.92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / KCO1732	
TEST #	SEL 2 / 1 of 2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	27.88 (PVC)	
WELL DEPTH (FT./TOC)	32.60 (PVC)	
XD DEPTH (FT./TOC)	31.60 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	30.00 (PVC)	
TIME OF SLUG PLACEMENT	1315	
TIME OF WL EQUILIBRATION	1350	
NEW XD REFERENCE	0.00	
START TIME OF TEST	1351	
END TIME OF TEST	1319	
NOTES: 3' x 3"	BAR STOCK	PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

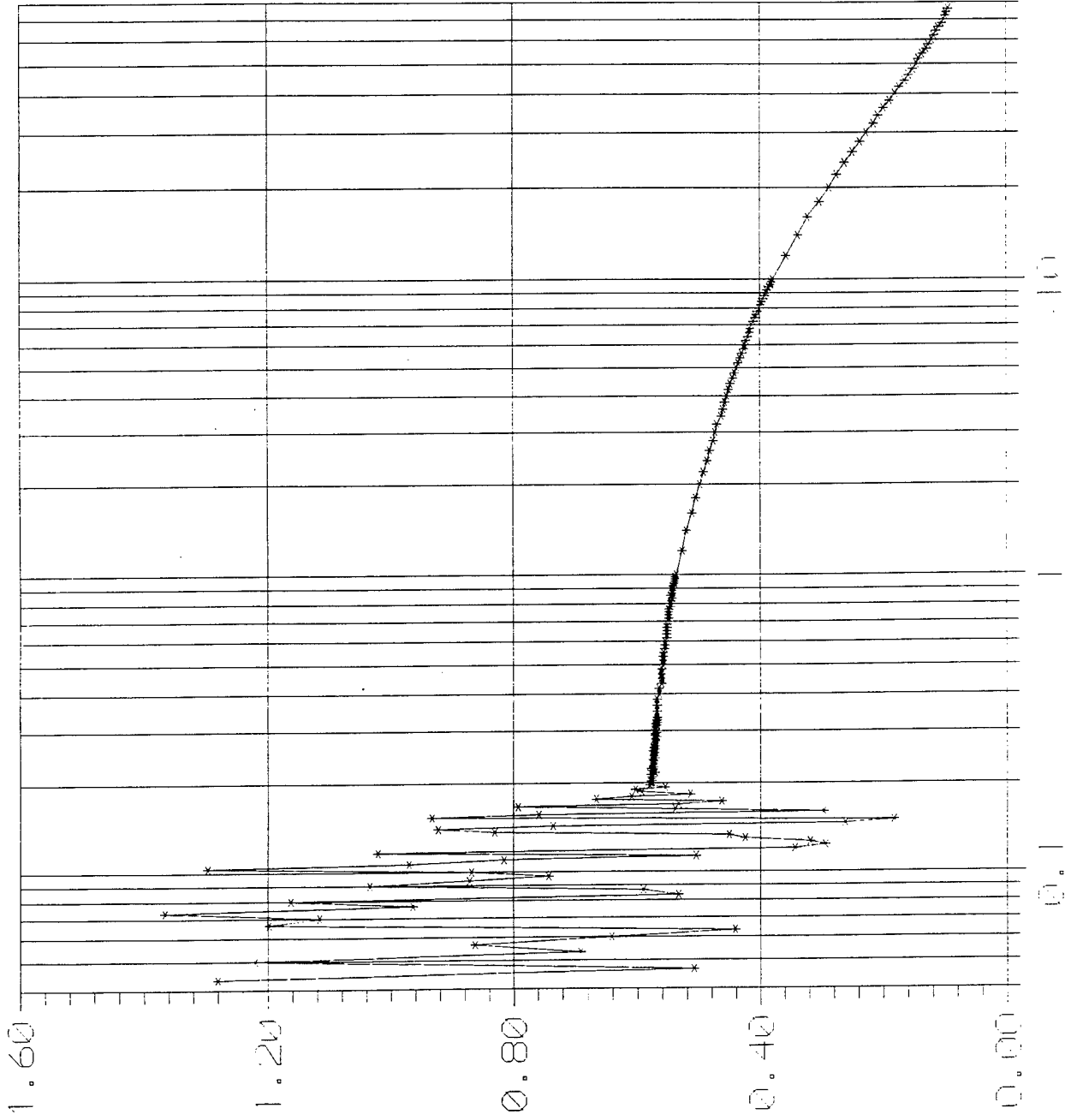
AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

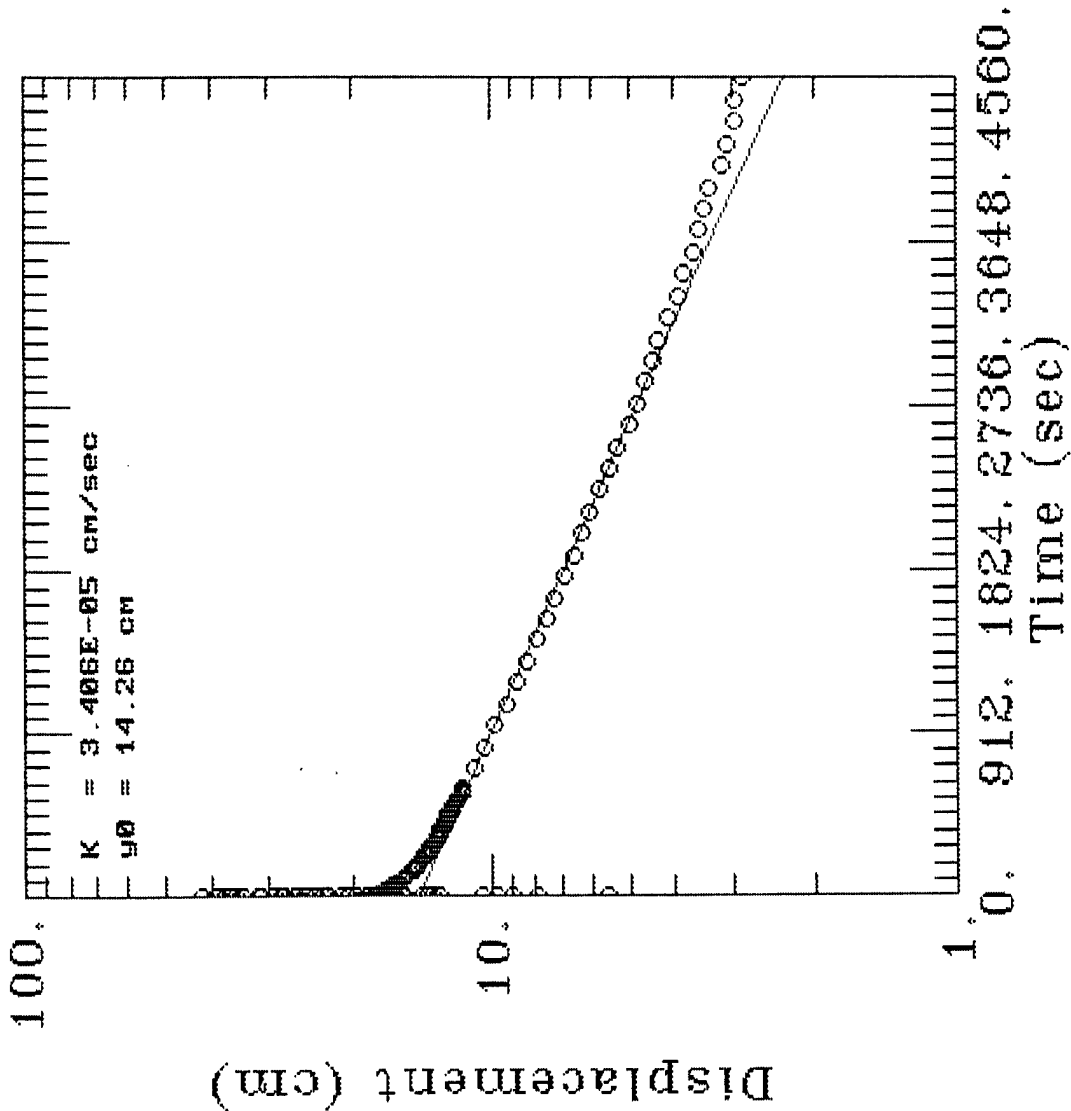
SETUP	DATE	BY WHOM
MONITORING WELL ID	4" 41M.92.01X	R. RUSTAD
DATE OF TEST	10.19.92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEL 3 / 20A2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	27.88	
WELL DEPTH (FT./TOC)	32.60	
XD DEPTH (FT./TOC)	31.60	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	30.00	
TIME OF SLUG PLACEMENT	13.20	
TIME OF WL EQUILIBRATION	13.40	
NEW XD REFERENCE	0.19 RESET TO 0	
START TIME OF TEST	1445	
END TIME OF TEST	1310	
NOTES:	3' x 3"	BAR STOCK PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

411-93-02B



41M-93-02B FALLING HEAD TEST

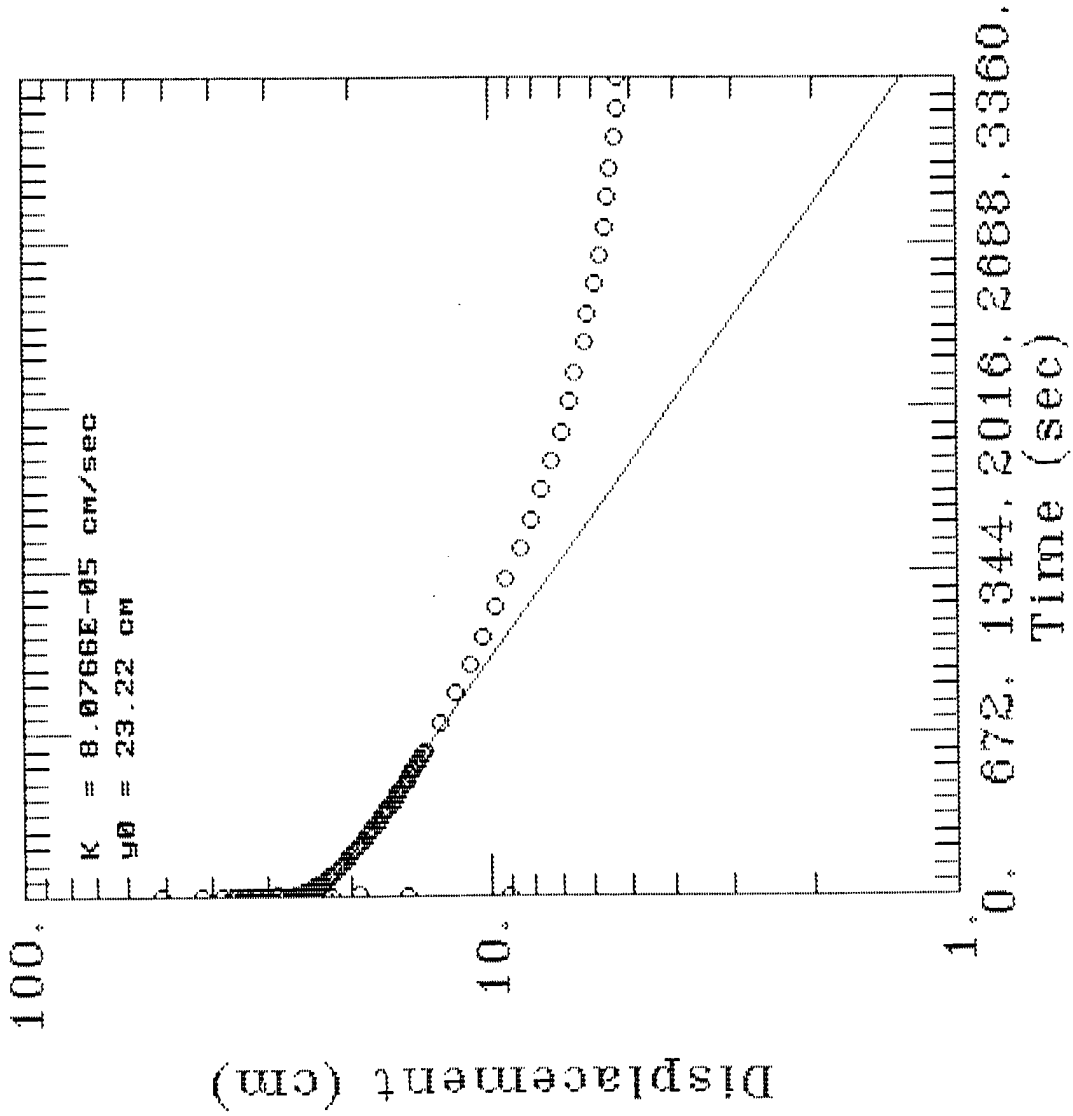


0	0
0.0033	0
0.0066	0
0.01	0
0.0133	0
0.0166	0
0.02	0
0.0233	-0.006
0.0266	-0.015
0.03	-0.012
0.0333	0.458
0.0366	1.217
0.04	0.588
0.0433	1.28
0.0466	0.509
0.05	1.22
0.0533	0.692
0.0566	0.863
0.06	0.642
0.0633	0.442
0.0666	1.198
0.07	1.116
0.0733	1.366
0.0766	0.964
0.08	1.163
0.0833	0.534
0.0866	0.591
0.09	1.034
0.0933	0.872
0.0966	0.743
0.1	0.869
0.1033	1.296
0.1066	0.97
0.11	0.816
0.1133	0.506
0.1166	1.021
0.12	0.344
0.1233	0.294
0.1266	0.319
0.13	0.426
0.1333	0.452
0.1366	0.831
0.14	0.923
0.1433	0.736
0.1466	0.262
0.15	0.183
0.1533	0.933
0.1566	0.759
0.16	0.297
0.1633	0.54
0.1666	0.793
0.17	0.534
0.1733	0.464
0.1766	0.667
0.18	0.61
0.1833	0.515
0.1866	0.594
0.19	0.604
0.1933	0.556
0.1966	0.581
0.2	0.578
0.2033	0.578
0.2066	0.578
0.21	0.578
0.2133	0.578
0.2166	0.572
0.22	0.578
0.2233	0.578
0.2266	0.575
0.23	0.575
0.2333	0.575
0.2366	0.575
0.24	0.575
0.2433	0.572
0.2466	0.575
0.25	0.575

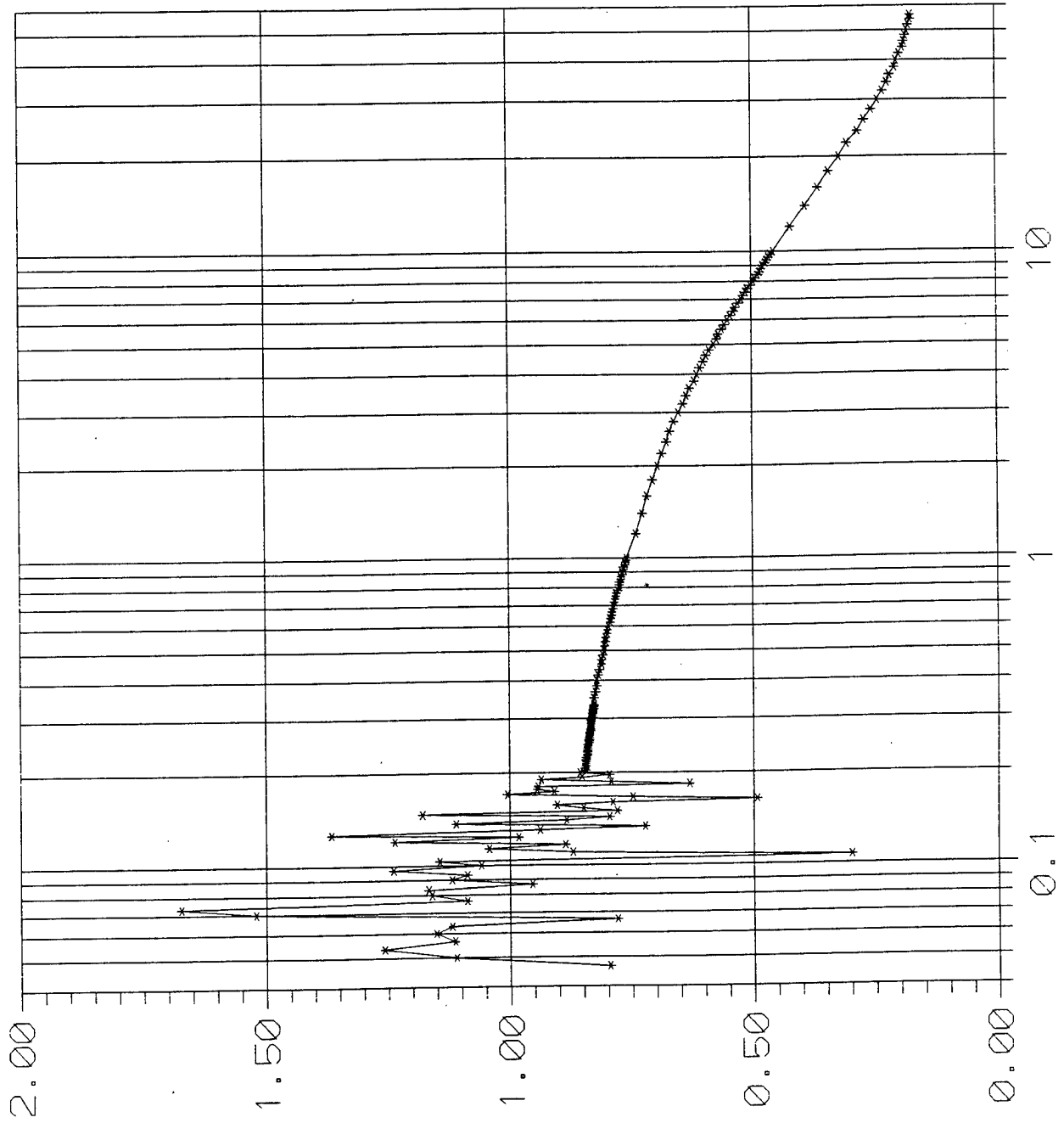
0.2533	0.572
0.2566	0.575
0.26	0.572
0.2633	0.575
0.2666	0.572
0.27	0.572
0.2733	0.572
0.2766	0.572
0.28	0.572
0.2833	0.572
0.2866	0.569
0.29	0.572
0.2933	0.572
0.2966	0.569
0.3	0.572
0.3033	0.572
0.3066	0.572
0.31	0.572
0.3133	0.569
0.3166	0.572
0.32	0.569
0.3233	0.569
0.3266	0.569
0.33	0.569
0.3333	0.569
0.35	0.569
0.3666	0.569
0.3833	0.569
0.4	0.566
0.4166	0.566
0.4333	0.562
0.45	0.562
0.4666	0.562
0.4833	0.562
0.5	0.559
0.5166	0.559
0.5333	0.559
0.55	0.559
0.5666	0.556
0.5833	0.556
0.6	0.556
0.6166	0.553
0.6333	0.553
0.65	0.553
0.6666	0.553
0.6833	0.553
0.7	0.55
0.7166	0.55
0.7333	0.55
0.75	0.55
0.7666	0.55
0.7833	0.547
0.8	0.547
0.8166	0.547
0.8333	0.544
0.85	0.547
0.8666	0.544
0.8833	0.544
0.9	0.544
0.9166	0.544
0.9333	0.54
0.95	0.54
0.9666	0.54
0.9833	0.54
1	0.537
1.2	0.528
1.4	0.521
1.6	0.512
1.8	0.506
2	0.499
2.2	0.493
2.4	0.487
2.6	0.483
2.8	0.477
3	0.474
3.2	0.471
3.4	0.464
3.6	0.461
3.8	0.458

4	0.455
4.2	0.452
4.4	0.449
4.6	0.445
4.8	0.442
5	0.439
5.2	0.436
5.4	0.433
5.6	0.43
5.8	0.426
6	0.426
6.2	0.423
6.4	0.42
6.6	0.417
6.8	0.417
7	0.414
7.2	0.411
7.4	0.408
7.6	0.408
7.8	0.404
8	0.401
8.2	0.398
8.4	0.398
8.6	0.395
8.8	0.392
9	0.389
9.2	0.389
9.4	0.385
9.6	0.382
9.8	0.382
10	0.379
12	0.357
14	0.338
16	0.322
18	0.303
<hr/>	
20	0.287
22	0.275
24	0.262
26	0.249
28	0.237
30	0.227
32	0.215
34	0.208
36	0.199
38	0.189
40	0.18
<hr/>	
42	0.173
44	0.164
46	0.158
48	0.151
50	0.145
52	0.142
54	0.136
56	0.129
58	0.126
60	0.12
62	0.117
64	0.113
66	0.11
68	0.104
70	0.101
72	0.098
74	0.098
76	0.094

41M-93-03X FALLING HEAD TEST



41M-93-03X

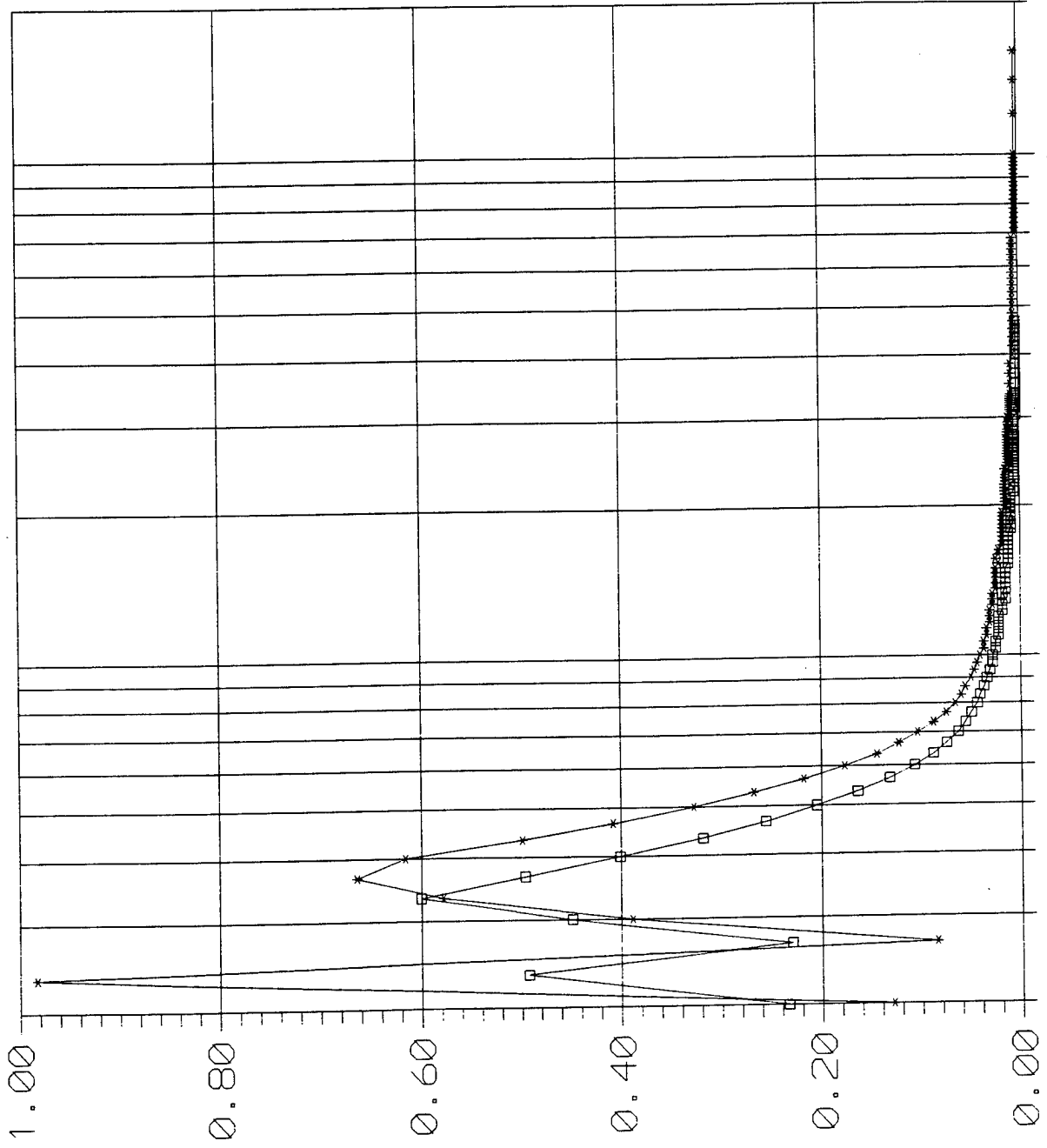


0	0
0.0033	0
0.0066	0
0.01	0
0.0133	0
0.0166	0
0.02	0
0.0233	0
0.0266	0
0.03	0.006
0.0333	-0.003
0.0366	-0.006
0.04	-0.006
0.0433	0.003
0.0466	0.797
0.05	1.11
0.0533	1.258
0.0566	1.113
0.06	1.151
0.0633	1.119
0.0666	0.781
0.07	1.521
0.0733	1.673
0.0766	1.088
0.08	1.16
0.0833	1.167
0.0866	0.955
0.09	1.119
0.0933	1.088
0.0966	1.239
0.1	1.059
0.1033	1.144
0.1066	0.3
0.11	0.872
0.1133	1.043
0.1166	0.888
0.12	1.236
0.1233	0.983
0.1266	1.366
0.13	0.839
0.1333	0.724
0.1366	1.11
0.14	0.885
0.1433	0.797
0.1466	1.179
0.15	0.781
0.1533	0.85
0.1566	0.904
0.16	0.79
0.1633	0.493
0.1666	0.749
0.17	1.005
0.1733	0.91
0.1766	0.945
0.18	0.942
0.1833	0.632
0.1866	0.793
0.19	0.936
0.1933	0.853
0.1966	0.797
0.2	0.857
0.2033	0.844
0.2066	0.847
0.21	0.844
0.2133	0.844
0.2166	0.844
0.22	0.844
0.2233	0.844
0.2266	0.841
0.23	0.841
0.2333	0.841
0.2366	0.841
0.24	0.841
0.2433	0.841
0.2466	0.841
0.25	0.838

0.2533	0.838
0.2566	0.838
0.26	0.838
0.2633	0.838
0.2666	0.838
0.27	0.838
0.2733	0.834
0.2766	0.834
0.28	0.834
0.2833	0.834
0.2866	0.834
0.29	0.834
0.2933	0.834
0.2966	0.834
0.3	0.831
0.3033	0.831
0.3066	0.831
0.31	0.831
0.3133	0.831
0.3166	0.831
0.32	0.831
0.3233	0.828
0.3266	0.828
0.33	0.828
0.3333	0.828
0.35	0.828
0.3666	0.825
0.3833	0.822
0.4	0.822
0.4166	0.819
0.4333	0.816
0.45	0.812
0.4666	0.812
0.4833	0.809
0.5	0.806
0.5166	0.806
0.5333	0.803
0.55	0.803
0.5666	0.8
0.5833	0.8
0.6	0.797
0.6166	0.793
0.6333	0.793
0.65	0.79
0.6666	0.79
0.6833	0.787
0.7	0.787
0.7166	0.784
0.7333	0.784
0.75	0.781
0.7666	0.781
0.7833	0.778
0.8	0.774
0.8166	0.774
0.8333	0.774
0.85	0.771
0.8666	0.771
0.8833	0.768
0.9	0.768
0.9166	0.765
0.9333	0.765
0.95	0.762
0.9666	0.762
0.9833	0.759
1	0.759
1.2	0.74
1.4	0.727
1.6	0.717
1.8	0.705
2	0.695
2.2	0.686
2.4	0.676
2.6	0.67
2.8	0.661
3	0.651
3.2	0.642
3.4	0.635
3.6	0.629
3.8	0.619

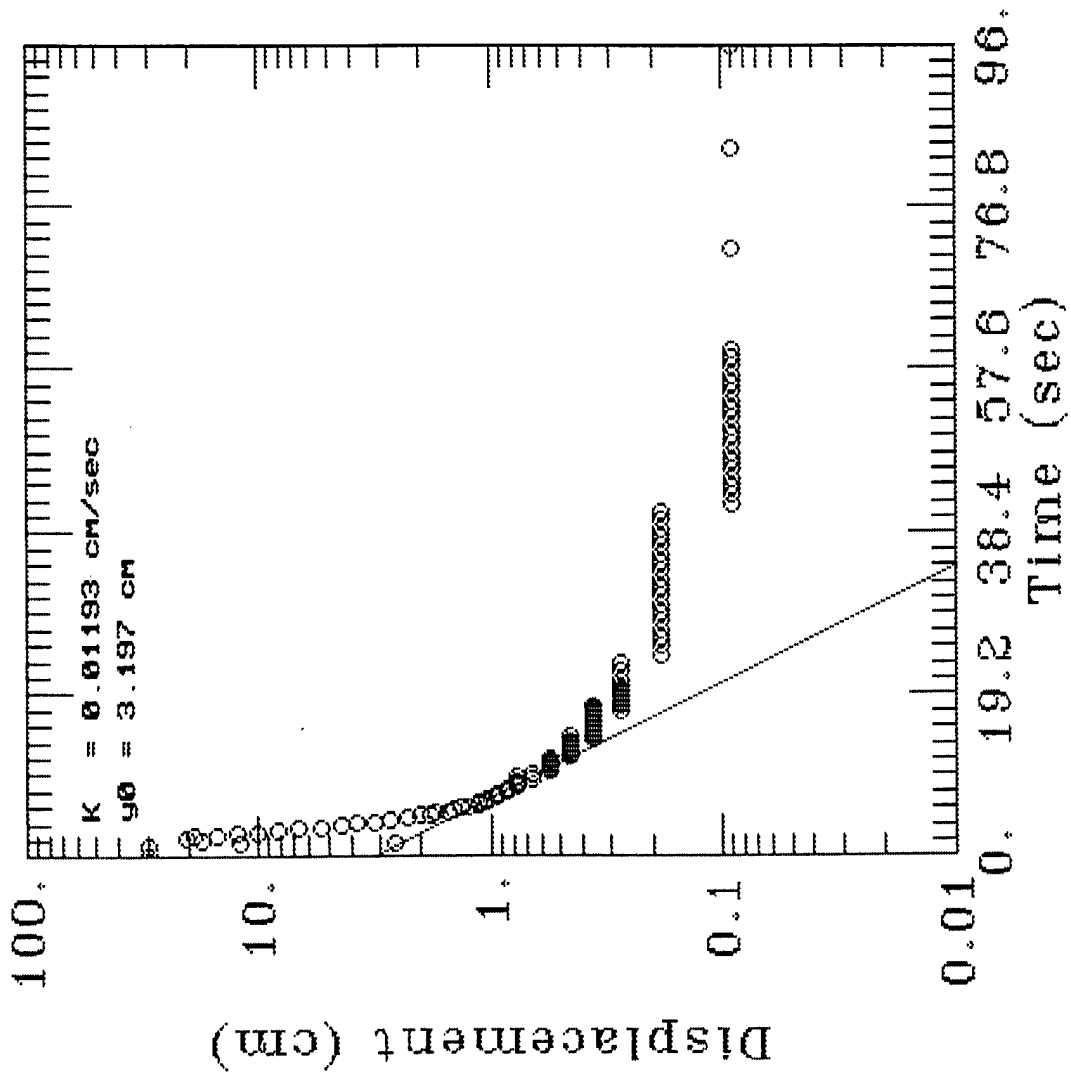
4	0.613
4.2	0.607
4.4	0.6
4.6	0.594
4.8	0.588
5	0.578
5.2	0.572
5.4	0.569
5.6	0.562
5.8	0.556
6	0.55
6.2	0.544
6.4	0.537
6.6	0.534
6.8	0.528
7	0.521
7.2	0.518
7.4	0.512
7.6	0.509
7.8	0.502
8	0.496
8.2	0.493
8.4	0.487
8.6	0.483
8.8	0.48
9	0.477
9.2	0.471
9.4	0.468
9.6	0.464
9.8	0.461
<hr/>	
10	0.455
12	0.42
14	0.389
16	0.363
18	0.341
20	0.319
22	0.303
24	0.281
26	0.268
28	0.253
30	0.24
<hr/>	
32	0.23
34	0.221
36	0.215
38	0.205
40	0.202
42	0.196
44	0.189
46	0.186
48	0.183
50	0.18
52	0.177
54	0.173
56	0.173

41M-93-04X

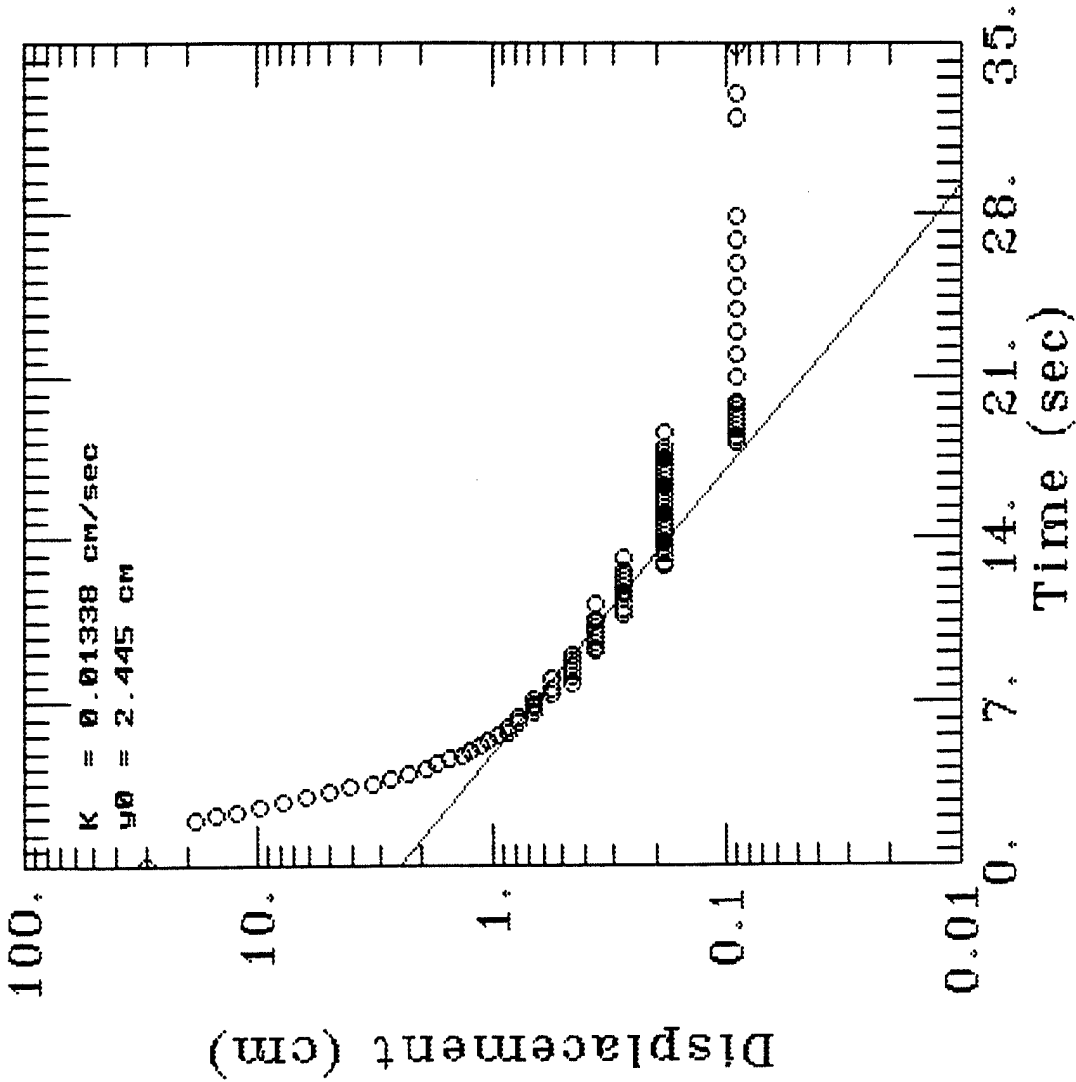


TEST #1
TEST #2

41M-93-04X RISING HEAD TEST #1



41M-93-04X RISING HEAD TEST #2



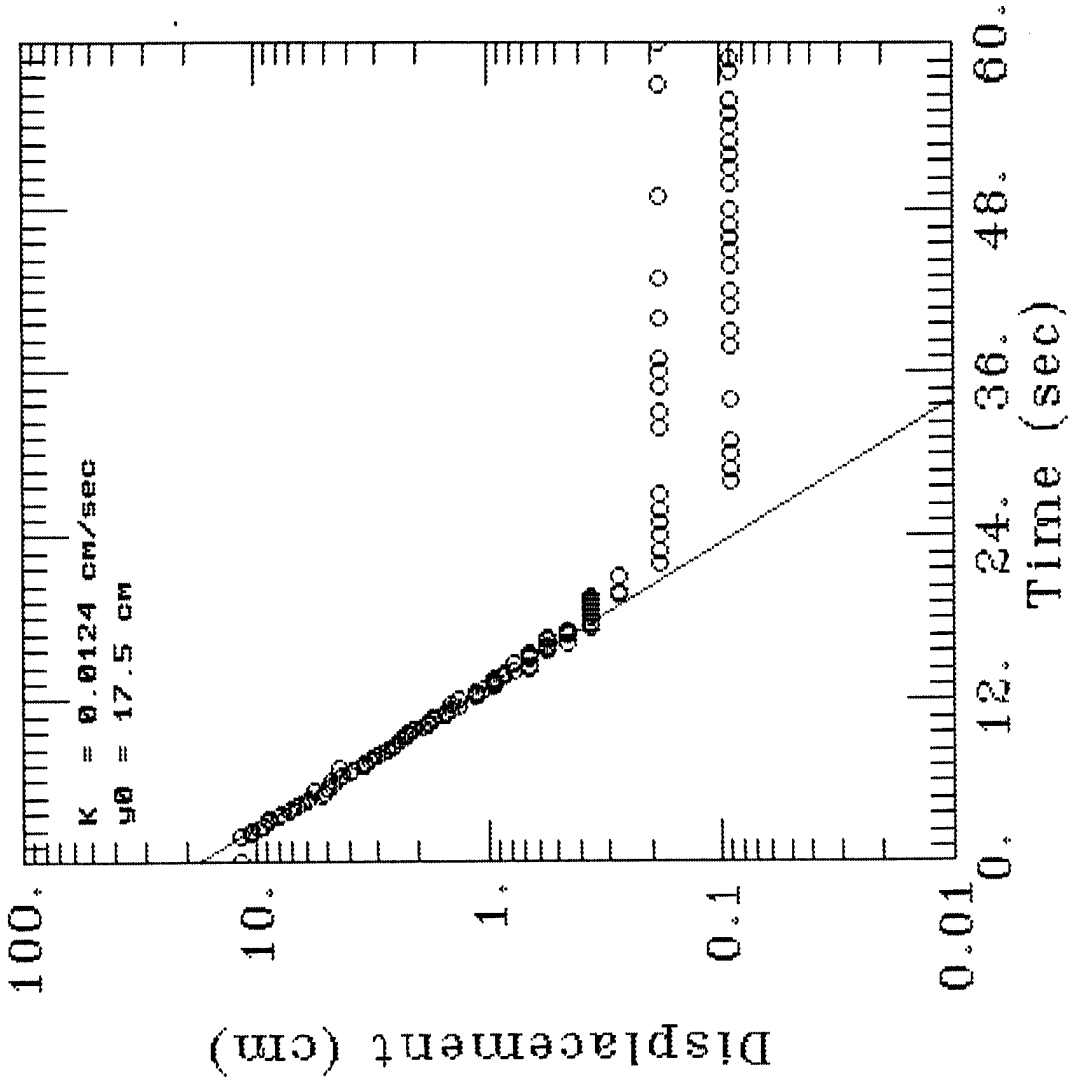
0	-0.003
0.0033	0
0.0066	0
0.01	0
0.0133	0
0.0166	0
0.02	0.129
0.0233	0.983
0.0266	0.085
0.03	0.389
0.0333	0.578
0.0366	0.664
0.04	0.616
0.0433	0.499
0.0466	0.408
0.05	0.328
0.0533	0.268
0.0566	0.218
0.06	0.177
0.0633	0.145
0.0666	0.123
0.07	0.104
0.0733	0.088
0.0766	0.075
0.08	0.066
0.0833	0.06
0.0866	0.056
0.09	0.05
0.0933	0.047
0.0966	0.044
0.1	0.041
0.1033	0.037
0.1066	0.037
0.11	0.034
0.1133	0.034
0.1166	0.031
0.12	0.031
0.1233	0.031
0.1266	0.028
0.13	0.028
0.1333	0.028
0.1366	0.025
0.14	0.025
0.1433	0.025
0.1466	0.025
0.15	0.025
0.1533	0.022
0.1566	0.025
0.16	0.022
0.1633	0.022
0.1666	0.018
0.17	0.018
0.1733	0.018
0.1766	0.018
0.18	0.018
0.1833	0.018
0.1866	0.018
0.19	0.018
0.1933	0.018
0.1966	0.015
0.2	0.015
0.2033	0.015
0.2066	0.015
0.21	0.015
0.2133	0.015
0.2166	0.015
0.22	0.015
0.2233	0.015
0.2266	0.015
0.23	0.015
0.2333	0.012
0.2366	0.015
0.24	0.012
0.2433	0.012
0.2466	0.012
0.25	0.012

0	0
0.0033	0
0.0066	0
0.01	0
0.0133	0
0.0166	0
0.02	0.234
0.0233	0.493
0.0266	0.23
0.03	0.449
0.0333	0.6
0.0366	0.496
0.04	0.401
0.0433	0.319
0.0466	0.256
0.05	0.205
0.0533	0.164
0.0566	0.132
0.06	0.107
0.0633	0.088
0.0666	0.075
0.07	0.063
0.0733	0.056
0.0766	0.05
0.08	0.044
0.0833	0.041
0.0866	0.037
0.09	0.034
0.0933	0.031
0.0966	0.028
0.1	0.028
0.1033	0.025
0.1066	0.025
0.11	0.022
0.1133	0.022
0.1166	0.022
0.12	0.022
0.1233	0.018
0.1266	0.018
0.13	0.015
0.1333	0.018
0.1366	0.015
0.14	0.015
0.1433	0.015
0.1466	0.015
0.15	0.015
0.1533	0.012
0.1566	0.012
0.16	0.012
0.1633	0.012
0.1666	0.012
0.17	0.012
0.1733	0.012
0.1766	0.012
0.18	0.009
0.1833	0.009
0.1866	0.012
0.19	0.009
0.1933	0.009
0.1966	0.009
0.2	0.009
0.2033	0.009
0.2066	0.009
0.21	0.009
0.2133	0.006
0.2166	0.006
0.22	0.009
0.2233	0.006
0.2266	0.006
0.23	0.006
0.2333	0.006
0.2366	0.006
0.24	0.006
0.2433	0.006
0.2466	0.006
0.25	0.006

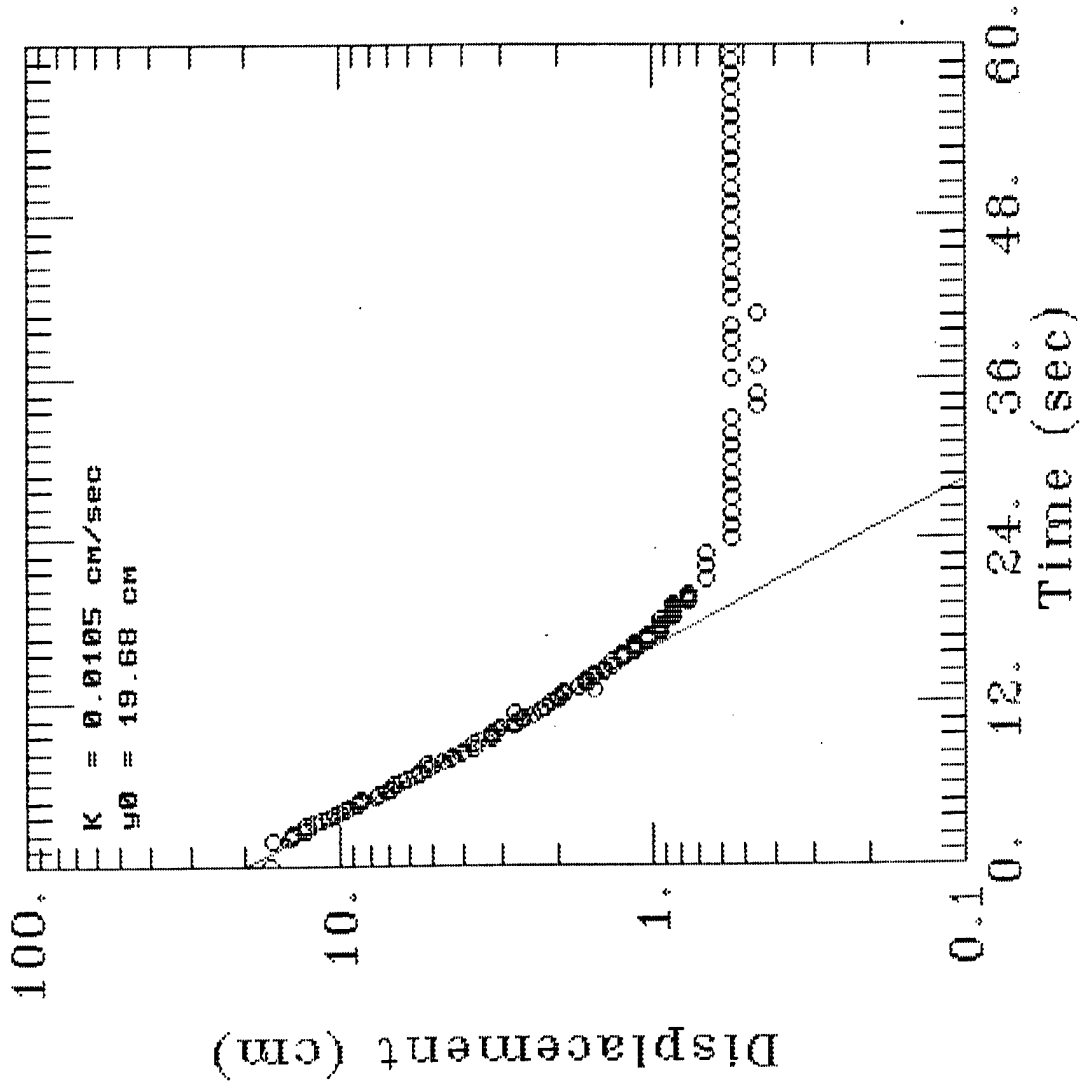
0.2533	0.012
0.2566	0.012
0.26	0.012
0.2633	0.012
0.2666	0.012
0.27	0.012
0.2733	0.012
0.2766	0.012
0.28	0.012
0.2833	0.012
0.2866	0.009
0.29	0.012
0.2933	0.012
0.2966	0.009
0.3	0.012
0.3033	0.009
0.3066	0.009
0.31	0.009
0.3133	0.009
0.3166	0.009
0.32	0.009
0.3233	0.009
0.3266	0.009
0.33	0.009
0.3333	0.009
0.35	0.009
0.3666	0.009
0.3833	0.009
0.4	0.006
0.4166	0.006
0.4333	0.006
0.45	0.006
0.4666	0.006
0.4833	0.006
0.5	0.006
0.5166	0.006
0.5333	0.006
0.55	0.006
0.5666	0.006
0.5833	0.006
0.6	0.006
0.6166	0.006
0.6333	0.006
0.65	0.006
0.6666	0.006
0.6833	0.006
0.7	0.003
0.7166	0.003
0.7333	0.003
0.75	0.003
0.7666	0.003
0.7833	0.003
0.8	0.003
0.8166	0.003
0.8333	0.003
0.85	0.003
0.8666	0.003
0.8833	0.003
0.9	0.003
0.9166	0.003
0.9333	0.003
0.95	0.003
0.9666	0.003
0.9833	0.003
1	0.003
1.2	0.003
1.4	0.003
1.6	0.003

0.2533	0.006
0.2566	0.006
0.26	0.006
0.2633	0.006
0.2666	0.006
0.27	0.006
0.2733	0.006
0.2766	0.006
0.28	0.006
0.2833	0.006
0.2866	0.006
0.29	0.006
0.2933	0.006
0.2966	0.006
0.3	0.006
0.3033	0.003
0.3066	0.003
0.31	0.006
0.3133	0.003
0.3166	0.003
0.32	0.003
0.3233	0.003
0.3266	0.003
0.33	0.003
0.3333	0.003
0.35	0.003
0.3666	0.003
0.3833	0.003
0.4	0.003
0.4166	0.003
0.4333	0.003
0.45	0.003
0.4666	0.003
0.4833	0
0.5	0
0.5166	0
0.5333	0.003
0.55	0.003
0.5666	0
0.5833	0.003
0.6	0
0.6166	0
0.6333	0
0.65	0
0.6666	0
0.6833	0
0.7	0
0.7166	0
0.7333	0
0.75	0
0.7666	0
0.7833	0
0.8	0
0.8166	0
0.8333	0
0.85	0
0.8666	0
0.8833	0
0.9	0
0.9166	0
0.9333	0
0.95	0
0.9666	0
0.9833	0
1	0

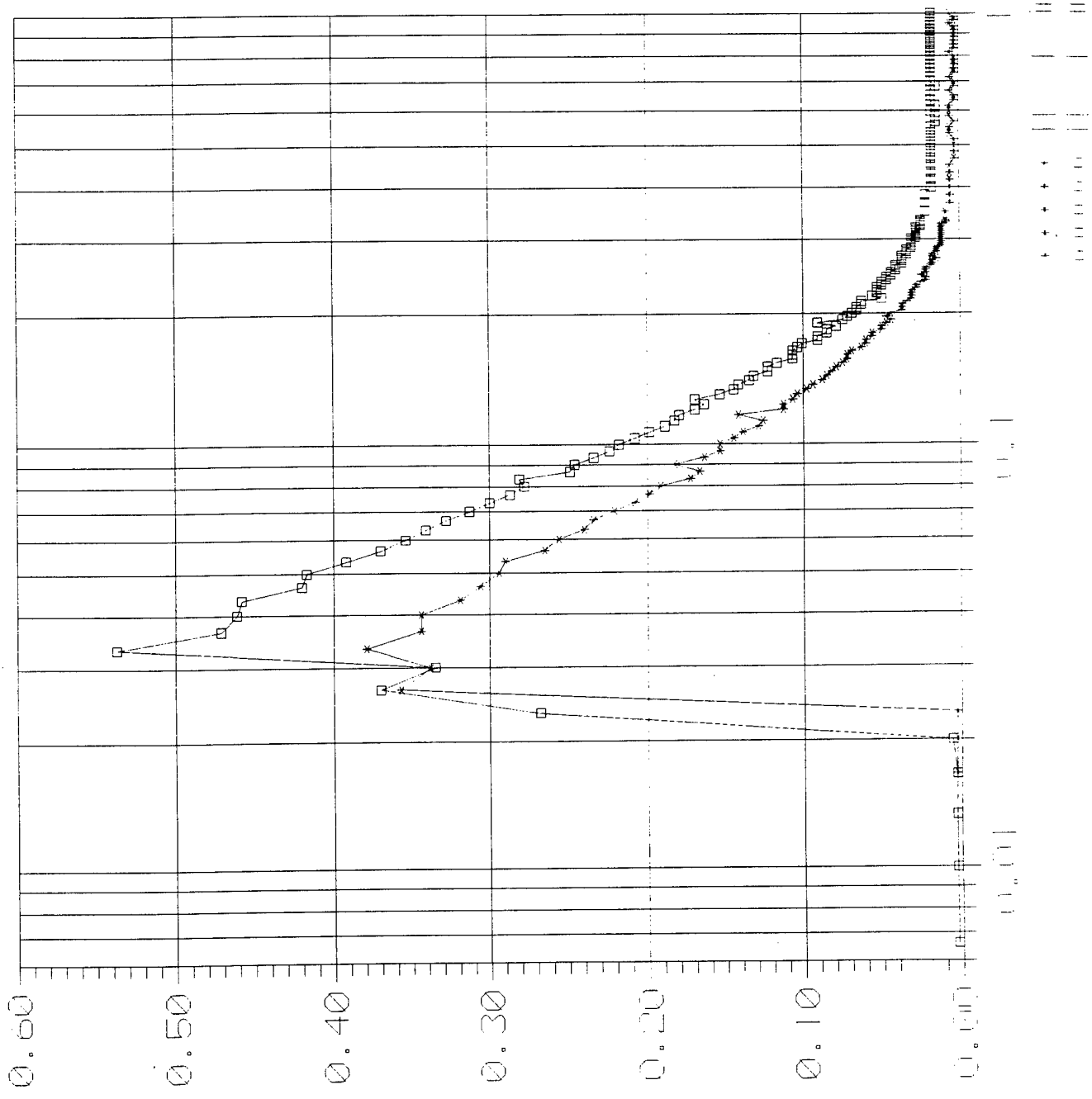
41M-93-05X RISING HEAD TEST #1



41M-93-05X RISING HEAD TEST #2



411-93-05

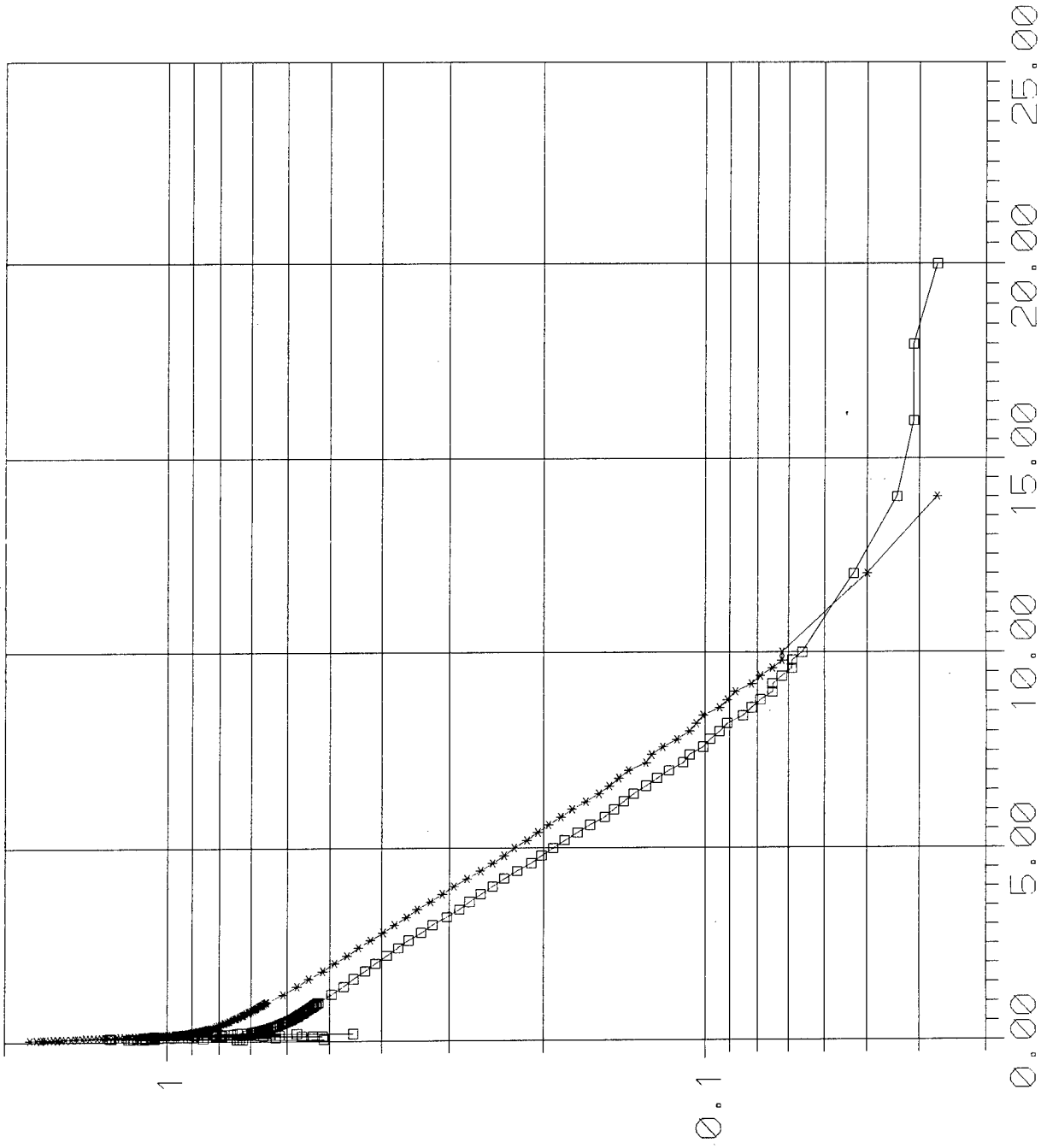


0	0
0.0033	0
0.0066	0
0.01	0
0.0133	0.003
0.0166	0.003
0.02	0.003
0.0233	0.003
0.0266	0.357
0.03	0.338
0.0333	0.379
0.0366	0.344
0.04	0.344
0.0433	0.319
0.0466	0.306
0.05	0.294
0.0533	0.29
0.0566	0.265
0.06	0.256
0.0633	0.24
0.0666	0.234
0.07	0.221
0.0733	0.208
0.0766	0.199
0.08	0.192
0.0833	0.173
0.0866	0.167
0.09	0.183
0.0933	0.164
0.0966	0.154
0.1	0.154
0.1033	0.145
0.1066	0.139
0.11	0.129
0.1133	0.126
0.1166	0.142
0.12	0.113
0.1233	0.113
0.1266	0.107
0.13	0.104
0.1333	0.098
0.1366	0.094
0.14	0.088
0.1433	0.085
0.1466	0.082
0.15	0.079
0.1533	0.075
0.1566	0.072
0.16	0.072
0.1633	0.069
0.1666	0.063
0.17	0.06
0.1733	0.06
0.1766	0.056
0.18	0.056
0.1833	0.05
0.1866	0.05
0.19	0.047
0.1933	0.044
0.1966	0.047
0.2	0.044
0.2033	0.037
0.2066	0.037
0.21	0.037
0.2133	0.034
0.2166	0.031
0.22	0.031
0.2233	0.031
0.2266	0.031
0.23	0.028
0.2333	0.028
0.2366	0.025
0.24	0.022
0.2433	0.022
0.2466	0.025
0.25	0.022

0	0.003
0.0033	0.003
0.0066	0.003
0.01	0.003
0.0133	0.003
0.0166	0.003
0.02	0.006
0.0233	0.268
0.0266	0.37
0.03	0.335
0.0333	0.537
0.0366	0.471
0.04	0.461
0.0433	0.458
0.0466	0.42
0.05	0.417
0.0533	0.392
0.0566	0.37
0.06	0.354
0.0633	0.341
0.0666	0.328
0.07	0.313
0.0733	0.3
0.0766	0.287
0.08	0.278
0.0833	0.281
0.0866	0.249
0.09	0.246
0.0933	0.234
0.0966	0.224
0.1	0.218
0.1033	0.208
0.1066	0.199
0.11	0.189
0.1133	0.183
0.1166	0.18
0.12	0.17
0.1233	0.164
0.1266	0.17
0.13	0.154
0.1333	0.145
0.1366	0.142
0.14	0.135
0.1433	0.132
0.1466	0.123
0.15	0.123
0.1533	0.117
0.1566	0.107
0.16	0.107
0.1633	0.107
0.1666	0.104
0.17	0.101
0.1733	0.091
0.1766	0.091
0.18	0.085
0.1833	0.085
0.1866	0.079
0.19	0.091
0.1933	0.075
0.1966	0.072
0.2	0.069
0.2033	0.066
0.2066	0.066
0.21	0.063
0.2133	0.063
0.2166	0.05
0.22	0.056
0.2233	0.053
0.2266	0.053
0.23	0.053
0.2333	0.05
0.2366	0.05
0.24	0.047
0.2433	0.047
0.2466	0.044
0.25	0.044

0.2533	0.022	0.2533	0.041
0.2566	0.022	0.2566	0.041
0.26	0.018	0.26	0.041
0.2633	0.018	0.2633	0.037
0.2666	0.018	0.2666	0.037
0.27	0.015	0.27	0.037
0.2733	0.018	0.2733	0.037
0.2766	0.018	0.2766	0.034
0.28	0.015	0.28	0.034
0.2833	0.015	0.2833	0.034
0.2866	0.015	0.2866	0.031
0.29	0.012	0.29	0.031
0.2933	0.012	0.2933	0.031
0.2966	0.012	0.2966	0.031
0.3	0.012	0.3	0.031
0.3033	0.012	0.3033	0.028
0.3066	0.012	0.3066	0.028
0.31	0.012	0.31	0.028
0.3133	0.012	0.3133	0.028
0.3166	0.012	0.3166	0.028
0.32	0.012	0.32	0.028
0.3233	0.012	0.3233	0.025
0.3266	0.012	0.3266	0.025
0.33	0.009	0.33	0.025
0.3333	0.009	0.3333	0.025
0.35	0.009	0.35	0.022
0.3666	0.006	0.3666	0.022
0.3833	0.006	0.3833	0.022
0.4	0.006	0.4	0.018
0.4166	0.006	0.4166	0.018
0.4333	0.006	0.4333	0.018
0.45	0.006	0.45	0.018
0.4666	0.003	0.4666	0.018
0.4833	0.003	0.4833	0.018
0.5	0.003	0.5	0.018
0.5166	0.003	0.5166	0.018
0.5333	0.006	0.5333	0.018
0.55	0.006	0.55	0.018
0.5666	0.003	0.5666	0.015
0.5833	0.006	0.5833	0.015
0.6	0.006	0.6	0.018
0.6166	0.006	0.6166	0.015
0.6333	0.003	0.6333	0.018
0.65	0.003	0.65	0.018
0.6666	0.006	0.6666	0.018
0.6833	0.003	0.6833	0.015
0.7	0.003	0.7	0.018
0.7166	0.006	0.7166	0.018
0.7333	0.003	0.7333	0.018
0.75	0.003	0.75	0.018
0.7666	0.003	0.7666	0.018
0.7833	0.003	0.7833	0.018
0.8	0.003	0.8	0.018
0.8166	0.006	0.8166	0.018
0.8333	0.003	0.8333	0.018
0.85	0.003	0.85	0.018
0.8666	0.003	0.8666	0.018
0.8833	0.003	0.8833	0.018
0.9	0.003	0.9	0.018
0.9166	0.003	0.9166	0.018
0.9333	0.003	0.9333	0.018
0.95	0.006	0.95	0.018
0.9666	0.003	0.9666	0.018
0.9833	0.003	0.9833	0.018
1	0.006	1	0.018

XDM-93-01x



TEST #1
TEST #2

0	0	0	0
0.0033	0	0.0033	0
0.0066	0	0.0066	0
0.01	0	0.01	0
0.0133	0	0.0133	0
0.0166	0.05	0.0166	0
0.02	0.487	0.02	0.003
0.0233	1.657	0.0233	0.003
0.0266	1.106	0.0266	0.003
0.03	1.477	0.03	0.003
0.0333	1.401	0.0333	0.003
0.0366	0.265	0.0366	0.003
0.04	1.594	0.04	0.006
0.0433	1.793	0.0433	0.009
0.0466	1.745	0.0466	0.512
0.05	1.711	0.05	0.743
0.0533	1.695	0.0533	0.724
0.0566	1.676	0.0566	1.097
0.06	1.65	0.06	0.733
0.0633	1.625	0.0633	1.113
0.0666	1.594	0.0666	1.179
0.07	1.565	0.07	1.167
0.0733	1.54	0.0733	0.857
0.0766	1.505	0.0766	1.154
0.08	1.464	0.08	1.268
0.0833	1.477	0.0833	1.053
0.0866	1.435	0.0866	1.28
0.09	1.413	0.09	1.094
0.0933	1.391	0.0933	0.629
0.0966	1.366	0.0966	1.274
0.1	1.344	0.1	0.974
0.1033	1.322	0.1033	0.898
0.1066	1.303	0.1066	1.065
0.11	1.28	0.11	1.037
0.1133	1.258	0.1133	1.106
0.1166	1.239	0.1166	1.024
0.12	1.22	0.12	0.98
0.1233	1.201	0.1233	0.952
0.1266	1.182	0.1266	0.876
0.13	1.167	0.13	0.515
0.1333	1.148	0.1333	0.537
0.1366	1.132	0.1366	0.562
0.14	1.116	0.14	0.812
0.1433	1.103	0.1433	1.056
0.1466	1.088	0.1466	0.809
0.15	1.075	0.15	0.664
0.1533	1.062	0.1533	0.79
0.1566	1.05	0.1566	0.888
0.16	1.037	0.16	0.793
0.1633	1.024	0.1633	0.619
0.1666	1.015	0.1666	0.629
0.17	1.005	0.17	0.698
0.1733	0.996	0.1733	0.708
0.1766	0.986	0.1766	0.898
0.18	0.98	0.18	0.797
0.1833	0.971	0.1833	0.784
0.1866	0.964	0.1866	0.847
0.19	0.958	0.19	0.891
0.1933	0.951	0.1933	0.762
0.1966	0.945	0.1966	0.452
0.2	0.939	0.2	0.575
0.2033	0.936	0.2033	0.809
0.2066	0.929	0.2066	0.816
0.21	0.926	0.21	0.657
0.2133	0.923	0.2133	0.654
0.2166	0.917	0.2166	0.74
0.22	0.914	0.22	0.727
0.2233	0.907	0.2233	0.68
0.2266	0.904	0.2266	0.698
0.23	0.901	0.23	0.698
0.2333	0.898	0.2333	0.692
0.2366	0.895	0.2366	0.695
0.24	0.891	0.24	0.689
0.2433	0.888	0.2433	0.689
0.2466	0.885	0.2466	0.686
0.25	0.882	0.25	0.686

0.2533	0.882
0.2566	0.879
0.26	0.876
0.2633	0.872
0.2666	0.869
0.27	0.866
0.2733	0.866
0.2766	0.863
0.28	0.86
0.2833	0.857
0.2866	0.857
0.29	0.853
0.2933	0.85
0.2966	0.85
0.3	0.847
0.3033	0.844
0.3066	0.844
0.31	0.841
0.3133	0.841
0.3166	0.838
0.32	0.836
0.3233	0.834
0.3266	0.836
0.33	0.831
0.3333	0.828
0.35	0.822
0.3666	0.816
0.3833	0.809
0.4	0.803
0.4166	0.797
0.4333	0.79
0.45	0.784
0.4666	0.781
0.4833	0.774
0.5	0.768
0.5166	0.765
0.5333	0.759
0.55	0.755
0.5666	0.749
0.5833	0.746
0.6	0.743
0.6166	0.736
0.6333	0.733
0.65	0.727
0.6666	0.724
0.6833	0.721
0.7	0.717
0.7166	0.714
0.7333	0.708
0.75	0.705
0.7666	0.702
0.7833	0.698
0.8	0.692
0.8166	0.689
0.8333	0.686
0.85	0.683
0.8666	0.68
0.8833	0.676
0.9	0.673
0.9166	0.67
0.9333	0.667
0.95	0.664
0.9666	0.661
0.9833	0.657
1	0.654
1.2	0.61
1.4	0.575
1.6	0.547
1.8	0.515
2	0.49
2.2	0.464
2.4	0.442
2.6	0.42
2.8	0.398
3	0.379
3.2	0.36
3.4	0.344
3.6	0.325
3.8	0.309

0.2533	0.683
0.2566	0.68
0.26	0.68
0.2633	0.676
0.2666	0.673
0.27	0.676
0.2733	0.673
0.2766	0.67
0.28	0.67
0.2833	0.667
0.2866	0.667
0.29	0.664
0.2933	0.664
0.2966	0.664
0.3	0.661
0.3033	0.661
0.3066	0.657
0.31	0.657
0.3133	0.657
0.3166	0.654
0.32	0.654
0.3233	0.651
0.3266	0.651
0.33	0.651
0.3333	0.648
0.35	0.642
0.3666	0.638
0.3833	0.632
0.4	0.626
0.4166	0.623
0.4333	0.619
0.45	0.613
0.4666	0.61
0.4833	0.607
0.5	0.604
0.5166	0.597
0.5333	0.594
0.55	0.591
0.5666	0.588
0.5833	0.585
0.6	0.581
0.6166	0.578
0.6333	0.575
0.65	0.572
0.6666	0.572
0.6833	0.569
0.7	0.566
0.7166	0.562
0.7333	0.559
0.75	0.559
0.7666	0.556
0.7833	0.553
0.8	0.55
0.8166	0.55
0.8333	0.547
0.85	0.544
0.8666	0.54
0.8833	0.54
0.9	0.537
0.9166	0.534
0.9333	0.534
0.95	0.531
0.9666	0.528
0.9833	0.528
1	0.525
1.2	0.496
1.4	0.471
1.6	0.452
1.8	0.43
2	0.411
2.2	0.392
2.4	0.373
2.6	0.357
2.8	0.338
3	0.322
3.2	0.303
3.4	0.287
3.6	0.275
3.8	0.262

4	0.294
4.2	0.278
4.4	0.262
4.6	0.249
4.8	0.237
5	0.227
5.2	0.215
5.4	0.205
5.6	0.196
5.8	0.186
6	0.177
6.2	0.167
6.4	0.158
6.6	0.151
6.8	0.145
7	0.139
7.2	0.129
7.4	0.126
7.6	0.12
7.8	0.113
8	0.107
8.2	0.104
8.4	0.101
8.6	0.094
8.8	0.091
9	0.088
9.2	0.082
9.4	0.079
9.6	0.075
9.8	0.072
10	0.072
12	0.05
14	0.037

4	0.249
4.2	0.237
4.4	0.224
4.6	0.211
4.8	0.202
5	0.192
5.2	0.183
5.4	0.173
5.6	0.164
5.8	0.154
6	0.148
6.2	0.142
6.4	0.136
6.6	0.129
6.8	0.123
7	0.117
7.2	0.11
7.4	0.107
7.6	0.101
7.8	0.098
8	0.094
8.2	0.091
8.4	0.085
8.6	0.082
8.8	0.079
9	0.075
9.2	0.075
9.4	0.072
9.6	0.069
9.8	0.069
10	0.066
12	0.053
14	0.044
16	0.041
18	0.041
20	0.037

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 06

SETUP	DATE	BY WHOM
MONITORING WELL ID	XDM-93-01X	R. RUSTAD
DATE OF TEST	10-20-93	
TYPE OF TEST	RISING HEADS	
HERMIT TYPE/SERIAL#	SE 1000C / 1K001732	
TEST #	SEL 6 / 1052	
DATA COLLECTION RATE	LOW 0	
TRANSDUCER		
SERIAL #	2046DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	4.54 (PVC)	
WELL DEPTH (FT./TOC)	13.22 (PVC)	
XD DEPTH (FT./TOC)	12.60 (PVC)	
INITIAL XD REFERENCE	8.03 (PVC)	
SLUG DEPTH (FT./TOC)	9.00 (PVC)	
TIME OF SLUG PLACEMENT	1406	
TIME OF WL EQUILIBRATION	1420	
NEW XD REFERENCE	8.05	
START TIME OF TEST	1421	
END TIME OF TEST	1435	
NOTES:		

NOTE: AT TIME OF OPENING CURB BOX WAS FULL OF WATER

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

0651206

AQUIFER TESTING COMPLETION CHECKLIST

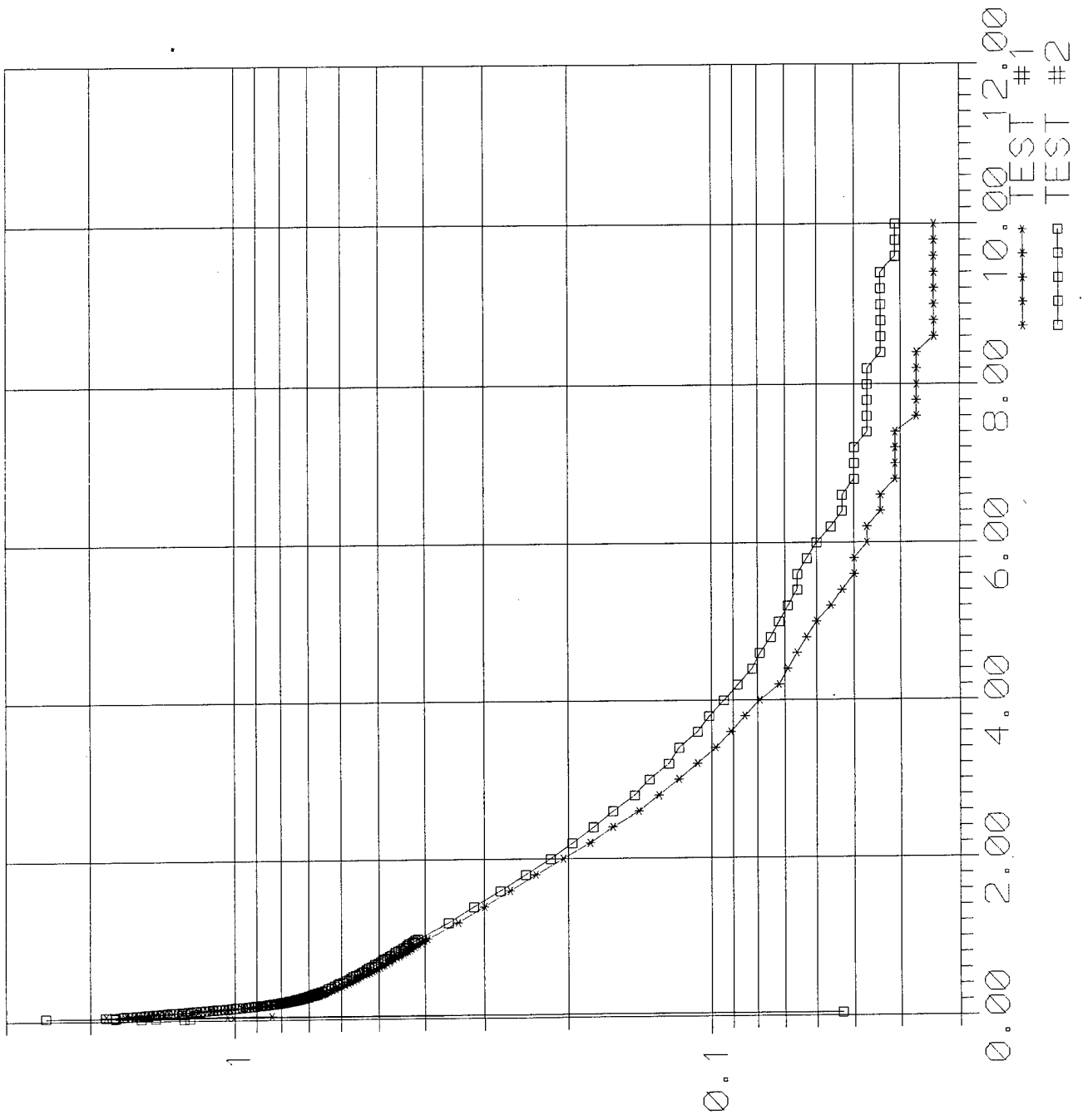
AQUIFER TEST NO. 07

SETUP	DATE	BY WHOM
MONITORING WELL ID	XDM-93-01X	R. RUSTAD
DATE OF TEST	10-20-93	
TYPE OF TEST	FALLING HEAD	
HERMIT TYPE/SERIAL#	SE1000C / KLO1732	
TEST #	SEL 7 / 2 OF 2	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	SUR	
STATIC WATER LEVEL (FT./TOC)	4.54 (PVC)	
WELL DEPTH (FT./TOC)	13.22 (PVC)	
XD DEPTH (FT./TOC)	12.60 (PVC)	
INITIAL XD REFERENCE	8.02 / 0.00	
SLUG DEPTH (FT./TOC)	9.00 (PVC)	
TIME OF SLUG PLACEMENT	1438	
TIME OF WL EQUILIBRATION	-	
NEW XD REFERENCE	-	
START TIME OF TEST	1438	
END TIME OF TEST	1458	
NOTES:	SLUG = 3' x 3"	BAR STOCK PVC

NOTE: AT TIME OF OPENING, CURTIS BOX WAS FULL OF WATER

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

xDM-93-02X



09-11-2003

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 04

SETUP	DATE	BY WHOM
MONITORING WELL ID	XDM-93-02X	R. RUSTAD
DATE OF TEST	10-20-93	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 10000 / KCO173Z	
TEST #	SEL 4 / 1 OF 2	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	7.94 (PVC)	
WELL DEPTH (FT./TOC)	15.69 (PVC)	
XD DEPTH (FT./TOC)	14.90 (PVC)	
INITIAL XD REFERENCE	6.98	
SLUG DEPTH (FT./TOC)	12.00 (PVC)	
TIME OF SLUG PLACEMENT	1311	
TIME OF WL EQUILIBRATION	1322	
NEW XD REFERENCE	7.02 / 0.00	
START TIME OF TEST	1333	
END TIME OF TEST	1349	
NOTES:	SLUG = 3' x 3" BAR Stock PVC	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

08510026

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 05

SETUP	DATE	BY WHOM
MONITORING WELL ID	XDM-93-02X	R. RUSTAD
DATE OF TEST	10.20.93	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SL 1000C / 1KCO1732	
TEST #	SL 5 / 2092	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	7.94 (PVC)	
WELL DEPTH (FT./TOC)	15.69 (PVC)	
XD DEPTH (FT./TOC)	14.90 (PVC)	
INITIAL XD REFERENCE	7.00	
SLUG DEPTH (FT./TOC)	12.00 (PVC)	
TIME OF SLUG PLACEMENT	1335	
TIME OF WL EQUILIBRATION	1343	
NEW XD REFERENCE	7.02 / 0.00	
START TIME OF TEST	1344	
END TIME OF TEST	1354	
NOTES:	SLUG 3' x 5"	TBAR STOCK PVC

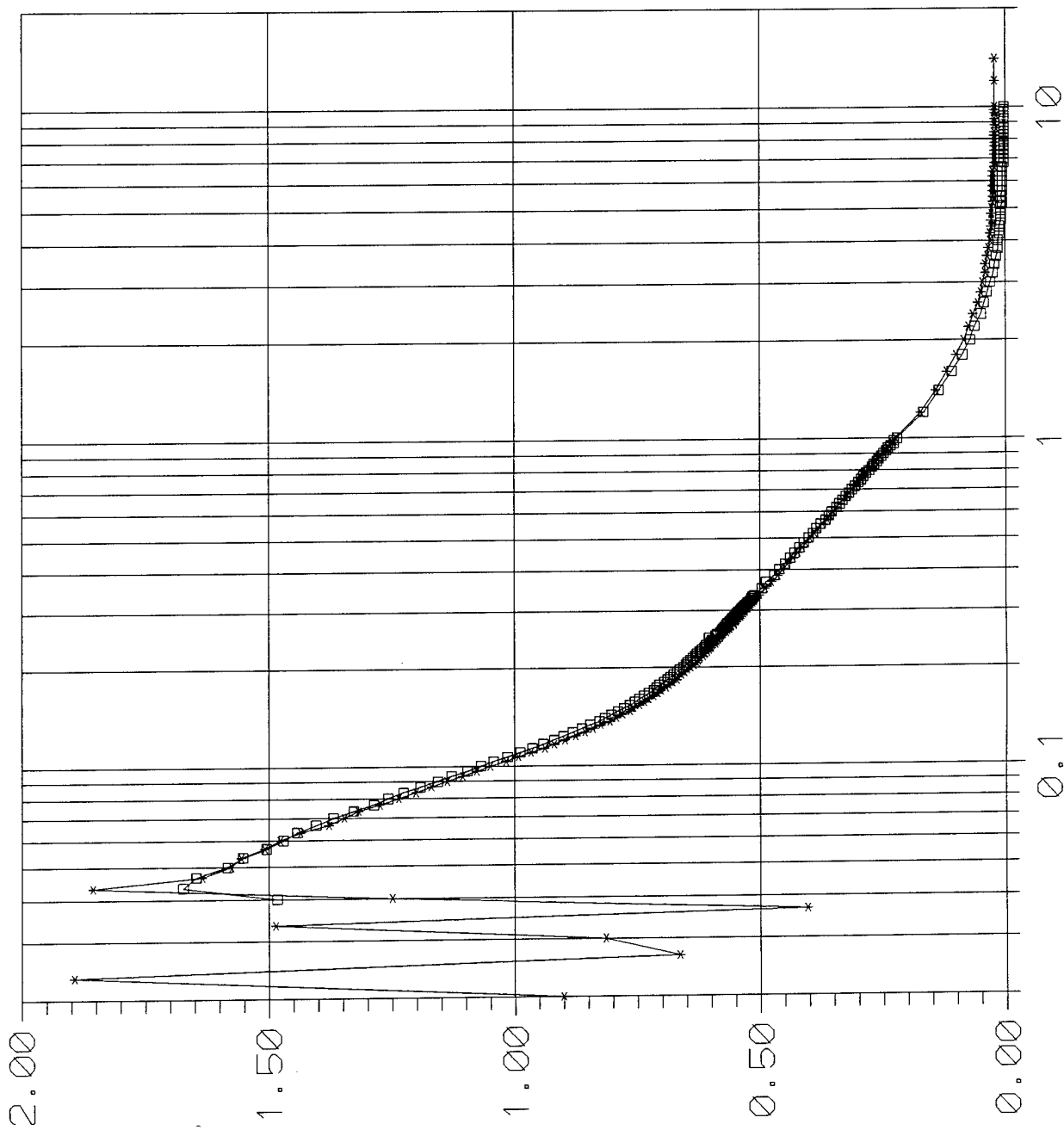
FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

0	0	0	0
0.0033	0	0.0033	0
0.0066	0	0.0066	0
0.01	0	0.01	0.012
0.0133	0	0.0133	0.003
0.0166	0.018	0.0166	0.063
0.02	0.126	0.02	1.277
0.0233	0.831	0.0233	1.242
0.0266	1.755	0.0266	1.568
0.03	-0.439	0.03	1.774
0.0333	2.242	0.0333	1.461
0.0366	1.008	0.0366	2.476
0.04	1.625	0.04	0.053
0.0433	1.037	0.0433	1.777
0.0466	0.838	0.0466	1.859
0.05	1.856	0.05	1.714
0.0533	1.682	0.0533	1.704
0.0566	1.698	0.0566	1.679
0.06	1.654	0.06	1.635
0.0633	1.622	0.0633	1.606
0.0666	1.594	0.0666	1.578
0.07	1.556	0.07	1.546
0.0733	1.524	0.0733	1.518
0.0766	1.499	0.0766	1.489
0.08	1.467	0.08	1.461
0.0833	1.435	0.0833	1.439
0.0866	1.407	0.0866	1.413
0.09	1.378	0.09	1.385
0.0933	1.347	0.0933	1.366
0.0966	1.318	0.0966	1.341
0.1	1.293	0.1	1.312
0.1033	1.268	0.1033	1.29
0.1066	1.239	0.1066	1.265
0.11	1.217	0.11	1.242
0.1133	1.192	0.1133	1.22
0.1166	1.167	0.1166	1.201
0.12	1.144	0.12	1.176
0.1233	1.122	0.1233	1.157
0.1266	1.1	0.1266	1.135
0.13	1.081	0.13	1.116
0.1333	1.062	0.1333	1.097
0.1366	1.043	0.1366	1.078
0.14	1.024	0.14	1.062
0.1433	1.005	0.1433	1.043
0.1466	0.989	0.1466	1.024
0.15	0.97	0.15	1.008
0.1533	0.955	0.1533	0.993
0.1566	0.939	0.1566	0.98
0.16	0.926	0.16	0.964
0.1633	0.91	0.1633	0.948
0.1666	0.898	0.1666	0.936
0.17	0.885	0.17	0.923
0.1733	0.872	0.1733	0.91
0.1766	0.863	0.1766	0.898
0.18	0.85	0.18	0.888
0.1833	0.841	0.1833	0.876
0.1866	0.831	0.1866	0.866
0.19	0.822	0.19	0.857
0.1933	0.812	0.1933	0.847
0.1966	0.806	0.1966	0.841
0.2	0.8	0.2	0.831
0.2033	0.79	0.2033	0.825
0.2066	0.784	0.2066	0.815
0.21	0.778	0.21	0.809
0.2133	0.771	0.2133	0.803
0.2166	0.768	0.2166	0.797
0.22	0.762	0.22	0.79
0.2233	0.755	0.2233	0.787
0.2266	0.749	0.2266	0.781
0.23	0.746	0.23	0.774
0.2333	0.743	0.2333	0.771
0.2366	0.736	0.2366	0.765
0.24	0.733	0.24	0.762
0.2433	0.727	0.2433	0.755
0.2466	0.724	0.2466	0.752
0.25	0.721	0.25	0.746

0.2533	0.714	0.2533	0.743
0.2566	0.711	0.2566	0.74
0.26	0.708	0.26	0.736
0.2633	0.705	0.2633	0.733
0.2666	0.702	0.2666	0.727
0.27	0.698	0.27	0.724
0.2733	0.695	0.2733	0.721
0.2766	0.692	0.2766	0.717
0.28	0.689	0.28	0.714
0.2833	0.686	0.2833	0.711
0.2866	0.683	0.2866	0.708
0.29	0.679	0.29	0.705
0.2933	0.676	0.2933	0.702
0.2966	0.673	0.2966	0.698
0.3	0.67	0.3	0.695
0.3033	0.667	0.3033	0.695
0.3066	0.664	0.3066	0.692
0.31	0.664	0.31	0.689
0.3133	0.661	0.3133	0.686
0.3166	0.657	0.3166	0.683
0.32	0.654	0.32	0.68
0.3233	0.654	0.3233	0.68
0.3266	0.651	0.3266	0.676
0.33	0.648	0.33	0.673
0.3333	0.645	0.3333	0.67
0.35	0.635	0.35	0.66
0.3666	0.626	0.3666	0.648
0.3833	0.616	0.3833	0.638
0.4	0.604	0.4	0.629
0.4166	0.597	0.4166	0.619
0.4333	0.588	0.4333	0.61
0.45	0.578	0.45	0.604
0.4666	0.572	0.4666	0.594
0.4833	0.562	0.4833	0.585
0.5	0.556	0.5	0.578
0.5166	0.55	0.5166	0.572
0.5333	0.544	0.5333	0.566
0.55	0.534	0.55	0.559
0.5666	0.528	0.5666	0.55
0.5833	0.521	0.5833	0.543
0.6	0.515	0.6	0.537
0.6166	0.509	0.6166	0.531
0.6333	0.502	0.6333	0.525
0.65	0.496	0.65	0.518
0.6666	0.49	0.6666	0.512
0.6833	0.487	0.6833	0.509
0.7	0.48	0.7	0.502
0.7166	0.474	0.7166	0.496
0.7333	0.471	0.7333	0.49
0.75	0.464	0.75	0.487
0.7666	0.458	0.7666	0.48
0.7833	0.452	0.7833	0.474
0.8	0.449	0.8	0.471
0.8166	0.442	0.8166	0.464
0.8333	0.439	0.8333	0.461
0.85	0.433	0.85	0.455
0.8666	0.43	0.8666	0.449
0.8833	0.426	0.8833	0.445
0.9	0.42	0.9	0.439
0.9166	0.417	0.9166	0.436
0.9333	0.414	0.9333	0.433
0.95	0.407	0.95	0.426
0.9666	0.404	0.9666	0.423
0.9833	0.401	0.9833	0.42
1	0.395	1	0.414
1.2	0.341	1.2	0.357
1.4	0.3	1.4	0.316
1.6	0.265	1.6	0.278
1.8	0.234	1.8	0.246
2	0.205	2	0.218
2.2	0.18	2.2	0.196
2.4	0.161	2.4	0.177
2.6	0.142	2.6	0.161
2.8	0.129	2.8	0.145
3	0.117	3	0.135
3.2	0.107	3.2	0.123
3.4	0.098	3.4	0.117
3.6	0.091	3.6	0.107
3.8	0.085	3.8	0.101

4	0.079	4	0.094
4.2	0.072	4.2	0.088
4.4	0.069	4.4	0.082
4.6	0.066	4.6	0.079
4.8	0.063	4.8	0.075
5	0.06	5	0.072
5.2	0.056	5.2	0.069
5.4	0.053	5.4	0.066
5.6	0.05	5.6	0.066
5.8	0.05	5.8	0.063
6	0.047	6	0.06
6.2	0.047	6.2	0.056
6.4	0.044	6.4	0.053
6.6	0.044	6.6	0.053
6.8	0.041	6.8	0.05
7	0.041	7	0.05
7.2	0.041	7.2	0.05
7.4	0.041	7.4	0.047
7.6	0.037	7.6	0.047
7.8	0.037	7.8	0.047
8	0.037	8	0.047
8.2	0.037	8.2	0.047
8.4	0.034	8.4	0.044
8.6	0.034	8.6	0.044
8.8	0.034	8.8	0.044
9	0.034	9	0.044
9.2	0.034	9.2	0.044
9.4	0.034	9.4	0.044
9.6	0.034	9.6	0.041
9.8	0.034	9.8	0.041
10	0.034	10	0.041

XDM-93-03X



TEST #1
TEST #2

01 055 12224

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 11

SETUP	DATE	BY WHOM
MONITORING WELL ID	RDM-93-03X	R. RUSTAD
DATE OF TEST	10-19-93	
TYPE OF TEST	RISEING HEADS	
HERMIT TYPE/SERIAL#	SE 1000C	
TEST #	SEL 11 / 1 OF 2	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	9.25 (PVC)	
WELL DEPTH (FT./TOC)	17.48 (PVC)	
XD DEPTH (FT./TOC)	16.50 (PVC)	
INITIAL XD REFERENCE	7.62 / 0.00	
SLUG DEPTH (FT./TOC)	15.00 (PVC)	
TIME OF SLUG PLACEMENT	1520	
TIME OF WL EQUILIBRATION	1525	
NEW XD REFERENCE	7.65 / 0.00	
START TIME OF TEST	1526	
END TIME OF TEST	1540	
NOTES:	3' x 3" BAR STOCK PVC SLUG	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 12

SETUP	DATE	BY WHOM
MONITORING WELL ID	XDM -93-83X	R. RUSTAD
DATE OF TEST	10-19-93	
TYPE OF TEST	RIISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEC 12 / 20F 2	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	9.25 (PVC)	
WELL DEPTH (FT./TOC)	17.48 (PVC)	
XD DEPTH (FT./TOC)	16.50 (PVC)	
INITIAL XD REFERENCE	7.62 / 0.00	
SLUG DEPTH (FT./TOC)	15.00 (PVC)	
TIME OF SLUG PLACEMENT	1542	
TIME OF WL EQUILIBRATION	1550	
NEW XD REFERENCE	7.63 / 0.00	
START TIME OF TEST	1550	
END TIME OF TEST	1600	
NOTES:		

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

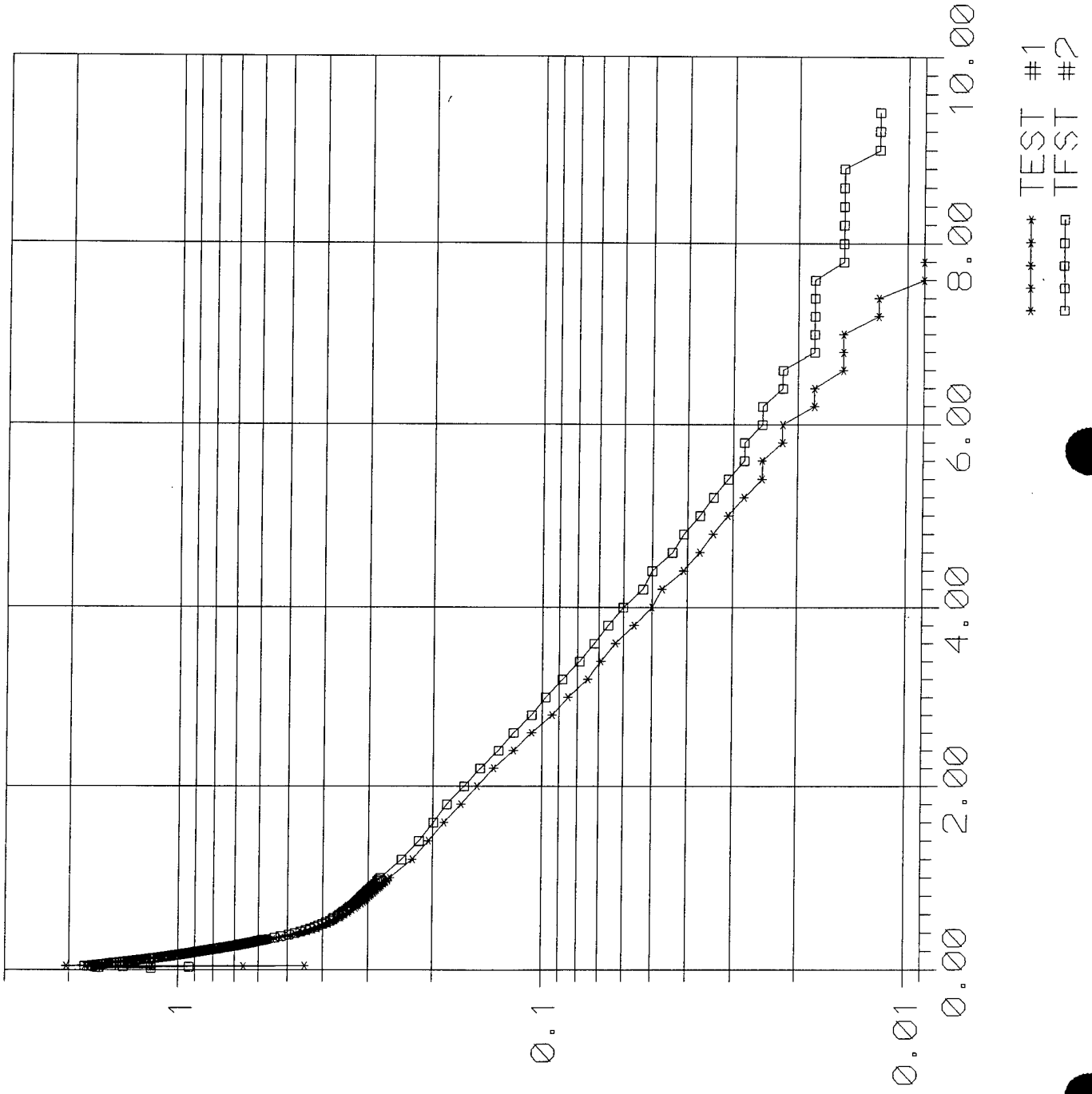
0	0	0	0
0.0033	0	0.0033	-0.003
0.0066	0	0.0066	0
0.01	0	0.01	-0.003
0.0133	0	0.0133	-0.003
0.0166	0.044	0.0166	0.272
0.02	0.901	0.02	2.021
0.0233	1.894	0.0233	1.176
0.0266	0.664	0.0266	1.331
0.03	0.815	0.03	2.125
0.0333	1.486	0.0333	1.088
0.0366	0.404	0.0366	-0.003
0.04	1.249	0.04	1.483
0.0433	1.856	0.0433	1.673
0.0466	1.635	0.0466	1.647
0.05	1.575	0.05	1.584
0.0533	1.556	0.0533	1.552
0.0566	1.508	0.0566	1.505
0.06	1.477	0.06	1.47
0.0633	1.435	0.0633	1.442
0.0666	1.378	0.0666	1.404
0.07	1.347	0.07	1.369
0.0733	1.318	0.0733	1.328
0.0766	1.274	0.0766	1.287
0.08	1.236	0.08	1.258
0.0833	1.201	0.0833	1.227
0.0866	1.17	0.0866	1.192
0.09	1.138	0.09	1.157
0.0933	1.106	0.0933	1.129
0.0966	1.078	0.0966	1.097
0.1	1.05	0.1	1.069
0.1033	1.018	0.1033	1.043
0.1066	0.993	0.1066	1.015
0.11	0.967	0.11	0.989
0.1133	0.939	0.1133	0.964
0.1166	0.92	0.1166	0.942
0.12	0.898	0.12	0.92
0.1233	0.876	0.1233	0.901
0.1266	0.857	0.1266	0.882
0.13	0.841	0.13	0.863
0.1333	0.825	0.1333	0.847
0.1366	0.806	0.1366	0.828
0.14	0.793	0.14	0.816
0.1433	0.781	0.1433	0.803
0.1466	0.765	0.1466	0.79
0.15	0.759	0.15	0.778
0.1533	0.746	0.1533	0.765
0.1566	0.736	0.1566	0.755
0.16	0.727	0.16	0.746
0.1633	0.717	0.1633	0.736
0.1666	0.708	0.1666	0.727
0.17	0.702	0.17	0.717
0.1733	0.692	0.1733	0.711
0.1766	0.686	0.1766	0.705
0.18	0.679	0.18	0.695
0.1833	0.67	0.1833	0.689
0.1866	0.667	0.1866	0.683
0.19	0.661	0.19	0.676
0.1933	0.654	0.1933	0.67
0.1966	0.648	0.1966	0.664
0.2	0.642	0.2	0.657
0.2033	0.635	0.2033	0.651
0.2066	0.629	0.2066	0.648
0.21	0.626	0.21	0.642
0.2133	0.623	0.2133	0.638
0.2166	0.616	0.2166	0.632
0.22	0.613	0.22	0.629
0.2233	0.607	0.2233	0.623
0.2266	0.604	0.2266	0.619
0.23	0.6	0.23	0.613
0.2333	0.597	0.2333	0.61
0.2366	0.591	0.2366	0.604
0.24	0.588	0.24	0.6
0.2433	0.585	0.2433	0.597
0.2466	0.581	0.2466	0.604
0.25	0.578	0.25	0.591

