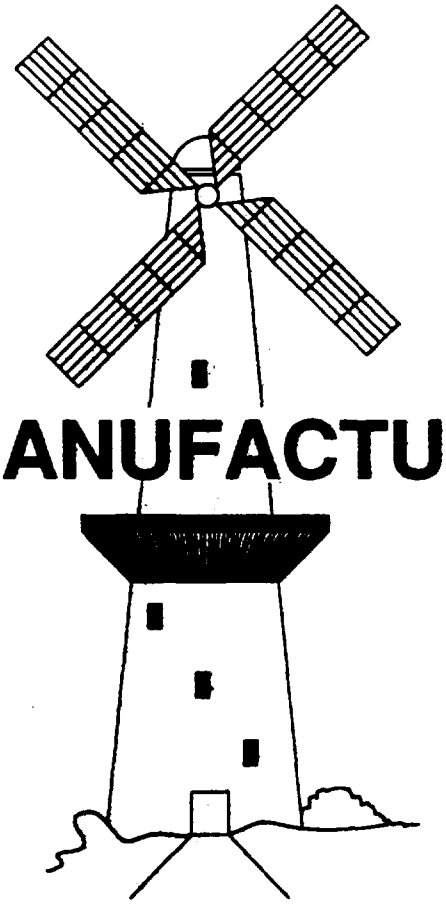
176584

Final Remedial Investigation Report



HI-MILL MANUFACTURING CO.

1704 HIGHLAND ROAD
HIGHLAND, MICHIGAN

GERAGHTY & MILLER, INC.
Environmental Services

VOLUME 3 OF 4

APPENDIX D

GERAGHTY & MILLER SOIL SAMPLING BORING LOGS,

PHASE II REMEDIAL INVESTIGATION

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well SB-1 Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/21/91 Drilling Completed 11/21/91

Total Depth Drilled 15 feet Hole Diameter 4¼ inches Type of Sample/ Coring Device CME Cont.Smplr

Length and Diameter of Coring Device 4¼ x 5 Sampling Interval 5 feet

Land-Surface Elev. 1010.2 feet ☒ Surveyed ☐ Estimated Datum Mean sea level

Drilling Fluid Used None Drilling Method HSA

Drilling Contractor Mateco Driller Jeff Helper Jim

Prepared By R. Sanborn Hammer Weight 140# Hammer Drop 36 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	5	1.5		0-0.5' Asphalt; 0.5-1.0' base aggregate
				1.0-5.0 brown-gray mottled CLAY with some
				silt/fine sand seams (BZ = 0.0;BH = 0.0)
				(FID = 50 ppm)
5	10	5		Brown CLAY with gray mottling; at 9.5' at 0.3'
				brown fine sand and silt occurs followed by
				alternating thin silt and clay seams.
				(FID @ 10' = 76 ppm) (FID @ 7.5' = 400ppm)
				(BZ = 0.0 ppm; BH = 0.0 ppm)
10	15	5		Gray to brown silty CLAY to 10.6 feet. 10.6 to 11 feet,
				brown to tan clayey SILT. 11 - 13 feet Gray silty CLAY with
				thin silt seams. 13 - 15 feet gray fine SAND and some silt.
				(BZ=0.0 ppm; BH = 0.0 ppm)
				(FID @ 12.5' = 56 ppm)(FID @ 15' = 26 ppm)

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well SB-2 Project/No. Hi-Mill/MI135.01 Page 1 of 1

Site Location Highland, MI Drilling Started 11/21/91 Drilling Completed 11/21/91

Total Depth Drilled 15 feet Hole Diameter 4¼ inches Type of Sample/ Coring Device CME Cnt.Smplr

Length and Diameter of Coring Device 4¼ x 5 Sampling Interval 5 feet

Land-Surface Elev. 1010.0 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HSA

Drilling Contractor Mateco Driller Jeff Helper Jim

Prepared By R. Sanborn Hammer Weight 140# Hammer Drop 36 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	5	5		0 - 1 foot top soil, black medium to fine SAND,
				moist; 1 - 3 feet brown to red-brown fine SAND
				some clay and silt, moist; 3 - 5 feet brown
				CLAY some silt and fine sand. (FID @ 2.5' =
				90 ppm)(FID @ 5.0' = 120 ppm)
5	10	5		Brown and gray mottled CLAY with some thin
				silt seams. At 9.5' gray stiff CLAY with some
				silt, dry. (FID @ 7.5' = 210 ppm)(FID @ 10'
				= 90 ppm)
10	15	5		Same as at 9.5' to 13'. 13' - 15' gray fine SAND and
				SILT, wet. (FID @ 12.5' = 10 ppm) (FID @ 15' = 20 ppm).

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well SB-3 Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/21/91 Drilling Completed 11/21/91

Total Depth Drilled 15 feet Hole Diameter 4¼ inches Type of Sample/Coring Device CME Cnt. Smplr

Length and Diameter of Coring Device 4¼ x 5 Sampling Interval 5 feet

Land-Surface Elev. 1009.0 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HSA

Drilling Contractor Mateco Driller Jeff Helper Jim

Prepared By R. Sanborn Hammer Weight 140# Hammer Drop 36 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	5	2.5		0 - 0.5 Asphalt
				0.5 - 1.0 Base aggregate
				1 - 3 feet brown to black medium to coarse SAND
				3 - 5 feet Gray to black CLAY with black soil layer
				at 4 feet. (BZ = ND; BH = 72 ppm; vinyl chloride =
				ND) FID @ 5' = 560 ppm.
5	10	5		5 - 7.5 feet Gray, silty CLAY with 0.5 foot medium
				to coarse SAND seam at 7 feet. 7.5 - 10 feet Gray
				and brown mottled CLAY with the gray clay occuring
				in former root zones (BZ = ND; BH = 500 ppm Vinyl
				chloride = ND) FID @ 7.5' = 800 ppm; FID @ 10' =
				300 ppm.
10	15	5		Same as above (BZ = ND; BH = 50 ppm)
				FID @ 12.5' = 4.8; FID @ 15' = 3.6 ppm)

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well SB-4 Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/21/91 Drilling Completed 11/21/91

Total Depth Drilled 15 feet Hole Diameter 4¼ inches Type of Sample/Coring Device CME Cnt Smplr

Length and Diameter of Coring Device 4¼ x 5 Sampling Interval 5 feet

Land-Surface Elev. 1008.8 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HSA

Drilling Contractor Mateco Driller Jeff Helper Jim

Prepared By R. Sanborn Hammer Weight 140# Hammer Drop 36 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	5	1.5		0 - 0.5 feet Asphalt
				0.5 - 1.0 feet Base aggregate gray to black CLAY
				with some silt and fine sand.
				4 - 5 feet brown medium to coarse SAND, moist
				(BZ = 0.0 ppm; BH = 500 ppm)(FID @ 5' = 38 ppm)
5	10	5		Tan to gray mottled CLAY with several fine SAND
				and SILT seams occur below 9.5 feet.
				(BZ = 0 ppm; BH = 3 ppm)(FID @ 7.5' = 150ppm;
				FID @ 10.' = 60 ppm)
10	15	5		Same as above (BZ = 0 ppm; BH = 75 ppm)
				(FID @ 12.5 = 32 ppm; FID @ 15' = 3.4 ppm).

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SAMPLE/CORE LOG

Boring/Well IW-6 Project/No. Hi-Mill/MI135.07 Page 1 of 3

Site Location Highland, MI Drilling Started 12/6/91 Drilling Completed 1/8/92

Total Depth Drilled 120 feet Hole Diameter 4 1/4 inches Type of Sample/ Coring Device CME Continuous ~~Sampler;split-spoon~~

Length and Diameter of Coring Device 4 1/4 x 5'/ 2' x 2" Sampling Interval 5 feet

Land-Surface Elev. 1015.0 feet ☐ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HSA

Drilling Contractor Mateco Driller Steve Helper Mike/Jim

Prepared By R. Sanborn Hammer Weight 140 Hammer Drop 36 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	4	3		Brown to tan, medium to fine SAND, dry
				(FID=ND)(BZ=0 ppm; BH=0 ppm)
4	9	2		Brown to tan, clayey silt with some fine sand, dry (FID=ND)
9	14	3		Brown to tan, fine SAND and SILT, with some
				clay, dry.
14	19	5		Brown to tan, fine SAND with some silt and
				clay, wet. (PID[14-16.5]=1.0 ppm; PID
				[16.5-19]=0.4 ppm)
19	24	3		Same as above (PID[19-21.5]=1.9 ppm; PID
				[21.5-24]=1.3 ppm)
24	29	2		Same as above (PID = 1.6 ppm)
29	31	2	3,4	Gray silty-CLAY with thin (0.1") seams of
			8,7	fine sand and silt (PID=1.3 ppm)
31	33	2	Shelby-tube	Same as above
			pushed	
35	37	0	2,3,3,5	No recovery, fragment of grout, pushed.
35	37	1	2,2	Gray, silty-CLAY with some
			2,3	fine sand. Percentage of sand increasing
				with depth (FID= 1.0 ppm)

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG (Cont.d)

Boring/Well IW-6

Prepared By R. Sanborn

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
40	42	2	2,2,3,4	Same as above (FID= 1.3 ppm)
45	47	1	2,4,6,12	Brown to tan, medium to coarse SAND, some
				fine gravel (FID = 1.4 ppm).
50	52	2	4,6,11,17	Same as above (FID = 1.6 ppm)
55	57	2	3,(1-12"),9	Brown, fine SAND with some silt
				(FID = 0.4)
60	62	1	0,0	Same as above (FID = 1.2)
			6,3	
65	67	2	5,5	Same as above (FID = 1.4 ppm)
			8,11	
70	72	2	2,3	Same as above to 71.5
			4,5	71.5 to 72, gray, medium to coarse SAND,
				with some fine gravel grading into gray,
				medium to fine SAND (FID = 1.6).
75	77	2	3,3	Same as above (FID = 2.4 ppm)
			4,5	
80	82	2	3,4	Same as above (FID = 18.9 ppm)
			7,9	
85	87	2	5,1	Same as above, grading into a gray fine
			2,3	SAND with some silt (FID = 3.3)
90	92	2	4,3,6,13	Brown to tan, medium to fine SAND with thin
				(0.1") silty-clay seams. Gray coarse SAND
				and fine gravel in top of samples (FID = ND)

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG (Cont.d)

Boring/Well IW-6

Prepared By R. Sanborn

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
92	94	2	19,13	Gray, coarse SAND and fine gravel grading into
			20,33	gray, fine SAND with some silt (FID = 4.4 ppm).
95	97	2	14,9	Gray, fine SAND with some silt (FID = 7.8 ppm)
			18,27	
100	102	2	4,6	Same as above (FID = 12.2 ppm)
			10,12	
105	107	2	8,7	Gray, medium to fine SAND with thin (0.1") CLAY
			4,4	seams (FID = 5.1)
110	112	1.5	8,9	Same as above (FID = ND)
			14,21	
115	117	1.5	7,3	Same as above (FID = 1.2 ppm)
			3,9	
120	122	1.5	18,2	Same as above. Prior to sampling, approximately
			16,9	6 feet of sand was present with augers. Upon
				removal of augers from boring approximately 1.5
				feet of gray CLAY with medium coarse gravel was
				on the augers.

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well IW-7 Project/No. _____ Page 1 of 2

Site Location Highland, Michigan Drilling Started 12/11/91 Drilling Completed 12/11/91

Total Depth Drilled 34 feet Hole Diameter 4 1/4 inches Type of Sample/Coring Device Split Spoon

Length and Diameter of Coring Device 2" x 2' Sampling Interval Continuous feet

Land-Surface Elev. 1008.8 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HSA

Drilling Contractor Mateco Driller Steve Helper Mike

Prepared By R. Sanborn Hammer Weight 140 Hammer Drop 36 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	2	0.5	0,1,1	Reddish-brown medium to fine SAND, dry.
2	4	2	2,3	Loose tan, medium and fine SAND, some silt, dry.
			3,2	(FID = 0.2 ppm).
4	6	2	3,3	Same as above, increasing percentage of silt
			3,4	(FID = 0.6 ppm).
6	8	2	2,3,3,2	Loose mottled tan and red-brown fine SAND, some
				silt, moist. (FID = 0.4)
8	10	2	3,1,1	Same as above to 8.5 feet; 8.5 to 10 feet brown
				fine SAND and silt, wet. (FID = 0.4).
10	12	2	4,3,3,4	Same as above (FID = 2.8 ppm).
12	14	1.5	3,4,5,7	Same as above (FID = 3.6 ppm).
14	16	1.5	3,5,5,7	Same as above (FID = 1.3 ppm).
16	18	2	3,5,5,6	Same as above to 17.5. At 17.5 gray SILT with some
				clay and thin clay silt seams. (FID = 3.5 ppm).
18	20	1.5	2,2,6,6	Brown to tan, fine and medium SAND to 19; gray fine
				SAND and silt with silt and clay seams. (FID=0.6 ppm).
20	22	1.5	0,3,2,5	Mottled tan and gray fine and medium SAND to 21 feet.
				Gray fine SAND and silt to 22 feet (FID = 2.9 ppm).

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG (Cont.d)

Boring/Well IW-7

Prepared By R. Sanborn

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
22	24	2	2,3,3,5	Loose gray, fine SAND and silt with thin
				(0.1") clay and silt seams (FID = 0.4 ppm).
24	26	1.5	2,3,3,2	Gray SILT with some fine sand to 26 feet
				gray CLAY with some silt from 24.0 to 24.5
				feet (FID = 2.3 ppm).
26	28	1.5	2,2,4,5	Gray fine SAND and SILT (FID = 4.7 ppm).
28	30	2	0,3,3,6	Gray CLAY and SILT with some fine sand
				(FID = 0.2 ppm).
30	32	2	1,2,2,5	Same as above (FID = 1.4 ppm).
32	34	2	pushed	Same as above.
				End of Boring

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well VP-1 Project/No. Hi-Mill/MI135.07 Page 1 of 3

Site Location Highland, MI Drilling Started 11/14/91 Drilling Completed 11/26/91

Total Depth Drilled 64 feet Hole Diameter 4¼ inches Type of Sample/ Coring Device CME Cnt.Smplr

Length and Diameter of Coring Device 5' x 4" and 2' x 2" Sampling Interval 5 feet

Land-Surface Elev. 1009.1 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HSA

Drilling Contractor Mateco Driller Greg/Jeff Helper Jim

Prepared By R. Sanborn Hammer Weight 140# Hammer Drop 36 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Asphalt
0.5	1			Coarse GRAVEL and SAND, base aggegate, wet
1	4			Gray-brown, medium to coarse SAND, fine gravel with
				some silt and clay (fill), moist.
4	5			Black, SILT and CLAY with organics and vegatation,
				moist. (Former soil zone?) (BZ = 1.9 ppm BH =
				1 ppm).
5	10	4.7		Gray-brown, medium to coarse SAND with some clay and
				silt to 6.3'; gray-brown and reddish-brown mottled
				clay, dry. Reddish-brown mottles run predominantly
				parallel to the core indicating possible former root
				zones. (BZ - 1.5 ppm; BH = 1.8 ppm).
10	15	5		Mottled red-brown CLAY with trace silt and fine SAND
				(BZ = 25 ppm; BH = 120 ppm).
15	20	1		Brown to tan, medium to coarse SAND with some fine
				to medium gravel, poor recovery in continuous
				sampler (BZ = ND; BH = 2 ppm).

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG (Cont.d)

Boring/Well VP-1

Prepared By R. Sanborn

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
20	25	5		Gray-brown silty CLAY with thin (.1") silt
				seams. (BZ = ND; BH = ND)
25	30	5		Gray-brown CLAY with some silt. CLAY is
				laminated with alternating CLAY and silty-clay
				layers (BZ = ND; BH = 0.4 ppm)
28	30	2	1,2	Same as above (BZ = ND; BH = ND)
			3,3	(PID = 51.8 ppm)
30	32	1.5	3,2	Same as above (BZ = 3.0; BH = 2.5 ppm)
			2,1	(PID = 15.5 ppm)
32	34	2	0,2	Same as above (BZ = 1.5; BH = 2.0 ppm)
			2,4	(PID = 15.1 ppm).
34	36	2	0,2	Same as above (BZ = 1.0; BH = 2.0 ppm)
			4,4	(PID = 28.5 ppm).
36	38	2	3,3	Same as above (BZ = 1.5; BH = 1.8 ppm)
			4,5	
38	40	2		Same as above to 39.5. From 39.5 to 40, gray
				clayey, silty SAND with 0.1' seam of medium to
				coarse SAND and fine GRAVEL.
40	42	1.0		Gray silty CLAY underlain by medium to coarse
				SAND, some fine Gravel. Top of intermediate
				aquifer @ 41'.
48	50	.33	0,1,1,1	Gray, medium to fine SAND with a thin seam
				(0.1') of coarse SAND and fine GRAVEL, wet.

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG (Cont.d)

Boring/Well VP-1

Prepared By R. Sanborn

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
53	54	1	5,5	Gray, medium to coarse, subangular SAND with
				some fine gravel, wet.
58	59	1	12,15	Gray CLAY with some silt and fine to medium
				sand, dry.
59	61	2	5,7,7	Split-spoon filled with sand heave, gray
			11	silty-clay in tip of split-spoon.
62	64	2	12,28	Gray-brown silty-CLAY, dry.
			30,33	
				End of Boring

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well VP-2 Project/No. Hi-Mill/MI135.07 Page 1 of 3

Site Location Highland, MI Drilling Started 12/4/91 Drilling Completed 12/4/91

Total Depth Drilled _____ feet Hole Diameter 4¼ inches Type of Sample/ Coring Device CME Cnt.Smplr

Length and Diameter of Coring Device 5 x 4¼ Sampling Interval 5 feet

Land-Surface Elev. 1007.6 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HSA

Drilling Contractor Mateco Driller Steve Helper Mike

Prepared By R. Sanborn Hammer Weight 140# Hammer Drop 36 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	4	3.7		0 - 3' Brown to tan CLAY, some silt, SAND and fine
				gravel (fill ?) Black silty clay with high
				percentage of roots (Former top soil layer ?).
				(BZ = 0.0 ppm; BH = 0.0 ppm).
4	9	5		Blue-gray silty-CLAY grading into mottled gray-
				brown silty-CLAY with thin (0.3') clayey- SAND
				seam at 6 feet. Clay contains numerous thin (0.1")
				silty-sand partings.
9	14	5		9 to 13.2 feet gray CLAY with thin (0.1") tan fine
				sand. Fine SAND seam from 13.5 to 14.0 feet.
				Gray CLAY in tip of sampler (BZ = 0.0 ppm;
				BH = 0.1 ppm)
14	19	5		Gray silty - CLAY with some fine sand, moist.
				(BZ = 0.0 ppm; BH = 0.0 ppm).

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Environmental Services

SAMPLE/CORE LOG (Cont.d)

Boring/Well VP-2

Prepared By R. Sanborn

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
20	22	1.2	3,2	Soft silty gray CLAY, with trace fine SAND, moist
			1,2	(BZ = 0.4 ppm; BH = 0.1 ppm).
22	24	2	1,2	Medium stiff gray CLAY, moist.
			2,3	(BZ = 0.1 ppm; BH = 0.1 ppm).
24	26	2	1,2	Same as above (BZ = 0.1 ppm; BH = 0.1 ppm)
			2,2	
26	28	2	3,2	Same as above to 27.5 feet; at 27.5 feet Gray to brown
			9,14	medium to coarse SAND with trace fine GRAVEL,
				fine sand and silt, wet. (BZ=0.1 ppm; BH=0.1 ppm).
28	30	0.5	3,4	Loose gray to brown, medium to coarse SAND with trace fine
			4,4	gravel, fine sand and silt. (BZ=0.1 ppm; BH=0.1 ppm).
30	32	1	1,2	Same as above, (BZ = 0.1 ppm; BH = 0.1 ppm).
			2,3	
32	34	0.75	1,2	Same as above, (BZ = 0.1 ppm; BH = 0.1 ppm).
			3,7	
34	36	0.25	3,2	Medium dense brown to gray, medium to fine SAND with trace coarse sand,
			5,6	sand silt and fine gravel (BZ = 0.1 ppm; BH = 0.1 ppm).
36	38	2	0,6	Same as above (BZ = 0.1 ppm; BH = 0.1 ppm).
			7,8	

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Environmental Services

SAMPLE/CORE LOG (Cont.d)

Boring/Well VP-2

Prepared By R. Sanborn

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
38	40	0.5	2, 3	Medium dense brown to gray, medium and coarse sand,
			5, 8	trace fine and coarse gravel (BZ = 0.1, BH = 0.1)
40	42	1.5	2, 6	40 to 40.5 feet same as above.
			13,13	40.5 to 41 gray CLAY with some silt, trace coarse sand
				and fine gravel 41 - 42 fine SAND with some silt seams
				and thin (0.1") silty clay seams. (BH=0.1; BZ=0.1).
42	44	0.5	16,15	Medium dense gray, medium and fine SAND with some silt
			14,13	(BH = 0.1; BZ = 0.1)
44	46	1.5	10,12	Same as above (BH = 0.1; BZ = 0.1)
			12, 6	
46	48	2	14,11	Same as above (BH = 0.1; BZ = 0.1)
48			14,21	
	50	2	14,12	Same as above (BH = 0.1; BZ = 0.1)
			11,17	
50	52	2	7, 12	Same as above to 51 feet
			27,24	Hard, gray CLAY with some silt, trace of fine gravel
				and coarse sand, dry.
				End of Boring

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well VP-3 Project/No. Hi-Mill/MI135.07 Page 1 of 3

Site Location Highland, Michigan Drilling Started 11/13/91 Drilling Completed 1/23/92

Total Depth Drilled _____ feet Hole Diameter 4 1/4 inches Type of Sample/Coring Device CME Cont. Smplr

Length and Diameter of Coring Device 5' x 4 1/4" and 2' x 2" Sampling Interval Continuous feet

Land-Surface Elev. 1009.8 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HSA

Drilling Contractor Mateco Driller Jeff/Greg Helper Jim

Prepared By R. Sanborn/M. Piddington Hammer Weight 140 Hammer Drop 36 inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	.5	5		Asphalt
.5	5			Brown to tan, silty CLAY with medium to coarse SAND,
				fine gravel (BZ = 0.2 ppm; BH = 0.2 ppm)
5	10	5		Brown to tan silty CLAY with numerous fine sand
				and silt seams to 8.5 feet. 8.5 to 9.4 feet silty fine
				SAND, dry. 9.4 to 10.0 feet, gray silty clay with
				several thin (0.1") seams of fine SAND and silt.
				(BZ = 0.2 ppm; BH = 0.8 ppm).
10	15	4.2		Same as above to 12.5 feet; alternating seams of
				silty CLAY and fine SAND and silt seams to 15 feet.
15	20	4.8		15 - 16.2 feet Clayey gray-brown, medium SAND,
				grades into fine sand and silt with some clay.
				16.5 to 17.6 feet, gray brown silty CLAY with
				fine SAND seams, moist. 17.6 to 20 feet, gray-
				brown CLAY with thin SAND and SILT seams, moist.
				Frequency and thickness of SAND and SILT seams
				decrease with depth (BZ = 0.2 ppm; BH = 0.2 ppm).

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Environmental Services

SAMPLE/CORE LOG (Cont.d)

Boring/Well VP-3

Prepared By R. Sanborn/M. Piddington

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
20	22	---	10	Cement in spoon, no sample collected.
22	24	2	2, 2	Soft silty CLAY, gray, semi-cohesive, thin layering,
			2, 2	moist, interbedded layers of silt.
24	26	2	2, 2	Same as above.
			3, 4	
26	28	2	2, 1	Same as above.
			2, 3	
28	30	2		Same as above to 29.75 feet: Silty SAND, gray, some
				clay intermixed, slightly cohesive, moist to wet.
30	31	1	4, 4	Silty Clay, gray, some silt intermixed, semi-
				cohesive, moist. (29.75 feet: Sand layer may have
				been blow into the augers from below).
31	32	---		Driller error, no sample collected.
32	33	1		Sand, grayish brown, some silt and clay intermixed,
				non-cohesive, saturated (PID = 4.5).
36	37	1	6, 3	Sand, gray and brown, medium grain with coarse grain,
				very coarse sand and gravel intermixed, saturated,
				(PID = 12.5 ppm).
39	40	1		Same as above, (PID = 4.5).
43	44	1		Same as above.
47	48	1		Same as above.
50	51	0.5	4, 7	Same as above.

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Environmental Services

SAMPLE/CORE LOG (Cont.d)

Boring/Well VP-3

Prepared By R. Sanborn/M. Piddington

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 Inches	Sample/Core Description
55	57	2	2,1	Same as above.
			4,3	
60	62	2	4,3	Very loose, gray medium to coarse SAND with
			2,2	some fine sand and silt, trace fine gravel,
				wet.
62	64	1	7, 6	Medium dense, gray medium to coarse SAND with
			11,18	some fine sand and silt, trace fine gravel,
				wet.
64	66	2	0,14	Very dense, gray medium to fine SAND with some
			23,48	silt and trace coarse sand and fine gravel.
66	68	2	3,7	Very dense, gray medium to fine SAND with
			10,41	thin silty-clay seams.
68	70	2	12,80	Same as above.
			100-4"	
70	72	2	5,34	Same as above.
			50-4"	
72	74	2	7,13	Hard gray clayey SILT with some fine sand,
			24,43	dry.
74	76	2	6,8	Same as above, dry.
			11,9	
76	78	2	10,15	Very dense, gray SILT with fine to medium
			23,30	sand seams, wet.
				End of Boring

APPENDIX E

GERAGHTY & MILLER PIEZOMETER BORING LOGS,

PHASE II REMEDIAL INVESTIGATION

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well P-1 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/13/91 Drilling Completed 11/13/91

Total Depth Drilled 7.85 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8"x3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1010.2 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor None Driller None Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Brown SAND, medium to coarse
.5	3.3			Gold/yellow, SAND medium to coarse
3.3	4.8			Tan SAND, medium to coarse
4.8	5.9			Blue/gray, silty CLAY with orange mottles,
				(slightly cohesive)
5.9	6.15			Light gray silty CLAY with thin white lenses,
				(blocky and dry)
6.15	7.85			Brown silty CLAY with orange mottles (blocky
				and dry)
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well P-1RD Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/13/91 Drilling Completed 11/13/91

Total Depth Drilled 7.35 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8"x3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1008.8 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor None Driller None Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1.5			Brown/orange sandy CLAY (moist)
1.5	1.7			Tan CLAY (moist)
1.7	1.9			Tan CLAY with gray mottles (moist)
1.9	4.3			Tan CLAY (dry)
4.3	7.35			Brown CLAY
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well P-1RD' Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/14/91 Drilling Completed 11/14/91

Total Depth Drilled 5.1 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8"x3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.1 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor None Driller None Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1			Brown sandy CLAY (slightly moist)
1	2.4			Yellow sandy CLAY
2.4	3.7			Gray silty CLAY with yellow mottles (moist)
3.7	5.1			Brown tight CLAY
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well P-2 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/13/91 Drilling Completed 11/13/91

Total Depth Drilled 6.3 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8"x3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1010.2 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor None Driller None Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	.5			Brown SAND
.5	4.35			Orange SAND with pebbles
4.35	5.0			Brown SAND with trace clay
5.0	6.3			Brown sandy CLAY
6.3				Brown CLAY
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well P-3 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/20/91 Drilling Completed 11/20/91

Total Depth Drilled 3.7 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8"x3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1005.7 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor None Driller None Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	2.1			Orange/brown, sandy CLAY
2.1	2.8			Orange/brown CLAY
2.8	3.7			Light brown CLAY (tight)
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well P-3RD Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/13/91 Drilling Completed 11/13/91

Total Depth Drilled 3.7 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8"x3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 999.6 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor None Driller None Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	.5			Brown to black CLAY with organic material,
				trace medium to coarse sand
.5	1.9			Black CLAY organic material
1.9	2.4			Black SAND medium to coarse, organic rich
2.4	5.8			Gray SAND coarse with pebbles; < 1/8"
5.8				Blue silty CLAY
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well P-4 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/14/91 Drilling Completed 11/14/91

Total Depth Drilled 6.15 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8"x3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.4 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor None Driller None Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1.5			Tan/brown SAND
1.5	2.5			Tan CLAY with orange mottles and a few pebbles
2.5	3.0			Gray CLAY with orange mottles (tight)
3.0	6.15			Gray CLAY with orange mottles (dry)
6.15				Brown CLAY (tight)
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well: P-5 Project/No.: MI135.07 Page: 1 of: 1

Site Location: Highland, MI Drilling Started: 11/14/91 Drilling Completed: 11/14/91

Total Depth Drilled: 6.9 feet Hole Diameter: 3.25 inches Type of Sample/Coring Device: Hand Auger

Length and Diameter of Coring Device: 8"x3.25" Auger Bucket Sampling Interval: Continuous feet

Land-Surface Elev.: 1010.10 feet ☒ Surveyed ☐ Estimated Datum: Mean Sea Level

Drilling Fluid Used: None Drilling Method: HAB

Drilling Contractor: None Driller: None Helper: N/A

Prepared By: C. Greenough/G. Carlson Hammer Weight: N/A Hammer Drop: N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1			Brown sandy CLAY
1	2			Tan CLAY with pebbles
2	2.5			Tan silty CLAY
2.5	2.9			Gray CLAY with tan mottling
2.9	6.9			Tan silty CLAY with gray and orange mottling
6.9				Brown CLAY (tight)
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well P-6 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/14/91 Drilling Completed 11/14/91

Total Depth Drilled 7.0 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8"x3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.2 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor None Driller None Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	2.2			Brown SAND with trace clay and pebbles
2.2	7.0			Tan CLAY with gray mottles
7.0				Brown silty CLAY (tight)
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well P-6RD Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/14/91 Drilling Completed 11/14/91

Total Depth Drilled 9.4 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8"x3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.2 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor None Driller None Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	.9			Brown sandy CLAY with organic material
.9	1.8			Tan sandy CLAY
1.8	9.4			Tan silty CLAY with orange mottling
9.4				Brown CLAY
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well P-7 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/14/91 Drilling Completed 11/14/91

Total Depth Drilled 4.5 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8"x3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1009.8 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor None Driller None Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1.9			Brown sandy CLAY (slightly moist)
1.9	3.3			Brown sandy CLAY with orange mottles (moist)
3.3	4.3			Orange/brown sandy CLAY intermixed with pebbles,
				poorly sorted (water)
4.3	4.5			Gray CLAY with orange/tan mottles
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well P-8 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/18/91 Drilling Completed 11/18/91

Total Depth Drilled 6.5 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8"x3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1004 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor None Driller None Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1.0			Brown sandy CLAY with pebbles
1.0	1.9			Orange/brown sandy CLAY (moist)
1.9	2.7			Brown/orange silty CLAY (very moist)
2.7	6.5			Tan silty CLAY with gray mottles
6.5				Brown CLAY (tight)
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well P-9 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/19/91 Drilling Completed 11/19/91

Total Depth Drilled 5.9 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8"x3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1009.9 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor None Driller None Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	.9			Dark brown/black SAND
.9	1.5			Tan sandy CLAY with some large pebbles,
				poorly sorted
1.5	3.0			Tan CLAY with gray/orange mottles (slightly
				moist; slightly cohesive)
3.0	3.5			Gray silty CLAY (very moist)
3.5	5.9			Gray silty CLAY with orange mottles (very moist)
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well P-10 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/19/91 Drilling Completed 11/19/91

Total Depth Drilled 4.6 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8"x3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1009.6 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor None Driller None Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	.35			Brown sandy gravel CLAY, poorly sorted
.35	.85			Black CLAY with gray mottles
.85	2.5			Brown/tan silty CLAY
2.5	3.5			Brown CLAY with gray mottles (dry)
3.5	4.6			Tan silty CLAY with gray mottles
4.6				Brown CLAY (moist, cohesive)
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well P-11 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/27/92 Drilling Completed 1/27/92

Total Depth Drilled 2.5 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.2 feet ☒ Surveyed ☐ Estimated Datum

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Brown SILT with some CLAY and fine SAND
				(topsoil), dry
0.5	2.5			Brown CLAY with some silt and gray mottling,
				dry
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well P-11B Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/27/92 Drilling Completed 1/27/92

Total Depth Drilled 6.0 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1005.9 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used N/A Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.25			Topsoil, brown fine SAND, silt and clay, dry
0.25	1			Brown, coarse SAND and fine to coarse GRAVEL
1	3			Mottled gray and brown silty CLAY with thin
				interbedded silt seams, dry
3	4			Tan clayey SILT, moist
4	4.5			Mottled gray and brown silty CLAY, dry
4.5	6			Tan clayey SILT with some fine sand, wet
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well P-12 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/27/92 Drilling Completed 1/27/92

Total Depth Drilled 4 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1006.4 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used N/A Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Brown SILT with some clay and fine sand (topsoil),
				thin layer of fine to coarse gravel at 0.5' dry
0.5	1.5			Brown CLAY with some silt and fine sand
1.5	4.0			Tan, fine SAND and silt, wet
4.0				Brown CLAY. dry
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well P-13 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/27/92 Drilling Completed 1/27/92

Total Depth Drilled 3.0 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1008.9 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used N/A Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Brown CLAY with some silt and fine
				sand (topsoil), dry
0.5	1.0			Fine to coarse GRAVEL in a fine sand and
				silt matrix, dry
1.0	3.0			Brown CLAY with some silt and fine sand, dry
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well P-13B Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 2/27/92 Drilling Completed 2/27/92

Total Depth Drilled 9.0 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.2 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used N/A Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Topsoil, brown to tan, fine SAND, silt and
				clay, moist
0.5	4.5			Mottled gray and brown silty-CLAY, dry
4.5	5.0			Tan clayey SILT, dry
5	8			Mottled gray and brown silty CLAY,
				several thin (<0.1') silt seams, dry
8	8.5			Tan, clayey SILT with some fine sand, moist
8.5	9.0			Tan to brown silty CLAY, moist
9.0				Brown to tan, medium to coarse SAND, trace
				fine gravel, wet
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well P-14 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/18/91 Drilling Completed 11/18/91

Total Depth Drilled 5.2 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.2 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used N/A Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	.9			Dark SAND and CLAY with organics
.9	3.3			Gray CLAY with orange mottles (moist), trace of
				white silt
3.3	3.8			Gray/blue CLAY with orange mottles (moist)
3.8	4.1			Gray SAND with pebbles, coarse; some clay;
				water at 3.8'
4.1	5.2			Brown coarse SAND with pebbles (1/2-1")
5.2				Brown CLAY (dry)
				EOB

GERAGHTY & MILLER, INC.
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SAMPLE/CORE LOG

Boring/Well P-15 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/19/91 Drilling Completed 11/19/91

Total Depth Drilled 10.1 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.6 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used N/A Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	.8			Dark brown SAND
.8	3.6			Tan SAND with trace clay (slightly moist)
3.6	4.4			Orange SAND; some clay; slightly cohesive
4.4	6.5			Light tan, very fine silty SAND (moist, slightly
				cohesive)
6.5	8.3			Tan, very fine SAND (moist)
8.3	10.1			Same as above, saturated
				EOB

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SAMPLE/CORE LOG

Boring/Well P-16RD Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/19/91 Drilling Completed 11/19/91

Total Depth Drilled 9.5 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1020 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used N/A Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1.2			Dark brown SAND
1.2	3.4			Tan/orange SAND mixed with gravel (sub-angular)
3.4	3.9			Dry yellow SAND with orange clods; slightly
				cemented
3.9	6.0			Orange/brown SAND, trace clay; slightly cemented,
				moist
6.0	6.8			Reddish orange SAND
6.8	8.4			Very coarse tan/yellow SAND; very small pebbles
8.4	9.0			Reddish/orange SAND (moist)
9.0	9.5			Brown silty CLAY (dry)
				EOB

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SAMPLE/CORE LOG

Boring/Well P-17 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/18/91 Drilling Completed 11/18/91

Total Depth Drilled 11.2 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.6 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used N/A Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1.1			Dark brown sandy CLAY with organics
1.1	1.8			Tan SAND with some clay
1.8	3.0			Orange SAND
3.0	4.9			Tan silty CLAY (dry)
4.9	8.3			Brown silty CLAY with gray mottles (dry)
8.3	8.8			Gray CLAY
8.8	9.0			Tan silty CLAY (slightly moist)
9.0	11.2			Gray CLAY (moist, very cohesive)
				EOB

APPENDIX F

GERAGHTY & MILLER HAND-AUGER BORING LOGS,

PHASE II REMEDIAL INVESTIGATION

GERAGHTY & MILLER, INC.
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SAMPLE/CORE LOG

Boring/Well HAB-1 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/26/92 Drilling Completed 11/26/92

Total Depth Drilled 3.4 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1008.2 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method Hand Auger

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	3.4			Orange-brown coarse to medium SAND with small
				cobbles and pebbles, water at 1.9 feet
3.4				Gray silty CLAY
				EOB

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SAMPLE/CORE LOG

Boring/Well HAB-2 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/26/92 Drilling Completed 11/26/92

Total Depth Drilled 3.4 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.9 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method Hand Auger

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	2			Brown, medium to coarse SAND with some gravel
2	2.9			Dark gray, organic rich CLAY
2.9	3.8			Blue/gray silty CLAY with trace of fine SAND,
				water at 4.6' below land surface
3.8	4.8			Medium SAND with blue/gray clay
4.8				Gray CLAY with orange-brown mottling
				EOB

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SAMPLE/CORE LOG

Boring/Well HAB-3 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/26/92 Drilling Completed 11/26/92

Total Depth Drilled 3.4 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1010.4 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method Hand Auger

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1.0			Brown, medium to coarse SAND with gravel and pebbles
1.0	1.9			Gray and brown CLAY with pebbles and coarse gravel
1.9	3.6			Gray silty CLAY, moist at 2.2 feet
3.6	4.8			Dark black organic soil with some CLAY
4.8				Blue-gray CLAY, very cohesive
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well HAB-4 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/26/91 Drilling Completed 11/26/91

Total Depth Drilled 3.8 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1009.6 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1.5			Brown, coarse SAND with coarse gravel and
				pebbles, water at 0.6 feet
1.5	2.0			Brown sandy CLAY
2.1	3.8			Brown-gray CLAY with organics, few
				pebbles
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well HAB-5 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/26/91 Drilling Completed 11/26/91

Total Depth Drilled 3.2 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1010.5 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	3.2			Brown SAND with some clay and pebbles,
				water at 0.5 feet
3.2				Blue-gray CLAY
				EOB

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SAMPLE/CORE LOG

Boring/Well HAB-6 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/26/91 Drilling Completed 11/26/91

Total Depth Drilled 3.5 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1011.7 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Brown SAND
0.5	3.0			Brown sandy CLAY with coarse gravel and
				pebbles
3.0	3.5			GRAVEL
3.5				Dark brown to black CLAY
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well HAB-7 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/26/91 Drilling Completed 11/26/91

Total Depth Drilled 4.8 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1009.7 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1.25			Brown sandy CLAY, wet
1.25	2.45			Brown silty CLAY with orange/brown mottling
2.45	4.8			Gray silty CLAY, dry
4.8				Brown CLAY
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well HAB-8 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/27/91 Drilling Completed 11/27/91

Total Depth Drilled 5.2 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1009.8 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.4			Brown SAND
0.4	1.1			Brown sandy CLAY
1.1	1.4			Brown sandy CLAY
1.4	4.9			Brown CLAY with orange mottling, dry
4.9	5.2			Brown CLAY, dry
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well HAB-9 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/27/91 Drilling Completed 11/27/91

Total Depth Drilled 4.9 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1010.5 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1.1			Dark brown SAND with some small pebbles
1.1	1.6			Gravel (fill)
1.6	4.9			Grayish tan silty CLAY with orange mottling.
				moist
4.9				Brown CLAY, dry
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well HAB-10 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 11/27/91 Drilling Completed 11/27/91

Total Depth Drilled 4.7 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1010 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Black SAND
0.5	2.4			Tan sandy CLAY with some pebbles
2.4	3.1			Tan sandy CLAY with orange mottling, moist
3.1	4.7			Tan silty CLAY, wet
4.7				Blue-gray silty CLAY with tan
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well HAB-11 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 12/03/91 Drilling Completed 12/03/91

Total Depth Drilled 3.6 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1010.4 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1.9			Brown coarse SAND with pebbles
1.9	2.1			Gray to black CLAY with some organics,
				water at 1.9 feet
2.1	2.6			Blue-gray CLAY with some black mottling,
				trace pebbles
2.6	3.2			Brown coarse to medium SAND with some clay
3.2	3.6			Blue-gray silty CLAY
3.6				Blue-gray CLAY with some organics
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well HAB-12 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 12/03/91 Drilling Completed 12/03/91

Total Depth Drilled 4.95 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1011 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1.4			Brown coarse SAND with some CLAY
1.4	1.9			Brown-black SAND with some clay, water at
				1.4 feet
1.9	3.4			Tan CLAY with orange mottling, dry
3.4	4.95			Tan CLAY with gray mottling
4.95				Brown CLAY, dry
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well HAB-13 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 12/03/91 Drilling Completed 12/03/91

Total Depth Drilled 4.95 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1011.7 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.95			Brown SAND with some roots
0.95	2.1			Tan to brown sandy CLAY, water at 0.95 feet
2.1	3.6			Tan silty CLAY
3.6				Tan CLAY with orange mottling
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well HAB-14 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 12/03/91 Drilling Completed 12/03/91

Total Depth Drilled 4.6 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1009.3 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.7			Brown SAND with some clay
0.7	1.3			Medium to coarse gravel
1.3	1.8			Tan to brown silty CLAY with some coarse
				gravel
1.8	2.8			Brown silty CLAY
2.8	4.6			Tan CLAY with gray mottling
				EOB

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SAMPLE/CORE LOG

Boring/Well HAB-15 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 12/03/91 Drilling Completed 12/03/91

Total Depth Drilled 2.7 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1009 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Black SAND
0.5	2.3			Tan SAND with some clay, wet
2.3	2.7			Gray sandy CLAY
2.7				Gray silty CLAY
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well HAB-16 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 12/03/91 Drilling Completed 12/03/91

Total Depth Drilled 3.1 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1011.3 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By C. Greenough/G. Carlson Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1.2			Light brown sandy CLAY, water at 0.5 feet
1.2	3.1			Tan silty CLAY
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-1 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/27/92 Drilling Completed 1/27/92

Total Depth Drilled 3.0 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.8 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Brown silty CLAY with some fine SAND and
				organics (topsoil)
0.5	3.0			Brown CLAY with some silt and fine SAND, dry
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-2 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/27/92 Drilling Completed 1/27/92

Total Depth Drilled 4.0 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1008.5 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Brown silty CLAY with some fine SAND and
				organics (topsoil)
0.5	1.5			Brown CLAY with some silt and fine SAND, dry
1.5	4.0			Brown to tan fine SAND and silt, moist
4.0				Brown CLAY with some silt, dry
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-3 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/27/92 Drilling Completed 1/27/92

Total Depth Drilled 3.1 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1008.8 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Brown silty CLAY with some fine sand and
				organics, dry (topsoil)
0.5	1.0			Fine to coarse GRAVEL in a fine sand and
				silt matrix, dry
1.0	2.5			Brown CLAY with some silt and fine sand
				and gray mottling, dry
2.5	3.0			Fine SAND and silt, moist
3.0				Brown CLAY with some silt
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-4 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/30/92 Drilling Completed 1/30/92

Total Depth Drilled 4.4 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. _____ feet ☒ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			TOPSOIL
0.5	0.9			Dark brown sandy SILT some clay and
				gravel, dry
0.9	1.0			Dark brown fine to medium GRAVEL
				some sandy silt and clay, some silt,
				trace fine gravel, dry
1.0	1.3			Light brown sandy CLAY, some silt, trace
				fine gravel, dry
1.3	1.7			Light brown silty SAND, some clay, dry
1.7	2.5			Brown CLAY trace silt, dry
2.5	3.3			Light brown silty SAND, some clay, dry
3.3	4.2			Light brown fine SAND, some silt and
				trace clay
4.2	4.4			Brown CLAY gray mottling
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well SBM-5 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/30/92 Drilling Completed 1/30/92

Total Depth Drilled 4.5 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1005.9 feet ☐ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.25			Brown SILT with some CLAY and fine SAND
				and organics
0.25	1.0			Brown CLAY with fine sand and silt (topsoil)
				dry
1.0	1.5			Tan fine SAND grading into a fine to coarse
				gravel, wet
1.5	4.5			Brown CLAY, dry
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-6 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/30/92 Drilling Completed 1/30/92

Total Depth Drilled 6.0 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 38" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.2 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Brown SILT with some CLAY and fine SAND
				(topsoil). Fine to coarse gravel in
				sand and silt matrix at 0.5 feet, dry
0.5	0.8			Brown CLAY with fine sand and silt with
				trace fine to coarse gravel, dry
0.8	2.0			Brown to tan, fine to medium SAND with
				trace coarse sand and gravel
2.0	2.5			Brown clayey fine SAND
2.5	3.0			Brown silty CLAY with gray mottling
2.5	6.0			Brown medium to coarse SAND with trace
				fine sand and fine to coarse gravel, wet
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-7 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/30/92 Drilling Completed 1/30/92

Total Depth Drilled 5.7 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1006.1 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			TOPSOIL
0.5	1.3			Brown sandy SILT some clay, trace fine
				gravel
1.3	2.1			Light brown fine to medium SAND, little
				silt, dry
2.1	2.6			Light brown fine silty SAND, some clay, dry
2.6	3.3			Light brown clayey SILT, trace fine sand, dry
3.3	3.6			Light brown silty CLAY, little fine sand, dry
3.6	5.2			Reddish brown fine to medium SAND, some silt
				trace clay, moist
5.2	5.7			Light reddish brown fine to medium silty
				SAND, wet
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-8 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/30/92 Drilling Completed 1/30/92

Total Depth Drilled 4.8 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1005.7 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			TOPSOIL
0.5	1.0			Light brown clayey SILT, some fine sand, dry
1.0	1.7			Reddish brown silty CLAY, trace fine sand, dry
1.7	4.0			Light red-brown silty fine SAND, some clay,
				wet
4.0	4.8			Gray CLAY, little silt, moist
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-9 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/30/92 Drilling Completed 1/30/92

Total Depth Drilled _____ feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1005.7 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Brown SILT with some CLAY and fine SAND
				(topsoil)
0.5	2.5			Brown to tan silty CLAY with some fine sand
				and silt seams, dry
2.5	4.0			Tan fine SAND and silt, moist
4.0				Brown CLAY, dry
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-10 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/30/92 Drilling Completed 1/30/92

Total Depth Drilled 4.0 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1009.4 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			TOPSOIL
0.5	1.0			Dark brown sandy SILT, some clay and trace
				fine gravel
1.0	1.3			Tan to light brown fine to medium SAND and
				fine gravel, some silt and clay
1.3	1.8			Light brown fine to medium SAND, little
				sand trace clay, moist
1.8	2.0			Tan to red-brown, sandy CLAY, some silt and
				little fine gravel, moist
2.0	2.7			Light brown fine to medium SAND, little
				silt, trace clay, moist
2.7	3.1			Stiff gray CLAY, trace silt
3.1	3.7			Light brown silty CLAY
3.7	4.0			Brown and gray mottled CLAY
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-11 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/30/92 Drilling Completed 1/30/92

Total Depth Drilled 6.0 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1010.1 feet ☒ Surveyed ☐ Estimated Datum

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Topsoil, medium to fine SAND and SILT, trace
				fine gravel at 0.5 feet, dry
0.5	1.0			Tan, clayey SAND, moist
1.0	2.5			Tan, silty sandy CLAY, moist
2.5	6.0			Mottled gray and brown, silty CLAY, wet at
				4.0 feet
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-12 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/30/92 Drilling Completed 1/30/92

Total Depth Drilled 6.0 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.2			TOPSOIL
0.2	1.0			Tan fine to coarse GRAVEL, some fine to medium
				sand, little silt
1.0	1.5			Brown silty CLAY, little fine sand
1.5	2.0			Light brown to tan fine to medium SAND, little
				silt
2.0	2.4			Light brown and gray mottled clayey SILT,
				little fine sand
2.4	3.2			Reddish-brown and gray mottled CLAY with silt
3.2	3.6			Light brown SILT, little clay, trace fine sand
3.6	4.0			Brown silty CLAY
4.0	6.0			Light brown SILT, little clay, wet
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-13 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/30/92 Drilling Completed 1/30/92

Total Depth Drilled 6.0 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1005.7 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			TOPSOIL, medium to fine SAND and silt, trace fine
				gravel at 0.5 feet, dry
0.5	0.75			Brown to tan, coarse SAND and fine gravel, dry
0.75	1.5			Brown silty CLAY, dry
1.5	6.0			Tan fine SAND and silt, wet at 4.0 feet
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-14 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/30/92 Drilling Completed 1/30/92

Total Depth Drilled 6.0 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.4 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.3			TOPSOIL
0.3	1.0			Fill, gravel and CLAY with some fine to medium sand
1.0	2.2			Light brown silty CLAY
2.25	2.5			Tan to brown clayey SAND, some silt, some fine gravel
2.5	3.7			Stiff brown and gray mottled CLAY, dry
3.7	4.3			Light brown to yellow-brown SILT, little clay and little
				fine sand
4.3	4.6			Brown and gray mottled clayey SILT
4.6	5.0			Brown and gray mottled CLAY and some silt
5.0	6.0			Tan clayey SILT, with trace fine SAND, wet
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-15 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 2/19/92 Drilling Completed 2/19/92

Total Depth Drilled 6.0 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1005.6 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Topsoil, brown medium to fine SAND and silt, dry
0.5	0.75			Brown, silty-CLAY and fine to coarse gravel
				and sand, dry
0.75	3.5			Mottled gray and brown silty CLAY, dry
3.5	4.0			Tan fine SAND and SILT, dry
4.0	4.5			Mottled gray and brown silty CLAY, dry
4.5	6.0			Tan silty fine SAND, wet
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-16 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 2/19/92 Drilling Completed 2/19/92

Total Depth Drilled 4.2 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1006 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0.0	0.5			Fill (topsoil, sand, gravel)
0.5	1.0			Brown and gray mottled CLAY, little sand
1.0	2.6			Tan, sandy SILT, little clay
2.6	3.3			Red brown CLAY
3.3	4.2			Interbedded brown-gray clayey SILT with
				stiff gray CLAY and silty CLAY, wet at
				3.8 feet
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-17 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 2/19/92 Drilling Completed 2/19/92

Total Depth Drilled 5.0 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1006.1 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Topsoil, brown fine SAND, silt and clay, trace
				fine to coarse gravel at 0.5 feet
0.5	1.5			Mottled gray and brown silty CLAY, moist
1.5	2.0			Tan, clayey SILT, moist
2.0	3.5			Mottled brown and gray silty CLAY, several
				silty fine sand seams encountered, moist
3.5	5.0			Gray clayey SILT, wet
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-18 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 2/19/92 Drilling Completed 2/19/92

Total Depth Drilled 6.0 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1006.1 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.3			Topsoil
0.3	2.1			Tan, fine to medium silty SAND, little clay
2.5	2.7			Red-brown, clayey SILT, wet
2.7	3.0			Brown clayey SILT, wet
3.0	3.5			Brown and gray mottled CLAY, little silt
3.5	5.7			Tan sandy SILT, little clay, moist
5.7	6.0			Tan sandy SILT, little clay, wet
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-19 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 2/19/92 Drilling Completed 2/19/92

Total Depth Drilled 6.0 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1005.5 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Topsoil, brown fine SAND, silt and clay,
				trace fine to coarse gravel at 0.5 feet
0.5	2.0			Mottled gray and brown silty CLAY, moist
2.0	6.0			Tan to brown clayey, silty-fine SAND, wet
				at 5.5 feet. Several thin (0.25') clay
				seams encountered.
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-20 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 2/19/92 Drilling Completed 2/19/92

Total Depth Drilled 6.0 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1003.7 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.3			Topsoil
0.3	6.0			Fill (brown to tan, fine to coarse SAND
				and fine to coarse GRAVEL)
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-21 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 2/21/92 Drilling Completed 2/21/92

Total Depth Drilled 5.6 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1010.4 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Topsoil
0.5	5.6			Brown to tan, poorly graded, fine to
				coarse GRAVEL (FILL), wet at 4 feet.
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-22 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 2/20/92 Drilling Completed 2/20/92

Total Depth Drilled 6 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1005.5 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.15			Topsoil, brown fine SAND, silt and
				clay, trace fine gravel at 0.5 feet, dry
0.15	2			Tan, medium to coarse SAND and fine gravel,
				moist
2	6			Tan, fine SAND and silt, several silty
				clay seams encountered, wet at 4.0 feet
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-23 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 2/20/92 Drilling Completed 2/20/92

Total Depth Drilled 6.0 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1005.6 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Topsoil, brown fine SAND, silt and
				clay, trace fine gravel at 0.5 feet, dry
0.5	1.0			Brown silty-clay, dry
1.0	4.0			Brown to tan clayey SILT with several
				thin clay seams, moist
4.0	6.0			Tan, fine SAND and silt, wet
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-24 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 2/20/92 Drilling Completed 2/20/92

Total Depth Drilled 5.5 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1006.3 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.3			Topsoil
0.3	1.0			Brown and gray mottled CLAY
1.0	2.5			Tan SILT, little fine SAND, little clay
2.5	5.0			Stiff gray CLAY with interbedded gray
				clayey SILT and tan-brown sandy SILT,
				wet at 4.5'
5.0	5.5			Stiff gray CLAY
				EOB

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SAMPLE/CORE LOG

Boring/Well SBM-25 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 2/21/92 Drilling Completed 2/21/92

Total Depth Drilled 11 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.1 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.75			Topsoil, medium to fine SAND, silt and clay
				trace fine gravel at 0.5 feet
0.75	5			Brown to tan, medium to fine SAND, moist
5	6			Gray, medium to fine SAND, moist
6	10.5			Tan, medium to coarse SAND, trace fine gravel,
				moist
10.5	11			Tan, fine SAND and silt, wet
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well SBM-26 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 2/21/92 Drilling Completed 2/21/92

Total Depth Drilled 6 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1005.2 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Topsoil
0.5	2.2			Tan, fine to coarse SAND, little silt
2.2	2.5			Brown to tan, clayey SILT, some fine sand,
				moist
2.5	6.0			Tan to light brown, fine to medium SAND, little
				fine to medium gravel, little silt, wet at 4.5 feet
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well SBM-27 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 1/21/92 Drilling Completed 1/21/92

Total Depth Drilled 7.3 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1007.9 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used None Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			Topsoil
0.5	1.5			Brown and gray mottled CLAY, some silt and a little fine sand
1.5	2.2			Tan, sandy SILT, little clay, trace fine gravel
2.2	2.9			Dark brown, poorly graded, fine to coarse SAND and fine to
				medium GRAVEL
2.9	4.0			Stiff brown and gray mottled CLAY
4.0	5.0			Tan sandy SILT
5.0	5.7			Stiff brown and gray mottled CLAY
5.7	6.3			Tan sandy SILT
6.3	7.3			Tan clayey SILT, some fine sand
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well SBM-28 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 3/5/92 Drilling Completed 3/5/92

Total Depth Drilled 6 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1006.4 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used N/A Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.25			TOPSOIL
0.25	0.5			Brown, medium to coarse SAND, fine to coarse
				gravel, dry
0.5	5			Brown and gray mottled silty CLAY, several thin (0.1')
				tan silt layers, moist
5	6			Gray silty CLAY, moist
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well SBM-29 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 3/5/92 Drilling Completed 3/5/92

Total Depth Drilled 6 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1008.1 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used N/A Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			TOPSOIL
0.5	4.5			Brown and gray, mottled gray silty CLAY, hydrocarbon
				odor, dry
4.5	5.0			Tan SILT and some fine sand, moist
5.0	5.5			Brown and gray mottled silty CLAY, moist
5.5	6.0			Gray CLAY, dry
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well SBM-30 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 3/5/92 Drilling Completed 3/5/92

Total Depth Drilled 6 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1006.7 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used N/A Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			TOPSOIL
0.5	2.5			Brown and gray, mottled gray, some silt, gasoline
				odor
2.5	5.75			Interbedded stiff, gray CLAY and tan/buff sandy
				SILT, gasoline odor, wet at 5.0'
5.75	6.0			Stiff gray CLAY
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well SBM-31 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 3/5/92 Drilling Completed 3/5/92

Total Depth Drilled 6 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1006.6 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used N/A Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			TOPSOIL
0.5	0.75			Brown to tan, fine to coarse SAND, some fine gravel,
				dry
0.75	4.5			Brown and gray mottled silty CLAY, moist
4.5	5.0			Tan SILT and fine sand, wet
5.0	6.0			Gray silty CLAY, moist
				EOB

GERAGHTY & MILLER, INC.
Environmental Services

SAMPLE/CORE LOG

Boring/Well SBM-32 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 3/5/92 Drilling Completed 3/5/92

Total Depth Drilled 6 feet Hole Diameter 3.25 inches Type of Sample/ Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1008.2 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used N/A Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By Rob Sanborn Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			TOPSOIL
0.5	0.75			Tan, fine to coarse SAND, some fine gravel, dry
0.75	1.25			Tan SILT and fine sand, dry
1.25	6.0			Brown and gray mottled silty CLAY, moist at 5.5'
				EOB

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Environmental Services

SAMPLE/CORE LOG

Boring/Well SBM-33 Project/No. MI135.07 Page 1 of 1

Site Location Highland, MI Drilling Started 3/5/92 Drilling Completed 3/5/92

Total Depth Drilled 6 feet Hole Diameter 3.25 inches Type of Sample/Coring Device Hand Auger

Length and Diameter of Coring Device 8" X 3.25" Auger Bucket Sampling Interval Continuous feet

Land-Surface Elev. 1006.3 feet ☒ Surveyed ☐ Estimated Datum Mean Sea Level

Drilling Fluid Used N/A Drilling Method HAB

Drilling Contractor N/A Driller N/A Helper N/A

Prepared By John Johnston Hammer Weight N/A Hammer Drop N/A inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	0.5			TOPSOIL
0.5	4.5			Brown and gray mottled silty CLAY, moist
4.5	5.0			Tan SILT and fine sand, wet
5.0	6.0			Gray CLAY with some silt, moist
				EOB

APPENDIX G

GERAGHTY & MILLER PIEZOMETER INSTALLATION LOGS,

PHASE II REMEDIAL INVESTIGATION

GERAGHTY & MILLER, INC.
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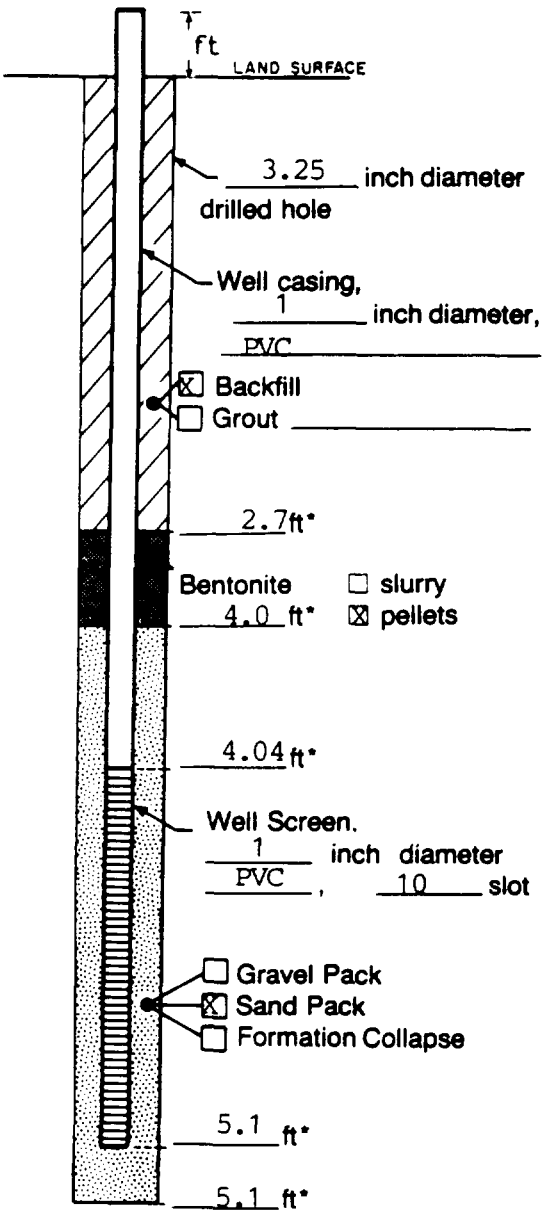
WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project MI135.07 Well P-1RD'
Town/City Highland
County Oakland State MI
Permit No. _____
Land-Surface Elevation
and Datum 1007.1 feet ☒ Surveyed
Mean Sea Level ☐ Estimated
Installation Date(s) November 14, 1991
Drilling Method HAB
Drilling Contractor _____
Drilling Fluid _____

Development Technique(s) and Date(s)

Fluid Loss During Drilling _____ gallons
Water Removed During Development _____ gallons
Static Depth to Water _____ feet below M.P.
Pumping Depth to Water _____ feet below M.P.
Pumping Duration _____ hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose Determine hydraulic parameters

Remarks

Prepared by C. Greenough

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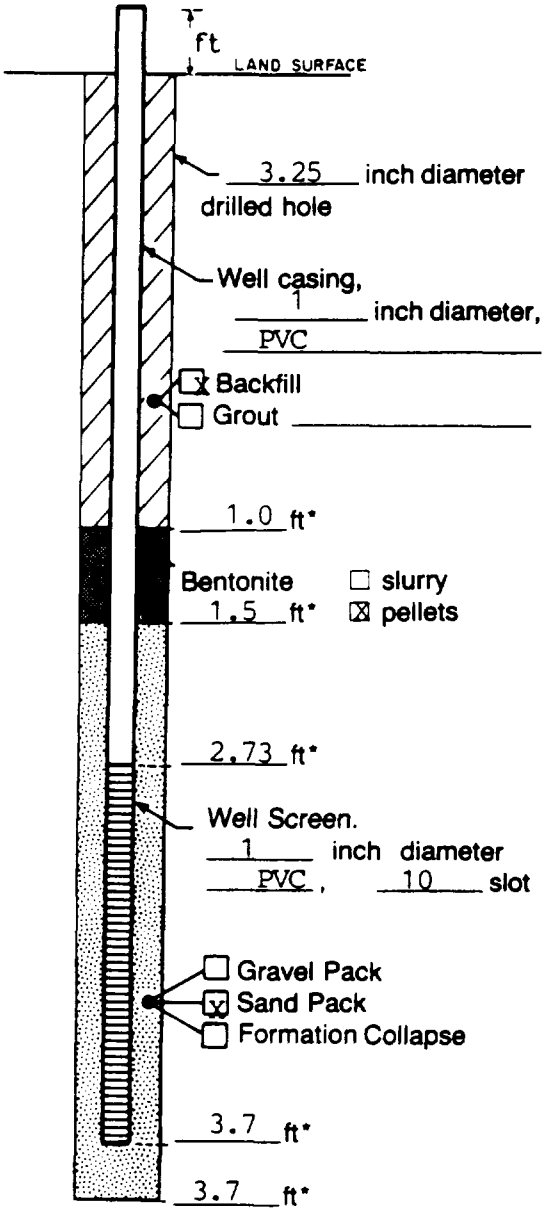
WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project MI135.07 Well P-3
Town/City Highland
County Oakland State MI
Permit No. _____
Land-Surface Elevation
and Datum 1005.7 feet ☒ Surveyed
Mean Sea Level ☐ Estimated
Installation Date(s) November 20, 1991
Drilling Method HAB
Drilling Contractor _____
Drilling Fluid _____

Development Technique(s) and Date(s)

Fluid Loss During Drilling _____ gallons
Water Removed During Development _____ gallons
Static Depth to Water _____ feet below M.P.
Pumping Depth to Water _____ feet below M.P.
Pumping Duration _____ hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose Determine hydraulic parameters

Remarks

Prepared by C. Greenough

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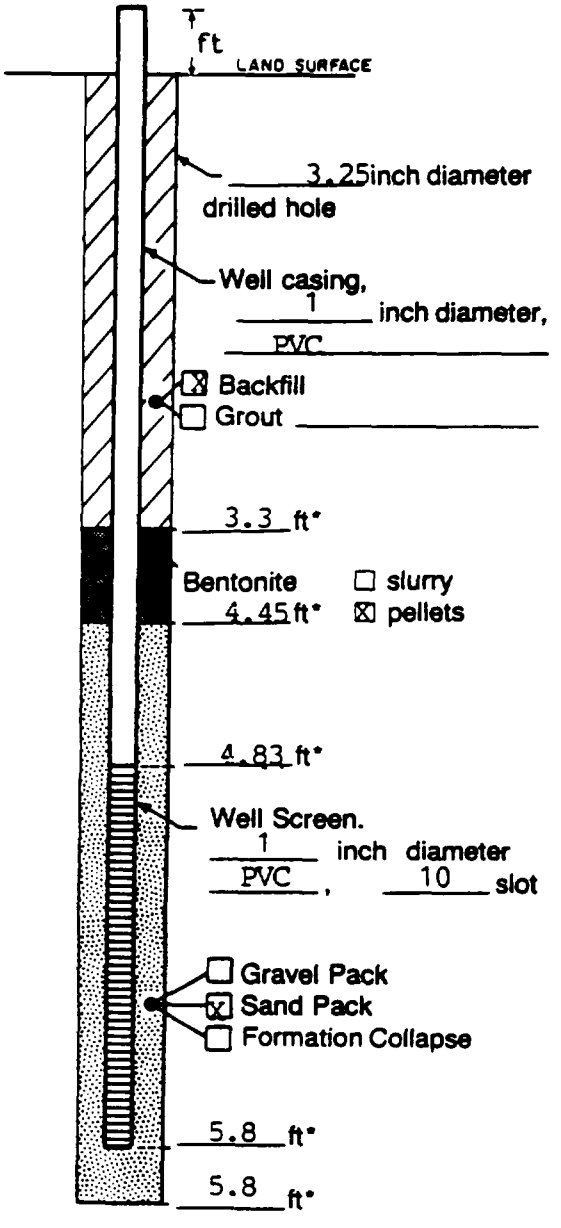
WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project MI135.07 Well P-3RD
Town/City Highland
County Oakland State MI
Permit No. _____
Land-Surface Elevation
and Datum 999.6 feet ☒ Surveyed
Mean Sea Level ☐ Estimated
Installation Date(s) November 13, 1991
Drilling Method HAB
Drilling Contractor _____
Drilling Fluid _____

Development Technique(s) and Date(s)

Fluid Loss During Drilling _____ gallon
Water Removed During Development _____ gallon
Static Depth to Water _____ feet below M.P
Pumping Depth to Water _____ feet below M.P
Pumping Duration _____ hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose Determine hydraulic parameters

Remarks

Prepared by C. Greenough

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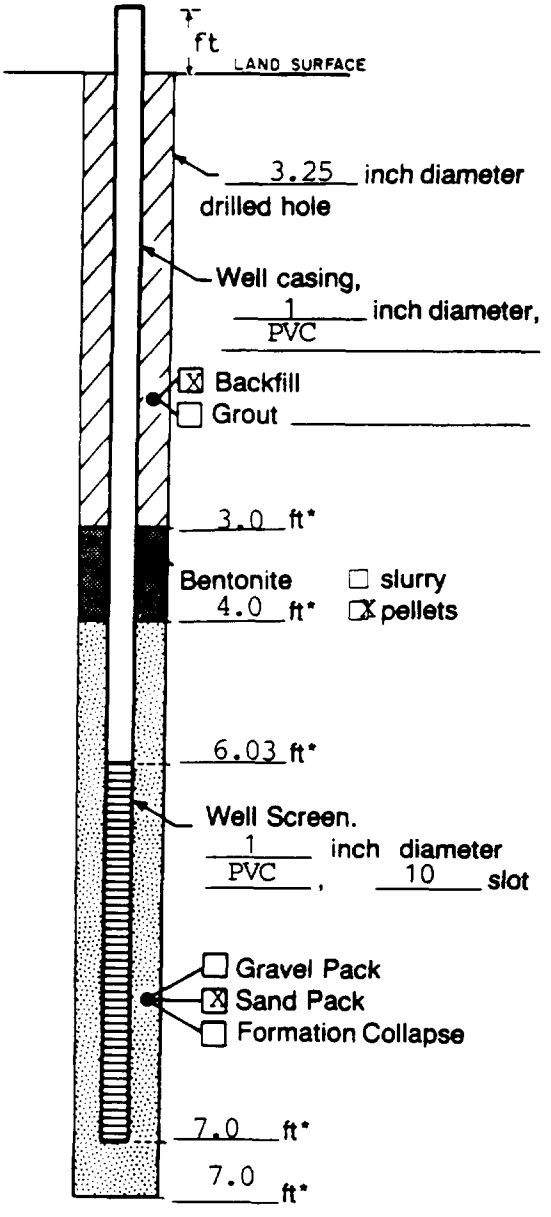
WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project MI135.07 Well P-6
Town/City Highland
County Oakland State MI
Permit No. _____
Land-Surface Elevation
and Datum 1007.2 feet ☒ Surveyed
Mean Sea Level ☐ Estimated
Installation Date(s) November 20, 1991
Drilling Method HAB
Drilling Contractor _____
Drilling Fluid _____

Development Technique(s) and Date(s)

Fluid Loss During Drilling _____ gallons
Water Removed During Development _____ gallons
Static Depth to Water _____ feet below M.P.
Pumping Depth to Water _____ feet below M.P.
Pumping Duration _____ hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose Determine hydraulic parameters

Remarks

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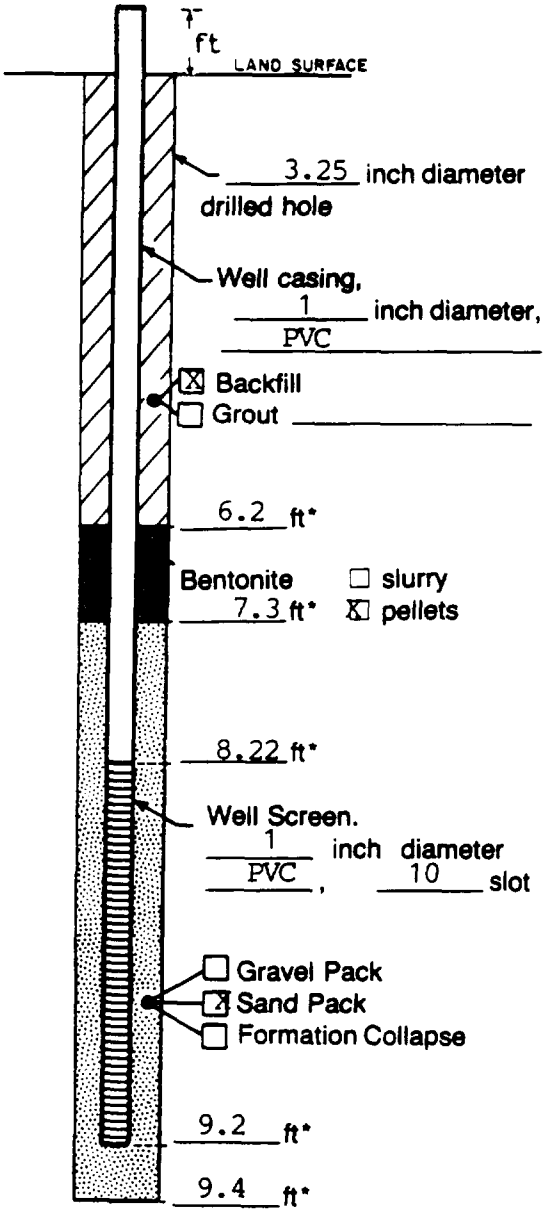
WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project MI135.07 Well P-6RD
Town/City Highland
County Oakland State MI
Permit No. _____
Land-Surface Elevation and Datum 1004 feet Mean Sea Level ☒ Surveyed ☐ Estimated
Installation Date(s) November 14, 1991
Drilling Method HAB
Drilling Contractor _____
Drilling Fluid _____

Development Technique(s) and Date(s)

Fluid Loss During Drilling _____ gallons
Water Removed During Development _____ gallons
Static Depth to Water _____ feet below M.P.
Pumping Depth to Water _____ feet below M.P.
Pumping Duration _____ hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose Determine hydraulic parameters

Remarks

Prepared by C. Greenough

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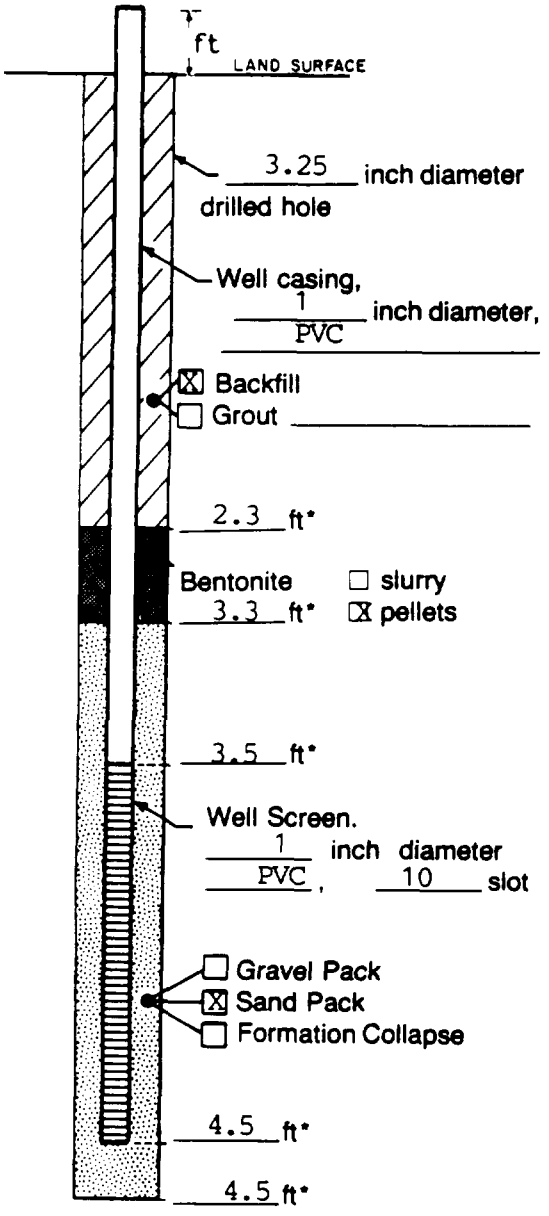
WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project MI135.07 Well P-7
Town/City Highland
County Oakland State MI
Permit No.
Land-Surface Elevation
and Datum 1009.8 feet ☒ Surveyed
Mean Sea Level ☐ Estimated
Installation Date(s) November 14, 1991
Drilling Method HAB
Drilling Contractor
Drilling Fluid

Development Technique(s) and Date(s)

Fluid Loss During Drilling gallons
Water Removed During Development gallons
Static Depth to Water feet below M.P
Pumping Depth to Water feet below M.P
Pumping Duration hours
Yield gpm Date
Specific Capacity gpm/ft
Well Purpose Determine hydraulic parameters

Remarks

Prepared by C. Greenough

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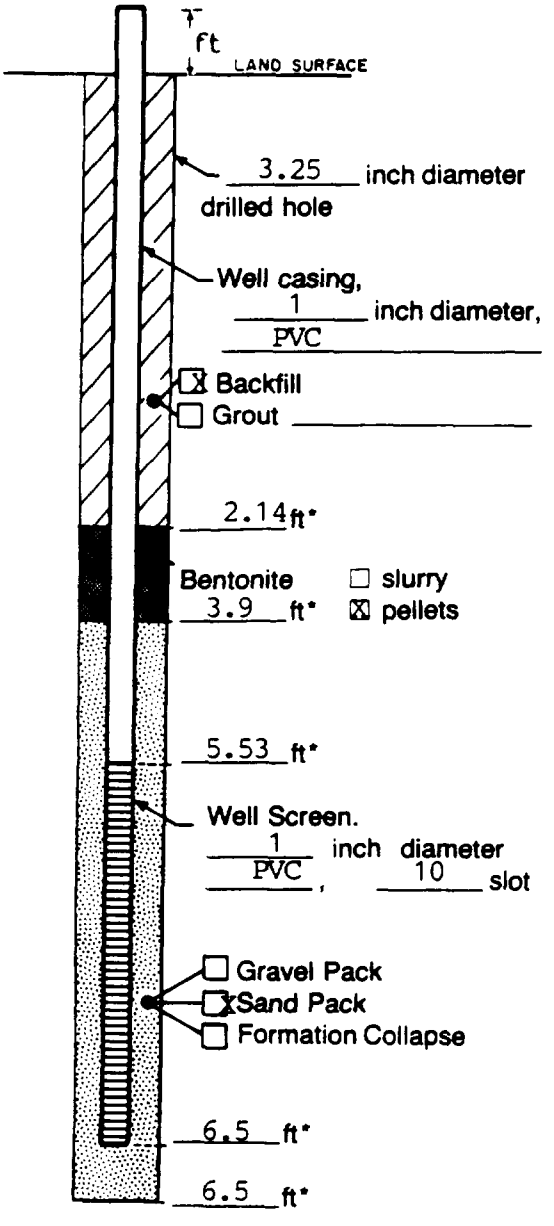
WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project MI135.07 Well P-8
Town/City Highland
County Oakland State MI
Permit No. _____
Land-Surface Elevation
and Datum 1004 feet ☒ Surveyed
Mean Sea Level ☐ Estimated
Installation Date(s) November 14, 1991
Drilling Method HAB
Drilling Contractor _____
Drilling Fluid _____

Development Technique(s) and Date(s)

Fluid Loss During Drilling _____ gallons
Water Removed During Development _____ gallons
Static Depth to Water _____ feet below M.P.
Pumping Depth to Water _____ feet below M.P.
Pumping Duration _____ hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose Determine hydraulic parameters

Remarks _____

Prepared by C. Greenough

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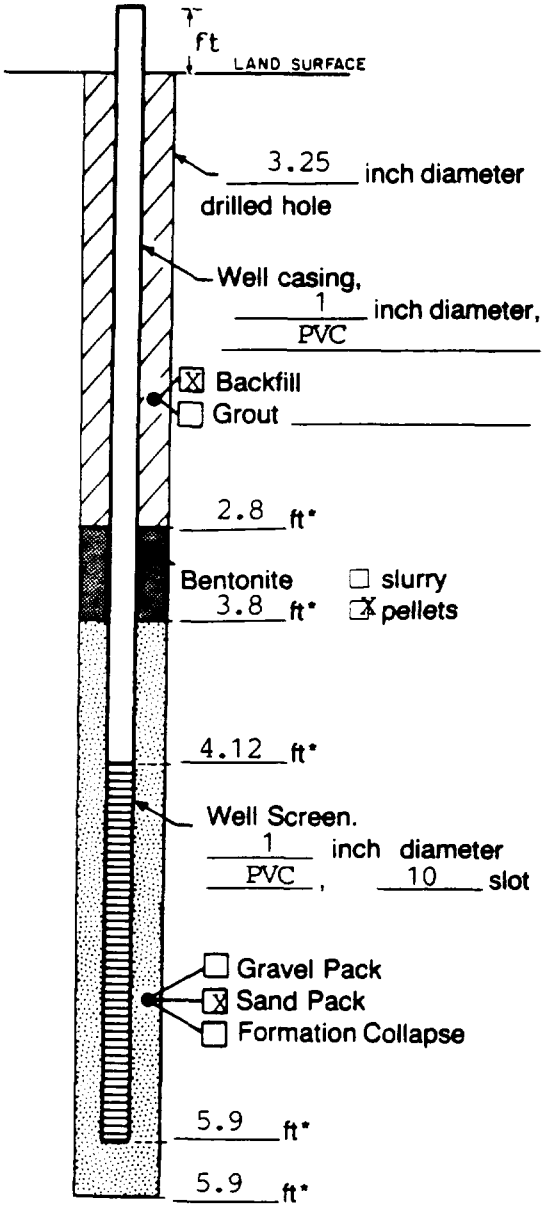
WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project MI135.07 Well P-9
Town/City Highland
County Oakland State MI
Permit No.
Land-Surface Elevation
and Datum 1009.9 feet ☒ Surveyed
Mean Sea Level ☐ Estimated
Installation Date(s) November 19, 1991
Drilling Method HAB
Drilling Contractor
Drilling Fluid

Development Technique(s) and Date(s)

Fluid Loss During Drilling gallons
Water Removed During Development gallons
Static Depth to Water feet below M.P.
Pumping Depth to Water feet below M.P.
Pumping Duration hours
Yield gpm Date
Specific Capacity gpm/ft
Well Purpose Determine hydraulic parameters

Remarks

Prepared by C. Greenough

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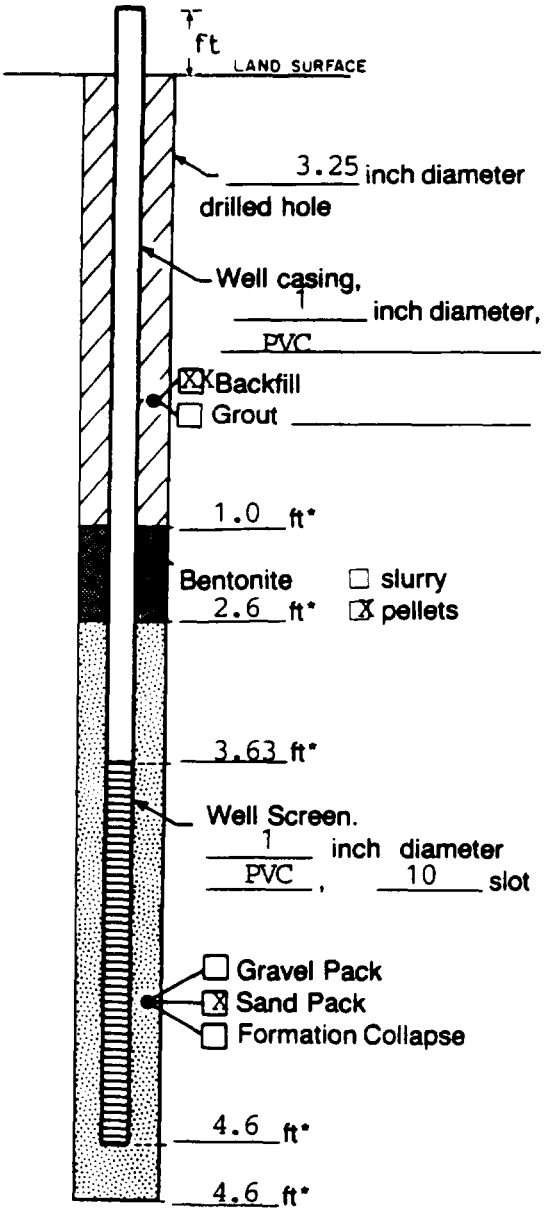
Environmental Services

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project MI135.07 Well P-10
Town/City Highland
County Oakland State MI
Permit No.
Land-Surface Elevation
and Datum 1009.6 feet ☒ Surveyed
Mean Sea Level ☐ Estimated
Installation Date(s) November 19, 1991
Drilling Method HAB
Drilling Contractor
Drilling Fluid

Development Technique(s) and Date(s)

Fluid Loss During Drilling gallons
Water Removed During Development gallons
Static Depth to Water feet below M.P.
Pumping Depth to Water feet below M.P.
Pumping Duration hours
Yield gpm Date
Specific Capacity gpm/ft
Well Purpose Determine hydraulic parameters

Remarks

Prepared by C. Greenough

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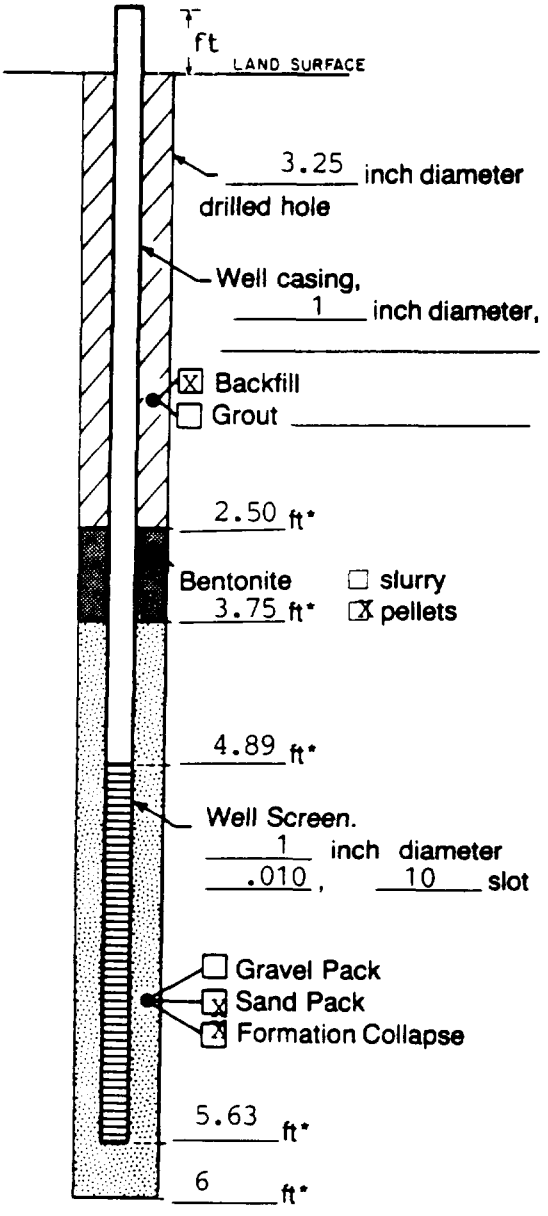
WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project Hi-Mill/MI135.07 Well P-11B
Town/City Highland
County Oakland State MI
Permit No. --
Land-Surface Elevation
and Datum 1005.9 feet ☒ Surveyed
Mean Sea Level ☐ Estimated
Installation Date(s) 2/27/92
Drilling Method Hand Auger boring
Drilling Contractor N/A
Drilling Fluid None

Development Technique(s) and Date(s)
None

Fluid Loss During Drilling N/A gallons
Water Removed During Development None gallons
Static Depth to Water 4 feet below M.P
Pumping Depth to Water N/A feet below M.P
Pumping Duration N/A hours
Yield N/A gpm Date
Specific Capacity gpm/ft
Well Purpose

Remarks

Prepared by R. Sanborn

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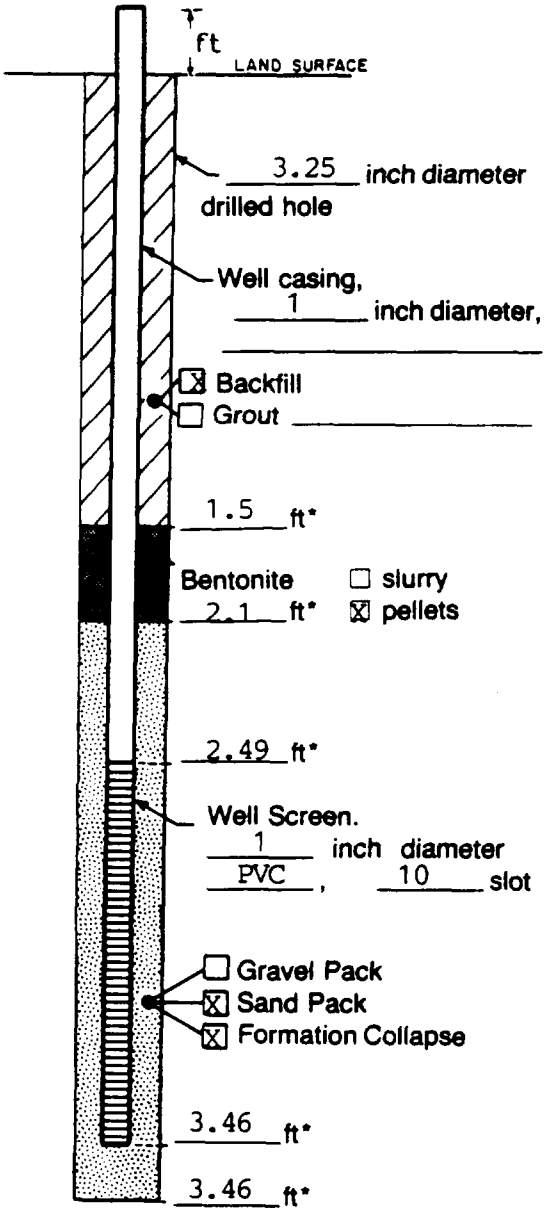
WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project Hi-Mill/MI135.07 Well P-12
Town/City Highland
County Oakland State MI
Permit No. --
Land-Surface Elevation
and Datum 1006.3 feet ☒ Surveyed
Mean Sea Level ☐ Estimated
Installation Date(s) 1/27/92
Drilling Method Hand Auger
Drilling Contractor
Drilling Fluid None

Development Technique(s) and Date(s)

Fluid Loss During Drilling N/A gallons
Water Removed During Development gallons
Static Depth to Water feet below M.P
Pumping Depth to Water feet below M.P.
Pumping Duration hours
Yield gpm Date
Specific Capacity gpm/ft
Well Purpose Determine hydraulic parameters

Remarks

Prepared by R. Sanborn

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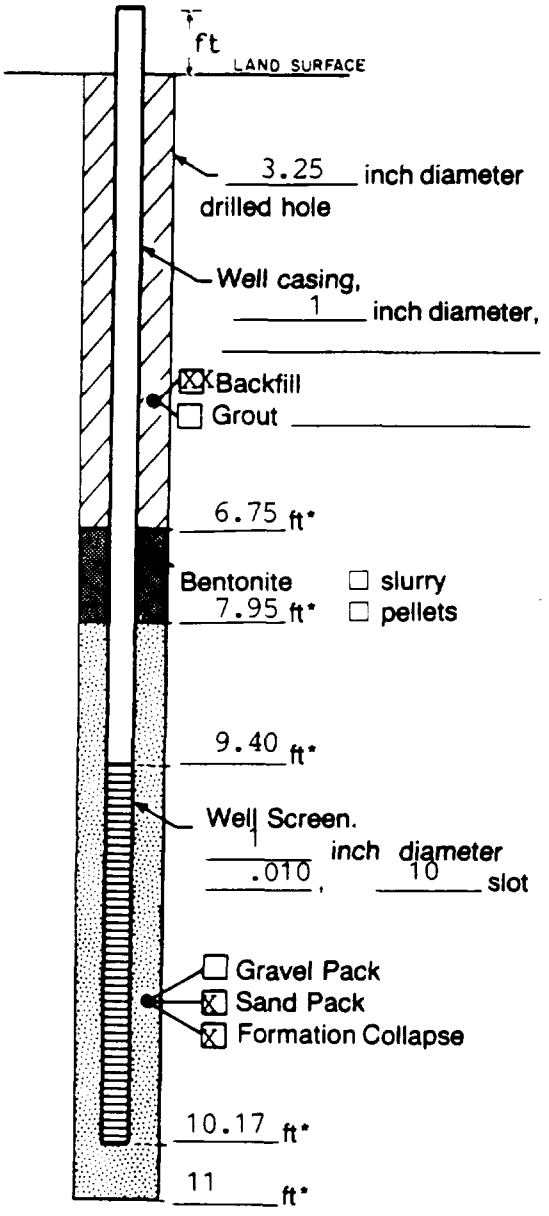
Environmental Services

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project Hi-Mill/MI135.07 Well P-13B
Town/City Highland
County Oakland State MI
Permit No. --
Land-Surface Elevation
and Datum 1007.2 feet ☒ Surveyed
Mean Sea Level ☐ Estimated
Installation Date(s) 2/27/92
Drilling Method Hand Auger boring
Drilling Contractor N/A
Drilling Fluid None

Development Technique(s) and Date(s)
None

Fluid Loss During Drilling N/A gallons
Water Removed During Development None gallons
Static Depth to Water 4 feet below M.P.
Pumping Depth to Water N/A feet below M.P.
Pumping Duration N/A hours
Yield N/A gpm Date
Specific Capacity N/A gpm/ft
Well Purpose

Remarks

Prepared by R. Sanborn

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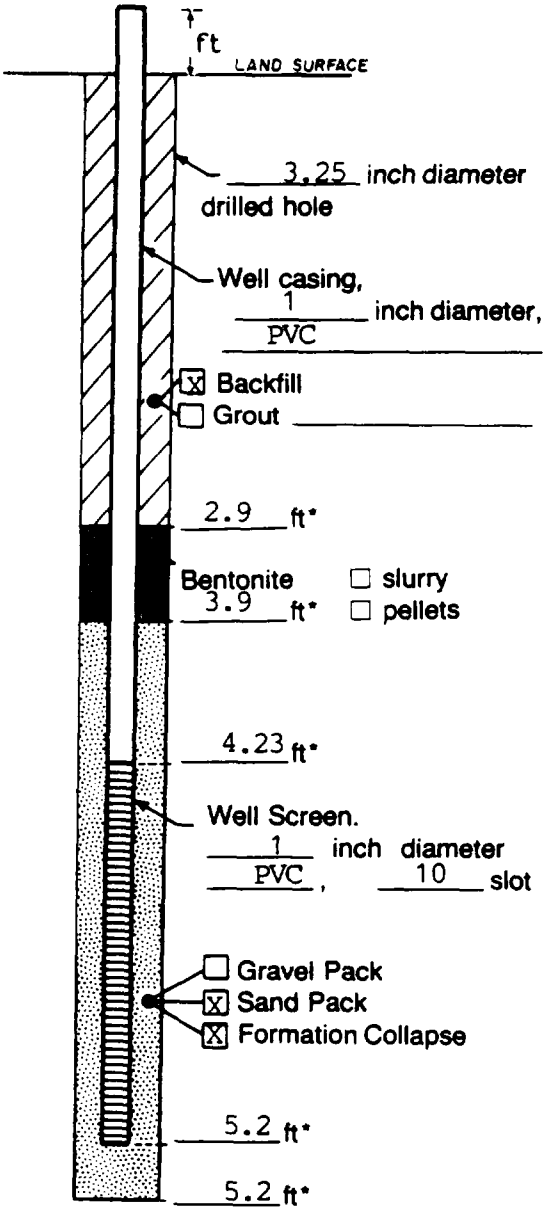
Environmental Services

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project MI135.07 Well P-14
Town/City Highland
County Oakland State MI
Permit No. _____
Land-Surface Elevation
and Datum 1006.8 feet ☒ Surveyed
Mean Sea Level ☐ Estimated
Installation Date(s) November 18, 1991
Drilling Method HAB
Drilling Contractor _____
Drilling Fluid _____

Development Technique(s) and Date(s)

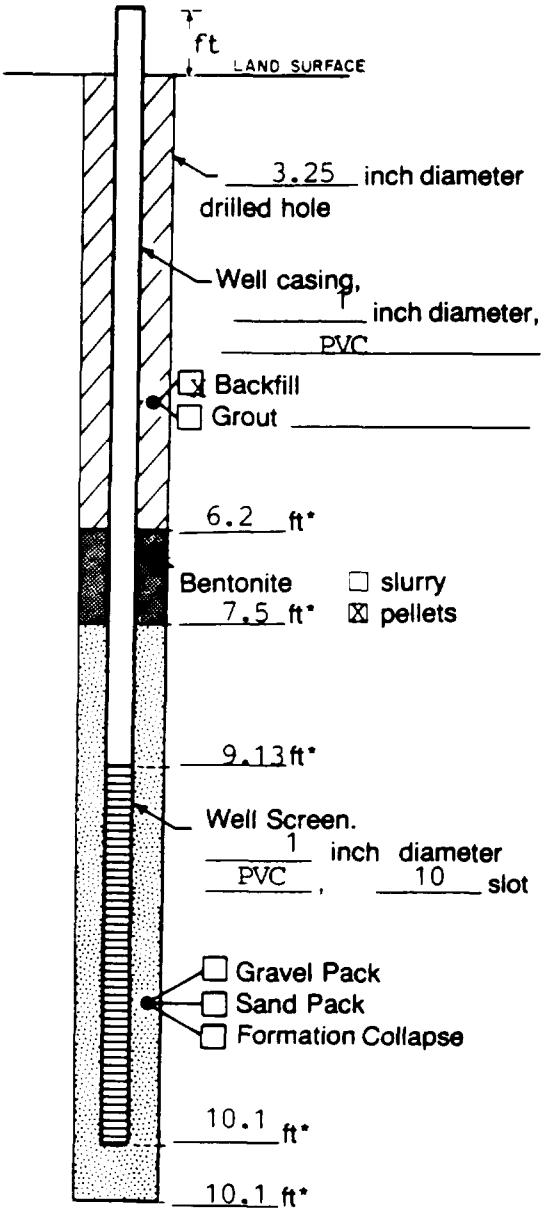
Fluid Loss During Drilling _____ gallons
Water Removed During Development _____ gallons
Static Depth to Water _____ feet below M.P.
Pumping Depth to Water _____ feet below M.P.
Pumping Duration _____ hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose Determine hydraulic parameters

Remarks Native soils collapse in boring during sand pack fill

Prepared by C. Greenough

GERAGHTY & MILLER, INC.
Environmental Services

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project MI135.07 Well P-15

Town/City Highland

County Oakland State MI

Permit No.

Land-Surface Elevation and Datum 1007.6 feet Mean Sea Level ☒ Surveyed ☐ Estimated

Installation Date(s) November 15, 1991

Drilling Method HAB

Drilling Contractor

Drilling Fluid

Development Technique(s) and Date(s)

Fluid Loss During Drilling _____ gallons

Water Removed During Development _____ gallons

Static Depth to Water _____ feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

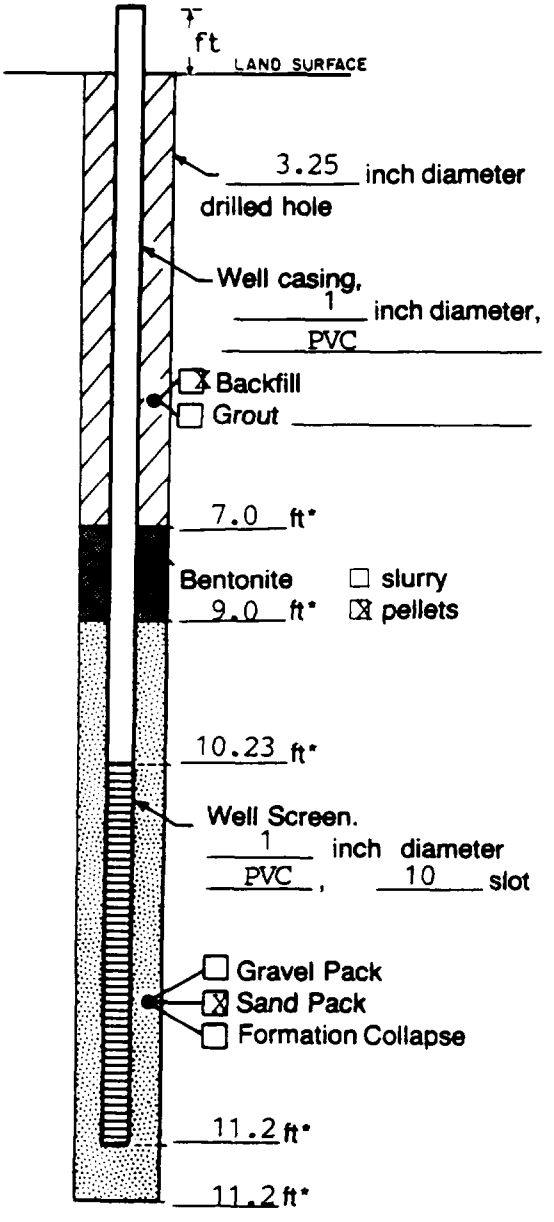
Well Purpose Determine hydraulic parameters

Remarks Native collapse while sand packing

Prepared by C. Greenough

GERAGHTY & MILLER, INC.
Environmental Services

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project MI135.07 Well P-17
Town/City Highland
County Oakland State MI
Permit No.
Land-Surface Elevation
and Datum 1007.6 feet ☒ Surveyed
Mean Sea Level ☐ Estimated
Installation Date(s) November 18, 1991
Drilling Method HAB
Drilling Contractor
Drilling Fluid

Development Technique(s) and Date(s)

Fluid Loss During Drilling gallons
Water Removed During Development gallons
Static Depth to Water feet below M.P.
Pumping Depth to Water feet below M.P.
Pumping Duration hours
Yield gpm Date
Specific Capacity gpm/ft
Well Purpose Determine hydraulic parameters

Remarks

Prepared by C. Greenough

APPENDIX H

MDNR BORING AND WELL INSTALLATION LOGS

[illegible]

TEST WELL RECORD

PROJECT: Hi-Mill Vicinity

[illegible] 1		SECTION NO. 25	TOWN [illegible]	RANGE [illegible]

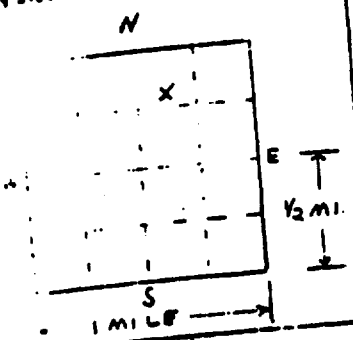
[illegible]ATION: [illegible]and

TOWNSHIP NAME: Highland

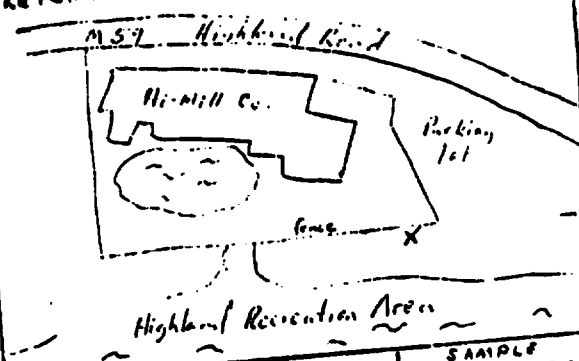
FRACTION: SE ¼ NW ¼ NE ¼

[illegible] ADDRESS AND CITY OF WELL LOCATION: [illegible]hland Road (M59), Highland, MI.

