

DRAFT FINAL REMEDIAL INVESTIGATION

BALDWIN PLACE MALL SOMERS, NEW YORK

Volume 3
Appendices A through L

Prepared for Big V Supermarkets, Inc. Florida, New York

AUGUST 1994

VINCENT UHL ASSOCIATES, INC. 1078 Taylorsville Road Washington Crossing, Pennsylvania 18977

APPENDIX A

SURVEY BENCHMARKS INFORMATION

APRIL 1968

U.S. DEPARTMENT OF COMMERCE ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION COAST AND GEOUFTIC SURVEY

VERTICAL CONTROL DATA

Coast and Geodetic Survey seatevel battom of 1943

PAGE NO. 46 TO 41°30' TO 74°00' HARTFORD N.Y.-CONN.
LATITUDE 41.00' T
LONGITUDE 73.30' T
DIAGRAM NK 18-9 H QUAD 410733

DEPARTMENT OF COMMENCE S. I. CONT. AND SCOTIC EMPTY Press AND Ed. VI., 1700

DESCRIPTION OF BENCH MARK

County ... Yestchester ... Jestchestor At Shi ib Cax on At 6 . County . .. State Designation of bench mark 26 29 453 Port Distance and direction from nearest town . Nearest lown Shrub Ork Detailed description of location

At Shrub Oak, Westchester County, on Hohancic Lake road, 27 feet southoast of the intersection of the Hohancic Lake road, 27 feet south of the center line of the highway, 46 feet west of a 40-inch maple tree, and about 5 feet higher than the highway. A United States Geological Survey standard disk, stamped "BC 29 1934" and set in the top of a concrete post.

DEPARTMENT OF COMMENCE F. L. CANT AND GOOTHE PRINT FUTA 634 E.C. CAL, 1889

DESCRIPTION OF BENCH MARK

County Jestchester 444.842 Nearest lown Jefforcom Yalley County Tostchoster Distance and direction from nearest town In Jofforson Villay Designation of bench mark (1969 44%). ... State ... Max. ... Detailed description of location

At <u>Jefferson Yalley</u>, Westchester County, on U. S. Highway 5, 650 feet west of the post office, opposite the two-story frame house owned by T. Hilli, Jr. (in 1935), on the top of the normer of a connerte culvert, and 20 feet north of the center line of the highway. A chiseled squere.

DEPARTMENT OF COMMERCE A. S. COASS AND GOOD SECURITY OF THE PARTMENT WAS BOUNDED. BAS SON THE PARTMENT OF THE

DESCRIPTION OF BENCH MARK

Preignation of lenet mark 276 State N.Y. County Mostchester	State	ж.т.	County Megtchester
Nearest tows	County	Joseph Long Plot	
Distance and direction from nearest town At Jos furson Valley on Rt 6	Jolierson	falley on Rt 6	
Detailed description of focution	E	£1. 435.376	191

At Jefferson Valley, Westchester County, on U. S. tion, at a 12-foot box culvert, in the top of the southwest wing vall, 20 feet south of the center line of the highway, and about 1 feet lower than the highway. A standard disk, stamped "E 76-4935."

DESCRIPTION OF BENCH MARK

.Y. County Westchester	County Putnam	of Lais shows on Ht 6	B. 511.111
State	County	miles west	0
Designation of beach mark P 76 State M.Y. County Westschenter	Nearest town.	Distance and direction from nearest town 3,2 miles west of Late shows on fit 6	Detailed description of location

In Westchester County, 3.2 miles west along U. S. 1931-DW over a stream, in the top of the northwest wing wall. 25 feet north of the enter line of the highway, and level with the 'w'.'. highway. A standard disk, stamped "P. 26,1236."

LEPARTMENT OF COMMENCE R. F. Chail And GEOTIC BATTI Pures 430 R. Ont, 1830

DESCRIPTION OF BENCH MARK

Designation of bench mark 0 76	Designation of beach mark O 76 State M.Y County Ruthan
Nearest town Lake Tallotte	Nearest town
Distance and direction from nearest town	Distance and direction from nearest town In Loke. L'absorce.
Detailed description of location	

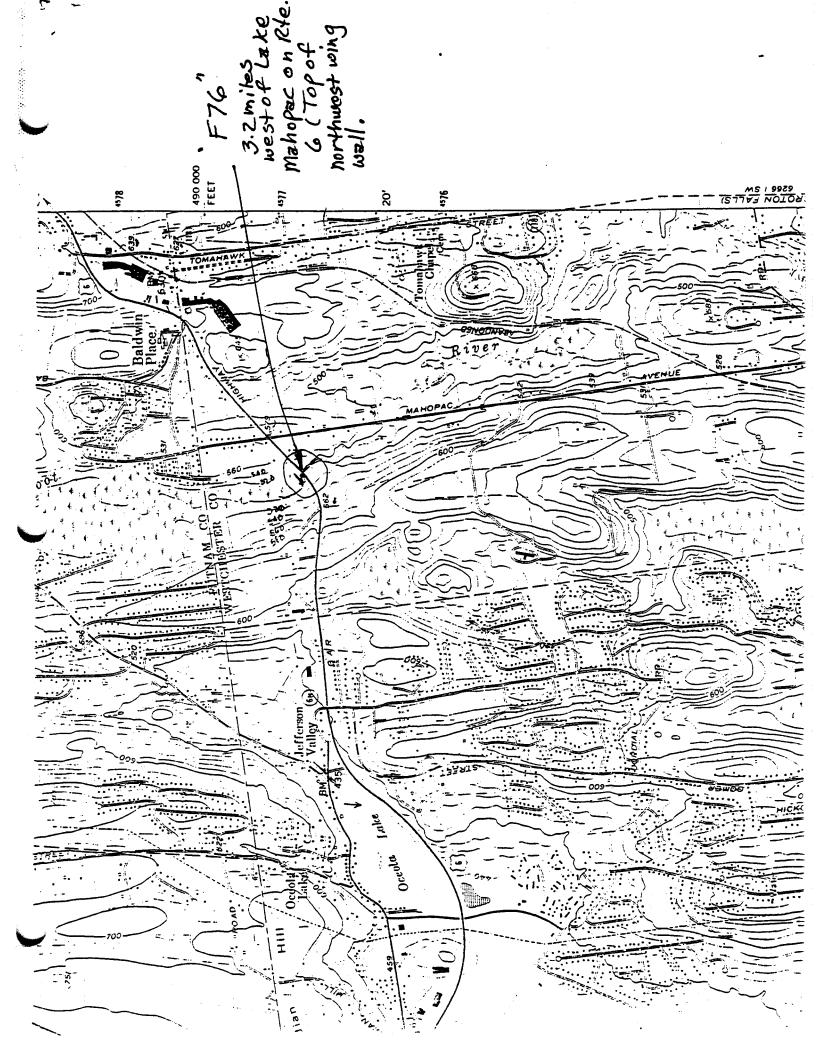
At Lake Hahopag, Putnam County, on U. S. Highway 6, slab, 3 feet west of the center of the doorway, and 47 feet north of the center line of the highway. A standard disk, stamped "G 76

DEPARTMENT OF COMMENCE S. S. COMP. Sup 6100571C SUPPLY Pright 628 Ed. Od., 1980

DESCRIPTION OF BENCH MARK

Peelgnation of bench mark 176 State Nate County Putnam.	Nearest town Lake : Nanac County l'utham	Distance and direction from nearest town 1.7 miles onet of Lave Sahopac on Rt 6	
Perknation of bench mark11.76	Nearest town Lake inhanae	Distance and direction from nearest town	Detailed description of location

1.7 miles east along U. B. highway 6 from the habopac store (in 1939). 5 feet west of the northwest corner, 15 feet west of the center of the entrance, in the top of a retaining wall at the top of the steps, and 24 feet south of the center line of the highway. A stendard disk, stamped "639.966 H 76 1935."



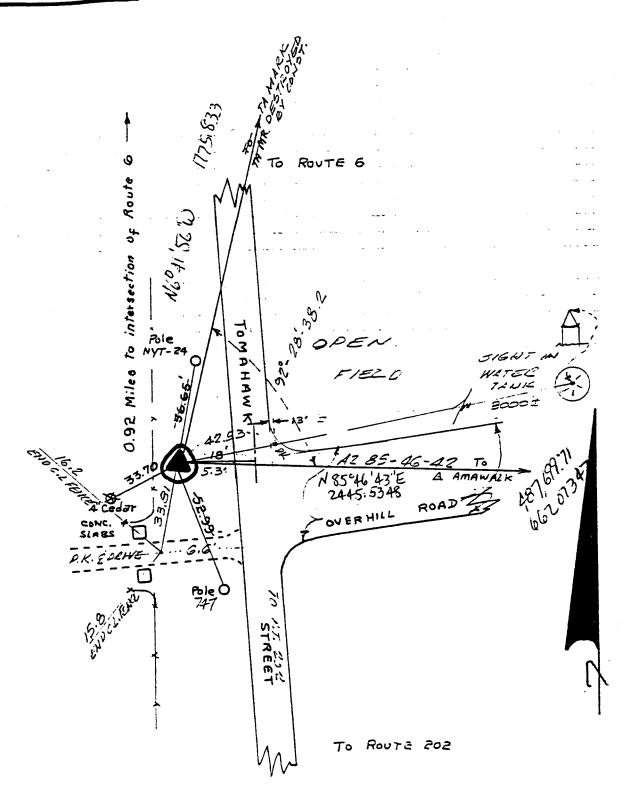
Station: AMAWALK AZ-1

Date: 28 July 1965

Station Amawalk is a standard bronze disc set in a concrete monument on the westerly side of Tomahawk st. in the Town of Somers 0.92 miles south of Route U.S. 6 near the intersection of Overhill Rd.

This is a 4'foot precast concrete monument.

N 487 519.69 E 659 634.52



APPENDIX B

VALIDATED RI DATA SPREADSHEETS (ENVIRONMENTAL STANDARDS, INC.) AND DATA USABILITY REPORTS

APPENDIX B

VALIDATED RI DATA SPREADSHEETS (ENVIRONMENTAL STANDARDS, INC.) AND DATA USABILITY REPORTS

DATA QUALIFIER DEFINITIONS

- B.1 FIRST ROUND MONITORING WELL SAMPLES (Collected August 31 September 2, 1992).
- B.2 BPM PRODUCTION WELL AND MEADOW PARK ROAD RESIDENTIAL WELL SAMPLES (Collected February 24, 1993).
- B.3 ROUTE 6 COMMERCIAL WELL SAMPLES (Collected March 11 and April 22, 1993).
- B.4 TEST BORING UNSATURATED ZONE SOIL SAMPLES (Collected April 12 14, 1993).
- B.5 SECOND ROUND MONITORING WELL SAMPLES (Collected May 18 21, 1993).
- B.6 INITIAL AND SUPPLEMENTAL SURFACE-WATER AND SEDIMENT SAMPLES (Collected June 2, October 15 and December 9, 1993).

Organic Qualifiers

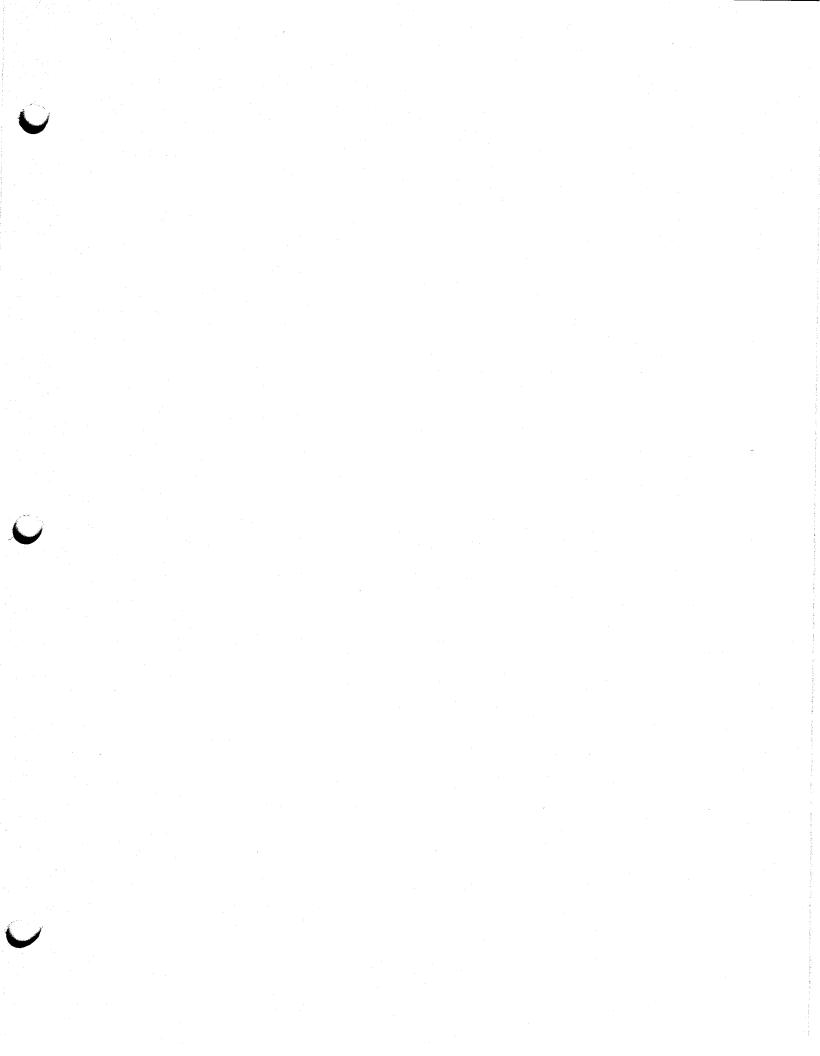
- Compound was not detected.
- B This result is qualitatively suspect since this compound was detected in field and/or laboratory blanks at similar levels.
- R Unreliable result Compound may or may not be present in this sample.
- J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- UL This compound was not detected, but the quantitation limit is probably higher due to a low bias identified during the quality assurance review.

Inorganic Qualifiers

- Element was not detected.
- B This result is qualitatively suspect since this constituent was detected in field and/or laboratory blanks at similar levels.
- R. Unreliable result Analyte may or may not be present in this sample.
- J Quantitation is approximate due to limitations identified during the quality assurance review (data validation).
- UL This analyte was not detected, but the detection limit is probably higher due to a low bias identified during the quality assurance review.

Analytical Method

- P Inductively Coupled Plasma
- F Graphite Furnace Atomic Absorption
- CV Cold Vapor Atomic Absorption
- A Auto Analyzer



APPENDIX B.1

FIRST ROUND MONITORING WELL SAMPLES (Collected August 31 - September 2, 1992)

					,						
VOLATILE ORGANIC ANALYSIS											
Vincent Uhl Sample Number		BPMMW3D01	BPMMW3D01R	BPMMW3D01B	BPMMW3S01	BPMMW3DD01	BPMMW4S01	Trip Blk 8/31	BPMMW4D01	BPMMW1S01	BPMMW1001
Laboratory Sample Number		114937-01	114937-03	114937-05	114937-06	114937-08	114937-10	114937-11	114984-01	114984-03	114984-04
Remarks			Replicate	Field Blank				Trip Blank			
Units		ug/L	ug/L	ng/L	ug/L	ng/L	ng/L	1/Bn	ug/l.	J/Bn	na/L
VOLATILE COMPOUNDS	Quantitation						-				
Chloromethane	9						=				
Bromomethane	9										
Vinyl Chloride	10										
Chloroethane	10										
Methylene Chloride	10	85	94	1.1			20		7.8		
Acetone	10	20 J	27 J	В	R	æ		æ	æ	~	æ
Carbon Disulfide	10										
1,1-Dichloroethene	10										
1,1-Dichloroethane	10										
Total 1,2-Dichlorethene	10				4.)						
Chloroform	0										
1,2-Dichloroethane	10										
2-Butanone	10										
1,1,1-Trichloroethane	10										
Carbon Tetrachloride	10										
Bromodichloromethane	10										
1,1,2,2-Tetrachloroethane	10				28	28					
1,2-Dichloropropane	9										
trans-1,3-Dichloropropene	10										
Trichloroethene	10				4.)	ΙJ					
Dibromochloromethane	10										
1,1,2-Trichloroethane	10										
Benzene	10										
cis-1,3-Dichloropropene	10										
Bromoform	10										
2-Hexanone	10										
4-Methyl-2-Pentanone	10										
Tetrachloroethene	10				12						1.

										7	۵
VOLATILE ORGANIC ANALYSIS											
Vincent Uhl Sample Number		BPMMW3D01	BPMMW3D01R	BPMMW3D01B	BPMMW3S01	BPMMW3DD01 BPMMW4S01	BPMMW4S01	Trip Blk 8/31	BPMMW4D01	BPMMW4D01 BPMMW1S01	RPMMW1001
Laboratory Sample Number		114937-01	114937-03	114937-05	114937-06	114937-08	114937-10	114937-11	114984-01	114984-03	114984.04
Remarks			Replicate	Field Blank				Trip Blank			to toot i
Units		ng/L	ng/L	ng/L	1/Bn	ug/L		100	ui	Hou	
VOLATILE COMPOUNDS	Quantitation							Ď	ı A	T A STATE OF	n Air
	Limit										
Toluene	10	5.3	5.3				3.1				- 0
Chlorobenzene	10										6
Ethylbenzene	10						_				
Styrene	10										
Total Xylenes	10										
Methyltertbutyl Ether	10				12	1.1	2.3			2.1]=
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00	1.00	1.00	9:1	1.00	2 2	2 5
Data Sample Collection		8/31/92	8/31/92	8/31/92	8/31/92	8/31/92	8/31/92	8/31/92	9/1/92	911/92	9/1/92
Date Sample Received by Laboratory		9/1/92	9/1/92	9/1/92	9/1/92	9/1/92	9/1/92	9/1/92	9/2/92	9/2/92	917197
Date of Sample Analysis		9/6/92	9/6/92	9/6/92	9/6/92	9/6/92	9/1/92	9/6/92	9/6/92	9/6/92	916192
Instrument Used for Analysis		MSD	MSD	MSD	MSD	MSD	WSD	MSD	MSD.	MSD	MSD

											الشد
VOLATILE ORGANIC ANALYSIS											,
Vincent Uhl Sample Number		BPMMW2S01	BPMMW2D01	RPMMWRCD1	Trin Oll. 0/1	Dollaran					
Laboratory Sample Number		114984-06	114984-07	114984-08	11/08/4 10	114004 11	BPMMW5S01R	~	BPMMW6S01	BPMMW6S01B	Trip BIK 9/2
Remarks					Trin Rlank	11-1004-11	114384-12	115023-01	115023-02	115023-03	115023-04
Units		1/05	I/uii	l/aii	Alleio de la	=	Keplicate			Field Blank	Trip Blank
VOLATILE COMPOUNDS	Quantitation		1182	J. Par	ng/L	ug/L	ng/L	ng/L	1/6n	ng/L	1/6n
	Limit										
Chloromethane	10										
Bromomethane	2										
Vinyl Chloride	02										
Chloroethane	9										
Methylene Chloride	10	35	55	88		a					
Acetone	10	8.9	31 J		~				9		
Carbon Disulfide	0.				=	=	=	~ 	æ	~	~
1,1-Dichloroethene	2										
1,1-Dichloroethane	2										
Total 1,2-Dichlorethene	2					8					
Chloroform	2					62	20				
1,2-Dichloroethane	2										
2-Butanone	10										
1,1,1-Trichloroethane	2										
Carbon Tetrachloride	2										
Bromodichloromethane	2										
1,1,2,2-Tetrachloroethane	10				-						
1,2-Dichloropropane	10									1	
trans-1,3-Dichloropropene	10						-				
Trichloroethene	10					ž	2,2				
Dibromochloromethane	10					3	77				
1,1,2-Trichloroethane	10										
Benzene	10										
cis-1,3-Dichloropropene	10								+		
Bromoform	10										
2-Hexanone	10										
4-Methyl-2-Pentanone	10										
Tetrachloroethene	10					70	;	1			
						04	/4	12			

					į						٠
VOLATILE ORGANIC ANALYSIS											,
Vincent Illel Committee											
		BPMMW2S01	BPMMW2D01	BPMMW8S01	Trip Blk 9/1	BPMMW5S01	BPMMW5S01 RPMMW5S01B RPMMW7c01	RPMWW7c01		200000000000000000000000000000000000000	
Laboratory Sample Number		114984-06	114984-07	114984.08	114984.10	11400411	114004 30	I WINNEY SOLI	_	BFMMW6S01B	Trip BIK 9/2
Remarks					01-100111	11-4004-11	114384-12	115023-01	115023-02	115023-03	115023-04
11-14-					Trip Blank		Replicate			Field Blank	Trin Rlank
Units		1/Bn	ug/L	ug/l.	ng/L	na/r	l/on	11011	l/esi	l) -ii	TIED CIEIL
VOLATILE COMPOUNDS	Quantitation							À	- nav	ng/L	ng/L
	Limit									- ".,	
Toluene	10	2.3	2.3	2.1							
Chlorobenzene	10			,					4.)		
Ethylhanzene											
Parity and the same of the sam	2						-				
Styrene	9		2.3								
Total Xylenes	10										
Methyltertbutyl Ether	٤										
Ougantifeation limit M. dialia									1.	_	
במשוויות שוויות שחווחות		99.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	100	100
Uata Sample Collection		9/1/92	9/1/92	9/1/92	9/1/92	9/1/92	9/1/92	661616	01710	00000	00.1
Date Sample Received by Laboratory	,	9/2/92	9/2/92	9/2/92	9/2/92	912192	69/6/6	012102	012102	367137	36/7/8
Date of Sample Analysis		9/3/92	9/3/92	913192	9/6/97	913192	0/4/02	26/7/0	26/7/2	Siziaz	9/2/92
Instrument Used for Analysis		ron.	No.	401		Toloto	26110	26/4/25	3/4/32	9/4/92	9/4/92
		МОП	MOD	MSD	MSD	MSD	MSD	MSD	OSW	MSD	US.N

EXTRACTABLE ORGANIC ANALYSIS										
Vincent Uhl Sample Number		BPMMW3D01	BPMMW3001R	BPMMW3001R BPMMW3D01B	BPMMW3S01	BPMWW3DD01	BPMMW4S01	RPMMWADOL	RPMMW1c01	DOMESTICAL
Laboratory Sample Number		114937-01	114937-03	114937-05	114937-06	114937-08	114937.10	114984-01	114984.03	114004 D4
Remarks			Replicate	Field Blank				10-1001	00-600-61	114304-04
Units		1/Bn	ug/t	1/6n	na/L	1/00	101	ll mil	l/an	1
SEMIVOLATILE COMPOUNDS	Quantitation					i.	i i		- nâi-r	ng/r
Phenol	10									
bis(2-Chloroethyl)ether	10									
2-Chlorophenol	10									
1,3-Dichlorobenzene	10									
1,4-Dichlorobenzene	10									
1,2-Dichlorobenzene	10									
2-Methylphenol	10									
2,2'-oxybis(1-Chloropropane)	10									
4-Methylphenol	10									
N-Nitroso-di-n-Propylamine	10									
Hexachloroethane	10									
Nitrobenzene	10									
Isophorone	10									
2-Nitrophenol	10									
2,4-Dimethylphenol	10									
1,2,4-Trichlorobenzene	10									
Naphthalene	10									
4-Chloroaniline	10									
Hexachlorobutadiene	10									
4-Chloro-3-Methylphenol	10									
2-Methylnaphthalene	9									
Hexachlorocyclopentadiene	10	Uľ	'n	Ħ	3	3	5	=	=	=
2,4,6-Trichlorophenol	2								3	5

EXTRACTABLE ORGANIC ANALYSIS										
Vincent Uhl Sample Number		BPMMW3D01	BPMMW3D01R	BPMMW3D01R BPMMW3D01B	BPMW3S01	BPMMW3D001	RPMMWASO1	RPMWWADOL	D D B B B B B B B B B B B B B B B B B B	Doggania
Laboratory Sample Number		114937-01	114937-03	114937-05	114937-06	114937-08	114937-10	114984.01	11498A.03	114004 04
Remarks			Replicate	Field Blank					20.102111	14304-04
Units		7/Bn	ng/L	1/Bn	no/l		l/un	l'on	Harr	
SEMIVOLATILE COMPOUNDS	Quantitation						3	180	n in in	1/Bn
2,4,5-Trichlorophenol	25									
2-Chloronaphthalene	10									
2-Nitroaniline	25									
Dimethylphthalate	10									
Acenaphthylene	10									
2,4-Dinitrophenol	25									
4-Nitrophenol	25									
Dibenzofuran	10							"		
2,4-Dinitrotoluene	10									
Diethylphthalate	10									
4-Chlorophenyl-phenylether	10									
Fluorene	10									
4-Nitroaniline	22									
4,6-Dinitro-2-Methylphenol	25									
N-Nitrosodiphenylamine	10									
4-Bromophenyl-phenylether	10									
Hexachlorobenzene	10									
Pentachlorophenol	22									
Phenanthrene	10									
Anthracene	10									
Carbazole	10						-			
Di-n-Butylphthalate	10									
Fluoranthene	10									

EXTRACTABLE ORGANIC ANALYSIS										
Vincent Uhl Sample Number		BPMMW3D01	RPMMW2001D	RPMINWSDO 10 01000 0100	700000000000000000000000000000000000000					
Laboratory Sample Number		114937.01	114037.02	114027 OF	BPMMW3S01	BPMMW3DD01	BPMMW4S01	BPMMW4D01	BPMMW1S01	BPMMW1D01
Remarks		10.7001.1	00-700-11	114837-03	114937-06	114937-08	114937-10	114984-01	114984-03	114984-04
			Replicate	Field Blank		101				
Units		1/Bn	ng/L	1/Bn	ug/L	I/oII	llon	-		
SEMIVOLATILE COMPOUNDS	Quantitation					4 GR	nĝi.	rg/r	J/Bn	1/Bn
	Limit (Aq)					- 1				
Pyrene	10									
Butylbenzylphthalate	10									
3,3'-Dichlorobenzidine	10	ä								
Benzo(a)anthracene	10							5		
bis(2-Ethylhexyl)phthalate	10									
Chrysene	01									7.3
Di-n-Octylphthalate	9									
Benzo(b)fluoranthene	0.					1				
Benzo(k)fluoranthene	2									
Benzo(a)pyrene	2									
Indeno(1,2,3-cd)pyrene	2									
Dibenz(a,h)anthracene	9		5		=	=				
Benzo(g,h,i)perylene	1				5	10	5		5	5
Quantitation Limit Multiplier		1.00	1.00	18	5	9				
Data Sample Collection		8/31/92	8/31/02	201700	00.100	1.00	8:	1.00	1.00	1.00
Date Sample Received by Laboratory		0/1/02	201100	0031137	8/31/92	8/31/92	8/31/92	9/1/92	9/1/92	9/1/92
Data Sample Extracted		26/1/2	28/1/8	9/1/92	9/1/92	9/1/92	9/1/92	9/2/92	9/2/92	9/2/92
Date of Sample Analysis		28/26	9/3/92	9/3/92	9/3/92	9/3/92	9/3/92	9/3/92	9/3/92	9/3/97
December Allaysis		9/14/92	9/12/92	9/12/92	9/12/92	9/12/92	9/12/92	9/14/92	9/12/92	9/12/02
mstrument Osea for Analysis		MSD#1	MSD#1	MSD#1	MSD#1	MSD#1	MSD#1	MSD#1	MSD#1	Mcn#1

EATHACTABLE URBANIC ANALYSIS					
Vincent Uhl Sample Number		BPMMW2S01	BPMW2S01RR	BPMMW2D01	BPMW8S01
Laboratory Sample Number		114984-06	114984-06RR	114984-07	114984-08
Remarks			Reextraction		
Units		T/Bn	1/Bn	ng/L	l/bn
SEMIVOLATILE COMPOUNDS	Quantitation				b
	Limit (Aq)				
Phenol	10		R		
bis(2-Chloroethyl)ether	10	'n	Œ		
2-Chlorophenol	10		æ		
1,3-Dichlorobenzene	10	'n	æ		
1,4-Dichlorobenzene	10	10	œ		
1,2-Dichlorobenzene	10	'n	Œ		
2-Methylphenol	10		Œ		
2,2'-oxybis(1-Chloropropane)	10	U.	œ		
4-Methyiphenol	10		æ		
N-Nitroso-di-n-Propylamine	10	n.	æ		
Hexachloroethane	10	'n	æ		
Nitrobenzene	10	Π	æ		
Isophorone	10	n.	æ		
2-Nitrophenol	10		œ		
2,4-Dimethylphenol	10		æ		
1,2,4-Trichlorobenzene	10	'n	æ		
Naphthalene	10	'n	æ		
4-Chloroaniline	10	10	Œ		
Hexachlorobutadiene	10	'n	æ		
4-Chloro-3-Methylphenol	10		æ		
2-Methylnaphthalene	10	n.	œ		
Hexachlorocyclopentadiene	10	nr	Œ	in in	ä
2,4,6-Trichlorophenol	10		~		

CATTLACT ABLE UNDANIC ANALYSIS					
Vincent Uhl Sample Number		BPMMW2S01	BPMW2S01RR	BPMMW2n01	RPMMWRC01
Laboratory Sample Number		114984-06	114984-06RR	114984-07	114984.08
Remarks			Reextraction		00-1001
Units		1/8n	l/on	llan	llon
SEMIVOLATILE COMPOUNDS	Quantitation			- OALC	nBur
	Limit (Aq)				
2,4,5-Trichlorophenol	25		æ		
2-Chloronaphthalene	10	5	œ		
2-Nitroaniline	25	5	~		
Dimethylphthalate	10	10	æ		
Acenaphthylene	10	10	~		
2,4-Dinitrophenol	25		8		
4-Nitrophenol	22		8		
Dibenzofuran	10	5	œ		
2,4-Dinitrotoluene	10	'n	~		
Diethylphthalate	10	'n	œ		
4-Chlorophenyl-phenylether	10	'n	æ		
Fluorene	10	īn	~		
4-Nitroaniline	25	'n	~		
4,6-Dinitro-2-Methylphenol	22		œ		
N-Nitrosodiphenylamine	10	ä	æ		
4-Bromophenyl-phenylether	10	Ы	æ		
Hexachtorobenzene	10	≓ ≓	~		
Pentachlorophenol	22		~		
Phenanthrene	10	3	~		
Anthracene	10	'n	~		
Carbazole	10	nr	~		
Di-n-Butylphthalate	10	'n	æ		
Fluoranthene	10	In In	~		

TATION IN THE PRINCIPLE AND ALICE AN					
Vincent Uhl Sample Number		BPMMW2S01	BPMW2S01RR	BPMMW2D01	BPMMW8501
Laboratory Sample Number		114984-06	114984-06RR	114984-07	114984-08
Remarks			Reextraction		
Units		J/Bn	na/l	1/041	- Form
SEMIVOLATILE COMPOUNDS	Quantitation		1	1)An	ngir.
	Limit (Aq)				
Pyrene	10	10	æ		
Butylbenzylphthalate	10	10	æ		
3,3'-Dichlorobenzidine	10	ă	æ		=
Benzo(a)anthracene	10	ĭ	æ		
bis(2-Ethylhexyl)phthalate	10	ă	æ	=	
Chrysene	10	3	œ		
Di-n-Octylphthalate	9	3	. 62		
Benzo(b)fluoranthene	10	3	æ		
Benzo(k)fluoranthene	10	ä	æ		
Benzo(a)pyrene	10	Ħ	æ		
Indeno(1,2,3-cd)pyrene	10	'n	Œ		
Dibenz(a,h)anthracene	10	Ħ	œ	ลี	
Benzolg,h,ilperylene	10	In	Œ		
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00
Data Sample Collection		9/1/92	9/1/92	9/1/92	9/1/92
Date Sample Received by Laboratory		9/2/92	9/2/92	9/2/92	9/2/92
Date Sample Extracted		9/3/92	9/16/92	9/3/92	9/3/92
Date of Sample Analysis		9/12/92	9/24/92	9/12/92	9/14/92
Instrument Used for Analysis		MSD#1	MSD#1	MSD#1	MSD#1

				j						
TENTATIVELY IT 'FIED COMPOUNDS - ESTIMATED CONCENTRATIONS	STIMATED CONCE	NTRATIONS								
Vincent Uhl Sample Number	BPMMW3D01	BPMMW3D01 BPMMW3D01R	BPMMW3D01B	BPMMW3S01	BPMWW3DD01	RPMMWASO1	Trin Bit. 8/21			
Laboratory Sample Number	114937-01	114937-03	114937-05			114937.10	11/027 11	_	2	20
Remarks		Donting	10.17		20 (20)	01./2011	114237-11	114984-01	114984-03	114984-04
11.34		nepiicate	rieid blank				Trip Blank			
UNITS	ng/L	ug/L	ug/L	ng/L	ng/L	7/bn	ua/t	l/III	lla!!	l) ou
VOLATILE CONSTITUENTS								i i	J.Rn	ng/L
			•	•	•		•	•		
Unknown	5 J	13.J								•
SEMIVOLATILE CONSTITUENTS										
							AN			
2,6-bis(1,1-dimethylethyl)-4-ethylphenol	3.3	3.5								
4-morpholineethaniol	2.3	5.3								
2-amino-8-methoxy-phenazine	55 J	62 J								
saturated hydrocarbons (number of peaks)	4 J (2)	9 J (4)	4 J (1)	3.7(1)	3.5(1)	3.100		6718	41.4	
unknown (number of peaks)	36 J (2)	42 J (Z)						5 5 6	100	11 0(3)
octanoic acid		2.3						1100		(1)6.7
labortaory artifcat			3.8	3.8	5 R	4 8			9	
blank contaminant				48	8 5	8.5		9	+ 6	
2-methylprpopylester octanoic acid								0		9 0
unsaturated hydrocarbons (number of neaks)								20		
										2 131

				j						
TENTATIVELY IDENTIFIED COMPOUNDS										,
Vincent III Commit Minster	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,									
	BPMMWZS01 PMMWZD	PMMW2D0	BPMMW8S01	Trip Blk 9/1	BPMMW5S01	BPMMW5S01 BPMMW5S01R BPMMW7S01		BPMMW6S01	BPMMW6S01 BPMMW6S01B	Trin RIk 9/2
Laboratory Sample Number	114984-06	114984-07	114984-08	114984-10	114984-11	114984-12		115023-02	115023.03	115023 04
Remarks				Trip Blank		Replicate			Field Blank	Trin Blank
Units	ng/L	ng/L	ng/L	ug/L	l/on	l/bii	l/oir	li ci	Figur Diality	and Diamy
VOLATILE CONSTITUENTS					i i		J.An	ng/L	ng/L	ng/L
		•	•	•	•	•				
SEMIVOLATILE CONSTITUENTS	Analyzed									
	Twice			N	Ä	AN	A N	NA.	4	1
unknown (number of peaks)	23 J (5)/25 J (6)	12 J (2)	6.7(3)					<u> </u>	Y.	¥
blank contaminants	21 B/ -	29 B	9.8							
saturated hydrocarbons (number of peaks)	(2) r 9/(9) r 81	44 J (7)	16 J (5)							
octadecanol	2 JF									
dimethylethylphenyl isomer	-/3 J									
pentachlorofluorobenzene	-/2 J									
tetraethylstanane	-/3 J									
phthalate ester	Γ£/-									
laboratory artifact		2 R	2.8							
2-ethylhexanoic acid		3.3								
4-morpholineethanthiol		2.3								
2-(2H-benzotriazol-2-yl)-4-methylphenol		10.1								
carboxylic acid		3.1								
			1			-	-	-	_	-

EXTRACTABLE ORGANIC ANALYSIS	VALYSIS								
Vincent UHL Sample Number		DOCUMENTO	- Constitution of						
Laboratory Sample Number		114937.01	114927 0151	BPMMW3D01R	BPMMW3D01B	BPMMW3S01	BPMMW3DD01	BPMMW4S01	BPMMW4D01
Remarks		0.7001	114337-0101	1 14937-03	114937-05	114937-06	114937-08	114937-10	114984-01
- init			Ulfution	Replicate	Field Blank				
OIIIIS		ng/L	ng/L	J/Bn	ug/L	ug/L	1/Bn	l/an	l/aii
PESTICIDES/AROCLORS	Quantitation Limit (Aq)							i i	- iño
alpha-BHC	0.05	5	15	=		=			
beta-BHC	0.05	ъ	0.06 J	3 =		1		To l	10
delta-BHC	0.05	In	In In	0.02 J		5 =		5 :	UL
gamma-BHC (Lindane)	0.05	In	15	15		5		ы П	JO.
Heptachlor	0.05	าก	'n	0.033 J		5 ≡		ī	NI.
Aldrin	0.05	5	ä	=		5 3		0.01 J	5
Heptachlor Epoxide	0.05	0.01 J	in in	5 5		5 =		ă	In In
Endosulfan I	0.05	In	5	5 =		5		0.04 J	'n
Dieldrin	0.10	0.04 J	0.04.1	1 70 0		3 3		5	Π
4,4:DDE	0.10	=	Ξ	200		5 :		0.04 J	UL
Endrin	0.10	0.05.1	 	5 =		10 11		0.03 J	T)
Endosulfan II	0.10	F0 0	5 =	100		1		Ħ	'n
4,4:000	0.10	=	5 =	0.02		II)		0.04 J	T)
Endosulfan Sulfate	0.10	1.100	5 =	5 =		1		Ħ	'n
4,4:-DDT	0.10	=	i =	5 5				0.03 J	I)
Methoxychlor	0.50	5 ≡	5	10 :		10		UL	η
Endrin Ketone	010	5 5	5 3	5		5		'n	a a
Endrin Aldahuda	5.5	5 5	5	5		3		'n	U
olehe Otte-Jee	0.10	5	ĭ	3		'n		'n	=
	0.05	5	10	0.01 J		'n		0.05 J	=
Lacenter Chiordane	0.05	0.97 J	0.80 J	0.83 J	0.01 J	UL		15	5 =
i ovaprierie	0.0		3	n.		UL		15	5 =
									5

EXTRACTABLE ORGANIC ANALYSIS	VALYSIS								
Vincent UHL Sample Number		BPMMW3D01	BPMMW3D01DL	BPMMW3D01R	BPMMW3D01B	BPMMW3S01	RPMMW30001	RDMMWACO1	Dominando
Laboratory Sample Number		114937-01	114937-01DL	114937-03	114937-05	114937-06	114937.08	114027 10	111004 01
Remarks			Dilution	Replicate	Field Blank		00//2511	11433/-10	114984-01
Units		ng/L	na/L	l/un	l/mii	llo	F		
				•	A A	T/An	ng).	ng/L	ng/L
PESTICIDES/AROCLORS	Quantitation Limit (Aq)								
Aroclor-1015	1.0	10	'n	ā		=			
Aroclor-1221	1.0	16	'n	=		5 3		j :	J)
Aroclor-1232	1.0	10	=	=		5 5		5	Th
Aroclor, 1242	•		5 :	3		5		T)	'n
747-Indeh	0.1	10	3	'n		5		īn	Ξ
Aroclor-1248	1.0	Ш	'n	5		=		=	5 =
Aroclor-1254	1.0	10	5	=		5 =		5	In :
Aroclor-1260	1.0	5	5	=		5 =		- I	Th)
Quantitation Limit Multiplier		1.00	5.00	101	90.	70		In	In
Data Samule Collection		0121102	010100	00:100	00.1	1.00	20.1	1.00	1.00
		76/16/0	28/18/0	28/18/8	8/31/92	8/31/92	8/31/92	8/31/92	9/1/92
Uate Sample Received by Laboratory	oratory	9/1/92	9/1/92	9/1/92	9/1/92	9/1/92	9/1/92	9/1/92	917107
Date of Sample Analysis		9/22/92	9/22/92	9/22/92	9/22/92	9/22/92	9122192	9/22/92	912310
Instrument Used for Analysis		3400-1	3400-1	3400-1	3400-1	3400-1	3400-1	3400.1	3400 1
								1-000-0	2400-1

Vincent UHL Sample Number		BPMMW1S01	BPMMW1D01	BPMMW2S01	BPMMW2001	RPMW8501	RPMWood
Laboratory Sample Number		114984-03	114984-04	114984-06	114984-07	114984-08	114984.09
Remarks							Dilution
Units		ng/L	ug/L	ng/L	ug/L	na/L	llon.
PESTICIDES/AROCLORS	Quantitation Limit (An)						T. C.
alpha-BHC	0.05	=	=				
beta-BHC	0.05	3 =	10	II II	10	æ	5
delta-BHC	0.05	5 =	TO I	JO .:	10	æ	5
damma.RHC (lindama)	50.0	5	10 ::	OL	10	æ	0.02 J
Varianta-Diro (Lindella)	0.02	In	I)	'n	I)	R	'n
neptachlor	0.05	JO	UL	0.02 J	nr n	0.03 R	ಕ
Aldrin	0.05	ĭñ	3	UL	ิ	æ	5
Heptachlor Epoxide	0.05	UL	UL	0.01 R	0.01 J	0.078 R	=
Endosulfan I	0.05	UL	nΓ	'n	l l	~	\$ ≡
Dieldrin	0.10	Uľ	nr	0.03 R	0.02 J	0.11 R	0.01
4,4'-DDE	0.10	'n	n	UL	ī	0.05 R	0.04
Endrin	0.10	'n	nr n	0.01 J	0.03 J	0.34 R	0.14.1
Endosulfan II	0.10	Ħ	UL	0.02 R	0.02 J	0.19 R	=
4,4'-000	0.10	5	'n	0.03 J	Π	~	0.04
Endosulfan Sulfate	0.10	'n	'n	า	'n	0.05 R	=
4,4'.DDT	0.10	IN.	'n	0.02 J	5	~	5 =
Methoxychlor	0.50	10	JN	5	5		\$ ≡
Endrin Ketone	0.10	UL	10	5	15	. c	\$ ≡
Endrin Aldehyde	0.10	UL	'n	'n	5	•	5 ≡
alpha-Chlordane	0.05	10	nr	5	0.02 J	0.13 R	0 12 1
gamma-Chlordane	0.05	UL	U	UL	0.068 J	0.03 R	5
Toxaphene	C. R.	-	-				

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EXTRACTABLE ORGANIC ANALYSIS	NALYSIS						
Vincent UHL Sample Number		BPMMW1S01	BPMMW1D01	BPMMW2S01	BPMMW2D01	BPMMW8S01	RPMMWRS01DI
Laboratory Sample Number		114984-03	114984-04	114984-06	114984-07	114984-08	114984-0801
Remarks							Difution
Units		ng/L	ng/L	ng/L	ug/l.	1/6n	ug/L
PESTICIDES/AROCLORS	Quantitation Limit (Aq)						
Aroclor-1015	1.0	10	īn	In	ī	α	≣
Aroclor-1221	1.0	'n	3	In	5 5		5 5
Aroclor-1232	1.0	UL	JN	ī	In		5 =
Aroclor-1242	1.0	η	ηſ	5	Π	· c	5 =
Aroclor-1248	1.0	Π	'n	In	5	cc	5 =
Aroclor-1254	1.0	5	15	ä		· a	5
Aroclor-1260	1.0	'n	'n	ă	5 5		5 =
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00	1.00	200
Data Sample Collection		9/1/92	9/1/92	9/1/92	9/1/92	9/1/92	9/1/92
Date Sample Received by Laboratory	oratory	9/2/92	9/2/92	9/2/92	9/2/92	9/2/92	9/2/92
Date of Sample Analysis		9/22/92	9/22/92	9/22/92	9123/92	9/23/92	9/23/92
Instrument Used for Analysis		3400-1	3400-1	3400-1	3400-1	3400-1	3400-1

INORGANIC ANALYSIS	S						
Vincent Uhl Sample Number			BPMMW3D01T	BPMMW3D01D	BPMMW3D01RT	RPMMW3001R0	TOPOGOMMINA
Laboratory Sample Number			114937-01	114937-02	114937-03	114937-04	114027.05
Remarks			Total	Dissolved	Total	Diesolvad	CO-100411
Units			ng/L	1/011	l/un	novioceic.	l oral
INORGANIC ELEMENTS	S	Detection				J./fin	ng/L
		Limit (Aq)			Replicate of BPMW3D01T	Replicate of RPMMW3n01n	Field Plant
Aluminum	Ь	12.8	423 J	16.3 B	407 J		DIMIK 41 1 T
Antimony	Ь	17.0	N	n	OI.		11.11
Arsenic	F	1.3			2.9 J		20
Barium	<u>a</u>	0.4	106	83.4	104	75.7	27
Beryllium	P	0.4					22.0
Cadmium	P	1.8	UL	1.9 B	UI		27.7
Calcium	Ь	6.4	33,900	28,400	33,200	27.800	4730
Chromium	<u>م</u>	7.5		7.9			200
Cobalt	Ь	3.7					
Copper	P	1.3	9.5 B	3.7 B	10.2 B	27R	5.3
Iron	Ь	5.1	480 J	17.2 B	468 J	7 S R	12.4
Lead	F	1.2	13.4	1.4 B	15.1	20 E	1.3
Magnesium	Ь	15.2	3460	3570	3940 J	4500 1	1.5
Manganese	P	1.0	23.7 J	OL.	24.2 J		2,00
Mercury	CV	0.2					J.
Nickel	Ы	8.6					
Potassium	Ы	32.6	111,000 J	94,700 J	105,000 J	83.700 I	1 665
ımı	Ŀ	1.5	ΩΓ	7in	UL	n n	111
	<u>a</u>	1.7	ΩΓ	OL	nr		331
Sodium	۵	10.3	43,300	38,400	41,400	35.400	891
	Ŀ	0.4	0.63 B	0.60 B		0.45 B	
dium	Ы	2.2	14.0 B	14.4 B	14.2 B	13.1 B	5.0
Zinc	ما	6.0	47.1 B	7.1 B	53.8 B	3.8 B	83.3 J
Cyanide	<u> </u>	10.0		NA		NA	

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INORGANIC ANALYSIS	S							
Vincent Uhl Sample Number			BPMMW4D01D	BPMMW1S01T	BPMW1D01T	8PMMW1D01D	RPMMW2C01T	Fredchilling
Laboratory Sample Number			114984-02	114984-03	114984-04	114984.05	114064 06	114004 07
Remarks			Dissolved	Total	Total	Control	00-406411	114984-07
Units			llon	1	500	DANIDSCIO	lotal	Total
INORGANIC ELEMENTS	IS	Detection		n/fin	ng/r	ng/L	ng/L	ug/f.
		Limit (Aq)						
Aluminum	Ы	12.8		11,300 J	1200 J		1 0689	1 007
Antimony	<u>-</u>	17.0	×	21.4 J	2	2	1001	46.2 J
Arsenic	-	1.3	3.0 B	4.4 B	3.0 B	2.6 B	8 3 B	700
Багит		0.4	83.1	599	296	185	377	2.0 D
Beryllium	Ы	0.4		0.62 B			0 42 B	10.4
Cadmium	<u>م</u>	1.8			318		0.44.0	
Calcium	Д	6.4	56,900	66.500	82.800	74 300	2.9 B	2.1 B
Chromium	<u>a</u>	7.5	OL	8.6 J	911	111	000,4C1	33,900
Cobalt	Ы	3.7		20.9		OF	0.1.9	UL
Copper	۵.	1.3	2 9 R	53.5	200		8.8	
Iron	۵	5	3080	15 900	20.3	3.4 B	44.9	25.2 B
Lead	. 6		22.00	13,000	47,600	468	35,600	1100
Magnesium	ء ا	1.7	2.3 B	9.9	13.8	1.9 B	47.2	14.1
Mence	١,	7.61	18,500	26,300	23,800	22,900	53,600	7330
Manganese	7	1:0	516	1040	439	235	6540	116
Mercury	<u>ر</u>	0.2						110
Nickel	Ь	8.6					13.0	
Potassium	P	32.6	7630	0689	19.500	18 900	7130	200
Selenium	F	1.5	1.7.1	UL		20,000	2017	000,7
Silver	Ь	1.7	In of	3.7 B	3 4 B	200	707	2.1.3
Sodium	۵	10.3	28 600	000 05	25.5	2.0 D	To	2.3 B
Thallium	Ŀ	0.4		111	21,000	20,600	36,500	28,000
Vanadium	_	22	0 A B	200	OL	TO	0.60 J	0.77 J
	۾		2.0.0	32.9	27.6 B	14.4 B	49.4	16.1 B
ide	ر.		J. I. D.	40.2 B	30.4 B	12.7 B	144 B	12.0 B
,	2	7.01	AN	AA		NA	NA	

Vincent Uhl Sample Number BPMMMWBS01T BPMMMWBS01D Laboratory Sample Number 114984-08 114984-09 Remarks Total Dissolved Units Limit (Aq) 114984-08 INORGANIC ELEMENTS Limit (Aq) 114994-09 Aluminum P 12.8 6880 J 15.7 B Aluminum P 12.8 6880 J 15.7 B Antimony P 17.0 18.3 J 18.0 J Antimony P 17.0 18.3 J 18.0 J Assenic F 1.3 3.8 B 2.6 B Barjlium P 0.4 0.89 B 16.8 Cademium P 1.8 3.7 B 1.6 Cobalt P 7.5 7.6 J UL Copper P 5.1 10,400 26.3 B Lead F 1.2 20.5 2.6 B Magnesium P 5.1 10,400 2.6 B Mercury CV	SIGNATURE WITH SING	2			
14984-08 14984-08 14984-08 14984-08 14984-08 14984-08 14984-08 14984-08 14984-08 14984-08 14984-08 14984-08 14984-08 14984-08 14984-08 14984-08 14984-08 1598 15	Vincent Uhl Sample Number			BPMMW8S01T	BPMMW8S01D
RGANIC ELEMENTS Limit (Aq) Limit (Aq)	Laboratory Sample Number			114984-08	114984-09
NGANIC ELEMENTS Detection	Remarks			Total	Dissolved
High P 12.8 6880 J 12.8 13.3 J 13.3 J 13.4 1	Units			1/bn	1/00
ninum P Limit (Aq) mony P 12.8 6880 J mony P 17.0 18.3 J nic F 17.0 18.3 J nin P 17.0 18.3 J nium P 0.4 394 Illium P 0.4 0.89 B nium P 6.4 128,000 perr P 7.5 7.5 alt P 7.5 7.6 J alt P 7.5 7.5 alt P 1.3 3.7 A alt P 1.0 1.0 and P 1.1 1.0 and P 1.1 3.0 B and P 2.2 45.8 1 and P 1.0	INORGANIC ELEMENT	TS	Detection		
ninum P 12.8 6880 J mony P 17.0 18.3 J mic F 1.3 3.8 B um P 0.4 394 ullium P 0.4 39B nium P 6.4 128,000 mium P 6.4 128,000 ser P 7.5 7.6 J alt P 5.1 10,400 ser P 5.1 10,400 ser P 5.1 10,400 p 5.1 10,400 ser P 5.1 10,400 ganesium P 5.1 10,400 cel P 5.1 40,800 sium P 15.2 40,800 run P 1.7 3.0 B run P 10.3 74,900 run P 0.4 0.47 J dium P 0.4			Limit (Aq)		
mony P 17.0 18.3 J nic F 1.3 3.8 B um P 0.4 394 um P 0.4 394 nium P 0.4 0.89 B nium P 1.8 3.7 B nium P 6.4 128,000 part P 7.5 7.6 J alt P 7.5 7.6 J alt P 7.5 7.6 J part P 7.5 7.6 J part P 7.5 7.6 J nit P 7.5 49,800 ganese P 1.0 1.0,400 cl P 1.0 1.0,400 sunc P 1.0 1.0,400 sunc P 1.0 1.0,400 sunc P 1.0 1.0 sunc P 1.0 1.0 sunc P 1.0	Aluminum	P	12.8	f 0889	15.7 B
um P 0.4 3.8 B um P 0.4 394 Illium P 0.4 394 mium P 1.8 3.7 B mium P 6.4 128,000 omium P 7.5 7.6 J alt P 7.6 J 7.6 J alt P 7.1 3.7 20.5 alt P 1.0 1.160 1.60 aury CV 0.2 7920 1.8 J r P 1.7 3.0 B 1.8 J r P 1.7 3.0 B 1.8 J r P 1.7 3.0 B 1.8 J r P <	Antimony	P	17.0	18.3 J	18.0 J
um P 0.4 394 Ilium P 0.4 0.89 B mium P 1.8 3.7 B ium P 6.4 128,000 omium P 7.5 7.6 J alt P 7.5 7.6 J alt P 7.5 7.6 J omium P 1.3 35.4 per P 1.3 35.4 p 5.1 10,400 p 5.1 10,400 p 5.1 10,400 p 5.1 10,400 c P 1.0 160 c 1.0 160 160 c 1.0 160 160 c 1.0 1.8 J 1.8 J c 1.0 1.2 1.8 J c 1.0 1.7 J 3.0 B m P 1.7 3.0 B m P 1.7 <td>Arsenic</td> <td>F</td> <td>1.3</td> <td>3.8 B</td> <td>2.6 B</td>	Arsenic	F	1.3	3.8 B	2.6 B
Illium P 0.4 0.89 B nium P 1.8 3.7 B ium P 6.4 128,000 minum P 7.5 7.6 J alt P 7.5 7.6 J alt P 3.7 3.7 blid P 3.7 3.7 cer P 1.3 35.4 nesium P 5.1 10,400 F 1.2 20.5 el P 1.0 160 el P 1.0 160 el P 1.0 160 el P 1.5 49,800 ganese P 1.0 160 el P 1.0 160 el P 1.0 160 el P 1.7 3.0 B m P 1.7 3.0 B m P 1.7 3.0 <	Barium	P	0.4	394	168
nium P 1.8 3.7 B ium P 6.4 128,000 wnium P 7.5 7.6 J alt P 3.7 3.7 ser P 3.7 3.7 ser P 1.3 35.4 P 5.1 10,400 F 1.2 20.5 nesium P 1.0 1160 el P 1.0 1160 el P 1.0 1160 el P 32.6 7920 sium P 1.7 3.0 B m P 1.7 3.0 B m P 1.7 3.0 B ium P 1.7 3.0 B ium P 2.2 45.8 idum P 2.2 45.8 ide C 10.0 79.4 B	Beryllium	P	0.4	0.89 B	
ium P 6.4 128,000 omium P 7.5 7.6 J alt P 3.7 3.7 ser P 3.7 3.7 ser P 3.7 3.7 ser P 5.1 10,400 F 1.2 20.5 nesium P 15.2 49,800 el P 1.0 1160 unry CV 0.2 7920 ium P 1.5 1.8 J r P 1.7 3.0 B ium P 1.7 3.0 B ium P 1.7 3.0 B dium P 2.2 45.8 ide C 10.0 79.4 B	Cadmium	P	1.8	3.7 B	
omium P 7.5 7.6 J alt P 3.7 3.7 ser P 1.3 35.4 ser P 1.3 35.4 mesium P 5.1 10,400 ganese P 15.2 49,800 ganese P 1.0 1160 unry CV 0.2 49,800 el P 1.0 1160 sium P 32.6 7920 ium P 1.7 3.0 B ium P 1.7 3.0 B ium P 1.7 3.0 B dium P 2.2 45.8 ide C 10.0 79.4 B	Calcium	Ь	6.4	128,000	79,400
alt P 3.7 3.7 Ser P 1.3 35.4 Desium F 5.1 10,400 Resium F 1.2 20.5 nesium P 15.2 49,800 ganese P 1.0 1160 unry CV 0.2 49,800 el P 32.6 7920 isium P 1.7 3.0 B im P 10.3 74,900 ium P 0.4 0.47 J dium P 2.2 45.8 ide C 10.0 79.4 B	Chromium	Ь	7.5	7.6 J	In
per 1.3 35.4 perium F 5.1 10,400 nesium F 1.2 20.5 nesium P 15.2 49,800 ganese P 1.0 1160 uury CV 0.2 49,800 el P 9.8 20.6 sium F 1.5 1.8 J r P 1.7 3.0 B m P 1.7 3.0 B ium P 10.3 74,900 ium P 2.2 45.8 ide C 10.0 79.4 B	Cobalt	P	3.7	3.7	
P 5.1 10,400	Copper	Ь	1.3	35.4	
resium F 1.2 20.5 ganese P 15.2 49,800 ganese P 1.0 1160 unry CV 0.2 20.6 el P 32.6 7920 sium F 1.5 1.8 J r P 1.7 3.0 B nm P 10.3 74,900 ium P 0.4 0.47 J dium P 2.2 45.8 ide C 10.0 79.4 B	Iron	Ь	5.1	10,400	26.3 B
nesium P 15.2 49,800 ganese P 1.0 1160 urry CV 0.2 1160 el P 9.8 20.6 sium P 32.6 7920 ium F 1.7 3.0 B im P 1.7 3.0 B ium P 10.3 74,900 ium F 0.4 0.47 J dium P 2.2 45.8 ide C 10.0	Lead	F	1.2	20.5	2.6 B
ganese P 1.0 1160 unry CV 0.2 160 el P 9.8 20.6 sium P 32.6 7920 ium F 1.7 3.0 B im P 1.7 3.0 B im P 10.3 74,900 ium F 0.4 0.47 J dium P 2.2 45.8 ide C 10.0	Magnesium	Ь	15.2	49,800	28,600
el P 9.8 20.6 sium P 32.6 7920 ium P 10.3 74,900 ium P 2.2 45.8 ide C 10.0 79.4 gide	Manganese	Ь	1.0	1160	234
el P 9.8 20.6 ssium P 32.6 7920 nium F 1.5 1.8 J r P 1.7 3.0 B m P 10.3 74,900 ium F 0.4 0.47 J dium P 2.2 45.8 ide C 10.0 79.4 B	Mercury	CV	0.2		
sium P 32.6 7920 r I.S I.8 J I.8 J r P I.7 3.0 B m P I0.3 74,900 ium F 0.4 0.47 J dium P 2.2 45.8 ide C 10.0 79.4 B	Nickel	P	8.6	20.6	
tium F 1.5 1.8 J r P 1.7 3.0 B nm P 10.3 74,900 ium F 0.4 0.47 J dium P 2.2 45.8 ide C 10.0 79.4 B	Potassium	Ь	32.6	7920	5480
r P 1.7 3.0 B 1m P 10.3 74,900 ium F 0.4 0.47 J dium P 2.2 45.8 ide C 10.0 79.4 B	Selenium	Ŀ,	1.5	1.8 J	
im P 10.3 74,900 ium F 0.4 0.47 J dium P 2.2 45.8 ide C 10.0 79.4 B	Silver	P	1.7	3.0 B	UL
ium F 0.4 0.47 J dium P 2.2 45.8 P 0.9 79.4 B ide C 10.0	Sodium	Ы	10.3	74,900	73,100
dium P 2.2 45.8 P 0.9 79.4 B ide C 10.0	Thallium	묘	0.4	0.47 J	OL
ide C 10.0 79.4 B	Vanadium	Ы	2.2	45.8	13.2 B
C 10.0	Zinc	<u>a</u>	6.0	79.4 B	17.4 B
	Cyanide	ပ	10.0		NA

DATA USABILITY REPORT FIRST ROUND MONITORING WELL SAMPLES

(Collected August 31 - September 2, 1992)

The data usability qualifiers assigned in the "Quality Assurance Review of the Samples Collected August 31 - September 2, 1992 for the Baldwin Place Mall Project", dated March 3, 1993 by Environmental Standards, Inc. (ESI), and shown on the validated data spreadsheets are provided on the following pages.

Due to the presence of 1,1,2,2-tetrachloroethane in a trip blank and methylene chloride in a field blank, the reported results for these compounds in certain samples are qualitatively questionable ("B"). 1,1,2,2-tetrachloroethane was not detected in any other sample sets throughout the RI and was evidently detected as an artificial contaminant in these few samples. Methylene chloride was detected in other samples in this data set with no direct reason to consider them qualitatively questionable, however these results should be used with extreme caution (as probable laboratory artifacts). The virtual absence of methylene chloride in the second round of samples collected from the monitoring wells, and in other site media, confirmed that this very common laboratory contaminant was an artifact in the first round samples.

The detection limits for acetone in all samples should be considered unreliable and positive results for acetone should be considered estimated. Acetone is not a constituent of concern at this site, and has been randomly detected in the data sets. This compound is often found as a laboratory artifact, as it appears to be in this data set.

The detection limits for the base/neutral semivolatile compounds in sample BPM-MW-2S-01 may be higher than reported, and in the re-extracted sample, BPM-MW-2S-01RR, the reported detection limits for all semi-volatile compounds are unreliable. Also, the detection limits for certain semivolatile compounds in certain samples may be biased low. Semivolatile compounds are not constituents of concern in groundwater at the site, and in the entire data set, only bis(2-ethylhexyl)phthalate, was detected in a few remote locations. This compound, a very common laboratory contaminant, evidently appears as such in this data set.

The detection limits for pesticides/Arochlor compounds in many samples may be biased low and the positive pesticide results considered estimated. Trace-level pesticide results in these and other samples could not be further qualified or qualified as they met the identification criteria stipulated in the method. However, it was the opinion of the data reviewer that sufficient reasons exist not to consider these pesticide detections as totally reliable (see following pages). The RI Report explicitly discusses the questionable reliability of these trace-level pesticide detections. The primary focus of the RI is on volatile organic compounds and the questionable reliability of the trace-level pesticide results is of interest but is not a consequential issue for the study purposes.

The remainder of the qualifiers pertain to the inorganic parameters, in that the detection limits may be biased or unreliable and positive results considered estimated for certain parameters in certain samples. Due to the trace-level presence of some analytes in blanks, positive results for these analytes in certain samples are considered qualitatively questionable ("B"). Inorganics are not constituents of concern at the site, and the data set was adequate to confirm this.

In summary, the site characterization for the RI purposes is not affected by any of the data usability issues identified for this data set.

With respect to data usability, the principal areas of concern include blank contamination, holding times, surrogate recoveries, calibrations and poor column agreement. Based on a rigorous review of the data provided, the following organic data qualifiers are offered. It should be noted that the following data usability issues represent an interpretation of the quality control results obtained from the project samples. Validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Organic Data Qualifiers

Due to the presence of 1,1,2,2-tetrachloroethane in a trip blank and methylene chloride in a field blank, the reported results for these compounds in the following samples are qualitatively questionable and have been flagged "B" on the data tables.

Compound

1,1,2,2-tetrachloroethane

methylene chloride

Applicable Samples

BPM-MW-3S-01 and BPM-MW-3DD-01

BPM-MW-4D-01, BPM-MW-8S-01 and BPM-MW-5S-01

- Although there is no direct reason to qualitatively question the results for methylene chloride in samples BPM-MW-3D-01, BPM-MW-3D-01R, BPM-MW-4S-01, BPM-MW-2S-01, BPM-MW-2D-01 and BPM-MW-6S-01, for acetone in samples BPM-MW-3D-01, BPM-MW-3D-01R, BPM-MW-2S-01 and BPM-MW-2D-01 and for bis(2-ethylhexyl)phthalate in samples BPM-MW-1D-01 and BPM-MW-2D-01, these results should be used with extreme caution. Methylene chloride, acetone and bis(2-ethylhexyl)phthalate are common laboratory and/or field contaminants.
- The reported detection limits for acetone for all samples reported as "not-detected" are unreliable and have been flagged "R" on the data tables. Similarly, positive sample results for acetone should be considered estimated and have been flagged "J" on the data tables. Low response factors (<0.05) were observed for acetone in all initial and continuing calibrations associated with this data set.
- The reported detection limits for all semivolatile compounds in sample BPM-MW-2S-01RR are unreliable and the "not-detected" results have been flagged "R" on the data tables. This sample was reextracted 8 days in excess of the <u>Federal Register</u> holding time of seven days from sample collection. In addition, for the acid compounds, very low recoveries (<10%) were obtained for the acid surrogate compounds phenol-d₅ and 2-fluorophenol in the reextraction of sample BPM-MW-2S-01RR. Furthermore, a low recovery (14%) was obtained for the acid surrogate compound 2-chlorophenol-d₄.

The actual detection limits for the base/neutral semivolatile compounds in sample BPM-MW-2S-01 may be higher than reported and the "not-detected" results have been flagged "UL" on the data tables. Low recoveries were obtained for the base/neutral surrogate compounds nitrobenzene-d₅ and 2-fluorobiphenyl (28% and 26%, respectively) in the analysis of sample BPM-MW-2S-01.

The actual detection limits for the following semivolatile compounds in the corresponding samples may be biased low and have been flagged "UL" on the data tables. High percent differences (>25%) in the direction of a decrease in instrument sensitivity were obtained between the average relative response factors of the initial and the relative response factors in the associated continuing calibrations.

Compounds

Applicable Samples

chloromethane

BPM-MW-4S-01

hexachlorocyclopentadiene

All samples except BPM-MW-2S-01RR

dibenz(a,h)anthracene

BPM-MW-3D-01R, BPM-MW-3D-01B, BPM-MW-3S-01, BPM-MW-3DD-01, BPM-MW-4S-01, BPM-MW-1D-01, BPM-MW-2S-01,

BPM-MW-1S-01 and BPM-MW-2D-01

3,3'-dichlorobenzidine

BPM-MW-3D-01, BPM-MW-4D-01 and BPM-MW-8S-01

The positive results for the pesticide/Aroclor compounds quantitated from column DB-1701 for sample BPM-MW-2S-01 and from column DB-608 and column DB-1701 for sample BPM-MW-8S-01 are unreliable and have been flagged "R" on the data tables. Similarly, the "not-detected" results for all pesticide/Aroclor compounds in sample BPM-MW-8S-01 are unreliable and have been flagged "R" on the data tables. These samples displayed high baselines and off-scale peaks on the chromatograms using the aforementioned columns. (Sample BPM-MW-8S-01 was consequently diluted and reanalyzed.) This subsequent dilution appears to have yielded an acceptable analysis.

The actual detection limits for pesticide/Aroclor compounds in samples BPM-MW-3D-01, BPM-MW-3D-01DL,BPM-MW-3D-01R,BPM-MW-3S-01,BPM-MW-4S-01,BPM-4D-01, BPM-MW-1S-01, BPM-MW-1D-01, BPM-MW-2S-01, BPM-MW-2D-01 and BPM-MW-8S-01DL may be higher than reported and have been flagged "UL" on the data tables. In addition, the positive pesticide results in these samples should be considered estimated and have been flagged "J" (unless previously qualified "R") on the data tables. Low recoveries (<60%) were observed for the surrogate compound decachlorobiphenyl (DCB) in the analyses of these samples on both columns. In addition, low recoveries were also observed for the surrogate compound tetrachloro-m-xylene on at least one column in samples BPM-MW-4S-01, BPM-MW-2D-01, BPM-MW-4D-01, BPM-MW-3D-01 and BPM-MW-8S-01.

The reported concentration of gamma-chlordane in sample BPM-MW-3D-01 should be considered estimated and has been flagged "J" on the data tables. The instrument response that this result was based on was above the calibration range. The laboratory performed a subsequent dilution/reanalysis to quantitate gamma-chlordane within the calibration range. This reanalysis appears on the data tables.

Although the trace-level pesticide results reported in samples BPM-MW-3D-01, BPM-MW-3D-01DL, BPM-MW-3D-01R, BPM-MW-4S-01, BPM-MW-2S-01 (not previously flagged "R"), BPM-MW-8S-01DL and BPM-MW-2D-01 could not be qualified as they met the identification criteria stipulated in the method, these results should be used with extreme caution. Examination of the chromatograms revealed significant chromatographic interferences reminiscent of a large hydrocarbon pattern. Although this multipeak pattern has the shape and intensity characteristic of an Aroclor pattern, these patterns did not provide even a marginal retention time match to Aroclor standards provided. The interferences evident on the chromatograms of the aforementioned samples could easily result in false positive results. Additional reasons to suspect/use these pesticides cautiously are presented below. Based on the chromatograms provided and the information presented below, it is the opinion of the reviewer that sufficient reasons exist not to consider these pesticide detections as totally reliable.

- All but several of the results are below (some significantly below) the quantitation limit.
- The variety of unrelated pesticides do not represent a pattern of contamination that is typically observed for environmental samples contaminated with pesticides (e.g., the presence of a notable level of gamma-chlordane and the absence of alpha-chlordane).
- Trace-levels of most of the pesticides reported were also observed in laboratory instrument blanks at concentrations of approximately 0.01 μ g/L. These could not be used to qualify sample results since they were not (nor required to be) confirmed on a second column.
- The percent differences in the concentrations calculated between the two GC columns is significant (as discussed in the next qualifier) with very few exceptions.

The reported pesticide results in the following samples should be considered estimated and have been flagged "J" on the data tables. High percent differences (>25%) were observed between the concentrations calculated for the two GC columns as follows.

Compound

Applicable Samples

heptachlor epoxide

BPM-MW-3D-01 and BPM-MW-2D-01

Compound	Applicable Samples
dieldrin	BPM-MW-3D-01, BPM-MW-3D-01DL, BPM-MW-3D-01R, BPM-MW-2D-01 and BPM-MW-8S-01DL
endosulfan sulfate	BPM-MW-3D-01
gamma-chlordane	BPM-MW-3D-01, BPM-MW-3D-01B and BPM-MW-2D-01
delta-BHC	BPM-MW-3D-01R and BPM-MW-8S-01DL
heptachlor	BPM-MW-3D-01R
endosulfan II	BPM-MW-3D-01R, BPM-MW-4S-01 and BPM-MW-2D-01
alpha-chlordane	BPM-MW-3D-01R, BPM-MW-4S-01 and BPM-MW-2D-01
4,4'-DDE	BPM-MW-4S-01 and BPM-MW-8S-01DL
endrin	BPM-MW-2S-01 and BPM-MW-8S-01DL
4,4'-DDD	BPM-MW-2S-01 and BPM-MW-8S-01DL
4,4'-DDT	BPM-MW-2S-01

Two sets of field replicate samples were submitted with this data set as follows:

<u>Sample</u>	Fraction Analyzed	Replicate
BPM-MW-3D-01	V,S,PA	BPM-MW-3D-01R
BPM-MW-5S-01	\mathbf{v}	BPM-MW-5S-01R

Except for the semivolatile compounds, target analytes were detected in the replicate pairs BPM-MW-3D-01/BPM-MW-3D-01R and BPM-MW-5S-01/BPM-MW-5S-01R. Positive results for these replicate sets are tabulated below.

Compound	Sample BPM-MW-3D-01	Replicate BPM-MW-3D-01R	<u>RPD</u>	Notes
methylene chloride	85 μg/L	94 μg/L	10.0%	1
acetone	$20~\mu \mathrm{g/L}$	$27~\mu g/L$	29.8%	2
toluene	$5~\mathrm{J}~\mu\mathrm{g}/\mathrm{L}$	$5~\mathrm{J}~\mu\mathrm{g}/\mathrm{L}$	0%	1
delta-BHC	$0.05~\mathrm{U}~\mu\mathrm{g/L}$	$0.02~\mathrm{J}~\mu\mathrm{g/L}$	N.C.	2,3

Compound	Sample BPM-MW-3D-01	Replicate BPM-MW-3D-01R	RPD	Notes
heptachlor	$0.05~\mathrm{U}~\mu\mathrm{g/L}$	$0.033~\mathrm{J}~\mu\mathrm{g/L}$	N.C.	2,3
heptachlor epoxide	$0.01~\mathrm{J}~\mu\mathrm{g/L}$	$0.05~\mathrm{U}~\mu\mathrm{g/L}$	N.C.	2,3
dieldrin	$0.04~\mathrm{J}~\mu\mathrm{g/L}$	$0.04~\mathrm{J}~\mu\mathrm{g/L}$	0%	1
endosulfan II	$0.10~\mathrm{U}~\mu\mathrm{g/L}$	$0.02~\mathrm{J}~\mu\mathrm{g/L}$	N.C.	2,3
endosulfan sulfate	$0.01~\mathrm{J}~\mu\mathrm{g/L}$	$0.10~\mathrm{U}~\mu\mathrm{g/L}$	N.C.	2,3
alpha-chlordane	$0.05~\mathrm{U}~\mu\mathrm{g/L}$	$0.01~\mathrm{J}~\mu\mathrm{g/L}$	N.C.	2,3
gamma-chlordane	0.97 μg/L	$0.83~\mu \mathrm{g/L}$	15.6%	1
Compound	Sample BPM-MW-5S-01	Sample BPM-MW-5S-01R	<u>RPD</u>	<u>Notes</u>
total-1,2-dichloroethene	$23 \mu g/L$	$28~\mu g/L$	19.6%	1
trichloroethene	$25 \mu g/L$	27 μg/L	7.7%	1
tetrachloroethene	$64~\mu\mathrm{g/L}$	$74 \mu g/L$	14.5%	1

NOTES:

U - This compound was analyzed for but was not detected at or above the associated numerical value.

J - This result is below the quantitation limit; estimated concentration.

N.C. - Not calculable.

1 - The RPD is within 20%; acceptable replicate precision.

2 - Results are within ± CRQL; replicate is considered acceptable.

At least one result is below the quantitation and is not calculable.

Tentatively Identified Compounds (TICs) have been evaluated and are presented in Section 2. The majority of the TICs appear to be saturated hydrocarbons, laboratory artifacts and unknowns. Laboratory artifacts and blank contaminants have been rejected and have been flagged "R" and "B" (respectively) on the data tables. Several interesting trace-level nitrogen-containing, oxygen-containing and in one instance (for a reextraction), chlorinated, TICs were observed in some of the project samples. The reported concentrations of all TICs (not previously qualified "R" or "B") should be considered estimated and have been flagged "J" on the TIC tables.

Per NYSDEC ASP reporting conventions, all positive results below the quantitation limit should be considered estimated and have been flagged "J" on the sample data tables.

With regard to data usability, the principal areas of concern include trace-level contamination in the laboratory and field blanks, pre- and post-digestion matrix spike recoveries, Contract Required Detection Limit (CRDL) standard recoveries, ICP serial dilution results, ICP interference, ICP serial dilution results and laboratory and field replicate analyses. Based upon an evaluation of the QC summary information reported by the laboratory, the following inorganic data qualifiers are offered. It should be noted that data usability issues represent an interpretation of the quality control results obtained for the project samples. Quite often, data qualification addresses issues relating to the sample matrix problems. Similarly, the validation guidelines specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Inorganic Data Qualifiers

Due to the trace-level presence of the analytes listed in the table below in an associated laboratory or field blank, the positive results for these analytes in the samples indicated should be considered qualitatively questionable and have been flagged "B" on the data tables.

<u>Analyte</u>	Applicable Samples
aluminum	BPM-MW-3D-01D, BPM-MW-3S-01D, BPM-MW-3DD-01T, BPM-MW-3DD-01D and BPM-MW-8S-01D
antimony	BPM-MW-3S-01T and BPM-MW-4S-01T
arsenic	All samples is SDG UHL984
beryllium	All positive results except the field blank (BPM-MW-3D-01B)
cadmium	All positive results except the field blank (BPM-MW-3D-01B)
copper	BPM-MW-4D-01T, BPM-MW-4D-01D, BPM-MW-1D-01D, BPM-MW-2D-01T and all samples in SDG UHL937 except the field blank (BPM-MW-3D-01B)
iron	BPM-MW-3D-01D, BPM-MW-3D-01RD, BPM-MW-3S-01D and BPM-MW-8S-01D
lead	BPM-MW-3D-01D, BPM-MW-3D-01RD, BPM-MW-3S-01D, BPM-MW-3DD-01T, BPM-MW-4S-01T, BPM-MW-4D-01T, BPM-MW-4D-01D, BPM-MW-1D-01D and BPM-MW-8S-01D

Analyte

Applicable Samples

manganese

BPM-MW-3S-01D

potassium

BPM-MW-3S-01D

silver

All positive results except the field blank (BPM-MW-3D-01B)

thallium

All positive results in SDG UHL937

vanadium

BPM-MW-3D-01T, BPM-MW-3D-01D, BPM-MW-3D-01RT, BPM-MW-3D-01RD, BPM-MW-3S-01T, BPM-MW-3S-01D, BPM-MW-3DD-01T, BPM-MW-3DD-01D, BPM-MW-4D-01T, BPM-MW-4D-01D, BPM-MW-1D-01T, BPM-MW-1D-01D, BPM-MW-2D-01T and BPM-MW-8S-01D

zinc

All samples except the field blank (BPM-MW-3D-01B)

It should be noted that although there is no direct reason to question the presence of antimony in samples BPM-MW-1S-01T, BPM-MW-2S-01T, BPM-MW-8S-01T and BPM-MW-8S-01D and thallium in samples BPM-MW-4D-01T, BPM-MW-2S-01T and BPM-MW-2D-01T in SDG UHL984, antimony and thallium were reported at similar levels in laboratory blanks associated with the samples in SDG UHL937. Therefore, these positive results should be used with caution. Similarly, arsenic was detected in laboratory method blanks associated with the samples in SDG UHL984 at a concentration similar to the single positive result for arsenic in SDG UHL937, sample BPM-MW-3D-01RT. Therefore, caution should also be exercised when using this positive result.

