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N.Y.S. DEPT. OF
ENVIRONMENTAL CONSERVATION
DIV. ENVIRONMENTAL ENFORCEMENT
BUFFALO FIELD UNIT

TABLES & APPENDICES I & II

Bailey Manufacturing

S. S. Harrison

Table 1

Examples of land use in the vicinity of Bailey Manufacturing. (Summarized from data submitted by Donald E. Cook)

Type of Land Use	Location with respect to Bailey Manufacturing
Vineyards	Border the site on the north and east
Earthmoving equip. repair shop	Borders the site on the south
Septic system seepage beds	As close as ~150 ft upgradient
Agri-chemical storage	Approximately 1000 ft upgradient
Former plating shop	Approximately 100 ft upgradient

Table 2. Monitoring well construction data.

Water Table Indicator Well #	Date Installed	Total Depth (ft)	Excavation Method	General Lithology	Screened Interval (B.G.) (ft)	Slot Size (inches)	Screen Diameter (inches)	Well Stick-up (ft)	Elev. Top of Casing (ft)	Approx. Grd.Elev. (ft)	Approx. Depth to Water (B.G) (ft)	
1	7/25/87	12.5	backhoe	0-4.5'gully sd. 4.5'- wx shale	2.5-12.5	0.1	4 inches	3.0	830.18	827	10.3	
2	7/25/87	12.15	backhoe	0-5'crs. gvl. 5'- clay	7-12.0	0.1	4 inches	2.75	828.88	826	5.1	
3	7/25/87	17	backhoe	0-6'clay 6'-gvl sdy loam	7-17	0.1	4 inches	3.0	837.80	835	16.0	
4	7/25/87	20	backhoe	0-20'gvlly.loam	10-20	0.1	4 inches	3.0	839.40	836	16.3	
5	7/27/87	18.5	backhoe	0-18.5'gvl & gvlly loam	8.5-18.5	0.1	4 inches	3.0	838.03	835	17.2	
6	7/27/87	≥18	backhoe	0-18'gvl & gvlly sdy loam	8-18	0.1	4 inches	3.0	837.71	835	17.5	
7	7/27/87	≥17	backhoe	0-17'gvl	7-17	0.1	4 inches	3.0	846.81	846	DRY (>16.6)	
8	7/27/87	17.6	backhoe	0-3'fine sdy loam 3'-gvlly sdy loam	7.6-17.6	0.1	4 inches	3.0	838.54	835	16.4	
9	7/27/87	6	backhoe	0-6'sdy loam	0-6	0.1	4 inches	3.0	824.79	822	3.8	
10	7/27/87	5.5	backhoe	0-5.5'loam 5.5'- siltstone	0-5.5	0.1	4 inches	3.0	826.68	824	DRY (>5.5)	
Monitoring Well #												Depth of 6" Casing(B.G)
1	7/31/87	55.6	cable tool	gvlly loam and gvlly sdy loam	40.5-55.5	0.020	2 inches	2.5	867.15	864.5	47.0	38 feet
2	8/3/87	29	backhoe 0-15 cable tool 15-29	gvl & gvlly sdy loam	14-29	14-19 .010 19-29 .020	2 inches	2.0	836.12	834	17.1	14 feet
3	8/6/87	37	backhoe 0-20 cable tool 20-37	gvl & gvlly sdy loam	22-37	0.020	2 inches	2.9	844.87	842	25.2	21 feet
4	8/7/87	28	backhoe 0-16 cable tool 16-28	gvl & gvlly sdy loam	12-28	0.020	2 inches	3.2	837.95	835	17.6	14.5 feet
Production Well	7/28/86	55	cable tool	gvl & sdy gvl	?	?	8 inches	2.0	864.23	862		8" casing to 55 feet

Table 3. Water table elevation and conductivity data.

