133910

ZD-5071 D3222

REMEDIAL INVESTIGATION
STRASBURG LANDFILL SITE
ALTERNATIVE REMEDIAL
CONTRACTING STRATEGY
(ARCS) REGION III

Work Assignment (WA) 85-04-3LT6
Volume II: Appendices and Oversized Drawings

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ARCS, REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

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AR300022

APPENDIX A

SUMMARY OF PADER
RESIDENTIAL WELL SAMPLING

Table A-1

RESIDENTIAL WELL DATA
VOLATILE ORGANIC CONCENTRATIONS (µg/L)

Resident(s)	B. Jackson	Linda Herman/Nyman				
Address	343 Laurel Road	344 Laurel Road				
Plat Map Lot No.	38	17.1				
Well Depth	Unknown	Unknown				
Sampling Org.	PADER	PADER				
Sampling Date	6-12-86	3-5-85	6-11-86	9-30-86	6-16-87	8-8-89
Compound						
Benzene	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	<1	2.8	2.7	2.3	2.2	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Robert Lee	James Lee/William Lee							
Address	345 Laurel Road	Laurel Road							
Plat Map Lot No.	17.5	17.6							
Well Depth	Unknown								
Sampling Org.	PADER	PADER							
Sampling Date	10-13-83	11-2-83	7-17-84	3-26-86	6-12-86	6-16-87	12-14-87	11-8-89	7-31-90
Compound									
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	1.1	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Mark Lee						
Address	347 Laurel Road						
Plat Map Lot No.	16.1						
Well Depth	220						
Sampling Org.	PADER						
Sampling Date	10-13-83	4-5-84	12-10-84	12-19-85	9-30-86	6-16-87	7-31-90
Compound							
Benzene	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	<1	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	2.3	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Dilworth			
Address	Laurel Road			
Plat Map Lot No.	31.1			
Well Depth	Unknown			
Sampling Org.	PADER			E & E/EPA Reg. III
Sampling Date	11-2-83	12-12-84	9-29-86	11-30-90
Compound				
Benzene	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	<1
1,2-Dichloroethane	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	1.4
1,2-Dichloropropane	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	<1
Toluene	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	<1
Trichlorofluoromethane	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Culbertson									
Address	353A Laurel Road									
Plat Map Lot No.	14.2									
Well Depth	Unknown									
Sampling Org.	PADER									
Sampling Date	11-2-83	2-28-84	9-10-84	12-10-84	3-5-85	9-4-85	6-16-87	12-14-87	8-8-89	11-8-89
Compound										
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	<1	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Larry Craig					William Kelly				
Address	356 Laurel Road					353B Laurel Road				
Plat Map Lot No.	14.1C					14				
Well Depth	Unknown					80				
Sampling Org.	PADER			Clean Harbors/ EPA/Reg. III	E & E/EPA Reg. III	PADER				
Sampling Date	11-21-88	8-8-89	11-8-89	1-8-90	11-27-90	2-28-84	3-5-85	12-22-86	7-31-90	8-8-89
Compound										
Benzene	3.4	ND	ND	ND	0.85	ND	ND	ND	ND	ND
Chlorobenzene	1.4	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	2	1.1	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	413.2	ND	3	ND	<1	ND	ND	ND	ND	ND
1,2-Dichloropropane	2.8	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	26.9	ND	3	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	1.4	<1	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	35.8	ND	2	ND	<1	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Walter Zarzycki									
Address	355 Laurel Road									
Plat Map Lot No.	14.1B									
Well Depth	Unknown									
Sampling Org.	PADER									
Sampling Date	10-13-83	11-2-83	2-27-84	4-5-84	7-17-84	9-10-84	12-10-84	3-4-85	9-3-85	12-2-85
Compound										
Benzene	—	—	—	—	—	—	—	—	—	—
Chlorobenzene	—	—	—	—	—	—	—	—	—	—
Chloroethane	ND	1.4	ND	ND	ND	<1	2	ND	1 est.	ND
Chloroform	—	—	—	—	—	—	—	—	—	—
1,1-Dichloroethane	7.8	10	7.4	3.7	12	18	19.6	15	13	17
1,2-Dichloroethane	ND	6.1	ND	ND	ND	1.5	1.6	ND	1	1.1
1,1-Dichloroethene	ND	<1	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	3.4	ND	7.2	4	15	22	25.8	17.5	27	27
1,2-Dichloropropane	ND	ND	ND	ND	<1	1.5	1.6	1.1	1.3	ND
Methylene Chloride	8.5	7.1	4 est.	2.8	ND	15 est.	21	ND	7 est.	8 est.
1,1,2,2-Tetrachloroethane	—	—	—	—	—	—	—	—	—	—
Tetrachloroethene	9	11	5.6	5.9	16	21	33.5	18.9	21	24
Toluene	—	—	—	—	—	—	—	—	—	—
1,1,1-Trichloroethane	3.3	3.7	2.6	1.2	2.3	3.2	3.1	2.4	2	3.4
Trichloroethene	5.8	7.3	3.8	3.6	11	18	24.2	13.2	14	14
Trichlorofluoromethane	ND	1.1	3.8	ND	ND	ND	1.2	1	1 est.	ND
Vinyl Chloride	0.9	1.3	ND	ND	ND	<1	1.3	ND	1.6 est.	1 est.

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Key at end of table.

Table A-1 (Cont.)

Resident(s)					Walter Zarzycki					
Address					355 Laurel Road					
Plat Map Lot No.					14.1B					
Well Depth					Unknown					
Sampling Org.					PADER					
Sampling Date	3-26-86	6-11-86	9-29-86	12-22-86	3-11-87	6-16-87	8-18-87	9-23-87	12-14-87	12-14-87
Compound										
Benzene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	*	ND	ND
1,1-Dichloroethane	7.2	10	18	20	5.8	2	14	*	4	16
1,2-Dichloroethane	ND	ND	ND	3	ND	ND	1.3	*	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND
1,2-Dichloroethene	19	40	65	43	40	7.3	80	*	10	80
1,2-Dichloropropane	ND	ND	ND	3.8	ND	ND	1.7	*	ND	2.2
Methylene Chloride	3 est.	3 est.	6 est.	5 est.	ND	ND	ND	*	ND	2.5
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND
Tetrachloroethene	18	20	30	46	16	2	17	*	11	35
Toluene	ND	ND	ND	ND	ND	ND	ND	*	ND	ND
1,1,1-Trichloroethane	ND	ND	1.3	2.8	ND	ND	1.3	*	ND	1.3
Trichloroethene	11	15	20	42	12	1.7	20	*	6.3	30
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	*	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	2.5 est.	1.5	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Walter Zarzycki								
Address	355 Laurel Road								
Plat Map Lot No.	14.1B								
Well Depth	Unknown								
Sampling Org.	PADER					Clean Harbors/ EPA Reg. III	E & E/E & E	E & E/EPA Reg. III	E & E/EPA Reg. III
Sampling Date	11-21-88	8-8-89	11-8-89	11-8-89	7-31-90	1-8-90	1-25-90	2-22-90	11-27-90
	—	—	Kitchen	Outside	Outside	Deep	Shallow	Deep	Deep
	—	—	(Deep)	Spigot	Spigot	—	Packer	Packer	—
	—	—	—	(Shallow)	(Shallow)	—	—	—	—
Compound									
Benzene	ND	ND	ND	ND	1.4	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	1.1	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	3	ND	5	6	8	4.2	9.7	2.5	2.2
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	18.2	3	16	29	32E	ND	ND	ND	<1
1,2-Dichloropropane	ND	ND	ND	1	0.9	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	0.7	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	5	6	ND	ND	ND	ND	ND
Tetrachloroethene	4.8	ND	ND	ND	4.3	3	18.2	1.2	2.8
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	1.8	ND	ND	ND	0.5	ND	ND	ND	ND
Trichloroethene	2.5	15	6	6	6.7	5	19.3	2.4	2.9
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	4	3.7	ND	ND	ND	ND
1,2-Dichlorobenzene	ND	ND	ND	ND	0.5	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	3	2.5	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Hughes										
Address	355A Laurel Road										
Plat Map Lot No.	14.1										
Well Depth	500										
Sampling Org.	PADER										
Sampling Date	2-28-84	4-5-84	9-10-84	12-11-84	3-5-85	9-4-85	12-19-85	3-26-86	6-11-86	9-29-86	12-22-86
Compound											
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	1.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3 est.
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Hughes		
Address	355A Laurel Road		
Plat Map Lot No.	14.1		
Well Depth	500		
Sampling Org.	PADER		E & E/EPA Reg. III
Sampling Date	11-21-88	8-8-89	11-27-90
Compound			
Benzene	ND	ND	ND
Chlorobenzene	ND	ND	ND
Chloroethane	ND	ND	ND
Chloroform	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND
Methylene Chloride	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND
Tetrachloroethene	ND	ND	ND
Toluene	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND
Trichloroethene	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND
Vinyl Chloride	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Mills			Gatchel	Lechman
Address	2 Wheatland Drive			Strasburg Road	254B Strasburg Road
Plat Map Lot No.	18.1M			Unknown	Unknown
Well Depth	Unknown			Unknown	Unknown
Sampling Org.	PADER			PADER	PADER
Sampling Date	2-28-84	12-12-84	12-2-85	9-10-84	7-17-84
Compound					
Benzene	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	2	2.6	1.6	ND	ND
Trichloroethene	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Melkosky	Thomas Cummings		William Cummings	Chance	Prang	
Address	786 Strasburg Road	795 Strasburg Road		Laurel Road	Laurel Road	Laurel Road	
Plat Map Lot No.	Unknown	5		13.1	Unknown	Unknown	
Well Depth	Unknown	Unknown		Unknown	Unknown	Unknown	
Sampling Org.	PADER	PADER		PADER	PADER	PADER	
Sampling Date	11-8-89	7-17-84	11-8-89	4-4-84	11-2-83	11-2-83	9-11-84
Compound							
Benzene	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	<1	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Weygant				Jefferis
Address	23 Wheatland Drive				Road 4
Plat Map Lot No.	18.1				18.1A
Well Depth	150				Unknown
Sampling Org.	PADER				PADER
Sampling Date	9-11-84	12-12-84	6-16-87	11-21-88	12-2-85
Compound					
Benzene	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND
Chloroform	65	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND
Bromo Dichloromethane	1	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Heinze/Hillman						
Address	1 Wheatland Drive						
Plat Map Lot No.	18.1Y						
Well Depth	Unknown						
Sampling Org.	PADER						
Sampling Date	**7-17-84**	**12-11-84**	**9-4-85**	**12-19-85**	**3-26-86**	**6-11-86**	**6-16-87**
Compound							
Benzene	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Faccioli						
Address	3 Wheatland Drive						
Plat Map Lot No.	18.1X						
Well Depth	275						
Sampling Org.	PADER						
Sampling Date	4-4-84	12-11-84	3-4-85	9-3-85	12-19-85	6-12-86	12-23-86
Compound							
Benzene	ND	**	ND	ND	ND	ND	ND
Chlorobenzene	ND	**	ND	ND	ND	ND	ND
Chloroethane	ND	**	ND	ND	ND	ND	ND
Chloroform	ND	**	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	**	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	**	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	**	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	**	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	**	ND	ND	ND	ND	ND
Methylene Chloride	ND	**	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	**	ND	ND	ND	ND	ND
Tetrachloroethene	ND	**	ND	ND	ND	ND	ND
Toluene	ND	**	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	**	ND	ND	ND	ND	ND
Trichloroethene	ND	**	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	**	ND	ND	ND	ND	ND
Vinyl Chloride	ND	**	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Townsend/Maples				
Address	5 Wheatland Drive				
Plat Map Lot No.	18.1W				
Well Depth	Unknown				
Sampling Org.	PADER				
Sampling Date	2-28-84	9-11-84	3-4-85	12-23-86	12-14-87
Compound					
Benzene	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	2.1	2.2	1.6	ND	ND
Trichloroethene	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Messick						Stevenson	
Address	7 Wheatland Drive						9 Wheatland Drive	
Plat Map Lot No.	18.1V						18.1U	
Well Depth	Unknown						Unknown	
Sampling Org.	PADER						PADER	
Sampling Date	4-5-84	3-4-85	9-3-85	12-2-85	6-11-86	6-16-87	9-10-84	9-29-86
Compound								
Benzene	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	1.8	1	<1	<1	ND	ND	3	1
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Mitchell/Lush									
Address	11 Wheatland Drive									
Plat Map Lot No.	18.1T									
Well Depth	Unknown									
Sampling Org.	PADER									
Sampling Date	2-28-84	12-11-84	3-4-85	9-3-85	12-19-85	3-26-86	6-12-86	6-16-87	12-14-87	11-21-88
Compound										
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	1.9	<1	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-hexanone	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Mitchell/Lush	
Address	11 Wheatland Drive	
Plat Map Lot No.	18.1T	
Well Depth	Unknown	
Sampling Org.	PADER	
Sampling Date	11-8-89	7-31-90
Compound		
Benzene	ND	ND
Chlorobenzene	ND	ND
Chloroethane	ND	ND
Chloroform	ND	ND
1,1-Dichloroethane	ND	ND
1,2-Dichloroethane	ND	ND
1,1-Dichloroethene	ND	ND
1,2-Dichloroethene	ND	ND
1,2-Dichloropropane	ND	ND
Methylene Chloride	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND
Tetrachloroethene	ND	ND
Toluene	ND	ND
1,1,1-Trichloroethane	ND	ND
Trichloroethene	ND	ND
Trichlorofluoromethane	ND	ND
Vinyl Chloride	ND	ND
2-hexanone	120	ND
Xylenes	5	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Desjardien		Powell						
Address	13 Wheatland		13 Wheatland Drive						
Plat Map Lot No.	18.1S		18.1S						
Well Depth	150		150						
Sampling Org.	PADER		PADER						
Sampling Date	4-5-84	3-5-85	9-3-85	12-2-85	3-26-86	6-12-86	9-30-86	12-23-86	8-8-89
Compound									
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	2	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Aharonian				Hardy						
Address	15 Wheatland Drive				17 Wheatland Drive						
Plat Map Lot No.	18.1R				18.1Q						
Well Depth	125				Unknown						
Sampling Org.	PADER				PADER						
Sampling Date	12-12-84	9-4-85	3-25-86	9-30-86	7-16-84	9-12-84	3-25-86	9-30-86	12-23-86	11-21-88	8-8-89
Compound											
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	McCrudden							
Address	19 Wheatland Drive							
Plat Map Lot No.	18.1P							
Well Depth	Unknown							
Sampling Org.	PADER							
Sampling Date	7-16-84	9-12-84	12-10-84	12-2-85	3-25-86	9-29-86	6-16-87	11-21-88
Compound								
Benzene	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	<1	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	<1	ND	ND	ND	ND	ND	ND
Toluene	1.1	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	1.6	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND

Key at end of table.

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Table A-1 (Cont.)

Resident(s)	Kalbuch				Straccione/Knauer		
Address	21 Wheatland Drive				22 Wheatland Drive		
Plat Map Lot No.	18.1N				18.1B		
Well Depth	300				460		
Sampling Org.	PADER				PADER		
Sampling Date	2-28-84	12-12-84	9-4-85	12-14-87	9-11-84	12-14-87	11-8-89
Compound							
Benzene	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Feudale					Madonna					
Address	20 Wheatland Drive					18 Wheatland Drive					
Plat Map Lot No.	18.1C					18.1D					
Well Depth	475					Unknown					
Sampling Org.	PADER										
Sampling Date	2-28-84	3-5-85	3-25-86	6-16-87	7-31-90	10-13-83	9-12-84	3-25-86	9-30-86	12-23-86	6-16-87
Compound											
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	<1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Madonna	
Address	18 Wheatland Drive	
Plat Map Lot No.	18.1D	
Well Depth	Unknown	
Sampling Org.		
Sampling Date	8-8-89	7-31-90
Compound		
Benzene	ND	ND
Chlorobenzene	ND	ND
Chloroethane	ND	ND
Chloroform	ND	ND
1,1-Dichloroethane	ND	ND
1,2-Dichloroethane	ND	ND
1,1-Dichloroethene	ND	ND
1,2-Dichloroethene	ND	ND
1,2-Dichloropropane	ND	ND
Methylene Chloride	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND
Tetrachloroethene	ND	ND
Toluene	ND	ND
1,1,1-Trichloroethane	ND	ND
Trichloroethene	ND	ND
Trichlorofluoromethane	ND	ND
Vinyl Chloride	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Torchiana					
Address	16 Wheatland Drive					
Plat Map Lot No.	18.1E					
Well Depth	175					
Sampling Org.	PADER					
Sampling Date	2-28-84	3-4-85	9-3-85	3-25-86	9-30-86	12-23-86
Compound						
Benzene	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND

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Key at end of table.

Table A-1 (Cont.)

Resident(s)	Gebert								
Address	14 Wheatland Drive								
Plat Map Lot No.	18.1F								
Well Depth	500								
Sampling Org.	PADER								
Sampling Date	4-5-84	3-5-85	9-4-85	12-19-85	6-12-86	12-23-86	6-16-87	12-14-87	11-8-89
Compound									
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	<1	<1	ND	1.3	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	<1	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND

02[UZ]ZD5071:D3222/5995/1

Key at end of table.

Table A-1 (Cont.)

Resident(s)	Kane				
Address	12 Wheatland Drive				
Plat Map Lot No.	18.1G				
Well Depth	Unknown				
Sampling Org.	PADER				
Sampling Date	7-17-84	3-25-86	12-23-86	12-14-87	11-21-88
Compound					
Benzene	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	1.7
1,1-Dichloroethane	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	ND	ND	ND	ND	ND
Trichloroethene	<1	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND

02[UZ]ZD5071:D3222/5995/1

Key at end of table.

Table A-1 (Cont.)

Resident(s)	Kaptur									
Address	10 Wheatland Drive									
Plat Map Lot No.	18.1H									
Well Depth	Unknown									
Sampling Org.	PADER									
Sampling Date	7-16-84	12-10-84	9-3-85	3-26-86	6-12-86	9-29-86	12-23-86	6-16-87	12-14-87	11-21-88
Compound										
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	2.6	1.7	1.2	1.2	<1	1	2	ND	ND	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

02[UZ]ZD5071:D3222/5995/1

Key at end of table.

Table A-1 (Cont.)

Resident(s)	Kaptur	
Address	10 Wheatland Drive	
Plat Map Lot No.	18.1H	
Well Depth	Unknown	
Sampling Org.	PADER	
Sampling Date	8-8-89	11-8-89
Compound		
Benzene	ND	ND
Chlorobenzene	ND	ND
Chloroethane	ND	ND
Chloroform	ND	ND
1,1-Dichloroethane	ND	ND
1,2-Dichloroethane	ND	ND
1,1-Dichloroethene	ND	ND
1,2-Dichloroethene	ND	ND
1,2-Dichloropropane	ND	ND
Methylene Chloride	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND
Tetrachloroethene	ND	ND
Toluene	ND	ND
1,1,1-Trichloroethane	ND	ND
Trichloroethene	ND	ND
Trichlorofluoromethane	ND	ND
Vinyl Chloride	ND	ND

02[UZ]ZD5071:D3222/5995/1

Key at end of table.

Table A-1 (Cont.)

Resident(s)	Kelly/Taylor
Address	8 Wheatland Drive
Plat Map Lot No.	18.1J
Well Depth	Unknown
Sampling Org.	PADER

Sampling Date	4-4-84	7-16-84	9-12-84	12-10-84	3-4-85	9-3-85	12-19-85	3-25-86	6-11-86	9-29-86	12-23-86
Compound											
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	1	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	9.4	8.1	7	4.5	4.4	4.9	3.7	3	2.6	1.8	4.5
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

02[UZ]ZD5071:D3222/5995/1

Key at end of table.

Table A-1 (Cont.)

Resident(s)	Kelly/Taylor		
Address	8 Wheatland Drive		
Plat Map Lot No.	18.1J		
Well Depth	Unknown		
Sampling Org.	PADER		
Sampling Date	12-14-87	11-21-88	11-8-89
Compound			
Benzene	ND	ND	ND
Chlorobenzene	ND	ND	ND
Chloroethane	ND	ND	ND
Chloroform	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND
Methylene Chloride	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND
Tetrachloroethene	ND	ND	ND
Toluene	ND	ND	ND
1,1,1-Trichloroethane	1	ND	ND
Trichloroethene	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND
Vinyl Chloride	ND	ND	ND

02[UZ]ZD5071:D3222/5995/1

Key at end of table.

Table A-1 (Cont.)

Resident(s)	Peluso/Desimone							Young	
Address	6 Wheatland Drive							4 Wheatland Drive	
Plat Map Lot No.	18.1K							18.1L	
Well Depth	Unknown							250	
Sampling Org.	PADER							PADER	
Sampling Date	4-4-84	3-4-85	9-4-85	12-2-85	6-11-86	12-23-86	11-8-89	9-11-84	6-12-86
Compound									
Benzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chlorobenzene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Chloroform	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Methylene Chloride	—	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	ND
1,1,1-Trichloroethane	6.5	4.1	2.5	2.9	1.3	2	ND	2	ND
Trichloroethene	ND	ND	ND	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane	ND	ND	ND	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	ND

02[UZ]ZD5071:D3222/5995/1

Key:

* = unable to read (chromatogram?)

** = GC/MS VOA indicated presence of dichlorofluoromethane, one of many freons; however, could not quantitate.

APPENDIX B

WELL LOGS

****

TENTATIVE IDENTFICATIONS HAVE BEEN MADE USING
THE EPA/NIH MASS SPECTRAL DATA BASE. AUTHENTIC STANDARDS
WERE NOT AVAILABLE.
INTERNAL STANDARDS ARE ADDED FOR QUANTITATION.
SURROGATE STANDARDS ARE ADDED PRIOR TO EXTRACTION
TO TEST FOR MATRIX INTERFERENCES.
THE CAS NO. IS THE CHEMICAL ABSTRACT SERVICE
REGISTRY NUMBER.
TRACE REPORTED NEXT TO A VALUE IS A FLAG TO
EMPHASIZE VERY LOW LEVEL RESULTS (BELOW 1 NG/UL
IN THE EXTRACT).

****

STRASBURG LANDFILL

NEWLIN TOWNSHIP, PA

U.S. EPA ID OTFA03N9T6

Well Diagram Key:


SAND PACK


BENTONITE


GROUT


WELL CASING


WELL SCREEN


ROCK CUTTINGS/
HOLE COLLAPSE

Soil/Rock Profile Key:


CLAY


SILT


SAND


GRAVEL


SCHIST


QUARTZITE

AR300061

DATE
STARTED 1-23-90
FINISHED 1-25-90
SHEET 1 OF 1

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-1
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA03N9T6

LOCATION Newlin Township, PA

DEPTH – FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6 6/12 12/18 18/24)	PROFILE (Cl Si Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
0–5		SS	1	3 4 / 4 5		0-2': Medium-brown SILTY LOAM with SAND. Rootlets near top and green schist fragments near bottom of sample. Low moisture content. (Recovery = 1.5')	6.25" ID hollow stem augers advanced with Mobile B-80 drill-rig. Standard penetration test performed with 140 lb. hammer falling 30" as per ASTM D-1586.
		ST	1			2-4': Shelby Tube - very little resistance; ie., low density sample.	
5		SS	2	3 3 / 4 5		4-6': SILT with minor clay and sand, changing from buff to orange to pink from top down. Bottom 4" is saprolite consisting of clayey silt with chlorite, muscovite, and sericite fragments. Black carbonaceous stringers throughout the sample. Low moisture content. (Recovery = 1.9')	
		SS	3	6 6 / 15 23			
		SS	4	10 23 / 35 45			
10		ST	2				
		SS	5	50 50		6-8': Saprolite - SILT & weathered schist mottled buff and orange from 6.0-6.3' and pink from 6.3-7.5', exhibiting remnant laminar structures. 7.5-8.0' is grey-green, soft, chlorite and muscovite schist. Low moisture content. (Recovery = 2.0')	
15							
20						8-10': Saprolite - pink and green SILT and weathered chlorite/muscovite schist fragments, exhibiting remnant laminar structure. Low moisture content. (Recovery = 2.0')	
23.7							
25						10-12': Shelby Tube - refusal at 10.0' Auger to 12' and resume split spoon.	
26.2						12-12.6': Weathered grey-green schist with quartzite at bottom.	12.6': Split spoon refusal
27.85	2"						
30						14.1-33.75': Drill cuttings indicate green chlorite/muscovite schist with quartzite. Thick (>1") quartzite lenses hit at 14.5' and 16.0' (based on drilling resistance). Abnormally high back pressure at 20.0' is forcing water out of hole after pump is shut down.	14.1': Auger refusal. Begin water rotary drilling with 3.875" tricone roller bit.
32.85							
33.75							
35							2" stainless steel well screen and casing used.
40							

AR300062

640088

CLASSIFICATION/BY R. Watt

DATE
STARTED 1-15-90
FINISHED 1-15-90
SHEET 1 OF 1

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-2S
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA03N9T6

LOCATION Newlin Township, PA

DEPTH – FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6 6/12 12/18 18/24	PROFILE Cl Sl Sd Gr	FIELD IDENTIFICATION OF SOILS	NOTES
0		SS	1	4 / 8 — 4 / 9		0-2': Moist, medium-brown CLAYEY SILT with very small fragments of weathered schist. Minor Fe_2O_3 and Fe_2O_2 staining observed. (Recovery = 2.0')	6.25" ID hollow stem augers advanced with ATV drill-rig. Standard penetration test performed with 140 lb. hammer falling 30" as per ASTM D-1586.
		ST	1			2-4': Shelby Tube - little resistance, full 2.0' recovery.	
5		SS	2	8 / 10 — 6 / 11		4-6': Moist, medium-brown CLAYEY SILT with more abundant weathered schist fragments. 1.5" thick portion of weathered schist remained intact near bottom of sample. (Recovery = 1.8')	
6.5		SS	3	4 / 6 — 5 / 8			
8.5		SS	4	51 / 37 — 40 / 27		6-8': Moist, medium-brown CLAYEY SILT with weathered schist fragments. (Recovery = 1.95')	
10	2"	ST	2			8-10': Dry, white, nonfriable QUARTZITE. (Recovery = 0.4')	
10.5						10-12': Shelby Tube - refusal and tube damage at 11.1'. Sample in bottom of tube is moderately weathered chlorite SCHIST. Water on tube exterior.	11.1' Split spoon refusal
15.5							Auger to 14.0' and begin water rotary drilling with 3.875" tricone roller bit.
16						14-20': Drill cuttings contain mica and schist fragments with some quartzite throughout. Presumed quartzite layer from about 16-18'.	
19.2							2" stainless steel well screen and casing used.
20							
25							
30							
35							
40							

AR300063

640088

CLASSIFICATION/BY D. Johnson

DATE
STARTED 1-12-90
FINISHED 1-13-90
SHEET 1 OF 1

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-3S
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA03N9T6

LOCATION Newlin Township, PA

DEPTH – FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6 6/12 12/18 18/24)	PROFILE (Cl Sl Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
0		SS	1	2 4 / 5 4		0-2': Moist red-brown SILTY CLAY with small (<1mm) mica fragments. Low to moderate plasticity. Percentage of mica fragments increases from 1.6-1.85'. (Recovery = 1.85')	6.25"ID hollow stem augers advanced with an ATV drill-rig. Standard penetration test performed with 140 lb. hammer falling 30" as per ASTM D-1586.
		ST	1			2-4': Shelby Tube	
5		SS	2	4 10 / 10 12		4-6': Moist red-brown SILTY CLAY with small (<1mm) mica fragments. Weathered, non-friable quartzite fragments (≤1.25") from 5.7-5.8'. (Recovery = 1.8')	
		SS	3	7 21 / 15 8			
		SS	4	7 9 / 9 12		6-8': Saprolite - moist, reddish-green, weathered SCHIST and QUARTZITE either iron-rich or leachate stained on fracture surfaces. (Recovery = 1.7')	
10		ST	2				
13.3		SS	5	7 14 / 17 27		8-10': Saprolite - moist reddish-green weathered SCHIST and QUARTZITE. Highly friable with square, medium sand-sized mineral fragments. (Recovery = 1.0')	
15 15.3	2"	SS	6	14 17 / 15 17			
17.4		SS	7	8 17 / 27 50		10-12': Shelby Tube - 50-65% recovery with water on tube exterior.	
20						12-14': Saprolite - very moist, weathered SCHIST. Very friable with remnant laminar structures. Low permeability. (Recovery = 1.8')	
25						14-16': Saprolite - same as 12-14'. (Recovery = 1.9')	
27.4 27.9						16-17.4':Saprolite - moist, light green weathered SCHIST, friable and "tight" (low permeability). (Recovery = 1.4')	Split spoon refusal @ 17.4'
30						19-27.9': Drill cuttings contain 2mm fragments of schist with minor amounts of quartzite. Resistance is light but steady indicating weathered bedrock.	Auger refusal @ 19.0'. Begin water rotary drilling with 3.875" tricone roller bit.
35							2" stainless steel well screen and casing used.
40							

AR300064

640088

CLASSIFICATION/BY D. Johnson

DATE
STARTED 3-7-90
FINISHED 3-7-90
SHEET 1 OF 1

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-4S
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA03N9T6

LOCATION Newlin Township, PA

DEPTH – FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6, 6/12, 12/18, 18/24)	PROFILE (Cl Sl Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
2.5	2"	SS	1	8 / 4 / 6 / 8		Split-spoon samples not collected at this location.	6.25" ID hollow stem augers advanced with Mobile B-80 drill-rig.
4		ST	1				
5		SS	2	3 / 6 / 14 / 8		Refer to MW-4I log for detailed description used to obtain 0 to 13 feet soil profile shown.	
6		SS	3	11 / 13 / 21 / 24			
10		SS	4	15 / 11 / 15 / 21			
11		ST	2				
13		SS	5	50			
20							
25							
30							
35							
40							

AR300065

640088

CLASSIFICATION/BY R. Watt

DATE
STARTED 1-10-90
FINISHED 1-12-90
SHEET 1 OF 1

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-5S
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA03N9T6

LOCATION Newlin Township, PA

DEPTH – FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6 6/12 12/18 18/24)	PROFILE (Cl Sl Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
0		SS	1	2 2 / 3 4		0-2': Moist, medium-brown SILT with CLAY, low plasticity. Contains rootlets. (Recovery = 0.75')	6.25" ID hollow stem augers advanced with ATV drill-rig. Standard penetration test performed with 140 lb. hammer falling 30" as per ASTM D1586.
		ST	1			2-4': Shelby Tube - push is easy; ie., low density sample. (Recovery = 2.0')	
5		SS	2	4 5 / 8 10		4-6': Moist, green-brown heavily weathered chlorite SCHIST. Sample is borderline soil and rock exhibiting remnant laminar structure. (Recovery = 0.85')	
		SS	3	6 11 / 11 15			
		SS	4	11 20 / 30 52		6-8': Moist, green-brown weathered chlorite SCHIST. (Recovery = 1.55')	
10		ST	2			8-10': Moist, green-brown weathered chlorite SCHIST exhibiting greater competency and hardness than previous sample.	
15						10-10.4': Shelby Tube - refusal at 10.4'. Tube damaged. (Recovery = 5")	
20						14.3-20.5': Drill cuttings show schist particles. Minimal resistance to drill.	14.3': Auger refusal. Begin water rotary with 3.875" tricone roller bit.
21.8						20.5-37.9': Drill resistance increases, presume competent yet fractured schist.	
23.8							
25	2"						2" stainless steel well screen and casing used.
27.4							
30							
35							
37.4							
37.9							
40							

AR300066

640088

CLASSIFICATION/BY D. Johnson

DATE
STARTED 1-16-90
FINISHED 2-10-90
SHEET 1 OF 3

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-1I
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA03N9T6

LOCATION Newlin Township, PA

DEPTH - FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6, 6/12, 12/18, 18/24)	PROFILE (Cl Sl Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
0		SS	1	3 4 / 4 5		Split-spoon samples not collected at this location.	6.25" ID hollow stem augers advanced with Mobile B-80 drill-rig.
		ST	1			Refer to MW-1S log for detailed description used to obtain 0 to 12.6 feet soil profile shown.	
5		SS	2	3 3 / 4 5			
		SS	3	6 6 / 15 23			
		SS	4	10 23 / 35 45			
10		ST	2				
		SS	5	50 50			
20	8"						
25	45¼"					12.6-29': Auger cuttings indicate heavily weathered chlorite schist and quartzite.	Auger to 29.0'
30						29-41.1': Drill cuttings indicate high percentage of quartzite in a chlorite/muscovite schist matrix.	29.0-41.1': water rotary drilling with 12.25" tricone roller bit
35						Core Run 1 (41.1-45') RQD = 0% Recovery = 1.2' = 30.7% Core loss from bottom of run.	48.8-58': water rotary drilling with 7.875" tricone roller bit.
38						41.1-41.9': Brittle QUARTZITE heavily fractured between 41.35-41.6'.	
40						41.9-42.3': Weathered green-brown chlorite SCHIST with muscovite and minor quartzite, fractured at 70°-80°.	

