TABLE 5
SOIL - PESTICIDE/PCB DATA ANALYSIS
PELHAM BAY SRI
92C4087

Location:	AREA 1				
Sample ID:	SRI-1	SRI-1RE	SRI-2	SRI-3	SRI-4
Date:	4/1/93	4/1/93	4/1/93	4/1/93	4/1/93
Matrix:	soil	soil	soil	soil	soil
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Depth:	0-4"	0-4"	0-4"	0-4"	0-4"
Pesticides					
4,4'-DDT					
Total:	0	0	0	0	0

Location:	AREA 2										
Sample ID:	SR1-5A	SRI-5B	SRI-6A	SRI-6B	SRI-7A	SRI-7B	SRI-8A	SRI-8B	SRI-9A	SRI-9B	SRI-DUP
Date:	3/31/93	3/31/93	3/31/93	3/31/93	3/31/93	3/31/93	3/31/93	3/31/93	3/31/93	3/31/93	4/1/93
Matrix:	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil
Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Depth:	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"
Pesticides											
4,4'-DDT											
Total:	0	0	0	0	0	0	0	0	0	0	0

Location:	BACKGROUND			
Sample ID:	SRI-10	SRI-11	SRI-12	SRI-13
Date:	3/31/93	4/1/93	4/1/93	4/1/93
Matrix:	soil	soil	soil	soil
Units:	ug/kg	ug/kg	ug/kg	ug/kg
Depth:	0-4"	0-4"	0-4"	0-4"
Pesticides				
4,4'-DDT			180 J	
Total:	0	0	180	0

DUP taken at location SRI-9B

Prepared by: DAJ
Checked by: CAH

TABLE 6
SOIL - INORGANIC DATA SUMMARY
PELHAM BAY SRI
92C4087

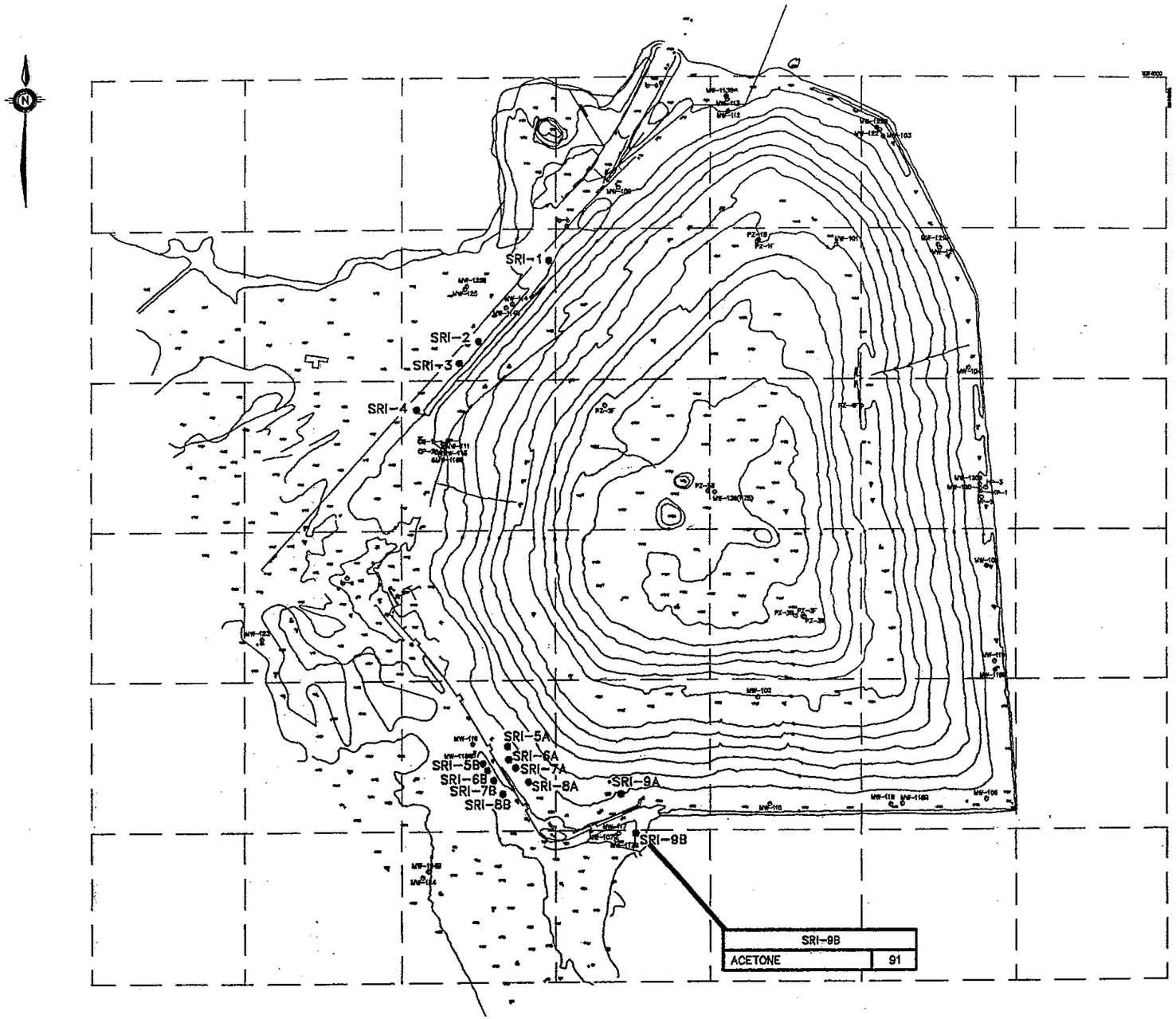
Location:	AREA 1				AREA 2										
Sample ID:	SRI-1	SRI-2	SRI-3	SRI-4	SR1-5A	SRI-5B	SRI-6A	SRI-6B	SRI-7A	SRI-7B	SRI-8A	SRI-8B	SRI-9A	SRI-9B	SRI-DUP
Date:	4/1/93	4/1/93	4/1/93	4/1/93	3/31/93	3/31/93	3/31/93	3/31/93	3/31/93	3/31/93	3/31/93	3/31/93	3/31/93	3/31/93	4/1/93
Matrix:	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil	soil
Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Depth:	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"	0-4"
Aluminum	13600	11000	5960	6980	7550	11000	7830	6340	8870	3900	6480	10000	6930	4630	4060
Antimony						12.6 B									
Arsenic	3.9		2.3 B	1.8 B	2.4 B	2.9	1.5 B			1.5 B	1.8 B	1.6 B	1.5 B		1.3 B
Barium	127	33.8 B	74.8	89.6	87	60	63.1	54.3	76.3	34.5 B	59.5	145	52.7	40.7 B	39.1 B
Beryllium	0.91 B				0.83 B						1.1 B				
Calcium	4950	13800	46700	7940	4880	3920	5300	11300	10800	5620	4300	11300	2940	9510	60400
Chromium	45	4.5	15.1	23.5	24.8	24.1	28	20.5	22.1	7.3	24	30.8	20	13.1	15.2
Cobalt	13.4 B	13.8 B	6.5 B	9.6 B	10.1 B	6.2 B	7 B	5.9 B	7.9 B	4.7 B	7.5 B	9.7 B	7.2 B	4.3 B	4.3 B
Copper	29 U	119	51.7 U	72.3 U	31.9 U	18.1 U	15.5 U	16.1 U	20.1 U	8.6 U	22.5 U	29.7 U	17.7 U	19.2 U	28.7 U
Iron	21800	23400	13000	13900	19200	15400	17100	12300	16900	7450	20100	20500	18000	12200	11600
Lead	99.2	32.6	91.7	102	101	63.8	69.3	40.2	93.9	35.8	60.4	122	61	38.7	161
Magnesium	7070	6470	19300	4550	3980	3510	4570	6660	4120	3230	3310	6660	2760	6120	35600
Manganese	309	217	258	367	268	231	262	197	251	106	252	407	182	189	207
Mercury				0.28	0.27				0.15						
Nickel	82.6	15.7	13.9	22.5	23	22.1	23.7	12.4	17.7	10.7	19.2	25	48.3	13.7	10.7 B
Potassium	2300	642 B	1050 B	1360 B	1410	899 B	1600	1120 B	1650	733 B	1110 B	2000	873 B	658 B	728 B
Sodium	420 U	2530 U	272 U	470 U	237 U	565 U	194 U	273 U	227 U	330 U	281 U	400 U	219 U	310 U	398 U
Vanadium	41.2	37.5	30.3	31.5	29.8	32.2	30	25.1	28.4	12.5	24.6	39.7	30.7	19.2	19.5
Zinc	1060	197	785	1710	168	81.7	98.5	64.6	128	36.4 U	88.2	177	87.9	81.2	85.2

TABLE 6
SOIL - INORGANIC DATA SUMMARY
PELHAM BAY SRI
92C4087

Location:	BACKGROUND			
Sample ID:	SRI-10	SRI-11	SRI-12	SRI-13
Date:	3/31/93	4/1/93	4/1/93	4/1/93
Matrix:	soil	soil	soil	soil
Units:	mg/kg	mg/kg	mg/kg	mg/kg
Depth:	0-4"	0-4"	0-4"	0-4"
Aluminum	14100	13200	14200	14200
Antimony				
Arsenic	5.2	4.3	13	5
Barium	67.7	61.4	103	136
Beryllium	1.2 B		0.93 B	1.3 B
Calcium	1530	1120	15500	6730
Chromium	30.3	30.8	22.7	38.4
Cobalt	9.2 B	8.3 B	8.5 B	9 B
Copper	33.9 U	37.6 U	52 U	41.3 U
Iron	18400	16600	20500	18200
Lead	132	112	413	204
Magnesium	3370	2940	3830	5300
Manganese	394	367	485	355
Mercury	0.16		0.35	
Nickel	39.4	33.7	22.6	42
Potassium	1050 B	593 B	1160 B	1400
Sodium	377 U	138 U	211 U	875 U
Vanadium	58.6	42.4	50.9	51.2
Zinc	91.3	96.9	247	154

Notes: B = detected above the Instrument Detection Limit
but below the Contract Detection Limit
U = Compound Detected in Blank

Prepared by: DAJ
Checked by: PGN



LEGEND

● SRI-1 APPROXIMATE LOCATION OF SOIL SAMPLE

NOTES:

1. UNITS ARE ug/kg.
2. ON SITE SAMPLES: SRI-5A THROUGH SRI-9A.
3. OFF SITE SAMPLES: SRI-1 THROUGH SRI-4, SRI-5B THROUGH SRI-9B.
4. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
5. ELEVATIONS ABOVE BRONX DATUM = 2.608 FEET ABOVE MEAN SEA LEVEL.
6. CONTOUR INTERVAL = 40 FEET.

MAP SOURCE:

GABRIEL E. SENIOR, P.C.
SITE SURVEY, 1992
WCCI FIELD SURVEY 3/31/93.

0 200 400 800 FT

SCALE

SRI SHALLOW SOIL SAMPLING LOCATIONS SHOWING CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS PELHAM BAY LANDFILL BRONX, NEW YORK

WOODWARD-CLYDE CONSULTANTS, INC.
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
WAYNE, NEW JERSEY

DR.BY	MG	SCALE	AS SHOWN	PROJ.	92C4087
CK'D.BY	PGN	DATE	MAY 24 1993	FIG.NO.	7

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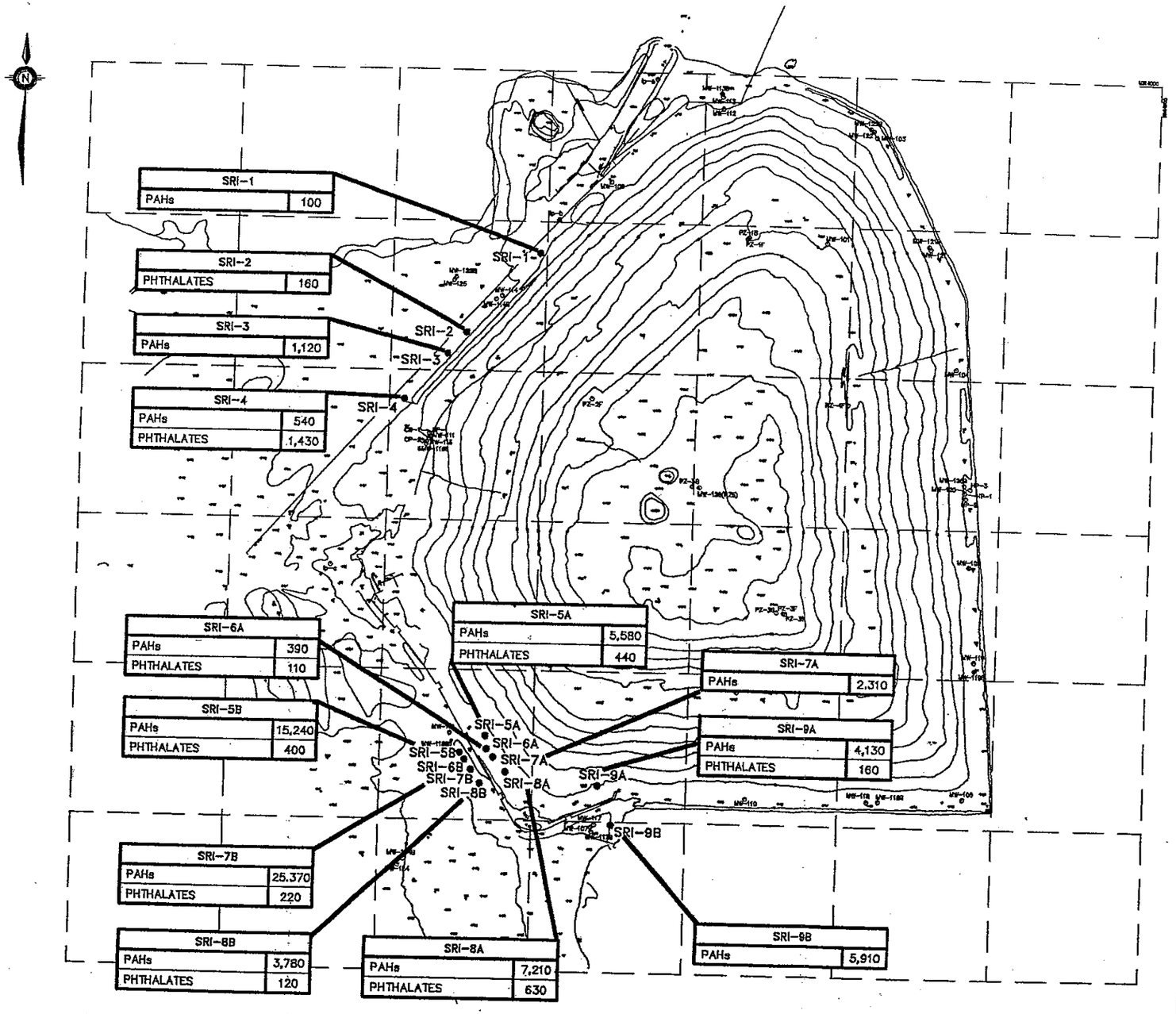


File name: H:\PELHAM\FIG-8.DWG Last edited: 93/05/24 @ 11:33

LEGEND

● SRI-1 APPROXIMATE LOCATION OF SOIL SAMPLE

NOTES:

1. UNITS ARE ug/kg.
2. ON SITE SAMPLES: SRI-5A THROUGH SRI-9A.
3. OFF SITE SAMPLES: SRI-1 THROUGH SRI-4, SRI-5B THROUGH SRI-9B.
4. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
5. ELEVATIONS ABOVE BRONX DATUM = 2.608 FEET ABOVE MEAN SEA LEVEL.
6. CONTOUR INTERVAL = 40 FEET.

MAP SOURCE:

GABRIEL E. SENIOR, P.C.
SITE SURVEY, 1992
WCCI FIELD SURVEY 3/31/93.

0 200 400 800 FT

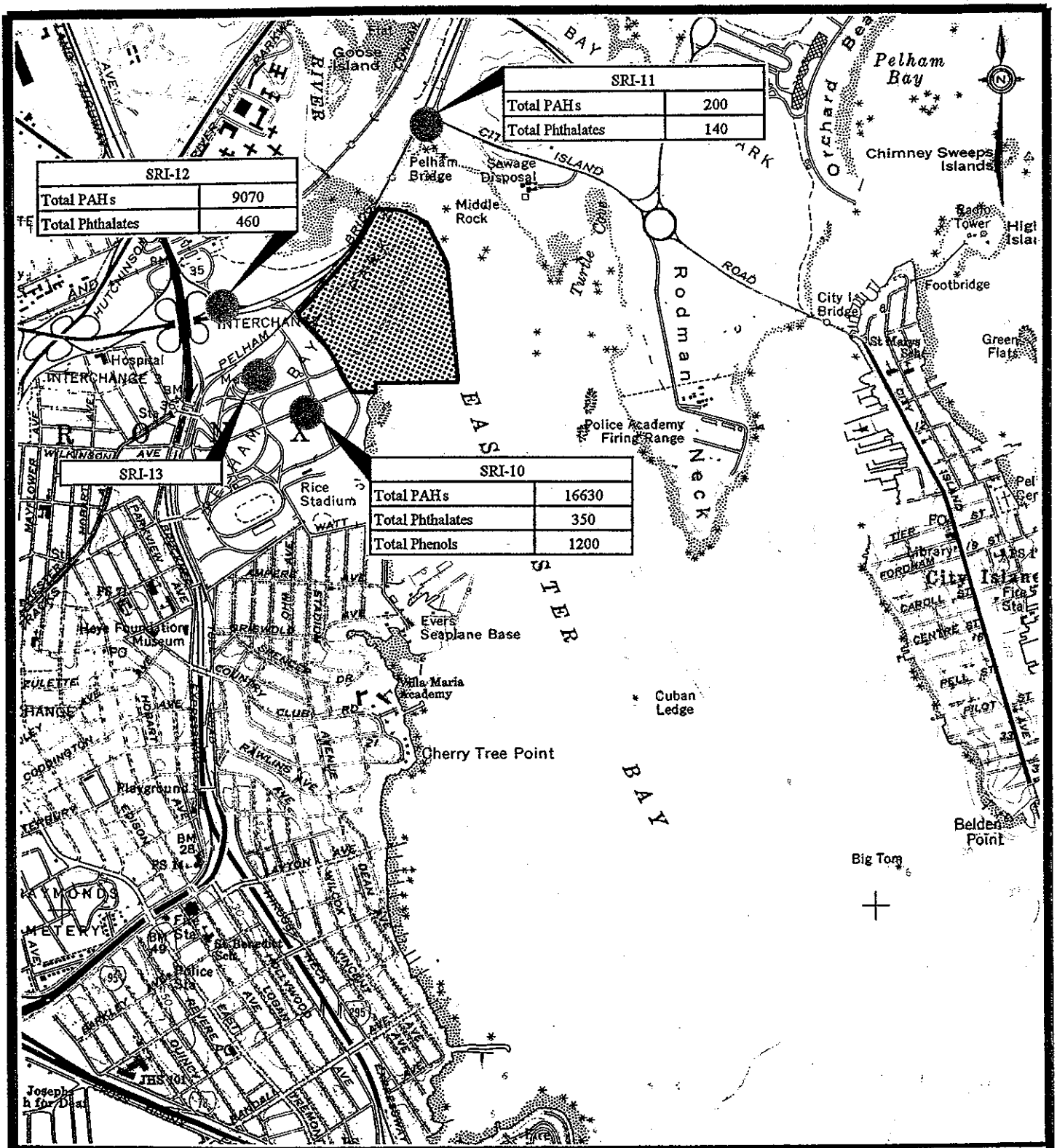
SCALE

SRI SHALLOW SOIL SAMPLING LOCATIONS SHOWING CONCENTRATIONS OF SEMI-VOLATILE ORGANIC COMPOUNDS PELHAM BAY LANDFILL BRONX, NEW YORK

WOODWARD-CLYDE CONSULTANTS, INC.

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR.BY	MG	SCALE	AS SHOWN	PROJ.	92C4087
CK'D.BY	PGN	DATE	MAY 24 1993	FIG.NO.	8



0 1000 2000 FT
SCALE

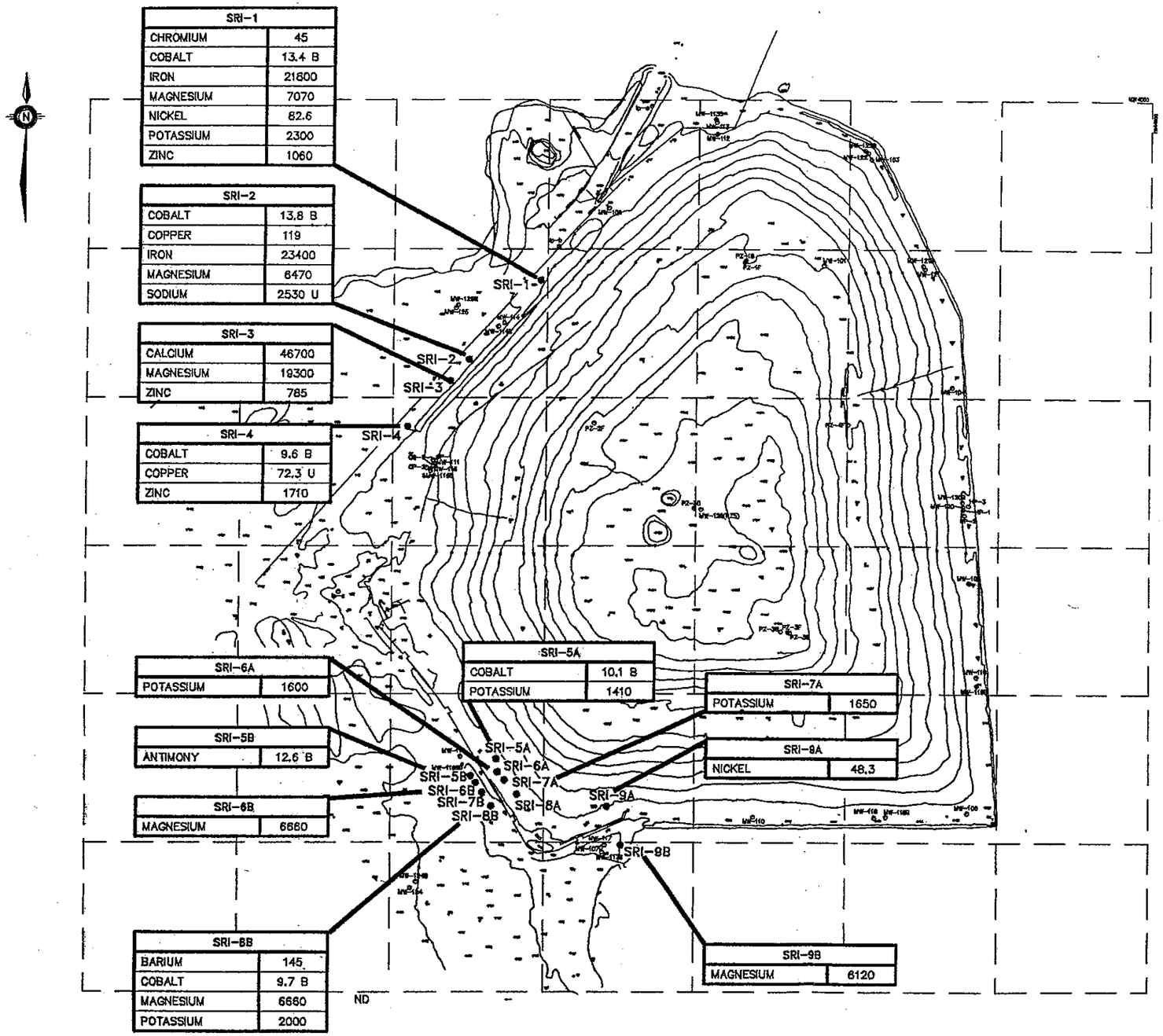
NOTE:
UNITS ARE ug/kg.

MAP SOURCE:
FLUSHING, N.Y. USGS QUADRANGLE MAP, 1979.

BACKGROUND ANALYTICAL RESULTS
SEMI – VOLATILE ORGANIC COMPOUNDS
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD – CLYDE CONSULTANTS, INC.
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR. BY:	KJF	SCALE:	AS SHOWN	PROJ. NO.:	92C4087
CK'D BY:	DAJ	DATE:	MAY 19, 1993	FIG. NO:	9



File name: C:\92C4087\FIG-11.DWG Last edited: 93/05/25 @ 16:48

LEGEND

● SRI-1 APPROXIMATE LOCATION OF SOIL SAMPLE

NOTES:

1. UNITS ARE mg/kg.
2. ON SITE SAMPLES: SRI-5A THROUGH SRI-9A.
3. OFF SITE SAMPLES: SRI-1 THROUGH SRI-4, SRI-5B THROUGH SRI-9B.
4. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
5. ELEVATIONS ABOVE BRONX DATUM = 2.608 FEET ABOVE MEAN SEA LEVEL.
6. CONTOUR INTERVAL = 40 FEET.
7. ONLY VALUES >200 ppm WERE REPORTED FOR LEAD.
8. B=REPORTED VALUE IS ACCEPTABLE (REPORTED VALUE LESS THAN THE CRDL (CONTRACT REQUIRED DETECTION LIMIT) BUT GREATER THAN THE IDL (INSTRUMENT DETECTION LIMIT).
9. ONLY SAMPLE CONCENTRATIONS WHICH EXCEED THE MAXIMUM BACKGROUND CONCENTRATIONS FROM THE BACKGROUND SOIL SAMPLES ARE SHOWN.
10. U= COMPOUND DETECTED IN FIELD BLANK.

MAP SOURCE:

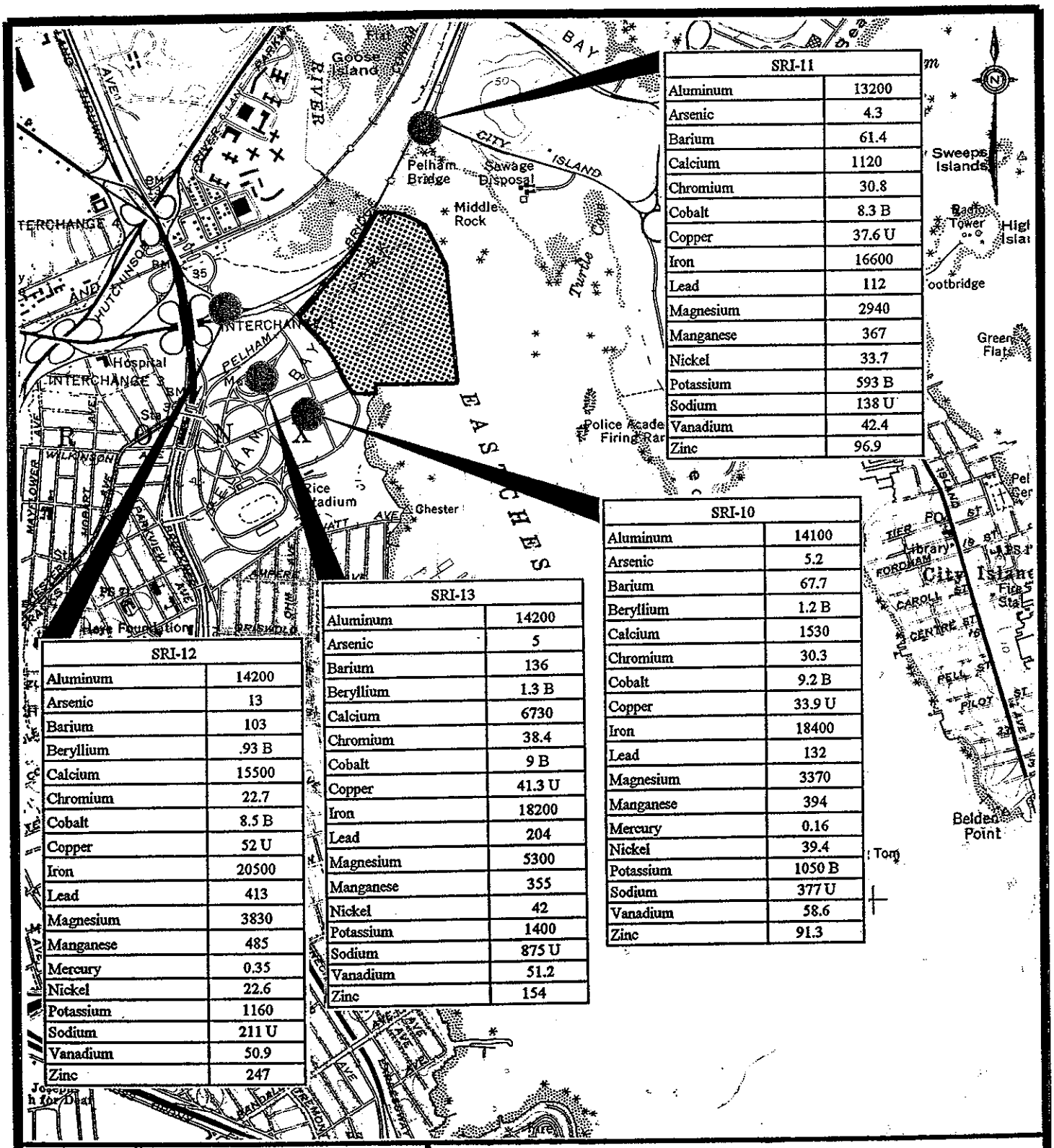
GABRIEL E. SENIOR, P.C.
SITE SURVEY, 1992
WCCI FIELD SURVEY 3/31/93.

