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ERP - E

VCP - V

BCP - C



ThermoRetec

Smart Solutions. Positive Outcomes.

July 7, 1999

Mr. Charles **Burke**
National Fuel Gas
Building 11
365 Mineral Springs Road
Buffalo, New York 14210

(607) 277-5716 Phone

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www.thermoretec.com

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JUL 14 1999

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**RE: Recent Field Activities at the Mineral Springs Road MGP Site -
Monitoring Well Installations (MW 19 - MW 22),
DNAPL Recovery Test Well Installation (RTW-1),
Additional Soil Borings West of Bldg. #3**

Dear Charlie:

This letter report provides the results of recent field work conducted by ThermoRetec Consulting Corporation at the Mineral Springs site.

Monitoring Well Installations (MW 19 - MW 22) - Results and Conclusions

On May 3rd and 4th, 1999, Northstar Drilling, under the direction of ThermoRetec, installed and developed four new monitoring wells as proposed in the Remedial Design / Work Plan, Section 6.2 (RETEC, February 10, 1999). The monitoring well installation logs are attached. No visual or olfactory indication of contamination was encountered except during development of MW-19 when a hydrocarbon-like odor in the water was noted. The as-built well locations are shown on the attached Site Plan.

On June 24th and 25th, 1999, a groundwater sampling event, including the four new wells, was conducted by ThermoRetec. Sampling and analysis was per the Remedial Design / Work Plan and the Quality Assurance Plan (RETEC, June 11, 1999). Groundwater elevations were also measured at that time. A full report will be provided following receipt of analytical results (week of July 12th).

DNAPL Recovery Test Well Installation (RTW 1) - Results and Conclusions

On May 4th, 1999, Northstar Drilling, under the direction of ThermoRetec, installed the DNAPL Recovery Test Well as proposed in the Remedial Design / Work Plan, Section



5 and in my letter to you dated April 9, 1999. The well installation log is attached. The as-built well location is shown on the attached Site Plan.

As anticipated, DNAPL-saturated soil was encountered during drilling. Samples of DNAPL collected during well development were analyzed for physical and chemical parameters. Copies of the analytical reports are attached. The analytical results are summarized in the following table:

Test Results from Preliminary DNAPL Sample			
Parameter	Result		
Viscosity, at 60 deg F	101.51 470.5	CST SSU	
Density & Specific Gravity	1.0443 & 1.0453		
Heat of Combustion	11,566	BTU/lb	
Flash Point / Ignitability	138 to 142	deg F	
% Ash	2.66	%	
% Water	35.77	%	
% Sediment	1.33	%	
% Sulfur	2.38	%	
Volatiles	Total Benzene only	16,475 655	mg/Kg mg/Kg
Semi-Volatiles	Total	181,218	mg/Kg
Pesticides and PCBs	ND		
Herbicides	ND		
Metals	Arsenic Calcium Copper Iron Other	1.1 87.3 2.99 8.48 ND	mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg
Reactivity	Sulfide Cyanide	ND ND	
Corrosivity (pH)	7.11		



The chemical and physical characteristics of the DNAPL were within the range of expected values for coal tar (Gas Research Institute, 1996). These results provide a preliminary indication that the DNAPL in the vicinity of RTW-1 is of low enough viscosity to be partially recoverable, and that it might be disposed of cost effectively as a waste fuel.

Additional Soil Borings West of Bldg. #3 - Results and Conclusions

On May 19th, 1999, Maxim Technologies, under the direction of ThermoRetec, performed shallow subsurface soil sampling (by Geoprobe) within the open area west and south west of Building #3. The purpose of this work was to confirm or disprove the presence of subsurface purifier box waste in the area.

Thirty five borings (SB-124 through SB-158) were done approximately 50 to 100 feet apart. The soil boring logs and an 11 x 17 site sketch are attached. The observed lithology coincides with findings of previous field investigations, i.e. three to six feet (typically) of gravelly soil and/or industrial fill overlying a silty clay unit.

Blue-stained soil and organic matter (indicative of purifier box waste) was observed in four of the 35 borings. Two borings (SB-126 and SB-157) were reported to contain soil with only "trace blue staining" while one boring (SB-155) contained a 12 inch lens of blue organic matter, and the fourth boring (SB-130) contained a 36 inch lens. Two to three feet of clean overburden was observed in each of the borings. The areal extent defined by these four borings was approximately 14,500 square feet (1/3 acre). Assuming a continuous average lens thickness of 12 inches, approximately 500 cubic yards of purifier residuals may have been identified in this area. This area will require remedial consideration, i.e. capping or excavation/removal, during execution of the VCA this construction season.

No visual/olfactory indication of purifier residuals or other contaminants were observed in the other borings.

No analytical work was performed on the collected soil samples other than field measurements of total headspace hydrocarbons by PID (see boring logs).

Mr. Charles Burke

July 7, 1999

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General

Contaminated soil, water, and other debris generated during the above activities was containerized in 55 gallon drums, sampled, and will be disposed of off-site by International Waste Removal.

The as-built elevations and locations of the monitoring wells, DNAPL well, and soil borings were surveyed by Douglas Myers Professional Surveyors on June 10, 1999.

Should you have comments or require additional information, please give me a call at (607) 277-5716.

Sincerely,

ThermoRetec Consulting Corporation

Mark Hofferbert

Project Engineer

MH:mlr

Enclosures

Reference: Gas Research Institute, 1996, *"Management of Manufactured Gas Plant Sites, a Two-Volume Practical Reference Guide,"* edited by Thomas D. Hayes, Ph.D., David G. Linz, David V. Nakles, Ph.D., and Alfred P. Leuschner, published by Amherst Scientific Publishers, Amherst, Massachusetts.

cc: T. Alexander - NFG

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THERMORETEC, INC.

WELL INSTALLATION LOG
BORING: MW-19

PROJECT NO.: 3-2075-750

DRILLING CO.: NORTHSTAR

MP ELEVATION: 590.04

CLIENT: NATIONAL FUEL GAS

DRILLER: JEFF THEW

SURFACE ELEVATION: 587.6

LOCATION: MINERAL SPRINGS

METHOD: HOLLOW STEM AUGER

WATER LEVEL DURING DRILLING:

START DATE: 5-4-99

CASING I.D.:

STICK-UP: 2 1/2'

GEOLOGIST: JAMES EDWARDS

TOTAL DEPTH: 25

AUGER O.D./I.D.

DEPTH (feet)	SAMPLE TIME	BLOW COUNTS	RECOVERY	PID Headspace (ppm)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
						FILL		FILL material consisting of sand and gravel mixed with ashes, no odor	
5						P	CLAY	Grey, firm, low plasticity, moist, no odor.	
10								Increasing silt content at 12.0'.	
15						SP	SAND	Grey, fine grained, loose, uniform, wet, no odor.	
20						GP	SANDY GRAVEL	Grey, poorly sorted, loose, wet, no odor.	
25						CL	CLAY	Grey, soft, medium plasticity, trace gravel.	
								End of boring.	

REMARKS:

Lithology based on boring DB-7, same location, 1/20/98.

THERMORETEC, INC.

WELL INSTALLATION LOG
BORING: MW-20

PROJECT NO.: 3-2075-750

DRILLING CO.: NORTHSTAR

MP ELEVATION: 597.30

CLIENT: NATIONAL FUEL GAS

DRILLER: JEFF THEN

SURFACE ELEVATION: 597.7

LOCATION: MINERAL SPRINGS-CALAIS AVENUE

METHOD: HOLLOW STEM AUGER

WATER LEVEL DURING DRILLING:

START DATE: 5-3-89

CASING I.D.:

STICK-UP: FLUSH

GEOLOGIST: JAMES EDWARDS

TOTAL DEPTH: 20

AUGER O.D./I.D.

DEPTH (feet)	SAMPLE TIME	BLOW COUNTS	RECOVERY	PID Headspace (ppm)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
								Asphalt pavement.	
				12.3		FILL		FILL material consisting of Gravel 50% grey, rounded; 50% grey silt, Road shale.	
				14.8					
5				16.9					
				18.2					
10				16.7				Becomes wet at 12.0 feet.	
15				18.7					
						GRAVEL		30% Grey silt, 70% Grey rounded gravel.	
20								End of boring.	