AR300067

640088

CLASSIFICATION/BY R. Watt

DATE
STARTED 1-16-90
FINISHED 2-10-90
SHEET 2 OF 3

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-1
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA03N9T6

LOCATION Newlin Township, PA

DEPTH – FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6, 6/12, 12/18, 18/24)	PROFILE (Cl Si Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
50	5¼"					Core Run 2 (45-48.8') RQD = ? Recovery = 3.0' = 79.2% Core loss at bottom of run. 45-45.5': Intact, medium green chlorite SCHIST with parting faces 25°-30° 45.5-45.95': Moderately weathered brown-green chlorite SCHIST with 4 subhoriz. fractures 45.95-46.2': Moderately weathered chlorite SCHIST and white QUARTZITE with "marbled" appearance. Medium to coarse remnant sand grains are visible. 46.2-47.8': Highly fractured, moderately friable and weathered, brownish-yellow chlorite SCHIST. Numerous QUARTZITE lenses ≤.25" thick are present. 47.8-48.0': Intact, medium green chlorite SCHIST, unweathered. 48.8-58.0': Drill cuttings indicate same schist as above with a greater percentage of muscovite. Also contains quartzite.	8" ID low carbon steel casing from ground surface to 38.0' 5.25" ID low carbon steel casing set from ground surface to 58.0'.
55							
58							
60	4¾"						
65							
70						Core Run 3 (58-63') RQD = 31.7% Recovery = 4.55' = 91% 58-63': Light to medium green chlorite SCHIST with few QUARTZITE lenses. Moderately to highly weathered transmissive zone from 59.15-60.95'. Core Run 4 (63-68') RQD = 66.7% Recovery = 3.5' = 70% 63-63.65': Moderately to highly weathered, light to medium greenish-white chlorite SCHIST with QUARTZITE. 63.65-65.7': Same as above but competent and relatively unweathered. Contains pyrite. Schistosity planes dipping 40°. 65.7-66.5': Moderately to highly weathered, dark green chlorite SCHIST with white QUARTZITE. Core Run 5 (68-73') RQD = 100% Recovery = 5.0' = 100% 68-73': Competent, light to medium green chlorite SCHIST with white/opaque QUARTZITE, with minor pyrite.	
73							
75							
80							
85							

AR300068

640088

CLASSIFICATION/BY D. Johnson

DATE
STARTED 1-16-90
FINISHED 2-10-90
SHEET 3 OF 3

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-1I
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA03N9T6

LOCATION Newlin Township, PA

DEPTH - FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6, 6/12, 12/18, 18/24)	PROFILE (Cl Sl Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
						Core Run 5 (cont.) Vertical fracture containing secondary quartz exists at 71.0-71.8'. Subhoriz. fracture at 72.0' is mildly weathered.	

AR300069

640088

CLASSIFICATION/BY D. Johnson

DATE
STARTED 2-11-90
FINISHED 2-25-90
SHEET 1 OF 2

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-2
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA03N9T6

LOCATION Newlin Township, PA

DEPTH - FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6 | 6/12 | 12/18 | 18/24)	PROFILE (Cl Sl Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
0		SS	1	2 | 2 / 2 | 4		0-2': Moist, medium brown SILT with a trace of clay and fine sand. 2 translucent, subrounded quartzite fragments (1.25") at 0.4' and 0.9'. (Recovery = 1.6')	6.25" ID hollow stem augers advanced with Mobile B-80 drill-rig. Standard penetration test performed using 140 lb. hammer falling 30" as per ASTM D-1586.
		SS	2	5 | 8 / 7 | 6		2-4': Saprolite - moist SILT with medium-fine SAND, non-cohesive and non-plastic. Some weathered quartzite fragments as above. (Recovery = 2.0')	
5		SS	3	3 | 5 / 5 | 9		4-6': Saprolite - moist SILTY SAND, weathered non-cohesive, quartzite-rich, medium-brown to white in color. (Recovery = 2.0')	
		SS	4	11 | 10 / 14 | 17		6-8': Saprolite - moist, medium brown to white, highly weathered SCHIST and QUARTZITE. Very friable. (Recovery = 2.0')	
		SS	5	14 | 16 / 18 | 21		8-10': Same as 6-8', with 60% SCHIST and 40% QUARTZITE "stringers." (Recovery = 2.0')	
10		SS	6	10 | 17 / 27 | 37		10-12': Same as 8-10' but SCHIST is now dark green-brown and QUARZTITE is translucent and weathers white. (Recovery = 2.0')	18.0': Split spoon refusal.
		SS	7	7 | 13 / 27 | 39		12-14': Same as 10-12', but SCHIST is not talc-rich. (Recovery = 2.0')	28.0': Auger refusal.
		SS	8	18 | 27 / 26 | 25		14-16': Same as 12-14'. (Recovery = 2.0')	28-42.4': water rotary drilling with 7.875" tricone roller bit followed by reaming with 12.25" tricone roller bit.
15	8"	SS	9	17 | 27 / 35 | 50		16-18': Moist, highly weathered SCHIST (70%) with QUARTZITE "stringers" (30%). Schist is compact yet friable. Black carbon staining observed in localized areas. (Recovery = 2.0)	
20						Core Run 1 (42.4-47.4') RQD = 11% Recovery = 3.1' = 62%	42.4-77': NX coring followed by reaming with 4.875" tricone roller bit.
25	5¼"					42.4-42.8': Fractured, cobble-sized fragments of QUARTZITE.	
30						42.8-42.9': White-grey weathered SCHIST and QUARTZITE, heavily fractured.	
35						42.9-45.5': Green-brown weathered SCHIST. Subhoriz. fractures in schistocity planes only, many are iron-stained.	8" ID low carbon steel casing set from ground surface to 40'.
40						Core Run 2 (47.4-52.4') RQD = 40% Recovery = 5' = 100%	5" ID low carbon steel casing set from grou surface to 55
						47.4-52.4': Primarily green-grey chlorite and muscovite (or sericite) SCHIST with minor QUARTZITE veins throughout (up to 1" thick). Talc apparent on fresh fracture surfaces.	

AR300070

640088

CLASSIFICATION/BY D. Johnson / R. Watt

DATE
STARTED 2-11-90
FINISHED 2-25-90
SHEET 2 OF 2

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-2I
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA03N9T6

LOCATION Newlin Township, PA

DEPTH – FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6, 6/12, 12/18, 18/24)	PROFILE (Cl Sl Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
50	5¼"					Core Run 2 (cont.) Minor iron-stained, weathered, transmissive zones at 47.9', 49.7', 50.0', and 50.9'. Major transmissive zones at 48.2-49.1', 51.0-51.4', and 51.8-52.4', exhibit schistosity plane fractures. Minor pyrite at 50.3'. Core Run 3 (52.4-57.2') RQD = 62.5% Recovery = 4.8' = 100% 52.4-53.25': Highly fractured and weathered orange-brown SCHIST with minor quartzite. 53.25-56.6': Competent grey-green chlorite SCHIST with minor talc and muscovite/sericite with numerous thin (.25" thick) QUARTZITE veins throughout. Minor pyrite throughout. Thin iron-stained transmissive zones at 54.6' and 56.45'. 56.6-57.2': Major iron-stained transmissive zone - highly fractured. Core Run 4 (57.4-67.4') RQD = 49% Recovery = 10' = 100% 57.4-67.4': Competent grey-green chlorite SCHIST with talc and muscovite/sericite with numerous thin QUARTZITE veins throughout. Red hematite stained subhoriz. fracture at 60.9'. Numerous subhoriz. fractures from 57.4-61.4', none with iron staining. One iron-stained fracture at 62.6'. Core Run 5 (67.4-72.4') RQD = 92% Recovery = 5.0' = 100% 67.4-72.4': Same SCHIST as previous run but darker grey in color, also banded grey and green in places. Fractures with no iron staining at 67.4-67.6', 68.1-68.3', and 67.3'. Some secondary QUARTZITE in fractures oblique to schistosity. Core Run 6 (72.4-77.0') RQD = 89% Recovery = 4.6' = 100% 72.4-77.0': Same SCHIST and QUARTZITE as previous run. Iron-stained fractures at 72.4' and 75.0'. Numerous secondary quartzite veins oblique to schistosity.	
55							
60	47⅞"						
65							
70							
75							
77							
80							
85							

640088

CLASSIFICATION/BY R. Watt

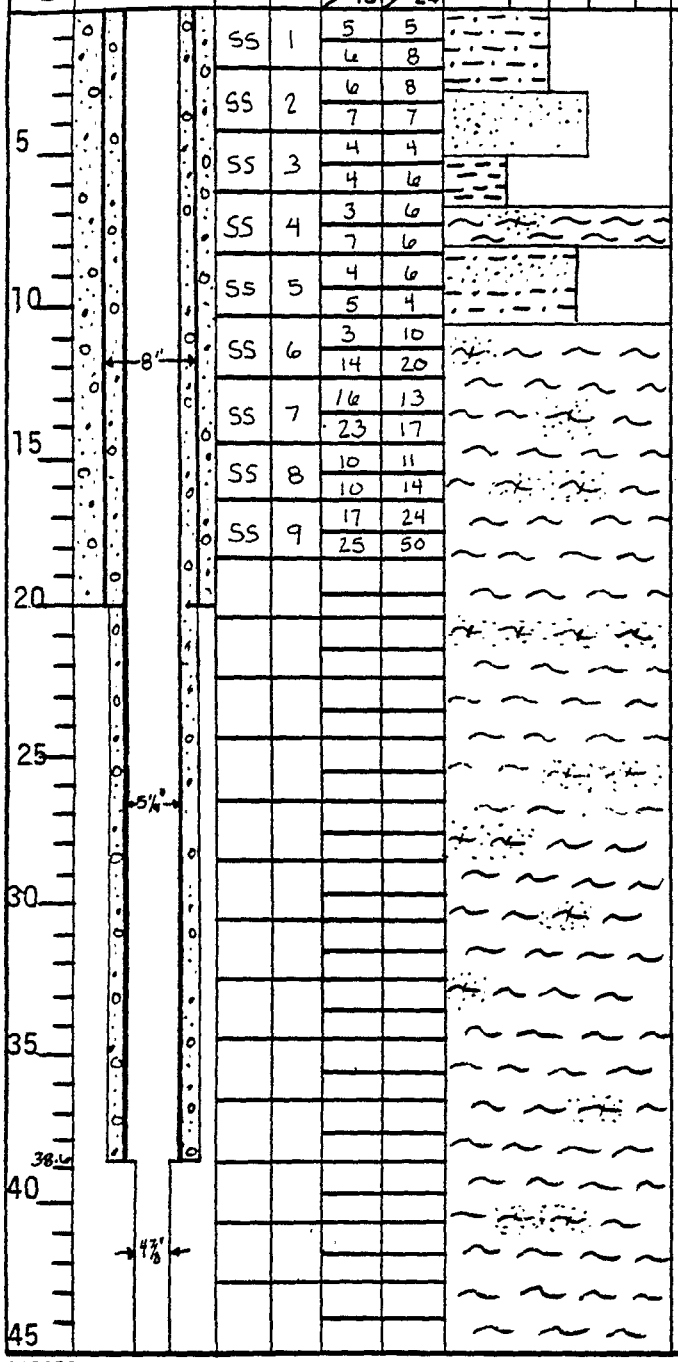
DATE STARTED 3-9-90
FINISHED 3-28-90
SHEET 1 OF 3

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-31
SURFACE ELEVATION
GROUNDWATER DEPTH

PROJECT Strasburg Landfill
EPA ID O1FA039N16

LOCATION Newlin Township, PA



SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6	6/12	12/18	18/24
SS	1	5	5		
		6	8		
SS	2	6	8		
		7	7		
SS	3	4	4		
		4	6		
SS	4	3	6		
		7	6		
SS	5	4	6		
		5	4		
SS	6	3	10		
		14	20		
SS	7	16	13		
		23	17		
SS	8	10	11		
		10	14		
SS	9	17	24		
		25	50		

FIELD IDENTIFICATION OF SOILS

0-2': Disturbed material due to bulldozer activity. Medium brown SILTY LOAM with schist and angular quartzite fragments. Moist with low plasticity. (Recovery = 1.9') OVA = 0.4 ppm.

2-4': Medium brown SILTY LOAM without inclusions from 2-2.65'. Brown fine SANDY LOAM with 20% schist fragments and no quartzite from 2.65-4'. Slightly moist, low plasticity, still disturbed material. (Recovery = 1.8') OVA = 6 ppm.

4-6': Brown fine SANDY LOAM from 4-5'. Moist tan CLAY LOAM with 5% schist and quartzite fragments from 5-6'. (Recovery = 1.5')

6-8': Tan CLAY LOAM from 6-6.65'. Heavily weathered SCHIST with a 1" angular QUARTZITE fragment from 6.65-7'. Low mosture content. (Recovery = 1.0')

8-10': SANDY SILT LOAM with 10% weathered schist fragments. Slightly moist with very low plasticity. Color ranges from medium brown to grey to orange-brown. (Recovery = 2.0')

10-12': Moist SANDY SILT LOAM as above from 10-10.5'. Highly weathered, dry SCHIST from 10.5-12'. (Recovery =2.0')

12-14': Weathered SCHIST with angular QUARTZITE fragments, with 35% fine grained SAND. (Recovery = 2.0') OVA = 30 ppm.

14-16': Highly weathered SCHIST with some SILT and SAND throughout. (Recovery = 2.0')

16-18': Weathered grey-green SCHIST with QUARTZITE lense. Becoming more competent.

Core Run 1 (20-29.4') RQD = 0%
Recovery = 2.0' = 21.2%
Core loss from top of run.
1' of grey-green chlorite SCHIST fragments with iron staining. One fragment has sub-vertical fracture. Single QUARTZITE layer .05' thick. Followed by 1' of more competent grey-green SCHIST with minor QUARTZITE, containing 5 low andgle fra- tures.

NOTES

6.25" ID hollow stem augers advanced with Mobile B-80 drill-rig. Standard penetration test performed with 140 lb. hammer falling 30" as per ASTM D-1586.

18': Split spoon refusal.

Water rotary drilling with 12.25" tricone roller bit from 18-20'.

NX coring from 20-74.4', followed by reaming with 7.875" tricone roller bit from 20-38.6', followed by reaming with 4.875" tricone roller bit from 38.6-74.4'.

8" ID low carbon steel casing set from ground surface to 20'.

5.25" ID low carbon steel casing set from ground surface to 38.6'.

640088

AR300072

CLASSIFICATION/BY R. Meyers

DATE STARTED 3-9-90
FINISHED 3-28-90
SHEET 2 OF 3

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-3I
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA039NT6

LOCATION Newlin Township, PA

DEPTH – FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6, 6/12, 12/18, 18/24)	PROFILE (Cl Si Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
50	4⅞"					Core Run 2 (29.4-39.4') RQD = 23.5% Recovery = 5.6' = 56% Core loss from top of run. 29.4-33.8': Core loss. 33.8-36.4': Weathered brown and grey-green SCHIST with some iron-staining and minor QUARTZITE. 36.4-39.4': Competent grey SCHIST with secondary QUARTZITE and very small amounts of pyrite throughout. 45° fractures at 36.6', 36.9', 37.3', 37.55', and 37.75', two of which are silt-lined.	
55						Core Run 3 (39.4-49.4') RQD = 64% Recovery = 9.4' = 94% 39.4-48.8': Competent grey SCHIST with few areas of secondary QUARTZITE. Single iron-stained 45° fracture at 39.8'. Quartz-rich fracture zone with vugs and some secondary mineralization from 40.9-41.4'. Silt-lined fractured schist zone from 42.2-42.4' and 45.1-45.25'. Low angle, iron-stained fracture at 42.95'. Quartz-rich fracture zone with sand and silt from 46.75-46.9'. Four 45° iron-stained fractures from 48-48.8'.	
60						Core Run 4 (49.4-54.4') RQD = 48% Recovery = 4.1' = 82% Core loss from bottom of run. 49.4-53.5': Same grey SCHIST as previous run. 45° iron-stained fracture zone from 51.7-51.85'.	
65						Core Run 5 (54.4-64.4') RQD = 28% Recovery = 10' = 100% 54.4-64.4': Grey to greyish green chlorite, talc and muscovite SCHIST intercalated with white to light grey QUARTZITE. Fractures evenly spaced throughout (every 2-4") and are subhoriz. to 45° along schistosity planes. Most fracture surfaces contain minor amounts of limonite/hematite and/or pyrite. Some pyrite in the schist matrix throughout. Quartzite exhibits dissolution and minor internal fracturing throughout. Heavily fractured zones at 54.9', 55.2', 56-56.1', 57.4-57.7', 60.6-60.8', and 63.7'. Large quartzite band from 58.15-58.75' with minor schist.	
70							
75							

AR300073

640088

CLASSIFICATION/BY R. Meyers / R. Watt

DATE
STARTED 3-9-90
FINISHED 3-28-90
SHEET 3 OF 3

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-3I
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA039NT6

LOCATION Newlin Township, PA

DEPTH – FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6, 6/12, 12/18, 18/24)	PROFILE (Cl Si Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
						Core Run 6 (64.4-74.4') RQD = 60% Recovery = 10' = 100% 64.4-74.4': Same SCHIST and QUARTZITE as previous run, however percentage of quartzite has increased by 10% to 45%. Thickest band of quartzite is 1". Subhoriz. fractures with iron staining at 66.8', 70.8', and 73.5'. 45° fractures with iron-staining at 65.3', 65.7', 67.4', 68', 68.6', 69.1', 70.2', 71', 72', 72.9', 73.1', 74', 74.2', and 74.3'. Highly fractured zone with some subvertical fractures from 67.2-69.2'.	

AR300074

640088

CLASSIFICATION/BY R. Watt

DATE
STARTED 2-26-90
FINISHED 3-05-90
SHEET 1 OF 2

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-4I
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA03N9T6

LOCATION Newlin Township, PA

DEPTH – FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER 0/6 6/12 12/18 18/24	PROFILE Cl Sl Sd Gr	FIELD IDENTIFICATION OF SOILS	NOTES
0		SS	1	8 4 / 6 8		0-2': Medium-brown SANDY LOAM with silt and gravel. Includes numerous green-brown schist fragments and 1 quartzite cobble. (Recovery <4")	6.25" ID hollow stem augers advanced with Mobile B-80 drill-rig. Standard penetration test performed with 140 lb. hammer falling 30" as per ASTM D-1586
		ST	1			2-4': Shelby Tube - easy penetration, however only 1.0' recovery due to blockage by cobble.	
5	8"	SS	2	3 6 / 14 8		4-6': Yellow-brown SILT with clay and sand mottled red-brown, grey, and black in places. Contains numerous green-brown schist fragments. High moisture content. (Recovery < 4")	
		SS	3	11 13 / 21 24			
		SS	4	15 11 / 15 21		6-8': Red-brown to yellow-brown SILT with quartzite sand, mottled black in places. Contains numerous intact schist fragments indicating that this is saprolite. Very high moisture content. (Recovery = 2.0')	Followed by water rotary drilling with 12.25" roller bit, then NX core rods, then 4.875" roller bit.
10		ST	2			8-10': Heavily weathered green-brown chlorite/muscovite SCHIST with QUARTZITE. Very high moisture content. (Recovery = 2.0')	
		SS	5	50		10-12': Shelby Tube - advanced just a few inches and contains the same as 8-10' with water.	
20						12-12.5': No sample - Recovery - 0'.	12.5': Split spoon refusal. Auger to 13.0'
20.5						Core Run 1 (20.5-27.5') RQD = 30% Recovery = 6.35' = 90.7% Core loss at top of run.	13-20.5': Water rotary drilling with 12.25" bit.
25	4 7/8"					21.1-21.9': Heavily fractured light grey-green chlorite SCHIST with minor muscovite and talc. Contains little quartzite. Subvertical and subhorizontal fractures are iron stained.	Set 8" ID low carbon steel casing from ground surface to 20.5'.
30						21.9-22.9': Dark grey SCHIST banded with light grey QUARTZITE. Numerous subhorizontal fractures only one of which is iron stained (@ 22.4').	
35						22.9-25.65': Banded dark grey to light grey-green chlorite SCHIST and light grey to white QUARTZITE with boudinage form. mostly mechanical fractures.	
40						25.65-27.5': Light grey-green chlorite SCHIST with minor muscovite and talc. Numerous fractures, none of which are iron stained. Minor amounts of pyrite throughout the run.	

AR300075

640088

CLASSIFICATION/BY R. Watt

DATE
STARTED 2-26-90
FINISHED 3-05-90
SHEET 2 OF 2

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-4I
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA03N9T6

LOCATION Newlin Township, PA

DEPTH – FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6, 6/12, 12/18, 18/24)	PROFILE (Cl Sl Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
50						Core Run 2 (27.5-35') RQD = 36% Recovery = 7.5' = 100% 27.5-28.2': Brittly fractured QUARTZITE with minor green chlorite schist. 28.2-35': Green chlorite SCHIST with minor talc and muscovite. Contains thin veins of quartzite throughout, many of which appear to be the result of secondary mineralization along fractures oblique to the plane of schistosity. Moderately fractured throughout with subvertical fractures at 29.1', 32.0', and from 34.0-35.0'. Remainder are subhorizontal fractured, none of which are iron stained.	
55							
60							
65							

AR300076

640088

CLASSIFICATION/BY R. Watt

DATE
STARTED 3-19-90
FINISHED 3-26-90
SHEET 1 OF 2

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-5I
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA03N9T6

LOCATION Newlin Township, PA

DEPTH — FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6, 6/12, 12/18, 18/24)	PROFILE (Cl Sl Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
0		SS	1	4 / 4 / 8 / 9		Split-spoon samples not collected at this location.	6.25" ID hollow stem augers advanced with ATV drill-rig.
		ST	1			Refer to MW-2S log for detailed description used to obtain 0 to 20 feet soil profile shown.	
5		SS	2	8 / 6 / 10 / 11			
		SS	3	4 / 5 / 6 / 8			
		SS	4	51 / 40 / 37 / 27			
10	8"	ST	2				
15							
20						Core Run 1 (20-30') RQD = 83% Recovery = 9.5' = 95% 20-30': Discontinuous bands of dark bluish grey and dark greenish grey SCHIST containing chlorite, muscovite and talc with minor pyrite. Small QUARTZITE layers throughout in various forms. Abundant quartzite at 24.6-25.4'. Very few non-mechanical fractures. Only iron staining on 45° fracture at 24.85' and on subhorizontal fractures at 25.0' and 25.15'.	Water rotary drilling with 12.25" bit to 20.0'. Followed by NX coring to 69.6' then ream with 4.875" bit with Mobile B-80 drill-rig. Set 8" ID low carbon steel casing from ground surface to 20.0'.
25	4 7/8						
30						Core Run 2 (30-40') RQD = 83% Recovery = 10' = 100% 30-40': Same rock type as core run 1 with heavy quartzite concentrations at 32.4-32.6', 34.8-35.3', and 36.7'. 45° fractures at 36.5', 37.1', and 37.8-38.5'. Iron stained fractures with 45° dip at 32.5' and 38.5'. Heavily fractured zone from 34.0-34.3'.	
35							
40	40.5						

640088

CLASSIFICATION/BY D. Johnson / R. Watt

DATE
STARTED 3-19-90
FINISHED 3-26-90
SHEET 2 OF 2

E + E DRILLING AND TESTING CO., INC.
SUBSURFACE LOG

HOLE NUMBER MW-5I
SURFACE ELEVATION
GROUNDWATER DEPTH
( )

PROJECT Strasburg Landfill
EPA ID OTFA03N9T6

LOCATION Newlin Township, PA

DEPTH - FT	WELL DIAGRAM	SAMPLE TYPE	SAMPLE NO.	BLOWS ON SAMPLER (0/6, 6/12, 12/18, 18/24)	PROFILE (Cl Sl Sd Gr)	FIELD IDENTIFICATION OF SOILS	NOTES
45						Core Run 3 (40-50') RQD = 100% Recovery = 9.5' = 95%	
						40-50': Same rock type as previous runs with a greater percentage of quartzite throughout the run. No natural fractures - rock is very hard and "tight."	
50						Core Run 4 (50-59.8') RQD = 85% Recovery = 9.8' = 100%	
						50-53.7': Same rock type as previous runs. Transmissive fracture dipping 45° at 51.3' and 51.9'. 45° fractures with partial dissolution of quartzite at 51.0', 51.4', and 51.5'. 45° fracture with pyrite on surface at 52.6'. 45° dissolutin fracture in quartzite lense with pyrite at 52.1'. Chevron folding at 52'.	
55							
	← 4.98"						
60						53.7-55.4': Same rock type as previous runs. Pyrite on subhorizontal fracture surfaces at 53.0' and 53.4'. Internally fractured quartzite from 53.4-53.5'. Internally fractured quartzite exhibiting dissolution at 55.3-55.4'. Iron stain and pyrite on subhoriz. fracture at 55.35'.	
65						55.4-58.5': Same rock type as previous runs. No open fractures - only internally fractured quartzite at 56.3-57.0'.	
	4.94						
70						58.5-59.8': Same rock type as previous runs. 30° fracture at 59.1' and 45° fracture at 59.7' with pyrite. Iron stain on bottom of core.	
						Core Run 5 (59.8-69.6') RQD = 97% Recovery = 8.6' = 88%	
75						59.8-69.6': Subhoriz. fractures at 61.1' and 64.1'. Internally fractured quartzite with minor dissolution at 66.3'. Dissolution of small quartzite lenses from 66.5-68.2'. 45° fractures with pyrite at 67.0, 67.5', and 68.2'. Heavy quartzite concentration from 67.0-68.2' with biotite(?) and pyrite.	
80							
85							

AR300078

640088

CLASSIFICATION/BY R. Watt

APPENDIX C

AQUIFER TEST RESULTS

AQUIFER TESTING SUMMARY TABLE

Strasburg Landfill - ARCs III

Testing Dates: May 21-25, 1990

WELL	Aq.TYPE	SCREEN (ft)	WATER LEVEL (ft)	BOUWER-RICE METHOD HYDR. COND. (gal/day/ft2)	BOUWER-RICE METHOD TRANSMISSIVITY (gal/day/ft)	COOPER et.al. METHOD HYDR.COND.* (gal/day/ft2)	COOPER et.al. METHOD TRANSMISSIV. (gal/day/ft)
SHALLOW WELLS							
1s	Unconfined	27.3-32.3	26.10	22.60	113.1	---	---
2s	Unconfined	10.5-15.5	9.03	88.36	442.5	---	---
3s	Unconfined	17.9-27.9	9.02	10.22	97.44	---	---
4s	Unconfined	6.0-11.0	5.86	2.734	13.67	---	---
5s	Unconfined	27.5-37.5	29.2	2.240	18.51	---	---
INTERMEDIATE WELLS							
1i	Confined	58.0-73.0	6.65	---	---	26.49	397.3
2i	Confined	55.0-72.0	24.88	4.55E-2	7.73E-1	8.053E-2	1.369
3i	Unconfined	38.6-75.0	57.46	14.42	253.0	---	---
4i	Unconfined	20.0-35.0	11.96	2.669	40.05	---	---
	Unconfined	20.0-41.0	11.38	3.38E-2	7.10E-1	---	---

* Used the formula K=T/b to obtain result. Please note that the true aquifer thickness has not been determined so the thickness of the open or screened section of the well was used.