0 200 400 800 FT
SCALE

SRI SHALLOW SOIL SAMPLING LOCATIONS SHOWING CONCENTRATIONS OF INORGANIC CONSTITUENTS PELHAM BAY LANDFILL BRONX, NEW YORK

WOODWARD-CLYDE CONSULTANTS, INC.
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR.BY	MG		SCALE	AS SHOWN	PROJ. 92C4087
CK'D.BY	PGN		DATE	MAY 11 1993	FIG.NO. 10



SRI-11	
Aluminum	13200
Arsenic	4.3
Barium	61.4
Calcium	1120
Chromium	30.8
Cobalt	8.3 B
Copper	37.6 U
Iron	16600
Lead	112
Magnesium	2940
Manganese	367
Nickel	33.7
Potassium	593 B
Sodium	138 U
Vanadium	42.4
Zinc	96.9

SRI-10	
Aluminum	14100
Arsenic	5.2
Barium	67.7
Beryllium	1.2 B
Calcium	1530
Chromium	30.3
Cobalt	9.2 B
Copper	33.9 U
Iron	18400
Lead	132
Magnesium	3370
Manganese	394
Mercury	0.16
Nickel	39.4
Potassium	1050 B
Sodium	377 U
Vanadium	58.6
Zinc	91.3

SRI-13	
Aluminum	14200
Arsenic	5
Barium	136
Beryllium	1.3 B
Calcium	6730
Chromium	38.4
Cobalt	9 B
Copper	41.3 U
Iron	18200
Lead	204
Magnesium	5300
Manganese	355
Nickel	42
Potassium	1400
Sodium	875 U
Vanadium	51.2
Zinc	154

SRI-12	
Aluminum	14200
Arsenic	13
Barium	103
Beryllium	.93 B
Calcium	15500
Chromium	22.7
Cobalt	8.5 B
Copper	52 U
Iron	20500
Lead	413
Magnesium	3830
Manganese	485
Mercury	0.35
Nickel	22.6
Potassium	1160
Sodium	211 U
Vanadium	50.9
Zinc	247

0 1000 2000 FT
SCALE

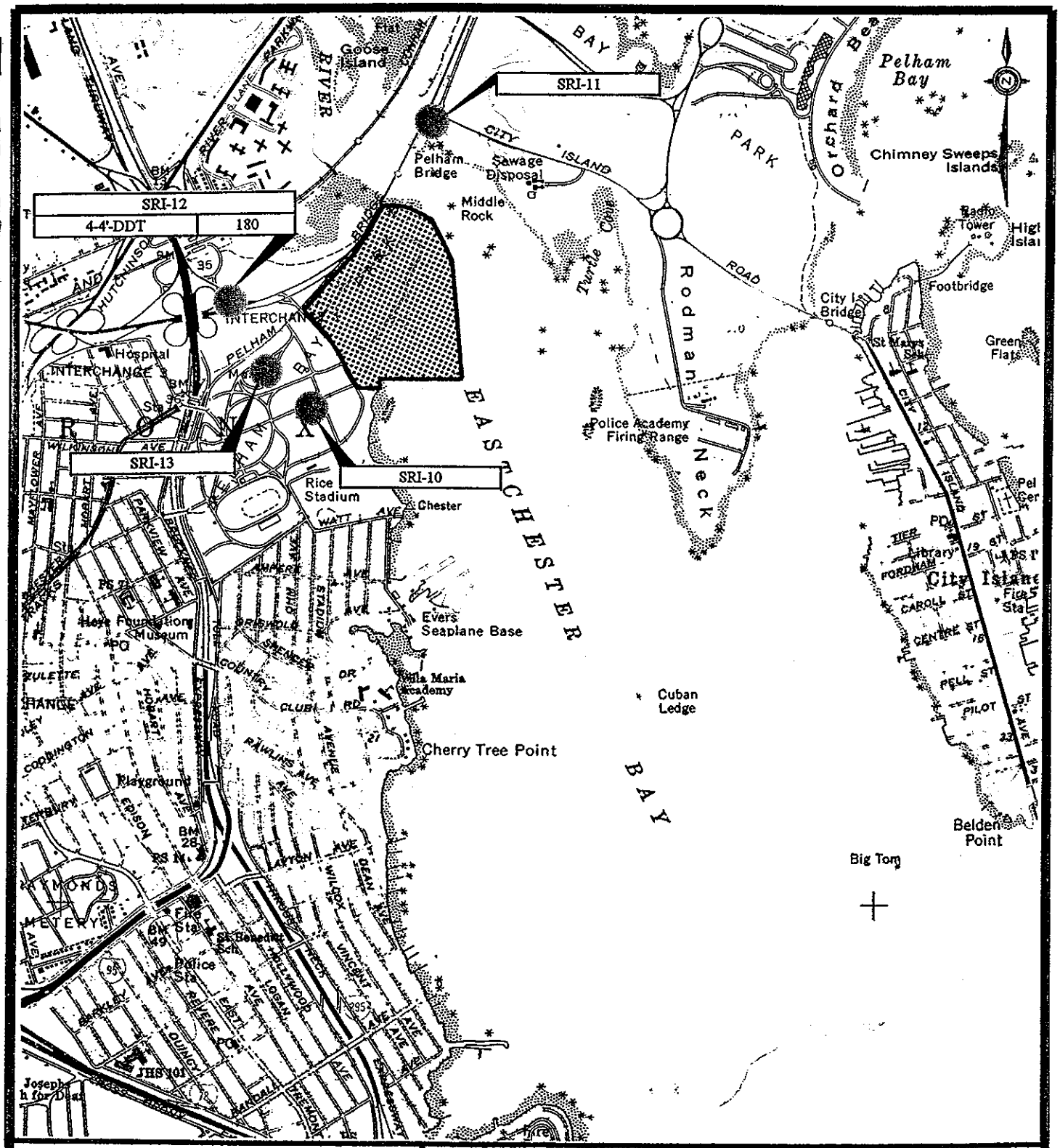
NOTE:
UNITS ARE mg/kg.
U = COMPOUND DETECTED IN FIELD BLANK.
B = REPORTED VALUE IS ACCEPTABLE [REPORTED VALUE LESS THAN THE CRDL (CONTRACT REQUIRED DETECTION LIMIT) BUT GREATER THAN THE IDL (INSTRUMENT DETECTION LIMIT)].

MAP SOURCE:
FLUSHING, N.Y. USGS QUADRANGLE MAP, 1979.

BACKGROUND ANALYTICAL RESULTS INORGANIC CONSTITUENTS PELHAM BAY LANDFILL BRONX, NEW YORK

WOODWARD – CLYDE CONSULTANTS, INC.
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR. BY:	KJF	SCALE:	AS SHOWN	PROJ. NO.:	92C4087
CK'D BY:	DAJ	DATE:	MAY 19, 1993	FIG. NO:	11



NOTE:
UNITS ARE ug/kg.

MAP SOURCE:
FLUSHING, N.Y. USGS QUADRANGLE MAP, 1979.

BACKGROUND ANALYTICAL RESULTS
PESTICIDE/PCB s
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD – CLYDE CONSULTANTS, INC.
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR. BY:	KJF	SCALE:	AS SHOWN	PROJ. NO.:	92C4087
CK'D BY:	DAJ	DATE:	MAY 19, 1993	FIG. NO:	12

Appendix E

Remedial Investigation Report -
Groundwater Tables and Figures

Table 4-19
Monitoring Wells - Volatile Organic Compounds Data Summary
Pelham Bay Landfill
Bronx, New York

	MW-103	MW-104	MW-105	MW-106	MW-107	MW-109	MW-110	MW-111	MW-112	MW-113	MW-113B	MW-114	MW-114B	MW-115	MW-115B	MW-115BP	MW-115P	MW-116	MW-116B	MW-117	MW-117B
date:	28-Jul-92	30-Jul-92	28-Jul-92	29-Jul-92	8-Aug-92	28-Jul-92	29-Jul-92	30-Jul-92	28-Jul-92	28-Jul-92	5-Aug-92	30-Jul-92	30-Jul-92	31-Jul-92	31-Jul-92	14-Aug-92	12-Aug-92	3-Aug-92	7-Aug-92	31-Jul-92	7-Aug-92
Halogenated Aliphatic Compounds																					
1,1-Dichloroethylene																					
1,2-Dichloroethylene			1 J																		
Chloroform						2 J															
Methylene chloride	2 BJR#	2 BJR#	2 BJR#		12 BJR#	2 BJR#		2 BJR#	3 BJR#	2 BJR#	1 BJ	3 BJR#	3 BJR#	2 BJR#	12 BR#		4 J	15 BJR#	9 BJR#	9 BR#	2 BJR#
Tetrachloroethylene																			6 J		
Trichloroethylene																			5 J		
Total			1			2											4		11		
Ketones																					
2-Butanone																					
2-Hexanone																				5 J	
2-Propanone															8 J				47		
4-Methyl-2-pentanone																					
Total															8				47	5	
Monocyclic Aromatic Hydrocarbons																					
Benzene		2 J	4 J	3 J			3 JBR#	2 J		1 J	3 J								62		
Chlorobenzene		7	1 J	2 J			5	18	11	16	28	14		3 J							
Ethylbenzene			8					3 J											36		
Toluene																			230		
Xylenes (total)																			200		
Total		9	13	5			5	23	11	17	31	14		3					528		
Miscellaneous																					
Carbon Disulfide		1 J																			
Total		1																			
Grand Total		10	14	5		2	5	23	11	17	31	14		3	8		4		586	5	

Notes:

All concentrations in micrograms per liter (ppb)
Blank indicates compound was not detected
Totals do not include compounds with "R#" qualifier
B = Blank contaminant
D= Result reported from a diluted sample or sample extract
E = Estimated value (Reported concentration exceeded the calibration range)
J ==Estimated value
R# = Negated

Prepared by: SMM
Checked by: TRP
92C4087

Table 4-19
Monitoring Wells - Volatile Organic Compounds Data Summary
Pelham Bay Landfill
Bronx, New York

	MW-118	MW-118B	MW-119	MW-119B	MW119BD	MW-120	MW-120B	MW-120H	MW-120L	MW-121	MW-121B	MW-122	MW-122B	MW-123	MW-124	MW-124B	MW-125	MW-125B	MW-126
date:	29-Jul-92	6-Aug-92	5-Aug-92	7-Aug-92	7-Aug-92	4-Aug-92	4-Aug-92	20-Aug-92	20-Aug-92	4-Aug-92	4-Aug-92	4-Aug-92	6-Aug-92	29-Jul-92	3-Aug-92	3-Aug-92	30-Jul-92	30-Jul-92	6-Aug-92
Halogenated Aliphatic Compounds																			
1,1-Dichloroethylene																			
1,2-Dichloroethylene						1 J													
Chloroform		11 J									20 J								
Methylene chloride		120 BR#		2 BJR#	150 BDJR#	12 BJR#	12 BJR#	2 BJR#	1 BJR#	11 BJR#	99 BJR#	8 BJR#	3 BJR#		15 BJR#	15 BJR#	1 BJR#	3 BJR#	3 BJR#
Tetrachloroethylene				6															
Trichloroethylene				3 J															1 J
Total		11		9		1					20								1
Ketones																			
2-Butanone																			51
2-Hexanone																			
2-Propanone		1700 B		1800 EJ	1500 D	24 JR#		18	20 B	9 JR#	2100 BJ	120 J	26		62		8 J		87
4-Methyl-2-pentanone																			9 J
Total		1700		1800	1500			18	20		2100	120	26		62		8		147
Monocyclic Aromatic Hydrocarbons																			
Benzene						3 J		4 J	5	1 J		4 J	3 J						1 J
Chlorobenzene						12		14	17			25	46				3 J	2 J	
Ethylbenzene				8		5		6	7	3 J		5 J	5 J						2 J
Toluene				2		8		9	11			1	2						8
Xylenes (total)				40		9		5	14										6
Total				50		37		38	54	4		35	56				3	2	17
Miscellaneous																			
Carbon Disulfide																			
Total																			
Grand Total		1711		1859	1500	38		56	74	4	2120	155	82		62		11	2	165

Notes:

All concentrations in micrograms per liter (ppb)
Blank indicates compound was not detected
Totals do not include compounds with "R#" qualifier
B = Blank contaminant
D= Result reported from a diluted sample or sample extract
E = Estimated value (Reported concentration exceeded the calibration range)
J ==Estimated value
R# = Negated

Prepared by: SMM
Checked by: TRP
92C4087

Table 4-20
Monitoring Wells - Semi-volatile Organic Compounds Data Summary
Pelham Bay Landfill
Bronx, New York

	MW-103	MW-104	MW-105	MW-106	MW-107	MW-109	MW-110	MW-111	MW-112	MW-113	MW-113B	MW-114	MW-114B	MW-115	MW-115B RE	MW-116	MW-116B
date:	28-Jul-92	30-Jul-92	28-Jul-92	29-Jul-92	3-Aug-92	28-Jul-92	29-Jul-92	31-Jul-92	28-Jul-92	28-Jul-92	5-Aug-92	10-Aug-92	30-Jul-92	31-Jul-92	31-Jul-92	3-Aug-92	7-Aug-92
PAHs																	
2-Methylnaphthalene			33 J														2 J
Acenaphthene		4 J	18	3 J										8 J			
Acenaphthylene																	
Anthracene			8 J														
Benzo(a) anthracene			2 J														
Chrysene																	
Dibenzofuran			12											3 J			
Fluoranthene		2 J	10														
Fluorene		2 J	15	3 J													
Naphthalene		6 J	140 J	8 J													8 J
Phenanthrene			35														
Pyrene		2 J	9 J														
Total		16	282	14										11			10
Phenols																	
2-Methylphenol																	
2,4-Dimethylphenol			73														
4-Methylphenol																	
Total			73														
Phthalates																	
Bis(2-Ethylhexyl) Phthalate		4 J	13								2 J						
Di-n-butyl phthalate	3 JR#		3 BJR#	3 J	3 BJR#	4 BJR#			3 BJR#					2 J			
Di-n-octyl phthalate																	
Total		4	13	3							2			2			
Ethers																	
bis(2-Chloroisopropyl) ether						4 J					3 J						
Total						4					3						
Chlorinated Hydrocarbons																	
1,4-Dichlorobenzene											6 J						
Total											6						
Amines/Nitroarenes																	
N-Nitrosodi-n-propylamine											24						
N-Nitrosodiphenylamine																	
Total											24						
Grand Total		20	368	17		4					35			13			10

Notes:
All concentrations in micrograms per liter (ppb)
Blank indicates compound was not detected
Totals do not include compounds with "R#" qualifier
B = Blank contaminant
J = Estimated value
RE = Reanalysis
R# = Negated result

Prepared by: CLH
Checked by: TRP
92C4087

Table 4-20
Monitoring Wells - Semi-volatile Organic Compounds Data Summary
Pelham Bay Landfill
Bronx, New York

	MW-117	MW-117B	MW-118	MW-118B	MW-119	MW-119B	MW-120	MW-120B	MW-121	MW-121B	MW-122	MW-122B	MW-123	MW-124	MW-124B	MW-125	MW-125B	MW-126
date:	31-Jul-92	7-Aug-92	29-Jul-92	29-Jul-92	5-Aug-92	7-Aug-92	4-Aug-92	4-Aug-92	4-Aug-92	4-Aug-92	4-Aug-92	6-Aug-92	29-Jul-92	3-Aug-92	3-Aug-92	30-Jul-92	30-Jul-92	6-Aug-92
PAHs																		
2-Methylnaphthalene						2 J	4 J											6 J
Acenaphthene							4 J		2 J									8 J
Acenaphthylene						2 J												
Anthracene							3 J		2 J									5 J
Benzo(a) anthracene																		3 J
Chrysene																		3 J
Dibenzofuran																		5 J
Fluoranthene							3 J											10 J
Fluorene							3 J											5 J
Naphthalene						4 J	35		2 J									45
Phenanthrene							4 J											19
Pyrene																		9 J
Total						8	56		6									118
Phenols																		
2-Methylphenol							51											49 J
2,4-Dimethylphenol							68		5 J									290
4-Methylphenol			4 J															
Total			4				119		5									339
Phthalates																		
Bis(2-Ethylhexyl) Phthalate				28 J		17 J	6 J	2 J										38
Di-n-butyl phthalate	2 J			4 J								2 J	2 J		2 BJR#			
Di-n-octyl phthalate																		10 J
Total	2			32		17	6	2				2	2					48
Ethers																		
bis(2-Chloroisopropyl) ether		5 J	3 J															
Total		5	3															
Chlorinated Hydrocarbons																		
1,4-Dichlorobenzene							4 J											
Total							4											
Amines/Nitroarenes																		
N-Nitrosodi-n-propylamine																		
N-Nitrosodiphenylamine				11 J		17 J				4 J								
Total				11		17				4								
Grand Total	2	5	7	43		42	185	2	11	4		2	2					505

Notes:
All concentrations in micrograms per liter (ppb)
Blank indicates compound was not detected
Totals do not include compounds with "R#" qualifier
B = Blank contaminant
J = Estimated value
RE = Reanalysis
R# = Negated result

Prepared by: CLH
Checked by: TRP
92C4087

Table 4-21
Monitoring Wells - Pesticides and PCBs Data Summary
Pelham Bay Landfill
Bronx, New York

	MW-103	MW-104	MW-105	MW-106	MW-106AR	MW-107	MW-109	MW-110AR	MW-111	MW-112	MW-113	MW-113B	MW-114	MW-114B	MW-115	MW-115B	MW-116	MW-116B
date:	28-Jul-92	30-Jul-92	28-Jul-92	29-Jul-92	29-Jul-92	3-Aug-92	28-Jul-92	29-Jul-92	31-Jul-92	28-Jul-92	28-Jul-92	5-Aug-92	10-Aug-92	30-Jul-92	31-Jul-92	31-Jul-92	3-Aug-92	7-Aug-92
4,4'-DDD	0.013 JV	0.012 J		0.024 JV				0.015 J										
4,4'-DDE	0.013 JV	0.015 J	0.067 JV	0.027 JV	0.01 JV			0.011 J										0.014 J
alpha-BHC			0.1 V									0.02 JV						0.032 J
alpha-Chlordane	0.056 JV																	
delta-BHC		0.017 J	0.068 V		0.058 VR#			0.018 JVR#					0.02 J					
Dieldrin	0.18 V	0.0063 J	0.47 V	0.04 JV					0.011 J	0.042 JV	0.033 JV							0.044 J
Endosulfan II			2.1 V								0.053 JV							
Endosulfan sulfate	0.04 BJVR#						0.051 BJVR#			0.047 BJVR#	0.031 BJVR#					0.011 JR#		
Endrin										0.023 JV								
Endrin ketone																		
gamma-BHC																		
Methoxychlor			0.27 JV	0.15 JV														
PCB-1016			0.84 J															
PCB-1260			1 J															

	MW-117	MW-117B	MW-118AR	MW-118B	MW-119	MW-119B	MW-120	MW-120B	MW-121	MW-121B	MW-122	MW-122B	MW-123AR	MW-124	MW-124B	MW-125	MW-125B	MW-126
date:	31-Jul-92	7-Aug-92	29-Jul-92	29-Jul-92	5-Aug-92	7-Aug-92	4-Aug-92	4-Aug-92	4-Aug-92	4-Aug-92	4-Aug-92	6-Aug-92	29-Jul-92	29-Jul-92	29-Jul-92	30-Jul-92	30-Jul-92	6-Aug-92
4,4'-DDD					0.011 JV				0.037 JV									
4,4'-DDE							0.013 J	0.017 JV										0.052 J
alpha-BHC								0.011 JV		0.0082 J	0.0093 JV							
alpha-Chlordane																		
delta-BHC			0.011 BJVR#									0.02 J						
Dieldrin						0.014 J	0.03 J											0.091 J
Endosulfan II																		
Endosulfan sulfate	0.059 JR#	0.036 J				0.052 J							0.011 JVR#					
Endrin																		
Endrin ketone						0.057 J												
gamma-BHC																		0.037 J
Methoxychlor							0.41 J											
PCB-1016																		
PCB-1260																		

Notes:
All concentrations in micrograms per liter (ppb)
Blank indicates compound was not detected
AR=Archived portion of sample reanalyzed
B=Blank contaminant
J = Estimated value
R# = Negated result
V = Reported results for this compound could not be verified during data validation

Prepared by: CLH
Checked by: TRP
92C4087

Table 4-22
Monitoring Wells - Inorganics Data Summary
Pelham Bay Landfill
Bronx, New York

	MW-103	MW-104	MW-105	MW-106	MW-107	MW-109	MW-110	MW-111	MW-112	MW-113	MW-113B	MW-114	MW-114B
date:	28-Jul-92	30-Jul-92	28-Jul-92	29-Jul-92	3-Aug-92	28-Jul-92	29-Jul-92	31-Jul-92	28-Jul-92	28-Jul-92	5-Aug-92	10-Aug-92	30-Jul-92
Aluminum	460	874			30300 N	305	1170	351	156 B	9510	3460 N	2040	1080
Antimony					51.2 B	56.3 BJR#	52.5 BJR#						
Arsenic		7.2 BJ	13.4	2.3 BW	10.1 B			6.2 B	2 B	3.7 B	6.2 B	15.8 J	1.8 BJ
Barium	57 B	983	1030	946	908 EN	167 B	539	129 B	891	393	1110 EN	164 B	210
Beryllium					0.6 B								
Cadmium			9.6	6.6									
Calcium	259000	122000	57700	147000	79900 E	100000	180000	150000	87400	99900	437000 E	53600	338000
Chromium		110	312	56	165		25.4	18.6	13.7	39.9	23.2	36.5	
Cobalt		16 BJR#	39.9 B	8.3 B	42.3 BJNR#	78.7		29.2 BJR#	24.4 B	23.2 B	59 N	19.3 BJR#	8 BJR#
Copper	590	50.6 S	471	182	173	13.3 BJR#	52.5	20.7 B	61.9	43.9	771	7.3 B	
Cyanide		10.8		24.6						22.6			
Iron	2160	6110	11200	15100	62600 E	657	9770	19200	11900	18800	10300 E	12100	1210
Lead	40.2	51.9	65.1 S	9.5 B+	36.3 J		68.3	2.8 BJR#	7.7	26.2 S	30.3	3.6 B	1.2 B
Magnesium	921000	252000	44300	296000	104000	43700	288000	201000	50800	45800	220000	54500	56500
Manganese	162	111	75.8	98.8	2030 E	5100	121	8920	630	3060	24500 E	691	147
Mercury	1.2			0.2 BJ									
Nickel		26 BJ	73.3	14.9 B	246	483	18.3 B	227	106	182	267	67.4 J	
Potassium	300000	331000	563000	309000	84300	5850	170000	97000	129000	94400	50200	243000	17100
Selenium		13.6 BN											
Silver		8.6 BNWJR#									4.8 B	4.1 BNJR#	
Sodium	8764000	3053000	3154000	3836000	566000	116000	3150000	2268000	316000	428000	790000	709000	1151000
Thallium													
Vanadium	5.7 B	244	869	102	109		46.3 B	9.6 B	5.2 B	23.7 B	14.5 BJR#	33.8 B	
Zinc	70.2	45	139	43.9	141 E	34.9	99	15.9 BJR#	24.4 JR#	39.9	88.9 E	17.3 B	28.2

Notes:
All concentrations in microgram per liter (ppb)
Blank indicates compound was not detected
B = Reported value is acceptable. Reported value is less than the CRDL (Contract Required Detection Limit) but greater than the IDL (Instrument Detection Limit)
E = Estimated value due to matrix interference
J = Estimated value.
N= Estimated value (Spiked sample recovery was not within quality control limits)
R = Rejected result
R# = Negated result
S = Reported value is acceptable. Reported value was determined by the Method of Standard Additions (MSA)
W = Estimated value (Post-digestion spike sample results were reported outside quality control limits, while sample absorbance is less than 50% of spike absorbance)
+ = Estimated value (The correlation coefficient reported for the MSA is less than 0.995)

Prepared by: CLH
Checked by: TRP
92C4087

Table 4-22
Monitoring Wells - Inorganics Data Summary
Pelham Bay Landfill
Bronx, New York

	MW-115	MW-115B	MW-115BP	MW-115P	MW-116	MW-116B	MW-117	MW-117B	MW-118	MW-118B	MW-119	MW-119B	MW-120
date:	31-Jul-92	31-Jul-92	14-Aug-92	12-Aug-92	3-Aug-92	7-Aug-92	31-Jul-92	7-Aug-92	29-Jul-92	6-Aug-92	5-Aug-92	7-Aug-92	4-Aug-92
Aluminum	19900	1390	48.7 B	87.3 B	3930 N	14000	6840		253	46200	7110 N	7320	3150 N
Antimony													
Arsenic	2.3 B	1.6 B				2.8 B	21.2		7.9 B	53.2		16.7	7.4 B+
Barium	551	572	575	154 B	60 BEN	367	746	272	199 B	1120	314 EN	313	731 EN
Beryllium							0.6 BJR#			0.9 B			
Cadmium												5.4	5.8 N
Calcium	197000	376000	309000	147000	7740 E	360000	124000	199000	232000	2752000	240000 E	2312000	98400 E
Chromium	92.3	8.8 B	9.9 B	11.1	13.4	59.6	60.3		39.7	217	21.6	64.1	338
Cobalt	57.4	52.2	46.8 B	46.8 B	16.2 BJNR#		39.2 B		8.1 B	48.9 B	18.3 BN		42.8 BNJR#
Copper	80.1	95.3	99.9	37.3	22.7 BJR#	70.7	74.6	15.5 B	33 JR#	1130	44 JR#	297	40.3 JR#
Cyanide									267				
Iron	40200	8400	389	689 E	6300 E	18400	22200	165	978	194000	17200	46800	13000 E
Lead	17.3 J	2.1 BJR#				39 JR#	6.1 JR#	11.9 JR#	17.2 B	252	134	41.4	23.9
Magnesium	216000	289000	244000	177000	5290	6670	75900	144000	740000	1936000	803000	894000	258000
Manganese	10100	13800	9720	6370	554 E	286	1910	173	263	29600	1230	7700	316 E
Mercury												0.62	
Nickel	328	283	248	176		25.4 BJ	164	47.4 J	29.6 B	94.9			73.1 J
Potassium	77500	18500	16200	21200	2950 B	93800	165000	21900	344000	107000	312000	136000	684000
Selenium													
Silver	7.2 BNJR#	5.6 BNJR#										5.4 B	
Sodium	1215000	1312000	1070000 EJ	986000 EJ	70000	93300	1000000	462000	7592000	3539000	7496000	6164000	5362000
Thallium	2.8 B								13.5 B				
Vanadium	51.3		8.6 B	12.2 B	15.7 B	47.7 B	37.6 B		81.2	120	33.8 B	12.8 B	989
Zinc	64.2 JR#	14.4 BJR#	65.1	49.1	15.3 BE	154	30.7 JR#	6.5 B	89.2	7110	142	3220	136 E

Notes:
All concentrations in microgram per liter (ppb)
Blank indicates compound was not detected
B = Reported value is acceptable. Reported value is less than the CRDL (Contract Required Detection Limit) but greater than the IDL (Instrument Detection Limit)
E = Estimated value due to matrix interference
J = Estimated value.
N= Estimated value (Spiked sample recovery was not within quality control limits)
R = Rejected result
R# = Negated result
S = Reported value is acceptable. Reported value was determined by the Method of Standard Additions (MSA)
W = Estimated value (Post-digestion spike sample results were reported outside quality control limits, while sample absorbance is less than 50% of spike absorbance)
+ = Estimated value (The correlation coefficient reported for the MSA is less than 0.995)

Prepared by: CLH
Checked by: TRP
92C4087

Table 4-22
Monitoring Wells - Inorganics Data Summary
Pelham Bay Landfill
Bronx, New York

	MW-120B	MW-120H	MW-120L	MW-121	MW-121B	MW-122	MW-122B	MW-123	MW-124	MW-124B	MW-125	MW-125B	MW-126
date:	4-Aug-92	20-Aug-92	20-Aug-92	4-Aug-92	4-Aug-92	4-Aug-92	6-Aug-92	29-Jul-92	3-Aug-92	3-Aug-92	30-Jul-92	30-Jul-92	6-Aug-92
Aluminum		234	534 J	1430 N	2300 N	941 N		2450	11000 N	3670 N	3930	2010	3230
Antimony											55.5 BJ		
Arsenic	4.5 B			11 B	4.4 B	21.9	3.3 B	2.1 BW	4.5 B	2.1 B	7 BJ	1.8 BJ	63.4
Barium	70 BEN	782 J	973 J	437 EN	547 EN	807 EN	441	111 B	218 EN	73 BEN	112 B	163 B	3090
Beryllium		4.5 B	8.7										
Cadmium							6.8 R				5.2 WR#		7.5 R
Calcium	547000 E	94100 J	67100 J	60600 E	943000 E	158000 E	141000	35300	55400	54100	93100	1297000	19100
Chromium		297 J	409 J	42.1	23.6	33.8	21	15.4	72.7		26.6	15.7	1240
Cobalt	13.8 BNJR#	67.6	60.8	42.2 BNJR#	13.8 BNJR#	45.7 BNJR#	34.4 B	17 B	28.7 BNJR#	11.2 BNJR#	23.3 BJR#	22.3 BJR#	77.3
Copper	13.7 BJR#	32.5	45.8	34.1 JR#	50.7	47.7	20.5 B	14.6 BJR#	75.3 BJR#	12.1 BJR#	16.2 B	24.3 B	356
Cyanide													30.4
Iron	3760 E	3660 EJ	6350 EJ	8540 E	6450 E	63300 E	10800	4440	26600 E	4390 E	24200	10800	39400
Lead				2.9 B	34	14.2	11.3 JR#	7.2	23.1	3.4 B	6.1	16.1 +	423
Magnesium	901000	255000 J	142000 J	275000	98200	319000	328000	23500	63500	8940	250000	829000	13700
Manganese	2200 E	678	312 J	1640 E	117 E	6870 E	2220	2100	4310 E	93.6 E	1040	2240	265
Mercury		0.26	0.39	0.24 N									1.1
Nickel		216 J	158	328		414	322	65	168		304	126 J	213
Potassium	137000	558000 J	668000 J	246000	47500	100000	101000	5390	9790	17800	100000	93300	1431000
Selenium													
Silver				3.5 B		3.7 B				5.4 B	7.1 BNJR#	5.7 BNJR+	
Sodium	7449000	4440000 J	3567000 J	4242000	1224000	1786000	2505000	36300	404000	10700	2449000	6909000	6924000
Thallium													
Vanadium	5 B	955 J	1370 J	19.7 B	11.1 B	16.6 B	9.9 B	8.9 B	29.8 B	14.3 B	11.9 B	4.6 B	2860
Zinc	20.2 E	66.6 EJ	123 J	8.5 BE	37.5 E	30.7 E	37.9	15.1 BJR#	48.8 E	53.4 E	20.6	50	1390