0.2533	0.575	0.2533	0.588
0.2566	0.569	0.2566	0.581
0.26	0.566	0.26	0.578
0.2633	0.562	0.2633	0.575
0.2666	0.559	0.2666	0.572
0.27	0.553	0.27	0.569
0.2733	0.553	0.2733	0.566
0.2766	0.55	0.2766	0.562
0.28	0.547	0.28	0.559
0.2833	0.544	0.2833	0.556
0.2866	0.54	0.2866	0.553
0.29	0.537	0.29	0.55
0.2933	0.534	0.2933	0.547
0.2966	0.531	0.2966	0.544
0.3	0.531	0.3	0.54
0.3033	0.525	0.3033	0.537
0.3066	0.525	0.3066	0.534
0.31	0.521	0.31	0.531
0.3133	0.518	0.3133	0.528
0.3166	0.515	0.3166	0.525
0.32	0.512	0.32	0.521
0.3233	0.512	0.3233	0.518
0.3266	0.509	0.3266	0.518
0.33	0.506	0.33	0.515
0.3333	0.502	0.3333	0.512
0.35	0.49	0.35	0.496
0.3666	0.477	0.3666	0.487
0.3833	0.464	0.3833	0.471
0.4	0.455	0.4	0.461
0.4166	0.445	0.4166	0.449
0.4333	0.433	0.4333	0.439
0.45	0.423	0.45	0.43
0.4666	0.414	0.4666	0.42
0.4833	0.407	0.4833	0.411
0.5	0.398	0.5	0.401
0.5166	0.389	0.5166	0.392
0.5333	0.382	0.5333	0.385
0.55	0.373	0.55	0.376
0.5666	0.363	0.5666	0.366
0.5833	0.357	0.5833	0.36
0.6	0.351	0.6	0.354
0.6166	0.344	0.6166	0.344
0.6333	0.338	0.6333	0.338
0.65	0.332	0.65	0.332
0.6666	0.322	0.6666	0.325
0.6833	0.319	0.6833	0.319
0.7	0.313	0.7	0.313
0.7166	0.306	0.7166	0.306
0.7333	0.3	0.7333	0.3
0.75	0.294	0.75	0.294
0.7666	0.29	0.7666	0.29
0.7833	0.284	0.7833	0.284
0.8	0.278	0.8	0.278
0.8166	0.275	0.8166	0.272
0.8333	0.268	0.8333	0.268
0.85	0.265	0.85	0.262
0.8666	0.259	0.8666	0.259
0.8833	0.256	0.8833	0.253
0.9	0.249	0.9	0.249
0.9166	0.243	0.9166	0.243
0.9333	0.24	0.9333	0.24
0.95	0.237	0.95	0.234
0.9666	0.23	0.9666	0.227
0.9833	0.227	0.9833	0.227
1	0.224	1	0.221
1.2	0.173	1.2	0.167
1.4	0.142	1.4	0.136
1.6	0.12	1.6	0.11
1.8	0.101	1.8	0.088
2	0.085	2	0.072
2.2	0.075	2.2	0.063
2.4	0.066	2.4	0.05
2.6	0.056	2.6	0.044
2.8	0.05	2.8	0.037
3	0.047	3	0.031
3.2	0.041	3.2	0.025
3.4	0.041	3.4	0.022
3.6	0.037	3.6	0.018
3.8	0.034	3.8	0.015

4	0.031
4.2	0.031
4.4	0.028
4.6	0.028
4.8	0.028
5	0.028
5.2	0.025
5.4	0.025
5.6	0.025
5.8	0.025
6	0.025
6.2	0.025
6.4	0.025
6.6	0.022
6.8	0.022
7	0.022
7.2	0.022
7.4	0.022
7.6	0.022
7.8	0.022
8	0.022
8.2	0.022
8.4	0.022
8.6	0.018
8.8	0.022
9	0.022
9.2	0.022
9.4	0.018
9.6	0.022
9.8	0.022
10	0.022
12	0.022
14	0.022

4	0.015
4.2	0.012
4.4	0.012
4.6	0.009
4.8	0.009
5	0.009
5.2	0.006
5.4	0.009
5.6	0.006
5.8	0.006
6	0.006
6.2	0.006
6.4	0.006
6.6	0.006
6.8	0.006
7	0.003
7.2	0.003
7.4	0.003
7.6	0.003
7.8	0.003
8	0.003
8.2	0.003
8.4	0.003
8.6	0.003
8.8	0.003
9	0.003
9.2	0.003
9.4	0.003
9.6	0.003
9.8	0.003
10	0.003

XDM-93-04X



09 085 10024

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 13

SETUP	DATE	BY WHOM
MONITORING WELL ID	XDM-93-04X	R. RUSTAD
DATE OF TEST	10.19.93	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1K61732	
TEST #	SLL 13 / 1 OF 2	
DATA COLLECTION RATE	LOG 00	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	9.57 (PVC)	
WELL DEPTH (FT./TOC)	16.37 (PVC)	
XD DEPTH (FT./TOC)	15.50 (PVC)	
INITIAL XD REFERENCE	6.05 / 0.00	
SLUG DEPTH (FT./TOC)	13.00 (PVC)	
TIME OF SLUG PLACEMENT	1613	
TIME OF WL EQUILIBRATION	1620	
NEW XD REFERENCE	6.02 / 0.00	
START TIME OF TEST	1622	
END TIME OF TEST	1630	
NOTES:	3' x 3" BAR STOCK PVC SLUG	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

09 08512026

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 14

SETUP	DATE	BY WHOM
MONITORING WELL ID	XDM-93-04X	R. RUSTAD
DATE OF TEST	10-19-93	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / IKC01732	
TEST #	SEL 14 / 2 OF 2	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	9.57 (PVC)	
WELL DEPTH (FT./TOC)	16.37 (PVC)	
XD DEPTH (FT./TOC)	15.50 (PVC)	
INITIAL XD REFERENCE	6.02 / 0.00	
SLUG DEPTH (FT./TOC)	13.00 (PVC)	
TIME OF SLUG PLACEMENT	1634	
TIME OF WL EQUILIBRATION	1640	
NEW XD REFERENCE	6.07 / 0.00	
START TIME OF TEST	1643	
END TIME OF TEST	1652	
NOTES:	3' x 3" BAR STEEL PVC SLUG	

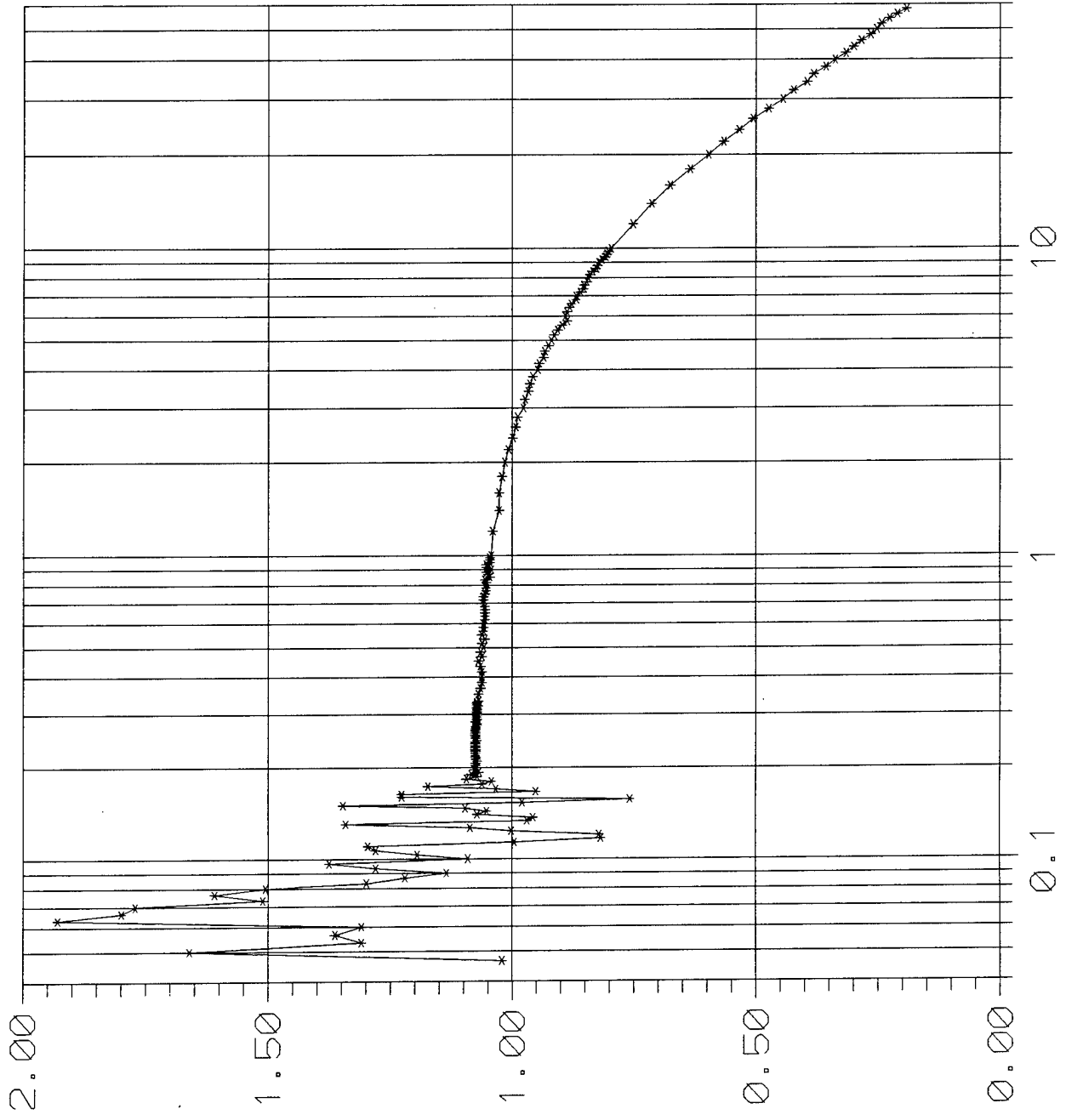
FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

0	0	0	0
0.0033	0	0.0033	0
0.0066	0	0.0066	0
0.01	0	0.01	0
0.0133	0	0.0133	0
0.0166	0	0.0166	0.025
0.02	-0.003	0.02	1.186
0.0233	0.069	0.0233	1.647
0.0266	1.17	0.0266	1.657
0.03	1.186	0.03	1.688
0.0333	1.698	0.0333	0.933
0.0366	1.473	0.0366	1.416
0.04	0.661	0.04	1.809
0.0433	0.449	0.0433	1.723
0.0466	2.033	0.0466	1.758
0.05	1.802	0.05	1.711
0.0533	1.742	0.0533	1.692
0.0566	1.707	0.0566	1.66
0.06	1.685	0.06	1.632
0.0633	1.663	0.0633	1.597
0.0666	1.635	0.0666	1.568
0.07	1.6	0.07	1.549
0.0733	1.575	0.0733	1.527
0.0766	1.549	0.0766	1.499
0.08	1.53	0.08	1.473
0.0833	1.496	0.0833	1.439
0.0866	1.47	0.0866	1.42
0.09	1.448	0.09	1.401
0.0933	1.42	0.0933	1.375
0.0966	1.391	0.0966	1.353
0.1	1.369	0.1	1.331
0.1033	1.35	0.1033	1.309
0.1066	1.325	0.1066	1.287
0.11	1.303	0.11	1.268
0.1133	1.28	0.1133	1.246
0.1166	1.258	0.1166	1.227
0.12	1.239	0.12	1.205
0.1233	1.22	0.1233	1.189
0.1266	1.198	0.1266	1.17
0.13	1.179	0.13	1.154
0.1333	1.16	0.1333	1.135
0.1366	1.141	0.1366	1.119
0.14	1.122	0.14	1.1
0.1433	1.106	0.1433	1.087
0.1466	1.091	0.1466	1.072
0.15	1.075	0.15	1.056
0.1533	1.059	0.1533	1.04
0.1566	1.043	0.1566	1.027
0.16	1.027	0.16	1.015
0.1633	1.012	0.1633	1.002
0.1666	0.999	0.1666	0.989
0.17	0.986	0.17	0.974
0.1733	0.97	0.1733	0.964
0.1766	0.958	0.1766	0.951
0.18	0.945	0.18	0.942
0.1833	0.933	0.1833	0.929
0.1866	0.923	0.1866	0.917
0.19	0.91	0.19	0.907
0.1933	0.901	0.1933	0.895
0.1966	0.888	0.1966	0.885
0.2	0.876	0.2	0.876
0.2033	0.866	0.2033	0.863
0.2066	0.853	0.2066	0.853
0.21	0.844	0.21	0.844
0.2133	0.831	0.2133	0.834
0.2166	0.822	0.2166	0.825
0.22	0.812	0.22	0.812
0.2233	0.803	0.2233	0.803
0.2266	0.79	0.2266	0.793
0.23	0.781	0.23	0.784
0.2333	0.771	0.2333	0.774
0.2366	0.762	0.2366	0.768
0.24	0.752	0.24	0.759
0.2433	0.743	0.2433	0.749
0.2466	0.733	0.2466	0.74
0.25	0.727	0.25	0.73

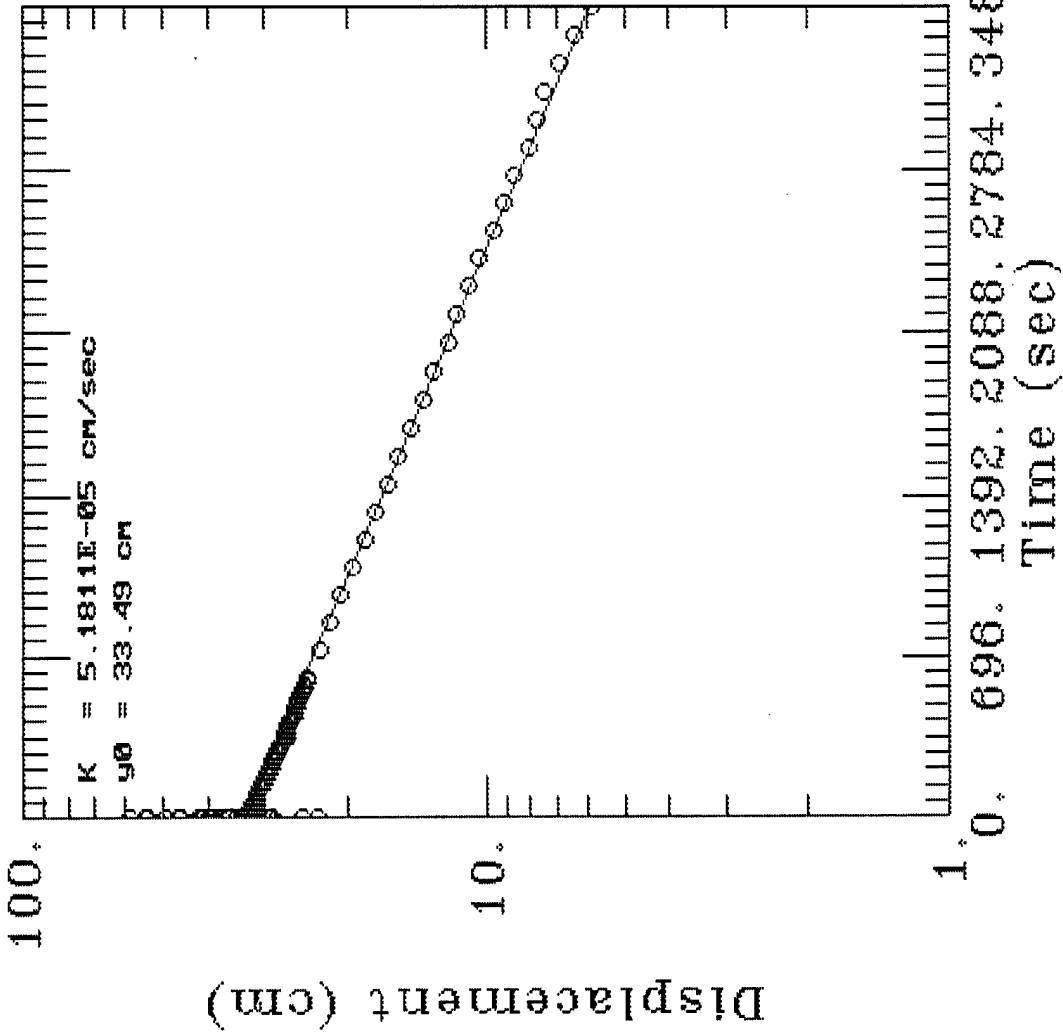
0.2533	0.714	0.2533	0.724
0.2566	0.708	0.2566	0.714
0.26	0.698	0.26	0.708
0.2633	0.689	0.2633	0.698
0.2666	0.68	0.2666	0.692
0.27	0.673	0.27	0.683
0.2733	0.667	0.2733	0.676
0.2766	0.657	0.2766	0.67
0.28	0.651	0.28	0.664
0.2833	0.645	0.2833	0.654
0.2866	0.635	0.2866	0.651
0.29	0.629	0.29	0.642
0.2933	0.623	0.2933	0.638
0.2966	0.616	0.2966	0.632
0.3	0.61	0.3	0.626
0.3033	0.604	0.3033	0.619
0.3066	0.597	0.3066	0.613
0.31	0.594	0.31	0.61
0.3133	0.585	0.3133	0.604
0.3166	0.581	0.3166	0.597
0.32	0.575	0.32	0.591
0.3233	0.569	0.3233	0.588
0.3266	0.562	0.3266	0.581
0.33	0.556	0.33	0.575
0.3333	0.55	0.3333	0.572
0.35	0.521	0.35	0.543
0.3666	0.496	0.3666	0.521
0.3833	0.474	0.3833	0.496
0.4	0.455	0.4	0.477
0.4166	0.439	0.4166	0.461
0.4333	0.426	0.4333	0.445
0.45	0.414	0.45	0.433
0.4666	0.404	0.4666	0.42
0.4833	0.395	0.4833	0.411
0.5	0.385	0.5	0.401
0.5166	0.379	0.5166	0.392
0.5333	0.37	0.5333	0.382
0.55	0.366	0.55	0.376
0.5666	0.357	0.5666	0.373
0.5833	0.354	0.5833	0.363
0.6	0.347	0.6	0.36
0.6166	0.341	0.6166	0.354
0.6333	0.338	0.6333	0.351
0.65	0.332	0.65	0.344
0.6666	0.325	0.6666	0.341
0.6833	0.322	0.6833	0.338
0.7	0.319	0.7	0.332
0.7166	0.313	0.7166	0.328
0.7333	0.309	0.7333	0.325
0.75	0.306	0.75	0.322
0.7666	0.303	0.7666	0.319
0.7833	0.3	0.7833	0.316
0.8	0.297	0.8	0.313
0.8166	0.294	0.8166	0.309
0.8333	0.29	0.8333	0.306
0.85	0.287	0.85	0.303
0.8666	0.284	0.8666	0.3
0.8833	0.281	0.8833	0.297
0.9	0.278	0.9	0.294
0.9166	0.275	0.9166	0.29
0.9333	0.272	0.9333	0.287
0.95	0.268	0.95	0.284
0.9666	0.265	0.9666	0.284
0.9833	0.265	0.9833	0.281
1	0.262	1	0.278
1.2	0.227	1.2	0.243
1.4	0.205	1.4	0.218
1.6	0.186	1.6	0.199
1.8	0.167	1.8	0.183
2	0.151	2	0.164
2.2	0.136	2.2	0.148
2.4	0.12	2.4	0.132
2.6	0.107	2.6	0.12
2.8	0.094	2.8	0.107
3	0.085	3	0.098
3.2	0.075	3.2	0.088
3.4	0.069	3.4	0.079
3.6	0.063	3.6	0.072
3.8	0.056	3.8	0.066

4	0.05	4	0.06
4.2	0.047	4.2	0.053
4.4	0.041	4.4	0.05
4.6	0.037	4.6	0.044
4.8	0.034	4.8	0.041
5	0.031	5	0.037
5.2	0.028	5.2	0.034
5.4	0.025	5.4	0.031
5.6	0.025	5.6	0.028
5.8	0.022	5.8	0.028
6	0.022	6	0.025
6.2	0.018	6.2	0.025
6.4	0.018	6.4	0.022
6.6	0.015	6.6	0.022
6.8	0.015	6.8	0.018
7	0.015	7	0.018
7.2	0.012	7.2	0.018
7.4	0.012	7.4	0.018
7.6	0.009	7.6	0.018
7.8	0.009	7.8	0.015
		8	0.015
		8.2	0.015
		8.4	0.015
		8.6	0.015
		8.8	0.015
		9	0.012
		9.2	0.012
		9.4	0.012

XGM-93-01 X



XGM-93-01X FALLING HEAD TEST

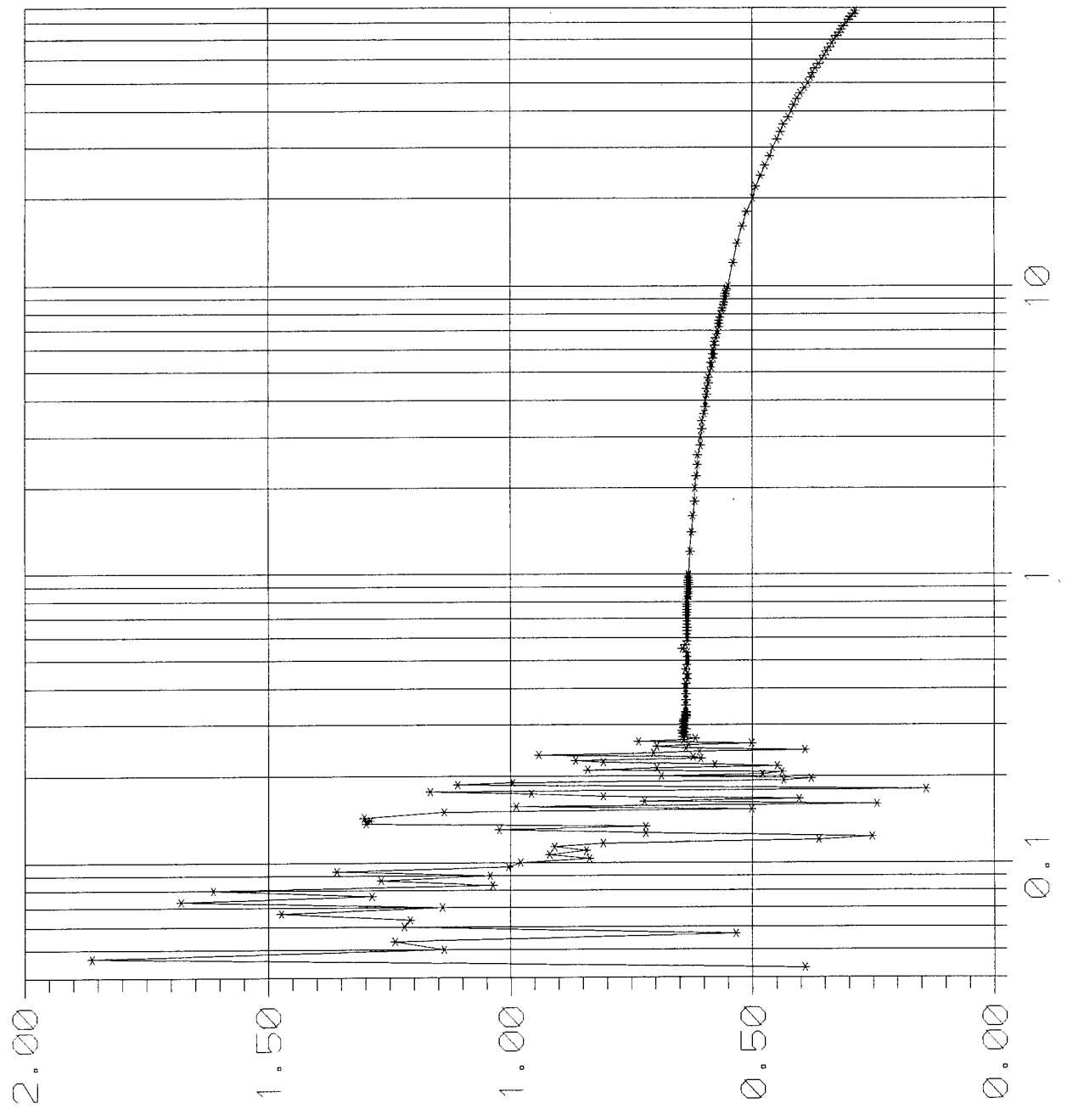


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0.0133	0
0.0166	0
0.02	0
0.0233	0
0.0266	0
0.03	0
0.0333	0.006
0.0366	0
0.04	0
0.0433	0.256
0.0466	1.021
0.05	1.66
0.0533	1.309
0.0566	1.363
0.06	1.309
0.0633	1.929
0.0666	1.799
0.07	1.771
0.0733	1.511
0.0766	1.609
0.08	1.505
0.0833	1.299
0.0866	1.22
0.09	1.135
0.0933	1.28
0.0966	1.375
0.1	1.091
0.1033	1.195
0.1066	1.28
0.11	1.296
0.1133	0.996
0.1166	0.819
0.12	0.822
0.1233	1.002
0.1266	1.087
0.13	1.341
0.1333	0.97
0.1366	0.958
0.14	1.072
0.1433	1.053
0.1466	1.097
0.15	1.347
0.1533	0.98
0.1566	0.759
0.16	1.227
0.1633	1.227
0.1666	0.952
0.17	1.034
0.1733	1.173
0.1766	1.062
0.18	1.043
0.1833	1.094
0.1866	1.072
0.19	1.084
0.1933	1.069
0.1966	1.078
0.2	1.075
0.2033	1.075
0.2066	1.075
0.21	1.072
0.2133	1.075
0.2166	1.075
0.22	1.075
0.2233	1.075
0.2266	1.075
0.23	1.075
0.2333	1.075
0.2366	1.075
0.24	1.075
0.2433	1.075
0.2466	1.072
0.25	1.075

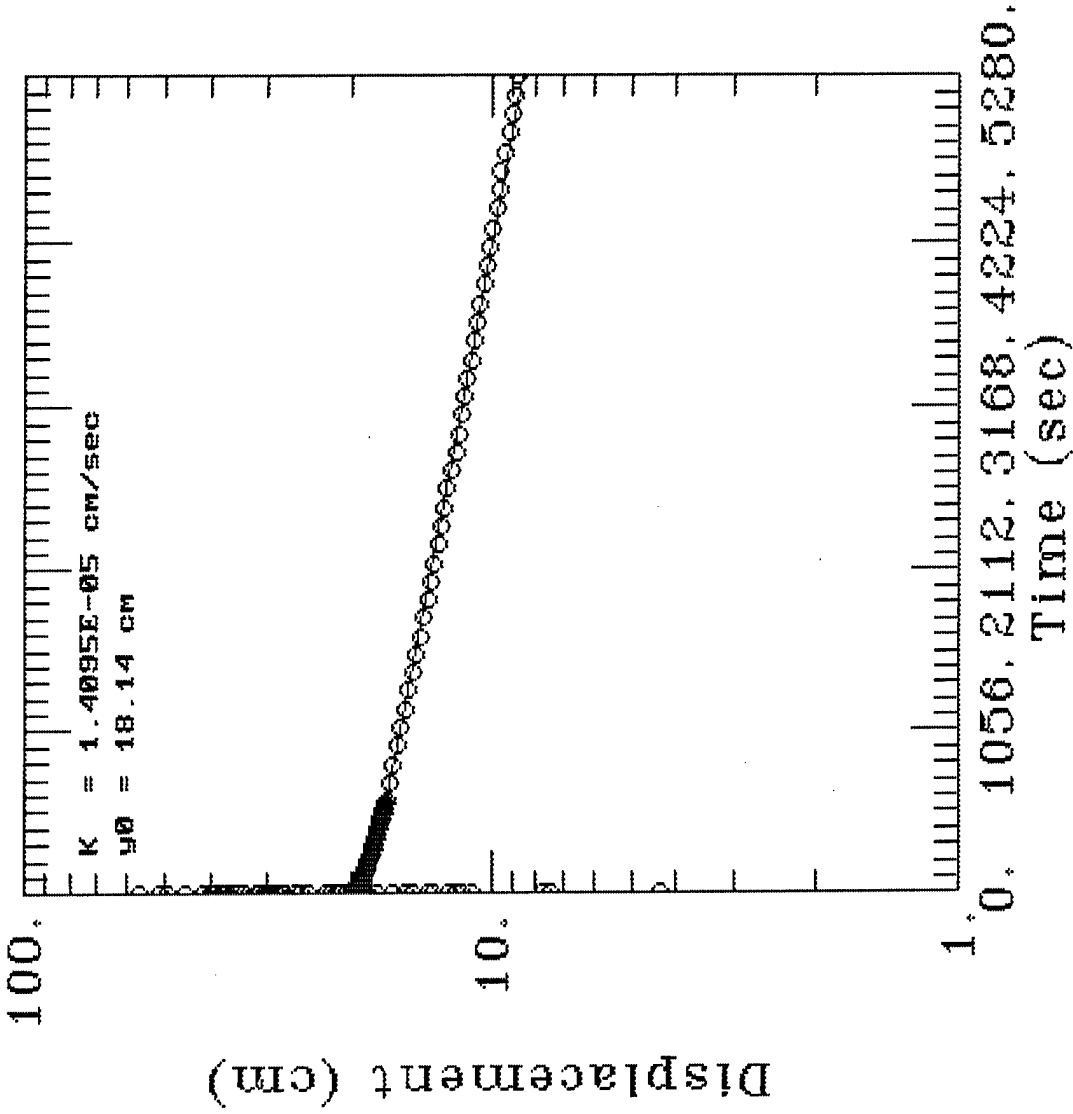
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0.2566	1.075
0.26	1.075
0.2633	1.075
0.2666	1.075
0.27	1.075
0.2733	1.075
0.2766	1.072
0.28	1.072
0.2833	1.075
0.2866	1.072
0.29	1.072
0.2933	1.072
0.2966	1.072
0.3	1.072
0.3033	1.072
0.3066	1.072
0.31	1.072
0.3133	1.072
0.3166	1.072
0.32	1.069
0.3233	1.072
0.3266	1.072
0.33	1.072
0.3333	1.069
0.35	1.069
0.3666	1.065
0.3833	1.062
0.4	1.062
0.4166	1.062
0.4333	1.065
0.45	1.069
0.4666	1.062
0.4833	1.065
0.5	1.059
0.5166	1.062
0.5333	1.056
0.55	1.062
0.5666	1.059
0.5833	1.059
0.6	1.059
0.6166	1.056
0.6333	1.056
0.65	1.056
0.6666	1.056
0.6833	1.056
0.7	1.059
0.7166	1.059
0.7333	1.059
0.75	1.056
0.7666	1.053
0.7833	1.053
0.8	1.056
0.8166	1.053
0.8333	1.056
0.85	1.046
0.8666	1.05
0.8833	1.053
0.9	1.043
0.9166	1.053
0.9333	1.053
0.95	1.046
0.9666	1.046
0.9833	1.046
1	1.043
1.2	1.04
1.4	1.027
1.6	1.027
1.8	1.021
2	1.015
2.2	1.008
2.4	0.999
2.6	0.993
2.8	0.989
3	0.977
3.2	0.974
3.4	0.967
3.6	0.964
3.8	0.958

4	0.948
4.2	0.945
4.4	0.936
4.6	0.933
4.8	0.926
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5	0.92
5.2	0.914
5.4	0.907
5.6	0.898
5.8	0.888
6	0.891
6.2	0.888
6.4	0.882
6.6	0.879
6.8	0.869
7	0.869
7.2	0.86
7.4	0.853
7.6	0.853
7.8	0.847
8	0.844
8.2	0.841
8.4	0.835
8.6	0.828
8.8	0.825
9	0.822
9.2	0.816
9.4	0.809
9.6	0.806
9.8	0.803
10	0.797
12	0.752
14	0.714
16	0.676
18	0.635
20	0.597
22	0.566
24	0.534
26	0.506
28	0.474
30	0.445
32	0.423
34	0.395
36	0.382
38	0.357
40	0.338
42	0.316
44	0.3
46	0.284
48	0.265
50	0.253
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52	0.243
54	0.227
56	0.211
58	0.192

XGM-93-02X



XGM-93-02X FALLING HEAD TEST

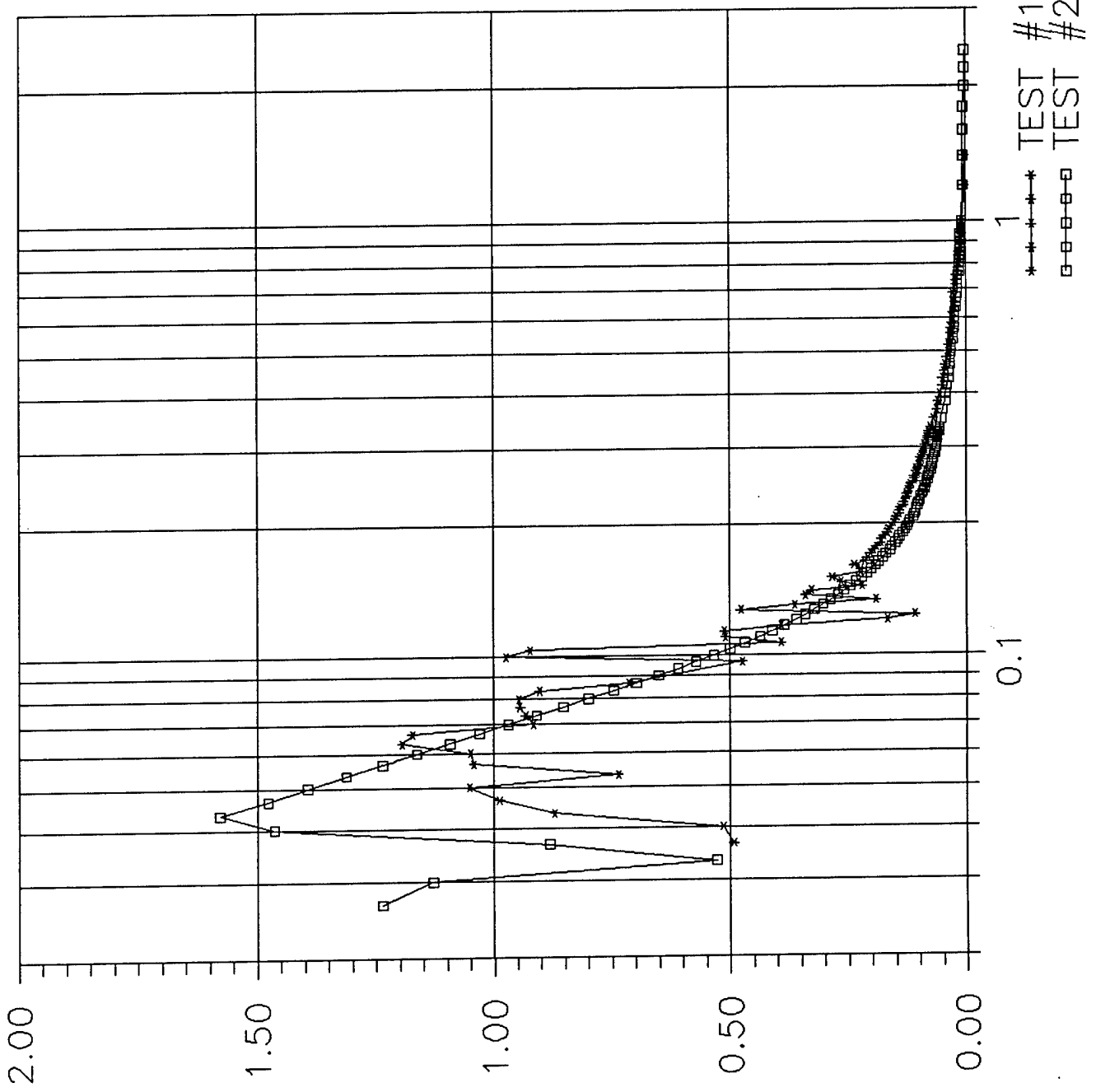


0	0
0.0033	0
0.0066	0
0.01	0.003
0.0133	0.003
0.0166	0.003
0.02	0.003
0.0233	0
0.0266	0
0.03	0
0.0333	0.006
0.0366	0.638
0.04	1.094
0.0433	0.392
0.0466	1.862
0.05	1.138
0.0533	1.239
0.0566	0.534
0.06	1.22
0.0633	1.208
0.0666	1.473
0.07	1.141
0.0733	1.679
0.0766	1.287
0.08	1.613
0.0833	1.037
0.0866	1.268
0.09	1.043
0.0933	1.359
0.0966	1.005
0.1	0.98
0.1033	0.838
0.1066	0.92
0.11	0.844
0.1133	0.91
0.1166	0.809
0.12	0.363
0.1233	0.253
0.1266	0.721
0.13	1.024
0.1333	0.721
0.1366	1.299
0.14	1.29
0.1433	1.303
0.1466	-1.337
0.15	1.138
0.1533	0.502
0.1566	0.989
0.16	0.243
0.1633	0.724
0.1666	0.404
0.17	0.809
0.1733	0.958
0.1766	1.167
0.18	0.142
0.1833	0
0.1866	1.11
0.19	0.996
0.1933	0.436
0.1966	0.379
0.2	0.689
0.2033	0.48
0.2066	0.439
0.21	0.841
0.2133	0.698
0.2166	0.449
0.22	0.578
0.2233	0.809
0.2266	0.866
0.23	0.607
0.2333	0.623
0.2366	0.942
0.24	0.705
0.2433	0.61
0.2466	0.392
0.25	0.638

0.2533	0.698
0.2566	0.632
0.26	0.502
0.2633	0.736
0.2666	0.642
0.27	0.619
0.2733	0.645
0.2766	0.638
0.28	0.645
0.2833	0.642
0.2866	0.645
0.29	0.638
0.2933	0.642
0.2966	0.642
0.3	0.642
0.3033	0.642
0.3066	0.642
0.31	0.642
0.3133	0.642
0.3166	0.638
0.32	0.638
0.3233	0.638
0.3266	0.638
0.33	0.638
0.3333	0.638
0.35	0.638
0.3666	0.638
0.3833	0.638
0.4	0.638
0.4166	0.638
0.4333	0.635
0.45	0.635
0.4666	0.638
0.4833	0.635
0.5	0.635
0.5166	0.635
0.5333	0.635
0.55	0.645
0.5666	0.638
0.5833	0.635
0.6	0.635
0.6166	0.635
0.6333	0.635
0.65	0.635
0.6666	0.635
0.6833	0.635
0.7	0.635
0.7166	0.635
0.7333	0.635
0.75	0.635
0.7666	0.635
0.7833	0.635
0.8	0.635
0.8166	0.635
0.8333	0.632
0.85	0.632
0.8666	0.632
0.8833	0.632
0.9	0.632
0.9166	0.632
0.9333	0.632
0.95	0.632
0.9666	0.632
0.9833	0.632
1	0.632
1.2	0.629
1.4	0.626
1.6	0.623
1.8	0.619
2	0.619
2.2	0.616
2.4	0.613
2.6	0.613
2.8	0.607
3	0.607
3.2	0.604
3.4	0.604
3.6	0.6
3.8	0.597

4	0.597
4.2	0.594
4.4	0.594
4.6	0.591
4.8	0.591
5	0.588
5.2	0.585
5.4	0.585
5.6	0.581
5.8	0.581
6	0.581
6.2	0.578
6.4	0.578
6.6	0.575
6.8	0.572
7	0.572
7.2	0.569
7.4	0.569
7.6	0.569
7.8	0.566
8	0.566
8.2	0.562
8.4	0.562
8.6	0.559
8.8	0.559
9	0.556
9.2	0.556
9.4	0.556
9.6	0.553
9.8	0.553
10	0.55
12	0.54
14	0.531
16	0.521
18	0.512
20	0.499
22	0.493
24	0.483
26	0.474
28	0.464
30	0.458
32	0.449
34	0.442
36	0.436
38	0.426
40	0.42
42	0.414
44	0.408
46	0.401
48	0.392
50	0.385
52	0.379
54	0.376
56	0.37
58	0.363
60	0.357
62	0.351
64	0.347
66	0.341
68	0.335
70	0.332
72	0.325
74	0.319
76	0.316
78	0.313
80	0.306
82	0.3
84	0.297
86	0.29
88	0.287

XIM-93-01X



9242135 (4)

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 01

SETUP	DATE	BY WHOM
MONITORING WELL ID	XIM-93-01X	R. RUSTAD
DATE OF TEST	10-22-93	
TYPE OF TEST	FALLING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 11K20,732	
TEST #	SEL 1 / 1 OF 2	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	SUR	
STATIC WATER LEVEL (FT./TOC)	29.69 (PVC)	
WELL DEPTH (FT./TOC)	37.45 (PVC)	
XD DEPTH (FT./TOC)	36.50 (PVC)	
INITIAL XD REFERENCE	6.84	
SLUG DEPTH (FT./TOC)	34.00 (PVC)	
TIME OF SLUG PLACEMENT	10:59	
TIME OF WL EQUILIBRATION	-	
NEW XD REFERENCE	-	
START TIME OF TEST	1059	
END TIME OF TEST	1109	
NOTES:	3' x 3" ZAR Spool PVC SLUG	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 02

SETUP	DATE	BY WHOM
MONITORING WELL ID	XIM-73-81X	R. RUSTAD
DATE OF TEST	10.22.93	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C/KCO1732	
TEST #	SEL 02/20F2	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	29.69 (PVC)	
WELL DEPTH (FT./TOC)	37.45 (PVC)	
XD DEPTH (FT./TOC)	36.50 (PVC)	
INITIAL XD REFERENCE	6.84	
SLUG DEPTH (FT./TOC)	34.00 (PVC)	
TIME OF SLUG PLACEMENT	1059	
TIME OF WL EQUILIBRATION	1102	
NEW XD REFERENCE	6.84	
START TIME OF TEST	1111	
END TIME OF TEST	1114	
NOTES:	SLUG = 3' X 3'	BAR STOCK PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

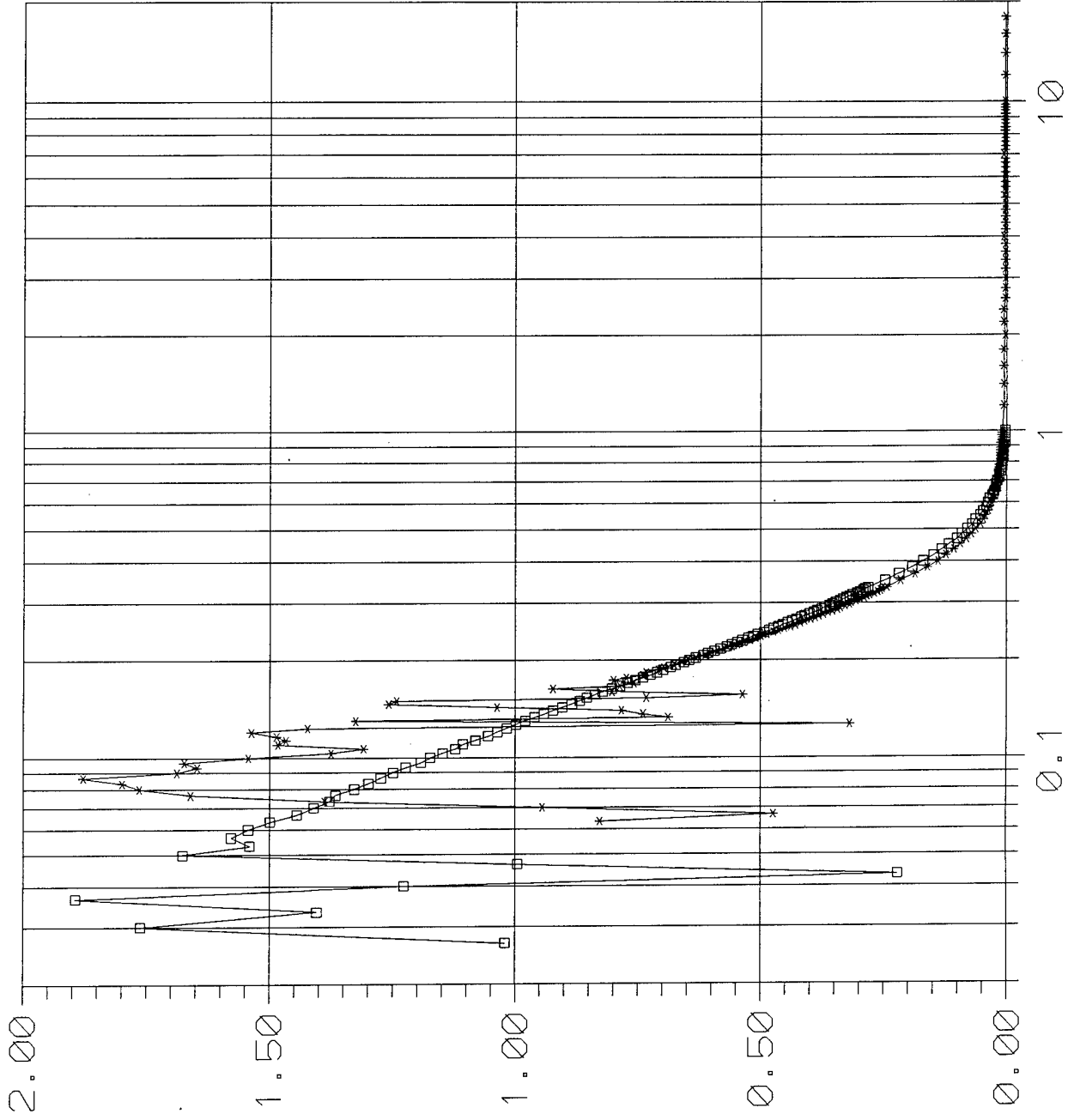
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0.0066	0	0.0066	0
0.01	0	0.01	0
0.0133	0	0.0133	0
0.0166	0	0.0166	0
0.02	0	0.02	0
0.0233	-0.003	0.0233	0.844
0.0266	-0.003	0.0266	1.236
0.03	0.003	0.03	1.129
0.0333	0	0.0333	0.528
0.0366	0.493	0.0366	0.882
0.04	0.515	0.04	1.464
0.0433	0.872	0.0433	1.578
0.0466	0.989	0.0466	1.477
0.05	1.053	0.05	1.394
0.0533	0.736	0.0533	1.312
0.0566	1.043	0.0566	1.236
0.06	1.05	0.06	1.163
0.0633	1.195	0.0633	1.094
0.0666	1.173	0.0666	1.031
0.07	0.917	0.07	0.97
0.0733	0.933	0.0733	0.91
0.0766	0.945	0.0766	0.853
0.08	0.948	0.08	0.8
0.0833	0.904	0.0833	0.746
0.0866	0.714	0.0866	0.698
0.09	-0.521	0.09	0.651
0.0933	-0.091	0.0933	0.61
0.0966	0.474	0.0966	0.572
0.1	0.974	0.1	0.534
0.1033	0.923	0.1033	0.499
0.1066	0.392	0.1066	0.468
0.11	0.509	0.11	0.436
0.1133	0.512	0.1133	0.411
0.1166	0.392	0.1166	0.385
0.12	0.167	0.12	0.36
0.1233	0.11	0.1233	0.341
0.1266	0.477	0.1266	0.322
0.13	0.363	0.13	0.303
0.1333	0.192	0.1333	0.287
0.1366	0.341	0.1366	0.272
0.14	0.328	0.14	0.259
0.1433	0.221	0.1433	0.246
0.1466	0.265	0.1466	0.234
0.15	0.284	0.15	0.221
0.1533	0.224	0.1533	0.211
0.1566	0.224	0.1566	0.202
0.16	0.237	0.16	0.192
0.1633	0.215	0.1633	0.186
0.1666	0.208	0.1666	0.177
0.17	0.202	0.17	0.17
0.1733	0.196	0.1733	0.161
0.1766	0.189	0.1766	0.158
0.18	0.18	0.18	0.151
0.1833	0.18	0.1833	0.145
0.1866	0.173	0.1866	0.142
0.19	0.167	0.19	0.135
0.1933	0.164	0.1933	0.129
0.1966	0.161	0.1966	0.126
0.2	0.154	0.2	0.123
0.2033	0.151	0.2033	0.12
0.2066	0.148	0.2066	0.113
0.21	0.142	0.21	0.11
0.2133	0.142	0.2133	0.107
0.2166	0.139	0.2166	0.107
0.22	0.132	0.22	0.104
0.2233	0.132	0.2233	0.101
0.2266	0.129	0.2266	0.098
0.23	0.126	0.23	0.098
0.2333	0.126	0.2333	0.094
0.2366	0.123	0.2366	0.091
0.24	0.12	0.24	0.088
0.2433	0.12	0.2433	0.088
0.2466	0.117	0.2466	0.085

OSCILLATIONS

0.25	0.11	0.25	0.085
0.2533	0.11	0.2533	0.082
0.2566	0.11	0.2566	0.082
0.26	0.104	0.26	0.079
0.2633	0.107	0.2633	0.079
0.2666	0.104	0.2666	0.075
0.27	0.101	0.27	0.075
0.2733	0.101	0.2733	0.072
0.2766	0.098	0.2766	0.072
0.28	0.094	0.28	0.072
0.2833	0.098	0.2833	0.069
0.2866	0.094	0.2866	0.069
0.29	0.091	0.29	0.066
0.2933	0.091	0.2933	0.066
0.2966	0.088	0.2966	0.066
0.3	0.088	0.3	0.063
0.3033	0.088	0.3033	0.063
0.3066	0.085	0.3066	0.063
0.31	0.082	0.31	0.063
0.3133	0.082	0.3133	0.06
0.3166	0.082	0.3166	0.06
0.32	0.079	0.32	0.06
0.3233	0.079	0.3233	0.06
0.3266	0.079	0.3266	0.056
0.33	0.075	0.33	0.056
0.3333	0.075	0.3333	0.056
0.35	0.069	0.35	0.053
0.3666	0.063	0.3666	0.05
0.3833	0.06	0.3833	0.044
0.4	0.056	0.4	0.044
0.4166	0.05	0.4166	0.041
0.4333	0.05	0.4333	0.037
0.45	0.047	0.45	0.037
0.4666	0.044	0.4666	0.034
0.4833	0.041	0.4833	0.034
0.5	0.037	0.5	0.031
0.5166	0.037	0.5166	0.031
0.5333	0.034	0.5333	0.028
0.55	0.034	0.55	0.028
0.5666	0.034	0.5666	0.025
0.5833	0.031	0.5833	0.025
0.6	0.031	0.6	0.025
0.6166	0.028	0.6166	0.025
0.6333	0.025	0.6333	0.022
0.65	0.025	0.65	0.022
0.6666	0.025	0.6666	0.022
0.6833	0.028	0.6833	0.018
0.7	0.025	0.7	0.018
0.7166	0.022	0.7166	0.018
0.7333	0.022	0.7333	0.018
0.75	0.022	0.75	0.018
0.7666	0.018	0.7666	0.015
0.7833	0.018	0.7833	0.015
0.8	0.015	0.8	0.015
0.8166	0.015	0.8166	0.015
0.8333	0.015	0.8333	0.012
0.85	0.015	0.85	0.012
0.8666	0.012	0.8666	0.012
0.8833	0.012	0.8833	0.012
0.9	0.012	0.9	0.012
0.9166	0.012	0.9166	0.012
0.9333	0.009	0.9333	0.012
0.95	0.009	0.95	0.009
0.9666	0.009	0.9666	0.009
0.9833	0.009	0.9833	0.009
1	0.009	1	0.009
1.2	0.003	1.2	0.006
1.4	0.003	1.4	0.006
1.6	0	1.6	0.006
1.8	0	1.8	0.006
2	0.003	2	0.003
2.2	0	2.2	0.003
2.4	0	2.4	0.003
2.6	-0.003	2.6	0
2.8	-0.003	2.8	0.003
3	-0.003		
3.2	-0.003		
3.4	-0.003		
3.6	0		

3.8	-0.003
4	0
4.2	0
4.4	0
4.6	0
4.8	0
5	-0.003
5.2	-0.003
5.4	-0.003
5.6	0
5.8	0.003
6	0
6.2	0.003
6.4	0
6.6	0
6.8	0
7	0
7.2	0
7.4	0
7.6	-0.006
7.8	-0.003
8	0
8.2	0
8.4	-0.003
8.6	0
8.8	0
9	0
9.2	0
9.4	0
9.6	0
9.8	0
10	0

XIM-93-02X



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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 17

SETUP	DATE	BY WHOM
MONITORING WELL ID	XIM-93-02X	R. RUSTAD
DATE OF TEST	10-21-93	
TYPE OF TEST	FALLING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1K01732	
TEST #	SEL 17 / 10FZ	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DL	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	SUR	
STATIC WATER LEVEL (FT./TOC)	27.71 (PVC)	
WELL DEPTH (FT./TOC)	39.28 (PVC)	
XD DEPTH (FT./TOC)	38.80 (PVC)	
INITIAL XD REFERENCE	11.10 / 0.00	
SLUG DEPTH (FT./TOC)	32.00 (PVC)	
TIME OF SLUG PLACEMENT	1707	
TIME OF WL EQUILIBRATION	-	
NEW XD REFERENCE	-	
START TIME OF TEST	1707	
END TIME OF TEST	1725	
NOTES:	SLUG 3' x 3"	BAR STOCK PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 18

SETUP	DATE	BY WHOM
MONITORING WELL ID	XIM-93-02X	R. RUSTAD
DATE OF TEST	10-21-93	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / KCO732	
TEST #	SEL 18 / 20#2	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	27.71	
WELL DEPTH (FT./TOC)	39.28	
XD DEPTH (FT./TOC)	38.80	
INITIAL XD REFERENCE	11.10 / 0.00	
SLUG DEPTH (FT./TOC)	32.00	
TIME OF SLUG PLACEMENT	1707	
TIME OF WL EQUILIBRATION	1710	
NEW XD REFERENCE	11.11 / 0.00	
START TIME OF TEST	1730	
END TIME OF TEST	1735	
NOTES:	SLUG 3' x 3"	BAR STOCK PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

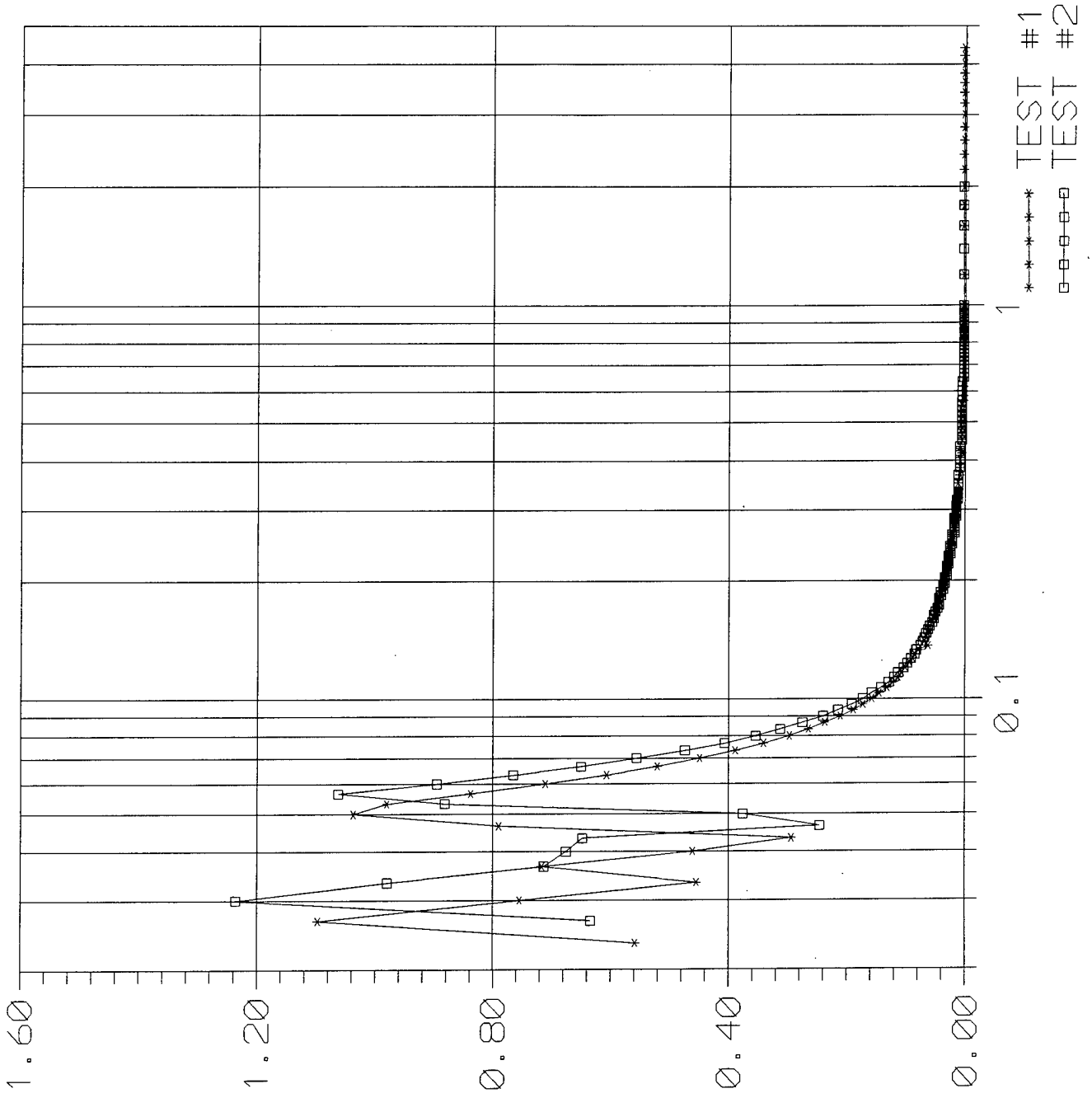
0	0	0	0
0.0033	0	0.0033	0
0.0066	0	0.0066	0
0.01	0	0.01	0
0.0133	0	0.0133	0
0.0166	0	0.0166	0.003
0.02	-0.003	0.02	0.015
0.0233	-0.003	0.0233	-0.012
0.0266	0	0.0266	1.021
0.03	-0.003	0.03	1.761
0.0333	-0.003	0.0333	1.404
0.0366	-0.003	0.0366	1.894
0.04	0	0.04	1.227
0.0433	-0.003	0.0433	0.221
0.0466	-0.006	0.0466	0.996
0.05	-0.006	0.05	1.676
0.0533	-0.006	0.0533	1.54
0.0566	0	0.0566	1.578
0.06	0	0.06	1.543
0.0633	0.828	0.0633	1.499
0.0666	0.474	0.0666	1.445
0.07	0.945	0.07	1.41
0.0733	1.388	0.0733	1.378
0.0766	1.66	0.0766	1.366
0.08	1.764	0.08	1.328
0.0833	1.799	0.0833	1.299
0.0866	1.878	0.0866	1.274
0.09	1.688	0.09	1.249
0.0933	1.647	0.0933	1.223
0.0966	1.673	0.0966	1.192
0.1	1.543	0.1	1.173
0.1033	1.375	0.1033	1.148
0.1066	1.309	0.1066	1.122
0.11	1.483	0.11	1.107
0.1133	1.467	0.1133	1.081
0.1166	1.486	0.1166	1.056
0.12	1.537	0.12	1.037
0.1233	1.423	0.1233	1.018
0.1266	0.319	0.1266	0.999
0.13	1.325	0.13	0.98
0.1333	0.689	0.1333	0.961
0.1366	0.74	0.1366	0.942
0.14	0.784	0.14	0.923
0.1433	1.037	0.1433	0.904
0.1466	1.258	0.1466	0.885
0.15	1.242	0.15	0.869
0.1533	0.733	0.1533	0.854
0.1566	0.537	0.1566	0.838
0.16	0.803	0.16	0.822
0.1633	0.923	0.1633	0.803
0.1666	0.787	0.1666	0.787
0.17	0.759	0.17	0.771
0.1733	0.8	0.1733	0.755
0.1766	0.774	0.1766	0.74
0.18	0.74	0.18	0.724
0.1833	0.733	0.1833	0.711
0.1866	0.708	0.1866	0.699
0.19	0.698	0.19	0.683
0.1933	0.676	0.1933	0.673
0.1966	0.661	0.1966	0.657
0.2	0.648	0.2	0.645
0.2033	0.632	0.2033	0.632
0.2066	0.613	0.2066	0.616
0.21	0.604	0.21	0.607
0.2133	0.588	0.2133	0.594
0.2166	0.575	0.2166	0.582
0.22	0.559	0.22	0.569
0.2233	0.547	0.2233	0.559
0.2266	0.534	0.2266	0.547
0.23	0.521	0.23	0.537
0.2333	0.509	0.2333	0.525
0.2366	0.499	0.2366	0.515
0.24	0.487	0.24	0.506
0.2433	0.474	0.2433	0.493
0.2466	0.464	0.2466	0.483
0.25	0.452	0.25	0.474

0.2533	0.439	0.2533	0.464
0.2566	0.43	0.2566	0.455
0.26	0.42	0.26	0.445
0.2633	0.411	0.2633	0.436
0.2666	0.398	0.2666	0.427
0.27	0.389	0.27	0.417
0.2733	0.382	0.2733	0.411
0.2766	0.373	0.2766	0.401
0.28	0.363	0.28	0.392
0.2833	0.354	0.2833	0.385
0.2866	0.344	0.2866	0.376
0.29	0.338	0.29	0.37
0.2933	0.328	0.2933	0.36
0.2966	0.319	0.2966	0.354
0.3	0.316	0.3	0.347
0.3033	0.306	0.3033	0.338
0.3066	0.297	0.3066	0.332
0.31	0.29	0.31	0.325
0.3133	0.284	0.3133	0.319
0.3166	0.278	0.3166	0.313
0.32	0.268	0.32	0.303
0.3233	0.262	0.3233	0.297
0.3266	0.256	0.3266	0.291
0.33	0.253	0.33	0.287
0.3333	0.243	0.3333	0.281
0.35	0.215	0.35	0.246
0.3666	0.186	0.3666	0.218
0.3833	0.161	0.3833	0.192
0.4	0.139	0.4	0.17
0.4166	0.123	0.4166	0.148
0.4333	0.107	0.4333	0.132
0.45	0.094	0.45	0.117
0.4666	0.082	0.4666	0.101
0.4833	0.072	0.4833	0.091
0.5	0.063	0.5	0.079
0.5166	0.053	0.5166	0.069
0.5333	0.047	0.5333	0.063
0.55	0.044	0.55	0.053
0.5666	0.037	0.5666	0.047
0.5833	0.034	0.5833	0.041
0.6	0.031	0.6	0.037
0.6166	0.028	0.6166	0.034
0.6333	0.025	0.6333	0.028
0.65	0.022	0.65	0.025
0.6666	0.022	0.6666	0.022
0.6833	0.018	0.6833	0.022
0.7	0.018	0.7	0.019
0.7166	0.018	0.7166	0.015
0.7333	0.015	0.7333	0.015
0.75	0.015	0.75	0.012
0.7666	0.015	0.7666	0.012
0.7833	0.015	0.7833	0.009
0.8	0.012	0.8	0.009
0.8166	0.012	0.8166	0.009
0.8333	0.012	0.8333	0.006
0.85	0.012	0.85	0.006
0.8666	0.012	0.8666	0.006
0.8833	0.012	0.8833	0.006
0.9	0.009	0.9	0.006
0.9166	0.012	0.9166	0.003
0.9333	0.009	0.9333	0.003
0.95	0.009	0.95	0.003
0.9666	0.009	0.9666	0.003
0.9833	0.009	0.9833	0.003
1	0.009	1	0.003
1.2	0.006	1.2	0
1.4	0.006	1.4	-0.003
1.6	0.006	1.6	-0.003
1.8	0.006	1.8	-0.003
2	0.003	2	-0.003
2.2	0.006	2.2	-0.003
2.4	0.006	2.4	-0.003
2.6	0.003	2.6	-0.003
2.8	0.003	2.8	-0.006
3	0.003	3	-0.006
3.2	0.003	3.2	-0.003
3.4	0.003	3.4	-0.006
3.6	0.003	3.6	-0.003
3.8	0.003	3.8	-0.006

4	0.006
4.2	0.003
4.4	0.003
4.6	0.003
4.8	0.003
5	0.003
5.2	0.003
5.4	0.003
5.6	0.003
5.8	0.003
6	0.003
6.2	0.003
6.4	0.003
6.6	0.003
6.8	0.003
7	0.006
7.2	0.003
7.4	0.003
7.6	0.003
7.8	0.003
8	0.003
8.2	0.003
8.4	0.003
8.6	0.003
8.8	0.003
9	0.003
9.2	0.003
9.4	0.003
9.6	0.003
9.8	0.003
10	0.003
12	0.003
14	0.003
16	0.003
18	0.003

4	-0.006
4.2	-0.006
4.4	-0.006
4.6	-0.006

XIM-93-04X



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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 00

SETUP	DATE	BY WHOM
MONITORING WELL ID	XIM-43-84X	R. RUSTAD
DATE OF TEST	10-20-93	
TYPE OF TEST	RIISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / KCO1732	
TEST #	SEC 0 / 10FL	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10 001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	44.62 (PVC)	
WELL DEPTH (FT./TOC)	51.61 (PVC)	
XD DEPTH (FT.TOC)	50.60 (PVC)	
INITIAL XD REFERENCE	6.01 / 0.00	
SLUG DEPTH (FT./TOC)	48.00 (PVC)	
TIME OF SLUG PLACEMENT	1111	
TIME OF WL EQUILIBRATION	1113	
NEW XD REFERENCE	6.03 / 0.00	
START TIME OF TEST	1115	
END TIME OF TEST	1120	
NOTES:	SLUG 3' x 3" BAR STOCK PVC	

Σ = 215 SLUG = 205

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 01

SETUP	DATE	BY WHOM
MONITORING WELL ID	XIM-93-04X	R. RUSTAD
DATE OF TEST	10-20-93	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 10002 / KCO1732	
TEST #	SEL 1 / 2 OF 2	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	RD 44 TOC	
STATIC WATER LEVEL (FT./TOC)	44.62 (PVC)	
WELL DEPTH (FT./TOC)	51.61 (PVC)	
XD DEPTH (FT./TOC)	50.60 (PVC)	
INITIAL XD REFERENCE	6.03	
SLUG DEPTH (FT./TOC)	48.00 (PVC)	
TIME OF SLUG PLACEMENT	1122	
TIME OF WL EQUILIBRATION	1123	
NEW XD REFERENCE	6.04 / 0.00	
START TIME OF TEST	1126	
END TIME OF TEST	1128	
NOTES:	SLUG 3' X 3" BAR STEEL PVC	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

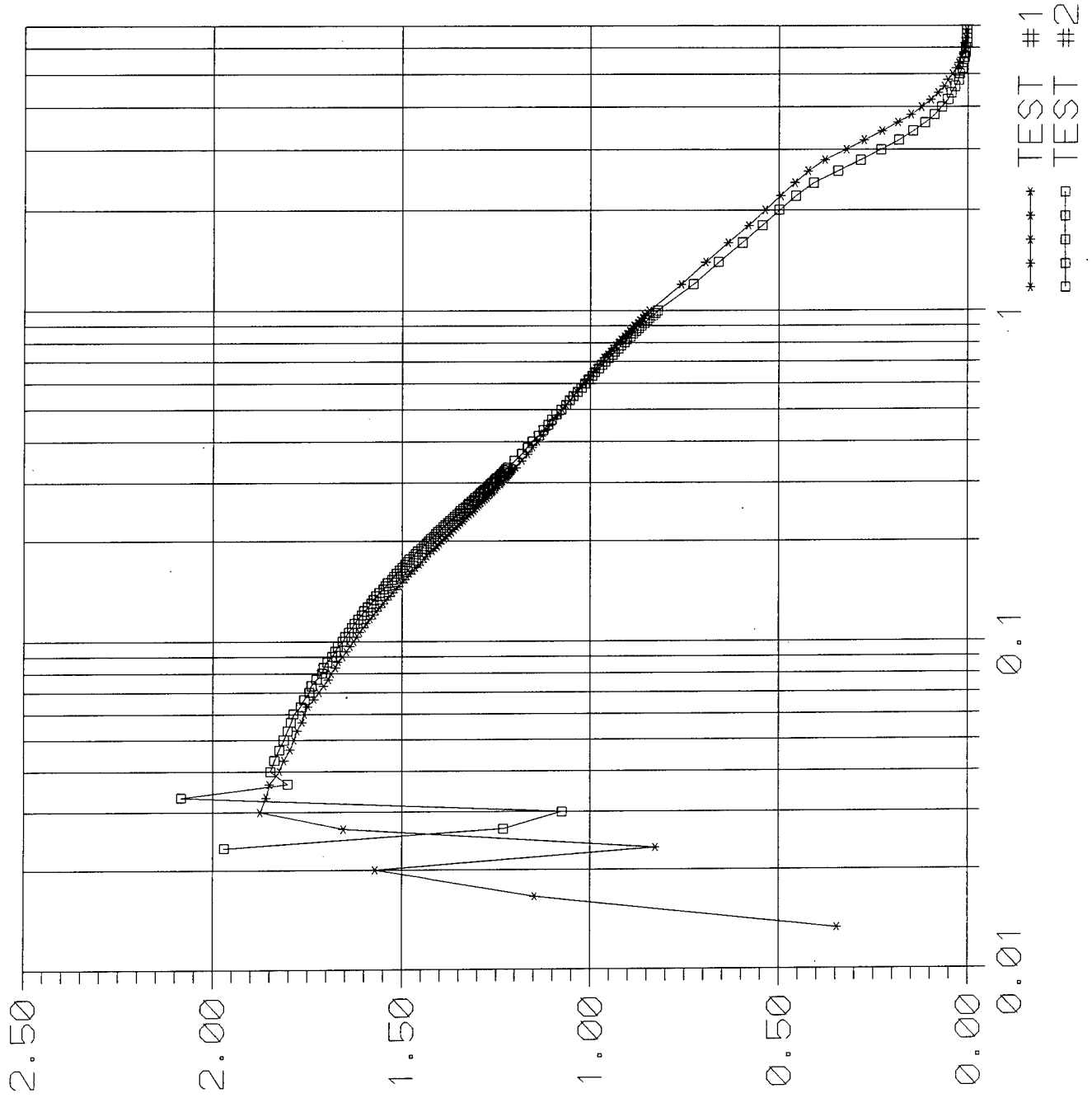
0	0	0	0
0.0033	0	0.0033	0
0.0066	0	0.0066	0
0.01	0	0.01	0
0.0133	0	0.0133	0
0.0166	0	0.0166	0.006
0.02	0.11	0.02	-0.003
0.0233	0.559	0.0233	0.015
0.0266	1.097	0.0266	0.635
0.03	0.755	0.03	1.236
0.0333	0.455	0.0333	0.98
0.0366	0.717	0.0366	-0.714
0.04	0.461	0.04	0.676
0.0433	0.294	0.0433	0.648
0.0466	0.79	0.0466	0.246
0.05	1.037	0.05	0.376
0.0533	0.98	0.0533	0.882
0.0566	0.838	0.0566	1.062
0.06	0.711	0.06	0.895
0.0633	0.607	0.0633	0.765
0.0666	0.521	0.0666	0.651
0.07	0.449	0.07	0.556
0.0733	0.389	0.0733	0.474
0.0766	0.341	0.0766	0.407
0.08	0.297	0.08	0.354
0.0833	0.265	0.0833	0.318
0.0866	0.237	0.0866	0.275
0.09	0.211	0.09	0.24
0.0933	0.189	0.0933	0.215
0.0966	0.173	0.0966	0.192
0.1	0.158	0.1	0.173
0.1033	0.145	0.1033	0.158
0.1066	0.132	0.1066	0.142
0.11	0.123	0.11	0.129
0.1133	0.113	0.1133	0.12
0.1166	0.107	0.1166	0.113
0.12	0.101	0.12	0.104
0.1233	0.094	0.1233	0.098
0.1266	0.088	0.1266	0.091
0.13	0.085	0.13	0.085
0.1333	0.079	0.1333	0.082
0.1366	0.063	0.1366	0.075
0.14	0.069	0.14	0.072
0.1433	0.066	0.1433	0.069
0.1466	0.063	0.1466	0.066
0.15	0.063	0.15	0.063
0.1533	0.06	0.1533	0.06
0.1566	0.056	0.1566	0.056
0.16	0.053	0.16	0.053
0.1633	0.05	0.1633	0.053
0.1666	0.05	0.1666	0.05
0.17	0.047	0.17	0.047
0.1733	0.047	0.1733	0.044
0.1766	0.044	0.1766	0.044
0.18	0.044	0.18	0.044
0.1833	0.041	0.1833	0.041
0.1866	0.041	0.1866	0.041
0.19	0.037	0.19	0.037
0.1933	0.037	0.1933	0.037
0.1966	0.037	0.1966	0.034
0.2	0.034	0.2	0.034
0.2033	0.034	0.2033	0.034
0.2066	0.034	0.2066	0.031
0.21	0.031	0.21	0.031
0.2133	0.031	0.2133	0.031
0.2166	0.031	0.2166	0.031
0.22	0.028	0.22	0.028
0.2233	0.028	0.2233	0.028
0.2266	0.028	0.2266	0.028
0.23	0.028	0.23	0.028
0.2333	0.025	0.2333	0.025
0.2366	0.025	0.2366	0.025
0.24	0.025	0.24	0.025
0.2433	0.025	0.2433	0.025
0.2466	0.025	0.2466	0.022
0.25	0.022	0.25	0.022

0.2533	0.022	0.2533	0.022
0.2566	0.022	0.2566	0.022
0.26	0.022	0.26	0.022
0.2633	0.022	0.2633	0.018
0.2666	0.018	0.2666	0.018
0.27	0.018	0.27	0.018
0.2733	0.018	0.2733	0.018
0.2766	0.018	0.2766	0.018
0.28	0.018	0.28	0.018
0.2833	0.018	0.2833	0.018
0.2866	0.018	0.2866	0.018
0.29	0.018	0.29	0.015
0.2933	0.015	0.2933	0.015
0.2966	0.015	0.2966	0.015
0.3	0.015	0.3	0.015
0.3033	0.015	0.3033	0.015
0.3066	0.015	0.3066	0.015
0.31	0.015	0.31	0.015
0.3133	0.015	0.3133	0.015
0.3166	0.015	0.3166	0.015
0.32	0.015	0.32	0.012
0.3233	0.012	0.3233	0.012
0.3266	0.012	0.3266	0.012
0.33	0.012	0.33	0.012
0.3333	0.012	0.3333	0.012
0.35	0.012	0.35	0.012
0.3666	0.009	0.3666	0.012
0.3833	0.009	0.3833	0.009
0.4	0.009	0.4	0.009
0.4166	0.006	0.4166	0.009
0.4333	0.009	0.4333	0.009
0.45	0.006	0.45	0.006
0.4666	0.006	0.4666	0.006
0.4833	0.006	0.4833	0.006
0.5	0.006	0.5	0.006
0.5166	0.006	0.5166	0.006
0.5333	0.006	0.5333	0.006
0.55	0.006	0.55	0.006
0.5666	0.003	0.5666	0.006
0.5833	0.003	0.5833	0.006
0.6	0.003	0.6	0.006
0.6166	0.003	0.6166	0.006
0.6333	0.003	0.6333	0.006
0.65	0.003	0.65	0.003
0.6666	0.003	0.6666	0.003
0.6833	0.003	0.6833	0.003
0.7	0.003	0.7	0.003
0.7166	0.003	0.7166	0.003
0.7333	0.003	0.7333	0.003
0.75	0.003	0.75	0.003
0.7666	0.003	0.7666	0.003
0.7833	0.003	0.7833	0.003
0.8	0.003	0.8	0.003
0.8166	0.003	0.8166	0.003
0.8333	0.003	0.8333	0.003
0.85	0.003	0.85	0.003
0.8666	0.003	0.8666	0.003
0.8833	0.003	0.8833	0.003
0.9	0.003	0.9	0.003
0.9166	0.003	0.9166	0.003
0.9333	0.003	0.9333	0.003
0.95	0.003	0.95	0.003
0.9666	0.003	0.9666	0.003
0.9833	0.003	0.9833	0.003
1	0.003	1	0.003
1.2	0.003	1.2	0.003
1.4	0	1.4	0.003
1.6	0.003	1.6	0.003
1.8	0.003	1.8	0.003
2	0.003	2	0.003
2.2	0.003		
2.4	0.003		
2.6	0.003		
2.8	0.003		
3	0.003		
3.2	0.003		
3.4	0.003		
3.6	0.003		
3.8	0.003		

4
4.2
4.4

0.003
0.003
0.003

XIM-93-05X



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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 03

SETUP	DATE	BY WHOM
MONITORING WELL ID	XEM-93-05X	R. RUSTAD
DATE OF TEST	10-20-93	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / KCU732	
TEST #	SEL 03 / 20FZ	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.74	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	24.82 (PVC)	
WELL DEPTH (FT./TOC)	30.67 (PVC)	
XD DEPTH (FT./TOC)	29.80 (PVC)	
INITIAL XD REFERENCE	5.02	
SLUG DEPTH (FT./TOC)	28.00 (PVC)	
TIME OF SLUG PLACEMENT	1207	
TIME OF WL EQUILIBRATION	1213	
NEW XD REFERENCE	5.02 / 0.00	
START TIME OF TEST	1215	
END TIME OF TEST	1225	
NOTES:	SLUG = 3' x 3" BAR STOCK PVC	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 02

SETUP	DATE	BY WHOM
MONITORING WELL ID	XIM-93-05X	R. RUSTAD
DATE OF TEST	10.20.93	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KLO1232	
TEST #	SLL 02 / 10F 2	
DATA COLLECTION RATE	LOC 00	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	24.82 (PVC)	
WELL DEPTH (FT./TOC)	30.07 (PVC)	
XD DEPTH (FT./TOC)	29.80 (PVC)	
INITIAL XD REFERENCE	4.99	
SLUG DEPTH (FT./TOC)	28.00 (PVC)	
TIME OF SLUG PLACEMENT	1150	
TIME OF WL EQUILIBRATION	1156	
NEW XD REFERENCE	5.01 / 0.00	
START TIME OF TEST	1157	
END TIME OF TEST	1205	
NOTES:	SWC 3" x 3' BAR STOCK PVC	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

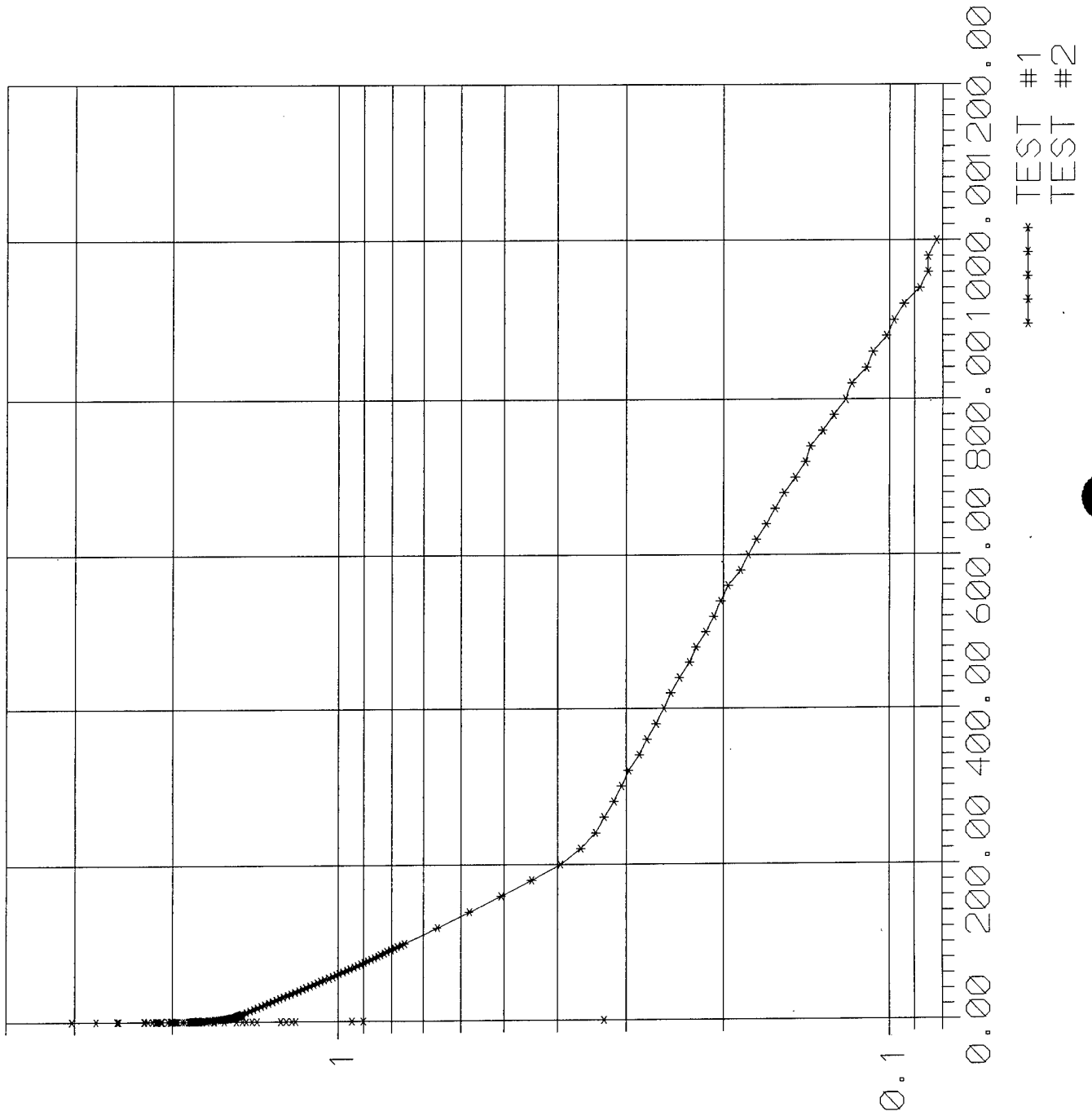
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0.0066	0.003	0.0066	0
0.01	0.003	0.01	0
0.0133	0.347	0.0133	-0.018
0.0166	1.148	0.0166	0.009
0.02	1.571	0.02	0.17
0.0233	0.828	0.0233	1.97
0.0266	1.654	0.0266	1.23
0.03	1.875	0.03	1.075
0.0333	1.859	0.0333	2.084
0.0366	1.85	0.0366	1.802
0.04	1.824	0.04	1.847
0.0433	1.812	0.0433	1.837
0.0466	1.796	0.0466	1.824
0.05	1.786	0.05	1.812
0.0533	1.777	0.0533	1.802
0.0566	1.764	0.0566	1.793
0.06	1.758	0.06	1.786
0.0633	1.749	0.0633	1.767
0.0666	1.733	0.0666	1.758
0.07	1.72	0.07	1.745
0.0733	1.707	0.0733	1.739
0.0766	1.695	0.0766	1.726
0.08	1.688	0.08	1.711
0.0833	1.676	0.0833	1.707
0.0866	1.669	0.0866	1.698
0.09	1.657	0.09	1.685
0.0933	1.647	0.0933	1.676
0.0966	1.638	0.0966	1.669
0.1	1.628	0.1	1.657
0.1033	1.619	0.1033	1.65
0.1066	1.613	0.1066	1.641
0.11	1.603	0.11	1.632
0.1133	1.594	0.1133	1.625
0.1166	1.584	0.1166	1.616
0.12	1.575	0.12	1.606
0.1233	1.568	0.1233	1.6
0.1266	1.559	0.1266	1.59
0.13	1.549	0.13	1.581
0.1333	1.543	0.1333	1.575
0.1366	1.533	0.1366	1.568
0.14	1.524	0.14	1.559
0.1433	1.518	0.1433	1.549
0.1466	1.508	0.1466	1.543
0.15	1.502	0.15	1.537
0.1533	1.492	0.1533	1.527
0.1566	1.486	0.1566	1.521
0.16	1.48	0.16	1.514
0.1633	1.47	0.1633	1.505
0.1666	1.464	0.1666	1.499
0.17	1.454	0.17	1.492
0.1733	1.448	0.1733	1.486
0.1766	1.442	0.1766	1.48
0.18	1.435	0.18	1.47
0.1833	1.429	0.1833	1.464
0.1866	1.42	0.1866	1.458
0.19	1.413	0.19	1.448
0.1933	1.407	0.1933	1.442
0.1966	1.401	0.1966	1.435
0.2	1.394	0.2	1.429
0.2033	1.388	0.2033	1.423
0.2066	1.382	0.2066	1.416
0.21	1.375	0.21	1.41
0.2133	1.369	0.2133	1.404
0.2166	1.363	0.2166	1.397
0.22	1.356	0.22	1.391
0.2233	1.35	0.2233	1.385
0.2266	1.344	0.2266	1.378
0.23	1.337	0.23	1.372
0.2333	1.334	0.2333	1.366
0.2366	1.328	0.2366	1.359
0.24	1.322	0.24	1.353
0.2433	1.315	0.2433	1.347
0.2466	1.309	0.2466	1.344
0.25	1.306	0.25	1.337

0.2533	1.299	0.2533	1.331
0.2566	1.296	0.2566	1.325
0.26	1.29	0.26	1.322
0.2633	1.284	0.2633	1.315
0.2666	1.28	0.2666	1.309
0.27	1.274	0.27	1.306
0.2733	1.271	0.2733	1.299
0.2766	1.265	0.2766	1.293
0.28	1.261	0.28	1.29
0.2833	1.258	0.2833	1.284
0.2866	1.252	0.2866	1.28
0.29	1.249	0.29	1.274
0.2933	1.246	0.2933	1.271
0.2966	1.239	0.2966	1.265
0.3	1.236	0.3	1.261
0.3033	1.233	0.3033	1.255
0.3066	1.227	0.3066	1.252
0.31	1.223	0.31	1.249
0.3133	1.22	0.3133	1.242
0.3166	1.217	0.3166	1.239
0.32	1.214	0.32	1.236
0.3233	1.211	0.3233	1.23
0.3266	1.208	0.3266	1.227
0.33	1.205	0.33	1.224
0.3333	1.198	0.3333	1.22
0.35	1.182	0.35	1.201
0.3666	1.167	0.3666	1.182
0.3833	1.154	0.3833	1.167
0.4	1.141	0.4	1.154
0.4166	1.129	0.4166	1.138
0.4333	1.119	0.4333	1.125
0.45	1.106	0.45	1.113
0.4666	1.097	0.4666	1.103
0.4833	1.084	0.4833	1.091
0.5	1.075	0.5	1.078
0.5166	1.065	0.5166	1.065
0.5333	1.056	0.5333	1.056
0.55	1.046	0.55	1.046
0.5666	1.037	0.5666	1.034
0.5833	1.027	0.5833	1.024
0.6	1.018	0.6	1.015
0.6166	1.012	0.6166	1.005
0.6333	1.002	0.6333	0.996
0.65	0.996	0.65	0.989
0.6666	0.986	0.6666	0.977
0.6833	0.98	0.6833	0.97
0.7	0.97	0.7	0.961
0.7166	0.964	0.7166	0.952
0.7333	0.955	0.7333	0.942
0.75	0.948	0.75	0.936
0.7666	0.942	0.7666	0.926
0.7833	0.933	0.7833	0.92
0.8	0.926	0.8	0.91
0.8166	0.92	0.8166	0.904
0.8333	0.91	0.8333	0.895
0.85	0.904	0.85	0.888
0.8666	0.898	0.8666	0.879
0.8833	0.891	0.8833	0.872
0.9	0.885	0.9	0.866
0.9166	0.876	0.9166	0.857
0.9333	0.869	0.9333	0.85
0.95	0.863	0.95	0.844
0.9666	0.857	0.9666	0.834
0.9833	0.85	0.9833	0.828
1	0.844	1	0.822
1.2	0.759	1.2	0.727
1.4	0.695	1.4	0.661
1.6	0.635	1.6	0.597
1.8	0.581	1.8	0.544
2	0.537	2	0.499
2.2	0.496	2.2	0.455
2.4	0.458	2.4	0.408
2.6	0.423	2.6	0.344
2.8	0.379	2.8	0.284
3	0.322	3	0.23
3.2	0.275	3.2	0.183
3.4	0.227	3.4	0.145
3.6	0.186	3.6	0.113
3.8	0.151	3.8	0.088

4	0.123
4.2	0.098
4.4	0.079
4.6	0.063
4.8	0.053
5	0.041
5.2	0.031
5.4	0.025
5.6	0.018
5.8	0.012
6	0.009
6.2	0.009
6.4	0.006
6.6	0.003
6.8	0.003
7	0
7.2	0
7.4	0
7.6	-0.003
7.8	-0.003
8	-0.003
8.2	-0.003

4	0.069
4.2	0.053
4.4	0.044
4.6	0.034
4.8	0.025
5	0.022
5.2	0.015
5.4	0.012
5.6	0.009
5.8	0.006
6	0.006
6.2	0.003
6.4	0.003
6.6	0.003
6.8	0.003
7	0
7.2	0
7.4	0
7.6	0
7.8	0
8	0
8.2	0
8.4	0
8.6	0
8.8	0
9	0
9.2	0
9.4	0
9.6	-0.003
9.8	0
10	0

XIM-93-06X



06/12/93

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 08

SETUP	DATE	BY WHOM
MONITORING WELL ID	XIM-93-06X	R. RUSTAD
DATE OF TEST	10.20.93	
TYPE OF TEST	FALLING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1K001732	
TEST #	SEL 8 / 1 OF 1	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	#1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC ^(TR) SUR	
STATIC WATER LEVEL (FT./TOC)	24.50 (PVC)	
WELL DEPTH (FT./TOC)	42.97 (PVC)	
XD DEPTH (FT./TOC)	37.00 (PVC)	
INITIAL XD REFERENCE	12.45	
SLUG DEPTH (FT./TOC)	30.00 (PVC)	
TIME OF SLUG PLACEMENT	1532	
TIME OF WL EQUILIBRATION	—	
NEW XD REFERENCE	—	
START TIME OF TEST	1532	
END TIME OF TEST	0904 (10.21.93)	
NOTES:	3' x 3" BAR STOCK PVC SLUG	

NOTE: MOTOR PUMP BEING LOCKED UP FOR THE NIGHT. WILL LET TEST RUN OVERNIGHT.