CONVERSIONS:

(1) ft/min. x 1min/60sec = ft/sec ;
ft/hour x 1hr/60min = ft/min

(2) ft2/sec x 9.29E-2 = m2/sec
m2/sec ÷ 1.438E-7 = gal/day/ft
or
ft2/sec x 646036.1613 = "

(3) ft/sec x 3.048E-1 = m/sec
m/sec ÷ 4.72E-7 = gal/day/ft2
or
ft/sec x 645762.7119 = "

AR300081

DATA SET: TEST5IBR

CLIENT:	USEPA Region 3; ARCs III	DATE:	5/22-25/90
LOCATION:	Strasburg Landfill, PA	WELL NO.:	5i
COUNTY:	Chester Co.	WELL DEPTH:	41.00 ft
PROJECT:	Bail-down Test	WATER TABLE:	11.380 ft
AQUIFER:	Endless	THICKNESS:	21.00 ft
INTAKE RADIUS:	0.417 ft	CASING RADIUS:	0.417 ft
SCREEN TOP:	20.000 ft	SCREEN BASE:	41.00 ft
INITIAL HEAD:	1.240 ft	TRANS. RATIO:	1.0000

MODEL PARAMETERS:

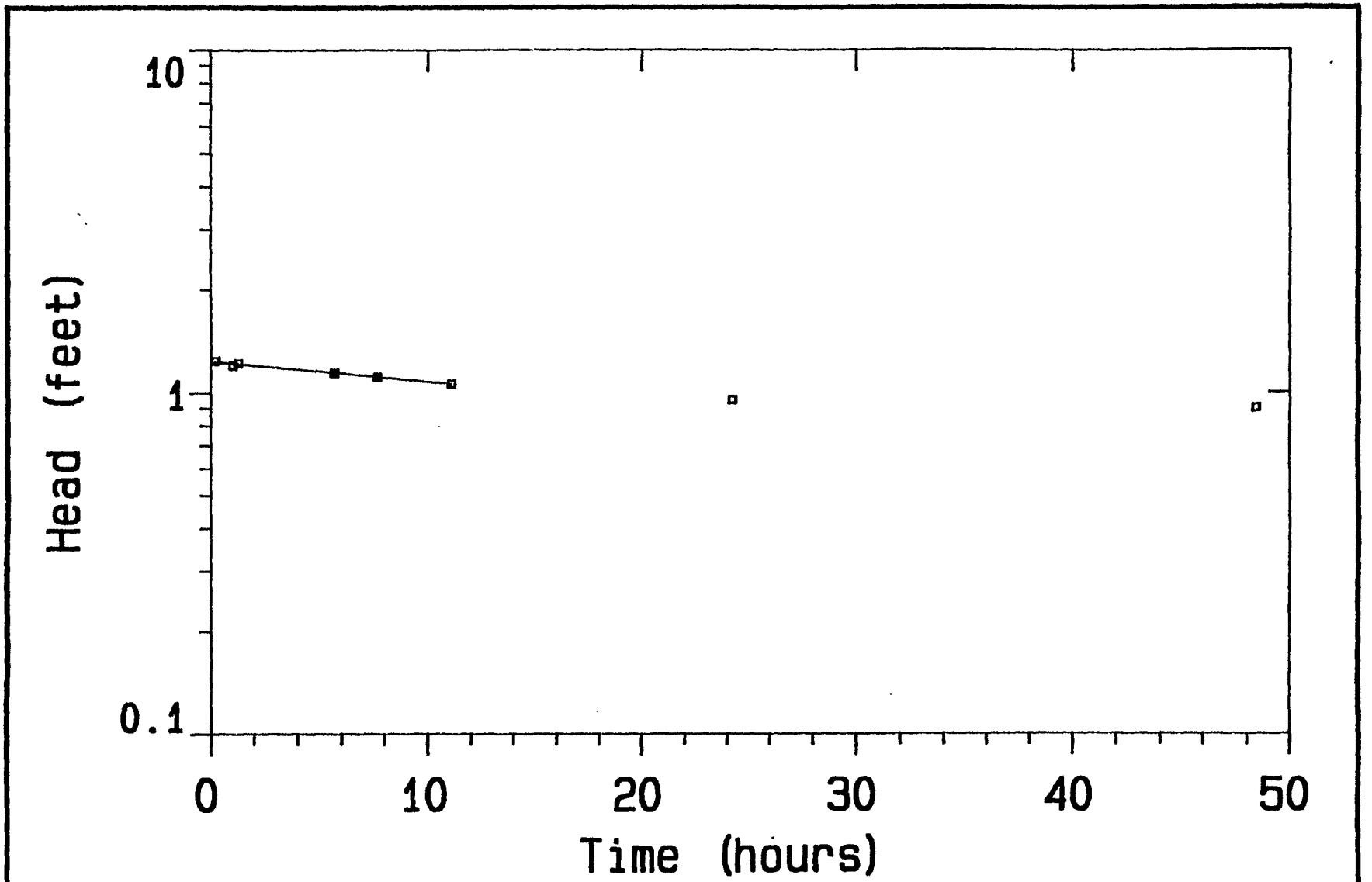
TRANSMISSIVITY: .00396 square ft/hr

CONDUCTIVITY: .000188 ft/hr

MODEL TYPE: UNCONFINED PARTIALLY PENETRATED AQUIFER (Bouwer & Rice)

No.	TIME (hours)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
1	0.216	1.24	1.23	0.801
2	1.00	1.20	1.21	-1.40
3	1.25	1.22	1.21	0.599
4	5.66	1.14	1.14	-0.100
5	7.66	1.11	1.11	-0.0140
6	11.10	1.06	1.05	0.103
7	24.25	0.950		
8	48.45	0.900		

CURRENT RESOLUTION MATRIIX NOT AVAILABLE



MODEL TYPE: BOUWER and RICE	for USEPA Region 3; ARCs III	Bail-down Test
CONDUCTIVITY: .0001885 ft/hr 3.141E-6 ft/min	by: Ecology & Environment	Well: 5i
TRANSMISSIVITY: .003958 sq. ft/hr 6.5966E-5 ft/min	WELL DATA: Units: ft	Strasburg Landfill, PA
INITIAL HEAD: 1.240 ft	AQUIFER: Endless	Chester Co.
Data Set: TEST5IBR Date: 5/22-25/90	THICKNESS: 21.00	
	SCREEN: top: 20.00 base: 41.00	
	DIAMETER: casing: .8340 intake: .8340	
	DEPTH: Water Table: 11.38 TD: 41.00	

DATA SET: TEST8BR

CLIENT:	USEPA REGION 3, ARCs III	DATE:	5/22/90
LOCATION:	Strasburg Landfill , PA	WELL NO.:	4i
COUNTY:	Chester Co.	WELL DEPTH:	35.00 ft
PROJECT:	Bail-down Test	WATER TABLE:	11.960 ft
AQUIFER:	Endless	THICKNESS:	15.00 ft
INTAKE RADIUS:	0.667 ft	CASING RADIUS:	0.667 ft
SCREEN TOP:	20.000 ft	SCREEN BASE:	35.00 ft
INITIAL HEAD:	2.150 ft	TRANS. RATIO:	1.0000

MODEL PARAMETERS:

TRANSMISSIVITY: .00372 square ft/min

CONDUCTIVITY: .000248 ft/min

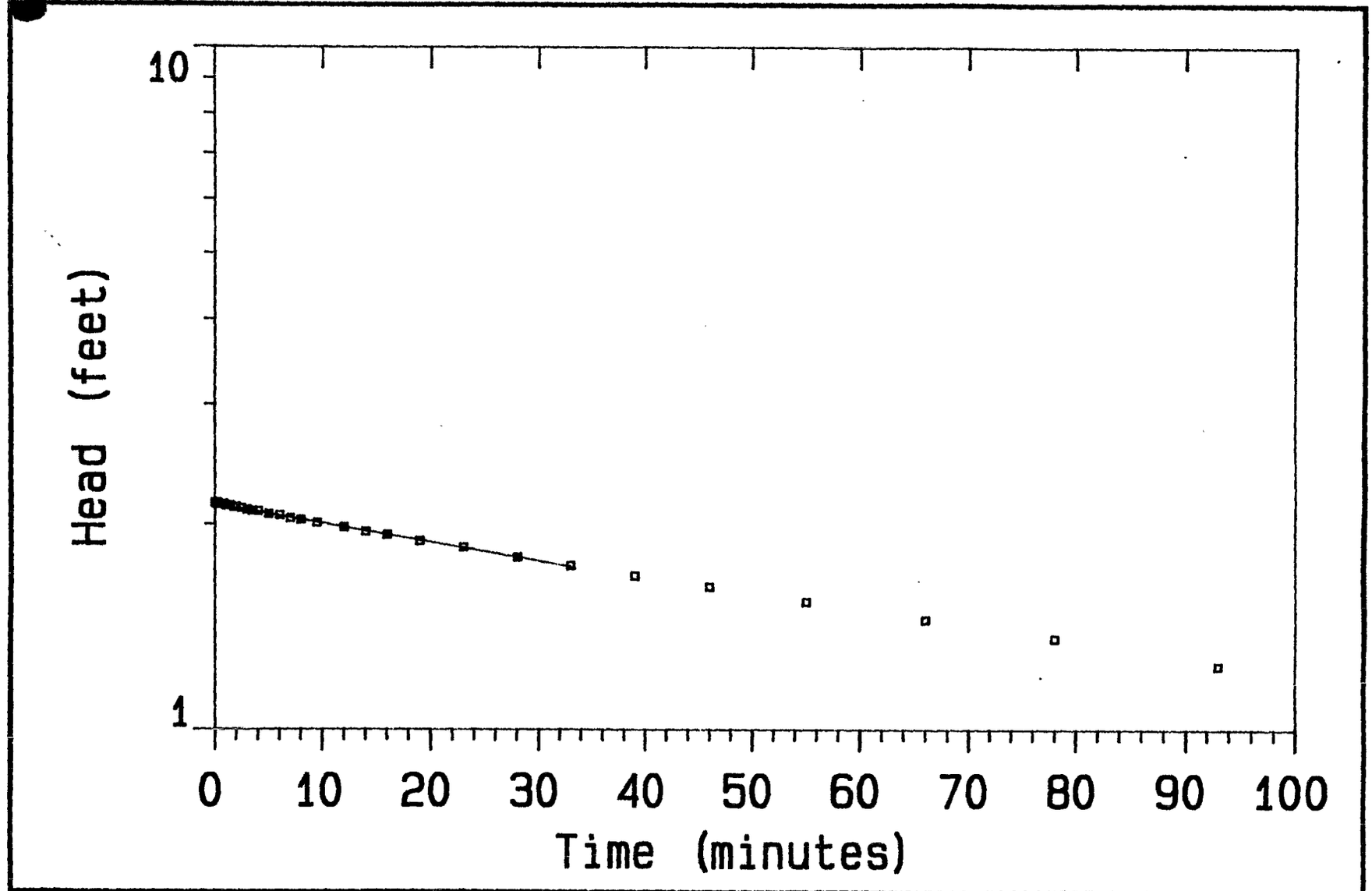
MODEL TYPE: UNCONFINED PARTIALLY PENETRATED AQUIFER (Bouwer & Rice)

No.	TIME (mins)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
1	0.00330	2.15		
2	0.00660	2.15		
3	0.00990	2.15		
4	0.0133	2.15		
5	0.0166	2.15		
6	0.0200	2.15		
7	0.0233	2.15		
8	0.0266	2.15		
9	0.0300	2.15		
10	0.0333	2.15		
11	0.0500	2.15		
12	0.0666	2.15		
13	0.0833	2.15		
14	0.100	2.15		
15	0.133	2.15		
16	0.150	2.15		
17	0.183	2.15		
18	0.216	2.14		
19	0.250	2.15		
20	0.300	2.14		
21	0.333	2.14		
22	0.416	2.14		
23	0.500	2.14		

No.	TIME (mins)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
24	0.583	2.14		
25	0.750	2.14		
26	0.833	2.14		
27	1.00	2.13		
28	1.25	2.13		
29	1.41	2.13		
30	1.75	2.12		
31	2.00	2.12		
32	2.50	2.11	2.10	0.293
33	3.00	2.10	2.09	0.135
34	3.50	2.09	2.09	-0.0253
35	4.00	2.09	2.08	0.290
36	5.00	2.07	2.07	-0.0377
37	6.00	2.06	2.05	0.110
38	7.00	2.04	2.04	-0.232
39	8.00	2.03	2.03	-0.0907
40	9.50	2.01	2.01	-0.131
41	12.00	1.98	1.98	-0.0536
42	14.00	1.95	1.95	-0.315
43	16.00	1.93	1.93	-0.0803
44	19.00	1.89	1.89	-0.276
45	23.00	1.85	1.84	0.115
46	28.00	1.79	1.79	-0.0176
47	33.00	1.74	1.73	0.312
48	39.00	1.68		
49	46.00	1.62		
50	55.00	1.54		
51	66.00	1.45		
52	78.00	1.36		
53	93.00	1.24		

CURRENT RESOLUTION MATRIIX NOT AVAILABLE

AR300086



MODEL TYPE: BOUWER and RICE CONDUCTIVITY: .0002480 ft/min TRANSMISSIVITY: .003720 sq. ft/min INITIAL HEAD: 2.150 ft Data Set: TEST8BR Date: 5/22/90	for: USEPA REGION 3, ARCs III by: Ecology & Environment WELL DATA: Units: ft AQUIFER: Endless THICKNESS: 15.00 SCREEN: top: 20.00 base: 35.00 DIAMETER: casing: 1.334 intake: 1.334 DEPTH: Water Table: 11.96 TD: 35.00	Bail-down Test Well: 4i Strasburg Landfill , PA Chester Co.

DATA SET: TEST5BR

CLIENT:	USEPA REGION 3, ARCs III	DATE:	5/22/90
LOCATION:	Strasburg Landfill , PA	WELL NO.:	3i
COUNTY:	Chester Co.	WELL DEPTH:	75.00 ft
PROJECT:	Bail-down Test	WATER TABLE:	57.460 ft
AQUIFER:	Unknown	THICKNESS:	17.54 ft
INTAKE RADIUS:	0.417 ft	CASING RADIUS:	0.417 ft
SCREEN TOP:	38.600 ft	SCREEN BASE:	75.00 ft
INITIAL HEAD:	2.720 ft	TRANS. RATIO:	1.0000

MODEL PARAMETERS:

TRANSMISSIVITY: .0235 square ft/min

CONDUCTIVITY: .00134 ft/min

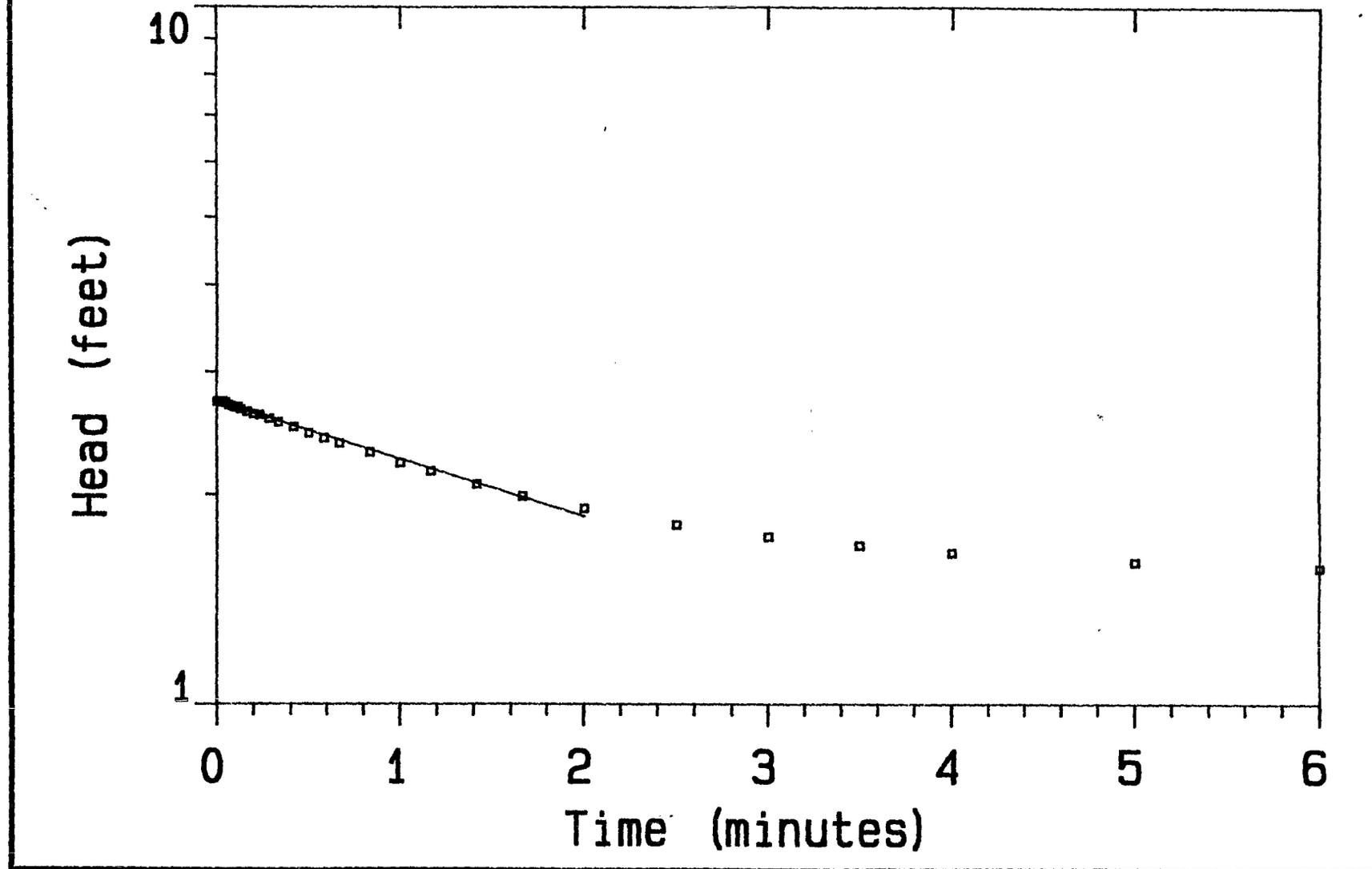
MODEL TYPE: UNCONFINED PARTIALLY PENETRATED AQUIFER (Bouwer & Rice)

No.	TIME (mins)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
1	0.00330	2.72	2.71	0.157
2	0.00660	2.72	2.71	0.220
3	0.00990	2.72	2.71	0.282
4	0.0133	2.72	2.71	0.346
5	0.0166	2.72	2.70	0.408
6	0.0200	2.72	2.70	0.472
7	0.0233	2.71	2.70	0.167
8	0.0266	2.72	2.70	0.596
9	0.0333	2.72	2.70	0.722
10	0.0500	2.71	2.69	0.670
11	0.0666	2.69	2.68	0.245
12	0.0833	2.68	2.67	0.189
13	0.100	2.67	2.66	0.131
14	0.116	2.67	2.65	0.444
15	0.133	2.65	2.64	0.00896
16	0.166	2.63	2.63	-0.119
17	0.200	2.61	2.61	-0.251
18	0.233	2.60	2.60	-0.00491
19	0.283	2.57	2.57	-0.220
20	0.333	2.54	2.55	-0.449
21	0.416	2.50	2.51	-0.460
22	0.500	2.45	2.47	-0.908
23	0.583	2.41	2.43	-0.979

AR300089

No.	TIME (mins)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
24	0.666	2.37	2.39	-1.07
25	0.833	2.30	2.32	-0.923
26	1.00	2.22	2.24	-1.31
27	1.16	2.16	2.17	-0.898
28	1.41	2.07	2.07	-0.426
29	1.66	1.99	1.98	0.361
30	2.00	1.91	1.86	2.52
31	2.50	1.81		
32	3.00	1.74		
33	3.50	1.69		
34	4.00	1.65		
35	5.00	1.60		
36	6.00	1.57		

CURRENT RESOLUTION MATRIIX NOT AVAILABLE



MODEL TYPE: BOUWER and RICE	for: USEPA REGION 3, ARCs III	Bail-down Test
CONDUCTIVITY: .001339 ft/min	by: Ecology & Environment	Well: 3i
TRANSMISSIVITY: .02349 sq. ft/min	WELL DATA: Units: ft	Strasburg Landfill , PA
INITIAL HEAD: 2.720 ft	AQUIFER: Unknown	Chester Co.
Data Set: TEST5BR Date: 5/22/90	THICKNESS: 17.54	
	SCREEN: top: 38.60 base: 75.00	
	DIAMETER: casing: .8340 intake: .8340	
	DEPTH: Water Table: 57.46 TD: 75.00	

DATA SET: TEST2IC

CLIENT:	USEPA Region 3; ARCs III	DATE:	5/21-25/90
LOCATION:	Strasburg Landfill, PA	WELL NO.:	2i
COUNTY:	Chester Co.	WELL DEPTH:	72.00 ft
PROJECT:	Bail-down Test	WATER TABLE:	24.880 ft
AQUIFER:	unknown	THICKNESS:	17.00 ft
INTAKE RADIUS:	0.417 ft	CASING RADIUS:	0.417 ft
SCREEN TOP:	55.000 ft	SCREEN BASE:	72.00 ft
INITIAL HEAD:	2.020 ft	TRANS. RATIO:	1.0000

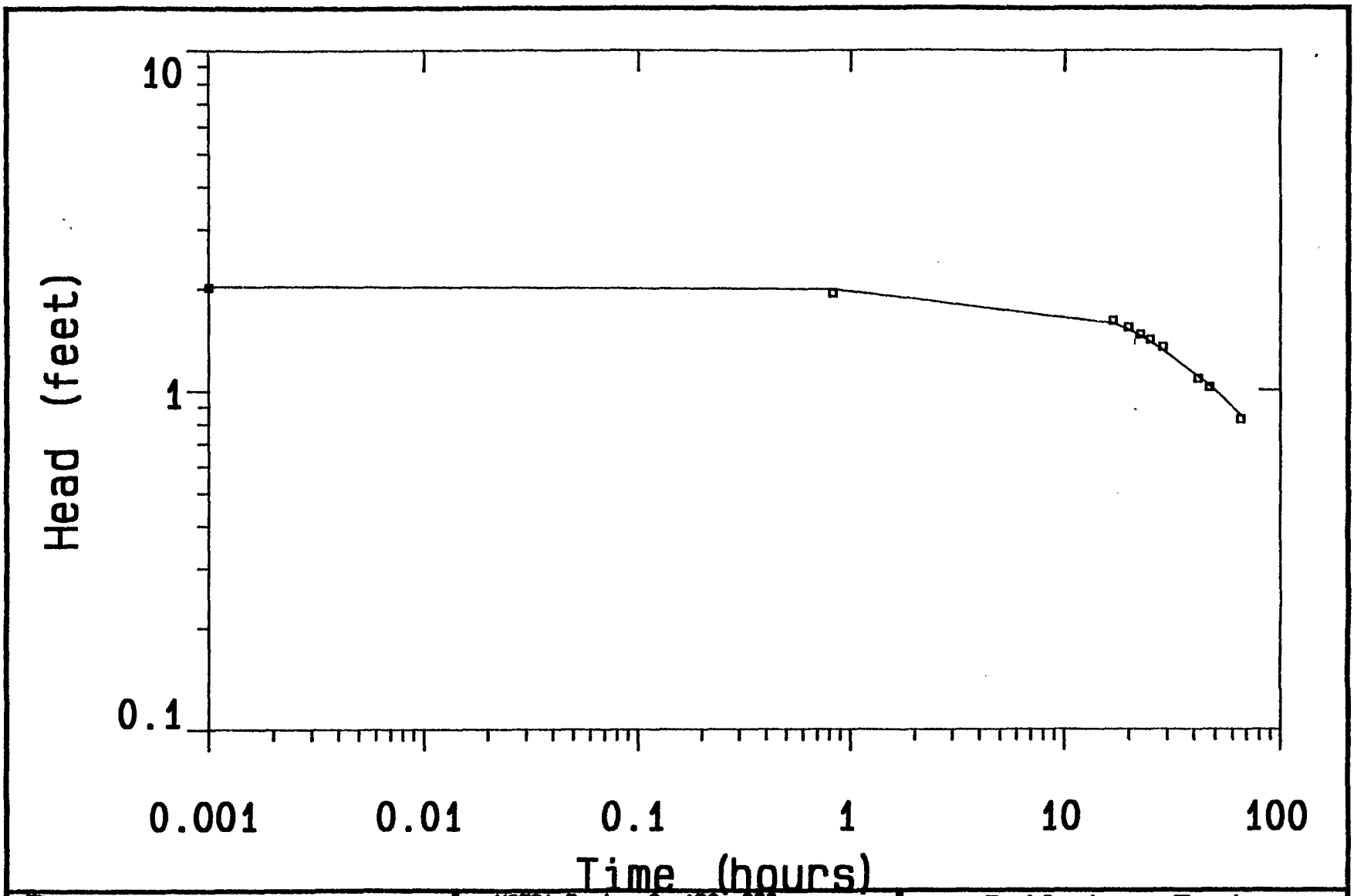
MODEL PARAMETERS:

STORAGE COEFF.:	1.00E-5	FREE
TRANSMISSIVITY:	.00762 square ft/hr	FREE

MODEL TYPE: CONFINED AQUIFER (Cooper et al.)

No.	TIME (hours)	Head, H (ft) DATA
1	0.00100	2.02
2	0.830	1.93
3	16.83	1.60
4	19.83	1.53
5	22.50	1.46
6	24.95	1.41
7	28.56	1.34
8	41.80	1.08
9	47.13	1.02
10	65.63	0.820

CURRENT RESOLUTION MATRIIX NOT AVAILABLE



MODEL TYPE: COOPER et al. TRANSMISSIVITY: .007626 sq. ft/hr 1.271 x 10⁻⁴ ft/min STORATIVITY: 1.001E-5 INITIAL HEAD: 2.020 ft Data Set: TEST2IC Date: 5/21-25/90	for USEPA Region 3; ARCs III by: Ecology & Environment WELL DATA: Units: ft AQUIFER: unknown THICKNESS: 17.00 SCREEN: top: 55.00 base: 72.00 DIAMETER: casing: .8340 intake: .8340 DEPTH: Water Table: 24.88 TD: 72.00	Bail-down Test Well: 2i Strasburg Landfill, PA Chester Co.

ERM 1990

4/23/94

DATA SET: TEST2IBR

CLIENT:	USEPA Region 3; ARCs III	DATE:	5/21-25/90
LOCATION:	Strasburg Landfill, PA	WELL NO.:	2i
COUNTY:	Chester Co.	WELL DEPTH:	72.00 ft
PROJECT:	Bail-down Test	WATER TABLE:	24.880 ft
AQUIFER:	unknown	THICKNESS:	17.00 ft
INTAKE RADIUS:	0.417 ft	CASING RADIUS:	0.417 ft
SCREEN TOP:	55.000 ft	SCREEN BASE:	72.00 ft
INITIAL HEAD:	2.020 ft	TRANS. RATIO:	1.0000

MODEL PARAMETERS:

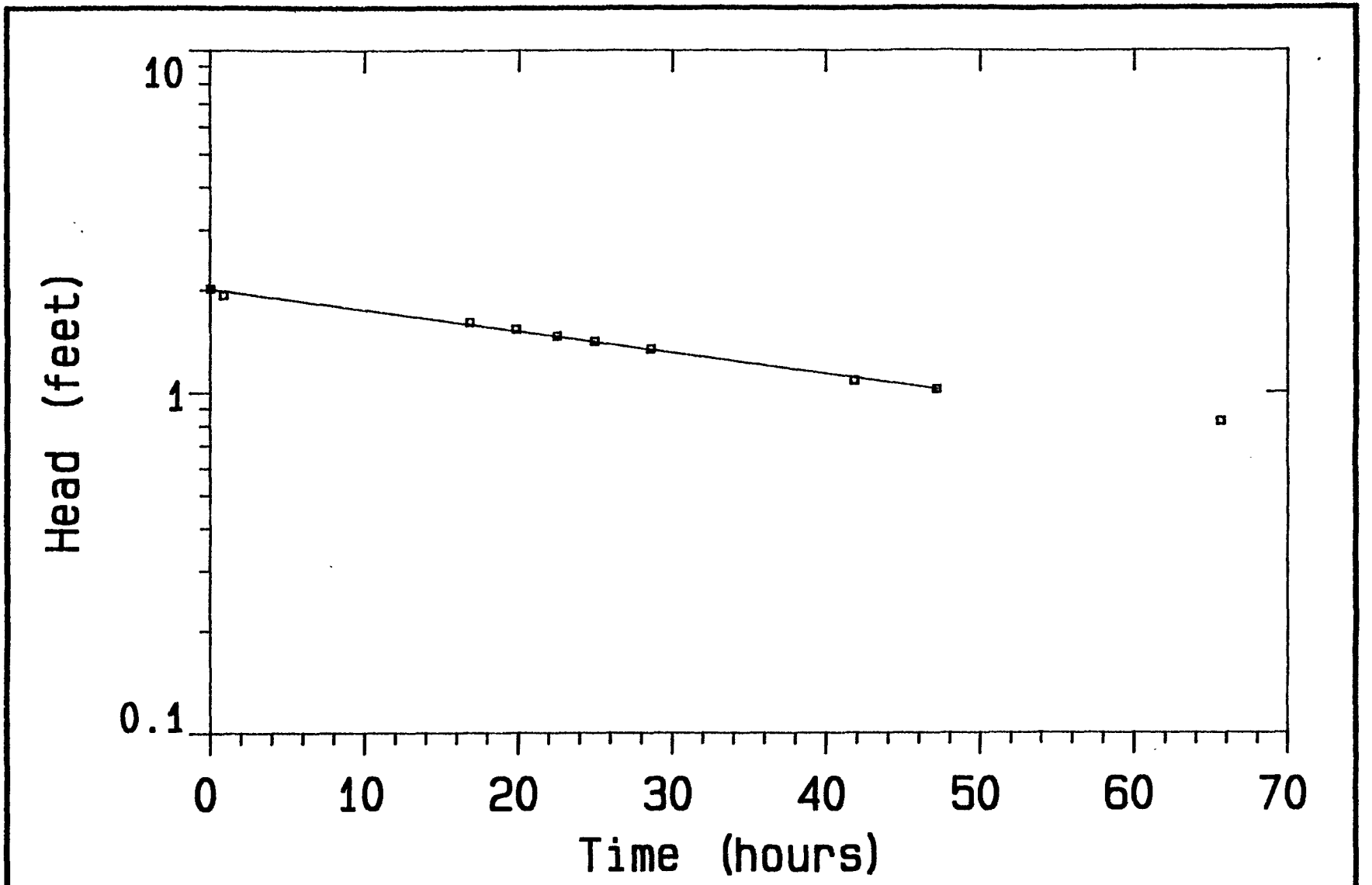
TRANSMISSIVITY: .00431 square ft/hr

CONDUCTIVITY: .000253 ft/hr

MODEL TYPE: UNCONFINED PARTIALLY PENETRATED AQUIFER (Bouwer & Rice)

No.	TIME (hours)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
1	0.00100	2.02	2.00	0.592
2	0.830	1.93	1.98	-2.81
3	16.83	1.60	1.57	1.44
4	19.83	1.53	1.51	1.27
5	22.50	1.46	1.45	0.437
6	24.95	1.41	1.40	0.470
7	28.56	1.34	1.33	0.571
8	41.80	1.08	1.10	-2.01
9	47.13	1.02	1.02	-0.0500
10	65.63	0.820		

CURRENT RESOLUTION MATRIIX NOT AVAILABLE



MODEL TYPE: BOUWER and RICE

CONDUCTIVITY: .0002534 ft/hr 4.223 x 10⁻⁶ ft/min

TRANSMISSIVITY: .004308 sq. ft/hr 7.18 x 10⁻⁵ ft²/min

INITIAL HEAD: 2.020 ft

Data Set: TEST2IBR | Date: 5/21-25/90

for USEPA Region 3; ARCs III

by: Ecology & Environment

WELL DATA: Units: ft

AQUIFER: unknown

THICKNESS: 17.00

SCREEN: top: 55.00 base: 72.00

DIAMETER: casing: .8340 intake: .8340

DEPTH: Water Table: 24.88 TD: 72.00

Bail-down Test

Well: 2i

Strasburg Landfill, PA

Chester Co.

HydroSOLVE 96

DATA SET: TEST0C

CLIENT:	USEPA Region 3, ARCs III	DATE:	5/21/90
LOCATION:	Strasburg Landfill, PA	WELL NO.:	1i
COUNTY:	Chester Co.	WELL DEPTH:	73.00 ft
PROJECT:	Bail-down Test	WATER TABLE:	6.650 ft
AQUIFER:	Endless	THICKNESS:	15.00 ft
INTAKE RADIUS:	0.417 ft	CASING RADIUS:	0.417 ft
SCREEN TOP:	58.000 ft	SCREEN BASE:	73.00 ft
INITIAL HEAD:	2.190 ft	TRANS. RATIO:	1.0000

FITTING ERROR: 7.336 PERCENT

MODEL PARAMETERS:

STORAGE COEFF.: 1.00E-6 FREE

TRANSMISSIVITY: .0369 square ft/min FREE

MODEL TYPE: CONFINED AQUIFER (Cooper et al.)