monitoring point	WTI 1	WTI 2	WTI 3	WTI 4	WTI 5	WTI 6	WTI 7	WTI 8	WTI 9	WTI 10	PROD. WELL	MW 1	MW 2	MW 3	MW 4	CREEK
7/29/87																
WATER ELEV.(ft)			818.54	819.81	817.71	817.10		818.86	817.87		817.03					
TEMP (C)			12	14	12	15		14.5	15		15					21
CONDUCTIVITY			450	535	520	1300		560	640		560					410
7/30/87																
WATER ELEV.(ft)			818.52	819.80	817.69	817.05		818.83	817.86							
TEMP (C)			12	14	13	14		13	15.5							
CONDUCTIVITY			435	500	500	1250		550	615							
8/6/87																
WATER ELEV.(ft)	DRY	815.42	818.52	819.75	817.65	816.98	DRY	818.82	817.97			816.98	816.71			818.68
TEMP (C)		13.0	13.0	13.0	12.5	15.5		14.0	15.0			14.0	14.0	12.0		
CONDUCTIVITY		610	440	400	570	880		440	650			550	1080	800		
8/25/87																
WATER ELEV.(ft)	DRY	821.04	818.33	819.64	817.50	816.86	DRY	818.61	817.90			816.95	816.66	816.28	817.52	818.63
TEMP (C)		14.5	13.5	14.0	13.0	18.0		14.0	15.0			13.0	14.5	12.8	12.0	
CONDUCTIVITY		520	420	455	510	1150		480	650			580	1500	1200	590	
9/28/87																
WATER ELEV.(ft)	816.85	821.01	818.82	820.14	817.84	817.21	<829.21	819.09	817.99	<818.86		817.70	817.04	816.72	817.15	818.73
TEMP (C)	16.0	17.5	14.5	15.0	15.0	16.0		15.0	16.5			13.5	15.5	14.0	14.0	19.0
CONDUCTIVITY	2000	430	450	600	550	1800		570	975			750	1780	1130	640	420
10/31/87																
WATER ELEV.(ft)	811.24	821.23	819.05	820.36	818.15	817.56	DRY	819.38	818.30	818.93	818.81	818.12	817.36	817.00	818.16	818.98±.1
TEMP (C)	12.8	11.7	12.8	12.8	12.8	14.4		13.3	11.7	12.8						
CONDUCTIVITY	2500	480	505	580	595	1450		625	900	410						
12/22/87																
WATER ELEV.(ft)	822.68	821.85	820.35	821.50	819.34	818.85		820.58	818.66	819.45		819.62	818.61	818.29	819.29	819.13±.05
TEMP (C)	8.0	8.0	10.5	10.5		9.0		9.5	7.0	6.0						3.0
CONDUCTIVITY	2400	510	460	560	510	≈840		320	1000	320		615	1600	1050	600	240

Table 4.

SPLIT SPOON SAMPLES
BAILEY MANUFACTURING
FORESTVILLE, NY
JULY 28 AND 29, 1987

MONITORING WELL NO. 1

Sample Interval	Blows	Description
10.0-10.9 ft	25/last inch	fine grey sand and silt, very hard, slightly moist, contains pieces of shale, some rounded
14.5	refusal	
17.0-17.5	50/6 inches	mottled rust/grey gravel with sandy loam matrix
22.5-22.8	50/4 inches	greyish-tan gravel with sandy loam matrix, almost dry
28.0-28.4	50/4 inches	olive-tan gravel with sandy loam matrix
33.5-33.8	50/4 inches	mottled grey-tan gravel with sandy loam matrix
41.5-41.9	50/4 inches	mottled grey-rust gravel with sandy loam matrix, almost a gravelly sandy loam
45.0-45.4	50/4 inches	" " " " "

Table 5. Data from earth resistivity surveys.

DATA FROM TRAVERSE WITH 30 FOOT PROBE SPACING

station	date	resistance reading	apparent resistivity
1	8/4/87	5.64 ohms	1063 ohm-feet
2	8/4/87	4.84 ohms	912 ohm-feet
3	8/4/87	4.17 ohms	786 ohm-feet
4	8/4/87	3.75 ohms	707 ohm-feet
5	8/4/87	3.84 ohms	724 ohm-feet
1	8/4/87	5.63 ohms	1061 ohm-feet
A	8/4/87	5.2 ohms	980 ohm-feet
B	8/4/87	4.10 ohms	773 ohm-feet
C	8/4/87	2.69 ohms	507 ohm-feet
D	8/4/87	3.4 ohms	641 ohm-feet
E	7/30/87	4.2 ohms	792 ohm-feet

APPARENT RESISTIVITY DATA FROM DEPTH PROBES

STATION	DATE	depth (feet) 5	10	15	20	25	30
A	8/4/87		854	990	980	990	980
B	8/4/87		1489	1282	980	865	773
C	8/4/87		1162	839	666	551	507
D	8/4/87		1144	754	704	597	641
E	7/30/87	547	735	782	792		792

TABLE 6.PURGING AND SAMPLING DATA FOR 8/26/87.

BAILEY MFG.
DATE 8/26/87

	PURGING												SAMPLING			
	time begin	time end	conductivity begin	conductivity end	temperature begin	temperature end	pH begin	pH end	method	depth B.G. withdrawal	total purged gal.	total purged volumes	metals & cyanide filtered	metals & cyanide unfil.	voa unfil.	comments
MW 1	12:05		580	540	17°C	15°C			stainless bladder pump	~54'	2 gal.					clear during purging
			540	580	15	16			"	"	2					
		12:30	580	540	16	15			"	"	2					
											6 gal. total	6 volumes		✓	✓	pvc bailer for metals/cyanide, teflon for VOA
MW 2	12:20		1380	1290	15	13½			pvc bailer	top of water column	4.5					turbid during purging and sampling
		12:40	1290	1300	13½	13½			"		1.5					
											6 gal. total	4.8 volumes	✓	✓	✓	pvc bailer for metals/cyanide, teflon for VOA
MW 3	11:30		1080	1110	14	13½			pvc bailer	top of water column	3.0					turbid during bailing and sampling
		11:50	1110	1150	13½	14			"		3.0					
											6 gal. total	4.8 volumes	✓	✓	✓	pvc bailer for metals/cyanide, teflon for VOA
MW 4	11:05	11:35	560	580	14½	13			stainless bladder pump	~21½'	6 gal. total	4.8 volumes	✓	✓	✓	pvc bailer for metals/cyanide, teflon for VOA
																turbid during sampling

TABLE 7. PURGING AND SAMPLING DATA FOR 10/31/87.

