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 GEODETIC SURVEY

VERTICAL CONTROL DATA
by the
Coast and Geodetic Survey
SEA LEVEL DATUM OF 1929

QUAD 410733 PAGE NO. 46
N.Y.-CONN.
LATITUDE 41°00' TO 41°30'
LONGITUDE 73°30' TO 74°00'
DIAGRAM NK 18-9 HARTFORD

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM 536
Ed. Oct., 1959

DESCRIPTION OF BENCH MARK

Designation of bench mark BC 29 1934 (USGS) State N.Y. County Westchester
Nearest town Shrub Oak County Westchester
Distance and direction from nearest town At Shrub Oak on Rt 6
Detailed description of location

At Shrub Oak, Westchester County, on U. S. Highway 6, 36 feet southeast of the intersection of the Mohansic 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 COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM 536
Ed. Oct., 1959

DESCRIPTION OF BENCH MARK

Designation of bench mark USGS 445.1 State N.Y. County Westchester
Nearest town Jefferson Valley County Westchester
Distance and direction from nearest town In Jefferson Valley
Detailed description of location El. 444.842

At Jefferson Valley, Westchester County, on U. S. Highway 6, 650 feet west of the post office, opposite the two-story frame house owned by T. Hill, Jr. (in 1935), on the top of the corner of a concrete culvert, and 20 feet north of the center line of the highway. A chiseled square.

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM 536
Ed. Oct., 1959

DESCRIPTION OF BENCH MARK

Designation of bench mark E 76 State N.Y. County Westchester
Nearest town Jefferson Valley County Westchester
Distance and direction from nearest town At Jefferson Valley on Rt 6
Detailed description of location El. 435.376

At Jefferson Valley, Westchester County, on U. S. Highway 6, 0.4 mile east of the post office, at a road intersection, at a 12-foot box culvert, in the top of the southwest wing wall, 20 feet south of the center line of the highway, and about 3 feet lower than the highway. A standard disk, stamped "E 76 1935."

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM 536
Ed. Oct., 1959

DESCRIPTION OF BENCH MARK

Designation of bench mark F 76 State N.Y. County Westchester
Nearest town Lake Mahopac County Putnam
Distance and direction from nearest town 3.2 miles west of Lake Mahopac on Rt 6
Detailed description of location El. 511.111

In Westchester County, 3.2 miles west along U. S. Highway 6 from Lake Mahopac, Putnam County, at bridge 15-12-B1 1931-DPW over a stream, in the top of the northwest wing wall, 25 feet north of the center line of the highway, and level with the same highway. A standard disk, stamped "F 76 1936."

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM 536
Ed. Oct., 1959

DESCRIPTION OF BENCH MARK

Designation of bench mark G 76 State N.Y. County Putnam
Nearest town Lake Mahopac County Putnam
Distance and direction from nearest town In Lake Mahopac
Detailed description of location

At Lake Mahopac, Putnam County, on U. S. Highway 6, at the Mahopac National Bank building, in the top of a limestone 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 1935."

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
FORM 536
Ed. Oct., 1959

DESCRIPTION OF BENCH MARK

Designation of bench mark H 76 State N.Y. County Putnam
Nearest town Lake Mahopac County Putnam
Distance and direction from nearest town 1.7 mile east of Lake Mahopac on Rt 6
Detailed description of location

1.7 miles east along U. S. Highway 6 from the Mahopac National Bank at Lake Mahopac, Putnam County, at the Orson H. Lyon 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 standard disk, stamped "639.966 H 76 1935."

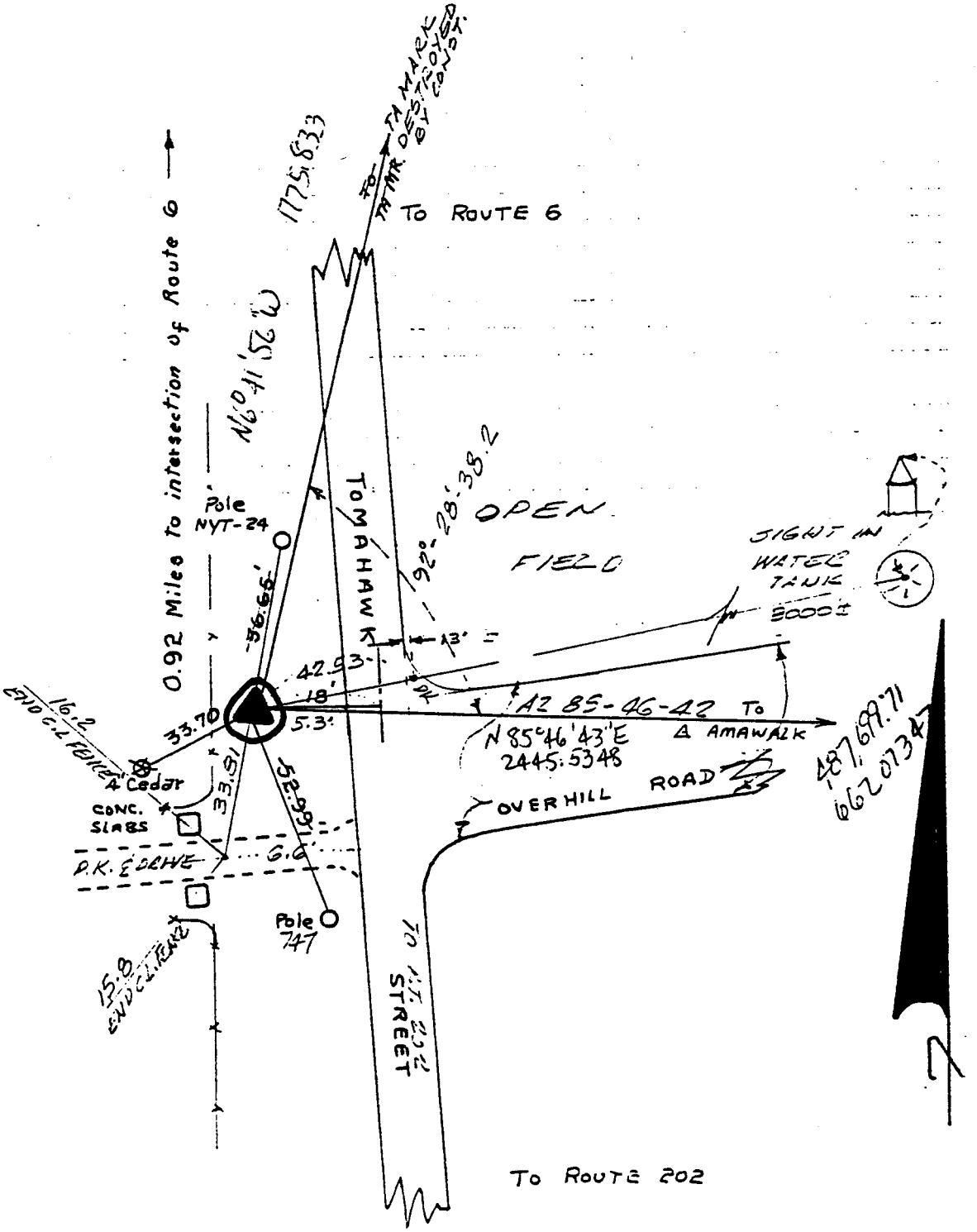
F76"
3.2 miles west of Lake Mahopac on Rte. 6 (Top of northwest wing wall.

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 487519.69
E 659634.52



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	BPMMW1D01
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	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE COMPOUNDS	Quantitation Limit										
Chloromethane	10						UL				
Bromomethane	10										
Vinyl Chloride	10										
Chloroethane	10										
Methylene Chloride	10	85	94	1 J			20		7 B		
Acetone	10	20 J	27 J	R	R	R		R	R	R	R
Carbon Disulfide	10										
1,1-Dichloroethene	10										
1,1-Dichloroethane	10										
Total 1,2-Dichlorethene	10				4 J						
Chloroform	10										
1,2-Dichloroethane	10										
2-Butanone	10										
1,1,1-Trichloroethane	10										
Carbon Tetrachloride	10										
Bromodichloromethane	10										
1,1,2,2-Tetrachloroethane	10				2 B	2 B					
1,2-Dichloropropane	10										
trans-1,3-Dichloropropene	10										
Trichloroethene	10				4 J	1 J					
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 J

VOLATILE ORGANIC ANALYSIS											
Vincent Uhl Sample Number		BPMMW3D01	BPMMW3D01R	BPMMW3D01B	BPMMW3S01	BPMMW3DD01	BPMMW4S01	Trip Blk 8/31	BPMMW4D01	BPMMW1S01	BPMMW1D01
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	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE COMPOUNDS	Quantitation Limit										
Toluene	10	5 J	5 J				3 J				9 J
Chlorobenzene	10										
Ethylbenzene	10										
Styrene	10										
Total Xylenes	10										
Methyltertbutyl Ether	10				1 J	1 J	2 J			2 J	1 J
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
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	9/1/92	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	9/2/92
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	9/6/92
Instrument Used for Analysis		MSD	MSD	MSD	MSD	MSD	MSD	MSD	MSD	MSD	MSD

VOLATILE ORGANIC ANALYSIS											
Vincent Uhl Sample Number		BPMMW2S01	BPMMW2D01	BPMMW8S01	Trip Blk 9/1	BPMMW5S01	BPMMW5S01R	BPMMW7S01	BPMMW6S01	BPMMW6S01B	Trip Blk 9/2
Laboratory Sample Number		114984-06	114984-07	114984-08	114984-10	114984-11	114984-12	115023-01	115023-02	115023-03	115023-04
Remarks					Trip Blank		Replicate			Field Blank	Trip Blank
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE COMPOUNDS	Quantitation Limit										
Chloromethane	10										
Bromomethane	10										
Vinyl Chloride	10										
Chloroethane	10										
Methylene Chloride	10	35	55	8 B		1 B			16		
Acetone	10	8 J	31 J	R	R	R	R	R	R	R	R
Carbon Disulfide	10										
1,1-Dichloroethene	10										
1,1-Dichloroethane	10										
Total 1,2-Dichlorethene	10					23	28				
Chloroform	10										
1,2-Dichloroethane	10										
2-Butanone	10										
1,1,1-Trichloroethane	10										
Carbon Tetrachloride	10										
Bromodichloromethane	10										
1,1,2,2-Tetrachloroethane	10				1 J						
1,2-Dichloropropane	10										
trans-1,3-Dichloropropene	10										
Trichloroethene	10					25	27				
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					64	74	12			

VOLATILE ORGANIC ANALYSIS											
Vincent Uhl Sample Number		BPMMW2S01	BPMMW2D01	BPMMW8S01	Trip Blk 9/1	BPMMW5S01	BPMMW5S01R	BPMMW7S01	BPMMW6S01	BPMMW6S01B	Trip Blk 9/2
Laboratory Sample Number		114984-06	114984-07	114984-08	114984-10	114984-11	114984-12	115023-01	115023-02	115023-03	115023-04
Remarks					Trip Blank		Replicate			Field Blank	Trip Blank
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE COMPOUNDS	Quantitation Limit										
Toluene	10	2 J	2 J	2 J					4 J		
Chlorobenzene	10										
Ethylbenzene	10										
Styrene	10		2 J								
Total Xylenes	10										
Methyltertbutyl Ether	10								1 J		
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Data Sample Collection		9/1/92	9/1/92	9/1/92	9/1/92	9/1/92	9/1/92	9/2/92	9/2/92	9/2/92	9/2/92
Date Sample Received by Laboratory		9/2/92	9/2/92	9/2/92	9/2/92	9/2/92	9/2/92	9/2/92	9/2/92	9/2/92	9/2/92
Date of Sample Analysis		9/3/92	9/3/92	9/3/92	9/6/92	9/3/92	9/4/92	9/4/92	9/4/92	9/4/92	9/4/92
Instrument Used for Analysis		MSD	MSD	MSD	MSD	MSD	MSD	MSD	MSD	MSD	MSD

EXTRACTABLE ORGANIC ANALYSIS										
Vincent Uhl Sample Number		BPMMW3D01	BPMMW3D01R	BPMMW3D01B	BPMMW3S01	BPMMW3DD01	BPMMW4S01	BPMMW4D01	BPMMW1S01	BPMMW1D01
Laboratory Sample Number		114937-01	114937-03	114937-05	114937-06	114937-08	114937-10	114984-01	114984-03	114984-04
Remarks			Replicate	Field Blank						
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)									
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	10									
Hexachlorocyclopentadiene	10	UL	UL	UL	UL	UL	UL	UL	UL	UL
2,4,6-Trichlorophenol	10									

EXTRACTABLE ORGANIC ANALYSIS										
Vincent Uhl Sample Number		BPMMW3D01	BPMMW3D01R	BPMMW3D01B	BPMMW3S01	BPMMW3DD01	BPMMW4S01	BPMMW4D01	BPMMW1S01	BPMMW1D01
Laboratory Sample Number		114937-01	114937-03	114937-05	114937-06	114937-08	114937-10	114984-01	114984-03	114984-04
Remarks			Replicate	Field Blank						
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)									
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	25									
4,6-Dinitro-2-Methylphenol	25									
N-Nitrosodiphenylamine	10									
4-Bromophenyl-phenylether	10									
Hexachlorobenzene	10									
Pentachlorophenol	25									
Phenanthrene	10									
Anthracene	10									
Carbazole	10									
Di-n-Butylphthalate	10									
Fluoranthene	10									

EXTRACTABLE ORGANIC ANALYSIS										
Vincent Uhl Sample Number		BPMMW3D01	BPMMW3D01R	BPMMW3D01B	BPMMW3S01	BPMMW3DD01	BPMMW4S01	BPMMW4D01	BPMMW1S01	BPMMW1D01
Laboratory Sample Number		114937-01	114937-03	114937-05	114937-06	114937-08	114937-10	114984-01	114984-03	114984-04
Remarks			Replicate	Field Blank						
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)									
Pyrene	10									
Butylbenzylphthalate	10									
3,3'-Dichlorobenzidine	10	UL								
Benzo(a)anthracene	10							UL		
bis(2-Ethylhexyl)phthalate	10									
Chrysene	10									7 J
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		UL	UL	UL	UL	UL		UL	UL
Benzo(g,h,i)perylene	10									
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Data Sample Collection		8/31/92	8/31/92	8/31/92	8/31/92	8/31/92	8/31/92	9/1/92	9/1/92	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	9/2/92	9/2/92	9/2/92
Date Sample Extracted		9/3/92	9/3/92	9/3/92	9/3/92	9/3/92	9/3/92	9/3/92	9/3/92	9/3/92
Date of Sample Analysis		9/14/92	9/12/92	9/12/92	9/12/92	9/12/92	9/12/92	9/14/92	9/12/92	9/12/92
Instrument Used for Analysis		MSD#1	MSD#1	MSD#1	MSD#1	MSD#1	MSD#1	MSD#1	MSD#1	MSD#1

EXTRACTABLE ORGANIC ANALYSIS					
Vincent Uhl Sample Number		BPMMW2S01	BPMW2S01RR	BPMMW2D01	BPMMW8S01
Laboratory Sample Number		114984-06	114984-06RR	114984-07	114984-08
Remarks			Reextraction		
Units		ug/L	ug/L	ug/L	ug/L
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)				
Phenol	10		R		
bis(2-Chloroethyl)ether	10	UL	R		
2-Chlorophenol	10		R		
1,3-Dichlorobenzene	10	UL	R		
1,4-Dichlorobenzene	10	UL	R		
1,2-Dichlorobenzene	10	UL	R		
2-Methylphenol	10		R		
2,2'-oxybis(1-Chloropropane)	10	UL	R		
4-Methylphenol	10		R		
N-Nitroso-di-n-Propylamine	10	UL	R		
Hexachloroethane	10	UL	R		
Nitrobenzene	10	UL	R		
Isophorone	10	UL	R		
2-Nitrophenol	10		R		
2,4-Dimethylphenol	10		R		
1,2,4-Trichlorobenzene	10	UL	R		
Naphthalene	10	UL	R		
4-Chloroaniline	10	UL	R		
Hexachlorobutadiene	10	UL	R		
4-Chloro-3-Methylphenol	10		R		
2-Methylnaphthalene	10	UL	R		
Hexachlorocyclopentadiene	10	UL	R	UL	UL
2,4,6-Trichlorophenol	10		R		

EXTRACTABLE ORGANIC ANALYSIS					
Vincent Uhl Sample Number		BPMMW2S01	BPMW2S01RR	BPMMW2D01	BPMMW8S01
Laboratory Sample Number		114984-06	114984-06RR	114984-07	114984-08
Remarks			Reextraction		
Units		ug/L	ug/L	ug/L	ug/L
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)				
2,4,5-Trichlorophenol	25		R		
2-Chloronaphthalene	10	UL	R		
2-Nitroaniline	25	UL	R		
Dimethylphthalate	10	UL	R		
Acenaphthylene	10	UL	R		
2,4-Dinitrophenol	25		R		
4-Nitrophenol	25		R		
Dibenzofuran	10	UL	R		
2,4-Dinitrotoluene	10	UL	R		
Diethylphthalate	10	UL	R		
4-Chlorophenyl-phenylether	10	UL	R		
Fluorene	10	UL	R		
4-Nitroaniline	25	UL	R		
4,6-Dinitro-2-Methylphenol	25		R		
N-Nitrosodiphenylamine	10	UL	R		
4-Bromophenyl-phenylether	10	UL	R		
Hexachlorobenzene	10	UL	R		
Pentachlorophenol	25		R		
Phenanthrene	10	UL	R		
Anthracene	10	UL	R		
Carbazole	10	UL	R		
Di-n-Butylphthalate	10	UL	R		
Fluoranthene	10	UL	R		

EXTRACTABLE ORGANIC ANALYSIS					
Vincent Uhl Sample Number		BPMMW2S01	BPMW2S01RR	BPMMW2D01	BPMMW8S01
Laboratory Sample Number		114984-06	114984-06RR	114984-07	114984-08
Remarks			Reextraction		
Units		ug/L	ug/L	ug/L	ug/L
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)				
Pyrene	10	UL	R		
Butylbenzylphthalate	10	UL	R		
3,3'-Dichlorobenzidine	10	UL	R		UL
Benzo(a)anthracene	10	UL	R		
bis(2-Ethylhexyl)phthalate	10	UL	R	11	
Chrysene	10	UL	R		
Di-n-Octylphthalate	10	UL	R		
Benzo(b)fluoranthene	10	UL	R		
Benzo(k)fluoranthene	10	UL	R		
Benzo(a)pyrene	10	UL	R		
Indeno(1,2,3-cd)pyrene	10	UL	R		
Dibenz(a,h)anthracene	10	UL	R	UL	
Benzo(g,h,i)perylene	10	UL	R		
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

TENTATIVELY IDENTIFIED COMPOUNDS - ESTIMATED CONCENTRATIONS										
Vincent Uhl Sample Number	BPMMW3D01	BPMMW3D01R	BPMMW3D01B	BPMMW3S01	BPMMW3DD01	BPMMW4S01	Trip Blk 8/31	BPMMW4D01	BPMMW1S01	BPMMW1D01
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	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE CONSTITUENTS										
Unknown	5 J	13 J								
SEMIVOLATILE CONSTITUENTS							NA			
2,6-bis(1,1-dimethylethyl)-4-ethylphenol	3 J	3 J								
4-morpholineethaniol	2 J	5 J								
2-amino-8-methoxy-phenazine	55 J	62 J								
saturated hydrocarbons (number of peaks)	4 J (2)	9 J (4)	4 J (1)	3 J (1)	3 J (1)	3 J (1)		8 J (3)	4 J (1)	11 J(3)
unknown (number of peaks)	36 J (2)	42 J (2)						6 J (1)		2 J(1)
octanoic acid		2 J								
labortaory artifcat			3 R	3 R	5 R	4 R			4 R	
blank contaminant				4 B	5 B	5 B		6 B	6 B	10 B
2-methylprpopylester octanoic acid								8 J		
unsaturated hydrocarbons (number of peaks)										2 J (1)

TENTATIVELY IDENTIFIED COMPOUNDS										
Vincent Uhl Sample Number	BPMMW2S01	PMMW2D0	BPMMW8S01	Trip Blk 9/1	BPMMW5S01	BPMMW5S01R	BPMMW7S01	BPMMW6S01	BPMMW6S01B	Trip Blk 9/2
Laboratory Sample Number	114984-06	114984-07	114984-08	114984-10	114984-11	114984-12	115023-01	115023-02	115023-03	115023-04
Remarks				Trip Blank		Replicate			Field Blank	Trip Blank
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE CONSTITUENTS	-	-	-	-	-	-	-	-	-	-
SEMIVOLATILE CONSTITUENTS	Analyzed Twice			NA	NA	NA	NA	NA	NA	NA
unknown (number of peaks)	23 J (5)/25 J (6)	12 J (2)	6 J (3)							
blank contaminants	21 B/ -	29 B	9 B							
saturated hydrocarbons (number of peaks)	18 J (6)/6 J (2)	44 J (7)	16 J (5)							
octadecanol	2 J/-									
dimethylethylphenyl isomer	-/3 J									
pentachlorofluorobenzene	-/2 J									
tetraethylstanane	-/3 J									
phthalate ester	-/3 J									
laboratory artifact		2 R	2 R							
2-ethylhexanoic acid		3 J								
4-morpholineethanthiol		2 J								
2-(2H-benzotriazol-2-yl)-4-methylphenol		10 J								
carboxylic acid		3 J								

EXTRACTABLE ORGANIC ANALYSIS									
Vincent UHL Sample Number		BPMMW3D01	BPMMW3D01DL	BPMMW3D01R	BPMMW3D01B	BPMMW3S01	BPMMW3DD01	BPMMW4S01	BPMMW4D01
Laboratory Sample Number		114937-01	114937-01DL	114937-03	114937-05	114937-06	114937-08	114937-10	114984-01
Remarks			Dilution	Replicate	Field Blank				
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
PESTICIDES/AROCLORS	Quantitation Limit (Aq)								
alpha-BHC	0.05	UL	UL	UL		UL		UL	UL
beta-BHC	0.05	UL	0.06 J	UL		UL		UL	UL
delta-BHC	0.05	UL	UL	0.02 J		UL		UL	UL
gamma-BHC (Lindane)	0.05	UL	UL	UL		UL		UL	UL
Heptachlor	0.05	UL	UL	0.033 J		UL		0.01 J	UL
Aldrin	0.05	UL	UL	UL		UL		UL	UL
Heptachlor Epoxide	0.05	0.01 J	UL	UL		UL		0.04 J	UL
Endosulfan I	0.05	UL	UL	UL		UL		UL	UL
Dieldrin	0.10	0.04 J	0.04 J	0.04 J		UL		0.04 J	UL
4,4'-DDE	0.10	UL	UL	UL		UL		0.03 J	UL
Endrin	0.10	0.05 J	UL	UL		UL		UL	UL
Endosulfan II	0.10	0.03 J	UL	0.02 J		UL		0.04 J	UL
4,4'-DDD	0.10	UL	UL	UL		UL		UL	UL
Endosulfan Sulfate	0.10	0.01 J	UL	UL		UL		0.03 J	UL
4,4'-DDT	0.10	UL	UL	UL		UL		UL	UL
Methoxychlor	0.50	UL	UL	UL		UL		UL	UL
Endrin Ketone	0.10	UL	UL	UL		UL		UL	UL
Endrin Aldehyde	0.10	UL	UL	UL		UL		UL	UL
alpha-Chlordane	0.05	UL	UL	0.01 J		UL		0.05 J	UL
gamma-Chlordane	0.05	0.97 J	0.80 J	0.83 J	0.01 J	UL		UL	UL
Toxaphene	5.0	UL	UL	UL		UL		UL	UL

EXTRACTABLE ORGANIC ANALYSIS									
Vincent UHL Sample Number		BPMMW3D01	BPMMW3D01DL	BPMMW3D01R	BPMMW3D01B	BPMMW3S01	BPMMW3DD01	BPMMW4S01	BPMMW4D01
Laboratory Sample Number		114937-01	114937-01DL	114937-03	114937-05	114937-06	114937-08	114937-10	114984-01
Remarks			Dilution	Replicate	Field Blank				
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
PESTICIDES/AROCLORS	Quantitation Limit (Aq)								
Aroclor-1015	1.0	UL	UL	UL		UL		UL	UL
Aroclor-1221	1.0	UL	UL	UL		UL		UL	UL
Aroclor-1232	1.0	UL	UL	UL		UL		UL	UL
Aroclor-1242	1.0	UL	UL	UL		UL		UL	UL
Aroclor-1248	1.0	UL	UL	UL		UL		UL	UL
Aroclor-1254	1.0	UL	UL	UL		UL		UL	UL
Aroclor-1260	1.0	UL	UL	UL		UL		UL	UL
Quantitation Limit Multiplier		1.00	5.00	1.00	1.00	1.00	1.00	1.00	1.00
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
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
Date of Sample Analysis		9/22/92	9/22/92	9/22/92	9/22/92	9/22/92	9/22/92	9/22/92	9/22/92
Instrument Used for Analysis		3400-1	3400-1	3400-1	3400-1	3400-1	3400-1	3400-1	3400-1

EXTRACTABLE ORGANIC ANALYSIS							
Vincent UHL Sample Number		BPMMW1S01	BPMMW1D01	BPMMW2S01	BPMMW2D01	BPMMW8S01	BPMMW8S01DL
Laboratory Sample Number		114984-03	114984-04	114984-06	114984-07	114984-08	114984-08DL
Remarks							Dilution
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
PESTICIDES/AROCLORS	Quantitation Limit (Aq)						
alpha-BHC	0.05	UL	UL	UL	UL	R	UL
beta-BHC	0.05	UL	UL	UL	UL	R	UL
delta-BHC	0.05	UL	UL	UL	UL	R	0.02 J
gamma-BHC (Lindane)	0.05	UL	UL	UL	UL	R	UL
Heptachlor	0.05	UL	UL	0.02 J	UL	0.03 R	UL
Aldrin	0.05	UL	UL	UL	UL	R	UL
Heptachlor Epoxide	0.05	UL	UL	0.01 R	0.01 J	0.078 R	UL
Endosulfan I	0.05	UL	UL	UL	UL	R	UL
Dieldrin	0.10	UL	UL	0.03 R	0.02 J	0.11 R	0.10 J
4,4'-DDE	0.10	UL	UL	UL	UL	0.05 R	0.04 J
Endrin	0.10	UL	UL	0.01 J	0.03 J	0.34 R	0.14 J
Endosulfan II	0.10	UL	UL	0.02 R	0.02 J	0.19 R	UL
4,4'-DDD	0.10	UL	UL	0.03 J	UL	R	0.04 J
Endosulfan Sulfate	0.10	UL	UL	UL	UL	0.05 R	UL
4,4'-DDT	0.10	UL	UL	0.02 J	UL	R	UL
Methoxychlor	0.50	UL	UL	UL	UL	R	UL
Endrin Ketone	0.10	UL	UL	UL	UL	R	UL
Endrin Aldehyde	0.10	UL	UL	UL	UL	R	UL
alpha-Chlordane	0.05	UL	UL	UL	0.02 J	0.13 R	0.12 J
gamma-Chlordane	0.05	UL	UL	UL	0.068 J	0.03 R	UL
Toxaphene	5.0	UL	UL	UL	UL	R	UL

EXTRACTABLE ORGANIC ANALYSIS							
Vincent UHL Sample Number		BPMMW1S01	BPMMW1D01	BPMMW2S01	BPMMW2D01	BPMMW8S01	BPMMW8S01DL
Laboratory Sample Number		114984-03	114984-04	114984-06	114984-07	114984-08	114984-08DL
Remarks							Dilution
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
PESTICIDES/AROCLORS	Quantitation Limit (Aq)						
Aroclor-1015	1.0	UL	UL	UL	UL	R	UL
Aroclor-1221	1.0	UL	UL	UL	UL	R	UL
Aroclor-1232	1.0	UL	UL	UL	UL	R	UL
Aroclor-1242	1.0	UL	UL	UL	UL	R	UL
Aroclor-1248	1.0	UL	UL	UL	UL	R	UL
Aroclor-1254	1.0	UL	UL	UL	UL	R	UL
Aroclor-1260	1.0	UL	UL	UL	UL	R	UL
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00	1.00	2.00
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		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	9/23/92	9/23/92	9/23/92
Instrument Used for Analysis		3400-1	3400-1	3400-1	3400-1	3400-1	3400-1

INORGANIC ANALYSIS							
Vincent Uhl Sample Number			BPMMW3D01T	BPMMW3D01D	BPMMW3D01RT	BPMMW3D01RD	BPMMW3D01BT
Laboratory Sample Number			114937-01	114937-02	114937-03	114937-04	114937-05
Remarks			Total	Dissolved	Total	Dissolved	Total
Units			ug/L	ug/L	ug/L	ug/L	ug/L
INORGANIC ELEMENTS		Detection Limit (Aq)			Replicate of BPMMW3D01T	Replicate of BPMMW3D01D	Field Blank
Aluminum	P	12.8	423 J	16.3 B	407 J		41.1 J
Antimony	P	17.0	UL	UL	UL	UL	UL
Arsenic	F	1.3			2.9 J		
Barium	P	0.4	106	83.4	104	75.7	2.7
Beryllium	P	0.4					0.72
Cadmium	P	1.8	UL	1.9 B	UL	UL	2.7 J
Calcium	P	6.4	33,900	28,400	33,200	27,800	4730
Chromium	P	7.5		7.9			
Cobalt	P	3.7					
Copper	P	1.3	9.5 B	3.7 B	10.2 B	2.7 B	5.3
Iron	P	5.1	480 J	17.2 B	468 J	7.5 B	13.4
Lead	F	1.2	13.4	1.4 B	15.1	2.0 B	1.3
Magnesium	P	15.2	3460	3570	3940 J	4500 J	88.3
Manganese	P	1.0	23.7 J	UL	24.2 J	UL	4.5
Mercury	CV	0.2					
Nickel	P	9.8					
Potassium	P	32.6	111,000 J	94,700 J	105,000 J	83,700 J	322 J
Selenium	F	1.5	UL	UL	UL	UL	UL
Silver	P	1.7	UL	UL	UL	UL	3.3 J
Sodium	P	10.3	43,300	38,400	41,400	35,400	168
Thallium	F	0.4	0.63 B	0.60 B		0.45 B	
Vanadium	P	2.2	14.0 B	14.4 B	14.2 B	13.1 B	5.9
Zinc	P	0.9	47.1 B	7.1 B	53.8 B	3.8 B	83.3 J
Cyanide	C	10.0		NA		NA	

INORGANIC ANALYSIS								
Vincent Uhl Sample Number			BPMMW3S01T	BPMMW3S01D	BPMMW3DD01T	BPMMW3DD01D	BPMMW4S01T	BPMMW4D01T
Laboratory Sample Number			114937-06	114937-07	114937-08	114937-09	114937-10	114984-01
Remarks			Total	Dissolved	Total	Dissolved	Total	Total
Units			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
INORGANIC ELEMENTS		Detection Limit (Aq)						
Aluminum	P	12.8	3980 J	36.9 B	72.1 B	22.1 B	3940 J	226 J
Antimony	P	17.0	18.6 B	UL	UL	UL	30.2 B	R
Arsenic	F	1.3						3.2 B
Barium	P	0.4	114	24.3	189	178	274	85.0
Beryllium	P	0.4	0.63 B		0.80 B		0.88 B	
Cadmium	P	1.8	UL	2.6 B	2.9 B	2.5 B	2.6 B	
Calcium	P	6.4	57,000	51,500	55,900	50,900	122,000	58,400
Chromium	P	7.5						UL
Cobalt	P	3.7	7.6		15.4	5.1	6.6	
Copper	P	1.3	15.5 B	22.6 B	8.8 B	4.1 B	26 B	9.9 B
Iron	P	5.1	4910 J	27.7 B	3900 J	272	5870 J	19,300
Lead	F	1.2	9.4	1.8 B	2.3 B		7.0 B	3.2 B
Magnesium	P	15.2	19,800	16,700	17,200	16,800	51,000	17,700
Manganese	P	1.0	421	7.0 B	404	380	525	639
Mercury	CV	0.2						
Nickel	P	9.8						
Potassium	P	32.6	1840 J	1020 B	4950 J	4750 J	7770 J	7010
Selenium	F	1.5	UL	UL	UL	UL	UL	
Silver	P	1.7	2.8 B	3.2 B	4.8 B	3.2 B	4.4 B	2.7 B
Sodium	P	10.3	22,700	22,200	15,000	14,700	44,400	26,300
Thallium	F	0.4	UL	0.53 B	0.80 B	0.60 B	0.50 B	5.5 J
Vanadium	P	2.2	24.2 B	13.2 B	19.3 B	14.2 B	37.5	17.0 B
Zinc	P	0.9	74.8 B	49 B	101 B	20.9 B	44.1 B	53.8 B
Cyanide	C	10.0		NA		NA		

INORGANIC ANALYSIS								
Vincent Uhl Sample Number			BPMMW4D01D	BPMMW1S01T	BPMMW1D01T	BPMMW1D01D	BPMMW2S01T	BPMMW2D01T
Laboratory Sample Number			114984-02	114984-03	114984-04	114984-05	114984-06	114984-07
Remarks			Dissolved	Total	Total	Dissolved	Total	Total
Units			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
INORGANIC ELEMENTS		Detection Limit (Aq)						
Aluminum	P	12.8		11,300 J	1200 J		6820 J	482 J
Antimony	P	17.0	R	21.4 J	R	R	19.9 J	R
Arsenic	F	1.3	3.0 B	4.4 B	3.0 B	2.6 B	8.3 B	2.0 B
Barium	P	0.4	83.1	599	296	185	377	76.4
Beryllium	P	0.4		0.62 B			0.42 B	
Cadmium	P	1.8			3.1 B		2.9 B	2.1 B
Calcium	P	6.4	56,900	66,500	82,800	74,300	159,000	33,900
Chromium	P	7.5	UL	8.6 J	9.1 J	UL	8.1 J	UL
Cobalt	P	3.7		20.9			8.8	
Copper	P	1.3	2.9 B	53.5	28.3	3.4 B	44.9	25.2 B
Iron	P	5.1	3980	15,800	42,600	468	35,600	1100
Lead	F	1.2	2.3 B	9.9	13.8	1.9 B	47.2	14.1
Magnesium	P	15.2	18,500	26,300	23,800	22,900	53,600	7330
Manganese	P	1.0	516	1040	439	235	6540	116
Mercury	CV	0.2						
Nickel	P	9.8					13.9	
Potassium	P	32.6	7630	6890	19,500	18,900	7130	77,500
Selenium	F	1.5	1.7 J	UL			UL	2.1 J
Silver	P	1.7	UL	3.7 B	3.4 B	2.8 B	UL	2.3 B
Sodium	P	10.3	28,600	50,200	51,000	50,600	36,500	28,000
Thallium	F	0.4	UL	UL	UL	UL	0.60 J	0.77 J
Vanadium	P	2.2	9.6 B	52.9	27.6 B	14.4 B	49.4	16.1 B
Zinc	P	0.9	3.1 B	48.2 B	50.4 B	12.7 B	144 B	12.0 B
Cyanide	C	10.0	NA	NA		NA	NA	

INORGANIC ANALYSIS				
Vincent Uhl Sample Number			BPMMW8S01T	BPMMW8S01D
Laboratory Sample Number			114984-08	114984-09
Remarks			Total	Dissolved
Units			ug/L	ug/L
INORGANIC ELEMENTS		Detection Limit (Aq)		
Aluminum	P	12.8	6880 J	15.7 B
Antimony	P	17.0	18.3 J	18.0 J
Arsenic	F	1.3	3.8 B	2.6 B
Barium	P	0.4	394	168
Beryllium	P	0.4	0.89 B	
Cadmium	P	1.8	3.7 B	
Calcium	P	6.4	128,000	79,400
Chromium	P	7.5	7.6 J	UL
Cobalt	P	3.7	3.7	
Copper	P	1.3	35.4	
Iron	P	5.1	10,400	26.3 B
Lead	F	1.2	20.5	2.6 B
Magnesium	P	15.2	49,800	28,600
Manganese	P	1.0	1160	234
Mercury	CV	0.2		
Nickel	P	9.8	20.6	
Potassium	P	32.6	7920	5480
Selenium	F	1.5	1.8 J	
Silver	P	1.7	3.0 B	UL
Sodium	P	10.3	74,900	73,100
Thallium	F	0.4	0.47 J	UL
Vanadium	P	2.2	45.8	13.2 B
Zinc	P	0.9	79.4 B	17.4 B
Cyanide	C	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	Applicable Samples
1,1,2,2-tetrachloroethane	BPM-MW-3S-01 and BPM-MW-3DD-01
methylene chloride	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 Federal Register 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-d_5 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-d_4.

- 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-d_5 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 µg/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:

Sample	Fraction Analyzed	Replicate
BPM-MW-3D-01	V,S,PA	BPM-MW-3D-01R
BPM-MW-5S-01	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	RPD	Notes
methylene chloride	85 µg/L	94 µg/L	10.0%	1
acetone	20 µg/L	27 µg/L	29.8%	2
toluene	5 J µg/L	5 J µg/L	0%	1
delta-BHC	0.05 U µg/L	0.02 J µg/L	N.C.	2,3

Compound	Sample BPM-MW-3D-01	Replicate BPM-MW-3D-01R	RPD	Notes
heptachlor	0.05 U µg/L	0.033 J µg/L	N.C.	2,3
heptachlor epoxide	0.01 J µg/L	0.05 U µg/L	N.C.	2,3
dieldrin	0.04 J µg/L	0.04 J µg/L	0%	1
endosulfan II	0.10 U µg/L	0.02 J µg/L	N.C.	2,3
endosulfan sulfate	0.01 J µg/L	0.10 U µg/L	N.C.	2,3
alpha-chlordane	0.05 U µg/L	0.01 J µg/L	N.C.	2,3
gamma-chlordane	0.97 µg/L	0.83 µg/L	15.6%	1

Compound	Sample BPM-MW-5S-01	Sample BPM-MW-5S-01R	RPD	Notes
total-1,2-dichloroethene	23 µg/L	28 µg/L	19.6%	1
trichloroethene	25 µg/L	27 µg/L	7.7%	1
tetrachloroethene	64 µg/L	74 µg/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.
3 - 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.

Analyte	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 ($<5 \times$ 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 ($<5 \times$ 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 "not-detected" 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 ± 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 × CRDL, the acceptance criterion of ± 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%.

Analyte	Samples with Biased Detection Limits (Flagged "J")	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.