Notes:
All concentrations in microgram per liter (ppb)
Blank indicates compound was not detected
B = Reported value is acceptable. Reported value is less than the CRDL (Contract Required Detection Limit) but greater than the IDL (Instrument Detection Limit)
E = Estimated value due to matrix interference
J = Estimated value.
N= Estimated value (Spiked sample recovery was not within quality control limits)
R = Rejected result
R# = Negated result
S = Reported value is acceptable. Reported value was determined by the Method of Standard Additions (MSA)
W = Estimated value (Post-digestion spike sample results were reported outside quality control limits, while sample absorbance is less than 50% of spike absorbance)
+ = Estimated value (The correlation coefficient reported for the MSA is less than 0.995)

Prepared by: CLH
Checked by: TRP
92C4087

Table 4-23
Monitoring Wells - Conventional Parameters (Modified BMW List) Data Summary
Pelham Bay Landfill
Bronx, New York

	MW-103	MW-104	MW-105	MW-106	MW-107	MW-109	MW-110	MW-111	MW-113	MW-113B	MW-114	MW-114B	MW-115	MW-115D DUP	MW-115B	MW-115BP	MW-115P	MW-116	MW-116B	MW-117
date:	28-Jul-92	30-Jul-92	28-Jul-92	29-Jul-92	3-Aug-92	29-Jul-92	29-Jul-92	31-Jul-92	28-Jul-92	5-Aug-92	10-Aug-92	30-Jul-92	31-Jul-92	31-Jul-92	31-Jul-92	14-Aug-92	12-Aug-92	3-Aug-92	7-Aug-92	31-Jul-92
Alkalinity as Bicarbonate	225	2760	5880	2040	780	34	1064	1640	1350	1470	2000	41	950	970	570			106	1480	1580
Alkalinity as Carbonate																			720	
Ammonia Nitrogen	4.86	320	234	159	64	3.00	113	82.9	77.8	26.7	240	0.37	59.6	60.8	2.95				0.17	221
Chemical Oxygen Demand	258 J	997	3250	724 J	177		394 J	421 J	181	517	509									428 J
Chloride	14700	3720	6040	4270 J	780	468	5120	3160	514	1130	638	2460	2110	1950	2440	2550	2170	30	105	1990
Nitrate Nitrogen	0.22		0.23	0.23	0.04		1.81	0.05		0.02		0.02	0.04	0.03	0.03			0.11	0.104	0.02
Sulfate	1490	356	277	542	224	125	435	315	102	69	55	177	120	110	158			80	42	128
Total Dissolved Solids	26000	9230	10500	9870 J	2250	1170	10540	6920	1620	4270	2680	5320	4700	4680	6370			304	1130	3710
Total Kjeldahl Nitrogen	9.37 J	451 J	1010 J	335 J	68.7	0.36 J	168 J	134	156 J	52	372 J	1.1 J	73.6 J		8.52			0.28	0.72	281 J

	MW-117B	MW-118	MW-118B	MW-119	MW-119B	MW-119D	MW-120	MW-120B	MW-120H	MW-120L	MW-121	MW-121B	MW-122	MW-122B	MW-123	MW-124	MW-124B	MW-125	MW-125B	MW-126
date:	7-Aug-92	29-Jul-92	6-Aug-92	5-Aug-92	7-Aug-92	7-Aug-92	4-Aug-92	4-Aug-92	20-Aug-92	20-Aug-92	4-Aug-92	4-Aug-92	4-Aug-92	6-Aug-92	29-Jul-92	3-Aug-92	3-Aug-92	30-Jul-92	30-Jul-92	6-Aug-92
Alkalinity as Bicarbonate	332	924	35	574	190	594	5050	724			2780	60	1780	2370	1100	70	69	1560	1030	1346
Alkalinity as Carbonate			10														6			900
Ammonia Nitrogen		96.8	1.83	40.6	3	37.9	604	3.28			91.8		16.9	0.93				0.34	0.52	1260
Chemical Oxygen Demand		480 J	1380 J	620 J	635		2360	628 J			997	170 J	805					436 J	580 J	8170
Chloride	2150	10570	10460 J	11240	11740	11360	5320	13560	5500	3740	4980	3210	1840	3050 J	179	590	11	2940	11980	5140 J
Nitrate Nitrogen	0.084	23		0.23		0.24											0.01			
Sulfate	149	594	599	1680	520	1720	713	494			336	364	86	98	30	102	60	161	408 J	759
Total Dissolved Solids	3110	24500	24250	25200	27100	25300	15200	28300			13000	7380	5730	8640	334	1410	194	7360	26300	12200
Total Kjeldahl Nitrogen	0.29	151 J	4.27	52.6	3.83		1640	4.95			132	2.4	35.1	24.9	0.32 J		0.37	10.7 J	9.79 J	1200

Notes:

All concentrations in milligrams per liter (ppm)
Blank indicates compound was not detected
D = Laboratory QA/QC duplicate
DUP = Duplicate sample
J = Estimated value

Prepared by: CLH
Checked by: TRP
92C4087

Table 4-33
Comparison of Monitoring Well and Seep Samples to NYSDEC Groundwater Standards
Pelham Bay Landfill
Bronx, New York

Compound	NYSDEC SCG[1] (ug/l)	Range of Concentrations (ug/l)	Samples that Exceed Standards
Benzene	0.7	1 to 62	104, 105, 106, 111, 113, 113B, 116B, 120, 121, 122, 122B, 125, 125B, LS-1, LS-9, LS-10
Chlorobenzene	5	1 to 46	104, 111, 112, 113, 113B, 114, 120, 122, 122B, LS-4, LS-9
Ethylbenzene	5	3 to 36	105, 116B, 119B, 120, LS-1
Methylene Chloride	5	1 to 150	(2)
Toluene	5	1 to 230	116B, 120, 126, LS-1, LS-9
Xylenes	5	4 to 200	116B, 119B, 120, 126, LS-1, LS-9
Acenaphthene	20*	2 to 18	
Anthracene	50*	2 to 8	
Fluoranthene	50	2 to 10	
Fluorene	50*	2 to 15	
Naphthalene	10*	2 to 140	105, 120, 126, LS-9
Phenanthrene	50*	3 to 35	
Pyrene	50*	2 to 9	
1,2-Dichlorobenzene	4.7	5	LS-4
1,3-Dichlorobenzene	5	5	
1,4-Dichlorobenzene	4.7	4 to 9	113B, LS-4
N-Nitrosodiphenylamine	50*	4 to 17	
bis(2-Ethylhexyl)phthalate	50	2 to 38	
Aldrin	Non-detect	0.058	LS-2
Dieldrin	Non-detect	0.0063 to 0.64	103, 104, 105, 106, 111, 112, 113, 116B, 119B, 120, 126, LS-2, LS-5, LS-9, LS-10
4,4' DDD	Non-detect	0.011 to 0.078	103, 104, 106, 110, 119, 121, LS-1, LS-2, LS-5
4,4' DDE	Non-detect	0.01 to 0.078	103, 104, 105, 106, 110, 116B, 120, 120B, 126, LS-2, LS-5, LS-10
Antimony	3*	51.2 to 56.3	107, 125, LS-5
Arsenic	25	2.3 to 89.1	118B, 126, LS-1, LS-5
Barium	1,000	60 to 8470	105, 113B, 118B, 126, LS-1, LS-2, LS-5
Boron	1,000	1570 to 8900	LS-1, LS-2, LS-3, LS-4, LS-5, LS-7, LS-9, LS-10 (3)
Cadmium	10	5.4 to 29.1	LS-2
Chromium	50	18.6 to 1240	104, 105, 106, 107, 115, 116B, 117, 118B, 119B, 120, 124, 126, LS-1, LS-2, LS-5, LS-9, LS-10
Hexavalent Chromium	50	20 to 560	LS-1, LS-2, LS-9, LS-10 (3)
Cobalt	34	8.1 to 77.3	105, 109, 113B, 115, 115B, 117, 118B, 126, LS-1, LS-2, LS-5
Copper	200	7.3 to 1130	103, 105, 113B, 118B, 126, LS-2, LS-5
Iron	300	165 to 860,000	All monitoring well and seep samples except 117B
Lead	25	7.7 to 2,780	103, 104, 105, 107, 110, 113, 113B, 118B, 119, 121B, 126, LS-1, LS-2, LS-9, LS-10
Magnesium	35,000*	5,290 to 1,936,000	All monitoring well and seep samples except 116, 116B, 124B
Manganese	300	75.8 to 29,600	107, 109, 111, 112, 113, 113B, 114, 115, 115B, 116, 117, 118B, 119, 119B, 120, 120B, 121, 122, 122B, 123, 124, 125, 125B, LS-2, LS-4, LS-5, LS-9
Mercury	2	0.2 to 5	LS-7
Selenium	10	13.6	104
Sodium	20,000	10,700 to 8,000,000	All monitoring well and seep samples except 124B
Thallium	4*	2.8 to 16.8	118, LS-7
Zinc	300	6.5 to 7,110	118B, 119B, 126, LS-2, LS-5
TDS	500,000	304,000 to 27,100,000	All monitoring well and seep samples except 116, 123, 124B
Ammonia	2,000	170 to 1,260,000	All monitoring well and seep samples except 114B, 116, 116B, 117B, 121B, 123, 124, 124B, 125, 125B
Chloride	250,000	11,000 to 12,250,000	All monitoring well and seep samples except 116, 116B, 124B
Cyanide	100	10.8 to 267	118
Nitrate	10,000	20 to 23,000	118
Sulfate	250,000	46,000 to 1,690,000	104, 105, 106, 110, 111, 118, 118B, 119, 119B, 120, 120B, 121, 121B, 126, LS-1, LS-2, LS-3, LS-4, LS-5, LS-7, LS-9, LS-10

Notes:

* Guidance value, regulated standard for this chemical is not available

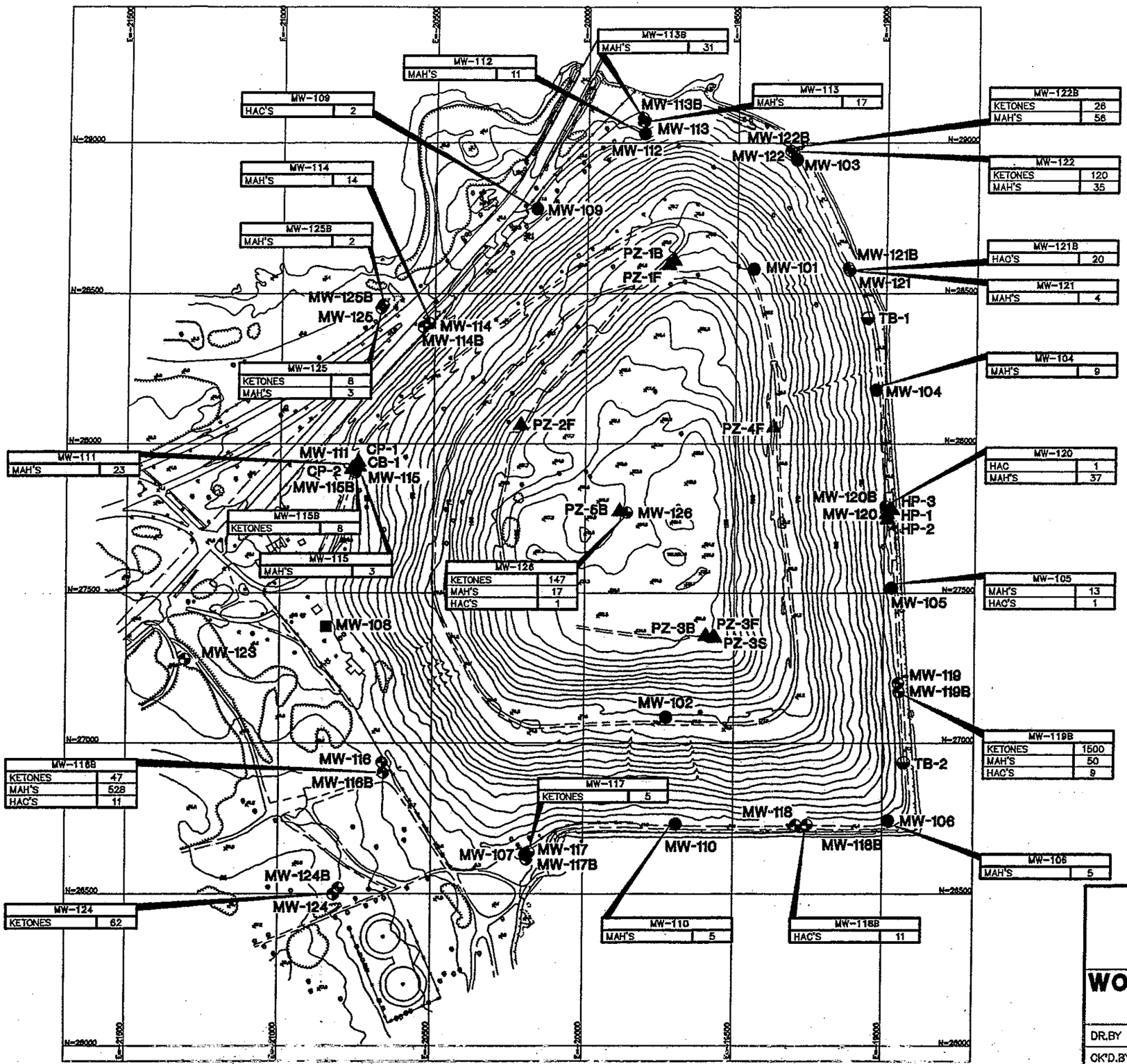
1. New York State Department of Environmental Conservation, Water Quality Standards and Guidance Values, September 25, 1990, 6NYCRR Part 700-705
2. Compound was also detected in blank sample
3. Indicates compound was only analyzed in the leachate seep samples

Prepared by:SMM
Checked by: TRP
92C4087

Table 4-34
Compounds that Exceed NYSDEC Groundwater Standards by Sampling Location
Pelham Bay Landfill
Bronx, New York

Samples	Compounds that Exceed NYSDEC Groundwater Standards
MW-103	4,4' DDD, 4,4' DDE, dieldrin, copper, lead, iron, magnesium, sodium, TDS, chloride, ammonia
MW-104	4,4' DDD, 4,4' DDE, benzene, chlorobenzene, dieldrin, chromium, iron, lead, magnesium, selenium, sodium, TDS, ammonia, chloride, sulfate
MW-105	4,4' DDE, benzene, ethylbenzene, naphthalene, dieldrin, barium, chromium, cobalt, copper, iron, lead, magnesium, sodium, TDS, chloride, sulfate, ammonia
MW-106	4,4' DDD, 4,4' DDE, benzene, dieldrin, chromium, iron, magnesium, sodium, TDS, chloride, sulfate, ammonia
MW-107	antimony, chromium, cobalt, iron, lead, magnesium, manganese, sodium, TDS, ammonia, chloride
MW-108	iron, magnesium, sodium, TDS, chloride
MW-109	cobalt, iron, lead, magnesium, manganese, sodium, TDS, chloride, ammonia
MW-110	4,4' DDD, 4,4' DDE, iron, lead, magnesium, sodium, TDS, chloride, sulfate, ammonia
MW-111	benzene, chlorobenzene, dieldrin, iron, magnesium, manganese, sodium, TDS, ammonia, chloride, sulfate
MW-113	benzene, chlorobenzene, dieldrin, iron, lead, magnesium, manganese, sodium, TDS, chloride, ammonia
MW-113B	benzene, chlorobenzene, 1,4-dichlorobenzene, barium cobalt, copper, iron, lead, magnesium, manganese, sodium, TDS, ammonia, chloride
MW-114	chlorobenzene, iron, magnesium, manganese, sodium, TDS, ammonia, chloride
MW-114B	iron, magnesium, manganese, sodium, TDS, chloride
MW-115	chromium, cobalt, iron, magnesium, manganese, sodium, TDS, ammonia, chloride
MW-115B	cobalt, iron, magnesium, manganese, sodium, TDS, ammonia, chloride
MW-116	iron, manganese, sodium
MW-116B	4,4' DDE, benzene, ethylbenzene, toluene, xylenes, dieldrin, chromium, iron, sodium, TDS
MW-117	chromium, cobalt, iron, magnesium, manganese, sodium, ammonia, chloride
MW-117B	magnesium, sodium, TDS, chloride
MW-118	iron, magnesium, sodium, thallium, TDS, chloride, cyanide, nitrate, sulfate, ammonia
MW-118B	arsenic, barium, chromium, cobalt, copper, iron, lead, magnesium, manganese, sodium, TDS, chloride, sulfate
MW-119	4,4' DDD, iron, lead, magnesium, manganese, sodium, TDS, ammonia, chloride, sulfate
MW-119B	4,4' DDD, ethylbenzene, xylenes, dieldrin, chromium, iron, magnesium, manganese, sodium, zinc, TDS, ammonia, chloride, sulfate
MW-120	4,4' DDE, benzene, chlorobenzene, ethylbenzene, toluene, xylenes, naphthalene, dieldrin, chromium, iron, magnesium, manganese, sodium, TDS, ammonia, chloride, sulfate
MW-120B	4,4' DDE, iron, magnesium, manganese, sodium, TDS, ammonia, chloride, sulfate
MW-121	4,4' DDD, benzene, iron, magnesium, manganese, sodium, ammonia, chloride, sulfate
MW-121B	iron, lead, magnesium, sodium, TDS, chloride, sulfate
MW-122	benzene, chlorobenzene, iron, magnesium, manganese, sodium, TDS, ammonia, chloride, sulfate
MW-122B	benzene, chlorobenzene, iron, magnesium, manganese, sodium, TDS, chloride, sulfate
MW-123	iron, magnesium, manganese, sodium, chloride
MW-124	chromium, iron, magnesium, manganese, sodium, TDS, chloride
MW-124B	iron
MW-125	benzene, antimony, iron, magnesium, manganese, sodium, TDS, chloride
MW-125B	benzene, iron, magnesium, manganese, sodium, TDS, chloride
MW-126	4,4' DDE, toluene, xylenes, naphthalene, dieldrin, arsenic, barium, chromium, cobalt, copper, iron, lead, magnesium, manganese, sodium, zinc, TDS, ammonia, chloride, sulfate
LS-1	4,4' DDD, benzene, toluene, xylenes, arsenic, boron, chromium, hexavalent chromium, iron, lead, magnesium, sodium, TDS, ammonia, chloride, sulfate
LS-2/LS-2DUP	4,4' DDD, 4,4' DDE, aldrin, dieldrin, barium, cadmium, chromium, hexavalent chromium, cobalt, copper, iron, lead, magnesium, manganese, sodium, zinc, TDS, ammonia, chloride, sulfate
LS-3	boron, iron, magnesium, sodium, TDS, ammonia, chloride, sulfate
LS-4	chlorobenzene, 1,4-dichlorobenzene, boron, iron, magnesium, manganese, sodium, TDS, ammonia, chloride, sulfate
LS-5	4,4' DDD, 4,4' DDE, dieldrin, antimony, barium, boron, chromium, cobalt, copper, iron, magnesium, manganese, sodium, zinc, TDS, ammonia, chloride, sulfate
LS-7	boron, iron, magnesium, sodium, thallium, TDS, ammonia, chloride, sulfate
LS-9	benzene, chlorobenzene, toluene, xylene, naphthalene, dieldrin, boron, chromium, hexavalent chromium, iron, lead, magnesium, manganese, sodium, TDS, ammonia, chloride, sulfate
LS-10	4,4' DDE, benzene, dieldrin, boron, chromium, hexavalent chromium, iron, lead, magnesium, sodium, TDS, ammonia, chloride, sulfate

Prepared by: SMM
Checked by: TRP
92C4087



LEGEND:

MW–103 ●	MONITORING WELLS INSTALLED 1989
MW–108 ■	MONITORING WELL DESTROYED DURING IRM
PZ–3B ▲	PIEZOMETERS INSTALLED 1992
MW–113 ⊕	MONITORING WELLS INSTALLED 1992
MW–116B ⊕	BEDROCK WELLS INSTALLED 1992
TB–1 ◒	TEST BORING ADVANCED 1992

NOTES:

1. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
2. ELEVATIONS ABOVE BRONX DATUM = 2.608 FT ABOVE MEAN SEA LEVEL.
3. CONTOUR INTERVAL = 5 FEET
4. ALL CONCENTRATIONS ARE IN ug/l

MAH'S – MONOCYCLIC AROMATIC HYDROCARBONS
HAC'S – HALOGENATED ALIPHATIC COMPOUNDS

MAP SOURCE:

ETTLINGER & ETTLINGER DRAWING NUMBER 87541
ETTLINGER & ETTLINGER SITE SURVEY 1992.

0 350 700 FT
SCALE

MONITORING WELL SAMPLING LOCATIONS SHOWING CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD-CLYDE CONSULTANTS, INC.
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR.BY	MG	SCALE	AS SHOWN	PROJ.	92C4087
CK'D.BY	DAD	DATE	NOV. 23, 1993	FIG.NO.	4–17

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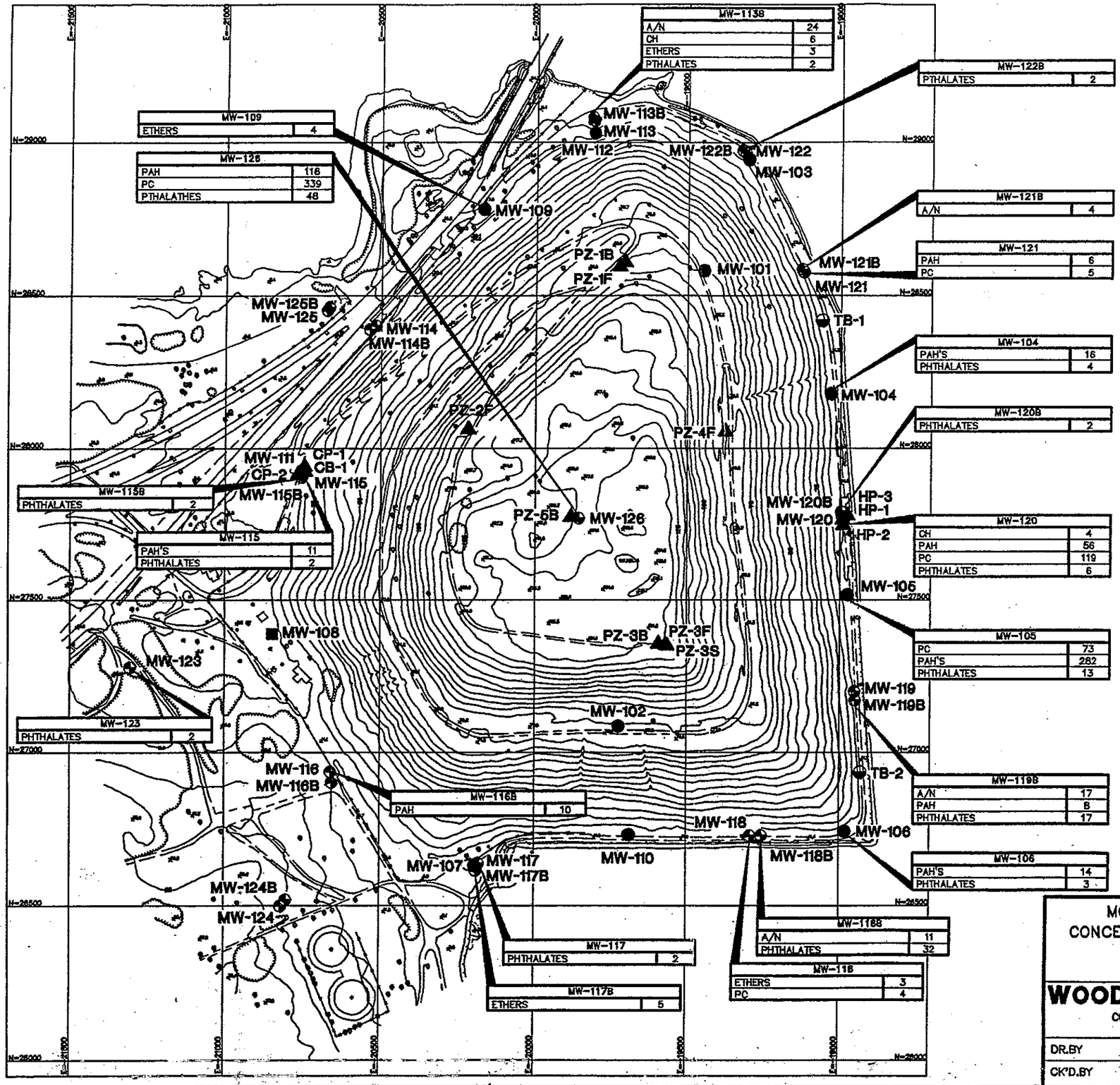

LEGEND:

MW-103	●	MONITORING WELLS INSTALLED 1989
MW-108	■	MONITORING WELL DESTROYED DURING IRM
PZ-3B	▲	PIEZOMETERS INSTALLED 1992
MW-113	◔	MONITORING WELLS INSTALLED 1992
MW-116B	◔	BEDROCK WELLS INSTALLED 1992
TB-1	◒	TEST BORING ADVANCED 1992

NOTES:

1. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
2. ELEVATIONS ABOVE BRONX DATUM = 2.608 FT ABOVE MEAN SEA LEVEL.
3. CONTOUR INTERVAL = 5 FEET
4. ALL CONCENTRATIONS ARE IN ug/l

CH – CHLORINATED HYDROCARBONS
PC – PHENOLIC COMPOUNDS
PAH'S – POLYNUCLEAR AROMATIC HYDROCARBONS
A/N – AMINES/NITROARENES

MAP SOURCE:

ETTLINGER & ETTLINGER DRAWING NUMBER 87541
ETTLINGER & ETTLINGER SITE SURVEY 1992.

0 350 700 FT
SCALE

MONITORING WELL SAMPLING LOCATIONS SHOWING CONCENTRATIONS OF SEMI-VOLATILE ORGANIC COMPOUNDS
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD-CLYDE CONSULTANTS, INC.
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR.BY	MG	SCALE	AS SHOWN	PROJ.	92C4087
CK'D.BY	DAD	DATE	NOV. 23, 1993	FIG.NO.	4-18

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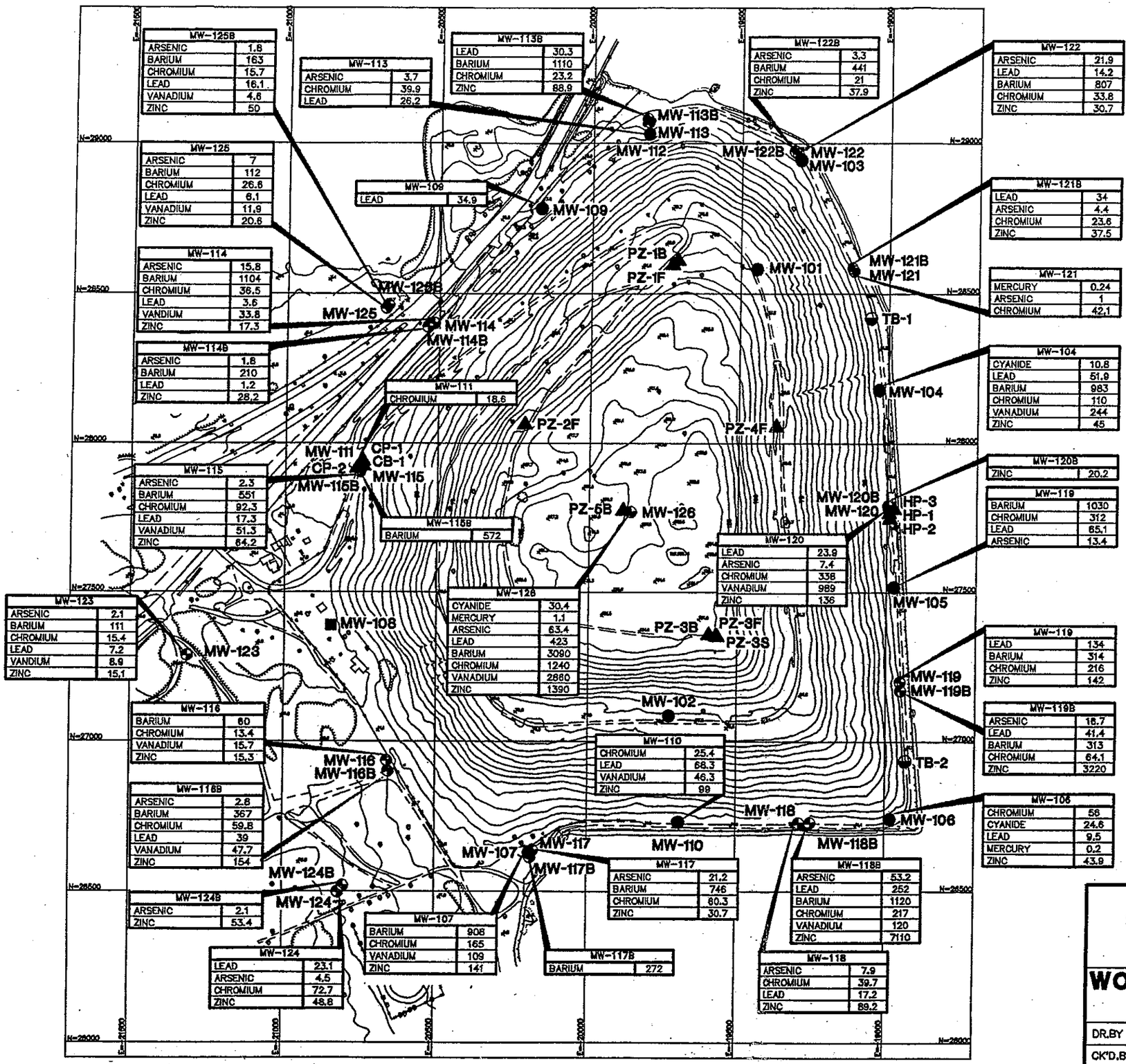


LEGEND:

MW–103 ●	MONITORING WELLS INSTALLED 1989
MW–108 ■	MONITORING WELL DESTROYED DURING IRM
PZ–3B ▲	PIEZOMETERS INSTALLED 1992
MW–113 ◔	MONITORING WELLS INSTALLED 1992
MW–116B ◔	BEDROCK WELLS INSTALLED 1992
TB–1 ◒	TEST BORING ADVANCED 1992

NOTES:

1. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
2. ELEVATIONS ABOVE BRONX DATUM = 2.608 FT ABOVE MEAN SEA LEVEL.
3. CONTOUR INTERVAL = 5 FEET
4. ALL CONCENTRATIONS ARE IN ug/l

MAP SOURCE:

ETTLINGER & ETTLINGER DRAWING NUMBER 87541
ETTLINGER & ETTLINGER SITE SURVEY 1992.