BAILEY MFG.
DATE 10/31/87

	PURGING												SAMPLING			
	time begin	time end	conductivity begin	conductivity end	temperature begin	temperature end	pH begin	pH end	method	depth B.G. withdrawal	total purged gal.	total purged volumes	metals & cyanide filtered	metals & cyanide unfil.	voa unfil.	comments
	9:56	10:05	570	710	58°F	55°F	6.78	7.51	stainless bladder pump	~1' off bottom	1 gal					First 5 gal purged was reddish
	10:35	10:43	710	720	55	55	7.51	7.63	"		2					
MW 1	10:43	10:47	720	730	55	56	7.63	7.73	"		2					
	10:47	10:52	730	730	56	57			"		1					
	10:52	10:59	730	720	57	57	7.79	7.81	"		1					
											7 gal. total	7 volumes	✓		✓	All sampling with bladder pump.
	2:35	2:47	1450	2000	60	60	7.33	7.54	"	~4' off bottom	1.2					Purge water clear
	2:47	3:01	2000	2000	60	58	7.54	7.49	"		1					
MW 2	3:01	3:10	2000	2000	58	58	7.49	7.48	"		1					
	3:10		2000	2000	58		7.48	7.39	"		2					
											5.2 gal. total	4.2 volumes	✓	✓	✓	All sampling with bladder pump.
	4:12			1400	57	55	3.75	7.0		~5' off bottom	1.5					Purge water clear after 1st 1½ gal.
MW 3			1400	1450	55	55	7.0	7.13			1.5					
		4:30	1450	1300	55		7.13	7.22			2.0					
											5 gal total	4 volumes	✓	✓	✓	All sampling with bladder pump.
	12:46	12:57	670	640	58	55	6.42	6.66		~4' off bottom	2					Purge water clear after 4 gal.
MW 4	12:57	1:12	640	640	55	55	6.66	7.08			2					
	1:12	1:17	640	645	55		7.08	7.16			2					
											6 gal. total	4.8 volumes	✓	✓	✓	All sampling with bladder pump.

TABLE 8. PURGING AND SAMPLING DATA FOR 12/22/87.

BAILEY MFG.
DATE 12/22/87

	PURGING												SAMPLING			
	time begin	time end	conductivity begin	conductivity end	temperature begin	temperature end	pH begin	pH end	method	depth B.G. withdrawal	total purged gal.	total purged volumes	metals& cyanide filtered	metals& cyanide unfil.	voa unfil.	comments
	10:40	10:44	530	540	6°C	9½°C	6.60	6.91	stainless bladder pump	~48½'	1.5 gal.					
	10:44	10:49	540	615	9½	9½	6.91	7.30	"							Purge water clear after 3½ gal.
MW 1	10:49	10:52	615	615	9½	9½	7.30	7.24	"		3.5					
	10:52	10:58	615	615	9½	9½	7.24	7.25	"							
											5 gal. total	5 volumes		✓	✓	
	11:55	11:59	1600	1600	9½	9½		7.56	"	~20½'	3.5					purge water slightly turbid, clear by 12:11
MW 2	11:59	12:06	1600	1600	9½	9½	7.56	7.50	"							
	12:06	12:11	1600	1600	9½	9½	7.50	7.50	"		1.5					
											5 gal. total	4 volumes		✓	✓	
	1:43	1:47	1000	1070	9½	9½	7.05	7.24	"	~28'	2.5					Purge water slightly turbid, clear by 1:53
MW 3	1:47	1:51	1070	1050	9½	9½	7.24	7.30	"							
	1:51	1:53	1050	1050	9½	9½	7.30	7.30	"		3.5					
											6 gal. total	4.8 volumes		✓	✓	
	11:37	11:39		605	8	9½		7.06	"	~18'						very turbid at beginning of purge
	11:39	11:43	605	600	9½	9½	7.06	7.53	"		4 gal					
MW 4	11:43	11:50	600	600	9½	9½	7.53	7.52	"							
	11:50	12:00	600	580			7.52	7.53	"		2					
	12:00		580				7.53		"		2					
											8 gal. total	6.4 volumes	✓	✓	✓	slightly turbid when metals sampled, sample split with DEC

Table 9. Quality control procedures during purging and sampling.