Sample	Analyte	Total Metal Concentration	Dissolved Metal Concentration	%D
BPM-MW-3D-01	magnesium	3460 µg/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 µg/L	7630 µg/L	8.8%
BPM-MW-4D-01	sodium	26,300 µg/L	28,600 µg/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 J µg/L	407 J µg/L	3.9%	1
arsenic	1.3 U µg/L	2.9 µg/L	NC	3,4
barium	106 µg/L	104 µg/L	1.9%	1
calcium	33,900 µg/L	33,200 µg/L	2.0%	1
iron	480 J µg/L	468 J µg/L	2.5%	1
lead	13.4 µg/L	15.1 µg/L	11.9%	1
magnesium	3460 µg/L	3940 µg/L	13.0%	1
manganese	23.7 J µg/L	24.2 J µg/L	2.1%	1
potassium	111,000 J µg/L	105,000 J µg/L	5.6%	1
sodium	43,300 µg/L	41,400 µg/L	4.5%	1

Analyte	BPM-MW-3D-01 (dissolved)	Replicate BPM-MW-3D-01R (dissolved)	Relative Percent Difference (RPD)	Notes
barium	83.4 μg/L	75.7 μg/L	9.7%	1
calcium	28,400 μg/L	27,800 μg/L	2.1%	1
chromium	7.9 μg/L	7.5 U μg/L	NC	2
magnesium	3570 μg/L	4500 μg/L	23.0%	2
potassium	94,700 μg/L	83,700 μg/L	12.3%	1
sodium	38,400 μg/L	35,400 μg/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.
1 - Acceptable precision; the RPD is within 20%.
2 - Acceptable precision; results are within ± the contract required detection limit (CRDL).
3 - 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	BPM-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	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE COMPOUNDS	Quantitation Limit									
Chloromethane	1						UL		UL	UL
Bromomethane	1						UL		UL	UL
Vinyl Chloride	1						UL		UL	UL
Chloroethane	1						UL		UL	UL
Methylene Chloride	1						UL		UL	UL
Acetone	1	R	R	R	R	R	R	R	R	R
Carbon Disulfide	1						UL		UL	UL
1,1-Dichloroethene	1						UL		UL	UL
1,1-Dichloroethane	1						UL		UL	UL
Total 1,2-Dichloroethene	1						UL		UL	UL
Chloroform	1						UL		UL	UL
1,2-Dichloroethane	1						UL		UL	UL
2-Butanone	1	R	R	R	R	R	R	R	R	R
1,1,1-Trichloroethane	1						UL		UL	UL
Carbon Tetrachloride	1						UL		UL	UL
Bromodichloromethane	1						UL		UL	UL
1,1,2,2-Tetrachloroethane	1						UL		UL	UL
1,2-Dichloropropane	1						UL		UL	UL
trans-1,3-Dichloropropene	1						UL		UL	UL
Trichloroethene	1	0.6 J		0.6 J			1.6 J	1.9 J	UL	UL
Dibromochloromethane	1						UL		UL	UL
1,1,2-Trichloroethane	1						UL		UL	UL
Benzene	1						UL		UL	UL
cis-1,3-Dichloropropene	1						UL		UL	UL
Bromoform	1						UL		UL	UL
2-Hexanone	1	R	R	R	R	R	R	R	R	R
4-Methyl-2-Pentanone	1	R	R	R	R	R	R	R	R	R

VOLATILE ORGANIC ANALYSIS										
Vincent Uhl Sample Number Laboratory Sample Number		BPM-RW15A-01 120908-01	BPM-RW02-01 120908-02	BPM-RW10A-01 120908-03	BPM-RW11-01 120908-04	BPM-RW07A-01 120908-05	BPM-RW09A-01 120908-06	BPM-RW09A-01DL 120908-06DL	BPM-RW01-01 120908-07	BPM-RW01-01RE 120908-07RE
Remarks								Dilution		Reanalysis
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE COMPOUNDS	Quantitation Limit									
Tetrachloroethene	1	8.7		13	3.5	4.6	31 J	32	UL	UL
Toluene	1						UL		UL	
Chlorobenzene	1						UL		UL	
Ethylbenzene	1						UL		UL	
Styrene	1						UL		UL	
Total Xylenes	1						UL		UL	
Methyltertbutyl Ether	1						UL		UL	
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.00
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	2/24/93
Date 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	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	MSD	MSD	MSD	MSD

VOLATILE ORGANIC ANALYSIS										
Vincent Uhl Sample Number Laboratory Sample Number		BPM-RW16-01 120908-08	BPM-RW16-01RE 120908-08RE	BPM-RW16-01R 120908-09	BPM-RW04-01 120908-10	BPM-RW12-01 120908-11	BPM-RW13-01 120908-12	TRIP BLANK 120908-13	BPM-RW17-01 120908-14	BPM-RW05A-01 120908-15
Remarks			Reanalysis	Replicate of BPM-RW16-01				Trip Blank		
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE COMPOUNDS	Quantitation Limit									
Chloromethane	1	UL	UL					UL		
Bromomethane	1	UL	UL					UL		
Vinyl Chloride	1	UL	UL					UL		
Chloroethane	1	UL	UL					UL		
Methylene Chloride	1	UL	UL					UL		
Acetone	1	R	R	R	R	R	R	2.4 J	1.2 B	R
Carbon Disulfide	1	UL	UL					UL		
1,1-Dichloroethene	1	UL	UL					UL		
1,1-Dichloroethane	1	UL	UL					UL		
Total 1,2-Dichloroethene	1	UL	UL					UL		
Chloroform	1	UL	UL					UL		
1,2-Dichloroethane	1	UL	UL					UL		
2-Butanone	1	R	R	R	R	R	R	R	R	R
1,1,1-Trichloroethane	1	UL	UL					UL		
Carbon Tetrachloride	1	UL	UL					UL		
Bromodichloromethane	1	UL	UL					UL		
1,1,2,2-Tetrachloroethane	1	UL	UL					UL		
1,2-Dichloropropane	1	UL	UL					UL		
trans-1,3-Dichloropropene	1	UL	UL					UL		
Trichloroethene	1	UL	UL					UL		0.9 J
Dibromochloromethane	1	UL	UL					UL		
1,1,2-Trichloroethane	1	UL	UL					UL		
Benzene	1	UL	UL					UL		
cis-1,3-Dichloropropene	1	UL	UL					UL		
Bromoform	1	UL	UL					UL		
2-Hexanone	1	R	R	R	R	R	R	R	R	R
4-Methyl-2-Pentanone	1	R	R	R	R	R	R	R	R	R

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 BLANK	BPM-RW17-01	BPM-RW05A-01
Laboratory Sample Number		120908-08	120908-08RE	120908-09	120908-10	120908-11	120908-12	120908-13	120908-14	120908-15
Remarks			Reanalysis	Replicate of BPM-RW16-01				Trip Blank		
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE COMPOUNDS	Quantitation Limit									
Tetrachloroethene	1	5.2 J	4.6 J	4.2		0.8 J		UL	1.1	16
Toluene	1	UL	UL					UL		
Chlorobenzene	1	UL	UL					UL		
Ethylbenzene	1	UL	UL					UL		
Styrene	1	UL	UL					UL		
Total Xylenes	1	UL	UL					UL		
Methyltertbutyl Ether	1	UL	UL					UL		
Quantitation Limit Multiplier		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Date of Sample Collection		2/24/93	2/24/93	2/24/93	2/24/93	2/24/93	2/24/93	2/23/93	2/24/93	2/24/93
Date 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	2/25/93
Date of Sample Analysis		2/27/93	3/2/93	3/2/93	2/27/93	2/27/93	2/27/93	2/26/93	3/3/93	3/1/93
Instrument Used for Analysis		MSD	MSD	MSD	MSD	MSD	MSD	MSD	MSD	MSD

VOLATILE ORGANIC ANALYSIS										
Vincent Uhl Sample Number		BPM-RW05A-01R	BPM-WELL2-01	BPM-WELL2-01DL	BPM-RW18-01	BPM-RW14-01	BPM-WELL1-01	BPM-WELL1-01DL	BPM-RW08A-01	BPM-RW08A-01DL
Laboratory Sample Number		120908-16	120908-17	120908-17DL	120908-18	120908-19	120908-20	120908-20DL	120908-21	120908-21DL
Remarks		Replicate of BPM-RW05A-01		Dilution				Dilution		Dilution
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE COMPOUNDS	Quantitation Limit									
Chloromethane	1			UL						UL
Bromomethane	1			UL						UL
Vinyl Chloride	1			UL						UL
Chloroethane	1			UL						UL
Methylene Chloride	1			UL						UL
Acetone	1	R	R	R	R	R	1.9 B	R	2.0 B	R
Carbon Disulfide	1			UL						UL
1,1-Dichloroethene	1			UL						UL
1,1-Dichloroethane	1			UL						UL
Total 1,2-Dichloroethene	1			UL			0.8 J			UL
Chloroform	1			UL						UL
1,2-Dichloroethane	1			UL						UL
2-Butanone	1	R	R	R	R	R	R	R	R	R
1,1,1-Trichloroethane	1			UL						UL
Carbon Tetrachloride	1			UL						UL
Bromodichloromethane	1			UL						UL
1,1,2,2-Tetrachloroethane	1			UL						UL
1,2-Dichloropropane	1			UL						UL
trans-1,3-Dichloropropene	1			UL						UL
Trichloroethene	1	0.8 J	1.9	2.5 J			6.5	6.3	1.8	1.8 J
Dibromochloromethane	1			UL						UL
1,1,2-Trichloroethane	1			UL						UL
Benzene	1			UL						UL
cis-1,3-Dichloropropene	1			UL						UL
Bromoform	1			UL						UL
2-Hexanone	1	R	R	R	R	R	R	R	R	R
4-Methyl-2-Pentanone	1	R	R	R	R	R	R	R	R	R

VOLATILE ORGANIC ANALYSIS										
Vincent Uhl Sample Number		BPM-RW05A-01R	BPM-WELL2-01	BPM-WELL2-01DL	BPM-RW18-01	BPM-RW14-01	BPM-WELL1-01	BPM-WELL1-01DL	BPM-RW08A-01	BPM-RW08A-01DL
Laboratory Sample Number		120908-16	120908-17	120908-17DL	120908-18	120908-19	120908-20	120908-20DL	120908-21	120908-21DL
Remarks		Replicate of BPM-RW05A-01		Dilution				Dilution		Dilution
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE COMPOUNDS	Quantitation Limit									
Tetrachloroethene	1	13	30 J	39 J		1.8	100 J	93	33 J	33 J
Toluene	1			UL						UL
Chlorobenzene	1			UL						UL
Ethylbenzene	1			UL						UL
Styrene	1			UL						UL
Total Xylenes	1			UL						UL
Methyltertbutyl Ether	1			UL						UL
Quantitation Limit Multiplier		1.00	1.00	2.00	1.00	1.00	1.00	10.00	1.00	2.00
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	2/24/93
Date 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	2/25/93
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	3/3/93
Instrument Used for Analysis		MSD	MSD	MSD	MSD	MSD	MSD	MSD	MSD	MSD

VOLATILE ORGANIC ANALYSIS		
Vincent Uhl Sample Number		BPM-RW03-01
Laboratory Sample Number		120908-22
Remarks		
Units		ug/L
VOLATILE COMPOUNDS	Quantitation Limit	
Chloromethane	1	
Bromomethane	1	
Vinyl Chloride	1	
Chloroethane	1	
Methylene Chloride	1	
Acetone	1	R
Carbon Disulfide	1	
1,1-Dichloroethene	1	
1,1-Dichloroethane	1	
Total 1,2-Dichloroethene	1	
Chloroform	1	
1,2-Dichloroethane	1	
2-Butanone	1	R
1,1,1-Trichloroethane	1	
Carbon Tetrachloride	1	
Bromodichloromethane	1	
1,1,2,2-Tetrachloroethane	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	1	R
4-Methyl-2-Pentanone	1	R

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

TENTATIVELY IDENTIFIED COMPOUNDS									
Vincent Uhl Sample Number	BPM-RW15A01	BPM-RW02-01	BPM-RW10A-01	BPM-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		Reanlaysis
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE CONSTITUENTS									
Unknown		2 J		2 J				1 J	1 J

TENTATIVELY IDENTIFIED COMPOUNDS									
Vincent Uhl Sample Number	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
Laboratory Sample Number	120908-08	120908-08RE	120908-09	120908-10	120908-11	120908-12	120908-13	120908-14	120908-15
Remarks		Reanlaysis	Replicate of BPM-RW16-01				Trip Blank		
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE CONSTITUENTS									
Unknown		3 J	6 J	3 J	5 J	1 J			

TENTATIVELY IDENTIFIED COMPOUNDS									
Vincent Uhl Sample Number	BPM-RW05A-01R	BPM-WELL2-01	BPM-WELL2-01DL	BPM-RW18-01	BPM-RW14-01	BPM-WELL1-01	BPM-WELL1-01DL	BPM-RW08A-01	BPM-RW08A-01DL
Laboratory Sample Number	120908-16	120908-17	120908-17DL	120908-18	120908-19	120908-20	120908-20DL	120908-21	120908-21DL
Remarks	Replicate of BPM-RW05A-01		Dilution				Dilution		Dilution
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE CONSTITUENTS									
Unknown		2 J			4 J	3 J		4 J	

TENTATIVELY IDENTIFIED COMPOUNDS	
Vincent Uhl Sample Number	BPM-RW03-01
Laboratory Sample Number	120908-22
Remarks	
Units	ug/L
VOLATILE CONSTITUENTS	
Unknown	1 J

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-RW01-01, 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:

Sample	Replicate
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	RPD	Notes
trichloroethene	0.9 J μg/L	0.8 J μg/L	11.8%	1
tetrachloroethene	13 μg/L	16 μg/L	20.7%	2

Compound	Sample BPM-RW16-501	Replicate BPM-RW16-01R	RPD	Notes
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.

EnviroTest Laboratories Inc.

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:

1. 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

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-CW23-01RDL	BPM-CW25-01	BPM-CW19-01
Laboratory Sample Number		121405-01	121405-01DL	121405-02	121405-02DL	121405-03	121405-03DL	121405-04	121405-05
Remarks			Dilution		Dilution	Replicate of BPM-CW23-01	Dilution		
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE COMPOUNDS	Quantitation Limit						Replicate of BPM-CW23-01		
Chloromethane	1						UL		
Bromomethane	1						UL		
Vinyl Chloride	1						UL		
Chloroethane	1						UL		
Methylene Chloride	2						UL		
Acetone	5	R	R	R	R	R	R	R	R
Carbon Disulfide	1						UL		
1,1-Dichloroethene	1						UL		
1,1-Dichloroethane	1						UL		
Total 1,2-Dichloroethene	1						UL		
Chloroform	1						UL		
1,2-Dichloroethane	1						UL		
2-Butanone	5	R	R	R	R	R	R	R	R
1,1,1-Trichloroethane	1						UL		
Carbon Tetrachloride	1						UL		
Bromodichloromethane	1						UL		
1,1,2,2-Tetrachloroethane	1						UL		
1,2-Dichloropropane	1						UL		
trans-1,3-Dichloropropene	1						UL		
Trichloroethene	1	1		0.7 J		0.9 J	UL		
Dibromochloromethane	1						UL		
1,1,2-Trichloroethane	1						UL		
Benzene	1						UL		
cis-1,3-Dichloropropene	1						UL		
Bromoform	1						UL		
2-Hexanone	5	R	R	R	R	R	R	R	R
4-Methyl-2-Pentanone	5	R	R	R	R	R	R	R	R

VOLATILE ORGANIC ANALYSIS									
Vincent Uhl Sample Number		BPM-CW20-01	BPM-CW20-01DL	BPM-CW23-01	BPM-CW23-01DL	BPM-CW23-01R	BPM-CW23-01RDL	BPM-CW25-01	BPM-CW19-01
Laboratory Sample Number		121405-01	121405-01DL	121405-02	121405-02DL	121405-03	121405-03DL	121405-04	121405-05
Remarks			Dilution		Dilution	Replicate of BPM-CW23-01	Dilution		
Units		ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE COMPOUNDS	Quantitation Limit						Replicate of BPM-CW23-01		
Tetrachloroethene	1	48 J	47	40 J	45	40 J	46 J		
Toluene	1						UL		
Chlorobenzene	1						UL		
Ethylbenzene	1						UL		
Styrene	1						UL		
Total Xylenes	1						UL		
Methyltertbutyl Ether	1	46 J	44	1		2	UL		15
Quantitation Limit Multiplier		1.00	5.00	1.00	2.00	1.00	2.00	1.00	1.00
Date of Sample Collection		3/11/93	3/11/93	3/11/93	3/11/93	3/11/93	3/11/93	3/11/93	3/11/93
Date Sample Received by Laboratory		3/11/93	3/11/93	3/11/93	3/11/93	3/11/93	3/11/93	3/11/93	3/11/93
Date of Sample Analysis		3/15/93	3/15/93	3/15/93	3/15/93	3/12/93	3/15/93	3/12/93	3/12/92
Instrument Used for Analysis		MSD	MSD	MSD	MSD	MSD	MSD	MSD	MSD

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		ug/L	ug/L	ug/L
VOLATILE COMPOUNDS	Quantitation Limit			
Chloromethane	1			
Bromomethane	1			
Vinyl Chloride	1			
Chloroethane	1			
Methylene Chloride	2			
Acetone	5	R	R	R
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	R	R	R
1,1,1-Trichloroethane	1			
Carbon Tetrachloride	1			
Bromodichloromethane	1			
1,1,2,2-Tetrachloroethane	1			
1,2-Dichloropropane	1			
trans-1,3-Dichloropropene	1			
Trichloroethene	1	3	4 J	
Dibromochloromethane	1			
1,1,2-Trichloroethane	1			
Benzene	1			
cis-1,3-Dichloropropene	1			
Bromoform	1			
2-Hexanone	5	R	R	R
4-Methyl-2-Pentanone	5	R	R	R

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		ug/L	ug/L	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 J	
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		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

TENTATIVELY IDENTIFIED COMPOUNDS									
Vincent Uhl Sample Number	BCM-CW20-01	BPM-CW20-01D	BPM-CW23-01	BPM-CW23-01D	BPM-CW23-01R	PM-CW23-01RD	BPM-CW25-01	BPM-CW19-01	BPM-CW21-01
Laboratory Sample Number	121405-01	121405-01DL	121405-02	121405-02DL	121405-03	121405-03DL	121405-04	121405-05	121405-06
Remarks		Dilution		Dilution	Replicate of BPM-CW23-01	Dilution			
Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
VOLATILE CONSTITUENTS									
2,2,4-Trimethylpentane	1 J								

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

SAMPLES COLLECTED APRIL 22, 1993

VOLATILE ORGANIC ANALYSIS - DRY-WEIGHT 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 VOLATILE COMPOUNDS	Quantitation Limit		
Chloromethane	1		
Bromomethane	1		
Vinyl Chloride	1		
Chloroethane	1		
Methylene Chloride	2		
Acetone	5	R	R
Carbon Disulfide	1		
1,1-Dichloroethene	1		
1,1-Dichloroethane	1		
Total 1,2-Dichlorethene	1		
Chloroform	1		
1,2-Dichloroethane	1		
2-Butanone	5	R	R
1,1,1-Trichloroethane	1		
Carbon Tetrachloride	1		
Bromodichloromethane	1		
1,1,2,2-Tetrachloroethane	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	R	R
4-Methyl-2-Pentanone	5	R	R
Tetrachloroethene	1		
Toluene	1		
Bromochloromethane	1		

VOLATILE ORGANIC ANALYSIS - DRY-WEIGHT 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 VOLATILE COMPOUNDS	Quantitation 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	µg/L	µg/L
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	RPD	Notes
trichloroethene	0.7 J µg/L	0.9 J µg/L	25%	2

Compound	Sample BPM-CW23-01	Replicate BPM-CW23-01R	RPD	Notes
tetrachloroethene (dilution)	45 µg/L	46 µg/L	2.2%	1,3

NOTES:

J - This result is less than the CRQL and is considered estimated.
1 - 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												
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 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	122481-01
Remarks			Medium	Medium			Medium				
Units		µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Percent Solids		89%	89%	89%	91%	88%	88%	90%	87%	88%	92%
VOLATILE COMPOUNDS	Quantitation Limit										
Chloromethane	10										
Bromomethane	10										
Vinyl Chloride	10									UL	UL
Chloroethane	10					2 J				UL	UL
Methylene Chloride	10										
Acetone	10	3 J	R	R	UL	UL	R	7 J	7 J	14	
Carbon Disulfide	10										
1,1-Dichloroethene	10								UL		
1,1-Dichloroethane	10										
Total 1,2-Dichlorethene	10				7 J						
Chloroform	10										
1,2-Dichloroethane	10										
2-Butanone	10		R	R	UL	UL	R	UL			
1,1,1-Trichloroethane	10									1 J	
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 J	2 J					
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	660,000	27	1400 J	12,000	26	8 B	2 B	3 B
Toluene	10	7 J									

VOLATILE ORGANIC ANALYSIS - DRY-WEIGHT 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 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	122481-01
Remarks			Medium	Medium			Medium				
Units		µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Percent Solids		89%	89%	89%	91%	88%	88%	90%	87%	88%	92%
VOLATILE COMPOUNDS	Quantitation Limit										
Chlorobenzene	10	3 J									
Ethylbenzene	10	6 J									
Styrene	10										
Total Xylenes	10	5 J				3 J					
Methyl tert butyl ether	10										
Quantitation Limit Multiplier		1.1	11,000	3700	1.1	1.1	110	1.1	1.1	1.1	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								
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	122481-05	122481-06	122481-07	122481-10
Remarks								Field Blank
Units		µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/L
Percent Solids		90%	90%	89%	91%	91%	91%	NA
VOLATILE COMPOUNDS	Quantitation Limit							
Chloromethane	10							
Bromomethane	10							
Vinyl Chloride	10	UL						UL
Chloroethane	10	UL						UL
Methylene Chloride	10							
Acetone	10		UL	33 J	UL	UL	23 J	
Carbon Disulfide	10							
1,1-Dichloroethene	10		UL	UL	UL	UL	UL	
1,1-Dichloroethane	10							
Total 1,2-Dichlorethene	10							
Chloroform	10							
1,2-Dichloroethane	10							
2-Butanone	10							
1,1,1-Trichloroethane	10		2 J	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	10							
Tetrachloroethene	10	4 B	4 B	5 B	7 B	7 B		
Toluene	10							

VOLATILE ORGANIC ANALYSIS - DRY-WEIGHT 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	122481-05	122481-06	122481-07	122481-10
Remarks								Field Blank
Units		µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/L
Percent Solids		90%	90%	89%	91%	91%	91%	NA
VOLATILE COMPOUNDS	Quantitation Limit							
Chlorobenzene	10							
Ethylbenzene	10							
Styrene	10							
Total Xylenes	10							
Methyl tert butyl ether	10							
Quantitation Limit Multiplier		1.1	1.1	1.1	1.1	1.1	1.1	1.0
Date of Sample Collection		04/14/93	04/14/93	04/14/93	04/14/93	04/14/93	04/14/93	04/14/93
Date Sample Received by Laboratory		04/14/93	04/14/93	04/14/93	04/14/93	04/14/93	04/14/93	04/14/93
Date of Sample Analysis		04/20/93	04/21/93	04/21/93	04/21/93	04/21/93	04/21/93	04/20/93
Instrument Used for Analysis		MS1	MS1	MS1	MS1	MS1	MS1	MS1

TENTATIVELY IDENTIFIED COMPOUNDS										
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 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	122481-01
Remarks		Medium	Medium			Medium				
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Percent Solids	89%	89%	89%	91%	88%	88%	90%	87%	88%	92%
VOLATILE CONSTITUENTS										
Unknown(s)										

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	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	122481-05	122481-06	122481-07	122481-10
Remarks							Field Blank
Units	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/L
Percent Solids	90%	90%	89%	91%	91%	91%	NA
VOLATILE CONSTITUENTS							
Unknown(s)		6 J	1 J	15 (2) J	8 J		

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	µg/Kg	µg/Kg	µg/L
Percent Solids			89%	90%	88%	NA
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)	Quantitation 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-Methylphenol	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	10	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	25	800				
Dimethylphthalate	10	330				
Acenaphthylene	10	330				

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	µg/Kg	µg/Kg	µg/L
Percent Solids			89%	90%	88%	NA
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)	Quantitation Limit (Sol)				
2,6-Dinitrotoluene	10	330				
3-Nitroaniline	25	800	UL	UL		UL
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	25	800				
N-Nitrosodiphenylamine	10	330				
4-Bromophenyl-phenylether	10	330				
Hexachlorobenzene	10	330				
Pentachlorophenol	25	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	UL
Butylbenzylphthalate	10	330				
3,3'-Dichlorobenzidine	10	330	UL	UL		UL
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				

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	µg/Kg	µg/Kg	µg/L
Percent Solids			89%	90%	88%	NA
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)	Quantitation Limit (Sol)				
Benzo(a)pyrene	10	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 Sample Analysis			04/19/93	04/19/93	04/20/93	04/19/93
Instrument Used for Analysis		GCMSD	#1	#1	#1	#1

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	µg/Kg	µg/Kg	µg/Kg	µg/L
Percent Solids	89%	90%	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 J
Blank Contaminants	450 (2) R	330 (2) R	226 (2) R	15 (2) R
Unknown Alkanes	220 (2) J			

EXTRACTABLE ORGANIC ANALYSIS- DRY-WEIGHT BASIS						
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			µg/Kg	µg/Kg	µg/Kg	µg/L
Percent Solids			89%	90%	88%	NA
PESTICIDES/AROCLORS	Quantitation Limit (Aq)	Quantitation Limit (Sol)				
alpha-BHC	0.05	1.7	UL		UL	
beta-BHC	0.05	1.7	UL		UL	
delta-BHC	0.05	1.7	UL		UL	
gamma-BHC (Lindane)	0.05	1.7	UL		UL	
Heptachlor	0.05	1.7	UL		UL	
Aldrin	0.05	1.7	UL		UL	
Heptachlor Epoxide	0.05	1.7	UL		UL	
Endosulfan I	0.05	1.7	0.33 J		UL	
Dieldrin	0.10	3.3	0.92 J		UL	
4,4'-DDE	0.10	3.3	3.7 J		UL	
Endrin	0.10	3.3	0.37 J		UL	
Endosulfan II	0.10	3.3	1.6 B	0.26 B	0.34 B	
4,4'-DDD	0.10	3.3	3.5 J		UL	
Endosulfan Sulfate	0.10	3.3	8.8 J	2.2 B	2.6 B	0.034 J
4,4'-DDT	0.10	3.3	42 J		0.83 J	
Methoxychlor	0.50	17	UL		UL	
Endrin Ketone	0.10	3.3	UL		UL	
Endrin Aldehyde	0.10	3.3	UL		UL	
alpha-Chlordane	0.05	1.7	0.77 J		0.32 J	
gamma-Chlordane	0.05	1.7	0.65 J		0.25 J	

EXTRACTABLE ORGANIC ANALYSIS- DRY-WEIGHT BASIS						
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			µg/Kg	µg/Kg	µg/Kg	µg/L
Percent Solids			89%	90%	88%	NA
PESTICIDES/AROCLORS	Quantitation Limit (Aq)	Quantitation Limit (Sol)				
Toxaphene	5.00	170	UL		UL	
Aroclor-1016	1.0	33	UL		UL	
Aroclor-1221	2.0	67	UL		UL	
Aroclor-1232	1.0	33	UL		UL	
Aroclor-1242	1.0	33	UL		UL	
Aroclor-1248	1.0	33	UL		UL	
Aroclor-1254	1.0	33	UL		UL	
Aroclor-1260	1.0	33	UL		UL	
Quantitation 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	04/16/93
Date of Sample Analysis			05/13/93	05/13/93	05/13/93	05/13/93
Instrument Used for Analysis			3600	3600	3600	3600

INORGANIC - ANALYTICAL RESULTS - DRY-WEIGHT BASIS						
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	122481-010
Remarks						Field Blank
Units			mg/Kg	mg/Kg	mg/Kg	µg/L
Percent Solids			89.4%	90.3%	88.0%	NA
INORGANIC ELEMENTS		Detection Limit				
Aluminum	P	15.7	1890 J	1730 J	2610 J	22.2 J
Antimony	P	26.4	UL	UL	UL	UL
Arsenic	F	1.2				
Barium	P	0.7	36.3 J	44 J	60.8 J	
Beryllium	P	0.2	0.14 B	0.12 B	0.11 B	
Cadmium	P	2.1	1.3 B	1.7 B	2.2 J	UL
Calcium	P	18.9	2050 J	2580 J	2650 J	92 J
Chromium	P	9.8	3.9 J	UL	5.9 J	UL
Cobalt	P	15.5				
Copper	P	1.1	4.3	3.8	4.8	5.8
Iron	P	5.4	1750 J	1870 J	3430 J	25.1 J
Lead	F	0.9	4.1	2.4	3.0	
Magnesium	P	28.7	908 J	1250 J	1740 J	
Manganese	P	0.4	120 J	98 J	202 J	1.3 J
Mercury	CV	0.2				
Nickel	P	13.2			5.7 B	16.8 J
Potassium	P	32.7	197	331	133	
Selenium	F	1.2	UL	UL	UL	UL
Silver	P	1.3	0.59 B	0.42 B		
Sodium	P	23.2	161 B	115 B	396 J	193 J
Thallium	F	0.4	UL	0.16 B	UL	UL
Vanadium	P	1.7	5.2	6.6	9.9	
Zinc	P	1.0	11.7 B	11.3 B	17.1 J	12.5 J
Cyanide	A	10				
Date Collected			04/12/93	04/14/93	04/14/93	04/14/93
Date Received			04/13/93	04/15/93	04/15/93	04/15/93

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.

Compound	Samples With Estimated Results ("J")	Samples With Biased 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-d_8 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.

Analyte	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-TB4/0-6ft
nickel	BPM-TB6/0-3ft
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%).

Analyte	Samples With Estimated Results ("J")	Samples With 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.

Analyte	Samples With Estimated Results ("J")
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)

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-2S-02	MW-2D-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		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
VOLATILE COMPOUNDS	Quantitation Limit											
Chloromethane	10											
Bromomethane	10											
Vinyl Chloride	10											
Chloroethane	10											
Methylene Chloride	10			1 J								
Acetone	10	R	R	R	R	R	R	R	R	9 J	R	R
Carbon Disulfide	10				3 J					1 J		
1,1-Dichloroethene	10											
1,1-Dichloroethane	10											
Total 1,2-Dichloroethene	10	2 J		55	61							
Chloroform	10			1 J								
1,2-Dichloroethane	10											
2-Butanone	10	R	R	R	R	R	R	R	R	R	R	R
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 J		180	190							
Dibromochloromethane	10											
1,1,2-Trichloroethane	10											
Benzene	10			2 J	3 J							
cis-1,3-Dichloropropene	10											
Bromoform	10											
2-Hexanone	10										UL	
4-Methyl-2-Pentanone	10											
Tetrachloroethene	10	7 J		260 J	300							
Toluene	10							2 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-2S-02	MW-2D-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		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
VOLATILE COMPOUNDS	Quantitation Limit											
Chlorobenzene	10											
Ethylbenzene	10											
Styrene	10											
Methyl tert-butyl Ether	10					3 J						
Total Xylenes	10											
Quantitation Limit Multiplier		1.0	1.0	1.0	2.0	1.0	1.0	1.0	1.0	1.0	1.0	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	MSD	MSD	MSD	MSD

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	60-06	60-07	60-08	60-09	60-09DL
Remarks				Trip Blank		Dilution Analysis of BPM-MW-9S-01
Units		µg/L	µg/L	µg/L	µg/L	µg/L
VOLATILE COMPOUNDS	Quantitation Limit					
Chloromethane	10					
Bromomethane	10					
Vinyl Chloride	10					
Chloroethane	10					
Methylene Chloride	10					
Acetone	10	R	R	R	R	R
Carbon Disulfide	10					
1,1-Dichloroethene	10					
1,1-Dichloroethane	10					
Total 1,2-Dichloroethene	10				20	20 J
Chloroform	10					
1,2-Dichloroethane	10					
2-Butanone	10	R	R	R	R	R
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 J
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				640 J	850
Toluene	10					

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	60-06	60-07	60-08	60-09	60-09DL
Remarks				Trip Blank		Dilution Analysis of BPM-MW-9S-01
Units		µg/L	µg/L	µg/L	µg/L	µg/L
VOLATILE COMPOUNDS	Quantitation Limit					
Chlorobenzene	10					
Ethylbenzene	10					
Styrene	10					
Methyl tert-butyl Ether	10	4 J				
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

VOLATILE ORGANIC ANALYSIS													
Vincent Sample Number	BPM-	MW-10S-1	MW-1S-02	MW-1D-02	MW-9D-01	MW-7S-02	MW-10D-01	MW-5D-01	MW-5D-01R	MW-5D-01B	MW-7D-01	MW-7D-01R	Trip Blank
Laboratory Sample Number	123752-	01	02	03	04	05	06	07	08	09	10	11	12
Remarks										Field Blank			Trip Blank
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
VOLATILE COMPOUNDS	Quantitation Limit								Field Replicate of MW-5D-01			Field Replicate of MW-7D-01	
Chloromethane	10					UL	UL	UL	UL	UL	UL	UL	
Bromomethane	10												
Vinyl Chloride	10												
Chloroethane	10					UL	UL			UL	UL	UL	
Methylene Chloride	10				1 B					2 J			
Acetone	10	R	R	R	R	R	R	11 J	18 J	R	R	R	R
Carbon Disulfide	10						1 J						
1,1-Dichloroethene	10												
1,1-Dichloroethane	10												
Total 1,2-Dichloroethene	10				10		1 J						
Chloroform	10												
1,2-Dichloroethane	10												
2-Butanone	10							UL	UL				
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				10		1 J	57	57				
Dibromochloromethane	10												
1,1,2-Trichloroethane	10												
Benzene	10												
cis-1,3-Dichloropropene	10												
Bromoform	10												
2-Hexanone	10							UL	UL				
4-Methyl-2-Pentanone	10							UL	UL				
Tetrachloroethene	10			2 J	290 J	30	37	780 J	790 J		3 J	2 J	
Toluene	10							6 J	5 J				
Chlorobenzene	10												

VOLATILE ORGANIC ANALYSIS													
Vincent Sample Number	BPM-	MW-10S-1	MW-1S-02	MW-1D-02	MW-9D-01	MW-7S-02	MW-10D-01	MW-5D-01	MW-5D-01R	MW-5D-01B	MW-7D-01	MW-7D-01R	Trip Blank
Laboratory Sample Number	123752-	01	02	03	04	05	06	07	08	09	10	11	12
Remarks										Field Blank			Trip Blank
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
VOLATILE COMPOUNDS	Quantitation Limit								Field Replicate of MW-5D-01			Field Replicate of MW-7D-01	
Ethylbenzene	10												
Styrene	10												
Methyl tert-butyl Ether	10	15	3 J	1 J	3 J		3 J						
Total Xylenes	10							2 B					
Quantitation Limit Multiplier		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	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		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 ORGANIC ANALYSIS				
Vincent Sample Number	BPM-	MW-9D-01DL	MW-5D-01DL	MW-5D-01RDL
Laboratory Sample Number	123752-	04DL	07DL	08DL
Remarks				
Units		µg/L	µg/L	µg/L
VOLATILE COMPOUNDS	Quantitation Limit			
Chloromethane	10	UL	UL	UL
Bromomethane	10			
Vinyl Chloride	10			
Chloroethane	10	UL	UL	UL
Methylene Chloride	10			
Acetone	10	R	R	R
Carbon Disulfide	10			
1,1-Dichloroethene	10			
1,1-Dichloroethane	10			
Total 1,2-Dichloroethene	10	7 J		
Chloroform	10			
1,2-Dichloroethane	10			
2-Butanone	10			
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	7 J	40 J	36 J
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	300	910	840
Toluene	10			
Chlorobenzene	10			

VOLATILE ORGANIC ANALYSIS				
Vincent Sample Number	BPM-	MW-9D-01DL	MW-5D-01DL	MW-5D-01RDL
Laboratory Sample Number	123752-	04DL	07DL	08DL
Remarks				
Units		µg/L	µg/L	µg/L
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		5/21/93	5/21/93	5/21/93
Date of Sample Analysis		5/25/93	5/25/93	5/25/93
Instrument Used for Analysis		MS1	MS1	MS1

TENTATIVELY IDENTIFIED COMPOUNDS												
Vincent Sample Number	BPM-	MW-3S-02	MW-3S-02B	MW-5S-02	MW-6S-02	TB	MW-3D-02	MW-3DD-02	MW-2S-02	MW-2D-02	MW-8S-02	MW-4S-02
Laboratory Sample Number	1236	08-01	08-02	08-03	08-04	08-05	60-01	60-02	60-03	60-04	60-05	60-06
Remarks			Field Blank			Trip Blank						
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/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-	MW-4D-02	Trip Blank	MW-9S-01
Laboratory Sample Number	1236	60-07	60-08	60-09
Remarks				
Units		µg/L	µg/L	µg/L
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													
Vincent Sample Number	BPM-	MW-10S-1	MW-1S-02	MW-1D-02	MW-9D-01	MW-7S-02	MW-10D-01	MW-5D-01	MW-5D-01R	MW-5D-01B	MW-7D-01	MW-7D-01R	Trip Blank
Laboratory Sample Number	123752-	01	02	03	04	05	06	07	08	09	10	11	12
Remarks										Field Blank			Trip Blank
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
COMPOUNDS									Field Replicate of MW-5D-01			Field Duplicate of MW-7D-01	
VOLATILE COMPONENTS			-	-	-	-	-	-	-	-	-	-	-
Unknown		6 J											

TENTATIVELY IDENTIFIED COMPOUNDS				
Vincent Sample Number	BPM-	MW-9D-01DL	MW-5D-01DL	MW-5D-01RDL
Laboratory Sample Number	123752-	04DL	07DL	08DL
Remarks				
Units		µg/L	µg/L	µg/L
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-01DL, 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-01RDL, BPM-MW-5D-01B, BPM-MW-7D-01 and BPM-MW-7D-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:

Sample	Replicate
BPM-MW-5D-01	BPM-MW-5D-01R
BPM-MW-7D-01	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	RPD	Notes
Acetone	11 J µg/L	18 J µg/L	48.3%	2
Trichloroethene	57 µg/L	57 µg/L	0%	1
Tetrachloroethene	780 J µg/L	790 J µg/L	1.3%	1
Toluene	6 J µg/L	5 J µg/L	1.8%	1
Total xylenes	2 B µg/L	ND	200%	2

Compound	Sample BPM-MW-7D-01	Replicate BPM-MW-7D-01R	RPD	Notes
Tetrachloroethene	3 J µg/L	2 J µg/L	40%	2

NOTES:

B	-	This result is considered qualitatively questionable.
J	-	This result is considered estimated.
1	-	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 - ANALYTICAL RESULTS

Vincent Uhl Sample Number		BPM-SW-04	BPM-SW-02 (OF)	BPM-SW-03	BPM-SW-01	BPM-SW-04R	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		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
VOLATILE COMPOUNDS	Quantitation Limit					Field Replicate of BPM-SW-04	Field Blank	
Chloromethane	10							
Bromomethane	10							
Vinyl Chloride	10							
Chloroethane	10							
Methylene Chloride	10		1 B	1 B			1 J	
Acetone	10	R	9 J	R	R	R	R	R
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	R	R	R	R	R	R	R
1,1,1-Trichloroethane	10							
Carbon Tetrachloride	10							
Bromodichloromethane	10		46	31				
1,1,2,2-Tetrachloroethane	10							
1,2-Dichloropropane	10							
trans-1,3-Dichloropropene	10							
Trichloroethene	10							
Dibromochloromethane	10		11	8 J				
1,1,2-Trichloroethane	10							
Benzene	10							

VOLATILE ORGANIC ANALYSIS - ANALYTICAL RESULTS

Vincent Uhl Sample Number		BPM-SW-04	BPM-SW-02 (OF)	BPM-SW-03	BPM-SW-01	BPM-SW-04R	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		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
VOLATILE COMPOUNDS	Quantitation Limit					Field Replicate of BPM-SW-04	Field Blank	
cis-1,3-Dichloropropene	10							
Bromoform	10							
2-Hexanone	10							
4-Methyl-2-Pentanone	10							
Tetrachloroethene	10	1 J				1 J		
Toluene	10			2 J				
Chlorobenzene	10							
Ethylbenzene	10							
Styrene	10							
Total Xylenes	10	7 J				6 J		
Methyl tert-butyl Ether	10	18				17		
Quantitation Limit Multiplier		1.0	1.0	1.0	1.0	1.0	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	MSD	MSD	MSD	MSD

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS

Vincent Uhl Sample Number		BPM-SW-04	BPM-SW-02(OF)	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	µg/L	µg/L	µg/L	µg/L	µg/L
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)					Field Replicate of BPM-SW-04	Field 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

Vincent Uhl Sample Number		BPM-SW-04	BPM-SW-02(OF)	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	µg/L	µg/L	µg/L	µg/L	µg/L
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)					Field Replicate of BPM-SW-04	Field Blank
Hexachlorocyclopentadiene	10						
2,4,6-Trichlorophenol	10						
2,4,5-Trichlorophenol	25						
2-Chloronaphthalene	10						
2-Nitroaniline	25						
Dimethylphthalate	10						
Acenaphthylene	10						
2,6-Dinitrotoluene	10						
3'-Nitroaniline	25						
Acenaphthene	10						
2,4-Dinitrophenol	25						
4-Nitrophenol	25						
Dibenzofuran	10						
2,4-Dinitrotoluene	10						
Diethylphthalate	10						
4-Chlorophenyl-phenylether	10						
Fluorene	10						
4-Nitroanaline	25						
4,6-Dinitro-2-Methylphenol	25						
N-Nitrosodiphenylamine	10						
4-Bromophenyl-phenylether	10						
Hexachlorobenzene	10						
Pentachlorophenol	25						
Phenanthrene	10						

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS								page 5
Vincent Uhl Sample Number			BPM-SW-04	BPM-SW-02(OF)	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	µg/L	µg/L	µg/L	µg/L	µg/L
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)						Field Replicate of BPM-SW-04	Field Blank
Anthracene	10							
Carbazole	10							
Di-n-Butylphthalate	10							
Fluoranthene	10							
Pyrene	10							
Butylbenzylphthalate	10							
3,3'-Dichlorobenzidine	10							
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	6/7/93	6/7/93	6/7/93	6/7/93
Date of Sample Analysis			6/12/93	6/12/93	6/12/93	6/12/93	6/12/93	6/12/93
Instrument Used for Analysis			5972	5972	5972	5972	5972	5972

CLP - TENTATIVELY IDENTIFIED COMPOUNDS - ESTIMATED CONCENTRATIONS								page 6
Vincent Uhl Sample Number		BPM-SW-04	BPM-SW-02 (DF)	BPM-SW-03	BPM-SW-01	BPM-SW-04R	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		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
COMPOUNDS						Field Replicate of BPM-SW-04	Field 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 J				5 J		
2,3-Dihydro-4-methyl-1H-Indene		5 J						
SEMIVOLATILE COMPONENTS								N/A
4-Hydroxy-4-methyl 2-Pentanone		16 R	10 R	12 R	17 R	22 R	13 R	
Ethylbenzene (VOA Target)		2 J				2 J		
Unknown (Number of Peaks)		8 J	33 (5) J	21 (5) J	3 J	2 J		
Triphenylphosphoranyl Formaldehyde		6 J	4 J		6 J			
1-Chloro-2-(1-propenyl)cyclopropane			13 J					
Trans-1,2-dichlorocyclohexane			38 J					
2-Chlorocyclohexanol				38 J				
Triphenyl phosphine oxide				6 J		6 J		