REMARKS:

THERMORETEC, INC.

WELL INSTALLATION LOG

BORING: MW-21

PROJECT NO.: 3-2075-750

DRILLING CO.: NORTHSTAR

MP ELEVATION: 597.88

CLIENT: NATIONAL FUEL GAS

DRILLER: JEFF THEW

SURFACE ELEVATION: 598.2

LOCATION: MINERAL SPRINGS - CALAIS AVE.

METHOD: HOLLOW STEM AUGER

WATER LEVEL DURING DRILLING: 12'

START DATE: 5-3-89

CASING I.D.:

STICK-UP: FLUSH

GEOLOGIST: JAMES EDWARDS

TOTAL DEPTH: 20

AUGER O.D./I.D.

DEPTH (feet)	SAMPLE TIME	BLOW COUNTS	RECOVERY	PID Headspace (ppm)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
								Asphalt pavement.	
				17.9				GRAVEL, angular, rock pond shale.	
								CLAYEY SILT, brown, firm, uniform, moist, 80% very fine sand.	
5				13.8					
				18.2					
				0.6				20% very fine SAND, moist to wet.	
10				20.9					
				20.1					
15				22.1				Grey SILTY SAND, fine, uniform, wet, loose.	
				19.8					
20								End of boring.	

REMARKS:

THERMORETEC, INC.

WELL INSTALLATION LOG
BORING: MW-22

PROJECT NO.: 3-2075-750

DRILLING CO.: NORTHSTAR

MP ELEVATION: 592.50

CLIENT: NATIONAL FUEL GAS

DRILLER: JEFF THEW

SURFACE ELEVATION: 590.2

LOCATION: MINERAL SPRINGS

METHOD: HOLLOW STEM AUGER

WATER LEVEL DURING DRILLING:

START DATE: 5-4-88

CASING I.D.:

STICK-UP: 2 V2'

GEOLOGIST: JAMES EDWARDS

TOTAL DEPTH: 20

AUGER O.D./I.D.

DEPTH (feet)	SAMPLE TIME	BLOW COUNTS	RECOVERY	PID Headspace (gpa)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
5		3 21 31 22	30	0		FILL		FILL material 0-0.5 topsoil, Black silt and sand, 30% angular cobbles, slag fragments, ashes.	2" PVC riser Cement bentonite grout concrete seal Bentonite seal Uniform 20/60 sand
		8 11 9 11	30	0		FILL		FILL, black clayey silt, trace brick fragments, wet.	
		3 3 5 7	10	0		CL		CLAYEY SILT, grey and brown in mottling pattern, firm, moist.	
						CLAYEY SILT, black, firm, slight plasticity, moist.			
		4 4 5 7	80	0		CLAYEY SILT, grey and brown in mottled pattern, uniform, firm, moist.			
		6 8 8 8	90	0		CLAYEY SILT, grey and brown, firm, medium plasticity, moist, uniform.			
		4 5 6 7	90	0		CLAYEY SILT, slight plasticity.			
		5 6 6 7	90	0		Trace nodules of peat.			
		8 6 6 4	90	0		Becomes soft.			
		2 2 3 2	80	0		CLAYEY SILT, grey, uniform, trace black staining, granitic pebbles at 16.0', medium plasticity, moist.			
		4 5 5 4	85	0		CLAYEY SILT, grey, uniform, wood plug in split spoon tip.			
						GP		GRAVEL, grey, rounded, poorly sorted, trace silt, grey coarse sand, wet.	
20								End of boring	

REMARKS:

THERMORETEC, INC.

WELL INSTALLATION LOG
BORING: RTW-1

PROJECT NO.: 3-2075-740

DRILLING CO.: NORTHSTAR

MP ELEVATION: 591.49

CLIENT: NATIONAL FUEL GAS

DRILLER: JEFF THEW

SURFACE ELEVATION: 588.8

LOCATION: MINERAL SPRINGS

METHOD: HOLLOW STEM AUGER

WATER LEVEL DURING DRILLING:

START DATE: 5-4-88

CASING I.D.:

STICK-UP: 2 1/2'

GEOLOGIST: JAMES EDWARDS

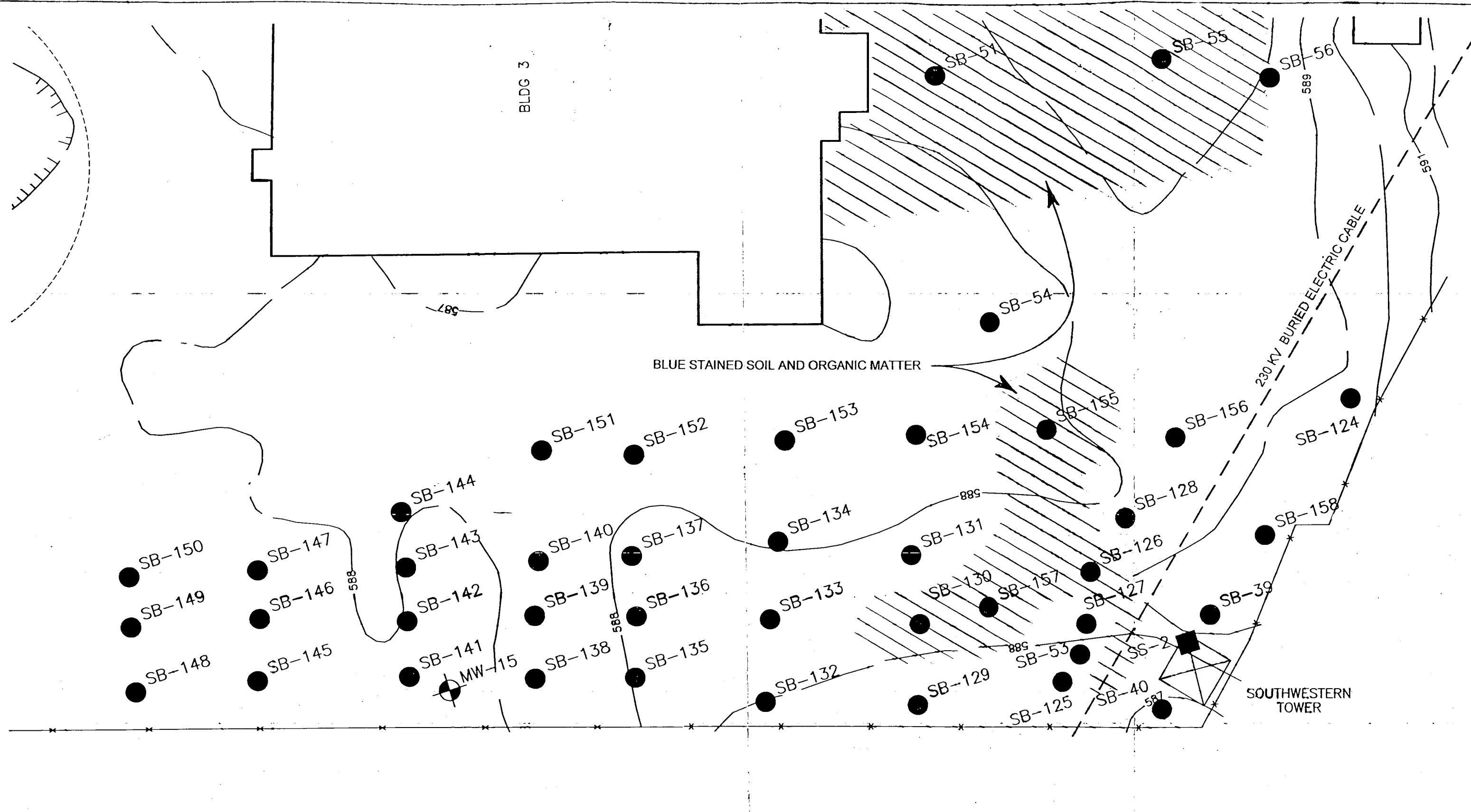
TOTAL DEPTH: 28

AUGER O.D./I.D. 8.75" 10

DEPTH (feet)	SAMPLE TIME	BLOW COUNTS	RECOVERY	PID Headspace (ppt)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
5				51.8		FILL		0-0.5 Topsoil. FILL material consisting of clay and debris. At 2.0' - 3 inch lens of blue stained wood chips.	4" black iron riser cement surface seal cement bentonite grout Bentonite seal #12 1/2 Granular sand #0.040 stainless steel screen
						GP		SANDY GRAVEL Mixed with hydrocarbon product. At 8.0' becomes saturated with hydrocarbon product.	
10						CL		CLAY Grey, firm, low plasticity, strong hydrocarbon odor. At 15.0' increasing gravel content.	
15				11.8		GP		SANDY GRAVEL Grey, loose, poorly sorted, trace hydrocarbon sheen. Slight hydrocarbon sheen, wet. At 25.0' strong hydrocarbon sheen.	
20						CL		CLAY Grey, soft, medium plasticity, trace hydrocarbon odor and sheen.	
25								End of boring.	
30									

REMARKS:

Lithology based on boring DB-3, same location, 1-27-88.