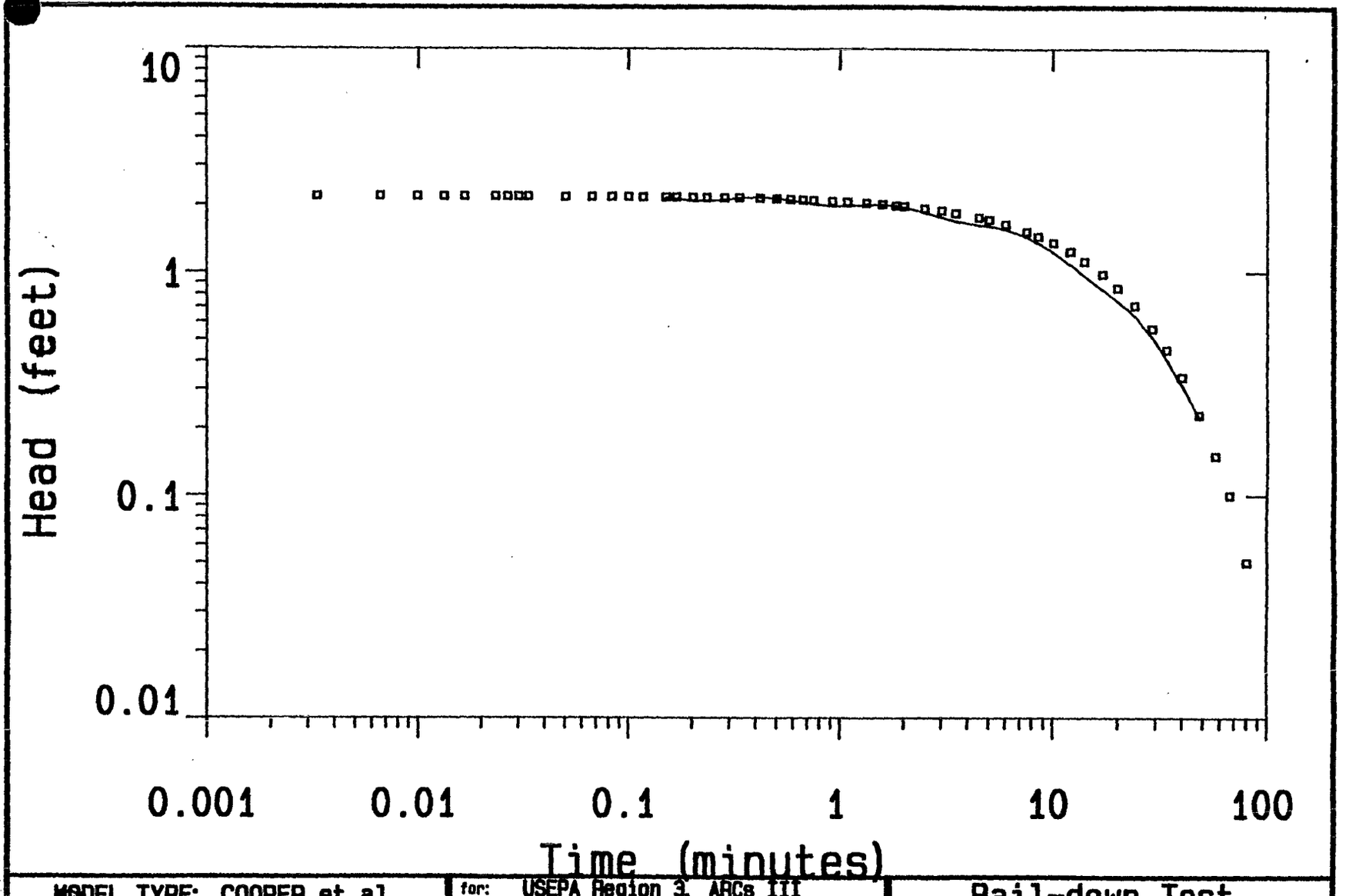
No.	TIME (mins)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
1	0.00330	2.19		
2	0.00660	2.19		
3	0.00990	2.19		
4	0.0133	2.19		
5	0.0166	2.19		
6	0.0233	2.19		
7	0.0266	2.19		
8	0.0300	2.19		
9	0.0333	2.19		
10	0.0500	2.18		
11	0.0666	2.18		
12	0.0833	2.18		
13	0.100	2.18		
14	0.116	2.17		
15	0.150	2.17	2.15	0.864
16	0.166	2.17	2.12	1.99
17	0.200	2.16	2.08	3.30
18	0.233	2.16	2.07	3.79
19	0.283	2.15	2.10	2.12
20	0.333	2.15	2.14	0.323
21	0.416	2.14	2.16	-1.04

No.	TIME (mins)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
22	0.500	2.13	2.13	-0.351
23	0.583	2.12	2.09	1.04
24	0.666	2.11	2.05	2.49
25	0.750	2.10	2.02	3.76
26	0.916	2.08	1.98	4.78
27	1.08	2.07	1.98	4.23
28	1.33	2.04	2.00	1.48
29	1.58	2.02	2.00	0.550
30	1.83	1.99	1.97	0.515
31	2.00	1.98	1.95	1.46
32	2.50	1.93	1.85	3.94
33	3.00	1.89	1.76	6.79
34	3.50	1.84	1.69	8.07
35	4.50	1.76	1.62	7.71
36	5.00	1.72	1.60	6.58
37	6.00	1.64	1.55	5.01
38	7.50	1.52	1.44	5.09
39	8.50	1.45	1.35	6.50
40	10.00	1.36	1.23	9.46
41	12.00	1.24	1.08	12.57
42	14.00	1.12	0.964	13.87
43	17.00	0.980	0.836	14.68
44	20.00	0.850	0.744	12.41
45	24.00	0.710	0.637	10.20
46	29.00	0.560	0.513	8.34
47	34.00	0.450	0.407	9.41
48	40.00	0.340	0.311	8.33
49	48.00	0.230	0.224	2.19
50	57.00	0.150		
51	67.00	0.100		
52	80.00	0.0500		

PARAMETER RESOLUTION MATRIX:
"*" INDICATES FIXED PARAMETER

S	0.99	
T	0.00	1.00

	S	T



MODEL TYPE: COOPER et al.	for: USEPA Region 3, ARCs III	Bail-down Test
TRANSMISSIVITY: .03692 sq. ft/min	by: Ecology & Environment	Well: 1i
STORATIVITY: 1.000E-6	WELL DATA: Units: ft	Strasburg Landfill, PA
INITIAL HEAD: 2.190 ft	AQUIFER: Endless	Chester Co.
Data Set: TESTOC Date: 5/21/90	THICKNESS: 15.00	
	SCREEN: top: 58.00 base: 73.00	
	DIAMETER: casing: .8340 intake: .8340	
	DEPTH: Water Table: 6.650 TD: 73.00	

HR 3000 79

DATA SET: TEST7BR1

CLIENT:	USEPA REGION 3, ARCs III	DATE:	5/22/90
LOCATION:	Strasburg Landfill , PA	WELL NO.:	5s
COUNTY:	Chester Co.	WELL DEPTH:	37.50 ft
PROJECT:	Bail-down Test	WATER TABLE:	29.240 ft
AQUIFER:	Unknown	THICKNESS:	8.26 ft
INTAKE RADIUS:	0.521 ft	CASING RADIUS:	0.167 ft
SCREEN TOP:	27.500 ft	SCREEN BASE:	37.50 ft
INITIAL HEAD:	2.500 ft	TRANS. RATIO:	1.0000

MODEL PARAMETERS:

TRANSMISSIVITY: .00172 square ft/min

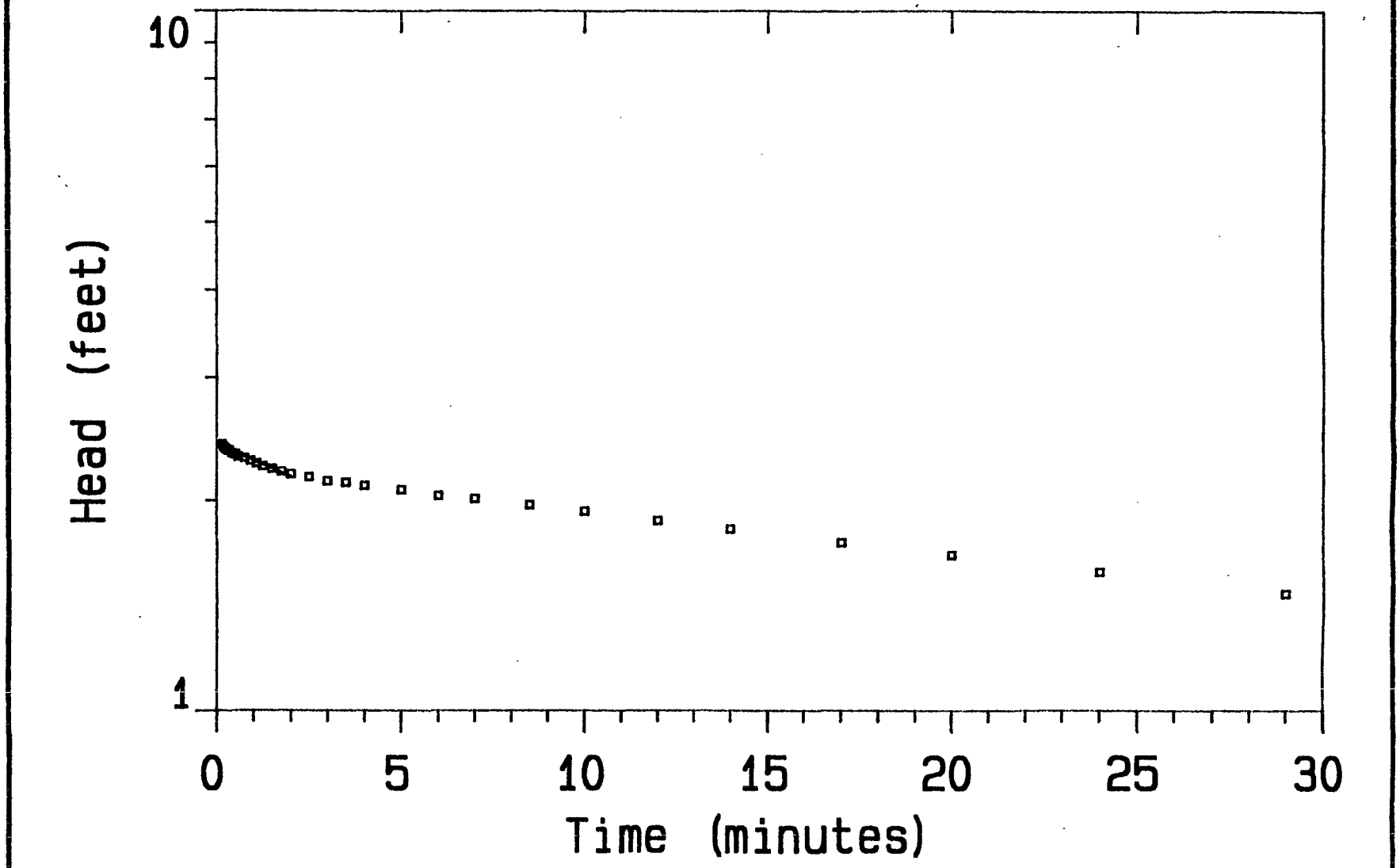
CONDUCTIVITY: .000208 ft/min

MODEL TYPE: UNCONFINED PARTIALLY PENETRATED AQUIFER (Bouwer & Rice)

No.	TIME (mins)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
1	0.150	2.41	2.38	1.17
2	0.183	2.39	2.37	0.522
3	0.216	2.38	2.37	0.277
4	0.266	2.37	2.36	0.115
5	0.316	2.36	2.36	-0.0482
6	0.333	2.36	2.35	0.0382
7	0.416	2.34	2.34	-0.381
8	0.500	2.33	2.33	-0.377
9	0.583	2.31	2.32	-0.810
10	0.750	2.30	2.30	-0.378
11	0.916	2.28	2.28	-0.387
12	1.08	2.26	2.26	-0.405
13	1.25	2.24	2.24	-0.430
14	1.50	2.22	2.22	-0.0306
15	1.75	2.20	2.19	0.359
16	2.00	2.18	2.16	0.739
17	2.50	2.16		
18	3.00	2.13		
19	3.50	2.12		
20	4.00	2.10		
21	5.00	2.07		
22	6.00	2.03		
23	7.00	2.01		

No.	TIME (mins)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
24	8.50	1.97		
25	10.00	1.93		
26	12.00	1.87		
27	14.00	1.82		
28	17.00	1.74		
29	20.00	1.67		
30	24.00	1.58		
31	29.00	1.47		

CURRENT RESOLUTION MATRIIX NOT AVAILABLE



MODEL TYPE: BOUWER and RICE	for: USEPA REGION 3, ARCs III	Bail-down Test
CONDUCTIVITY: .0002084 ft/min	by: Ecology & Environment	Well: 5s
TRANSMISSIVITY: .001721 sq. ft/min	WELL DATA: Units: ft	Strasburg Landfill , PA
INITIAL HEAD: 2.500 ft	AQUIFER: Unknown	Chester Co.
Data Set: TEST7BR1 Date: 5/22/90	THICKNESS: 8.260	
	SCREEN: top: 27.50 base: 37.50	
	DIAMETER: casing: .3340 intake: 1.042	
	DEPTH: Water Table: 29.24 TD: 37.50	

DATA SET: TEST9BR2

CLIENT:	USEPA Region 3; ARCs III	DATE:	5/25/90
LOCATION:	Strasburg Landfill, PA	WELL NO.:	4s
COUNTY:	Chester Co.	WELL DEPTH:	11.00 ft
PROJECT:	Bail-down Test	WATER TABLE:	5.860 ft
AQUIFER:	unknown	THICKNESS:	5.00 ft
INTAKE RADIUS:	0.521 ft	CASING RADIUS:	0.167 ft
SCREEN TOP:	6.000 ft	SCREEN BASE:	11.00 ft
INITIAL HEAD:	1.580 ft	TRANS. RATIO:	1.0000

MODEL PARAMETERS:

TRANSMISSIVITY: .00127 square ft/min

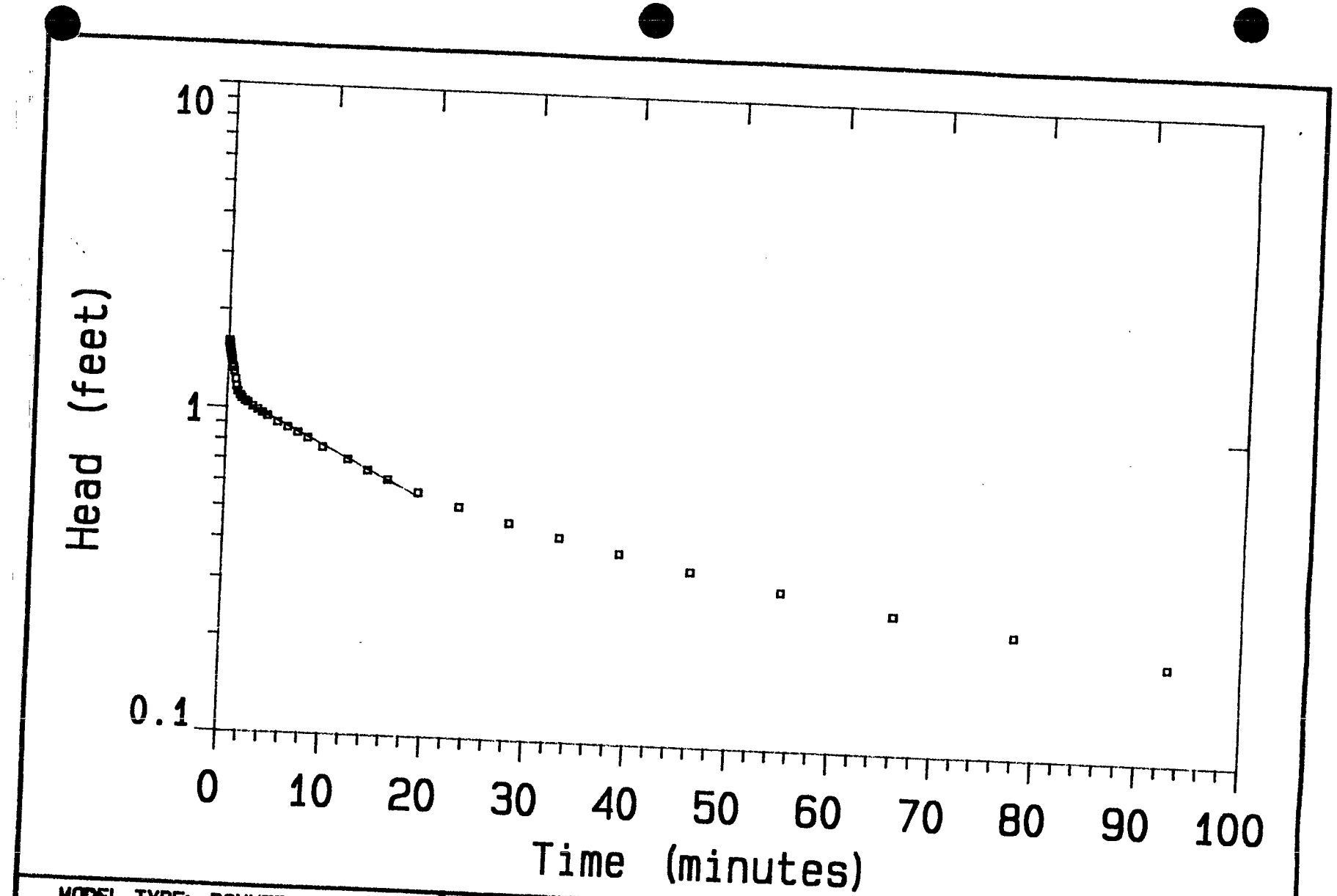
CONDUCTIVITY: .000254 ft/min

MODEL TYPE: UNCONFINED PARTIALLY PENETRATED AQUIFER (Bouwer & Rice)

No.	TIME (mins)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
1	0.00330	1.60		
2	0.00660	1.59		
3	0.00990	1.59		
4	0.0133	1.59		
5	0.0166	1.60		
6	0.0200	1.58		
7	0.0233	1.59		
8	0.0266	1.58		
9	0.0300	1.57		
10	0.0333	1.58		
11	0.0500	1.57		
12	0.0666	1.55		
13	0.0833	1.55		
14	0.100	1.53		
15	0.133	1.50		
16	0.150	1.50		
17	0.183	1.48		
18	0.216	1.46		
19	0.250	1.44		
20	0.300	1.42		
21	0.333	1.40		
22	0.416	1.34		
23	0.500	1.32		

No.	TIME (mins)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
24	0.583	1.29		
25	0.750	1.22		
26	0.833	1.16		
27	1.00	1.12		
28	1.25	1.09		
29	1.41	1.07		
30	1.75	1.05	1.04	2.00
31	2.00	1.04	1.03	1.33
32	2.50	1.01	1.02	1.28
33	3.00	0.990	1.00	0.170
34	3.50	0.970	0.990	-0.0205
35	4.00	0.950	0.972	-0.253
36	5.00	0.910	0.955	-0.529
37	6.00	0.880	0.921	-1.22
38	7.00	0.850	0.888	-0.952
39	8.00	0.820	0.856	-0.802
40	9.50	0.770	0.826	-0.778
41	12.00	0.710	0.782	-1.65
42	14.00	0.660	0.715	-0.714
43	16.00	0.620	0.665	-0.783
44	19.00	0.570	0.618	0.201
45	23.00	0.520	0.555	2.60
46	28.00	0.470		
47	33.00	0.430		
48	39.00	0.390		
49	46.00	0.350		
50	55.00	0.310		
51	66.00	0.270		
52	78.00	0.240		
53	93.00	0.200		

CURRENT RESOLUTION MATRIIX NOT AVAILABLE



MODEL TYPE: BOUWER and RICE

CONDUCTIVITY: .0002542 ft/min

TRANSMISSIVITY: .001271 sq. ft/min

INITIAL HEAD: 1.580 ft

Data Set: TEST9BR2 | Date: 5/25/90

for USEPA Region 3; ARCs III

by: Ecology & Environment

WELL DATA: Units: ft

AQUIFER: un

THICKNESS:

SCREEN: t

DIAMETER:

DEPTH: Wa

Well Slug Test

Well: 4S

Strasburg Landfill, PA

Tester

AR302107

DATA SET: TEST6BR2

CLIENT:	USEPA REGION 3, ARCs III	DATE:	5/22/90
LOCATION:	Strasburg Landfill , PA	WELL NO.:	3s
COUNTY:	Chester	WELL DEPTH:	27.90 ft
PROJECT:	Bail-down Test	WATER TABLE:	9.020 ft
AQUIFER:	Endless	THICKNESS:	10.00 ft
INTAKE RADIUS:	0.521 ft	CASING RADIUS:	0.167 ft
SCREEN TOP:	17.900 ft	SCREEN BASE:	27.90 ft
INITIAL HEAD:	3.070 ft	TRANS. RATIO:	1.0000

MODEL PARAMETERS:

TRANSMISSIVITY: .00950 square ft/sec

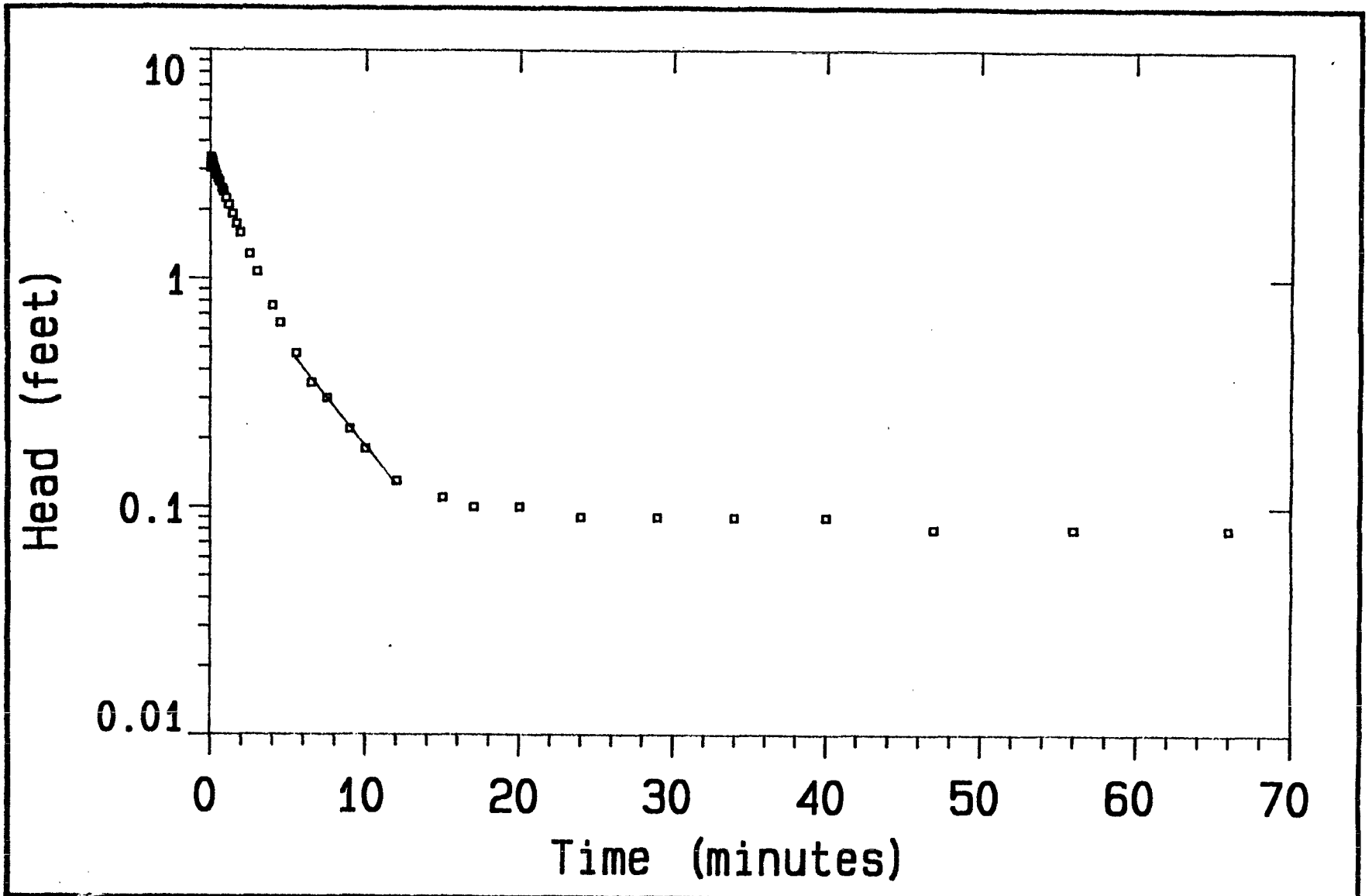
CONDUCTIVITY: .000950 ft/sec

MODEL TYPE: UNCONFINED PARTIALLY PENETRATED AQUIFER (Bouwer & Rice)

No.	TIME (secs)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
1	0.00330	3.07		
2	0.00660	3.06		
3	0.00990	3.06		
4	0.0133	3.05		
5	0.0166	3.05		
6	0.0200	3.40		
7	0.0233	3.23		
8	0.0300	3.20		
9	0.0333	3.24		
10	0.0500	3.37		
11	0.0666	3.39		
12	0.0833	3.33		
13	0.100	3.31		
14	0.116	3.28		
15	0.133	3.25		
16	0.150	3.21		
17	0.183	3.12		
18	0.216	3.06		
19	0.266	3.00		
20	0.300	2.96		
21	0.333	2.91		
22	0.416	2.83		
23	0.500	2.73		

No.	TIME (secs)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
24	0.583	2.66		
25	0.750	2.49		
26	0.833	2.41		
27	1.00	2.25		
28	1.16	2.11		
29	1.41	1.92		
30	1.66	1.74		
31	1.91	1.59		
32	2.50	1.28		
33	3.00	1.07		
34	4.00	0.760		
35	4.50	0.640		
36	5.50	0.470	0.444	5.50
37	6.50	0.350	0.365	-4.44
38	7.50	0.300	0.300	-0.284
39	9.00	0.220	0.224	-2.10
40	10.00	0.180	0.184	-2.71
41	12.00	0.130	0.125	3.66
42	15.00	0.110		
43	17.00	0.100		
44	20.00	0.100		
45	24.00	0.0900		
46	29.00	0.0900		
47	34.00	0.0900		
48	40.00	0.0900		
49	47.00	0.0800		
50	56.00	0.0800		
51	66.00	0.0800		

CURRENT RESOLUTION MATRIIX NOT AVAILABLE



MODEL TYPE: BOUWER and RICE	for: USEPA REGION 3, ARCs III	Bail-down Test
CONDUCTIVITY: .0009501 ft/min	by: Ecology & Environment	Well: 3s
TRANSMISSIVITY: .009501 sq. ft/min	WELL DATA: Units: ft	Strasburg Landfill , PA
INITIAL HEAD: 3.070 ft	AQUIFER: Endless	Chester Co.
Data Set: TEST6BR2 Date: 5/22/90	THICKNESS: 10.00	
	SCREEN: top: 17.90 base: 27.90	
	DIAMETER: casing: .3340 intake: 1.042	
	DEPTH: Water Table: 9.020 TD: 27.90	

DATA SET: TEST4BR2

CLIENT:	USEPA Region 3; ARCs III	DATE:	5/22/90
LOCATION:	Strasburg Landfill, PA	WELL NO.:	2s
COUNTY:	Chester	WELL DEPTH:	15.50 ft
PROJECT:	Bail-down Test	WATER TABLE:	9.030 ft
AQUIFER:	Endless	THICKNESS:	5.00 ft
INTAKE RADIUS:	0.521 ft	CASING RADIUS:	0.167 ft
SCREEN TOP:	10.500 ft	SCREEN BASE:	15.50 ft
INITIAL HEAD:	1.010 ft	TRANS. RATIO:	1.0000

MODEL PARAMETERS:

TRANSMISSIVITY: .0410 square ft/min

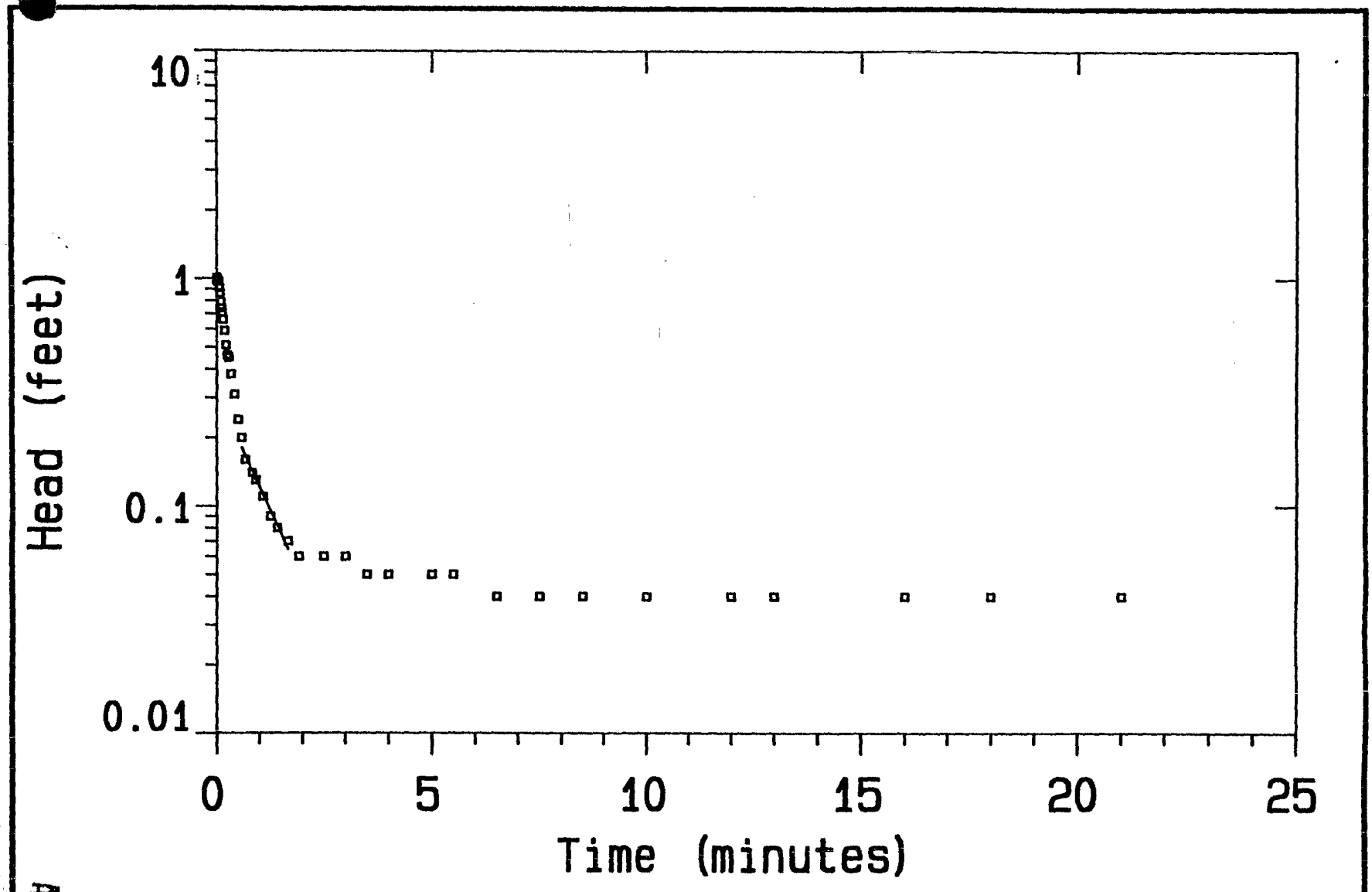
CONDUCTIVITY: .00821 ft/min

MODEL TYPE: UNCONFINED PARTIALLY PENETRATED AQUIFER (Bouwer & Rice)

No.	TIME (mins)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
1	0.00330	1.01		
2	0.00660	1.00		
3	0.00990	0.990		
4	0.0133	0.990		
5	0.0166	0.980		
6	0.0200	0.980		
7	0.0233	0.980		
8	0.0266	0.980		
9	0.0300	0.970		
10	0.0333	0.980		
11	0.0500	0.970		
12	0.0666	0.910		
13	0.0833	0.860		
14	0.100	0.790		
15	0.116	0.740		
16	0.133	0.710		
17	0.150	0.660		
18	0.183	0.590		
19	0.216	0.510		
20	0.250	0.460		
21	0.283	0.450		
22	0.333	0.380		
23	0.416	0.310		

No.	TIME (mins)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
24	0.500	0.240		
25	0.583	0.200	0.180	9.73
26	0.666	0.160	0.166	-4.25
27	0.833	0.140	0.142	-1.75
28	0.916	0.130	0.131	-1.25
29	1.08	0.110	0.112	-2.18
30	1.25	0.0900	0.0959	-6.64
31	1.41	0.0800	0.0819	-2.45
32	1.66	0.0700	0.0646	7.61
33	1.91	0.0600		
34	2.50	0.0600		
35	3.00	0.0600		
36	3.50	0.0500		
37	4.00	0.0500		
38	5.00	0.0500		
39	5.50	0.0500		
40	6.50	0.0400		
41	7.50	0.0400		
42	8.50	0.0400		
43	10.00	0.0400		
44	12.00	0.0400		
45	13.00	0.0400		
46	16.00	0.0400		
47	18.00	0.0400		
48	21.00	0.0400		

CURRENT RESOLUTION MATRIIX NOT AVAILABLE



MODEL TYPE: BOUWER and RICE

CONDUCTIVITY: .008213 ft/min

TRANSMISSIVITY:

for USEPA Region 3; ARCs III

by: Ecology & Environment

WELL DATA: Units: ft

15.50

Intake: 1.042

TD: 15.50

Bail-down Test

Well: 2s

Strasburg Landfill, PA

Chester Co.