[illegible]ATION IN SECTION [illegible] WITH "X"



SKETCH MAP OF LOCATION [NO SCALE]



PROPERTY OWNER [illegible] Highland State Recreation Area

ADDRESS: Highland Road, Highland, MI. 48031

WELL DEPTH (COMPLETED): 6.9 ft.

DATE OF COMPLETION: 5/18/81

DRILLING METHOD(S): 3" hand auger

DEPTH(S): 7 feet

CASING: DIAMETER 1¼" IN. TO 3.9 FT. DEPTH

HEIGHT ABOVE SURFACE: 1.03 FT.

____ IN. TO ____ FT. DEPTH

TYPE [illegible] WEIGHT [illegible]

SCREEN: PVC TYPE

DIAM. 1¼

SLOT/GAUZE 7 slot

LENGTH 3 ft

SET BETWEEN 3.9 FT. AND 6.9 FT.

WATER LEVELS FIRST NOTED AT 3-4 FT BELOW SURF[illegible]

AFTER COMPLETION 1.62 FT BEL[illegible] SURFACE[illegible] OR CASING TOP[illegible]

SURFACE ELEVATION 1006.5 ft.

SEALING METHOD Sand packed to surface, filled to surface with [illegible] bentonite.

CREW Driller Charles Ingalls
Drillers Assistant Jerry [illegible]
Geologist Kathleen Sibo

RECORD BY Kathleen Sibo [illegible]

DATE 6/26/81

REMARKS

[illegible]	THICKNESS OF STRATUM	DESCRIPTION	SAMPLE IDENTIFICATION NO.	SAMPLE IDENTIFICATION TYPE
7'	7'	Clay, dense + plastic, blue-grey w/ limonite staining.		

PLUGGING AND ABANDONMENT ME[illegible]

DATE
CREW
RECORD BY

[illegible]
GROUND [illegible]
TEST WELL RECORD

PERT. [illegible]
[illegible]

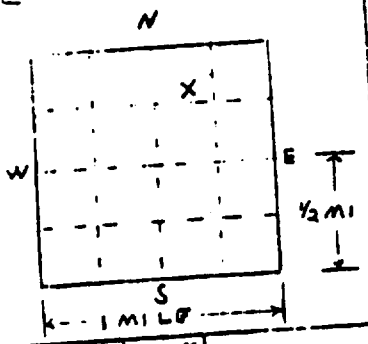
WELL NO. HM 2

PROJECT: Hi-Mill Vicinity

LOCATION	TOWNSHIP NAME	FRACTION	SECTION NO.	TOWN	RANGE
Oakland	Highland	SE ¼ NW ¼ NE ¼	23	T3N N/S	R7E

STREET ADDRESS AND CITY OF WELL LOCATION
Highland Road (M59), Highland

LOCATION IN SECTION [MARK WITH "X"]



SKETCH MAP OF LOCATION [NO SCALE]

PROPERTY OWNER State of Michigan
ADDRESS Highland State Recreation Area
Highland Road
Highland, MI. 48031

WELL DEPTH (COMPLETED) 6.9 ft
DATE OF COMPLETION 5/15/81

DRILLING METHOD(S) 3" hand auger
DEPTH(S) 7 feet

CASING: DIAMETER 1¼ IN. TO 3.9 FT. DEPTH
HEIGHT ABOVE SURFACE 1.07 FT
____ IN. TO ____ FT. DEPTH
TYPE [illegible]
WEIGHT [illegible]

SCREEN: PVC
TYPE
DIAM. 1¼
SLOT/GAUZE 7 slot
LENGTH 3 [illegible]
SET BETWEEN 3.9 FT. AND 6.9 FT.

WATER LEVELS
FIRST NOTED AT ____ FT BELOW SURF
AFTER COMPLETION 1.75 FT BELOW SURFACE OR CASING TOP
SURFACE ELEVATION 1006 ft.

SEALING METHOD Sand packed 2'3" of top, powdered bentonite [illegible] surface

CREW Driller Charles Ingalls
Driller's Assistant Jerry Parrish
Geology st Kathleen Sibo
RECORD BY Kathleen Sibo [illegible]

DATE 6/26/81
REMARKS

DEPTH FROM	DEPTH TO	THICKNESS OF STRATUM	DESCRIPTION	SAMPLE IDENTIFICATION NO.	SAMPLE IDENTIFICATION TYPE
	7'	7'	Clay, grey		

PLUGGING AND ABANDONMENT M

DATE

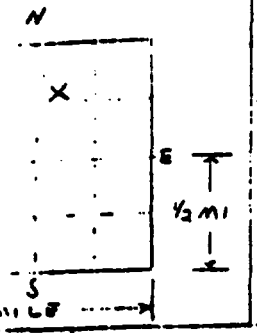
WELL RECORD

PROJECT: Hemill Holiday

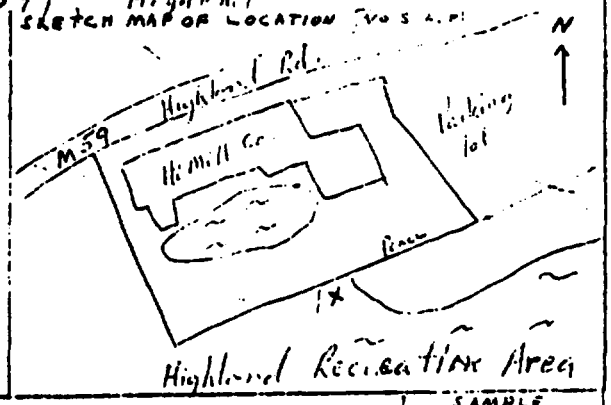
TOWNSHIP NAME	FRACTION	SECTION NO.	TOWN	RANGE
Highland	SW ¼ NW ¼ NE ¼	23	T3N N/S	R7E

ADDRESS AND CITY OF WELL LOCATION: Road (M59) Highland

SECTION WITH "A"



SKETCH MAP OF LOCATION (NOT S.A.)



FEET BELOW SURFACE	DESCRIPTION	SAMPLE IDENTIFICATION NO	TYPE
3'	Clay		
6"	Clay, gravelly, sandy		
6"	Clay		

PROPERTY OWNER State of Michigan
ADDRESS Highland State Recreation Area
Highland Road
Highland, MI 48031

WELL DEPTH (COMPLETED) 3.34 ft. DATE OF COMPLETION 5/28/81

DRILLING METHOD(S) 3" hand auger DEPTH(S) 4 feet

CASING: DIAMETER 1¼ IN. TO .34' FT. DEPTH; HEIGHT ABOVE SURFACE .06 FT

____ IN. TO ____ FT. DEPTH TYPE ____ WEIGHT ____

SCREEN: TYPE PVC DIAM. 1¼"

SLOT/GAUGE 7 slot LENGTH 3 ft

SET BETWEEN .34 FT. AND 3.34 FT.

WATER LEVELS FIRST NOTED AT .21 FT BELOW SURFACE

AFTER COMPLETION 4.7 FT BELOW SURFACE (OR CASING TOP)

SURFACE ELEVATION 1006 ft.

SEALING METHOD Sand packed to 2 in. of surface, then filled to surface with powdered bentonite, + bentonite pellets

CREW Driller Charles Ingalls
Drillers Assistant Jerry Harrish
Geologist Kathleen Sibo

RECORD BY Kathleen Sibo

DATE 6/26/81

REMARKS

PLUGGING AND ABANDONMENT METHOD

DATE
CREW

ENVIRONMENTAL [illegible]
GROUND WATER [illegible] UNIT

TEST WELL RECORD

HM4

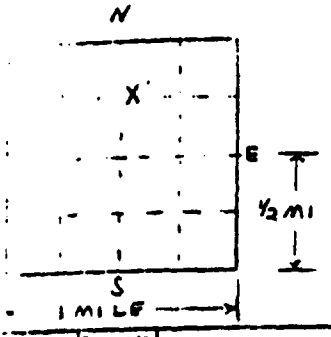
PROJECT: Himill Vicinity

FORM NO. 791-812-463

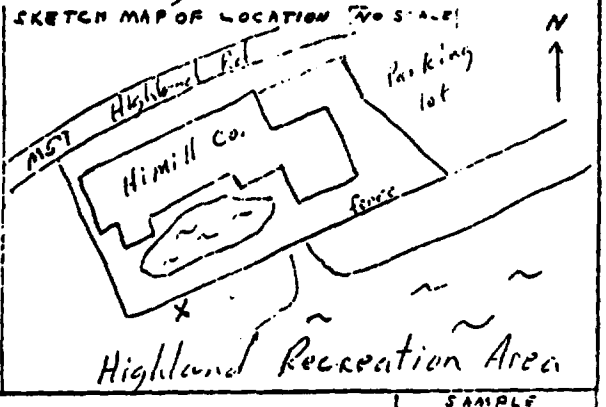
COUNTY	TOWNSHIP NAME	FRACTION	SECTION NO.	TOWN	RANGE
Oakland	Highland	SW ¼ NW ¼ NE ¼	23	T 3 N N/S	R 7 E E/W

ADDRESS AND CITY OF WELL LOCATION
Highland Road (M59) Highland

LOCATION IN SECTION (FILL WITH "X")



SKETCH MAP OF LOCATION (NO SCALE)



PROPERTY OWNER State of Michigan
ADDRESS Highland State Recreation Area, Highland Road, Highland, Mich.
WELL DEPTH (COMPLETED) 4.62 ft. DATE OF COMPLETION 5/15/81
DRILLING METHOD(S) 3" hand auger DEPTH(S) 5 feet
CASING: DIAMETER 1¼ IN. TO 4.62 FT. DEPTH HEIGHT ABOVE SURFACE 3.25 FT
____ IN. TO ____ FT. DEPTH TYPE PVC WEIGHT sch 40
SCREEN: TYPE PVC DIAM. 1¼"
SLOT/GAUGE 7 slot LENGTH 3 ft.
SET BETWEEN 1.62 FT. AND 4.62 FT.
WATER LEVELS FIRST NOTED AT 1 FT BELOW SURFACE
AFTER COMPLETION 4.21 FT BELOW SURFACE() OR CASING TOP()
SURFACE ELEVATION 1006.2
SEALING METHOD Sand packed to 2-3 in. of surface, then bentonite pellets to surface.
CREW Driller Charles Ingalls
Drillers Assistant Jerry Parrish
Geologist Kathleen Sibo
RECORD BY Kathleen S. Sibo
DATE 6/26/81
REMARKS

DEPTH	THICKNESS OR CONTINUED	DESCRIPTION	SAMPLE IDENTIFICATION NO.	SAMPLE IDENTIFICATION TYPE
0'	2'	Clay		
2'	2'	Muck, dark, with sand and some clay and gravel.		
4'	1'	Clay		

PLUGGING AND ABANDONMENT METHO

PROJECT: Hillsdale County

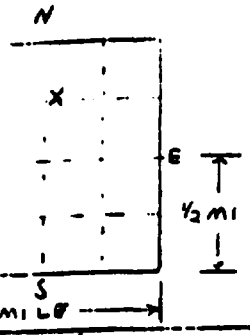
TOWNSHIP NAME: Highland

FRACTION: S½ NW¼ NE¼

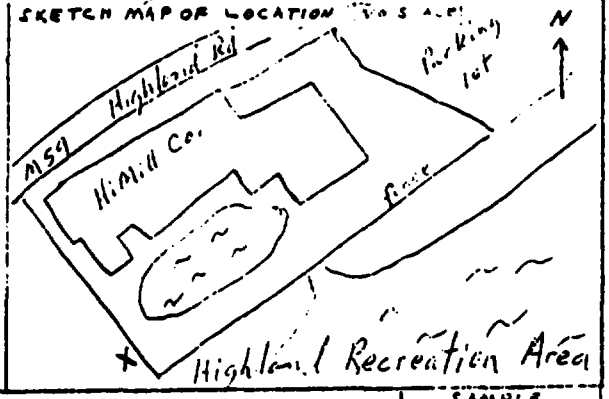
SECTION NO.: 23 TOWN: T3N N/S RANGE: R7E

ACCESS AND CITY OF WELL LOCATION: Highland Road (M59) Highland

LOCATION IN SECTION (MARK WITH "X")



SKETCH MAP OF LOCATION (NOT TO SCALE)



PROPERTY OWNER: State of Michigan

ADDRESS: Highland State Recreation Area, Highland Road, Highland, MI. 48357

WELL DEPTH (COMPLETED): 4 ft. DATE OF COMPLETION: 5/15/81

DRILLING METHOD(S): 3" hand auger DEPTH(S): 4 ft.

CASING: DIAMETER 1¼ IN. TO 1 FT. DEPTH; HEIGHT ABOVE SURFACE 4 FT

____ IN. TO ____ FT. DEPTH TYPE PVC WEIGHT ____

SCREEN: TYPE PVC DIAM. 1¼"

SLOT/GAUZE 7 slot LENGTH 3 ft.

SET BETWEEN 1 FT. AND 4 FT.

WATER LEVELS

FIRST NOTED AT ____ FT BELOW SURFACE

AFTER COMPLETION 4.64 FT BELOW SURFACE (OR CASING TOP)

SURFACE ELEVATION 1006.4

SEALING METHOD Sand pack to within a few inches of surface, bentonite pellets and powdered bentonite to surface.

CREW Driller Charles Ingalls
Driller's Assistant Jerry Harrish
Geologist Kathleen Sibo

RECORD BY Kathleen Sibo

DATE 6/26/81

REMARKS

DEPTH (FEET)	DESCRIPTION	SAMPLE IDENTIFICATION NO.	SAMPLE IDENTIFICATION TYPE
2"	Topsoil		
3'10"	Clay, dense grey-brown		

PLUGGING AND ABANDONMENT METHOD

DATE

CREW

TEST WELL RECORD

PROJECT: Himill County

PSRA Project No. 791-[illegible]

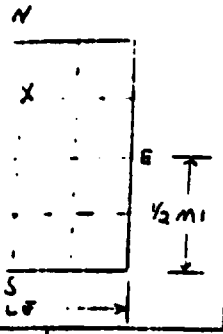
TOWNSHIP NAME: Highland

FRACTION: SW ¼ NW ¼ NE ¼

SECTION NO.: 23 TOWN: T3N N.S. RANGE: R7E

VILLAGE AND CITY OF WELL LOCATION: Highland (M 59) Highland

LOCATION IN SECTION (WITH "X")



SKETCH MAP OF LOCATION (NO SCALE)

PROPERTY OWNER: State of Michigan

ADDRESS: Highland State Recreation Area, Highland Road, Highland, MI. 48031

WELL DEPTH (COMPLETED): 6.81 ft. DATE OF COMPLETION: 5/19/81

DRILLING METHOD(S): 3" hand auger DEPTH(S): 7 ft.

CASING: DIAMETER 1¼ IN. TO 3.81 FT. DEPTH; HEIGHT ABOVE SURFACE: [illegible] FT.

____ IN. TO ____ FT. DEPTH TYPE [illegible] WEIGHT [illegible]

SCREEN: TYPE PVC DIAM. 1¼"

SLOT/GAUGE 7 slot LENGTH 3 ft.

SET BETWEEN 3.81 FT. AND 6.81 FT.

WATER LEVELS: FIRST NOTED AT ____ FT BELOW SURFACE

AFTER COMPLETION 3.25 FT BELOW SURFACE (T) OR CASING TOP (V).

SURFACE ELEVATION: 1009.9

SEALING METHOD: Sand packed to within few inches of top, filled to surface with bentonite pellets.

CREW: Driller Charles Ingalls; Driller's Assistant Jerry Parrish; Geologist Kathleen Sibo

RECORDED BY: Kathleen Sibo Kathleen Sibo

DATE: 6/26/81

REMARKS

FEET BELOW SURFACE	DESCRIPTION	SAMPLE IDENTIFICATION NO.	TYPE
0'–1'	Clay, sandy + gravelly. May include some fill dirt.		
1'–	Clay, yellow w/ some sand and gravel.		

PLUGGING AND ABANDONMENT METHOD

DATE

CREW

RECORDED BY

APPENDIX I

TECHNA MONITORING WELL INSTALLATION LOGS,

PHASE I REMEDIAL IINVESTIGATION

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-1

Job No. 89-630 Well No. SW-1 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" From 17'0" To Surface

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010 Type SS

Bottom of Screen Set At 16'6"

Riser Pipe 2" PVC from 11'6" to surface

Filter No. 3 tan sand From 16'6" To 8'0"

Bentonite ¼" pellets From 8'0" To 7'0"

Grout Cement/bentonite From 7'0" To surface

Well Protector 4" steel

Developed With _____

Remarks Top of casing elevation 1,013.17'

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-2

Job No. 89-630 Well No. SW-2 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" From 0 To 30'0"

Type and Size of Casing None From _____ To _____

Wash Boring With None Bit From _____ To _____

Size of Screen .010 Type Stainless

Bottom of Screen Set At 28'4"

Riser Pipe 2" PVC (10' sections)

Filter #3 Tan Sand From 28'4" To 12'10"

Bentonite ¼" Pelletized From 12'10" To 10'4"

Grout _____ From 10'4" To _____

Well Protector 4" Round Steel with hinged cover

Developed With _____

Remarks Top of Casing Elevation 1,018.04

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-3

Job No. 89-630 Well No. SW-3 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 7'0" To surface

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010" Type SS

Bottom of Screen Set At 7'0"

Riser Pipe 2" PVC from 2'0" to surface

Filter No. 3 tan sand From 7'0" To 1'9"

Bentonite ¼" pellets From 1'9" To 6"

Grout Cement/bentonite From 6" To surface

Well Protector 4" steel

Developed With _____

Remarks Top of casing elevation 1,012.43

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-4A

Job No. 89-630 Well No. SW-4A Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 17'0" To surface

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010 Type SS

Bottom of Screen Set At 12'6"

Riser Pipe 2" PVC 7'6" to surface

Filter No. 3 tan sand From 12'6" To 6'10"

Bentonite ¼" pellets From 6'10" To 6'0"

Grout Cement/bentonite From 6'0" To Surface

Well Protector 4" steel

Developed With _____

Remarks Top of casing elevation 1,010.18'

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-5

Job No. 89-630 Well No. SW-5 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 0 To 7'0"

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010 Type SS

Bottom of Screen Set At 6'11"

Riser Pipe 2" PVC from 1'11"

Filter #3 Tan Sand From 6'11" To 1'6"

Bentonite Pellets From 1'6" To 0'6"

Grout Cement/Bentonite From 0'6" To Surface

Well Protector None

Developed With _____

Remarks Top of Casing Elevation 1,011.95

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-6B

Job No. 201-8058-13 Well No. SW-6B Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" From 11'0" To Surface

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen 0.010 Type SS

Bottom of Screen Set At 10'10"

Riser Pipe 2" PVC from 5'10" to surface

Filter No. 3 tan sand From 10'10" To 4'7"

Bentonite Pellets From 4'7" To 2'5"

Grout Cement/beutonite From 2'5" To Surface

Well Protector 4" diameter, 5' long round steel with hinged locking cover

Developed With _____

Remarks Top of casing elevation 1011.63

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-7

Job No. 89-630 Well No. SW-7 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 0 To 15'0"

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010 Type PVC

Bottom of Screen Set At 15'0"

Riser Pipe 2" PVC from 10'0"

Filter #3 Tan Sand From 15'0" To 9'0"

Bentonite Pellets From 9'0" To 7'11"

Grout Cement/Bentonite From 7'11" To Surface

Well Protector 4" Dia steel with locking hinged top

Developed With _____

Remarks Top of Casing Elevation 1,010.36

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-8

Job No. 201-8058-13 Well No. SW-8 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" From 10'0" To Surface

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen 0.010 Type SS

Bottom of Screen Set At 10'3"

Riser Pipe 2" PVC from 5'3" to surface

Filter No. 3 tan sand From 5'3" To 5'0"

Bentonite Pellets From 5'0" To 3'6"

Grout Cement/beutonite From 3'6" To Surface

Well Protector 4" diameter 5' long round steel with hinged locking cover

Developed With Top of casing elevation 1,010.85

Remarks _____

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-9

Job No. 89-630 Well No. SW-9 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 21'0" To Surface

Type and Size of Casing ---- From _____ To _____

Wash Boring With ---- Bit From _____ To _____

Size of Screen .010 Type PVC

Bottom of Screen Set At 20'0" - 15'0"

Riser Pipe 15'0" to Surface

Filter No. 3 tan sand From 20'0" To 10'0"

Bentonite ¼" pellets From 10'0" To 7'5"

Grout Cement/Bentonite From 7'5" To Surface

Well Protector 4" square steel

Developed With _____

Remarks Top of Casing Elevation 1,010.10

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-9

Job No. 201-8058-13 Well No. SW-9 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" From 20'0" To Surface

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen 0.010 Type PVC

Bottom of Screen Set At 20'0"

Riser Pipe 2" PVC from 15'0"

Filter No. 3 tan sand From 20'0" To 10'0"

Bentonite Pellets From 10'0" To 7'5"

Grout Cement/Bentonite From 7'5" To Surface

Well Protector 4" diameter x 7' long steel with locking hinged top

Developed With _____

Remarks Top of casing elevation 1,010.10

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-9A

Job No. 201-8058-13 Well No. SW-9A Type 2"

Piezometer No. _____

Type and Size of Auger 3" hand auger From 7'0" To Surface

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen 0.010 Type PVC

Bottom of Screen Set At 7'0"

Riser Pipe 1'6" to surface

Filter No. 3 tan sand From 7'0" To 1'6"

Bentonite Pellets From 1'6" To 1'4"

Grout Cement From 1'4" To Surface

Well Protector 4" x 4½" long square steel with locking hinged top

Developed With _____

Remarks Top of casing elevation

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-10

Job No. 89-630 Well No. SW-10 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 7'0" To Surface

Type and Size of Casing ---- From _____ To _____

Wash Boring With ---- Bit From _____ To _____

Size of Screen .010 Type SS

Bottom of Screen Set At 4'6" - 1'6"

Riser Pipe 1'6" to Surface

Filter No. 3 tan sand From 7'0" To 1'5"

Bentonite ¼" pellets From 1'5" To 10"

Grout Cement/Bentonite From 10" To Surface

Well Protector 4" round steel

Developed With _____

Remarks Top of Casing Elevation 1,010.50

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-11

Job No. 89-630 Well No. SW-11 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" H.A. From Surface To 20'0"

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010 Type ss

Bottom of Screen Set At 19'0"

Riser Pipe 0-14'0"

Filter #3 Tan Sand From 20'0" To 13'0"

Bentonite Pellets From 13'0" To 10'6"

Grout Cement/Bentonite From 10'6" To Surface

Well Protector 4" Dia steel with hinged cover

Developed With _____

Remarks Top of Casing Elevation 1,013.04

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-12

Job No. 201-8058-13 Well No. SW-12 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" From 10'0" To Surface

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen 0.010 Type PVC

Bottom of Screen Set At 10'0"

Riser Pipe 2" PVC from 4'6" to surface

Filter No. 3 tan sand From 10'0" To 4'4"

Bentonite Pellets From 4'4" To 2'2"

Grout Cement/Bentonite From 2'2" To Surface

Well Protector 4" diameter round steel with locking hinged top

Developed With _____

Remarks Top of casing elevation 1,013.14

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-14

Job No. 89-630 Well No. SW-14 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 24'6" To Surface

Type and Size of Casing ---- From _____ To _____

Wash Boring With ---- Bit From _____ To _____

Size of Screen .010 Type PVC

Bottom of Screen Set At 16'0"

Riser Pipe 2" PVC from 11'0" to surface

Filter No. 3 tan sand From 24'6" To 10'0"

Bentonite ¼" Pellets From 10'0" To 8'0"

Grout Cement/Bentonite From 8'0" To Surface

Well Protector 4" Square steel

Developed With _____

Remarks Top of Casing Elevation 1,009.76

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-15

Job No. 201-8058-13 Well No. SW-15 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" From 12'0" To Surface

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen 0.010 Type PVC

Bottom of Screen Set At 11'7"

Riser Pipe 2" PVC from 6'7" to surface

Filter No. 3 tan sand From 11'7" To 5'0"

Bentonite Pellets From 5'0" To 3'0

Grout Cement/Bentonite From 3'0" To Surface

Well Protector 4" round steel with locking hinged top

Developed With _____

Remarks Top of casing elevation 1,010.93

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-17

Job No. 89-630 Well No. SW-17 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 42'0" To surface

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010 Type SS

Bottom of Screen Set At 35'0"

Riser Pipe 2" PVC from 30'0" to surface

Filter No. 3 tan sand From 35'0" To 29'0"

Bentonite ¼" pellets From 29'0" To 28'0"

Grout Cement/bentonite From 28'0" To surface

Well Protector 4" steel

Developed With _____

Remarks Top of casing elevation 1,012.83'

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-18

Job No. 89-630 Well No. SW-18 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 17'0" To surface

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010 Type SS

Bottom of Screen Set At 14'1"

Riser Pipe 2" PVC from 9'1" to surface

Filter No. 3 tan sand From 14'1" To 5'0"

Bentonite ½" pellets From 5'0" To 4'0"

Grout Cement/bentonite From 4'0" To surface

Well Protector 4" steel

Developed With _____

Remarks Top of casing elevation 1,008.58'

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-19

Job No. 89-630 Well No. SW-19 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 37'0" To surface

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010" Type SS

Bottom of Screen Set At 32'0"

Riser Pipe 2" PVC from 27'0" to surface

Filter No. 3 tan sand From 32'0" To 26'0"

Bentonite ¼" pellets From 26'0" To 25'0"

Grout Cement/bentonite From 25'0" To surface

Well Protector 4" steel

Developed With _____

Remarks Top of casing elevation 1,015.61'

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-20

Job No. 89-630 Well No. SW-20 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 12'0" To surface

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010 Type ss

Bottom of Screen Set At 6'0"

Riser Pipe 1'0" below to 2'0" above grade 2" PVC

Filter #3 Tan Sand From 6'6" To Surface

Bentonite _____ From _____ To _____

Grout _____ From _____ To _____

Well Protector 2" Cast Aluminum lock cover provided by M & A

Developed With _____

Remarks Top of Casing Elevation 1,009.76

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-21

Job No. 89-630 Well No. SW-21 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 7'0" To surface

Type and Size of Casing _____ From _____ To _____

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010" Type PVC

Bottom of Screen Set At 7'0"

Riser Pipe 2" PVC from 2'0" to surface

Filter No. 3 tan sand From 7'0" To 1'10"

Bentonite ¼" pellets From 1'10" To 6"

Grout Cement/bentonite From 6" To Surface

Well Protector 4" steel

Developed With _____

Remarks _____

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. SW-22

Job No. 89-630 Well No. SW-22 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 5'6" To Surface

Type and Size of Casing ---- From _____ To _____

Wash Boring With ---- Bit From _____ To _____

Size of Screen 1010 Type SS

Bottom of Screen Set At 5'0" to Surface

Riser Pipe 2'0" to Surface

Filter No. 3 tan sand From 5'6" To 2'0"

Bentonite ¼" pellets From 2'0" To 1'6"

Grout Cement/Bentonite From 1'6" To Surface

Well Protector 4" round steel

Developed With _____

Remarks Top of Casing Elevation 1,010.25

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. IW-1

Job No. 89-630 Well No. IW-1 Type SS

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 50'0" To Surface

Type and Size of Casing ---- From _____ To _____

Wash Boring With ---- Bit From _____ To _____

Size of Screen .010 Type SS

Bottom of Screen Set At 47'0" to 42'0"

Riser Pipe 42'0" to Surface

Filter No. 3 tan From 50'0" To 39'10"

Bentonite ¼" pellets From 39'10" To 36'6"

Grout Cement/Bentonite From 36'6" To Surface

Well Protector 4" square steel

Developed With _____

Remarks Top of Casing Elevation 1,017.02

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. IW-2

Job No. 89-630 Well No. IW-2 Type 2"

Piezometer No. _____

Type and Size of Auger 4½" I.D. From 46'6" To Surface

Type and Size of Casing 10" PVC Sch. 80 From 17'0" To Surface

Wash Boring With ---- Bit From _____ To _____

Size of Screen .010" Type SS

Bottom of Screen Set At 46'6"

Riser Pipe 2" PVC 41'6" to surface

Filter Natural sand From 46'6" To 39'4"

Bentonite 35 gal. bentonite slurry From 39'4" To 38'±

Grout Cement/bentonite From 38'± To Surface

Well Protector 4" Square steel

Developed With _____

Remarks Top of Casing Elevation 1,014.56

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. IW-3

Job No. 89-630 Well No. IW-3 Type 2" SS/PVC

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 60'0" To Surface

Type and Size of Casing 10" PVC From 11'4" To Surface

Wash Boring With —— Bit From _____ To _____

Size of Screen .010 Type 2" SS

Bottom of Screen Set At 47'6"

Riser Pipe 2" I.D. PVC from 42'0" to Surface

Filter Natural Sand & #3 Tan Sand From 47'6" To 39'7"

Bentonite ¼" Pellets From 39'7" To 35'0"

Grout Cement/Bentonite From 35'0" To Surface

Well Protector 4" I.D. Steel with hinged top

Developed With _____

Remarks Top of Casing Elevation 1,011.90

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. IW-4A

Job No. 89-630 Well No. IW-4A Type 2" SS/PVC

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 0 To 60'

Type and Size of Casing 10" PVC From 13'0" To Surface

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010 Type SS

Bottom of Screen Set At 54'0"

.iser Pipe 49'0" to Surface PVC

Filter Sand cave in From 54'0" To 46'6"

Bentonite ¼" Pellets From 46'6" To 45'0"

Grout Cement/Bentonite From 45'0" To Surface

Well Protector 4" I.D. Steel with hinged top

Developed With _____

Remarks SS drive point for screen provided by McDowell & Associates.

Top of casing elevation 1,010.06

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. IW-5

Job No. 89-630 Well No. IW-5 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From 42'0" To Surface

Type and Size of Casing 10" I.D. From 20'0" To Surface

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010" Type SS

Bottom of Screen Set At 35'0"

Riser Pipe PVC from 30'0" to Surface

Filter #3 Tan Sand From 35'0" To 26'6"

Bentonite ¼" Pellets From 26'6" To 25'3"

Grout Cement/ Bentonite From 25'3" To Surface

Well Protector 4" Square Steel

Developed With _____

Remarks Top of casing elevation 1,009.39

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. DW-1

Job No. 89-630 Well No. Dw-1 Type 2"

Piezometer No. _____

Type and Size of Auger 4½" I.D. From 92'0" To Surface

Type and Size of Casing 10" I.D. Sch. 80 PVC From 15'0" To Surface

Wash Boring With ---- Bit From _____ To _____

Size of Screen .010" Type SS

Bottom of Screen Set At 83'0"

Riser Pipe 2" PVC from

Filter Natural sand From 92'0" To 41'6"

Bentonite 30 gal. bentonite slurry From 41'6" To 39'6"±

Grout Cement/bentonite From 39'6"± To Surface

Well Protector 4" square steel

Developed With _____

Remarks Top of Casing Elevation 1,014.62

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. DW-2

Job No. 89-630 Well No. DW-2 Type SS/PVC

Piezometer No. _____

Type and Size of Auger 4¼" I.D. From Surface To 90'0"

Type and Size of Casing 10" I.D. PVC From Surface To 13'0"

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010 Type SS

Bottom of Screen Set At 86'6"

Riser Pipe 81'6" to Surface

Filter #3 Tan Sand From 81'6" To 77'4"

Bentonite 40 Gal Bentonite Slurry From 77'4" To ?

Grout Cement/Benotnite From Top of Bentonite To Surface

Well Protector 4" I.D. Steel with hinged top

Developed With _____

Remarks Top of Casing Elevation 1,011.99

McDOWELL & ASSOCIATES
Geotechnical Engineers
21355 Hatcher Avenue
Ferndale, Michigan 48220
Phone: (313) 399-2066

Boring No. DW-3

Job No. 89-630 Well No. DW-3 Type 2"

Piezometer No. _____

Type and Size of Auger 4¼" ID From 90'10" To Surface

Type and Size of Casing 10" ID From 20' To Surface

Wash Boring With _____ Bit From _____ To _____

Size of Screen .010" Type SS

Bottom of Screen Set At 70'0"

Riser Pipe PVC from 65'0" to surface

Filter No.3 Tan Sans From 69'4" To 63'0"

Bentonite ¼" Pellets From 63'0" To 61'4"

Grout Cement/Bentonite From 61'4" To Surface

Well Protector 4" Square Steel

Developed With _____

Remarks Top of Casing Elevation 1,009.41

APPENDIX J

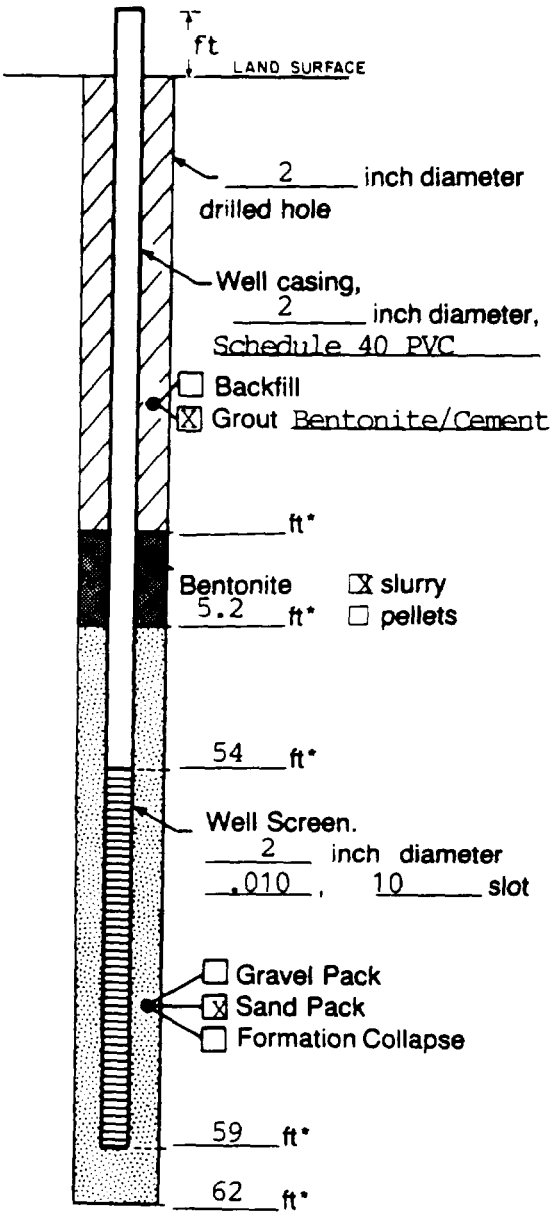
GERAGHTY & MILLER WELL INSTALLATION LOGS,

PHASE II REMEDIAL INVESTIGATION

GERAGHTY & MILLER, INC.

GERAGHTY & MILLER, INC.
Environmental Services

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project Hi-Mill/MI135.07 Well VP-1
Town/City Highland
County Oakland State MI
Permit No. —
Land-Surface Elevation
and Datum 1009.1 feet ☒ Surveyed
Mean Sea Level ☐ Estimated
Installation Date(s) 12/2/91
Drilling Method Hollow Stem Augers
Drilling Contractor Mateco
Drilling Fluid None

Development Technique(s) and Date(s)
Surging and pumping 1/24/92

Fluid Loss During Drilling N/A gallons
Water Removed During Development 70 gallons
Static Depth to Water 13.94 feet below M.P.
Pumping Depth to Water 17.25 feet below M.P.
Pumping Duration 1.5 hours
Yield 4.6 gpm Date
Specific Capacity gpm/ft
Well Purpose Monitoring Well

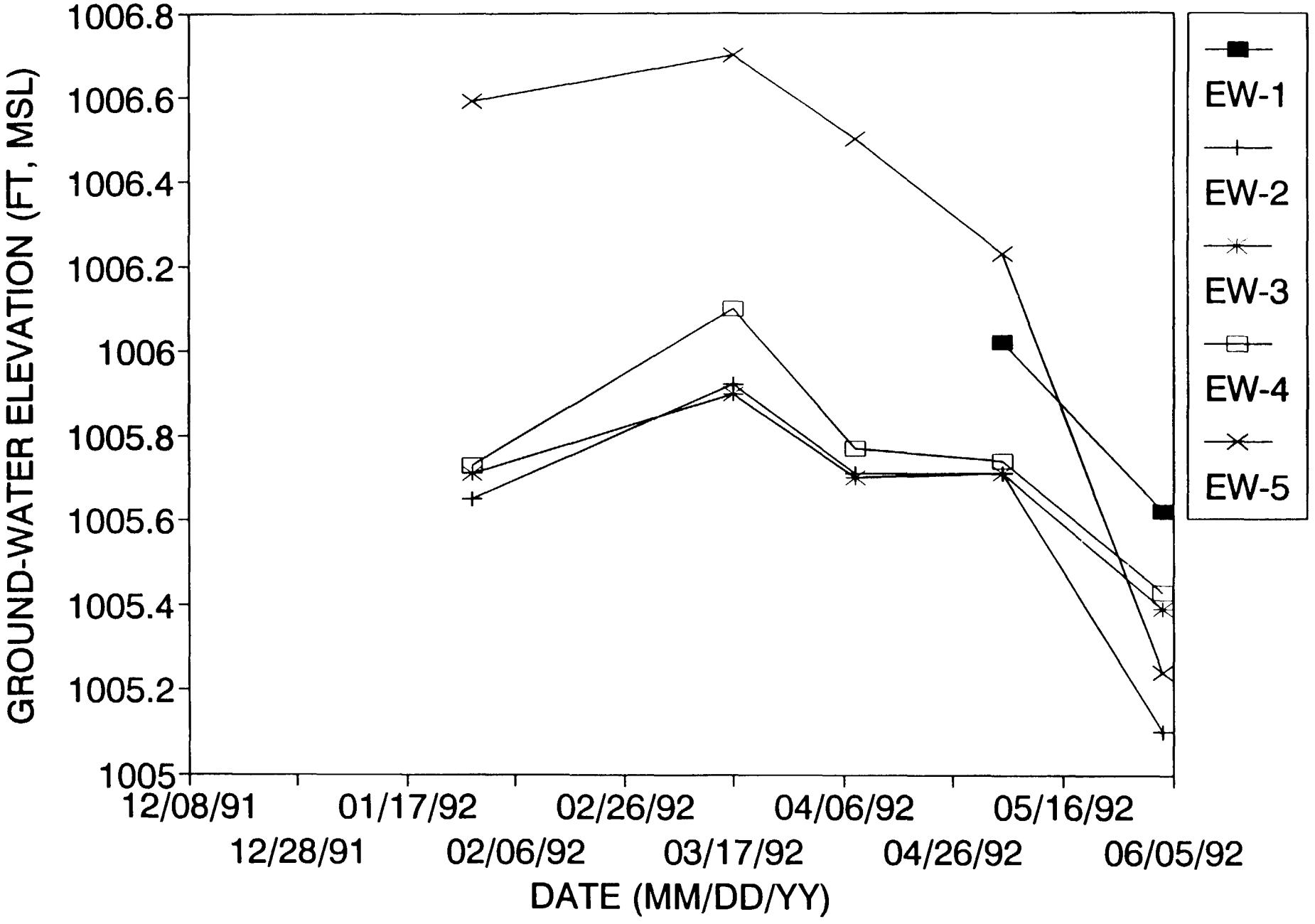
Remarks

Prepared by R. Sanborn

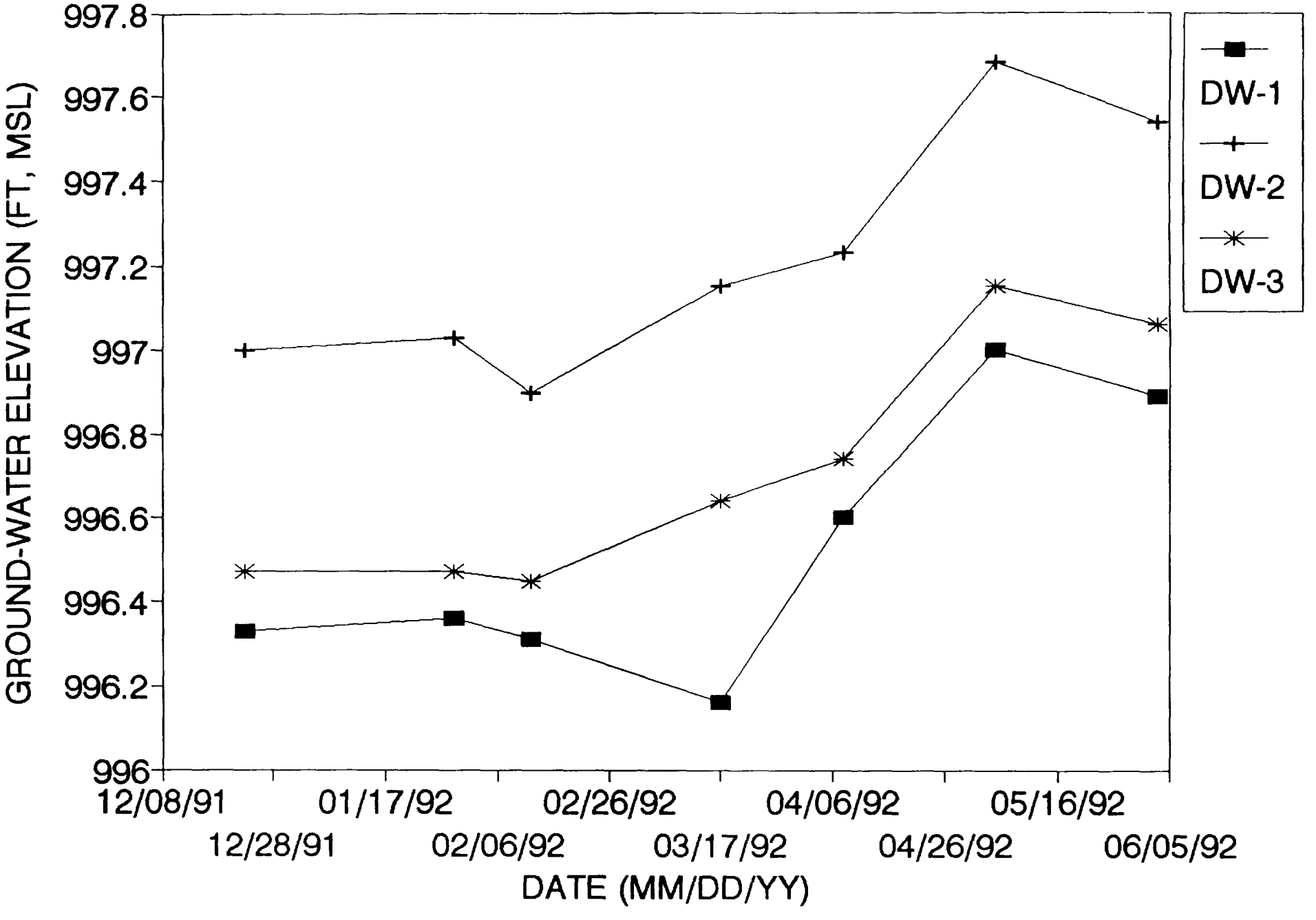
APPENDIX K

GERAGHTY & MILLER WELL HYDROGRAPHS,

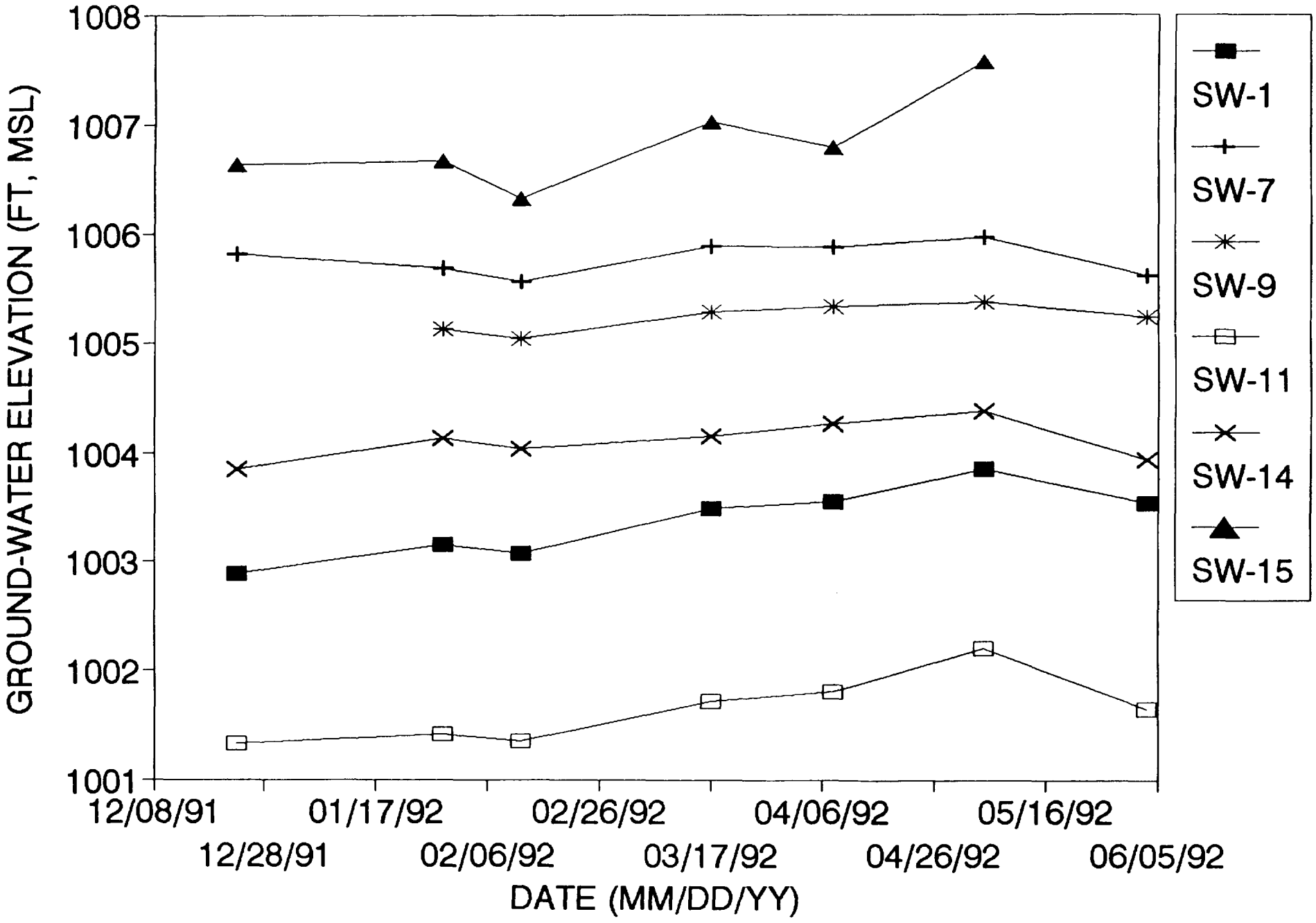
PHASE II REMEDIAL INVESTIGATION



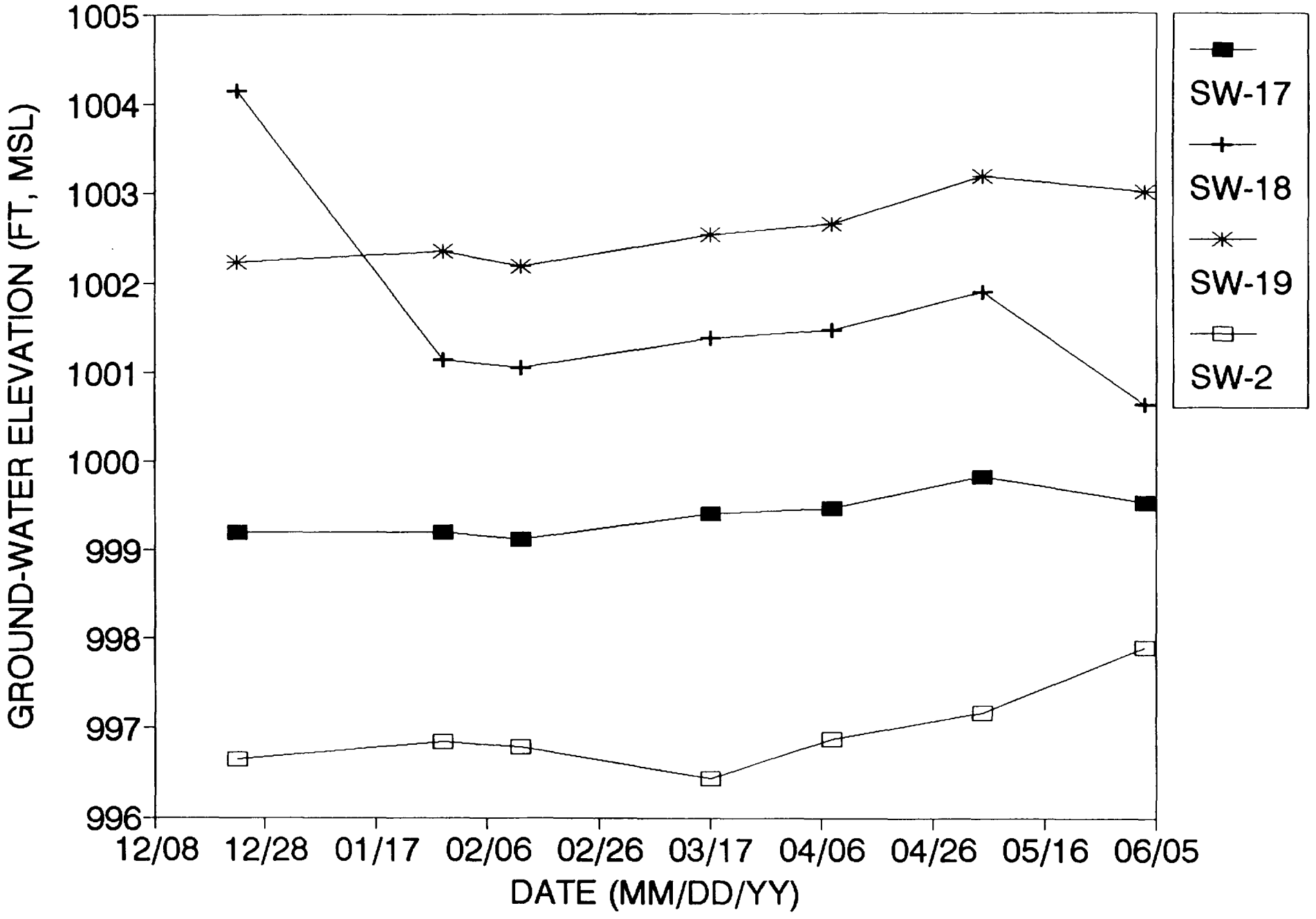
GERAGHTY & MILLER, INC.



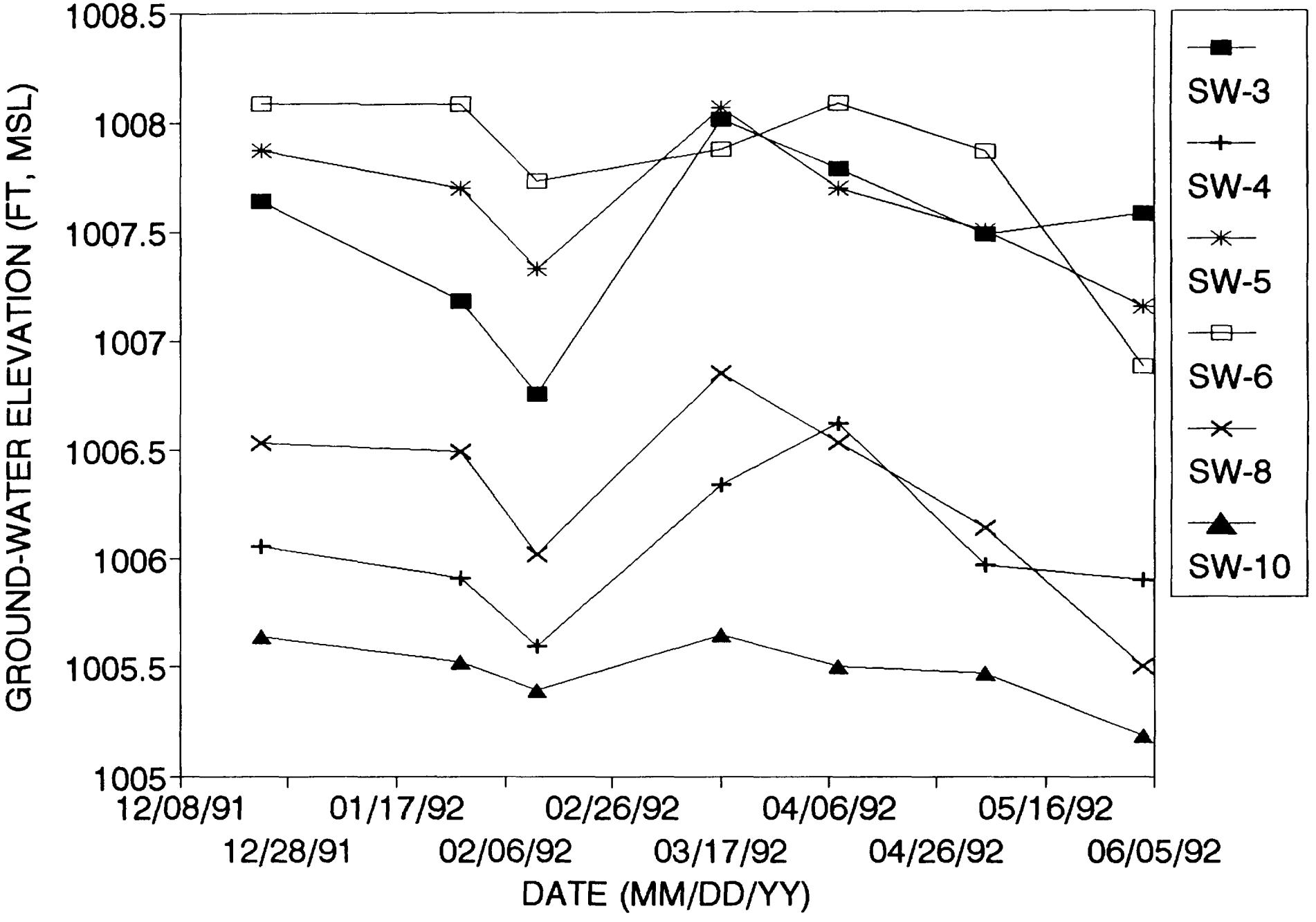
GERAGHTY & MILLER, INC



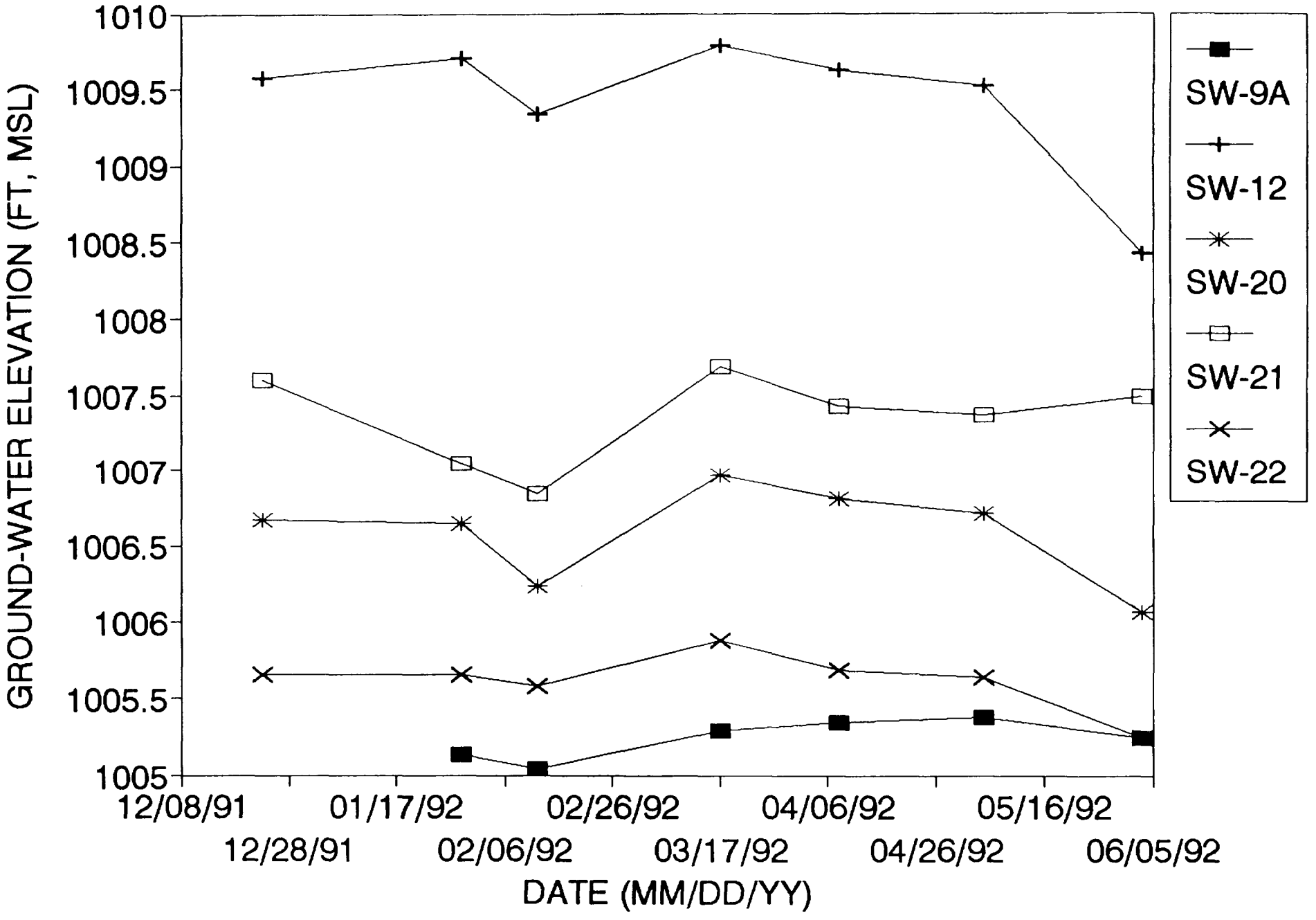
GERAGHTY & MILLER, INC.



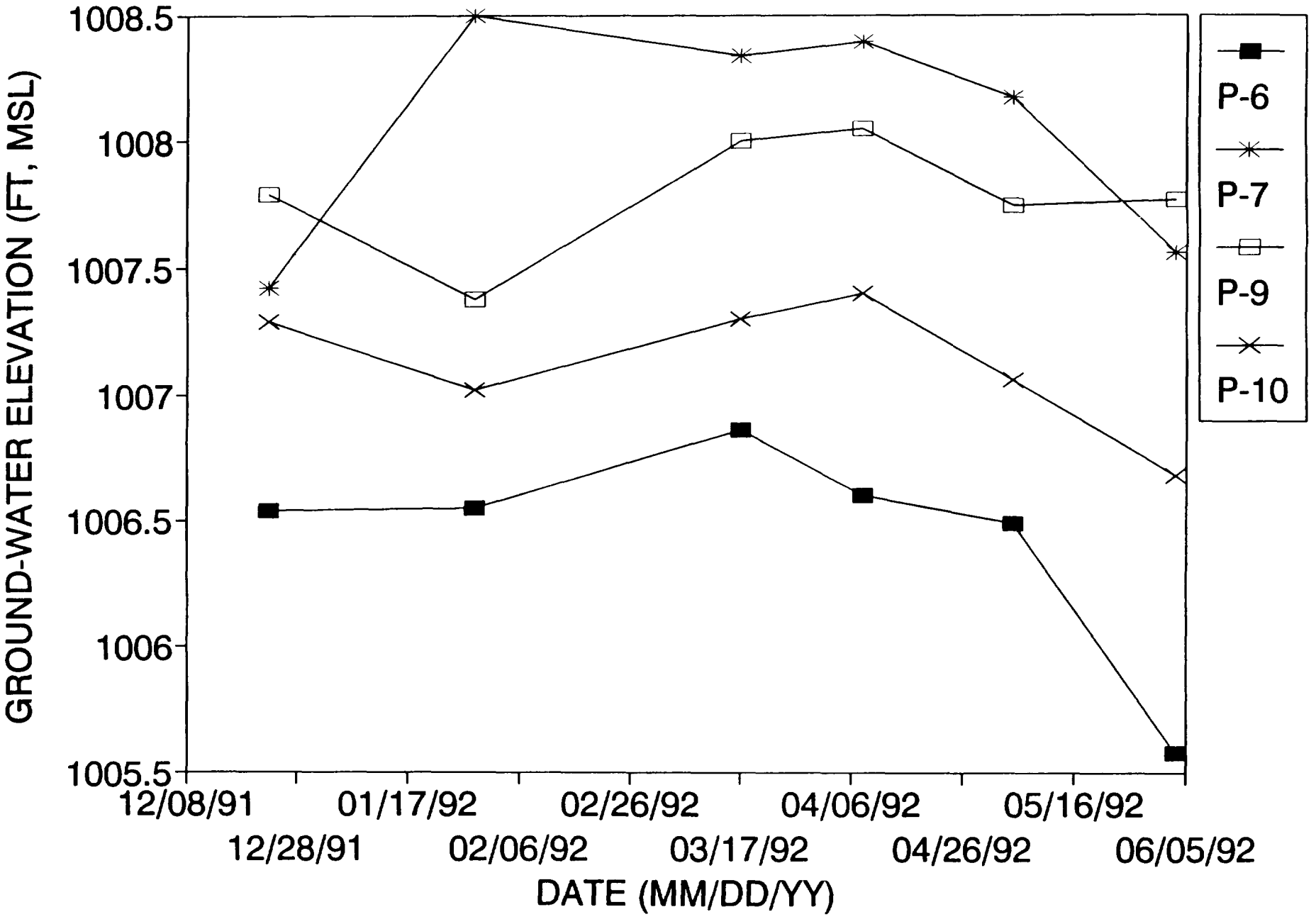
GERAGHTY & MILLER, INC



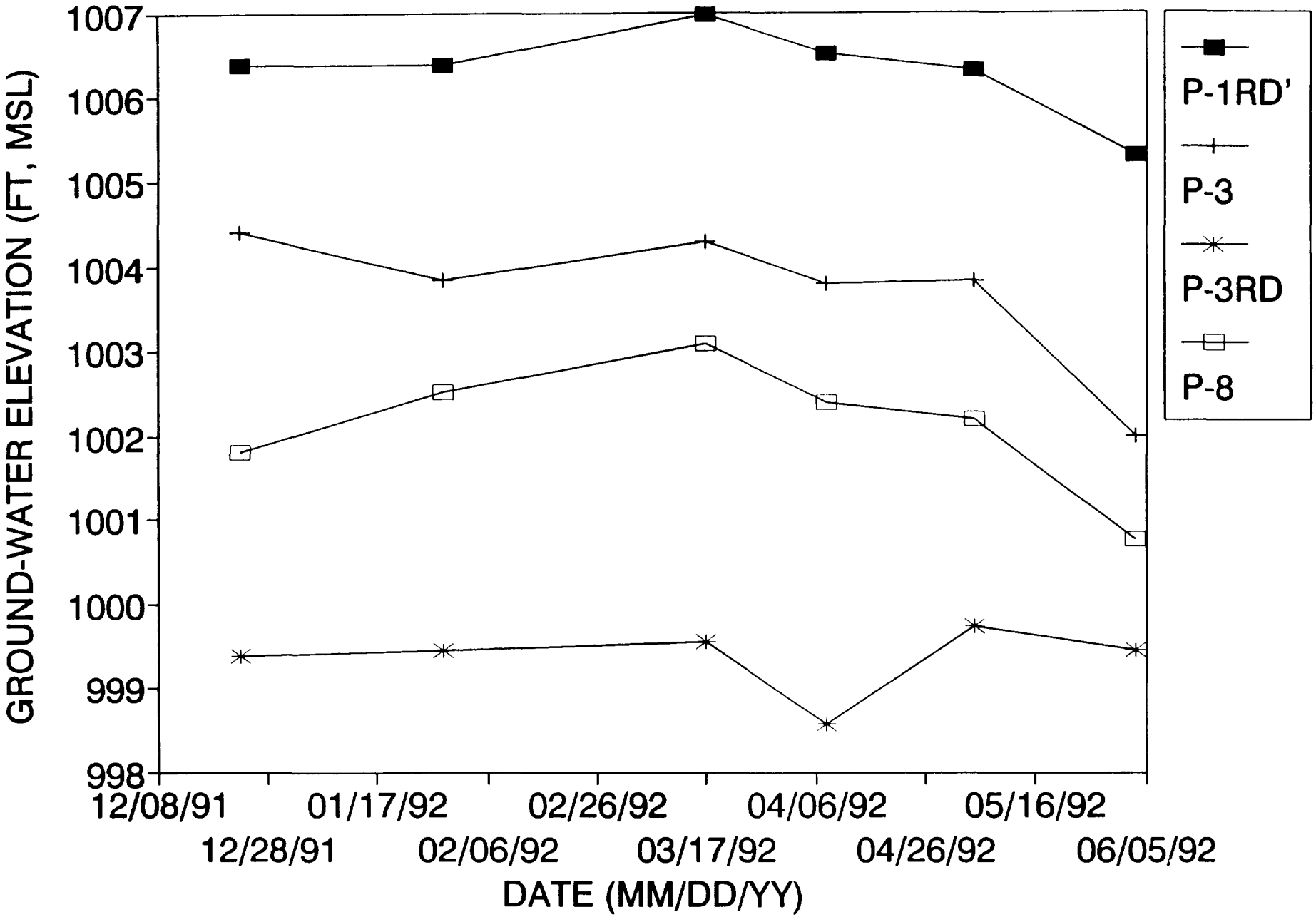
GERAGHTY & MILLER, INC.



GERAGHTY & MILLER, INC



GERAGHTY & MILLER, INC.



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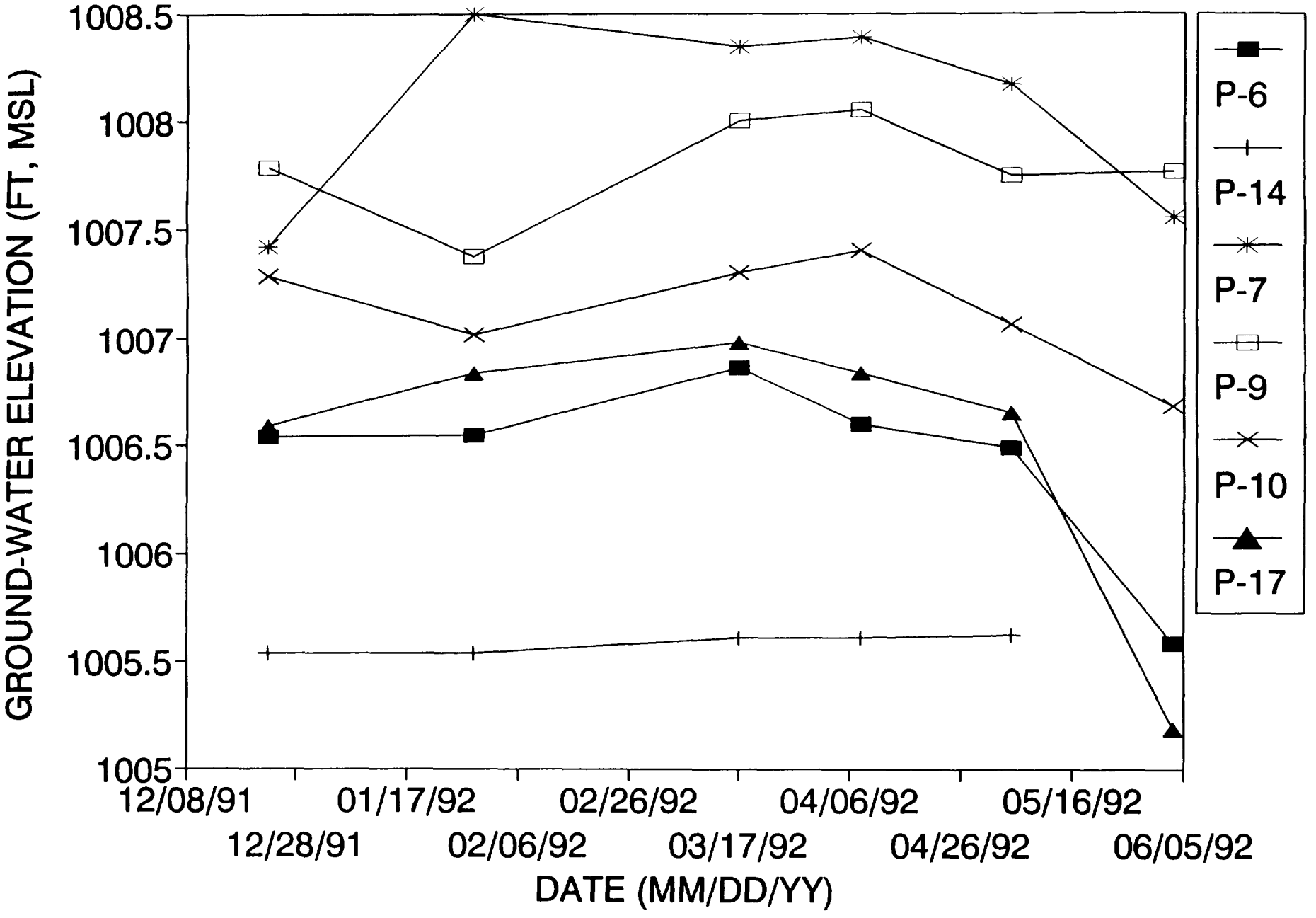
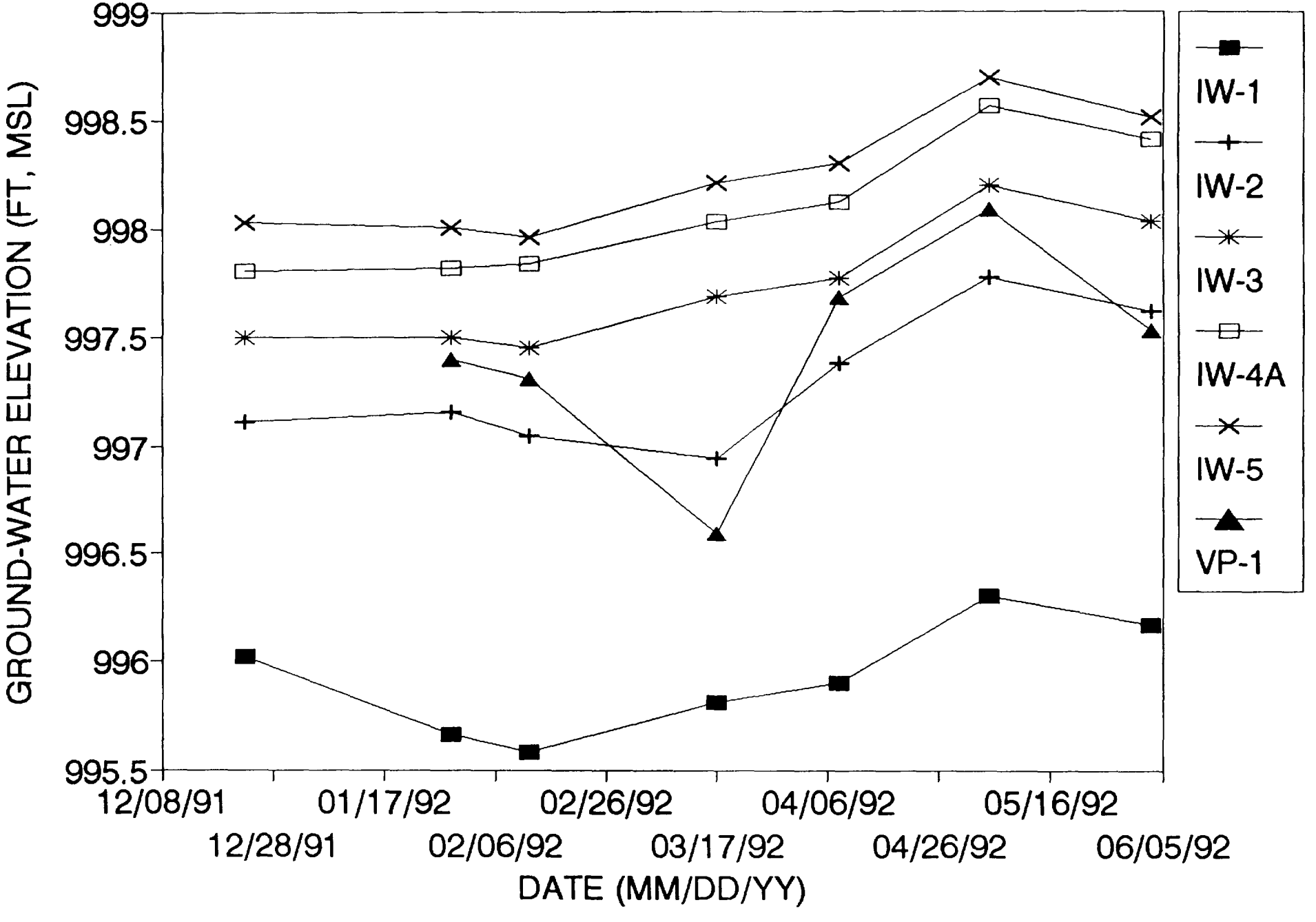


GERAGHTY & MILLER, INC

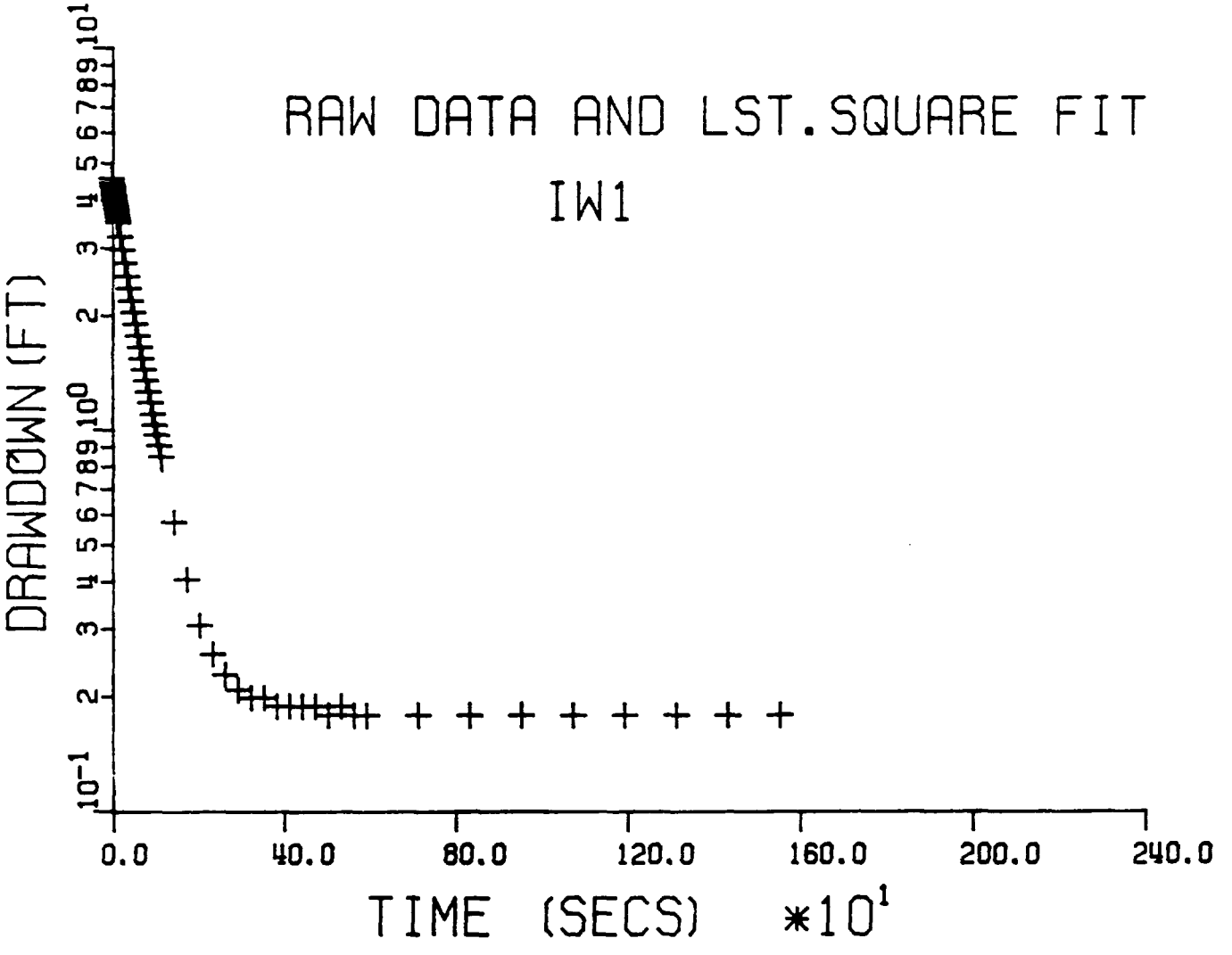


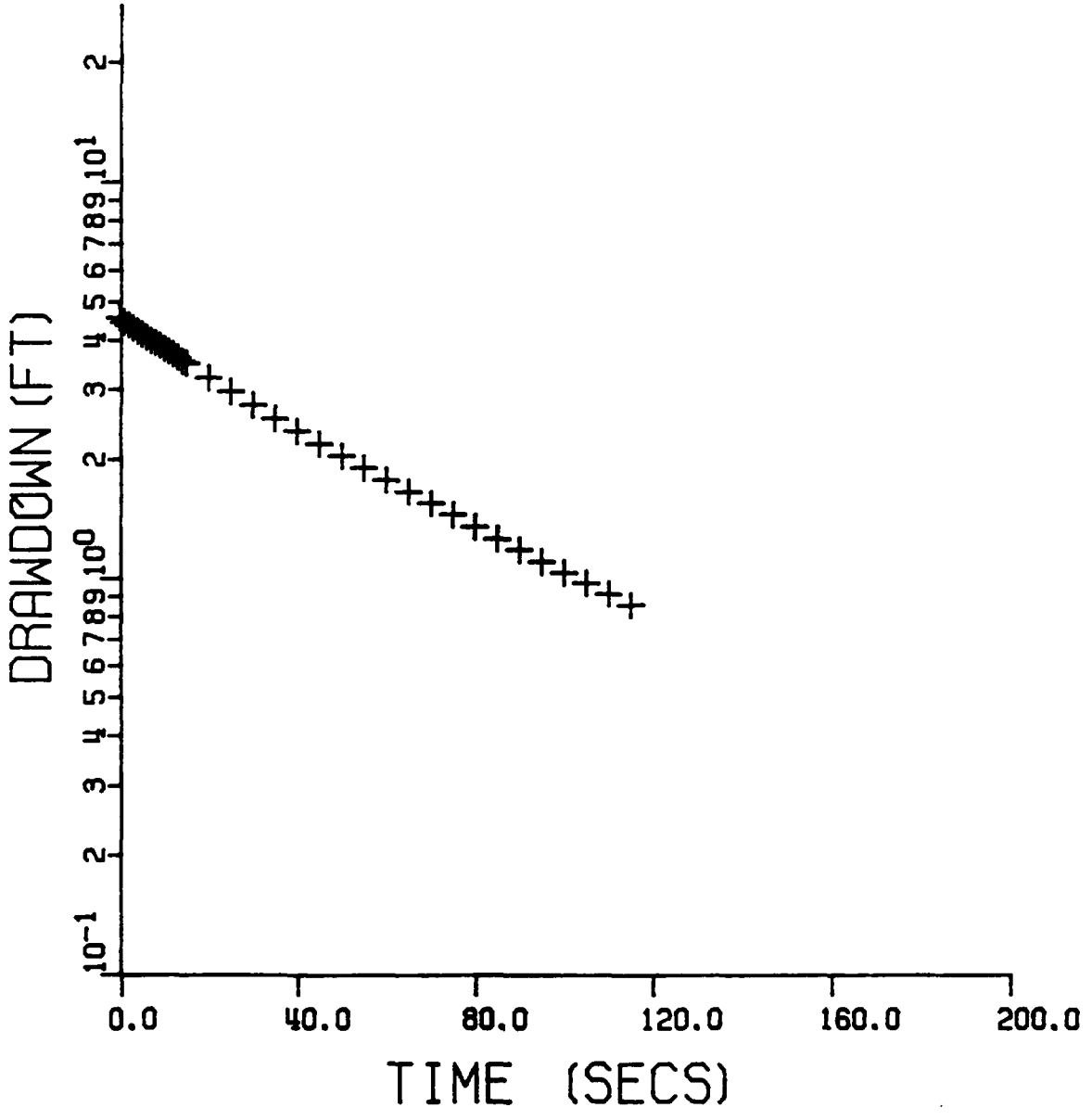
GERAGHTY & MILLER, INC

APPENDIX L

TECHNA SLUG TEST DATA,

PHASE I REMEDIAL INVESTIGATION


RAW DATA AND LST.SQUARE FIT
IW1
DRAWDOWN (FT)
TIME (SECS) *10^1
0.0
40.0
80.0
120.0
160.0
200.0
240.0


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
3
4
5
6
7
8
9
10^{1}
2
0.0
40.0
80.0
120.0
160.0
200.0
TIME (SECS)

OR .246E+03 GAL/FT/DAY

##

ENSORED DATA END POINTS ARE ::
START TIME IS = .000E+00 SECONDS

END TIME IS = .600E+02 SECONDS

##
enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 23.000 FEET

STATIC WATER LEVEL = 15.360 FEET

AQUIFER CONDUCTIVITY IS = .609E-03 CM/SEC

OR .129E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .427E+00 CM*CM/SEC

OR .297E+03 GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::
START TIME IS = .000E+00 SECONDS

END TIME IS = .600E+02 SECONDS

##
enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 23.000 FEET

STATIC WATER LEVEL = 15.360 FEET

AQUIFER CONDUCTIVITY IS = .609E-03 CM/SEC

OR .129E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .427E+00 CM*CM/SEC

OR .297E+03 GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::
START TIME IS = .000E+00 SECONDS

END TIME IS = .600E+02 SECONDS

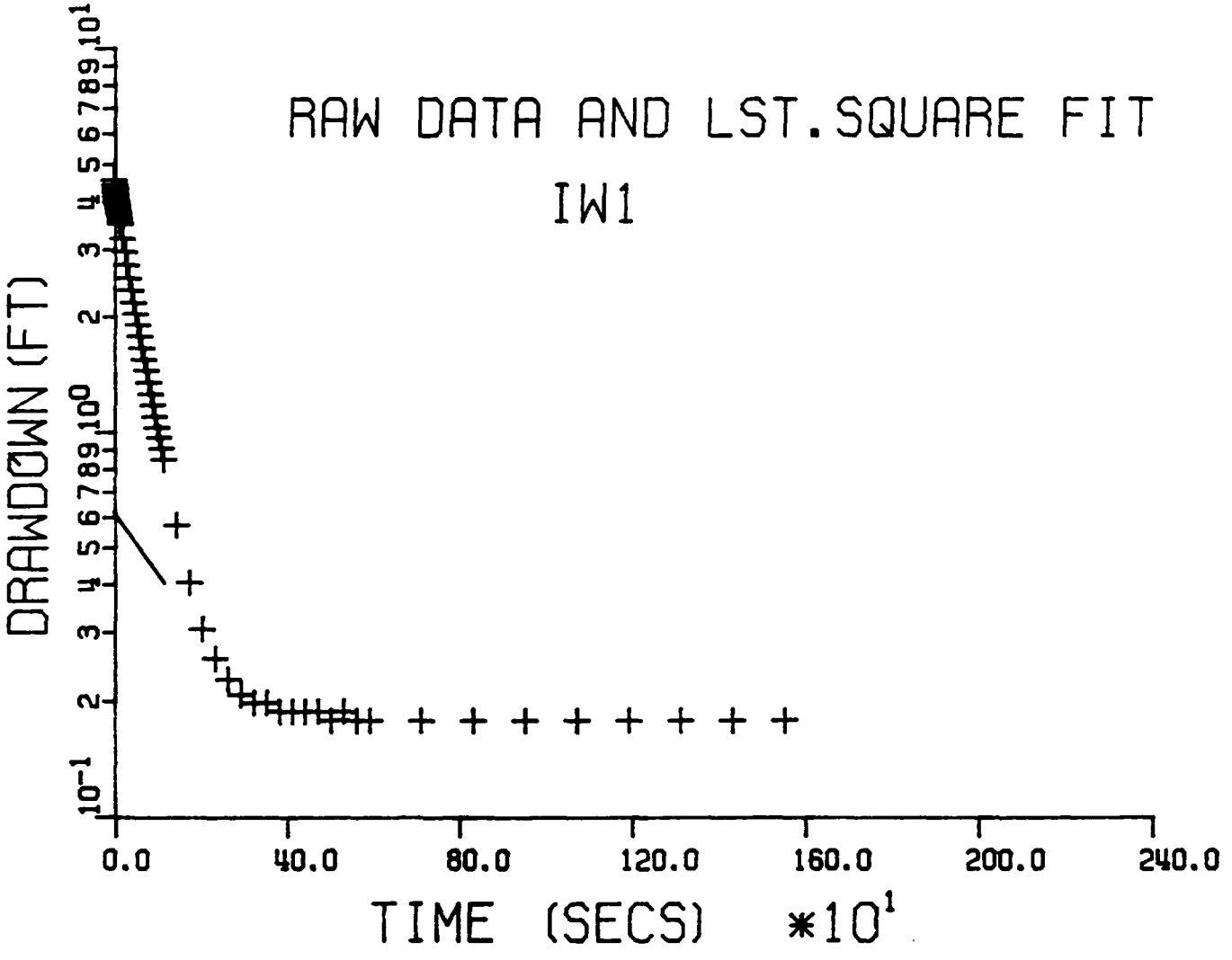
```
enter well identification number--(20 chrs max)
IW1
enter no. of characters in well id. no.
3
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
23
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :           G

    DATA ANALYZED BY :           G

    BAIL DOWN PARAMETERS FOR     OIW1

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =        2.000 INCHES

 SCREEN LENGTH              =       5.000 FEET

 WELL PENETRATION DEPTH     =       5.000 FEET

 AQUIFER THICKNESS          =      23.000 FEET

 STATIC WATER LEVEL         =      15.360 FEET

 AQUIFER CONDUCTIVITY IS    =    .565E-03 CM/SEC

                          OR     .120E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .396E+00 CM*CM/SEC

                          OR     .275E+03 GAL/FT/DAY
```

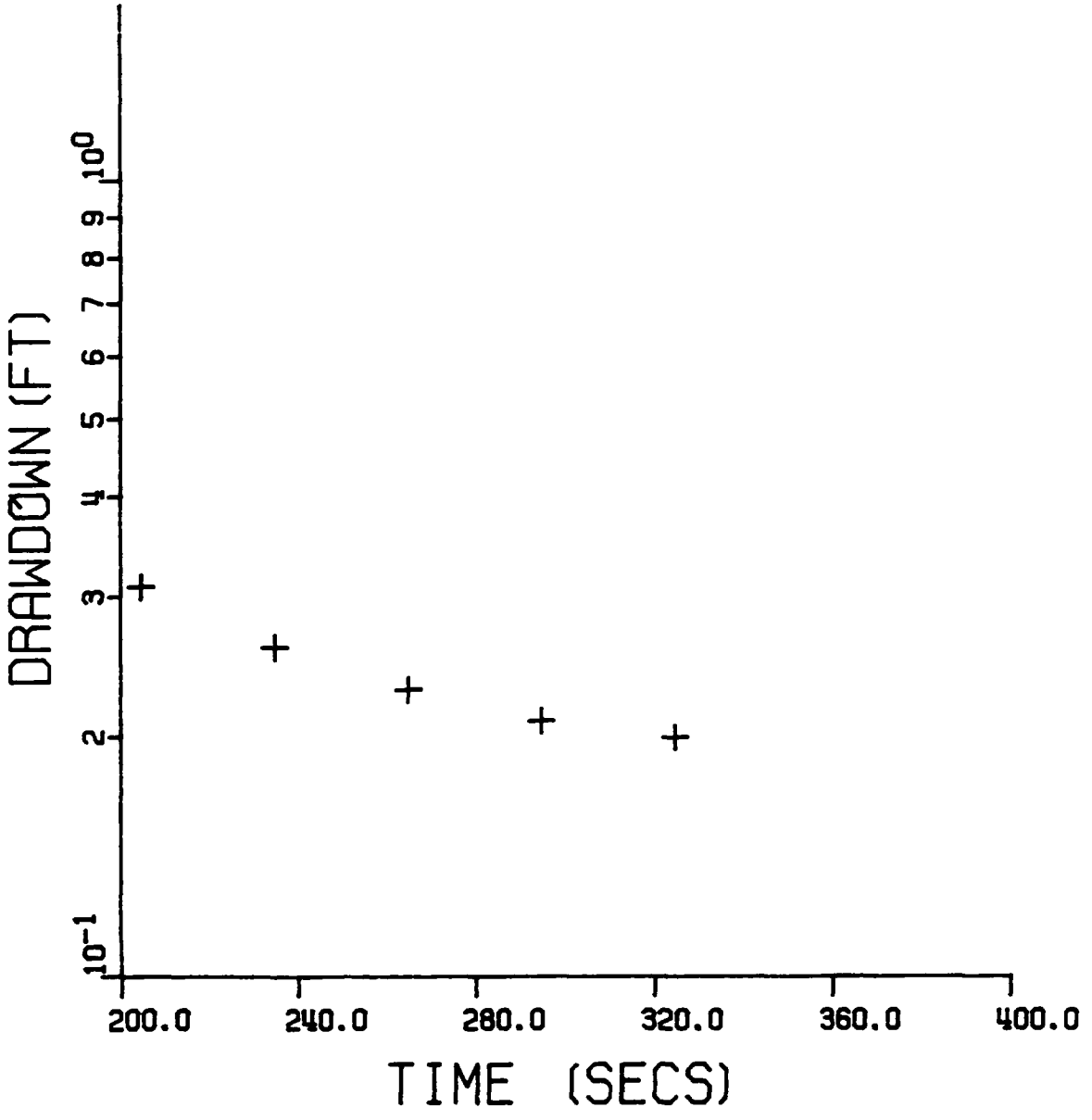
start time 0 , End time .120E+3

```
##############################################

    CENSORED DATA END POINTS ARE ::
   .RT TIME IS                =     .000E+00 SECONDS

 END TIME IS                  =     .120E+03 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS            =       23.000 FEET

 STATIC WATER LEVEL           =       15.360 FEET

 AQUIFER CONDUCTIVITY IS      =     .565E-03 CM/SEC

                             OR     .120E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .396E+00 CM*CM/SEC

                             OR     .275E+03 GAL/FT/DAY

##############################################

    CENSORED DATA END POINTS ARE ::
   \RT TIME IS                =     .000E+00 SECONDS

 END TIME IS                  =     .120E+03 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS            =       23.000 FEET

 STATIC WATER LEVEL           =       15.360 FEET

 AQUIFER CONDUCTIVITY IS      =     .565E-03 CM/SEC

                             OR     .120E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .396E+00 CM*CM/SEC

                             OR     .275E+03 GAL/FT/DAY

##############################################

    CENSORED DATA END POINTS ARE ::
   \RT TIME IS                =     .000E+00 SECONDS

 END TIME IS                  =     .120E+03 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
```

```
##############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                =     .000E+00 SECONDS

 END TIME IS                  =     .180E+03 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

1
enter    1  for baildown analysis
         2  for slug analysis
2
enter    1  if you want data normalized
otherwise enter any number of your choice
2
enter static water level (ft)
15.36
TSTAT AND AMAX  ARE          4.9980000         4.6100000
xlast,ylast       1555.0020000  1.799994E-001
study the plot of your data carefully.You may
want to remove series of data points at either
end of the plot. If that happens to be the case,
you   will be asked to give the TIMES below and
bound which you want your data censored.
Outliers may be removed somewhere in PERMEST.
It may be helpful if you can write the times down
on a scratch pad.
 are you ready to continue ? ------ Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. do you wish to view the plot again ? -----Y/N
N
 enter 1  to remove skewed data points at either end
       2  to remove outliers
1
 enter  baildown start time --- TS
0
   enter baildown end time ----- TE
120
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
```

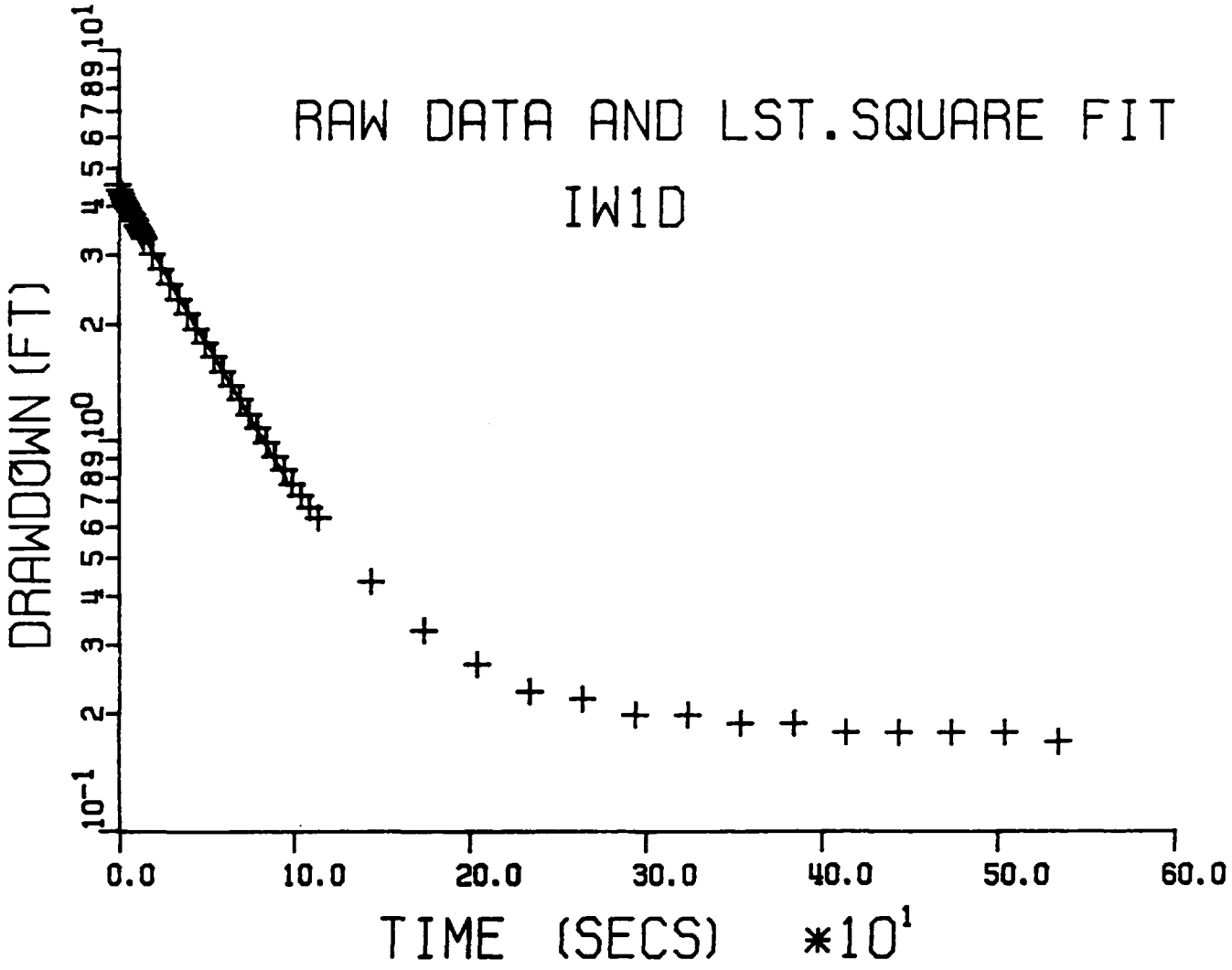
```
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =     1.4883
       LINE   SLOPE   IS  =    -.014647

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
IW1
enter no. of characters in well id. no.
3
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
3
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
```


RAW DATA AND LST.SQUARE FIT
IW1
DRAWDOWN (FT)
TIME (SECS) *10^1
0.0
40.0
80.0
120.0
160.0
200.0
240.0


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
200.0
240.0
280.0
320.0
360.0
400.0
TIME (SECS)

```
2
 do you want to write bail results to a file ?  Y/N
N
F   'R EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
23
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    OIW1

@ .@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH              =       5.000 FEET

 WELL PENETRATION DEPTH     =       5.000 FEET

 AQUIFER THICKNESS          =      23.000 FEET

 STATIC WATER LEVEL         =      15.360 FEET

 AQUIFER CONDUCTIVITY IS    =    .140E-03 CM/SEC

                           OR    .297E+01 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .983E-01 CM*CM/SEC

                           OR    .683E+02 GAL/FT/DAY

###############################################

    CENSORED DATA END POINTS ARE ::
    .RT TIME IS             =    .180E+03 SECONDS

 END TIME IS                =    .340E+03 SECONDS

################################################
 enter  1  to continue  with thesame datafile
```