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS

Vincent Uhl Sample Number		BPM-SW-04	BPM-SW-02 (OF)	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	µg/L	µg/L	µg/L	µg/L	µg/L
PESTICIDES	Quantitation Limit					Replicate of BPM-SW-04	Field Blank
alpha-BHC	0.05	UL	.011 J	.009 J	UL		
beta-BHC	0.05	UL			UL		
delta-BHC	0.05	UL			UL		
gamma-BHC (Lindane)	0.05	UL			UL		
Heptachlor	0.05	UL			UL		
Aldrin	0.05	UL			UL		
Heptachlor Epoxide	0.05	UL			UL		
Endosulfan I	0.05	UL			UL		
Dieldrin	0.10	UL			UL		
4,4-DDE	0.10	UL			UL		
Endrin	0.10	UL			UL		
Endosulfan II	0.10	UL			UL		
4,4'-DDD	0.10	UL			UL		
Endosulfan Sulfate	0.10	UL			UL		
4,4'-DDT	0.10	UL			UL		
Methoxychlor	0.50	UL			UL		
Endrin Ketone	0.10	UL			UL		
Endrin Aldehyde	0.10	UL			UL		
alpha-Chlordane	0.05	UL	.011 J		UL		
gamma-Chlordane	0.05	UL			UL		
Toxaphene	5.00	UL			UL		

EXTRACTABLE ORGANIC ANALYSIS - ANALYTICAL RESULTS								page 8
Vincent Uhl Sample Number		BPM-SW-04	BPM-SW-02 (OF)	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	µg/L	µg/L	µg/L	µg/L	µg/L
AROCLORS	Quantitation Limit (Aq)					Replicate of BPM-SW-04	Field Blank
Aroclor-1016	1.0	UL			UL		
Aroclor-1221	1.0	UL			UL		
Aroclor-1232	1.0	UL			UL		
Aroclor-1242	1.0	UL			UL		
Aroclor-1248	1.0	UL			UL		
Aroclor-1254	1.0	UL			UL		
Aroclor-1260	1.0	UL			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	6/7/93
Date of Sample Analysis		7/5/93	7/5/93	7/5/93	7/5/93	7/5/93	7/5/93

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

Vincent Uhl Sample Number		BPM-SD-03	BPM-SD-02 (OF)	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	µg/Kg	µg/Kg	µg/Kg	µg/L	µg/L
VOLATILE COMPOUNDS	Quantitation Limit						Field Blank	Trip Blank
Chloromethane	10							
Bromomethane	10					UL		
Vinyl Chloride	10							
Chloroethane	10							
Methylene Chloride	10	UL	UL	UL	UL	UL	UL	UL
Acetone	10	9 J	7 J	21 J	21 J	27 J		
Carbon Disulfide	10						5 J	
1,1-Dichloroethene	10							
1,1-Dichloroethane	10							
Total 1,2-Dichloroethene	10							
Chloroform	10		6 J					
1,2-Dichloroethane	10							
2-Butanone	10							
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							

VOLATILE ORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS								page 10
Vincent Uhl Sample Number		BPM-SD-03	BPM-SD-02 (OF)	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	µg/Kg	µg/Kg	µg/Kg	µg/L	µg/L
VOLATILE COMPOUNDS	Quantitation Limit						Field Blank	Trip Blank
cis-1,3-Dichloropropene	10							
Bromoform	10							
2-Hexanone	10							
4-Methyl-2-Pentanone	10							
Tetrachloroethene	10					4 J		
Toluene	10							
Chlorobenzene	10							
Ethylbenzene	10							
Styrene	10							
Total Xylenes	10				2 J			
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
Instrument Used for Analysis		MS1	MS1	MS1	MS1	MS1	MS1	MS1

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

Vincent Uhl Sample Number			BPM-SD-03	BPM-SD-02 (OF)	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	µg/L
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)	Quantitation Limit (Sol)						Field Blank
Phenol	10	330	UL	UL	UL	UL	UL	
bis(2-Chloroethyl)ether	10	330						
2-Chlorophenol	10	330	UL	UL	UL	UL	UL	
1,3-Dichlorobenzene	10	330						
1,4-Dichlorobenzene	10	330	UL	UL	UL	UL	UL	
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	UL	UL	UL	UL	
Hexachloroethane	10	330						
Nitrobenzene	10	330						
Isophorone	10	330						
2-Nitrophenol	10	330	UL					
2,4-Dimethylphenol	10	330						
bis(2-Chloroethoxy)methane	10	330						
2,4-Dichlorophenol	10	330						
1,2,4-Trichlorobenzene	10	330	UL	UL	UL	UL	UL	
Naphthalene	10	330						
4-Chloroaniline	10	330						
Hexachlorobutadiene	10	330						
4-Chloro-3-Methylphenol	10	330	UL	UL	UL	UL	UL	
2-Methylnaphthalene	10	330						

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

Vincent Uhl Sample Number			BPM-SD-03	BPM-SD-02 (OF)	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	µg/L
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)	Quantitation Limit (Sol)						Field Blank
Hexachlorocyclopentadiene	10	330	UL					
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	UL					
Acenaphthene	10	330	UL	UL	UL	200 J	UL	
2,4-Dinitrophenol	25	830	UL			UL	UL	UL
4-Nitrophenol	25	830	UL	UL	UL	UL	UL	
Dibenzofuran	10	330				150 J		
2,4-Dinitrotoluene	10	330	UL	UL	UL	UL	UL	
Diethylphthalate	10	330						
4-Chlorophenyl-phenylether	10	330						
Fluorene	10	330				290 J		
4-Nitroanaline	25	830	UL					
4,6-Dinitro-2-Methylphenol	25	830	R			UL	UL	UL
N-Nitrosodiphenylamine	10	330						
4-Bromophenyl-phenylether	10	330						
Hexachlorobenzene	10	330						
Pentachlorophenol	25	830	R	R	R	R	R	R
Phenanthrene	10	330				4500	4800	

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

Vincent Uhl Sample Number			BPM-SD-03	BPM-SD-02 (OF)	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	µg/L
SEMIVOLATILE COMPOUNDS	Quantitation Limit (Aq)	Quantitation Limit (Sol)						Field Blank
Anthracene	10	330				990	1000 J	
Carbazole	10	330				1200	1100 J	
Di-n-Butylphthalate	10	330		79 B		780 B	770 B	UL
Fluoranthene	10	330			260 J	8400 J	8500	
Pyrene	10	330	UL	UL	290 J	8500 J	9400 J	
Butylbenzylphthalate	10	330				480 B	450 B	UL
3,3'-Dichlorobenzidine	10	330						
Benzo(a)anthracene	10	330			120 J	4200	4200	
bis(2-Ethylhexyl)phthalate	10	330			370 B	1400 B	1400 B	UL
Chrysene	10	330			160 J	3800	4300	
Di-n-Octylphthalate	10	330			540			
Benzo(b)fluoranthene	10	330			210 J	4200	4800	
Benzo(k)fluoranthene	10	330				2200	2000	
Benzo(a)pyrene	10	330			110 J	3300	3500	
Indeno(1,2,3-cd)pyrene	10	330				1900	1800	
Dibenz(a,h)anthracene	10	330	UL			530 J	UL	UL
Benzo(g,h,i)perylene	10	330				2100	2000	
Quantitation Limit Multiplier			1.32	1.12	1.43	2.66	5.33	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	6/7/93
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

CLP - TENTATIVELY IDENTIFIED COMPOUNDS - ESTIMATED CONCENTRATIONS - ALL SOLIDS REPORTED ON A DRY WEIGHT BASIS									page 14
Vincent Uhl Sample Number		BPM-SD-03	BPM-SD-02 (DF)	BPM-SD-01	BPM-SD-05	BPM-SD-04	BPM-SD-04B	BPM-SD-04DL	Trip Blank
Laboratory Sample Number	1241	92-01	92-02	92-03	92-04	92-05	92-06	92-05DL	92-07
Remarks									
Units		µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/L	µg/Kg	µg/L
COMPOUNDS							Field Blank		
VOLATILE COMPONENTS									
2-Propanol		16 J R	19 J R	11 J R	-	-		N/A	-
SEMIVOLATILE COMPONENTS			-				7 J		
Unknown (Number of Peaks)		478 (3) J			N/A	-	-	-	N/A
1-(Ethenyloxy)-Octadecane		230 J							
1,2-Benzenedicarboxylic Acid				880 J					

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

Vincent Uhl Sample Number			BPM-SD-03	BPM-SD-02 (OF)	BPM-SD-01	BPM-SD-04	BPM-SD-04B
Laboratory Sample Number		1241	92-01	92-02	92-03	92-05	92-06
Remarks							
Units			µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/L
PESTICIDES	Quantitation Limit (Aq)	Quantitation Limit (Sol)					Field Blank
alpha-BHC	0.05	1.7	UL	UL	UL		UL
beta-BHC	0.05	1.7	UL	UL	0.58 J		UL
delta-BHC	0.05	1.7	UL	UL	UL		UL
gamma-BHC (Lindane)	0.05	1.7	UL	UL	R		UL
Heptachlor	0.05	1.7	UL	UL	UL		UL
Aldrin	0.05	1.7	UL	UL	UL	UL	UL
Heptachlor Epoxide	0.05	1.7	UL	UL	UL		UL
Endosulfan I	0.05	1.7	UL	UL	UL		UL
Dieldrin	0.10	3.3	UL	UL	0.48 J	0.55 J	UL
4,4-DDE	0.10	3.3	0.83 B	1.1 B	1.1 B		UL
Endrin	0.10	3.3	UL	UL	0.48 J	1.0 J	UL
Endosulfan II	0.10	3.30	UL	UL	UL		UL
4,4'-DDD	0.10	3.3	0.45 B	0.88 B	2.4 J	1.6 J	UL
Endosulfan Sulfate	0.10	3.3	UL	UL	UL	1.6 J	UL
4,4'-DDT	0.10	3.3	0.86 B	1.3 B	1.7 B	4.0 J	UL
Methoxychlor	0.50	17	UL	UL	UL	7.2 J	UL
Endrin Ketone	0.10	3.3	UL	UL	UL	4.8 J	UL
Endrin Aldehyde	0.10	3.3	UL	UL	UL	3.1 J	UL
alpha-Chlordane	0.05	1.7	0.37 J	0.83 J	0.60 J	0.62 J	UL
gamma-Chlordane	0.05	1.7	UL	0.63 J	0.58 J	0.79 J	UL
Toxaphene	5.00	170	UL	UL	UL		UL

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

Vincent UHL Sample Number			BPM-SD-03	BPM-SD-02 (OF)	BPM-SD-01	BPM-SD-04	BPM-SD-04B
Laboratory Sample Number		1241	92-01	92-02	92-03	92-05	92-06
Remarks							
Units			µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/L
AROCLORS	Quantitation Limit (Aq)	Quantitation Limit (Sol)					Field Blank
Aroclor-1016	1.0	33	UL	UL	UL		UL
Aroclor-1221	1.0	33	UL	UL	UL		UL
Aroclor-1232	1.0	33	UL	UL	UL		UL
Aroclor-1242	1.0	33	UL	UL	UL		UL
Aroclor-1248	1.0	33	UL	UL	UL		UL
Aroclor-1254	1.0	33	UL	UL	UL		UL
Aroclor-1260	1.0	33	UL	UL	UL		UL
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	6/7/93	6/7/93	6/7/93
Date of Sample Analysis			7/5/93	7/5/93	7/5/93	7/5/93	7/5/93

INORGANIC ANALYSIS - ANALYTICAL RESULTS

Vincent Uhl Sample Number			BPM-SW-04	BPM-SW-02(OF)	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	µg/L	µg/L	µg/L	µg/L	µg/L
INORGANIC ELEMENTS		Detection Limit					Replicate of BPM-SW-04	Field Blank
Aluminum	P	16.0		787	559	45.4 B		19.2
Antimony	P	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	P	3.3						
Calcium	P	18.9	61,400	43,300	49,500	81,100	61,400	166
Chromium	P	9.7		20.8	12.4			
Cobalt	P	12.6						
Copper	P	2.6	24.8	16.4	11.5 B	8.4 B	22.1	2.8
Iron	P	9.4	4760 J	153 J	256 J	304 J	4800 J	19.0 J
Lead	F	1.0	1.9 B	1.8 B	4.3 B	5.2 B	6.6 B	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	5.9
Mercury	CV	0.20						
Nickel	P	13.6						
Potassium	P	63.3	3400	4750	3890	3080	3380	
Selenium	F	2.0	UL	UL	UL	UL	UL	UL
Silver	P	4.4						
Sodium	P	19.4	63,500	48,500	42,500	22,200	63,100	114
Thallium	F	0.50	0.97 J	UL	UL	UL	UL	UL
Vanadium	P	3.7	4.3	5.5		4.7		
Zinc	P	2.2	95.2	23.1 B	19.7 B	15.1 B	78.3	7.2
Cyanide	C	10.0						

INORGANIC ANALYSIS - ANALYTICAL RESULTS - ALL SOLIDS REPORTED ON A DRY-WEIGHT BASIS									page 2
Vincent Uhl Sample Number				BPM-SD-03	BPM-SD-02(OF)	BPM-SD-01	BPM-SD-05	BPM-SD-04	BPM-SD-04B
Laboratory Sample Number			1241	92-01	92-02	92-03	92-04	92-05	92-06
Percent Solids				75.9%	88.6%	69.7%	74.3%	74.7%	-
Units				mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	µg/L
INORGANIC ELEMENTS		Detection Limit (Aq)	Detection Limit (Solid)						Field Blank
Aluminum	P	16.0	3.2	2860	1680	3080	2880	540	
Antimony	P	2.4	0.48	UL	UL	UL	UL	UL	
Arsenic	F	2.6	0.52			2.0	1.1		
Barium	P	0.50	0.10	56.8	41.4	92.8	178	24.6	0.92
Beryllium	P	0.80	0.16	0.30			0.30		
Cadmium	P	3.3	0.66				2.1 J		
Calcium	P	18.9	3.8	2350	1990	7650	31,700	19,500	108
Chromium	P	9.7	1.9		2.4	3.2	7.7	9.5	
Cobalt	P	12.6	2.5			4.1			
Copper	P	2.6	0.52	5.0	8.3	13.6	225	10.3	
Iron	P	9.4	1.9	2650 J	1620 J	5730 J	9030 J	3120 J	31.1 J
Lead	F	1.0	0.20	4.8	7.0	41.8	155	9.3	
Magnesium	P	22.2	4.4	914	782	3610	5500	9640	28.1
Manganese	P	1.3	0.26	630	171	371	1350	460	3.8
Mercury	CV	0.20	0.040						
Nickel	P	13.6	2.7				6.9		
Potassium	P	63.3	12.7	115	109	360	21.5	94.8	
Selenium	F	2.0	0.40	UL	UL	UL	UL	UL	UL
Silver	P	4.4	0.88						
Sodium	P	19.4	3.9	76.5 B	63.2 B	63.9 B	77.1 B	63.1 B	62.1
Thallium	F	0.50	0.10	0.33 J	UL	UL	0.30 J	0.21 J	
Vanadium	P	3.7	0.74	9.2	6.3	9.5	16.5	2.8	
Zinc	P	2.2	0.44	20.8	21.0	102	650	120	9.6
Cyanide	C	10.0	1.0				NR		

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 asoociated 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-*n*-octylphthalate in sample BPM-SD-01 and for acetone in samples BPM-SW-02, BPM-SD-03, 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-01, 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)	Sample(s) Flagged "UL"
methylene chloride	BPM-SD-03, BPM-SD-02(OF), BPM-SD-01, BPM-SD-05, BPM-SD-04, BPM-SD-04B and Trip Blank (124192-07)
2,4-dinitrophenol	BPM-SD-04, BPM-SD-04DL, BPM-SD-04B and BPM-SD-03
4,6-dinitro-2-methylphenol	BPM-SD-04, BPM-SD-04DL, and BPM-SD-04B
di-*n*-butylphthalate, butylbenzylphthalate, and bis(2-ethylhexyl)phthalate	BPM-SD-04B
dibenz(a,h,)anthracene	BPM-SD-04DL, BPM-SD-04B, and BPM-SD-03
2-nitrophenol, hexachlorocyclopentadiene 3-nitroaniline, 4-nitrophenol and 4-nitroaniline	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.

Compound	Applicable Samples
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
beta-BHC and 4,4'-DDE	BPM-SD-01
endrin, *alpha*-chlordane, and dieldrin	BPM-SD-01 and BPM-SD-04
endosulfan sulfate, methoxychlor, endrin ketone, endrin aldehyde, and *gamma*-chlordane	BPM-SD-04

- 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 µg/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.

Analyte	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.

Analyte	BPM-SW-04	BPM-SW-04R (Replicate)	Relative Percent Difference	Notes
barium	127 µg/L	127 µg/L	0.0%	1
calcium	614,000 µg/L	614,000 µg/L	0.0%	1
copper	24.8 µg/L	22.1 µg/L	11.5%	2
iron	4760 J µg/L	4800 J µg/L	0.8%	1
magnesium	17,600 µg/L	17,600 µg/L	0.0%	1
manganese	3430 µg/L	3440 µg/L	0.3%	1
potassium	3400 µg/L	3380 µg/L	0.6%	1
sodium	63,500 µg/L	63,100 µg/L	0.6%	1
thallium	0.97 J µg/L	0.5 U µg/L	NC	2
vanadium	4.3 µg/L	3.7 U µg/L	NC	2
zinc	95.2 µg/L	78.3 µg/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%.
2 - Acceptable precision; results are within ± the contract required detection limit (CRDL).

SAMPLES COLLECTED OCTOBER 15, 1993

VOLATILE ORGANIC ANALYSIS											
Vincent Uhl Sample Number	BPM-	SW-8	SW-8B	SW-7	SW-6	SW-9	SD-8	SD-8B	SD-7	SD-6	SD-9
Laboratory Sample Number	129255-	01	02	03	04	05	07	08	09	10	11
Remarks			Field Blank					Field Blank			
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/Kg	µg/L	µg/Kg	µg/Kg	µg/Kg
VOLATILE COMPOUNDS	Quantitation Limit										
Chloromethane	10										
Bromomethane	10						UL	UL			UL
Vinyl Chloride	10										
Chloroethane	10										
Methylene Chloride	10										9 J
Acetone	10	R	R	R	R	8 B	58 J	UL	38		UL
Carbon Disulfide	10	UL	UL	UL	UL	UL					
1,1-Dichloroethene	10										
1,1-Dichloroethane	10										
Total 1,2-Dichlorethene	10										
Chloroform	10										
1,2-Dichloroethane	10										
2-Butanone	10	R	R	R	R	R					
1,1,1-Trichloroethane	10							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										
Bromoform	10										
4-Methyl-2-Pentanone	10						UL	UL	UL	UL	UL
2-Hexanone	10						UL	UL	UL	UL	UL
Tetrachloroethene	10				2 J						

VOLATILE ORGANIC ANALYSIS											
Vincent Uhl Sample Number	BPM-	SW-8	SW-8B	SW-7	SW-6	SW-9	SD-8	SD-8B	SD-7	SD-6	SD-9
Laboratory Sample Number	129255-	01	02	03	04	05	07	08	09	10	11
Remarks			Field Blank					Field Blank			
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/Kg	µg/L	µg/Kg	µg/Kg	µg/Kg
VOLATILE COMPOUNDS	Quantitation 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-	06
Remarks		Trip Blank
Units		µg/L
VOLATILE COMPOUNDS	Quantitation Limit	
Chloromethane	10	
Bromomethane	10	
Vinyl Chloride	10	
Chloroethane	10	
Methylene Chloride	10	
Acetone	10	R
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	R
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	10	
Tetrachloroethene	10	

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

CLP - TENTATIVELY IDENTIFIED COMPOUNDS												
Vincent Uhl Sample Number	BPM-	SW-8	SW-08B	SW-7	SW-6	SW-9	SD-8	SD-8B	SD-7	SD-6	SD-9	Trip Blank
Laboratory Sample Number	129255-	01	02	03	04	05	07	08	09	10	11	06
Remarks			Field Blank					Field Blank				Trip Blank
Units		µg/L	µg/L	µg/L	µg/L	µg/L	µg/Kg	µg/L	µg/Kg	µg/Kg	µg/Kg	µg/L
VOLATILE COMPONENTS												
Blank Contamination		620 B	570 B	510 B	570 B	590 B	250 B	24 B	140 B	66 (2) B	15 B	610 B
Unknown									14 J			

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.

Compound(s)	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 μg/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	SD-11	SD-10	Trip Blank
Laboratory Sample Number	131257-	01	02	03	04	05
Remarks						
Units		µg/L	µg/L	µg/Kg	µg/Kg	µg/L
VOLATILE COMPOUNDS	Quantitation Limit					
Chloromethane	10					
Bromomethane	10			UL	UL	
Vinyl Chloride	10					
Chloroethane	10					
Methylene Chloride	10					
Acetone	10	R	R		8 J	R
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	R	R			R
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					
Tetrachloroethene	10		1 J		4 J	

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		µg/L	µg/L	µg/Kg	µg/Kg	µg/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		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

TENTATIVELY IDENTIFIED COMPOUNDS					
Vincent Uhl Sample Number	SW-11	SW-10	SD-11	SD-10	Trip Blank
Laboratory Sample Number 131257-	01	02	03	04	Trip Blank
Remarks					
Units	µg/L	µg/L	µg/Kg	µg/Kg	µg/L
VOLATILE COMPOUNDS					
Laboratory Artifact	580 R	570 R			610 R
Blank Contamination			15 B	19 B	
Unknown				7 J	

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 μg/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 μg/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

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. No 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 observed within the entire length of the channel 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 (gpm), and at the midstream (SG-2) location flow was 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. The stream channel at this location is moderately entrenched. A steep-sided embankment is present along the northern side of the channel which rises approximately 40 feet (estimated) to the "P.J.'s" Restaurant parking lot. Debris consisting of discarded washing machines, 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

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

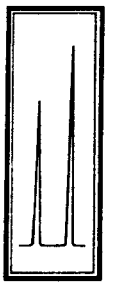
Along Route 6, approximately 1000 feet to the northeast, another bedrock outcrop was observed during the field reconnaissance conducted on November 11, 1993. This bedrock outcrop consists of granitic gneiss comprised predominantly of pink feldspars. The outcrop appears as a distinct color change with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

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. The 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. The "boiler room" in back of the dry cleaner was also inspected. Access to this room is made by exiting the rear door of the dry cleaner. An empty PCE drum was observed in the northwest corner of this room. A vertical pipe cut near slab level was observed within this room approximately 3 feet from the northwest wall. This pipe is reportedly 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)



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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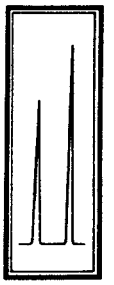
2-93-021-S



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TABLES

a sample location map would be helpful

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 (CH_2Cl_2)

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_2Cl_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 (µL). 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 µL 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 µg/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_2Cl_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 µg/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. — where?

APPENDIX A Condensed Data

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

SAMPLE	BENZENE µg/L	TOLUENE µg/L	ETHYL BENZENE µg/L	XYLENES µg/L	TVHC µg/L	CH2Cl2 µg/L	TCE µg/L	PCE µg/L
SG-01-2'	0.06	1	<0.4	<0.5	55	<0.4	0.5	370
SG-02-2'	NA	NA	NA	NA	NA	<2	<0.09	17
SG-03-2'	NA	NA	NA	NA	NA	<4	<0.2	340
SG-04-2'	INT	<0.1	<0.4	<0.5	7	<20	1	56
SG-05-2'	0.1	<0.1	<0.4	<0.5	0.5	<0.04	<0.002	0.03
SG-06-2'	<0.06	<0.1	<0.4	<0.5	4	<0.1	0.09	22
SG-07-2'	NA	NA	NA	NA	NA	<0.05	0.003	0.04
SG-08-2'	<0.04	<0.1	<0.2	<0.4	3	<0.04	0.3	0.5
SG-09-2'	<0.06	<0.1	<0.4	<0.5	460	<0.1	5	7
SG-10-2'	<0.1	<0.3	<0.8	<1	<1	<0.04	<0.002	<0.002
SG-11-2'	<0.06	<0.1	<0.4	<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'	<8	9	<0.4	<0.5	300	<0.05	0.5	0.7
SG-14-2'	<0.06	0.8	<0.4	<0.5	7	<0.2	0.2	1
SG-15-2'	<0.06	0.5	<0.4	<0.5	1	<0.05	0.02	0.03
AIR	NA	NA	NA	NA	NA	<0.02	<0.0009	<0.0008

NA not analyzed

Analyzed by: B. Gilmore
Proofed by: KM

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

SAMPLE	BENZENE µg/L	TOLUENE µg/L	ETHYL BENZENE µg/L	XYLENES µg/L	TVHC µg/L	CH2Cl2 µg/L	TCE µg/L	PCE 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	<0.06	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	0.6	<0.03	<0.0008	0.003
AIR	<0.04	<0.1	<0.2	<0.4	<0.4	<0.03	<0.0008	<0.0007
SG-21-2'	<0.04	<0.1	<0.2	<0.4	4	<0.03	0.002	0.02
SG-22-2'	INT	<0.1	<0.2	<0.4	290	<0.03	<0.0008	0.002
SG-23-2'	<0.04	<0.1	<0.2	<0.4	24	<0.03	<0.0008	0.002
SG-24-2'	<2	<0.1	<0.2	<0.4	180	<0.03	0.0008	0.0008
SG-25-2'	INT	<0.1	<0.2	<0.4	130	<0.03	0.004	0.009
SG-26-2'	0.5	0.3	<0.2	<0.4	6	<0.03	0.01	0.4
SG-27-2'	<0.04	0.1	<0.2	<0.4	8	<0.03	0.005	0.01
SG-28-2'	0.1	0.2	<0.2	<0.4	1	<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: KM

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

SAMPLE	BENZENE µg/L	TOLUENE µg/L	ETHYL BENZENE µg/L	XYLENES µg/L	TVHC µg/L	CH2Cl2 µg/L	TCE µg/L	PCE 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	2	<0.3	<0.008	0.0008
SG-30-2'	<0.04	<0.1	<0.2	<0.3	18	<0.03	<0.0008	0.002
SG-31-1'	0.09	<0.1	<0.2	<0.3	3	<0.03	<0.0008	0.001
SG-32-1'	0.09	0.2	<0.2	<0.3	1	<0.03	<0.0008	0.006
SG-33-10"	INT	<2	<3	<5	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'	<1	<3	<7	<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"	INT	<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	0.8	<0.03	<0.008	<0.005
SG-38-1.5'	<3	<8	<17	<24	2900	<0.03	0.003	0.003
SG-39-2'	INT	<2	<3	<5	1200	<0.03	0.008	0.1

INT interference with adjacent peaks

Analyzed by: B. Gilmore
Proofed by: Kim

APPENDIX E

GEOLOGIC LOGS OF TEST BORINGS

Project _____BIGV/BPM__ Date 4/12/93

Location _____Baldwin Place Mall_____

Boring/Well Designation _____TB-1_____

Land Surface Elevation _____Estimated _____Surveyed

Drilling Method ___Hollow Stem Auger_____

Drilling Fluid _____None_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous_____

Drilling Contractor __Samuel Stothoff_____

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample 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, HNU=50-100 ppm.

Boring/Well Designation TB-1
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample Description
10	12	2	33/33/40/50	Silty sand, brown-grey, with clay lenses, brown, slight chemical odor, HNU=300ppm.
(NOTE: "Hard" material present at 11.5 feet difficult to auger past.)				
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 gravel (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.

Project _____BIGV/BPM__ Date 4/13/93

Location _____Baldwin Place Mall_____

Boring/Well Designation _____TB-2_____

Land Surface Elevation _____Estimated _____Surveyed

Drilling Method ___Hollow Stem Auger_____

Drilling Fluid _____None_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous_____

Drilling Contractor __Samuel Stothoff_____

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample 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	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, granitic material in matrix, HNU=0-20 ppm.
		HNU=0 ppm in silty clay.		
		HNU=20 in gravel.		

Boring/Well Designation TB-2
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample Description
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.

Geologic/Drilling Activity Log

Project _____BIGV/BPM__ Date 4/13/93

Location _____Baldwin Place Mall_____

Boring/Well Designation _____TB-3_____

Land Surface Elevation _____Estimated _____Surveyed

Drilling Method ___Hollow Stem Auger_____

Drilling Fluid _____None_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous_____

Drilling Contractor __Samuel Stothoff_____

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample 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, HNU= 0 ppm.
3.5	5.5	1.5		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.

Boring/Well Designation TB-3
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample Description
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 _____Baldwin Place Mall_____

Boring/Well Designation _____TB-4_____

Land Surface Elevation _____Estimated _____Surveyed

Drilling Method ___Hollow Stem Auger_____

Drilling Fluid _____None_____

Sampling Method ___Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous_____

Drilling Contractor __Samuel Stothoff_____

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	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	Upper 1.3 ft.: Silt and fine sand, brown, rounded gravel. Bottom 0.3 ft.: Very fine sand and black mica, HNU=0 ppm.
4	6	1.8	13/26/40/31	Silt and fine sand, some 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.

Boring/Well Designation TB-4
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample Description
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.

Geologic/Drilling Activity Log

Project _____BIGV/BPM___ Date 4/14/93

Location _____Baldwin Place Mall_____

Boring/Well Designation _____TB-5_____

Land Surface Elevation _____Estimated _____Surveyed

Drilling Method ____Hollow Stem Auger_____

Drilling Fluid _____None_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous_____

Drilling Contractor __Samuel Stothoff_____

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample Description
0	2	1	27/10/6/5	Upper 0.2 ft.: Asphalt. 0.2 to 1 ft.: Silt and sand, some clay, brown, dry, HNU=0 ppm.
2	4	1	4/5/5/4	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.

Boring/Well Designation TB-5
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample Description
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, seam 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.

Project _____BIGV/BPM___ Date 4/14/93

Location _____Baldwin Place Mall_____

Boring/Well Designation _____TB-6_____

Land Surface Elevation _____Estimated _____Surveyed

Drilling Method ___Hollow Stem Auger_____

Drilling Fluid _____None_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous_____

Drilling Contractor __Samuel Stothoff_____

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample 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, HNU=0 ppm.
4	6	1.3	6/5/6/8	Silty sand with some clay, brown. Bottom 0.3 ft.-Gravel, quartz, angular, HNU=0 ppm.

Geologic/Drilling Activity Log

Project _____BIGV/BPM___ Date 4/13/93

Location _____Baldwin Place Mall_____

Boring/Well Designation _____TB-7_____

Land Surface Elevation _____Estimated _____Surveyed

Drilling Method ___Hollow Stem Auger_____

Drilling Fluid _____None_____

Sampling Method ___Split Spoon 2ft. long/Grab_____

Sampling Interval ___Continuous_____

Drilling Contractor ___Samuel Stothoff_____

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	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 gravel of granitic material, HNU=0-1 ppm.
4	6	1.5	5/8/12/21	Silty clay, brown, moist, with fine-medium coarse rounded to subangular gravel of granitic material, HNU=10 ppm.
6	8	1.5	12/20/19/20	Silt and clay, tight, dry, 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.

Boring/Well Designation TB-7
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample Description
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 ppm.
14	16		18/21/18/33	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.
18			>100 for 5"	No Recovery.

Project _____BIGV/BPM__ Date 4/13/93

Location _____Baldwin Place Mall_____

Boring/Well Designation _____TB-8_____

Land Surface Elevation _____Estimated _____Surveyed

Drilling Method ___Hollow Stem Auger_____

Drilling Fluid _____None_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous_____

Drilling Contractor __Samuel Stothoff_____

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample Description
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 2"/Refusal	Silty clay, brown-grey, little fine rounded to angular gravel, bottom of spoon-granitic gneiss, HNU=100 ppm. Refusal at 6.5 ft. bls.

Project _____BIGV/BPM___ Date 4/13/93

Location _____Baldwin Place Mall_____

Boring/Well Designation _____TB-9_____

Land Surface Elevation _____Estimated _____Surveyed

Drilling Method ___Hollow Stem Auger_____

Drilling Fluid _____None_____

Sampling Method ___Split Spoon 2ft. long/Grab_____

Sampling Interval ___Continuous_____

Drilling Contractor ___Samuel Stothoff_____

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample 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.
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.

Boring/Well Designation TB-9
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample Description
8	10	2	21/40/47/95	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.

Geologic/Drilling Activity Log

Project _____BIGV/BPM__ Date 4/14/93

Location _____Baldwin Place Mall_____

Boring/Well Designation _____TB-11_____

Land Surface Elevation _____Estimated _____Surveyed

Drilling Method ___Hollow Stem Auger_____

Drilling Fluid ____None_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous_____

Drilling Contractor __Samuel Stothoff_____

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample Description
0	2	0.5	14/12/10/10	Upper 0.2 ft.: Asphalt. Remainder sand, medium, brown, dry, HNU=0 ppm.
2	4	2	9/9/18/11	Silty sand, medium, brown, dry, little clay, very fine rounded gravel. Approx. 0.2 ft. lenses of coarse sand, brown, dry. Bottom of spoon-clay, brown, with fine rounded gravel, HNU<5 ppm.
4	6	1.9	11/13/13/22	Upper 1 ft.: Sand, medium and clay, brown, saturated. Bottom: Green silt and clay, with subangular to rounded fine gravel, some angular granitic material in matrix, also lenses of black mica, HNU=3 ppm.

Geologic/Drilling Activity Log

Project _____BIGV/BPM__ Date 4/14/93

Location _____Baldwin Place Mall_____

Boring/Well Designation _____TB-12_____

Land Surface Elevation _____Estimated _____Surveyed

Drilling Method ___Hollow Stem Auger_____

Drilling Fluid _____None_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous_____

Drilling Contractor __Samuel Stothoff_____

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample Description
0	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.

Geologic/Drilling Activity Log

Project _____BIGV/BPM__ Date 4/14/93

Location _____Baldwin Place Mall_____

Boring/Well Designation _____TB-13_____

Land Surface Elevation _____Estimated _____Surveyed

Drilling Method ___Hollow Stem Auger_____

Drilling Fluid _____None_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous_____

Drilling Contractor __Samuel Stothoff_____

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample Description
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.

Geologic/Drilling Activity Log

Project _____BIGV/BPM___ Date 4/14/93

Location _____Baldwin Place Mall_____

Boring/Well Designation _____TB-14_____

Land Surface Elevation _____Estimated _____Surveyed

Drilling Method ___Hollow Stem Auger_____

Drilling Fluid _____None_____

Sampling Method ___Split Spoon 2ft. long/Grab_____

Sampling Interval ___Continuous_____

Drilling Contractor ___Samuel Stothoff_____

From (ft)	To (ft)	Sample Recovery (ft)	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample Description
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.

Project _____BIGV/BPM__ Date 4/14/93

Location _____Baldwin Place Mall_____

Boring/Well Designation _____TB-15_____

Land Surface Elevation _____Estimated _____Surveyed

Drilling Method ___Hollow Stem Auger_____

Drilling Fluid _____None_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous_____

Drilling Contractor __Samuel Stothoff_____

From	To	Sample Recovery	Time/Hydraulic Pressure or Blow Counts per 6-inch interval	Sample 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 Crossing PA 18977

Report Date:	11-MAY-93
Project:	STANDARD
Lab Number:	122485
Sample Number(s):	122485-01 to 122485-03

Ronald A. Bayer
Laboratory Director

EnviroTest Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550
(914) 562-0890
FAX (914) 562-0841

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		

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data 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		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	B
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		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		U
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	Chlorobenzene	11		U
100-41-4	Ethylbenzene	11		U
100-42-5	Styrene	11		U
1330-20-7	Xylenes, Total	11		U
1634-04-4	MTBE	11		U

EnviroTest Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550
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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		

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data 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		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	27	B
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		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		U
79-34-5	1,1,2,2-Tetrachloroethane	11		U
127-18-4	Tetrachloroethene	11	3	J
108-88-3	Toluene	11		U
108-90-7	Chlorobenzene	11		U
100-41-4	Ethylbenzene	11		U
100-42-5	Styrene	11		U
1330-20-7	Xylenes, Total	11		U
1634-04-4	MTBE	11		U

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		

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	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		U
78-87-5	1,2-Dichloropropane	10		U
10061-01-5	cis-1,3-Dichloropropene	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-Dichloropropene	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	2-Hexanone	10		U
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	Chlorobenzene	10		U
100-41-4	Ethylbenzene	10		U
100-42-5	Styrene	10		U
1330-20-7	Xylenes, Total	10		U
1634-04-4	MTBE	10		U

ANALYTICAL REPORT

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

Report Date:	11-MAY-93
Project:	STANDARD
Lab Number:	122403
Sample Number(s):	122403-01 to 122403-05

Ronald A. Bayer
Laboratory Director

EnviroTest Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550
(914) 562-0890
FAX (914) 562-0841

Volatile Organics Analysis Data Sheet
Form I VOA

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.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	120000		U
74-83-9	Bromomethane	120000		U
75-01-4	Vinyl chloride	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		U
75-35-4	1,1-Dichloroethene	120000		U
75-34-3	1,1-Dichloroethane	120000		U
540-59-0	1,2-Dichloroethene(total)	120000		U
67-66-3	Chloroform	120000		U
107-06-2	1,2-Dichloroethane	120000		U
78-93-3	2-Butanone	120000		U
71-55-6	1,1,1-Trichloroethane	120000		U
56-23-5	Carbon tetrachloride	120000		U
108-05-4	Vinyl acetate	120000		U
75-27-4	Bromodichloromethane	120000		U
78-87-5	1,2-Dichloropropane	120000		U
10061-01-5	cis-1,3-Dichloropropene	120000		U
79-01-6	Trichloroethene	120000		U
71-43-2	Benzene	120000		U
124-48-1	Dibromochloromethane	120000		U
10061-02-6	trans-1,3-Dichloropropene	120000		U
79-00-5	1,1,2-trichloroethane	120000		U
75-25-2	Bromoform	120000		U
108-10-1	4-Methyl-2-pentanone	120000		U
591-78-6	2-Hexanone	120000		U
79-34-5	1,1,2,2-Tetrachloroethane	120000		U
127-18-4	Tetrachloroethene	120000	4500000	DB
108-88-3	Toluene	120000		U
108-90-7	Chlorobenzene	120000		U
100-41-4	Ethylbenzene	120000		U
100-42-5	Styrene	120000		U
1330-20-7	Xylenes, Total	120000		U
1634-04-4	MTBE	120000		U

Volatile Organics Analysis Data Sheet
Form I VOA

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
Date Received:	14-APR-93	Percent Solid:	92.8 %
Date Analyzed:	19-APR-93	Method:	8240
Comments:	RI-BPM		

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data 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	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		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	cis-1,3-Dichloropropene	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		U
79-34-5	1,1,2,2-Tetrachloroethane	11		U
127-18-4	Tetrachloroethene	11	14	B
108-88-3	Toluene	11		U
108-90-7	Chlorobenzene	11		U
100-41-4	Ethylbenzene	11		U
100-42-5	Styrene	11		U
1330-20-7	Xylenes, Total	11		U
1634-04-4	MTBE	11		U

Volatile Organics Analysis Data Sheet
Form I VOA

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	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12		U
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12		U
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
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
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	Tetrachloroethene	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
1330-20-7	Xylenes, Total	12		U
1634-04-4	MTBE	12		U

EnviroTest Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550
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Volatile Organics Analysis Data Sheet
Form I VOA

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	Matrix:	3 Soil/Sldg
Date Received:	14-APR-93	Percent Solid:	89.1 %
Date Analyzed:	20-APR-93	Method:	8240
Comments:	RI-BPM		

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	56		U
74-83-9	Bromomethane	56		U
75-01-4	Vinyl chloride	56		U
75-00-3	Chloroethane	56		U
75-09-2	Methylene chloride	56		U
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	Chloroform	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 tetrachloride	56		U
108-05-4	Vinyl acetate	56		U
75-27-4	Bromodichloromethane	56		U
78-87-5	1,2-Dichloropropane	56		U
10061-01-5	cis-1,3-Dichloropropene	56		U
79-01-6	Trichloroethene	56		U
71-43-2	Benzene	56		U
124-48-1	Dibromochloromethane	56		U
10061-02-6	trans-1,3-Dichloropropene	56		U
79-00-5	1,1,2-trichloroethane	56		U
75-25-2	Bromoform	56		U
108-10-1	4-Methyl-2-pentanone	56		U
591-78-6	2-Hexanone	56		U
79-34-5	1,1,2,2-Tetrachloroethane	56		U
127-18-4	Tetrachloroethene	56	960	
108-88-3	Toluene	56		U
108-90-7	Chlorobenzene	56		U
100-41-4	Ethylbenzene	56		U
100-42-5	Styrene	56		U
1330-20-7	Xylenes, Total	56		U
1634-04-4	MTBE	56		U

Volatile Organics Analysis Data Sheet
Form I VOA

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		

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	22000		U
74-83-9	Bromomethane	22000		U
75-01-4	Vinyl chloride	22000		U
75-00-3	Chloroethane	22000		U
75-09-2	Methylene chloride	22000		U
67-64-1	Acetone	22000		U
75-15-0	Carbon disulfide	22000		U
75-35-4	1,1-Dichloroethene	22000		U
75-34-3	1,1-Dichloroethane	22000		U
540-59-0	1,2-Dichloroethene(total)	22000		U
67-66-3	Chloroform	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 tetrachloride	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-Dichloropropene	22000		U
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
591-78-6	2-Hexanone	22000		U
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	Chlorobenzene	22000		U
100-41-4	Ethylbenzene	22000		U
100-42-5	Styrene	22000		U
1330-20-7	Xylenes, Total	22000		U
1634-04-4	MTBE	22000		U

ANALYTICAL REPORT

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

Report Date:	12-MAY-93
Project:	STANDARD
Lab Number:	122423
Sample Number(s):	122423-01 to 122423-02

Ronald A. Bayer
Laboratory Director

EnviroTest Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550
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Volatile Organics Analysis Data Sheet
Form I VOA

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		

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	11		U
74-83-9	Bromomethane	11		U
75-01-4	Vinyl Chloride	11	2	J
75-00-3	Chloroethane	11	1	J
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	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		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		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	Chlorobenzene	11		U
100-41-4	Ethylbenzene	11		U
100-42-5	Styrene	11		U
1330-20-7	Xylenes, Total	11		U
	MTBE	11		U

Volatile Organics Analysis Data Sheet
Form I VOA

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:	3 Soil/Sldg
Date Received:	14-APR-93	Percent Solid:	88.4 %
Date Analyzed:	20-APR-93	Method:	8240
Comments:	RI-BPM		

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data 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		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		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	cis-1,3-Dichloropropene	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		U
79-34-5	1,1,2,2-Tetrachloroethane	11		U
127-18-4	Tetrachloroethene	11	3	J
108-88-3	Toluene	11		U
108-90-7	Chlorobenzene	11		U
100-41-4	Ethylbenzene	11		U
100-42-5	Styrene	11		U
1330-20-7	Xylenes, Total	11		U

EnviroTest Laboratories Inc.