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

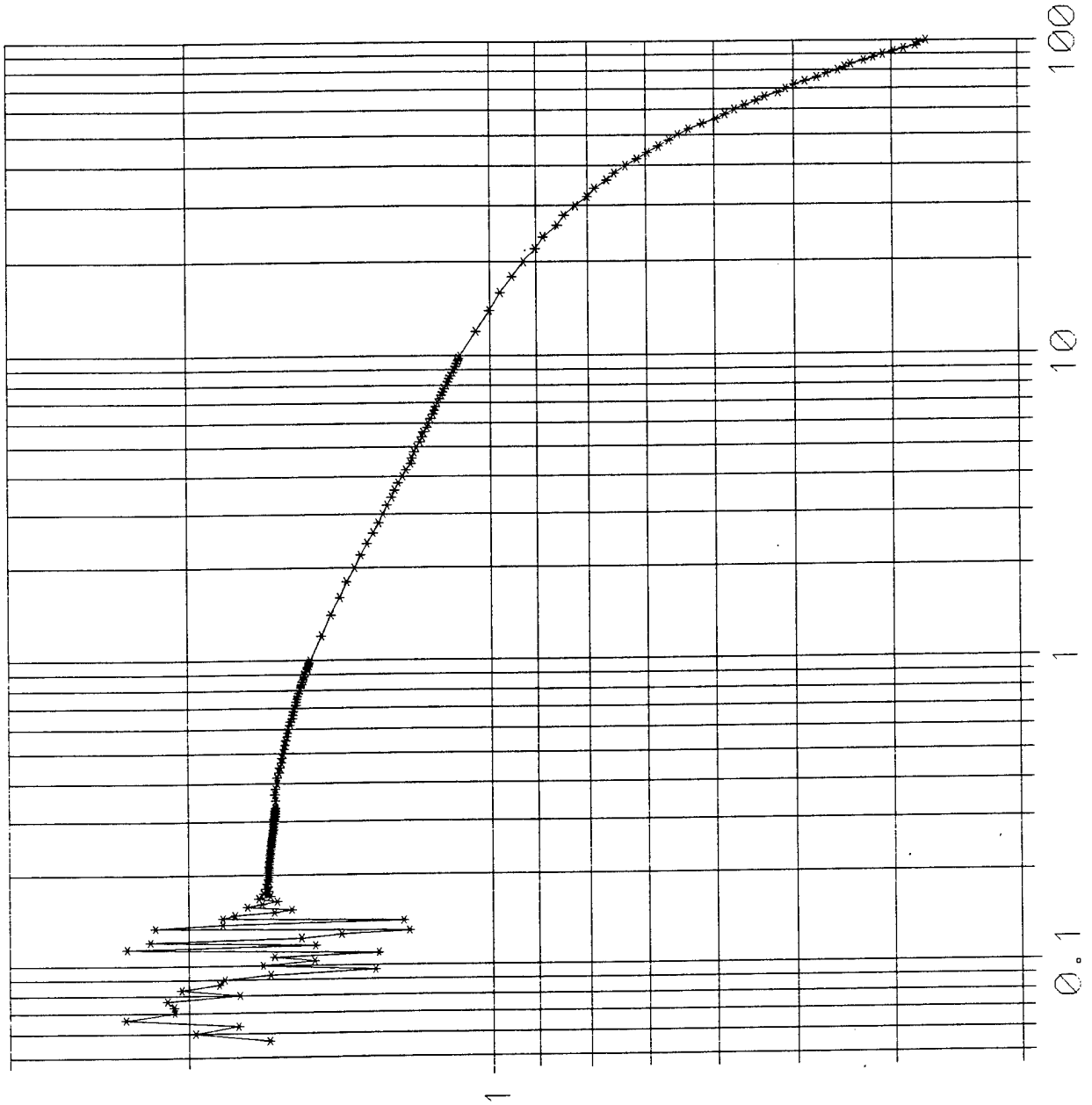
0	0
0.0033	-0.003
0.0066	-0.006
0.01	-0.006
0.0133	-0.009
0.0166	-0.009
0.02	-0.009
0.0233	-0.009
0.0266	-0.009
0.03	-0.012
0.0333	-0.012
0.0366	-0.012
0.04	-0.009
0.0433	0
0.0466	1.404
0.05	0.329
0.0533	1.271
0.0566	0.901
0.06	1.53
0.0633	1.609
0.0666	2.172
0.07	0.945
0.0733	2.745
0.0766	1.243
0.08	3.036
0.0833	1.432
0.0866	2.498
0.09	1.777
0.0933	2.242
0.0966	2.119
0.1	1.998
0.1033	2.093
0.1066	2.008
0.11	1.676
0.1133	2.087
0.1166	2.084
0.12	2.134
0.1233	1.973
0.1266	2.141
0.13	1.964
0.1333	1.954
0.1366	1.916
0.14	1.467
0.1433	2.248
0.1466	1.492
0.15	2.21
0.1533	1.214
0.1566	2.014
0.16	1.195
0.1633	2.514
0.1666	1.733
0.17	2.011
0.1733	1.764
0.1766	1.682
0.18	1.783
0.1833	2.036
0.1866	1.834
0.19	1.761
0.1933	1.85
0.1966	1.9
0.2	1.862
0.2033	1.796
0.2066	1.869
0.21	1.862
0.2133	1.837
0.2166	1.853
0.22	1.85
0.2233	1.85
0.2266	1.85
0.23	1.847
0.2333	1.847
0.2366	1.85
0.24	1.847
0.2433	1.847
0.2466	1.847
0.25	1.847

0.2533	1.847
0.2566	1.847
0.26	1.847
0.2633	1.847
0.2666	1.843
0.27	1.847
0.2733	1.843
0.2766	1.843
0.28	1.843
0.2833	1.843
0.2866	1.843
0.29	1.843
0.2933	1.843
0.2966	1.843
0.3	1.843
0.3033	1.84
0.3066	1.843
0.31	1.84
0.3133	1.84
0.3166	1.84
0.32	1.84
0.3233	1.84
0.3266	1.84
0.33	1.84
0.3333	1.84
0.35	1.843
0.3666	1.843
0.3833	1.843
0.4	1.84
0.4166	1.84
0.4333	1.84
0.45	1.837
0.4666	1.837
0.4833	1.834
0.5	1.834
0.5166	1.831
0.5333	1.831
0.55	1.828
0.5666	1.828
0.5833	1.825
0.6	1.825
0.6166	1.825
0.6333	1.821
0.65	1.821
0.6666	1.818
0.6833	1.815
0.7	1.815
0.7166	1.815
0.7333	1.812
0.75	1.812
0.7666	1.809
0.7833	1.809
0.8	1.806
0.8166	1.806
0.8333	1.806
0.85	1.802
0.8666	1.802
0.8833	1.799
0.9	1.799
0.9166	1.796
0.9333	1.796
0.95	1.793
0.9666	1.793
0.9833	1.793
1	1.79
1.2	1.771
1.4	1.752
1.6	1.736
1.8	1.72
2	1.707
2.2	1.692
2.4	1.676
2.6	1.663
2.8	1.651
3	1.635
3.2	1.622
3.4	1.613
3.6	1.603
3.8	1.597

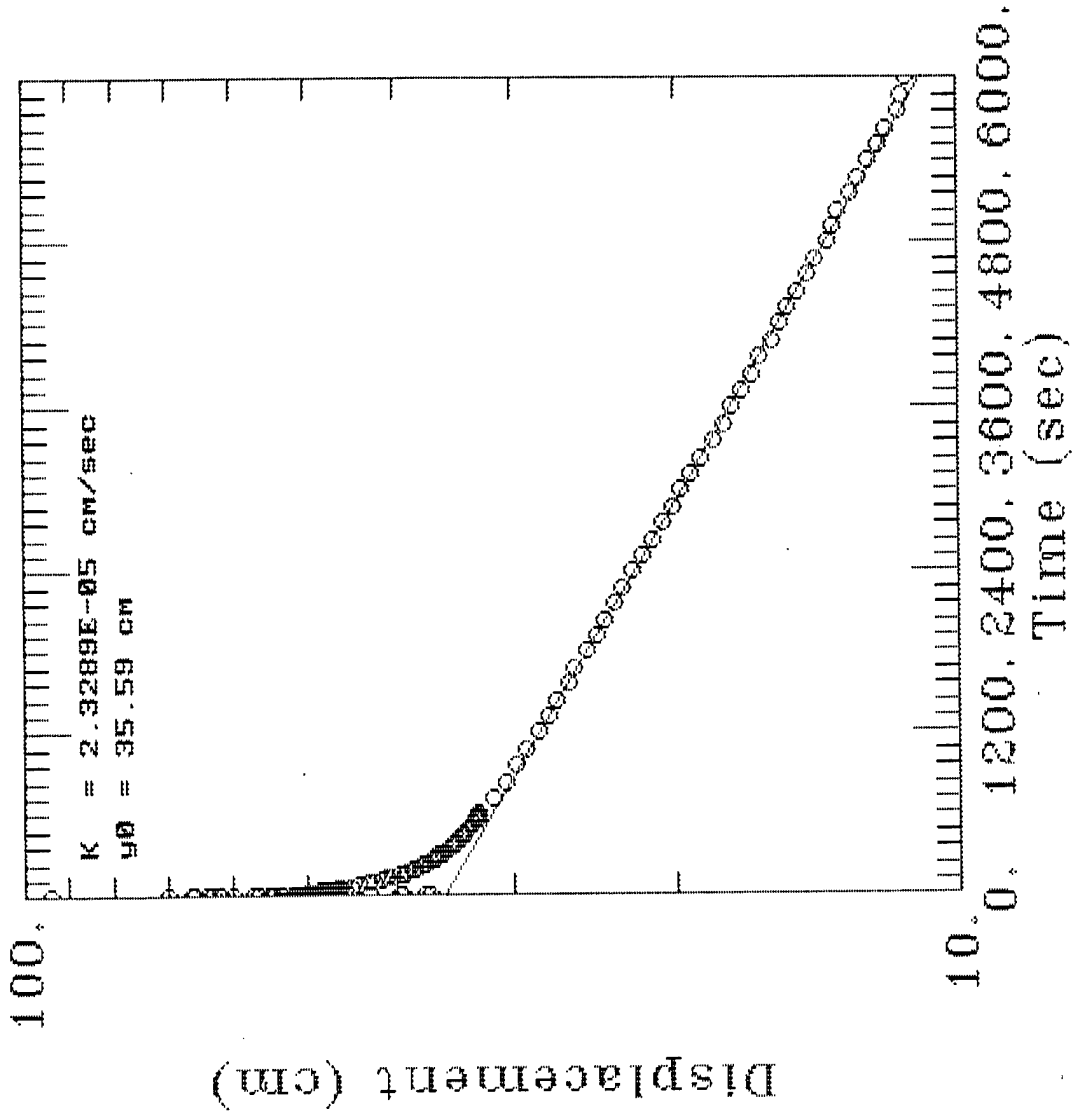
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4.2	1.584
4.4	1.581
4.6	1.575
4.8	1.568
5	1.565
5.2	1.559
5.4	1.553
5.6	1.549
5.8	1.543
6	1.54
6.2	1.537
6.4	1.533
6.6	1.53
6.8	1.53
7	1.527
7.2	1.524
7.4	1.521
7.6	1.521
7.8	1.518
8	1.515
8.2	1.511
8.4	1.508
8.6	1.508
8.8	1.505
9	1.502
9.2	1.499
9.4	1.499
9.6	1.496
9.8	1.492
10	1.492
12	1.467
14	1.445
16	1.423
18	1.401
20	1.379
22	1.36
24	1.337
26	1.315
28	1.296
30	1.277
32	1.258
34	1.236
36	1.217
38	1.198
40	1.179
42	1.16
44	1.145
46	1.125
48	1.107
50	1.091
52	1.075
54	1.059
56	1.04
58	1.024
60	1.009
62	0.996
64	0.98
66	0.964
68	0.952
70	0.936
72	0.923
74	0.91
76	0.898
78	0.885
80	0.872
82	0.86
84	0.847
86	0.838
88	0.825
90	0.816
92	0.803
94	0.79
96	0.781
98	0.768
100	0.759
120	0.661
140	0.578
160	0.506

180	0.446
200	0.395
220	0.363
<hr/>	
240	0.341
260	0.329
280	0.316
300	0.306
320	0.297
340	0.284
360	0.275
380	0.265
400	0.256
420	0.249
440	0.24
460	0.23
480	0.224
500	0.215
520	0.208
540	0.202
560	0.196
580	0.186
600	0.18
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620	0.174
640	0.167
660	0.161
680	0.155
700	0.148
720	0.142
740	0.139
760	0.132
780	0.126
800	0.12
820	0.117
840	0.11
860	0.107
880	0.101
900	0.098
920	0.094
940	0.088
960	0.085
980	0.085
1000	0.082

XJM-93-01X



XJM-93-01X FALLING HEAD TEST

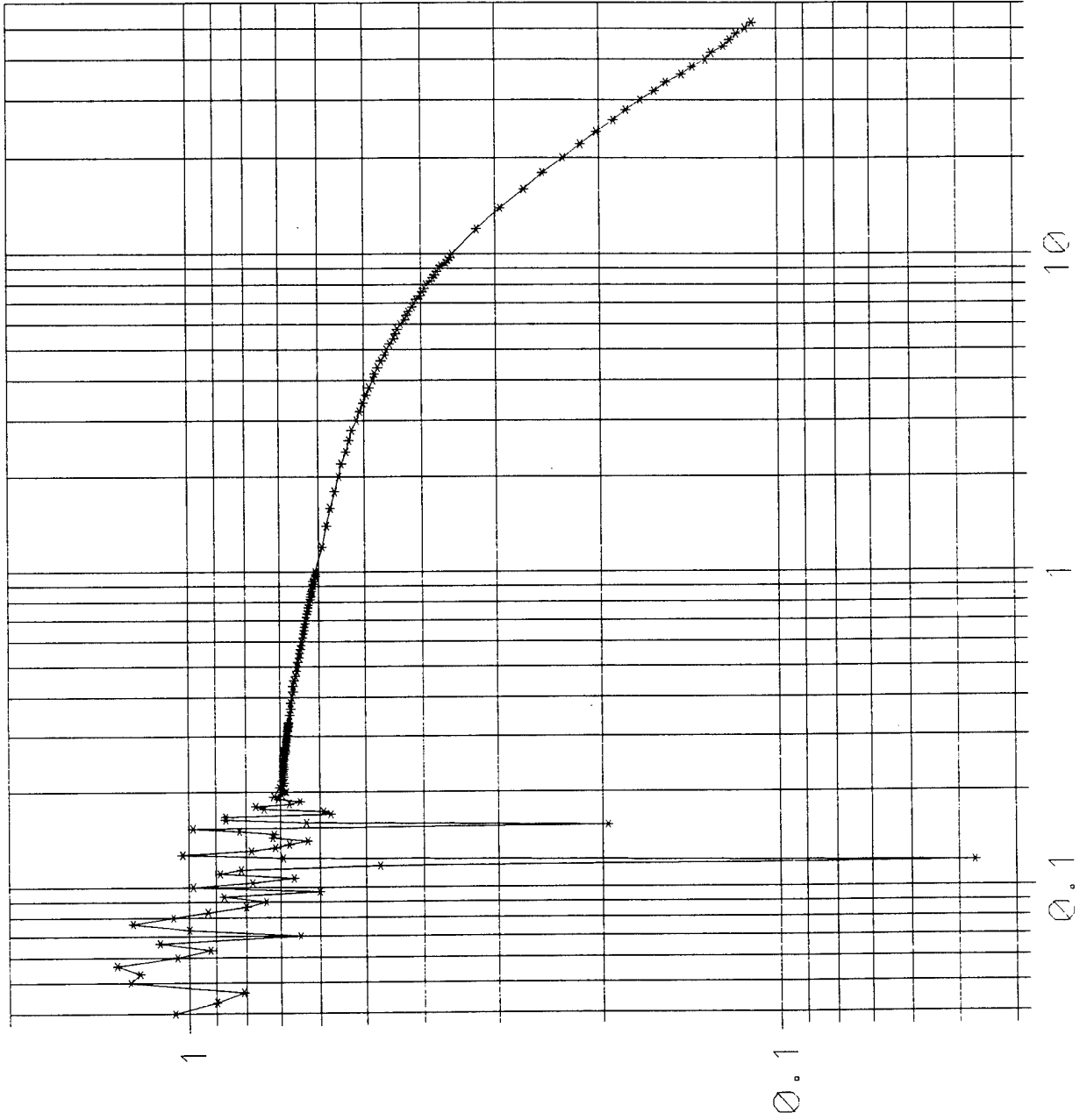


0	0.003
0.0033	0.003
0.0066	0.003
0.01	0.003
0.0133	0.003
0.0166	0.003
0.02	0.003
0.0233	0.003
0.0266	0
0.03	-0.003
0.0333	0.009
0.0366	0.006
0.04	0.468
0.0433	-0.24
0.0466	2.157
0.05	0.534
0.0533	3.067
0.0566	1.663
0.06	1.97
0.0633	1.786
0.0666	2.308
0.07	2.065
0.0733	2.068
0.0766	2.1
0.08	1.78
0.0833	2.033
0.0866	1.866
0.09	1.843
0.0933	1.66
0.0966	1.309
0.1	1.688
0.1033	1.502
0.1066	1.644
0.11	1.299
0.1133	2.302
0.1166	1.499
0.12	2.182
0.1233	1.546
0.1266	1.413
0.13	1.211
0.1333	2.157
0.1366	1.85
0.14	1.227
0.1433	1.85
0.1466	1.799
0.15	1.644
0.1533	1.581
0.1566	1.749
0.16	1.692
0.1633	1.635
0.1666	1.704
0.17	1.66
0.1733	1.685
0.1766	1.666
0.18	1.676
0.1833	1.669
0.1866	1.673
0.19	1.666
0.1933	1.669
0.1966	1.666
0.2	1.666
0.2033	1.666
0.2066	1.666
0.21	1.666
0.2133	1.663
0.2166	1.663
0.22	1.663
0.2233	1.663
0.2266	1.66
0.23	1.66
0.2333	1.66
0.2366	1.66
0.24	1.657
0.2433	1.657
0.2466	1.657
0.25	1.657

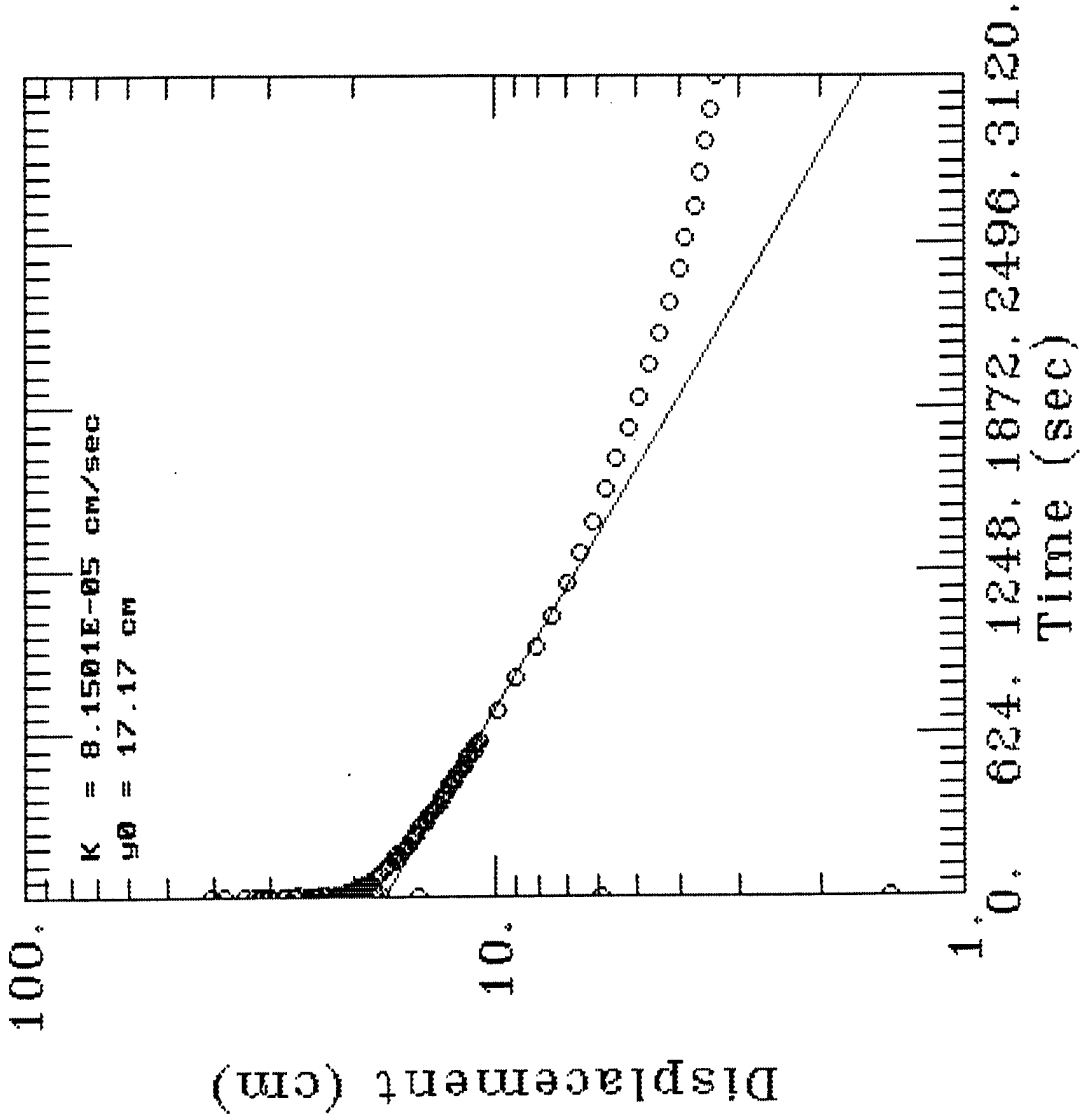
0.2533	1.654
0.2566	1.654
0.26	1.654
0.2633	1.654
0.2666	1.654
0.27	1.65
0.2733	1.65
0.2766	1.65
0.28	1.65
0.2833	1.647
0.2866	1.647
0.29	1.647
0.2933	1.647
0.2966	1.644
0.3	1.647
0.3033	1.644
0.3066	1.644
0.31	1.641
0.3133	1.641
0.3166	1.641
0.32	1.641
0.3233	1.641
0.3266	1.638
0.33	1.638
0.3333	1.638
0.35	1.638
0.3666	1.641
0.3833	1.638
0.4	1.632
0.4166	1.632
0.4333	1.625
0.45	1.622
0.4666	1.616
0.4833	1.613
0.5	1.609
0.5166	1.609
0.5333	1.603
0.55	1.6
0.5666	1.594
0.5833	1.594
0.6	1.59
0.6166	1.584
0.6333	1.584
0.65	1.575
0.6666	1.575
0.6833	1.571
0.7	1.568
0.7166	1.562
0.7333	1.562
0.75	1.559
0.7666	1.556
0.7833	1.552
0.8	1.549
0.8166	1.546
0.8333	1.543
0.85	1.54
0.8666	1.537
0.8833	1.533
0.9	1.533
0.9166	1.527
0.9333	1.521
0.95	1.521
0.9666	1.518
0.9833	1.514
1	1.511
1.2	1.473
1.4	1.442
1.6	1.413
1.8	1.391
2	1.366
2.2	1.347
2.4	1.328
2.6	1.309
2.8	1.293
3	1.28
3.2	1.268
3.4	1.255
3.6	1.246
3.8	1.236

4	1.224
4.2	1.214
4.4	1.201
4.6	1.198
4.8	1.192
5	1.186
5.2	1.176
5.4	1.17
5.6	1.167
5.8	1.157
6	1.154
6.2	1.148
6.4	1.141
6.6	1.138
6.8	1.135
7	1.129
7.2	1.125
7.4	1.119
7.6	1.116
7.8	1.113
8	1.106
8.2	1.103
8.4	1.1
8.6	1.097
8.8	1.091
9	1.088
9.2	1.084
9.4	1.081
9.6	1.078
9.8	1.075
10	1.072
12	1.034
14	1.002
16	0.977
18	0.951
<hr/>	
20	0.926
22	0.901
24	0.885
26	0.857
28	0.844
30	0.822
32	0.8
34	0.787
36	0.765
38	0.752
40	0.733
42	0.714
44	0.698
46	0.68
48	0.664
50	0.651
52	0.635
54	0.616
56	0.597
58	0.585
60	0.572
62	0.559
64	0.544
66	0.534
68	0.518
70	0.509
72	0.499
74	0.487
76	0.474
78	0.464
80	0.452
82	0.445
84	0.439
86	0.426
88	0.417
90	0.408
92	0.398
94	0.389
96	0.379
98	0.376
100	0.37

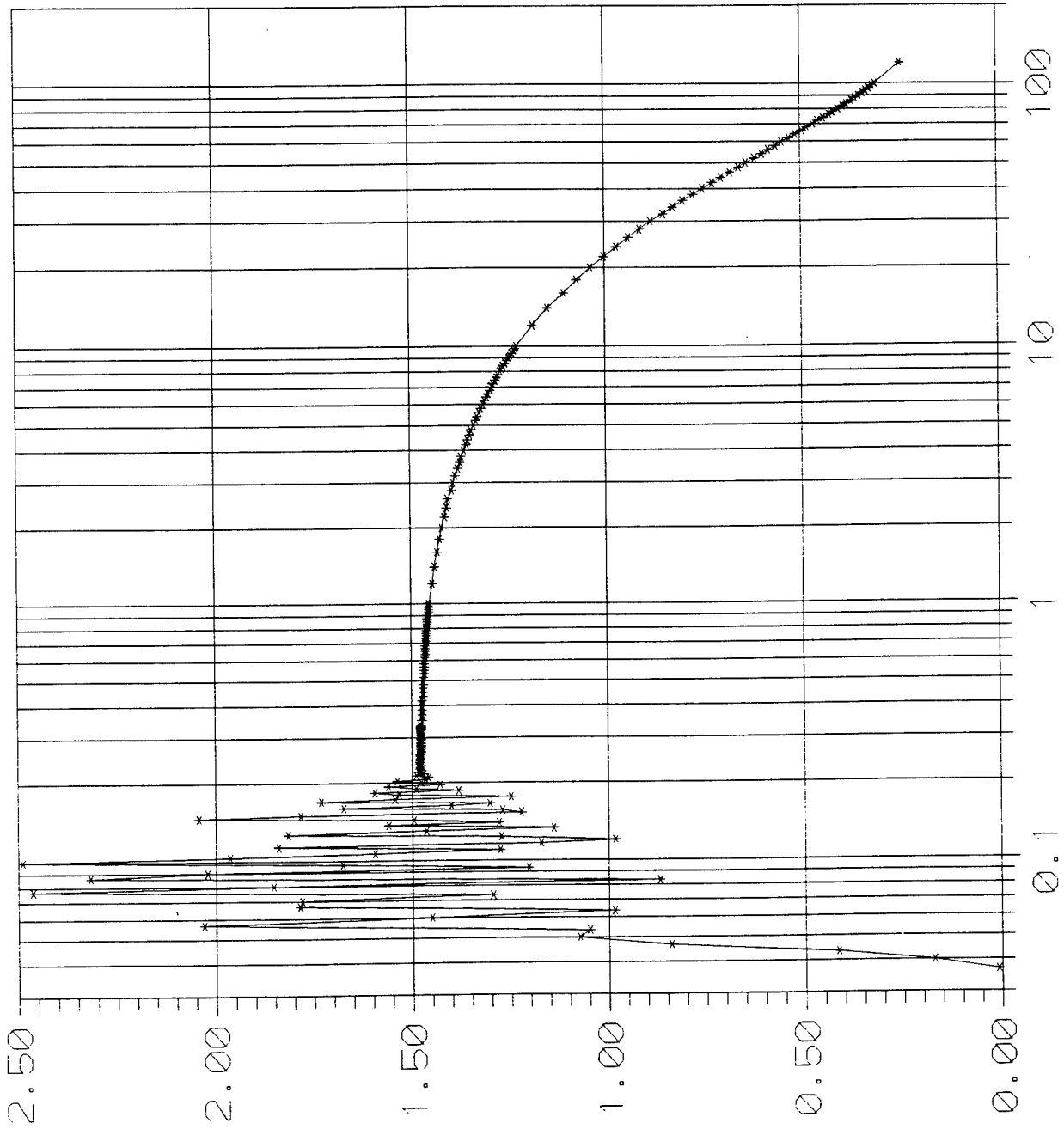
XJM-93-03X



XJM-93-03X FALLING HEAD TEST



XJM-93-04X

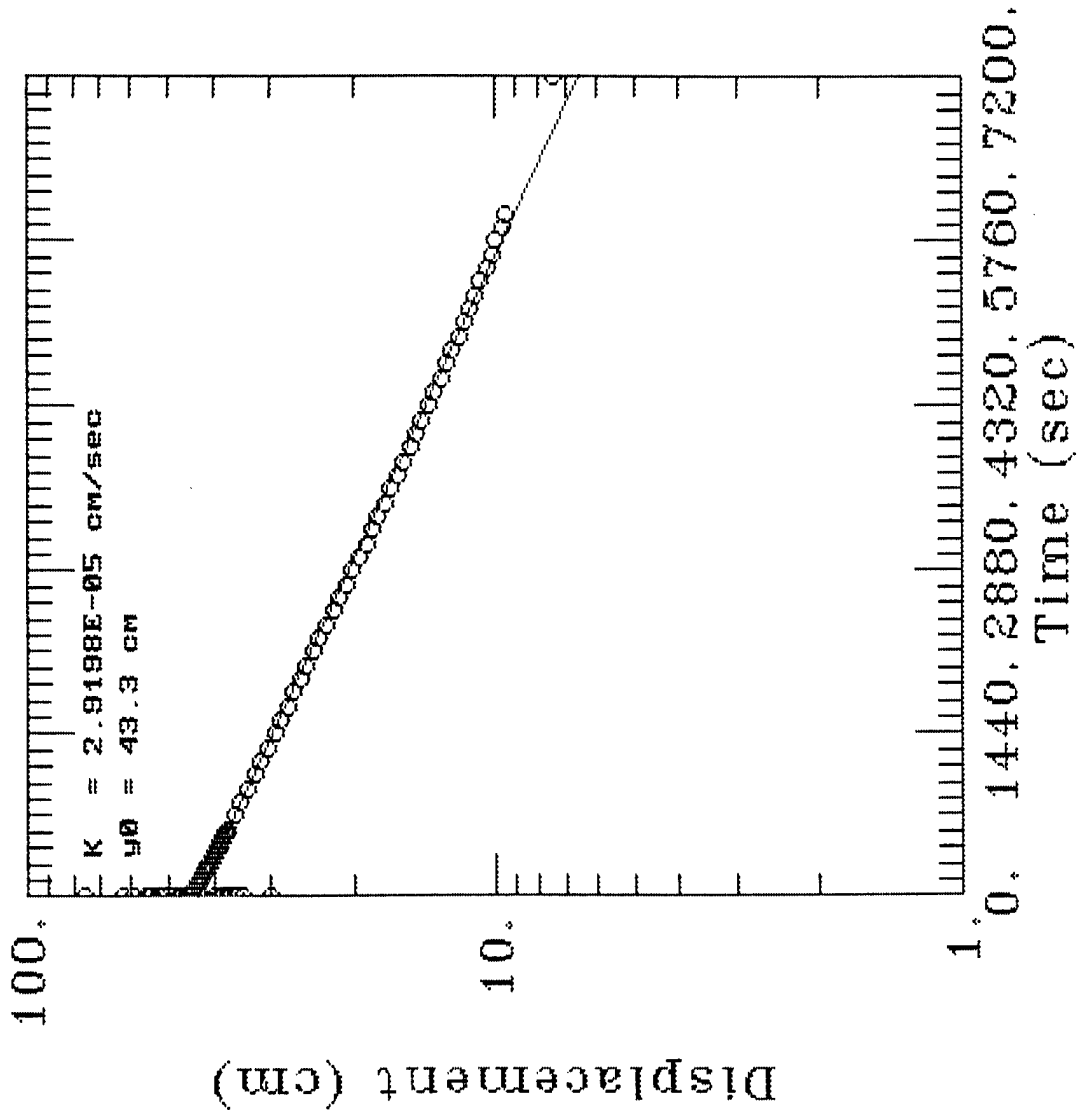


0	0
0.0033	0.003
0.0066	0.003
0.01	0.003
0.0133	0.003
0.0166	0.003
0.02	0.003
0.0233	0.003
0.0266	0.003
0.03	0
0.0333	0.009
0.0366	0.003
0.04	1.056
0.0433	0.898
0.0466	0.809
0.05	1.255
0.0533	1.208
0.0566	1.322
0.06	1.046
0.0633	0.92
0.0666	1.119
0.07	0.648
0.0733	0.999
0.0766	1.242
0.08	1.062
0.0833	0.929
0.0866	0.8
0.09	0.74
0.0933	0.872
0.0966	0.6
0.1	0.983
0.1033	0.781
0.1066	0.664
0.11	0.885
0.1133	0.816
0.1166	0.474
0.12	0.047
0.1233	0.692
0.1266	1.024
0.13	0.784
0.1333	0.714
0.1366	0.676
0.14	0.629
0.1433	0.721
0.1466	0.717
0.15	0.822
0.1533	0.983
0.1566	0.196
0.16	0.632
0.1633	0.866
0.1666	0.866
0.17	0.575
0.1733	0.591
0.1766	0.746
0.18	0.771
0.1833	0.676
0.1866	0.648
0.19	0.705
0.1933	0.717
0.1966	0.695
0.2	0.683
0.2033	0.695
0.2066	0.702
0.21	0.692
0.2133	0.689
0.2166	0.695
0.22	0.692
0.2233	0.692
0.2266	0.692
0.23	0.692
0.2333	0.692
0.2366	0.689
0.24	0.689
0.2433	0.689
0.2466	0.689
0.25	0.689

0.2533	0.689
0.2566	0.689
0.26	0.689
0.2633	0.686
0.2666	0.686
0.27	0.686
0.2733	0.686
0.2766	0.686
0.28	0.683
0.2833	0.683
0.2866	0.683
0.29	0.683
0.2933	0.683
0.2966	0.683
0.3	0.68
0.3033	0.68
0.3066	0.68
0.31	0.68
0.3133	0.68
0.3166	0.68
0.32	0.68
0.3233	0.676
0.3266	0.676
0.33	0.676
0.3333	0.676
0.35	0.673
0.3666	0.67
0.3833	0.67
0.4	0.667
0.4166	0.664
0.4333	0.664
0.45	0.661
0.4666	0.657
0.4833	0.654
0.5	0.654
0.5166	0.651
0.5333	0.648
0.55	0.648
0.5666	0.645
0.5833	0.642
0.6	0.642
0.6166	0.638
0.6333	0.638
0.65	0.635
0.6666	0.635
0.6833	0.632
0.7	0.632
0.7166	0.629
0.7333	0.629
0.75	0.626
0.7666	0.626
0.7833	0.623
0.8	0.623
0.8166	0.619
0.8333	0.619
0.85	0.619
0.8666	0.616
0.8833	0.616
0.9	0.613
0.9166	0.613
0.9333	0.613
0.95	0.61
0.9666	0.607
0.9833	0.607
1	0.607
1.2	0.591
1.4	0.581
1.6	0.572
1.8	0.562
2	0.553
2.2	0.547
2.4	0.537
2.6	0.531
2.8	0.525
3	0.515
3.2	0.509
3.4	0.502
3.6	0.496
3.8	0.49

4	0.483
4.2	0.48
4.4	0.474
4.6	0.468
4.8	0.461
5	0.458
5.2	0.452
5.4	0.445
5.6	0.442
5.8	0.439
6	0.433
6.2	0.426
6.4	0.423
6.6	0.42
6.8	0.414
7	0.411
7.2	0.408
7.4	0.401
7.6	0.398
7.8	0.395
8	0.392
8.2	0.385
8.4	0.382
8.6	0.379
8.8	0.376
9	0.373
9.2	0.37
9.4	0.363
9.6	0.36
9.8	0.357
10	0.354
12	0.322
14	0.294
16	0.268
18	0.249
20	0.23
22	0.215
24	0.202
26	0.189
28	0.18
30	0.17
32	0.161
34	0.154
36	0.145
38	0.139
40	0.132
42	0.129
44	0.123
46	0.12
48	0.117
50	0.113
52	0.11

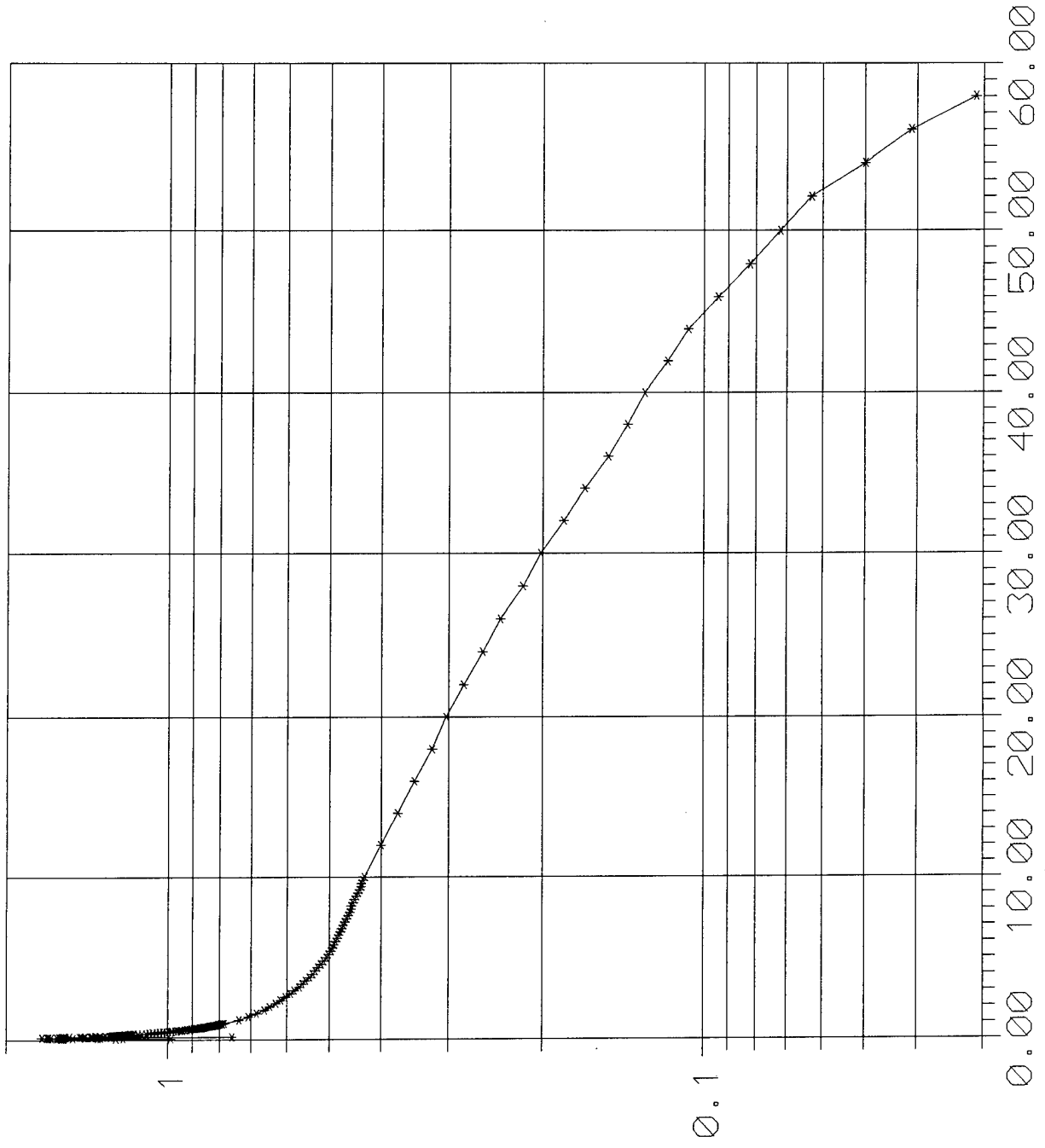
XJM-93-04X FALLING HEAD TEST



0	0
0.0033	0
0.0066	0
0.01	0
0.0133	0.003
0.0166	0
0.02	0.003
0.0233	0
0.0266	0
0.03	0.003
0.0333	0.009
0.0366	0.009
0.04	0.173
0.0433	0.417
0.0466	0.841
0.05	1.075
0.0533	1.05
0.0566	2.03
0.06	1.451
0.0633	0.986
0.0666	1.786
0.07	1.78
0.0733	1.296
0.0766	2.463
0.08	1.853
0.0833	0.869
0.0866	2.318
0.09	2.021
0.0933	1.205
0.0966	1.676
0.1	2.489
0.1033	1.964
0.1066	1.594
0.11	1.277
0.1133	1.84
0.1166	1.173
0.12	0.983
0.1233	1.274
0.1266	1.815
0.13	1.464
0.1333	1.141
0.1366	1.559
0.14	1.28
0.1433	1.496
0.1466	2.043
0.15	1.783
0.1533	1.223
0.1566	1.271
0.16	1.673
0.1633	1.401
0.1666	1.303
0.17	1.73
0.1733	1.543
0.1766	1.249
0.18	1.533
0.1833	1.594
0.1866	1.382
0.19	1.489
0.1933	1.559
0.1966	1.429
0.2	1.477
0.2033	1.537
0.2066	1.467
0.21	1.458
0.2133	1.489
0.2166	1.47
0.22	1.483
0.2233	1.477
0.2266	1.48
0.23	1.48
0.2333	1.477
0.2366	1.48
0.24	1.48
0.2433	1.48
0.2466	1.48
0.25	1.477

4	1.363
4.2	1.356
4.4	1.353
4.6	1.347
4.8	1.344
5	1.337
5.2	1.331
5.4	1.328
5.6	1.322
5.8	1.318
6	1.312
6.2	1.309
6.4	1.303
6.6	1.299
6.8	1.293
7	1.29
7.2	1.287
7.4	1.28
7.6	1.277
7.8	1.274
8	1.268
8.2	1.265
8.4	1.261
8.6	1.255
8.8	1.252
9	1.246
9.2	1.242
9.4	1.239
9.6	1.233
9.8	1.23
10	1.227
12	1.186
14	1.148
16	1.106
18	1.072
20	1.037
22	1.002
24	0.97
26	0.939
28	0.91
30	0.882
32	0.85
34	0.825
36	0.8
38	0.774
40	0.749
42	0.724
44	0.702
46	0.679
48	0.657
50	0.638
52	0.616
54	0.597
56	0.581
58	0.562
60	0.547
62	0.528
64	0.512
66	0.496
68	0.483
70	0.468
72	0.455
74	0.442
76	0.426
78	0.417
80	0.404
82	0.392
84	0.382
86	0.37
88	0.36
90	0.351
92	0.341
94	0.332
96	0.325
98	0.316
100	0.309
120	0.246

XNM-93-01X



0.2533	1.48
0.2566	1.48
0.26	1.477
0.2633	1.477
0.2666	1.477
0.27	1.477
0.2733	1.477
0.2766	1.477
0.28	1.477
0.2833	1.477
0.2866	1.477
0.29	1.477
0.2933	1.477
0.2966	1.477
0.3	1.477
0.3033	1.477
0.3066	1.477
0.31	1.477
0.3133	1.477
0.3166	1.477
0.32	1.477
0.3233	1.477
0.3266	1.477
0.33	1.477
0.3333	1.477
0.35	1.473
0.3666	1.473
0.3833	1.473
0.4	1.473
0.4166	1.473
0.4333	1.47
0.45	1.47
0.4666	1.47
0.4833	1.47
0.5	1.47
0.5166	1.467
0.5333	1.467
0.55	1.467
0.5666	1.467
0.5833	1.467
0.6	1.467
0.6166	1.464
0.6333	1.464
0.65	1.464
0.6666	1.464
0.6833	1.464
0.7	1.464
0.7166	1.461
0.7333	1.461
0.75	1.461
0.7666	1.461
0.7833	1.461
0.8	1.461
0.8166	1.458
0.8333	1.458
0.85	1.458
0.8666	1.458
0.8833	1.458
0.9	1.458
0.9166	1.454
0.9333	1.454
0.95	1.454
0.9666	1.454
0.9833	1.454
1	1.454
1.2	1.445
1.4	1.439
1.6	1.432
1.8	1.426
2	1.42
2.2	1.413
2.4	1.407
2.6	1.404
2.8	1.394
3	1.391
3.2	1.385
3.4	1.378
3.6	1.372
3.8	1.369

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. C5

SETUP	DATE	BY WHOM
MONITORING WELL ID	XNM-93-01X	R. RUSTAD
DATE OF TEST	10-19-93	
TYPE OF TEST	FALLING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEL 5 / 10F1	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DC	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	SUR	
STATIC WATER LEVEL (FT./TOC)	16.04 (PVC)	
WELL DEPTH (FT./TOC)	25.15 (PVC)	
XD DEPTH (FT./TOC)	24.00 (PVC)	
INITIAL XD REFERENCE	8.28 / 0.00	
SLUG DEPTH (FT./TOC)	20.00 (PVC)	
TIME OF SLUG PLACEMENT	0928	
TIME OF WL EQUILIBRATION	—	
NEW XD REFERENCE	—	
START TIME OF TEST	0928	
END TIME OF TEST	1026	
NOTES:	3' x 3" SLUG	

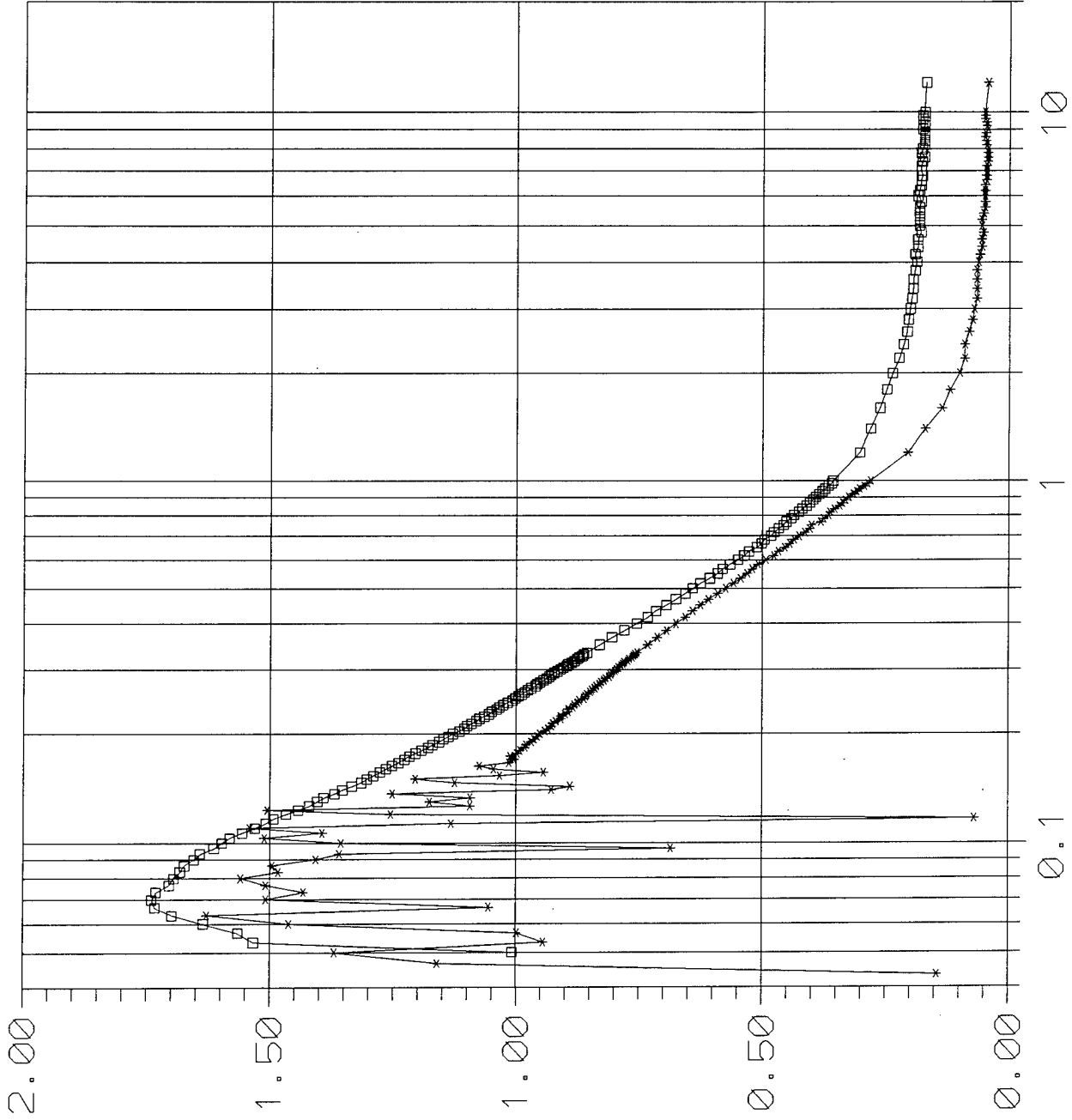
FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

0	0.003
0.0033	0.003
0.0066	0.003
0.01	0.003
0.0133	0.003
0.0166	0.003
0.02	0.003
0.0233	0.003
0.0266	0.003
0.03	0.003
0.0333	0.003
0.0366	0.003
0.04	0.003
0.0433	0.003
0.0466	0.003
0.05	0.006
0.0533	0.003
0.0566	0.006
0.06	0.003
0.0633	0.003
0.0666	0.006
0.07	0.006
0.0733	0.411
0.0766	0.487
0.08	0.986
0.0833	1.559
0.0866	1.578
0.09	1.211
0.0933	1.249
0.0966	1.35
0.1	1.571
0.1033	1.603
0.1066	1.502
0.11	1.334
0.1133	1.568
0.1166	1.647
0.12	1.663
0.1233	1.609
0.1266	1.714
0.13	1.587
0.1333	1.594
0.1366	1.669
0.14	1.679
0.1433	1.429
0.1466	1.559
0.15	1.575
0.1533	1.594
0.1566	1.546
0.16	1.432
0.1633	1.28
0.1666	1.318
0.17	1.385
0.1733	1.391
0.1766	1.458
0.18	1.378
0.1833	0.759
0.1866	1.388
0.19	1.524
0.1933	1.423
0.1966	1.366
0.2	1.359
0.2033	1.337
0.2066	1.132
0.21	1.382
0.2133	1.448
0.2166	1.274
0.22	1.233
0.2233	1.363
0.2266	1.334
0.23	1.255
0.2333	1.287
0.2366	1.306
0.24	1.274
0.2433	1.271
0.2466	1.268
0.25	1.265

0.2533	1.258
0.2566	1.255
0.26	1.249
0.2633	1.246
0.2666	1.239
0.27	1.236
0.2733	1.23
0.2766	1.227
0.28	1.224
0.2833	1.217
0.2866	1.214
0.29	1.208
0.2933	1.205
0.2966	1.201
0.3	1.198
0.3033	1.192
0.3066	1.189
0.31	1.182
0.3133	1.179
0.3166	1.176
0.32	1.173
0.3233	1.17
0.3266	1.163
0.33	1.16
0.3333	1.157
0.35	1.135
0.3666	1.116
0.3833	1.097
0.4	1.081
0.4166	1.065
0.4333	1.05
0.45	1.034
0.4666	1.021
0.4833	1.005
0.5	0.996
0.5166	0.983
0.5333	0.97
0.55	0.961
0.5666	0.948
0.5833	0.939
0.6	0.929
0.6166	0.92
0.6333	0.91
0.65	0.904
0.6666	0.895
0.6833	0.888
0.7	0.882
0.7166	0.872
0.7333	0.866
0.75	0.86
0.7666	0.853
0.7833	0.847
0.8	0.841
0.8166	0.834
0.8333	0.831
0.85	0.825
0.8666	0.822
0.8833	0.816
0.9	0.812
0.9166	0.806
0.9333	0.803
0.95	0.797
0.9666	0.793
0.9833	0.79
1	0.784
1.2	0.736
1.4	0.708
1.6	0.683
1.8	0.661
2	0.645
2.2	0.629
2.4	0.616
2.6	0.604
2.8	0.591
3	0.581
3.2	0.569
3.4	0.562
3.6	0.553
3.8	0.544

4	0.537
4.2	0.531
4.4	0.525
4.6	0.518
4.8	0.512
5	0.506
5.2	0.502
5.4	0.496
5.6	0.493
5.8	0.49
6	0.487
6.2	0.483
6.4	0.48
6.6	0.477
6.8	0.474
7	0.471
7.2	0.468
7.4	0.464
7.6	0.461
7.8	0.458
8	0.455
8.2	0.455
8.4	0.452
8.6	0.449
8.8	0.445
9	0.442
9.2	0.439
9.4	0.436
9.6	0.436
9.8	0.433
10	0.43
12	0.401
14	0.373
16	0.347
18	0.322
20	0.303
22	0.281
24	0.259
26	0.24
28	0.218
30	0.202
32	0.183
34	0.167
36	0.151
38	0.139
40	0.129
42	0.117
44	0.107
46	0.094
48	0.082
50	0.072
52	0.063
54	0.05
56	0.041
58	0.031

XNM-93-02X



TEST #1
TEST #2

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 00

SETUP	DATE	BY WHOM
MONITORING WELL ID	XNA1-93-02X	R. RUSTAD
DATE OF TEST	10.18.93	
TYPE OF TEST	FALLING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / KCO1732	
TEST #	SEL 0 / 1 OF 2	
DATA COLLECTION RATE	LOG	
TRANSDUCER		
SERIAL #	2046DE	
PSIG	10 PSI	
SCALE FACTOR	16.001	
OFFSET	- 0.034	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	SUR	
STATIC WATER LEVEL (FT./TOC)	17.46' (PVC)	
WELL DEPTH (FT./TOC)	26.70' (PVC)	
XD DEPTH (FT./TOC)	25.00 (PVC)	
INITIAL XD REFERENCE	0.00 (8.15)	
SLUG DEPTH (FT./TOC)	21.00 (PVC)	
TIME OF SLUG PLACEMENT	1156	
TIME OF WL EQUILIBRATION	-	
NEW XD REFERENCE	0.04 (END TEST)	
START TIME OF TEST	1156	
END TIME OF TEST	1210	
NOTES:	3' x 3" BAR STOCK PVC	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 01

SETUP	DATE	BY WHOM
MONITORING WELL ID	XNM-93-02X	R. RUSTAD
DATE OF TEST	10-18-93	
TYPE OF TEST	Rising Head	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEL 1 / 2 OF 2	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.034	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	17.46 (PSC)	
WELL DEPTH (FT./TOC)	26.70 (PSC)	
XD DEPTH (FT./TOC)	25.00 (PSC)	
INITIAL XD REFERENCE	0.00 (8.20)	
SLUG DEPTH (FT./TOC)	21.00	
TIME OF SLUG PLACEMENT	1215	
TIME OF WL EQUILIBRATION	1220	
NEW XD REFERENCE	0.00 (8.20)	
START TIME OF TEST	1218	
END TIME OF TEST	1230	
NOTES: 3' x 3" BAR	Stork PSC	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

0	0.006	0	0.132
0.0033	0.006	0.0033	0.132
0.0066	0.009	0.0066	0.132
0.01	0.006	0.01	0.132
0.0133	0.006	0.0133	0.129
0.0166	0.006	0.0166	0.132
0.02	0.006	0.02	0.132
0.0233	0.012	0.0233	0.211
0.0266	0.047	0.0266	0.654
0.03	-0.401	0.03	0.765
0.0333	0.253	0.0333	0.531
0.0366	0.762	0.0366	1.967
0.04	1.543	0.04	2.16
0.0433	0.145	0.0433	0.167
0.0466	1.16	0.0466	-1.072
0.05	1.369	0.05	1.008
0.0533	0.945	0.0533	1.533
0.0566	0.999	0.0566	1.565
0.06	1.461	0.06	1.635
0.0633	1.628	0.0633	1.698
0.0666	1.056	0.0666	1.733
0.07	1.508	0.07	1.739
0.0733	1.432	0.0733	1.73
0.0766	1.508	0.0766	1.704
0.08	1.559	0.08	1.695
0.0833	1.483	0.0833	1.682
0.0866	1.495	0.0866	1.673
0.09	1.407	0.09	1.654
0.0933	1.359	0.0933	1.641
0.0966	0.686	0.0966	1.613
0.1	1.356	0.1	1.597
0.1033	1.511	0.1033	1.581
0.1066	1.394	0.1066	1.556
0.11	1.54	0.11	1.53
0.1133	1.132	0.1133	1.508
0.1166	0.069	0.1166	1.492
0.12	1.255	0.12	1.467
0.1233	1.505	0.1233	1.442
0.1266	1.094	0.1266	1.42
0.13	1.176	0.13	1.404
0.1333	1.094	0.1333	1.391
0.1366	1.252	0.1366	1.369
0.14	0.929	0.14	1.353
0.1433	0.891	0.1433	1.334
0.1466	1.125	0.1466	1.315
0.15	1.205	0.15	1.303
0.1533	1.034	0.1533	1.29
0.1566	0.945	0.1566	1.277
0.16	1.046	0.16	1.265
0.1633	1.075	0.1633	1.252
0.1666	1.015	0.1666	1.239
0.17	1.005	0.17	1.227
0.1733	1.012	0.1733	1.217
0.1766	0.999	0.1766	1.205
0.18	0.993	0.18	1.192
0.1833	0.983	0.1833	1.179
0.1866	0.98	0.1866	1.17
0.19	0.97	0.19	1.157
0.1933	0.964	0.1933	1.148
0.1966	0.958	0.1966	1.138
0.2	0.962	0.2	1.129
0.2033	0.942	0.2033	1.116
0.2066	0.936	0.2066	1.106
0.21	0.929	0.21	1.1
0.2133	0.926	0.2133	1.091
0.2166	0.92	0.2166	1.081
0.22	0.91	0.22	1.075
0.2233	0.91	0.2233	1.065
0.2266	0.901	0.2266	1.056
0.23	0.895	0.23	1.05
0.2333	0.895	0.2333	1.04
0.2366	0.885	0.2366	1.034
0.24	0.882	0.24	1.027
0.2433	0.876	0.2433	1.018
0.2466	0.872	0.2466	1.008
0.25	0.863	0.25	1.002

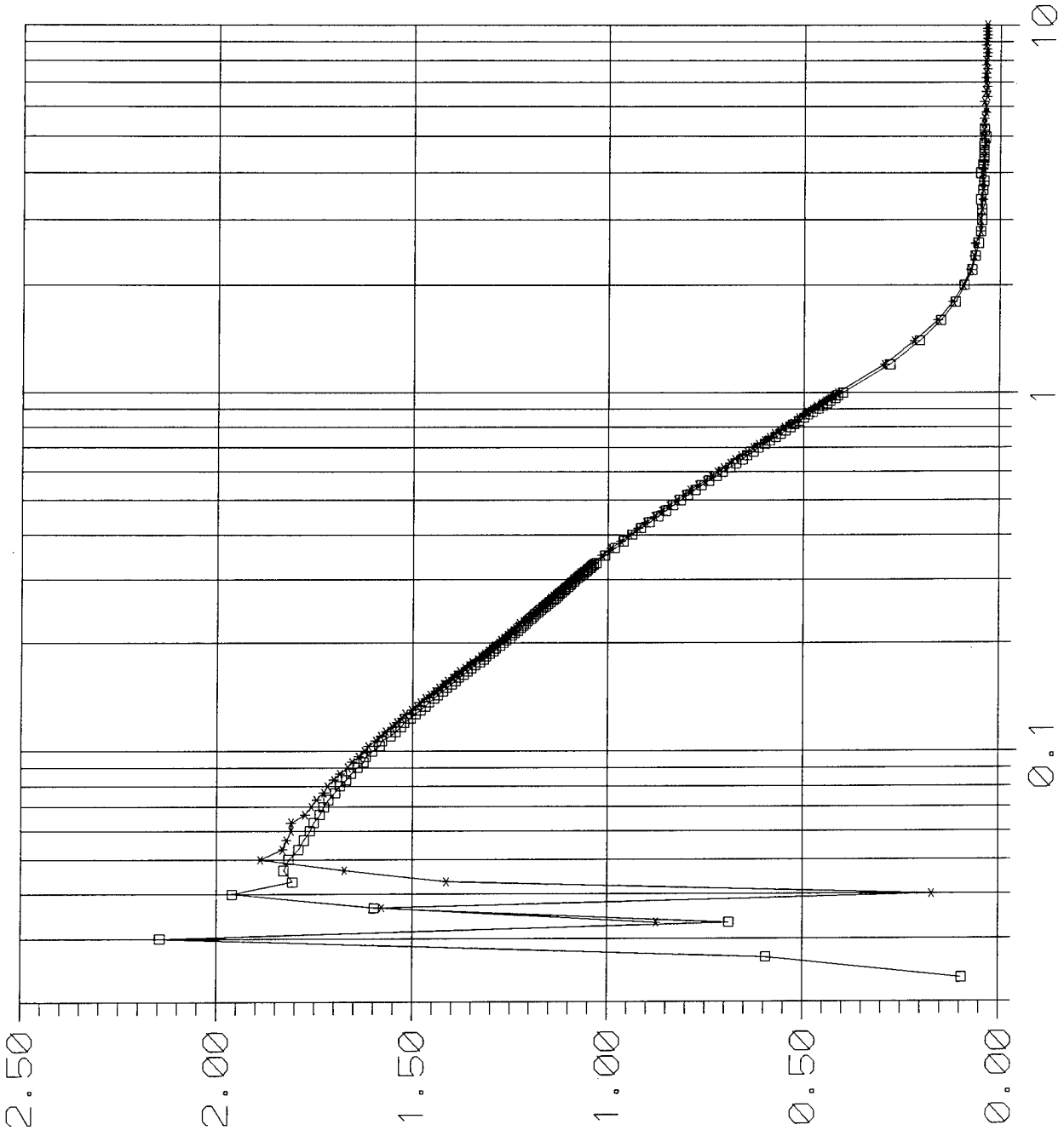
0.2533	0.86
0.2566	0.857
0.26	0.85
0.2633	0.847
0.2666	0.841
0.27	0.838
0.2733	0.831
0.2766	0.828
0.28	0.822
0.2833	0.819
0.2866	0.812
0.29	0.809
0.2933	0.806
0.2966	0.8
0.3	0.797
0.3033	0.793
0.3066	0.787
0.31	0.784
0.3133	0.781
0.3166	0.774
0.32	0.771
0.3233	0.765
0.3266	0.762
0.33	0.759
0.3333	0.755
0.35	0.733
0.3666	0.714
0.3833	0.695
0.4	0.676
0.4166	0.657
0.4333	0.642
0.45	0.626
0.4666	0.61
0.4833	0.591
0.5	0.575
0.5166	0.559
0.5333	0.544
0.55	0.531
0.5666	0.521
0.5833	0.509
0.6	0.493
0.6166	0.477
0.6333	0.468
0.65	0.455
0.6666	0.445
0.6833	0.436
0.7	0.426
0.7166	0.414
0.7333	0.404
0.75	0.401
0.7666	0.382
0.7833	0.376
0.8	0.366
0.8166	0.363
0.8333	0.354
0.85	0.344
0.8666	0.338
0.8833	0.332
0.9	0.325
0.9166	0.316
0.9333	0.309
0.95	0.303
0.9666	0.294
0.9833	0.287
1	0.281
1.2	0.205
1.4	0.17
1.6	0.136
1.8	0.12
2	0.101
2.2	0.091
2.4	0.091
2.6	0.082
2.8	0.075
3	0.072
3.2	0.066
3.4	0.066
3.6	0.066
3.8	0.066

0.2533	0.996
0.2566	0.989
0.26	0.983
0.2633	0.977
0.2666	0.97
0.27	0.961
0.2733	0.958
0.2766	0.952
0.28	0.945
0.2833	0.939
0.2866	0.933
0.29	0.929
0.2933	0.923
0.2966	0.917
0.3	0.91
0.3033	0.904
0.3066	0.898
0.31	0.895
0.3133	0.888
0.3166	0.882
0.32	0.876
0.3233	0.872
0.3266	0.866
0.33	0.863
0.3333	0.857
0.35	0.831
0.3666	0.806
0.3833	0.781
0.4	0.755
0.4166	0.733
0.4333	0.717
0.45	0.695
0.4666	0.676
0.4833	0.657
0.5	0.642
0.5166	0.626
0.5333	0.607
0.55	0.591
0.5666	0.581
0.5833	0.566
0.6	0.55
0.6166	0.537
0.6333	0.528
0.65	0.512
0.6666	0.502
0.6833	0.496
0.7	0.483
0.7166	0.477
0.7333	0.468
0.75	0.458
0.7666	0.452
0.7833	0.442
0.8	0.436
0.8166	0.426
0.8333	0.42
0.85	0.411
0.8666	0.404
0.8833	0.398
0.9	0.392
0.9166	0.385
0.9333	0.379
0.95	0.373
0.9666	0.366
0.9833	0.36
1	0.357
1.2	0.303
1.4	0.281
1.6	0.262
1.8	0.249
2	0.237
2.2	0.224
2.4	0.215
2.6	0.208
2.8	0.205
3	0.202
3.2	0.199
3.4	0.196
3.6	0.196
3.8	0.192

4	0.063
4.2	0.06
4.4	0.056
4.6	0.056
4.8	0.053
5	0.056
5.2	0.056
5.4	0.053
5.6	0.05
5.8	0.05
6	0.05
6.2	0.05
6.4	0.05
6.6	0.047
6.8	0.047
7	0.047
7.2	0.047
7.4	0.044
7.6	0.044
7.8	0.044
8	0.044
8.2	0.047
8.4	0.047
8.6	0.05
8.8	0.05
9	0.044
9.2	0.047
9.4	0.047
9.6	0.05
9.8	0.05
10	0.05
12	0.044

4	0.189
4.2	0.192
4.4	0.186
4.6	0.186
4.8	0.18
5	0.183
5.2	0.183
5.4	0.183
5.6	0.183
5.8	0.18
6	0.186
6.2	0.183
6.4	0.18
6.6	0.18
6.8	0.177
7	0.18
7.2	0.18
7.4	0.177
7.6	0.173
7.8	0.18
8	0.177
8.2	0.173
8.4	0.173
8.6	0.173
8.8	0.173
9	0.177
9.2	0.173
9.4	0.173
9.6	0.177
9.8	0.177
10	0.173
12	0.17

XNM-93-03X



TEST #1
TEST #2

0851226

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 02

SETUP	DATE	BY WHOM
MONITORING WELL ID	XNM-93-03x	R. RUSTAD
DATE OF TEST	10-18-93	
TYPE OF TEST	Rising Head	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEL 2 / 10F 2	
DATA COLLECTION RATE	100	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.034	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	22.66 (PVC)	
WELL DEPTH (FT./TOC)	17.12 (PVC)	
XD DEPTH (FT./TOC)	21.00	
INITIAL XD REFERENCE	0.00 (4.88)	
SLUG DEPTH (FT./TOC)	20.00	
TIME OF SLUG PLACEMENT	1240	
TIME OF WL EQUILIBRATION	1247	
NEW XD REFERENCE	0.00 (4.92)	
START TIME OF TEST	1248	
END TIME OF TEST	1300 (0.02)	
NOTES:	3' x 3" SLUG	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 03

SETUP	DATE	BY WHOM
MONITORING WELL ID	XNM-93-03X	R. RUSTAD
DATE OF TEST	10.18.93	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C/1K001732	
TEST #	SEC 3 / 2 OF 2	
DATA COLLECTION RATE	LOG	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.034	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	22.66	
WELL DEPTH (FT./TOC)	17.12	
XD DEPTH (FT./TOC)	21.00	
INITIAL XD REFERENCE	0.00 (4.89)	
SLUG DEPTH (FT./TOC)	20.00	
TIME OF SLUG PLACEMENT	1301	
TIME OF WL EQUILIBRATION	1305	
NEW XD REFERENCE	0.00 (4.89)	
START TIME OF TEST	1306	
END TIME OF TEST	1311	
NOTES:	3' x 3" SLUG	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

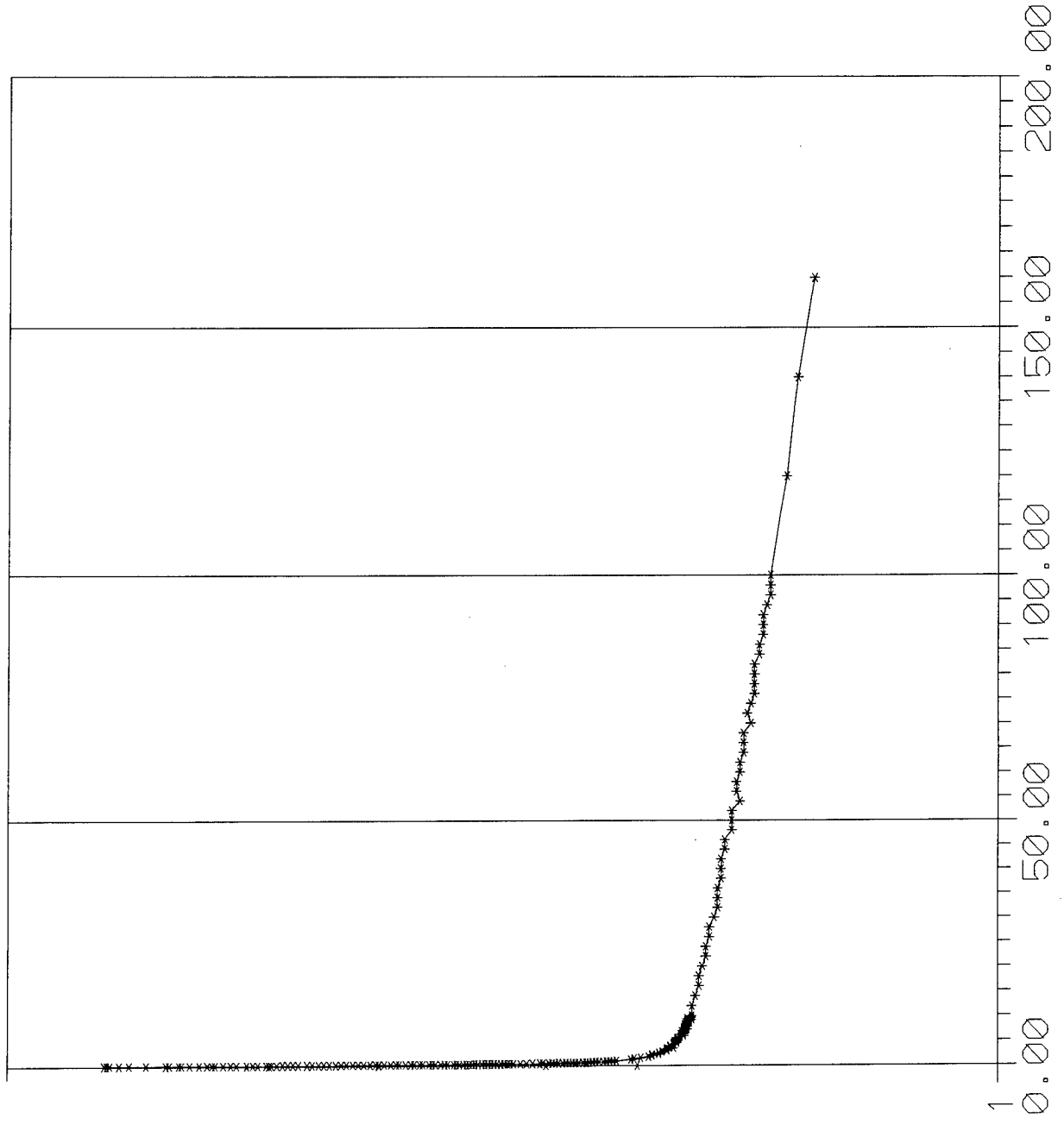
0	0.003	0	0
0.0033	0.003	0.0033	0
0.0066	0.003	0.0066	0
0.01	0.003	0.01	0
0.0133	0.003	0.0133	0
0.0166	0.003	0.0166	0
0.02	0.003	0.02	-0.003
0.0233	-0.015	0.0233	0.094
0.0266	-0.022	0.0266	0.594
0.03	0.841	0.03	2.144
0.0333	0.876	0.0333	0.689
0.0366	1.578	0.0366	1.597
0.04	0.17	0.04	1.96
0.0433	1.413	0.0433	1.805
0.0466	1.673	0.0466	1.828
0.05	1.888	0.05	1.815
0.0533	1.831	0.0533	1.79
0.0566	1.821	0.0566	1.777
0.06	1.809	0.06	1.761
0.0633	1.809	0.0633	1.752
0.0666	1.774	0.0666	1.736
0.07	1.758	0.07	1.726
0.0733	1.745	0.0733	1.714
0.0766	1.726	0.0766	1.698
0.08	1.717	0.08	1.685
0.0833	1.701	0.0833	1.669
0.0866	1.685	0.0866	1.657
0.09	1.666	0.09	1.641
0.0933	1.654	0.0933	1.625
0.0966	1.638	0.0966	1.619
0.1	1.622	0.1	1.603
0.1033	1.613	0.1033	1.584
0.1066	1.594	0.1066	1.578
0.11	1.581	0.11	1.556
0.1133	1.568	0.1133	1.543
0.1166	1.552	0.1166	1.53
0.12	1.54	0.12	1.521
0.1233	1.527	0.1233	1.505
0.1266	1.518	0.1266	1.492
0.13	1.502	0.13	1.48
0.1333	1.489	0.1333	1.467
0.1366	1.48	0.1366	1.458
0.14	1.467	0.14	1.445
0.1433	1.454	0.1433	1.435
0.1466	1.442	0.1466	1.423
0.15	1.432	0.15	1.413
0.1533	1.42	0.1533	1.401
0.1566	1.41	0.1566	1.391
0.16	1.397	0.16	1.382
0.1633	1.388	0.1633	1.369
0.1666	1.379	0.1666	1.36
0.17	1.366	0.17	1.35
0.1733	1.356	0.1733	1.341
0.1766	1.347	0.1766	1.328
0.18	1.334	0.18	1.318
0.1833	1.325	0.1833	1.312
0.1866	1.315	0.1866	1.303
0.19	1.306	0.19	1.293
0.1933	1.299	0.1933	1.287
0.1966	1.29	0.1966	1.277
0.2	1.28	0.2	1.268
0.2033	1.274	0.2033	1.261
0.2066	1.265	0.2066	1.252
0.21	1.258	0.21	1.246
0.2133	1.252	0.2133	1.239
0.2166	1.242	0.2166	1.23
0.22	1.236	0.22	1.224
0.2233	1.23	0.2233	1.217
0.2266	1.227	0.2266	1.211
0.23	1.217	0.23	1.205
0.2333	1.208	0.2333	1.198
0.2366	1.201	0.2366	1.192
0.24	1.195	0.24	1.186
0.2433	1.189	0.2433	1.179
0.2466	1.182	0.2466	1.173
0.25	1.173	0.25	1.167

0.2533	1.17	0.2533	1.16
0.2566	1.163	0.2566	1.154
0.26	1.157	0.26	1.148
0.2633	1.151	0.2633	1.141
0.2666	1.148	0.2666	1.135
0.27	1.141	0.27	1.129
0.2733	1.135	0.2733	1.125
0.2766	1.129	0.2766	1.119
0.28	1.122	0.28	1.113
0.2833	1.116	0.2833	1.11
0.2866	1.113	0.2866	1.103
0.29	1.106	0.29	1.097
0.2933	1.1	0.2933	1.094
0.2966	1.097	0.2966	1.088
0.3	1.091	0.3	1.084
0.3033	1.084	0.3033	1.078
0.3066	1.081	0.3066	1.072
0.31	1.075	0.31	1.065
0.3133	1.072	0.3133	1.062
0.3166	1.065	0.3166	1.056
0.32	1.059	0.32	1.053
0.3233	1.056	0.3233	1.046
0.3266	1.05	0.3266	1.043
0.33	1.046	0.33	1.037
0.3333	1.04	0.3333	1.031
0.35	1.015	0.35	1.008
0.3666	0.993	0.3666	0.983
0.3833	0.967	0.3833	0.961
0.4	0.945	0.4	0.939
0.4166	0.923	0.4166	0.917
0.4333	0.904	0.4333	0.895
0.45	0.882	0.45	0.872
0.4666	0.863	0.4666	0.853
0.4833	0.844	0.4833	0.834
0.5	0.825	0.5	0.816
0.5166	0.806	0.5166	0.797
0.5333	0.79	0.5333	0.778
0.55	0.771	0.55	0.762
0.5666	0.752	0.5666	0.743
0.5833	0.736	0.5833	0.724
0.6	0.721	0.6	0.708
0.6166	0.705	0.6166	0.689
0.6333	0.689	0.6333	0.673
0.65	0.676	0.65	0.657
0.6666	0.661	0.6666	0.645
0.6833	0.645	0.6833	0.629
0.7	0.629	0.7	0.616
0.7166	0.616	0.7166	0.6
0.7333	0.6	0.7333	0.588
0.75	0.588	0.75	0.572
0.7666	0.575	0.7666	0.559
0.7833	0.562	0.7833	0.547
0.8	0.55	0.8	0.534
0.8166	0.534	0.8166	0.525
0.8333	0.521	0.8333	0.512
0.85	0.512	0.85	0.499
0.8666	0.499	0.8666	0.49
0.8833	0.49	0.8833	0.477
0.9	0.477	0.9	0.464
0.9166	0.468	0.9166	0.452
0.9333	0.455	0.9333	0.442
0.95	0.445	0.95	0.433
0.9666	0.433	0.9666	0.42
0.9833	0.423	0.9833	0.414
1	0.414	1	0.401
1.2	0.294	1.2	0.281
1.4	0.218	1.4	0.205
1.6	0.158	1.6	0.151
1.8	0.12	1.8	0.113
2	0.094	2	0.091
2.2	0.075	2.2	0.072
2.4	0.066	2.4	0.063
2.6	0.063	2.6	0.056
2.8	0.05	2.8	0.05
3	0.05	3	0.047
3.2	0.047	3.2	0.047
3.4	0.044	3.4	0.05
3.6	0.044	3.6	0.044
3.8	0.044	3.8	0.041

4	0.044
4.2	0.041
4.4	0.041
4.6	0.041
4.8	0.037
5	0.041
5.2	0.041
5.4	0.041
5.6	0.041
5.8	0.037
6	0.037
6.2	0.041
6.4	0.034
6.6	0.037
6.8	0.034
7	0.037
7.2	0.037
7.4	0.037
7.6	0.034
7.8	0.037
8	0.037
8.2	0.034
8.4	0.034
8.6	0.034
8.8	0.037
9	0.037
9.2	0.034
9.4	0.034
9.6	0.034
9.8	0.034
10	0.034

4	0.05
4.2	0.044
4.4	0.041
4.6	0.041
4.8	0.041
5	0.037
5.2	0.041

XNM-93-04X



0512026

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 04

SETUP	DATE	BY WHOM
MONITORING WELL ID	XNM-95-04X	R. RUSTAD
DATE OF TEST	10-18-93	
TYPE OF TEST	RISEING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1K001732	
TEST #	SEL 4 / 2 OF 2	
DATA COLLECTION RATE	LOG	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	12.00 (PVC)	
WELL DEPTH (FT./TOC)	19.75 (PVC)	
XD DEPTH (FT./TOC)	18.50 (PVC)	
INITIAL XD REFERENCE	7.05 / 0.00	
SLUG DEPTH (FT./TOC)	16.00 (PVC)	
TIME OF SLUG PLACEMENT	1325	
TIME OF WL EQUILIBRATION	1510	
NEW XD REFERENCE	0.00 / 7.32	
START TIME OF TEST	1510	
END TIME OF TEST	1750	
NOTES:	3' x 3" SLUG	

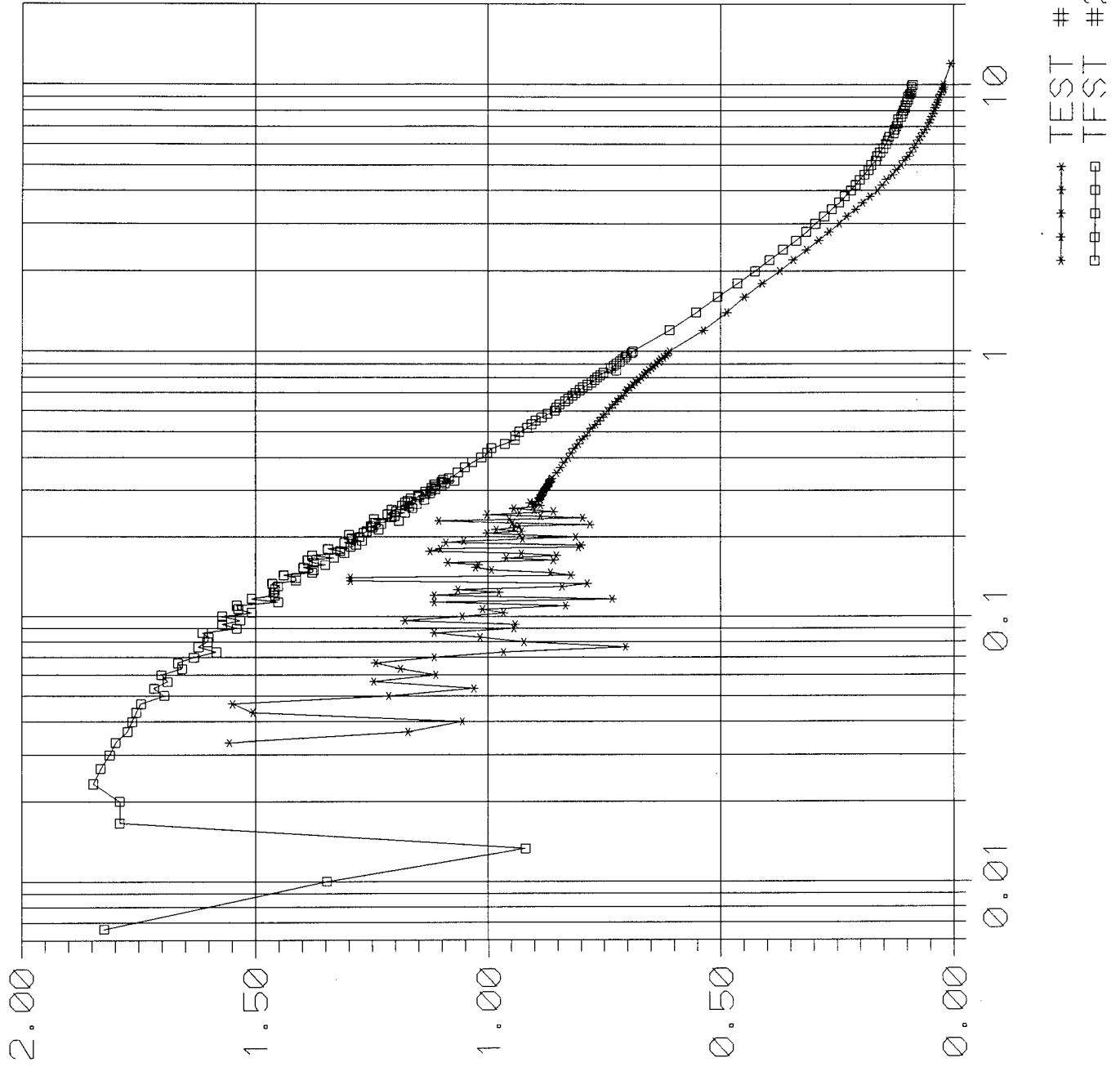
FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

0	0
0.0033	0.003
0.0066	0.003
0.01	0.003
0.0133	0.009
0.0166	0.003
0.02	0.015
0.0233	-0.098
0.0266	0.967
0.03	1.42
0.0333	2.131
0.0366	0.439
0.04	2.928
0.0433	1.309
0.0466	-0.543
0.05	0.306
0.0533	1.666
0.0566	1.287
0.06	1.372
0.0633	1.543
0.0666	1.692
0.07	1.79
0.0733	1.85
0.0766	1.869
0.08	1.866
0.0833	1.862
0.0866	1.837
0.09	1.815
0.0933	1.786
0.0966	1.771
0.1	1.774
0.1033	1.761
0.1066	1.749
0.11	1.739
0.1133	1.73
0.1166	1.733
0.12	1.72
0.1233	1.711
0.1266	1.704
0.13	1.692
0.1333	1.685
0.1366	1.679
0.14	1.669
0.1433	1.663
0.1466	1.657
0.15	1.65
0.1533	1.644
0.1566	1.638
0.16	1.632
0.1633	1.622
0.1666	1.616
0.17	1.609
0.1733	1.603
0.1766	1.597
0.18	1.59
0.1833	1.584
0.1866	1.578
0.19	1.571
0.1933	1.565
0.1966	1.559
0.2	1.552
0.2033	1.546
0.2066	1.543
0.21	1.537
0.2133	1.53
0.2166	1.524
0.22	1.521
0.2233	1.514
0.2266	1.508
0.23	1.505
0.2333	1.499
0.2366	1.496
0.24	1.489
0.2433	1.486
0.2466	1.483
0.25	1.477

0.2533	1.473
0.2566	1.47
0.26	1.464
0.2633	1.461
0.2666	1.458
0.27	1.454
0.2733	1.451
0.2766	1.448
0.28	1.445
0.2833	1.442
0.2866	1.439
0.29	1.435
0.2933	1.432
0.2966	1.429
0.3	1.426
0.3033	1.423
0.3066	1.423
0.31	1.42
0.3133	1.416
0.3166	1.416
0.32	1.413
0.3233	1.41
0.3266	1.41
0.33	1.407
0.3333	1.404
0.35	1.397
0.3666	1.391
0.3833	1.385
0.4	1.378
0.4166	1.375
0.4333	1.369
0.45	1.366
0.4666	1.363
0.4833	1.36
0.5	1.356
0.5166	1.353
0.5333	1.35
0.55	1.347
0.5666	1.344
0.5833	1.341
0.6	1.337
0.6166	1.337
0.6333	1.334
0.65	1.331
0.6666	1.331
0.6833	1.328
0.7	1.328
0.7166	1.328
0.7333	1.328
0.75	1.328
0.7666	1.325
0.7833	1.322
0.8	1.318
0.8166	1.315
0.8333	1.315
0.85	1.312
0.8666	1.312
0.8833	1.312
0.9	1.312
0.9166	1.309
0.9333	1.309
0.95	1.306
0.9666	1.306
0.9833	1.306
1	1.306
1.2	1.293
1.4	1.29
1.6	1.284
1.8	1.277
2	1.274
2.2	1.274
2.4	1.268
2.6	1.268
2.8	1.265
3	1.261
3.2	1.261
3.4	1.261
3.6	1.255
3.8	1.258

4	1.258
4.2	1.255
4.4	1.255
4.6	1.252
4.8	1.252
5	1.252
5.2	1.252
5.4	1.252
5.6	1.252
5.8	1.249
6	1.246
6.2	1.249
6.4	1.246
6.6	1.246
6.8	1.246
7	1.246
7.2	1.246
7.4	1.243
7.6	1.246
7.8	1.243
8	1.243
8.2	1.243
8.4	1.243
8.6	1.243
8.8	1.243
9	1.243
9.2	1.239
9.4	1.243
9.6	1.239
9.8	1.239
10	1.239
12	1.239
14	1.236
16	1.233
18	1.233
20	1.23
22	1.227
24	1.227
26	1.224
28	1.224
30	1.22
32	1.217
34	1.217
36	1.217
38	1.214
40	1.214
42	1.214
44	1.211
46	1.211
48	1.205
50	1.205
52	1.205
54	1.198
56	1.201
58	1.201
60	1.198
62	1.198
64	1.195
66	1.195
68	1.195
70	1.189
72	1.192
74	1.189
76	1.186
78	1.186
80	1.186
82	1.186
84	1.182
86	1.182
88	1.179
90	1.179
92	1.179
94	1.176
96	1.173
98	1.173
100	1.173
120	1.16
140	1.151
160	1.138

XOM-93-01X



AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 09

SETUP	DATE	BY WHOM
MONITORING WELL ID	XOM-93-812	R. RUSTAD
DATE OF TEST	10-19-95	
TYPE OF TEST	FALLING HEAD	
HERMIT TYPE/SERIAL#	5E 1000C / 1KCO1732	
TEST #	SEL 09 / 1 OF 2	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	20467DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	SUR	
STATIC WATER LEVEL (FT./TOC)	12.42	
WELL DEPTH (FT./TOC)	19.41	
XD DEPTH (FT./TOC)	19.00	
INITIAL XD REFERENCE	6.49 (0.00)	
SLUG DEPTH (FT./TOC)	16.00	
TIME OF SLUG PLACEMENT	1415	
TIME OF WL EQUILIBRATION	—	
NEW XD REFERENCE	—	
START TIME OF TEST	1415	
END TIME OF TEST	1427	
NOTES:	SLUG 3' x 3"	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

09 085110026

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 10

SETUP	DATE	BY WHOM
MONITORING WELL ID	XOM-93-01X	R. RUSTAD
DATE OF TEST	10-19-93	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEL 10 / ZOF 2	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	0	
SCALE FACTOR	10.00 1	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	^(P) TOC SUR	
STATIC WATER LEVEL (FT./TOC)	12.42 (PVC)	
WELL DEPTH (FT./TOC)	19.41 (PVC)	
XD DEPTH (FT./TOC)	19.00 (PVC)	
INITIAL XD REFERENCE	6.63 (0.00)	
SLUG DEPTH (FT./TOC)	16.00 (PVC)	
TIME OF SLUG PLACEMENT	14.15	
TIME OF WL EQUILIBRATION	1427	
NEW XD REFERENCE	6.63 (0.00)	
START TIME OF TEST	1430	
END TIME OF TEST	1441	
NOTES:	3' x 3" SLUG (BAR Stock PVC)	

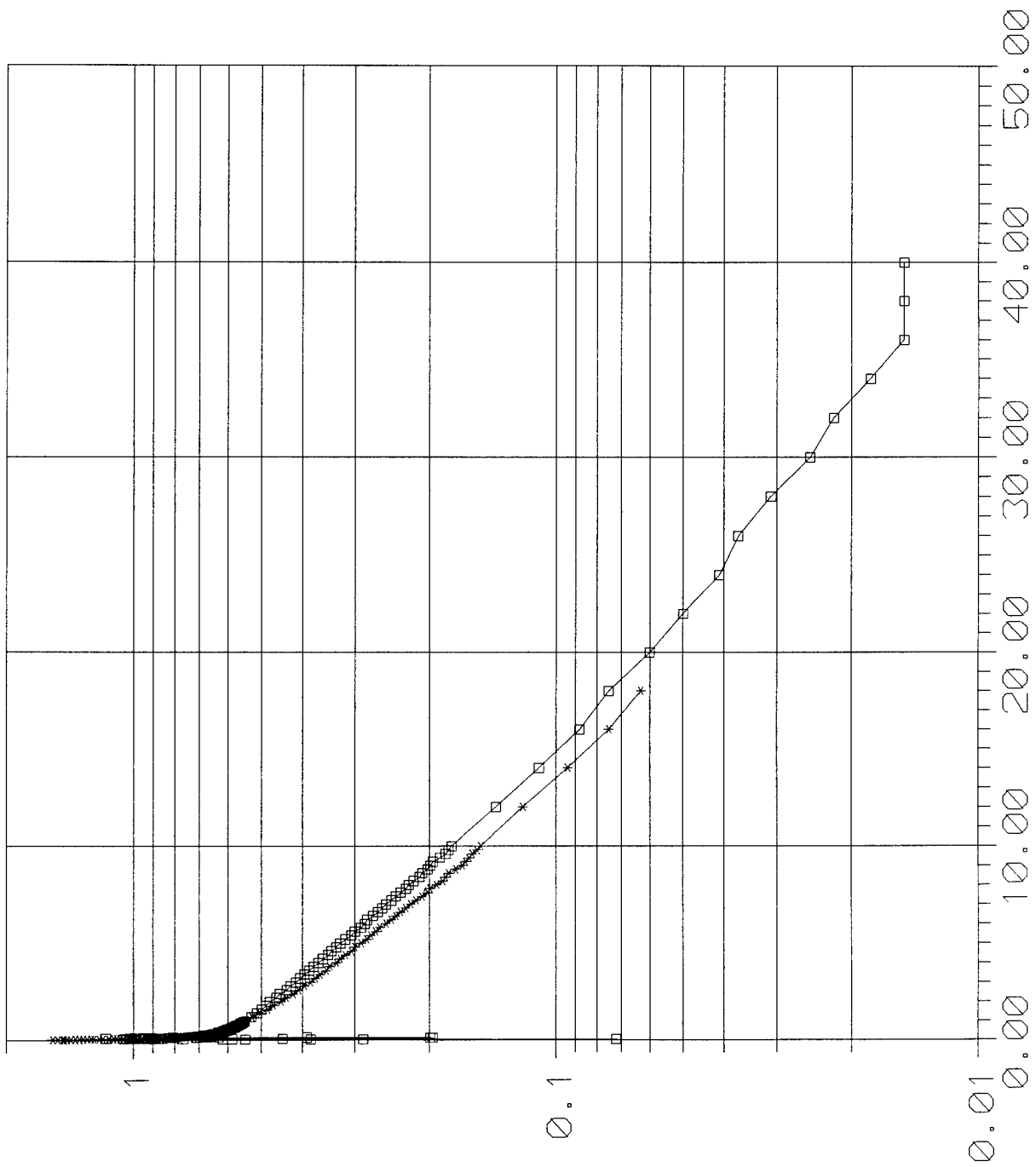
FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

0	-0.069	0	0.009
0.0033	-0.069	0.0033	-0.262
0.0066	-0.066	0.0066	-1.824
0.01	-0.066	0.01	-1.347
0.0133	-0.066	0.0133	-0.92
0.0166	-0.066	0.0166	-1.79
0.02	0.085	0.02	-1.79
0.0233	0.667	0.0233	-1.847
0.0266	0.771	0.0266	-1.831
0.03	0.778	0.03	-1.812
0.0333	1.556	0.0333	-1.799
0.0366	1.173	0.0366	-1.774
0.04	1.056	0.04	-1.764
0.0433	1.505	0.0433	-1.755
0.0466	1.549	0.0466	-1.745
0.05	1.214	0.05	-1.695
0.0533	1.031	0.0533	-1.717
0.0566	1.246	0.0566	-1.688
0.06	1.113	0.06	-1.701
0.0633	1.189	0.0633	-1.657
0.0666	1.242	0.0666	-1.666
0.07	1.116	0.07	-1.632
0.0733	0.967	0.0733	-1.584
0.0766	0.705	0.0766	-1.622
0.08	0.923	0.08	-1.603
0.0833	1.018	0.0833	-1.6
0.0866	1.116	0.0866	-1.613
0.09	0.945	0.09	-1.54
0.0933	0.942	0.0933	-1.571
0.0966	1.179	0.0966	-1.533
0.1	1.056	0.1	-1.571
0.1033	0.967	0.1033	-1.508
0.1066	1.012	0.1066	-1.537
0.11	0.834	0.11	-1.54
0.1133	1.116	0.1133	-1.451
0.1166	0.733	0.1166	-1.508
0.12	1.116	0.12	-1.458
0.1233	0.977	0.1233	-1.461
0.1266	1.065	0.1266	-1.458
0.13	0.841	0.13	-1.451
0.1333	0.787	0.1333	-1.464
0.1366	1.296	0.1366	-1.413
0.14	1.296	0.14	-1.413
0.1433	0.822	0.1433	-1.439
0.1466	0.866	0.1466	-1.378
0.15	0.993	0.15	-1.375
0.1533	1.027	0.1533	-1.397
0.1566	1.021	0.1566	-1.35
0.16	1.087	0.16	-1.375
0.1633	0.86	0.1633	-1.388
0.1666	0.961	0.1666	-1.331
0.17	0.853	0.17	-1.378
0.1733	0.929	0.1733	-1.309
0.1766	1.125	0.1766	-1.318
0.18	1.103	0.18	-1.344
0.1833	0.806	0.1833	-1.296
0.1866	0.8	0.1866	-1.284
0.19	1.091	0.19	-1.309
0.1933	1.053	0.1933	-1.271
0.1966	0.926	0.1966	-1.293
0.2	0.812	0.2	-1.277
0.2033	0.933	0.2033	-1.299
0.2066	1.002	0.2066	-1.268
0.21	0.929	0.21	-1.261
0.2133	0.983	0.2133	-1.236
0.2166	0.945	0.2166	-1.249
0.22	0.933	0.22	-1.252
0.2233	0.781	0.2233	-1.23
0.2266	0.948	0.2266	-1.242
0.23	1.106	0.23	-1.192
0.2333	0.955	0.2333	-1.246
0.2366	0.797	0.2366	-1.208
0.24	0.888	0.24	-1.201
0.2433	1.002	0.2433	-1.217
0.2466	0.933	0.2466	-1.179
0.25	0.86	0.25	-1.198

0.2533	0.901	0.2533	-1.208
0.2566	0.945	0.2566	-1.163
0.26	0.904	0.26	-1.17
0.2633	0.888	0.2633	-1.186
0.2666	0.901	0.2666	-1.154
0.27	0.91	0.27	-1.179
0.2733	0.895	0.2733	-1.173
0.2766	0.888	0.2766	-1.138
0.28	0.891	0.28	-1.167
0.2833	0.888	0.2833	-1.148
0.2866	0.885	0.2866	-1.151
0.29	0.885	0.29	-1.135
0.2933	0.882	0.2933	-1.125
0.2966	0.882	0.2966	-1.135
0.3	0.879	0.3	-1.122
0.3033	0.879	0.3033	-1.113
0.3066	0.876	0.3066	-1.122
0.31	0.872	0.31	-1.116
0.3133	0.872	0.3133	-1.1
0.3166	0.872	0.3166	-1.116
0.32	0.869	0.32	-1.094
0.3233	0.866	0.3233	-1.1
0.3266	0.866	0.3266	-1.072
0.33	0.866	0.33	-1.097
0.3333	0.863	0.3333	-1.084
0.35	0.853	0.35	-1.065
0.3666	0.844	0.3666	-1.05
0.3833	0.838	0.3833	-1.034
0.4	0.828	0.4	-1.015
0.4166	0.822	0.4166	-1.002
0.4333	0.815	0.4333	-0.993
0.45	0.806	0.45	-0.964
0.4666	0.8	0.4666	-0.942
0.4833	0.79	0.4833	-0.942
0.5	0.784	0.5	-0.933
0.5166	0.778	0.5166	-0.917
0.5333	0.768	0.5333	-0.907
0.55	0.762	0.55	-0.898
0.5666	0.755	0.5666	-0.885
0.5833	0.749	0.5833	-0.872
0.6	0.743	0.6	-0.857
0.6166	0.736	0.6166	-0.853
0.6333	0.73	0.6333	-0.847
0.65	0.724	0.65	-0.834
0.6666	0.717	0.6666	-0.828
0.6833	0.711	0.6833	-0.819
0.7	0.705	0.7	-0.812
0.7166	0.702	0.7166	-0.803
0.7333	0.695	0.7333	-0.797
0.75	0.689	0.75	-0.787
0.7666	0.683	0.7666	-0.778
0.7833	0.676	0.7833	-0.771
0.8	0.67	0.8	-0.765
0.8166	0.664	0.8166	-0.759
0.8333	0.661	0.8333	-0.752
0.85	0.654	0.85	-0.724
0.8666	0.648	0.8666	-0.736
0.8833	0.645	0.8833	-0.73
0.9	0.638	0.9	-0.724
0.9166	0.632	0.9166	-0.717
0.9333	0.629	0.9333	-0.711
0.95	0.623	0.95	-0.705
0.9666	0.616	0.9666	-0.702
0.9833	0.613	0.9833	-0.692
1	0.61	1	-0.689
1.2	0.537	1.2	-0.61
1.4	0.487	1.4	-0.553
1.6	0.449	1.6	-0.506
1.8	0.411	1.8	-0.464
2	0.373	2	-0.426
2.2	0.344	2.2	-0.395
2.4	0.316	2.4	-0.366
2.6	0.29	2.6	-0.338
2.8	0.268	2.8	-0.316
3	0.246	3	-0.297
3.2	0.23	3.2	-0.278
3.4	0.211	3.4	-0.262
3.6	0.196	3.6	-0.246
3.8	0.18	3.8	-0.234