0 350 700 FT

SCALE

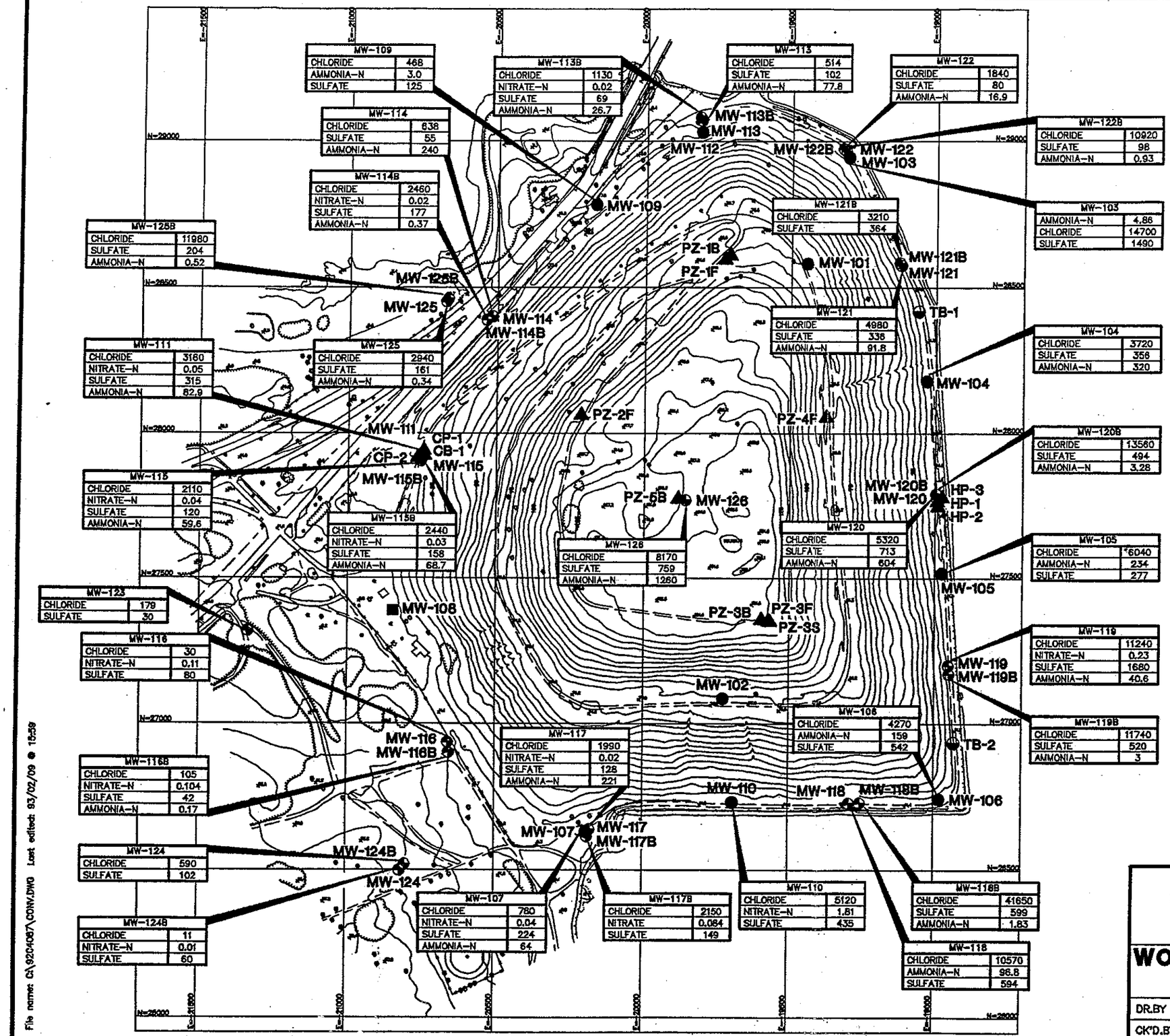
MONITORING WELL SAMPLING LOCATIONS
SHOWING CONCENTRATIONS OF INORGANIC COMPOUNDS
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD-CLYDE CONSULTANTS, INC.

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR.BY	MG	SCALE	AS SHOWN	PROJ.	92C4087
CK'D.BY	DAD	DATE	NOV. 23, 1993	FIG.NO.	4–19

File name: G:\92C4087\G-W-INOR.DWG Last edited: 93/02/12 @ 15:37



LEGEND:

MW-103	●	MONITORING WELLS INSTALLED 1989
MW-108	■	MONITORING WELL DESTROYED DURING IRM
PZ-3B	▲	PIEZOMETERS INSTALLED 1992
MW-113	◔	MONITORING WELLS INSTALLED 1992
MW-116B	◔	BEDROCK WELLS INSTALLED 1992
TB-1	◒	TEST BORING ADVANCED 1992

NOTES:

1. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
2. ELEVATIONS ABOVE BRONX DATUM = 2.608 FT ABOVE MEAN SEA LEVEL.
3. CONTOUR INTERVAL = 5 FEET
4. ALL CONCENTRATIONS ARE IN mg/l

MAP SOURCE:

ETTLINGER & ETTLINGER DRAWING NUMBER 87541
ETTLINGER & ETTLINGER SITE SURVEY 1992.

0 350 700 FT

SCALE

MONITORING WELL SAMPLING LOCATIONS
SHOWING CONVENTIONAL PARAMETER CONCENTRATIONS
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD-CLYDE CONSULTANTS, INC.

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR.BY	MG	SCALE	AS SHOWN	PROJ.	92C4087
CK'D.BY	DAD	DATE	NOV. 23, 1993	FIG.NO.	4-20

File name: C:\92C4087\CONV.DWG Last edited: 93/02/09 @ 15:59

EASTCHESTER BAY

LOW TIDE SEA LEVEL

LOW TIDE SEA LEVEL

E= 21500

E= 29000

N=28500

N=28000

N=27500

N=27000

E= 29500

E= 30000

E= 30500

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-112 Concentration 28-Jul-92
Ammonia Nitrogen	ppm	2	26.4	na
Chloride	ppm	250		na
Nitrate Nitrogen	ppm	10		na
Sulfate	ppm	250		na
Total Dissolved Solids	ppm	500		na
Chlorobenzene	ppb	5		11
Iron	ppb	300	4000	11900
Magnesium	ppb	35000*		50800
Manganese	ppb	300	750	630
Sodium	ppb	20000		316000
Dieldrin	ppb	Non-detect		0.042 JV

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-109 Concentration 28-Jul-92
Ammonia Nitrogen	ppm	2	26.4	3
Chloride	ppm	250		468
Total Dissolved Solids	ppm	500		1170
Cobalt	ppb	34	400	78.7
Iron	ppb	300	4000	657
Magnesium	ppb	35000*		43700
Manganese	ppb	300	750	5100
Sodium	ppb	2000		116000

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-114 Concentration 10-Aug-92
Ammonia Nitrogen	ppm	2	26.4	240
Chloride	ppm	250		638
Total Dissolved Solids	ppm	500		2680
Chlorobenzene	ppb	5		14
Iron	ppb	300	4000	12100
Magnesium	ppb	35000*		54500
Manganese	ppb	300	750	691
Sodium	ppb	20000		709000

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-125 Concentration 30-Jul-92
Chloride	ppm	250		3940
Total Dissolved Solids	ppm	500		7360
Antimony	ppb	3*		55.5 BJ
Iron	ppb	300	4000	24200
Magnesium	ppb	35000*		250000
Manganese	ppb	300	750	1040
Sodium	ppb	20000		2449000

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-111 Concentration 31-Jul-92
Ammonia Nitrogen	ppm	2	26.4	82.9
Chloride	ppm	250		3160
Sulfate	ppm	250		315
Total Dissolved Solids	ppm	500		8920
Benzene	ppb	0.7	10	2 J
Chlorobenzene	ppb	5		18
Iron	ppb	300	4000	19200
Magnesium	ppb	35000*		201000
Manganese	ppb	300	750	8920
Sodium	ppb	20000		2268000
Dieldrin	ppb	Non-detect		0.011 J

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-115 Concentration 31-Jul-92
Ammonia Nitrogen	ppm	2	26.4	59.6
Chloride	ppm	250		2110
Total Dissolved Solids	ppm	500		4700
Chromium	ppb	50	1000	92.3
Cobalt	ppb	34	400	57.4
Iron	ppb	300	4000	40200
Magnesium	ppb	35000*		216000
Manganese	ppb	300	750	10100
Sodium	ppb	20000		1215000

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	LS-2 Concentration 28-Jul-92
Ammonia Nitrogen	ppm	2	26.4	74.8
Chloride	ppm	250		1420
Total Dissolved Solids	ppm	500		2850 J
Boron	ppb	1000		4200
Chromium	ppb	50	1000	82.3
Cyanide	ppb	100	10	20.4
Iron	ppb	300	4000	44400 E
Lead	ppb	25	200	146
Magnesium	ppb	35000*		66400
Sodium	ppb	20000		743000
4,4-DDD	ppb	Non-detect		0.042 JV
4,4-DDE	ppb	Non-detect		0.049 JV

date:	unit	NYSDEC (1) GW Standard	Effluent limitations (2)	MW-123 Concentration 29-Jul-92
Chloride	ppm	250		179
Iron	ppb	300	4000	2140
Manganese	ppb	300	750	2100
Sodium	ppb	20000		36300

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-116 Concentration 3-Aug-92
Iron	ppb	300	4000	6300 E
Manganese	ppb	300	750	554 E
Sodium	ppb	20000		70000

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-124 Concentration 3-Aug-92
Chloride	ppm	250		590
Total Dissolved Solids	ppm	500		1410
Chromium	ppb	50	1000	72.7
Iron	ppb	300	4000	26600 E
Magnesium	ppb	35000*		63500
Manganese	ppb	300	750	4310 E
Sodium	ppb	20000		404000

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-107 Concentration 3-Aug-92
Ammonia Nitrogen	ppm	2	26.4	84
Chloride	ppm	250		780
Total Dissolved Solids	ppm	500		2250
Antimony	ppb	3*		51.2 B
Chromium	ppb	50	1000	165
Iron	ppb	300	4000	62600 E
Lead	ppb	25	200	36.3 J
Magnesium	ppb	35000*		104000
Manganese	ppb	300	750	2030 E
Sodium	ppb	20000		566000

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-117 Concentration 31-Jul-92
Ammonia Nitrogen	ppm	2	26.4	221
Chloride	ppm	250		1930
Total Dissolved Solids	ppm	500		3710
Chromium	ppb	50	1000	60.3
Cobalt	ppb	34	400	39.2 B
Iron	ppb	300	4000	22200
Magnesium	ppb	35000*		75900
Manganese	ppb	300	750	1910
Sodium	ppb	20000		1000000

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	LS-3 Concentration 30-Jul-92
Ammonia Nitrogen	ppm	2	26.4	5.54
Chloride	ppm	250		11400
Sulfate	ppm	250		1770
Total Dissolved Solids	ppm	500		26100
Boron	ppb	1000		2520
Iron	ppb	300	4000	4070 E
Magnesium	ppb	35000*		899000
Sodium	ppb	20000		7912000

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	LS-4 Concentration 30-Jul-92
Ammonia Nitrogen	ppm	2	26.4	151
Chloride	ppm	250		1170
Total Dissolved Solids	ppm	500		3190
Chlorobenzene	ppb	5		10
Boron	ppb	1000		1570
Iron	ppb	300	4000	2990 E
Magnesium	ppb	35000*		46300
Manganese	ppb	300	750	546
Sodium	ppb	20000		862000
1,2 Dichlorobenzene	ppb	4.7		5 J
1,3 Dichlorobenzene	ppb	5		5 J
1,4-Dichlorobenzene	ppb	4.7		9 J

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	LS-1 Concentration 30-Jul-92
Ammonia Nitrogen	ppm	2	26.4	637
Chloride	ppm	250		3740
Sulfate	ppm	250		379
Total Dissolved Solids	ppm	500		12900
Benzene	ppb	0.7	10	4 J
Chlorobenzene	ppb	5		5 J
Ethylbenzene	ppb	5	100	15
Toluene	ppb	5	100	81
Xylenes (total)	ppb	5	100	65
Arsenic	ppb	25	70	40.3 +
Barium	ppb	1000	4000	1060
Boron	ppb	1000		8900
Chromium	ppb	50	1000	289
Cobalt	ppb	34	400	54.2
Iron	ppb	300	4000	9760 E
Lead	ppb	25	200	104
Magnesium	ppb	35000*		80200
Sodium	ppb	20000		4146000

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	LS-5 Concentration 30-Jul-92
Ammonia Nitrogen	ppm	2	26.4	373
Chloride	ppm	250		12250 J
Sulfate	ppm	250		1680
Total Dissolved Solids	ppm	500		24300
Antimony	ppb	3*		70.3
Arsenic	ppb	25	70	89.1
Barium	ppb	1000	4000	1490
Boron	ppb	1000		4680
Chromium	ppb	50	1000	330
Cobalt	ppb	34	400	61.7
Copper	ppb	200	400	977
Iron	ppb	300	4000	136000 E
Lead	ppb	25	200	707
Magnesium	ppb	35000*		481000
Manganese	ppb	300	750	2260
Mercury	ppb	2		2
Sodium	ppb	20000		5931000
Zinc	ppb	300	400	1330
4,4-DDD	ppb	Non-detect		0.015 JV
4,4-DDE	ppb	Non-detect		0.026 V
Dieldrin	ppb	Non-detect		0.24 V

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-122 Concentration 4-Aug-92
Ammonia Nitrogen	ppm	2	26.4	16.9
Chloride	ppm	250		1840
Total Dissolved Solids	ppm	500		5730
Benzene	ppb	0.7	10	4 J
Chlorobenzene	ppb	5		25
Ethylbenzene	ppb	5	100	5 J
Iron	ppb	300	4000	63300 E
Magnesium	ppb	35000*		319000
Manganese	ppb	300	750	6870 E
Sodium	ppb	20000		1786000

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-103 Concentration 28-Jul-92
Ammonia Nitrogen	ppm	2	26.4	4.86
Chloride	ppm	250		14700
Sulfate	ppm	250		1490
Total Dissolved Solids	ppm	500		26000
Copper	ppb	200	400	550
Iron	ppb	300	4000	2160
Lead	ppb	25	200	40.2
Magnesium	ppb	35000*		921000
Sodium	ppb	20000		8764000
4,4-DDD	ppb	Non-detect		0.013 JV
4,4-DDE	ppb	Non-detect		0.013 JV
Dieldrin	ppb	Non-detect		0.18 V

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-121 Concentration 4-Aug-92
Ammonia Nitrogen	ppm	2	26.4	91.8
Chloride	ppm	250		4980
Sulfate	ppm	250		336
Total Dissolved Solids	ppm	500		13000
Benzene	ppb	0.7	10	1 J
Iron	ppb	300	4000	8540 E
Magnesium	ppb	35000*		275000
Manganese	ppb	300	750	1640 E
Sodium	ppb	20000		4242000
4,4-DDD	ppb	Non-detect		0.037 JV

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-126 Concentration 6-Aug-92
Ammonia Nitrogen	ppm	2	26.4	1260
Chloride	ppm	250		5140 J
Sulfate	ppm	250		759
Total Dissolved Solids	ppm	500		12200
Benzene	ppb	0.7	10	1 J
Toluene	ppb	5	100	8
Xylenes (total)	ppb	5	100	6
Arsenic	ppb	25	70	63.4
Barium	ppb	1000	4000	3090
Chromium	ppb	50	1000	1240
Cobalt	ppb	34	400	77.3
Copper	ppb	200	400	356
Cyanide	ppb	100	10	30.4
Iron	ppb	300	4000	39400
Lead	ppb	25	200	423
Sodium	ppb	20000		6924000
Zinc	ppb	300	400	1390
Naphthalene	ppb	10*	10	45
4,4-DDE	ppb	Non-detect		0.052 J
Dieldrin	ppb	Non-detect		0.091 J

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-104 Concentration 30-Jul-92
Ammonia Nitrogen	ppm	2	26.4	320
Chloride	ppm	250		3720
Sulfate	ppm	250		356
Total Dissolved Solids	ppm	500		9230
Benzene	ppb	0.7	10	2 J
Chlorobenzene	ppb	5		7
Chromium	ppb	50	1000	110
Cyanide	ppb	100	10	10.8
Iron	ppb	300	4000	6110
Lead	ppb	25	200	51.9
Magnesium	ppb	35000*		252000
Selenium	ppb	10		13.6 BN
Sodium	ppb	20000		3053000
4,4-DDD	ppb	Non-detect		0.012 J
4,4-DDE	ppb	Non-detect		0.016 J
Dieldrin	ppb	Non-detect		0.0063 J

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	LS-10 Concentration 29-Jul-92
Ammonia Nitrogen	ppm	2	26.4	85.1
Chloride	ppm	250		2860 J
Total Dissolved Solids	ppm	500		8420
Benzene	ppb	0.7	10	2 J
Boron	ppb	1000		6800
Chromium	ppb	50	1000	180
Iron	ppb	300	4000	24900 E
Lead	ppb	25	200	89.7
Magnesium	ppb	35000*		176000
Sodium	ppb	20000		2781000
4,4-DDE	ppb	Non-detect		0.078 JV
Dieldrin	ppb	Non-detect		0.64 V

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	LS-9 Concentration 29-Jul-92
Ammonia Nitrogen	ppm	2	26.4	404
Chloride	ppm	250		6830
Sulfate	ppm	250		599
Total Dissolved Solids	ppm	500		17460
Benzene	ppb	0.7	10	4 J
Chlorobenzene	ppb	5		12
Ethylbenzene	ppb	5	100	5
Toluene	ppb	5	100	7
Xylenes (total)	ppb	5	100	8
Boron	ppb	1000		6910
Chromium	ppb	50	1000	293
Cobalt	ppb	34	400	34.8 B
Iron	ppb	300	4000	12500 E
Lead	ppb	25	200	58.5
Magnesium	ppb	35000*		333000
Manganese	ppb	300	750	523
Sodium	ppb	20000		5676000
Naphthalene	ppb	10*	10	33
Dieldrin	ppb	Non-detect		0.23 V

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-105 Concentration 28-Jul-92
Ammonia Nitrogen	ppm	2	26.4	234
Chloride	ppm	250		5040
Sulfate	ppm	250		277
Total Dissolved Solids	ppm	500		10500
Benzene	ppb	0.7	10	4 J
Ethylbenzene	ppb	5	100	8
Barium	ppb	1000	4000	1030
Chromium	ppb	50	1000	312
Cobalt	ppb	34	400	39.9 B
Copper	ppb	200	400	471
Iron	ppb	300	4000	11200
Lead	ppb	25	200	65.1 B
Magnesium	ppb	35000*		44300
Sodium	ppb	20000		3154000
Naphthalene	ppb	10*	10	140 J
4,4-DDE	ppb	Non-detect		0.037 JV
Dieldrin	ppb	Non-detect		0.4 V

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-120 Concentration 4-Aug-92
Ammonia Nitrogen	ppm	2	26.4	604
Chloride	ppm	250		5320
Sulfate	ppm	250		713
Total Dissolved Solids	ppm	500		15200
Benzene	ppb	0.7	10	3J
Chlorobenzene	ppb	5		12
Ethylbenzene	ppb	5	100	5
Toluene	ppb	5	100	8
Xylenes (total)	ppb	5	100	9
Chromium	ppb	50	1000	338
Iron	ppb	300	4000	13000 E
Magnesium	ppb	35000*		258000
Manganese	ppb	300	750	316 E
Sodium	ppb	20000		5362000
Naphthalene	ppb	10*	10	35
4,4-DDE	ppb	Non-detect		0.013 J
Dieldrin	ppb	Non-detect		0.03 J

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	LS-7 Concentration 30-Jul-92
Ammonia Nitrogen	ppm	2	26.4	44.2
Chloride	ppm	250		11680
Sulfate	ppm	250		1690
Total Dissolved Solids	ppm	500		24400
Boron	ppb	1000		2820
Iron	ppb	300	4000	2970 E
Magnesium	ppb	35000*		795000
Mercury	ppb	2		5
Sodium	ppb	20000		7587000

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-119 Concentration 5-Aug-92
Ammonia Nitrogen	ppm	2	26.4	40.6
Chloride	ppm	250		11240
Sulfate	ppm	250		1680
Total Dissolved Solids	ppm	500		26200
Iron	ppb	300	4000	17200
Lead	ppb	25	200	134
Magnesium	ppb	35000*		803000
Manganese	ppb	300	750	1230
Sodium	ppb	20000		7486000
4,4-DDD	ppb	Non-detect		0.011 JV

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-106 Concentration 29-Jul-92
Ammonia Nitrogen	ppm	2	26.4	159
Chloride	ppm	250		4270 J
Sulfate	ppm	250		542
Total Dissolved Solids	ppm	500		9870 J
Benzene	ppb	0.7	10	3 J
Chromium	ppb	50	1000	56
Cyanide	ppb	100	10	24.6
Iron	ppb	300	4000	15100
Magnesium	ppb	35000*		296000
Sodium	ppb	2000		3836000
4,4-DDD	ppb	Non-detect		0.024 JV
4,4-DDE	ppb	Non-detect		0.027 JV
Dieldrin	ppb	Non-detect		0.04 JV

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-118 (3) Concentration 29-Jul-92
Ammonia Nitrogen	ppm	2	26.4	96.8
Chloride	ppm	250		10570
Nitrate Nitrogen	ppm	10		23
Sulfate	ppm	250		594
Total Dissolved Solids	ppm	500		24500
Cyanide	ppb	100	10	267
Iron	ppb	300	4000	978
Magnesium	ppb	35000*		740000
Sodium	ppb	20000		7592000
Thallium	ppb	4*		13.5 B

date:	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-110 (3) Concentration 29-Jul-92
Ammonia Nitrogen	ppm	2	26.4	113
Chloride	ppm	250		5120
Sulfate	ppm	250		435
Total Dissolved Solids	ppm	500		10540
Iron	ppb	300	4000	9770
Lead	ppb	25	200	68.3
Magnesium	ppb	35000*		288000
Sodium	ppb	2000		3150000
4,4-DDD	ppb	Non-detect		0.018 J
4,4-DDE	ppb	Non-detect		0.011 J

NOTES:

1. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, WATER QUALITY STANDARDS AND GUIDANCE VALUES, SEPTEMBER 25, 1990, NYCRR PART 700 – 705
2. NYSDEC DRAFT SURFACE WATER DISCHARGE EFFLUENT LIMITATIONS (NOVEMBER 23, 1992).
3. ARCHIVED PORTION OF SAMPLE REANALYZED FOR PESTICIDE AND PCB DATA.

LEGEND:

B – BLANK CONTAMINANT

J – ESTIMATED VALUE

V – REPORTED RESULTS FOR THIS COMPOUND COULD NOT BE VERIFIED DURING DATA VALIDATION

E – ESTIMATED VALUE DUE TO MATRIX INTERFERENCE

N – ESTIMATED VALUE (SPIKED SAMPLE RECOVERY WAS NOT WITHIN QUALITY CONTROL LIMITS)

+ – ESTIMATED VALUE (THE CORRELATION COEFFICIENT REPORTED FOR THE MSA IS LESS THAN 0.995)

na – NOT ANALYZED

* – GUIDANCE VALUE, REGULATED STANDARD FOR THIS CHEMICAL IS NOT AVAILABLE

KEY

FENCE

SITE BOUNDARY

LEGEND:

MW-103 MONITORING WELLS INSTALLED 1989

MW-108 MONITORING WELL DESTROYED DURING IRM

PZ-3B PIEZOMETERS INSTALLED 1992

MW-113 MONITORING WELLS INSTALLED 1992

MW-116B BEDROCK WELLS INSTALLED 1992

TB-1 TEST BORING ADVANCED 1992

L1 LEACHATE SEEP LOCATION

0 150 300 FT

SCALE

NOTES:

1. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
2. ELEVATIONS ABOVE BRONX DATUM = 2.608 FT ABOVE MSL
3. CONTOUR INTERVAL = 5 FEET

MAP SOURCE:
ETTLINGER & ETTLINGER DRAWING NUMBER 87541
ETTLINGER & ETTLINGER SITE SURVEY 1992.

COMPARISON OF CONSTITUENT LEVELS TO NYSDEC GROUNDWATER STANDARDS AND EFFLUENT LIMITATIONS IN SHALLOW WELL AND SEEP SAMPLES
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD – CLYDE CONSULTANTS, INC.
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR. BY:	KJF	SCALE:	AS SHOWN	PROJ. NO.:	92C4087
CK'D BY:	TRP	DATE:	APR. 13, 1993	FIG. NO.:	4 – 25A

	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-113B Concentration
date:				5-Aug-92
Ammonia Nitrogen	ppm	2	26.4	26.7
Chloride	ppm	250		1130
Total Dissolved Solids	ppm	500		4270
Benzene	ppb	0.7	10	3 J
Chlorobenzene	ppb	5		28
Barium	ppb	1000	4000	1110 EN
Cobalt	ppb	34	400	59 N
Copper	ppb	200	400	771
Iron	ppb	300	4000	10300 E
Lead	ppb	25	200	30.3
Magnesium	ppb	35000*		220000
Manganese	ppb	300	750	24500 E
Sodium	ppb	20000		790000
1,4-Dichlorobenzene	ppb	4.7		6 J

	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-122B Concentration
date:				6-Aug-92
Chloride	ppm	250		3050 J
Total Dissolved Solids	ppm	500		8640
Benzene	ppb	0.7	10	3 J
Chlorobenzene	ppb	5		46
Ethylbenzene	ppb	5	100	5 J
Cobalt	ppb	34	400	34.4 B
Iron	ppb	300	4000	10800
Magnesium	ppb	35000*		328000
Manganese	ppb	300	750	2220
Sodium	ppb	20000		2505000

	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-120B Concentration
date:				4-Aug-92
Ammonia Nitrogen	ppm	2	26.4	3.28
Chloride	ppm	250		13560
Sulfate	ppm	250		494
Total Dissolved Solids	ppm	500		28300
Iron	ppb	300	4000	3760 E
Magnesium	ppb	35000*		901000
Manganese	ppb	300	750	2200 E
Sodium	ppb	20000		7449000
4,4-DDE	ppb	Non-detect		0.017 JV

	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-121B Concentration
date:				4-Aug-92
Chloride	ppm	250		3210
Sulfate	ppm	250		364
Total Dissolved Solids	ppm	500		7380
Iron	ppb	300	4000	6450 E
Lead	ppb	25	200	34
Magnesium	ppb	35000*		98200
Sodium	ppb	20000		1224000

	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-125B Concentration
date:				20-Jul-92
Chloride	ppm	250		11980
Sulfate	ppm	250		408 J
Total Dissolved Solids	ppm	500		26300
Iron	ppb	300	4000	10800
Magnesium	ppb	35000*		829000
Manganese	ppb	300	750	2240
Sodium	ppb	20000		6909000

	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-114B Concentration
date:				30-Jul-92
Chloride	ppm	250		2460
Total Dissolved Solids	ppm	500		5320
Iron	ppb	300	4000	1210
Magnesium	ppb	35000*		56500
Sodium	ppb	20000		1151000

	unit	NYSDEC (1) GW Standard	Effluent limitations (2)	MW-115B Concentration
date:				31-Jul-92
Ammonia Nitrogen	ppm	2	26.4	2.95
Chloride	ppm	250		2440
Total Dissolved Solids	ppm	500		6370
Cobalt	ppb	34	400	52.2
Iron	ppb	300	4000	8400
Magnesium	ppb	35000*		289000
Manganese	ppb	300	750	13800
Sodium	ppb	20000		1312000

	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-116B Concentration
date:				7-Aug-92
Total Dissolved Solids	ppm	500		1130
Benzene	ppb	0.7	10	62
Ethylbenzene	ppb	5	100	36
Toluene	ppb	5	100	230
Xylenes (total)	ppb	5	100	200
Chromium	ppb	50	1000	59.6
Iron	ppb	300	4000	18400
Sodium	ppb	20000		93300
4,4-DDE	ppb	Non-detect		0.014 J
Dieldrin	ppb	Non-detect		0.044 J

	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-124B Concentration
date:				3-Aug-92
Iron	ppb	300	4000	4390 E

	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-117B Concentration
date:				7-Aug-92
Chloride	ppm	250		2150
Total Dissolved Solids	ppm	500		3110
Magnesium	ppb	35000*		144000
Sodium	ppb	20000		462000

	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-118B Concentration
date:				6-Aug-92
Chloride	ppm	250		10460 J
Sulfate	ppm	250		599
Total Dissolved Solids	ppm	500		24250
Arsenic	ppb	25	70	53.2
Barium	ppb	1000	4000	1120
Chromium	ppb	50	1000	217
Cobalt	ppb	34	400	48.9 B
Copper	ppb	200	400	1130
Iron	ppb	300	4000	194000
Lead	ppb	25	200	252
Magnesium	ppb	35000*		1936000
Manganese	ppb	300	750	29600
Sodium	ppb	20000		3539000

	unit	NYSDEC (1) GW Standard	Effluent Limitations (2)	MW-119B Concentration
date:				7-Aug-92
Ammonia Nitrogen	ppm	2	26.4	3
Chloride	ppm	250		11740
Sulfate	ppm	250		520
Total Dissolved Solids	ppm	500		27100
Ethylbenzene	ppb	5	100	8
Xylenes (total)	ppb	5	100	40
Chromium	ppb	50	1000	64.1
Iron	ppb	300	4000	46800
Lead	ppb	25	200	41.4
Magnesium	ppb	35000*		894000
Manganese	ppb	300	750	7700
Sodium	ppb	20000		6164000
Zinc	ppb	300	400	3220
Dieldrin	ppb	Non-detect		0.014 J

TIDAL FLATS

LOW TIDE SEA LEVEL

LOW TIDE SEA LEVEL

KEY

- FENCE
- SITE BOUNDARY

LEGEND:

- MW-103 ● MONITORING WELLS INSTALLED 1989
- MW-108 ■ MONITORING WELL DESTROYED DURING IRM
- PZ-3B ▲ PIEZOMETERS INSTALLED 1992
- MW-113 ◔ MONITORING WELLS INSTALLED 1992
- MW-116B ◔ BEDROCK WELLS INSTALLED 1992
- TB-1 ◒ TEST BORING ADVANCED 1992
- L1 ⊙ LEACHATE SEEP LOCATION

NOTES:

1. NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, WATER QUALITY STANDARDS AND GUIDANCE VALUES, SEPTEMBER 25, 1990, NYCRR PART 700–705
2. NYSDEC DRAFT SURFACE WATER DISCHARGE EFFLUENT LIMITATIONS (NOVEMBER 23, 1992).
3. ARCHIVED PORTION OF SAMPLE REANALYZED FOR PESTICIDE AND PCB DATA.