DATE	DECONTAMINATION OF PURGING EQUIPMENT	DECONTAMINATION OF SAMPLING EQUIPMENT	DEC SPLIT	DUPLICATES	FIELD BLANKS	TRAVEL BLANKS
8/26/87	PVC bailer for mw 2+3. Between wells, detergent wash, DI water rinse, 10% HNO_3 rinse, DI water rinse stainless/teflon bladder pump for mw 1+4. Detergent → water → acid → water between wells.	PVC bailer for all metals+cyanide sampling. Teflon bottom-outlet bailer for all VOA sampling. Both bailers detergent → water → acid → water between wells.	mw 1+2	VOA Dupl. from each well. Metals/cyanide dupl. from mw 3	VOA field blank at each well.	
10/31/87	Stainless/teflon bladder pump used to purge and sample all monitoring wells. Between wells, pump purged, 2½ gal 5% nitric pumped through it followed by 5 min. flush with DI water. Exterior of pump rinsed with 5% HNO_3 and DI water. Dedicated nylon lowering rope for each well. Filter apparatus rinsed with 5% HNO_3 before use at each well.		—NO	VOA SAMPLING metals/cyanide dupl. from mw3		
12/22/87	Stainless/teflon bladder pump used to purge and sample for metals+cyanide at all monitoring wells. Before each well, pump 1 gal. of 5% HNO_3 through pump followed by 3 gal. DI water. Exterior rinsed with 5% HNO_3 and DI water. Dedicated nylon lowering rope for each well. VOA samples collected with teflon bottom-outlet bailer. Bailer rinsed inside and out with 5% HNO_3 and DI water before each use. Filter apparatus and filter paper rinsed with 5% HNO_3 before use at MW 4.			VOA dupl. from each well. metals/cyanide dupl. from mw 3	VOA field blanks at each well. Metals field blank = rinse water from pump after decontam. following last well sampling (mw 2)	VOA travel blank.

TABLE 10. Chemical analyses of groundwater samples.

	<-08/26/87->	<-10/31/87->	<-12/23/87->	<------08/26/87----->		<------10/31/87----->		<-12/23/87->	<------08/26/87----->		<------10/31/87----->		<---10/31/87-DUP---->		<------12/23/87----->		<------08/26/87----->		<------10/ 31/87----->		<-12/23/87->		FORESTVILLE MUNICIPAL WATER 08/26/87	NY MCL (mg/l)
	MW #1 UNFIL.	MW #1 FILTERED	MW #1 UNFIL.	MW #2 UNFIL.	MW #2 FILTERED	MW #2 UNFIL.	MW #2 FILTERED	MW #2 UNFIL.	MW #3 UNFIL.	MW #3 FILTERED	MW #3 UNFIL.	MW #3 FILTERED	MW #3 UNFIL.	MW #3 FILTERED	MW #3 UNFIL.	MW #3 DUP. UNFIL.	MW #4 UNFIL.	MW #4 FILTERED	MW #4 UNFIL.	MW #4 FILTERED	MW #4 UNFIL.	MW/4		
CONDUCTIVITY (micromho/cm)	465	570	578	1300		1593		1468	1160		1168		1168		878	875	500		500		525			
CYANIDE (mg/l)	<0.001		<0.001	0.08				0.006	<0.001						0.02	0.02	0.06				0.01			0.2
TRICHLOROETHENE (microgram/l)	ND		ND	ND				11	60						75	65	ND				ND			10 µg/l
COPPER (mg/l)	<0.002	0.051	0.010	0.017	<0.002	0.010	0.010	0.008	0.040	0.004	0.011	0.011	0.010	0.031	0.010	0.010	0.014	0.004	0.008	0.022	0.010	0.012	0.188	1.0
LEAD (mg/l)	<0.005	0.0055	0.0208	<0.005	<0.005	0.0097	0.0107	0.066	0.008	0.005	0.0305	0.0114	0.0133	0.0107	0.0028	0.0084	0.005	<0.005	0.013	0.0050	0.0056	.0156	<0.050	0.025
ZINC (mg/l)	0.038	1.02	0.019	0.03	0.05	0.023	0.041	0.016	0.177	0.132	0.020	2.05	0.030	0.873	0.016	0.019	0.058	0.034	0.029	0.751	0.034	.016	0.142	5.0
CHROMIUM (mg/l)	0.017	0.017	0.018	0.038	0.013	0.017	0.018	0.018	0.100	0.015	0.016	0.016	0.016	0.025	0.024	0.025	0.038	0.015	0.023	0.023	0.019	0.021	0.007	0.05 HEX.
NICKEL (mg/l)	0.018	0.111	<0.005	0.012	0.015	<0.005	<0.005	<0.005	0.043	0.012	<0.005	<0.005	<0.005	0.073	<0.005	<0.005	0.023	0.017	<0.005	0.049	<0.005	.005	0.016	
ANTIMONY (mg/l)	<0.05	<0.04	<0.04	<0.05	<0.05	<0.04	<0.04	<0.04	<0.05	<0.05	<0.04	0.052	<0.04	<0.04	<0.25	<0.04	<0.05	<0.05	<0.04	<0.04	<0.04	<.04	<0.010	
ARSENIC (mg/l)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<.005	<0.002	0.025
BERYLLIUM (mg/l)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<.001	<0.005	
CADMIUM (mg/l)	0.003	0.135	0.003	<0.001	<0.001	0.002	0.003	0.003	0.002	<0.001	0.002	0.002	0.002	0.027	0.003	0.002	<0.001	<0.001	0.002	0.023	0.002	.006	<0.005	0.01
MERCURY (mg/l)	<0.0005	0.00057	0.00025	<0.0005	<0.0005	<0.0004	<0.0004	<0.0002	<0.0005	<0.0005	<0.0004	<0.0004	<0.0004	<0.0004	<0.0002	<0.0002	<0.0005	<0.0005	<0.0004	<0.0004	<0.0002	<.0002	<0.0005	0.002
SELENIUM (mg/l)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<.005	<0.002	0.02
SILVER (mg/l)	<0.005	0.007	0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005	<0.005	0.007	0.006	0.006	0.011	<0.002	0.005	<0.005	<0.005	<0.005	0.005	<0.005	<.005	<0.005	0.05
THALLIUM (mg/l)	<0.01	0.0028	0.0054	0.011	<0.01	0.0066	0.005	0.0076	0.012	<0.01	0.0066	0.0068	0.0074	0.0044	0.0028	0.0056	<0.01	<0.01	0.0044	0.0046	0.0024	.0004	<0.050	