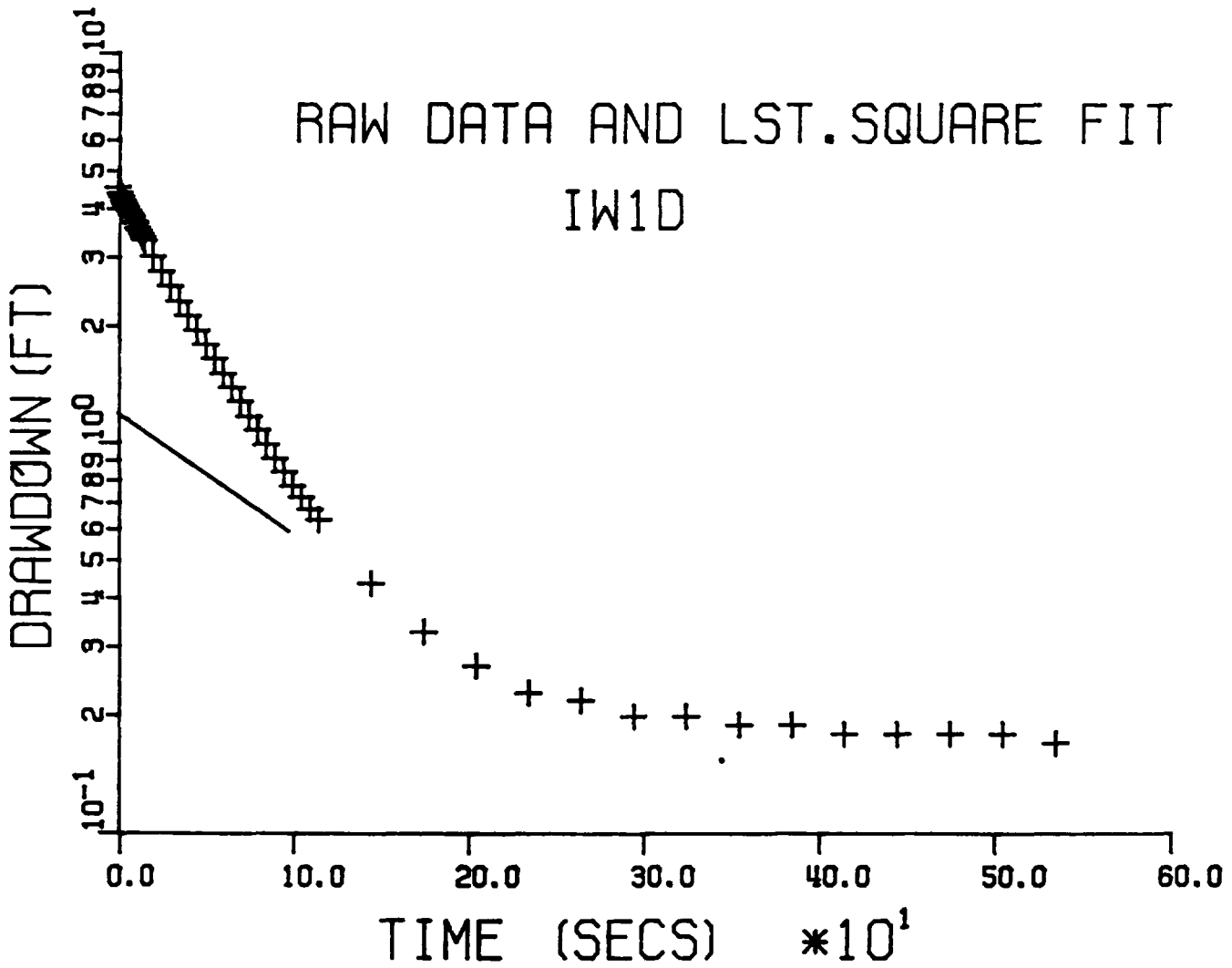
```
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS          =      23.000 FEET

 STATIC WATER LEVEL         =      15.360 FEET

 AQUIFER CONDUCTIVITY IS    =    .140E-03 CM/SEC

                           OR    .297E+01 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .983E-01 CM*CM/SEC

                           OR    .683E+02 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =    .180E+03 SECONDS

 END TIME IS                =    .340E+03 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS          =      23.000 FEET

 STATIC WATER LEVEL         =      15.360 FEET

 AQUIFER CONDUCTIVITY IS    =    .140E-03 CM/SEC

                           OR    .297E+01 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .983E-01 CM*CM/SEC

                           OR    .683E+02 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =    .180E+03 SECONDS

 END TIME IS                =    .340E+03 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS          =      23.000 FEET

 STATIC WATER LEVEL         =      15.360 FEET
```

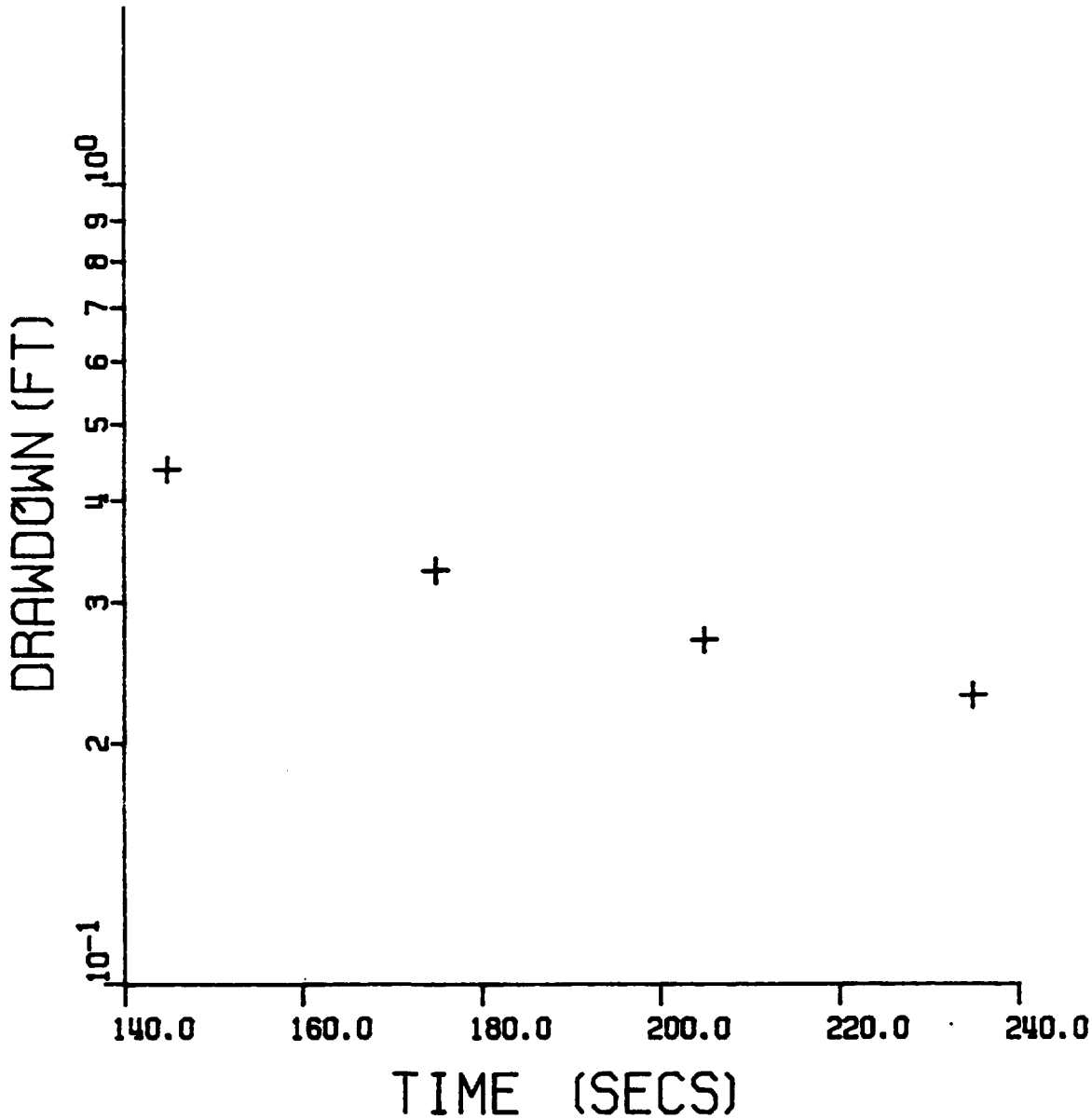

RAW DATA AND LST.SQUARE FIT
IW1D
DRAWDOWN (FT)
TIME (SECS) *10^1
0.0
10.0
20.0
30.0
40.0
50.0
60.0
10^-1
10^0
10^1

DRAWDOWN (FT)
TIME (SECS)
0.0
20.0
40.0
60.0
80.0
100.0
10^0
2
3
4
5
6
7
8
9
10^1

```
 EFFECTIVE SCREEN DIAMETER =        2.000 INCHES

 SCREEN LENGTH             =        5.000 FEET

 . LL PENETRATION DEPTH    =        5.000 FEET

 AQUIFER THICKNESS         =       23.000 FEET

 STATIC WATER LEVEL        =       15.360 FEET

 AQUIFER CONDUCTIVITY IS   =     .686E-03 CM/SEC

                          OR     .145E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .481E+00 CM*CM/SEC

                          OR     .334E+03 GAL/FT/DAY

##################################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS             =     .000E+00 SECONDS

 END TIME IS               =     .800E+02 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS         =       23.000 FEET

 STATIC WATER LEVEL        =       15.360 FEET

 AQUIFER CONDUCTIVITY IS   =     .686E-03 CM/SEC

                          OR     .145E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .481E+00 CM*CM/SEC

                          OR     .334E+03 GAL/FT/DAY

##################################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS             =     .000E+00 SECONDS

 END TIME IS               =     .800E+02 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS         =       23.000 FEET

 STATIC WATER LEVEL        =       15.360 FEET
```

```
        2  to remove  more outliers
        3  for least squares fit
3
   'NE  INTERCEPT IS  =      1.4877
       LINE   SLOPE   IS  =     -.017782

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
IW1D
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
    you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
23
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    1IW1D

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER   =       6.000 INCHES
```

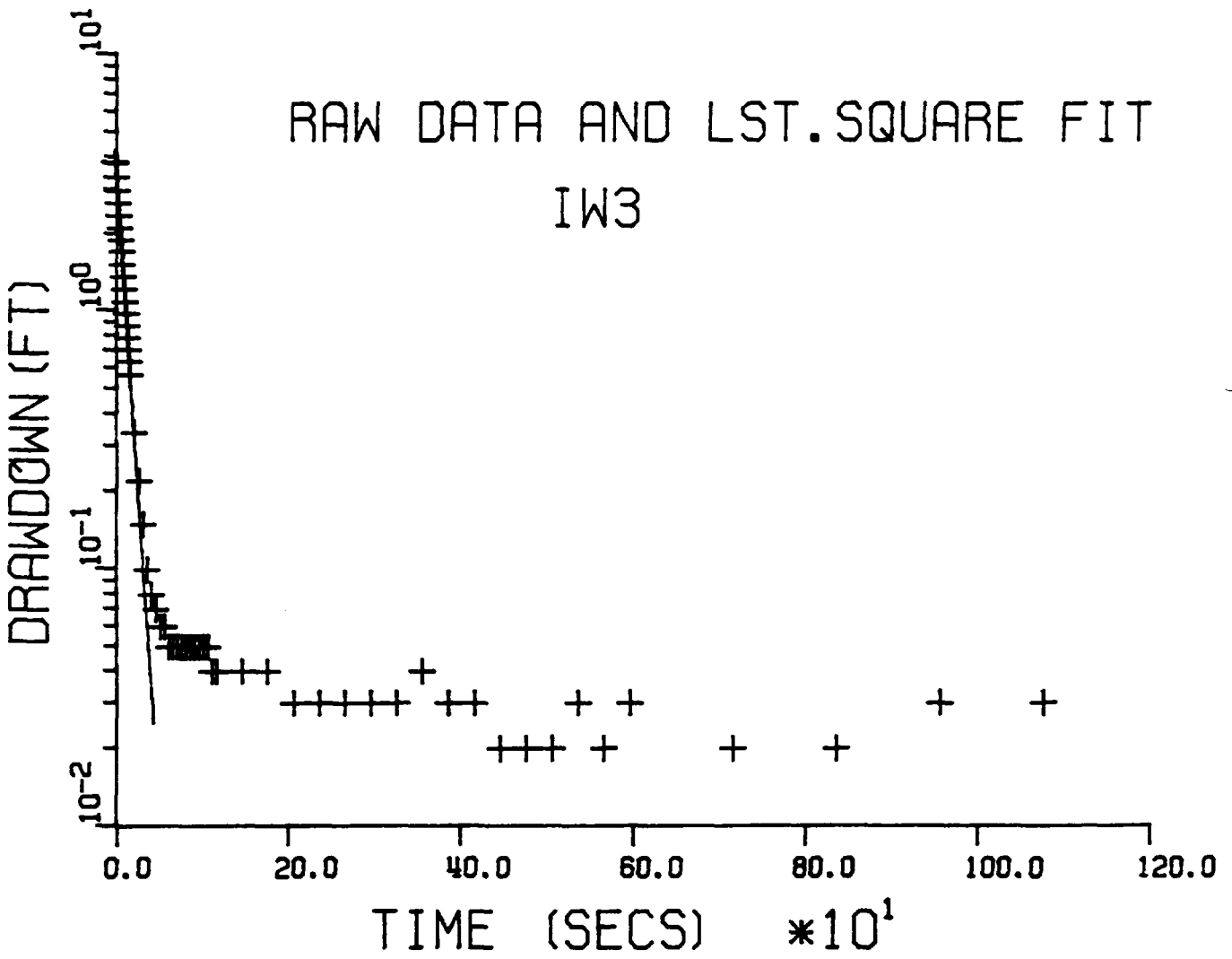

RAW DATA AND LST.SQUARE FIT
IW1D
DRAWDOWN (FT)
TIME (SECS) *10^1
0.0
10.0
20.0
30.0
40.0
50.0
60.0
10^-1
10^0
10^1


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
140.0
160.0
180.0
200.0
220.0
240.0
TIME (SECS)

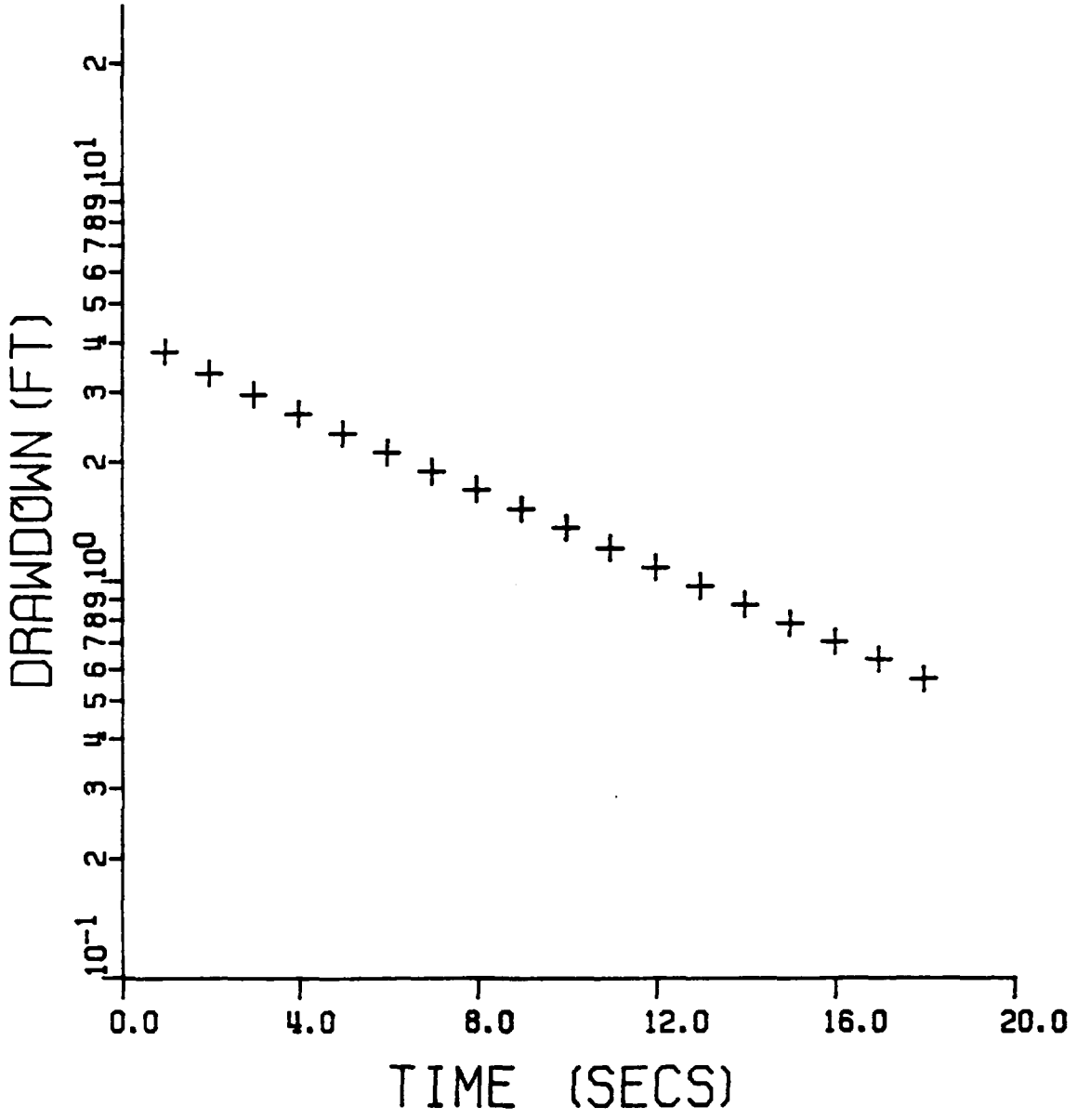
```
 EFFECTIVE WELL DIAMETER    =        6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =        2.000 INCHES

 . REEN LENGTH              =        5.000 FEET

 WELL PENETRATION DEPTH     =        5.000 FEET

 AQUIFER THICKNESS          =       23.000 FEET

 STATIC WATER LEVEL         =       15.360 FEET

 AQUIFER CONDUCTIVITY IS    =     .276E-03 CM/SEC

                           OR     .585E+01 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .193E+00 CM*CM/SEC

                           OR     .135E+03 GAL/FT/DAY

##############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =     .120E+03 SECONDS

 END TIME IS                =     .250E+03 SECONDS

##############################################
   ter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS          =       23.000 FEET

 STATIC WATER LEVEL         =       15.360 FEET

 AQUIFER CONDUCTIVITY IS    =     .276E-03 CM/SEC

                           OR     .585E+01 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .193E+00 CM*CM/SEC

                           OR     .135E+03 GAL/FT/DAY

##############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =     .120E+03 SECONDS

 END TIME IS                =     .250E+03 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS          =       23.000 FEET
```

```
 enter   1  to remove more skewed points
         2  to remove  more outliers
         3  for least squares fit
3
   .NE  INTERCEPT IS  =       .1825
       LINE   SLOPE   IS  =    -.007156

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console

9600,20
enter well identification number--(20 chrs max)
IW1D
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
23
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    1IW1D

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
```

```
 enter baildown end time ----- TE
250
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
1
 enter  baildown start time --- TS
120
 enter baildown end time ----- TE
250
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit

  LINE  INTERCEPT IS  =      .1825
       LINE   SLOPE   IS  =    -.007156

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console

    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
```


RAW DATA AND LST.SQUARE FIT
IW3
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$

b = 1.4311
m = -.11128



HYDOGEOLOGY AND SITE INVESTIGATION.

PEI ASSOCIATES INC.

CINCINNATI. OHIO

B A I L D O W N   D A T A   A N A L Y S I S

DATA OBTAINED BY :   G

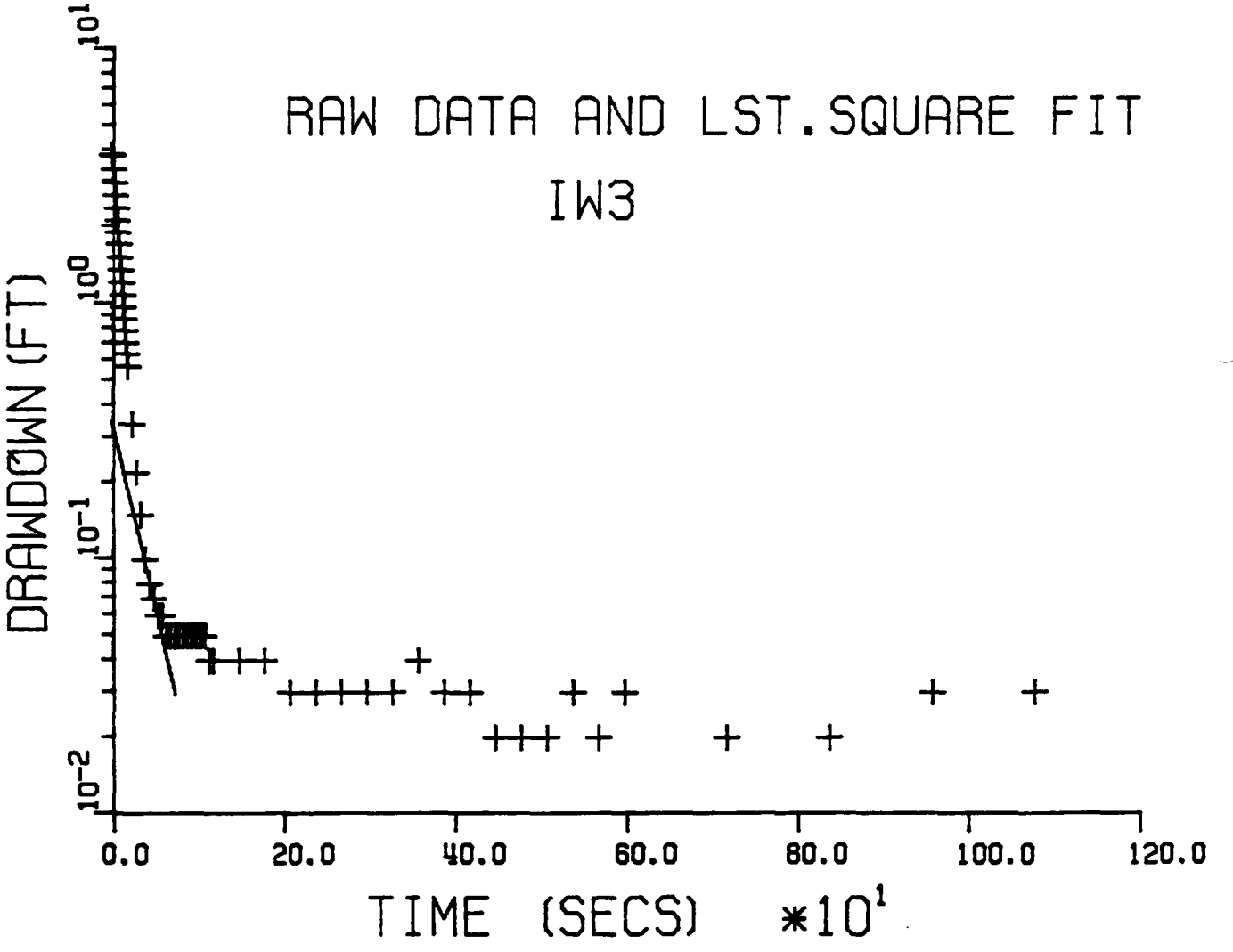
DATA ANALYZED BY :   G

BAIL DOWN PARAMETERS FOR   4IW3

@@

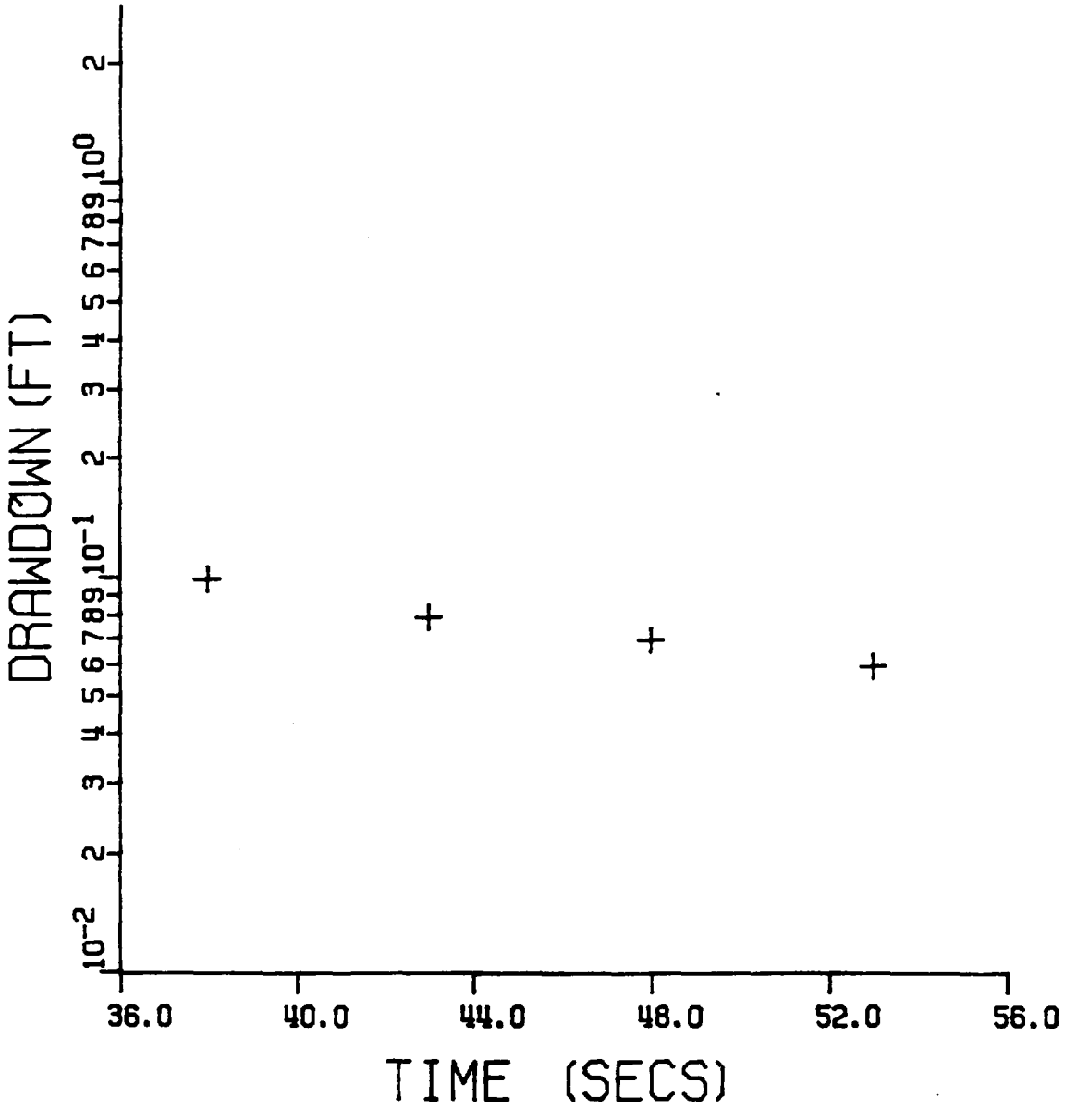
```
 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH              =       5.000 FEET

 WELL PENETRATION DEPTH     =       7.500 FEET

 AQUIFER THICKNESS          =      23.000 FEET

 STATIC WATER LEVEL         =      16.510 FEET

   JIFER CONDUCTIVITY IS    =    .469E-02 CM/SEC

                           OR    .993E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .328E+01 CM*CM/SEC

                           OR    .228E+04 GAL/FT/DAY

###############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =    .100E+01 SECONDS

 END TIME IS                =    .200E+02 SECONDS

################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run
1
enter    1  for baildown analysis
         2  for slug analysis
2
enter    1  if you want data normalized
c  erwise enter any number of your choice
2
enter static water level (ft)
16.51
TSTAT AND AMAX  ARE          1.9980000        3.8700000
xlast,ylast        1078.0020000  3.000069E-002
```

```
##############################################

    CENSORED DATA END POINTS ARE ::
   ,RT TIME IS                =    .100E+01 SECONDS

 END TIME IS                  =    .200E+02 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run
3
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
23
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
7.5
0 FEET

 ''LL PENETRATION DEPTH     =       7.500 FEET

 AQUIFER THICKNESS          =      23.000 FEET

 STATIC WATER LEVEL         =      16.510 FEET

 AQUIFER CONDUCTIVITY IS    =    .469E-02 CM/SEC

                           OR    .993E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .328E+01 CM*CM/SEC

                           OR    .228E+04 GAL/FT/DAY

##############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                =    .100E+01 SECONDS

 END TIME IS                  =    .200E+02 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

  ,JIFER THICKNESS            =      23.000 FEET

 STATIC WATER LEVEL           =      16.510 FEET

 AQUIFER CONDUCTIVITY IS      =    .469E-02 CM/SEC
```


RAW DATA AND LST.SQUARE FIT
IW3
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$

Line Intr. -1.0590

Slope -.033322

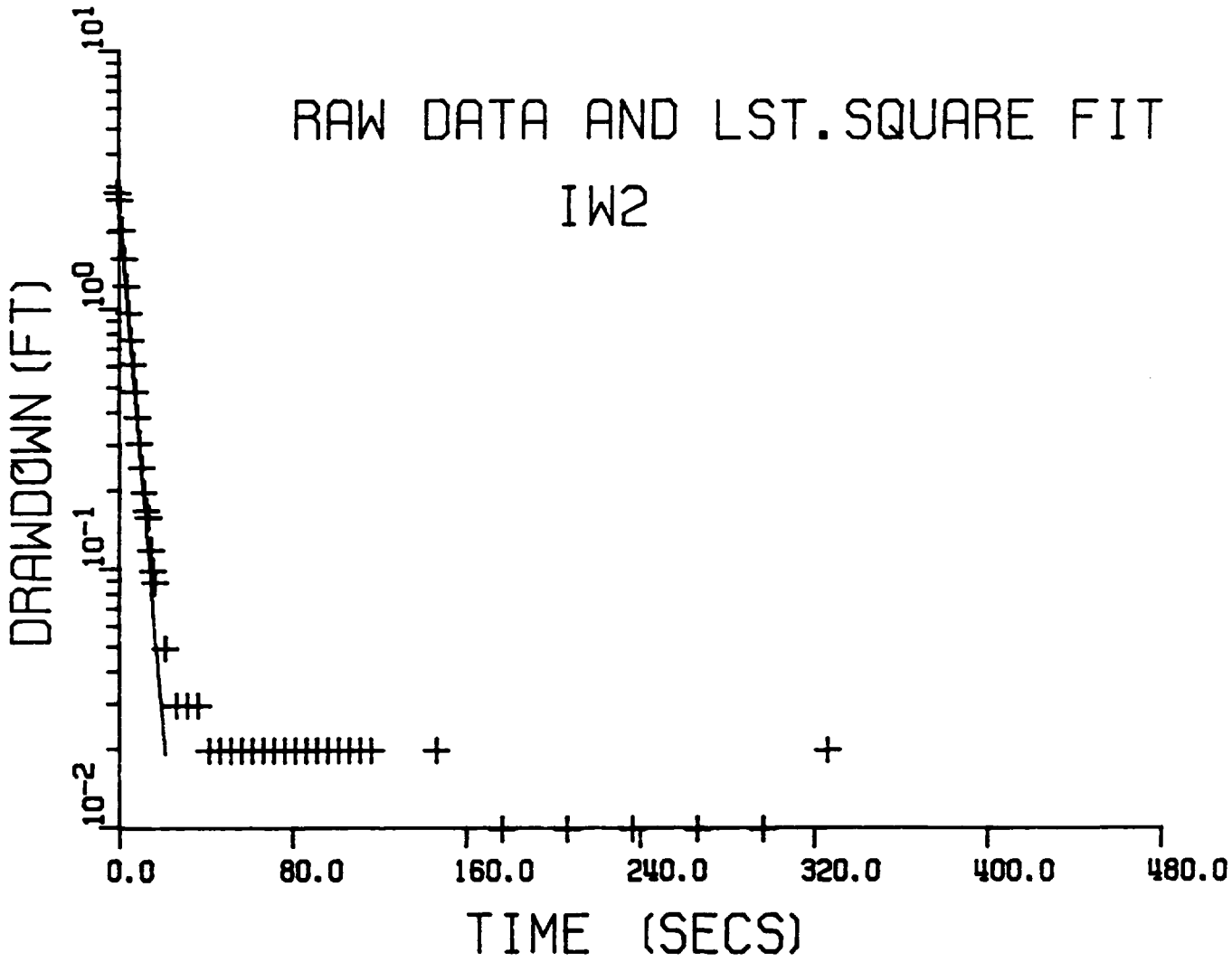


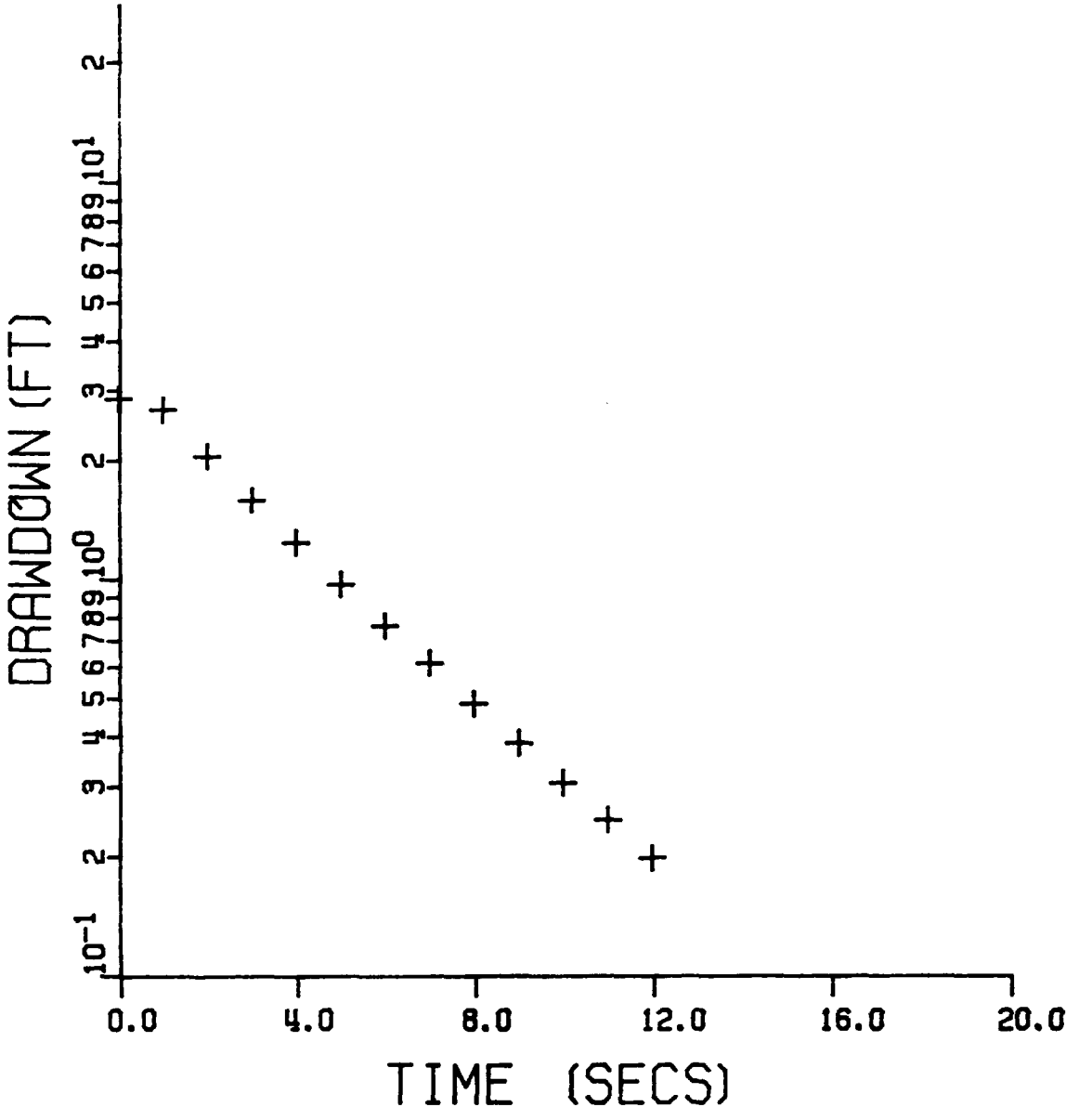
```
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

3
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
10
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
7.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    4IW3

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH              =       5.000 FEET

 WELL PENETRATION DEPTH     =       7.500 FEET

 AQUIFER THICKNESS          =      10.000 FEET

 STATIC WATER LEVEL         =      16.510 FEET

 AQUIFER CONDUCTIVITY IS    =    .150E-02 CM/SEC

                          OR    .317E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .456E+00 CM*CM/SEC

                          OR    .317E+03 GAL/FT/DAY

###############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =    .370E+02 SECONDS
```

```
 END TIME IS                  =    .570E+02 SECONDS

################################################
   ter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run
3
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
100
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
7.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :           G

    DATA ANALYZED BY :           G

    BAIL DOWN PARAMETERS FOR     4IW3

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER     =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =         2.000 INCHES

 SCREEN LENGTH               =       5.000 FEET

 WELL PENETRATION DEPTH      =       7.500 FEET

 AQUIFER THICKNESS           =     100.000 FEET

 STATIC WATER LEVEL          =      16.510 FEET

 AQUIFER CONDUCTIVITY IS     =    .132E-02 CM/SEC

                            OR    .280E+02 GAL/FT/FT/DAY

   JIFER TRANSMISSIVITY IS =      .403E+01 CM*CM/SEC

                            OR    .280E+04 GAL/FT/DAY

###############################################
```

```
   DATA ANALYZED BY :          G

   BAIL DOWN PARAMETERS FOR    4IW3

 @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =        2.000 INCHES

 SCREEN LENGTH              =       5.000 FEET

 WELL PENETRATION DEPTH     =       7.500 FEET

 AQUIFER THICKNESS          =      23.000 FEET

 STATIC WATER LEVEL         =      16.510 FEET

 AQUIFER CONDUCTIVITY IS    =    .140E-02 CM/SEC

                           OR    .297E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .984E+00 CM*CM/SEC

                           OR    .684E+03 GAL/FT/DAY

###############################################

   CENSORED DATA END POINTS ARE ::
  ART TIME IS               =    .370E+02 SECONDS

 END TIME IS                =    .570E+02 SECONDS

################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS          =      23.000 FEET

 STATIC WATER LEVEL         =      16.510 FEET

 AQUIFER CONDUCTIVITY IS    =    .140E-02 CM/SEC

                           OR    .297E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .984E+00 CM*CM/SEC

                           OR    .684E+03 GAL/FT/DAY

###############################################

   CENSORED DATA END POINTS ARE ::
  ART TIME IS               =    .370E+02 SECONDS

 END TIME IS                =    .570E+02 SECONDS

################################################
 enter  1  to continue  with thesame datafile
```

```
enter well identification number--(20 chrs max)
IW3
enter no. of characters in well id. no.
3
F  .' COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
23
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
7.5
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
IW3
enter no. of characters in well id. no.
3
i  .' COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)

ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
23
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
7.5

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :         G
```


RAW DATA AND LST.SQUARE FIT
IW2
DRAWDOWN (FT)
10^{1}
10^{0}
10^{-1}
10^{-2}
0.0
80.0
160.0
240.0
320.0
400.0
480.0
TIME (SECS)


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
3
4
5
6
7
8
9
10^{1}
2
0.0
4.0
8.0
12.0
16.0
20.0
TIME (SECS)

B A I L D O W N   D A T A   A N A L Y S I S

DATA OBTAINED BY :   G

DATA ANALYZED BY :   G

BAIL DOWN PARAMETERS FOR   2IW2

@@

EFFECTIVE WELL DIAMETER = 6.000 INCHES

EFFECTIVE SCREEN DIAMETER = 2.000 INCHES

SCREEN LENGTH = 5.000 FEET

WELL PENETRATION DEPTH = 13.500 FEET

AQUIFER THICKNESS = 26.000 FEET

STATIC WATER LEVEL = 15.950 FEET

AQUIFER CONDUCTIVITY IS = .109E-01 CM/SEC

OR .230E+03 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .860E+01 CM*CM/SEC

OR .598E+04 GAL/FT/DAY

###

CENSORED DATA END POINTS ARE ::
START TIME IS = .000E+00 SECONDS

END TIME IS = .120E+02 SECONDS

##

```
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run
```

AQUIFER THICKNESS = 26.000 FEET

STATIC WATER LEVEL = 15.950 FEET

AQUIFER CONDUCTIVITY IS = .109E-01 CM/SEC

OR .230E+03 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .860E+01 CM*CM/SEC

OR .598E+04 GAL/FT/DAY

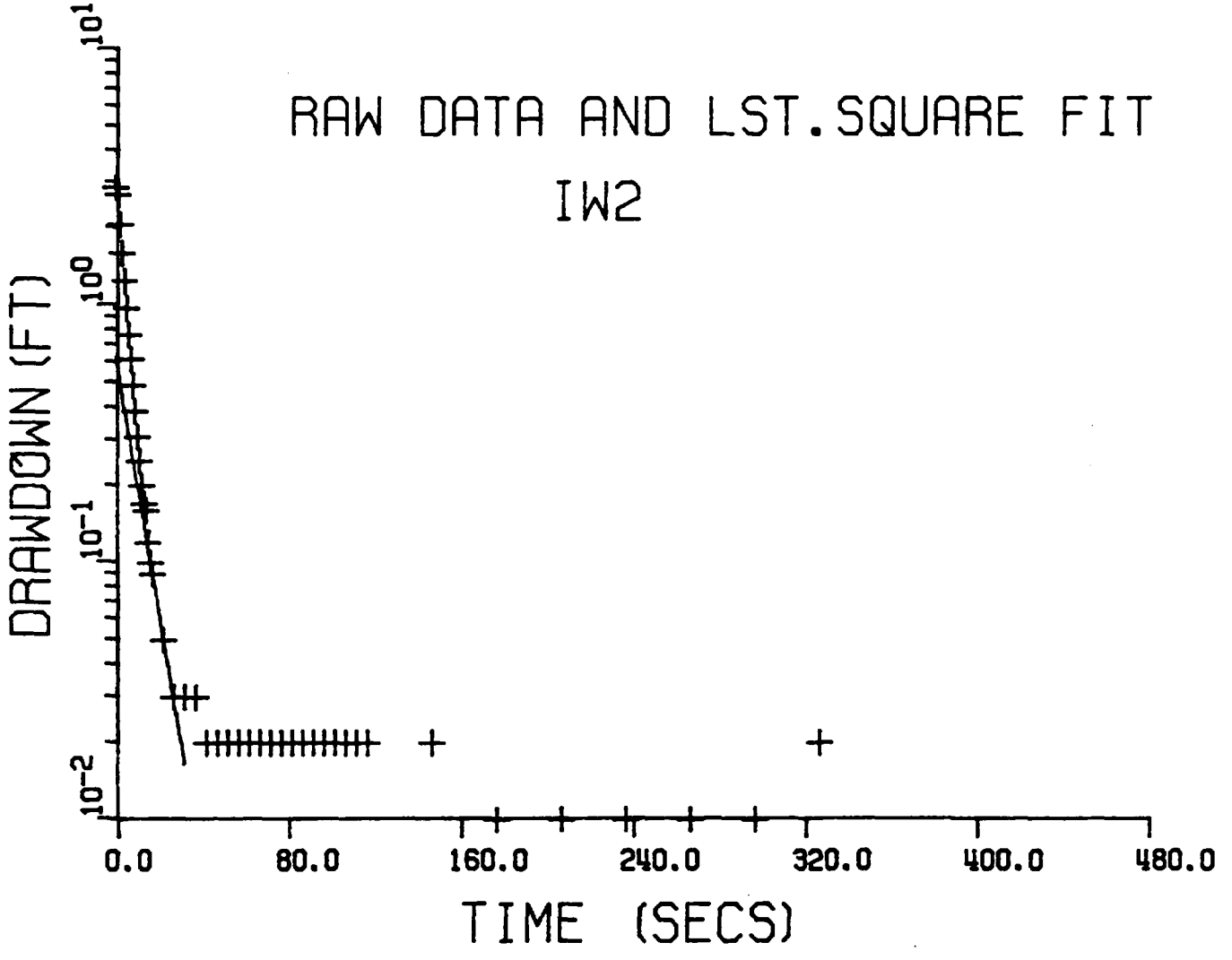
###

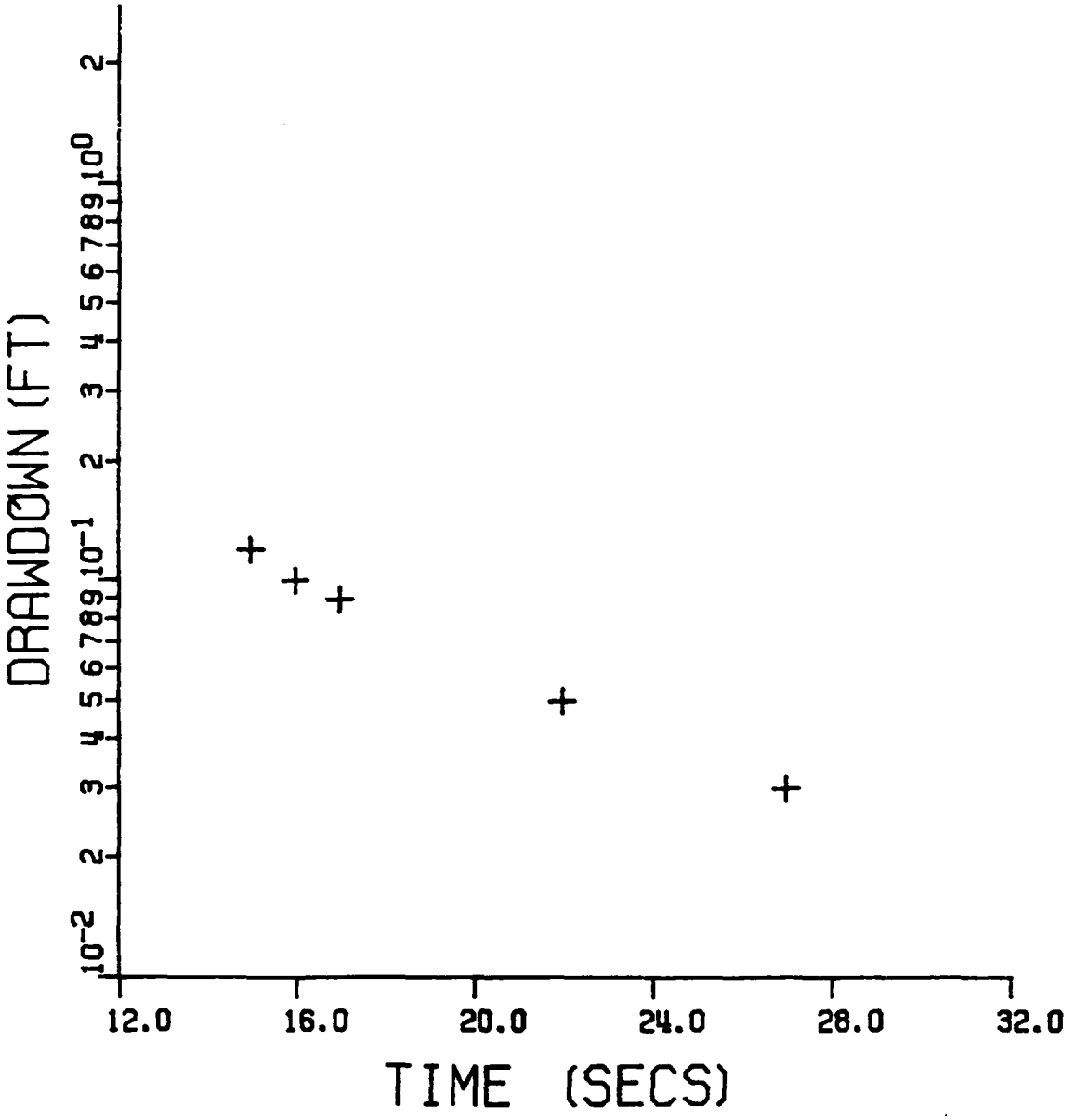
CENSORED DATA END POINTS ARE ::
START TIME IS = .000E+00 SECONDS

```
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =     1.1488
       LINE   SLOPE   IS  =    -.231321

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
IW2
enter no. of characters in well id. no.
3
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
26
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
13.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO
```

```
##################################################

    CENSORED DATA END POINTS ARE ::
  \RT TIME IS                =     .000E+00 SECONDS

 END TIME IS                 =     .120E+02 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run
1
 AQUIFER THICKNESS           =       44.000 FEET

 STATIC WATER LEVEL          =       15.950 FEET

 AQUIFER CONDUCTIVITY IS     =     .105E-01 CM/SEC

                            OR     .222E+03 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .141E+02 CM*CM/SEC

                            OR     .979E+04 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS               =     .000E+00 SECONDS

 END TIME IS                 =     .120E+02 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run
1

 AQUIFER THICKNESS           =       44.000 FEET

 STATIC WATER LEVEL          =       15.950 FEET

 AQUIFER CONDUCTIVITY IS     =     .105E-01 CM/SEC

                            OR     .222E+03 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .141E+02 CM*CM/SEC

                            OR     .979E+04 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
   \RT TIME IS               =     .000E+00 SECONDS

 END TIME IS                 =     .120E+02 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
```

```
 END TIME IS                    =    .120E+02 SECONDS

#   '############################################
   ter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

3
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
44
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
13.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    2IW2

 @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER     =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =         2.000 INCHES

 SCREEN LENGTH               =       5.000 FEET

 WELL PENETRATION DEPTH      =      13.500 FEET

 AQUIFER THICKNESS           =      44.000 FEET

 STATIC WATER LEVEL          =      15.950 FEET

 AQUIFER CONDUCTIVITY IS     =    .105E-01 CM/SEC

                            OR    .222E+03 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =      .141E+02 CM*CM/SEC

                            OR    .979E+04 GAL/FT/DAY
```


RAW DATA AND LST.SQUARE FIT
IW2
DRAWDOWN (FT)
10^{1}
10^{0}
10^{-1}
10^{-2}
0.0
80.0
160.0
240.0
320.0
400.0
480.0
TIME (SECS)

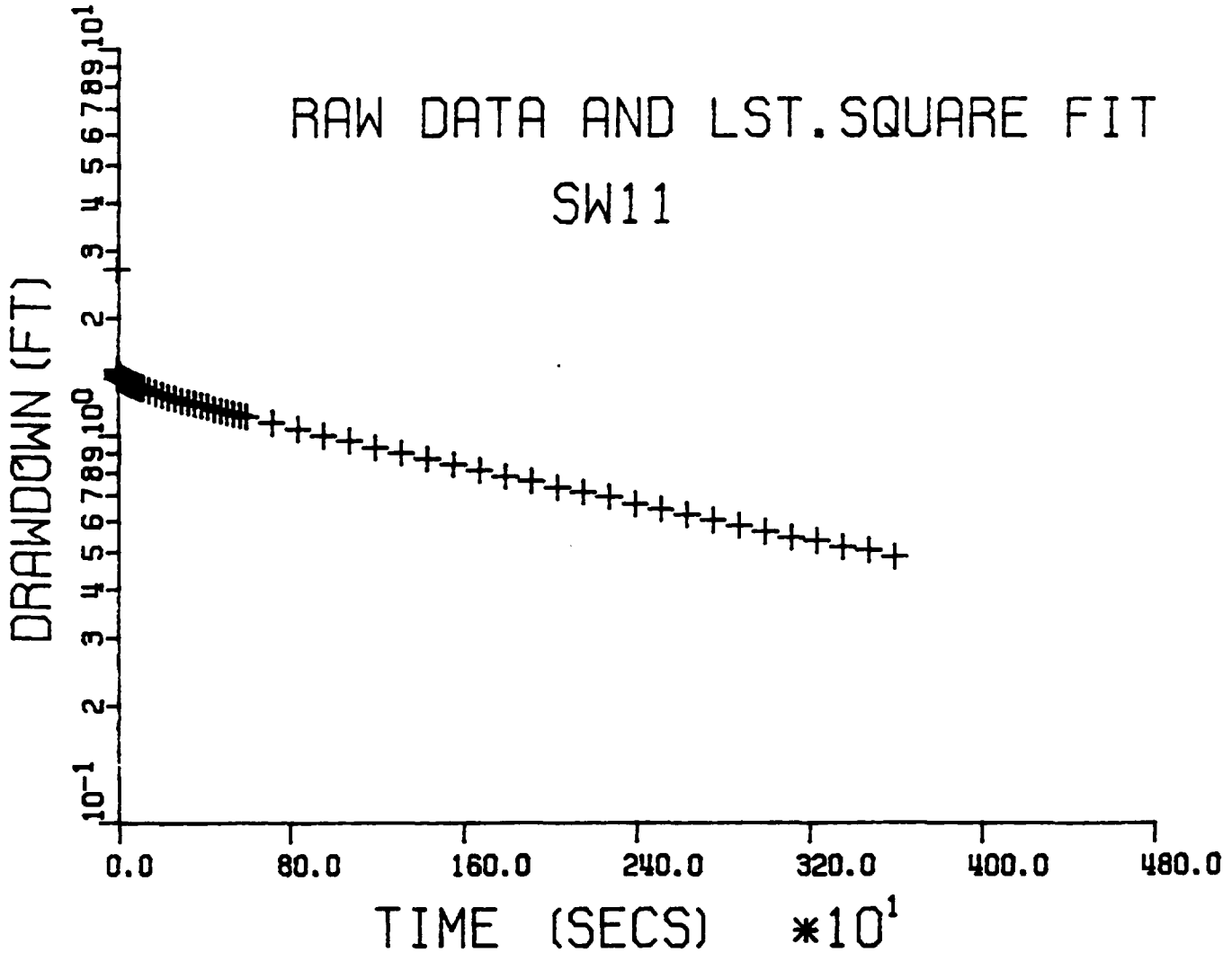

DRAWDOWN (FT)
10^{-2}
2
3
4
5
6
7
8
9
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
12.0
16.0
20.0
24.0
28.0
32.0
TIME (SECS)

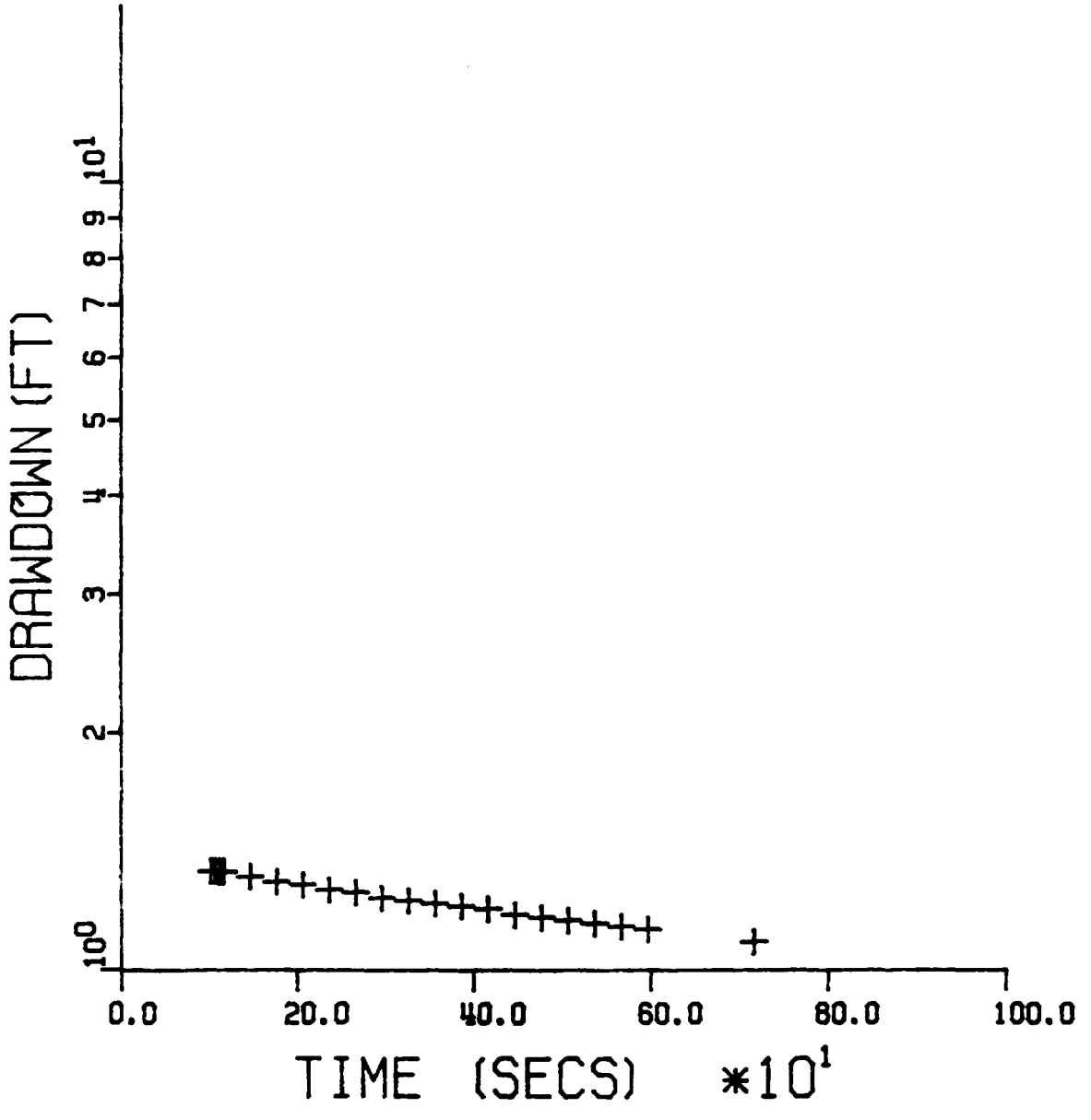
```
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

   ECTIVE WELL DIAMETER    =        6.000 INCHES

EFFECTIVE SCREEN DIAMETER =        2.000 INCHES

SCREEN LENGTH             =        5.000 FEET

WELL PENETRATION DEPTH    =       13.500 FEET

AQUIFER THICKNESS         =       26.000 FEET

STATIC WATER LEVEL        =       15.950 FEET

AQUIFER CONDUCTIVITY IS   =     .533E-02 CM/SEC

                         OR     .113E+03 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =     .422E+01 CM*CM/SEC

                         OR     .294E+04 GAL/FT/DAY

###############################################

   CENSORED DATA END POINTS ARE ::
START TIME IS             =     .140E+02 SECONDS

    TIME IS               =     .300E+02 SECONDS

################################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run

AQUIFER THICKNESS         =       26.000 FEET

STATIC WATER LEVEL        =       15.950 FEET

AQUIFER CONDUCTIVITY IS   =     .533E-02 CM/SEC

                         OR     .113E+03 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =     .422E+01 CM*CM/SEC

                         OR     .294E+04 GAL/FT/DAY

###############################################

   CENSORED DATA END POINTS ARE ::
START TIME IS             =     .140E+02 SECONDS

END TIME IS               =     .300E+02 SECONDS

#,,,############################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run
```

```
 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 . .EEN LENGTH               =      13.500 FEET

 WELL PENETRATION DEPTH     =      14.000 FEET

 AQUIFER THICKNESS          =      26.000 FEET

 STATIC WATER LEVEL         =      15.950 FEET

 AQUIFER CONDUCTIVITY IS    =    .242E-02 CM/SEC

                           OR    .513E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .192E+01 CM*CM/SEC

                           OR    .134E+04 GAL/FT/DAY

###############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =    .140E+02 SECONDS

 END TIME IS                =    .300E+02 SECONDS

################################################
 ' ter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run
3
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)

ENTER AQUIFER THICKNESS (ft)
26
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
13.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    2IW2
```

```
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =      -.4624
       LINE   SLOPE   IS  =    -.113627

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
IW2
enter no. of characters in well id. no.
3
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
26
ENTER SCREEN LENGTH (ft)
13.5
ENTER WELL PENETRATION DEPTH (ft)
14
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    2IW2

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
```

```
3
 do you want to write bail results to a file ?  Y/N
N
E.  .R EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
44
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
13.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    2IW2

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH              =       5.000 FEET

 /ELL PENETRATION DEPTH     =      13.500 FEET

 AQUIFER THICKNESS          =      44.000 FEET

 STATIC WATER LEVEL         =      15.950 FEET

 AQUIFER CONDUCTIVITY IS    =    .516E-02 CM/SEC

                           OR    .109E+03 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .692E+01 CM*CM/SEC

                           OR    .481E+04 GAL/FT/DAY

###############################################

    CENSORED DATA END POINTS ARE ::
 . .RT TIME IS              =    .140E+02 SECONDS

 END TIME IS                =    .300E+02 SECONDS

################################################
```


RAW DATA AND LST.SQUARE FIT
SW11
DRAWDOWN (FT)
TIME (SECS) *10^1
0.0
80.0
160.0
240.0
320.0
400.0
480.0
10^-1
2
3
4
5
6
7
8
9
10^0
10^1


DRAWDOWN (FT)
10^1
9
8
7
6
5
4
3
2
10^0
0.0
20.0
40.0
60.0
80.0
100.0
TIME (SECS) $*10^1$

EFFECTIVE SCREEN DIAMETER = 2.000 INCHES

SCREEN LENGTH = 1.000 FEET

L PENETRATION DEPTH = 1.000 FEET

AQUIFER THICKNESS = 1.000 FEET

STATIC WATER LEVEL = 12.190 FEET

AQUIFER CONDUCTIVITY IS = .373E-04 CM/SEC

OR .791E+00 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .114E-02 CM*CM/SEC

OR .791E+00 GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::
START TIME IS = .100E+03 SECONDS

END TIME IS = .800E+03 SECONDS

##
enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 1.000 FEET

STATIC WATER LEVEL = 12.190 FEET

AQUIFER CONDUCTIVITY IS = .373E-04 CM/SEC

OR .791E+00 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .114E-02 CM*CM/SEC

OR .791E+00 GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::
START TIME IS = .100E+03 SECONDS

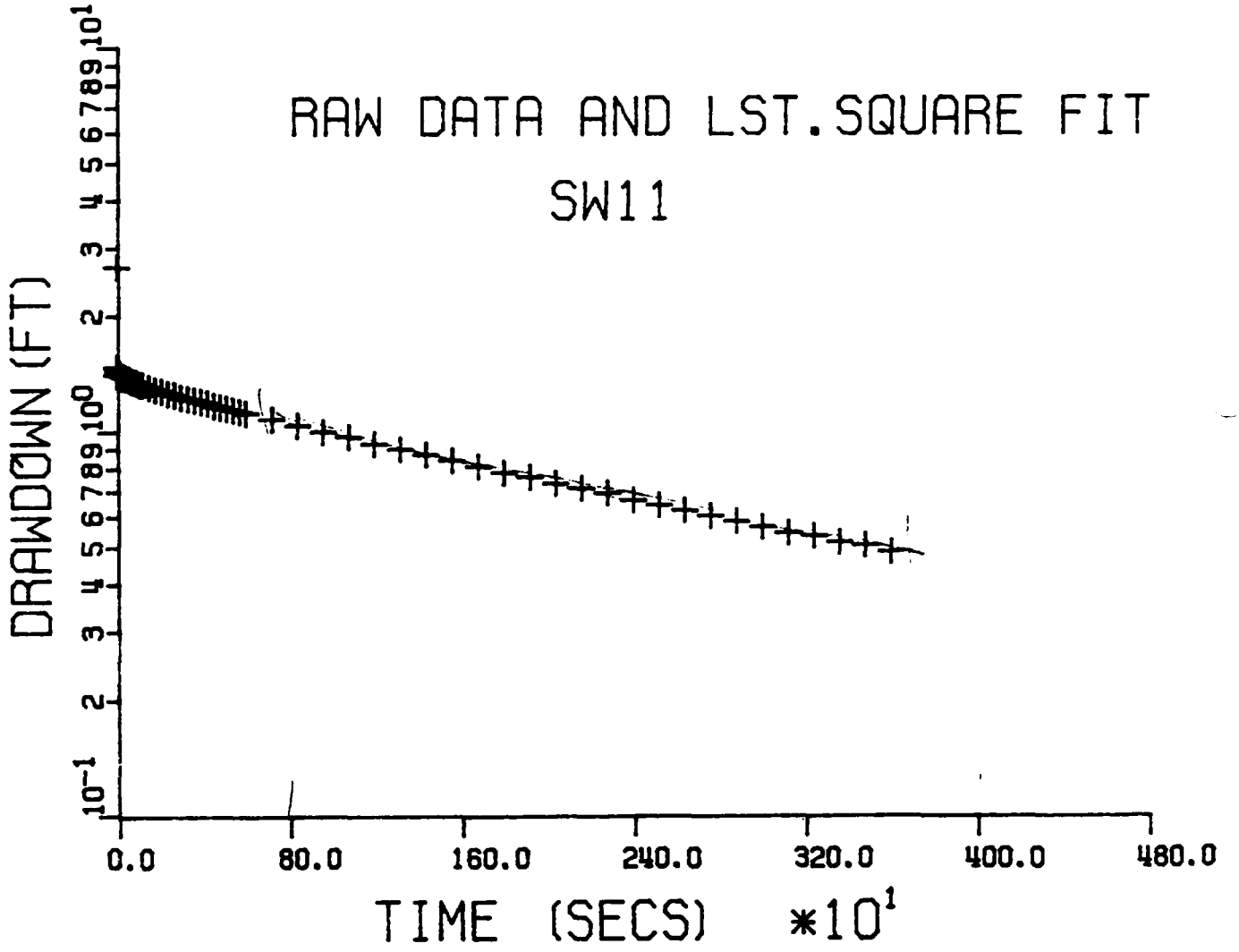
END TIME IS = .800E+03 SECONDS

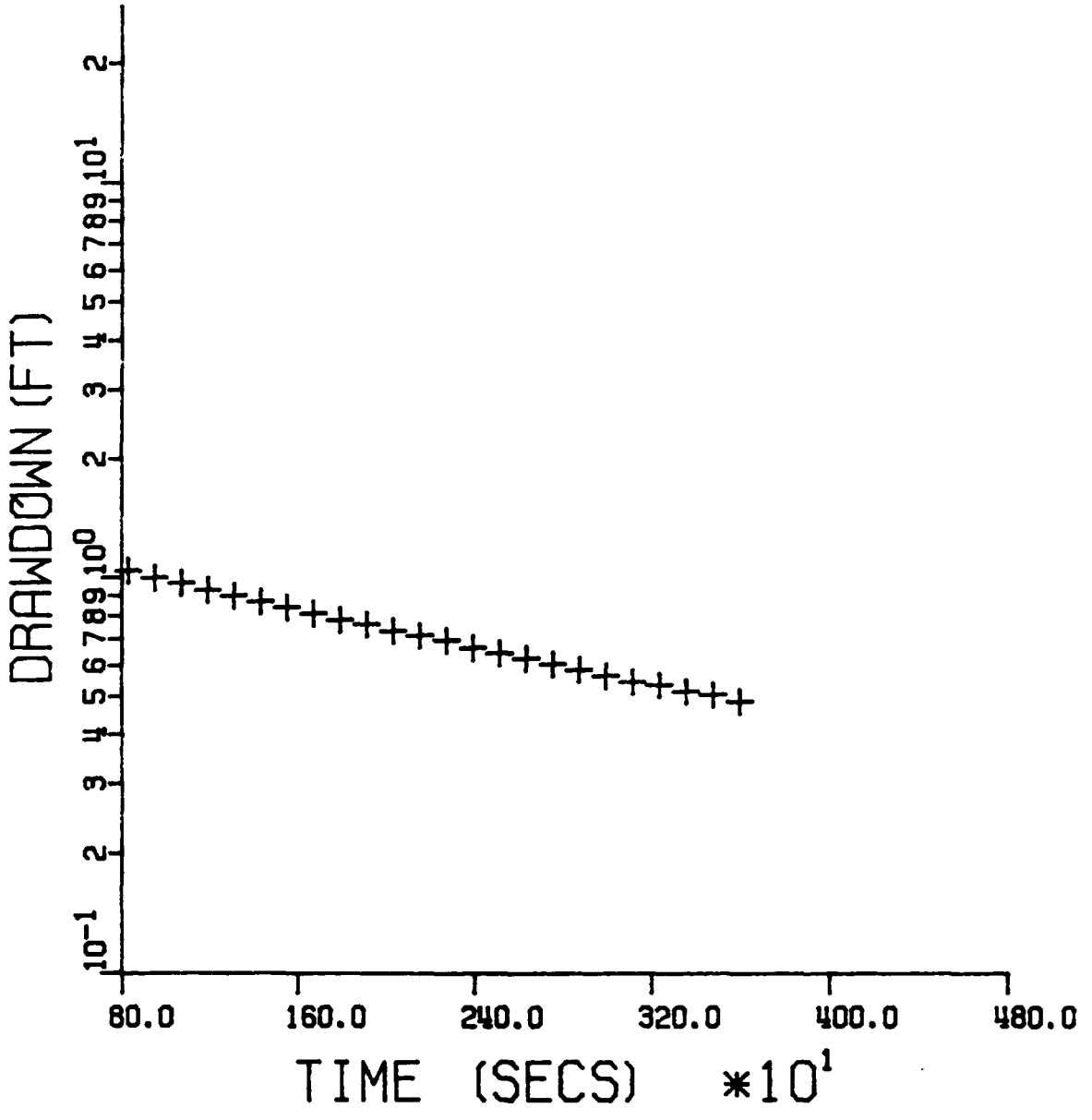
##
enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 1.000 FEET

STATIC WATER LEVEL = 12.190 FEET

```
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =      .3264
       LINE   SLOPE   IS  =    -.000347

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW11
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
1
ENTER SCREEN LENGTH (ft)

ENTER WELL PENETRATION DEPTH (ft)
1
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                 CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    4SW11

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER   =      6.000 INCHES
```

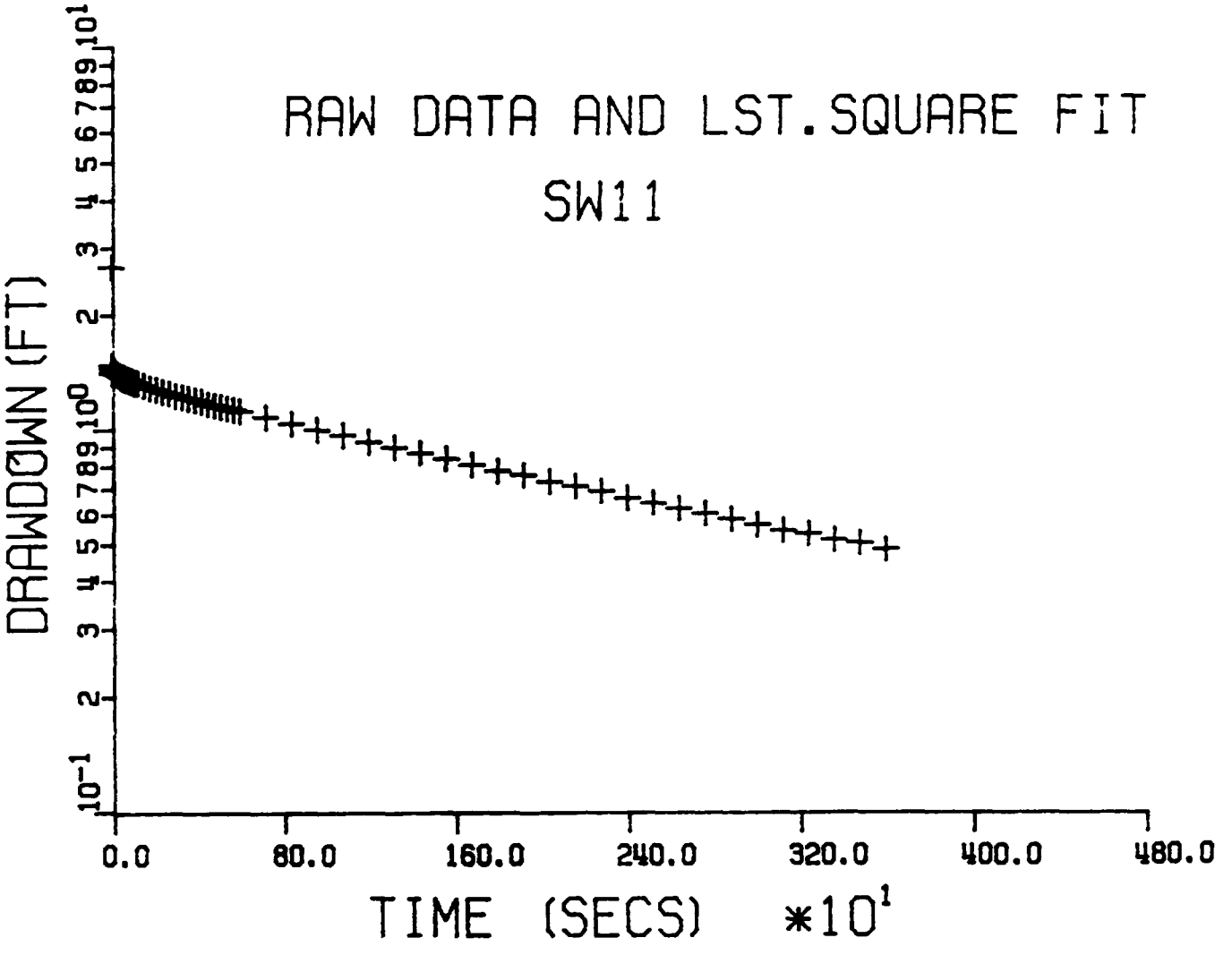

RAW DATA AND LST.SQUARE FIT
SW11
DRAWDOWN (FT)
TIME (SECS) *10^1
0.0
80.0
160.0
240.0
320.0
400.0
480.0
10^-1
10^0
10^1

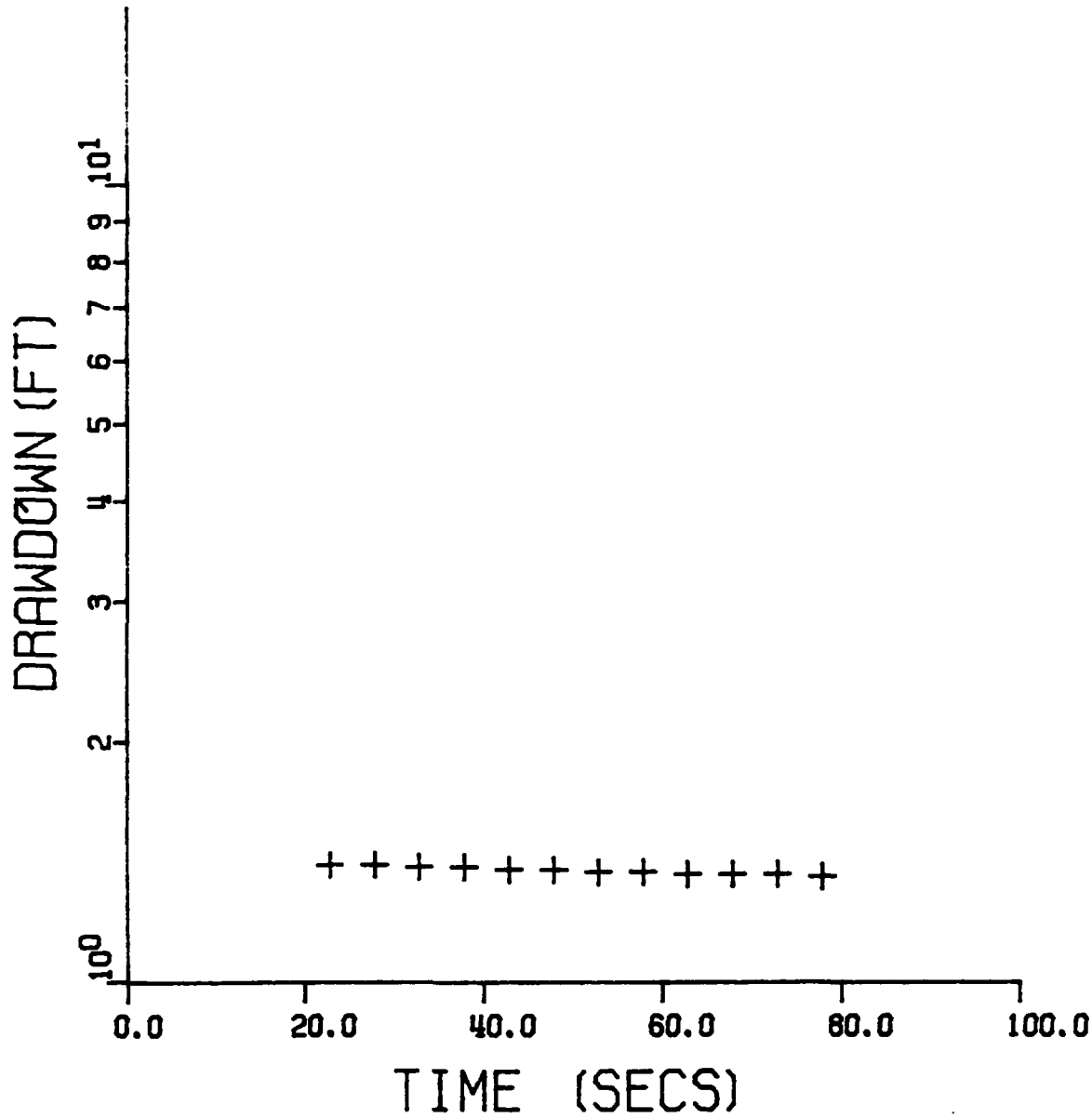

DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
3
4
5
6
7
8
9
10^{1}
2
80.0
160.0
240.0
320.0
400.0
480.0
TIME (SECS) $*10^{1}$

```
                    OR    .627E+00 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .902E-03 CM*CM/SEC

                    OR    .627E+00 GAL/FT/DAY

##################################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS            =    .800E+03 SECONDS

 END TIME IS              =    .400E+04 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS        =       1.000 FEET

 STATIC WATER LEVEL       =      12.190 FEET

 AQUIFER CONDUCTIVITY IS  =    .296E-04 CM/SEC

                    OR    .627E+00 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .902E-03 CM*CM/SEC

                    OR    .627E+00 GAL/FT/DAY

##################################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS            =    .800E+03 SECONDS

 END TIME IS              =    .400E+04 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS        =       1.000 FEET

 STATIC WATER LEVEL       =      12.190 FEET

 AQUIFER CONDUCTIVITY IS  =    .296E-04 CM/SEC

                    OR    .627E+00 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .902E-03 CM*CM/SEC

                    OR    .627E+00 GAL/FT/DAY

##################################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS            =    .800E+03 SECONDS
```

```
      0,14  to output graph on epson printer
            (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
     50,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW11
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
       2  to calculate hydraulic conductivity
       3  to dump plot to printer or view again
       4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
-
ENTER AQUIFER THICKNESS (ft)
1
ENTER SCREEN LENGTH (ft)
1
ENTER WELL PENETRATION DEPTH (ft)
1
@    @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

      HYDOGEOLOGY AND SITE INVESTIGATION.

              PEI ASSOCIATES INC.

               CINCINNATI. OHIO

   B A I L D O W N   D A T A   A N A L Y S I S

   DATA OBTAINED BY :          G

   DATA ANALYZED BY :          G

   BAIL DOWN PARAMETERS FOR    4SW11

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =      6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH            =      1.000 FEET

 WELL PENETRATION DEPTH    =      1.000 FEET

 .   IFER THICKNESS        =      1.000 FEET

 STATIC WATER LEVEL        =     12.190 FEET

 AQUIFER CONDUCTIVITY IS   =    .296E-04 CM/SEC
```

```
81
 enter baildown end time ----- TE
4000
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
1
 enter  baildown start time --- TS
800
 enter baildown end time ----- TE
4000
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
      00,20  to output graph on HP plotter (com1)
    ,050,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS =      .2680
      LINE   SLOPE   IS =   -.000275

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
```


RAW DATA AND LST.SQUARE FIT
SW11
DRAWDOWN (FT)
TIME (SECS) *10^1
0.0
80.0
160.0
240.0
320.0
400.0
480.0
10^-1
10^0
10^1


DRAWDOWN (FT)
10^1
9
8
7
6
5
4
3
2
10^0
0.0
20.0
40.0
60.0
80.0
100.0
TIME (SECS)

6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
1
E'`'ER SCREEN LENGTH (ft)
1
ENTER WELL PENETRATION DEPTH (ft)
1
@@

HYDOGEOLOGY AND SITE INVESTIGATION.

PEI ASSOCIATES INC.

CINCINNATI. OHIO

B A I L D O W N   D A T A   A N A L Y S I S

DATA OBTAINED BY :   G

DATA ANALYZED BY :   G

BAIL DOWN PARAMETERS FOR   4SW11

@@

EFFECTIVE WELL DIAMETER = 6.000 INCHES

EFFECTIVE SCREEN DIAMETER = 2.000 INCHES

EEN LENGTH = 1.000 FEET

WELL PENETRATION DEPTH = 1.000 FEET

AQUIFER THICKNESS = 1.000 FEET

STATIC WATER LEVEL = 12.190 FEET

AQUIFER CONDUCTIVITY IS = .711E-04 CM/SEC

OR .151E+01 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .217E-02 CM*CM/SEC

OR .151E+01 GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::
START TIME IS = .200E+02 SECONDS

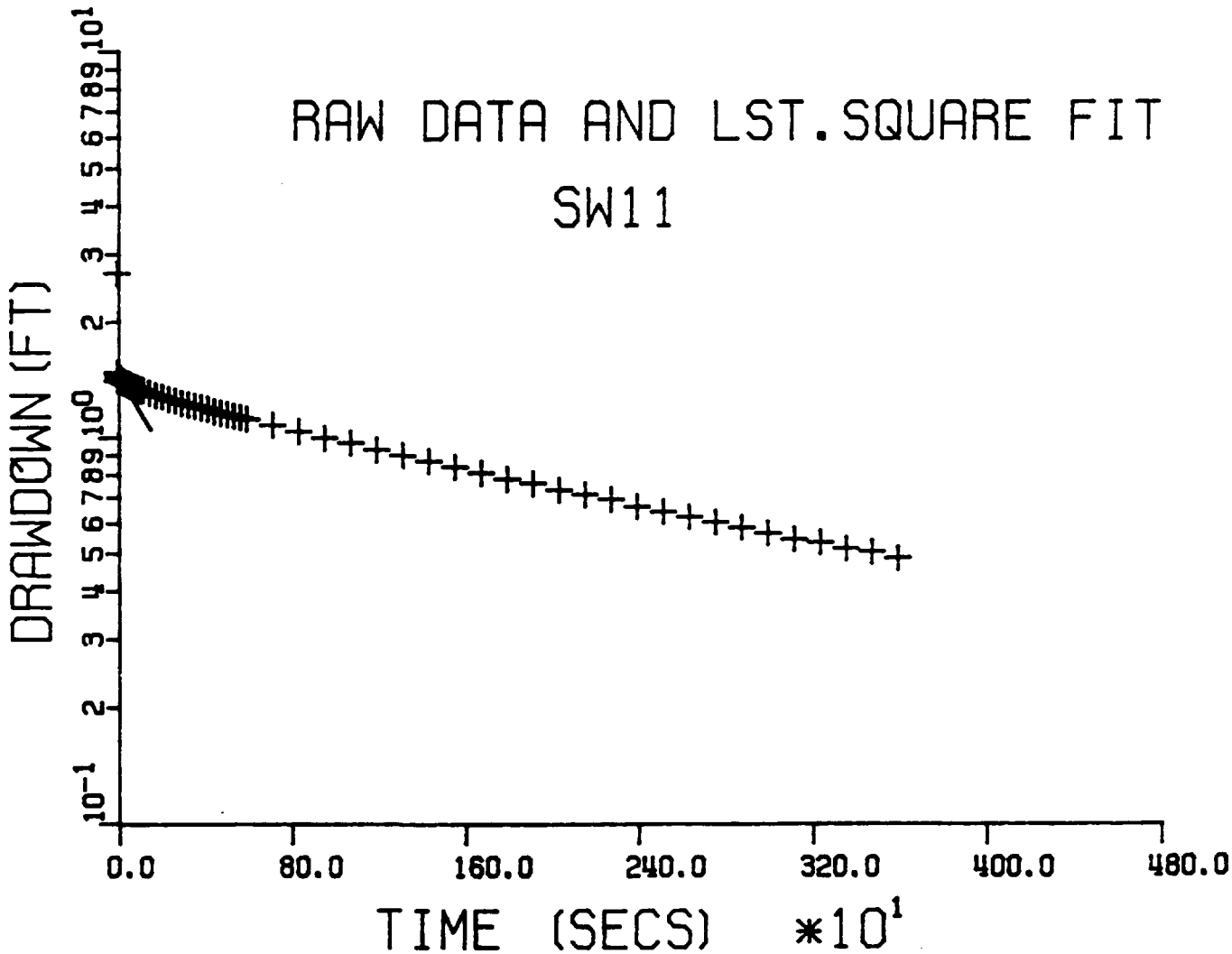
END TIME IS = .800E+02 SECONDS

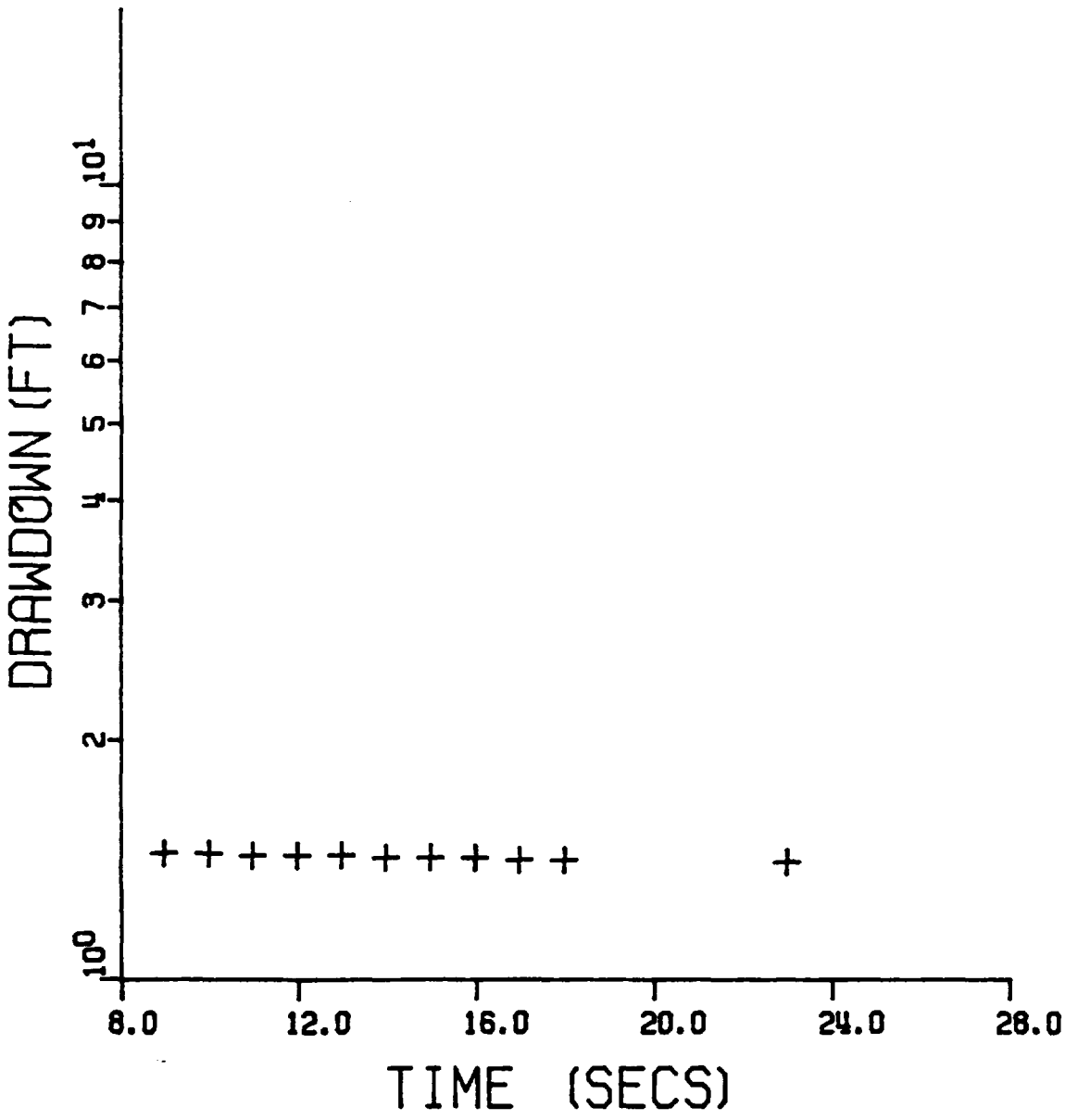
###

enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 1.000 FEET

```
1
 enter  baildown start time --- TS
20
 enter baildown end time ----- TE
80
er      0,15  to output graph on epson printer
       0,14  to output graph on epson printer
            (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
            (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS =      .3596
      LINE   SLOPE   IS =    -.000661   )

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
            (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW11
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
```


RAW DATA AND LST.SQUARE FIT
SW11
DRAWDOWN (FT)
TIME (SECS) *10^1
0.0
80.0
160.0
240.0
320.0
400.0
480.0
10^-1
10^0
10^1


DRAWDOWN (FT)
10^1
9
8
7
6
5
4
3
2
10^0
8.0
12.0
16.0
20.0
24.0
28.0
TIME (SECS)

ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
1
E ER SCREEN LENGTH (ft)
1
ENTER WELL PENETRATION DEPTH (ft)
1
@@

HYDOGEOLOGY AND SITE INVESTIGATION.

PEI ASSOCIATES INC.