LEGEND:

B– BLANK CONTAMINANT

J– ESTIMATED VALUE

V– REPORTED RESULTS FOR THIS COMPOUND COULD NOT BE VERIFIED DURING DATA VALIDATION

E– ESTIMATED VALUE DUE TO MATRIX INTERFERENCE

N– ESTIMATED VALUE (SPIKED SAMPLE RECOVERY WAS NOT WITHIN QUALITY CONTROL LIMITS)

+ – ESTIMATED VALUE (THE CORRELATION COEFFICIENT REPORTED FOR THE MSA IS LESS THAN 0.995)

na–NOT ANALYZED

*– GUIDANCE VALUE, REGULATED STANDARD FOR THIS CHEMICAL IS NOT AVAILABLE

MAP SOURCE:
ETTLINGER & ETTLINGER DRAWING NUMBER 87541
ETTLINGER & ETTLINGER SITE SURVEY 1992.

NOTES:

1. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
2. ELEVATIONS ABOVE BRONX DATUM = 2.608 FT ABOVE MEAN SEA LEVEL
3. CONTOUR INTERVAL = 5 FEET

0 150 300 FT
SCALE

COMPARISON OF CONSTITUENT LEVELS TO NYSDEC GROUNDWATER STANDARDS AND EFFLUENT LIMITATIONS IN BEDROCK WELL SAMPLES
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD–CLYDE CONSULTANTS, INC.
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR. BY:	KJF	SCALE:	AS SHOWN	PROJ. NO.:	92C4087
CK'D BY:	TRP	DATE:	APR. 13, 1993	FIG. NO.:	4–25B

File name: D:\92C4087\1A–BASE.DWG Last edited: 92/11/24 @ 19:34

Appendix F

Remedial Investigation Report -
Leachate Seeps Tables and Figures

Table 4-24
Seeps - Volatile Organic Compounds Data Summary
Pelham Bay Landfill
Bronx, New York

	LS-1	LS-2	LS-3	LS-4	LS-5	LS-7	LS-9	LS-10	LS-2 DUP
date:	30-Jul-92	28-Jul-92	30-Jul-92	30-Jul-92	30-Jul-92	30-Jul-92	29-Jul-92	29-Jul-92	30-Jul-92
Halogenated Aliphatic Compounds									
Methylene chloride	2 JBR#	2 JBR#	2 JBR#	19 JBR#	12 JBR#	11 JBR#	2 JBR#	1 JBR#	2 JBR#
Total									
Ketones									
2-Butanone	62								
2-Propanone	13 JR#						12		
Total	62						12		
Monocyclic Aromatic Hydrocarbons									
Benzene	4 J						4 J	2 J	
Chlorobenzene	5 J	2 J		10	2 J		12	4 J	2 J
Ethylbenzene	15				1 J		5	2 J	
Toluene	81						7		
Xylenes (total)	65						8	4 J	
Total	170	2		10	3		36	12	2
Miscellaneous									
Carbon Disulfide	3 J						1 J		
Total	3						1		
Grand Total	235	2		10	3		49	12	2

Notes:

All concentrations in micrograms per liter (ppb)

Blank indicates compound was not detected

Totals do not include compounds with "R#" qualifier

B = Blank contaminant

J = Estimated value

R# = Negated

Prepared by: CLH

Checked by: TRP

92C4087

Table 4-25
Seeps - Semi-volatile Organic Compounds Data Summary
Pelham Bay Landfill
Bronx, New York

	LS-1	LS-2	LS-3	LS-4	LS-5	LS-7	LS-9	LS-10	LS-2 DUP
date:	30-Jul-92	28-Jul-92	30-Jul-92	30-Jul-92	30-Jul-92	30-Jul-92	29-Jul-92	29-Jul-92	30-Jul-92
PAHs									
2-Methylnaphthalene	5 J						4 J		
Acenaphthene	12						3 J		
Anthracene	8 J								
Dibenzofuran	9 J	10							
Fluorene	12								
Naphthalene							33	3 J	
Phenanthrene	24						3 J		
Pyrene	4 J								
Total	74	10					43	3	
Phenols									
2,4-Dimethylphenol	7 J						51		
4-Methylphenol	8 J								
4-Nitrophenol		4 J							
Total	15	4					51		
Phthalates									
Bis(2-Ethylhexyl) Phthalate	13	5 J					5 J	3 J	7 J
Di-n-butyl phthalate							3 J	2 J	
Di-n-octyl phthalate	2 J								
Total	15	5					8	5	7
Chlorinated Hydrocarbons									
1,2-Dichlorobenzene				5 J					
1,3-Dichlorobenzene				5 J					
1,4-Dichlorobenzene				9 J			4 J		
Total				19			4		
Miscellaneous									
Benzoic Acid		33 J							
Total		33							
Grand Total	104	52		19			106	8	7

Notes: All concentrations in micrograms per liter (ppb)
Blank indicates compound was not detected
J = Estimated value

Prepared by: CLH
Checked by: TRP
92C4087

Table 4-26
Seeps - Pesticides and PCBs Data Summary
Pelham Bay Landfill
Bronx, New York

	LS-1	LS-2AR	LS-3	LS-4	LS-5	LS-7	LS-9	LS-10	LS-2 DUP
date:	30-Jul-92	28-Jul-92	30-Jul-92	30-Jul-92	30-Jul-92	30-Jul-92	29-Jul-92	29-Jul-92	30-Jul-92
4,4'-DDD		0.042 JV			0.015 JV				0.078 JV
4,4'-DDE		0.049 JV			0.026 V			0.078 JV	
Aldrin									0.058 JV
alpha-Chlordane		0.025 JV							
beta-BHC		0.033 JV							
delta-BHC		0.047 JV		0.01 JV	0.028 JV	0.0099 J			0.03 JV
Dieldrin					0.24 V		0.23 V	0.64 V	0.024 JV
Endosulfan II							1.5 V		
Endosulfan sulfate		0.042 BJVR#			0.028 BJVR#				
Endrin	0.023 JV							0.062 JV	
Methoxychlor								0.65 V	
PCB-1016		0.88 J							

Notes:
All concentrations in micrograms per liter (ppb)
Blank indicates compound was not detected
B = Blank contaminant
J = Estimated value
V = Reported results for this compound could not be verified during data validation
R# = Negated result

Prepared by: CLH
Checked by: TRP
92C4087

Table 4-27
Seeps - Inorganics Data Summary
Pelham Bay Landfill
Bronx, New York

	LS-1	LS-2	LS-3	LS-4	LS-5	LS-7	LS-9	LS-10	LS-2 DUP
date:	30-Jul-92	28-Jul-92	30-Jul-92	30-Jul-92	30-Jul-92	30-Jul-92	29-Jul-92	29-Jul-92	30-Jul-92
Aluminum	2380	1300	839		65800	501	4480	3410	60300
Antimony					70.3				
Arsenic	40.3 +	7.5 B	2.7 BW	8.3 B	89.1		18.7 B+	14.5	1.6 B
Barium	1060	660	104 B	287	1490	123 B	590	844	8470
Beryllium					1 B				1.2 BJ
Boron	8900	4200	2520	1570	4680	2820	6910	6800	4330
Cadmium									29.1
Calcium	35600	76500	282000	65600	218000	228000	134000	116000	301000
Chromium	289	62.3		27.2	390	26	293	180	483
Cobalt	54.2	16.2 B		12.5 B	61.7		34.8 B	24.4 B	57.4
Copper	56.8	41.6	20.7 B	6.1 B	977	11.7 B	54.8	70.7	852
Cyanide		20.4							26.2
Iron	9760 E	44400 E	4070 E	2990 E	136000 E	2970 E	12500 E	24900 E	860000 E
Lead	104	146	17.4	3 B	707	7 B+	58.5	88.7	2780
Magnesium	80200	66400	899000	46300	481000	795000	333000	175000	120000
Manganese	130	259	140	546	2260	162	523	239	4290
Mercury		0.34			2	5			1.6
Nickel	127 J	25.4 BJ		46.8 J	137 J		54 J	48.7 J	161 J
Potassium	650000	269000	306000	101000	402000	282000	562000	456000	256000
Silver					12.1				
Sodium	4146000	743000	7912000	862000	5931000	7587000	5676000	2781000	672000
Thallium						16.77			
Vanadium	562	29.8 B	4.9 B	34.2 B	368	46 B	822	397	367
Zinc	226	201	48.8	48.4	1330	28.1	136	177	3710

Notes: All concentrations in micrograms per liter (ppb)

Blank indicates compound was not detected

B = Reported value is acceptable. Reported value is less than the CRDL (Contract Required Detection Limit) but greater than the IDL (Instrument Detection Limit)

J = Estimated value

E = Estimated value due to matrix interference

W = Estimated value (Post-digestion spike results were reported outside quality control limits, while sample absorbance is less than 50% of spike absorbance)

+ = Estimated value (The correlation coefficient reported for the MSA is less than 0.995)

Prepared by: CLH

Checked by: TRP

92C4087

Table 4-28
Seeps - Conventional Parameters (Modified BMW List) Data Summary
Pelham Bay Landfill
Bronx, New York

	LS-1	LS-2	LS-2D	LS-3	LS-4	LS-4 D	LS-5	LS-7	LS-9	LS-10	LS-2 DUP
date:	30-Jul-92	28-Jul-92	28-Jul-92	30-Jul-92	30-Jul-92	30-Jul-92	30-Jul-92	30-Jul-92	29-Jul-92	29-Jul-92	30-Jul-92
Alkalinity as Bicarbonate	5900	2300		200	1170	1190	1030	610	801	3320	6000
Alkalinity as Carbonate		80	84							98	
Ammonia Nitrogen	637	74.8		5.54	151	161	373	44.2	404	85.1	317
BOD	190	41		< 3	24		277	7	157	107	NA
Chemical Oxygen Demand		716 J			369 J		2040 J	295 J		1230 J	2370 J
Chloride	3740	1420		11400	1170	1140	12250 J	11680	6830	2860 J	1310
Color, Pt/Co	300	200		60	200		240	200	300	200	NA
Hardness	419	465		4410	354	332	2520	3840	1710	1010	1240
Hexavalent Chromium	0.4	0.08		< 0.01	0.03		0.02	0.02	0.56	0.21	NA
Nitrate Nitrogen	0.06	0.71		0.44	1.02	1.01	6.26 J	0.24	0.35	0.35	0.22
Odor, T.O.N	10	10		1	10		50	10	10	10	NA
Phenolics	0.12 J								0.1 J		
Sulfate	379	110		1770	157	155	1680	1690	599	335	320
Total Dissolved Solids	12900	2850 J		26100	3190	3180	24300	24400	17460	8420	3250
Total Kjeldahl Nitrogen	1110 J	366 J		6.27 J	175 J		506 J	75.6 J	718 J	542 J	408 J
Total Organic Carbon	1900	450		14	140	140	110	59		780	360
Total Volatile Solids	1480	641		3560	307	314	4500	3170	2120	1060	2510

Notes:

All concentrations in milligrams per liter (ppm) except for color and odor

Blank indicates compound was not detected

D = Laboratory QA/QC duplicate

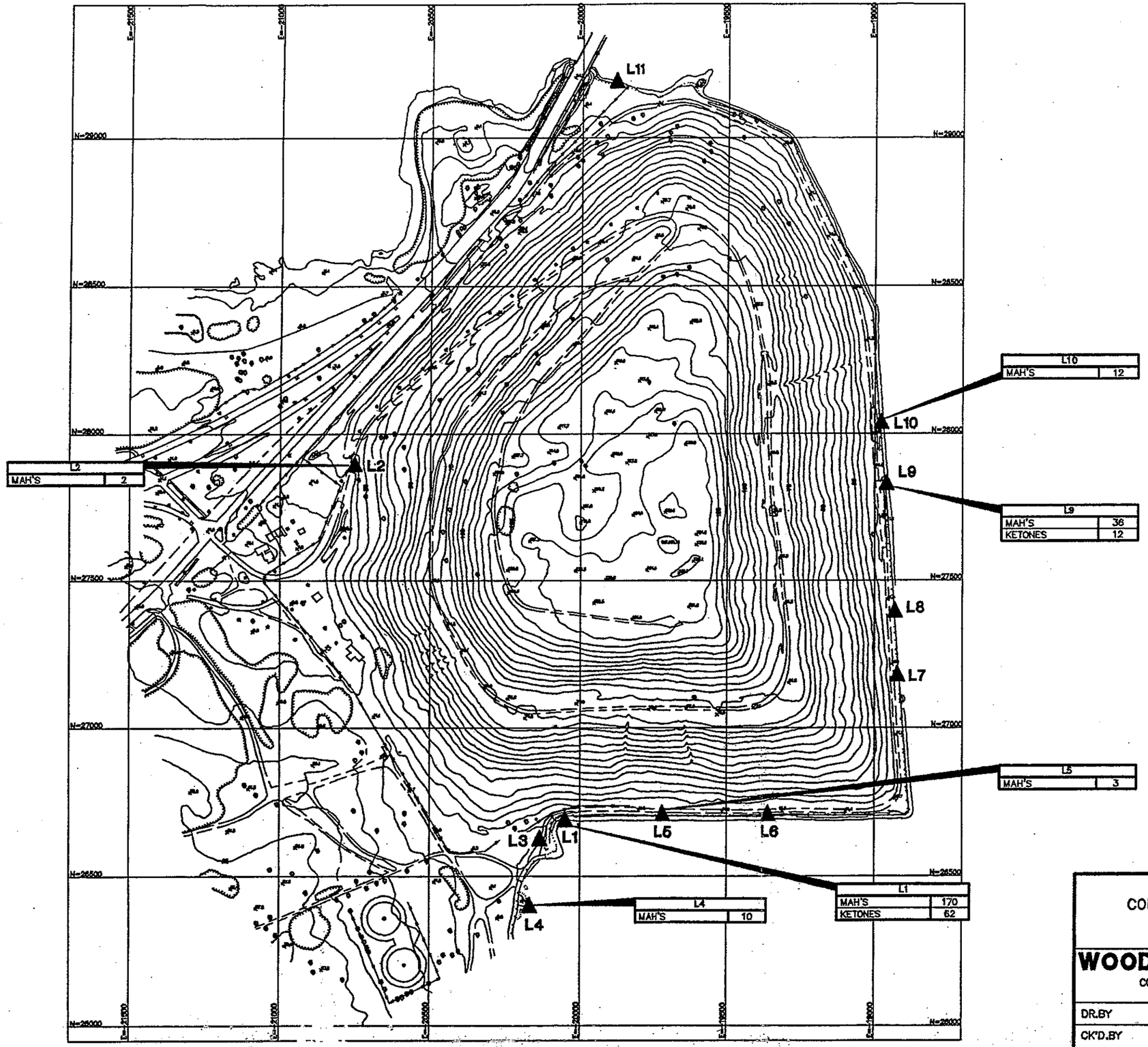
J = Estimated value

NA = Not Analyzed

Prepared by: CLH

Checked by: TRP

92C4087



N

LEGEND:

L1 ▲ LEACHATE SEEP LOCATION

NOTES:

1. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
2. ELEVATIONS ABOVE BRONX DATUM = 2.608 FT ABOVE MEAN SEA LEVEL.
3. CONTOUR INTERVAL = 5 FEET
4. CONCENTRATION IN ug/l

MAH'S – MONOCYCLIC AROMATIC HYDROCARBONS

MAP SOURCE:

ETTLINGER & ETTLINGER DRAWING NUMBER 87541
ETTLINGER & ETTLINGER SITE SURVEY 1992.

0 350 700 FT

SCALE

SEEP LOCATIONS SHOWING
CONCENTRATIONS OF VOLATILE ORGANIC COMPOUNDS
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD-CLYDE CONSULTANTS, INC.

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR.BY	MG	SCALE	AS SHOWN	PROJ.	92C4087
CK'D.BY	DAD	DATE	NOV. 23, 1993	FIG.NO.	4-21

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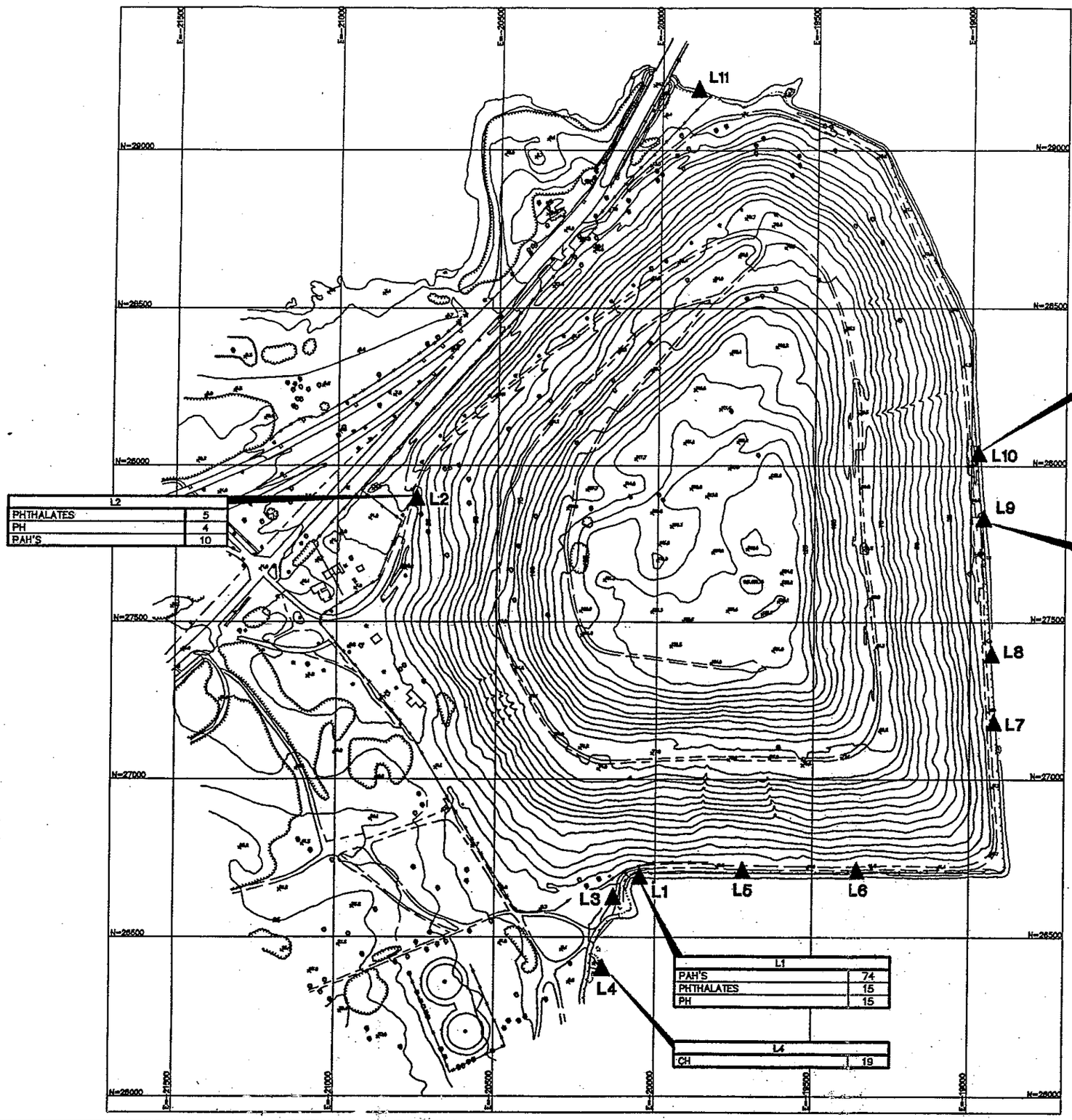


File name: C:\92C4087\SEMI-VOL.DWG Last edited: 93/02/09 @ 17:28

LEGEND:

L1 ▲ LEACHATE SEEP LOCATION

NOTES:

1. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
2. ELEVATIONS ABOVE BRONX DATUM = 2.608 FT ABOVE MEAN SEA LEVEL.
3. CONTOUR INTERVAL = 5 FEET
4. CONCENTRATIONS IN ug/l

PAH'S – POLYNUCLEAR AROMATIC HYDROCARBONS
CH – CHLORINATED HYDROCARBONS
PH – PHENOLIC COMPOUNDS

MAP SOURCE:

ETTLINGER & ETTLINGER DRAWING NUMBER 87541
ETTLINGER & ETTLINGER SITE SURVEY 1992.

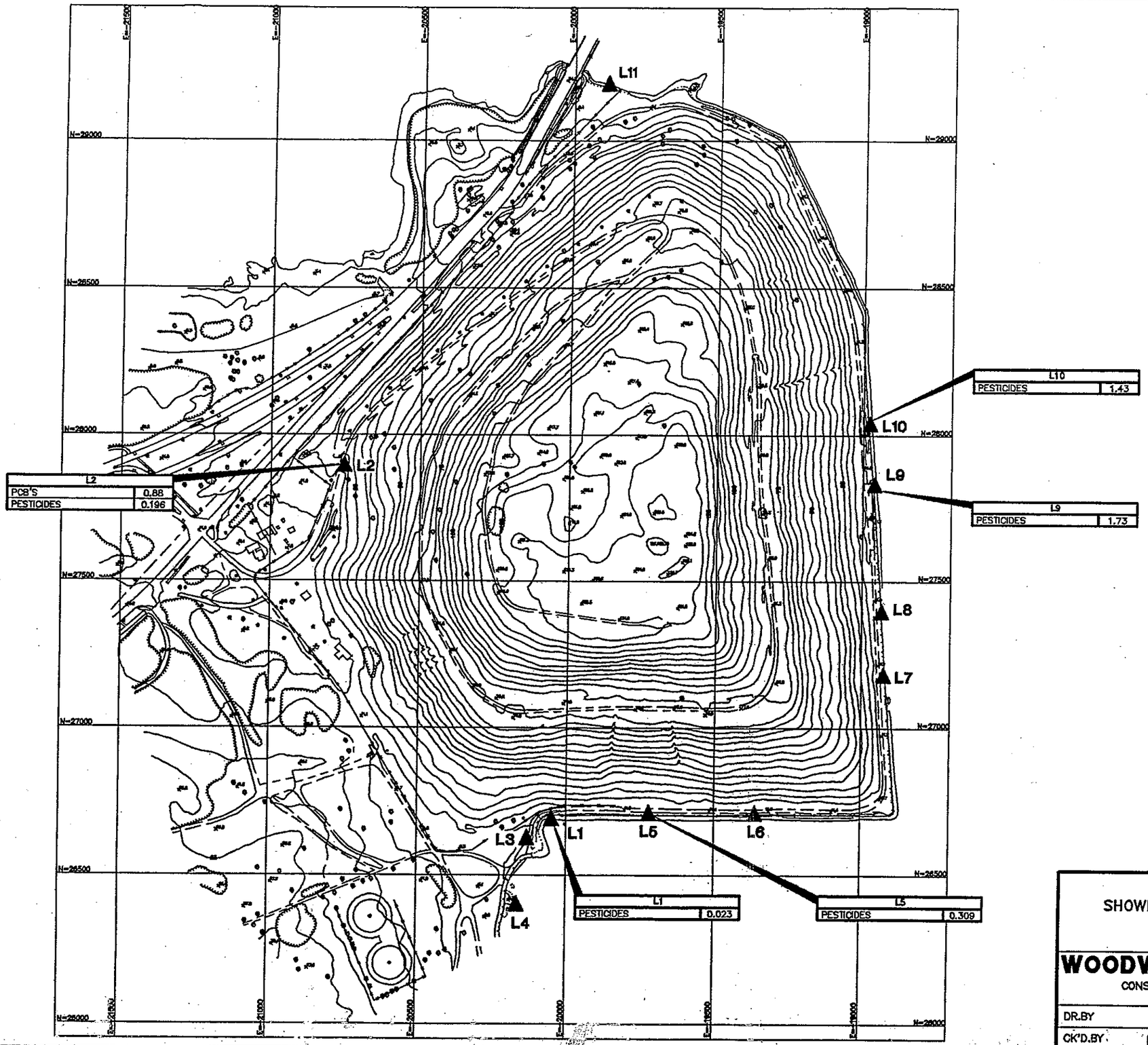
0 350 700 FT
SCALE

SEEP LOCATIONS SHOWING CONCENTRATIONS
OF SEMI-VOLATILE ORGANIC COMPOUNDS
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD-CLYDE CONSULTANTS, INC.

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR.BY	MG	SCALE	AS SHOWN	PROJ.	92C4087
CK'D.BY	DAD	DATE	NOV. 23, 1993	FIG.NO.	4-22



LEGEND:

L1 ▲ LEACHATE SEEP LOCATION

NOTES:

1. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
2. ELEVATIONS ABOVE BRONX DATUM = 2.608 FT ABOVE MEAN SEA LEVEL.
3. CONTOUR INTERVAL = 5 FEET
4. CONCENTRATIONS IN ug/l

MAP SOURCE:

ETTLINGER & ETTLINGER DRAWING NUMBER 87541
ETTLINGER & ETTLINGER SITE SURVEY 1992.

0 350 700 FT

SCALE

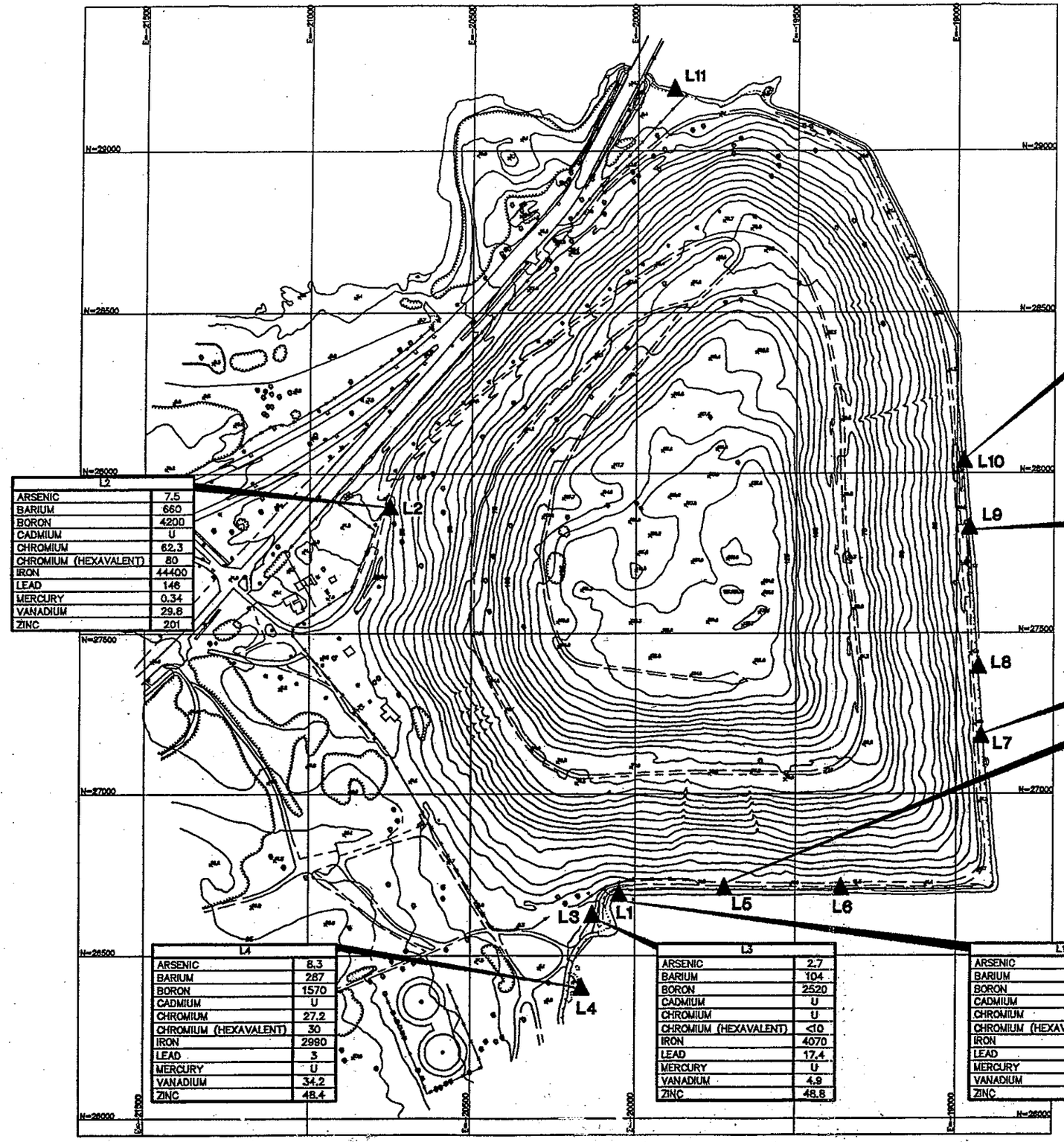
SEEP LOCATIONS
SHOWING CONCENTRATIONS OF PESTICIDES AND PCBs
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD-CLYDE CONSULTANTS, INC.