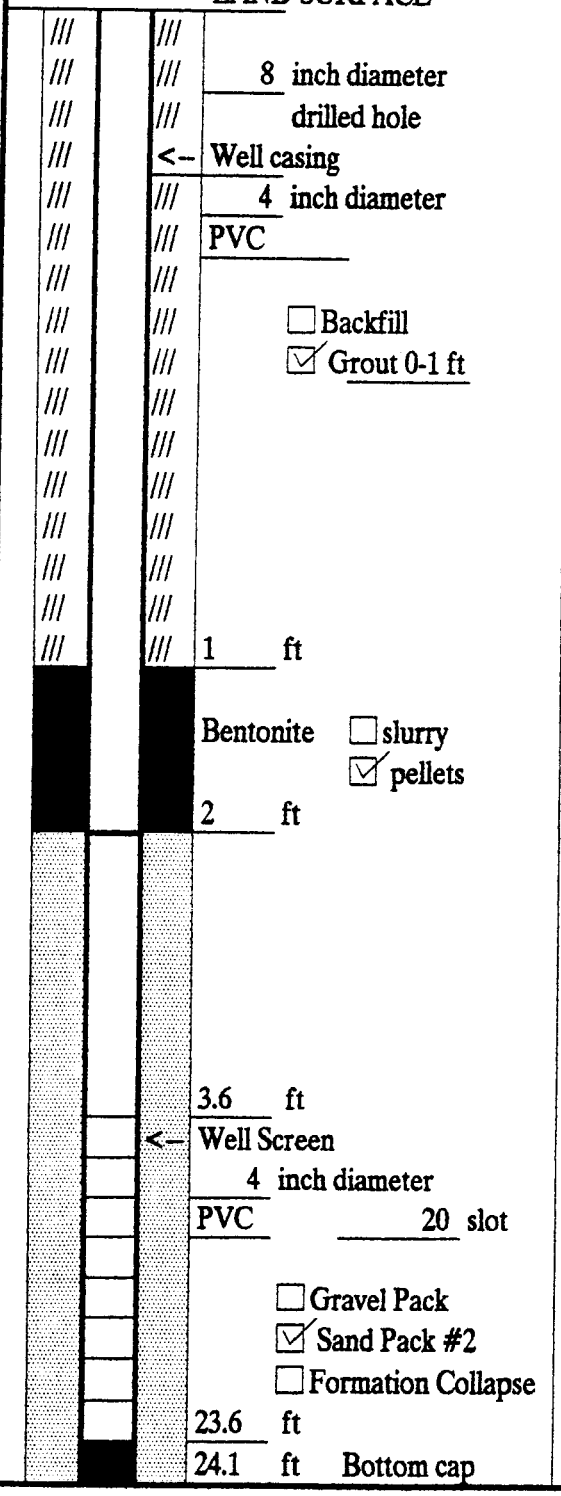
315 Fullerton Avenue
Newburgh, NY 12550
(914) 562-0890
FAX (914) 562-0841

NYSDOH 10142 NJDEP 73507 CTDOHS PH-0054 EPA NY049

APPENDIX G

MONITORING WELL CONSTRUCTION DIAGRAMS

UNCONSOLIDATED WELL CONSTRUCTION LOG



Project	BIG V/BPM	Well	MW-1S
Town/City	Baldwin Place		
County	Westchester	State	NY
Permit No.	N/A		
Land-Surface Elevation and Datum	597.41 feet (amsl)	☑ Surveyed ☐ Estimated	

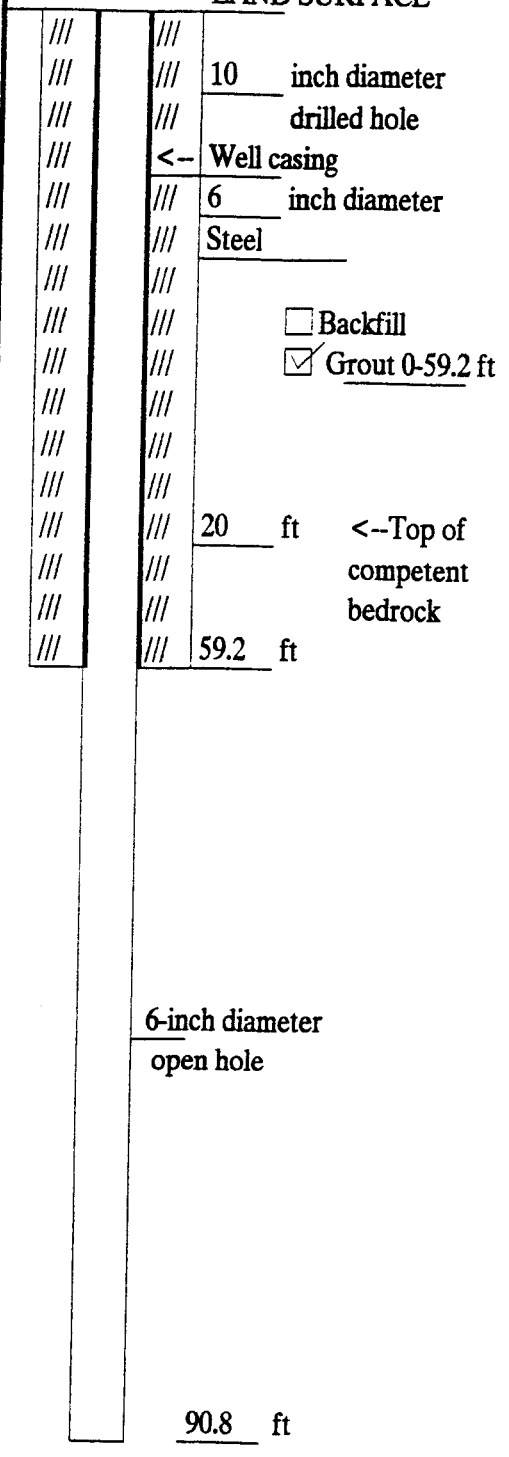
Installation Dates:	July 30, 1992
Drilling Method:	Air Hammer
Drilling Contractor:	Samuel Stothoff
Drilling Fluid:	Air
Development Technique and Date:	Submersible pump 8-12-92
Fluid Loss During Drilling:	N/A
Water Removed During Development:	245 Gallons
Static Depth to Water:	7.24 ft. bmp
Pumping Depth to Water:	9.88 ft. bmp
Pumping Duration:	35 Minutes
Yield:	7 gpm
Specific Capacity:	2.65 gpm/ft.
Well Purpose:	Monitoring Groundwater Quality

Remarks: amsl = above mean sea level
bmp = below measuring point (top of 4-inch diameter PVC casing)
gpm = gallons per minute

*Note: Flush mount cover installed.

Prepared By: KJM

BEDROCK WELL CONSTRUCTION LOG



Project: BIG V/BPM Well: MW-1D
Town/City: Baldwin Place
County: Westchester State: NY
Permit No.: N/A
Land-Surface Elevation: ☑ Surveyed
and Datum 597.41 feet (amsl) ☐ Estimated

Installation Dates: July 27 and July 30-31, 1992
Drilling Method: Air Hammer
Drilling Contractor: Samuel Stothoff
Drilling Fluid: Air

Development Technique and Date: Submersible pump 8-12-92

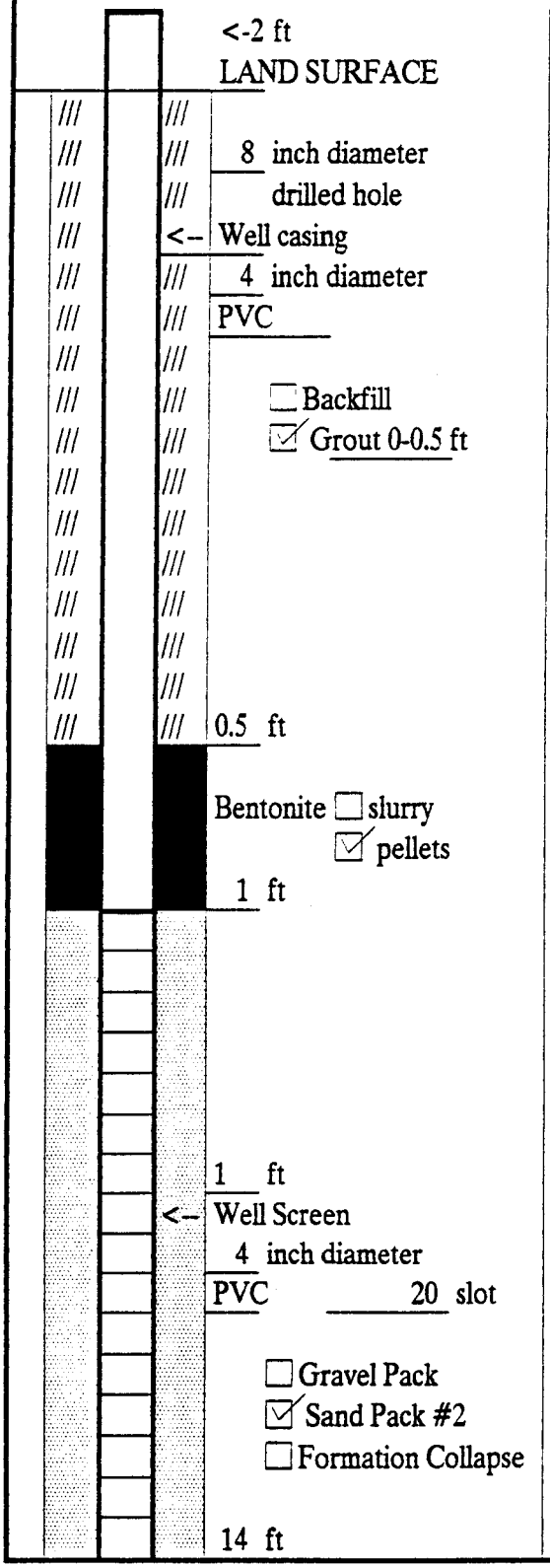
Fluid Loss During Drilling: N/A
Water Removed During Development: 75 Gallons
Static Depth to Water: 31.10 ft. bmp
Pumping Depth to Water: 81.95 ft. bmp
Pumping Duration: 15 Minutes
Yield: 5 gpm
Specific Capacity: 0.09 gpm/ft.
Well Purpose: Monitoring Groundwater Quality

Remarks: amsl = above mean sea level
bmp = below measuring point (top of 6-inch diameter steel casing)
gpm = gallons per minute

*Note: Flush mount cover installed.

Prepared by: KJM

UNCONSOLIDATED WELL CONSTRUCTION LOG



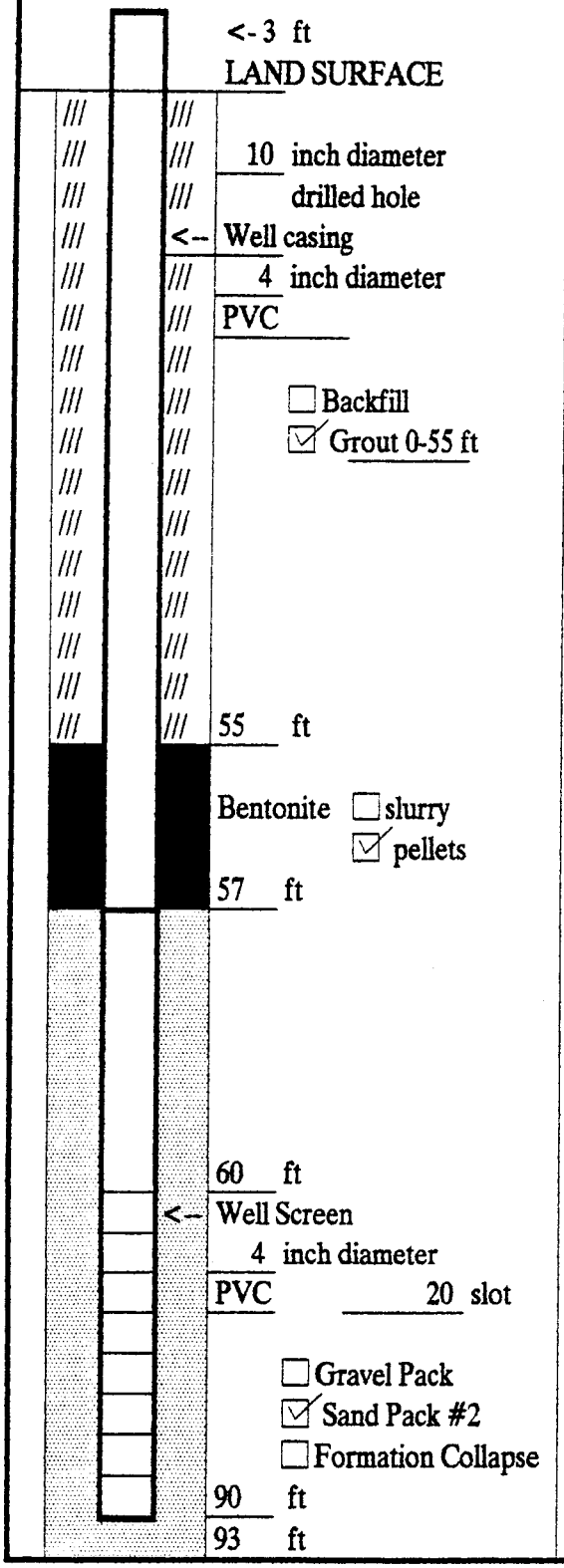
Project	BIG V/BPM	Well	MW-2S
Town/City	Baldwin Place		
County	Westchester	State	NY
Permit No.	N/A		
Land-Surface Elevation and Datum	601.53 feet (amsl)	☑ Surveyed ☐ Estimated	
Installation Dates:	July 29, 1992		
Drilling Method:	Air Hammer		
Drilling Contractor:	Samuel Stothoff		
Drilling Fluid:	Air		
Development Technique and Date:	Submersible pump and hand bailing. 8-12-92		
Fluid Loss During Drilling:	N/A		
Water Removed During Development:	20 Gallons		
Static Depth to Water:	3.67 ft. bmp		
Pumping Depth to Water:	10.85 ft. bmp		
Pumping Duration:	8 Minutes		
Yield:	1 gpm		
Specific Capacity:	0.13 gpm/ft.		
Well Purpose:	Monitoring Groundwater Quality		

Remarks: amsl = above mean sea level
bmp = below measuring point (top of 4-inch diameter PVC casing)
gpm = gallons per minute

*Note: 8-inch diameter protective steel casing installed.

Prepared By: KJM

UNCONSOLIDATED WELL CONSTRUCTION LOG



Project	BIG V/BPM	Well	MW-2D
Town/City	Baldwin Place		
County	Westchester	State	NY
Permit No.	N/A		
Land-Surface Elevation and Datum	601.66 feet (amsl)	☑ Surveyed ☐ Estimated	

Installation Dates:	July 27-29, 1992
Drilling Method:	Air Hammer
Drilling Contractor:	Samuel Stothoff
Drilling Fluid:	Air
Development Technique and Date:	Submersible pump 8-7-92
Fluid Loss During Drilling:	N/A
Water Removed During Development:	870 Gallons
Static Depth to Water:	13.69 ft. bmp
Pumping Depth to Water:	55.79 ft. bmp
Pumping Duration:	87 Minutes
Yield:	10 gpm
Specific Capacity:	0.24 gpm/ft.
Well Purpose:	Monitoring Groundwater Quality

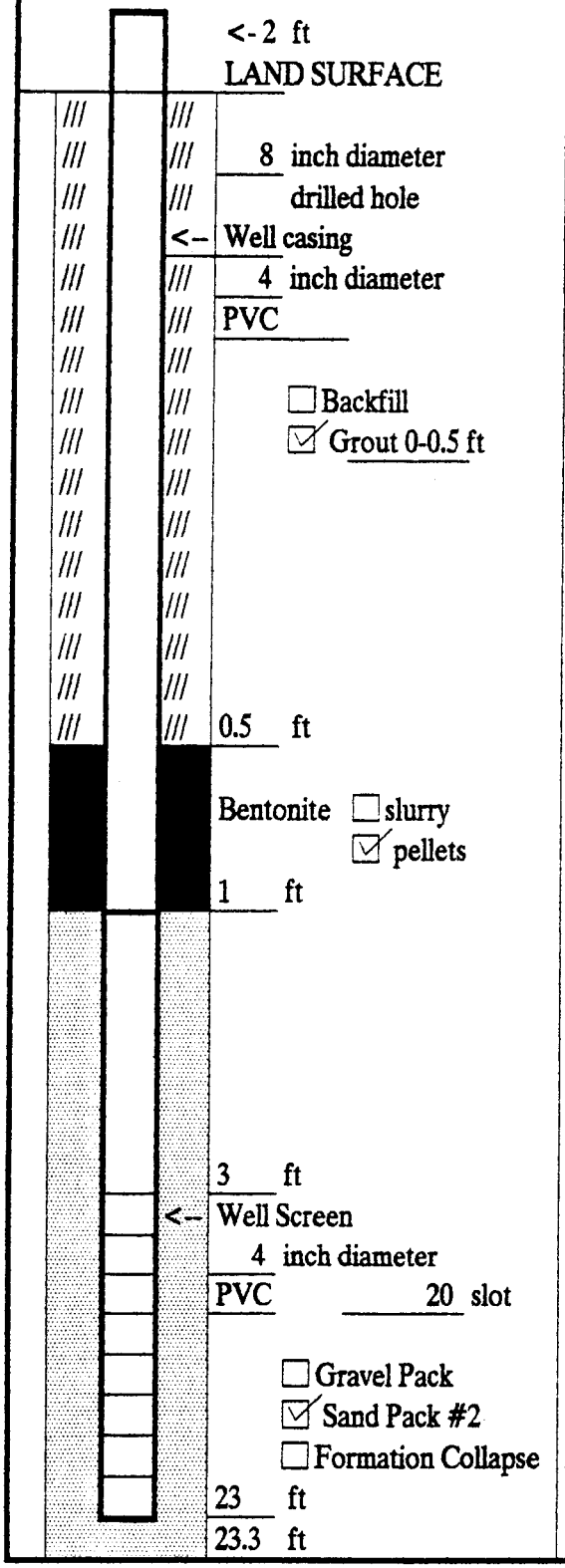
Remarks: amsl = above mean sea level
bmp = below measuring point (top of 4-inch diameter PVC casing)
gpm = gallons per minute

*Note: 8-inch diameter protective steel casing installed.

Prepared By: KJM

VINCENT UHL ASSOCIATES

UNCONSOLIDATED WELL CONSTRUCTION LOG



Project	BIG V/BPM	Well	MW-3S
Town/City	Baldwin Place		
County	Westchester	State	NY
Permit No.	N/A		
Land-Surface Elevation and Datum	602.65 feet (amsl)	☑ Surveyed ☐ Estimated	

Installation Dates:	August 6, 1992
Drilling Method:	Air Hammer
Drilling Contractor:	Samuel Stothoff
Drilling Fluid:	Air
Development Technique and Date:	Hand bailing 8-13-92 and 8-15-92
Fluid Loss During Drilling:	N/A
Water Removed During Development:	70 Gallons
Static Depth to Water:	5.42 ft. bmp
Pumping Depth to Water:	Bailed dry
Development Duration:	55 Minutes
Yield:	N/A
Specific Capacity:	NM
Well Purpose:	Monitoring Groundwater Quality

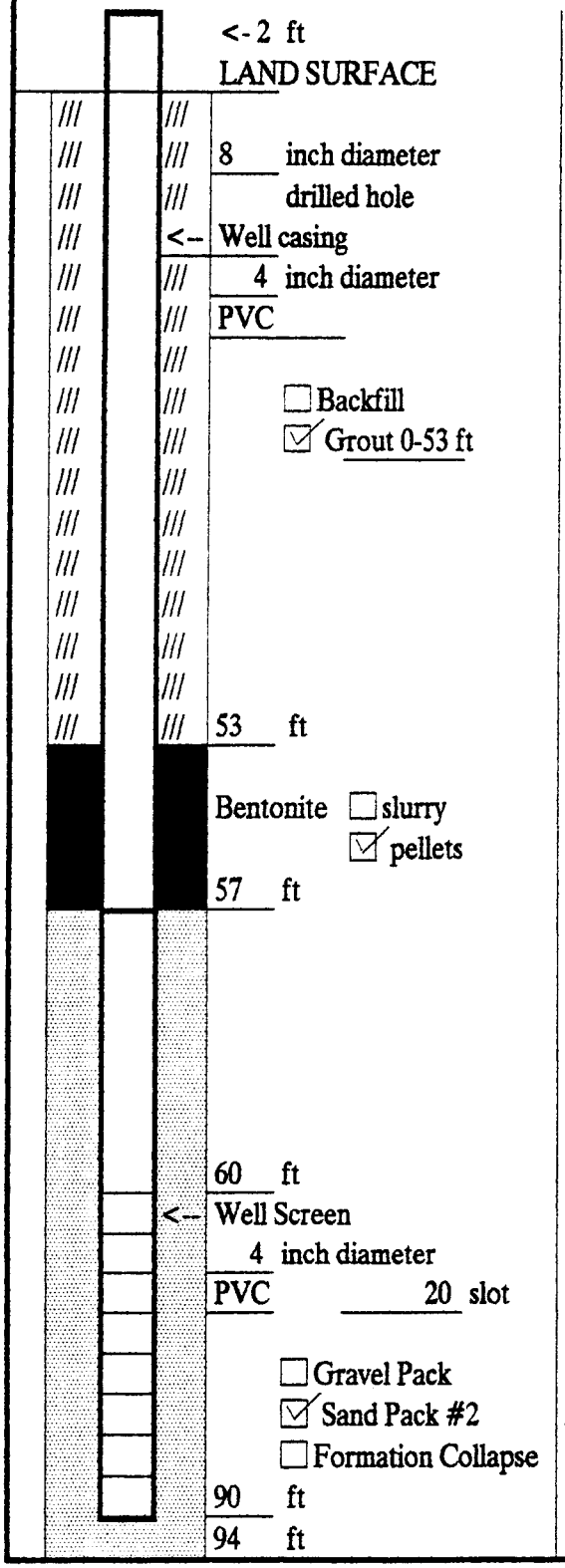
Remarks: amsl = above mean sea level
bmp = below measuring point (top of 4-inch diameter PVC casing)
NM = not measured

*Note: 8-inch diameter protective steel casing installed.

Prepared By: KJM

VINCENT UHL ASSOCIATES

UNCONSOLIDATED WELL CONSTRUCTION LOG



Project	BIG V/BPM	Well	MW-3D
Town/City	Baldwin Place		
County	Westchester	State	NY
Permit No.	N/A		
Land-Surface Elevation and Datum	602.25 feet (amsl)	☑ Surveyed ☐ Estimated	
Installation Dates:	August 11, 1992		
Drilling Method:	Air Hammer		
Drilling Contractor:	Samuel Stothoff		
Drilling Fluid:	Air		
Development Technique and Date:	Submersible pump 8-15-92		
Fluid Loss During Drilling:	N/A		
Water Removed During Development:	120 Gallons		
Static Depth to Water:	12.59 ft. bmp		
Pumping Depth to Water:	84.00 ft. bmp		
Pumping Duration:	40 Minutes		
Yield:	3 gpm		
Specific Capacity:	0.04 gpm/ft.		
Well Purpose:	Monitoring Groundwater Quality		

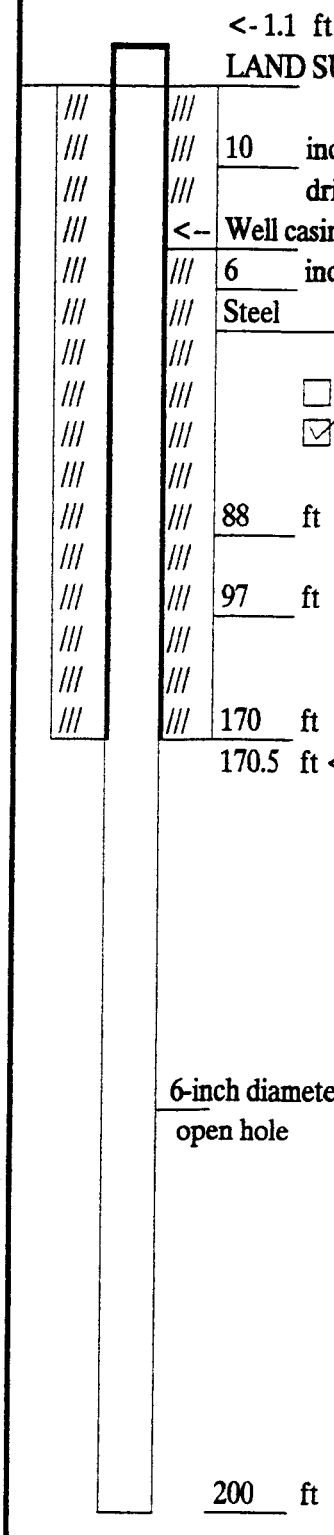
Remarks: amsl = above mean sea level
bmp = below measuring point (top of 4-inch diameter PVC casing)
gpm = gallons per minute

*Note: 8-inch diameter protective steel casing installed.

Prepared By: KJM

VINCENT UHL ASSOCIATES

BEDROCK WELL CONSTRUCTION LOG



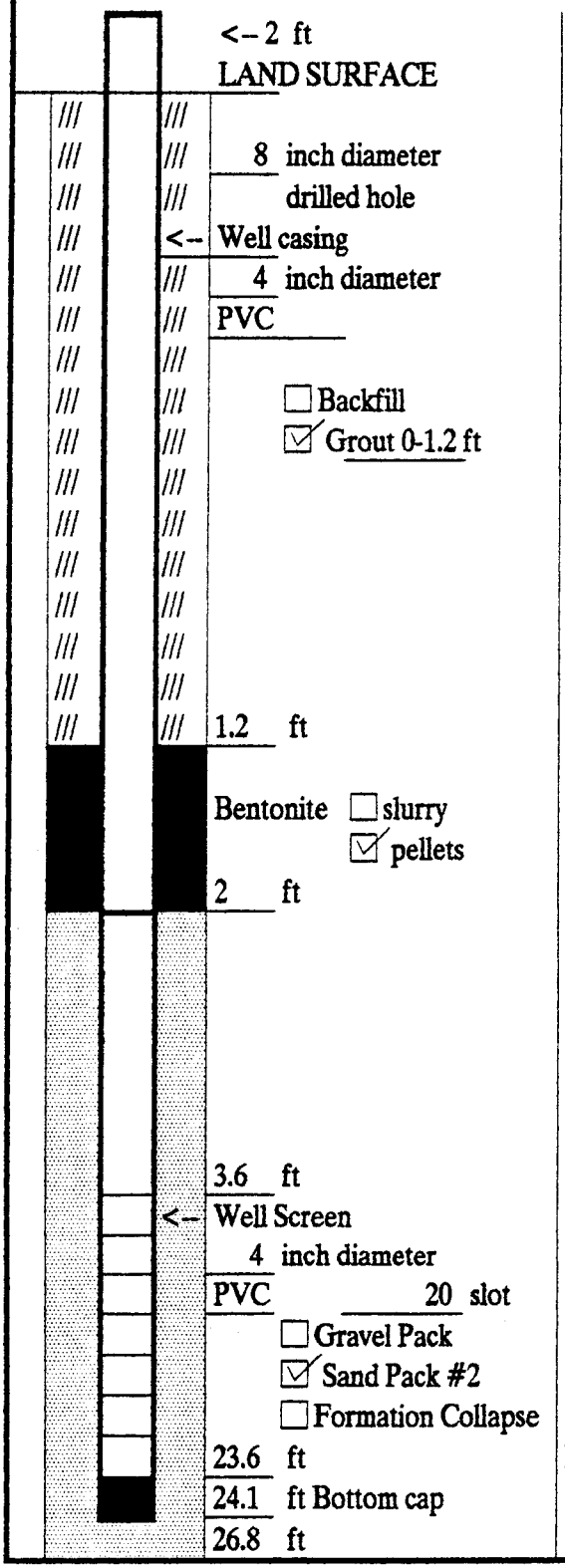
Project:	BIG V/BPM	Well:	MW-3DD
Town/City:	Baldwin Place		
County:	Westchester	State:	NY
Permit No.:	N/A		
Land-Surface Elevation:		☑ Surveyed	
and Datum	602.22 feet (amsl)	☐ Estimated	
Installation Dates	August 6-7 and 10-13, 1992		
Drilling Method:	Air Hammer		
Drilling Contractor:	Samuel Stothoff		
Drilling Fluid:	Air		
Development Technique and Date:	Air lift 8-14-92		
Fluid Loss During Drilling:	N/A		
Water Removed During Development:	14 Gallons		
Static Depth to Water:	NM		
Pumping Depth to Water:	NM		
Pumping Duration:	140 Minutes		
Yield:	0.10 gpm		
Specific Capacity:	NM		
Well Purpose:	Monitoring Groundwater Quality		

Remarks: amsl = above mean sea level
NM = not measured
gpm = gallons per minute

Prepared by: KJM

VINCENT UHL ASSOCIATES

UNCONSOLIDATED WELL CONSTRUCTION LOG



Project	BIG V/BPM	Well	MW-4S
Town/City	Baldwin Place		
County	Westchester	State	NY
Permit No.	N/A		
Land-Surface Elevation and Datum	609.68 feet (amsl)	☑ Surveyed ☐ Estimated	

Installation Dates:	August 5, 1992
Drilling Method:	Air Hammer
Drilling Contractor:	Samuel Stothoff
Drilling Fluid:	Air
Development Technique and Date:	Submersible pump and hand bailing. 08-12-92
Fluid Loss During Drilling:	N/A
Water Removed During Development:	57 Gallons
Static Depth to Water:	7.35 ft. bmp
Pumping Depth to Water:	22.35 ft. bmp
Pumping Duration:	25 Minutes
Yield:	2.3 GPM
Specific Capacity:	0.14 gpm/ft.
Well Purpose:	Monitoring Groundwater Quality

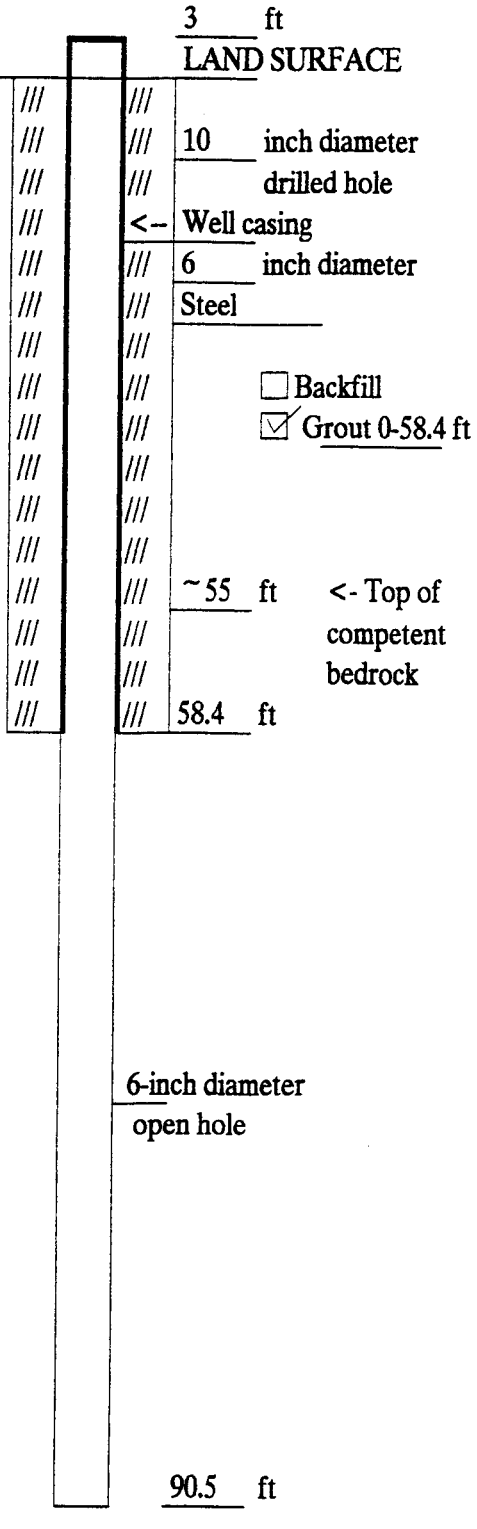
Remarks: amsl = above mean sea level
bmp = below measuring point (top of 4-inch PVC casing)
gpm = gallons per minute

*Note: 8-inch diameter protective steel casing installed.

Prepared By: KJM

VINCENT UHL ASSOCIATES

BEDROCK WELL CONSTRUCTION LOG



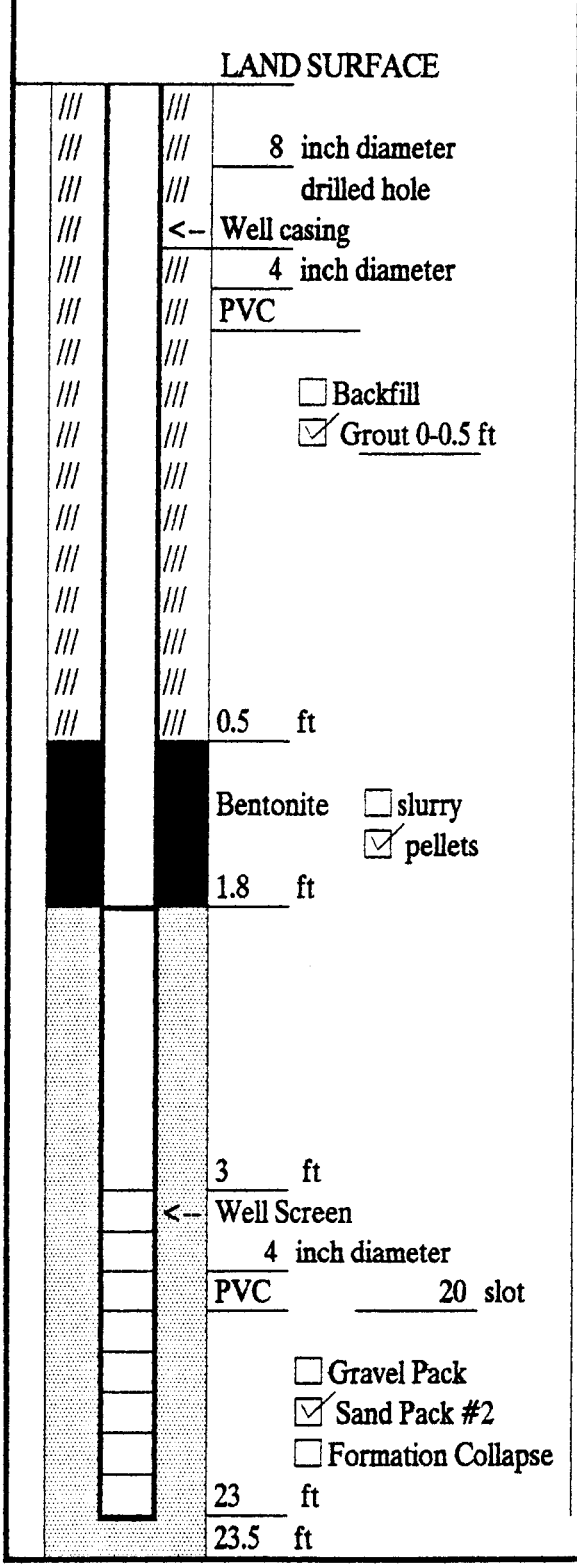
Project:	BIG V/BPM	Well:	MW-4D
Town/City:	Baldwin Place		
County:	Westchester	State:	NY
Permit No.:	N/A		
Land-Surface Elevation:		☑ Surveyed	
and Datum	609.72 feet (amsl)	☐ Estimated	
Installation Dates	August 3-4, 1992		
Drilling Method:	Air Hammer		
Drilling Contractor:	Samuel Stothoff		
Drilling Fluid:	Air		
Development Technique and Date:	Submersible pump 8-12-92		
Fluid Loss During Drilling:	N/A		
Water Removed During Development:	550 Gallons		
Static Depth to Water:	9.42 ft. bmp		
Pumping Depth to Water:	60.97 ft. bmp		
Pumping Duration:	55 Minutes		
Yield:	10 gpm		
Specific Capacity:	0.19 gpm/ft.		
Well Purpose:	Monitoring Groundwater Quality		

Remarks: amsl = above mean sea level
bmp = below measuring point
(top of 6-inch diameter steel casing)
gpm = gallons per minute

Prepared by: KJM

VINCENT UHL ASSOCIATES

UNCONSOLIDATED WELL CONSTRUCTION LOG



Project	BIG V/BPM	Well	MW-5S
Town/City	Baldwin Place		
County	Westchester	State	NY
Permit No.	N/A		
Land-Surface Elevation and Datum	603.36 feet (amsl)	☑ Surveyed ☐ Estimated	
Installation Dates:	August 5, 1992		
Drilling Method:	Air Hammer		
Drilling Contractor:	Samuel Stothoff		
Drilling Fluid:	Air		
Development Technique and Date:	Submersible pump 8-15-92		
Fluid Loss During Drilling:	N/A		
Water Removed During Development:	240 Gallons		
Static Depth to Water:	2.31 ft. bmp		
Pumping Depth to Water:	21.17 ft. bmp		
Pumping Duration:	60 Minutes		
Yield:	4 gpm		
Specific Capacity:	0.212 gpm/ft.		
Well Purpose:	Monitoring Groundwater Quality		

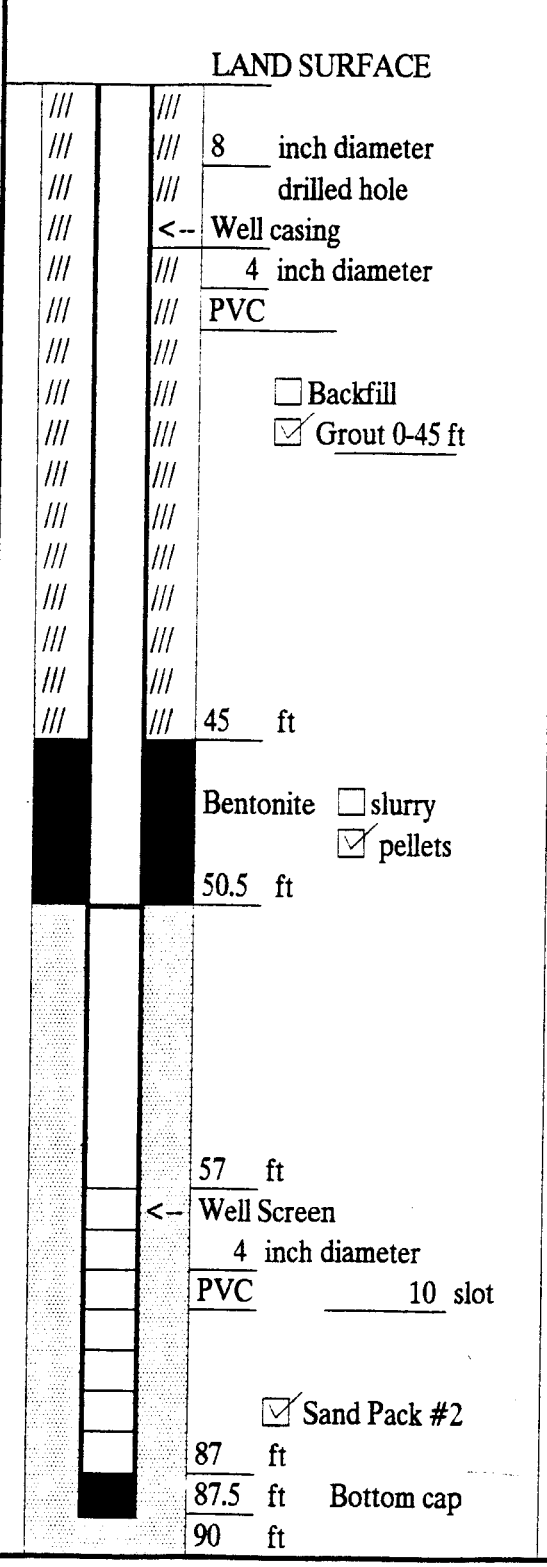
Remarks: amsl = above mean sea level
bmp = below measuring point
(top of 4-inch diameter PVC casing)
gpm = gallons per minute

*Note: Flush mount cover installed.