C-37

AR 302115

DATA SET: TEST1BR1

CLIENT:	USEPA Region 3, ARCs III	DATE:	5/21/90
LOCATION:	Strasburg Landfill, PA	WELL NO.:	1s
COUNTY:	Chester Co.	WELL DEPTH:	32.30 ft
PROJECT:	Bail-down Test	WATER TABLE:	28.240 ft
AQUIFER:	Endless	THICKNESS:	5.00 ft
INTAKE RADIUS:	0.521 ft	CASING RADIUS:	0.167 ft
SCREEN TOP:	27.300 ft	SCREEN BASE:	32.30 ft
INITIAL HEAD:	1.120 ft	TRANS. RATIO:	1.0000

MODEL PARAMETERS:

TRANSMISSIVITY: .0105 square ft/min

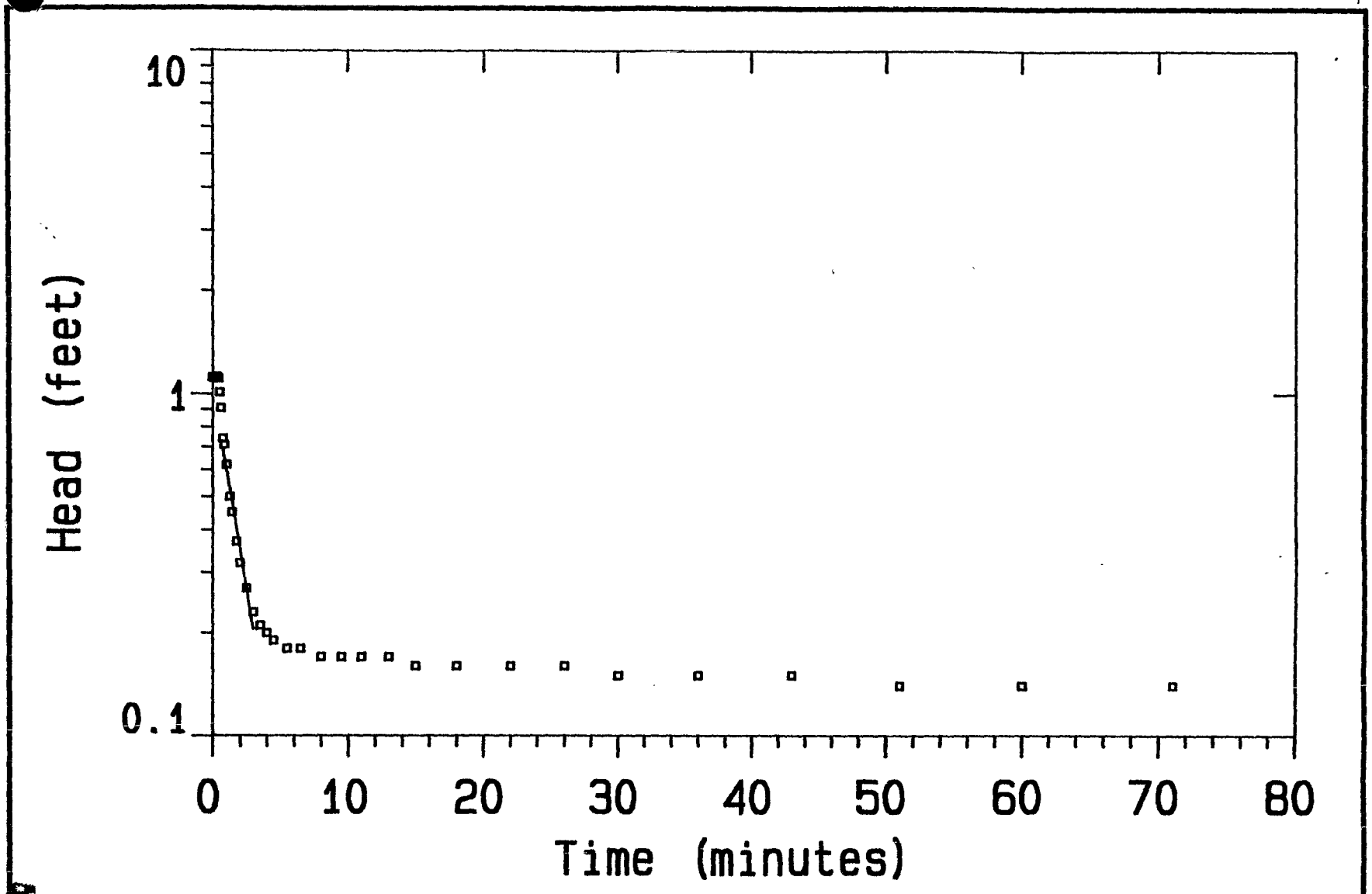
CONDUCTIVITY: .00210 ft/min

MODEL TYPE: UNCONFINED PARTIALLY PENETRATED AQUIFER (Bouwer & Rice)

No.	TIME (mins)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
1	0.00330	1.12		
2	0.00660	1.12		
3	0.00990	1.12		
4	0.0133	1.12		
5	0.0166	1.12		
6	0.0200	1.12		
7	0.0266	1.12		
8	0.0300	1.12		
9	0.0333	1.12		
10	0.0500	1.12		
11	0.0666	1.12		
12	0.0833	1.12		
13	0.100	1.12		
14	0.116	1.12		
15	0.133	1.12		
16	0.166	1.12		
17	0.183	1.12		
18	0.233	1.12		
19	0.266	1.12		
20	0.316	1.12		
21	0.416	1.11		
22	0.500	1.01		
23	0.583	0.910		

No.	TIME (mins)	Head, H (ft) DATA	SYNTHETIC	DIFFERENCE (percent)
24	0.750	0.740	0.687	7.05
25	0.833	0.710	0.657	7.36
26	1.00	0.620	0.601	2.99
27	1.25	0.500	0.525	-5.19
28	1.41	0.450	0.481	-6.88
29	1.75	0.370	0.402	-8.71
30	2.00	0.320	0.351	-9.92
31	2.50	0.270	0.269	0.370
32	3.00	0.230	0.205	10.55
33	3.50	0.210		
34	4.00	0.200		
35	4.50	0.190		
36	5.50	0.180		
37	6.50	0.180		
38	8.00	0.170		
39	9.50	0.170		
40	11.00	0.170		
41	13.00	0.170		
42	15.00	0.160		
43	18.00	0.160		
44	22.00	0.160		
45	26.00	0.160		
46	30.00	0.150		
47	36.00	0.150		
48	43.00	0.150		
49	51.00	0.140		
50	60.00	0.140		
51	71.00	0.140		

CURRENT RESOLUTION MATRIIX NOT AVAILABLE



MODEL TYPE: BOUWER and RICE CONDUCTIVITY: .002102 ft/min TRANSMISSIVITY: .01051 sq. ft/min INITIAL HEAD: 1.120 ft Data Set: TEST1BR1 Date: 5/21/90	for: USEPA Region 3, ARCs III by: Ecology & Environment WELL DATA: Units: ft AQUIFER: Endless THICKNESS: 5.000 SCREEN: top: 27.30 base: 32.30 DIAMETER: casing: .3340 intake: 1.042 DEPTH: Water Table: 28.24 TD: 32.30	Bail-down Test Well: 1s Strasburg Landfill, PA Chester Co.

4R3001/9

APPENDIX D

CONTAMINANT MIGRATION MODELING METHODS

This appendix summarizes the models, assumptions, and input data used to estimate chemical concentrations in the air to which site visitors or residents may be exposed. These models comprise the air pathway analysis methods.

The contents of the five sections of this appendix are as follows:

Section	Contents
D.1	Volatilization from Landfills with Internal Gas Generation
D.2	Near-Field Air Dispersion: "Box Model"
D.3	Far-Field Air Dispersion: Sector-Averaged Gaussian Model
D.4	Volatilization from Surface Water: Leachate Seeps
D.5	Shower Volatilization Model: Volatilization of Contaminants from Domestic Water into Shower Stall Air

D.1 Volatilization from Landfills with Internal Gas Generation

The model recommended in the EPA Superfund Exposure Assessment Manual (SEAM) (USEPA 1988) for landfills with internal gas generation is a simplified version of the so-called "Convective 'Add-On' Model" for landfill volatile emissions (USEPA 1990). This model was developed by Thibodeaux (1981) for estimating toxic vapor releases from codisposal landfills. Such facilities contain toxic wastes in combination with municipal or sanitary wastes that, because of their considerable organic content, generate landfill gases such as hydrogen, methane, or carbon dioxide. In these cases, the upward movement or "convective sweep" of the landfill gas becomes the controlling factor, greatly accelerating the upward migration and subsequent release to the atmosphere of the codisposed toxic substances. According to USEPA (1988), this convective sweep is so great that both soil and gas-phase diffusion become insignificant in comparison. The simplified model is:

$$E_i = C_i \, V_y \, A$$

where

E_i = emission rate of chemical or component "i" (g/sec)

C_i = concentration of component "i" in the soil pore spaces (g/cm^3)
= soil gas concentration of component "i"

V_y = mean landfill gas velocity in the soil pores (cm/sec) (mean value 1.63×10^{-3} cm/sec)

A = landfill surface area (cm^2)

The site-specific input parameter values assumed in applying this model are presented in Table D-1.

D.2 Near-Field Air Dispersion: "Box Model"

For scenarios where the receptor is at the source or very close to the source, within 100 meters downwind, the near-field "box model" of GRI (1988) Section 1.2.2 was applied. This model is as follows:

$$C_a = Q/(H_b \cdot W_b \cdot U_m)$$

where

C_a = On-site air concentration (mg/m^3)

Q = Compound source strength or emission rate from surface (mg/s)

H_b = Height of box at downwind edge (m) (depends on downwind distance x to receptor)

W_b = Crosswind width of box = crosswind dimension of contaminated source area (m)

U_m = Average wind speed throughout box (m/s)

$= 0.22\ U_{10}\ \ln\ (2.5\ H_b)$

where

U_{10} = Wind speed at 10 m elevation (m/s)

In applying the above model, the source strength Q was calculated from the contaminant mass flux calculated from an appropriate volatilization model.

$$Q = n \cdot A_c \cdot (1h/3{,}600s)$$

where

n = Volatilization mass flux at ground surface ($mg/m^2 \cdot h$)

A_c = Area of surface contamination (m^2)

Table D-2 summarizes the site-specific input parameter values assumed in applying this model for the on-site visitors.

D.3 Far Field Air Dispersion: Sector-Averaged Gaussian Model

For scenarios where the receptor is farther away from the site, at a distance greater than 100 meters downwind, the sector-averaged Gaussian model in GRI (1988) Section 1.2.1 was applied to estimate downwind air concentrations. This is a standard, well-verified air dispersion model for a ground-level point source (Hanna, Briggs, Hosker 1982).

$$C_a = \sqrt{\frac{2}{\pi}} \cdot \frac{8 \cdot f_t \cdot Q}{\pi \, \sigma_z \, u \, x}$$

where

C_a = Chemical concentration in off-site air downwind at distance x (mg/m^3)

f_t = Fraction of time wind blows in the sector from the source toward the receptor

u = Annual average wind speed in the sector of interest (m/s)

Q = Chemical source strength (mg/s), calculated as shown above from contaminant flux at soil surface

x = Downwind distance from source to off-site receptor (m)

σ_z = Standard deviation of vertical concentration distribution at downwind distance x from source (depends on atmospheric stability class) (m)

In applying this sector-averaged point-source model to represent the emissions from the various landfill source areas, the downwind distance "x" was increased to represent the area source by a "virtual point source" located farther upwind. This modeling approach was found

to be superior to other approaches for landfill area sources (Baker and MacKay 1985). Specifically,

$$x = L + L'$$

where

L = downwind distance from center of landfill source area to receptor (m)

L' = distance from center of landfill source area to the virtual point source upwind, calculated as $2.51 \cdot W$, where W is the crosswind width of the source area considered (m)

Also, the dispersion of vapors from the landfill due to nocturnal "drainage winds" blowing downhill toward the Zarzycki area was also modeled using this same equation but with different values for the model input parameters to represent this special situation.

Table D-3 summarizes the site-specific input parameter values assumed in applying this model.

D. Volatilization from Surface Water; Leachate Seeps

The model for volatilization of chemicals from surface water is as follows (Thomann and Mueller 1987):

$$Q = k_l \cdot A \cdot f_{d1} \cdot c_{T1}$$
$$= -k_l \cdot A \cdot c_d$$

where

Q = total mass loss rate of chemical from the water due to volatilization to the air (mg/s)

k_l = overall volatilization mass exchange rate or mass transfer coefficient (m/s)

A = surface area of water-air interface over which volatilization occurs (m^2)

f_{d1} = fraction of chemical dissolved in the water column ("1"), dimensionless

c_{T1} = total concentration of chemical in the water column ("1") (mg/m^3)

c_d = dissolved concentration of chemical in the water column (mg/m^3)

The units of the concentration of the chemical in the water can be converted from more familiar units as follows:

$$c_d = C_w \cdot \frac{10^3 L}{1 m^3}$$

where

C_w = concentration of chemical in surface water in mg/L

The overall mass transfer coefficient k_1 is calculated using the "two film" theory as follows:

$$\frac{1}{k_1} = \frac{1}{K_1} + \frac{1}{K_g H_e}$$

where

K_1 = liquid film mass transfer coefficient (m/day)

K_g = gas film mass transfer coefficient (m/day)

H_e = "dimensionless" form of Henry's Law constant of the chemical

As seen from this equation, k_1 depends on both the specific chemical (through H_e and also K_1 and K_g) and on the characteristics of the water body and environment (water body depth and wind speed over the water affect K_1 and K_g)

It can also be noted that for many volatile chemicals having large Henry's Law constants H_e, the overall volatilization rate k_1 is approximately equal to the liquid film mass transfer coefficient K_1; in such cases, volatilization is said to be controlled by the liquid phase resistance to mass transfer.

The above equation gives k_1 in units of m/day, but these units must be converted to m/s for use in the volatilization equation:

$$k_1 \text{ in m/s} = k_1 \text{ in } \frac{m}{day} \cdot \frac{1 \text{ day}}{86{,}400 \text{ sec}}$$

The dimensionless form of the Henry's Law constant is calculated as:

$$H_e = \frac{H'e}{RT}$$

where

H'_e = Henry's Law constant at temperature T in units of atm · m^3/mole

R = universal gas constant (8.21×10^{-5} atm·m^3/K·mol)

T = absolute temperature (K)

The liquid film coefficient is related to the oxygen transfer rate as follows:

$$K_l = \left(\frac{32}{M}\right)^{1/4} \cdot K_L$$

where

K_l = chemical-specific liquid film coefficient (m/day)

M = chemical molecular weight (g/mol)

32 = molecular weight of oxygen (g/mol)

K_L = oxygen mass transfer coefficient (m/day)

For shallow lakes or reservoirs, the dominant effect on the oxygen transfer coefficient is due to wind rather than to a steady water velocity (Thomann and Mueller 1987, p. 282). Since the seeps near the landfill are very shallow water bodies--less than an inch deep--this wind-driven formulation for the water body oxygen transfer coefficient is appropraite. The empirical relationship used to calculate this is:

$$K_L = 0.728\ U_w^{1/2} - 0.317\ U_w + 0.0372\ U_w^2$$

Where U_w is the wind speed in m/s at 10 m above the water surface and K_L is the wind-driven oxygen transfer coefficient in m/day. The commonly used reaeration coefficient is closely related to K_L:

$$K_a = \frac{K_L}{H}$$

where

K_a = reaeration coefficient (day^{-1})

H = average depth of water body (m)

The gas film transfer coefficient is calculated as follows:

$$K_g = 168 \left(\frac{18}{M}\right)^{1/4} U_w$$

where

K_g = chemical-specific gas film coefficient (m/day)

M = chemical molecular weight (g/mol)

U_w = wind speed at 10m (m/s)

The site-specific values of the input parameters assumed in applying this model to the Strasburg Landfill seeps are presented in Table D-4.

D.5 Shower Volatilization Model: Volatilization of Contaminants from Domestic Water into Shower Stall Air

This model is due to Foster and Chrostowski (1986). Their equation for calculating shower stall concentrations of volatile chemicals in shower water is as follows:

$$C_a = \frac{Q}{V_s} C_o \left(1-e^{-k_l t/600d}\right)$$

where

C_a = chemical vapor concentration in shower stall air (mg/m^3)

Q = volume of water used in shower (L)

V_s = shower stall air volume (L)

C_o = initial concentration of chemical in shower (tap) water (mg/m^3)

k_1 = chemical-specific overall mass tranfer coefficient at shower water temperature T (cm/hr)

t = shower droplet drop time (sec)

d = mean diameter of shower droplets (cm)

The mass transfer coefficient k_1 is calculated using the two-film theory of mass transfer, using the chemical's Henry's Law constant H'e and molecular weight M, and is then adjusted to shower water temperature T as described by Foster and Chrostowski (1986).

The values assumed for the shower volatilization model input parameters are presented in Table D-5. These values are conservative; that is, they should result in overestimates of shower stall air exposure concentrations.

Table D-1

SUMMARY OF SITE-SPECIFIC INPUTS USED
IN THE MODEL FOR VOLATILIZATION
FROM LANDFILLS WITH INTERNAL GAS GENERATION

Symbol	Parameter	Units	Value	Source
C_i	Concentration of chemical i in soil pores	g/cm^3	Chemical-specific values:	Calculated upper one-sided 95-percent confidence limit on mean of measured concentrations in soil gas at 2 ft depth in landfill perimeter areas (source areas A and C); calculated upper one-sided 95-percent confidence limit on mean of measured flux box concentrations in the landfill "cap" area (source area B).
A	Landfill surface area	cm^2	3.97×10^8	427,500 ft^2 for landfill perimeter (source area A).
			2.38×10^8	256,000 ft^2 for landfill "cap" area (source area B).
			2.14×10^8	230,000 ft^2 for portion of landfill perimeter in valley toward Zarzycki residence (source area C). Areas estimated from site survey map.

[UZ]ZD5071:D3222/4998/16

Source: Ecology and Environment, Inc. 1991.

Table D-2

SUMMARY OF SITE-SPECIFIC INPUTS
USED IN THE MODEL FOR ON-SITE
NEAR-FIELD AIR DISPERSION

Symbol	Parameter	Units	Value	Source
On-site Visitors Near Landfill				
A_c	Area of contamination	m^2	$8.36x10^3$	Landfill source area approx. 300 ft x 300 ft assumed to represent exposure for on-site visitors.
n	Volatilization mass flux at ground surface	$mg/m^2 \cdot h$	---	Contaminant-specific values calculated as area-weighted average of vapor flux over landfill source areas A and B, using the model for landfills with internal gas generation; source area A is the entire landfill perimeter, source area B is the landfill cap area; see Table D-1.
H_b	Height of box	m	5.9	GRI (1988), Exhibit 1.2.2-2, corresponding to downwind distance x.
x	Downwind distance to receptor from upwind edge of source	m	91.4	On-site visitors are assumed to be at the downwind edge of a source area of 300 ft x 300 ft.
W_b	Crosswind width of box	m	91.4	Source area assumed to be 300 ft x 300 ft.
U_{10}	Wind speed at 10m height	m/s	4.35	Annual average for Philadelphia area.

[UZ]ZD5071:D3222/4994/20

Table D-2 (Cont.)

Symbol	Parameter	Units	Value	Source
On-site Visitors in Seep Area				
Ac	Area of contamination	m^2	37.2	Area of largest seep is roughly 20 ft x 20 ft.
n	Volatilization mass flux at ground surface	$mg/m^2 \cdot h$	---	Contaminant-specific values calculated using the model for volatilization from surface water (see Table D-4).
Hb	Height of box	m	1.4	GRI (1988), Exhibit 1.2.2-2, corresponding to downwind distance x.
x	Downwind distance to receptor from upwind edge of source	m	6.1	Receptor assumed to be located at the downwind edge of a seep area of 20 ft x 20 ft.
W_b	Crosswind width of box	m	6.1	Source area assumed to be 20 ft x 20 ft.
U_{10}	Wind speed at 10m height	m/s	4.35	Annual average for Philadelphia area.

[UZ]ZD5071:D3222/4994/20

Compiled by: Ecology and Environment, Inc., 1991.

Table D-3

SUMMARY OF SITE-SPECIFIC INPUTS
USED IN THE MODEL FOR OFF-SITE AIR DISPERSION

Symbol	Parameter	Units	Value	Source
Receptor: Residents in Zarzycki Area Contribution from Landfill Areas A (perimeter) and B (cap)				
f_t	Fraction of time wind blows from source toward receptor	--	0.147	Annual relative frequency of winds in sectors NE to E; data from Philadelphia Airport, 1965 to 1981.
u	Mean wind speed in sector of interest	m/s	4.5	Annual mean value for winds in sectors NE to E.
x	Downwind distance of receptor from source	m	488	1,600 ft to center of source areas A and B
σ_z	Standard deviation of vertical concentration distribution	m	180.1	GRI (1988), Appendix G, from equation for "D" stability, for Briggs urban conditions; see also USEPA 1987.
W	Crosswind width of source area	m	427	1,400 ft measured on site map.
Q	Compound vapor source strength at ground level	mg/s	--	Sum of emission rates from source areas A and B, calculated using landfill model; see Table D-1.

[UZ]ZD5071:D3222/4995/25

Compiled by: Ecology and Environment, Inc., 1991.

Table D-4

SUMMARY OF SITE-SPECIFIC INPUTS
USED IN THE MODEL FOR VOLATILIZATION FROM SURFACE
WATER FOR THE LEACHATE SEEPS

Symbol	Parameter	Units	Value	Source
A	Surface area of water-air interface	m^2	37.2	Area of largest seep assumed to be 20ft x 20ft
fd1	Fraction of chemical dissolved in water column	---	1.0	Conservative assumption
C_w	Concentration of chemical in surface water	mg/L	--	Chemical-specific value: calculated one-sided upper 95 percent confidence limit on mean of measured concentrations in leachate from landfill seeps
H'_e	Henry's Law constant	$atm \cdot m^3/mol$	--	Chemical-specific value from literature
M	Molecular weight	g/mol	--	Chemical-specific value
T	Absolute temperature	K	293	20°C assumed
U_w	Wind speed at 10 m above water surface	m/s	4.35	Annual average wind speed for Philadelphia, PA (9.7 mph)
H	Average depth of water body	m	0.0254	Seep assumed to be 1 inch deep

02[UZ]ZD5071:D3222/5013/20

Source: Ecology & Environment, Inc. 1991.

Table D-5

SUMMARY OF SITE-SPECIFIC INPUTS
VALUES OF PARAMETERS USED IN ESTIMATION OF
VOLATILE ORGANIC COMPOUND (VOC)
CONCENTRATIONS IN SHOWER STALL AIR

Symbol	Parameter	Units	Value	Source
Q	Volume of water used in shower	L	120	10L/min for 12 minutes (assumed shower duration)
V_s	Shower stall air volume	L	2,500	Shower stall dimensions assumed to be 2.5 ft x 5 ft x 7 ft
d	Mean diameter of shower droplets	cm	0.1	Typical size of droplet
t	Time of droplet free fall	sec	1.0	Foster and Chrostowski (1986)
T	Shower water temperature	K	311	100°F assumed
C_o	Initial concentration of chemical in shower water	mg/m^3	--	Chemical-specific value: calculated one-sided upper 95 percent confidence limit on mean of measured concentrations in groundwater
H_e'	Henry's Law constant	$atm \cdot m^3/mol$	--	Chemical-specific value from literature
M	Molecular weight	g/mol	--	Chemical-specific value

02[UZ]ZD5071:D3222/5014/20

Source: Ecology and Environment, Inc. 1991.

REFERENCES FOR APPENDIX D

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Thomann, Robert V. and John A. Mueller. 1987. Principles of Surface Water Quality Modeling and Control, Harper & Row, Publishers, New York, pp. 532-536 and 280-283.

U.S. EPA 1987. U. S. Environmental Protection Agency, 1987. Industrial Source Complex (ISC) Dispersion Model User's Guide -- Second Edition (Revised), Volume I, EPA-450/4-88-002a, Office of Air Quality Planning and Standards, Research Triangle Park, NC, December 1987, NTIS PB88-171475, pp. 2-27 to 2-31.

_____, 1988. Superfund Exposure Assessment Manual, EPA/540/1-88/001, OSWER Directive 9285.5-1, Office of Remedial Response, Washington, DC, April 1988, p. 19.

_____, 1990. Air/Superfund National Technical Guidance Study Series, Volume II - Estimation of Baseline Air Emissions at Superfund Sites, EPA-450/1-89-002a, Office of Air Quality Planning and Standards, Research Triangle Park, NC, August 1990, NTIS PB90-270588, pp. 139-140.

APPENDIX E

AGENCY CORRESPONDENCE FOR ECOLOGICAL ASSESSMENT

May 9, 1979

Aquatic Biology Investigation - Streams
UNT West Branch Brandywine Creek
Re: Strasburg Landfill
Newlin Township, Chester County
April 25, 1979

Marilyn Hewitt
Hydrogeologist II

Thomas A. Strekal
Water Pollution Biologist II

This memo will confirm the results of our April 25, 1979 aquatic biology investigation of the unnamed tributary to West Branch Brandywine Creek in Newlin Township, Chester County, within the property boundary of Strasburg Landfill. just south of Strasburg Rd flows

Fish shocking along a 75 yard reach revealed a substantial brook trout (Salvelinus Fontinalis) population. Natural reproduction of the species was confirmed by the numerous year-classes represented, ranging from fingerlings (1½ inches) to adults (8-10 inches). Blacknose dace (Rhinichthys atratulus) and creek chubs (Semotilus atromaculatus) were also found.

A cursory sampling of the benthos indicated a diverse benthic community which included pollution-sensitive stonefly (Peltoperla) and mayfly (Iron, Ephemerella) taxa. A minor growth of diatoms and green algae was noted on the rocks. The substrate was composed primarily of rubble and sand; abundant riffle areas provided suitable habitats for benthic colonization.

Because the high quality water supports a diverse, pollution-sensitive biota, including a brown trout fishery, and is, therefore, a valuable natural resource, I recommend that any proposal to extend the present limits of the Strasburg Landfill operation be denied.

TAS/la

cc: Karl Sheaffer, Aquatic Biology Section
Dick Marshall, PA Fish Commission
Wayne Lynn, Regional Solid Waste Coordinator
Ce Re 30
C110

Environmental Resources
August 12, 1983
6-354-2496

Contrib. W. Branch Brandywine Creek
Strousburg Landfill
Newlin Township, Chester County

Wayne Lynn
Solid Waste Director

Thru: Walter E. Stanley
Chief, Operations Section

DONALD F. KARR DFK
Water Pollution Biologist

On August 4, 1983 the writer accompanied by Mike Bassett and William Jolly, Water Quality Specialists conducted an aquatic biology evaluation of an unnamed tributary to the West Branch Brandywine Creek. The tributary flows along the eastern border of the Strousburg Landfill. Past surveys were conducted on December 28, 1979, November 15, 1979 and December 29, 1977. These past surveys found a native population of Brook Trout and excellent water quality. In addition a memo of December 14, 1979 by the writer indicated the potential of habitat destruction due to siltation and presented recommendations.

Preliminary Assessment of Current Study:

Water chemistry samples collected of the tributary at Creek Road are not yet available, however the good diversity of aquatic macroinvertebrates and the presence of pollution sensitive Stoneflies, Mayflies, and Caddisflies indicate excellent water quality. No fish shocking was conducted, but fish were observed.

In addition to the study station established at Creek Road, the stream was observed by walking up to the landfill site. No leachate seeps or discharges were observed. However excessive sedimentation of the substrate was observed. Pool areas of the stream, necessary to support trout, were heavily sedimented, severely reducing trout habitat. The extent and severity of habitat destruction was not observed during the past surveys.

Conclusions:

1. The destruction of aquatic habitat by sediment has adversely affected aquatic organisms, most notably, the Brook Trout.

2. Leachate discharges or seeps do not appear to affect water quality.

cc: George Denillo-Ridley Creek
Bob Irwin-Fulton Bldg.
W. Stanley
W. Jolly
M. Bassett
M. Kaufman-P.F.C. ✓
Re 767

AR300143

December 28, 1977

Aquatic Biology Investigation-Streams
UNT West Branch Brandywine Creek
Newlin Township, Chester County
October 6, 1977

Stream File (1.12.1) Thru: Walter E. Stanley, Jr., Chief
Operations Section

Thomas A. Strekal
Water Pollution Biologist II

On October 6, 1977, the writer conducted an aquatic investigation to determine extant water quality of an unnamed tributary to West Branch Brandywine Creek in Newlin Township, Chester County prior to construction of a proposed landfill in the headwaters of this stream.

Only one station was established at the following location: along Creek Road at RR bridge #27-29; 14.00"N/2.00"W on USGS quad 0920.1; 0.10 river mile upstream of confluence.

Livestock grazing has created moderate-heavy siltation which covered much of the habitable riffle areas. A minimal organic layer was present. Water chemistry data and the relatively high abundance of pollution-sensitive fauna suggested good stream conditions. The watershed appeared unaffected by any pollution source.

No recommendations are offered at this time.

Ce Re 30
TAS/lm

Table: I
Water Chemistry Data

Temp	-	12°C	Total Solids	-	94 mg/l
pH	-	7.5	Susp. Solids	-	12 mg/l
D.O.	-	9.8 mg/l	Tot. Diss. Solids	-	82 mg/l
Spec. Cond.	-	105 umho	NO_2-N	-	0.02 mg/l
Color	-	5	NO_3-N	-	1.54 mg/l
Turb	-	5.5	NH_3-N	-	0.07 mg/l
Alkalinity	-	70 mg/l	Hardness	-	54 mg/l
BOD_5	-	1.5 mg/l	SO_4	-	20 mg/l
P-total	-	0.07 mg/l	Cl	-	10 mg/l
Fe-total	-	0.58			

AR300145

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION
Division of Fisheries Management
450 Robinson Lane
Bellefonte, PA 16823-9616

April 2, 1990

ECOLOGY AND ENVIRONMENT, INC.
J. Roger Trettel
Buffalo Corporate Center
368 Pleasantview Drive
Lancaster, NY 14086

Dear Mr. Trettel:

I have examined the map accompanying your recent correspondence which shows the location of the proposed ecological risk assessment for the Strasburg Landfill located near Coatsville, Pennsylvania.

Presently, none of the fishes, amphibians, or reptiles we list as endangered or threatened are known to occur at or in the immediate vicinity of the study area.

Enclosed is some information concerning endangered and threatened species under our jurisdiction and that of the Game Commission.

Sincerely,

Clark N. Shiffer

Clark N. Shiffer, Coordinator
Herpetology and Endangered Species

cll

Encl.

cc: R. Snyder

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Suite 322
315 South Allen Street
State College, Pennsylvania 16801

April 11, 1990

Mr. J. Roger Trettel
Associate Ecologist
Ecology and Environment, Inc.
Buffalo Corporate Center
368 Pleasantview Drive
Lancaster, NY 14086

Dear Mr. Trettel:

This responds to your letter of March 26, 1990, requesting information pertaining to questions on Form D for the proposed Strasburg Landfill waste site located in Chester County, Pennsylvania.

In response to Question 6 (Section 2, Part 1), there are no national wildlife refuges, fish hatcheries, or environmental centers operated by the Service within one mile of the site.

In response to Question 10 (Section 2, Part 1), except for occasional transient species, no federally listed or proposed threatened or endangered species under our jurisdiction are known to exist in the project impact area. Therefore, no Biological Assessment or further Section 7 consultation under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) is required with the Fish and Wildlife Service. Should project plans change, or if additional information on listed or proposed species becomes available, this determination may be reconsidered. A compilation of federally listed endangered and threatened species in Pennsylvania is enclosed for your information. Requests for information regarding State-listed endangered or threatened species should be directed to the Pennsylvania Game Commission (wildlife), the Pennsylvania Fish Commission (fish, reptiles and amphibians) and the Pennsylvania Department of Environmental Resources (plants).

Section One (Exclusionary Area Criteria) questions whether the project, including any incidental earthmoving or construction activities, is located in or within 300 feet of a wetland. According to the Service's National Wetlands Inventory map for the Coatesville quadrangle, no wetlands occur within the boundaries of the proposed project. However, you should be aware that these maps were prepared using aerial photography and are not completely accurate. Any final determination of whether or not wetlands are present on the proposed project site should include a site visit by a qualified individual trained in wetland identification.

This response relates only to endangered or threatened species under federal jurisdiction and a preliminary review for wetlands, based on an office review of the proposed project's location. No field inspection of

the project area has been conducted by this office. Consequently, this letter is not to be construed as addressing other Service concerns under the Fish and Wildlife Coordination Act or other legislation.

If we can be of further assistance, please contact me.