6/23/99 MRH

ADDITIONAL SOIL BORINGS
SB-124 thru SB-158
 National Fuel Gas
 Mineral Springs Road Site
 May, 1999

RETEC
 RETEC Engineering, P.C.
 1001 West Seneca Street
 Suite 204
 Ithaca, NY 14850-3342

RETEC

SOIL BORING LOG

SB124

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	589.3
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	TEMP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1					
2		0.0		Fill Material Consisting of: Gravel mixed with black cinders; coal fragments ashes and nodules of white lime-like material; moist, loose	
3					
4					
5					
6		0.0			
7			7	Silty Clay Grey; trace brown staining in mottled pattern; uniform; firm; slight plasticity; moist.	
8			8		
End of Boring					
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB125

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	598.6
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCare Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.5' Brown silty sand mixed with sod; moist.	
2		0.0		Fill Material Consisting of: Gravel mixed with black cinders; coal fragments ashes and nodules of white lime-like material; moist, loose	
3					
4				Fill Material Becomes: Sand, brown and black, well sorted, uniform; wet, slight odor.	
5					
6		0.0			
7			7	Silty Clay Grey, trace brown staining in mottled pattern; uniform; firm; slight plasticity; moist.	
8			8		
End of Boring					
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB126

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.9
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.5' Brown silty sand mixed with sod; moist.	
2		4.5		Fill Material Consisting of: Gravel, 20 % Grey Silt; trace broken brick fragments; moist.	
3				At 3.0 - Fill Material Becomes: Trace Blue Stained Silt; uniform; slight odor.	
4				At 4.5 - Fill Material Becomes: Gravel, trace blue staining; loose; unsorted; trace white ashes	
5					
6		0.0			
7			7	Silty Clay Grey; trace brown staining in mottled pattern; uniform; firm; slight plasticity; moist.	
8			8		
End of Boring					
9					
10					
11					
12					
13					

Comments

RETEC

SOIL BORING LOG

SB127

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	589.2
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.8' Brown silty sand mixed with roots and sod; moist.	
2		0.0		Fill Material Consisting of: Brown Sand. Trace gravel; trace coal fragments; moist.	
3					
4				At 4.0 - Fill Material Becomes: Brown Gravel and Sand Trace ashes; slag fragments and cinders; moist.	
5					
6		0.0			
7			7	Silty Clay Grey; trace brown staining in mottled pattern; uniform; firm; slight plasticity; moist.	
8			8		
End of Boring					
9					
10					
11					
12					
13					
Comments					

RETEC

SOIL BORING LOG

SB128

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.7
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.5' Brown silty sand mixed with roots and sod; moist.	
2		0.0		Fill Material Consisting of: Broken concrete fragments in 1 foot lens. At 2.0 - Fill Material Becomes: Brown Sand; trace gravel; trace brick fragments; trace slag fragments; wet; slight odor.	
3					
4				At 4.0 - Fill Material Becomes: Gravel; black loose; mixed with 50 % black sand, loose, wet.	
5					
6		0.0			
7					
8					
9					
10		0.0			
11			11	Silty Clay Grey; trace brown staining in mottled pattern; uniform; firm; slight plasticity; moist.	
12			12		
End of Boring					
13					

Comments

RETEC

SOIL BORING LOG

SB129

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	589.5
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.5 feet Brown silty sand mixed with and sod, moist.	
2		0.0			
3				Fill Material Consisting of: Black and Brown Mixed Fill Cobbles; sand; cinders; coal fragments; loose; moist.	
4					
5					
6		0.0	6		
7			7	Silty Clay Grey; trace brown staining in mottled pattern; uniform, stiff; moist.	
8			8		
End of Boring					
9					
10					
11					
12					
13					
Comments					

RETEC

SOIL BORING LOG

SB130

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.8
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.5 feet Brown silty sand mixed with and sod; moist.	
2		21.8		Fill Material Consisting of: Mixture of gravel, cinders, ash, slag fragments, moist	
3				Fill Material Consisting of: Blue stained peat - like material; loose; uniform ; hydrocarbon - like odor; moist.	
4					
5					
6		13.5		Silty Clay Grey; trace brown staining in mottled pattern; uniform; stiff ; moist.	
7					
8					
End of Boring					
9					
10					
11					
12					
13					

Comments

RETEC

SOIL BORING LOG

SB131

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.3
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.8' Brown silty sand mixed with roots and sod, moist.	
2		0.0		Fill Material Consisting of: Slag fragments, cinders, ashes; trace sand, loose, wet.	
3					
4					
5				Sandy Clay Grey; trace brown staining in mottled pattern; uniform; firm; slight plasticity; moist.	
6		0.0			
7				Increasing silt content.	
8				End of Boring	
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB132

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	589.4
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.5' Brown silty sand mixed with roots and sod, moist.	
2		0.0		Fill Material Consisting of: Brown clayey silt and gravel, mixed with black sand; trace coal fragments; loose; moist.	
3					
4					
5					
6		0.0		Silty Clay Grey; trace brown staining in mottled pattern; uniform; firm; moist.	
7					
8					
End of Boring					
9					
10					
11					
12					
13					

Comments

RETEC

SOIL BORING LOG

SB133

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.7
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.5' Brown silty sand mixed with roots and sod; moist.	
2		0.0		Fill Material Consisting of: Rock Fragments; black silt; black sand; gravel; slag and cinders; moist to wet.	
3					
4					
5					
6		0.0		Silty Clay Grey; trace brown staining in mottled pattern; uniform; firm; moist.	
7					
8				End of Boring	
9					
10					
11					
12					
13					

Comments

RETEC

SOIL BORING LOG

SB134

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.3
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.5' Brown silty sand mixed with roots and sod; moist	
2		0.0		Fill Material Consisting of: Gravel, black sand; cinders, slag ashes, moist, loose.	
3					
4					
5					
6		0.0		Silty Clay Grey; trace brown staining in mottled pattern; uniform, firm; moist.	
7					
8					
End of Boring					
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11					
12					
13					

Comments

RETEC

SOIL BORING LOG

SB135

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	589.2
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.5' Brown silty sand mixed with roots and sod; moist.	
2		0.0		Fill Material Consisting of: Gravel and cobbles mixed with brown clayey silt; black sand; cinders; slag fragments; moist, loose.	
3					
4				Silty Clay Grey; trace brown staining in mottled pattern;	
				End of Boring	
5					
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12					
13					

Comments:

RETEC

SOIL BORING LOG

SB136

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.9
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.5' Brown silty sand mixed with roots and sod; moist.	
2		0.0		Fill Material Consisting of: Black sand and gravel, cinders, ashes, slag fragments, moist to wet.	
3					
4				Silty Clay Grey; trace brown staining in mottled pattern; End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB137

PROJECT NO:	3-2075-710	DATE:	May 19, 1999	GROUND ELEVATION:	588.5
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.3' Brown silty sand mixed with roots and sod; moist.	
2		0.0		Fill Material Consisting of: Broken concrete fragments; Black silty sand; slag fragments; cinders; loose, moist.	
3					
4				Silty Clay Grey; trace brown staining in mottled pattern; End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments

RETEC

SOIL BORING LOG

SB138

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	589.0
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4" Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.3' Brown silty sand mixed with roots and sod, moist.	
2		0.0		Fill Material Consisting of: Black sand mixed with cinders; ashes, slag fragments; moist to wet.	
3					
4				Silty Clay Grey; trace brown staining in mottled pattern; End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments

RETEC

SOIL BORING LOG

SB139

PROJECT NO:	3-2075-710	DATE:	May 19, 1999	GROUND ELEVATION:	588.6
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4" Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.3' Brown silty sand mixed with roots and sod; moist.	
2		0.0		Fill Material Consisting of: Brick fragments, rock fragments, black sand, cinders, ashes, moist. (Driller reports difficult drilling)	
3					
4				Silty Clay Grey; trace brown staining in mottled pattern; End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB140

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.3
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BCS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.3' Brown silty sand mixed with roots and sod; moist.	
2		0.0		Fill Material Consisting of: Rock fragments; black sand, cinders; slag fragments; moist; loose.	
3					
4				Silty Clay Grey; trace brown staining in mottled pattern; End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					
Comments:					

RETEC

SOIL BORING LOG

SB141

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.7
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.3' Brown silty sand mixed with roots and sod; moist.	
2		0.0		Fill Material Consisting of: Concrete fragments; black sand, cinders; ashes; slag fragments; moist; loose.	
3					
4				Silty Clay Grey; trace brown staining in mottled pattern;	
End of Boring					
5					
6					
7					
8					
9					
10					
11					
12					
13					

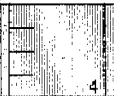
Comments:

RETEC

SOIL BORING LOG

SB142

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.6
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.3' Brown silty sand mixed with roots and sod; moist .	
2		0.0		Fill Material Consisting of: Concrete fragments; black sand; moist; loose.	
3					
4				Silty Clay Grey; trace brown staining in mottled pattern; firm; moist .	
End of Boring					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB143

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.4
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BCS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.3' Brown silty sand mixed with roots and sod; moist	
2		0.0		Fill Material Consisting of: Rock fragments; silt; trace black sand; cinders; moist; loose.	
3					
4				Silty Clay Grey; trace brown staining in mottled pattern; firm; moist.	
				End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments

RETEC

SOIL BORING LOG

SB144

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.8
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.3' Brown clayey silt mixed with roots and sod; moist.	
2		00		Fill Material Consisting of: Concrete fragments Trace black sand mixed with wood fragments.	
3					
4				Silty Clay Grey; trace brown staining in mottled pattern; firm; moist.	
				End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB145

PROJECT NO:	3-2075-710	DATE:	May 19, 1999	GROUND ELEVATION:	589.4
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Top Soil From 0 - 0.8' Brown silty sand mixed with roots and sod, moist.	
2		0.0		Fill Material Consisting of: Limestone rock fragments (road base)	
3				Fill Material Consisting of: Gravel and sand mixture, loose; moist.	
4					
5			5	Silty Clay Grey; trace brown staining in mottled pattern; uniform, firm; slight plasticity; moist.	
6		0.0	6		
7			7		
8			8		
End of Boring					
9					
10					
11					
12					
13					

Comments

RETEC

SOIL BORING LOG

SB146

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.9
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Asphalt Pavement	
2		0.0		Fill Material Consisting of: Limestone rock fragments (road base)	
3					
4					
5				Fill Material Consisting of: Gravel and sand mixture; loose; moist.	
6		0.0			
7				Fill Becomes: Mixture of cinders and coarse gravel; loose; moist.	
8					
9					
10		0.0			
11					
12			12	Silty Clay Grey; trace brown staining in mottled pattern; uniform; firm; slight plasticity; moist.	
13				End of Boring	

Comments:

RETEC

SOIL BORING LOG

SB147

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.6
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Asphalt Pavement	
2		0.0		Fill Material Consisting of: Mixture of gravel and silt; loose, moist	
3			3	Silty Clay Grey; trace brown staining in mottled pattern; firm; moist.	
4			4		
				End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments

RETEC

SOIL BORING LOG

SB148

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	589.5
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Asphalt Pavement	
2		0.0		Fill Material Consisting of: Limestone rock fragments (road base) loose; moist	
3			3	Silty Clay Grey, brown staining in mottled pattern; firm; moist.	
4			4		
				End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB149

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	589.11
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Asphalt Pavement	
2		0.0		Fill Material Consisting of: Limestone rock fragments (road base) loose, moist.	
3			3	Silty Clay Grey, brown staining in mottled pattern, firm, moist.	
4			4	End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB150

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.5
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Asphalt Pavement	
2		0.0	2	Fill Material Consisting of: Limestone rock fragments (road base) loose, moist.	
3			3	Silty Clay Grey, brown staining in mottled pattern, firm, moist.	
4			4		
				End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB151

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	587.9
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Asphalt Pavement	
2		0.0		Fill Material Consisting of: Brown silty sand mixed with rock fragments; loose; moist.	
3				Silty Clay Grey, brown staining in mottled pattern, firm, moist.	
4				End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB152

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	587.9
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	PIPE ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Fill Material Consisting of: Brown silty sand mixed with fine gravel; loose; moist (road base)	
2		0.0		At 1.8 - Fill Becomes: Black silty sand; mixed with cinders; slag fragments; loose, moist	
3				Silty Clay Grey, brown staining in mottled pattern; firm, moist.	
4				End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB153

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	589.2
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Fill Material Consisting of: Brown silty sand mixed with fine gravel; loose; moist. (road base)	
2		0.0		At 2.0 - Fill Becomes: Black silty sand; mixed with glass fragments; coal fragments; cinders; loose; moist.	
3				Silty Clay Grey; brown staining in mottled pattern; firm; moist.	
4			4	End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB154

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	587.91
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NAI
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NAI
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NAI

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Fill Material Consisting of: Brown silty sand mixed with fine gravel; loose, moist. (road base)	
2		0.0		At 1.5 - Fill Becomes: Black silty sand; mixed with ashes, coal fragments, cinders; loose, wet	
3					
4				Silty Clay Grey; brown staining in mottled pattern; firm; moist.	
				End of Boring	
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB155

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	587.8
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Fill Material Consisting of: Gravel and sand mixture, loose, moist. (road base)	
2		18.6		Fill Material Consisting of: Black cinders and slag fragments; gravel and sand; loose; moist.	
3				At 3.0 - Fill Material Becomes: Blue stained peat - like material; mixed with black cinders and slag fragments; loose, moist.	
4					
5			5		
6		4.5	6	Silty Clay Grey; trace brown staining in mottled pattern; uniform; stiff; moist.	
7			7		
8			8		
				End of Boring	
9					
10					
11					
12					
13					

Comments

RETEC

SOIL BORING LOG

SB156

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.3
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	WATER ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Fill Material Consisting of: Gravel and sand mixture; loose; moist (road base)	
2		0		Fill Material Consisting of: Black cinders and ashes; silt and sand; loose; moist	
3					
4					
5			5		
6		0	6	Silty Clay Grey; trace brown staining in mottled pattern; uniform; stiff; moist.	
7			7		
8			8		
				End of Boring	
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB157

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	588.8
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	EMPELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building # 3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Topsoil	
2		0		Fill Material Consisting of: Brown clayey silt mixed with black cinders and slag fragments;	
3				At 3.0 - Fill Becomes: Silt, trace blue staining, loose; moist	
4					
5					
6		0	6	Silty Clay Grey; trace brown staining in mottled pattern; uniform; stiff; moist.	
7			7		
8			8		
				End of Boring	
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB158

PROJECT NO:	3-2075-710	DATE:	May 19, 1999	GROUND ELEVATION:	589.1
CLIENT:	National Fuel Gas	GEOLOGIST:	James Edwards	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	West of Building #3	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Fill Material Consisting of: Black sand mixed with trace slag fragments, gravel; cinders; loose, moist	
2		0			
3					
4					
5					
6		0			
7				Silty Clay Grey; trace brown staining in mottled pattern; uniform, stiff, moist.	
8				End of Boring	
9					
10					
11					
12					
13					

Comments

WASTE STREAM TECHNOLOGY, INC.