4	0.164	4	-0.221
4.2	0.154	4.2	-0.211
4.4	0.145	4.4	-0.202
4.6	0.132	4.6	-0.192
4.8	0.123	4.8	-0.183
5	0.113	5	-0.177
5.2	0.107	5.2	-0.167
5.4	0.098	5.4	-0.164
5.6	0.091	5.6	-0.158
5.8	0.085	5.8	-0.151
6	0.082	6	-0.145
6.2	0.075	6.2	-0.142
6.4	0.072	6.4	-0.139
6.6	0.066	6.6	-0.129
6.8	0.06	6.8	-0.126
7	0.056	7	-0.123
7.2	0.053	7.2	-0.12
7.4	0.05	7.4	-0.12
7.6	0.047	7.6	-0.113
7.8	0.044	7.8	-0.11
8	0.041	8	-0.107
8.2	0.041	8.2	-0.104
8.4	0.037	8.4	-0.104
8.6	0.034	8.6	-0.101
8.8	0.034	8.8	-0.098
9	0.031	9	-0.098
9.2	0.028	9.2	-0.094
9.4	0.025	9.4	-0.091
9.6	0.022	9.6	-0.091
9.8	0.022	9.8	-0.091
10	0.022	10	-0.088
12	0.006		

XOM-93-02X



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AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 06

SETUP	DATE	BY WHOM
MONITORING WELL ID	YOM-93-02X	R. RUSTAD
DATE OF TEST	10-19-93	
TYPE OF TEST	RIISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000 / 1KCC1752	
TEST #	SEL 6 / 1 OF 2	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	8.25' (PVC)	
WELL DEPTH (FT./TOC)	10.86 (PVC)	
XD DEPTH (FT./TOC)	15.00 (PVC)	
INITIAL XD REFERENCE	7.47 (0.00)	
SLUG DEPTH (FT./TOC)	13.00 (PVC)	
TIME OF SLUG PLACEMENT	1050	
TIME OF WL EQUILIBRATION	1117	
NEW XD REFERENCE	7.49 (0.00)	
START TIME OF TEST	1119	
END TIME OF TEST	1138	
NOTES:	3' x 3" SLUG	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

09 CASE 112246

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 07

SETUP	DATE	BY WHOM
MONITORING WELL ID	XOM-93-02x	R. RUSTAD
DATE OF TEST	10-19-93	
TYPE OF TEST	FALLING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 12C01732	
TEST #	SEL 7 / 2 OF 2	
DATA COLLECTION RATE	LOG 0	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	SUR	
STATIC WATER LEVEL (FT./TOC)	8.25 (PVC)	
WELL DEPTH (FT./TOC)	16.86 (PVC)	
XD DEPTH (FT./TOC)	1500 (PVC)	
INITIAL XD REFERENCE	7.47	
SLUG DEPTH (FT./TOC)	1300	
TIME OF SLUG PLACEMENT	1142	
TIME OF WL EQUILIBRATION	—	
NEW XD REFERENCE	—	
START TIME OF TEST	1142	
END TIME OF TEST	1223	
NOTES:	3' x 3" SLUG	

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

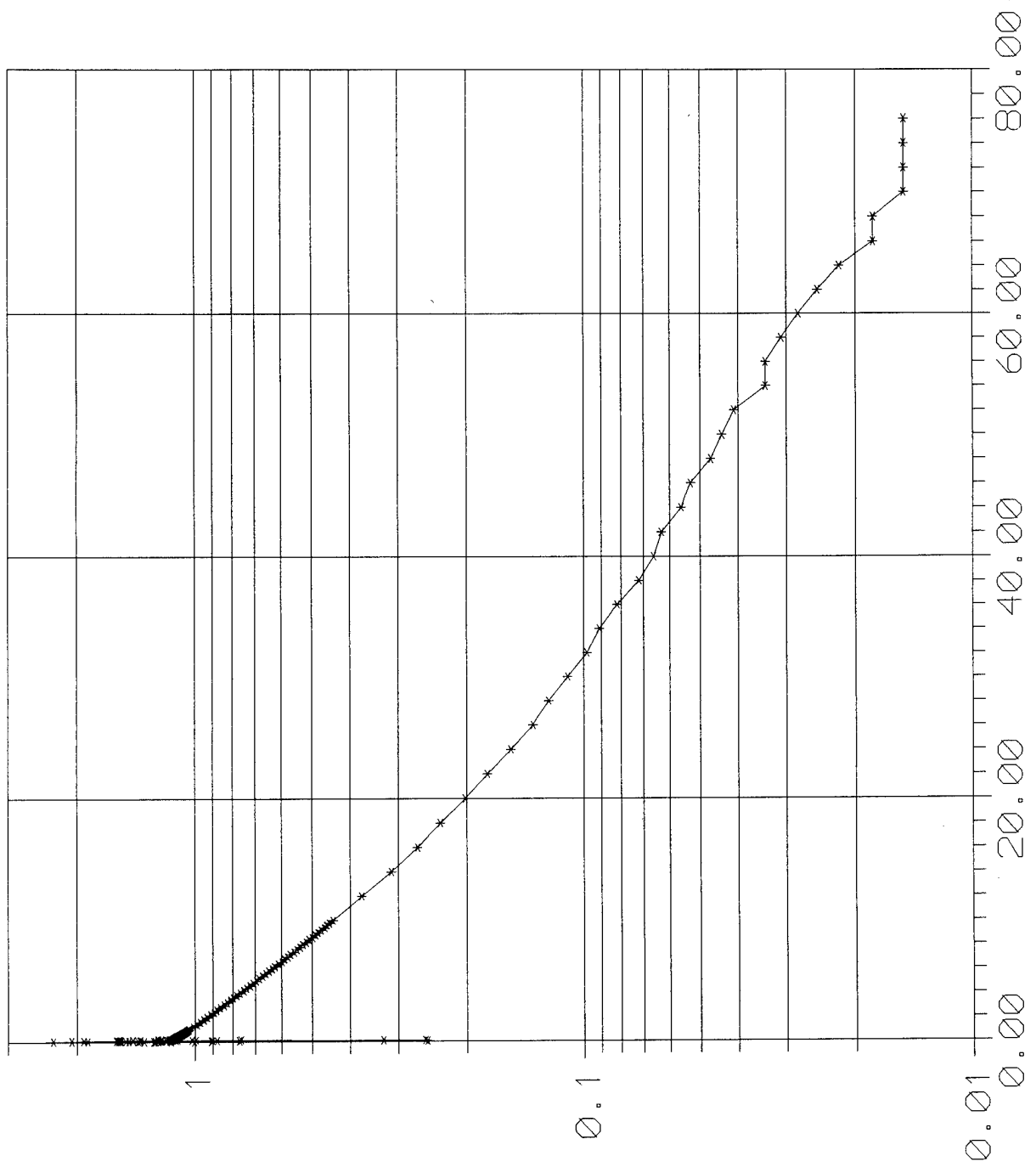
0	0.003	0	0
0.0033	0.009	0.0033	0.003
0.0066	0.053	0.0066	0.003
0.01	0.844	0.01	0.003
0.0133	0.898	0.0133	0.003
0.0166	0.778	0.0166	0
0.02	1.458	0.02	0
0.0233	1.549	0.0233	0.003
0.0266	1.511	0.0266	0.006
0.03	1.47	0.03	0.003
0.0333	1.435	0.0333	-0.003
0.0366	1.407	0.0366	0.098
0.04	1.372	0.04	0.136
0.0433	1.341	0.0433	0.272
0.0466	1.315	0.0466	0.287
0.05	1.287	0.05	0.382
0.0533	1.258	0.0533	0.544
0.0566	1.242	0.0566	0.616
0.06	1.205	0.06	0.585
0.0633	1.179	0.0633	0.445
0.0666	1.141	0.0666	1.018
0.07	1.144	0.07	0.91
0.0733	1.113	0.0733	0.891
0.0766	1.097	0.0766	0.993
0.08	1.075	0.08	0.762
0.0833	1.059	0.0833	0.926
0.0866	1.027	0.0866	1.053
0.09	1.018	0.09	0.907
0.0933	0.999	0.0933	1.163
0.0966	0.986	0.0966	0.974
0.1	0.967	0.1	0.914
0.1033	0.955	0.1033	0.863
0.1066	0.939	0.1066	0.948
0.11	0.923	0.11	1.027
0.1133	0.91	0.1133	1.008
0.1166	0.898	0.1166	0.923
0.12	0.888	0.12	0.831
0.1233	0.876	0.1233	0.711
0.1266	0.866	0.1266	0.196
0.13	0.857	0.13	0.199
0.1333	0.847	0.1333	0.901
0.1366	0.838	0.1366	0.952
0.14	0.831	0.14	0.809
0.1433	0.822	0.1433	0.389
0.1466	0.815	0.1466	0.695
0.15	0.809	0.15	0.806
0.1533	0.803	0.1533	0.67
0.1566	0.797	0.1566	0.629
0.16	0.79	0.16	0.708
0.1633	0.787	0.1633	0.686
0.1666	0.781	0.1666	0.667
0.17	0.778	0.17	0.676
0.1733	0.771	0.1733	0.676
0.1766	0.768	0.1766	0.67
0.18	0.765	0.18	0.67
0.1833	0.762	0.1833	0.67
0.1866	0.755	0.1866	0.67
0.19	0.755	0.19	0.667
0.1933	0.752	0.1933	0.667
0.1966	0.749	0.1966	0.667
0.2	0.746	0.2	0.667
0.2033	0.743	0.2033	0.667
0.2066	0.74	0.2066	0.667
0.21	0.736	0.21	0.664
0.2133	0.733	0.2133	0.664
0.2166	0.73	0.2166	0.664
0.22	0.727	0.22	0.661
0.2233	0.727	0.2233	0.661
0.2266	0.724	0.2266	0.657
0.23	0.721	0.23	0.657
0.2333	0.721	0.2333	0.657
0.2366	0.717	0.2366	0.657
0.24	0.714	0.24	0.657
0.2433	0.714	0.2433	0.654
0.2466	0.711	0.2466	0.654
0.25	0.708	0.25	0.654

0.2533	0.708	0.2533	0.651
0.2566	0.705	0.2566	0.651
0.26	0.705	0.26	0.651
0.2633	0.702	0.2633	0.651
0.2666	0.702	0.2666	0.651
0.27	0.698	0.27	0.648
0.2733	0.698	0.2733	0.648
0.2766	0.695	0.2766	0.648
0.28	0.695	0.28	0.648
0.2833	0.692	0.2833	0.645
0.2866	0.689	0.2866	0.645
0.29	0.689	0.29	0.645
0.2933	0.689	0.2933	0.645
0.2966	0.686	0.2966	0.642
0.3	0.686	0.3	0.642
0.3033	0.683	0.3033	0.642
0.3066	0.683	0.3066	0.642
0.31	0.683	0.31	0.638
0.3133	0.68	0.3133	0.638
0.3166	0.68	0.3166	0.638
0.32	0.676	0.32	0.638
0.3233	0.676	0.3233	0.638
0.3266	0.676	0.3266	0.635
0.33	0.673	0.33	0.635
0.3333	0.673	0.3333	0.635
0.35	0.667	0.35	0.632
0.3666	0.661	0.3666	0.626
0.3833	0.657	0.3833	0.623
0.4	0.651	0.4	0.619
0.4166	0.648	0.4166	0.616
0.4333	0.642	0.4333	0.613
0.45	0.638	0.45	0.61
0.4666	0.635	0.4666	0.607
0.4833	0.632	0.4833	0.607
0.5	0.626	0.5	0.604
0.5166	0.623	0.5166	0.6
0.5333	0.619	0.5333	0.597
0.55	0.616	0.55	0.594
0.5666	0.613	0.5666	0.591
0.5833	0.61	0.5833	0.591
0.6	0.607	0.6	0.588
0.6166	0.607	0.6166	0.585
0.6333	0.604	0.6333	0.585
0.65	0.6	0.65	0.581
0.6666	0.597	0.6666	0.578
0.6833	0.594	0.6833	0.578
0.7	0.591	0.7	0.575
0.7166	0.588	0.7166	0.575
0.7333	0.588	0.7333	0.572
0.75	0.585	0.75	0.569
0.7666	0.581	0.7666	0.569
0.7833	0.578	0.7833	0.566
0.8	0.578	0.8	0.566
0.8166	0.575	0.8166	0.562
0.8333	0.572	0.8333	0.562
0.85	0.569	0.85	0.559
0.8666	0.569	0.8666	0.559
0.8833	0.566	0.8833	0.556
0.9	0.562	0.9	0.556
0.9166	0.562	0.9166	0.553
0.9333	0.559	0.9333	0.553
0.95	0.556	0.95	0.55
0.9666	0.556	0.9666	0.55
0.9833	0.553	0.9833	0.547
1	0.55	1	0.547
1.2	0.525	1.2	0.528
1.4	0.502	1.4	0.512
1.6	0.483	1.6	0.499
1.8	0.468	1.8	0.487
2	0.449	2	0.477
2.2	0.436	2.2	0.461
2.4	0.42	2.4	0.452
2.6	0.408	2.6	0.436
2.8	0.395	2.8	0.426
3	0.382	3	0.414
3.2	0.373	3.2	0.404
3.4	0.363	3.4	0.395
3.6	0.351	3.6	0.385
3.8	0.344	3.8	0.376

4	0.332
4.2	0.325
4.4	0.316
4.6	0.306
4.8	0.3
5	0.29
5.2	0.281
5.4	0.275
5.6	0.268
5.8	0.262
6	0.253
6.2	0.246
6.4	0.24
6.6	0.234
6.8	0.227
7	0.221
7.2	0.215
7.4	0.208
7.6	0.202
7.8	0.199
8	0.192
8.2	0.186
8.4	0.183
8.6	0.18
8.8	0.173
9	0.167
9.2	0.164
9.4	0.161
9.6	0.158
9.8	0.154
10	0.151
12	0.12
14	0.094
16	0.075
18	0.063

4	0.366
4.2	0.357
4.4	0.347
4.6	0.341
4.8	0.332
5	0.325
5.2	0.316
5.4	0.306
5.6	0.3
5.8	0.29
6	0.284
6.2	0.281
6.4	0.272
6.6	0.265
6.8	0.259
7	0.253
7.2	0.246
7.4	0.24
7.6	0.234
7.8	0.227
8	0.224
8.2	0.218
8.4	0.211
8.6	0.208
8.8	0.202
9	0.199
9.2	0.196
9.4	0.189
9.6	0.183
9.8	0.18
10	0.177
12	0.139
14	0.11
16	0.088
18	0.075
20	0.06
22	0.05
24	0.041
26	0.037
28	0.031
30	0.025
32	0.022
34	0.018
36	0.015
38	0.015
40	0.015

XOM-93-03X



AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. 03

SETUP	DATE	BY WHOM
MONITORING WELL ID	XOM-93-Ø3X	R. RUSTAN
DATE OF TEST	10-19-93	
TYPE OF TEST	FALLING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEL 8 / 1 OF 1	
DATA COLLECTION RATE	LOG 0.	
TRANSDUCER		
SERIAL #	2046 DE	
PSIG	10	
SCALE FACTOR	10.001	
OFFSET	-0.34	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	SUR	
STATIC WATER LEVEL (FT./TOC)	12.72 (PVC)	
WELL DEPTH (FT./TOC)	18.53 (PVC)	
XD DEPTH (FT./TOC)	17.60 (PVC)	
INITIAL XD REFERENCE	5.34 (0.00)	
SLUG DEPTH (FT./TOC)	16.00 (PVC)	
TIME OF SLUG PLACEMENT	1238	
TIME OF WL EQUILIBRATION	—	
NEW XD REFERENCE	—	
START TIME OF TEST	1240	
END TIME OF TEST	1350	
NOTES:	SLUG 3' x 3"	

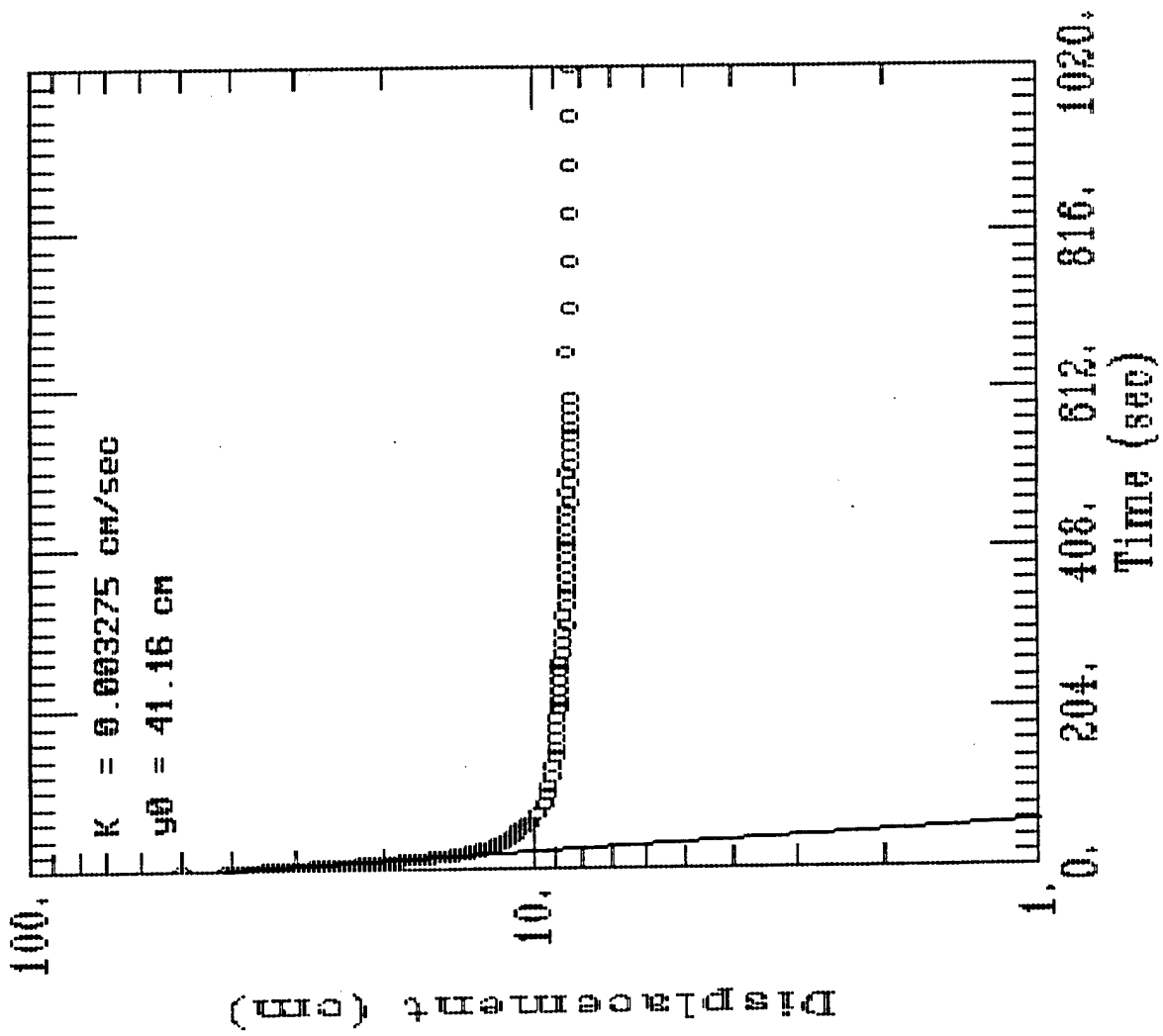
FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

0	-0.003
0.0033	0.003
0.0066	-0.003
0.01	0.202
0.0133	0.784
0.0166	1.002
0.02	1.261
0.0233	1.271
0.0266	1.347
0.03	1.148
0.0333	1.473
0.0366	0.907
0.04	1.875
0.0433	2.299
0.0466	1.549
0.05	0.253
0.0533	1.394
0.0566	1.499
0.06	2.062
0.0633	1.568
0.0666	0.788
0.07	1.239
0.0733	1.223
0.0766	0.901
0.08	0.876
0.0833	1.382
0.0866	1.922
0.09	1.54
0.0933	1.182
0.0966	1.236
0.1	1.16
0.1033	0.328
0.1066	1.584
0.11	0.256
0.1133	-0.107
0.1166	1.217
0.12	1.439
0.1233	1.552
0.1266	1.439
0.13	1.556
0.1333	1.375
0.1366	0.762
0.14	1.015
0.1433	1.22
0.1466	1.116
0.15	0.993
0.1533	1.186
0.1566	1.242
0.16	1.138
0.1633	1.106
0.1666	1.176
0.17	1.122
0.1733	1.125
0.1766	1.144
0.18	1.163
0.1833	1.148
0.1866	1.138
0.19	1.141
0.1933	1.141
0.1966	1.141
0.2	1.141
0.2033	1.138
0.2066	1.138
0.21	1.138
0.2133	1.138
0.2166	1.138
0.22	1.138
0.2233	1.138
0.2266	1.135
0.23	1.135
0.2333	1.135
0.2366	1.135
0.24	1.135
0.2433	1.135
0.2466	1.132
0.25	1.132

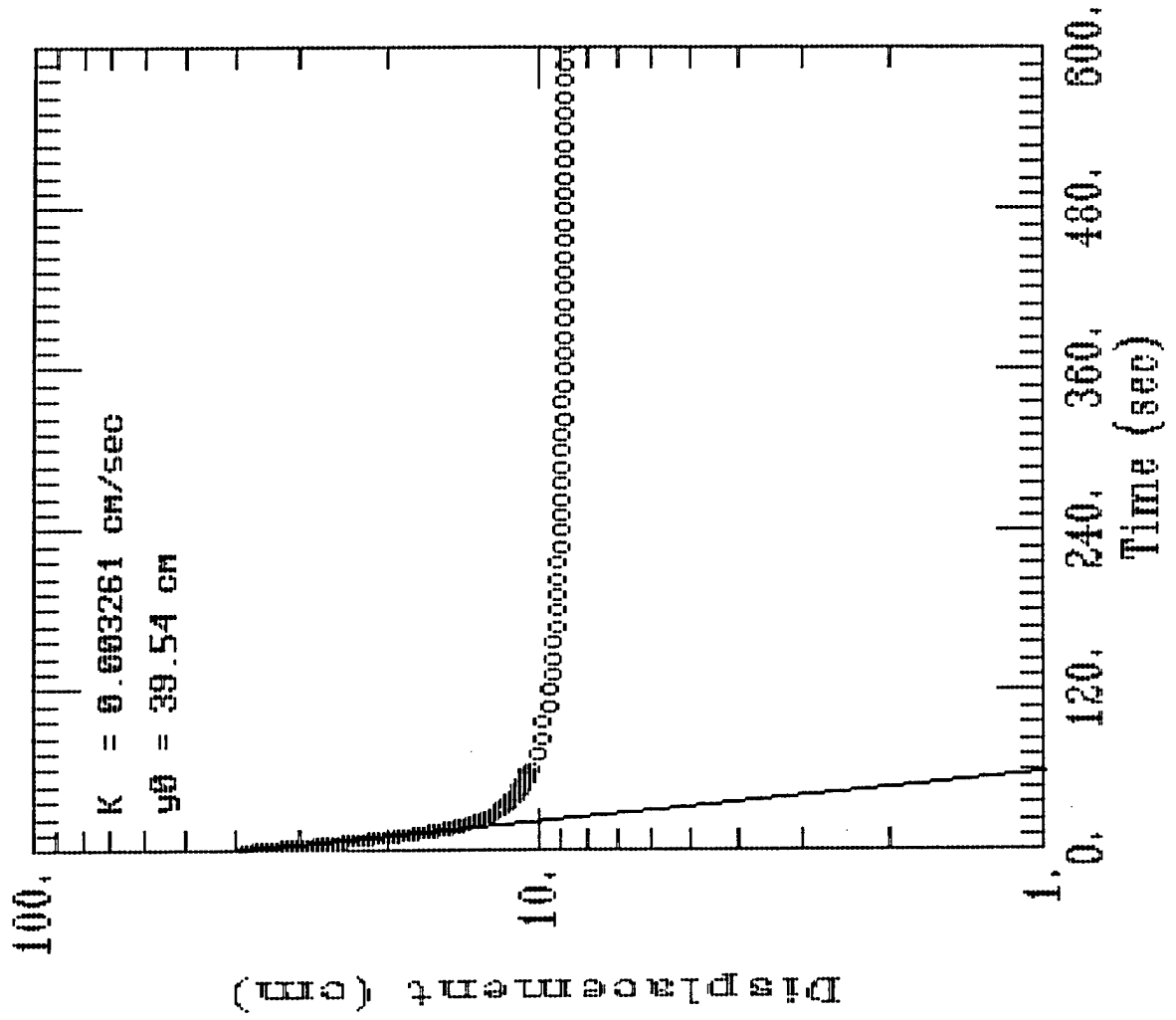
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0.2566	1.132
0.26	1.132
0.2633	1.132
0.2666	1.132
0.27	1.129
0.2733	1.129
0.2766	1.129
0.28	1.129
0.2833	1.129
0.2866	1.129
0.29	1.129
0.2933	1.125
0.2966	1.125
0.3	1.125
0.3033	1.125
0.3066	1.125
0.31	1.125
0.3133	1.125
0.3166	1.122
0.32	1.122
0.3233	1.122
0.3266	1.122
0.33	1.122
0.3333	1.122
0.35	1.119
0.3666	1.116
0.3833	1.113
0.4	1.11
0.4166	1.11
0.4333	1.106
0.45	1.103
0.4666	1.1
0.4833	1.1
0.5	1.097
0.5166	1.094
0.5333	1.091
0.55	1.091
0.5666	1.087
0.5833	1.084
0.6	1.081
0.6166	1.078
0.6333	1.078
0.65	1.075
0.6666	1.072
0.6833	1.072
0.7	1.069
0.7166	1.065
0.7333	1.062
0.75	1.062
0.7666	1.059
0.7833	1.056
0.8	1.056
0.8166	1.053
0.8333	1.053
0.85	1.05
0.8666	1.046
0.8833	1.046
0.9	1.043
0.9166	1.043
0.9333	1.04
0.95	1.04
0.9666	1.037
0.9833	1.034
1	1.034
1.2	1.008
1.4	0.986
1.6	0.967
1.8	0.948
2	0.929
2.2	0.91
2.4	0.891
2.6	0.879
2.8	0.86
3	0.841
3.2	0.825
3.4	0.809
3.6	0.797
3.8	0.781

4	0.765
4.2	0.749
4.4	0.736
4.6	0.721
4.8	0.708
<hr/>	
5	0.695
5.2	0.683
5.4	0.67
5.6	0.657
5.8	0.645
6	0.632
6.2	0.623
6.4	0.61
6.6	0.597
6.8	0.586
7	0.576
7.2	0.569
7.4	0.556
7.6	0.547
7.8	0.537
8	0.528
8.2	0.518
8.4	0.509
8.6	0.499
8.8	0.49
9	0.483
9.2	0.474
9.4	0.464
9.6	0.458
9.8	0.452
10	0.442
12	0.373
14	0.313
16	0.268
18	0.234
<hr/>	
20	0.202
22	0.177
24	0.154
26	0.135
28	0.123
30	0.11
32	0.098
34	0.091
36	0.082
38	0.072
40	0.066
42	0.063
44	0.056
46	0.053
48	0.047
50	0.044
52	0.041
54	0.034
56	0.034
58	0.031
60	0.028
62	0.025
64	0.022
66	0.018
68	0.018
70	0.015
72	0.015
74	0.015
76	0.015

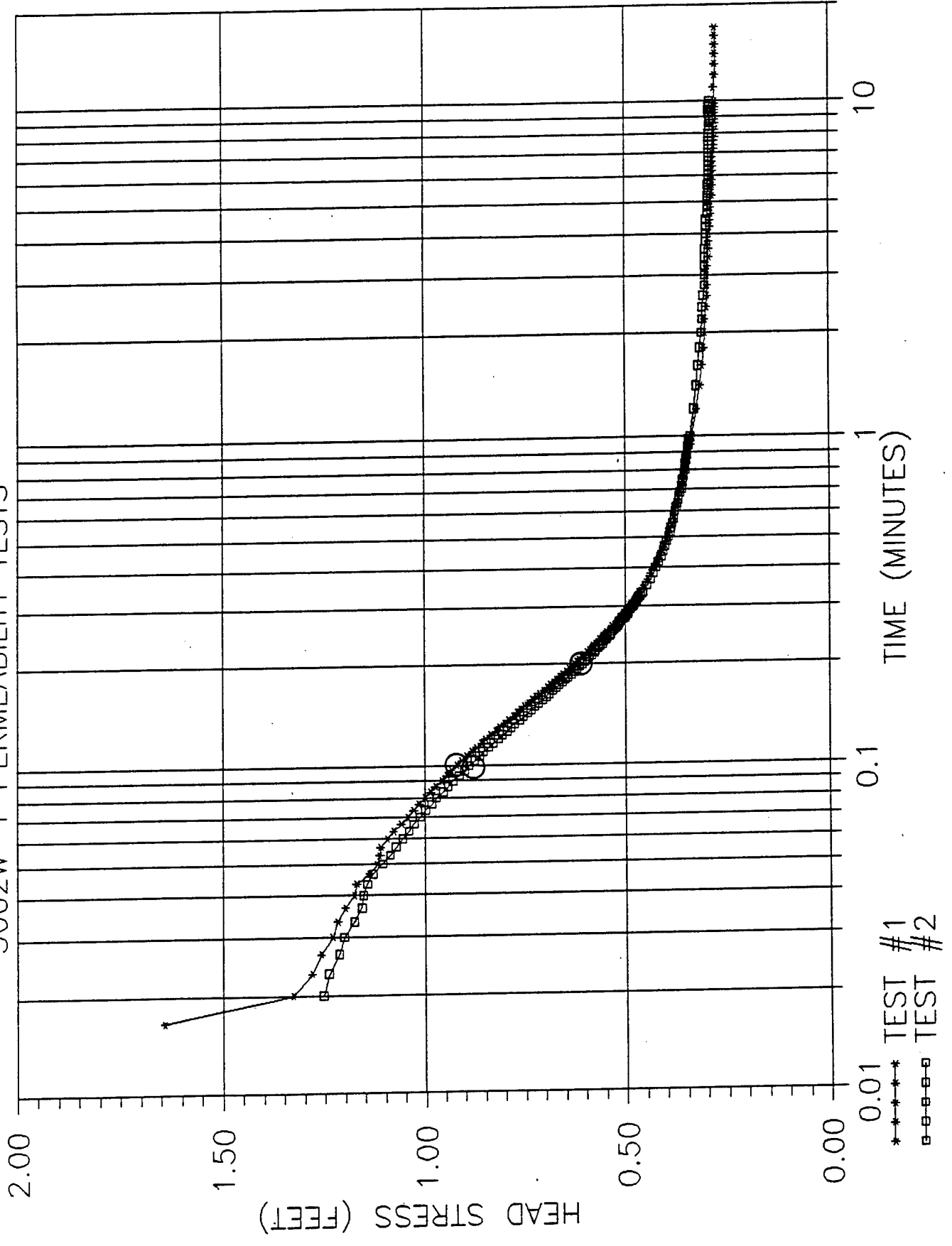
3602W-1 PERMEABILITY TEST #1



3602W-1 PERMEABILITY TEST #2



3602W-1 PERMEABILITY TESTS



WELL 3602W-1
 WELL DIAMETER= 0.333 FT, SATURATED SCREEN LENGTH= 2.9 FT, BORING DIAMETER= 0.833 FT

TEST 1 MINUTES	FEET	TEST 2 MINUTES	FEET
0	0.009	0	0.031
0.0033	-0.015	0.0033	0.041
0.0066	0.691	0.0066	1.477
0.01	1.076	0.01	0.385
0.0133	1.098	0.0133	1.136
0.0166	1.641	0.0166	1.205
0.02	1.328	0.02	1.253
0.0233	1.281	0.0233	1.24
0.0266	1.259	0.0266	1.215
0.03	1.231	0.03	1.202
0.0333	1.218	0.0333	1.177
0.0366	1.199	0.0366	1.158
0.04	1.177	0.04	1.155
0.0433	1.171	0.0433	1.145
0.0466	1.139	0.0466	1.13
0.05	1.12	0.05	1.107
0.0533	1.114	0.0533	1.088
0.0566	1.111	0.0566	1.073
0.06	1.095	0.06	1.057
0.0633	1.079	0.0633	1.041
0.0666	1.06	0.0666	1.029
0.07	1.044	0.07	1.013
0.0733	1.029	0.0733	1
0.0766	1.016	0.0766	0.984
0.08	1	0.08	0.972
0.0833	0.987	0.0833	0.956
0.0866	0.975	0.0866	0.943
0.09	0.959	0.09	0.931
0.0933	0.946	0.0933	0.915
0.0966	0.934	0.0966	0.902
0.1	0.921	0.1	0.89
0.1033	0.909	0.1033	0.877
0.1066	0.896	0.1066	0.864
0.11	0.883	0.11	0.855
0.1133	0.871	0.1133	0.842
0.1166	0.858	0.1166	0.83
0.12	0.849	0.12	0.817
0.1233	0.836	0.1233	0.808
0.1266	0.823	0.1266	0.795
0.13	0.814	0.13	0.785
0.1333	0.801	0.1333	0.776
0.1366	0.792	0.1366	0.763
0.14	0.779	0.14	0.754
0.1433	0.77	0.1433	0.744
0.1466	0.76	0.1466	0.735
0.15	0.751	0.15	0.725
0.1533	0.741	0.1533	0.716
0.1566	0.732	0.1566	0.707
0.16	0.722	0.16	0.697
0.1633	0.713	0.1633	0.691
0.1666	0.703	0.1666	0.681
0.17	0.694	0.17	0.672
0.1733	0.688	0.1733	0.666
0.1766	0.678	0.1766	0.656
0.18	0.672	0.18	0.65
0.1833	0.662	0.1833	0.643
0.1866	0.656	0.1866	0.634
0.19	0.647	0.19	0.628
0.1933	0.64	0.1933	0.621
0.1966	0.634	0.1966	0.615
0.2	0.628	0.2	0.609
0.2033	0.621	0.2033	0.602
0.2066	0.615	0.2066	0.596
0.21	0.609	0.21	0.59
0.2133	0.602	0.2133	0.583
0.2166	0.596	0.2166	0.577
0.22	0.59	0.22	0.574
0.2233	0.583	0.2233	0.568
0.2266	0.58	0.2266	0.564
0.23	0.574	0.23	0.558
0.2333	0.568	0.2333	0.555
0.2366	0.564	0.2366	0.549
0.24	0.558	0.24	0.546
0.2433	0.555	0.2433	0.539
0.2466	0.549	0.2466	0.536
0.25	0.546	0.25	0.533
0.2533	0.539	0.2533	0.527
0.2566	0.536	0.2566	0.523
0.26	0.533	0.26	0.52
0.2633	0.527	0.2633	0.517
0.2666	0.523	0.2666	0.514
0.27	0.52	0.27	0.511
0.2733	0.517	0.2733	0.505
0.2766	0.514	0.2766	0.501
0.28	0.508	0.28	0.498
0.2833	0.508	0.2833	0.495
0.2866	0.505	0.2866	0.492
0.29	0.501	0.29	0.492
0.2933	0.498	0.2933	0.489
0.2966	0.495	0.2966	0.486
0.3	0.492	0.3	0.482
0.3033	0.489	0.3033	0.479
0.3066	0.486	0.3066	0.476
0.31	0.482	0.31	0.473
0.3133	0.479	0.3133	0.473
0.3166	0.476	0.3166	0.47
0.32	0.476	0.32	0.467
0.3233	0.473	0.3233	0.464
0.3266	0.47	0.3266	0.464
0.33	0.467	0.33	0.46
0.3333	0.467	0.3333	0.457
0.35	0.454	0.35	0.448
0.3666	0.445	0.3666	0.438
0.3833	0.438	0.3833	0.432
0.4	0.429	0.4	0.426
0.4166	0.422	0.4166	0.419
0.4333	0.416	0.4333	0.413
0.45	0.41	0.45	0.407
0.4666	0.407	0.4666	0.404
0.4833	0.4	0.4833	0.4
0.5	0.397	0.5	0.394
0.5166	0.394	0.5166	0.391
0.5333	0.391	0.5333	0.388
0.55	0.385	0.55	0.385

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	(20) 4" 2" 3602W1	R. R. A.
DATE OF TEST	10.20.92	
TYPE OF TEST	RISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCD1732	
TEST #	SEL 6 / 10F2	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	- 0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	10.78 (PVC)	
WELL DEPTH (FT./TOC)	17.71 (PVC)	
XD DEPTH (FT./TOC)	13.60 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	13.50 (PVC)	
TIME OF SLUG PLACEMENT	1259	
TIME OF WL EQUILIBRATION	1323	
NEW XD REFERENCE	REFERENCE TO 0	
START TIME OF TEST	1324	
END TIME OF TEST	1341	
NOTES: 5' x 1.5"	BAR STOCK	PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

AQUIFER TESTING COMPLETION CHECKLIST

AQUIFER TEST NO. _____

SETUP	DATE	BY WHOM
MONITORING WELL ID	2' 3602W.1	R. RUSTAD
DATE OF TEST	10.20.92	
TYPE OF TEST	RIISING HEAD	
HERMIT TYPE/SERIAL#	SE 1000C / 1KCO1732	
TEST #	SEL 7 / 2002	
DATA COLLECTION RATE	LOG 1	
TRANSDUCER		
SERIAL #	2045DE	
PSIG	10	
SCALE FACTOR	9.983	
OFFSET	-0.035	
INPUT CHANNEL	# 1	
TEST DATA		
INPUT MODE (TOC/SUR)	TOC	
STATIC WATER LEVEL (FT./TOC)	10.78 (PVC)	
WELL DEPTH (FT./TOC)	13.71 (PVC)	
XD DEPTH (FT./TOC)	13.60 (PVC)	
INITIAL XD REFERENCE	0.00	
SLUG DEPTH (FT./TOC)	13.50 (PVC)	
TIME OF SLUG PLACEMENT	1343	
TIME OF WL EQUILIBRATION	1355	
NEW XD REFERENCE	0.00 (ZEREFERENCES)	
START TIME OF TEST	1400	
END TIME OF TEST	1420	
NOTES:	1.5" x 5'	BAR STOCK PVC

FIGURE 4-14
AQUIFER TEST COMPLETION CHECKLIST
PROJECT OPERATIONS PLAN
FORT DEVENS, MASSACHUSETTS
ABB Environmental Services, Inc.

BORING LOGS AND TEST PIT LOGS

ABB Environmental Services, Inc.

APPENDIX B
BORING/ROCK CORE LOGS
GROUPS 2 AND 7
FORT DEVENS, MA

13M-92-01X
13M-93-02X
13M-93-03X
49M-92-01X
56B-92-01X
56B-92-02X
58M-92-01X
58M-92-02X
58M-92-03X
58M-92-04X
12M-92-01X
27M-92-01X
27M-92-02X
27M-92-03X
27M-92-04X
28M-92-01X
28M-92-02X
28M-92-03X
28M-92-04X
41M-92-01X
41M-93-02B
41M-93-03X
41M-93-04X
41M-93-05X
42B-92-01X
42B-92-02X
42B-92-03X
42B-92-04X
43A-92-01X
43A-92-02X
43B-92-01X
XBB-93-02X
43D-92-01X
XDM-93-01X
XDM-93-02X
XDM-93-03X
XDM-93-04X
43G-92-01X

APPENDIX B
BORING/ROCK CORE LOGS
GROUPS 2 AND 7
FORT DEVENS, MA

XGM-93-01X
XGM-93-02X
XGB-93-03X
XGB-93-04X
XGB-93-05X
XGB-93-06X
XGB-93-07X
XGB-93-08X
XGB-93-09X
XIM-93-01X
43H-92-01X
43I-92-01X
XIM-93-02X
XIM-93-04X
XIM-93-05X
XIM-93-06X
43J-92-01X
XJM-93-01X
XJM-93-02X
XJM-93-03X
XJM-93-04X
43K-92-01X
43N-92-01X
XNM-93-01X
XNM-93-02X
XNM-93-03X
XNM-93-04X
43O-92-01X
XOM-93-01X
XOM-93-02X
XOM-93-03X
43P-92-01X
43R-92-01X

SOIL BORING LOG					Study Area: SA-13		
Client: AEC		Project No. 7053-04			Boring No.: 13M-92-01X (#1)		
Contractor: Soil Exploration		Date Started: 8-4-92			Completed: 8-4-92		Method: HSA
Ground Elev.: 331.3		Soil Drilled: 22'			Total Depth: 22'		Casing Size: 6.25"
Logged by: RRR		Checked by: DSP			Groundwater Below Ground: 14'		
Screen: 10 (ft)		Riser: 13 (ft)		Diam.: 4.0" (ID)	Material: SCH 40 PVC	Protection: Mod.D	Page 1 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.1	0	SILTY SAND, fine, subangular, loose, reddish brown (5/4), dry, roots and some organic matter. (SM)	Using 2" ID split-spoon 4-6-6-9	Abandoned due to refusal. Offset and redrill. (see page 3)
2							
3	S-2	2-4	2.0 ----- 0.7	BKG	SILTY SAND, fine, subangular, loose, reddish brown (5/4), dry. (SM)	6-5-5-5	
4							
5	S-3	4-6	2.0 ----- 0.7	BKG	SILTY SAND, fine, subangular, loose, reddish brown (5YR 4/3), dry. (SM)	4-5-5-7	
6							
7	S-4	6-8	2.0 ----- 1.2	BKG	SILTY SAND, fine, subangular, loose, reddish brown (5YR 4/3), dry. (SM)	6-5-4-4	7.5' hit some cobbles and boulders
8							
9	S-5	8-10	2.0 ----- 1.0	BKG	SILTY SAND, COBBLES, sand is medium, to fine, subangular, loose, dark brown (7.5YR 3/2), damp. (SM)	7-7-8-10	
10							
11	S-6	10-12	2.0 ----- 0.5	BKG	SILTY SAND, COBBLES, sand is medium, to fine, subangular, loose, dark brown (7.5YR 3/2), damp. (SM)	6-5-5-4	
12					12-12.6 SILTY SAND, COBBLES, sand is medium, to fine, subangular, loose, dark brown (7.5YR 3/2), damp. (SM)		
13	S-7	12-14	2.0 ----- 1.8	BKG	SAND, poorly graded, fine to medium, 25-30% silt, 10% coarse sand, subrounded, loose to medium dense, yellowish red (5YR 4/6), damp. (SM)	4-6-7-14	
14							Saturated at 14' BGS.
15	S-8	14-16	2.0 ----- 0.9	BKG	SILT, 20% fine sand, subrounded, firm, light brown (7.5YR 6/4) wet. (SM)	9-13-10-26	

SOIL BORING LOG					Study Area: SA-13		
Client: AEC		Project No. 7053-04			Boring No.: 13M-92-01X (#1)		
Contractor: Soil Exploration		Date Started: 8-4-92		Completed: 8-4-92		Method: HSA	
Ground Elev.: 331.3		Soil Drilled: 22'		Total Depth: 22'		Casing Size: 6.25"	
Logged by: RRR		Checked by: DSP			Groundwater Below Ground: 14'		
Screen: 10 (ft)		Riser: 13 (ft)		Diam.: 4.0" (ID)	Material: SCH 40 PVC	Protection: Mod.D	Page 2 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-7 (cont)	14-16			SAND, medium to fine, with 30% silt, poorly graded, subangular, dark brown (7.5YR 4/4), saturated. (SP)		
17	S-9	16-18	0.7 ----- 1.6	BKG	CLAYEY SILT with 30% fine sand and 10% gravel, subrounded, very dense, damp. (ML)	42-120/0.2'	
18					Refusal with augers at 18' BGS.		
19					Going to offset and redrill boring. See page 3 13M-92-01X (#2).		
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

SOIL BORING LOG					Study Area: SA-13			
Client: AEC		Project No. 7053-04		Boring No.: 13M-92-01X (#2)				
Contractor: Soil Exploration		Date Started: 8-4-92		Completed: 8-4-92		Method: HSA		
Ground Elev.: 331.3		Soil Drilled: 22'		Total Depth: 22'		Casing Size: 6.25"		
Logged by: RRR		Checked by: DSP		Groundwater Below Ground: 14'				
Screen: 10	(ft)	Riser: 13	(ft)	Diam.: 0.33'	(ID)	Material: Sch 40PVC	Protection: Mod.D	Page 3 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS	
16								
17					For soil descriptions 0-18' see pages 1 and 2 (13M-92-01X (#1)).			
18								
19	S-1	18-20	2.0 ----- 1.6	BKG	SANDY SILT and silty fine sand, with a gray clay layer from 18.5-18.7'. Dense, reddish brown (5YR 6/4), damp to wet. Silt is dense with 10-15% cobbles and gravel. (SM)	7-31-35-39		
20								
21	S-2	20-22	2.0 ---	BKG	SANDY SILT similar to above except with 20% gravel. Wet. (SM)	85-57-35-37		
22					----- Bottom of Exploration = 22' BGS.			
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG					Study Area: SA-13		
Client: AEC		Project No. 7053-10		Boring No.: 13-93-02x			
Contractor: NONE		Date Started: 8-3-93		Completed: 8-3-93		Method: Power Auger	
Ground Elev.:		Soil Drilled: 4.7'		Total Depth: 4.7'		Casing Size: None	
Logged by: D.Pierce		Checked by: J. Snowden		Groundwater Below Ground: 2.5'			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-0.8	NA	BKG	SILT, mod. plastic, 5-15% fine sand, moist, firm, black(10yr 2/1), organic odor(decaying vegetation) (ML)	NA	Hand-augered 8" diameter hole for placement of 2" schedule 40 PVC well screen
2							
3	S-2	0.8-4.7	NA	BKG	SANDY CLAY, mod. to highly plastic, 15-35% fine sand, occasional pebbles and cobbles,angular, moist to saturated stiff, grayish brown (10yr 5/2) (ML)		
4							
5					Bottom of boring at 4.7' bgs		
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

SOIL BORING LOG					Study Area: SA-13		
Client: AEC		Project No. 7053-10		Boring No.: 13-93-03x			
Contractor: New Hampshire Boring		Date Started: 8-3-93		Completed: 8-3-93		Method: Power Auger	
Ground Elev.:		Soil Drilled: 3.0'		Total Depth: 3.0'		Casing Size: None	
Logged by: D.Pierce		Checked by: J. Snowden		Groundwater Below Ground: 2.0'			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-0.8	NA	BKG	SILT,mod. plastic, 5-15% fine sand, moist, firm black(10yr 2/1),organic odor(decaying vegetation) (ML)	NA	Hand-augered 8" diameter hole for placement of 2" schedule 40 pvc well screen
2	S-2	0.8-3.0	NA	BKG	GRAVELLY SAND, well graded, fine to coarse, angular 10-30% gravel and cobbles(to 6'), 5-12% fines, saturated very dense, grayish brown(10yr 5/2), TILL (SW-SM)	NA	
3					Bottom of boring at 3.0' bgs		
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							

SOIL BORING LOG					Study Area: SA-49		
Client: AEC		Project No. 7053-04		Boring No.: 49M-92-01X			
Contractor: Soil Exploration		Date Started: 8-5-92		Completed: 8-5-92		Method: HSA	
Ground Elev.: 355.6		Soil Drilled: 18'		Total Depth: 18'		Casing Size: 6.25"	
Logged by: RRR		Checked by: DSP		Groundwater Below Ground: 9' BGS			
Screen: 10 (ft)		Riser: 10 (ft)		Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D Page 1 of 2	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.2	BKG	SAND, poorly graded, fine, 10% silt grading to silty sand, subrounded, loose, brownish yellow (10YR 6/8), dry. (SP) ----- (SM)	2-5-5-6	
2							
3	S-2	2-4	2.0 ----- 1.3	BKG	SAND, poorly graded fine sand, 10% silt, subrounded, loose, very pale brown (10YR 7/4), dry. (SP)	5-8-8-8	
4							
5	S-3	4-6	2.0 ----- 1.0	BKG	SAND, poorly graded fine sand, 10% silt, subrounded, loose, very pale brown (10YR 7/4), dry. (SP)	5-10-15-18	
6							
7	S-4	6-8	2.0 ----- 2.0	BKG	SAND, poorly graded fine sand, 20% silt, subrounded, medium dense, very pale brown (10YR 7/4), dry. (SP)	8-21-21-18	
8							
9	S-5	8-10	2.0 ----- 1.1	BKG	SAND, poorly graded fine sand, 20% silt, subrounded, medium dense, very pale brown (10YR 7/4), becomes wet. (SP)	8-7-15-14	Encountered groundwater at 9' BGS.
10							
11	S-6	10-12	2.0 ----- 1.5	BKG	SANDY SILT to SILTY SAND, sand is fine, plastic, cohesive, medium dense, dark yellowish brown (10YR 4/6), wet. (SM)	9-10-10-14	TOC collected
12							
13	S-7	12-14	2.0 ----- 1.6	BKG	SANDY SILT to SILTY SAND, sand is fine, plastic, cohesive, medium dense, dark yellowish brown (10YR 4/6), wet. (SM)	11-13-14-18	Used Draeger tubes for benzene and 111 TCA No detects.
14							
15	S-8	14-16	2.0 ----- 0.7	BKG	Similar to S-7 except cobble stuck in shoe of split-spoon. (SM)	7-11-14-17	

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SOIL BORING LOG					Study Area: SA-49				
Client: AEC		Project No. 7053-04			Boring No.: 49M-92-01X				
Contractor: Soil Exploration		Date Started: 8-5-92		Completed: 8-5-92		Method: HSA			
Ground Elev.: 355.6		Soil Drilled: 18'		Total Depth: 18'		Casing Size: 6.25"			
Logged by: RRR		Checked by: DSP		Groundwater Below Ground: 9' BGS					
Screen: 10	(ft)	Riser: 10	(ft)	Diam.: 0.33'	(ID)	Material: Sch 40 PVC	Protection: Mod.D	Page 2	of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS		
16			2.0	BKG	SANDY SILT, fine sand, 15% gravel, subangular, plastic, medium dense, yellowish brown (10YR 5/4), wet.	15-15-13-22			
17	S-9	16-18	1.3						
18					----- Bottom of boring = 18.0' BGS. No refusal.				
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									

SOIL BORING LOG					Study Area: SA-56		
Client: AEC		Project No. 7053-10		Boring No.: 56B-92-01X			
Contractor: Soil Exploration		Date Started: 8-28-92		Completed: 8-28-92		Method: HSA	
Ground Elev.: 351.6		Soil Drilled: 10.4'		Total Depth: 10.4' BGS		Casing Size: 4.25"	
Logged by: RRR		Checked by: DSP		Groundwater Below Ground: not encountered			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	
						Page 1 of 1	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.0 ----- 2.0	0.0	SAND, coarse to fine, trace fine gravel (<5 % est.), well graded, subrounded to angular, medium dense, dry, light yellowish brown (10 YR 6/3, Munsell) (SP)	12-17-14-13	Commence drilling at 1320
2							
3	S-2	2-4	1.0 ----- 2.0	0.0	SAND, similar to above	9-10-10-13	
4							
5	S-3	4-6	0.0 ----- 2.0	NA	No recovery	2-2-4-2	
6							
7							
8	S-4	7-9	1.0 ----- 2.0	0.0	GRAVELY SAND, coarse to fine, some silt (<25 % est.), angular, medium dense to dense, damp, greyish brown (2.5 Y 5/2, Munsell) (TILL?) (GM-SM)	9-14-26-54	
9							
10	S-5	9-10.4	1.4 ----- 1.4	0.0	GRAVELY SAND, fine sand, some silty clay, trace medium sand (<6 % est.), poorly graded, dense, damp, greyish brown (2.5 Y 5/2, Munsell) (TILL?) (GM-SM)	120 22-64----- 4"	
11					Bottom of exploration = 10.4' (Refusal)		Refusal at 10.4" BGS
12							
13							
14							
15							
16							

SOIL BORING LOG					Study Area: SA-56		
Client: AEC		Project No. 7053-10		Boring No.: 56B-92-02X			
Contractor: Soil Exploration		Date Started: 9-23-92		Completed: 9-23-92		Method: HSA	
Ground Elev.: 351.6		Soil Drilled: 10.6' BGS		Total Depth: 10.6' BGS		Casing Size: 4.25"	
Logged by: N. BRETON		Checked by: DSP		Groundwater Below Ground: not encountered			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D Page 1 of 1	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.0 ----- 2.0	6.1	SILTY SAND, 25-30 % gravel (est.), 25-30 % silt (est.), well graded, moist, medium dense, brown (10 YR 4/3, Munsell) (SM)	5-7-8-8	Grass and roots in top 0.2'
2							
3	S-2	2-4	0.8 ----- 2.0	1.0	GRAVEL, 30-40 % silt (est.) in sand matrix, well graded, medium, dense, moist, brown (10 YR 4/3, Munsell) (GM-SM)	7-6-4-4	
4							
5	S-3	4-6	0.1 ----- 2.0	0.7	SAND, saturated, poor recovery	2-3-3-3	Poor recovery from 4-6', try to sample from 5-7'
6	S-4	5-7	0.8 ----- 2.0	5.5	SAND, 40 % gravel (est.), 25-30 % silt (est.), well graded, loose, saturated, brown (10 YR 5/3, Munsell), (GM-SM) SANDY SILT, 30- 40 % sand (est.), 10-20 % gravel, well graded, non-plastic, very dense, grey (7.5 YR 4/0) (ML-SW)	1-1-1-7 2-12-36-34	Stratigraphic change at 6.5'
7							
8	S-5	7-9	1.4 ----- 2.0	27	SANDY SILT, similar to above, angular shale fragments in lower 0.3' (ML-SW)	27-33-51- 1"	120 Slight petroleum odor
9							
10							
11					----- Bottom of exploration = 10.6' (Refusal)		Auger refusal at 10.6' BGS
12							
13							
14							
15							
16							

SOIL BORING LOG					Study Area: SA-58		
Client: AEC		Project No. 7053-04		Boring No.: 58M-92-01X			
Contractor: Soil Exploration		Date Started: 9-16-92		Completed: 9-16-92		Method: HSA	
Ground Elev.: 346.4		Soil Drilled: 20'		Total Depth: 20'		Casing Size: 4.25"/6"	
Logged by: RRR		Checked by: DSP		Groundwater Below Ground: 9.6' BGS			
Screen: 10 (ft)		Riser: 9.7 (ft)		Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D Page 1 of 1	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.0	BKG	SANDY SILT and GRAVEL, sand is medium to fine, subrounded, loose dark brown (7.5YR 4/4), dry, pulverized rock caught in shoe. (SM)	7-42-25-17	2" spoon Driller: J. Campbell
2							
3	S-2	2-4	2.0 ----- 1.6	BKG	SILTY SAND and SANDY SILT, approximately 15% gravel, medium dense, light brown (7.5YR 6/4), dry (SM)	15-15-24-44	
4							
5	S-3	4-6	2.0 ----- 0.8	BKG	SILTY SAND, similar to S-2. (SM)	15-39-59-59	Rock caught in shoe.
6							
7	S-4	6-8	2.0 ----- 1.7	BKG	6-7.0' SANDY SILT and SILTY SAND, approximately 15% cobbles and gravel, light brown (7.5YR 6/4). (SM) 7-8.0' SILT and COARSE GRAVEL, subangular, medium dense, gray (10YR 6/1), dry. (SM)	32-36-25-32	Rock caught in shoe.
8							
9	S-5	8-10	2.0 ----- 1.1	BKG	SILTY SAND, fine sand with 15% medium 10% gravel, subrounded, medium dense, yellowish brown (10YR 5/6), moist. (SM)	24-34-28-28	
10							
11	S-6	10-12	2.0 ----- 1.6	BKG	SILTY SAND, similar to S-5. (SM)	31-42-65-82	3" spoon
12							
13	S-7	12-13	1.0 ----- 0.9	BKG	Top 0.6' recovery is silty sand similar to S-6. Bottom 0.3' recovery is weathered siltstone shale.	64-120/0.3	Encountered bedrock at 12' BGS. 1325
14	S-8	14-15	0.3 ----- 0.0	BKG	Refusal with split-spoon.		
16					Continued to advance augers through uncompetent shale to 20'.		
18							
20					Bottom of boring = 20.0' BGS. Refusal in bedrock.		

SOIL BORING LOG					Study Area: SA-58		
Client: AEC		Project No. 7053-04		Boring No.: 58M-92-02X			
Contractor: Soil Exploration		Date Started: 9-11-92		Completed: 9-14-92		Method: HSA	
Ground Elev.: 345.1		Soil Drilled: 13.0'		Total Depth: 15.3' BGS		Casing Size: 6.25"	
Logged by: J. Snowden		Checked by: DSP		Groundwater Below Ground: 7.5' BGS			
Screen: 10 (ft)		Riser: 7 (ft)		Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D	Page 1 of 1
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.8	BKG	0-0.5' SANDY SILT, with approx. 40% fine gravel, rounded, loose, dark brown (7.5YR), dry, some organic matter (grass). 0.5-1.0' SAND, fine, loose, light brown (2.5YR 8/3) with some dark brown (3/3) layers, dry. 1-2.0' SAND, fine to medium with some coarse gravel, loose, olive yellow (2.5Y 6/6), dry. (SP/SM)	10-8-12-10	Fill to 2.0' 1300 Began drilling.
2							
3							
4							
5							
6	S-2	5-7	2.0 ----- 1.2	BKG	SAND, with 10-15% silt and 25% medium gravel, subrounded, loose, yellow, (2.5Y 7/6), moist to wet. (SM)	15-16-14-8	The bottom of the spoon was saturated.
7							
8	S-3	7-9	2.0 ----- 0.1	BKG	Insufficient recovery in spoon due to a coarse piece of gravel in the end of the split-spoon.	10-11-15-18	3" spoon
9							
10	S-4	9-11	2.0 ----- 0.5	BKG	Similar to S-2. SAND, with 10-15% silt and 25% medium gravel, subrounded, loose, yellow, (2.5Y 7/6), moist to wet. (SM)	6-18-10-21	Analytical sample collected.
11							
12							
13							Apparent top of bedrock at 13.0" BGS.
14							1630 Finished drilling. Will complete with well on 9-14-92.
15	S-5	15-15.3	0.3 ----- 0.3	BKG	Bottom of boring = 15.3' BGS. Refusal with spoon.	100/0.3'	

SOIL BORING LOG					Study Area: SA-58		
Client: AEC		Project No. 7053-04		Boring No.: 58M-92-03X			
Contractor: Soil Exploration		Date Started: 9-14-92		Completed: 9-15-92		Method: HSA	
Ground Elev.: 346.1		Soil Drilled: 15.0'		Total Depth: 15.0' BGS		Casing Size: 6.25"	
Logged by: B. Metzger		Checked by: DSP		Groundwater Below Ground: 10.3' BGS			
Screen: 10 (ft)		Riser: 7.7 (ft)		Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D	
Page 1 of 1							
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.2	0.0	0-0.5 GRAVELLY SAND, poorly graded, >50% coarse sand to coarse gravel, angular, gray (5Y 6/1), trace of organics. (SP) 0.5-1.1 SILTY SAND, fine sand with 10% coarse sand to fine gravel, changes from gray to dark grayish brown (10YR 4/2) (SM) 1.1-1.2 SAND, fine, poorly graded, with a trace of coarse sand, subangular, moderately dense, light gray (10YR 7/2), dry. (SP)	12-15-22-18	2" spoon 0-2' Fill
2							
3							
4							
5							
6	S-2	5-7	2.0 ----- 0.9	0.0	GRAVELLY SAND, well graded, 20-30% fine gravel to coarse sand, angular, dense, dry, stratified color contacts with depth; grayish brown (10YR 5/2) reddish brown (2.5YR 4/6) pale brown (10YR 6/3) (SW)	28-33-38-40	3" spoon Pieces of black asphalt material 0.4' from top of spoon.
7							
8							
9	S-3	8-10	2.0 ----- 1.5	0.0	SILTY SAND, dense, brown (10YR 5/3), dry. (SM) grades to SAND, well graded, 20% fine gravel, angular, dense, reddish brown (2.5YR 4/6), dry. (SW)	35-35-26-36	3" spoon Piece of shale in tip of spoon.
10							
11	S-4	10-12	2.0 ----- 1.3	0.0	SILTY SAND to FINE SANDY SILT, with 25% coarse sand to fine gravel, slightly plastic, subrounded to subangular, moderately dense, olive brown (2.5Y 4/4), damp to wet. (SM/ML)		
12							9-15-92 Resume drilling.
13							
14							
15	S-5	15-16.2	1.2 ----- 1.0	22	15-15.3 SILT, with a trace of clay and a trace of fine sand, slightly plastic, firm, olive brown (2.5Y 4/3), wet. 15.3-16.2 SHALE, weathered, gray with reddish brown particles along fractures, some iron oxidation.	30-40- 120/0.2'	2" spoon Top of rock at 15.3' BGS
16							
17					Bottom of boring = 16.2' BGS. Auger refusal at 15.0' BGS		

ABB Environmental Services, Inc.

SOIL BORING LOG					Study Area: SA-58		
Client: USATHEMA			Project No. 7053-04		Boring No.: 58M-92-04X		
Contractor: Soil Exploration			Date Started: 9-15-92		Completed: 9-15-92		Method: HSA
Ground Elev.: 342.5' a.s.l.			Soil Drilled: 15.7'		Total Depth: 16.2' BGS		Casing Size: 6.25"
Logged by: B. Metzger			Checked by: DSP		Groundwater Below Ground: 7.6' BGS		
Screen: 10 (ft)		Riser: 7 (ft)		Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D	Page 1 of 1
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.6	0.0	SILTY SAND, well graded, fine to coarse, nonplastic fines, <10% coarse gravel, rounded, top is dark grayish brown (10YR 4/2), bottom is olive brown (2.5Y 4/3), dry, some organics (root hairs and grass). (SM)	5-10-11-10	2" spoon
2							
3							
4							Auger on rock at 4.0'. (Cobble)
5					5-5.5 SILTY SAND, fine sand with nonplastic fines, poorly graded dense, dark grayish brown (10YR 3/2), dry. (SM)		2" spoon
6	S-2	5-7	2.0 ----- 1.6	0.0	5.5-7 SAND, fine to coarse, well graded, some gravel, angular, loose, some iron oxidation along rock fractures, light olive (2.5Y 4/4), dry. (SW)	25-13-40-25	Dark gray organics seam at 6-6.1' est 1420
7							
8	S-3	7-9	2.0 ----- 0.9	0.0	SANDY SILT, with 10% coarse sand to fine gravel, slightly plastic, angular to subangular, stiff, olive brown (2.5Y 4/4), wet. (ML)	25-24-18-20	3" spoon Rock in tip of spoon. 1445
9							
10	S-4	9-11	2.0 ----- 1.1	0.0	SILTY SAND, with 20-30% coarse sand to fine gravel, medium dense very dark grayish brown to olive brown (2.5Y 3/2 to 3/3), wet. (SM)	14-18-17-17	3" spoon Analytical sample collected. 1500
11							
12							
13							
14							
15	S-5	15-16	1.0 ----- 0.7	0.0	SILTY SAND, with <10% coarse sand to fine gravel, dense, very dark grayish brown to olive brown (2.5Y 3/2 to 3/3), wet. (SM)	80-120/0.2'	2" spoon Top of rock at 15.7' BGS.
16					Bottom of boring = 16.2' BGS. Refusal with augers and spoon.		
17							

ABB Environmental Services, Inc.

SOIL BORING LOG						Study Area: SA-12	
Client: AEC			Project No. 7053-04			Boring No.: 12M-92-01X	
Contractor: Soil Exploration			Date Started: 8-14-92		Completed: 8-19-92	Method: HSA	
Ground Elev.: 267.2			Soil Drilled: 40'		Total Depth: 74'	Casing Size: 6.25"	
Logged by: P. Bolmer			Checked by: DSP		Groundwater Below Ground: 43'		
Screen: 10 (ft)		Riser: 42.4 (ft)		Diam.: 4.0" (ID)	Material: SCH 40 PVC	Protection: Mod.D	Page 1 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.1	BKG	SAND, well graded coarse to fine, rounded, loose, light brown to brown (2.5Y 7/2 to 5/3), damp to moist. (SW)	5-10-7-10	1125 start drilling
2							
3	S-2	2-4	2.0 ----- 0.9	BKG	SAND, well graded, coarse to fine, rounded, loose, black (2.5Y 2/1), moist. (SW)	11-6-8-10	
4							
5	S-3	4-6	2.0 ----- 0.5	BKG	SAND, well graded, coarse to fine, rounded, loose, light brown (2.5Y 7/2), moist. (SW)	5-6-6-7	
6							
7	S-4	6-8	2.0 ----- 0.9	BKG	SAND, well graded, coarse to fine, rounded, loose, light brown (2.5Y 7/3), moist. (SW)	6-5-5-4	
8							
9	S-5	8-10	2.0 ----- 0.8	BKG	SAND, well graded, coarse to fine, rounded, loose, light brown (2.5Y 7/3), moist. (SW)	2-3-2-3	
10							
11	S-6	10-12	2.0 ----- 1.1	BKG	SAND, well graded, coarse to fine, rounded, loose, light brown (2.5Y 7/3), moist. (SW)	2-4-7-6	
12							
13	S-7	12-14	2.0 ----- 1.1	BKG	SAND, well graded, coarse to fine, rounded, loose, light brown (2.5Y 7/3), moist. (SW)	3-3-3-2	
14							
15	S-8	14-16	2.0 ----- 1.1	BKG	SAND, well graded, coarse to fine, rounded, loose, light brown (2.5Y 7/3), moist. (SW)	2-3-6-8	Change @ 15.1 to clay\silt.

SOIL BORING LOG					Study Area: SA-12		
Client: AEC		Project No. 7053-04		Boring No.: 12M-92-01X			
Contractor: Soil Exploration		Date Started: 8-14-92		Completed: 8-19-92		Method: HSA	
Ground Elev.: 267.2		Soil Drilled: 40'		Total Depth: 74'		Casing Size: 6.25"	
Logged by: P. Bolmer		Checked by: DSP		Groundwater Below Ground: 43'			
Screen: 10 (ft)		Riser: 42.4 (ft)		Diam.: 4.0" (ID)	Material: SCH 40 PVC	Protection: Mod.D	Page 2 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-8 (cont)	14-16		BKG	SILTY CLAY, moderately plastic, firm, moist, olive (2.5Y 5/3) (SW/CL)		
17	S-9	16-18	2.0 ----- 1.6	BKG	SILTY CLAY, plastic, firm to stiff, moist to saturated, olive (2.5Y 5/3), varved. (CL)	6-8-14-15	
18							
19	S-10	18-20	2.0 ----- 1.1	BKG	CLAYEY SILT, nonplastic, soft, damp to moist, olive (2.5Y 5/3) varved. (ML)	11-10-9-10	
20							
21	S-11	20-22	2.0 ----- 1.1	BKG	CLAYEY SILT, nonplastic, soft, damp to moist, olive (2.5Y 5/3) varved. (ML)	5-8-19-21	1445 Done for the day. Augers @ 21' BGS
22							8-19-92 Begin drilling 1420 Change @ 22.3
23	S-12	22-24	2.0 ----- 1.4	--	SAND, poorly graded, medium to fine, medium dense, gray (10YR 7/1), dry to moist. (SM)	10-17-20-38	
24							
25	S-13	24-26	2.0 ----- 1.4	--	SAND, poorly graded, medium to fine, medium dense, gray (10YR 7/1), dry to moist. (SM)	15-22-30-29	
26							
27	S-14	26-28	2.0 ----- 1.8	--	SAND, poorly graded, medium to fine, medium dense, gray (10YR 7/1), dry to moist. (SM)	11-22-23-30	
28							
29	S-15	28-30	2.0 ----- 1.8	--	SAND, poorly graded, medium to fine, medium dense, gray (10YR 7/1), dry to moist. (SM)	12-21-27-32	
30							

ABB Environmental Services, Inc.

SOIL BORING LOG					Study Area: SA-12			
Client: AEC			Project No. 7053-04		Boring No.: 12M-92-01X			
Contractor: Soil Exploration			Date Started: 8-14-92		Completed: 8-19-92		Method: HSA	
Ground Elev.: 267.2			Soil Drilled: 40'		Total Depth: 74'		Casing Size: 6.25"	
Logged by: P. Bolmer			Checked by: DSP		Groundwater Below Ground: 43'			
Screen: 10 (ft)		Riser: 42.4 (ft)		Diam.: 4.0" (ID)	Material: SCH 40 PVC	Protection: Mod.D	Page 3 of 3	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS \6-IN.	COMMENTS	
31	S-16	30-32	2.0 ----- ---	--	30-31.5 SAND, poorly graded, medium to fine, medium dense, gray (10YR 7/1), dry to moist. (SM) 31.5-32 Fine SANDY SILT, poorly graded, firm, gray (10YR 6/1), moist. (SM)	11-24-30-50	1530 8-17-92 End drilling ----- Resume drilling 0935 8-18-92	
32								
33	S-17	32-34	2.0 ----- 1.8	BKG	SAND, poorly graded, fine sand with 15-20% silt, subrounded, medium dense, light yellowish brown (10YR 6/4), moist. (SP)	17-20-35-37		
34								
35	S-18	34-36	2.0 ----- 1.5	BKG	SAND, poorly graded, medium to 20% fine, subrounded, medium dense, gray (10YR 6/1), moist. (SP)	15-17-18-25		
36					36-36.3 SAND, poorly graded, medium to 20% fine, subrounded, medium dense, gray (10YR 6/1), wet. (SP)			
37	S-19	36-38	2.0 ----- 1.8	BKG	SANDY SILT, poorly graded, fine, subrounded, medium dense, dark gray (10YR 4/1), moist. (SP-SM) Coarse gravel in tip of spoon.	15-17-18-35	Water perched on silt layer	
38								
39	S-20	38-40	2.0 ----- 1.3	BKG	GRAVEL, coarse to fine in a silty matrix, dense to very dense, brown (7.5YR 5/4), moist. Gravel is weathered metasediment. (GM)	20-42-40-94		
40	S-21	40-40.3	0.3 ----- 0.3	BKG	Metasediment pelitic ROCK in shoe of spoon. Dry.	110 for 0.3		
41					Refusal at 40.0' BGS with augers. Refer to Core Logs (40'-74')			
42								
43								
44								
45								

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ROCK CORING LOG

Project: Fort Devens		Study Area: SA 12 12M-92-01X		Project No: 7053-04
Client: USATHAMA		Driller's Name: J CAMPBELL	Logged by: RRR	Checked by:
Drilling Contractor: SOIL EX		Protection Level: MODIFIED D	Rig Type: ACKER	Start Date: 09-02-92
Drilling Method: DRIVE / WASU / CORE NO		P.I.D. (ØV): TE/OVM	Casing Size: 6"	Auger Size:
Bit type/size: NO 2 7/8 / 2 1/4		Bit Use: SERIES 8	Core Interval (to/from)(ft): 43' → 51'	

Depth (feet) Below GRID Sort.	Sample No. & Penetration/ Recovery (feet)	Graphic Log	Natural Cove Breaks		Weathered Condition	Rock Quality			Drilling Rate min/ft	Color	Rock Description and Comments on Drilling
			Type/Dip	Surface Condition		Total 4" Core	RQD (%)	Rock Quality Description			
43	R-1 1.0 0.9		0-10' FRAC		POORLY WEATH	0.5	0.5 0.9 55%		5 m/f	10YR VDC 3/1	GREY POORLY WEATHERED, META-PELICITIC SILTSTONE, SLIGHTLY METAMORPHOSED ROUGHLY HORIZONTAL BEDDING CHANGING TO FOLDED BEDDING. SLIGHTLY VUGGY, CURFELY SILICICLASTIC
44			BED PLANE FRAC 20°								
45	R-2 5.0 5.0		"		MOD WEATH	5.0	5.0 5.0 100%		5 m/f	10YR VDC 3/1	CALCITE REPLACEMENT IN JOINT FRAC ALONG W/ LITTLE CLAY
46			"								META PELITIC SILTSTONE AS ABOVE. FREQUENT CALCITE REPLACEMENT OF FRACTURES TANGENTIAL TO BEDDING PLANES
47			"								BEDDING IS THIN LAMINAE MANY POTENTIAL WATER BEARING FRACTURES, CHIEFLY SILICICLASTIC w/ 2° hornblende, calcite, metallic, some ferrous constituents ALONG BEDDING/FRACTURE PLANES, NOT FOUND ALONG MECHANICAL FRACTURES
48	(No)		"								SOLUTION CAVITIES w/ CALCITE REPLACEMENT
49			"								
50	R-3 5.0 4.9		BED PLANE FRAC 45°		WELL WEATH	4.4	4.4 4.9		4 m/f	10YR VDC 3/1	META PELITIC SILTSTONE AS ABOVE
			X 45°								EXTENSIVE QUARTZ BANDING AND SECONDARY REPLACEMENT

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ROCK CORING LOG

Project: Fort Devens		Study Area: <u>(M)</u> 12M-92 012 012		Project No.: 7053-04	
Client: USATHAMA		Driller's Name: <u>J CAMPBELL</u>		Logged by: <u>12RR</u>	Checked by:
Drilling Contractor: <u>SOIL EX</u>		Protection Level: <u>MODIFIED D</u>		Rig Type: <u>ACKER</u>	Start Date: 9.02.92
Drilling Method: <u>DRIVE + WASH / CORE</u>		P.I.D. (pV): <u>TE/GVM</u>		Casing Size: <u>6"</u>	Auger Size: <u>6 1/4"</u> <u>(CAL)</u>
Bit type/size: <u>NQ 2 3/8 / 2 1/4</u>		Bit Use: <u>SERIES 8</u>		Core Interval (to/from)(ft): <u>51 - 59</u>	

Depth (feet) Below GRD Surf.	Sample No. & Penetration/ Recovery (feet)	Graphic Log	Natural Cove Breaks			Rock Quality			Drilling Rate min/ft	Color	Rock Description and Comments on Drilling
			Type/Dip	Surface Condition	Weathered Condition	Total 4" Core	RQD (%)	Rock Quality Description			
52										FRACTURES CHIEFLY ALONG BEDDING PLANES	
53										BEDDING PLANES OBSCURED BY EXTENSIVE FOLDING EVIDENCING TECTONIC ACTION. QUARTZ AND CALCITE REPLACEMENT	
54										PELITIC SILTSTONE SLIGHTLY META. AS ABOVE	
55											
56	R-4 5.0 5.0				Poorly washed	4.0	4.0 5.0	4 min F	10 yr VOC 3/1		
57										SOME THIN CALCITE REPLACEMENT IN HEALED FRACTURES	
58											
59										RUST STAINING	

(P)

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ROCK CORING LOG

Project: Fort Devens		Study Area: 12M-92-01X		Project No.: 7053-041	
Client: USATHAMA		Driller's Name: J. CAMPBELL		Logged by: RRR	Checked by:
Drilling Contractor: SOIL EXPLORATION		Protection Level: MODIFIED D		Rig Type: ACKER	Start Date: 9.02.92
Drilling Method: DRIVE + WASH / CORE		P.I.D. (eV): TE/OV		Casing Size: 6"	Finish Date: 9.09.92
Bit type/size: NO		Bit Use: SERIES 8		Core Interval (to/from)(ft): 59' → 67'	

Depth (feet) Below GRD Sort.	Sample No. & Penetration/ Recovery (feet)	Graphic Log	Natural Cove Breaks		Weathered Condition	Rock Quality			Drilling Rate min/ft	Color	Rock Description and Comments on Drilling
			Type/Dip	Surface Condition		Total 4" Core	ROD (%)	Rock Quality Description			
60			190°		MOD WEATH	4.25	4.25		5min	10YR V06 3/1	<p>BEDDING HAS BEEN DEFORMED EXTENSIVELY, CALCITE REPRECIPITATION</p> <p>← FRACTURE AGAINST BEDDING PLANE. (COMPRESSION?)</p> <p>SILTSTONE AS ABOVE META PELTIC. THIN LAMINAE. MANY BEDDING PLANES HAVE ZONARY QTZ CLAY, HORNBLENDE, AND HEATITE STAINING</p>
61	R.5 4.9 5.0		X30°						WELL WEATH		
62			X70°		POOR WEATH				5min		
63	ZONARY QTZ →		X45°								
64		ZONARY QTZ →	X20°					10min		<p>BOTH MECHANICAL AND WEATHERED FRACTURES OCCUR ALONG BEDDING PLANES</p>	
65	QTZ	X20°						6			
66	2.6 QTZ 5.0 5.0	X20°		POOR WEATH				5			
67	QTZ	X20°						7.5		<p>SILTSTONE AS ABOVE</p> <p>BECOMING MORE COMPETENT IN THIS CORE THAN PREVIOUS CORES</p> <p>MAINLY QUARTZ ZONING</p> <p>NO CLAY. EVIDENT IN WEATHERED FRACTURES. (WEATHERED FRACTURES ARE MUCH LESS WEATHERED)</p>	

92031597

ROCK CORING LOG

Project: Fort Devens		Study Area: 1200-92-01X		Project No. 7053.04	
Client: USATHAMA		Driller's Name: J. CAMPBELL		Logged by: RTR	Checked by:
Drilling Contractor: SOIL EX		Protection Level: MODIFIED D		Rig Type: ACKER	Start Date: 9.02.92
Drilling Method: DRIVE + WASH / CORE		P.I.D. (eV): TE/OVM		Casing Size: 6"	Auger Size:
Bit type/size: NO		Bit Use: SERIES 8		Core Interval (to/from)(ft): 67 → 74'	

Depth (feet) Below GRD Surf.	Sample No. & Penetration/ Recovery (feet)	Graphic Log	Natural Cove Breaks			Rock Quality			Drilling Rate min/ft	Color	Rock Description and Comments on Drilling
			Type/Dip	Surface Condition	Weathered Condition	Total 4" Core	RQD (%)	Rock Quality Description			
68	x 10° x 10° x 10° x 30° x 10°				↑	4.1	82%	7.5	100% VDC 3/1	FEWER WEATHERED FRACTURES	
69	x 30°				↓			5			
70	x x x				↑			7	100% VDC 3/1	VERY COMPETENT SILTSTONE. SAME TYPE OF ROCK.	
71					↑	4.3	88%	4			
72					↑			4			
73	x				↑			4			
74	x x x				↓			5			

SOIL BORING LOG					Study Area: SA-27		
Client: AEC		Project No. 7053-04		Boring No.: 27M-92-01X			
Contractor: Soil Exploration		Date Started: 8-12-92		Completed: 8-13-92		Method: HSA	
Ground Elev.: 244.8		Soil Drilled: 22'		Total Depth: 22'		Casing Size: 6.25"	
Logged by: R.R.R.		Checked by: DSP		Groundwater Below Ground: 16.0			
Screen: 10 (ft)		Riser: 10 (ft)		Diam.: 4.0" (ID)	Material: Sch 40PVC	Protection: Mod.D Page 1 of 2	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.1	BKG	0-0.6' SAND, well graded, medium to fine, 15% coarse, 5% silt, subangular, loose, dark yellowish brown (10YR 3/4), moist. (SW) SILT, 5-10% fine sand, plastic, soft, gray mottled brown (10YR 6/1), moist. (ML)	1-2-7-20	1430 Start time. Driller: D. Leger
2							
3							
4							At 4' offset hole 5" SE
5	S-2	4-6	2.0 ----- 1.6	BKG	CLAYEY SILT, 5% fine sand, plastic, cohesive, firm, light brown (7.5YR 6/4), damp, some varves visible. (ML)	5-7-9-10	At 4' offset again.
6							
7							
8							
9							
10							
11	S-3	10-12	2.0 ----- 1.7	BKG	SILTY CLAY, plastic, cohesive, soft, gray (10YR 5/1), wet. (CL) Silty sand layer at 11.4-11.5, well graded, medium to fine, subrounded to rounded, loose, gray (10YR 5/1), wet.	2-3-5-8	
12							
13							
14							
15	S-4	14-16	2.0 ----- 1.3	BKG	CLAYEY SILT and SILT, moderate to low plasticity, grayish brown (10YR 5/2), damp, varves visible, some brown layers. (ML)	17-20-15-22	

SOIL BORING LOG					Study Area: SA-27		
Client: AEC			Project No. 7053-04		Boring No.: 27M-92-01X		
Contractor: Soil Exploration			Date Started: 8-12-92		Completed: 8-13-92		Method: HSA
Ground Elev.: 244.8			Soil Drilled: 22'		Total Depth: 22'		Casing Size: 6.25"
Logged by: R.R.R.			Checked by: DSP		Groundwater Below Ground: 16		
Screen: 10 (ft)		Riser: 10 (ft)		Diam.: 4.0" (ID)	Material: Sch 40PVC	Protection: Mod.D	Page 2 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16					CLAYEY SILT and SILT (see page 1)		Encountered Groundwater at 16-17' BGS. Water rose to 12' BGS.
17							
18							
19							
20							
21	S-5	20-22	2.0 ----- 1.2	BKG	SAND and GRAVEL, well sorted, coarse to fine, subrounded, medium dense, wet. (SW-GW)	17-20-15-22	
22					----- Bottom of boring = 22' BGS. No refusal.		
23							
24							
25							
26							
27							
28							
29							
30							

SOIL BORING LOG					Study Area: SA-27		
Client: AEC		Project No. 7053-04		Boring No.: 27M-92-02X			
Contractor: Soil Exploration		Date Started: 8-9-92		Completed: 8-10-92		Method: HSA	
Ground Elev.: 252.2		Soil Drilled: 26'		Total Depth: 26'		Casing Size: 6.25"	
Logged by: DSP/RRR		Checked by: DSP		Groundwater Below Ground: 17' BGS			
Screen: 10 (ft)		Riser: 15 (ft)		Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D Page 1 of 2	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.3	1.3	SAND, fine, poorly graded, 5-12% gravel to 0.75", <10% non-plastic fines, subrounded, dense, yellowish brown (10YR 5/6), damp, outwash. (SP)	2-5-31-32	Driller: D. Leger
2							
3	S-2	2-4	2.0 ----- 0.7	BKG	SAND, fine, poorly graded, 5-12% gravel to 0.75", <10% non-plastic fines, subrounded, dense, yellowish brown (10YR 5/6), damp, outwash. (SP)	15-26-11-17	
4							
5	S-3	4-6	2.0 ----- 0.8	BKG	SAND, fine, poorly graded, 5-12% gravel to 1.25", <10% non-plastic fines, subrounded, dense, yellowish brown (10YR 5/6), damp, outwash. (SP)	7-7-5-5	
6							
7	S-4	6-8	2.0 ----- 1.7	BKG	SAND, coarse to fine, mostly fine, 5-12% nonplastic fines, less than 10% gravel to 1-inch diameter maximum, poorly graded, subangular, dense, dark yellowish brown (10YR 4/4), damp, outwash. (SP)	20-13-8-8	
8							
9	S-5	8-10	2.0 ----- 1.4	BKG	SAND, coarse to fine, mostly fine, 5-12% nonplastic fines, less than 10% gravel to 1-inch diameter maximum, poorly graded, subangular, loose, dark yellowish brown (10YR 4/4), damp, outwash. (SP)	5-4-3-7	
10					10-10.5' SAND, coarse to fine, well graded, subrounded, gravel to 0.75", <5% fines, yellowish brown (10YR 5/6). (SW)		
11	S-6	10-12	2.0 ----- 1.3	BKG	10.5-10.6' SILTY SAND, medium to fine, 10-25% moderately plastic fines, very dusky red (10R 2.5/2) (SM) 10.6-10.9' SAND, well graded, fine to coarse, subangular, 10-15% fines, brown (7.5YR 4/6), medium dense, possible metal frags. (SW)	12-10-18-18	
12					10.9-11.3' SAND, same as above except 20-30% gravel to 1.5" maximum, yellowish brown (10YR 5/6), moist. (SW)		
13	S-7	12-14	2.0 ----- 1.1	BKG	SAND, poorly graded, 10-15% fines, dense, subrounded, yellowish brown (10YR 5/6), moist. (SP) interlayered with SAND, well graded, <10% fines, gravel and rock fragments to 1", yellow (10YR 7/3) (SW)	27-20-18-22	
14							
15	S-8	14-16	2.0 ----- 1.4	BKG	14-15.0' SAND, same as above. Damp. (SW)	12-16-10-9	

SOIL BORING LOG					Study Area: SA-27		
Client: AEC		Project No. 7053-04		Boring No.: 27M-92-02X			
Contractor: Soil Exploration		Date Started: 8-9-92		Completed: 8-10-92		Method: HSA	
Ground Elev.: 252.2		Soil Drilled: 26'		Total Depth: 26'		Casing Size: 6.25"	
Logged by: DSP/RRR		Checked by: DSP		Groundwater Below Ground: 17' BGS			
Screen: 10 (ft)		Riser: 15 (ft)		Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D	Page 2 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-8 (cont)	14-16			SAND, well graded, coarse to fine, <5% fines, well rounded, medium dense, light yellowish brown (10YR 6/4), moist. (SW)		1510 8-9-92 Quit for the day.
17	S-9	16-18	2.0 ----- 1.7	20.2	COBBLES with SAND, fine to coarse, well graded, subangular, yellowish brown, (10YR 6/4), wet. (SW)	31-40-54-75	0930 8-10-92 Continue drilling. Groundwater at 17' BGS.
18							
19	S-10	18-20	2.0 ----- 1.5	BKG	COBBLES with SAND, fine to coarse, well graded, subangular, yellowish brown, (10YR 6/4), wet. (SW)	69-84-32-30	
20							
21	S-11	20-22	2.0 ----- 1.0	BKG	COBBLES with SAND, fine to coarse, well graded, subangular, yellowish brown, (10YR 6/4), wet. (SW)	30-19-15-18	
22							
23	S-12	22-24	2.0 ----- 2.0	BKG	COBBLES and SAND, well graded, fine to medium, subrounded, dark grayish brown (10YR 4/3), wet.	17-17-25-18	
24							
25	S-13	24-26	2.0 ----- 0.7	BKG	SAND, well graded. Similar to S-12 with fewer cobbles.	15-13-18-10	
26					----- Bottom of boring = 26.0' BGS. No refusal.		
27							
28							
29							
30							

SOIL BORING LOG					Study Area: SA-27		
Client: AEC		Project No. 7053-04			Boring No.: 27M-92-03X		
Contractor: Soil Exploration		Date Started: 8-6-92		Completed: 8-6-92	Method: HSA		
Ground Elev.: 255.2		Soil Drilled: 27'		Total Depth: 27'	Casing Size: 6.25"		
Logged by: RRR		Checked by: DSP		Groundwater Below Ground: 19' BGS			
Screen: 10 (ft)	Riser: 16.7 (ft)	Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D	Page 1 of 2		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.1	BKG	SAND, poorly graded, medium to fine, subangular, loose, light brown (7.5YR 6/4), dry. (SP)	1-2-5-10	Driller: D. Leger Sampling with 3" spoon.
2							
3							
4							
5	S-2	4-6	2.0 ----- 1.0	BKG	SAND, poorly graded, medium to fine, 15% gravel, subrounded, loose, light brown (7.5YR 6/4), dry. (SP)	9-3-8-6	
6							
7							
8							
9							
10							
11	S-3	10-12	2.0 ----- 1.3	BKG	SAND, well graded, fine to coarse, 10% gravel, subrounded to subangular, loose to medium dense, light gray (2.5Y 7/2), dry. (SW)	8-9-9-12	
12							
13							
14							
15	S-4	14-16	2.0 ----- 1.5	BKG	14-14.9 SAND, poorly graded, fine, 10% silt, medium dense, dark reddish gray (5YR 5/1), dry. (SP)	15-15-20-20	

SOIL BORING LOG					Study Area: SA-27		
Client: AEC		Project No. 7053-04			Boring No.: 27M-92-03X		
Contractor: Soil Exploration		Date Started: 8-6-92		Completed: 8-6-92		Method: HSA	
Ground Elev.: 255.2		Soil Drilled: 27'		Total Depth: 27'		Casing Size: 6.25"	
Logged by: RRR		Checked by: DSP			Groundwater Below Ground: 19' BGS		
Screen: 10 (ft)		Riser: 16.7 (ft)		Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D	Page 2 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4 (cont)	14-16			14.9-15.5 SAND, well graded, medium to coarse, 20% fine, medium dense, gray (5YR 5/1), dry. (SW)		
17							
18							Encountered groundwater at 19' BGS.
19							
20							
21	S-5	20-22	2.0 ----- 0.6	BKG	SAND, well graded, similar to S-4. Moist. (SW)	5-14-24-19	
22							
23	S-6	22-24	2.0 ----- 1.3	BKG	SAND, well graded, similar to S-4. Wet. Rock in tip of spoon. (SW)	53-21-11-8	
24							
25							
26							
27						Completed 1500 8-6-92	
28					Bottom of boring = 27.0' BGS. No refusal.		
29							
30							

SOIL BORING LOG					Study Area: SA-27		
Client: AEC		Project No. 7053-04			Boring No.: 27M-92-04X (#1)		
Contractor: Soil Exploration		Date Started: 8-10-92		Completed: 8-11-92	Method: HSA		
Ground Elev.: 255.0		Soil Drilled: 14'		Total Depth: 14'	Casing Size: 6.25"		
Logged by: RRR		Checked by: DSP		Groundwater Below Ground: 19.7' BGS			
Screen: 10 (ft)		Riser: 17.6 (ft)	Diam.: 4.0" (ID)	Material: SCH 40PVC	Protection: Mod.D	Page 1 of 2	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.7	BKG	SAND, well graded, fine to medium, 10-15% gravel, subrounded to rounded, medium dense, brown (7.5YR 5/3), dry. (SW)	5-19-18-30	Analytical samples collected.
2							
3							
4							
5	S-2	4-6	2.0 ----- 1.1	BKG	SAND, poorly graded, medium, 15% fine sand, 10% gravel, subrounded, medium dense, dark brown (7.5YR 3/4), dry. (SP)	27-54-14-12	
6							
7							
8							
9							
10							
11	S-3	10-12	2.0 ----- 1.8	BKG	SAND, poorly graded, medium, 20% fine sand, 5% gravel, subrounded, loose, dark brown (7.5YR 3/4), dry. (SP)	5-7-7-9	Stop drilling 1730 8-10-92 Resume work 0900 8-11-92
12							
13							
14							
15					Boring terminated at 14' BGS. EHS personnel detected ferrous metal downhole. Offsetting 15' North. Boring log for second hole continued on page 2.		

ABB Environmental Services, Inc.

SOIL BORING LOG					Study Area: SA-27		
Client: AEC		Project No. 7053-04			Boring No.: 27M-92-04X (#2)		
Contractor: Soil Exploration		Date Started: 8-11-92		Completed: 8-11-92		Method: HSA	
Ground Elev.: 255.0		Soil Drilled: 28.5'		Total Depth: 28.5'		Casing Size: 6.25"	
Logged by: RRR		Checked by: DSP		Groundwater Below Ground: 19.7' BGS			
Screen: 10 (ft)		Riser: 17.6 (ft)	Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D	Page 2 of 2	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4	14-16	2.0 ----- 1.1	BKG	SAND, well graded, fine to medium, 20% coarse sand, 10% gravel, rounded to subrounded, medium dense, verigated brown color in the 10YR range, dry.	18-20-20-21	Redrilling due to UXO detect at 14'
17							
18							
19							
20							
21	S-5	20-22	2.0 ----- 1.2	BKG	SAND, well graded, coarse to fine, 20% gravel and cobbles, 15% silt, medium dense, damp becomes wet. (SW)	23-42-45-55	Rock caught in shoe.
22							
23							
24							
25	S-6	24-26	2.0 ----- 0.5	BKG	SAND, well graded, fine to medium, 15% silt, 15% coarse sand, cobbles present, dense, dark yellowish brown (10YR 3/4), wet.	48-34-47-54	Rock caught in shoe.
26							
27							
28							
29					----- Bottom of boring = 28.5' BGS. 1630 8-11-92.		
30							

SOIL BORING LOG					Study Area: SA-28		
Client: AEC		Project No. 7053-04		Boring No.: 28M-92-01X			
Contractor: Soil Exploration		Date Started: 8-24-92		Completed: 8-25-92		Method: HSA	
Ground Elev.: 245.3		Soil Drilled: 16'		Total Depth: 16'		Casing Size: 6.25"	
Logged by: P. Bolmer		Checked by: DSP		Groundwater Below Ground: 7.3' BGS			
Screen: 10 (ft)		Riser: 7.5 (ft)		Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D Page 1 of 1	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.5	0.0	0-0.4 ORGANICS SAND with some silt (est. 35%), poorly graded, loose, pale yellow (2.5 7/4), damp to moist. (SP)	4-3-4-4	Commence drilling 1550
2							
3							
4							
5	S-2	4-6	2.0 ----- 1.5	0.0	SAND, poorly graded, fine sand with a trace (<10%) silt, loose, rounded, olive yellow (2.5Y 6/8), moist, mottled. (SP)	6-8-7-7	
6							
7	S-3	6-8	2.0 ----- 1.7	0.0	SAND, poorly graded, fine sand with a trace (est. 8%) medium sand and a trace (est. 5%) silt, rounded, loose, light yellowish brown (2.5Y 6/3), saturated. (SP)	5-8-7-10	1700, finish drilling for the day.
8							
9							0800 commence drilling.
10							
11	S-4	10-12	2.0 ----- 0.5	0.0	SAND, poorly graded, fine sand with a trace (est. 8%) medium sand and a trace (est. 5%) silt, rounded, loose, light yellowish brown (2.5Y 6/3), saturated. (SP)	3-4-4-5	
12							
13							
14							
15	S-5	14-16	2.0 ----- 0.7	--	SAND, poorly graded, fine sand with a trace (est. 8%) medium sand and a trace (est. 5%) silt, rounded, loose, light yellowish brown (2.5Y 6/3), saturated. (SP)	3-4-5-6	1025 finished well install.
16					Bottom of boring = 16.0' BGS. No refusal.		