Sincerely,

Charles J. Kulp
Supervisor

Enclosure

AR300150

FEDERALLY LISTED ENDANGERED AND THREATENED SPECIES IN PENNSYLVANIA

COMMON NAME	SCIENTIFIC NAME	STATUS	DISTRIBUTION
FISHES:			
Sturgeon, shortnose*	Acipenser brevirostrum	E	Delaware River and Other Atlantic Coastal waters
REPTILES:			
NONE			
BIRDS:			
Eagle, bald	Haliaeetus leucocephalus	E	Entire State
Falcon, American peregrine	Falco peregrinus anatum	E	Entire State - re-establishment to former breeding range in progress
Falcon, Artic	Falco peregrinus tundrius	E	Entire State migratory - no nesting
MAMMALS:			
Bat, Indiana	Myotis sodalis	E	Entire State
Cougar, Eastern	Felis concolor couguar	E	Entire State - probably entinct
MOLLUSKS:			
NONE			
PLANTS:			
Pogonia, small whorled	Isotria medeoloides	E	Berks, Centre, Chester, Greene, Monroe, Montgomery, Philadelphia & Venango Counties

* Principal responsibility for this species is vested with the National MA. Fisheries Service.

Region 5 6/3/85 - 1 p.

AR300151

Pennsylvania Natural Diversity Inventory

PNDI — Eastern Office
34 Airport Drive
Middletown, PA 17057
(717) 948-3962

16 April 1990

J. Roger Trettel
Ecology and Environment, Inc.
Buffalo Corporate Center
368 Pleasantview Drive
Lancaster, New York 14086

Re: Strasburg Landfill, West Bradford Township
Chester County, Pennsylvania

Dear Mr. Trettel,

In response to your letter of March 27, a review of the files of the Pennsylvania Natural Diversity Inventory Eastern Office (PNDI-E) for the Strasburg Landfill waste site in West Bradford Township, Chester County, Pennsylvania indicates that we have five records of species of special concern occurring in your designated one and a half mile radius of the project area, see attached. These records have not been confirmed in recent years, and only an on-site inspection can determine whether they still inhabit the area.

While we do not have records of these species from the project area, they do occur in the vicinity. Thus we provide this information to alert you to these specific species you should be on the watch for, in addition to all species of special concern, as you conduct your environmental study of the area.

In addition to the species of special concern the Brandywine Conservancy owns and manages land within the area of your interest. For further information on their property you can contact them at the Brandywine Conservancy Environmental Management Center, P.O. Box 141, Chadds Ford, PA 19317.

Please take note that the Pennsylvania Game Commission has statutory authority for birds and mammals, and the Pennsylvania Fish Commission has statutory authority for herptiles, fishes, and aquatic organisms. These agencies should be notified to insure a complete review of the project area.

As you know, the Inventory is a cumulative process through which information is continuously updated and refined. Old records are checked in the field, new areas are surveyed, known sites are

monitored, and new changes in land conservation status are recorded. As a result, the assessment of Pennsylvania's ecological resources is current and increasingly accurate. Consequently, information given to you now may be out of date in the near future.

The Pennsylvania Natural Diversity Inventory has compiled data on Pennsylvania's rare, endangered, or otherwise significant plant and animal species, plant communities, and other natural features. The Pennsylvania Natural Diversity Inventory is a cooperative program among the Department of Environmental Resources, The Nature Conservancy and the Western Pennsylvania Conservancy. While this information is available for preparation and review of environmental assessments, it is not a substitute for on-site surveys. The quantity and quality of data collected by the Inventory are dependent on the research and observations of many individuals and organizations. In most cases, information on environmental elements is not the result of comprehensive field surveys. For this reason, the Pennsylvania Natural Diversity Inventory cannot provide a definitive statement on the presence, absence, or degree of health of environmental elements in any part of Pennsylvania. The Inventory welcomes coordination with individuals or organizations proposing environmental alteration, and/or conducting environmental assessments; however, the information, or lack thereof, provided by the Inventory should never be regarded as a complete statement on the elements being considered. If data provided by the Pennsylvania Natural Diversity Inventory are to be published in any form, the Inventory should be informed at the outset and credited as the source.

If construction on this project has not been initiated one year from now, we suggest that you contact us again so that we may update our response.

It is requested that any future correspondence regarding environmental reviews be sent directly to the Bureau of Forestry, Forestry Advisory Service, P.O. Box 1467, Harrisburg, PA 17120.

Thank you for using PNDI as part of your environmental review procedure. Partial support for PNDI is derived from the Wild Resource Conservation Fund, which accumulates from the Pennsylvania State Income Tax check-off and from direct donations. Enclosed is a flyer which explains the procedure whereby a donation can be made to the fund, should your firm wish to contribute.

Sincerely,

Thomas L. Smith

Thomas L. Smith
Program Coordinator
PNDI - E
The Nature Conservancy

AR300154

ENCL: Statutory Authority and as stated
cc: Kathy McKenna, Botanist, Bureau of Forestry
John Arway, Pa Fish Commission
Jake Sitlinger, Pa Game Commission
Clark Shiffer, Pa Fish Commission
Brandywine Conservancy

Pennsylvania Natural Diversity Inventory
Species of Special Concern
Strasburg Landfill, West Bradford Township
Chester County, Pennsylvania

Scientific Name Common Name	Federal Status	State Status	Date Last Observed
Zizania aquatica Indian Wild Rice	N	PR	1860
Spiranthes tuberosa Little Ladies' Tresses	N	TU	1915
Tipularia discolor Cranefly Orchid	N	PR	1983
Aster ericoides White Heath Aster	N	PR	1983
Coragyps atratus Black Vulture	N	N	1983

AR300156

PENNSYLVANIA NATURAL DIVERSITY INVENTORY

SPECIES LISTS

The statutory authority for Pennsylvania's animals and plants resides with three separate agencies. The Pennsylvania Department of Environmental Resources has the responsibility for the management of the Commonwealth's native wild plants. The Pennsylvania Fish Commission is responsible for the management of fish, reptiles, amphibians and aquatic organisms within the Commonwealth. The Pennsylvania Game Commission has the responsibility for managing the state's wild birds and mammals.

For information on current official status for a species, please consult the appropriate agency. Requests for information should be directed to:

PLANTS and PNDI - general	Botanist Pa. Department of Environmental Resources Bureau of Forestry - FAS P. O. Box 1467 Harrisburg, PA 17120 (717)787-3444
FISH, REPTILES, AMPHIBIANS, AQUATIC ORGANISMS	Endangered Species & Herpetology Coordinator Pennsylvania Fish Commission Bureau of Fisheries and Engineering 450 Robinson Lane Bellefonte, PA 16823 (814)359-5113
BIRDS and MAMMALS	Nongame and Endangered Species Coordinator Pennsylvania Game Commission Bureau of Game Management P. O. Box 1567 Harrisburg, PA 17105-1567 (717)362-3930 or (717)787-5529

In addition, groups of species not referenced above may have official federal status (e.g., invertebrates). For information contact:

Endangered Species Specialist
U.S. Fish and Wildlife Service
One Gateway Center, Suite 700
Newton Corner, MA 02158
(617)965-5100

Thank you for your request. Feel free to contact PNDI if we can be of further assistance.

PENNSYLVANIA NATURAL DIVERSITY INVENTORY

(PNDI)

The Pennsylvania Natural Diversity Inventory (PNDI) is a project being conducted by the Department of Environmental Resources in cooperation with the Western Pennsylvania Conservancy and The Nature Conservancy to locate natural features which are of special concern within the Commonwealth. PNDI is a system of manual, map, and computer files which describe the history, biology, location, and ecology of plant species of special concern as listed by the Pennsylvania Department of Environmental Resources, fish, reptile, and amphibian species as listed by the Pennsylvania Fish Commission, mammal and bird species listed by the Pennsylvania Game Commission, significant geologic features, and exemplary natural communities. PNDI can be utilized by resource managers, conservation groups, ecological consultants, government permitting agencies, and academia to gather baseline information in simple and efficient searches of computer database files.

DO SOMETHING

WILD

PA INCOME TAX CHECK-OFF

WILD RESOURCE CONSERVATION FUND

DIRECT CONTRIBUTION FORM

PENNSYLVANIA NATURAL DIVERSITY INVENTORY

The information you received from the Pennsylvania Natural Diversity Inventory (PNDI) was made possible through support from the **Wild Resource Conservation Fund.** If you find the information of value, please support the continued development of PNDI with a contribution to the **Wild Resource Conservation Fund.**

The **Wild Resource Conservation Fund** has been created by the Pennsylvania legislature for the management and protection of native wild plants and non-game wildlife. Your contributions will assist with efforts being taken to ensure the survival of these wild resources.

Enclosed is a donation of $_____ to the **Wild Resource Conservation Fund.**

NAME:_____

COMPANY NAME:_____

ADDRESS:_____

CITY:_____ **STATE**_____ **ZIP**_____

Send contribution with checks payable to:

Wild Resource Conservation Fund
c/o PNDI Environmental Review
P.O. Box 1467-W
Harrisburg, PA 171207

AR360159

FEDERAL STATUS

U.S. FISH AND WILDLIFE CATEGORIES OF ENDANGERED AND THREATENED PLANTS AND ANIMALS

The following definitions are extracted from the September 27, 1985, U.S. Fish and Wildlife Service notice in the Federal Register:

LE--Taxa formally listed as endangered.

LT--Taxa formally listed as threatened.

PE--Taxa proposed to be formally listed as endangered.

PT--Taxa proposed to be formally listed as threatened.

S --Synonyms.

C1 --Taxa for which the Service currently has on file substantial information on biological vulnerability and threat(s) to support the appropriateness of proposing to list them as endangered or threatened species.

C2 --Taxa for which information now in possession of the Service indicates that proposing to list them as endangered or threatened species is possibly appropriate, but for which substantial data on biological vulnerability and threat(s) are not currently known or on file to support the immediate preparation of rules.

C3 --Taxa that are no longer being considered for listing as threatened or endangered species. Such taxa are further coded to indicate three subcategories, depending on the reason(s) for removal from consideration.

- 3A--Taxa for which the Service has persuasive evidence of extinction.
- 3B--Names that, on the basis of current taxonomic understanding, usually as represented in published revisions and monographs, do not represent taxa meeting the Act's definition of "species".
- 3C--Taxa that have proven to be more abundant or widespread than was previously believed and/or those that are not subject to any identifiable threat.

N or Blank --Taxa has no federal status

AR300161

STATE STATUS

PE - Pennsylvania Endangered - A classification of plant species which are in danger of extinction throughout most or all of their natural range within this Commonwealth, if critical habitat is not maintained or if the species is greatly exploited by man. This classification shall also include any populations of plant species that have been classified as Pennsylvania Extirpated, but which subsequently are found to exist in this Commonwealth.

PX - Pennsylvania Extirpated - A classification of plant species believed by the Department to be extinct within this Commonwealth. These plant species may or may not be in existence outside this Commonwealth. If plant species classified as Pennsylvania Extirpated are found to exist, the species automatically will be considered to be classified as Pennsylvania Endangered.

PR - Pennsylvania Rare - A classification of plant species which are uncommon within this Commonwealth. All species of native wild plants classified as Disjunct, Endemic, Limit of Range and Restricted are included within the Pennsylvania Rare classification.

PT - Pennsylvania Threatened - A classification of plant species which may become endangered throughout most or all of their natural range within this Commonwealth, if critical habitat is not maintained to prevent further decline in this Commonwealth, or if the species is greatly exploited by man.

PV - Pennsylvania Vulnerable - A classification of plant species which are in danger of population decline within Pennsylvania because of their beauty, economic value, use as a cultivar, or other factors which indicate that persons may seek to remove these species from their native habitats.

TU - Tentatively Undetermined - A classification of plant species which are believed to be in danger of population decline, but which cannot presently be included within another classification due to taxonomic uncertainties, limited evidence within historical records, or insufficient data.

N - None - A classification of plant species which are believed to be endangered, rare, or threatened, but which have not yet been included within another classification due to delays created by required regulatory review processes.

The following state statuses are used by the Pennsylvania Fish Commission and the Pennsylvania Game Commission for animal species. The definitions for these statuses are presently being re-evaluated.

LE - Listed Endangered

LS - Listed Endangered

LT - Listed Threatened

N - Not Listed

AR300162

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
Post Office Box 1467
Harrisburg, Pennsylvania 17120

717/787-3444

Bureau of Forestry

May 15, 1990

Mr. J. Roger Trettel
Ecology and Environment, Inc.
Buffalo Corporate Center
368 Pleasantview Drive
Lancaster, N.Y. 14086

Dear Mr. Trettel:

Re: PNDI Review of the Strasburg Landfill waste site near Coatesville, Pennsylvania.

Your request of March 27, to review locations within the Coatesville Quadrangle for the presence of natural resources of special concern was processed by using the computer data files of the Pennsylvania Natural Diversity Inventory (PNDI). A specific search of the current PNDI locational data files in comparison with the project site did not reveal any natural resources of special concern.

Please remember that legal authority for Pennsylvania's biological resources resides with three administrative agencies. The enclosure titled, "PNDI Species List," outlines which species groups are managed by these agencies. Although, PNDI functions solely as an information system for natural resources of concern, the Pennsylvania Game Commission maintains the Fish and Wildlife Data Base which can provide data descriptive of all mammals and birds common to Pennsylvania.

PNDI is a site specific information system which describes significant natural resources of Pennsylvania. PNDI includes data descriptive of plant and animal species of special concern, exemplary natural communities and unique geological features. The information system is coordinated and maintained by the Department of Environmental Resources with technical assistance from The Nature Conservancy and the Western Pennsylvania Conservancy. This response represents the most up-to-date summary of the PNDI data files. However, the data is not intended to be a conclusive compilation of the special concern resources at the project site. Only on-site biological surveys can provide a total assessment of the natural resources present in any specific area.

The PNDI project is funded largely through contributions to the Wild Resource Conservation Fund. This fund was established in 1982 by the Pennsylvania Legislature to provide support for the

research and conservation of significant natural resources within the Commonwealth. I trust that you will find our response to your request for site specific information to be of value to your business. Therefore, please consider making a contribution to the Fund.

Please phone this office if you should have questions pertinent to this response, PNDI or the Department of Environmental Resources plant program.

Sincerely,

Kathy A. McKenna

Kathy A. McKenna, Botanist
Forest Advisory Services
Bureau of Forestry

AR300164

PENNSYLVANIA NATURAL DIVERSITY INVENTORY

SPECIES LISTS

The statutory authority for Pennsylvania's animals and plants resides with three separate agencies. The Pennsylvania Department of Environmental Resources has the responsibility for the management of the Commonwealth's native wild plants. The Pennsylvania Fish Commission is responsible for the management of fish, reptiles, amphibians and aquatic organisms within the Commonwealth. The Pennsylvania Game Commission has the responsibility for managing the state's wild birds and mammals.

For information on current official status for a species, please consult the appropriate agency. Requests for information should be directed to:

PLANTS	Botanist Pa. Department of Environmental Resources Bureau of Forestry - FAS P. O. Box 1467 Harrisburg, PA 17120 (717)787-3444
FISH, REPTILES, AMPHIBIANS, AQUATIC ORGANISMS	Endangered Species & Herpetology Coordinator Pennsylvania Fish Commission Bureau of Fisheries and Engineering 450 Robinson Lane Bellefonte, PA 16823 (814)359-5113
BIRDS and MAMMALS	Nongame and Endangered Species Coordinator Pennsylvania Game Commission Bureau of Game Management P. O. Box 1567 Harrisburg, PA 17105-1567 (717)362-3930 or (717)787-5529

In addition, groups of species not referenced above may have official federal status (e.g., invertebrates). For information contact:

Endangered Species Specialist
U.S. Fish and Wildlife Service
One Gateway Center, Suite 700
Newton Corner, MA 02158
(617)965-5100

Thank you for your request. Feel free to contact us if we can be of further assistance.

AR300165

COMMONWEALTH OF PENNSYLVANIA

PENNSYLVANIA GAME COMMISSION

2001 ELMERTON AVENUE
HARRISBURG, PA 17110-9797

ADMINISTRATIVE BUREAUS

ADMINISTRATIVE 787-5670
AUTOMOTIVE AND PROCUREMENT DIVISION.....787-6594
LICENSE DIVISION.....787-2084
PERSONNEL DIVISION.....787-7836
WILDLIFE MANAGEMENT.....787-5529
INFORMATION & EDUCATION.....787-6286
LAW ENFORCEMENT.....787-5740
LAND MANAGEMENT.....787-6818
REAL ESTATE DIVISION.....787-6568
MANAGEMENT INFORMATION SYSTEMS.....787-4076

September 11, 1990

Mr. J. Roger Trettel
Associate Ecologist
Ecology and Environment, Inc.
Buffalo Corporate Center
368 Pleasantview Drive
Lancaster, New York 14086

Dear Mr. Trettel:

Thank you for the opportunity to review and comment on this proposal.

A field assessment team has completed an on-site investigation and submitted the following.

This landfill site is perched on a point of a ridge overlooking Brandywine Creek in Chester County. North of the site the access road follows a relatively flat ridge top containing cultivated fields. To the west, south, and east the land slopes away on steep forested hillsides.

The site itself consists of a large mound of garbage covered with soil, (varying in depth from 0 to 12 inches) vegetated with a herbaceous growth interspersed with volunteer shrubs.

On the western portion of the mound is a small drainage ditch which intersects several putrid smelling discharges. This ditch empties into a small sedimentation basin containing water of unknown quality and wetland vegetation.

The eastern portion of the site drains to a sedimentation pond located at the toe of the mound. Adjacent to this pond is a treatment facility containing several large holding tanks and a small building. The treated water is discharged through a wetland adjacent to Briar Run.

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Wildlife or wildlife signs observed include: white-tailed deer, raccoon, woodchuck, cottontail rabbit, gray squirrel, eastern chipmunk, mourning dove, robin, killdeer, crow, and blue jay.

Attached for your information, is a copy of a report generated from the Pennsylvania Fish and Wildlife Data Base.

If you have any questions or if additional information is required, contact Gregory Grabowicz or Denver McDowell of my staff at area code (717) 783-1728.

Very truly yours,

Jacob I. Sitlinger, Director
Bureau of Land Management

Encl.

Pennsylvania Fish and Wildlife Data Base

The following species information was generated from the Pennsylvania Fish and Wildlife Data Base for your use in determining species likely to occur in your project area.

This information was provided upon request and should not be viewed as an official review or opinion of the Pennsylvania Game Commission. Species lists generated for this request should be viewed as likely or probable occurrence that might warrant further investigation. These lists are based upon known, documented occurrence within the counties, watershed, land use and habitat types specified in your request.

Information pertaining to aquatic vertebrates and invertebrates contained in these lists is based solely on literature sources and expert opinion. Use of the aquatic species information contained in this report should be coordinated with the Pennsylvania Fish Commission for compliance with their standards and data sources.

This report does not contain information on plants. For information on plant species in your project area, please contact the Pennsylvania Department of Environmental Resources.

Note: Bird species occurrence is based upon recorded sightings and may not imply nesting activity or year-round residence.

Specific Comments/Interpretation

Although we have no record of threatened or endangered birds or mammals in your project area, we cannot conclude that none exist there without an on-site investigation. Threatened and endangered species printed on the county list include species which may accidentally occur but do not nest or rear young at your site. A list of all species occurring in the county is included. However, the fish, amphibian, and reptile lists are currently incomplete.

Pennsylvania Fish and Wildlife Data Base
Endangered and Threatened Species List
04 MAY 1990

* Coatesville Quadrangle *

Common Name..... Scientific Name..... PA Status.....

ZERO Records Listed

AR300170

Pennsylvania Fish and Wildlife Data Base
Endangered and Threatened Species List
04 MAY 1990

* Chester County *

Common Name.....	Scientific Name.....	PA Status.....
TURTLE, BOG	CLEMMYS MUHLENBERGI	**Endangered
EAGLE, BALD	HALIAEETUS LEUCOCEPHALUS	**Endangered
OWL, SHORT-EARED	ASIO FLAMMEUS	**Endangered
RAIL, KING	RALLUS ELEGANS	**Endangered
		***
BITTERN, AMERICAN	BOTAURUS LENTIGINOSUS	*Threatened
SANDPIPER, UPLAND	BATRAMIA LONGICAUDA	*Threatened
SPARROW, HENSLOW'S	AMMODRAMUS HENSLOWII	*Threatened
TERN, BLACK	CHLIDONIAS NIGER	*Threatened
WREN, SEDGE	CISTOTHORUS PLATENSIS	*Threatened
		***
BLUEBIRD, EASTERN	SIALIA SIALIS	Special Concern Species
BOBWHITE, NORTHERN	COLINUS VIRGINIANUS	Special Concern Species
HARRIER, NORTHERN	CIRCUS CYANEUS	Special Concern Species
HAWK, COOPER'S	ACCIPITER COOPERII	Special Concern Species
HAWK, RED-SHOULDERED	BUTEO LINEATUS	Special Concern Species
HERON, GREAT BLUE	ARDEA HERODIAS	Special Concern Species
MARTIN, PURPLE	PROGNE SUBIS	Special Concern Species
OWL, COMMON BARN	TYTO ALBA	Special Concern Species
SPARROW, GRASSHOPPER	AMMODRAMUS SAVANNARUM	Special Concern Species
SPARROW, VESPER	POOECETES GRAMINEUS	Special Concern Species
WOODPECKER, RED-HEADED	MELANERPES ERYTHROCEPHALUS	Special Concern Species
WREN, MARSH	CISTOTHORUS PALUSTRIS	Special Concern Species
MYOTIS, KEEN'S	MYOTIS KEENII	Special Concern Species
		***

Pennsylvania Fish and Wildlife Data Base
County Species List
04 MAY 1990

* Chester County *

Common Name	Scientific Name
BASS, LARGEMOUTH	MICROPTERUS SALMOIDES
BASS, ROCK	AMBLOPLITES RUPESTRIS
BASS, SMALLMOUTH	MICROPTERUS DOLOMIEUI
BLUEGILL	LEPOMIS MACROCHIRUS
BOWFIN	AMIA CALVA
BULLHEAD, BROWN	ICTALURUS NEBULOSUS
BULLHEAD, YELLOW	ICTALURUS NATALIS
CARP, COMMON	CYPRINUS CARPIO
CATFISH, CHANNEL	ICTALURUS PUNCTATUS
CATFISH, WHITE	ICTALURUS CATUS
CHUB, LAKE	COUESIUS PLUMBEUS
CHUBSUCKER, CREEK	ERIMYZON OBLONGUS
CRAPPIE, BLACK	POMOXIS NIGROMACULATUS
CRAPPIE, WHITE	POMOXIS ANNULARIS
DARTER, GREENSIDE	ETHEOSTOMA BLENNIOIDES
DARTER, SHIELD	PERCINA PELTATA
DARTER, TESSELLATED	ETHEOSTOMA OLMSTEDI
EEL, AMERICAN	ANGUILLA ROSTRATA
HOGSUCKER, NORTHERN	HYPENTELIUM NIGRICANS
KILLIFISH, BANDED	FUNDULUS DIAPHANUS
MADTOM, MARGINED	NOTURUS INSIGNIS
MUDMINNOW, EASTERN	UMBRA PYGMAEA
MUSKELLUNGE	ESOX MASQUINONGY
PERCH, YELLOW	PERCA FLAVESCENS
SHAD, GIZZARD	DOROSOMA CEPEDIANUM
SUCKER, WHITE	CATOSTOMUS COMMERSONI
SUNFISH, GREEN	LEPOMIS CYANELLUS
SUNFISH, REDBREAST	LEPOMIS AURITUS
TROUT, BROWN	SALMO TRUTTA
WALLEYE	STIZOSTEDION VITREUM
BULLFROG	RANA CATESBEIANA
FROG, NORTHERN CRICKET	ACRIS CREPITANS
LONGTAIL SALAMANDER	EURYCEA LONGICAUDA
NEWT, EASTERN	NOTOPHTHALMUS VIRIDESCENS
PEEPER, NORTHERN SPRING	HYLA CRUCIFER
SALAMANDER, JEFFERSON	AMBYSTOMA JEFFERSONIANUM
SALAMANDER, MARBLED	AMBYSTOMA OPACUM
SALAMANDER, NORTHERN DUSKY	DESMOGNATHUS FUSCUS
SALAMANDER, NORTHERN RED	PSEUDOTRITON RUBER
SALAMANDER, NORTHERN SPRING	GYRINOPHILUS PORPHYRITICUS
SALAMANDER, NORTHERN TWO-LINED	EURYCEA BISLINEATA
SALAMANDER, REDBACK	PLETHODON CINEREUS
SALAMANDER, SLIMY	PLETHODON GLUTINOSUS
SALAMANDER, SPOTTED	AMBYSTOMA MACULATUM

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Pennsylvania Fish and Wildlife Data Base
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* Chester County *

Common Name	Scientific Name
SNAKE, COMMON GARTER	THAMNOPHIS SIRTALIS
SNAKE, EASTERN EARTH	VIRGINIA VALERIAE
SNAKE, EASTERN HOGNOSE	HETERODON PLATYRHINOS
SNAKE, EASTERN MILK	LAMPROPELTIS TRIANGULUM
SNAKE, EASTERN RIBBON	THAMNOPHIS SAURITUS
SNAKE, NORTHERN WATER	NERODIA SIPEDON
SNAKE, QUEEN	REGINA SEPTEMVITTATA
SNAKE, RING-NECK	DIADOPHIS PUNCTATUS
SNAKE, ROUGH GREEN	OPHEODRYS AESTIVUS
STINKPOT	STERNOTHERUS ODORATUS
TURTLE, BOG	CLEMMYS MUHLENBERGI
TURTLE, COMMON SNAPPING	CHELYDRA SERPENTINA
TURTLE, EASTERN BOX	TERRAPENE CAROLINA
TURTLE, MIDLAND PAINTED	CHRYSEMYS PICTA
TURTLE, PAINTED	CHRYSEMYS PICTA
TURTLE, SPOTTED	CLEMMYS GUTTATA
TURTLE, WOOD	CLEMMYS INSCULPTA
BITTERN, AMERICAN	BOTAURUS LENTIGINOSUS
BLACKBIRD, RED-WINGED	AGELAIUS PHOENICEUS
BLACKBIRD, RUSTY	EUPHAGUS CAROLINUS
BLUEBIRD, EASTERN	SIALIA SIALIS
BOBOLINK	DOLICHONYX ORYZIVORUS
BOBWHITE, NORTHERN	COLINUS VIRGINIANUS
BUFFLEHEAD	BUCEPHALA ALBEOLA
BUNTING, INDIGO	PASSERINA CYANEA
BUNTING, SNOW	PLECTROPHENAX NIVALIS
CANVASBACK	AYTHYA VALISINERIA
CARDINAL, NORTHERN	CARDINALIS CARDINALIS
CATBIRD, GRAY	DUMETELLA CAROLINENSIS
CHAT, YELLOW-BREASTED	ICTERIA VIRENS
CHICKADEE, BLACK-CAPPED	PARUS ATRICAPILLUS
CHICKADEE, CAROLINA	PARUS CAROLINENSIS
COOT, AMERICAN	FULICA AMERICANA
CORMORANT, DOUBLE-CRESTED	PHALACROCORAX AURITUS
COWBIRD, BROWN-HEADED	MOLOTHRUS ATER
CRANE, SANDHILL	GRUS CANADENSIS
CREEPER, BROWN	CERTHIA AMERICANA
CROSSBILL, RED	LOXIA CURVIROSTRA
CROSSBILL, WHITE-WINGED	LOXIA LEUCOPTERA
CROW, AMERICAN	CORVUS BRACHYRHYNCHOS
CROW, FISH	CORVUS OSSIFRAGUS
CUCKOO, BLACK-BILLED	COCCYZUS ERYTHROPTHALMUS
CUCKOO, YELLOW-BILLED	COCCYZUS AMERICANUS
DICKCISSEL	SPIZA AMERICANA
DOVE, MOURNING	ZENAIDA MACROURA

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Pennsylvania Fish and Wildlife Data Base
County Species List
04 MAY 1990

* Chester County *

Common Name	Scientific Name
DOVE, ROCK	COLUMBA LIVIA
DOWITCHER, LONG-BILLED	LIMNODROMUS SCOLOPACEUS
DOWITCHER, SHORT-BILLED	LIMNODROMUS GRISEUS
DUCK, AMERICAN BLACK	ANAS RUBRIPES
DUCK, RING-NECKED	AYTHYA COLLARIS
DUCK, RUDDY	OXYURA JAMAICENSIS
DUCK, WOOD	AIX SPONSA
DUNLIN	CALIDRIS ALPINA
EAGLE, BALD	HALIAEETUS LEUCOCEPHALUS
EAGLE, GOLDEN	AQUILA CHRYSAETOS
EGRET, CATTLE	BUBULCUS IBIS
EGRET, GREAT	CASMERODIUS ALBUS
EGRET, SNOWY	EGRETTA THULA
FALCON, AMERICAN PEREGRINE	FALCO PEREGRINUS
FINCH, HOUSE	CARPODACUS MEXICANUS
FINCH, PURPLE	CARPODACUS PURPUREUS
FLICKER, NORTHERN	COLAPTES AURATUS
FLYCATCHER, ACADIAN	EMPIDONAX VIRESCENS
FLYCATCHER, ALDER	EMPIDONAX ALNORUM
FLYCATCHER, GREAT CRESTED	MYIARCHUS CRINITUS
FLYCATCHER, LEAST	EMPIDONAX MINIMUS
FLYCATCHER, OLIVE-SIDED	CONTOPUS BOREALIS
FLYCATCHER, WILLOW	EMPIDONAX TRAILLII
FLYCATCHER, YELLOW-BELLIED	EMPIDONAX FLAVIVENTRIS
GADWALL	ANAS STREPERA
GALLINULE, PURPLE	PORPHYRULA MARTINICA
GNATCATCHER, BLUE-GRAY	POLIOPTILA CAERULEA
GODWIT, HUDSONIAN	LIMOSA HAEMASTICA
GOLDENEYE, COMMON	BUCEPHALA CLANGULA
GOLDFINCH, AMERICAN	CARDUELIS TRISTIS
GOOSE, CANADA	BRANTA CANADENSIS
GOOSE, GREATER WHITE-FRONTED	ANSER ALBIFRONS
GOOSE, LESSER SNOW	CHEN CAERULESCENS
GOSHAWK, NORTHERN	ACCIPITER GENTILIS
GRACKLE, COMMON	QUISCALUS QUISCULA
GREBE, EARED	PODICEPS NIGRICOLLIS
GREBE, HORNED	PODICEPS AURITUS
GREBE, PIED-BILLED	PODILYMBUS PODICEPS
GREBE, RED-NECKED	PODICEPS GRISEGENA
GROSBEAK, BLUE	GUIRACA CAERULEA
GROSBEAK, EVENING	COCCOTHRAUSTES VESPERTINUS
GROSBEAK, ROSE-BREASTED	PHEUCTICUS LUDOVICIANUS
GROUSE, RUFFED	BONASA UMBELLUS
GULL, BONAPARTE'S	LARUS PHILADELPHIA
GULL, HERRING	LARUS ARGENTATUS
GULL, RING-BILLED	LARUS DELAWARENSIS
HARRIER, NORTHERN	CIRCUS CYANEUS
HAWK BROAD-WINGED	BUTEO PLATYPTERUS
HAWK, COOPER'S	ACCIPITER COOPERII

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Pennsylvania Fish and Wildlife Data Base
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* Chester County *