CINCINNATI. OHIO

B A I L D O W N   D A T A   A N A L Y S I S

DATA OBTAINED BY :   g

DATA ANALYZED BY :   g

BAIL DOWN PARAMETERS FOR   4SW11

@@

EFFECTIVE WELL DIAMETER = 6.000 INCHES

EFFECTIVE SCREEN DIAMETER = 2.000 INCHES

SCREEN LENGTH = 1.000 FEET

WELL PENETRATION DEPTH = 1.000 FEET

AQUIFER THICKNESS = 1.000 FEET

STATIC WATER LEVEL = 12.190 FEET

AQUIFER CONDUCTIVITY IS = .229E-03 CM/SEC

OR .485E+01 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .697E-02 CM*CM/SEC

OR .485E+01 GAL/FT/DAY

##

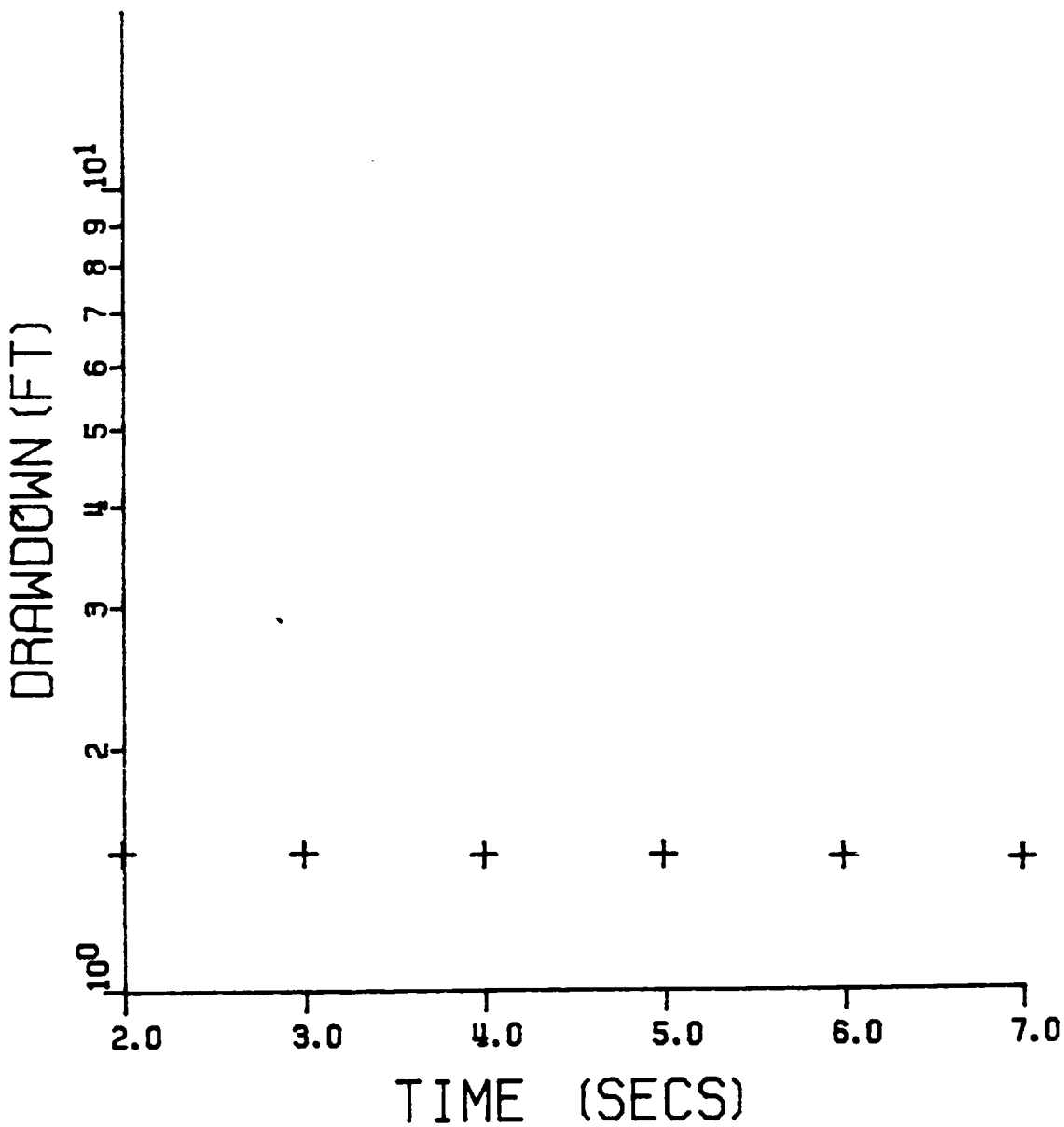
CENSORED DATA END POINTS ARE ::
START TIME IS = .900E+01 SECONDS

END TIME IS = .240E+02 SECONDS

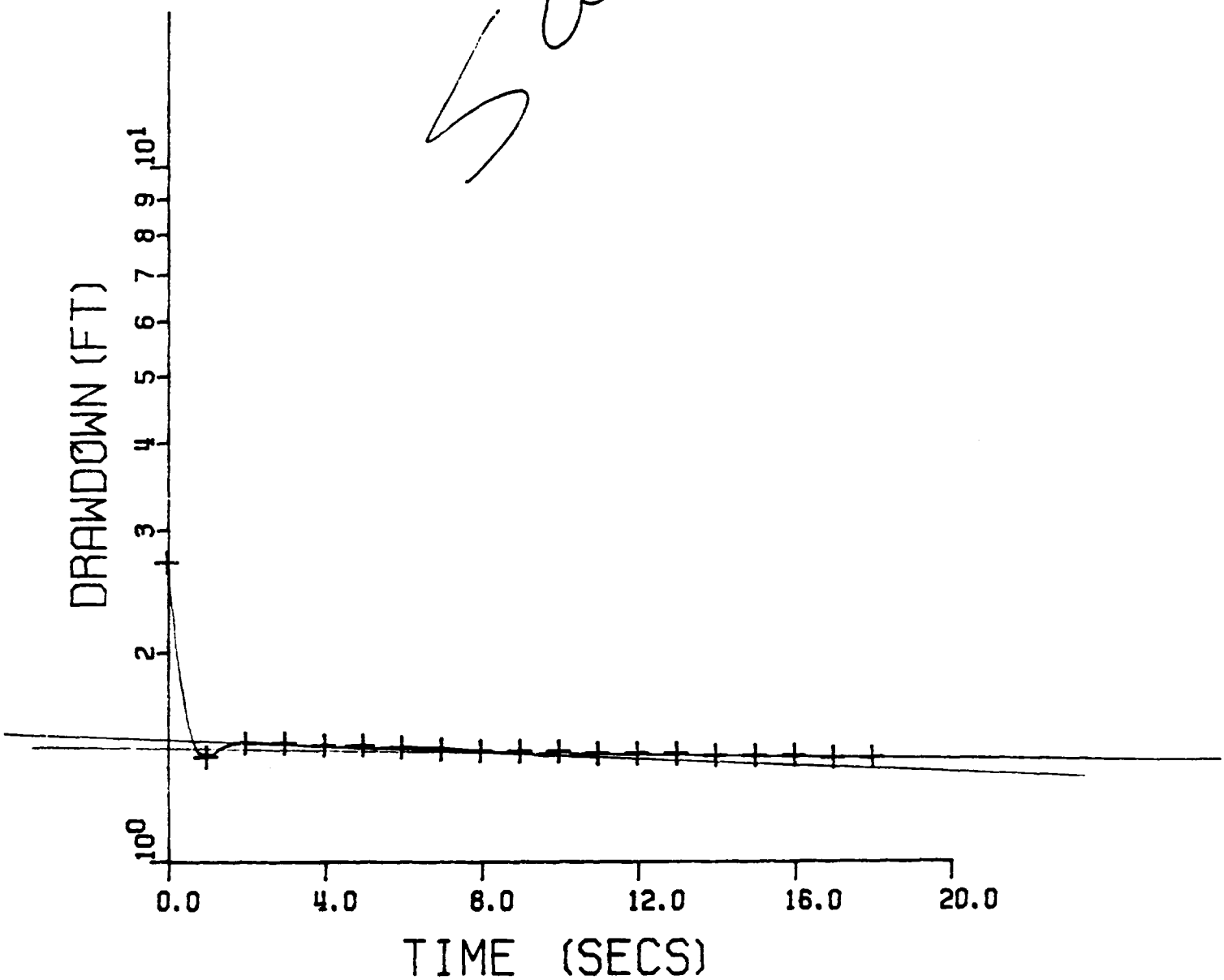
##
r 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

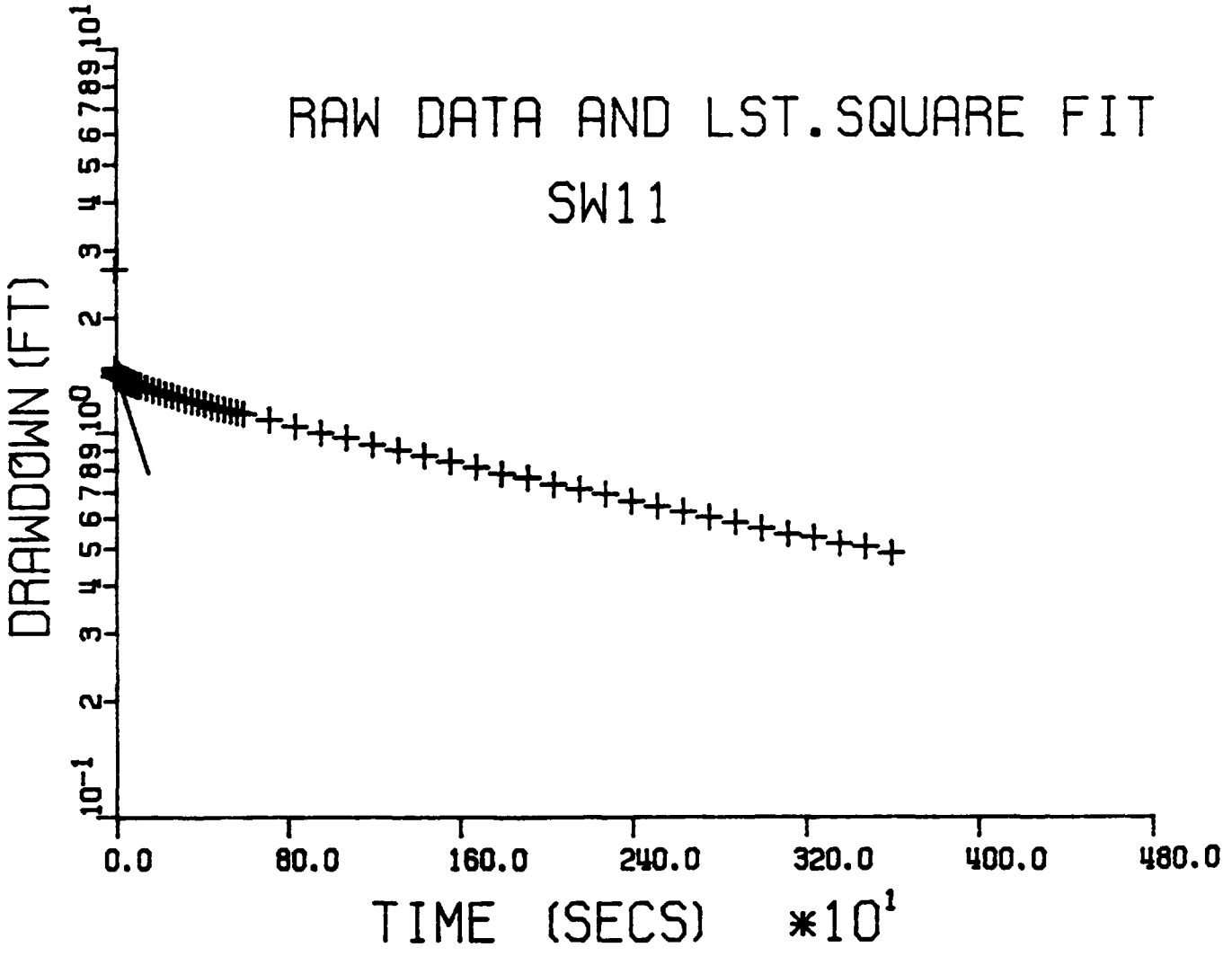
AQUIFER THICKNESS = 1.000 FEET

```
      3  for least squares fit
1
 enter  baildown start time --- TS
9
 enter baildown end time ----- TE
2
e.     0,15  to output graph on epson printer
      0,14  to output graph on epson printer
           (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
99,99
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
      0,14  to output graph on epson printer
           (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
     r  1  to remove more skewed points
       2  to remove  more outliers
       3  for least squares fit
3
  LINE  INTERCEPT IS =      .3901
     LINE   SLOPE   IS =   -.002128

 enter  1   to enter prefered baildown times
       2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
      0,14  to output graph on epson printer
           (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW11
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
       2  to calculate hydraulic conductivity
       3  to dump plot to printer or view again
       4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
```


DRAWDOWN (FT)
10^1
9
8
7
6
5
4
3
2
10^0
2.0
3.0
4.0
5.0
6.0
7.0
TIME (SECS)

5W11




RAW DATA AND LST.SQUARE FIT
SW11
DRAWDOWN (FT)
TIME (SECS) *10^1
0.0
80.0
160.0
240.0
320.0
400.0
480.0
10^-1
10^0
10^1

DATA OBTAINED BY : g

DATA ANALYZED BY : g

\IL DOWN PARAMETERS FOR 4SW11

@@

EFFECTIVE WELL DIAMETER = 6.000 INCHES

EFFECTIVE SCREEN DIAMETER = 2.000 INCHES

SCREEN LENGTH = 1.000 FEET

WELL PENETRATION DEPTH = 1.000 FEET

AQUIFER THICKNESS = 1.000 FEET

STATIC WATER LEVEL = 12.190 FEET

AQUIFER CONDUCTIVITY IS = .437E-03 CM/SEC

OR .926E+01 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .133E-01 CM*CM/SEC

OR .926E+01 GAL/FT/DAY

##

ENSORED DATA END POINTS ARE ::
START TIME IS = .150E+01 SECONDS

END TIME IS = .850E+01 SECONDS

###

enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 1.000 FEET

STATIC WATER LEVEL = 12.190 FEET

AQUIFER CONDUCTIVITY IS = .437E-03 CM/SEC

OR .926E+01 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .133E-01 CM*CM/SEC

OR .926E+01 GAL/FT/DAY

##

ENSORED DATA END POINTS ARE ::
S..RT TIME IS = .150E+01 SECONDS

END TIME IS = .850E+01 SECONDS

###

```
enter  0,15  to output graph on epson printer
      0,14  to output graph on epson printer
           (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
     00,20  to output graph on HP plotter (com1)
     50,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =      .4092
      LINE   SLOPE   IS  =    -.004063

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
      0,14  to output graph on epson printer
           (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9     20
e.     well identification number--(20 chrs max)
SW11
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop

 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
1
ENTER SCREEN LENGTH (ft)
1
ENTER WELL PENETRATION DEPTH (ft)
1
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

      HYDOGEOLOGY AND SITE INVESTIGATION.

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                CINCINNATI. OHIO

   B A I L D O W N    D A T A    A N A L Y S I S
```
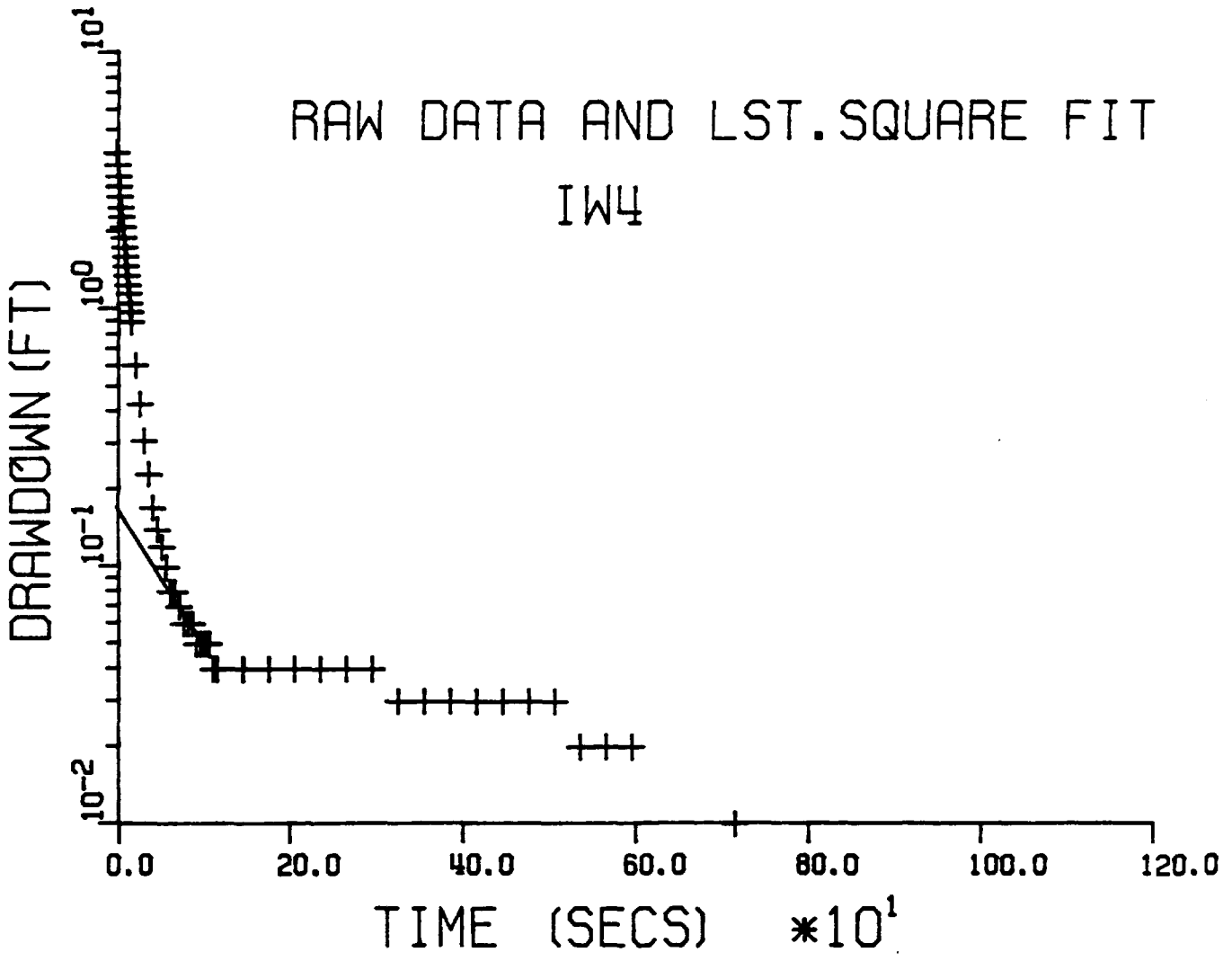
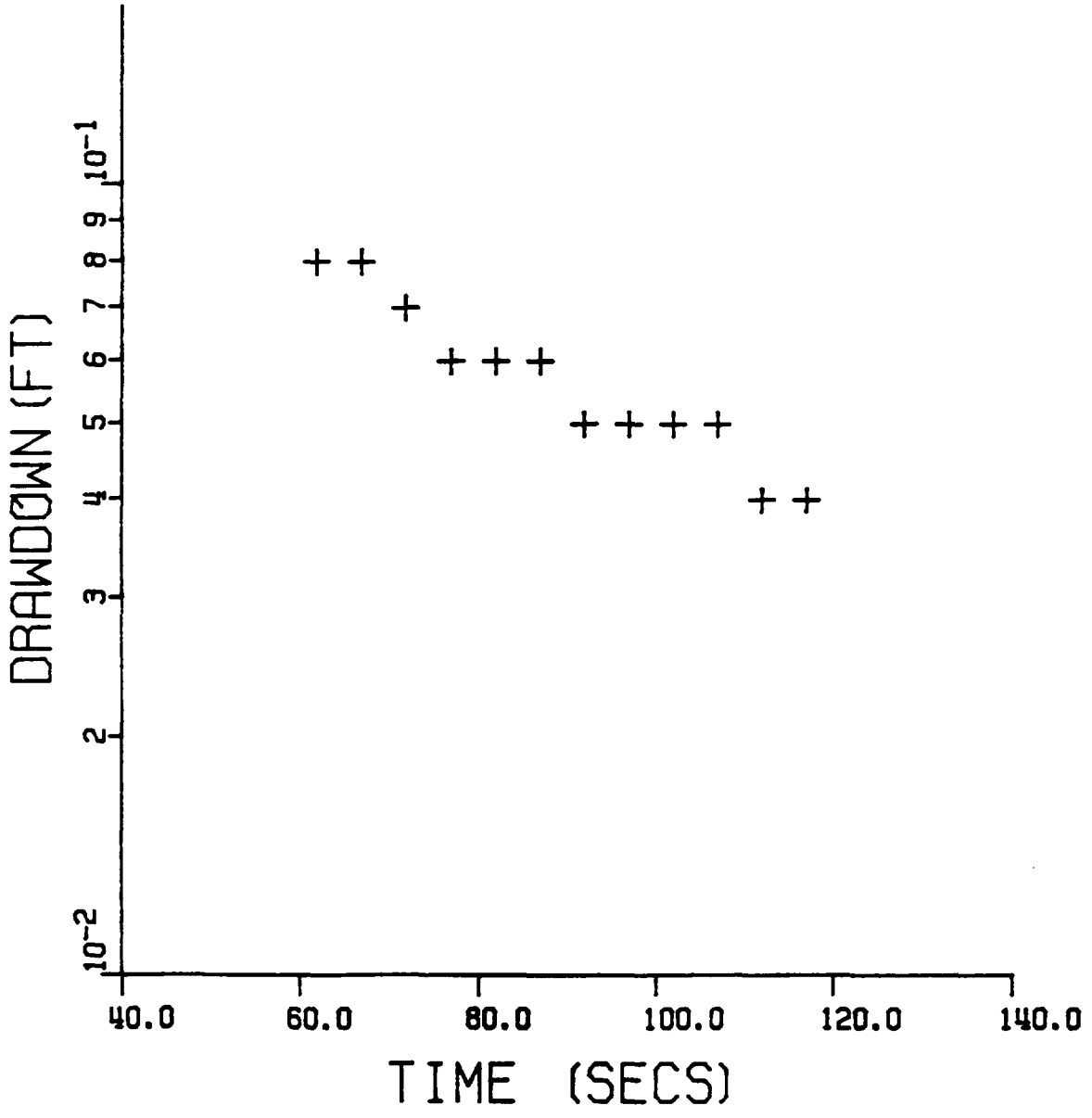


RAW DATA AND LST.SQUARE FIT
IW4
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$


DRAWDOWN (FT)
10^-1
9
8
7
6
5
4
3
2
10^-2
40.0
60.0
80.0
100.0
120.0
140.0
TIME (SECS)

```
 AQUIFER THICKNESS          =      23.000 FEET

 STATIC WATER LEVEL         =      15.250 FEET

 AQUIFER CONDUCTIVITY IS    =     .511E-03 CM/SEC

                           OR     .108E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =      .358E+00 CM*CM/SEC

                           OR     .249E+03 GAL/FT/DAY

##################################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS              =     .600E+02 SECONDS

 END TIME IS                =     .120E+03 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS          =      23.000 FEET

 STATIC WATER LEVEL         =      15.250 FEET

 AQUIFER CONDUCTIVITY IS    =     .511E-03 CM/SEC

                           OR     .108E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =      .358E+00 CM*CM/SEC

                           OR     .249E+03 GAL/FT/DAY

##################################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS              =     .600E+02 SECONDS

 END TIME IS                =     .120E+03 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS          =      23.000 FEET

 STATIC WATER LEVEL         =      15.250 FEET

 AQUIFER CONDUCTIVITY IS    =     .511E-03 CM/SEC

                           OR     .108E+02 GAL/FT/FT/DAY
```

```
 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
e   r  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
IW4
enter no. of characters in well id. no.
3
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
'  ER AQUIFER THICKNESS (ft)
2_
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
6.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

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                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    3IW4

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

   'ECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH              =       5.000 FEET

 WELL PENETRATION DEPTH     =       6.500 FEET
```
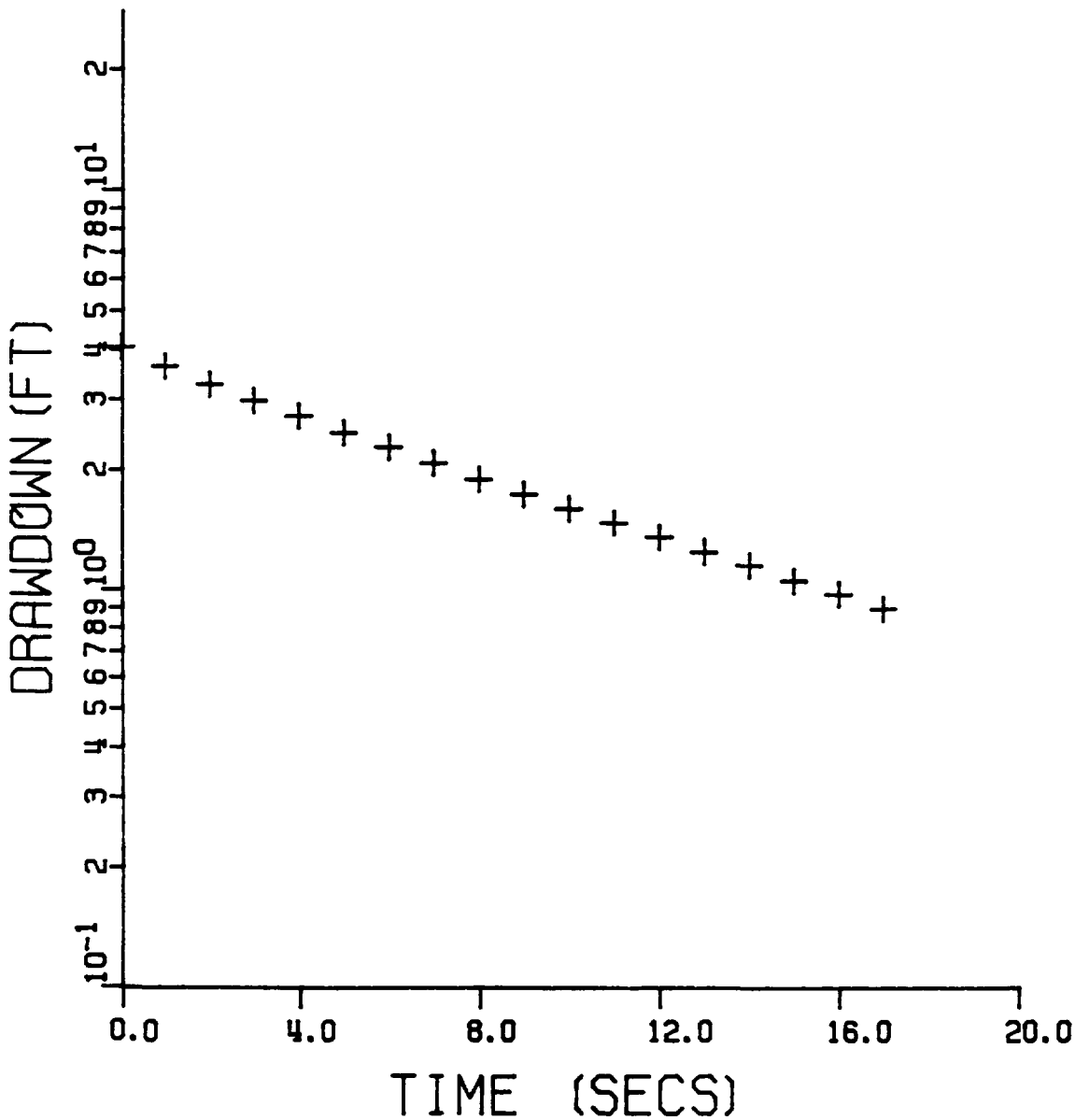
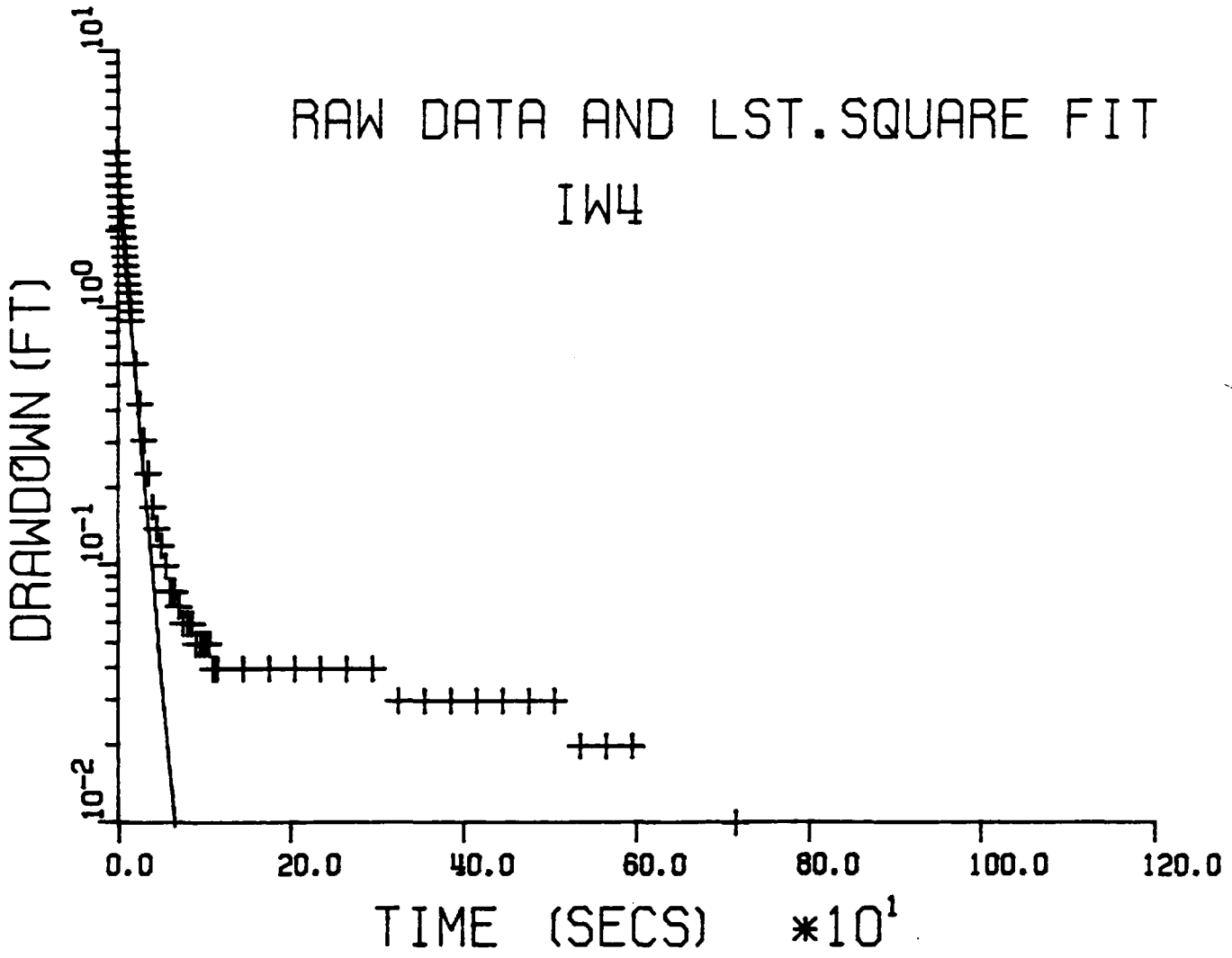

```
        2  to remove  more outliers
        3  for least squares fit
1
 enter  baildown start time --- TS
4
 enter baildown end time ----- TE
120
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
1
 enter  baildown start time --- TS
60
 enter baildown end time ----- TE
120
 enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =    -1.7632
       LINE   SLOPE   IS  =    -.012489
```

b = 1.3730
m = -.988251




RAW DATA AND LST.SQUARE FIT
IW4
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$

```
 STATIC WATER LEVEL          =      15.250 FEET

 AQUIFER CONDUCTIVITY IS     =    .361E-02 CM/SEC

                            OR    .764E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =      .253E+01 CM*CM/SEC

                            OR    .176E+04 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS               =    .000E+00 SECONDS

 END TIME IS                 =    .200E+02 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS           =      23.000 FEET

 STATIC WATER LEVEL          =      15.250 FEET

 AQUIFER CONDUCTIVITY IS     =    .361E-02 CM/SEC

                            OR    .764E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =      .253E+01 CM*CM/SEC

                            OR    .176E+04 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS               =    .000E+00 SECONDS

 END TIME IS                 =    .200E+02 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

1
enter    1  for baildown analysis
         2  for slug analysis
2
enter    1  if you want data normalized
otherwise enter any number of your choice
3
enter static water level (ft)
15.25
TSTAT AND AMAX  ARE          3.0000000          4.1100000
xlast,ylast        717.0000000  1.000023E-002
```

```
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
IW4
enter no. of characters in well id. no.
3
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
23
F  ER SCREEN LENGTH (ft)
[illegible]
ENTER WELL PENETRATION DEPTH (ft)
6.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

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                  CINCINNATI. OHIO

    B A I L D O W N    D A T A    A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    3IW4

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER   =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

   REEN LENGTH             =       5.000 FEET

 WELL PENETRATION DEPTH    =       6.500 FEET

 AQUIFER THICKNESS         =      23.000 FEET
```
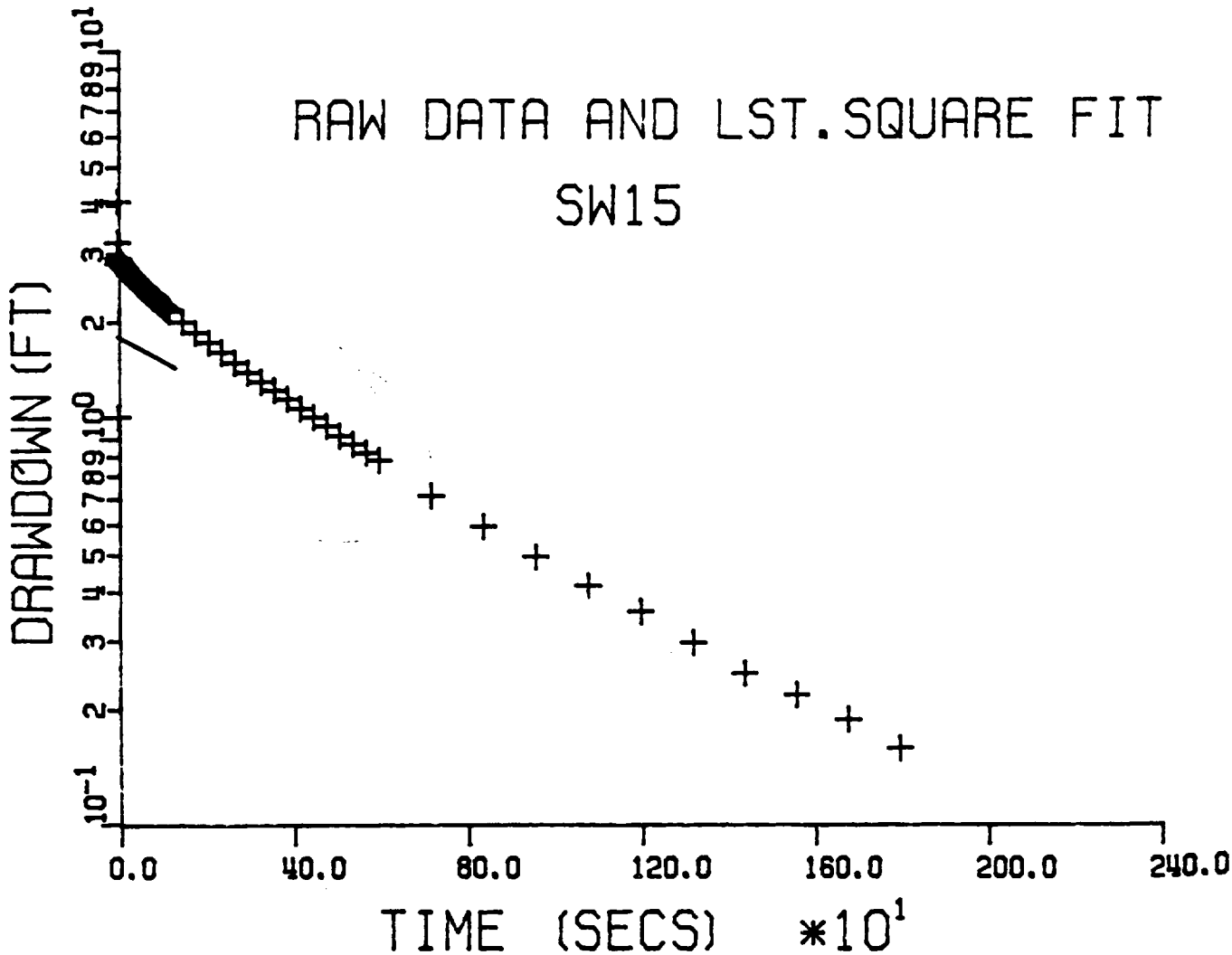
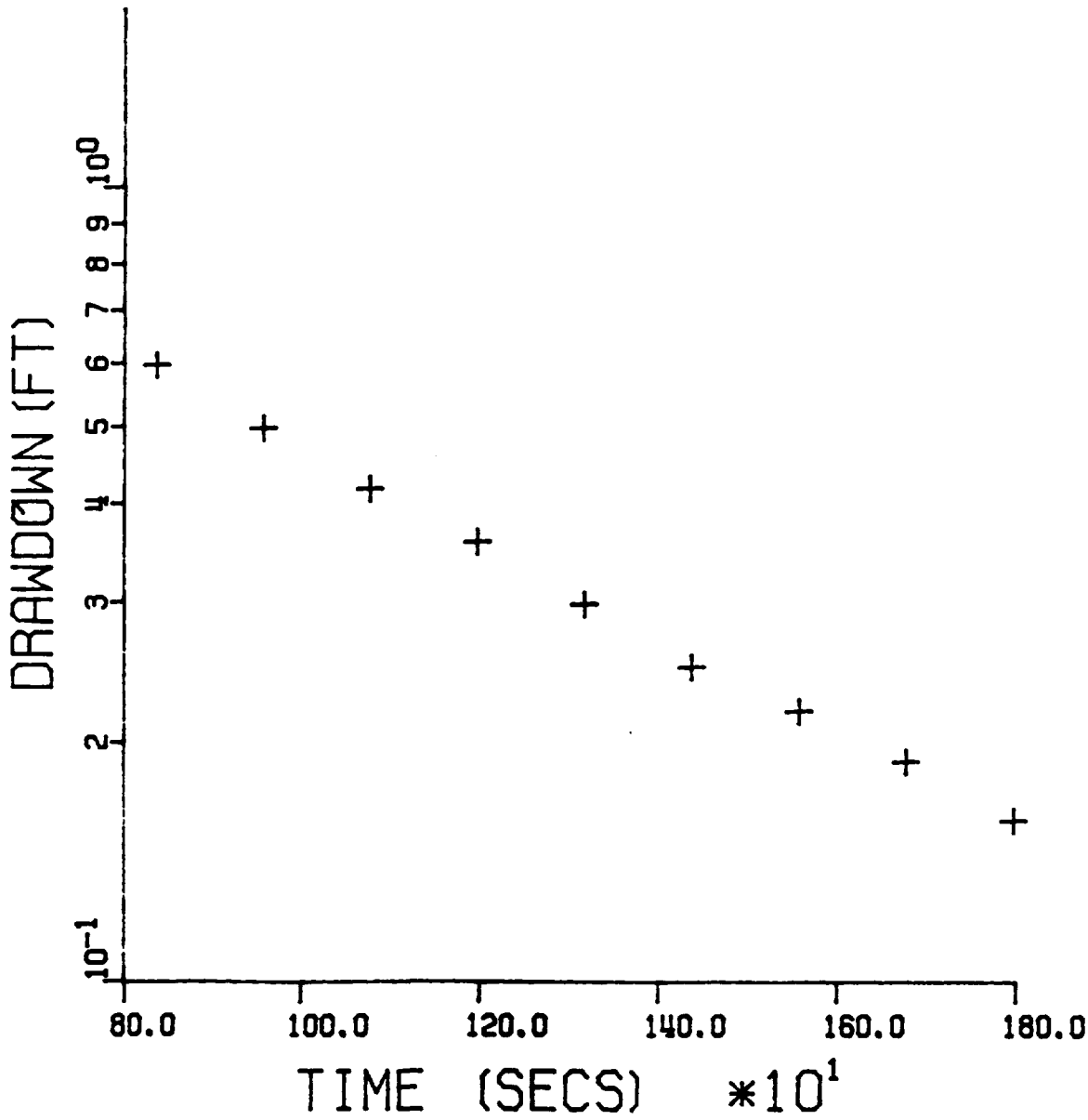

```
Outliers may be removed somewhere in PERMEST.
It may be helpful if you can write the times down
on a scratch pad.
 are you ready to continue ? ------ Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     4 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. do you wish to view the plot again ? -----Y/N
N
 enter 1  to remove skewed data points at either end
       2  to remove outliers
1
 enter  baildown start time --- TS
0
 enter baildown end time ----- TE
20
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =     1.3730
       LINE   SLOPE   IS  =    -.088251

 enter  1   to enter prefered baildown times
```


RAW DATA AND LST.SQUARE FIT
SW15
DRAWDOWN (FT)
TIME (SECS) *10^1
0.0
40.0
80.0
120.0
160.0
200.0
240.0
10^-1
10^0
10^1


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
80.0
100.0
120.0
140.0
160.0
180.0
TIME (SECS) $*10^{1}$

```
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
Printer out of paper error writing device PRN
Abort, Retry, Ignore, Fail?R

ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
5
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

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                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    5SW15

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =      6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =      2.000 INCHES

 SCREEN LENGTH              =      5.000 FEET

 WELL PENETRATION DEPTH     =      5.000 FEET

 AQUIFER THICKNESS          =      5.000 FEET

 STATIC WATER LEVEL         =     10.990 FEET

 AQUIFER CONDUCTIVITY IS    =    .647E-04 CM/SEC

                          OR    .137E+01 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .986E-02 CM*CM/SEC

                          OR    .685E+01 GAL/FT/DAY

###############################################
```
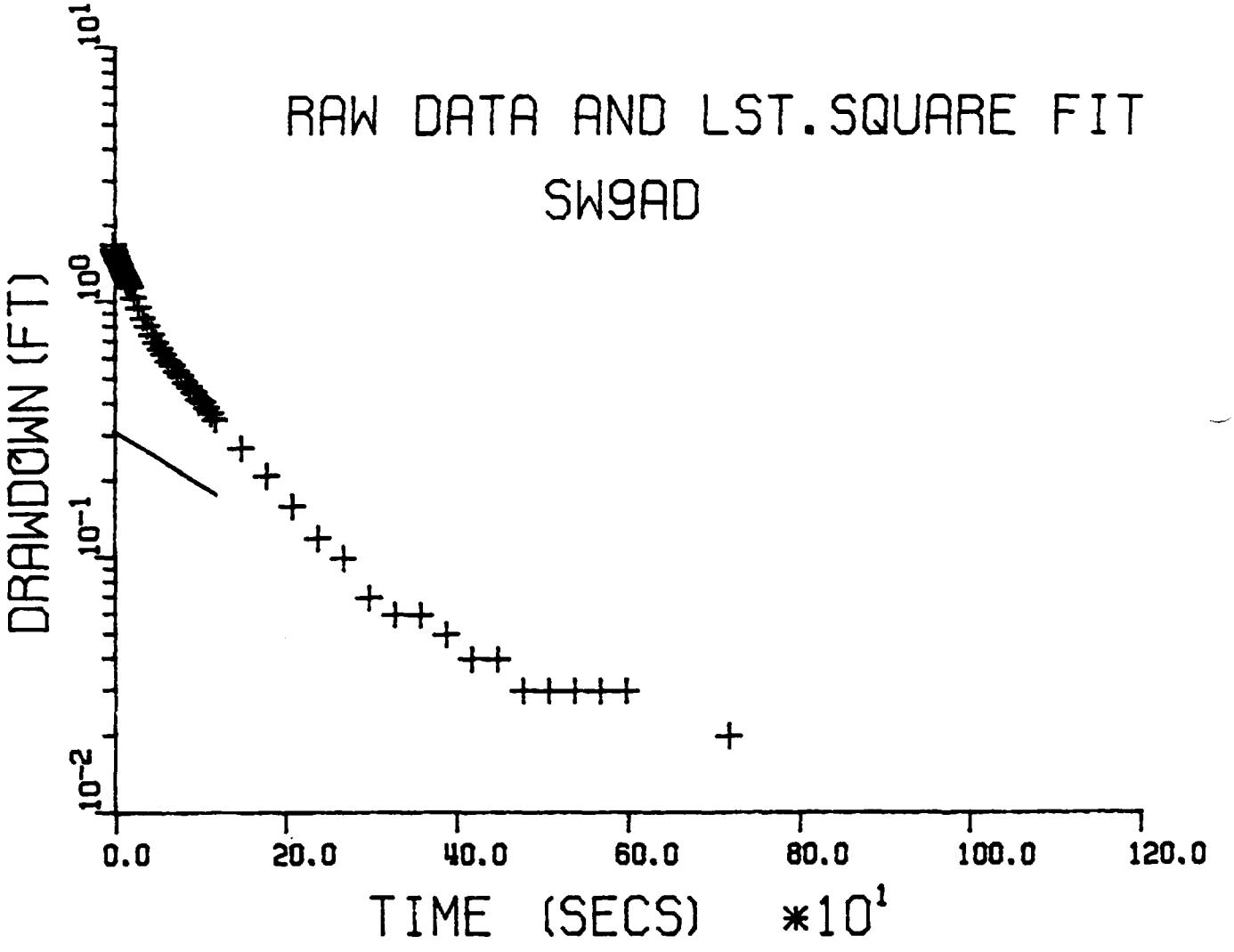
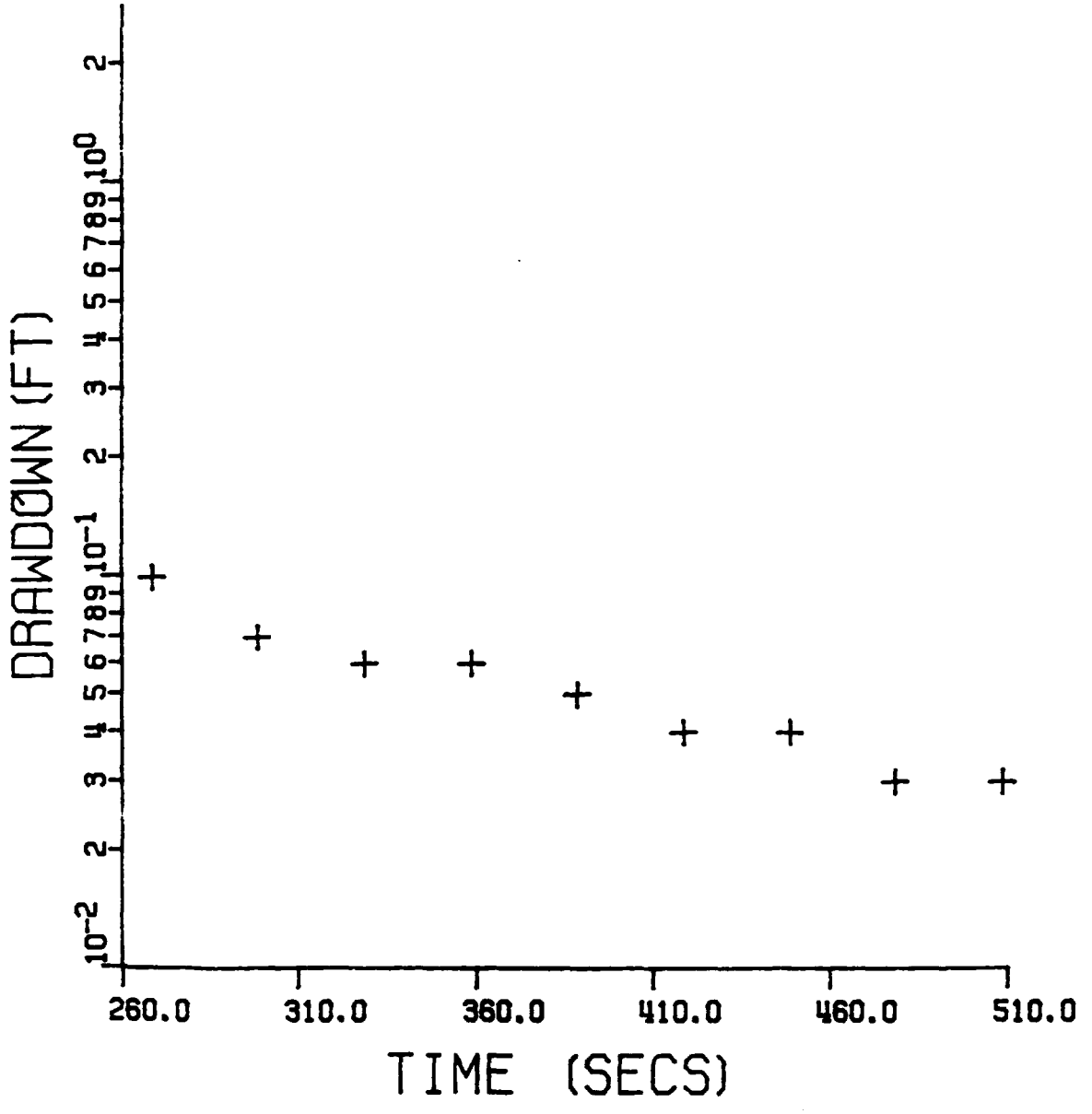

```
on a scratch pad.
 are you ready to continue ? ------ Y/N
Y
e   r  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. do you wish to view the plot again ? -----Y/N
N
 enter 1  to remove skewed data points at either end
       2  to remove outliers
1
 enter  baildown start time --- TS
 00
 enter baildown end time ----- TE
2000
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9800920
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =      .6156
       LINE   SLOPE   IS  =    -.001368

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9   ),20
e..er well identification number--(20 chrs max)
SW15
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
```

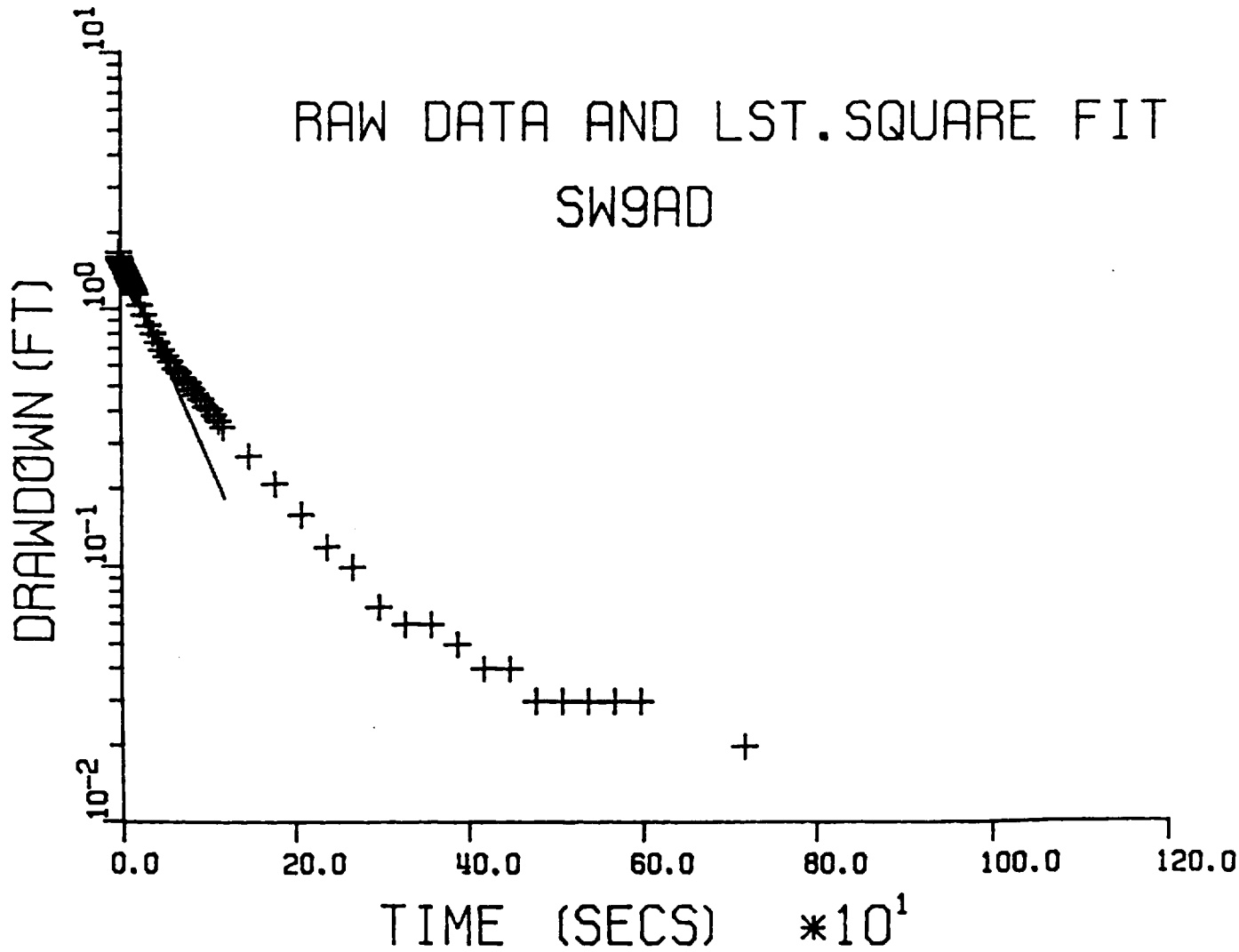

RAW DATA AND LST.SQUARE FIT
SW9AD
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$

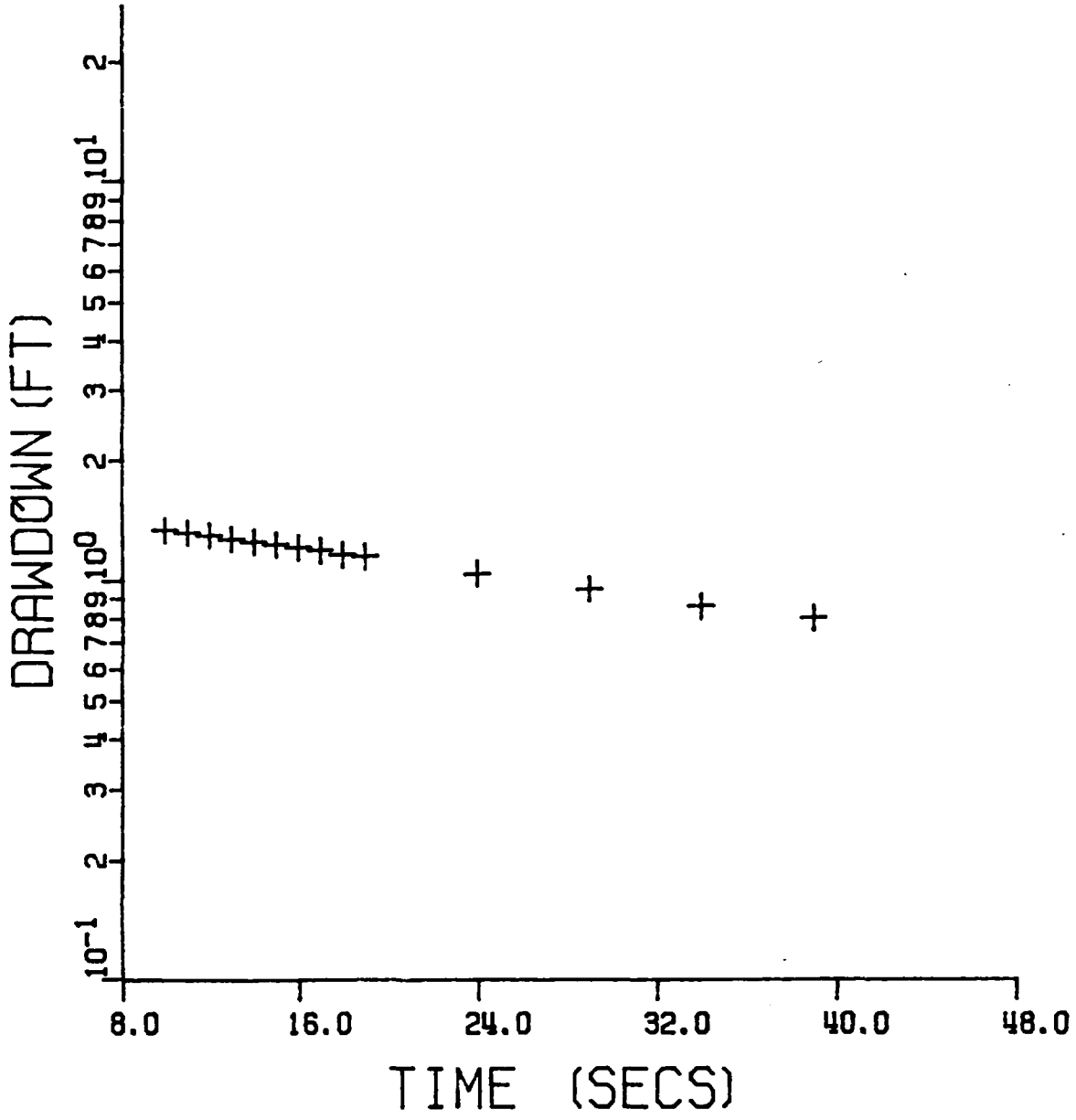

DRAWDOWN (FT)
10^{-2}
2
3
4
5
6
7
8
9
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
260.0
310.0
360.0
410.0
460.0
510.0
TIME (SECS)

```
AQUIFER TRANSMISSIVITY IS =    .504E-01 CM*CM/SEC

                    OR    .351E+02 GAL/FT/DAY

#    ##############################################

  CENSORED DATA END POINTS ARE ::
START TIME IS            =    .240E+03 SECONDS

END TIME IS              =    .520E+03 SECONDS

#####################################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run

AQUIFER THICKNESS        =       1.500 FEET

STATIC WATER LEVEL       =       8.840 FEET

AQUIFER CONDUCTIVITY IS  =    .110E-02 CM/SEC

                    OR    .234E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =    .504E-01 CM*CM/SEC

                    OR    .351E+02 GAL/FT/DAY

#    ##############################################

  CENSORED DATA END POINTS ARE ::
START TIME IS            =    .240E+03 SECONDS

END TIME IS              =    .520E+03 SECONDS

#####################################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run


AQUIFER THICKNESS        =       1.500 FEET

STATIC WATER LEVEL       =       8.840 FEET

AQUIFER CONDUCTIVITY IS  =    .110E-02 CM/SEC

                    OR    .234E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =    .504E-01 CM*CM/SEC

                    OR    .351E+02 GAL/FT/DAY

#    ##############################################

  CENSORED DATA END POINTS ARE ::
START TIME IS            =    .240E+03 SECONDS

END TIME IS              =    .520E+03 SECONDS
```

```
          (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
    550,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW9AD
enter no. of characters in well id. no.
5
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
       2  to calculate hydraulic conductivity
       3  to dump plot to printer or view again
       4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)

ENTER AQUIFER THICKNESS (ft)
1.5
ENTER SCREEN LENGTH (ft)
.5
ENTER WELL PENETRATION DEPTH (ft)
1.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

      HYDOGEOLOGY AND SITE INVESTIGATION.

            PEI ASSOCIATES INC.

             CINCINNATI. OHIO

   B A I L D O W N   D A T A   A N A L Y S I S

   DATA OBTAINED BY :          g

   DATA ANALYZED BY :          g

   BAIL DOWN PARAMETERS FOR    1SW9AD

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =      6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH              =       .500 FEET

 WELL PENETRATION DEPTH     =      1.500 FEET

 AQUIFER THICKNESS          =      1.500 FEET

 STATIC WATER LEVEL         =      8.840 FEET

 AQUIFER CONDUCTIVITY IS  =   .110E-02 CM/SEC

                  OR    .234E+02 GAL/FT/FT/DAY
```

```
 enter baildown end time ----- TE
600
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
1
 enter  baildown start time --- TS
240
 enter baildown end time ----- TE
520
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
     550,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS =    -1.1509
      LINE   SLOPE   IS =    -.004763

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
```

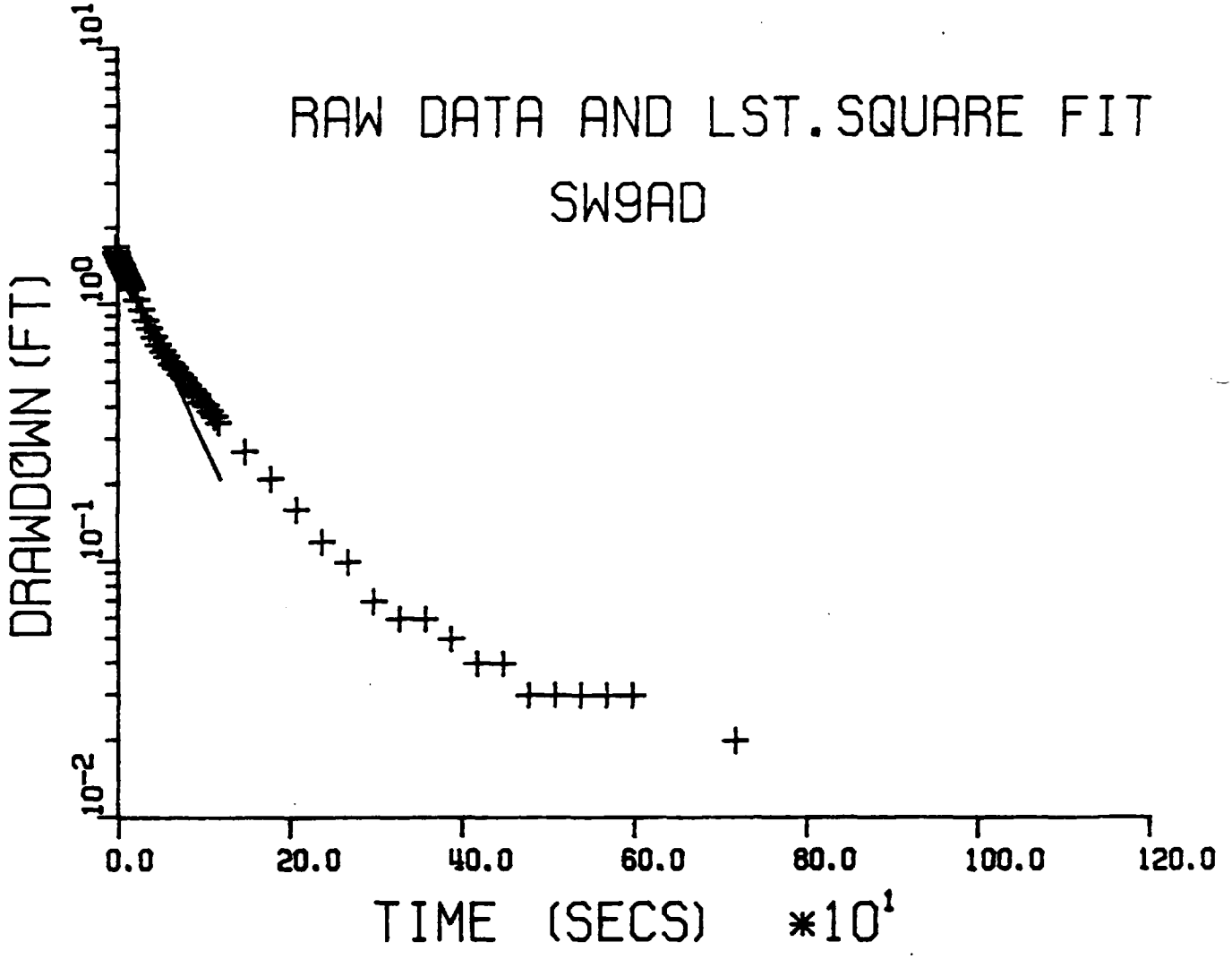

RAW DATA AND LST.SQUARE FIT
SW9AD
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
3
4
5
6
7
8
9
10^{1}
2
8.0
16.0
24.0
32.0
40.0
48.0
TIME (SECS)

```
  CENSORED DATA END POINTS ARE ::
START TIME IS          =   .100E+02 SECONDS

END TIME IS            =   .400E+02 SECONDS

##################################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run

AQUIFER THICKNESS        =      1.500 FEET

STATIC WATER LEVEL       =      8.840 FEET

AQUIFER CONDUCTIVITY IS  =   .418E-02 CM/SEC

                 OR   .885E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =   .191E+00 CM*CM/SEC

                 OR   .133E+03 GAL/FT/DAY

##################################################

  CENSORED DATA END POINTS ARE ::
START TIME IS          =   .100E+02 SECONDS

END TIME IS            =   .400E+02 SECONDS

##################################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run


AQUIFER THICKNESS        =      1.500 FEET

STATIC WATER LEVEL       =      8.840 FEET

AQUIFER CONDUCTIVITY IS  =   .418E-02 CM/SEC

                 OR   .885E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =   .191E+00 CM*CM/SEC

                 OR   .133E+03 GAL/FT/DAY

##################################################

  CENSORED DATA END POINTS ARE ::
START TIME IS          =   .100E+02 SECONDS

END TIME IS            =   .400E+02 SECONDS

##################################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run
```

```
9600,20
enter well identification number--(20 chrs max)
SW9AD
enter no. of characters in well id. no.
5
F     COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
1.5
ENTER SCREEN LENGTH (ft)
.5
ENTER WELL PENETRATION DEPTH (ft)
1.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

              PEI ASSOCIATES INC.

               CINCINNATI. OHIO

    BAILDOWN   DATA   ANALYSIS

    DATA OBTAINED BY :          g

    DATA ANALYZED BY :          g

    BAIL DOWN PARAMETERS FOR    1SW9AD

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER   =      6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =      2.000 INCHES

 SCREEN LENGTH             =       .500 FEET

 WELL PENETRATION DEPTH    =      1.500 FEET

 AQUIFER THICKNESS         =      1.500 FEET

 STATIC WATER LEVEL        =      8.840 FEET

 AQUIFER CONDUCTIVITY IS   =   .418E-02 CM/SEC

                   OR   .885E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =  .191E+00 CM*CM/SEC

                   OR   .133E+03 GAL/FT/DAY

##################################################
```

```
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
1
 enter  baildown start time --- TS
10
 enter baildown end time ----- TE
40
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS =      .4843
     LINE   SLOPE   IS =   -.018031

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
```


RAW DATA AND LST.SQUARE FIT
SW9AD
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$

DRAWDOWN (FT)
10^0
2
3
4
5
6
7
8
9
10^1
0.0
2.0
4.0
6.0
8.0
10.0
TIME (SECS)

ENTER WELL PENETRATION DEPTH (ft)
1.5
@@@

HYDOGEOLOGY AND SITE INVESTIGATION.

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CINCINNATI. OHIO

B A I L D O W N   D A T A   A N A L Y S I S

DATA OBTAINED BY :   g

DATA ANALYZED BY :   g

BAIL DOWN PARAMETERS FOR   ISW9AD

@@@

EFFECTIVE WELL DIAMETER = 6.000 INCHES

EFFECTIVE SCREEN DIAMETER = 2.000 INCHES

SCREEN LENGTH = .500 FEET

WELL PENETRATION DEPTH = 1.500 FEET

AQUIFER THICKNESS = 1.500 FEET

.TIC WATER LEVEL = 8.840 FEET

AQUIFER CONDUCTIVITY IS = .391E-02 CM/SEC

OR .828E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .179E+00 CM*CM/SEC

OR .124E+03 GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::
START TIME IS = .100E+01 SECONDS

END TIME IS = .800E+01 SECONDS

###

enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 1.500 FEET

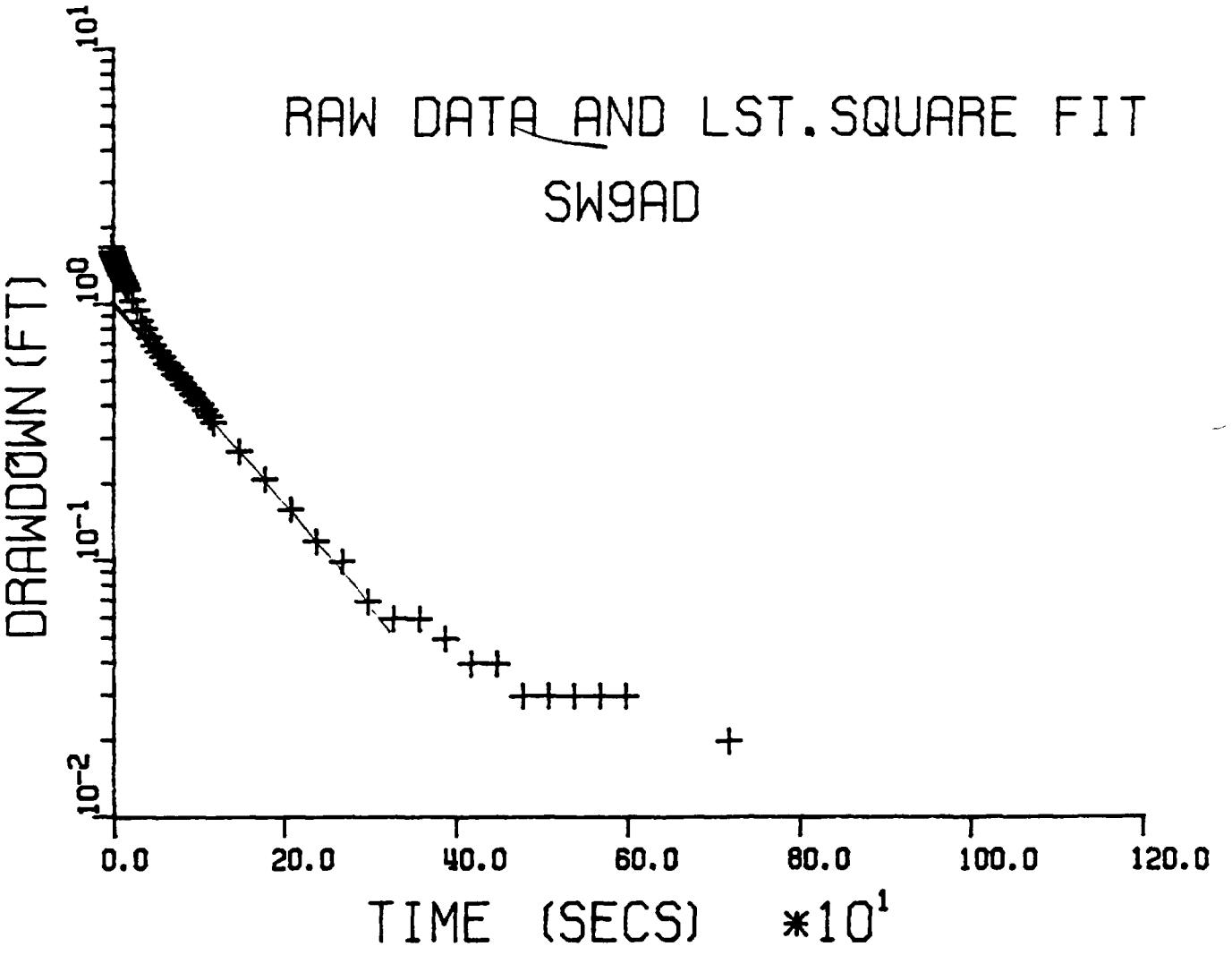
TIC WATER LEVEL = 8.840 FEET

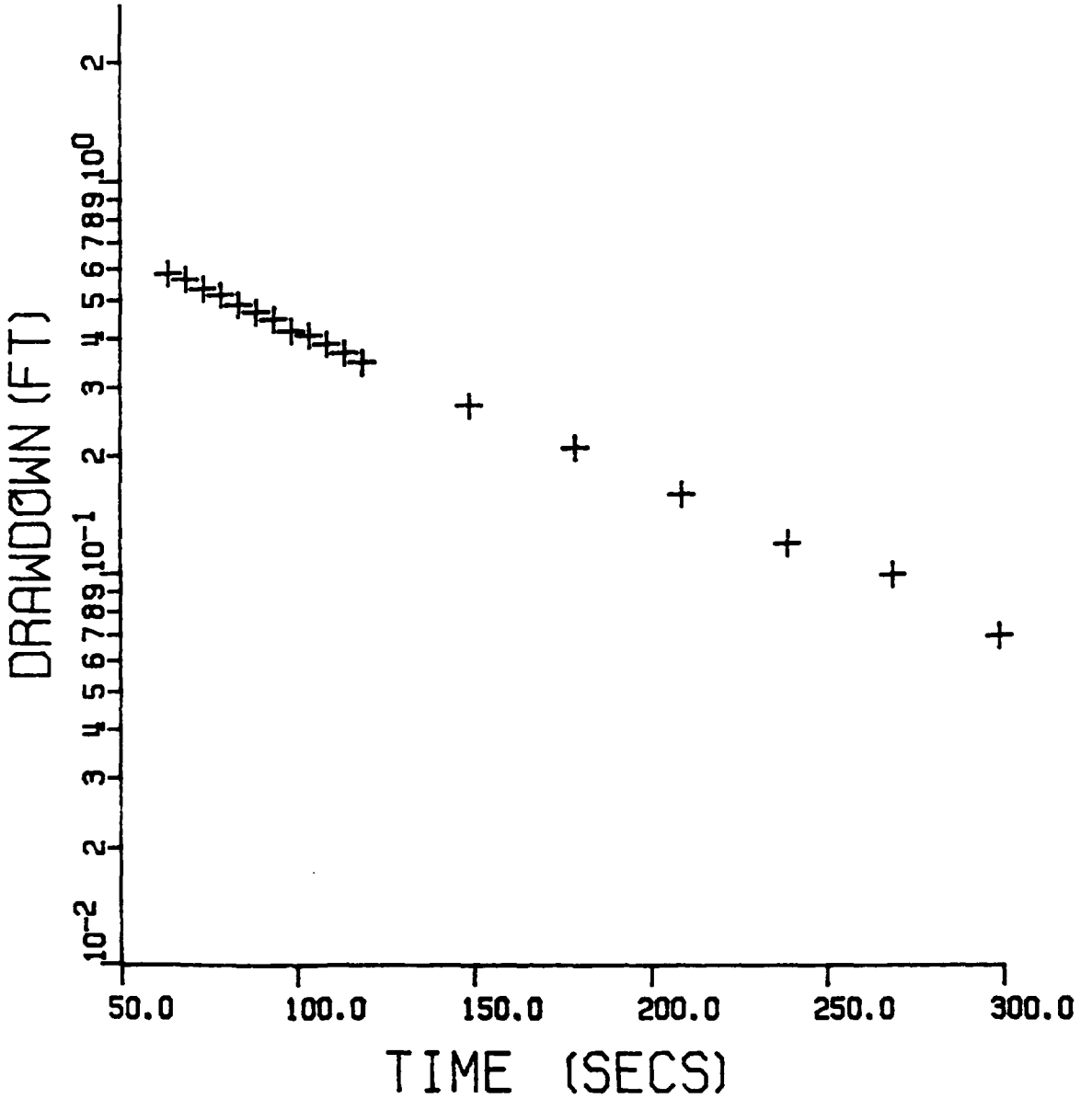
AQUIFER CONDUCTIVITY IS = .391E-02 CM/SEC

OR .828E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .179E+00 CM*CM/SEC

```
          (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
99,99
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
      0,14  to output graph on epson printer
          (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
 J
 enter  1  to remove more skewed points
       2  to remove  more outliers
       3  for least squares fit
3
  LINE  INTERCEPT IS =      .4734
      LINE   SLOPE   IS =   -.016883

     r  1   to enter prefered baildown times
       2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
      0,14  to output graph on epson printer
          (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW9AD
enter no. of characters in well id. no.
5
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
       2  to calculate hydraulic conductivity
       3  to dump plot to printer or view again
       4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
E   ER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
1.5
ENTER SCREEN LENGTH (ft)
.5
```


RAW DATA AND LST.SQUARE FIT
SW9AD
DRAWDØWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$


DRAWDOWN (FT)
2
10^0
7 8 9
6
5
4
3
2
10^{-1}
7 8 9
6
5
4
3
2
10^{-2}
50.0
100.0
150.0
200.0
250.0
300.0
TIME (SECS)

ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
1.5
F'¨TER SCREEN LENGTH (ft)
..
ENTER WELL PENETRATION DEPTH (ft)
1.5
@@@

HYDOGEOLOGY AND SITE INVESTIGATION.

PEI ASSOCIATES INC.

CINCINNATI. OHIO

B A I L D O W N   D A T A   A N A L Y S I S

DATA OBTAINED BY : g

DATA ANALYZED BY : g

BAIL DOWN PARAMETERS FOR 1SW9AD

@@@

EFFECTIVE WELL DIAMETER = 6.000 INCHES

EFFECTIVE SCREEN DIAMETER = 2.000 INCHES

EEN LENGTH = .500 FEET

WELL PENETRATION DEPTH = 1.500 FEET

AQUIFER THICKNESS = 1.500 FEET

STATIC WATER LEVEL = 8.840 FEET

AQUIFER CONDUCTIVITY IS = .207E-02 CM/SEC

OR .438E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .946E-01 CM*CM/SEC

OR .658E+02 GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::
START TIME IS = .600E+02 SECONDS

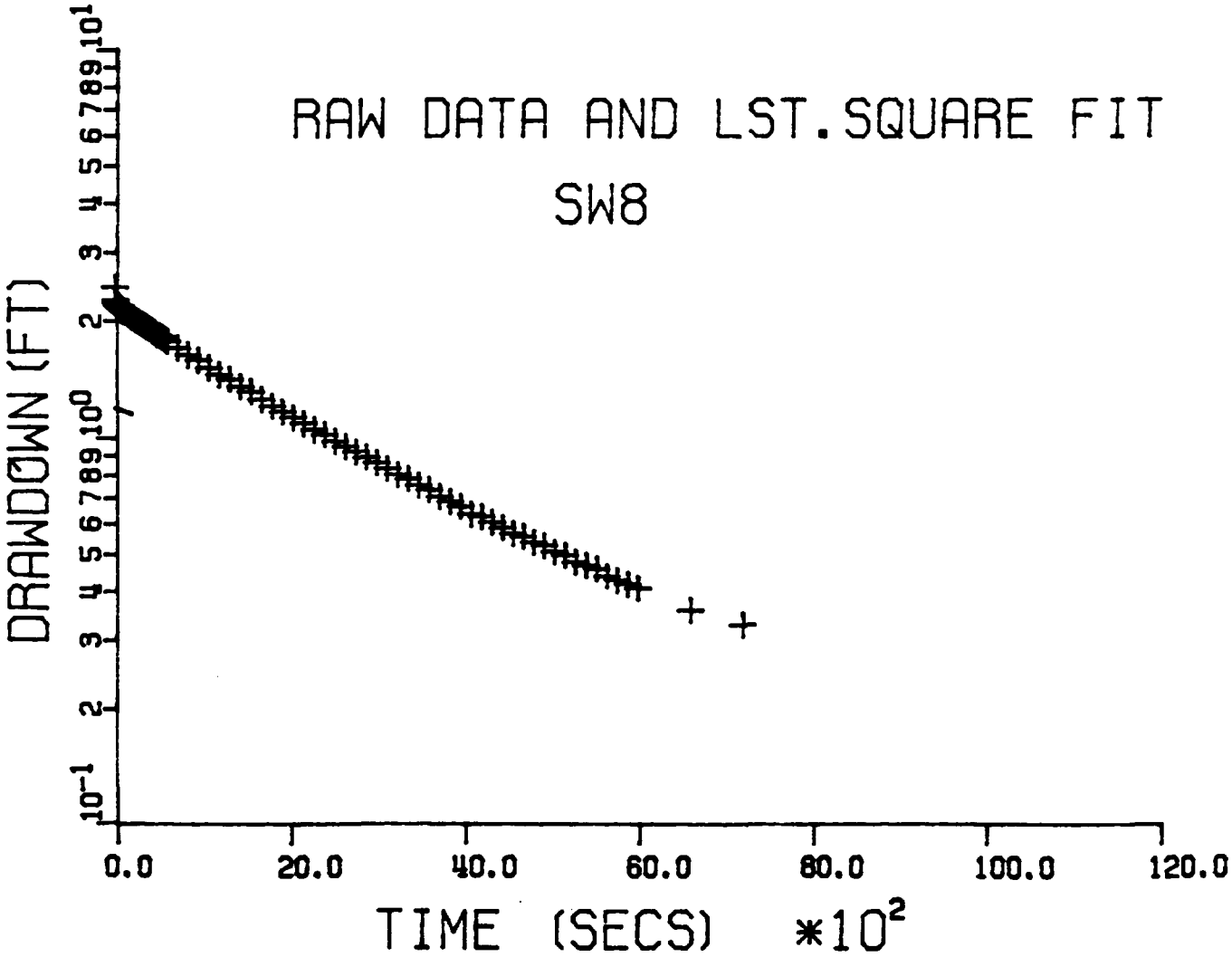
END TIME IS = .320E+03 SECONDS

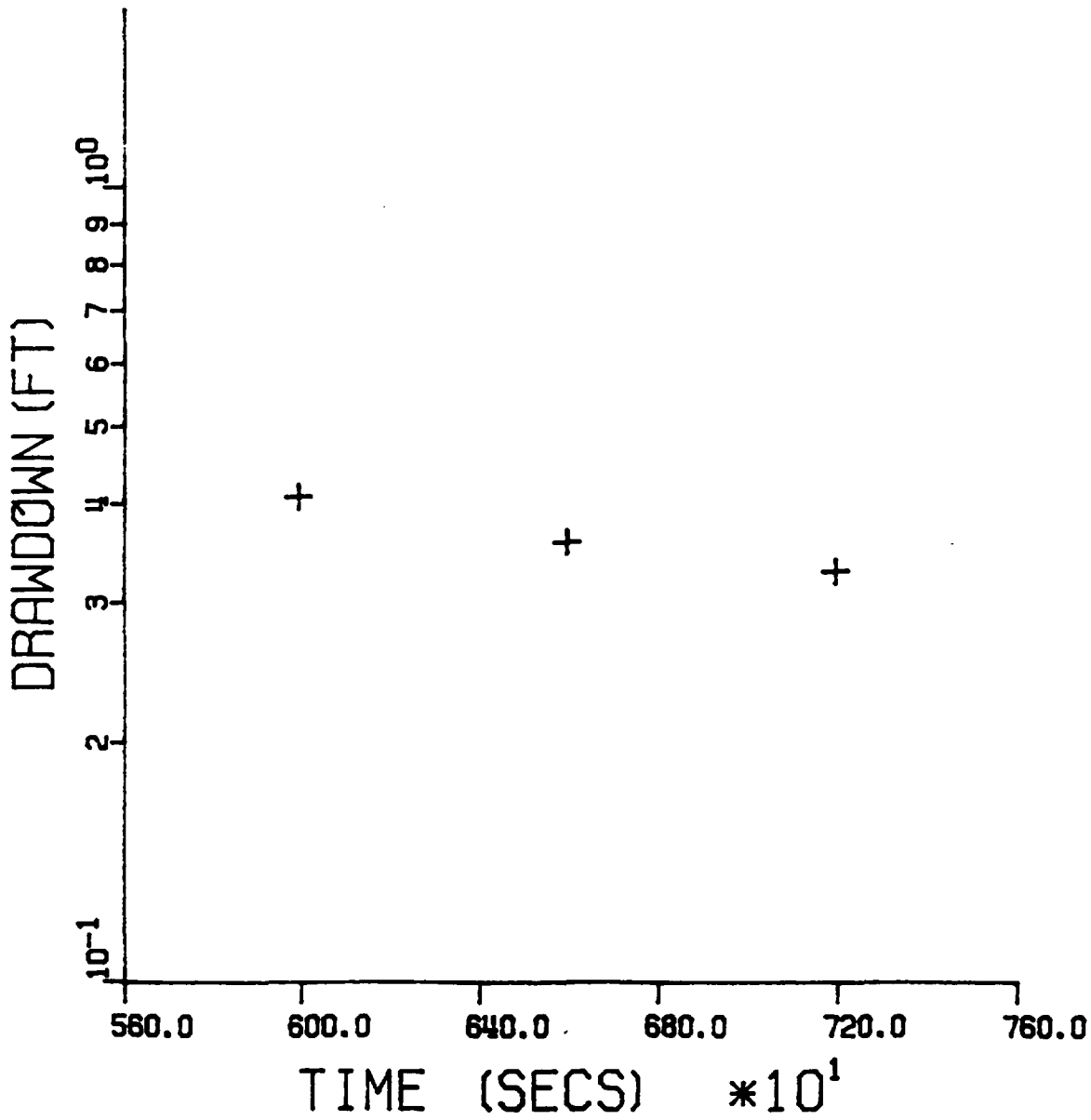
###
enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 1.500 FEET

STATIC WATER LEVEL = 8.840 FEET

```
60
 enter baildown end time ----- TE
320
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
    'r  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =      .0367
       LINE   SLOPE   IS  =   -.008934

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
 .ter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW9AD
enter no. of characters in well id. no.
5
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
```

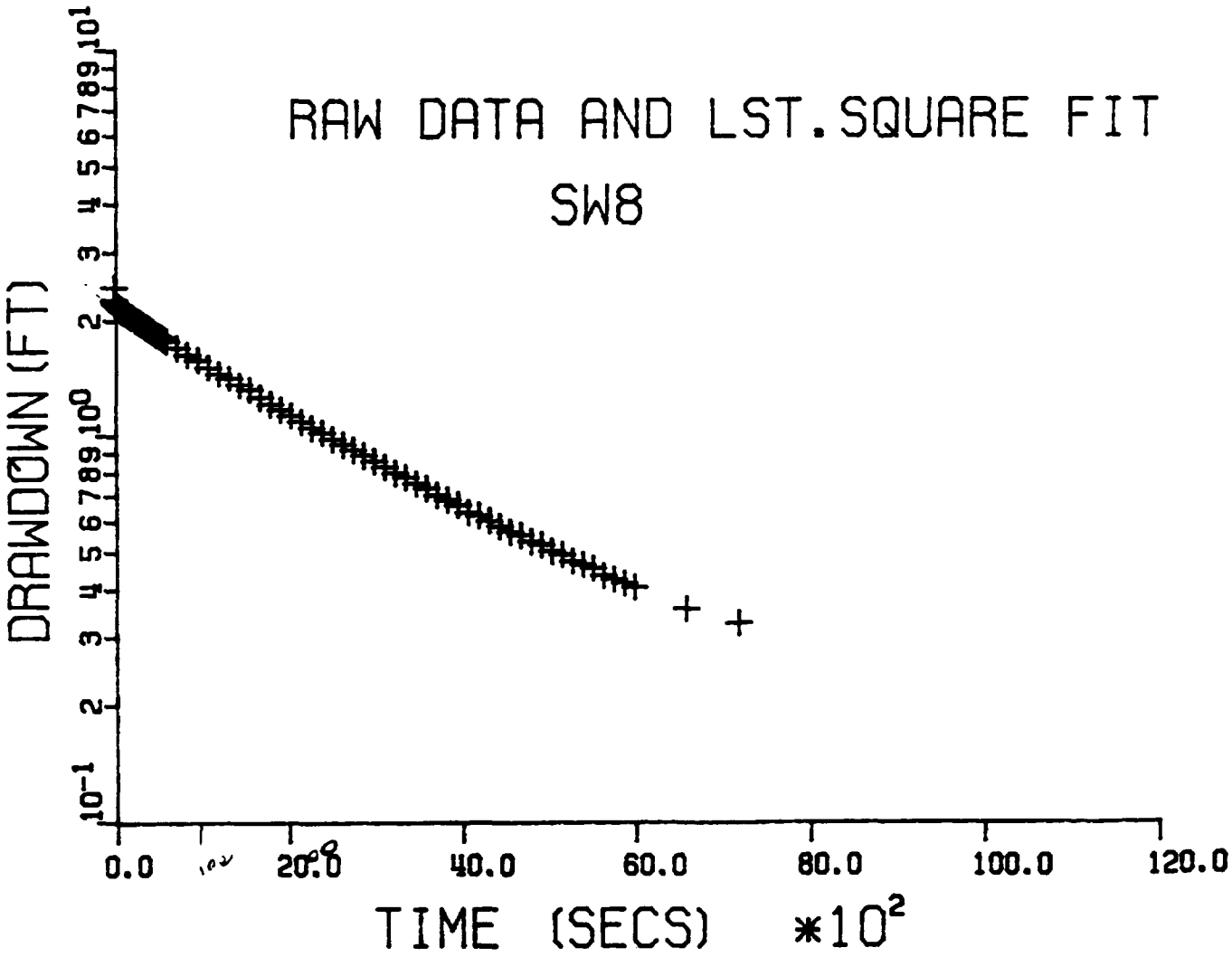

RAW DATA AND LST.SQUARE FIT
SW8
DRAWDOWN (FT)
TIME (SECS) *10^2
0.0
20.0
40.0
60.0
80.0
100.0
120.0
10^-1
2
3
4
5
6
7
8
9
10^0
10^1

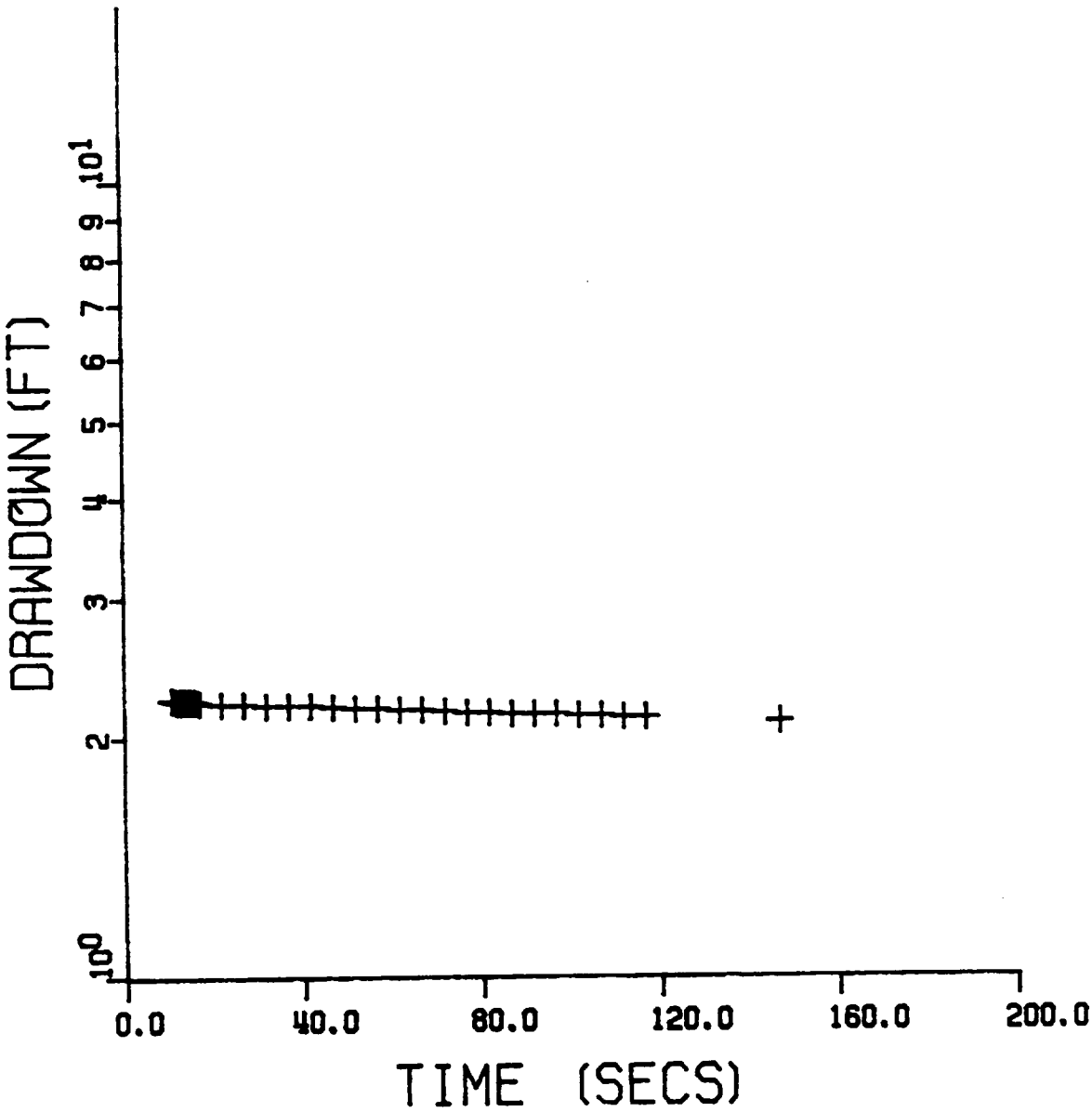

DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
560.0
600.0
640.0
680.0
720.0
760.0
TIME (SECS) $*10^{1}$

```
 SCREEN LENGTH                =        5.000 FEET

 ·L PENETRATION DEPTH         =        5.000 FEET

 AQUIFER THICKNESS            =        5.000 FEET

 STATIC WATER LEVEL           =        8.840 FEET

 AQUIFER CONDUCTIVITY IS      =     .856E-05 CM/SEC

                             OR     .181E+00 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .130E-02 CM*CM/SEC

                             OR     .907E+00 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                =     .590E+04 SECONDS

 END TIME IS                  =     .800E+04 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS            =        5.000 FEET

 STATIC WATER LEVEL           =        8.840 FEET

 AQUIFER CONDUCTIVITY IS      =     .856E-05 CM/SEC

                             OR     .181E+00 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .130E-02 CM*CM/SEC

                             OR     .907E+00 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                =     .590E+04 SECONDS

 END TIME IS                  =     .800E+04 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS            =        5.000 FEET

 STATIC WATER LEVEL           =        8.840 FEET
```

```
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =      .6911
       LINE   SLOPE   IS  =    -.000277

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW8
enter no. of characters in well id. no.

PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
5
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.
```

```
        3  for least squares fit
3
 LINE  INTERCEPT IS  =      .1860
     LINE   SLOPE   IS  =     -.000181

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW8
enter no. of characters in well id. no.
3
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
   ER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
5
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :         G

    DATA ANALYZED BY :         G

    BAIL DOWN PARAMETERS FOR    5SW8

  @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES
```

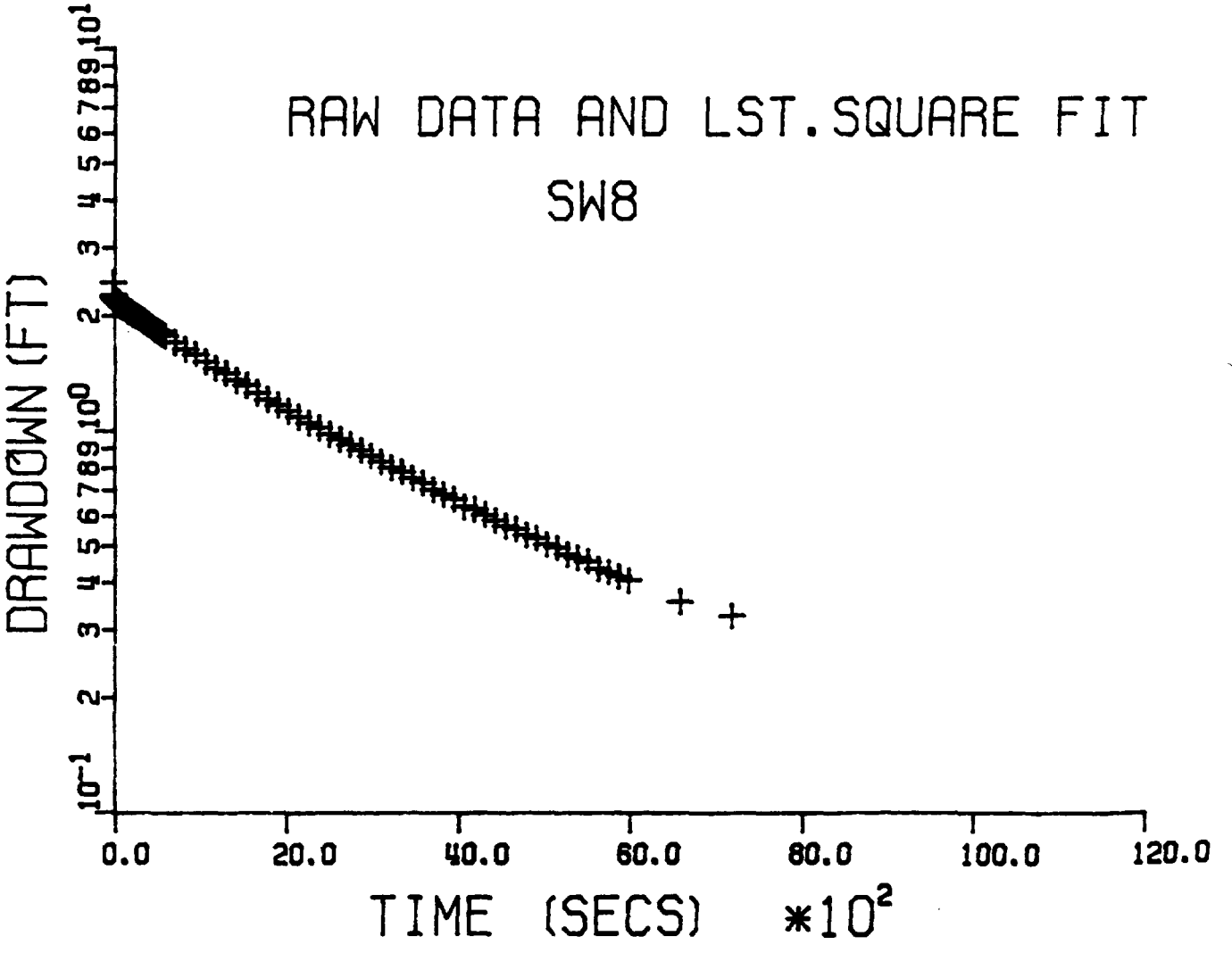

RAW DATA AND LST.SQUARE FIT
SW8
DRAWDOWN (FT)
TIME (SECS) *10^2
0.0
20.0
40.0
60.0
80.0
100.0
120.0
10^-1
10^0
10^1

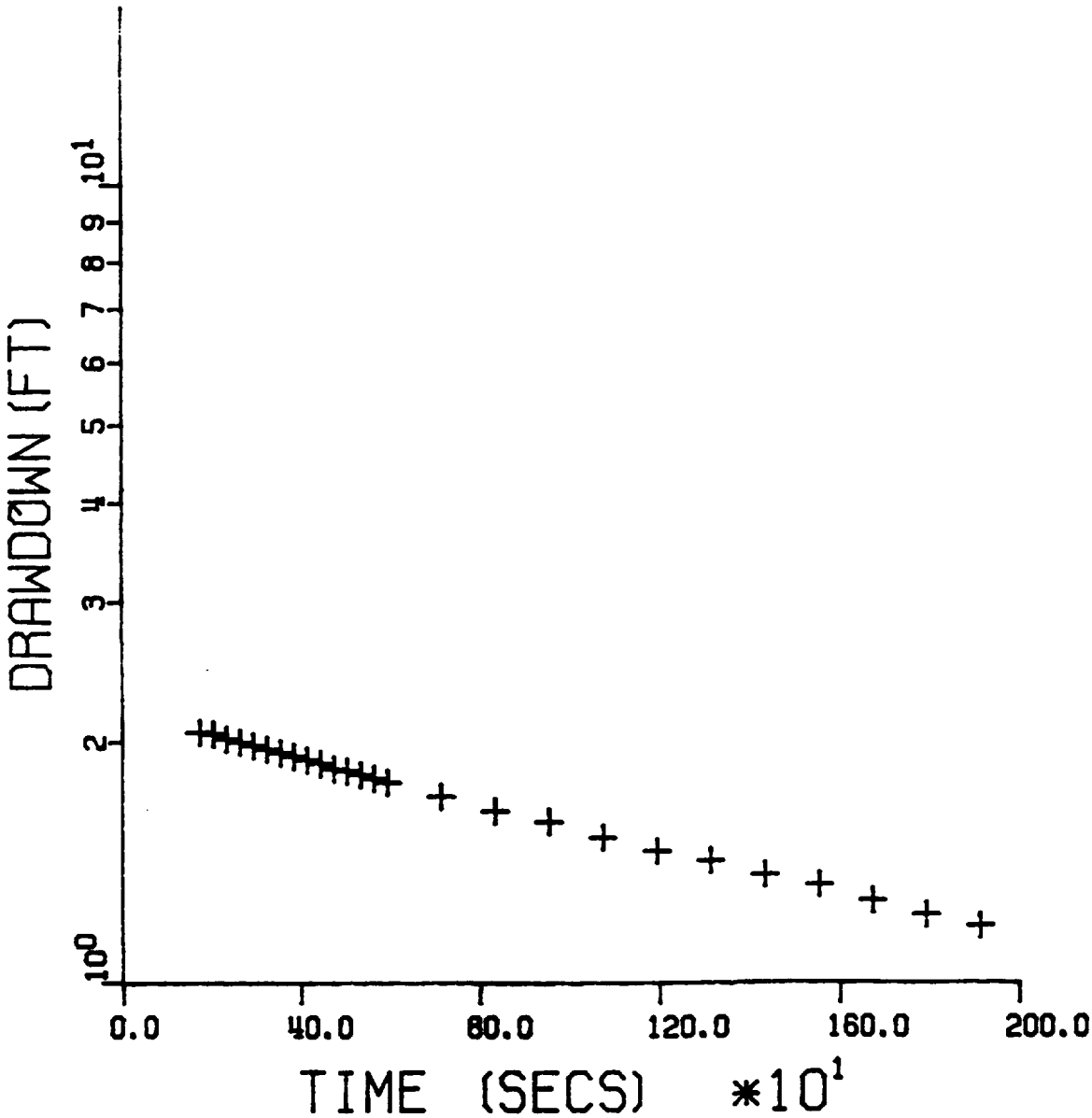

DRAWDOWN (FT)
10^1
9
8
7
6
5
4
3
2
10^0
0.0
40.0
80.0
120.0
160.0
200.0
TIME (SECS)

```
##############################################

    CENSORED DATA END POINTS ARE ::
   \RT TIME IS                =    .100E+02 SECONDS

 END TIME IS                  =    .150E+03 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS            =       5.000 FEET

 STATIC WATER LEVEL           =       8.840 FEET

 AQUIFER CONDUCTIVITY IS      =    .234E-04 CM/SEC

                             OR    .496E+00 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =   .357E-02 CM*CM/SEC

                             OR    .248E+01 GAL/FT/DAY

##############################################

    CENSORED DATA END POINTS ARE ::
   ART TIME IS                =    .100E+02 SECONDS

 END TIME IS                  =    .150E+03 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS            =       5.000 FEET

 STATIC WATER LEVEL           =       8.840 FEET

 AQUIFER CONDUCTIVITY IS      =    .234E-04 CM/SEC

                             OR    .496E+00 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =   .357E-02 CM*CM/SEC

                             OR    .248E+01 GAL/FT/DAY

##############################################

    CENSORED DATA END POINTS ARE ::
   ART TIME IS                =    .100E+02 SECONDS

 END TIME IS                  =    .150E+03 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
```

```
enter well identification number--(20 chrs max)
SW8
enter no. of characters in well id. no.
3
P.  .: COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
5
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    5SW8

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =        2.000 INCHES

 SCREEN LENGTH              =       5.000 FEET

 WELL PENETRATION DEPTH     =       5.000 FEET

 AQUIFER THICKNESS          =       5.000 FEET

 STATIC WATER LEVEL         =       8.840 FEET

 AQUIFER CONDUCTIVITY IS    =    .234E-04 CM/SEC

                           OR    .496E+00 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .357E-02 CM*CM/SEC

                           OR    .248E+01 GAL/FT/DAY
```

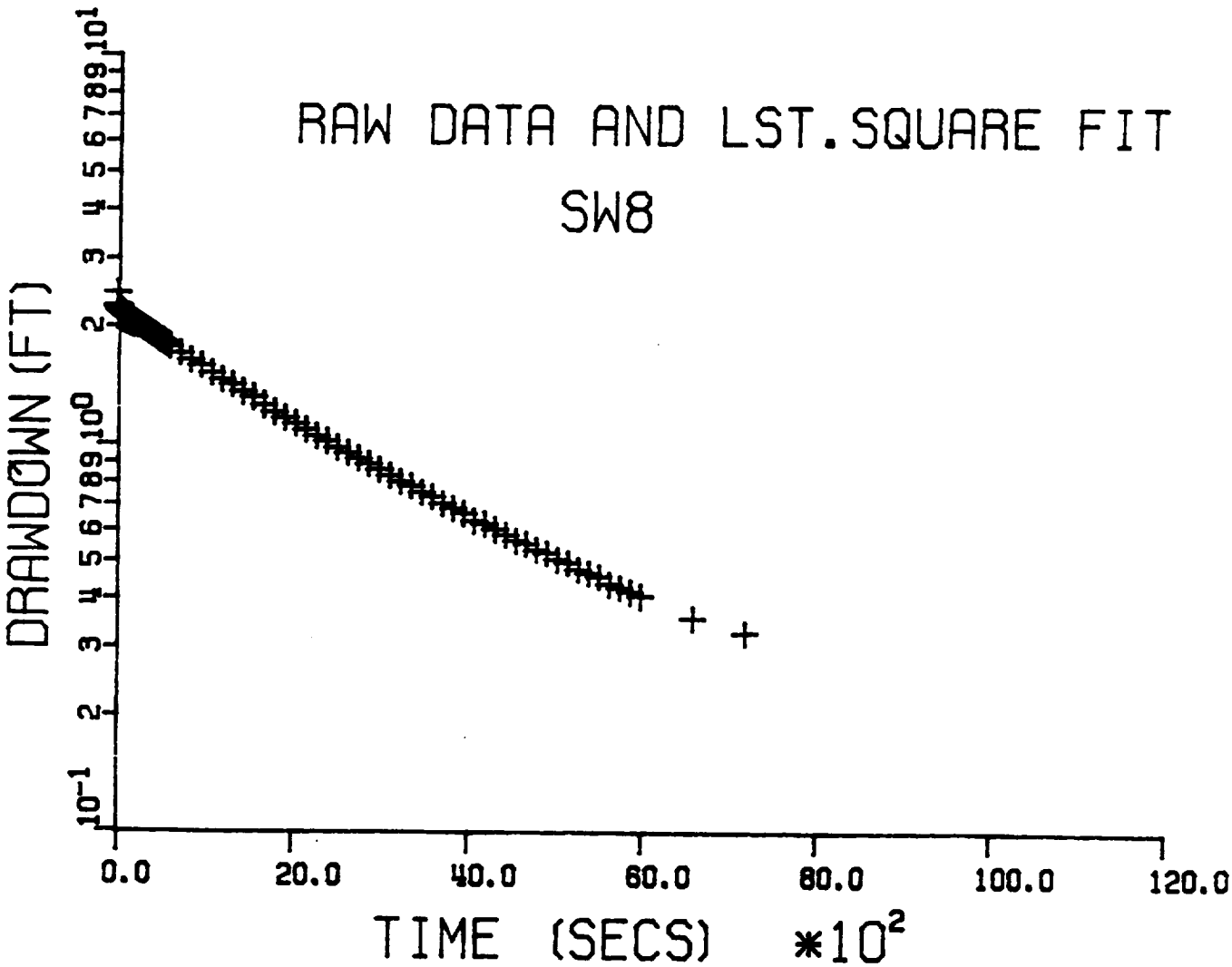
```
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9[illegible]99
P[illegible]88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
1
 enter  baildown start time --- TS
10
 enter baildown end time ----- TE
150
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
y
[illegible]er  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
 LOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =      .8118
       LINE   SLOPE   IS  =    -.000495

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
```

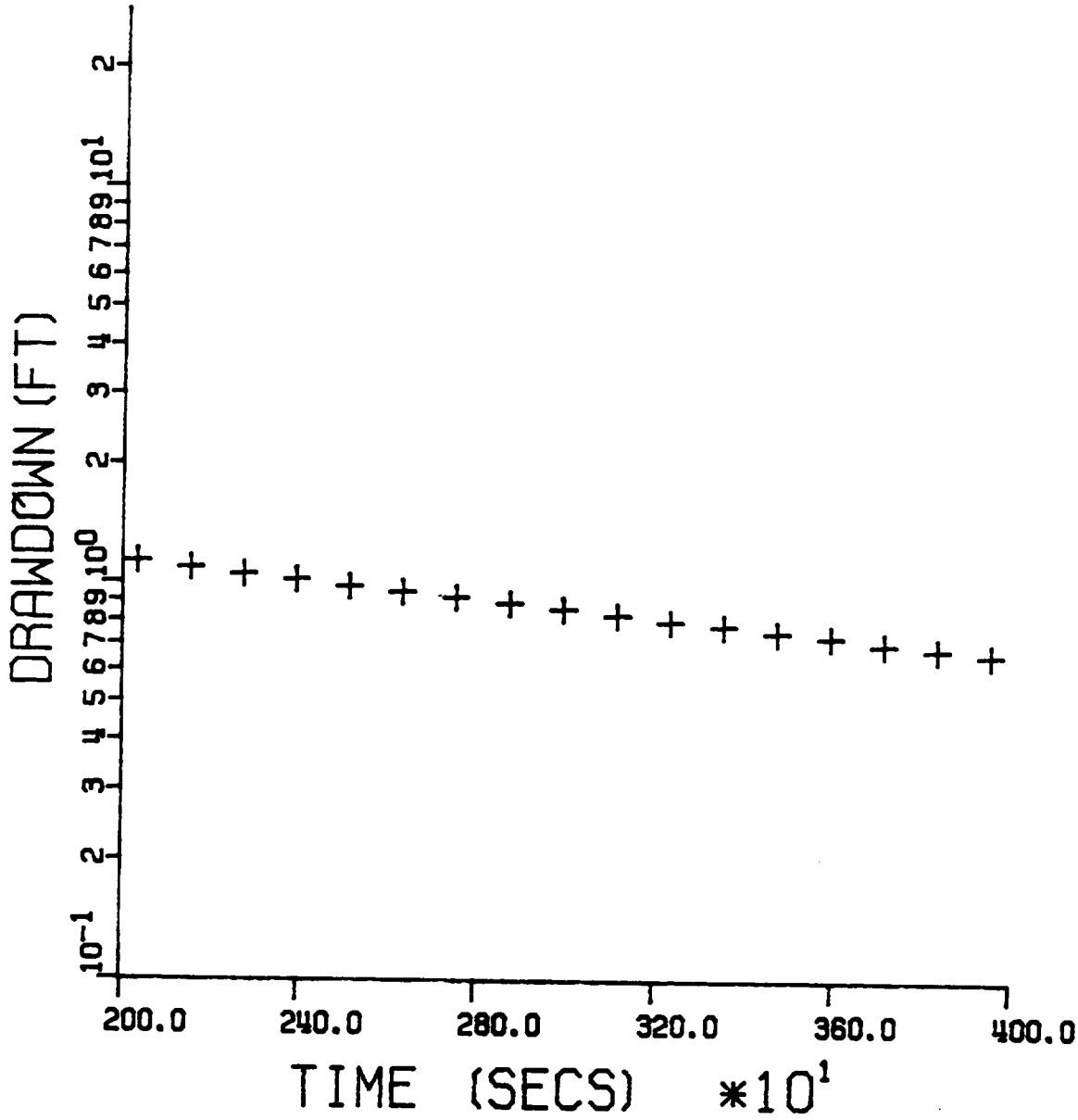

RAW DATA AND LST.SQUARE FIT
SW8
DRAWDOWN (FT)
TIME (SECS) *10^2
0.0
20.0
40.0
60.0
80.0
100.0
120.0
10^-1
10^0
10^1


DRAWDOWN (FT)
10^0
2
3
4
5
6
7
8
9
10^1
0.0
40.0
80.0
120.0
160.0
200.0
TIME (SECS) $*10^1$

```
   B A I L D O W N   D A T A   A N A L Y S I S

   DATA OBTAINED BY :         G

   DATA ANALYZED BY :         G

   BAIL DOWN PARAMETERS FOR   5SW8

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
 EFFECTIVE WELL DIAMETER    =      6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH              =      5.000 FEET

 WELL PENETRATION DEPTH     =      5.000 FEET

 AQUIFER THICKNESS          =      5.000 FEET

 STATIC WATER LEVEL         =      8.840 FEET

 AQUIFER CONDUCTIVITY IS    =   .153E-04 CM/SEC

                         OR     .325E+00 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .234E-02 CM*CM/SEC

                         OR     .162E+01 GAL/FT/DAY

################################################
   CENSORED DATA END POINTS ARE ::
 START TIME IS              =   .150E+03 SECONDS

 END TIME IS                =   .200E+04 SECONDS

###################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS          =      5.000 FEET

 STATIC WATER LEVEL         =      8.840 FEET

 AQUIFER CONDUCTIVITY IS    =   .153E-04 CM/SEC

                         OR     .325E+00 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .234E-02 CM*CM/SEC

                         OR     .162E+01 GAL/FT/DAY

   ############################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS              =   .150E+03 SECONDS
```

```
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =      .7812
       LINE   SLOPE   IS  =     -.000324

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
[illegible],20
enter well identification number--(20 chrs max)
SW8
enter no. of characters in well id. no.
3
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop

 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
5
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO
```


RAW DATA AND LST.SQUARE FIT
SW8
DRAWDOWN (FT)
TIME (SECS) *10^2
0.0
20.0
40.0
60.0
80.0
100.0
120.0


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
3
4
5
6
7
8
9
10^{1}
2
200.0
240.0
280.0
320.0
360.0
400.0
TIME (SECS) $*10^{1}$

PEI ASSOCIATES INC.