SOIL BORING LOG					Study Area: SA-28		
Client: AEC		Project No. 7053-04		Boring No.: 28M-92-02X			
Contractor: Soil Exploration		Date Started: 8-19-92		Completed: 8-20-92		Method: HSA	
Ground Elev.: 243.7		Soil Drilled: 20'		Total Depth: 20'		Casing Size: 6.25"	
Logged by: RRR		Checked by: DSP		Groundwater Below Ground: 5.5' BGS			
Screen: 10 (ft)		Riser: 7 (ft)		Diam.: 0.33' (ID)	Material: SCH 40PVC	Protection: Mod.D	Page 1 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 2.0	BKG	0-0.6 SILTY SAND, well graded, medium to fine, subangular, loose, dark brown (7.5YR 4/2), dry. (SW) SAND, poorly graded, medium to fine, subrounded, loose, brownish yellow (10YR 6/6), dry. (SP)	4-5-5-6	Driller J. Campbell
2							
3							
4							
5	S-2	4-6	2.0 ----- 1.7	BKG	SAND, poorly graded, medium to fine, subrounded, loose, brownish yellow with some dark red bands, moist. (SP)	6-5-7-7	Water in hole at 5.5' BGS.
6							
7	S-3	6-8	2.0 ----- 1.3	BKG	SAND, poorly graded, medium to fine, subrounded, loose, brownish yellow with some dark red bands, wet. (SP)	3-3-8-6	TOC analytical taken.
8							
9							
10							
11							
12							
13	S-4	12-14	2.0 ----- 1.2	16.0	SAND, poorly graded, fine, 15% silt, loose, gray (10YR 6/1), wet. Silty fine sand layer 15-15.1. (SP)	2-6-8-9	1700 8-19-92 Done drilling 0820 8-20-92 Resume drilling.
14							
15	S-5	14-16	2.0 ----- 2.0	BKG	SAND, poorly graded. Similar to S-4. (SP)	3-4-4-6	

SOIL BORING LOG					Study Area: SA-28		
Client: AEC		Project No. 7053-04		Boring No.: 28M-92-02X			
Contractor: Soil Exploration		Date Started: 8-19-92		Completed: 8-20-92		Method: HSA	
Ground Elev.: 243.7		Soil Drilled: 20'		Total Depth: 20'		Casing Size: 6.25"	
Logged by: RRR		Checked by: DSP		Groundwater Below Ground: 5.5' BGS			
Screen: 10 (ft)		Riser: 7 (ft)		Diam.: 0.33' (ID)	Material: SCH 40PVC	Protection: Mod.D	Page 2 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16					16-16.5 Similar to S-5.		
17	S-6	16-18	2.0 ----- 1.3	BKG	SANDY SILT and SILTY SAND, fine, subrounded, loose, brown (10YR 5/3) rusty banding throughout, wet. (SM)	3-4-4-6	
18							
19	S-7	18-20	2.0 ----- 2.0	BKG	SANDY SILT similar to S-6, grading to SILT, brown (10YR 5/3). (SM) Silty clay in shoe of spoon, brown (10YR 5/3) (CL)	5-5-7-6	
20					----- Bottom of boring = 20.0' BGS. No refusal.		Done drilling 1010 8-20-92
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

SOIL BORING LOG					Study Area: SA-28		
Client: AEC		Project No. 7053-04			Boring No.: 28M-92-03X (#1)		
Contractor: Soil Exploration		Date Started: 8-21-92		Completed: 8-24-92		Method: HSA	
Ground Elev.: 239.7		Soil Drilled: 10'		Total Depth: 10'		Casing Size: 6.25"	
Logged by: P. Bolmer		Checked by: DSP		Groundwater Below Ground: 8.7' BGS			
Screen: 10 (ft)	Riser: 9.5 (ft)	Diam.: 0.33' (ID)	Material: SCH 40PVC	Protection: Mod.D	Page 1 of 3		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.5	0.0	0-0.3 ORGANICS, black, damp. SAND, well graded, fine to coarse, rounded, loose, olive yellow (2.5Y 6/8), damp.	1-1-2-3	0925 commence drilling.
2							
3	S-2	2-4	2.0 ----- 1.2	0.0	SAND, well graded, fine to coarse, rounded, loose, tan (10YR 6/3), damp to moist.	4-4-5-6	
4							
5	S-3	4-6	2.0 ----- 1.1	0.0	SAND, poorly graded, fine sand with 0-10% medium sand, <5% coarse sand, rounded, loose, tan (10YR 6/3), moist. (SP)	4-4-6-11	
6							
7	S-4	6-8	2.0 ----- 0.9	0.0	SAND, poorly graded, fine sand with 0-10% medium sand, <5% coarse sand, rounded, loose, tan (10YR 6/3), moist. (SP)	5-8-8-12	
8							Encountered groundwater at 8.7' BGS.
9	S-5	8-10	2.0 ----- 0.8	0.0	SAND, poorly graded, fine sand with 0-10% medium sand, <5% coarse sand, rounded, loose, tan (10YR 6/3), saturated. (SP)	5-7-6-8	
10					----- The Unexploded Explosive Ordinance team encountered an anomaly in the boring. Terminating boring at 10' BGS and offsetting to redrill. See pages 2 and 3 for continuation of boring.		
11							
12							
13							
14							
15							

SOIL BORING LOG					Study Area: SA-28		
Client: AEC		Project No. 7053-04			Boring No.: 28M-92-03X (#2)		
Contractor: Soil Exploration		Date Started: 8-21-92		Completed: 8-24-92		Method: HSA	
Ground Elev.: 239.7		Soil Drilled: 20'		Total Depth: 20'		Casing Size: 6.25"	
Logged by: P. Bolmer		Checked by: DSP			Groundwater Below Ground: 11.5' BGS		
Screen: 10 (ft)		Riser: 12.5 (ft)		Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D	Page 2 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.7	0.0	0-0.7 ORGANICS, black, damp. SAND, well graded, fine to coarse, rounded, very loose, yellowish brown (10YR 5/8), damp to moist. (SW)	1-2-2-4	0900 commence drilling.
2							
3	S-2	2-4	2.0 ----- 0.2	0.0	SAND, well graded, fine to coarse, rounded, medium dense, yellowish brown (10YR 5/8), damp to moist. (SW)	4-7-7-8	
4							
5	S-3	4-6	2.0 ----- 1.4	0.0	SAND, well graded, fine to coarse, rounded, loose to medium dense, olive yellow (2.5Y 6/6), moist, some poorly developed stratification. (SW)	5-5-8-10	
6							
7	S-4	6-8	2.0 ----- 1.5	0.0	SAND, poorly graded, fine sand with <5% medium sand and <5% coarse sand, rounded, loose, light yellowish brown to olive yellow (2.5Y 6/4), moist, well developed stratification. (SP)	3-5-8-9	
8							
9	S-5	8-10	2.0 ----- 1.6	0.0	SAND, poorly graded, fine sand with <5% medium sand and <5% coarse sand, rounded, loose, light gray (2.5Y 7/2), moist, stratified. (SP)	4-5-5-7	
10							
11	S-6	10-12	2.0 ----- 1.7	0.0	SAND, poorly graded, fine sand with <5% medium sand and <5% coarse sand, rounded, loose, light gray (2.5Y 7/2), saturated, stratified. (SP)	5-10-16-16	Encountered groundwater at 11.4' BGS.
12							
13	S-7	12-14	2.0 ----- 1.6	0.0	SAND, poorly graded, fine sand with 10% silt, rounded, loose, light yellowish brown (2.5Y 6/3), saturated, poorly stratified (SP)	2-3-4-5	
14							
15	S-8	14-16	2.0 ----- 1.0	0.0	SAND, poorly graded, fine sand with 10% silt, rounded, loose, light yellowish brown (2.5Y 6/3), saturated, poorly stratified (SP)	4-5-4-5	

SOIL BORING LOG					Study Area: SA-28			
Client: AEC		Project No. 7053-04		Boring No.: 28M-92-03X (#2)				
Contractor: Soil Exploration		Date Started: 8-21-92		Completed: 8-24-92		Method: HSA		
Ground Elev.: 239.7		Soil Drilled: 20'		Total Depth: 20'		Casing Size: 6.25"		
Logged by: P. Bolmer		Checked by: DSP		Groundwater Below Ground: 11.5' BGS				
Screen: 10	(ft)	Riser: 12.5	(ft)	Diam.: 0.33'	(ID)	Material: Sch 40 PVC	Protection: Mod.D	Page 3 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS	
16	S-8 (cont)	14-16		0.0	SAND, poorly graded, fine sand with 10% silt, rounded, loose, light yellowish brown (2.5Y 6/3), saturated, poorly stratified (SP)			
17	S-9	16-18	2.0 ----- 0.9	--	SAND, poorly graded, fine sand with 10% silt, rounded, loose, light yellowish brown (2.5Y 6/3), saturated, poorly stratified (SP)	2-3-3-5		
18								
19	S-10	18-20	2.0 ----- 1.2	--	SAND, poorly graded, fine sand with 10% silt, rounded, loose, light yellowish brown (2.5Y 6/3), saturated, poorly stratified (SP)	3-5-5-6	Used approx. 15 gallons of water.	
20					----- Bottom of boring = 20.0' BGS. No refusal.			
21								
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG					Study Area: SA-28		
Client: AEC		Project No. 7053-04			Boring No.: 28M-92-04X		
Contractor: Soil Exploration		Date Started: 8-24-92		Completed: 8-25-92	Method: HSA		
Ground Elev.: 241.7		Soil Drilled: 14'		Total Depth: 14'	Casing Size: 6.25"		
Logged by: P. Bolmer		Checked by: DSP		Groundwater Below Ground: 5.2' BGS			
Screen: 10 (ft)	Riser: 6.0 (ft)	Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D	Page 1 of 1		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 0.6	0.0	0-0.4 ORGANICS SILTY SAND, fine with a trace (<5%) medium sand, poorly graded, rounded, very loose, strong brown (7.5YR 4/6), damp. (SP)	3-4-4-5	1250 Commence drilling.
2							
3							
4							
5	S-2	4-6	2.0 ----- 1.3	0.0	SAND, poorly graded, medium to fine (approx. 50% of each), loose rounded, olive yellow (2.5Y 6/6), becomes saturated at depth. (SP)	4-8-8-9	Encountered groundwater at 5.2' BGS.
6							
7							
8							
9							
10							
11	S-3	10-12	2.0 ----- 1.0	0.0	SAND, poorly graded, medium to fine (approx. 50% of each), loose rounded, olive yellow (2.5Y 6/6), saturated. (SP)	3-5-5-6	
12							
13	S-4	12-14	2.0 ----- 0.8		SILTY SAND, poorly graded, fine sand with a trace (<5%) medium sand.	4-5-8-9	
14					----- Bottom of boring = 14.0' BGS. No refusal.		1600 finished construction of well.
15							

SOIL BORING LOG					Study Area: SA-41		
Client: AEC		Project No. 7053-04		Boring No.: 41M-92-01X			
Contractor: Soil Exploration		Date Started: 8-26-92		Completed: 8-27-92		Method: HSA	
Ground Elev.: 246.9		Soil Drilled: 36'		Total Depth: 36'		Casing Size: 6.25"	
Logged by: P. Bolmer		Checked by: DSP		Groundwater Below Ground: 27' BGS			
Screen: 10 (ft)		Riser: 27.5 (ft)		Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D	Page 2 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16			2.0 ----- 1.9	0.0	SILTY CLAY, with a trace (<5%) of fine sand, occasional fine sand lens, moderately plastic, firm, light olive brown (2.5Y 5/3), moist to saturated. (CL)	4-5-8-9	
17	S-9	16-18					
18			2.0 ----- 1.7	0.0	SILTY CLAY, with a trace (<5%) of fine sand, occasional fine sand lens, moderately plastic, firm, light olive brown (2.5Y 5/3), moist to saturated. (CL)	5-8-12-12	
19	S-10	18-20					
20			2.0 ----- 0.7	0.0	SILTY CLAY, with a trace (<5%) of fine sand, occasional fine sand lens, moderately plastic, firm, light olive brown (2.5Y 5/3), moist to saturated. (CL)	4-7-8-9	1500 Done for the day due to heat. 0835 8-27-92 Commence drilling.
21	S-11	20-22					
22			2.0 ----- 1.5	0.0	CLAYEY SILT, with a trace (<10%) fine sand, nonplastic, soft, olive brown (2.5Y 5/3), moist to saturated, mottled. (ML)	2-3-6-11	
23	S-12	22-24					
24			2.0 ----- 1.0	0.0	CLAYEY SILT, with some (est. 15%) fine sand, nonplastic, soft, olive brown (2.5Y 5/3), moist to saturated, mottled. (ML)	5-11-12-14	
25	S-13	24-26					
26			2.0 ----- 1.0	0.0	26-26.6 CLAYEY SILT similar to S-13. (ML)	5-8-8-8	Encountered groundwater at 27' BGS.
27	S-14	26-28					
28			2.0 ----- 1.1	0.0	SANDY SILT, nonplastic, soft, gray (2.5Y 5/1), appears saturated. (SM)	2-6-8-8	
29	S-15	28-30					
30							

SOIL BORING LOG					Study Area: SA-41		
Client: AEC		Project No. 7053-04			Boring No.: 41M-92-01X		
Contractor: Soil Exploration		Date Started: 8-26-92		Completed: 8-27-92		Method: HSA	
Ground Elev.: 246.9		Soil Drilled: 36'		Total Depth: 36'		Casing Size: 6.25"	
Logged by: P. Bolmer		Checked by: DSP			Groundwater Below Ground: 27' BGS		
Screen: 10 (ft)		Riser: 27.5 (ft)		Diam.: 0.33' (ID)	Material: Sch 40 PVC	Protection: Mod.D	Page 3 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
31	S-16	30-32	2.0 ----- 0.9	0.0	SANDY SILT, nonplastic, soft, gray (2.5Y 5/1), appears saturated. (SM)	3-5-5-5	
32							
33	S-17	32-34	2.0 ----- 0.6	0.0	SANDY SILT, nonplastic, soft, gray (2.5Y 5/1), appears saturated. (SM)	2-4-4-5	
34							
35	S-18	34-36	2.0 ----- 1.3	0.0	SANDY SILT, nonplastic, soft, gray (2.5Y 5/1), appears saturated. (SM)	2-4-4-3	1600 moving rig off site.
36					----- Bottom of boring = 36.0' BGS. No refusal.		
37							
38							
39							
40							
41							
42							
43							
44							
45							

SOIL BORING LOG					Study Area: AOC 41		
Client: AEC		Project No. 7053-10		Boring No.: 41M-93-02B			
Contractor: New Hampshire Boring		Date Started: 9-16-93		Completed: 9-17-93		Method: HSA	
Ground Elev.: 249.2		Soil Drilled: 33' bgs		Total Depth: 33' bgs		Casing Size: 6.25"	
Logged by: K.Nelson/R.Rusted		Checked by: J. Snowden		Groundwater Below Ground: 26' bgs			
Screen: 10 (ft)		Riser: 33 (ft)		Diam.: 4" (ID)	Material: Sched 40	Protection: Mod.D	Page 1 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	24" ----- 24"	NA	SAND, 95% medium to coarse, <5% fine to medium gravel (subrounded) dry, loose, poorly graded yellowish brown(10YR 6/4) (SP)	3-4-5-7	No PID data due to heavy rain on 9-16
2							
3							
4							
5							
6	S-2	5-7	24" ----- 24"	NA	CLAYEY SILT, lacustrine clay, mottling due to oxidation horizons, slightly plastic, brittle fracture, stiff, dry gray brown(10YR 5/3) (ML)	4-4-6-9	
7					sand/clay interface approx. 4'		
8							
9							
10							
11	S-3	10-12	24" ----- 12"	NA	CLAYEY SILT, slightly plastic, firm, dry, brittle fracture olive brown(2.5YR 5/4)	2-4-4-4	
12							
13							
14							
15	S-4	15-17	24" ----- 24"	NA	CLAYEY SILT, <2% very fine sand, moist, slightly plastic, firm olive brown(2.5YR 5/4) (continued)		

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SOIL BORING LOG					Study Area: AOC 41		
Client: AEC		Project No. 7053-10		Boring No.: 41M -93-02B			
Contractor: New Hampshire Boring		Date Started: 9-16-93		Completed: 9-17-93		Method: HSA	
Ground Elev.: 249.2		Soil Drilled: 33'		Total Depth: 33'		Casing Size: 6.25"	
Logged By : K.Nelson/R.Rusted		Checked by: J. Snowden		Groundwater Below Ground: 26'			
Screen: 10 (ft)		Riser: 33 (ft)		Diam. 4" (ID)	Material: sched. 40	Protection: Mod.D	Page 2 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4	15-17			(continued from page 1) VARVED, spacing ave. 10mm per couplet, sand/silt layers are preferentially oxidized (over silt/clay layers) (ML)	2-3-3-4	
17							
18							
19							
20							
21	S-5	20-22	24" ----- 24"	NA	SAME AS ABOVE, wet, oxidation on sand/silt layers is more reddish tan orange. (ML)	2-3-5-7	
22							
23							
24							
25					6" SAME AS ABOVE (ML)		
26	S-6	25-27	24" ----- 20"	NA	4" SANDY GRAVEL, 75% fine to medium gravel, subrounded 25% fine to medium sand, (2.5YR 5/4) 10" VERY FINE SAND(100%), laminated, saturated, med. dense poorly graded, gray(2.5yn 6/) (SP)	7-8-8-15	End of day 9-16-93
27							
28							
29							
30							

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SOIL BORING LOG						Study Area: AOC 41		
Client: AEC			Project No. 7053-10			Boring No.: 41M-93-02B		
Contractor: New Hampshire Boring			Date Started: 9-16-93			Completed: 9-17-93		Method: HSA
Ground Elev.: 249.2			Soil Drilled: 33'			Total Depth: 33' bgs		Casing Size: 6.25"
Logged by: K.Nelson/R.Rusted			Checked by: J. Snowden			Groundwater Below Ground: 26'		
Screen: 10 (ft)		Riser: 33 (ft)		Diam.: 4" (ID)	Material: sched. 40	Protection: Mod.D	Page 3 of 3	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS	
31								
32	S-7	31-33	20" ----- 24"	BKG	SILTY SAND AND SANDY SILT, poorly graded, fine, 30-40% silt saturated, loose, some varving and iron staining (SM)	6-8-8-10	Bottom of borehole 33'	
33								
34								
35								
36								
37								Water perched on silt layer
38								
39								
40								
41								
42								
43								
44								
45								

SOIL BORING LOG					Study Area: AOC 41			
Client: AEC		Project No. 7053-10		Boring No.: 41M-93-03X				
Contractor: New Hampshire Boring		Date Started: 9-15-93		Completed: 9-16-93		Method: HSA		
Ground Elev.: 257.5		Soil Drilled: 45'		Total Depth: 45' BGS		Casing Size: 6.25"		
Logged by: K.Nelson		Checked by: J. Snowden		Groundwater Below Ground: 40' BGS				
Screen: 10' (ft)		Riser: 44' (ft)		Diam.: 4" (ID)	Material: SCH 40 PVC	Protection: Mod.D	Page 1 of 3	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS	
1	S-1	0-2	24" ----- 20"	BKG	SAND, fine to medium, 15% silt inorganic, trace <3% fine gravel fine gravel(rounded), dry, loose, dark brown(7.5YR 4/4) (SM)	4-4-4-4	23PPM H.SPACE	
2					NOTE: All headspace readings this locations likely reflect moisture and/or natural background(aromatic sweet ferns surround the borehole). No apparent odor or other indications reflect VOC contamination.			
3								
4								
5								
6	S-2	5-7	24" ----- 12"	BKG		5" SAME AS 0-2 SPOON(collapse) (SM) 1" SILT, 5% fine to medium sand, <2% fine gravel, mottled gray brown (SM-ML)	4-8-7-8	0 headspace
7					8" SAND, 95% medium to coarse, <3% fine gravel(subrounded) dry, medium dense, pale brown(10YR 10/4) (SP)			
8								
9								
10								
11	S-3	10-12	24" ----- 16"	BKG	6" SAND, 65% fine to medium sand, 30% silt, a few outside rounded gravel(up to 15mm diameter), twigs, dark brown to gray brown(10YR 4/2), collapse	4-8-10-12	0 headspace	
12					10" SAND, 95% medium to coarse sand, 5% gravel(up to 25mm) subrounded clasts to platy), % gravel increases to top of spoon medium dense, dry, very pale brown(10YR 10/4) (SP)			
13								
14								
15	S-4	15-17	24" ----- 16"	BKG	4" SAME AS ABOVE (SP) (continued on page two)			

SOIL BORING LOG					Study Area: AOC 41		
Client: AEC		Project No. 7053-10			Boring No.: 41M-93-03X		
Contractor: New Hampshire Boring		Date Started: 9-15-93		Completed: 9-16-93		Method: HSA	
Ground Elev.: 257.5		Soil Drilled: 45' BGS		Total Depth: 45' BGS		Casing Size: 6.25"	
Logged By : K.Nelson		Checked by: J. Snowden			Groundwater Below Ground: 40' BGS		
Screen: 10 (ft)		Riser: 44 (ft)	Diam.: 4" (ID)	Material: sched. 40	Protection: Mod.D	Page 2 of 3	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4	15-17	24" ----- 16"	BKG	(continued from page one) 12" SILT, some clay, mod. plastic, stiff, moist to wet concoidal fracture, sand/clay interface at 16' grayish brown(2.5Y 4/2)	4-10-7-8	0 headspace
17							
18							
19							
20	S-5	20-22	24" ----- 12"	BKG	CLAYEY SILT, firm, mod. plastic, cocoidal fracture, wet dark gray brown(2.5Y 4/2)	5-3-3-4	0.4 headspace
21							
22							
23							
24							
25							
26	S-7	25-27	24" ----- 12"	BKG	SAND, very fine, thin lenses(10mm) of clayey silt as above stiff, concoidal fractures, wet, silty lenses disappear approx. 6" into recovery(spoon tip is 100% very fine sand) light gray(10YR 7/1)	8-5-8-8	0 headspace
27							
28							
29							
30					(continued on next page)		

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SOIL BORING LOG		Study Area: AOC 41	
Client: AEC	Project No. 7053-10	Boring No.: 41M-93-03X	
Contractor: New Hampshire Boring	Date Started: 9-15-93	Completed: 9-16-93	Method: HSA
Ground Elev.: 257.5	Soil Drilled: 45' BGS	Total Depth: 45' BGS	Casing Size: 6.25"
Logged by: K.Nelson	Checked by: J. Snowden	Groundwater Below Ground: 40' BGS	

Screen: 10 (ft) Riser: 44 (ft) Diam.: 4" (ID) Material: SCH 40 PVC Protection: Mod.D Page 3 of 3

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
31	S-7	30-32	24" ----- 12"	BKG	SAND, very fine, poorly graded, subtle varves(>silt), oxidation banding along varve pattern(3-5mm spacing), wet, concolidal fracture, light gray(10YR 7/1) (SP)	10-10-10-13	0 headspace
32							
33							
34							
35							
36	S-8	35-37	24" ----- 12"	BKG	SAND, top 4" of spoon 50% silty clay, 50% very fine sand bottom 8" of spoon very fine to fine sand, laminated medium dense, saturated, poorly graded, grayish brown(10YR 4/2) (SP)	7-5-7-10	0 headspace secure hole for night hole is dry
37							
38							
39							
40							
41	S-9	40-42	24" ----- 16"	BKG	SAND, very fine(100%), laminated horizons of oxidized(red) sand(1 grain thick), heavy minerals and mica's define laminar loose, saturated, poorly graded, grayish brown(10YR 5/2) (SP)	8-3-6-8	0 headspace water level 39'
42							
43							
44	S-10	45-47	24" ----- 18"	BKG	SAND, 95% very fine, 5% silt/clay lenses(top of spoon) laminated(wider spacing than previous samples), some fine to medium sand in laminae, medium dense, saturated, some orange oxidation along laminae also, gray brown (10YR 5/2) (SM-SP)	15-11-10-12	0 headspace BOB at 45' drove spoon to 47'
45					-----BOB 45'-----		

SOIL BORING LOG					Study Area: AOC 41				
Client: AEC			Project No. 7053-10		Boring No.: 41M-93-04X				
Contractor: New Hampshire Boring			Date Started: 9-17-93		Completed: 9-17-93		Method: HSA		
Ground Elev.: 227.8			Soil Drilled: 10'		Total Depth: 10'		Casing Size: 4.25"		
Logged by: D.Dinsmore/R.Rusted			Checked by: J. Snowden		Groundwater Below Ground: 6'				
Screen: 5 (ft)		Riser: 10 (ft)		Diam.: 2" (ID)	Material: sched. 40	Protection: Mod.D	Page 1 of 1		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION			BLOWS\6-IN.	COMMENTS
1	S-1	0-2	24" ----- 14"	BKG	SAND, poorly graded, medium to coarse, 5-10% gravel, <5% silt loose, dry, yellowish brown (SP)			7-6-8-7	
2									
3									
4									
5									
6	S-2	5-7	24" ----- 15"	BKG	SAND, poorly graded, similar to above (SP)			8-7-10-10	
7									
8									
9									
10					Bottom of Exploration 10'				
11									
12									
13									
14									
15									

SOIL BORING LOG					Study Area: AOC 41			
Client: AEC		Project No. 7053-10		Boring No.: 41M-93-05X				
Contractor: New Hampshire Boring		Date Started: 9-17-93		Completed: 9-17-93		Method: HSA		
Ground Elev.: 226.5		Soil Drilled: 10'		Total Depth: 10'		Casing Size: 4.25"		
Logged by: D.Dinsmore/R.Rusted		Checked by: J. Snowden		Groundwater Below Ground: 6'				
Screen	5' (ft)	Riser:	4' (ft)	Diam.:	2" (ID)	Material: sched. 40	Protection: Mod.D	Page 1 of 1
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS	
1	S-1	0-2	24" ----- 11"	BKG	SAND, poorly graded, medium to coarse, 5-10% gravel, <5% silt subangular grains, loose, dry, yellowish brown (sp)	5-6-7-7		
2								
3								
4								
5								
6	S-7	5-7	24" ----- 13"	BKG	SAND, poorly graded, similar to above (sp)	10-11-13-10		
7								
8								
9								
10					----- Bottom of Exploration 10'			
11								
12								
13								
14								
15								

SOIL BORING LOG					Study Area: SA-42		
Client: AEC		Project No. 7053-10		Boring No.: 42B-92-01X			
Contractor: Soil Exploration		Date Started: 8-31-92		Completed: 8-31-92		Method: 3" spoons	
Ground Elev.: 258.2		Soil Drilled: 4'		Total Depth: 4.0' BGS		Casing Size: 3"	
Logged by: RRR		Checked by: DSP		Groundwater Below Ground: not encountered			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 1
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.2 ----- 2.0	BKG	0.0-0.2': Organic topsoil, roots. 0.2-1.2': SAND, fine to coarse, well graded, loose, dry, light brown (7.5 YR 6/4, Munsell). (SW)	6-7-11-13	3" spoons
2							
3	S-2	2-4	1.5 ----- 2.0	BKG	SAND, similar to above (S-1) grading to, SAND, medium to coarse, 15 % gravel (est.), well graded, loose to medium dense, dry, light brown (7.5 YR 6/4, Munsell). (SW)	9-10-18-17	
4					----- Bottom of exploration = 4' BGS		Boring completed at 1215 8-31-92
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

SOIL BORING LOG					Study Area: SA-42		
Client: AEC		Project No. 7053-10		Boring No.: 42B-92-02X			
Contractor: Soil Exploration		Date Started: 8-31-92		Completed: 8-31-92		Method: 3" spoons	
Ground Elev.: 249.9		Soil Drilled: 4'		Total Depth: 4.0' BGS		Casing Size: 3"	
Logged by: RRR		Checked by: DSP		Groundwater Below Ground: not encountered			
Screen: --- (ft)	Riser: --- (ft)	Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 1		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.3 ----- 2.0	BKG	0.0-1.0': SAND, medium to coarse, 15 % gravel (est.), well graded, dry, loose, light brown (7.5 YR 6/4, Munsell) (SW) 1.0-1.3': SAND, fine, 10-15 % silt (est.), poorly graded, dry, loose, very dark brown (10 YR 2/2, Munsell) (SP-SM)	2-3-4-7	Poor recovery on first spoon, offset and try again.
2							
3	S-2	2-4	1.6 ----- 2.0	BKG	SAND, medium to coarse, 5 % gravel (est.), well graded, dry, loose, light brown (7.5 YR 6/4, Munsell) (SW)	2-5-7-7	
4					----- Bottom of exploration = 4' BGS		Boring completed at 1055 8-31-92
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

SOIL BORING LOG					Study Area: SA-42		
Client: AEC		Project No. 7053-10		Boring No.: 42B-92-03X			
Contractor: Soil Exploration		Date Started: 8-31-92		Completed: 8-31-92		Method: 3 " spoons	
Ground Elev.: 249.9		Soil Drilled: 4'		Total Depth: 4.0' BGS		Casing Size: 3"	
Logged by: RRR		Checked by: DSP		Groundwater Below Ground: not encountered			
Screen: --- (ft)	Riser: --- (ft)	Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 1		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.2 ----- 2.0	BKG	0.0-0.9': SAND, fine to coarse, well graded, subangular, dry, loose, light brown (7.5 YR 6/4, Munsell) (SW) 0.9-1.2': SAND, fine, 15 % silt (est.), 15 % medium sand (est.), poorly graded, subrounded, loose, dry, very dark brown (10 YR 2/2, Munsell) (SP-SM)	4-6-7-8	
2							
3	S-2	2-4	1.3 ----- 2.0	BKG	SAND, fine to coarse, well graded, subangular, dry, loose, light brown (7.5 YR 6/4, Munsell)	6-6-5-5	
4					----- Bottom of exploration = 4.0' BGS		Boring completed at 1115 8-31-93
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

SOIL BORING LOG					Study Area: SA-42		
Client: AEC		Project No. 7053-10		Boring No.: 42B-92-04X			
Contractor: Soil Exploration		Date Started: 8-31-92		Completed: 8-31-92		Method: 3 " spoons	
Ground Elev.: 249.7		Soil Drilled: 4'		Total Depth: 4.0' BGS		Casing Size: 3"	
Logged by: RRR		Checked by: DSP		Groundwater Below Ground: not encountered			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 1
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.0 ----- 2.0	BKG	SAND, fine to medium, 15 % coarse (est.), well graded, loose, dry, light brown (7.5 YR 6/4, Munsell) (SW)	6-6-11-14	
2							
3	S-3	2-4	1.0 ----- 2.0	BKG	SAND, similar to above except medium dense, coarse fraction fining downwards to 5-10 % (est.) (SW)	16-15-15-15	
4					----- Bottom of exploration = 4.0' BGS		Boring completed at 1135 8-31-92
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10		Boring No.: 43A-92-01X			
Contractor: Soil Exploration		Date Started: 9-18-92		Completed: 9-18-92		Method: HSA	
Ground Elev.: 258.2		Soil Drilled: 29'		Total Depth: 29'		Casing Size: 4.25"	
Logged by: L. Truesdale		Checked by: DSP		Groundwater Below Ground: 26.8' BGS			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	
Page 1		of 2					
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.0	0.0	0-0.5 SAND, poorly graded, trace of silt, loose, dry. (SP) SAND, poorly graded, clean sand, with a trace of fine gravel, some black stained sand at the bottom of the spoon. (SP)	6-6-6-7	2" spoon Analytical sample collected at 0930.
2							
3							
4							
5							
6	S-2	5-7	2.0 ----- 0.5	17.3	SAND, and SILTY SAND, loose, very dark grayish brown (2.5Y 3/2), dry, a little black staining as seen in S-1, possibly ash. (SM)	3-4-3-2	2" spoon
7							
8							
9							
10							
11	S-3	10-12	2.0 ----- 1.1	0.0	SAND, medium sand, clean, poorly graded, uniform, loose, light brownish gray (2.5Y 5/2)damp. (SP)	5-5-7-9	2" spoon
12							
13							
14							
15							

SOIL BORING LOG					Study Area: SA-43		
Client: USATHAMA		Project No. 7053-10		Boring No.: 43A-92-01X			
Contractor: Soil Exploration		Date Started: 9-18-92		Completed: 9-18-92		Method: HSA	
Ground Elev.: 258.2 a.s.l.		Soil Drilled: 29'		Total Depth: 29'		Casing Size: 4.25"	
Logged by: L. Truesdale		Checked by: DSP		Groundwater Below Ground: 26.8' BGS			
Screen: --- (ft)	Riser: --- (ft)	Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 2 of 2		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4	15-17	2.0 ----- 1.0	0.0	SAND, poorly graded, similar to S-3 but with some fine gravel, some rock in spoon tip. (SP)	9-7-9-13	2" spoon
17							
18							
19							
20							
21	S-5	20-22	2.0 ----- 1.0	0.0	SAND, poorly graded, medium to coarse, with increasing fine gravel, loose, light brownish gray (2.5Y 5/2), damp, rock in tip of spoon. (SP)	8-10-13-15	2" spoon
22							
23							
24							
25							
26	S-6	25-27	2.0 ----- 1.1	0.0	SAND, medium, clean, poorly graded, loose, light brownish gray (2.5Y 5/2), bottom of spoon is wet. (SP)	5-7-6-7	2" spoon
27							
28	S-7	27-29	2.0 ----- 1.5	600.0	SAND, similar to S-6, fine, clean, bottom of spoon is poorly graded, loose, gray (10YR 5/1), wet. (SP)	16-14-16-17	3" spoon Analytical sample collected at 1045. Petroleum Hydrocarbon odor in S-7.
29					----- Bottom of boring = 29.0' BGS. No refusal.		
30							

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10		Boring No.: 43A-92-02X			
Contractor: Soil Exploration		Date Started: 9-22-92		Completed: 9-22-92		Method: HSA	
Ground Elev.: 257.7		Soil Drilled: 29'		Total Depth: 29'		Casing Size: 4.25"	
Logged by: N. Breton		Checked by: DSP		Groundwater Below Ground: 26.1' BGS			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	
						Page 1 of 2	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1					Upper 2' has recently been backfilled due to soil removal and replacement. These soils not sampled.		Munsell color chart used.
2			2.0				
3	S-1	2-4	0.0		First attempt no recovery. Pushed cobble. Moved 3' and redrilled to 2'. Second attempt.	36-23-13-13	Offset 3'.
4			2.0	NA	SAND, fine to coarse, well graded, 25-35% gravel, <10% silt, medium dense, brown to reddish brown (10YR 5/3 to 5/6), moist, 0.2' thick layer of organic soil at 3.5-3.7'. (SW)	8-8-7-6	
5			1.1				
6	S-2	5-7	2.0	NA	SAND, fine to coarse, well graded, 30-40% gravel, 20-30% silt, gravel is angular to subangular, dense, brown (10YR 5/4), no stratification (massive), moist. Fill. (GW)	6-17-22-22	PID meter not giving stable reading. Will have to rely on headspace readings.
7			1.1				
8							
9							
10							
11	S-3	10-12	2.0	NA	SAND, fine to coarse, 20-30% gravel, well graded in lower 1.0' of sample, poorly graded in top .3', subangular, medium dense, moist, tan (10 yr 7/3 Munsell) (SW)	4-13-14-14	
12			1.3				
13							
14			1.6'				
15	S-4	15-17	2.0'	NA	SAND, medium to coarse in upper 1.0', fine in lower 0.3', 10% gravel (est.), poorly graded, medium dense, CONT.	7-12-12-13	

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10		Boring No.: 43A-92-02X			
Contractor: Soil Exploration		Date Started: 9-22-92		Completed: 9-22-92		Method: HSA	
Ground Elev.: 257.7		Soil Drilled: 29'		Total Depth: 29'		Casing Size: 4.25"	
Logged by: N. Breton		Checked by: DSP		Groundwater Below Ground: 26.1' BGS			
Screen: --- (ft)	Riser: --- (ft)	Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 2 of 2		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16					S-3 CONT... light brown (10 YR 7/3 Munsell)		
17							
18							
19							
20							
21	S-5	20-22	1.5' ----- 2.0'	NA	SAND, fine, 15% silt (est.), poorly graded, laminated, saturated, medium dense, brown (2.5 Y 6/2, Munsell) (SP)	6-8-11-14	
22							
23							
24							
25							
26	S-6	25-27	2.0 ----- 2.0	NA	SAND, poorly graded, fine (fine to medium from 26.6-27'), 20-30% silt, medium dense to dense, laminated, petroleum odor, Munsell (2.5Y 6/2), saturated. (SP)	12-13-16-16	Groundwater measured at 26.1' BGS in augers. Change @ 26.6 fine sand to fine-coarse.
27							
28	S-7	27-29	2.0 ----- 1.2	NA	SAND, widely graded, fine to coarse, <10% gravel, <15% silt, subrounded, medium dense, brown (10YR 4/3), saturated, slight petroleum sheen and odor. (SW)	2-3-8-11	
29					----- Bottom of boring = 29.0' BGS. No refusal.		
30							

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10			Boring No.: 43B-92-01X		
Contractor: Soil Exploration		Date Started: 9-21-92		Completed: 9-21-92		Method: HSA	
Ground Elev.: 259.0		Soil Drilled: 14'		Total Depth: 16'		Casing Size: 4.25"	
Logged by: N. Breton		Checked by: DSP			Groundwater Below Ground: 14' BGS		
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 1
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.2	0.0	SAND, well graded, fine to coarse, 15-25% gravel, subrounded, medium dense, light brown (2.5Y 5/3), dry. (SW)	9-12-12-14	
2							
3							At 3' augers are grinding on an obstruction.
4							
5							
6	S-2	5-7	2.0 ----- 0.5	0.0	SAND, poorly graded, medium to fine, 10% gravel, 10-20% silt, angular, medium dense, brown (10YR 4/3) (SP)	6-8-11-11	
7							
8							
9	S-3	8-10	2.0 ----- 1.1	0.0	SAND, well graded, fine to medium sand, 30-40% gravel, 20-25% silt, angular to subangular, dense, Munsell (10YR 4/4), dry. (SW)	7-8-22-26	
10							
11	S-4	10-12	2.0 ----- 1.3	0.0	SAND, well graded, fine to coarse, 10-20% gravel, 10-20% silt, light brown (10YR 4/4), dry becoming moist. (SW)	14-20-24-26	Becomes dark brown and wet at 11'.
12							
13	S-5	12-14	--	--	SAND, well graded, fine to coarse, 30-40% gravel, <10% silt, angular and subrounded, light brown (10YR 5/4), dry (moist at top of interval). (SW)		
14							
15	S-6	14-16	--	--	SAND, well graded, fine to coarse, 15-25% gravel, <15% silt, subangular to subrounded, medium dense, dark brown (10YR 3/6), saturated. (SW)		Encountered groundwater at 14' BGS.
16					Bottom of boring = 16.0' BGS. No refusal.		

FIELD BORING LOG - AEC/ FT DEVENS BORING NO.: XDB-93-02X
 PROJECT NO.: 7053.10 PROJECT NAME: SUPP SI 2+7 / FT DEVENS PAGE 1 OF 1
 DRILLING CONTRACTOR: N4B DRILLER: J. GARSIDE DATE STARTED: 9.22.93 COMPLETED: 9.22.93
 METHOD: HSA 4/4 CASING SIZE: - PI METER TYPE: TL PROTECTION LEVEL: MOD TD
 GROUND ELEV.: SOIL DRILLED: 14' FT. WATER LEVEL: 15.5' FT. TOTAL DEPTH: 16'
 LOGGED BY: RRR CHECKED BY: DATE:

DEPTH (FT.)	SAMPLE NUMBER	BLONS PER 6-INCHES	PEN. REC.	DESCRIPTION	MONITORING			
					PID	LEL	ANALYTICAL	
				COMMENCE DRILLING 0945: 9/22/93				
1	S-1	4.12.12.10 2" spoon	1.3 2.0	0-0.3 TOPSOIL, ROOTS, ORGANICS 0.3-1.3 SAND, WELL GRADED, FINE TO COARSE, <5% SILT, MEDIUM DENSE, DRY 7.5 YR 6/3 LIGHT BROWN (SW)	BKL		BXB0200F	(0950)
3	S-2	9.4.7.8 2" spoon	0.6 2.0	SAND, WELL GRADED, FINE TO MEDIUM 15% COARSE, 5-10% SILT, LOOSE TO MEDIUM DENSE, DRY 7.5 YR 6/3 LIGHT BROWN (SW-SM)	BKL		BXB0202F	(0955)
5	S-3	5.12.12.13 3" spoon	0.7 2.0	ROCK CAUGHT IN SHOE SAND, WELL GRADED, FINE TO COARSE 10-15% GRAVEL, 5-10% SILT, MEDIUM DENSE DRY 7.5 YR 5/4 BROWN (SW-SM) NO REF. OR FIELD SCREENING SAMP. COLLECTED	BKL		✓	(1015)
7	S-4	9.8.11.7 2" spoon	0.4 2.0	SAND, WELL GRADED SIMILAR TO S-3 FURNISHED 16 POUNDS ROCK CAUGHT IN SPOON (SW-SM)	BKL		BXB0206F	(0925)
9	S-5	6.9.18.19 3" spoon	0.2 2.0	ROCK CAUGHT IN SPOON SAND, WELL GRADED, SIMILAR TO S-3 (SW-SM)	BKL		BXB0208F	(1040)
11	S-6	10.13.15.31 3" spoon	0.13 2.0	SAND, WELL GRADED, FINE TO COARSE 10-15% GRAVEL, <5% SILT, MEDIUM DENSE DRY 7.5 YR 4/4 DARK BROWN (SW) PIECES OF WEATHERING PHYLITE NO REF. OR FIELD SCREENING SAMP. COLLECTED	BKL		DUPLICATE COLLECTED	10-12 1050
13	S-7	27.31.47.50 2" spoon	1.4 2.0	GRAVELY SAND, WELL GRADED, MEDIUM TO COARSE, 15-20% GRAVEL, 10-15% FINE SAND, <5% SILT, DENSE, DRY TO DAMP 10 YR 7/8 YELLOW (MOTTLED) (GW-SW)	BKL		BXB0212F	(1110)
15	S-8	31.34.31.32 3" spoon	1.3 2.0	GRAVELY SAND, SIMILAR TO S-7 EXCEPT WET AT 1.0' (GW-SW)	BKL		BXB0214F	(1130)

BOE = 16' BGS

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10			Boring No.: 43D-92-01X		
Contractor: Soil Exploration		Date Started: 9-21-92		Completed: 9-21-92		Method: HSA	
Ground Elev.: 259 a.s.l.		Soil Drilled: 10'		Total Depth: 10.8' BGS		Casing Size: 4.25"	
Logged by: N. Breton		Checked by: DSP			Groundwater Below Ground: 8.8' BGS		
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 1
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1					Cuttings composed of dry sand, poorly graded (see description of S-1 below).		Augered to 5' BGS without sampling. Munsell color chart used.
2							
3							
4							
5							
6	S-1	5-7	2.0 ----- 1.0	0.0	SAND, poorly graded, medium with a trace (5% coarse), 10-15% gravel, <10% silt, subrounded, loose, brown (10YR 4/3), wet. (SP)	3-3-4-4	
7							
8							Encountered groundwater at 8.8' BGS.
9							
10							
11	S-2	10-10.8	0.8 ----- 0.8	0.0	SAND and GRAVEL, well graded, 50% gravel, very angular shale fragments, medium dense, gray (10YR 2/1), saturated. ------(GW)----- Bottom of boring = 10.8' BGS. Refusal encountered.	10-120/0.3'	
12							
13							
14							
15							
16							

SOIL BORING LOG					Study Area: 43D		
Client: AEC		Project No. 7053-10		Boring No.: XDM-93-01X			
Contractor: New Hampshire Boring		Date Started: 8-12-93		Completed: 8-12-93		Method: HSA	
Ground Elev.: 331.75		Soil Drilled: 14.5'		Total Depth: 16.5'		Casing Size: 6.625"	
Logged by: P. Bolmer		Checked by: J. Snowden		Groundwater Below Ground: 6.7'			
Screen: 10 (ft)		Riser: 13.8 (ft)		Diam.: 4" (ID)	Material: sched. 40	Protection: Mod.D	Page 1 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1							
2	S-1	1-3	1.1 ----- 2.0	BKG	SAND, poorly graded, 5-15% fines, non-plastic, 5-10% gravel subangular, dense, dry, pale brown(10yr 6/3) (sp)	50-35-18-15	
3							
4							
5	S-2	4.5 to 6.5	1.0 ----- 2.0	BKG	SAND, poorly graded, 10-15% fines, non-plastic, 5-10% gravel subangular, damp, brown(10yr 5/3) (sp)	10-4-4-1	
6							
7							
8							
9							
10	S-3	9.5 to 11.5	0.9 ----- 2.0	BKG	9.5'-10.0' SAND, poorly graded, <5% fines, <5% gravel, loose saturated, light brownish gray(10yr 6/2) (sp) 10'-10.4' PEAT (pt)	1-2-6-28	
11							
12							
13							
14							
15							

SOIL BORING LOG					Study Area: 430		
Client: AEC		Project No. 7053-10		Boring No.: XDM-93-01X			
Contractor: New Hampshire Boring		Date Started: 8-12-93		Completed: 8-12-93		Method: HSA	
Ground Elev.: 331.75		Soil Drilled: 14.5'		Total Depth: 16.5'		Casing Size: 6.625"	
Logged By : P.Bolmer		Checked by: J. Snowden		Groundwater Below Ground: 6.7'			
Screen: 10 (ft)		Riser: 14.5 (ft)		Diam.: 4" (ID)	Material: sched. 40	Protection: Mod.D	
						Page 2 of 2	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4	14.5 to 16.5	0.9 ----- 2.0	BKG	(continued from page 1) SAND, poorly graded, 10-15% fines, non-plastic, 5-15% gravel subangular, medium dense, saturated, very dark gray(10yr 3/1) (sp)	7-15-17-18	
17					----- Bottom of exploration 16.5'		
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

SOIL BORING LOG					Study Area: 43D		
Client: AEC		Project No. 7053-10		Boring No.: XDM-93-02X			
Contractor: New Hampshire Boring		Date Started: 8-13-93		Completed: 8-13-93		Method: HSA	
Ground Elev.: 331.87		Soil Drilled: 14.0'		Total Depth: 14.0'		Casing Size: 6.625"	
Logged by: P. Bolmer		Checked by: J. Snowden		Groundwater Below Ground: 6.8'			
Screen: 10' (ft)		Riser: 13 (ft)		Diam.: 4" (ID)	Material: sched.40	Protection: Mod.D	Page 1 of 1
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1							
2	S-1	1-3	1.8 ----- 2.0	BKG	SAND, poorly graded, <5% fines, 15-20% gravel, subangular to subrounded, medium dense, dry, dark grayish brown(10ty 4/2) (sp)	8-7-15-13	
3							
4							
5	S-2	4.6 to 6.5	0.9 ----- 2.0	BKG	SAND, poorly graded, <5% fines, 10-20% gravel, subrounded, damp brown(10yr 5/3) (sp)	12-15-16-11	
6							
7							
8							
9							
10	S-3	9.5 to 11.5	2.0 ----- 2.0	BKG	PEAT, with 20-30% fines, slightly plastic, 5-10% sand very loose, saturated, black(10yr 2/1) (pt)	1-1-3-3	
11							
12							
13							
14					----- Bottom of boring at 14' bgs		
15							

SOIL BORING LOG						Study Area: 43D	
Client: AEC			Project No. 7053-10			Boring No.: XDM-93-03X	
Contractor: New Hampshire Boring			Date Started: 8-12-93		Completed: 8-12-93		Method: HSA
Ground Elev.: 332.87			Soil Drilled: 16.0		Total Depth: 16.0'		Casing Size: 6.625"
Logged by: P. Bolmer			Checked by: J. Snowden			Groundwater Below Ground: 8.4'	
Screen: 10' (ft)		Riser: 15' (ft)		Diam.: 4" (ID)	Material: sched. 40	Protection: Mod.D	Page 1 of 1
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.8 ----- 2.0	BKG	SAND, poorly graded, <5% fines, 10-15% gravel, subangular medium dense, dry, very pale brown(10yr 7/3) (sp)	12-14-22-18	
2							
3							
4							
5	S-2	5-7	1.2 ----- 2.0	BKG	SAND, poorly graded, 5-10% fines, fines are non-plastic <5% fine gravel, subangular, very loose, damp to moist pale brown to very dark brown(10yr 7/4 to 3/2) (sp)	3-3-4-5	
6							
7							
8							water level at 8.4'
9							
10							
11	S-3	10-12	1.1 ----- 2.0	BKG	SAND, well graded, <5% fines, medium dense, saturated light brownish gray(10yr 6/2) (sw)	6-12-18-20	
12							
13							
14	S-4	14-16	1.2 ----- 2.0	BKG	SAND, poorly graded, 10-20% fines, fines are non-plastic 5-10% gravel, subangular, medium dense, saturated, very dark gray(10yr 3/1) (sp)	6-12-13-15	
15					Bottom of Boring 16'		

SOIL BORING LOG					Study Area: 43D		
Client: AEC		Project No. 7053-10		Boring No.: XDM-93-04X			
Contractor: New Hampshire Boring		Date Started: 8-12-93		Completed: 8-12-93		Method: HSA	
Ground Elev.: 253.85		Soil Drilled: 17.0'		Total Depth: 17.0'		Casing Size: 6.625"	
Logged by: P. Bolmer		Checked by: J. Snowden		Groundwater Below Ground: 8.5'			
Screen: 10' (ft)		Riser: 14.1' (ft)	Diam.: 4" (ID)	Material: sched. 40	Protection: Mod.D	Page 1 of 2	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.9 ----- 2.0	BKG	SAND, poorly graded, 10-15% fines, fines are non plastic 5-10% gravel, subrounded, dry, pale brown to light yellowish brown(10yr 6/3 to 6/4) (sp)	8-6-14-30	
2							
3							
4							
5							
6	S-2	5-7	1.1 ----- 2.0	BKG	SAND, poorly graded, loose, damp, pale brown(10yr 6/3) (sp)	8-6-14-30	
7							
8							
9							water level at 8.4'
10							
11	S-3	10-12	1.2 ----- 2.0	BKG	SAND, wellgraded, 10-20% subrounded gravel, medium dense saturated, light brownish gray(10yr 6/2) (sw)	11-19-20-30	
12							
13							
14							
15							

(continued on next page)

SOIL BORING LOG					Study Area: 43D		
Client: AEC		Project No. 7053-10		Boring No.: XDM-93-04X			
Contractor: New Hampshire Boring		Date Started: 8-12-93		Completed: 8-12-93		Method: HSA	
Ground Elev.: 253.8		Soil Drilled: 17.0'		Total Depth: 17.0'		Casing Size: 6.625"	
Logged By: P. Bolmer		Checked by: J. Snowden		Groundwater Below Ground: 8.5'			
Screen: 10' (ft)		Riser: 14.1 (ft)		Diam.: 4" (ID)	Material: sched.40	Protection: Mod.D	
Page 2 of 2							
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4	10-12	0.6 ----- 2.0	BKG	SAND, well graded, 10-20% fines, fines are non-plastic subrounded gravel, medium dense, saturated, light brownish gray(10yr 6/2) (sw) Bottom of Boring 17'	15-14-11-13	
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10		Boring No.: 43G-92-01X			
Contractor: Soil Exploration		Date Started: 9-16-92		Completed: 9-16-92		Method: HSA	
Ground Elev.: 309.8		Soil Drilled: 22'		Total Depth: 22'		Casing Size: 4.25"	
Logged by: W. Metzger		Checked by: DSP		Groundwater Below Ground: Estimate 18-20' BGS			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1							
2							
3							
4							
5							
6	S-1	5-7	2.0 ----- 0.8	0.0	SAND, well graded, with a little to a trace of silt, traces of fine to coarse gravel, subrounded, silt content decreasing with depth, loose, olive brown (2.5Y 4/3), damp. (SW)	3-2-2-6	1505 2" spoon
7							
8							
9							
10							
11	S-2	10-12	2.0 ----- 2.0	0.0	SAND, well graded, fine to coarse with gravel, subrounded to subangular, loose becoming medium dense, dark yellowish brown (10YR 4/2), damp, more gravel with depth. (SW)	9-22-40-35	1520 3" spoon Analytical collected.
12							
13							
14							
15							

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10			Boring No.: 43G-92-01X		
Contractor: Soil Exploration		Date Started: 9-16-92		Completed: 9-16-92		Method: HSA	
Ground Elev.: 309.8		Soil Drilled: 22'		Total Depth: 22'		Casing Size: 4.25"	
Logged by: W. Metzger		Checked by: DSP			Groundwater Below Ground: Estimate 18-20' BGS		
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 2 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-3	15-17	2.0 ----- 0.9	0.0	SAND, well graded, similar to S-2 but with less gravel. Damp. (SW)	14-14-12-17	1530 2" spoon
17							
18							
19							
20							
21	S-4	20-22	2.0 ----- 2.0	0.0	SILTY SAND, fine sand with 30% coarse sand to fine gravel, sub-rounded, medium dense, olive brown (2.5Y 4/3), wet. (SM)	8-9-7-10	Till 1600 2" spoon Analytical collected.
22					----- Bottom of boring = 22.0' BGS. No refusal.		Backfilled with cement/ bentonite grout.
23							
24							
25							
26							
27							
28							
29							
30							

PROJECT

Fort Devens - Building P-200A
Fort Devens, Massachusetts

BORING NO. B-1
SHEET 1 OF 1
FILE NO. 90-238
CHKD. BY MDM

DRAFT

BORING CO. Great Works Test Boring, Inc.
DRILLER T. Morrow
ENGINEER R. Chase

BORING LOCATION See Exploration Location Plan
GROUND SURFACE ELEV. _____ DATUM _____
DATE START 10/24/90 DATE END 10/24/90

Sampler: Unless otherwise noted, sampler consists of a 2 - inch split spoon driven by a 140 lb. hammer free-falling 30".
Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".
Casing Size: Other: 4-1/4-inch I.D. hollow stem auger

Groundwater Readings				
Date	Time	Depth	Casing	Stabilization Time
10/24/90	3:15	18.1	19'	Completion

DEPTH	SAMPLE				SAMPLE DESCRIPTION BURMISTER/(ASTM) CLASSIFICATION	STRATUM DESCRIPTION	
	No.	PEN/REC.	DEPTH (ft.)	BLOWS /6"			
5	S-1	18/8	0.0-1.7	8-6-6	Medium dense, brown, fine to medium SAND, little Gravel, trace Silt. Dry. (SW)	FINE TO COARSE SAND AND GRAVEL	
9	S-2	18/10	4.5-6	14-15-15	Dense, brown, fine to medium SAND and Gravel, trace Silt. Dry. (SW)		
14	S-3	18/11	8.5-11	8-6-4	Medium dense, brown, fine to coarse SAND, some Gravel, trace Silt. Dry. (SW)		
16	S-4	18/12	14.5-16	9-12-17	Medium dense, light brown, medium to coarse SAND, some Gravel, trace Silt. Dry. (SW)		
18	S-5	18/15	13.5-21	1-13-21	Dense, brown, fine SAND, some silt, trace Gravel. Wet. (SP)		FINE SAND
25					Bottom of Boring at 21.9'		
30							
35							

REMARKS:
1) Insertion in () indicates the ASTM soil classification group symbol.
2) Encountered groundwater at approximately 18.5 feet.
3) Soil samples were screened in the field for VOCs. Refer to Table 1.

NOTES:
1) Stratification lines represent approximate boundaries between soil types: Actual transitions may be gradual and varied.
2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.

PROJECT

Fort Devens - Building P-2008
Fort Devens, Massachusetts

BORING CO. Great Works Test Borings, Inc.
DRILLER T. Morrow
ENGINEER R. Chase

BORING LOCATION See Exploration Location Plan
GROUND SURFACE ELEV. _____ DATUM _____
DATE START 10/24/90 DATE END 10/25/90

Sampler: Unless otherwise noted, sampler consists of a 2 - inch split spoon driven by a 140 lb. hammer free-falling 30".
Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".
Casing Size: Other: 4-1/4-inch I.D. hollow stem auger

Groundwater Readings				
Date	Time	Depth	Casing	Stabilization Time
10/24/90	5:00	Drv	Out	Completion
10/25/90	7:30	22.7	Out	14.5 Hours

DEPTH	SAMPLE				SAMPLE DESCRIPTION BURMISTER / (ASTM) CLASSIFICATION	STRATUM DESCRIPTION	REMARKS
	No.	PEN/REC.	DEPTH (ft.)	BLOWS / 6"			
	S-1	18/10	0.2-1.7	5-11-14	Medium dense, brown, fine to coarse SAND, some Gravel, trace Silt. Dry. (SW)	FINE TO COARSE SAND AND GRAVEL	1
5	S-2	18/13	4.5-6	4-5-5	Medium dense, brown, fine to coarse SAND, some Gravel, trace Silt. Dry. (SW)		
10	S-3	18/3	9.5-11	3-3-6	Medium dense, dark brown, fine to medium SAND, little Gravel, trace Silt. Dry. (SW)		
15	S-4	18/11	14.5-16	22-40-30	Very dense, dark brown, fine to medium SAND and Gravel, trace Silt. Moist. (SW)	SILT AND FINE SAND	2
20	S-5	18/15	19.5-21	4-9-13	Medium dense, dark brown, SILT and fine Sand, some Gravel. Moist. (ML)		
25	S-6	18/16	24.5-26	21-26-27	Very dense, brown, fine to medium SAND and Gravel, trace Silt. Wet. (SW)	FINE TO MEDIUM SAND AND GRAVEL	3
30					Bottom of Boring at 26.0'		
35							

REMARKS:

- 1) Insertion in () indicates the ASTM soil classification group symbol.
- 2) Encountered groundwater at approximately 22.7 feet.
- 3) Soil samples were collected and screened in the field for VOCs. Refer to Table 1.

NOTES:

- 1) Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual and varied.
- 2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.

PROJECT

Fort Devens - Building P-2008
Fort Devens, Massachusetts

DRAFT

B-3

SHEET 1 OF 1
FILE NO. 90-233
CHKD. BY MPM

BORING CO. Great Works Test Boring, Inc.
DRILLER T. Morrow
ENGINEER R. Chase

BORING LOCATION See Exploration Location Plan
GROUND SURFACE ELEV. _____ DATUM _____
DATE START 10/25/90 DATE END 10/25/90

Sampler: Unless otherwise noted, sampler consists of a 2-inch split spoon driven by a 140 lb. hammer free-falling 30".
Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".

Groundwater Readings					
Date	Time	Depth	Casing	Stabilization	Time
10/25/90	5:00	Drv	Out	Completion	

Casing Size: Other: 4-1/4-inch I.D. hollow stem auger

DEPTH T H	SAMPLE				SAMPLE DESCRIPTION BURMISTER / (ASTM CLASSIFICATION)	STRATUM DESCRIPTION	R Z M K S
	No.	PEN/ REC.	DEPTH (ft.)	BLOWS / 6"			
5						FINE TO COARSE SAND AND GRAVEL	1
10							
15	S-1	18/10	14.5-16	10-17-22	Dense, gray GRAVEL and fine to coarse Sand, trace Silt. (GW)		
20	S-2	19/15	19.5-21	10-23-27	6" Very dense, brown, fine to coarse SAND, some Silt. Wet. (SW); 3" Very dense, reddish brown, WEATHERED ROCK (PHYLLITE). Wet; 6" Very dense, fine SAND, some Silt. Wet.	FINE SAND AND SILT WEATHERED ROCK	2
25	S-3	18/12	24.5-26	13-14-16	Dense, brown, fine to medium SAND, little Silt, trace Gravel. Wet. (SW)	FINE TO MEDIUM SAND AND SILT	3
30					Bottom of Boring at 26.0'		
35							

REMARKS:

- 1) Insertion in () indicates the ASTM soil classification group symbol.
- 2) Encountered groundwater at approximately 19.5 feet.
- 3) Soil samples were screened in the field for VOCs. Refer to Table 1.

NOTES:

- 1) Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual and varied.
- 2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.

DRILLING CO. Great Works Test Boring, Inc.
DRILLER T. Morrow
ENGINEER R. Chase

BORING LOCATION See Excavation Location Plan
GROUND SURFACE ELEV. DATUM
DATE START 10/25/90 DATE END 10/25/90

Sampler: Unless otherwise noted, sampler consists of a 2 - inch split spoon driven by a 140 lb. hammer free-falling 30".
Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".
Casing Size: Other: 4-1/4-inch I.D. hollow stem auger

Groundwater Readings	
Date	Time
10/25/90	5:10

DEPTH	SAMPLE			SAMPLE DESCRIPTION BURMISTER / (ASTM) CLASSIFICATION	STRATUM DESCRIPTION	REMARKS
	No	PEN/REC.	DEPTH (ft.)			
5	S-1	18/9	0.2-1.7	10-0-9	Medium dense, brown, fine to medium SAND and Gravel, trace Silt. Dry. (SW)	
5	S-2	18/9	4.5-6	5-6-5	4" Medium dense, dark brown, fine to medium SAND and Gravel, trace Silt. Dry; 5" Medium dense, orange-brown, fine SAND, little Silt, trace Gravel. Dry. (SP)	FINE TO COARSE SAND AND GRAVEL
10	S-3	18/14	9.5-11	3-27-25	Very dense, brown, fine to coarse SAND and Gravel, trace Silt. Dry. (SW)	
15	S-4	18/16	14.5-16	3-16-3	Medium dense, grayish brown SILT and fine Sand, trace Gravel. Moist. (ML)	SILT AND FINE SAND
20	S-5	18/18	19.5-21	17-26-25	Very dense, grayish brown SILT and fine Sand, trace Gravel. Dry. (ML)	
25					Bottom of Boring at 21.0'	
30						
35						

REMARKS:
1) Insertion in () indicates the ASTM soil classification group symbol.
2) Groundwater was not encountered in the boring.
3) Soil samples were screened in the field for VOCs. Refer to Table 1.

NOTES:
1) Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual and varied.
2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.



CONCORD • NEW HAMPSHIRE

PROJECT

Fort Devens - Building P-2008
Fort Devens, Massachusetts

BORING NO. B-5
SHEET 1 OF 1
FILE NO. 90-233
CHKD. BY MPM

BORING CO. Great Works Test Boring, Inc.
DRILLER T. Morrow
ENGINEER R. Chase

BORING LOCATION See Exploration Location Plan
GROUND SURFACE ELEV. _____ DATUM _____
DATE START 10/25/90 DATE END 10/25/90

Sampler: Unless otherwise noted, sampler consists of a 2 - inch split spoon driven by a 140 lb. hammer free-falling 30".
Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".
Casing Size: Other: 4-1/4-inch I.D. hollow stem auger

Groundwater Readings				
Date	Time	Depth	Casing	Stabilization Time
10/25/90	5:15	Dry	Out	Completion

DEPTH	SAMPLE				SAMPLE DESCRIPTION BURMISTER / (ASTM) CLASSIFICATION	STRATUM DESCRIPTION
	No.	PEN/REC.	DEPTH (ft.)	BLOWS / 6"		
5	S-1	18/7	0.2-1.7	5-5-5	Medium dense, brown, fine to medium SAND, little Gravel, trace Silt. Dry. (SW)	ASPHALT
5	S-2	18/9	4.5-5	4-3-7	Medium dense, fine to medium SAND and Gravel, trace Silt. Dry. (SW)	FINE TO MEDIUM SAND AND GRAVEL
10	S-3	18/8	9.5-11	7-6-6	Medium dense, brown, fine to medium SAND, little Gravel, trace Silt. Dry. (SW)	FINE TO MEDIUM SAND
15	S-4	18/13	14.5-15	5-15-21	5" Dense, brown, fine SAND, little Silt. Dry; 4" Dense, gray-brown fine to medium SAND, trace Silt. Dry. (SW); 4" Dense, brown, fine to medium SAND, some Gravel, trace Silt. Dry. (SW);	FINE TO COARSE SAND AND GRAVEL
20	S-5	19/13	19.5-21	11-14-16	3" Dense, gray, fine to coarse SAND. Wet. 10" Dense, brown, fine SAND, some Silt, little Gravel. Wet. (SP)	GRAVEL AND FINE SAND (TILL)
25	S-6	18/13	24.5-26	14-27-35	Very dense, brown, GRAVEL and fine Sand, trace Silt. Wet. (GW)	GRAVEL AND FINE SAND (TILL)
30					Bottom of Boring at 26.0'	
35						

REMARKS:

- 1) Insertion in () indicates the ASTM soil classification group symbol.
- 2) Encountered groundwater at approximately 19.5'.
- 3) Soil samples were screened in the field for VOCs. Refer to Table 1.

NOTES:

- 1) Stratification lines represent approximate boundaries between soil types: Actual transitions may be gradual and varied.
- 2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.

PROJECT

Fort Devens - Building 2-2008
 Fort Devens, Massachusetts

BORING CO. Great Works Test Boring, Inc. BORING LOCATION See Exploration Location Plan
 DRILLER T. Morrow GROUND SURFACE ELEV. _____ DATUM _____
 ENGINEER R. Chase DATE START 10/25/90 DATE END 10/25/90

Sampler: Unless otherwise noted, sampler consists of a 2 - inch split spoon driven by a 140 lb. hammer free-falling 30".
 Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".
 Casing Size: Other: 4-1/4-inch I.D. hollow stem auger

Groundwater Readings				
Date	Time	Depth	Casing	Stabilization Time
10/25/90	5:25	Dry	Out	Completion

DEPTH	SAMPLE				SAMPLE DESCRIPTION	STRATUM DESCRIPTION	REMARKS
	No.	PEN/REC.	DEPTH (ft.)	BLOWS / 6"			
5	S-1	18/12	0.2-1.7	6-9-12	Medium dense, brown, fine to coarse SAND, trace Gravel, trace Silt. Dry. (SW); 1" Black Asphalt.	ASPHALT	1
5	S-2	18/10	4.5-9	5-5-14	9" Medium dense, brown, fine to medium SAND, trace Gravel, trace Silt. Dry. (SW)	FINE TO COARSE SAND (FILL)	
10	S-3	18/10	9.5-11	4-9-13	Medium dense, brown, fine to coarse SAND, little Gravel, trace Silt. Dry. (SW)	FINE TO COARSE SAND AND GRAVEL	
15	S-4	18/13	14.5-16	14-17-20	Dense, brown, GRAVEL and fine to coarse Sand, trace Silt. Dry. (GW)	WEATHERED ROCK	
20	S-5	18/15	19.5-21	3-12-20	Dense, orange-brown, WEATHERED ROCK. (PHYLLITE) Dry.	WEATHERED ROCK	
25	S-6	18/14	24.5-26	10-29-26	Very dense, brown, WEATHERED ROCK. (PHYLLITE) Dry.		2
30					Bottom of Boring at 26.0'		3
35							

REMARKS:
 1) Insertion in () indicates the ASTM soil classification group symbol.
 2) Groundwater was not encountered in the boring.
 3) Soil samples were screened in the field for VOCs. Refer to Table 1.

NOTES:
 1) Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual and varied.
 2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.

PROJECT

Fort Devens - Building P-2008
 Fort Devens, Massachusetts

BORING NO. B-7
SHEET 1 OF 1
FILE NO. 90-233
CHKD. BY MPM

BORING CO. Great Works Test Boring, Inc.
DRILLER T. Morrow
ENGINEER E. Chase

BORING LOCATION See Exploration Location Plan
GROUND SURFACE ELEV. _____ **DATUM** _____
DATE START 10/23/90 **DATE END** 10/23/90

Sampler: Unless otherwise noted, sampler consists of a 2 - inch split spoon driven by a 140 lb. hammer free-falling 30".
Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".
Casing Size: Other: 4-1/4-inch I.D. hollow stem auger

Groundwater Readings				
Date	Time	Depth	Casing	Stabilization Time
10/23/90	5:30	Dry	Out	Completion

D E P T H	SAMPLE				SAMPLE DESCRIPTION BURMISTER / (ASTM) CLASSIFICATION	STRATUM DESCRIPTION	R E M A R K S
	No.	PEN/ REC.	DEPTH (ft.)	BLOWS / 6"			
	S-1	18/11	0.2-1.7	11-12-9	Medium dense, brown, fine to medium SAND, little Gravel, trace Silt. Dry. (SW)	ASPHALT	1
5	S-2	18/8	4.5-6	1-WR-1	Loose, brown, fine to medium SAND, little Gravel, trace Silt. Dry. (SW)	FINE TO MEDIUM SAND	
10	S-3	18/11	9.5-11	8-16-19	Dense, brown, fine SAND, some Gravel, trace Silt. (SW)		
15	S-4	18/16	14.5-16	8-22-24	9" Dense, light brown, fine to medium SAND, trace Silt. Dry. (SW); 4" Dense, dark brown, WEATHERED ROCK; 3" Dense, light brown, fine to coarse SAND and Gravel, trace Silt. (SW)		
20	S-5	0/0	19.5	100/0"	Auger Refusal at 19.5'	FINE TO COARSE SAND AND GRAVEL	2
25							
30							
35							

REMARKS:

- 1) Insertion in () indicates the ASTM soil classification group symbol.
- 2) Groundwater was not encountered in the boring.
- 3) Soil samples were screened in the field for VOCs. Refer to Table 1.

NOTES:

- 1) Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual and varied.
- 2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.

PROJECT

Fort Devens - Building P-2008
Fort Devens, Massachusetts

BORING NO. B-8
SHEET 1 OF 1
FILE NO. 90-233
CHKD. BY MPM

BORING CO. Great Works Test Boring, Inc.
DRILLER T. Morrow
ENGINEER R. Chase

BORING LOCATION See Exploration Location Plan
GROUND SURFACE ELEV. _____ DATUM _____
DATE START 10/26/90 DATE END 10/26/90

Sampler: Unless otherwise noted, sampler consists of a 2 - inch split spoon driven by a 140 lb. hammer free-falling 30".
Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".

Groundwater Readings				
Date	Time	Depth	Casing	Stabilization Time
10/26/90	12:10	Dry	Out	Completion

Casing Size: Other: 4-1/4-inch I.D. hollow stem auger

DEPTH Feet	SAMPLE				SAMPLE DESCRIPTION BURMISTER/(ASTM) CLASSIFICATION	STRATUM DESCRIPTION
	No.	PEN/REC.	DEPTH (ft.)	BLOWS / 6"		
	S-1	18/11	0.3-1.7	14-9-3	Medium dense, brown, fine to coarse SAND, little Gravel, trace Silt. Dry. (SW)	ASPHALT
5	S-2	18/9	4.5-6	3-4-4	Loose, brown, fine to medium SAND, little Gravel, trace Silt. Dry. (SW)	FINE TO COARSE SAND AND GRAVEL
10	S-3	18/3	9.5-11	2-2-3	Loose, brown GRAVEL, some fine to medium Sand, trace Silt. (SW)	
15	S-4	18/16	14.5-16	3-6-2	Medium dense, brown SILT and fine Sand, little Gravel. Moist. (ML)	SILT AND FINE SAND
20	S-5	18/14	19.5-21	10-20-20	Dense, brown, fine SAND, little Silt, little Gravel. Moist. (SP)	
25	S-6	3/9	24.5-25.3	100/30	Very dense, brown-reddish brown, WEATHERED ROCK. Wet. Split spoon refusal at 25.3'	WEATHERED ROCK
30						
35						

- REMARKS:
- 1) Insertion in () indicates the ASTM soil classification group symbol.
 - 2) Encountered groundwater at approximately 24.5 feet.
 - 3) Soil samples were screened in the field for VOCs. Refer to Table 1.

- NOTES:
- 1) Stratification lines represent approximate boundaries between soil types; Actual transitions may be gradual and varied.
 - 2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.

PROJECT

Fort Devens - Building P-2008
Fort Devens, Massachusetts

BORING NO. B-9
SHEET 1 OF 1
FILE NO. 90-233
CHKD. BY MPM

BORING CO. Great Works Test Boring, Inc.
DRILLER T. Morrow
ENGINEER R. Chase

BORING LOCATION See Exploration Location Plan
GROUND SURFACE ELEV. _____ DATUM _____
DATE START 10/26/90 DATE END 10/26/90

Sampler: Unless otherwise noted, sampler consists of a 2 - inch split spoon driven by a 140 lb. hammer free-falling 30".
Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".
Casing Size: Other: 4-1/4-inch I.D. hollow stem auger

Groundwater Readings				
Date	Time	Depth	Casing	Stabilization Time
10/26/90	12:15	Dry	Out	Completion

DEPTH	SAMPLE				SAMPLE DESCRIPTION BURMISTER/(ASTM) CLASSIFICATION	STRATUM DESCRIPTION
	No.	PEN/REC.	DEPTH (ft.)	BLOWS/6"		
	S-1	18/9	0-1.5	2-9-10	Medium dense, brown, fine to medium SAND, some Gravel, trace Silt. Dry. (SW)	FINE TO COARSE SAND AND GRAVEL
5	S-2	18/13	4.5-6	10-12-15	Medium dense, brown, fine to coarse SAND, trace Gravel, trace Silt. Dry. (SW)	
10	S-3	18/15	9.5-11	18-28-25	Very dense, brown, fine SAND, some Gravel, trace Silt. (SP)	
15	S-4	18/14	14.5-15	4-7-15	Medium dense, brown, WEATHERED ROCK.	WEATHERED ROCK
20	S-5	9/8	19.5-20.3	100/1*	Very dense, brown, WEATHERED ROCK. Split spoon refusal at 20.3'	
25						
30						
35						

- REMARKS:
- 1) Insertion in () indicates the ASTM soil classification group symbol.
 - 2) Groundwater was not encountered in the boring.
 - 3) Soil samples were screened in the field for VOCs. Refer to Table 1.

- NOTES:
- 1) Stratification lines represent approximate boundaries between soil types: Actual transitions may be gradual and varied.
 - 2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.

PROJECT

Fort Devens - Building P-2008
Fort Devens, Massachusetts

BORING NO. B-10
SHEET 1 OF 1
FILE NO. 90-233
CHKD. BY MPM

BORING CO. Great Works Test Boring, Inc.
DRILLER T. Morrow
ENGINEER R. Chase

BORING LOCATION See Exploration Location Plan
GROUND SURFACE ELEV. _____ DATUM _____
DATE START 10/26/90 DATE END 10/26/90

Sampler: Unless otherwise noted, sampler consists of a 2 - inch split spoon driven by a 140 lb. hammer free-falling 30".

Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".

Casing Size: Other: 4-1/4-inch I.D. hollow stem auger

Groundwater Readings				
Date	Time	Depth	Casing	Stabilization Time
10/26/90	12:20	Dry	Out	Completion

DEPTH	SAMPLE				SAMPLE DESCRIPTION BURMISTER/(ASTM) CLASSIFICATION	STRATUM DESCRIPTION
	No.	PEN/REC.	DEPTH (ft.)	BLOWS/6"		
5	S-1	18/9	0.2-1.7	12-16-17	Dense, brown, fine to coarse SAND, little Gravel, trace Silt. Dry. (SW)	FINE TO COARSE SAND
	S-2	18/12	4.5-6	5-6-10	5" Medium dense, black, fine to medium SAND, trace Silt. Dry. (SW); 7" Medium dense, brown, fine to coarse SAND, little Gravel, trace Silt. Dry. (SW)	
10	S-3	18/13	9.5-11	11-39-37	Very dense, brown GRAVEL, some fine to coarse Sand, trace Silt. Dry. (GW)	GRAVEL
15	S-4	18/15	14.5-16	32-34-55	Very dense, grayish brown, fine SAND, some Silt, little Gravel. Dry. (ML)	TILL
	S-5	18/15	17.3-19.8	18-48-60	Very dense, brown, fine SAND, some Silt, trace Gravel. Dry. (SP)	
20	S-6	18/18	19.8-20.3	50-52-53	Very dense, brown, fine SAND, some Silt, trace Gravel. Dry. (SP)	
25						
30						
35						

- REMARKS:
- 1) Insertion in () indicates the ASTM soil classification group symbol.
 - 2) Groundwater was not encountered in the boring.
 - 3) Soil samples were screened in the field for VOCs. Refer to Table 1.

- NOTES:
- 1) Stratification lines represent approximate boundaries between soil types; Actual transitions may be gradual and varied.
 - 2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.

PROJECT

Fort Devens - Building 9-2003
Fort Devens, Massachusetts

BORING CO. Great Works Test Boring, Inc.
DRILLER T. Morrow
ENGINEER R. Chase

BORING LOCATION See Exploration Location Plan
GROUND SURFACE ELEV. DATUM
DATE START 10/31/90 DATE END 10/31/90

Sampler: Unless otherwise noted, sampler consists of a 2 - inch split spoon driven by a 140 lb. hammer free-falling 30".
Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".
Casing Size: Other: 4-1/4-inch I.D. hollow stem auger

Groundwater Readings				
Date	Time	Depth	Casing	Stabilization Time
10/31/90	9:30	Drv	Out	Completion

DEPTH	SAMPLE				SAMPLE DESCRIPTION BURMISTER / (ASTM) CLASSIFICATION	STRATUM DESCRIPTION	REMARKS
	No.	PEN/ REC.	DEPTH (ft.)	BLOWS / 6"			
5	S-1	18/7	0.2-1.7	3-5-4	Loose, brown, GRAVEL and fine to medium Sand, trace Silt. Dry. (GW)	ASPHALT	1
5	S-2	18/11	4.5-6	9-19-19	Dense, brown, fine to medium SAND and Gravel, trace Silt. Dry. (SW)	FINE TO COARSE SAND AND GRAVEL	
10	S-3	18/7	7.5-11	7-10-11	Medium dense, brown, fine to medium SAND and Gravel, trace Silt. Dry. (SW)		
15	S-4	18/13	14.5-16	9-11-17	Medium dense, brown, fine to coarse SAND, little Gravel, trace Silt. Dry. (SW)		
20	S-5	18/12	19.5-21	20-26-28	6" Dense, grayish-brown, fine SAND, trace Gravel, trace Silt. (SP); 6" Dense, brown, fine SAND, trace Gravel, trace Silt. (Moist). (SP)	FINE SAND	
25	S-6	18/16	24.5-26	27-37-49	Very dense, brown, fine to medium SAND, trace Gravel, trace Silt. (Moist) (SW)	FINE TO MEDIUM SAND	2
30					Bottom of Boring at 26.0'		
35							

- REMARKS:
- 1) Insertion in () indicates the ASTM soil classification group symbol.
 - 2) Groundwater was not encountered in the boring.
 - 3) Soil samples were screened in the field for VOCs. Refer to Table 1.

- NOTES:
- 1) Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual and varied.
 - 2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.

PROJECT

Fort Devens - Building P-2008
 Fort Devens, Massachusetts

BORING NO. B-12
 SHEET 1 OF 1
 FILE NO. 90-233
 CHKD. BY MPM

BORING CO. Great Works Test Boring, Inc.
 DRILLER T. Morrow
 ENGINEER R. Chase

BORING LOCATION See Exploration Location Plan
 GROUND SURFACE ELEV. _____ DATUM _____
 DATE START 10/31/90 DATE END 10/31/90

Sampler: Unless otherwise noted, sampler consists of a 2 - inch split spoon driven by a 140 lb. hammer free-falling 30".
 Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".
 Casing Size: Other: 4-1/4-inch I.D. hollow stem auger

Groundwater Readings				
Date	Time	Depth	Casing	Stabilization Time
10/31/90	10:40	Dry	Out	Completion

DEPTH	SAMPLE				SAMPLE DESCRIPTION BURMISTER/(ASTM) CLASSIFICATION	STRATUM DESCRIPTION
	No.	PEN/REC.	DEPTH (ft.)	BLOWS/6"		
	S-1	18/5	0.2-1.7	10-10-7	Medium dense, brown, fine to coarse SAND, some Gravel, trace Silt. Dry. (SW)	ASPHALT
5	S-2	18/9	4.5-6	5-8-13	Medium dense, brown, fine to coarse SAND and Gravel, trace Silt. Dry. (SW)	FINE TO COARSE SAND AND GRAVEL
10	S-3	18/16	9.5-11	15-22-29	Very dense, brown, fine to coarse SAND, some Gravel, trace Silt. Dry. (SW)	
15	S-4	19/18	14.5-16	21-27-30	Very dense, brown, fine SAND, trace Gravel, little Silt. Dry. (SW)	FINE SAND AND SILT
20	S-5	18/16	19.5-21	18-18-10	Medium dense, brown, fine SAND, little Silt. Dry.	Bottom of Boring at 21.0'
25						
30						
35						

- REMARKS:
- 1) Insertion in () indicates the ASTM soil classification group symbol.
 - 2) Groundwater was not encountered in the boring.
 - 3) Soil samples were screened in the field for VOCs. Refer to Table 1.

- NOTES:
- 1) Stratification lines represent approximate boundaries between soil types; Actual transitions may be gradual and varied.
 - 2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.

PROJECT

Fort Devens - Building 9-2008
Fort Devens, Massachusetts

DRAFT B-13
SHEET 1 OF 1
FILE NO. 90-133
CHKD. BY MPM

BORING CO. Great Works Test Boring, Inc.
DRILLER T. Morrow
ENGINEER R. Chase

BORING LOCATION See Exploration Location Plan
GROUND SURFACE ELEV. _____ DATUM _____
DATE START 10/31/90 DATE END 10/31/90

Sampler: Unless otherwise noted, sampler consists of a 2 - inch split spoon driven by a 140 lb. hammer free-falling 30".
Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".
Casing Size: Other: 4-1/4-inch I.D. hollow stem auger

Groundwater Readings				
Date	Time	Depth	Casing	Stabilization Time
10/31/90	11:55	Drv	Out	Completion

DEPTH	SAMPLE				SAMPLE DESCRIPTION BURMISTER / (ASTM) CLASSIFICATION	STRATUM DESCRIPTION
	No.	PEN/REC.	DEPTH (ft.)	BLOWS / 6"		
	S-1	18/12	0.2-1.7	10-13-13	Medium dense, fine to medium SAND and Gravel, trace Silt. Dry. (SW)	ASPHALT FINE TO COARSE SAND AND GRAVEL
5	S-2	18/7	4.5-6	5-6-6	Medium dense, brown, fine to medium SAND, trace Gravel, trace Silt. Dry. (SW)	FINE TO COARSE SAND
10	S-3	18/13	9.5-11	6-12-16	Medium dense, brown, fine to coarse SAND, trace Gravel, trace Silt. Dry. (SW)	
15	S-4	15/14	14.5-16	17-21-100/3"	Very dense, brown, fine to medium SAND, little Gravel, little Silt. Dry. (SW)	
20	S-5	18/14	19.5-21	10-11-10	6" Medium dense, brown, fine to medium SAND, little Silt. Moist. (SW); 3" Medium dense, brown-gray WEATHERED ROCK.	WEATHERED ROCK
25					Split spoon refusal at 21'	
30						
35						

- REMARKS:
- 1) Insertion in () indicates the ASTM soil classification group symbol.
 - 2) Groundwater was not encountered in this boring.
 - 3) Soil samples were screened in the field for VOCs. Refer to Table 1.

- NOTES:
- 1) Stratification lines represent approximate boundaries between soil types. Actual transitions may be gradual and varied.
 - 2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.

PROJECT

Fort Devens - Building P-2008
Fort Devens, Massachusetts

BORING ~~DRAFT~~ B-14
SHEET 1 OF 1
FILE NO. 90-233
CHKD. BY MPM

BORING CO. Great Works Test Boring, Inc.
DRILLER T. Morrow
ENGINEER R. Chase

BORING LOCATION See Exploration Location Plan
GROUND SURFACE ELEV. _____ DATUM _____
DATE START 10/31/90 DATE END 10/31/90

Sampler: Unless otherwise noted, sampler consists of a 2 - inch split spoon driven by a 140 lb. hammer free-falling 30".
Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".

Groundwater Readings				
Date	Time	Depth	Casing	Stabilization Time
10/31/90	1:40	Drv	Our	Completion

Casing - Size: _____ Other: 4-1/4-inch I.D. hollow stem auger

DEPTH	SAMPLE				SAMPLE DESCRIPTION	STRATUM DESCRIPTION	R Z M K S	
	No.	PEN/REC.	DEPTH (ft.)	BLOWS / 6"				BURMISTER / (ASTM) CLASSIFICATION
	S-1	18/11	0.2-1.7	7-15-24	Dense brown, fine to medium SAND and Gravel, trace Silt. Dry. (SW)	ASPHALT	1	
5	S-2	18/8	4.5-6	14-5-3	Loose, dark brown, fine to medium SAND, trace Gravel, trace Silt. Dry. (SW)	FINE TO MEDIUM SAND		
10	S-3	18/13	9.5-11	6-7-12	6" Medium dense, dark brown, fine to medium SAND, little Gravel, trace Silt. 8" Medium dense, brown, fine to coarse SAND, little Gravel, trace Silt. Dry. (SW)			
15	S-4	5/5	14.5-14.9	100/5"	Very dense, dark brown, fine to medium SAND, trace Gravel, trace Silt. Dry. (SW)		2 3	
					Auger Refusal at 14.9'			
20								
25								
30								
35								

- REMARKS:
- 1) Insertion in () indicates the ASTM soil classification group symbol.
 - 2) Groundwater was not encountered in this boring.
 - 3) Soil samples were screened in the field for VOCs. Refer to Table 1.

- NOTES:
- 1) Stratification lines represent approximate boundaries between soil types; Actual transitions may be gradual and varied.
 - 2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.

PROJECT

Fort Devens - Building P-2008
Fort Devens, Massachusetts

BORING CO. Great Works Test Boring, Inc.
DRILLER T. Morrow
ENGINEER R. Chase

BORING LOCATION See Exploration Location Plan
GROUND SURFACE ELEV. _____ DATUM _____
DATE START 10/31/90 DATE END 10/31/90

Sampler: Unless otherwise noted, sampler consists of a 2 - inch split spoon driven by a 140 lb. hammer free-falling 30".
Casing: Unless otherwise noted, casing driven using a 300 lb. hammer falling 24".
Casing Size: Other: 4-1/4-inch I.D. hollow stem auger

Groundwater Readings				
Date	Time	Depth	Casing	Stabilization Time
10/31/90	3:20	16.0	Out	Completion

DEPTH	SAMPLE				SAMPLE DESCRIPTION BURMISTER / (ASTM) CLASSIFICATION	STRATUM DESCRIPTION
	No.	PEN/ REC.	DEPTH (ft.)	BLOWS / 6"		
5	S-1	18/11	0-1.5	5-6-6	5" Medium dense, brown, fine to coarse SAND, some Gravel, trace Silt. (SW);	FINE TO COARSE SAND AND GRAVEL
					2" Medium dense, black-stained, fine to coarse SAND, some Gravel, trace Silt;	
10	S-2	18/10	4.5-6	3-2-1	4" Medium dense, brown, fine to coarse SAND and Gravel, trace Silt. Dry. (SW);	
					S-2: Very loose, brown, fine to coarse SAND, trace Gravel, trace Silt. (SW)	
15	S-3	18/11	9.5-11	6-17-14	7" Dense, brown, fine to medium SAND, trace Silt. (SW)	
					4" Dense, grayish brown WEATHERED ROCK.	
20	S-4	18/17	14.5-16	8-19-30	Dense, grayish brown, fine SAND and Silt, trace Gravel. Wet.	TILL
25	S-5	18/12	19.5-21	6-15-18	Dense, grayish brown SILT and fine Sand. Wet.	
30	S-6	18/14	24.5-26	19-11-18	5" Medium dense, brown, fine to coarse SAND and Gravel. Wet. (SW); 9" Medium dense, brown, WEATHERED ROCK (PHYLLITE).	WEATHERED ROCK
35					Bottom of Boring at 26.0'	

- REMARKS:
- 1) Insertion in () indicates the ASTM soil classification group symbol.
 - 2) Encountered groundwater at approximately 14.5 feet.
 - 3) Soil samples were screened in the field for VOCs. Refer to Table 1.

- NOTES:
- 1) Stratification lines represent approximate boundaries between soil types; Actual transitions may be gradual and varied.
 - 2) Fluctuations in water levels will occur due to conditions different from those present at the time these measurements were made.

SOIL BORING LOG						Study Area: AOC43G	
Client: USAEC			Project No. 7053-10			Boring No.: XGB-93-03X	
Contractor: New Hampshire Boring			Date Started: 9-17-93			Completed: 9-17-93	Method: HSA
Ground Elev.: 310.4			Soil Drilled: 25.0'			Total Depth: 25.0'	Casing Size: 4.25"
Logged by: K. Nelson			Checked by: JCS			Groundwater Below Ground: Not Encountered	
Screen: NA (ft)		Riser: NA (ft)		Diam.: NA (ID)	Material: NA	Protection: Mod.D	Page 1 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 0.8	BKG	0 - 0.5' Asphalt ----- SAND poorly graded, medium sand (95%) with fine to medium gravel subrounded (5%), loose, dry, brown (7.5YR 5/4) (SP)	4-3-2-7	
2							
3							
4							
5	S-2	5-7	2.0 ----- 1.5	BKG	Similar to S-1 (SP)	8-10-8-7	
6							
7							
8	S-3	8-10	2.0 ----- 1.5	82.0	8' to 8.4'-Similar to S-1 with fuel odor 8' to 8.5'- SAND fine to medium (98%) sand with silt (<8%) and fine gravel (2%), medium dense, moist, Dark gray brown (7.5YR 4/6), fuel odor (SP)		Lab sample collected
9							
10							
11							
12	S-4	12-14	2.0 ----- 1.6	25.2	Similar to bottom of S-3, slight fuel odor, dry (SP)	6-15-26-15	Lab sample collected
13							
14							
15	S-5	15-17	2.0 ----- 2.0	BKG	Similar to S-4	15-23-35-28	

SOIL BORING LOG					Study Area: AOC43G		
Client: USAEC		Project No. 7053-10		Boring No.: XGB-93-03X			
Contractor: New Hampshire Boring		Date Started: 9-17-93		Completed: 9-17-93		Method: HSA	
Ground Elev.: 310.4		Soil Drilled: 27.0'		Total Depth: 27.0'		Casing Size: 4.25"	
Logged by: K. Nelson		Checked by: JCS		Groundwater Below Ground: Not Encountered			
Screen: NA (ft)		Riser: NA (ft)		Diam.: NA (ID)	Material: NA	Protection: Mod.D	Page 2 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16							
17							
18							
19							
20	S-5	20-22	2.0 ----- 0.0	176.8	SILT - silt (65%) with fine to medium gravel (30%), medium dense moist, gray brown (10YR 5/2), fuel odor (ML)	10-10-14-12	Headspace PID = 488.0 ppm
21							
22							
23							
24							
25	S-6	25-27	2.0 ----- 2.0	BKG	Similar to S-5 with > % of fine sand and faint fuel odor (ML)	26-55-25-70	Headspace PID = 245.7 ppm
26							
27					----- Bottom of boring at 27.0' bgs		
28							
29							
30							

SOIL BORING LOG					Study Area: AOC43G			
Client: USAEC		Project No. 7053-10		Boring No.: XGB-93-04X				
Contractor: New Hampshire Boring		Date Started: 9-17-93		Completed: 9-17-93		Method: HSA		
Ground Elev.: 310.3		Soil Drilled: 25.0'		Total Depth: 25.0'		Casing Size: 4.25"		
Logged by: K. Nelson		Checked by: JCS		Groundwater Below Ground: Not Encountered				
Screen: NA	(ft)	Riser: NA	(ft)	Diam.: NA	(ID)	Material: NA	Protection: Mod.D	Page 2 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS	
16								
17								
18								
19								
20	S-5	20-22	2.0 ----- 0.0	BKG	No Recovery	8-10-15-25		
21								
22								
23								
24								
25	S-6	25-26	1.1 ----- 1.1	3.3	SANDY SILT- fine sandy (40%) silt (50%) with medium gravel (10%) very dense, moist, dark gray (10YR 4/1), fuel odor (SM)	35-120 for 0.5'	Lab sample collected	
26					Weathered bedrock chips in nose of spoon. ----- Bottom of boring at 26.1' bgs			
27								
28								
29								
30								

SOIL BORING LOG					Study Area: AOC43G			
Client: USAEC		Project No. 7053-10		Boring No.: XGB-93-05X				
Contractor: New Hampshire Boring		Date Started: 9-14-93		Completed: 9-14-93		Method: HSA		
Ground Elev.: 309.8		Soil Drilled: 28.0'		Total Depth: 28.0'		Casing Size: 4.25"		
Logged by: L. Tracy		Checked by: JCS		Groundwater Below Ground: Not Encountered				
Screen: NA	(ft)	Riser: NA	(ft)	Diam.: NA	(ID)	Material: NA	Protection: Mod.D	Page 1 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS	
1	S-1	0-2	2.0 ----- 0.8	BKG	0 - 0.5' Asphalt ----- SAND fine to medium sand with coarse sand (10%) and silt (10%) and medium gravel (10%), moist, medium dense, reddish brown (5YR 4/3)	12-12-12-13		
2								
3								
4								
5	S-2	5-7	2.0 ----- 0.7	BKG	Similar to S-1 with >% of medium gravel (SW-SM)	19-9-8-10		
6								
7								
8	S-3	8-10	2.0 ----- 1.4	BKG	Similar to S-1 with apparent ash layer of 0.1' (Split sample with M&E representative) (SW-SM)	7-26-39-50		
9								
10								
11								
12	S-4	12-14	2.0 ----- 1.6	BKG	Similar to bottom of S-3 without ash layer (SW-SM)	11-16-22-24	Lab sample collected with MS/MSD	
13								
14								
15	S-5	15-17	2.0 ----- 2.0	33.0	SAND - fine to medium sand with coarse sand (10%) and medium gravel (25%) and silt (5%), moist, very dense, well graded, brown (10YR 5/3) (SW-GW)	15-25-28-25		

SOIL BORING LOG					Study Area: AOC43G			
Client: USAEC		Project No. 7053-10		Boring No.: XGB-93-05X				
Contractor: New Hampshire Boring		Date Started: 9-14-93		Completed: 9-14-93		Method: HSA		
Ground Elev.: 309.8		Soil Drilled: 28.0'		Total Depth: 28.0'		Casing Size: 4.25"		
Logged by: L. Tracy		Checked by: JCS		Groundwater Below Ground: Not Encountered				
Screen: NA	(ft)	Riser: NA	(ft)	Diam.: NA	(ID)	Material: NA	Protection: Mod.D	Page 2 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS	
16								
17								
18								
19								
20	S-5	20-22	2.0 ----- 0.0	BKG	SAND - sitly fine sand with medium gravel (15-20%) and coarse sand (25%), wet, medium dense, light olive gray (2.5Y 5/4) (SM)	7-10-11-17		
21								
22								
23								
24								
25	S-6	25-27	1.1 ----- 1.1	3.3	Similar to S-5 with apparent bedrock fragments (SM)	15-7-15-19	Lab sample collected	
26								
27								
28					----- Bottom of boring at 28.0' bgs			
29								
30								

SOIL BORING LOG					Study Area: AOC43G			
Client: USAEC		Project No. 7053-10		Boring No.: XGB-93-06X				
Contractor: New Hampshire Boring		Date Started: 9-14-93		Completed: 9-14-93		Method: HSA		
Ground Elev.: 308.7		Soil Drilled: 25.5'		Total Depth: 25.5'		Casing Size: 4.25"		
Logged by: L. Tracy		Checked by: JCS		Groundwater Below Ground: Not Encountered				
Screen: NA	(ft)	Riser: NA	(ft)	Diam.: NA	(ID)	Material: NA	Protection: Mod.D	Page 1 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS	
1	S-1	0-2	2.0 ----- 0.8	BKG	0 - 0.8' Asphalt ----- SAND fine to medium sand with fine sand (10%) and coarse sand and medium gravel (5%), dry, medium dense, pale brown (10YR 7/3)	12-18-18-15		
2								
3								
4								
5	S-2	5-7	2.0 ----- 0.5	BKG	Similar to S-1 with >% of fine sand (SP)	6-8-6-6	Lab sample collected (split sample with M&E)	
6								
7								
8	S-3	8-10	2.0 ----- 1.2	BKG	Similar to S-2 (SP)	8-7-6-6	Lab sample collected	
9								
10								
11								
12	S-4	12-14	2.0 ----- 1.6	BKG	Similar to bottom of S-2 with > % of medium gravel (SP)	6-5-8-11	Fill native till interface	
13								
14								
15	S-5	15-17	2.0 ----- 2.0	BKG	SAND - silty sand with fine to medium sand (10%) and coarse sand (10 to 15%) and bedrock chips (5%), medium dense, dry to damp reddish brown (5YR 4/3) (SW-SM)	52-28-27-23		

SOIL BORING LOG					Study Area: AOC43G		
Client: USAEC		Project No. 7053-10		Boring No.: XGB-93-06X			
Contractor: New Hampshire Boring		Date Started: 9-14-93		Completed: 9-14-93		Method: HSA	
Ground Elev.: 308.7		Soil Drilled: 25.5'		Total Depth: 25.5'		Casing Size: 4.25"	
Logged by: L. Tracy		Checked by: JCS		Groundwater Below Ground: Not Encountered			
Screen: NA (ft)	Riser: NA (ft)	Diam.: NA (ID)	Material: NA	Protection: Mod.D	Page 2 of 2		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16							
17							
18							
19							
20	S-5	20-22	2.0 ----- 0.0	BKG	Similar to S-5 with bedrock fragments in nose of spoon (SW-SM)	52-28-27-23	
21							
22							
23							
24							
25	S-6	25- 25.5	0.5 ----- 0.5	BKG	Similar to S-5 with apparent bedrock fragments (SW-SM) ----- Bottom of boring at 25.5' bgs	11-100 for 0.0'	Lab sample collected
26							
27							
28							
29							
30							

SOIL BORING LOG						Study Area: AOC 43G		
Client: AEC			Project No. 7053-10		Boring No.: XGB-93-07X			
Contractor: New Hampshire Boring			Date Started: 9-20-93		Completed: 9-20-93		Method: HSA	
Ground Elev.: 309.8			Soil Drilled: 20.5'		Total Depth: 20.5'		Casing Size: 4.25"	
Logged by: L.Tracey			Checked by: RRR		Groundwater Below Ground: Not encountered			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 2	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION		BLOWS\6-IN.	COMMENTS
1					0-0.4 Pavement			
2	S-1	1-3	0.5 ----- 2.0	BKG	SAND, poorly graded, fine to medium, 25% gravel, 5-10% silt, moist, medium dense, brown, 10yr 4/3 (sp-sm)		7-9-11-4	
3								
4								
5								
6	S-2	5-7	0.4 ----- 2.0	BKG	SAND, similar to S-1 (sp-sm)		2-2-11-6	
7								
8								
9	S-3	8-10	0.4 ----- 2.0	BKG	GRAVELLY SAND, well graded, fine to coarse, 30% gravel, 5% silt moist, brown, 10yr 4/3 (sw-gw)		5-6-4-3	3" spoon not sample for analytical
10								
11	S-4	10-12	1.2 ----- 2.0	BKG	Similar to S-3 (sw-gw)		5-4-3-5	3" spoon analytical collected
12								
13	S-5	12-14	0.4 ----- 2.0	8.4	Similar to S-4 (sw-gw)		7-4-14-6	Chunk of asphalt caught in shoe of spoon No field screening sample collected
14								
15								

ABB Environmental Services, Inc.