Common Name	Scientific Name
HAWK, RED-SHOULDERED	BUTEO LINEATUS
HAWK, RED-TAILED	BUTEO JAMAICENSIS
HAWK, ROUGH-LEGGED	BUTEO LAGOPUS
HAWK, SHARP-SHINNED	ACCIPITER STRIATUS
HERON, GREAT BLUE	ARDEA HERODIAS
HERON, GREEN-BACKED	BUTORIDES STRIATUS
HERON, LITTLE BLUE	FLORIDA CAERULEA
HUMMINGBIRD, RUBY-THROATED	ARCHILOCHUS COLUBRIS
IBIS, GLOSSY	PLEGADIS FALCINELLUS
IBIS, WHITE	EUDOCIMUS ALBUS
JAY, BLUE	CYANOCITTA CRISTATA
JUNCO, DARK-EYED	JUNCO HYEMALIS
KESTREL, AMERICAN	FALCO SPARVERIUS
KILLDEER	CHARADRIUS VOCIFERUS
KINGBIRD, EASTERN	TYRANNUS TYRANNUS
KINGFISHER, BELTED	CERYLE ALCYON
KINGLET, GOLDEN-CROWNED	REGULUS SATRAPA
KINGLET, RUBY-CROWNED	REGULUS CALENDULA
KNOT, RED	CALIDRIS CANUTUS
LARK, HORNED	EREMOPHILA ALPESTRIS
LONGSPUR, LAPLAND	CALCARIUS LAPPONICUS
LOON, COMMON	GAVIA IMMER
MALLARD	ANAS PLATYRHYNCHOS
MARTIN, PURPLE	PROGNE SUBIS
MEADOWLARK, EASTERN	STURNELLA MAGNA
MERGANSER, COMMON	MERGUS MERGANSER
MERGANSER, HOODED	LOPHODYTES CUCULLATUS
MERGANSER, RED-BREASTED	MERGUS SERRATOR
MERLIN	FALCO COLUMBARIUS
MOCKINGBIRD, NORTHERN	MIMUS POLYGLOTTOS
MOORHEN, COMMON	GALLINULA CHLOROPUS
NIGHT-HERON, BLACK-CROWNED	NYCTICORAX NYCTICORAX
NIGHT-HERON, YELLOW-CROWNED	NYCTICORAX VIOLACEUS
NIGHTHAWK, COMMON	CHORDEILES MINOR
NUTHATCH, RED-BREASTED	SITTA CANADENSIS
NUTHATCH, WHITE-BREASTED	SITTA CAROLINENSIS
ORIOLE, NORTHERN	ICTERUS GALBULA
ORIOLE, ORCHARD	ICTERUS SPURIUS
OVENBIRD	SEIURUS AUROCAPILLUS
OWL, BARRED	STRIX VARIA
OWL, COMMON BARN	TYTO ALBA
OWL, GREAT HORNED	BUBO VIRGINIANUS
OWL, LONG-EARED	OTUS ASIO
OWL, NORTHERN SAW-WHET	AEGOLIUS ACADICUS
OWL, SHORT-EARED	ASIO FLAMMEUS
OWL, SNOWY	NYCTEA SCANDIACA
PEWEE, EASTERN WOOD	CONTOPUS VIRENS
PHALAROPE, RED-NECKED	PHALAROPUS LOBATUS
PHEASANT, RING-NECKED	PHASIANUS COLCHICUS

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County Species List
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* Chester County *

Common Name	Scientific Name
PHOEBE, EASTERN	SAYORNIS PHOEBE
PINTAIL, NORTHERN	ANAS ACUTA
PIPIT, WATER	ANTHUS SPINOLETTA
PLOVER, BLACK-BELLIED	PLUVIALIS SQUATAROLA
PLOVER, LESSER-GOLDEN	PLUVIALIS DOMINICA
PLOVER, SEMIPALMATED	CHARADRIUS SEMIPALMATUS
RAIL, KING	RALLUS ELEGANS
RAIL, VIRGINIA	RALLUS LIMICOLA
RAIL, YELLOW	COTURNICOPS NOVEBORACENSIS
RAVEN, COMMON	CORVUS CORAX
REDHEAD	AYTHYA AMERICANA
REDPOLL, COMMON	CARDUELIS FLAMMEA
REDSTART, AMERICAN	SETOPHAGA RUTICILLA
ROBIN, AMERICAN	TURDUS MIGRATORIUS
SANDPIPER, LEAST	CALIDRIS MINUTILLA
SANDPIPER, PECTORAL	CALIDRIS MELANOTOS
SANDPIPER, SEMIPALMATED	CALIDRIS PUSILLA
SANDPIPER, SOLITARY	TRINGA SOLITARIA
SANDPIPER, SPOTTED	ACTITIS
SANDPIPER, UPLAND	BATRAMIA LONGICAUDA
SAPSUCKER, YELLOW-BELLIED	SPHYRAPICUS VARIUS
SCAUP, GREATER	AYTHYA MARILA
SCAUP, LESSER	AYTHYA AFFINIS
SCOTER, BLACK	MELANITTA NIGRA
SCOTER, WHITE-WINGED	MELANITTA FUSCA
SCREECH-OWL, EASTERN	OTUS ASIO
SHRIKE, LOGGERHEAD	LANIUS LUDOVICIANUS
SHRIKE, NORTHERN	LANIUS EXCUBITOR
SISKIN, PINE	CARDUELIS PINUS
SNIPE, COMMON	GALLINAGO GALLINAGO
SORA	PORZANA CAROLINA
SPARROW, AMERICAN TREE	SPIZELLA ARBOREA
SPARROW, CHIPPING	SPIZELLA PASSERINA
SPARROW, FIELD	SPIZELLA PUSILLA
SPARROW, FOX	PASSERELLA ILIACA
SPARROW, GRASSHOPPER	AMMODRAMUS SAVANNARUM
SPARROW, HENSLOW'S	AMMODRAMUS HENSLOWII
SPARROW, HOUSE	PASSER DOMESTICUS
SPARROW, LINCOLN'S	MELOSPIZA LINCOLNII
SPARROW, SAVANNAH	PASSERCULUS SANDWICHENSIS
SPARROW, SHARP-TAILED	AMMODRAMUS CAUDACUTUS
SPARROW, SONG	MELOSPIZA MELODIA
SPARROW, SWAMP	MELOSPIZA GEORGIANA
SPARROW, VESPER	POOECETES GRAMINEUS
SPARROW, WHITE-CROWNED	ZONOTRICHIA LEUCOPHRYS
SPARROW, WHITE-THROATED	ZONOTRICHIA ALBICOLLIS
STARLING, EUROPEAN	STURNUS VULGARIS
SWALLOW, BANK	RIPARIA RIPARIA
SWALLOW, BARN	HIRUNDO RUSTICA

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Pennsylvania Fish and Wildlife Data Base
County Species List
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* Chester County *

Common Name	Scientific Name
SWALLOW, CLIFF	HIRUNDO PYRRHONOTA
SWALLOW, NORTHERN ROUGH-WINGED	STELGIDOPTERYX SERRIPENNIS
SWALLOW, TREE	TACHYCINETA BICOLOR
SWAN, MUTE	CYGNUS OLOR
SWAN, TUNDRA	CYGNUS COLUMBIANUS
SWIFT, CHIMNEY	CHAETURA PELAGICA
TANAGER, SCARLET	PIRANGA OLIVACEA
TANAGER, SUMMER	PIRANGA RUBRA
TEAL, BLUE-WINGED	ANAS DISCORS
TEAL, GREEN-WINGED	ANAS CRECCA
TERN, BLACK	CHLIDONIAS NIGER
TERN, CASPIAN	STERNA CASPIA
TERN, COMMON	STERNA HIRUNDO
THRASHER, BROWN	TOXOSTOMA RUFUM
THRUSH, GRAY-CHEEKED	CATHARUS MINIMUS
THRUSH, HERMIT	CATHARUS GUTTATUS
THRUSH, SWAINSON'S	CATHARUS USTULATUS
THRUSH, WOOD	HYLOCICHLA MUSTELINA
TITMOUSE, TUFTED	PARUS BICOLOR
TOWHEE, RUFOUS-SIDED	PIPILO ERYTHROPHTHALMUS
TURKEY, WILD	MELEAGRIS GALLOPAVO
VEERY	CATHARUS FUSCESCENS
VIREO, PHILADELPHIA	VIREO PHILADELPHICUS
VIREO, RED-EYED	VIREO OLIVACEUS
VIREO, SOLITARY	VIREO SOLITARIUS
VIREO, WARBLING	VIREO GILVUS
VIREO, WHITE-EYED	VIREO GRISEUS
VIREO, YELLOW-THROATED	VIREO FLAVIFRONS
VULTURE, BLACK	CORAGYPS ATRATUS
VULTURE, TURKEY	CATHARTES AURA
WARBLER, BAY-BREASTED	DENDROICA CASTANEA
WARBLER, BLACK-AND-WHITE	MNIOTILTA VARIA
WARBLER, BLACK-THROATED BLUE	DENDROICA CAERULESCENS
WARBLER, BLACK-THROATED GREEN	DENDROICA VIRENS
WARBLER, BLACKBURNIAN	DENDROICA FUSCA
WARBLER, BLACKPOLL	DENDROICA STRIATA
WARBLER, BLUE-WINGED	VERMIVORA PINUS
WARBLER, CANADA	WILSONIA CANADENSIS
WARBLER, CAPE MAY	DENDROICA TIGRINA
WARBLER, CERULEAN	DENDROICA CERULEA
WARBLER, CHESTNUT-SIDED	DENDROICA PENNSYLVANICA
WARBLER, GOLDEN-WINGED	VERMIVORA CHRYSOPTERA
WARBLER, HOODED	WILSONIA CITRINA
WARBLER, KENTUCKY	OPORORNIS FORMOSUS
WARBLER, KIRTLAND'S	DENDROICA KIRTLANDII
WARBLER, MAGNOLIA	DENDROICA MAGNOLIA
WARBLER, MOURNING	OPORORNIS PHILADELPHIA
WARBLER, NASHVILLE	VERMIVORA RUFICAPILLA
WARBLER, NORTHERN PARULA	PARULA AMERICANA

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Pennsylvania Fish and Wildlife Data Base
County Species List
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* Chester County *

Common Name	Scientific Name
WARBLER, PINE	DENDROICA PINUS
WARBLER, PRAIRIE	DENDROICA DISCOLOR
WARBLER, PROTHONOTARY	PROTONOTARIA CITREA
WARBLER, TENNESSEE	VERMIVORA PEREGRINA
WARBLER, WILSON'S	WILSONIA PUSILLA
WARBLER, WORM-EATING	HELMITHEROS VERMIVORUS
WARBLER, YELLOW	DENDROICA PETECHIA
WARBLER, YELLOW-RUMPED	DENDROICA CORONATA
WARBLER, YELLOW-THROATED	DENDROICA DOMINICA
WATERTHRUSH, LOUISIANA	SEIURUS MOTACILLA
WATERTHRUSH, NORTHERN	SEIURUS NOVEBORACENSIS
WAXWING, CEDAR	BOMBYCILLA CEDRORUM
WHIMBREL	NUMENIUS PHAEOPUS
WHIP-POOR-WILL	CAPRIMULGUS VOCIFERUS
WIGEON, AMERICAN	ANAS AMERICANA
WIGEON, EURASIAN	ANAS PENELOPE
WILLET, EASTERN	CATOPTROPHORUS SEMIPALMATUS
WOODCOCK, AMERICAN	SCOLOPAX MINOR
WOODPECKER, DOWNY	PICOIDES PUBESCENS
WOODPECKER, HAIRY	PICOIDES VILLOSUS
WOODPECKER, PILEATED	DRYOCOPUS PILEATUS
WOODPECKER, RED-BELLIED	MELANERPES CAROLINUS
WOODPECKER, RED-HEADED	MELANERPES ERYTHROCEPHALUS
WREN HOUSE	TROGLODYTES AEDON
WREN, CAROLINA	THRYOTHORUS LUDOVICIANUS
WREN, MARSH	CISTOTHORUS PALUSTRIS
WREN, SEDGE	CISTOTHORUS PLATENSIS
WREN, WINTER	TROGLODYTES TROGLODYTES
YELLOWLEGS, GREATER	TRINGA MELANOLEUCA
YELLOWLEGS, LESSER	TRINGA FLAVIPES
YELLOWTHROAT, COMMON	GEOTHLYPIS TRICHAS

BAT, BIG BROWN	EPTESICUS FUSCUS
BAT, HOARY	LASIURUS CINEREUS
BAT, RED	LASIURUS BOREALIS
BEAR, BLACK	URSUS AMERICANUS
BEAVER	CASTOR CANADENSIS
CHIPMUNK, EASTERN	TAMIAS STRIATUS
COTTONTAIL, EASTERN	SYLVILAGUS FLORIDANUS
COYOTE	CANIS LATRANS
DEER, WHITE-TAILED	ODOCOILEUS VIRGINIANUS
FOX, GRAY	UROCYON CINEREOARGENTEUS
FOX, RED	VULPES VULPES
MINK	MUSTELA VISON
MOLE, EASTERN	SCALOPUS AQUATICUS
MOLE, STAR-NOSED	CONDYLURA CRISTATA
MOUSE, HOUSE	MUS MUSCULUS

Pennsylvania Fish and Wildlife Data Base
County Species List
04 MAY 1990

* Chester County *

Common Name	Scientific Name
MOUSE, MEADOW JUMPING	ZAPUS HUDSONIUS
MOUSE, WHITE-FOOTED	PEROMYSCUS LEUCOPUS
MUSKRAT	ONDATRA ZIBETHICUS
MYOTIS, KEEN'S	MYOTIS KEENII
MYOTIS, LITTLE BROWN	MYOTIS LUCIFUGUS
OPOSSUM, VIRGINIA	DIDELPHIS VIRGINIANA
PORCUPINE	ERETHIZON DORSATUM
RACCOON	PROCYON LOTOR
RAT, NORWAY	RATTUS NORVEGICUS
SHREW, LEAST	CRYPTOTIS PARVA
SHREW, MARYLAND	SOREX FONTINALIS
SHREW, NORTHERN SHORT-TAILED	BLARINA BREVICAUDA
SHREW, SMOKY	SOREX FUMEUS
SKUNK, STRIPED	MEPHITIS MEPHITIS
SQUIRREL, GRAY	SCIURUS CAROLINENSIS
SQUIRREL, RED	TAMIASCIURUS HUDSONICUS
SQUIRREL, SOUTHERN FLYING	GLAUCOMYS VOLANS
VOLE, MEADOW	MICROTUS PENNSYLVANICUS
VOLE, WOODLAND	MICROTUS PINETORUM
WEASEL, LONG-TAILED	MUSTELA FRENATA
WOODCHUCK	MARMOTA MONAX

AR300179

APPENDIX F

CONTACT REPORT

CONTACT REPORT

Meeting [ ] Telephone [X] Other [ ]

PERSON CONTACTED: Michael Webb, Chief Organic Chemistry Laboratory, Bureau of Laboratories, Pennsylvania Department of Environmental Resources.

PHONE NO.: (717) 787-4669

FROM: Carl Stineman

DATE: February 27, 1991

SUBJECT: Methodology, data quality, and detection limits for residential water samples from the Strasburg Landfill area collected and analyzed by PADER.

The samples in question were collected from October 1983 through July 1990 and were analyzed by the PADER laboratory in Harrisburg for volatile organics. Michael Webb worked in the laboratory's mass spectrometry section from 1984 through 19__ and became chief of the organic chemistry laboratory in 1990. The discussion covered the methodologies used by the lab during the time period in question, the QA/QC measures employed by the lab, and the detection limits applicable to the data in question.

Methodology and Detection Limits

Prior to 1984, the laboratory used the standard unmodified EPA method 624 to analyze volatile organics in drinking water samples. This method involves sample introduction via a purge-and-trap system, separation of the compounds of interest via packed-column gas chromatography and mass spectrometric detection. This method continues to be used as the routine analytical method by EPA's contract laboratory program. The quantitation limits (QL) for most of the chemicals of concern at the Strasburg Landfill (PCE, TCE, 1,1-DCE, 1,2-DCE and 1,1,2,2-Tetrachloroethane) are 5 µg/L while the QL for vinyl chloride is 10 µg/l. The qualitative detection limit is usually about half of the quantitation limit.

In 1984, the lab upgraded its equipment and went to a modified method 624 that added cryofocusing to the sample introduction phase and substituted a 0.75 mm ID capillary column for the packed column in the gas chromatographic separation phase. Mass spectrometry was retained in the detection stage. The upgrade lowered the laboratory's limits for volatiles, including vinyl chloride, to 1 to 2 µg/L.

In 1990, the laboratory's equipment was further upgraded to incorporate ion trap detection (ITD). In conjunction with this upgrade, the new EPA drinking water method, method 524.2, was implemented. This resulted in a further lowering of the laboratory's detection limits for volatiles to a quantitative reporting limit of 0.3 µg/L with a qualitative detection limit of 0.1 µg/L.

Data Quality Assurance

The laboratory's Data Quality Assurance Program consists of implementing the quality control program specified in the methods. The chemist performing the analysis is responsible for implementing the procedures and reviewing the results to ensure that the mandated data-quality objectives were met. These measures included checking the mass spectra or surrogates and analytes to verify their identity, and checking blank, standard, duplicate, and spike results to ensure the precision and accuracy of the quantitative determinations. No separate third-party data validation review was used.

CS:MMM/lct
[CRS]ZD5062:D3222

APPENDIX G

LABORATORY DATA SUMMARY SHEETS

Air Organic Results

Case Number: 5310C Task 1

DATA SUMMARY FORM: O R G A N I C S

AIR
~~WATER~~ SAMPLES
(µg/L)

ame: Strasburg Landfill

: 53/cc - Sampling Date(s): 4/19/90
Task 1

To calculate sample quantitation limit:
(QL * Dilution Factor)

Sample No.	01		03		07		05		06		07		08		09		10	
Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
Location	Southwest, West of Landfill		Background		Eastside of Landfill		North of Leachate Tank (Duplicate of 13)		North Borrow Area		North of Top of Landfill		Eastside of Bear Run		Centerfield North of Landfill		South Top of Landfill	
COMPOUND																		
chloromethane	0.57	L		UL	0.53	L	0.52	L		UL	0.51	L		UL	0.51	L	0.49	L
bromomethane		UL		↓		UL		UL		↓		UL		↓		UL		UL
vinyl chloride		↓		↓		↓		↓		↓		↓		↓		↓		↓
chloroethane																		
methylene chloride	0.16	J	0.32	L	0.78	L	0.35	L	0.29	L	0.27	L	0.25	L	0.24	L	0.24	L
1,1-dichloroethene		UL		UL		UL		UL		UL		UL		UL		UL		UL
1,1-dichloroethane												↓						
cis-1,2-dichloroethene											0.08	J						
chloroform												UL						
1,2-dichloroethane		↓				↓		↓		↓		↓		↓		↓		↓
1,1,1-trichloroethane	0.19	J			0.20	J	0.22	J	0.22	J	0.21	J	0.20	J	0.20	J	0.19	J
carbon tetrachloride	0.10	J			0.11	J	0.11	J	0.11	J	0.11	J	0.12	J	0.10	J	0.10	J
1,3-dichlorobenzene		UL				UL		UL		UL		UL		UL		UL		UL
1,4-dichlorobenzene	0.03	J				↓	0.02	J		↓	0.03	J	0.02	J		↓	0.03	J
1,2-dichlorobenzene		UL						UL				UL		UL				UL
dichlorodifluoromethane	0.79	L			0.51	L	0.54	L	0.55	L	0.55	L	0.03	J	0.50	L	0.48	L
dichlorotetrafluoroethane		UL		↓		UL		UL		UL	0.06	J		UL		UL	0.03	J
trichlorofluoromethane	0.32	L	0.04	J	0.30	L	0.35	L	0.29	L	1.65	L		↓	0.48	L	0.31	L
trichlorotrifluoroethane	0.08	B	0.39	B	0.07	B	0.09	B	0.09	B	0.08	B	0.05	B	0.05	B	0.05	B
1,2-dichloropropane		UL		UL		UL		UL		UL		UL		UL		UL		UL
trans-1,3-dichloropropene																		
trichloroethene																		
1,1,2-trichloroethane		↓				↓		↓		↓		↓		↓		↓		↓
benzene	0.23	L		↓	0.23	L	0.23	L	0.23	L	0.25	L	0.22	L	0.22	L	0.22	L

Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITION
revised 07/90

AR300187

DATA SUMMARY FORM: ORGANICS

AIR
~~WATER~~ SAMPLES
(µg/L)

ame: Strasburg Landfill

5310C - Sampling Date(s): 4/19/90
Task 1

To calculate sample quantitation limit
(QL * Dilution Factor

Sample No.	01		03		04		05		06		07		08		09		10	
Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
Location	Southeast, West of Landfill		Background		East side of Landfill		North of Leachate Tank		North Borrow Area		North of Top of Landfill		East side of Bear Run		Cornfield North of Landfill		South Top of Landfill	
COMPOUND																		
cis-1,3-dichloropropene		UL		UL		UL		UL		UL		UL		UL		UL		UL
tetrachloroethene	0.02	J		↓	0.03	J	0.03	J	0.03	J	0.04	J	0.03	J	0.03	J	0.03	J
1,1,2,2-tetrachloroethane		UL				UL		UL		UL		UL		UL		UL		UL
toluene	0.30	B	0.10	B	0.31	B	0.26	B	0.29	B	0.45	B	0.26	B	0.23	B	0.33	B
chlorobenzene		UL		UL		UL		UL		UL		UL		UL		UL		UL
ethylbenzene		↓		↓	0.05	J		↓		↓	0.12	J	0.05	J		↓	0.13	J
1,2-dibromoethane		↓		↓		UL		↓		↓		UL		UL		↓		UL
o-xylene	0.05	J		↓	0.06	J	0.04	J	0.06	J	0.10	J	0.08	J	0.06	J	0.08	J
m/p xylene	0.11	J	0.02	J	0.12	J	0.10	J	0.11	J	0.25	L	0.15	J	0.12	J	0.23	L
Styrene		UL		UL		UL		UL		UL		UL		UL		UL		UL
1,3,5-trimethylbenzene		↓		↓		↓		↓		↓		↓		↓		↓		↓
1,2,4-trimethylbenzene	0.04	J		↓	0.03	J	0.03	J	0.04	J	0.05	J	0.04	J	0.04	J	0.05	J
1,2,4-trichlorobenzene		UL		↓		UL		UL		UL		UL		UL		UL		UL
benzyl chloride		↓		↓		↓		↓		↓		↓		↓		↓		↓
hexachlorobutadiene		↓		↓		↓		↓		↓		↓		↓		↓		↓

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AR300188

uantitation Limit

SEE NARRATIVE FOR CODE DEFINITIO

rev d 07/90

DATA SUMMARY FORM: ORGANICS

AIR
~~WATER~~ SAMPLES
(µg/L)

Name: Strasburg Landfill

53UCC - Sampling Date(s): 4/19/90
Task 1

To calculate sample quantitation limit
(QL * Dilution Factor

COMPOUND	Sample No. / Dilution Factor / Location																					
	11 / 1.0 / South Borrow Area		11RE / 1.0 / South Borrow Area		12 / 1.0 / Westside of Landfill			13 / 1.0 / North of Leachate Tank (Duplicate of 05)			13RE / 1.0 / North of Leachate Tank (Duplicate of 05)											
chloromethane	0.58	L	0.51	L		UL		0.62	L		0.56	L										
bromomethane		UL		UL		↓			UL			UL										
vinyl chloride		↓		↓	0.48	L			↓			↓										
chloroethane						UL																
methylene chloride	0.17	J	0.16	J	0.23	L		0.19	J		0.26	L										
1,1-dichloroethene		UL		UL		UL			UL			UL										
1,1-dichloroethane						↓																
cis-1,2-dichloroethene					0.64	L																
chloroform						UL																
1,2-dichloroethane		↓		↓		↓			↓			↓										
1,1,1-trichloroethane	0.20	J	0.20	J	0.22	J		0.20	J		0.21	J										
carbon tetrachloride	0.11	J	0.11	J	0.10	J		0.09	J		0.10	J										
1,3-dichlorobenzene	0.03	J		UL		UL			UL			UL										
1,4-dichlorobenzene	0.05	J		↓	0.05	J		0.03	J		0.02	J										
1,2-dichlorobenzene	0.05	J		↓		UL			UL			UL										
dichlorodifluoromethane	0.52	L	0.50	L	0.58	L		0.51	L		0.53	L										
1,1,2-trichloro-1,2,2-trifluoroethane		UL		UL		UL			UL		0.03	J										
trichlorofluoromethane	0.38	L	0.36	L	0.46	L		0.29	L		0.30	L										
trichlorotrifluoroethane	0.09	B	0.08	B	0.08	B		0.10	B		0.10	B										
1,2-dichloropropane		UL		UL		UL			UL			UL										
trans-1,3-dichloropropene		↓		↓		↓			↓			↓										
trichloroethene					0.14	J																
1,1,2-trichloroethane		↓		↓		UL			↓			↓										
benzene	0.25	L	0.24	L	0.24	L		0.23	L		0.23	L										

Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIO

revised 07/90

DATA SUMMARY FORM: ORGANICS

Name: Strasburg Landfill

AIR
~~WATER~~ SAMPLES
(µg/L)

#: 5310C - Sampling Date(s): 4/19/90
Task 1

To calculate sample quantitation limit
(QL * Dilution Factor

Sample No.	11		11RE		12		13		13RE							
Dilution Factor	1.0		1.0		1.0		1.0		1.0							
Location	South Borrow Area		South Borrow Area		Westside of Landfill		North of Leachate Tank (Duplicate of 05)		North of Leachate Tank (Duplicate of 05)							
COMPOUND																
c-1,3-dichloropropene		UL		UL		UL		UL		UL						
tetrachloroethene	0.03	J		UL	0.09	J	0.03	J	0.03	J						
1,1,2,2-tetrachloroethane		UL		UL		UL		UL		UL						
toluene	0.34	B	0.33	B	1.53	L	0.26	B	0.28	B						
chlorobenzene		UL		UL		UL		UL		UL						
ethylbenzene					0.29	L										
1,2-dibromoethane						UL										
o-xylene	0.06	J	0.05	J	0.18	J	0.04	J	0.05	J						
m/p-xylene	0.14	J	0.13	J	0.57	L	0.12	J	0.13	J						
styrene		UL		UL		UL		UL		UL						
1,3,5-trimethylbenzene		UL		UL	0.04	J		UL		UL						
1,2,4-trimethylbenzene	0.07	J	0.04	J	0.10	J	0.04	J	0.03	J						
1,2,4-trichlorobenzene		UL		UL		UL		UL		UL						
benzyl chloride																
hexachlorobutadiene																

Quantitation Limit

SEE NARRATIVE FOR COD[illegible]EFINITIC

revised 07/90

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Water and Soil Organic Results

Case Number:	4368I
	5266C-Task 1
	5322C-Task 1
	13415
	13444
	13634
	13653
	13688
	13958
Job Number:	9000.519
	9003.025

High Concentration

DATA SUMMARY FORM: VOLATILES 1

Page 1 of 7

Site Name: Strasburg Landfill

SAS ~~Case~~ #: 4368I-Se135 Sampling Date(s): 6/21/89

Water Miscible Liquid ~~WATER~~ SAMPLES

~~(ug/L)~~ mg/kg

To calculate sample quantitation limit: (CRQL * Dilution Factor)

CRQL	COMPOUND																	
	Sample No.	CA1499																
	Dilution Factor	1.0																
	Location	LS-1																
5.0	Chloromethane																	
5.0	Bromomethane																	
5.0	*Vinyl Chloride																	
5.0	Chloroethane																	
2.5	*Methylene Chloride	1.0	J															
5.0	Acetone																	
2.5	Carbon Disulfide																	
2.5	*1,1-Dichloroethene																	
2.5	1,1-Dichloroethane																	
2.5	*Total-1,2-Dichloroethene																	
2.5	Chloroform																	
2.5	*1,2-Dichloroethane																	
5.0	*2-Butanone		R															
2.5	*1,1,1-Trichloroethane																	
2.5	*Carbon Tetrachloride																	
5.0	Vinyl Acetate																	
2.5	Bromodichloromethane																	

CRDL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

DATA SUMMARY FORM: High Concentration VOLATILES 2 Page 2 of 7

Water Miscible Liquid

Site Name: Strasburg Landfill

~~SAS Case~~ #: 4368I-Set 35 Sampling Date(s): 6/21/89

~~WATER~~ SAMPLES

~~ug/L~~ mg/kg

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

CRQL	COMPOUND	Sample No.																			
		Dilution Factor																			
		Location																			
			CA1149																		
			1.0																		
			LS-1																		
2.5	*1,2-Dichloropropane																				
2.5	Cis-1,3-Dichloropropene																				
2.5	Trichloroethene																				
2.5	Dibromochloromethane																				
2.5	1,1,2-Trichloroethane																				
2.5	*Benzene																				
2.5	Trans-1,3-Dichloropropene																				
2.5	Bromoform																				
5.0	4-Methyl-2-pentanone																				
5.0	2-Hexanone																				
2.5	*Tetrachloroethene																				
2.5	1,1,2,2-Tetrachloroethane																				
2.5	*Toluene																				
2.5	*Chlorobenzene																				
2.5	*Ethylbenzene																				
2.5	*Styrene																				
2.5	*Total Xylenes																				

CRDL = Contract Required Detection Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

High Concentration

DATA SUMMARY FORM: B N A S 1

Water Miscible Liquid

~~WATER~~ SAMPLES

~~(ug/L)~~ mg/kg

Site Name: Strasburg Landfill

~~SAS Case~~ #: 4368I-Set35 Sampling Date(s): 6/21/89

To calculate sample quantitation limit: (CRQL * Dilution Factor)

CRQL	COMPOUND	Sample No. CAV49																			
		Dilution Factor 1.0																			
		Location LS-1																			
20	Phenol																				
20	bis(2-Chloroethyl)ether																				
20	2-Chlorophenol																				
20	*1,3-Dichlorobenzene																				
20	*1,4-Dichlorobenzene																				
20	Benzyl Alcohol																				
20	1,2-Dichlorobenzene																				
20	2-Methylphenol																				
20	bis(2-Chloroisopropyl)ether																				
20	4-Methylphenol																				
20	N-Nitroso-di-n-propylamine																				
20	Hexachloroethane																				
20	Nitrobenzene																				
20	Isophorone																				
20	2-Nitrophenol																				
20	2,4-Dimethylphenol																				
100	Benzoic Acid																				
20	bis(2-Chloroethoxy)methane																				
20	2,4-Dichlorophenol																				
20	1,2,4-Trichlorobenzene																				
20	Naphthalene																				
20	4-Chloroaniline																				

CRDL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

High Concentration

DATA SUMMARY FORM: B N A S 2

Water Miscible Liquid ~~WATER~~ SAMPLES

~~(ug/L)~~ mg/kg

Site Name: Strasburg Landfill

SAS ~~Case~~ #: 4368E-Set35 Sampling Date(s): 6/21/89

To calculate sample quantitation limit: (CRQL * Dilution Factor)

CRQL	COMPOUND	Sample No.									
		Dilution Factor									
		Location									
			QAV99								
			1.0								
			LS-1								
20	Hexachlorobutadiene										
20	4-Chloro-3-methylphenol										
20	2-Methylnaphthalene										
20	Hexachlorocyclopentadiene										
20	2,4,6-Trichlorophenol										
100	2,4,5-Trichlorophenol										
50	2-Chloronaphthalene										
100	2-Nitroaniline										
20	Dimethylphthalate										
20	Acenaphthylene										
20	2,6-Dinitrotoluene										
100	3-Nitroaniline										
20	Acenaphthene										
100	2,4-Dinitrophenol										
100	4-Nitrophenol										
20	Dibenzofuran										
20	2,4-Dinitrotoluene										
20	Diethylphthalate										
20	4-Chlorophenyl-phenylether										
20	Fluorene										
100	4-Nitroaniline										
100	4,6-Dinitro-2-methylphenol										

CRDL Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

revised 12/88

High Concentration

DATA SUMMARY FORM: B N A S 3

Water Miscible Liquid

~~WATER~~ SAMPLES

~~(ug/L)~~ mg/kg

Site Name: Strasburg Landfill

~~Case~~ SAS #: 4368I-Set3 Sampling Date(s): 6/21/89

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

CRDL	COMPOUND	Sample No.		Sample No.		Sample No.		Sample No.		Sample No.		Sample No.		Sample No.		Sample No.	
	Dilution Factor	1.0															
	Location	LS-1															
20	N-Nitrosodiphenylamine																
20	4-Bromophenyl-phenylether																
20	*Hexachlorobenzene																
100	*Pentachlorophenol																
20	Phenanthrene																
20	Anthracene																
20	Di-n-butylphthalate																
20	Fluoranthene																
20	Pyrene																
20	Butylbenzylphthalate																
40	3,3-Dichlorobenzidine																
20	Benzo(a)anthracene																
20	Chrysene																
20	bis(2-Ethylhexyl)phthalate	3	B														
20	Di-n-octylphthalate																
20	Benzo(b)fluoranthene																
20	Benzo(k)fluoranthene																
20	Benzo(a)pyrene																
20	Indeno(1,2,3-cd)pyrene																
20	Dibenz(a,h)anthracene																
20	Benzo(g,h,i)perylene																