CINCINNATI. OHIO

B A I L D O W N   D A T A   A N A L Y S I S

DATA OBTAINED BY :   G

DATA ANALYZED BY :   G

BAIL DOWN PARAMETERS FOR   5SW8

@@

EFFECTIVE WELL DIAMETER = 6.000 INCHES

EFFECTIVE SCREEN DIAMETER = 2.000 INCHES

SCREEN LENGTH = 5.000 FEET

WELL PENETRATION DEPTH = 5.000 FEET

AQUIFER THICKNESS = 5.000 FEET

STATIC WATER LEVEL = 8.840 FEET

AQUIFER CONDUCTIVITY IS = .131E-04 CM/SEC

OR .278E+00 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .200E-02 CM*CM/SEC

OR .139E+01 GAL/FT/DAY

###

CENSORED DATA END POINTS ARE ::
START TIME IS = .200E+04 SECONDS

END TIME IS = .400E+04 SECONDS

##
enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 5.000 FEET

STATIC WATER LEVEL = 8.840 FEET

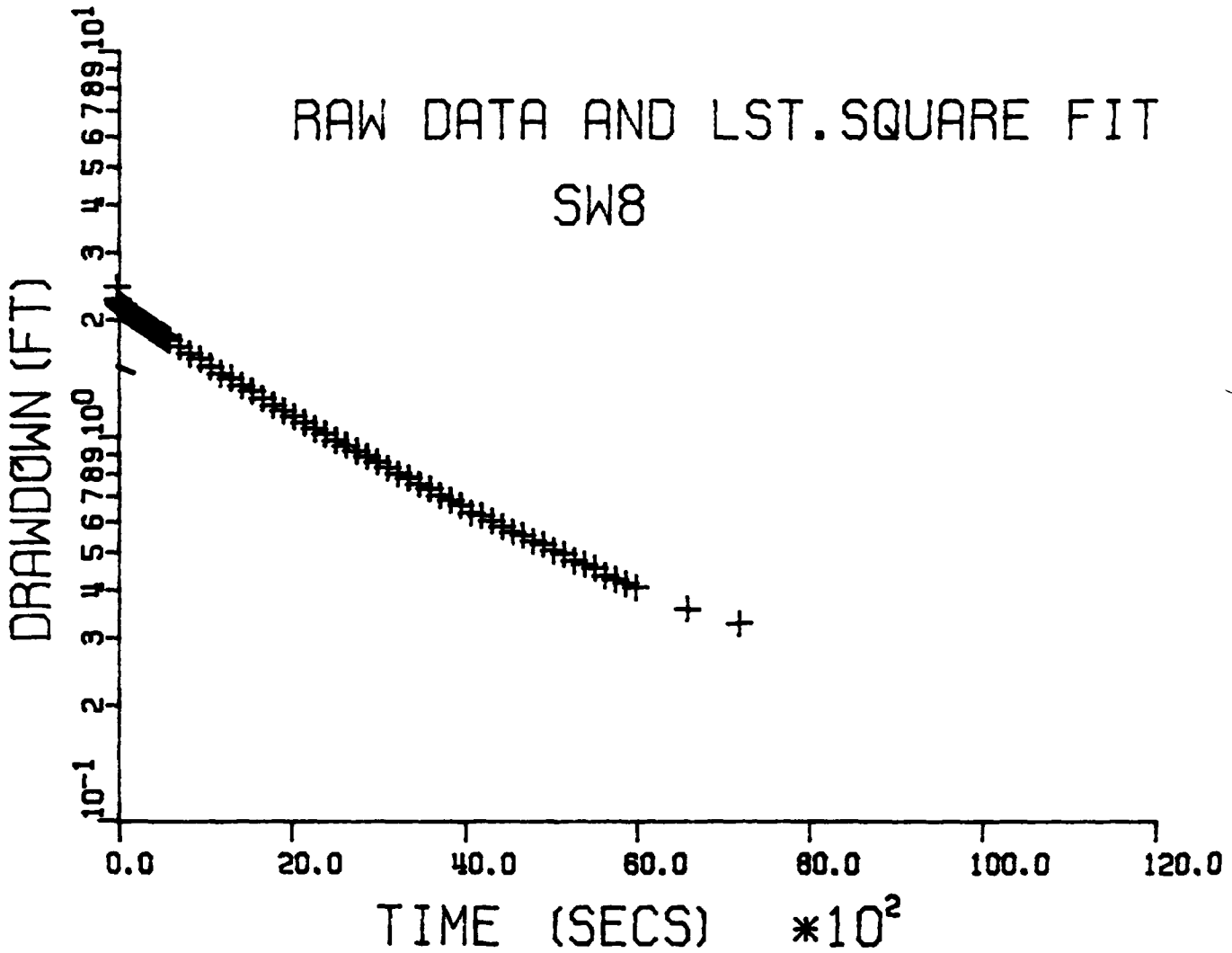
AQUIFER CONDUCTIVITY IS = .131E-04 CM/SEC

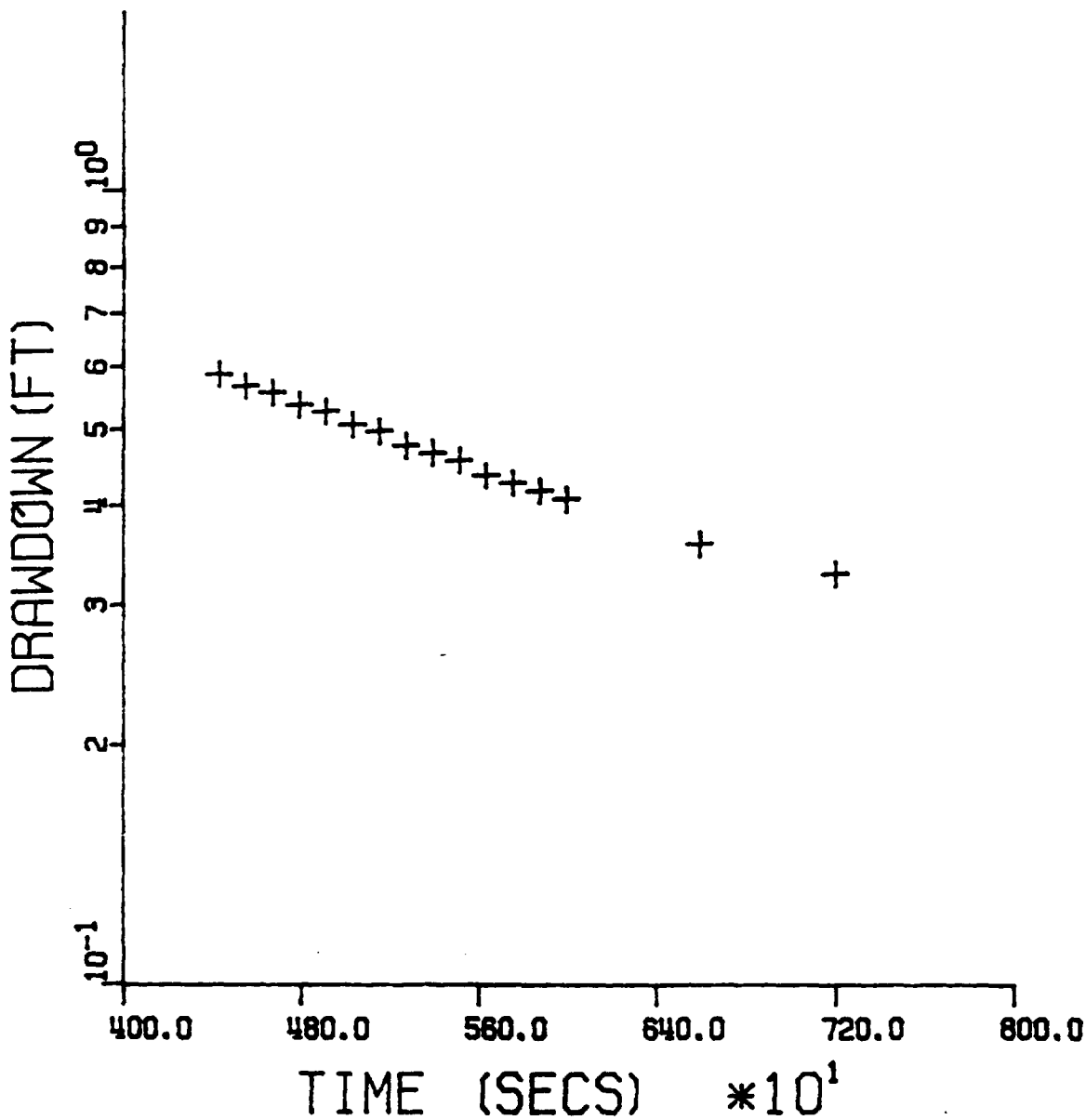
OR .278E+00 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .200E-02 CM*CM/SEC

OR .139E+01 GAL/FT/DAY

```
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =      .6911
       LINE   SLOPE   IS  =    -.000277

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW8
enter no. of characters in well id. no.
3
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
5
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.
```

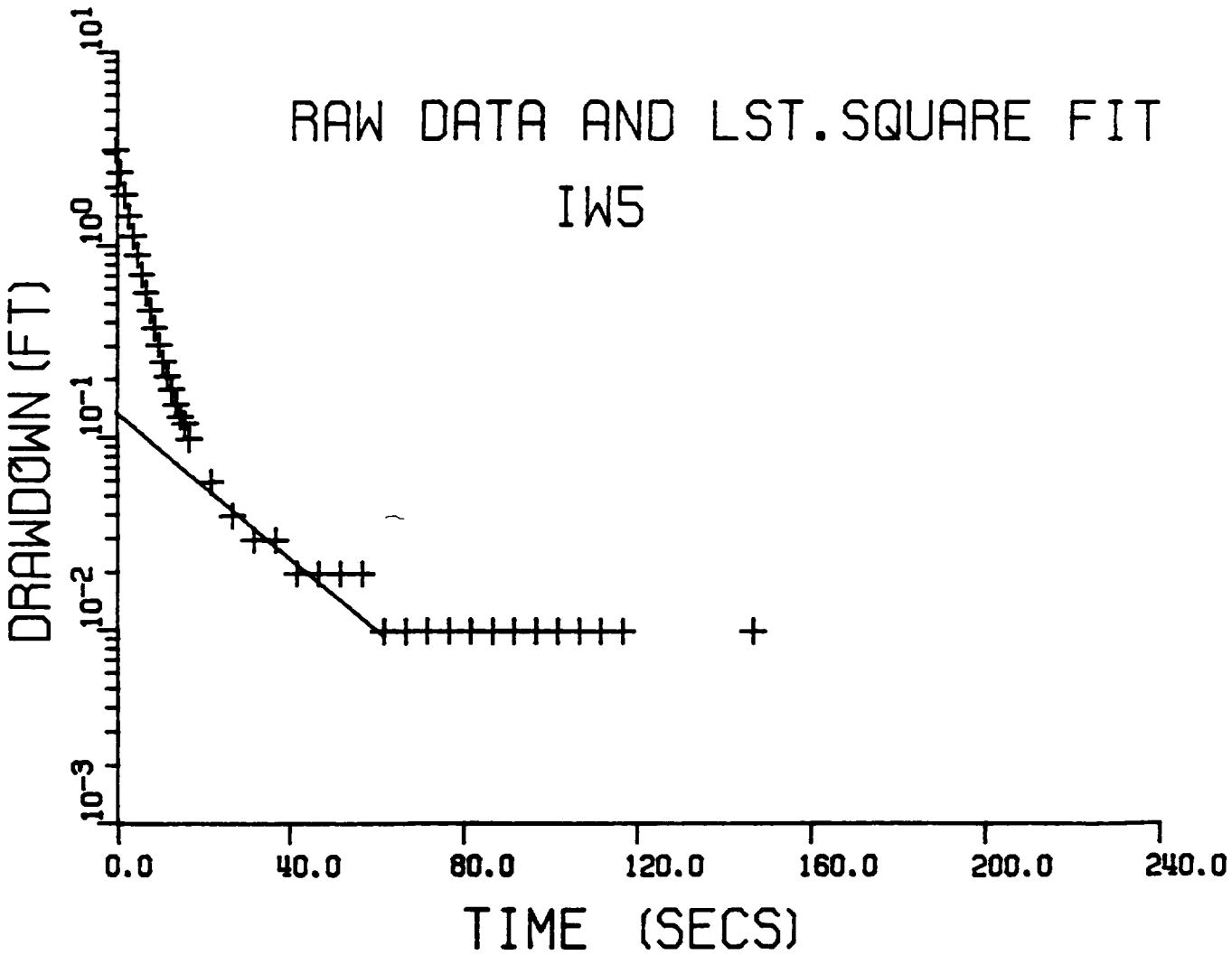

RAW DATA AND LST.SQUARE FIT
SW8
DRAWDOWN (FT)
TIME (SECS) *10^2
0.0
20.0
40.0
60.0
80.0
100.0
120.0
10^-1
10^0
10^1

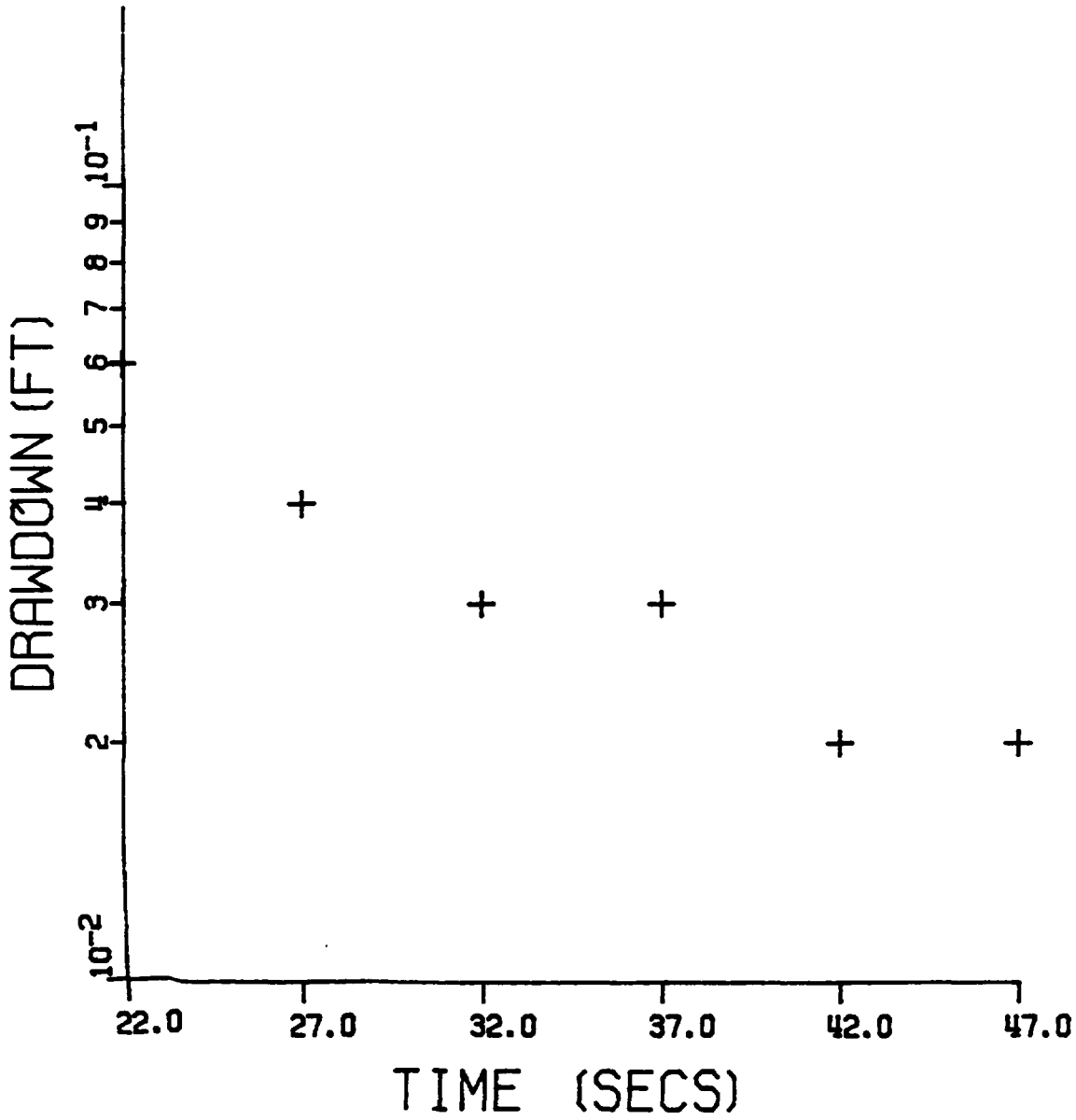

DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
400.0
480.0
560.0
640.0
720.0
800.0
TIME (SECS) $*10^{1}$

```
##############################################

    CENSORED DATA END POINTS ARE ::
   \RT TIME IS                =     .440E+04 SECONDS

 END TIME IS                  =     .800E+04 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS            =        5.000 FEET

 STATIC WATER LEVEL           =        8.840 FEET

 AQUIFER CONDUCTIVITY IS      =     .103E-04 CM/SEC

                             OR     .219E+00 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .158E-02 CM*CM/SEC

                             OR     .110E+01 GAL/FT/DAY

##############################################

    CENSORED DATA END POINTS ARE ::
   ART TIME IS                =     .440E+04 SECONDS

 END TIME IS                  =     .800E+04 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS            =        5.000 FEET

 STATIC WATER LEVEL           =        8.840 FEET

 AQUIFER CONDUCTIVITY IS      =     .103E-04 CM/SEC

                             OR     .219E+00 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .158E-02 CM*CM/SEC

                             OR     .110E+01 GAL/FT/DAY

##############################################

    CENSORED DATA END POINTS ARE ::
   \RT TIME IS                =     .440E+04 SECONDS

 END TIME IS                  =     .800E+04 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
```

```
enter well identification number--(20 chrs max)
SW8
enter no. of characters in well id. no.
3
[illegible] COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
5
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    5SW8

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =      6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH              =      5.000 FEET

 WELL PENETRATION DEPTH     =      5.000 FEET

 AQUIFER THICKNESS          =      5.000 FEET

 STATIC WATER LEVEL         =      8.840 FEET

 AQUIFER CONDUCTIVITY IS    =   .103E-04 CM/SEC

                          OR    .219E+00 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .158E-02 CM*CM/SEC

                          OR    .110E+01 GAL/FT/DAY
```

```
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9  ]9
P  .88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
1
 enter  baildown start time --- TS
4400
 enter baildown end time ----- TE
8000
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
 enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least-squares fit
3
  LINE  INTERCEPT IS  =      .4304
       LINE   SLOPE   IS  =    -.000219

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
```


RAW DATA AND LST.SQUARE FIT
IW5
DRAWDOWN (FT)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
40.0
80.0
120.0
160.0
200.0
240.0
TIME (SECS)


DRAWDOWN (FT)
10^{-1}
9
8
7
6
5
4
3
2
10^{-2}
22.0
27.0
32.0
37.0
42.0
47.0
TIME (SECS)

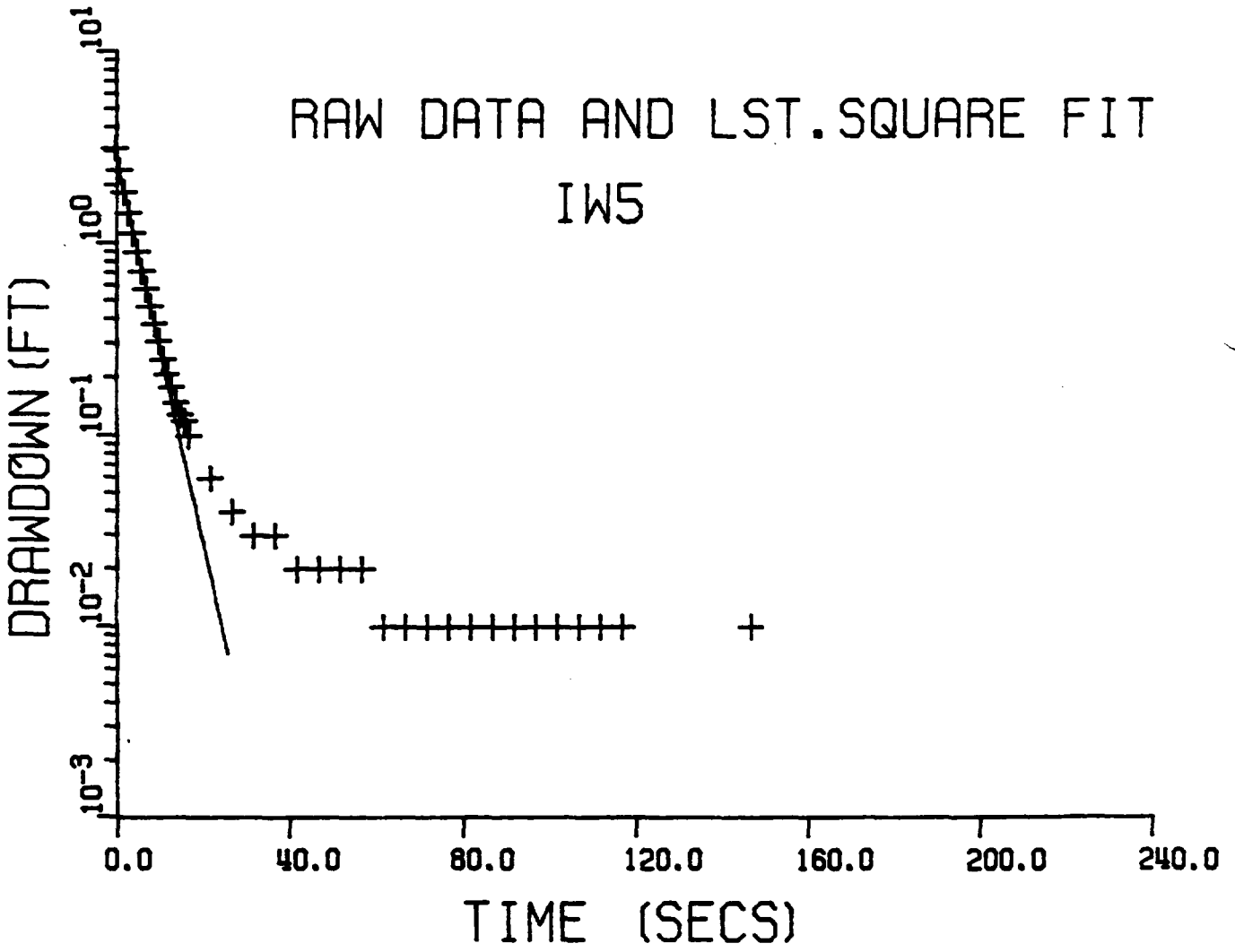
```
#################################################

    CENSORED DATA END POINTS ARE ::
   .RT TIME IS                  =    .200E+02 SECONDS

 END TIME IS                    =    .520E+02 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

3
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
:NTER AQUIFER THICKNESS (ft)
13
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
6.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :           G

    DATA ANALYZED BY :           G

    BAIL DOWN PARAMETERS FOR     4IW5

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER     =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =         2.000 INCHES

 SCREEN LENGTH               =       5.000 FEET

 WELL PENETRATION DEPTH      =       6.500 FEET

 AQUIFER THICKNESS           =      13.000 FEET

   ATIC WATER LEVEL          =      15.480 FEET

 AQUIFER CONDUCTIVITY IS     =    .183E-02 CM/SEC

                           OR     .387E+02 GAL/FT/FT/DAY
```

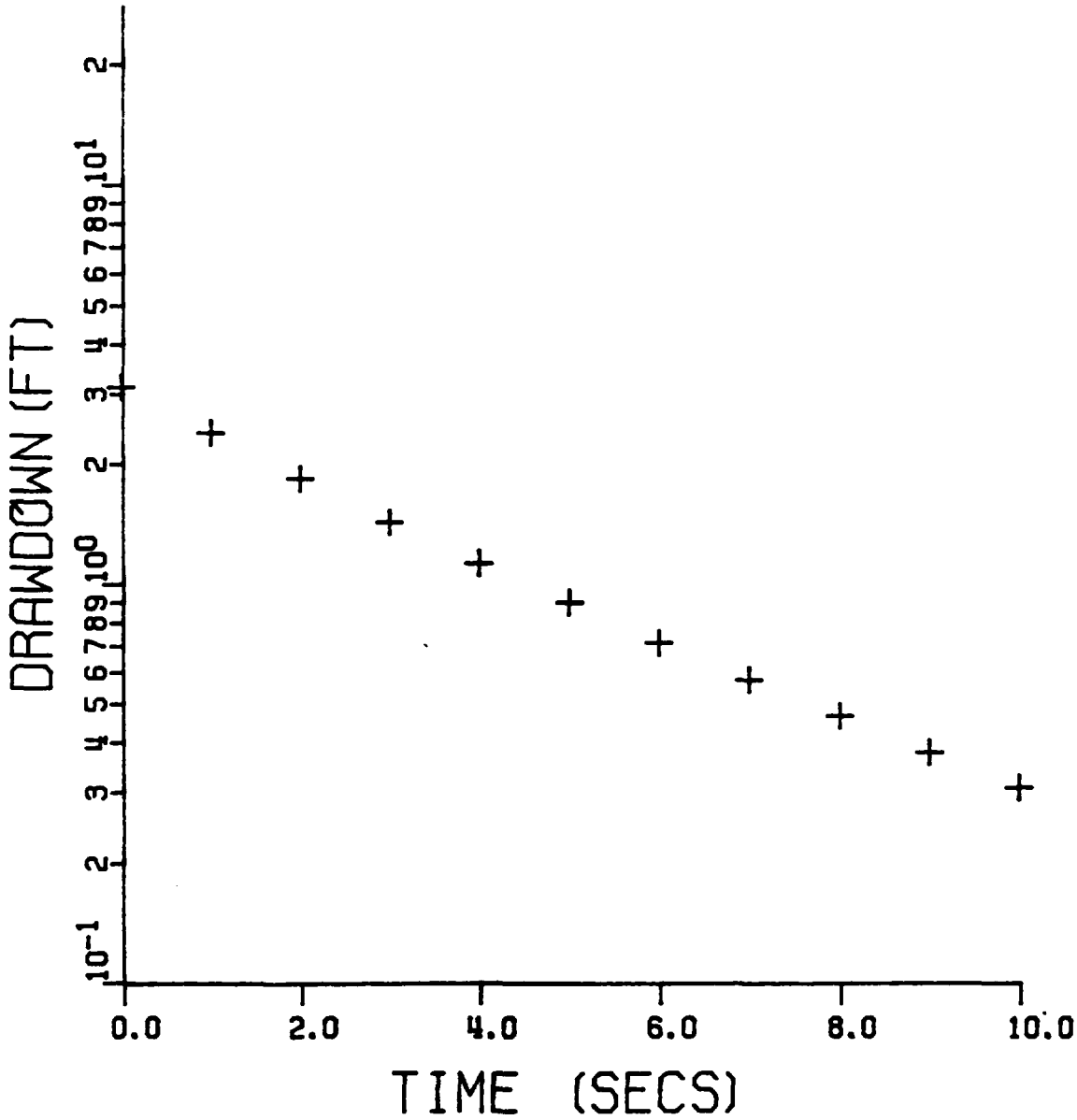
```
 AQUIFER TRANSMISSIVITY IS =     .723E+00 CM*CM/SEC

                           OR    .503E+03 GAL/FT/DAY

##############################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS               =    .200E+02 SECONDS

 END TIME IS                 =    .520E+02 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS           =      13.000 FEET

 STATIC WATER LEVEL          =      15.480 FEET

 AQUIFER CONDUCTIVITY IS     =    .183E-02 CM/SEC

                           OR    .387E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .723E+00 CM*CM/SEC

                           OR    .503E+03 GAL/FT/DAY

##############################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS               =    .200E+02 SECONDS

 END TIME IS                 =    .520E+02 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS           =      13.000 FEET

 STATIC WATER LEVEL          =      15.480 FEET

 AQUIFER CONDUCTIVITY IS     =    .183E-02 CM/SEC

                           OR    .387E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .723E+00 CM*CM/SEC

                           OR    .503E+03 GAL/FT/DAY

##############################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS               =    .200E+02 SECONDS
```

```
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
IW5
enter no. of characters in well id. no.
3
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
 I
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
23
F'"ER SCREEN LENGTH (ft)

ENTER WELL PENETRATION DEPTH (ft)
6.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    4IW5

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =        2.000 INCHES

  `REEN LENGTH              =       5.000 FEET

 WELL PENETRATION DEPTH     =       6.500 FEET

 AQUIFER THICKNESS          =      23.000 FEET
```

```
 STATIC WATER LEVEL          =      15.480 FEET

 AQUIFER CONDUCTIVITY IS     =     .177E-02 CM/SEC

                            OR     .375E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .124E+01 CM*CM/SEC

                            OR     .862E+03 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS               =     .200E+02 SECONDS

 END TIME IS                 =     .520E+02 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS           =      23.000 FEET

 STATIC WATER LEVEL          =      15.480 FEET

 AQUIFER CONDUCTIVITY IS     =     .177E-02 CM/SEC

                            OR     .375E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .124E+01 CM*CM/SEC

                            OR     .862E+03 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS               =     .200E+02 SECONDS

 END TIME IS                 =     .520E+02 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS           =      23.000 FEET

 STATIC WATER LEVEL          =      15.480 FEET

 AQUIFER CONDUCTIVITY IS     =     .177E-02 CM/SEC

                            OR     .375E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .124E+01 CM*CM/SEC

                            OR     .862E+03 GAL/FT/DAY
```

```
1
 enter  baildown start time --- TS
20
 ter baildown end time ----- TE
t
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
1
 enter  baildown start time --- TS
20
 enter baildown end time ----- TE
52
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N

enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
?
   INE  INTERCEPT IS  =    -1.9853
       LINE   SLOPE   IS  =    -.043275

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
```


RAW DATA AND LST.SQUARE FIT
IW5
DRAWDOWN (FT)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
0.0
40.0
80.0
120.0
160.0
200.0
240.0
TIME (SECS)


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
3
4
5
6
7
8
9
10^{1}
2
0.0
2.0
4.0
6.0
8.0
10.0
TIME (SECS)

HYDOGEOLOGY AND SITE INVESTIGATION.

PEI ASSOCIATES INC.

CINCINNATI. OHIO

B A I L D O W N   D A T A   A N A L Y S I S

DATA OBTAINED BY : G

DATA ANALYZED BY : G

BAIL DOWN PARAMETERS FOR 4IW5

@@

EFFECTIVE WELL DIAMETER = 6.000 INCHES

EFFECTIVE SCREEN DIAMETER = 2.000 INCHES

SCREEN LENGTH = 5.000 FEET

WELL PENETRATION DEPTH = 6.500 FEET

AQUIFER THICKNESS = 13.000 FEET

STATIC WATER LEVEL = 15.480 FEET

UIFER CONDUCTIVITY IS = .975E-02 CM/SEC

OR .207E+03 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .386E+01 CM*CM/SEC

OR .269E+04 GAL/FT/DAY

###

CENSORED DATA END POINTS ARE ::
START TIME IS = .000E+00 SECONDS

END TIME IS = .100E+02 SECONDS

##

enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 13.000 FEET

STATIC WATER LEVEL = 15.480 FEET

AQUIFER CONDUCTIVITY IS = .975E-02 CM/SEC

OR .207E+03 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .386E+01 CM*CM/SEC

```
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
IW5
enter no. of characters in well id. no.
3
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
22
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

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                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    4IW5

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER     =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =         2.000 INCHES

 SCREEN LENGTH               =       5.000 FEET

 WELL PENETRATION DEPTH      =       6.500 FEET

 AQUIFER THICKNESS           =      22.000 FEET

 STATIC WATER LEVEL          =      15.480 FEET
```

```
 AQUIFER CONDUCTIVITY IS    =     .947E-02 CM/SEC

                           OR    .201E+03 GAL/FT/FT/DAY

   JIFER TRANSMISSIVITY IS =     .635E+01 CM*CM/SEC

                           OR    .442E+04 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =     .000E+00 SECONDS

 END TIME IS                =     .100E+02 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS          =       22.000 FEET

 STATIC WATER LEVEL         =       15.480 FEET

 AQUIFER CONDUCTIVITY IS    =     .947E-02 CM/SEC

                           OR    .201E+03 GAL/FT/FT/DAY

   JIFER TRANSMISSIVITY IS =     .635E+01 CM*CM/SEC

                           OR    .442E+04 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =     .000E+00 SECONDS

 END TIME IS                =     .100E+02 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

3
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
1[illegible]
   ER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
6.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
```

```
40
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     4 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
1
 enter  baildown start time --- TS
0
 enter baildown end time ----- TE
10
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =     1.0917
       LINE   SLOPE   IS  =    -.231227

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
```

IW4

Ready File 3IW4

SE10000
Environmental Logger
04/28 12:58

Unit# 00065 Test# 3

INPUT 1: Level (F)

Reference 15.25
Scale factor 9.97
Offset - 0.05

Step# 0 04/28 12:40

Elapsed Time	Value
0.0000	15.24
0.0033	15.24
0.0066	12.91
0.0099	12.37
0.0133	12.08
0.0166	12.95
0.0200	12.90
0.0233	13.45
0.0266	11.85
0.0300	11.73
0.0333	11.87
0.0500	11.14
0.0666	11.57
0.0833	11.93
0.1000	12.23
0.1166	12.49
0.1333	12.75
0.1500	12.95
0.1666	13.15
0.1833	13.34
0.2000	13.50
0.2166	13.64
0.2333	13.77
0.2500	13.89
0.2666	14.00
0.2833	14.09
0.3000	14.19
0.3166	14.27
0.3333	14.35
0.4167	14.64
0.5000	14.82
0.5833	14.94
0.6667	15.02
0.7500	15.08
0.8333	15.11
0.9167	15.13
1.0000	15.15
1.0833	15.17
1.1667	15.17
1.2500	15.18
1.3333	15.19
1.4166	15.19
1.5000	15.19
1.5833	15.20
1.6667	15.20
1.7500	15.20
1.8333	15.20
1.9167	15.21
2.0000	15.21
2.5000	15.21
3.0000	15.21
3.5000	15.21
4.0000	15.21
4.5000	15.21
5.0000	15.21
5.5000	15.22
6.0000	15.22
6.5000	15.22
7.0000	15.22
7.5000	15.22
8.0000	15.22
8.5000	15.22
9.0000	15.23
9.5000	15.23
10.0000	15.23
12.0000	15.24

END

xxxxyzzzzxxx

y z
SE10000
Environmental Logger
04/26 11:39
Test 0 IW1
Unit# 00065 Test# 0
File - 0IW4
INPUT 1: Level (F)

Reference 15.36
Scale factor 9.97
Offset - 0.05

Step# 0 04/26 11:04

Elapsed Time	Value
0.0000	15.18
0.0033	15.18
0.0066	15.18
0.0099	15.18
0.0133	15.18
0.0166	15.18
0.0200	15.19
0.0233	15.19
0.0266	14.61
0.0300	14.02
0.0333	13.44
0.0500	12.36
0.0666	11.56
0.0833	10.75
0.1000	10.07
0.1166	10.95
0.1333	11.02
0.1500	11.10
0.1666	11.18
0.1833	11.25
0.2000	11.33
0.2166	11.38
0.2333	11.44
0.2500	11.51
0.2666	11.57
0.2833	11.63
0.3000	11.70
0.3166	11.78
0.3333	11.82
0.4167	12.11
0.5000	12.36
0.5833	12.59
0.6667	12.80
0.7500	12.98
0.8333	13.15
0.9167	13.30
1.0000	13.44
1.0833	13.57
1.1667	13.69
1.2500	13.80
1.3333	13.90
1.4166	14.00
1.5000	14.09
1.5833	14.17
1.6667	14.25
1.7500	14.32
1.8333	14.38
1.9167	14.44
2.0000	14.50
2.5000	14.78
3.0000	14.95
3.5000	15.05
4.0000	15.10
4.5000	15.13
5.0000	15.15
5.5000	15.16
6.0000	15.16
6.5000	15.17
7.0000	15.17
7.5000	15.17
8.0000	15.17
8.5000	15.18
9.0000	15.17
9.5000	15.18
10.0000	15.18
12.0000	15.18
14.0000	15.18
16.0000	15.18
18.0000	15.18
20.0000	15.18
22.0000	15.18
24.0000	15.18
26.0000	15.18

END

File 1IW1D

Ready Test IW1 Dup

SE10000
Environmental Logger
04/26 12:09

Unit# 00065 Test# 1

INPUT 1: Level (F)

Reference 15.36
Scale factor 9.97
Offset - 0.05

Step# 0 04/26 11:58

Elapsed Time	Value
0.0000	15.18
0.0033	15.18
0.0066	15.18
0.0099	15.18
0.0133	15.18
0.0166	15.18
0.0200	15.18
0.0233	15.18
0.0266	15.18
0.0300	15.19
0.0333	14.89
0.0500	12.94
0.0666	11.17
0.0833	10.77
0.1000	10.92
0.1166	11.02
0.1333	11.12
0.1500	11.21
0.1666	11.29
0.1833	11.37
0.2000	11.45
0.2166	11.51
0.2333	11.61
0.2500	11.65
0.2666	11.75
0.2833	11.81
0.3000	11.80
0.3166	11.95
0.3333	12.01
0.4167	12.31
0.5000	12.57
0.5833	12.80
0.6667	13.02
0.7500	13.21
0.8333	13.39
0.9167	13.55
1.0000	13.70
1.0833	13.84
1.1667	13.96
1.2500	14.07
1.3333	14.18
1.4166	14.27
1.5000	14.36
1.5833	14.44
1.6667	14.51
1.7500	14.58
1.8333	14.63
1.9167	14.68
2.0000	14.72
2.5000	14.92
3.0000	15.03
3.5000	15.09
4.0000	15.13
4.5000	15.14
5.0000	15.16
5.5000	15.16
6.0000	15.17
6.5000	15.17
7.0000	15.18
7.5000	15.18
8.0000	15.18
8.5000	15.18
9.0000	15.19

END

IW5

Ready

File 3IW5

SE10000
Environmental Logger
04/26 17:08

Unit# 00065 Test# 3

INPUT 1: Level (F)

Reference 15.48
Scale factor 9.97
Ready

SE10000
Environmental Logger
04/26 17:09

Unit# 00065 Test# 3

INPUT 1: Level (F)

Reference 15.48
Scale factor 9.97
Offset - 0.05

Step# 0 04/26 16:57

Elapsed Time	Value
0.0000	15.47
0.0033	15.47
0.0066	15.47
0.0099	15.47
0.0133	15.47
0.0166	15.47
0.0200	15.47
0.0233	15.47
0.0266	15.47
0.0300	15.46
0.0333	15.44
0.0500	14.37
0.0666	13.24
0.0833	12.51
0.1000	13.02
0.1166	13.63
0.1333	14.05
0.1500	14.37
0.1666	14.62
0.1833	14.81
0.2000	14.95
0.2166	15.07
0.2333	15.14
0.2500	15.21
0.2666	15.26
0.2833	15.30
0.3000	15.33
0.3166	15.36
0.3333	15.37
0.4167	15.42
0.5000	15.44
0.5833	15.45
0.6667	15.45
0.7500	15.46
0.8333	15.46
0.9167	15.46
1.0000	15.46
1.0833	15.46
1.1667	15.47
1.2500	15.47
1.3333	15.47
1.4166	15.47
1.5000	15.47
1.5833	15.47
1.6667	15.47
1.7500	15.47
1.8333	15.47
1.9167	15.47
2.0000	15.46
2.5000	15.46
3.0000	15.47
3.5000	15.46
4.0000	15.46
4.5000	15.46
5.0000	15.47
5.5000	15.47
6.0000	15.47
6.5000	15.46

END

2nd IW5

```
xxxxxxxx  zzzz  xx
      x         xxxxxxz  z
 xxzzz     xx      xzzz
xx    xx         x zxx
  xx  xxxx              xx
xxxxxx zyz          x
xxxxxx y            xxxxxx
xxxx xzyz y         xzxxxz
 yz xx zz z           x
 xxxx     y y           x
xy            xxxzyzzzzxxx
xxxxxzzy z
```

File 4IW5

SE10000
Environmental Logger
04/26 20:45

Unit# 00065 Test# 4

INPUT 1: Level (F)

Reference 15.48
Scale factor 9.97
Offset - 0.05

Step# 0 04/26 17:20

Elapsed Time	Value
0.0000	15.47
0.0033	15.11
0.0066	14.40
0.0099	14.04
0.0133	13.07
0.0166	13.00
0.0200	13.37
0.0233	13.39
0.0266	13.60
0.0300	12.69
0.0333	12.53
0.0500	12.32
0.0666	13.06
0.0833	13.62
0.1000	14.03
0.1166	14.34
0.1333	14.57
0.1500	14.76
0.1666	14.90
0.1833	15.01
0.2000	15.10
0.2166	15.17
0.2333	15.23
0.2500	15.27
0.2666	15.30
0.2833	15.33
0.3000	15.35
0.3166	15.36
0.3333	15.38
0.4167	15.42
0.5000	15.44
0.5833	15.45
0.6667	15.45
0.7500	15.46
0.8333	15.46
0.9167	15.46
1.0000	15.46
1.0833	15.47
1.1667	15.47
1.2500	15.47
1.3333	15.47
1.4166	15.47
1.5000	15.47
1.5833	15.47
1.6667	15.47
1.7500	15.47
1.8333	15.47
1.9167	15.47
2.0000	15.47
2.5000	15.47

END

Ready

IW3

SE10000
Environmental Logger
04/27 14:25

File 4IW3

Unit# 00065 Test# 4

INPUT 1: Level (F)

Reference 16.51
Scale factor 9.97
Offset - 0.05

Step# 0 04/27 13:56

Elapsed Time	Value
0.0000	16.50
0.0033	15.45
0.0066	14.83
0.0099	15.16
0.0133	14.53
0.0166	15.20
0.0200	15.58
0.0233	12.65
0.0266	13.50
0.0300	14.02
0.0333	12.64
0.0500	12.68
0.0666	13.13
0.0833	13.52
0.1000	13.84
0.1166	14.13
0.1333	14.38
0.1500	14.60
0.1666	14.79
0.1833	14.90
0.2000	15.14
0.2166	15.29
0.2333	15.42
0.2500	15.53
0.2666	15.63
0.2833	15.72
0.3000	15.80
0.3166	15.87
0.3333	15.94
0.4167	16.17
0.5000	16.29
0.5833	16.36
0.6667	16.41
0.7500	16.43
0.8333	16.44
0.9167	16.45
1.0000	16.45
1.0833	16.46
1.1667	16.46
1.2500	16.46
1.3333	16.46
1.4166	16.46
1.5000	16.46
1.5833	16.46
1.6667	16.46
1.7500	16.46
1.8333	16.46
1.9167	16.47
2.0000	16.47
2.5000	16.47
3.0000	16.47
3.5000	16.48
4.0000	16.48
4.5000	16.48
5.0000	16.48
5.5000	16.48
6.0000	16.47
6.5000	16.48
7.0000	16.48
7.5000	16.49
8.0000	16.49
8.5000	16.49
9.0000	16.48
9.5000	16.49
10.0000	16.49
12.0000	16.49
14.0000	16.49
16.0000	16.48
18.0000	16.48

END

```
01234567891!(=)?@ABCDE
01234567891!(=)?@ABCDEF
12345678911(=)?@ABCDEFG
23456789!!(=)?@ABCDEFGHI
34567891!(=)?@ABCDEFGHIJ
45678911(=)?@ABCDEFGHIJK
56789!!(=)?@ABCDEFGHIJKL
Ready
```

SE10000
Environmental Logger
04/27 11:39

File 2IW2

Unit# 00065 Test# 2

IW-2

INPUT 1: Level (F)

Reference 15.95
Scale factor 9.97
Offset - 0.05

Step# 0 04/27 11:38

Elapsed Time	Value
0.0000	15.94
0.0033	15.93
0.0066	15.95
0.0099	14.04
0.0133	13.72
0.0166	13.90
0.0200	13.91
0.0233	13.34
0.0266	14.47
0.0300	14.84
0.0333	14.09
0.0500	13.06
0.0666	13.24
0.0033	13.88
0.1000	14.35
0.1166	14.70
0.1333	14.97
0.1500	15.18
0.1666	15.33
0.1833	15.46
0.2000	15.56
0.2166	15.64
0.2333	15.70
0.2500	15.75
0.2666	15.78
0.2833	15.79
0.3000	15.83
0.3166	15.85
0.3333	15.86
0.4167	15.90
0.5000	15.92
0.5833	15.92
0.6667	15.92
0.7500	15.93
0.8333	15.93
0.9167	15.93
1.0000	15.93
1.0833	15.93
1.1667	15.93
1.2500	15.93
1.3333	15.93
1.4166	15.93
1.5000	15.93
1.5833	15.93
1.6667	15.93
1.7500	15.93
1.8333	15.93
1.9167	15.93
2.0000	15.93
2.5000	15.93
3.0000	15.94
3.5000	15.94
4.0000	15.94
4.5000	15.94
5.0000	15.94
5.5000	15.93

Environmental Logger
04/28 11:03
SV 9A
Unit# 00065 Test# 0
File: SV9A
INPUT 1: Level (F)

Reference 8.84
Scale factor 9.97
Offset - 0.05

Step# 0 04/28 09:57

Elapsed Time	Value
0.0000	8.82
0.0033	8.81
0.0066	6.89
0.0099	7.00
0.0133	8.41
0.0166	7.21
0.0200	7.21
0.0233	7.23
0.0266	7.23
0.0300	7.25
0.0333	7.26
0.0500	7.29
0.0666	7.32
0.0833	7.34
0.1000	7.37
0.1166	7.39
0.1333	7.41
0.1500	7.44
0.1666	7.46
0.1833	7.49
0.2000	7.51
0.2166	7.53
0.2333	7.55
0.2500	7.57
0.2666	7.60
0.2833	7.62
0.3000	7.64
0.3166	7.66
0.3333	7.68
0.4167	7.78
0.5000	7.87
0.5833	7.95
0.6667	8.02
0.7500	8.08
0.8333	8.13
0.9167	8.17
1.0000	8.21
1.0833	8.24
1.1667	8.27
1.2500	8.30
1.3333	8.33
1.4166	8.36
1.5000	8.38
1.5833	8.40
1.6667	8.42
1.7500	8.44
1.8333	8.46
1.9167	8.48
2.0000	8.50
2.5000	8.59
3.0000	8.66
3.5000	8.70
4.0000	8.74
4.5000	8.76
5.0000	8.78
5.5000	8.79
6.0000	8.79
6.5000	8.80
7.0000	8.80
7.5000	8.81
8.0000	8.81
8.5000	8.81
9.0000	8.81
9.5000	8.81
10.0000	8.81
12.0000	8.81

END

!"#$%&'()*+,-./0123456789
"#$%&'()*+,-./0123456789:
#$%&'()*+,-./0123456789:;

Ready

SE10000
Environmental Logger
04/27 20:19

Unit# 00065 Test# 5
File: SW8
INPUT 1: Level (F)

Reference 8.84
Scale factor 9.97
Offset - 0.05

Step# 0 04/27 18:00

Elapsed Time	Value
0.0000	8.84
0.0033	8.84
0.0066	8.74
0.0099	8.75
0.0133	8.52
0.0166	8.31
0.0200	8.22
0.0233	7.62
0.0266	7.02
0.0300	7.43
0.0333	8.03
0.0500	6.37
0.0666	6.56
0.0833	6.56
0.1000	6.55
0.1166	6.57
0.1333	6.57
0.1500	6.58
0.1666	6.58
0.1833	6.58
0.2000	6.59
0.2166	6.59
0.2333	6.59
0.2500	6.60
0.2666	6.60
0.2833	6.60
0.3000	6.60
0.3166	6.60
0.3333	6.61
0.4167	6.62
0.5000	6.62
0.5833	6.63
0.6667	6.63
0.7500	6.63
0.8333	6.64
0.9167	6.65
1.0000	6.65
1.0833	6.66
1.1667	6.66
1.2500	6.67
1.3333	6.68
1.4166	6.68
1.5000	6.69
1.5833	6.69
1.6667	6.69
1.7500	6.70
1.8333	6.70
1.9167	6.71
2.0000	6.71
2.5000	6.74
3.0000	6.77
3.5000	6.78
4.0000	6.81
4.5000	6.83
5.0000	6.85
5.5000	6.87
6.0000	6.89
6.5000	6.91
7.0000	6.93
7.5000	6.95
8.0000	6.98
8.5000	6.99
9.0000	7.01
9.5000	7.03
10.0000	7.05
12.0000	7.12
14.0000	7.19
16.0000	7.24
18.0000	7.31
20.0000	7.37
22.0000	7.41
24.0000	7.47
26.0000	7.51
28.0000	7.57
30.0000	7.62
32.0000	7.66
34.0000	7.70
36.0000	7.74
38.0000	7.78
40.0000	7.81
42.0000	7.85
44.0000	7.88
46.0000	7.91
48.0000	7.94
50.0000	7.97
52.0000	8.00
54.0000	8.03
56.0000	8.05
58.0000	8.08
60.0000	8.10
62.0000	8.13
64.0000	8.15
66.0000	8.17
68.0000	8.20
70.0000	8.21
72.0000	8.23
74.0000	8.25
76.0000	8.27
78.0000	8.28
80.0000	8.30
82.0000	8.31
84.0000	8.33
86.0000	8.34
88.0000	8.36
90.0000	8.37
92.0000	8.38
94.0000	8.40
96.0000	8.41
98.0000	8.42
100.000	8.43
110.000	8.48
120.000	8.51

END

SE10000
Environmental Logger
04/28 12:13
IW 4
Unit# 00065 Test# 2
File: AIW4
INPUT 1: Level (F)

Reference 15.25
Scale factor 9.97
Offset - 0.05

Step# 0 04/28 11:54

Elapsed Time	Value
0.0000	15.22
0.0033	15.00
0.0066	12.95
0.0099	11.78
0.0133	11.49
0.0166	12.69
0.0200	12.69
0.0233	12.72
0.0266	11.87
0.0300	12.01
0.0333	11.84
0.0500	11.21
0.0666	11.63
0.0833	11.99
0.1000	12.28
0.1166	12.58
0.1333	12.80
0.1500	13.02
0.1666	13.22
0.1833	13.40
0.2000	13.55
0.2166	13.70
0.2333	13.82
0.2500	13.94
0.2666	14.05
0.2833	14.14
0.3000	14.22
0.3166	14.31
0.3333	14.38
0.4167	14.66
0.5000	14.84
0.5833	14.95
0.6667	15.01
0.7500	15.06
0.8333	15.10
0.9167	15.11
1.0000	15.12
1.0833	15.14
1.1667	15.15
1.2500	15.16
1.3333	15.16
1.4166	15.16
1.5000	15.15
1.5833	15.16
1.6667	15.16
1.7500	15.17
1.8333	15.16
1.9167	15.17
2.0000	15.17
2.5000	15.17
3.0000	15.17
3.5000	15.18
4.0000	15.18
4.5000	15.17
5.0000	15.17
5.5000	15.17
6.0000	15.17
6.5000	15.16
7.0000	15.16
7.5000	15.16
8.0000	15.17
8.5000	15.17
9.0000	15.24
9.5000	15.24
10.0000	15.24
12.0000	15.22

END

SW-11

SE10000
Environmental Logger
04/28 19:33

Unit# 00065 Test# 4
File 4SW11
INPUT 1: Level (F)

Reference 12.19
Scale factor 9.97
Offset - 0.05

Step# 0 04/28 18:38

Elapsed Time	Value
0.0000	12.17
0.0033	12.17
0.0066	12.07
0.0099	11.61
0.0133	10.57
0.0166	9.74
0.0200	10.04
0.0233	11.11
0.0266	12.26
0.0300	11.20
0.0333	9.40
0.0500	10.77
0.0666	10.70
0.0833	10.70
0.1000	10.71
0.1166	10.71
0.1333	10.72
0.1500	10.73
0.1666	10.74
0.1833	10.74
0.2000	10.74
0.2166	10.75
0.2333	10.75
0.2500	10.75
0.2666	10.76
0.2833	10.76
0.3000	10.76
0.3166	10.77
0.3333	10.77
0.4167	10.78
0.5000	10.78
0.5833	10.79
0.6667	10.79
0.7500	10.80
0.8333	10.80
0.9167	10.81
1.0000	10.81
1.0833	10.82
1.1667	10.82
1.2500	10.82
1.3333	10.83
1.4166	10.83
1.5000	10.83
1.5833	10.84
1.6667	10.84
1.7500	10.85
1.8333	10.85
1.9167	10.85
2.0000	10.85
2.5000	10.87
3.0000	10.89
3.5000	10.90
4.0000	10.92
4.5000	10.93
5.0000	10.95
5.5000	10.96
6.0000	10.97
6.5000	10.98
7.0000	10.99
7.5000	11.01
8.0000	11.02
8.5000	11.03
9.0000	11.04
9.5000	11.05
10.0000	11.06
12.0000	11.10
14.0000	11.14
16.0000	11.18
18.0000	11.21
20.0000	11.25
22.0000	11.28
24.0000	11.31
26.0000	11.34
28.0000	11.37
30.0000	11.40
32.0000	11.42
34.0000	11.45
36.0000	11.47
38.0000	11.49
40.0000	11.52
42.0000	11.54
44.0000	11.56
46.0000	11.58
48.0000	11.60
50.0000	11.62
52.0000	11.64
54.0000	11.65
56.0000	11.67
58.0000	11.68
60.0000	11.70

END

5SW5

Ready SW-15
1

SE10000
Environmental Logger
04/26 20:29

Unit# 00065 Test# 5
File 5SW15
INPUT 1: Level (F)

Reference 10.99
Scale factor 9.97
Offset - 0.05

Step# 0 04/26 19:32

Elapsed Time	Value
0.0000	10.70
0.0033	10.81
0.0066	9.31
0.0099	9.56
0.0133	9.07
0.0166	9.79
0.0200	10.19
0.0233	6.85
0.0266	9.84
0.0300	7.74
0.0333	8.12
0.0500	8.03
0.0666	8.03
0.0833	8.05
0.1000	8.07
0.1166	8.08
0.1333	8.09
0.1500	8.11
0.1666	8.12
0.1833	8.13
0.2000	8.14
0.2166	8.15
0.2333	8.16
0.2500	8.17
0.2666	8.18
0.2833	8.19
0.3000	8.20
0.3166	8.21
0.3333	8.21
0.4167	8.26
0.5000	8.30
0.5833	8.33
0.6667	8.37
0.7500	8.40
0.8333	8.44
0.9167	8.47
1.0000	8.50
1.0833	8.53
1.1667	8.56
1.2500	8.59
1.3333	8.62
1.4166	8.65
1.5000	8.67
1.5833	8.70
1.6667	8.73
1.7500	8.75
1.8333	8.78
1.9167	8.80
2.0000	8.83
2.5000	8.96
3.0000	9.09
3.5000	9.20
4.0000	9.30
4.5000	9.40
5.0000	9.49
5.5000	9.57
6.0000	9.64
6.5000	9.71
7.0000	9.78
7.5000	9.84
8.0000	9.90
8.5000	9.96
9.0000	10.01
9.5000	10.06
10.0000	10.10
12.0000	10.27
14.0000	10.39
16.0000	10.49
18.0000	10.57
20.0000	10.63
22.0000	10.69
24.0000	10.74
26.0000	10.77
28.0000	10.80
30.0000	10.83

END

Ready
xxxxxxxx zzz xx
x xxxxxxz z
zxx zzz xx xzzz x
x x y x zxx
xx xxxx xx
xxxxxx yzz x
Ready

SE10000
Environmental Logger
04/28 17:02
SW-17
Unit# 00065 Test# 3
File 3SW17
INPUT 1: Level (F)

Reference 16.08
Scale factor 10.02
Offset - 0.02

Step# 0 04/28 16:42

Elapsed Time	Value
0.0000	16.07
0.0033	16.03
0.0066	15.16
0.0099	14.35
0.0133	13.07
0.0166	11.95
0.0200	13.09
0.0233	13.35
0.0266	12.67
0.0300	12.00
0.0333	12.93
0.0500	11.66
0.0666	11.94
0.0833	12.08
0.1000	12.19
0.1166	12.30
0.1333	12.40
0.1500	12.49
0.1666	12.58
0.1833	12.67
0.2000	12.74
0.2166	12.82
0.2333	12.89
0.2500	12.96
0.2666	13.03
0.2833	13.10
0.3000	13.17
0.3166	13.23
0.3333	13.29
0.4167	13.57
0.5000	13.81
0.5833	14.03
0.6667	14.22
0.7500	14.40
0.8333	14.56
0.9167	14.70
1.0000	14.83
1.0833	14.95
1.1667	15.05
1.2500	15.15
1.3333	15.24
1.4166	15.31
1.5000	15.39
1.5833	15.45
1.6667	15.51
1.7500	15.57
1.8333	15.61
1.9167	15.65
2.0000	15.69
2.5000	15.87
3.0000	15.96
3.5000	16.01
4.0000	16.04
4.5000	16.05
5.0000	16.06
5.5000	16.07
6.0000	16.07
6.5000	16.08
7.0000	16.08
7.5000	16.08
8.0000	16.08
8.5000	16.08
9.0000	16.07
9.5000	16.08
10.0000	16.08

END

SW9AD

SE10000
Environmental Logger
04/28 18:38
File 1SW9AD
Unit# 00065 Test# 1

INPUT 1: Level (F)

Reference 8.04
Scale factor 9.97
Offset - 0.05

Step# 0 04/28 18:34

Elapsed Time	Value
0.0000	8.83
0.0033	8.74
0.0066	7.72
0.0099	7.61
0.0133	8.19
0.0166	7.14
0.0200	7.21
0.0233	7.22
0.0266	7.23
0.0300	7.25
0.0333	7.26
0.0500	7.29
0.0666	7.31
0.0833	7.34
0.1000	7.37
0.1166	7.39
0.1333	7.41
0.1500	7.44
0.1666	7.46
0.1833	7.49
0.2000	7.51
0.2166	7.53
0.2333	7.56
0.2500	7.58
0.2666	7.60
0.2833	7.62
0.3000	7.64
0.3166	7.67
0.3333	7.68
0.4167	7.79
0.5000	7.88
0.5833	7.97
0.6667	8.03
0.7500	8.09
0.8333	8.14
0.9167	8.18
1.0000	8.21
1.0833	8.25
1.1667	8.27
1.2500	8.30
1.3333	8.32
1.4166	8.35
1.5000	8.37
1.5833	8.39
1.6667	8.42
1.7500	8.43
1.8333	8.45
1.9167	8.47
2.0000	8.49
2.5000	8.57
3.0000	8.63
3.5000	8.68
4.0000	8.72
4.5000	8.74
5.0000	8.77
5.5000	8.78
6.0000	8.78
6.5000	8.79
7.0000	8.80
7.5000	8.80
8.0000	8.81
8.5000	8.81
9.0000	8.81
9.5000	8.81
10.0000	8.81
12.0000	8.82

END

Ready DW2 File 3DW2

SE10000
Environmental Logger
04/27 13:06

Unit# 00065 Test# 3

INPUT 1: Level (F)

Reference 16.15
Scale factor 9.97
Offset - 0.05

Step# 0 04/27 12:43

Elapsed Time	Value
0.0000	14.20
0.0033	13.63
0.0066	12.80
0.0099	12.17
0.0133	11.80
0.0166	12.00
0.0200	12.32
0.0233	12.31
0.0266	11.80
0.0300	11.54
0.0333	11.60
0.0500	11.91
0.0666	12.10
0.0833	12.20
0.1000	12.44
0.1166	12.61
0.1333	12.75
0.1500	12.89
0.1666	13.02
0.1833	13.15
0.2000	13.27
0.2166	13.38
0.2333	13.49
0.2500	13.60
0.2666	13.70
0.2833	13.79
0.3000	13.89
0.3166	13.98
0.3333	14.07
0.4167	14.47
0.5000	14.81
0.5833	15.08
0.6667	15.29
0.7500	15.40
0.8333	15.62
0.9167	15.74
1.0000	15.83
1.0833	15.91
1.1667	15.97
1.2500	16.01
1.3333	16.04
1.4166	16.06
1.5000	16.09
1.5833	16.10
1.6667	16.11
1.7500	16.12
1.8333	16.12
1.9167	16.12
2.0000	16.13
2.5000	16.13
3.0000	16.14
3.5000	16.15
4.0000	16.15
4.5000	16.16
5.0000	16.15
5.5000	16.13
6.0000	16.11
6.5000	16.10
7.0000	16.09
7.5000	16.09
8.0000	16.10
8.5000	16.10
9.0000	16.11
9.5000	16.12
10.0000	16.12
12.0000	16.16
14.0000	16.15
16.0000	16.10
18.0000	16.13
20.0000	16.14

END

File ODW1

Ready Well DW1

Ready

SE10000
Environmental Logger
04/27 10:04
Tested pull string just before
Unit# 00065 Test# 0

INPUT 1: Level (F)

Reference 15.31
Scale factor 9.97
Offset - 0.05

Step# 0 04/27 09:22

Elapsed Time	Value
0.0000	15.18
0.0033	14.71
0.0066	14.37
0.0099	13.74
0.0133	12.42
0.0166	11.50
0.0200	11.68
0.0233	13.15
0.0266	12.83
0.0300	11.41
0.0333	11.94
0.0500	10.69
0.0666	10.83
0.0833	10.91
0.1000	10.97
0.1166	11.03
0.1333	11.11
0.1500	11.18
0.1666	11.23
0.1833	11.28
0.2000	11.35
0.2166	11.39
0.2333	11.44
0.2500	11.48
0.2666	11.55
0.2833	11.58
0.3000	11.61
0.3166	11.68
0.3333	11.70
0.4167	11.91
0.5000	12.11
0.5833	12.28
0.6667	12.44
0.7500	12.58
0.8333	12.73
0.9167	12.88
1.0000	13.01
1.0833	13.11
1.1667	13.22
1.2500	13.32
1.3333	13.42
1.4166	13.52
1.5000	13.60
1.5833	13.69
1.6667	13.77
1.7500	13.83
1.8333	13.91
1.9167	13.96
2.0000	14.03
2.5000	14.35
3.0000	14.57
3.5000	14.74
4.0000	14.85
4.5000	14.94
5.0000	15.02
5.5000	15.07
6.0000	15.12
6.5000	15.14
7.0000	15.17
7.5000	15.18
8.0000	15.19
8.5000	15.20
9.0000	15.21
9.5000	15.22
10.0000	15.22
12.0000	15.22
14.0000	15.23
16.0000	15.24
18.0000	15.23
20.0000	15.24
22.0000	15.25
24.0000	15.23
26.0000	15.23
28.0000	15.24
30.0000	15.26
32.0000	15.24
34.0000	15.24
36.0000	15.24

END

Ready

SE10000
Environmental Logger
04/27 10:54

Unit# 00065 Test# 1
Ready
File 1DW1D

SE10000
Environmental Logger
04/27 10:55
DW-1
Unit# 00065 Test# 1

INPUT 1: Level (F)

Reference 15.31
Scale factor 9.97
Offset - 0.05

Step# 0 04/27 10:30

Elapsed Time	Value
0.0000	15.34
0.0033	15.20
0.0066	14.77
0.0099	13.65
0.0133	13.06
0.0166	13.19
0.0200	13.72
0.0233	13.40
0.0266	12.61
0.0300	12.11
0.0333	11.51
0.0500	10.56
0.0666	10.83
0.0833	10.91
0.1000	10.98
0.1166	11.07
0.1333	11.15
0.1500	11.16
0.1666	11.24
0.1833	11.29
0.2000	11.35
0.2166	11.38
0.2333	11.45
0.2500	11.50
0.2666	11.54
0.2833	11.59
0.3000	11.63
0.3166	11.67
0.3333	11.72
0.4167	11.94
0.5000	12.12
0.5833	12.38
0.6667	12.47
0.7500	12.62
0.8333	12.76
0.9167	12.89
1.0000	13.03
1.0833	13.15
1.1667	13.26
1.2500	13.36
1.3333	13.46
1.4166	13.55
1.5000	13.64
1.5833	13.73
1.6667	13.80
1.7500	13.89
1.8333	13.95
1.9167	14.02
2.0000	14.08
2.5000	14.38
3.0000	14.68
3.5000	14.77
4.0000	14.89
4.5000	14.98
5.0000	15.06
5.5000	15.11
6.0000	15.14
6.5000	15.18
7.0000	15.20
7.5000	15.21
8.0000	15.21
8.5000	15.24
9.0000	15.24
9.5000	15.25
10.0000	15.25
12.0000	15.26
14.0000	15.25
16.0000	15.26
18.0000	15.25

END

Ready

```
xxxxxxxx   zzz  xx
       x       xxxxxxz
z xx  zz y xx      xzzz
 xx    xz y     xzzxx
   xx  xxxx            x
xxxxxxx  y zy       x
 xxxxxx yz          xxxxx
xxxxx xzyz          xzxxx
z  z xx  z zyy        x
  xxxx       y y
xx           xxxzyzzzxx
xxxxxx  y    xxxzyzz  xx
xxxxxxz y
```

SE10000
Environmental Logger
04/26 15:30
Test 2 DW3
Unit# 00065 Test# 2
File-2DW3
INPUT 1: Level (F)

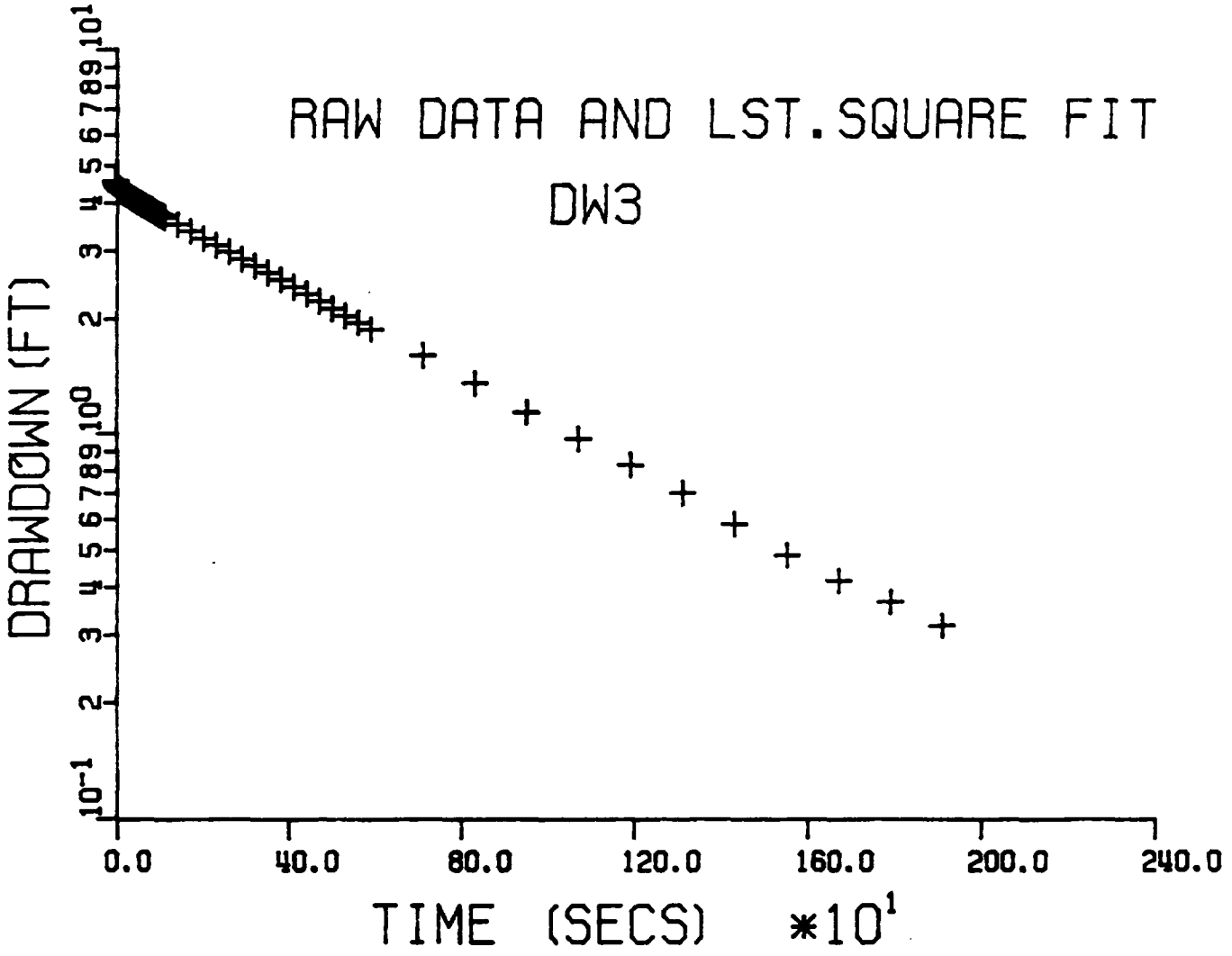
Reference 15.40
Scale factor 9.97
Offset - 0.05

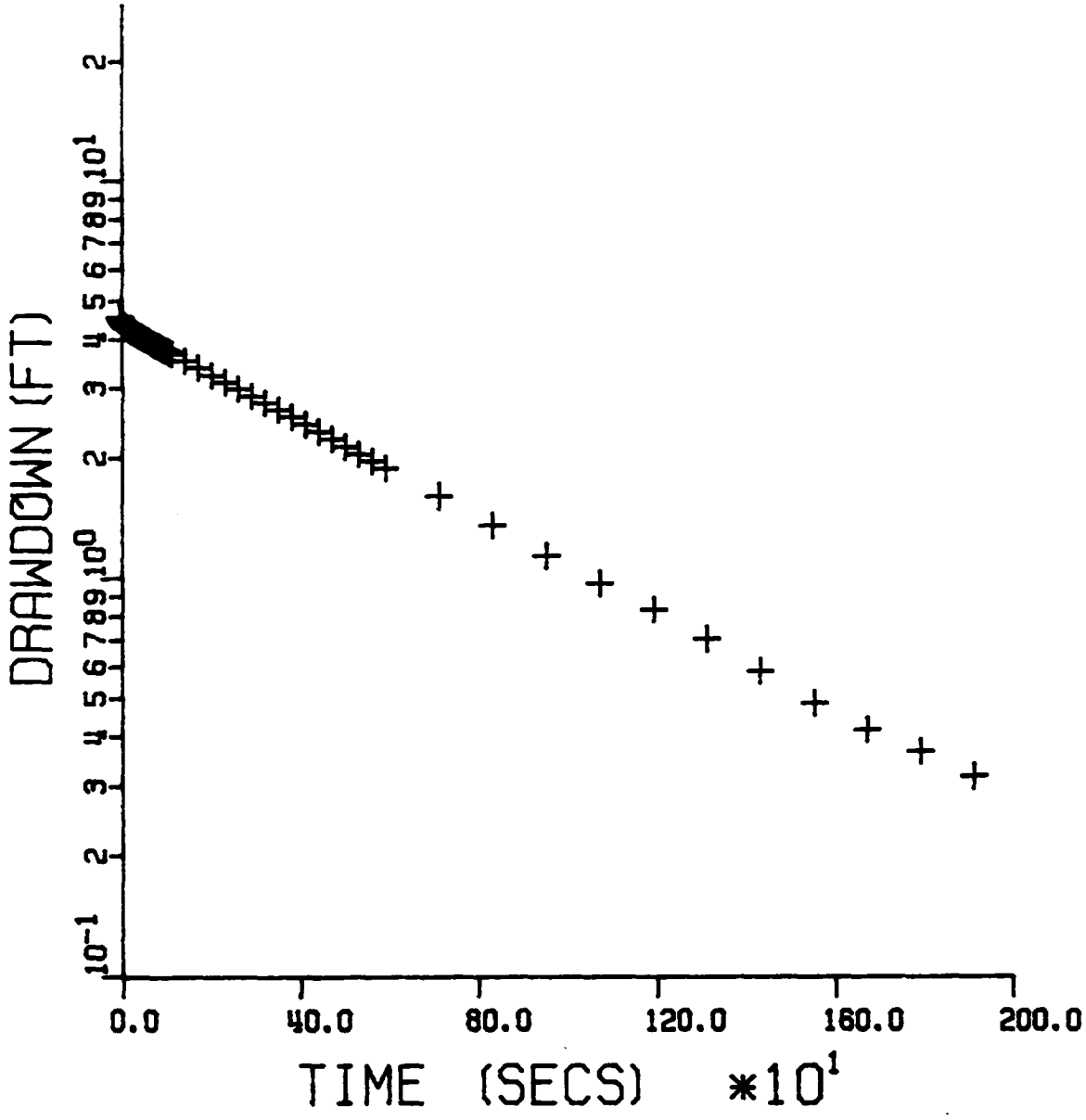
Step# 0 04/26 14:52

Elapsed Time	Value
0.0000	15.39
0.0033	15.39
0.0066	15.39
0.0099	15.39
0.0133	15.39
0.0166	15.39
0.0200	15.39
0.0233	15.39
0.0266	15.39
0.0300	15.37
0.0333	15.40
0.0500	13.95
0.0666	11.91
0.0833	11.46
0.1000	10.79
0.1166	10.84
0.1333	10.88
0.1500	10.90
0.1666	10.93
0.1833	10.95
0.2000	10.97
0.2166	10.98
0.2333	10.99
0.2500	11.01
0.2666	11.02
0.2833	11.04
0.3000	11.05
0.3166	11.06
0.3333	11.07
0.4167	11.11
0.5000	11.16
0.5833	11.19
0.6667	11.22
0.7500	11.26
0.8333	11.29
0.9167	11.32
1.0000	11.35
1.0833	11.38
1.1667	11.41
1.2500	11.44
1.3333	11.47
1.4166	11.50
1.5000	11.52
1.5833	11.55
1.6667	11.58
1.7500	11.61
1.8333	11.63
1.9167	11.66
2.0000	11.69
2.5000	11.84
3.0000	11.98
3.5000	12.13
4.0000	12.26
4.5000	12.38
5.0000	12.51
5.5000	12.62
6.0000	12.73
6.5000	12.84
7.0000	12.95
7.5000	13.05
8.0000	13.15
8.5000	13.25
9.0000	13.34
9.5000	13.42
10.0000	13.50
12.0000	13.78
14.0000	14.03
16.0000	14.25
18.0000	14.42
20.0000	14.56
22.0000	14.69
24.0000	14.81
26.0000	14.91
28.0000	14.98
30.0000	15.03
32.0000	15.08

END

90% recovery


RAW DATA AND LST.SQUARE FIT
DW3
DRAWDOWN (FT)
TIME (SECS) *10^1
0.0
40.0
80.0
120.0
160.0
200.0
240.0
10^-1
10^0
10^1


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
3
4
5
6
7
8
9
10^{1}
2
0.0
40.0
80.0
120.0
160.0
200.0
TIME (SECS) $*10^{1}$

BAIL DOWN PARAMETERS FOR 2DW3

@ @@@

EFFECTIVE WELL DIAMETER = 6.000 INCHES

EFFECTIVE SCREEN DIAMETER = 2.000 INCHES

SCREEN LENGTH = 3.000 FEET

WELL PENETRATION DEPTH = 5.000 FEET

AQUIFER THICKNESS = 5.000 FEET

STATIC WATER LEVEL = 15.400 FEET

AQUIFER CONDUCTIVITY IS = .104E-03 CM/SEC

OR .220E+01 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .158E-01 CM*CM/SEC

OR .110E+02 GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::
START TIME IS = .000E+00 SECONDS

END TIME IS = .200E+04 SECONDS

###
enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 5.000 FEET

STATIC WATER LEVEL = 15.400 FEET

AQUIFER CONDUCTIVITY IS = .104E-03 CM/SEC

OR .220E+01 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .158E-01 CM*CM/SEC

OR .110E+02 GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::
START TIME IS = .000E+00 SECONDS

END TIME IS = .200E+04 SECONDS

###
enter 1 to continue with thesame datafile
2 to work on another datafile

```
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
R  DY TO DISPLAY OUTPUT.
P  ase press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =     1.4810
       LINE   SLOPE   IS  =    -.001395

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
DW3
enter no. of characters in well id. no.
3
.   T COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
5
ENTER SCREEN LENGTH (ft)
3
ENTER WELL PENETRATION DEPTH (ft)
5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
```

HYDOGEOLOGY AND SITE INVESTIGATION.

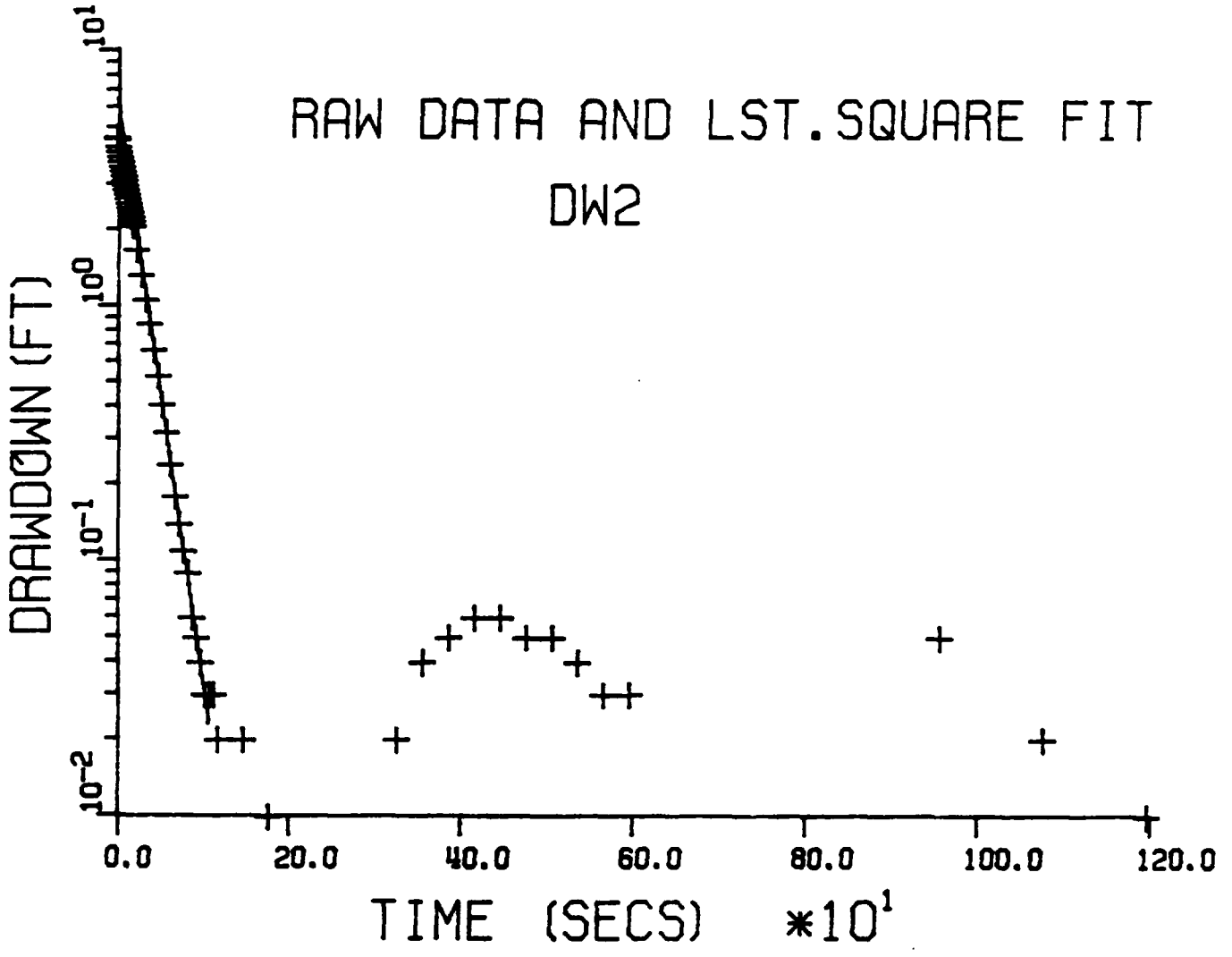
PEI ASSOCIATES INC.

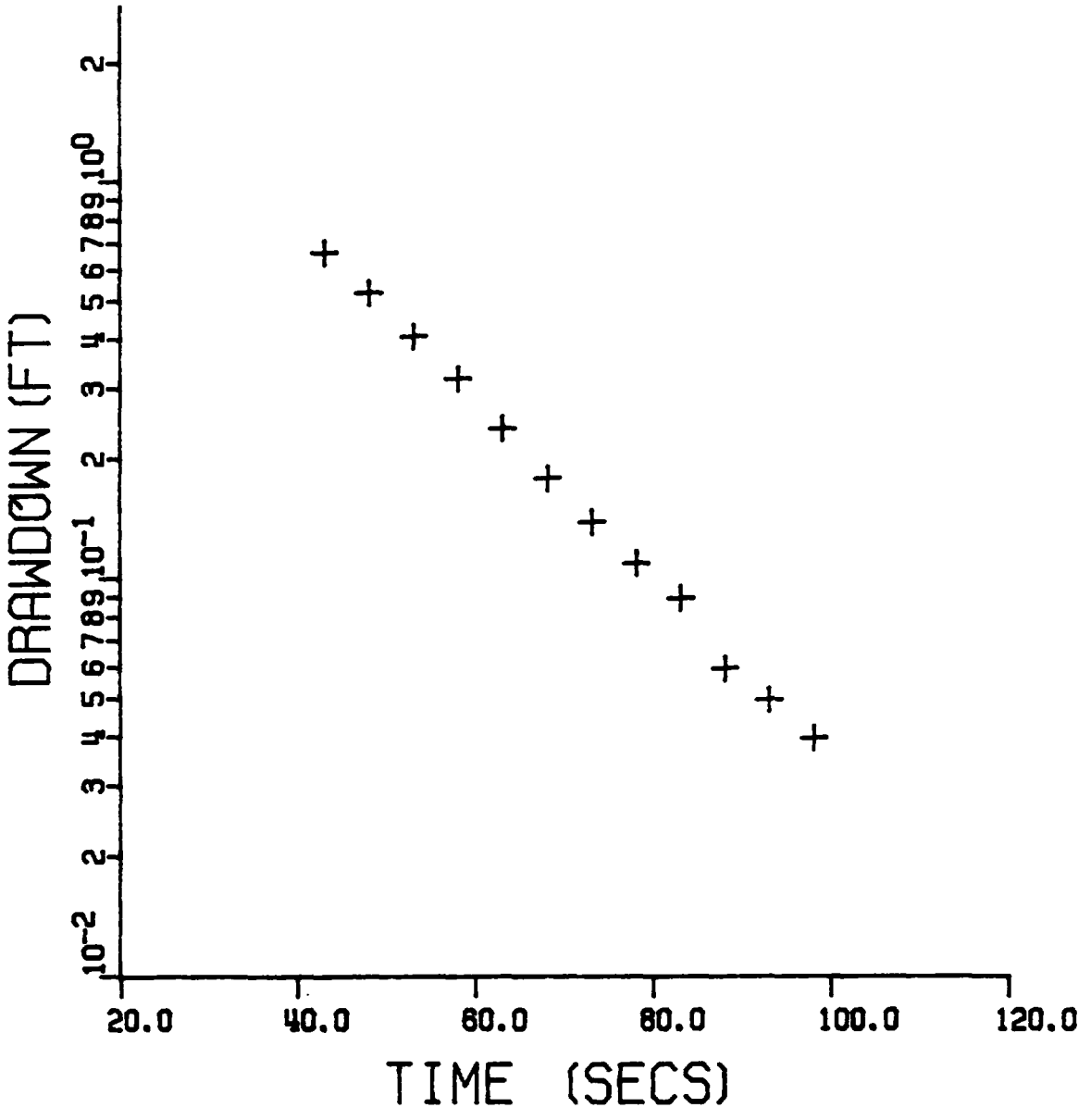
CINCINNATI. OHIO

B A I L D O W N   D A T A   A N A L Y S I S

DATA OBTAINED BY :   G

DATA ANALYZED BY :   G


RAW DATA AND LST.SQUARE FIT
DW2
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$


DRAWDOWN (FT)
10^{-2}
2
3
4
5
6
7
8
9
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS)

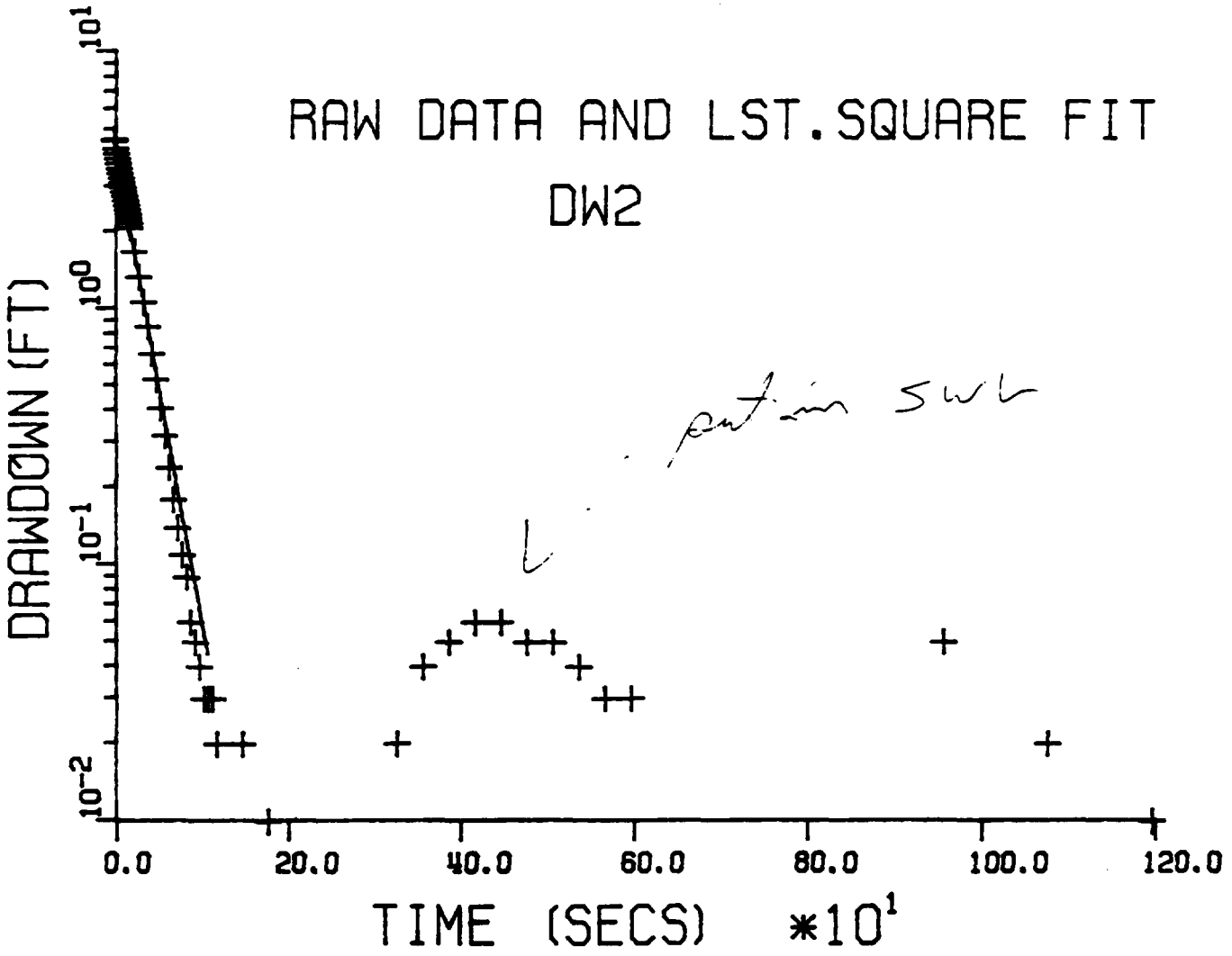
next page

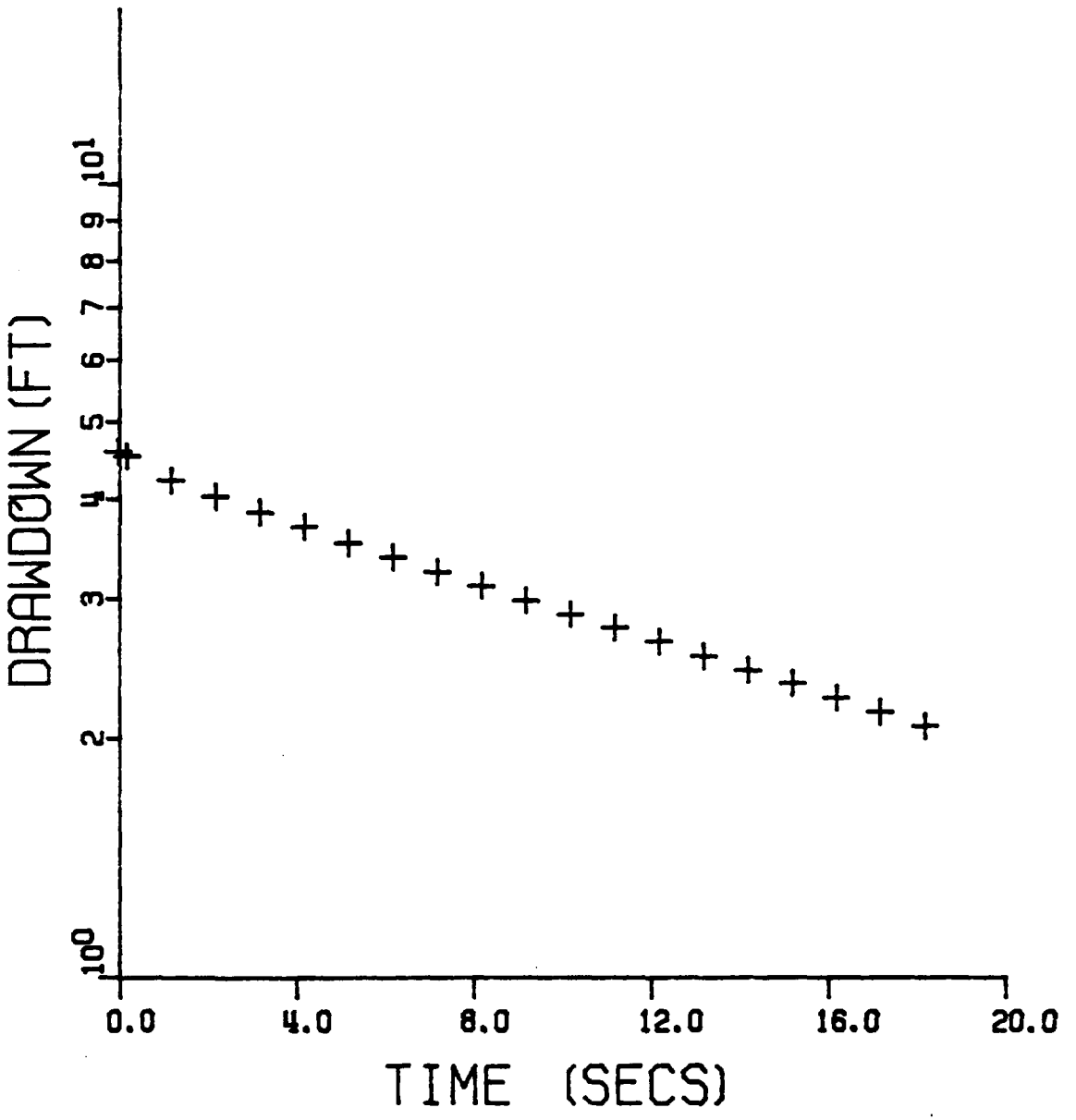
```
WELL PENETRATION DEPTH     =      16.000 FEET

AQUIFER THICKNESS          =      16.000 FEET

  ATIC WATER LEVEL         =      16.150 FEET

AQUIFER CONDUCTIVITY IS    =     .320E-02 CM/SEC

                          OR     .679E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =      .156E+01 CM*CM/SEC

                          OR     .109E+04 GAL/FT/DAY

##############################################

   CENSORED DATA END POINTS ARE ::
START TIME IS              =     .400E+02 SECONDS

END TIME IS                =     .100E+03 SECONDS

##############################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run

AQUIFER THICKNESS          =      16.000 FEET

  ATIC WATER LEVEL         =      16.150 FEET

AQUIFER CONDUCTIVITY IS    =     .320E-02 CM/SEC

                          OR     .679E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =      .156E+01 CM*CM/SEC

                          OR     .109E+04 GAL/FT/DAY

##############################################

   CENSORED DATA END POINTS ARE ::
START TIME IS              =     .400E+02 SECONDS

END TIME IS                =     .100E+03 SECONDS

##############################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run


AQUIFER THICKNESS          =      16.000 FEET

  ATIC WATER LEVEL         =      16.150 FEET

AQUIFER CONDUCTIVITY IS    =     .320E-02 CM/SEC

                          OR     .679E+02 GAL/FT/FT/DAY
```

```
 AQUIFER CONDUCTIVITY IS    =    .220E-02 CM/SEC

                           OR    .467E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .336E+00 CM*CM/SEC

                           OR    .234E+03 GAL/FT/DAY

################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =    .400E+02 SECONDS

 END TIME IS                =    .100E+03 SECONDS

#################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


3
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
[illegible]ER SCREEN DIAMETER (ins)
[illegible]
ENTER AQUIFER THICKNESS (ft)
16
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
16
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    3DW2

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

   FECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH             =       5.000 FEET
```

```
 EFFECTIVE SCREEN DIAMETER =        2.000 INCHES

 SCREEN LENGTH             =        5.000 FEET

 ..LL PENETRATION DEPTH    =        4.500 FEET

 AQUIFER THICKNESS         =        5.000 FEET

 STATIC WATER LEVEL        =       16.150 FEET

 AQUIFER CONDUCTIVITY IS   =     .220E-02 CM/SEC

                          OR     .467E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .336E+00 CM*CM/SEC

                          OR     .234E+03 GAL/FT/DAY

##################################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS             =     .400E+02 SECONDS

 END TIME IS               =     .100E+03 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 STATIC WATER LEVEL        =       16.150 FEET

 AQUIFER CONDUCTIVITY IS   =     .220E-02 CM/SEC

                          OR     .467E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .336E+00 CM*CM/SEC

                          OR     .234E+03 GAL/FT/DAY

##################################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS             =     .400E+02 SECONDS

 END TIME IS               =     .100E+03 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 STATIC WATER LEVEL        =       16.150 FEET
```

```
         2  to remove  more outliers
         3  for least squares fit
3
   LINE  INTERCEPT IS  =     1.8720
       LINE   SLOPE   IS  =    -.052195

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
DW2
enter no. of characters in well id. no.
3
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N

ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
5
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
4.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    3DW2

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER   =      6.000 INCHES
```


RAW DATA AND LST.SQUARE FIT
DW2
DRAWDOWN (FT)
10^{1}
10^{0}
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^{1}$
partial SWL


DRAWDOWN (FT)
10^0
2
3
4
5
6
7
8
9
10^1
0.0
4.0
8.0
12.0
16.0
20.0
TIME (SECS)

```
                          OR     .886E+03 GAL/FT/DAY

#""################################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS              =     .000E+00 SECONDS

 END TIME IS                =     .200E+02 SECONDS

#################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS          =       16.000 FEET

 STATIC WATER LEVEL         =       16.150 FEET

 AQUIFER CONDUCTIVITY IS    =     .261E-02 CM/SEC

                          OR     .554E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .127E+01 CM*CM/SEC

                          OR     .886E+03 GAL/FT/DAY

#""################################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS              =     .000E+00 SECONDS

 END TIME IS                =     .200E+02 SECONDS

#################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS          =       16.000 FEET

 STATIC WATER LEVEL         =       16.150 FEET

 AQUIFER CONDUCTIVITY IS    =     .261E-02 CM/SEC

                          OR     .554E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .127E+01 CM*CM/SEC

                          OR     .886E+03 GAL/FT/DAY

#""################################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS              =     .000E+00 SECONDS

 END TIME IS                =     .200E+02 SECONDS
```

```
   CENSORED DATA END POINTS ARE ::
 START TIME IS              =    .000E+00 SECONDS

     TIME IS                =    .200E+02 SECONDS

################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

3
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
16
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
16
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :         G

    DATA ANALYZED BY :         G

    BAIL DOWN PARAMETERS FOR   3DW2

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =      6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =      2.000 INCHES

 SCREEN LENGTH              =      5.000 FEET

 WELL PENETRATION DEPTH     =     16.000 FEET

 AQUIFER THICKNESS          =     16.000 FEET

 STATIC WATER LEVEL         =     16.150 FEET

   JIFER CONDUCTIVITY IS    =    .261E-02 CM/SEC

                           OR    .554E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .127E+01 CM*CM/SEC
```

PEI ASSOCIATES INC.