APPENDIX I

LOGS OF WTI PITS

SAMUEL S. HARRISON, PH.D.
CERTIFIED PROFESSIONAL GEOLOGIST

337-0175 HOME
724-4844 OFFICE

R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S. Harrison
B. Harrison

Weather:

Other:

Date: 7/25/87
Location: Meadville
Well No. Pit #3/WTI #1
Time Start ____ End ____

Drilling Record

Temp	Conductivity	Sample No.	Lithology	Driller's Comments
		+3		
		+2		
		+1		
			ground level	
			grey-brown gravelly sandy loam	
		-1	hard brown medium sand	
		-2	red-brown coarse gravelly sand	
		-3		
		-4		
		-5	dense grey clay with shale fragments.	
		-6	grading to	
		-7	weathered shale	
		-8		
		-9		
		-10		
		-11	no seepage	
		-12		
			TD 12.5'	
		-13		

Casing
- bottom 10' of 4" pvc slotted.
- bottom cap slotted

Tank Water

SAMUEL S. HARRISON, PH.D.
CERTIFIED PROFESSIONAL GEOLOGIST

337-0175 HOME
724-4844 OFFICE

R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S.S. Harrison
Weather: clear, 80°
Other:

Date: 7/25/87
Location: Megatech
Well No. Pit #5 WTI #2
Time Start ____ End ____

Drilling Record

Conductivity	Sample No.	Lithology	Driller's Comments
	+3	← Stickup 2.75'	
	+2		
	+1		
	0	ground level	
	-1	very coarse gravel + boulders with sandy loam matrix	
	-2		
	-3		
	-4		
	-5	hard blue-grey clay with shale fragments	
	-6		
	-7		
	-8		
	-9		
	-10		
	-11		
	-12	12.15 TD	no seepage or water
	-13		
	-14		

Casing - 4" pvc
- bottom 10' slotted
- bottom cap slotted

Tank Water

- could get some ponded runoff around this WTI well.

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R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S. Harrison, E. Harrison

Weather:

Other:

Date: 7/25/87

Location: Megatech

Well No. H+6/WTM #3

Time Start ____ End ____

Drilling Record

Level	Conductivity	Sample No.	Lithology	Driller's Comments
		+5	3.0' stickup	
		+2		
		+1		
		0	ground level	
		-1	tan very coarse gravel (cobbles, boulders, slabs) with sandy loam matrix	
		-2		
		-3		
		-4		
		-5		
		-6		
		-7	finer brown gravelly sandy loam matrix is moist	
		-8		
		-9	grading to gray by 11'	
		-10		
		-11		
		-12		
		-13		
		-14	looks like water in pores - rocks glisten	
		-15	water coming into hole from west side	
		-16		
		-17	puddle in hole	
		-18		
		-19		

Casing
- bottom 10' of 4" pvc slotted
- bottom cap slotted

Tank Water

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R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S. S. Harrison, B. S. Harrison
Weather:
Other:

Date: 7/25/87
Location: Meyerdale
Well No. A#7/WTI#4
Time Start ____ End ____

Drilling Record

Temp	Conductivity	Sample No.	Lithology	Driller's Comments
		+3		
		+2		
		+1		
			ground level	
		-1	brown fine gravelly loam	
		-2		
		-3		
		-4		hole caves from here down.
		-5	brown coarse gravelly loam to sandy loam with some cobbles,	moist, non-cohesive
		-6		
		-7	grades to very gravelly (pebbles) sandy loam to pebbly gravel	
		Sample → -8	with sandy loam matrix	few small boulders
		-9	as above, but red-brown.	
		-10		
		-11	very coarse (pebbles to boulders) with sandy loam matrix moist, greyish brown	
		-12		
		-13	fine gravelly sandy loam, more cohesive, no caving	
		-14	greyish tan grading to gray by ~14 to 15'	
		-15		
		-16		
		-17		
		-18		
		-19		
		-20	TD	
		-21		
		-22		