The actual detection limits for antimony, cadmium, silver and selenium in the samples in SDG UHL937 and for chromium in the samples in SDG UHL984 in which these analytes were reported as "not-detected" may be higher than reported and the "not-detected" results have been flagged "UL" on the data summary tables. In addition, the low-level ($<5 \times \text{CRDL}$) positive results for cadmium and silver in field blank BPM-MW-3D-01BT in SDG UHL937 and for chromium in samples BPM-MW-1S-01T, BPM-MW-1D-01T, BPM-MW-2S-01T and BPM-MW-8S-01T in SDG UHL984 should be considered estimated and have been flagged "J" on the data tables. Low recoveries (50% < %R < 84.9%) were obtained for the aforementioned analytes in the detection limit (CRDL) standards associated with the samples in this SDG.

The "not-detected" results for antimony in samples BPM-MW-4D-01T, BPM-MW-4D-01D, BPM-MW-1D-01T, BPM-MW-1D-01D, BPM-MW-2D-01T in SDG UHL984 are unreliable and have been flagged "R" on the data summary tables. In addition, the low-level (<5 × CRDL) positive results for antimony in samples BPM-

MW-1S-01T, BPM-MW-2S-01T, BPM-MW-8S-01T and BPM-MW-8S-01D in SDG UHL984 should be considered estimated and have been flagged "J" on the data tables. Very low recoveries (<50%) were reported for both the initial (32.4%) and final (23.4%) CRDL standards associated with the samples in this SDG.

The actual detection limits for silver in samples BPM-MW-3D-01D and BPM-MW-3D-01RD in SDG UHL937 and for samples BPM-MW-4D-01D, BPM-MW-2S-01T and BPM-MW-8S-01D in SDG UHL984 and for thallium in samples BPM-MW-4D-01D, BPM-MW-1D-01D and BPM-MW-8S-01D in SDG UHL984 may be higher than reported and have been flagged "UL" on the data summary tables. Low recoveries (30% < % R < 75%) were observed for this analyte in the associated pre-digestion matrix spike samples. It should be noted that the laboratory performed separate matrix spike analyses for total and dissolved metals. Spike results have been applied to the samples accordingly.

The actual detection limits for thallium in samples BPM-MW-1S-01T and BPM-MW-1D-01T in SDG UHL984 may be higher than reported and the "not-detected" results have been flagged "UL" on the data summary tables. In addition, the positive results for thallium in samples BPM-MW-4D-01T, BPM-MW-2S-01T, BPM-MW-2D-01T and BPM-MW-8S-01T in SDG UHL984 should be considered estimated and have been flagged "J" on the data tables. A very low recovery (<30%) was obtained for total thallium in the associated pre-digestion matrix spike analysis performed on sample BPM-MW-4D-01T in this SDG (a positive result for thallium was observed in the unspiked sample and accordingly flagged "J" as estimated). It should be noted that the original, unspiked analysis of this sample and its laboratory duplicate analysis required dilution due to recoveries of <40% in the post-digestion spikes, indicating large matrix interferences for this sample. No other sample in this SDG (with the exception of the field duplicate BPM-MW-4D-01TR) exhibited a post-digestion spike recovery less than 40%. Therefore, although an observed recovery of <30% in the pre-digestion spike typically warrants the designation of "not-detected" results for thallium as unreliable, it is the opinion of the reviewer that the qualification of a probable low bias for the "notdetected" results in this SDG is more appropriate.

Data users should note that the reported result for total thallium in sample BPM-MW-4D-01T is from the 10-fold dilution analysis performed in response to the very low post-digestion spike recovery obtained for the undiluted sample. The detection limit for this analysis is, therefore, also increased by a factor of 10. Similarly, the reported result for lead in sample BPM-MW-2S-01T is from a 2-fold dilution analysis. The detection limit for this analysis is increased accordingly.

The positive results for manganese in samples BPM-MW-3D-01T and BPM-MW-3D-01RT in SDG UHL 937 and all positive results for antimony in SDG UHL 984 should be considered estimated and have been flagged "J" on the data summary tables. Positive responses greater than the instrument detection limits (IDLs) or negative responses whose absolute values are greater than twice the IDLs were obtained for these analytes in one or more of the associated ICP interference check samples (ICSA); these

analytes are not added to the ICSA. Therefore, the notable concentrations of the interferents calcium, iron and/or magnesium which were detected in the aforementioned samples may have biased the reported low-level (<10 × the greatest response in the associated check standards) analyte results. For the same reasons, the actual detection limits for manganese in samples BPM-MW-3D-01D and BPM-MW-3D-01RD may be higher than reported and have been flagged "UL" on the data tables. A large negative response for manganese was observed in the associated ICSA solution indicating that the reported detection limits for manganese in the aforementioned samples may be biased low.

The positive results for total iron in samples BPM-MW-3D-01T, BPM-MW-3D-01RT, BPM-MW-3S-01T, BPM-MW-3DD-01T and BPM-MW-4S-01T should be considered estimated and have been flagged "J" on the data summary tables. Results of the associated laboratory duplicate analysis did not agree within \pm the CRDL. It should be noted that these results did display a relative percent difference (RPD) of <20%; however, because both results are less than $5 \times$ CRDL, the acceptance criterion of \pm the CRDL is applied.

All positive results for potassium and zinc in the samples in SDG UHL937 and for aluminum in both SDGs should be considered estimated and have been flagged "J" (unless previously flagged "B") on the data summary tables. Percent differences of greater than 10% were obtained for these analytes in the associated ICP serial dilution analyses.

The actual detection limits for the analytes listed below in the indicated samples may be higher than reported and the "not-detected" results have been flagged "UL" on the data summary tables. In addition, the positive results for these analytes in the indicated samples should be considered estimated and have been flagged "J" on the data summary tables. The recoveries obtained in the post-digestion spikes performed on these samples analyzed using GFAA were not within the required range of 85-115%. Those samples flagged "UL" displayed recoveries which were less than 85%.

<u>Analyte</u>	Samples with Biased Detection <u>Limits (Flagged "J")</u>	Samples with Estimated Results (Flagged "UL")
selenium	BPM-MW-4D-01D, BPM-MW-2D-01T and BPM-MW-8S-01T	BPM-MW-3D-01T, BPM-MW-3D-01D, BPM-MW-3D-01RT, BPM-MW-3D-01RD, BPM-MW-3S-01D, BPM-MW-3DD-01T, BPM-MW-3DD-01D, BPM-MW-4S-01T, BPM-MW-1S-01T and BPM-MW-2S-01T
thallium	-	BPM-MW-3S-01T

Several of the samples in this data set were analyzed for both total and dissolved metals. For the results listed in the table below, the concentration of analytes for dissolved metals exceeded the concentration reported for the total metals analysis. Percent differences less than 10% are within the tolerance limits of the method and, therefore, these results have not been qualified. For analyses in which the concentration of the dissolved analyte

exceeds the total concentration by more than 10% of the total concentration, the results should be considered estimated. Therefore, the positive results for magnesium in sample BPM-MW-3D-01R (total and dissolved) should be considered estimated and have been flagged "J" on the data summary table.

<u>Sample</u>	<u>Analyte</u>	Total Metal Concentration	Dissolved Metal Concentration	<u>%D</u>
BPM-MW-3D-01	magnesium	$3460 \mu g/L$	3570 μg/L	3.2%
BPM-MW-3D-01R (Replicate of BPM-MW-3D-01)	magnesium	3940 μg/L	4500 μg/L	14.2%
BPM-MW-4D-01	magnesium	17,700 μg/L	18,500 μg/L	4.5%
BPM-MW-4D-01	potassium	$7010~\mu \mathrm{g/L}$	7630 μg/L	8.8%
BPM-MW-4D-01	sodium	$26,300~\mu g/L$	$28,600~\mu g/L$	8.7%

One field replicate was collected with samples for this data set--sample BPM-MW-3D-01R is a replicate of sample BPM-MW-3D-01. Each sample was analyzed for total cyanide and for both total and dissolved metals. The table below is a summary of all qualitatively confident positive results.

Analyte	BPM-MW-3D-01 (total)	Replicate BPM-MW-3D-01R (total)	Relative Percent Difference (RPD)	Notes
aluminum	$423 \text{ J} \mu\text{g/L}$	$407~\mathrm{J}~\mu\mathrm{g/L}$	3.9%	1
arsenic	$1.3~\mathrm{U}~\mu\mathrm{g/L}$	2.9 μg/L	NC	3,4
barium	$106 \mu g/L$	104 μg/L	1.9%	1
calcium	$33,900~\mu g/L$	$33,200~\mu g/L$	2.0%	1
iron	$480~\mathrm{J}~\mu\mathrm{g/L}$	468 J μg/L	2.5%	1
lead	$13.4 \mu g/L$	$15.1~\mu g/L$	11.9%	1
magnesium	3460 μg/L	3940 μg/L	13.0%	1
manganese	$23.7~\mathrm{J}~\mu\mathrm{g/L}$	$24.2 \text{ J} \mu\text{g/L}$	2.1%	1
potassium	$111,000~\mathrm{J}~\mu\mathrm{g/L}$	$105{,}000~\mathrm{J}~\mu\mathrm{g/L}$	5.6%	1
sodium	$43,300~\mu g/L$	$41,400~\mu \mathrm{g/L}$	4.5%	1

<u>Analyte</u>	BPM-MW-3D-01 (dissolved)	Replicate BPM-MW-3D-01R (dissolved)	Relative Percent <u>Difference (RPD)</u>	<u>Notes</u>
barium	$83.4 \mu g/L$	75.7 μg/L	9.7%	1
calcium	$28,400~\mu g/L$	$27,800~\mu g/L$	2.1%	1
chromium	$7.9~\mu\mathrm{g/L}$	$7.5~\mathrm{U}~\mu\mathrm{g/L}$	NC	2
magnesium	$3570 \mu g/L$	$4500~\mu \mathrm{g/L}$	23.0%	2
potassium	94,700 μg/L	$83,700~\mu g/L$	12.3%	1
sodium	$38,400~\mu \mathrm{g/L}$	$35,400~\mu g/L$	8.1%	1

NOTES:

U - Analyte was not detected at or above the associated numerical value.

J - Estimated result.

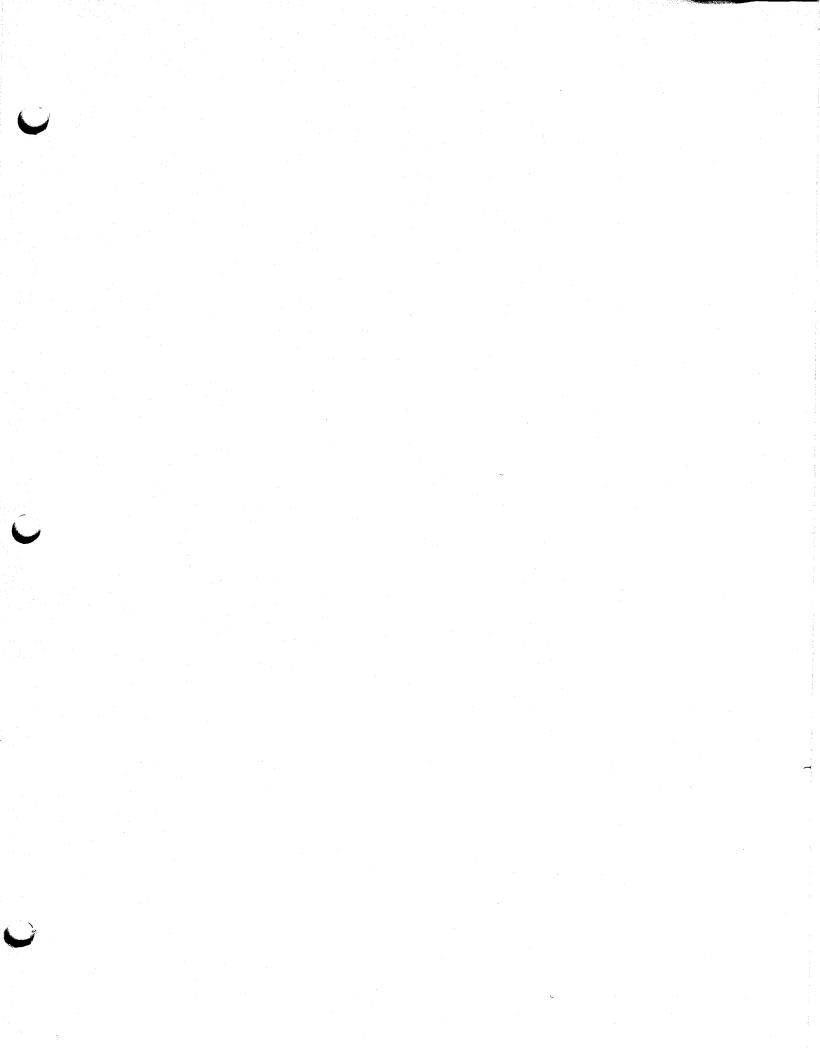
NC - Not calculated; at least one result was less than the CRDL.

- Acceptable precision; the RPD is within 20%.

Acceptable precision; results are within ± the contract required detection limit (CRDL).

Unacceptable precision; the RPD is greater than 20% and/or the results differ by greater than ± the CRDL; all positive results should be considered estimated and have been flagged "J" (unless previously flagged "B").

4 - See second Inorganic Data Qualifier, above.



APPENDIX B.2

BPM PRODUCTION WELL AND MEADOW PARK ROAD RESIDENTIAL WELL SAMPLES (Collected February 24, 1993)

VOLATILE ORGANIC ANALYSIS										
Vincent Uhl Sample Number		BPM-RW15A-01	BPM-RW02-01	BPM-RW10A-01	8PM-RW11-01	BPM-RW07A-01	BPM-RW09A-01	BPM-RW09A-01DL	BPM-RW01-01	BPM-RW01-01RE
Laboratory Sample Number		120908-01	120908-02	120908-03	120908-04	120908-05	120908-06	120908-06DL	120908-07	120908-07RE
Remarks								Dilution		Reanalysis
Units		ug/L	1/8n	ug/L	1/Bn	ng/L	na/L	ua/l	1/00	llan
VOLATILE COMPOUNDS Qu	Quantitation								i i	
	Limit									
Chloromethane	-						5		E E	ă
Bromomethane	-						3		5	UL
Vinyl Chloride	-						'n		5	In
Chloroethane	-						'n		ı	Π
Methylene Chloride	-						U		33	In
Acetone	-	~	~	R	æ	æ	R	R	æ	æ
Carbon Disuffide	-						UI.		'n	'n
1,1-Dichloroethene	-						nr		П	η
1,1-Dichloroethane	-						n۲		ä	n n
Total 1,2-Dichloroethene	-						nΓ		'n	15
Chloroform	-						'n		5	In
1,2-Dichloroethane	-						nr		'n	ln
2-Butanone	-	~	4	~	æ	В	В	æ	æ	~
1,1,1-Trichloroethane	-						Π		Π	'n
Carbon Tetrachloride	-						In		J)	H
Bromodichloromethane						,	ΙΩ		UL	l l
1, 1, 2, 2-Tetrachloroethane	-						Ħ		n.	ħ
1,2-Dichloropropane	-						n.		10	UL
trans-1,3-Dichloropropene	-						Π		Π	UL
Trichloroethene	-	0.6.3		0.6 J			1.6 J	1.9 J	'n	UL
Dibromochloromethane	-						ĭ		n	UL
1,1,2-Trichloroethane	-						UL	,	'n	ηΓ
Benzene	-						5		U.	'n
cis-1,3-Dichloropropene	-						ď		'n	n.
Bromoform	-						ī		n	UL
2-Hexanone	-	œ	æ	~	œ	æ	æ	8	R	æ
4-Methyl-2-Pentanone	-	8	R	~	8	8	æ	В	œ	R

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VOLATILE ORGANIC ANALYSIS										
Vincent Uhl Sample Number		BPM-RW15A-01 BPM-RW02-0	BPM-RW02-01	BPM-RW10A-01 BPM-RW11-01 BPM-RW07A-01	BPM-RW11-01	BPM-RW07A-01	BPM-RW09A-01	BPM-RW09A-01DL	BPM-RW01-01	RPM.RW01.01RF
Laboratory Sample Number		120908-01	120908-02	120908-03	120908-04	120908-05		120908-06DL		120908-07RF
Remarks								Diliteion		
Units		llon	ll au	ll are	17	3		Dilution		Keanalysis
		n/Ar	1/fin	1/Bn	1/6n	ng/L	ng/L	ng/L	ng/L	1/Bn
VOLATILE COMPOUNDS	Quantitation									
	Limit				,		77.814			
Tetrachloroethene	-	8.7		13	3.5	4.6	31.3	32	=	
Toluene	-								 	J. O.
Chlorobenzene	-						5 =		5 5	
Ethylbenzena	-						5 5		10	
							5		i i	
Styrene	-						UL		'n	
Total Xylenes	-						'n		5	
methyltertbutyl Ether	1						5		Ξ	
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00	1.0	1.00	2.00	5 5	100
Date of Sample Collection		2/24/93	2/24/93	2/24/93	2/24/93	2/24/93	2/24/93	2/24/93	2/24/93	2124193
Date Sample Received by Laboratory	ry	2/25/93	2/25/93	2/25/93	2/25/93	2/25/93	2/25/93	2/25/93	2/25/93	2/25/93
Date of Sample Analysis		2/26/93	3/1/93	2/26/93	3/1/93	2/26/93	2/26/93	3/2/93	3/2/93	3/2/93
Instrument Used for Analysis		MSD	MSD	MSD	MSD	MSD	WSD	GS X	MSD	Men

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VOLATILE ORGANIC ANALYSIS										
Vincent Uhl Sample Number		BPM-RW16-01	BPM-RW16-01RE	BPM-RW16-01R	BPM-RW04-01	BPM-RW12-01	BPM-RW13-01	TRIP RI ANK	RPM DW17 01	DOM DWOCA OF
Laboratory Sample Number		120908-08	120	120908-09	120908-10	120908-11	120908-12	120908-13	120908.14	120908-01
Remarks			Reanalysis	Replicate of BPM- RW16-01				1.10		01-00071
Units		l/Bn	ug/L	1/bn	I/DII	l) mil	Foil	Anada du l	1	
VOLATILE COMPOUNDS	Quantitation					165	Jin	Uğ'l	ng/L	ng/L
	Limit									
Chloromethane	-	10	'n					=		
Bromomethane	-	10	'n					5 =		
Vinyl Chloride	-	10	'n					5 ≡		
Chloroethane	-	Π	3					5 5		
Methylene Chloride	-	П	15					H		
Acetone	-	~	8	R	æ	Œ	~	2.4 J	128	~
Carbon Disulfide	-	J.	Th.					ī		
1,1-Dichloroethene	-	3	ĭ					ಕ		
1,1-Dichloroethane	-	3	15					In		
Total 1,2-Dichloroethene	-	3	'n					15		
Chloroform	-	5	'n					5		
1,2-Dichloroethane	_	5	n.					5		
2-Butanone	-	æ	œ	8	В	œ	~	~	æ	œ
1,1,1-Trichloroethane	-	П	'n					5		
Carbon Tetrachloride	-	ı	UL					5		
Bromodichloromethane	-	n.	UL					5		
1,1,2,2.Tetrachloroethane	-	5	'n					ಶ		
1,2-Dichloropropane	-	ä	IJ					2		
trans-1,3-Dichloropropena	-	5	Ü					5		
Trichloroethene	-	٦	IJ					 =		1.60
Dibromochloromethane	-	5	UL					 5		
1,1,2-Trichloroethane	-	5	3					ä		
Benzene	-	'n	UL					in in		
cis-1,3-Dichloropropene	-	Б	J)					5		
Bromoform	-	5	n.					la		
2-Hexanone	-	æ	В	R	æ	æ	~	æ	~	a
4-Methyl-2-Pentanone	-	R	8	œ	~	~	æ	~		- a
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VOLATILE ORGANIC ANALYSIS										7
Vincent Uhl Sample Number		BPM-RW16-01	BPM-RW16-01RF	RPM-RW16.01B	8PM BWA 10 CTWG MG 10 NOW BMS	DOW DWITS OF	DOM DIVISION			
Laboratory Sample Number		120908-08	120908.088E	120000 00	10.00001	10-21 Wn-m 1d	DFM-KW13-U1	HILL BLANK		BPM-RW05A-01
		200021	LEUGOU-DONE	60-006071	01-906071	120908-11	120908-12	120908-13	120908-14	120908.15
				Replicate of BPM-	-					21 222
Hemarks			Reanalysis	RW16-01				Trin Blank		
Units		ug/L	ug/L	ng/L	na/L	l/on	Poli	The state of the s		
VOLATILE COMPOUNDS	Quantitation				•	i i		ug/L	7/Bn	1/6n
	Limit									
Tetrachloroethene	1	5.2 J	4.6 J	4.2		1 8 0		5	;	
Toluene	-	ın	5					5 3	-	91
Chlorobenzene	-	=	=					JN		
rat. II	-	5	J.					Ħ		
r (nyibenzene	-	ın n	Π M				-	=		
Styrene	-	Ħ	'n					5 =		
Total Xyienes	-	5	'n					5		
Methyltertbutyl Ether	1	ä	'n					5		
Quantitation Limit Multiplier		99.	1.00	1,00	e -	5	5	3 3		
Date of Sample Collection		2124193	2018010	2124102	2014/00	00.1	20.	30.	95:	1.00
		7121	6614717	2124/33	2124193	2/24/93	2/24/93	2/23/93	2/24/93	2/24/93
Uate Sample Received by Laboratory	≥	2/25/93	2/25/93	2/25/93	2/25/93	2/25/93	2/25/93	2/25/93	2/25/93	2125,193
Date of Sample Analysis		2/27/93	3/2/93	3/2/93	2/27/93	2/27/93	2/27/93	2126193	3/3/03	2/1/02
Instrument Used for Analysis		MSD	MSD	WSD	US PA	N.	Men	4600	Sololo	01100
		7			2011	701			CS:	N.S.

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VOLATILE ORGANIC ANALYSIS										
Vincent Uhl Sample Number		BPM-RW05A-01R	BPM-WELL2-01	BPM-WELL2-01DL	8PM-RW18-01	BPM.RW14.01	RPM.WELLT.01	DOM WELL 1 01D!	To tooma stad	
Laboratory Sample Number		120908-16	120908-17	120908-17DL		120908-19	120908.20	120000 20DI	BFM-RWU8A-01	BPM-RW08A-01DL
Remarks		Replicate of BPM- RW05A-01		Dilution			07-00071	102-00071	17-806071	120908-2101
Units		ua/L	l/un	July I	ll and	11-11		Difution		Dilution
VOLATILE COMPOUNDS OU	Ouantitation		, and a second	-ABA	nñır	ng/r	ng/L	ng/L	ng/L	ng/L
	Limit							.*		
Chloromethane	1			'n						
Bromomethane	1			ın						5 :
Vinyl Chloride	1			In						5
Chloroethane	1			15						1
Methylene Chloride	-			'n						II OF
Acetone	1	œ	œ	8	~	~	100	G		TO '
Carbon Disulfide	1			ă			200	=	2.0 B	x
1,1-Dichloroethene	1			5						In
1,1-Dichloroethane	-			5						Th.
Total 1,2-Dichloroethene	1			ň			1 80			3
Chloroform	-			=			200			5
1,2-Dichloroethane	_			=						J)
2-Butanone	-	~	æ	5 0	٥	6				15
1,1,1-Trichloroethane	-		=	= =	5	=	×	œ	œ	8
Carbon Tetrachloride	-			 						ī
Bromodichloromethane	-			5 =						10
1,1,2,2-Tetrachloroethane	-			5 3						J.
1,2-Dichloropropane	-			5 =						n.
trans-1,3-Dichloropropene	-			5 =						II)
Trichloroethene	-	0.8 J	1.9	2.5.J			G.	6 9		10
Dibromochloromethane	-			5			?	0.0	8.	1.8 J
1,1,2-Trichloroethane	-			=						Ja
Вепzепе	-									in in
cis-1,3-Dichloropropene	-			=						10
Bromoform	-			5 =						5
2-Hexanone	-	e .	~	d a	٥					10
4-Methyl-2-Pentanone	-	~	a	= c	5 6	E (¥	τ	æ	æ
	-	-	E	¥	æ	~	æ	æ	œ	~

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VOLATILE ORGANIC ANALYSIS										
Vincent Uhl Sample Number		BPM-RW05A-01R	BPM-WELL2-01	BPM-WELL2-010L BPM-RW18-01 BPM-RW14-01	8PM-RW18-01	RPM-RW14.01	RPM.WELL 1 01	DDM WELL COLD	70 100110 1100	
Laboratory Sample Number		120908-16	120908-17	120908-1701	120908-18	12090R.10	120000 20	120009 20 120009 20 12000 2001 12000 2001 120009 2001 120000 2001 120000 2001 120000 2001 120000 2001 120000 2001 120000 2001 120000 2001 12000 2001 12000 2001 12000 2001 12000 2001 12000 2001 12000 2001 12000 2001 12000 2001 12000 2001 12000 2000 2001 120000 20	Brm-RWU8A-U1	BPM-RW08A-01
		Replicate of BPM.				1200071	07-006071	1007-006071	12.808021	120908-210
Remarks		RW05A-01		Dilution		-		Dilection		.,
Units		ng/L	ng/L	7/Bn	1/00	1/011	l/uii	ilonalio.	17	Unution
VOLATILE COMPOUNDS	Quantitation					i i	J.A.	ug/t	ng/L	ng/L
	Limit									
Tetrachloroethene		13	30 J	39 J		18	100.1	03	1 00	. 60
Toluene	-			=			2	6	000	33 J
Chlorobenzene				5 =						ī
Ethylhansone				ď						'n
riii jingii talia				In				-		=
Styrene	_			'n						5 3
Total Xylenes	-			3						5
Methyltertbutyl Ether	-			=						3
Quantitation Limit Multiplier		1.00	1.00	2.00	8	5				5
Date of Sample Collection		SOLACIC	2124102	2004000	00.1	00.1	00.1	10.00	1.00	2.00
		CC/47/7	2124/33	2/24/93	2/24/93	2/24/93	2/24/93	2/24/93	2/24/93	2/24/93
Date Sample neceived by Laboratory	_	ZiZpi83	2/25/93	2/25/93	2/25/93	2/25/93	2/25/93	2/25/93	2/25/93	2125193
Date of Sample Analysis		3/3/93	3/1/93	3/4/93	3/1/93	3/1/93	3/1/93	3/2/93	3/2/93	2/2/03
Instrument Used for Analysis		MSD	OSW	MSD	WSD	MSD	MSD	Men	1500	Seleic
							2011	MOD	OCE.	

3/3/93 MSD

M-RW08A-01DL 120908-21DL

Vincent Uhl Sample Number Laboratory Sample Number		BPM-RW03-01
Laboratory Sample Number		
•		120908-22
Remarks		
Units		ng/t
VOLATILE COMPOUNDS	Quantitation	
	Limit	
Chloromethane	1	
Bromomethane	1	
Vinyl Chloride	1	
Chloroethane	-	
Methylene Chloride	1	
Acetone	1	R
Carbon Disulfide	1	
1,1-Dichloroethene	1	
1,1-Dichloroethane	ı	
Total 1,2-Dichloroethene	1	
Chloroform	ı	
1,2-Dichloroethane	1	
2-Butanone	1	æ
1,1,1-Trichloroethane	ı	
Carbon Tetrachloride	ı	
Bromodichloromethane		
1,1,2,2-Tetrachloroethane	1	
1,2-Dichloropropane	1	
trans-1,3-Dichloropropene	1	
Trichloroethene	1	
Dibromochloromethane	-	
1,1,2.Trichloroethane	-	
Benzene	1	
cis-1,3-Dichloropropene	1	
Bromoform	1	
2-Hexanone	1	œ
4-Methyl-2-Pentanone	1	~

VOLATILE ORGANIC ANALYSIS	,	
Vincent Uhl Sample Number		BPM-RW03-01
Laboratory Sample Number		120908-22
Remarks		
Units		1/Bn
VOLATILE COMPOUNDS	Quantitation	
	Limit	
Tetrachloroethene	1	
Toluene	1	
Chlorobenzene	-	
Ethylbenzene	-	
Styrene	1	
Total Xylenes	ı	
Methyltertbutyl Ether	1	
Quantitation Limit Multiplier		1.00
Date of Sample Collection		2/24/93
Date Sample Received by Laboratory	١,	2/25/93
Date of Sample Analysis		3/2/93
Instrument Used for Analysis		MSD

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TENTATIVELY IDENTIFIED COMPOUNDS									
Vincent Uhl Sample Number	BPM-RW15A01 BPM-RW02-0	BPM-RW02-01	BPM-RW10A-01	BPM-RW11-01	BPM-RW07A-01	BPM-RW09A-01	BPM-RW10A-01 BPM-RW11-01 BPM-RW07A-01 BPM-RW09A-01 BPM-RW09A-011 BPM-RW01-01 BPM-RW01-01 BPM-RW01-01-01	RPM.RW01.01	RPM RWO1 010C
Laboratory Sample Number	120908-01	120908-02	120908-03	120908-04	120908-05	120908-06	120908-06DL	120908-07	120908-07RF
***									100000
Remarks							Dilittion		
Units	ng/L	ug/L	ua/L	1/00	l/an	1/011	light of the state	-	nealitaysis
VOLATILE CONSTITUENTS					B		- ANI-	I Min	1/8n
Unknown		2.5		2 J				-	-
								2	2
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90
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90

TENTATIVELY IDENTIFIED COMPOUNDS									
Vincent Uhl Sample Number	BPM-RW16-01	BPM-RW16-01RE	BPM-RW16-01 BPM-RW16-01RE BPM-RW16-01R BPM-RW04-01 BPM-RW12-01 BPM-RW13-01 TRIP BLANK BPM-RW17-01 BPM-RW05A-01	BPM-RW04-01	BPM-RW12-01	BPM-RW13-01	TRIP BLANK	BPM-RW17-01	BPM-RW05A-01
Laboratory Sample Number	120908-08	120908-08RE	120908-09	120908-10	120908-11	120908-10 120908-11 120908-12 120908-13 120908-14	120908-13	120908-14	120908-15
			Replicate of BPM-						
Remarks		Reanlaysis	RW16-01				Trip Blank		
Units	ug/L	ng/L	ng/L	1/Bn	1/bn	J.	l/on	l/on	l/on
VOLATILE CONSTITUENTS								Ď	
Unknown		3.1	6 J	3.5	5.3	1.			

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TENTATIVELY IDENTIFIED COMPOUNDS									
Vincent Uhl Sample Number	BPM-RW05A-01R BPM-WELL2-01	BPM-WELL2-01		BPM-RW18-01	BPM-RW14-01	BPM-WELL1-01	BPM-WELL1-010L	BPM-RW08A-01	BPM-WELL2-0101 BPM-RW18-01 BPM-RW14-01 BPM-WELL1-01 BPM-WELL1-0101 BPM-RW08A-01 BPM-BW08A-0101
Laboratory Sample Number	120908-16	120908-17	120908-1701	120908-18	120908-17DL 120908-18 120908-19	120908-20	120908-200L	120908-21	120908-2101
	Renlicate of RPM.								
Remarks	RW05A-01		Dilution				Dilution		Nihrtian
Units	ng/L	1/6n	ng/L	1/BN	na/L	1/05	l/on	701	llon llon
VOLATILE CONSTITUENTS							b		agir.
Unknown		2 J			4.3	3.5		4.1	

TENTATIVELY IDENTIFIED COMPOUNDS	
Vincent Uhl Sample Number	BPM-RW03-01
Laboratory Sample Number	120908-22
Remarks	
Units	ug/L
VOLATILE CONSTITUENTS	
Unknown	1.3

DATA USABILITY REPORT BPM PRODUCTION WELL AND MEADOW PARK ROAD RESIDENTIAL WELL SAMPLES

(Collected February 24, 1993)

The data usability qualifiers assigned in the "Quality Assurance Review of the Samples Collected February 24, 1993 for the Baldwin Place Mall Project", dated April 14, 1993 by Environmental Standards, Inc. (ESI), and shown on the validated data spreadsheets are provided on the following pages.

The actual detection limits for the volatile compounds in certain samples (Trip Blank, BPM-WELL2-01DL, BPM-RW08A-01DL, BPM-RW09A-01, BPM-RW01-01, BPM-RW01-01RE, BPM-RW16-01 and BPM-RW-16-01RE) may be higher than reported and the positive results for volatile compounds in these samples should be considered estimated (due to low surrogate recovery). This is not considered critical as the results for these samples are consistent with the extensive historical data base for these wells. For most of these samples, tetrachloroethylene (the primary site constituent of concern) was either not detected (TRIP BLANK and RW-01), or detected at concentrations well above the 5 ug/L MCL (WELL2, RW08A and RW09A). In only one case (RW-16), were concentrations near the MCL detected (both slightly above at 5.2J ug/L and slightly below at 4.2 and 4.6J ug/L) in the several analyses of this well. This well has been fitted with a point-of-use treatment system and has exhibited similar concentrations both below and above the MCL in subsequent routine testing program samples.

The detection limits for acetone in all samples should be considered unreliable and the positive result for acetone in the Trip Blank should be considered estimated. In addition, due to the presence of acetone in the Trip Blank, all of the positive results for acetone are considered qualitatively questionable ("B"). Acetone is not a constituent of concern at this site, and has been randomly detected in the data sets. This compound is often found as a laboratory artifact, as it appears to be in this data set.

The remainder of the data qualifiers pertain to the detection limits for 2-butanone, 2-hexanone and 4-methyl-2-pentanone in all samples which should be considered unreliable. These compounds are not constituents of concern at the site and have not been detected in the site media.

It should be noted that although the TIC volatile unknown results were not qualified by the data reviewer on the data tables, the Analytical Laboratory indicated that the associated laboratory blanks contained a small peak at the same retention time as all of these sample results that was less than 10% of the nearest internal standard and therefore was not (nor was required to be) reported. The laboratory further indicated that the mass of the unknown appeared to be typical of siloxane which is used as a coating on

the analytical column, (see Envirotest Laboratories letter of April 19, 1993, last page in section) and thus the reported unknowns should be considered laboratory artifacts

In summary, the site characterization is not affected by any of the data usability issues identified for this data set.

With respect to data usability, the principal areas of concern include blank contamination, system monitoring compound recoveries and calibrations. Based on a rigorous review of the data provided, the following organic data qualifiers are offered. It should be noted that the following data usability issues represent an interpretation of the quality control results obtained from the project samples. Validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Organic Data Qualifiers

- Due to the presence of acetone in a trip blank, the reported results for acetone in samples BPM-RW17-01, BPM-WELL1-01 and BPM-RW08A-01 are qualitatively questionable and have been flagged "B" on the data tables.
- The analyses for acetone, 2-butanone, 2-hexanone and 4-methyl-2-pentanone for all samples reported as "not-detected" are unreliable and have been flagged "R" on the data tables. Similarly, the positive sample result for acetone in sample TRIP BLANK should be considered estimated and has been flagged "J" on the data tables. Low response factors (<0.05) were observed for acetone, 2-butanone, 2-hexanone and 4-methyl-2-pentanone in all initial and continuing calibrations associated with this data set.
- The actual detection limits for the volatile compounds in samples TRIP BLANK, BPM-WELL2-01DL, BPM-RW08A-01DL, BPM-RW09A-01, BPM-RW01-01RE, BPM-RW16-01 and BPM-RW16-01RE may be higher than reported and the "not-detected" results have been flagged "UL" on the data tables. Similarly, the positive results for the volatile compounds in the aforementioned samples should be considered estimated and have been flagged "J" on the data tables. Low recoveries (less than QC limits) were obtained for one or more of the water volatile surrogate compounds in the analyses of these samples.
- Two field replicates were submitted with this data set as follows:

<u>Sample</u>	<u>Replicate</u>
BPM-RW05A-01	BPM-RW05A-01A
BPM-RW16-01	BPM-RW16-01A

The results show good laboratory precision between the two samples, as follows.

Compound	Sample BPM-RW05A-01	Replicate BPM-RW05A-01R	<u>RPD</u>	Notes
trichloroethene	$0.9~\mathrm{J}~\mu\mathrm{g/L}$	$0.8~\mathrm{J}~\mu\mathrm{g/L}$	11.8%	1
tetrachloroethene	$13 \mu g/L$	16 μg/L	20.7%	2

Compound	Sample <u>BPM-RW16-501</u>	Replicate BPM-RW16-01R	RPD	<u>Notes</u>
tetrachloroethene	5.2	4.2	21.3%	2

NOTES:

- J This result is considered estimated.
- 1 The RPD is within 20%; acceptable replicate precision.
- 2 Results are within ± CRDL; replicate is considered acceptable.
- Per NYSDEC ASP reporting conventions, all positive results below the quantitation limit should be considered estimated and have been flagged "J" on the data tables.
- Tentatively Identified Compounds (TICs) have been evaluated and are presented in Section 2. All of the TICs appear to be unknowns. The reported concentrations of all TICs should be considered estimated and have been flagged "J" on the TIC table.

315 Fullerton Avenue Newburgh, NY 12550 (914) 562-0890 Fax (914) 562-0841

April 19, 1993

Ms. Jaclyn Baron Vincent Uhl Associates, Inc. 1078 Taylorsville Road, PO Box 93 Washington Crossing, PA 18977

RE: Residential/BPM Water Supply Well Data; Baldwin Place Mall.

Dear Ms. Baron:

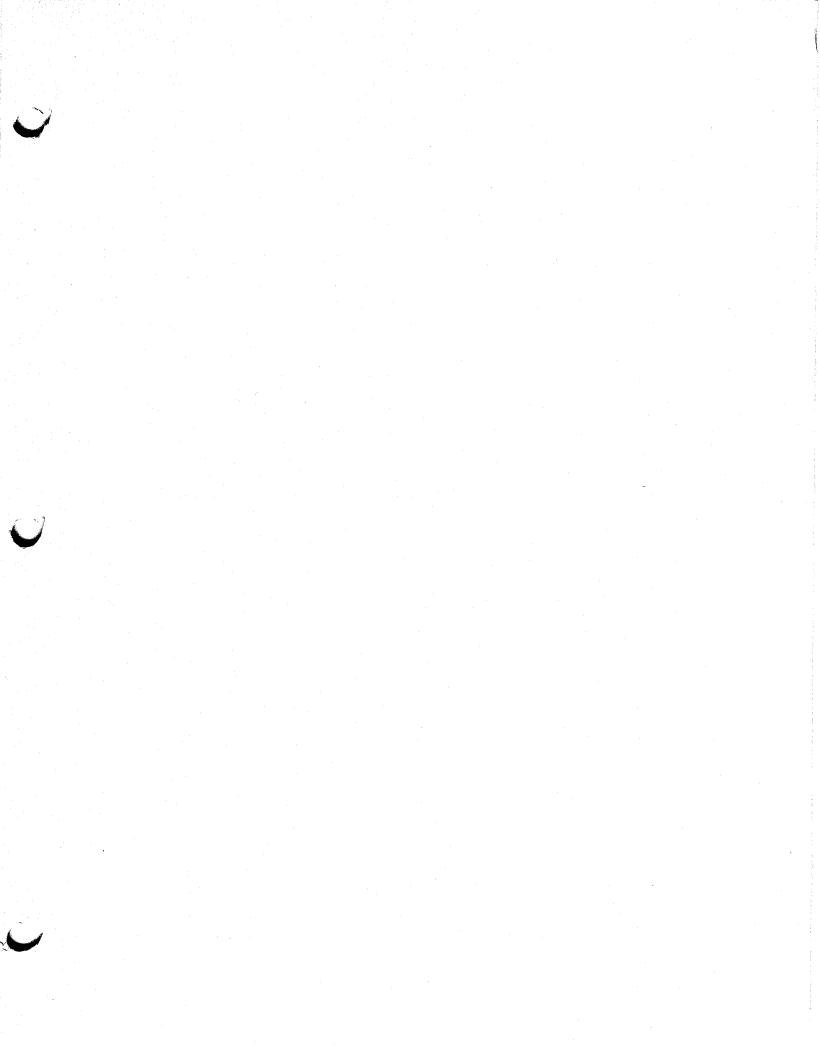
As requested, a subsequent review of the tentatively identified compound results for EnviroTest laboratory number 120908 and 121405 was performed. The following comments specifically address this data review:

- It appears that the unknown peak in all samples of interest has a retention time of approximately 29.02 minutes. The associated laboratory blanks contain a small peak at the same retention time that is less than 10% of the nearest internal standard, and therefore, is not reported on the Tentatively Identified Compound Form.
- 2. The most abundant mass of the "unknown" at 73 appears to be typical of a class of compounds known as siloxane. It should be noted, however, that this class of compounds is used as a coating on the volatile analytical column.

If you have any further questions, please do not hesitate to contact me.

Sincerely,

Patricia Chany QA/QC Director



APPENDIX B.3

ROUTE 6 COMMERCIAL WELL SAMPLES (Collected March 11 and April 22, 1993)

SAMPLES COLLECTED MARCH 11, 1993

VOLATILE ORGANIC ANALYSIS									
Vincent Uhl Sample Number		BPM-CW20-01	BPM-CW20-01DL	BPM-CW23-01	BPM-CW23-01DL	BPM-CW23-01R	BPM-CW23-01BDI	BPM.CW25.01	RPM CW10.01
Laboratory Sample Number		121405-01	121405-01DL	121405-02	121405-02DL	121405-03	121405-0301	121405-04	121405.05
Remarks			77-120			Replicate of			20.001.71
Units		fout	III III III III III III III III III II	Wei.	Ulfution	BPM-CW23-01	Dilution		
VOI ATHE COMPONING	Oussitestias	1/An	Jin	ug/L	ng/L	ng/r	ng/L	ng/L	1/6n
אסבט וורך פסושו מסוחם	uuamtitation 1 imit						Replicate of		
Chloromethane	-						BPM-CW23-01		
Bromomethane	-						10		
Vinyl Chlorida							Th		
Characters	_ .						5		
Conformane	- (UL		
Metnyiene Unioride	2						nr n		
Acetone	2	R	æ	æ	8	8	æ	œ	æ
Carbon Disulfide	_						ă		=
1,1-Dichloroethene	_						l l		
1,1-Dichloroethane	-						'n		
Total 1,2-Dichloroethene	-						1 5		
Chloroform	-						ä		
1,2-Dichloroethane	-						ä		
2-Butanone	2	æ	æ	В	æ	~	œ	œ	~
1,1,1-Trichloroethane	_						=		
Carbon Tetrachloride	-						<u> </u>		
Bromodichloromethane							'n		
1,1,2,2-Tetrachloroethane	-						ī		
1,2-Dichloropropane	-						'n		
trans-1,3-Dichloropropene	-						li di		
Trichloroethene	-	-		0.7 J		0.9 J	in		
Dibromochloromethane	-						l li		
1,1,2-Trichloroethane	-						5		
Benzene	-						5		
cis-1,3-Dichloropropene	-	·					in in		
Bromoform							Tin		
2-Hexanone	2	æ	Œ	Я	œ	æ	~	æ	~
4-Methyl-2-Pentanone	2	В	В	œ	œ	~	~	~	

121405-03DL	O. intrico	na/L	Replicate of	BPM-CW23-01	46 J	'n	'n	'n	n n	īn	'n	2.00	3/11/93	3/11/93	3/15/93	WSD
121405-03	Replicate of RPM.CW23.01	J/Bn			40 J						2	1.00	3/11/93	3/11/93	3/12/93	MSD
121405-02DL	Dilution	J/Bn			45							2.00	3/11/93	3/11/93	3/15/93	MSD
121405-02		1/Bn			40 J						1	1.00	3/11/93	3/11/93	3/15/93	MSD
121405-01DL	Dilution	ug/L			47						44	5.00	3/11/93	3/11/93	3/15/93	MSD
121405-01		J/Bn			48 J						46 J	1.00	3/11/93	3/11/93	3/15/93	MSD

Date Sample Received by Laboratory

Quantitation Limit Multiplier

Methyltertbutyl Ether

otal Xylenes

Date of Sample Collection

Instrument Used for Analysis

Date of Sample Analysis

3/11/93 3/11/93 3/12/92

3/11/93 3/11/93 3/12/93 **S**S

MSD

1.0

1.00

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BPM-CW19-01 121405-05

BPM-CW25-01 121405-04

BPM-CW20-01 | BPM-CW20-01DL | BPM-CW23-01 | BPM-CW23-01DL | BPM-CW23-01R | BPM-CW23-01RDL

VOLATILE ORGANIC ANALYSIS

Vincent Uhl Sample Number

Laboratory Sample Number

Remarks

Units

ng/L

1/Bn

Quantitation Limit

VOLATILE COMPOUNDS

Tetrachloroethene

Chlorobenzene

Toluene

Ethylbenzene

Styrene

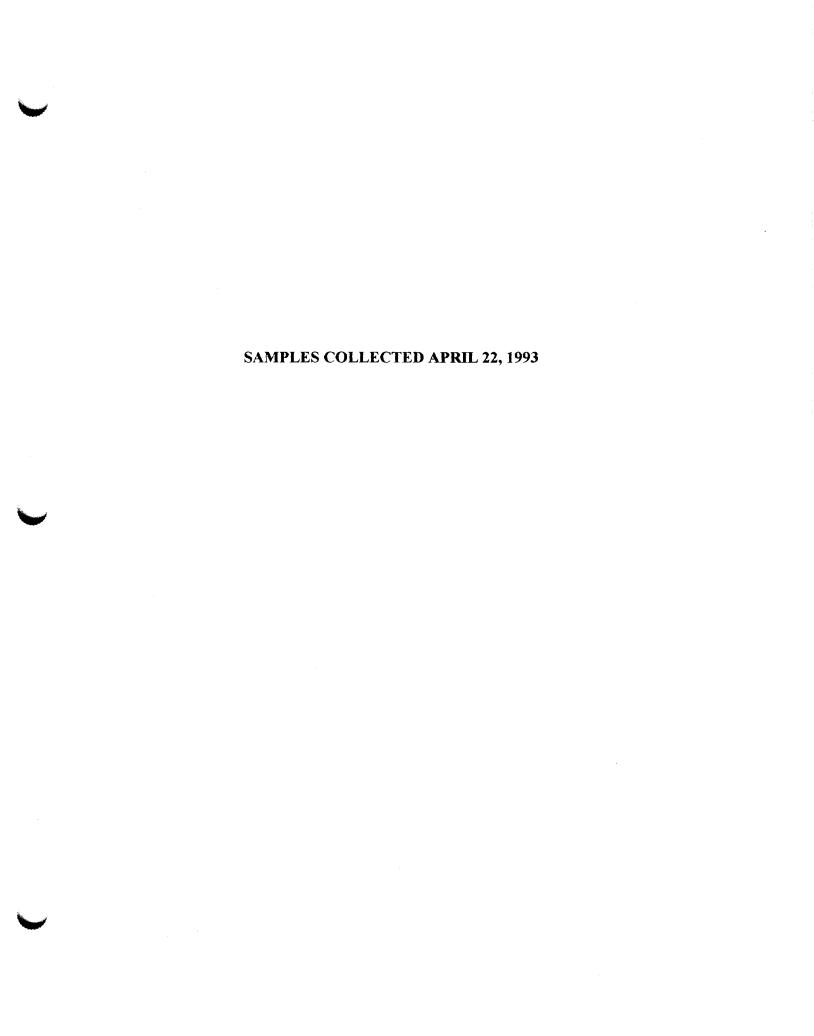
Vincent Uhl Sample Number		BPM-CW21-01	BPM-CW21-01DL	Trip Blank
Laboratory Sample Number		121405-06	121405-06DL	121405-07
Remarks			Dilution	
Units		ug/L	1/Bn	ug/L
VOLATILE COMPOUNDS	Quantitation Limit			
Chloromethane	-			
Bromomethane	-			
Vinyl Chloride	-			
Chloroethane	-			
Methylene Chloride	2			
Acetone	5	æ	8	8
Carbon Disulfide	1			
1,1-Dichloroethene	1			
1,1-Dichloroethane	1			
Total 1,2-Dichloroethene	1			
Chloroform	1			
1,2-Dichloroethane	1			
2-Butanone	5	В	R	R
1,1,1-Trichtoroethane	1			
Carbon Tetrachloride	1			
Bromodichloromethane	ı			
1,1,2,2-Tetrachloroethane	-			
1,2-Dichloropropane	-			
trans-1,3-Dichloropropene	-			
Trichloroethene	1	3	4.3	
Dibromochloromethane	1			
1,1,2-Trichloroethane	-			
Benzene	1			
cis-1,3-Dichloropropene	-			
Bromoform	-			
2-Hexanone	5	В	В	R
4-Methyl-2-Pentanone	2	æ	æ	~

VOLATILE ORGANIC ANALYSIS					
Vincent Uhl Sample Number		BPM-CW21-01	BPM-CW21-01DL	Trip Blank	
Laboratory Sample Number		121405-06	121405-06DL	121405-07	
Remarks			Dilution		
Units		ng/L	ng/t	ug/L	
VOLATILE COMPOUNDS	Quantitation				
	Limit				
Tetrachloroethene	1	48 J	47		
Toluene	1				
Chlorobenzene	1				
Ethylbenzene	1				
Styrene	1				
Total Xylenes	1				
Methyltertbutyl Ether	1	4	4.3		
Quantitation Limit Multiplier		1.00	5.00	1.00	
Date of Sample Collection		3/11/93	3/11/93	NA	
Date Sample Received by Laboratory	ız	3/11/93	3/11/93	3/11/93	
Date of Sample Analysis		3/12/93	3/12/93	3/12/93	
Instrument Used for Analysis		MSD	MSD	MSD	

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TENTATIVELY IDENTIFIED COMPOUNDS									
Vincent Uhl Sample Number	BCM-CW20-01	BCM-CW20-01 BPM-CW20-01D	BPM-CW23-01	BPM-CW23-01 BPM-CW23-01D	BPM-CW23-01R PM-CW23-01RD BPM-CW25-01 BPM-CW19-01 BPM-CW21-01	PM-CW23-01RD	BPM-CW25-01	BPM-CW19-01	BPM-CW21-01
Laboratory Sample Number	121405-01	121405-01 121405-01DL	121405-02	121405-02DL	121405-03	121405-03DL	121405-04	121405-05	121405-06
					Renlicate of				
Remarks		Dilution		Dilution	BPM-CW23-01	Dilution			
Units	ng/L	ng/L	1/6n	ug/L	ug/l.	ng/L	na/L	T/DI	l/on
VOLATILE CONSTITUENTS							•		B
2,2,4-Trimethylpentane	1.1								

TENTATIVELY IDENTIFIED COMPOUNDS		
Vincent Uhl Sample Number	BPM-CW21-01DL	Trip Blank
Laboratory Sample Number	121405-06DL	121405-07
Remarks	Dilution	
Units	ug/L	ng/L
VOLATILE CONSTITUENTS		
2,2,4-Trimethylpentane		



TOTALITE SHOWING WINDELDING BILL INCIDING BACK	IGH I BASIS		
Vincent Uhl Sample Number		BPM-CW27-01	Trip Blank
Laboratory Sample Number		122737-01	122737-02
Remarks			Trip Blank
Units		μg/L	7/BH
LOW-CONCENTRATION	Ouantitation		
VOLATILE COMPOUNDS	Limit		
Chloromethane	1		
Bromomethane	1		
Vinyl Chloride	1		
Chloroethane	1		
Methylene Chloride	2		
Acetone	5	R	Я
Carbon Disulfide	1		
1, 1-Dichloroethene	1		
1,1-Dichloroethane	ļ		
Total 1,2-Dichlorethene	-		
Chloroform	-		
1,2-Dichloroethane	-		
2-Butanone	2	R	В
1,1,1-Trichloroethane	-		
Carbon Tetrachloride			
Bromodichloromethans	1		
1,1,2,2-Tetrachioroethane	1		
1,2-Dichloropropane	1		
trans-1,3-Dichloropropene	1		
Trichloroethene	1		
Dibromochloromethane	1		
1,1,2-Trichloroethane	1		
Benzene	1		
cis-1,3-Dichloropropene	1		
Bromoform	1		
2-Hexanone	5	æ	Я
4-Methyl-2-Pentanone	5	R	R
Tetrachloroethene	1		
Toluene	-		
Bromochloromethane	,-		

VOLATILE ORGANIC ANALYSIS - DRY-WEIGHT BASIS	IGHT BASIS		
Vincent Uhl Sample Number		BPM-CW27-01	Trip Blank
Laboratory Sample Number		122737-01	122737-02
Remarks			Trip Blank
Units		μg/L	µg/L
LOW-CONCENTRATION	Quantitation		
VOLATILE COMPOUNDS	Limit		
Chlorobenzene	1		
Ethylbenzene	1		
Styrene	1		
Total Xylenes	1		
Methyl tert butyl ether	1		
Vinyl Acetate	1		
1,2-Dibromomethane	1		
1,3-Dichlorobenzene	1		
1,4-Dichlorobenzene	1		
1,2-Dichlorobenzene	1		
1,2-Dibromo-3-chloropropane	1	R	R
Quantitation Limit Multiplier		1.0	1.0
Date of Sample Collection		04/22/93	04/22/93
Date Sample Received by Laboratory		04/22/93	04/22/93
Date of Sample Analysis		04/29/93	04/29/93
Instrument Used for Analysis		MSD	MSD

TENTATIVELY IDENTIFIED COMPOUNDS		
Vincent Uhl Sample Number	BPM-CW27-01	Trip Blank
Laboratory Sample Number	122737-01	122737-02
Remarks		Trip Blank
Units	1/87	7/8//
VOLATILE CONSTITUENTS		•

DATA USABILITY REPORT ROUTE 6 COMMERCIAL WELL SAMPLES

(Collected March 11 and April 22, 1993)

The data usability qualifiers assigned in the "Quality Assurance Review of the Samples Collected March 11, 1993 for the Baldwin Place Mall Project", dated May 5, 1993 by Environmental Standards, Inc. (ESI), and shown on the validated data spreadsheets are provided on the following pages.

The actual detection limits for the volatile compounds in sample BPM-CW-23-01RDL may be higher than reported and the positive result for tetrachloroethylene should be considered estimated (due to a low volatile surrogate recovery). This was a field replicate sample; the detection limits were not qualified and a non-qualified result for tetrachloroethylene was obtained in the analysis of the original sample (BPM-CW-23-01(DL)).

The positive results for tetrachloroethylene in samples BPM-CW20-01, BPM-CW23-01, BPM-CW23-01R and BPM-CW21-01 and for methyl tert butyl ether in sample BPM-CW20-01 are considered estimated (as a result of their being outside the associated instrument linear calibration limit). In each of these cases, the laboratory diluted and reanalyzed the sample resulting in unqualified results that are within the limits of calibration ("DL" samples).

The remainder of the data qualifiers pertain to the detection limits for acetone, 2-butanone, 2-hexanone, and 4-methyl-2-pentanone in all of the samples which should be considered unreliable. This is also the case for sample BPM-CW-27-01 which was collected on April 22, 1993 (and included in the Quality Assurance Review report for the Test Boring samples). These compounds are not constituents of concern at the site and were not detected in the data set.

In summary, the site characterization is not affected by any of the data usability issues identified for this data set.

With respect to data usability, the principal areas of concern include system monitoring compound recoveries and calibrations. Based on a rigorous review of the data provided, the following organic data qualifiers are offered. It should be noted that the following data usability issues represent an interpretation of the quality control results obtained from the project samples. Validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Organic Data Qualifiers

- The analyses for acetone, 2-butanone, 2-hexanone and 4-methyl-2-pentanone for all samples reported as "not-detected" are unreliable and have been flagged "R" on the data tables. Low relative response factors (<0.050) were observed for acetone, 2-butanone, 2-hexanone and 4-methyl-2-pentanone in all initial and continuing calibrations associated with this data set.
- The actual detection limits for the volatile compounds in sample BPM-CW23-01RDL may be higher than reported and the "not-detected" results have been flagged "UL" on the data tables (unless already flagged "R"). In addition, the positive result for the volatile compound tetrachloroethene in the aforementioned sample should be considered estimated and has been flagged "J" on the data tables. A low recovery (less than QC limits) was obtained for the volatile surrogate compound bromofluorobenzene in the analysis of this sample.
- The positive results for tetrachloroethene in samples BPM-CW20-01, BPM-CW23-01, BPM-CW23-01R and BPM-CW21-01 and for methyltertbutyl ether in sample BPM-CW20-01 should be considered estimated and have been flagged "J" on the data tables. The instrument levels of these results exceeded the calibration range of the instrument.
- One field replicate was submitted with this data set as follows:

Sample Replicate

BPM-CW23-01 BPM-CW23-01R

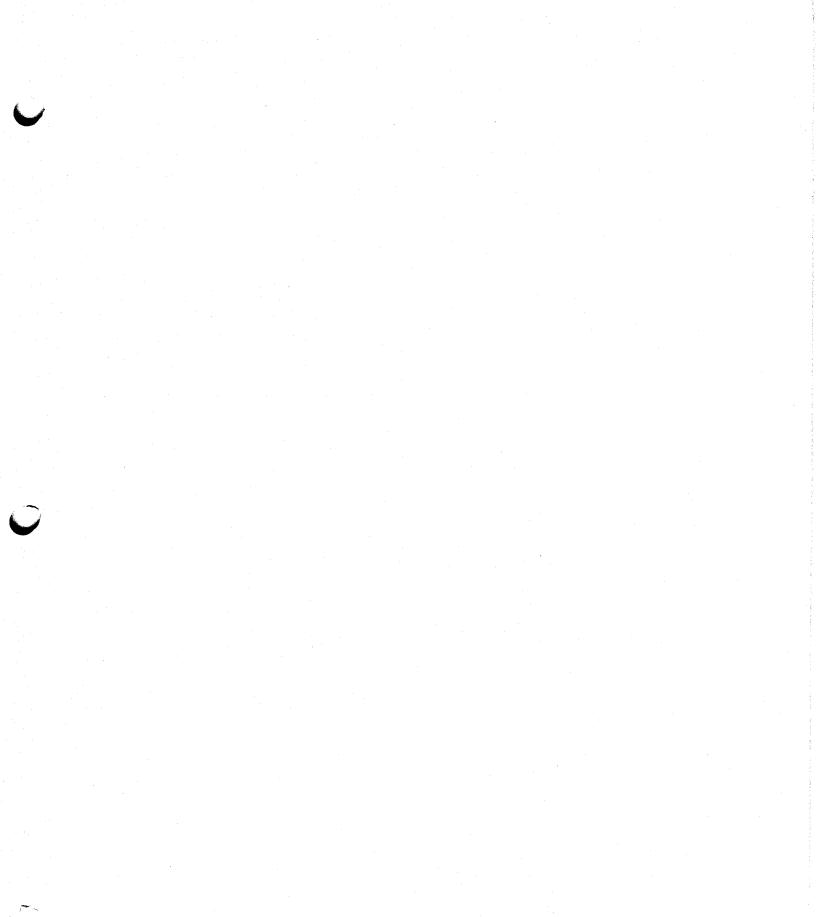
Good precision was obtained between the two samples. Positive results are summarized below.

Compound	Sample BPM-CW23-01	Replicate BPM-CW23-01R	<u>RPD</u>	<u>Notes</u>
trichloroethene	$0.7~\mathrm{J}~\mu\mathrm{g/L}$	0.9 J μg/L	25%	2

Compound	Sample BPM-CW23-01	Replicate BPM-CW23-01R	<u>RPD</u>	Notes
tetrachloroethene (dilution)	$45~\mu \mathrm{g/L}$	46 μg/L	2.2%	1,3

NOTES:

- J This result is less than the CRQL and is considered estimated.
- The RPD is within 20%; acceptable replicate precision.
- 2 Results are within ± CRQL; replicate is considered acceptable.
- 3 Results are taken from the secondary dilution analysis.
- Per NYSDEC ASP reporting conventions, all positive results below the quantitation limit should be considered estimated and have been flagged "J" on the data tables.
- Tentatively Identified Compounds (TICs) have been evaluated and are presented in Section 2. The only reported TIC was 2,2,4-trimethylpentane. This TIC should be considered estimated and has been flagged "J" on the TIC table.



APPENDIX B.4

TEST BORING UNSATURATED ZONE SOIL SAMPLES (Collected April 12 -14, 1993)

VOLATILE ORGANIC ANALYSIS - DRY-WEIGHT BASIS	IGHT BASIS										į
Vincent Uhl Sample Number		TB1/2-4 ft	TB1/2-4ftDL	TB-2/2-4 ft	TB-3/0-1.5 ft	TB-7/0-2 ft	TB-7/0-2 ftD1 TB-8/0-2 ft	TB-8/0-2 ft	TR.9/2.4 ft	TR.5/4.6 44	BOM TD AIA C 4.
Laboratory Sample Number		122397-01	122397-01	122397-02	122397.03	122397-04	122397.04	122397.05		199/19 09	122404 04
Remarks			Medium	Medium			Madium	2007 00		70-774771	177491-01
Units		L/g/Kg	1/a/Ka	L/a/Ka	₩.	//a/Ka	/mjKn	, mika	, milka	2/1/27	70
Percent Solids		%68	%68	89%	91%	88%	88%	%U67	Aying 879	Mill d	//g/Kg
VOLATILE COMPOUNDS	Quantitation							200	R S	₹ 00	W.76
	Limit										
Chloromethane	10										
Bromomethane	10										
Vinyl Chloride	10									=	
Chloroethane	10					23				=	5
Methylene Chloride	10									3	10
Acetone	10	3.J	~	~	Ħ	5	æ	7.7	7.1	12	
Carbon Disulfide	10										
1,1-Dichloroethene	10								=		
1,1-Dichloroethane	10								3		
Total 1,2-Dichlorethene	10				7.5						
Chloroform	10										
1,2-Dichloroethane	10										
2-Butanone	10		æ	æ	ī	5	~	E			
1,1,1-Trichloroethane	10							5		-	
Carbon Tetrachloride	10										
Bromodichloromethane	10										
1,1,2,2.Tetrachloroethane	10										
1,2-Dichloropropane	10										
trans-1,3-Dichloropropene	10										
Trichloroethene	10	260 J			7.3	2.3					
Dibromochloromethane 💂	10										
1,1,2-Trichloroethane	10						-				
Benzene	10										
cis-1,3-Dichloropropene	10										
Bromoform	10									-	
2-Hexanone	10										
4-Methyl-2-Pentanone	10										
Tetrachloroethene	10	9700 J	1,200,000	000'099	27	1400 J	12,000	26	8 8	2 R	3.8
Toluene	10	7.3									2
					A to Lanca						

page 1 of 4

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VOLATILE ORGANIC ANALYSIS - DRY-WEIGHT BASIS	VEIGHT BASIS										
Vincent Uhl Sample Number		TB1/2-4 ft	TB1/2-4ftDL		TB-2/2-4 ft TB-3/0-1.5 ft TB-7/0-2 ft TB-7/0-2 ft01 TB-8/0-2 ft TB-9/2-4 ft TB-5/4-6 ft	TB-7/0-2 ft	TB-7/0-2 ftDL	TB-8/0-2 ft	TB-9/2-4 ft	TB-5/4-6 ft	BPM-TB-4/4-6 ft
Laboratory Sample Number		122397-01	122397-01	122397-02	122397-03	122397-04	122397-04 122397-05 122422-01 122422-02	122397-05	122422-01	122422-02	
Remarks			Medium	Medium			Medium				
Units		μg/Kg	µg/Kg	μg/Kg	µg/Kg	/ug/Kg	L/g/Kg	∠g/Kg	μα/Kα	∠a/Ka	∠a/Ka
Percent Solids		89%	% 68	%68	91%	%88	88%	%06	87%	88%	92%
VOLATILE COMPOUNDS	Quantitation										
	Limit										
Chlorobenzene	10	3.5									
Ethylbenzene	10	6.3									
Styrene	10										
Total Xylenes	10	5				3.1					
Methyl tert butyl ether	10										
Quantitation Limit Multiplier		1.1	11,000	3700	1.1	1.1	110	=	=	Ξ	1.1
Date of Sample Collection		04/12/93	04/12/93	04/12/93	04/12/93	04/13/93	04/13/93	04/13/93	04/13/93	04/14/93	04/14/93
Date Sample Received by Laboratory		04/13/93	04/13/93	04/13/93	04/13/93	04/13/93	04/13/93	04/13/93	04/13/93	04/14/93	04/14/93
Date of Sample Analysis		04/16/93	04/20/93	04/20/93	04/18/93	04/18/93	04/20/93	04/19/93	04/21/93	04/20/93	04/20/93
Instrument Used for Analysis		MSD	MSD	MSD	MS1	MS1	MSD	MS1	MS1	MS1	MS1
										-	

VOLATILE ORGANIC ANALYSIS - DRY-WEIGHT BASIS	IGHT BASIS							
Vincent Uhl Sample Number		BPM-TB-6/2-3 ft	BPM-TB-11/4-6 ft	BPM-TB-12/0-2 ft		BPM-TB-13/0-2 ft BPM-TB-14/0-2 ft	BPM-TB-15/0-2 ft	BPM-TB-6 FB
Laboratory Sample Number		122481-02	122481-03	122481-04		122481.06		122481.10
Remarks								Field Blank
Units		µg/Kg	L/g/Kg	μα/Κα	L/g/Kg	∠a/Ka	./a/Ka	llu,
Percent Solids		%06	%06	89%	91%	91%	91%	NA
VOLATILE COMPOUNDS	Quantitation							
	Limit							
Chloromethane	10							
Bromomethane	10							
Vinyl Chloride	10	In						١
Chloroethane	10	10						5 =
Methylene Chloride	10							5
Acetone	10		UL	33.1	'n	īn	23.1	
Carbon Disulfide	10							
1,1-Dichloroethene	10		'n	'n	n	'n	5	
1,1-Dichloroethane	10							
Total 1,2-Dichlorethene	10							
Chloroform	10							
1,2-Dichloroethane	10							
2-Butanone	10							
1,1,1-Trichloroethane	10		2.5	2 J				
Carbon Tetrachloride	10							
Bromodichloromethane	10							
1,1,2,2-Tetrachloroethane	10							
1,2-Dichloropropane	10							
trans-1,3-Dichloropropene	10							
Trichloroethene	10							
Dibromochloromethane	10							
1,1,2-Trichloroethane	10							
Benzene	10							
cis-1,3-Dichloropropene	10							
Bromoform	10							
2-Hexanone	10							
4-Methyl-2-Pentanone	2							
Tetrachloroethene	10	48	4 B	58	7.8	7.8		
Toluene	0							
				17-6		,		

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VOLATILE ORGANIC ANALYSIS - DRY-WEIGH	IGHT BASIS							
Vincent Uhl Sample Number		BPM-TB-6/2-3 ft	BPM-TB-11/4-6 ft	BPM-TB-12/0-2 ft BPM-TB-13/0-2 ft BPM-TB-14/0-2 ft BPM-TB-15/0-2 ft	BPM-TB-13/0-2 ft	BPM-TB-14/0-2 ft	BPM-TB-15/0-2 ft	
Laboratory Sample Number		122481-02	122481-03	122481-04	122481-05	122481-06	122481-07	
Remarks								
Units		µg/Kg	µg/Kg	μg/Kg	∠g/Kg	ua/Ka	va/Ka	
Percent Solids		%06	%06	89%	91%	91%	91%	
VOLATILE COMPOUNDS	Quantitation							
	Limit							
Chlorobenzene	10							1
Ethylbenzene	10							1
Styrene	10							
Total Xylenes	10							İ
Methyl tert butyl ether	10							1
Quantitation Limit Multiplier		1.1	1.1	=	1.1	17	1	1
Date of Sample Collection		04/14/93	04/14/93	04/14/93	04/14/93	04/14/93	04/14/93	1
Date Sample Received by Laboratory		04/14/93	04/14/93	04/14/93	04/14/93	04/14/93	04/14/93	1
Date of Sample Analysis		04/20/93	04/21/93	04/21/93	04/21/93	04/21/93	04/21/93	1
Instrument Used for Analysis		MS1	MS1	MS1	MS1	MS1	MS1	

04/14/93

04/20/93 04/14/93

MS1

BPM-TB-6 FB 122481-10

Field Blank

/Jay

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TENTATIVELY IDENTIFIED COMPOUNDS						-				
Vincent Uhl Sample Number	TB1/2.4 ft			TB-3/0-1.5 ft	TB-7/0-2 ft	TB:2/2-4 ft TB:3/0-1.5 ft TB:7/0-2 ft TB:7/0-2 ft0L	TB-8/0-2 ft	TB-9/2-4 ft	TB-5/4-6 ft	TB-5/4-6 ft BPM-TB-4/4-6 ft
Laboratory Sample Number	122397-01	122397-01	122397-02	122397-03	122397-04	122397-04		122422-01	122422-02	122481.01
Remarks		Medium	Medium			Medium	t			
Units	µg/Kg	µg/Kg	gX/gu/	µg/Kg	L/g/Kg	µg/Kg	L/g/Kg	µg/Kg	L/a/Ka	∠a/Ka
Percent Solids	88%	89%	%68	91%	%88	%88	%06	87%	%88	85%
VOLATILE CONSTITUENTS										
Unknown(s)										

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TENTATIVELY IDENTIFIED COMPOUNDS							
Vincent Uhl Sample Number	BPM-TB-6/2-3 ft	BPM-TB-11/4-6 ft	BPM-TB-12/0-2 ft	BPM-TB-13/0-2 ft	18-6/2-3 ft BPM-TB-11/4-6 ft BPM-TB-12/0-2 ft BPM-TB-13/0-2 ft BPM-TB-14/0-2 ft BPM-TB-15/0-2 ft BPM-TB-6-FB	BPM-TB-15/0-2 ft	8PM-TB-6 FB
Laboratory Sample Number	122481-02	122481-03	122481-04	122481-05	122481-06	122481-07	122481-10
Remarks							Field Blank
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	μg/Kg	L/a/Ka	1/0//
Percent Solids	%06	%06	%68	91%	91%	91%	W
VOLATILE CONSTITUENTS							
Unknown(s)		ſ 9	1.1	15 (2) J	8		

EXTRACTABLE ORGANIC ANALYSIS						
Vincent Uhl Sample Number			TB1/2-4 ft	BPM-TB-4/0-6 ft	BPM-TB-6/0-3 ft	BPM-TB-6 FB
Laboratory Sample Number			122397-01	122481-08	122481-09	122481.10
Remarks						Field Blank
Units			µg/Kg	μgiKg	µg Kg	/ug/L
Percent Solids			%68	%06	%88	AN AN
SEMIVOLATILE COMPOUNDS	Quantitation	Quantitation				
	Limit (Aq)	Limit (Sol)	-			
Phenol	10	330				
bis(2-Chloroethyl)ether	10	330				
2-Chlorophenol	10	330				
1,3-Dichlorobenzene	10	330				
1,4-Dichlorobenzene	10	330				_
1,2-Dichlorobenzene	10	330				
2-Methyiphenol	10	330				
2,2'-oxybis(1-Chloropropane)	10	330				
4-Methylphenol	10	330				
N-Nitroso-di-n-Propylamine	10	330				
Hexachloroethane	10	330				
Nitrobenzene	10	330				
Isophorone	10	330				
2-Nitrophenol	10	330				
2,4-Dimethylphenol	10	330				
2,4-Dichlorophenol	10	330				
bis(2-chloroethoxy)methane	10	330				
1,2,4-Trichlorobenzene	10	330				
Naphthalene	10	330				
4-Chloroaniline	10	330				
Hexachlorobutadiene	9	330				
4-Chloro-3-Methylphenol	10	330				
2-Methylnaphthalene	10	330				
Hexachlorocyclopentadiene	10	330				
2,4,6-Trichlorophenol	10	330				
2,4,5-Trichlorophenol	25	800				
2-Chloronaphthalene	10	330				
2-Nitroaniline	22	800				
Dimethylphthalate	10	330				
Acenaphthylene	10	330				
						4

page 1 of 3

EXTRACTABLE ORGANIC ANALYSIS						
Vincent Uhi Sample Number			TB1/2-4 ft	BPM-TB-4/0-6 ft	BPM-TB-6/0-3 ft	BPM-TB-6 FB
Laboratory Sample Number			122397-01	122481-08	122481-09	122481-10
Remarks						Field Blank
Units			µgiKg	/ug/Kg	μg/Kg	nalt.
Percent Solids			%68	%06	%88	NA
SEMIVOLATILE COMPOUNDS	Quantitation	Quantitation				
	Limit (Aq)	Limit (Sol)				
2,6-Dinitrotoluene	10	330				
3-Nitroaniline	25	800	ä	'n		In
Acenaphthene	10	330				
2,4-Dinitrophenol	25	800				
4-Nitrophenol	25	800				
Dibenzofuran	10	330				
2,4-Dinitrotoluene	10	330				
Diethylphthalate	10	330				
4-Chlorophenyl-phenylether	10	330				
Fluorene	10	330				
4-Nitroaniline	25	800				
4,6-Dinitro-2-Methylphenol	22	800				
N-Nitrosodiphenylamine	O t	330				
4-Bromophenyl-phenylether	10	330				
Hexachlorobenzene	10	330				
Pentachlorophenol	22	800				
Phenanthrene	10	330				
Anthracene	10	330				
Carbazole	10	330				
Di-n-Butylphthalate	10	330				
Fluoranthene	10	330			100 J	
Pyrene	10	330	UL	UL	110 J	'n
Butylbenzylphthalate	01	330				
3,3'-Dichlorobenzidine	0	330	'n	JI.		Uľ.
Benzo(a)anthracene	10	330			65 J	
bis(2-Ethylhexyl)phthalate	10	330				
Chrysene	10	330			64 J	
Di-n-Octylphthalate	10	330				
Benzo(b)fluoranthene	10	330			100 J	
Benzo(k)fluoranthene	10	330				

page 2 of 3

EXTRACTABLE ORGANIC ANALYSIS						
Vincent Uhl Sample Number			TB1/2-4 ft	BPM-TB-4/0-6 ft	BPM-TB-6/0-3 ft	BPM-TB-6 FB
Laboratory Sample Number			122397-01	122481-08	122481-09	122481.10
Remarks						Field Blank
Units			/ug/Kg	µglKg	μg/Kg	nglt.
Percent Solids			%68	%06	%88	NA
SEMIVOLATILE COMPOUNDS	Quantitation	Quantitation Quantitation				
	Limit (Aq)	Limit (Sol)				
Benzo(a)pyrene	9	330				
Indeno(1,2,3-cd)pyrene	10	330				
Dibenz(a,h)anthracene	10	330				
Benzo(g,h,i)perylene	10	330				
Quantitation Limit Multiplier			1.12	1.12	1.15	1.00
Date of Sample Collection			04/12/93	04/14/93	04/14/93	04/14/93
Date Sample Received by Laboratory			04/13/93	04/15/93	04/15/93	04/15/93
Date of Sample Extraction			04/15/93	04/16/93	04/16/93	04/16/93
Date of Semple Analysis			04/19/93	04/19/93	04/20/93	04/19/93
Instrument Used for Analysis		GCMSD	#1	#1	#	#1

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TENTATIVELY IDENTIFIED COMPOUNDS				
Vincent Uhl Sample Number	TB1/2-4 ft	BPM-TB4/0-6 ft	BPM-TB6/0-3 ft	BPM-TB-6 FB
Laboratory Sample Number	122397-01	122481-08	122481-09	122481-10
Remarks				Field Blank
Units	µgiKg	µg/Kg	Lalka	L/all
Percent Solids	%68	%06	%88	100%
SEMIVOLATILE COMPOUNDS				
Unknown(s)	185 (2) J	408 (4) J	186 (2) J	21 (7) J
Aldol condensate	75 R	370 R	110 R	6 R
2-Propanol, 1-(2-methoxypropoxy)-				3.3
Blank Contaminants	450 (2) R	330 (2) R	226 (2) R	15 (2) R
Unknown Alkanes	220 (Z) J			

EXTRACTABLE ORGANIC ANALYSIS: DRY-WEIGHT BASIS	WEIGHT BASIS					
Vincent Uhl Sample Number			TB1/2-4 ft	BPM-TB4/0-6 ft	BPM.TBB10.3 #	RPM TR 8 CD
Laboratory Sample Number			122397-01	122481-08		172/81 10
Remarks						Di-101-17
Units			, mika	!V.	2	reru Diarik
Percent Solids			Autho	Build Cook	/ug/Kg	/vg/L
PESTICIDES/AROCI ORS	0		£ 50	%08 80%	%88	NA
	Cuantitation	Grantitation Cuantitation				
olute BUr	Limit (Aq)	Limit (Sol)				
anna-Duc	0.05	1.7	Π		10	
beta-BHC	0.05	1.7	'n		ī	
delta-BHC	0.05	1.7	ĭ		=	
gamma-BHC (Lindane)	0.05	1.7	3		5	
Heptachlor	0.05	1.7	5		=	
Aldrin	0.05	1.7	5		=	
Heptachlor Epoxide	0.05	12	5		5 =	
Endosulfan I	0.05	12	0.33.1		5 =	
Dieldrin	0.10	3.3	0.92.1		5 =	
4,4*.DDE	0.10	3.3	3.7.3		1 =	
Endrin	0.10	3.3	0.37.J		5 =	
Endosulfan II	0.10	3.3	188	0.28 B	0.24 B	
4,4000	0.10	3.3	3.5.1		0 100	
Endosulfan Sulfate	0.10	3.3	8.8	2.2 B	2 8 R	0.034 1
4,4'.DDT	0.10	3.3	42 J		0.83.1	200
Methoxychior	0.50	17	5		5	
Endrin Ketone	0.10	3.3	Ħ		5	
Endrin Aldehyde	0.10	3.3	5		=	
alpha-Chlordane	0.05	1.7	0.77.0		0.32.1	
jamma-Chlordane	0.05	1.7	0.65 J		0.25.J	

EXTRACTABLE ORGANIC ANALYSIS: DRY-WEIGHT BASIS	WEIGHT BASIS				7	
Vincent Uhl Sample Number			TB1/2-4 ft	BPM-TB4/0-6 ft	BPM-TB6/0-3 ft	BPM-TR-6 FR
Laboratory Sample Number			122397-01	122481-08	122481-09	122481-10
Remarks						Field Blank
Units			µg/Kg	µglKg	µg/Kg	7/0/7
Percent Solids			%68	%06	88%	NA
PESTICIDES/AROCLORS	Quantitation	Quantitation Quantitation				
	Limit (Aq)	Limit (Sol)				
Toxaphene	5.00	170	ħ		=	
Aroclor-1016	1.0	33	5		=	
Aroclor-1221	2.0	67	=		5 =	
Aroclor-1232	1.0	33	=		5 =	
Aroclor-1242	1.0	33	=		5	
Aroclor-1248	10	3 8	5 =		5 3	
Aroclor-1254	5	3 8	3 5		10	
Arrelar 1300	9.	3	5		3	
Arocior-1200	9-	83	3		U	
Unantitation Limit Multiplier			1.12	1.12	1.12	1.00
Date of Sample Collection			04/12/93	04/14/93	04/14/93	04/14/93
Date Sample Received by Laboratory			04/13/93	04/14/93	04/14/93	04/14/93
Date of Sample Extraction			04/15/93	04/16/93	04/16/93	04/18/03
Date of Sample Analysis			05/13/93	05/13/93	05/13/93	05/13/93
Instrument Used for Analysis			3800	3600	3600	3800
						2022

Vincent Uhl Sample Number	ber		TB1/2-4 ft	BPM-TB4/0-6 ft	BPM-TB4/0-6 ft BPM-TB6/0-3 ft	BPM-TB-6 FB
Laboratory Sample Number	-6		122397-01	122481-08	122481-09	
Remarks						Field Blank
Units			mg/Kg	mg/Kg	mg/Kg	1/6/7
Percent Solids			89.4%	90.3%	88.0%	NA AN
MORGANIC ELEMENTS		Detection Limit				
Afuminum	۵	15.7	1690 J	1730 J	2810.1	22.2.1
Antimony	۵	28.4	'n	5	=	,
Arsenic	4	1.2				3
Barium	۵	0.7	36.3 J	. 4 4	60.8 J	
Beryllium	۵	0.2	0.14B	0.128	0.118	
Cadmium	-	2.1	1.38	1.78	22.3	5
Calcium	-	18.9	2050 J	2580 J	2650 J	92 J
Chromium	۵	8.8	3.9 J	าก	5.9 J	5
Cobalt	Ь	15.5				
Copper	-	1.1	4.3	3.8	4.8	5.8
ron	-	5.4	1750 J	L 0781	3430 J	25.1.J
Lead	٤	0.0	4.1	2.4	3.0	
Magnesium	-	28.7	f 808	1250 J	1740 J	
Manganese	4	0.4	120 J	- 88	202 J	13.1
Mercury	ટ	0.2				
Nickel	۵	13.2			5.7 B	18.9
Potassium	۵.	32.7	187	331	133	
Selenium	u.	1.2	ភ	'n	5	5
Silver	_	1.3	0.59 B	0.42 B		
Sodium	٩	23.2	181 B	115.8	396 J	183.J
Thallium	-	0.4	'n	0.18 B	ភ	5
Vanadium	٩	1.7	5.2	6.6	9:8	
Zinc	۵	0:0	11.78	11.38	17.1 J	12.5.J
Cyanide	4	10				
Date Collected			04/12/93	04/14/93	04/14/93	04/14/93
Date Received			04/13/02	04/15/00	04146	

ANALYTICAL METHOD:

- P · Inductively Coupled Plasma
- F . Graphite Furnace Atomic Absorption
 - CV Cold Vapor Atomic Absorption
 - A Auto Analyzer

DATA USABILITY REPORT TEST BORING UNSATURATED ZONE SAMPLES (Collected April 12 - 14, 1993)

The data usability qualifiers assigned in the "Quality Assurance Review of the Samples Collected April 12-14, 1993 and April 22, 1993 for the Baldwin Place Mall Project", dated June 30, 1993 by Environmental Standards, Inc. (ESI), and shown on the validated data spreadsheets are provided on the following pages.