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR.BY	MG	SCALE	AS SHOWN	PROJ.	92C4087
CK'D.BY	DAD	DATE	NOV 23 1992	FIG.NO.	4-23

File name: C:\92C4087\PESTICID.DWG Last edited: 93/02/16 @ 09:17



L2	
ARSENIC	7.5
BARIUM	660
BORON	4200
CADMIUM	U
CHROMIUM	62.3
CHROMIUM (HEXAVALENT)	80
IRON	44400
LEAD	146
MERCURY	0.34
VANADIUM	29.8
ZINC	201

L10	
ARSENIC	14.5
BARIUM	844
BORON	6800
CADMIUM	U
CHROMIUM	180
CHROMIUM (HEXAVALENT)	210
IRON	24900
LEAD	88.7
MERCURY	U
VANADIUM	397
ZINC	177

L9	
ARSENIC	18.7
BARIUM	590
BORON	6910
CADMIUM	U
CHROMIUM	293
CHROMIUM (HEXAVALENT)	560
IRON	12500
LEAD	58.5
MERCURY	U
VANADIUM	822
ZINC	136

L7	
ARSENIC	U
BARIUM	123
BORON	2820
CADMIUM	U
CHROMIUM	26
CHROMIUM (HEXAVALENT)	20
IRON	2970
LEAD	7
MERCURY	5
VANADIUM	46
ZINC	28.1

L5	
ARSENIC	89.1
BARIUM	1490
BORON	4680
CADMIUM	U
CHROMIUM	390
CHROMIUM (HEXAVALENT)	20
IRON	136000
LEAD	707
MERCURY	2
VANADIUM	368
ZINC	1330

L4	
ARSENIC	8.3
BARIUM	287
BORON	1570
CADMIUM	U
CHROMIUM	27.2
CHROMIUM (HEXAVALENT)	30
IRON	2980
LEAD	3
MERCURY	U
VANADIUM	34.2
ZINC	48.4

L3	
ARSENIC	2.7
BARIUM	104
BORON	2520
CADMIUM	U
CHROMIUM	U
CHROMIUM (HEXAVALENT)	<10
IRON	4070
LEAD	17.4
MERCURY	U
VANADIUM	4.9
ZINC	48.8

L1	
ARSENIC	40.3
BARIUM	1060
BORON	8900
CADMIUM	U
CHROMIUM	289
CHROMIUM (HEXAVALENT)	400
IRON	9760
LEAD	104
MERCURY	U
VANADIUM	562
ZINC	226

LEGEND:

L1 ▲ LEACHATE SEEP LOCATION

NOTES:

1. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
2. ELEVATIONS ABOVE BRONX DATUM = 2.608 FT ABOVE MEAN SEA LEVEL.
3. CONTOUR INTERVAL = 5 FEET
4. CONCENTRATIONS IN ug/l
5. U=NOT DETECTED

MAP SOURCE:

ETTLINGER & ETTLINGER DRAWING NUMBER 87541
ETTLINGER & ETTLINGER SITE SURVEY 1992.

0 350 700 FT

SCALE

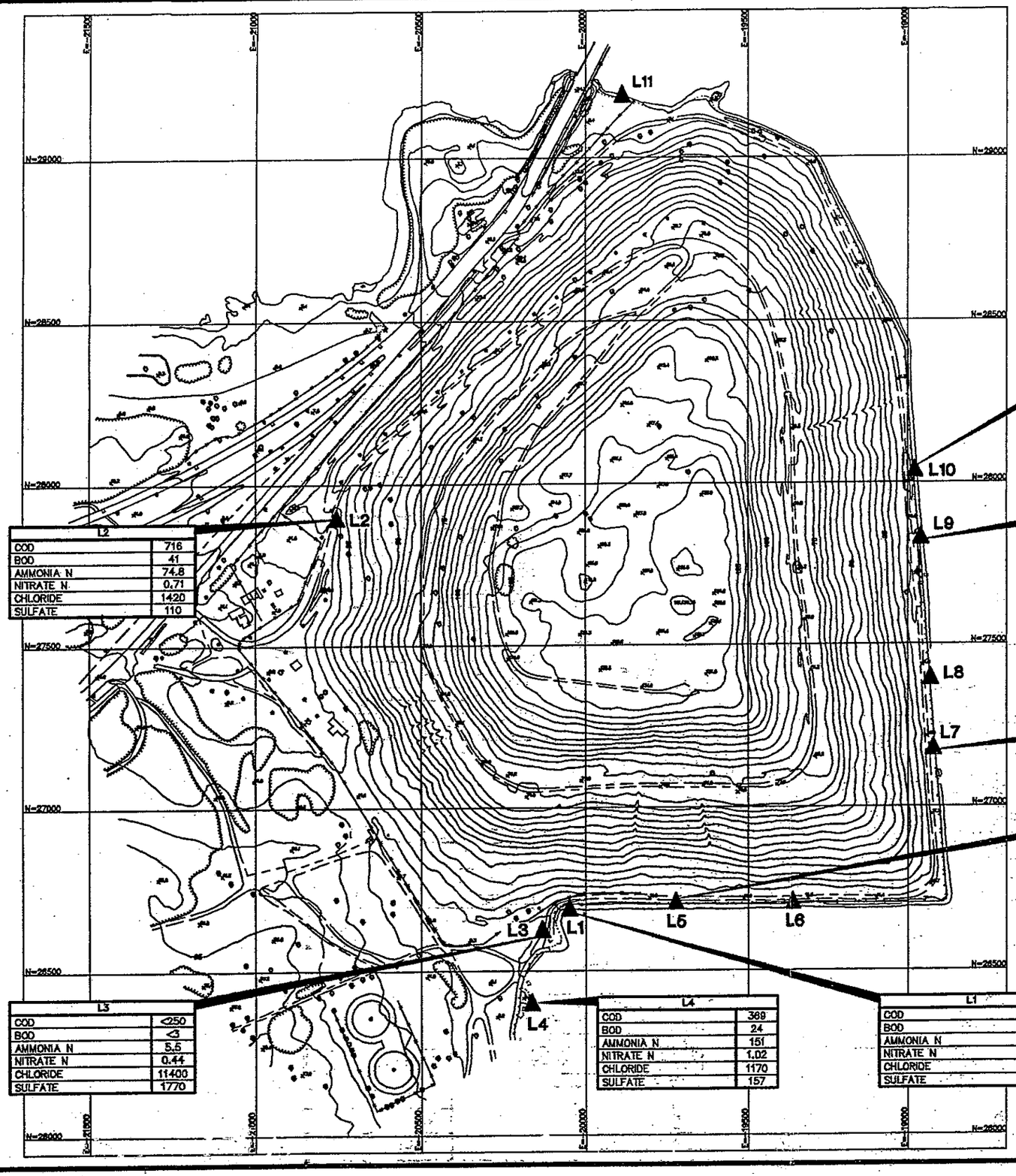
SEEP LOCATIONS
SHOWING CONCENTRATIONS OF INORGANIC COMPOUNDS
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD-CLYDE CONSULTANTS, INC.

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR.BY	MG	SCALE	AS SHOWN	PROJ.	92C4087
CK'D.BY	DAD	DATE	NOV. 23, 1993	FIG.NO.	4-24

File name: C:\92C4087\INORGAN.DWG Last edited: 93/02/18 @ 09:29



L10	
COD	1230
BOD	107
AMMONIA N	85.1
NITRATE N	0.35
CHLORIDE	11340
SULFATE	355

L9	
COD	<500
BOD	157
AMMONIA N	404
NITRATE N	0.35
CHLORIDE	6830
SULFATE	599

L7	
COD	295
BOD	7
AMMONIA N	44.2
NITRATE N	0.24
CHLORIDE	11680
SULFATE	1690

L5	
COD	2040
BOD	277
AMMONIA N	373
NITRATE N	0.42
CHLORIDE	3380
SULFATE	1680

L2	
COD	716
BOD	41
AMMONIA N	74.8
NITRATE N	0.71
CHLORIDE	1420
SULFATE	110

L3	
COD	<250
BOD	<3
AMMONIA N	5.5
NITRATE N	0.44
CHLORIDE	11400
SULFATE	1770

L4	
COD	369
BOD	24
AMMONIA N	151
NITRATE N	1.02
CHLORIDE	1170
SULFATE	157

L1	
COD	<500
BOD	190
AMMONIA N	837
NITRATE N	0.06
CHLORIDE	3740
SULFATE	379

LEGEND:

L1 ▲ LEACHATE SEEP LOCATION

NOTES:

1. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
2. ELEVATIONS ABOVE BRONX DATUM = 2.608 FT ABOVE MEAN SEA LEVEL.
3. CONTOUR INTERVAL = 5 FEET.
4. CONCENTRATIONS IN mg/l.

MAP SOURCE:

ETTLINGER & ETTLINGER DRAWING NUMBER 87541.
ETTLINGER & ETTLINGER SITE SURVEY 1992.

0 350 700 FT

SCALE

SEEP LOCATIONS SHOWING
CONVENTIONAL PARAMETER CONCENTRATIONS
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD-CLYDE CONSULTANTS, INC.

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR.BY	MG	SCALE	AS SHOWN	PROJ.	92C4087
CK'D.BY	DAD	DATE	NOV. 23, 1993	FIG.NO.	4-25

File name: C:\92C4087\CONVENT.DWG Last edited: 93/02/16 @ 09:23

Appendix G

Remedial Investigation Report - Soil Gas Tables and Figures

Table 4-79
Results of Perimeter Soil Gas Survey
Pelham Bay Landfill
Bronx, New York

Sample Number	Depth (inches)	Date	Time	%LEL (background)	%LEL (measured)	%O2 (background)	%O2 (measured)	PPM H2S (background)	PPM H2S (measured)
SG92-1	19.75	9/2/92	1100	0	0	21.0	21.0	0.0	0.5
SG92-2	26.25	9/2/92	1106	0	0	21.0	20.8	0.3	0.5
SG92-3	37.00	9/2/92	1110	0	10	20.8	20.2	0.4	0.5
SG92-4	38.50	9/2/92	1120	1	>100	21.3	16.0	0.3	0.5
SG92-5	43.00	9/2/92	1130	0	>100	21.0	16.0	0.0	0.2
SG92-6	43.00	9/2/92	1140	0	0	21.0	20.5	0.0	0.5
SG92-7	30.50	9/2/92	1200	0	0	20.3	20.3	0.2	0.2
VENT-1	0.00	9/2/92	1330	0	15	21.0	20.6	0.0	0.0
VENT-1A	0.00	9/2/92	1335	0	>100	21.0	2.2	0.0	1.2
VENT-2	0.00	9/2/92	1350	1	1	20.6	20.6	0.1	0.1

Notes: LEL = Lower Explosive Limit
ppm = Parts per million.

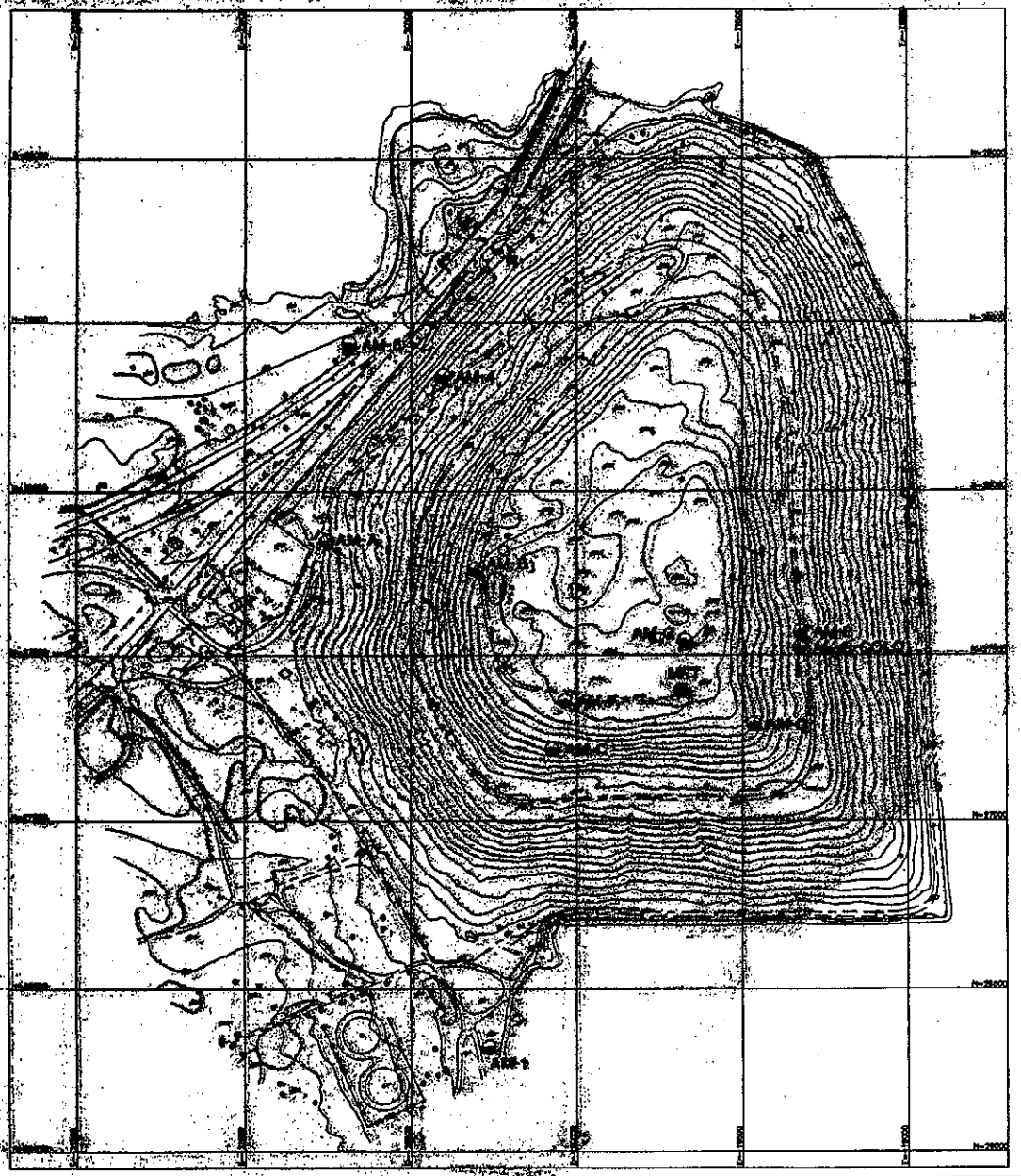
Prepared by: DA
Checked by: PGN
92C4087

Table 4-80
EIFC Compound Emission Rates
Pelham Bay Landfill
Bronx, New York

Compound	AM-A	AM-B	AM-C	AM-D	AM-E	AM-F	AM-G	AM-1
1,1,1-Trichloroethane	0.0004	0.0045	0.0014	1.5485	0.0009	< 0.0005	1.4453	0.0006
1,2,4-Trichlorobenzene	< 0.0011	0.0035	< 0.0013	< 0.0016	< 0.0006	0.0007	< 0.0010	< 0.0004
1,2,4-Trimethylbenzene	0.0029	0.0439	0.0791	< 0.0011	0.0558	0.0016	0.0035	0.0015
1,2-Dichlorobenzene	< 0.0004	< 0.0014	0.0426	0.0152	0.0720	< 0.0005	< 0.0008	< 0.0003
1,2-Dichloroethylene	< 0.0003	0.0042	< 0.0031	< 0.0009	0.0046	< 0.0003	< 0.0005	< 0.0002
1,3,5-Trimethylbenzene	0.0009	0.0151	0.0348	0.0175	0.0260	0.0006	0.0038	0.0004
1,3-Dichlorobenzene	< 0.0008	0.0069	0.0309	0.0120	0.0261	< 0.0005	0.0019	< 0.0003
1,4-Dichlorobenzene	0.0025	0.1458	0.1973	0.0338	0.0833	0.0005	0.0248	0.0021
2-Propanone	0.0090	0.0379	0.0520	0.0316	0.1362	0.0197	0.0224	0.0076
Ammonia Nitrogen	10.2633	< 0.2349	< 0.2533	< 0.2454	< 0.2578	< 0.2648	< 0.2429	< 0.2836
Benzene	0.0006	0.0245	0.1007	0.0131	0.2013	0.0005	0.0086	0.0005
Bromoform	0.0007	0.0030	0.0019	< 0.0027	0.0009	0.0010	0.0015	0.0006
Carbon Disulfide	0.0020	0.0022	0.0017	0.0023	0.0029	0.0014	0.0011	0.0006
Chlorobenzene	0.0019	0.0353	0.7109	0.0500	1.1312	< 0.0004	0.0325	0.0007
Cumene	0.0011	0.0085	0.0981	< 0.0011	0.0310	0.0006	0.0021	< 0.0002
Ethylbenzene	0.0007	0.0277	0.3074	0.0029	0.0438	0.0004	0.0066	0.0006
Freon 11	0.0011	0.0024	0.0012	0.0014	0.0015	0.0013	< 0.0012	0.0010
Freon 113	0.0160	< 0.0018	< 0.0014	< 0.0017	< 0.0006	< 0.0006	< 0.0010	0.0006
Freon 114	< 0.0004	0.0085	< 0.0049	< 0.0015	0.0128	< 0.0006	< 0.0009	< 0.0003
Freon 12	< 0.0003	< 0.0012	< 0.0009	0.0221	< 0.0004	< 0.0004	< 0.0006	0.0009
Heptane	< 0.0003	0.0419	0.0040	0.0021	< 0.0003	< 0.0003	0.0013	< 0.0002
Hexachlorobutadiene	< 0.0020	< 0.0025	< 0.0019	< 0.0023	< 0.0009	0.0014	< 0.0014	< 0.0005
Hydrogen Sulfide	< 0.0013	< 0.0007	0.0213	< 0.0009	< 0.0009	< 0.0014	< 0.0009	< 0.0009
Methane	< 0.8284	4606.1000	6331.9000	1624.1000	9093.5000	< 1.0457	965.4000	< 0.6457
Methylene Chloride	0.0006	< 0.0008	< 0.0006	< 0.0008	< 0.0003	0.0007	< 0.0004	< 0.0002
Styrene	0.0180	0.0139	0.0060	0.0098	0.0062	0.0024	0.0075	0.0105
Tetrachloroethylene	< 0.0004	0.0031	< 0.0012	< 0.0015	< 0.0006	< 0.0006	0.0022	0.0006
Toluene	0.0809	0.0722	0.0242	0.0432	0.0332	< 0.0004	0.0184	0.0121
Trichloroethylene	< 0.0003	0.0015	< 0.0010	< 0.0012	< 0.0004	< 0.0004	< 0.0007	< 0.0003
Xylenes	0.0025	0.0665	0.0503	0.0147	0.0224	0.0019	0.0064	0.0016

Notes:
All values are ug/m²-sec
This table lists only those compounds detected at least once
The value following the "<" indicates the minimum level of detection for that compound
These numbers have not been reviewed

Prepared by: BW
Checked by: RJM
92C4087



LEGEND

AIR MONITORING STATION

METEROLOGICAL STATION

NOTE:

1. OFF-SITE LOCATIONS AM-5, AM-1, AM-4 ARE ALSO INCLUDED ON THIS FIGURE.

MAP SOURCE:

ETTLINGER & ETTLINGER DRAWING NUMBER 87541
ETTLINGER & ETTLINGER SITE SURVEY 1992.

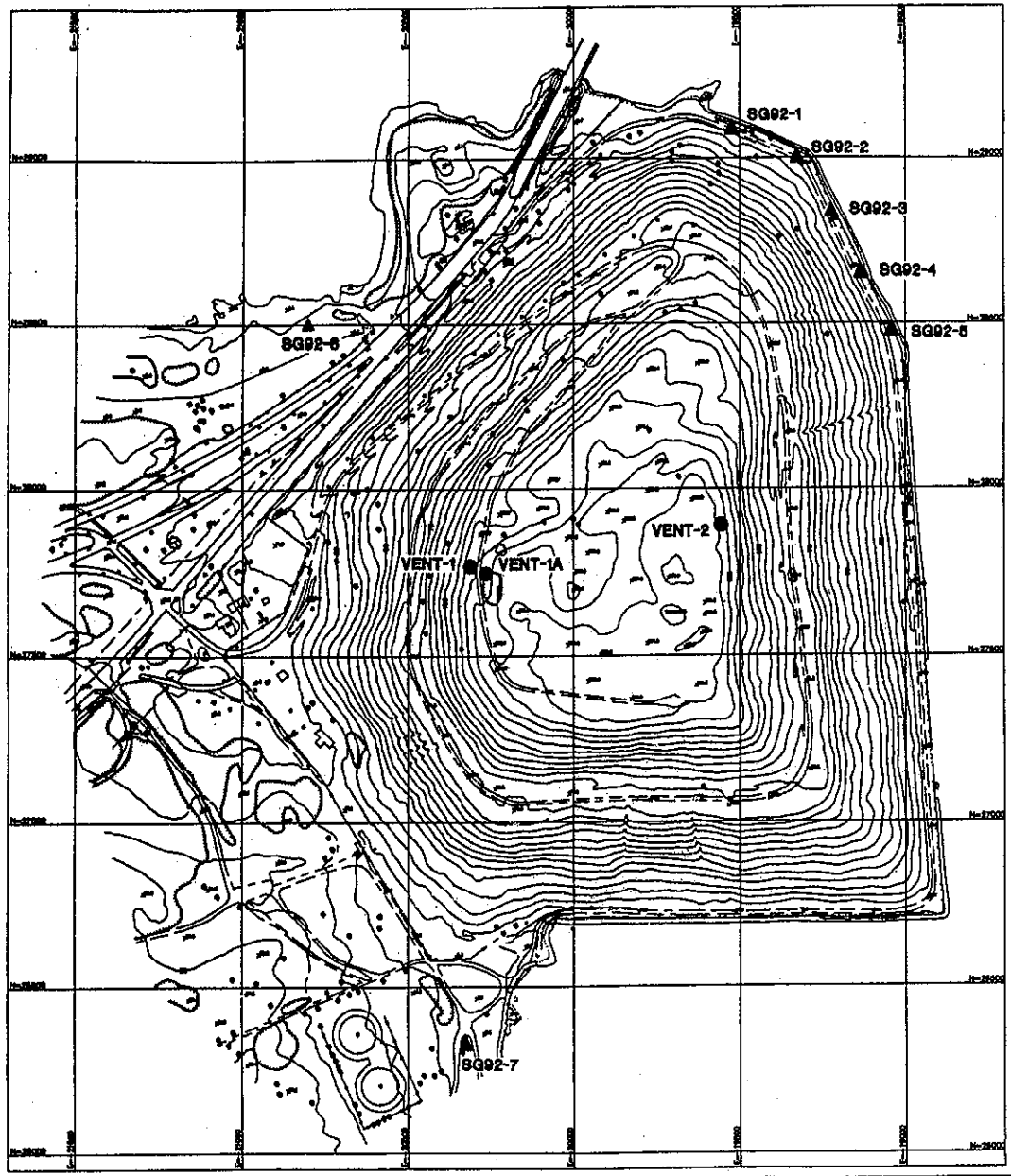
0 350 700 FT

SCALE

ON-SITE AIR MONITORING LOCATIONS
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD-CLYDE CONSULTANTS, INC.
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR. BY:	BAS	SCALE:	AS SHOWN	PROJ. NO.:	92C4087
CK'D BY:	PAR	DATE:	OCT. 6, 1992	FIG. NO.:	2-2



LEGEND:

SG92-2 ▲ SOIL GAS

VENT-1 ● FISSURE VENTS

NOTES:

1. COORDINATES AND BEARINGS IN BRONX HIGHWAY DATUM.
2. ELEVATIONS ABOVE BRONX DATUM = 2.608 FT ABOVE MEAN SEA LEVEL.
3. CONTOUR INTERVAL = 5 FEET

MAP SOURCE:

ETTLINGER & ETTLINGER DRAWING NUMBER 87541
ETTLINGER & ETTLINGER SITE SURVEY 1992.

0 350 700 FT

SCALE

PERIMETER SOIL GAS LOCATION MAP
PELHAM BAY LANDFILL
BRONX, NEW YORK

WOODWARD–CLYDE CONSULTANTS, INC.
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS
NEW YORK, NEW YORK

DR. BY:	MG	SCALE:	AS SHOWN	PROJ. NO.:	92C4087
CK'D BY:	REC	DATE:	SEPT. 21, 1992	FIG. NO.:	2-14

Appendix H

Deed Restriction

TO BE PROVIDED

Appendix I

Record of Decision

Appendix J

Pelham Bay Landfill Closure and
Final Remediation Construction
Certification Report

ELECTRONIC VERSION OF CCR IS AVAILABLE ON THE CD PROVIDED IN APPENDIX I

Appendix K

Operation, Maintenance and Monitoring Manual – Volumes I, II, and III

ELECTRONIC VERSION OF OM&M MANUAL IS AVAILABLE ON THE CD PROVIDED IN APPENDIX I

Appendix L

Pelham Bay Landfill As-Built Drawings

Appendix M

NYSDEC-Acceptable Electronic Database Site Information

TO BE PROVIDED FOLLOWING PREPARATION
OF DEED RESTRICTION

Appendix N

Inspection Checklist Forms

FORM FCS-1
PERIODIC* INSPECTION CHECKLIST
FINAL COVER SYSTEM
PELHAM BAY LANDFILL, BRONX, NEW YORK
(Reference Volume III, Figure 2-1)

Item No.	Item Title	Zone Number													
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Surface Cracks														
2	Vegetative Growth														
3	Vector Penetration														
4	Settlement														
5	Erosion														
6	Slope Stability														
7	Seepage														
8	Vandalism														

Notes:
* Inspection will be conducted following grass mowing per the DEP approved schedule
1. Use a check in the checkbox to indicate that the specific item number in the zone has been inspected and no problems were noted.
2. Use "NS" (Not Satisfactory) where problems are noted.
3. For boxes checked NS, on Form DP-1, a description of deficiency/problem. Attach additional sheets if necessary

Date Initials

FORM GWL-1
WEEKLY (TWICE WEEKLY) O & M INSPECTION CHECKLIST
GROUNDWATER/LEACHATE MANAGEMENT SYSTEM
PELHAM BAY LANDFILL
(REFERENCE VOLUME III SECTION 4)

Date: _____ Initials _____

1. Downgradient Collection Sumps	D-1	D-8	D-10
	Pump 1 / Pump 2		
A. Circuit Breakers	On / Off / On / Off	On / Off / On / Off	X On / Off / On / Off
B. Running Light On	Yes / No / Yes / No	Yes / No / Yes / No	Yes / No / Yes / No
C. Selector Switch Position Han-Off Automatic (HOA)	H O A / H O A	H O A / H O A	H O A / H O A
D. Liquid Level in Sump pump	H L O	H L O	H L O
E. Leak in Manifold Piping	Yes / No	Yes / No	Yes / No
	Pumps ETM P-1 P-2	Pumps ETM P-1 P-2	Pumps ETM P-1 P-2

2. Downgradient and Curtain Drain

A. Is there settlement along alignment of downgradient curtain drain — Yes / X / No

3. D-1 Forcemain Flow Totalizer x 100 =

$. D-1 Forcemain Pressure

FORM GWL-1 (continued)

3. LIFT STATION NO. 1

A. Flow from Curtain Drain	☐ Low	☐ Normal	☐ High
B. Are Sump Pumps Operating		☐ Yes	☐ No
C. Alarm indicator Lights		☐ Yes	☐ No

Pumps	ETM	High Temp	Seal Fail	Fault
P-1		☐	☐	☐
P-2		☐	☐	☐

D. Check liquid level in sump	☐ Low	☐ High	☐ Other
E. Check for leak in manifold leachate piping		☐ Yes	☐ No

4. LIFT STATION NO. 2

A. Settlement along buried section of forcemain		☐ High	☐ No
B. Are sump pumps operating		☐ High	☐ No
C. Are the alarms or indicator lights on		☐ Yes	☐ No

Pumps	ETM	High Temp	Seal Fail	Fault
P-1		☐	☐	☐
P-2		☐	☐	☐

D. Check liquid level around stop planks Is the level,	☐ Low	☐ High	☐ Other
E. Any leaks in the manifold discharge piping		☐ Yes	☐ No
F. Check surface water in the Bay and Rip-Rap Are there any signs of leachate		☐ Yes	☐ No
G. Check if a pump is out of service		☐ Pump 1	☐ Pump 2

FORM GWL-1 (continued)

5. LEACHATE STORAGE CONTAINMENT AREA AND SUMP

A. Flow through sump weep holes ☐ ☐ Normal ☐ High
B. Are sump pumps operating ☐ Yes ☐ No
C. Alarm indicator Lights ☐ Yes ☐ No

Pumps	ETM	High Temp	Seal Fail	Fault
P-1		☐	☐	☐
P-2		☐	☐	☐

D. Check liquid level in sump ☐ Low ☐ High ☐ Other

E. Is there any leak in the storage tanks and manifold discharge piping ☐ Yes ☐ No

G. Check if a pump is out of service ☐ Pump 1 ☐ Pump 2

6. CARBON ADSROPTION SYSTEM

A. Air Compressors on ☐ Yes ☐ No
B. Activated carbon canisters operating (On Line) ☐ Yes ☐ No

	ETM
Blower 1	
Blower 2	

7. CONTRACT HP-877 FORCE MAIN DISCHARGE TO POTW

A. Leakage from pipwork in valve box beside Lift Station No. 1 ☐ Yes ☐ No
B. Settlement along alignment of forcemain to Burr Avenue manhole ☐ Yes ☐ No

8. MOTOR CONTROL CENTER (MCC)

A. Are all breakers, for the following equipment, in the ON position:

Lift Station No. 1	☐ Yes	☐ No
Lift Station No. 2	☐ Yes	☐ No
Decontamination Sump	☐ Yes	☐ No
Storage Containment Sump	☐ Yes	☐ No
Site Lighting	☐ Yes	☐ No

Notes: For noted deficiencies and problems provide description on form DP-1. Attached additional sheets if necessary.