Prepared By: KJM

VINCENT UHL ASSOCIATES

UNCONSOLIDATED WELL CONSTRUCTION LOG



Project	BIG V/BPM	Well	MW-5D
Town/City	Baldwin Place		
County	Westchester	State	NY
Permit No.	N/A		
Land-Surface Elevation and Datum	602.80 feet (amsl)	☑ Surveyed ☐ Estimated	

Installation Dates:	April 15, 1993
Drilling Method:	Air Hammer
Drilling Contractor:	Samuel Stothoff
Drilling Fluid:	Air
Development Technique and Date:	Submersible pump 4-27 & 4-28-93
Fluid Loss During Drilling:	N/A
Water Removed During Development:	520 Gallons
Static Depth to Water:	10.30 ft. bmp
Pumping Depth to Water:	37.44 ft. bmp
Pumping Duration:	260 Minutes
Average Yield:	2 gpm
Specific Capacity:	0.074 gpm/ft.
Well Purpose:	Monitoring Groundwater Quality

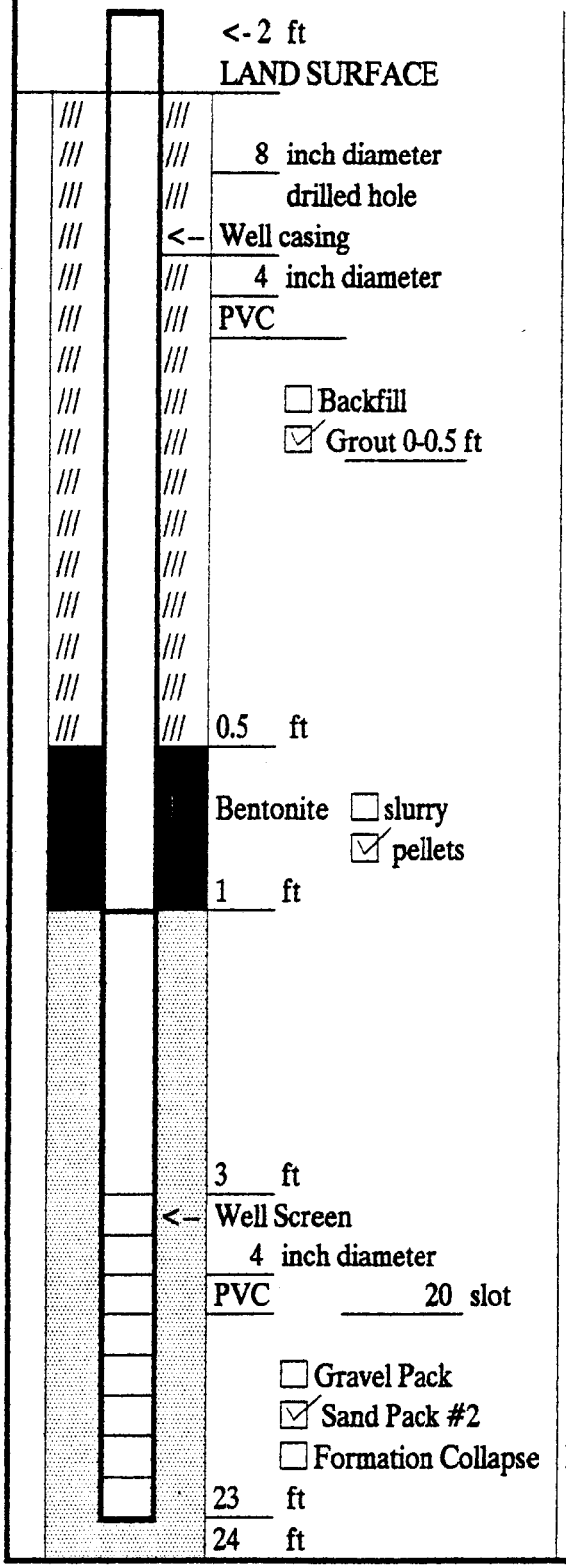
Remarks: amsl = above mean sea level
bmp = below measuring point (top of 4-inch diameter PVC casing)
gpm = gallons per minute

*Note: Flush mount cover installed.

Prepared By: KJM

VINCENT UHL ASSOCIATES

UNCONSOLIDATED WELL CONSTRUCTION LOG



Project	BIG V/BPM	Well	MW-6S
Town/City	Baldwin Place		
County	Westchester	State	NY
Permit No.	N/A		
Land-Surface Elevation and Datum	602.09 feet (amsl)	☑ Surveyed ☐ Estimated	

Installation Dates:	August 14, 1992
Drilling Method:	Air Hammer
Drilling Contractor:	Samuel Stothoff
Drilling Fluid:	Air
Development Technique and Date:	Hand bailed 8-15-92
Fluid Loss During Drilling:	N/A
Water Removed During Development:	38 Gallons
Static Depth to Water:	3.51 ft. bmp
Pumping Depth to Water:	N/A
Devlopment Duration:	45 Minutes
Yield:	N/A
Specific Capacity:	NM
Well Purpose:	Monitoring Groundwater Quality

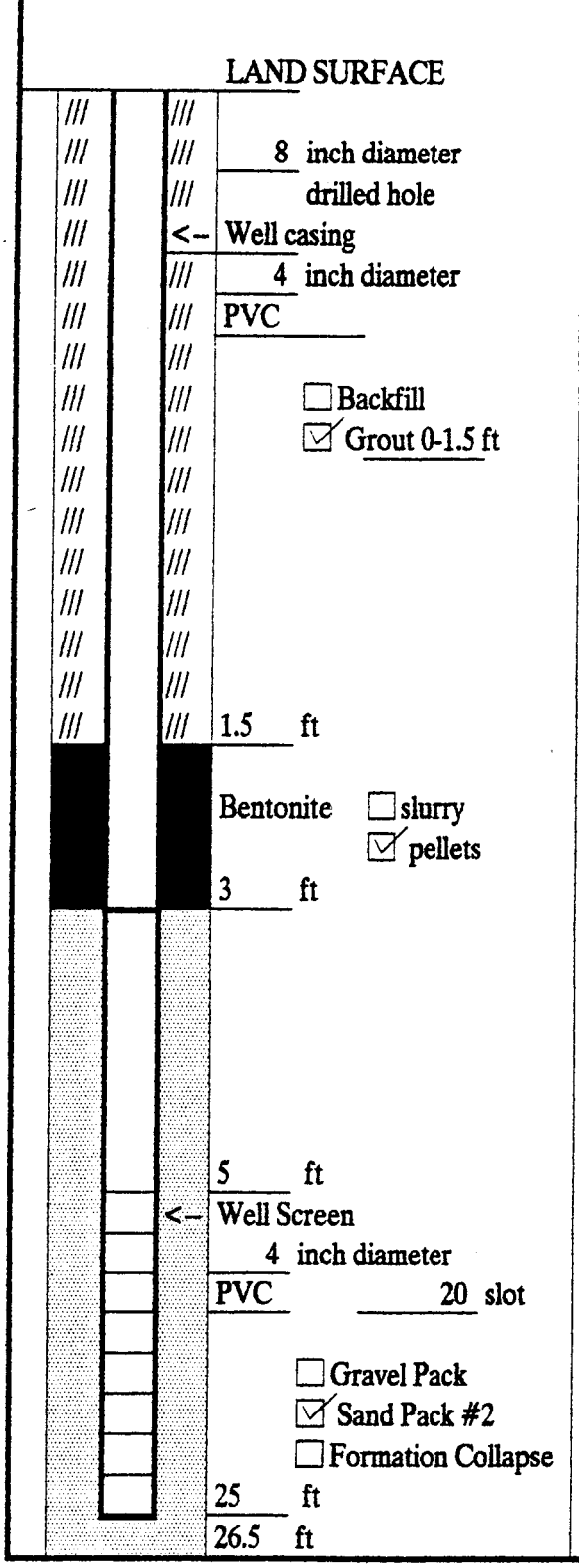
Remarks: amsl = above mean sea level
bmp = below measuring point (top of 4-inch diameter PVC casing)
NM = not measured

*Note: 8-inch diameter protective steel casing installed.

Prepared By: KJM

VINCENT UHL ASSOCIATES

UNCONSOLIDATED WELL CONSTRUCTION LOG



Project	BIG V/BPM	Well	MW-7S
Town/City	Baldwin Place		
County	Westchester	State	NY
Permit No.	N/A		
Land-Surface Elevation and Datum	602.07 feet (amsl)	☑ Surveyed ☐ Estimated	
Installation Dates:	August 4 and 5, 1992		
Drilling Method:	Air Hammer		
Drilling Contractor:	Samuel Stothoff		
Drilling Fluid:	Air		
Development Technique and Date:	Submersible pump 8-12-92		
Fluid Loss During Drilling:	N/A		
Water Removed During Development:	165 Gallons		
Static Depth to Water:	7.35 ft. bmp		
Pumping Depth to Water:	22.40 ft. bmp		
Pumping Duration:	75 Minutes		
Yield:	2.20 gpm		
Specific Capacity:	0.14 gpm/ft.		
Well Purpose:	Monitoring Groundwater Quality		

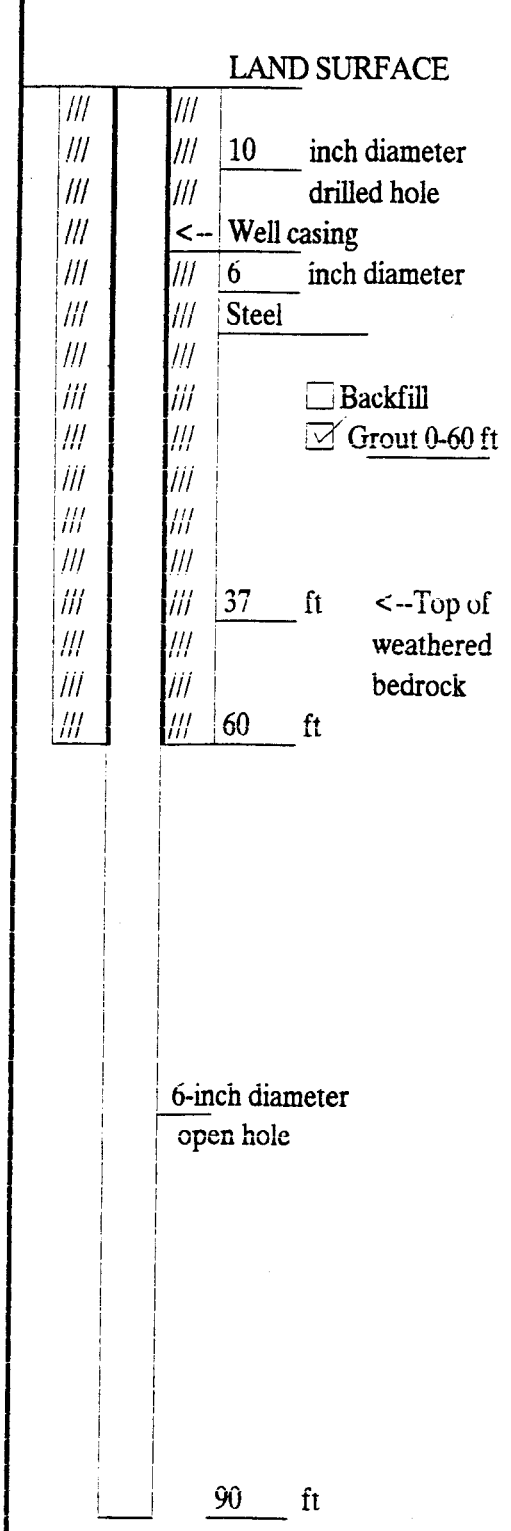
Remarks: amsl = above mean sea level
bmp = below measuring point (top of 4-inch diameter PVC casing)
gpm = gallons per minute

*Note: Flush mount cover installed.

Prepared By: KJM

VINCENT UHL ASSOCIATES

BEDROCK WELL CONSTRUCTION LOG



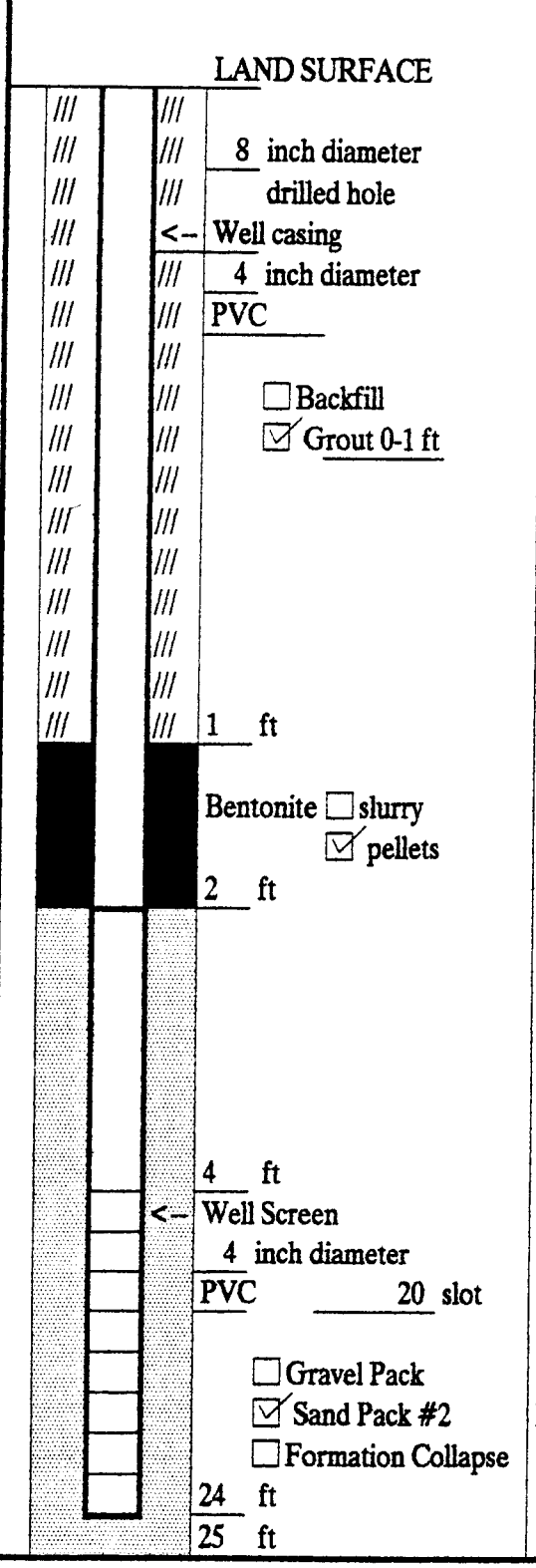
Project:	BIG V/BPM	Well:	MW-7D
Town/City:	Baldwin Place		
County:	Westchester	State:	NY
Permit No.:	N/A		
Land-Surface Elevation:		☑ Surveyed	
and Datum	602.18 feet (amsl)	☐ Estimated	
Installation Dates	April 12 and April 13, 1993		
Drilling Method:	Air Hammer		
Drilling Contractor:	Samuel Stothoff		
Drilling Fluid:	Air		
Development Technique and Date:	Submersible pump 4-27-93		
Fluid Loss During Drilling:	N/A		
Water Removed During Development:	65 Gallons		
Static Depth to Water:	5.75 ft. bmp		
Pumping Depth to Water:	41.88 ft. bmp		
Pumping Duration:	62 Minutes		
Average Yield:	1 gpm		
Specific Capacity:	0.028 gpm/ft.		
Well Purpose:	Monitoring Groundwater Quality		

Remarks: amsl = above mean sea level
bmp = below measuring point
(top of 6-inch diameter steel casing)
gpm = gallons per minute

*Note: Flush mount cover installed.

Prepared by: KJM

UNCONSOLIDATED WELL CONSTRUCTION LOG



Project	BIG V/BPM	Well	MW-8S
Town/City	Baldwin Place		
County	Westchester	State	NY
Permit No.	N/A		
Land-Surface Elevation and Datum	618.28 feet (amsl)	☑ Surveyed ☐ Estimated	
Installation Dates:	August 4, 1992		
Drilling Method:	Air Hammer		
Drilling Contractor:	Samuel Stothoff		
Drilling Fluid:	Air		
Development Technique and Date:	Hand bailed 8-13-92 and 8-15-92		
Fluid Loss During Drilling:	N/A		
Water Removed During Development:	45 Gallons		
Static Depth to Water:	6.00 ft. bmp		
Pumping Depth to Water:	N/A		
Devlopment Duration:	55 Minutes		
Yield:	N/A		
Specific Capacity:	NM		
Well Purpose:	Monitoring Groundwater Quality		

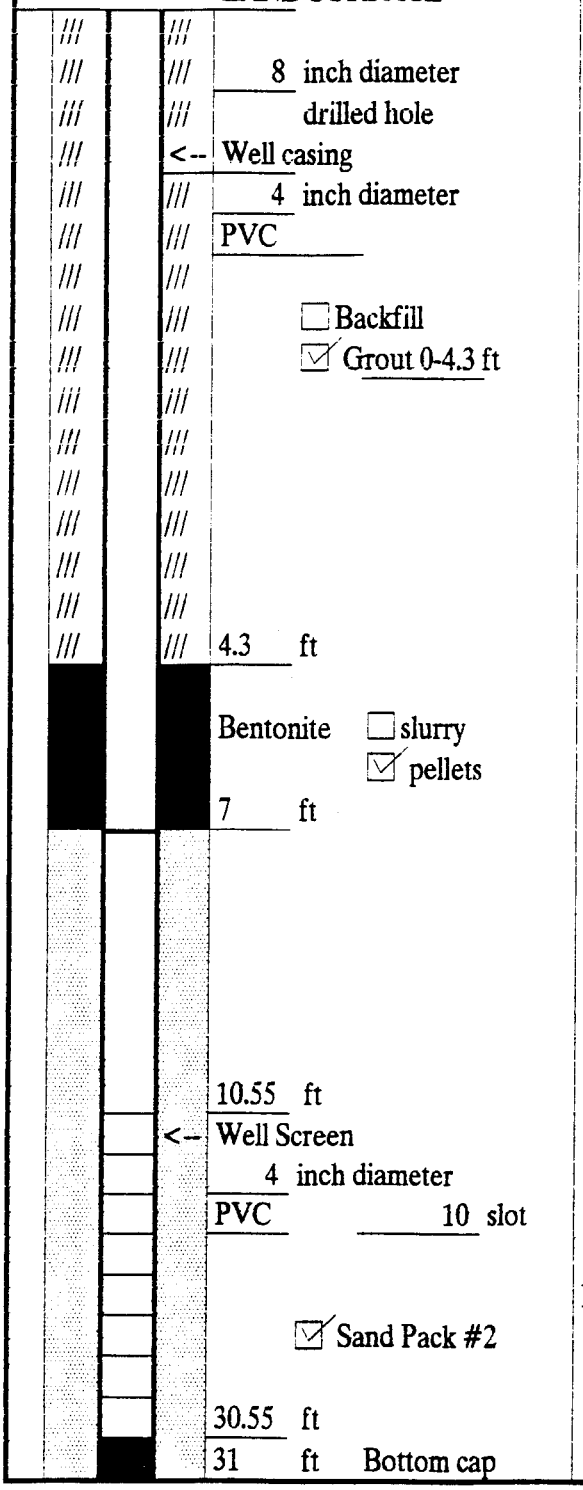
Remarks: amsl = above mean sea level
bmp = below measuring point (top of 4-inch diameter PVC casing)
NM = not measured

*Note: Flush mount cover installed.

Prepared By: KJM

VINCENT UHL ASSOCIATES

UNCONSOLIDATED WELL CONSTRUCTION LOG



Project	BIG V/BPM	Well	MW-9S
Town/City	Baldwin Place		
County	Westchester	State	NY
Permit No.	N/A		
Land-Surface Elevation and Datum	596.21 feet (amsl)	☑ Surveyed ☐ Estimated	

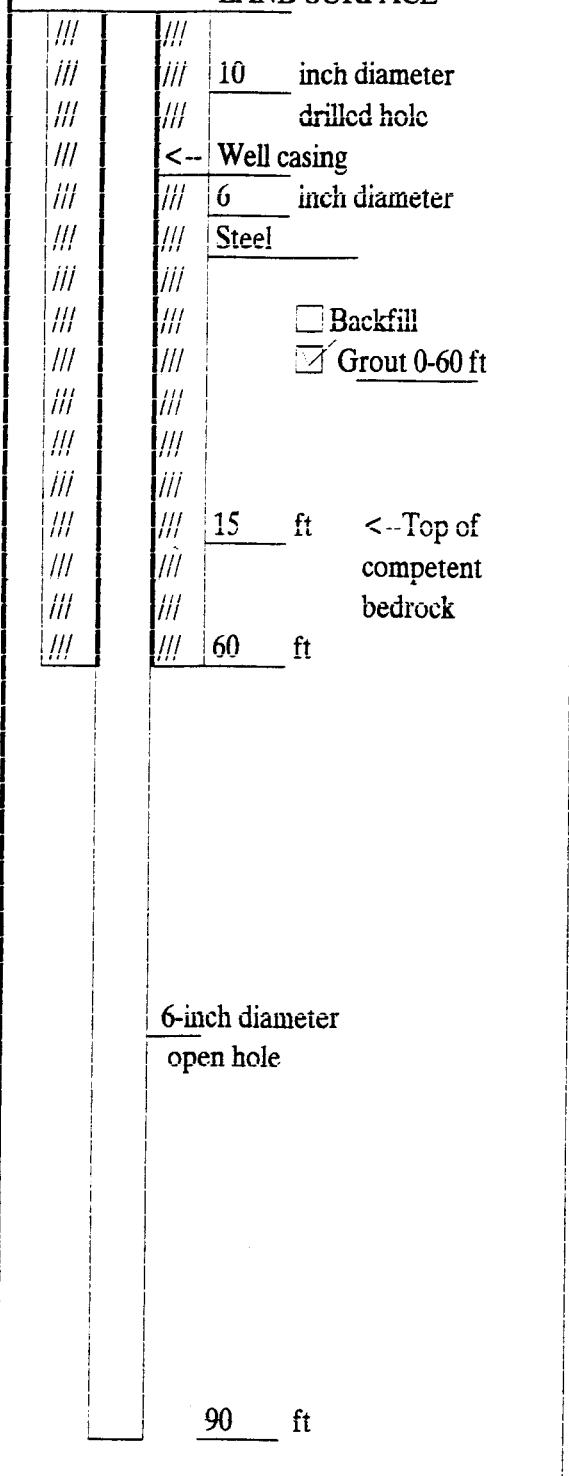
Installation Dates:	April 21, 1993
Drilling Method:	Air Hammer
Drilling Contractor:	Samuel Stothoff
Drilling Fluid:	Air
Development Technique and Date:	Submersible pump 4-27-93
Fluid Loss During Drilling:	N/A
Water Removed During Development:	323 Gallons
Static Depth to Water:	3.86 ft. bmp
Pumping Depth to Water:	9.53 ft. bmp
Pumping Duration:	52 Minutes
Average Yield:	6.6 gpm
Specific Capacity:	1.16 gpm/ft.
Well Purpose:	Monitoring Groundwater Quality

Remarks: amsl = above mean sea level
bmp = below measuring point
(top of 4-inch diameter PVC casing)
gpm = gallons per minute

*Notes: Flush mount cover installed.
Ten-inch diameter drilled hole
to 14 feet below land surface.

Prepared By: KJM

BEDROCK WELL CONSTRUCTION LOG



Project:	BIG V/BPM
Well:	MW-9D
Town/City:	Baldwin Place
County:	Westchester
State:	NY
Permit No.:	N/A
Land-Surface Elevation:	☑ Surveyed ☐ Estimated
and Datum	595.99 feet (amsl)
Installation Dates	April 19 and April 20, 1993
Drilling Method:	Air Hammer
Drilling Contractor:	Samuel Stothoff
Drilling Fluid:	Air
Development Technique and Date:	Submersible pump 4-26-93
Fluid Loss During Drilling:	N/A
Water Removed During Development:	90 Gallons
Static Depth to Water:	3.08 ft. bmp
Pumping Depth to Water:	81.26 ft. bmp
Pumping Duration:	45 Minutes
Yield:	2 gpm
Specific Capacity:	0.026 gpm/ft.
Well Purpose:	Monitoring Groundwater Quality

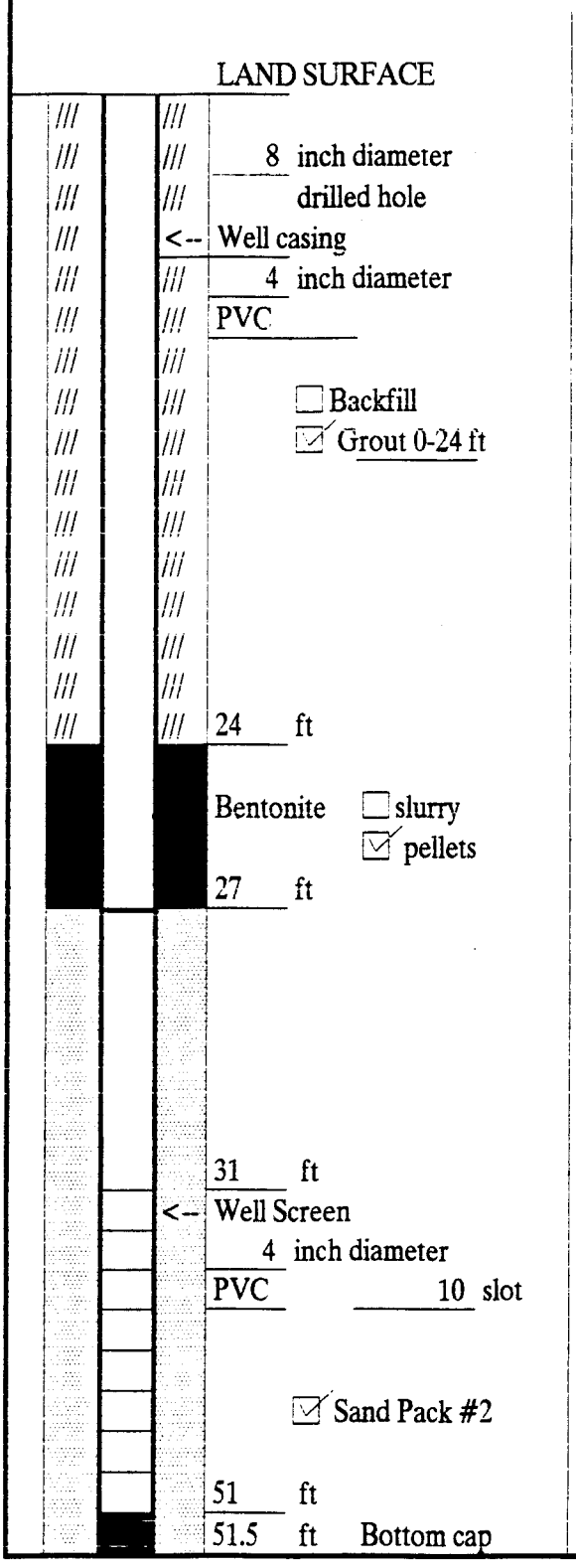
Remarks: amsl = above mean sea level
bmp = below measuring point (top of 6-inch diameter steel casing)
gpm = gallons per minute

*Note: Flush mount cover installed.

Prepared by: KJM

VINCENT UHL ASSOCIATES

UNCONSOLIDATED WELL CONSTRUCTION LOG



Project	BIG V/BPM	Well	MW-10S
Town/City	Baldwin Place		
County	Westchester	State	NY
Permit No.	N/A		
Land-Surface Elevation and Datum	600.64 feet (amsl)	☑ Surveyed ☐ Estimated	

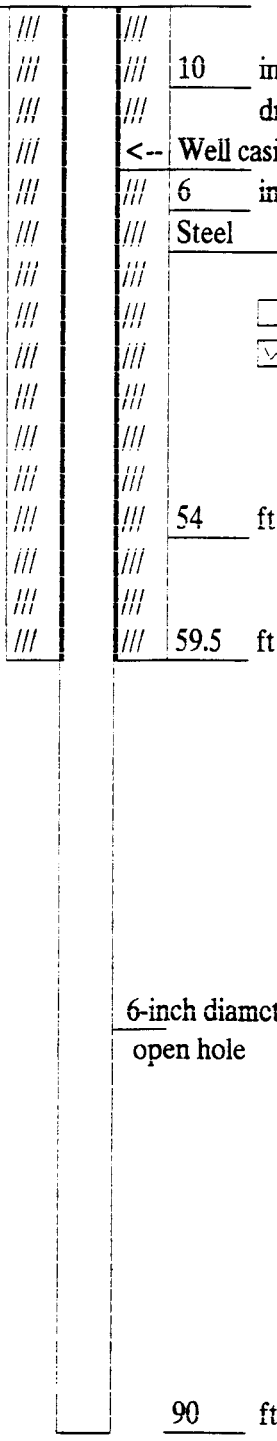
Installation Dates:	April 22, 1993
Drilling Method:	Air Hammer
Drilling Contractor:	Samuel Stothoff
Drilling Fluid:	Air
Development Technique and Date:	Submersible pump 4-27-93
Fluid Loss During Drilling:	N/A
Water Removed During Development:	295 Gallons
Static Depth to Water:	7.95 ft. bmp
Pumping Depth to Water:	28.43 ft. bmp
Pumping Duration:	186 Minutes
Average Yield:	1.5 gpm
Specific Capacity:	0.07 gpm/ft
Well Purpose:	Monitoring Groundwater Quality

Remarks: amsl = above mean sea level
bmp = below measuring point
(top of 4-inch diameter PVC casing)
gpm = gallons per minute

*Note: Flush mount cover installed.

Prepared By: KJM

BEDROCK WELL CONSTRUCTION LOG



Project:	BIG V/BPM	Well:	MW-10D
Town/City:	Baldwin Place		
County:	Westchester	State:	NY
Permit No.:	N/A		
Land-Surface Elevation:		☑ Surveyed	
and Datum	600.52 feet (amsl)	☐ Estimated	
Installation Dates	April 20 to April 22, 1993		
Drilling Method:	Air Hammer		
Drilling Contractor:	Samuel Stothoff		
Drilling Fluid:	Air		
Development Technique and Date:	Submersible pump 4-27-93		
Fluid Loss During Drilling:	N/A		
Water Removed During Development:	255 Gallons		
Static Depth to Water:	8.12 ft. bmp		
Pumping Depth to Water:	65.00 ft. bmp		
Pumping Duration:	62 Minutes		
Average Yield:	5 gpm		
Specific Capacity:	0.088 gpm/ft.		
Well Purpose:	Monitoring Groundwater Quality		

Remarks: amsl = above mean sea level
bmp = below measuring point
(top of 6-inch diameter steel casing)
gpm = gallons per minute

*Note: Flush mount cover installed.

Prepared by: KJM

APPENDIX H

GEOLOGIC LOGS OF MONITORING WELLS

Project _____BIGV/BPM__ Date 7-30-92

Location _____Baldwin Place, New York_____

Boring/Well Designation __MW-1S_____

Land Surface Elevation _____Estimated 597.41 Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid ____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

From (ft)	To (ft)	Sample Recovery (ft)	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. Mica and quartz crystals in sample.

Boring/Well Designation MW-1S
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample 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

Project _____BIGV/BPM__ Date 7-27-92

Location _____Baldwin Place, New York_____

Boring/Well Designation ___MW-1D_____

Land Surface Elevation _____Estimated 597.41Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

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.

Boring/Well Designation MW-1D
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery	Sample Description
10	11	100%	Weathered gneiss composded of fine sand (80%), little silt, little clay (~10%), brown, green and black, mica crystals thoughout sample, black and tan vitrous luster. Sample moist, HNU=0.
		Top of bedrock at 11 feet bgs.	
11	15	Grab	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
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
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.

Boring/Well Designation MW-1D
Geologic/Drilling Activity Log

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.

Geologic/Drilling Activity Log

Project _____BIGV/BPM___ Date 7-29-92

Location _____Baldwin Place_____

Boring/Well Designation ___MW-2S_____

Land Surface Elevation _____Estimated 601.53 Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method __Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
0	5	Water level at approx. 1' bgs.	Silt and fine to med. sand (90%), poorly sorted, subrounded, little very fine to fine gravel, greenish-brown, 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	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.

Project _____BIGV/BPM__ Date 7-27-92

Location _____Baldwin Place_____

Boring/Well Designation ___MW-2D_____

Land Surface Elevation _____Estimated 601.66 Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

From (ft)	To (ft)	Sample Recovery	Sample Description
0	2	50%	1" of asphalt, Silt and fine to med. sand (90%), poorly sorted, little very fine gravel, subrounded, brown, moist.
		Water level at 0' bgs	
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.
6	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.

Boring/Well Designation MW-2D
Geologic/Drilling Activity Log

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.

Boring/Well Designation MW-2D
Geologic/Drilling Activity Log

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.

Project _____BIGV/BPM__ Date 8-6-92

Location _____Baldwin Place_____

Boring/Well Designation ____MW-3S_____

Land Surface Elevation _____Estimated 602.65 Surveyed

Drilling Method ____Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method ___Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
1	3	1.6	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.
3	5	1.3	0 to 1.2 ft of spoon: Clay and fine tc med. sand (80%), brown, moist, HNU=0, Head Space=1.1. Gravel, angular, gneiss, black, white, quartz, tan to milky white.

Boring/Well Designation MW-3S
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
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 Water level at 5.5 feet bgs.	Sand, fine and clay (80%), brown, 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	0 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.

Project _____BIGV/BPM__ Date 8-11-92

Location _____Baldwin Place_____

Boring/Well Designation ____MW-3D_____

Land Surface Elevation ____Estimated 602.25 Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid ____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
1	5	Water level at 5 feet bgs.	Silt, clay, fine sand, greenish-grey, 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, grey.
5	10		Silt, fine sand, greenish-grey, moist, HNU=0, Head Space=0. Gravel, angular, gneiss; black, white, quartz; 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.

From (ft)	To (ft)	Sample Recovery (ft)	Sample 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.

Boring/Well Designation MW-3D
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample 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		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.
	Lots of mineralization		
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.

Boring/Well Designation MW-3D
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample 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.

Project _____BIGV/BPM__ Date 8-6-92

Location _____Baldwin Place_____

Boring/Well Designation ___MW-3DD_____

Land Surface Elevation _____Estimated 602.22 Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
1	3	1.3	0 to 0.3 ft of spoon: Clay and fine 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 (ft)	Sample 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 Water level at 5 feet bgs.	Sand, fine to med. (60%) and clay, some 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	0 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.

From (ft)	To (ft)	Sample Recovery (ft)	Sample 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, 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.
	Lots of mineralization		
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.

Boring/Well Designation MW-3DD
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample 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 (ft)	Sample Description
75	80	Gravel seam from 77 to 80 feet bgs.	Silt and clay (90%), greenish-grey, 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.

Boring/Well Designation MW-3DD
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample 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

Location _____Baldwin Place_____

Boring/Well Designation ___MW-4S_____

Land Surface Elevation _____Estimated 609.68 Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
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.

Boring/Well Designation MW-4S
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample 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

Location _____Baldwin Place_____

Boring/Well Designation ___MW-4D_____

Land Surface Elevation _____Estimated 609.72 Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
1	3	2.0	1 to 2.5 ft: Soil, brown, little clay. 2.5 to 3 ft: Silt and very fine sand (90%), brown, dry, poorly sorted, little angular fine gravel, black, milky 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, HNU=0.

Boring/Well Designation MW-4D
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
7	9	2.0	Sand, fine to med. (80%), little silt, trace angular gravel, saturated, brown. Weathered granitic gneiss 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 Refusal at 15 feet.	Top 0.2 ft of spoon: Sand, med. to 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.

Boring/Well Designation MW-4D
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample 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.

Boring/Well Designation MW-4D
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample 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.

Project _____BIGV/BPM__ Date 8-5-92

Location _____Baldwin Place_____

Boring/Well Designation ___MW-5S_____

Land Surface Elevation ____Estimated 603.36 Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

From (ft)	To (ft)	Sample Recovery (ft)	Sample 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%), little fine sand, brown, saturated. Little fine gravel, angular to subrounded of gneiss; black, white, mica; black, quartz; white, feldspar; tan.
		Water level at 4.8 ft bgs.	

Boring/Well Designation MW-5S
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
5	7	2.0	0 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	1.6	0 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	2.0	0 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.

Boring/Well Designation MW-5S

Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
20	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.

Project _____BIGV/BPM___ Date 4-14-93

Location _____Baldwin Place, New York_____

Boring/Well Designation ___MW-5D_____

Land Surface Elevation _____Estimated 602.80 Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: V. Uhl and K. McKeever

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 ppm.
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.
	4/15/93		
62	65	Grab	Weathered GNEISS; large angular to sub-angular fragments, of white quartz, black mica, and pink feldspars, HNU=0 ppm.
65	67	0.2 ft.	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, and pink feldspars, very little flow.

Boring/Well Designation MW-5D
Geologic/Drilling Activity Log

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.

Project _____BIGV/BPM___ Date 8-14-92

Location _____Baldwin Place_____

Boring/Well Designation ___MW-6S_____

Land Surface Elevation _____Estimated 602.09 Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

From (ft)	To (ft)	Sample Recovery (ft)	Sample 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	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, tan, mica; black, gneiss; white, black.
	Water level at 5 feet bgs.		

Boring/Well Designation MW-6S
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample 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	0 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. 0.2 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

Location _____Baldwin Place_____

Boring/Well Designation ___MW-7S_____

Land Surface Elevation _____Estimated 602.07 Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
1	3	1.2	0 to 0.1 ft of spoon: Asphalt and fill. 0.1 to 0.2 ft of spoon: Silt and fine 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	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 tan-yellow, moist, HNU=0.

Boring/Well Designation MW-7S
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
5	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	9	2.0	0 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 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 white.
14	16	0.9	0 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.
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.

Boring/Well Designation MW-7S

Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
19	21	1.8	0 to 0.4 ft of spoon: Clay, greenish-brown, with fine sand and quartz, moist. 0.4 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

Location _____Baldwin Place, New York_____

Boring/Well Designation ____MW-7D_____

Land Surface Elevation _____Estimated 602.18 Surveyed

Drilling Method ____Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method ___Split Spoon 2ft. long/Grab_____

Sampling Interval ___Continuous to Water then 5 Foot Interval

Drilling Contractor ___Samuel Stothoff_____

Prepared By: V. Uhl and K. McKeever

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, grey-green.
30	32	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.

Boring/Well Designation MW-7D
Geologic/Drilling Activity Log

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.

Project _____BIGV/BPM__ Date 8-4-92

Location _____Baldwin Place_____

Boring/Well Designation ___MW-8S_____

Land Surface Elevation _____Estimated 618.28 Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

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 gravel, light brown, saturated. Bottom 0.4 ft of spoon: Coarse grained angular feldspar crystals, some quartz and mica, HNU=0.
		Water at 5 feet bgs.	

Boring/Well Designation MW-8S
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
10	15	Hard drilling cannot retrieve a spoon sample.	Sand, fine to med.-coarse (80%), clay, greenish-brown, trace fine gravel, angular to subrounded of gneiss; black, white, mica; black, quartz; milky white, feldspar; pink, moist, HNU=0.
15	20	Hard drilling cannot retrieve a spoon sample.	Sand, fine to med-coarse (80%), trace clay, greenish-brown, trace fine gravel, angular to subrounded of gneiss; black, white, green, mica; black, quartz; milky white, moist, HNU=0.
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.

Project _____BIGV/BPM__ Date 4-21-93

Location _____Baldwin Place_____

Boring/Well Designation ___MW-9S_____

Land Surface Elevation _____Estimated 596.21 Surveyed

Drilling Method ____Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
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 ppm.
10	15	Grab	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.

Boring/Well Designation MW-9S
Geologic/Drilling Activity Log

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.

Project _____BIGV/BPM__ Date 4-16-93

Location _____Baldwin Place, New York_____

Boring/Well Designation ___MW-9D_____

Land Surface Elevation _____Estimated 595.99 Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid ____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

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 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		
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 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.
	NOTE: Casing set and grouted at 60 ft. bgs.		

Boring/Well Designation MW-9D
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery	Sample 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=0ppm.
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.

Project _____BIGV/BPM___ Date 4-22-93

Location _____Baldwin Place_____

Boring/Well Designation ___MW-10S_____

Land Surface Elevation ____Estimated 600.64 Surveyed

Drilling Method ____Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
0	5	Grab	SILT; and sand, very fine to fine, and some angular gravel, brown, moist at 3 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 some angular gravel, brown, moist.
20	25	Grab	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.

Boring/Well Designation MW-10S
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery (ft)	Sample Description
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.