Due to the trace-level presence of tetrachloroethylene in the laboratory method blanks and/or field blanks the positive results for this compound in the following samples are qualitatively questionable ("B"): BPM-TB-9(2-4), TB-5(4-6), TB-4(4-6), TB-6(2-3), TB-11(4-6), TB-12(0-2), TB-13(0-2), and TB-14(0-2). In all of these samples, the tetrachloroethylene results were de minimus from 2 to 8 ug/Kg (0.002 to 0.008 ppm), do not interfere with the impacted soil delineation and are well below any potentially applicable criteria.

The positive results for trichloroethylene in sample BPM-TB-1(2-4) and for tetrachloroethylene in BPM-TB-1(2-4) and TB-7(0-2) are considered estimated as a result of their being outside the initial calibration range. In each case the laboratory diluted and reanalyzed the sample resulting in unqualified results that are within the limits of calibration ("DL" samples).

The positive result for trichloroethylene in sample TB-3(0-1.5) should be considered estimated (due to a high recovery in the associated MSD sample and a high RPD between the MS and MSD results). This result was a trace (7 ug/Kg) and well below any potentially applicable criteria. Likewise for the estimated trace result for chloroethane (2 ug/Kg) in sample TB-7(0 to 2).

The positive results for toluene, ethylbenzene and total xylene in sample TB-1(2-4) should be considered estimated (due to a high surrogate recovery). These results were all trace levels (7 ug/Kg and less) and below any potentially applicable criteria.

The detection limits for acetone in certain samples should be considered unreliable or may be higher than reported and positive results for acetone in certain samples should be considered estimated. Acetone is not a constituent of concern at this site, and has been randomly detected in the data sets. Although there is no direct reason to question the results for acetone, these results should be used with caution. This compound is often found as a laboratory artifact, as it appears to be in this data set.

The detection limits for 2-butanone, 4-methyl-2-pentanone, 1,2-dibromo-3-chloropropane and 2-hexanone in certain samples should be considered unreliable and the detection limits for 2-butanone, vinyl chloride, chloroethane, 1,1-dichloroethane, 3-nitroaniline and 3,3'-dichlorobenzidine in certain samples may be biased low. These

compounds are not constituents of concern at the site and, except for a chloroethane trace in one sample (see above), were not detected in the data set.

TICs that have been identified as being similar to those in the blanks and laboratory artifacts (air peaks or solvent fronts) are disregarded.

Due to the presence of endosulfan II and endosulfan sulfate in the laboratory method blanks and/or field blanks, the positive results for these compounds in certain samples are considered qualitatively questionable ("B"). In addition, the positive results for the pesticide/Arochlor fraction in samples TB-1(2-4) and TB-6(0-3) should be considered estimated and the detection limits may be higher than reported due to low surrogate recoveries; and high percent differences were observed on the two analytical columns for certain compounds in these two samples. The primary focus of the RI is on volatile organic compounds and the fact that the soil pesticide results are estimated is not consequential.

The remainder of the qualifiers pertain to the inorganic parameters, in that the detection limits may be higher than reported or unreliable and positive results considered estimated for certain parameters in certain samples. Due to the trace-level presence of some analytes in blanks, positive results for these analytes in certain samples are considered qualitatively questionable ("B"). Inorganics are not constituents of concern at the site, and the data set was adequate to confirm this.

In summary, the site characterization for the RI purposes is not affected by any of the data usability issues identified for this data set.

With respect to data usability, the principal areas of concern include blank contamination, matrix spike recoveries, surrogate recoveries, calibrations and poor column agreement. Based on a rigorous review of the data provided, the following organic data qualifiers are offered. It should be noted that the following data usability issues represent an interpretation of the quality control results obtained from the project samples. Validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Organic Data Qualifiers

Due to the trace-level presence of tetrachloroethene, endosulfan II, and endosulfan sulfate in the laboratory method blanks and/or field blanks, the positive results for these compounds in the following samples are qualitatively questionable and have been flagged "B" on the data tables.

Compound

Applicable Samples

tetrachloroethene

TB-9/2-4ft, TB-5/4-6ft, BPM-TB-4/4-6ft, BPM-TB-6/2-3ft, BPM-TB-11/4-6ft, BPM-TB-12/0-2ft, BPM-TB-13/0-2ft, and BPM-TB-14/0-2ft

endosulfan II

TB1/2-4ft, BPM-TB-4/0-6ft, and BPM-TB-6/0-3ft

endosulfan sulfate

BPM-TB-4/0-6ft and BPM-TB-6/0-3ft

- The analyses for acetone, 2-butanone, 4-methyl-2-pentanone 1,2-dibromo-3-chloropropane and 2-hexanone for samples BPM-CW27-01 and Trip Blank (122737-02) and for acetone and 2-butanone in samples TB-7/0-2ftDL, TB-2/2-4ft and TB1/2-4ftDL should be considered unreliable and the "not-detected" results have flagged "R" on the data tables. Low relative response factors (<0.050) were observed for the aforementioned compounds in the initial and continuing calibrations associated with samples.
- The positive result for trichloroethene in sample TB-3/0-1.5ft and for 4,4'-DDT in sample TB1/2-4ft should be considered estimated and has been flagged "J" on the data tables. A high percent recovery was obtained for trichloroethene in the associated matrix spike duplicate sample and a low percent recovery for 4,4'-DDT in the associated matrix spike sample.
- The positive result for trichloroethene in sample TB-3/0-1.5ft should be considered estimated and has been flagged "J" on the data tables. A high relative percent difference was obtained between trichloroethene results for the matrix spike and matrix spike duplicate analyses.

- The positive result for chloroethane in sample TB-7/0-2ft should be considered estimated and has been flagged "J" on the data tables. A high relative standard deviation was obtained for chloromethane between the relative response factor in the initial calibration.
- The positive results for the compounds in the associated samples should be considered estimated and have been flagged "J" on the data tables. Similarly, the actual detection limits for the compounds may be higher than reported and the "not-detected" results have been flagged "UL" on the data tables. High percent differences (>25%) were obtained between the relative response factors obtained for these compounds in the associated continuing calibrations and the average relative response factors for these compounds in the associated initial multipoint calibrations.

	Samples With	Samples With Biased
Compound	Estimated Results ("J")	Low Results ("UL")
acetone	TB-8/0-2ft, TB-9/2-4ft, BPM-TB-12/0-2ft, and BPM-TB-15/0-2ft	TB-3/0-1.5ft, TB-7/0-2ft, BPM-TB-11/4-6ft, BPM-TB-13/0-2ft, and BPM-TB-14/0-2ft
2-butanone		TB-3/0-1.5ft, TB-7/0-2ft and TB-8/0-2ft
vinyl chloride		TB-5/4-6ft, BPM-TB-4/4-6ft, BPM-TB-6/2-3ft, and BPM-TB-6FB
chloroethane		TB-5/4-6ft, BPM-TB-4/4-6ft, BPM-TB-6/2-3ft, and BPM-TB-6FB
1,1-dichloroethene		TB-9/2-4ft, BPM-TB-11/4-6ft, PM-TB-12/0-2ft, BPM-TB-13/0-2ft, BPM-TB-14/0-2ft, and BPM-TB-15/0-2ft
3-nitroaniline		TB-1/2-4ft, BPM-TB4/0-6ft and BPM-TB-6FB
3,3'-dichlorobenzidine		TB-1/2-4ft, BPM-TB4/0-6ft and BPM-TB-6FB

The positive results for acetone, trichloroethene, tetrachloroethene, toluene, chlorobenzene, ethylbenzene and total xylene in sample TB1/2-4ft should be considered estimated and have been flagged "J" on the data tables. A high recovery was obtained for the surrogate compound toluene-d₈ in sample TB1/2-4ft.

- The positive results for trichloroethene in sample TB1/2-4ft and for tetrachloroethene in samples TB1/2-4ft and TB-7/0-2ft should be considered estimated and have been flagged "J" on the data tables. The results for the aforementioned compounds in the associated samples exceeded the initial calibration range.
- Although there is no direct reason to question the results for acetone in samples TB1/2-4ft, TB-8/0-2ft, TB-9/2-4ft, TB-5/4-6ft, BPM-TB-12/0-2ft and BPM-TB-15/0-2ft, these results should be used with caution. Acetone is a common laboratory contaminant.
- The positive results for compounds of the pesticide/Aroclor fraction in samples TB1/2-4ft and BPM-TB-6/0-3ft should be considered estimated and have been flagged "J" (unless previously flagged "B") on the data tables. Similarly, the actual detection limits may be higher than reported and have been flagged "UL" on the data tables. Low recoveries were obtained for the surrogate compounds in samples TB1/2-4ft and BPM-TB-6/0-3ft.
- The positive results for endosulfan I, dieldrin, and endrin in sample TB1/2-4ft and for 4,4'-DDT and alpha-chlordane in sample BPM-TB-6/0-3ft should be considered estimated and have been flagged "J" on the data tables. High percent differences (>25%) were observed between the results for the aforementioned compounds in the associated samples on the two analytical columns.
- Tentatively Identified Compounds (TICs) have been evaluated and are presented in Section 2. The majority of the TICs appear to be unknowns. Laboratory artifacts have been rejected and have been flagged "R" on the data tables. The reported concentrations of all TICs (not previously qualified "R") should be considered estimated and have been flagged "J" on the TIC tables.
- Per NYSDEC ASP reporting conventions, all positive results below the quantitation limit should be considered estimated and have been flagged "J" on the sample data tables.

With regard to data usability, the principal areas of concern include trace-level contamination in the laboratory and field blanks, pre-digestion matrix spike recoveries, Contract Required Detection Limit (CRDL) standard recoveries, ICP serial dilution results, and laboratory duplicate analyses. Based upon an evaluation of the QC summary information reported by the laboratory, the following inorganic data qualifiers are offered. It should be noted that data usability issues represent an interpretation of the quality control results obtained for the project samples. Quite often, data qualification addresses issues relating to the sample matrix problems. Similarly, the validation guidelines specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Inorganic Data Qualifiers

Due to the trace-level presence of the following analytes in the associated laboratory blanks and/or field blank, the positive results for these compounds in the following samples should be considered qualitatively questionable and have been flagged "B" on the data tables.

<u>Analyte</u>	Applicable Samples
beryllium	TB1/2-4ft, BPM-TB4/0-6ft, and BPM-TB6/0-3ft
cadmium	TB1/2-4ft and BPM-TB4/0-6ft
silver	TB1/2-4ft and BPM-TB4/0-6ft
thallium	BPM-TB 4/0-6ft
nickel	BPM-TB 6/0-3ft
sodium	TB1/2-4ft and BPM-TB-4/0-6ft
zinc	TB1/2-4ft and BPM-TB-4/0-6ft

The positive results for the analytes should be considered estimated and have been flagged "J" on the data tables. Similarly, the actual detection limits may be higher than reported and the "not-detected" results have been flagged "UL" on the data tables. The percent recoveries obtained from the CRDL analysis associated with the following analytes are outside the QC limits (85%-115%).

	Samples With	Samples With
<u>Analyte</u>	Estimated Results ("J")	Biased Results ("UL")
antimony		All samples in UHL379
cadmium	BPM-TB-6/0-3ft	BPM-TB-6FB
chromium	TB-1/2-4ft, BPM-TB-6/0-3ft	BPM-TB-4/0-6ft, BPM-TB-6FB
nickel	BPM-TB-6FB	

- The actual detection limits for selenium in all samples in SDG UHL397 and for thallium in all samples except BPM-TB4/0-6ft may be higher than reported and the "not-detected" results have been flagged "UL" on the data tables. Low recoveries were obtained for selenium and thallium in the associated matrix spike analysis.
- The positive results for the analytes in the associated samples should be considered estimated and have been flagged "J" on the data tables. High relative percent differences were obtained for the results in the laboratory duplicate analyses for the analytes.

Samples With Estimated Results ("J")

Analyte chromium

TB1/2-4ft and BPM-TB-6/0-3ft

calcium

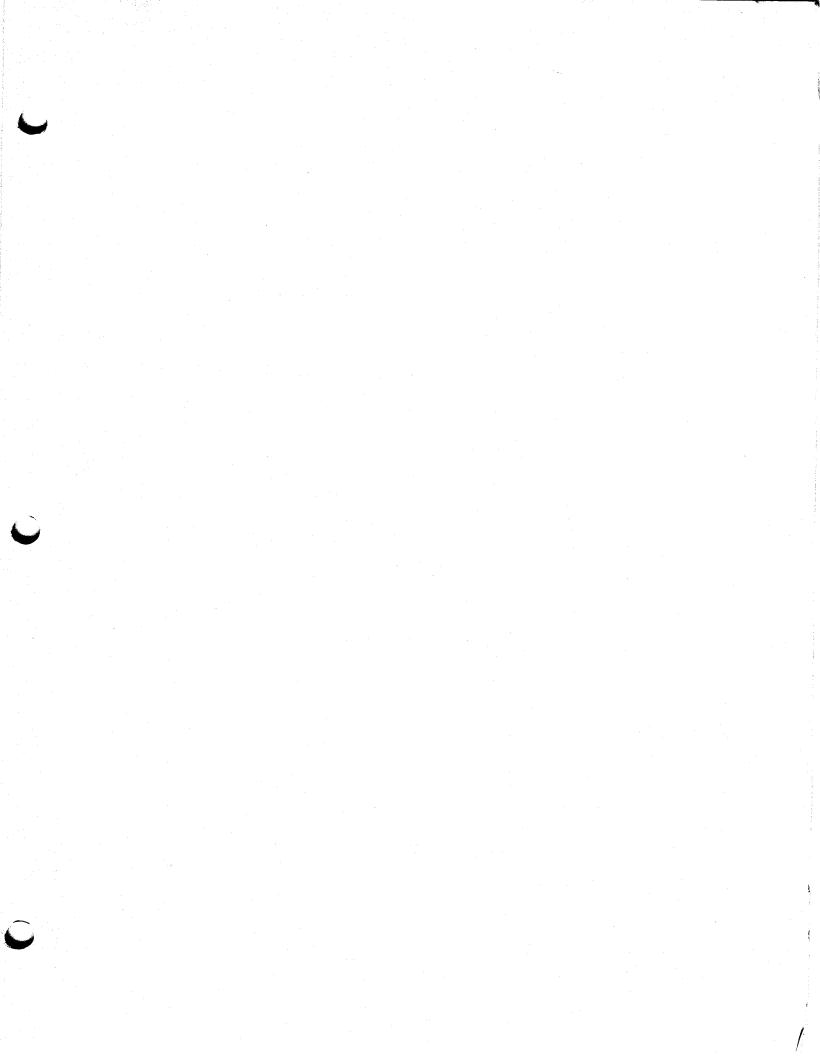
All samples except TB1/2-4ft

manganese

All samples except TB1/2-4ft

The positive results for aluminum, barium, calcium, iron, magnesium and manganese in all samples and for zinc in samples BPM-TB-6/0-3ft and BPM-TB-6FB should be considered estimated and have been flagged "J" on the data tables. High percent differences were obtained for the aforementioned analytes in the serial dilution analysis.

The positive results for sodium in samples BPM-TB-6/0-3 ft and BPM-TB-6FB should be considered estimated and have been flagged "J" on the data tables. A high percent recovery (>130%) was obtained for sodium in the associated laboratory control sample.



APPENDIX B.5

SECOND ROUND MONITORING WELL SAMPLES (Collected May 18 - 21, 1993)

					j							
VOLATILE ORGANIC ANALYSIS												
Vincent Sample Number	BPM-	MW-3S-02	MW-3S-02B	MW-5S-02	MW-5S-02DL	MW-6S-02	TB.	MW-3D-02	MW-3DD-02	MW.25.02	MW.20.02	MW 90 00
Laboratory Sample Number	1236	08-01	08-02	08-03	08-03DL	08-04	08-05	60-01	60-02	60-03	60-04	60-05 60-05
Remarks												
Units		llm,	rielu Dialik	ll week	11		Irip Blank		;			
		/ABI/L	MBIL	MB/L	/18/L	Mg/L	1/8/I	//g/L	1/0//	/lg//	7/B//	/JB//
VOLATILE COMPOUNDS	Quantitation					•						
	Limit											
Chloromethane	10											
Bromomethane	0.											
Vinyl Chloride	9											
Chloroethane	10											
Methylene Chloride	10			1.								
Acetone	10	~	~	~	æ	æ	-	~	~	- 0	۵	٥
Carbon Disulfide	10				3.1					3 =	=	=
1,1-Dichloroethene	10											
1,1-Dichloroethane	10											
Total 1,2-Dichloroethene	10	2.3		55	19							
Chloroform	10			۲,	i							
1,2-Dichloroethane	10											
2-Butanone	9	æ	R	æ	æ	æ	~	æ	-	~	~	۵
1,1,1.Trichloroethane	10									:	=	=
Carbon Tetrachloride	10											
Bromodichloromethane	10											
1,1,2,2-Tetrachloroethane	10											
1,2-Dichloropropane	10											
trans-1,3-Dichloropropene	10											
Trichloroethene	10	1.1		180	190							
Dibromochloromethane	2											
1,1,2-Trichloroethane	2											
Benzene	9	•		2.3	3.5							
cis-1,3-Dichloropropene	10											
Bromoform	10											
2-Hexanone	10										=	
4-Methyl-2-Pentanone	2											
Tetrachloroethene	2	7.3		260 J	300							
Toluene	10							2.3				

j					ř							ı
VOLATILE ORGANIC ANALYSIS												
Vincent Sample Number	BPM.	BPM- MW-3S-02	MW-3S-02B	MW-5S-02	MW-5S-02DL	MW-6S-02	TB	MW-3D-02	MW-3DD-02	MW-2S-02	MW-20-02	MW-8S-02
Laboratory Sample Number	1236	08-01	08-02	08-03	08-03DL	08-04	08-05	60-01	60-02	60-03	60-04	60-05
Remarks			Field Blank				Trip Blank					
Units		/\B/I	7/8 <i>rt</i>	/rg/L	ug/L	L/B/L	1/6/7	7/0//	l/a//	l/a//	lla,	llor,
VOLATILE COMPOUNDS	Quantitation											TIR P
	Limit											
Chlorobenzene	10											
Ethylbenzene	10											
Styrene	10											
Methyl tert-butyl Ether	10		i i			33						
Total Xylenes	10											
Ouantitation Limit Multiplier		1.0	1.0	1.0	2.0	0:1	0.1	1.0	6.1	9:	92	1.0
Date of Sample Collection		5/18/93	5/18/93	5/18/93	5/18/93	5/18/93	5/18/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93
Date Sample Received by Laboratory		5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/19/93	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93
Date of Sample Analysis		5/22/93	5/23/93	5/22/93	5/23/93	5/23/93	5/22/93	5/22/93	5/22/93	5/24/93	5/23/93	5/23/93
Instrument Used for Analysis		MSD	MSD	MSD	MSD	MSD	MSD	MSD	QSW	WSD	M.S.D	N CD
											2	2

VOLATILE ORGANIC ANALYSIS						
Vincent Sample Number	BPM.	MW-4S-02	MW-4D-02	Trip Blank	MW-9S-01	MW-9S-01DL
Laboratory Sample Number	1236	90-09	60-07	80-09	60-09	1060-09
Remarks				Trip Blank		Dilution Analysis of BPM-MW-9S-01
Units		µg/L	/IB/I	1/8/1	J/B/I	1/B/T
VOLATILE COMPOUNDS	Quantitation					
Oblandia						
Ciliotometinane	2					
Bromomethane Vinyl Chloride	2 2					
Chloroethane	2					
Methylene Chloride	2					
Acetone	2	æ	~	æ	æ	œ
Carbon Disulfide	2					
1,1-Dichloroethene	2					
1,1-Dichloroethane	9					
Total 1,2-Dichloroethene	10				20	20 J
Chloroform	10					
1,2-Dichloroethane	10					
2-Butanone	10	æ	~	æ	æ	~
1,1,1-Trichloroethane	10					
Carbon Tetrachloride	10					
Bromodichloromethane	10					
1,1,2,2-Tetrachloroethane	10					
1,2-Dichloropropane	10					
trans-1,3-Dichloropropene	10					
Trichloroethene	10				14	17.1
Dibromochloromethane	10					
1,1,2-Trichloroethane	10					
Benzene	10					
cis-1,3-Dichloropropene	10					
Bromoform	10					
2-Hexanone	10					
4-Methyl-2-Pentanone	01					
Tetrachloroethene	10				640.1	REU
				•		

VOLATILE ORGANIC ANALYSIS						
Vincent Sample Number	BPM.	MW-4S-02	MW-40-02	Trip Blank	MW-9S-01	MW-9S-01DL
Laboratory Sample Number	1236	90-09	60-07	80.09	60-09	1060-09
					*	Dilution Analysis of
Remarks				Trip Blank		BPM-MW-9S-01
Units		//B/L	L/g/L	/l/Br/	/ng/L	Ug/L
VOLATILE COMPOUNDS	Quantitation					
	Limit					
Chlorobenzene	10					
Ethylbenzene	10					
Styrene	10					
Methyl tert-butyl Ether	10	4.1				
Total Xylenes	10					
Quantitation Limit Multiplier		1.0	1.0	1.0	1.0	10
Date of Sample Collection		5/19/93	5/19/93	5/19/93	5/19/93	5/19/93
Date Sample Received by Laboratory		5/20/93	5/20/93	5/20/93	5/20/93	5/20/93
Date of Sample Analysis		5/23/93	5/24/93	5/23/93	5/24/93	5/24/93
Instrument Used for Analysis		MSD	MSD	MSD	MSD	MSD

Part)							
Sample Number SPPAR Sample Number MW+1051 100 MW+1050 100 MW+1	VOLATILE ORGANIC ANALYSIS													
strongle Number 123792 01 02 03 04 05 05 05 06 07 08 05 strongle Number strongle Nu	Vincent Sample Number	BPM-	MW-10S-1	MW-1S-02	MW-1D-02			MW-10D-01	MW-50-01	MW-5D-01R	MW-50-018	MW.Zn.n1	MW.70.01B	Trin Blank
ECOMPOUNDS	Laboratory Sample Number	123752	01	02	03	04		90	07	80	60	10.5	11	17.0
Compounds Commission Comm	Remarks										Field Blank	2	=	Trin Blank
	Units		/B//	/rg/L	1/8/F	//a/L	1/8//	7/0/7	L/a/l	a//	lluvi	llovi	llen,	Alle de la
Limit Limi	VOLATILE COMPOUNDS	Quantitation							i	Field Renticate	I A	787	Field Benlicate	Mill
10 01 01 01 01 01 01 01		Limit			~					of MW-50-01			rieiu nepiicate	
10	Chloromethane	9					ī	=	=	=	Ξ	=	10-07-111	
Include 10 10 10 10 10 10 10 1	Bromomethane	2						3	3	3	10	10	10	
10 R R R R R R R R R	Vinyl Chloride	2												
10 R R R R R R R R R	Chloroethane	=					s	=			=	Ξ	111	
10	Methylene Chloride	9				18							OL.	
10 10 10 10 10 10 10 10	Acetone	0.	æ	æ	œ	~	-	~		18.1	2 -	٥	c	-
Not catched by the	Carbon Disulfide	9						=		2	=	=	=	E
Calicidiorenthene 10 10 1 Calicidiorenthene 10 10 1 Incordinate 10 1 1 Incordinate 10 1 1 1 Includeronellane 10 1 1 1 1 Includeronellane 10 1 57 57 57 Includeronellane 10 1 1 1 1 1 1 Includeronellane 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 </th <th>1, 1-Dichloroethene</th> <th>2</th> <th></th>	1, 1-Dichloroethene	2												
10 10 10 10 10 10 10 10	1,1-Dichloroethane	10												
rrm 10	Total 1,2-Dichloroethene	10				2								
one pine 10 UI UI UI chloroethane 10 UI UI UI chloroethane 10 UI UI UI chloromethane 10 UI UI UI chloropropane 10 UI UI UI chloropropane 10 UI UI UI chloromethane 10 UI UI UI chloropropane 10 UI UI UI chloromethane 10 UI UI UI chloropropane 10 UI UI UI chloropropane 10 UI UI UI mn 10 UI UI UI chloropropane 10 UI UI UI mn 10 UI UI UI chloropropane 10 UI UI UI mne 10 UI UI UI	Chloroform	10												
one chlorosthane 10 UI UI UI UI UI Chlorosthane II III	1,2-Dichloroethane	10												
Extraction 10	2-Butanone	10							3	5				
Fetrachloride 10 Color methane 10 10 Color methane 10 11 57 57 57 Color methane 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10	1,1,1-Trichloroethane	9												
chloromethane 10 Commentation 10 Commentation 10 Commentation 10 Commentation 10	Carbon Tetrachloride	10												
Estrachloroethane 10 Property and the property and	Bromodichloromethane	10												
Uoropropane 10 10 10 10 10 10 10 10 10 11 57	1,1,2,2-Tetrachloroethane	10												
Dichloropropene 10 10 11 57 57 exthene 10 10 1 57 57 chloromethane 10 1 6 6 6 chloropropene 10 1 1 1 1 rm 10 1 1 1 1 rm 10 1 1 1 1 ic.2-Pentanone 10 2 2 2 2 2 incethene 10 2 2 2 2 2 incethene 10 2 2 3 7 7 3 incethene 10 2 2 3 7 8 3 3	1,2-Dichloropropane	10												
erthene 10 10 10 57 57 57 chloromethane 10	trans-1,3-Dichloropropene	10												
Chloromethane 10 <th>Trichloroathene</th> <th>10</th> <th></th> <th></th> <th></th> <th>9</th> <th></th> <th></th> <th>57</th> <th>57</th> <th></th> <th></th> <th></th> <th></th>	Trichloroathene	10				9			57	57				
Chloroethane 10 Chloroethane 10 Chloropropene 10	Dibromochloromethane	10												
ichloropropene 10 Control	1,1,2-Trichloroethane	10												
ichloropropene 10 Property	Вепzепе	10												
rm 10 10 11 11 11 11 11 11 11 11 11 11 11 11 11 11 11 12 13 14<	cis-1,3-Dichloropropene	10												
10 UL UL UL 12-Pentanone 10 2J 290 J 30 37 780 J 790 J nzene 10 6J 5J 	Bromoform	10												
12-Pentanone 10 UL UL UL broethene 10 2 J 290 J 30 37 780 J 790 J nzene 10 6 J 5 J 10	2-Hexanone	10							ы	5				
oroethene 10 2 J 290 J 30 37 780 J 790 J nzene 10 6 J 5 J .	4-Methyl-2-Pentanone	10							ä	5				
10 6J 5J	Tetrachloroethene	10			2 J	290 J	30	37	780 J	790 J		3.1	23	
	Toluene	2							f 9	5.3				
	Chlorobenzene	t)												

4		,				į						j	
VOLATILE ORGANIC ANALYSIS													
Vincent Sample Number	BPM.	1-S01-WW	BPM- MW-10S-1 MW-1S-02 MW	MW-10-02	MW-9D-01	MW-7S-02	V-1D-02 MW-9D-01 MW-7S-02 MW-10D-01 MW-5D-01	MW-50-01	MW-5D-01R	MW-5D-01B	MW-70-01	MW-70-01R	Trip Blank
Laboratory Sample Number	123752.	01	02	03	04	92	90	07	80	60	01	=	12
Remarks										Field Blank			Trip Blank
Units		/18/L	µg/l.	ugll	/IB/I	7/8 <i>rt</i>	µg/L	\µg/L	J/B/J	1/8//	/I/B//	Ma/L	Wa/L
VOLATILE COMPOUNDS	Quantitation								Field Replicate			Field Replicate	
	Limit						-		of MW-5D-01			of MW-7D-01	
Ethylbenzene	10												
Styrene	10												
Methyl tert-butyl Ether	10	15	3 J	1 J	3.1		33	-		,			
Total Xylenes	10							28					
Quantitation Limit Multiplier		1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.1	1.0	1.0	1.0	1.0
Date of Sample Collection		5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/20/93	5/21/93	5/21/93	5/21/93	5/21/93	5/21/93	5/21/93
Date Sample Received by Laboratory	tory	5/21/93	5/21/93	5/21/93	5/21/93	5/21/93	5/21/93	5/21/93	5/21/93	5/21/93	5/21/93	5/21/93	5/21/93
Date of Sample Analysis		5/24/93	5/24/93	5/24/93	5/24/93	5/25/94	5/25/94	5/26/93	5/26/93	5/25/93	5/25/93	5/25/93	5/24/93
Instrument Used for Analysis		MS1	MS1	MS1	MS1	MS1	MS1	MS1	MS1	MS1	MS1	MS1	MS1

VOLATILE DIFFANIC ANALYSIS SPM WW 9D-0101 WW 5D-0101 WW 5D-0101 IMW 5D-0101 Imm 5						
Sample Number 123752 0401 0701 123752 0401 0401 123752 0401 123752 0401 0401 123752 0401 123752 0401 123752 0401 123752 0401 123752 0401	VOLATILE URGANIC ANALYSIS					
tory Sample Number 123752- 040L 070L ts	Vincent Sample Number	BPM.		MW-5D-01DL	MW-5D-01RDL	
Limit Light Light	Laboratory Sample Number	123752-	0401	07DL	080	
LE COMPOUNDS	Remarks					
ILE COMPOUNDS Quantitation ILIMIT UL UL <t< td=""><td>Units</td><td></td><td>/JB/I</td><td>/JB/r</td><td>uglt</td><td></td></t<>	Units		/JB/I	/JB/r	uglt	
Limit UL UL nethane 10 UL UL nethane 10 UL UL shoride 10 UL UL nethane 10 UL UL nem Chloride 10 R R shoroethane 10 R R sorm 10 N N schloroethane 10 N N schloroethane 10 N N N sethere 10 N N N N sethere 10 N <t< td=""><td>VOLATILE COMPOUNDS</td><td>Quantitation</td><td></td><td></td><td></td><td></td></t<>	VOLATILE COMPOUNDS	Quantitation				
10		Limit				
10	Chloromethane	10	UĽ	'n	'n	
thane	Bromomethane	10				
thane	Vinyl Chloride	10				
Disulfide 10 R R R B Disulfide 10 Disulfide 10 R R R R R R R R R R R R R R R R R R	Chloroethane	10	5	3	'n.	
Disulfide 10 R R R R R R Disulfide 10	Methylene Chloride	10				
Disulfide 10 Aloroethene 10 2-Dichloroethene 10 7 J orm 10 7 J one 10 7 J 40 J chloroethane 10 7 J 40 J chloromethane 10 7 J 40 J chloropropane 10 7 J 40 J chloromethane 10 7 J 40 J rm 10 7 J 40 J rm 10 7 J 40 J rm 10 10 10 rm 10 10 10 rm 10 10 r	Acetone	10	æ	æ	~	
10 7 7 7 7 7 7 7 7 7	Carbon Disulfide	10				
2-Dichloroethane 10 7J 79 0rm 10 10 10 10 10 10 10 10 10 10 10 10 10	1,1-Dichloroethene	10				
2-Dichloroethene 10 7.3 cm 10 ndoethene 10 10 cm 10 cm 10 cm 10 cm 10 cm 10 cd	1, 1-Dichloroethane	10				
one 10 one 10 one 10 ichloroethane 10 Chrachloroethane 10 Tetrachloroethane 10 3-Dichloropropane 10 3-Dichloropropane 10 3-Dichloropropene 10 ichloroethane 10 ichloroethane 10 ichloropropene 10 <tr< td=""><td>Total 1,2-Dichloroethene</td><td>10</td><td></td><td></td><td></td><td></td></tr<>	Total 1,2-Dichloroethene	10				
one 10 one 10 ichloroethane 10 Tetrachloride 10 Chloromethane 10 Inchromethane 10 Subjection opene 10 ichloroethane 10 ichloroethane 10 ichloropropene 10 ichloroethane 10 ichloropropene 10	Chloroform	10				
ichloroethane 10 Tetrachloride 10 Ichloromethane 10 Incorpopane 10 Incorpo	1,2-Dichloroethane	10				
ichloroethane 10 Tetrachloride 10 ichloromethane 10 Tetrachloroethane 10 3-Dichloropropene 10 7 J 40 J chloromethane 10 7 J 40 J ichloroethane 10 7 J 40 J ichloropropene 10 910 7 J ichloropropene 10 910 910	2-Butanone	10				
Tetrachloride 10 chloromethane 10 Incorporation of the post length 10 3-Dickloropropene 10 7 J 40 J chloromethane 10 7 J 40 J chloropropene 10 7 J 40 J chloropropene 10 7 J 40 J richloropropene 10 7 J 40 J richloropropene 10 7 J 40 J richloropropene 10 910	1,1,1-Trichloroethane	10				
Chloromethane 10 Tetrachloroptane 10 3-Dichloropropene 10 7 J 40 J 3-Dichloroptopene 10 7 J 40 J chloromethane 10 7 J 40 J chloroptopene 10 7 J 40 J chloroptopene 10 7 J 40 J richloroptopene 10 7 J 40 J richloroptopene 10 7 J 40 J rim 10 910 rim 10 910 richloroptopene 10 910	Carbon Tetrachloride	10				
Tetrachloroethane 10 loropropane 10 3.Dichloropropene 10 chloromethane 10 chloroethane 10 ichloropropene 10 rm 10 one 10 12.Pentanone 10 10 910 noroethene 10 noroethene 10	Bromodichloromethane	10				
3-Dichloropropane 10 7 J 40 J 3-Dichloropropene 10 7 J 40 J chloromethane 10 7 J 40 J chloroethane 10 7 J 40 J chloroethane 10 7 J 40 J chloroethane 10 0 0 rm 10 0 0 rm 10 0 0 randen 10 0 0 randen 10 0 0 randen 10 0 0 randen 10 0 0	1,1,2,2-Tetrachloroethane	10				
3-Dichloropropene 10 7J 40J chloropropene 10 7J 40J chloromethane 10 10 chloroethane 10 10 chloropropene 10 10 cm 10 cnethene 10 300 910 croethene 10 10 mzene 10	1,2-Dichloropropane	10				
chloromethane 10 7 J 40 J chloromethane 10 6 6 ichlorosthane 10 6 6 rm 10 6 6 rm 10 6 6 rm 10 910 6 racethene 10 910 6	trans-1,3-Dichloropropene	10				
chloromethane 10 ichloroethane 10 lichloropropene 10 rm 10 one 10 I.2-Pentanone 10 oroethene 10 nzene 10	Trichloroethene	10	7.J	40 J	36 J	
ichloroethane 10 10 10 rm 10 rm 10 one 10 12-Pentanone 10 10 300 910 nzene 10	Dibromochloromethane	10				
Ichloropropene 10 rm 10 one 10 I-2-Pentanone 10 300 910 oroethene 10 300 910 nzene 10 10	1,1,2-Trichloroethane	10				
rm 10 rm 10 one 10 I-2-Pentanone 10 300 910 oroethene 10 300 910 nzene 10 10 910	Вепzепе	10				
rm 10 one 10 12-Pentanone 10 oroethene 10 300 910 nzene 10 10	cis-1,3-Dichloropropene	10				
10 10 10 1.2. Pentanone 10 300 910 10 10 10 10 10 10 10 10 10 10 10 10 1	Bromoform	10				
1.2. Pentanone 10 300 910 oroethene 10 300 910 nzene 10	2-Hexanone	10				
oroethene 10 300 910 10 10 10 nzene 10 10	4-Methyl-2-Pentanone	0				
nzene	Tetrachloroethene	9	300	910	840	
	Toluene	10				
	Chlorobenzene	10				

VOLATILE ORGANIC ANALYSIS				
Vincent Sample Number	BPM.		MW-9D-01DL MW-5D-01DL	MW-50-01RDL
Laboratory Sample Number	123752-	0401	0701	1080
Remarks				
Units		µg/L	/IB/I	1/Br/
VOLATILE COMPOUNDS	Quantitation			
	Limit			
Ethylbenzene	10			
Styrene	10			
Methyl tert-butyl Ether	10			
Total Xylenes	10			
Quantitation Limit Multiplier		5.0	10.0	10.0
Date of Sample Collection		5/20/93	5/21/93	5/21/93
Date Sample Received by Laboratory	atory	5/21/93	5/21/93	5/21/93
Date of Sample Analysis		5/25/93	2/25/93	5/25/93
Instrument Head for Analysis		Mei	1011	1014

TENTATIVELY IDENTIFIED COMPOUNDS												
Vincent Sample Number BP	PM.	W-3S-02	BPM- MW-3S-02 MW-3S-02B	MW-5S-02	MW-6S-02	TB	MW-3D-02	MW-3D-02 MW-3DD-02 MW-2S-02 MW-2D-02	MW-2S-02	MW-2D-02	MW-8S-02 MW-4S-02	MW-4S-02
Laboratory Sample Number 12	1236 08-01	08-01	20-80	08-03	08-04	08-05	60.01	60-02	60-03	60-04	60-05	90-09
Remarks			Field Blank			Trip Blank						
Units		Hall	Hg/L	HBIL	1/B <i>r1</i>	/ng/L	J/B//	/ng/L	/mg/L	Lall.	//a/L	1/a/L
COMPOUNDS												
VOLATILE COMPONENTS												
Laboratory Artifact (RT 2.25 min.)		650 B	600 R	640 R	660 R	710 R	660 R	650 R	84 R	650 R	650 R	660 R
Dodecane				5.J								
Laboratory Artifact (RT 5.91 min.)				6 R								

TENTATIVELY IDENTIFIED COMPOUNDS				
Vincent Sample Number	BPM.	BPM- MW-4D-02	Trip Blank	MW-9S-01
Laboratory Sample Number	1236	20-09	80-09	60-09
Remarks				
Units		1/8//	1/B//	/lan
COMPOUNDS				
VOLATILE COMPONENTS				
Laboratory Artifact (RT 2.25 min.)		640 R	660 R	710 R
Dodecane				
Laboratory Artifact (RT 5.91 min.)				

TENTATIVELY IDENTIFIED COMPOUNDS	S												
Vincent Sample Number	BPM- N	AW-10S-1	MW-1S-02	MW-10-02	10-06-WM	MW-7S-02	MW-10D-01	MW-50-01	BPM- MW-10S-1 MW-1S-02 MW-10-02 MW-90-01 MW-7S-02 MW-10D-01 MW-5D-01 MW-5D-01R MW-5D-01B MW-7D-01 MW-7D-01R Trip Blank	MW-5D-01B	MW-7D-01	MW-70-01R	Trip Blank
Laboratory Sample Number 12:	3752-	123752- 01	02	03	04	05	90	07	08	60	10	=	12
Remarks										Field Blank			Trip Blank
Units		µg/L	µg/L µg/L	µg/L	7/B∕7	μg/L	מוך חפור	/\Br	J/Br/	/IB//	J/B//	1/8//	1/B//
COMPOUNDS									Field Replicate			Field Duplicate	
									of MW-5D-01			of MW-70-01	
VOLATILE COMPONENTS			•	•	•		٠	٠	•	•	,		
Unknown		6.3											

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TENTATIVELY IDENTIFIED COMPOUNDS				
Vincent Sample Number	BPM-M	W-9D-01DL	MW-5D-010L	BPM- MW-9D-01DL MW-5D-01DL MW-5D-01RDL
Laboratory Sample Number 123	123752-	0401	070L	1080
Remarks				
Units		/IB/r	1/8//	/IB/I
COMPOUNDS				
VOLATILE COMPONENTS			•	
Unknown				

DATA USABILITY REPORT SECOND ROUND MONITORING WELL SAMPLES (Collected May 18 - 21, 1993)

The data usability qualifiers assigned in the "Quality Assurance Review of the Samples Collected May 18 through 21, 1993 for the Baldwin Place Mall Project", dated July 29, 1993 by Environmental Standards, Inc. (ESI), and shown on the validated data spreadsheets are provided on the following pages.

The positive results for tetrachloroethylene in samples BPM-MW-5S-02, BPM-MW-9S-01, BPM-MW-9D-01, BPM-5D-01 and BPM-5D-01R are considered estimated as a result of their being outside the associated instrument linear calibration limit. In each of these cases, the laboratory diluted and reanalyzed the sample resulting in unqualified results that are within the limits of calibration ("DL" samples).

The positive result for xylene in BPM-MW-5D-01 is considered qualitatively questionable ("B") as a result of the presence of total xylene in the associated method blank. The total xylene result for this sample was just a trace level (2 ug/L); in addition, total xylene was not detected in the field replicate sample: BPM-MW-5D-01R. In addition, although there is no direct reason to qualify the positive result (1 ug/L) for methylene chloride in BPM-MW-5S-02, this result should be used with caution (as a probable laboratory contaminant).

The detection limits for acetone in certain samples should be considered unreliable and positive results for acetone in certain samples should be considered estimated. Acetone is not a constituent of concern at this site, and has been randomly detected in the data sets. This compound is often found as a laboratory artifact, as it appears to be in this data set.

The remainder of the data qualifiers pertain to the detection limits for 2-butanone, 4-methyl-2-pentanone, 2-hexanone and chloromethane in certain samples which should be considered unreliable or may be biased low. These compounds are not constituents of concern at the site and have not been detected in the site media.

TICs that have been identified as being similar to those in the blanks and laboratory artifacts (air peaks or solvent fronts) are disregarded.

In summary, the site characterization is not affected by any of the data usability issues identified for this data set.

With respect to data usability, the principal areas of concern include blank contamination, matrix spike (MS) Matrix Spike Duplicate (MSD) recoveries and calibrations. Based on a rigorous review of the data provided, the following organic data qualifiers are offered. It should be noted that the following data usability issues represent an interpretation of the quality control results obtained from the project samples. Validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be constructed as an indication of laboratory performance.

Organic Data Qualifiers

- Due to the presence of total xylene in the associated method blank, the positive result for total xylene in BPM-MW-5D-01 and for methylene chloride in BPM-MW-9D-01 should be considered qualitatively questionable and has been flagged "B" on the data tables.
- The detection limits for 2-butanone and acetone in all samples of SDG UH660 with the exception of BPM-MW-2S-02 and for acetone in all samples of SDG UH752 with the exception of BPM-MW-5D-01 and BPM-MW-5D-01R should be considered unreliable and the "not-detected" results have been flagged "R" on the data tables. In addition, the positive results for acetone in SDG UH660 sample BPM-MW-2S-02 and SDG UH752 samples BPM-MW-5D-01 and BPM-MW-5D-01R should be considered estimated and have been flagged "J" on the data tables. Low response factors (<0.050) were observed for acetone in the associated initial and/or continuing calibrations.
- The detection limit for 2-hexanone in sample BPM-MW-2D-02 may be biased low and the "not-detected" result has been flagged "UL" on the data tables. A low recovery (70%) was observed for this compound in the associated matrix spike sample.
- The detection limits for chloromethane in samples BPM-MW-9D-01DL, BPM-MW-7S-02, BPM-MW-10D-01, BPM-MW-5D-01, BPM-MW-5D-01R, BPM-MW-5D-01RDL, BPM-MW-5D-01B, BPM-MW-7D-01, and BPM-MW-7D-01R for chloroethane in BPM-MW-9D-01DL, BPM-MW-7S-02, BPM-MW-10D-01, BPM-MW-5D-01DL, BPM-MW-5D-01B, BPM-MW-7D-01 and BPM-MW-5D-01R and for 2-butanone, 4-methyl-2-pentanone and 2-hexanone in samples BPM-MW-5D-01 and BPM-MW-5D-01R may be biased low and the "not-detected" results have been flagged "UL" on the data tables. In addition, the positive results for acetone in samples BPM-MW-5D-01 and BPM-MW-5D-01R should be considered estimated and have been flagged "J" on the data tables. High percent differences (>25%) and sensitivity decreases were observed for these compounds in the associated continuing calibrations.
- Although there is no direct reason to question the presence of methylene chloride in SDG UH660 sample BPM-MW-5S-02 this compound is a very common laboratory contaminant and the result should be used with caution.

- The positive results for tetrachloroethene in samples BPM-MW-5S-02, BPM-MW-9S-01, BPM-MW-9D-01, BPM-MW-5D-01 and BPM-MW-5D-01R should be considered estimated and have been flagged "J" on the data tables. The quantitated results for tetrachloroethene in these samples were greater than the associated instrument linear calibration limit.
 - Two field replicates were submitted with SDG UH752, as follows:

<u>Sample</u>		<u>Replicate</u>
BPM-MW-5D-01		BPM-MW-5D-01R
BPM-MW-7D-01	8	BPM-MW-7D-01R

The results show good laboratory precision between the two analytical precision between the two samples, as listed below.

Compound	Sample BPM-MW-5D-01	Replicate BPM-MW-5D-01R	<u>RPD</u>	<u>Notes</u>
Acetone	11 J μg/L	$18~\mathrm{J}~\mu\mathrm{g}/\mathrm{L}$	48.3%	2
Trichloroethene	$57 \mu g/L$	57 μg/L	0%	1
Tetrachloroethene	$780~\mathrm{J}~\mu\mathrm{g/L}$	790 J μg/L	1.3%	1
Toluene	$6~\mathrm{J}~\mu\mathrm{g}/\mathrm{L}$	$5~\mathrm{J}~\mu\mathrm{g}/\mathrm{L}$	1.8%	1
Total xylenes	$2~B~\mu g/L$	ND	200%	2
Compound	Sample	Replicate		
Compound	BPM-MW-7D-01	BPM-MW-7D-01R	RPD	<u>Notes</u>
Tetrachloroethene	$3~J~\mu g/L$	$2 J \mu g/L$	40%	2

NOTES:

B - This result is considered qualitatively questionable.

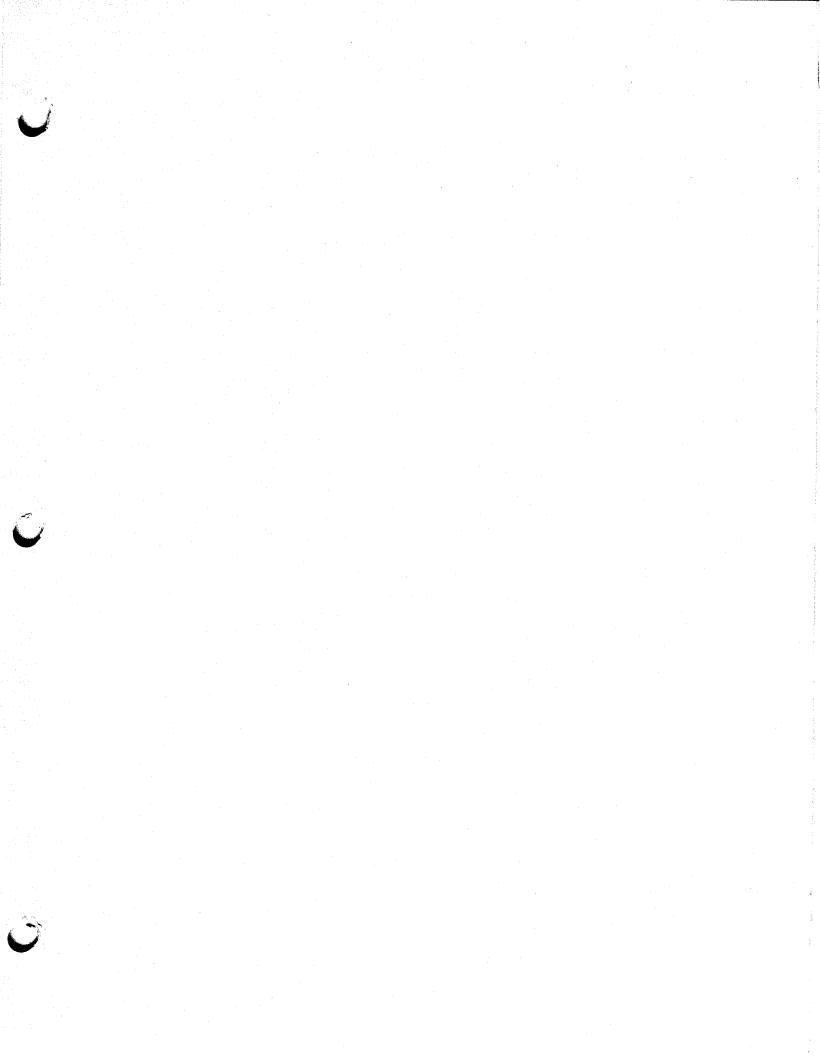
J - This result is considered estimated.

The RPD is within 20%; acceptable replicate precision.

2 - Results are within ±CRDL; replicate precision is acceptable.

ND - A result was not detected in this sample.

- Per NYSDEC ASP reporting conventions, all positive results below the quantitation limit should be considered estimated and have been flagged "J" on the tables.
- The SDG UH660 Tentatively Identified Compounds (TICs) have been evaluated and are presented in Section 2. All of the TICs, with the exception of dodecane identified in sample BPM-MW-5S-02, appear to be laboratory artifacts. The reported concentrations of all TICs should be considered unreliable and have been flagged "R" on the TIC tables. The TIC in SDG UH752 sample BPM-MW-10S-01 appears to be unknown and its concentration should be considered estimated; consequently, it has been flagged "J" on the TIC table.



APPENDIX B.6

INITIAL AND SUPPLEMENTAL SURFACE-WATER AND SEDIMENT SAMPLES

(Collected June 2, October 15 and December 9, 1993)

SAMPLES COLLECTED JUNE 2, 1993

VOLATILE ORGANIC ANALYSIS - ANALYTI	YTICAL RESULTS							page 1
					-			
Vincent Uhl Sample Number		BPM-SW-04	BPM-SW-02 (0F)	BPM-SW-03	BPM-SW-01	BPM-SW-04R	BPM-SW-04B	Trin Blank
Laboratory Sample Number	1241	91-01	91.02	91-03	91-04	91.05	91.06	91.07
Remarks								
Units		μg/L	µg/L	/lg/L	1/8//	1/077	1/0/7	lla,
VOLATILE COMPOUNDS	Quantitation					Field Replicate	Field	i i
	Limit					of BPM-SW-04	Blank	
Chloromethane	92							
Bromomethane	9							
Vinyl Chloride	10							
Chloroethane	10							
Methylene Chloride	10		18	18			2	
Acetone	10	Œ	f 6	æ	æ	~	~	~
Carbon Disulfide	10						:	:
1,1-Dichloroethene	10							
1,1-Dichloroethane	10							
Total 1,2-Dichloroethene	10							
Chloroform	10		200	120				
1,2-Dichloroethane	10							
2-Butanone	10	æ	æ	æ	~	æ	~	α
1,1,1-Trichloroethane	10							=
Carbon Tetrachloride	10							
Bromodichloromethane	10		46	31				
1,1,2,2-Tetrachioroethane	10							
1,2-Dichloropropane	10							
trans-1,3-Dichloropropene	10							
Trichloroethene	10							
Dibromochloromethane	10		11	8.				
1,1,2-Trichloroethane	10							
Benzene	10							
						T		

VOLATILE ORGANIC ANALYSIS - ANALYTICAL RESULTS	CAL RESULTS							page 2
Vincent Uhl Sample Number		BPM-SW-04	BPM-SW-02 (0F)	BPM-SW-03	BPM-SW-01	BPM-SW-04R BPM-SW-04B	BPM-SW-04B	Trip Blank
Laboratory Sample Number	1241	91-01	91.02	91-03	91-04	91-05	91.06	91.07
Remarks								
Units		∏Br/	µg/L	J/B/L	//a/L	J/B/I	rall.	7/0/7
VOLATILE COMPOUNDS	Quantitation					Field Replicate	Field	
	Limit					of BPM-SW-04	Blank	
cis-1,3-Dichloropropene	10							
Bromoform	10							
2-Hexanone	10							
4-Methyl-2-Pentanone	10							
Tetrachloroethene	10	7				1.		
Toluene	10			2.3				
Chlorobenzene	10							
Ethylbenzene	10							
Styrene	10							
Total Xylenes	10	l /				6.9		
Methyl tert-butyl Ether	10	18				17		
Quantitation Limit Multiplier		1.0	1.0	1.0	1.0	0.1	0:	1.0
Date of Sample Collection		6/1/93	6/1/93	6/1/93	6/1/93	6/1/93	6/1/93	6/1/93
Date Sample Received by Laboratory		6/4/93	6/4/93	6/4/93	6/4/93	6/4/93	6/4/93	6/4/93
Date of Sample Analysis		6/11/93	6/11/93	6/11/93	6/11/93	6/11/93	6/11/93	6/11/93
Instrument Used for Analysis		MSD	MSD	MSD	USW	MSD	MSD	MSD

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Vincent Uhl Sample Number		BPM-SW-04	BPM-SW-02(0F)	BPM-SW-03	BPM-SW-01	BPM-SW-04R	BPM-SW-04B
Laboratory Sample Number	1241	91-01	91-02	91-03	91-04	91.05	91-06
Remarks							
Units		Hg/L	Hall	uglt	nall.	na/l	llu//
SEMIVOLATILE COMPOUNDS	Quantitation					Field Replicate	Field
	Limit (Aq)					of BPM-SW-04	Blank
Phenol	10						
bis(2-Chloroethyl)ether	10						
2-Chlorophenol	10						
1,3-Dichlorobenzene	10						
1,4-Dichlorobenzene	10						
1,2-Dichlorobenzene	10						
2-Methylphenol	10						
2,2'-oxybis(1-Chloropropane)	10						
4-Methylphenol	10						
N-Nitroso-di-n-Propylamine	10						
Hexachloroethane	10						
Nitrobenzene	10						
Isophorone	10						
2-Nitrophenol	10						
2,4-Dimethylphenol	10						
bis(2-Chloroethoxy)methane	10						
2,4-dichlorophenol	10						
1,2,4-Trichlorobenzene	10						
Naphthalene	10						
4-Chloroaniline	. 10						
Hexachlorobutadiene	10						
4-Chloro-3-Methylphenol	10						
2-Methylnaphthalene	10						

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS

EXTRACTABLE ORGANIC ANALYSIS - AN	· ANALYTICAL RESULTS	JLTS					page 4
Vincent Uhl Sample Number		BPM-SW-04	BPM-SW-02(0F)	BPM-SW-03	BPM-SW-01	BPM-SW-04R	BPM-SW-04B
Laboratory Sample Number	1241	91-01	91-02	91-03	91-04	91-05	91-06
Remarks							
Units		/I/Br/	μg/L	/lBr/	/lg/r	1/B//	7/0/7
SEMIVOLATILE COMPOUNDS	Quantitation					Field Replicate	Field
	Limit (Aq)					of BPM-SW-04	Blank
Hexachlorocyclopentadiene	10						
2,4,6-Trichlorophenol	01						
2,4,5-Trichlorophenol	25						
2-Chloronaphthalene	9						
2-Nitroaniline	25						
Dimethylphthalate	10						
Acenaphthylene	10						
2,6-Dinitrotoluene	9						
3'-Nitroaniline	25						
Acenaphthene	10						
2,4-Dinitrophenol	25						
4-Nitrophenol	52						
Dibenzofuran	10						
2,4-Dinitrotoluene	10						
Diethylphthalate	10						
4-Chlorophenyi-phenylether	10						
Fluorene	10						
4-Nitroanaline	22						
4,6-Dinitro-2-Mathylphenol	22						
N-Nitrosodiphenylamine	10						
4-Bromophenyl-phenylether	10						
Hexachlorobenzene	10						
Pentachlorophenol	22						
Phenanthrene	10						

O ION I WILL	ANIAL VTICAL DECLILTS						
CATHACTABLE URBANIC ANALTSIS - ANA	ALT HOME BLO	JLTS					page 5
Vincent Uhl Sample Number		BPM-SW-04	BPM-SW-02(0F)	BPM-SW-03	BPM-SW-01	BPM-SW-04R	BPM-SW-04B
Laboratory Sample Number	1241	91-01	91-02	91-03	91-04	91-05	91-06
Remarks							
Units		7/8//	J/B/I	/Ma/L	J/B/7	L/o/L	1/0/7
SEMIVOLATILE COMPOUNDS	Quantitation					Field Replicate	Field
	Limit (Aq)					of BPM-SW-04	Blank
Anthracene	10						
Carbazole	10						
Di-n-Butylphthalate	10						
Fluoranthene	10						
Pyrene	10						
Butylbenzylphthalate	10						
3,3'-Dichlorobenzidine	10			4824	7-01-		
Benzo(a)anthracene	10						
bis(2-Ethylhexyl)phthalate	10						
Chrysene	10						
Di-n-Octylphthalate	10						
Benzo(b)fluoranthene	10						
Benzo(k)fluoranthene	10						
Benzo(a)pyrene	10						
Indeno(1,2,3-cd)pyrene	10						
Dibenz(a,h)anthracene	10						
Benzo(g,h,i)perylene	10						
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00	1.00	1.00
Date of Sample Collection		6/1/93	6/1/93	6/1/93	6/1/93	6/1/93	6/1/93
Date Sample Received by Laboratory		6/4/93	6/4/93	6/4/93	6/4/93	6/4/93	6/4/93
Date of Sample Extraction		6/7/93	6/7/93	6/1/93	6/7/93	6/1/93	6/1/93
Date of Sample Analysis		6/12/93	6/12/93	6/12/93	6/12/93	6/12/93	6/12/93

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Vincent Uhl Sample Number	BPM-SW-04	BPM-SW-02 (0F)	BPM-SW-03	BPM-SW-01	BPM-SW-04R	BPM-SW-04B	Trio Blank
Laboratory Sample Number 1241	91-01	91-02	91-03	91-04	91-05	91.06	
Remarks							
Units	µg/L	µg/L	1/B/f	Halt	L/g/L	/all	7/0/7
COMPOUNDS					Field Replicate	Field	
					of BPM-SW-04	Blank	
VOLATILE COMPONENTS							
Unknown (RT 2.26 min)	810 R	680 R	760 R	740 R	720 R	670 R	720 R
2,3-dihydro-1H-Indene	6.3				5.3		
2,3-Dihydro-4-methyl-1H-Indene	5.3						
SEMIVOLATILE COMPONENTS							NIA
4-Hydroxy-4-methyl 2-Pentanone	16 R	10 R	12 R	17.R	22 R	13 R	
Ethylbenzene (VOA Target)	2.3				2.5		
Unknown (Number of Peaks)	8 J	33 (5) J	21 (5) J	3.3	2.3		
Triphenylphosphorany! Formaldehyde	6 3	4.)		6.9			
1-Chlore-2-(1-propenyl)cyclopropane		13.1					
Trans-1,2-dichlorocyclohexane		38 J					
2-Chlorocyclohexanol			38 J				
Triphenyl phosphine oxide			69		1.9		

EXTRACTABLE ORGANIC ANALYSIS - AN	ANALYTICAL RESULTS	S					page 7
Vincent Uhl Sample Number	,	BPM-SW-04	BPM-SW-02 (0F)	BPM-SW-03	BPM-SW-01	BPM-SW-04R	BPM-SW-04B
Laboratory Sample Number	1241	91-01	91-02	91-03	91-04	91-05	91-06
Remarks							
Units		µg/L	J/B/I	J/B/I	J/B/f	L/g/L	1/a/L
PESTICIDES	Ouantitation					Replicate	Field
	Limit					of BPM-SW-04	Blank
alpha-BHC	0.05	n.	.011 J	L 600.	'n		
beta-BHC	0.05	Π			'n		
delta-BHC	0.05	'n			In		
gamma-BHC (Lindane)	0.05	In			III		
Heptachlor	0.05	ın			l li		
Aldrin	0.05	ň			In		
Heptachlor Epoxide	0.05	'n			'n		
Endosulfan I	0.05	UL			Ji M		
Dieldrin	0.10	ш			'n		
4,4-DDE	0.10	nr n			'n		
Endrin	0.10	10			ă		
Endosulfan II	0.10	UL			3		
4,4'-DDD	0.10	nr			JN		
Endosulfan Sulfate	0.10	Uľ			'n		
4,4.DDT	0.10	Π			'n		
Methoxychlor	0.50	nr			Ħ		
Endrin Ketone	0.10	nr			5		
Endrin Aldehyde	0.10	NL			Ħ		
alpha-Chlordane	0.05	JI)	. 110.		n		
gamma-Chlordane	0.05	'n			Π		
Тохарнепе	5.00	In			'n		
						-	

CATHACTABLE URBANIC ANALTSIS - ANAL	O . MINELLINAL MESOLIS	,					
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Vincent Uhl Sample Number		BPM-SW-04	BPM-SW-02 (0F)	BPM-SW-03	BPM-SW-01	BPM-SW-04R	BPM-SW-04B
Laboratory Sample Number	1241	91-01	91-02	91-03	91-04	91-05	91-06
Remarks							
Units		/Jall	μg/t.	/lg//	/IB/I	/IB/I	J/Br/
AROCLORS	Ouantitation					Replicate	Field
	Limit (Aq)					of BPM-SW-04	Blank
Aroclor-1016	1.0	10			ដ		
Aroclor-1221	1.0	M			'n		
Aroclor-1232	1.0	10			'n		
Arocior-1242	1.0	'n			In		
Aroclor-1248	1.0	'n			l I		
Aroclor-1254	1.0	10			'n		
Aroclor-1260	1.0	10			UL		
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00	1.00	1.00
Date of Sample Collection		6/1/93	6/1/93	6/1/93	6/1/93	6/1/93	6/1/93
Date Sample Received by Laboratory		6/4/93	6/4/93	6/4/93	6/4/93	6/4/93	6/4/93
Date of Sample Extraction		6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/1/193
Date of Sample Analysis		7/5/93	7/5/93	7/5/93	7/5/93	7/5/93	7/5/93

Vircant UM Sample Number 1241 8PM SD 02 (0F) BPM SD 02 (0F) BPM SD 04 BPM S	lumber BPM-SD-03 umber 1241 umber 1241 92-01 UDS Quantitation Limit 10 10 0L 10 9 J 10 0L 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 hane 10 10 10 hane 10		92.03 92.03 µg/Kg UL 21.J	8PM-SD-05 92-04 µg/Kg UL 21 J	BPM-SD-04 92-05 μg/Kg UL 27 J	BPM-SD-04B 92-06 µg/L Field Blank UL	Trip Blank 92-07 µg/L Trip Blank UL
1241 92-01 92-02 92-03 92-04 BPM-SD-04 BPM-S	umber 1241 92-01 UDS Quantitation 10 UDS 10		92.03 92.03 µg/Kg µul 21.J	92.04 92.04 µg/Kg Ul. 21.J	92-05 92-05 µg/Kg UL 27 J	BPM-SD-04B 92-06 µg/L Field Blank UL 5 J	Trip Blank 92.07 µg/l Trip Blank
E COMPOUNDS μαβ/ξα μ	And the state of t	9/Kg UL 7 J	HglKg UI.	Jugikg UL 21.3	UL OIL 27.3	Field Blank UL UL	Hank Blank UL
E COMPOUNDS Duantitation PURING	ADS Quantitation Limit 10 10 10 10 10 10 10 10 10 10 10 10 10	9/Kg	ul 21 J	ut 21 J	JU UL 27 J	Hield Blank UL 5 J	Lip Trip Blank
E COMPOUNDS Quantitation Limit Field Field uthanee 10 0.1	And the control of th	10 L	UL 21.J	UL 21.J	10 10 27 J	Field Blank UL 5 J	Trip Blank U.L
timit limit Blank ordanee 10 0.0	Himit 10 10 10 10 10 10 10 10 10 10 10 10 10	7.7 LE	UL 21.3	UL 21.3	UL 01.	Blank UL 5 J	Blank
rethane 10	10 10 10 10 10 10 10 10 10 10 10 10 10 1	7.7 P. 2.3	UL 21.J	UL 21.3	10 01 27 J	UL 6 5 J	
thane orida 10	10 10 10 10 10 10 10 10 10 10 10 10 10 1	7.2 LE	21.3	21)	UL 27 J	101	3
hane 10 UL U	10 UL 10 UL 10 9J	01. 5.7. 6.3.	UL 21.J	21.3	UL 27.3	UL 5 J	10
tane 10 UL U	10 UL 10 UL 10 9J 10 10 10 10 10 10 10 10 10 10 10 10 10	7.	21 J	21.7	UL 57.3	101	11
te Chloride 10 UL	10 01 10 9J 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10	7.7	21.J	21.5	UL 27.J	10 2	11
isulfide 10 9J 7J 21J 27J 5J oroethene 10 5J 5J 5J oroethene 10 6J 5J m m 6J	10 9J 10 10 ene 10 10 10 10 10 10 10 10 10 10 10 10 10	L C	21.3	21)	27 J	5]	
isulfide 10 6 orcethene 10 6 orcethene 10 6 -Dichlorosthene 10 6 orcethane 10 6 enecthane 10 6 etrachlorosthane 10 6 etrachlorosthane 10 6 etrachlorosthane 10 6 etrachlorosthane 10 6 ethene 10 6 ethene 10 6 ethene 10 6 chlorosthane 10 6 chlorosthane 10 6 chlorosthane 10 6 chlorosthane 10 6	10 10 10 10 10 10 10 10 10 10 10 10 10 1	7.00				5.1	
oroethene 10 oroethane 10 m 10 m 10 m 10 oroethane 10 chloroethane 10 etrachloride 10 etrachloroethane 10 etrachloroethane 10 chloromethane 10 dichloropropene 10 ethene 10 chloromethane 10 chloroethane 10 chloroethane 10	10 10 10 10 10 10 10 10 10 10 10 10 10 1						
Dichloroethane 10 6 Immage 10 6 oroethane 10 6 chloroethane 10 6 etrachloride 10 6 chloromethane 10 6 chromopropene 10 6 ethene 10 6 chloromethane 10 6 chloroethane 10 6	10 10 10 10 10 10 10 10 10 10 10 10 10 1	7.9					
In the continue of the continue of the continue of the continue of the chief of the ch	10 10 10 10 10 10 10 10 10 10 10 10 10 1	F 9					
In 10 6 oroethane 10 6 chloroethane 10 6 etrachloride 10 6 etrachloroethane 10 6 oropropane 10 6 Oichloropropene 10 6 ethene 10 6 chloromethane 10 6 chloroethane 10 6 chloroethane 10 6	10 10 10 10 10 hane 10	l 9	•				
oroethane chloroethane etrachloride etrachloroethane etrachloroethane oropropane Dichloropropene ethene chloroethane	hane						
chloroethane etrachloride etrachloroethane etrachloroethane oropropane -Dichloropropene ethene chloromethane	le hane						
chloroethane etrachloride shloromethane etrachloroethane oropropane Dichloropropene ethene chloroethane	hane						
etrachloride chromethane etrachloroethane oropropane -Dichloropropene ethene chloromethane	hane						
ctrachloroethane etrachloroethane oropropane Dichloropropene ethene chloroethane							
etrachloroethane oropropane Dichloropropene ethene chloromethane							
oropropane Dichloropropene ethene ihloromethane chloroethane							
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chloromethane							
chloroethane							
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VOLATILE ORGANIC ANALYSIS - ANALYTIC	CAL RESULTS	· ALL SOLIDS	 ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS 	DRY WEIGHT BAS	Sis			page 10
Vincent Uhl Sample Number		BPM-SD-03	BPM-SD-02 (0F)	BPM-SD-01	BPM-SD-05	BPM-SD-04	BPM-SD-04B	Trip Blank
Laboratory Sample Number	1241	92-01	92-02	92-03	92-04	92-05	92-06	92-07
Remarks								
Units		µg/Kg	µg/Kg	L/g/Kg	/ug/Kg	L/g/Kg	ng/L	Ug/L
VOLATILE COMPOUNDS	Quantitation						Field	Trip
	Limit						Blank	Blank
cis-1,3-Dichloropropene	10							
Bromoform	10							
2-Hexanone	10							
4-Methyl-2-Pentanone	10							
Tetrachloroethene	10					4.3		
Toluene	10							
Chlorobenzene	10							
Ethylbenzene	10							
Styrene	10							
Total Xylenes	10				2.3			
Methyl tert-Butyl Ether	10							
Quantitation Limit Multiplier		1.3	1.1	1.4	1.4	1.3	1.0	1.0
Date of Sample Collection		6/1/93	6/1/93	6/1/93	6/1/93	6/1/93	6/1/93	6/1/93
Date Sample Received by Laboratory		6/4/93	6/4/93	6/4/93	6/4/93	6/4/93	6/4/93	6/4/93
Date of Sample Analysis		6/10/93	6/10/93	6/10/93	6/10/93	6/10/93	6/10/93	6/10/93
fraction and the fact that the		7						

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EXTRACTABLE ORGANIC ANALYSIS - AN	IALYTICAL RESU	JLTS - ALL SO	LIDS REPORTED	 ANALYTICAL RESULTS ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS 	BASIS			page 11
Vincent Uhl Sample Number			BPM-SD-03	BPM-SD-02 (0F)	BPM-SD-01	BPM-SD-04	BPM-SD-04DL	BPM-SD-04B
Laboratory Sample Number		1241	92-01	92-02	92-03	92-05	92-0501	92-068
Remarks								
Units			µg/Kg	//g/Kg	µg/Kg	L/g/Kg	∠ua/Ka	1/0/7
SEMIVOLATILE COMPOUNDS	Quantitation	Quantitation						Field
	Limit (Aq)	Limit (Sol)						Blank
Phenol	10	330	IN	10	10	'n	'n	
bis(2-Chloroethyl)ether	10	330						
2-Chlorophenol	10	330	UL	1n	Jn	П	ī	
1,3-Dichlorobenzene	10	330						
1,4-Dichlorobenzene	10	330	UL	٦n	Π	H	'n	
1,2-Dichlorobenzene	10	330						
2-Methylphenol	10	330						
2,2'-oxybis(1-Chloropropane)	10	330						
4-Methylphenol	10	330						
N-Nitroso-di-n-Propylamine	10	330	UL	NF	ä	'n	ä	
Hexachloroethane	10	330						
Nitrobenzene	10	330						
Isophorone	10	330						
2-Nitrophenol	10	330	U					
2,4-Dimethylphenol	10	330						
bis(2-Chloroethoxy)methane	10	330						
2,4-Dichlorophenol	10	330						
1,2,4-Trichlorobenzene	10	330	In	īn	M	15	'n	
Naphthalene	10	330						
4-Chloroaniline	10	330						
Hexachlorobutadiene	10	330						
4-Chloro-3-Methylphenol	10	330	UL	III	'n	'n	5	
2-Methylnaphthalene	10	330						
							T	