302 Grote Street
Buffalo, NY 14207
(716) 876-5290

Analytical Data Report

Report Date : 06/15/99
Group Number : 9901-771

Prepared For :
Mr. Jim Edwards
Remediation Technologies
1001 W. Seneca Street
Suite 204
Ithaca, NY 14850

Site : Mineral Springs

Field and Laboratory Information

Client Id	WST Lab #	Matrix	Date Sampled	Date Received	Time
Mineral Springs DNAPL-RW-1	WS53208	Oil	05/27/99	05/28/99	09:00
Sample Status Upon Receipt : No irregularities.					

Analytical Parameters	Analytical Services Number of Samples	Turnaround Time
8260B	1	Standard
8270	1	Standard
Herbicides	1	Standard
Pesticides / PCBs	1	Standard
Total Metals	1	Standard
Ignitability	1	Standard
pH	1	Standard
Reactive Cyanide	1	Standard
Reactive Sulfide	1	Standard

Report Released By : B. Schepart
Dr. Brian Schepart, Laboratory Director

ENVIRONMENTAL LABORATORY ACCREDITATION CERTIFICATION NUMBERS
NYSDOH ELAP #11179 NJDEPE #73977 CDHS ELAP #2189



METHODOLOGIES

The specific methodologies employed in obtaining the analytical data reported are indicated on each of the result forms. The method numbers shown refer to the following U.S. Environmental Protection Agency Reference:

Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020, March 1979, Revised 1983, U.S. Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268.

Federal Register, 40 CFR Part 136: Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act. Revised July 1992.

Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. Third Edition, Revised December 1996, U.S. EPA SW-846.

Annual Book of ASTM Standards, Volume II. ASTM, 100 Harbor Drive, West Conshohocken, PA 19428-2959.

Standard Methods for the Examination of Water and Wastewater. (20th Edition). American Public Health Association, 1105 18th Street, NW, Washington, D.C. 20036.

ORGANIC DATA QUALIFIERS

- U - Indicates compound was analyzed for but not detected.
- J - Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicates the presence of a compound that meets identification criteria, but the result is less than the sample quantitation limit but greater than zero.
- C - This flag applies to pesticide results where the identification has been confirmed by GC/MS.
- B - This flag is used when the analyte is found in the associated blank as well as the sample.
- E - This flag identifies all compounds whose concentrations exceed the calibration range of the GC/MS instrument of that specific analysis.
- D - This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- G - Matrix spike recovery is greater than the expected upper limit of analytical performance.
- L - Matrix spike recovery is less than the expected lower limit of analytical performance.
- # - Indicates that a surrogate recovery was found to be outside the expected limits of analytical performance.
- \$ - Indicates that the surrogate compound was diluted out. The sample had to be diluted to obtain analytical results and a recovery could not be calculated.
- (%) - Indicates that the compound is a surrogate and that the value reported for this compound is in percent recovery. The quality control recovery limits are indicated in the detection limit or QC limits column.

Waste Stream Technology, Inc.

Volatile Organics in Solids

SW-846 8260B

Site: Mineral Springs
Date Sampled: 05/27/99
Date Received: 05/28/99

Group Number: 9901-771
Units: ug/kg
Matrix: Oil

WST ID: WS53208
Client ID: Mineral Springs DNAPL-RW-1
Extraction Date: 06/08/99
Date Analyzed: 06/08/99

Compound	Detection Limit	Result	QC Limits (%)	Qualifier
chloromethane	5000	Not detected		U
bromomethane	5000	Not detected		U
vinyl chloride	5000	Not detected		U
chloroethane	5000	Not detected		U
methylene chloride	2500	7250		B
acetone	50000	Not detected		U
carbon disulfide	2500	Not detected		U
1,1-dichloroethene	2500	Not detected		U
1,1-dichloroethane	2500	Not detected		U
trans-1,2-dichloroethene	2500	Not detected		U
chloroform	2500	Not detected		U
2-butanone	50000	Not detected		U
1,2-dichloroethane	2500	Not detected		U
1,1,1-trichloroethane	2500	Not detected		U
carbon tetrachloride	2500	Not detected		U
vinyl acetate	25000	Not detected		U
bromodichloromethane	2500	Not detected		U
1,2-dichloropropane	2500	Not detected		U
cis-1,3-dichloropropene	2500	Not detected		U
trichloroethene	2500	Not detected		U
benzene	2500	655000		D
dibromochloromethane	2500	Not detected		U
trans-1,3-dichloropropene	2500	Not detected		U
1,1,2-trichloroethane	2500	Not detected		U
2-chloroethylvinyl ether	5000	Not detected		U
bromoform	2500	Not detected		U
4-methyl-2-pentanone	25000	Not detected		U
2-hexanone	25000	Not detected		U
tetrachloroethene	2500	Not detected		U
1,1,2,2-tetrachloroethane	2500	Not detected		U
toluene	2500	2800000		D
chlorobenzene	2500	Not detected		U
ethylbenzene	2500	3200000		D
styrene	2500	2050000		D
m,p-xylene	2500	5380000		D
o-xylene	2500	2390000		D
1,2-Dichloroethane-d4 (%)		89	70-121	
Toluene-d8 (%)		92	81-117	
Bromofluorobenzene (%)		107	74-121	

Dilution Factor 500

Waste Stream Technology, Inc.

Semivolatile Organics in Solids

3550/8270

Site: Mineral Springs
Date Sampled: 05/27/99
Date Received: 05/28/99

Group Number: 9901-771

Units: ug/kg

Matrix: Oil

WST ID: WS53208

Client ID: Mineral Springs DNAPL-RW-1

Extraction Date: 06/08/99

Date Analyzed: 06/08/99

Compound	Detection Limit	Result	QC Limits (%)	Qualifier
phenol	1980000	Not detected		U
bis(2-chloroethyl)ether	1980000	Not detected		U
2-chlorophenol	1980000	Not detected		U
1,3-dichlorobenzene	1980000	Not detected		U
1,4-dichlorobenzene	1980000	Not detected		U
benzyl alcohol	3960000	Not detected		U
1,2-dichlorobenzene	1980000	Not detected		U
2-methylphenol	1980000	Not detected		U
bis(2-chloroisopropyl)ether	1980000	Not detected		U
3 & 4-methylphenol	1980000	Not detected		U
N-nitrosodi-n-propylamine	1980000	Not detected		U
hexachloroethane	1980000	Not detected		U
nitrobenzene	1980000	Not detected		U
isophorone	1980000	Not detected		U
2-nitrophenol	1980000	Not detected		U
2,4-dimethylphenol	1980000	Not detected		U
bis(2-chloroethoxy)methane	1980000	Not detected		U
benzoic acid	9900000	Not detected		U
2,4-dichlorophenol	1980000	Not detected		U
1,2,4-trichlorobenzene	1980000	Not detected		U
naphthalene	1980000	93800000		D
4-chloroaniline	3960000	Not detected		U
hexachlorobutadiene	1980000	Not detected		U
4-chloro-3-methylphenol	3960000	Not detected		U
2-methylnaphthalene	1980000	49000000		D
hexachlorocyclopentadiene	1980000	Not detected		U
2,4,6-trichlorophenol	1980000	Not detected		U
2,4,5-trichlorophenol	1980000	Not detected		U
2-chloronaphthalene	1980000	Not detected		U
2-nitroaniline	9900000	Not detected		U
dimethylphthalate	1980000	Not detected		U
acenaphthylene	1980000	8100000		
3-nitroaniline	9900000	Not detected		U
2,6-dinitrotoluene	1980000	Not detected		U
acenaphthene	1980000	1000000		J
2,4-dinitrophenol	9900000	Not detected		U
4-nitrophenol	9900000	Not detected		U
dibenzofuran	1980000	900000		J
2,4-dinitrotoluene	1980000	Not detected		U
diethylphthalate	1980000	Not detected		U
fluorene	1980000	3200000		

Waste Stream Technology, Inc.