CINCINNATI. OHIO

B A I L D O W N   D A T A   A N A L Y S I S

DATA OBTAINED BY : G

DATA ANALYZED BY : G

BAIL DOWN PARAMETERS FOR 3DW2

@@

```
 EFFECTIVE WELL DIAMETER    =      6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =      2.000 INCHES

 SCREEN LENGTH              =      5.000 FEET

 WELL PENETRATION DEPTH     =      4.500 FEET

 AQUIFER THICKNESS          =      5.000 FEET

 STATIC WATER LEVEL         =     16.150 FEET

 AQUIFER CONDUCTIVITY IS    =   .180E-02 CM/SEC

                           OR   .381E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =   .274E+00 CM*CM/SEC

                           OR   .190E+03 GAL/FT/DAY
```

###

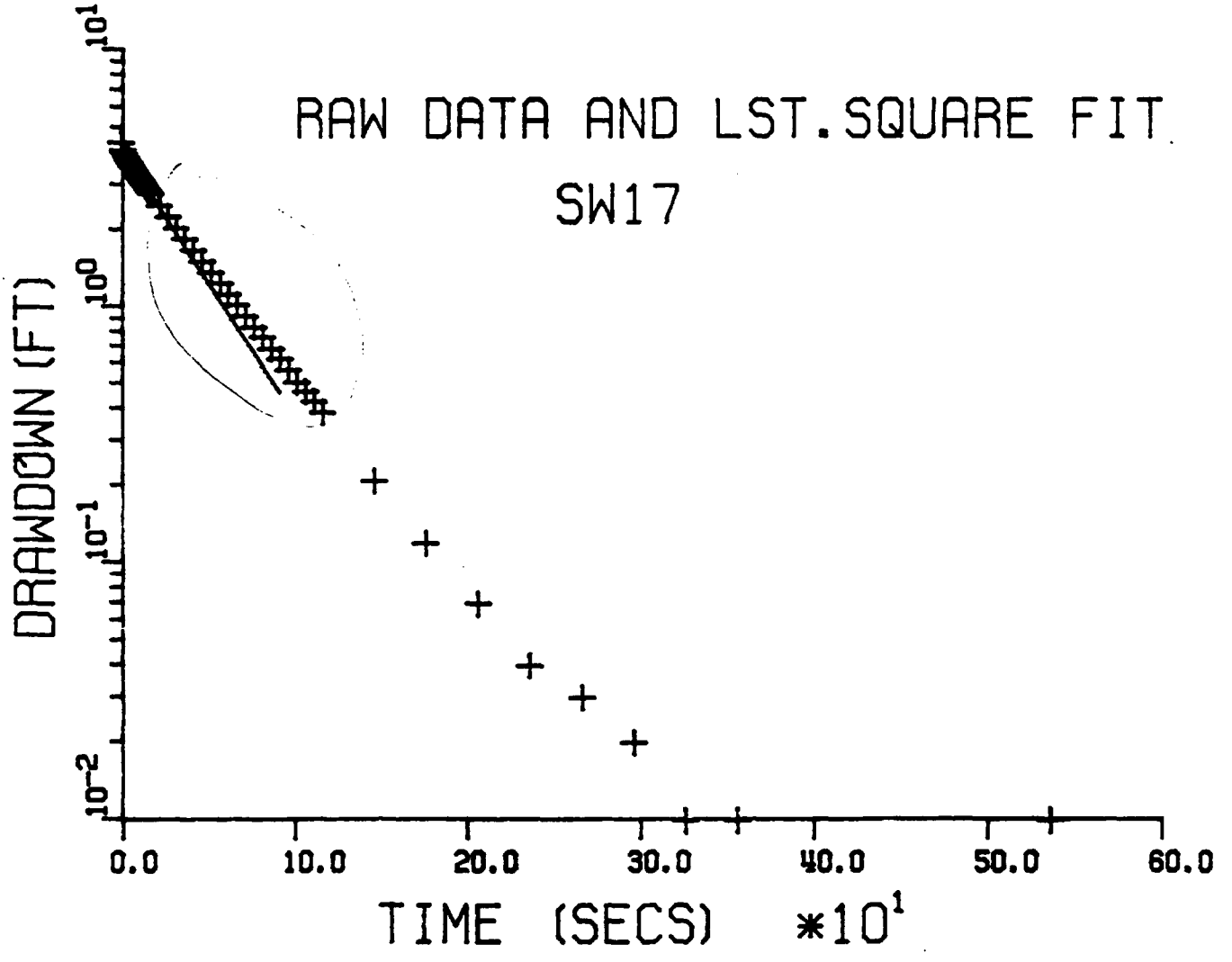
```
    CENSORED DATA END POINTS ARE ::
 START TIME IS              =   .000E+00 SECONDS

 END TIME IS                =   .200E+02 SECONDS
```

##

```
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS          =      5.000 FEET

 STATIC WATER LEVEL         =     16.150 FEET

 AQUIFER CONDUCTIVITY IS    =   .180E-02 CM/SEC

                           OR   .381E+02 GAL/FT/FT/DAY

   JIFER TRANSMISSIVITY IS =   .274E+00 CM*CM/SEC

                           OR   .190E+03 GAL/FT/DAY
```

###

```
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
e--er  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =     1.4984
       LINE   SLOPE   IS  =    -.042565

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
DW2
enter no. of characters in well id. no.
3
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
5
ENTER SCREEN LENGTH (ft)
5
F--ER WELL PENETRATION DEPTH (ft)

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.
```


RAW DATA AND LST.SQUARE FIT
SW17
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
10.0
20.0
30.0
40.0
50.0
60.0
TIME (SECS) $*10^1$

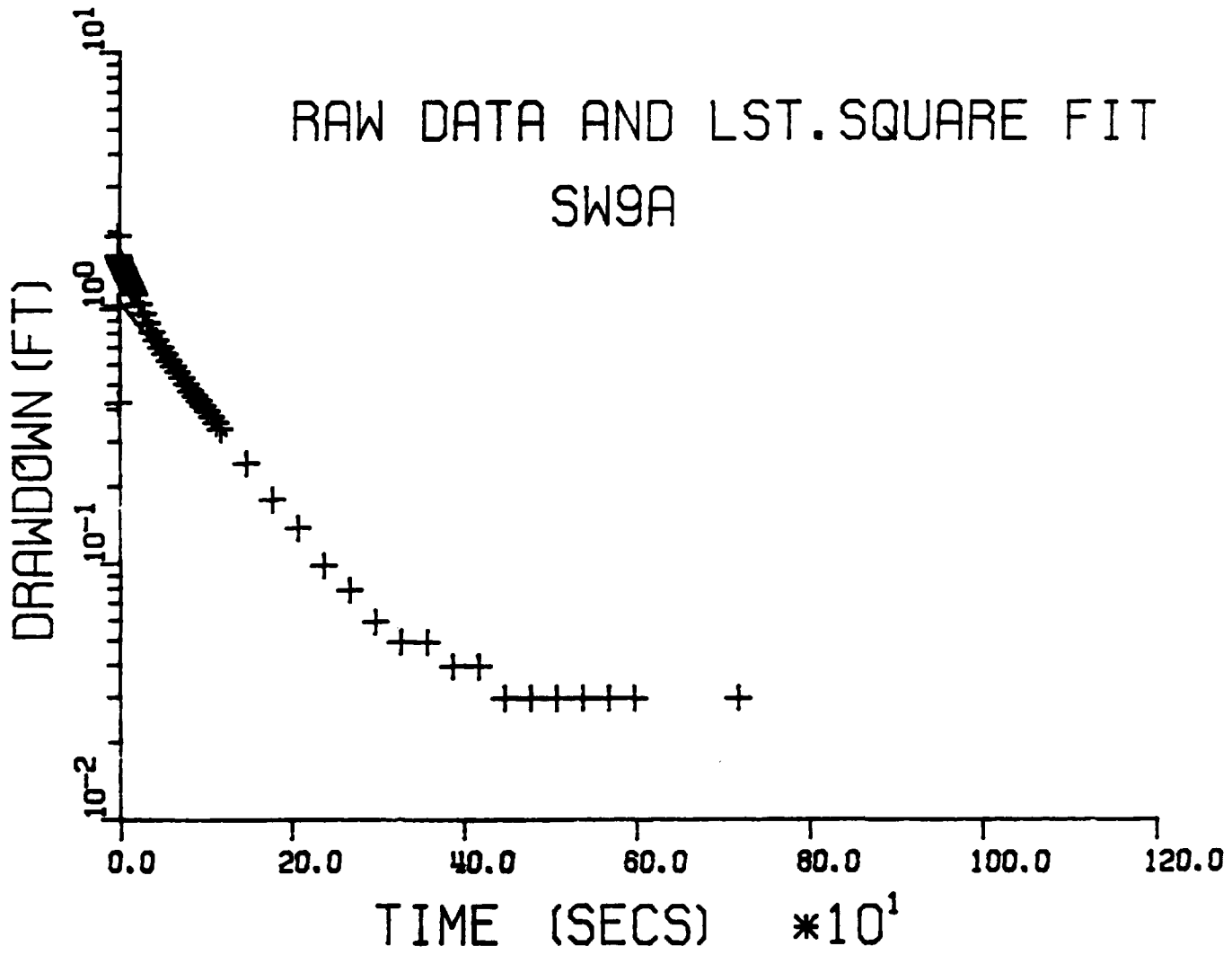
DRAWDOWN (FT)
10^0
2
3
4
5
6
7
8
9
10^1
0.0
4.0
8.0
12.0
16.0
20.0
TIME (SECS)

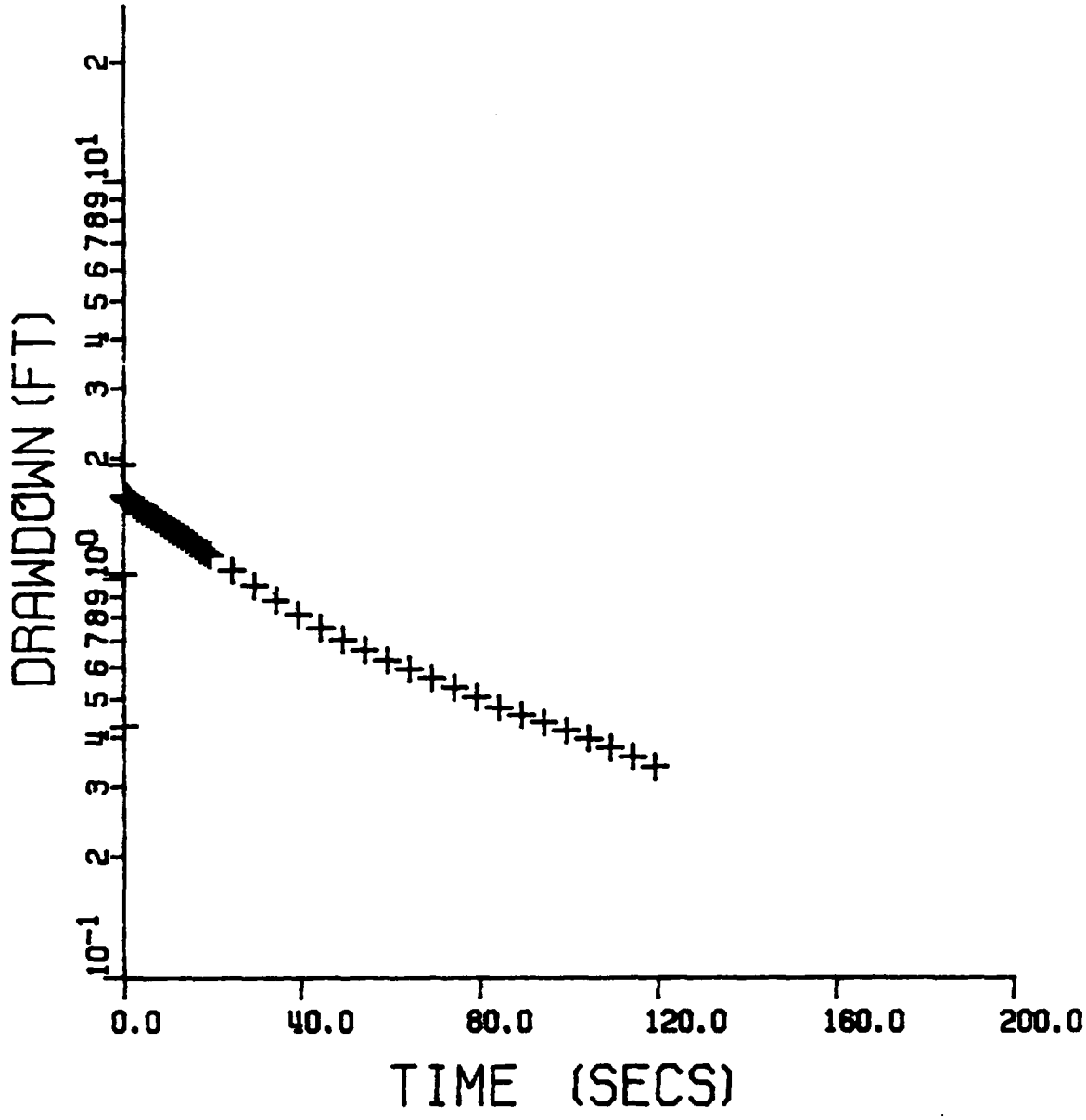
```
 SCREEN LENGTH                =        5.000 FEET

 WELL PENETRATION DEPTH       =        3.500 FEET

   JIFER THICKNESS            =       10.500 FEET

 STATIC WATER LEVEL           =       16.080 FEET

 AQUIFER CONDUCTIVITY IS      =     .864E-03 CM/SEC

                             OR     .183E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .277E+00 CM*CM/SEC

                             OR     .192E+03 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                =     .100E+01 SECONDS

 END TIME IS                  =     .200E+02 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

   UIFER THICKNESS            =       10.500 FEET

 STATIC WATER LEVEL           =       16.080 FEET

 AQUIFER CONDUCTIVITY IS      =     .864E-03 CM/SEC

                             OR     .183E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .277E+00 CM*CM/SEC

                             OR     .192E+03 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                =     .100E+01 SECONDS

 END TIME IS                  =     .200E+02 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


   UIFER THICKNESS            =       10.500 FEET

 STATIC WATER LEVEL           =       16.080 FEET

 AQUIFER CONDUCTIVITY IS      =     .864E-03 CM/SEC
```

```
 AQUIFER THICKNESS            =      10.500 FEET

 STATIC WATER LEVEL           =      16.080 FEET

    IFER CONDUCTIVITY IS      =     .114E-02 CM/SEC

                             OR     .243E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =       .366E+00 CM*CM/SEC

                             OR     .255E+03 GAL/FT/DAY

##############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                =     .100E+01 SECONDS

 END TIME IS                  =     .200E+02 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

3
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)

ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
10.5
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
3.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                 PEI ASSOCIATES INC.

                   CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    3SW17

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER   =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES
```

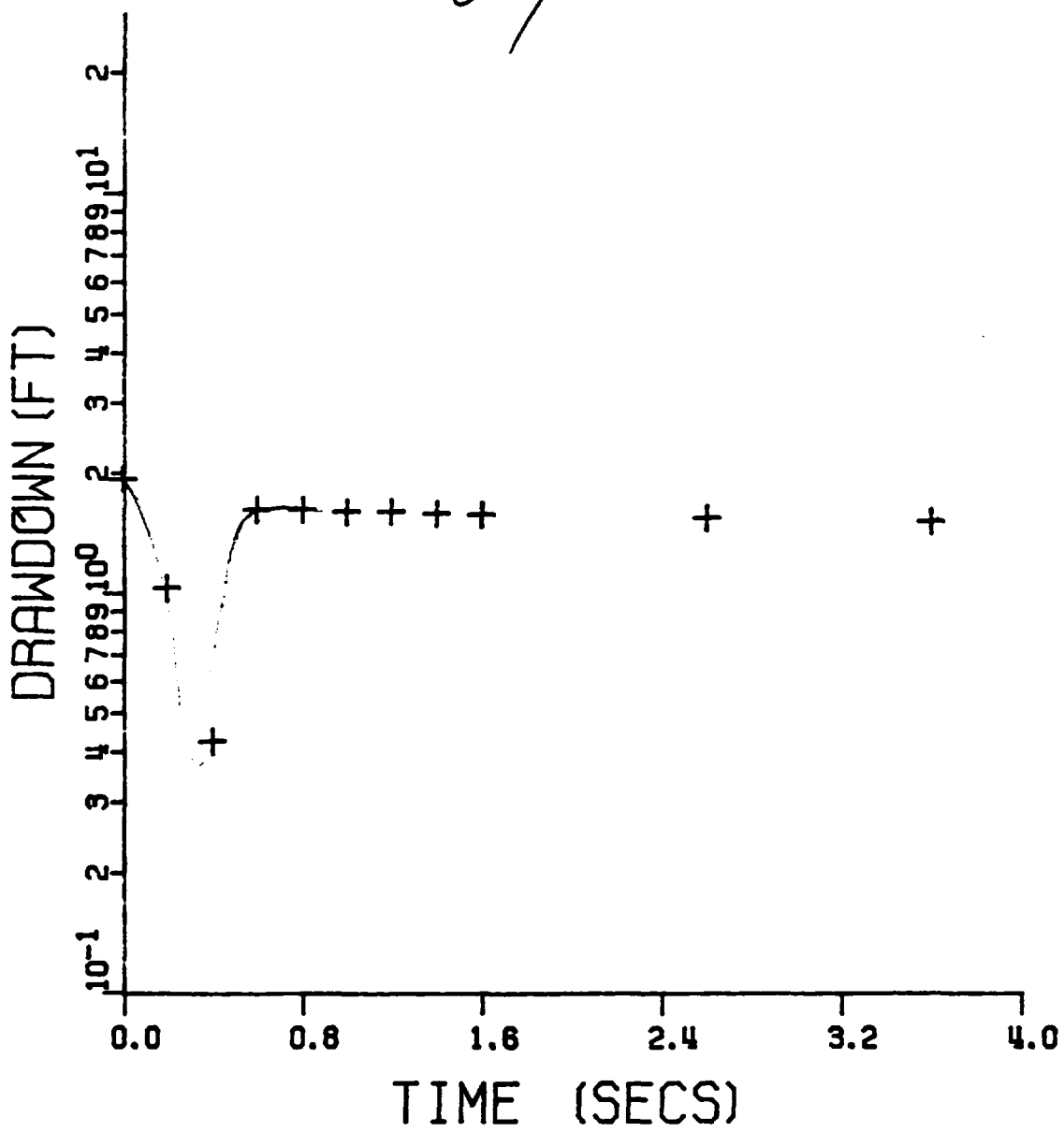
```
EFFECTIVE WELL DIAMETER    =        6.000 INCHES

  ECTIVE SCREEN DIAMETER =        2.000 INCHES

SCREEN LENGTH              =        3.500 FEET

WELL PENETRATION DEPTH     =        3.500 FEET

AQUIFER THICKNESS          =       10.500 FEET

STATIC WATER LEVEL         =       16.080 FEET

AQUIFER CONDUCTIVITY IS    =     .114E-02 CM/SEC

                          OR     .243E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =     .366E+00 CM*CM/SEC

                          OR     .255E+03 GAL/FT/DAY

##############################################

   CENSORED DATA END POINTS ARE ::
START TIME IS              =     .100E+01 SECONDS

END TIME IS                =     .200E+02 SECONDS

##############################################
  ter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run

AQUIFER THICKNESS          =       10.500 FEET

STATIC WATER LEVEL         =       16.080 FEET

AQUIFER CONDUCTIVITY IS    =     .114E-02 CM/SEC

                          OR     .243E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =     .366E+00 CM*CM/SEC

                          OR     .255E+03 GAL/FT/DAY

##############################################

   CENSORED DATA END POINTS ARE ::
START TIME IS              =     .100E+01 SECONDS

END TIME IS                =     .200E+02 SECONDS

##############################################
  ter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run
```

```
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =     1.4239
       LINE   SLOPE   IS  =    -.023772

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW17
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
10.5
ENTER SCREEN LENGTH (ft)
3.5
ENTER WELL PENETRATION DEPTH (ft)
3.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    3SW17

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
```

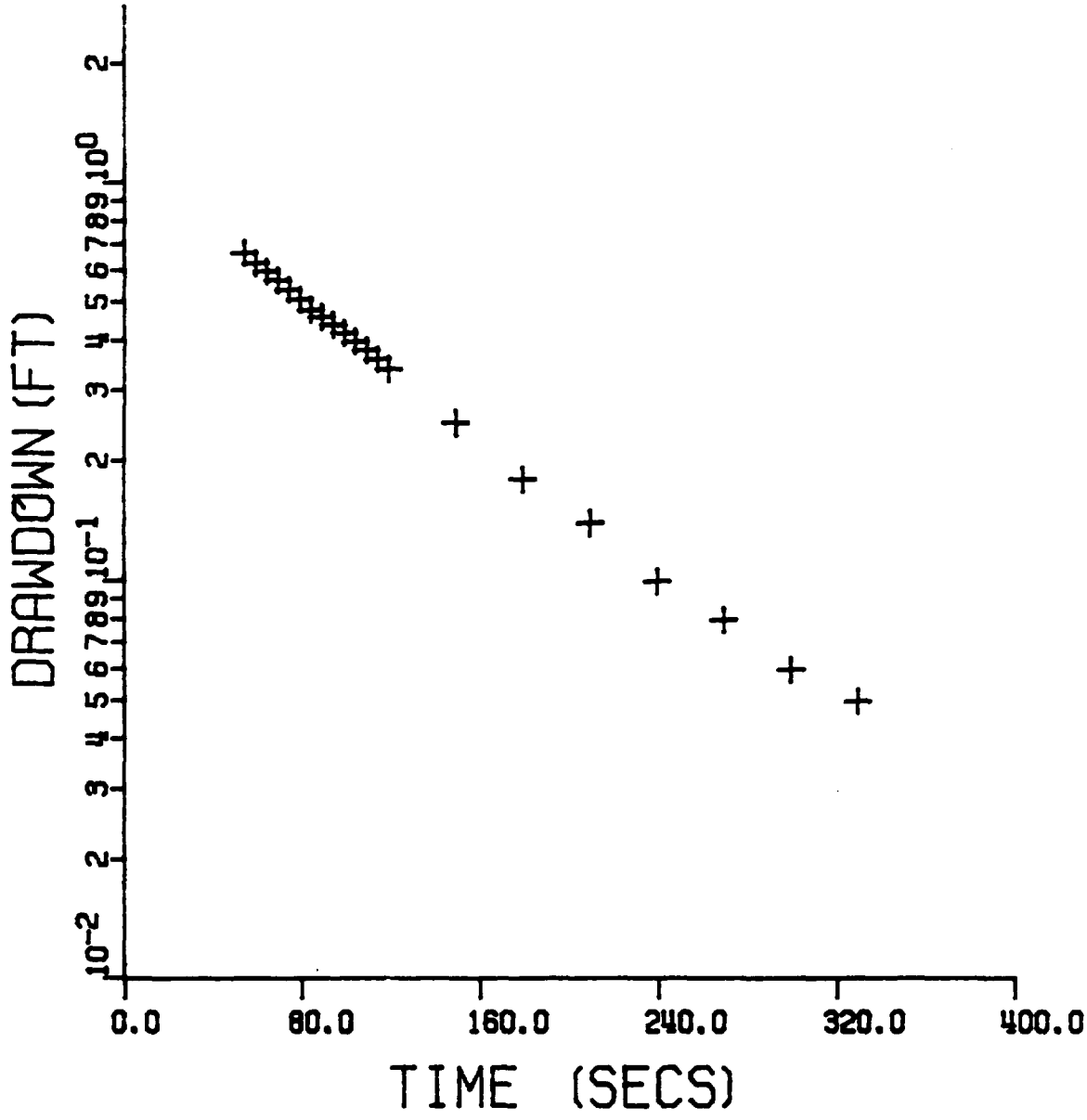

RAW DATA AND LST.SQUARE FIT
SW9A
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
3
4
5
6
7
8
9
10^{1}
2
0.0
40.0
80.0
120.0
160.0
200.0
TIME (SECS)

SW9A


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
3
4
5
6
7
8
9
10^{1}
2
0.0
0.8
1.6
2.4
3.2
4.0
TIME (SECS)

5W9A


DRAWDOWN (FT)
10^{-2}
2
3
4
5
6
7
8
9
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
0.0
80.0
160.0
240.0
320.0
400.0
TIME (SECS)

PEI ASSOCIATES INC.

CINCINNATI. OHIO

AILDOWN DATA ANALYSIS

DATA OBTAINED BY : G

DATA ANALYZED BY : G

BAIL DOWN PARAMETERS FOR 0SW9A

@@

EFFECTIVE WELL DIAMETER = 6.000 INCHES

EFFECTIVE SCREEN DIAMETER = 2.000 INCHES

SCREEN LENGTH = .500 FEET

WELL PENETRATION DEPTH = 1.500 FEET

AQUIFER THICKNESS = 1.500 FEET

STATIC WATER LEVEL = 8.840 FEET

AQUIFER CONDUCTIVITY IS = .225E-02 CM/SEC

OR .476E+02 GAL/FT/FT/DAY

JIFER TRANSMISSIVITY IS = .103E+00 CM*CM/SEC

OR .715E+02 GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::
START TIME IS = .500E+02 SECONDS

:ND TIME IS = .330E+03 SECONDS

Wron

###

enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 1.500 FEET

STATIC WATER LEVEL = 8.840 FEET

AQUIFER CONDUCTIVITY IS = .225E-02 CM/SEC

OR .476E+02 GAL/FT/FT/DAY

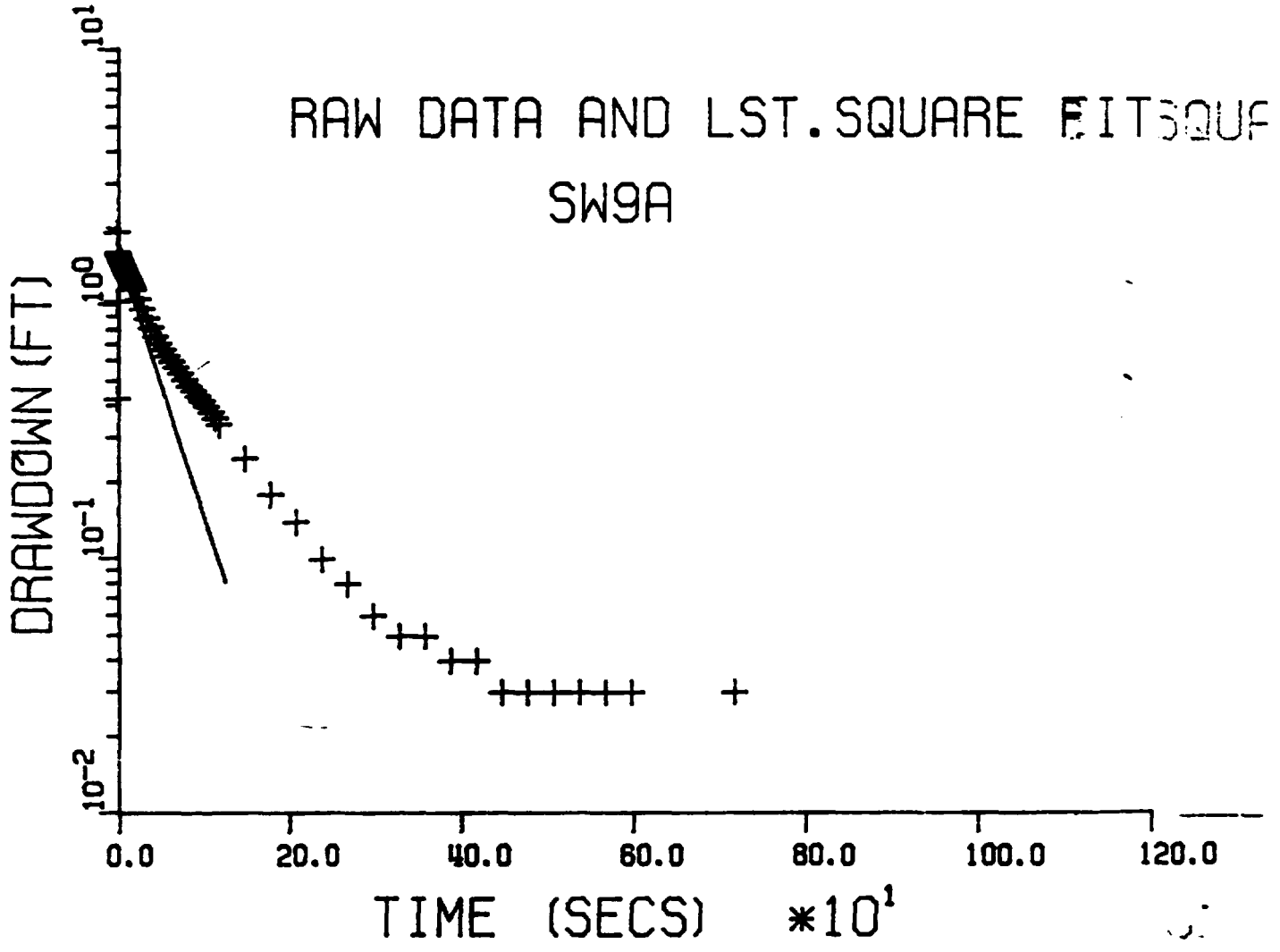
'JIFER TRANSMISSIVITY IS = .103E+00 CM*CM/SEC

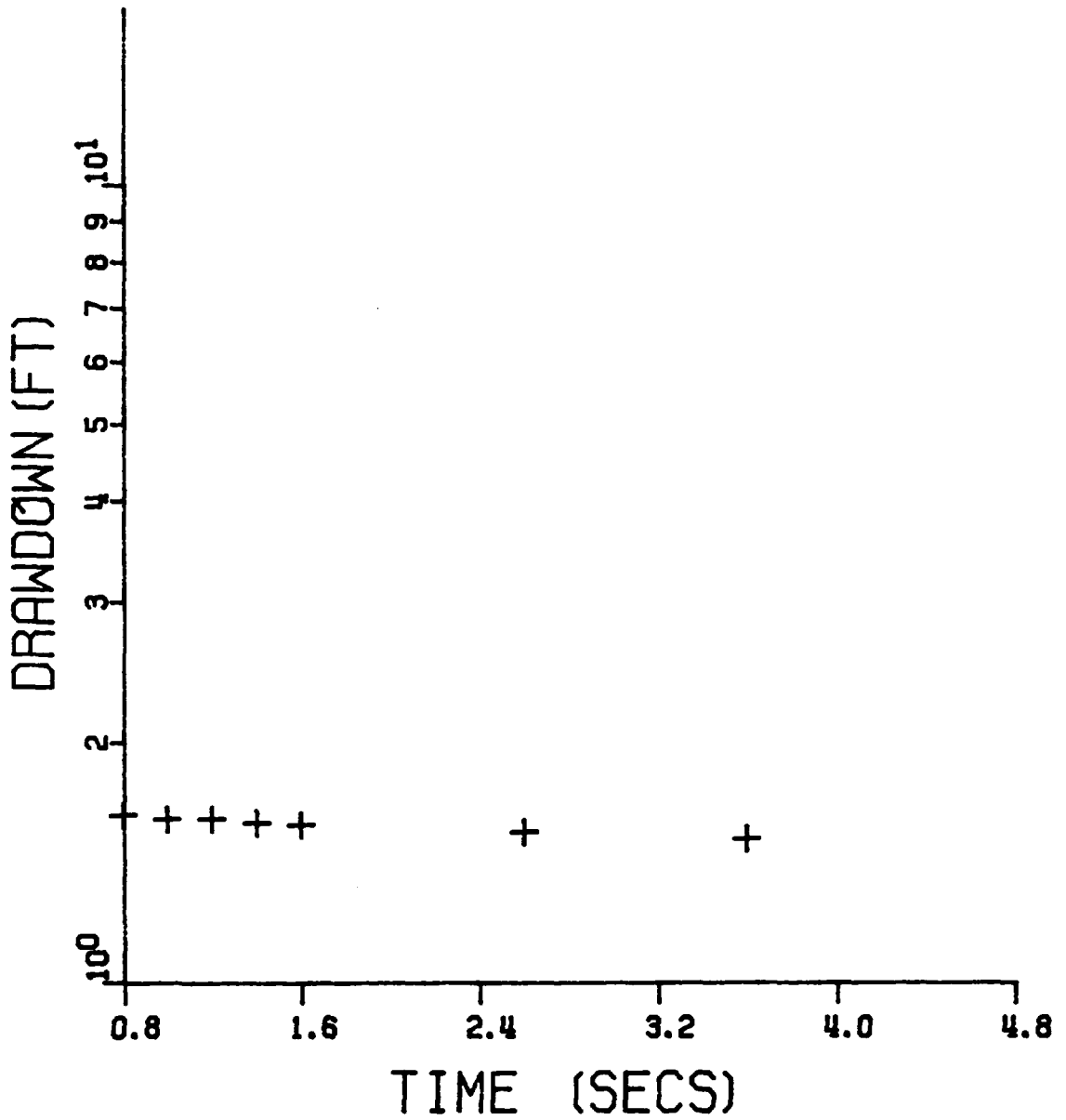
OR .715E+02 GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::

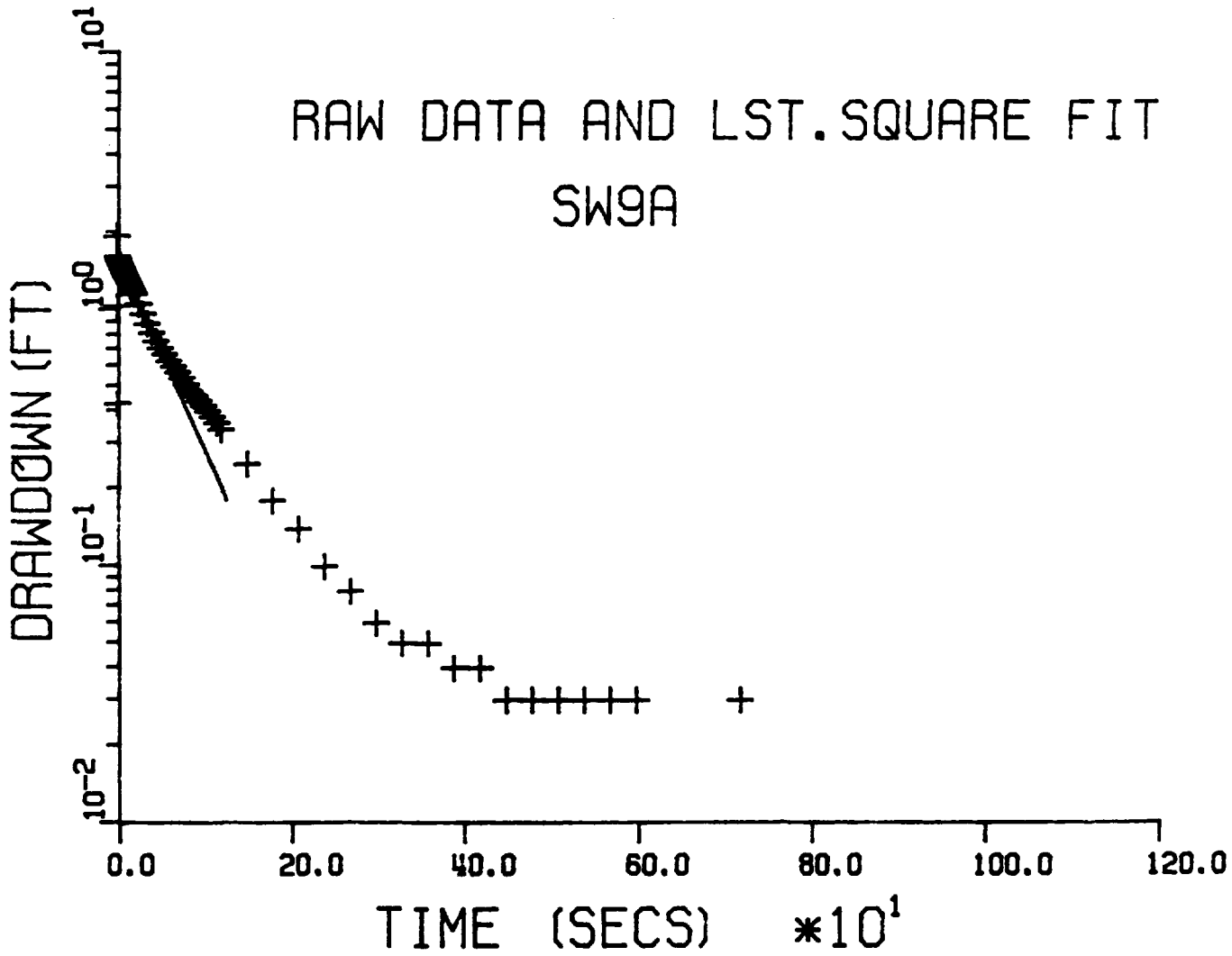
```
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
e\      0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS =      .0955
       LINE   SLOPE   IS =    -.009707

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW9A
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
1.5
ENTER SCREEN LENGTH (ft)
.
E   ER WELL PENETRATION DEPTH (ft)
1.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

      HYDOGEOLOGY AND SITE INVESTIGATION.
```

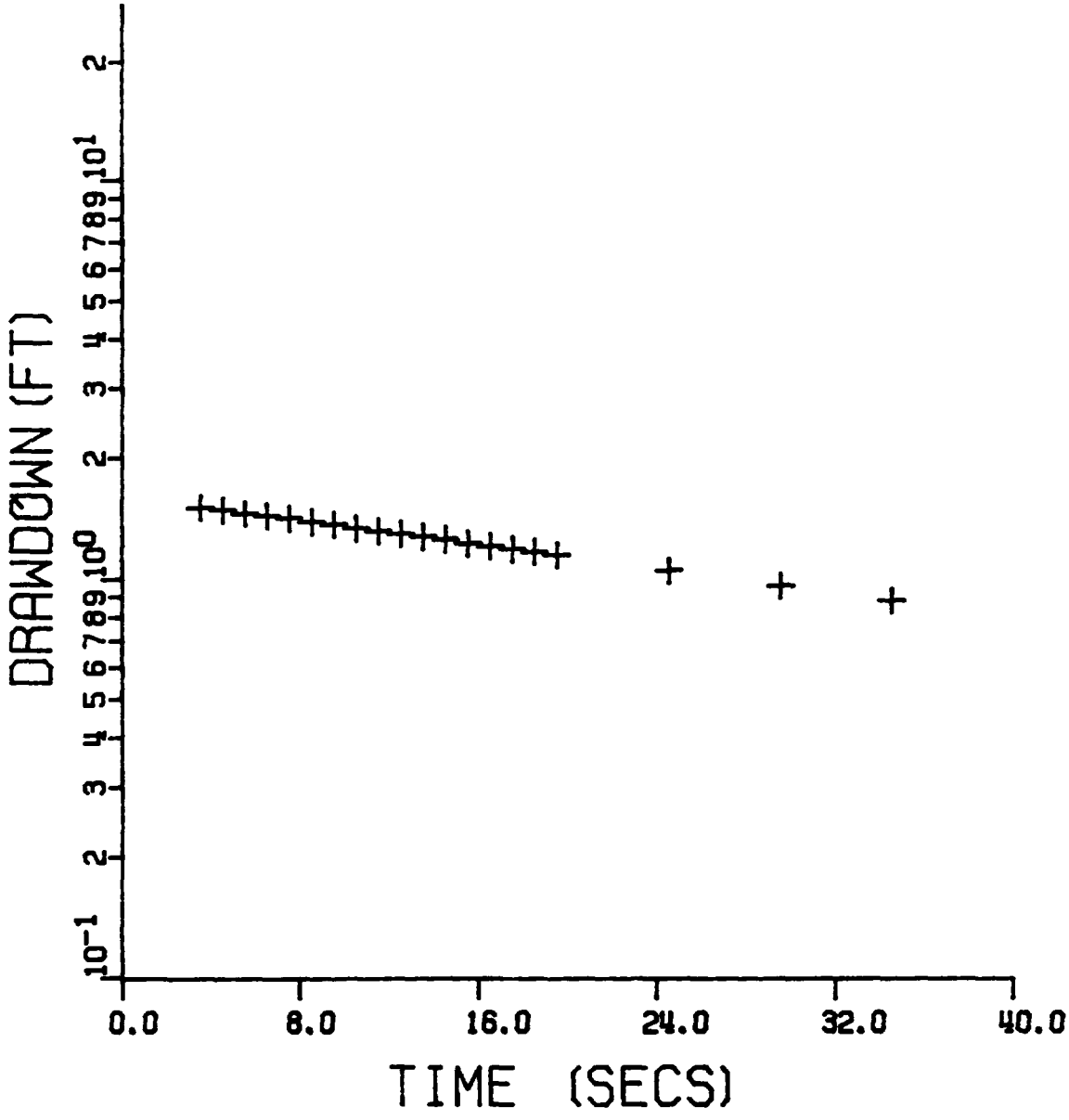

RAW DATA AND LST.SQUARE FIT3QUA
SW9A
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$


DRAWDOWN (FT)
10^1
9
8
7
6
5
4
3
2
10^0
0.8
1.6
2.4
3.2
4.0
4.8
TIME (SECS)

```
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
1.5
ENTER SCREEN LENGTH (ft)
.5
ENTER WELL PENETRATION DEPTH (ft)
1.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

     HYDOGEOLOGY AND SITE INVESTIGATION.

              PEI ASSOCIATES INC.

               CINCINNATI. OHIO

   B A I L D O W N   D A T A   A N A L Y S I S

   DATA OBTAINED BY :          g

   DATA ANALYZED BY :          g

   BAIL DOWN PARAMETERS FOR    0SW9A

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

    ECTIVE WELL DIAMETER   =      6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH             =      .500 FEET

 WELL PENETRATION DEPTH    =      1.500 FEET

 AQUIFER THICKNESS         =      1.500 FEET

 STATIC WATER LEVEL        =      8.840 FEET

 AQUIFER CONDUCTIVITY IS   =   .551E-02 CM/SEC

                    OR    .117E+03 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =   .252E+00 CM*CM/SEC

                    OR    .175E+03 GAL/FT/DAY

##############################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS             =    .700E+00 SECONDS

 END TIME IS               =    .400E+01 SECONDS

###############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run
```

```
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
1
 enter  baildown start time --- TS
.
 enter baildown end time ----- TE
4
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
99,99
PLOT88 ERROR #5      1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
'    T COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS =      .5014
      LINE   SLOPE   IS =   -.023798

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW9A
enter no. of characters in well id. no.
4
     T COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
```

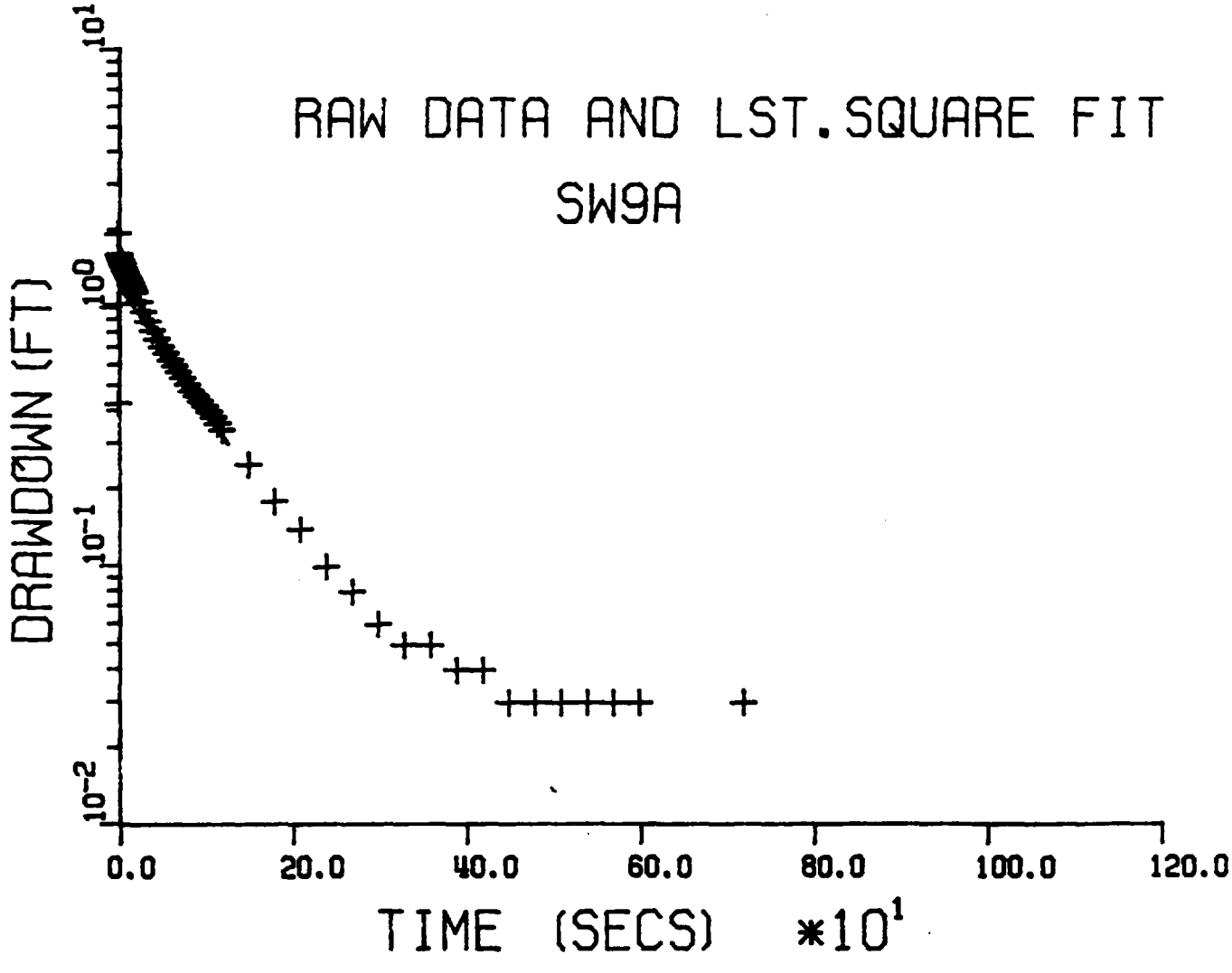

RAW DATA AND LST.SQUARE FIT
SW9A
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$

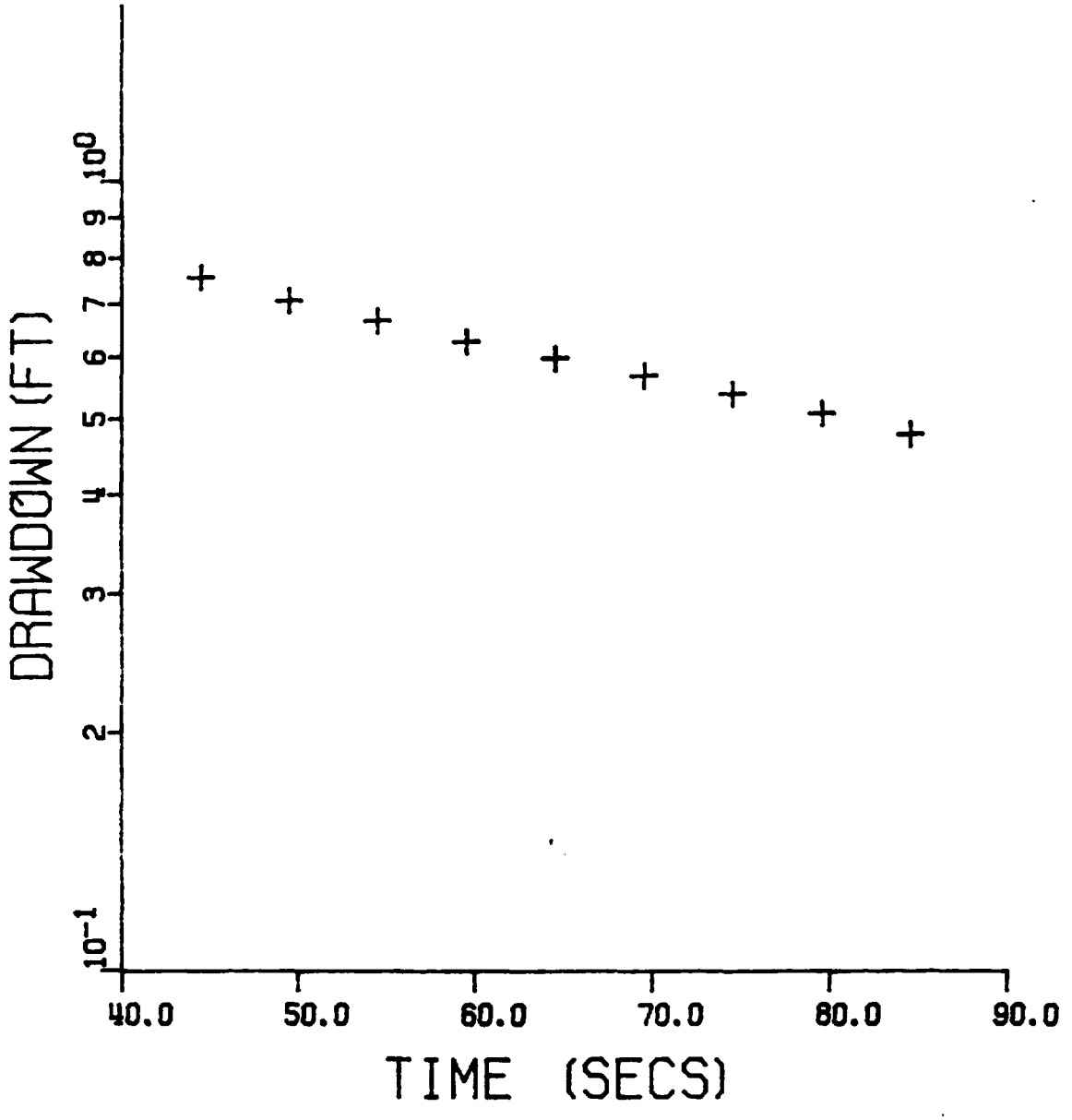

DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
3
4
5
6
7
8
9
10^{1}
2
0.0
8.0
16.0
24.0
32.0
40.0
TIME (SECS)

```
STATIC WATER LEVEL          =      8.840 FEET

AQUIFER CONDUCTIVITY IS  =    .402E-02 CM/SEC

                    OR    .852E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =    .184E+00 CM*CM/SEC

                    OR    .128E+03 GAL/FT/DAY

##################################################

  CENSORED DATA END POINTS ARE ::
START TIME IS            =    .300E+01 SECONDS

END TIME IS              =    .390E+02 SECONDS

##################################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run

AQUIFER THICKNESS           =      1.500 FEET

STATIC WATER LEVEL          =      8.840 FEET

AQUIFER CONDUCTIVITY IS  =    .402E-02 CM/SEC

                    OR    .852E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =    .184E+00 CM*CM/SEC

                    OR    .128E+03 GAL/FT/DAY

##################################################

  CENSORED DATA END POINTS ARE ::
START TIME IS            =    .300E+01 SECONDS

END TIME IS              =    .390E+02 SECONDS

##################################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run


AQUIFER THICKNESS           =      1.500 FEET

STATIC WATER LEVEL          =      8.840 FEET

AQUIFER CONDUCTIVITY IS  =    .402E-02 CM/SEC

                    OR    .852E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =    .184E+00 CM*CM/SEC

                    OR    .128E+03 GAL/FT/DAY

##################################################
```

```
 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
      0,14  to output graph on epson printer
            (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
     99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW9A
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
1.5
    ¯ER SCREEN LENGTH (ft)
..
ENTER WELL PENETRATION DEPTH (ft)
1.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

      HYDOGEOLOGY AND SITE INVESTIGATION.

            PEI ASSOCIATES INC.

             CINCINNATI. OHIO

   B A I L D O W N   D A T A   A N A L Y S I S

   DATA OBTAINED BY :         g

   DATA ANALYZED BY :          g

   BAIL DOWN PARAMETERS FOR    0SW9A

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER   =      6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =      2.000 INCHES

   :EEN LENGTH             =      .500 FEET

 WELL PENETRATION DEPTH    =      1.500 FEET

 AQUIFER THICKNESS         =      1.500 FEET
```

```
      2  to remove  more outliers
      3  for least squares fit
1
 enter  baildown start time --- TS
0
      baildown end time ----- TE
40
enter  0,15  to output graph on epson printer
      0,14  to output graph on epson printer
           (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
      2  to remove  more outliers
      3  for least squares fit
1
 enter  baildown start time --- TS
3
 enter baildown end time ----- TE
39
enter  0,15  to output graph on epson printer
      0,14  to output graph on epson printer
           (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
      0,14  to output graph on epson printer
           (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
      2  to remove  more outliers
      3  for least squares fit
3
  LINE  INTERCEPT IS =      .4867
     LINE   SLOPE   IS =   -.017360
```


RAW DATA AND LST.SQUARE FIT
SW9A
DRAWDOWN (FT)
10^{1}
10^{0}
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^{1}$


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
40.0
50.0
60.0
70.0
80.0
90.0
TIME (SECS)

OR .825E+02 GAL/FT/DAY

##

ENSORED DATA END POINTS ARE ::
RT TIME IS = .400E+02 SECONDS

END TIME IS = .850E+02 SECONDS

##
enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 1.500 FEET

STATIC WATER LEVEL = 8.840 FEET

AQUIFER CONDUCTIVITY IS = .260E-02 CM/SEC

OR .550E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .119E+00 CM*CM/SEC

OR .825E+02 GAL/FT/DAY

##

ENSORED DATA END POINTS ARE ::
RT TIME IS = .400E+02 SECONDS

END TIME IS = .850E+02 SECONDS

##
enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 1.500 FEET

STATIC WATER LEVEL = 8.840 FEET

AQUIFER CONDUCTIVITY IS = .260E-02 CM/SEC

OR .550E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .119E+00 CM*CM/SEC

OR .825E+02 GAL/FT/DAY

##

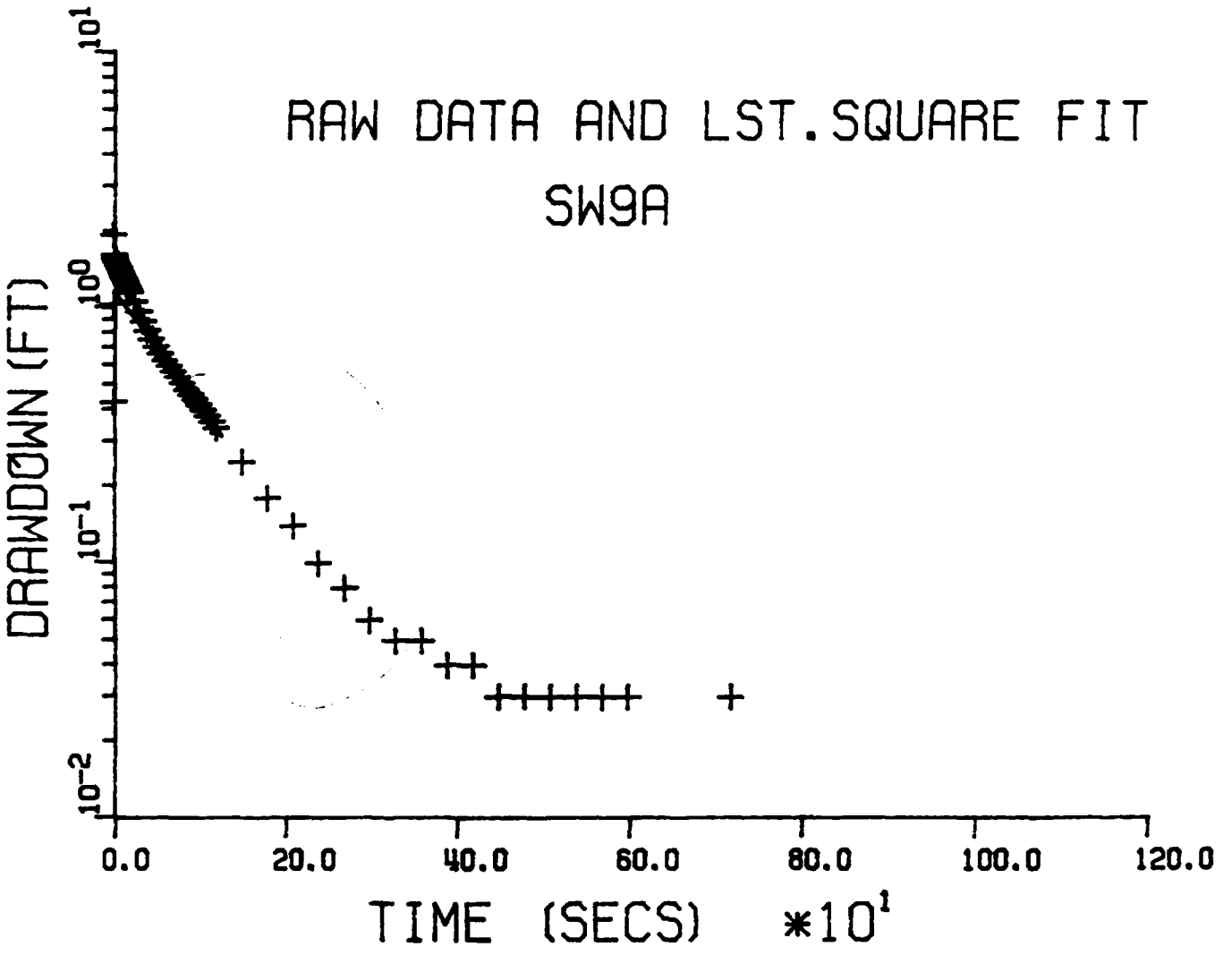
ENSORED DATA END POINTS ARE ::
RT TIME IS = .400E+02 SECONDS

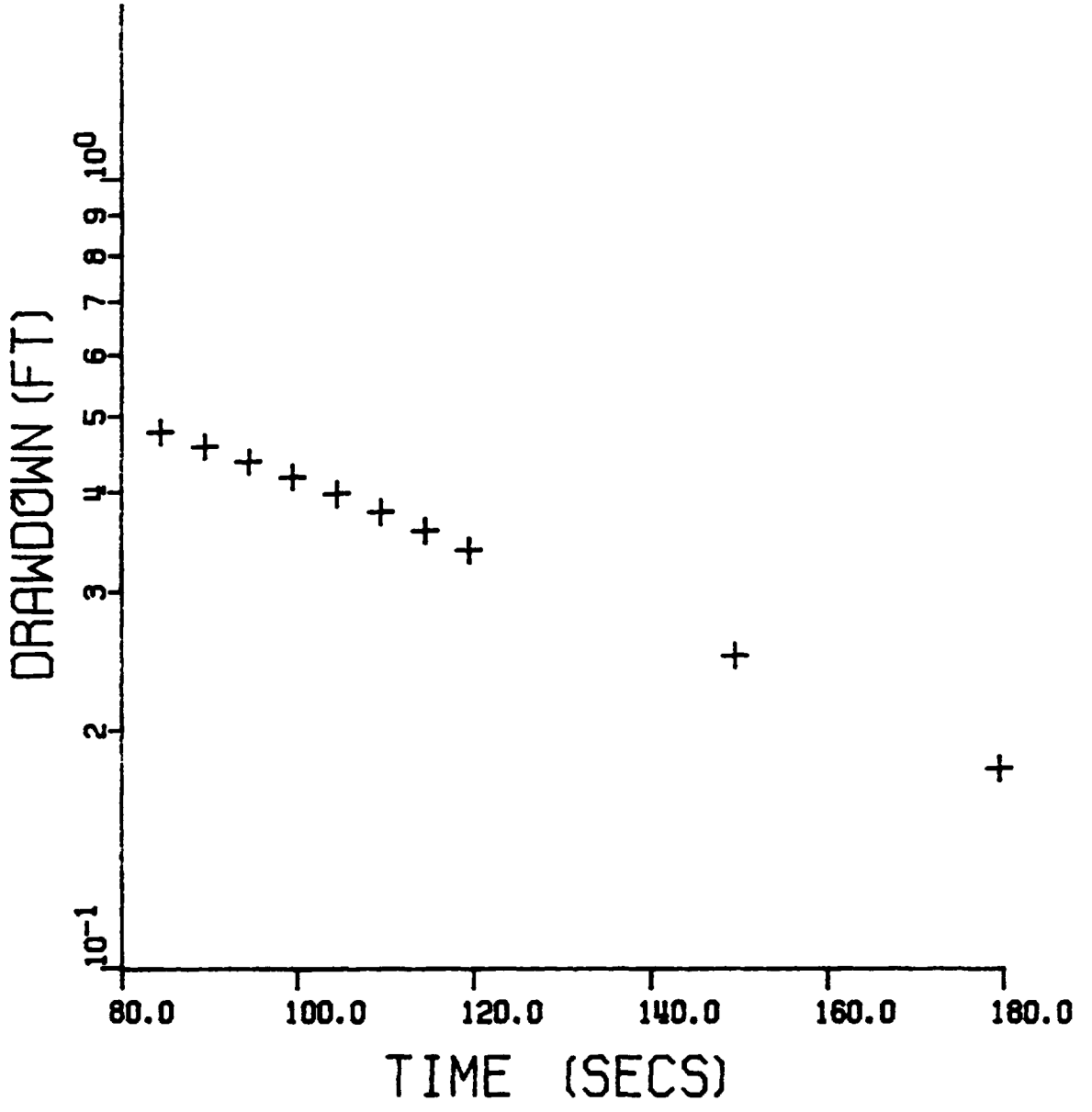
END TIME IS = .850E+02 SECONDS

##
enter 1 to continue with thesame datafile

```
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
     99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
S
en... no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
       2  to calculate hydraulic conductivity
       3  to dump plot to printer or view again
       4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
1.5
ENTER SCREEN LENGTH (ft)
.5
ENTER WELL PENETRATION DEPTH (ft)
1.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

     HYDOGEOLOGY AND SITE INVESTIGATION.

              PEI ASSOCIATES INC.

               CINCINNATI. OHIO

   B A I L D O W N   D A T A   A N A L Y S I S

   DATA OBTAINED BY :          g

   DATA ANALYZED BY :          g

   BAIL DOWN PARAMETERS FOR    0SW9A

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER   =      6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =      2.000 INCHES

 SCREEN LENGTH          =      .500 FEET

 WELL PENETRATION DEPTH   =      1.500 FEET

 AQUIFER THICKNESS       =      1.500 FEET

 STATIC WATER LEVEL       =      8.840 FEET

    UIFER CONDUCTIVITY IS  =   .260E-02 CM/SEC

                  OR    .550E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =   .119E+00 CM*CM/SEC
```

```
120
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
99,99
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
1
 enter  baildown start time --- TS
40
 enter baildown end time ----- TE
85
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
[illegible]
[illegible]88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS =      .2156
      LINE   SLOPE   IS =   -.011208

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)

enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
```


RAW DATA AND LST.SQUARE FIT
SW9A
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
80.0
100.0
120.0
140.0
160.0
180.0
TIME (SECS)

ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
F' 'ER AQUIFER THICKNESS (ft)
1.
ENTER SCREEN LENGTH (ft)
.5
ENTER WELL PENETRATION DEPTH (ft)
1.5
@@

HYDOGEOLOGY AND SITE INVESTIGATION.

PEI ASSOCIATES INC.

CINCINNATI. OHIO

B A I L D O W N   D A T A   A N A L Y S I S

DATA OBTAINED BY : g

DATA ANALYZED BY : g

BAIL DOWN PARAMETERS FOR 0SW9A

@@

EFFECTIVE WELL DIAMETER = 6.000 INCHES

'ECTIVE SCREEN DIAMETER = 2.000 INCHES

SCREEN LENGTH = .500 FEET

WELL PENETRATION DEPTH = 1.500 FEET

AQUIFER THICKNESS = 1.500 FEET

STATIC WATER LEVEL = 8.840 FEET

AQUIFER CONDUCTIVITY IS = .241E-02 CM/SEC

OR .510E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .110E+00 CM*CM/SEC

OR .765E+02 GAL/FT/DAY

##

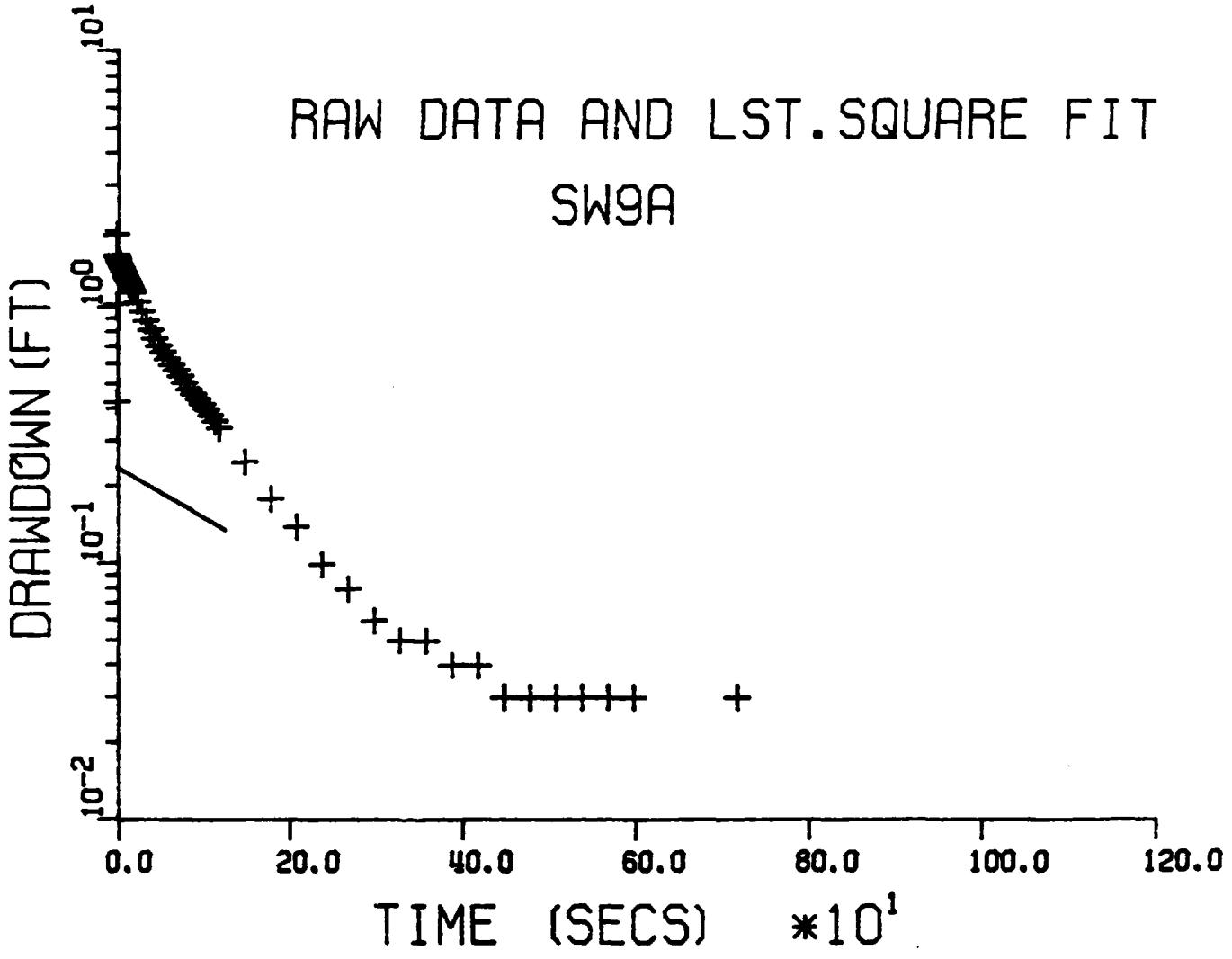
CENSORED DATA END POINTS ARE ::
START TIME IS = .800E+02 SECONDS

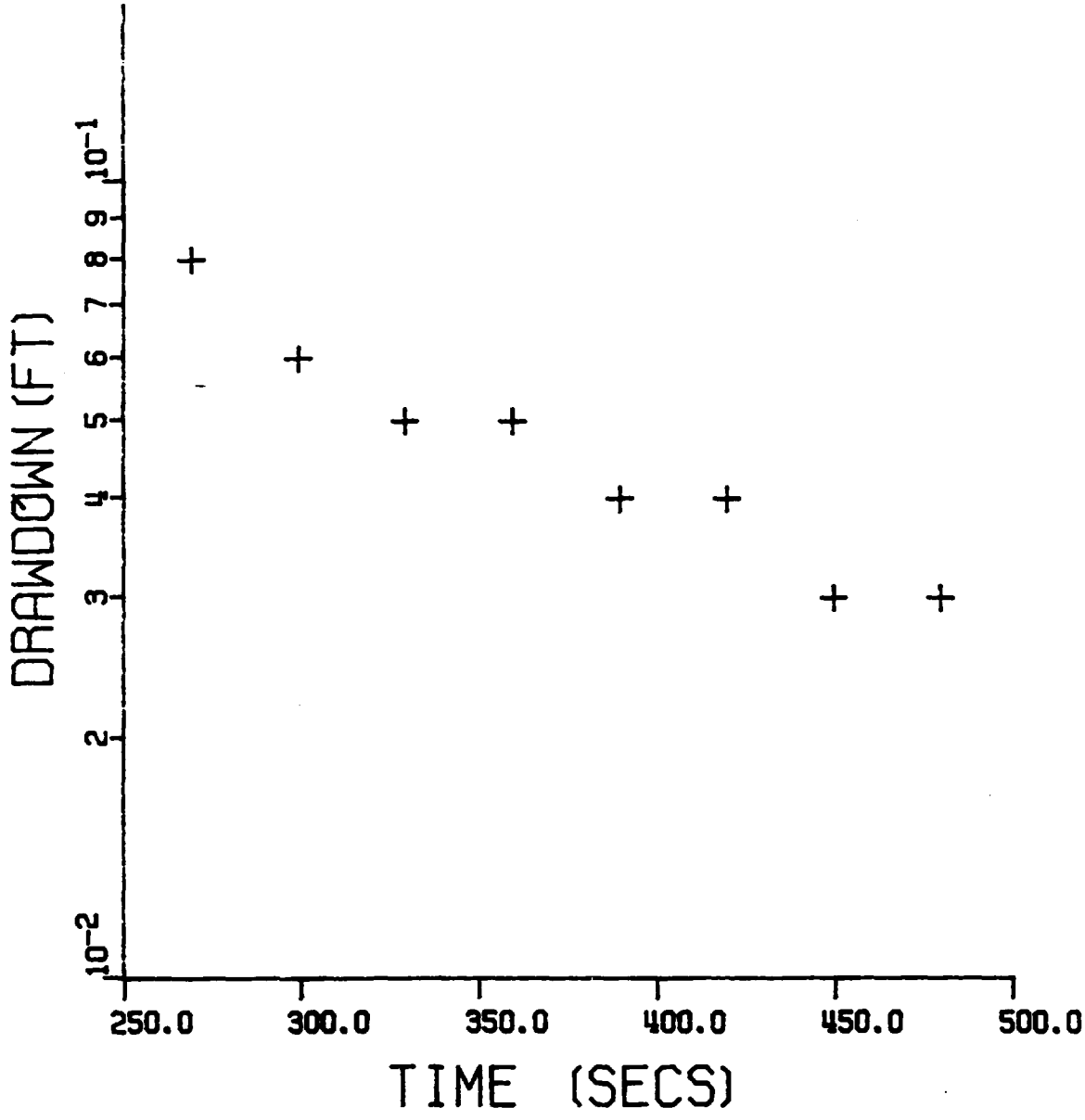
END TIME IS = .200E+03 SECONDS

##
.er 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 1.500 FEET

```
      3  for least squares fit
1
 enter  baildown start time --- TS
80
 ,    r baildown end time ----- TE
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
P  s <return> to continue. Do you want to view the plot again ? -----Y/N

 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
 LINE  INTERCEPT IS =      .1621
       LINE   SLOPE   IS =   -.010388

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW9A
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
    s <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
```

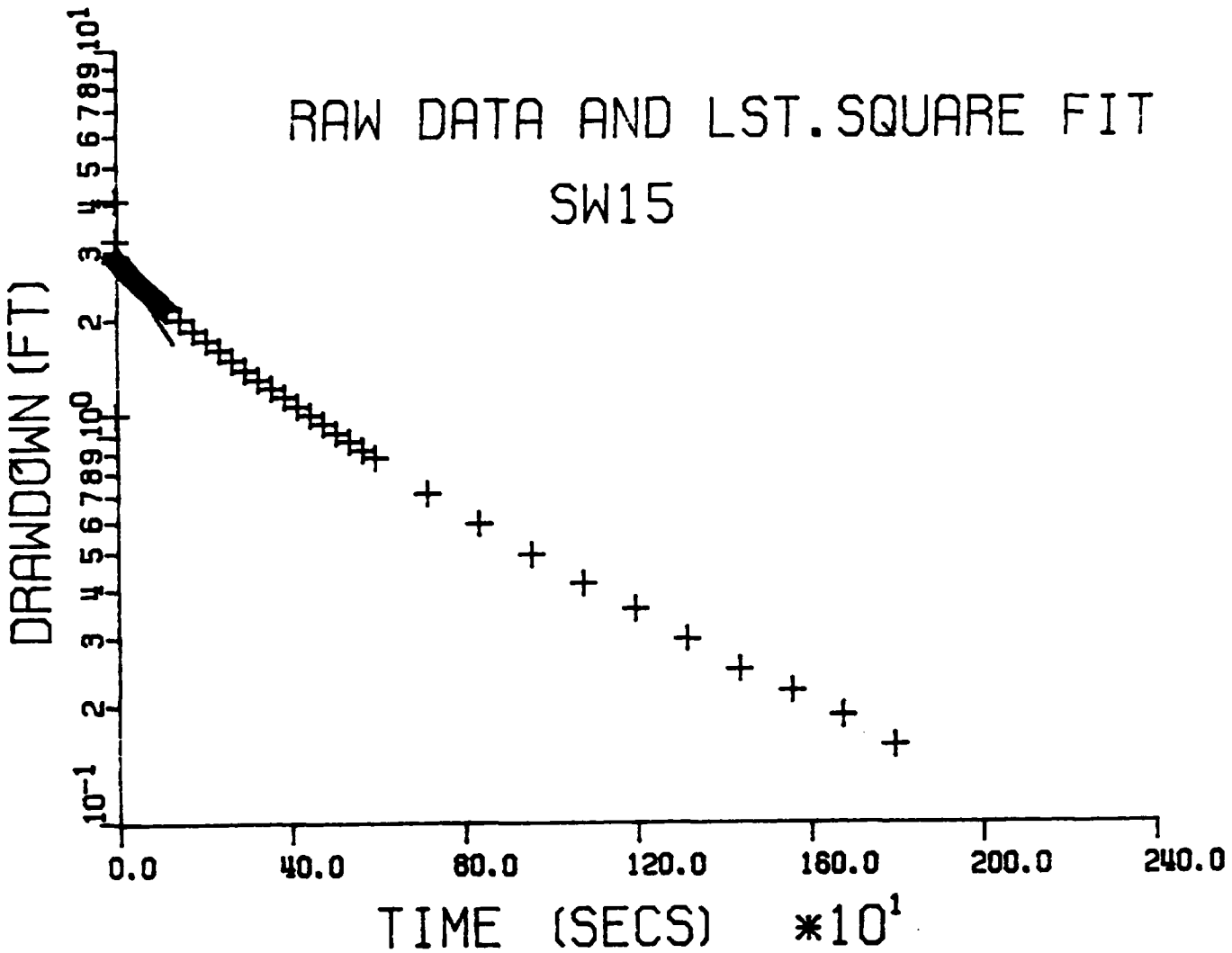

RAW DATA AND LST.SQUARE FIT
SW9A
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$

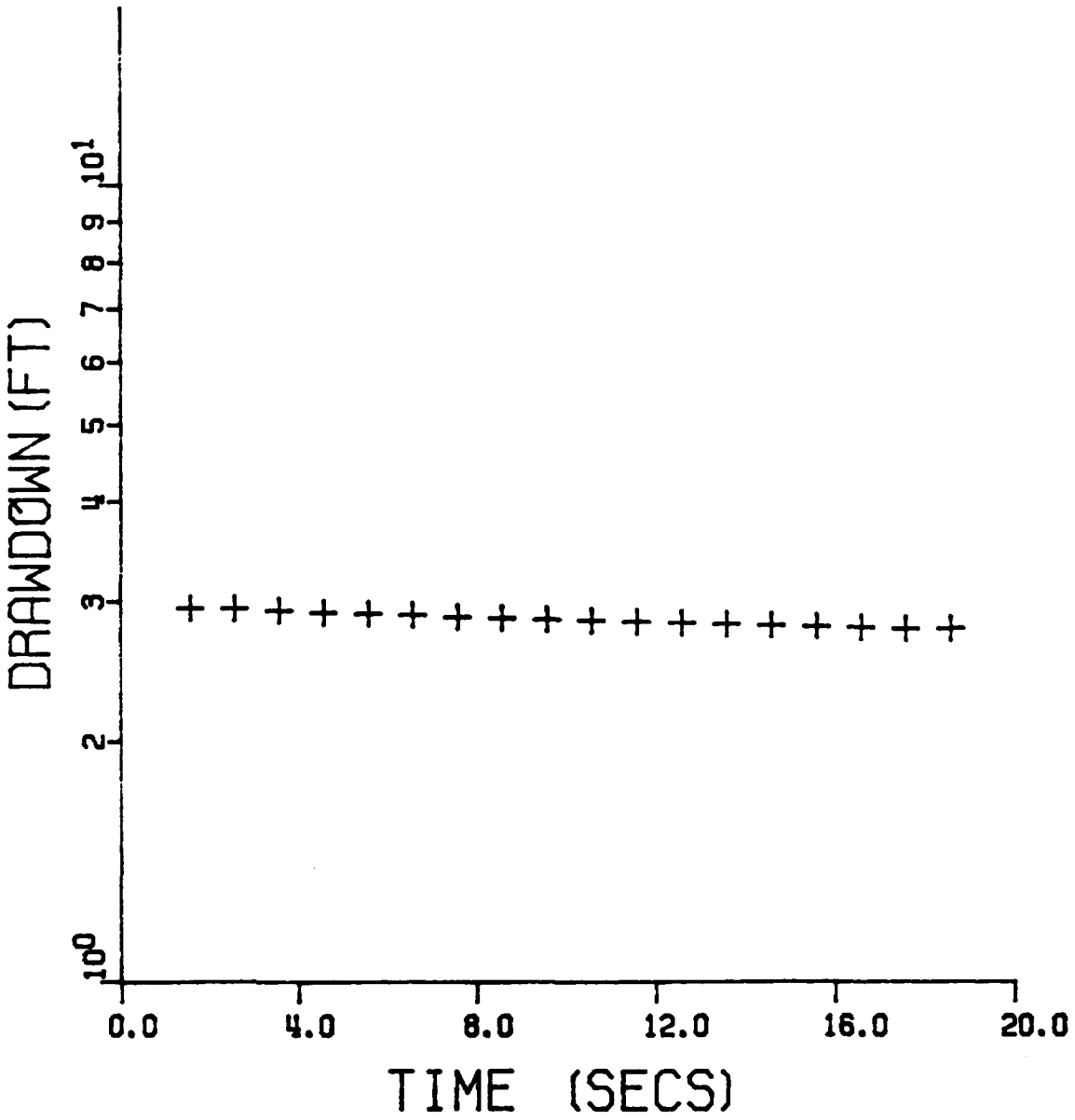

DRAWDOWN (FT)
10^{-1}
9
8
7
6
5
4
3
2
10^{-2}
250.0
300.0
350.0
400.0
450.0
500.0
TIME (SECS)

```
STATIC WATER LEVEL          =      8.840 FEET

AOUIFER CONDUCTIVITY IS  =    .103E-02 CM/SEC

                    OR    .219E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =    .472E-01 CM*CM/SEC

                    OR    .328E+02 GAL/FT/DAY

#################################################

  CENSORED DATA END POINTS ARE ::
START TIME IS             =    .250E+03 SECONDS

END TIME IS               =    .490E+03 SECONDS

#################################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run

AQUIFER THICKNESS           =      1.500 FEET

STATIC WATER LEVEL          =      8.840 FEET

AQUIFER CONDUCTIVITY IS  =    .103E-02 CM/SEC

                    OR    .219E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =    .472E-01 CM*CM/SEC

                    OR    .328E+02 GAL/FT/DAY

#################################################

  CENSORED DATA END POINTS ARE ::
START TIME IS             =    .250E+03 SECONDS

END TIME IS               =    .490E+03 SECONDS

#################################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run

AQUIFER THICKNESS           =      1.500 FEET

STATIC WATER LEVEL          =      8.840 FEET

AOUIFER CONDUCTIVITY IS  =    .103E-02 CM/SEC

                    OR    .219E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =    .472E-01 CM*CM/SEC

                    OR    .328E+02 GAL/FT/DAY
```

```
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99  to display graph on the console
9600,20
        Printer out of paper error writing device PRN
Abort, Retry, Ignore, Fail?R

enter well identification number--(20 chrs max)
SW9A
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press &lt;return&gt; to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
'   'ER AQUIFER THICKNESS (ft)
.
ENTER SCREEN LENGTH (ft)
.5
ENTER WELL PENETRATION DEPTH (ft)
1.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

     HYDOGEOLOGY AND SITE INVESTIGA    ЭN.

          PEI ASSOCIATES INC.

           CINCINNATI. OHIO

   B A I L D O W N   D A T A   A N A L Y S I S

   DATA OBTAINED BY :        g

   DATA ANALYZED BY :        g

   BAIL DOWN PARAMETERS FOR   0SW9A

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER   =     6.000 INCHES

    'ECTIVE SCREEN DIAMETER =     2.000 INCHES

 SCREEN LENGTH             =      .500 FEET

 WELL PENETRATION DEPTH    =     1.500 FEET

 AQUIFER THICKNESS         =     1.500 FEET
```

```
      2  to remove  more outliers
      3  for least squares fit
1
 enter  baildown start time --- TS
2
 enter baildown end time ----- TE
550
enter  0,15  to output graph on epson printer
      0,14  to output graph on epson printer
           (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
99,99
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
      2  to remove  more outliers
      3  for least squares fit
1
 enter  baildown start time --- TS
250
 enter baildown end time ----- TE
490
enter  0,15  to output graph on epson printer
      0,14  to output graph on epson printer
           (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
99,99
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
      0,14  to output graph on epson printer
           (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
      2  to remove  more outliers
      3  for least squares fit
3
  LINE  INTERCEPT IS =    -1.4292
      LINE   SLOPE   IS =    -.004454

 enter  1   to enter prefered baildown times
      2   for default times(see users manual)
```

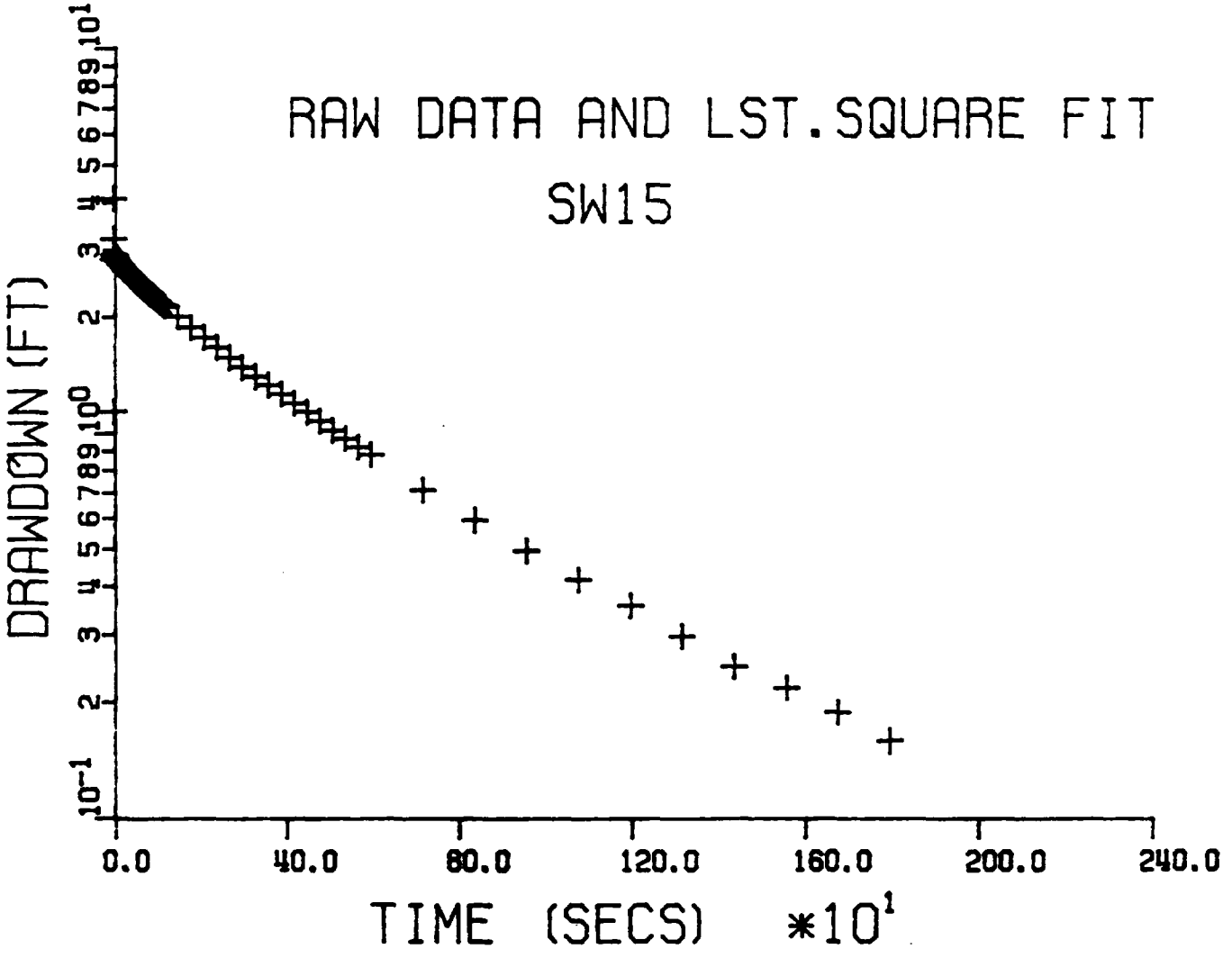

RAW DATA AND LST.SQUARE FIT
SW15
DRAWDOWN (FT)
TIME (SECS) *10^1
0.0
40.0
80.0
120.0
160.0
200.0
240.0
10^-1
10^0
10^1

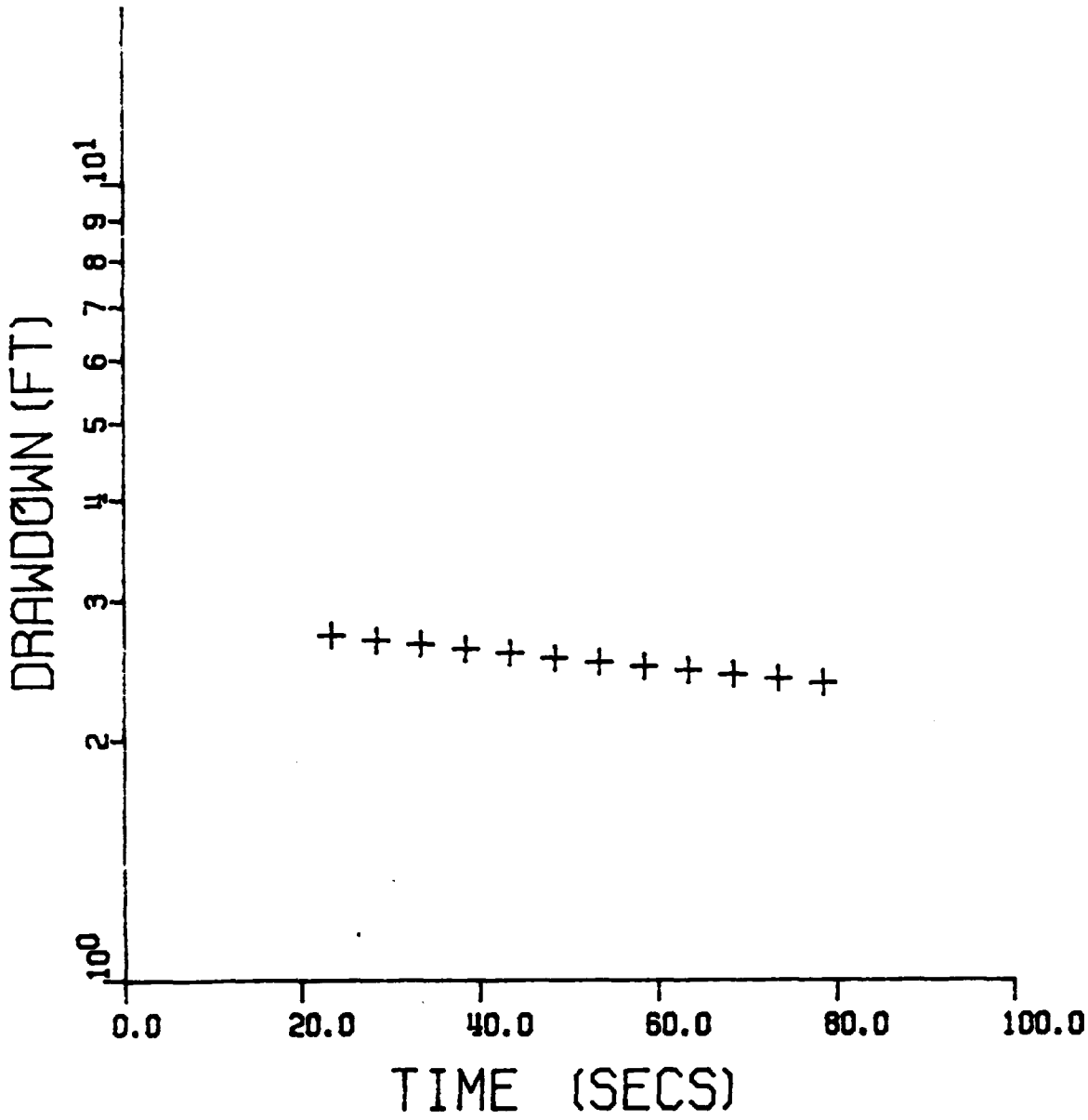

DRAWDOWN (FT)
10^1
9
8
7
6
5
4
3
2
10^0
0.0
4.0
8.0
12.0
16.0
20.0
TIME (SECS)

```
 END TIME IS                    =     .200E+02 SECONDS

 ##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS              =       5.000 FEET

 STATIC WATER LEVEL             =      10.990 FEET

 AQUIFER CONDUCTIVITY IS        =     .185E-03 CM/SEC

                               OR     .391E+01 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    =     .281E-01 CM*CM/SEC

                               OR     .196E+02 GAL/FT/DAY

##############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                  =     .100E+01 SECONDS

 END TIME IS                    =     .200E+02 SECONDS

 ##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS              =       5.000 FEET

 STATIC WATER LEVEL             =      10.990 FEET

 AQUIFER CONDUCTIVITY IS        =     .185E-03 CM/SEC

                               OR     .391E+01 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    =     .281E-01 CM*CM/SEC

                               OR     .196E+02 GAL/FT/DAY

##############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                  =     .100E+01 SECONDS

 END TIME IS                    =     .200E+02 SECONDS

 ##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run
```

```
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
5
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    5SW15

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER   =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH             =       5.000 FEET

 WELL PENETRATION DEPTH    =       5.000 FEET

 AQUIFER THICKNESS         =       5.000 FEET

 STATIC WATER LEVEL        =      10.990 FEET

 AQUIFER CONDUCTIVITY IS   =    .185E-03 CM/SEC

                          OR    .391E+01 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .281E-01 CM*CM/SEC

                          OR    .196E+02 GAL/FT/DAY

###############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS             =    .100E+01 SECONDS
```

```
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
1
 enter  baildown start time --- TS
1
 enter baildown end time ----- TE
20
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =     1.0904
      LINE   SLOPE   IS  =    -.003904

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW15
enter no. of characters in well id. no.
4
```


RAW DATA AND LST.SQUARE FIT
SW15
DRAWDOWN (FT)
TIME (SECS) *10¹
0.0
40.0
80.0
120.0
160.0
200.0
240.0
10⁻¹
10⁰
10¹


DRAWDOWN (FT)
10^0
2
3
4
5
6
7
8
9
10^1
0.0
20.0
40.0
60.0
80.0
100.0
TIME (SECS)

B A I L D O W N   D A T A   A N A L Y S I S

DATA OBTAINED BY :   G

DATA ANALYZED BY :   G

BAIL DOWN PARAMETERS FOR   5SW15

@@

EFFECTIVE WELL DIAMETER = 6.000 INCHES

EFFECTIVE SCREEN DIAMETER = 2.000 INCHES

SCREEN LENGTH = 5.000 FEET

WELL PENETRATION DEPTH = 5.000 FEET

AQUIFER THICKNESS = 5.000 FEET

STATIC WATER LEVEL = 10.990 FEET

AQUIFER CONDUCTIVITY IS = .121E-03 CM/SEC

OR .257E+01 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .185E-01 CM*CM/SEC

OR .128E+02 GAL/FT/DAY

###

CENSORED DATA END POINTS ARE ::
START TIME IS = .200E+02 SECONDS

END TIME IS = .800E+02 SECONDS

##
enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 5.000 FEET

STATIC WATER LEVEL = 10.990 FEET

AQUIFER CONDUCTIVITY IS = .121E-03 CM/SEC

OR .257E+01 GAL/FT/FT/DAY

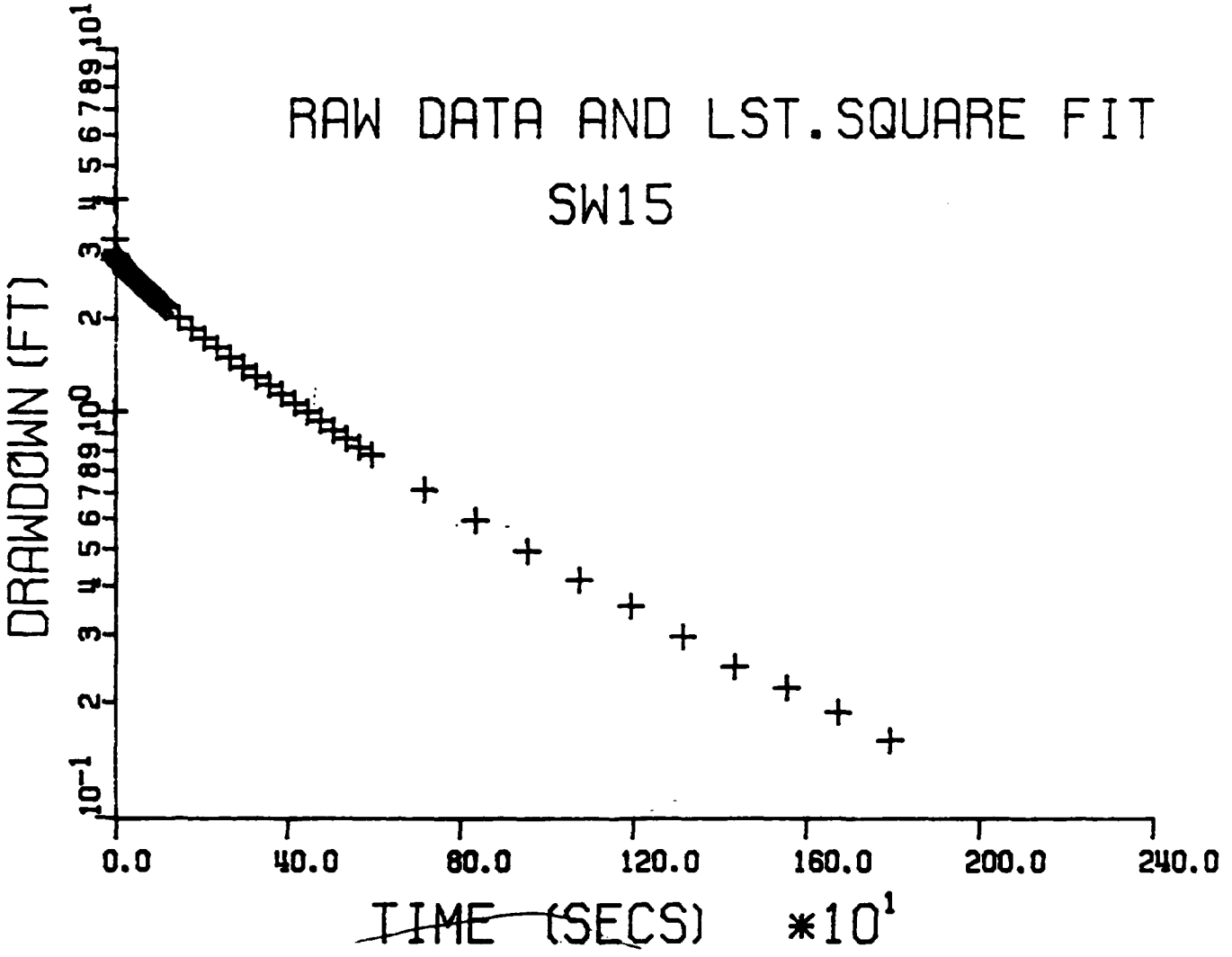
AQUIFER TRANSMISSIVITY IS = .185E-01 CM*CM/SEC