EXTRACTABLE ORGANIC ANALYSIS - ANA	· ANALYTICAL RESULTS		LIDS REPORTED	- ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS	BASIS			page 12
Vincent Uhi Sample Number			BPM-SD-03	BPM-SD-02 (0F)	BPM-SD-01	BPM-SD-04	BPM-SD-04DL	BPM-SD-04B
Laboratory Sample Number		1241	92-01	92-02	92-03	92-05	92-05DL	92-06B
Remarks								
Units			µg/Kg	µg/Kg	µg/Kg	μg/Kg	µg/Kg	/Vall.
SEMIYOLATILE COMPOUNDS	Quantitation	Quantitation						Field
	Limit (Aq)	Limit (Sol)					:	Blank
Hexachlorocyclopentadiene	10	330	'n					
2,4,6-Trichlorophenol	10	330						
2,4,5-Trichlorophenol	25	830						•
2-Chloronaphthalene	10	330						
2-Nitroaniline	25	830						
Dimethylphthalate	10	330						
Acenaphthylene	10	330						
2,6-Dinitrotoluene	10	330						
3-Nitroaniline	25	830	'n					
Acenaphthene	10	330	ηſ	nr n	٦n	200 J	U	
2,4-Dinitrophenol	25	830	H			u	UL	U
4-Nitrophenol	25	830	UL	15	UL	U.	UL	
Dibenzofuran	10	330				150 J		
2,4-Dinitrotoluene	10	330	Π	Uľ	'n	U	n	
Diethylphthalate	10	330						
4-Chlorophenyl-phenylether	10	330						
Fluorene	10	330				290 J		
4-Nitroanaline	25	830	Uľ					
4,6-Dinitro-2-Methylphenol	25	830	æ			Uľ.	UL	n.
N-Nitrosodiphenylamine	10	330						
4-Bromophenyl-phenylether	10	330						
Hexachlorobenzene	10	330						
Pentachlorophenol	25	830	æ	8	ж	æ	æ	æ
Phenanthrene	10	330				4500	4800	

01 BPM-SD-04 BPM-SD-04DL APM-SD-04DL APM									
1241 82.01 8PM.SD.02 OP BPM.SD.02 OP BPM.SD.02 OP BPM.SD.03 BPM.SD.04 ▼	IALYTICAL RESI		ILIDS REPORTED	ON A DRY WEIGHT	BASIS			page 13	
F Sample Number 1241 92.01 92.02 92.05 92.05 92.05 92.05 92.05 92.05 92.05 92.05 92.05 92.05 92.05 92.05 100	Vincent Uhl Sample Number			BPM-SD-03	BPM-SD-02 (0F)	BPM-SD-01	BPM-SD-04	BPM-SD-0401	BPM-SD-04B
Time Apply Apply	Laboratory Sample Number		1241	92-01	92.02	92-03	92-05	92-05DL	92-068
Limit IAφ) Limit IAφ) Limit ISφ0 μοί IKφ μοί IKφ μοί IKφ μοί IKφ μοί IKφ μοί Ikφ μοί Ikφο μοί Ikφo μοί Ikφ	Remarks								
of the compounds Quantitation of the compounds Quantitation of the compound of the c	Units			/ug/Kg	/ug/Kg	µg/Kg	₩a/Ka	1/a/Ka	lla//
Dimit (Ap) Limit (Sol) Sign S	SEMIVOLATILE COMPOUNDS	Quantitation	Ouantitation						Field
e 10 330 10 390 1000J phthalate 10 330 79 B 79 B 1700 1100J nee 10 330 79 B 790 B 770 B 1100J nee 10 330 UL UL 280 J 8400 J 8500 J phthalate 10 330 UL UL 280 J 8400 J 8500 J robenzidine 10 330 UL UL 280 J 8500 J 9400 J Inthalate 10 330 UL 280 J 4200 G 4200 G Inthalate 10 330 UL 210 J 4200 G 4200 G Inthalate 10 330 UL 210 J 4200 G 4300 G Inthalate 10 330 UL 210 J 4200 G 4300 G Acatelyliphthalate 10 330 UL 210 J 420 G 4200 G Intentional tention 10 <td></td> <td>Limit (Aq)</td> <td>Limit (Sol)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Blank</td>		Limit (Aq)	Limit (Sol)						Blank
nee 10 330 79 B 1200 1100 J nee 10 330 79 B 780 B 770 B nee 10 330 UL 260 J 8400 J 8500 phthalate 10 330 UL UL 290 J 8500 J 9400 J phthalate 10 330 UL 120 J 420 B 450 B nevaluatione 10 330 UL 290 J 8500 J 450 B nevaluatione 10 330 C 120 J 4200 450 B numbrate 10 330 C 160 J 330 B 4200 4300 J numbrate 10 330 C 10 J 330 J 4200 J 4300 J Acallyprine 10 330 UL 540 J 4200 J 4300 J Acallyprine 10 330 J UL 530 J 4200 J 4300 J Acallyprine 10 330 J	Anthracene	10	330				990	1000	
puthalate 10 330 79 B 770 B nne 10 330 UL 260 J 8400 J 8500 J piputhalate 10 330 UL 290 J 8500 J 9400 J robenzidine 10 330 UL 290 J 8500 J 9400 J robenzidine 10 330 C C 480 B 450 B 450 B robenzidine 10 330 C 10 330 4200 4200 hexylphthalate 10 330 C 10 330 10 4300 noranthene 10 330 C 100 B 4300 4300 rene 10 330 C C 100 B 4300 4300 rene 10 330 C 100 B 100 B 3300 110 J 4200 4300 rene 10 330 L 210 J 4200 4200 4200	Carbazole	10	330				1200	1100 J	
tig 330 UL 280 J 8600 J fighthalate 10 330 UL 290 J 8500 J 9400 J robenzidine 10 330 UL 290 J 8500 J 9400 J robenzidine 10 330 C 480 B 450 B 450 B thexylphthalate 10 330 C 370 B 1400 B 4300 noranthene 10 330 C 370 B 1400 B 4300 rene 10 330 C 210 J 4200 J 4300 coranthene 10 330 C 210 J 4200 J 4300 rene 10 330 C 210 J 4200 J 4300 J rene 10 330 C 210 J 4200 J 4300 J scallpyrene 10 330 UL 530 J 110 J 530 J 110 J scalpyrene 10 330 UL 530 J <t< td=""><td>Di-n-Butylphthalate</td><td>10</td><td>330</td><td></td><td>79 B</td><td></td><td>780 8</td><td>770 B</td><td>5</td></t<>	Di-n-Butylphthalate	10	330		79 B		780 8	770 B	5
piphthalate 10 330 UL 10 290 J 9400 J robenzidine 10 330 UL 10 460 B 450 B intracene 10 330 T 420 4200 4200 intracene 10 330 T 120 J 4200 4200 hexyliphthalate 10 330 T 120 J 4200 4300 intralate 10 330 T 540 4200 4300 intralate 10 330 T 10 10 10 3-cdlyrene 10 330 UL 50 10 10 intral Multiplier 10 330 UL 113 <	Fluoranthene	10	330			260 J	8400 J	8500	
plythblalate 10 330 480 B 450 B robenzidire 10 330 120 J 4200 4200 hexylphthalate 10 330 160 J 3800 4300 horanthene 10 330 540 4200 4300 noranthene 10 330 540 4200 4300 noranthene 10 330 540 4200 4300 noranthene 10 330 540 4200 4300 3-cdpyrene 10 330 110 J 330 110 J 330 3-cdpyrene 10 330 UL 530 J 110 J 330 1800 1800 3-cdpyrene 10 330 UL 530 J 110 J 330 1800 1800 Individue 10 330 UL 530 J 110 J 330 110 J	Pyrene	10	330	nr n	ηΓ	290 J	8500 J	9400 J	
robbanzidire 10 330 120 J 4200 4200 haxyllphthalate 10 330 160 J 4200 4200 hhxyllphthalate 10 330 160 J 370 B 1400 B 1400 B hthalate 10 330 10 540 4200 4300 rene 10 330 10 220 2000 2000 rene 10 330 0,1 220 2000 1600 Jacklpyrene 10 330 0,1 10 350 10 Jacklpyrene 10 330 0,1 2200 2000 100 Jacklpyrene 10 330 0,1 10 200 10 10 Iperylene 10 330 0,1 210 200 200 200 Inderylene 10 330 0,1 220 2.66 5.33 Inderylene 10 330 0,1 2.0 <td< td=""><td>Butylbenzylphthalate</td><td>10</td><td>330</td><td></td><td></td><td></td><td>480 B</td><td>450 B</td><td>'n</td></td<>	Butylbenzylphthalate	10	330				480 B	450 B	'n
nexyllphthalate 10 330 120 J 4200 4200 hexyllphthalate 10 330 160 J 370 B 1400 B 1400 B hthalate 10 330 160 J 3800 4300 4300 rene 10 330 10 210 J 4200 4800 rene 10 330 110 J 2200 2000 2000 3-3-cdlpyrene 10 330 UL 2200 2000 1800 3-3-cdlpyrene 10 330 UL 2200 2000 1800 3-3-cdlpyrene 10 330 UL 2200 2000 1800 3-3-cdlpyrene 10 330 UL 2100 2000 1800 Iperylene 10 330 UL 530 1800 1800 Inderylene 10 330 UL 530 566 5.33 Inderylene 10 330 1.12 1.43	3,3'-Dichlorobenzidine	10	330						
hexyllphthalate 10 330 160 J 3800 4300 ohthalate 10 330 160 J 3800 4300 onthalate 10 330 540 4200 4800 oranthane 10 330 10 2200 2000 rene 10 330 0,1 2200 2000 3-3chlpyrene 10 330 0,1 1900 1800 lanthracene 10 330 0,1 1900 1800 lanthracene 10 330 0,1 2200 2000 shrylene 10 330 0,1 530 0,1 lperylene 10 330 0,1 2100 2000 null finit Multiplier 10 330 1,13 6/1/93 6/1/93 6/1/93 mple Zkraction 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 mple Analysis 10 13/1/93 6/1/93 6/1/93<	Benzo(a)anthracene	10	330			120 J	4200	4200	
Inflate 10 330 160 J 3800 4300 Intralate 10 330 540 4200 4800 Incrementhene 10 330 10 2200 2000 rene 10 330 01 2200 2000 3-3-dlpyrene 10 330 01 1900 1800 Intracene 10 330 01 530 10 Intracene 10 330 01 1900 1800 Intracene 10 330 01 530 01 Iperylene 10 330 01 200 2000 Iperylene 10 330 01 200 200 Iperylene 10 330 01 200 200 Iperylene 10 330 01 01 200 200 Interpretaction 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 Impl	bis(2-Ethylhexyl)phthalate	10	330			370 B	1400 B	1400 B	ă
10 330 540 4800 10 330 210 J 4200 4800 10 330 110 J 3300 2000 2000 10 330 Ul 1900 1800 1800 10 330 Ul 530 J Ul 2100 2000 10 330 Ul 530 J Ul 2100 2000 2000 10 330 1.32 1.12 1.43 2.66 5.33 6/1/93<	Chrysene	10	330			160 J	3800	4300	
10 330 210 J 4200 4800 6000 10 330 110 J 3300 2000 2000 2000 10 330 0,1 110 J 3300 1800 1800 1800 10 330 0,1 0,1 2100 2000 <t< td=""><td>Di-n-Octylphthalate</td><td>10</td><td>330</td><td></td><td></td><td>540</td><td></td><td></td><td></td></t<>	Di-n-Octylphthalate	10	330			540			
10 330 110 J 3300 2000 2000 10 330 UL 110 J 3300 1800 1800 10 330 UL 530 J UL 530 J UL 10 330 UL 2100 2000 2000 2000 10 330 L.12 1.43 2.66 5.33 6/1/93 66/193 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 66/193 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 8 7/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 8 7/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 8 6 7/1/93 6/1/93 6/1/93 6/1/93 6/1/93	Benzo(b)fluoranthene	10	330			210 J	4200	4800	
10 330 110 J 3300 3500 3500 1800 2000 2	Benzo(k)fluoranthene	10	330				2200	2000	
10 330 UL 530 JU 1800 1800 10 330 UL 2100 2000 2000 10 330 L.12 1.43 2.66 5.33 2000 10 1.32 L.12 1.43 2.66 5.33 2000 10 61/193 6/1/193 6/1/193 6/1/193 6/1/193 6/1/193 10 6/1/193 6/1/193 6/1/193 6/1/193 6/1/193 6/1/193 10 6/1/193 6/1/193 6/1/193 6/1/193 6/1/193 10 6/1/193 6/1/193 6/1/193 6/1/193 10 6/1/193 6/1/193 6/1/193 6/1/193 10 6/1/193 6/1/193 6/1/193 6/1/193 10 6/1/193 6/1/193 6/1/193 6/1/193 10 6/1/193 6/1/193 6/1/193 6/1/193 10 6/1/193 6/1/193 6/1/193 6/1/193 10	Benzo(a)pyrene	20	330			110 J	3300	3500	
10 330 UL 530 J UL 10 330 L.12 2100 2000 1.32 1.12 1.43 2.66 5.33 61193 61193 61193 61193 61193 64493 64493 61493 61493 61793 67793 67793 67793 67793 77193 67793 67793 67793 67793 67793	Indeno(1,2,3-cd)pyrene	10	330				1900	1800	
10 330 1.32 1.12 1.43 2.66 5.33 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 7/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93 6/1/93	Dibenz(a,h)anthracene	9	330	UL			530 J	'n	'n
1.32 1.12 1.43 2.66 5.33 61193 61193 61193 61193 64493 64493 61493 64193 67193 617193 617193 617193 713193 6130193 6130193 711193 5972 5972 5972 5972	Benzo(g,h,i)perylene	10	330				2100	2000	
6/1/93 6/1/93<	Quantitation Limit Multiplier			1.32	1.12	1.43	2.66	5.33	1.00
6 4 93 6 4 93<	Date of Sample Collection			6/1/93	6/1/93	6/1/93	6/1/93	6/1/93	6/1/93
In 6/7/93 6/7/93 6/7/93 6/7/93 6/7/93 6/7/93 6/7/93 6/7/93 6/7/93 6/7/93 7/1/93	Date Sample Received by Laboratory			6/4/93	6/4/93	6/4/93	6/4/93	6/4/93	6/4/93
ysis 7/3/93 6/30/93 6/30/93 7/1/93 7/1/93	Date of Sample Extraction			6/7/93	6/7/93	6/7/93	6/7/93	6/7/93	6/7/93
5972 5972 5972 5972	Date of Sample Analysis			7/3/93	6/30/93	6/30/93	7/1/93	7/1/93	7/1/93
	Instrument Used for Analysis			5972	5972	5972	5972	5972	5972

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CLP - TENTATIVELY IDENTIFIED COMPOUNDS - ESTIMA	TED CONCENT	IATED CONCENTRATIONS · ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS	OLIDS REPORTED	ON A DRY WE	IGHT BASIS			page 14
Vincent Uhl Sample Number	BPM-SD-03	BPM-SD-03 BPM-SD-02 (0F)	BPM-SD-01	BPM-SD-05	RPM.Sn.n4	BPW CD 0AB	DOM OF CARE	i i
Laboratory Sample Number 1241		92.02	92-03	92.04	02 OF		Dr.MSU-U4UL Trip Blank	I rip Blank
Remarks					20.70	00-76	37-02DL	37-07
Units	//o/Ka	//alKa	, alka	Nim.	78			
COMPOLINDS	B	ALIBA	Ruind	fulliun.	DV/B/	L/g/l.	µg/Kg	//B//
						Field		
						Blank		- · <u></u>
VOLATILE COMPONENTS							4114	
2-Propanol	16 J.R	19 J.R	11.18			1.1	N/A	
SEMIVOLATILE COMPONENTS				N/A		6		
Unknown (Number of Peaks)	478 (3) J						•	¥¥
1-(Ethenyloxy)-Octadecane	230 J							
1,2-Benzenedicarboxylic Acid			880 J					

1241 92-01 92-02	EATHACTABLE UNBANIC ANALTSIS - AN	ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS	IS - ALL SOLIDS	S REPORTED ON	A DRY WEIGHT BA	VSIS		page 15
Sample Number 1241 9201 9202								
FS ample Number 17 Sample Number 17 Sample Number 17 Sample Number 19 Sample Name 19 Sample Number 19 Sample Name	Vincent Uhi Sample Number			BPM-SD-03	BPM-SD-02 (0F)	BPM-SD-01	BPM-SD-04	RPM-Sn.nar
ES Quantitation Quantitation Limit (Aq) Limit (Sq) Ligh(Gq Ligh(Gq Limit (Sq) Limit (Sq) Limit (Sq) Limit (Sq) Limit (Sq) Linit (Sq)	Laboratory Sample Number		1241	92-01	92-02	92-03	92-05	07.00 m
ES	Remarks						20.70	00-76
ES Duantitation Quantitation Limit (Aq) Limit (Sq) Linit (Sq) Lini	Units			//o/Ka	, milka	- M		
Limit (Aq) Limit (Sol) Linit (Linit Color) Linit (Sol) Linit Color Linit C	PESTICIDES	Ouantitation	Ousntitotion	Builder	Milli	Da/Br/	//g/Kg	7/8∕/
C. (Lindane)		Limit (Aq)	Limit (Sol)					Field
0.05	lpha-BHC	0.05	1.7	=	=			Slank
C (Lindane) 0.05 1.7 UL UL	eta-BHC	0.05	1.7	5 3	5 =	OF CO.		3
C (Lindane) 0.05 1.7 UL UL r 0.05 1.7 UL UL LEpoxide 0.05 1.7 UL UL LEpoxide 0.05 1.7 UL UL LI 0.05 1.7 UL UL LI 0.10 3.3 UL UL LI 0.10 3.3 UL UL LI 0.10 3.3 UL UL II 0.10 3.3 UL UL III 0.10 3.3 UL UL Inne 0.10 3.3 UL UL Inne 0.10 3.3 UL UL Inhyde 0.10 </td <td>elta-BHC</td> <td>0.05</td> <td></td> <td>5</td> <td>101</td> <td>0.58 J</td> <td></td> <td>J)</td>	elta-BHC	0.05		5	101	0.58 J		J)
Companient	amma-RHC (Lindana)	20.0	<u>}</u>	1	TO OF	10		UL
Epoxide	antachlar	0.05	/:	'n	'n	œ		Ħ
0.05 1.7 UL UL	eptacillor	0.05	1.7	ä	UL	JN.		<u> </u> =
Epoxide 0.05 1.7 UL UL 11 0.05 1.7 UL UL 11 0.10 3.3 UL UL 11 0.10 3.3 UL UL 11 0.10 3.30 UL UL 11 0.10 3.3 0.45 B 0.88 B 10r 0.10 3.3 UL UL 10r 0.10 3.3 UL UL 10r 0.10 3.3 UL UL hyde 0.10 3.3 UL UL dane 0.05 1.7 0.37 J 0.83 J ordane 0.05 1.7 UL 0.63 J ordane 0.05 1.7 UL 0.63 J	ulub.	0.05	1.7	3	n.	'n	10	=
1 (1) 0.05 1.7 UL UL 0.10 3.3 UL UL UL 11 0.10 3.3 UL UL UL 11 0.10 3.3 UL UL UL 11 0.10 3.3 UL UL UL 10r 0.10 3.3 UL UL UL 10r 0.10 3.3 UL UL UL hyde 0.10 3.3 UL UL UL dane 0.10 3.3 UL UL UL dane 0.05 1.7 0.37 J 0.83 J UL 5.00 1.7 0.10 11 III III	eptachior Epoxide	0.05	1.7	UL	'n	'n		=
O.10 3.3 UL UL III 0.10 3.3 0.83 B 1.1 B III 0.10 3.3 UL UL Sulfate 0.10 3.3 0.45 B 0.88 B lor 0.10 3.3 UL UL ine 0.10 3.3 UL UL hyde 0.10 3.3 UL UL dane 0.10 3.3 UL UL dane 0.05 1.7 0.37 J 0.83 J ordane 0.05 1.7 UL 0.63 J condane 0.05 1.7 UL 0.63 J	ndosulfan I	0.05	1.7	'n	ı,	5		5 =
O.10 3.3 0.63 B 1.1 B III 0.10 3.3 UL UL Sulfate 0.10 3.3 UL UL lor 0.10 3.3 UL UL lor 0.10 3.3 UR UL hyde 0.10 3.3 UL UL hyde 0.10 3.3 UL UL dane 0.10 3.3 UL UL dane 0.05 1.7 0.37 J 0.83 J ordane 0.05 1.7 UL 0.63 J 5.00 1.7 UL UL III	ieldrin	0.10	3.3	Ħ	5	0.48.1	0 55 -	5 5
III 0.10 3.3 UL UI Sulfate 0.10 3.3 0.45 B 0.88 B Sulfate 0.10 3.3 UL UL lor 0.10 3.3 UL UL hyde 0.10 3.3 UL UL hyde 0.10 3.3 UL UL dane 0.05 1.7 0.37 J 0.83 J ordane 0.05 1.7 UL 0.63 J 5.00 1.7 UL 0.63 J	4-DDE	0.10	3.3	0.83 B	118	11 B	6.50	1 =
III 0.10 3.30 UL UL Sulfate 0.10 3.3 0.45 B 0.88 B lor 0.10 3.3 UL UL lor 0.10 3.3 0.86 B 1.3 B lor 0.10 17 UL UL hyde 0.10 3.3 UL UL dane 0.05 1.7 0.37 J 0.83 J ordane 0.05 1.7 UL 0.63 J condane 0.05 1.7 UL 0.63 J	ıdrin	0.10	3.3	5	=	1 87 0	- 6	3 3
Sulfate 0.10 3.3 0.45 B 0.88 B lor 0.10 3.3 0.1 0.1 lor 0.10 3.3 0.86 B 1.3 B lor 0.10 17 0.1 0.1 hyde 0.10 3.3 0.1 0.1 dane 0.10 3.3 0.1 0.1 ordane 0.05 1.7 0.37 J 0.83 J codane 0.05 1.7 0.1 0.63 J codane 0.05 1.7 0.1 0.63 J	idosulfan il	0.10	3.30	=		20:0	00:1	1
Sulfate 0.10 3.3 UL UL lor 0.10 3.3 0.86 B 1.3 B lor 0.50 17 UL UL hyde 0.10 3.3 UL UL dane 0.05 1.7 0.37 J 0.83 J ordane 0.05 1.7 UL 0.63 J 5.00 1.70 III III	4:-000	0.10	33	0.45 R	J. O.			5
lor 0.10 3.3 0.86 B 1.3 B nne 0.50 17 UL UL hyde 0.10 3.3 UL UL dane 0.05 1.7 0.37 J 0.83 J ordane 0.05 1.7 UL 0.63 J 5.00 170 III III	dosulfan Sulfate	0.10	3.3	2 =	0.00	1.4.7	1.6.	5
lor 0.50 17 UL UL Inse 0.10 3.3 UL UL Inse 0.10 3.3 UL UL dane 0.05 1.7 0.37 J 0.83 J ordane 0.05 1.7 UL 0.63 J 5.00 1.70 III III	4:-DDT	0.10	333	98 B	130	10.5	7.6.7	5
Infe 0.10 3.3 UL UL hyde 0.10 3.3 UL UL dane 0.05 1.7 0.37 J 0.83 J ordane 0.05 1.7 UL 0.63 J 5.00 170 III III	ethoxychlor	0.50	12	200	2	1.7 B	4.0 J	In
hyde 0.10 3.3 UL UL dane 0.05 1.7 0.37 J 0.83 J ordane 0.05 1.7 UL 0.63 J 5.00 170 III III	ıdrin Ketone	01.0	200	3 =	10 :	5	7.2 J	3
dane 0.05 1.7 0.37 J 0.83 J ordane 0.05 1.7 UL 0.63 J 5.00 170 III III	drin Aldehyde	01.0	3.0	5 :	70	3	4.8 J	H)
ordane 0.05 1.7 0.37 J 0.83 J 0.04 0.05 1.7 UL 0.63 J 1.7 UL 0.63 J 1.0	nha Chlordana	0.10	3.3	10	TO .	'n	3.1.5	UL
5.00 170 III III	mma-Chloriana	0.02	<u> </u>	0.37 J	0.83 J	0.60 J	0.62 J	U
5.00	The City dallo	0.05	/-	Th	0.63 J	0.58 J	0.79 J	'n
	xapnene	5.00	170	Π	ฮ	In		=

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS

EXTRACTABLE ORGANIC ANALYSIS - AN	VALYTICAL RESUL	TS - ALL SOLIDS	REPORTED ON	ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS	SIS		page 16
Vincent UHL Sample Number			BPM-SD-03	BPM-SD-02 (0F)	RPM-SD-01	RPM.Sn.n4	RPM CD.04B
Laboratory Sample Number		1241	92-01	92-02	92-03	92.05	07-00-mi 10
Remarks						20.70	00-76
Units			ua/Ka	valKa	//n/Kn	, miKn	lla,
AROCLORS	Quantitation	Quantitation		B	A C	R. Wall	Field
	Limit (Aq)	Limit (Sol)		-			Blank
Aroclor-1016	1.0	33	ă	5	ī		=
Aroclor-1221	1.0	33	5	ä	5		s ≡
Aroclor-1232	1.0	33	ä	In	ı		5 =
Aroclor-1242	1.0	33	'n	lin lin	ä		5
Aroclor-1248	1.0	33	Ы	'n	ă		3
Aroclor-1254	1.0	33	Ħ	ă	5		5 5
Aroclor-1260	1.0	33	UL	'n	in in		Ħ
Quantitation Limit Multiplier			1.32	1.12	1.43	1.35	1.00
Date of Sample Collection			6/1/93	6/1/93	6/1/93	6/1/93	6/1/93
Date Sample Received by Laboratory			6/4/93	6/4/93	6/4/93	6/4/93	6/4/93
Date of Sample Extraction			6/7/93	6/7/93	6/1/93	6/7/93	617193
Date of Sample Analysis			7/5/93	7/5/93	7/5/93	7/5/93	7/5/93

INURGANIC ANALYSIS - ANALYTICAL RE	CAL RESULTS						page 1
Vincent Uhl Sample Number		BPM-SW-04	BPM-SW-02(0F)	BPM-SW-03	BPM-SW-01	BPM-SW-04R	BPM-SW-04B
Laboratory Sample Number	1241	91-01	91-02	91-03	91-04	91-05	91-06
Remarks							
Units		\J8/IL	µg/L	hg/L	Mg/L	7/07/	llon
INORGANIC ELEMENTS	Detection					Replicate	Field
	Limit					of BPM-SW-04	Blank
Aluminum	16.0		282	559	45.4 B		19.2
Antimony	2.4						
Arsenic F	2.6				6.4		
Barium P	0.50	127	8.9	18.6	51.6	127	1.4
Beryllium P	0.80						-
Cadmium	3.3						
Calcium	18.9	61,400	43,300	49,500	81,100	61.400	166
Chromium	9.7		20.8	12.4			
Cobalt	12.6						
Copper	2.6	24.8	16.4	11.58	8.4 B	22.1	2.8
Iron	9.4	4760 J	153 J	256 J	304 J	4800 J	190.1
Lead	1.0	1.9 B	1.8 B	4.38	5.2 B	6.68	7.3
Magnesium P	22.2	17,600	13,900	16,900	25,100	17.600	46.8
Manganese P	1.3	3430	20.5 B	88.1	475	3440	6.5
Mercury	0.20						
Nickel P	13.6						
Potassium	63.3	3400	4750	3890	3080	3380	
Selenium F	2.0	UL	In	'n	3	5	ā
Silver	4.4						
Sodium	19.4	63,500	48,500	42,500	22,200	63,100	114
Thallium	0:20	0.97 J	'n	'n	ij	ัล	ă
Vanadium P	3.7	4.3	5.5		4.7		
Zinc	2.2	95.2	23.18	19.7 B	15.1 B	78.3	7.2
Cyanide C	10.0						

			LL SULIDS REPURTED UN A URY-WEIGHT BASIS	UN A UNITERIOR	BASIS				page 2
Vincent Uhl Sample Number				DOM CD DO	TOTO GO MAN				
Laboratory Sample Number			1241	62 01	Brm-su-uz(ur)	BPM-SD-01	BPM-SD-05	BPM-SD-04	BPM-SD-04B
Percent Solids			1231	75.9%	20-76 88 GW	27-03	32-04	92-05	92-06
Units				70:07 10:07	9,000	62.77a	/4.3%	/4./%	
NORGANIC ELEMENTS		0.455		IIII)/MI	mg/kg	mg/Kg	mg/Kg	mg/Kg	Mall
		Limit (Aa)	Detection Limit (Solid)						Field
Aluminum	Ь	16.0	3.2	2860	1680	3080	2880	E40	Slank
Antimony	Ь	2.4	0.48	ln	'n	3	0007	15	
Arsenic	Ъ	2.6	0.52			2.0	=	3	
	_	0.50	0.10	56.8	41.4	92.8	178	24.6	0.92
		0.80	0.16	0:30			0.30		70.5
	۵	3.3	99.0				2.1.3		
		18.9	3.8	2350	1990	7650	31,700	19,500	108
un.		9.7	1.9		2.4	3.2	1.7	9.5	
	۵	12.6	2.5			4.1			
.er	۵.	2.6	0.52	5.0	8.3	13.6	225	10.3	
	_	9.4	1.9	2650 J	1620 J	5730 J	9030 J	3120 J	31.1 J
		2:	0.20	4.8	7.0	41.8	155	9.3	
	_	22.2	4.4	914	782	3610	2200	9640	28.1
Se		1.3	0.26	630	171	371	1350	460	3.8
Mercury	ج	0.20	0.040						
Nickel		13.6	2.7				6.9		
Potassium		63.3	12.7	115	109	360	21.5	94.8	
		2.0	0.40	'n	UL	ηſ	'n	5	1 5
Silver		4.4	0.88						
		19.4	3.9	76.5 B	63.2 B	63.9 B	77.18	63.18	62.1
Thallium		0.50	0.10	0.33 J	UL	'n	0.30 J	0.21 J	
Vanadium		3.7	0.74	9.2	6.3	9.5	16.5	2.8	
Zinc		2.2	0.44	20.8	21.0	102	650	120	9.6
Cyanide		10.0	0:				Æ		

DATA USABILITY REPORT INITIAL SURFACE-WATER AND SEDIMENT SAMPLES (Collected June 2, 1993)

The data usability qualifiers assigned in the "Quality Assurance Review of the Samples Collected June 2, 1993 for the Baldwin Place Mall Project", dated August 20, 1993 by Environmental Standards, Inc. (ESI), and shown on the validated data spreadsheets are provided on the following pages.

The detection limits for acetone in certain samples should be considered unreliable and positive results for acetone in certain samples should be considered estimated. Acetone is not a constituent of concern at this site, and has been randomly detected in the data sets. This compound is often found as a laboratory artifact, as it appears to be in this data set.

All of the positive results for methylene chloride and several semivolatiles (bis(2-ethylhexyl)ether, di-N-butylphthalate, butylbenzylphthalate) are considered qualitatively questionable ("B") due to their presence in associated blank samples. These compounds are very common laboratory contaminants and evidently appear as such in this data set. Although there was no direct reason to qualify the positive result for di-N-octylphthalate (in BPM-SD-01), this result should also be used with caution (as a probable laboratory contaminant).

The detection limits for certain other semivolatiles may be biased low and positive results considered estimated. The semivolatile PAH consituents, which were found in two sediment samples, (one upstream of the site) are unrelated to the site, and the results are adequate to provide an indication of conditions in these areas.

TICs that have been identified as being similar to those in the blanks and laboratory artifacts (air peaks or solvent fronts) are disregarded.

The detection limits for the pesticides may be biased low (and in one case unreliable) and the positive results considered estimated. Trace-level pesticide results in the samples could not be further qualified or qualified as they met the identification criteria stipulated in the method. However, it was the opinion of the data reviewer that sufficient reasons exist not to consider the pesticide detections as totally reliable (see following pages). The RI Report explicitly discusses the questionable reliability of these trace-level pesticide detections. The primary focus of the RI is on volatile organic compounds and the questionable reliability of the trace-level pesticide results is of interest but is not a consequential issue for the study purposes.

The remainder of the qualifiers pertain to the inorganic parameters, in that the detection limits may be biased low (higher than reported) or unreliable and positive

level presence of some analytes in blanks, positive results for these analytes in certain samples are considered qualitatively questionable ("B"). Inorganics are not constituents of concern at the site, and the data set was adequate to confirm this.

In summary, the site characterization for the RI purposes is not affected by any of the data usability issues identified for this data set.

With respect to data usability, the principal areas of concern include blank contamination, surrogate recoveries, calibrations, matrix spike/matrix spike duplicate recoveries, blank spike recoveries, and poor column agreement. Based on a rigorous review of the data provided, the following organic data qualifiers are offered. It should be noted that the following data usability issues represent an interpretation of the quality control results obtained from the project samples. Validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Organic Data Qualifiers

- Due to the presence of methylene chloride, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, di-n-butylphthalate, butylbenzyl phthalate and bis(2-ethylhexyl)phthalate in the associated field and/or laboratory method blanks, the positive results for methylene chloride in samples BPM-SW-02(OF) and BPM-SW-03, for di-n-butylphthalate in samples BPM-SD-02(OF), BPM-SD-04, and BPM-SD-04DL, for butylbenzylphthalate in samples BPM-SD-04 and BPM-SD-04DL, for 4,4'-DDE and 4,4'-DDT in samples BPM-SD-03, BPM-SD-02(OF), and BPM-SD-01, for 4,4'-DDD in samples BPM-SD-03 and BPM-SD-02(OF) and for bis(2-ethylhexyl)phthalate in samples BPM-SD-01, BPM-SD-04, and BPM-SD-04DL should be considered qualitatively questionable and have been flagged "B" on the data tables.
- Although not qualified due to blank contamination, the positive results for di-noctylphthalate in sample BPM-SD-01 and for acetone in samples BPM-SW-02, BPM-SD03, BPM-SD-02(OF), BPM-SD-01, BPM-SD-05, and BPM-SD-04 should be viewed with
 suspicion. These two compounds are extremely common laboratory and field
 contaminants and were detected in the samples at low levels. If these results are to be
 used for risk assessment purposes, the data user should exercise caution.
- The analysis for acetone in samples BPM-SW-04, BPM-SW-03, BPM-SW-01, BPM-SW-04R, BPM-SW-04B, and Trip Blank (124191-07) and for 2-butanone in samples BPM-SW-04, BPM-SW-02(OF), BPM-SW-03, BPM-SW-01, BPM-SW-04R, BPM-SW-04B, and Trip Blank (124191-07) are unreliable and the "not-detected" results have been flagged "R" on the data tables. In addition, the positive result for acetone in sample BPM-SW-02(OF) should be considered estimated and has been flagged "J" on the data tables. Low response factors (<0.050) were observed for these compounds in the associated initial and continuing calibrations.
- The analysis for pentachlorophenol in samples BPM-SD-03, BPM-SD-02(OF), BPM-SD-01, BPM-SD-04, BPM-SD-04DL, and BPM-SD-04B are unreliable and the "not-detected" results for this compound have been flagged "R" on the data tables. A low response factor (<0.050) was observed in the associated initial calibration.

- The analysis for 4,6-dinitro-2-methylphenol in sample BPM-SD-03 is unreliable and the "not-detected" result has been flagged "R" on the data tables. A low response factor (<0.050) was observed for this compound in the associated continuing calibration.
- The analysis for gamma-BHC in sample BPM-SD-01 should be considered unreliable and the "not-detected" result has been flagged "R" on the sample data table. Large interferences were observed on the chromatograms for the sample. These interferences occured in the retention time windows for gamma-BHC on both columns. The data reviewer has determined that no other compounds were affected (i.e., the interferences were not present in the retention time windows for all other compounds for at least one analytical column).
 - The detection limit for bromomethane in sample BPM-SD-04 may be biased low and the "not-detected" result has been flagged "UL" on the data tables. A low recovery (<70%) was observed in associated MS/MSD samples.
- The positive result for acetone in sample BPM-SD-04 should be considered estimated and has been flagged "J" on the data tables. A high recovery (>130%) was observed for acetone in the associated matrix spike duplicate sample.
 - The positive results for fluoranthene and pyrene in sample BPM-SD-04 have been flagged "J" on the sample data table and should be considered estimated. The instrument levels observed in the raw data for sample BPM-SD-04 were greater than the highest calibration standard concentration.
- The detection limits for all pesticide and Aroclor compounds in samples BPM-SD-04B, BPM-SW-01, BPM-SW-04, BPM-SD-01, BPM-SD-02(OF) and BPM-SD-03 may be biased low and the "not-detected" results for all pesticides and Aroclors have been flagged "UL" on the data tables (unless previously flagged "R"). Likewise, the positive results for any pesticide compounds in the aforementioned samples should be considered estimated and have been flagged "J" on the data tables. Low recoveries were observed for surrogate compounds tetrachloro-m-xylene (TCMX) and/or decachlorobiphenyl (DCB) on both analytical columns.
 - The detection limits for phenol, 2-chlorophenol, 1,4-dichlorobenzene, N-nitroso-di-n-propylamine, 1,2,4-trichlorobenzene, 4-chloro-3-methylphenol, 4-nitrophenol and 2,4-dinitrotoluene in samples BPM-SD-03, BPM-SD-02(OF), BPM-SD-04, and BPM-SD-04DL, for acenaphthene in samples BPM-SD-03, BPM-SD-02(OF), BPM-SD-01, and BPM-SD-04DL and for pyrene in samples BPM-SD-03 and BPM-SD-02(OF) may be biased low and the "not-detected" results have been flagged "UL" on the data tables. In addition, the positive results for acenaphthene in sample BPM-SD-04 and for pyrene in samples BPM-SD-01, BPM-SD-04, and BPM-SD-04DL should be considered estimated and have been flagged "J" on the data tables. Low recoveries (<50%) were observed for these compounds in the associated soil blank spike analysis.
 - The positive results for dieldrin, endrin, 4,4'-DDD, endosulfan sulfate, 4,4'-DDT, methoxychlor, endrin ketone, endrin aldehyde, alpha-chlordane, and gamma-chlordane in sample BPM-SD-04 should be considered estimated and have been flagged "J" on the

data tables. High recoveries (>150%) were observed for DCB in this sample on both analytical columns.

The positive results for acetone in samples BPM-SD-03, BPM-SD-02(OF), BPM-SD-01, BPM-SD-05, and BPM-SD-04 should be considered estimated and have been flagged "J" on the data tables. A high relative standard deviation (>30%) was observed for acetone in the associated initial calibration.

The detection limits for the following compounds in the associated samples may be biased low and the "not-detected" results have been flagged "UL" on the data tables. In addition, the positive result for dibenz(a,h)anthracene in sample BPM-SD-04 should be considered estimated and has been flagged "J" on the data tables. High percent differences (>25%) and sensitivity decreases were observed for these compounds in the associated continuing calibrations.

Compound(s)

methylene chloride

2,4-dinitrophenol

4,6-dinitro-2-methylphenol

di-n-butylphthalate, butylbenzylphthalate, and bis(2-ethylhexyl)phthalate

dibenz(a,h,)anthracene

2-nitrophenol,
hexachlorocyclopentadiene
3-nitroaniline,
4-nitrophenol and
4-nitroaniline

Sample(s) Flagged "UL"

BPM-SD-03, BPM-SD-02(OF), BPM-SD-01, BPM-SD-05, BPM-SD-04, BPM-SD-04B and Trip Blank (124192-07)

BPM-SD-04, BPM-SD-04DL, BPM-SD-04B and BPM-SD-03

BPM-SD-04, BPM-SD-04DL, and BPM-SD-04B

BPM-SD-04B

BPM-SD-04DL, BPM-SD-04B, and BPM-SD-03

BPM-SD-03

The positive results for endrin and dieldrin in samples BPM-SD-01 and BPM-SD-04, for 4,4'-DDT and 4,4'-DDD in samples BPM-SD-03, BPM-SD-02(OF), BPM-SD-01 and BPM-SD-04 and for methoxychlor in sample BPM-SD-04 should be considered estimated and have been flagged "J" on the data tables. High relative percent differences (>25%) were observed for these compounds in the associated continuing calibration INDAM standards on both analytical columns.

The detection limits for aldrin in samples BPM-SD-03, BPM-SD-02(OF), BPM-SD-01 and BPM-SD-04 may be biased low and the "not-detected" results have been flagged "UL" on the data tables. A low recovery (<80%) was observed for aldrin in the associated GPC calibration standard.

Although most of the trace-level pesticide results reported in samples BPM-SD-04, BPM-SD-03, BPM-SD-02(OF), and BPM-SD-01 (not qualified "B" previously) could not be qualified as they met the identification criteria stipulated in the method, these results should be used with extreme caution. Examination of the chromatograms revealed significant chromatographic interferences reminiscent of a large hydrocarbon pattern. Although this multipeak pattern has the shape and intensity characteristic of an Aroclor pattern, these patterns did not provide even a marginal retention time match to Aroclor standards provided. The interferences evident on the chromatograms of the aforementioned samples could easily result in false-positive results. All of the results for the pesticides in the samples are below (some significantly below) the quantitation limit. Trace-levels of most of the pesticides reported are also observed in laboratory instrument blanks at concentrations of approximately 0.01 µg/L. These could not be used to qualify sample results since they were not (nor were required to be) confirmed on a second column. In addition, the percent differences in the concentrations calculated between the two GC columns are significant (as discussed in the next qualifier), with very few exceptions. Based on these issues, it is the opinion of the reviewer that sufficient reasons exist not to consider these pesticide detections as totally reliable. It should be noted that concentrations of 4,4'-DDD, 4,4'-DDE, and 4,4'-DDT were calculated by the laboratory in soil method blank PBLK02 as requested by the data reviewer.

The reported pesticide results in the following samples should be considered estimated and have been flagged "J" on the data tables. High percent differences (>25%) were observed between the concentrations calculated for the two GC columns as follows.

alpha-BHC BPM-SW-02(OF) and BPM-SW-03

4,4'-DDD BPM-SD-03

4,4'-DDT BPM-SD-03, BPM-SD-02(OF), BPM-SD-02 and BPM-SD-04

BPM-SD-04

beta-BHC and 4,4'-DDE BPM-SD-01

endrin, alpha-chlordane, BPM-SD-01 and BPM-SD-04

and dieldrin

endosulfan sulfate, methoxychlor, endrin ketone, endrin aldehyde, and gamma-chlordane

One field replicate pair, BPM-SW-04 (sample) and BPM-SW-04R (replicate), was submitted with this data set. One target analyte, tetrachloroethene, was detected in the volatile fraction with acceptable precision at a level of 1 μ g/L in each sample. Target analytes were not detected in the semivolatile or pesticide/Aroclor fractions.

- It should be noted that, due to levels of fluoranthene and pyrene above the instrument calibration limit in sample BPM-SD-04, the sample was diluted and reanalyzed (BPM-SD-04DL). The results for fluoranthene and pyrene reported in the dilution analysis represent the most accurate quantitations.
- Tentatively Identified Compounds (TICs) have been evaluated and are presented in Section 2. The majority of the TICs appear to be saturated hydrocarbons, laboratory artifacts and unknowns. The data reviewer has identified several TIC peaks as 2-propanol on the sample data tables; these peaks were originally classified as "unknowns." The TIC identified as 4-hydroxy-4-methyl 2-pentanone is an aldol condensation product and a laboratory artifact. Consequently, the results for this compound should be considered rejected and have been flagged "R" on the semivolatile TIC tables. Several trace-level oxygen-containing and chlorinated TICs were observed in some of the project samples. The reported concentrations of all TICs (not previously qualified "R" or "B") should be considered estimated and have been flagged "J" on the TIC tables.
- Per NYSDEC ASP reporting conventions, all positive results below the quantitation limit should be considered estimated and have been flagged "J" on the sample data tables.

With regard to data usability, the principal areas of concern include trace-level contamination in the laboratory and field blanks, pre-and post-digestion matrix spike recoveries, Contract Required Detection Limit (CRDL) standard recoveries, and calibration standard recoveries. Based upon an evaluation of the QC summary information reported by the laboratory, the following inorganic data qualifiers are offered. It should be noted that data usability issues represent an interpretation of the quality control results obtained for the project samples. Quite often, data qualification addresses issues relating to the sample matrix problems. Similarly, the validation guidelines specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Inorganic Data Qualifiers

Due to the presence of lead, aluminum, copper, manganese, sodium, and zinc in the associated laboratory method and/or field blanks, the positive results for lead in samples BPM-SW-04, BPM-SW-02(OF), BPM-SW-03, BPM-SW-01, and BPM-SW-04R, for aluminum in sample BPM-SW-01, for copper in samples BPM-SW-03 and BPM-SW-01, for manganese in sample BPM-SW-02(OF), for sodium in samples BPM-SD-03, BPM-SD-02(OF), BPM-SD-01, BPM-SD-05 and BPM-SD-04 and for zinc in samples BPM-SW-02(OF), BPM-SW-03 and BPM-SW-01 should be considered qualitatively questionable and have been flagged "B" on the data tables.

- The positive results for iron in all samples of this sample delivery group (SDG) should be considered estimated and have been flagged "J" on the data tables. High recoveries (>110%) were observed for iron in all associated initial and continuing calibration standards.
- The positive result for cadmium in sample BPM-SD-05 should be considered estimated and has been flagged "J" on the data tables. High recoveries (>115%) were observed for cadmium in the associated 2× CRDL standard analyses.
- The detection limits for thallium in all samples of this SDG (UHL191) may be biased low and the "not-detected" results have been flagged "UL" on the data tables. Similarly, the positive results for thallium in samples BPM-SW-04, BPM-SD-03, BPM-SD-05 and BPM-SD-04 should be considered estimated and have been flagged "J" on the data tables. A low recovery (<85%) was observed for thallium in the associated CRDL standard.
 - The detection limits for the following samples may be biased low and the "not-detected" results have been flagged "UL" on the data tables. Likewise, the associated positive results in these samples should be considered estimated and have been flagged "J" on the data tables. Low recoveries (>75%) were observed for the analytes in the associated matrix spike (MS) samples.

<u>Analyte</u>	Samples with Biased Detection Limits	Samples with Estimated Concentrations
antimony	BPM-SD-03, BPM-SD-02(OF), BPM-SD-01, BPM-SD-05, and BPM-SD-04	-
selenium	All SDG UHL191 samples	-
thallium	BPM-SD-02(OF) and BPM-SD-01	BPM-SD-03, BPM-SD-05, and BPM-SD-04

- The positive results for thallium in samples BPM-SW-04 and BPM-SD-03 should be considered estimated and have been flagged "J" on the data tables. High recoveries (>115%) were observed for the associated post-digestion spike samples.
- The detection limits for thallium in sample BPM-SW-03 and for selenium in samples BPM-SD-05 and BPM-SD-04 may be biased low and the "not-detected" results have been flagged "UL" on the data tables. In addition, the positive result for thallium in sample BPM-SD-04 should be considered estimated and has been flagged "J" on the data tables. Low recoveries (<85%) were observed for the associated post-digestion spike samples.
- One field replicate pair was collected with samples for this data set, BPM-SW-04 (sample) and BPM-SW-04R (replicate). Both samples were analyzed for total cyanide and total metals. Acceptable precision was displayed by the results for the analytes in the field replicate pair. The table below is a summary of all qualitatively confident results.

		BPM-SW-04R	Relative	
<u>Analyte</u>	<u>BPM-SW-04</u>	(Replicate)	Percent Difference	<u>Notes</u>
barium	$127 \mu g/L$	$127 \mu g/L$	0.0%	1
calcium	$614,000 \mu g/L$	$614,000~\mu \mathrm{g/L}$	0.0%	1
copper	$24.8 \mu g/L$	$22.1 \mu g/L$	11.5%	2
iron	$4760~\mathrm{J}~\mu\mathrm{g/L}$	$4800~\mathrm{J}~\mu\mathrm{g/L}$	0.8%	1
magnesium	$17,600~\mu g/L$	$17,600 \mu g/L$	0.0%	1
manganese	$3430 \mu g/L$	$3440~\mu g/L$	0.3%	1
potassium	$3400~\mu g/L$	$3380~\mu g/L$	0.6%	1
sodium	$63,500 \mu g/L$	$63,100~\mu \mathrm{g/L}$	0.6%	1
thallium	$0.97~\mathrm{J}~\mu\mathrm{g/L}$	$0.5~\mathrm{U}~\mu\mathrm{g/L}$	NC	2
vanadium	$4.3 \mu g/L$	$3.7~\mathrm{U}~\mu\mathrm{g/L}$	NC	2
zinc	$95.2~\mu g/L$	$78.3~\mu g/L$	19.5%	2

NOTES:

U - Analyte was not detected at or above the associated numerical value.

J - Estimated result.

NC - Not calculated; at least one result was less than the IDL.

1 - Acceptable precision; the RPD is within 20%.

Acceptable precision; results are within \pm the contract required detection limit (CRDL).

SAMPLES COLLECTED OCTOBER 15, 1993

VOLATILE ORGANIC ANALYSIS	S										
Vincent Uhl Sample Number	BPM-	SW-8	SW-8B	L-MS	9-MS	6-MS	SD-8	SD-8B	SD-7	9-OS	SD-9
Laboratory Sample Number	129255-	01	02	03	90	05	07	80	66	9	<u>`</u> =
Remarks			Field Blank					Field Blank			
Units		μg/L	µg/L	µg/L	T/gn	µg/L	µg/Kg	µg/L	ue/Ke	ug/Kg	ue/Ke
VOLATILE COMPOUNDS	Quantitation							,	9		99.
	Limit										
Chloromethane	10										
Bromomethane	10						UL	Th			III
Vinyl Chloride	10										
Chloroethane	10										
Methylene Chloride	10										10
Acetone	10	R	R	R	R	8 B	58 J	UL	38		UI.
Carbon Disulfide	10	UL	UL	UL	NF	UL					
1,1-Dichloroethene	10										
1,1-Dichloroethane	10										
Total 1,2-Dichlorethene	10						1				
Chloroform	10										
1,2-Dichloroethane	10										
2-Butanone	10	R	R	R	~	2					
1, 1, 1-Trichloroethane	01							1 J			
Carbon Tetrachloride	10										
Bromodichloromethane	10										
1,2-Dichloropropane	10										
cis-1,3-Dichloropropene	10										
Trichloroethene	10										
Dibromochloromethane	10										
1, 1, 2-Trichloroethane	10										
Benzene	10										
trans-1,3Dichloropropene	10										
Вготобогт	10										
4-Methyl-2-Pentanone	10						UL	ΩΓ	ΠΓ	UL	UL
2-Hexanone	10						nr	UL	UĽ	Tin	UL
Tetrachloroethene	10				2 J						

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VOLATILE ORGANIC ANALYSIS											
Vincent Uhl Sample Number	BPM-	SW-8	SW-8B	L-WS	9-MS	6-MS	SD-8	SD-8B	SD-7	SD-6	SD-9
Laboratory Sample Number	129255-	01	02	03	90	05	07	80	8	01	=
Remarks			Field Blank					Field Blank			
Units		µg/L	µg/L	µg/L	µg/L	µg/L	ug/Kg	ue/L	ug/Kg	ug/Ko	uo/Ko
VOLATILE COMPOUNDS	Quantitation							2	0		00
	Limit										
1, 1, 2, 2-Tetrachloroethane	10										
Toluene	10										
Chlorobenzene	10										
Ethylbenzene	10										
Styrene	10										
Total Xylenes	10										
Methyl tert Butyl Ether	10				8 J	2 J					
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00	1.00	3.70	1.00	2.32	1.22	1.23
Data Sample Collection		10/15/93	10/15/93	10/15/93	10/15/93	10/15/93	10/15/93	10/15/93	10/15/93	10/15/93	10/15/93
Date Sample Received by Laboratory		10/15/93	10/15/93	10/15/93	10/15/93	10/15/93	10/15/93	10/15/93	10/15/93	10/15/93	10/15/93
Date of Sample Analysis		10/21/93	10/21/93	10/21/93	10/21/93	10/21/93	10/21/93	10/21/93	10/22/93	10/22/93	10/21/93
Instrument Used for Analysis		MSD	MSD	MSD	MSD	MSD	MS #1	MS #1	MS #1	MS #1	MS #1

VOLATILE ORGANIC ANALYSIS			
Vincent Uhl Sample Number	BPM-	Trip Blank	
Laboratory Sample Number	129255-	90	
Remarks		Trip Blank	
Units		µg/L	
VOLATILE COMPOUNDS	Quantitation		
	Limit		
Chloromethane	10		
Bromomethane	10		
Vinyl Chloride	10		
Chloroethane	10		
Methylene Chloride	10		
Acetone	10	æ	
Carbon Disulfide	10	UL	
1,1-Dichloroethene	10		
1,1-Dichloroethane	10		
Total 1,2-Dichlorethene	10		
Chloroform	10		
1,2-Dichloroethane	10		
2-Butanone	10	æ	
1,1,1-Trichloroethane	10		
Carbon Tetrachloride	10		
Bromodichloromethane	10		
1,2-Dichloropropane	10		
cis-1,3-Dichloropropene	10		
Trichloroethene	10		
Dibromochloromethane	10		
1,1,2-Trichloroethane	10		
Benzene	10		
trans-1,3Dichloropropene	10		
Bromoform	10		
4-Methyl-2-Pentanone	10		
2-Hexanone	01		
Tetrachloroethene	10		

and the second

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	BPM- Trip Blank	129255- 06	Trip Blank	μg/L	Quantitation	Limit	10	10	10	10	10	10	10	1.00	10/15/93	10/15/93	10/21/93	MSD
VOLATILE ORGANIC ANALYSIS	Vincent Uhl Sample Number B	Laboratory Sample Number 12	Remarks	Units	VOLATILE COMPOUNDS Quar	1	1,1,2,2-Tetrachloroethane	Toluene	Chlorobenzene	Ethylbenzene	Styrene	Total Xylenes	Methyl tert Butyl Ether	Quantitation Limit Multiplier	Data Sample Collection	Date Sample Received by Laboratory	Date of Sample Analysis	Instrument Used for Analysis

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CLP - TENTATIVELY IDENTIFIED COMPOUNDS	OMPOUNDS										
Vincent Uhl Sample Number BPM-	- SW-8	SW-08B	SW-7	9-MS	6-MS	SD-8	SD-8B	SD-7	9-QS	SD-9	SD-9 Trip Blank
Laboratory Sample Number 129255-	S - 01	02	03	04	05	07	80	8	2	11	8
Remarks		Field Blank					Field Blank				Trip Blank
Units	µg/L	μg/L	µg/L	µg/L	µg/L	ив/Кв	µg/L	ид/Ке	ug/Kg	ug/Kg	1/611
						ĺ		2	3		
VOLATILE COMPONENTS											
Blank Contamination	620 B	570 B	510 B	570 B	590 B	250 B	24 B	140 B	140 B 66 (2) B	15 B	610 B
Unknown								14.1			

DATA USABILITY REPORT SUPPLEMENTAL SURFACE-WATER AND SEDIMENT SAMPLES (Collected October 15, 1993)

The data usability qualifiers assigned in the "Quality Assurance Review of the Samples Collected October 15, 1993 for the Baldwin Place Mall Project", dated December 7, 1993 by Environmental Standards, Inc. (ESI), and shown on the validated data spreadsheets are provided on the following pages.

The detection limits for acetone in certain samples should be considered unreliable or may be higher than reported and positive results for acetone in certain samples should be considered estimated. Acetone is not a constituent of concern at this site, and has been randomly detected in the data sets. In addition, associated blank samples contained low acetone concentrations. This compound is often found as a laboratory artifact, as it appears to be in this data set. A positive result for methylene chloride (9J ug/Kg in BPM-SD-09), another common laboratory contaminant, should also be used with caution (as a probable laboratory artifact).

The remainder of the data qualifiers pertain to the detection limits for 2-butanone, carbon disulfide, 4-methyl-2-pentanone, 2-hexanone and bromomethane in certain samples which should be considered unreliable or may be biased low. These compounds are not constituents of concern at the site and have not been detected in the site media.

TICs that have been identified as being similar to those in the blanks and laboratory artifacts (air peaks or solvent fronts) are disregarded.

In summary, the site characterization is not affected by any of the data usability issues identified for this data set.

With respect to data usability, the principal areas of concern include blank contamination, calibration issues, and tentatively identified compounds. Based on a rigorous review of the data provided, the following organic data qualifiers are offered. It should be noted that the following data usability issues represent an interpretation of the quality control results obtained from the project samples. Validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Organic Data Qualifiers

- Due to the presence of acetone in the associated laboratory method blanks, the positive result for acetone in sample BPM-SW-9 should be considered qualitatively questionable and has been flagged "B" on the data tables.
- Although not qualified due to blank contamination, the positive results for acetone in samples BPM-SD-8 and BPM-SD-7 and for methylene chloride in sample BPM-SD-9 should be used with caution. These two compounds are extremely common laboratory and field contaminants and were detected in the samples at low levels. If these results are to be used for risk assessment purposes, the data user should exercise caution. It should be noted that the levels of acetone reported in the two samples were just slightly higher than the upper limit for qualifying the data "B" due to blank contamination.
- The analysis for acetone in samples BPM-SW-8, BPM-SW-8B, BPM-SW-7, BPM-SW-6 and Trip Blank (129255-06) and for 2-butanone in samples BPM-SW-8, BPM-SW-8B, BPM-SW-7, BPM-SW-6, BPM-SW-9 and Trip Blank (129255-06) should be considered unreliable and the "not-detected" results have been flagged "R" on the data tables. Low relative response factors (<0.050) were observed for these compounds in the initial and continuing calibrations associated with the aforementioned samples.
- The detection limits for the following compounds in the associated samples may be biased low and the "not-detected" results have been flagged "UL" on the data tables. In addition, the positive result for acetone in sample BPM-SD-8 should be considered estimated and has been flagged "J" on the data tables. High percent differences (>25%) in the direction of sensitivity decreases were observed for these compounds in the associated continuing calibrations.

Sample(s) Flagged "UL"

carbon disulfide

BPM-SW-8, BPM-SW-8B, BPM-SW-7, BPM-SW-6, BPM-SW-9 and Trip Blank

4-methyl-2-pentanone and 2-hexanone

BPM-SD-8, BPM-SD-8B, BPM-SD-7, BPM-SD-6 and BPM-SD-9

bromomethane

BPM-SD-8, BPM-SD-8B, and BPM-SD-9

Compound(s)

Sample(s) Flagged "UL"

acetone

BPM-SD-8B and BPM-SD-9

- Tentatively Identified Compounds (TICs) have been evaluated and are presented in Section 2. The reported presence of all TICs should be considered questionable and have been flagged "B" on the TIC tables due to similar chromatographic peaks observed in the field, trip and method blanks with the exception of the TIC observed in sample BPM-SD-7 (reported concentration of $14 \mu g/Kg$). This TIC, labelled as an unknown compound, has been qualified as estimated ("J") on the sample data tables because the assumed response factor was 1.0 in the calculation of the concentration.
- Per NYSDEC ASP reporting conventions, all positive results below the quantitation limit should be considered estimated and have been flagged "J" on the sample data tables.

SAMPLES COLLECTED DECEMBER 9, 1993

VOLATILE ORGANIC ANALYSIS						
Vincent Uhl Sample Number		SW-11	SW-10	11-QS	SD-10	Trip Blank
Laboratory Sample Number	131257-	01	02	03	04	92
Remarks						
Units		hg/L	μg/L	gX/g <i>r</i> /	µg/Kg	rug/L
VOLATILE COMPOUNDS	Quantitation					
	Limit					
Chloromethane	10					
Bromomethane	10			10	70	
Vinyl Chloride	10					
Chloroethane	10					
Methylene Chloride	10					
Acetone	10	æ	В		f 8	æ
Carbon Disulfide	10					
1,1-Dichloroethene	10					
1,1-Dichloroethane	10					
Total 1,2-Dichloroethene	10					
Chloroform	10					
1,2-Dichloroethane	10					
2-Butanone	10	æ	æ			В
1,1,1-Trichloroethane	10					
Carbon Tetrachloride	10					
Bromodichloromethane	10	,				
1,1,2,2-Tetrachloroethane	10					
1,2-Dichloropropane	10					
trans-1,3-Dichloropropene	10					
Trichloroethene	10					
Dibromochloromethane	10					
1,1,2-Trichloroethane	10					
Benzene	10					
cis-1,3-Dichloropropene	10					
Bromoform	10					
2-Hexanone	10					
4-Methyl-2-Pentanone	10					
Tetrachioroethene	10		1.3		4.3	

VOLATILE ORGANIC ANALYSIS						
Vincent Uhl Sample Number		SW-11	SW-10	SD-11	SD-10	Trip Blank
Laboratory Sample Number	131257.	01	02	03	04	05
Remarks						
Units		/lg/r	1/8r/	/ug/Kg	/ug/Kg	/ug/L
VOLATILE COMPOUNDS	Quantitation					
	Limit					
Toluene	10					
Chlorobenzene	10					
Ethylbenzene	10					
Styrene	10					
Total Xylenes	10					
Methyl tert-Butyl Ether	10					
Quantitation Limit Multiplier		1.00	1.00	1.15	1.12	1.00
Date of Sample Collection		12/9/93	12/9/93	12/9/93	12/9/93	12/9/93
Date Sample Received by Laboratory	ry	12/9/93	12/9/93	12/9/93	12/9/93	12/9/93
Date of Sample Analysis		12/13/93	12/13/93	12/15/93	12/15/93	12/13/93
Instrument Used for Analysis		MSD	MSD	MS#1	MS#1	MSD

Vincent Uhl Sample Number	SW-11	SW-10	SD-11	SD-10	Trip Blank
Laboratory Sample Number 131257-	01	02	03	90	Trip Blank
Remarks					
Units	J/B/f	J/B/L	L/g/Kg	L/g/Kg	7/B/7
VOLATILE COMPOUNDS					
Laboratory Artifact	580 R	570 R			610 R
Blank Contamination			158	19 B	
Unknown				L/	

DATA USABILITY REPORT SUPPLEMENTAL SURFACE-WATER AND SEDIMENT SAMPLES

(Collected December 9, 1993)

The data usability qualifiers assigned in the "Quality Assurance Review of the Samples Collected December 9, 1993 for the Baldwin Place Mall Project", dated January 14, 1993 by Environmental Standards, Inc. (ESI), and shown on the validated data spreadsheets are provided on the following pages.

The detection limits for acetone in certain samples should be considered unreliable. Acetone is not a constituent of concern at this site, and has been randomly detected in the data sets. This compound is often found as a laboratory artifact, as it appears to be in this data set.

The remainder of the data qualifiers pertain to the detection limits for 2-butanone, and bromomethane in certain samples which should be considered unreliable or may be biased low. These compounds are not constituents of concern at the site and have not been detected in the site media.

TICs that have been identified as being similar to those in the blanks and laboratory artifacts (air peaks or solvent fronts) are disregarded.

In summary, the site characterization is not affected by any of the data usability issues identified for this data set.

With respect to data usability, the principal areas of concern include blank contamination, calibration issues, and tentatively identified compounds. Based on a rigorous review of the data provided, the following organic data qualifiers are offered. It should be noted that the following data usability issues represent an interpretation of the quality control results obtained from the project samples. Validation guidelines routinely specify areas of the data that require qualification, yet the methods used for analysis do not require any corrective action by the laboratory. Accordingly, the following data usability issues should not necessarily be construed as an indication of laboratory performance.

Organic Data Qualifiers

- Although not qualified due to blank contamination, the positive result for acetone in samples SD-10 should be used with caution. Acetone is an extremely common laboratory and field contaminant and was detected in the sample at a low level (8 μ g/Kg). If this result is to be used for risk assessment purposes, the data user should exercise caution.
- The analyses for acetone and 2-butanone in samples SW-10, SW-11, and Trip Blank (131257-05) should be considered unreliable and the "not-detected" results have been flagged "R" on the data tables. Low relative response factors (<0.050) were observed for these compounds in the initial and continuing calibrations associated with the aforementioned samples.
- The detection limits for bromomethane in samples SD-10 and SD-11 may be biased low and the "not-detected" results have been flagged "UL" on the data tables. A high percent difference (>25%) in the direction of a decrease in instrument sensitivity was observed for the compound in the continuing calibration analysis associated with the samples.
- Tentatively Identified Compounds (TICs) have been evaluated and are presented in Section 2. All TICs were determined to be laboratory artifacts (air peaks; flagged "R" on the sample data tables) or blank contamination in the trip and method blanks (flagged "B" on the sample data tables) with the exception of the TIC observed in sample SD-10 (reported concentration of $7 \mu g/Kg$). This TIC, labelled as an unknown compound, has been qualified as estimated ("J") on the sample data tables because the assumed response factor was 1.0 in the calculation of the concentration.
- Per NYSDEC ASP reporting conventions, all positive results below the quantitation limit should be considered estimated and have been flagged "J" on the sample data tables.

APPENDIX C

FIELD RECONNAISSANCE: NOTES ON TOPOGRAPHY, GEOLOGY AND SURFACE DRAINAGE FEATURES

APPENDIX C

FIELD RECONNAISSANCE: NOTES ON TOPOGRAPHY, GEOLOGY AND SURFACE DRAINAGE FEATURES

Field reconnaissance tours were conducted on December 12, 1992, March 10, 1993, and November 11, 1993 to compile information regarding the topography, geology and surface drainage features on and in the vicinity of the BPM property.

In addition, an inspection of the interior and exterior areas of the BPM Dry Cleaners was conducted on March 10, 1993.

Topography

The BPM is located at the intersection of Route 118 and Route 6 at the northern edge of the Town of Somers, New York in northern Westchester County. The BPM is bound on the north by Route 118 and on the northwest by Route 6. An undeveloped property lies south of the BPM and to the east lies an abandoned railroad embankment and Meadow Park Road. A natural gas utility right-of-way passes southeast of the BPM property.

The BPM is situated on a relatively flat paved parcel of land approximately 600 feet above mean sea level (amsl) (USGS Topographic Map Mohegan Lake Quadrangle). The paved land surface on the BPM property gently rises from south to north. An elevation of approximately 620 feet amsl is recorded along the extreme northern portion of the property. The topography of the undeveloped land immediately southwest of the BPM is relatively flat and similar to the onsite topography although published USGS maps depict a 45-foot rise in the topography within this area. This undeveloped area southwest of the BPM may have been altered as a result VINCENT UHL ASSOCIATES

of activities associated with the mall construction. To the east of the BPM, the topography remains relatively similar between the BPM and Meadow Park Road. There is, however, an approximately 10 to 20-foot high railroad embankment to the east between the BPM and Meadow Park Road. Two shallow stream channels parallel the railroad embankment. To the west and northwest of the BPM the topography decreases within a tributary stream channel (western stream) to the Muscoot River Valley.

Surface Drainage Features

Two distinct drainage pathways are present within the immediate surroundings of the BPM. To the east an unnamed shallow stream channel which is parallel to and bisected by the abandoned railroad embankment flows from north to south (eastern stream). Several ponds are present within this stream pathway. This stream originates slightly northeast of the BPM where it is conveyed under Route 118. secondary stream channels were noted to enter this stream within the immediate area of the BPM, however the two parallel stream channels are physically connected beneath a abandoned railroad bridge east of the BPM sewage treatment plant and sand filters. On December 12, 1992 water was within the entire length of the channel observed investigated. Subsequent observations during other periods indicated the stream was dry and appears to lose flow to the underlying groundwater system within the reach south of Staff Gauge SG-1 to slightly south of Staff Gauge SG-2. Base flow was measured within this stream on June 8, 1993 at both the upstream (SG-1) location and the midstream (SG-2) location with a Baski cutthroat flume. At the upstream location (SG-1), flow was measured at 4.5 gallons per minute and at the midstream (SG-2) location flow was (mqp), measured at 1.5 gpm.

The stream channel upstream of the BPM measured 1.5 feet in width with approximately 0.2 feet of water within the stream on June 2, 1993. Midstream, east and north of the railroad bridge, at the SG-2 location, the stream channel measured 2 feet wide with 0.5 feet of water within the channel on June 2, 1993.

Granitic boulders were noted within this stream channel in the area east of the BPM sewage treatment plant. Debris consisting of construction material and other types of discarded material such as oil cans were also observed in this stream channel. The debris was noted within the channel along the east side of the railroad embankment and within the channel which connects these two parallel streams beneath the abandoned railroad bridge.

To the northwest directly across Route 6 from the BPM property, an unnamed tributary channel to the Muscoot River is present (western stream). The stream originates on the BPM property and is conveyed under Route 6 where it enters the stream channel from a conduit "outfall" on the north side of Route 6, south of the P.J.'s Restaurant parking lot. This tributary flows in a northwest direction to an unnamed pond approximately 1,300 feet northwest of the BPM property. this location is moderately stream channel at A steep-sided embankment is present along the entrenched. northern side of the channel which rises approximately 40 feet (estimated) to the "P.J.'s" Restaurant parking lot. discarded washing machines, Debris consisting of refrigerators and other discarded material was observed within the stream channel and along the sides of the embankment. Granitic boulders are also present within the stream channel and along its banks. Also a petroleum odor was noticed in the stream channel in the vicinity of Staff Gauge SG-5.

A third drainage channel was also noted southeast of the BPM which paralleled the natural gas utility right-of-way. A portion of the flow within this channel flowed from east to west originating at a relative topographic high along the right-of-way southeast of the MW-2 cluster. To the north of this relative topographic high the drainage flows northwest into a broad wetland area directly behind the MW-2 cluster. The drainage in this area is the headwaters of the western stream. Within the drainage channel between the relative topographic high and the MW-2 cluster, granitic boulders were observed. Debris was also observed in the unpaved area near MW-2.

In addition to these drainage channels, a small drainage channel was also observed at the intersection of Route 6 and Baldwin Place Road northwest of the BPM and south of the Citgo service station. Flow in this channel is in a westerly direction to the western stream.

During the field reconnaissance conducted on November 11, 1993, groundwater seepage was observed originating from the hillside directly west of the MacDonalds Restaurant and south of the BPM paved parking lot (in the vicinity of the MW-9S/MW-9D well cluster). These seepage points discharge to a drainageway that parallels the south side of Route 6. The drainageway conveys the seepage water and surface runoff from these areas to a culvert that passes under Route 6, slightly east of the Texaco (former Sunoco) service station.

Wetlands

A wetland area was observed within the northeastern area of the BPM property. The wetland covers an area extending north of the BPM sewage treatment plant east of the paved area behind the BPM. In addition standing water was also observed within this area and at times the standing

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water extends as far south as the MW-3 cluster location. Another wetland area (offsite at the edge of the BPM property) was also observed adjacent to the Monitoring Well MW-2 cluster.

Geologic Mapping

Bedrock exposures were not evident within the immediate vicinity of the BPM either along roads, stream channels or within any of the other areas investigated. As mentioned in the preceding section, granitic boulders were noted to be present in the stream channels. The only bedrock exposure found within the vicinity of the BPM occurs along Route 6 approximately 2 miles to the southwest. The exposed bedrock consisted of granitic gneiss, which appeared blocky with major partings of the rock occurring along bedding planes. Very few vertical fractures were observed. The mineral assemblage within the rock consisted of milky white quartz and pink feldspars. Six sets of strike and dip orientations were measured along this outcrop and are tabulated below:

Strike	Dip Direction	Dip Angle
N30E	N60W	3 Degrees
N35E	N35W	11 Degrees
N65E	N25W	28 Degrees
N35E	N55W	8 Degrees
N20E	N70W	28 Degrees
N40E	N55W	20 Degrees

Along Route 6, approximately 1000 feet to the northeast, another bedrock outcrop was observed during the field reconnaissance conducted on November 11, 1993. This bedrock outcrop consists of granitic gneiss comprised predominantly of pink feldspars. The outcrop appears as a distinct color change with respect to the bedrock exposure 1000 feet to the southwest along Route 6.

VINCENT UHL ASSOCIATES

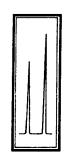
Interior and Exterior Investigation of Sal's Dry Cleaners

On March 13, 1993 the interior and exterior areas of the BPM Dry Cleaners were inspected. Within the interior of the dry cleaner, the dry cleaning unit was observed along the south wall. Adjacent to the dry cleaning unit, two 25 gallon, empty PCE drums were observed. Adjacent to these two drums, one 55 gallon PCE drum was also observed. floor area around the dry cleaning unit appeared intact although "deterioration" of the tile flooring was observed. There were no stains or other evidence of spillage. "boiler room" in back of the dry cleaner was also inspected. Access to this room is made by exiting the rear door of the An empty PCE drum was observed in the dry cleaner. northwest corner of this room. A vertical pipe cut near slab level was observed within this room approximately 3 This pipe is reportedly feet from the northwest wall. connected to the wastewater treatment plant (personnel communication on 3/10/93 with the BPM facility custodian)

APPENDIX D

SHALLOW SOIL GAS INVESTIGATION REPORT (TRACER RESEARCH CORPORATION)

Tracer Research Corporation

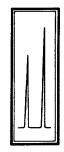


Shallow Soil Gas Investigation

BALDWIN PLACE MALL Somers, New York

January 20-22, 1993





Shallow Soil Gas Investigation

BALDWIN PLACE MALL Somers, New York

January 20-22, 1993

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2-93-021-S



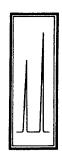


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1.0	BALDWIN PLACE MALL SITE INVESTIGATION	

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1.0 BALDWIN PLACE MALL SITE INVESTIGATION

Tracer Research Corporation (Tracer Research) performed a shallow soil gas investigation in the vicinity of the dry cleaning establishment that is located in the Baldwin Place Mall in Somers, New York. The investigation was conducted January 20 through 22, 1993 under the direction of Vincent Uhl Associates of Washington Crossing, Pennsylvania.

1.1 Objective

The purpose of the investigation was to determine the extent of possible soil contamination by screening the shallow soil gas for the presence of volatile organic compounds (VOCs). The soil gas samples were collected and analyzed for the following analyte classes and compounds:

Analyte Class: Halocarbon

tetrachloroethene (PCE) trichloroethene (TCE) methylene chloride (CH₂Cl₂)

Analyte Class: Hydrocarbon

benzene, toluene, ethylbenzene, xylenes (BTEX) total volatile hydrocarbons (TVHC)

1.2 Overview of Results

For this investigation, thirty-nine samples were collected from thirty-nine sampling locations. Samples were collected at depths of 10 inches to 2 feet below ground surface (bgs). Samples were collected at depths less than the Tracer Research minimum sampling depth requirement of 18 inches due to high vacuum at location SG-31 and shallow groundwater encountered at location SG-33. A summary of the results of the investigation is presented in Table 1.





Table 1. Soil Gas Sample Summary

Compound	# of samples in which compound was detected	Low conc. µg/L	High conc. µg/L	Sample(s) with high conc.
benzene	7	0.06	0.5	SG-26-2'
toluene	8	0.1	9	SG-13-2'
ethylbenzene	0	NA	NA	NA
xylenes	0	NA	NA	NA
TVHC	32	0.5	2,900	SG-38-1.5'
CH ₂ Cl ₂	0	NA	NA	NA
TCE	23	0.0008	5	SG-09-2'
PCE	38	0.0008	370	SG-01-2'

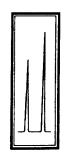
NA = Not Applicable

2.0 SITE DESCRIPTION

The soil gas samples were collected from behind the portion of the building in the Baldwin Place Mall that houses the dry cleaning establishment. All of the sampling locations were through asphalt.

Vincent Uhl Associates field representative reported that the subsurface of the site consists of glacial till over gneiss bedrock. The depth to groundwater was 2-3 feet bgs. The shallow groundwater flow in the investigation area is to the southeast.





3.0 SOIL GAS SAMPLING PARAMETERS

Soil gas sampling probes consisted of 7-foot lengths of 3/4-inch diameter hollow steel pipe. The probes were fitted with detachable drive tips and hydraulically pushed and/or pounded to depths of 10 inches to 2 feet bgs. An electric rotary hammer drill was used to drill holes through the asphalt.

The aboveground end of each probe was fitted with an aluminum reducer (manifold) and a length of polyethylene tubing leading to a vacuum pump. Soil gas was pulled by the vacuum pump into the probe. Samples were collected in a syringe by inserting a syringe needle through a silicone rubber segment in the evacuation line and down into the steel probe. The vacuum was monitored by a vacuum gauge to ensure an adequate gas flow from the vadose zone was maintained.

The volume of air within the probe was purged by evacuating 2 to 5 probe volumes of gas. The evacuation time in minutes versus the vacuum in inches of mercury (Hg) was used to calculate the necessary evacuation time. The vacuum in inches Hg was recorded at each sampling location.

Sample probe vacuums ranged from 2 to 10 inches Hg. The vacuum capacity of the pump was approximately 23 inches Hg.

4.0 ANALYTICAL PARAMETERS

During this investigation, 3 to 10 milliliters (mL) of soil gas were collected for each sample and immediately analyzed in the Tracer Research analytical van. Subsamples (replicates) from these samples were injected into the gas chromatograph (GC) in volumes of 1 to 1000 microliters (μ L). The samples from locations SG-1, SG-3, and SG-4 had to be diluted to effective injection volumes of 0.01 to 0.5 μ L due to high halocarbon concentrations.

Analytical instruments were calibrated daily using fresh working standards made from National Institute of Sciences and Technology (NIST) traceable standards and reagent blanked solvents.





4.1 Chromatographic System

A Hewlett Packard 5890 Series II gas chromatograph, equipped with a flame ionization detector (FID), an electron capture detector (ECD), and two computing integrators, was used for the soil gas analyses. The compounds were separated in the GC on two 6 foot by 1/8 inch outer diameter (OD) packed analytical columns (10% OV101 stationary phase bonded to 80/100 mesh Chromosorb W support) in a temperature controlled oven. The hydrocarbons were detected on the FID and the halocarbons were detected on the ECD. Nitrogen was used as the carrier gas.