Semivolatile Organics in Solids

3550/8270

Site: Mineral Springs
Date Sampled: 05/27/99
Date Received: 05/28/99

Group Number: 9901-771
Units: ug/kg
Matrix: Oil

WST ID: WS53208
Client ID: Mineral Springs DNAPL-RW-1
Extraction Date: 06/08/99
Date Analyzed: 06/08/99

Compound	Detection Limit	Result	QC Limits (%)	Qualifier
4-nitroaniline	3960000	Not detected		U
4-chlorophenylphenylether	1980000	Not detected		U
4,6-dinitro 2-methylphenol	9900000	Not detected		U
n-nitrosodiphenylamine	1980000	Not detected		U
4-bromophenylphenylether	1980000	Not detected		U
hexachlorobenzene	1980000	Not detected		U
pentachlorophenol	9900000	Not detected		U
phenanthrene	1980000	9600000		
anthracene	1980000	2800000		
carbazole	1980000	Not detected		U
di-n-butylphthalate	1980000	Not detected		U
fluoranthene	1980000	2900000		
benzidine	19800000	Not detected		U
pyrene	1980000	4500000		
butylbenzylphthalate	1980000	Not detected		U
3,3'-dichlorobenzidine	3960000	Not detected		U
benzo(a)anthracene	1980000	1420000		J
chrysene	1980000	1170000		J
bis(2-ethylhexyl)phthalate	1980000	Not detected		U
di-n-octylphthalate	1980000	Not detected		U
benzo[b]fluoranthene	1980000	632000		J
benzo[k]fluoranthene	1980000	746000		J
benzo[a]pyrene	1980000	1450000		J
indeno[1,2,3-cd]pyrene	1980000	Not detected		U
dibenzo[a,h]anthracene	1980000	Not detected		U
benzo[g,h,i]perylene	1980000	Not detected		U
2-Fluorophenol (%)		0.0	25-121	\$
Phenol-d6 (%)		0.0	24-113	\$
Nitrobenzene-d5 (%)		0.0	23-120	\$
2-Fluorobiphenyl (%)		0.0	30-115	\$
2,4,6-Tribromophenol (%)		0.0	19-122	\$
Terphenyl-d14 (%)		0.0	18-137	\$

Dilution Factor 6000

Waste Stream Technology, Inc.

Method Blank for Soil SVOC

3550/8270

Site: Mineral Springs

Date Sampled: NA

Date Received: NA

Group Number: 9901-771

Units: ug/kg

WST ID: MB060899

Client ID: NA

Extraction Date: 06/08/99

Date Analyzed: 06/08/99

Compound	Detection Limit	Result	QC Limits (%)	Qualifier
n-nitrosodimethylamine	19800	Not detected		U
phenol	19800	Not detected		U
bis(2-chloroethyl)ether	19800	Not detected		U
2-chlorophenol	19800	Not detected		U
1,3-dichlorobenzene	19800	Not detected		U
1,4-dichlorobenzene	19800	Not detected		U
benzyl alcohol	39600	Not detected		U
1,2-dichlorobenzene	19800	Not detected		U
2-methylphenol	19800	Not detected		U
bis(2-chloroisopropyl)ether	19800	Not detected		U
3 & 4-methylphenol	19800	Not detected		U
n-nitroso-di-n-propylamine	19800	Not detected		U
hexachloroethane	19800	Not detected		U
nitrobenzene	19800	Not detected		U
isophorone	19800	Not detected		U
2-nitrophenol	19800	Not detected		U
2,4-dimethylphenol	19800	Not detected		U
bis(2-chloroethoxy)methane	19800	Not detected		U
benzoic acid	99000	Not detected		U
2,4-dichlorophenol	19800	Not detected		U
1,2,4-trichlorobenzene	19800	Not detected		U
naphthalene	19800	Not detected		U
4-chloroaniline	39600	Not detected		U
hexachlorobutadiene	19800	Not detected		U
4-chloro-3-methylphenol	39600	Not detected		U
2-methylnaphthalene	19800	Not detected		U
hexachlorocyclopentadiene	19800	Not detected		U
2,4,6-trichlorophenol	19800	Not detected		U
2,4,5-trichlorophenol	19800	Not detected		U
2-chloronaphthalene	19800	Not detected		U
2-nitroaniline	99000	Not detected		U
dimethylphthalate	19800	Not detected		U
acenaphthylene	19800	Not detected		U
3-nitroaniline	99000	Not detected		U
2,6-dinitrotoluene	19800	Not detected		U
acenaphthene	19800	Not detected		U
2,4-dinitrophenol	99000	Not detected		U
4-nitrophenol	99000	Not detected		U
dibenzofuran	19800	Not detected		U
2,4-dinitrotoluene	19800	Not detected		U
diethylphthalate	19800	Not detected		U

Waste Stream Technology, Inc.

Method Blank for Soil SVOC

3550/8270

Site: Mineral Springs

Date Sampled: NA

Date Received: NA

Group Number: 9901-771

Units: ug/kg

WST ID: MB060899

Client ID: NA

Extraction Date: 06/08/99

Date Analyzed: 06/08/99

Compound	Detection Limit	Result	QC Limits (%)	Qualifier
fluorene	19800	Not detected		U
4-nitroaniline	39600	Not detected		U
4-chlorophenylphenylether	19800	Not detected		U
4,6-dinitro-2-methylphenol	99000	Not detected		U
n-nitrosodiphenylamine	19800	Not detected		U
4-bromophenylphenylether	19800	Not detected		U
hexachlorobenzene	19800	Not detected		U
pentachlorophenol	99000	Not detected		U
phenanthrene	19800	Not detected		U
anthracene	19800	Not detected		U
carbazole	19800	Not detected		U
di-n-butylphthalate	19800	Not detected		U
fluoranthene	19800	Not detected		U
benzidine	198000	Not detected		U
pyrene	19800	Not detected		U
butylbenzylphthalate	19800	Not detected		U
3,3'-dichlorobenzidine	39600	Not detected		U
benzo(a)anthracene	19800	Not detected		U
chrysene	19800	Not detected		U
bis(2-ethylhexyl)phthalate	19800	Not detected		U
di-n-octylphthalate	19800	Not detected		U
benzo(b)fluoranthene	19800	Not detected		U
benzo(k)fluoranthene	19800	Not detected		U
benzo(a)pyrene	19800	Not detected		U
indeno(1,2,3-cd)pyrene	19800	Not detected		U
dibenzo(a,h)anthracene	19800	Not detected		U
benzo(g,h,i)perylene	19800	Not detected		U
2-Fluorophenol (%)		79	25- 121	
Phenol-d6 (%)		81	24- 113	
Nitrobenzene-d5 (%)		82	23- 120	
2-Fluorobiphenyl (%)		82	30- 115	
2,4,6-Tribromophenol (%)		84	19- 122	
Terphenyl-d14 (%)		72	18- 137	

Dilution Factor 60

MB denotes Method Blank

NA denotes Not Applicable

Waste Stream Technology, Inc.

Herbicides in Soil

SW-846 8151

Site: Mineral Springs

Date Sampled: 05/27/99

Date Received: 05/28/99

Group Number: 9901-771

Units: mg/Kg

Matrix: Oil

WST ID: WS53208

Client ID: Mineral Springs DNAPL-RW-1

Extraction Date: 06/11/99

Date Analyzed: 06/14/99

Compound	Detection Limit	Result	QC Limits (%)	Qualifier
dalapon	0.840	Not detected		U
dicamba	1.29	Not detected		U
dichloroprop	0.930	Not detected		U
2,4-D	1.77	Not detected		U
2,4,5-TP (Silvex)	0.780	Not detected		U
2,4,5-T	0.780	Not detected		U
MCPP	20.1	Not detected		U
MCPA	20.1	Not detected		U
2,4-DB	3.90	Not detected		U
dinoseb	6.00	Not detected		U
4-nitrophenol	6.00	Not detected		U
pentachlorophenol	0.780	Not detected		U
2,4-DCPAA (%)		4.2	10-127	#
Dilution Factor	30			

Waste Stream Technology, Inc.