SOIL BORING LOG					Study Area: AOC 43G		
Client: AEC		Project No. 7053-10		Boring No.: XGB-93-07X			
Contractor: New Hampshire Boring		Date Started: 9-20-93		Completed: 9-20-93		Method: HSA	
Ground Elev.: 309.8		Soil Drilled: 20.5'		Total Depth: 20.5'		Casing Size: 4.25"	
Logged By: L.Tracey		Checked by: RRR		Groundwater Below Ground: Not encountered			
Screen: --- (ft)	Riser: --- (ft)	Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 2 of 3		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-6	15-17	0.8 ----- 2.0	BKG	SAND, well graded, fine to coarse, 20% gravel, 5% silt, moist, brown, 10yr 4/3 (sw)	21-18-28-13	
17							
18							
19							
20	S-7	20 TO 20.4	0.4 ----- 0.4	BKG	SILTY SAND, poorly graded, fine, 10-15% silt, medium to coarse, 10% gravel, moist-wet, olive brown, 2.5yr 4/3 (sm) Auger refusal at 20.5' BGS	100-0.4'	
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

ABB Environmental Services, Inc.

SOIL BORING LOG					Study Area: AOC 43G		
Client: AEC		Project No. 7053-10		Boring No.: XGB-93-08X			
Contractor: New Hampshire Boring		Date Started: 9-20-93		Completed: 9-21-93		Method: HSA	
Ground Elev.: 308.6		Soil Drilled: 27.5'		Total Depth: 27.5'		Casing Size: 4.25"	
Logged by: L.Tracey		Checked by: RRR		Groundwater Below Ground: Not encountered			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1					0-0.4 Pavement		
2	S-1	1-3	1.0 ----- 2.0	BKG	0-0.3 SAND, fine to coarse, 25% gravel, well graded, 10% silt, moist, brown, 7.5yr 5/3 (sw-sm)	not recorded	
3					0.3-0.7 SAND, well graded, fine to coarse, 25% gravel, 5% silt, moist, black, 7yr n2 (sw)		
4					0.7-1.0 SAND, poorly graded, fine, 10-15% silt, moist, brown 7.5yr 4/6 (sp)		
5							
6	S-2	5-7	1.2 ----- 2.0	BKG	SAND, well graded, fine to coarse, 25% gravel, 5% silt, moist, bark brown, 7.5yr 3/3 (sw)	12-10-12-12	
7							
8							
9	S-3	8-10	1.5 ----- 2.0	BKG	Similar to S-2 except brown to dark brown, 7.5yr 4/2 (sw)	20-44-40-64	analytical collected
10							
11	S-4	10-12	1.2 ----- 2.0	BKG	GRAVELLY SAND, well graded, fine to coarse, 10% silt, moist, dark brown, 7.5yr 4/2 (sw-sm)	33-100-88-61	
12							
13	S-5	12-14	1.2 ----- 2.0	BKG	GRAVELLY SAND, well graded, fine to coarse, 15% silt, moist, occasional fine sand layers(2" thick), 7.5yr 6/3 (sw-sm)	30-33-36-39	end of 9-20-93
14							
15							

ABB Environmental Services, Inc.

SOIL BORING LOG					Study Area: AOC 43G		
Client: AEC		Project No. 7053-10		Boring No.: XGB-93-08X			
Contractor: New Hampshire Boring		Date Started: 9-20-93		Completed: 9-21-93		Method: HSA	
Ground Elev.: 308.6		Soil Drilled: 27.5'		Total Depth: 27.5'		Casing Size: 4.25"	
Logged By : L.Tracey		Checked by: RRR		Groundwater Below Ground: Not encountered			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 2 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-6	15-17	1.5 ----- 2.0	BKG	Similar to S-5 but no fine sand layers (sw-sm)	25-28-27-28	3" spoon
17							
18	S-7	17-19	1.5 ----- 2.0	BKG	0-1.2 Similar to S-6 (sw-sm)	27-43-26-21	3" spoon analytical collected
19					1.2-1.5 SILTY SAND, poorly graded, fine, 10-15% medium to coarse sand, 10% gravel, moist-wet, olive brown, 2.5y 4/4 (sm)		
20	S-8	19-21	1.5 ----- 2.0	BKG	Similar to 1.2-1.5' of S-7 (sm)	13-42-26-20	3" spoon analytical collected
21							
22							
23							
24							
25							
26	S-9	25-27	1.4 ----- 2.0	BKG	Similar to S-8 becoming more gravelly with depth	67-53-37-32	
27					Auger refusal at 27.5' BGS		containerized cuttings 15-20% PID(2.5)
28							
29							
30							

SOIL BORING LOG						Study Area: 43G	
Client: AEC			Project No. 7053-10			Boring No.: XGM-93-01X	
Contractor: New Hampshire Boring			Date Started: 8-3-93		Completed: 8-5-93	Method: HSA/DNW	
Ground Elev.: 311.5			Soil Drilled: 30'		Total Depth: 34'	Casing Size: 4.25"/6"	
Logged by: R. Rusted			Checked by: J. Snowden			Groundwater Below Ground: ---	
Screen: 10' (ft)		Riser: 33 (ft)	Diam.: 4" (ID)	Material: sched. 40	Protection: Mod.D	Page 1 of 3	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.5 ----- 2.0	BKG	0-0.2 TOPSOIL, organic matter, roots 0.2-1.0 SAND, poorly graded, fine, >5% silt, 5% coarse gravel 1.0-1.5 CONCRETE, with coarse gravel, dry, medium dense to dense (sp and fill)	6-12-30-43	Commenced drilling on 8-3-93/1300
2							
3							
4							
5	S-2	4-6	1.5 ----- 2.0	BKG	GRAVELLY SAND, well graded, medium to coarse, 10% fine 15-20% gravel, 10% silt, moderately rounded, medium dense dry, mottled light brown (sw-sm)	23-23-22-23	
6							
7							
8							
9							
10	S-3	9-11	1.6 ----- 2.0	BKG	SAND, well graded, medium to coarse, 15% fine, 5% silt 10% gravel, rounded, loose, moderately plastic, medium dense to dense, dry, mottled light brown (sw)	12-15-57-30	
11							
12							
13							
14	S-4	14-16	1.8 ----- 2.0	BKG	SANDY SILT, poorly graded, 10-15% fine sand, 5% gravel well rounded, loose, moderately plastic, medium brown, wet (sm)	7-10-100/5"	Weathered rock at base of spoon
15							

SOIL BORING LOG					Study Area: 43G		
Client: AEC		Project No. 7053-10		Boring No.: XGM-93-01X			
Contractor: New Hampshire Boring		Date Started: 8-3-93		Completed: 8-5-93		Method: HSA/DNW	
Ground Elev.: 311.5		Soil Drilled: 30'		Total Depth: 34'		Casing Size: 4.25"/6"	
Logged By: R.Rusted		Checked by: J. Snowden		Groundwater Below Ground: ---			
Screen: 10' (ft)	Riser: 33 (ft)	Diam.: 4" (ID)	Material: sched. 40	Protection: Mod.D	Page 2 of 3		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4				Soil descriptions and data are on the bottom of page 1		
17							
18							
19							Able to auger through boulder
20	S-5	19-21	0.8 ----- 2.0	BKG	ROCK, metamorphic and igneous rock, clay-like consistency dense, angular to subangular, dry (ml rock)	53-51-60-54	Analytical collected No material left for ref. sample
21							
22							
23							
24	S-6	24-26	0.3 ----- 0.5	BKG	SILT AND WEATHERED ROCK, similar to above, moist (sm rock)	84/5"	Able to spin augers through boulder
25							
26							
27							
28							
29	S-7	29-31	0.5 ----- 0.5	BKG	CLAY AND WEATHERED PAYUTE, clay is moderately plastic and wet REFUSAL, at 30' bgs augers start to bite on rock. At 30' bgs rock becoming more competent. Pulled the 4.25" augers and will go back down the hole with 6" casing.	34-100/1"	It appears that the bedrock is very weathered and that we are augering through it. HSA to 30' End of drilling for 8-3-93
30							

SOIL BORING LOG					Study Area: 43G		
Client: AEC		Project No. 7053-10		Boring No.: XGM-93-01X			
Contractor: New Hampshire Boring		Date Started: 8-3-93		Completed: 8-5-93		Method: HSA/DNW	
Ground Elev.: 311.5		Soil Drilled: 30'		Total Depth: 34'		Casing Size: 4.25"/6"	
Logged by: R. Rusted		Checked by: J. Snowden		Groundwater Below Ground: ---			
Screen: 10 (ft)		Riser: 33 (ft)		Diam.: 4" (ID)	Material: sched. 40	Protection: Mod.D	Page 3 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
31					Rock reamed out with 5.875" rollerbit from 30' bgs to 34' bgs.		8-4-93 0800 seating casing at 31' will rollerbit out to 33'
32					8-8-93 set well		
33							
34					Bottom of Boring 34'		
35							
36							
37							Water perched on silt layer
38							
39							
40							
41							
42							
43							
44							
45							

SOIL BORING LOG					Study Area: 43G		
Client: AEC		Project No. 7053-10			Boring No.: XGM-93-02X		
Contractor: New Hampshire Boring		Date Started: 8-5-93		Completed: 8-9-93		Method: HSA	
Ground Elev.: 310.2		Soil Drilled: 34.5'		Total Depth: 38.2'		Casing Size: 4.25/6.62	
Logged by: R. Rusted		Checked by: J. Snowden			Groundwater Below Ground: 31.5'		
Screen: 10 (ft)	Riser: 38 (ft)	Diam.: 4" (ID)	Material: sched. 40	Protection: Mod.D	Page 1 of 3		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.0 ----- 2.0	BKG	SAND, poorly graded, fine to medium, 10-15% gravel, 10% coarse subangular, loose, dry, light brown (sp)	7-7-8-5	
2							
3							
4	S-2	4-6	0.9 ----- 2.0	BKG	SAND, poorly graded, similar to above, except for a 0.1" layer of fine sand (poorly graded with no gravel) from 0.6 to 0.7 (sp)	4-2-7-10	
5							
6							
7							
8							
9							
10	S-3	9-11	0.2 ----- 0.2	BKG	SAND, well graded, medium, coarse, 20% fine, 10% gravel less than 5% silt, subangular, moist, mottled brown and black (sw)	100/0.2'	Refusal with spoon. Poor recovery able to spin augers through but they are very slow descending.
11							
12							
13							
14	S-4	14-16	1.3 ----- 2.0	BKG	0-0.9 SAND, fine, poorly graded, <5% fines, subrounded medium dense to dense, dry, light brown to tan (sp)	17-15-32-43	
15					(continued on next page)		

SOIL BORING LOG					Study Area: 43G		
Client: AEC		Project No. 7053-10		Boring No.: XGM-93-02X			
Contractor: New Hampshire Boring		Date Started: 8-5-93		Completed: 8-9-93		Method: HSA	
Ground Elev.: 310.2		Soil Drilled: 34.5'		Total Depth: 38.2		Casing Size: 4.25/6.2	
Logged By: R. Rusted		Checked by: J. Snowden		Groundwater Below Ground: 31.5'			
Screen: 10 (ft)		Riser: 38 (ft)		Diam.: 4" (ID)	Material: sched. 40	Protection: Mod.D	Page 2 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. ——— REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4	14-16	1.3 ----- 2.0	BKG	(continued from page 1) 0.9-1.3 SAND, with silt and coarse gravel, fine sand well graded, 12-15% silt, mottled brown, dry medium dense to dense (sw)	17-15-32-43	
17							
18							
19							
20	S-5	19-21	1.5 ----- 2.0	BKG	0-1.1 SAND, well graded, medium to coarse, 20% gravel 10% fine sand, subangular, moist, dense, dark brown (sw) 1.1-1.4 WEATHERED METAMORPHICS, fine sand in interstitials	56-45-43-30	
21							
22							
23							
24							
25							
26	S-6	24-26	1.4 ----- 2.0 1.0 ----- 2.0	BKG	SANDY SILT AND SILT, slightly plastic, 5-15% fine sand 5% coarse gravel and weathered rock, dense to very dense, damp light brown (sm)	33-40-35-86 63-55-100/4"	Two spoons driven to facilitate splitting samples with CDM no ref. sample collected
27							
28							
29							
30	S-7	29-31	1.7 ----- 2.0	BKG	SILT, similar to above except no sand content, non-plastic slightly higher weathered metamorphic fraction, moist to wet (sm)	20-16-16-15	water level 31.5'

SOIL BORING LOG					Study Area: 43G		
Client: AEC		Project No. 7053-10			Boring No.: XGM-93-02X		
Contractor: New Hampshire Boring		Date Started: 8-5-93		Completed: 8-9-93		Method: HSA	
Ground Elev.: 310.2		Soil Drilled: 34.5'		Total Depth: 38.2'		Casing Size: 4.25/6.2	
Logged by: R. Rusted		Checked by: J. Snowden			Groundwater Below Ground: 31.5'		
Screen: 10 (ft)		Riser: 38 (ft)		Diam.: 4" (ID)	Material: sched. 40	Protection: Mod.D	Page 3 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
31	S-7	29-31	1.7 ----- 2.0	BKG	(continued from page 1) See page two for the soil descriptions and blow counts for this sample zone.		
32							
33							
34							
35	S-8	34-36	0.7 ----- 2.0	8.2	0-0.4 SILT, similar to above 0.4-0.7 ROCK CHIPS, phyllite, wet (sm rock) 8-6-93 Spin 4.25" HSA'S to 38' withdraw , advance 6.625" HSA'S When pulling 4.25" augers TE readings of 8ppm were read at the well head, cuttings now show readings of 15ppm Bottom of Boring 38.2'	125/5"	Bedrock at 34.5' phyllite end 8-5-93
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10			Boring No.: 431-92-01X		
Contractor: Soil Exploration		Date Started: 9-17-92		Completed: 9-17-92		Method: HSA	
Ground Elev.: 295.0		Soil Drilled: 34'		Total Depth: 35'		Casing Size: 4.25"	
Logged by: L. Truesdale		Checked by: DSP		Groundwater Below Ground: 34.1' BGS			
Screen: --- (ft)		Riser: --- (ft)	Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 3	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1					0-0.2' Asphalt pavement.		
2							
3							
4							
5	S-1	4-6	2.0 ----- 0.8	0.0	SAND, poorly graded, medium to coarse, trace silt, angular, loose, grayish brown (10YR 5/2), dry. (SP)	12-12-10-12	Fill 2" spoon
6							
7							
8							
9							
10	S-2	9-11	2.0 ----- 1.35	0.0	SAND, poorly graded, medium, clean, loose, light yellowish brown (2.5Y 6/3), dry. (SP)	4-5-4-5	1345 3" spoon Analytical sample collected.
11							
12							
13							
14							
15	S-3	14-16	2.0 ----- 1.2	0.0	SAND, similar to S-2. (SP)	7-7-7-6	2"spoon

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10		Boring No.: 431-92-01X			
Contractor: Soil Exploration		Date Started: 9-17-92		Completed: 9-17-92		Method: HSA	
Ground Elev.: 295.0		Soil Drilled: 34'		Total Depth: 35'		Casing Size: 4.25"	
Logged by: L. Truesdale		Checked by: DSP		Groundwater Below Ground: 34.1' BGS			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 2 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16							
17							
18							
19					SAND, 19-19.9 similar to S-2.		
20	S-4	19-21	2.0 ----- 1.55	0.0	SAND, with weathered shale, some rust colored oxidation.	9-14-72-62	2" spoon
21							
22							
23							
24							
25	S-5	24-26	2.0 ----- 1.2	0.0	SAND, well graded, medium with a little fine gravel, dense, grayish brown (2.5Y 5/2), damp. (SW)	10-15-16-18	2" spoon
26							
27	S-6	26-28	2.0 ----- 1.1	0.0	SAND, well graded, medium, with a little silt and a little coarse gravel, grayish brown (2.5Y 5/2). (SW)	15-12-12-12	2" spoon
28							
29							
30	S-7	29-31	2.0 ----- 0.7	0.0	SAND, similar to S-6. (SW)	15-28-45-43	2" spoon

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10		Boring No.: 43I-92-01X			
Contractor: Soil Exploration		Date Started: 9-17-92		Completed: 9-17-92		Method: HSA	
Ground Elev.: 295.0		Soil Drilled: 34'		Total Depth: 35'		Casing Size: 4.25"	
Logged by: L. Truesdale		Checked by: DSP		Groundwater Below Ground: 34.1' BGS			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 3 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
31							
32							
33							
34	s-8	34-35	1.0 ----- 1.0	0.0	ROCK, weathered shale, with a little silt, gray with slight rust colored oxidation.	112-120/0.5	Encountered groundwater at 34.1' BGS 1600 3" spoon Analytical sample collected.
35					----- Bottom of boring = 35.0' BGS. Refusal in bedrock. Top of rock = 34.0' BGS.		
36					Backfilled boring with cement/bentonite grout.		
37							
38							
39							
40							
41							
42							
43							
44							
45							

SOIL BORING LOG					Study Area: SA-43		
Client: AEC			Project No. 7053-10		Boring No.: 43H-92-01X		
Contractor: Soil Exploration			Date Started: 9-17-92		Completed: 9-17-92		Method: HSA
Ground Elev.: 288.5			Soil Drilled: 26'		Total Depth: 26'		Casing Size: 4.25"
Logged by: L. Truesdale			Checked by: DSP		Groundwater Below Ground: 26' estimated		
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1					0-0.2' Asphalt pavement.		
2							
3							
4							
5	S-1	4-6	2.0 ----- 1.2	0.0	SAND, well graded, little fine to coarse gravel, loose, dark yellowish brown (10YR 4/4), damp. (SW)	7-8-5-4	2" spoon Fill
6							
7							
8							
9							
10	S-2	9-11	2.0 ----- 0.9	0.0	SAND, similar to S-1, with a trace of silt, gravel up to 2-inches.	19-22-23-12	0915 3" spoon Analytical collected. Fill
11							
12							
13							
14							
15	S-6	20-22	2.0 ----- 1.35	0.0	Layered SAND, SILTY SAND, and weathered SHALE. Sand, poorly graded, medium to coarse, loose, dark yellowish brown (10YR 4/2), damp. Sand is 80% of sample. Silty sand, mostly fine sand, nonplastic fines, loose, olive brown (2.5Y 4/3), damp. 10% of sample.	11-12-16-22	2" spoon

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10		Boring No.: 43H-92-01X			
Contractor: Soil Exploration		Date Started: 9-17-92		Completed: 9-17-92		Method: HSA	
Ground Elev.: 288.5		Soil Drilled: 26'		Total Depth: 26'		Casing Size: 4.25"	
Logged by: L. Truesdale		Checked by: DSP		Groundwater Below Ground: 26' estimated			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 2 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-3 (cont)	14-16			Shale, highly weathered, oxidation zones along fractures, gray shale is approximately 10% of sample. (SP/SM)		
17	S-4	16-18	2.0 ----- 0.8	0.0	Layered SAND, SILTY SAND, and weathered SHALE. Similar to S-3. (SP/SM)	15-18-18-25	0944 2" spoon
18							
19	S-5	18-20	2.0 ----- 0.8	0.0	Layered SAND, SILTY SAND, and weathered SHALE. Similar to S-3 except sand is light gray (10YR 7/3), 60% of sample. Silty sand is pale brown (10YR 7/4), 20% of sample. Shale is 20% of sample. (SP/SM)	13-7-6-2	2: spoon
20							
21	S-6	20-22	2.0 ----- 1.3	0.0	Layered SAND, SILTY SAND, and weathered SHALE. Similar to S-5. (SP/SM)	7-12-21-30	2" spoon
22							
23	S-7	22-24	1.6 ----- 2.0	0.0	Layered SAND, SILTY SAND, and weathered SHALE. Similar to S-7. (SP/SM)	20-22-22-20	2" spoon
24							
25	S-8	24-26	1.0 ----- 2.0	0.0	GRAVELY SAND, fine to coarse, well graded, angular, loose, damp, light olive brown (2.5 Y 5/3, Munsell). (SW)	20-22-30-100	Rock caught in spoon tip. 2" spoon.
26					----- B.O.E. at 26.0 ' B.G.S. Refusal with spoon and auger. Backfill with 20/1 cement/bentonite grout.		
27							
28							
29							
30							

SOIL BORING LOG					Study Area: 43G		
Client: AEC		Project No. 7053-10			Boring No.: XIM-93-01		
Contractor: New Hampshire Boring		Date Started: 8-27-93			Completed: 8-31-93		Method: HSA/ROLLERBIT
Ground Elev.: 323.1		Soil Drilled: 28'			Total Depth: 36.1'		Casing Size: 4.25/5.62
Logged by: L.Healey		Checked by: R.Rusted			Groundwater Below Ground: 28'		
Screen: 10 (ft)		Riser: 35.7 (ft)		Diam.: 4" (ID)	Material: sched. 40	Protection: Mod.D	Page 1 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.0 ----- 2.0	BKG	TOPSOIL, clay-loam over fine sand, organics, moist (ol) very dark grayish brown(2.5yr 3/2)	3-9-27-27	
2							
3							
4							
5	S-2	4-6	0.7 ----- 2.0	BKG	SAND, silty fine to coarse sand, 30% gravel, poorly graded loose to medium dense, damp-dry, (2.5yr 3/2) (sp)	5-6-3-2	
6							
7							
8							
9							
10	S-3	9-11	0.1 ----- 2.0	BKG	GRAVELLY SAND, gravelly fine to coarse sand, 20% silt rusty weathering, poorly graded, medium dense, very moist reddish brown(10yr 5/3) (sp)	6-7-4-5	Gravel block in spoon
11							
12							
13							
14	S-4	14-16	1.3 ----- 2.0	BKG	SAME AS ABOVE (sp)	10-13-14-11	
15							

SOIL BORING LOG					Study Area: 431		
Client: AEC		Project No. 7053-10		Boring No.: XIM-93-01X			
Contractor: New Hampshire Boring		Date Started: 8-27-93		Completed: 8-31-93		Method: HSA/ROLLERBIT	
Ground Elev.: 323.1		Soil Drilled: 28'		Total Depth: 36.1		Casing Size: 4.25/5.62	
Logged By: L.Healey		Checked by: R.Rustad		Groundwater Below Ground: 28'			
Screen: 10 (ft)		Riser: 35.7 (ft)		Diam.: 4" (ID)	Material: sched. 40	Protection: Mod.D	
Page 2 of 3							
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4	14-16			See page 1 for the soil classifications and blow counts		
17							
18							
19							
20	S-5	19-21	0.4 ----- 2.0	BKG	SAND, medium to coarse sand, 20% fine gravel, 10% medium to coarse gravel, 10% silt, poorly graded, dense, damp dark brown(10yr 4/3) (sp)	10-12-10-9	
21							
22							
23							
24							
25	S-6	24-26	NA	BKG	SAND, medium to coarse, trace silt, 30% fine to coarse gravel some weathered gravel, poorly graded, dense, damp dark yellowish brown(10yr 4/4)	26-24-14-12	
26							
27							
28							Water level 28'
29							
30	S-7	29-31	0.9 ----- 0.9	BKG	SILT AND WEATHERED BEDROCK, silt with 20% fine sand, gray meta-siltstone flakes, horizontal fissile fractures very dense, saturated (ml)	126-150/4"	

SOIL BORING LOG					Study Area: 431		
Client: AEC		Project No. 7053-10		Boring No.: XIM-93-01X			
Contractor: New Hampshire Boring		Date Started: 8-27-93		Completed: 8-31-93		Method:HSA/ROLLERBIT	
Ground Elev.: 323.1		Soil Drilled: 28'		Total Depth: 36.1'		Casing Size:4.25/5.62	
Logged by: L.Healey		Checked by: R.Rustad		Groundwater Below Ground: 28'			
Screen: 10 (ft)	Riser: 35.7 (ft)	Diam.: 4" (ID)	Material: SCHED. 40	Protection: Mod.D	Page 3 of 3		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
31	S-7	29-31	0.9 ----- 0.9	BKG	See page two for the soil descriptions and blow counts		
32					8-30-93 Wash out casing, casing at 30' bgs, bottom of hole 23'		Bedrock at 32'
					Rollercone from 32.7' to 36.1' bgs		
					8-31-93 Well set at 35.7'		
36					----- Bottom of Boring		
37							Water perched on silt layer
38							
39							
40							
41							
42							
43							
44							
45							

SOIL BORING LOG					Study Area: SA43H+I		
Client: AEC		Project No. 7053-10		Boring No.: XIM-93-02X			
Contractor: New Hampshire Boring		Date Started: 9/20/93		Completed: 9/23/93		Method: HSA/D.-WASH	
Ground Elev.: 330.4		Soil Drilled: 40.5'		Total Depth: 40.5'		Casing Size: 6.0"	
Logged by: J.Snowden		Checked by: RRR		Groundwater Below Ground: 33.5			
Screen: 10 (ft)		Riser: 39.5 (ft)		Diam.: 4" (ID)	Material: sched.40	Protection: Mod.D	Page 1 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1			1.7	5.0			
2	S-1	1-3	----- 2.0		SAND, medium to coarse sand with fine gravel(10% fine sand, 25% medium sand, 60% coarse sand with 5% gravel), loose, dry nonplastic, 10yr 4/3 dark brown (sm/sp)	20-20-22-28	
3							
4							
5	S-2	4-6	1.6 ----- 2.0	BKG	Similar to S-1(sample was moist)	9-25-35-50	
6							
7							
8							
9							
10	S-3	9.5 to 11.5	0.4 ----- 2.0	BKG	SAND, silty, medium to fine sand(35% silt, 20% medium sand, 40% fine sand with 5% coarse), dense, moist, sl. plastics 10yr 4/3 dark brown (sm)	10/100 for 0.3'	
11							
12							
13							
14	S-4	14.5 to 16.5	0.8 ----- 2.0	BKG	Similar to S-3 with medium gravel (sm)	15-14-18-16	
15							

SOIL BORING LOG					Study Area: SA43H+I		
Client: AEC		Project No. 7053-10			Boring No.: XIM-93-02X		
Contractor: New Hampshire Boring		Date Started: 9/20/93		Completed: 9/23/93		Method: HSA	
Ground Elev.: 330.4		Soil Drilled: 40.5'		Total Depth: 40.5'		Casing Size: 6.0"	
Logged By : J.Snowden		Checked by: <i>RRR</i>			Groundwater Below Ground: ---		
Screen: 10 (ft)		Riser: 39.5 (ft)		Diam.: 4" (ID)	Material: sched.40	Protection: Mod.D	Page 2 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4				See page 1 for sample four description		
20	S-5	19.5 to 21.5	0.0 ----- 2.0	BKG	No recovery	20-28-37-40	
25	S-6	24.5 to 26.5	1.4 ----- 2.0	BKG	24.5'-26.0'-Similar to s-3 26.0'-26.5'- SILT, fine sandy silt, very stiff, dry, sl. plastic, 20% fine sand, 10yr 5/6 yellowish brown (sm)	17-15-24-35	
30	S-7	29.5 to 31.5	0.0 ----- 0.2	BKG	Refusal	100 for 0.2	Set up for 6" d/wash

SOIL BORING LOG					Study Area: SA43H+I		
Client: AEC		Project No. 7053-10			Boring No.: XIM-93-02X		
Contractor: New Hampshire Boring		Date Started: 9/20/93		Completed: 9/23/93		Method: HSA	
Ground Elev.: 330.4		Soil Drilled: 40.5		Total Depth: 40.5'		Casing Size: 6.0"	
Logged by: J.Snowden		Checked by: RRR			Groundwater Below Ground: 33.5'		
Screen: 10 (ft)		Riser: 39.5 (ft)		Diam.: 4" (ID)	Material: sched.40	Protection: Mod.D	Page 3 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
31				BKG	Able to rollercone through 2' of boulder 29' to 31'		
32							
33							
34					9/21/93 Casing advanced to 34.5', waiting for water to equilibrate		
35				BKG	9/23/93 Water at 33.5', 0930 start drive and washing		
36							
37							Water perched on silt layer
38							
39							
40					9/23/93 Rollercone to 40.5'		
41							
42							
43							
44							
45							

SOIL BORING LOG					Study Area: SA431		
Client: AEC		Project No. 7053-10		Boring No.: XIM-93-04X			
Contractor: New Hampshire Boring		Date Started: 8-16-93		Completed: 8-19-93		Method: HSA	
Ground Elev.: 329.0		Soil Drilled: 49.5'		Total Depth: 49.5'		Casing Size: 6.25"	
Logged by: R. Rustad		Checked by: J. Snowden		Groundwater Below Ground: 42.8'			
Screen: 10 (ft)		Riser: 39 (ft)		Diam.: 4 (ID)	Material: sched.40	Protection: Mod.D	
Page 1 of 4							
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1							0-1" pavement
2	S-1	1-3	1.7 ----- 2.0	BKG	SAND, poorly graded, fine to medium, 10% coarse, <5% fines, subrounded, dry, light brown (sp)	11-18-21-35	
3							
4							
5	S-2	4-6	1.2 ----- 2.0	BKG	SAND, poorly graded, medium, 15% coarse, 5% fine, <5% silt, <5% gravel, medium dense, subangular, dry, light brown (sp)	33-20-15-20	
6							
7							
8							
9							
10	S-3	9-11	1.4 ----- 2.0	BKG	SAND, poorly graded, similar to s-2	4-6-7-14	
11							
12							
13							
14	S-4	14-16	1.1 ----- 2.0	BKG	0-0.5' SAND, well graded, 10% silt, sand is medium to coarse rounded, medium dense, brown, wet due to silt matrix (sw-sm) 0.5'-1.1' GRAVEL, with fine rock flour and silt, dry, medium dense (ml)	17-35-45-50	
15							

SOIL BORING LOG					Study Area: SA43I		
Client: AEC		Project No. 7053-10			Boring No.: XIM-93-04X		
Contractor: New Hampshire Boring		Date Started: 8-16-93		Completed: 8-19-93		Method: HSA	
Ground Elev.: 329.0		Soil Drilled: 49.5'		Total Depth: 49.5'		Casing Size: 6.25"	
Logged By: R. Rustad		Checked by: J. Snowden			Groundwater Below Ground: 42.8'		
Screen: 10 (ft)		Riser: 39 (ft)		Diam.: 4" (ID)	Material: sched.40	Protection: Mod.D	Page 2 of 4
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4				See page one for soil descriptions		
17							
18							
19							
20	S-5	19-25	1.9 ----- 2.0	BKG	SANDY SILT AND SILTY SAND, fine to medium, interbedded with gravel and cobbles, 10-25% silt, rounded, sand, medium dense to dense, damp (sw-sm)	23-43-45-45	Rock caught in shoe
21							
22							
23							
24							
25	S-6	24-26	1.6 ----- 2.0	BKG	SAND, well graded, fine to coarse, <5% silt, 5% gravel, angular to subrounded, moist, brown, mottled (sw)	16-14-29-30	
26							
27							
28							
29							
30	S-7	29-31	1.5 ----- 2.0	BKG	SAND, well graded, fine to medium, 15% coarse, 15-20% gravel subrounded, very dense, moist, brown (sw)	70-90-30/1"	

SOIL BORING LOG					Study Area: SA43I		
Client: AEC		Project No. 7053-10		Boring No.: XIM-93-04X			
Contractor: New Hampshire Boring		Date Started: 8-16-93		Completed: 8-19-93		Method: HSA	
Ground Elev.: 329.0		Soil Drilled: 49.5'		Total Depth: 49.5'		Casing Size: 6.0"	
Logged by: R.Rustad		Checked by: J. Snowden		Groundwater Below Ground: 42.8'			
Screen: 10 (ft)		Riser: 39 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	Page 3 of 4
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
31							
32							
33							
34							
35	s-8	34-36	1.8 ----- 2.0	BKG	SAND, similar to s-7 (sw)	50-55-50-55	3" spoon
36							
37							
38							
39							
40	s-9	39-41	1.7 ----- 2.0	BKG	SAND, similar to s-7 with 5% silt (sw)	13-35-35-45	
41							
42							
43					Refusal with the 4.25" augers 8-17-93 advancing 6" casing 8-18-93 able to rollerbit through boulder	8-16-93	water table at 43'
44							
45							

SOIL BORING LOG					Study Area: SA43I		
Client: AEC		Project No. 7053-10		Boring No.: XIM-93-04X			
Contractor: New Hampshire Boring		Date Started: 8-16-93		Completed: 8-19-93		Method: HSA	
Ground Elev.: 329.0		Soil Drilled: 49.5'		Total Depth: 49.5'		Casing Size: 6.0"	
Logged by: R.Rustad		Checked by: J. Snowden		Groundwater Below Ground: 42.8'			
Screen: 10 (ft)		Riser: 39 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	
Page 3		of 4					
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
46							
47							
48							
49					SAND, well graded, fine to medium, 5-10% silt, 15% gravel		Soil descr. from cuttings
50					Bottom of boring at 49.2' bgs		
51							
52							
53							
54							
55							
56							
57							
58							
59							
60							

SOIL BORING LOG					Study Area: SA43I		
Client: AEC		Project No. 7053-10		Boring No.: XIM-93-05X			
Contractor: New Hampshire Boring		Date Started: 8-23-93		Completed: 8-24-93		Method: HSA	
Ground Elev.: 314.8		Soil Drilled: 30'		Total Depth: 31.4'		Casing Size: 6.25"	
Logged by: L.Healey		Checked by: J. Snowden		Groundwater Below Ground: 22.5'			
Screen: 10 (ft)		Riser: 17.5 (ft)		Diam.: 4" (ID)	Material: sched.40	Protection: Mod.D	
Page 1 of 3							
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.1 ----- 2.0	BKG	SAND, fine to coarse, 20-25% fine to medium gravel, 10% silt 5-10% coarse gravel, subrounded with organics(wood) at 1.5-2.0' BGS, medium dense, damp-dry, dark grayish brown, 10yr 4/2 (sp)	9-5-2-20	
2							
3							
4							
5							
6	S-2	5-7	1.3 ----- 2.0	BKG	SAND, fine to coarse sand, 25% angular medium to coarse gravel, 10% silt and fine gravel, dense, dry, poorly graded, yellowish brown, 10yr 4/4 (gp-sp)	17-15-11-11	3" spoon
7							
8							
9							
10							
11	S-3	10-12	0.4 ----- 1.8	BKG	Same as above, coarse gravel block in spoon, dark yellow brown 10yr 4/4 (gp-sp)	15-10-17-100/0.3	No screening sample collected
12							
13							
14							
15							

SOIL BORING LOG					Study Area: SA431		
Client: AEC		Project No. 7053-10			Boring No.: XIM-93-05X		
Contractor: New Hampshire Boring		Date Started: 8-23-93		Completed: 8-24-93		Method: HSA	
Ground Elev.: 314.8		Soil Drilled: 30'		Total Depth: 30.4		Casing Size: 6.25"	
Logged By : L.Healey		Checked by: J. Snowden		Groundwater Below Ground: 22.4'			
Screen: 10 (ft)		Riser: 17.5 (ft)	Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	Page 2 of 3	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4	15-17	0.7 ----- 2.0	BKG	SAND, fine to medium, 20% coarse sand, 10% silt and medium to coarse gravel, subrounded to angular, some rusty weathered gravel, poorly graded, very dense, dry, dark grayish brown, 10yr 4/2 (gp-sp)	60-32-28-15	
17							
18							
19							
20							
21	S-5	20-22	0.6 ----- 2.0	BKG	Same as above, damp, 10yr 4/2	26-21-23-26	
22							
23							
24							
25							
26	S-6	25-27	0.3 ----- 2.0	BKG	SAND, fine to coarse, 20-30% fine to coarse gravel, 10% silt, saturated, dense, poorly graded, dark grayish brown, 10yr 4/2 (gp-sp)	29-25-27-30	
27							
28							
29							
30							

SOIL BORING LOG					Study Area: SA43I		
Client: AEC		Project No. 7053-10			Boring No.: XIM-93-05X		
Contractor: New Hampshire Boring		Date Started: 8-23-93		Completed: 8-24-93		Method: HSA	
Ground Elev.: 314.8		Soil Drilled: 30'		Total Depth: 31.4'		Casing Size: 6.25"	
Logged by: L.Healey		Checked by: J. Snowden			Groundwater Below Ground: 22.4'		
Screen: 10 (ft)		Riser: 17.5 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	Page 3 of 3
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
31	S-7	30-32	1.0 ----- 1.3	BKG	SAND, coarse to medium quartz sand, little to no fines or gravel medium to well graded, saturated, yellow-brown to dark grayish brown, 10yr 4/2 (sw)	11-39-100/0.3	
32					----- Bottom of boring at 30'BGS, ss to 31.4' BGS		
33							
34							
35							
36							
37							
38							
39							
40							
41							
42							
43							
44							
45							

SOIL BORING LOG						Study Area: SA431	
Client: AEC			Project No. 7053-10			Boring No.: XIM-93-06X	
Contractor: New Hampshire Boring			Date Started: 8-18-93		Completed: 8-20-93	Method: HSA/HX CORE	
Ground Elev.: 312.8			Soil Drilled: 28'		Total Depth: 41.0'	Casing Size: 6.00"	
Logged by: L.Healey			Checked by: J. Snowden			Groundwater Below Ground: 33.5'	
Screen: 10 (ft)		Riser: 32.5 (ft)		Diam.: 4" (ID)	Material: sched.40	Protection: Mod.D	Page 1 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1							
2	S-1	0-2	0.8 ----- 2.0	BKG	GRAVELLY SAND, medium to coarse sand, 30-35% angular gravel, poorly graded, dense, damp-dry, yellow-gray to brown, 10yr 4/3 (sm)	10-17-18-30	
3							
4							
5							
6	S-2	5-7	0.1 ----- 0.4	BKG	BOULDER, medium to coarse gravel size rock fragments, dense, dry grayish brown, 10yr 5/2	100/0.5	No screening sample collected
7							
8							
9							
10							
11	S-3	10-12	1.2 ----- 2.0	BKG	SANDY GRAVEL ROCK FRAGMENTS, medium to coarse gravel, 10% fine sand, 30% medium to coarse sand, very dense, dry, angular to subrounded gravel, some fresh and some rusty weathering, yellow-brown, 10yr 4/3 (gm)	67-53-58-78	Bony
12							
13							
14							
15							

SOIL BORING LOG					Study Area: SA431		
Client: AEC		Project No. 7053-10		Boring No.: XIM-93-06X			
Contractor: New Hampshire Boring		Date Started: 8-18-93		Completed: 8-20-93		Method: HSA/HX CORE	
Ground Elev.: 312.8		Soil Drilled: 28'		Total Depth: 41'		Casing Size: 6.00"	
Logged By : L.Healey		Checked by: J. Snowden		Groundwater Below Ground: 33.5'			
Screen: 10 (ft)		Riser: 32.5 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	
Page 2 of 2							
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. ——— REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4	15-17	1.1 ----- 1.4	BKG	GRAVELLY SAND, fine to medium to coarse sand, 40% subangular gravel, 10% silt, poorly graded, dry, dense, yellow-brown to gray, 10yr 4/2 (gp-sp)	47-58-100/0.3	
17							
18							
19							
20							
21	S-5	20-22	0.1 ----- 0.3	BKG	Same as above, very dark grayish brown, 10yr 3/2		
22							
23							
24							
25							
26	S-6	25-27	0.1 ----- 0.25	BKG	Same as above, still dry	300/0.25	
27							
28					BEDROCK, rock core and rollerbit to 41', 41'BGS is the bottom of the exploration.		
29							
30							

SOIL BORING LOG						Study Area: SA-43	
Client: AEC			Project No. 7053-10			Boring No.: 43J-92-01X	
Contractor: Soil Exploration			Date Started: 9-22-92		Completed: 9-22-92	Method: HSA	
Ground Elev.: 368.8 a.s.l.			Soil Drilled: 6.2'		Total Depth: 6.2'	Casing Size: 4.25"	
Logged by: N. Breton			Checked by: DSP		Groundwater Below Ground: Not encountered		
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 1
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1					Augered directly adjacent to UST excavation with no sampling until 5.0' BGS.		First attempt Refusal at 5' offset 3'
2							2nd attempt Refusal at 5' on what seems to be concrete.
3							3rd attempt 7' from original location.
4							
5	S-1	5-6.2	1.2 ----- 1.2		SAND, well graded, fine to coarse in upper 0.2' of sample. Dark brown (10YR 2/2). (SW) Poorly graded in the middle 0.5' of sample. Gray (10YR 6/1). (SP) Lower 0.5' of sample is shale fragments, angular, gray (7.5YR 6/0).	8-35 -120/0.2'	
6					Bottom of boring = 6.2' BGS. Refusal in shale rock.		
7							
8							
9							
10							
11							
12							
13							
14							
15							

SOIL BORING LOG				Study Area: AOC 43J	
Client: AEC		Project No. 7053-10		Boring No.: XJM-93-01X	
Contractor: New Hampshire Boring		Date Started: 8-3-93		Completed: 8-4-93	
Ground Elev.: 369.2		Soil Drilled: 13.2'		Total Depth: 17.0'	
Logged by: P. Bolmer		Checked by: J. Snowden		Groundwater Below Ground: 10.2	
Screen: 10 (ft)		Riser: 6.5 (ft)		Diam.: 4" (ID)	Material: SCHED.40
				Protection: Mod.D	Page 1 of 2

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.0 ----- 2.0	BKG	SAND, poorly graded, 10-15% fines, medium dense, dry to damp, weathered meta-sed in spoon shoe, black to very pale brown, 10yr(2/1 to 7/4) (sp-sm)	10-13-15-31	
2							
3							
4							Auger refusal at 4.5' drove spoon 100/.1 no recovery. Offset 8' to the north and redrilled to 5'bgs.
5							
6	S-2	5-7	1.2 ----- 2.0	BKG	FINE SAND, poorly graded, 25-40% fines, dense to very dense, dry, light gray to light brownish gray, 10yr(6/1 to 6/2) (sm)	18-27-51-78	
7							
8							
9							
10							
11	S-3	10-12	1.7 ----- 2.0	BKG	FINE SAND, poorly graded, 30-50% fines, silt is slightly plastic medium dense, saturated, light yellow brown, 2.5y 6/4 (sm-ml)	13-15-12-14	
12							
13							
14	S-4	13-15	0.1 ----- 0.1	BKG	SILT, silt with fine sand, poorly graded, 10-20% fine sand, silt is slightly plastic, saturated, light yellow brown, 2.5y 6/4	100/0.1	1600 leave site no equipment to drill in rock
15					Split-spoon and auger refusal on apparent bedrock at 13.1'.		

ABB Environmental Services, Inc.

SOIL BORING LOG					Study Area: AOC 43J		
Client: AEC		Project No. 7053-10		Boring No.: XJM-93-01X			
Contractor: New Hampshire Boring		Date Started: 8-3-93		Completed: 8-4-93		Method: HSA	
Ground Elev.: 369.2		Soil Drilled: 13.2'		Total Depth: 17.0'		Casing Size: 4.25"	
Logged By : P.Bolmer		Checked by: J. Snowden		Groundwater Below Ground: 10.2'			
Screen: 10 (ft)		Riser: 6.5 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	Page 2 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16					No rock core samples collected. Bedrock was roller coned from 13.2 to 17.0'		
17					----- Bottom of exploration at 17.0'		
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

ABB Environmental Services, Inc.

SOIL BORING LOG					Study Area: AOC 43J		
Client: AEC		Project No. 7053-10		Boring No.: XJM-93-02X			
Contractor: New Hampshire Boring		Date Started: 8-11-93		Completed: 8-11-93		Method: HSA	
Ground Elev.: 371.1		Soil Drilled: 17.5'		Total Depth: 17.5'		Casing Size: 6.00"	
Logged by: P.Bolmer		Checked by: J.Snowden		Groundwater Below Ground: 9.5'			
Screen: 10 (ft)		Riser: 5.9 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	Page 1 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	.3-2	1.5 ----- 2.0	BKG	SAND, poorly graded, 5-10% fines, nonplastic, 5-10% gravel, dry, medium dense, tan to light brown, 10yr(7/3 to 6/3) (sp) fill	12-18-24-32	
2							
3							
4							
5							
6	S-2	5-7	1.8 ----- 2.0	BKG	0-1.3 Same as above 1.3-1.8 SAND SILT, poorly graded, 50-60% fines, nonplastic, 5-10% fine gravel, subangular, dry, dense (sm) till	34-40-4-45	
7							
8							
9							
10							
11	S-3	10-12	1.3 ----- 2.0	BKG	SAND SILT, poorly graded, 50-60% fines, nonplastic, 5-10% fine gravel, subangular, dense to very dense, moist (sm) till	50-60-57-90	
12							
13							
14	S-4	14-16	0.9 ----- 2.0	BKG	SILT, nonplastic, moist, 5-7% fine sand, dense to very dense (sm) till	30-46-80-85	
15							

ABB Environmental Services, Inc.

SOIL BORING LOG						Study Area: AOC 43J	
Client: AEC			Project No. 7053-10			Boring No.: XJM-93-02X	
Contractor: New Hampshire Boring			Date Started: 8-11-93		Completed: 8-11-93	Method: HSA	
Ground Elev.: 371.1			Soil Drilled: 17.5'		Total Depth: 17.5'	Casing Size: 6.00"	
Logged By : P.Bolmer			Checked by: J. Snowden		Groundwater Below Ground: 9.5'		
Screen: 10 (ft)		Riser: 5.9 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	Page 2 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16							
17					Drive and wash from 16-17.5'		
18					----- 17.5' Bottom of exploration		
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

ABB Environmental Services, Inc.

SOIL BORING LOG				Study Area: AOC 43J	
Client: AEC		Project No. 7053-10		Boring No.: XJM-93-03X	
Contractor: New Hampshire Boring		Date Started: 8-5-93		Completed: 8-5-93	Method: HSA
Ground Elev.: 368.5		Soil Drilled: 18.0'		Total Depth: 18.0'	Casing Size: 4.25"
Logged by: P. Bolmer		Checked by: J. Snowden		Groundwater Below Ground: 10.7'	
Screen: 10 (ft)	Riser: 6.5 (ft)	Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	Page 1 of 2

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1					0-0.5 Pavement		
2	S-1	1-3	1.1 ----- 2.0	BKG	SAND, well graded, 8-12% fines gravel, angular to subangular, medium dense, dry, very pale brown, 10yr 7/4 (sw)	9-22-16-20	
3							
4							
5							
6	S-2	5-7	1.2 ----- 2.0	BKG	SAND, poorly graded, 25-35% fines, nonplastic, medium dense, dry, 5.7' white quartz rock(.1" thick), light olive gray, 5y 6/2 (sm)	22-28-21-22	
7							
8							
9							
10							
11	S-3	10-12	1.0 ----- 2.0	BKG	SANDY SILT, poorly graded, 40-50% fines, nonplastic, saturated, medium dense, olive gray, 5y 5/2 (sm) till	10-17-15-12	
12							
13							
14							
15							

ABB Environmental Services, Inc.

SOIL BORING LOG					Study Area: AOC 43J		
Client: AEC		Project No. 7053-10			Boring No.: XJM-93-03X		
Contractor: New Hampshire Boring		Date Started: 8-5-93		Completed: 8-5-93		Method: HSA	
Ground Elev.: 368.5		Soil Drilled: 18'		Total Depth: 18'		Casing Size: 4.25"	
Logged By : P.Bolmer		Checked by: J. Snowden			Groundwater Below Ground: 10.7'		
Screen: 10 (ft)		Riser: 6.5 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	Page 2 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16	S-4	15 to 16.4	1.2 ----- 1.4	BKG	SANDY SILT, poorly graded, 40-50% fines, slightly plastic, saturated, dense to very dense, olive gray, 5y 5/2 (sm) till	30-64 100/.4	
17							
18					----- 18' BGS Bottom of exploration		
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

SOIL BORING LOG

Client: USATHAMA		Project No. 07053-10		Study Area: 43J
Contractor: NHB		Date Started: 8-6-93		Boring No.: XJM-93-04X
Method: HQ core		Casing Size: 6"		Protection: Modified D
Ground Elev.:		Soil Drilled: 0.7		Completed: 8-10-93
Logged by: P. Bolmer		Checked by: JCS		PI Meter: TE 5804
Screen: 10 (ft.)		Riser: 7.8 (ft.)	Diam: 4.0 (ID)	Total Depth: 15.2
		Material: Sch 40 PIC		Below Ground: 6.3
				Page 1 of 2

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY	PID (ppm)	SOIL/ROCK DESCRIPTION	BLOWS/6-IN.	COMMENTS
1						Top of bedrock @ 0.7'		
2								
3								
4	R-1	3.5 4.0				.5' 00 Phyllite, olive gray, Aphanitic unfoliated		1st core run from 3.5 - 4.0' bgs
5		4.0						
6	R-1 2	9.2				Phyllite, olive gray, Aphanitic, quartz stringer throughout, appears to be very compact, no natural breaks or joints		2nd core run from 4.0 to 9.2' bgs
7								
8								
9	R-1	9.2						
10	1 3	1 14.1				Phyllite, gray, Aphanitic, unfoliated, joints (9.2-10.0) iron stained with small amounts of silt, appears weathered		3rd core run from 9.2' to 14.1' bgs

SOIL BORING LOG

Client: USATHAMA		Project No. 7053-10		Study Area: 43 J
Contractor: NHB		Date Started: 8-6-93		Boring No.: XJM-93-04X
Method: HQ core		Casing Size: 6"		Protection: Modified D
Ground Elev.:		Soil Drilled:		Completed: 8-10-93
Logged by: P. Bolner		Checked by:		PI Meter: TESS04
Screen: (ft.)		Riser: (ft.)		Total Depth: 15.2
		Diam: (ID)		▽ Below Ground: 8.3
		Material:		Page 2 of 2

DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	CLP/SCREENING	RECOVERY	PID (ppm)	SOIL/ROCK DESCRIPTION	BLOWS/6-IN.	COMMENTS
11	R 1	9.2				As above		
12	3	14.1						
13					15.7	13.0-13.5 weathered seam, oxidized silt in joints, dipping @ 10-20°, RQD = 83%, hydro carbon color		@ 2 13' bgs discharge water turned from gray to brown
14								Reamed borehole to 15.2
15						BOB @ 15.2'		
16								
17								
18								
19								




SOIL BORING LOG					Study Area: SA-43		
Client: AEC			Project No. 7053-10		Boring No.: 43K-92-01X		
Contractor: Soil Exploration			Date Started: 9-23-92		Completed: 9-23-92		Method: HSA
Ground Elev.:			Soil Drilled: 7.0'		Total Depth: 7.0'		Casing Size: 4.25"
Logged by: N. Breton			Checked by: DSP		Groundwater Below Ground: 4.9' BGS inside augers		
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 1
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1					Drilled without sampling from 0 to 5.0 feet.		
2							
3							
4							Encountered groundwater at 4.9' BGS inside augers
5							
6	S-1	5-7	2.0 ----- 1.1	5.6	SILT, 20-25% sand, 20-30% gravel, nonplastic, gravel is angular pieces of shale, very stiff becomes softer near bottom of sample, gray (7.5YR 4/10), moist to wet. (ML)	20-17-23-8	
7					----- Bottom of boring = 7.0' BGS. No refusal.		
8							
9							
10							
11							
12							
13							
14							
15							

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10		Boring No.: 43N-92-01X			
Contractor: Soil Exploration		Date Started: 9-16-92		Completed: 9-16-92		Method: HSA	
Ground Elev.: 335.9 a.s.l.		Soil Drilled: 12.7'		Total Depth: 13.6'		Casing Size: 4.25"	
Logged by: W. Metzger		Checked by: DSP		Groundwater Below Ground: 12'			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	Page 1 of 1
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1					Advanced boring to 10 feet without sampling.		
2							
3							
4							
5							
6							
7							
8							
9							
10							
11	S-1	10-12	2.0 ----- 2.0	0.0	SAND, poorly graded, medium to fine sand, with a trace (<5%) of coarse gravel, angular, loose, yellowish brown (10YR 4/4), dry. (SP)	3-8-9-11	1345 All fill.
12							
13	S-2	12-13.6	1.6 ----- 1.2	0.0	12-13.0 SAND, well graded, fine to coarse sand, loose, olive brown (2.5Y 4/4), wet. (SW) 13-13.6 Weathered shale, with evidence of petroleum coating at the rock interface.	7-5-40- 120/0.1'	1405 Analytical sample collected at the sand/rock interface. Hydrocarbon odor at the sand/rock interface.
14					Bottom of boring = 13.6' BGS. Refusal on rock.		
15					Backfilled boring to surface with cement/bentonite grout.		

SOIL BORING LOG					Study Area: SA43N		
Client: AEC		Project No. 7053-10		Boring No.: XNM-93-01X			
Contractor: New Hampshire Boring		Date Started: 8-9-93		Completed: 8-17-93		Method: HSA/R.CORE	
Ground Elev.: 337.3		Soil Drilled: 12.5'		Total Depth: 23.5'		Casing Size: 6.00"	
Logged by: K.Nelson		Checked by: J. Snowden		Groundwater Below Ground: 16.2'			
Screen: 10 (ft)		Riser: 10 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	
						Page 1 of 2	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.2 ----- 2.0	BKG	GRAVELLY SAND, 25% gravel(up to 30mm, mostly granitic), 75% medium to coarse sand, sand and gravel subangular to subrounded, dry, dense, well graded, olive brown (sp)	8-12-19-17	
2							
3	S-2	2-4	1.4 ----- 2.0	BKG	SANDY GRAVEL, well graded, 20% medium-fine sand, subrounded, mostly granitic, some siltstone and shaly fragments, dense, 75% medium to fine gravel, subangular to subrounded, dry, light brown, 10yr 5/4 (gp-sp)	18-21-25-30	
4							
5	S-3	4-6	1.3 ----- 2.0	0.2	Similar to S-1 (sp-gp)	18-20-20-25	
6							
7	S-4	6-8	2.0 ----- 2.0	BKG	Similar to S-1	18-25-22-21	
8							
9	S-5	8-10	1.6 ----- 2.0	BKG	Similar to S-1	19-18-22-30	Off-site lab sample collected
10							
11	S-6	10-12	0.8 ----- 2.0	BKG	Similar to S-1	30-50 for 0.0'	
12							
13	S-7	12.0 to 12.5	0.8 ----- 0.8	BKG	Similar to S-1	100 for 0.5	Refusal at 12.5'
14					BEDROCK, 12.5' BGS Rock cored from 12.5' to 23' bgs. See rock core description on page 2 of 2		
15							

ROCK CORING LOG

Project: Fort Devens		Study Area: O1X XNM - 93 - 83X		Project No. 07053-10	
Client: USATHAMA		Driller's Name: G. Twombly		Logged by: L HEALEY	Checked by:
Drilling Contractor: NHB		Protection Level:		Rig Type: CME 750	Start Date: 8/16/93
Drilling Method: 4.25" ID HSA; 6" CASING; HX CORE		P.I.D. (eV): 10.2		Casing Size: 6"	Auger Size: 4.25"
Bit type/size: HX		Bit Use:		Core Interval (to/from)(ft):	

Depth (feet) Below GRD Sort.	Sample No. & Penetration/ Recovery (feet)	Graphic Log	Natural Cove Breaks		Weathered Condition	Rock Quality			Drilling Rate min/ft	Color	Rock Description and Comments on Drilling
			Type/Dip	Surface Condition		Total 4" Core	RQD (%)	Rock Quality Description			
14 15	RUN 1 1.5/ 1.5				badly	~1.5	0	poor	7.5	2.54 6/0	GRAY METASILTSTONE; RUSTY WEATHERING ON ALL FRACTURE FACES, SILT INFILLING; SUB HORIZONTAL AND NE VERTICAL FRACTURES; SOME SCHISTOSITY ON SUBHORIZONTAL FRACTURES. NO CORE BREAKS, NO FRAGMENTS > 0.4 FT REP=0
16 17	RUN 2 2.5/ 2.5				badly	2.5			6.2	2.54 4/0	GRAY METASILTSTONE, FINE SILICEOUS LAMINATIONS IN FLOW PATTERNS; STRONG SUBHORIZONTAL FRACTURE PATTERNS WITH RUSTY WEATHERING ON ALL FRACTURE FACES, AND SCHISTOSE CHARACTER ON FRACTURES, SOME PHYLLITE. NO CORE BREAKS
18 19 20 21 22	RUN 3 5.0/ 5.0				mod.	5.0	~25	poor	4.5	2.54 6/0	GRAY METASILTSTONE, SILT ON FRACTURE FACE AT ~22.5 FT. LESS WEATHERING, MORE COMPETENT ROCK. SOME QUARTZ REPLACEMENT AT 18.3, 19.8, 20.8, and 22.0. 1.1 ft > 0.4.

ROCK CORING LOG

9202159D /

Project: Fort Devens		Study Area: XNM-93-01X		Project No. 07053-10	
Client: USATHAMA		Driller's Name: L. Twombly		Logged by: L. HEALEY	Checked by:
Drilling Contractor: NHB		Protection Level: D		Rig Type: CME 750	Start Date: 8/16/93
Drilling Method:		P.I.D. (eV):		Casing Size:	Auger Size:

Bit type/size:	Bit Use:	Core Interval (to/from)(ft): 22 - 23' bgs
----------------	----------	---

Depth (feet) Below GRD Sort.	Sample No. & Penetration/ Recovery (feet)	Graphic Log	Natural Cove Breaks			Rock Quality			Drilling Rate min/ft	Color	Rock Description and Comments on Drilling
			Type/Dip	Surface Condition	Weathered Condition	Total 4" Core	RQD (%)	Rock Quality Description			
22										See P61	
23										BOA at 23'	

SOIL BORING LOG					Study Area: SA43N		
Client: AEC		Project No. 7053-10		Boring No.: XNM-93-02X			
Contractor: New Hampshire Boring		Date Started: 9-21-93		Completed: 9-23-93		Method: HSA/Rollercone	
Ground Elev.: 333.9		Soil Drilled: 11.2'		Total Depth: 24'		Casing Size: 4.25"/6"	
Logged by: L.Nadeau		Checked by: J. Snowden		Groundwater Below Ground: 17'			
Screen: 10 (ft)		Riser: 14.5 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	
Page 1 of 2							
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	0.8 ----- 2.0	BKG	SAND, well graded, fine to coarse, some silt and gravel, (sw) dry, dense	10-16-16-16	
2							
3							
4							
5							
6	S-2	5-7	0.9 ----- 2.0	BKG	Similar to S-1 (sw)	10-19-18-39	
7							
8							
9							
10	S-3	10 to 11.2	0.5 ----- 1.2	BKG	Similar to S-1 (sw)	19-35-100/0.2	
11					BEDROCK, 11.2' BGS		
12					Rollerconed to 24.5' bgs on 9-20-93 Water at 17.6' bgs on 9-21-93		
13					----- Bottom of boring at 24.5'		
14							
15							

SOIL BORING LOG					Study Area: SA43N		
Client: AEC		Project No. 7053-10			Boring No.: XNM-93-02X		
Contractor: New Hampshire Boring		Date Started: 9-21-93		Completed: 9-23-93		Method: HSA	
Ground Elev.: 331.8		Soil Drilled: 11.2'		Total Depth: 24'		Casing Size: 6.00"	
Logged By : L.Nadeau		Checked by: J. Snowden			Groundwater Below Ground: 17.0'		
Screen: 10 (ft)		Riser: 14.5 (ft)	Diam.: 4" (ID)	Material: SCED.40	Protection: Mod.D	Page 2 of 2	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16							
17							
18							
19							
20							
21							
22							
23							
24					Rollercone from 11.2 to 24.5' BGS		
25					Bottom of exploration at 24.5' BGS		
26							
27							
28							
29							
30							

SOIL BORING LOG					Study Area: SA43N		
Client: AEC		Project No. 7053-10			Boring No.: XNM-93-03X		
Contractor: New Hampshire Boring		Date Started: 8-10-93		Completed: 8-12-93		Method: HSA/R.CORE	
Ground Elev.: 334.4		Soil Drilled: 13.5'		Total Depth: 22.5'		Casing Size: 6.00"	
Logged by: K.Nelson		Checked by: J. Snowden			Groundwater Below Ground: 15'		
Screen: 10 (ft)		Riser: 10 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	Page 1 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.4 ----- 2.0	BKG	GRAVELLY SAND, 25% gravel(up to 30mm, mostly granitic), 75% medium to coarse sand, sand and gravel subangular to subrounded, dry, dense, well graded, olive brown (gw)	22-20-12-15	
2							
3							
4	S-2	2.5 to 4.5	1.8 ----- 2.0	BKG	GRAVELLY SAND, well graded, 20% gravel(up to 25mm), subrounded, mostly granitic, some siltstone and shaly fragments, dense, 75% medium to coarse sand, subangular to subrounded, dry, light brown, 10yr 4/4 (sw)	15-22-28-32	
5							
6	S-3	4.5 to 6.5	1.0 ----- 2.0	0.2	Same as S-2 (sw)	13-15-19-19	
7							
8	S-4	6.5 to 8.5	1.0 ----- 2.0	0.2	GRAVELLY SAND, well graded, 25% gravel(up to 25mm), mostly granitic, 75% medium to coarse sand, subrounded to subangular, mostly quartz, some lithic feldspar, intermittent horizons (5 cm thick) of uniform sand within the entire sample, dense, dry, light brown, 10yr 4/4 (sw)	21-38-37-35	
9							
10	S-5	8.5 to 10.5	1.0 ----- 2.0	BKG	Same as S-3, except dense (sw)	19-17-17-19	
11							
12	S-6	10.5 to 12.5	1.5 ----- 2.0	BKG	SANDY GRAVEL, moderately sorted, 50% gravel, less coarse than above(up to 15mm-most less than 10mm), granitic, subrounded to subangular, 50% coarse sand, subrounded to subangular, dry, dense, 10yr 4/4 (gw)	21-20-20-23	
13	S-7	12.5 to 13.5	0.8 ----- 0.8	BKG	SILTY SAND, 40% gravel subangular, mostly siltstone, 30% sand, subrounded to subangular, 25% silt, brittle fracture, wet, till very dense, olive brown, 2.5yr 6/6 BEDROCK, 13.5' BGS	21-100/0.2	Analytical collected
14							
15							

SOIL BORING LOG					Study Area: SA43N			
Client: AEC		Project No. 7053-10			Boring No.: XNM-93-03X			
Contractor: New Hampshire Boring		Date Started: 8-10-93		Completed: 8-12-93		Method: HSA/R.CORE		
Ground Elev.: 334.4		Soil Drilled: 13.5'		Total Depth: 22.5'		Casing Size: 6.00"		
Logged By : K.Nelson		Checked by: J. Snowden			Groundwater Below Ground: 17.0'			
Screen: 10 (ft)		Riser: 10 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	Page 2 of 2	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION		BLOWS\6-IN.	COMMENTS
16								
17								
18								
19								
20								
21								
22					Rock core from 13.5 to 22.5' BGS			
23					Bottom of exploration 22.5' BGS			
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG						Study Area: SA43N	
Client: AEC			Project No. 7053-10			Boring No.: XNM-93-04X	
Contractor: New Hampshire Boring			Date Started: 8-10-93		Completed: 8-13-93	Method: HSA/HX CORE	
Ground Elev.: 332.9			Soil Drilled: 13.0'		Total Depth: 20.5'	Casing Size: 6.00"	
Logged by: K.Nelson			Checked by: J. Snowden		Groundwater Below Ground: 12'		
Screen: 10 (ft)		Riser: 10 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	Page 1 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	1.2 ----- 2.0	BKG	GRAVELLY SAND, well graded, 30% fine to medium gravel(up to 35mm), rounded to subangular, 70% medium to coarse sand, subrounded to subangular, dry, medium dense, light yellow brown, 10yr 5/6 (sw)	8-6-5-4	
2							
3							
4	S-2	2.5 to 4.5	0.4 ----- 2.0	BKG	GRAVELLY SAND, well graded, 20% fine to medium gravel(up to 30mm), subrounded to subangular, 80% medium to coarse sand, subrounded to subangular, dry, medium dense, dark yellow brown, 10yr 4/4 (sw)	4-4-11-11	
5					0.4 GRAVELLY SAND, 20% fine gravel(up to 30mm), subrounded to subangular, 75% medium to coarse sand, 5% silt, moist, medium dense, oxidized, dark yellow brown, 10yr 3/4 (sw)	3-4-8-25	
6	S-3	4.5 to 6.5	1.0 ----- 2.0	0.2	0.6 GRAVELLY SAND, 15% gravel(up to 30mm), 75% sand, 5% silt, moist well graded, medium brown (sw)		
7							
8	S-4	6.5 to 8.5	1.8 ----- 2.0	0.2	GRAVELLY SAND, 30% gravel(up to 30mm), subrounded, 65% medium to coarse sand, subrounded to subangular, <3% silt(in halo's around gravel), dry, dense, well graded, dark yellow brown, 10yr 4/4 (sw)	18-23-18-20	
9							
10	S-5	8.5 to 10.5	1.8 ----- 2.0	0.2	0.8 Same as above(S-4) (sw) 1.0 SILTY GRAVEL, 40% fine to medium gravel(up to 25mm), 30% fine to medium sand, 30% silt, dry, brittle, dense, till, olive yellow mottled to gray, 2.5y 6/6 (gm)	18-17-17-19	
11							
12	S-6	10.5 to 12.4	1.8 ----- 1.8	0.5	SILTY SAND, 50% medium sand, rounded to subangular, olive yellow to yellowish orange, 2.5y 6/6 (sm)	42-48-33 100/0.3	Analytical collected
13					BEDROCK, siltstone, 12.4 BGS		
14							
15							

SOIL BORING LOG					Study Area: SA43N			
Client: AEC		Project No. 7053-10			Boring No.: XNM-93-04X			
Contractor: New Hampshire Boring		Date Started: 8-10-93		Completed: 8-13-93		Method: HSA/HX CORE		
Ground Elev.: 332.9		Soil Drilled: 13'		Total Depth: 20.5'		Casing Size: 6.00"		
Logged By : K.Nelson		Checked by: J. Snowden			Groundwater Below Ground: 12.0'			
Screen: 10 (ft)		Riser: 10 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	Page 2 of 3	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION		BLOWS\6-IN.	COMMENTS
16								
17								
18								
19								
20					Drive and wash, Hx core from 13' to 20.5' BGS			
21					----- Bottom of boring at 20.5' BGS			
22								
23								
24								
25								
26								
27								
28								
29								
30								

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10		Boring No.: 430-92-01X			
Contractor: Soil Exploration		Date Started: 9-23-92		Completed: 9-23-92		Method: HSA	
Ground Elev.: 333.3		Soil Drilled: 12.5'		Total Depth: 12.5'		Casing Size: 4.25"	
Logged by: N. Breton		Checked by: DSP		Groundwater Below Ground: 12-13'			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	
Page 1 of 1							
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1					Drilled without sampling from 0 to 5 feet.		Asphalt surface drilling at the edge of newly paved area where USTs were located.
2							
3							
4							
5							
6	S-1	5-7	2.0 ----- 2.0	22.0	SAND, fine, 10-20% coarse, 25% silt, 10% gravel, gap graded, very dense, angular, light reddish brown (2.5Y 5/6). (SM)	9-93-68-90	
7							
8	S-2	7-9	2.0 ----- 1.7	5.0	SAND, fine, 10-20% coarse, 25% silt, <20% gravel, gap graded, angular to subangular, very dense, light reddish brown (2.5Y 5/6), moist. (SM)	22-30-40-53	Appears to be shaley at 6.7-7'. (rock fragments)
9							
10	S-3	9-11		2.0	SAND, fine, 20-25% coarse, 25% silt, 20% gravel, gap graded, angular to subangular, very dense, light reddish brown (2.5Y 5/6), moist. (SM)	22-29-30-56	
11							
12	S-4	11-12.5	1.5 ----- 1.5	2.0	SAND, fine, 10-20% coarse, 20% silt, <15% gravel, gap graded, angular, light reddish brown (2.5Y 5/4), moist to wet, shale fragments in zone from 11.6 to 12 feet. (SM)	18-29-120/0.5'	Refusal 120 blows for 0.5' on shaley rock.
13					Bottom of boring = 12.5' BGS. Refusal on rock.		
14							
15							

KURZ ASSOCIATES, INC.
TEST BORING LOG

BUILDING NO. 2680

Boring No. 1 of 4
Sheet No. 1 of 1

Project: Fort Devens No. 2376 Date Started: 2/14/90 Finished: 2/14/90
Location: Harvard, MA Surface Elev: Datum:

Type:	CASING	SAMPLER	BIT	Depth	Date	Casing/Screen	Stabil. Time
SizeID:	HSA	SS	_____	10.0'	2/14	_____	@ completion
Hammer Wt.:	4 1/4"	1 3/4"	_____	_____	_____	_____	_____
Hammer Fall:	_____	140#	_____	_____	_____	_____	_____
	_____	30"	_____	_____	_____	_____	_____

DEPTH	CASSINGS	SAMPLE DATA		DRILLING ACTIVITY (procedural comments)	WELL DATA	S T R A T I G R A P H Y	LITHOLOGY (sample description)	FIELD TEST DATA TYPE PID	REMARKS
		ID	PEN/REC (IN.)						
0		S-1	---	off auger			0.5' BITUMINOUS ASPHALT	1.2	
5		S-2	11/3	60-100/5"			FILL: GRAVELLY SAND; coarse sand, 20% fine to coarse gravel, numerous cobbles and boulders, brown	0.8	
10		S-3	2/2	100/2"			TILL: SILTY GRAVEL; fine to coarse gravel, 15% silt, some fine to coarse sand, some meta rock fragments, trace clay, dense, gray-brn	0.2	
15		S-4	9/8	44-100/3"			15.0' Bottom of Boring @ 15.0'	0.4	
20									
25									
30									

REMARKS: Drill Rig: Acker AD-II

Contractor: Enviro-Tech Drilling Co. Driller: J. Marks Inspector: A. Durfee

KURZ ASSOCIATES, INC.
TEST BORING LOG

BUILDING NO. 2680

Boring No.: 2 of: 4
Sheet No. 1 of: 1

Project: Fort Devens No. 2376 Date Started: 2/14/90 Finished: 2/14/90
Location: Harvard, MA Surface Elev: _____ Datum: _____

CASING SAMPLER BIT			GROUNDWATER OBSERVATIONS				
Type:	<u>HSA</u>	<u>SS</u>	_____	Depth	Date	Casing/Screen	Stabil. Time
SizeID:	<u>4 1/4"</u>	<u>1 3/4"</u>	_____	<u>9.5'</u>	<u>2/14</u>	_____	<u>@ completion</u>
Hammer Wt.:	_____	<u>140#</u>	_____	_____	_____	_____	_____
Hammer Fall:	_____	<u>30"</u>	_____	_____	_____	_____	_____

D E P T H	C A S I N G S	SAMPLE DATA			DRILLING ACTIVITY (procedural comments)	WELL DATA	S T R A T I G E	LITHOLOGY (sample description)	FIELD TEST DATA TYPE PID	R E M A R K S
		ID	PEN/ REC (IN.)	BLOWS PER 6"						
0		S-1	---	off auger			0.5' BITUMINOUS ASPHALT FILL: GRAVELLY SAND; coarse sand, 20% fine to coarse gravel, numerous cobbles and boulders, brown	0.4		
5		S-2	0/0	100/0"			5.0' boulders, brown TILL: SILTY GRAVEL; fine to coarse gravel, 15% silt, some fine to coarse sand, some meta rock fragments, trace clay, dense, gray-brn	---		
10		S-3	2/2	100/2"				0.6		
15		S-4	0/0	100/0"			15.0' ----- Bottom of Boring @ 15.0'	---		
20										
25										
30										

REMARKS: Drill Rig: Acker AD-II

Contractor: Enviro-Tech Drilling Co. Driller: J. Marks Inspector: A. Durfee

KURZ ASSOCIATES, INC.
TEST BORING LOG

BUILDING NO. 2680

Boring No. 3 of 4
Sheet No. 1 of 1

Project: Fort Devens No. 2376 Date Started: 2/14/90 Finished: 2/14/90
Location: Harvard, MA Surface Elev: Datum:

CASING SAMPLER BIT			GROUNDWATER OBSERVATIONS			
Type:	HSA	SS	Depth	Date	Casing/Screen	Stabil. Time
Size ID:	4 1/4"	1 3/4"	9.5'	2/14		@ completion
Hammer Wt.:		140#				
Hammer Fall:		30"				

DEPTH	CASSING SIZES	SAMPLE DATA		DRILLING ACTIVITY (procedural comments)	WELL DATA	S T R A T I G R A P H Y (sample description)	FIELD TEST DATA TYPE PID	R E M A R K S
		ID	PEN/ REC (IN.)					
0		S-1	---	off auger		0.5' BITUMINOUS ASPHALT	0.4	
5		S-2	0/0	100/0"		FILL: GRAVELLY SAND; coarse sand, 20% fine to coarse gravel, numerous cobbles and 5.0' boulders, brown	---	
10		S-3	4/2	100/4"		TILL: SILTY GRAVEL; fine to coarse gravel, 15% silt, some fine to coarse sand, some meta rock fragments, trace clay, dense, gray-brn	0.2	
15						14.5' --- Bottom of Boring @ 14.5'		
20								
25								
30								

REMARKS: Drill Rig: Acker AD-II

Contractor: Enviro-Tech Drilling Co. Driller: J. Marks Inspector: A. Durfee

SOIL BORING LOG						Study Area: SA430	
Client: AEC			Project No. 7053-10			Boring No.: XOM-93-01X	
Contractor: New Hampshire Boring			Date Started: 8-26-93		Completed: 8-27-93	Method: HSA/Rollerbit	
Ground Elev.: 331.3			Soil Drilled: 14'		Total Depth: 20.3'	Casing Size: 6.00"	
Logged by: L.Healey			Checked by: J. Snowden		Groundwater Below Ground: 13.4'		
Screen: 10 (ft)		Riser: 9.6 (ft)		Diam.: 4" (ID)	Material: SCHED.40	Protection: Mod.D	Page 1 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	0.6 ----- 2.0	BKG	SANDY GRAVEL, poorly graded, fine to medium gravel, subrounded to subangular, medium dense, damp-dry, light olive brown, 2.3y 5/4 (gp-sp)	8-8-8-12	
2							
3							
4							
5							
6	S-2	5-7	1.4 ----- 2.0	BKG	SANDY GRAVEL, poorly graded, fine to coarse gravel, mixed lithologies, several granitic and quartz-rich clasts, dry, very dense, olive brown, 2.5y 4/4 (gp-sp)	18-44-50-65	
7							
8							
9							
10							
11	S-3	10-12	0.9 ----- 2.0	BKG	SILTY SAND AND GRAVEL, very poorly graded, silty fine to medium sand, angular to subangular gravel, very dense, moist, light yellow brown, 2.5y 6/4 (sm-sp)	44-68-100/0.4	Analytical and duplicate collected
12							
13							
14	S-4	NA	NA	BKG	SANDY GRAVEL, 20% silt, wet, lightolive brown, 2.5y 5/4 (sp-gp) trace recovery BEDROCK at 14" BGS	50/0.1	Auger refusal at 14" BGS
15							

SOIL BORING LOG					Study Area: SA430		
Client: AEC		Project No. 7053-10			Boring No.: XOM-93-01X		
Contractor: New Hampshire Boring		Date Started: 8-26-93		Completed: 8-27-93		Method: HSA/Rollerbit	
Ground Elev.: 331.3		Soil Drilled: 14'		Total Depth: 20.3'		Casing Size: 6.00"	
Logged By: L.Healey		Checked by: J. Snowden			Groundwater Below Ground: 13.4'		
Screen: 10 (ft)		Riser: 9.6 (ft)		Diam.: 4" (ID)	Material: SCHED. 40	Protection: Mod.D	Page 2 of 2
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16							
17							
18							
19							
20					Rollerbit from 14' to 20.3' BGS ----- Bottom of exploration at 20.3" BGS		
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

SOIL BORING LOG					Study Area: SA430		
Client: AEC		Project No. 7053-10		Boring No.: XOM-93-02X			
Contractor: New Hampshire Boring		Date Started: 8-24-93		Completed: 8-25-93		Method: HSA	
Ground Elev.: 332.9		Soil Drilled: 18.5'		Total Depth: 18.5'		Casing Size: 6.25"	
Logged by: L.Healey		Checked by: J. Snowden		Groundwater Below Ground: 10.6			
Screen: 10 (ft)		Riser: 8.5 (ft)		Diam.: 4" (ID)	Material: SCHED. 40	Protection: Mod.D	
Page 1 of 2							
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	0.9 ----- 2.0	BKG	SAND, well graded, fine to coarse sand, 20% silt, 20% fine to medium angular gravel, medium dense, dry-damp, yellow brown, 10yr 4/3 (sw-sm)	5-9-7-8	
2							
3	S-2	2-4	1.5 ----- 2.0	BKG	Similar to S-1 with > % of gravel (sm-gp)	12-21-32-8	
4							
5	S-3	4-6	1.2 ----- 2.0	BKG	Similar to S-2 (sm-gp)	9-11-13-15	
6							
7	S-4	6-8	0.7 ----- 2.0	BKG	Similar to S-2 (sm-gp)	19-35-40-43	
8							
9	S-5	8-10	0.5 ----- 2.0	BKG	Similar to S-2 with a color change to olive-yellow and damp (sm-gp)	15-22-29-36	
10							
11	S-6	10-12	2.0 ----- 2.0	BKG	FINE SAND, poorly graded, silty fine sand with 20% medium to coarse gravel, very dense, olive-brown (2.5 YR 4\4) (sp)	39-60-65-68	Water table encountered
12							
13	S-7	12-14	2.0 ----- 2.0	BKG	Similar to S-6 with phyllite chips, saturated (sp)	57-52-47-40	
14							
15	S-8	14-16	0.5 ----- 0.5	BKG	Similar to S-7 Augers advanced to 18.5' without sampling		

SOIL BORING LOG					Study Area: SA430		
Client: AEC		Project No. 7053-10			Boring No.: XOM-93-02X		
Contractor: New Hampshire Boring		Date Started: 8-24-93		Completed: 8-25-93		Method: HSA/Rollerbit	
Ground Elev.: 332.9		Soil Drilled: 18.5'		Total Depth: 18.5'		Casing Size: 6.00"	
Logged By : L.Healey		Checked by: J. Snowden			Groundwater Below Ground: 10.6'		
Screen: 10 (ft)		Riser: 9.6 (ft)	Diam.: 4" (ID)	Material: SCHED. 40	Protection: Mod.D	Page 2 of 2	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. — REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
16					See p. 1 for soil descriptions. ----- Bottom of boring at 18.5' bgs		
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10		Boring No.: 43P-92-01X			
Contractor: Soil Exploration		Date Started: 9-21-92		Completed: 9-21-92		Method: HSA	
Ground Elev.: 329.6		Soil Drilled: 12.0'		Total Depth: 14.0'		Casing Size: 4.25"	
Logged by: N. Breton		Checked by: DSP		Groundwater Below Ground: 12.8' in sample			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D	
Page 1 of 1							
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS\6-IN.	COMMENTS
1	S-1	0-2	2.0 ----- 1.2	2.6	SAND and GRAVEL, well graded, 50% gravel, 10-20% silt, gravel is subangular to subrounded, dense, (10YR 5/3), dry. (GW)	12-26-26-20	Munsell color chart used.
2							
3							
4							
5							
6	S-2	5-7	2.0 ----- 1.5	7.0	SAND, well graded, fine to coarse, 25-35% gravel, 10-20% silt, gravel is subangular, dense, brown (10YR 4/3), moist. (SW)	26-28-28-28	
7							
8							
9							
10							
11	S-3	10-12	2.0 ----- 1.3	5.6	SAND, poorly graded, fine, <5% silt, <10% coarse sand, medium dense, light brown (10YR 6/3), moist. (SP)	5-11-11-16	
12					12-12.8' SAND, poorly graded, fine, <5% silt, <10% gravel, subrounded, medium dense, light brown (10YR 6/3). (SP)		
13	S-4	12-14	2.0 ----- 2.0	2.6	12.8-14' SAND, well graded, 25-30% gravel, 35-40% silt, gravel is subangular, medium dense, brown (10YR 5/4), moist to wet. (SM)	12-17-12-12	Analytical sample from GM material only.
14					13.8-14' Apparent change to gray silt, 35-40% sand, 25-30% gravel, <5% clay, medium dense.		
15					Bottom of boring = 14' BGS. No refusal.		

SOIL BORING LOG					Study Area: SA-43		
Client: AEC		Project No. 7053-10		Boring No.: 43R-92-01X			
Contractor: Soil Exploration		Date Started: 9-21-92		Completed: 9-21-92		Method: HSA	
Ground Elev.: 342.2		Soil Drilled: 15.0'		Total Depth: 17.0'		Casing Size: 4.25"	
Logged by: N. Breton		Checked by: DSP		Groundwater Below Ground: 12.0' estimated			
Screen: --- (ft)		Riser: --- (ft)		Diam.: --- (ID)	Material: ---	Protection: Mod.D Page 1 of 1	
DEPTH (FT)	SAMPLE NUMBER	SAMPLE DEPTH	PEN. --- REC.	PID (ppm)	SOIL-ROCK DESCRIPTION	BLOWS/6-IN.	COMMENTS
1					Drilled without sampling from 0 to 9.0' BGS.		Munsell color chart used.
2							
3							
4							
5							
6							
7							
8							
9							Fill.
10	S-1	9-11	1.7 ----- 1.1	5.9	SAND, poorly graded, 35-45% gravel, 10-20% silt, asphalt, gravel is angular to subrounded, medium dense, dark brown (10YR 3/2), refusal on concrete at 10.7' BGS. (GP)	5-5-8- 120/0.2'	Refusal on concrete at 10.7' BGS.
11							Offset 4' and resumed boring.
12	S-2	11-13	2.0 ----- 1.2	0.3	SILT, 10-20% fine to coarse sand, <15% gravel, nonplastic, gravel is angular with some iron staining, very stiff, olive brown (2.5Y 4/2), moist to wet. (ML)	7-10-10-18	2nd Borehole Begin sampling at 11' BGS.
13							Augers turn with resistance at 10-11' BGS.
14							
15							
16	S-3	15-17	2.0 ----- 2.0	NA	SILT, 10-20% fine to coarse sand, <15% gravel, nonplastic, very stiff, olive brown (2.5Y 4/2), wet, little or no stratification. (ML)		
17					Bottom of boring = 17.0' BGS. No refusal.		

MONITORING WELL COMPLETION DIAGRAMS

ABB Environmental Services, Inc.

MONITORING WELL INSTALLATION DIAGRAMS
GROUPS 2 AND 7
FORT DEVENS, MA

13M-92-01X
13M-93-02X
13M-93-03X
49M-92-01X
58M-92-01X
58M-92-02X
58M-92-03X
58M-92-04X
12M-92-01X
27M-92-01X
27M-92-02X
27M-92-03X
27M-92-04X
28M-92-01X
28M-92-02X
28M-92-03X
28M-92-04X
41M-92-01X
41M-93-02B
41M-93-03X
41M-93-04X
41M-93-05X
XDM-93-01X
XDM-93-02X
XDM-93-03X
XDM-93-04X
XGM-93-01X
XGM-93-02X
XIM-93-01X
XIM-93-02X

MONITORING WELL INSTALLATION DIAGRAMS
GROUPS 2 AND 7
FORT DEVENS, MA

XIM-93-04X
XIM-93-05X
XIM-93-06X
XJM-93-01X
XJM-93-02X
XJM-93-03X
XJM-93-04X
XNM-93-01X
XNM-93-02X
XNM-93-03X
XNM-93-04X
XOM-93-01X
XOM-93-02X
XOM-93-03X

WELL INSTALLATION DIAGRAM

WELL NO.: 13M-92-01X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 8-5-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 10.7' BGS

GROUND ELEVATION: 331.3'

CASING ID: 6.25"

DATE: 3-30-93

WELL CASING ELEVATION: 333.66'

RIG GEOLOGIST: RRR

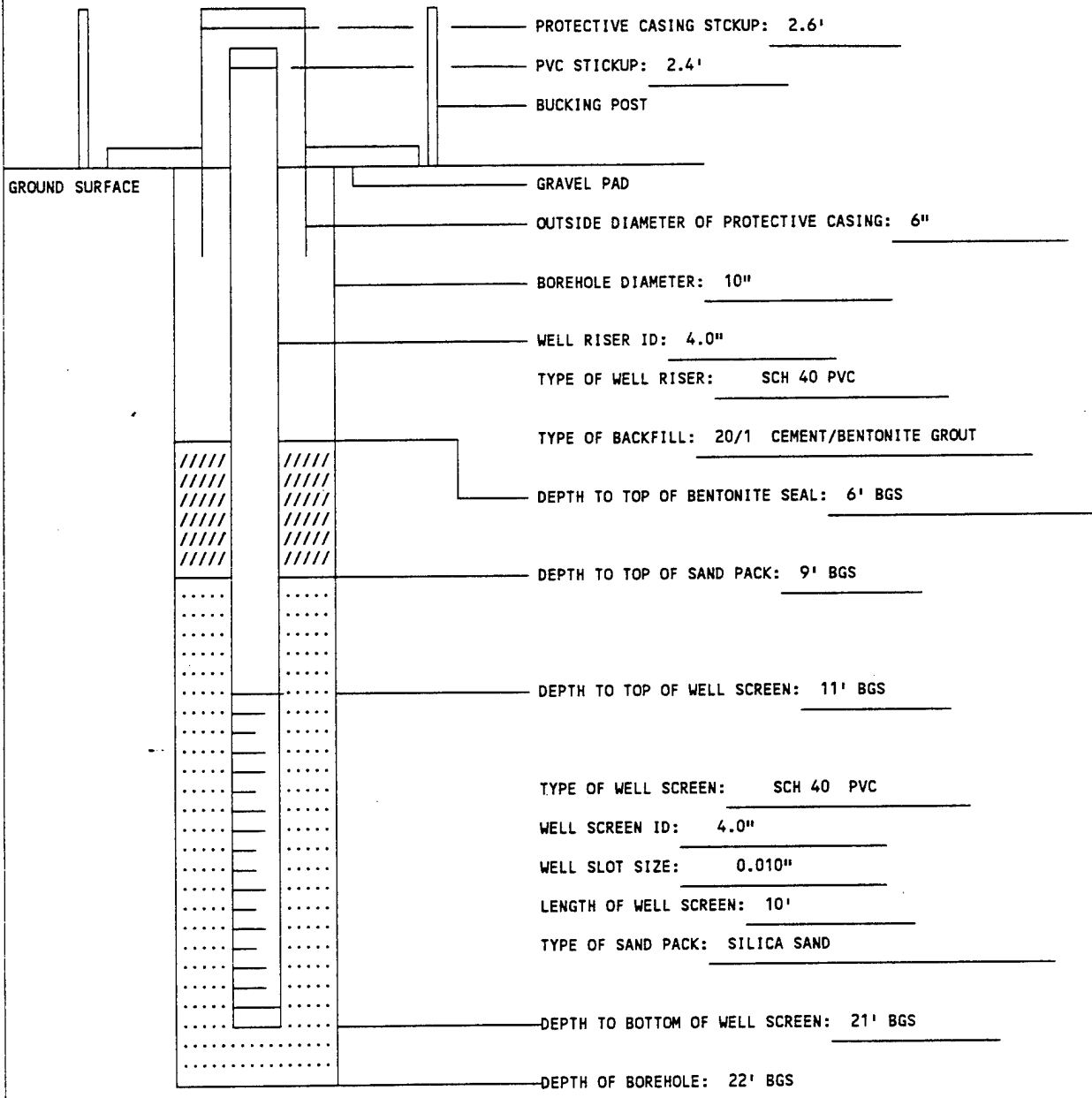


ABB ENVIRONMENTAL SERVICES, INC.

WELL INSTALLATION DIAGRAM

WELL NO.: 13M-93-02X

PROJECT NAME: Fort Devens

DATE INSTALLED: 8-3-93

PROJECT NO.: 7053-10

DRILLING METHOD: Power Auger

WATER LEVEL: 2.5

GROUND ELEVATION: 299.29

CASING ID: NA

DATE:

WELL CASING ELEVATION: 310.39

RIG GEOLOGIST: D.Pierce

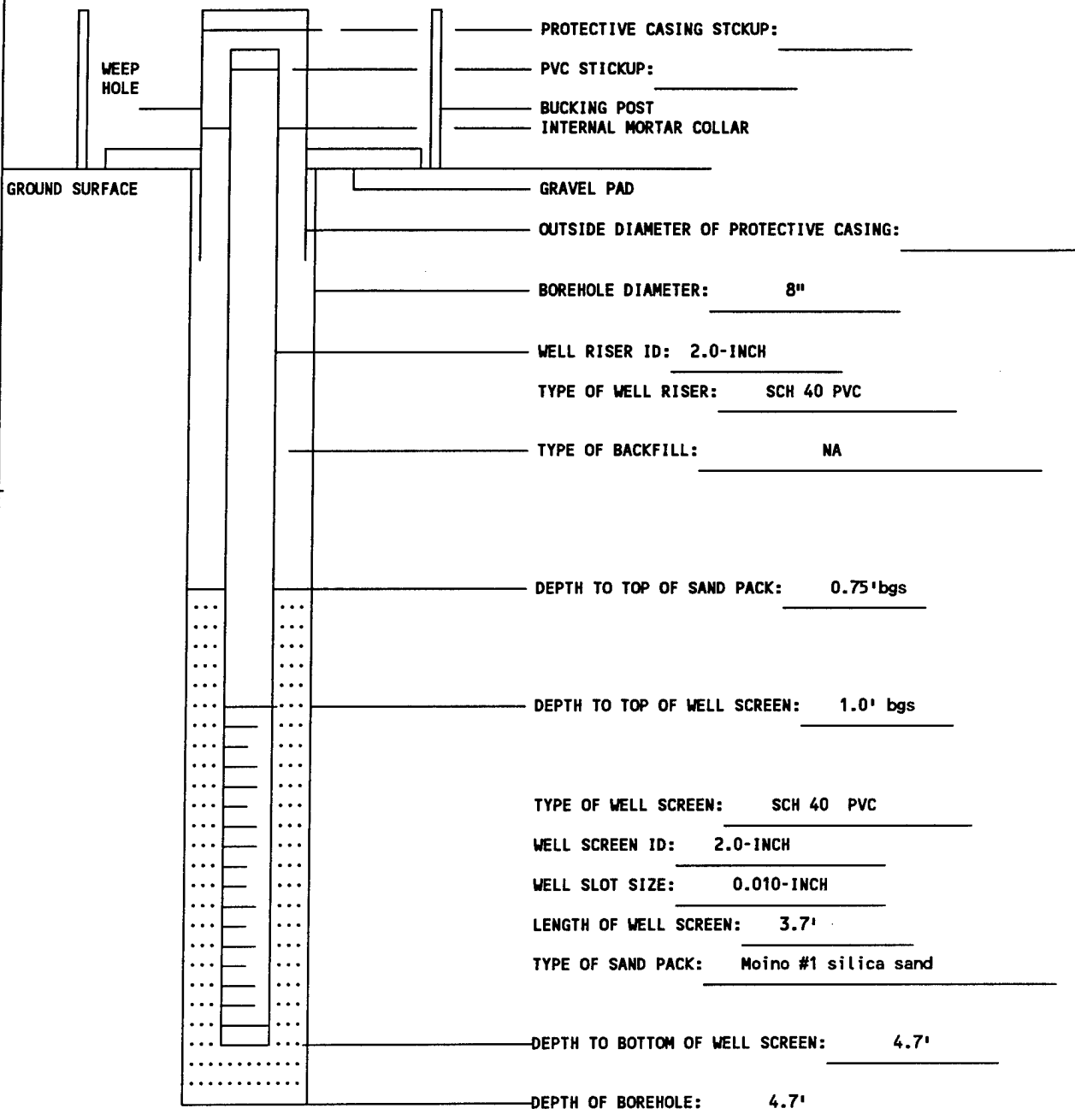


ABB ENVIRONMENTAL SERVICES, INC.