The instrument calibrations were checked periodically throughout the day to monitor the response factor and retention time. The following paragraphs explain the GC, FID, and ECD processes.

GC Process

The soil gas is injected into the GC where it is swept through the analytical column by the carrier gas. The detector senses the presence of a component different from the carrier gas and converts that information to an electrical signal. The components of the sample pass through the column at different rates, according to their individual properties, and are detected by the detector. Compounds are identified by the time it takes them to pass through the column (retention time).

FID Process

The FID utilizes a flame produced by the combustion of hydrogen and air. When a component, which has been separated on the GC analytical column, is introduced into the flame, a large increase in ions occurs. A collector with a polarizing voltage is applied near the flame and the ions are attracted and produce a current, which is proportional to the amount of the sample compound in the flame. The electrical current causes the computing integrator to record a peak on a chromatogram. By measuring the area of the peak and comparing that area to the integrator response of a known aqueous standard, the concentration of the analyte in the sample is determined.





ECD Process

The ECD captures low energy thermal electrons that have been ionized by beta particles. The flow of these captured electrons into an electrode produces a small current, which is collected and measured. When the halogen atoms (halocarbons) are introduced into the detector, electrons that would otherwise be collected at the electrode are captured by the sample, resulting in decreased current. The current causes the computing integrator to record a peak on a chromatogram. The area of the peak is compared to the peak generated by a known standard to determine the concentration of the analyte.

4.2 Analyses

The detection limits for target compounds depend on the sensitivity of the detector to the individual compound as well as the volume of the sample injection. The detection limits of the target compounds were calculated from the response factor, the sample injection size, and the calculated minimum peak size (area) observed under the conditions of the analyses. If any compound was not detected in an analysis, the detection limit is given as a "less than" value, e.g., $<0.01 \mu g/L$. The approximate detection limits for the target compounds are presented in Table 2.



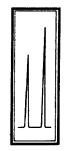


Table 2. Detection Limits for Target Compounds

Compound	Detection Limits (µg/L)
benzene	0.04
toluene	0.1
ethylbenzene	0.2
xylenes	0.3
TVHC	0.3
CH ₂ Cl ₂	0.03
TCE	0.0008
PCE	0.0005

5.0 QUALITY ASSURANCE AND QUALITY CONTROL

Tracer Research's Quality Assurance (QA) and Quality Control (QC) program was followed to maintain data that was reproducible through the investigation. An overview presenting the significant aspects of this program is presented below.

Soil Gas Sampling Quality Assurance

To ensure consistent collection of samples, the following procedures are performed:

- Sampling Manifolds

Tracer Research's custom designed sampling manifold connects the sample probe to the vacuum line and pump. The manifold is designed to eliminate sample exposure to the polymeric (plastic) materials that connect the probe to the vacuum pump.

The sampling manifold is attached to the end of the probe, forming an air tight union between the probe and the silicone tubing septum. The septum connects the manifold to the pump vacuum line and permits syringe sampling.





This sampling system allows the sample to be taken upstream of the sampling pump, manifold, and septum. Since cross contamination of sampling equipment can be a major problem, Tracer Research replaces the materials (probe and syringe), between sampling points, that contact the soil gas before or during sampling.

-Sampling Probes

Steel probes are used only once each day. To eliminate the possibility of cross contamination, they are washed with high pressure soap and hot water spray, or steam-cleaned. Enough sampling probes are carried on each van to avoid the need to re-use any during the day.

-Glass Syringes

Glass syringes are used for only one sample a day and are washed and baked out at night. If they must be used twice, they are purged with carrier gas (nitrogen) and baked out between probe samplings.

-Sampling Efficiency

Soil gas pumping is monitored by a vacuum gauge to ensure that an adequate flow of gas from the soil is maintained. A reliable gas sample can be obtained if the sample vacuum gauge reading is at least 2 inches Hg less than the maximum measured vacuum of the vacuum pump.

Analytical Quality Assurance Samples

Quality assurance samples are performed at the minimum frequencies listed in Table 3. The actual frequency depends on the number of samples analyzed each day and the length of time of the survey.



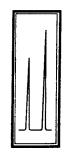


Table 3. Quality Assurance Samples

Sample type	Frequency		
Ambient Air Samples	3 per day or 1 per site		
Analytical Method Blanks	5% (1 per 20 samples or 1 a day)		
Continuing Calibration Check	20% (1 every 5 samples)		
Field System Blank	1 per day		
Reagent Blank	1 per set of working standards		
Replicate Samples	10 to 100% of all samples		

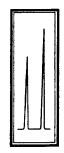
The ambient air samples are obtained on site by sampling the air immediately outside the mobile analytical van and directly injecting it into the GC. Analytical method blanks are taken to demonstrate that the analytical instrumentation is not contaminated. These are performed by injecting carrier gas (nitrogen) into the GC with the sampling syringe. Subsampling syringes are also checked in this fashion.

The injector port septa through which soil gas samples are injected into the GC are replaced daily to prevent possible gas leaks from the chromatographic column. All sampling and subsampling syringes are decontaminated after use and are not used again until they have been decontaminated by washing in anionic detergent and baking at 90°C.

Field system blanks are analyzed to check for contamination of the sampling apparatus, e.g., probe and sampling syringe. A sample is collected using standard soil gas sampling procedures, but without putting the probe into the ground. The results are compared to those obtained from a concurrently sampled ambient air analysis.

If the blanks detect compounds of interest at concentrations that indicate equipment contamination or concentrations that exceed normal background levels (ambient air analysis), corrective actions are performed. If the problem cannot be corrected, an out-of-control event is documented and reported. Field system blanks are not performed every day if clean probes are still available. Field system blanks are performed after any probe decontamination process.





A reagent blank is performed to ensure the solvent used to dilute the stock standards is not contaminated. Analytical instruments are calibrated daily using fresh working standards made from National Institute of Sciences and Technology traceable standards and reagent blanked solvents.

Quantitative precision is assured by replicating analysis of 10 to 100 percent of the samples. The percentage is based on the sample analysis time. Replicate analyses are performed by subsampling vapors from the same sampling syringe.

6.0 RESULTS

The analytical results from this soil gas investigation are condensed in Appendix A. The data are presented by location and by analyte concentration. When the compound was not detected, the detection limit is presented as a "less than" value, e.g., $<0.01 \,\mu\text{g/L}$.

Soil gas samples are identified by sample location and sampling depth. For example, SG-1-2' represents a soil gas sample collected at location 1 at a depth of 2 feet bgs.

The chromatograms from the investigation are included in a separate bound document. $-\mu\mu\mu$?



Tracer Research Corporation



APPENDIX A Condensed Data



TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS
Big V Supermarkets, Inc./Baldwin Place Mail/Somers, New York/Job No. 2-93-021-S
01/20/93

	BENZENE	TOLUENE	ETHYL BENZENE	XYLENES	TVHC	CH2C12	TCE	PCE
SAMPLE	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
SG-01-2'	90:0	-	<0.4	<0.5	55	<0.4	0.5	370
SG-02-2,	AN	NA	A'A	Y Y	NA	7	<0.09	17
SG-03-2'	NA	NA	Ϋ́	NA	N A	\$	<0.2	340
SG-04-2,	INI	<0.1	<0.4	<0.5	7	<20	-	56
SG-05-2'	0.1	<0.1	<0.4	<0.5	0.5	40.0 2	<0.002	0.03
SG-06-2'	<0.05	<0.1	<0.4	<0.5	4	<0.1	60.0	22
SG-07-2'	Ϋ́Α	NA A	NA	NA A	N A	<0.05	0.003	90.0
SG-08-2'	<0.0>	<0.1	<0.2	<0.4	33	<0.0 4	0.3	0.5
SG-09-2'	<0.06	<0.1	<0.4	<0.5	460	<0.1	2	7
SG-10-2'	<0.1	<0.3	<0.8	7	7	40.0 40.0	<0.002	<0.002
SG-11-2'	<0.06	<0.1	4.0>	<0.5	0.7	<0.05	0.04	0.2
SG-12-2'	<0.06	<0.1	<0.4	<0.5	13	<0.05	0.1	0.3
SG-13-2'	%	0	<0.4	<0.5	300	<0.05	0.5	0.7
SG-14-2'	<0.06	8.0	<0.4	<0.5	7	<0.2	0.2	••••
SG-15-2'	<0.06	0.5	<0.4	<0.5	_	<0.05	0.02	0.03
AIR	Y Y	N A	NA	NA	N A	<0.02	<0.0009	<0.0008

NA not analyzed

Analyzed by: B. Gilmore Proofed by: 1814

TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS Big V Supermarkets, Inc./Baldwin Place Mall/Somers, New York/Job No. 2-93-021-S 01/21/93

			ETHYL					
	BENZENE	TOLUENE	BENZENE	XYLENES	TVHC	CH2CI2	TCE	PCE
SAMPLE	µg/L	µg/L	µg/L	µg/L	μg/L	µg/L	μg⁄L	µg/L
AIR	<0.04	<0.1	<0.2	<0.4	<0.4	<0.03	0.0008	<0.0007
SG-16-2'	2	<0.1	<0.4	<0.5	390	<0.2	0.04	0.1
SG-17-2'	<0.05	<0.1	<0.4	<0.5	120	<0.07	0.01	0.009
SG-18-2,	<0.05	<0.1	<0.4	<0.5	<0.5	<0.05	0.001	0.005
SG-19-2,	<0.05	<0.1	<0.4	<0.5	<0.5	<0.07	<0.0008	0.01
SG-20-2'	0.2	<0.1	<0.4	<0.5	9.0	<0.03	<0.0008	0.003
AIR	40.0 4	<0.1	<0.2	<0.4	<0.4	<0.03	<0.0008	<0.0007
SG-21-2'	<0.0>	<0.1	<0.2	<0.4	4	<0.03	0.002	0.02
SG-22-2'	E E	<0.1	<0.2	<0.4	290	<0.03	<0.0008	0.002
SG-23-2'	40.0 4	<0.1	<0.2	<0.4	24	<0.03	<0.0008	0.002
SG-24-2'	\$	<0.1	<0.2	<0.4	180	<0.03	0.0008	0.0008
SG-25-2'	Z	<0.1	<0.2	<0.4	130	<0.03	0.004	0.009
SG-26-2'	0.5	0.3	<0.2	<0.4	9	<0.03	0.01	0.4
SG-27-2'	<0.04	0.1	<0.2	<0.4	∞	<0.03	0.005	0.01
SG-28-2'	0.1	0.2	<0.2	<0.4	-	<0.03	<0.0008	0.001
AIR	<0.04	<0.1	<0.2	<0.4	<0.4	<0.03	<0.0008	0.0009

Analyzed by: B. Gilmore Proofed by: 1772

TRACER RESEARCH CORPORATION-ANALYTICAL RESULTS Big V Supermarkets, Inc./Baldwin Place Mall/Somers, New York/Job No. 2-93-021-S 01/22/93

			ETHYL						
	BENZENE	TOLUENE	BENZENE	XYLENES	TVHC	CH2C12	TCE	PCE	
SAMPLE	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	
AIR	<0.04	<0.1	<0.2	<0.3	<0.3	<0.03	<0.0008	<0.0005	
SG-29-2'	<0.04	<0.1	<0.2	<0.3	7	<0.3	<0.008	0.0008	
SG-30-2'	<0.04	<0.1	<0.2	<0.3	81	<0.03	<0.0008	0.002	
SG-31-1,	0.09	<0.1	<0.2	<0.3	ю	<0.03	<0.0008	0.001	
SG-32-1'	0.09	0.2	<0.2	<0.3		<0.03	<0.0008	9000	
SG-33-10"	INI	7	\$	\$	1400	<0.03	0.005	0.01	
AIR	<0.04	<0.1	<0.2	<0.3	<0.3	<0.03	<0.0008	0.003	
SG-34-1.5'	7	\$	V	<10	1300	<0.03	0.005	0.03	
SG-35-1.5°	<0.04	<0.1	<0.2	<0.3	13	<0.03	<0.0008	0.01	
SG-36-15"	INI	<0.1	<0.2	<0.3	490	<0.03	<0.0008	0.001	
SG-37-1.5'	<0.04	<0.1	<0.2	<0.3	<0.3	<0.03	<0.0008	0.002	
AIR	0.05	<0.1	<0.2	<0.3	8.0	<0.03	<0.008	<0.005	
SG-38-1.5'	Ø	≈	<17	45	2900	<0.03	0.003	0.003	
SG-39-2'	INI	\$	\$	\$	1200	<0.03	0.008	0.1	

INT interference with adjacent peaks

Analyzed by: B. Gilmore Proofed by: 1997

APPENDIX E

GEOLOGIC LOGS OF TEST BORINGS

Project	:BIGV	/BPM	Date	e 4/12/93				
Locatio	onBald	lwin Place M	lall					
Boring/	/Well Designat	ion	TB-1	····				
Land Si	urface Elevation	on	Estima	tedSurveyed				
				b				
Samplin	ng Interval	.Continuous	ے دے جی جی جی انتاز مثال مثال مثال مثال					
Drilling	Contractor _	_Samuel Sto	othoff					
Time a /I b salma s II a								
	Time/Hydraulic Sample Pressure or							
		Recovery		r Samola				
From (fi	+) To (f+)	•	6-inch interval	-				
		(ft)		Description				
0	2	0	8/4/2/2	0-1: Hard material, 2 attempts. No recovery.				
2	4	1	1/2/4/6	Clay. Brown, with				
· · · · · · · · · · · · · · · · · · ·				fine -medium sand lenses, HNU=200				
				ppm.				
4	6	2	8/12/21/19	Clay and silt. Brown, with fine -medium sand lenses				
				(sand lenses saturated),				
· · · · · · · · · · · · · · · · · · ·				saturated at approx. 5 ft. bls, HNU=50-150 ppm,				
				emitts a chemical odor.				
6	8	2	12/15/19/25	Upper 1 ft., sand,				
				saturated. HNU=50-100 ppm. 1 ft. to 2 ft., Clay, brown.				
8	10	2	20/27/40/41	Sand, medium,				
				brown-green, slight chemical odor, saturated,				
				UNII_50_100 ppm				

		Sample Recovery	Time/Hydraulic Pressure or Blow	Sample
From (ft)	To (ft)	(ft)	Counts per 6-incl interval	Description
10	12	2	33/33/40/50	Silty sand, brown-grey,
(NOTE: "Hard		resent at 11.5	5 feet	with clay lenses, brown, slight chemical odor, HNU=300ppm.
11.5	13.5	2	21/24/50/34	11.5 to 12: Sand, super saturated.
				12 to 13: Silty clay,
				brown with small sand lenses, fine rounded grave
				(pebbles) in sand matrix. 13.0 to 13.3: Granitic
				gneiss fragments. 13.3 to 13.5: Silt and clay
				grey, no odors, HNU=5 ppm.
14	16	1.5	15/35/50/81	Silt and clay, tight, brown dry, with fine
	**************************************			angular-rounded gravel, no odors, HNU=0-3 ppm.
				TB-1 Total Depth=16
				ft. bls.
				
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Project	ProjectBIGV/BPM Date 4/13/93 LocationBaldwin Place Mall								
Location	Bald	win Place M	all						
Boring/W	ell Designat	ion	TB-2						
Land Surf	face Elevation	on	Estimat	edSurveyed					
Drilling M	ethodH	Hollow Stem	Auger						
Drilling Fl	uidNo	one							
)					
Sampling	Interval	Continuous							
Drilling Co	ontractor	_Samuel Sto	othoff						
		Sample	Time/Hydraulic Pressure or						
		Recovery	Blow Counts per	Sample					
From (ft)	To (ft)	(ft)	6-inch interval	Description					
0	2	0.3	6/9/10/5	Asphalt approx. 0.2 ft., loose soil, HNU=1 ppm.					
2	4	0.5	4/2/4/5						
۷.	 	0.5	4/2/4/3	Silty clay, brown, dry-moist, HNU=25 ppm.					
4	6	1	10/29/51/34	Upper 0.2 ft.: Silty clay, brown, moist. Rock					
				fragments, quartz. Angular gravel, broken, sand and					
				milky quartz remainder, white and black, dry,					
				HNU=0-3 ppm.					
6	8	2	6/9/15/14	Silty clay, brown, tight, dry, with very fine					
				rounded to subangular gravel, HNU=20-30 ppm.					
8	10	1.5	20/27/40/41	Silty clay, brown, tight,					
				moist-dry, with fine to rounded angular gravel,					
	-	HNU=0 ppm	in silty clay.	granitic material in					
		HNU=20 in	gravel.	matrix, HNU=0-20 ppm.					

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-incl interval	
10	11.5	1.5	32/50/>100	0.5 ft.: loose sand, saturated
				0.5 to 1.5: Clay, brown, with thin lenses of fine sand.
				Bottom of spoon: Gravel, coarse, biotite granitic material, HNU=0-3 ppm. Refusal at approx. 11.5 ft. (4 inches in 101 blows).
				TB-2 Total Depth approx. = 11.5 ft. bls.
				4

Project	ProjectBIGV/BPM Date 4/13/93								
Location	Balc	lwin Place M	lall						
Boring/W	/ell Designat	ion	TB-3						
Land Sur	face Elevation	on	Estima	tedSurveyed					
				b					
- · · · · · · · · · · · · · · · · · · ·			J. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.						
Sample Time/Hydraulic Pressure or									
		Recovery		r Sample					
From (ft)	To (ft)	(ft)	6-inch interval	Description					
0	1.5	1		Clay, green-brown, some					
				fine sand lenses and gravel, dry, HNU=0 ppm.					
1.5	3.5	1.5		Clay, brown, with granitic					
				gravel, milky quartz in matrix, moist to saturated,					
3.5	5.5	1.5		HNU= 0 ppm. Clay, brown, with					
				coarse-medium sand lenses, angular, black,					
				granitic fragments,					
				saturated, HNU=0 ppm.					
5.5	7.5	2		Upper 0.7 ft.: Sand,					
				coarse, angualr, saturated. Remainder of spoon: Clay					
				brown, tight, HNU=0 ppm.					
	-								
									
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From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inc interval	Sampia
7.5	8.5	1.2	//>100 for 1"	Upper 0.5 ft.: Clay.
				0.5 to 1 ft.: Sand, coarse, saturated. 1 to 1.2 ft.: Clay, hard, tight, dry, HNU=0 ppm.
				TB-3 Refusal at approx. 8.5 ft. bls.

Project	BIGV	/BPM	Date	4/14/93			
Location	Bald	lwin Place M	all				
Boring/V	Vell Designat	ion	TB-4				
Land Sur	face Elevation	on	Estimat	edSurveyed			
Drilling M	lethodI	Hollow Stem	Auger				
Drilling F	luidNo	one					
				0			
Sampling	Interval	Continuous					
Drilling C	ontractor	_Samuel Sto	othoff				
Sample Time/Hydraulic Pressure or							
From (ft)	To (ft)	Recovery (ft)	Blow Counts per 6-inch interval	r Sample Description			
0	2	1	12/10/6/10	Upper 0.2 ft.: Asphalt. Silty sand, fine, little			
				very fine rounded gravel, HNU=0 ppm.			
2	4	1.6	25/16/20/16				
				rounded gravel.			
				Bottom 0.3 ft.: Very fine sand and black mica,			
4	6	1.8	13/26/40/31	HNU=0 ppm. Silt and fine sand, some			
			10/20/10/31	clay and rounded gravel, HNU=2 ppm.			
6	8	1.7	33/60/66/75	Silty sand and some clay,			
				green-brown, angular gravel, HNU=5.5 ppm.			

	- Acar	- 		rage 2 01 2
From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-ind interval	
8	10	1.3	57/68/102 for 5"	Upper 0.2 ft.: Clay, green, mica seam below. Silt and fine sand, moist, with angular granitic gravel, HNU=2 ppm. Refusal at 10 feet.

ProjectBIGV/BPM Date 4/14/93						
LocationBaldwin Place Mall						
Boring/W	ell Designati	onT	B-5			
Land Surf	ace Elevatio	n	Estimat	edSurveyed		
Drilling Mo	ethodH	lollow Stem	Auger			
Drilling Flo	uidNo	ne				
Sampling	Method	Split Spoon	2ft. long/Grab)		
Sampling	Interval(Continuous_				
Drilling Co	ontractor	_Samuel Sto	thoff			
		Sample	Time/Hydraulic Pressure or			
From (ft)	To (ft)	Recovery (ft)	Blow Counts per 6-inch interval	•		
0	2	1	27/10/6/5	Upper 0.2 ft.: Asphalt.		
				0.2 to 1 ft.: Silt and sand, some clay, brown, dry,		
2	4	1	4/5/5/4	HNU=0 ppm. Silt and sand,		
				medium-fine, brown, little clay, HNU=0 ppm.		
4	6	2	7/6/6/11	Sand, medium-coarse,		
				green-brown, with angular gravel. Bottom of		
		-		spoon-weathered gneiss, quartz, mica, HNU=0		
_				ppm.		
6	8	2	8/10/11/8	Sand, medium-coarse, green-brown, with		
	, 			angular gravel, saturated, HNU=0 ppm.		

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-ind interval	Samble
8	10	2	8/8/8/7	Upper 0.8 ft.: Sand, medium-coarse, saturated. Remainder silty clay with fine sand, HNU=0 ppm.
10	12	1.85	8/11/13/13	Silty sand, green, saturated, some clay, HNU=0 ppm.
12	14	1.5	17/20/18/18	Silty sand, brown-green, saturated, some clay, sear of weathered gneiss at 0.5 feet. Bottom of spoon-green clay, HNU=0 ppm.
14	16	1.3	6/11/10/25	Silty sand, green-brown, saturated, trace clay, weathered gneiss seam at 1 ft. into spoon. Bottom of spoon-gneiss is silty sand matrix, HNU=0 ppm.
16	18		12/23/26/20	Silty sand, green-brown, saturated, bottom of spoon-green clay, with fine subangular to rounded gravel, HNU=0 ppm.
18	19.5		25/27/101 for 6"	Silty sand, saturated, some clay. Bottom of spoon-fine granitic material, HNU=0 ppm. Refusal at 19.5 feet

ProjectBIGV/BPM			Date	4/14/93		
Location	Bald	win Place Ma	all			
Boring/W	Boring/Well DesignationTB-6					
Land Surface ElevationEstimatedSurveyed						
				-		
Drilling M	etnoaF	iollow Stem	Auger			
Drilling Fl	uidNo	ne				
Sampling	Method	Split Spoon	2ft. long/Gral	b		
Sampling	Interval	Continuous_				
Drilling Co	ontractor	_Samuel Sto	othoff			
		Sample	Time/Hydraulic			
		Recovery	Pressure or Blow Counts per	r Sample		
From (ft)	To (ft)	(ft)	6-inch interval	Description		
0	2	0.8	4/10/12/13	Upper 0.3 ft.: Topsoil,		
				black. Remainder silt and clay, brown, some		
	•			fine sand, HNU=0 ppm.		
2	4	1.7	10/8/6/7	Silt and clay, with fine sand and angular gravel,		
				saturated at 3 feet,		
4	6	1.3	6/5/6/8	HNU=0 ppm. Silty sand with some		
				clay, brown. Bottom 0.3		
				ftGravel, quartz, angular, HNU=0 ppm.		
•				anguar, mo o pp		

Projec	tBIG	V/BPM	Da	te 4/13/93			
LocationBaldwin Place Mall							
1	Boring/Well DesignationTB-7						
1	Land Surface ElevationEstimatedSurveyed						
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i i							
		Sample	Time/Hydraulion Pressure or				
From (f	t) To (ft)	Recovery (ft)	Blow Counts po 6-inch interval	er Sample Description			
0	2	1	8/4/2/1	Upper 0.2 ft.: Asphalt.			
				0.2 to 1 ft.: Clay, brown, moist, small rounded fine gravel, HNU=0-1 ppm.			
2	4	0.5	1/2/9/75	Silty clay, brown, moist,			
				with fine-medium coarse rounded to subangular			
4	6			gravel of granitic material, HNU=0-1 ppm.			
	6	1.5	5/8/12/21	Silty clay, brown, moist, with fine-medium coarse			
				rounded to subangular gravel of granitic material,			
6	8	1.5	12/20/19/20	HNU=10 ppm. Silt and clay, tight, dry,			
			20, 13, 20	very fine rounded gravel in matrix, HNU=0 ppm.			
8	10	1.8	16/20/20/25	Silt and clay, tight, dry,			
				very fine rounded gravel in matrix, HNU=0 ppm.			

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From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-ind interval	Sample
10	12	2	14/27/51/50	Silt, and very fine-fine sand, saturated, and clay.
				Little fine gravel, subrounded to rounded, HNU=5 ppm.
12	14	2.3	19/52/57/50	Silt, and very fine-fine
				sand, little medium sand, saturated, some clay, little fine gravel, HNU=5-10
14	16		18/21/18/33	ppm. Silt, and very fine-fine
				sand, saturated, some clay little very fine angular gravel, fragments of highly weathered granitic material with tan micas, HNU=300 ppm.
16	17.5		30/30/107 for 6"	Silt, and very fine-fine sand, little clay, saturated. Angular weathered granitic gravel, green clay in bottom of spoon, HNU=20 ppm.
			10. 0	
18			>100 for 5"	No Recovery.
	· · · · · · · · · · · · · · · · · · ·			

	ProjectBIGV/BPM			Date 4/13/93			
	LocationBaldwin Place Mall						
	Boring/Well DesignationTB-8						
	Land Sur	face Elevation	on	Estimat	edSurveyed		
	Drilling M	ethodF	Iollow Stem	Auger			
	Drilling Fl	uid No	ne				
	_)		
	_						
	Drining Co				and the second s		
			L'amamia	Time/Hydraulic			
			_ •	Pressure or Blow Counts per	Sample		
	From (ft)	To (ft)		6-inch interval			
	0	2	0.8	12/10/13/8	Silty sand, some clay, dry,		
		· .			HNU=0 ppm.		
	2	4	1.2	8/5/9/12	Silty sand, some clay, dry, HNU=5 ppm.		
	4	6	2	7/10/16/20	Top 1.5 ft.: Silty clay, brown, with very fine		
					rounded gravel. 1.5 to 1.7 ft.: Medium		
					sand lenses.		
					1.7 to 2 ft.: Silty clay,		
					little fine to medium angular gravel of granitic		
					material, HNU=50ppm.		
	6	8	0.5	71/130 for	Silty clay, brown-grey, little fine rounded to		
				2"/Refusal	angular gravel, bottom of		
					spoon-granitic gneiss,		
					HNU=100 ppm. Refusal at 6.5 ft. bls.		
				ı	· · · · · · · · · · · · · · · · · · ·		

ProjectBIGV/BPM Date 4/13/93						
Location	Bald	win Place M	all			
Boring/W	/ell Designat	ion	ТВ-9			
Land Sur	face Elevation	on	Estimat	tedSurveyed		
Drilling M	ethod	Hollow Stem	Auger			
Drilling Fl	uidNo	one				
				b		
Sampling	Interval	Continuous.				
Drilling Co	ontractor	_Samuel Sto	othoff			
J						
		Sample	Time/Hydraulic Pressure or			
		Recovery		- Camania		
		•	•	- · · · · ·		
From (ft)	To (ft)	(ft)	6-inch interval	Description		
0	2	0	13/10/4/4	No Recovery.		
2	4	1.3	8/7/6/5	Upper 0.8 ft.: Silt and fine sand, dry.		
				Remainder of		
				spoon-Clay, moist,		
				HNU=0 ppm.		
4	6	2	5/10/15/20	Upper 1 ft.: Saturated.		
				Remainder of spoon-Clay, dry, HNU=0 ppm.		
				dry, fiito=o ppiii.		
6	8	2	16/20/24/17	Upper 0.8 ft.: Silty sand, saturated.		
				0.8 to 1 ft.: Weathered		
				granitic material. 1 to 2 ft.: Silt, tight, dry,		
				with very fine gravel, HNU=0-1 ppm.		
				••		
			 			

<u> </u>				
From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-incl interval	
8	10	2	21/40/47/95	City winds also God
				Silt, tight, dry, fine angular fragments of granitic material, pink, black, HNU=0 ppm.
10	11	1	62/67/102 for 5"	Silt, tight, dry, very little clay and very fine gravel, HNU=5 ppm.
				Refusal at 11 feet.
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LocationBaldwin Place Mall							
Boring/Well DesignationTB-11							
Land Surface ElevationEstimatedSurveyed							
Drilling MethodHollow Stem Auger	Drilling MethodHollow Stem Auger						
Drilling FluidNone							
Sampling MethodSplit Spoon 2ft. long/Grab							
Sampling IntervalContinuous							
Drilling ContractorSamuel Stothoff							
Time/Hydraulic Sample Pressure or							
Recovery Blow Counts per Sample							
From (ft) To (ft) (ft) 6-inch interval Description							
0 2 0.5 14/12/10/10 Upper 0.2 ft.: Asphalt. Remainder sand, mediu	~						
brown, dry, HNU=0 ppr	•						
2 4 2 9/9/18/11 Silty sand, medium,							
brown, dry, little clay, very fine rounded grave	ıl.						
Approx. 0.2 ft. lenses of coarse sand, brown, dry							
Bottom of spoon-clay,							
brown, with fine rounder gravel, HNU<5 ppm.	d						
4 6 1.9 11/13/13/22 Upper 1 ft.: Sand, medi	ım						
and clay, brown, saturated. Bottom: Gre	en						
silt and clay, with							
subangular to rounded gravel, some angular	ine						
granitic material in							
matrix, also lenses of black mica, HNU=3 ppm							

Pr	ProjectBIGV/BPM			Date	4/14/93	
Lo	cation	Bald	lwin Place M	all		
Во	oring/W	/ell Designat	ion	ГВ-12		
La	Land Surface ElevationEstimatedSurveyed					
Dr	illing M	ethod	Hollow Stem	Auger		
Dr	illing Fl	uidNo	one			
Sa	mpling	Method	Split Spoon	2ft. long/Grai	b	
Sa	mpling	Interval	Continuous_			
Dr	illing Co	ontractor _	_Samuel Sto	thoff		
			Sample Recovery	Time/Hydraulic Pressure or Blow Counts pe	r Sample	
Fro	m (ft)	To (ft)	(ft)	6-inch interval		
C)	2	0.7	10/8/6/4	Silty sand, green, with fine rounded gravel,	
					HNU=0 ppm.	
2		4	2	4/4/4/3	Silt and clay, green, moist to approx. 1.5	
					feet, below saturated, HNU=0 ppm.	
		 				
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Project	ProjectBIGV/BPM Date 4/14/93			4/14/93		
Location	Balo	lwin Place M	lall			
Boring/V	Vell Designat	ion	TB-13			
Land Sur	Land Surface ElevationEstimatedSurveyed					
Drilling MethodHollow Stem Auger						
Drilling F	Drilling FluidNone					
Sampling	Method	Split Spoon	2ft. long/Gral	o		
Sampling	Interval	Continuous				
Drilling C	ontractor _	_Samuel Sto	othoff			
			 - /1. 1. 1.			
		Sample	Time/Hydraulic Pressure or			
From (ft)	To (ft)	Recovery (ft)	Blow Counts per 6-inch interval			
0	2	0.5	11/11/11/11	Upper 0.3 ft.: Sand, medium, brown, dry.		
				Remainder silty sand,		
				green, moist, HNU=0 ppm.		
2	4	2	6/5/5/6	Silty sand and clay,		
				green, saturated, with fine rounded to		
				subrounded gravel, HNU=0 ppm.		
		· · · · · · · · · · · · · · · · · · ·				

ProjectBIGV/BPM		/BPM	Date 4/14/93				
LocationBaldwin Place Mall							
Boring/W	Boring/Well DesignationTB-14						
Land Sur	Land Surface ElevationEstimatedSurveyed						
	Drilling MethodHollow Stem Auger						
_				b			
	<i>-</i> .						
Drilling Co	ontractor	_Samuer Sto	tnorr				
	Time/Hydraulic Sample Pressure or						
From (ft)	To (ft)	Recovery (ft)	Blow Counts pe 6-inch interval				
0	2	0.5	10/10/8/6	Silty sand, brown, dry, HNU=0 ppm.			
2	4	2	3/3/3/5	Upper 1.5 ft.: Silty clay,			
				moist. 1.5 to 2: Silty sand and			
				clay, saturated, HNU=0 ppm.			
				ppin.			

ProjectBIGV/BPM			/BPM	Date	4/14/93		
	LocationBaldwin Place Mall						
	Boring/W	ell Designat	ion	ГВ-15			
	Land Surface Elevation			EstimatedSurveyed			
	Drilling MethodHollow Stem Auger						
	Drilling FluidNone						
	~	Sampling MethodSplit Spoon 2ft. long/Grab					
	Sampling	Interval	Continuous_				
	Drilling Co	ontractor	_Samuel Sto	othoff			
				Time/Hydraulic Pressure or			
			Sample	Blow Counts per	•		
	From	То	Recovery	6-inch interval	Description		
	0	2	1	16/16/10/7	Sand, medium, brown, dry. Sitly sand, green,		
				 	moist with fine rounded		
					to subrounded gravel, HNU=0 ppm.		
	2	4	2	4/4/4/3	Upper 0.3 ft.: Silty sand,		
					green, moist, with fine		
					rounded to subrounded gravel.		
					Remainder of spoon:		
					Silty sand, green,		
		-			saturated, with fine-medium gravel		
					(weathered granitic		
					material), rounded to		
					angular. Seam of weathered granitic		
					material at 1.5 feet,		
					HNU=0 ppm.		

APPENDIX F

SATURATED SOIL SAMPLES DATA REPORT (ENVIROTEST LABORATORIES)

ANALYTICAL REPORT

Vincent Uhl Associates, Inc. Jackie Baron 1078 Taylorsville Road Po Box 93 Washington PA 18977 Grossing

 Report Date:
 11-MAY-93

 Project:
 STANDARD

 Lab Number:
 122485

 Sample Number(s):
 122485-01

 to
 122485-03

Ronald A. Bayer Laboratory Director

Volatile Organics Analysis Data Sheet Form I VOA

Client Name: Vincent Uhl Associates, Inc.

Project Name: STANDARD

ETL Sample Number: 122485-01

Client I.D.: BPM-TB-4 6'-8' (SAT)

Date Collected: 14-APR-93

Matrix: 3 Soil/Sldg

Date Received: 15-APR-93

Percent Solid: 92.5 %

Date Analyzed: 22-APR-93 Method: 8240

Comments: RI-BPM

		Detection Limit	Conc.	Data	
CAS NO.	Compound	ug/kg	ug/kg	Qualifier	
74-87-3	Chloromethane	11		U	
74-83-9	Bromomethane	11		U	
75-01-4	Vînyi chloride	11		U	
75-00-3	Chloroethane	11		U	
75-09-2	Methylene chloride	11		U	
67-64-1	Acetone	11		U	
75-15-0	Carbon disulfide	11		U	
75-35-4	1,1-Dichloroethene	11		U	
75-34-3	1,1-Dichloroethane	11		U	
540-59-0	1,2-Dichloroethene(total)	11		U	
67-66-3	Chloroform	11		U	
107-06-2	1,2-Dichloroethane	11		U	
78-93-3	2-Butanone	11		U	
71-55-6	1,1,1-Trichloroethane	11	28	В	
56-23-5	Carbon tetrachioride	11		U	
108-05-4	Vinyl acetate	11		U	
75-27-4	Bromodichloromethane	11		U	
78-87-5	1,2-Dichloropropane	11		U	
10061-01-5	cis-1,3-Dichtoropropene	11		U	
79-01-6	Trichloroethene	11		U	
71-43-2	Benzene	11		U	
124-48-1	Dibromochloromethane	11		U	
10061-02-6	trans-1,3-Dichloropropene	11		U	
79-00-5	1,1,2-trichloroethane	11		U	
75-25-2	Bromoform	11		U	
108-10-1	4-Methyl-2-pentanone	11		U	
591-78-6	2-Hexanone	11		IJ	
79-34-5	1,1,2,2-Tetrachloroethane	11		U	
127-18-4	Tetrachloroethene	11	9	J	
108-88-3	Toluene	11		U	
108-90-7	Chłorobenzene	11		U	
100-41-4	Ethylbenzene	11		U	
100-42-5	Styrene			n	
1330-20-7	Xylenes, Total	11		U	
1634+04-4	MTBE	11		U	



CTDOHS PH-0054

Volatile Organics Analysis Data Sheet Form I VOA

Client Name: Vincent Uhl Associates, Inc.

Project Name: STANDARD

ETL Sample Number: 122485-02

Client I.D.: BPM-TB-6 3'-6' (SAT)

Date Collected: 14-APR-93

Matrix: 3 Soil/Sldg

Date Received: 15-APR-93

Percent Solid: 87.9 %

Date Analyzed: 22-APR-93

Method: 8240

Comments: RI-BPM

		Detection Limit	Conc.	Data
CAS NO.	Compound	ug/kg	ug/kg	Qualifier
74-87-3	Chloromethane	11		U
74-83-9	Bromomethane	11		Ü
75-01-4	Vinyl chloride	11		Ú
75-00-3	Chloroethane	11	***************************************	Ū
75-09-2	Methylene chloride	11		Ū
67-64-1	Acetone	11		U
7 5-15-0	Carbon disulfide	11		U
75-35-4	1,1-Dichloroethene	11		U
75-34-3	1,1-Dichloroethane	11		U
540-59-0	1,2-Dichloroethene(total)	11		U
67-66-3	Chloroform	11		U
107-06-2	1,2-Dichloroethane	11		U
78-93-3	2-Butanone	11		U
71-55-6	1,1,1-Trichloroethane	11	27	В
56-23-5	Carbon tetrachloride	11		U
108-05-4	Vinyl acetate	11		U
75-27-4	Bromodichlaromethane	11		ឋ
78-87-5	1,2-Dichloropropane	11	00000000000000000000000000000000000000	
10061-01-5 79-01-6	cis-1,3-Dichtoropropene	11		U
71-43-2	Trichloroethene	11		U
124-48-1	Benzene Dibromochloromethane	11		U
10061-02-6		11	***************	U
79-00-5	trans-1,3-Dichloropropene 1,1,2-trichloroethane	11		U
75-25-2	Bromoform	11 11	//////////////////////////////////////	U
108-10-1	4-Methyl-2-pentanone	11		U
591-78-6	2-Hexanone	44		U B
79-34-5	1,1,2,2-Tetrachloroethane	11		U
127-18-4	Tetrachloroethene	i i	7	
108-88-3	Toluene	11		U
108+90+7	Chłorobenzene	ii		Ŭ
100-41-4	Ethylbenzene	11		U
100-42-5	Styrene	11		Ŭ
1330-20-7	Xylenes, Total	11		Ū
1634-04-4	MTBE	ii		Ü

Volatile Organics Analysis Data Sheet Form I VOA

Client Name: Vincent Uhl Associates, Inc.

Project Name: STANDARD

ETL Sample Number: 122485-03

Client I.D.: BPM-TB-6 FB2

Date Collected: 14-APR-93 Matrix: 3 Soil/Sldg

Date Received: 15-APR-93 Percent Solid: NA

Date Analyzed: 22-APR-93 Method: 8240

Comments: RI-BPM

		Detection Limit	Conc.	Data	
CAS NO.	Compound	ug/kg	ug/kg	Qualifier	
74-87-3	Chioromethane	10		U	
74-83-9	Bromomethane	10		U	
75-01-4	Vinyl chloride	10		U	
75-00-3	Chloroethane	10		U	
75-09-2	Methylene chloride	10		U	
67-64-1	Acetone	10		U	
75-15-0	Carbon disulfide	10		U	
75-35-4	1,1-Dichloroethene	10		U	
75-34-3	1,1-Dichloroethane	10		U	
540-59-0	1,2-Dichloroethene(total)	10		U	
67-66-3	Chloroform	10		U	
107-06-2	1,2-Dichloroethane	10		U	
78-93-3	2-Butanone	10		U	
71-55-6	1,1,1-Trichloroethane	10	26	B	
56-23-5	Carbon tetrachloride	10		U	
108-05-4	Vinyl acetate	10		U	
75-27-4	Bromodichloromethane	10		IJ	
78-87-5	1,2-Dichloropropane	10		U	
10061-01-5	cis-1,3-Dichtoropropene	10		U	
79-01-6	Trichloroethene	10		U	
71-43-2	Benzene	10		U	
124-48-1	Dibromochloromethane	10		U	
10061-02-6	trans-1,3-Dicktoropropene	10		U	
79-00-5	1,1,2-trichloroethane	10		U	
75-25-2	Bromoform	10		U	
108-10-1	4-Methyl-2-pentanone	10		U	
591-78-6	Z-Hexanone	10		IJ	
79-34-5	1,1,2,2-Tetrachloroethane	10		U	
127-18-4	Tetrachloroethene	10		U	
108-88-3	Toluene	10	2	J	
108-90-7	Chtorobenzene	10		U	
100-41-4	Ethylbenzene	10		U	
100-42-5	Styrene	10		U	
1330-20-7	Xylenes, Total	10		U	
1634-04-4	NTBE	10		U	

ANALYTICAL REPORT

Vincent Uhl Associates, Inc. Jackie Baron 1078 Taylorsville Road Po Box 93 Washington PA 18977

 Report Date:
 11-MAY-93

 Project:
 STANDARD

 Lab Number:
 122403

 Sample Number(s):
 122403-01

 to
 122403-05

Ronald A. Bayer Laboratory Disector

Client Name: Vincent Uhl Associates, Inc.

Project Name: STANDARD

ETL Sample Number: 122403-01

Client I.D.: TB-1 6'-8' (SAT)

Date Collected: 12-APR-93

Matrix: 3 Soil/Sldg

Date Received: 14-APR-93

Percent Solid: 85.3 %

Date Analyzed: 19-APR-93

Method: 8240

Comments: RI-BPM

CAS NO.	•	Detection Limit	Conc.	Data
CAS NO.	Compound	ug/kg	ug/kg	Qualifier
74-87-3	Chioromethane	120900		200000000000000000000000000000000000000
74-83-9	Bromomethane	120000		U
75-01-4	Vinyt chtoride	120000		U
75-00-3	Chloroethane	120000		U
75-09-2	Methylene chloride	120000		U
67-64-1	Acetone	120000		U
75-15-0	Carbon disulfide	120000	186:1884:8888888888888888888888888888888	U
75-35-4	1,1-Dichloroethene	120000		Ų
75-34-3	1,1-Dichloroethane	120000	980 (1860) (1860	U 6000000000000000000000000000000000000
540-59-0	1,2-Dichloroethene(total)	120000		Ų
67-66-3	Chloroform	120000		U
107-06-2	1,2-Dichloroethane	120000		น
78-93-3	2-Butanone	120000	55.77.7889.78880.0000000000000000000000000	U
71-55-6	1,1,1-Trichloroethane	120000		U
56-23-5	Carbon tetrachloride	120000	\$2000\$00000000000000000000000000000000	
108-05-4	Vinyl acetate	120000		U
75-27-4	Bromodichloromethane	120000	5555557114555444444444	U
78-87-5	1,2-Dichloropropane	120000		U
10061-01-5	cis-1,3-Dichtoropropene	120000	666864666666666666666666666666666666666	U
79-01-6	Trichloroethene	120000		ย
71-43-2	Benzene	120000	44444444444	U
124-48-1	Dibromochloromethane	120000		U
10061-02-6	trans-1,3-Dichloropropene	varance conservation of the contract of the co	999999 000000000	U
79-00-5	1,1,2-trichloroethane	120000		U
75-25-2	Bromoform	120000	55555555555555555555555555555555555555	U
108-10-1	4-Methyl-2-pentanone	120000		U
591-78-6	2-llexanone	120000	000000000000000000000000000000000000000	U
79-34-5	1,1,2,2-Tetrachloroethane	120000		U
127-18-4	Tetrachloroethene	120000	60000000000000000000000000000000000000	U
108-88-3	Toluene	120000 120000	4500000	DB
08-90-7	Chlorobenzene	120000 120000	50000000000000000000000000000000000000	U
100-41-4	Ethylbenzene	120000		U
100-42-5	Styrene	ANALOS AND	× 4000444400000000000000000000000000000	U
1330-20-7	Xylenes, Total	120000 120000		U
634-04-4	MTBE	120000 120000		U
	· · · · · · · · · · · · · · · · · · ·	IZUUU		U



Client Name: Vincent Uhl Associates, Inc. Project Name: STANDARD

ETL Sample Number: 122403-02

Client I.D.: TB-2 8'-10' (SAT)

Date Collected: 12-APR-93 Matrix: 3 Soil/Sldg

Percent Solid: 92.8 % Date Received: 14-APR-93

Date Analyzed: 19-APR-93 Method: 8240

Comments: RI-BPM

		Detection	Conc.	Data
CAS NO.	Compound	Limit ug/kg	ug/kg	Qualifier
74-87-3	Chloromethane	11		U
74-83-9	Bromomethane	11		U
75-01-4	Vinyl chloride	11		U
75-00-3	Chloroethane	11		U
75-09-2	Methylene chloride	11		U
67-64-1	Acetone	11	8	J
75-15-0	Carbon disulfide	11		U
75-35-4	1,1-Dichloroethene	11		U
75-34-3	1,1-Dichloroethane	11		U
540-59-0	1,2-Dichloroethene(total)	11		U
67-66-3	Chioroform	11		U
107-06-2	1,2-Dichloroethane	11		U
78-93-3	2-Butanone	11		U
71-55-6	1,1,1-Trichloroethane	11		U
56-23-5	Carbon tetrachloride	11		U
108-05-4	Vinyl acetate	11		U
75-27-4	Bromodichloromethane	11		U
78-87-5	1,2-Dichloropropane	11	\$	U
10061-01-5	cia-1,3-Dichtoropropene	11		Ü
79-01-6	Trichloroethene	11		U
71-43-2	Benzene	11		U
124-48-1	Dibromochloromethane	11		U
10061-02-6	trans-1,3-Dichloropropene	11		U
79-00-5	1,1,2-trichloroethane	11	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	U
75-25-2	Bromoform	11		opposite and section and the s
108-10-1	4-Methyl-2-pentanone	11		U
591-78-6	2-Hexanone	11		U U
79-34-5	1,1,2,2-Tetrachloroethane Tetrachloroethene	11 11	14	8
127-18-4	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	11	•	U
108-88-3 108-90-7	Toluene Chlorobenzene	11		U
100-41-4	Ethylbenzene Ethylbenzene	11		Ü
100-41-4	Styrene	11		Ŭ
1330-20-7	Xylenes, Total	11		Ŭ
1634-04-4	NTBE	11		Ü



CTDOHS PH-0054

Client Name: Vincent Uhl Associates, Inc.

Project Name: STANDARD

ETL Sample Number: 122403-03

Client I.D.: TB-3 5.5'-7.5' (SAT)

Date Collected: 12-APR-93

Matrix: 3 Soil/Sldg

Date Received: 14-APR-93

Percent Solid: 85.6 %

Date Analyzed: 19-APR-93

Method: 8240

Comments: RI-BPM

CAS NO. Compound ug/kg ug/kg Qualifier 74-87-3 Chioromethane 12 U V 74-83-9 Bromomethane 12 U V 75-01-4 Vinyi chloride 12 U V 75-00-3 Chloroethane 12 U V 75-00-2 Methylene chloride 12 U V 67-64-1 Acetone 12 U V 75-15-0 Carbon disulfide 12 U V 75-35-4 1, 1-Dichoroethene 12 U V 75-34-3 1, 1-Dichloroethene 12 U V 56-6-3 1, 2-Dichloroethene(total) 12 U V 76-6-3 1, 2-Dichloroethene 12 U V 77-55-6 1, 1, 1-Trichloroethane 12 U V 77-57-6 1, 1, 2-Dichloroethane 12 U V 75-27-4 Bromdichloromethane 12 U V<			Detection	Conc.	Data	
17-83-9 Bromomethane 12	CAS NO.	Compound	Limit ug/kg	ug/kg	Qualifier	
77-83-9 Bromomethane 12	74-87-3	Chloromethane	12		U	
75-00-3		Bromomethane	12			
175-09-2	75-01-4	Vinyl chloride			Service and servic	
107-05-2	75-00-3	Chloroethane			CONTRACTOR OF THE PROPERTY OF	
T5-15-0 Carbon disulfide 12	75-09-2	Methylene chloride			entre de la contraction de la	
75-35-4 1,1-Dichloroethene 12 U 75-34-3 1,1-Dichloroethene 12 U 75-34-3 1,1-Dichloroethene 12 U 67-66-3 1,2-Dichloroethene 12 U 107-06-2 1,2-Dichloroethene 12 U 78-93-3 2-Butanone 12 U 78-93-3 2-Butanone 12 U 75-5-6 1,1,1-Trichloroethane 12 U 75-23-5 Carbon tetrachloride 12 U 108-05-4 Vinyl acetate 12 U 75-27-4 Boromodichloromethane 12 U 78-87-5 1,2-Dichloropropene 12 U 10061-01-5 cis-1,3-Dichloropropene 12 U 10061-01-6 Trichloroethene 12 U 77-43-2 Benzene 12 U 71-43-2 Benzene 12 U 10061-02-6 trans-1,3-Dichloropropene 12 U 10061-02-6 trans-1,3-Dichloropropene 12 U 107-5-25-2 Bromoform 12 U 108-10-1 4-Methyl-zepentanone 12 U 108-10-1 4-Methyl-zepentanone 12 U 108-10-1 4-Methyl-zepentanone 12 U 108-10-1 4-Methyl-zepentanone 12 U 108-90-7 Chlorobenzene 12 U 108-90-7 Chlorobenzene 12 U 108-90-7 Chlorobenzene 12 U 100-41-4 Ethylbenzene 12 U 100-42-5 Styrene 12 U 100-42-5 Styrene 12 U 100-42-5 Styrene 12 U 100-41-4 Ethylbenzene 12 U 100-42-5 Styrene 12 U 100-41-4 Ethylbenzene 12 U 100-41-4 Ethylbenzene 12 U 100-42-5 Styrene 12 U 100-41-4 Ethylbenzene 12 U 100-41-4 Ethylbenzene 12 U 100-41-4 Ethylbenzene 12 U 100-41-4 Ethylbenzene 12 U 100-42-5 Styrene 12 U 100-41-4 Ethylbenzene 12 U 100-41-4 Ethy	67-64-1				AND DESCRIPTION OF THE PROPERTY OF THE PROPERT	
1-Dichloroethane 12	75-15-0				200000000000000000000000000000000000000	
12 12 12 13 14 15 15 15 15 15 15 15	75-35-4				•	
107-06-2	75-34-3	1,1-Dichloroethane			STATE OF THE STATE	
107-06-2						
78-93-3 2-Butanone 12 U					deservation and a second of the second of th	
71-55-6			12	xxxxxxx xx xxxxxxxxxxxxxxx		
108-05-4					000000000000000000000000000000000000000	
108-05-4		1,1,1-Trichloroethane		xxxxxxxxxxxxxxxxxxxxxxxx		
100-10-10-10-10-10-10-10-10-10-10-10-10-					200000000000000000000000000000000000000	
78-87-5 1,2-Dichloropropane 12 U 10061-01-5 cis-1,3-Dichloropropene 12 U 79-01-6 Trichloroethene 12 U 71-43-2 Benzene 12 U 104-48-1 Dibromochloromethane 12 U 10061-02-6 trans-1,3-Dichloropropene 12 U 79-00-5 1,1,2-trichloroethane 12 U 75-25-2 Bromoform 12 U 108-10-1 4-Methyl-2-pentanone 12 U 591-78-6 2-Hexanone 12 U 591-78-6 T,1,2,2-Tetrachloroethane 12 U 127-18-4 Tetrachloroethane 12 U 127-18-4 Tetrachloroethene 12 U 108-80-3 Toluene 12 U 108-90-7 Chlorobenzene 12 U 100-42-5 Styrene 12 U						
10061-01-5					Sharanan sa	
79-01-6 Trichloroethene 12 U 71-43-2 Benzene 12 U 124-48-1 Dibromochloromethane 12 U 10061-02-6 trans-1,3-Dichloropropene 12 U 79-00-5 1,1,2-trichloroethane 12 U 75-25-2 Bromoform 12 U 108-10-1 4-Methyl-2-pentanone 12 U 591-78-6 2-Hexanone 12 U 79-34-5 1,1,2,2-Tetrachloroethane 12 U 127-18-4 Tetrachloroethane 12 9 JB 108-88-3 Toluene 12 U 108-90-7 Chlorobenzene 12 U 100-41-4 Ethylbenzene 12 U 100-42-5 Styrene 12 U				******************************		
71-43-2 Benzene 12 U 124-48-1 Dibromochloromethane 12 U 10061-02-6 trans-1,3-Dichtoropropene 12 U 79-00-5 1,1,2-trichloroethane 12 U 75-25-2 Bromoform 12 U 108-10-1 4-Methyl-2-pentanone 12 U 591-78-6 2-Mexanone 12 U 79-34-5 1,1,2,2-Tetrachloroethane 12 U 127-18-4 Tetrachloroethane 12 U 127-18-4 Tetrachloroethane 12 U 108-88-3 Toluene 12 U 108-90-7 Chiorobenzene 12 U 100-42-5 Styrene 12 U 100-42-5 Styrene					2007/2007/2007/2007/2007/2007/2007/2007	
124-48-1						
10061-02-6					AND	
79-00-5 1,1,2-trichloroethane 12 U 75-25-2 Bromoform 12 U 108-10-1 4-Methyl-2-pentanone 12 U 591-78-6 2-Hexanone 12 U 79-34-5 1,1,2,2-Tetrachloroethane 12 U 127-18-4 Tetrachloroethane 12 9 JB 108-88-3 Toluene 12 U 108-90-7 Chlorobenzene 12 U 108-90-7 Chlorobenzene 12 U 100-42-5 Styrene 12 U						
75-25-2 Bromoform 12 U 108-10-1 4-Methyl-2-pentanone 12 U 591-78-6 2-Hexanone 12 U 79-34-5 1,1,2,2-Tetrachloroethane 12 U 127-18-4 Tetrachloroethane 12 9 JB 108-88-3 Toluene 12 U 108-90-7 Chlorobenzene 12 U 108-90-7 Chlorobenzene 12 U 100-42-5 Styrene 12 U					55000 0000 0000 0000 0000 0000 0000 00	
108-10-1						
The color of the					90000000000000000000000000000000000000	
79-34-5 1,1,2,2-Tetrachloroethane 12 U 127-18-4 Tetrachloroethene 12 9 JB 108-88-3 Toluene 12 U 108-90-7 Chtorobenzene 12 U 100-41-4 Ethylbenzene 12 U 100-42-5 Styrene 12 U	THE STATE OF THE S				one and the contract of the co	
127-18-4 Tetrachloroethene 12 9 JB 108-88-3 Toluene 12 U 108-90-7 Chtorobenzene 12 U 100-41-4 Ethylbenzene 12 U 100-42-5 Styrene 12 U	A47-4-4-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-7-	1 1 2 2-Tetrachioroethane			ANAMANA MANAMANA MANAMANA MANAMANA MANAMANA	
108-88-3 Toluene 12 U 108-90-7 Chtorobenzene 12 U 100-41-4 Ethylbenzene 12 U 100-42-5 Styrene 12 U		Terrachi consthans		9	JB	
108-90-7 Chtorobenzene 12 U 100-41-4 Ethylbenzene 12 U 100-42-5 Styrene 12 U		A-14-A-1-A-1-A-1-A-1-A-1-A-1-A-1-A-1-A-1			*************	
100-41-4 Ethylbenzene 12 U 100-42-5 Styrene 12 U					U	
100-42-5 Styrene 12 U		\$			U	
					U	
		Xylenes, Total	12		U	
1634-04-4 NTBE 12 U			12		U	



CTDOHS PH-0054

Client Name: Vincent Uhl Associates, Inc.

Project Name: STANDARD

ETL Sample Number: 122403-04

Client I.D.: TB-7 14'-16' (SAT)

Date Collected: 13-APR-93

Metrix: 3 Soil/Sldg

Date Received: 14-APR-93

Percent Solid: 89.1 %

Date Analyzed: 20-APR-93

Method: 8240

Comments: RI-BPM

		Detection Limit	Conc.	Data
CAS NO.	Compound	ug/kg	ug/kg	Qualifier
74-87-3	Chloromethane	56		U
74-83-9	Bromomethane	56		U
75-01-4	Vînyl chloride	56		U
75-00-3	Chloroethane	56		U
75-09-2	Methylene chloride	56		υ
67-64-1	Acetone	56		U
75-15-0	Carbon disulfide	56		U
75-35-4	1,1-Dichloroethene	56		U
75-34-3	1.1-Dichloroethane	56		U
540-59-0	1,2-Dichloroethene(total)	56		U
67-66-3	Chioraform	56		U
107-06-2	1,2-Dichloroethane	56		U
78-93-3	2-Butanone	56		U
71-55-6	1,1,1-Trichloroethane	56		U
56-23-5	Carbon tetrachioride	56		Ų
108-05-4	Vinyl acetate	56		U
75-27-4	Bromodichloromethane	56		Ü
78-87-5	1,2-Dichloropropane	56		U
10061-01-5	cis-1,3-Dichtoropropene	56		Ų
79-01-6	Trichloroethene	56	55555555566665556666666666666666666666	U
71-43-2	Benzene	56		Ü
124-48-1	Dibromochloromethane	56		U ,.
10061-02-6	trans-1,3-Dichloropropene	56		U.
79-00-5	1,1,2-trichloroethane	56	444400000000000000000000000000000000000	U
75-25-2	Bromoform	56		U
108-10-1	4-Methyl-2-pentanone	56		Ü
591-78-6	2-Hexanone	56		U
79-34-5	1,1,2,2-Tetrachloroethane	56 56	980	Ü
127-18-4	Tetrachloroethene	Taranta da de la faración de la contrata de la cont		U
108-88-3	Toluene	56 56		i i
108-90-7	Chilorobenzene	56		U
100-41-4	Ethylbenzene	56 56		<u>i</u>
100-42-5	Styrene	56		Ü
1330-20-7	Xylenes, Total	56 56		Ü
1634-04-4	MTBE	20		000000000000000000000000000000000000000

Client Name: Vincent Uhl Associates, Inc.

Project Name: STANDARD

ETL Sample Number: 122403-05

Client I.D.: TB-8 6'-6.5' (SAT)

Date Collected: 13-APR-93

Matrix: 3 Soil/Sldg

Date Received: 14-APR-93

Percent Solid: 90.9 %

Date Analyzed: 20-APR-93

Method: 8240

Comments: RI-BPM

			Detection Limit	Conc.	Data	
	CAS NO.	Compound	ug/kg	ug/kg	Qualifier	
_	74-87-3	Chłorome thane	22000		Ü	
	74-83-9	Bromomethane	22000		Ü	_
	75-01-4	Vinyt chtoride	22000		U	
	75-00-3	Chloroethane	22000		U	
	75-09-2	Methylene chloride	22000		Ü	
	67-64-1	Acetone	22000		U	
	75-15-0	Carbon disulfide	22000		Ü	
	75-35-4	1,1-Dichloroethene	22000		Ü	
	75-34-3	1,1-Dichloroethane	22000		U	
	540-59-0	1,2-Dichloroethene(total)	22000		U	
	67-66-3	Chiorofor m	22000		U	
	107-06-2	1,2-Dichloroethane	22000		U	
	78-93-3	2-Butanone	22000		U	
	71-55-6	1,1,1-Trichloroethane	22000		U	
	56-23-5	Carbon tetrachioride	22000		U	
	108-05-4	Vinyl acetate	22000		U	
	75-27-4	Bromodichloromethane	22000		U	
	78-87-5	1,2-Dichloropropane	22000		U	
	10061-01-5	cis-1,3-Dichtoropropene	22000		IJ	
	79-01-6	Trichloroethene	22000		U	
	71-43-2	Benzene	22000		U	
	124-48-1	Dibromochloromethane	22000		U	
	10061-02-6	trans-1,3-Dichloropropene	22000		U	
	79-00-5	1,1,2-trichloroethane	22000		U	
	75-25-2	Bromoform	22000		U	
	108-10-1	4-Methyl-2-pentanone	22000		U	
	591- <i>7</i> 8-6	2-Hexanone	22000		IJ	
	79-34-5	1,1,2,2-Tetrachloroethane	22000		U	
	127-18-4	Tetrachloroethene	22000	410000		
	108-88-3	Toluene	22000		U	
	108-90-7	Chłorobenz ene	22000		U	
	100-41-4	Ethylbenzene	22000		U	
	100-42-5	Styrene	22000		IJ	
	1330-20-7	Xylenes, Total	22000		U	
	1634-04-4	NTBE	22000		U	

ANALYTICAL REPORT

Vincent Uhl Associates, Inc. Jackie Baron 1078 Taylorsville Road Po Box 93 Washington PA 18977

 Report Date:
 12-MAY-93

 Project:
 STANDARD

 Lab Number:
 122423

 Sample Number(*):
 122423-01

 to
 122423-02

Ronald A. Bayer Laboratory Director

Client Name: Vincent Uhl Associates, Inc.

Project Name: STANDARD

ETL Sample Number: 122423-01

Client I.D.: TB-9 / 4'-6' (SATURATED)

Date Collected: 13-APR-93

Matrix: 3 Soil/Sldg

Date Received: 14-APR-93

Percent Solid: 87.2 %

Date Analyzed: 20-APR-93

Method: 8240

Comments: RI-BPM

		Detection Limit	Conc.	Data
CAS NO.	Compound	ug/kg	ug/kg	Qualifier
74-87-3	Chloromethane	11		U
74-83-9	Bromomethane	11		Ü
75-01-4	Vinyl Chloride	11	2	· · · · · · · · · · · · · · · · · · ·
75-00-3	Chloroethane	11	1	J
75-09-2	Methylene Chloride	11		Ü
67-64-1	Acetone	11		U
75-15-0	Carbon Disulfide	11		Ū
<i>7</i> 5-35-4	1,1-Dichloroethene	11		Ü
75-34-3	1,1-Dichloroethane	11		U
540-59-0	1,2-Dichloroethene(total)	11		U
67-66-3	Chloroform	11		U
107-06-2	1,2-Dichloroethane	11		U
78-93-3	2-Butanone	11		U
71-55-6	1,1,1-Trichloroethane	11	2	J
56-23-5	Carbon Tetrachloride	11		U
108-05-4	Vinyl Acetate	11		U
75-27-4	Bromodichloromethane	11		U
78-87-5	1,2-Dichloropropane	11		U
10061-01-5	cis-1,3-Dichloropropene	11		IJ
79-01-6	Trichloroethene	11		U
71-43-2	Benzene	11		U
124-48-1	Dibromochloromethane	11		U
10061-02-6	trans-1,3-Dichtoropropene	11		U
79-00-5	1,1,2-Trichloroethane	11		U
75-25-2	Bromoform	11		U
108-10-1	4-Methyl-2-pentanone	11		U
591-78-6	2-Hexanone	11		U
79-34-5	1,1,2,2-Tetrachloroethane	11		U
127-18-4	Tetrachloroethene	11	73	
108-88-3	Toluene	11		U
108-90-7 100-41-4	Chlorobenzene	11		U
100-41-4	Ethylbenzene	11	000000000000000000000000000000000000000	
1330-20-7	Styrene Yylenes Total			U
1JJU-6U-/	Xylenes, Total MTBE	11 11	000000000000000000000000000000000000000	U

Client Name: Vincent Uhl Associates, Inc.

Project Name: STANDARD

ETL Sample Number: 122423-02

Client I.D.: TB-5 / 6'-8' (SATURATED)

Date Collected: 14-APR-93

Matrix:

Date Received: 14-APR-93

88.4 % Percent Solid:

Date Analyzed: 20-APR-93

Method: 8240

3 Soil/Sldg

Comments: RI-BPM

		Detection	Conc.	Data
CAS NO.	Compound	Limit ug/kg	ug/kg	Qualifier
74-87-3	Chioromethane	11		U
74-83-9	Bromomethane	11		U
75-01-4	Vinyl Chloride	11		U
75-00-3	Chloroethane	11		<u></u>
75-09-2	Methylene Chloride	11		U
67-64-1	Acetone	11		
75-15-0	Carbon Disulfide	11		U
75-35-4	1,1-Dichloroethene	11		U
75-34-3	1,1-Dichloroethane	11		Ų
540-59-0	1,2-Dichloroethene(total)	11		U
67-66-3	Chloroform	11		Ü.
107-06-2	1,2-Dichloroethane	11		U
78-93-3	2-Butanone			U
71-55-6	1,1,1-Trichloroethane	11		U U
56-23 - 5	Carbon Tetrachloride	11		U
108-05-4	Vinyl Acetate	11		Ü
75-27-4	Bromodichloromethane	11		Ü
78-87-5	1,2-Dichloropropane	11 11		บ
10061-01-5	cis-1,3-Dichtoropropene			Ü
79-01-6	Trichloroethene	11		Ü
71-43-2	Benzene	11		Ŭ
124-48-1	Dibromochloromethane	11		ŭ
10061-02-6	trans-1,3-Dichloropropene	11		Ŭ
79-00-5	1,1,2-Trichloroethane	11 11		Ü
75-25-2	Bromoform	11		Ŭ
108-10-1	4-Methyl-2-pentanone	11		Ü
591-78-6	2-Hexanone 1,1,2,2-Tetrachloroethane	11		Ŭ
79-34-5	Tetrachloroethene	11	***************************************	j
127-18-4 108-88-3	Toluene	11	000000000000000 00 0000000000000000000	Ü
108-90-7	Chi orobenzene	11		Ü
100-41-4	Ethylbenzene	11	est e contrato de la	Ū
100-41-4	Styrene	11		U
1330-20-7	Xylenes, Total	11	,	U

CTDOHS PH-0054

APPENDIX G

MONITORING WELL CONSTRUCTION DIAGRAMS

			Project	BIG V/B	PM		Well	MW-1S
	_LAND ST	JRFACE	Town/City	Baldwin I	Place			-
///			County	Westches	ter		State	NY
///	8 inc	h diameter	Permit No.	N/A	_			
// ///	1	lled hole	Land-Surface	Elevation			_⊠ Su	rveyed
/		•	and Datum	597.41	feet (amsl)		imated
!		h diameter	{		-	ž.		
///	PVC		Installation Da	ates:	July 30, 19	992		
///			Drilling Metho	od:	Air Hamn	ner		
///		Backfill	Drilling Contr	actor:	Samuel St	othoff		
///		Grout 0-1 ft	Drilling Fluid:		Air			
///								
///			Development	rechnique an	d Date:	Submersible p	oump	
///				_		8-12-92		
///								
///			Fluid Loss Du	ing Drilling:		N/A		
///			Water Remove	ed During De	velopment:	245 Gallons		
///	1 ft		Static Depth to	Water:	_	7.24 ft. bmp		
			Pumping Dept	h to Water:		9.88 ft. bmp		
	Bentonite	slurry	Pumping Dura	tion:		35 Minutes		
		pellets	Yield:			7 gpm		
	2 ft		Specific Capac	ity:		2.65 gpm/ft.		
			Well Purpose:			Monitoring G	roundwa	ater
						Quality		
			Remarks:	amsl = abo	ove mean sea	a level		
				bmp = bel	ow measurir	ng point		
				(top of	4-inch diam	eter PVC casing	g)	
	3.6 ft			gpm = gall	ons per min	ute		
	3							I
	·	diameter		*Note: Flu	ish mount co	over installed.		.
10000000000000000000000000000000000000	PVC	20_ slot						
1101000		Gravel Pack	Prepared By: 1	TM.				•
	• .	Sand Pack #2	- ropulou by. I					1
	4	formation Collapse						l
5 0000000	1							- 1
**********	23.6 ft							1

		Project:	BIG V/E	3PM		Well: MW-1I
1	LAND SURFACE	Town/City:	Baldwin	Place		
///	///	County:	Westche	ster		State: NY
///	/// 10 inch diameter	Permit No.:	N/A			
///	/// drilled hole	Land-Surface	Elevation:			✓ Surveyed
///	<- Well casing	and Datum	597.41	feet (amsl)	.*	☐ Estimated
///	/// 6 inch diameter					
///	/// Steel	Installation Da	tes	July 27 and	July 30-31, 19	992
///		Drilling Metho	d:	Air Hamme		
///	/// Backfill	Drilling Contra	ctor:	Samuel Stot	hoff	
///	/// Grout 0-59.2 ft	Drilling Fluid:		Air		
///	///					
///	///	Development T	echnique ar	nd Date:	Submersit	ole pump
///	///				8-12-92	•
///	/// 20 ft <top of<="" td=""><td></td><td></td><td></td><td></td><td></td></top>					
///	/// competent	Fluid Loss Dur	ing Drilling:		N/A	
///	/// bedrock	Water Remove	d During De	evelopment:	75 Gallons	s
///	/// 59.2 ft	Static Depth to			31.10 ft. b	mp
į		Pumping Depth	to Water:		81.95 ft. bi	mp
		Pumping Durat	ion:		15 Minute	S
		Yield:			5 gpm	
		Specific Capaci	ty:		0.09 gpm/f	t.
		Well Purpose:				g Groundwater
					Quality	
					•	
		Remarks:	amsl = ab	ove mean sea l	evel	
	6-inch diameter		bmp = bel	low measuring	point	
	open hole		(top of	6-inch diamete	er steel casing	;)
				lons per minute		
			*Note: Flu	ush mount cove	er installed.	
					•	
]
						1
	000					į
	<u>90.8</u> ft	Prepared by:	KJM			i

	<-2 ft	Project	BIG V/E	BPM		Well N	vW-2S
	LAND SURFACE	Town/City	Baldwin				
///		County	Westchester			State	NY
///	/// 8 inch diameter	Permit No.	N/A				
<i> </i>	/// drilled hole	Land-Surface				— ☑ Surv	eved
	<- Well casing	and Datum	601.53	feet (amsl)	Y	☐ Estin	-
///	/// 4 inch diameter				,		
///	/// PVC	Installation Da	tes:	July 29, 19	92		
///	///	Drilling Metho		Air Hamm			<u> </u>
///	/// Backfill	Drilling Contra		Samuel Sto			
///	///	Drilling Fluid:	ictor.	Air	oulon		
<i> </i>	Gloat 0-0.5 It	Drinning 1 raid.		1 111			
/// ///	///	Development 7	Technique a	nd Date:	Submersible	numn and	
///	/// ///	Development	commque a	na Date.	hand bailing		
					nand bannig	. 0-12-92	
1 1		Fluid Loss Dur	ina Drillina	•	N/A		
/// ///	// //	Water Remove			20 Gallons		
1 1	/// /// 0.5 ft	1	•	evelohment.			
///	/// 0.5 ft	Static Depth to			3.67 ft. bmp	_	
	Double of the Control	Pumping Dept			10.85 ft. bmp 8 Minutes)	
	Bentonite slurry	Pumping Dura	lion:				
	☐ pellets	Yield:	·		1 gpm		,
****	1 ft	Specific Capac	ity:		0.13 gpm/ft.	•	
		Well Purpose:			Monitoring (Joundwate	er
					Quality		
	_						
		Remarks:		bove mean se			
				elow measurii			
					eter PVC casi	ng)	
	1ft		gpm = ga	allons per min	ute		
	Well Screen		***			á	
	4 inch diameter				r protective st	eel	
	PVC 20 slot		casir	ig installed.			
-							
	☐ Gravel Pack						
**************************************	✓ Sand Pack #2						
	☐ Formation Collapse	e Prepared By: I	UM				
77.4.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1							
	14 ft						

	<-3 ft	Project	BIG V/B	PM		Well MW-2D
	LAND SURFACE	Town/City	Baldwin			
///	///	County	Westches		W	State NY
///	/// 10 inch diameter	Permit No.	N/A			
///	/// drilled hole	Land-Surface			······	_ ✓ Surveyed
//	< Well casing	and Datum	601.66	feet (amsi)	☐ Estimated
//	/// 4 inch diameter				,	
	/// PVC	Installation Da	ites:	July 27-29	. 1992	
	///	Drilling Metho		Air Hamn		
	/// Backfill	Drilling Contra		Samuel St		
1	///	Drilling Fluid:		Air		
1	///			* ***		
		Development 3	Technique ar	nd Date:	Submersible	ກນຫາກ
	///		1		8-7-92	rp
	<i> </i>				0,72	
1	<i> </i>	Fluid Loss Dur	ing Drilling:		N/A	
	<i> </i>	Water Remove			870 Gallons	
	/// 55 ft	Static Depth to		7 - 010 P11101111	13.69 ft. bmp	
		Pumping Dept			55.79 ft. bmp	
	Bentonite slurry	Pumping Dura			87 Minutes	
		Yield:			10 gpm	
	57 ft	Specific Capac	itv:		0.24 gpm/ft.	
T		Well Purpose:	,.		Monitoring G	roundwater
1		, vom a mposov			Quality	
					Quanty	
		Remarks:	amsl = ah	ove mean se	a level	
				low measuring		
			-		eter PVC casin	10)
	60 ft			llons per min		·6 <i>)</i>
_	<- Well Screen		5P 5a	noim ber inn		
	4 inch diameter		*Note: 8-	inch diamete	r protective ste	el l
100 P	PVC 20 slot			g installed.	r protective ste	.01
			VOID II	5 mmunou.		
	☐ Gravel Pack					
	Sand Pack #2	Prepared By: K	CJM			
	☐ Formation Collapse					
1	90 ft					
1	93 ft					
		1				

Γ	<-2 ft		Project	BIG V/B	PM		Well	MW-3S
	LANDS	SURFACE	Town/City	Baldwin I				
///	///		County	Westches		· · · · · · · · · · · · · · · · · · ·	State	NY
///	4 1	ch diameter	Permit No.	N/A				
//	/// dri	illed hole	Land-Surface	Elevation			_⊠Sı	rveyed
//	<- Well cas	ing	and Datum	602.65	feet (amsl)		timated
//	/// 4 inc	ch diameter				,		
·	/// PVC		Installation Da	tes:	August 6,	1992		
1	///	-	Drilling Metho	d:	Air Hamn			
		Backfill	Drilling Contra		Samuel St	othoff		
	•	Grout 0-0.5 ft	Drilling Fluid:		Air			
	///							
1	///		Development 7	Technique an	d Date:	Hand bailing	:	
	<i> </i>			11		8-13-92 and		
	///							
	///		Fluid Loss Dur	ing Drilling:		N/A		
1	///		Water Remove	_	velopment:	70 Gallons		
	/// 0.5 ft		Static Depth to	_		5.42 ft. bmp		
			Pumping Deptl			Bailed dry		
	Bentonit	e 🗌 slurry	Development I			55 Minutes		
		pellets	Yield:			N/A		
	1 ft	The second second	Specific Capaci	itv:		NM		
			Well Purpose:			Monitoring (ironndw	ate r
						Quality	310414	4101
						Quanty		
			Remarks:	amsl = ah	ove mean se	a level		
	***************************************		TOMULAS.		low measuri			
**************************************	***************************************					ng pom: neter PVC casin	ng)	
	3 ft				measured	oter r v e ousn	- 6/	
	< Well Scre	een						
		h diameter		*Note: 8-	inch diamete	r protective st	eel	
	PVC	20 slot			g installed.	r protoctive bu		
				V	,			
		Gravel Pack						
		Sand Pack #2						
			Prepared By: K	CIM				
1	23 ft		- reputed by. It					
	23.3 ft							
	······································		i .					