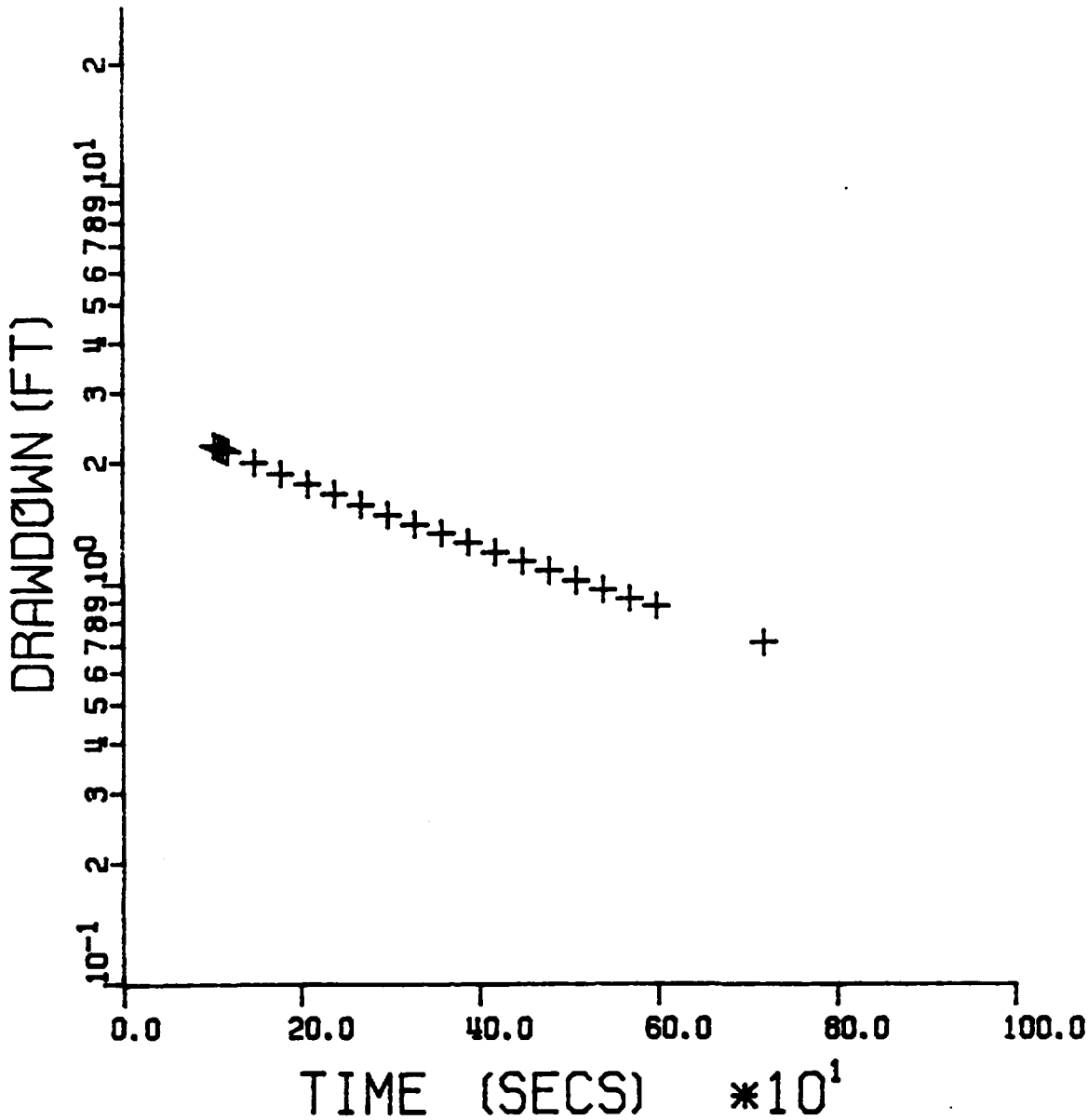
OR .128E+02 GAL/FT/DAY

###

CENSORED DATA END POINTS ARE ::
START TIME IS = .200E+02 SECONDS

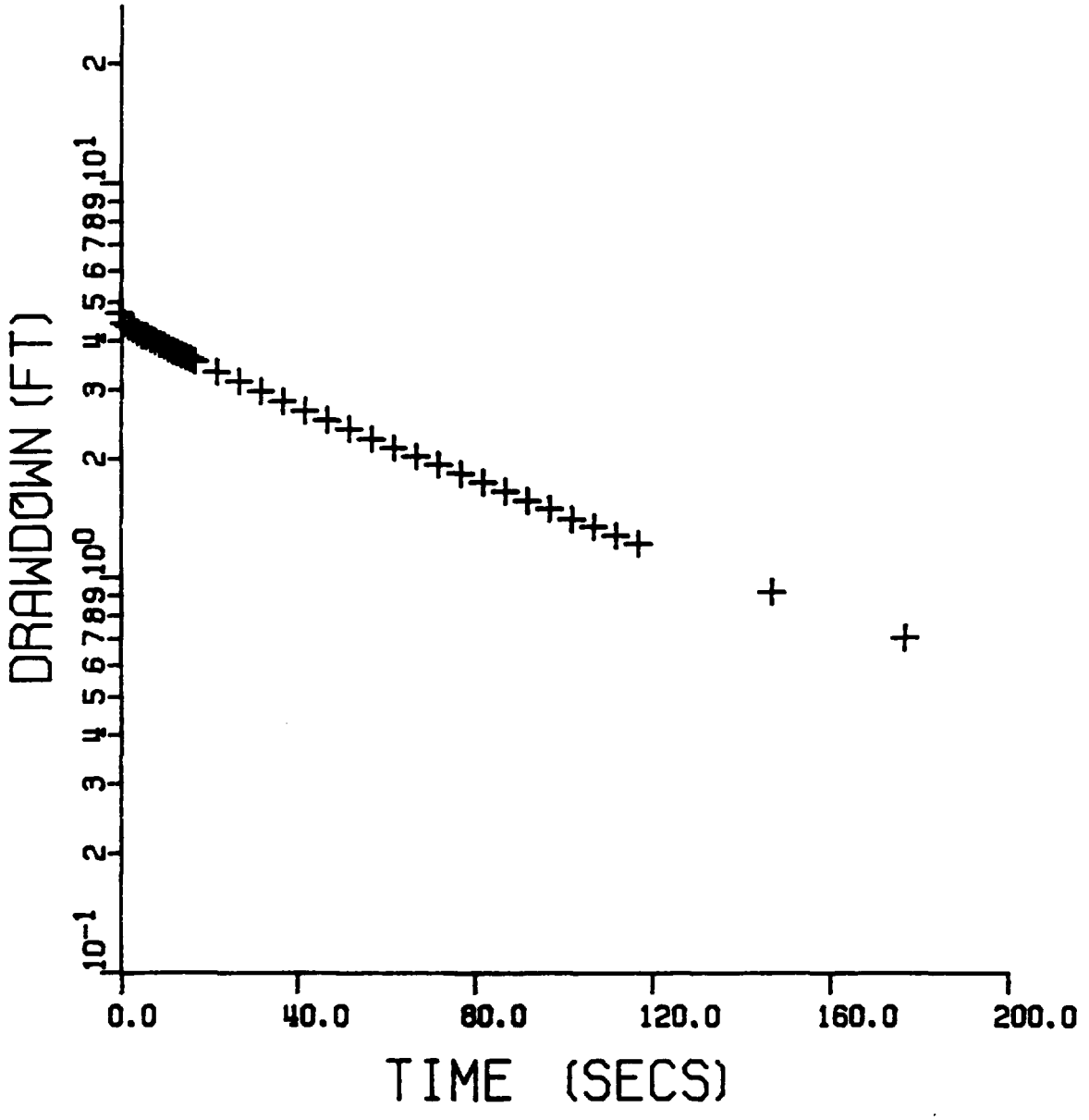
```
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =     1.0630
       LINE   SLOPE   IS  =    -.002560

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
      99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW15
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
5
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

      HYDOGEOLOGY AND SITE INVESTIGATION.

               PEI ASSOCIATES INC.

                 CINCINNATI. OHIO
```


RAW DATA AND LST.SQUARE FIT
SW15
DRAWDOWN (FT)
TIME (SECS) *10^1
0.0
40.0
80.0
120.0
160.0
200.0
240.0
10^-1
2
3
4
5
6
7
8
9
10^0
10^1


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
3
4
5
6
7
8
9
10^{1}
2
0.0
20.0
40.0
60.0
80.0
100.0
TIME (SECS) $*10^{1}$

```
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
F' 'ER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
5
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    5SW15

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

   FECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH              =       5.000 FEET

 WELL PENETRATION DEPTH     =       5.000 FEET

 AQUIFER THICKNESS          =       5.000 FEET

 STATIC WATER LEVEL         =      10.990 FEET

 AQUIFER CONDUCTIVITY IS    =    .877E-04 CM/SEC

                           OR    .186E+01 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .134E-01 CM*CM/SEC

                           OR    .929E+01 GAL/FT/DAY

###############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =    .100E+03 SECONDS

   'D TIME IS               =    .800E+03 SECONDS

################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
```

```
 enter  baildown start time --- TS
100
 enter baildown end time ----- TE
800
e   r  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N

  ter  1  to remove more skewed points
       2  to remove  more outliers
       3  for least squares fit
3
  LINE  INTERCEPT IS  =      .9774
       LINE   SLOPE   IS  =    -.001854

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW15
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
       2  to calculate hydraulic conductivity
       3  to dump plot to printer or view again
       4  to stop
2
 do you want to write bail results to a file ?  Y/N
```


DRAWDOWN (FT)
TIME (SECS)
0.0
40.0
80.0
120.0
160.0
200.0
10^{-1}
10^{0}
10^{1}

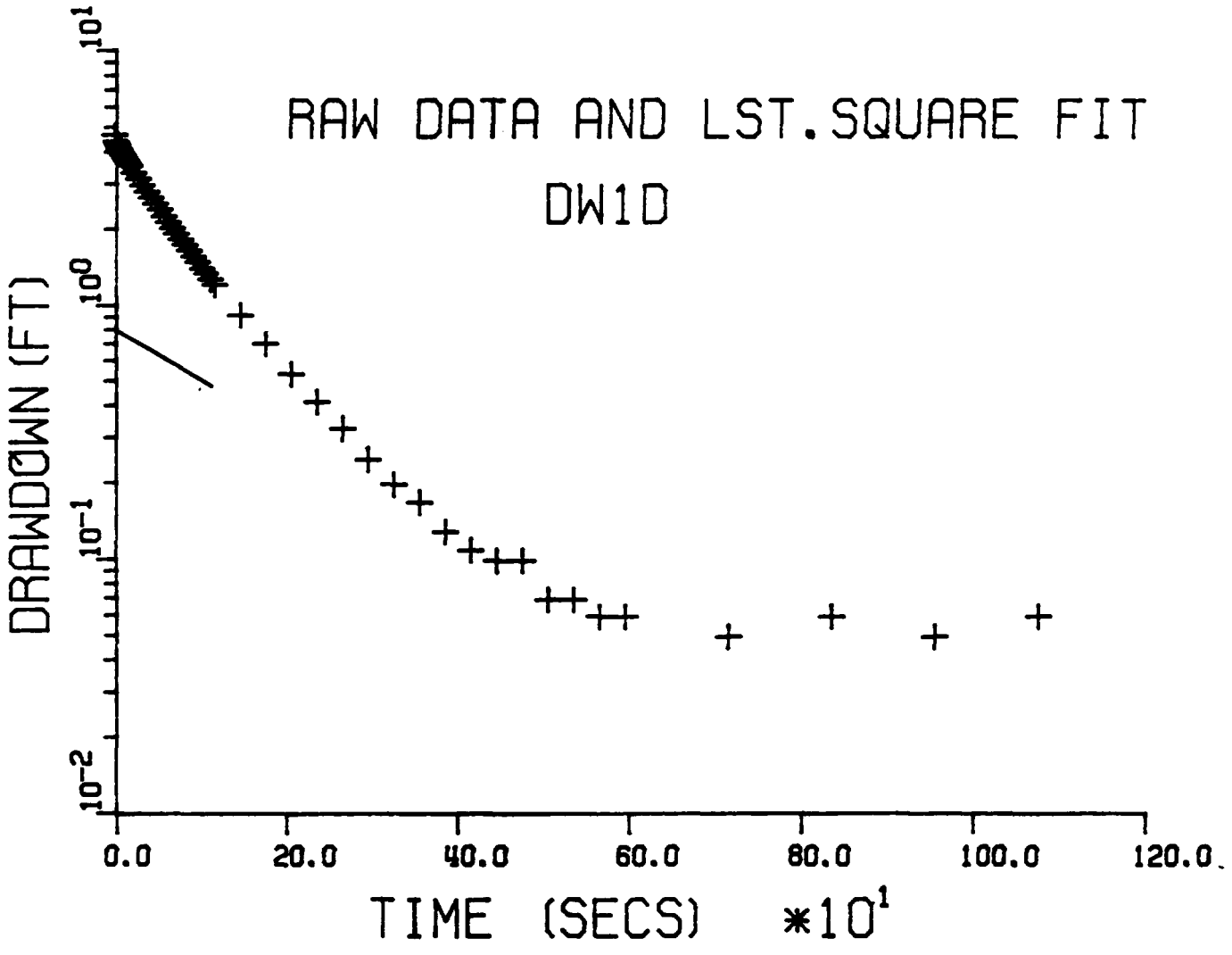
```
 STATIC WATER LEVEL          =      15.310 FEET

   JIFER CONDUCTIVITY IS     =    .569E-03 CM/SEC

                            OR    .121E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .278E+00 CM*CM/SEC

                            OR    .193E+03 GAL/FT/DAY

##############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS               =    .000E+00 SECONDS

 END TIME IS                 =    .180E+03 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS           =      16.000 FEET

 STATIC WATER LEVEL          =      15.310 FEET

   JIFER CONDUCTIVITY IS     =    .569E-03 CM/SEC

                            OR    .121E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .278E+00 CM*CM/SEC

                            OR    .193E+03 GAL/FT/DAY

##############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS               =    .000E+00 SECONDS

 END TIME IS                 =    .180E+03 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS           =      16.000 FEET

 STATIC WATER LEVEL          =      15.310 FEET

   UIFER CONDUCTIVITY IS     =    .569E-03 CM/SEC

                            OR    .121E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .278E+00 CM*CM/SEC
```

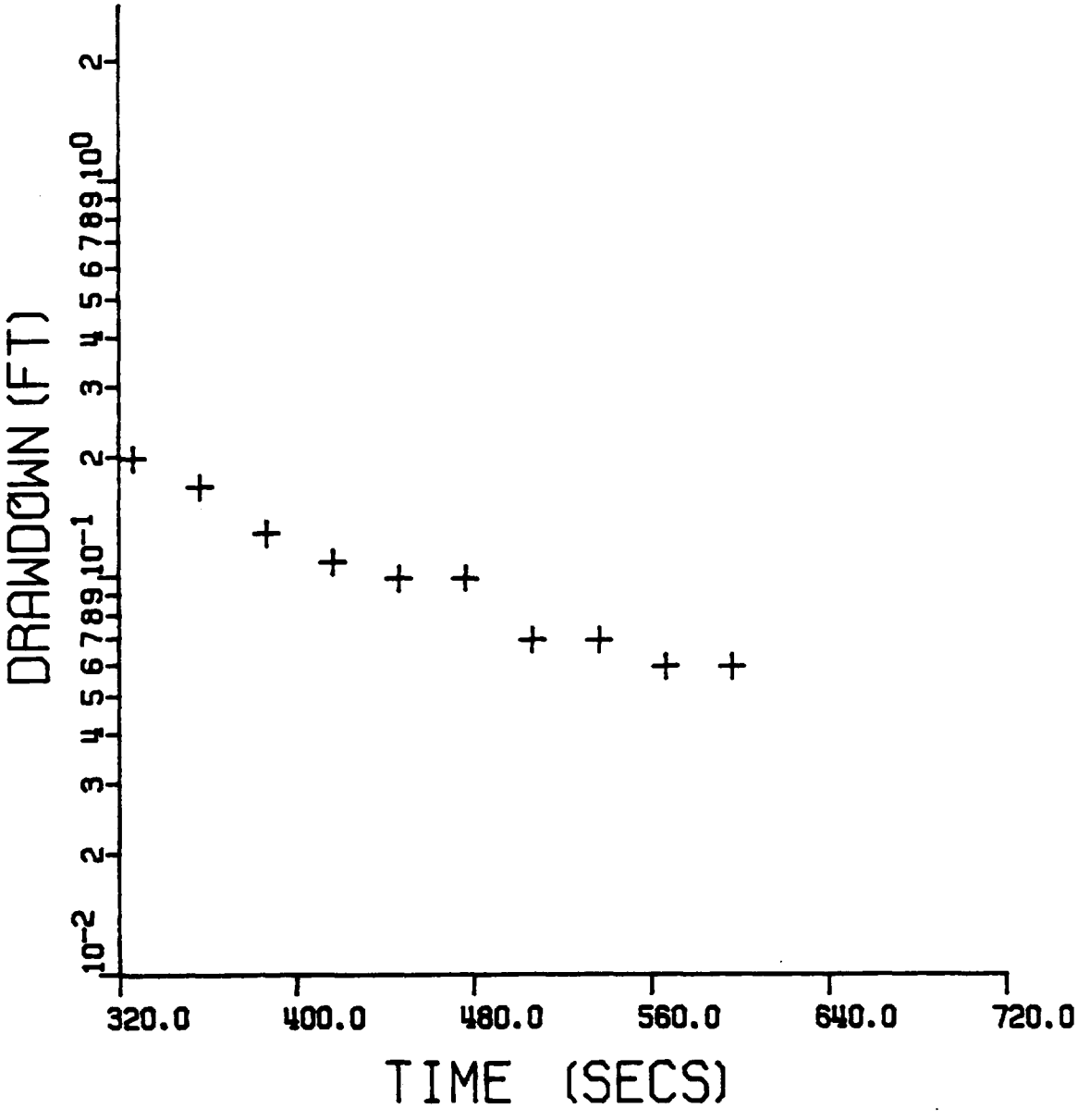
```
         2   for default times(see users manual)
2
e~ ~er  0,15  to output graph on epson printer
        0,14  to output graph on epson printer
              (double density print)
        0, 1  to output graph on okidata 92
        0,11  to output graph on okidata 93
     9600,20  to output graph on HP plotter (com1)
     9650,20  to output graph on HP plotter (com2)
        99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
DW1D
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press &lt;return&gt; to continue. enter  1  to begin afresh
         2  to calculate hydraulic conductivity
         3  to dump plot to printer or view again
         4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)

ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
15
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    1DW1D

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

   FFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH              =       5.000 FEET

 WELL PENETRATION DEPTH     =      15.000 FEET

 AQUIFER THICKNESS          =      16.000 FEET
```

```
 enter  baildown start time --- TS
0
 ' ter baildown end time ----- TE
4
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
1
 enter  baildown start time --- TS
0
 enter baildown end time ----- TE
180
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =     1.4690
       LINE   SLOPE   IS  =    -.010788

 enter  1   to enter prefered baildown times
```

```
                          OR     .140E+02 GAL/FT/FT/DAY

 UIFER TRANSMISSIVITY IS =     .885E+00 CM*CM/SEC

                          OR     .615E+03 GAL/FT/DAY

##############################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS            =     .000E+00 SECONDS

 END TIME IS              =     .180E+03 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS        =       44.000 FEET

 STATIC WATER LEVEL       =       15.310 FEET

 AQUIFER CONDUCTIVITY IS  =     .660E-03 CM/SEC

                          OR     .140E+02 GAL/FT/FT/DAY

 UIFER TRANSMISSIVITY IS =     .885E+00 CM*CM/SEC

                          OR     .615E+03 GAL/FT/DAY

##############################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS            =     .000E+00 SECONDS

 END TIME IS              =     .180E+03 SECONDS

##############################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS        =       44.000 FEET

 STATIC WATER LEVEL       =       15.310 FEET

 AQUIFER CONDUCTIVITY IS  =     .660E-03 CM/SEC

                          OR     .140E+02 GAL/FT/FT/DAY

   UIFER TRANSMISSIVITY IS =     .885E+00 CM*CM/SEC

                          OR     .615E+03 GAL/FT/DAY

##############################################

   CENSORED DATA END POINTS ARE ::
```

```
                              OR     .193E+03 GAL/FT/DAY

#""################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                =     .000E+00 SECONDS

 END TIME IS                  =     .180E+03 SECONDS

#################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

3
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
44
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
43
   @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

         HYDOGEOLOGY AND SITE INVESTIGATION.

                  PEI ASSOCIATES INC.

                    CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :            G

    DATA ANALYZED BY :            G

    BAIL DOWN PARAMETERS FOR     1DW1D

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER     =        6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =          2.000 INCHES

 SCREEN LENGTH               =        5.000 FEET

 WELL PENETRATION DEPTH      =       43.000 FEET

   JIFER THICKNESS           =       44.000 FEET

 STATIC WATER LEVEL          =       15.310 FEET

 AQUIFER CONDUCTIVITY IS     =     .660E-03 CM/SEC
```


RAW DATA AND LST.SQUARE FIT
DW1D
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
20.0
40.0
60.0
80.0
100.0
120.0
TIME (SECS) $*10^1$


DRAWDOWN (FT)
10^{-2}
2
3
4
5
6
7
8
9
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
320.0
400.0
480.0
560.0
640.0
720.0
TIME (SECS)

HYDOGEOLOGY AND SITE INVESTIGATION.

PEI ASSOCIATES INC.

CINCINNATI. OHIO

B A I L D O W N   D A T A   A N A L Y S I S

DATA OBTAINED BY :   G

DATA ANALYZED BY :   G

BAIL DOWN PARAMETERS FOR   1DW1D

@@

EFFECTIVE WELL DIAMETER	=	6.000	INCHES
EFFECTIVE SCREEN DIAMETER	=	2.000	INCHES
SCREEN LENGTH	=	5.000	FEET
WELL PENETRATION DEPTH	=	15.000	FEET
AQUIFER THICKNESS	=	16.000	FEET
STATIC WATER LEVEL	=	15.310	FEET
AQUIFER CONDUCTIVITY IS	=	.241E-03	CM/SEC
	OR	.510E+01	GAL/FT/FT/DAY
AQUIFER TRANSMISSIVITY IS	=	.117E+00	CM*CM/SEC
	OR	.816E+02	GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::

START TIME IS	=	.300E+03	SECONDS
END TIME IS	=	.600E+03	SECONDS

##

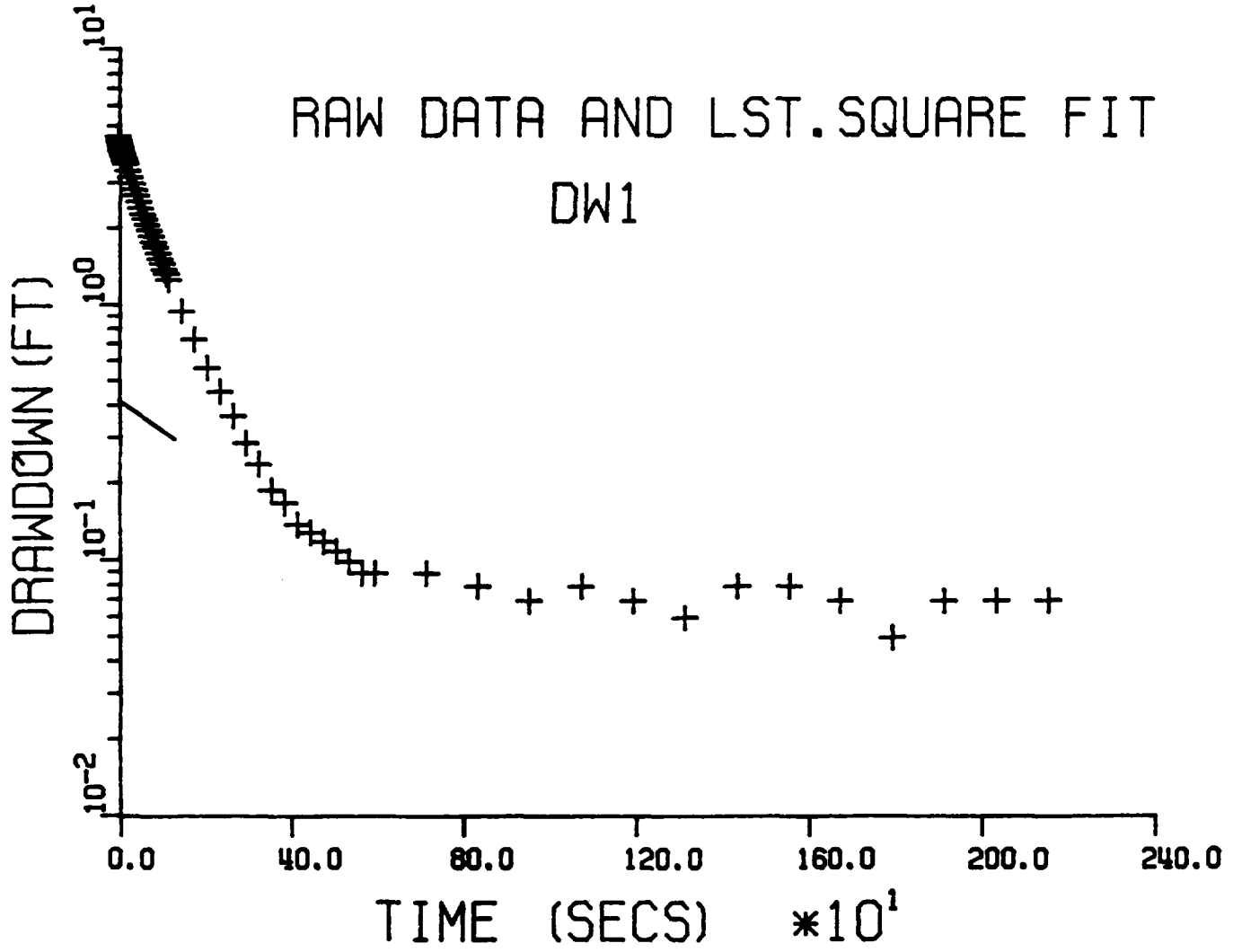
```
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run
```

AQUIFER THICKNESS	=	16.000	FEET
STATIC WATER LEVEL	=	15.310	FEET
AQUIFER CONDUCTIVITY IS	=	.241E-03	CM/SEC
	OR	.510E+01	GAL/FT/FT/DAY
AQUIFER TRANSMISSIVITY IS	=	.117E+00	CM*CM/SEC

```
99,99
PLOT88 ERROR #4      9 UNPLOTTABLE VECTORS
P' "88 ERROR #5      1 CLIPPED VECTORS
R. .Y TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =     -.2108
       LINE   SLOPE   IS  =    -.004561

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
?
\   er  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
DW1D
enter no. of characters in well id. no.
4
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
'  ER AQUIFER THICKNESS (ft)

ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
15
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@
```

```
                          OR     .591E+01 GAL/FT/FT/DAY

   IIFER TRANSMISSIVITY IS =     .374E+00 CM*CM/SEC

                          OR     .260E+03 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =     .300E+03 SECONDS

 END TIME IS                =     .600E+03 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS          =       44.000 FEET

 STATIC WATER LEVEL         =       15.310 FEET

 AQUIFER CONDUCTIVITY IS    =     .279E-03 CM/SEC

                          OR     .591E+01 GAL/FT/FT/DAY

  `UIFER TRANSMISSIVITY IS =     .374E+00 CM*CM/SEC

                          OR     .260E+03 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =     .300E+03 SECONDS

 END TIME IS                =     .600E+03 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS          =       44.000 FEET

 STATIC WATER LEVEL         =       15.310 FEET

 AQUIFER CONDUCTIVITY IS    =     .279E-03 CM/SEC

                          OR     .591E+01 GAL/FT/FT/DAY

   UIFER TRANSMISSIVITY IS =     .374E+00 CM*CM/SEC

                          OR     .260E+03 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
```

```
                          OR    .816E+02 GAL/FT/DAY

##############################################

   CENSORED DATA END POINTS ARE ::
 START TIME IS              =    .300E+03 SECONDS

 END TIME IS                =    .600E+03 SECONDS

#################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

3
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
44
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
43
   @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    1DW1D

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER   =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH             =       5.000 FEET

 WELL PENETRATION DEPTH    =      43.000 FEET

   JIFER THICKNESS         =      44.000 FEET

 STATIC WATER LEVEL        =      15.310 FEET

 AQUIFER CONDUCTIVITY IS   =    .279E-03 CM/SEC
```


RAW DATA AND LST.SQUARE FIT
DW1
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
40.0
80.0
120.0
160.0
200.0
240.0
TIME (SECS) $*10^1$

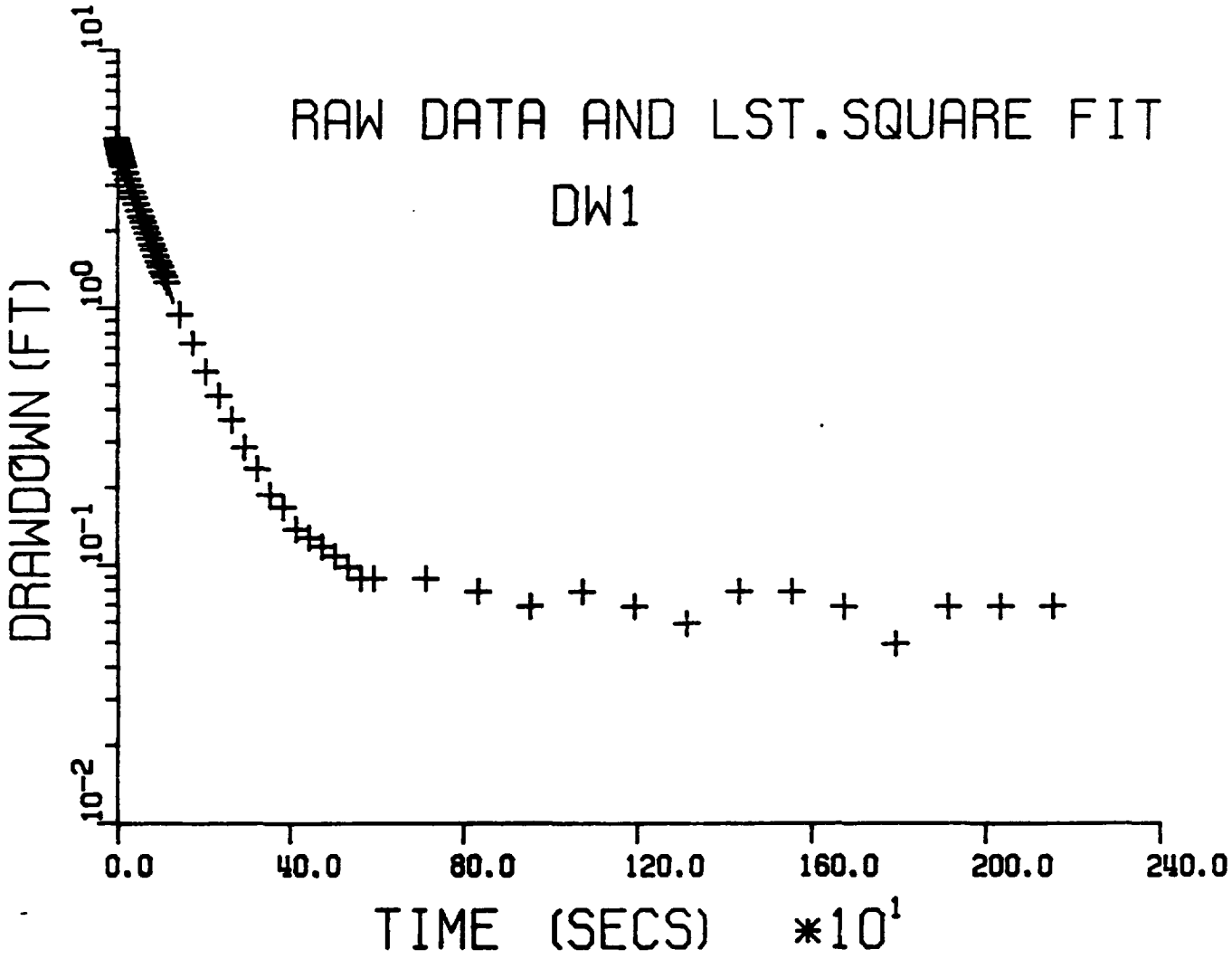
DRAWDØWN (FT)
10^-2 2 3 4 5 6 7 8 9 10^-1 2 3 4 5 6 7 8 9 10^0 2
TIME (SECS)
0.00
40.0
80.0
120.0
160.0
200.0

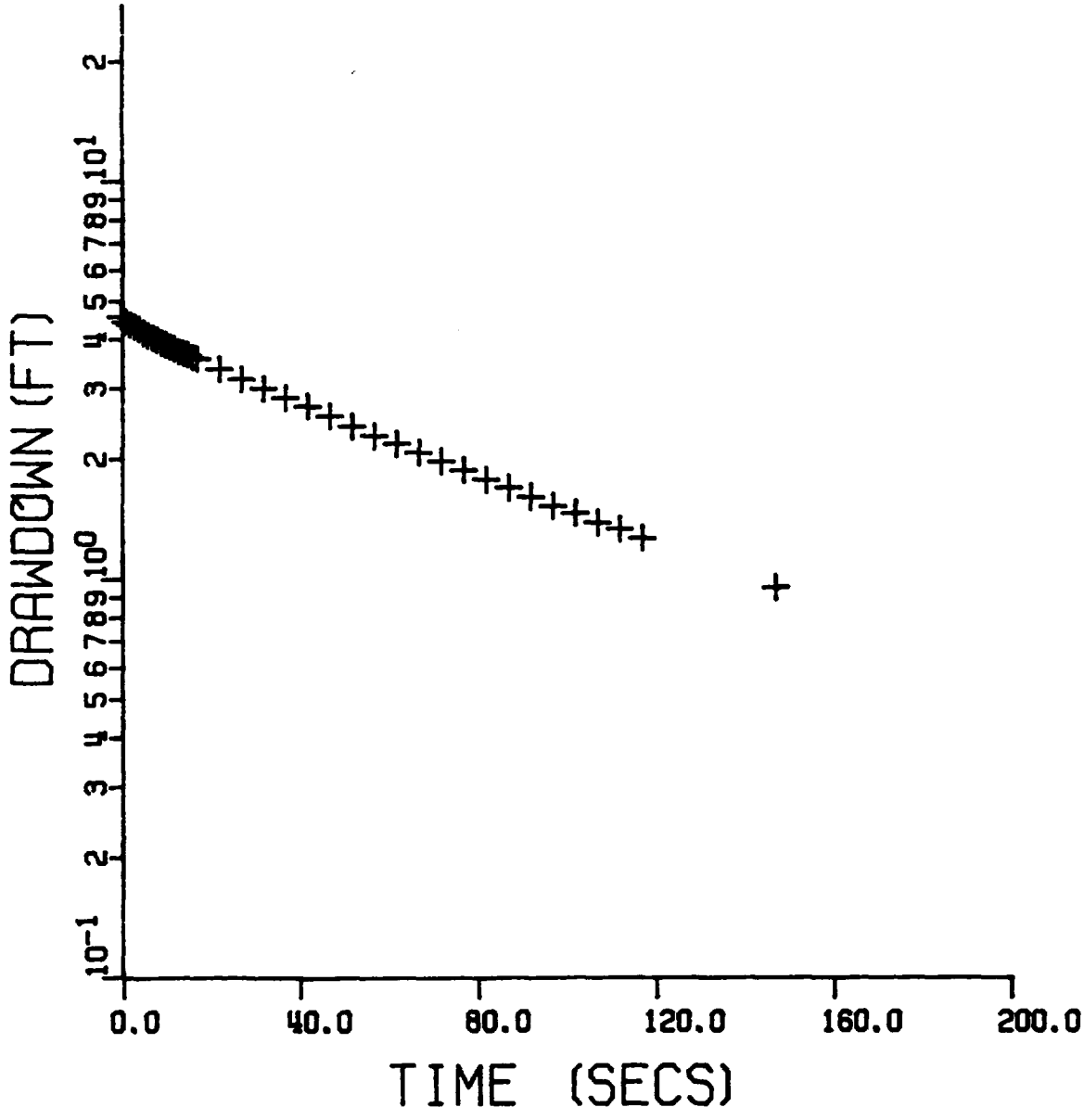
```
 END TIME IS                  =     .700E+03 SECONDS

#""################################################
   :er  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS            =       16.000 FEET

 STATIC WATER LEVEL           =       15.310 FEET

 AQUIFER CONDUCTIVITY IS      =     .141E-03 CM/SEC

                             OR     .299E+01 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .687E-01 CM*CM/SEC

                             OR     .478E+02 GAL/FT/DAY

#################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                =     .400E+03 SECONDS

 END TIME IS                  =     .700E+03 SECONDS

#""################################################
   ter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS            =       16.000 FEET

 STATIC WATER LEVEL           =       15.310 FEET

 AQUIFER CONDUCTIVITY IS      =     .141E-03 CM/SEC

                             OR     .299E+01 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .687E-01 CM*CM/SEC

                             OR     .478E+02 GAL/FT/DAY

#################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                =     .400E+03 SECONDS

 END TIME IS                  =     .700E+03 SECONDS

#""################################################
   .ter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run
```

```
Press &lt;return&gt; to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
16
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
15
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    ODW1

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH              =       5.000 FEET

 WELL PENETRATION DEPTH     =      15.000 FEET

 AQUIFER THICKNESS          =      16.000 FEET

 STATIC WATER LEVEL         =      15.310 FEET

 AQUIFER CONDUCTIVITY IS    =     .141E-03 CM/SEC

                          OR     .299E+01 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =     .687E-01 CM*CM/SEC

                          OR     .478E+02 GAL/FT/DAY

###############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =     .400E+03 SECONDS
```

```
SCREEN LENGTH                =       5.000 FEET

 L PENETRATION DEPTH         =      43.000 FEET

AQUIFER THICKNESS            =      44.000 FEET

STATIC WATER LEVEL           =      15.310 FEET

AQUIFER CONDUCTIVITY IS      =    .163E-03 CM/SEC

                           OR    .346E+01 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =    .219E+00 CM*CM/SEC

                           OR    .152E+03 GAL/FT/DAY

##################################################

   CENSORED DATA END POINTS ARE ::
START TIME IS                =    .400E+03 SECONDS

END TIME IS                  =    .700E+03 SECONDS

##################################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run

AQUIFER THICKNESS            =      44.000 FEET

STATIC WATER LEVEL           =      15.310 FEET

AQUIFER CONDUCTIVITY IS      =    .163E-03 CM/SEC

                           OR    .346E+01 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =    .219E+00 CM*CM/SEC

                           OR    .152E+03 GAL/FT/DAY

##################################################

   CENSORED DATA END POINTS ARE ::
START TIME IS                =    .400E+03 SECONDS

END TIME IS                  =    .700E+03 SECONDS

##################################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run


AQUIFER THICKNESS            =      44.000 FEET

STATIC WATER LEVEL           =      15.310 FEET

AQUIFER CONDUCTIVITY IS      =    .163E-03 CM/SEC
```

```
 AQUIFER THICKNESS           =      16.000 FEET

 ATIC WATER LEVEL            =      15.310 FEET

 AQUIFER CONDUCTIVITY IS     =    .141E-03 CM/SEC

                         OR       .299E+01 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =      .687E-01 CM*CM/SEC

                         OR       .478E+02 GAL/FT/DAY

###############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS               =    .400E+03 SECONDS

 END TIME IS                 =    .700E+03 SECONDS

################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

3
 do you want to write bail results to a file ?  Y/N
N
  ER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
44
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
43
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    ODW1

  @@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =        2.000 INCHES
```


RAW DATA AND LST.SQUARE FIT
DW1
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
40.0
80.0
120.0
160.0
200.0
240.0
TIME (SECS) $*10^1$

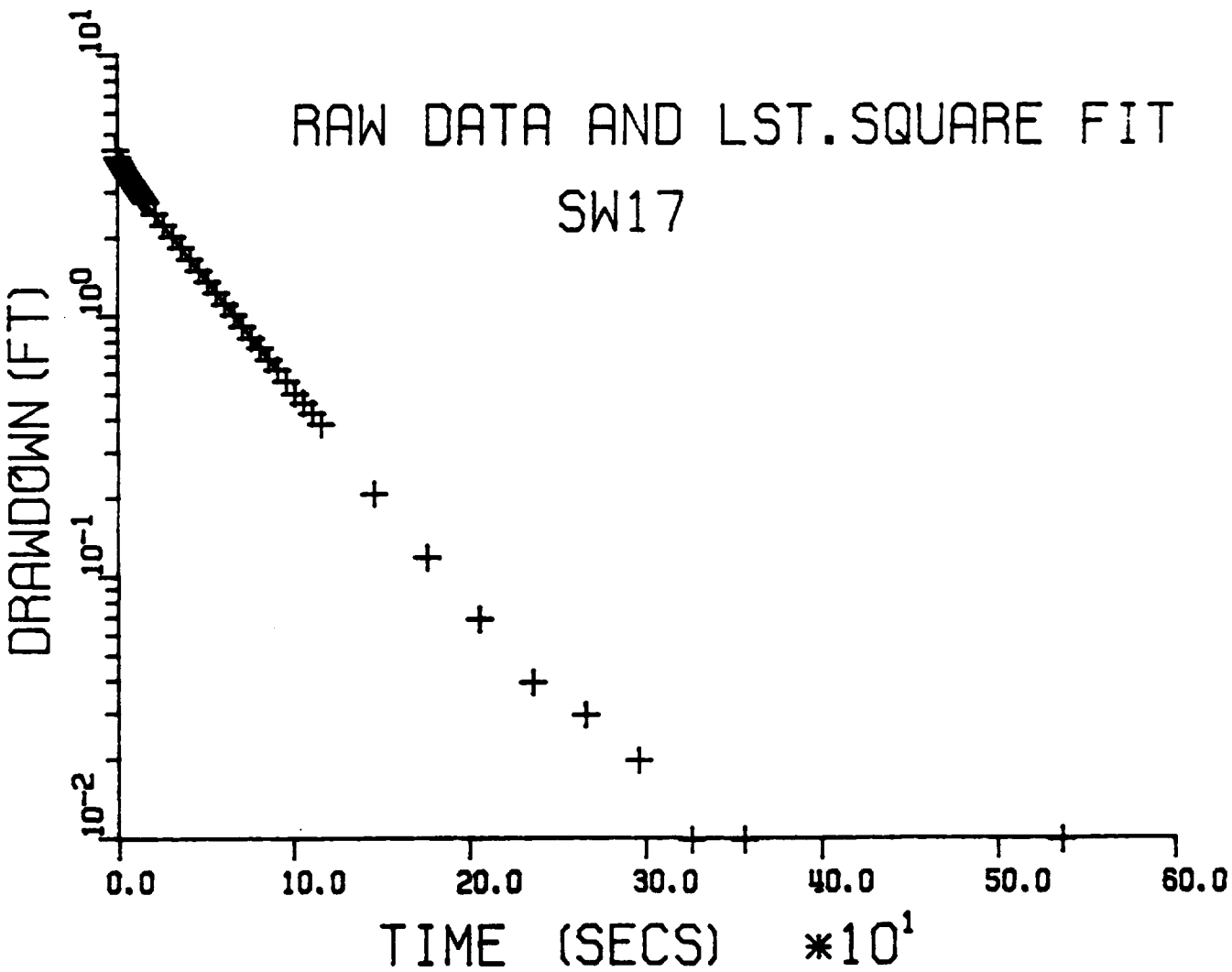

DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
3
4
5
6
7
8
9
10^{1}
2
0.0
40.0
80.0
120.0
160.0
200.0
TIME (SECS)

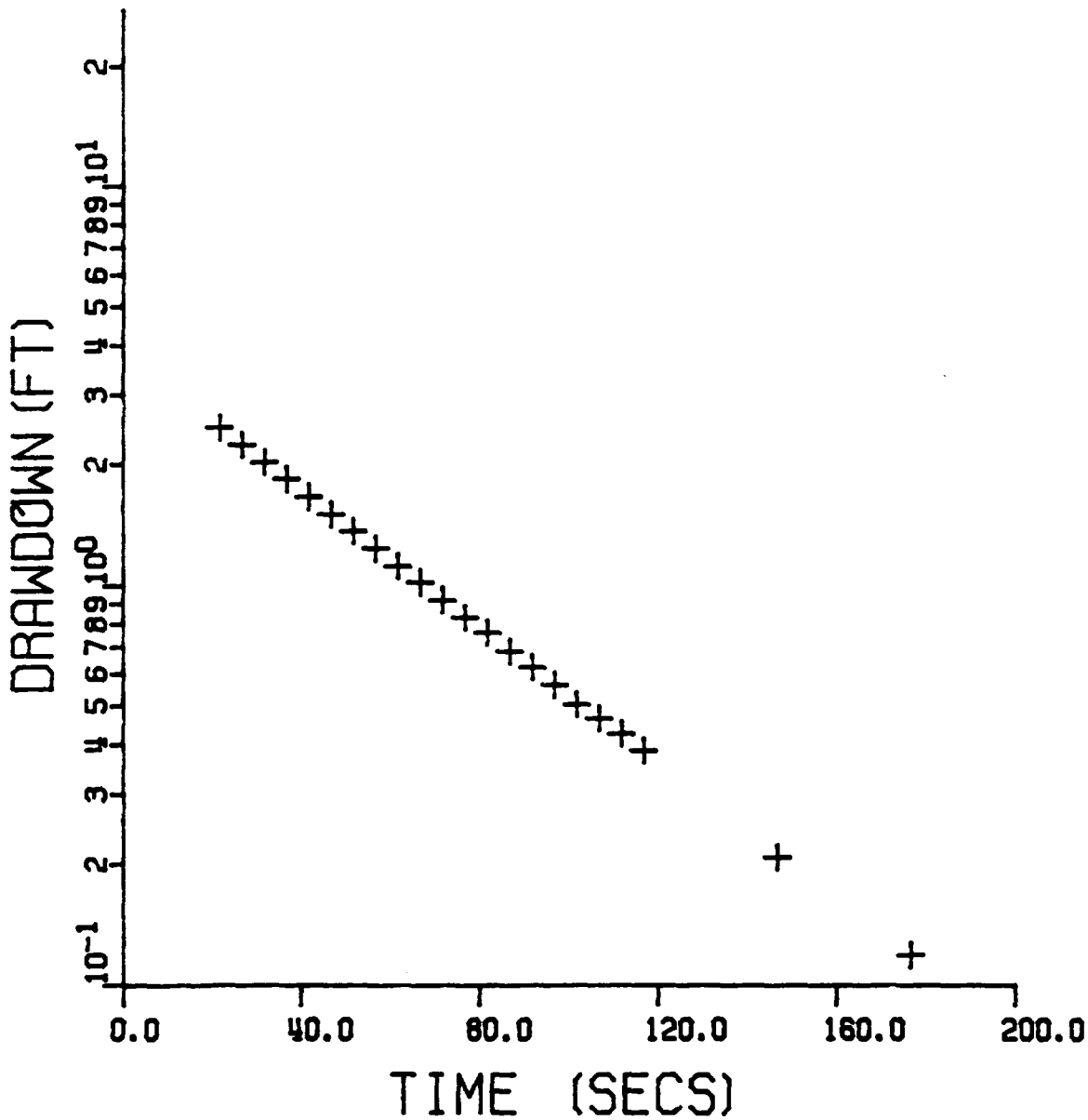
```
 END TIME IS                    =     .150E+03 SECONDS

##################################################
    er  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

 AQUIFER THICKNESS              =       16.000 FEET

 STATIC WATER LEVEL             =       15.310 FEET

 AQUIFER CONDUCTIVITY IS        =     .564E-03 CM/SEC

                               OR     .120E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    =     .275E+00 CM*CM/SEC

                               OR     .191E+03 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                  =     .000E+00 SECONDS

 END TIME IS                    =     .150E+03 SECONDS

##################################################
   :er  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS              =       16.000 FEET

 STATIC WATER LEVEL             =       15.310 FEET

 AQUIFER CONDUCTIVITY IS        =     .564E-03 CM/SEC

                               OR     .120E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    =     .275E+00 CM*CM/SEC

                               OR     .191E+03 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                  =     .000E+00 SECONDS

 END TIME IS                    =     .150E+03 SECONDS

##################################################
   :er  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run
```

```
Press <return> to continue. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop
2
 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
16
ENTER SCREEN LENGTH (ft)
5
ENTER WELL PENETRATION DEPTH (ft)
15
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

       HYDOGEOLOGY AND SITE INVESTIGATION.

                PEI ASSOCIATES INC.

                  CINCINNATI. OHIO

    B A I L D O W N   D A T A   A N A L Y S I S

    DATA OBTAINED BY :          G

    DATA ANALYZED BY :          G

    BAIL DOWN PARAMETERS FOR    ODW1

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER    =       6.000 INCHES

 EFFECTIVE SCREEN DIAMETER =       2.000 INCHES

 SCREEN LENGTH              =       5.000 FEET

 WELL PENETRATION DEPTH     =      15.000 FEET

 AQUIFER THICKNESS          =      16.000 FEET

 STATIC WATER LEVEL         =      15.310 FEET

 AQUIFER CONDUCTIVITY IS    =    .564E-03 CM/SEC

                           OR    .120E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =    .275E+00 CM*CM/SEC

                           OR    .191E+03 GAL/FT/DAY

#############################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS              =    .000E+00 SECONDS
```

```
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
0
 enter  baildown start time --- TS
0
 enter baildown end time ----- TE
150
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
99,99
PLOT88 ERROR #4     9 UNPLOTTABLE VECTORS
PLOT88 ERROR #5     1 CLIPPED VECTORS
READY TO DISPLAY OUTPUT.
Please press <return> to continue. Do you want to view the plot again ? -----Y/N
Y
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
9600,20
PLOT COMPLETE. MOUNT NEXT PAGE.
Press <return> to continue. Do you want to view the plot again ? -----Y/N
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS  =     1.4731
       LINE   SLOPE   IS  =    -.010687

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
       0,14  to output graph on epson printer
             (double density print)
       0, 1  to output graph on okidata 92
       0,11  to output graph on okidata 93
    9600,20  to output graph on HP plotter (com1)
    9650,20  to output graph on HP plotter (com2)
       99,99 to display graph on the console
  0,20
enter well identification number--(20 chrs max)
DW1
enter no. of characters in well id. no.
3
PLOT COMPLETE. MOUNT NEXT PAGE.
```

```
 SCREEN LENGTH                  =        5.000 FEET

 WELL PENETRATION DEPTH         =       43.000 FEET

 AQUIFER THICKNESS              =       44.000 FEET

 STATIC WATER LEVEL             =       15.310 FEET

 AQUIFER CONDUCTIVITY IS        =     .654E-03 CM/SEC

                               OR     .138E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =           .877E+00 CM*CM/SEC

                               OR     .609E+03 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                  =     .000E+00 SECONDS

 END TIME IS                    =     .150E+03 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run

   JIFER THICKNESS              =       44.000 FEET

 STATIC WATER LEVEL             =       15.310 FEET

 AQUIFER CONDUCTIVITY IS        =     .654E-03 CM/SEC

                               OR     .138E+02 GAL/FT/FT/DAY

 AQUIFER TRANSMISSIVITY IS =           .877E+00 CM*CM/SEC

                               OR     .609E+03 GAL/FT/DAY

##################################################

    CENSORED DATA END POINTS ARE ::
 START TIME IS                  =     .000E+00 SECONDS

 END TIME IS                    =     .150E+03 SECONDS

##################################################
 enter  1  to continue  with thesame datafile
        2  to work on another datafile
        3  to change input parameters
        4  to terminate current run


 AQUIFER THICKNESS              =       44.000 FEET

 STATIC WATER LEVEL             =       15.310 FEET

 AQUIFER CONDUCTIVITY IS        =     .654E-03 CM/SEC
```


RAW DATA AND LST.SQUARE FIT
SW17
DRAWDOWN (FT)
10^1
10^0
10^{-1}
10^{-2}
0.0
10.0
20.0
30.0
40.0
50.0
60.0
TIME (SECS) $*10^1$


DRAWDOWN (FT)
10^{-1}
2
3
4
5
6
7
8
9
10^{0}
2
3
4
5
6
7
8
9
10^{1}
2
0.0
40.0
80.0
120.0
160.0
200.0
TIME (SECS)

EFFECTIVE SCREEN DIAMETER = 2.000 INCHES

SCREEN LENGTH = 3.500 FEET

_L PENETRATION DEPTH = 3.500 FEET

AQUIFER THICKNESS = 10.500 FEET

STATIC WATER LEVEL = 16.080 FEET

AQUIFER CONDUCTIVITY IS = .946E-03 CM/SEC

OR .200E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .303E+00 CM*CM/SEC

OR .211E+03 GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::
START TIME IS = .200E+02 SECONDS

END TIME IS = .200E+03 SECONDS

##
enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 10.500 FEET

STATIC WATER LEVEL = 16.080 FEET

AQUIFER CONDUCTIVITY IS = .946E-03 CM/SEC

OR .200E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS = .303E+00 CM*CM/SEC

OR .211E+03 GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::
START TIME IS = .200E+02 SECONDS

END TIME IS = .200E+03 SECONDS

##
enter 1 to continue with thesame datafile
2 to work on another datafile
3 to change input parameters
4 to terminate current run

AQUIFER THICKNESS = 10.500 FEET

STATIC WATER LEVEL = 16.080 FEET

```
N
 enter  1  to remove more skewed points
        2  to remove  more outliers
        3  for least squares fit
3
  LINE  INTERCEPT IS =     1.3451
      LINE   SLOPE   IS =    -.019649

 enter  1   to enter prefered baildown times
        2   for default times(see users manual)
2
enter  0,15  to output graph on epson printer
      0,14  to output graph on epson printer
            (double density print)
      0, 1  to output graph on okidata 92
      0,11  to output graph on okidata 93
   9600,20  to output graph on HP plotter (com1)
   9650,20  to output graph on HP plotter (com2)
     99,99 to display graph on the console
9600,20
enter well identification number--(20 chrs max)
SW17
enter no. of characters in well id. no.
4

. enter  1  to begin afresh
        2  to calculate hydraulic conductivity
        3  to dump plot to printer or view again
        4  to stop

 do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)
10.5
ENTER SCREEN LENGTH (ft)
3.5
ENTER WELL PENETRATION DEPTH (ft)
3.5
@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

      HYDOGEOLOGY AND SITE INVESTIGATION.

              PEI ASSOCIATES INC.

               CINCINNATI. OHIO

   B A I L D O W N   D A T A   A N A L Y S I S

   DATA OBTAINED BY :         G

   )ATA ANALYZED BY :         G

   BAIL DOWN PARAMETERS FOR   3SW17

@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@@

 EFFECTIVE WELL DIAMETER  =      6.000 INCHES
```

```
STATIC WATER LEVEL          =      16.080 FEET

AQUIFER CONDUCTIVITY IS  =    .915E-03 CM/SEC

                    OR    .194E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =    .642E+00 CM*CM/SEC

                    OR    .446E+03 GAL/FT/DAY

##################################################

  CENSORED DATA END POINTS ARE ::
START TIME IS             =    .200E+02 SECONDS

END TIME IS               =    .200E+03 SECONDS

##################################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run

AQUIFER THICKNESS           =      23.000 FEET

STATIC WATER LEVEL          =      16.080 FEET

AQUIFER CONDUCTIVITY IS  =    .915E-03 CM/SEC

                    OR    .194E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =    .642E+00 CM*CM/SEC

                    OR    .446E+03 GAL/FT/DAY

##################################################

  CENSORED DATA END POINTS ARE ::
START TIME IS             =    .200E+02 SECONDS

END TIME IS               =    .200E+03 SECONDS

##################################################
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run


AQUIFER THICKNESS           =      23.000 FEET

STATIC WATER LEVEL          =      16.080 FEET

AQUIFER CONDUCTIVITY IS  =    .915E-03 CM/SEC

                    OR    .194E+02 GAL/FT/FT/DAY

AQUIFER TRANSMISSIVITY IS =    .642E+00 CM*CM/SEC

                    OR    .446E+03 GAL/FT/DAY

##################################################
```

AQUIFER CONDUCTIVITY IS = .946E-03 CM/SEC

OR .200E+02 GAL/FT/FT/DAY

IIFER TRANSMISSIVITY IS = .303E+00 CM*CM/SEC

OR .211E+03 GAL/FT/DAY

##

CENSORED DATA END POINTS ARE ::
START TIME IS = .200E+02 SECONDS

END TIME IS = .200E+03 SECONDS

##

```
enter  1  to continue  with thesame datafile
       2  to work on another datafile
       3  to change input parameters
       4  to terminate current run

3
do you want to write bail results to a file ?  Y/N
N
ENTER EFFECTIVE WELL DIAMETER (ins)
6
ENTER SCREEN DIAMETER (ins)
2
ENTER AQUIFER THICKNESS (ft)

. .ER SCREEN LENGTH (ft)
3.5
ENTER WELL PENETRATION DEPTH (ft)
3.5
```

@@

HYDOGEOLOGY AND SITE INVESTIGATION.

PEI ASSOCIATES INC.

CINCINNATI. OHIO

B A I L D O W N   D A T A   A N A L Y S I S

DATA OBTAINED BY : G

DATA ANALYZED BY : G

BAIL DOWN PARAMETERS FOR 3SW17

@@

EFFECTIVE WELL DIAMETER = 6.000 INCHES

EFFECTIVE SCREEN DIAMETER = 2.000 INCHES

SCREEN LENGTH = 3.500 FEET

WELL PENETRATION DEPTH = 3.500 FEET

AQUIFER THICKNESS = 23.000 FEET

APPENDIX M

MTC REPORT,

PHASE II REMEDIAL INVESTIGATION

GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 1

Date: 12-23-91
Project No.: 661Q
Project: MI 135.07

Sample Data

Location of Sample: HMS IW7-32-34
Sample Description: SILT, some clay, little fine sand
USCS Class: ML
Liquid limit:
AASHTO Class:
Plasticity index:

Notes

Remarks: Sample no. 36628

Fig. No.:

Mechanical Analysis Data

	Initial
Dry sample and tare=	250.00
Tare =	0.00
Dry sample weight =	250.00

Sample split on number 10 sieve
Split sample data:
Sample and tare = 78.69 Tare = 0 Sample weight = 78.69

S e tare method

Sieve	Weight retained	Sieve tare	Percent finer
# 10	0.00	0.00	100.0
# 16	0.10	0.00	99.9
# 40	0.46	0.00	99.3
# 60	1.08	0.00	97.9
# 80	1.98	0.00	95.4
# 100	1.27	0.00	93.8
# 200	6.84	0.00	85.1

Hydrometer Analysis Data

Separation sieve is number 10
Percent -# 10 based on complete sample= 100.0
Weight of hydrometer sample: 78.69
Hygroscopic moisture correction:
Moist weight & tare = 98.05
Dry weight & tare = 95.46
Tare = 18.29
Hygroscopic moisture= 3.4 %
Calculated biased weight= 76.1
Table of composite correction values:

Temp, deg C:	19.0	23.0
Comp. corr:	- 3.5	- 3.0

Meniscus correction only= 1
Specific gravity of solids= 2.721
Specific gravity correction factor= 0.984
Hydrometer type: 152H Effective depth L= 16.294964 - 0.164 x Rm

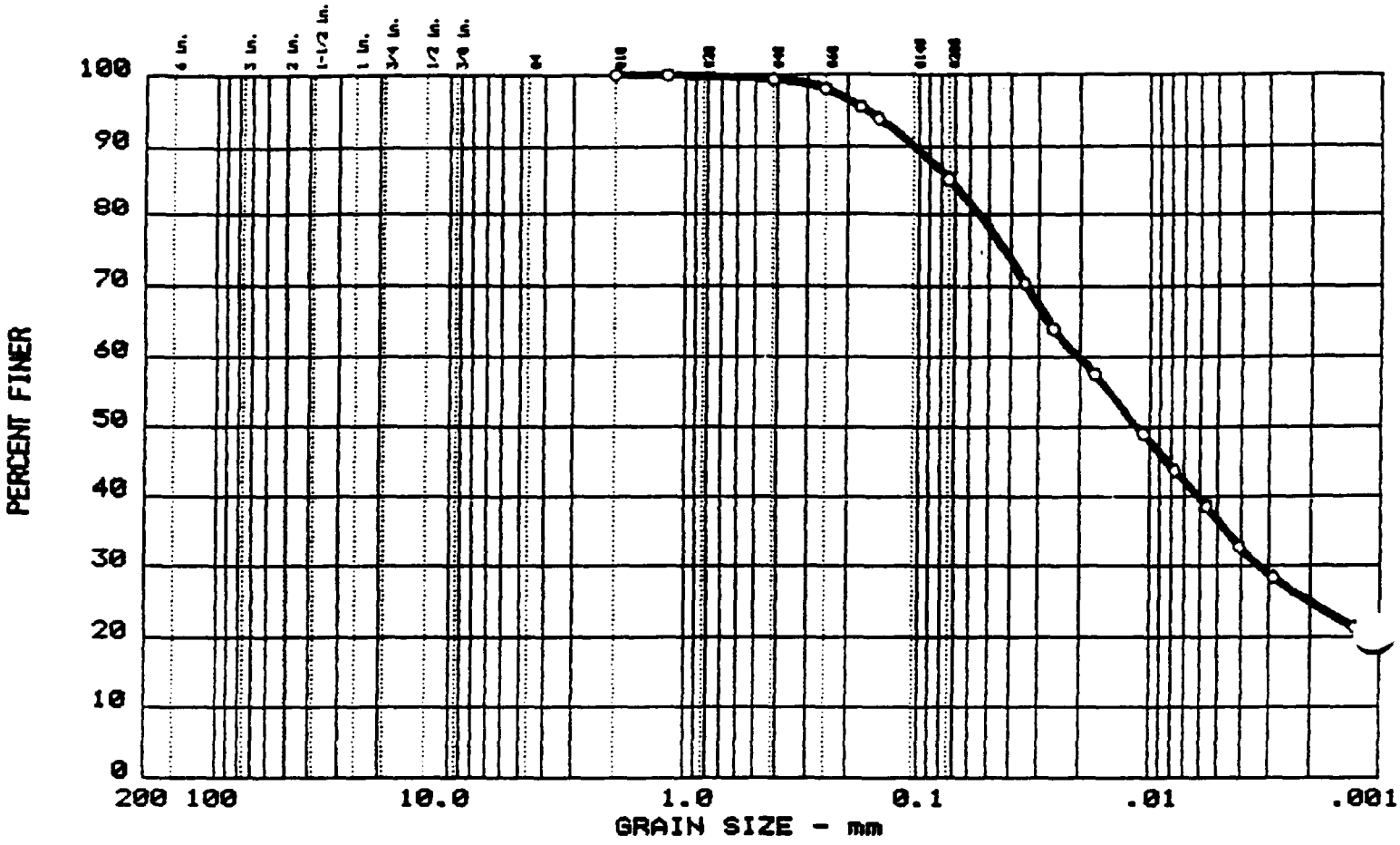
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
1.0	19.1	58.0	54.5	0.0135	59.0	6.6	0.0348	70.5
2.0	19.1	53.0	49.5	0.0135	54.0	7.4	0.0261	64.0
5.0	19.2	48.0	44.5	0.0135	49.0	8.3	0.0173	57.6
15.0	19.5	41.0	37.6	0.0134	42.0	9.4	0.0106	48.6
30.0	19.9	37.0	33.6	0.0134	38.0	10.1	0.0077	43.5
60.0	20.5	33.0	29.7	0.0133	34.0	10.7	0.0056	38.4
120.0	21.4	28.5	25.3	0.0131	29.5	11.5	0.0041	32.7
240.0	22.8	25.0	22.0	0.0129	26.0	12.0	0.0029	28.4
1440.0	18.5	20.0	16.5	0.0136	21.0	12.9	0.0013	21.3

Fractional Components

% + 3 in. = 0.0 % GRAVEL = 0.0 % SAND = 14.9
% SILT = 48.8 % CLAY = 36.3

D85= 0.07 D60= 0.020 D50= 0.011
D30= 0.0033

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
O	0.0	0.0	14.9	48.8	36.3

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
O					0.01	0.003				

MATERIAL DESCRIPTION	USCS	AASHTO
O SILT, some clay, little fine sand	ML	

Project No.: 661Q
Project: MI 135.07
O Location: HMS IW7-32-34

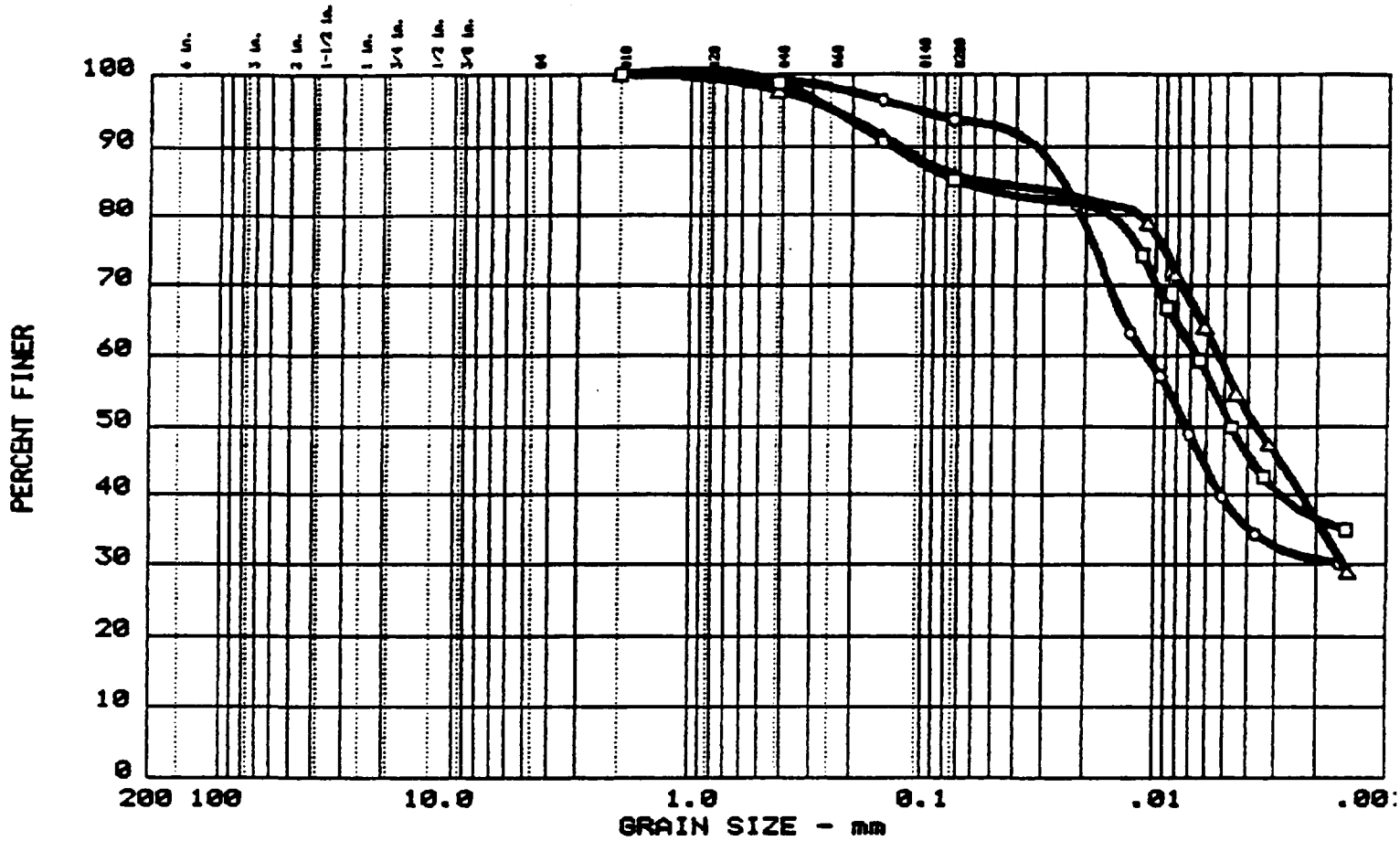
Date: 12-23-91

Remarks:
Sample no. 36628

GRAIN SIZE DISTRIBUTION TEST REPORT
MATERIALS TESTING CONSULTANTS

Fig. No.

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
○	0.0	0.0	6.3	54.7	39.0
△	0.0	0.0	14.1	27.9	58.0
□	0.0	0.0	14.8	33.4	51.8

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○					0.01					
△					0.00	0.002				
□					0.00					

MATERIAL DESCRIPTION	USCS	AASHTO
○ Peat and organic silt	OH	
△ Peat and organic silt	OH	
□ Peat and organic silt	OH	

Project No.: 489Q
Project: Highland, Michigan
○ Location: TP-04
△ Location: TP-08
□ Location: TP-13
Date: 11-19-91

Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

MATERIALS TESTING CONSULTANTS

Fig. No.

GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 6

Date: 11-19-91
Project No.: 489Q
Project: Highland, Michigan

Sample Data

Location of Sample: TP-04
Sample Description: Peat and organic silt
USCS Class: OH
Liquid limit:
AASHTO Class:
Plasticity index:

Notes

Remarks: Sample no. 34280

Fig. No.:

Mechanical Analysis Data

	Initial
Dry sample and tare=	206.83
Tare =	0.00
Dry sample weight =	206.83

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
# 10	0.00	0.00	100.0
# 40	1.42	0.00	99.3
# 100	6.05	0.00	96.4
# 200	5.55	0.00	93.7

Hydrometer Analysis Data

Separation sieve is number 10
Percent -# 10 based on complete sample= 100.0
Weight of hydrometer sample: 60.22
Hygroscopic moisture correction:
Moist weight & tare = 50.10
Dry weight & tare = 48.00
Tare = 17.97
Hygroscopic moisture= 7.0 %
Calculated biased weight= 56.3
Table of composite correction values:

Temp, deg C:	21.7	26.5
Comp. corr:	5.0	3.5

Meniscus correction only=-1
Specific gravity of solids= 2.207
Specific gravity correction factor= 1.139
Hydrometer type: 152H Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
5.0	23.9	36.0	40.3	0.0152	35.0	10.6	0.0221	81.5
5.0	23.9	36.0	40.3	0.0152	35.0	10.6	0.0221	81.5
5.0	23.9	36.0	40.3	0.0152	35.0	10.6	0.0221	81.5
17.0	24.0	27.0	31.3	0.0152	26.0	12.0	0.0128	63.3
32.0	24.1	24.0	28.3	0.0152	23.0	12.5	0.0095	57.1
60.0	24.3	20.0	24.2	0.0152	19.0	13.2	0.0071	48.9
120.0	24.7	15.5	19.6	0.0151	14.5	13.9	0.0051	39.6
240.0	25.1	13.0	16.9	0.0150	12.0	14.3	0.0037	34.3
1440.0	22.0	10.0	14.9	0.0156	9.0	14.8	0.0016	30.2

Fractional Components

% + 3 in. = 0.0 % GRAVEL = 0.0 % SAND = 6.3
% SILT = 54.7 % CLAY = 39.0

D85= 0.03 D60= 0.011 D50= 0.007

GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 7

Date: 11-19-91
Project No.: 4890
Project: Highland, Michigan

Sample Data

Location of Sample: TP-08
Sample Description: Peat and organic silt
USCS Class: OH
Liquid limit:
AASHTO Class:
Plasticity index:

Notes

Remarks: Sample no. 34280 Sample no. 34281

Fig. No.:

Mechanical Analysis Data

	Initial
Dry sample and tare=	61.49
Tare =	0.00
Dry sample weight =	61.49

Sample split on number 10 sieve
Split sample data:
Sample and tare = 61.49 Tare = 0 Sample weight = 61.49

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
# 10	0.00	0.00	100.0
# 40	1.41	0.00	97.7
# 100	4.00	0.00	91.2
# 200	3.26	0.00	85.9

Hydrometer Analysis Data

Separation sieve is number 10
Percent -# 10 based on complete sample= 100.0
Weight of hydrometer sample: 61.49
Hygroscopic moisture correction:
Moist weight & tare = 52.65
Dry weight & tare = 51.04
Tare = 17.88
Hygroscopic moisture= 4.9 %
Calculated biased weight= 58.6
Table of composite correction values:

Temp, deg C:	21.7	26.5
Comp. corr:	5.0	3.5

Meniscus correction only=-1
Specific gravity of solids= 2.396

Specific gravity correction factor= 1.069
Hydrometer type: 152H Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
17.0	24.0	39.0	43.3	0.0141	38.0	10.1	0.0109	78.9
17.0	24.0	39.0	43.3	0.0141	38.0	10.1	0.0109	78.9
32.0	24.1	35.0	39.3	0.0141	34.0	10.7	0.0082	71.5
60.0	24.3	31.0	35.2	0.0141	30.0	11.4	0.0061	64.1
120.0	24.7	26.0	30.1	0.0140	25.0	12.2	0.0045	54.8
240.0	25.1	22.0	25.9	0.0140	21.0	12.9	0.0032	47.3
1440.0	22.0	11.0	15.9	0.0145	10.0	14.7	0.0015	29.0

Fractional Components

% + 3 in. = 0.0 % GRAVEL = 0.0 % SAND = 14.1
% SILT = 27.9 % CLAY = 58.0

D85= 0.06 D60= 0.005 D50= 0.004
D30= 0.0015

GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 8

Date: 11-19-91
Project No.: 4890
Project: Highland, Michigan

Sample Data

Location of Sample: TP-13
Sample Description: Peat and organic silt
USCS Class: OH
Liquid limit:
AASHTO Class:
Plasticity index:

Notes

Remarks: Sample no. 34280 Sample no. 34281
Sample no. 34282
Fig. No.:

Mechanical Analysis Data

	Initial
Dry sample and tare=	62.72
Tare =	0.00
Dry sample weight =	62.72

Sample split on number 10 sieve
Split sample data:
Sample and tare = 62.72 Tare = 0 Sample weight = 62.72

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
# 10	0.00	0.00	100.0
# 40	0.76	0.00	98.8
# 100	5.16	0.00	90.6
# 200	3.34	0.00	85.2

Hydrometer Analysis Data

Separation sieve is number 10
Percent -# 10 based on complete sample= 100.0
Weight of hydrometer sample: 62.72
Hygroscopic moisture correction:
Moist weight & tare = 49.20
Dry weight & tare = 47.56
Tare = 18.91
Hygroscopic moisture= 5.7 %
Calculated biased weight= 59.3
Table of composite correction values:

Temp, deg C:	21.7	26.5
Comp. corr:	5.0	3.5

Meniscus correction only=-1
Specific gravity of solids= 2.319

Specific gravity correction factor= 1.095
Hydrometer type: 152H Effective depth L= 16.294964 - 0.164 x Rm

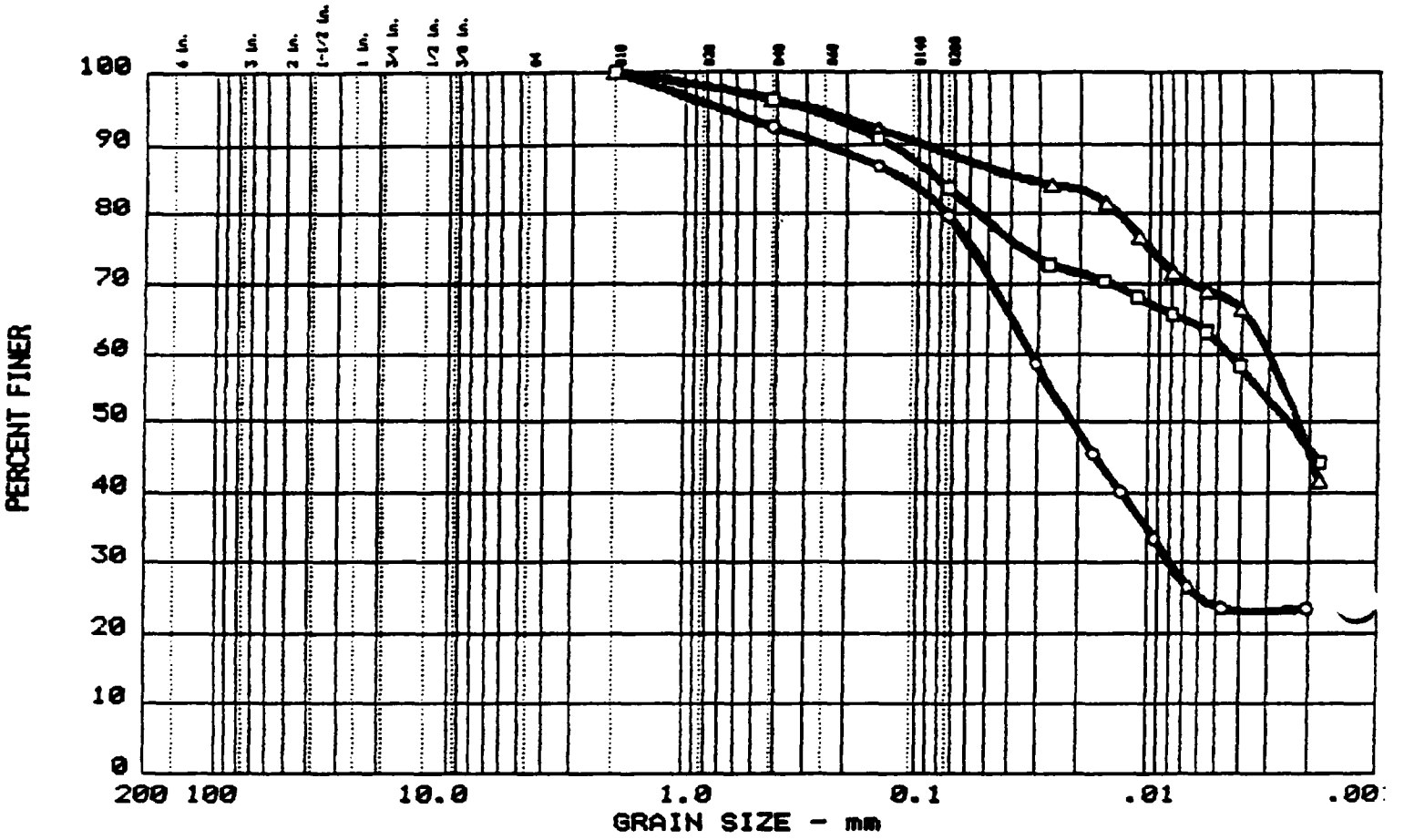
Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
17.0	24.0	36.0	40.3	0.0146	35.0	10.6	0.0115	74.3
30.0	24.2	32.0	36.2	0.0145	31.0	11.2	0.0089	66.8
60.0	24.3	28.0	32.2	0.0145	27.0	11.9	0.0064	59.4
120.0	24.8	23.0	27.0	0.0144	22.0	12.7	0.0047	49.9
240.0	25.1	19.0	22.9	0.0144	18.0	13.3	0.0034	42.3
1440.0	22.0	14.0	18.9	0.0149	13.0	14.2	0.0015	34.9

Fractional Components

% + 3 in. = 0.0 % GRAVEL = 0.0 % SAND = 14.8
% SILT = 33.4 % CLAY = 51.8

D85= 0.07 D60= 0.007 D50= 0.005

GRAIN SIZE DISTRIBUTION TEST REPORT



	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
○	0.0	0.0	20.2	56.0	23.8
△	0.0	0.0	11.6	20.0	68.4
□	0.0	0.0	16.3	22.0	61.6

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.11		0.02	0.008				
△					0.00					
□			0.08		0.00					

MATERIAL DESCRIPTION	USCS	AASHTO
○ Peat and organic silt	OH	
△ Peat and organic silt	OH	
□ Peat and organic silt	OH	

Project No.: 489Q
Project: Highland, Michigan
○ Location: TP-14
△ Location: WL-15
□ Location: WL-16
Date: 11-19-91

Remarks:

GRAIN SIZE DISTRIBUTION TEST REPORT

MATERIALS TESTING CONSULTANTS

Fig. No.

GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 9

Date: 11-19-91
Project No.: 489Q
Project: Highland, Michigan

Sample Data

Location of Sample: TP-14
Sample Description: Peat and organic silt
USCS Class: OH
Liquid limit:
AASHTO Class:
Plasticity index:

Notes

Remarks: Sample no. 34283

Fig. No.:

Mechanical Analysis Data

	Initial
Dry sample and tare=	57.88
Tare =	0.00
Dry sample weight =	57.88

Sample split on number 10 sieve
Split sample data:
Sample and tare = 57.88 Tare = 0 Sample weight = 57.88

ve tare method

Sieve	Weight retained	Sieve tare	Percent finer
# 10	0.00	0.00	100.0
# 40	4.35	0.00	92.5
# 100	3.32	0.00	86.7
# 200	4.05	0.00	79.8

Hydrometer Analysis Data

Separation sieve is number 10
Percent -# 10 based on complete sample= 100.0
Weight of hydrometer sample: 57.88
Hygroscopic moisture correction:
Moist weight & tare = 47.86
Dry weight & tare = 45.62
Tare = 17.57
Hygroscopic moisture= 8.0 %
Calculated biased weight= 53.6
Table of composite correction values:

Temp, deg C:	21.7	26.5
Comp. corr:	5.0	3.5

Meniscus correction only=-1
Specific gravity of solids= 1.788

Specific gravity correction factor= 1.413
Hydrometer type: 152H Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
5.0	24.0	23.0	27.3	0.0188	22.0	12.7	0.0300	71.9
17.0	24.1	18.0	22.3	0.0188	17.0	13.5	0.0168	58.6
30.0	24.3	16.0	20.2	0.0188	15.0	13.8	0.0127	53.2
60.0	24.4	13.5	17.7	0.0187	12.5	14.2	0.0091	46.5
120.0	24.7	11.0	15.1	0.0187	10.0	14.7	0.0065	39.7
240.0	25.1	10.0	13.9	0.0186	9.0	14.8	0.0046	36.7
1440.0	22.0	9.5	14.4	0.0193	8.5	14.9	0.0020	38.0

Fractional Components

% + 3 in. = 0.0 % GRAVEL = 0.0 % SAND = 20.2
% SILT = 42.6 % CLAY = 37.2

D85= 0.12 D60= 0.018 D50= 0.011

GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 10

Date: 11-19-91
Project No.: 4890
Project: Highland, Michigan

Sample Data

Location of Sample: WL-15
Sample Description: Peat and organic silt
USCS Class: OH
Liquid limit:
AASHTO Class:
Plasticity index:

Notes

Remarks: Sample no. 34283 Sample no. 34284

Fig. No.:

Mechanical Analysis Data

	Initial
Dry sample and tare=	58.26
Tare =	0.00
Dry sample weight =	58.26

Sample split on number 10 sieve
Split sample data:
Sample and tare = 58.26 Tare = 0 Sample weight = 58.26

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
# 10	0.00	0.00	100.0
# 40	2.12	0.00	96.4
# 100	2.46	0.00	92.1

Hydrometer Analysis Data

Separation sieve is number 10
Percent -# 10 based on complete sample= 100.0
Weight of hydrometer sample: 58.26
Hygroscopic moisture correction:
Moist weight & tare = 26.09
Dry weight & tare = 25.48
Tare = 18.68
Hygroscopic moisture= 9.0 %
Calculated biased weight= 53.5
Table of composite correction values:

Temp, deg C:	21.7	26.5
Comp. corr:	5.0	3.5

Meniscus correction only=-1
Specific gravity of solids= 1.9
Specific gravity correction factor= 1.314

GRAIN SIZE DISTRIBUTION TEST DATA

Test No.: 11

Date: 11-19-91
Project No.: 4890
Project: Highland, Michigan

Sample Data

Location of Sample: WL-16
Sample Description: Peat and organic silt
USCS Class: OH
Liquid limit:
AASHTO Class:
Plasticity index:

Notes

Remarks: Sample no. 34283 Sample no. 34284
Sample no. 34285
Fig. No.:

Mechanical Analysis Data

	Initial
Dry sample and tare=	61.80
Tare =	0.00
Dry sample weight =	61.80

Sample split on number 10 sieve
Split sample data:
Sample and tare = 61.8 Tare = 0 Sample weight = 61.8

Sieve tare method

Sieve	Weight retained	Sieve tare	Percent finer
# 10	0.00	0.00	100.0
# 40	2.31	0.00	96.3
# 100	3.41	0.00	90.7
# 200	4.37	0.00	83.7

Hydrometer Analysis Data

Separation sieve is number 10
Percent -# 10 based on complete sample= 100.0
Weight of hydrometer sample: 61.8
Hygroscopic moisture correction:
Moist weight & tare = 50.74
Dry weight & tare = 47.86
Tare = 19.06
Hygroscopic moisture= 10.0 %
Calculated biased weight= 56.2
Table of composite correction values:

Temp, deg C:	21.7	26.5
Comp. corr:	5.0	3.5

Meniscus correction only=-1
Specific gravity of solids= 1.903

Hydrometer type: 152H Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
5.0	24.2	30.0	34.2	0.0176	29.0	11.5	0.0267	84.1
15.0	24.4	29.0	33.2	0.0175	28.0	11.7	0.0155	81.5
30.0	24.4	27.0	31.2	0.0175	26.0	12.0	0.0111	76.6
60.0	24.5	25.0	29.1	0.0175	24.0	12.4	0.0079	71.6
120.0	24.7	24.0	28.1	0.0175	23.0	12.5	0.0056	69.0
240.0	25.0	23.0	27.0	0.0174	22.0	12.7	0.0040	66.3
1440.0	22.0	12.0	16.9	0.0180	11.0	14.5	0.0018	41.6

Fractional Components

% + 3 in. = 0.0 % GRAVEL = 0.0 % SAND = 11.6
% SILT = 20.0 % CLAY = 68.4

D85= 0.04 D60= 0.003 D50= 0.002

Specific gravity correction factor= 1.312
Hydrometer type: 152H Effective depth L= 16.294964 - 0.164 x Rm

Elapsed time, min	Temp, deg C	Actual reading	Corrected reading	K	Rm	Eff. depth	Diameter mm	Percent finer
5.0	24.4	27.0	31.2	0.0175	26.0	12.0	0.0271	72.8
15.0	24.4	26.0	30.2	0.0175	25.0	12.2	0.0158	70.4
30.0	24.4	25.0	29.2	0.0175	24.0	12.4	0.0112	68.1
60.0	24.5	24.0	28.1	0.0175	23.0	12.5	0.0080	65.7
120.0	24.7	23.0	27.1	0.0174	22.0	12.7	0.0057	63.2
240.0	25.0	21.0	25.0	0.0174	20.0	13.0	0.0040	58.3
1440.0	22.0	14.0	18.9	0.0180	13.0	14.2	0.0018	44.2

Fractional Components

% + 3 in. = 0.0 % GRAVEL = 0.0 % SAND = 16.3
% SILT = 22.0 % CLAY = 61.6

D85= 0.08 D60= 0.004 D50= 0.002

APPENDIX N

FAST ENVIRONMENTAL GC REPORT,

PHASE II REMEDIAL INVESTIGATION

FAST ENVIRONMENTAL
FIELD ANALYTICAL SERVICE TEAM

FIELD SCREENING WITH PORTABLE GAS CHROMATOGRAPHY FOR VINYL CHLORIDE, 1,2 DICHLOROETHENE, AND TRICHLOROETHENE

HI-MILL MANUFACTURING
HIGHLAND, MICHIGAN
NOVEMBER 25, 1991 - MARCH 9, 1992

P.O. Box 745
Mt. Pleasant, MI 48804-0745

517-773-7455
Fax 517-773-0477

1.0 Introduction

FAST Environmental Inc., was contacted by Geraghty & Miller Consultants to provide on site gas chromatography service for a project in Highland Michigan. The project was known as Hi-Mill Manufacturing Phase II Hydrogeological Investigation. FAST was on site during the project from November 25, 1991 through February 21, 1992. In addition to the on-site work, a limited number of samples were shipped to FAST offices in Mt. Pleasant, Michigan for screening. The last of the analyses for this phase of the project were completed on March 9, 1992.

The on-site screening process was initially to have been conducted at the Hi-Mill facility. Due to ambient air interferences at the facility, the gas chromatograph operation was moved to a nearby motel room for the duration of the project.

2.0 Methods

2.1 Instrumentation

The instrument used during this project was a Photovac 10S55 field portable gas chromatograph. The instrument is equipped with a photoionization detector using a lamp energy of 10.6 electron volts. The instrument is configured with a 10 meter CPSIL-5 wide bore capillary column and an isothermal oven set at an operating temperature of 40 degrees Celsius. The integrator, plotter, and software are integral parts of the unit. The carrier gas used is a certified mixture of hydrocarbon free air obtained through Scott Specialty Airgas.

Table 1 lists the instrument set-up parameters used for the duration of the project.

==========

TABLE 1 - Set-up Parameters Used On The Photovac Gas Chromatograph. November 25, 1991 Through March 9, 1992. Hi-Mill Mfg., Highland, Michigan.

Gain: 10
Slope sensitivity up: 16
Slope sensitivity down: 16
Peak width @ 4 minutes: 6
Carrier gas flow rate: approximately 10 ml/min
Window: 5%
Area: 5-20 mV seconds
Backflush: Initiate after 90 seconds

==========

2.2 Calibration

2.2.1 Initial Set-up

Each of the individual analytes were prepared in separate aqueous solutions for analysis to verify individual retention time. Figure 1 contains the chromatograms listing the relative retention times.

2.2.1.1 Cis 1,2 DCE, Trans 1,2 DCE, and TCE calibration standard

A 3-point calibration curve was constructed for each of the analytes on November 25, 1991.

Calibration standards were constructed using spectrophotometric grade neat solvents for cis 1,2 dichloroethene , trans 1,2 dichloroethene, and trichloroethene; which were measured into spectrophotometric grade methanol by syringe. A certified mixture of 0.1 mg/ml vinyl chloride in methanol was also used to construct a curve for vinyl chloride. The three calibration curves for cis and trans 1,2 DCE and TCE were constructed as follows:

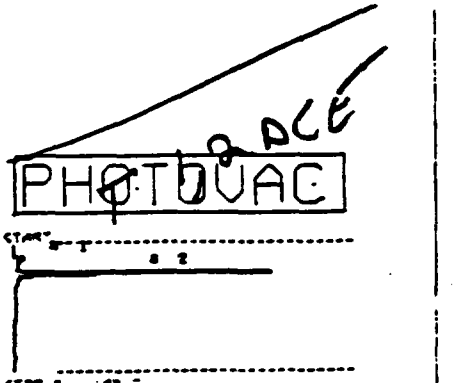
Using the following density data:
cis 1,2 DCE - 1.284 mg/ul
trans 1,2 DCE - 1.257 mg/ul
TCE - 1.464 mg/ul

POINT 1

1. STOCK 1A - 100 ul each in 20 ml methanol yields:
   128.4 mg cis 1,2 DCE
   125.7 mg trans 1,2 DCE
   146.4 mg TCE

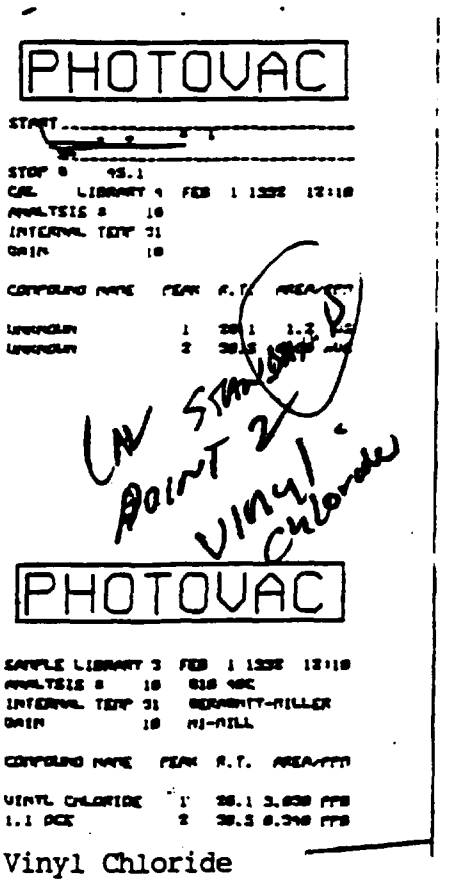
2. STOCK 2A - 40 ul Stock A in 20 ml methanol yields:
   250.5 ug cis 1,2 DCE
   245.3 ug trans 1,2 DCE
   285.7 ug TCE

3. Point 1 calibration standard - 5 ul Stock 2A in 20 ml H20 yields: 62.47 ng cis 1,2 DCE = 3.12 ppb
   61.17 ng trans 1,2 DCE = 3.06 ppb
   71.25 ng TCE = 3.56 ppb



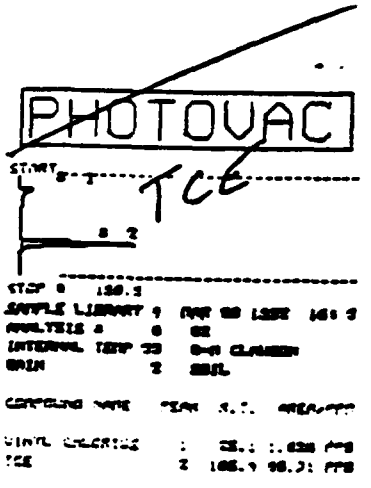
Trans 1,2 DCE

Retention time 46.9 seconds



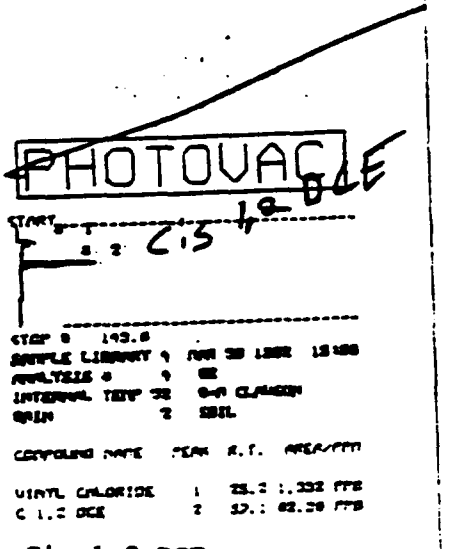
Vinyl Chloride

Retention time 26.1 seconds



TCE

Retention time 105.4 seconds



Cis 1,2 DCE

Retention time 57.1 seconds

FIGURE 1 - Relative Retention Times For Analytes. November 25, 1991 Through March 9, 1992. Hi-Mill Mfg., Highland, Michigan.

POINT 2

1. STOCK 2B - 100 ul Stock 1A in 10 ml methanol yields:
   629 ug cis 1,2 DCE
   616 ug trans 1,2 DCE
   718 ug TCE

2. Point 2 calibration standard - 5 ul Stock 2B in 20 ml H2O yields:
   305.0 ng cis 1,2 DCE = 15.3 ppb
   299.0 ng trans 1,2 DCE = 15.0 ppb
   248.0 ng TCE = 17.4 ppb

POINT 3

1. STOCK 1C - 2 ul neat solvent each in 20 ml methanol yields: 2568 ug cis 1,2 DCE
   2514 ug trans 1,2 DCE
   2928 ug TCE

2. Point 3 calibration standard - 5 ug Stock 1C in 20 ml H2O yields: 640.4 ng cis 1,2 DCE = 32.0 ppb
   627.0 ng trans 1,2 DCE = 31.0 ppb
   730.2 ng TCE = 36.5 ppb

2.2.1.2 Vinyl Chloride calibration standard

A commercially available vinyl chloride solution (0.1 mg/ml) in methanol was used to construct the 3 calibration standards used in the curve. Based on a density of 0.9106 g/ml, the curve was constructed as follows:

POINT 1

1. 1 ul in 20 ml H2O yields: 5 ppb

POINT 2

1. 2 ul in 20 ml H2O yields: 10 ppb

POINT 3

1. 5 ul in 20 ml H2O yields: 25 ppb

2.2.2 Subsequent Set-up

On February 19, 1992 a second calibration curve was constructed in a manner identical to the initial set-up.

2.2.3 Daily Calibration

Daily calibration was performed. The point 2 calibration standard used for the calibration curve was prepared and used for calibration at the beginning of each sampling day.

2.3 Analyses

All water samples collected were provided with 2 additional duplicates for a total of 3 samples for each sampling point. Duplicate samples provided extra sample for dilutions, if necessary. Samples were collected in pre-cleaned 40 ml VOA vials, zero headspace method. Samples were kept refrigerated until readied for analysis by decanting 20 ml of sample into waste container. Headspace analysis was performed on a 20 ml sample size.

All samples, including calibration standards, were placed in a heating block set at 40 degrees Celsius for thirty minutes before analysis in order to bring all samples to an equal temperature thus equalizing the effect Henry's Law of partial pressures might have on samples of differing temperatures.

3.0 QUALITY ASSURANCE/QUALITY CONTROL

3.1 Instrumentation

Injection syringes are kept beneath a heat lamp between injections to purge trace constituents. Syringes are tested for blockage before and after every injection. Syringe blanks using organic free water are routinely performed after calibration and at a minimum, one blank for every 10 samples.

Syringe blanks were routinely performed after calibrations and samples with measurable concentrations. Re-runs and replicate samples were performed at a minimum of 1 for every 10 samples to check reproducibility of data.

Syringes used for liquid transfer were rinsed thoroughly with methanol and dried before each use.

Injection port septa were changed after 50 injections or less.

3.2 Calibration

A calibration standard was prepared daily to check the instrumentation for stability. The daily calibration standard was the same as the Point 2 calibration standards used to construct the curves. Table 2 contains the results of daily calibrations.

TABLE 2 Daily Calibration in Volt Seconds (VS). Hi-Mill Manufacturing, Highland, Michigan, November 1991 Through February 1992.

Date	VC	T 1,2 DCE	C 1,2 DCE	TCE
11-26-91	NA	3.8 VS	.833 VS	2.2 VS *
11-27-91	NA	4.0 VS	.922 VS	2.9 VS
12-04-91	NA	3.5 VS	.752 VS	2.3 VS
12-12-91	No Analyses			
12-13-91	1.7 VS	3.4 VS	.842 VS	2.0 VS
12-18-91	1.6 VS	3.7 VS	.867 VS	2.3 VS
12-19-91	1.5 VS	3.7 VS	.894 VS	2.4 VS
12-20-91	1.8 VS	3.8 VS	.838 VS	2.2 VS
12-31-91	.787 VS	2.9 VS	.650 VS	1.7 VS
01-02-92	1.8 VS	3.4 VS	.760 VS	1.9 VS
01-06-92	1.7 VS	3.7 VS	.804 VS	2.0 VS
01-07-92	1.5 VS	3.5 VS	.745 VS	1.9 VS
01-15-92	1.6 VS	3.7 VS	.771 VS	1.9 VS
01-16-92	1.5 VS	3.4 VS	.750 VS	2.0 VS
01-22-92	1.5 VS	3.5 VS	.729 VS	1.9 VS
01-23-92	1.4 VS	3.7 VS	.892 VS	2.3 VS
01-29-92	1.6 VS	3.8 VS	.877 VS	2.2 VS
02-01-92	1.2 VS	3.0 VS	.553 VS	1.6 VS
02-19-92	1.5 VS	3.4 VS	.794 VS	2.0 VS *
02-20-92	1.3 VS	3.5 VS	.814 VS	2.1 VS
02-21-92	1.1 VS	3.8 VS	1.0 VS	2.5 VS

* Calibration curve construction
NA - vinyl chloride calibration curve constructed on 12-13-91

VC - vinyl chloride
T 1,2 DCE - trans 1,2 Dichloroethene
C 1,2 DEC - cis 1,2 Dichloroethene
TCE - trichloroethene

A sample of the organic free water used to make the calibration standard was analyzed at the beginning of the day to check for cross contamination.

3.3 Analyses

The recorded concentration of all analytes were taken after diluting to a level within the concentration curve for the particular analyte. Dilutions were performed, if necessary, by extracting sample from a zero headspace duplicate and injecting into 20 ml of organic free water. After recording the results, the appropriate dilution factor was applied to correct for the dilution.

An organic free water blank was performed after each sample in which a concentration of analyte was present.

Reruns were performed at a minimum of one for every ten samples.

3.4 Data

Two sets of calibration curves were constructed. The first set was constructed at the beginning of the project on November 26, 1991 (Figure 2). The second set was constructed on February 19, 1992 (Figure 3). Figure 2 also contains an analysis of calibration curve results for both sets of curves.

The curves plot the values of instrument signal (volt sec.) vs. concentration (ug/L or parts per billion). Calibration plots were generated by analyzing three known concentrations of each compound. Linear regression or curve fitting was performed on the calibration data points. Application of the regression equations obtained from the plots reduced the error which resulted from single point calibration.

All data collected prior to February 19, 1992 was fit to the November 26, 1991 curve. Data collected subsequent to February 19, 1992 was corrected based on the February curve.

4.0 RESULTS

All analytical data generated in the field during the project was corrected by fitting the data to the linear regression curves (Figures 2 and 3). The concentration values which are based on Volt Seconds were rounded to significant figures. Table 3 contains the results of all corrected analytical data obtained during the project.

Three sets of samples were collected and shipped to FAST Environmental Services Inc. offices for analysis. Appendix A contains the Chain-of-Custody forms accompanying the samples.

The three sets of samples were analyzed on 1-29-92, 2-1-92, and 3-7-92 (Table 4). These data were not were not corrected to linear regression curves due to urgency for results and/or request for screening analytes not incorporated into calibration curves (benzene, toluene, ethyl benzene, and xylenes). The data, however, was analyzed by the daily one point calibration and all other methods described used during the project.

FIGURE 2

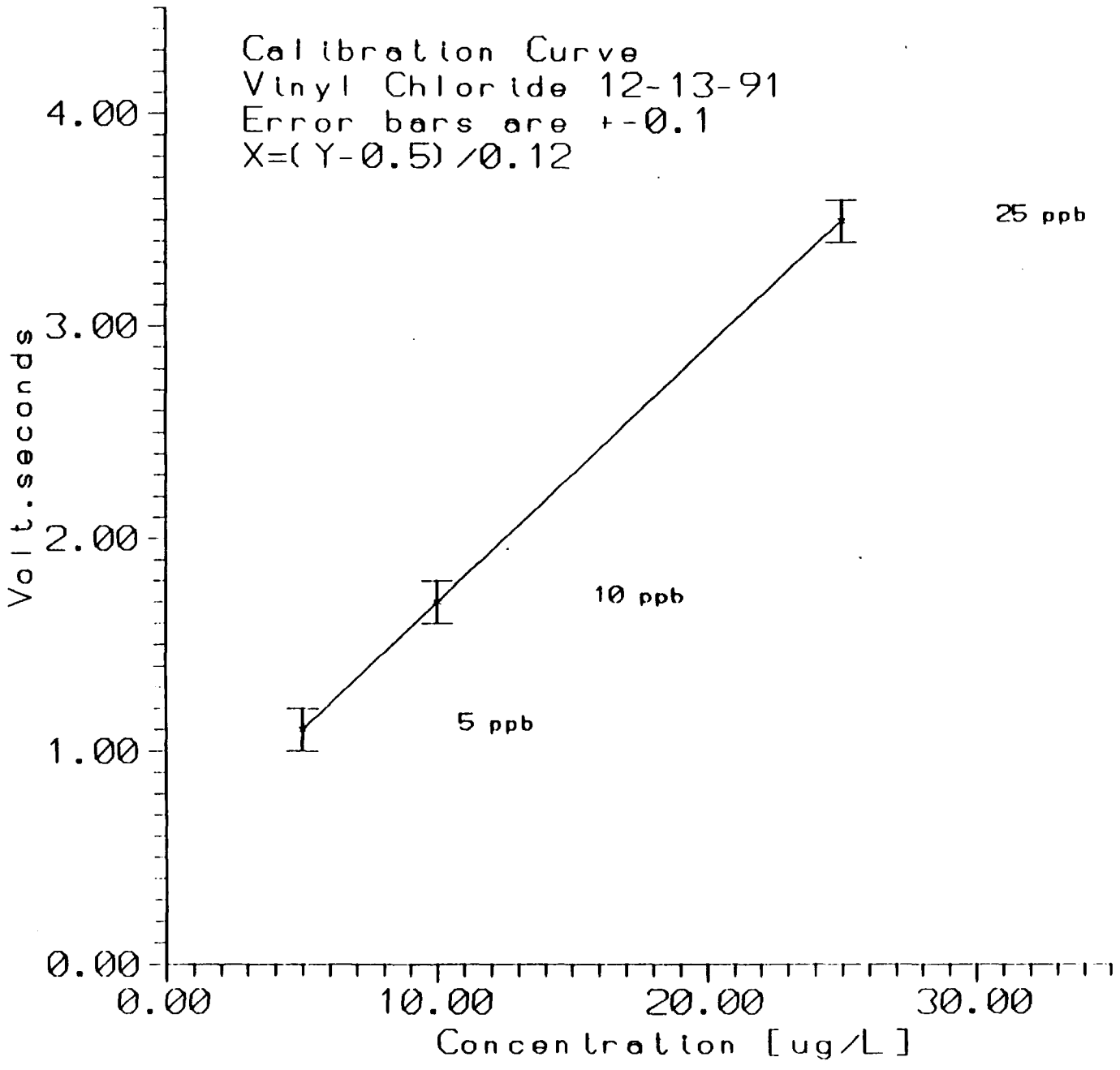
Calibration Curves and Linear
Regression Constructed on November 26,1991.
Hi-Mill Manufacturing, Highland, Michigan,
November 1991 Through February 1992.