Herbicides in Soil Method Blank

SW-846 8151

Site: Mineral Springs

Date Sampled: NA

Date Received: NA

Group Number: 9901-771

Units: mg/kg

WST ID: MB061199

Client ID: NA

Extraction Date: 06/11/99

Date Analyzed: 06/11/99

Compound	Detection Limit	Result	QC Limits (%)	Qualifier
dalapon	0.840	Not detected		U
dicamba	1.29	Not detected		U
dichloroprop	0.930	Not detected		U
2,4-D	1.77	Not detected		U
2,4,5-TP (Silvex)	0.780	Not detected		U
2,4,5-T	0.780	Not detected		U
MCPP	20.1	Not detected		U
MCPA	20.1	Not detected		U
2,4-DB	3.90	Not detected		U
dinoseb	6.00	Not detected		U
4-nitrophenol	6.00	Not detected		U
pentachlorophenol	0.780	Not detected		U
2,4-DCPAA (%)		7.0	10-127	#

Dilution Factor 30

MB denotes Method Blank

NA denotes Not Applicable

Waste Stream Technology, Inc.

Pesticides and PCBs in Soil

SW-846 8081

Site: Mineral Springs

Date Sampled: 05/27/99

Date Received: 05/28/99

Group Number: 9901-771

Units: ug/kg

Matrix: Oil

WST ID: WS53208

Client ID: Mineral Springs DNAPL-RW-1

Extraction Date: 06/07/99

Date Analyzed: 06/10/99

Compound	Detection Limit	Result	QC Limits (%)	Qualifier
Alpha-BHC	150	Not detected		U
Beta-BHC	300	Not detected		U
Gamma-BHC (Lindane)	150	Not detected		U
Delta-BHC	480	Not detected		U
Heptachlor	960	Not detected		U
Aldrin	840	Not detected		U
Heptachlor Epoxide	420	Not detected		U
Endosulfan I	240	Not detected		U
Dieldrin	240	Not detected		U
4,4'-DDE	240	Not detected		U
Endrin	540	Not detected		U
Endosulfan II	300	Not detected		U
4,4'-DDD	270	Not detected		U
Endrin Aldehyde	390	Not detected		U
Endosulfan Sulfate	3000	Not detected		U
4,4'-DDT	840	Not detected		U
Endrin Ketone	630	Not detected		U
Methoxychlor	300	Not detected		U
Toxaphene	15300	Not detected		U
Chlordane	3600	Not detected		U
Aroclor 1016	13800	Not detected		U
Aroclor 1221	11400	Not detected		U
Aroclor 1232	18900	Not detected		U
Aroclor 1242	8700	Not detected		U
Aroclor 1248	4500	Not detected		U
Aroclor 1254	2700	Not detected		U
Aroclor 1260	3000	Not detected		U
Decachlorobiphenyl (%)		0.0	60-150	S
Tetrachloro-m-xylene (%)		0.0	60-150	S

Dilution Factor 300

Waste Stream Technology, Inc.

PCB & Pesticide Method Blank

SW-846 8081

Site: Mineral Springs

Date Sampled: NA

Date Received: NA

Group Number: 9901-771

Units: ug/kg

WST ID: MB99158

Client ID: NA

Extraction Date: 06/07/99

Date Analyzed: 06/09/99

Compound	Detection Limit	Result	QC Limits (%)	Qualifier
Alpha-BHC	15.0	Not detected		U
Beta-BHC	30.0	Not detected		U
Gamma-BHC (Lindane)	15.0	Not detected		U
Delta-BHC	48.0	Not detected		U
Heptachlor	96.0	Not detected		U
Aldrin	84.0	Not detected		U
Heptachlor Epoxide	42.0	Not detected		U
Endosulfan I	24.0	Not detected		U
Dieldrin	24.0	Not detected		U
4,4'-DDE	24.0	Not detected		U
Endrin	54.0	Not detected		U
Endosulfan II	30.0	Not detected		U
4,4'-DDD	27.0	Not detected		U
Endrin Aldehyde	39.0	Not detected		U
Endosulfan Sulfate	300	Not detected		U
4,4'-DDT	84.0	Not detected		U
Endrin Ketone	63.0	Not detected		U
Methoxychlor	30.0	Not detected		U
Toxaphene	1530	Not detected		U
Chlordane	360	Not detected		U
Aroclor 1016	1380	Not detected		U
Aroclor 1221	1140	Not detected		U
Aroclor 1232	1890	Not detected		U
Aroclor 1242	870	Not detected		U
Aroclor 1248	450	Not detected		U
Aroclor 1254	270	Not detected		U
Aroclor 1260	300	Not detected		U
Decachlorobiphenyl (%)		110	60- 150	
Tetrachloro-m-xylene (%)		99	60- 150	

Dilution Factor 30

MB denotes Method Blank

NA denotes Not Applicable

Waste Stream Technology, Inc.
Metals Analysis Result Report

Site: Mineral Springs
Date Sampled: 05/27/99
Date Received: 05/28/99

Group Number: 9901-771
Units: mg/Kg
Matrix: Oil

WST ID: WS53208
Client ID: Mineral Springs DNAPL-RW-1
Digestion Date: 06/07/99

Analyte	Detection Limit	Result	Date Analyzed	Analysis Method
Aluminum by ICP	5.00	Not detected	06/07/99	SW-846 6010
Antimony by GFAA	1.8	Not detected	06/09/99	SW-846 7041
Arsenic by GFAA	1.0	1.1	06/07/99	SW-846 7060
Barium by ICP	2.00	Not detected	06/07/99	SW-846 6010
Beryllium by ICP	0.800	Not detected	06/07/99	SW-846 6010
Cadmium by ICP	2.00	Not detected	06/07/99	SW-846 6010
Calcium by ICP	4.80	87.3	06/07/99	SW-846 6010
Chromium by ICP	2.00	Not detected	06/07/99	SW-846 6010
Cobalt by ICP	2.00	Not detected	06/07/99	SW-846 6010
Copper by ICP	2.00	2.99	06/07/99	SW-846 6010
Iron by ICP	16.6	8.48	06/07/99	SW-846 6010
Lead by ICP	8.20	Not detected	06/07/99	SW-846 6010
Magnesium by ICP	24.0	Not detected	06/07/99	SW-846 6010
Manganese by ICP	2.00	Not detected	06/07/99	SW-846 6010
Mercury by Cold Vapor	0.014	Not detected	06/10/99	SW-846 7471
Nickel by ICP	2.00	Not detected	06/07/99	SW-846 6010
Potassium by ICP	280	Not detected	06/10/99	SW-846 6010
Selenium by GFAA	12.0	Not detected	06/11/99	SW-846 7740
Silver by ICP	1.00	Not detected	06/07/99	SW-846 6010
Sodium by ICP	240	Not detected	06/10/99	SW-846 6010
Thallium by GFAA	0.60	Not detected	06/10/99	SW-846 7841
Vanadium by ICP	2.00	Not detected	06/07/99	SW-846 6010
Zinc by ICP	8.00	Not detected	06/07/99	SW-846 6010

Waste Stream Technology, Inc.

Ignitability (flash point)

SW-846 1010

Site: Mineral Springs

Date Sampled: 05/27/99

Date Received: 05/28/99

Group Number: 9901-771

Matrix: Oil

Units: degrees F

WST ID	Client ID	Detection Limit	Result	Date Analyzed
WS53208	Mineral Springs DNAPL-RW-1	NA	138	06/01/99

Waste Stream Technology, Inc.

pH in Solid
SW-846 9045

Site: Mineral Springs
Date Sampled: 05/27/99
Date Received: 05/28/99

Group Number: 9901-771
Matrix: Oil
Units: pH Units

WST ID	Client ID	Detection Limit	Result	Date Analyzed
WS53208	Mineral Springs DNAPL-RW-1	NA	7.11	06/01/99

Waste Stream Technology, Inc.
Wet Chemistry Analyses

Site: Mineral Springs
Date Sampled: 05/27/99
Date Received: 05/28/99

Group Number: 9901-771
Matrix: Oil

WST ID: WS53208
Client ID: Mineral Springs DNAPL-RW-1

Analysis	Method Reference	Detection Limit	Result	Units	Date Analyzed
Section 7.3.4.2 Reactive Sulfide	SW-846 9034	40.0	Not detected	mg/Kg	06/02/99
Section 7.3.3.2 Reactive Cyanide	SW-846 9014	40.0	Not detected	mg/Kg	06/02/99