	<-2 ft		Project	BIG V/BP	M		Well	MW-3D
		SURFACE	Town/City	Baldwin P				
///			County	Westchest		······································	State	NY
	ı	ch diameter	Permit No.	N/A				
		illed hole	Land-Surface E				¬ ⊠ Su	ırveyed
. 1 1	<- Well cas		and Datum	602.25	feet (amsl)	1		imated
1 1-		ch diameter				•		
	// PVC		Installation Dat	es:	August 11,	. 1992		
1 1	, =	ar-con-	Drilling Method		Air Hamm	~ ~~		
		Backfill	Drilling Contract		Samuel Sto			
	1	Grout 0-53 ft	Drilling Fluid:		Air			j
	1							
			Development T	echnique and	i Date:	Submersible p	ump	
	· 1			1		8-15-92	г	
1 1	1		Fluid Loss Duri	ng Drilling:		N/A		
' // ' //	ł		Water Removed	-	velonment:	120 Gallons		l
·			Static Depth to	_	V-1-0	12.59 ft. bmp		
	, , , , , , , , , , , , , , , , , , , ,		Pumping Depth			84.00 ft. bmp		
	Bentonit	e 🗆 slurry	Pumping Durat			40 Minutes		
		pellets	Yield:			3 gpm		
	57 ft	— .	Specific Capaci	tv:		0.04 gpm/ft.		
			Well Purpose:	•		Monitoring G	roundw	ater
			•			Quality		
	**************************************					•		
	1		Remarks:	amsl = abo	ove mean sea	a level		
	100 (100 (100 (100 (100 (100 (100 (100			bmp = bel	ow measurii	ng point		İ
2.24 2.24 2.24 2.24 2.24 2.24 2.24 2.24	0.1.1.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0			-		eter PVC casin	g)	
	60 ft			` •	lons per min	•	<i></i>	
	- Well Scr	een			-			
	4 inc	h diameter		*Note: 8-i	nch diamete	r protective ste	el	İ
	PVC	20 slot		casing	installed.			ļ
	**************************************			_				}
		Gravel Pack						
		Sand Pack #2	Prepared By: K.	JM				
		Formation Collapse						
	90 ft	•]
	94 ft							

	<-1.1 ft	Project:	BIG V/BI	PM		Well:	MW-3DD
<u> </u>	LAND SURFACE	Town/City:	Baldwin P			<u> </u>	
///	///	County:	Westchest	ter		State:	NY
///	/// 10 inch diameter	Permit No.:	N/A			-	<u> </u>
///	/// drilled hole	Land-Surface E				_ ✓ Sur	veyed
	< Well casing	and Datum	602.22	_ feet (amsl)		Estir	•
///	/// 6 inch diameter			- ,			
///	/// Steel	Installation Date	es	August 6-7 and	d 10-13 <u>, 199</u>	2	·———
///	///	Drilling Method	i :	Air Hammer	-		
///	/// Backfill	Drilling Contract		Samuel Stotho	off		
///	///	Drilling Fluid:	-	Air	,		
///				-			
///	/// 88 ft 10-inch diameter	Development To	echnique an	d Date:	Air lift	-	
///	/// steel casing	•	•		8-14-92		
	/// 97 ft <-Top of				~ _		
///	/// competent	Fluid Loss Duri	ng Drilling:		N/A		
	/// bedrock	Water Removed	-	velopment:	14 Gallons	i	
<i> </i>	/// 170 ft	Static Depth to		, o	NM		
<u> </u>	170.5 ft <- 6-inch diameter	Pumping Depth			NM		
	Drive Shoe	Pumping Durati			140 Minute	eç	
		Yield:	<i>V</i> 2		0.10 gpm	<i>.</i>	
		Specific Capacit	v•		NM		
		Well Purpose:	у.		Monitoring	r Ground	lwater
		Won't any			Quality	, Oroma	IWater
j					Quanty		
		Remarks:	amsl = abo	ove mean sea lev	امر		
	6-inch diameter		NM = not		/C1		
	open hole			lons per minute			
	open nois		8P	ions her mmere			
		I					
		ŀ					
		I					
							·
i		i					
		ı					
	200 ft	Prepared by:	KJM				
_		1 xopuru - j	1301.				

	<-2 ft	Project	BIG V/BPI	M		Well	MW-4S
	LAND SURFACE	Town/City	Baldwin Pl	ace		-	
///	///	County	Westcheste	ा		State	NY
///	/// 8 inch diameter	Permit No.	N/A			-	
///	/// drilled hole	Land-Surface E	levation			_ ⊠ Su	rveyed
///	< Well casing	and Datum	609.68	feet (amsl)			imated
///	/// 4 inch diameter			. , ,			
///	/// PVC	Installation Dat	es:	August 5, 1	1992		
///	///	Drilling Method	l:	Air Hamm			
///	/// Backfill	Drilling Contract		Samuel Sto	othoff		
///	///	Drilling Fluid:		Air			
///	///						
///	///	Development T	echnique and	Date:	Submersible p	ump an	id
///	///	-	•		hand bailing.	-	
///	///				U		
	///	Fluid Loss Duri	ng Drilling:		N/A		
	///	Water Removed	-	elopment:	57 Gallons		
	/// 1.2 ft	Static Depth to	-	•	7.35 ft. bmp		
		Pumping Depth			22.35 ft. bmp		
	Bentonite slurry	Pumping Durati			25 Minutes		
	pellets	Yield:			2.3 GPM		
	2 ft	Specific Capacit	v:		0.14 gpm/ft.		
		Well Purpose:	•		Monitoring G	roundw	ater
***************************************		, and a second			Quality		
***************************************					~		
**************************************		Remarks:	amsl = abo	ve mean sea	level		
**************************************				w measuring			
11111111111111111111111111111111111111			•	4-inch PVC	~ .		
**************************************	3.6 ft		` •	ons per min	Ψ,		
**************************************	<- Well Screen		or o	L	· =		
	4 inch diameter		*Note: 8-in	ch diameter	protective stee	1	
	PVC 20 slot			nstalled.			
	☐ Gravel Pack		6 -				!
***********	Sand Pack #2						
	☐ Formation Collapse						
***************************************	23.6 ft	Prepared By: K	JM				
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	24.1 ft Bottom cap						
	26.8 ft						

	3 ft	Project:	BIG V/B	РМ		Well: MW-4D
1 1	LAND SURFACE	Town/City:	Baldwin 1			_ WELL. 141 W-4D
	/// Sold ReE	County:	Westches			State: NY
///	/// 10 inch diameter	Permit No.:	N/A	ofer		State. IVI
// //	/// drilled hole	Land-Surface I				_ ✓ Surveyed
	<- Well casing	and Datum	609.72	feet (amsl)		Surveyed □ Estimated
/// ///	/// 6 inch diameter	and Datum	003.12	— reer (amsi)		Laumateu
/// ///	/// Steel	Installation Da	toc	Amount 3 A	1002	
	///	Drilling Metho		August 3-4, Air Hammer		
/// ///	/// Backfill	Drilling Contra		Samuel Stoti		
	///	Drilling Fluid:	Clor.	Air	1011	
	/// Oldut 0-36.4 It	Dinning Fluid:		Air		
	/// ///	Davidonment T	ookaiawa oa	nd Dotor	Cultura amella	.1
///	/// ///	Development T	ecumque ar	id Date:	Submersib 8-12-92	ole pump
///					0-12-92	
///	· ·	Ehrid Loss Drom	: D:11:		NT/A	
///	•	Fluid Loss Dur			N/A	
	/// bedrock /// 58.4 ft	Water Remove	_	evelopment:	550 Gallor	
	11 36.4	Static Depth to			9.42 ft. bm	•
		Pumping Depth			60.97 ft. b	•
		Pumping Durat	ion:		55 Minute	S
		Yield:			10 gpm	
		Specific Capaci	ty:		0.19 gpm/f	
		Well Purpose:				g Groundwater
					Quality	
		Remarks:	omel — oh	ove mean sea l	oved!	
	6-inch diameter	Kemarks.				
	open hole			low measuring		-/
	open note			f 6-inch diamete llons per minut	_	3)
			ghm — ga	nons per minut	E	i
						}
						İ
						1
	90.5 ft	Prepared by:	KJM			İ
		F				į

					Project	BIG V/BP	M		Well	MW-5S
		LAN	D SU	RFACE	Town/City	Baldwin P			-	
///	///	T	-		County	Westchest			State	NY
///	///	8	inch	diameter	Permit No.	N/A			-	
///	///		drill	ed hole	Land-Surface E	levation			_ ✓ Su	rveyed
/	<-	Well	casing	,	and Datum	603.36	feet (amsl))	□ Est	imated
7	///	4	inch	diameter			- · · ·			
·	///	PVC		_	Installation Date	es:	August 5,	1992		
	///			_	Drilling Method	:	Air Hamm	er		
	///		\square B	ackfill	Drilling Contract	tor:	Samuel Sto	othoff		
	///		\square	Grout 0-0.5 ft	Drilling Fluid:		Air			ļ
	///									
	///				Development To	echnique and	d Date:	Submersible p	ump	-
	///							8-15-92		
1	///									
	///				Fluid Loss Durin	ng Drilling:		N/A		
/	///				Water Removed	During Dev	elopment:	240 Gallons		
	///	0.5	ft		Static Depth to	Water:		2.31 ft. bmp		
					Pumping Depth	to Water:		21.17 ft. bmp		
		Bento	nite	slurry	Pumping Durati	on:		60 Minutes		
				pellets	Yield:			4 gpm		
		1.8	ft		Specific Capacit	y:		0.212 gpm/ft.		
					Well Purpose:			Monitoring Gr	oundw	ater
	A transfer and a tran							Quality		
	**************************************				Remarks:	amsl = abo	ove mean sea	a level		
	Parameter of the control of the cont					_	ow measurin			
17 A A A A A A A A A A A A A A A A A A A	A TOTAL AND A TOTA							eter PVC casing	<u>;</u>)	
_	# 1	3	ft			gpm = gall	ons per min	ute		
	_ <	Well S								
			inch	diameter		*Note: Flu	ish mount co	over installed.		
7 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	PVC	-	20_ slot				•		
	Add and an and a second and a s									
-				ravel Pack						
-	-			and Pack #2	Prepared By: K.	JM				
	-			ormation Collapse						
L		23	ft							
		23.5	ft							

		Project	BIG V/BPM		Well	MW-5D
	LAND SURFACE	Town/City	Baldwin Place			
///	///	County	Westchester		State	NY
///	/// 8 inch diameter	Permit No.	N/A	· · · · · · · · · · · · · · · · · · ·		
///	/// drilled hole	Land-Surface 1	Elevation		—— ☑ Su	rveyed
///	< Well casing	and Datum	602.80 fee	et (amsl)		imated
///	/// 4 inch diameter			, ,		
///	/// PVC	Installation Da	tes: Ap	ril 15, 1993		
///	///	Drilling Metho		Hammer		
///	/// Backfill	Drilling Contra		nuel Stothoff		
///	/// Grout 0-45 ft	Drilling Fluid:	Air	•		
//	///					
///	///	Development 7	echnique and Da	te: Subn	nersible pump	
///	///	-	•		& 4-28-93	
//	///					
/	///	Fluid Loss Dur	ing Drilling:	N/A		
/	///		d During Develop	•	Gallons	
7	/// 45 ft	Static Depth to	-		ft. bmp	
		Pumping Depth			ft. bmp	
	Bentonite slurry	Pumping Durat			Minutes	
		Average Yield:		2 gpn	n	
	50.5 ft	Specific Capaci	tv:		gpm/ft.	
		Well Purpose:			itoring Groundwa	ater
		•		Quali		
				~	,	
		Remarks:	amsl = above m	ean sea level		
			bmp = below m	easuring noin	nt	1
				h diameter PV		
1000 1000 1000 1000 1000 1000 1000 100	57 ft		gpm = gallons p]
	<- Well Screen		81 8 1			
	4 inch diameter		*Note: Flush m	ount cover ins	stalled.	- 1
	PVC 10 slot					ł
						l
	`					I
	☑ Sand Pack #2	Prepared By: K.	IΜ			1
	87 ft					
7	87.5 ft Bottom cap					l
	90 ft					1

	<-2 ft		Project	BIG V/B	PM		Well	MW-6S
1 1		URFACE	Town/City	Baldwin I		···	- WCII	1V1 W -05
///		ONIACL	County	Westches		· · · · · · · · · · · · · · · · · · ·	State	NY
	ì	h diameter	Permit No.	N/A	ici		_ State	
		led hole	Land-Surface I				_ [\]/ \$	rveyed
/// ///	<- Well casi		and Datum	602.09	feet (amsl)	•		imated
		h diameter	and Datum	002.07	_ reer (ams))	L	imated
	/// PVC	i diameter	Installation Da	tae.	August 14	1002		
	/// 1 VC		Drilling Metho		Air Hamm			
1 1	i	Backfill	Drilling Contra		Samuel Sto			
1 1		Grout 0-0.5 ft	Drilling Collection Drilling Fluid:	ictor.	Air	JUIOH		
		<u> </u>	Diming Fluid.		All			
			Development 7	Tachmiana an	d Datas	Hand bailed		
1 1	///		Development	ecumque an	iu Date.	8-15-92		
	///					0-13-72		
1 1	/// ///		Fluid Loss Dur	ina Deillina.		N/A		
	///		Water Remove		walanmanti	38 Gallons		
1 1	/// 0.5 ft		Static Depth to	_	меюршени.	3.51 ft. bmp		
"	// 0.5 It		Pumping Depth			N/A		
	Bentonite	slurry	Devlopment D			45 Minutes		
	Dentomic	pellets	Yield:	mauon.		N/A		
	1 ft	E penes	Specific Capaci	ten		NM		
in in in in in in in in in in in in in i	1 11		Well Purpose:	.ty.		Monitoring G	roundsv	oto r
			went apose.			Quality Quality	TOULLUM	aici
	**************************************					Quanty		
	1000 1000 1000 1000 1000 1000 1000 100		Remarks:	omel – oh	ove mean sea	a loval		
	0.000 (0.		Kemaras.		low measuring			
	00000000000000000000000000000000000000					ig point eter PVC casing	<i>م)</i>	
	3 ft				t measured	etel i v C cashi	B)	
	<- Well Scre	An		1111 - 110	t measured			
		diameter		*Note: &	inch diamete	r protective stee	a]	
	PVC	20 slot			g installed.	r protective stee	C1	
		<u> 20</u> Siot		COSIL	5 mounou.			
	П	Gravel Pack						
	*******	Sand Pack #2						
				rm (
	□ □ F	formation Collanse	Prepared Rv. K	JM				ì
	□ □ F 23 ft	Formation Collapse	Prepared By: K	JM				

						Project	BIG V/BI	PM		Well	MW-7S
			LAN	D SU	RFACE	Town/City	Baldwin I				
Г	///	///		-		County	Westches			State	NY
	///	///	8	3 inch	diameter	Permit No.	N/A				
	///	///		drill	ed hole	Land-Surface	Elevation			_ ✓ Su	rveyed
	///	<-	Well	casing	Į.	and Datum	602.07	feet (amsl)		imated
	///	///			diameter			···· \			
	///	. ///	PVC	_		Installation D	ates:	August 4 a	and 5, 1992		
	///	///			-	Drilling Metho		Air Hamn			
	///	///		□В	lackfill	Drilling Contr		Samuel St	othoff		
	///	///		\square	Grout 0-1.5 ft	Drilling Fluid:		Air			
	///	///									
-	///	///				Development	Technique an	d Date:	Submersible p	umo	
	///	///				*	•		8-12-92		
	///	///									
	///	///				Fluid Loss Du	ring Drilling:		N/A		
	///	///				Water Remove	-	velopment:	165 Gallons		
	///	///	1.5	ft		Static Depth to	_	•	7.35 ft, bmp		
				_	•	Pumping Dept			22.40 ft. bmp		
			Bento	nite	slurry	Pumping Dura			75 Minutes		
					pellets	Yield:			2.20 gpm		
			3	ft	-	Specific Capac	ity:		0.14 gpm/ft.		
	# 1	Experience of the control of the con		-		Well Purpose:	•		Monitoring G	roundw	ater
						_			Quality		
		# 12 and 12 control of the control o							•		
		Branchaster, and the state of t				Remarks:	amsl = ab	ove mean sea	a level		
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					bmp = bel	low measurii	ng point		
							(top of	4-inch diam	eter PVC casing	g)	
			5	ft			gpm = gal	lons per min	ute		
		_ <-	Well S	Screen	l						
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		inch	diameter		*Note: Fl	ush mount co	over installed.		
			PVC	_	20_ slot						
		######################################			ravel Pack	Prepared By:	ZTM				
				,	and Pack #2	Tichaten DA	TAT ME				
				=	ormation Collapse						
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		25	ft	Amadon Conapse						
				4.6		1					

		Project:	BIG V/BP	M		Well: MW-7D
.,	LAND SURFACE	Town/City:	Baldwin P	lace		_
///	///	County:	Westchest	er		State: NY
///	/// 10 inch diameter	Permit No.:	N/A			
///	/// drilled hole	Land-Surface	Elevation:			Surveyed
///	< Well casing	and Datum	602.18	feet (amsl)		Estimated
///	/// 6 inch diameter			-		
///	/// Steel	Installation Da	tes	April 12 and	April 13, 19	93
///	///	Drilling Metho	d:	Air Hammer		
<i> </i>	/// Backfill	Drilling Contra	actor:	Samuel Stoti	off	
///	/// Grout 0-60 ft	Drilling Fluid:		Air		
<i> </i>	///					
///	<i> </i>	Development 7	Technique and	Date:	Submersi	ble pump
///	///	-	•		4-27-93	1 1
///	/// 37 ft <top of<="" td=""><td></td><td></td><td></td><td></td><td></td></top>					
///	/// weathered	Fluid Loss Dur	ing Drilling:		N/A	
<i> </i>	/// bedrock	Water Remove	•	elopment:	65 Gallon	s
///	/// 60 ft	Static Depth to	-		5.75 ft. bn	าก
		Pumping Deptl			41.88 ft. b	•
		Pumping Dura			62 Minute	*
		Average Yield:			1 gpm	
		Specific Capaci			0.028 gpm	ı∕ft.
		Well Purpose:	•		• • •	g Groundwater
		•			Quality	9
		Remarks:	amsl = abo	ve mean sea le	evel	
	6-inch diameter		bmp = belo	w measuring	point	
!	open hole			5-inch diamete		g)
			_	ons per minute		5,
			*Notal Elm	sh mount cove	له و 11 محمدة س	
			Protes Pili	on mount cove	i mstancu.	
i	İ					

		Project	BIG V/B	PM		Well	MW-8S
	LAND SURFACE	Town/City	Baldwin	Place			
///	///	County	Westche	ster		State	NY
///	/// 8 inch diameter	Permit No.	N/A				
///	/// drilled hole	Land-Surface	Elevation			_ ☑ Su	rveyed
<i>///</i>	<- Well casing	and Datum	618.28	feet (amsl)		imated
///	/// 4 inch diameter			•			
///	/// PVC	Installation Da	ates:	August 4,	1992		
///	///	Drilling Metho	od:	Air Hamn	ner		
///	/// Backfill	Drilling Contr	actor:	Samuel St	othoff		
//	/// Grout 0-1 ft	Drilling Fluid:		Air			
7	///						
1	///	Development'	Technique ar	nd Date:	Hand bailed		
//	///				8-13-92 and 8	8-15-92	
//	///						
7	///	Fluid Loss Du	ring Drilling:		N/A		
/	///	Water Remove	ed During De	evelopment:	45 Gallons		
/	/// 1 ft	Static Depth to	Water:		6.00 ft. bmp		
	_	Pumping Dept			N/A		
	Bentonite slurry	Devlopment D	uration:		55 Minutes		
		Yield:			N/A		
	2 ft	Specific Capac	ity:		NM		
		Well Purpose:			Monitoring (froundwa	ater
	***************************************				Quality		
	***************************************	D 1					
	***************************************	Remarks:		ove mean se			
			-	low measuri			
	4 ft				eter PVC casir	ıg)	
	<- Well Screen		MM = 10	t measured			
	4 inch diameter		*Note: El	uch mount a	over installed.		
	PVC 20 slot		Hote: Fi	usii mouni ce	over installed.		
	20 300						
	☐ Gravel Pack						
******	✓ Sand Pack #2	Prepared By: K	JМ				
	☐ Formation Collaps	-					
	24 ft						
	25 ft						

		Project	BIG V/BPM		Well	MW-9S
	LAND SURFACE	Town/City	Baldwin Place			
///	///	County	Westchester		State	NY
///	/// 8 inch diameter	Permit No.	N/A			
7	/// drilled hole	Land-Surface E	levation		_ ☑∕ Sι	ırveyed
/	< Well casing	and Datum	596.21 feet (a)	msl)		timated
//	/// 4 inch diameter			,		
·	/// PVC	Installation Dat	es: April 2	21, 1993		
′	///	Drilling Method				
	/// Backfill	Drilling Contra	ctor: Samue	l Stothoff		
l	/// Grout 0-4.3 ft	Drilling Fluid:	Air			
	///					
İ	///	Development T	echnique and Date:	Submersible	pump	
ļ	///		•.	4-27-93	• •	
	///					
	///	Fluid Loss Duri	ng Drilling:	N/A		
1	///		d During Developmen	nt: 323 Gallons		
	/// 4.3 ft	Static Depth to	Water:	3.86 ft. bmp		
		Pumping Depth		9.53 ft. bmp		
İ	Bentonite slurry	Pumping Durat		52 Minutes		
		Average Yield:		6.6 gpm		
	7 ft	Specific Capaci	ty:	1.16 gpm/ft.		
Τ	**************************************	Well Purpose:	•	Monitoring (Groundw	ater
		_		Quality		
				•		
		Remarks:	amsl = above mear	n sea level		
	*		bmp = below meas	suring point		
			(top of 4-inch d	iameter PVC casir	ng)	
L	10.55 ft		gpm = gallons per	minute		
L	< Well Screen					
E	4 inch diameter		*Notes: Flush mou	ınt cover installed.		
	PVC 10 slot		Ten-inch diam	neter drilled hole		
			to 14 feet belo	w land surface.		
L		Prepared By: K	JM			
L	✓ Sand Pack #2					
L	_					ļ
L	30.55 ft					
	31 ft Bottom cap					

LAND SURFACE	Town/City:	TD 1.1		
	· C	Baldwin	Place	
/// 10 inch diameter	County:	Westche	ester	State: NY
	Permit No.:	N/A		
/// drilled hole	Land-Surface I	Elevation:		☑ Surveyed
< Well casing	and Datum	595.9	99 feet (amsl)	☐ Estimated
/// 6 inch diameter				
/// Steel	Installation Da	tes	April 19 and	April 20, 1993
///	Drilling Metho	d:	Air Hamme	•
1	Drilling Contra	ictor:	Samuel Stot	hoff
/// $\overline{\underline{J}}$ Grout 0-60 ft	Drilling Fluid:		Air	
///				
/ ///	Development T	Technique a	ınd Date:	Submersible pump
///		-		4-26-93
/// 15 ft <top of<="" th=""><th></th><th></th><th></th><th></th></top>				
/// competent	Fluid Loss Dur	ing Drilling	•	N/A
/// bedrock	Water Remove	d During D	evelopment:	90 Gallons
/// 60 ft	Static Depth to	Water:	•	3.08 ft. bmp
	Pumping Depth	n to Water:		81.26 ft. bmp
	1			45 Minutes
	Yield:			2 gpm
	Specific Capaci	ty:		0.026 gpm/ft.
	Well Purpose:	•		Monitoring Groundwater
	•			Quality
	Remarks:	amsl = a	bove mean sea l	evel
6-inch diameter		bmp = b	elow measuring	point
open hole		-	~	•
-		` •		Ų/
		<i>D</i> 1 <i>C</i>	1	
		*Note: F	lush mount cov	er installed.
				•
90 ft	Prepared by:	KJM		
	6 inch diameter	Steel	Installation Dates Drilling Method: Drilling Contractor: Drilling Fluid: Development Technique a Development T	G inch diameter Installation Dates April 19 and Drilling Method: Air Hammer Air Drilling Fluid: Air Development Technique and Date: Drilling Fluid: Air Development Technique and Date: Development Technique and Date: Development Technique and Date: Development Technique and Date: Development Technique and Date: Development Technique and Date: Development Technique and Date: Development Technique and Date: Development Technique and Date: Development Technique and Date: Development Technique and Date: Development Technique and Date: Development Technique and Date: Development Technique and Date: Development Technique and Date: Deve

			Project	BIG V/BPM		Well	MW-10S
		LAND SURFACE	Town/City	Baldwin Place		_	
十	///	///	County	Westchester		State	NY
	///	/// 8 inch diameter	Permit No.	N/A			
	///	/// drilled hole	Land-Surface El	evation		ົ∐∕ Sບ	ırveyed
	///	< Well casing	and Datum	600.64 feet (ams	1)		timated
	///	/// 4 inch diameter					
	///	/// PVC	Installation Date	es: April 22,	1993		
	///	///	Drilling Method	: Air Ham	mer		
	///	/// Backfill	Drilling Contrac	tor: Samuel S	tothoff		
	///	///	Drilling Fluid:	Air			
	///	<i> </i>					
	///	///	Development Te	echnique and Date:	Submersible p	ump	
	///	///			4-27-93		
	///	///					
	///	///	Fluid Loss Durin	-	N/A		
	///	///		During Development:			
	///	/// 24 ft	Static Depth to		7.95 ft. bmp		
		_	Pumping Depth		28.43 ft. bmp		
		Bentonite slurry	Pumping Duration	on:	186 Minutes		
		pellets	Average Yield:		1.5 gpm		
		ft	Specific Capacit	y:	0.07 gpm/ft		
			Well Purpose:		Monitoring G	roundw	ater
					Quality		
			D 1	, ,	1 1		
			Remarks:	amsl = above mean s			
				bmp = below measur		-\	
		31 ft		(top of 4-inch diam		g)	
		- Vell Screen		gpm = gallons per mi	nute		
	Table	4 inch diameter		*Note: Flush mount	cover installed		
		PVC 10 slot		Note. Trush mount	cover mistaned.		
		10 Slot					
			Prepared By: K.	īΜ			
		✓ Sand Pack #2	r repared by. 12.				
		51 ft					
		51.5 ft Bottom cap					

	Town/City: Baldw County: Wester Permit No.: N/A Land-Surface Elevation and Datum 60 Installation Dates Drilling Method: Drilling Contractor: Drilling Fluid:	April 20 to April Air Hammer Samuel Stothol	ff
	Pluid Loss During Drilli Water Removed During Static Depth to Water: Pumping Depth to Water Pumping Duration: Average Yield: Specific Capacity: Well Purpose:	ing: g Development: er:	Submersible pump 4-27-93 N/A 255 Gallons 8.12 ft. bmp 65.00 ft. bmp 62 Minutes 5 gpm 0.088 gpm/ft. Monitoring Groundwater Quality
6-inch diameter open hole	bmp = (to gpm =	above mean sea level below measuring peop of 6-inch diameter gallons per minute Flush mount cover	oint steel casing)
<u>90</u> ft	Prepared by: KJM		

APPENDIX H

GEOLOGIC LOGS OF MONITORING WELLS

Project	BIGV	/BPM	Date 7-30-92
Location	Bald	win Place, N	ew York
Boring/W	ell Designat	ionMW-1	1S
Land Sur	face Elevation	on	Estimated <u>597.41</u> Surveyed
Drilling M	ethod	Air Hammer_	
Drilling Fl	uidAi	r	
Sampling	Method	Split Spoon	2ft. long/Grab
Sampling	Interval	Continuous	to Water then 5 Foot Interval
Drilling Co	ontractor _	_Samuel Sto	othoff
Prepared	By: A. Rana	a and K. McK	(eever
From (ft)	To (ft)	Sample Recovery (1	Sample Description
1	3	0.2 ft	Soil, brown, fine sand and silt (80%). Trace very fine gravel (<5%). Poorly sorted, dry. HNU=0, Head Space=1.
3	5	1.3 ft	Upper 0.1 ft of spoon: Soil, brown. 0.1 to 1.2 ft of spoon: Highly weathered (decomposed) bedrock, granitic gneiss, weathered to fine to med. sand, brown
			(80%), trace very fine gravel, subangular, feldspars (pink) and quartz (milky white); some mica crystals,
			black and tan-yellow, vitrous to submetallic luster. Dry, HNU=0, Head
			Space=0.8.
5	7	0.5	Refusal at 5.5 feet bgs. Sand, fine to
			med. (80%). Little silt (10%), trace clay, trace fine gravel, subangular, composed of highly weathered gneiss.
		1	i composed of highly weathered ghelss.

		Sample	Sample
From (ft)	To (ft)	Recovery (f	t) Description
5	7	continued	Micas, fine, quartz (0.3 mm dia.), milky white, HNU=0, dry, Head Space=1.2.
5	10		Sand, very fine to fine, light grey and silt (90%), trace very fine to fine gravel, grey, angular to subangular. Weathered gneiss composed of quartz (milky white), feldspar (pink). Some mica crystals, black (biotite), vitrous luster, and tan-yellow vitrous to submetallic luster (muscovite).
10	15		From 10 to 12 feet bgs: Sand, fine to med. (80%), little silt (10%), dry, Head Space=1.0. From 12 to 15 feet bgs: Silt and gravel, light brown, sample appears saturated. Weathered gneiss composed of milky white quartz, pink feldspars and black micas, little tan micas, vitrous luster.
15	20		Weathered gneiss, composed of med. sand (80%), light grey to black, moist to saturated, trace very fine to fine gravel, subangular, composed of milky white quartz, pink feldspars and black micas. Head Space=1.4.
20	24		No Sample

ProjectBIGV/BPM	Date 7-27-92
LocationBaldwin Place, N	lew York
Boring/Well DesignationMW	/-1D
Land Surface Elevation	Estimated <u>597.41</u> Surveyed
Drilling MethodAir Hammer	
Drilling FluidAir	
Sampling MethodSplit Spoon	2ft. long/Grab
Sampling IntervalContinuous	to Water then 5 Foot Interval
Drilling ContractorSamuel St	othoff
Prepared By: A. Rana and K. Mcl	Keever

From (ft)	To (ft)	Sample Recovery	Sample Description
0	0.5		Asphalt
0.5	0.83		Soil
0.83	2.83	50%	Clay, dark brown to brown (50%), and silt and fine sand (50%), trace very fine mica crystals in sample, black, tan vitrous luster.
2.83	4.83	50%	Sand, fine and silt (80%), brown, little clay, trace (<5%) very fine to fine gravel.
4.83		Refusal	No Recovery
5.5	10	Water level at 6.6 feet bgs.	Weathered gneiss composed of fine sand (80%), little silt, grey. Trace very fine gravel of quartz (milky white), and feldspar (pink). Very fine crystals of
			mica, black and tan-brown, vitrous luster, sample saturated.

		Sample	Comercia
From (ft)	To (ft)	Sample Recovery	Sample Description
10	11	100%	Weathered gneiss composded of fine sand
		Top of bedrock at 11 feet bgs.	(80%), little silt, little clay (~10%), brown, green and black, mica crystals thoughout sample, black and tan vitrous luster. Sample moist, HNU=0.
1.1	1 =	Cnch	Weathered Biotite gneiss composed of sand
11	15	Grab	very fine to fine, grey, green, black (90%), trace fine gravel, subangular, milky quartz. Very fine mica crystals, black and
			tan-brown, vitrous luster, HNU=0
15	20		Weathered Biotite gneiss composed of sand very fine to fine, grey, green, black (90%), trace fine gravel, subangular, milky quartz. Very fine mica crystals, black and tan-brown, vitrous luster, HNU=0
1	<u> </u>		
20	25		Granitic Biotite gneiss, quartz (milky white), feldspars (pink), and mica (black).
25	30		Granitic gneiss, pink, white, black. Micas, black and tan vitrous luster, quartz, milky white and pink. Feldspars, pink, black bands of mica in quartz-feldspar matrix. At 29 feet bgs-color change, more micas, blacker in color. HNU=0, Head Space =0.8.
30	35		Granitic gneiss, white, black. Greater percentage of darker minerals (micas) in this interval, friable. At 34 feet bgs a mica seam, HNU=0.4, Head Space=0.6.
35	40		Granitic gneiss, white, black, pink, green, some black mica, some pink feldspar, friable, trace iron precipitaion on cuttings, red. HNU=0, Head Space=0.8.

		Campala	Sample
From (ft)	To (ft)	Sample Recovery	Sample Description
40	45		Granitic gneiss, white, black, micas,
			black, some white quartz. HNU=0 and Head Space=0.
45	50		Granitic gneiss, white, black, micas,
·			black. Quartz, milky white and pink, some hornblende. At 49 feet bgs-color change, darker, greater relative percentage mica,
			HNU=0 and Head Space=0.
50	55		Granitic gneiss, white, black, mica, black. Quartz, milky white, HNU=0 and Head Space =0.5.
55	60		Granitic gneiss, white, black, mica, black. At 57 feet bgs mica seam, HNU=0.3 and Head Space=0.4.
60	65		Granitic gneiss, white, black, dry in this interval, HNU=0.6.
65	70		Granitic gneiss, white, black, quartz, white, mica, black,dry, HNU=0.8.
70	75		Granitic gneiss, white, black, mica, black, quartz, white, dry, HNU=0.6.
75	80		Granitic gneiss, white, black, mica, black, quartz, milky white, dry, HNU=0.
80	85		Granitic gneiss, white, black, mica, black, quartz, milky white, dry, HNU=0.
85	90		Granitic gneiss, white, black, mica, black, quartz, white, pink, tan, dry, HNU=0

Project	BIGV	/RPM	Date 7-29-92
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_			2S
			Estimated 601.53 Surveyed
Drilling M	ethodA	\ir Hammer	
Drilling Fl	uidAiı	ſ	
Sampling	Method	Grab	
Sampling	Interval	Continuous t	o Water then 5 Foot Interval
Drilling Co	ontractor	_Samuel Stot	thoff
Prepared	By: A. Rana	and K. McKe	eever
		_	
From (ft)	To (ft)	Sample Recovery (ft	Sample Description
	5	Water level	Silt and fine to med. sand (90%),
0	3	at approx. 1' bgs.	poorly sorted, subrounded, little very fine to fine gravel, greenish-brown,
		bys.	saturated, Head Space=0.8.
5	10		Sand, fine to med. (90%), some silt, little gravel, very fine to fine,
			greenish-brown, moist, Head Space=0.6.
10	12		0 1 5 1 (000)
10	13		Sand, fine to med. (90%), some silt, little gravel, very fine to fine,
			greenish-brown, moist.
13	15		Sand, fine to med. (90%), some silt, little gravel, brown, moist. At
-		 	approximately 15 feet bgs peat with
			wood.
			wood.

Project	BIGV	//BPM	Date 7-27-92	
Location	Balo	dwin Place		
Boring/W	ell Designat	tionMW-	2D	
Land Surf	face Elevati	on	Estimated 601.66 Surveyed	
Drilling M	ethod	Air Hammer_		
Drilling Fl	uidA	ir		
Sampling	Method	_Split Spoon 2	2ft. long/Grab	
Sampling	Interval	_Continuous t	o Water then 5 Foot Interval	
Drilling Co	ontractor _	_Samuel Sto	thoff	
Prepared	By: A. Ran	a and K. McKe	eever	
		Sample	Comple	
From (ft)	To (ft)	Recovery	Sample Description	
0	2	50%	1" of asphalt, Silt and fine to med. sand	
		Water level at 0' bgs	(90%), poorly sorted, little very fine gravel, subrounded, brown, moist.	
2	4	50%	Sand, fine to med. (90%), some silt, little-trace very fine to fine gravel,	
			subrounded, poorly sorted, moist, greenish-brown.	
4	6	50%	Sand, fine to med. (90%), some silt, little-trace very fine to fine gravel,	-
			subrounded, moist, greenish-brown, HNU=0, Head Space=0.	
				_
66	8	50%	Sand, fine to med. (70%), and silt and clay lenses (20%), trace very fine to	
			fine gravel, poorly sorted, moist, brown, HNU=0, Head Space=0.	
			· · ·	
				_

From (ft)	To (ft)	Sample Recovery	Sample Description
8	10		Sand, fine to med. (70%), and silt and clay
			(20%), little very fine to fine gravel, trace medium gravel, moist, brown, HNU=0.
10	12	5%	Sand, fine to med. (80%), little silt (10%), little clay (5%), trace fine to med. gravel, moist, brown.
12	14	50%	Silt, and clay (70%), some fine to med. sand, trace gravel, subangular to subrounded, moist, brown, HNU=0, Head Space=0. At 13.9'-Peat with wood.
14	16	25%	Peat with wood.
16	18		Peat with wood.
18	20	75%	Silt, and clay, little fine to med. sand, trace fine to med. gravel, subangular to subrounded, moist, brown. At 19'-Peat with wood, and trace sand and gravel, brown, saturated.
20	25		Clay (80%), and fine to med. gravel, subrounded moist, dark brown to black, with trace cobbles of shale.
25	27	25%	Silt (90%), dark grey, trace clay, trace gravel, angular, saturated, HNU=0, Head Space=0.4.
27	30		Silt (70%), little clay, and angular gravel (30%) in matrix, biotite gneiss, quartz, milky, mica, black, moist.
30	32	5%	Silt and fine to med. sand (70%), little clay, dark grey, some gravel, fine to medium of gneiss, angular, moist, HNU=0.

From (ft)	To (ft)	Sample Recovery	Sample Description
32	35		Sand (70%), fine to medium, trace silt,
			trace clay, dark brown, and gravel, fine to coarse, angular to subrounded of gniess and assorted rock fragments, black, brown, milky white, pink, saturated.
35	37	50%	Sand, fine to med., (80%) little silt greyish-brown, moist, some gravel fine to medium, angular to subrounded of gneiss and rock fragments green, black, brown, and white, HNU=0, Head Space=0.6.
37	39		Sand, fine to med. (80%), little silt, greyish-brown, some gravel, fine to medium, angular of gneiss, saturated.
39	41	15%	Sand, fine to med. (80%), some silt, greyish-brown, some gravel, fine to medium, angular to subrounded of gneiss, saturated, HNU=0.
41	45		Sand, fine to med. (80%), some clay, little silt, greyish-brown, some gravel, fine to medium, angular to subrounded of gneiss, and black angular rock fragments saturated.
45	47	50%	Silt, greenish-brown, very fine to fine sand (80%), some gravel, fine to medium, angular to subrounded of gneiss, semi-dry, HNU=0.4, Head Space= 0.4.
47	50		Silt and very fine to fine sand (80%), greyish-brown, some gravel, fine to medium of gneiss and assorted rock fragments, angular to subrounded, semi-dry.
50	55		Silt and very fine to fine sand (80%), greyish-brown, some gravel, fine to med. of gneiss and assorted rock fragments, angular to subrounded, semi-dry.
55	60		Silt and very fine to fine sand (80%), greyish-brown, some gravel, fine to medium of gneiss and assorted rock fragments, angular to subrounded, semi-dry, HNU=0.6.

From (ft)	To (ft)	Sample Recovery	Sample Description
60	62		Silt and clay (80%), green-brown, little fine sand, trace fine to med. gravel, angular of weathered gneiss material, tannish white, moist, HNU=0.6, Head Space=0.4.
62	65		Silt and clay (80%), green-brown, little fine sand and micas, tan-brown, trace fine to med. gravel, angular of weathered gneiss material, moist.
65	70		Silt and clay (80%), green-brown, fine sand and fine mica, tan-brown, black vitrous luster, trace fine to med. gravel of weathered gneiss material, brown, black, white, semi-dry to moist.
70	75		Silt and clay (80%), green-brown, fine sand and fine mica, tan-brown, black vitrous luster, trace fine to coarse gravel, angular of weathered gneiss material, black, white, semi-dry to moist.
75	80		Silt and clay (80%), green-brown, fine sand and fine mica, tan-brown, black vitrous luster, trace fine to coarse gravel, angular of weathered gneiss material, black, white, semi-dry to moist.
80	85		Sand, fine to med. coarse (80%), little silt and clay, little fine to coarse gravel, angular of weathered gneiss material, some mica fragments, fine, tan-yellow, black, vitrous luster, saturated.
85	90		Sand, fine to med. coarse (80%), little silt and clay, little fine to coarse gravel, angular of weathered gneiss material, some mica fragments, fine, tan-yellow, black, vitrous luster, saturated.

ProjectBIGV/BPM Date 8-6-92					
LocationBaldwin Place					
Boring/W	'ell Designat	ionMW-	3\$		
Land Surf	face Elevation	on	Estimated 602.65 Surveyed		
Drilling M	ethod/	Air Hammer_			
Drilling Fl	uidAi	r			
Sampling	Method	Split Spoon 2	2ft. long/Grab		
Sampling	Interval	Continuous t	to Water then 5 Foot Interval		
Drilling Co	ontractor _	_Samuel Sto	thoff		
Prepared	By: A. Rana	a and K. McK	eever		
From (ft)	To (ft)	Sample Recovery (f	Sample t) Description		
	To (ft)	Recovery (f			
From (ft)	To (ft)		0 to 0.2 ft of spoon: Sand, fine to med. (80%), some silt and clay,		
	T	Recovery (f	Description 0 to 0.2 ft of spoon: Sand, fine to med. (80%), some silt and clay, brown, semi-dry, HNU=0, Head Space=0.5. Gravel angular, gneiss,		
	T	Recovery (f	0 to 0.2 ft of spoon: Sand, fine to med. (80%), some silt and clay, brown, semi-dry, HNU=0, Head		
	T	Recovery (f	Description O to 0.2 ft of spoon: Sand, fine to med. (80%), some silt and clay, brown, semi-dry, HNU=0, Head Space=0.5. Gravel angular, gneiss, white, black, green. O.2 to 0.4 ft of spoon: Sand, fine to med. (80%), some angular gravel,		
	T	Recovery (f	Description 0 to 0.2 ft of spoon: Sand, fine to med. (80%), some silt and clay, brown, semi-dry, HNU=0, Head Space=0.5. Gravel angular, gneiss, white, black, green. 0.2 to 0.4 ft of spoon: Sand, fine to med. (80%), some angular gravel, greyish-white. 0.4 to 1.6 ft of spoon: Sand, fine to med.		
	<u> </u>	Recovery (f	Description 0 to 0.2 ft of spoon: Sand, fine to med. (80%), some silt and clay, brown, semi-dry, HNU=0, Head Space=0.5. Gravel angular, gneiss, white, black, green. 0.2 to 0.4 ft of spoon: Sand, fine to med. (80%), some angular gravel, greyish-white.		
	<u> </u>	Recovery (f	Description O to 0.2 ft of spoon: Sand, fine to med. (80%), some silt and clay, brown, semi-dry, HNU=0, Head Space=0.5. Gravel angular, gneiss, white, black, green. O.2 to 0.4 ft of spoon: Sand, fine to med. (80%), some angular gravel, greyish-white. O.4 to 1.6 ft of spoon: Sand, fine to me (80%), some silt, brown, semi-dry. Gravel in matrix consisting of gneiss; black and white, green, mica; black,		
	<u> </u>	Recovery (f	Description 0 to 0.2 ft of spoon: Sand, fine to med. (80%), some silt and clay, brown, semi-dry, HNU=0, Head Space=0.5. Gravel angular, gneiss, white, black, green. 0.2 to 0.4 ft of spoon: Sand, fine to med. (80%), some angular gravel, greyish-white. 0.4 to 1.6 ft of spoon: Sand, fine to me (80%), some silt, brown, semi-dry. Gravel in matrix consisting of gneiss; black and white, green, mica; black, tan-yellow, quartz; tan and milky white. 0 to 1.2 ft of spoon: Clay and fine to		
1	3	Recovery (f	Description O to 0.2 ft of spoon: Sand, fine to med. (80%), some silt and clay, brown, semi-dry, HNU=0, Head Space=0.5. Gravel angular, gneiss, white, black, green. O.2 to 0.4 ft of spoon: Sand, fine to med. (80%), some angular gravel, greyish-white. O.4 to 1.6 ft of spoon: Sand, fine to me (80%), some silt, brown, semi-dry. Gravel in matrix consisting of gneiss; black and white, green, mica; black, tan-yellow, quartz; tan and milky white.		
1	3	Recovery (f	Description O to 0.2 ft of spoon: Sand, fine to med. (80%), some silt and clay, brown, semi-dry, HNU=0, Head Space=0.5. Gravel angular, gneiss, white, black, green. O.2 to 0.4 ft of spoon: Sand, fine to med. (80%), some angular gravel, greyish-white. O.4 to 1.6 ft of spoon: Sand, fine to me (80%), some silt, brown, semi-dry. Gravel in matrix consisting of gneiss; black and white, green, mica; black, tan-yellow, quartz; tan and milky white. O to 1.2 ft of spoon: Clay and fine to med. sand (80%), brown, moist, HNU=0, Head Space=1.1. Gravel, angular, gneiss, black, white,		
1	3	Recovery (f	Description O to 0.2 ft of spoon: Sand, fine to med. (80%), some silt and clay, brown, semi-dry, HNU=0, Head Space=0.5. Gravel angular, gneiss, white, black, green. O.2 to 0.4 ft of spoon: Sand, fine to med. (80%), some angular gravel, greyish-white. O.4 to 1.6 ft of spoon: Sand, fine to me (80%), some silt, brown, semi-dry. Gravel in matrix consisting of gneiss; black and white, green, mica; black, tan-yellow, quartz; tan and milky white. O to 1.2 ft of spoon: Clay and fine to med. sand (80%), brown, moist, HNU=0, Head Space=1.1. Gravel,		

		,	
		Sample	Sample
From (ft)	To (ft)	Recovery (f	_ `
3	5	Continued	1.2 to 1.3 ft of spoon: Gravel, angular,
			some med. sand, brown, moist, gneiss; tan, white, black, micas; black, fine micas; tan-yellow.
5	7	1.5	Sand, fine and clay (80%), brown,
		Water level at 5.5 feet bgs.	saturated, HNU=0, Head Space=1.2. Gravel, angular to subrounded of quartz; tan, white, mica; black, fine micas; tan-yellow, gneiss; black, white, green.
10	12	2.0	O to 0.6 ft of spoon: Sand, med. to coarse, brown, sat., HNU=0, Head Space=1.2. Gravel, angular consisting of gneiss; black, white, green, mica;
			black, quartz; tan, white and pale. 0.6 to 2.0 ft of spoon: Clay, some silt, brown, moist, semi-consolidated. Angular gravel consisting of gneiss; black, white, green, mica; black, quartz; milky white, tan, orange and pale.
15	17		Silt, fine sand and clay, green-brown, moist, HNU=0.4, Head Space=1. Trace fine mica, yellow-tan, angular gravel consisting of gneiss; black, white, green, mica; black, quartz; tan, milky white, pale and orange.
20	23.3		Silt, fine sand and clay, dark green-brown, moist, HNU=0, Head Space=2. Gravel, angular, gneiss, black, white, mica, black, quartz, pale, milky white, tan and orange.

ProjectBIGV/BPM Date 8-11-92						
LocationBaldwin Place						
Boring/Well DesignationMW-3D						
Land Sur	face Elevati	ion	Estimated 602.25 Surveyed			
Drilling M	ethod	Air Hammer_				
Drilling Fl	uidA	.ir				
Sampling	Method	_Split Spoon 2	2ft. long/Grab			
Sampling	Interval	_Continuous t	to Water then 5 Foot Interval			
Drilling Co	ontractor _	Samuel Sto	thoff			
Prepared	By: A. Ran	a and K. McKe	eever			
From (ft)	To (ft)	Sample Recovery (fi	Sample t) Description			
1	5	Water level	Silt, clay, fine sand, greenish-grey,			
		at 5 feet bgs.	saturated at 5 feet bgs, HNU=1.4, Hea Space=0.4. Gravel, angular, gneiss;			
			black, white, mica; black, some quartz; white, tan, mudstone; red,			
5	10		grey. Silt, fine sand, greenish-grey, moist,			
			HNU=0, Head Space=0. Gravel, angular, gneiss; black, white, quartz;			
		<u> </u>	milky white, tan, mudstone; red, grey.			
10	15		Sand, fine and silt, clay, greenish-brown, moist, HNU=0, Head			
			Space=0. Angular gravel consisting of gneiss; black, white, green, quartz;			
			milky white, tan, orange, mica; black, some mudstone; red, grey.			
	1					

		Sample	Sample
From (ft)	To (ft)	Recovery (f	t) Description
15	20		Sand, fine and silt and some clay lenses, greenish-grey, moist, HNU=0, Head Space=0.2. Angular gravel consisting of gneiss; black, white, green, quartz; tan, white, orange, mica; black.
20	25		Sand, fine and silt, greenish-grey, semi-dry, semi-consolidated "chunks coming out in cuttings", HNU=0, Head Space=0.2. Angular gravel consisting of gneiss; black, white, mica; black, quartz; white, tan, clear and orange, some mudstone; red and grey.
25	30		Sand, fine and silt, greenish-brown, semi-dry, semi-consolidated "chunks coming out in cuttings", HNU=0, Head Space=0. Gravel consisting of gneiss; black, white, quartz; white, feldspars; pink, tan and orange, mica; black.
30	35		Sand, fine and silt, greenish-brown, semi-dry, semi-consolidated "chunks coming out in cuttings", HNU=0.2, Head Space=0. Gravel consisting of quartz; white, tan, feldspar; pink, mica; black gneiss; white, black.
35	40		Sand, fine and silt, greenish-brown, semi-dry, HNU=0, Head Space=0. Gravel consisting of quartz; white, tan, feldspar; pink and orange, mica; black, quartz in matrix, some gneiss; white, black.
40	45		Silt, fine sand, greenish-grey, HNU=0, Head Space=0. Gravel consisting of quartz, white, tan, feldspar, pink and orange, mica; black, some gneiss; white, black.

From (ft)	To (ft)	Sample Recovery (Sample ft) Description
45	50		Silt, greenish-grey, HNU=0, Head Space=0.2. Gravel consisting of quartz; white, tan, feldspar; pinkish, gneiss; white, black, mica; black.
50	55 *Lots of minerali	zation*	Silt, fine sand, greenish-grey, HNU=0, Head Space=0. Gravel consisting of quartz; light purple to clear, tan, white, fledspar; pink and orange, gneiss; white, black, mica; black.
55	60		Sand, fine, silt, greenish-grey, HNU=0, Head Space=0. Angular gravel consisting of quartz; white, clear, tan, feldspar; pink and orange, mica; black, some gneiss; white and black.
60	65		Silt, greenish-grey, HNU=0, Head Space=0.4. Gravel consisting of gneiss; black and white, quartz; milky white, feldspar; tan, pink and pale, mica; black.
65	70		Silt and fine sand, greenish-brown, HNU=0, Head Space=0. Gravel consisting of gneiss; black and white, quartz; white, feldspar; tan and orange, mica, black.
70	75	Weathered bedrock at approx. 74 feet bgs.	Sand, fine and silt, some clay, greenish-brown, HNU=0, Head Space=0. Weathered bedrock, gneiss; white, black, quartz; white, feldspar; tan, pale and orange, some mica, black, tan-yellow.
75	80		Weathered bedrock, very fine to fine sand and silt, green-brown, HNU=0, Head Space=0, gneiss; white and black, quartz; white, feldspar; tan, pale and orange, mica; black, tan-yellow, saturated.

From (ft)	To (ft)	Sample Recovery (f	Sample t) Description
80	85		Weathered bedrock, very fine to fine
			sand, silt, green-brown, Head Space=0.2, gneiss; black and white, quartz; white, feldspar; tan, pale and orange, mica; black, tan-yellow,
			saturated.
85	90		Weathered bedrock, very fine to fine sand, silt, green-brown, Head Space=0.3, gneiss; black and white, quartz; white, feldspar; tan and orange, mica; black.
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Project	PIC)	//DDM	Date 8-6-92	
Boring/W	ell Designat	tionMW-	3DD	
Land Sur	face Elevati	on	Estimated 602.22 Surveyed	
Drilling M	ethod	Air Hammer_		
Drilling Fl	uidA	ir		
			2ft. long/Grab	
Sampling	Interval	_Continuous t	o Water then 5 Foot Interval	
Drilling Co	ontractor _	_Samuel Sto	thoff	
Prepared	By: A. Ran	a and K. McKe	eever	
			×.	
From (ft)	To (ft)	Sample Recovery (ft	Sample :) Description	
	3	1.3	0 to 0.3 ft of spoon: Clay and fine	
	<u> </u>	1.3	sand(90%), trace med. sand, brown,	
			dry, HNU=0. Trace fine gravel, angular fragments of gneiss, black,	
			white, quartz, white to pale. 0.3 to 0.4 ft of spoon: Gneiss, highly	
			weathered, white and little black.	
			0.4 to 1.0 ft of spoon: Sand, fine, brown, semi-dry, gravel, angular	
			fragments of gneiss, black and white,	
			green, mica, black, quartz, white, tan, orange.	
			1.0 to 1.2 ft of spoon: Gravel, angular, quartz, tan, orange and white.	
	 		1.2 to 1.3 ft of spoon: Gneiss;	
			weathered, black and white.	

From (ft)	To (ft)	Sample Recovery (f	Sample t) Description
3	5	0.6	Sand, fine to med. (90%), some silt and
			clay, greenish-brown, moist, poorly sorted. Little fine gravel, angular to subrounded, gneiss; black and white, HNU=0.
5	7	2.0	Sand, fine to med. (60%) and clay, some
		Water level at 5 feet bgs.	silt, saturated, HNU=0. Little fine gravel, angular, fine to med. fragments of gneiss, black, white, green, quartz; white, tan, orange, mudstone; red.
10	12	2.0	O to 0.8 ft of spoon: Sand, fine and silt
			(80%), brown, moist, HNU=0. Fine to
			med. gravel, angular, gneiss; black, white, quartz; tan, white.
			0.8 to 2.0 ft of spoon: Sand, fine and
			silt (80%), some clay, moist,
			semi-consolidated, dense, angular gravel fine to med. of gneiss; black,
			white, quartz; orange, tan, white,
			mudstone; red, black.
15	20	Hole collapse	No Sample
20	22	2.0	0 to 0.6 ft of spoon: Sand, fine some silt (90%), greenish-brown, moist,
			HNU=0.4. Fine to med. coarse gravel, angular, quartz; white, grey, gneiss; white, black, pink, semi-consolidated,
			dense.
			0.6 to 2.0 ft of spoon: Sand, fine some silt (90%), greenish-grey, semi-dry,
			semi-consolidated. Little fine to med. gravel, angular, quartz; white, orange
			and tan, gneiss (friable); white and black.
		<u> </u>	

From (ft)	To (ft)	Sample Recovery (f	Sample t) Description
25	27	1.5	Sand, fine and some silt (90%),
			greenish-brown, semi-dry, semi-consolidated, HNU=0. Little gravel, fine to med., angular of gneiss; black and white, mica; black, quartz; white, orange and tan.
30	32	1.7	0 to 0.2 ft of spoon: Sand, fine to med. and silt (90%), saturated, HNU=0.4. Little gravel, fine to med. of angular
			gneiss; black and white. 0.2 to 0.5 ft of spoon: Seam of weathered black mica.
			0.5 to 1.7 ft of spoon: Sand, very fine to fine, silt, greenish-brown, moist, semi-consolidated. Little fine to med. gravel of angular gneiss; white and black, green, quartz; milky white, orange and tan.
35	37	2.0	Sand, fine and silt (90%), greenish-grey, semi-consolidated, HNU=0.2. Little fine to med. gravel of angular gneiss; black and white, quartz; milky white, pink, mica; black.
40	42	2.0	Silt (90%), greenish-grey, semi-dry,
	_	ots of ineralization*	semi-consolidated, HNU=0.4. Trace gravel, fine to med. of angular gneiss; black and white, mica; black, dark grey, quartz; milky white, pink, pale, orange
			and tan.
8-7-92			
45	47	1.5	Silt (90%), greenish-grey, moist, semi-consolidated, HNU=0. Trace gravel, fine to med. of angular gneiss; black, white, green, mica; black, quartz; white, orange and tan.

From (ft)	To (ft)	Sample Recovery (1	Sample ft) Description
50	52	1.3	Silt, greenish-grey, moist, semi-consolidated, HNU=0.1. Trace gravel, fine to med. of angular gneiss; black, white, green, mica; black, quartz, white, orange and tan.
55	57	1.1 Refusal at 56.9 feet bgs.	Silt and fine sand (90%), greenish-grey, semi-consolidated, dense, HNU=0. Some fine to med. gravel of angular gneiss; black, white, green, mica; black, quartz; white, orange and tan.
57	60		Gravel (80%), fine to med., angular to subrounded of gneiss; black, white, grey, green, mica; black, quartz; white, pink, orange and pale, trace clay and silt, green, saturated, HNU=0.
60	65		Silt, and clay, greenish-grey, saturated, HNU=0.2. Some gravel, fine to med., angular of gneiss; black, white, quartz; white, tan, orange and pale, mica; black, chlorite; green.
65	70		Silt, and clay, little fine sand, greenish-grey, saturated, HNU=0. Some gravel, fine to med., angular to subrounded of gneiss; black, white, green, quartz; white, pink, orange and tan.
70	75		Silt and clay (80%), little fine sand, greenish-grey, saturated, HNU=0. Some gravel, fine to med., angular of quartz; milky white, orange, tan and pink, gneiss; white, black, green.

From (ft)	To (ft)	Sample Recovery (f	Sample t) Description
75	80	Gravel	Silt and clay (90%), greenish-grey,
		seam from 77 to 80 feet bgs.	saturated, HNU=0.2. Some fine to med. gravel, angular to subrounded of quartz; milky white, tan and orange, gneiss; black, white, green.
80	85	Top of weathered bedrock at 80 feet bgs.	Weathered bedrock, silt and clay (80%), little fine sand, green-brown, some fine mica, tan, yellow, brown, black. Little fine gravel of gneiss; black and white, green, quartz; milky white, tan, orange.
8-10-92			
85	90		Weathered bedrock, silt and clay
			(80%), little fine sand, green-brown, HNU=0, Head Space=0. Gravel, angular
			cuttings of gneiss; black, white, quartz; white, tan, orange, some fine mica; tan-yellow, brown, and black.
90	95		Weathered bedrock, silt and clay (80%), little fine to med. sand, green-brown, HNU=0. Gravel, angular of gneiss; black, white, quartz; milky white, pale, pink and orange, mica; black.
95	99	Competent bedrock at 97 feet bgs.	95 to 97 ft bgs: Weathered bedrock, angular cuttings of gneiss; black, white, quartz; milky white, tan, clear and orange, mica; black. HNU=0 and Head Space=0.2. 97 to 99 ft bgs: Competent bedrock, angular cuttings of gneiss; black and white, quartz; tan, orange, white and pale, mica; black.
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From (ft)	To (ft)	Sample Sample Recovery (ft) Description
99	100.8	Gneiss; black, white, quartz; white, orange, pink and tan, some black and tan-yellow mica, HNU=0.2 and Head Space=0.
		For sample description of 100.8 to 200 feet refer to Core Log for MW-3DD.

Project	BIGV	/BPM	Date 8-5-92			
LocationBaldwin Place						
Boring/W	Boring/Well DesignationMW-4S					
Land Sur	face Elevation	on	_Estimated 609.68 Surveyed			
Drilling M	ethod	Air Hammer_				
Drilling Fl	uidAi	r				
Sampling	Method	_Split Spoon	2ft. long/Grab			
Sampling	Interval	Continuous	to Water then 5 Foot Interval			
Drilling Co	ontractor _	_Samuel Sto	othoff			
Prepared	By: A. Rana	a and K. Mck	Keever			
		Sample	Sample			
From (ft)	To (ft)	Recovery (•			
0	5		Sand, fine to med., silt and clay, brown, moist, gravel, angular, fine			
			consisting of gneiss fragments; black, white, mica; black, and quartz; milky			
			white, HNU=0.			
5	10		Sand, fine to med. (80%), and silt and clay, brown, saturated, trace fine			
			gravel, angular to subrounded, consisting of gneiss; black, white,			
:			mica; black, trace tan-yellow, and quartz; milky white and tan, HNU=0.			
10	15		Sand, fine to med. (80%), little clay			
			and silt, green-dark brown, moist, HNU=0. Little fine gravel, angular to			
			subrounded of gneiss; black, white, mica; black, tan-yellow, and quartz; white.			
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			Winte.			

From (ft)	To (ft)	Sample Recovery (f	Sample t) Description
15	20		Sand, fine to med. (90%), little trace clay and silt, greenish-grey, brown, moist, HNU=0. Trace fine to med. gravel, angular, consisting of gneiss; black and white, hornblende; black, mica; black, quartz; pink, white, and tan.
20	23		Sand, fine to med. and silt, little clay, greenish-grey, moist, HNU=0. Little fine gravel, angular to subrounded, consisting of gneiss; black and white, quartz; tan, and white, feldspar; pink, mica; black.
23	23.5		Silt and clay (70%), and fine to med. sand, greenish-grey, saturated, HNU=0. Trace fine to med. gravel, angular to subrounded, consisting of gneiss; black and white, mica; black, quartz; white and tan, feldspars; pink.

Project	BIGV	/BPM	Date 8-3-92	
LocationBaldwin Place				
Boring/W	/ell Designat	ionMW-	-4D	
Land Sur	face Elevation	on	_Estimated 609.72 Surveyed	
Drilling M	ethod/	Air Hammer_		
Drilling Fl	uidAi	r		
			2ft. long/Grab	
Sampling	Interval	.Continuous t	to Water then 5 Foot Interval	
Drilling Co	ontractor _	_Samuel Sto	thoff	
Prepared	By: A. Rana	a and K. McKe	eever	
·				
From (ft)	To (ft)	Sample Recovery (ft	Sample t) Description	
1	3	2.0	1 to 2.5 ft: Soil, brown, little clay.	
	3	2.0	2.5 to 3 ft: Silt and very fine sand	
v-s			(90%), brown, dry, poorly sorted, little angular fine gravel, black, milky	
	F	1.05	white quartz, HNU=0, HeadSpace=0.4.	
3	5	1.85	3 to 4 ft: Silt and very fine sand, brown, dry.	
			4 to 4.5 ft: Silt and very fine sand, brown, wet.	
			4.5 to 5 ft: Green sand and clay with	
			black root material-peat in matrix, HNU=0, Head Space=0.	
5	7	1.4	Silt and very fine sand (80%), poorly	
			sorted, trace medium sand, some clay, brown, trace fine angular to	
			subrounded gravel, of granitic gneiss material at tip of spoon, milky white	
			quartz and hornblende, weathered to	
			coarse sand size, saturated material,	

		Same 1 -	Samala.
From (ft)	To (ft)	Sample Recovery (f	Sample Tt) Description
7	9	2.0	Sand, fine to med. (80%), little silt,
			trace angular gravel, saturated, brown. Weathered granitic gnelss material, quartz; milky white, mica; black, yellow-tan, and hornblende in matrix.
			Weathered to med. to coarse size sand. Lower 1 ft. of spoon: Silt and fine sand, brown, with fine angular gravel, saturated, HNU=0 Head Space=0.
14	16	0.4	Top 0.2 ft of spoon: Sand, med. to
		Refusal at 15 feet.	coarse (90%), green-brown, trace clay and silts, trace fine to med. gravel, angular, black, trace micas,
			black, yellow-tan, saturated, HNU=0. Bottom 0.2 ft of spoon: Gravel, black.
20	22	0.5	Silt (90%), little fine to med. sand,
			greyish-green, brown, saturated, little gravel, fine, angular to
			subrounded of weathered gneiss
			material; black, white, quartz; milky white, trace micas; black, yellow-tan, HNU=0, Head Space=0.6.
25	27	1.5	Sand, fine to med. (80%), trace silt,
			trace clay, greenish-brown, little
			gravel, fine to med., angular to subrounded of weathered gneiss
			material, black, white. Trace mica, black, yellow-tan, orange feldspar, and
	·		white quartz, saturated, HNU=0.
30	32	0.5	Silt, very fine sand and clay, green,
			poorly sorted, saturated. Some very fine angular gravel, residual bedrock,
			HNU=0, Head Space=0.8.
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From (ft)	To (ft)	Sample Recovery (f	Sample t) Description
35	37	1.8	Upper 1 foot: Silt and clay,
			greenish-black, trace fine sand, trace fine to med. angular gravel of weathered gneiss material, milky quartz, micas, black, yellow-tan, saturated, HNU=0. Bottom 0.8 feet: Silt and clay, remnants of weathered gneiss in matrix of silt and clay.
40	42	1.6	Silt and clay, greenish-grey, brown, semi-consolidated. Feldspar, white to pale, quartz, milky white, some trace black mica within matrix, HNU=0, Head Space=0.6.
45	47	2.0	Silt and clay, greenish-grey, brown, semi-consolidated, trace fine to med. angular gravel of feldspar, white to pale, quartz, milky white, and black micas within matrix, HNU=0.
47	50	Weathered bedrock at 48 feet bgs.	Weathered bedrock, color change at 48 feet bgs(from greenish-grey-brown to grey). Very fine, silt to sand size cuttings of gneiss, quartz, and micas, dry, HNU=0.
50	55		Weathered bedrock, angular gravel, light brown, dry, HNU=0, Head Space=0.6. Very fine sand size cuttings of gneiss; black, white, green, mica; black, tan-yellow, quartz; white, feldspars; tan.
55	60		Bedrock, angular gravel, tan to light brown, dry, HNU=0. Mixture of gneiss; black, white, mica; black, quartz; white, feldspars; tan.
60	65	Thin weathered zone at 62 feet bgs.	Bedrock, granitic gneiss, angular gravel size material, tan to light brown, moist, HNU=0. Mixture of gneiss; black, white, mica; black, tan-yellow, quartz; white, feldspars; tan.

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		Comercia	C and n 1
From (ft)	To (ft)	Sample Recovery (f	Sample ft) Description
65	70	No sample taken.	Granitic gneiss, angular gravel size
			material, tan to light brown, saturated, HNU=0. Mixture of gneiss; black, white, mica; black, quartz; white, feldspars; tan.
70	75		Granitic gneiss, white, black, quartz,
			pale white, micas, black, saturated, HNU=0.
75	80	Drilling very fast.	Granitic gneiss, white, black, micas, black, quartz, milky white and tan, saturated, HNU=0.
80	85		Granitic gneiss, white, black, micas,
			black, quartz, milky white and tan, saturated, HNU=0.2.
85	90	Thin weathered zone at 85 feet bgs.	Granitic gneiss, white, black, micas, black, quartz, milky white to pink, saturated, HNU=0.
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Project	BIGV	/BPM	Date 8-5-92			
Location	LocationBaldwin Place					
Boring/W	ell Designat	ionMW-	5S			
Land Surf	ace Elevation	on	Estimated 603.36 Surveyed			
Drilling M	ethod	Air Hammer				
Drilling Fl	uidAi	ir				
_			2ft. long/Grab			
Sampling	Interval	Continuous t	o Water then 5 Foot Interval			
			thoff			
		a and K. McKe				
	- /					
			Sample			
From (ft)	To (ft)	Recovery (ft) Description			
1	3	1.7	0 to 1.1 ft of spoon: Sand, fine to			
			med., brown, dry, HNU=0, Head Space=0.8. Gravel, angular,			
			consisting of gneiss; white and black,			
			mica; black, quartz; milky white.			
			1.1 to 1.7 ft of spoon: Weathered			
			gneiss; black and white.			
3	5	1.8	0 to 0.1 ft of spoon: Weathered gneiss,			
			black and white, dry.			
			0.1 to 1.6 ft of spoon: Clay (80%),			
			little fine sand, brown, semi-dry,			
			HNU=0.1 and Head Sapce=0.8. Little			
			fine gravel, angular to subrounded of gneiss; black white, green, quartz;			
			white, feldspar; tan.			
		 	1.6 to 1.8 ft of spoon: Clay (80%),			
		Water	little fine sand, brown, saturated. Little			
		level at	fine gravel, angular to subrounded of			
		4.8 ft bgs.	gneiss; black, white, mica; black,			
		1	quartz; white, feldspar; tan.			

From (ft)	To (ft)	Sample Recovery (ft	Sample) Description
5	7	2.0	O to 1.0 ft of spoon: Clay and fine to med. sand (80%), brown, saturated, HNU=0, Head Space=0.6. Little fine gravel, angular to subrounded of gneiss; black, white, green, mica; black, quartz; milky white, pale and tan. 1.0 to 2.0 ft of spoon: Clay and fine to med. sand (80%), brown, moist. Little fine gravel, angular to subrounded of gneiss; black, white, green, mica; black, quartz; milky white, pale and tan.
10	12	1	O to 0.2 ft of spoon: Sand, fine to med. (70%), and silt, brown, saturated, HNU=0, Head Space=0.7. Trace gravel, angular of gneiss; black and white, mica; black, quartz; milky white and tan. 0.2 to 0.4 ft of spoon: Highly weathered quartz seam, milky white. 0.4 to 1.6 ft of spoon: Sand, fine to med., brown, (70%) and silt, semi-consolidated. Trace gravel, angular of gneiss; black and white, mica; black, quartz; white and tan.
15	17		O to 0.6 ft of spoon: Sand, fine to med. (70%) and silt, brown, saturated, HNU=0, Head Space=0. Trace gravel, angular of gneiss; black and white, mica; black, quartz; milky white and tan. 0.6 to 1.2 ft of spoon: Sand, fine, some silt and clay, brown, moist. Trace fine to med. gravel, angular of mica; black, gneiss; black and white. 1.2 to 2.0 ft of spoon: Silt, fine sand, greenish-brown, semi-consolidated. Trace fine to med. gravel of quartz; milky white, gneiss; black and white, and tan-yellow mica.

		Sample	Sample
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From (ft)	10 (TT)	Recovery (f	t) Description
20	23.5		Sand fine to made come gilt
	23.5	 	Sand, fine to med., some silt, greenish-grey, moist, HNU=0, Head
		 	Space=0.2. Trace fine to med. gravel,
			angular of gneiss, white and black,
			green, mica; black, quartz; white, pale
			and tan.
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Project	BIGV/BPM	Date 4-14-93	
Location	Baldwin Place, New	York	
Boring/Well [DesignationMW-5[)	
Land Surface	ElevationE	stimated 602.80	Surveyed
Drilling Metho	odAir Hammer		
	Air		
	hodSplit Spoon 2ft rvalContinuous to	_	
_	actorSamuel Stoth		
_	V. Uhl and K. McKeeve		

From (ft)	To (ft)	Sample Recovery	Sample Description
0	3.0	Grab	Asphalt; SILT with with some very fine sand, brown-green, with gravel, HNU=0
3.0	5.0	1 ft.	SAND, fine to medium, sub-angular to rounded; with some silt, brown-green, moist, and gravel, HNU=0 ppm.
5	10	Grab	SAND, fine to medium, sub-angular to rounded; with some silt, brown-green, and gravel.
10	12	1.5 ft.	Top of spoon: SAND, fine to medium, sub-angular, HNU=0 ppm. Bottom of spoon: SILT, grey-green.
12	15	Grab	SILT; and sand, medium to coarse, green-grey, and gravel, with trace weathered remnants of gneiss.
15	17	1.8 ft.	SILT; with some fine sand, green/grey, trace clay, with fine gravel, HNU=0 ppm.
17	20	Grab	Silty CLAY with little fine sand, brown-green.

From (ft)	To (ft)	Sample Recovery	Sample Description
20	22	1.5 ft.	SILT with some very fine sand, green,
			some quartz, and trace angular gravel, HNU=0 ppm
22	23	Grab	Dry drilling.
23	25	2.0 ft.	SILT; with some very fine to medium sand, and angular to sub-rounded gravel, green, HNU=0 ppm.
25	30	Grab	SILT; with some very fine to medium sand, and angular to sub-rounded gravel, green, dry drilling.
30	32	0.5 ft.	SILT; with some very fine to medium sand, and angular to sub-rounded gravel, green, wet, HNU=0 ppm.
32	35	Grab .	SILT; with some very fine to medium sand, and angular to sub-rounded gravel, green, moist.
35	37	1.5 ft.	SILT; with some very fine to medium sand, and angular to sub-rounded gravel, green, HNU=0 ppm.
37	40	Grab	SILT; with some very fine to medium sand, and angular to sub-rounded gravel, green.
40	42	1.0 ft.	SILT; with some very fine to medium sand, and angular to sub-rounded gravel, green.
43	45	Grab	SILT; with some very fine to medium sand, and angular to sub-rounded gravel, green, moist.
45	47	1.0 ft.	SILT; with some very fine sand, and angular to sub-rounded gravel, green, HNU=0 ppm.

From (ft)	To (ft)	Sample Recovery	Sample Description
47	50	Grab	SILT; with some very fine sand, and
			angular to sub-rounded gravel, green, moist/caking.
50	52	1.0 ft.	SILT; with some very fine sand, and
			angular to sub-rounded gravel, green, moist, HNU=0 ppm.
52	55	Grab	SILT; with some very fine sand, and
			angular to sub-rounded gravel, green.
55	57	1.5 ft.	Top 1 ft. of spoon: SILT; with a little coarse sand and trace clay, green.
			Bottom 0.5 ft. of spoon: GNEISS;
			weathered and angular, with some silt and some tan & black mica, HNU=1.0 ppm.
57	60	Grab	SILT; green, with weathered gneiss fragments.
60	62	0.2 ft.	GNEISS; weathered to a medium sand, white quartz, black mica, spoon drove very hard, HNU=0 ppm.
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62	65	Grab	Weathered GNEISS; large angular to sub-angular fragments, of white quartz, black mica, and pink feldspars, HNU=0
65	67	0.2 ft.	ppm. Weathered GNEISS; angular to
			sub-angular fragments, of white quartz, black mica, and pink feldspars, spoon drove very hard, HNU=0 ppm.
65	70	Grab	GNEISS; angular to sub-angular
			fragments, of white quartz, black mica, and pink feldspars, very little flow.
70	75	Grab	GNEISS; angular to sub-angular fragments, of white quartz, black mica

From (ft)	To (ft)	Sample Recovery	Sample Description
75	80	Grab	GNEISS; angular to sub-angular
			fragments, of white quartz, black mica, and pink feldspars, very little flow.
80	85	Grab	GNEISS; angular to sub-angular
			fragments, of white quartz, black mica, and pink feldspars, no flow.
85	90	Grab	GNEISS; angular to sub-angular
			fragments, of whtie quartz, black mica, and pink feldspars, no flow.
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Project	BIGV	/BPM	Date 8-14-92				
Location	LocationBaldwin Place						
Boring/W	Boring/Well DesignationMW-6S						
Land Sur	face Elevation	on	Estimated 602.09 Surveyed				
Drilling M	Drilling MethodAir Hammer						
Drilling Fl	Drilling FluidAir						
Sampling	Method	Split Spoon 2	2ft. long/Grab				
Sampling	Interval	Continuous t	o Water then 5 Foot Interval				
Drilling Co	ontractor	_Samuel Stot	thoff				
Prepared	By: A. Rana	and K. McKe	eever				
		Sample	Sample				
From (ft)	To (ft)	•	Description				
1	3	0.1	Asphalt, fill material, very little recovery, HNU=0.				
3	5	0.7	0 to 0.2 ft of spoon: Asphalt, fill material, HNU=0.2, Head Space=0.				
			0.2 to 0.7 ft of spoon: Clay and silt (80%), and fine to med. sand,				
			brown, poorly sorted, saturated. Gravel, angular of mica; black, gneiss; black and white, green.				
5	7	1.0	grielss, black and white, green.				
3	7 Water level a	1.0 at 5 feet bgs.	Sand, fine to coarse (80%), little silt, some clay lenses, poorly sorted, brown, saturated, HNU=0 Head Space=0. Little very coarse				
			sand to fine gravel, angular to subrounded of quartz; milky white,				
		subrounded of quartz; milky white, tan, mica; black, gneiss; white, black.					

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From (ft)	To (ft)	Sample Recovery (f	Sample t) Description
10	12	1.4	Sand, fine and silt (80%), poorly
			sorted, silt, some clay, brown, moist, HNU=0.2, Head Space=0.2. Trace fine to med. gravel, angular to subrounded of gneiss; white, black, green, quartz; milky white, tan, mica; black.
15	17	1.3	O to 0.2 ft of spoon: Sand, fine to med., brown, moist, HNU=0.2, Head Space=1. Gravel, angular of gneiss; black, white, green, mica; black, quartz; tan, white and orange. O.2 to 1.4 ft of spoon: Silt, fine sand, greenish-grey, semi-consolidated. Angular gravel of quartz; orange to tan, white, gneiss; black, white, green, mica; black. Tip of spoon highly weathered black mica.
20	24		Silt, fine to med. sand, some clay, greenish-grey, moist, HNU=0.4. Gravel, angular of gneiss; black and white, green, quartz; orange, tan, white, mica; black, mudstone; dark grey and red.