FORM GWL-2
MONTHLY INSPECTION CHECKLIST
MANHOLE AND SUMPS
GROUNDWATER/LEACHATE MANAGEMENT SYSTEM
PELHAM BAY LANDFILL
(REFERENCE VOLUME III SECTION 4)

DATE: INITIALS:

Item No.	Inspection Item	Manhole and Sump Number									
		D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	D-10
1	Manhole Cover										
2	Silt Accumulation										
3	Settlement										
4	Pipe Connections										
5	Settlement Along Curtain Drain										
6	Flow into manhole or sump										

Item No.	Inspection Item	Manhole and Sump Number										
		LS-1	LS-2	DS-1	DS-2	TS-1	U-1	U-2	U-3	U-4	U-5	U-6
1	Manhole Cover											
2	Silt Accumulation											
3	Settlement											
4	Pipe Connections											
5	Settlement Along Curtain Drain											
6	Flow into manhole or sump											

FORM GWL-3
SEMI-ANNUAL INSPECTION CHECKLIST
MONITORING WELL
GROUNDWATER/LEACHATE MANAGEMENT SYSTEM
PELHAM BAY LANDILL
(REFERENCE VOLUME III SECTION 4)

DATE: INITIALS:

Check For	Sampling Well Designation									
	MW 104	MW 106	MW 109	MW 110	MW 113	MW 114	MW 115	MW 115B	MW 118	MW 119
1. Damage/Vandalism										
2. Settlement										
3. Accessibility										

Check For	Sampling Well Designation								
	MW 120	MW 120B	MW 121	MW 122	MW 126	MW 117	MW 117B	MW 124	MW 124B
1. Damage/Vandalism									
2. Settlement									
3. Accessibility									

Check For	PZ-A	PZ-B	PZ-C	PZ-D	PZ-F
1. Damage/Vandalism					
2. Settlement					
3. Accessibility					

Notes: Use a check in the checkbox to indicate that the specific item number in the zone has been inspected and no problems were noted.

1. Use "NS" (Not Satisfactory) where problems are noted.
2. For boxes checked NS, on Form DP-1, a description of deficiency/problem. Attach additional sheets if necessary

FORM LFG-1
WEEKLY(TWICE WEEKLY) INSPECTION CHECKLIST
LANDFILL GAS MANAGEMENT SYSTEM
PELHAMBAY LANDFILL
(REFERENCE VOLUME III, SECTION 5)

Date				
Time				
Technician				
1.OPERATING BLOWER 1 OR 2	1	**2**	1	**2**
A. Noise or Vibration	Ok	**N/A**	Ok	**N/A**
B. Measureable or Oderiferous Gas Leaks	**No**	Yes	**No**	Yes
C. Upstream Vacuum-Inches WC	0		0	
D. Downstream Pressure -Inches WC				
E. Inlet Temperature-Degree F				
F. Discharge Temperature-Degree F				
2. BLOWER CONTROL PANEL				
A. Disconnnect Blower 1 and 2 Switch				
B. Flow Meter-CFM, Min & Max				
C. Hour Meter Blower 1 (Zero=)				
Blower 2 (Zero=)				
D. Blower 1 or Blower 2 Running Light	1	**2**	1	**2**
E. The Blower Hand-Off_Auto Switch	**Off**	**Auto**	**Off**	**Auto**
F. Blower 1 or 2 Current Alarm	**Off**	**On**	**Off**	**On**
G. High Motor Current Alarm	**Off**		**Off**	
H. Reset Alarm				
3. FLARE CONTROL PANEL				
A. Panel Power Switch	Off	**On**	Off	**On**
B. Panel Power Light	Off	**On**	Off	**On**
C. Start-Up Sequence Switch	Auto			
D. Local Unit Control Switch	Start/**Run**	Stop	Start/**Run**	Stop
E. Unit Stop				
F. Security Light	**Off**	On	**Off**	On
G. Purge Start				
H. Low Purge Air Flow, Red Indicator Light	**Off**	On	**Off**	On
I. Purging, Blue Indicator Light	**Off**	On	**Off**	On
J. Purge Complete, Amber Indicating Light	**Off**	On	**Off**	On
K. Ignition Start				
L. Pilot Gas On, Green Indicator Light	**Off**	On	**Off**	On
M. Flame Proved, Green Indicator Light	**Off**	On	**Off**	On
N. Waste Inlet Valve	C O	**Auto**	C O	**Auto**
O. Waste Gas On, Green Indicator Light	**Off**	On	**Off**	On
P. Flare Reset				
Q. Waste Gas Blower Failure, Red Indicator Light	Off	**On**	Off	**On**
R. High Flare Temperature, Red Indicator Light	**Off**	On	**Off**	On
S. Flare Failure, Red Indicator Light	**Off**	On	**Off**	On
4. FLARE				
A. Flame Condition	Good	**N/A**	Good	**N/A**
B. Abnormal Burner Hotspots	Yes	**No**	Yes	**No**
C. Unusual Sounds or Odors	Yes	**No**	Yes	**No**
D. Damper Motor Running	**Yes**	No	**Yes**	No
Manual Damper Postion				
5. PIPING				
A. General Condition	OK		OK	
B. Propane Tank Pressure/Level-PSIG				
C. Inlet Valve Position		% Open		% Open
D. LFG Flowrate-CFM				
E. Gauges Operational?	Yes	**No**	Yes	**No**
F. Nitrogen Pressure-PSIG				
6. SITE CONDITION				
Vandalism, Cleanliness	**Good**	Bad	**Good**	Bad
Reviewed By				
Date				

Comments _____

MONTHLY MONITORING
LANDFILLL GAS MANAGEMENT SYSTEM
PELHAM BAY LANFDFILL
REFERENCE VOLUME III SECTION 5

Inspector: **Date:**

Location	Concentration by % Volume			Temp (^{0}F)	Static Pressure	Pressure Differential	Remarks
	Methane	CO_2	Oxygen				
Flare Inlet							
Well Head No. 1							
Well Head No. 2							
Well Head No. 3							
Well Head No. 4							
Well Head No. 5							
Well Head No. 6							
Well Head No. 7							
Well Head No. 8							
Well Head No. 9							
Well Head No. 10							
Well Head No. 11							
Well Head No. 12							
Well Head No. 13							
Well Head No. 14							
Well Head No. 15							
Well Head No. 16							
Well Head No. 17							
Well Head No. 18							
Well Head No. 19							
Well Head No. 20							
Well Head No. 21							
Well Head No. 22							

FORM LFG-3
QUARTERLY* CHECKLIST
GAS COLLECTION SYSTEM, BELOW GROUND PIPING
LANDFILL GAS MANAGEMENT SYSTEM
PELHAM BAY LANDFILL, BRONX NEW YORK
(REFERENCE VOLUME 1 FIGURE 2-11)

	S	NS
PERFORATED HORIZONTAL GAS COLLECTION		
• TOP OF LANFILL, HORIZONAL GAS COLLECTION		
• BOTTOM OF LANFILL, HORIZONTAL GAS COLLECTION		
LATERALS SOLID PIPING		
• FROM EW-4 TO EW-10 AND MAIN HEADER		
• FROM EW-7 TO EW-10		
• FROM EW-11 TO MAIN HEADER		
• FROM EW-12 TO MAIN HEADER		
• FROM EW-13 TO MAIN HEADER		
• FROM EW-14 TO MAIN HEADER		
• FROM EW-15 TO MAIN HEADER		
• FROM EW-17 TO MAIN HEADER		
• FROM EW-20 TO MAIN HEADER		
MAIN HEADER SOLID PIPING		
• FROM VB-1 TO VB-2		
• FROM VB-2 TO VB-3 AND VB-6		
• FROM VB-1 TO VB-5		
• FROM VB-5 TO VB-4 AND VB-6		
• FROM VB-6 TO FLARE STATION		

Notes:

*: Inspection will be conducted following periodic grass mowing as approved by the DEP

1. The inspection or the belowground gas collection and conveyance piping from well head to flare station the operator shall check for pipe settlement, landfill gas leak and any exposed piping.

2. Use an "S" check box to indicate that the specific item has been inspected and no problems were noted.

3. Use "NS" (not satisfactory) where problems are noted, and provide a description of the deficiency problem on Form DP-1. Attach additional sheets if necessary.

FORM SMS-1
MONTHLY INSPECTION CHECKLIST
STORMWATER DRAINAGE DITCHES
STORMWATER MANAGEMENT SYSTEM
PELHAM BAY LANDFILL, BRONX, NEW YORK
(Reference Volume I, Figures 2-2 and 2-3

Item	Item	Zone Number													
	Title	1	2	3	4	5	6	7	8	9	10	11	12	13	14
No.	**Drainage Ditch Road A**														
1	Overgrown Vegetation														
2	Standing Water														
3	Sediments and Debris														
4	Erosion/Washouts														
5	Sinkholes														
6	Culvert Road A to Road B														
7	Flapgate at 6" pipe Outlet														
	Drainage Ditch, Road B														
1	Overgrown Vegetation														
2	Standing Water														
3	Sediments and Debris														
4	Erosion/Washouts														
5	Sinkholes														
6	Culvert Road B to Road C														
	Drainage Ditch, Road B[2]														
1	Overgrown Vegetation														
2	Standing Water														
3	Sediments and Debris														
4	Erosion/Washouts														
5	Sinkholes														
6	Culvert Road B to Road C														
	Drainage Ditch, Road C														
1	Overgrown Vegetation														
2	Standing Water														
3	Sediments and Debris														
4	Erosion/Washouts														
5	Sinkholes														

Notes:

1. Use a check in the checkbox to indicate that the specific item number in the zone has been inspected and no problems were noted.
2. Use "NS" (Not Satisfactory) where problems are noted.
3. For boxes checked NS, on Form DP-1, a description of deficiency/problem. Attach additional sheets if necessary

Date: Initials:

FORM SMS-2
MONTHLY INSPECTION CHECKLIST
STORMWATER DRAINAGE DITCHES
STORMWATER MANAGEMENT SYSTEM
PELHAM BAY LANDFILL, BRONX, NEW YORK
(Reference Volume I, Figures 2-2 and 2-3

Stormwater Collection Manholes (SP Series)												
Item No.	Item Title	Manhole Number										
		SP1	SP2	SP3	SP4	SP5	SP6	SP7	SP8	SP9	SP10	SP11
1	Trashracks											
2	Silt Accumulation											
3	Pipe Connections to Manhole											
4	Flow From 8" HDPE Inlets											
5	Debris/Silt Blockage in 24" Pipe											
6	Settlement Along 24" Pipe											
7	Settlement Around Manhole											
8	Baffles Inside Manhole											

Pond Collection Manholes (CP Series)						
Item No.	Item Title	Manhole Number				
		CP1	CP2	CP3	CP4	CP5
1	Grates					
2	Silt Accumulation					
3	Flow Through Manhole					
4	Settlement Above 30" Pipe					

Baffled Outlets (BO Series)					
Item No.	Item Title	Manhole Number			
		BO1	BO2	BO3	BO4
1	Silt Accumulation				
2	Connection to 24" Pipe				
3	Erosion Around Structure				
4	Spalling, Cracking, etc.				
5	Weep Holes				
6	Guard Rails				

Notes:
1. Use a check in the checkbox to indicate that the specific item number in the zone has been inspected and no problems were noted.
2. Use "NS" (Not Satisfactory) where problems are noted.
3. For boxes checked NS, on Form DP-1, a description of deficiency/problem. Attach additional sheets if necessary

Date: Initials:

FORM SMS-3
MONTHLY INSPECTION CHECKLIST
SEDIMENTATION PONDS
STORMWATER MANAGEMENT SYSTEM
PELHAM BAY LANDFILL, BRONX, NEW YORK
(Reference Volume I, Figure 2-3)

Inspection Item		Check Box			Check Box
Sedimentation Pond A			**Sedimentation Pond C**		
Pond			**Pond**		
1	Minimum 2 ft. Freeboard		1	Minimum 2 ft. Freeboard	
2	Silt Accumulation		2	Silt Accumulation	
3	Slope Erosion/Stability		3	Slope Erosion/Stability	
4	Debris		4	Debris	
	Outlet Structure		5	Riprap	
1	Debris/Silt Blockage			**Inlet Structure**	
2	Connections to Pipe		1	Debris/Silt Blockage	
3	Erosion Around Structure		2	Connections to Pipe	
4	Spalling, Cracking, etc.		3	Erosion Around Structure	
			4	Spalling, Cracking, etc.	
	Sedimentation Pond B		5	Riprap	
	Pond			**RCP Inlet Section**	
1	Minimum 2 ft. Freeboard		1	Debris/Silt Blockage	
2	Silt Accumulation		2	Connections to Pipe	
3	Slope Erosion/Stability		3	Erosion Around Structure	
4	Debris		4	Spalling, Cracking, etc.	
	Inlet Structure		5	Weepholes	
1	Debris/Silt Blockage		6	Trashrack	
2	Connections to Pipe		7	RC Pipe	
3	Erosion Around Structure			**RCP Outlet Section**	
4	Spalling, Cracking, etc.		1	Debris/Silt Blockage	
	Outlet Structure		2	Connections to Pipe	
1	Debris/Silt Blockage		3	Erosion Around Structure	
2	Connections to Pipe		4	Spalling, Cracking, etc.	
3	Erosion Around Structure		5	Trashrack	
4	Spalling, Cracking, etc.		6	Flapgate	
			7	Spillway Riprap	

Notes:
1. Use a check in the checkbox to indicate that the specific item number in the zone has been inspected and no problems were noted.
2. Use "NS" (Not Satisfactory) where problems are noted.
3. For boxes checked NS, on Form DP-1, a description of deficiency/problem. Attach additional sheets if necessary

Date: Initials:

FORM AS-1
MONTHLY INSPECTION CHECKLIST
ANCILLARY SYSTEMS
PELHAM BAY LANDFILL, BRONX, NEW YORK

(Reference Volume I, Section 2.2 and Volume III, Section 6)

Description		Check Box	If N/S or NI, description and location
IRM Roadway			
1	Rutting		
2	Depressions/Settlement		
3	Washout		
4	Pavement Condition		
5	Reflectors		
Road A			
1	Rutting		
2	Depressions/Settlement		
3	Washout		
4	Pavement Condition		
5	Reflectors		
Road B			
1	Rutting		
2	Depressions/Settlement		
3	Washout		
4	Pavement Condition		
5	Reflectors		
Road B[2]			
1	Rutting		
2	Depressions/Settlement		
3	Washout		
4	Pavement Condition		
5	Reflectors		
Road C			
1	Rutting		
2	Depressions/Settlement		
3	Washout		
4	Pavement Condition		
5	Reflectors		
Perimeter Fence, Gates, Locks			
Seawall Condition			

Notes:
1. Use a check in the checkbox to indicate that the specific item number in the zone has been inspected and no problems were noted.
2. Use "NS" (Not Satisfactory) where problems are noted.
3. For boxes checked NS, on Form DP-1, a description of deficiency/problem. Attach additional sheets if necessary

Date: Initials:

FORM NO. DP-1
DESCRIPTION OF DEFICIENCIES AND PROBLEMS
PELHAM BAY LANDFILL, BRONX, NEW YORK

Form No.	Location	Description of Deficiency/Problem	Corrective Action Taken

Date _____ Inspected by _____

Weather _____ Signature _____

Appendix O

Sewer Discharge Permit Table A

TABLE A

LIMITATIONS FOR EFFLUENT TO ***SANITARY OR COMBINED*** SEWERS

Parameter [1]	Daily Limit	Units	Sample Type [9]	Monthly Limit	Average Leachate Concentrations [6]	Maximum Leachate Concentration [7]
Non-polar Material [2]	50	mg/L	Instantaneous	--	<5.0	<5.0
pH	5-11	SU's	Instantaneous	--	7.56	7.97
Temperature	<150	Degree F	Instantaneous	--	--	--
Flash Point	>140	Degree F	Instantaneous	--	>212	>212
Cadmium	2 0.69	mg/L mg/L	Instantaneous Composite	-- --	0.0010	0.0012
Chromium (VI)	5	mg/L	Instantaneous	--	<0.02	<0.02
Copper	5	mg/L	Instantaneous	--	0.0294	0.0570
Lead	2	mg/L	Instantaneous	--	0.0254	0.0402
Mercury	0.05	mg/L	Instantaneous	--	<0.01	<0.02
Nickel	3	mg/L	Instantaneous	--	0.0133	0.0253
Zinc	5	mg/L	Instantaneous	--	0.79	2.94
Benzene	134	ppb	Instantaneous	57	0.72	0.72
Carbontetrachloride	--	ppb	Composite	--	<10	<10
Chloroform	--	ppb	Composite	--	0.95	0.95
1,4 Dichlorobenzene	--	ppb	Composite	--	<10	<10
Ethylbenzene	380	ppb	Instantaneous	142	<10	<10
MTBE (Methyl-Tert-Butyl-Ether)	50	ppb	Instantaneous	--	<10	<10
Naphthalene	47	ppb	Composite	19	<10	<10
Phenol	--	ppb	Composite	--	<10	<10
Tetrachloroethylene (Perc)	20	ppb	Instantaneous	--	<10	<10
Toluene	74	ppb	Instantaneous	28	<10	<10
1,2,4 Trichlorobenzene	--	ppb	Composite	--	<10	<10
1,1,1 Trichloroethane	--	ppb	Composite	--	<10	<10
Xylenes (Total)	74	ppb	Instantaneous	28	<10	<10
PCB's (Total) [3]	1	ppb	Composite	--	<0.065	<0.065
Total Suspended Solids (TSS)	350 [4]	mg/L	Instantaneous	--	48.45	191.00
CBOD5 [5,8]	--	mg/L	Composite	--	13.30	20.20
Chloride [5]	--	mg/L	Instantaneous	--	479.83	1100.00
Total Nitrogen [5]	--	mg/L	Composite	--	45.20	123.90
Total Solids [5]	--	--	Instantaneous	--	600.00	600.00
Other					--	--

1. All handling and preservation of collected samples and laboratory analyses of samples shall be performed in accordance with 40 C.F.R. pt. 136. If 40 C.F.R pt. 136 does not cover the pollutant in question, the handling, preservation, and analysis must be performed in accordance with the latest edition of "Standard Methods for the Examination of Water and Wastewater." All analyses shall be performed using a detection level less than the lowest applicable regulatory discharge limit. If a parameter does not have a limit, then the detection level is defined as the least of the Practical Quantitation Limits identified in NYSDEC's Analytical Detectability and Quantitiation Guidlines for Selected Environmental Parameters, December 1988.

2. Analysis for ***non-polar materials*** must be done by EPA method 1664 Rev. A. Non-Polar Material shall mean that portion of the oil and grease that is not eliminated from a solution containing N-Hexane, or any other extraction solvent the EPA shall prescribe, by silica gel absorption.

3. Analysis for PCB's is required if ***both*** conditions listed below are met:
   1) if proposed discharge ≥ 10,000 gpd;
   2) if duration of discharge > 10 days

   Analysis for PCBs must be done by EPA method 608 with MDL=<65 ppt. PCB's (total) is the sum of PCB-1242 (Arochlor 1242), PCB-1254 (Arochlor 1254), PCB-1221 (Arochlor 1221), PCB-1232 (Arochlor 1248), PCB-1260 (Arochlor 1260) and PCB-1016 (Arochlor 1016)

4. For discharge ≥10,000 gpd, the TSS limit is 350 mg/L. For discharge < 10,000 gpd, the limit is determined on a case by case basis.

5. Analysis for Carbonaceous Biochemical Oxygen Demand (CBOD), Chloride, Total Solids, and Total Nitrogen are required if proposed discharge is ≥ 10,000 gpd.

6. The average leachate concentrations were determined by averaging analytical laboratory sample results from May of 2004 to December of 2006. Five samples were taken over this time period. Analysis for total PCBs, non-polar materials, total solids, and flashpoint was done only for the December 5, 2006 sample.

7. The maximum leachate concentration is the highest analytical result for the specified analyte during the period from May 2004 to December 2006.

8. CBOD5 concentrations are the analytical sample results for BOD5.

9. All samples were collected as grab samples from the pumping station before discharged to the sewer. Leachate concentrations are not

Appendix P

NYSDEC Air Facility Registration and
Air Facility Registration Certificate

New York State Department of Environmental Conservation
Air Facility Registration

DEC ID
- -

Owner/Firm						Taxpayer ID
						1 3 6 4 0 0 4 3 4
Name	New York City Department of Environmental Protection					
Street Address	96-05 Horace Harding Expressway, 2nd Floor					
City / Town / Village	Corona	State or Province	New York	Country	USA	Zip 11368

Owner/Firm Contact		
Name	Douglas S. Greeley, P.E., Deputy Commissioner	Phone No. (718) 595-6389

Facility		
Name	Pelham Bay Landfill	
Location Address	301 Shore Road	
■ City / □ Town / □ Village	Bronx, New York	Zip 10465

Facility Information

Total Number of Emission Points: 1 (Flare) | □ Cap by Rule

Description

The Pelham Bay Landfill (PBL) is currently closed and, in accordance with the August 1993 Record of Decision, the following remedial program was implemented with the ongoing operation, maintenance and monitoring of the remedial program: (1) conduct a remedial design program; (2) re-grade portions of the Site to ensure proper drainage and minimize erosion; (3) install an actively vented cover, consistent with Part 360 requirements, to minimize surface infiltration of precipitation and collect gases generated by the waste; (4) install a landfill gas collection and treatment system (see details below) to recover and treat gases generated at the Site and prevent off-site migration; (5) install a groundwater management system, consisting of a slurry wall and upgradient collection trench along the southwestern Site boundary (i.e., the upgradient system), to minimize the migration of groundwater onto the Site; (6) install a leachate collection system and a force-main to transmit leachate to the Hunts Point Water Pollution Control Plant; (7) installation of fencing to limit Site access; and (8) implementation of a post-closure monitoring program to evaluate performance of the remedial program. The volume of the landfill, including waste, and cover soil is approximately 8,130,000 cubic yards (Figure 1).

The PBL gas collection, monitoring and treatment system consists of 22 gas extraction wells, 4 gas monitoring wells, and 10 surface monitoring points, a gas venting layer at the surface of the landfill, a perimeter gas collection pipe around the base of the landfill, and an enclosed flare system. Extracted gas is conveyed, via polyethylene piping, to the enclosed flare system. The gas flare system consists of two centrifugal blowers and a burner management system. Each blower is designed to operate at a flow rate of 1,500 standard cubic feet per minute (SCFM); however, the maximum gas flow rate through the system during the year 2005 was approximately 1,150 SCFM. During normal operation, one blower is on-line while the other is in standby mode. The approximately 7-feet in diameter and 40-feet in height gas flare is operated at approximately 1,600 degrees Fahrenheit (deg F).

Standard Industrial Classification Codes					
4953	(Refuse System)				

HAP CAS Numbers					
See Table 1					

Applicable Federal and New York State Requirements (Part Nos.)					
201-4 (3) and (5)					

Certification			
I certify that this facility will be operated in conformance with all provisions of existing regulations.			
Responsible Official	Douglas S. Greeley, P.E., Deputy Commissioner	Title	Deputy Commissioner
Signature		Date	/ /

Fred Sachs
11/20

New York State Department of Environmental Conservation

Registration ID: 2-6006-00127/00001 **Facility DEC ID:** 2-6006-00127

AIR FACILITY REGISTRATION CERTIFICATE
in accordance with 6NYCRR Part 201-4

Xc: Spangel

Registration Issued to: NYC DEPT OF ENVIRONMENTAL PROTECTION
96-05 HORACE HARDING EXPWY
FLUSHING,NY 11368

Contact: DOUGLAS S GREELEY
NYCDEP/BWT
96-05 HORACE HARDING EXPWY
2ND FL
CORONA,NY 11368
(718) 595-5050

Facility: PELHAM BAY LANDFILL
301 SHORE RD
BRONX,NY 10465

2006 NOV 16 P 2:58
NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFC. DEP. COMM. BWPC
RECEIVED

Description:
The Pelham Bay Landfill (PBL) is currently closed and, in accordance with the August 1993 Record of Decision, the following remedial program was implemented with the ongoing operation, maintenance and monitoring of the remedial program :(1) Conduct a remedial design program; (2) re-grade portions of the site to ensure proper drainage and minimize erosion;(3) install an actively vented cover, consistent with Part 360 requirements, to minimize surface infiltration of precipitation and collect gases generated by the waste;(4) install a landfill gas collection and treatment system (see details below)to recover and treat gases generated at the site and prevent off-site migration; (5) install a ground water management system, consisting of a slurry wall and up gradient collection trench along the south western site boundary(i.e. the up gradient system), to minimize the migration of ground water onto the site;(6) install a leachate collection system and a force -main to transmit leachate to the Hunts Point Water Pollution Control Plant;(7) Installation of fencing to limit site access; and (8) implementation of a post closure monitoring program to evaluate of the remedial program. The volume of the landfill, including the waste and cover soil is approximately 8,130,000 Cubic Yards.
The PBL gas collection, monitoring and treatment system consists of 22 gas extraction wells, 4 gas monitoring wells and 10 surface monitoring points, a gas venting layer at the surface of the landfill, a perimeter gas collection pipe around the base of the land fill and an enclosed flare system. Extracted gas is conveyed, via polyethylene piping to the enclosed flare system. The gas flare system consists of two centrifugal blowers and a burner management system. Each blower is designed to operate at a flow rate of 1500 standard cubic feet per minute (SCFM): however maximum gas flow rate through the system during the year 2005 was approximately 1150SCFM. During normal operation, one blower is on-line while other is standby mode. The approximately 7 feet in diameter and 40 feet in height gas flare is operated at approximately 1,600deg F.

Total Number of Emission Points: 1 **Cap By Rule:** No

New York State Department of Environmental Conservation

Registration ID: 2-6006-00127/00001 **Facility DEC ID:** 2-6006-00127

AIR FACILITY REGISTRATION CERTIFICATE
in accordance with 6NYCRR Part 201-4

Authorized Activity By Standard Industrial Classification Code:

4953 - REFUSE SYSTEMS

Registration Effective Date: 10/24/2006 **Registration Expiration Date:** (Not Applicable)

List of Regulations in Application:

6NYCRR 200	General Provisions
6NYCRR 201	Permits and Certificates

for Richard Lam

SAM LIEBLICH
REGION 2 AIR POLLUTION CONTROL ENGINEER
NYSDEC - REGION 2
47-40 21ST STREET
LONG ISLAND CITY,NY 11101

This registrant is required to operate this facility in accordance with all air pollution control applicable Federal and State laws and regulations. Failure to comply with these laws and regulations is a violation of the ECL and the registrant is subject to fines and/or penalties as provided by the ECL. If ownership of this facility changes, the registrant is required to notify the Department at the address shown below using the appropriate forms and procedures within 30 days after the transfer takes place. The present registrant will continue to be responsible for all fees and penalties until the Department has been notified of any change in ownership.

Appendix Q

Stormwater Permitting Evaluation
Correspondence

The City of New York
DEPARTMENT OF ENVIRONMENTAL PROTECTION
59-17 Junction Boulevard
Flushing, New York 11373
Emily Lloyd
Commissioner

Douglas S. Greeley, P.E.
Deputy Commissioner
Bureau of Wastewater Treatment
Tel (718) 595-5330
Fax (718) 595-6950
DGreeley@dep.nyc.gov

www.nyc.gov/dep
311 Government Information and Services for NYC

June 15, 2006

Angus Eaton, P.E.
Section Chief, General Permits Section
New York State Department of Environmental Conservation
625 Broadway
Albany, New York 12233-3505

Subject: Storm Water Permitting Evaluation, Pelham Bay Landfill, Bronx, New York

Dear Mr. Eaton:

The purpose of this letter is to confirm our consultant's, ARCADIS G&M, telephone conversations and e-mail correspondence with the New York State Department of Environmental Conservation (NYSDEC) regarding storm water permitting for capped and closed landfills. ARCADIS was contracted by the New York City Department of Environmental Protection (NYCDEP) to evaluate the storm water permitting requirements for the Pelham Bay Landfill, located in the Bronx, New York. After an initial evaluation of permitting requirements was completed, ARCADIS held a meeting on March 23, 2006 with NYCDEP and NYSDEC's case manager, Nigel Crawford, to review findings and discuss storm water permitting at the Pelham Bay Landfill.

Based on the summary provided below, we believe that the Pelham Bay Landfill is not subject to General Permitting requirements for storm water.

Site Background

The Pelham Bay Landfill was opened in 1963 to mainly handle the waste (municipal waste, commercial waste and demolition debris) from the Bronx. The landfill ceased operations in 1978 and has remained inactive since that date. New York City conducted a Remedial Investigation/Feasibility Study (RI/FS) in 1992, and thereafter the site was closed and capped in accordance with a Record of Decision (ROD) issued by NYSDEC in 1993 and NYSDEC regulations. Currently, the site is undergoing post-closure monitoring.

As a part of the landfill closure, the landfill was capped and a storm water management system was installed. Storm water runoff from the landfill is diverted through a series of swales, baffled outlets and drainage pipes. The storm water is directed to one of three sedimentation ponds located around the landfill and then flows by gravity to an outfall located on the northeast side of the landfill into Eastchester Bay.