Casing
- bottom 10' of 4" pvc slotted
bottom cap slotted

Tank Water

- note: hydraulic hose broke, with oil on ground ~ 3' from W. edge of hole - shoveled up surface soil

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R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S.S. Harrison

Weather: clear 75°

Other:

Date: 7/27/87

Location: Megatech

Well No. Pit 8/WT7 #5

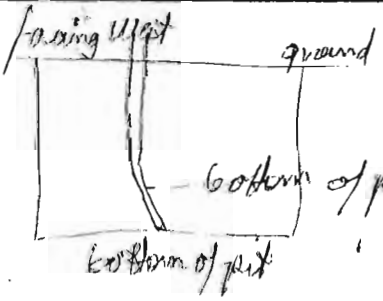
Time Start 9:45 End

Drilling Record

Conductivity	Sample No.	Depth	Lithology	Driller's Comments
		+3	3.0' stickup	
		+2		
		+1		
			ground level	
		-1	reddish brown gravelly fine sand to sandy loam (overbank?)	
		-2		
		-3	brown coarse gravel (pebbles to cobbles) with sandy matrix	
		-4		
		-5	grading to brown coarse gravel (pebbles to boulders) with sandy loam matrix	
		-6		
		-7		
		-8		Note: Too many boulders to drill here
		-9		
	sample →	-10	(2-ft boulder)	
		-11		
		-12		
		-13		
		-14	grades to brown fine gravelly loam or fine gravel with sandy loam matrix	
	sample →	-15		
		-16		
		-17		
		-18	18.5 TD	
		-19		

Casing
- bottom 10' of 4" pvc slotted
- bottom cap slotted

Tank Water



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R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S. S. Harrison
Weather: clear, 80°
Other:

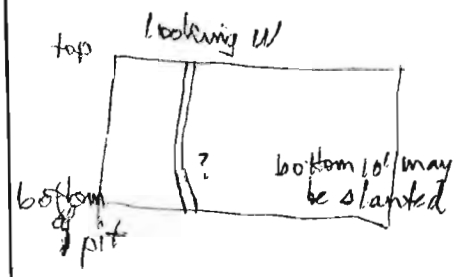
Date: 7/27/87
Location: Pit #9 WTI #6
Well No.
Time Start ____ End ____

Drilling Record

Conductivity	Sample No.	Lithology	Driller's Comments
	+3	3.0' stickup	
	+2		
	+1		
	0	ground level	
	-1	Brown gravelly loam to gravelly sandy loam	
sample →	-2		
	-3	Brown coarse gravel (pebbles to 2-ft boulders) with sandy loam matrix interbedded with brown gravelly sandy loam, few boulders	
	-4		
sample →	-5		
	-6		
	-7		
	-8	as above	
	-9	continues to alternate	
matrix sample →	-10		
	-11		
	-12	more cohesive, almost free water above this	
	-13		
	-14		
sample →	-15	Brown gravelly sandy loam, few cobbles	
	-16		
sample →	-17		
	-18	more cobbles again ~18', water table ~18'	
	-19		
	-20		

Casing
- bottom 10' of 4" pvc slotted
- bottom 4" cap slotted

Tank Water



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R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S.S. Harrison
Weather: Clear, 80°
Other:

Date: 7/21/87
Location: Megatech
Well No. Pit 10/WII #7
Time Start 1345 End

Drilling Record

Conductivity	Sample No.	Lithology	Driller's Comments
	+3	3.0' stickup	
	+2		
	+1		
	0	ground level	
	-1	red-brown fine sandy loam	
Sample	-2		
	-3		
	-4	red-brown very coarse gravel (pebbles to boulders) with sandy loam matrix	
	-5		
	-6		
Water Sample	-7	as above, but brown	
	-8	as above, very damp, almost saturated	
	-9		
Sample	-10		
	-11		
	-12		
	-13		
	-14		
Sample	-15		
	-16		
Sample	-17	TD	No water
	-18		

Casing
- bottom 10' of 4" pvc slotted
- bottom cap slotted

Tank Water

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R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S Harrison
Weather: Clear 75°
Other:

Date: 7/27/87
Location: Megatech
Well No. Pit 11/WTI #8
Time Start 4:00 End

Drilling Record

Level	Conductivity	Sample No.	Lithology	Driller's Comments
		+3	← 3.0' stickup	
		+2		
		+1		
		0	ground level	
		-1	red-brown fine sandy loam - cohesive	
		-2		
		-3		
		Sample → -3	dark, oxidized gravel (pebbles) - looks like MnO_2 coating	
		-4	finer grained just below gravel, then red-brown coarse gravelly (pebbles to boulders) sandy loam to gravel with sandy loam matrix	
		Sample → -5		
		-6		
		-7	grades to brown coarse gravelly (pebbles to boulders) sandy loam to gravel with sandy loam matrix	
		-8		
		-9		
		Sample → -10		
		-11		
		-12	(may be a thin saturated zone ~11' to 12'	
		-13	grades to greyish-tan fine gravelly sandy loam by 15' with occasional cobbles or boulders	
		-14		
		Sample → -15	(gravel glistens, but no free H_2O)	
		-16		
		-17	12.6' TD	water ~17 ft. during excavation
		-18		
		-19		
		-20		