WELL INSTALLATION DIAGRAM

WELL NO.: 13M-93-03X

PROJECT NAME: Fort Devens

DATE INSTALLED: 8-3-93

PROJECT NO.: 7053-10

DRILLING METHOD: Power Auger

WATER LEVEL: 2.0'

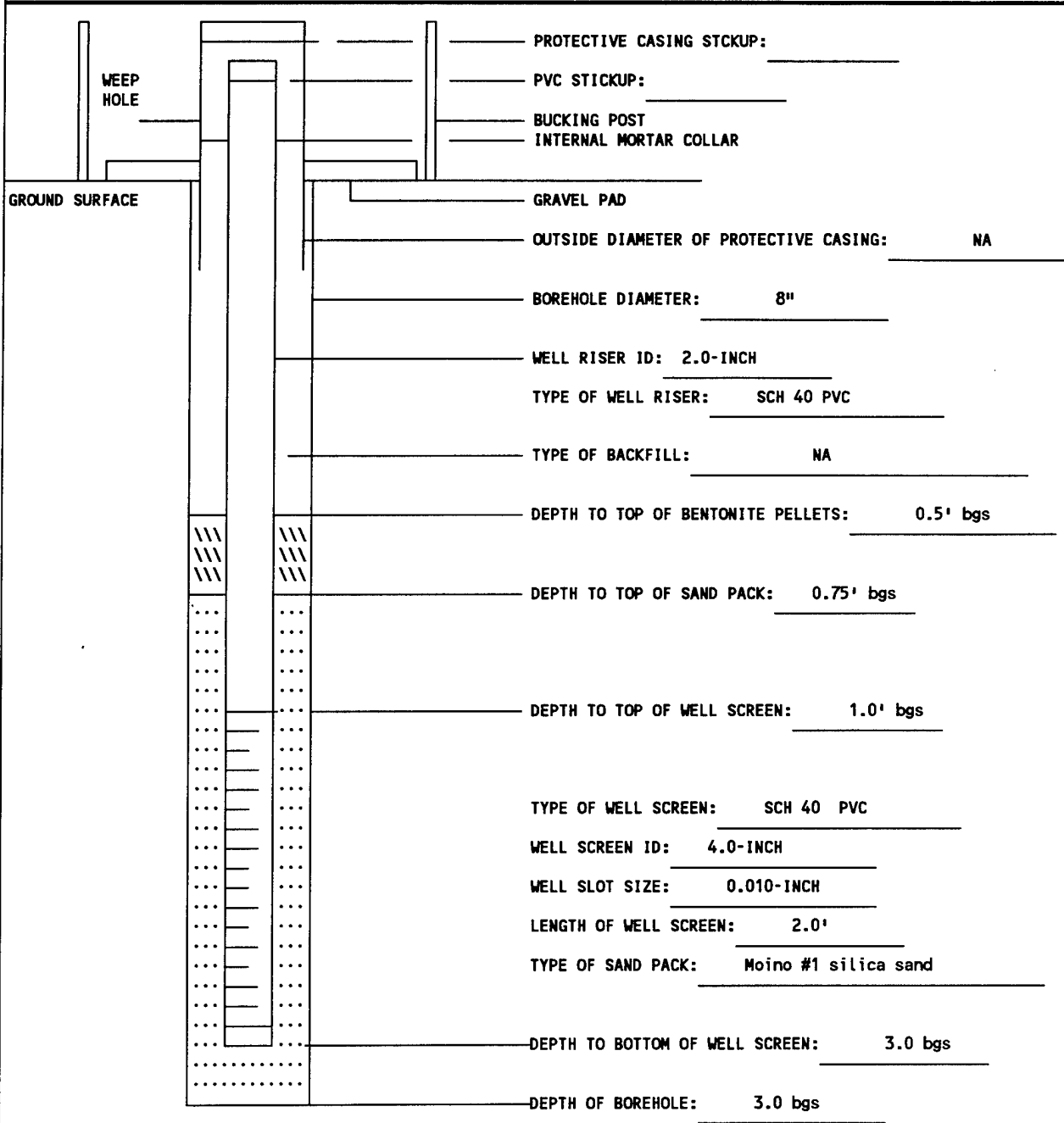
GROUND ELEVATION: 298.7

CASING ID: None

DATE: 10-27-93

WELL CASING ELEVATION: 300.7

RIG GEOLOGIST: D.Pierce



WELL INSTALLATION DIAGRAM

WELL NO.: 49M-92-01X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 8-5-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 6.0' BGS

GROUND ELEVATION: 355.6'

CASING ID: 6.25"

DATE: 3-30-93

WELL CASING ELEVATION: 357.64'

RIG GEOLOGIST: RRR

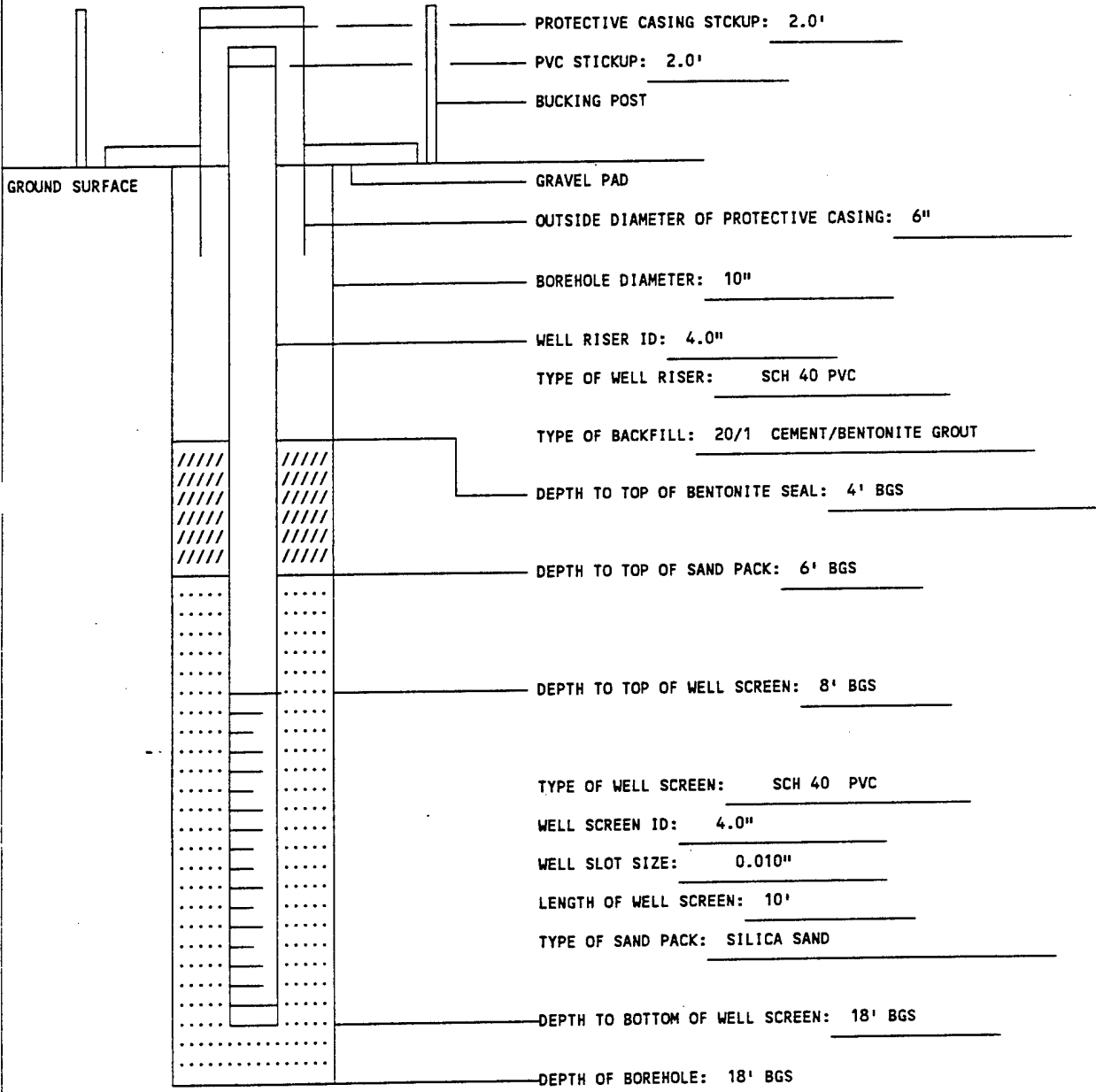


ABB ENVIRONMENTAL SERVICES, INC.

KURZ ASSOCIATES, INC. BUILDING NO. 3602
 TEST BORING LOG

Boring No.: 1 of 4
 Sheet No. 1 of 1

Project: Fort Devens No. 2376 Date Started: 1/10/90 Finished: 1/10/90
 Location: Harvard, MA Surface Elev: Datum:

Type:	CASING	SAMPLER	BIT	Depth	Date	Casing/Screen	Stabil. Time
	HSA	SS		9.0'	1/10		@ completion
SizeID:	4 1/4"	1 3/4"					
Hammer Wt.:		140#					
Hammer Fall:		30"					

DEPTH	CASSINGS	SAMPLE DATA			DRILLING ACTIVITY (procedural comments)	WELL DATA	S T C R H A A T N A G E	LITHOLOGY (sample description)	FIELD TEST DATA TYPE PID	REMARKS
		ID	PEN/REC (IN.)	BLOWS PER 6"						
0		S-1	---	off auger			0.5' BITUMINOUS ASPHALT	2.4		
5		S-2	18/16	7-8-10			FILL: SILTY SAND; fine to medium sand, some coarse sand, 20% silt, minor clay, rare cobbles, tan to brown	0.8		
10		S-3	18/16	8-10-24			12.5'	0.9		
15		S-4	18/14	30-45-35			TILL: CLAYEY SILT; silt w/ 20% clay, 10% rock fragments, little fine to medium sand, tan to gray-green, dense Bottom of Boring @ 16.5'	0.8		
20										
25										
30										

REMARKS: Drill Rig: Diedrich D-50

Contractor: Guild Drilling Company Driller: A. Mason Inspector: A. Durfee

KURZ ASSOCIATES, INC.
TEST BORING LOG

BUILDING NO. 3602

Boring No.: 2 of: 4
Sheet No. 1 of: 1

Project: Fort Devens No. 2376 Date Started: 1/10/90 Finished: 1/10/90
Location: Harvard, MA Surface Elev.: Datum:

CASING SAMPLER BIT			GROUNDWATER OBSERVATIONS			
Type:	HSA	SS	Depth	Date	Casing/Screen	Stabil. Time
SizeID:	4 1/4"	1 3/4"	8.5'	1/10		@ completion
Hammer Wt.:		140#				
Hammer Fall:		30"				

DEPTH	CASSING SIZES	SAMPLE DATA		DRILLING ACTIVITY (procedural comments)	WELL DATA	S T R U C T U R E	LITHOLOGY (sample description)	FIELD TEST DATA TYPE PID	RE M A R K S
		ID	PEN/ REC (IN.)						
0		S-1	---	off auger			0.5' BITUMINOUS ASPHALT FILL: SILTY SAND; fine to medium sand, some coarse sand, 20% silt, minor clay, tan to brown	1.3	
5		S-2	18/18	3-7-8				0.9	
10		S-3	18/16	9-9-13				0.9	
15		S-4	18/14	9-12-40			14.0' TILL: CLAYEY SILT; silt w/ 20% clay, 10% rock fragments, little fine to medium sand, tan to gray-green, dense	3.7	
20							Bottom of Boring @ 16.5'		
25									
30									

REMARKS: Drill Rig: Diedrich D-50

Contractor: Guild Drilling Company Driller: A. Mason Inspector: A. Durfee

KURZ ASSOCIATES, INC.
TEST BORING LOG

BUILDING NO. 3602

Boring No.: 3 of: 4

Sheet No. 1 of: 1

Project: Fort Devens No. 2376
Location: Harvard, MA

Date Started: 1/10/90 Finished: 1/10/90
Surface Elev.: Datum:

CASING SAMPLER BIT
Type: HSA SS
Size ID: 4 1/4" 1 3/4"
Hammer Wt.: 140#
Hammer Fall: 30"

GROUNDWATER OBSERVATIONS
Depth Date Casing/Screen Stabil. Time
8.5' 1/10 @ completion

DEPTH	CASSINGS	SAMPLE DATA		DRILLING ACTIVITY (procedural comments)	WELL DATA	S T C R H A A T N A G E	LITHOLOGY (sample description)	FIELD TEST DATA TYPE PID	REMARKS
		ID	PEN/REC (IN.)						
0		S-1	---	off auger			0.5' BITUMINOUS ASPHALT	1.6	
5		S-2	18/16	9-7-8			FILL: SILTY SAND; fine to medium sand, some coarse sand, 20% silt, minor clay, tan to brown	1.1	
10		S-3	18/14	4-6-6				1.4	
15		S-4	6/5	100/6"			TILL: CLAYEY SILT; silt w/ 20% clay, 10% rock fragments, little fine to medium sand, tan to gray-green, dense	1.9	
20							Bottom of Boring @ 15.5'		
25									
30									

REMARKS: Drill Rig: Diedrich D-50

Contractor: Guild Drilling Company Driller: A. Mason Inspector: A. Durfee

KURZ ASSOCIATES, INC.
TEST BORING LOG

BUILDING NO. 3602

Boring No.: 4 of: 4
Sheet No. 1 of: 1

Project: Fort Devens No. 2376 Date Started: 1/10/90 Finished: 1/10/90
Location: Harvard, MA Surface Elev: _____ Datum: _____

CASING SAMPLER BIT			GROUNDWATER OBSERVATIONS			
Type:	<u>HSA</u>	<u>SS</u>	Depth	Date	Casing/Screen	Stabil. Time
SizeID:	<u>4 1/4"</u>	<u>1 3/4"</u>	<u>6.0'</u>	<u>1/10</u>	_____	<u>@ completion</u>
Hammer Wt.:	_____	<u>140#</u>	_____	_____	_____	_____
Hammer Fall:	_____	<u>30"</u>	_____	_____	_____	_____

DEPTH	CASSING SIZES IN GWS	SAMPLE DATA		DRILLING ACTIVITY (procedural comments)	WELL DATA	S T R H A A T N A G E	LITHOLOGY (sample description)	FIELD TEST DATA TYPE PID	R E M A R K S
		ID	PEN/ REC (IN.)						
0		S-1	---	off auger			0.5' BITUMINOUS ASPHALT	1.0	
5		S-2	18/18	2-3-8			FILL: SILTY SAND; fine to medium sand, some coarse sand, 20% silt, minor clay, tan to brown	0.8	
10		S-3	18/18	4-4-5				1.6	
15							14.0' Bottom of Boring @ 14.0'		
20									
25									
30									

REMARKS: Drill Rig: Diedrich D-50

Contractor: Guild Drilling Company Driller: A. Mason Inspector: A. Durfee

WELL INSTALLATION DIAGRAM

WELL NO.: 58M-92-01X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 9-16-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 6.0' BGS

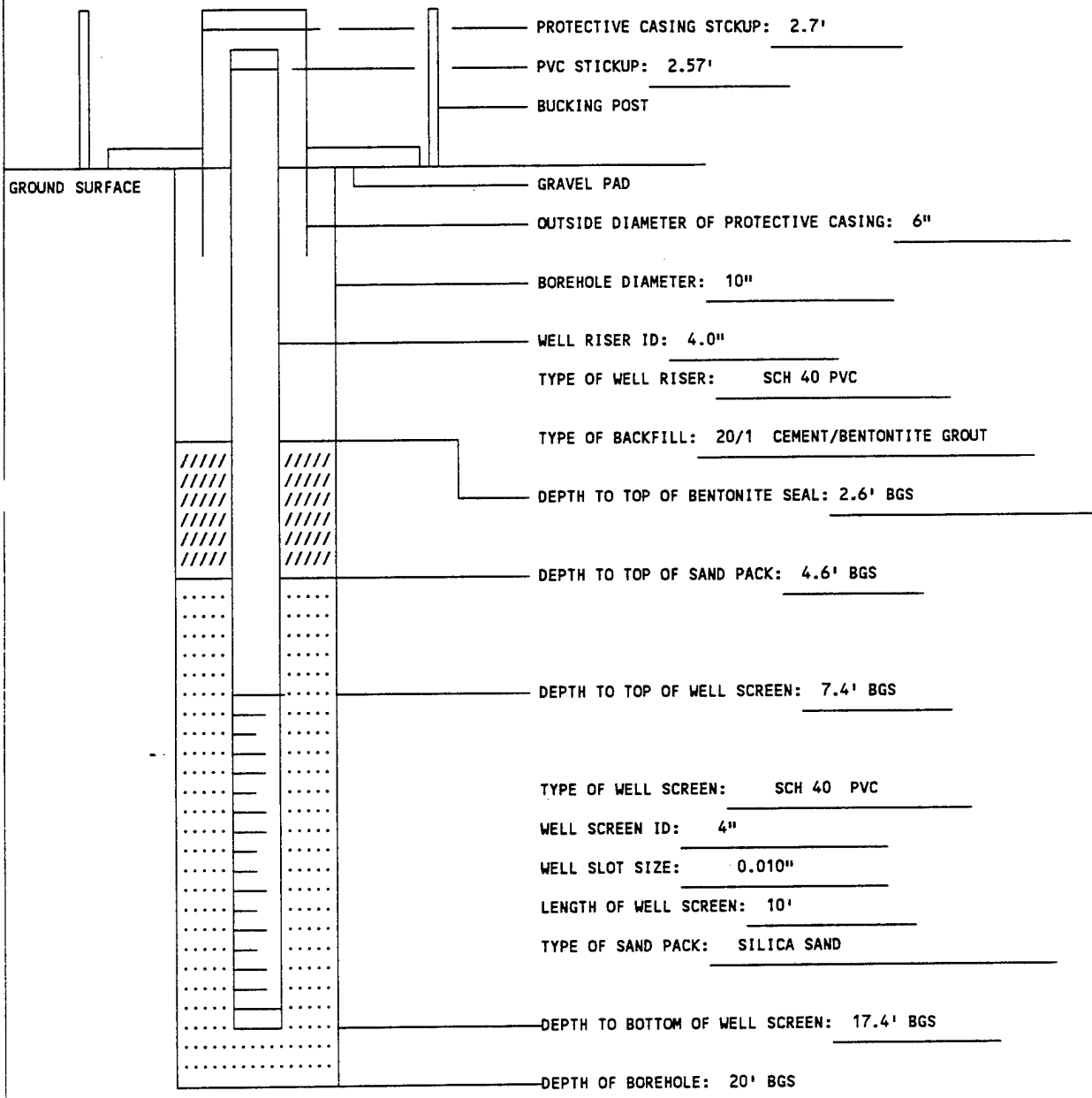
GROUND ELEVATION: 346.4'

CASING ID: 6.25"

DATE: 3-30-92

WELL CASING ELEVATION: 348.97'

RIG GEOLOGIST: L. TRUESDALE



WELL INSTALLATION DIAGRAM

WELL NO.: 58M-92-02X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 9-14-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 5.2' BGS

GROUND ELEVATION: 342.7'

CASING ID: 6.25"

DATE: 3-30-93

WELL CASING ELEVATION: 345.16'

RIG GEOLOGIST: W. METZGER

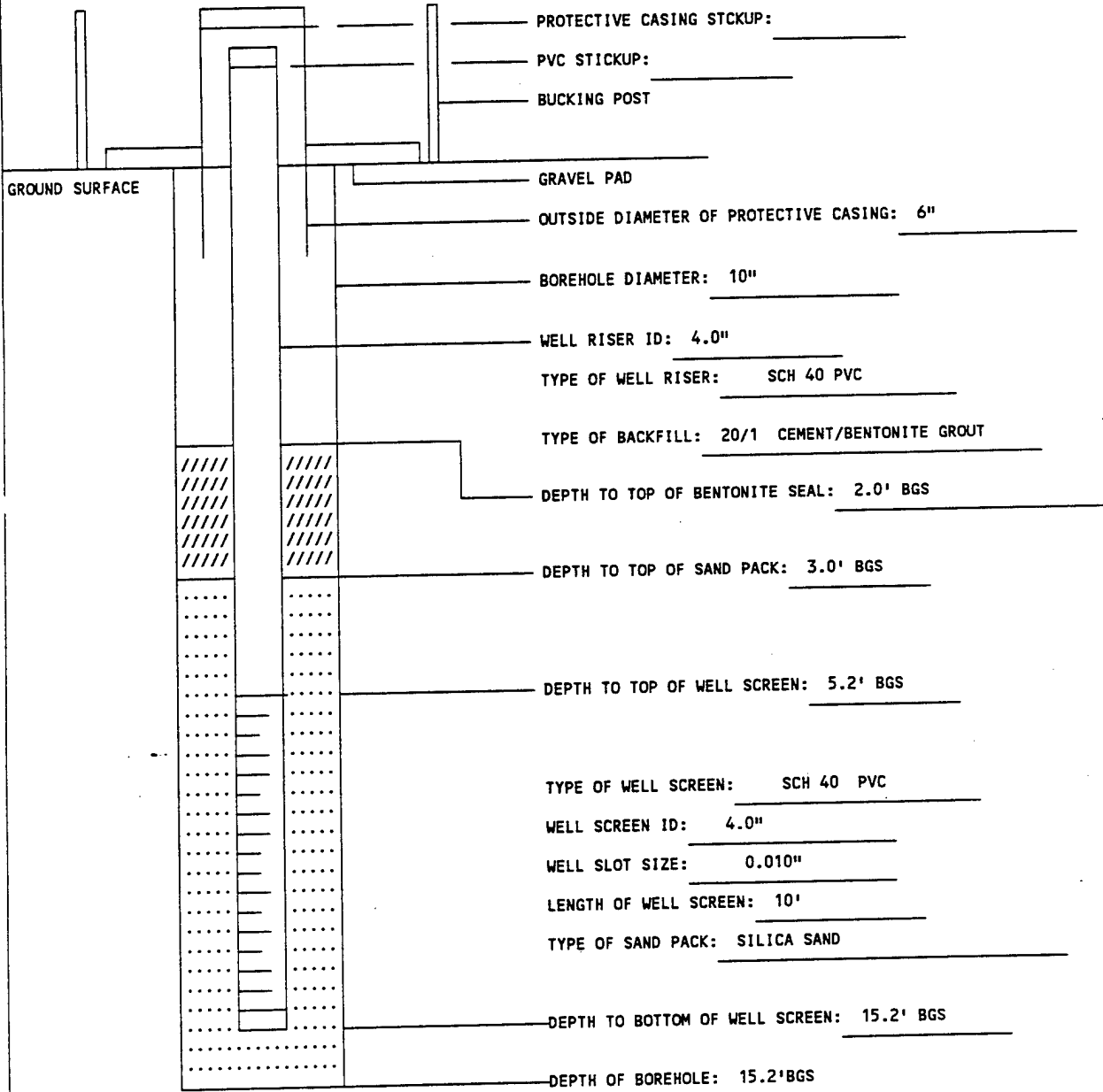


ABB ENVIRONMENTAL SERVICES, INC.

WELL INSTALLATION DIAGRAM

WELL NO.: 58M-92-03X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 9-15-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 7.0' BGS

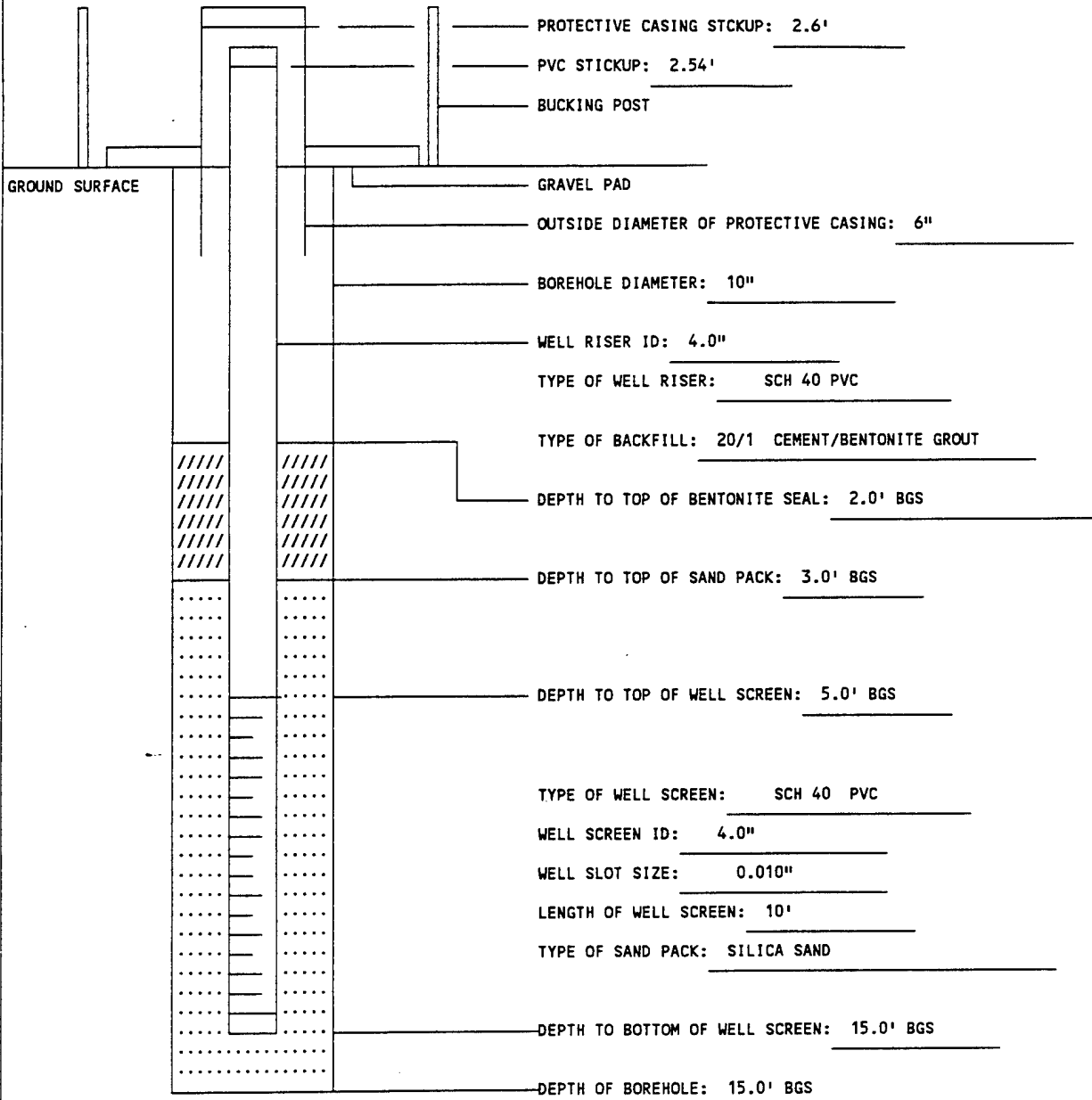
GROUND ELEVATION: 343.6'

CASING ID: 6.25"

DATE: 3-30-93

WELL CASING ELEVATION: 346.16'

RIG GEOLOGIST: W. METZGER



WELL INSTALLATION DIAGRAM

WELL NO.: 58M-92-04X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 9-15-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 3.6' BGS

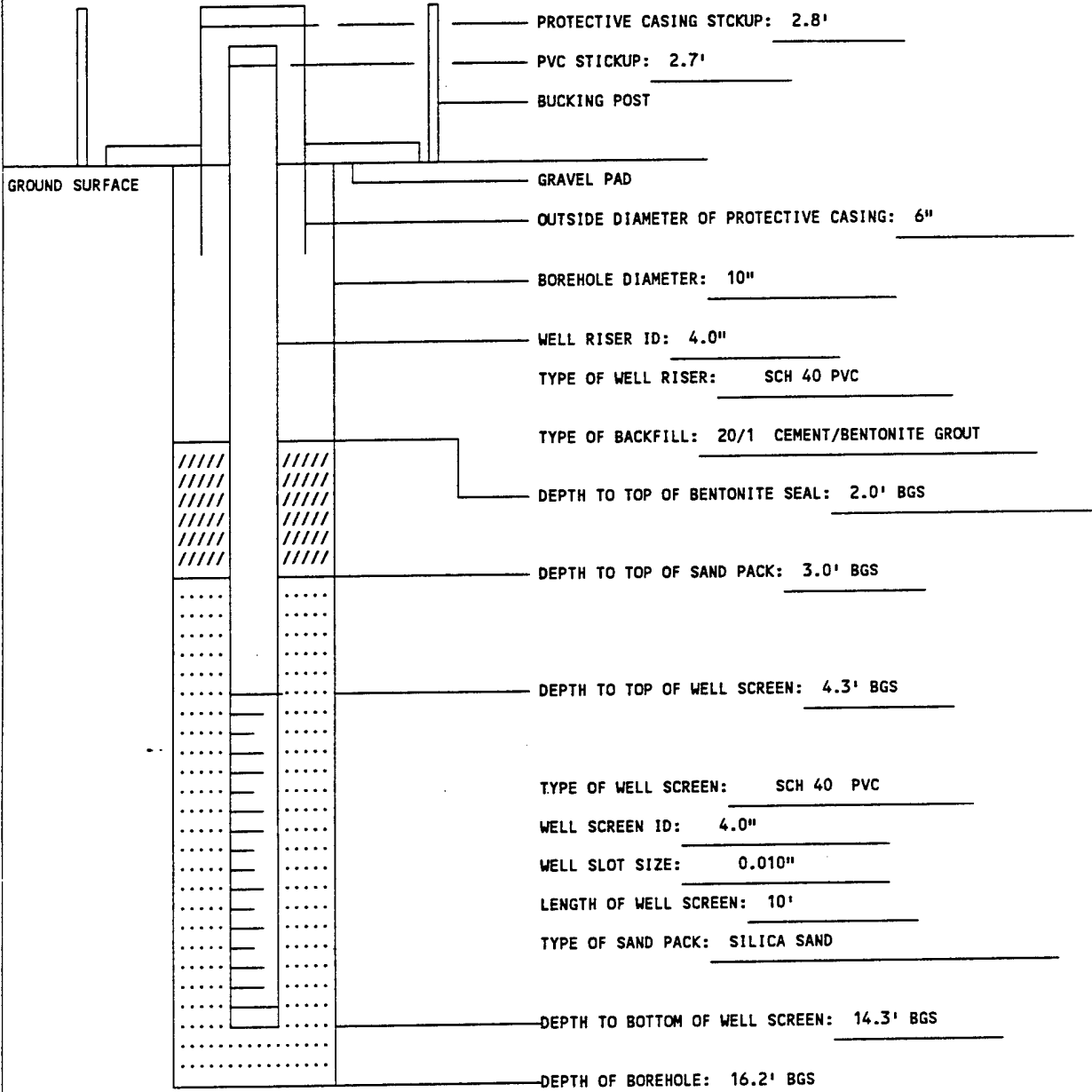
GROUND ELEVATION: 342.5'

CASING ID: 6.25"

DATE: 3-30-93

WELL CASING ELEVATION: 345.28'

RIG GEOLOGIST: W. METZGER



WELL INSTALLATION DIAGRAM

WELL NO.: 12M-92-01X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 9-09-92

PROJECT NO.: 7005-04

DRILLING METHOD: DRIVE AND WASH / CORE WATER LEVEL: 43.3 BGS

GROUND ELEVATION: 264.5

CASING ID: 4"

DATE: 3-30-93

WELL CASING ELEVATION: 266.32

RIG GEOLOGIST: RRR

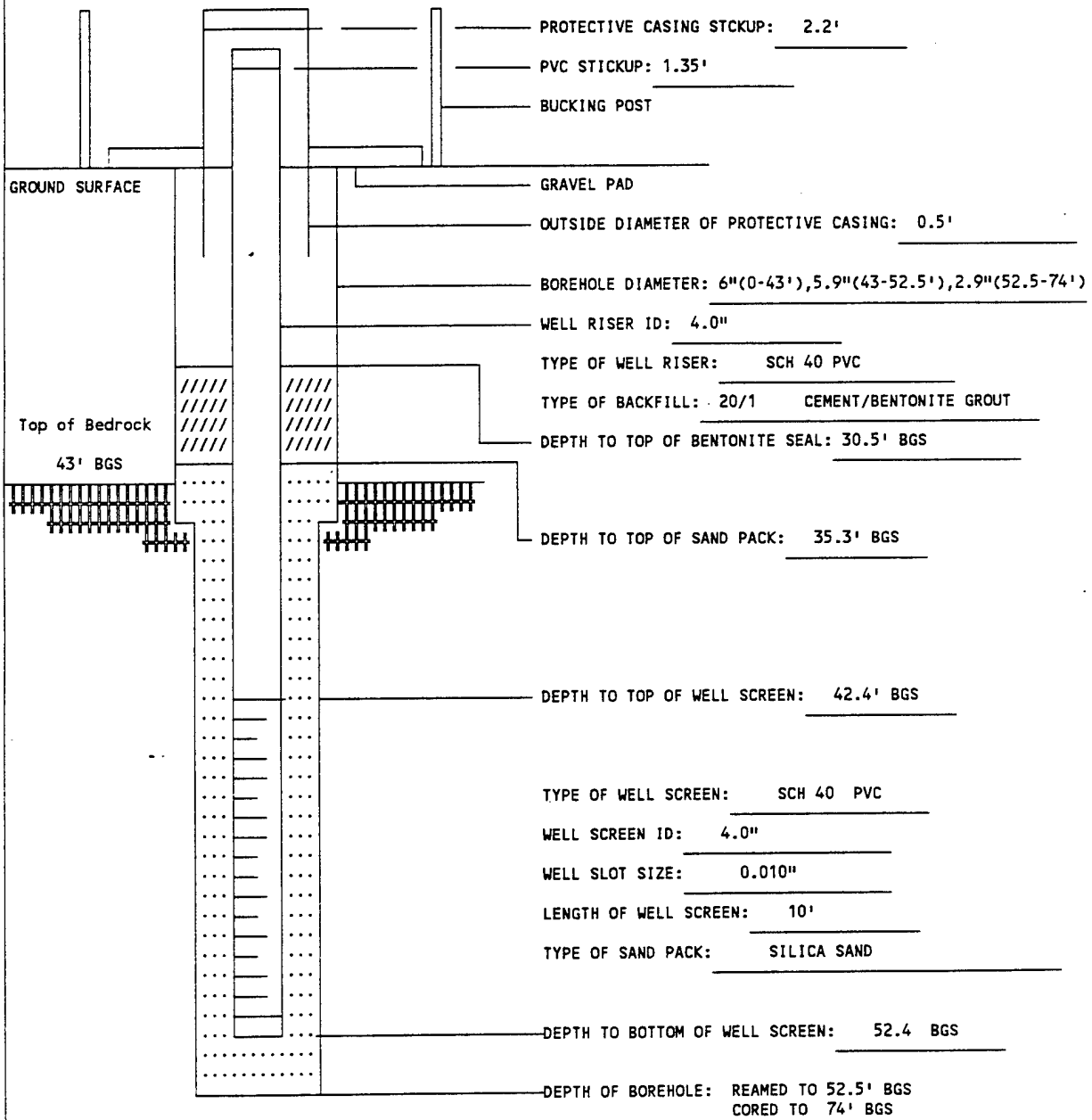


ABB ENVIRONMENTAL SERVICES, INC.

WELL INSTALLATION DIAGRAM

WELL NO.: 27M-92-01X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 8-13-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 13.35' BGS

GROUND ELEVATION: 245.2'

CASING ID: 6.25"

DATE: 3-30-93

WELL CASING ELEVATION: 245.1'

RIG GEOLOGIST: P. BOLMER

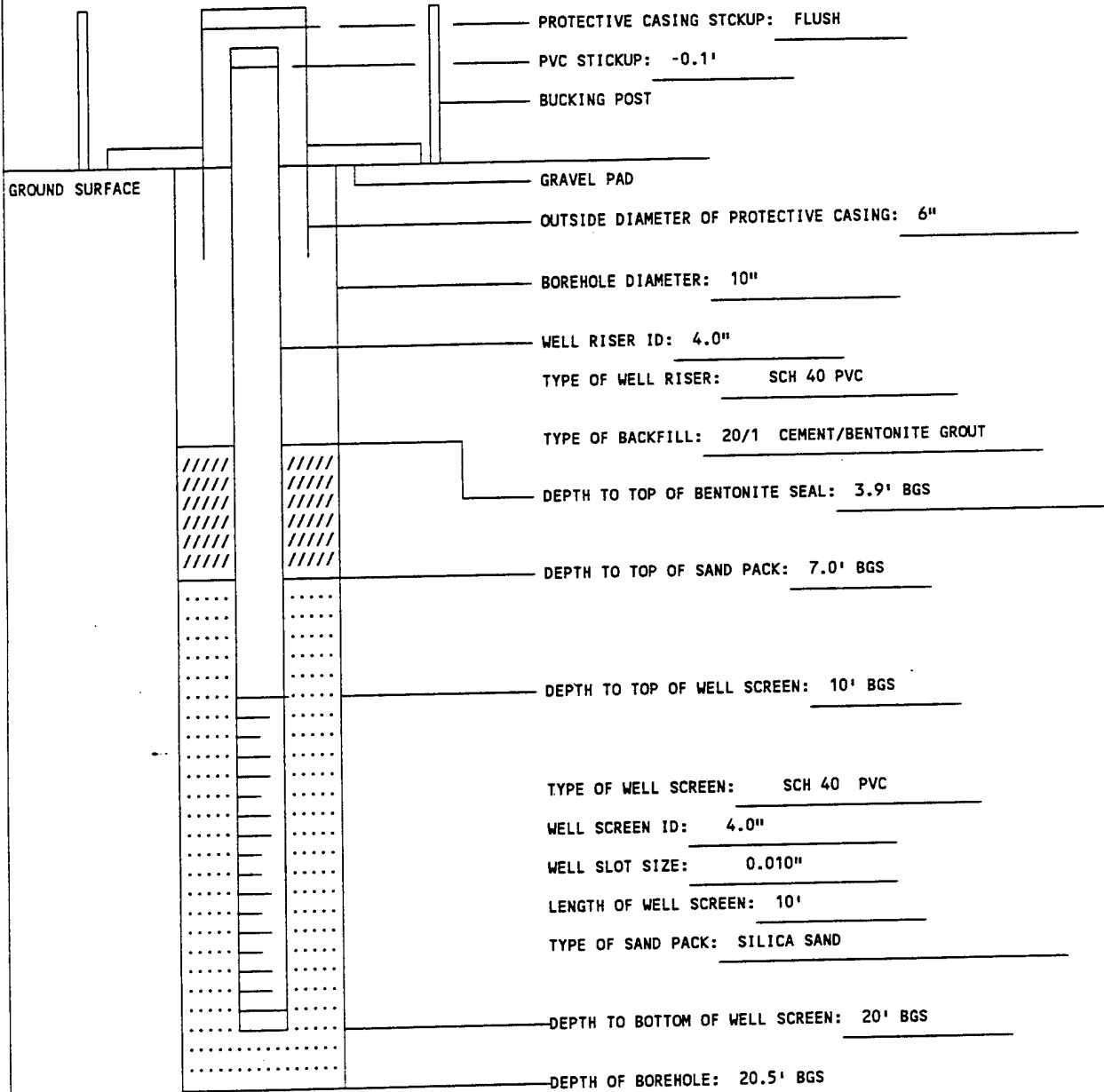


ABB ENVIRONMENTAL SERVICES, INC.

WELL INSTALLATION DIAGRAM

WELL NO.: 27M-92-02X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 8-10-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 17.7' BGS

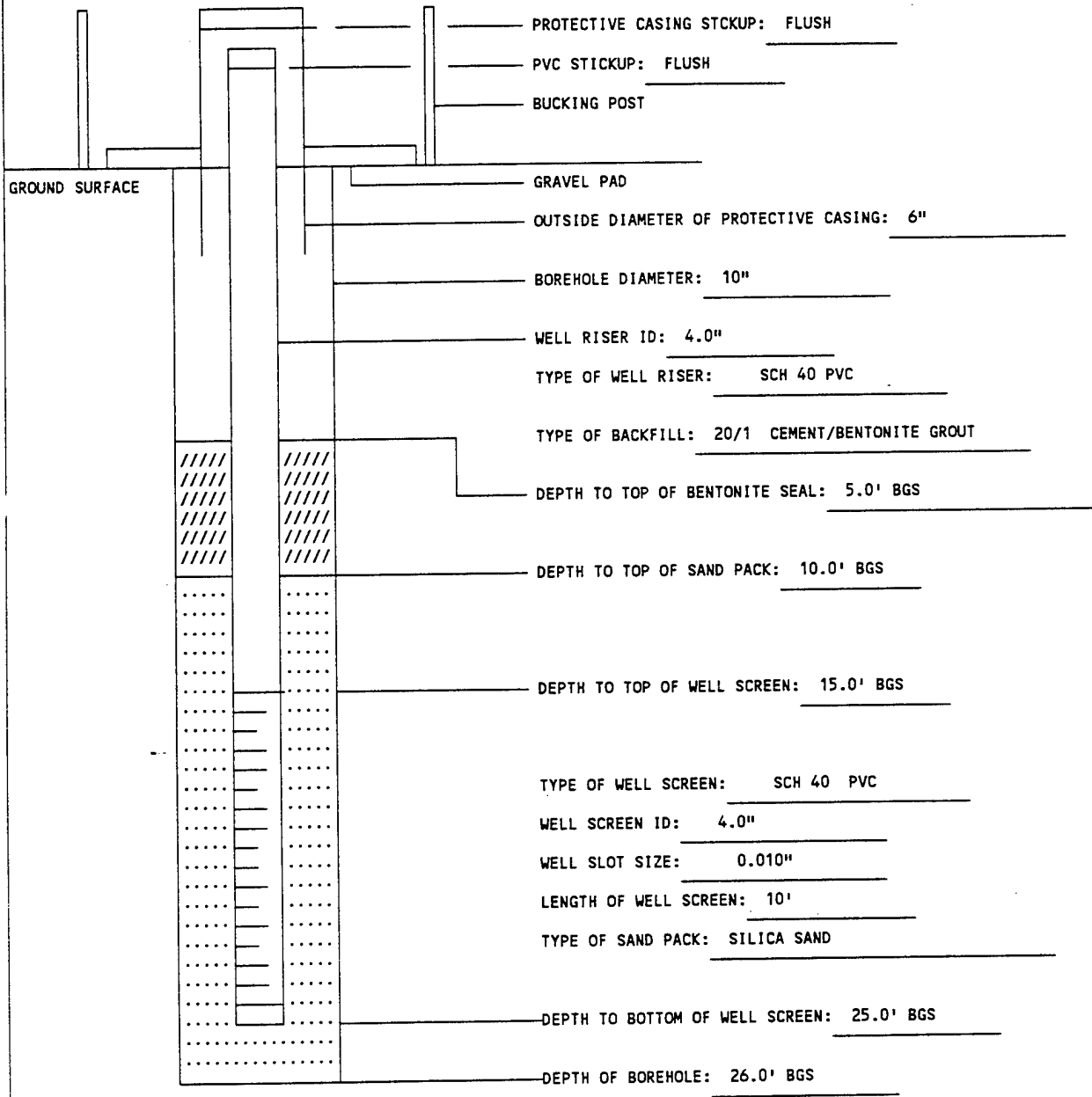
GROUND ELEVATION: 252.2'

CASING ID: 6.25"

DATE: 3-30-93

WELL CASING ELEVATION: 252.2'

RIG GEOLOGIST: RRR



WELL INSTALLATION DIAGRAM

WELL NO.: 27M-92-03X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 8-7-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 20.95' BGS

GROUND ELEVATION: 255.2'

CASING ID: 6.25"

DATE: 12-22-92

WELL CASING ELEVATION: 255.2'

RIG GEOLOGIST: D. S. PIERCE

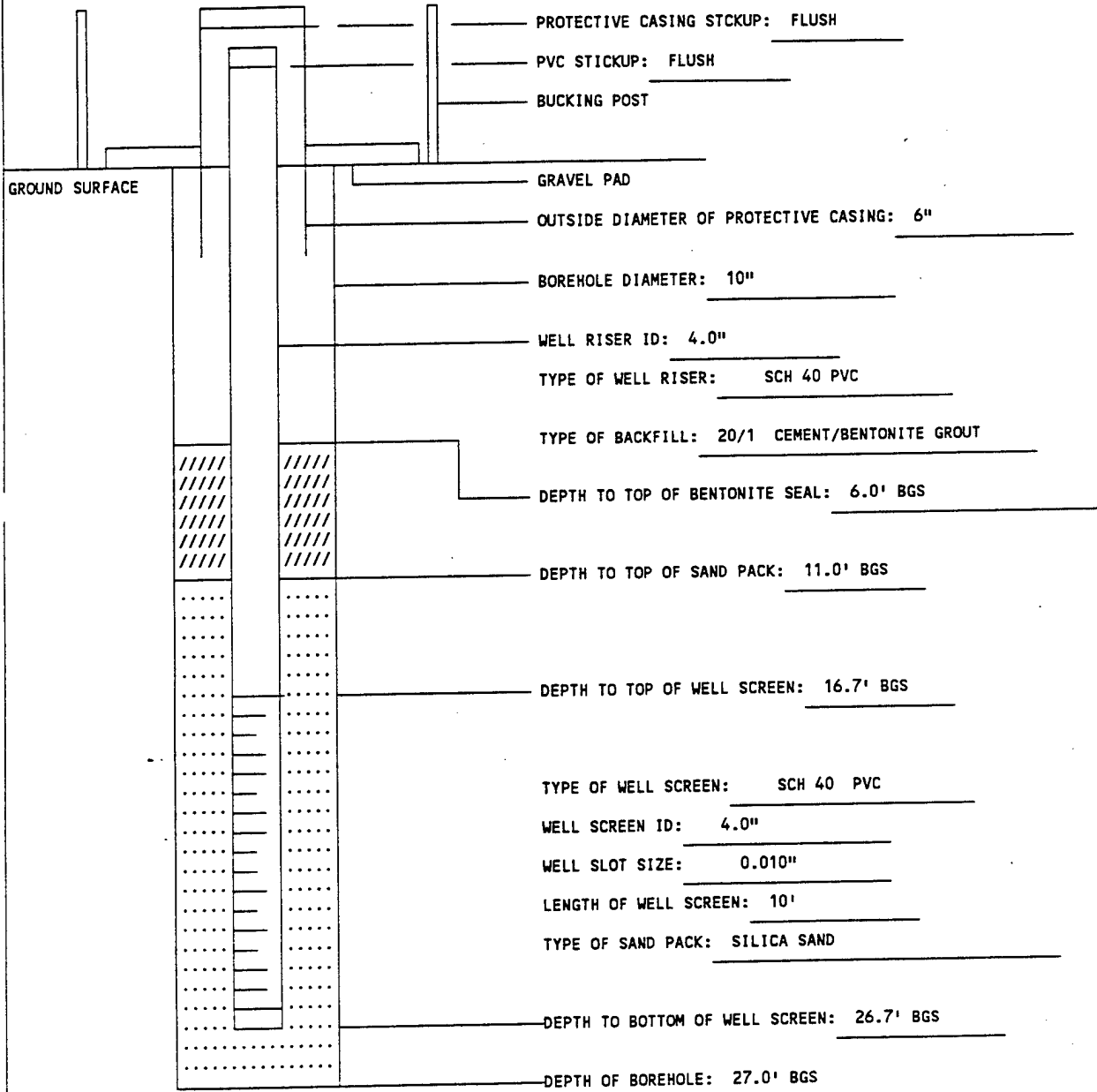


ABB ENVIRONMENTAL SERVICES, INC.

WELL INSTALLATION DIAGRAM

WELL NO.: 27M-92-04X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 8-12-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 20.4' BGS

GROUND ELEVATION: 243.7'

CASING ID: 6.25"

DATE: 3-30-93

WELL CASING ELEVATION: 244.31'

RIG GEOLOGIST: RRR

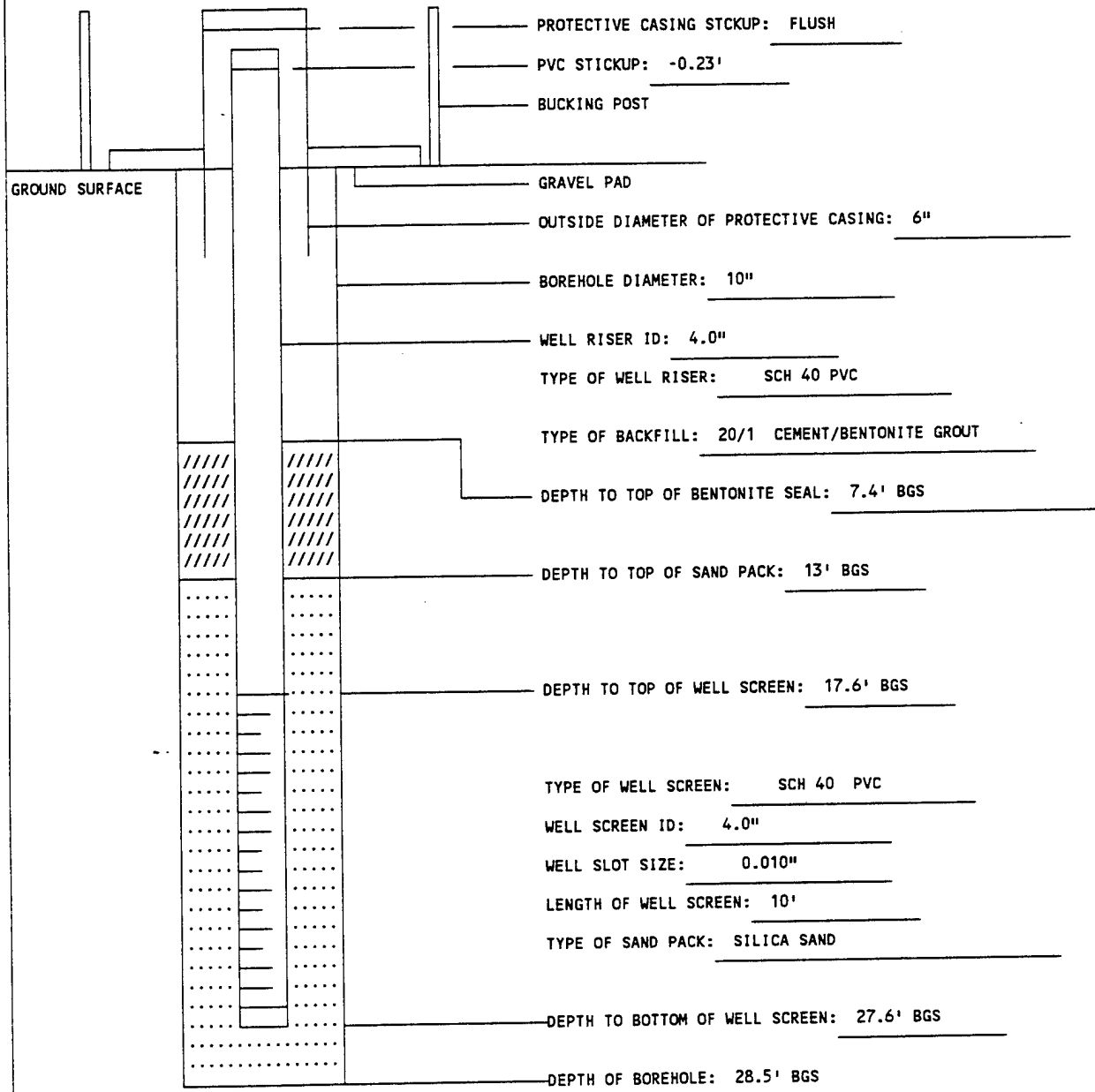


ABB ENVIRONMENTAL SERVICES, INC.

WELL INSTALLATION DIAGRAM

WELL NO.: 28M-92-01X

PROJECT NAME: FORT DEVENS 2-7

DATE INSTALLED: 8-25-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 3.3' BGS

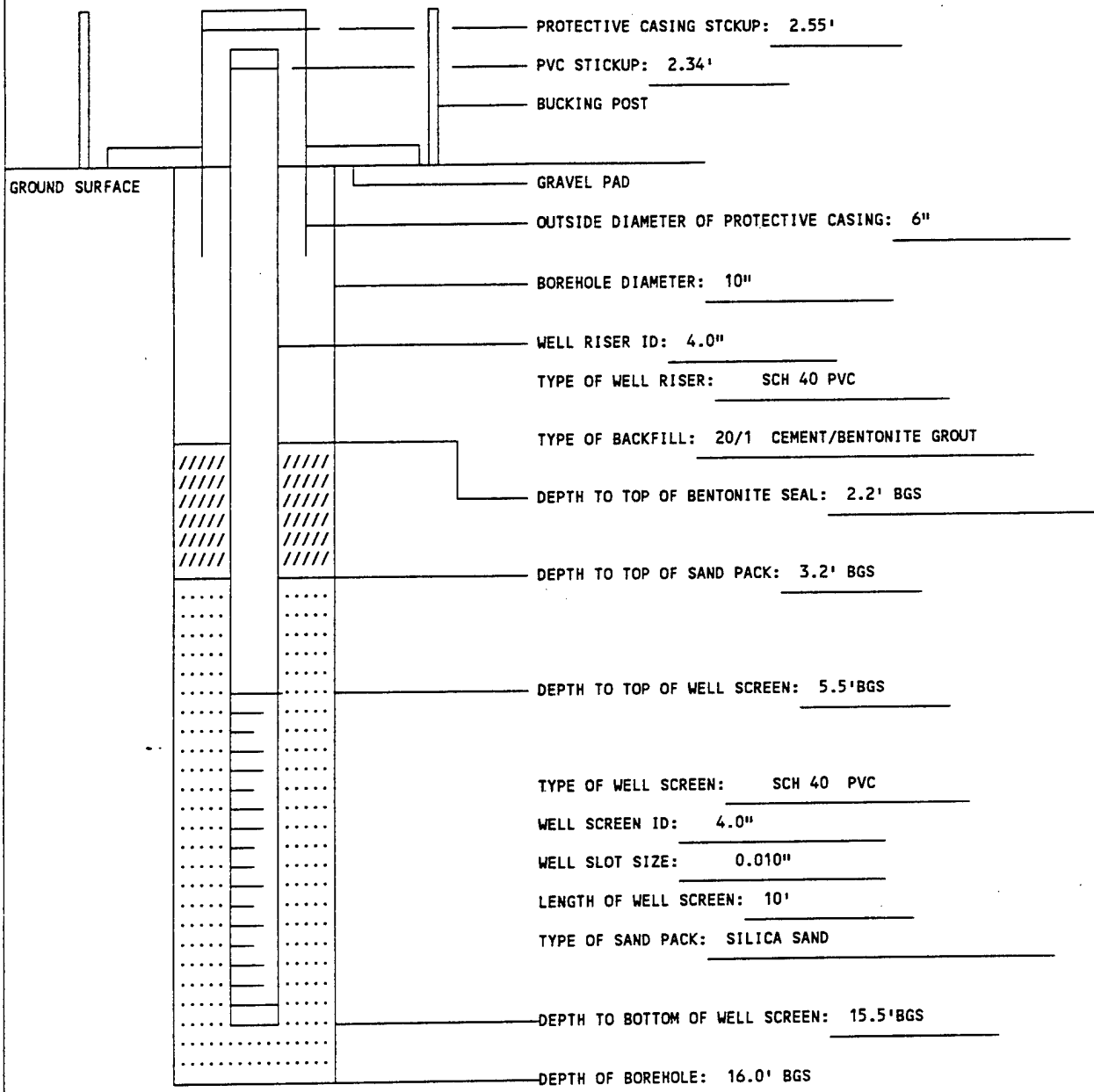
GROUND ELEVATION: 245.3'

CASING ID: 6.25"

DATE: 3-30-93

WELL CASING ELEVATION: 247.64'

RIG GEOLOGIST: P. BOLMER



WELL INSTALLATION DIAGRAM

WELL NO.: 28M-92-02X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 8-20-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 4.3' BGS

GROUND ELEVATION: 243.7'

CASING ID: 6.25"

DATE: 3-30-93

WELL CASING ELEVATION: 245.54'

RIG GEOLOGIST: RRR

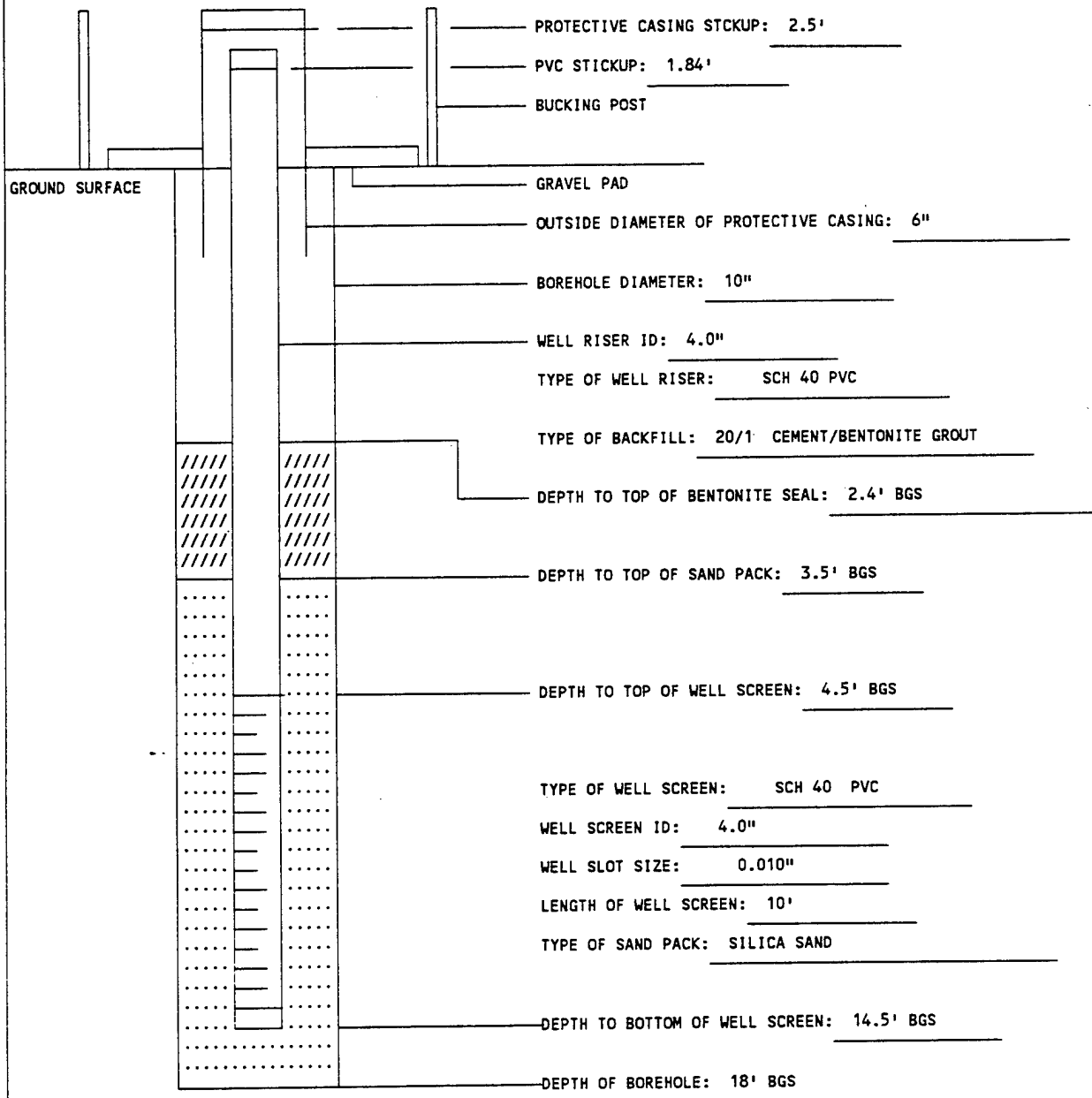


ABB ENVIRONMENTAL SERVICES, INC.

WELL INSTALLATION DIAGRAM

WELL NO.: 28M-92-03X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 8-24-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 6.2' BGS

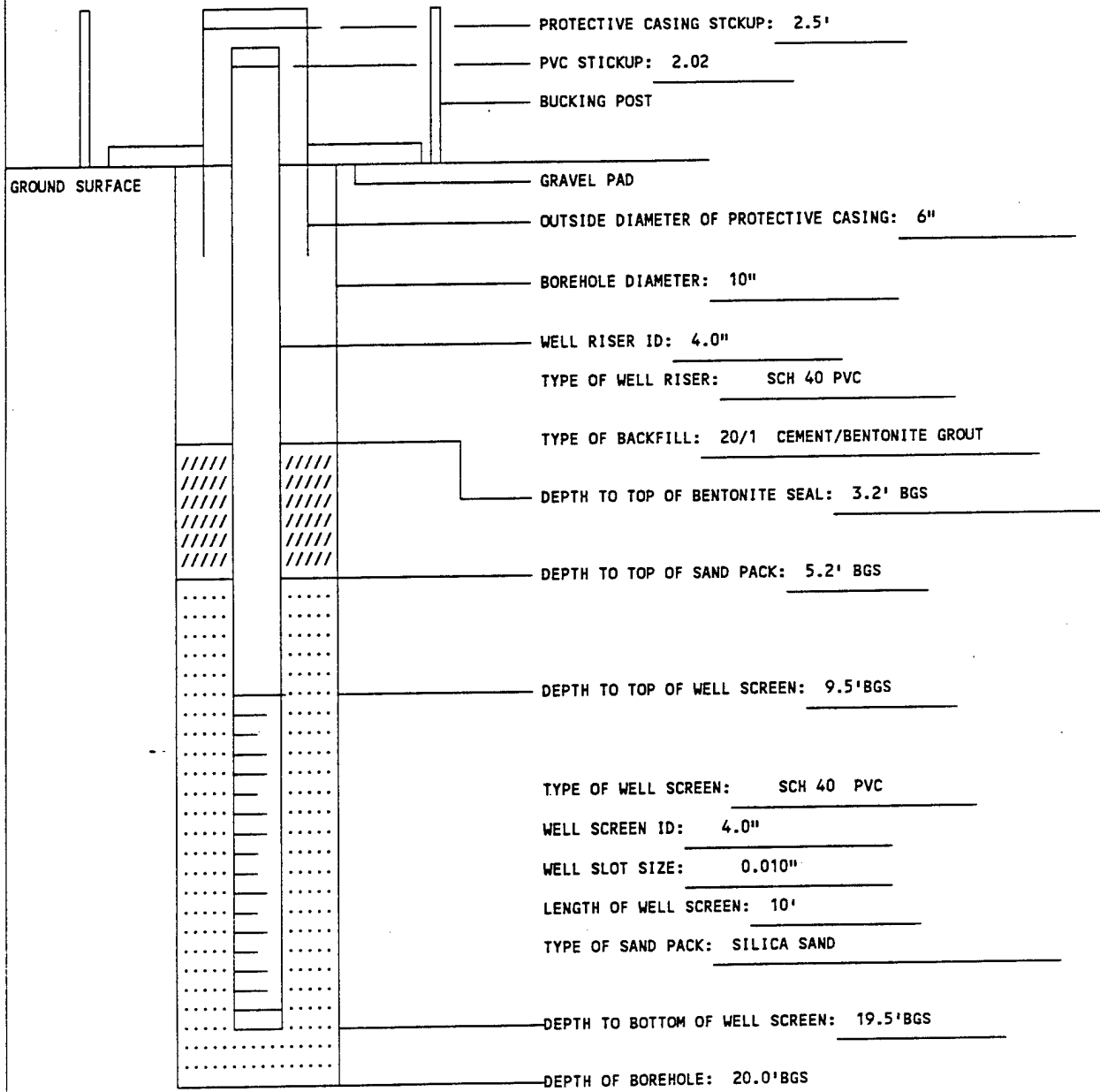
GROUND ELEVATION: 239.7'

CASING ID: 6.25"

DATE: 3-30-93

WELL CASING ELEVATION: 241.72'

RIG GEOLOGIST: P. BOLMER



WELL INSTALLATION DIAGRAM

WELL NO.: 28M-92-04X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 8-25-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 2.6' BGS

GROUND ELEVATION: 241.7'

CASING ID: 6.25"

DATE: 3-30-93

WELL CASING ELEVATION: 244.31'

RIG GEOLOGIST: P. BOLMER

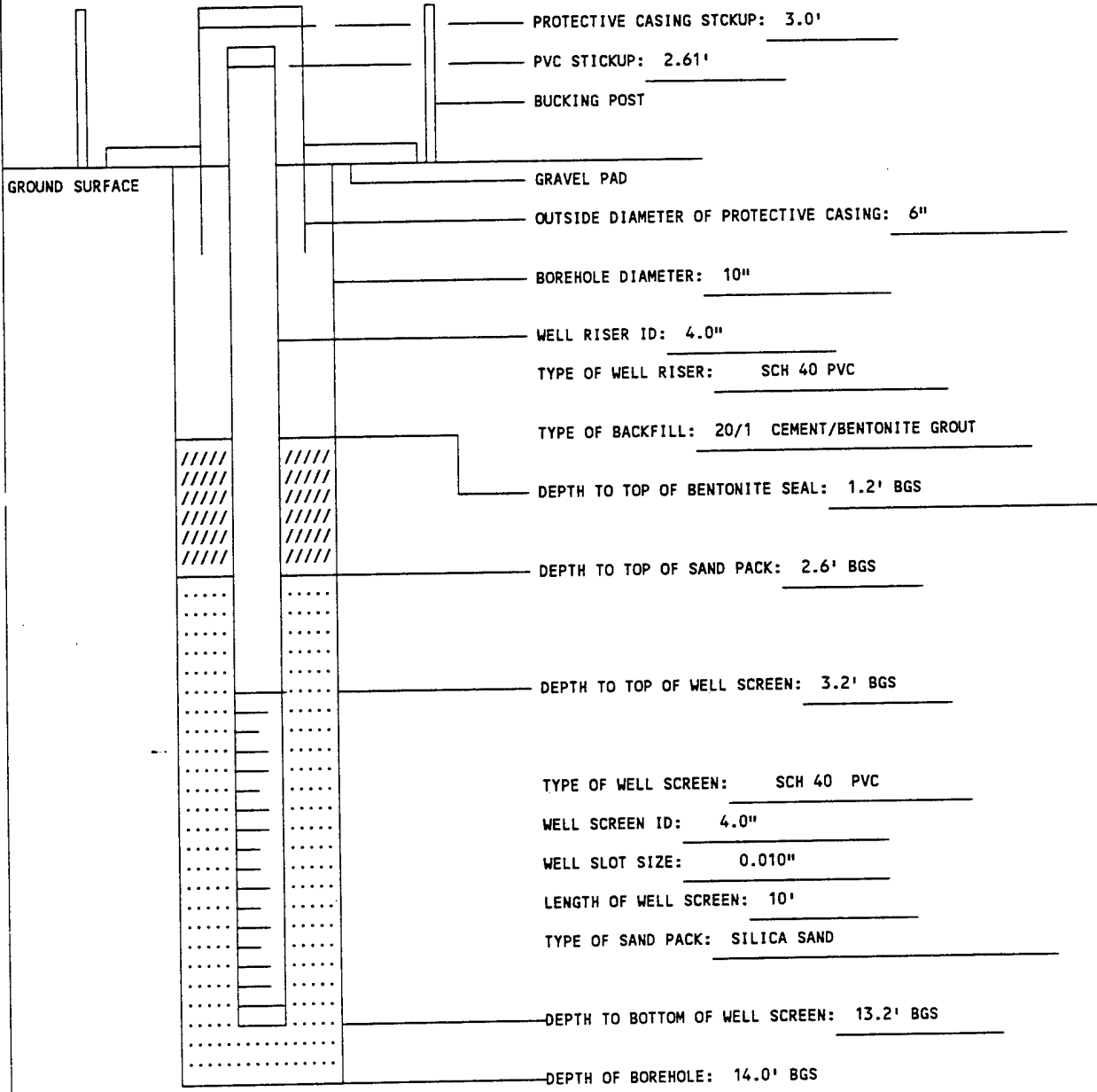


ABB ENVIRONMENTAL SERVICES, INC.

WELL INSTALLATION DIAGRAM

WELL NO.: 41M-92-01X

PROJECT NAME: FORT DEVENS 2+7

DATE INSTALLED: 8-27-92

PROJECT NO.: 7005-04

DRILLING METHOD: HSA

WATER LEVEL: 22.0' BGS

GROUND ELEVATION: 246.9'

CASING ID: 6.25"

DATE: 3-30-93

WELL CASING ELEVATION: 249.58'

RIG GEOLOGIST: P. BOLMER

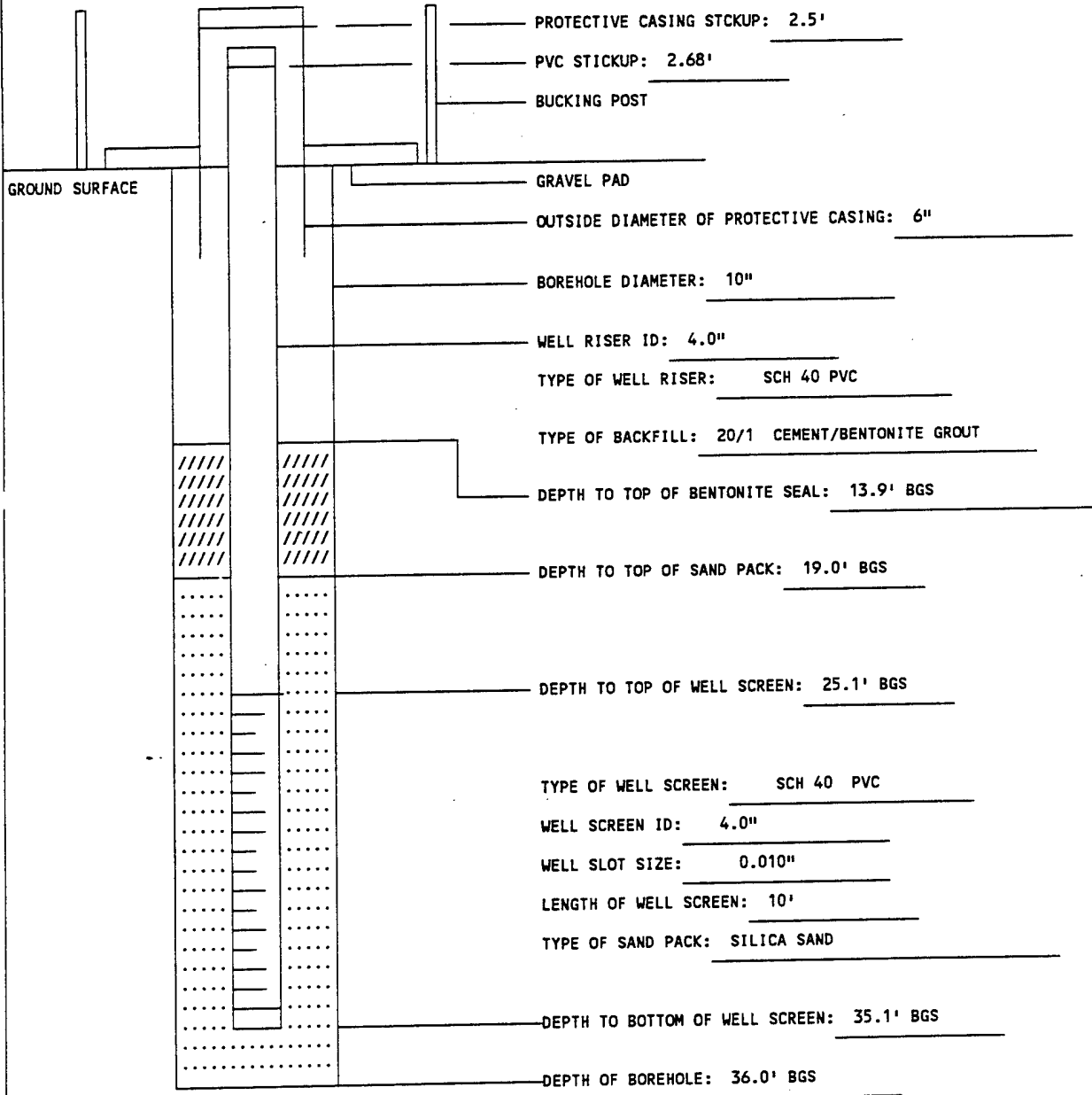
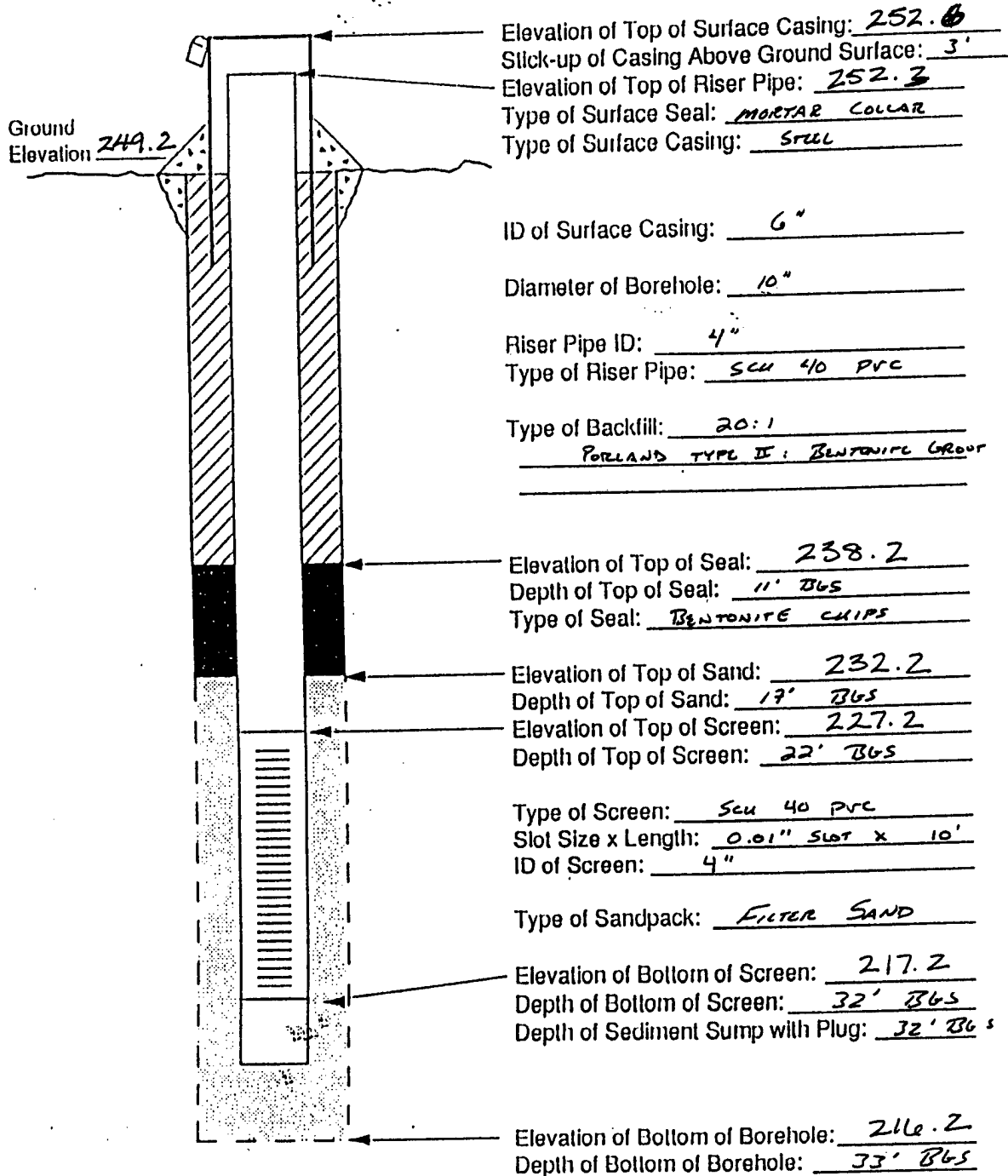


ABB ENVIRONMENTAL SERVICES, INC.

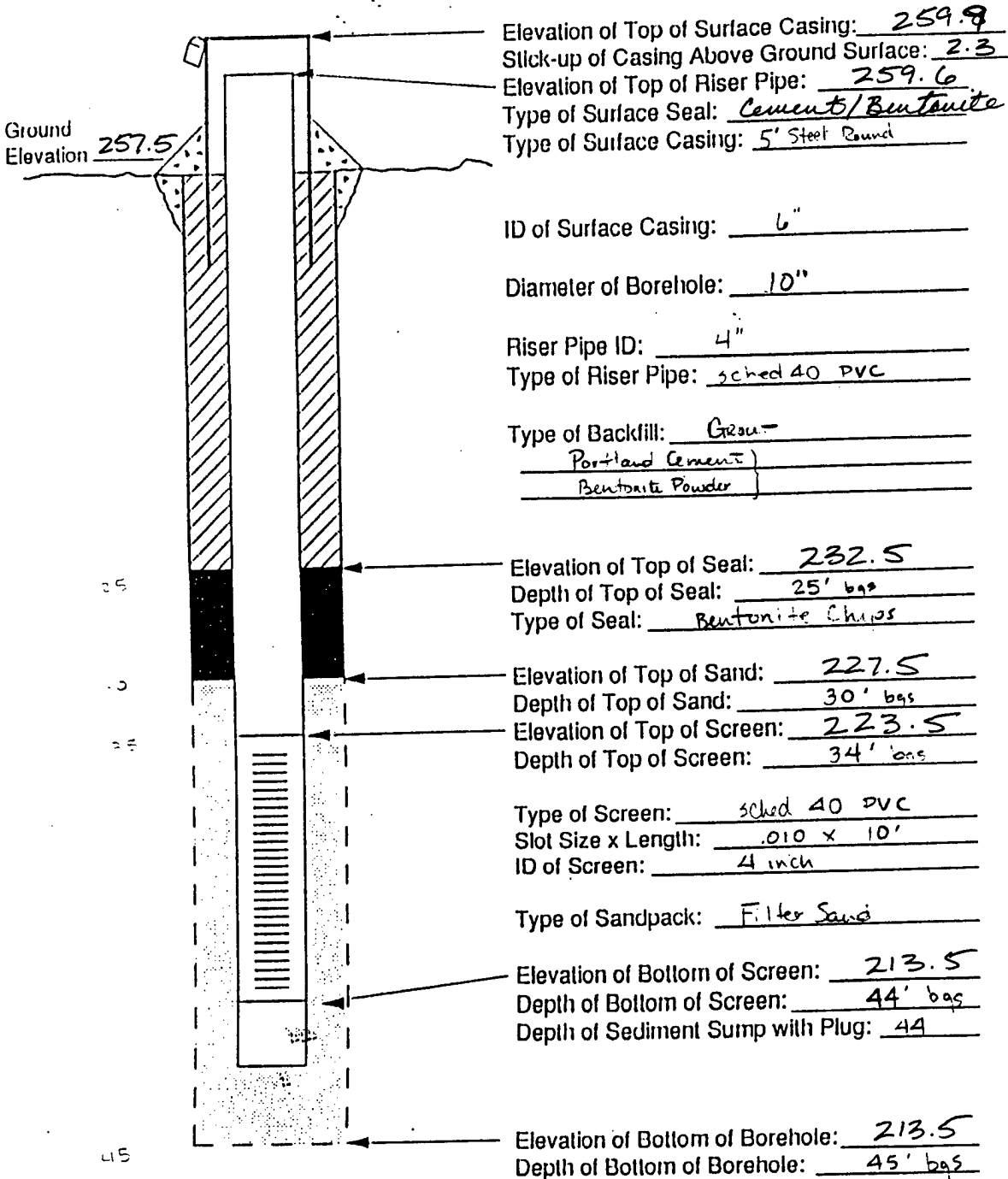
MONITORING WELL CONSTRUCTION DIAGRAM

Project Fort Devens Study Area 41 Driller J. GARSDIE
 Project No. 7053-04 Boring No. 41M-93-028 Drilling Method HSA 6 1/4"
 Date Installed 9.17.93 Development Method Pump + Surge
 Field Geologist DINSMORE, RUSTAD



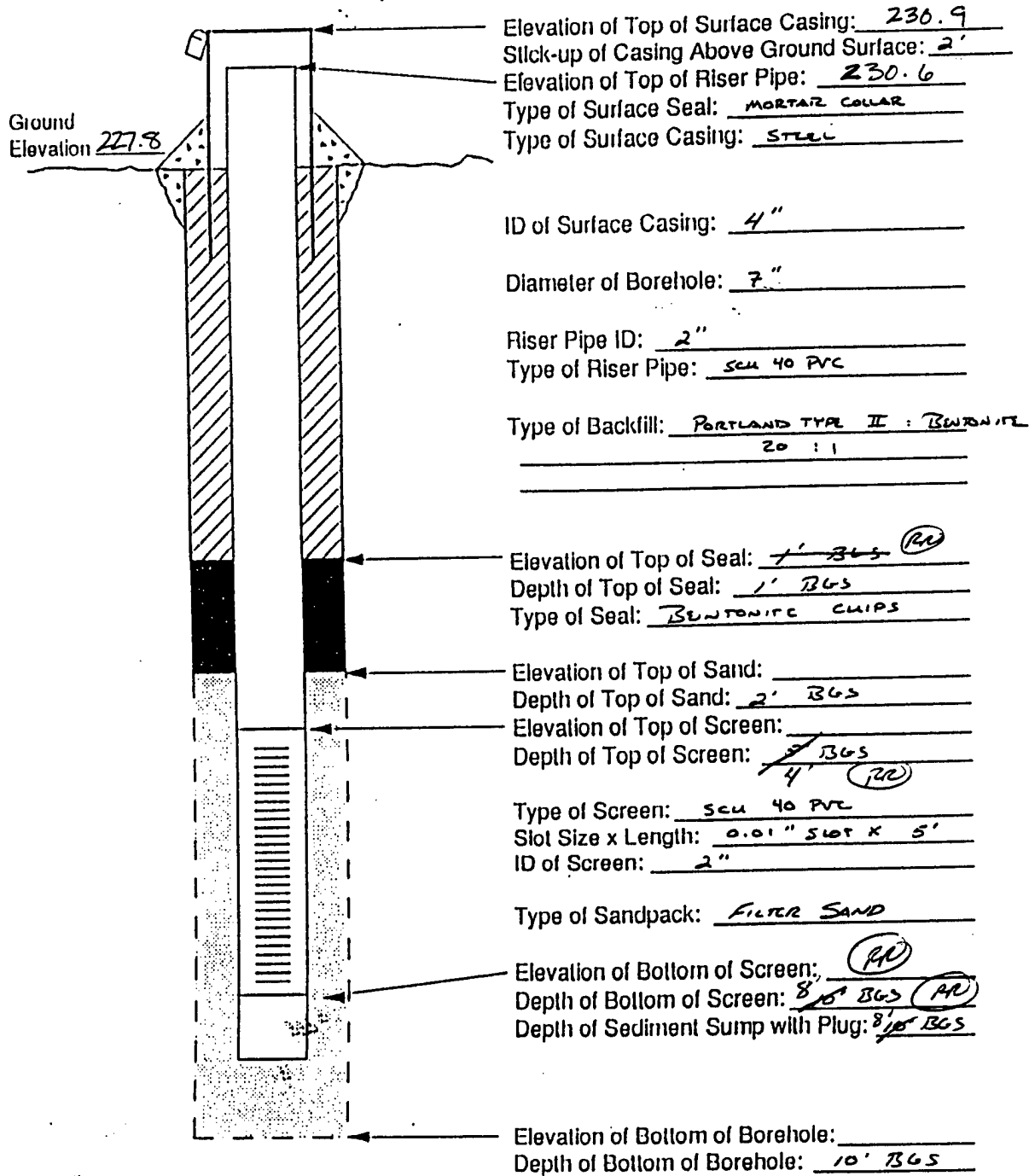
MONITORING WELL CONSTRUCTION DIAGRAM

Project Fort Devens Study Area SA 41 Driller NHB J Garside (B-47)
 Project No. 07053.10 Boring No. 41M-93-03x Drilling Method HSA 6.25" 10
 Date Installed 9.16.93 Development Method _____
 Field Geologist K. Nelson



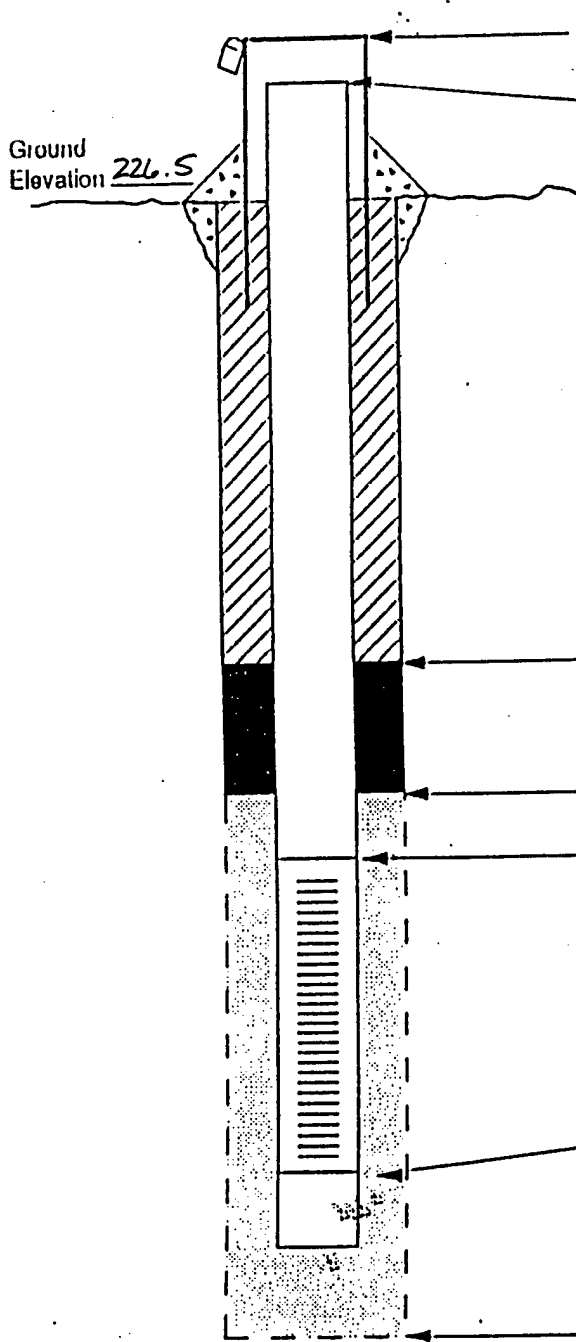
MONITORING WELL CONSTRUCTION DIAGRAM

Project Fort Devens Study Area 41M Driller J. GARSIDE
 Project No. 07053-10 Boring No. 41M-93-04X Drilling Method 4 1/4 HSA
 Date Installed 9-17-93 Development Method _____
 Field Geologist DINSMORE



MONITORING WELL CONSTRUCTION DIAGRAM

Project Fort Devens Study Area 41M Driller J. GARSDIE
 Project No. 07053-04 Boring No. 41M-93-05X Drilling Method 4 1/4 HSA
 Date Installed 9-17-93 Development Method _____
 Field Geologist DINSMORE



Elevation of Top of Surface Casing: 230.18
 Stick-up of Casing Above Ground Surface: 2.5'
 Elevation of Top of Riser Pipe: 230.1
 Type of Surface Seal: MORTAR COLLAR
 Type of Surface Casing: STEEL

ID of Surface Casing: 3"

Diameter of Borehole: 7"

Riser Pipe ID: 2"
 Type of Riser Pipe: SCU 40 PVC

Type of Backfill: 20:1
PORTLAND TYPE II BENTONITE

Elevation of Top of Seal: 225.5
 Depth of Top of Seal: 1' BGS
 Type of Seal: BENTONITE CHIPS

Elevation of Top of Sand: 224.5
 Depth of Top of Sand: 2' BGS
 Elevation of Top of Screen: _____
 Depth of Top of Screen: 8' BGS
4' RR

Type of Screen: SCU 40 PVC
 Slot Size x Length: 0.01" slot x 5'
 ID of Screen: 2"

Type of Sandpack: FILTER SAND

Elevation of Bottom of Screen: (RR) 222.5
 Depth of Bottom of Screen: 4' BGS
 Depth of Sediment Sump with Plug: 10' BGS
(RR) 212.5

Elevation of Bottom of Borehole: (RR) 216.5
 Depth of Bottom of Borehole: 10' BGS

WELL INSTALLATION DIAGRAM

WELL NO.: XDM-93-01X

PROJECT NAME: Fort Devens

DATE INSTALLED: 8-12-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA

WATER LEVEL: 6.7'

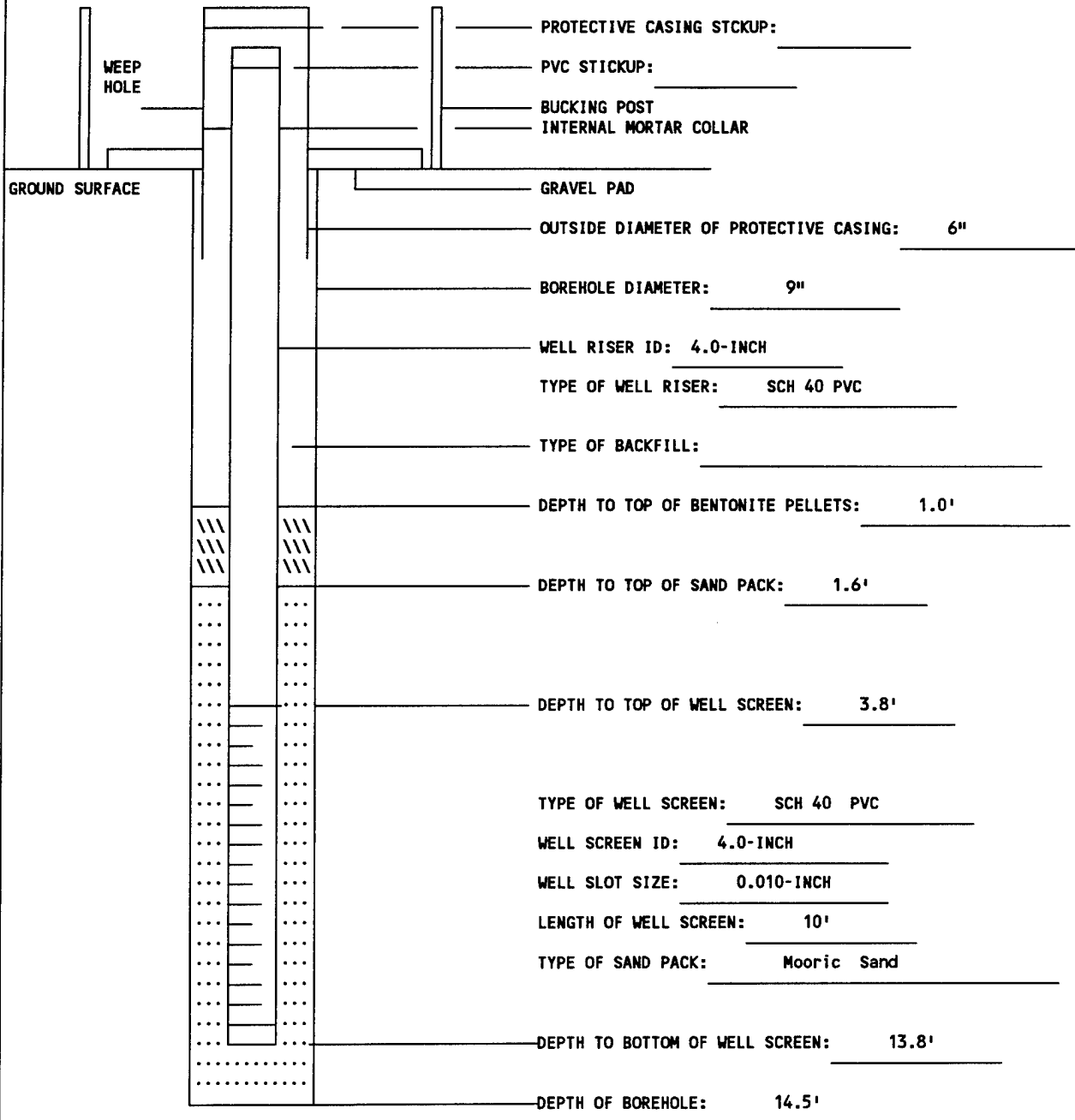
GROUND ELEVATION: 331.75

CASING ID: 6"

DATE: 8-12-93

WELL CASING ELEVATION: 331.29

RIG GEOLOGIST: P.Bolmer



WELL INSTALLATION DIAGRAM

WELL NO.: XDM-93-02X

PROJECT NAME: Fort Devens

DATE INSTALLED: 8-13-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA

WATER LEVEL: 6.8'

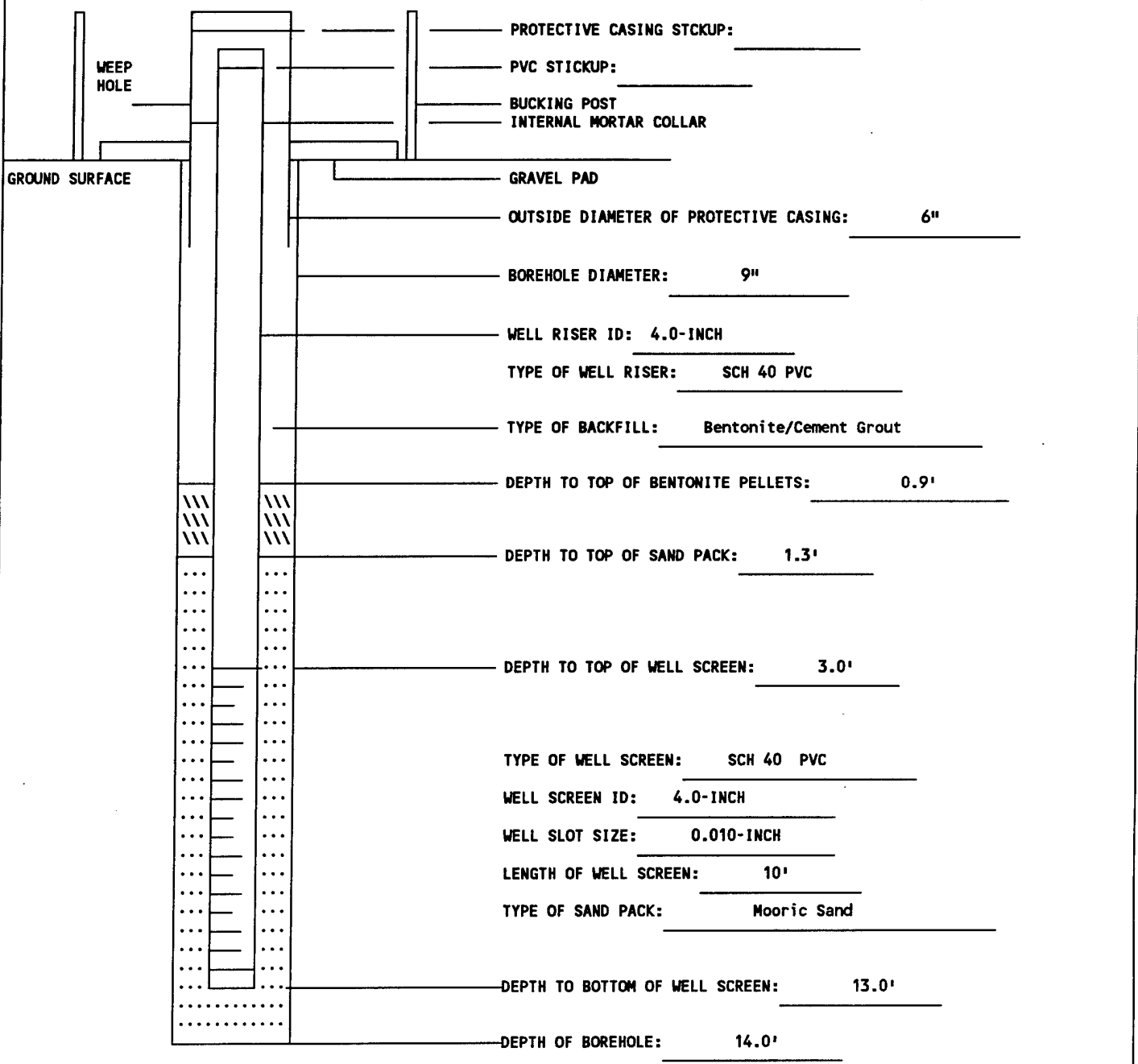
GROUND ELEVATION: 331.87

CASING ID: 6.625"

DATE: 8-13-93

WELL CASING ELEVATION: _____

RIG GEOLOGIST: P.Bolmer



WELL INSTALLATION DIAGRAM

WELL NO.: XDM-93-03X

PROJECT NAME: Fort Devens

DATE INSTALLED: 8-12-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA

WATER LEVEL: 8.4'

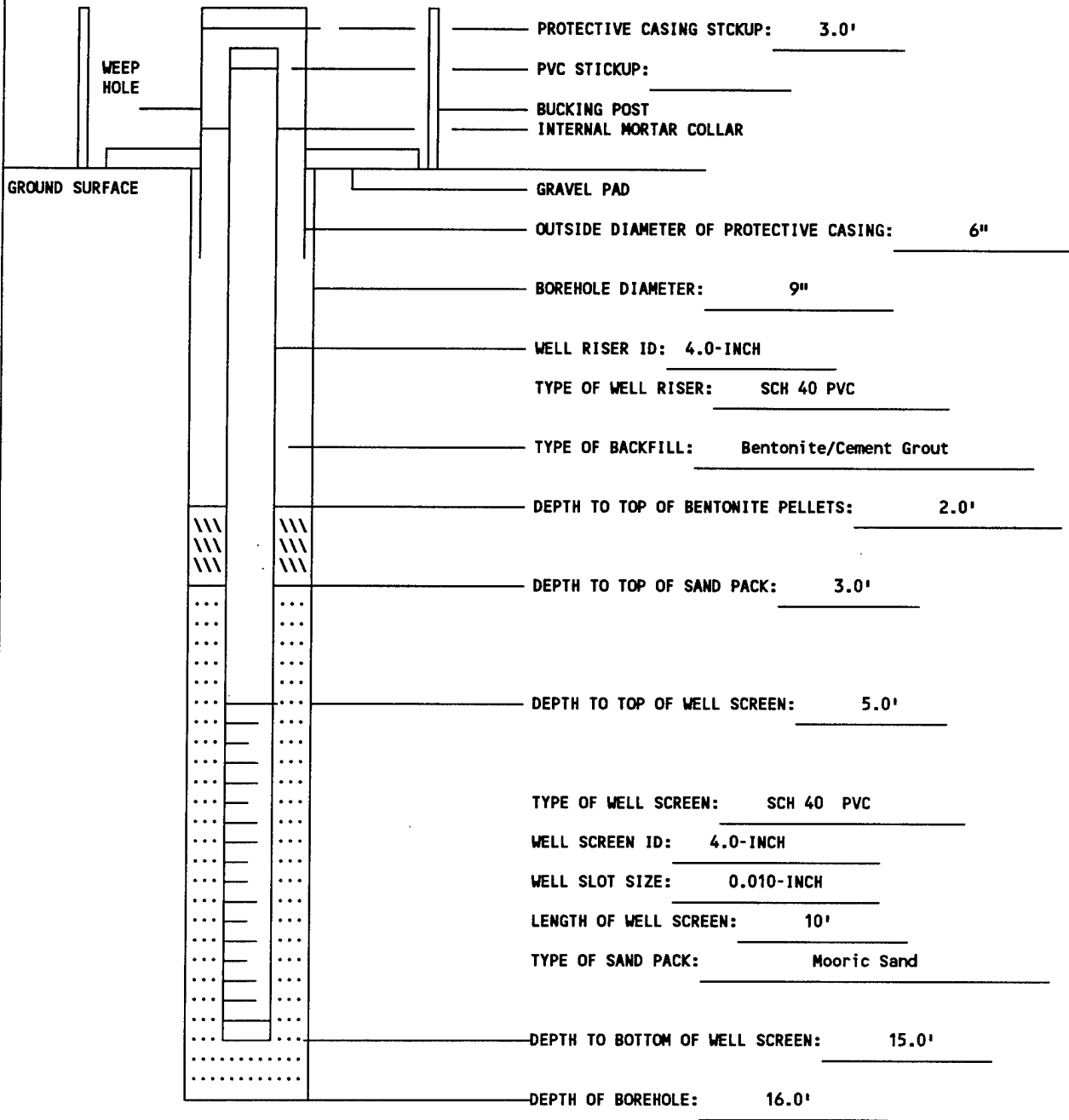
GROUND ELEVATION: 332.87

CASING ID: 6.625"