Calibration Curve Analysis Results

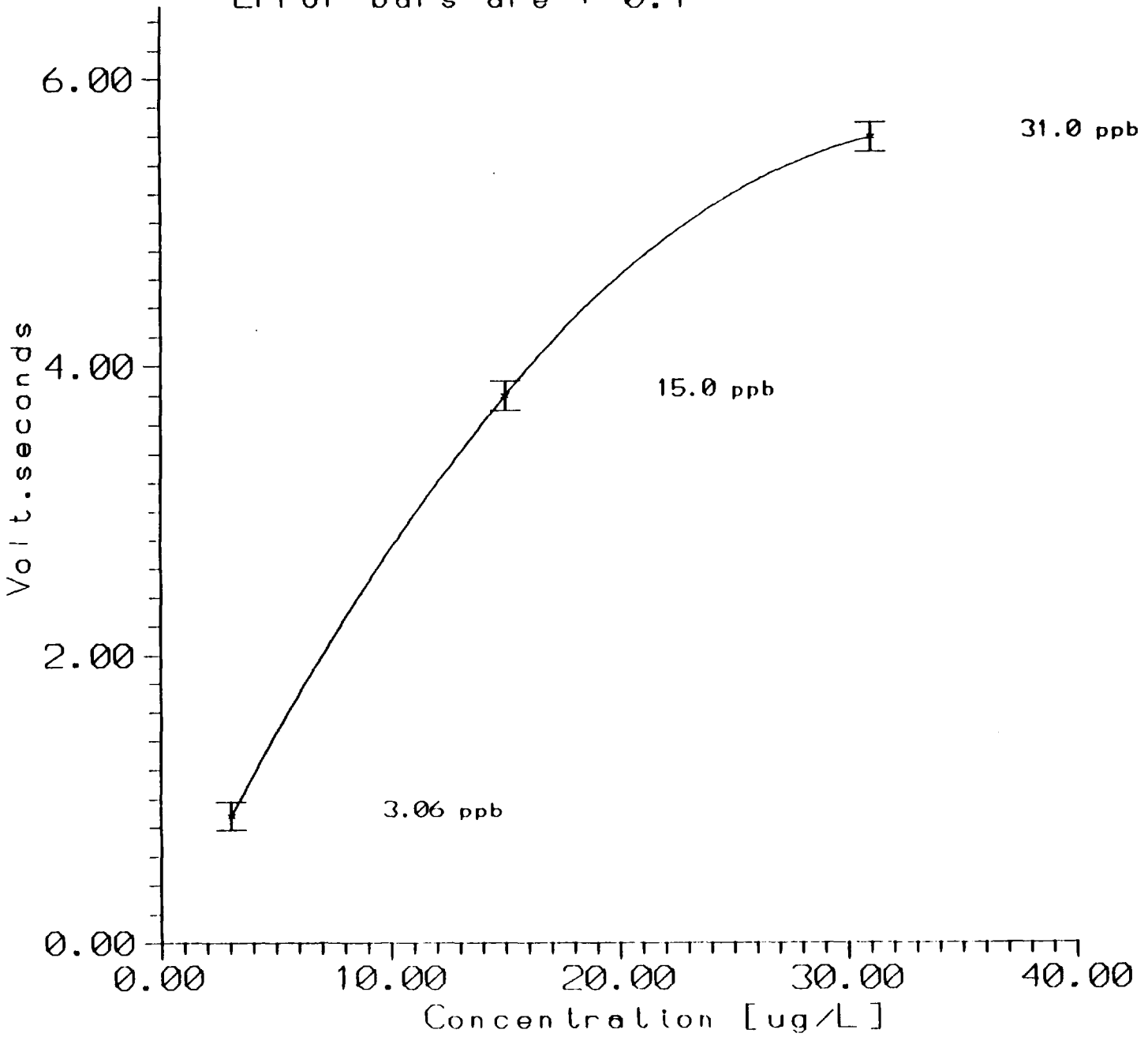
Sample Calculation of Concentration error. The following calculation uses the calibration data of Vinyl Chloride [12/13/91]. The best fit line for this particular calibration was found to be Y=0.12X+0.5 with an estimated error of +-0.1 in Y values. Rearranging the equation and solving for x we have the following: X=[Y-0.5]/0.12. With a Y value of 2.1, a concentratiion of 13.33 ug/L is obtained. Taking a +0.1 for the next value of Y, 2.2, a concentration of 14.17 ug/L is obtained. Taking the difference of the two concentrations, an estimate for the uncertainty in concentration for this particular concentration is +-0.84 ug/L. Calculations of concentration uncertainties for the other calibration data are analogous.

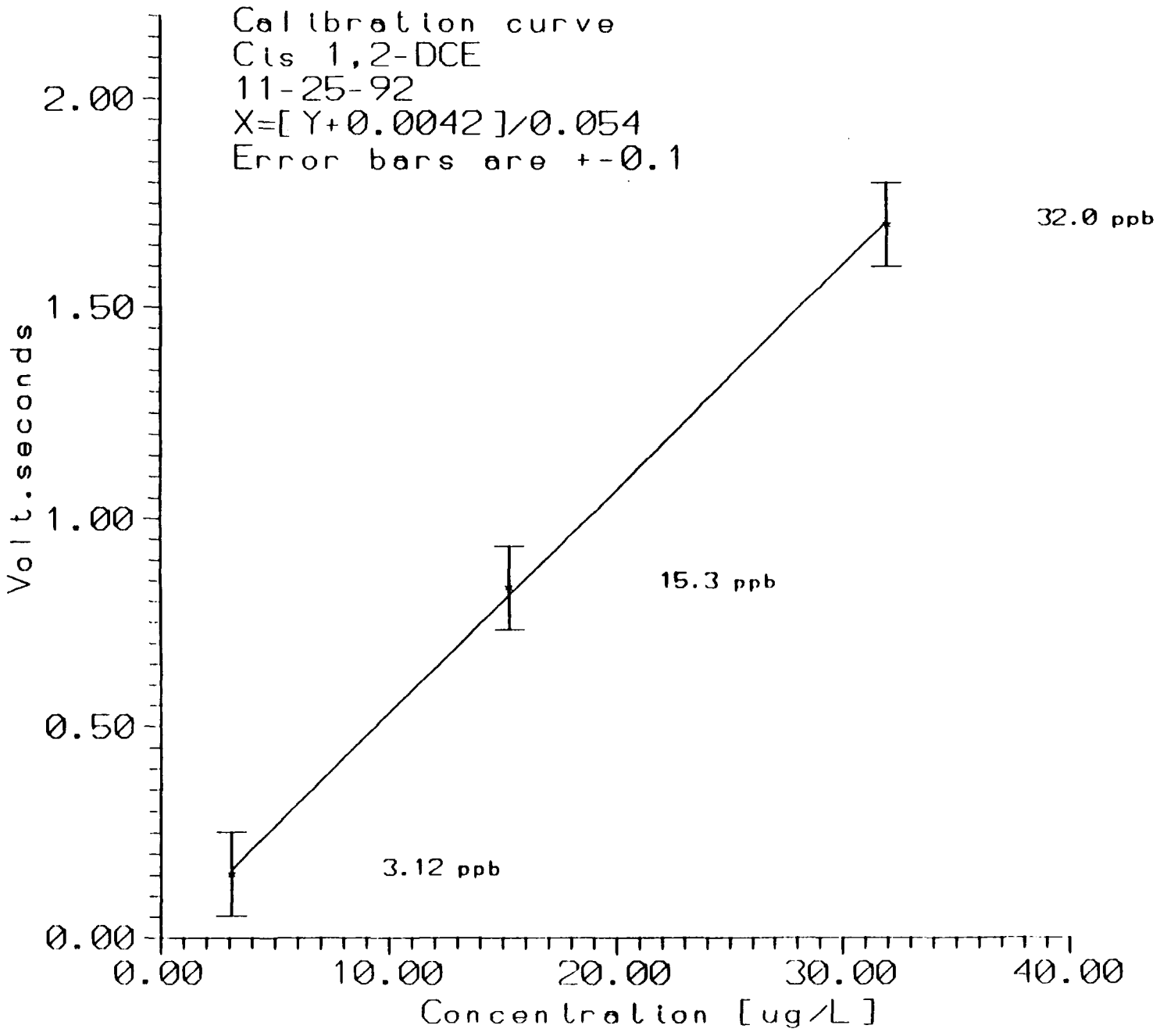
Calibration Curve Analysis Results			
Linear Data			
Compound	Vinyl Chloride	TCE	Cis 1,2-DCE
Date	12/13/92	11/25/91	11/25/91
X=	[Y-0.5]/0.12	[Y+0.35]/0.17	[Y+0.0042]/0.054
Correlation	1	0.99	0.99
dY	0.1	0.1	0.1
Date	2/19/92	2/19/92	2/19/92
X=	[Y-0.27]/0.11	[Y+0.024]/0.12	[Y+0.044]/0.057
Correlation	0.99	0.99	0.99
dY	0.1	0.1	0.1

Calibration Curve Analysis Results		
Non-Linear data		
Compound	Trans 1,2-DCE	
Date	11/25/91	2/19/92
Y=	'-0.0047X^2+0.33X-0.084	'-0.0040X^2+0.305X-0.2


Calibration Curve
Vinyl Chloride 12-13-91
Error bars are +-0.1
X=(Y-0.5)/0.12
25 ppb
10 ppb
5 ppb
Volt.seconds
4.00
3.00
2.00
1.00
0.00
0.00
10.00
20.00
30.00
Concentration [ug/L]

Calibration Curve
Trans 1,2-DCE
11-25-97
Y=-0.0047X^2+0.33X-0.084
Error bars are +-0.1




Calibration curve
Cis 1,2-DCE
11-25-92
X=[Y+0.0042]/0.054
Error bars are +-0.1
32.0 ppb
15.3 ppb
3.12 ppb
Volt.seconds
2.00
1.50
1.00
0.50
0.00
0.00
10.00
20.00
30.00
40.00
Concentration [ug/L]

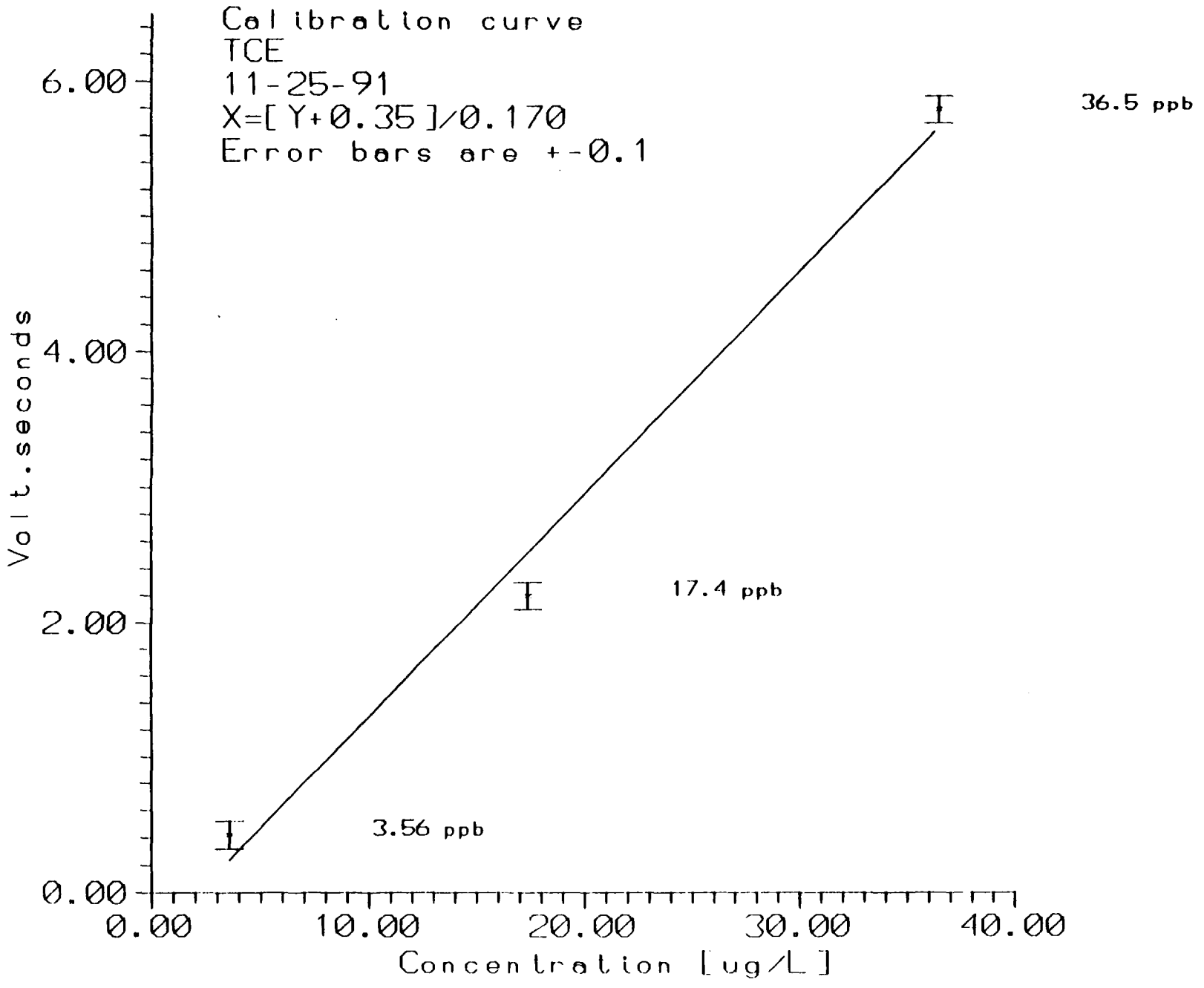
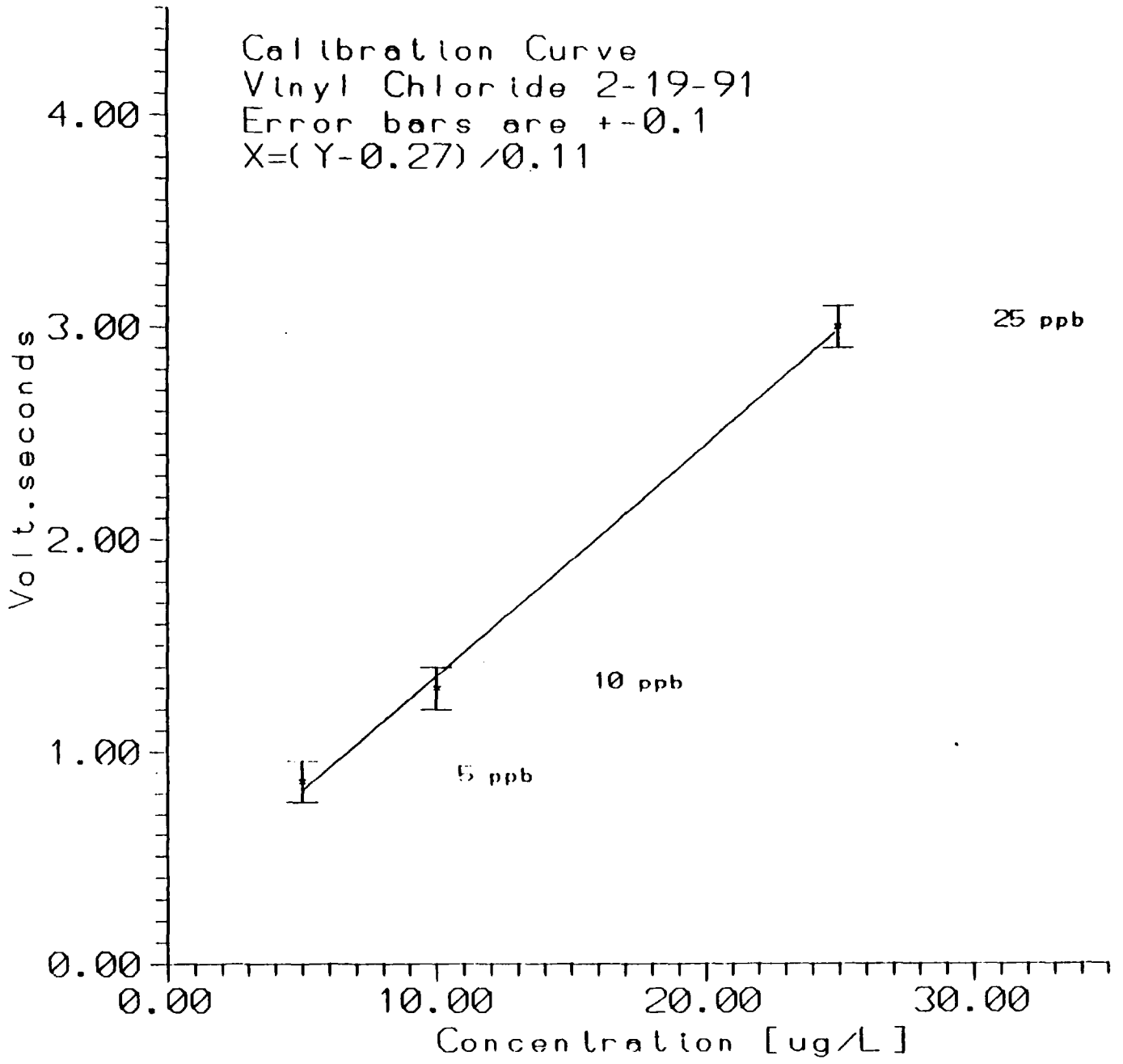
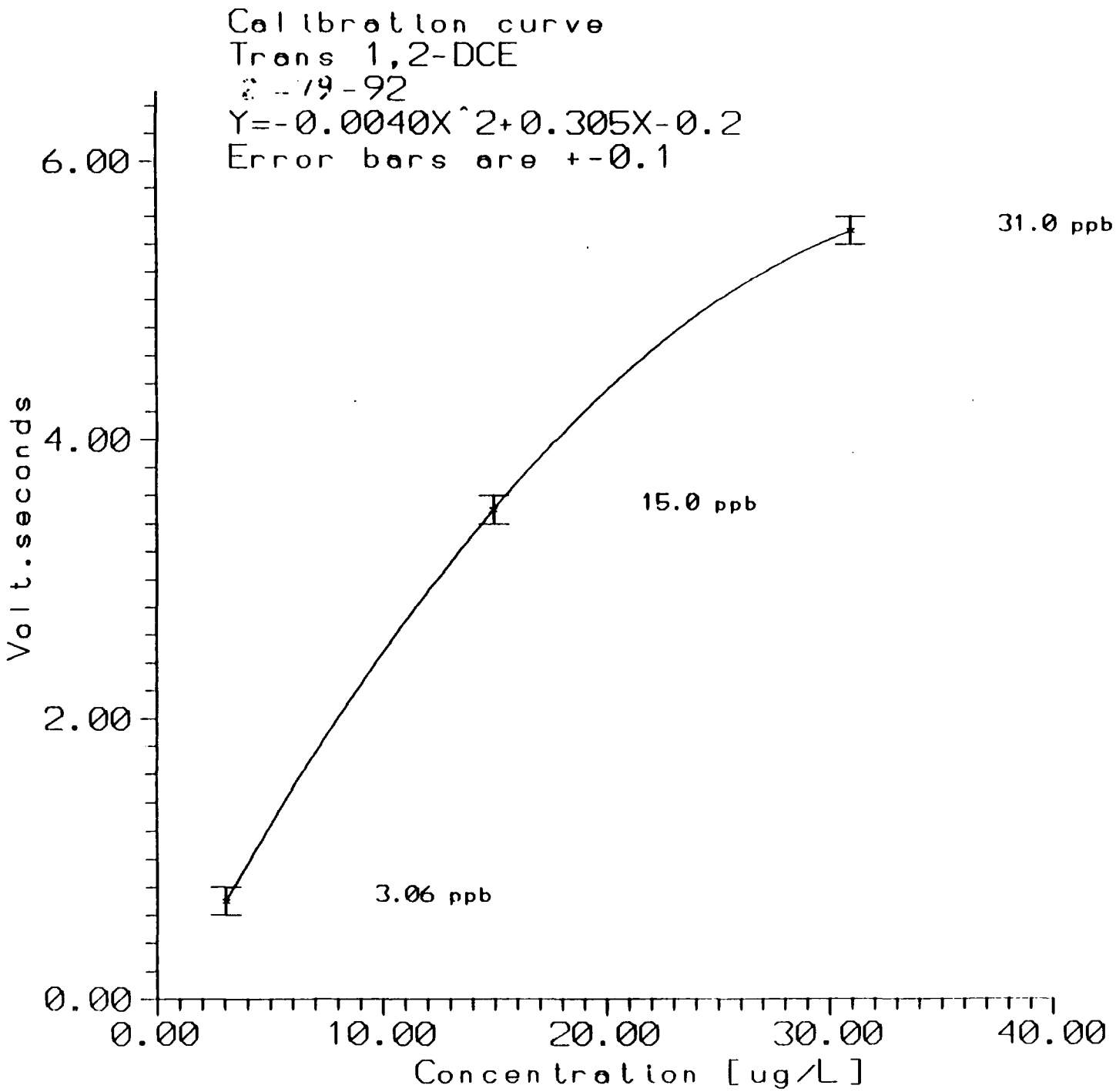
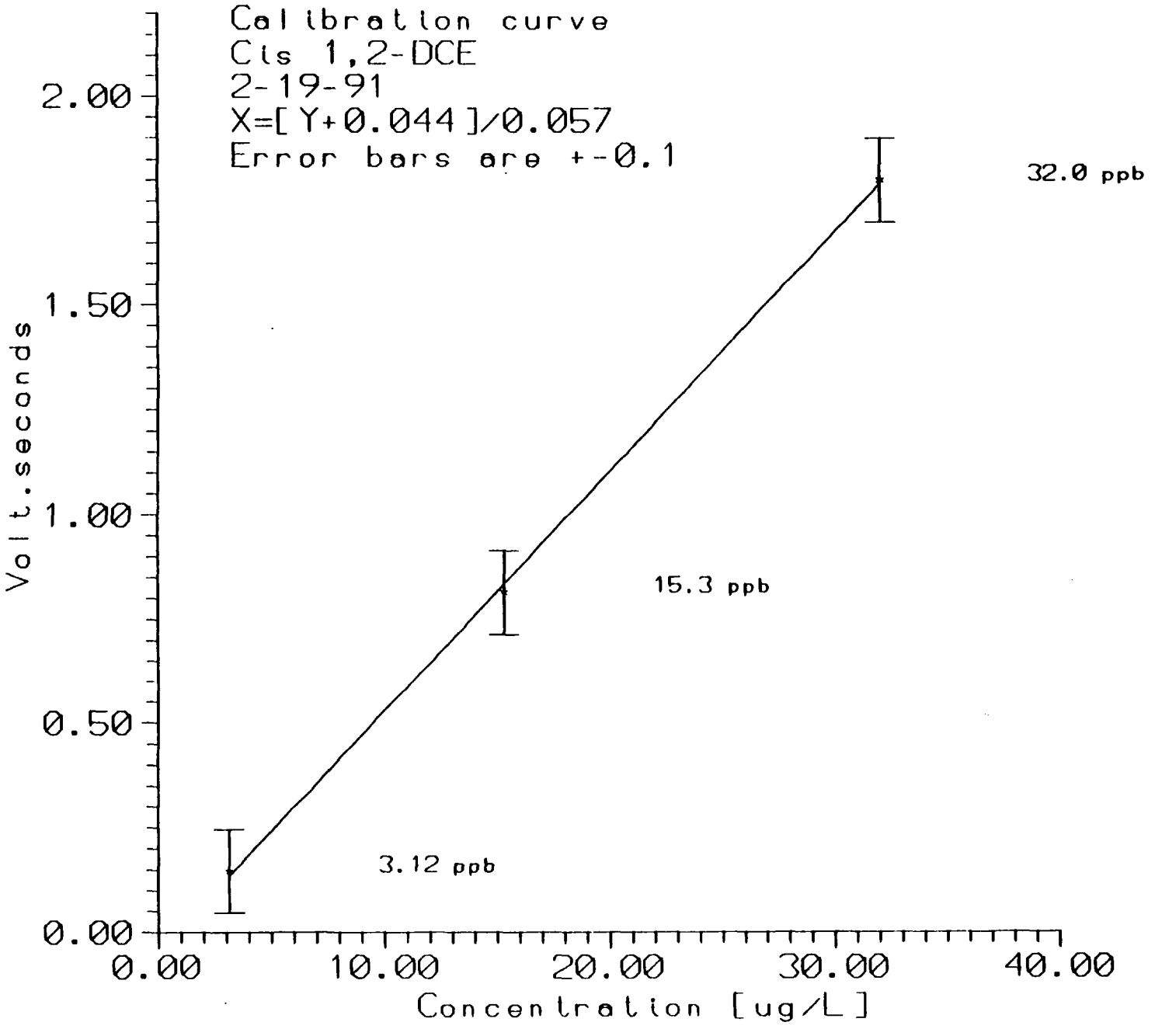

Calibration curve
TCE
11-25-91
X=[Y+0.35]/0.170
Error bars are +-0.1
36.5 ppb
17.4 ppb
3.56 ppb
Volt.seconds
6.00
4.00
2.00
0.00
0.00
10.00
20.00
30.00
40.00
Concentration [ug/L]

FIGURE 3

Calibration Curves and Linear
Regression Constructed on February 19, 1992.
Hi-Mill Manufacturing, Highland, Michigan,
November 1991 Through February 1992.


Calibration Curve
Vinyl Chloride 2-19-91
Error bars are +-0.1
X=(Y-0.27)/0.11
25 ppb
10 ppb
5 ppb
Volt.seconds
4.00
3.00
2.00
1.00
0.00
0.00
10.00
20.00
30.00
Concentration [ug/L]


Calibration curve
Trans 1,2-DCE
8-19-92
Y=-0.0040X^2+0.305X-0.2
Error bars are +-0.1
31.0 ppb
15.0 ppb
3.06 ppb
Volt.seconds
6.00
4.00
2.00
0.00
0.00
10.00
20.00
30.00
40.00
Concentration [ug/L]


Calibration curve
Cis 1,2-DCE
2-19-91
X=[Y+0.044]/0.057
Error bars are +-0.1
32.0 ppb
15.3 ppb
3.12 ppb
Volt.seconds
2.00
1.50
1.00
0.50
0.00
0.00
10.00
20.00
30.00
40.00
Concentration [ug/L]

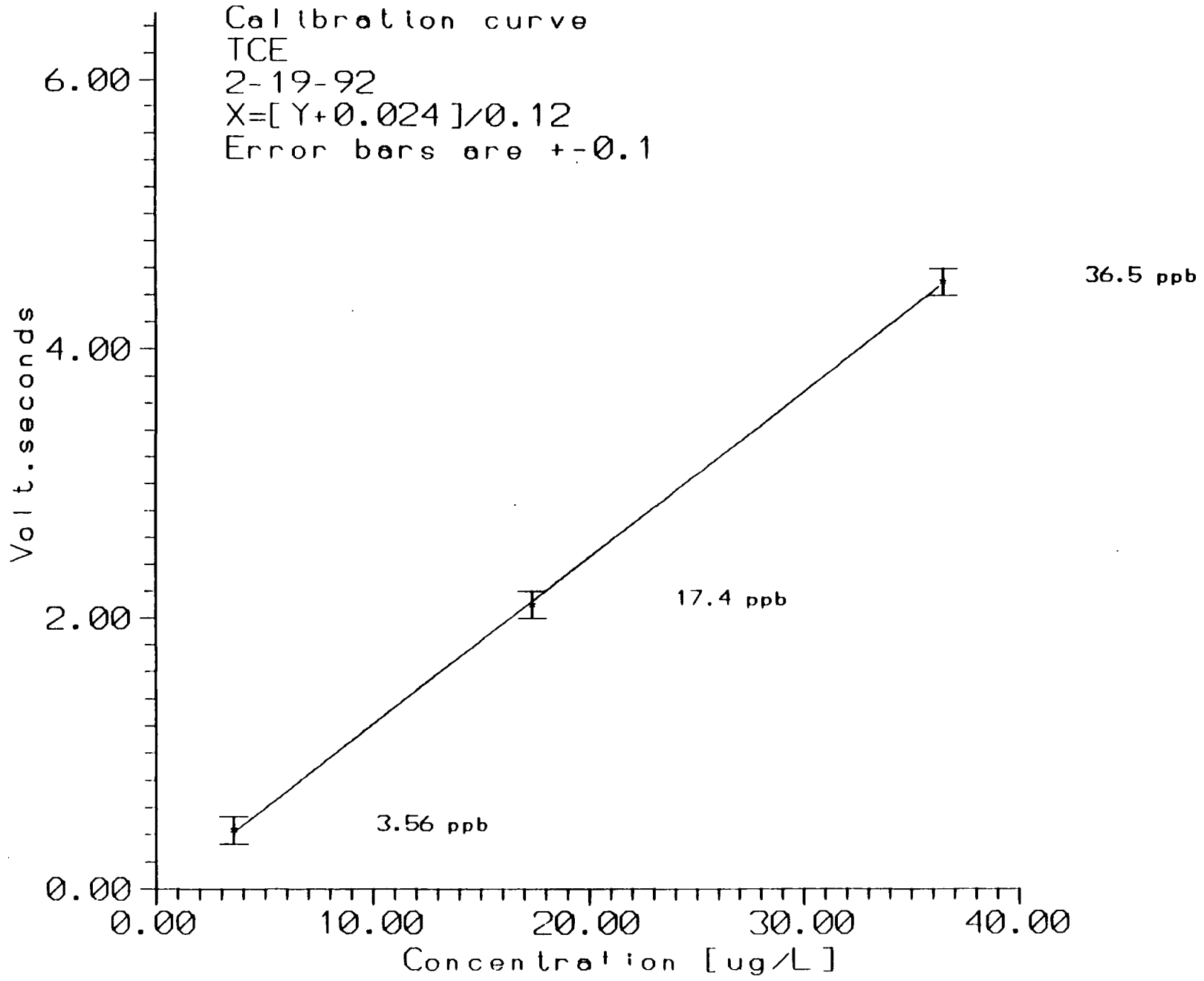

Calibration curve
TCE
2-19-92
X=[Y+0.024]/0.12
Error bars are +-0.1
6.00
4.00
2.00
0.00
Volt.seconds
36.5 ppb
17.4 ppb
3.56 ppb
0.00
10.00
20.00
30.00
40.00
Concentration [ug/L]

TABLE 3

Results of Corrected Analytical Data.
Hi-Mill Manufacturing, Highland, Michigan,
November 1991 Through February 1992.

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 11-26-91
Analysis date: 11-26-91

	HMW-VP1 47-48'	HMW-VP1 52-53'	HAB-1	HAB-2	HMW-VP1 55-56'	HAB 5
Trans 1,2 Dichloroethene	<3	<3	<3	<3	<3	<3
CIS 1,2 Dichloroethene	<3	<3	<3	<3	<3	16
Trichloroethene	<3	<3	<3	<3	11	<3
Vinyl Chloride	<5	<5	<5	<5	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 11-26-91
Analysis date: 11-26-91

	HAB 4	HAB 3	HAB 7	HAB 6
Trans 1,2 Dichloroethene	<3	<3	<3	23
CIS 1,2 Dichloroethene	<3	<3	134	3000
Trichloroethene	<3	<3	1100	500
Vinyl Chloride	<5	<5	<5	436

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 11-27-91
Analysis date: 11-27-91

	HAB 8	HAB 9	HAB 10
Trans 1,2 Dichloroethene	20	6	<3
CIS 1,2 Dichloroethene	3500	564	17
Trichloroethene	8500	1300	6
Vinyl Chloride	38	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 12-03-91
Analysis date: 12-03-91

	HMW-HAB 11	HMW-HAB 12	HMW-HAB 13	HMW-HAB 14	HMW-VP3 35-36'
Trans 1,2 Dichloroethene	<3	<3	<3	<3	<3
CIS 1,2 Dichloroethene	<3	<3	<3	<3	<3
Trichloroethene	<3	<3	<3	<3	<3
Vinyl Chloride	<5	<5	<5	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 12-04-91
Analysis date: 12-04-91

	HMW-HAB 16	HMW-VP3 38-39'	HMW-VP3 42-43'	HMW-HAB 15	HMW-VP3 46-47'
Trans 1,2 Dichloroethene	<3	<3	<3	<3	<3
CIS 1,2 Dichloroethene	<3	<3	<3	<3	<3
Trichloroethene	<3	<3	<3	<3	<3
Vinyl Chloride	<5	<5	<5	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 12-04-91
Analysis date: 12-04-91

	HMW-VP3 52-53'	HMW-VP3 49-50'
Trans 1,2 Dichloroethene	<3	<3
CIS 1,2 Dichloroethene	<3	<3
Trichloroethene	<3	<3
Vinyl Chloride	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 12-05-91
Analysis date: 12-05-91

	HMW-VP3 55-56'
Trans 1,2 Dichloroethene	<3
CIS 1,2 Dichloroethene	<3
Trichloroethene	<3
Vinyl Chloride	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 12-12-91
Analysis date: 12-12-91

NO ANALYSES

Trans 1,2
Dichloroethene
CIS 1,2
Dichloroethene

Trichloroethene

Vinyl Chloride

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 12-13-91
Analysis date: 12-13-91

NO ANALYSES

Trans 1,2
Dichloroethene
CIS 1,2
Dichloroethene

Trichloroethene

Vinyl Chloride

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 12-18-91
Analysis date: 12-18-91

NO ANALYSES

Trans 1,2
Dichloroethene
CIS 1,2
Dichloroethene

Trichloroethene

Vinyl Chloride

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 12-19-91
Analysis date: 12-19-91

	HMW-IW6 118-120'	HMW-IW6 113-115'
Trans 1,2 Dichloroethene	<3	<3
CIS 1,2 Dichloroethene	<3	<3
Trichloroethene	<3	<3
Vinyl Chloride	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 12-20-91
Analysis date: 12-20-91

	HMW-IW6 110-112'	HMW-IW6 105-107'	HMW-IW6 100-102'
Trans 1,2 Dichloroethene	<3	<3	<3
CIS 1,2 Dichloroethene	<3	<3	<3
Trichloroethene	<3	<3	<3
Vinyl Chloride	<5	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 12-31-91
Analysis date: 12-31-91

	HMW-IW6 93-95'	HMW-IW6 90-92'
Trans 1,2 Dichloroethene	<3	<3
CIS 1,2 Dichloroethene	<3	<3
Trichloroethene	<3	<3
Vinyl Chloride	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 01-02/03-92
Analysis date: 01-03-92

	HMW-IW6 80-82'	HMW-IW6 85-87'	HMW-IW6 68-70'	HMW-IW6 63-65'	HMW-IW6 75-77'
Trans 1,2 Dichloroethene	<3	<3	<3	<3	<3
CIS 1,2 Dichloroethene	<3	<3	<3	<3	<3
Trichloroethene	<3	<3	<3	<3	<3
Vinyl Chloride	<5	<5	<5	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 01-06-92
Analysis date: 01-06-92

NO ANALYSES

Trans 1,2
Dichloroethene
CIS 1,2
Dichloroethene

Trichloroethene

Vinyl Chloride

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 01-07-92
Analysis date: 01-07-92

	HMW-IW6 57-59'	HMW-IW6 53-55'	HMW-IW6 43-45'	HMW-IW6 48-50'
Trans 1,2 Dichloroethene	<3	<3	<3	<3
CIS 1,2 Dichloroethene	<3	<3	<3	<3
Trichloroethene	<3	<3	<3	<3
Vinyl Chloride	<5	<5	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 01-15-92
Analysis date: 01-15-92

NO ANALYSES

Trans 1,2
Dichloroethene
CIS 1,2
Dichloroethene

Trichloroethene

Vinyl Chloride

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 01-16-92
Analysis date: 01-16-92

	HMW-VP2 28-30'	HMW-VP2 33-35'	HMW-VP2 38-40'	HMW-VP2 43-45'	HMW-VP2 48-50'
Trans 1,2 Dichloroethene	<3	<3	<3	<3	<3
CIS 1,2 Dichloroethene	<3	<3	<3	<3	<3
Trichloroethene	<3	<3	<3	<3	<3
Vinyl Chloride	<5	<5	<5	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 01-22-92
Analysis date: 01-22-92

	HMW-VP3 70-72'	HMW-VP3 65-67'	HMW-VP3 55-57'	HMW-VP3 60-62'
Trans 1,2 Dichloroethene	<3	<3	<3	<3
CIS 1,2 Dichloroethene	<3	<3	<3	<3
Trichloroethene	<3	<3	<3	<3
Vinyl Chloride	<5	<5	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 01-23-92
Analysis date: 01-23-92

	HMW-VP3 50-52'	HMW-VP3 45-47'	HMW-VP3 40-42'	HMW-VP3 35-37'	HMW-VP3 32-34'
Trans 1,2 Dichloroethene	<3	<3	<3	<3	<3
CIS 1,2 Dichloroethene	<3	<3	<3	<3	<3
Trichloroethene	<3	<3	<3	<3	<3
Vinyl Chloride	<5	<5	<5	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 02-18-92
Analysis date: 02-19-92

	HMW SBM 11	HMW SBM 12
Trans 1,2 Dichloroethene	<3	<3
CIS 1,2 Dichloroethene	<3	<3
Trichloroethene	<3	21
Vinyl Chloride	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 02-19-92
Analysis date: 02-19-92

	HMW SBM 8	HMW SMB 13	HMW SBM 10	HMW SBM 14	HMW SBM 15	HMW SBM 16
Trans 1,2 Dichloroethene	<3	4	<3	3	8	<3
CIS 1,2 Dichloroethene	<3	281	9	358	308	3
Trichloroethene	11	11000	33	4000	55000	15
Vinyl Chloride	<5	12	<5	<5	23	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 02-19-92
Analysis date: 02-19-92

	HMW SBM-17*	HMW SBM-19	HMW SBM-20
Trans 1,2 Dichloroethene	<3	<3	<3
CIS 1,2 Dichloroethene	<3	4	<3
Trichloroethene	26	60	<3
Vinyl Chloride	<5	7	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)
* many unidentified peaks present

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 02-20-92
Analysis date: 02-20-92

	HMW SBM 50R	HMW SBM 40R	HMW SBM 19B	HMW SBM17B*	HMW SBM 18R	HMW SBM 23
Trans 1,2 Dichloroethene	<3	<3	<3	<3	<3	<3
CIS 1,2 Dichloroethene	<3	<3	4	<3	<3	14
Trichloroethene	<3	<3	50	35	<3	1600
Vinyl Chloride	6	8	<5	<5	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)
* many unidentified peaks present

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 02-20-92
Analysis date: 02-20-92

	HMW SBM 22	HMW SBM 24
Trans 1,2 Dichloroethene	<3	<3
CIS 1,2 Dichloroethene	<3	<3
Trichloroethene	<3	<3
Vinyl Chloride	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 02-21-92
Analysis date: 02-21-92

	HMW SBM 21	HMW SBM 27	HMW SBM 26	HMW SBM 25
Trans 1,2 Dichloroethene	<3	<3	<3	<3
CIS 1,2 Dichloroethene	<3	<3	<3	<3
Trichloroethene	<3	<3	<3	<3
Vinyl Chloride	<5	<5	<5	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

TABLE 4

**Results of Uncorrected Analytical Data.
Hi-Mill Manufacturing, Highland, Michigan,
November 1991 Through February 1992.**

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 01-27-92
Analysis date: 01-29-92

	HMWP-12
Trans 1,2 Dichloroethene	<3
CIS 1,2 Dichloroethene	88
Trichloroethene	865
Vinyl Chloride	12

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 01-30-92
Analysis date: 02-01-92

	Field Blank	SMB 7	SMB 4	SMB 5	SMB 9	SMB 8
Trans 1,2 Dichloroethene	<3	<3	<3	<3	<3	<3
CIS 1,2 Dichloroethene	<3	<3	105	143	143	18
Trichloroethene	<3	<3	454	312	854	78
Vinyl Chloride	<5	<5	<5	*7	<5	*7

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

* Uncertain if present

FAST ENVIRONMENTAL, INC.
P.O. Box 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Description: water

Sampled by: RS
Sample date: 03-05-92
Analysis date: 03-07-92

	HMW SBM 28	HMW SBM 29	HMW SBM 30	HMW SBM 31	HMW SBM 32	HMW SMB 33
Trans 1,2 Dichloroethene	<300	<3	<3	<3	<3	<3
CIS 1,2 Dichloroethene	<300	<3	<3	<3	<3	5
Trichloroethene	<300	<3	22	<3	18	5
Vinyl Chloride	<500	14	<5	<5	<5	6
Benzene	269	<200	164	<5	21	<5
Toluene	3507	113	957	<5	10	<5
Ethyl Benzene	1354	337	177	<5	28	<5
Xylene	5634	955	1715	<5	56	<5

Bruce Gartner Analyst

All values expressed in: ug/L water (parts per billion)

FAST ENVIRONMENTAL, INC.
P. O. BOX 745
Mt. Pleasant, Michigan 48804-0745
(517) 773-7455

Client: Geraghty & Miller
Project: Hi-Mill 135.07
Location: Highland, MI
Sampled by: RS
Sample date: 03-05-92
Analysis date: 03-09-92
Description: soil

Sample ID	Benzene	Toluene	Ethyl Benzene	Total Xylene	Notes
HMS SBM 30	11	230	463	2445	

Bruce K. Gartner Analyst

All values expressed in: ug/kg soil (parts per billion) relative to an aqueous BTEX standard.

APPENDIX A

Chain-of-Custody Forms
Accompanying Shipped Samples
Hi-Mill Manufacturing, Highland, Michigan,
November 1991 Through February 1992.

& MILLER, INC.
Environmental Services

Laboratory Task Order No._____

CHAIN-OF-CUSTODY RECORD

Page_____

Project Number MI135.07

Project Location HIMILL

Laboratory FAST ENV. FIELD GC

Sampler(s)/Affiliation R. SANBORN/GRM

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	FIELD GC ANALYSIS TCE, DCE + VC									TOTAL
HMW-P-12	L	1/27/92 430											3

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 3

Relinquished by: Robert Sanborn Organization: Geraghty + Miller
Received by: _____ Organization: ~~FAST ENVIRONMENTAL~~ Date 1/28/92 Time 500 Seal Intact? Yes No N/A

Relinquished by: _____ Organization: _____
Received by: KEN McCLURE Organization: FAST ENVIRONMENTAL Date 1/29/92 Time 11:00 AM Seal Intact? Yes No N/A

Notes/Remarks: Analysis date 1-29-92

☐ In Person ☒ Common Carrier FED EX (SPECIFY) ☐ Local Courier ☐ Other _____ (SPECIFY)

In House Sample Log and Chain of Custody

To be completed by person taking and transporting samples to FAST lab for analysis.

Date 1-27-92 Client Geraghty & Miller

Location Himill Project MI 135.07

Type of sample: soil (water) other _____ Sampler R. Sanborn

How preserved? Chilled Time of delivery to lab 11:00 AM

Log in signature and date Ken McClure 1-29-92

Analysis signature and date Bruce Sanborn 1-29-92

Analysis required: BTEX MBTEX Chlorinated PNA Flash TPH

Chlorides

Method: (Photovac scan) EPA Method

Sample ID	Approx. Conc. 0 1 2 3	Duplicate?
HMW P-12		Yes 2

made a 100:1 dilution

General Field Observations:

GERAGHTY & MILLER, INC.
Environmental Services

Laboratory Task Order No. _____

CHAIN-OF-CUSTODY RECORD

Page _____ of _____

Project Number MI13507

Project Location HIGHLAND, MI

Laboratory FAST

Sampler(s)/Affiliation R. SANBORN / G+M
J. Johnston / G+M

SAMPLE BOTTLE / CONTAINER DESCRIPTION

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	40ml VOAs ICE, DCE, VC									TOTAL
HMW-FieldBlank	L	1/30/92		3									3
SBM-5	L+S	1/30/92		3									3
SBM-7	L	1/30/92		3									3
SBM-9	L	1/30/92		3									3
HMW-SBM8	L	1/30/92		3									3
SBM 9	L	1/30/92		3									3

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers 18

Relinquished by: [signature] Organization: Geraghty + Miller
Received by: _____ Organization: _____ Date 1/30/92 Time 2:30
Seal Intact? Yes No N/A

Relinquished by: _____ Organization: _____
Received by: _____ Organization: _____ Date / / Time _____
Seal Intact? Yes No N/A

Special Instructions/Remarks: _____

Delivery Method: ☐ In Person ☒ Common Carrier Fed Ex (SPECIFY) ☐ Lab Courier ☐ Other _____ (SPECIFY)

Form 09 1 90

Southprint 90-0136

In House Sample Log and Chain of Custody

To be completed by person taking and transporting samples to FAST lab for analysis.

Date 1-30-92 Client Geraghty + Miller

Location Highland MI Project

Type of sample: soil water other Sampler R. Sanborn

How preserved? Chilled Time of delivery to lab 12:30 P.M.

Log in signature and date Ken McClure 1-31-92

Analysis signature and date

Analysis required: BTEX MBTEX Chlorinated PNA Flash TPH

Chlorides

Method: Photovac scan EPA Method

Sample ID	Approx. Conc. 0 1 2 3	Duplicate?
✓ HMW Field Blank		2
✓ SBM-5		2
✓ SBM-7		2
✓ SBM-4		2
✓ HMW-SBM-8		2
✓ SBM-9		2

General Field Observations:

& MILLER, INC.
Environmental Services

Laboratory Task Order No._____

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

Project Number MI135.07

Project Location HIGHLAND, MI

Laboratory FAST

Sampler(s)/Affiliation J. Johnston
R. Sanborn

SAMPLE IDENTITY	Code	Date/Time Sampled	Lab ID	SAMPLE BOTTLE / CONTAINER DESCRIPTION: 40 ml VOAS BTEX, TCE, DCE, VC									TOTAL
HMWSBM30	L	3/5/92		3									3
HMWSBM30	S	3/5/92		2									2
HMWSBM28	L	3/5/92		3									3
HMWSBM29	L	3/5/92		3									3
HMWSBM31	L	3/5/92		3									3
HMWSBM32	L	3/5/92		3									3
HMWSBM33	L	3/5/92		3									3

Sample Code: L = Liquid; S = Solid; A = Air

Total No. of Bottles/Containers: 20

Relinquished by: Robert Sanborn Organization: Geraghty + Miller
Received by: _____ Organization: _____ Date 3/5/92 Time 500
Seal Intact? Yes No N/A

Relinquished by: _____ Organization: _____
Received by: _____ Organization: _____ Date / / Time _____
Seal Intact? Yes No N/A

Special Instructions/Remarks: _____

Sent: ☐ In Person ☒ Common Carrier FEDEX (SPECIFY) ☐ Lab Courier ☐ Other _____ (SPECIFY)

Southprint 90-0136

Analysis Date 3-7-92

In House Sample Log and Chain of Custody

To be completed by person taking and transporting samples to FAST lab for analysis.

Date 3/6/92 Client G & M Miller

Location Highland MI Project MI 135.07

Type of sample: soil water other _____ Sampler S.G&M

How preserved? Chilled Time of delivery to lab 10:45

Log in signature and date [signature]

Analysis signature and date _____

Analysis required: BTEX MBTEX Chlorinated PNA Flash TPH

Chlorides

Method: Photovac scan EPA Method

Sample ID	Approx. Conc. 0 1 2 3	Duplicate?
HMWSBM30		3
~~HMSSBM30~~		~~2~~
HMWSBM28		3
HMWSBM29		3
HMWSBM31		3
HMWSBM32		3
HMWSBM33		3
HMSSBM30		2

General Field Observations:

APPENDIX O

GERAGHTY & MILLER GROUND-WATER SAMPLING LOGS,

PHASE II REMEDIAL INVESTIGATION

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. SW-2 Coded/ Replicate No. – Date 2/12/92

Weather sunny, 25° Time Sampling Began 1500 Time Sampling Completed 1500

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 2.64 MP Elevation 1018.04

Total Sounded Depth of Well Below MP 31.25 Water-Level Elevation 996.79

Held _____ Depth to Water Below MP 21.25 Diameter of Casing 2"

Wet _____ Water Column in Well 10.00 Gallons Pumped/Bailed Prior to Sampling 5

Gallons per Foot 0.16

Gallons in Well 1.60 Sampling Pump Intake Setting (feet below land surface) 28

Evacuation Method watera tubing (polyethylene) and foot valve

SAMPLING DATA/FIELD PARAMETERS

Color tan Odor none Appearance cloudy Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 385 pH 7.89

Sampling Method and Material Voss disposable bailer

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	(2) 40 ml VOAS	HCL/4°C
dissolved metals	(1) 500 ml plastic	HNO_3/4°C

Remarks _____

Sampling Personnel T. Cook, R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. SW-3 Coded/ Replicate No. _____ Date 2/12/92

Weather Sunny, 22°F Time Sampling Began 1055 Time Sampling Completed 1100

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.10 MP Elevation 1012.43

Total Sounded Depth of Well Below MP 10.63 Water-Level Elevation 1000.76

Held _____ Depth to Water Below MP 5.67 Diameter of Casing 2"

Wet _____ Water Column in Well 4.96 Gallons Pumped/Bailed Prior to Sampling 4.5

Gallons per Foot 0.16

Gallons in Well 0.79 Sampling Pump Intake Setting (feet below land surface) 10

Evacuation Method watera tubing with foot valve

SAMPLING DATA/FIELD PARAMETERS

Color clear, lt. brown Odor none Appearance clear-? cloudy Temperature n/a °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 780 pH 7.51

Sampling Method and Material watera tubing with foot valve

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	2 40 ml VOA	4°C HCl
metals (dissolved)	1 500 ml poly	4°C HNO_3

Remarks _____

Sampling Personnel T. Cook, R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. SW-4 Coded/ Replicate No. _____ Date 2/11/92

Weather Snowing, 28°F Time Sampling Began 1630 Time Sampling Completed 1930

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 2.94 MP Elevation 1010.18

Total Sounded Depth of Well Below MP 15.58 Water-Level Elevation 1005.60

Held _____ Depth to Water Below MP 4.58 Diameter of Casing 2"

Wet _____ Water Column in Well 11.00 Gallons Pumped/Bailed Prior to Sampling 4.5 gals.

Gallons per Foot .16

Gallons in Well 1.76 Sampling Pump Intake Setting (feet below land surface) 12

Evacuation Method watera tubing with foot valve

SAMPLING DATA/FIELD PARAMETERS

Color n/a Odor n/a Appearance n/a Temperature n/a °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm n/a pH n/a

Sampling Method and Material same as above

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	2 40 ml VOA	40°C HCL
metals (dissolved)	1 500 ml poly	4°C HNO_3

Remarks well would not recover pumped dry >10 times

Sampling Personnel T. Cook, R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. SW-5 Coded/ Replicate No. _____ Date 2/12/92

Weather approx. 20°C, clear/sunny Time Sampling Began _____ Time Sampling Completed _____

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.62 MP Elevation 1011.95

Total Sounded Depth of Well Below MP 10.26 Water-Level Elevation 1007.33

Held _____ Depth to Water Below MP 4.62 Diameter of Casing 2"

Wet _____ Water Column in Well 5.64 Gallons Pumped/Bailed Prior to Sampling 3

Gallons per Foot 0.16

Gallons in Well 0.90 Sampling Pump Intake Setting (feet below land surface) 10

Evacuation Method polyethylene tubing and foot valve

SAMPLING DATA/FIELD PARAMETERS

Color light brown Odor none Appearance slightly turbid Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 1307 µs pH 7.90

Sampling Method and Material _____

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
dissolved metals	(1) 500 ml HDPE	4°C/HNO_3
TCL-VOCs	(2) 40 ml VOAs	4°C/HCL

Remarks approximate recharge >1 gpm

Sampling Personnel M. Piddington, M. Keeley

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. SW-6 Coded/ Replicate No. – Date 2/12/92

Weather approx. 20°C, clear/sunny Time Sampling Began – Time Sampling Completed –

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.25 MP Elevation 1011.63

Total Sounded Depth of Well Below MP 13.88 Water-Level Elevation 1007.73

Held _____ Depth to Water Below MP 3.90 Diameter of Casing 2"

Wet _____ Water Column in Well 9.98 Gallons Pumped/Bailed Prior to Sampling 5

Gallons per Foot 0.16

Gallons in Well 1.60 Sampling Pump Intake Setting (feet below land surface) 13

Evacuation Method polyethylene tubing and foot valve

SAMPLING DATA/FIELD PARAMETERS

Color very lt. yellow Odor none Appearance fairly clear Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 2.41 mS pH 7.81

Sampling Method and Material polyethylene tubing and foot valve

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
dissolved metals	(1) 500 ml HDPE	4°C/HNO_3
TCL-VOCs	(2) 40 ml VOAs	4°C/HCL

Remarks slow recharge, <.5 gpm

Sampling Personnel M. Piddington, M. Keeley

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
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WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. SW-7 Coded/ Replicate No. SW-7A Date 2/13/92

Weather approx. 30°C, overcast Time Sampling Began – Time Sampling Completed –

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 2.88 MP Elevation 1010.36

Total Sounded Depth of Well Below MP 17.94 Water-Level Elevation 1005.57

Held _____ Depth to Water Below MP 4.79 Diameter of Casing 2"

Wet _____ Water Column in Well 13.15 Gallons Pumped/Bailed Prior to Sampling 3, dry several times

Gallons per Foot 0.16

Gallons in Well 2.10 Sampling Pump Intake Setting (feet below land surface) –

Evacuation Method polyethylene tubing, foot valve

SAMPLING DATA/FIELD PARAMETERS

Color gray Odor none Appearance turbid Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 2100 µs pH 7.08

Sampling Method and Material disposable polyethylene bailer

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
MS/MSD	(2) 40 ml VOAs	
*dissolved metals	(1) 500 ml HDPE	
*total metals	(1) 500 ml HDPE	
TCL-VOCs	(4) 40 ml VOAs	4°C/HCL

Remarks Donahue, MDNR & EPA agreed that this was a sufficient purse volume for SW-7, very slow recharge less than 1 gal. in 5 hrs.

Sampling Personnel M. Piddington, M. Keeley, R. Sanborn

*metals sampled on 2/14/92

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. SW-8 Coded/ Replicate No. – Date 2/12/92

Weather approx. 20°C, clear & sunny Time Sampling Began – Time Sampling Completed –

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 2.95 MP Elevation 1010.85

Total Sounded Depth of Well Below MP 13.12 Water-Level Elevation 1006.02

Held _____ Depth to Water Below MP 4.83 Diameter of Casing 2"

Wet _____ Water Column in Well 8.29 Gallons Pumped/Bailed Prior to Sampling 4.5

Gallons per Foot 0.16

Gallons in Well 1.33 Sampling Pump Intake Setting (feet below land surface) 13

Evacuation Method polyethylene tubing and foot valve

SAMPLING DATA/FIELD PARAMETERS

Color light brown Odor none Appearance slightly turbid Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 2.13 µs pH 7.82

Sampling Method and Material polyethylene tubing and foot valve

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
dissolved metals	(1) 500 ml HDPE	4°C/HNO_3
TCL - VOCs	(2) 40 ml VOAs	4°C/HCL

Remarks approximate recharge = 1 gpm

Sampling Personnel M. Piddington, M. Keeley

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. SW-9 Coded/ Replicate No. – Date 2/12/92

Weather approx. 20°C, clear & sunny Time Sampling Began – Time Sampling Completed –

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 2.98 MP Elevation 1010.10

Total Sounded Depth of Well Below MP 23.21 Water-Level Elevation 1005.04

Held _____ Depth to Water Below MP 5.06 Diameter of Casing 2"

Wet _____ Water Column in Well 18.15 Gallons Pumped/Bailed Prior to Sampling 9

Gallons per Foot 0.16

Gallons in Well 2.90 Sampling Pump Intake Setting (feet below land surface) 23

Evacuation Method centrifugal pump, polyethylene tubing and foot valve

SAMPLING DATA/FIELD PARAMETERS

Color light gray Odor one Appearance slightly turbid Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 1.53µs pH 7.82

Sampling Method and Material polyethylene tubing and foot valve

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
dissolved metals	(1) 500 ml HDPE	4°C/HNO_3
TCL-VOCs	(2) 40 ml VOAs	4°C/HCL

Remarks slow recharge <1 gpm

Sampling Personnel M. Keeley

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. SW-9A Coded/ Replicate No. – Date 2/12/92

Weather approx. 20°C, clear and sunny Time Sampling Began – Time Sampling Completed –

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.32 MP Elevation 1010.18

Total Sounded Depth of Well Below MP 10.33 Water-Level Elevation 1004.88

Held _____ Depth to Water Below MP 5.30 Diameter of Casing 2"

Wet _____ Water Column in Well 5.03 Gallons Pumped/Bailed Prior to Sampling 2.5

Gallons per Foot 0.16

Gallons in Well 0.80 Sampling Pump Intake Setting (feet below land surface) 10

Evacuation Method centrifugal pump, polyethylene tubing and foot valve

SAMPLING DATA/FIELD PARAMETERS

Color gray Odor none Appearance turbid Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 677 µs pH 7.84

Sampling Method and Material polyethylene tubing and foot valve

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
dissolved metals	(1) 500 ml HDPE	4·C/HNO_3
TCL-VOCs	(2) 40 ml VOAs	4°C/HCL

Remarks slow recharge < 1 gpm

Sampling Personnel M. Keeley

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. SW-10 Coded/ Replicate No. – Date 2/13/92

Weather approx. 30°C, overcast Time Sampling Began – Time Sampling Completed –

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 4.16 MP Elevation 1010.50

Total Sounded Depth of Well Below MP 8.98 Water-Level Elevation 1005.39

Held _____ Depth to Water Below MP 5.11 Diameter of Casing 2"

Wet _____ Water Column in Well 3.87 Gallons Pumped/Bailed Prior to Sampling 4

Gallons per Foot 0.16

Gallons in Well 0.62 Sampling Pump Intake Setting (feet below land surface) –

Evacuation Method polyethylene tubing and foot pump

SAMPLING DATA/FIELD PARAMETERS

Color clear Odor none Appearance clear Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 1137 µs pH 8.22

Sampling Method and Material disposable polyethylene bailer

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
dissolved metals	(1) 500 ml HDPE	4°C/HNO_3
TCL-VOCs	(2) 40 ml VOAs	4°C/HCl

Remarks approximate recharge = 2 gpm

Sampling Personnel M. Piddington, M. Keeley

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. SW-11 Coded/ Replicate No. – Date 2/11/92

Weather approx. 30° Time Sampling Began – Time Sampling Completed –

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.03 MP Elevation 1010.01

Total Sounded Depth of Well Below MP 23.68 Water-Level Elevation 998.32

Held _____ Depth to Water Below MP 11.69 Diameter of Casing 2"

Wet _____ Water Column in Well 11.99 Gallons Pumped/Bailed Prior to Sampling 6

Gallons per Foot 0.16

Gallons in Well 1.92 Sampling Pump Intake Setting (feet below land surface) 23

Evacuation Method centrifugal pump, polyethylene tubing and foot valve

SAMPLING DATA/FIELD PARAMETERS

Color gray Odor none Appearance turbid Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 586 µs pH 7.49

Sampling Method and Material polyethylene tubing and foot valve

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
dissolved metals	(1) 500 ml HDPE	4°C/HNO_3
TCL-VOCs	(2) 40 ml VOA	4°C/HCl

Remarks slow recharge < .5 gpm

Sampling Personnel M. Piddington, M. Keeley

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. SW-12 Coded/ Replicate No. – Date 2/11/92

Weather approx. 30° Time Sampling Began – Time Sampling Completed –

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.03 MP Elevation 1013.14

Total Sounded Depth of Well Below MP 13.10 Water-Level Elevation 1009.34

Held _____ Depth to Water Below MP 3.80 Diameter of Casing 2"

Wet _____ Water Column in Well 9.30 Gallons Pumped/Bailed Prior to Sampling 4.5

Gallons per Foot 0.16

Gallons in Well 1.49 Sampling Pump Intake Setting (feet below land surface) 13

Evacuation Method centrifugal pump, polyethylene tubing and foot valve

SAMPLING DATA/FIELD PARAMETERS

Color clear Odor none Appearance clear Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 5.42 µs pH 7.42

Sampling Method and Material polyethylene tubing and foot valve

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
dissolved metals	(1) 500 ml HDPE	4°C/HNO_3
TCL-VOCs	(2) 40 ml VOA	4°C/HCl

Remarks approximate recharge = 1 gpm

Sampling Personnel M. Piddington, M. Keeley

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. SW-14 Coded/ Replicate No. – Date 9/13/92

Weather cloudy, 23°F Time Sampling Began 1000 Time Sampling Completed 1100

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.31 MP Elevation 1009.76

Total Sounded Depth of Well Below MP 19.44 Water-Level Elevation 1004.04

Held _____ Depth to Water Below MP 5.72 Diameter of Casing 2"

Wet _____ Water Column in Well 13.72 Gallons Pumped/Bailed Prior to Sampling 9 gals.

Gallons per Foot 0.16

Gallons in Well 2.19 Sampling Pump Intake Setting (feet below land surface) 19

Evacuation Method watera tubing with foot valve

SAMPLING DATA/FIELD PARAMETERS

Color none Odor none Appearance cloudy Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 1096 pH 7.98

Sampling Method and Material _____

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	(2) 40 ml VOA	4°C HCl
metals (dissolved)	(1) 500 ml poly	4°C HNO_3

Remarks _____

Sampling Personnel R. Sanborn, T. Cook

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. SW-15 Coded/ Replicate No. – Date 2/12/92

Weather clear, approx. 23°F Time Sampling Began 1628 Time Sampling Completed 1730

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.14 MP Elevation 1010.93

Total Sounded Depth of Well Below MP 15.11 Water-Level Elevation 1006.32

Held _____ Depth to Water Below MP 4.61 Diameter of Casing 2"

Wet _____ Water Column in Well 10.50 Gallons Pumped/Bailed Prior to Sampling 5

Gallons per Foot 0.16

Gallons in Well 1.68 Sampling Pump Intake Setting (feet below land surface) 11

Evacuation Method watera tubing with foot valve

SAMPLING DATA/FIELD PARAMETERS

Color none Odor none Appearance cloudy Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm – pH –

Sampling Method and Material voss disposable bailers

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	(2) 40 ml VOAs	4·C/HCl
dissolved metal	(1) 500 ml plastic	4·C/HNO_3

Remarks _____

Sampling Personnel _____

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Site Location Highland, MI

Site/Well No. SW-17 Coded/ Replicate No. – Date 2/11/92

Weather approx. 30° Time Sampling Began – Time Sampling Completed –

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.09 MP Elevation 1012.83

Total Sounded Depth of Well Below MP 41.85 Water-Level Elevation 999.12

Held _____ Depth to Water Below MP 13.71 Diameter of Casing 2"

Wet _____ Water Column in Well 28.14 Gallons Pumped/Bailed Prior to Sampling 18

Gallons per Foot 0.16

Gallons in Well 4.50 Sampling Pump Intake Setting (feet below land surface) –

Evacuation Method centrifugal pump, polyethylene tubing and foot valve

SAMPLING DATA/FIELD PARAMETERS

Color clear Odor none Appearance clear Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm _____ pH 7.81

Sampling Method and Material polyethylene tubing and foot valve

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
dissolved metals	(1) 500 ml HDPE	4°C/HNO_3
TCL-VOCs	(2) 40 ml VOA	4°C/HCl

Remarks high recharge approx. 3 gpm

Sampling Personnel M. Piddington, M. Keeley

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. SW-18 Coded/ Replicate No. - Date 2/12/92

Weather approx. 20°, clear & sunny Time Sampling Began - Time Sampling Completed -

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 2.91 MP Elevation 1008.58

Total Sounded Depth of Well Below MP 17.04 Water-Level Elevation 1001.04

Held _____ Depth to Water Below MP 7.54 Diameter of Casing 2"

Wet _____ Water Column in Well 9.50 Gallons Pumped/Bailed Prior to Sampling 4.75

Gallons per Foot 0.16

Gallons in Well 1.52 Sampling Pump Intake Setting (feet below land surface) -

Evacuation Method centrifugal pump, polyethylene tubing and foot valve

SAMPLING DATA/FIELD PARAMETERS

Color brown Odor none Appearance turbid Temperature - °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 258µs pH 8.11

Sampling Method and Material polyethylene tubing and foot pump

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
dissolved metals	(1) 500 ml HDPE	4°C/HNO_3
TCL - VOCs	(2) 40 ml VOA	4°C/HCl

Remarks slow recharge < 1 gpm

Sampling Personnel M. Piddington, M. Keeley

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. SW-19 Coded/ Replicate No. – Date 2/12/92

Weather approx. 10°, clear & sunny Time Sampling Began – Time Sampling Completed –

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 2.90 MP Elevation 1015.61

Total Sounded Depth of Well Below MP 33.05 Water-Level Elevation 1002.18

Held _____ Depth to Water Below MP 13.43 Diameter of Casing 2"

Wet _____ Water Column in Well 19.62 Gallons Pumped/Bailed Prior to Sampling 10.5

Gallons per Foot 0.16

Gallons in Well 3.14 Sampling Pump Intake Setting (feet below land surface) _____

Evacuation Method centrifugal pump, polyethylene tubing and foot valve

SAMPLING DATA/FIELD PARAMETERS

Color light gray Odor none Appearance fairly clear Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 475 µs pH 8.04

Sampling Method and Material polyethylene tubing and foot valve

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
dissolved metals	(1) 500 ml HDPE	4°C/HNO_3
TCL-VOCs	(2) 40 ml VOA	4°C/HCl

Remarks approximate recharge = 2 gpm

Sampling Personnel M. Piddington, M. Keeley

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Site Location Highland, MI

Site/Well No. SW-20 Coded/ Replicate No. – Date 2/12/92

Weather approx. 10°, clear & sunny Time Sampling Began – Time Sampling Completed –

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 1.47 MP Elevation 1009.76

Total Sounded Depth of Well Below MP 8.52 Water-Level Elevation 1006.24

Held _____ Depth to Water Below MP 3.52 Diameter of Casing 2"

Wet _____ Water Column in Well 5.00 Gallons Pumped/Bailed Prior to Sampling 4

Gallons per Foot 0.16

Gallons in Well 0.80 Sampling Pump Intake Setting (feet below land surface) –

Evacuation Method polyethylene tubing and foot valve

SAMPLING DATA/FIELD PARAMETERS

Color brown-yellow Odor none Appearance mod. turbid Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 782 µs pH 8.10

Sampling Method and Material polyethylene tubing and foot valve

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
dissolved metals	(1) 500 ml HDPE	4°C/HNO_3
TCL-VOCs	(2) 40 ml VOA	4°C/HCl

Remarks approximate recharge = 2 gpm

Sampling Personnel M. Piddington, M. Keeley

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Site Location Highland, MI

Site/Well No. SW-21 Coded/ Replicate No. – Date 2/11/92

Weather snowing, 28°F Time Sampling Began 1530 Time Sampling Completed 1630

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.40 MP Elevation 1012.93

Total Sounded Depth of Well Below MP 9.89 Water-Level Elevation 1006.85

Held _____ Depth to Water Below MP 6.08 Diameter of Casing 2"

Wet _____ Water Column in Well 3.81 Gallons Pumped/Bailed Prior to Sampling 2.5

Gallons per Foot 0.16

Gallons in Well 0.61 Sampling Pump Intake Setting (feet below land surface) 6

Evacuation Method watera tubing and foot valve

SAMPLING DATA/FIELD PARAMETERS

Color clear Odor none Appearance clear-v. sli. turbid Temperature n/a °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 556 pH 7.71

Sampling Method and Material same as above

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	(2) 40 ml VOA	4°C HCl
metals (dissolved)	(1) 500 ml poly	4°C HNO_3

Remarks _____

Sampling Personnel T. Cook, R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. SW-22 Coded/ Replicate No. – Date 2/13/92

Weather approx. 30°, overcast Time Sampling Began – Time Sampling Completed –

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.46 MP Elevation 1010.25

Total Sounded Depth of Well Below MP 8.88 Water-Level Elevation 1005.58

Held _____ Depth to Water Below MP 4.67 Diameter of Casing 2"

Wet _____ Water Column in Well 4.21 Gallons Pumped/Bailed Prior to Sampling 3

Gallons per Foot 0.16

Gallons in Well 0.67 Sampling Pump Intake Setting (feet below land surface) –

Evacuation Method polyethylene tubing and foot valve

SAMPLING DATA/FIELD PARAMETERS

Color lt. brown Odor none Appearance slightly turbid Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 2.09 µs pH 7.82

Sampling Method and Material _____

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
dissolved metals	(1) 500 ml HDPE	4°C HNO_3
TCL-VOCs	(2) 40 ml VOA	4°C HCl

Remarks approximate recharge = 2 gpm

Sampling Personnel M. Piddington, M. Keeley

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Site Location Highland, MI

Site/Well No. IW-1 Coded/ Replicate No. VP-6 Date 2/12/92

Weather sunny, 22°F Time Sampling Began 0900 Time Sampling Completed 1000

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 2.31 MP Elevation 1017.02

Total Sounded Depth of Well Below MP 49.63 Water-Level Elevation 995.58

Held _____ Depth to Water Below MP 21.44 Diameter of Casing 2"

Wet _____ Water Column in Well 28.19 Gallons Pumped/Bailed Prior to Sampling 18 gal.

Gallons per Foot 0.16

Gallons in Well 4.51 Sampling Pump Intake Setting (feet below land surface) 47

Evacuation Method submersible Keck pump and water tubing

SAMPLING DATA/FIELD PARAMETERS

Color clear, lt. brown Odor none Appearance clear, sli-turbid Temperature n/a °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 844 pH 7.67

Sampling Method and Material as above

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	(2) 40 ml VOA	4°C HCl
metals (dissolved)	(1) 500 ml poly	4°C HNO_3
metals (total)	(1) 500 ml poly	4°C HNO_3

Remarks _____

Sampling Personnel T. Cook, R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Site Location Highland, MI

Site/Well No. IW-2 Coded/ Replicate No. – Date 2/13/92

Weather cloudy, 32°F Time Sampling Began 1430 Time Sampling Completed 1530

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.00 MP Elevation 1014.56

Total Sounded Depth of Well Below MP 49.32 Water-Level Elevation 997.05

Held _____ Depth to Water Below MP 17.51 Diameter of Casing 2"

Wet _____ Water Column in Well 31.81 Gallons Pumped/Bailed Prior to Sampling 16

Gallons per Foot 0.16

Gallons in Well 5.09 Sampling Pump Intake Setting (feet below land surface) 46

Evacuation Method submersible pump and polyethylene tubing

SAMPLING DATA/FIELD PARAMETERS

Color clear Odor none Appearance clear Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 386 pH 7.82

Sampling Method and Material submersible pump and polyethylene tubing

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	(2) 40 ml VOA	4°C HCl
metals (dissolved)	(1) 500 ml poly	4°C HNO_3
metals (total)	(1) 500 ml poly	4°C HNO_3

Remarks _____

Sampling Personnel T. Cook, R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. IW-3 Coded/ Replicate No. – Date 2/11/92

Weather snowing, 32°F Time Sampling Began 1030 Time Sampling Completed 1130

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 2.99 MP Elevation 1011.90

Total Sounded Depth of Well Below MP 49.75 Water-Level Elevation 997.45

Held _____ Depth to Water Below MP 1445 Diameter of Casing 2"

Wet _____ Water Column in Well 35.30 Gallons Pumped/Bailed Prior to Sampling 24 gals.

Gallons per Foot 0.16

Gallons in Well 5.65 Sampling Pump Intake Setting (feet below land surface) 46

Evacuation Method submersible pump

SAMPLING DATA/FIELD PARAMETERS

Color none Odor none Appearance clear Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 497 pH 7.55

Sampling Method and Material _____

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	(2) 40 ml VOA	4°C HCl
metal (dissolved)	(1) 500 ml poly	4°C HNO_3
metals (total)	(1) 500 ml poly	4°C HNO_3

Remarks _____

Sampling Personnel R. Sanborn, T. Cook

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. IW-4A Coded/ Replicate No. – Date 2/11/92

Weather snowing, 32°F Time Sampling Began 1630 Time Sampling Completed 1730

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.02 MP Elevation 1010.06

Total Sounded Depth of Well Below MP 57.33 Water-Level Elevation 997.84

Held _____ Depth to Water Below MP 12.22 Diameter of Casing 2"

Wet _____ Water Column in Well 45.11 Gallons Pumped/Bailed Prior to Sampling 30

Gallons per Foot 0.16

Gallons in Well 7.22 Sampling Pump Intake Setting (feet below land surface) 54.31

Evacuation Method submersible pump

SAMPLING DATA/FIELD PARAMETERS

Color clear Odor none Appearance clear Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 647 pH 7.48

Sampling Method and Material _____

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	(2) 40 ml VOA	4°C HCl
metals	(1) 500 ml poly	4°C HNO_3

Remarks _____

Sampling Personnel T. Cook, R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Site Location Highland, MI

Site/Well No. IW-5 Coded/ Replicate No. – Date 9/13/92

Weather cloudy, 24°F Time Sampling Began 2300 Time Sampling Completed 2400

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.15 MP Elevation 1009.39

Total Sounded Depth of Well Below MP 38.53 Water-Level Elevation 997.96

Held _____ Depth to Water Below MP 11.43 Diameter of Casing 2"

Wet _____ Water Column in Well 27.10 Gallons Pumped/Bailed Prior to Sampling 17

Gallons per Foot 0.16

Gallons in Well 4.34 Sampling Pump Intake Setting (feet below land surface) 38

Evacuation Method polyethylene watera tubing with foot valve

SAMPLING DATA/FIELD PARAMETERS

Color none Odor none Appearance clear Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 386 pH 8.52

Sampling Method and Material _____

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	(2) 40 ml VOA	4°C HCl
metals (dissolved)	(1) 500 ml poly	4°C HNO_3

Remarks _____

Sampling Personnel T. Cook, R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Site Location Highland, MI

Site/Well No. DW-1 Coded/ Replicate No. – Date 9/13/92

Weather cloudy, 32°F Time Sampling Began – Time Sampling Completed –

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3 MP Elevation 1014.62

Total Sounded Depth of Well Below MP 83.89 Water-Level Elevation 996.31

Held _____ Depth to Water Below MP 18.31 Diameter of Casing 2"

Wet _____ Water Column in Well 65.58 Gallons Pumped/Bailed Prior to Sampling 32

Gallons per Foot 0.16

Gallons in Well 10.5 Sampling Pump Intake Setting (feet below land surface) –

Evacuation Method submersible pump and watera tubing (polyethylene)

SAMPLING DATA/FIELD PARAMETERS

Color clear Odor none Appearance clear Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 385 pH 7.84

Sampling Method and Material _____

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	(2) 40 ml VOA	4°C HCl
metals (dissolved)	(1) 500 ml poly	4°C HNO_3

Remarks _____

Sampling Personnel T. Cook, R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. DW-2 Coded/ Replicate No. – Date 2/11/92

Weather snowing, 32°F Time Sampling Began 0830 Time Sampling Completed 0930

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.08 MP Elevation 1011.99

Total Sounded Depth of Well Below MP 89.69 Water-Level Elevation 996.90

Held _____ Depth to Water Below MP 15.09 Diameter of Casing 2"

Wet _____ Water Column in Well 74.60 Gallons Pumped/Bailed Prior to Sampling 42

Gallons per Foot 0.16 (0.20)

Gallons in Well 11.94 (14.0) Sampling Pump Intake Setting (feet below land surface) 86.61

Evacuation Method submersible pump

SAMPLING DATA/FIELD PARAMETERS

Color none Odor none Appearance clear Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 673 pH 7.19

Sampling Method and Material _____

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	(2) 40 ml VOA	4°C HCl
dissolved metals	(1) 500 ml poly	4°C HNO_3

Remarks _____

Sampling Personnel T. Cook, R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. DW-3 Coded/ Replicate No. – Date 2/13/92

Weather cloudy, 23°F Time Sampling Began 1000 Time Sampling Completed 1200

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 3.10 MP Elevation 1009.41

Total Sounded Depth of Well Below MP 74.12 Water-Level Elevation 996.45

Held _____ Depth to Water Below MP 12.96 Diameter of Casing 2"

Wet _____ Water Column in Well 61.16 Gallons Pumped/Bailed Prior to Sampling 36

Gallons per Foot 0.16

Gallons in Well 9.78 Sampling Pump Intake Setting (feet below land surface) 74

Evacuation Method submersible pump and watera tubing

SAMPLING DATA/FIELD PARAMETERS

Color _____ Odor _____ Appearance _____ Temperature _____ °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 384 pH 7.83

Sampling Method and Material _____

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	(2) 40 ml VOA	4°C HCl
metals (total)	(1) 500 ml poly	4°C HNO_3
metals (dissolved)	(1) 500 m l poly	4°C HNO_3

Remarks well pumped dry after 18 gals.

Sampling Personnel T. Cook, R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Site Location Highland, MI

Site/Well No. VP-1 Coded/ Replicate No. VP-5 Date 2/12/92

Weather clear, cold (10°F) Time Sampling Began 0900 Time Sampling Completed 1000

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 2.16 MP Elevation 1011.26

Total Sounded Depth of Well Below MP 62.17 Water-Level Elevation 997.31

Held _____ Depth to Water Below MP 13.95 Diameter of Casing 2"

Wet _____ Water Column in Well 48.22 Gallons Pumped/Bailed Prior to Sampling 40

Gallons per Foot 0.16

Gallons in Well 7.72 Sampling Pump Intake Setting (feet below land surface) 62

Evacuation Method Keck pump dedicated HDPE tubing

SAMPLING DATA/FIELD PARAMETERS

Color clear Odor none Appearance clear Temperature – °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 567 pH 7.75

Sampling Method and Material Keck pump with dedicated HDPE tubing

Constituents Sampled	Container Description From Lab X or G&M ____	Preservative
TCL	(2) 40 ml VOAS	4°C HCl
dissolved metals	500 ml	4°C HNO_3
MSD/MS	(2) 40 ml VOAS	4°C HCl

Remarks _____

Sampling Personnel R. Sanborn, T. Cook

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. IW-6 (43-45') Coded/ Replicate No. _____ Date 1/7/92

Weather Overcast, cool Time Sampling Began 3:30 pm Time Sampling Completed 4:30 pm

EVACUATION DATA

Description of Measuring Point (MP) Top of casing

Height of MP Above/Below Land Surface ≈ 7 feet MP Elevation N/A

Total Sounded Depth of Well Below MP 52 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 48.75 Diameter of Casing 2 inch

Wet _____ Water Column in Well 3.35 Gallons Pumped/Bailed Prior to Sampling 1.2 gal

Gallons per Foot 0.16

Gallons in Well 0.54 Sampling Pump Intake Setting (feet below land surface) N/A

Evacuation Method Voss disposable polyethylene bailer

SAMPLING DATA/FIELD PARAMETERS

Color Brown Odor None Appearance Turbid Temperature 8°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 251 pH 7.39

Sampling Method and Material Voss disposable polyethylene bailer

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAs	4°C

Remarks Well bailed dry 4 times.

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

GERAGHTY & MILLER, INC.
Environmental Services

WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. IW-6 (48-50') Coded/ Replicate No. _____ Date 1/7/92

Weather Overcast, cool Time Sampling Began 2:30 pm Time Sampling Completed 3:30 pm

EVACUATION DATA

Description of Measuring Point (MP) Top of casing

Height of MP Above/Below Land Surface ≈ 2 feet MP Elevation N/A

Total Sounded Depth of Well Below MP 52 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 49.94 Diameter of Casing 2 inch

Wet _____ Water Column in Well 2.06 Gallons Pumped/Bailed Prior to Sampling 1.2 gal

Gallons per Foot 0.16

Gallons in Well 0.33 Sampling Pump Intake Setting (feet below land surface) N/A

Evacuation Method Voss disposable polyethylene bailer

SAMPLING DATA/FIELD PARAMETERS

Color Brown Odor None Appearance Turbid Temperature 8°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 252 pH 7.86

Sampling Method and Material Voss disposable polyethylene bailer

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAs	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. IW-6 (53-55') Coded/ Replicate No. _____ Date 1/7/92

Weather Overcast, cool Time Sampling Began 1:30 pm Time Sampling Completed 2:00 pm

EVACUATION DATA

Description of Measuring Point (MP) Top of casing

Height of MP Above/Below Land Surface ≈ 7 feet MP Elevation N/A

Total Sounded Depth of Well Below MP 62 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 58.94 Diameter of Casing 2 inch

Wet _____ Water Column in Well 3.06 Gallons Pumped/Bailed Prior to Sampling 1.5 gal

Gallons per Foot 0.16

Gallons in Well 0.49 Sampling Pump Intake Setting (feet below land surface) N/A

Evacuation Method Voss disposable polyethylene bailer

SAMPLING DATA/FIELD PARAMETERS

Color Brown Odor None Appearance Turbid Temperature 6°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 270 pH 7.74

Sampling Method and Material Voss disposable polyethylene bailer

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAs	4°C

Remarks Well bailed dry 3 times.

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. IW-6 (57-59') Coded/ Replicate No. _____ Date 1/7/92

Weather Overcast, cool Time Sampling Began 9:15 am Time Sampling Completed 11:15 am

EVACUATION DATA

Description of Measuring Point (MP) Top of casing

Height of MP Above/Below Land Surface ≈ 2 feet MP Elevation N/A

Total Sounded Depth of Well Below MP 62 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 41.92 Diameter of Casing 2 inch

Wet _____ Water Column in Well 20.08 Gallons Pumped/Bailed Prior to Sampling 5 gal

Gallons per Foot 0.17

Gallons in Well 3.4 Sampling Pump Intake Setting (feet below land surface) N/A

Evacuation Method Voss disposable polyethylene bailer

SAMPLING DATA/FIELD PARAMETERS

Color Brown Odor None Appearance Turbid Temperature 6°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 210 pH 8.18

Sampling Method and Material Voss disposable polyethylene bailer

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAs	4°C

Remarks Well bailed dry twice.

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. IW-6 (63-65') Coded/ Replicate No. _____ Date 1/3/92

Weather Light rain, cool Time Sampling Began 11:20 am Time Sampling Completed 3:30 pm

EVACUATION DATA

Description of Measuring Point (MP) Top of casing

Height of MP Above/Below Land Surface ≈ 7 feet MP Elevation N/A

Total Sounded Depth of Well Below MP 72 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 31.98 Diameter of Casing 2 inch

Wet _____ Water Column in Well 40.02 Gallons Pumped/Bailed Prior to Sampling 22 gal

Gallons per Foot 0.16

Gallons in Well 6.40 Sampling Pump Intake Setting (feet below land surface) N/A

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Cloudy Temperature 8.5°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 680 pH 7.39

Sampling Method and Material Voss disposable polyethylene bailer

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAs	4°C

Remarks Well pumped/bailed dry 4 times.

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. IW-6 (85-87') Coded/ Replicate No. _____ Date 1/2/92

Weather Overcast,cool Time Sampling Began 1:20 pm Time Sampling Completed 3:20 pm

EVACUATION DATA

Description of Measuring Point (MP) Top of casing

Height of MP Above/Below Land Surface ≈ 7 feet MP Elevation N/A

Total Sounded Depth of Well Below MP 92 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 27.48 Diameter of Casing 2 inch

Wet _____ Water Column in Well 64.52 Gallons Pumped/Bailed Prior to Sampling 34 gal

Gallons per Foot 0.16

Gallons in Well 10.32 Sampling Pump Intake Setting (feet below land surface) 92 feet

Evacuation Method Wattera tubing with foot valve

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 8.5°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 112 pH 7.85

Sampling Method and Material Wattera tubing with foot valve

Constituents Sampled	Container Description From Lab ____ or G&M x	Preservative
TCE, DCE, VC	(3) 40 ml VOAs	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. IW-6 (90-92') Coded/ Replicate No. _____ Date 12/31/91

Weather Overcast, cool Time Sampling Began 11:15 am Time Sampling Completed 1:10 pm

EVACUATION DATA

Description of Measuring Point (MP) Top of casing

Height of MP Above/Below Land Surface ≈ 2 feet MP Elevation N/A

Total Sounded Depth of Well Below MP 92 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 24.58 Diameter of Casing 2 inch

Wet _____ Water Column in Well 65.42 Gallons Pumped/Bailed Prior to Sampling ≈ 40 gal

Gallons per Foot 0.16

Gallons in Well 10.46 Sampling Pump Intake Setting (feet below land surface) 85 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 8°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 248 pH 6.24

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M x	Preservative
TCE, DCE, VC	(3) 40 ml VOAs	4°C

Remarks Well went dry four times.

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. IW-6 (93-95') Coded/ Replicate No. _____ Date 12/30/91

Weather Overcast, cool Time Sampling Began 1:12 pm Time Sampling Completed 4:00 pm

EVACUATION DATA

Description of Measuring Point (MP) Top of casing

Height of MP Above/Below Land Surface ≈ 7 feet MP Elevation N/A

Total Sounded Depth of Well Below MP 102 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 19.58 Diameter of Casing 2 inch

Wet _____ Water Column in Well 82.42 Gallons Pumped/Bailed Prior to Sampling ≈ 50 gal

Gallons per Foot 0.16

Gallons in Well 13.19 Sampling Pump Intake Setting (feet below land surface) 90 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 8.5°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 250 pH 6.59°C

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAs	4°C

Remarks Well pumped dry five times.

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. IW-6 (100-102') Coded/ Replicate No. _____ Date 12/20/91

Weather P.Cloudy, cold Time Sampling Began 2:40 pm Time Sampling Completed 3:40 pm

EVACUATION DATA

Description of Measuring Point (MP) Top of casing

Height of MP Above/Below Land Surface ≈ 2 feet MP Elevation N/A

Total Sounded Depth of Well Below MP 112 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 14.15 Diameter of Casing 2 inch

Wet _____ Water Column in Well 97.85 Gallons Pumped/Bailed Prior to Sampling ≈ 45 gal

Gallons per Foot 0.16

Gallons in Well 15.66 Sampling Pump Intake Setting (feet below land surface) 95 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 9°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 370 pH 7.49

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAs	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. IW-6 (105-107') Coded/ Replicate No. _____ Date 12/20/91

Weather P.Cloudy, cold Time Sampling Began 11:04 am Time Sampling Completed 12:25 pm

EVACUATION DATA

Description of Measuring Point (MP) Top of casing

Height of MP Above/Below Land Surface ≈ 7 feet MP Elevation N/A

Total Sounded Depth of Well Below MP 112 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 49.15 Diameter of Casing 2 inch

Wet _____ Water Column in Well 62.85 Gallons Pumped/Bailed Prior to Sampling ≈ 30 gal

Gallons per Foot 0.16

Gallons in Well 10.06 Sampling Pump Intake Setting (feet below land surface) 105 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature N/A °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 360 pH 7.35

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAs	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. IW-6 (110-112') Coded/ Replicate No. _____ Date 12/20/91

Weather P.Cloudy, cold Time Sampling Began 8:25 am Time Sampling Completed 10:30 am

EVACUATION DATA

Description of Measuring Point (MP) Top of casing

Height of MP Above/Below Land Surface ≈ 2 feet MP Elevation N/A

Total Sounded Depth of Well Below MP 112 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 14.23 Diameter of Casing 2 inch

Wet _____ Water Column in Well 97.77 Gallons Pumped/Bailed Prior to Sampling ≈ 50 gal

Gallons per Foot 0.16

Gallons in Well 15.64 Sampling Pump Intake Setting (feet below land surface) 105 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 8.3°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 350 pH 7.46

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAs	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. IW-6 (113-115') Coded/ Replicate No. _____ Date 12/19/91

Weather P.Cloudy, cold Time Sampling Began 1:30 pm Time Sampling Completed 4:30 pm

EVACUATION DATA

Description of Measuring Point (MP) Top of casing

Height of MP Above/Below Land Surface ≈ 7 feet MP Elevation N/A

Total Sounded Depth of Well Below MP 122 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 22.88 Diameter of Casing 2 inch

Wet _____ Water Column in Well 99.12 Gallons Pumped/Bailed Prior to Sampling ≈ 50 gal

Gallons per Foot 0.16

Gallons in Well 15.86 Sampling Pump Intake Setting (feet below land surface) 110 feet

Evacuation Method Keck submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 8.5 °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 355 pH 7.62

Sampling Method and Material Keck submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAs	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. IW-6 (118-120') Coded/ Replicate No. _____ Date 12/19/91

Weather P.Cloudy, cold Time Sampling Began 9:30 am Time Sampling Completed 12:00 pm

EVACUATION DATA

Description of Measuring Point (MP) Top of casing

Height of MP Above/Below Land Surface ≈ 2 feet MP Elevation N/A

Total Sounded Depth of Well Below MP 122 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 21.85 Diameter of Casing 2 inch

Wet _____ Water Column in Well 100.15 Gallons Pumped/Bailed Prior to Sampling ≈ 60 gal

Gallons per Foot 0.16

Gallons in Well 16.02 Sampling Pump Intake Setting (feet below land surface) 115 feet

Evacuation Method Keck submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color Clear Odor None Appearance Clear Temperature N/A °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 351 pH 7.65

Sampling Method and Material Keck submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAs	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. VP-2 28-30' Coded/ Replicate No. _____ Date 1/16/92

Weather Overcast, cold Time Sampling Began 12:55 Time Sampling Completed 1:20

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ≈2' MP Elevation N/A

Total Sounded Depth of Well Below MP 32 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 9.08 Diameter of Casing 2 inch

Wet _____ Water Column in Well 22.92 Gallons Pumped/Bailed Prior to Sampling 15 gallons

Gallons per Foot 0.16

Gallons in Well 3.67 Sampling Pump Intake Setting (feet below land surface) 28 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 8°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 195 pH 7.63

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAS	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. VP-2 33-35' Coded/ Replicate No. _____ Date 1/16/92

Weather Overcast, cold Time Sampling Began 12:30 Time Sampling Completed 12:45

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ≈7' MP Elevation N/A

Total Sounded Depth of Well Below MP 42 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 16.86 Diameter of Casing 2 inch

Wet _____ Water Column in Well 25.14 Gallons Pumped/Bailed Prior to Sampling 20 gallons

Gallons per Foot 0.16

Gallons in Well 4.02 Sampling Pump Intake Setting (feet below land surface) 33 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 8.5°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 392 pH 7.64

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAS	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Site Location Highland, MI

Site/Well No. VP-2 38-40' Coded/ Replicate No. _____ Date 1/16/92

Weather Overcast, cold Time Sampling Began 11:50 Time Sampling Completed 12:15

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ≈2' MP Elevation N/A

Total Sounded Depth of Well Below MP 42 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 11.96 Diameter of Casing 2 inch

Wet _____ Water Column in Well 30.04 Gallons Pumped/Bailed Prior to Sampling 25 gallons

Gallons per Foot 0.16

Gallons in Well 4.81 Sampling Pump Intake Setting (feet below land surface) 36 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 8°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 385 pH 7.60

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAS	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. VP-2 43-45' Coded/ Replicate No. _____ Date 1/16/92

Weather Overcast, cold Time Sampling Began 11:00 Time Sampling Completed 11:45

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ≈7' MP Elevation N/A

Total Sounded Depth of Well Below MP 52 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 12.90 Diameter of Casing 2 inch

Wet _____ Water Column in Well 39.10 Gallons Pumped/Bailed Prior to Sampling 25 gallons

Gallons per Foot 0.16

Gallons in Well 6.65 Sampling Pump Intake Setting (feet below land surface) 43 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Cloudy Temperature 8.5°F °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 370 pH 6.93

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAS	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. VP-2 48-50' Coded/ Replicate No. _____ Date 1/16/92

Weather Overcast, cold Time Sampling Began 10:00 Time Sampling Completed 10:45

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ≈2' MP Elevation N/A

Total Sounded Depth of Well Below MP 52 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 13.08 Diameter of Casing 2 inch

Wet _____ Water Column in Well 38.92 Gallons Pumped/Bailed Prior to Sampling 30 gallons

Gallons per Foot 0.16

Gallons in Well 6.23 Sampling Pump Intake Setting (feet below land surface) 48 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Turbid Temperature 8.5°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 147 pH 8.52

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAS	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. VP-3 32-34' Coded/ Replicate No. _____ Date 1/23/92

Weather Overcast, cool Time Sampling Began 11:35 Time Sampling Completed 11:50

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface ≈8' MP Elevation N/A

Total Sounded Depth of Well Below MP 42 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 18.09 Diameter of Casing 2 inches

Wet _____ Water Column in Well 23.91 Gallons Pumped/Bailed Prior to Sampling 20 gallons

Gallons per Foot 0.16

Gallons in Well 3.83 Sampling Pump Intake Setting (feet below land surface) 32 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 11°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 310 pH 8.05

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M ____ X	Preservative
TCE, DCE, VC	(3) 40 ml VOAS	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. VP-3 35-37' Coded/ Replicate No. _____ Date 1/23/92

Weather Overcast, cool Time Sampling Began 10:05 Time Sampling Completed 10:30

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 5.5' MP Elevation N/A

Total Sounded Depth of Well Below MP 42 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 18.00 Diameter of Casing 2 inches

Wet _____ Water Column in Well 24 Gallons Pumped/Bailed Prior to Sampling 20 gallons

Gallons per Foot 0.16

Gallons in Well 3.84 Sampling Pump Intake Setting (feet below land surface) 35 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 11°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 330 pH 7.70

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAS	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. VP-3 40-42' Coded/ Replicate No. _____ Date 1/23/92

Weather Overcast, cool Time Sampling Began 9:30 Time Sampling Completed 9:50

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 0.5' MP Elevation N/A

Total Sounded Depth of Well Below MP 42 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 16.92 Diameter of Casing 2 inches

Wet _____ Water Column in Well 25.08 Gallons Pumped/Bailed Prior to Sampling 25 gallons

Gallons per Foot 0.16

Gallons in Well 4.01 Sampling Pump Intake Setting (feet below land surface) 40 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 10.5°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 330 pH 7.51

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M ____ X	Preservative
TCE, DCE, VC	(3) 40 ml VOAS	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. VP-3 45-47' Coded/ Replicate No. _____ Date 1/23/92

Weather Overcast, cool Time Sampling Began 8:55 Time Sampling Completed 9:20

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 5.5' MP Elevation N/A

Total Sounded Depth of Well Below MP 52 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 16.19 Diameter of Casing 2 inches

Wet _____ Water Column in Well 35.81 Gallons Pumped/Bailed Prior to Sampling 30 gallons

Gallons per Foot 0.16

Gallons in Well 5.73 Sampling Pump Intake Setting (feet below land surface) 45 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 10°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 320 pH 7.52

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAS	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. VP-3 50-52' Coded/ Replicate No. _____ Date 1/23/92

Weather Overcast, cool Time Sampling Began 7:35 Time Sampling Completed 8:10

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 0.5' MP Elevation N/A

Total Sounded Depth of Well Below MP 52 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 13.86 Diameter of Casing 2 inches

Wet _____ Water Column in Well 38.14 Gallons Pumped/Bailed Prior to Sampling 25 gallons

Gallons per Foot 0.16

Gallons in Well 6.10 Sampling Pump Intake Setting (feet below land surface) 50 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 10°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 322 pH 7.44

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAS	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. VP-3 55-57' Coded/ Replicate No. _____ Date 1/22/92

Weather Cool, overcast Time Sampling Began 3:55 Time Sampling Completed 4:20

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 0.5' MP Elevation N/A

Total Sounded Depth of Well Below MP 62 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 16.14 Diameter of Casing 2 inches

Wet _____ Water Column in Well 45.86 Gallons Pumped/Bailed Prior to Sampling 25 gallons

Gallons per Foot 0.16

Gallons in Well 7.34 Sampling Pump Intake Setting (feet below land surface) 55 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 10°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 321 pH 7.55

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAS	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. VP-3 60-62' Coded/ Replicate No. _____ Date 1/22/92

Weather Cool, overcast Time Sampling Began 3:10 Time Sampling Completed 3:40

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 0.5' MP Elevation N/A

Total Sounded Depth of Well Below MP 62 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 14.26 Diameter of Casing 2 inches

Wet _____ Water Column in Well 47.74 Gallons Pumped/Bailed Prior to Sampling 35 gallons

Gallons per Foot 0.16

Gallons in Well 7.64 Sampling Pump Intake Setting (feet below land surface) 60'

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 10°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 322 pH 7.67

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAS	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

Project/No. Hi-Mill/MI135.07 Page 1 of 1

Site Location Highland, MI

Site/Well No. VP-3 65-67' Coded/ Replicate No. _____ Date 1/22/92

Weather Clear, cool Time Sampling Began 1:55 Time Sampling Completed 2:30

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 5.5' MP Elevation N/A

Total Sounded Depth of Well Below MP 72 Water-Level Elevation N/A

Held _____ Depth to Water Below MP 18.58 Diameter of Casing 2 inches

Wet _____ Water Column in Well 53.42 Gallons Pumped/Bailed Prior to Sampling 30 gallons

Gallons per Foot 0.16

Gallons in Well 8.55 Sampling Pump Intake Setting (feet below land surface) 65'

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 10.5 °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 380 pH 7.67

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M ___X	Preservative
TCE, DCE, VC	(3) 40 ml VOAS	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47

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Environmental Services

WATER SAMPLING LOG

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Site Location Highland, MI

Site/Well No. VP-3 70-72' Coded/ Replicate No. _____ Date 1/22/92

Weather Overcast, cool Time Sampling Began 11:10 Time Sampling Completed 11:50

EVACUATION DATA

Description of Measuring Point (MP) TOC

Height of MP Above/Below Land Surface 0.5 feet MP Elevation N/A

Total Sounded Depth of Well Below MP 72 feet Water-Level Elevation N/A

Held _____ Depth to Water Below MP 10.64 feet Diameter of Casing 2 inches

Wet _____ Water Column in Well 61.36 feet Gallons Pumped/Bailed Prior to Sampling 45 gallons

Gallons per Foot 0.16

Gallons in Well 9.82 Sampling Pump Intake Setting (feet below land surface) 68 feet

Evacuation Method Grundfos submersible sampling pump

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear Temperature 10°C °F/°C

Other (specific ion; OVA; HNU; etc.) _____

Specific Conductance, umhos/cm 318 pH 7.34

Sampling Method and Material Grundfos submersible sampling pump

Constituents Sampled	Container Description From Lab ____ or G&M X	Preservative
TCE, DCE, VC	(3) 40 ml VOAS	4°C

Remarks _____

Sampling Personnel R. Sanborn

WELL CASING VOLUMES

GAL./FT.				
	1-¼" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-½" = 0.09	2-½" = 0.26	3-½" = 0.50	6" = 1.47