Casing
bottom 10' of 4" pvc slotted, cap slotted

Tank Water

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R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S Harrison
Weather: Clear 75°
Other:

Date: 7/27/87
Location: Megatech
Well No. Pit 11/WTI #8
Time Start 4100 End

Drilling Record

Conductivity sample	Depth	Lithology	Driller's Comments
	+3	3.0' stickup	
	+2		
	+1		
	0	ground level	
	-1	red-brown fine sandy loam - cohesive	
	-2		
Sample →	-3	dark, oxidized gravel (pebbles) - looks like MnO_2 coating	
	-4	finer grained just below gravel, then red-brown coarse gravelly (pebbles to boulders) sandy loam to gravel with sandy loam matrix	
Sample →	-5		
	-6		
	-7	grades to brown coarse gravelly (pebbles to boulders) sandy loam to gravel with sandy loam matrix	
	-8		
	-9		
Sample →	-10		
	-11		
	-12	(may be a thin saturated zone ~11' to 12'	
	-13	grades to grayish-tan fine gravelly sandy loam by 15' with occasional cobbles or boulders	
	-14		
Sample →	-15		(gravel glistens, but no free H_2O)
	-16		
	-17	17.6' TD	water ~17 ft during excavation
	-18		
	-19		
	-20		

Casing
bottom 10' of 4" pvc slotted, cap slotted

Tank Water

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R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S. S. Harrison

Weather: Clear, 80°

Other:

Date: 7/27/87

Location: Megatech

Well No. Pit 12 / MTI 9

Time Start 6 PM End

Drilling Record

Conductivity sample no.	Depth	Lithology	Driller's Comments
	+3	3.0' stickup	
	+2		
	+1		
	0	ground level	
	-1	grey-brown loam grading to	
	-2		
Sample	-3	grey-brown med. sandy loam	
	-4	WATER TABLE	
Sample	-5	grey med. sandy loam as above, but gravelly	
	-6		
	-7		
	-8		

Casing
- 4" pvc slotted throughout
- slotted bottom cap

Tank Water

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R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S.S. Harrison
Weather: Clear, 80°
Other:

Date: 7/27/87
Location: Megatech
Well No. Pit #13 WTI #10
Time Start 6:10 End

Drilling Record

Cond.	Conductivity	Sample No.		Lithology	Driller's Comments
			+3	← 3.0' stickup	
			+2		
			+1		
			0	ground level	
			-1	brown loam with boulders	
			-2		
		Sample →	-3		
			-4	mottled gravelly silt loam rust and grayish tan	
		Sample →	-5		
			-6	TD Siltstone Bedrock	
			-7		
			-8		
			-9		

Casing	Tank Water	
4" pvc slotted throughout length - bottom cap slotted		

APPENDIX II

MONITORING WELL DEVELOPMENT DATA

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R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S.S. Harrison, K. Underwood
Weather:
Permeable Zones:

Date: 8/3, 8/13, 8/20/87
Location: BAILEY MFG.
Well No. M.W. #1
Time Start: End:
Well Depth: 55.6'
Screened Interval: 40'-55'

Development of Monitoring Well

Intake Depth B.G.	Time Start	Time End	Q Rate	Total Q	Water Level Below Ground START	Water Level Below Ground END	Temp. °C START	Temp. °C END	Conductivity START	Conductivity END	pH START	pH END	Comments	
8/3/87														
~50'	9:30	10:03	.45gpm	15gal	46.24	47.63	18°	14	580	575	7.26	7.34	very turbid at start	submersible pump
~50'	10:03	10:35	.45gpm	15gal	47.63		14	16½	575	565	7.34	7.41	clear by 10:33	
~47.6'				~3gal									bailed/surged ~20 minutes	
~52'	2:40		~.3gpm	~3gal					585		7.15			submersible pump
~52'	5:29		~.3gpm	3gal										
~54'	7:30		~.3	~10gal	46.69						7.34			
8/13/8													BAILER	
	8:29	8:54		5gal			14½	14	610	550			turbid	
	8:56	9:20		5gal			14	14	550	570				
	9:28	9:46		5gal			14	13½	570	600				
	10:00	10:21		5gal			14	14	580	600				
	10:27	10:45		5gal			14	13	600	450				
	10:51	11:07		5gal			13	13½	450	480			Bailer lowered 3 ft into column	
	11:14	11:27		5gal			13½	14	580	580			Water clearing	
	11:49	12:09		5gal			13½	14	590	580				
	12:14	12:30		5gal			14	13	610	595				
/20/87	11:23	11:55		10gal	47.7	47.7	13½	13½	600	600				

Total Q = 104 gal.

- Forestville municipal water used during drilling had conductivity of 360 and pH 7.54.