Project _____BIGV/BPM__ Date 4/13/93

Location _____Baldwin Place, New York_____

Boring/Well Designation ___MW-10D_____

Land Surface Elevation _____Estimated 600.52 Surveyed

Drilling Method ___Air Hammer_____

Drilling Fluid _____Air_____

Sampling Method __Split Spoon 2ft. long/Grab_____

Sampling Interval __Continuous to Water then 5 Foot Interval

Drilling Contractor __Samuel Stothoff_____

Prepared By: A. Rana and K. McKeever

From (ft)	To (ft)	Sample Recovery	Sample Description
0	2	1.0 ft.	SILT; and very fine to fine sand, brown, dry, HNU<1 ppm.
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, trace mica and clay, and angular gravel, dry, wet at bottom of spoon, some weathered remnants, HNU=0 ppm.
6	8	0.1 ft.	SILT; and very fine to fine sand, brown, trace mica, and angular gravel, wet, some weathered remnants, HNU=0 ppm
8	10	Grab	Silty SAND; very fine to fine, brown, trace mica, and angular gravel, saturated, HNU=0 ppm.

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.

Boring/Well Designation MW-10D
Geologic/Drilling Activity Log

From (ft)	To (ft)	Sample Recovery	Sample 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	60	Grab	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.
	NOTE: Casing set and grouted at 60 ft. bgs.		
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.

Boring/Well Designation MW-10D
Geologic/Drilling Activity Log

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

APPENDIX I

BEDROCK CORE LOG

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

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
100.8 108.8	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.*

Bedrock Core Log

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

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
108.8	10 ft. Run 3.2 ft Recovery 32%	1.48/10 ft	14.8 % Very Poor	2	1400 to 1450	Upper 1 ft. of core, 108.8 to 109.8: Fairly competent banded granitic gneiss, quartz and biotite 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.
118.8	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.*

Bedrock Core Log

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

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
123.8						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.
124.3	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 = 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.*

Bedrock Core Log

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

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
						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 6.67 ft. Recovery 77%	4.4/8.6 ft.	51% Poor	6		129.3 to 131.1: Very friable, granitic quartz, feldspar, biotie gneiss, % feldspars (pink) dominant in this interval. Coarse quartz, 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.*

Bedrock Core Log

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

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
137.9	1.4 ft. Run 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 ft. bgs.
139.3	10 ft. Run 10 ft. Recovery 100%	9.53/10 ft.	95% Excellent	8		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.*

Bedrock Core Log

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

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
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.
159.3	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.*

Bedrock Core Log

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

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
169.3	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 and178.9.
179.3	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.*

Bedrock Core Log

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

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
189.3						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.*

Bedrock Core Log

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

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
						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.

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
Washington PA 18977
~~Crossing~~

Report Date:	08-SEP-92
Project:	STANDARD
Lab Number:	114946
Sample Number(s):	114946-01 to 114946-04

Ronald A. Bayer
Laboratory Director

EnviroTest Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550
(914) 562-0890
FAX (914) 562-0841

Inorganics Analysis Data Sheet
Form I - IN

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	MG/L	EPA 310.1	02-SEP-92
Chlorides	93	MG/L	4500 CL B	01-SEP-92
Nitrate-Nitrite	<0.2	MG/L	EPA 353.2	04-SEP-92
Sulfate	40	MG/L	EPA 375.4	01-SEP-92
Total Dissolved Solids	310	MG/L	EPA 160.1	03-SEP-92
Total Hardness	57	MG/L	EPA 130.2	03-SEP-92
pH	11.4		EPA 150.1	01-AUG-92

Remarks: Bicarbonate Alkalinity = 32

EnviroTest Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550
(914) 562-0890
FAX (914) 562-0841

Inorganics Analysis Data Sheet
Form I - IN

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	<0.2	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
pH	7.2		EPA 150.1	01-AUG-92

Remarks: Bicarbonate Alkalinity = Total Alkalinity

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315 Fullerton Avenue
Newburgh, NY 12550
(914) 562-0890
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Inorganics Analysis Data Sheet
Form I - IN

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
Matrix: 2 GW/WW

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	0.27	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/L	EPA 130.2	03-SEP-92
pH	7.8		EPA 150.1	01-AUG-92

Remarks: Bicarbonate Alkalinity = Total Alkalinity

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Inorganics Analysis Data Sheet
Form I - IN

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	240	MG/L	EPA 310.1	02-SEP-92
Chlorides	210	MG/L	4500 CL B	01-SEP-92
Nitrate-Nitrite	1.2	MG/L	EPA 353.2	04-SEP-92
Sulfate	65	MG/L	EPA 375.4	01-SEP-92
Total Dissolved Solids	600	MG/L	EPA 160.1	03-SEP-92
Total Hardness	460	MG/L	EPA 130.2	03-SEP-92
pH	7.6		EPA 150.1	01-AUG-92

Remarks: Bicarbonate Alkalinity = Total Alkalinity

EnviroTest Laboratories Inc.

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ANALYTICAL REPORT

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

Report Date:	11-SEP-92
Project:	STANDARD
Lab Number:	114990
Sample Number(s):	114990-01 to 114990-02

Ronald A. Bayer
Laboratory Director

EnviroTest Laboratories Inc.
315 Fullerton Avenue
Newburgh, NY 12550
(914) 562-0890
FAX (914) 562-0841

Inorganics Analysis Data Sheet
Form I - IN

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
Nitrate-Nitrite	<0.2	MG/L	EPA 353.2	04-SEP-92
Sulfate	21	MG/L	EPA 375.4	08-SEP-92
Total Dissolved Solids	300	MG/L	EPA 160.1	08-SEP-92
Total Hardness	230	MG/L	EPA 130.2	03-SEP-92
pH	7.5		EPA 180.1	03-SEP-92

Remarks: Bicarbonate Alkalinity = Total Alkalinity

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Inorganics Analysis Data Sheet
Form I - IN

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
Chlorides	92	MG/L	4500-CL B	04-SEP-92
Nitrate-Nitrite	2.4	MG/L	EPA 353.2	04-SEP-92
Sulfate	45	MG/L	EPA 375.4	08-SEP-92
Total Dissolved Solids	390	MG/L	EPA 160.1	08-SEP-92
Total Hardness	270	MG/L	EPA 130.2	03-SEP-92
pH	7.5		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	9.01	6.23	2.78	0.50
15.00	9.03	6.23	2.80	0.50
16.00	9.04	6.23	2.81	0.50
17.00	9.06	6.23	2.83	0.50
18.00	9.08	6.23	2.85	0.50
19.00	9.08	6.23	2.85	0.50
20.00	9.09	6.23	2.86	0.50
22.00	9.08	6.23	2.85	0.50
24.00	9.10	6.23	2.87	0.50
26.00	9.11	6.23	2.88	0.50
28.00	9.12	6.23	2.89	0.50
30.00	9.13	6.23	2.90	0.50
35.00	9.15	6.23	2.92	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

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

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	13.49	44.43	5.00
62.00	58.20	13.49	44.71	5.00
64.00	58.62	13.49	45.13	
66.00	58.92	13.49	45.43	
68.00	59.22	13.49	45.73	
70.00	59.50	13.49	46.01	
72.25	59.76	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

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
0.50	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	9.85	6.55	3.30	1.00
55.00	9.88	6.55	3.33	1.00
60.00	10.45	6.55	3.90	1.00
70.00	10.15	6.55	3.60	1.00
80.00	9.90	6.55	3.35	1.00

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

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	47.60	8.76	38.84	2.00
90.00	50.06	8.76	41.30	2.00
100.00	51.90	8.76	43.14	2.00
110.00	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

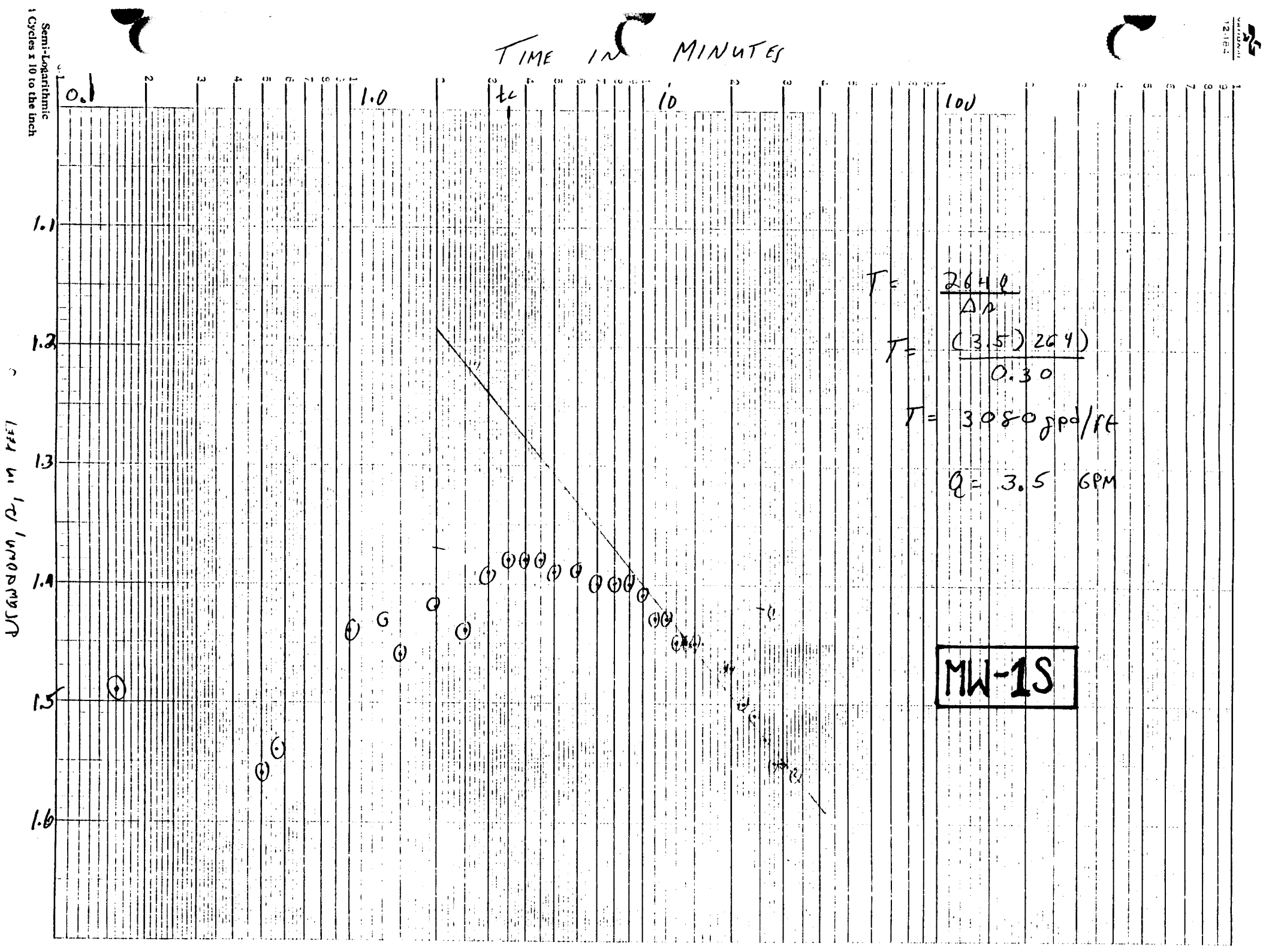
TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
0.50	7.35	5.54	1.81	1.25
1.00	7.93	5.54	2.39	1.25
1.50	8.29	5.54	2.75	1.25
2.00	8.62	5.54	3.08	1.25
2.50	9.12	5.54	3.58	1.25
3.00	9.70	5.54	4.16	1.25
3.50	10.00	5.54	4.46	1.25
4.00	10.54	5.54	5.00	1.25
4.50	11.11	5.54	5.57	1.25
5.00	11.41	5.54	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

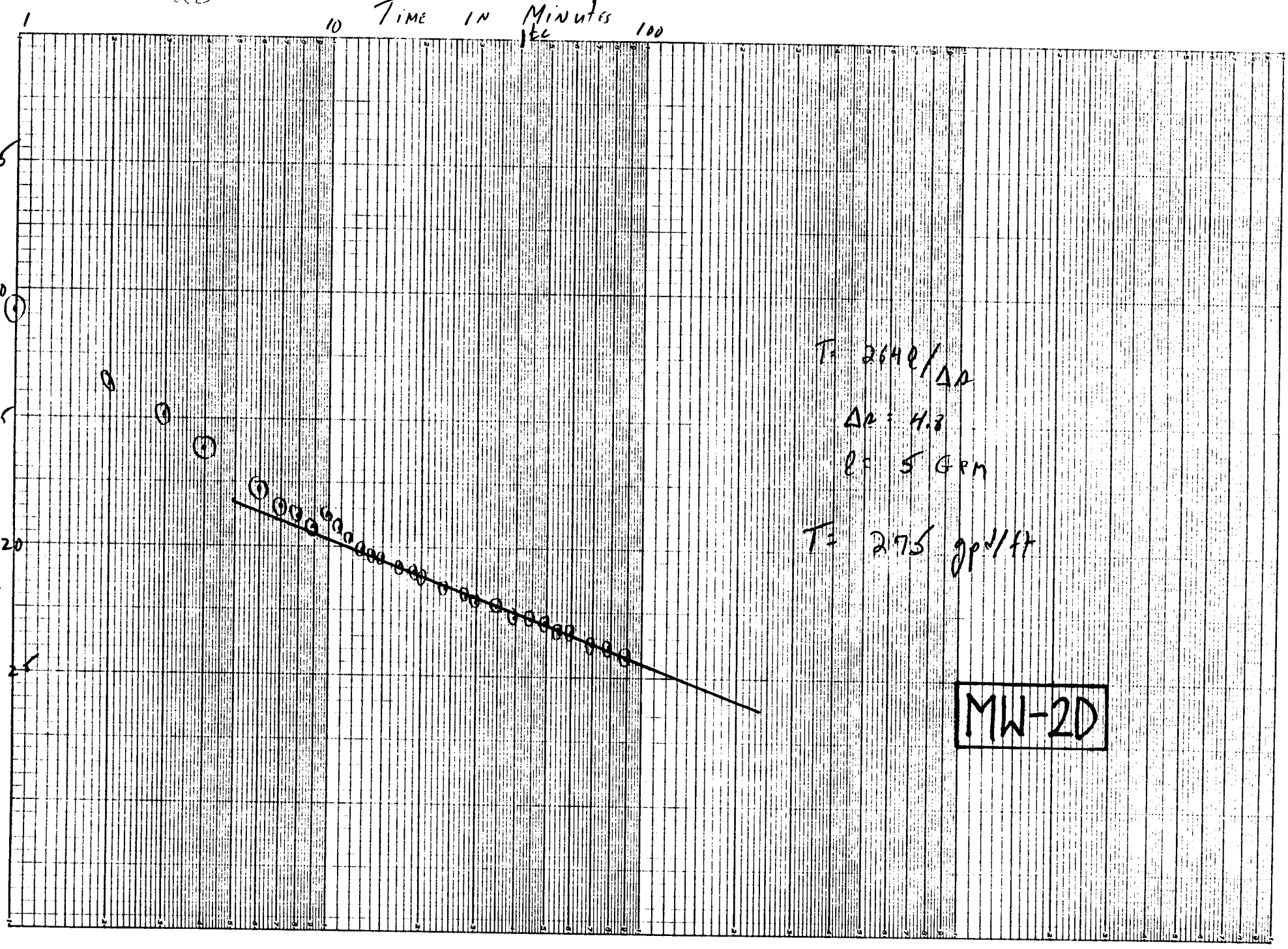
TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
0.50	15.20	9.00	6.20	2.50
0.83	17.17	9.00	8.17	2.50
1.00	17.32	9.00	8.32	2.50
1.50	19.21	9.00	10.21	2.50
2.00	20.08	9.00	11.08	2.50
2.50	21.03	9.00	12.03	2.50
3.00	21.80	9.00	12.80	2.50
3.50	22.75	9.00	13.75	2.50
4.00	24.19	9.00	15.19	2.50
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

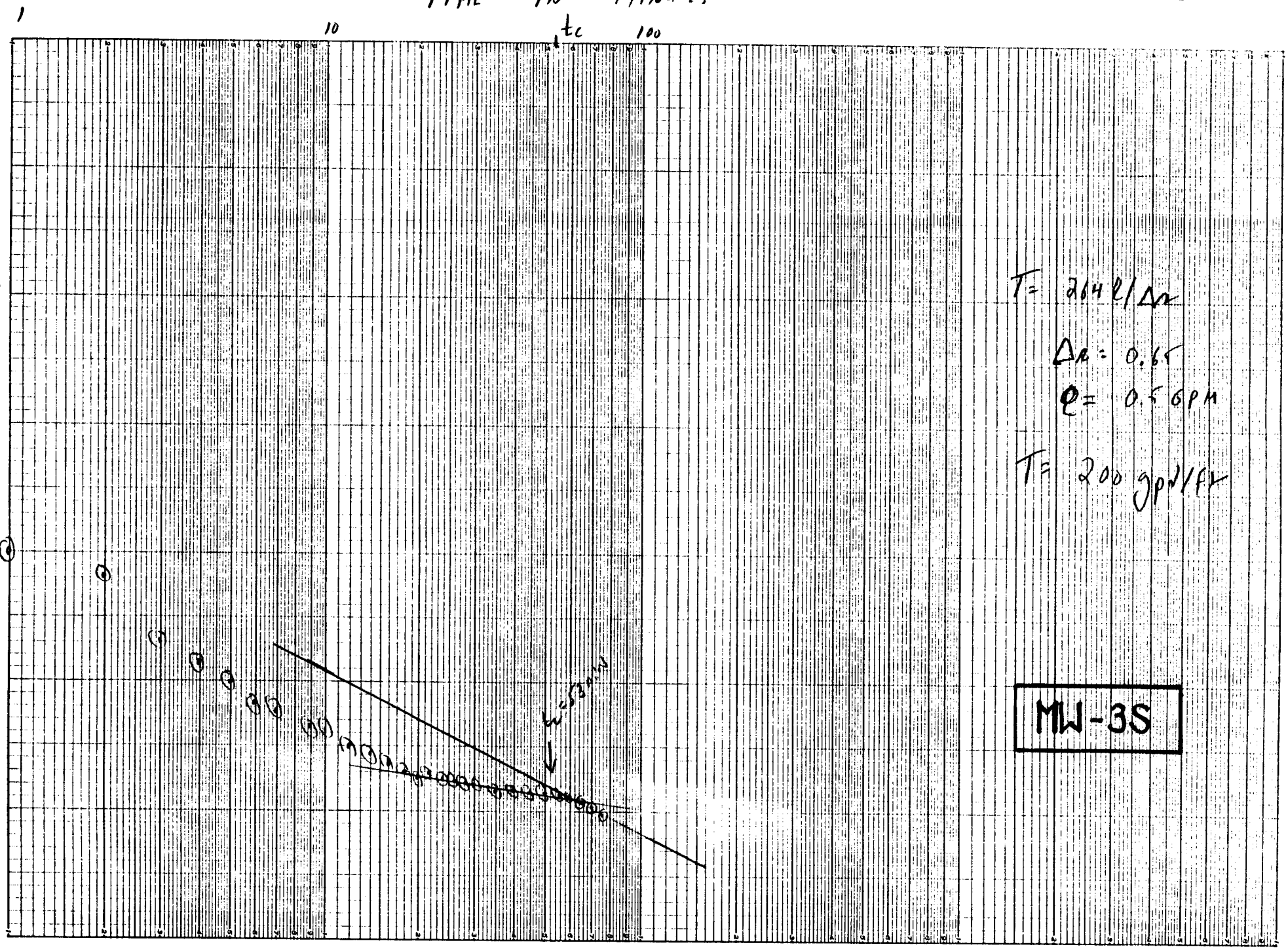
BIG V-5/93 (MW-10D)#2

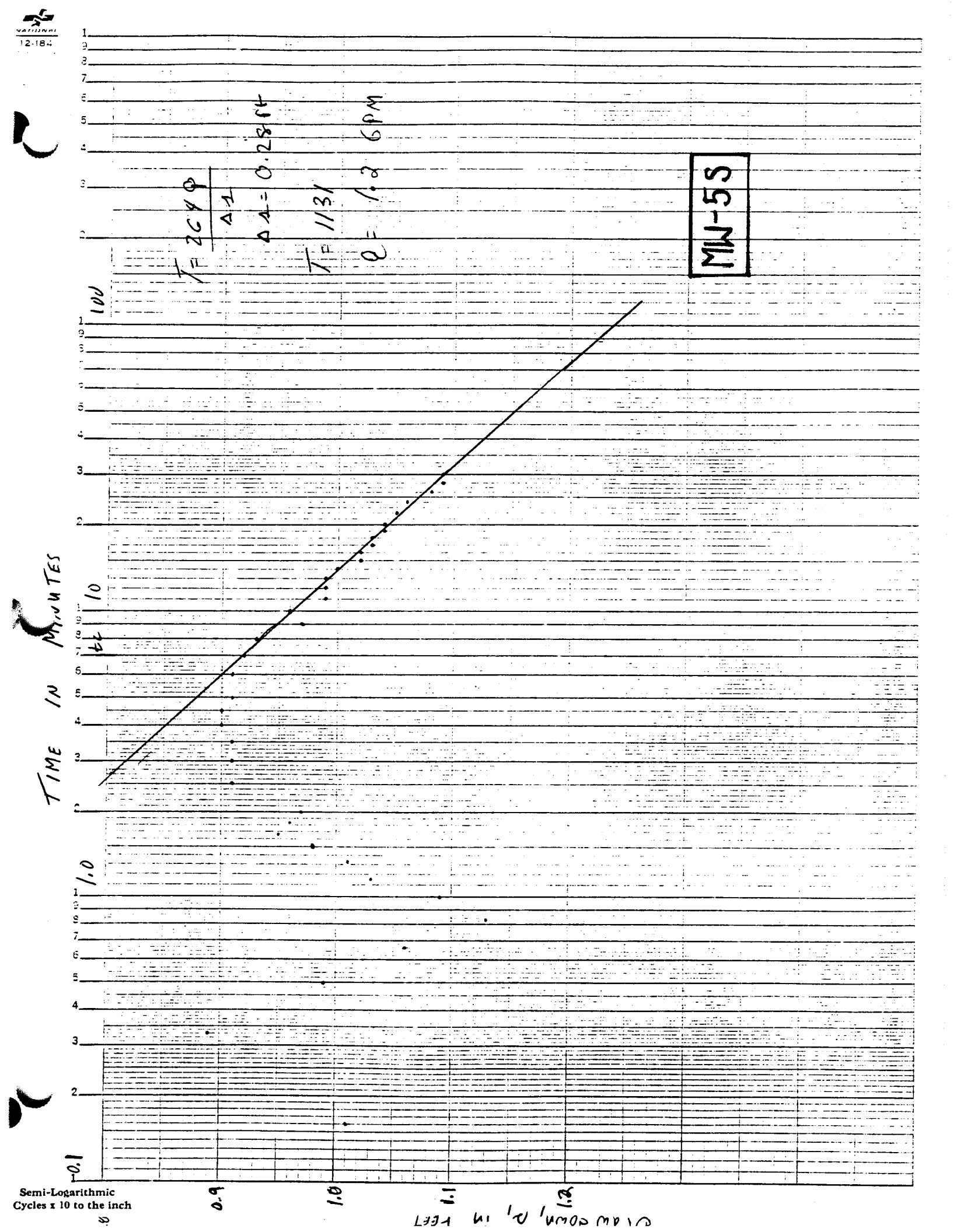
TIME (minutes)	DTW (ft.)	Static (ft.)	DRAWDOWN (ft.)	Q (gpm)
0.50	12.19	10.64	1.55	3.00
1.00	12.65	10.64	2.01	3.00
1.50	13.44	10.64	2.80	3.00
2.00	14.15	10.64	3.51	3.00
2.50	14.82	10.64	4.18	3.00
3.00	15.63	10.64	4.99	3.00
3.50	15.66	10.64	5.02	3.00
4.00	15.63	10.64	4.99	3.00
4.50	15.37	10.64	4.73	3.00
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


TIME IN MINUTES
Semi-Logarithmic
1 Cycles x 10 to the inch
0.1
1.0
tc
10
100
1.1
1.2
1.3
1.4
1.5
1.6
DRAWDOWN IN FEET
T = 264 Q / Δp
T = (3.5)(264) / 0.30
T = 3080 gpd/ft
Q = 3.5 GPM
MW-1S

MW - 2D

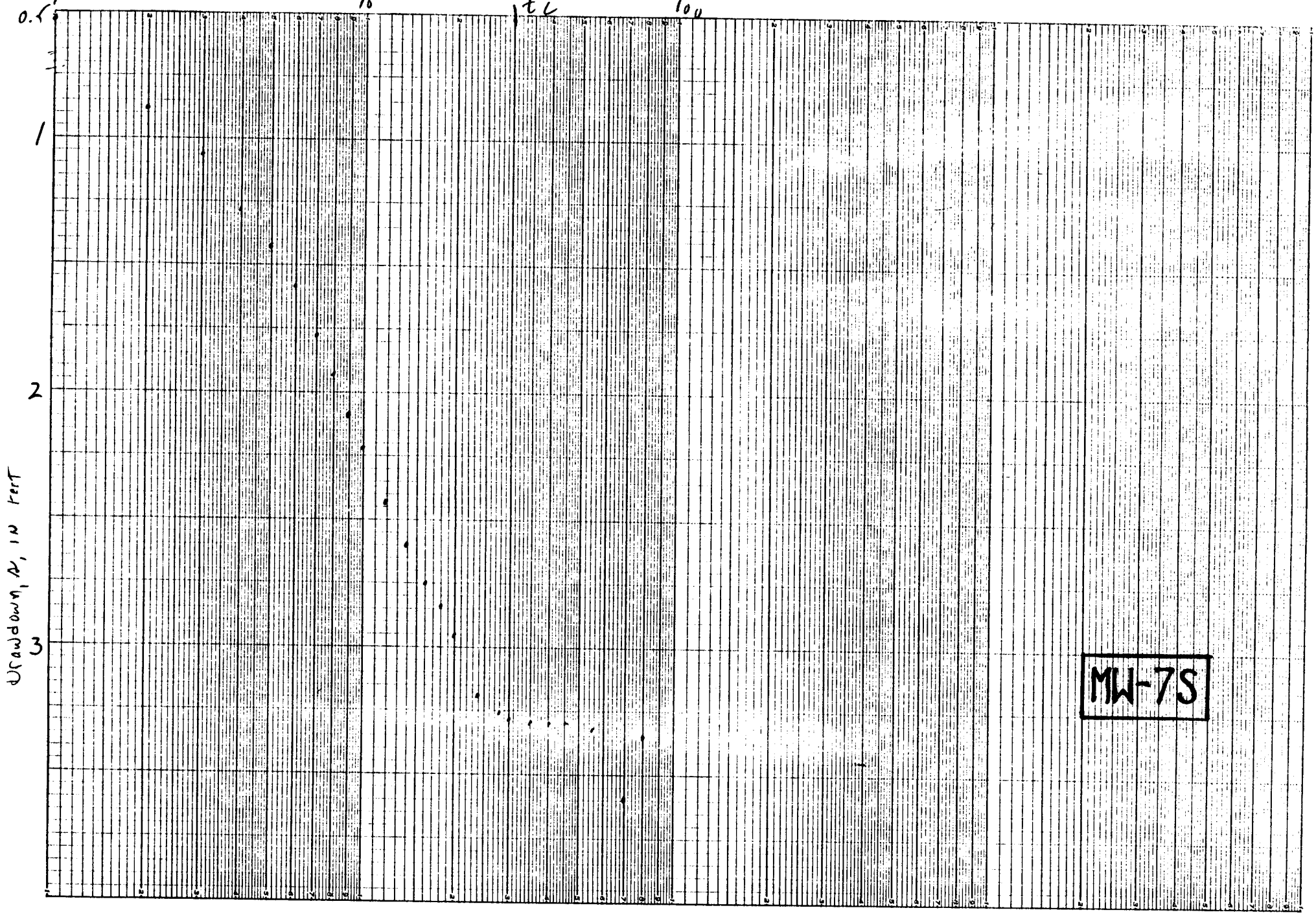


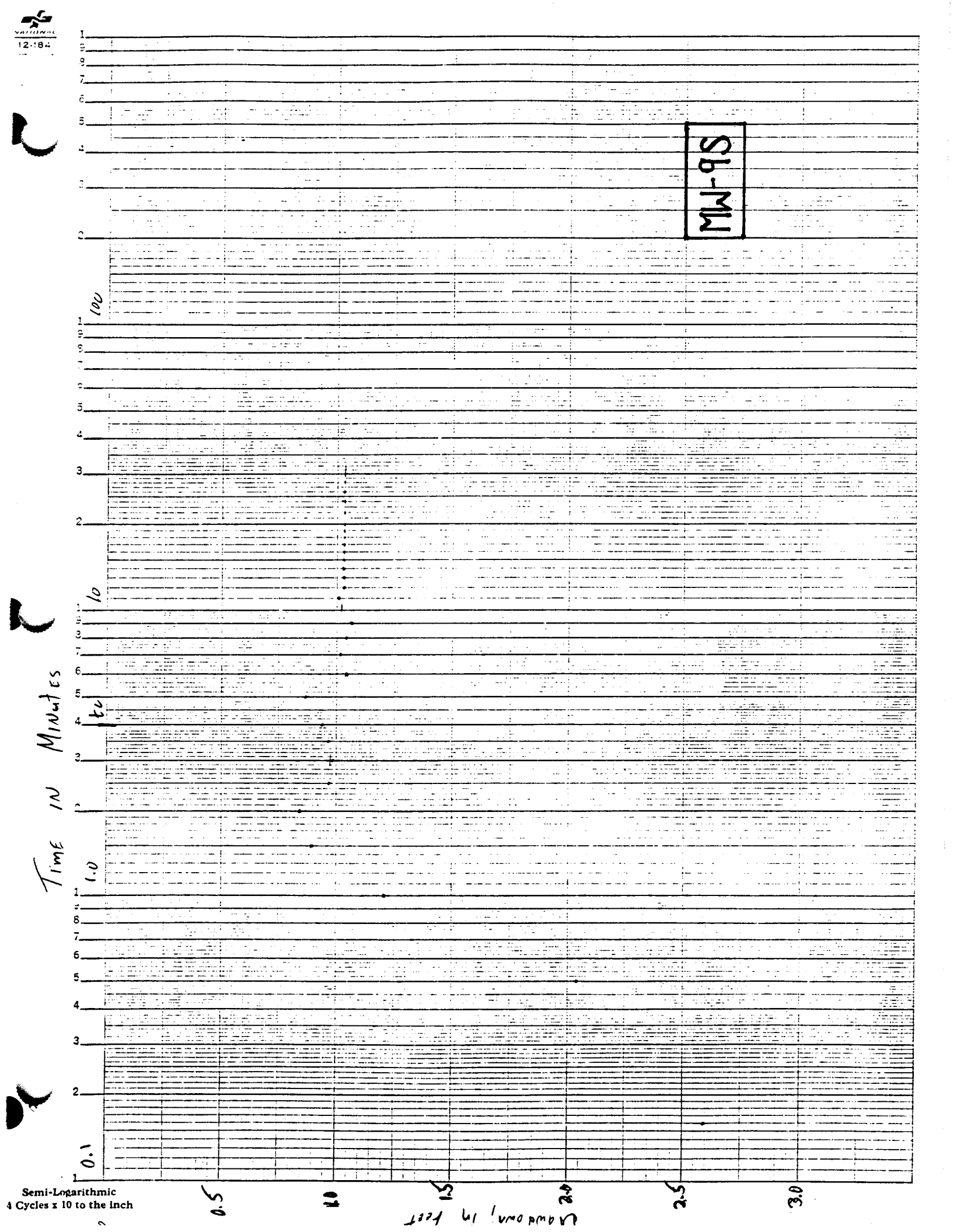


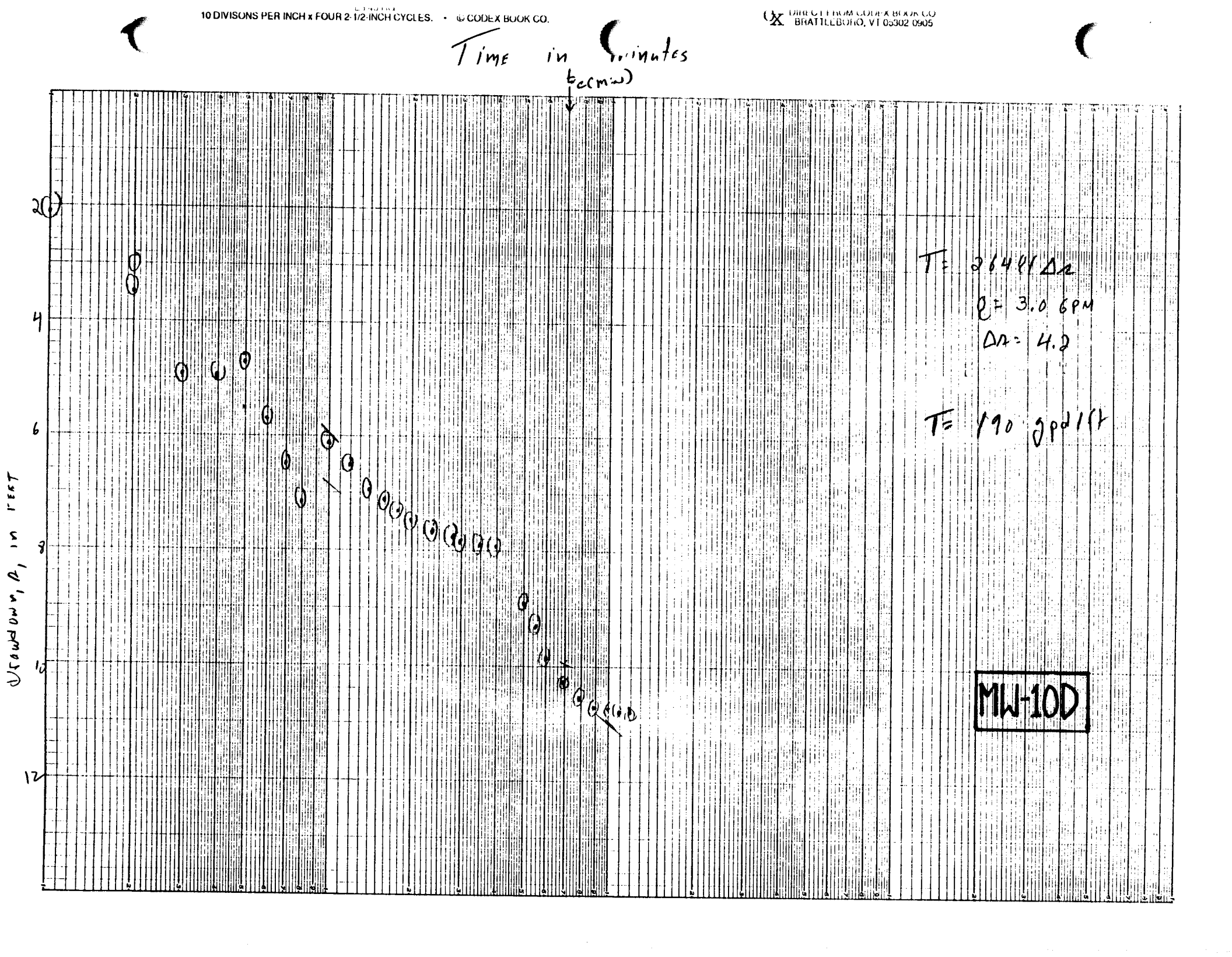


Semi-Logarithmic
Cycles x 10 to the inch

Time in Minutes




12-184
MW-9S
100
10
1.0
0.1
Time in Minutes
0.5
1.0
1.5
2.0
2.5
3.0
Drawdown in feet
Semi-Logarithmic
4 Cycles x 10 to the inch



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

AQUIFER PUMPING TEST FORM							Page 1 of 3
Project	BIG V						
Site	BPM						
Well	PW-1						
Screen Setting/Open Hole Interval (ft)							
Description of Measuring Point				Top of 6-inch Steel			
Height of Measuring Point (ft above land surface)							
Measured With		M-Scope					
Static Water Level (ft below measuring point)					25.42		
Drawdown		X	Start Time/Date		1430/6-28-93		
Recovery			End Time/Date				
Pumping Well		PW-1	Distance (r) from Pumping Well			-	
Discharge Rate (gpm)							

Time	Time (min)	Held (ft)	Wet (ft)	Depth to Water (ft)	Drawdown (ft)	Q (gpm)	Comments
	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.					39	
	120 sec.			58.28	32.86	39	
	2.5			62.70	37.28	39	
	3			66.56	41.14	39	
	3.5			69.44	44.02	39	
	4			71.82	46.4	39	
	4.5			73.85	48.43	39	
	5			75.45	50.03	39	
	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 TEST FORM (Continued)					Date 6/28/93		Page 2 of 3
							PW-1
Time	Time (min)	Held (ft)	Wet (ft)	Depth to Water (ft)	Drawdown (ft)	Q (gpm)	Comments
	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	72.39	39	
	660			98.08	72.66	39	
	720			98.66	73.24	39	
	780			99.04	73.62	39	
	840			99.28	73.86	39	
	900			99.62	74.2	39	
	960			100.07	74.65	39	
	1020			100.22	74.8	39	
	1080			100.50	75.08	39	
	1140			100.67	75.25	38	
	1200			101.01	75.59	39	

AQUIFER PUMPING TEST FORM (Continued)					Date 6/29/93		Page 3 of 3
							PW-1
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
	(min)	(ft)	(ft)	Water (ft)	(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						
	3120						
	3240						
	3360						
	3480						
	3600						
	3720						
	3840						
	3960						
	4080						
	4200						
	4320						

AQUIFER PUMPING TEST FORM

Project	BIG V						
Site	BPM						
Well	PW-2						
Screen Setting/Open Hole Interval (ft)							
Description of Measuring Point			Top of 6-inch Steel				
Height of Measuring Point (ft above land surface)							
Measured With	M-Scope						
Static Water Level (ft below measuring point)				30.22			
Drawdown	X	Start Time/Date					
Recovery		End Time/Date					
Pumping Well	PW-1	Distance (r) from Pumping Well			170 feet		
Discharge Rate (gpm)							

Time	Time (min)	Held (ft)	Wet (ft)	Depth to Water (ft)	Drawdown (ft)	Q (gpm)	Comments
	0			30.22	0		
	10 sec.						
	20 sec.						
	30 sec.						
	40 sec.						
	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						
	9						
	10						
	11						
	12						
	13						
	14						

AQUIFER PUMPING TEST FORM (Continued)					Date 6-28-93		Page 2 of 2
							PW-2
Time	Time (min)	Held (ft)	Wet (ft)	Depth to Water (ft)	Drawdown (ft)	Q (gpm)	Comments
	15						
	20						
	25						
	30						
	35						
	40						
	45						
	50						
	55						
	60						
	73				33.16	2.94	
	85				33.45	3.23	
	90				-	-	
	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 measurements in PW-2 due to loss of probe.					