Project	BIGV/BPM		Date 8-4-92				
LocationBaldwin Place							
Boring/Well DesignationMW-7S							
Land Sur	Land Surface ElevationEstimated 602.07 Surveyed						
Drilling MethodAir Hammer							
Drilling Fl	Drilling FluidAir						
Sampling	Method	Split Spoon 2	ft. long/Grab				
Sampling	Interval	Continuous to	Water then 5 Foot Interval				
Drilling Co	ontractor _	_Samuel Stot	hoff				
Prepared	By: A. Rana	a and K. McKe	ever				
		Sample	Sample				
From (ft)	To (ft)	Recovery (ft)	•				
1	3	1.2	0 to 0.1 ft of spoon: Asphalt and fill.				
	1						
			0.1 to 0.2 ft of spoon: Silt and fine sand, liitle clay, brown, dry.				
			•				
			sand, liitle clay, brown, dry. 0.2 to 0.5 ft of spoon: Clay, brown-black, moist, fine angular gravel in matrix.				
			sand, liitle clay, brown, dry. 0.2 to 0.5 ft of spoon: Clay, brown-black, moist, fine angular gravel in matrix. 0.5 to 1.2 ft of spoon: Silt and fine sand, little med. sand, some clay,				
			sand, liitle clay, brown, dry. 0.2 to 0.5 ft of spoon: Clay, brown-black, moist, fine angular gravel in matrix. 0.5 to 1.2 ft of spoon: Silt and fine sand, little med. sand, some clay, brown, moist.				
3	5	1.4	sand, liitle clay, brown, dry. 0.2 to 0.5 ft of spoon: Clay, brown-black, moist, fine angular gravel in matrix. 0.5 to 1.2 ft of spoon: Silt and fine sand, little med. sand, some clay,				
3	5	1.4	sand, liitle clay, brown, dry. 0.2 to 0.5 ft of spoon: Clay, brown-black, moist, fine angular gravel in matrix. 0.5 to 1.2 ft of spoon: Silt and fine sand, little med. sand, some clay, brown, moist. 0 to 0.4 ft of spoon: Gravel, angular, quartz, clear to white. 0.4 to 1.4 ft of spoon: Coarse sand grain minerals consisting of				
3	5	1.4	sand, liitle clay, brown, dry. 0.2 to 0.5 ft of spoon: Clay, brown-black, moist, fine angular gravel in matrix. 0.5 to 1.2 ft of spoon: Silt and fine sand, little med. sand, some clay, brown, moist. 0 to 0.4 ft of spoon: Gravel, angular, quartz, clear to white. 0.4 to 1.4 ft of spoon: Coarse sand				
3	5	1.4	sand, liitle clay, brown, dry. 0.2 to 0.5 ft of spoon: Clay, brown-black, moist, fine angular gravel in matrix. 0.5 to 1.2 ft of spoon: Silt and fine sand, little med. sand, some clay, brown, moist. 0 to 0.4 ft of spoon: Gravel, angular, quartz, clear to white. 0.4 to 1.4 ft of spoon: Coarse sand grain minerals consisting of feldspar, quartz, and mica, black and				

From (ft)	To (ft)	Sample Recovery (f	Sample t) Description
5	7	0.5	Tan 0.7 ft of onces. Clay and fine
3	7	0.5	Top 0.3 ft of spoon: Clay and fine gravel, moist.
			Bottom 0.2 ft of spoon: Medium sand,
			brown, moist, HNU=0.
7		2.0	
7	9	2.0	O to 0.4 ft of spoon: Sand, fine to med., angular, poorly sorted, some
			coarse sand, brown, moist.
			0.4 to 0.5 ft of spoon: Quartz; milky
ļi			white to clear.
			0.5 to 0.6 ft of spoon: Sand, fine to med., angular, poorly sorted, some
			coarse sand, brown, moist.
			0.6 to 1.0 ft of spoon: Coarse sand, poorly sorted, angular, brown.
			At 1.0 ft of spoon: Very fine sand,
	······································		dark brown to black.
			1.0 to 1.6 ft of spoon: Sand, fine to
			med., angular, poorly sorted, some coarse sand, sat., gneiss in matrix,
			HNU=0.
			Tip of spoon: Gneiss, black and
		<u> </u>	white.
14	16	0.9	O to 0.7 ft of spoon: Sand, fine to med.
			and clay, brown. Gravel, angular,
	·		gneiss, mica, quartz, moist, HNU=0.
			0.7 to 0.9 ft of spoon: Quartz, milky white and pink.
			Willies and print
14	19		Sand, fine to med., some silt and clay,
			brown, moist. Gravel, angular,
	· · · · · · · · · · · · · · · · · · ·		consisting of gneiss; black, white, green, mica; black, quartz; milky
			white to tan, HNU=0.
	 		

			The second secon
From (ft)	To (ft)	Sample Recovery (f	Sample (t) Description
		·	
19	21	1.8	O to 0.4 ft of spoon: Clay, greenish-brown, with fine sand and quartz, moist. O.4 to 1.2 ft of spoon: Clay, some silt, greenish-black, with gravel and gneiss and very fine tan-yellow mica, semi-moist. 1.2 to 1.8 ft of spoon: Clay, greenish-brown, with angular gravel and quartz, milky white. Tip of Spoon: Weathered gneiss, white, black.
21	25		Sand, med. to coarse, silt and clay, angular gravel consisting of mica; black, gneiss; black and white, quartz; milky white, saturated, HNU=0.
	 		

Project	BIGV/BPM	Date	4-12-93			
LocationBaldwin Place, New York						
Boring/Well DesignationMW-7D						
Land Surfac	e Elevation	Estimated	602.18 Surveyed			
Drilling Metl	nodAir Hammer		·			
Drilling FluidAirSampling MethodSplit Spoon 2ft. long/Grab						
Sampling In	tervalContinuous to	Water then	5 Foot Interval			
Drilling Cont	tractorSamuel Stoth	noff				
Prepared By	: V. Uhl and K. McKeev	er				

From (ft)	To (ft)	Sample Recovery	Sample Description
3	5	1.3 ft.	Silty SAND; fine to medium, trace
			mica noted, and angular gravel, brown, HNU=0 ppm.
5	8	Grab	Silty SAND; fine to medium, and
			angular gravel, brown.
8	10	No Recovery	Spoon was wet.
10	12	0.3 ft.	Silty SAND; fine to medium, and angular gravel, brown, wet, HNU=0
			ppm.
12	15	Grab	SAND; fine to medium, and silt, and
			angular gravel, brown.
15	20	Grab	SAND; medium to coarse, little silt,
			angular gravel, brown, saturated.
20	22	1.0 ft.	SILT; with some sand, very fine to
			fine, trace clay, and angular gravel,
			grey-green, HNU<1 ppm.

From (ft)	To (ft)	Sample Recovery	Sample Description
22	25	Grab	Silty SAND; very fine to fine, trace clay, angular gravel, grey-green, HNU<1 ppm.
25	27	1.5 ft.	SILT; with some sand, very fine to fine, trace clay, angular gravel, grey-green.
27	30	Grab	Silty SAND; very fine to fine,
30	32	grey-green. 2 0.5 ft. Silty SAND; very fine to fine,	
			angular to sub-rounded gravel, grey-green.
32	35	Grab	SILT; with some sand, very fine to fine, angular to sub-rounded gravel, grey-green.
35	37	0.3 ft.	Silty SAND; very fine to fine, angular to sub-rounded gravel, grey-green.
37	40	Grab	Weathered GNEISS; angular gravel, of biotite, quartz & feldspars.
40	45	Grab	Weathered GNEISS; angular gravel, of biotite, quartz & feldspars, moist.
45	50	Grab	Weathered GNEISS; angular gravel, greater % of biotite than quartz, moist.
50	55	Grab	Weathered GNEISS; angular gravel, of biotite, quartz & feldspars, moist.
55	60	Grab	Weathered GNEISS; angular gravel, of biotite, quartz & feldspars, moist, soft zone at 57-58 ft. bgs.
	4/13/93		
60	65	Grab	Weathered GNEISS; angular gravel, greater % of biotite than quartz, moist, flow approximately 0.25 to 0.50 gpm.

From (ft)	To (ft)	Sample Recovery	Sample Description
65	70	Grab	SILT; and very fine sand, trace mica, green-black, dry, probable highly weathered gneiss zone, dry, no flow.
70	75	Grab	SILT; and very fine sand, trace mica, green-black, dry, probable highly weathered gneiss zone, dry, no flow.
75	80	Grab	Weathered GNEISS; biotite and quartz, dry, no flow.
80	85	Grab	Weathered GNEISS; biotite and quartz, dry, no flow.
85	90	Grab	Weathered GNEISS; biotite and quartz, dry, no flow.
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Project	BIGV	/BPM	Date 8-4-92			
LocationBaldwin Place						
Boring/W	Boring/Well DesignationMW-8S					
Land Sur	face Elevation	on	Estimated <u>618.28</u> Surveyed			
Drilling Fl	uidAi	r				
_			2ft. long/Grab			
Sampling	Interval	Continuous t	o Water then 5 Foot Interval			
Drilling Co	ontractor _	_Samuel Stot	thoff			
Prepared	By: A. Rana	a and K. McKe	eever			
		Cample	Campla			
From (ft)	To (ft)	Sample Recovery (ft	Sample Description			
1	3	1.5	Top 0.5 ft of spoon: Soil, clay, with			
			some silt and fine sand, dark brown. Bottom 1 ft of spoon: Soil, clay,			
			fine to med. sand and gravel, brown, HNU=0.4.			
3	5	1.6	Top 0.3 ft of spoon: Soil, clay, fine to med. sand and gravel, brown.			
			Bottom 1.3 ft of spoon: Clay, coars			
			sand, with some cobbles, dark brown, HNU=0.4.			
5	7	1.8	Top 1.4 ft of spoon: Clay, fine			
		Water at 5 feet bgs.	gravel, light brown, saturated. Bottom 0.4 ft of spoon: Coarse			
		leet bys.	grained angular feldspar crystals, some quartz and mica, HNU=0.			
			Some quarte and mica, mito-o.			
		İ				

From (ft)	To (ft)	Sample Recovery (f	Sample t) Description
	· · · · · · · · · · · · · · · · · · ·	·	
10	15	Hard drilling	
		cannot	clay, greenish-brown, trace fine
		retrieve a spoon	gravel, angular to subrounded of gneiss; black, white, mica; black,
		sample.	quartz; milky white, feldspar; pink,
		34.1.5.0	moist, HNU=0.
15	20	Hard drilling	Sand, fine to med-coarse (80%),
		cannot	trace clay, greenish-brown, trace fine
		retrieve a	gravel, angular to subrounded of
		spoon sample.	gneiss; black, white, green, mica;
		Sample.	black, quartz; milky white, moist, HNU=0.
	0.4		· ·
20	24		Sand, fine to med-coarse (80%),
	: *:		trace little silt, greenish-brown,
			trace angular gravel of gneiss; black, white, green, mica; black, quartz;
			milky white, dry, HNU=0.
			,
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Project	BIGV	/BPM	Date 4-21-93			
Location	LocationBaldwin Place					
Boring/W	/ell Designat	tionMW-	9\$			
Land Sur	face Elevation	on	Estimated <u>596.21</u> Surveyed			
Drilling M	ethod/	Air Hammer_				
Drilling Fl	uidAi	r				
Sampling	Method	Split Spoon 2	2ft. long/Grab			
Sampling	Interval	Continuous t	to Water then 5 Foot Interval			
Drilling Co	ontractor _	_Samuel Sto	thoff			
Prepared	By: A. Rana	a and K. McK	eever			
		Sample	Sample			
From (ft)	To (ft)	Recovery (fi	· · · · · · · · · · · · · · · · · · ·			
0	10	Grab	0-2 ft.: Silty SAND; fine to medium, brown, very little clay, little fine			
			angular to sub-rounded gravel, HNU=0 ppm.			
			2-8 ft.: Silty SAND; fine to medium, brown, very little clay, HNU=0 ppm.			
			8-10 ft.: Silty SAND; fine to medium,			
			brown, very little clay, some angular weathered rock fragments, HNU=0			
10	15	Grab	ppm. 10-11 ft.: Silty SAND; fine to medium,			
			brown, very little clay, HNU=0 ppm.			
			11-14 ft.: Weathered granitic GNEISS; quartz, biotite, and pink feldspars, some iron stains on cuttings, saturated.			
			14-15 ft.: Weathered granitic GNEISS; quartz, biotite, and pink feldspars, green-grey, more competent.			
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From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
15	20	Grab	15-17 ft.: Weathered granitic GNEISS; quartz and pink feldspars, some biotite green-grey, slight flow, HNU=0 ppm. 17-20 ft.: Weathered granitic GNEISS; quartz and pink feldspars, higher % of biotite, green/grey-brown, slight flow < 1 gpm, HNU=0 ppm, color change at 19 ft. bgs from green-grey to brown.
20	25	Grab	Granitic GNEISS; milky quartz and hornblende biotite, slightly higher flow < 1gpm, more competent, HNU=0 ppm, color change at 20 ft. bgs from brown to green-grey.
25	30	Grab	Granitic GNEISS; biotite and less % of milky quartz, slightly more competent at approximately 28 ft., slightly higher flow approximately 1.5 gpm at 29.5 ft. bgs, HNU=0 ppm.

ProjectBIGV/BPM	Date 4-16-93
LocationBaldwin Place, New	York
Boring/Well DesignationMW-9D)
Land Surface ElevationE	stimated <u>595.99</u> Surveyed
Drilling MethodAir Hammer	
Drilling FluidAir	
Sampling MethodSplit Spoon 2ft	. long/Grab
Sampling IntervalContinuous to \	Water then 5 Foot Interval
Drilling ContractorSamuel Stotho	off
Prepared By: V. Uhl, A. Rana and K.	McKeever

From (ft)	To (ft)	Sample Recovery	Sample Description
0	2	1.7 ft.	Silty SAND; very fine to medium,
			brown, HNU=0 ppm.
2	4	1.0 ft.	SILT; with some fine to medium
		1	sand, sub-angular to rounded,
			brown, HNU=0 ppm.
4	6	1.5 ft.	SILT; with some fine to medium
			sand, sub-angular to rounded,
			brown, some mica noted, moist, HNU=0 ppm.
6	10	Grab	Weathered GNEISS; some silt and a
			little fine sand, sub-angular to rounded, brown.
10	12	0.4 ft.	Weathered GNEISS; some silt and a
			little fine sand, sub-angular to rounded, brown, wet, some flow,
			HNU=0 ppm.

From (ft)	To (ft)	Sample Recovery	Sample Description
10	15	Grab	GNEISS; quartz, white, biotite, hard
			drilling, at 13 ft. bgs-soft zone with pink feldspars, flow approx. 5 gpm.
15	20	Grab	GNEISS; quartz, white and black, biotite, pink
			feldspars, flow approx. 2 gpm, HNU=0 ppm.
20	25	Grab	GNEISS; higher % of biotite, quartz, white, hard drilling, flow approx. 3 gpm, HNU=0.1 ppm.
25	30	Grab	GNEISS; higher % of biotite, with trace white quartz and pink feldspars, hard drilling, soft zone at 27 ft. bgs, some flow approx. 4.5 gpm, HNU=0.1 ppm.
30	35	Grab	GNEISS; higher % of quartz, with some biotite and feldspars, soft zone from 33-35 ft. bgs, flow approx. 4.5 gpm, HNU=0.2 ppm.
35	40	Grab	GNEISS; with pink feldspars, some biotite and pink feldspar zone from 36 to 38 ft. bgs, flow approx. 4.5 gpm, HNU=0.2 ppm.
40	45	Grab	GNEISS; higher % of biotite, with some white quartz, flow approx. 4.5 gpm, HNU=0.4 ppm.
45	50	Grab	Granitic GNEISS; predominately biotite and quartz fragments, fairly competent, increase in flow (approx. 6 gpm) from 48 to 50 ft. bgs, HNU=0 ppm.
	4/19/93	<u> </u>	
50	55	Grab	Granitic GNEISS; predominately biotite and quartz fragments, iron stains on cuttings (could be fall in from upper intervals), flow approx. 6 gpm, HNU=0 ppm.
55	60	Grab	Granitic GNEISS; predominately biotite and
	NOTE: Casing set and grouted at 60 ft. bgs.		quartz fragments, fairly competent, iron stains on cuttings (from 59-60 ft. bgs), irregular drilling-possible fracture zone, flow approx. 6 gpm, HNU=0 ppm.

		Sample	Sample
From (ft)	To (ft)	Recovery	Description
	4/20/93		
60	65	Grab	60-61.5 ft.: Granitic GNEISS; quartz (white), mica (black), iron stains on cuttings, low flow approx. 1.5 gpm, HNU=0
			ppm. 61.5-65 ft.: Granitic GNEISS; predominately quartz and biotite, no iron stains on cuttings, dry, more competent than above interval, no flow, HNU=Oppm.
65	70	Grab	Granitic GNEISS; predominately quartz and biotite, dry, competent, HNU=0 ppm.
70	75	Grab	Granitic GNEISS; predominately quartz and biotite, greater % of feldspars in this interval, dry, no flow, competent, HNU=0 ppm.
75	80	Grab	Granitic GNEISS; predominately quartz and biotite, some iron stains on angular cuttings from small approx. 3-inch fracture zone at 80 ft. bgs, dry, no flow, competent, HNU=0 ppm.
80	85	Grab	Granitic GNEISS; predominately quartz and biotite, some pink feldspars, iron stains on angular cuttings from 83-85 ft. bgs, not as dry, no flow, competent, HNU=0 ppm.
85	90	Grab	Granitic GNEISS; predominately quartz and biotite, dry, no flow, competent, HNU=0 ppm.
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Project	BIGV	/BPM	Date 4-22-93			
LocationBaldwin Place						
Boring/Well DesignationMW-10S						
Land Sur	face Elevation	on	Estimated 600.64 Surveyed			
Drilling M	Drilling MethodAir Hammer					
Drilling Fl	uidAiı	r				
•			2ft. long/Grab			
Sampling	Interval	Continuous t	to Water then 5 Foot Interval			
Drilling Co	ontractor	_Samuel Sto	thoff			
Prepared	By: A. Rana	and K. McKe	eever			
Comple						
From (ft)	To (ft)	Sample Recovery (fi	Sample t) Description			
0	5	Grab	SILT; and sand, very fine to fine, and			
			some angular gravel, brown, moist at the ft. bgs.			
5	10	Grab	SILT; and sand, very fine to fine, and			
			some angular gravel, brown, moist, large weathered remnants.			
10	15	Grab	SILT; and sand, very fine to fine, and			
			some angular gravel, brown, moist, trace mica.			
15	20	Grab	SILT; and sand, very fine to fine, and			
20	25	Grab	some angular gravel, brown, moist.			
20	23	Giab	SILT; and sand, very fine to fine, and some angular gravel, boulder at 22 ft.			
			bgs., 22-24 ft. gravel and at 24 ft. bgs top of weathered bedrock.			

		Sample	Sample
From (ft)	To (ft)	Recovery (ft)	•
25	30	Grab	Weathered GNEISS; biotite, quartz, white
			& black, and orange, and pink feldspars, and at 26 ft. bgs flow approx. 2 gpm.
30	35	Grab	GNEISS; biotite, quartz, white & black, and orange, and pink feldspars.
35	40	Grab	GNEISS; biotite to 38 ft. and feldspar to 40 ft. bgs, a little quartz, white & black, and orange.
40	45	Grab	GNEISS; feldspar to 42 ft. bgs and biotite to 45 ft. bgs, a little quartz, white & black, and orange.
45	47	Grab	GNEISS; weathered biotite, quartz, white, some iron stains on cuttings, and a weathered seam at 46 to 47 ft. bgs.
47	48	Grab	GNEISS; biotite and quartz, black & white, some iron stains on cuttings.
48	49	Grab	GNEISS; greater % of white quartz, very little biotite, some iron stains on cuttings.
49	50	Grab	GNEISS; biotite and quartz, white and orange.
50	51	Grab	GNEISS; biotite and quartz, white and orange.

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Project	bigv	/BPM	Date 4/13/93			
Location	LocationBaldwin Place, New York					
Boring/Well DesignationMW-10D						
Land Sur	Land Surface ElevationEstimated 600.52_Surveyed					
Drilling M	Drilling MethodAir Hammer					
Drilling F	luidAi	r				
			2ft. long/Grab			
Sampling	Interval	Continuous t	to Water then 5 Foot Interval			
Drilling C	ontractor _	_Samuel Sto	thoff			
Prepared	By: A. Rana	a and K. McK	eever			
5 (c) Bearing						
0	2	1.0 ft.	SILT; and very fine to fine sand,			
		0.5.64				
2	4	0.5 ft.	SILT; and very fine to fine sand, trace mica, and angular gravel, brown, dry,			
			HNU=0 ppm.			
4	6	0.7 ft.	SILT; and very fine to fine sand, brown,			
			dry, wet at bottom of spoon, some			
		0.1.6	, , , , , , , , , , , , , , , , , , ,			
ю	8	0.1 ft.	trace mica, and angular gravel, wet,			
8	10	Grab				
	-		trace mica, and angular gravel,			
From (ft) 0 2 4	To (ft) 2 4	Sample Recovery 1.0 ft. 0.5 ft.	Sample Description SILT; and very fine to fine sand, brown, dry, HNU<1 ppm. SILT; and very fine to fine sand, trace mica, and angular gravel, brown, dry, HNU=0 ppm. SILT; and very fine to fine sand, brown, trace mica and clay, and angular gravel, dry, wet at bottom of spoon, some weathered remnants, HNU=0 ppm. SILT; and very fine to fine sand, brown, trace mica, and angular gravel, wet, some weathered remnants, HNU=0 ppm Silty SAND; very fine to fine, brown,			

From (ft)	To (ft)	Sample Recovery	Sample Description
	4/19/93		
10	12	0.2 ft.	Silty SAND; very fine to fine, brown-green, and weathered biotite gneiss at bottom of spoon, HNU=1 ppm.
12	15	Grab	Silty SAND; fine, angular gravel, trace clay, grey-green, cuttings moist at 15 ft. bgs.
15	17	1.1 ft.	Silty SAND; fine, angular gravel, dark grey, wet at bottom of spoon.
17	20	Grab	SILT; and fine sand, angular gravel, dark grey, weathered granitic gneiss fragments at 18-20 ft., HNU=0 ppm.
20	22	0.5 ft.	Silty SAND; fine, dark grey-green, weathered granitic rock fragments, medium gravel size and angular, HNU=0 ppm.
20	25	Grab	Silty SAND; fine to medium, a little mica, trace clay, grey-green, angular gravel, medium to coarse, HNU=0 ppm.
	4/20/93		
25	27	1.2 ft.	Silty SAND; fine to medium, grey-green, at 25 ft. bgs-coarse, rounded to subrounded gravel, HNU=0 ppm.
27	28	Grab	Silty SAND; fine to medium, grey-black, and coarse, rounded to subrounded gravel, HNU=0 ppm.
28	30	Grab	Weathered granitic GNEISS; HNU=0 ppm.
30	32	0.5 ft.	Silty SAND; fine to medium, fall in from below temporary surface casing, no penetration with splitspoon, HNU=0 ppm.
30	35	Grab	Weathered granitic GNEISS; greater % of biotite than quartz, flow approx. 3 gpm,HNU=0 ppm.

		Sample	Sample			
From (ft)	To (ft)	Recovery	Description			
35	40	Grab	Weathered granitic GNEISS; greater % of biotite than quartz, total flow approx. 4.5 gpm, HNU=0 ppm.			
40	45	Grab	Weathered granitic GNEISS; pink and white feldspars, at 45 ft. bgs-"muddy" brown seam (possible fracture zone), total flow approx. 4.5 gpm.			
45	50	Grab	Weathered granitic GNEISS; greater % of quartz than biotite, total flow approx. 9 gpm (additional 4.5 gpm possibly from seam at 45 ft. bgs), HNU=0 ppm.			
50	55	Grab	Weathered granitic GNEISS; pink feldspars, still"muddy", iron stains on grains, total flow approx. 9 gpm, HNU=0 ppm. From 54-56 ft. bgs-out of weathered zone and into more competent rock.			
55	4	Grab sing set and t 60 ft. bgs.	GNEISS; higher % of biotite and quartz than feldspars, brown-grey, iron stains on grains (could be fall in from 45-54 ft. interval), total flow approx. 9 gpm, HNU=0 ppm.			
60	65	Grab	Biotite granitic GNEISS; a little white quartz and pink feldspars, fairly competent.			
65	70	Grab	Biotite granitic GNEISS; at 67 ft. bgs-higher % of quartz and from 67-70 ft. bgs-some feldspars, no flow.			
70	75	Grab	Biotite granitic GNEISS; at 73 ft. bgs-some hornblende, more competent than above interval.			
75	80	Grab	Biotite granitic GNEISS; at 78 ft. bgs-higher % of quartz, no flow.			
80	85	Grab	Granitic GNEISS; pink feldspars, some water but still no flow (possible small fracture at 80 ft. bgs-some water but not enough to measure.			

		Comple	Camala
		Sample	Sample
From (ft)	To (ft)	Recovery	Description
85	90	Grab	Granitic GNEISS; grey-pink, pink feldspars, higher % of quartz, no flow.
			feldspars, higher % of quartz, no flow.
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APPENDIX I

BEDROCK CORE LOG

Date: 8-11-92

Site Location: BPM

Project/No.: BIG V

Boring/Well: MW-3DD

Drilling Started: 8-11-92, 12:00 NOON

Prepared By: A. Rana

Drilling Completed

Total Depth Drilled: 98.5 feet

Hole Diameter: Approximately 3 inches

Land Surface Elevation

__Estimated ____Surveyed

Drilling Method: NQ Wireline Coring

Drilling Fluid: Approved water from on-site source

Sample Coring Device: NQ Core Barrel, 10 feet in length

Sampling Interval: Continuous

Drilling Contractor: Samuel Stothoff

Driller: Paul

Helper: Ray

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Depth (ft.)	Core Recovery (ft.)	Modified Core Recovery (ft.)	Rock Quality Designation (RQD) and Description	Sample Number	Drilling Time/ Hydraulic Pressure	Sample Description
100.8 	8 ft. Run 6.65 ft Recovery 83 %	4.66/8 ft	58 % Fair	1	12:45 to13:45	100.8 to 107.8: Quartz (clear, milky white), mica, thin parting in core along mica bands, at 102.5, 103.25, 104.45, 104.7, 105.8, 108.15 approximately 45 degree orientaion of parting. 107.8 to 108.8: Fractured interval, granitic gneiss, core pieces less competent (0.2 ft. in length), clear quartz, biotite mica bands, some pink feldspars, darker in color, more mica, less % of quartz.

A = Sum of the Total Pieces of Hard and Sound Core 0.333 Ft. (4 Inch) or Greater in Length Divided By the Total Length of Run.

B = 0-25 Very Poor, 25-50 Poor, 50-75 Fair, 75-90 Good, 90-100 Excellent.

^{*} See the Geologic/ Boring Activity Log from Monitoing Well MW-3DD for a description of the unconsolidated materials overlying bedrock.*

Boring/Well: MW-3DD

Project/No.: Big V

Prepared By: A. Rana

Page 2 of 9

Core Recovery (ft.) 10 ft. Run 3.2 ft Recovery 32%	A Modified Core Recovery (ft.) 1.48/10 ft	B Rock Quality Designation (RQD) and Description 14.8 % Very Poor	Sample Number	Drilling Time/ Hydraulic Pressure	Sample Description Upper 1 ft. of core, 108.8 to 109.8: Fairly competent banded granitic gneiss, quartz and biotite
Recovery (ft.) 10 ft. Run 3.2 ft Recovery	Core Recovery (ft.)	Designation (RQD) and Description	Number	Time/ Hydraulic Pressure	Upper 1 ft. of core, 108.8 to 109.8: Fairly competent banded granitic
3.2 ft Recovery	1.48/10 ft		2		to 109.8: Fairly competent banded granitic
				to 1450	mica bands. 109.8 to 116.8: Highly friable interval, relatively greater % of feldspars and biotite mica to quartz minerals, estimate 7 ft. of core loss, very poor recovery in this interval. 116.8 to 118.8: Fairly copetent quartz granitic gneiss interval, very small % of feldspars and mica to quartz.
5 ft. Run 4.5 ft. Recovery 90 %	1.03/5 ft.	20.6 % Very Poor	3	1540 to	118.8 to 120.3: Core pieces < 0.333 ft., "Heavily" banded biotite bands and pink-brown feldspars with some quartz (clear and milky), granoblastic texture, greater % of feldspars and mica to quartz (grey, white, black). Parting of rock in this interval along approximately 45 degree cleavage planes of mica and feldspars.

A = Sum of the Total Pieces of Hard and Sound Core 0.333 Ft. (4 Inch) or Greater in Length Divided By the Total Length of Run.

B = 0-25 Very Poor, 25-50 Poor, 50-75 Fair, 75-90 Good, 90-100 Excellent.

^{*} See the Geologic/ Boring Activity Log from Monitoing Well MW-3DD for a description of the unconsolidated materials overlying bedrock.*

Boring/Well: MW-3DD Project/No.: Big V Prepared By: A. Rana Page 3 of 9

Donne	/ 11 Cil. 14111 31	110,00	JC Itoli Big V			
Depth (ft.)	Core Recovery (ft.)	A Modified Core Recovery (ft.)	B Rock Quality Designation (RQD) and Description	Sample Number	Drilling Time/ Hydraulic Pressure	Sample Description
	3		Description		riessure	120.3 to 123.3: Grey, black and white, banded granitic gneiss, banded, less feldspars in this interval, parting of core along 45 degree cleavag plane of biotite mica at 120.8 and 121.3 ft. bls. 123.3 to 123.8: Greater % of coarse quartz (milky and clear) in this interval, less mica and feldspars, rock breakage in pieces approximately 0.1 ft. possibly mechanical breaking from coring. *Note: Pyrite, metallic luster mineral, throughout core, mainly concentrated along mica cleavage planes, possibly secondary precipitant?*
	0.5 ft. Run 0.4 ft. Recovery 90%	0.35/0.5 ft.	70 % Fair	4		Competent banded granitic gneiss, clear to milky quartz dominant (granoblastic) relative to feldspars and micas. Approximately 0.25 ft. long mica band runs through core.
	5 ft. Run 4.4 ft Recovery 88%	4.31/5 ft.	86% Good	5	0830 to 0905	Competent banded granitic gneiss, coarse quartz, clear and milky white matrix (granoblastic), black biotite mica bands with little feldspars in quartz matrix.
A C	6 +b - T-	tal Diagon of	Unand and Carrad	Cara 0 22	2 Et (4 Inch) or Creator in Longth

A = Sum of the Total Pieces of Hard and Sound Core 0.333 Ft. (4 Inch) or Greater in Length Divided By the Total Length of Run.

B = 0-25 Very Poor, 25-50 Poor, 50-75 Fair, 75-90 Good, 90-100 Excellent.

^{*} See the Geologic/ Boring Activity Log from Monitoing Well MW-3DD for a description of the unconsolidated materials overlying bedrock.*

Page 4 of 9 Project/No.: Big V Prepared By: A. Rana Boring/Well: MW-3DD В Α Modified **Rock Quality** Drilling Sample Core Depth Sample Core Designation Time/ Recovery Description (ft.) Number Recovery (RQD) and Hydraulic (ft.) Pressure (ft.) Description Concentrated along biotite bands is yellow-gold mineral, with distinct cleavage planes appears as muscovite mica. Rock parts along thicker mica bands (0.3mm) at 124.4, 124.8, 125.3, 126.4 127.3. Also. yellow-gold, metallic luster mineral, probably pyrite present along mica bands. Core becomes soft with less % of quartz at 128.3, probably some core loss in interval. -129.3 8.6 ft. Run 129.3 to 131.1: Very 4.4/8.6 ft. friable, granitic quartz, 6.67 ft. feldspar, biotie gneiss, % 51% 6 Recovery feldspars (pink) dominant in Poor this interval. Coarse quartz, 77% granoblastic, biotite concentrated along bands, highly weathered interval, core pieces < 0.2 feet. 131.1 to 135.5: Competent banded granitic gneiss, high % of quartz, coarse, granoblastic. Thin biotite mica bands. 135.5 to 137.9: Banded granitic gneiss, greater % of biotite and feldspars, less competent.

A = Sum of the Total Pieces of Hard and Sound Core 0.333 Ft. (4 Inch) or Greater in Length Divided By the Total Length of Run.

B = 0-25 Very Poor, 25-50 Poor, 50-75 Fair, 75-90 Good, 90-100 Excellent.

^{*} See the Geologic/ Boring Activity Log from Monitoing Well MW-3DD for a description of the unconsolidated materials overlying bedrock.*

Boring/Well: MW-3DD Project/No.: Big V Prepared By: A. Rana Page 5 of 9

2011119	vveii. Mvv-31		17140 BIG V		ieu by. A. Na	ila lage 5 of 5
		Α	В			
Depth (ft.)	Core Recovery (ft.)	Modified Core Recovery (ft.)	Rock Quality Designation (RQD) and Description	Sample Number	Drilling Time/ Hydraulic Pressure	Sample Description
137.9	1.2 ft. Recovery 86%	0.6/1.4 ft.	43% Poor	7		137.9 to 138.5: Banded granitic gneiss, greater % of biotite and feldspars, less competent, core pieces approximatley 0.1 feet. 138.5 to 139.3: Banded granitic gneiss, coarse quartz (clear and milky), granoblastic dominant. Yellow, non-metallic luster grains, possilbly iron precipitate in rock parting along mica band at 138.45
139.3 139.3	10 ft. Run 10 ft. Recovery 100%	9.53/10 <i>i</i> c.	95% Excellent	8		ft. bgs. 139.3 to 149.3: Banded granitic gneiss, excellent recovery in this interval, highly competent. Quartz, granoblastic, mica bands, black, thin. Thick mica seam at approximately 140 ft. (0.15 ft. thick), greater % of mica. Thin seams approximately 1 to 2 mm imn upper 3.6 ft. of core (139.3 to 143). Below this interval, quartz, coarse, clear and milky white, dominant mineral, core pieces 1.5 ft. in length. Parting of core along cleavage planes at 140, 141(thin), 142.7(thin), 142.9, 145, 146.3, 147.8. Mechanical breakage last 0.5 ft. of core due to pulling out of core barrel.

A = Sum of the Total Pieces of Hard and Sound Core 0.333 Ft. (4 Inch) or Greater in Length Divided By the Total Length of Run.

B = 0-25 Very Poor, 25-50 Poor, 50-75 Fair, 75-90 Good, 90-100 Excellent.

^{*} See the Geologic/ Boring Activity Log from Monitoing Well MW-3DD for a description of the unconsolidated materials overlying bedrock.*

Boring/Well: MW-3DD Project/No.: Big V Prepared By: A. Rana Page 6 of 9

boinig/	Well: MW-3L	רוטוכני על	t/No.: Big V	ricpa	red By: A. Ka	na rage 0 01 5
1		Α	В			
Depth (ft.)	Core Recovery (ft.)	Modified Core Recovery (ft.)	Rock Quality Designation (RQD) and Description	Sample Number	Drilling Time/ Hydraulic Pressure	Sample Description
149.3	10 ft. Run 9.8 ft. Recovery 98%	8.87/10 ft.	88% Good	9	1315 to 1410	149.3 to 154.3: Coarse grained granoblastic granitic gneiss. Quartz dominant, "speckeled" mica, thin bands throughout interval, highly competent core pieces ≥ 0.5 ft. in length. Thin vertical fracture 0.5 ft. in length between 149.8 to 150.3. 154.3 to 159.3: Granitic gneiss, greater % of mica bands in this interval, relativley less quartz. Parting of core along mica planes at 154.3, 155, 157.3, 158, and 158.8.
	10 ft. Run 9.7 ft. Recovery 97%	9.51/10 ft.	95% Excellent	10	1410 to 1509	159.3 to 166.6: Highly competent granitic gneiss, black bands of biotite mica with little muscovite mica. Parting of rock (thin) along mica bands at 161.8, 162.7, 164, 165, 165.4, and 166.7. Quartz dominant mineral, white and clear, coarse, granoblastic in this interval. 166.6 to 167.3: Very friable, biotite mica seam, black, very little quartz. 167.3 to 169.3: Competent granitic gneiss, banded biotite mica, quartz, granular (granoblastic). Parting along mica seam at 167.6, 168.2, and 168.6.

A = Sum of the Total Pieces of Hard and Sound Core 0.333 Ft. (4 Inch) or Greater in Length Divided By the Total Length of Run.

B = 0-25 Very Poor, 25-50 Poor, 50-75 Fair, 75-90 Good, 90-100 Excellent.

^{*} See the Geologic/ Boring Activity Log from Monitoing Well MW-3DD for a description of the unconsolidated materials overlying bedrock.*

Boring/Well: MW-3DD Project/No.: Big V Prepared By: A. Rana Page 7 of 9

Dorniga	AACII. IAIAA-DI	1.0,00	.c/140 blg v		ica by. A. Na	110
		Α	В			
Depth (ft.)	Core Recovery (ft.)	Modified Core Recovery (ft.)	Rock Quality Designation (RQD) and Description	Sample Number	Drilling Time/ Hydraulic Pressure	Sample Description
	10 ft. Run 9.96 ft. Recovery 99%	8.79/10 ft.	88% Good	11	1534 to 1620	169.3 to 179.3: Competen granitic gneiss. Quartz dominant mineral, coarse grained, granoblastic, black biotite mica bands throughout core. Parting along mica plane at 171, 172, 173, 174.75, and 175.1. Thin vertical fracture from approximatiley 175.55 to 178.85, pink feldspars mineral in fracture. Thin parting at 176.55 and 177.5. Thin vertical fracture from 177.5 to 178 with pink feldspars in fracture. Thin parting along mica bands at 178.7 and 178.9.
	10 ft. Run 9.85 ft. Recovery 98%	9.03/10 ft.	90% Excellent	12	1640 to 1730	179.3 to 183.95: Competent granitic gneiss, quartz, coarse, granular (granoblastic), dominant, feldspar, pink, minor, biotite mica, banded and speckeled thoughout interval. Core pieces approximately 1.5 ft. in length. Parting of rock along mica plane at 180.8, 181.85, 183, and 183.95

A = Sum of the Total Pieces of Hard and Sound Core 0.333 Ft. (4 Inch) or Greater in Length Divided By the Total Length of Run.

B = 0-25 Very Poor, 25-50 Poor, 50-75 Fair, 75-90 Good, 90-100 Excellent.

^{*} See the Geologic/ Boring Activity Log from Monitoing Well MW-3DD for a description of the unconsolidated materials overlying bedrock.*

Boring/Well: MW-3DD Project/No.: Big V Prepared By: A. Rana Page 8 of 9

Boring/	Well: MW-3L	JD Projec	t/No.: Big v	riepa	red by: A. Ka	na lage o ol 3
′		Α	В			
Depth (ft.)	Core Recovery (ft.)	Modified Core Recovery (ft.)	Rock Quality Designation (RQD) and Description	Sample Number	Drilling Time/ Hydraulic Pressure	Sample Description
- - - - - - - - - - - - - - - - - - -						183.95 to 185: Less competent granitic gneiss, core pieces < 0.2 ft. in length, some core loss in this interval. Greater % of darker minerals biotite, muscovite and feldspars to quartz. Rock more friable. 185 to 189.3: Competent granitic gneiss, core pieces approximately 1 ft. in length. Quartz dominant mineral, coarse, granular, (granoblastic), thin biotite mica bands thoughout interval. Parting of rock along mica bands at 185.5, 185.8, 186.4, 187.2 and 188.35.
	10 ft. Run 9.95 ft. Recovery 99.5%	8.68/10 ft.	87% Good	13		189.3 to 190.9: Granitic gneiss, quartz, dominant (granoblastic). Relatively thicker biotite bands (approximatley 2mm). Relativley less competent, core pieces ≤ 0.5 ft. in length. Parting of rock along biotite bands at 189.95, 190.35, 190.45, 190.7, 190.8, 190.85 and 190.9.

A = Sum of the Total Pieces of Hard and Sound Core 0.333 Ft. (4 Inch) or Greater in Length Divided By the Total Length of Run.

B = 0-25 Very Poor, 25-50 Poor, 50-75 Fair, 75-90 Good, 90-100 Excellent.

^{*} See the Geologic/ Boring Activity Log from Monitoing Well MW-3DD for a description of the unconsolidated materials overlying bedrock.*

Boring/Well: MW-3DD Project/No.: Big V Prepared By: A. Rana Page 9 of 9

	Dornig/	Well. MW-3	1 10,00	70 110 big v	. тора	Teu by. A. Na	na rage 5 or 5
			Α	В			
	Depth (ft.)	Core Recovery (ft.)	Modified Core Recovery (ft.)	Rock Quality Designation (RQD) and Description	Sample Number	Drilling Time/ Hydraulic Pressure	Sample Description
							190.9 to 195.5: Granitic gneiss, dark banded biotite gneiss, relatively more competent then above interval, core pieces approximately 1 ft. in length. Parting of rock along biotite mica bands at 191.6, 192.3, 193.7 and 195.5. 195.5 to 196.4: Gneiss, quartz dominant, and feldspar interval with minor micas. Friable between 195.5 and 195.8. 196.4 to 199.3: Competent granitic gneiss, quartz
	- - - - - - - - - - -						dominant, thin black biotite bands. Core pieces 0.5 to 1 ft. in length. Parting of rock at 196.9, 197.4, 198.25 and 198.85.
	-						
ŀ	-						•

A = Sum of the Total Pieces of Hard and Sound Core 0.333 Ft. (4 Inch) or Greater in Length Divided By the Total Length of Run.

B = 0-25 Very Poor, 25-50 Poor, 50-75 Fair, 75-90 Good, 90-100 Excellent.

^{*} See the Geologic/ Boring Activity Log from Monitoing Well MW-3DD for a description of the unconsolidated materials overlying bedrock.*

APPENDIX J

GROUNDWATER CHEMISTRY PARAMETERS DATA REPORT (ENVIROTEST LABORATORIES)

ANALYTICAL REPORT

Vincent Uhl Associates, Inc. Jackie Baron 1078 Taylorsville Road Po Box 93 PA 18977 Washington Crossing

Report Date:

08-SEP-92

Project:

STANDARD

Lab Number:

114946

Sample Number(s): 114946-01

to

114946-04

Α. Laboratory Director



Client Name: Vincent Uhl Associates, Inc.

Project Name:

STANDARD

ETL Sample Number: 114946-01

Client I.D.: BPM-MW-3D-01

Date Collected: 31-AUG-92

Matrix:

2 GW/WW

Date Received: 01-SEP-92

Comments: BPM RI/FS

Analysis	Result	Units	Method	Analyzed
Alkalinity	98	HG/L	EPA 310.1	02-SEP-92
Chlorides	93	MG/L	4500 CL B	01-SEP-92
Nitrate-Nitrite		MG/L	EPA 353.2	04-SEP-92
Sulfate	40	MG/L	EPA 375.4	01-SEP-92
Total Dissolved Solids	310	MG/L MG/L	EPA 160.1	03-SEP-92
Total Hardness	57	MG/L	EPA 130.2	03-SEP-92
рH	11.4		EPA 150.1	01-AUG-92

Remarks:

Bicarbonate Alkalinity = 32



NYSDOH 10142

EPA NY049

Client Name: Vincent Uhl Associates, Inc.

Project Name:

STANDARD

ETL Sample Number: 114946-02

Client I.D.: BPM-MW-3S-01

Date Collected: 31-AUG-92

Matrix:

2 GW/WW

Date Received: 01-SEP-92

Comments: BPM RI/FS

Analysis	Result	Units	Method	Analyzed
Alkalinity	210	MG/L	EPA 310.1	02-SEP-92
Chlorides	20	MG/L	4500 CL B	01-SEP-92
Nitrate-Nitrite		MG/L	EPA 353.2	04-SEP-92
Sulfate	21	MG/L	EPA 375.4	01-SEP-92
Total Dissolved Solids	230	MG/L	EPA 160.1	03-SEP-92
Total Hardness	230	MG/L	EPA 130.2	03-SEP-92
рH	7.2		EPA 150.1	01-AUG-92

Remarks:

Bicarbonate Alkalinity = Total Alkalinity

NVSD-0H 10142

Client Name: Vincent Uhl Associates, Inc.

Project Name:

STANDARD

ETL Sample Number: 114946-03

Client I.D.: BPM-MW-3DD-01

Date Collected: 31-AUG-92

2 GW/WW Matrix:

Date Received: 01-SEP-92

Comments: BPM RI/FS

Analysis	Result	Units	Method	Analyzed
Alkalinity	160	MG/L	EPA 310.1	02-SEP-92
Chlorides	38	MG/L	4500 CL B	01-SEP-92
Nitrate-Nitrite		MG/L	EPA 353.2	04-SEP-92
Sulfate	27	MG/L	EPA 375.4	01-SEP-92
Total Dissolved Solids	250	MG/L	EPA 160.1	03-SEP-92
Total Hardness	200	MG/I	EPA 130.2	03-SEP-92
pit			EPA 150.1	01-AUG-92

Remarks:

Bicarbonate Alkalinity = Total Alkalinity

Client Name: Vincent Uhl Associates, Inc.

Project Name:

STANDARD

ETL Sample Number: 114946-04

Client I.D.: BPM-MW-4S-01

Date Collected: 31-AUG-92

Matrix:

2 GW/WW

Date Received: 01-SEP-92

Comments: BPM RI/FS

Analysis	Result	Units	Method	Analyzed
Alkalinity Chlorides Nitrate-Nitrite Sulfate Total Dissolved Solids Total Hardness pH	240 210 1.2 65 600 460 7.6	MG/L	4500 CL B	02-SEP-92 01-SEP-92 04-SEP-92 01-SEP-92 03-SEP-92 03-SEP-92 01-AUG-92

Remarks:

Bicarbonate Alkalinity = Total Alkalinity



ANALYTICAL REPORT

 Report Date:
 11-SEP-92

 Project:
 STANDARD

 Lab Number:
 114990

 Sample Number(s):
 114990-01

 to
 114990-02

Ronald A Bayer Laboratory Director



Client Name: Vincent Uhl Associates, Inc.

Project Name:

STANDARD

ETL Sample Number: 114990-01

Client I.D.: BPM-MW-4D-01

Date Collected: 01-SEP-92

Matrix: 2 GW/WW

Date Received: 02-SEP-92

Comments: BPM RI/FS

Analysis	Result	Units	Method	Analyzed
Alkalinity	210	MG/L	EPA 310.1	02-AUG-92
Chlorides	43	MG/L	4500-CL B	04-SEP-92
	<0.2	MG/L	EPA 353.2	04-SEP-92
Sulfate	21	MG/L	EPA 375.4	08-SEP-92
Total Dissolved Solid	s 300	MG/L	EPA 160.1	08-SEP-92
Total Hardness	230	MG/L	EPA 130.2	03-SEP-92
Ha	7.5		EPA 180.1	03-SEP-92

Remarks:

Bicarbonate Alkalinity = Total Alkalinity

CTDOHS PH-0054

Client Name: Vincent Uhl Associates, Inc.

Project Name:

STANDARD

ETL Sample Number: 114990-02

Client I.D.: BPM-MW-1D-01

Date Collected: 01-SEP-92

Matrix: 2 GW/WW

Date Received: 02-SEP-92

Comments: BPM RI/FS

Analysis Result	Units	Method	Analyzed
Alkalinity 240	MG/L	EPA 310.1	02-AUG-92
Alkalinity 240 Chlorides 92	MG/L	4500-CL B	
	MG/L	EPA 353.2	The second control of the second control of
	MG/L	EPA 375.4	
Sulfate 45	MG/L	EPA 160.1	The state of the expension of the state of t
JOLAL DISSULTED SOLICE	MG/L	EPA 130.2	CONTRACTOR OF THE PROPERTY OF
Total Hardness 270 pH 7.5	HG/ C	EPA 180.1	03-SEP-92

Remarks:

Bicarbonate Alkalinity = Total Alkalinity

APPENDIX K

SHORT-TERM PUMPING TEST DATA AND PLOTS FOR MONITORING WELLS

BIG V-5/93 (MW-1S)#2

TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
0.16	8.03	6.54	1.49	3.50
0.50	8.10	6.54	1.56	3.50
0.66	8.08	6.54	1.54	3.50
1.00	7.98	6.54	1.44	3.50
1.33	7.97	6.54	1.43	3.50
1.50	8.00	6.54	1.46	3.50
2.00	7.96	6.54	1.42	3.50
2.50	7.98	6.54	1.44	3.50
3.00	7.93	6.54	1.39	3.50
3.50	7.92	6.54	1.38	3.50
4.00	7.92	6.54	1.38	3.50
4.50	7.92	6.54	1.38	3.50
5.00	7.93	6.54	1.39	3.50
6.00	7.93	6.54	1.39	3.50
7.00	7.94	6.54	1.40	3.50
8.00	7.94	6.54	1.40	3.50
9.00	7.94	6.54	1.40	3.50
10.00	7.95	6.54	1.41	3.50
11.00	7.97	6.54	1.43	3.50
12.00	7.97	6.54	1.43	3.50
13.00	7.99	6.54	1.45	3.50
14.00	7.99	6.54	1.45	3.50
15.00	7.99	6.54	1.45	3.50
16.00	7.99	6.54	1.45	3.50
17.00	8.00	6.54	1.46	3.50
18.00	8.01	6.54	1.47	3.50
19.00	8.01	6.54	1.47	3.50
20.00	8.01	6.54	1.47	3.50
22.00	8.04	6.54	1.50	3.50
24.00	8.05	6.54	1.51	3.50
26.00	8.07	6.54	1.53	3.50
28.00	8.09	6.54	1.55	3.50
30.00	8.09	6.54	1.55	3.50

BIG V-5/93 (MW-1D)#2

TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
0.16	2.33	2.45	-0.12	2.00
0.50	3.53	2.45	1.08	2.00
1.00	4.94	2.45	2.49	2.00
1.50	6.18	2.45	3.73	2.00
2.00	7.36	2.45	4.91	2.00
2.50	8.60	2.45	6.15	2.00
3.00	9.70	2.45	7.25	2.00
3.50	10.83	2.45	8.38	2.00
4.00	11.92	2.45	9.47	2.00
4.50	12.98	2.45	10.53	2.00
5.00	14.02	2.45	11.57	2.00
6.00	16.29	2.45	13.84	3.00
7.00	18.33	2.45	15.88	3.00
8.00	20.23	2.45	17.78	3.00
9.00	22.04	2.45	19.59	3.00
10.00	23.00	2.45	20.55	3.00
11.00	24.19	2.45	21.74	2.00
12.00	25.48	2.45	23.03	2.00
13.00	26.68	2.45	24.23	2.00
14.00	27.96	2.45	25.51	2.00
15.00	29.19	2.45	26.74	2.00
16.00	30.40	2.45	27.95	2.00
17.00	31.63	2.45	29.18	2.00
18.00	32.86	2.45	30.41	2.00
19.00	34.08	2.45	31.63	2.00
20.00	35.23	2.45	32.78	2.00
22.00	37.71	2.45	35.26	2.00
24.00	40.12	2.45	37.67	2.00
26.00	42.45	2.45	40.00	2.00
28.00	44.77	2.45	42.32	2.00
30.00	47.24	2.45	44.79	2.00
35.00	52.98	2.45	50.53	2.00
40.00	57.80	2.45	55.35	2.00
45.00	65.85	2.45	63.40	2.00
50.00	73.63	2.45	71.18	2.00
55.00	82.62	2.45	80.17	2.00

BIG V-5/93 (MW-2D)#2

TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
0.25	16.15	12.63	3.52	10.00
0.50	19.63	12.63	7.00	10.00
1.00	23.38	12.63	10.75	10.00
1.50	25.31	12.63	12.68	5.00
2.00	26.19	12.63	13.56	5.00
2.50	26.93	12.63	14.30	5.00
3.00	27.59	12.63	14.96	5.00
3.50	28.19	12.63	15.56	5.00
4.00	28.72	12.63	16.09	5.00
4.50	29.13	12.63	16.50	5.00
5.16	29.58	12.63	16.95	5.00
6.00	30.44	12.63	17.81	5.00
7.00	31.09	12.63	18.46	5.00
8.00	31.45	12.63	18.82	5.00
9.00	31.81	12.63	19.18	5.00
10.00	31.27	12.63	18.64	5.00
11.00	31.90	12.63	19.27	5.00
12.00	32.22	12.63	19.59	5.00
13.00	32.64	12.63	20.01	5.00
14.00	32.80	12.63	20.17	5.00
15.00	33.05	12.63	20.42	5.00
16.00	32.20	12.63	19.57	5.00
17.00	33.33	12.63	20.70	5.00
18.00	33.47	12.63	20.84	5.00
19.00	33.61	12.63	20.98	5.00
20.00	33.73	12.63	21.10	5.00
22.50	33.95	12.63	21.32	5.00
24.00	34.15	12.63	21.52	5.00
26.00	34.34	12.63	21.71	5.00
28.00	34.50	12.63	21.87	5.00
30.00	34.67	12.63	22.04	5.00
35.00	35.00	12.63	22.37	5.00
40.00	35.27	12.63	22.64	5.00
45.00	35.41	12.63	22.78	5.00
50.00	35.55	12.63	22.92	5.00
55.50	35.90	12.63	23.27	5.00
60.00	36.06	12.63	23.43	5.00
65.00	36.20	12.63	23.57	5.00
70.00	36.32	12.63	23.69	5.00
75.00	36.43	12.63	23.80	5.00
80.00	36.55	12.63	23.92	5.00
85.00	36.72	12.63	24.09	5.00
90.00	36.84	12.63	24.21	5.00

BIG V-5/93 (MW-3S)#2

TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
0.16	6.84	6.23	0.61	1.00
0.33	7.56	6.23	1.33	1.00
0.66	7.79	6.23	1.56	1.00
0.83	8.05	6.23	1.82	1.00
1.00	8.23	6.23	2.00	1.00
1.33	8.11	6.23	1.88	1.00
1.50	8.12	6.23	1.89	1.00
1.83	8.09	6.23	1.86	1.00
2.00	8.30	6.23	2.07	1.00
2.50	8.41	6.23	2.18	1.00
3.00	8.58	6.23	2.35	1.00
3.50	8.72	6.23	2.49	1.00
4.00	8.66	6.23	2.43	1.00
4.50	8.69	6.23	2.46	1.00
5.00	8.73	6.23	2.50	0.50
6.00	8.81	6.23	2.58	0.50
7.00	8.84	6.23	2.61	0.50
9.00	8.90	6.23	2.67	0.50
10.00	8.92	6.23	2.69	0.50
11.00	8.95	6.23	2.72	0.50
12.00	8.98	6.23	2.75	0.50
13.00	8.99	6.23	2.76	0.50
14.00 15.00	9.01	6.23	2.78	0.50
16.00	9.03	6.23	2.80	0.50
17.00	9.04 9.06	6.23	2.81	0.50
18.00	9.08	6.23 6.23	2.83	0.50
19.00	9.08	6.23	2.85	0.50
20.00	9.09	6.23	2.85	0.50
22.00	9.08	6.23	2.86	0.50
24.00	9.10	6.23	2.85	0.50
26.00	9.11	6.23	2.87 2.88	0.50 0.50
28.00	9.12	6.23	2.89	0.50
30.00	9.13	6.23	2.90	
35.00	9.15	6.23	2.92	0.50 0.50
40.00	9.15	6.23	2.92	0.50
45.00	9.16	6.23	2.93	0.50
50.00	9.16	6.23	2.93	0.50
55.00	9.17	6.23	2.94	0.50
60.00	9.18	6.23	2.95	0.50
65.00	9.19	6.23	2.96	0.50
70.00	9.21	6.23	2.98	0.50
75.00	9.24	6.23	3.01	0.50
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TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
0.50	21.38	13.49	7.89	10.00
1.00	21.57	13.49	8.08	10.00
1.50	21.69	13.49	8.20	10.00
2.00	21.83	13.49	8.34	5.00
2.75	23.95	13.49	10.46	5.00
3.00	25.00	13.49	11.51	5.00
3.66	27.00	13.49	13.51	5.00
4.50	29.17	13.49	15.68	5.00
5.00	30.10	13.49	16.61	5.00
5.50	30.92	13.49	17.43	5.00
8.50	33.11	13.49	19.62	5.00
9.00	33.80	13.49	20.31	5.00
10.00	34.93	13.49	21.44	5.00
11.00	35.93	13.49	22.44	5.00
12.00	36.85	13.49	23.36	5.00
13.00	37.84	13.49	24.35	5.00
14.00	38.59	13.49	25.10	5.00
15.00	39.36	13.49	25.87	5.00
16.00	39.99	13.49	26.50	5.00
17.25	40.75	13.49	27.26	5.00
18.00	41.13	13.49	27.64	5.00
19.25	41.92	13.49	28.43	5.00
20.50	42.44	13.49	28.95	5.00
22.00	43.38	13.49	29.89	5.00
24.00	46.93	13.49	33.44	5.00
26.00	48.22	13.49	34.73	5.00
28.00	49.21	13.49	35.72	5.00
30.00	50.23	13.49	36.74	5.00
32.00	51.15	13.49	37.66	5.00
34.00	51.93	13.49	38.44	5.00
36.00	52.65	13.49	39.16	5.00
38.00	53.12	13.49	39.63	5.00
40.00	53.78	13.49	40.29	5.00
42.00	54.30	13.49	40.81	5.00
44.00	54.80	13.49	41.31	5.00
46.00	55.27	13.49	41.78	5.00
50.00	56.00	13.49	42.51	5.00
52.00	56.51	13.49	43.02	5.00
55.00	56.58	13.49	43.09	5.00
56.00	57.20	13.49	43.71	5.00
58.00	57.57	13.49	44.08	5.00
60.50	57.92 50.00	13.49	44.43	5.00
62.00 64.00	58.20	13.49	44.71	5.00
66.00	58.62	13.49	45.13	
68.00	58.92 59.22	13.49	45.43	
70.00	59.22 59.50	13.49	45.73	
70.00 72.25	59.50 59.76	13.49	46.01	
14.20	99.70	13.49	46.27	

BIG V-5/93 (MW-3DD)#2

TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
0.50	12.80	9.53	3.27	4.80
1.50	15.30	9.53	5.77	4.80
2.00	16.54	9.53	7.01	4.80
2.50	17.60	9.53	8.07	4.80
3.00	18.93	9.53	9.40	3.70
4.00	22.95	9.53	13.42	3.70
4.50	25.64	9.53	16.11	3.70
5.16	28.34	9.53	18.81	3.70
6.00	33.32	9.53	23.79	3.70
7.00	37.95	9.53	28.42	3.70
8.00	42.94	9.53	33.41	3.70
9.00	47.60	9.53	38.07	3.70
10.00	52.76	9.53	43.23	3.70
11.00	57.00	9.53	47.47	3.70
12.00	60.82	9.53	51.29	3.70
13.00	65.65	9.53	56.12	3.70
14.00	69.85	9.53	60.32	3.70
15.00	74.70	9.53	65.17	3.70
16.00	78.08	9.53	68.55	3.70
17.00	81.97	9.53	72.44	3.70
18.00	84.10	9.53	74.57	3.70
19.00	88.55	9.53	79.02	3.70
20.00	93.40	9.53	83.87	3.70
22.00	100.19	9.53	90.66	6.70
24.00	104.07	9.53	94.54	6.70
26.00	109.97	9.53	100.44	6.70
28.00	111.35	9.53	101.82	6.70
30.00	111.92	9.53	102.39	4.00
35.00	119.15	9.53	109.62	4.00
40.00	124.90	9.53	115.37	4.00
45.00	127.44	9.53	117.91	4.00
50.00	130.13	9.53	120.60	4.00
60.00	138.20	9.53	128.67	4.00
70.00	139.50	9.53	129.97	4.00
80.00	146.85	9.53	137.32	4.00
90.00	155.70	9.53	146.17	4.00
100.00	165.15	9.53	155.62	4.00

BIG V-5/93 (MW-4D)#2

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TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN	Q (gpm)
0.50	11.10	8.87	2.23	10.00
1.00	12.55	8.87	3.68	10.00
1.50	13.84	8.87	4.97	5.00
2.00	14.85	8.87	5.98	5.00
2.50	15.05	8.87	6.18	5.00
3.00	15.41	8.87	6.54	5.00
3.50	15.75	8.87	6.88	5.00
4.00	16.14	8.87	7.27	5.00
4.50	16.63	8.87	7.76	7.50
5.16	17.26	8.87	8.39	7.50
6.00	18.36	8.87	9.49	7.50
7.00	19.56	8.87	10.69	7.50
. 8.00	20.66	8.87	11.79	7.50
9.00	21.69	8.87	12.82	7.50
10.00	22.84	8.87	13.97	7.50
11.00	23.39	. 8.87	14.52	7.50
12.00	24.36	8.87	15.49	7.50
13.00	25.27	8.87	16.40	7.50
14.00	26.23	8.87	17.36	7.50
16.00	27.62	8.87	18.75	7.50
17.00	28.35	8.87	19.48	7.50
18.00	29.12	8.87	20.25	7.50
19.00	29.95	8.87	21.08	7.50
20.00	30.57	8.87	21.70	7.50
22.50	32.20	8.87	23.33	7.50
24.00	33.00	8.87	24.13	7.50
26.00	34.30	8.87	25.43	7.50
28.00	35.58	8.87	26.71	7.50
30.00	36.60	8.87	27.73	7.50
35.00	39.20	8.87	30.33	7.50
40.00	41.36	8.87	32.49	7.50
45.00	38.00	8.87	29.13	5.00
50.00	35.90	8.87	27.03	5.00

BIG V-5/93 (MW-5S)#2

TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
0.16	3.92	2.91	1.01	1.70
0.33	3.80	2.91	0.89	1.70
0.50	3.90	2.91	0.99	1.70
0.66	3.97	2.91	1.06	1.70
0.83	4.04	2.91	1.13	1.70
1.00	4.00	2.91	1.09	1.70
1.16	3.94	2.91	1.03	1.70
1.33	3.92	2.91	1.01	1.70
1.50	3.89	2.91	0.98	1.70
1.66	3.86	2.91	0.95	1.70
1.83	3.87	2.91	0.96	1.70
2.00	3.88	2.91	0.97	1.70
2.50	3.82	2.91	0.91	1.70
3.00	3.82	2.91	0.91	1.70
3.50	3.82	2.91	0.91	1.70
4.00	3.81	2.91	0.90	1.70
4.50	3.81	2.91	0.90	1.70
5.00	3.82	2.91	0.91	1.70
6.00	3.82	2.91	0.91	1.70
7.00	3.83	2.91	0.92	1.70
8.00	3.84	2.91	0.93	1.70
9.00	3.88	2.91	0.97	1.20
10.00	3.87	2.91	0.96	1.20
11.00	3.90	2.91	0.99	1.20
12.00	3.90	2.91	0.99	1.20
13.00	3.90	2.91	0.99	1.20
14.00	3.91	2.91	1.00	1.20
15.00	3.93	2.91	1.02	1.20
16.00	3.93	2.91	1.02	1.20
17.00	3.94	2.91	1.03	1.20
18.00	3.94	2.91	1.03	1.20
19.00	3.95	2.91	1.04	1.20
20.00	3.95	2.91	1.04	1.20
22.00	3.96	2.91	1.05	1.20
24.00	3.97	2.91	1.06	1.20
26.00	3.99	2.91	1.08	1.20
28.00	4.00	2.91	1.09	1.20
30.00	4.00	2.91	1.09	1.20

BIG V-5/93 (MW-5D)#2

TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN	Q (gpm)
0.50	16.11	9.00	7.11	2.00
1.00	19.13	9.00	10.13	2.00
1.50	20.24	9.00	11.24	2.00
2.00	20.79	9.00	11.79	2.00
2.50	21.30	9.00	12.30	2.00
3.00	21.82	9.00	12.82	2.00
3.50	22.30	9.00	13.30	2.00
4.00	22.74	9.00	13.74	2.00
4.50	23.22	9.00	14.22	2.00
5.00	23.67	9.00	14.67	2.00
6.00	24.74	9.00	15.74	2.00
7.00	25.80	9.00	16.80	2.00
8.00	26.70	9.00	17.70	2.00
9.08	27.56	9.00	18.56	2.00
10.00	28.15	9.00	19.15	2.00
11.00	28.93	9.00	19.93	2.00
12.08	29.71	9.00	20.71	2.00
13.00	30.28	9.00	21.28	2.00
14.00	30.80	9.00	21.80	2.00
15.00	31.25	9.00	22.25	2.00
16.00	31.61	9.00	22.61	2.00
20.00	32.46	9.00	23.46	2.00
22.00	32.67	9.00	23.67	1.50
24.00	33.69	9.00	24.69	2.00
26.00	36.21	9.00	27.21	2.00
 28.00	37.44	9.00	28.44	2.00
30.00	38.50	9.00	29.50	2.00
35.00	40.14	9.00	31.14	2.00
40.00	40.96	9.00	31.96	2.00
45.00	41.89	9.00	32.89	2.00
50.00	42.70	9.00	33.70	2.00
55.00	43.36	9.00	34.36	2.00
64.00	43.70	9.00	34.70	2.00
65.00	43.73	9.00	34.73	2.00
70.00	43.96	9.00	34.96	2.00
75.00	44.13	9.00	35.13	2.00
80.00	44.40	9.00	35.40	2.00

BIG V-5/93 (MW-6S)#2

TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
0.50	6.37	3.86	2.51	0.66
1.00	6.25	3.86	2.39	0.66
1.50	6.38	3.86	2.52	0.66
2.00	6.47	3.86	2.61	0.66
2.50	6.53	3.86	2.67	0.66
3.50	6.60	3.86	2.74	0.66
4.00	6.67	3.86	2.81	0.66
4.50	6.72	3.86	2.86	0.66
5.00	6.78	3.86	2.92	0.66
6.50	7.34	3.86	3.48	0.66
7.00	7.65	3.86	3.79	0.66
8.00	8.00	3.86	4.14	0.66
9.00	8.10	3.86	4.24	0.66
10.00	8.05	3.86	4.19	0.25
11.00	8.23	3.86	4.37	0.50
12.00	8.42	3.86	4.56	0.50
13.00	8.60	3.86	4.74	0.50
14.00	8.77	3.86	4.91	0.50
15.00	8.73	3.86	4.87	0.50
16.00	8.76	3.86	4.90	0.50
17.00	8.70	3.86	4.84	0.50
19.00	8.76	3.86	4.90	0.50
20.50	9.10	3.86	5.24	0.50
22.00	9.44	3.86	5.58	0.50
24.00	9.65	3.86	5.79	0.50
26.00	9.88	3.86	6.02	0.50
28.50	10.07	3.86	6.21	0.50
30.00	10.20	3.86	6.34	0.50
35.00	10.53	3.86	6.67	0.50
40.00	10.92	3.86	7.06	0.50
45.00	11.30	3.86	7.44	0.50
50.00	11.58	3.86	7.72	0.50
55.00	11.78	3.86	7.92	0.50
63.00	12.17	3.86	8.31	0.50
72.00	12.61	3.86	8.75	0.50
86.00	13.15	3.86	9.29	0.50
95.00	13.45	3.86	9.59	0.50
116.00	14.21	3.86	10.35	0.50
120.00	14.37	3.86	10.51	0.50
134.00	14.93	3.86	11.07	0.50
147.00	15.25	3.86	11.39	0.50
160.00	15.20	3.86	11.34	0.50

BIG V-5/93 (MW-7S)#2

TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
0.16	7.07	6.55	0.52	0.75
0.33	6.95	6.55	0.40	0.75 0.75
0.50	6.94	6.55	0.39	0.75
0.66	7.01	6.55	0.46	0.75
0.83	7.02	6.55	0.47	0.75
1.00	7.07	6.55	0.52	0.75
1.33	7.15	6.55	0.60	0.75
1.50	7.20	6.55	0.65	0.75
1.83	7.26	6.55	0.71	0.75
2.00	7.30	6.55	0.75	0.75
2.50	7.47	6.55	0.92	0.75
3.00	7.61	6.55	1.06	0.75
3.50	7.76	6.55	1.21	0.75
4.00	7.83	6.55	1.28	0.75
4.50	7.91	6.55	1.36	0.75
5.00	7.98	6.55	1.43	0.75
6.00	8.13	6.55	1.58	0.75
7.00	8.33	6.55	_ 1.78	0.75
8.00	8.48	6.55	1.93	0.75
9.00	8.64	6.55	2.09	0.75
10.00	8.77	6.55	2.22	0.75
11.00	8.90	6.55	2.35	0.75
12.00	8.99	6.55	2.44	0.75
13.00	9.07	6.55	2.52	0.75
14.00	9.15	6.55	2.60	0.75
15.00	9.22	6.55	2.67	0.75
16.00	9.30	6.55	2.75	0.75
17.00	9.35	6.55	2.80	0.75
18.00	9.39	6.55	2.84	0.75
19.00	9.42	6.55	2.87	0.75
20.00	9.50	6.55	2.95	1.00
22.00	9.65	6.55	3.10	1.00
24.00	9.75	6.55	3.20	1.00
26.00	9.80	6.55	3.25	1.00
28.00	9.81	6.55	3.26	1.00
30.00	9.83	6.55	3.28	1.00
35.00	9.85	6.55	3.30	1.00
40.00	9.85	6.55	3.30	1.00
45.00 55.00	9.85	6.55	3.30	1.00
60.00	9.88 10.45	6.55	3.33	1.00
70.00	10.45	6.55	3.90	1.00
80.00	9.90	6.55 6.55	3.60	1.00
00.00	3.30	6.55	3.35	1.00

TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN	Q (gpm)
0.16	9.05	8.76	0.29	2.00
0.50	10.51	8.76	1.75	2.00
0.83	11.08	8.76	2.32	2.00
1.00	11.41	8.76	2.65	2.00
1.33	11.57	8.76	2.81	2.00
1.50	11.72	8.76	2.96	2.00
1.83	12.23	8.76	3.47	2.00
2.00	12.47	8.76	3.71	2.00
2.50	13.19	8.76	4.43	2.00
3.00	13.88	8.76	5.12	2.00
3.50	14.46	8.76	5.70	2.00
4.00	14.83	8.76	6.07	2.00
4.50	15.21	8.76	6.45	2.00
5.00	15.56	8.76	6.80	2.00
6.00	16.30	8.76	7.54	2.00
7.00	17.00	8.76	8.24	2.00
8.00	17.72	8.76	8.96	2.00
9.00	18.38	8.76	9.62	2.00
10.00	19.07	8.76	10.31	2.00
11.00	19.78	8.76	11.02	2.00
12.00	20.35	8.76	11.59	2.00
13.00	21.00	8.76	12.24	2.00
14.00	21.60	8.76	12.84	2.00
15.00	22.21	8.76	13.45	2.00
16.00	22.84	8.76	14.08	2.00
17.00	23.44	8.76	14.68	2.00
18.00	23.97	8.76	15.21	2.00
19.00	24.52	8.76	15.76	2.00
20.00	25.05	8.76	16.29	2.00
22.00	26.15	8.76	17.39	2.00
24.00	27.21	8.76	18.45	2.00
26.00	28.05	8.76	19.29	2.00
28.00	29.17	8.76	20.41	2.00
30.00	30.02	8.76	21.26	2.00
35.00	32.44	8.76	23.68	2.00
40.00	34.56	8.76	25.80	2.00
45.00	36.68	8.76	27.92	2.00
50.00	38.51	8.76	29.75	2.00
55.00	40.35	8.76	31.59	2.00
60.00	41.97	8.76	33.21	2.00
70.00	44.87	8.76	36.11	2.00
80.00 90.00	47.60 50.06	8.76	38.84	2.00
100.00	50.06	8.76	41.30	2.00
110.00	51.90 57.10	8.76	43.14	2.00
120.00	57.10	8.76	48.34	2.00
120.00	64.51	8.76	55.75	2.00

BIG V-5/93 (MW-9S)#2

TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
0.16	7.72	5.13	2.59	2.00
0.50	7.17	5.13	2.04	2.00
1.00	6.34	5.13	1.21	2.00
1.50	6.02	5.13	0.89	2.00
2.00	5.97	5.13	0.84	2.00
2.50	6.10	5.13	0.97	2.00
3.00	6.11	5.13	0.98	2.00
3.50	6.10	5.13	0.97	2.00
4.00	6.07	5.13	0.94	2.00
5.00	6.00	5.13	0.87	2.00
6.00	6.18	5.13	1.05	2.00
7.00	6.15	5.13	1.02	2.00
8.00	6.17	5.13	1.04	2.00
9.00	6.20	5.13	1.07	2.00
11.00	6.14	5.13	1.01	2.00
12.00	6.16	5.13	1.03	2.00
13.00	6.16	5.13	1.03	2.00
14.00	6.16	5.13	1.03	- 2.00
15.00	6.16	5.13	1.03	2.00
16.00	6.16	5.13	1.03	2.00
17.00	6.16	5.13	1.03	2.00
18.00	6.16	5.13	1.03	2.00
19.00	6.16	5.13	1.03	2.00
20.00	6.16	5.13	1.03	2.00
22.00	6.16	5.13	1.03	2.00
24.00	6.16	5.13	1.03	2.00
26.00	6.16	5.13	1.03	2.00
28.00	6.16	5.13	1.03	2.00
30.00	6.16	5.13	1.03	2.00

BIG V-5/93 (MW-9D)#2

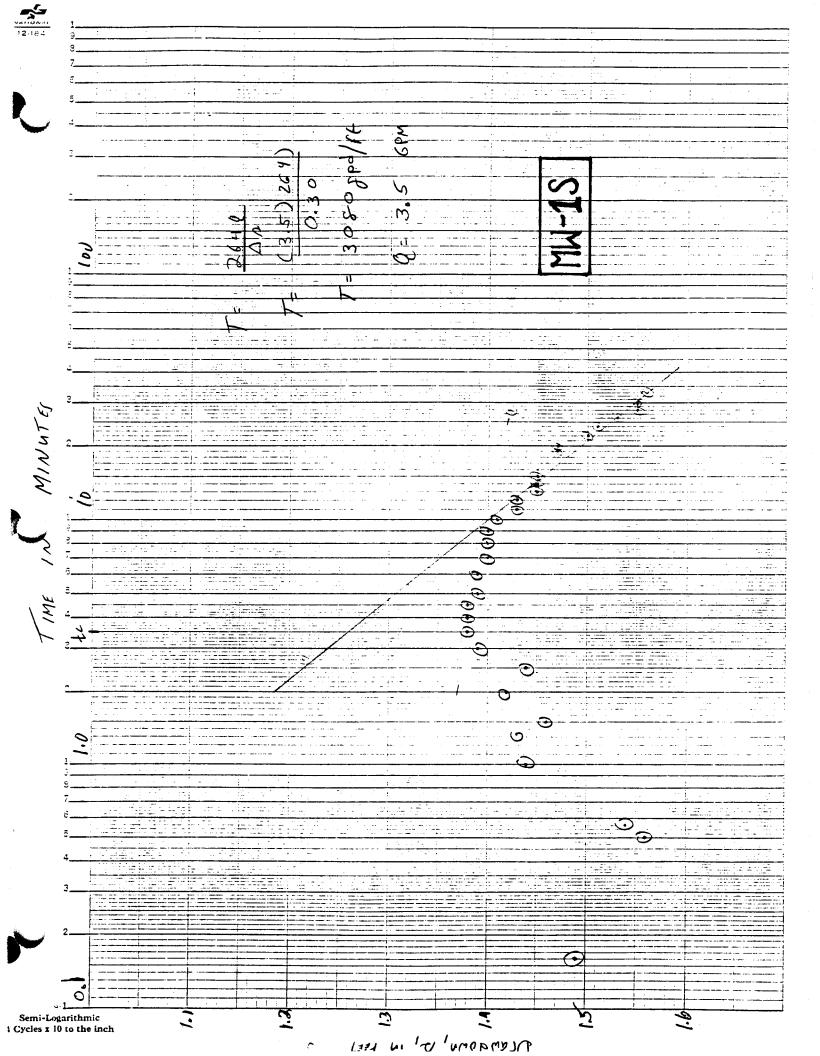
	TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
	, 0.50	7.35	5.54	1.81	1.25
	1.00	7.93	5 .54	2.39	1.25
	1.50	8.29	5.54	2.75	1.25
	2.00	8.62	5.54	3.08	1.25
	2.50	9.12	5.54	3.58	1.25
	3.00	9.70	5.54	4.16	1.25
	3.50	10.00	5.54	4.46	1.25
	4.00	10.54	5.54	5.00	1.25
	4.50	11.11	5.54	5.57	1.25
	5.00	11.41	5.54	5.87	1.25
	6.00	11.92	5.54	6.38	1.25
	7.00	12.34	5.54	6.80	1.25
	8.00	12.75	5.54	7.21	1.25
	9.00	13.16	5.54	7.62	1.25
	10.00	13.55	5.54	8.01	1.25
	11.00	13.95	5.54	8.41	1.25
	12.00	14.37	5.54	8.83	1.25
	13.00	14.75	5.54	9.21	1.25
	14.00	15.14	5.54	9.60	1.00
	15.00	16.05	5.54	10.51	1.75
	16.00	16.53	5.54	10.99	1.50
	17.00	16.83	5.54	11.29	1.00
	18.00	17.23	5.54	11.69	1.00
	19.00	17.63	5.54	12.09	1.25
	20.00	18.05	5.54	12.51	1.25
-	22.00	18.72	5.54	13.18	1.25
-	24.00	19.43	5.54	13.89	1.25
	26.00	20.11	5.54	14.57	1.25
	28.00	20.77	5.54	15.23	1.25
	30.00	21.41	5.54	15.87	1.25
	35.00	22.95	5.54	17.41	1.25
	40.00	24.40	5.54	18.86	1.25
	45.00	25.80	5.54	20.26	1.25
	60.00	29.52	5.54	23.98	1.25
	70.50	31.88	5.54	26.34	1.25
	80.00	33.80	5.54	28.26	1.25
	90.00	35.78	5.54	30.24	1.25
	100.00	38.35	5.54	32.81	1.25
	110.00	41.12	5.54	35.58	1.25
	120.00	43.69	5.54	38.15	1.25
	130.00	46.08	5.54	40.54	1.25

BIG V-5/93 (MW-10S)#2

TIM	E (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
	0.50	15.20	9.00	6.20	2.50
	0.83	17.17	9.00	8.17	2.50
	1.00	17.32	9.00	8.32	2.50
	1.50	19.21	9.00	10.21	2.50
	2.00	20.08	9.00	11.08	2.50
	2.50	21.03	9.00	12.03	2.50
	3.00	21.80	9.00	12.80	2.50
	3.50	22.75	9.00	13.75	2.50
	4.00	24.19	9.00	15.19	2.50
	4.50	25.42	9.00	16.42	2.50
	5.00	26.62	9.00	17.62	3.00
	6.00	28.64	9.00	19.64	3.00
	7.00	30.45	9.00	21.45	3.00
	8.00	30.97	9.00	21.97	3.00
	9.00	31.12	9.00	22.12	3.00
	10.00	31.23	9.00	22.23	3.00
	11.00	32.22	9.00	23.22	3.00
	12.00	33.11	9.00	24.11	3.00
	13.00	33.49	9.00	24.49	3.00
	14.00	34.06	9.00	25.06	3.00
	15.00	34.53	9.00	25.53	3.00
	16.00	34.93	9.00	25.93	3.00
	17.00	35.32	9.00	26.32	3.00
	18.00	36.38	9.00	27.38	3.00
	19.00	37.39	9.00	28.39	3.00
	20.00	38.64	9.00	29.64	2.00
	22.00	42.52	9.00	33.52	2.00
	28.00	47.11	9.00	38.11	2.00
	30.00	48.38	9.00	39.38	2.00
;	35.00	48.78	9.00	39.78	2.00

BIG V-5/93 (MW-10D)#2

TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
0.50	12.19	10.64	1.55	3.00
1.00	12.65	10.64	2.01	3.00
1.50	13.44	10.64	2.80	3.00
2.00	14.15	10.64	3.51	3.00
2.50	14.82	10.64	4.18	3.00
3.00	15.63	10.64	4.99	3.00
3.50	15.66	10.64	5.02	3.00
4.00	15.63	10.64	4.99	3.00
4.50	15.37	10.64	4.73	3.00
5.00	15.41	10.64	4.77	3.00
6.00	16.32	10.64	5.68	3.00
7.00	17.08	10.64	6.44	3.00
8.00	17.79	10.64	7.15	3.00
9.00	17.21	10.64	6.57	3.00
10.00	16.74	10.64	6.10	3.00
12.00	17.14	10.64	6.50	3.00
14.00	17.58	10.64	6.94	3.00
16.00	17.76	10.64	7.12	3.00
18.00	17.99	10.64	7.35	3.00
19.00	18.00	10.64	7.36	3.00
20.00	18.10	10.64	7.46	3.00
22.00	18.21	10.64	7.57	3.00
24.00	18.30	10.64	7.66	3.00
26.00	18.36	10.64	7.72	3.00
28.00	18.40	10.64	7.76	3.00
30.00	18.45	10.64	7.81	3.00
35.00	18.53	10.64	7.89	3.00
40.00	18.58	10.64	7.94	3.00
45.00	18.59	10.64	7.95	3.00
50.00	19.55	10.64	8.91	3.00
55.00	19.94	10.64	9.30	3.00
60.00	20.50	10.64	9.86	3.00
70.00	20.99	10.64	10.35	3.00
80.00	21.22	10.64	10.58	3.00
90.00	21.30	10.64	10.66	3.00
100.00	21.39	10.64	10.75	3.00
110.00	21.44	10.64	10.80	3.00
120.00	21.44	10.64	10.80	3.00



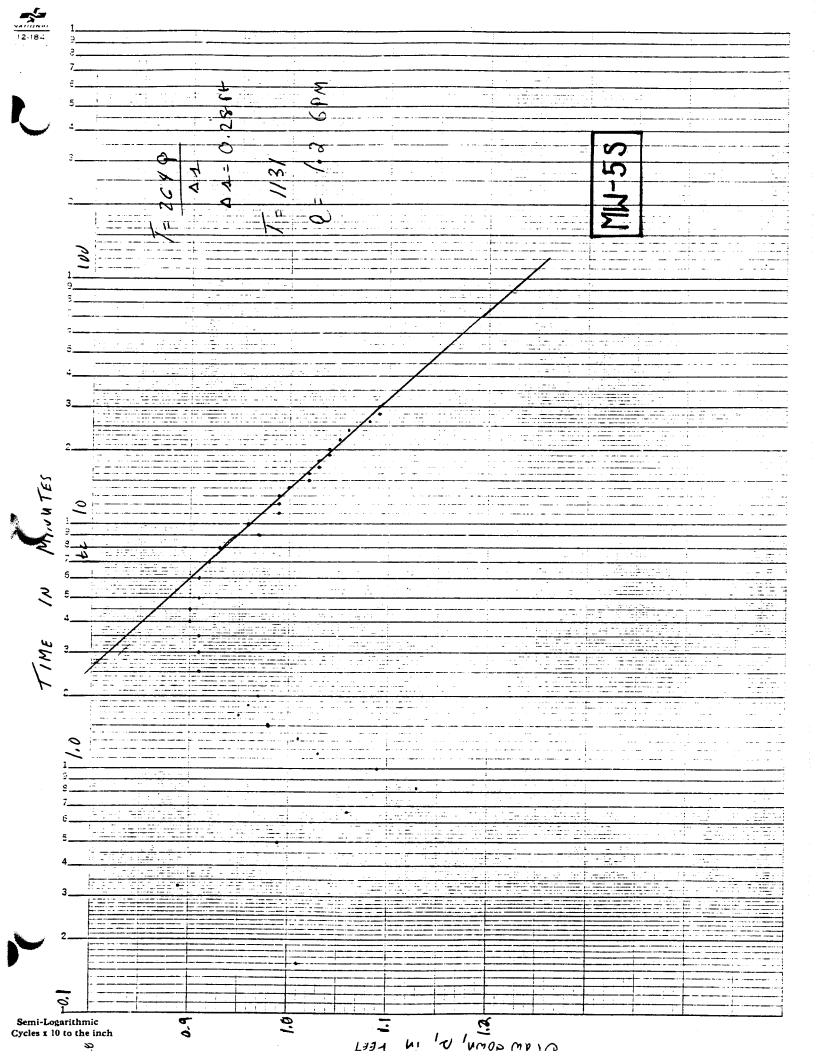
WELL FHOM CODEX BOOK CO. BRATTLEBOHO, VT 05302-0905

10 DIVISONS PER INCH x FOUR 2-172-INCH CYCLES. • © CODEX BOOK CO.

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10 DIVISONS PER INCH x FOUR 2-172-INCH CYCLES. • © CODEX BOOK CO.