PROCEDURE

1. Measure static (below ground)
2. Set up pump (check oil & gas, fill pump with water)
3. Set pump intake at desired depth
4. Note time
5. Start pumping
6. Adjust pump rate
7. Measure conductivity & temp. during first minute
8. Measure depth to water after 1 minute
9. Measure & adjust pumping rate
10. Monitor water level, temp. & conductivity
11. Reset intake to higher level
12. Repeat steps 7, 9, & 10

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R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S.S. Harrison
Weather: clear, 80°F
Permeable Zones:

Date: 8/4/87
Location: BAILEY MFG.
Well No. MW 2
Time Start: End:
Well Depth: 28'
Screened Interval: 13' to 28' B.G.

Development of Monitoring Well

Intake Depth B.G.	Time Start	Time End	Q Rate	Total Q	Water Level Below Ground START	Water Level Below Ground END	Temp. °C START	Temp. °C END	Conductivity START	Conductivity END	Comments
~26'	9:04	9:25	5gpm	105gal.	17.21	17.95	17	14½	840	900	
~27'	9:25	9:50	5gpm	125	17.95	18:03	14½	15	900	940	Surged at 9:25, clear by 9:50
~27'	9:50	12:20	5gpm	750	18.03	18.10	15	17	940	940	Surged at 9:55 (WTI #6 = 20.82' below TC)
~27'	12:20	2:30	5gpm	650	18.10	18.15	17	14	940	940	Surged every 15 min.
~27'	2:30	2:45	5gpm	75	18.15		14		940		(WTI #6 = 20.24' below TC)
8/5/87 ↓											
Variable	11:50	1:00	5gpm	350	19.27	20.06	14		1050	880	(WTI #6 = 21.00' below TC)
Variable	1:00	2:50	5gpm	550	20.06	20.58			880		
Variable	4:00	4:15	5gpm	75							

Total Q = 2680gal.

PROCEDURE

1. Measure static (below ground)
2. Set up pump (check oil & gas, fill pump with water)
3. Set pump intake at desired depth
4. Note time
5. Start pumping
6. Adjust pump rate
7. Measure conductivity & temp. during first minute
8. Measure depth to water after 1 minute
9. Measure & adjust pumping rate
10. Monitor water level, temp. & conductivity
11. Reset intake to higher level
12. Repeat steps 7, 9, & 10

- Gasoline-powered screw pump used for development.
- Pumped water discharged ~20' downgradient

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R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S.S. Harrison
K. Underwood
Weather: overcast, 75°F
Permeable Zones:

Date: 8/6/87
Location: BAILEY MFG.
Well No. MW#3
Time Start: End:
Well Depth: 29'
Screened Interval: 22'-37'

Development of Monitoring Well

Intake Depth B.G.	Time Start	Time End	Q Rate	Total Q	Water Level Below Ground START	Water Level Below Ground END	Temp. °C START	Temp. °C END	Conductivity START	Conductivity END	Comments
~27'BG	10:15	10:52	5gpm	185gal.	20.77	21.57	17		380	520	frequent surging
~27'	10:55	1:00	5gpm	625	21.57	21.63			520	800	" "
~27'	1:00	1:15	5	75					800	815	" "
~27'	1:15	2:45	5	450		21.66		12	815	815	" " very little turbidity after surging

Total Q= 1335 gal.

- Gasoline powered screw pump used for development.

PROCEDURE

1. Measure static (below ground)
2. Set up pump (check oil & gas, fill pump with water)
3. Set pump intake at desired depth
4. Note time
5. Start pumping
6. Adjust pump rate
7. Measure conductivity & temp. during first minute
8. Measure depth to water after 1 minute
9. Measure & adjust pumping rate
10. Monitor water level, temp. & conductivity
11. Reset intake to higher level
12. Repeat steps 7, 9, & 10

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R.D. 1 MAPLE LANE ACRES
SAEGERTOWN, PA 16433

Workers: S. S. Harrison
Weather:
Permeable Zones:

Date:
Location: BAILEY MFG.
Well No. M. W. #4
Time Start: End:
Well Depth: 28'
Screened Interval: 12-28 BG

Development of Monitoring Well

Intake Depth B.G.	Time Start	Time End	Q Rate	Total Q	Water Level Below Ground START	Water Level Below Ground END	Temp. START	Temp. END	Conductivity START	Conductivity END	Comments
~27'	2:00	2:45	5gpm	225gal.	25.0 six minutes after starting		19	13	520	600	frequent surging (WTI 5 = 20.46 TC at 2:13)
~27'	2:45	3:30	5gpm	225			13	13	600	600	" "
~27'	3:30	4:00	5	150			13	13	600	600	
~27'	4:00	4:35	5	175		20.41	13	13	600	600	
					10 min. after pumping ended						

Total Q = 775 gal.

PROCEDURE

1. Measure static (below ground)
2. Set up pump (check oil & gas, fill pump with water)
3. Set pump intake at desired depth
4. Note time
5. Start pumping
6. Adjust pump rate
7. Measure conductivity & temp. during first minute
8. Measure depth to water after 1 minute
9. Measure & adjust pumping rate
10. Monitor water level, temp. & conductivity
11. Reset intake to higher level
12. Repeat steps 7, 9, & 10

— Gasoline powered screw pump used for development.