AQUIFER PUMPING TEST FORM							Page 1 of 3
Project	BIG V						
Site	BPM						
Well	MW-2D						
Screen Setting/Open Hole Interval (ft)							
Description of Measuring Point				Top of 4-inch PVC			
Height of Measuring Point (ft above land surface)							
Measured With		M-Scope					
Static Water Level (ft below measuring point)					13.53		
Drawdown		X		Start Time/Date	1430/6-28-93		
Recovery				End Time/Date			
Pumping Well		PW-1		Distance (r) from Pumping Well		620 feet	
Discharge Rate (gpm)							

Time	Time (min)	Held (ft)	Wet (ft)	Depth to Water (ft)	Drawdown (ft)	Q (gpm)	Comments
	0			13.53	0		
	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.			13.54	0.01		
	2.5			13.54	0.01		
	3			13.54	0.01		
	3.5			13.54	0.01		
	4			13.54	0.01		
	4.5			13.54	0.01		
	5			13.53	0		
	6			13.52	+0.01		
	7			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			13.53	0		

AQUIFER PUMPING TEST FORM (Continued)					Date 6-28-93		Page 2 of 3
							MW-2D
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
	(min)	(ft)	(ft)	Water (ft)	(ft)	(gpm)	
	15			13.53	0		
	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		
	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			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		

AQUIFER PUMPING TEST FORM (Continued)					Date 6-29-93		Page 3 of 3
							MW-2D
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
	(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						

AQUIFER PUMPING TEST FORM

Project	BIG V						
Site	BPM						
Well	MW-3D						
Screen Setting/Open Hole Interval (ft)							
Description of Measuring Point			Top of 4-inch PVC				
Height of Measuring Point (ft above land surface)							
Measured With	Steel Tape & Chalk/M-Scope						
Static Water Level (ft below measuring point)				13.80			
Drawdown	X	Start Time/Date		2:30 pm/6-28-93			
Recovery		End Time/Date					
Pumping Well	PW-1	Distance (r) from Pumping Well			540 feet		
Discharge Rate (gpm)							

Time	Time (min)	Held (ft)	Wet (ft)	Depth to Water (ft)	Drawdown (ft)	Q (gpm)	Comments
	0	15	1.2	13.80	0		
	10 sec.						
	20 sec.						
	30 sec.						
	40 sec.			13.80	0		
	50 sec.						
	60 sec.						
	70 sec.						
	80 sec.						
	90 sec.			13.80	0		
	100 sec.						
	110 sec.						
	120 sec.			13.81	0.01		
	2.5	15	1.18	13.82	0.02		
	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	13.82	0.02		
	6	15	1.18	13.81	0.01		
	7	15	1.18	13.82	0.02		
	8	15	1.18	13.82	0.02		
	9	15	1.18	13.82	0.02		
	10	15	1.17	13.83	0.03		
	11	15	1.17	13.83	0.03		
	12	15	1.17	13.83	0.03		
	13	15	1.17	13.83	0.03		
	14	15	1.17	13.83	0.03		

AQUIFER PUMPING TEST FORM (Continued)					Date 6-28-93		Page 2 of 3
							MW-3D
Time	Time (min)	Held (ft)	Wet (ft)	Depth to Water (ft)	Drawdown (ft)	Q (gpm)	Comments
	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		
	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		
	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		
	789			15.89	2.09		
	849			16.07	2.27		
	911			16.27	2.47		
	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 PUMPING TEST FORM (Continued)					Date 6-29-93		Page 3 of 3
							MW-3D
Time	Time (min)	Held (ft)	Wet (ft)	Depth to Water (ft)	Drawdown (ft)	Q (gpm)	Comments
	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						

AQUIFER PUMPING TEST FORM

Project	BIG V						
Site	BPM						
Well	MW-5D						
Screen Setting/Open Hole Interval (ft)							
Description of Measuring Point				Top of 4-inch PVC			
Height of Measuring Point (ft above land surface)							
Measured With	M-Scope						
Static Water Level (ft below measuring point)					11.18		
Drawdown	X	Start Time/Date			2:30 pm/6-28-93		
Recovery		End Time/Date					
Pumping Well	PW-1	Distance (r) from Pumping Well				530 feet	
Discharge Rate (gpm)							

Time	Time (min)	Held (ft)	Wet (ft)	Depth to Water (ft)	Drawdown (ft)	Q (gpm)	Comments
	0			11.18	0		
	10 sec.						
	20 sec.						
	30 sec.						
	40 sec.						
	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						
	9						
	10						
	11						
	12						
	13						
	14						

AQUIFER PUMPING TEST FORM (Continued)					Date 6-28-93		Page 2 of 3
							MW-5D
Time	Time (min)	Held (ft)	Wet (ft)	Depth to Water (ft)	Drawdown (ft)	Q (gpm)	Comments
	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		
	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		

AQUIFER PUMPING TEST FORM (Continued)					Date 6-29-93		Page 3 of 3
							MW-5D
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
	(min)	(ft)	(ft)	Water (ft)	(ft)	(gpm)	
	1266			14.18	3.00		
	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						

AQUIFER PUMPING TEST FORM

Project	BIG V					
Site	BPM					
Well	MW-5S					
Screen Setting/Open Hole Interval (ft)						
Description of Measuring Point			Top of 4-inch PVC			
Height of Measuring Point (ft above land surface)						
Measured With	Steel Tape & Chalk/M-Scope					
Static Water Level (ft below measuring point)				3.64		
Drawdown	X	Start Time/Date		2:30 pm/6-28-93		
Recovery		End Time/Date				
Pumping Well	PW-1	Distance (r) from Pumping Well			580 feet	
Discharge Rate (gpm)						

Time	Time (min)	Held (ft)	Wet (ft)	Depth to Water (ft)	Drawdown (ft)	Q (gpm)	Comments
	0	5	1.36	3.64	0		
	10 sec.						
	20 sec.						
	30 sec.						
	40 sec.						
	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						
	9						
	10						
	11						
	12						
	13						
	14	5	1.36	3.64	0		

AQUIFER PUMPING TEST FORM (Continued)					Date 6-28-93		Page 2 of 3
							MW-5S
Time	Time	Held	Wet	Depth to	Drawdown	Q	Comments
	(min)	(ft)	(ft)	Water (ft)	(ft)	(gpm)	
	15						
	18	5	1.36	3.64	0		
	23	5	1.36	3.64	0		
	30						
	37	5	1.36	3.64	0		
	40						
	46	5	1.36	3.64	0		
	50						
	55						
	61	5	1.36	3.64	0		
	76	5	1.36	3.64	0		
	80						
	97	5	1.36	3.64	0		
	100						
	110						
	121	5	1.36	3.64	0		
	152	5	1.35	3.65	0.01		
	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		

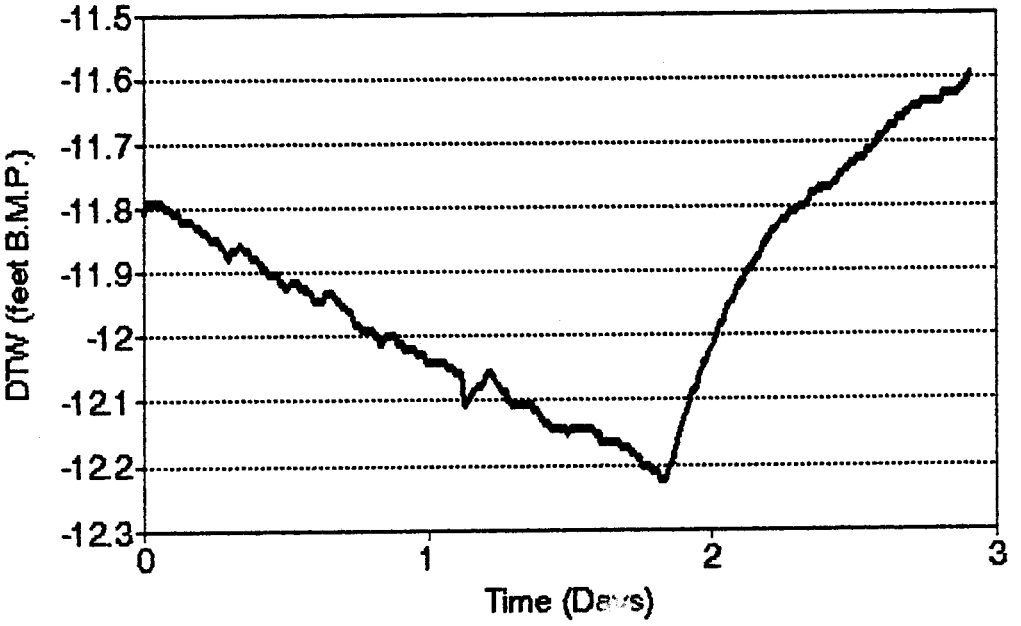
AQUIFER PUMPING TEST FORM (Continued)					Date 6-29-93		Page 3 of 3
							MW-5S
Time	Time (min)	Held (ft)	Wet (ft)	Depth to Water (ft)	Drawdown (ft)	Q (gpm)	Comments
	1267	5	1.37	3.63	+0.01		
	1329	5	1.39	3.61	+0.03		
	1392	5	1.39	3.61	+0.03		
	1440	5	1.41	3.59	+0.05		
	1560	5	1.43	3.57	+0.07		
	1680	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						
	3480						
	3600						
	3720						
	3840						
	3960						
	4080						
	4200						
	4320						

APPENDIX L.2

BACKGROUND WATER-LEVEL MONITORING PLOTS

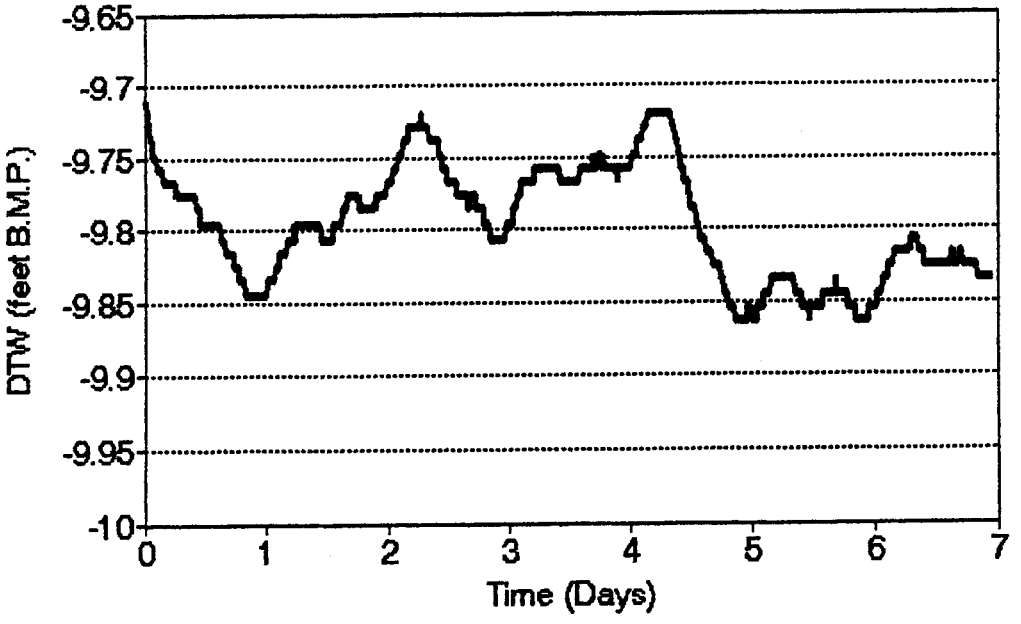
BPM MW-10D

Background Monitoring (6/8/93-6/11/93)



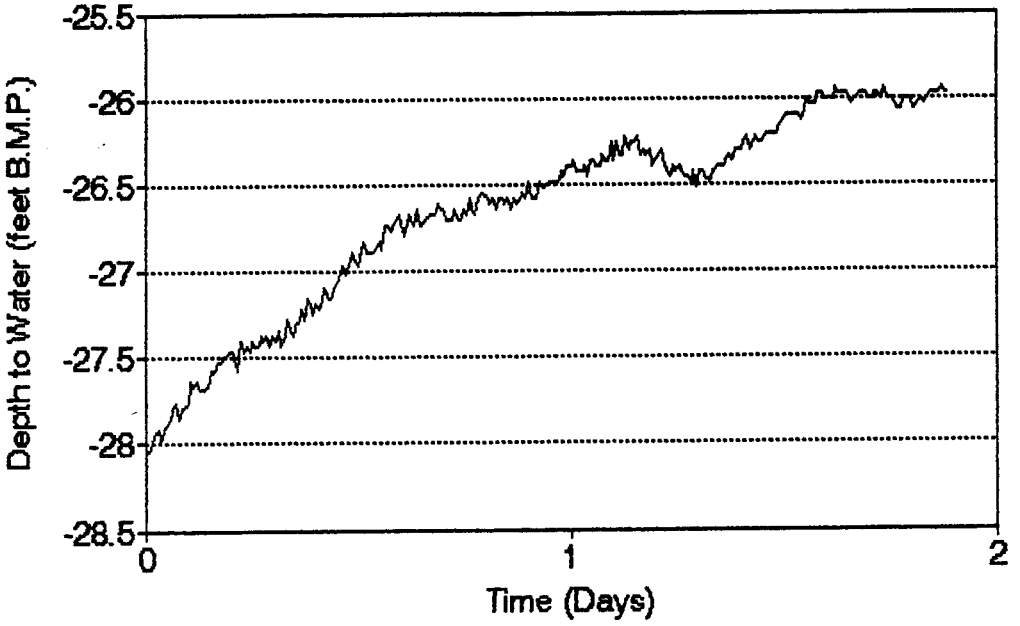
BPM MW-7D

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



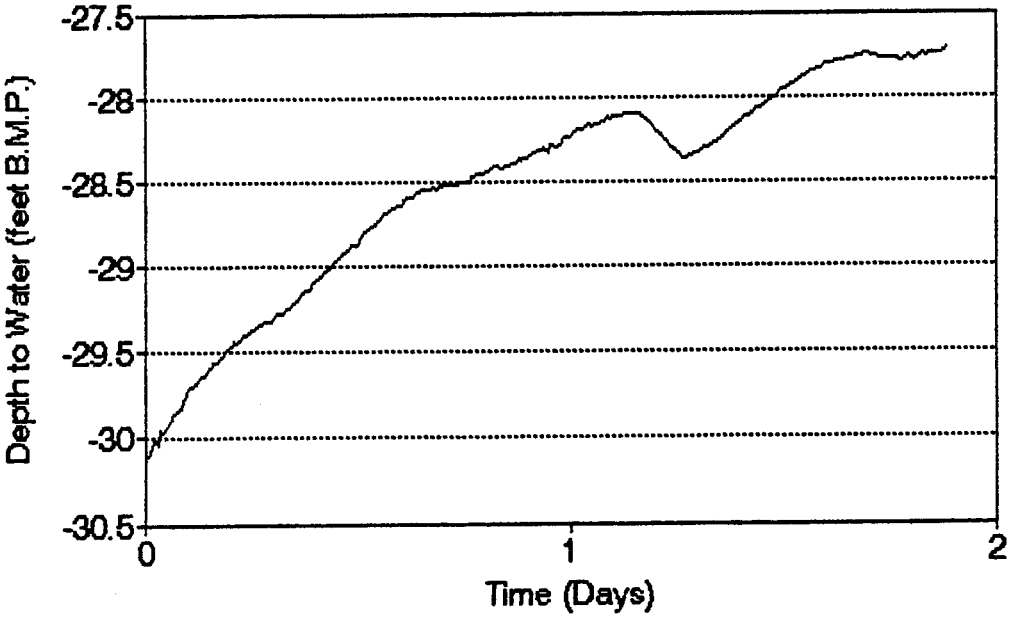
BPM PRODUCTION WELL PW-1

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



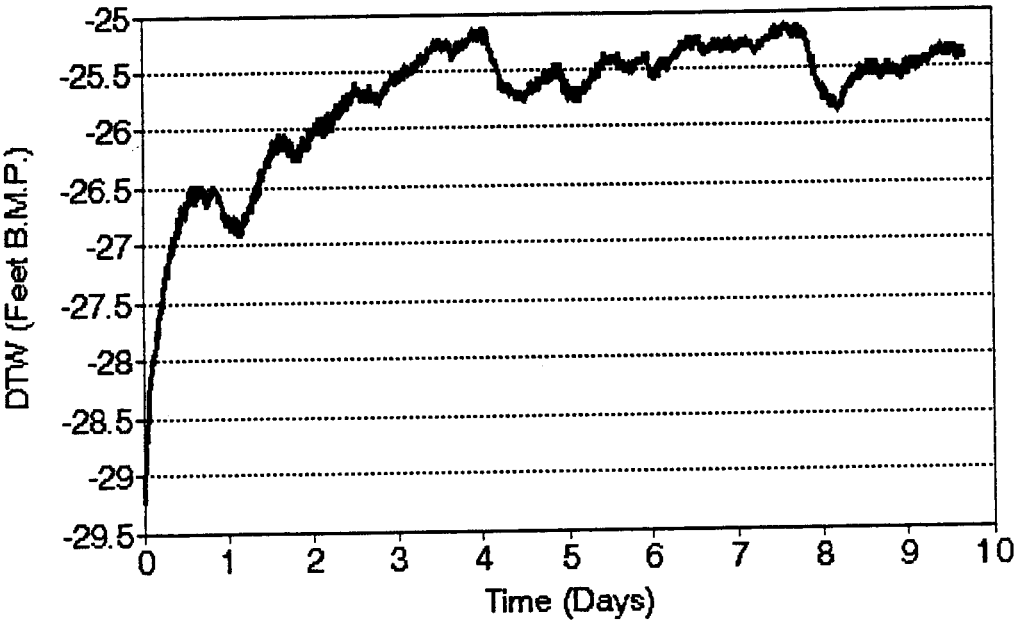
BPM PRODUCTION WELL PW-2

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



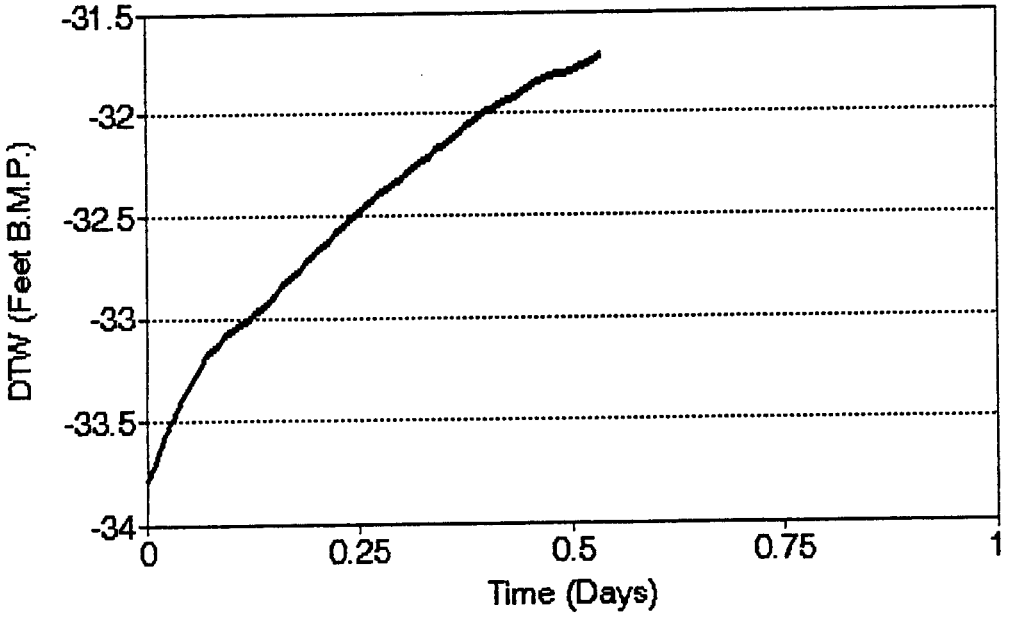
BPM PW-1

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



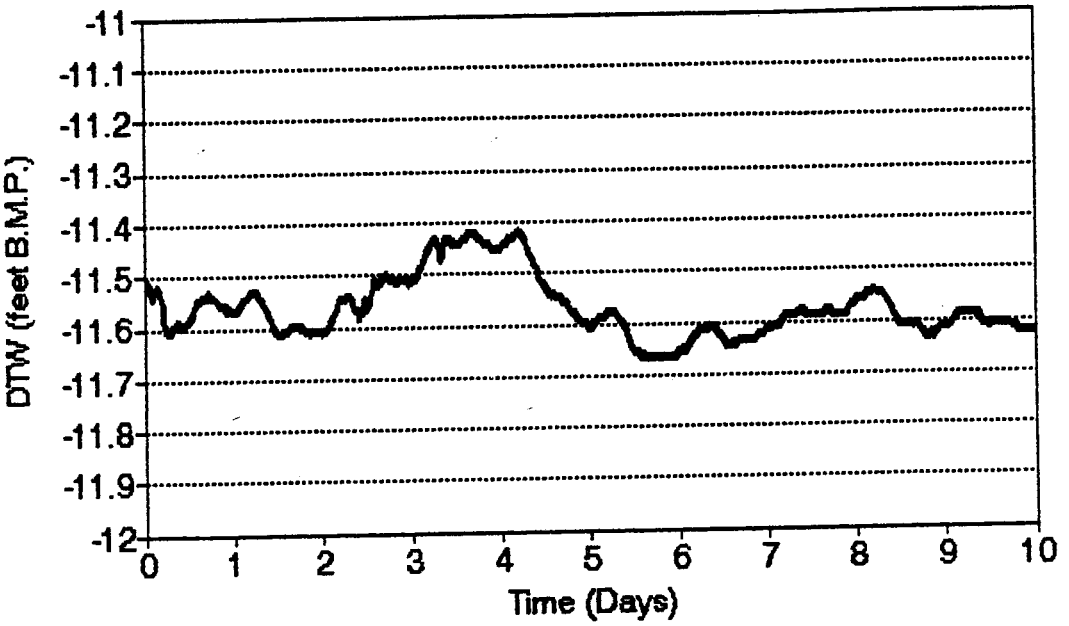
BPM PW-2

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



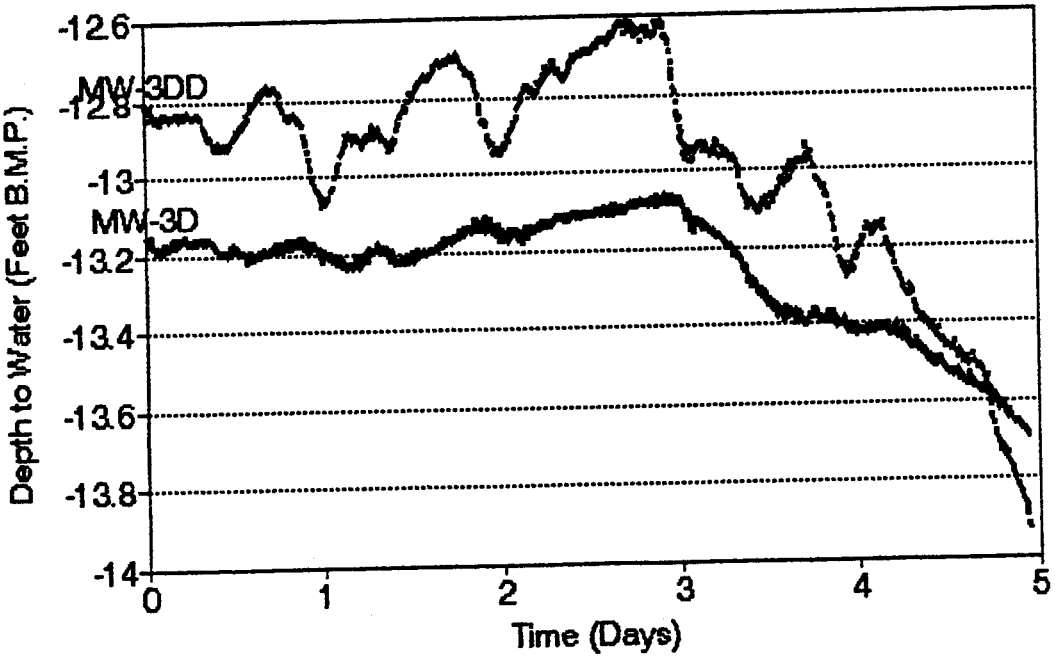
BPM MW-10D

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



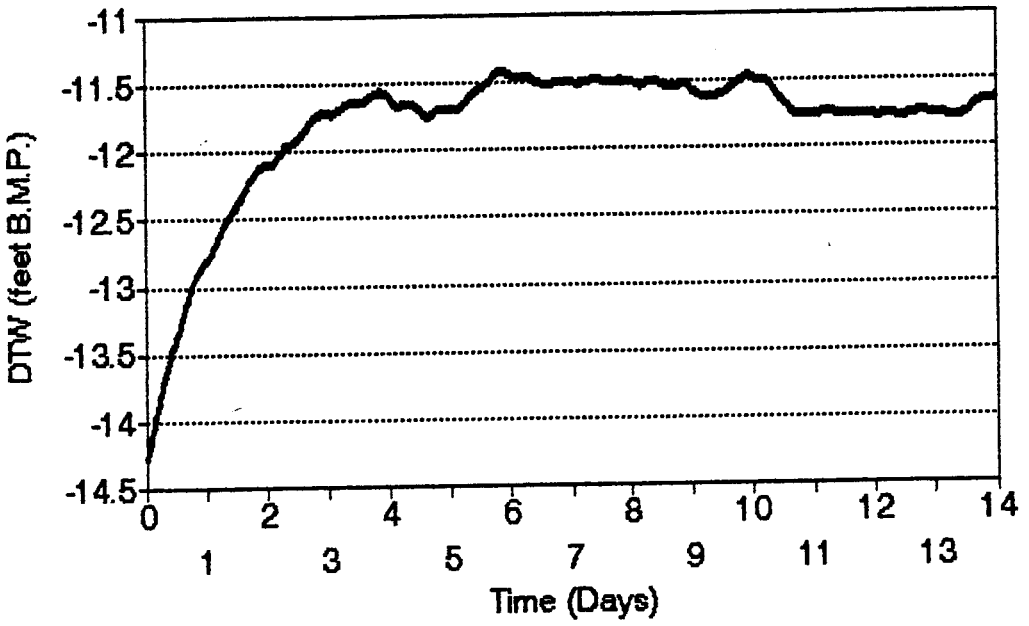
BPM MW-3D & MW-3DD

Background Monitoring (6/23/93-6/28/93)



BPM MW-5D

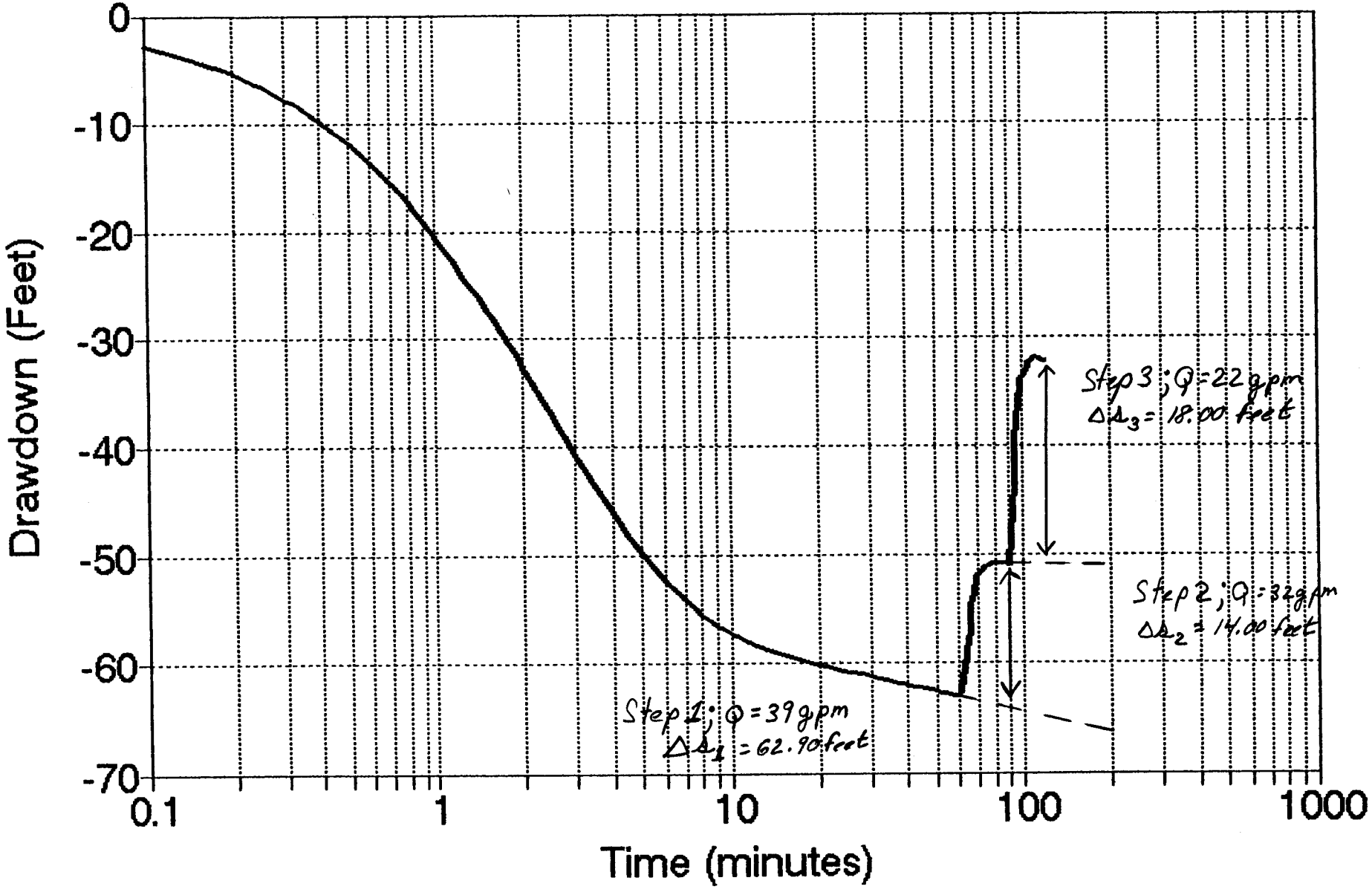
Background Monitoring (7/1/93-7/16/93)



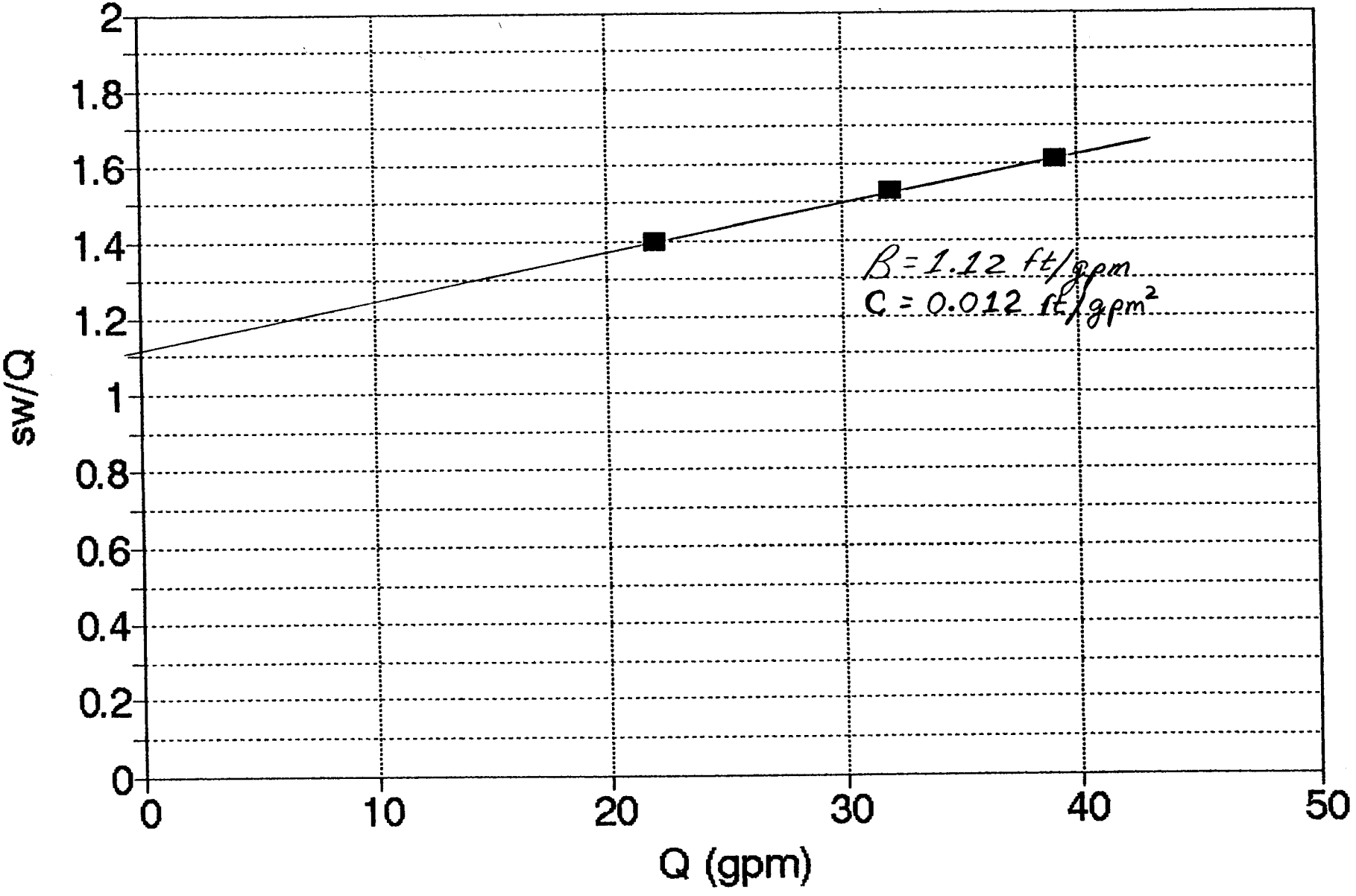
APPENDIX L.3

STEP-DRAWDOWN PUMPING TEST ANALYSIS

Step-Drawdown Pumping Test
BPM Production Well PW-1 (6/18/93)