CRDL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

High Concentration

DATA SUMMARY FORM: B N A S 4

Water Miscible Liquid

~~WATER~~ SAMPLES

~~(ug/L)~~ mg/Kg

Site Name: Strasburg Landfill

~~Case~~ SAS #: 4368I-Set3 Sampling Date(s): 6/21/89

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

CRQL	COMPOUND									
	Sample No.	CAV44								
	Dilution Factor	1.0								
	Location	LS-1								
100	Monochlorobiphenyl									
100	Dichlorobiphenyl									
100	Trichlorobiphenyl									
100	Tetrachlorobiphenyl									
100	Hexachlorobiphenyl									
100	Pentachlorobiphenyl									
100	Heptachlorobiphenyl									
200	Octachlorobiphenyl									
200	Nonachlorobiphenyl									
200	Decachlorobiphenyl									

AR300187

CRDL Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITION

revised 12/

DATA SUMMARY FORM: PESTICIDES AND PCBS — High Concentration

Page 7 of 7

Site Name: Strasburg Landfill

~~SAS Case~~ #: 4368I-Set 35 Sampling Date(s): 6/21/89

Water Miscible Liquid

~~WATER~~ SAMPLES

~~(ug/L)~~ mg/kg

To calculate sample quantitation limit: (CRQL * Dilution Factor)

CRQL	COMPOUND										
	Sample No.	CAV44									
	Dilution Factor	1.0									
	Location	LS-1									
20	alpha-BHC										
20	beta-BHC										
20	delta-BHC										
20	*Gamma-BHC (Lindane)										
20	*Heptachlor										
20	Aldrin										
20	Heptachlor Epoxide										
20	Endosulfan I										
20	Dieldrin										
20	4,4'-DDE										
20	*Endrin										
20	Endosulfan II										
20	4,4'-DDD										
20	Endosulfan Sulfate										
20	4,4'-DDT										
20	*Methoxychlor										
20	Endrin ketone										
20	*Alpha-Chlordane										
20	*Gamma-Chlordane										
50	*Toxaphene										
10	*Aroclor-1016										
10	*Aroclor-1221										
10	*Aroclor-1232										
10	*Aroclor-1242										
10	*Aroclor-1248										
10	*Aroclor-1254										
10	*Aroclor-1260										

CRDL = Contract Required Detection Limit

*Action Level Exists

SEE NARRATIVE FOR CODE DEFINITIONS

DATA SUMMARY FORM:

ne: Strasburg Landfill

5266C-Task 1 Sampling Date(s): 3/2-3/8/90

Water Samples - Purgeables (601/602)

(Results expressed in µg/L)

Sample No.	1		2		3		4		5		6		7/7DL		8/8DL		9	
Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0/2.0		1.0/2.0		1.0	
Location	SB-SP-1		SB-SP-2		SB-SP-3		TB-3-2 (Trip Blank)		SB-BW-3		TB-3-5A (Trip Blank)		SB-SA-1		SB-SA-1D		TB-3-6A (Trip Blank)	
meter																		
romethane																		
romethane																		
l chloride													19		18			
roethane													2.6		2.6			
hylene chloride							7.0		1.6	B	7.5						6.4	
lorofluoromethane																		
richloroethene																		
richloroethane													27		26			
-1,2-dichloroethene													1.3		1.4			
oform							1.9				1.4						2.0	
dichloroethene		UJ		UJ		UJ		UJ		UJ		UJ	3.7	J	3.9	J		UJ
trichloroethane																		
n tetrachloride																		
dichloromethane																		
lichloropropane													3.8		3.8			
3-dichloropropene																		
hloroethene													1.2		1.2			

DATA SUMMARY FORM: Water Samples- Purgeables (601/602)

me: Strasburg Landfill

5266C-Task 1 Sampling Date(s): 3/2-3/8/90 (Results expressed in µg/L)

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Sample No.	1	2	3	4	5	6	7/7DL	8/8DL	9
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0/2.0	1.0/2.0	1.0
Location	SB-SP-1	SB-SP-2	SB-SP-3	TB-3-2 (Trip Blank)	SB-BW-3	TB-3-5A (Trip Blank	SB-SA-1	SB-SA-10	TB-3-6A (Trip Blank)
.meter									
enochloromethane									
-trichloroethene									
s-1,3-dichloropropene									
notoform									
2-tetrachloroethene									
ichloroethene									
robenzene							6.6	6.5	
dichlorobenzene									
dichlorobenzene							3.5	3.2	
lichlorobenzene							16	15	
1,2-dichloroethene							52	54	
zene							4.2	4.2	
ylbenzene									
ene									
ene (total)									

AR300200

6-16

DATA SUMMARY FORM:

ne: Strasburg Landfill

Water Samples - Purgeables (601/602)

5266C-Task 1 Sampling Date(s): 3/2-3/8/90

(Results expressed in µg/L)

Sample No.	10/100L		11		12		13		14									
Dilution Factor	1.0/2.0		1.0		1.0		1.0		1.0									
Location	SB-SA-2		SB-BW-5		TB-3-7A (Trip Blank)		SB-BW-6		TB-3-8A (Trip Blank)									
meter																		
romethane																		
romethane																		
l chloride	12																	
roethane	1.2																	
hylene chloride	1.1	B			6.1				4.5									
lorofluoromethane																		
ichloroethene																		
ichloroethane	15																	
-1,2-dichloroethene	1.3																	
roform					1.4													
lichloroethane	3.6	J		UJ		UJ		UJ		UJ								
trichloroethane																		
on tetrachloride																		
lichloromethane																		
ichloropropane	3.5																	
3-dichloropropene																		
hloroethene	5.5																	

DATA SUMMARY FORM:

ne: Strasburg Landfill

Water Samples - Purgeables (601/602)

5266C-Task 1 Sampling Date(s): 3/2-3/8/90

(Results expressed in µg/L)

Sample No.	10/10DL	11	12	13	14				
Dilution Factor	1.0/2.0	1.0	1.0	1.0	1.0				
Location	SB-SA-2	SB-BW-5	TB-3-7A (Trip Blank)	SB-BW-6	TB-3-8A (Trip Blank)				
meter									
nochloromethane									
trichloroethene									
1,3-dichloropropene									
oform									
-tetrachloroethene									
chloroethene									
obenzene	5.7								
lichlorobenzene									
lichlorobenzene	3.2								
lichlorobenzene	14								
2-dichloroethene	41								
ene	5.7								
/benzene									
ene									
ene (total)									

AR300202

G-18

DATA SUMMARY FORM: ORGANICS

ame: Strasburg Landfill

WATER SAMPLES (µg/L) Method 601

: 5323C - Sampling Date(s): 4/16 - 4/27/90
Task 1

To calculate sample quantitation limit
(QL * Dilution Factor

Sample No.	01		02		03		04		05		06		07		08		09	
Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
Location	TB-4/16 (Trip Blank)		LR-355		LR-355A		LR-356		LR-355		LR-355C		LR-355X		TB-4/17 (Trip Blank)		BCR-74	
Parameter																		
Chloromethane																		
Bromomethane																		
Dichlorodifluoromethane																		
Chloroethene									0.331	R								
Chloroethane																		
Methylene Chloride	3.49														3.20			
Trichlorofluoromethane																		
1,1-Dichloroethene																		
1,1-Dichloroethane							1.73	R	3.52	R	5.25	R						
Trans-1,2-Dichloroethene							3.25	R	14.1		19.5	R						
Chloroform	0.812	J													0.612	J		
1,2-Dichloroethane																		
1,1,1-Trichloroethane																		
Carbon Tetrachloride																		
Bromodichloromethane																		
1,2-Dichloropropane																		
trans-1,3-Dichloropropene																		
Tetrachloroethene					0.775	R	1.37		4.55	R	4.60	R						
Dibromochloromethane																		
cis-1,3-Dichloropropene																		
1,1,2-Trichloroethane																		
Bromoform																		
Trichloroethene					0.755	R	1.13		1.73	R	1.86	R						
1,1,2,2-Tetrachloroethane																		

uantitation Limit

SEE NARRATIVE FOR CODE DEFINITIO

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DATA SUMMARY FORM: ORGANICS

ime: Strasberg Landfill

WATER SAMPLES (µg/L) Method 601/602

5322C-Task 1 Sampling Date(s): 4/16-4/27/90

To calculate sample quantitation lim
(QL * Dilution Fact

Sample No.	01	02	03	04	05	06	07	08	09
Dilution	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Location	TB-4/16 (Trip Blank)	LR-358	LR-355A	LR-356	LR-355	LR-355D	LR-355X	TB-4/17 (Trip Blank)	BCK-7
Parameter									
Method 601-									
Chlorobenzene									
1,3-Dichlorobenzene									
1,2-Dichlorobenzene									
1,4-Dichlorobenzene									
Method 602-									
Benzene	1.42 R								
Toluene	1.58								
Chlorobenzene									
Ethyl Benzene									
Xylene									
1,3-Dichlorobenzene									
1,4-Dichlorobenzene									
1,2-Dichlorobenzene									

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DATA SUMMARY FORM: ORGANICS

lame: Strasburg Landfill

WATER SAMPLES (µg/L) Method 601

5322C - Sampling Date(s): 4/16-4/27/90
Task 1

To calculate sample quantitation limit
(QL * Dilution Factor

Sample No.	10	11	12	13	14	15	16	17	18
Dilution	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Location	BCR-755	BCR-752	LOT-55	LOT-35	TB-4/18 (Trip Blank)	SR-795	LR-353A	LR-353B	FB RW-1 (Field Blank)
Parameter									
Chloromethane									
Bromomethane									
Dichlorodifluoromethane									
Chloroethene									
Chloroethane									
Methylene Chloride					0.557 J				3.11
Trichlorofluoromethane									
1,1-Dichloroethene									
1,1-Dichloroethane									
Trans-1,2-Dichloroethene									
Chloroform					0.031 J				0.441
1,2-Dichloroethane									
1,1,1-Trichloroethane									
Carbon Tetrachloride									
Bromodichloromethane									
1,2-Dichloropropane									
Trans-1,3-Dichloropropene									
Tetrachloroethene									
Dibromochloromethane									
cis-1,3-Dichloropropene									
1,1,2-Trichloroethane									
Bromoform									
Trichloroethene									
1,1,2,2-Tetrachloroethane									

Quantitation Limit 5

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DATA SUMMARY FORM: ORGANICS

ame: Strasburg Landfill

WATER SAMPLES (µg/L) Method 601/602

5322C- Sampling Date(s): 4/16-4/27/90
Task 1

To calculate sample quantitation lim
(QL * Dilution Fact

Sample No.	10	11	12	13	14	15	16	17	18
Dilution	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Location	BCR-755	BCR-752	LOT-55	LOT-35	TB-4/18 (Trip Blank)	SR-795	LR-353A	LR-353B	FB 4/16 (Field Blank
Parameter									
Method 601-									
Chlorobenzene									
1,3-Dichlorobenzene									
1,2-Dichlorobenzene									
1,4-Dichlorobenzene									
Method 602-									
Benzene									
Toluene									
Chlorobenzene									
Ethyl Benzene									
Xylene									
1,3-Dichlorobenzene									
1,4-Dichlorobenzene									
1,2-Dichlorobenzene									

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antitation Limit

SEE NARRATIVE FOR CODE DEFINIT

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G-2

DATA SUMMARY FORM: ORGANICS

: Strasburg Landfill

WATER SAMPLES (µg/L) Method 601

3220- Sampling Date(s): 4/16-4/27/90
Task 1

To calculate sample quantitation limit:
(QL * Dilution Factor)

Sample No.	19		20		21		22		23		24		25		26		27	
Dilution	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
Location	MW-15		TB-4/19 (Trip Blank)		MW-35		MW-20		MW-21		MW-4		LR-355Z		TB-4/23 (Trip Blank)		SB-MW-25	
Parameter																		
Chloromethane																		
Bromomethane																		
Dichlorodifluoromethane																		
Chloroethene																	9.38	R
Chloroethane																		
Methylene Chloride			2.77		0.850	B	0.659	B	0.634	B	0.796	B	1.14	B	1.66		0.870	B
Trichlorofluoromethane																		
1,1-Dichloroethene																		
1,1-Dichloroethane													3.94	R			2.23	R
trans-1,2-Dichloroethene													20.1				1.12	R
Chloroform			0.511	J													0.813	U
1,2-Dichloroethane																	1.87	R
1,1,1-Trichloroethane																		
Carbon Tetrachloride																		
Bromodichloromethane																		
1,2-Dichloropropane																		
trans-1,3-Dichloropropene																		
Tetrachloroethene													4.81	R			5.80	R
Dibromochloromethane																		
cis-1,3-Dichloropropene																		
1,1,2-Trichloroethane																		
Bromoform																		
Trichloroethene													2.00	R			1.16	R
1,1,2,2-Tetrachloroethane																		

Quantitation Limit

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DATA SUMMARY FORM: ORGANICS

: Strasberg Landfill

WATER SAMPLES (µg/L)

Method 601/602

5322C-
Task 1

Sampling Date(s): 4/16-4/27/90

To calculate sample quantitation limit
(QL * Dilution Factor

Sample No.	19	20	21	22	23	24	25	26	27
Dilution	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Location	WD-15	TB-4/19 (Trip Blank)	WD-25	WD-20	WD-21	WD-4	LR-355Z	TB-4/23 (Trip Blank)	SB-MW-25
Parameter									
Method 601-									
Chlorobenzene									
3-Dichlorobenzene									
1,2-Dichlorobenzene									
1,4-Dichlorobenzene									
Method 602-									
Benzene									
Toluene									
Chlorobenzene									
Ethyl Benzene									
Xylene									
1,3-Dichlorobenzene									
1,4-Dichlorobenzene									
1,2-Dichlorobenzene									

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G-24

uantitation Limit

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DATA SUMMARY FORM: ORGANICS

me: Strasburg Landfill

WATER SAMPLES Method 601
(µg/L)

5322C - Sampling Date(s): 4/16 - 4/27/90
Task 1

To calculate sample quantitation limit
(QL * Dilution Factor

Sample No.	28		29		30		31		32		33		34		35		36	
Dilution	1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0		1.0	
Location	SB-MW-5I		SB-MW-3S		SB-MW-5S		TB-4/24 (Trip Blank)		SB-MW-1S		SB-MW-1I		SB-MW-2I		TB-4/25 (Trip Blank)		SB-MW-3	
Parameter																		
Chloromethane																		
Bromomethane																		
Dichlorodifluoromethane													UJ					U
Vinyl Chloride																	3.58	
Chloroethane																		
Methylene Chloride	0.542	B					1.55								8.01		7.44	B
Trichlorofluoromethane																		
1,1-Dichloroethene													UJ					U
1,1-Dichloroethane	1.51	R	1.52	R													35.7	
trans-1,2-Dichloroethene	4.59	R	5.84	R									UJ				150	
Chloroform															0.707	J		
1,2-Dichloroethane	1.12	R															9.89	
1,1,1-Trichloroethane													UJ				4.11	
Carbon Tetrachloride																		
Bromodichloromethane																		
1,2-Dichloropropane																		
trans-1,3-Dichloropropene																		
Tetrachloroethene	3.31	R	1.34	R													24.7	
Dibromochloromethane																		
cis-1,3-Dichloropropene																		
1,1,2-Trichloroethane																		
Bromoform																		
Trichloroethene	1.41	R	1.10	R													8.41	
1,1,2,2-Tetrachloroethane																		

uantitation Limit

SEE NARRATIVE FOR CODE DEFINITI

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DATA SUMMARY FORM: ORGANICS

ime: Strasburg Landfill

WATER SAMPLES (µg/L) Method 601/602

recycled paper 53220 - Task 1 Sampling Date(s): 4/16-4/27/90

To calculate sample quantitation lim
(QL * Dilution Fact

Sample No.	28	29	30	31	32	33	34	35	36
Dilution	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Location	SB-MW-5I	SB-MW-3S	SB-MW-5S	TB-4/24 (Trip Blank)	SB-MW-1S	SB-MW-1I	SB-MW-2I	TB-4/25 (Trip Blank)	SB-MW-
Parameter									
Method 601-									
Chlorobenzene									[illegible]
1,3-Dichlorobenzene									
1,2-Dichlorobenzene									
1,4-Dichlorobenzene									12.0
Method 602-									
Benzene									14.4
Toluene				0.694 B					
Chlorobenzene									5.35
Ethyl Benzene									
Xylene									1.56
1,3-Dichlorobenzene									
1,4-Dichlorobenzene									
1,2-Dichlorobenzene									

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DATA SUMMARY FORM: ORGANICS

ame: Strasburg Landfill

WATER SAMPLES (µg/L) Method 601

5323C - Sampling Date(s): 4/16 - 4/27/90

Task 1

To calculate sample quantitation limit (QL * Dilution Factor

recycled paper

Sample No.	37		38		39		40		41		42		43					
Dilution	1.0		1.0		1.0		1.0		1.0		1.0		1.0					
Location	SB-MW-3I-D (Field Duplicate)		SB-M-5		FB-MW-1 (Field Blank)		TB-4/26 (Trip Blank)		SB MW-4I		SB-MW-4S		TB-4/27 (Trip Blank)					
Parameter																		
Chloromethane																		
Bromomethane																		
Dichlorodifluoromethane		UJ						UJ				UJ						
Chloroethene	3.50	R	0.461	R														
Chloroethane																		
Methylene Chloride	3.80	B			8.02		10.3						4.66					
Trichlorofluoromethane																		
1,1-Dichloroethene		UJ	0.537	R				UJ				UJ						
1,1-Dichloroethane	24.2	R	27.1															
Trans-1,2-Dichloroethene	1.53	R	51.6	R				UJ				UJ						
Chloroform	3.74	B			0.832	R	0.483	J										
1,2-Dichloroethane	2.18	R	1.47															
1,1,1-Trichloroethane		UJ	3.48	R				UJ				UJ						
Carbon Tetrachloride																		
Bromodichloromethane																		
1,2-Dichloropropane	10.9	R	5.36															
trans-1,3-Dichloropropene																		
Tetrachloroethene	53.7	R	53.2	R														
Dibromochloromethane																		
cis-1,3-Dichloropropene																		
1,1,2-Trichloroethane																		
Bromoform																		
Trichloroethene	5.13	R	9.71	R														
1,1,2,2-Tetrachloroethane																		

Quantitation Limit

SEE NARRATIVE FOR CODE DEFINITIO

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G:2

AR300211

DATA SUMMARY FORM: O R G A N I C S

me: Strasberg Landfill

WATER SAMPLES (µg/L)

Method 601/602

5322C - Sampling Date(s): 4/16-4/27/90
Task 1

To calculate sample quantitation lim
(QL * Dilution Facto

Sample No	37		38		39	40	41	42	43		
Dilution	1.0		1.0		1.0	1.0	1.0	1.0	1.0		
Location	SB-MW-3I-D (Field Duplicate)		SB-M-5		FB MW-1 (Field Blank)	TB-4/16 (Trip Blank)	SB-MW-4I	SB-MW-4S	TB-4/27 (Trip Blank)		
Parameter											
Method 601-											
Chlorobenzene	16.3		10.C								
1,3-Dichlorobenzene											
1,2-Dichlorobenzene											
1,4-Dichlorobenzene	39.9		36.C	R							
Method 602-											
Benzene	14.8	R	5.32								
Toluene											
Chlorobenzene	5.48		3.C9								
Ethyl Benzene											
Xylene	1.41	R									
1,3-Dichlorobenzene											
1,4-Dichlorobenzene			4.17	R							
1,2-Dichlorobenzene											

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G-2

DATA SUMMARY FORM: VOLATILES 2

Name: Strasburg Landfill

SOIL SAMPLES (ug/Kg)

e #: 13415 Sampling Date(s): 1/10, 12/90

)G #: CDT00

To calculate sample quantitation limit: (CRQL * Dilution Factor) / ((100 - % m

Sample No.	CDT00	CDT01	CDT04	CDT05	CDT06	CDT09		
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0		
% Moisture	26	10	20	7	7	24		
Location	SB-5S, 0-2	SB-5S, 6-8	MW-3S, 0-2	MW-3S, 4-10	MW-3S, 4-10D	MW-3S, 12-20B		
COMPOUND								
1,2 Dichloropropane								
Cis-1,3 Dichloropropene								
Trichloroethene								
Dibromochloromethane								
1,1,2 Trichloroethane								
Benzene								
Trans-1,3 Dichloropropene								
Bromoform								
4-Methyl 2 pentanone								
2 Hexanone								
Tetrachloroethene								
1,1,2,2 Tetrachloroethane								
Toluene								
Chlorobenzene								
Ethylbenzene								
Styrene								
Total Xylenes								

L = Contract Required Quantitation Limit

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AR300213

G-29

DATA SUMMARY FORM: B N A S 1

Name: Strasburg Landfill

Job #: 13415 Sampling Date(s): 1/10 & 1/12/90

SOIL SAMPLES (ug/Kg)

To calculate sample quantitation limits: (CRQL * Dilution Factor) / ((100 - %

SDG #: CDT00

Sample No.	CDT-00		CDT01		CDT04		CDT-05		CDT-06		CDT-09					
Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0					
% Moisture	24		10		20		7		7		24					
Location	SB-55, 0-2		SB-55, 6-8		MW-35, 0-2		MW-35, 4-10		MW-35, 4-10D		MW-35, 12-803					
COMPOUND																
Phenol																
bis(2 Chloroethyl)ether																
2 Chlorophenol																
1,3 Dichlorobenzene																
1,4-Dichlorobenzene			220	J												
Benzyl Alcohol																
1,2 Dichlorobenzene																
2 Methylphenol																
bis(2 Chloroisopropyl)ether																
4-Methylphenol																
N-Nitroso-di-n-propylamine																
Hexachloroethane																
Nitrobenzene																
Isophorone																
2 Nitrophenol																
2,4 Dimethylphenol																
Benzoic Acid																
bis(2 Chloroethoxy)methane																
2,4 Dichlorophenol																
1,2,4-Trichlorobenzene																
Naphthalene		UJ		UJ		UJ		UJ		UJ		UJ				
4-Chloroaniline																

G-30

recycled paper

DATA SUMMARY FORM: B N A S 2

Name: Strasburg Landfill

SOIL SAMPLES (ug/Kg)

#: 13415 Sampling Date(s): 1/10 & 1/12/90

#1 COTCO.

To calculate sample quantitation limit: (CRQL * Dilution Factor) / ((100 - % mc

Sample No.	CST-00	CST-01	CST-04	CST-05	CST-06	CST-09						
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0						
% Moisture	26	10	20	7	7	24						
Location	SB-55, 0-2	SB-55, 6-8	MW-35, 0-2	MW-35, 4-10	MW-35, 4-100	MW-35, 12-BOB						
COMPOUND												
Hexachlorobutadiene												
4-Chloro-3 methylphenol												
2 Methylnaphthalene												
Hexachlorocyclopentadiene												
2,4,6-Trichlorophenol												
2,4,5-Trichlorophenol												
2-Chloronaphthalene												
2 Nitroaniline												
Dimethylphthalate												
Acenaphthylene												
2,6 Dinitrotoluene												
3 Nitroaniline												
Acenaphthene												
2,4-Dinitrophenol												
4-Nitrophenol												
Dibenzofuran												
2,4-Dinitrotoluene												
Diethylphthalate				96	J							
4-Chlorophenyl phenylether												
Fluorene												
4-Nitroaniline												
4,6-Dinitro-2-methylphenol												

L = Contract Required Quantitation Limit

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DATA SUMMARY FORM: B N A S 3

Name: Strasburg Landfill

SOIL SAMPLES (ug/Kg)

#: 13415 Sampling Date(s): 1/10 & 1/12/90

WO #: CDT00

To calculate sample quantitation limit: (CRQL * Dilution Factor) / ((100 - % mo

Sample No.	CDT-00		CDT-01		CDT-04		CDT-05		CDT-06		CDT-09					
Dilution Factor	1.0		1.0		1.0		1.0		1.0		1.0					
% Moisture	26		10		20		7		7		24					
Location	SB-5S, 0-2		SB-5S, 6-8		MW-3S, 0-2		MW-3S, 4-10		MW-3S, 4-100		MW-3S, 12-808					
COMPOUND																
N Nitrosodiphenylamine																
4 Bromophenyl phenylether																
Hexachlorobenzene																
Pentachlorophenol																
Phenanthrene																
Anthracene																
Di n butylphthalate			17	J			120	J								
Fluoranthene																
Pyrene																
Butylbenzylphthalate																
3 3 Dichlorobenzidine		UJ		UJ		UJ		UJ		UJ		UJ				
Benzo(a)anthracene																
Chrysene																
bis(2 Ethylhexyl)phthalate	360	J	120	J			74	J	55	J	66	J				
Di n octylphthalate																
Benzo(b)fluoranthene																
Benzo(k)fluoranthene																
Benzo(a)pyrene																
Indeno(1,2,3-cd)pyrene																
Dibenz(a,h)anthracene																

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Name: Strasburg Landfill

Case #: 13415 Sampling Date(s): 4/10 & 1/12/90

SDG #: CDTC0

WATER SAMPLES
(ug/L)

To calculate sample quantitation li
(CRQL * Dilution Factor)

Sample No.	CDTC7							
Dilution Factor	1.0							
Location	R-1 (Rinsate)							
COMPOUND								
Phenol								
bis(2-Chloroethyl)ether								
2-Chlorophenol								
*1,3-Dichlorobenzene								
*1,4-Dichlorobenzene								
Benzyl Alcohol								
1,2 Dichlorobenzene								
2 Methylphenol								
bis(2 Chloroisopropyl)ether								
4 Methylphenol								
N-Nitroso-di-n propylamine								
Hexachloroethane								
Nitrobenzene								
Isophorone								
2 Nitrophenol								
2,4-Dimethylphenol								
Benzoic Acid								
bis(2-Chloroethoxy)methane								
2,4 Dichlorophenol								
1,2,4-Trichlorobenzene								
Naphthalene								
4-Chloroaniline		UJ						

CRDL = Contract Required Detection Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINIT

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DATA SUMMARY FORM: B N A S 2

Name: Strasburg Landfill

WATER SAMPLES
(ug/L)

#: 13415 Sampling Date(s): 1/10 & 1/12/90

SW: COT 00

To calculate sample quantitation limit
(CRQL * Dilution Factor)

Sample No.	COT-07								
Dilution Factor	1.0								
Location	R-1 (Rinsate)								
COMPOUND									
Hexachlorobutadiene									
4-Chloro-3-methylphenol									
2 Methylnaphthalene									
Hexachlorocyclopentadiene									
2,4,6-Trichlorophenol									
2,4,5-Trichlorophenol									
2 Chloronaphthalene									
2 Nitroaniline									
Dimethylphthalate									
Acenaphthylene									
2,6 Dinitrotoluene									
3 Nitroaniline									
Acenaphthene									
2,4-Dinitrophenol									
4-Nitrophenol									
Dibenzofuran									
2,4-Dinitrotoluene									
Diethylphthalate									
4-Chlorophenyl-phenylether									
Fluorene									
4-Nitroaniline									
4,6-Dinitro-2-methylphenol									

- = Contract Required Detection Limit

*Action Level Exists

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DATA SUMMARY FORM: B N A S 3

WATER SAMPLES
(ug/L)

Site Name: Strasburg Landfill

Case #: 13415 Sampling Date(s): 1/10 + 1/12/90

SDG #: CDT00

To calculate sample quantitation li
(CRQL * Dilution Factor)

Sample No.	CDT-07															
Dilution Factor	1.0															
Location	R-1 (Rinsate)															
COMPOUND																
N Nitrosodiphenylamine																
4-Bromophenyl phenylether																
*Hexachlorobenzene																
*Pentachlorophenol																
Phenanthrene																
Anthracene																
Di n butylphthalate																
Fluoranthene																
Pyrene																
Butylbenzylphthalate																
3 3 Dichlorobenzidine		UJ														
Benzo(a)anthracene																
Chrysene																
bis(2 Ethylhexyl)phthalate																
Di n-octylphthalate																
Benzo(b)fluoranthene																
Benzo(k)fluoranthene																
Benzo(a)pyrene																
Indeno(1,2,3-cd)pyrene																
Dibenz(a,h)anthracene																
Benzo(g,h,i)perylene																

CRDL = Contract Required Detection Limit *Action Level Exists SEE NARRATIVE FOR CODE DEFINI

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DATA SUMMARY FORM: PESTICIDES AND PCBS

Name: Strasburg Landfill

SOIL SAMPLES (ug/Kg)

#: 13415 Sampling Date(s): 1/10+11/2/90

LG #: CDT00

To calculate sample quantitation limit: (CRQL * Dilution Factor) / ((100 - % moist

Sample No.	CDT-00	CDT-01	CDT-04	CDT-05	CDT-06	CDT-09			
Dilution Factor	1.0	1.0	1.0	1.0	1.0	1.0			
% Moisture	26	10	20	7	7	24			
Location	SB-55, 0-2	SB-55, 6-8	MW-35, 0-2	MW-35, 4-10	MW-35, 4-100	MW-35, 12-BOB			
COMPOUND									
pha-BHC									
eta-BHC									
elta-BHC									
amma-BHC (Lindane)									
eptachlor									
ldrin									
eptachlor Epoxide									
ndosulfan I									
ieldrin									
4'-DDE									
ndrin									
ndosulfan II									
4'-DDD									
ndosulfan Sulfate									
4'-DDT									
ethoxychlor									
drin ketone									
pha-Chlordane									
amma-Chlordane									
oxaphene									
oclor-1016									
roclor-1221									
roclor-1232									
roclor-1242									
roclor-1248									
roclor-1254									
roclor-1260									

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DATA SUMMARY FORM: P E S T I C I D E S A N D P C B S

Name: Strasburg Landfill

WATER SAMPLES
(ug/L)

#: 13415 Sampling Date(s): 1/10 & 1/12/90

CH#: CDT 00

To calculate sample quantitation limit:
(CRQL * Dilution Factor)

Sample No.	CDT-07								
Dilution Factor	1.0								
Location	R-1 (Rinsate)								
COMPOUND									
alpha-BHC									
beta-BHC									
delta-BHC									
*Gamma-BHC (Lindane)									
*Heptachlor									
Aldrin									
Heptachlor Epoxide									
Endosulfan I									
Dieldrin									
4,4'-DDE									
*Endrin									
Endosulfan II									
4,4'-DDD									
Endosulfan Sulfate									
4,4'-DDT									
*Methoxychlor									
Endrin ketone									
*Alpha-Chlordane									
*Gamma-Chlordane									
*Toxaphene									
*Aroclor-1016									
*Aroclor-1221									
*Aroclor-1232									
*Aroclor-1242									
*Aroclor-1248									
*Aroclor-1254									
*Aroclor-1260									

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DATA SUMMARY FORM: VOLATILES 1

Site Name: Strasburg Landfill

SOIL SAMPLES (ug/Kg)

Case #: 13444 Sampling Date(s): 1/15/90

SDG #: CDT10

To calculate sample quantitation limit:
(CRQL * Dilution Factor) / ((100 - % moisture)/100)

Sample No.	CDT10		CDT11		CDT12RE													
Dilution Factor	1.0		1.0		1.0													
% Moisture	20		19		18													
Location	SB-2S, 0-2		SB-2S, 6-8		SB-2S, 4-10													
COMPOUND																		
Chloromethane						UJ												
Bromomethane		UJ		UJ														
Vinyl Chloride																		
Chloroethane																		
Methylene Chloride	5	B	4	B														
Acetone																		
Carbon Disulfide																		
1,1-Dichloroethene																		
1,1-Dichloroethane																		
Total-1,2 Dichloroethene																		
Chloroform																		
1,2-Dichloroethane																		
2-Butanone																		
1,1,1-Trichloroethane																		
Carbon Tetrachloride																		
Vinyl Acetate																		
Bromodichloromethane																		

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CRDL = Contract Required Detection Limit

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