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10 DIVISONS PER INCH x FOUR 2: 172-INCH CYCLES. • © CODEX BOOK CO.

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10 DIVISONS PER INCH x FOUR 2: 172:INCH CYCLES. • © CODEX BUCK CO.

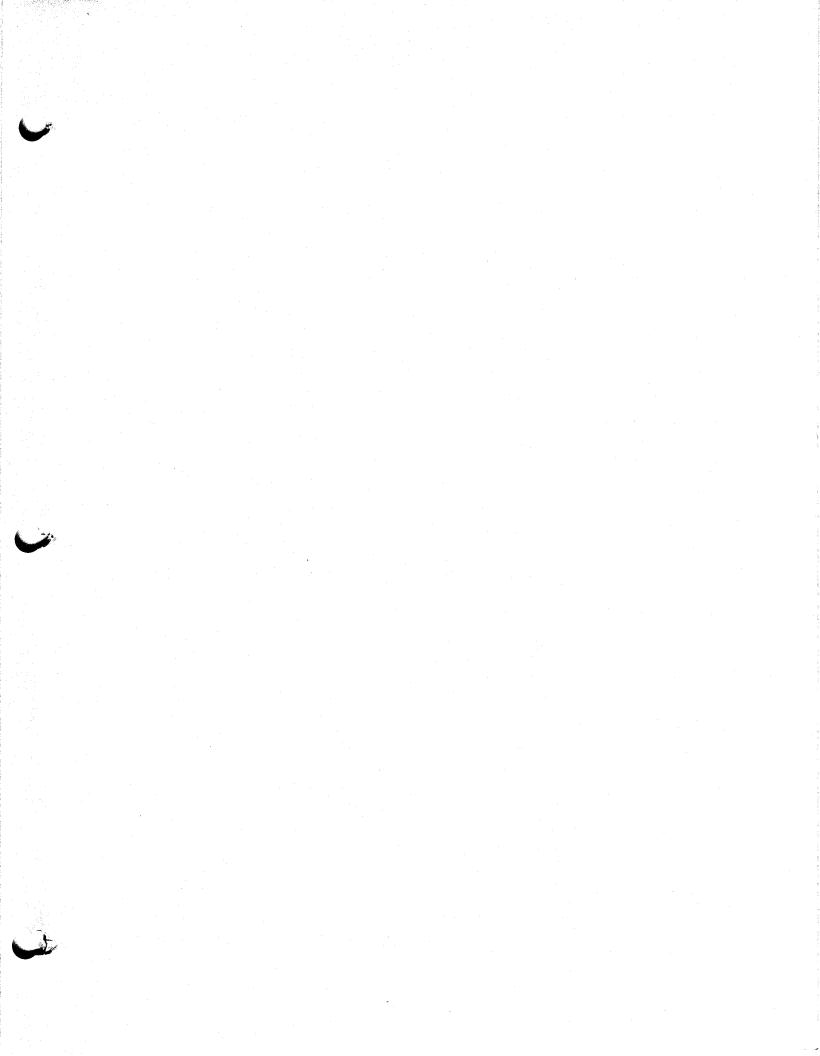
APPENDIX L

AQUIFER PUMPING TEST DATA AND PLOTS

APPENDIX L

AQUIFER PUMPING TEST DATA AND PLOTS

- L.1 WATER-LEVEL DATA FOR PW-1 (PUMPING WELL) AND OBSERVATION WELLS PW-2, MW-2D, MW-3D, MW-5D, AND MW-5S.
- L.2 BACKGROUND WATER-LEVEL MONITORING PLOTS.
- L.3 STEP-DRAWDOWN PUMPING TEST ANALYSIS.
- L.4 TIME-DRAWDOWN PLOTS: LEAKY ARTESIAN METHOD ANALYSIS.
- L.5 TIME-DRAWDOWN PLOTS: THEIS NON-EQUILIBRIUM METHOD ANALYSIS.
- L.6 TIME-DRAWDOWN PLOTS: COOPER-JACOB NON-EQUILIBRIUM METHOD ANALYSIS.



APPENDIX L.1

WATER-LEVEL DATA FOR PW-1 (PUMPING WELL) AND OBSERVATION WELLS PW-2, MW-2D, MW-3D, MW-5D, AND MW-5S

AGUITE	R PUMPING		1				Page 1 of 3
Dan's st	DIO 14						
Project	BIG V						
Site	BPM BPM						
Well	PW-1	<u> </u>	<u> </u>				
	Setting/Oper		erval (ft)	 	<u> </u>		
	on of Measu			Top of 6-inch	n Steel		
	Measuring			d surface)			
Measured		M-Scope	-1				
	ater Level (1				<u>25.42</u>		
Drawdow		X	Start Tim		1430/6-28-93		
Recovery	1		End Time			····	
Pumping	~~~~~~~~ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	PW-1	Distance	(r) from Pum	ping Well _	•	
	Rate (gpm)						
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
	(min)	(ft)	(ft)	Water (ft)		(gpm)	
	0			25.42	0	39	
	10 sec.					39	
	20 sec.					39	
	30 sec.			35.00	9.58	39	
	40 sec.					39	
	50 sec.					39	
	60 sec.			45.57	20.15	39	
	70 sec.					39	
	80 sec.					39	
	90 sec.			52.48	27.06	39	
	100 sec.					39	
	110 sec.				A Particular and the second and the	39	
	120 sec.		-	58.28	32.86	39	
	2.5			62.70	37.28	39	
	3			66.56	41.14	39	
rengan yenggapan papi saman membanan membankan h	3.5			69.44	44.02	39	
	4			71.82	46.4	39	Ì
ngan mayaringing, sidebilikan yandari pay / Tabarangan aa aya ma gas	4.5			73.85	48.43	39	
egyppyy acepta. Mae'y entanaeur ettaneeur de 1800	5			75.45	50.03	39	
e en en en en en en en en en en en en en	6			78.15	52.73	39	
· · · · · · · · · · · · · · · · · · ·	7			80.00	54.58	39	
	8			81.30	55.88	39	***************************************
	9			82.29	56.87	39	***************************************
	10			83.02	57.6	39	
	11			83.63	58.21	39	
	12			84.06	58.64	39	
	13			84.30	58.88	39	
	14			84.60	59.18	39	

AQUIFER	PUMPING	I LEST FO	KM (Col	Date 6/28/93	Page 2 of 3		
							PW-1
Time	Time	Held	Wet	Depth to	Drawdown	Q ()	Comments
	(min)	(ft)	(ft)	Water (ft)		(gpm)	
	15			85.00	59.58	39	
	20			85.94	60.52		
	25			86.64	61.22		
	31			87.16	61.74	39	
	35			87.53	62.11	39	
	40			87.89	62.47	40	
	45			88.16	62.74	40	
	50			88.56	63.14		
	55			88.78	63.36		
	60			88.96	63.54		
	70			89.33	63.91		
	80			89.88	64.46		
	90			90.23	64.81	39	
	100			90.43	65.01	39	
	110			90.70	65.28		
	120			91.14	65.72	39	
	150			91.88	66.46	39	
	180			92.48	67.06	39	
	210			93.13	67.71		
	240			93.64	68.22		
	270			94.15	68.73		
·····	300			94.62	69.2	39	
	330			95.03	69.61		
	360			95.22	69.8	39	
	390			95.82	70.4		
	420			96.14	70.72		
	450			96.48	71.06		
	480			96.73	71.31	39	
	540			97.35	71.93	39	
	600			97.81	71.93	39	
	660			98.08	72.66	39	
	720			98.66	73.24	39	
	780	<u> </u>		99.04	73.62	39	
	840			99.28	73.86	39	
	900			99.62	74.2	39	
	960	!		100.07	74.65	39	
	1020			100.07	74.8	39	
	1020			100.50	75.08	39	
				100.67	75.25	38	
	1140 1200			100.67	75.59	39	

AQUIFER	PUMPING	TEST FO	RM (Cor	ntinued)	Date 6/29/93		Page 3 of 3
							PW-1
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
	(min)	(ft)	(ft)	Water (ft)		(gpm)	
	1260			101.23	75.81	39	
	1320			101.45	76.03	39	
	1380			101.59	76.17	39	
	1440			101.76	76.34		
	1560			102.43	77.01	39	
	1680			102.84	77.42	39	
	1800			103.16	77.74	39	
	1920			103.54	78.12	39	
	2040			103.88	78.46	39	
	2160			103.97	78.55	39	
	2280			104.25	78.83	39	
	2400			104.53	79.11	39	
	2520			104.88	79.46		
	2640			105.10	79.68	39	
	2760			105.30	79.88	39	
	2887			105.73	80.31		
······	3000						
AL AND ADDRESS OF THE PARTY OF	3120						
	3240						
	3360						
*************	3480						
TO ANNUAL RES. P. 17170000001, MERCHAN APPROPRIES	3600						
	3720						
	3840	***************************************					
	3960						
	4080						
	4200				-		
	4320						
<u> </u>							
					111111111111111111111111111111111111111		

AQUIFER	R PUMPING	TEST FO	RM				Page 1 of 2
						-	
Project	BIG V		1				
Site	BPM						
Well	PW-2	······································					
Screen S	Setting/Open	Hole Int	erval (ft)				
· · · · · · · · · · · · · · · · · · ·	on of Measur			Top of 6-inc	h Steel		
	Measuring		above land	······································			
Measured		M-Scope	~, ~ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1			· · · · · · · · · · · · · · · · · · ·
	ater Level (fi			point)	30.22		
Drawdowi	·····	X	Start Tim				······································
Recovery			End Time	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
Pumping '	. 	PW-1		(r) from Pum	ning Well	170 feet	
	Rate (gpm)		. = .5.00	.,			······································
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
	(min)	(ft)	(ft)	Water (ft)		(gpm)	
	0	(11)	\'\'\	30.22	0	(9611)	
<u></u>	10 sec.		 	70.22	9		· · · · · · · · · · · · · · · · · · ·
	20 sec.						
····	30 sec.						
	40 sec.						
r kannan a a ra ndarahkan a a Prinsa salah nanari ndara ndari bir	50 sec.						
	60 sec.	·····					
***************************************	ļ		<u></u>				
	70 sec.						
	80 sec.						
	90 sec.						
·	100 sec.	······································					
······································	110 sec.	·					
	120 sec.						
	2.5						
	3	***************************************					
	3.5						
	4			-			
	4.5						
	5		<u> </u>				
	6			Barrer 1, 1			
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	8						
····	9						
	10	·····	-	111111111111111111111111111111111111111			
	11			1			
	12						
····	13	***************************************					
	14			Assessment			
				A AMERICAN			

QUIFER	PUMPING	G TEST FO	PRM (Co	ntinuea)		Date 6-28-93		Page 2 of 2 PW-2
Ti 1	Time	Held	Wet	Donth	••	Drawdown	Q	Comments
Time	Time (min)	(ft)	(ft)	Depth Water			(gpm)	Comments
	15	(10)	(10)	- Water	(,,,	(.,	(37)	
	20							
	25							
	30							
	35							
	40							
	45						<u>, , , , , , , , , , , , , , , , , , , </u>	
	50							
	55							
	60							
	73					33.16	2.94	
	85				······································	33.45	3.23	
	90			1		-	-	
	103					33.90	3.68	
	114					34.15	3.93	
	124					34.37	4.15	***************************************
	153					35.02	4.80	
	184					35.62	5.40	
	214					36.16	5.94	
	240					36.70	6.48	
	273					37.13	6.91	
	302					37.47	7.25	
	332					38.05	7.83	
	364					38.50	8.28	
	390					38.87	8.65	
	423					39.27	9.05	
	453					39.51	9.29	
	483					39.95	9.73	
	543					40.43	10.21	
	604					40.98	10.76	
	663					41.62	11.40	
	723					41.99	11.77	
	783					42.49	12.27	
	843					42.94	12.72	
	902					43.40	13.18	
	964					43.78	13.56	
	1023					44.12	13.90	
	1083					44.47	14.25	
	1143					44.77	14.55	
	1200	Stopped	manual m	easureme	nts i	n PW-2 due to	loss of	orobe.

AQUIFER	R PUMPING	TEST FO	RM				Page 1 of 3
Project	BIG V	• dec					1
Site	BPM						
Well	MW-2D	<u> </u>					
	Setting/Oper	Hole Inte	erval (ft)				
	on of Measu	····	51 Vai (11)	Top of 4-inch	PVC		
	Measuring		hove land	<u></u>			
Measured	······································	M-Scope					
	ater Level (1		l	oint)	13.53		
Drawdown		X	Start Time	·····	1430/6-28-93		
Recovery	·	<u> </u>	End Time				-
Pumping	 	PW-1	ļ	(r) from Pum	ning Well	620 feet	
	Rate (gpm)		Distance	(1) 110111 1 0111	pung vvon		-
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
111116	(min)	(ft)	(ft)	Water (ft)		(gpm)	
	0	(11)	(17)	13.53	0	(36)	
	10 sec.			13.53	0		
	20 sec.			13.53	0		
······································	30 sec.			13.53	0		
	40 sec.			13.53	0		
	50 sec.			13.53	0		
	60 sec.			13.53	0		
	70 sec.			13.54	0.01		
	80 sec.			13.54	0.01		
	90 sec.			13.54	0.01		
	100 sec.			13.54	0.01		
	110 sec.			13.54	0.01		
	120 sec.		<u>.</u>	13.54	0.01		
	2.5			13.54	0.01		
	<u>.</u>			13.54	0.01	······································	
	3			13.54	0.01	······································	
	3.5			13.54	0.01		
	4.5			13.54	0.01		
	5			13.53	0.01		
	6			13.52	+0.01		
	7	<u> </u>		13.53	0		
	8	 		13.53	0		
	9	 		13.53	0		
	10			13.53	0		
	11			13.53	0		
	12			13.53	0		
	13	 		13.53	0		
	14	<u> </u>		13.53	0		
	17)		
	*	<u> </u>					

AQUIFE	R PUMPINO	TEST FO	RM (Cor	ntinued)	Date 6-28-93		Page 2 of 3 MW-2D
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
	(min)	(ft)	(ft)	Water (ft)		(gpm)	
	15	(-4)	()	13.53	0	(3)/	
	20			13.54	0.01	······································	
	25			13.54	0.01		
	30			13.56	0.03		
	35			13.58	0.05		
	40			13.61	0.08		
	45			13.63	0.10		
	50			13.66	0.13		
	55			13.70	0.17	<u>,</u>	
<u> </u>	60		······································	13.74	0.21		
	70			13.79	0.26		
	80			13.85	0.32		
	90			13.92	0.39		
***************************************	100			13.99	0.46		
	110			14.05	0.52		
·	120			14.12	0.59		
	150		······································	14.32	0.79		
	180			14.52	0.99		
	210			14.73	1.20		
	240			14.92	1.39		
	270			15.10	1.57		
····	315		***************************************	15.24	1.71		**************************************
	335			15.33	1.80		
	374		·	15.61	2.08	······································	
	410			15.79	2.26		***************************************
····	420			15.88	2.35		
	467		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	16.06	2.53		
	497			16.17	2.64		
	560			16.41	2.88		
	628		, <u></u>	16.64	3.11		
	680			16.78	3.25		
	740		·····	16.99	3.46		
	800			17.18	3.65		
	860			17.30	3.77		
	923			17.45	3.92		
	978			17.59	4.06		
	1038			17.78	4.25		
***************************************	1097			17.86	4.33		
·····	1157			17.99	4.46		
	1215			18.07	4.54		

AGUIFER	AQUIFER PUMPING TEST FORM (Continued) Date 6-29-93						Page 3 of 3 MW-2D
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comment
	(min)	(ft)	(ft)	Water (ft)	(ft)	(gpm)	
	1274			18.17	4.64		
	1336			18.25	4.72		
	1398			18.35	4.82		
	1455			18.43	4.90		
	1575			18.60	5.07		
	1722			18.72	5.19		
	1819			18.93	5.40		
	1942			19.07	5.54		
	2054			19.20	5.67		
	2177			19.31	5.78		
	2298			19.44	5.91		
	2413			19.56	6.03		
	2541			19.64	6.11		
	2655			19.74	6.21		
	2774			19.85	6.32		
	2880						
	3000						
	3120						
	3240						
	3360						
	3480						
	3600						
	3720						
	3840						
	3960						
	4080						
	4200						
	4320						
						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
		Page 1					

RIC V	<u>!</u> !					
	Lala In	toryol (#)			***************************************	
			Top of 4 inch	, DVC	· ····································	
				1 PVC	·····	
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				
	/			12.00	······································	
	·					
·····				2:30 pm/6-20	5-93	
	DW 4			-: 14/-!!	E 40 40 00	
		Distance	(1) Irom Pum	ping well	<u> 540 leet</u>	-
		141-1	Don't to	Drawd		Comments
	<u></u>		·			Comments
					(gpm)	
	15	1.2	13.80	U		
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					ongenny, pongja nanogovinja odka ombjenova metocrat i bli	10 10 10 10 10 10 10 10 10 10 10 10 10 1
			40.00			
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		ļi				
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			13.80	0		
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3	15	1.18	13.82	0.02		
3.5	15	1.18	13.82	0.02		
4	15	1.18	13.82	0.02		
4.5	15	1.18	13.82	0.02		
5	15	1.18	ļ			1
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		·	 			
12	15	1.17				
······································	15		 			
14	15	1.17	13.83	0.03		
			ļ	············		·
	Measuring With ter Level (1) Well Rate (gpm) Time (min) 0 10 sec. 20 sec. 30 sec. 40 sec. 50 sec. 60 sec. 70 sec. 100 sec. 110 sec. 120 sec. 120 sec. 110 sec. 120 sec. 110 sec.	BPM MW-3D Setting/Open Hole Inform of Measuring Point (ft With Steel Tall Iter Level (ft below many point) Measuring Point (ft With Steel Tall Iter Level (ft below many point) Measuring Point (ft below many point) Measurin	BPM	BPM	BPM	BPM

AQUIFER	R PUMPING	TEST FO	ORM (Con	Date 6-28-93	3	Page 2 of 3	
						MW-3D	
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
	(min)	(ft)	(ft)	Water (ft)	(ft)	(gpm)	
	15	15	1.17	13.83	0.03		
	20	15	1.16	13.84	0.04		
	25	15	1.16	13.84	0.04		
	30	15	1.15	13.85	0.05		
	35	15	1.13	13.87	0.07		
	40	15	1.12	13.88	0.08		
	45	15	1.12	13.88	0.08		
	52	15	1.12	13.88	0.08		
	55	15	1.11	13.89	0.09		
	60	15	1.11	13.89	0.09		
	70	15	1.10	13.90	0.1	٠	
	80	15	1.09	13.91	0.11		
	90	15	1.09	13.91	0.11		
	102	15	1.08	13.92	0.12		
	110	15	1.08	13.92	0.12		
	120	15	1.08	13.92	0.12		
	155	15	1.08	13.92	0.12		
	180	15	1.06	13.94	0.14		
	218			14.01	0.21		
	247			14.09	0.29		
	279			14.15	0.35		
	307			14.23	0.43		
	336			14.32	0.52		The state of the s
	369			14.43	0.63		
	398			14.52	0.72		
	428			14.63	0.83		
••••••••••••••••••••••••••••••••••••••	458		-	14.72	0.92		
······································	488			14.83	1.03		
	549			15.07	1.27		
***************************************	613			15.29	1.49		
	669			15.47	1.67		
	729			15.68	1.88	AND THE PROPERTY OF THE PROPER	
	789			15.89	2.09		
	849			16.07	2.27		
	911			16.27	2.47		77.
	969			16.43	2.63		
	1028			16.61	2.81		
	1088			16.80	3.00		
	1148			16.96	3.16		
	1205			17.11	3.31		

AQUIFER Time	PUMPING	TEST FO	RM (Con	Depth to	Date 6-29-93 Drawdown	Q	Page 3 of 3 MW-3D Comments
	Time	Held	Wet				
	(min)	(ft)	(ft)	Water (ft)		(gpm)	
	1264			17.26	3.46		
	1325			17.38	3.58		
	1385			17.53	3.73		
	1446			17.67	3.87		
	1565			17.93	4.13		
	1686			18.14	4.34		
	1809			18.37	4.57		
	1933			18.58	4.78		
	2044			18.79	4.99		
	2164			18.94	5.14		
	2285			19.07	5.27		
	2404			19.21	5.41		
	2525			19.36	5.56		
	2646			19.51	5.71		
	2765			19.68	5.88		
	2880						
	3000						
	3120						
	3240						
	3360						
	3480						
	3600						
	3720						
	3840					***************************************	
	3960		· · · · · · · · · · · · · · · · · · ·				
	4080						
	4200		-				
	4320						
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AQUIFER	R PUMPING	TEST FO	RM				Page 1 of 3
Project	BIG V		**************************************		10 11		
Site	BPM	-1			The state of the s		
Well	MW-5D					***************************************	
	Setting/Oper	. Hole Int	erval (ft)			***************************************	***************************************
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	on of Measu		ervar (It)	Top of 4-incl	n PVC		
Marine, American September 2001 - 200	Measuring		ahove land				
Measured	·	M-Scope		l			
	ater Level (1	<u></u>	i	l	11.18		
Drawdowr	·	X	Start Time		2:30 pm/6-28	3-93	
Recovery	·		End Time		2.00 \$1170 2		=
Pumping '	· à	PW-1	- 	(r) from Pum	ning Well	530 feet	
	Rate (gpm)				Pilly 11011	<u> </u>	-
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
	(min)	(ft)	(ft)	Water (ft)	•	(gpm)	
	0	(1.5)	(**)	11.18	0	(37''')	
***************************************	10 sec.						
	20 sec.						
	30 sec.					······································	
	40 sec.					Militaria de la composition de la composition de la composition de la composition de la composition de la comp	
	50 sec.						***************************************
	60 sec.						
	70 sec.						
	80 sec.						
······································	90 sec.						
	100 sec.						
	110 sec.						
	120 sec.						
	2.5						
	3						
	3.5						***************************************
	4						
	4.5					· · · · · · · · · · · · · · · · · · ·	
······································	5						
	6						•
	7						-
	8				1		•
	9						
	10				Listona	······································	
	11				The state of the s		
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***************************************	13		İ			·	
	14				:		
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AQUIFER	PUMPING	TEST	FORM (Con	itinued)	Date 6-28-93	Page 2 of 3	
							MW-5D
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
	(min)	(ft)	(ft)	Water (ft)	(ft)	(gpm)	
	15						
	19			11.25	0.07		
	27			11.27	0.09		
	30						
	35	····					
	40	···········					
	49	······································		11.31	0.13		
	50						
	55						
	62			11.32	0.14		
	70	·····			***************************************		
	82			11.33	0.15		
	90						
	100			11.35	0.17		
	110						
	122			11.35	0.17		
	151			11.36	0.18		
	181			11.39	0.21		
	221			11.43	0.25		
	240			11.49	0.31		
	270		-	11.57	0.39		
	308			11.63	0.45		
	338	······································		11.72	0.54	······································	
	370			11.78	0.60	***************************************	
	402	·····		11.88	0.70		
	429			11.96	0.78		
	460			12.06	0.88		
	490			12.13	0.95		
	551			12.30	1.12		
	617			12.49	1.31	······································	
	672			12.66	1.48	······································	
	732			12.84	1.66		
	792			13.01	1.83		3
	852			13.16	1.98		
	916			13.36	2.18		
	971			13.48	2.30		
	1030			13.64	2.46		
	1090			13.77	2.59		
	1150			13.91	2.73		
	1207			14.03	2.85		

AQUIFEF	PUMPING	TEST FO	ORM (Co	ntinued)	Date 6-29-93	Page 3 of 3 MW-5D	
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
Time	(min)	(ft)	(ft)	Water (ft)		(gpm)	
	1266	(1.0)	(10)	14.18	3.00	<u> </u>	
	1326			14.28	3.10		
	1390			14.39	3.21		
	1448			14.52	3.34		
	1567			14.74	3.56		
	1693			14.95	3.77		
	1812			15.14	3.96	***************************************	
	1936			15.32	4.14		
	2047			15.37	4.19		
	2167			15.65	4.47		
	2288			15.72	4.54		
****	2406			15.86	4.68		
	2527			15.99	4.81		
	2647.5			16.13	4.95		
	2767			16.26	5.08		
	2880						
	3000						
	3120						
	3240						
	3360						
	3480						
·····	3600						
	3720						
	3840						
	3960						
······································	4080						
	4200	-					
	4320						
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AQUIFER	R PUMPING	TEST FO	ORM			· · · · · · · · · · · · · · · · · · ·	Page 1 of 3
Project	BIG V						
Site	BPM			1		errore en en en en en en en en en en en en en	
Well	MW-5S						
	Setting/Oper	Hole Int	terval (ft)				
***************************************	on of Measu			Top of 4-inch	n PVC		
	f Measuring					***************************************	
Measured			pe & Chalk				
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	ater Level (f	·	······	·	3.64		
Drawdowi	····	X	Start Tim		2:30 pm/6-28	3-93	
Recovery	·		End Time	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			-
Pumping	· À m	PW-1		(r) from Pum	pina Well	580 feet	
	Rate (gpm)					tithere i telescolori salari i este e e e e e e e e e e e e e e e e e	
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
***************************************	(min)	(ft)	(ft)	Water (ft)	*** ***********************************	(gpm)	
	0	5	1.36	3.64	0	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
*************************************	10 sec.					······································	
	20 sec.					***************************************	
egge and points and a distribute place in the part of proper and advances in	30 sec.						***************************************
	40 sec.					···	
	50 sec.						-
	60 sec.						
	70 sec.						
	80 sec.						
	90 sec.						
	100 sec.				a de la companya de l		
	110 sec.						
	120 sec.	***************************************					
	2.5						
***	3						
	3.5						
	4				-	~	
	4.5						
	5				1177		
	6	···					
***	7						
	8			·			
	9						
**************************************	10						
	11 12						
***************************************	12						
··	13	5	1.36	264			
	14	5	1.30	3.64	0		

QUIFER	PUMPING	TEST FO	ORM (Con	Date 6-28-93	Page 2 of 3 MW-5S		
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
11110	(min)	(ft)	(ft)	Water (ft)	(ft)	(gpm)	
	15	(1.1)	(10)			(0, /	
	18	5	1.36	3.64	0	······································	
	23	5	1.36	3.64	0		
	30	<u> </u>	1.00	0.0			
	37	5	1.36	3.64	0		
	40		1.00	<u> </u>			-
	46	5	1.36	3.64	0		
	50		1.00				
	55						
	61	5	1.36	3.64	0		
	76	5	1.36	3.64	0		
	80		1.00	1	-		
	97	5	1.36	3.64	0		
	100		1.00	0.01			
	110						
	121	5	1.36	3.64	0		
·····	152	5	1.35	3.65	0.01		
<u></u>	178	5	1.36	3.64	0		
	214	5	1.36	3.64	0		
	249	5	1.36	3.64	0		
	270	5	1.36	3.64	0		
	310	5	1.36	3.64	0		
	330	5	1.36	3.64	0		
······································	360	5	1.35	3.65	0.01	······································	
	405	5	1.36	3.64	0		
	431	5	1.36	3.64	0		
	461	- 5	1.36	3.64	0		
	492	5	1.36	3.64	0		
· · · · · · · · · · · · · · · · · · ·	552	5	1.36	3.64	0		
	621	5	1.36	3.64	0		
	675	5	1.36	3.64	0		-
	735	5	1.36	3.64	0		
	795	5	1.36	3.64	0		
	855	5	1.36	3.64	0		
	918	5	1.34	3.66	0.02		
	974	5	1.36	3.64	0		
	1033	5	1.34	3.66	0.02		
	1092	5	1.34	3.66	0.02		
	1152	5	1.34	3.66	0.02		
	1209	5	1.36	3.64	0		

AQUIFEN	PUMPING	1231 10	nw (com	illueu)	Date 6-29-93		Page 3 of 3 MW-5S	
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments	
	(min)	(ft)	(ft)	Water (ft)	(ft)	(gpm)		
	1267	5	1.37	3.63	+0.01			
	1329	5	1.39	3.61	+0.03			
	1392	5	1.39	3.61	+0.03			
	1440	5	1.41	3.59	+0.05			
	1560	5	1.43	3.57	+0.07			
	1680	5	1.43	3.57	+0.07			
	1813	5	1.43	3.57	+0.07			
	1939	5	1.43	3.57	+0.07			
	2050	5	1.44	3.56	+0.08			
	2170	5	1.45	3.55	+0.09			
	2291	5	1.45	3.55	+0.09			
	· 2408	5	1.46	3.54	+0.10			
	2528	5	1.51	3.49	+0.15			
	2648	5	1.52	3.48	+0.16			
	2769	5	1.49	3.51	+0.13			
	2880							
	3000							
	3120							
	3240							
	3360			and the same of th				
·····	3480							
	3600							
	3720							
	3840							
and a second second second second second second second second second second second second second second second	3960							
	4080					<u> </u>		
	4200 -							
	4320					<u> </u>		
						<u> </u>		
						<u> </u>		
		-						

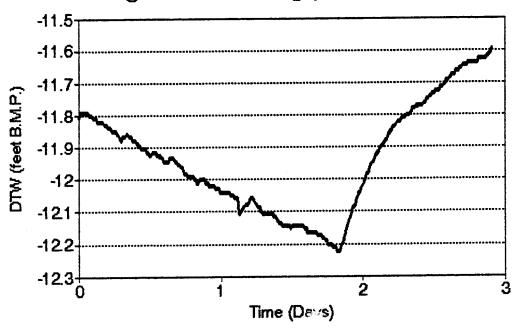






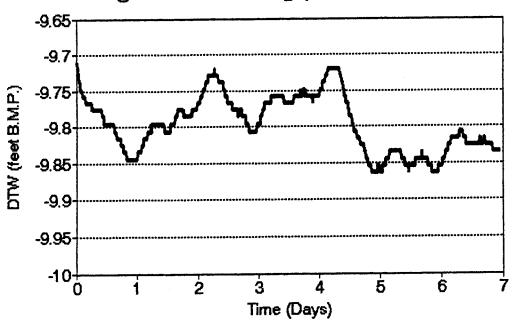
APPENDIX L.2 BACKGROUND WATER-LEVEL MONITORING PLOTS

BPM MW-10D
Background Monitoring (6/8/93-6/11/93)



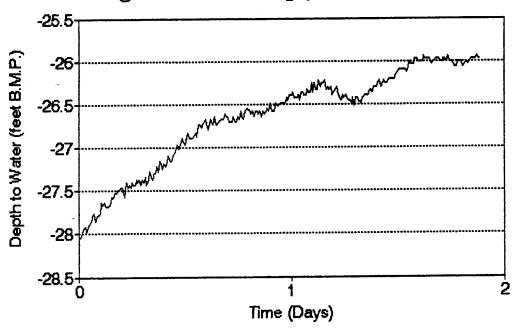
BPM MW-7D

Background Monitoring (6/11/93-6/18/93)



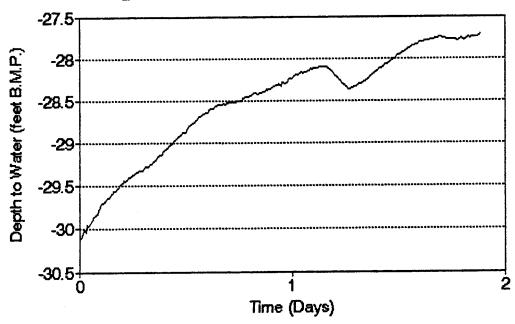
BPM PRODUCTION WELL PW-1

Background Monitoring (6/16/93-6/18/93)

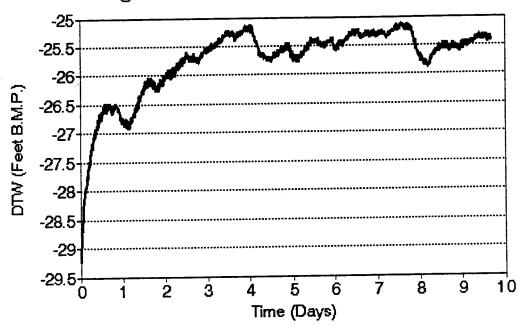


BPM PRODUCTION WELL PW-2

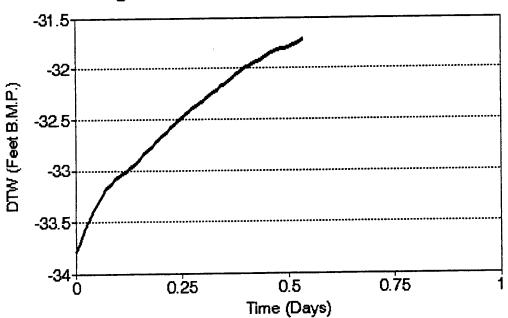
Background Monitoring (6/16/93-6/18/93)



BPM PW-1
Background Monitoring (6/18/93-6/28/93)

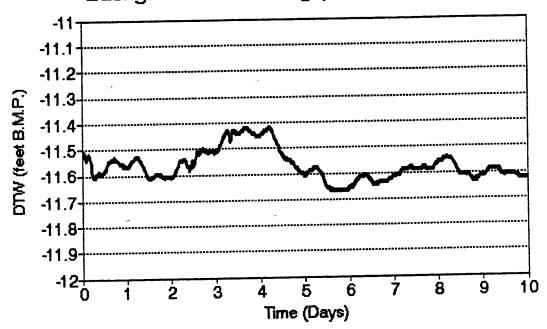


BPM PW-2
Background Monitoring (6/18/93-6/28/93)

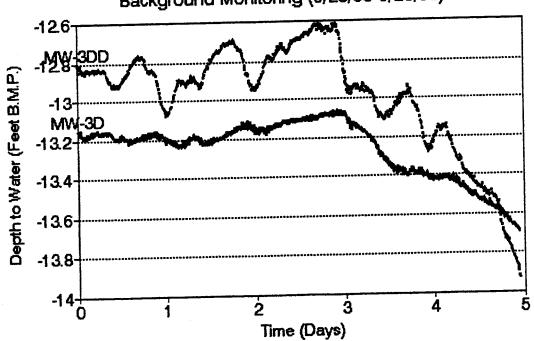


BPM MW-10D

Background Monitoring (6/18/93-6/28/93)

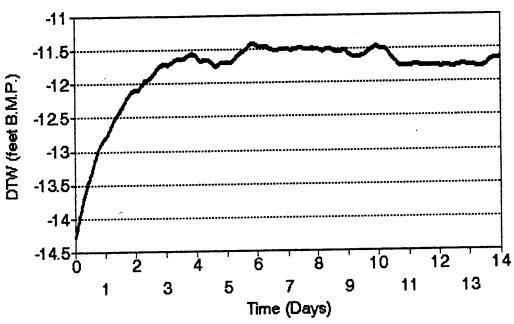


BPM MW-3D & MW-3DD Background Monitoring (6/23/93-6/28/93)



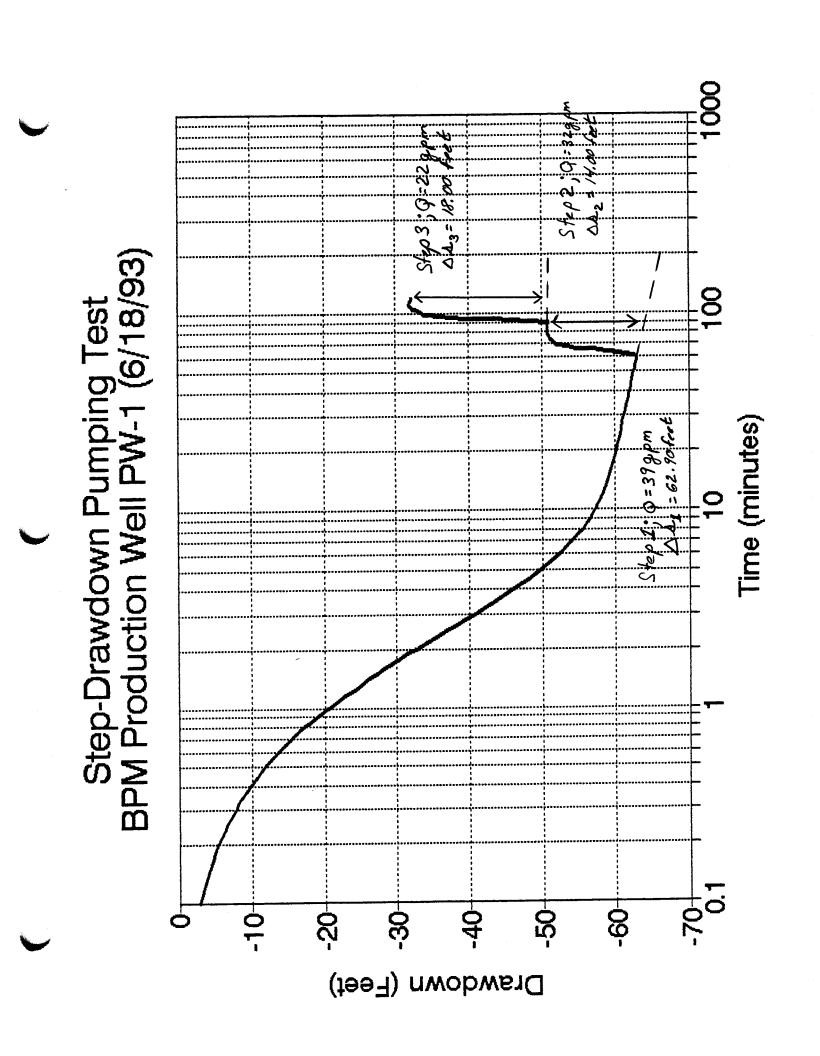
BPM MW-5D

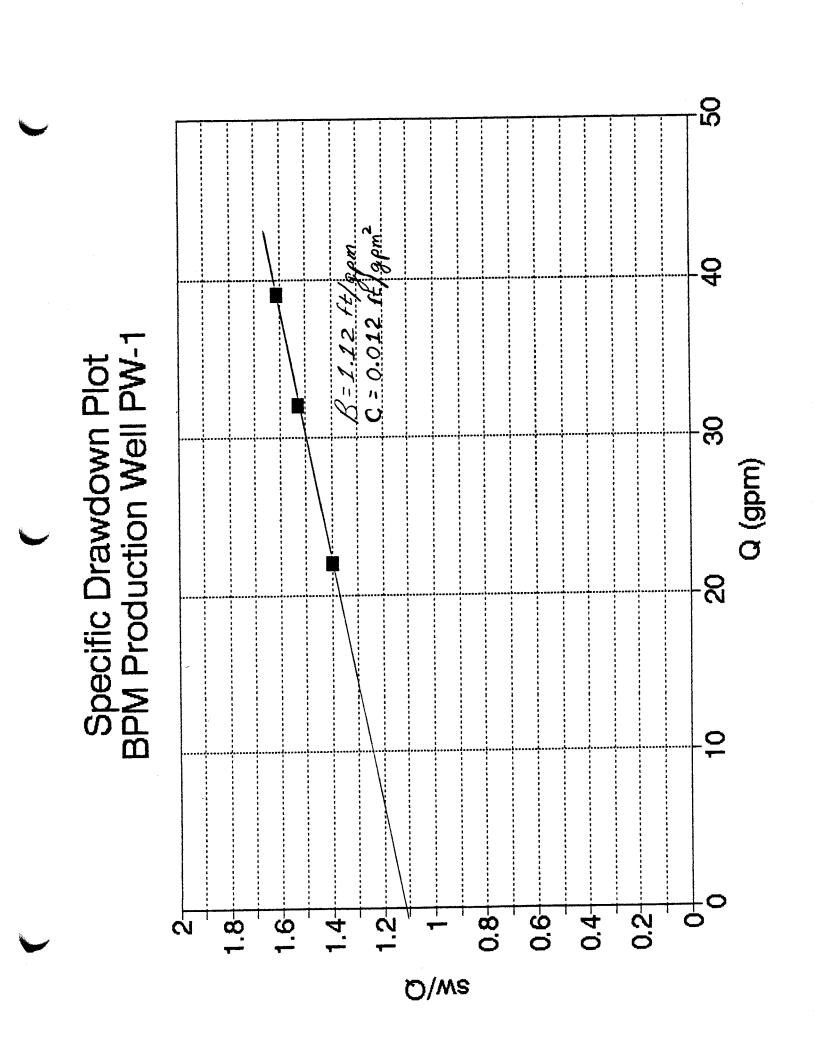
Background Monitoring (7/1/93-7/16/93)

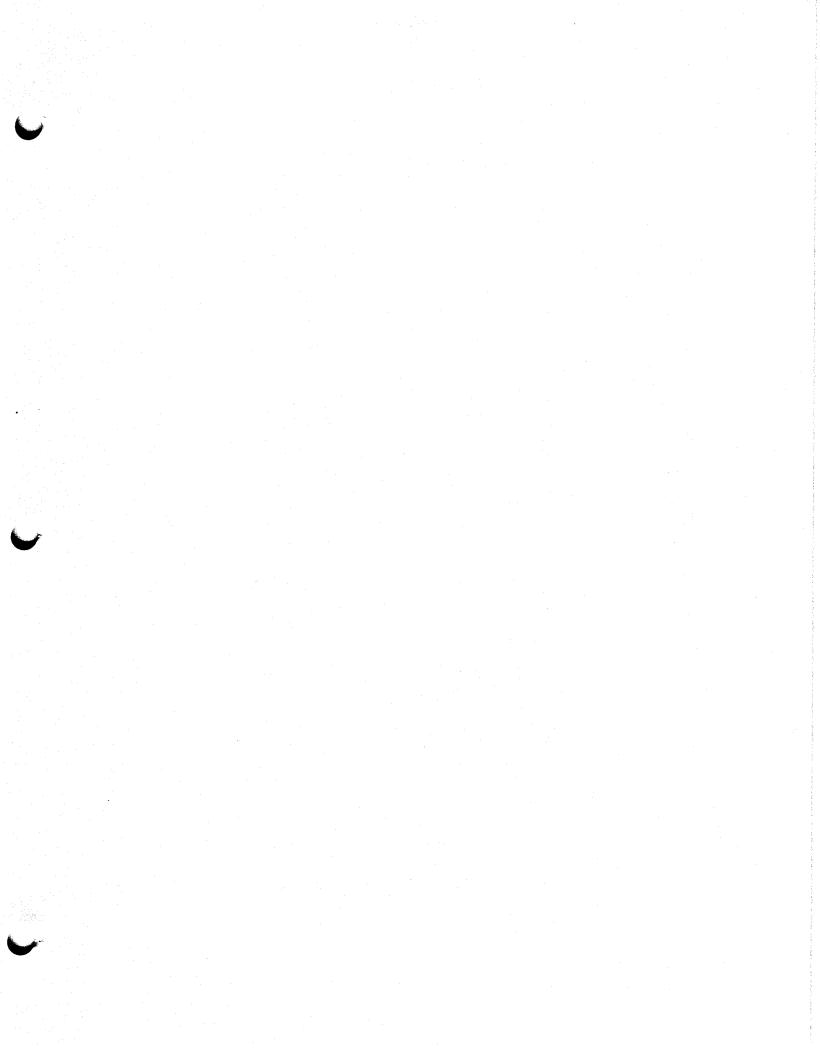




APPENDIX L.3 STEP-DRAWDOWN PUMPING TEST ANALYSIS







APPENDIX L.4

TIME-DRAWDOWN PLOTS: LEAKY ARTESIAN METHOD ANALYSIS

MW. ZD DRAWDOWN
PW-1 PUMPING 396PM

41 -200 V O C 4

Full Logarithmic, 3 × 5

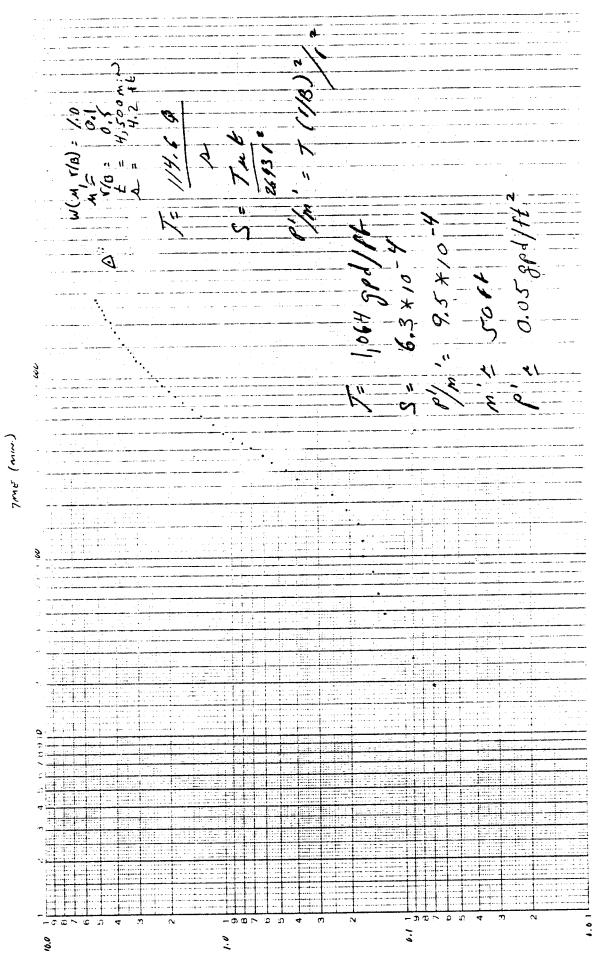
F 220022 E

MW-30 DKALDONIO PW-1 PUMPING 396PM -08200

Full Logarithmic, 3×5

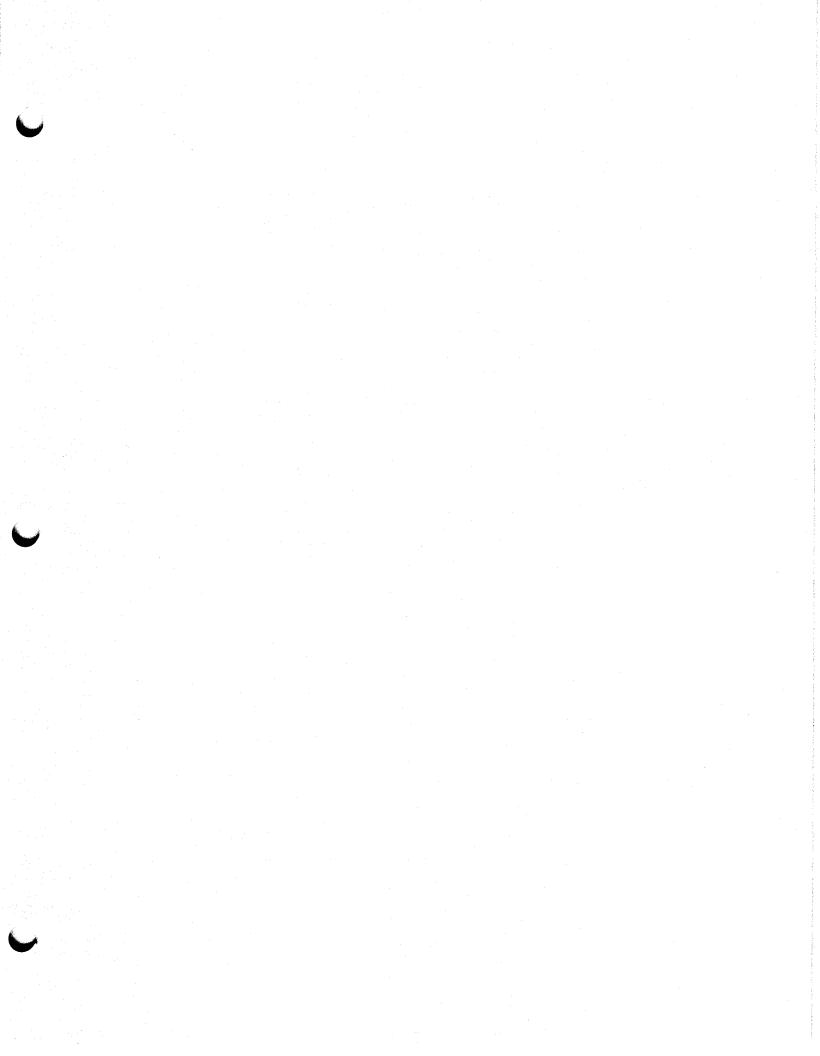
5 120012 E

MW-50 DIRANDOWN
PW-1 PUMPING 396PM



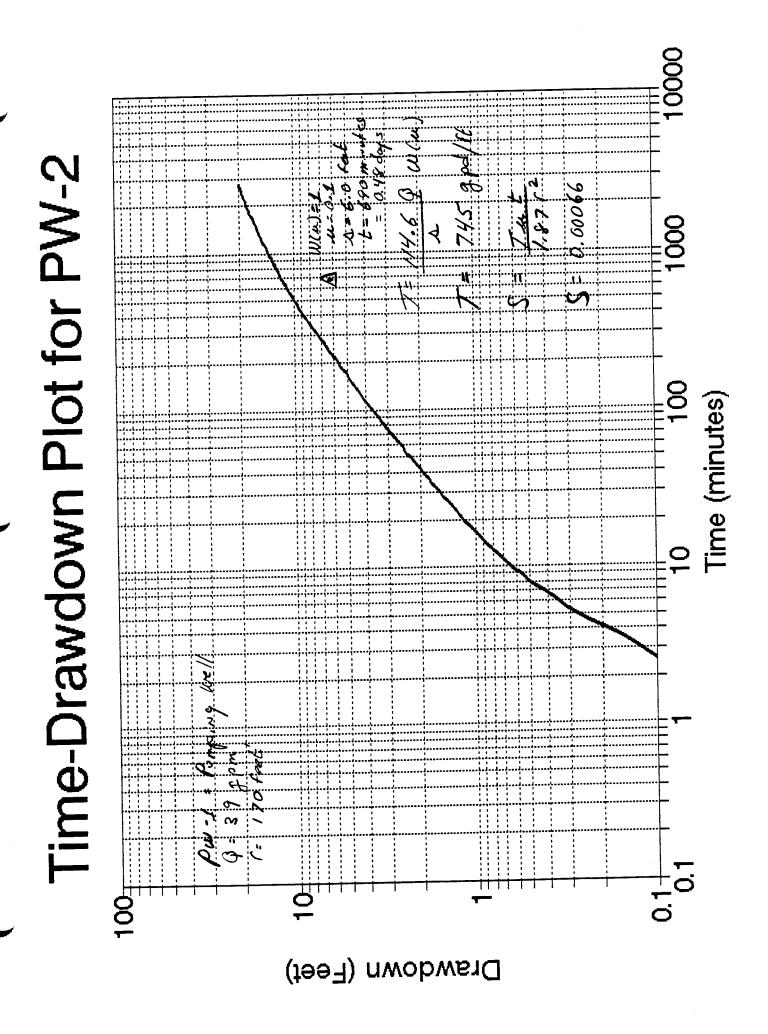
Full Logarithmic, 3 × 5

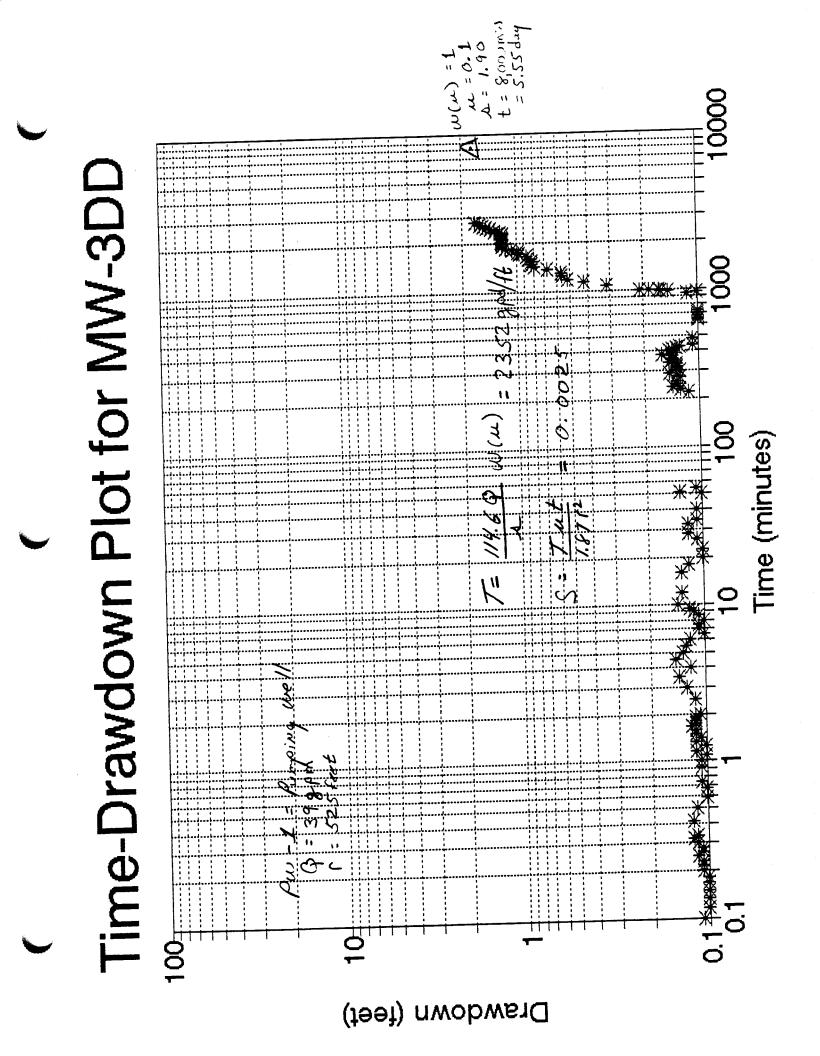
A4430033 €

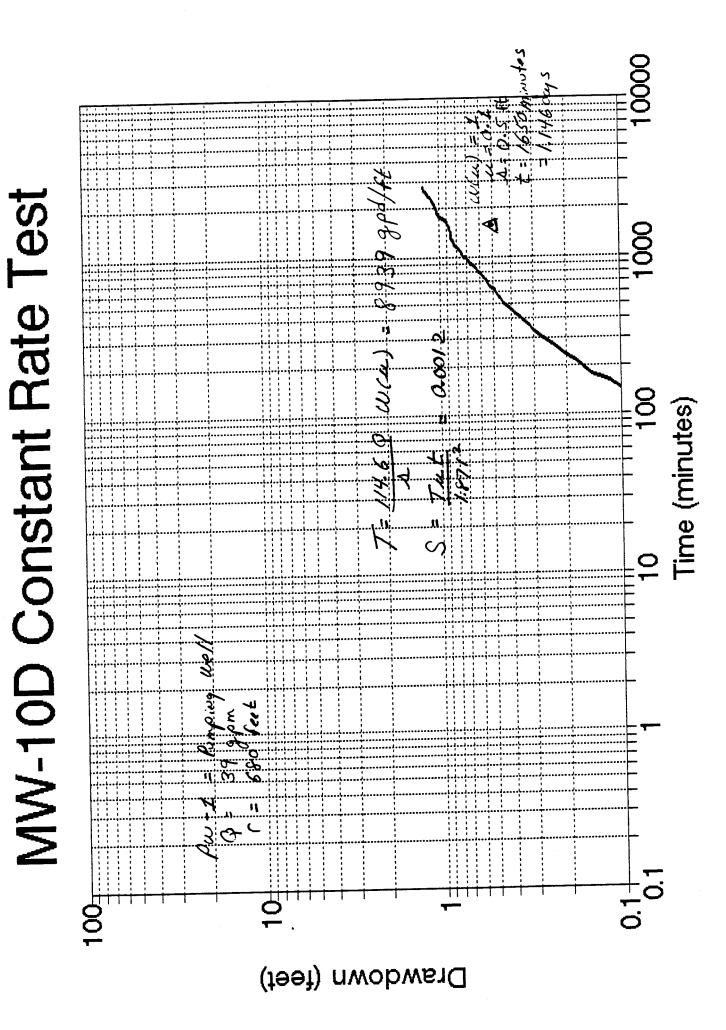


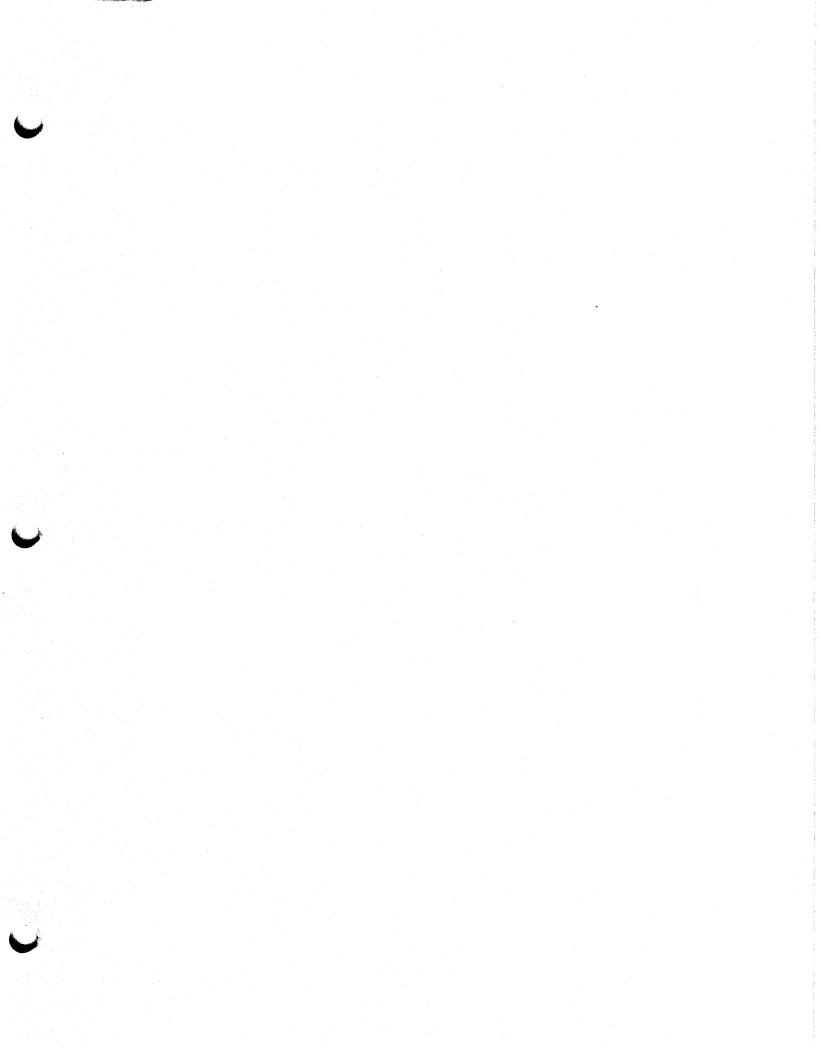
APPENDIX L.5

TIME-DRAWDOWN PLOTS: THEIS NON-EQUILIBRIUM METHOD ANALYSIS



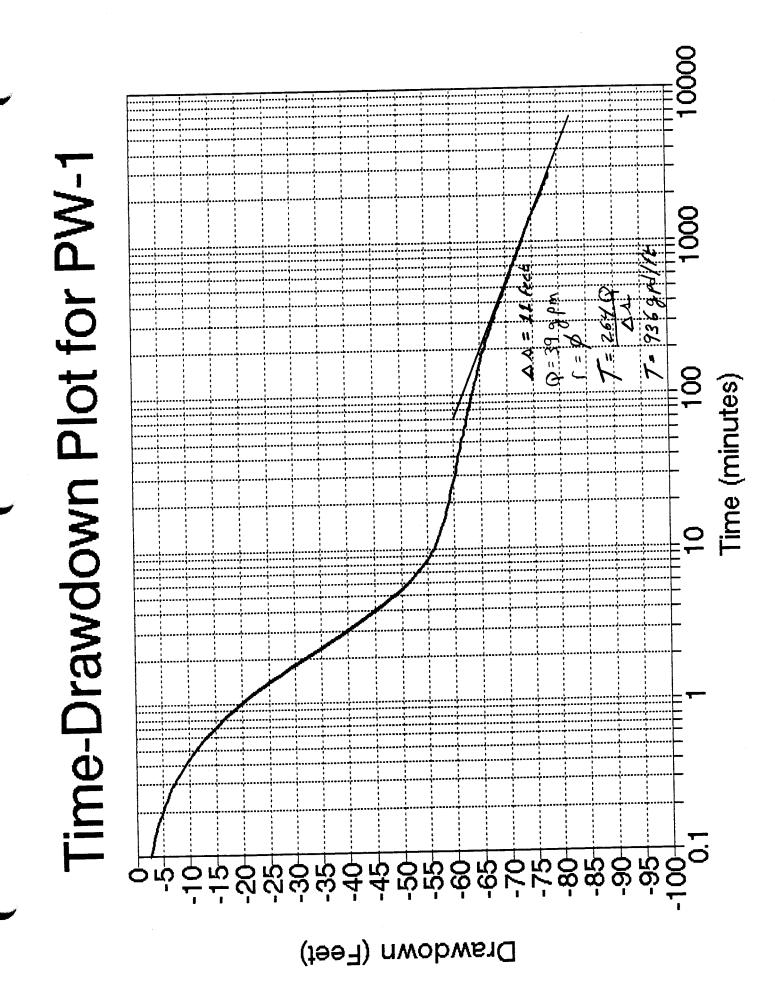


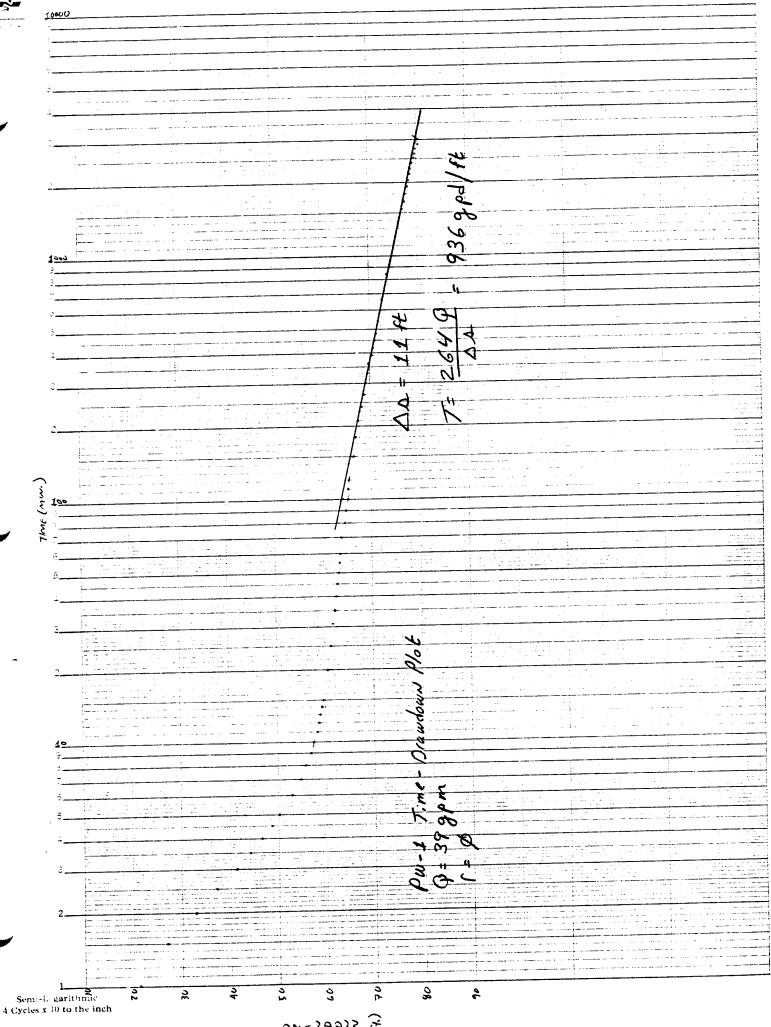




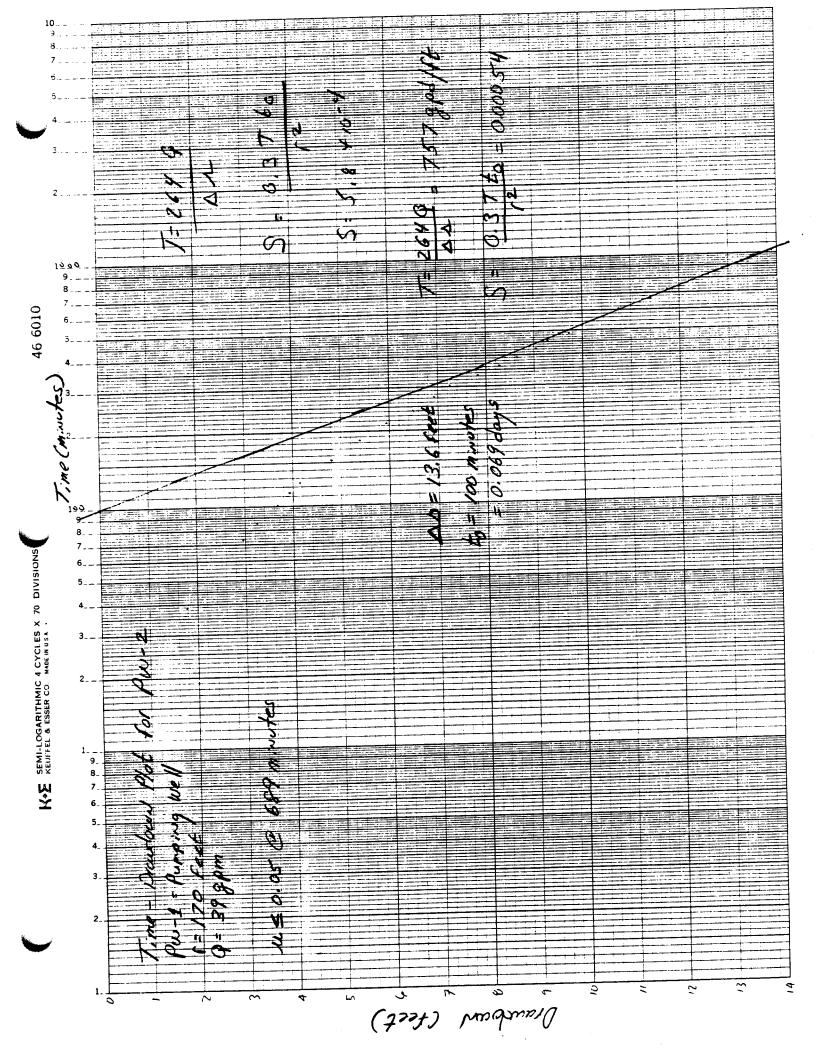
APPENDIX L.6

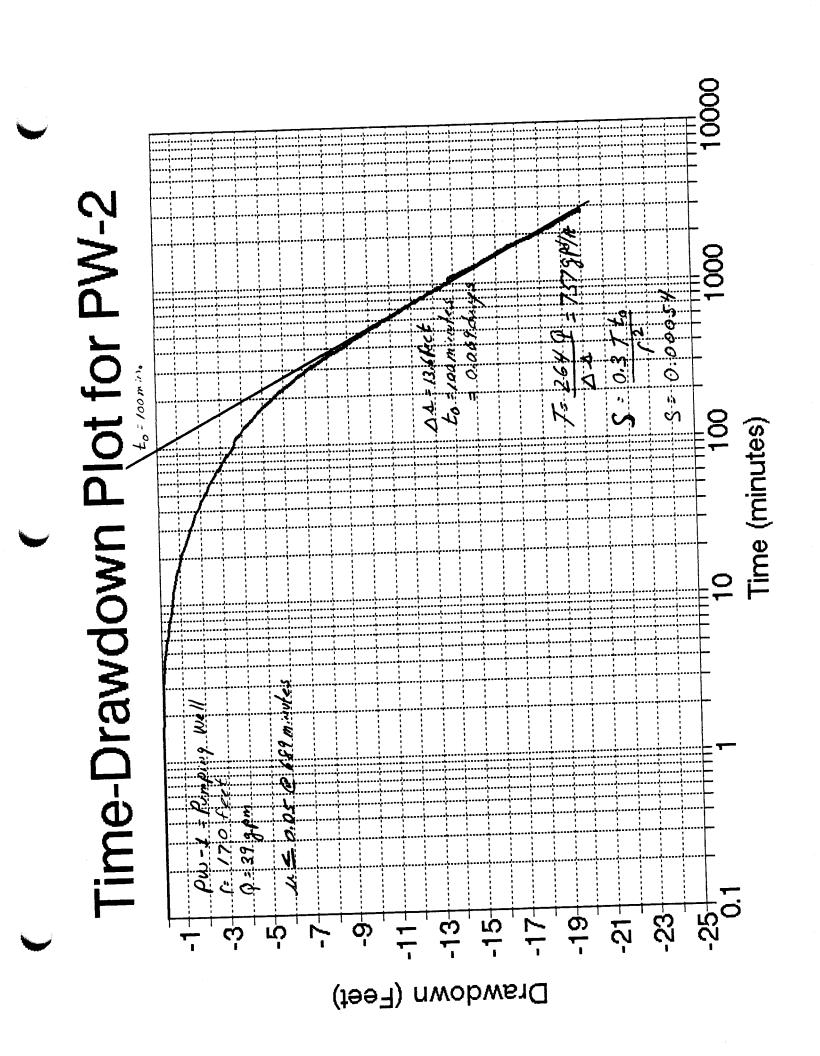
TIME-DRAWDOWN PLOTS: COOPER-JACOB NON-EQUILIBRIUM METHOD ANALYSIS





De 130015 E





Semi-Logarithmic 4 Cycles x :0 to the inch Oct 30033 &

26430935 E Semi-Logarithm C Cycles x (0 to the inch