Specific Drawdown Plot
BPM Production Well PW-1



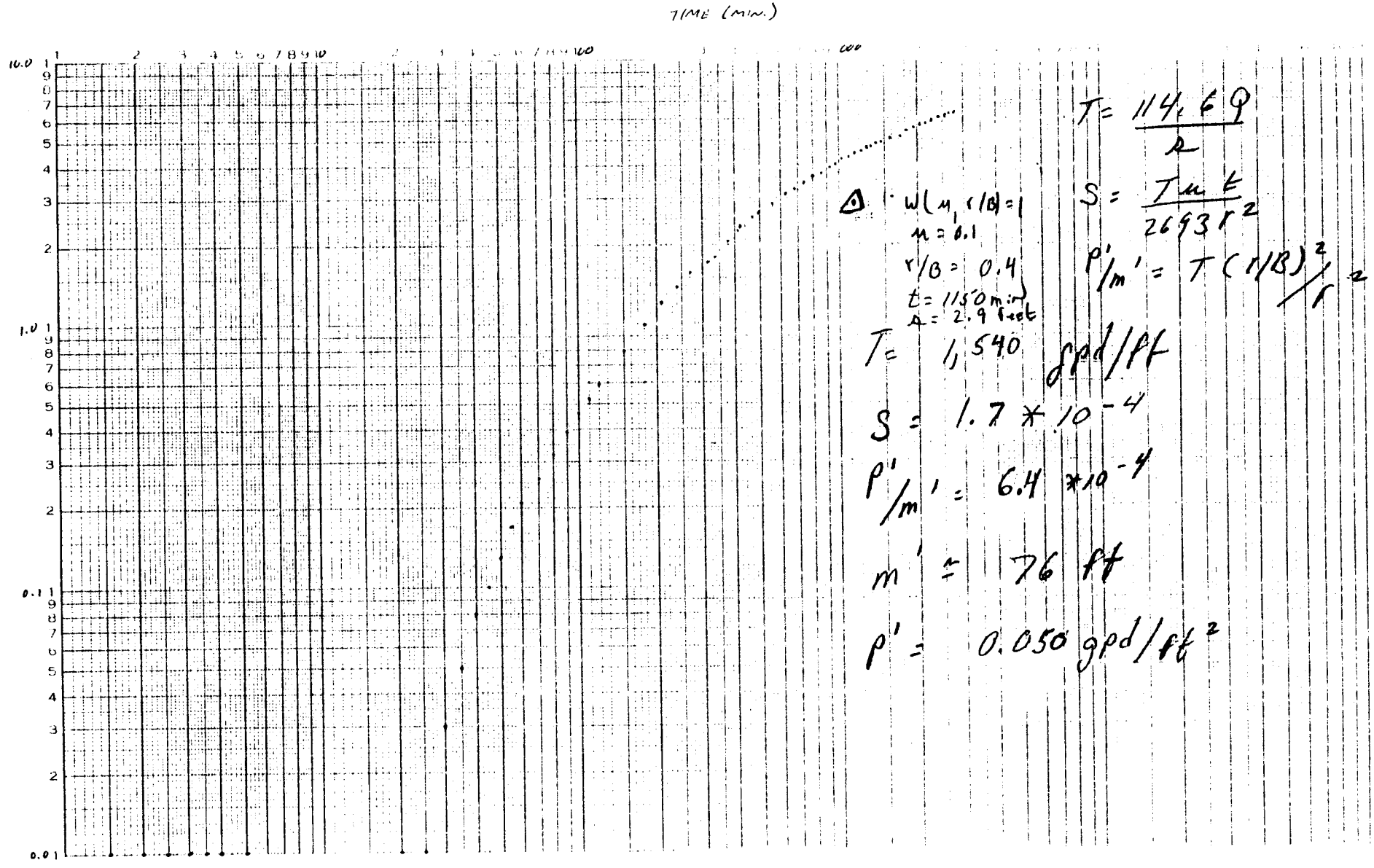
APPENDIX L.4

TIME-DRAWDOWN PLOTS:
LEAKY ARTESIAN METHOD ANALYSIS

MW-2D DRAWDOWN

PW-1 PUMPING 39 GPM

r = 620ft



$$T = \frac{114.6\,Q}{s}$$

$$S = \frac{T u}{2693\, r^2}$$

$$\rho'/m' = T(r/B)^2/r^2$$

Δ · W(u, r/B) = 1

u = 0.1

r/B = 0.4

t = 1150 min

s = 2.9 feet

T = 1,540 gpd/ft

S = $1.7 * 10^{-4}$

$\rho'/m' = 6.4 * 10^{-4}$

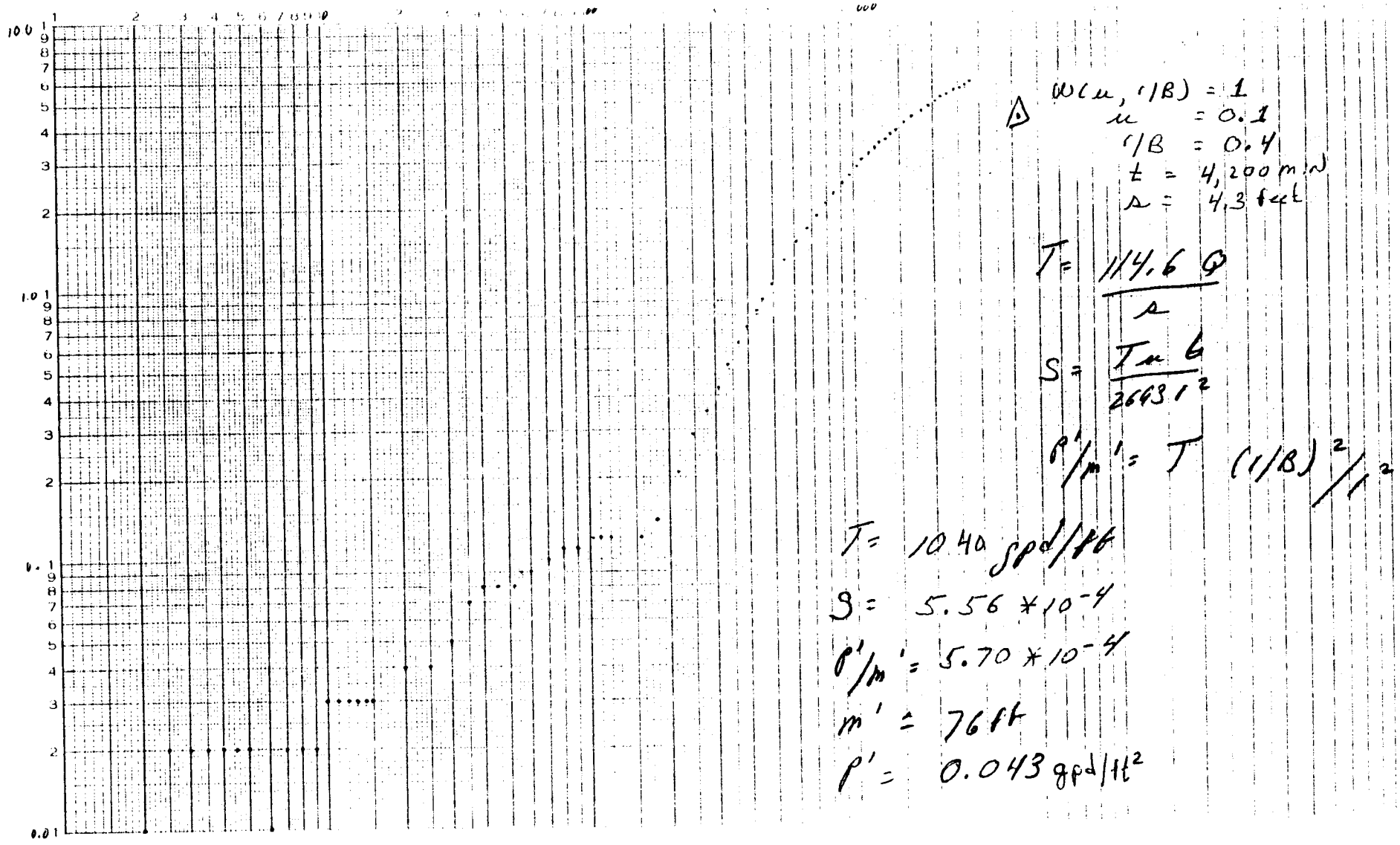
m' = 76 ft

$\rho' = 0.050$ gpd/ft^2

MW-3D DRAWDOWN

PW-1 PUMPING 39 GPM

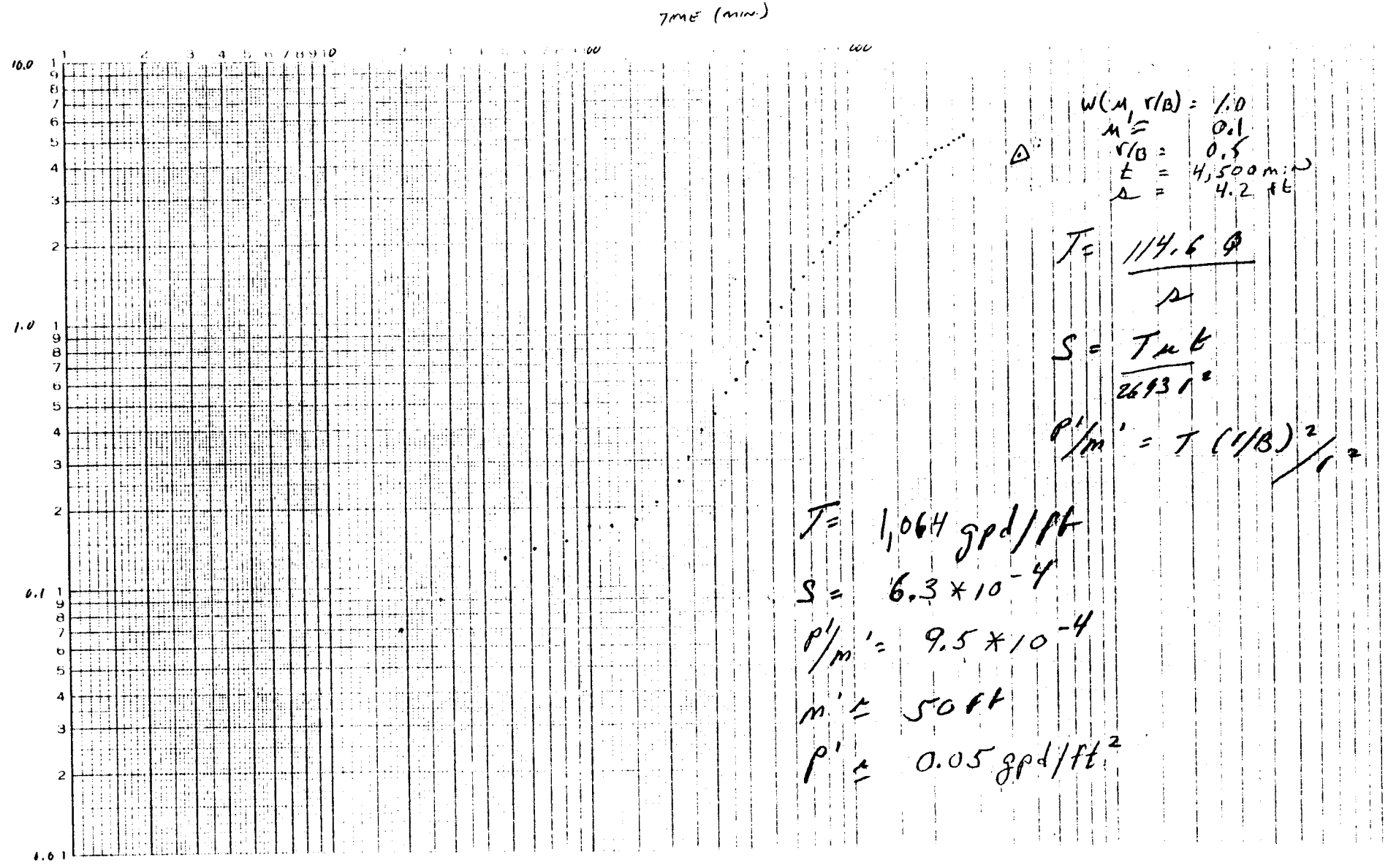
r = 540 ft



MW-5D DRAWDOWN

PW-1 PUMPING 39 GPM

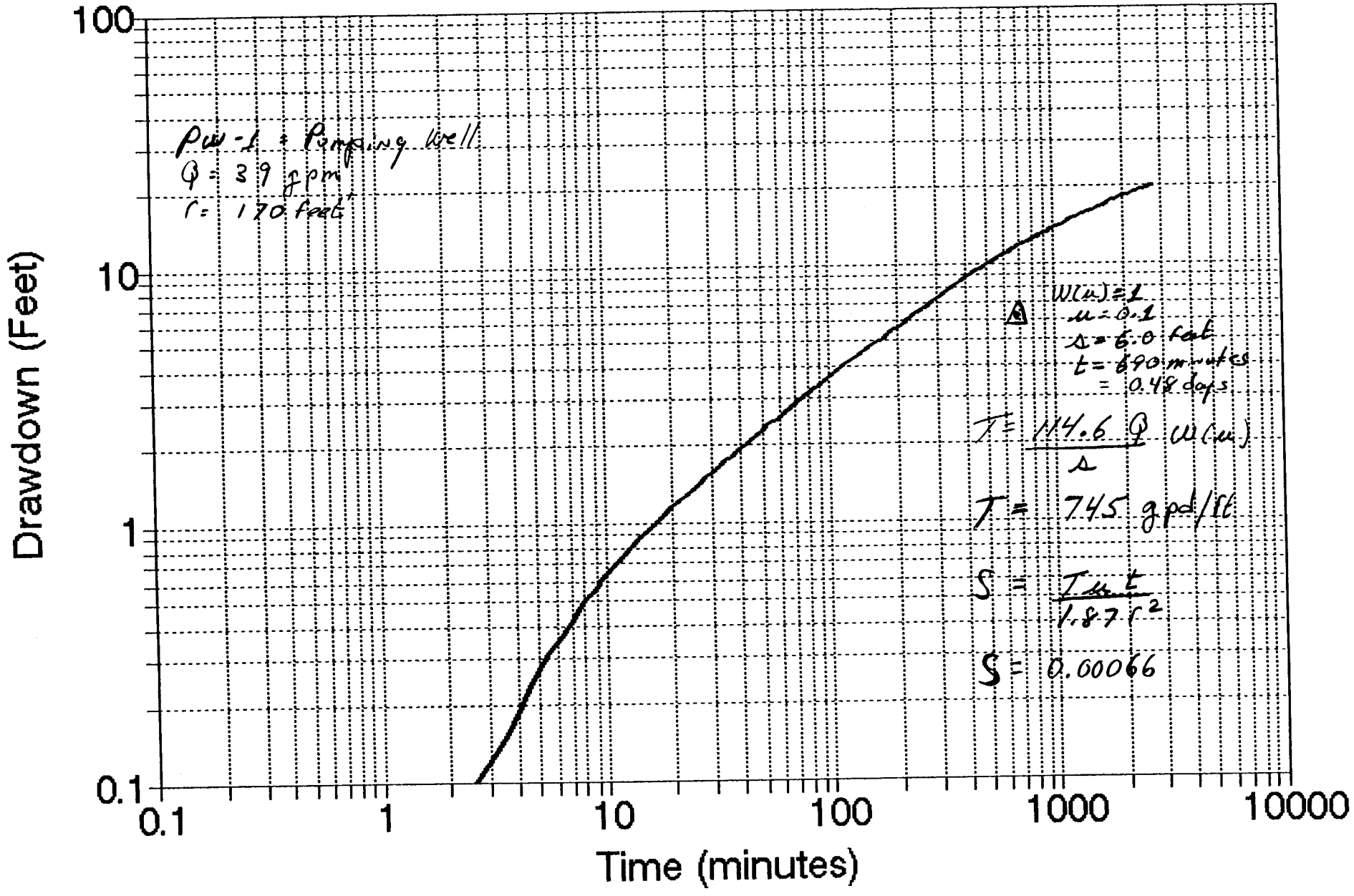
r = 530 ft



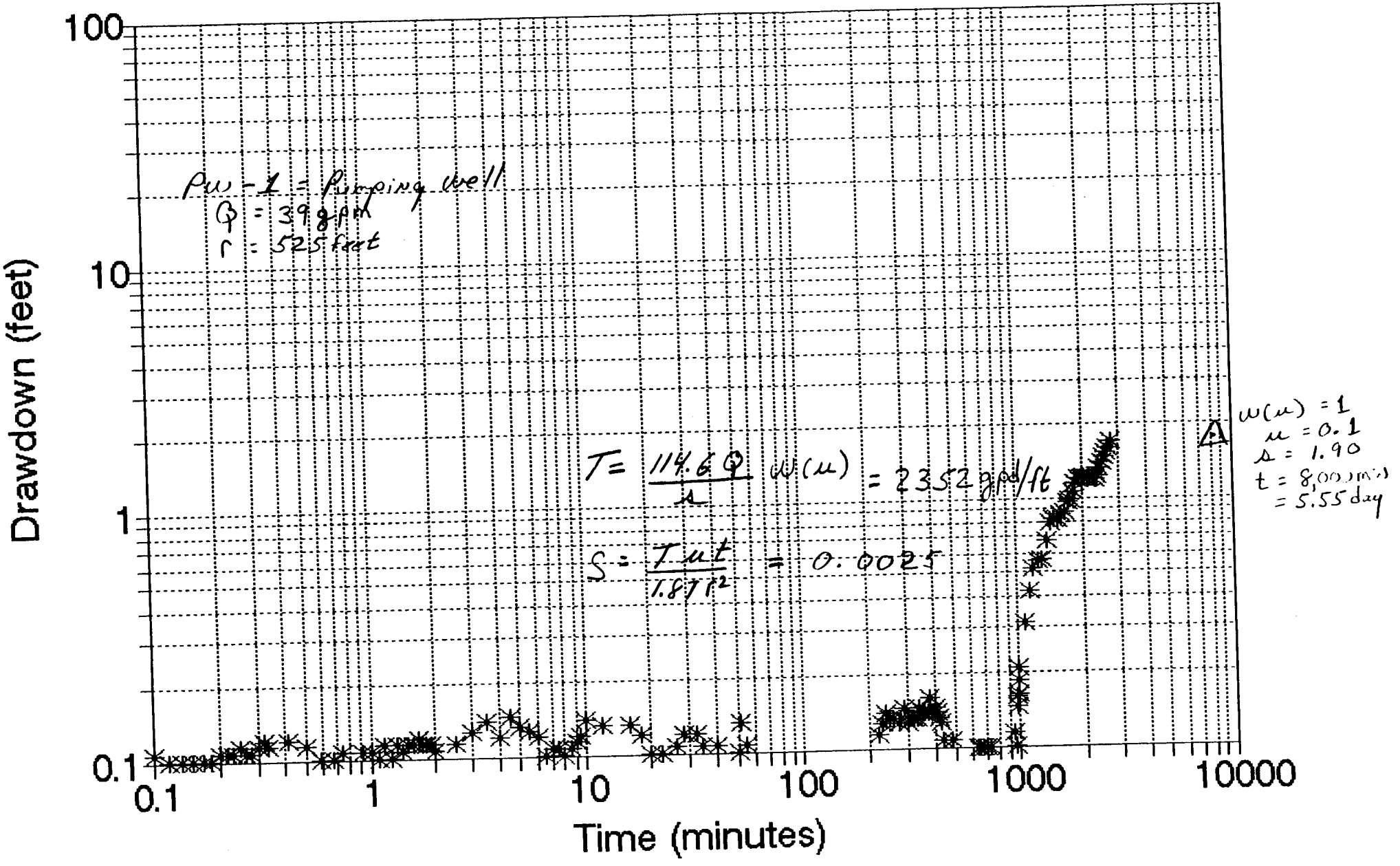
APPENDIX L.5

TIME-DRAWDOWN PLOTS:
THEIS NON-EQUILIBRIUM METHOD ANALYSIS

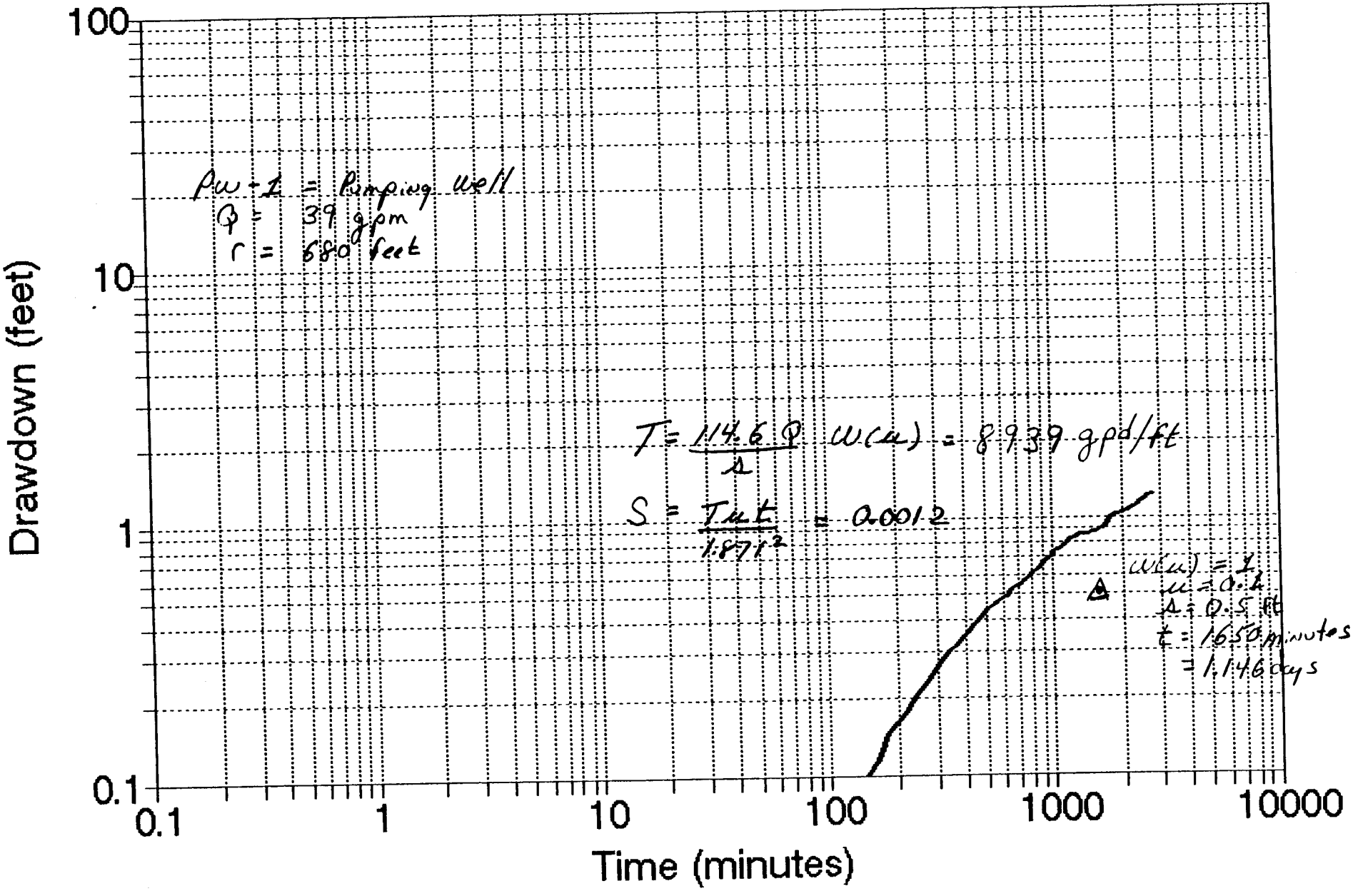
Time-Drawdown Plot for PW-2



Time-Drawdown Plot for MW-3DD



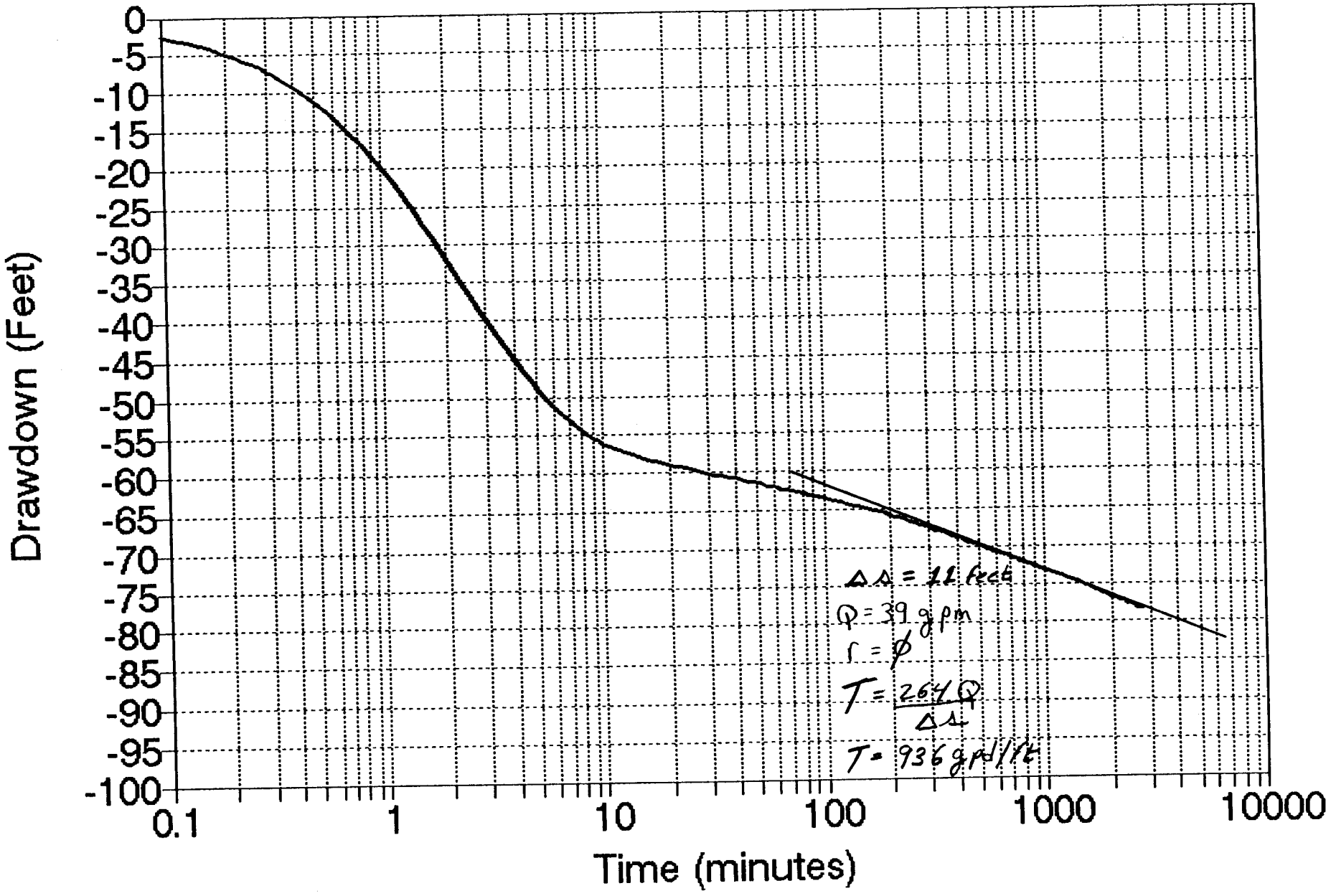
MW-10D Constant Rate Test

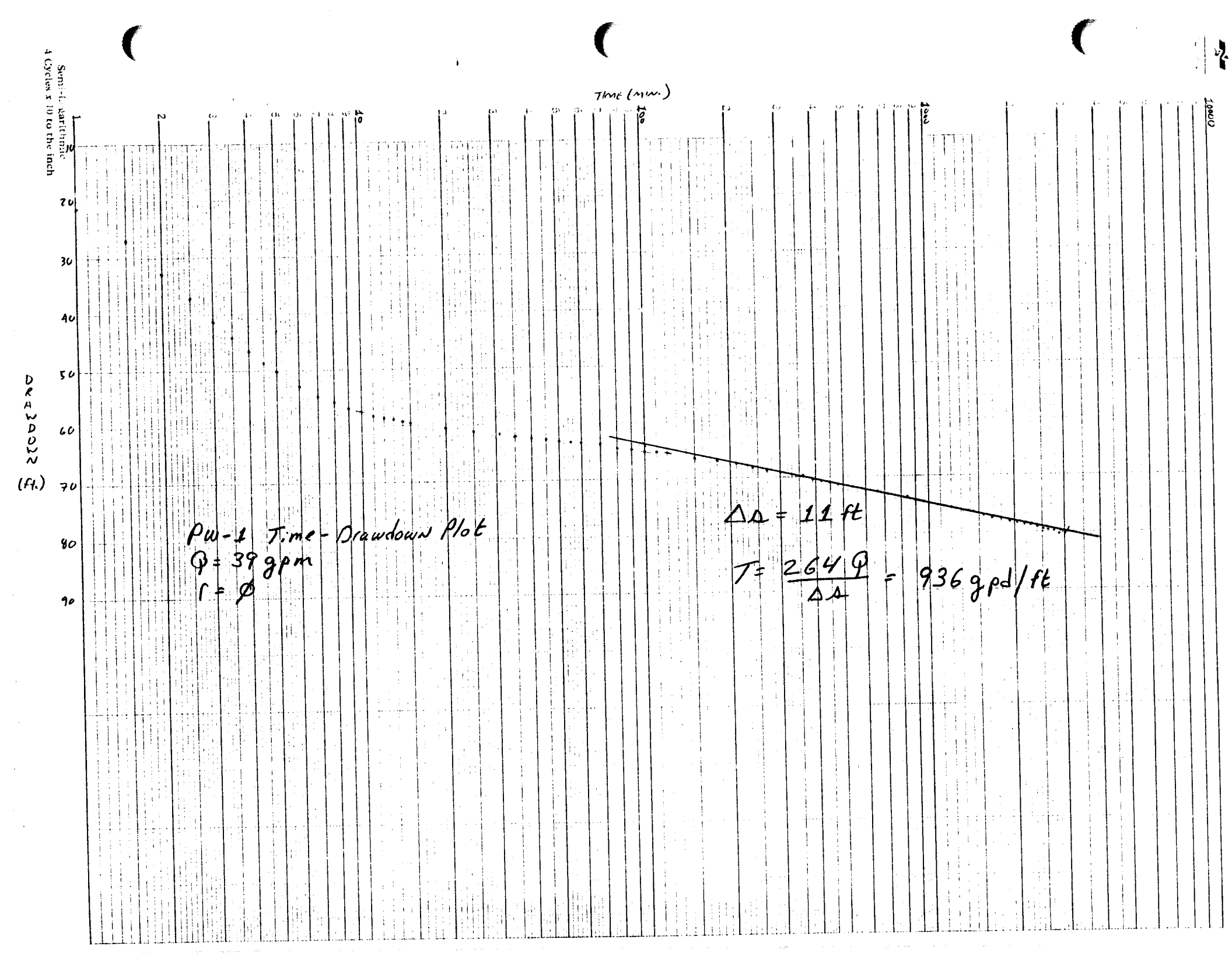


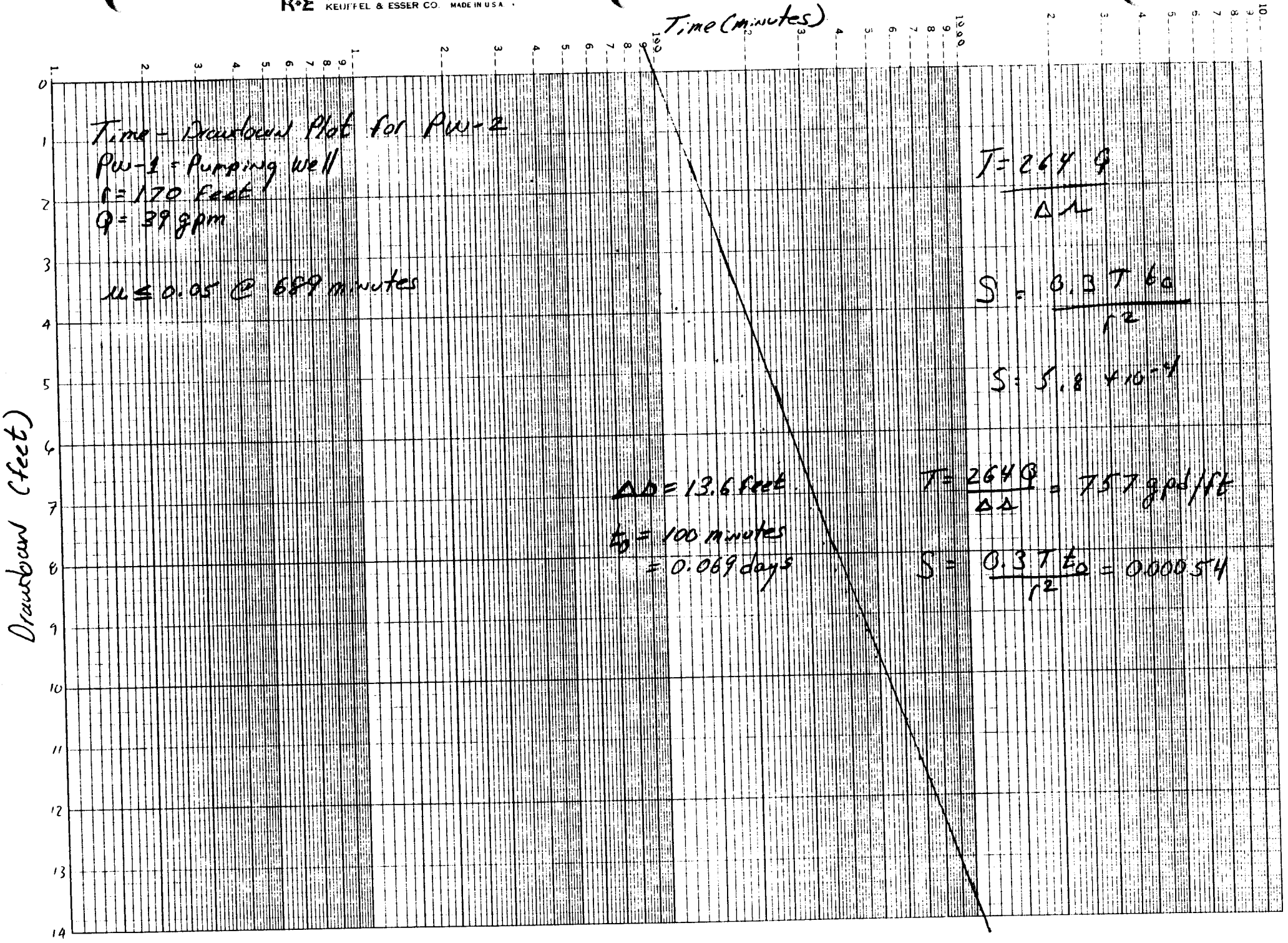
APPENDIX L.6

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

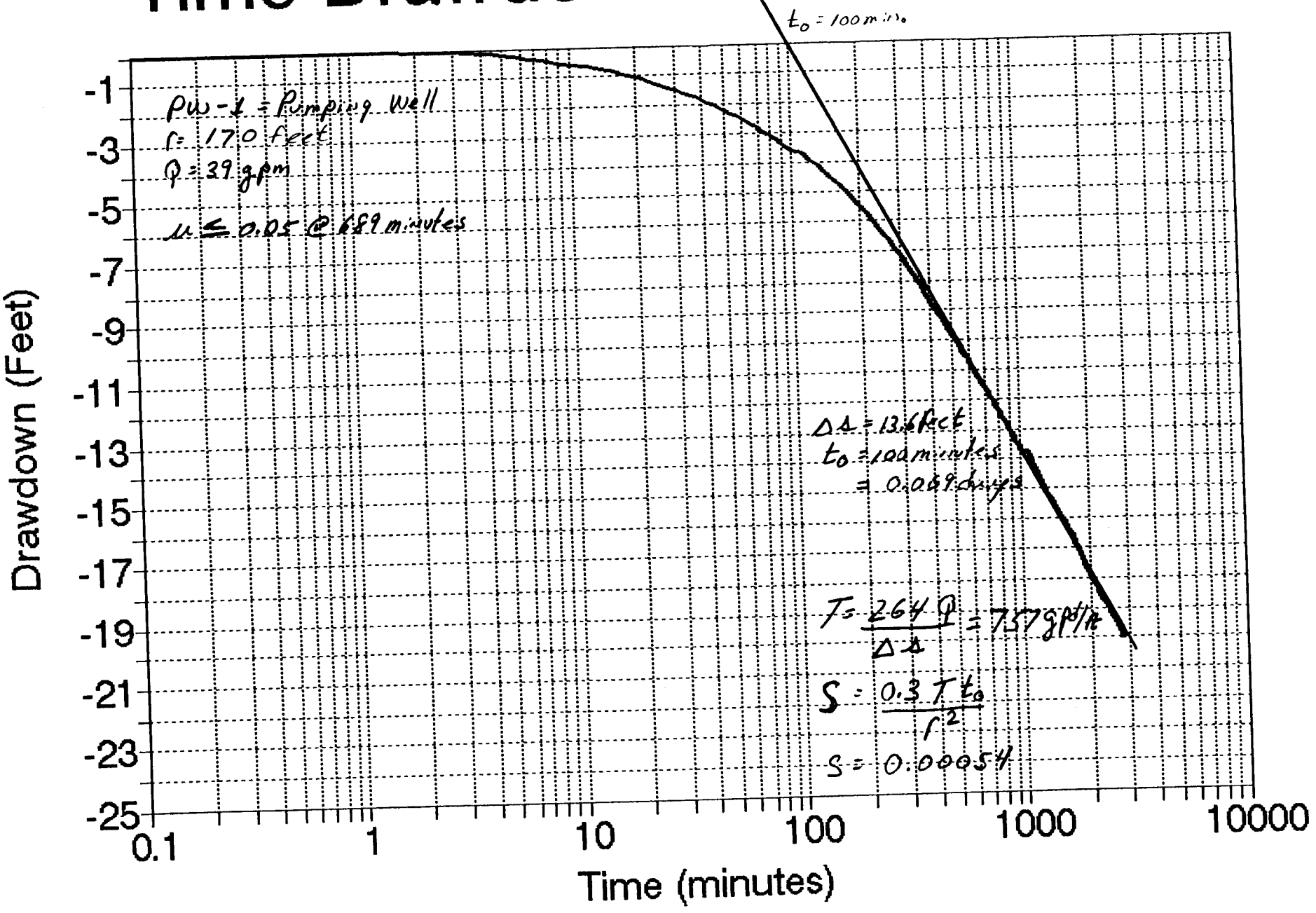
Time-Drawdown Plot for PW-1



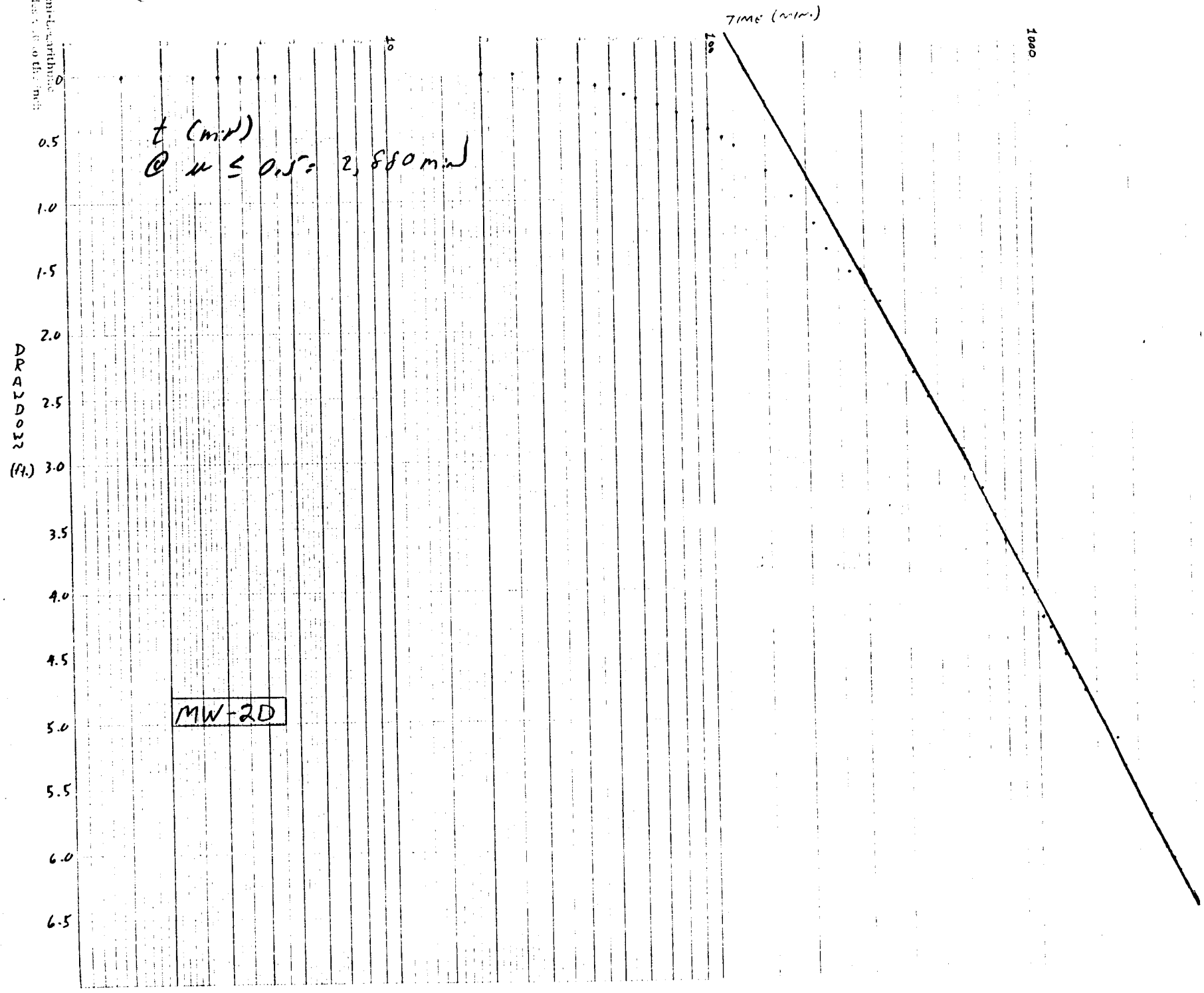

Semi-Logarithmic
4 Cycles x 10 to the inch
TIME (min.)
DRAWDOWN (ft.)
1
2
10
100
1000
10000
10
20
30
40
50
60
70
80
90
PW-1 Time-Drawdown Plot
Q = 39 gpm
r = Ø
Δd = 11 ft
T = 264 Q / Δd = 936 gpd/ft



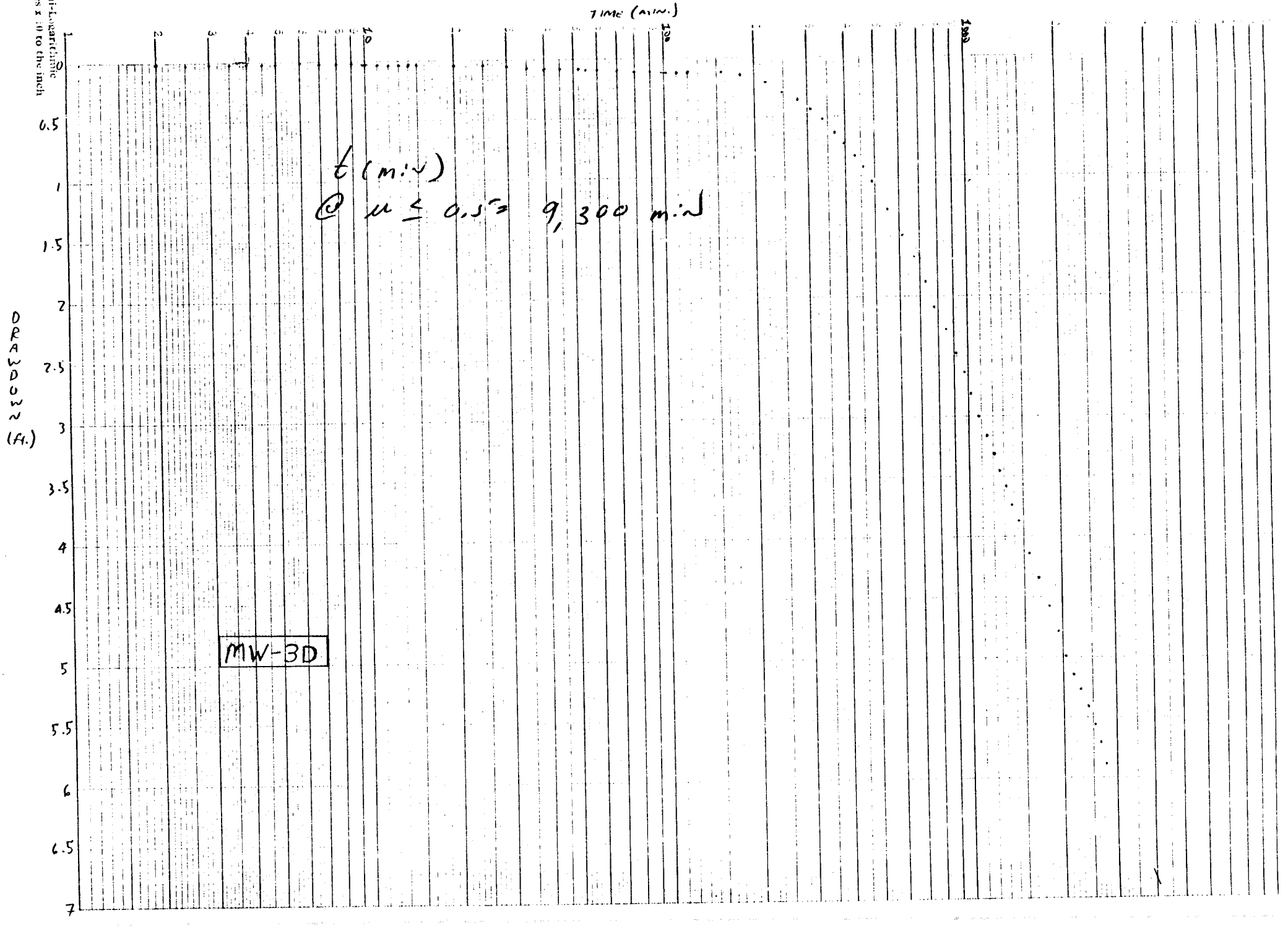
Time-Drawdown Plot for PW-2

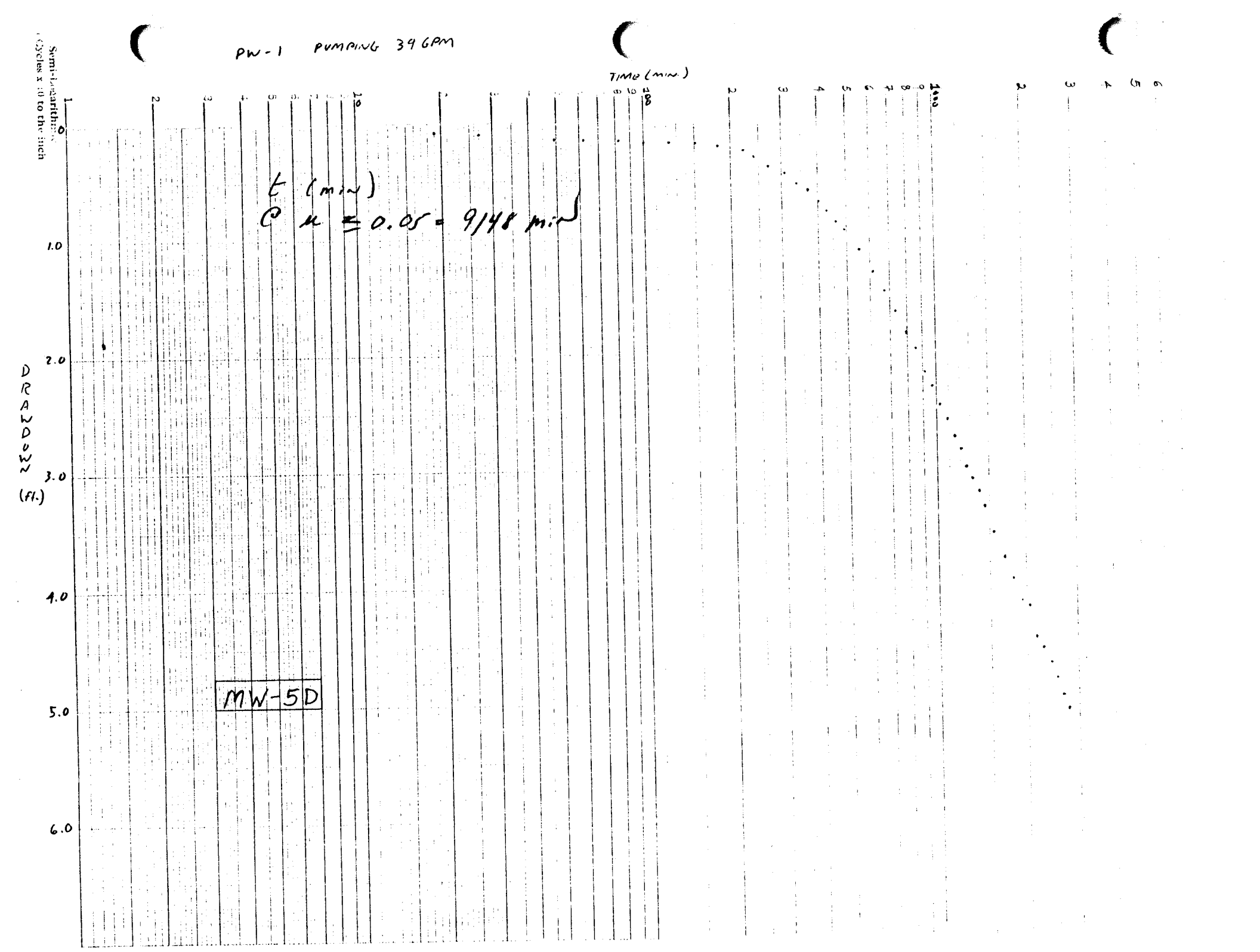


PW-1 PUMPING 39 GPM



PW-1 PUMPING 39 GPM




PW-1 PUMPING 39 GPM
TIME (min.)
Semi-logarithmic
(Cycles x 10 to the inch
DRAWDOWN (ft.)
1.0
2.0
3.0
4.0
5.0
6.0
t (min)
@ u = 0.05 = 9/48 min
MW-5D