Storm Water Permitting Evaluation

The National Pollutant Discharge Elimination System (NPDES) Program under Sections 318, 402, and 405 of the Clean Water Act (CWA) provides that storm water discharges associated with industrial activity from a point source to waters of the United States are unlawful, unless authorized by a NPDES permit. In New York, which is a NPDES delegated state, this is accomplished through the administration of the State Pollutant Discharge Elimination System (SPDES) program.

Pursuant to Article 17, Titles 7, 8 and Article 70 of the Environmental Conservation Law, Permit No. GP-98-03 is required for a storm water discharge associated with industrial activity. As defined in 40 CFR 122.26(b)(14), landfills, land application sites, and open dumps that receive or have received any industrial wastes (waste that is received from any of the facilities described under this subsection) including those that are subject to regulation under Subtitle D of Resource Conservation and Recovery Act (RCRA) are considered to be engaging in an "industrial activity".

Based on ARCADIS' discussions with your Department, the NYSDEC interprets the rule to not include requirements for permits for capped and closed landfills, unless the NYSDEC explicitly designates the landfill as requiring a permit.

As ARCADIS discussed with your department, 40 CFR 122.26(b)(14)(v) covers landfills, land application sites, and open dumps (non-compliant landfills) that receive or have received industrial wastes (i.e., waste that is received from any of the facilities described under categories(i)-(xi)) including those subject to the regulations under Subtitle D of RCRA. Additionally, the monitoring requirements for GP-98-03, for land disposal units/incinerators, refers to "storm water discharges from any active or inactive landfill, land application site or open dump without a stabilized final cover that has received industrial waste . . . "The Sector L benchmark monitoring requirements in Environmental Protection Agency's (EPA's) multi-sector general permit apply to all landfills, land application sites and open dumps, except for municipal solid waste landfill (MSWLF) areas closed in accordance with 40 CFR 258.60 (which is the MSWLF closure and post closure care requirements). Also, Sector L of EPA's multi-sector general permit requires compliance monitoring of storm water discharges from MSWLFs that have not been closed in accordance with 40 CFR 258.60.

Based on the above information:

- A storm water permit is not required if the landfill is properly capped in accordance with applicable regulations (Subtitle C for MSWLFs or Subtitle D for RCRA landfills) and the facility has a post closure care program to inspect and maintain the cap.

- A permit is needed for non-compliant landfills that have not been closed in accordance with applicable regulations (Subtitle C for MSWLFs or Subtitle D for RCRA landfills) closure and post closure care regulations. These facilities must also monitor their storm water and comply with Numeric Limitations for specific parameters identified in 40 CFR 445 Subparts A & B.

Therefore, as stated previously and based on the summary provided, we believe that the Pelham Bay Landfill is not subject to the General Permitting requirements for storm water based on the following rational:

- The facility is inactive and capped in accordance with NYSDEC requirements.
- There is no waste in contact with storm water, the appropriate barriers are in place to prevent any storm water to come in contact with a waste stream and a post closure care program, approved by NYSDEC, is in place to inspect and maintain the cap.

Please let me know if this is not consistent with your understanding.

If you have any questions, please contact me at (718) 595-6389 or my staff Rupak Raha, P.E. at (718) 595-6210.

Sincerely,

Douglas Greeley, P.E.
Deputy Commissioner

Copies:
Rupak Raha, BWT, NYCDEP
Walter Goyzueta, BWT, NYCDEP
Nigel Crawford, NYSDEC Region 2, Case Manager
Kyriacos Pierides, ARCADIS Project Manager
Christina Berardi Tuohy, P.E., ARCADIS Principal Engineer

From: Angus Eaton [mailto:akeaton@gw.dec.state.ny.us]
Sent: Tuesday, January 09, 2007 10:23 AM
To: Tuohy, Christina Berardi
Subject: RE: Storm Water Permitting

I am very sorry Christina. We had an answer within two days, I guess it did not get sent.

Response:
Given the fact pattern described in your letter, I concur that an industrial stormwater permit is not required for this facility.
Angus

Angus Eaton
NYS Dept of Environmental Conservation
625 Broadway
Albany, NY 12233-3505
518 402 8123

>>> "Tuohy, Christina Berardi" <CTuohy@arcadis-us.com> 01/09/07 9:32 AM >>>
Angus,

I hope you had a nice holiday. I called yesterday to follow up with you regarding the permitting status at the Pelham Bay Landfill. If you could please call or respond with an e-mail or letter we would appreciate it. Thank you in advance.

Christina Tuohy, P.E.
Principal Engineer
ARCADIS
Two Huntington Quadrangle, Suite 1S10
Melville, NY 11747
Direct: 631.391-5213
Cell: 516.779-8033
Fax: 631.249-7610
Email: CTuohy@arcadis-us.com

From: Tuohy, Christina Berardi
Sent: Monday, December 11, 2006 8:18 AM
To: 'Angus Eaton'
Cc: Pierides, Kyriacos; 'rraha@dep.nyc.gov'
Subject: Storm Water Permitting

Angus,

Consistent with our phone calls, I attached the June 15, 2006 letter from the New York City Department of Environmental Protection regarding storm water permitting at the Pelham Bay Landfill. Please review and provide comments.

Thank you,

Christina Tuohy, P.E.
Principal Engineer
ARCADIS
Two Huntington Quadrangle, Suite 1S10
Melville, NY 11747
Direct: 631.391-5213
Cell: 516.779-8033
Fax: 631.249-7610
Email: CTuohy@arcadis-us.com

Appendix R

Quality Assurance Project Plan

Quality Assurance Project Plan

Pelham Bay Landfill
Bronx, New York
NYSDEC Site ID Number 2-03-001

ARCADIS
for
New York City Department of Environmental Protection

Based on the Intergovernmental Data Quality Task Force Uniform Federal Policy for Quality Assurance Project Plans
(Final Version 1, March 2005)

TABLE OF CONTENTS

QAPP Worksheet #1
Title and Approval Page

Site Name/Project Name: Pelham Bay Landfill

Site Location: Bronx, New York

Title: Quality Assurance Project Plan
Revision Number: 0
Revision Date: 04/28/08

Quality Assurance Project Plan
Document Title

New York City Department of Environmental Protection
Lead Organization

Christopher Keen, ARCADIS
Preparer's Name and Organizational Affiliation

Two Huntington Quadrangle, Suite 1S10, Melville, New York, (631-391-5277), christopher.keen@arcadis-us.com
Preparer's Address, Telephone Number, and E-mail Address

April 25, 2008
Preparation Date (Day/Month/Year)

Post Closure Management Consultant Project Manager: _____
Signature

Kyriacos Pierides, ARCADIS, April 25, 2008
Printed Name/Organization/Date

Post Closure Management Consultant QA Officer: _____
Signature

Donna M. Brown, ARCADIS, April25, 2008
Printed Name/Organization/Date

Lead Organization's Program Manager: _____
Signature

Rupak Raha, New York City Department of Environmental Protection, April 25, 2008
Printed Name/Organization/Date

Approval Signatures: _____
Signature

Nigel Crawford – NYSDEC Project Manager, April 25, 2008
Printed Name/Title/Date
NYSDEC Region 2
Approval Authority

Other Approval Signatures: _____
Signature

_____
Printed Name/Title/Date

Document Control Number: QAPP-00

QAPP Worksheet #2
QAPP Identifying Information

Site Name/Project Name: Pelham Bay Landfill

Site Location: Bronx, New York
Site Number/Code: 2-03-001
Operable Unit: N/A
Contractor Name: ARCADIS
Contractor Number: N/A
Contract Title: N/A
Work Assignment Number: N/A

Title: Quality Assurance Project Plan
Revision Number: 0
Revision Date: 04/28/08

1. Identify guidance used to prepare QAPP:

   Uniform Federal Policy for Quality Assurance Project Plans

2. Identify regulatory program: New York State Inactive Hazardous Waste Disposal Site Remedial Program

3. Identify approval entity: NYSDEC Region 2

4. Indicate whether the QAPP is a generic or a project-specific QAPP. (circle one)

5. List dates of scoping sessions that were held: N/A

6. List dates and titles of QAPP documents written for previous site work, if applicable:

Title	Approval Date
April 1991 RI/FS Work Plan Volume 3 – Quality Assurance Project Plan	

7. List organizational partners (stakeholders) and connection with lead organization: _____

8. List data users: New York City Department of Environmental Protection; Severn Trent Environmental Services (STES); ARCADIS; NYSDEC Region 2

9. If any required QAPP elements and required information are not applicable to the project, then bold type the omitted QAPP elements and required information on the attached table. Provide an explanation for their exclusion below: Worksheet # 9 is not applicable because project scoping sessions were not necessary. The scope of work is defined in the Operation, Maintenance and Monitoring Manual. Worksheet #13 is not applicable because secondary data will not be used.

QAPP Worksheet #2 (continued)
QAPP Identifying Information

Required QAPP Element(s) and Corresponding QAPP Section(s)	Required Information	Crosswalk to Related Documents
Project Management and Objectives		
2.1 Title and Approval Page	- Title and Approval Page	1
2.2 Document Format and Table of Contents 2.2.1 Document Control Format 2.2.2 Document Control Numbering System 2.2.3 Table of Contents 2.2.4 QAPP Identifying Information	- Table of Contents - QAPP Identifying Information	2
2.3 Distribution List and Project Personnel Sign-Off Sheet 2.3.1 Distribution List 2.3.2 Project Personnel Sign-Off Sheet	- Distribution List - Project Personnel Sign-Off Sheet	3 4
2.4 Project Organization 2.4.1 Project Organizational Chart 2.4.2 Communication Pathways 2.4.3 Personnel Responsibilities and Qualifications 2.4.4 Special Training Requirements and Certification	- Project Organizational Chart - Communication Pathways - Personnel Responsibilities and Qualifications Table - Special Personnel Training Requirements Table	5 6 7 8
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2.6 Project Quality Objectives and Measurement Performance Criteria 2.6.1 Development of Project Quality Objectives Using the Systematic Planning Process 2.6.2 Measurement Performance Criteria	- Site-Specific PQOs - Measurement Performance Criteria Table	11 12
2.7 Secondary Data Evaluation	**- Sources of Secondary Data and Information** **- Secondary Data Criteria and Limitations Table**	**13** **(Not Applicable)**
2.8 Project Overview and Schedule 2.8.1 Project Overview 2.8.2 Project Schedule	- Summary of Project Tasks - Reference Limits and Evaluation Table - Project Schedule/Timeline Table	14 15 16

QAPP Worksheet #2 (continued)
QAPP Identifying Information

Required QAPP Element(s) and Corresponding QAPP Section(s)	Required Information	Crosswalk to Related Documents
Measurement/Data Acquisition		
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3.2 Analytical Tasks 3.2.1 Analytical SOPs 3.2.2 Analytical Instrument Calibration Procedures 3.2.3 Analytical Instrument and Equipment Maintenance, Testing, and Inspection Procedures 3.2.4 Analytical Supply Inspection and Acceptance Procedures	- Analytical SOPs - Analytical SOP References Table - Analytical Instrument Calibration Table - Analytical Instrument and Equipment Maintenance, Testing, and Inspection Table	23 24 25
3.3 Sample Collection Documentation, Handling, Tracking, and Custody Procedures 3.3.1 Sample Collection Documentation 3.3.2 Sample Handling and Tracking System 3.3.3 Sample Custody	- Sample Collection Documentation Handling, Tracking, and Custody SOPs - Sample Container Identification - Example Chain-of-Custody Form	26 27 Attachment 3
3.4 Quality Control Samples 3.4.1 Sampling Quality Control Samples 3.4.2 Analytical Quality Control Samples	- QC Samples Table - Screening/Confirmatory Analysis Decision Tree	28

QAPP Worksheet #2 (continued)
QAPP Identifying Information

Required QAPP Element(s) and Corresponding QAPP Section(s)	Required Information	Crosswalk to Related Documents
3.5 Data Management Tasks 3.5.1 Project Documentation and Records 3.5.2 Data Package Deliverables 3.5.3 Data Reporting Formats 3.5.4 Data Handling and Management 3.5.5 Data Tracking and Control	- Project Documents and Records Table - Analytical Services Table - Data Management SOPs	29 30
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Data Review		
5.1 Overview		
5.2 Data Review Steps 5.2.1 Step I: Verification 5.2.2 Step II: Validation 5.2.2.1 Step IIa Validation Activities 5.2.2.2 Step IIb Validation Activities 5.2.3 Step III: Usability Assessment 5.2.3.1 Data Limitations and Actions from Usability Assessment 5.2.3.2 Activities	- Verification (Step I) Process Table - Validation (Steps IIa and IIb) Process Table - Validation (Steps IIa and IIb) Summary Table - Usability Assessment	34 35 36 37
5.3 Streamlining Data Review 5.3.1 Data Review Steps To Be Streamlined 5.3.2 Criteria for Streamlining Data Review 5.3.3 Amounts and Types of Data Appropriate for Streamlining		Not Applicable

QAPP Worksheet #3
Distribution List

QAPP Recipients	Title	Organization	Telephone Number	Fax Number	E-mail Address	Document Control Number
Rupak Raha	Program Manager	NYCDEP	(718) 595-6210	(718) 595-4876	rraha@dep.nyc.gov	QAPP-01
Nigel Crawford	NYSDEC Project Manager	NYSDEC Region 2	(718) 482-4900	(718) 482-6358	nncrawfo@gw.dec.state.ny.us	QAPP-02
Kyriacos Pierides	Project Manager	ARCADIS	(631) 249-7600	(631) 249-7610	Kyriacos.Pierides@arcadis-us.com	QAPP-03
Carlo San Giovanni	Deputy Project Manager	ARCADIS	(631) 249-7600	(631) 249-7610	Carlo.SanGiovanni@arcadis-us.com	QAPP-04
Arnas Nemickas	Task Manager	ARCADIS	(631) 249-7600	(631) 249-7610	Arnas.Nemickas@arcadis-us.com	QAPP-05
Donna Brown	Project QA Officer	ARCADIS	(631) 249-7600	(631) 249-7610	Donna.Brown@arcadis-us.com	QAPP-06
Christopher Keen	Project QAPP Preparer	ARCADIS	(631) 249-7600	(631) 249-7610	Christopher.Keen@arcadis-us.com	QAPP-07
Thomas Varley	Project Sample Team Leader	Severn Trent Environmental Services	(516) 674-6032	(516) 674-0151	TVarley@stes.com	QAPP-08
Thomas Treutlein	Laboratory Director	EcoTest Laboratories	(631) 422-5777	(631) 422-5770	EcoTestLab@aol.com	QAPP-9
Thomas Powell	QA Manager/ Project Manager	EcoTest Laboratories	(631) 422-5777	(631) 422-5770	EcoTestLab@aol.com	QAPP-10

QAPP Worksheet #4-1
Project Personnel Sign-Off Sheet

Organization: New York City Department of Environmental Protection

Project Personnel	Title	Telephone Number	Signature	Date QAPP Read
Rupak Raha	Program Manager	(718) 595-6210		

QAPP Worksheet #4-2
Project Personnel Sign-Off Sheet

Organization: ARCADIS

Project Personnel	Title	Telephone Number	Signature	Date QAPP Read
Kyriacos Pierides	Project Manager	(631) 249-7600		
Carlo San Giovanni	Deputy Project Manager	(631) 249-7600		
Arnas Nemickas	Task Manager	(631) 249-7600		
Donna Brown	Project QA Officer	(631) 249-7600		
Christopher Keen	Project QAPP Preparer	(631) 249-7600		

QAPP Worksheet #4-3
Project Personnel Sign-Off Sheet

Organization: Severn Trent Environmental Services

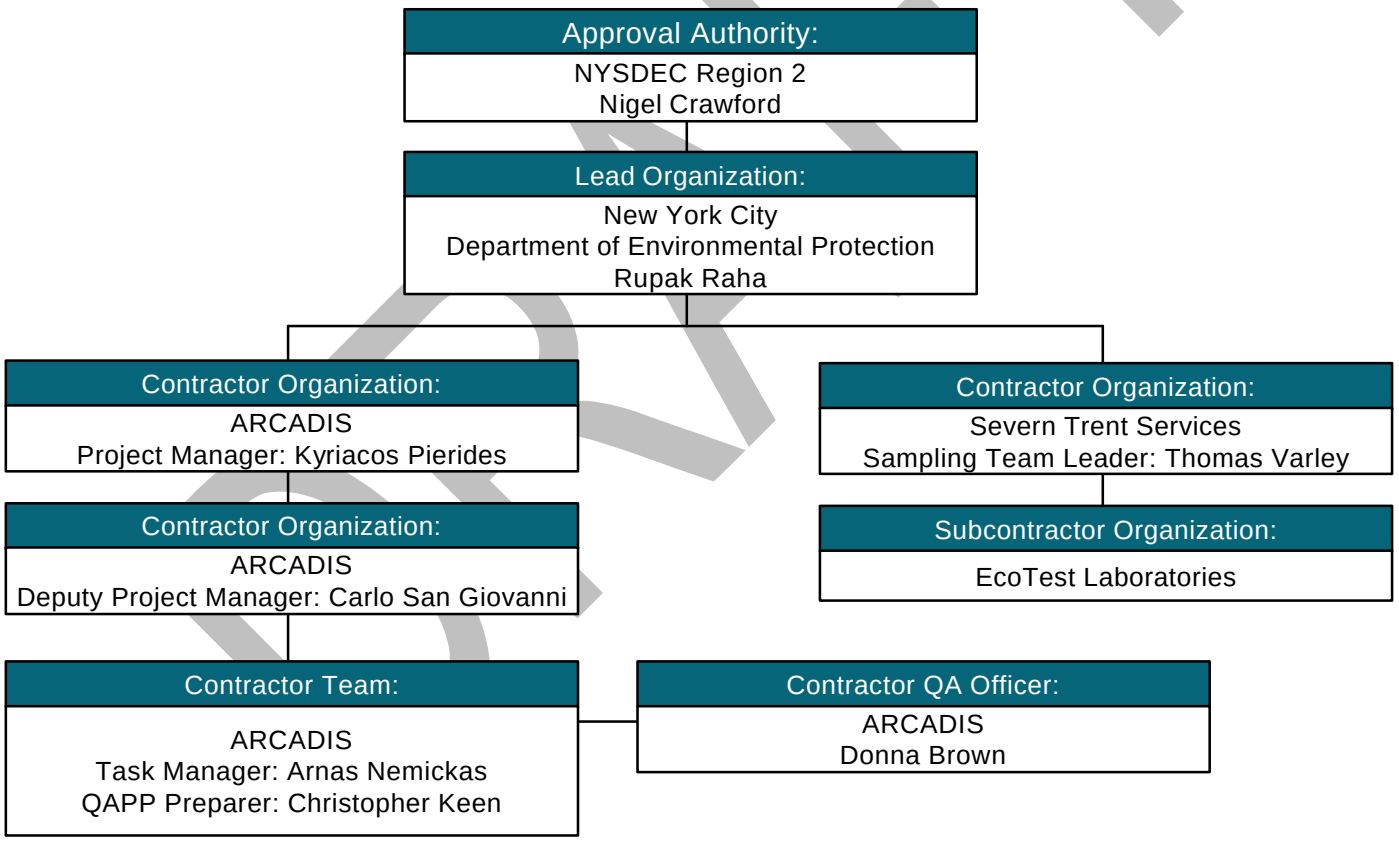
Project Personnel	Title	Telephone Number	Signature	Date QAPP Read
Thomas Varley	Sample Team Leader	(516) 674-6032		

QAPP Worksheet #4-4
Project Personnel Sign-Off Sheet

Organization: EcoTest Laboratories

Project Personnel	Title	Telephone Number	Signature	Date QAPP Read
Thomas Treutlein	Laboratory Director	(631) 422-5777		
Thomas Powell	QA Manager/Project Manager	(631) 422-5777		

QAPP Worksheet #5
Project Organizational Chart



QAPP Worksheet #6
Communication Pathways

Communication Drivers	Responsible Entity	Name	Phone Number	Procedure (Timing, Pathways, etc.)
Point of Contact with NYSDEC PM	Lead Organization Program Manager	Rupak Raha	(718) 595-6210	Project status and schedule updates will be provided to Nigel Crawford by Rupak Raha.
Manage all Project Phases	Contractor Project Manager Contractor Deputy Project Manager	Kyriacos Pierides Carlo San Giovanni	(631) 249-7600	Kyriacos Pierides and Carlo San Giovanni will be ARCADIS' liaisons to Rupak Raha and Nigel Crawford.
QAPP Changes in the Field	Sampling Team Leader	Thomas Varley	(516) 674-6032	Notify Carlo San Giovanni by phone of changes to QAPP made in the field and the reasons.
Daily Field Progress Reports	Sampling Team Leader	Thomas Varley	(516) 674-6032	Notify Carlo San Giovanni by phone of field progress on a daily basis.
Reporting Lab Data Quality Issues	Laboratory Project Manager	Thomas Powell	(631) 422-5777	All laboratory QA/QC issues with project field samples will be reported by Thomas Powell to Donna Brown within 2 business days.
Field Corrective Issues	Task Manager	Arnas Nemickas	(631) 249-7600	The need for corrective action for field issues will be determined by Arnas Nemickas.
Analytical Corrective Issues	Contractor Quality Assurance Officer	Donna Brown	(631) 249-7600	The need for corrective action for analytical issues will be determined by Donna Brown.
Release of Analytical Data	Contractor Quality Assurance Officer	Donna Brown	(631) 249-7600	No analytical data can be released until validation is completed.
QAPP Amendments	NYSDEC Project Manager	Nigel Crawford	(718) 482-4900	Any major changes to the QAPP must be approved by Nigel Crawford before the changes can be implemented.

QAPP Worksheet #7
Personnel Responsibilities and Qualifications Table

Name	Title	Organizational Affiliation	Responsibilities	Education and Experience Qualifications
Rupak Raha	Program Manager	New York City Department of Environmental Protection	Oversees project and responds to NYSDEC	B.S., Chemical Engineering, M.S., Chemical Engineering, Professional Engineer, NY 30+ yrs. Exp.
Kyriacos Pierides	Project Manager	ARCADIS	Manages project – coordinates between lead agency and sampling team/laboratory	B.S., Civil Engineering, M.S., Environmental Engineering, Ph.D., Civil and Environmental Engineering, Professional Engineer, NY 20 yrs. Exp.
Carlo San Giovanni	Deputy Project Manager	ARCADIS	Manages project – coordinates between lead agency and sampling team/laboratory	B.S., Biological Sciences, M.S., Environmental Sciences, 23 yrs. Exp.
Arnas Nemickas	Task Manager	ARCADIS	Coordinates between project manager, ARCADIS project team, and sampling team	B.S., Urban Studies, M.S., Hydrogeology, 15 yrs. Exp.
Donna Brown	QA Officer	ARCADIS	QA oversight	B.S., Geology, M.S., Environmental Technology, 16 yrs. Exp.
Christopher Keen	QAPP Preparer	ARCADIS	QAPP preparation	B.S., Geology, 11 yrs. Exp.
Thomas Varley	Sampling Team Leader	Severn Trent Environmental Services	Supervises field sampling and coordinates all field activities	B.S., Environmental Studies, NYS Grade 4A Wastewater Operator Certification, 26 yrs. Exp.
Thomas Treutlein	Laboratory Director	EcoTest Laboratories	Manages generation of analytical data	B.A., Physics, 37 yrs. Exp.
Thomas Powell	QA Manager / Project Manager	EcoTest Laboratories	Performs lab QA oversight and Manages project – coordinates between client and laboratory and reviews project deliverables for compliance and completeness	B.S., Biology, M.S., Env. Science, 35 yrs. Exp.

QAPP Worksheet #8
Special Personnel Training and Certification Requirements Table

Project Function	Specialized Training – Title or Description of Course	Training Provider/ Certification Authority	Training Date	Personnel/Groups Receiving Training	Personnel Titles/ Organizational Affiliation	Location of Training Records/Certificates[1]
Field Activities	40-hour HAZWOPER	Certified Training Professionals	NA	Field operations personnel	STES Personnel	STES Project Offices
Analytical Chemistry	NELAP Accreditation	New York State Department of Health	NA	NA	EcoTest Laboratories	EcoTest Laboratories
Analytical Chemistry	New York Certification	New York State Department of Health	NA	NA	EcoTest Laboratories	EcoTest Laboratories
Additional Training/Certification Requirements are listed in the Project Health and Safety Plan						

1. Current HAZWOPER training certificates will be maintained in a file at the primary office location for each employee performing activities where 40-hour training is required for the position assignment.

QAPP Worksheet #10
Problem Definition

PROBLEM DEFINITION

The Pelham Bay Landfill (Site) contains residual waste materials left after completion of the Remedial Action performed under the New York State (NYS) Inactive Hazardous Waste Disposal Site Remedial Program (State Superfund Program). Engineering Controls (ECs) have been incorporated into the Site remedy to provide proper management of residual waste materials in the future and to ensure protection of public health and the environment. Monitoring is required to evaluate the performance and effectiveness of the implemented ECs in reducing or mitigating contamination at the Site.

The groundwater component of the Groundwater and Leachate Management System consists of a low-permeability vertical barrier cut-off wall and an upgradient collector drain located on the Pelham Bay Park side of the cut-off wall to control groundwater gradients. Groundwater quality samples are collected on a semi-annual basis from the monitoring well network to evaluate the effectiveness of the remedial measures. In addition, groundwater elevations are measured in monitoring wells and piezometers to monitor the groundwater and leachate levels on either side of the cut-off wall, upgradient and downgradient, respectively.

The leachate component of the Groundwater and Leachate Management System consists of downgradient collector drains, collection manholes and collection sumps, a curtain drain, lift stations, and a force main that discharges leachate to Hunts Point Water Pollution Control Plant. Leachate samples are collected as grab samples on a semi-annual basis from Collection Sump No. D-1.

The Landfill Gas Management and Flare System includes the landfill gas collection system and the blower/gas flare system. The system collects, monitors, and controls gas emissions associated with the landfill. Gas monitoring wells are tested and landfill surface gas is monitored on a semi-annual basis to evaluate the effectiveness of the remedial measures.

The Stormwater Management System is designed to remove storm water runoff from the landfill surface during storm events in order to prevent ponding of water on the landfill, provide sediment control prior to discharge to Eastchester Bay, control the effects of erosion on the landfill cap, and collect precipitation infiltrating through the barrier soil to the drainage system above the geo-membrane liner. Storm water samples are collected on a semi-annual basis from the effluent of Sedimentation Pond C.

QAPP Worksheet #10 (continued)
Problem Definition

PROJECT DESCRIPTION

A Site Management Plan (SMP) is required for fulfillment of Remedial Action at the Site under the State Superfund Program administered by New York State Department of Environmental Conservation (NYSDEC). The Site was remediated in accordance with the Order on Consent (Consent Order) Index # 2-03-001, Site # 2-03-001, which was originally issued in 1985 and was updated on April 17, 1990, and the Record of Decision (ROD), which was issued on August 31, 1993. After completion of the remedial work described in the ROD, some contamination was left in the subsurface at this Site, which is referred to as 'residual waste materials.' For the purposes of the SMP, residual waste materials are defined as municipal solid waste that may be commingled with hazardous materials. The SMP was prepared to manage residual waste materials at the Site in perpetuity or until extinguishment of the requirement by the NYSDEC. The SMP provides a detailed description of all procedures required to manage residual waste materials at the Site following the completion of the Remedial Action in accordance with the NYS Consent Order with the NYSDEC, and includes a Monitoring Plan. This QAPP has been prepared as an Appendix to the SMP and is associated with the Monitoring Plan to provide Quality Assurance/Quality Control (QA/QC) for the monitoring measures that are being conducted to evaluate the performance and effectiveness of the implemented ECs in reducing or mitigating contamination at the Site.

QAPP Worksheet #11
Project Quality Objectives/Systematic Planning Process Statements

WHO WILL USE THE DATA?

Data will be used by the New York City Department of Environmental Protection (NYCDEP), STES, ARCADIS, and NYSDEC Region 2.

WHAT WILL THE DATA BE USED FOR?

The data will be used for evaluating the performance and effectiveness of the implemented ECs in reducing or mitigating contamination at the Site.

WHAT TYPE OF DATA ARE NEEDED?

The monitoring program includes the following elements:

- Groundwater quality samples are collected from a network of ten (10) on-site monitoring wells during the semi-annual sampling events and are submitted to the laboratory for the analysis of target compound list (TCL) volatile organic compounds (VOCs), TCL semi-volatile organic compounds (SVOCs), TCL pesticides, target analyte list (TAL) metals, cyanide, and conventional leachate parameters (ammonia, bicarbonate alkalinity, carbonate alkalinity, chemical oxygen demand (COD), chloride, nitrate, sulfate, Total Kjeldahl Nitrogen (TKN), and total dissolved solids). Water quality parameters are also measured in the field during groundwater sampling.
- Groundwater elevations are measured in a network of fifteen (15) monitoring wells during the semi-annual sampling events.
- Leachate samples are collected from Collection Sump No. D-1 during the semi-annual sampling events and are submitted to the laboratory for the analysis of TCL VOCs, TCL SVOCs, TCL pesticides, TAL inorganics, cyanide, and conventional leachate parameters.
- Storm water samples are collected from the effluent of Pond C during the semi-annual sampling events and are submitted to the laboratory for the analysis of TCL VOCs, TCL SVOCs, TCL pesticides, TAL inorganics, cyanide, and conventional leachate parameters.
- The gas monitoring wells are tested during the semi-annual sampling events to measure for percent methane by volume, percent oxygen by volume, and percent carbon dioxide by volume using a portable CES-LANDTEC GEM 500 landfill gas (LFG) analyzer. The landfill surface gas monitoring points are monitored for the presence of methane gas using a portable organic vapor analyzer (OVA), flame ionization detector (FID), or similar monitoring device.
- Standard protocols for sample collection, handling, sample preparation, and analytical methods.

HOW "GOOD" DO THE DATA NEED TO BE IN ORDER TO SUPPORT THE ENVIRONMENTAL DECISION?

The data must support an evaluation of the performance and effectiveness of the implemented ECs in reducing or mitigating contamination at the Site.