DATE: 8-12-93

WELL CASING ELEVATION: 334.6

RIG GEOLOGIST: P. Bolmer



WELL INSTALLATION DIAGRAM

WELL NO.: XDM-93-04X

PROJECT NAME: Fort Devens

DATE INSTALLED: 8-12-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA

WATER LEVEL: 8.5'

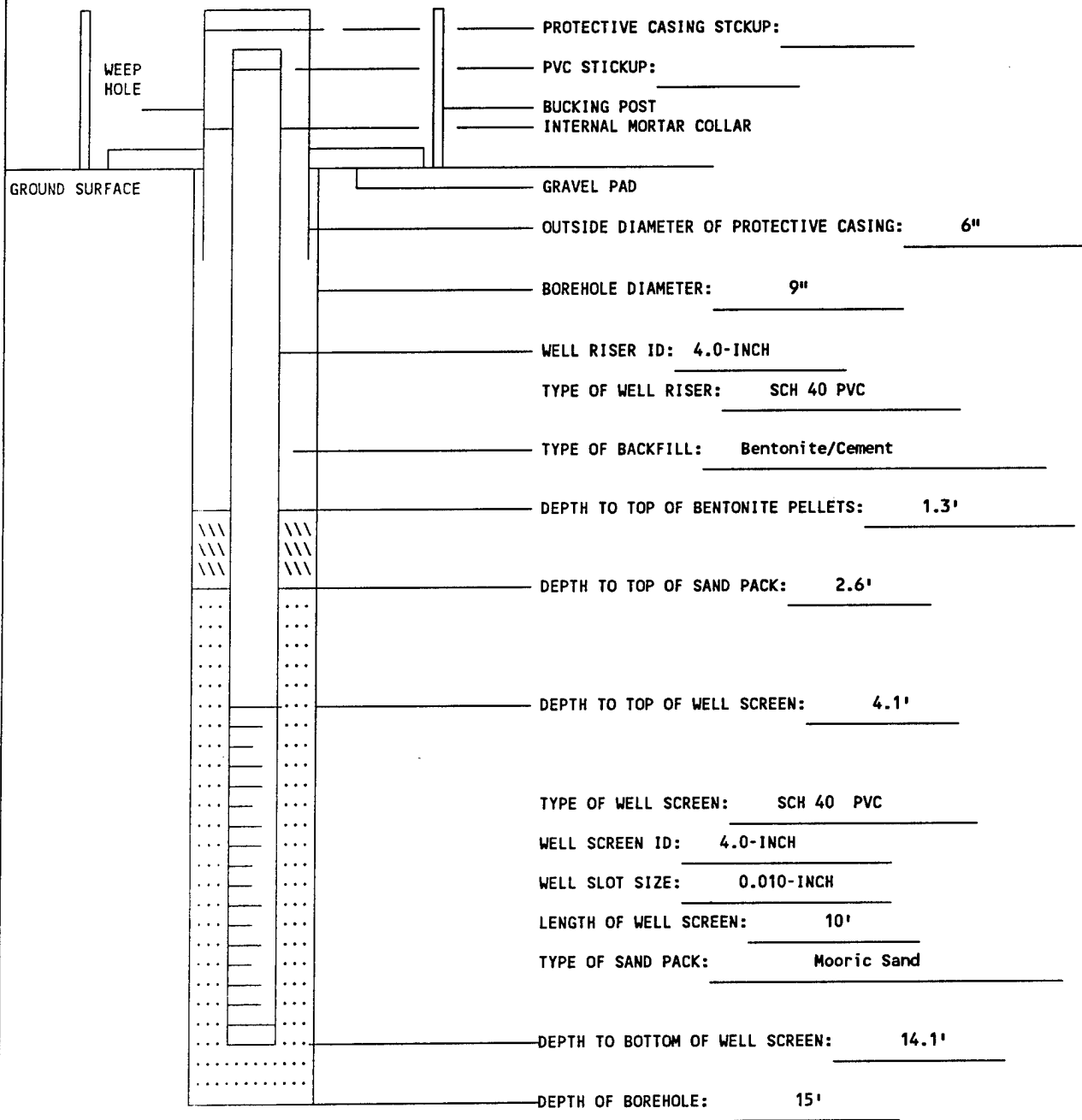
GROUND ELEVATION: _____

CASING ID: 6.625"

DATE: 8-12-93

WELL CASING ELEVATION: _____

RIG GEOLOGIST: P.Bolmer



WELL INSTALLATION DIAGRAM

WELL NO.: XGM-93-01X

PROJECT NAME: Fort Devens

DATE INSTALLED: 8-5-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA/DNW

WATER LEVEL: _____

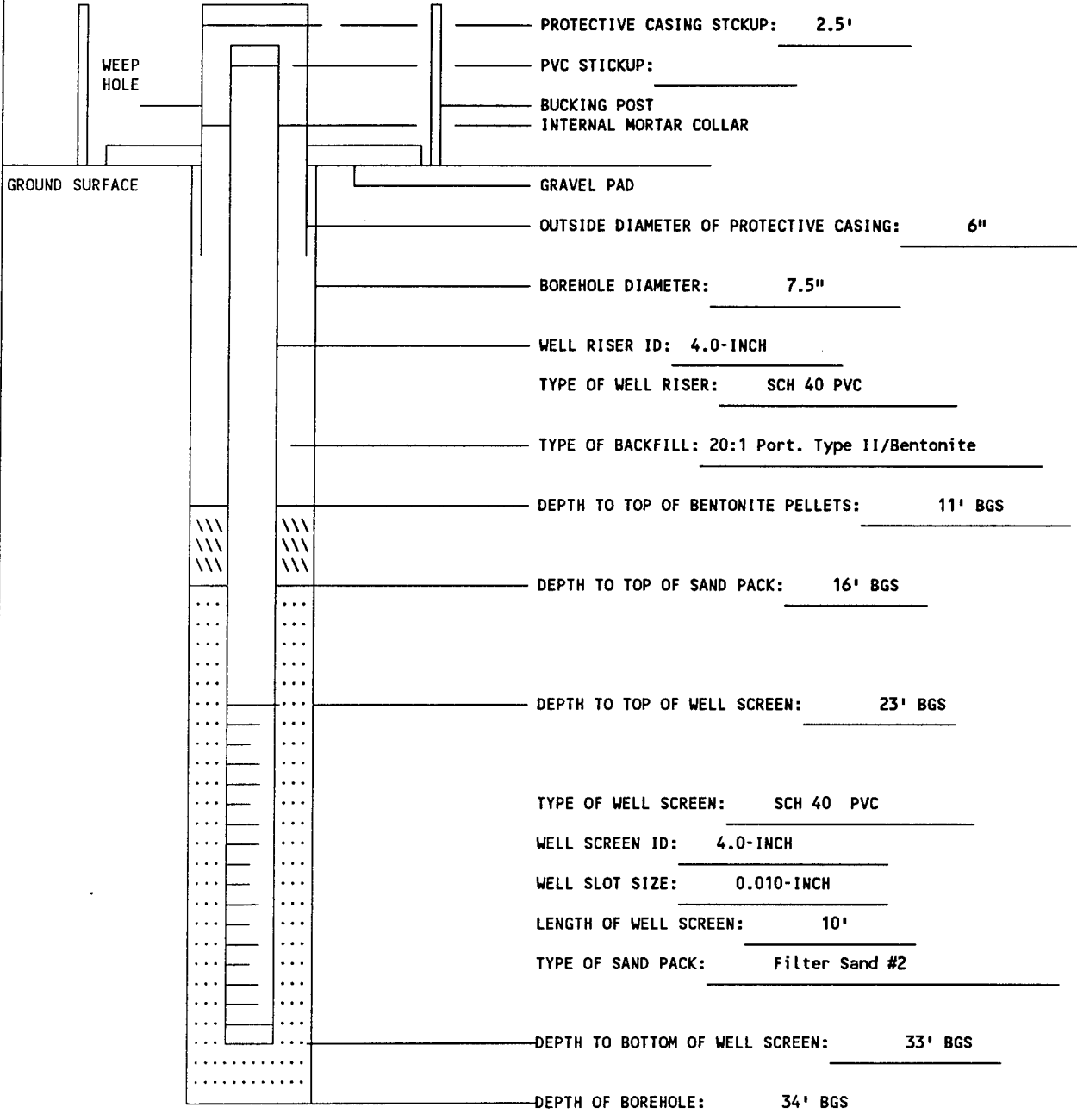
GROUND ELEVATION: 311.5

CASING ID: 4.25"/6"

DATE: 8-5-93

WELL CASING ELEVATION: 313.6

RIG GEOLOGIST: R.Rusted



WELL INSTALLATION DIAGRAM

WELL NO.: XGM-93-02X

PROJECT NAME: Fort Devens

DATE INSTALLED: 8-9-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA

WATER LEVEL: 31.5' BGS

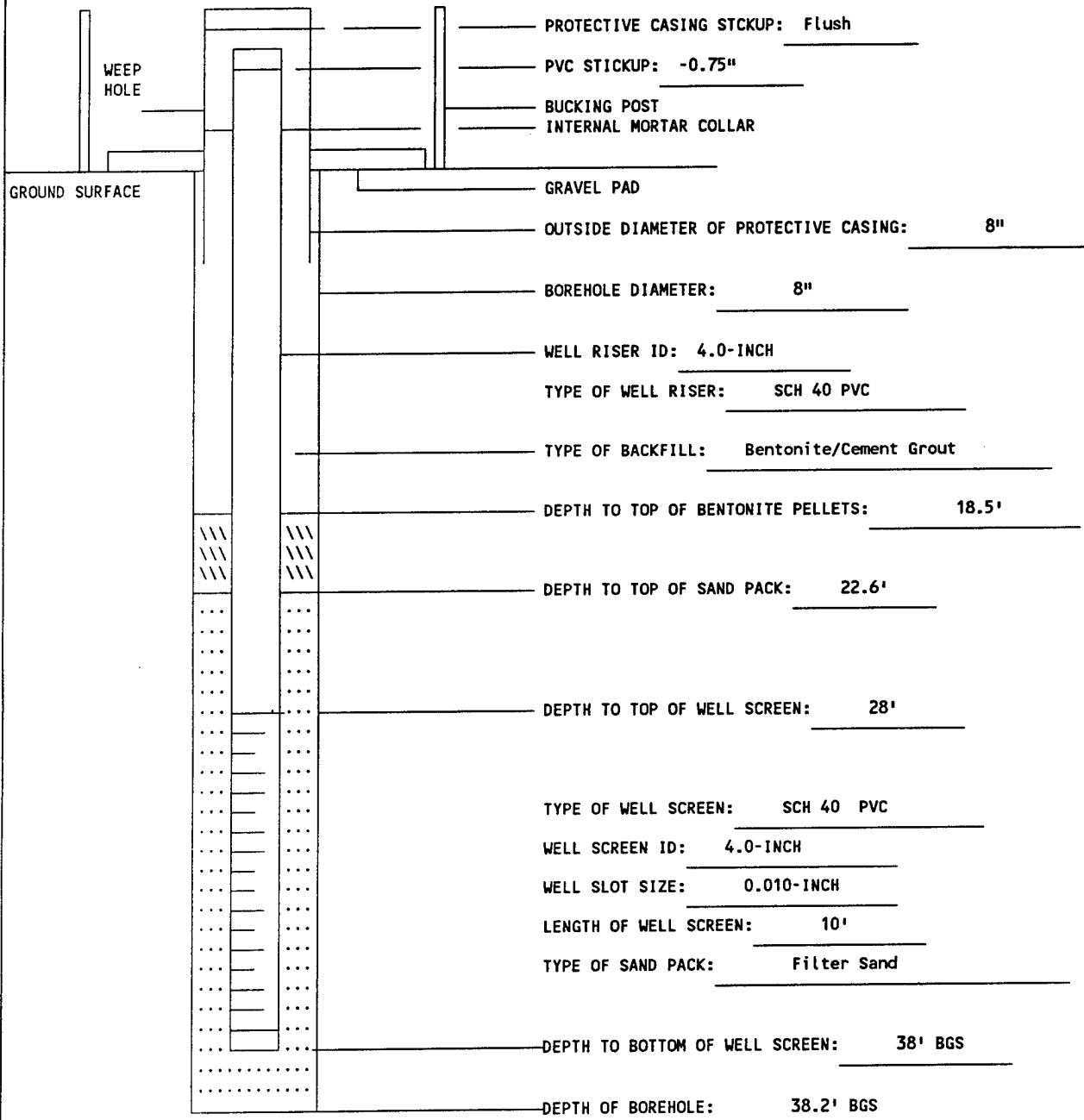
GROUND ELEVATION: 310.2

CASING ID: 4.25"/6.625"

DATE: 8-5-93

WELL CASING ELEVATION: 310.0

RIG GEOLOGIST: R.Rusted



WELL INSTALLATION DIAGRAM

WELL NO.: XIM-93-01X

PROJECT NAME: Fort Devens

DATE INSTALLED: 8-31-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA/ROLLERCON

WATER LEVEL: 28'

GROUND ELEVATION: 323.1

CASING ID: 4.25"/5.625"

DATE: 8-30-93

WELL CASING ELEVATION: 325.3

RIG GEOLOGIST: L.HEALEY

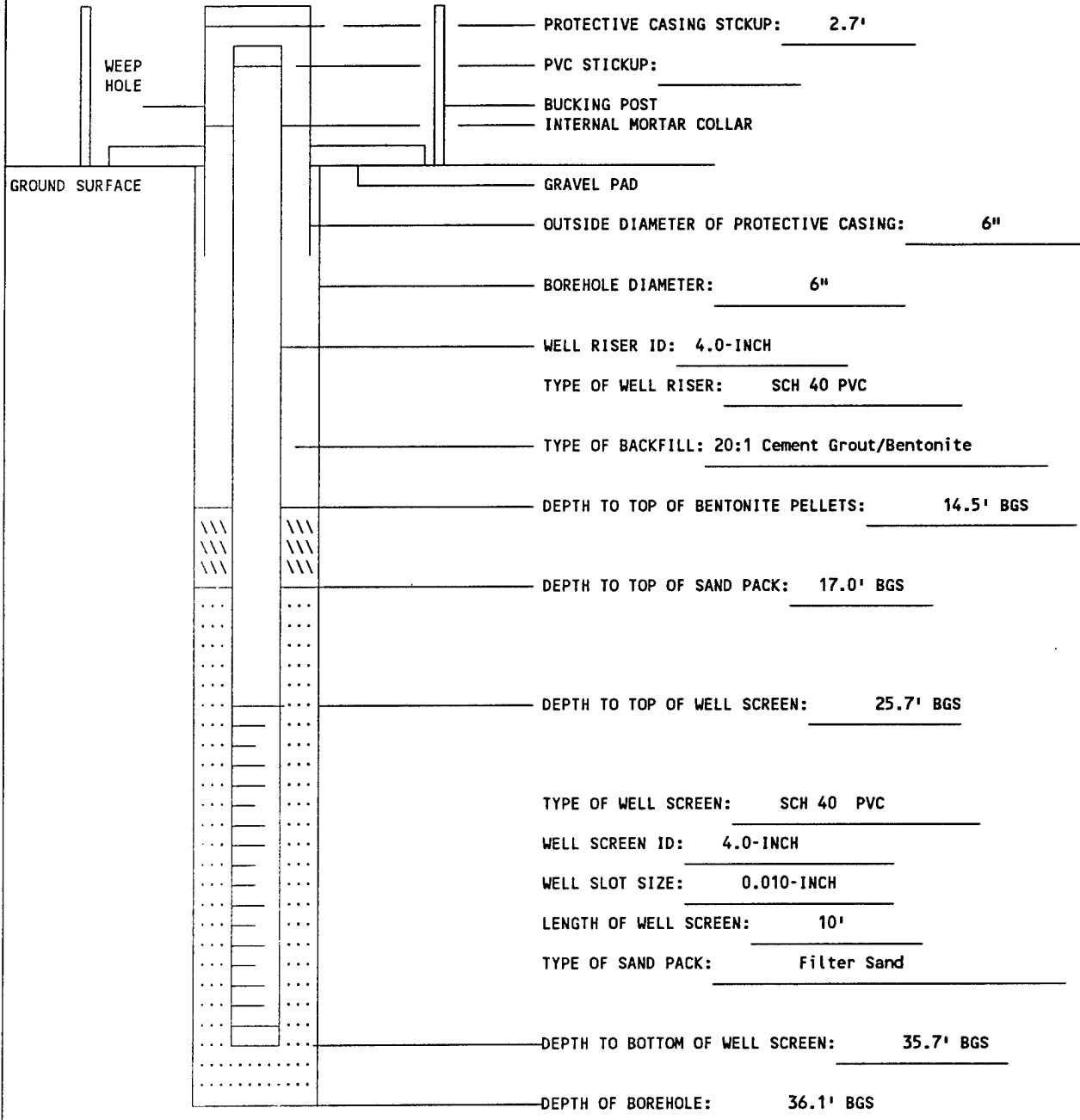


FIGURE A-1

**SCHEMATIC OF OVERBURDEN MONITORING WELL
ABB ENVIRONMENTAL SERVICES, INC.**

WELL INSTALLATION DIAGRAM

WELL NO.: XIM-93-02X

PROJECT NAME: Ft. Devens

DATE INSTALLED: 9-23-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA/rollercone

WATER LEVEL: 33.5 BGS

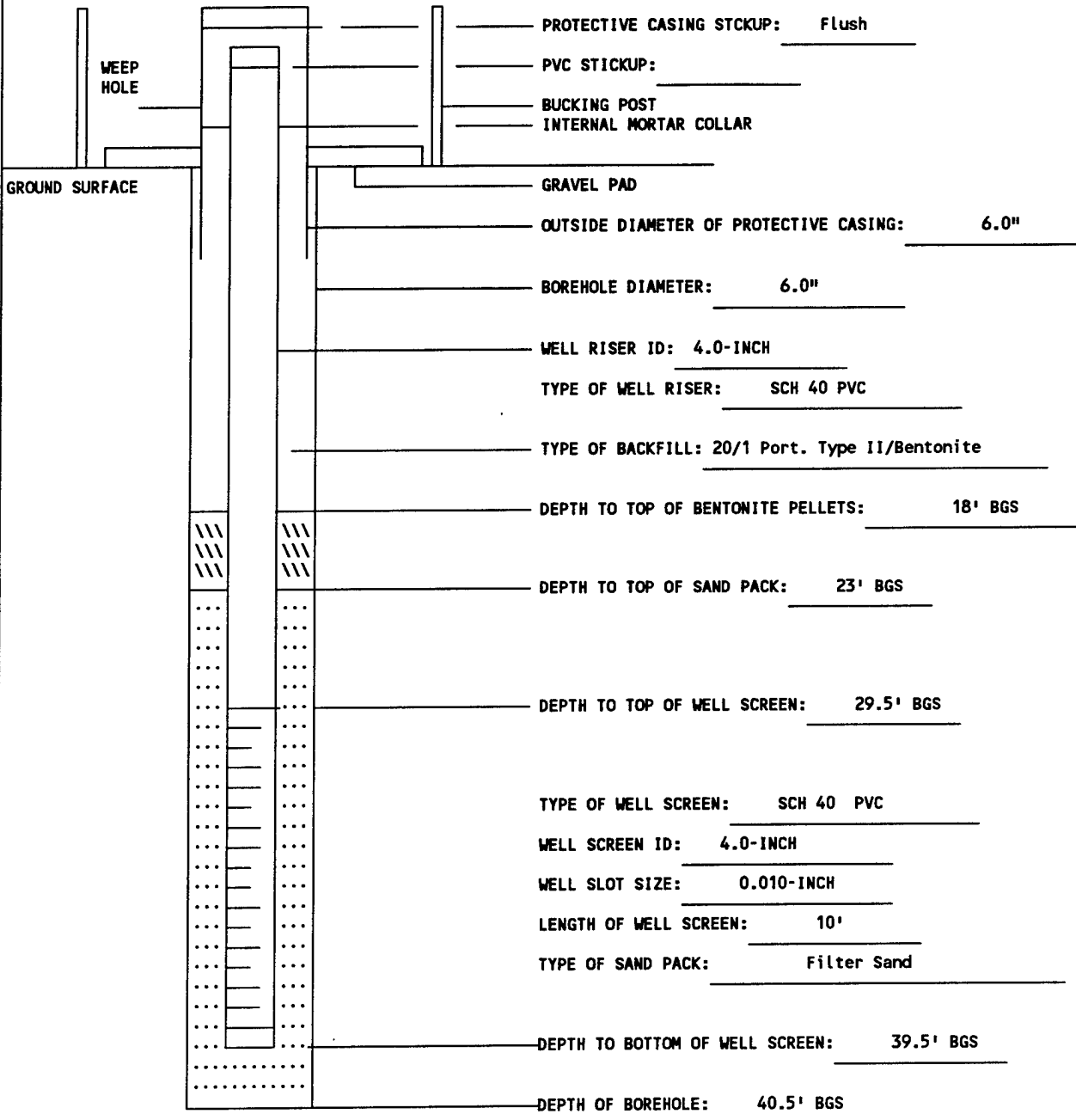
GROUND ELEVATION: 330.4

CASING ID: 4.25"/6.0"

DATE: 9-23-93

WELL CASING ELEVATION: 330.1

RIG GEOLOGIST: J.Snowden



WELL INSTALLATION DIAGRAM

WELL NO.: XIM-93-04X

PROJECT NAME: Fort Devens

DATE INSTALLED: 8-19-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA/ROLLERCON

WATER LEVEL: 42.9'

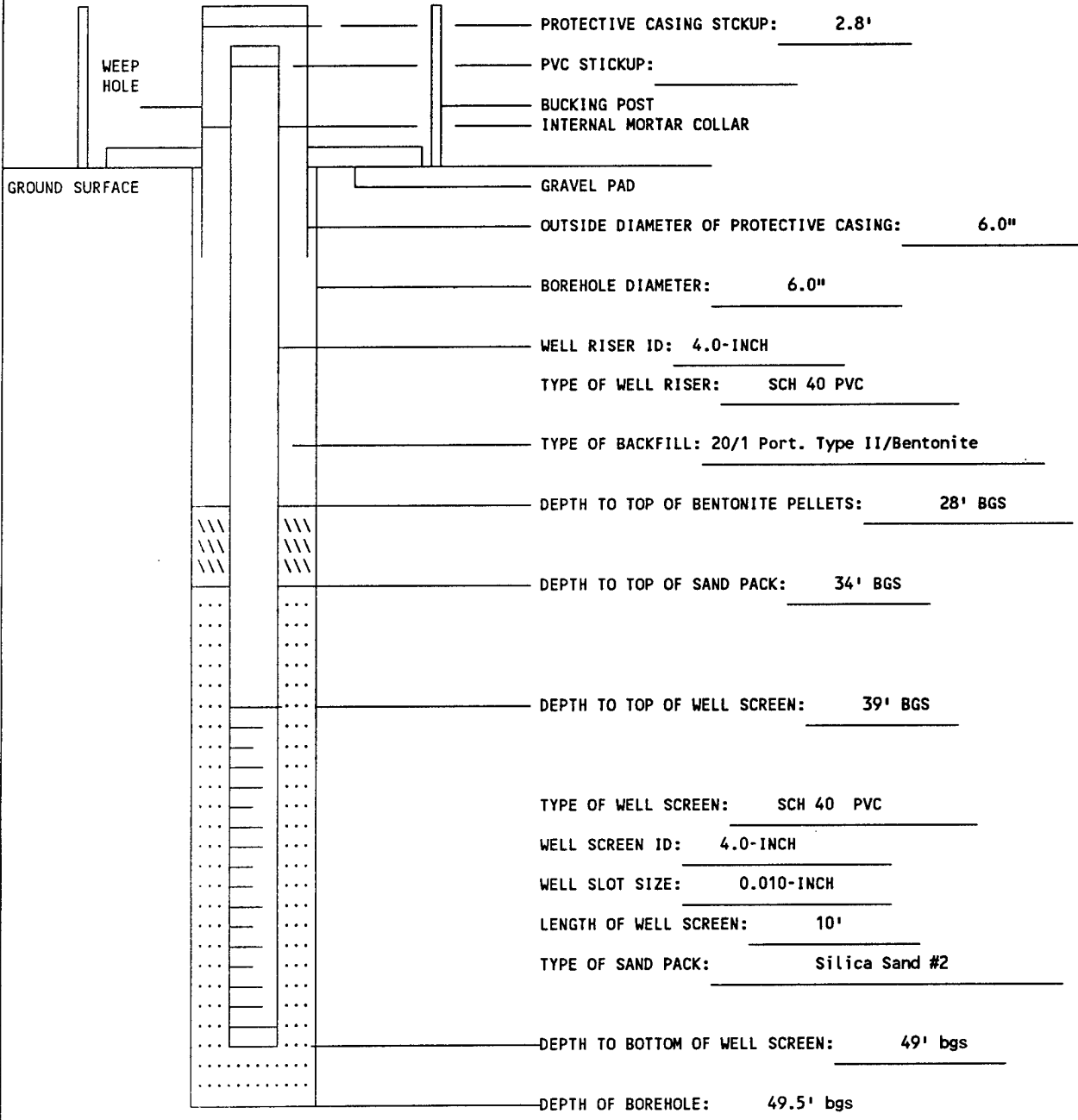
GROUND ELEVATION: 328.9

CASING ID: 6.0"

DATE: 8-19-93

WELL CASING ELEVATION: 331.9

RIG GEOLOGIST: R.Rustad



WELL INSTALLATION DIAGRAM

WELL NO.: XIM-93-05X

PROJECT NAME: Ft. Devens

DATE INSTALLED: 8-24-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA

WATER LEVEL: 22.4' BGS

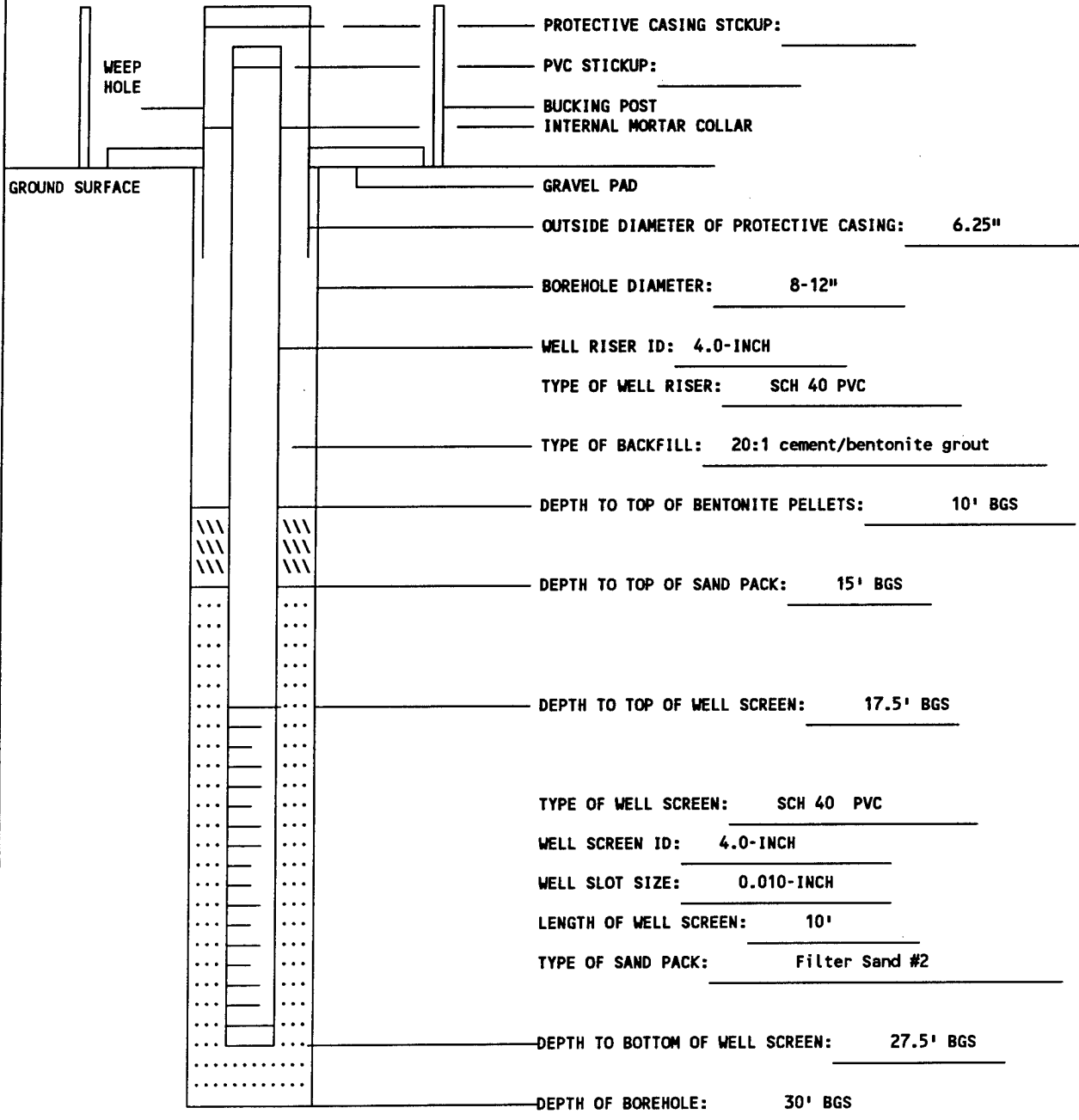
GROUND ELEVATION: 314.8

CASING ID: 4.25"/6.25"

DATE: 8-23-93

WELL CASING ELEVATION: 317.0

RIG GEOLOGIST: L.Healey



WELL INSTALLATION DIAGRAM

WELL NO.: XIM-93-06X

PROJECT NAME: Ft.Devens

DATE INSTALLED: 8-20-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA/HX CORE

WATER LEVEL: 33.5'

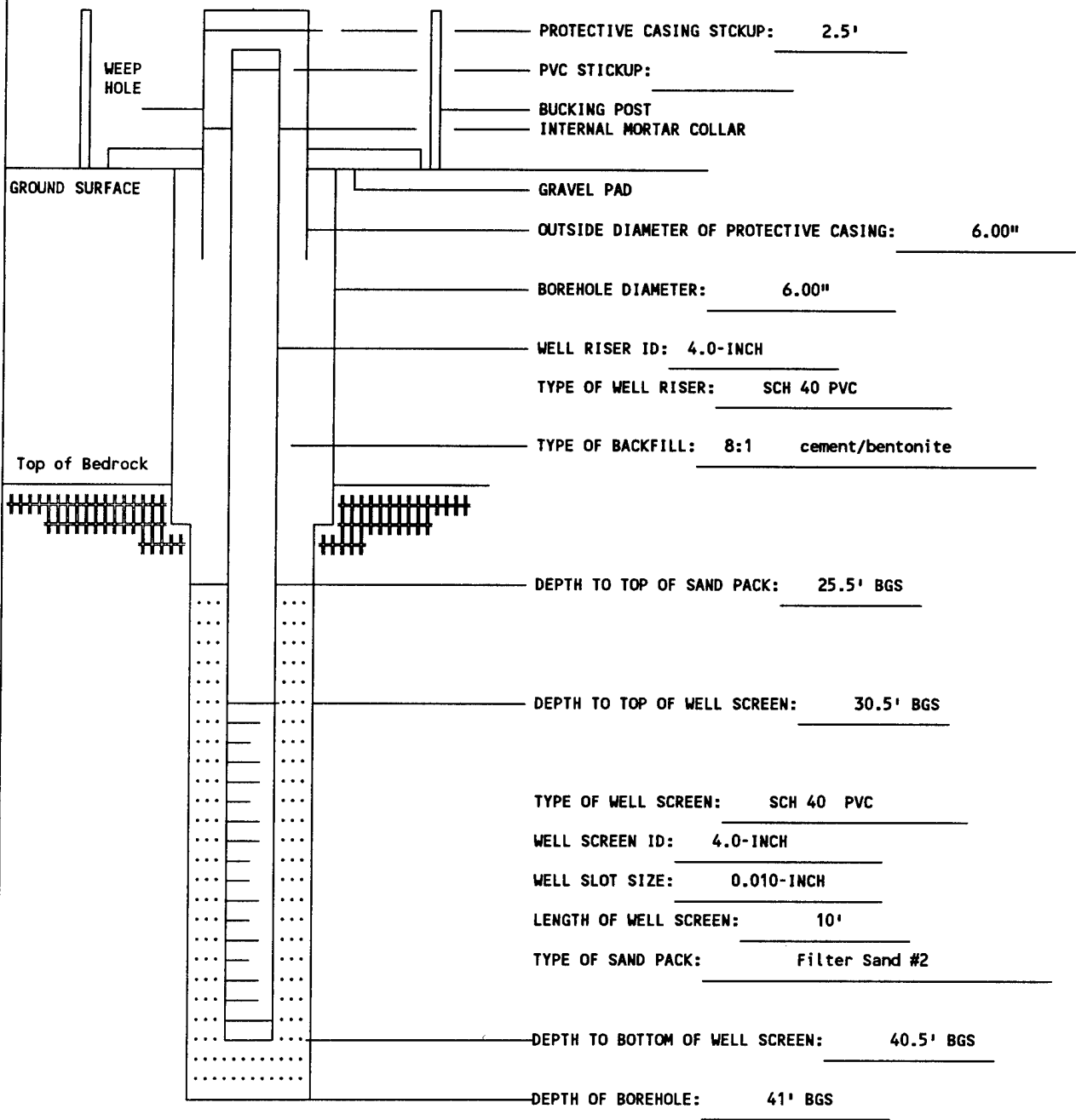
GROUND ELEVATION: 312.8

CASING ID: 6.00"

DATE: 8-20-93

WELL CASING ELEVATION: 315.0

RIG GEOLOGIST: L.Healey



WELL INSTALLATION DIAGRAM

WELL NO.: XJM -93-01X

PROJECT NAME: Ft. Devens

DATE INSTALLED: 8-4-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA

WATER LEVEL: 10.2'

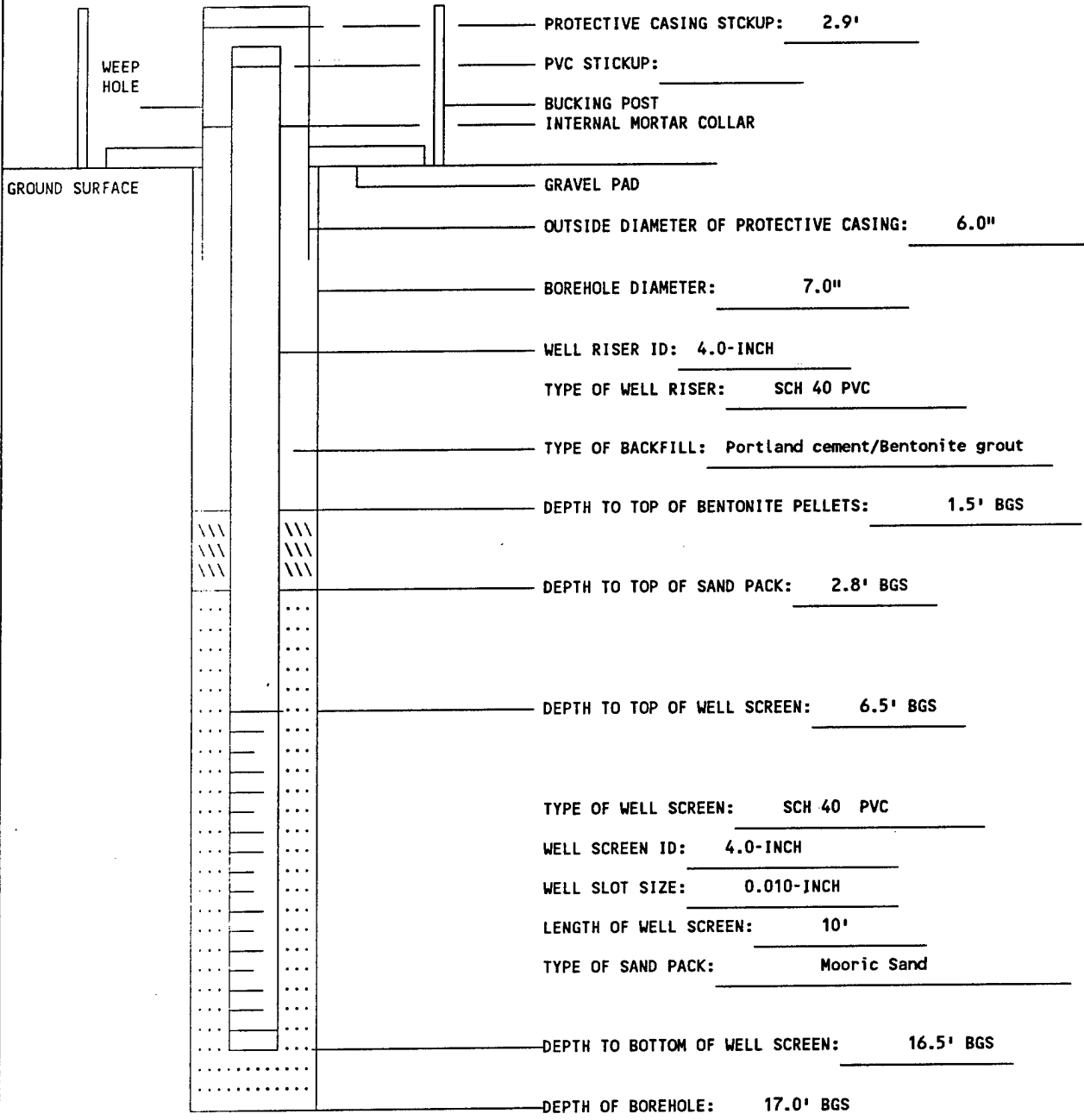
GROUND ELEVATION: 369.2

CASING ID: 4.25"

DATE: 8-4-93

WELL CASING ELEVATION: 370.9

RIG GEOLOGIST: P. Bolmer



WELL INSTALLATION DIAGRAM

WELL NO.: XJM-93-02X

PROJECT NAME: Ft. Devens

DATE INSTALLED: 8-11-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA/Drive and wash

WATER LEVEL: 9.5'

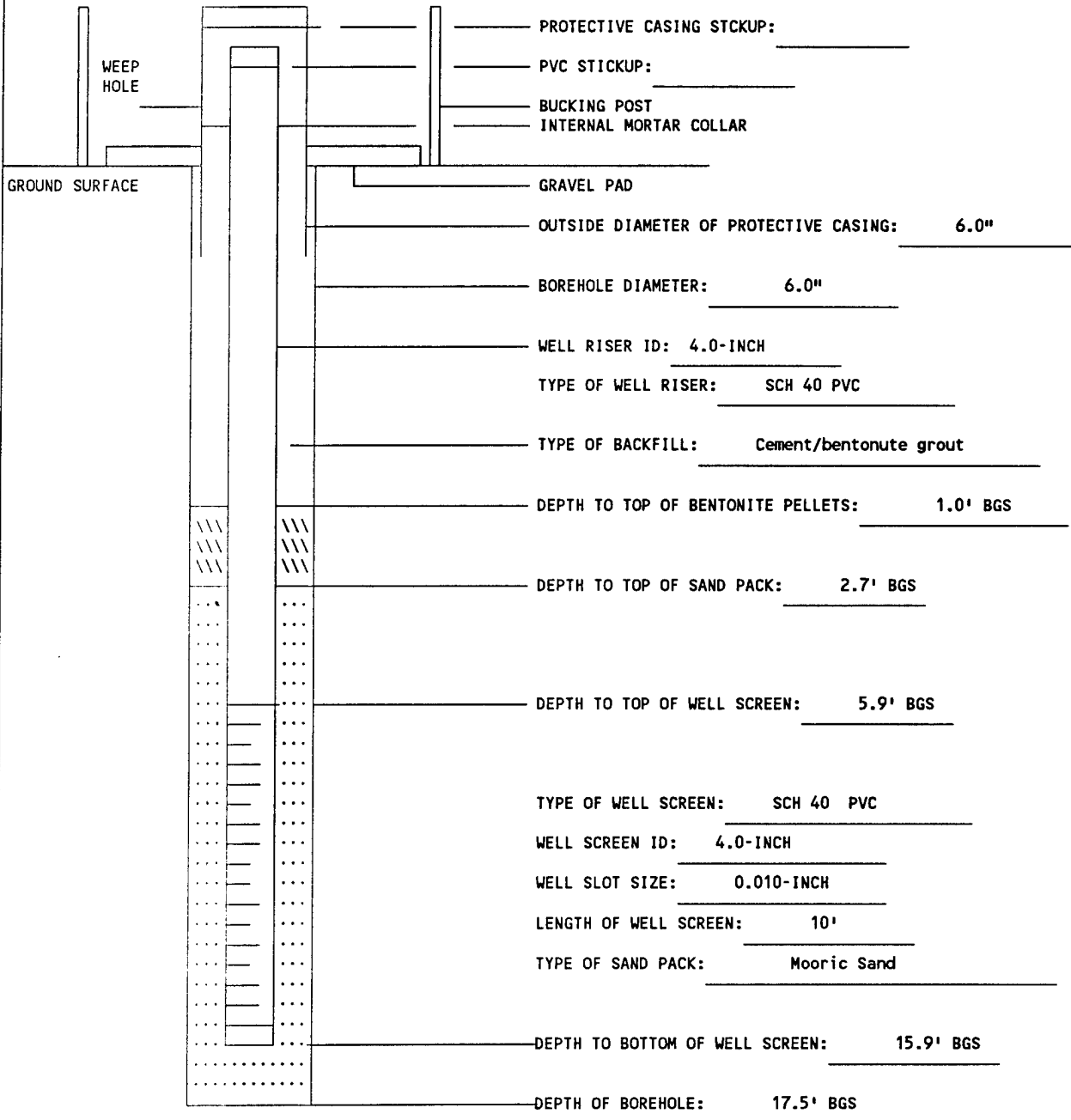
GROUND ELEVATION: 370.8

CASING ID: 6.0"

DATE: 8-11-93

WELL CASING ELEVATION: 370.4

RIG GEOLOGIST: P.Bolmer



WELL INSTALLATION DIAGRAM

WELL NO.: XJM-93003X

PROJECT NAME: Ft. Devens

DATE INSTALLED: 8-5-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA

WATER LEVEL: 9.5' BGS

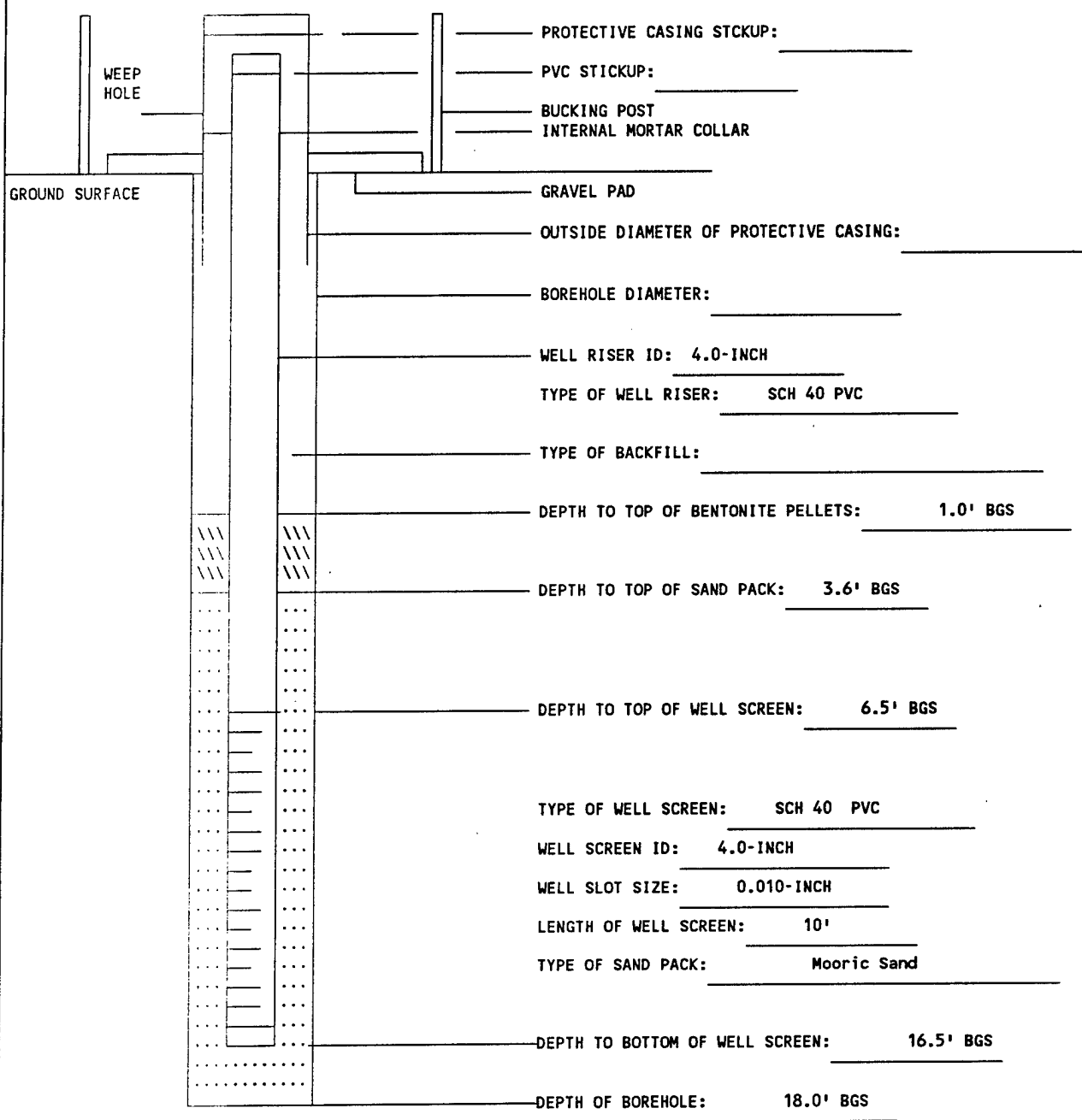
GROUND ELEVATION: 368.3

CASING ID: 4.25"

DATE: 8-5-93

WELL CASING ELEVATION: 367.8

RIG GEOLOGIST: P. Bolmer



WELL INSTALLATION DIAGRAM

WELL NO.: XNM-93-01X

PROJECT NAME: Ft. Devens

DATE INSTALLED: 9-17-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA/Rollercone

WATER LEVEL: 16.0'

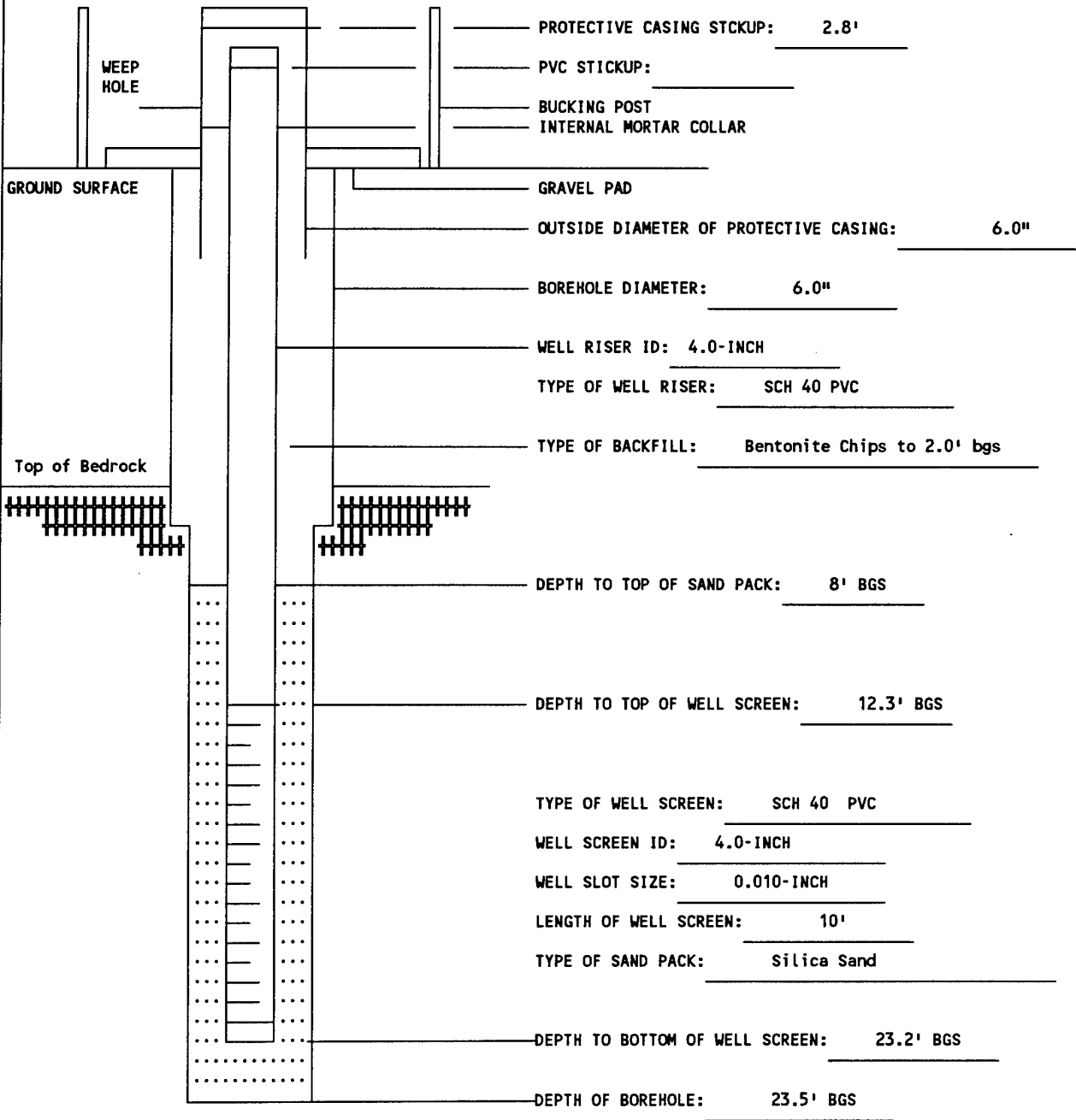
GROUND ELEVATION: 337.3

CASING ID: 4.25"/6.00"

DATE: 9-24-93

WELL CASING ELEVATION: 339.2

RIG GEOLOGIST: L. Nadeau



PROTECTIVE CASING STCKUP: 2.8'

PVC STICKUP: _____

BUCKING POST
INTERNAL MORTAR COLLAR

WEEP HOLE

GROUND SURFACE

GRAVEL PAD

OUTSIDE DIAMETER OF PROTECTIVE CASING: 6.0"

BOREHOLE DIAMETER: 6.0"

WELL RISER ID: 4.0-INCH

TYPE OF WELL RISER: SCH 40 PVC

TYPE OF BACKFILL: Bentonite Chips to 2.0' bgs

Top of Bedrock

DEPTH TO TOP OF SAND PACK: 8' BGS

DEPTH TO TOP OF WELL SCREEN: 12.3' BGS

TYPE OF WELL SCREEN: SCH 40 PVC

WELL SCREEN ID: 4.0-INCH

WELL SLOT SIZE: 0.010-INCH

LENGTH OF WELL SCREEN: 10'

TYPE OF SAND PACK: Silica Sand

DEPTH TO BOTTOM OF WELL SCREEN: 23.2' BGS

DEPTH OF BOREHOLE: 23.5' BGS

WELL INSTALLATION DIAGRAM

WELL NO.: XNM-93-02X

PROJECT NAME: Ft.Devens

DATE INSTALLED: 9-24-93

PROJECT NO.: 7053-10

DRILLING METHOD:HSA/Rollercone

WATER LEVEL: 17.0'

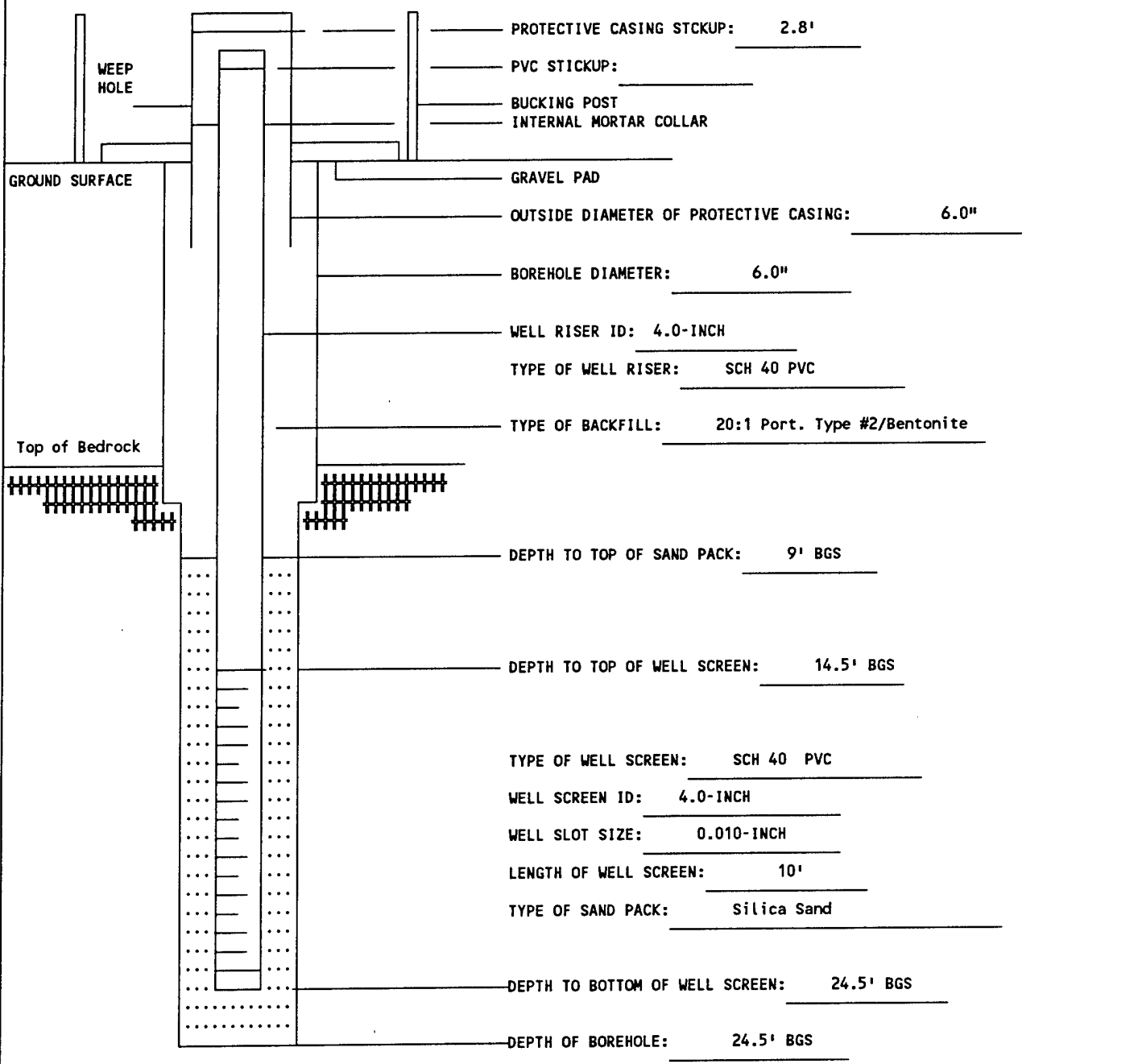
GROUND ELEVATION: 333.8

CASING ID: 4.25"/6.00"

DATE: 9-24-93

WELL CASING ELEVATION: 336.5

RIG GEOLOGIST: L.Nadeau



WELL INSTALLATION DIAGRAM

WELL NO.: XNM-93-03X

PROJECT NAME: Ft. Devens

DATE INSTALLED: 8-12-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA/Rock core

WATER LEVEL: 15.0'

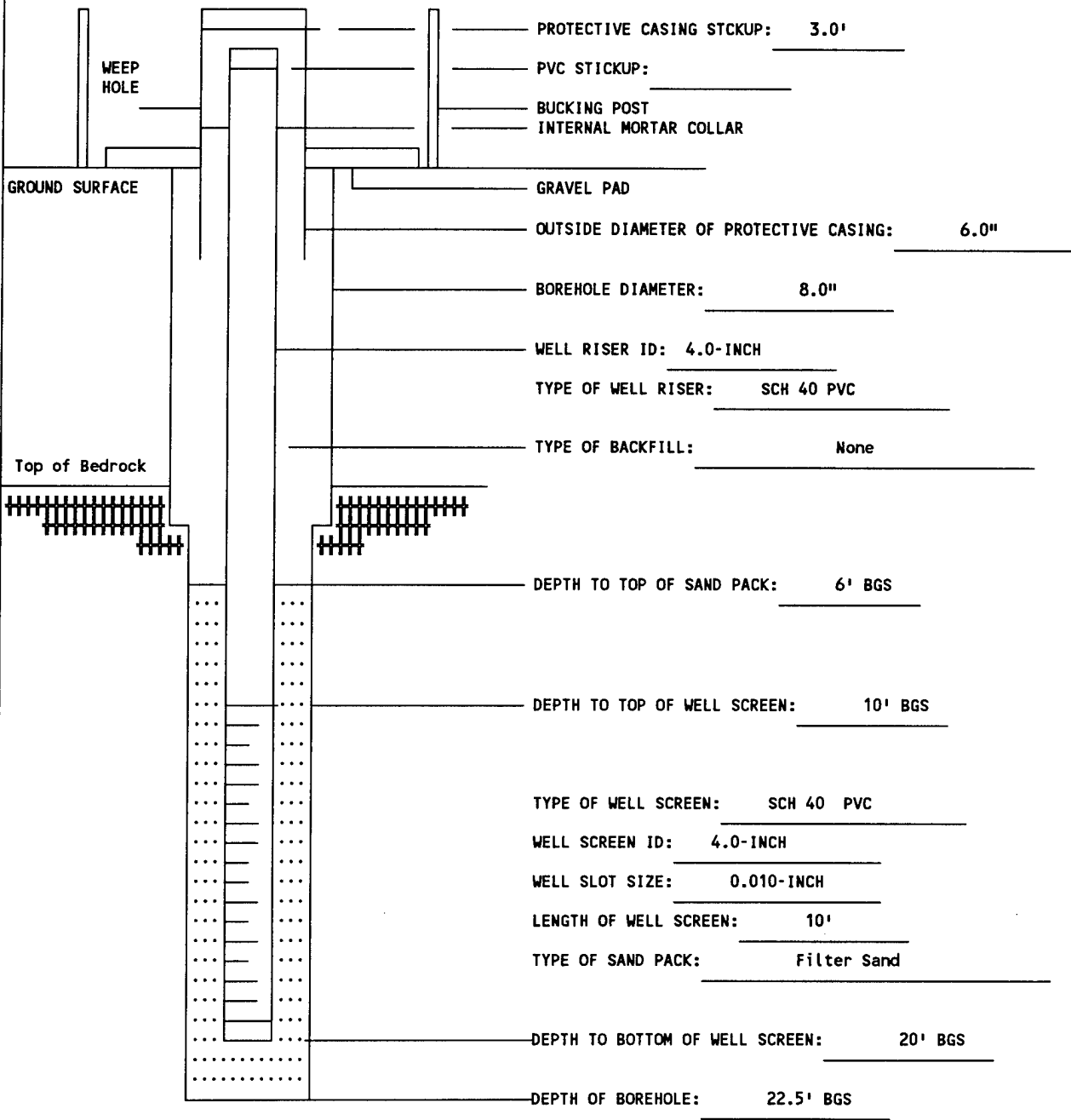
GROUND ELEVATION: 334.4

CASING ID: 6.0"

DATE: 8-12-93

WELL CASING ELEVATION: 336.6

RIG GEOLOGIST: K.Nelson



WELL INSTALLATION DIAGRAM

WELL NO.: XNM-93-04X

PROJECT NAME: Ft. Devens

DATE INSTALLED: 8-10-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA/HX CORE

WATER LEVEL: 12.0'

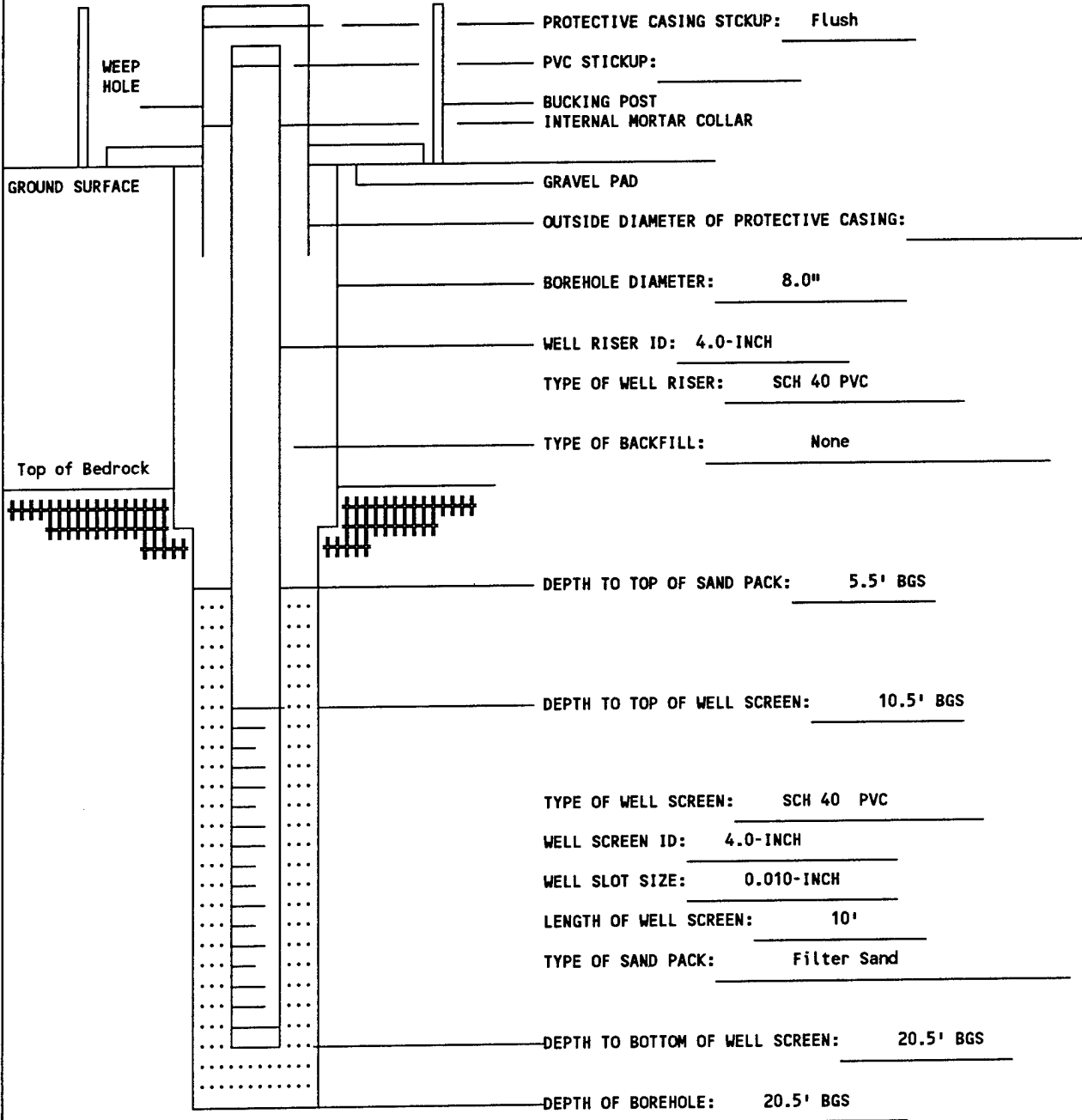
GROUND ELEVATION: 332.9

CASING ID: 6.0"

DATE: 8-10-93

WELL CASING ELEVATION: 332.2

RIG GEOLOGIST: K.Nelson



WELL INSTALLATION DIAGRAM

WELL NO.: XOM-93-03X

PROJECT NAME: Ft. Devens

DATE INSTALLED: 8-26-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA

WATER LEVEL: 11.7'

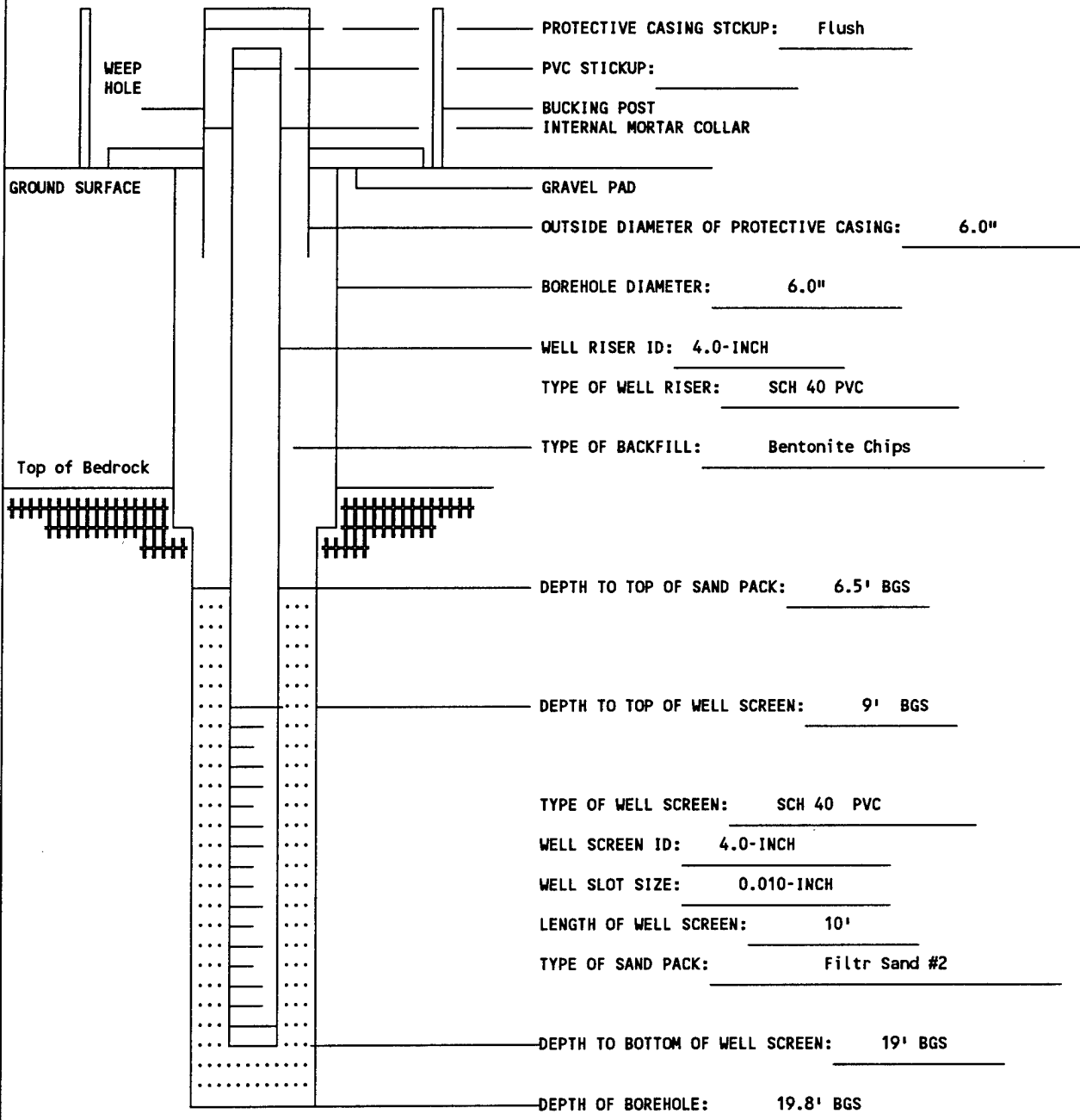
GROUND ELEVATION: 331.9

CASING ID: 6.0"

DATE: 8-27-93

WELL CASING ELEVATION: 331.6

RIG GEOLOGIST: L.Healey



WELL INSTALLATION DIAGRAM

WELL NO.: XOM-93-02X

PROJECT NAME: Ft. Devens

DATE INSTALLED: 8-25-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA

WATER LEVEL: 10.6'

GROUND ELEVATION: 332.9

CASING ID: 6.0"

DATE: 8-27-93

WELL CASING ELEVATION: 332.6

RIG GEOLOGIST: L.Healey

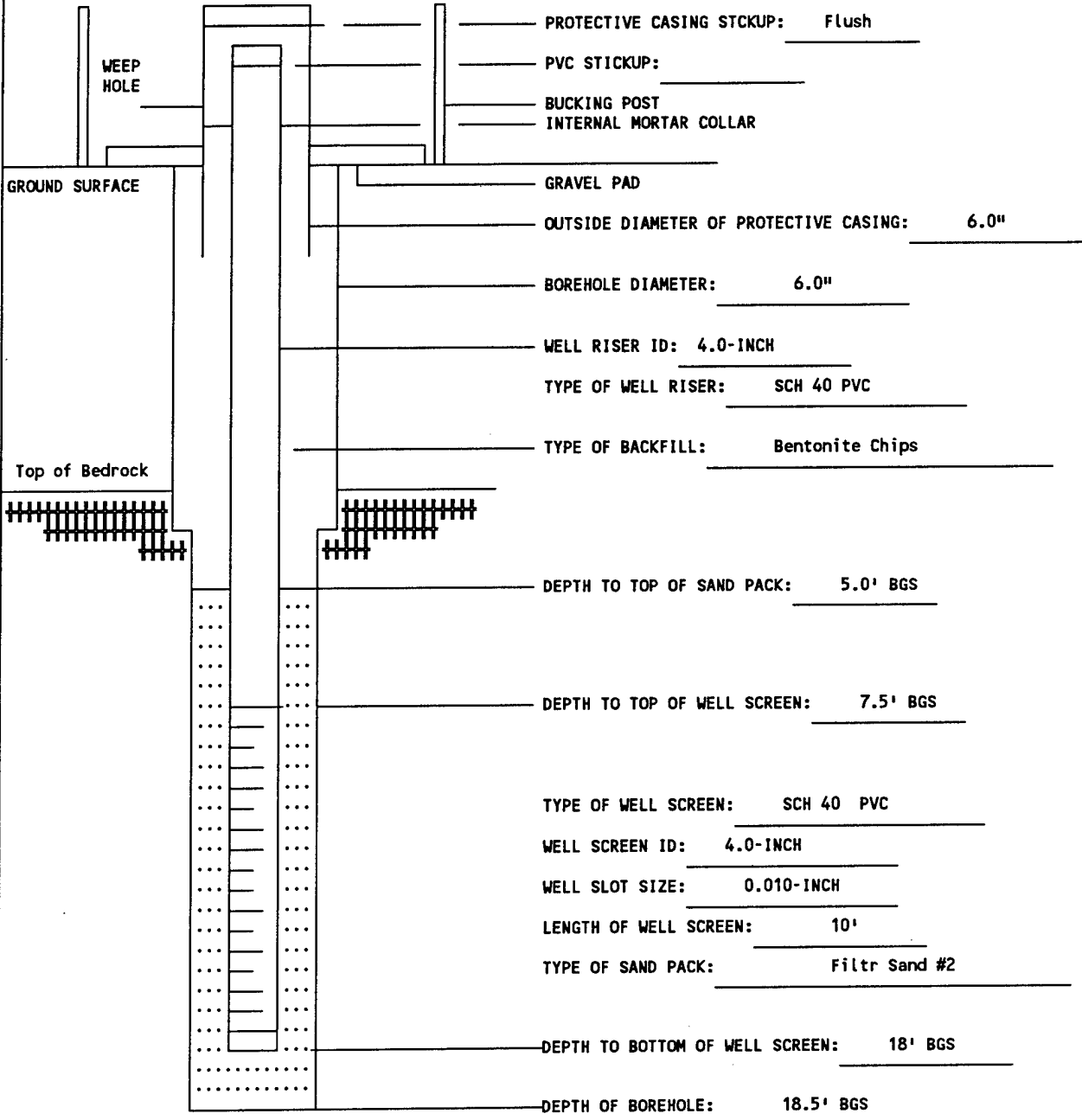


ABB ENVIRONMENTAL SERVICES, INC.

WELL INSTALLATION DIAGRAM

WELL NO.: XOM-93-01X

PROJECT NAME: Ft. Devens

DATE INSTALLED: 8-27-93

PROJECT NO.: 7053-10

DRILLING METHOD: HSA/Rollerbit

WATER LEVEL: 13.4'

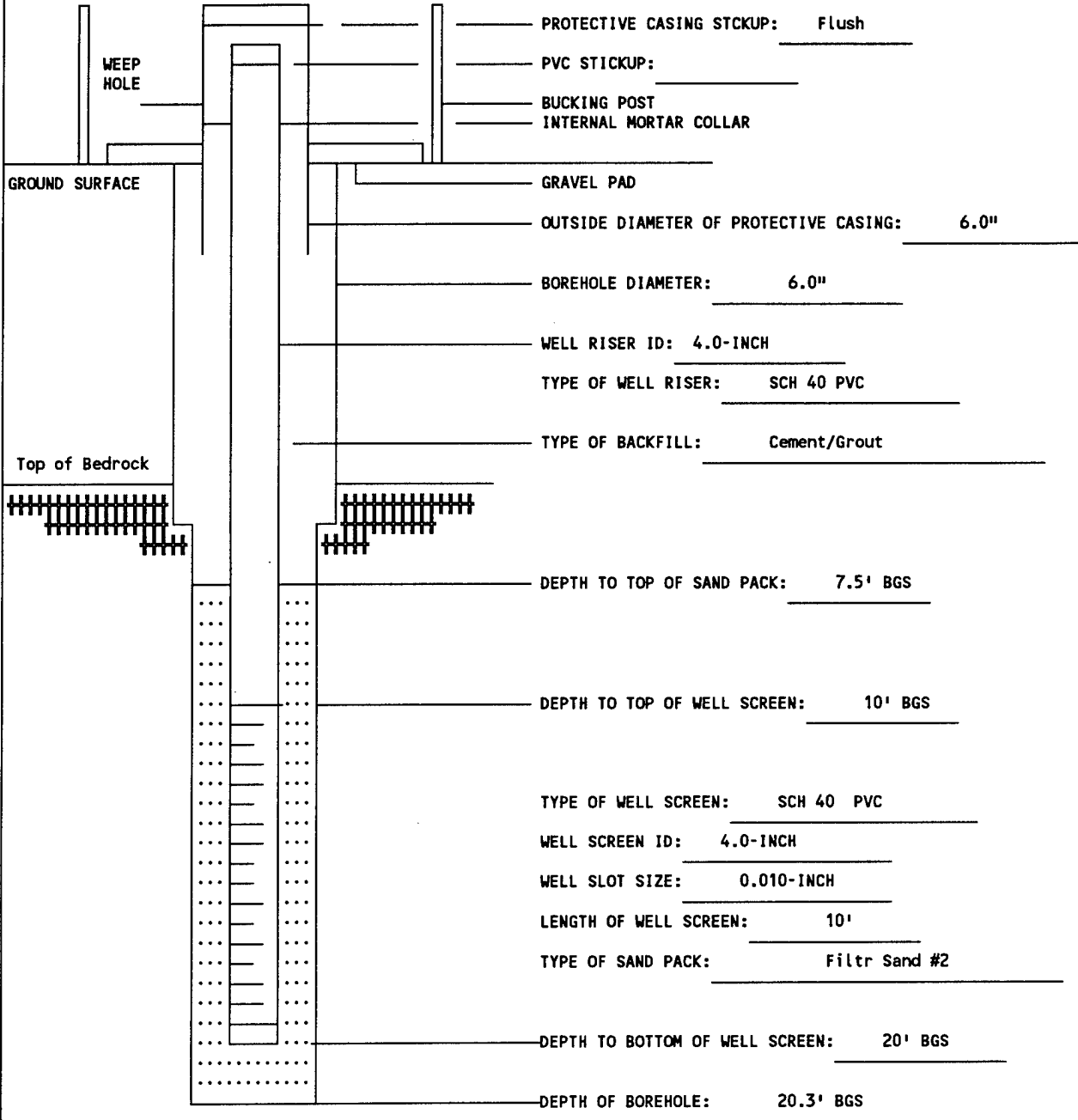
GROUND ELEVATION: 331.3

CASING ID: 6.0"

DATE: 8-27-93

WELL CASING ELEVATION: 330.8

RIG GEOLOGIST: L.Healey



PROJECT ANALYTE LIST/CRLS

APPENDIX D
FORT DEVENS PROJECT ANALYTE LIST
SITE INVESTIGATION REPORT
FORT DEVENS

TEST NAME	PARAMETER NAME	SOIL		WATER	
		CRL	UNIT	CRL	UNIT
PAL INORGANICS					
AL	ALUMINUM	2.35	ug/g	141	ug/l
SB	ANTIMONY	0.109	ug/g	3.03	ug/l
AS	ARSENIC	0.25	ug/g	2.54	ug/l
BA	BARIUM	5.18	ug/g	5	ug/l
BE	BERYLLIUM	0.5	ug/g	5	ug/l
CD	CADMIUM	0.7	ug/g	4.01	ug/l
CA	CALCIUM	100	ug/g	500	ug/l
CR	CHROMIUM	4.05	ug/g	6.02	ug/l
CO	COBALT	1.42	ug/g	25	ug/l
CU	COPPER	0.965	ug/g	8.09	ug/l
FE	IRON	3.68	ug/g	38.8	ug/l
PB	LEAD	0.177	ug/g	1.26	ug/l
MG	MAGNESIUM	100	ug/g	500	ug/l
MN	MANGANESE	2.05	ug/g	2.75	ug/l
HG	MERCURY	0.05	ug/g	0.243	ug/l
NI	NICKEL	1.71	ug/g	34.3	ug/l
K	POTASSIUM	100	ug/g	375	ug/l
SE	SELENIUM	0.25	ug/g	3.02	ug/l

APPENDIX D
FORT DEVENS PROJECT ANALYTE LIST
SITE INVESTIGATION REPORT
FORT DEVENS

TEST NAME	PARAMETER NAME	SOIL		WATER	
		CRL	UNIT	CRL	UNIT
AG	SILVER	0.589	ug/g	4.6	ug/l
NA	SODIUM	100	ug/g	500	ug/l
TL	THALLIUM	0.319	ug/g	6.99	ug/l
V	VANADIUM	3.39	ug/g	11	ug/l
ZN	ZINC	8.03	ug/g	21	ug/l
PAL EXPLOSIVES					
135TNB	1,3,5-TRINITROBENZENE	0.488	ug/g	0.449	ug/l
13DNB	1,3-DINITROBENZENE	0.496	ug/g	0.611	ug/l
246TNT	2,4,6-TRINITROTOLUENE	0.456	ug/g	0.635	ug/l
24DNT	2,4-DINITROTOLUENE	0.424	ug/g	0.0637	ug/l
26DNT	2,6-DINITROTOLUENE	0.524	ug/g	0.0738	ug/l
HMX	CYCLOTETRAMETHYLENETETRANITRAMINE	0.666	ug/g	1.21	ug/l
NB	NITROBENZENE	2.41	ug/g	0.645	ug/l
RDX	CYCLONITE	0.587	ug/g	1.17	ug/l
TETRYL	NITRAMINE	0.731	ug/g	1.56	ug/l
NG	NITROGLYCERINE	4	ug/g	10	ug/l
PETN	PENTAERYTHRITOL TETRANITRATE	4	ug/g	20	ug/l

**APPENDIX D
FORT DEVENS PROJECT ANALYTE LIST
SITE INVESTIGATION REPORT
FORT DEVENS**

TEST NAME	PARAMETER NAME	SOIL		WATER	
		CRL	UNIT	CRL	UNIT
PAL ANIONS/CATIONS					
HCO3	BICARBONATE	NA		NA	ug/l
CL	CHLORIDE	NA		2,120	ug/l
SO4	SULFATE	NA		10,000	ug/l
NO3	NITRATE	NA		10	ug/l
CA	CALCIUM	NA		500	ug/l
K	POTASSIUM	NA		375	ug/l
MG	MAGNESIUM	NA		500	ug/l
PAL WATER QUALITY PARAMETERS					
CL	CHLORIDES	NA		2,120	ug/l
N2KJEL	TOTAL NITROGEN	NA		183	ug/l
NIT	NO3-N	NA		10	ug/l
SO4	SULFATES	NA		10,000	ug/l
TPO4	TOTAL PHOSPHORUS	NA		13.3	ug/l
--	HARDNESS	NA		NA	ug/l
ALK	ALKALINITY	NA		NA	ug/l
TSS	TOTAL SUSPENDED SOLIDS	NA		NA	ug/l
DO	DISSOLVED OXYGEN	NA		NA	ug/l

APPENDIX D
FORT DEVENS PROJECT ANALYTE LIST
SITE INVESTIGATION REPORT
FORT DEVENS

TEST NAME	PARAMETER NAME	SOIL		WATER	
		CRL	UNIT	CRL	UNIT
PAL ORGANICS VOLATILE COMPOUNDS					
111TCE	1,1,1-TRICHLOROETHANE	0.0044	ug/g	0.5	ug/l
112TCE	1,1,2-TRICHLOROETHANE	0.0054	ug/g	1.2	ug/l
11DCE	1,1-DICHLOROETHYLENE/ 1,1-DICHLOROETHENE	0.0039	ug/g	0.5	ug/l
11DCLE	1,1-DICHLOROETHANE	0.0023	ug/g	0.68	ug/l
12DCE	1,2-DICHLOROETHYLENES, TOTAL (CIS AND TRANS ISOMERS)	0.003	ug/g	0.5	ug/l
12DCLE	1,2-DICHLOROETHANE	0.0017	ug/g	0.5	ug/l
12DCLP	1,2-DICHLOROPROPANE	0.0029	ug/g	0.5	ug/l
ACET	ACETONE	0.017	ug/g	13	ug/l
BRDCLM	BROMODICHLOROMETHANE	0.0029	ug/g	0.59	ug/l
C2H3CL	CHLOROETHENE/VINYL CHLORIDE	0.0062	ug/g	2.6	ug/l
C2H5CL	CHLOROETHANE	0.012	ug/g	1.9	ug/l
C6H6	BENZENE	0.0015	ug/g	0.5	ug/l
CCL4	CARBON TETRACHLORIDE	0.007	ug/g	0.5	ug/l
CH2CL2	METHYLENE CHLORIDE	0.012	ug/g	2.3	ug/l
CH3BR	BROMOMETHANE	0.0057	ug/g	5.8	ug/l
CH3CL	CHLOROMETHANE	0.0088	ug/g	3.2	ug/l

APPENDIX D
FORT DEVENS PROJECT ANALYTE LIST
SITE INVESTIGATION REPORT
FORT DEVENS

TEST NAME	PARAMETER NAME	SOIL		WATER	
		CRL	UNIT	CRL	UNIT
CHBR3	BROMOFORM	0.0069	ug/g	2.6	ug/l
C13DCP	CIS-1,3-DICHLOROPROPYLENE C+S-1,3-DICHLOROPROPENE	0.0032	ug/g	0.58	ug/l
CHCL3	CHLOROFORM	0.00087	ug/g	0.5	ug/l
CL2CH2	DICHLOROMETHANE	12	ug/g	2.3	ug/l
CLC6H5	CHLOROBENZENE	0.00086	ug/g	0.5	ug/l
CS2	CARBON DISULFIDE	0.0044	ug/g	0.5	ug/l
DBRCLM	DIBROMOCHLOROMETHANE	0.0031	ug/g	0.67	ug/l
ETC6H5	ETHYLBENZENE	0.0017	ug/g	0.5	ug/l
MEC6H5	TOLUENE	0.00078	ug/g	0.5	ug/l
MEK	METHYLETHYL KETONE/2-BUTANONE	0.07	ug/g	6.4	ug/l
MIBK	METHYLISOBUTYL KETONE	0.027	ug/g	3	ug/l
MNBK	METHYL-N-BUTYL KETONE/2-HEXANONE	0.032	ug/g	3.6	ug/l
STYR	STYRENE	0.0026	ug/g	0.5	ug/l
T13DCP	TRANS-1,3-DICHLOROPROPENE	0.0028	ug/g	0.7	ug/l
TCLEA	1,1,2,2-TETRACHLOROETHANE	0.0024	ug/g	0.51	ug/l
TCLEE	TETRACHLOROETHYLENE/ TETRACHLOROETHENE	0.00081	ug/g	1.6	ug/l

**APPENDIX D
FORT DEVENS PROJECT ANALYTE LIST
SITE INVESTIGATION REPORT
FORT DEVENS**

TEST NAME	PARAMETER NAME	SOIL		WATER	
		CRL	UNIT	CRL	UNIT
TRCLE	TRICHLOROTHYLENE/TRICHLOROETHENE	0.0028	ug/g	0.5	ug/l
TXYLEN	XYLENES, TOTAL COMBINED	1.5	ug/g	0.84	ug/l
PAL ORGANICS SEMIVOLATILE COMPOUNDS					
124TCB	1,2,4-TRICHLOROBENZENE	0.04	ug/g	1.8	ug/l
12DCLB	1,2-DICHLOROBENEZENE	0.11	ug/g	1.7	ug/l
13DCLB	1,3-DICHLOROBENZENE	0.13	ug/g	1.7	ug/l
14DCLB	1,4-DICHLOROBENZENE	0.098	ug/g	1.7	ug/l
245TCP	2,4,5-TRICHLOROPHENOL	0.1	ug/g	5.2	ug/l
246TCP	2,4,6-TRICHLOROPHENOL	0.17	ug/g	13	ug/l
24DCLP	2,4-DICHLOROPHENOL	0.18	ug/g	2.9	ug/l
24DMPN	2,4-DIMETHYLPHENOL	0.69	ug/g	5.8	ug/l
24DNP	2,4-DINITROPHENOL	1.2	ug/g	21	ug/l
24DNT	2,4-DINITROTOLUENE	0.14	ug/g	4.5	ug/l
26DNT	2,6-DINITROTOLUENE	0.085	ug/g	0.79	ug/l
2CLP	2-CHLOROPHENOL	0.06	ug/g	0.99	ug/l
2CNAP	2-CHLORONAPHTHALENE	0.036	ug/g	0.5	ug/l
2MNAP	2-METHYLNAPHTHALENE	0.049	ug/g	1.7	ug/l
2MP	2-METHYLPHENOL/2-CRESOL	0.029	ug/g	3.9	ug/l

APPENDIX D
FORT DEVENS PROJECT ANALYTE LIST
SITE INVESTIGATION REPORT
FORT DEVENS

TEST NAME	PARAMETER NAME	SOIL		WATER	
		CRL	UNIT	CRL	UNIT
2NANIL	2-NITROANILINE	0.062	ug/g	4.3	ug/l
2NP	2-NITROPHENOL	0.14	ug/g	3.7	ug/l
33DCBD	3,3'-DICHLOROBENZIDINE	6.3	ug/g	12	ug/l
3NANIL	3-NITROANILINE	0.45	ug/g	4.9	ug/l
46DN2C	4,6-DINITRO-2-CRESOL/ METHYL-4,6-DINITROPHENOL	0.55	ug/g	17	ug/l
4BRPPE	4-BROMOPHENYLPHENYL ETHER	0.033	ug/g	4.2	ug/l
4CANIL	4-CHLOROANILINE	0.81	ug/g	7.3	ug/l
4CL3C	4-CHLORO-3-CRESOL/ 3-METHYL-4-CHLOROPHENOL	0.095	ug/g	4	ug/l
4CLPPE	4-CHLOROPHENYLPHENYL ETHER	0.033	ug/g	5.1	ug/l
4MP	4-METHYLPHENOL/4-CRESOL	0.24	ug/g	0.52	ug/l
4NANIL	4-NITROANILINE	0.41	ug/g	5.2	ug/l
4NP	4-NITROPHENOL	1.4	ug/g	12	ug/l
ANAPNE	ACENAPHTHENE	0.036	ug/g	1.7	ug/l
ANAPYL	ACENAPHTHYLENE	0.033	ug/g	0.5	ug/l
ANTRC	ANTHRACENE	0.033	ug/g	0.5	ug/l
B2CEXM	BIS (2-CHLOROETHOXY) METHANE	0.059	ug/g	1.5	ug/l
B2CIPE	BIS (2-CHLOROISOPROPYL) ETHER	0.2	ug/g	5.3	ug/l

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TEST NAME	PARAMETER NAME	SOIL		WATER	
		CRL	UNIT	CRL	UNIT
B2CLEE	BIS (2-CHLOROETHYL) ETHER/ 2,2-OXYBIS(1-CHLOROPROPANE)	0.033	ug/g	1.9	ug/l
B2EHP	BIS (2-ETHYLHEXYL) PHTHALATE	0.62	ug/g	4.8	ug/l
BAANTR	BENZO [A] ANTHRACENE	0.17	ug/g	1.6	ug/l
BAPYR	BENZO [A] PYRENE	0.25	ug/g	4.7	ug/l
BBFANT	BENZO [B] FLUORANTHENE	0.21	ug/g	5.4	ug/l
BBZP	BUTYLBENZYL PHTHALATE	0.17	ug/g	3.4	ug/l
BGHIPI	BENZO [G,H,I] PERYLENE	0.25	ug/g	6.1	ug/l
BKFANT	BENZO [K] FLUORANTHENE	0.066	ug/g	0.87	ug/l
BZALC	BENZYL ALCOHOL	0.19	ug/g	0.72	ug/l
CARBAZ	CARBAZOLE	No certified limit		No certified limit	
CHRY	CHRYSENE	0.12	ug/g	2.4	ug/l
CL6BZ	HEXACHLOROBENZENE	0.033	ug/g	1.6	ug/l
CL6CP	HEXACHLOROCYCLOPNTADIENE	6.2	ug/g	8.6	ug/l
CL6ET	HEXACHLOROETHANE	0.15	ug/g	1.5	ug/l
DBAHA	DIBENZ [A,H] ANTHRACENE	0.21	ug/g	6.5	ug/l
DBZFUR	DIBENZOFURAN	0.035	ug/g	1.7	ug/l
DEP	DIETHYL PHTHALATE	0.24	ug/g	2	ug/l
DMP	DIMETHYL PHTHALATE	0.17	ug/g	1.5	ug/l

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SITE INVESTIGATION REPORT
FORT DEVENS

TEST NAME	PARAMETER NAME	SOIL		WATER	
		CRL	UNIT	CRL	UNIT
DNBP	DI-N-BUTYL PHTHALATE	0.061	ug/g	3.7	ug/l
DNOP	DI-N-OCTYL PHTHALATE	0.19	ug/g	15	ug/l
FANT	FLUORANTHENE	0.068	ug/g	3.3	ug/l
FLRENE	FLUORENE	0.033	ug/g	3.7	ug/l
HCBD	HEXACHLOROBUTADIENE	0.23	ug/g	3.4	ug/l
ICDPYR	INDENO [1,2,3-C,D] PYRENE	0.29	ug/g	8.6	ug/l
ISOPHR	ISOPHORONE	0.033	ug/g	4.8	ug/l
NAP	NAPHTHALENE	0.037	ug/g	0.5	ug/l
NB	NITROBENZENE	0.045	ug/g	0.5	ug/l
NNDNPA	N-NITROSO DI-N-PROPYLAMINE	0.2	ug/g	4.4	ug/l
NNDPA	N-NITROSO DIPHENYLAMINE	0.19	ug/g	3	ug/l
PCP	PENTACHLOROPHENOL	1.3	ug/g	18	ug/l
PHANTR	PHENANTHRENE	0.033	ug/g	0.5	ug/l
PHENOL	PHENOL	0.11	ug/g	9.2	ug/l
PYR	PYRENE	0.033	ug/g	2.8	ug/l
PAL ORGANICS PESTICIDES AND PCBs					
ABHC	ALPHA-BENZENEHEXACHLORIDE/ ALPHA-HEXACHLOROCYCLOHEXANE	0.00907	ug/g	0.0385	ug/l
ACLDAN	ALPHA CHLORDANE	0.005	ug/g	0.075	ug/l

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TEST NAME	PARAMETER NAME	SOIL		WATER	
		CRL	UNIT	CRL	UNIT
AENSLF	ALPHA-ENDOSULFAN/ENDOSULFAN I	0.00602	ug/g	0.023	ug/l
ALDRN	ALDRIN	0.00729	ug/g	0.0918	ug/l
BBHC	BETA-BENZENEHEXACHLORIDE/ BETA-HEXACHLOROCYCLOHEXANE	0.00257	ug/g	0.024	ug/l
BENSLF	BETA-ENDOSULFAN/ENDOSULFAN II	0.00663	ug/g	0.023	ug/l
DBHC	DELTA-BENZENEHEXACHLORIDE/ DELTA-HEXACHLOROCYCLOHEXANE	0.00555	ug/g	0.0293	ug/l
DLDNR	DIELDRIN	0.00629	ug/g	0.024	ug/l
ENDRN	ENDRIN	0.00657	ug/g	0.0238	ug/l
ENDRNA	ENDRIN ALDEHYDE	0.024	ug/g	0.0285	ug/l
ENDRNK	ENDRIN KETONE	Not certified		Not certified	
ESFS04	ENDOSULFAN SULFATE	0.00763	ug/g	0.0786	ug/l
GCLDAN	GAMA-CHLORDANE	0.005	ug/g	0.075	ug/l
HPCL	HEPTACHLOR	0.00618	ug/g	0.0423	ug/l
HPCLE	HEPTACHLOR EPOXIDE	0.0062	ug/g	0.0245	ug/l
LIN	LINDANE/GAMMA-BENZENEHEXACHLORIDE/ GAMMA-HEXACHLOROCYCLOHEXANE	0.00638	ug/g	0.0507	ug/l
MEXCLR	METHOXYCHLOR	0.0711	ug/g	0.057	ug/l
PCB016	PCB 1016	0.0666	ug/g	0.16	ug/l
PCB221	PCB 1221	0.0666	ug/g	0.16	ug/l

continued

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FORT DEVENS PROJECT ANALYTE LIST
SITE INVESTIGATION REPORT
FORT DEVENS**

TEST NAME	PARAMETER NAME	SOIL		WATER	
		CRL	UNIT	CRL	UNIT
PCB232	PCB 1232	0.0666	ug/g	0.16	ug/l
PCB242	PCB 1242	0.0804	ug/g	0.19	ug/l
PCB248	PCB 1248	0.0804	ug/g	0.19	ug/l
PCB254	PCB 1254	0.0804	ug/g	0.19	ug/l
PCB260	PCB 1260	0.0804	ug/g	0.19	ug/l
PPDDD	2,2-BIS (PARA-CHLOROPHENYL)- 1,1-DICHLOROETHANE	0.00826	ug/g	0.0233	ug/l
PPDDE	2,2-BIS (PARA-CHLOROPHENYL)- 1,1-DICHLOROETHENE	0.00765	ug/g	0.027	ug/l
PPDDT	2,2-BIS (PARA-CHLOROPHENYL)- 1,1,1-TRICHLOROETHANE	0.00707	ug/g	0.034	ug/l
TXPHEN	TOXAPHENE	0.444	ug/g	1.35	ug/l

Notes:

CRL = Certified Reporting Limit
 NA = Not Applicable