PROJECT NAME: Mineral Springs	PROJECT NUMBER: 3-2075-740
SEND REPORT TO: MARK HUFFERBENT	SAMPLER (PRINT NAME) JAMES EOWAL
ADDRESS: ABOVE	SAMPLER (PRINT NAME) 810834173858
	SHIPMENT METHOD: FED EX
	AIRBILL NUMBER:
PHONE:	LABORATORY RECEIVING: WASTE STREAM
FAX:	TECHNOLOGY

[illegible]

ANALYSIS REQUESTED

TCL	EXTRACTION
TCL	SEY, VOC
TCL	VOC
TAL	PESTICIDES / PCBs
HERBICIDES	
SULFIDE	REACTIVITY
CYANIDE	REACTIVITY
IGNITABILITY	
CORROSIVITY	

[illegible]

Relinquished by: (Signature) <i>James M. Edwards</i>	Received by: (Signature) <i>FED EX</i>	Date: <i>5/27/99</i>	Time: <i>1300</i>
Relinquished by: (Signature) <i>James M. Edwards</i>	Received by: (Signature) <i>Sandra Wright</i>	Date:	Time:
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

SAMPLE CUSTODIAN REMARKS (COMPLETED BY LABORATORY):			
QA/QC LEVEL	TURNAROUND:	SAMPLE RECEIPT	
LEVEL I ☐	ROUTINE ☐	TOTAL # CONTAINERS RECEIVED ?	
LEVEL II ☐	24 HOUR ☐	COC SEALS PRESENT ?	
LEVEL III ☐	1 WEEK ☐	COC SEALS INTACT ?	
OTHER ☐	OTHER _____	RECEIVED CONTAINERS INTACT ?	
		TEMPERATURE ?	



HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

Certificate of Analysis No. H9-9905B36-01

ThermoRetec
1001 W. Seneca st. Suite 204
Ithaca, NY 14850-3342
ATTN: James Edwards

DATE: 06/04/99

PROJECT: Mineral Springs
SITE: Ithaca, NY
SAMPLED BY: ThermoRetec
SAMPLE ID: RW1 Mineral Spring DNAP

PROJECT NO: 3-42075-740
MATRIX: OIL
DATE SAMPLED: 05/25/99 16:05:00
DATE RECEIVED: 05/26/99

ANALYTICAL DATA				
PARAMETER	RESULTS	DETECTION LIMIT	UNITS	
Heat of Combustion in Gross BTU/lb Method ASTM D-240 Analyzed by: CS Date: 06/02/99	11566			
Ash from Petroleum Products Method ASTM D-482 Analyzed by: TB Date: 06/03/99	2.6632		%w/w	
Flash Point (PM) Method ASTM D-93 Analyzed by: TB Date: 06/02/99	142		°F	
Karl Fischer - Coulometric ASTM - D4928 Analyzed by: HR Date: 06/02/99	35.77	1	%w/w	
Sediment by Extraction Method ASTM D473 Analyzed by: TB Date: 06/02/99	1.33	0.01	%w/w	

Notes:

COMMENTS: Viscosity at 60°F

QUALITY ASSURANCE: These analyses are performed in accordance with ASTM, UOP, or GPA guidelines for quality assurance.

Fred DeAngelo

Fred DeAngelo, Laboratory Manager



HOUSTON LABORATORY
8880 INTERCHANGE DRIVE
HOUSTON, TEXAS 77054
PHONE (713) 660-0901

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DATE: 06/04/99

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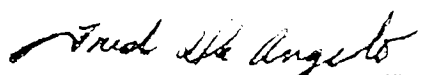
PROJECT NO: 3-42075-740
MATRIX: OIL
DATE SAMPLED: 05/25/99 16:05:00
DATE RECEIVED: 05/26/99

ANALYTICAL DATA				
PARAMETER	RESULTS	DETECTION LIMIT	UNITS	
Sulfur Content by X-ray Method ASTM D-4294 Analyzed by: HR Date: 06/02/99	2.380	.003	%w/w	

Notes:

COMMENTS: Viscosity at 60°F

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ATTN: James Edwards

06/04/99

PROJECT: Mineral Springs
SITE: Ithaca, NY
SAMPLED BY: ThermoRetec
SAMPLE ID: RW1 Mineral Spring DNAP

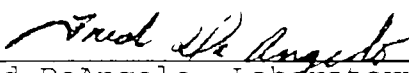
PROJECT NO: 3-42075-740
MATRIX: OIL
DATE SAMPLED: 05/25/99 16:05:00
DATE RECEIVED: 05/26/99

PARAMETER	ASTM D-4052	RESULTS	ANALYZED	ANALYST
API Gravity @ 60 °F		3.86	06/02/99	TB
Specific Gravity @ 60 °F		1.0453	06/02/99	TB
Density @ 60 °F		1.0443	06/02/99	TB

METHOD: ASTM D-4052
NOTES:

COMMENTS: Viscosity at 60°F

QUALITY ASSURANCE: These analyses are performed in accordance with ASTM, UOP, or GPA guidelines for quality assurance.


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Ithaca, NY 14850-3342
ATTN: James Edwards

06/04/99

PROJECT: Mineral Springs
SITE: Ithaca, NY
SAMPLED BY: ThermoRetec
SAMPLE ID: RW1 Mineral Spring DNAP

PROJECT NO: 3-42075-740
MATRIX: OIL
DATE SAMPLED: 05/25/99 16:05:00
DATE RECEIVED: 05/26/99

ANALYTICAL DATA

Viscosity @ 60°F °F in CST: 101.51

Viscosity @ 60°F °F in SUS: 470.5

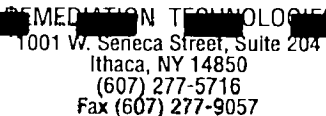
ANALYZED BY: JKB
METHOD: ASTM D-445

DATE/TIME: 06/02/99

COMMENTS: Viscosity at 60°F

QUALITY ASSURANCE: These analyses are performed in accordance
with ASTM, UOP, or GPA guidelines for quality assurance.

Fred DeAngelo, Laboratory Manager



PAGE 1 OF 1

PROJECT NUMBER: 1-7075-746
SAMPLER (PRINT NAME) JAMES J. DUNN
SAMPLER (PRINT NAME)
SHIPMENT METHOD: 150 FX
AIRBILL NUMBER: 81263417847
LABORATORY RECEIVING: SPL

ANALYSIS REQUESTED

ANALYSIS REQUESTED

2071 0571 0571
 B7C14B 0571 D1C
 A14 017
 0571

14 Oct 70

10001 10002 10003 10004 10005 10006 10007 10008 10009 10010 10011 10012 10013 10014 10015 10016 10017 10018 10019 10020 10021 10022 10023 10024 10025 10026 10027 10028 10029 10030 10031 10032 10033 10034 10035 10036 10037 10038 10039 10040 10041 10042 10043 10044 10045 10046 10047 10048 10049 10050 10051 10052 10053 10054 10055 10056 10057 10058 10059 10060 10061 10062 10063 10064 10065 10066 10067 10068 10069 10070 10071 10072 10073 10074 10075 10076 10077 10078 10079 10080 10081 10082 10083 10084 10085 10086 10087 10088 10089 10090 10091 10092 10093 10094 10095 10096 10097 10098 10099 10100 10101 10102 10103 10104 10105 10106 10107 10108 10109 10110 10111 10112 10113 10114 10115 10116 10117 10118 10119 10120 10121 10122 10123 10124 10125 10126 10127 10128 10129 10130 10131 10132 10133 10134 10135 10136 10137 10138 10139 10140 10141 10142 10143 10144 10145 10146 10147 10148 10149 10150 10151 10152 10153 10154 10155 10156 10157 10158 10159 10160 10161 10162 10163 10164 10165 10166 10167 10168 10169 10170 10171 10172 10173 10174 10175 10176 10177 10178 10179 10180 10181 10182 10183 10184 10185 10186 10187 10188 10189 10190 10191 10192 10193 10194 10195 10196 10197 10198 10199 10200 10201 10202 10203 10204 10205 10206 10207 10208 10209 10210 10211 10212 10213 10214 10215 10216 10217 10218 10219 10220 10221 10222 10223 10224 10225 10226 10227 10228 10229 10230 10231 10232 10233 10234 10235 10236 10237 10238 10239 10240 10241 10242 10243 10244 10245 10246 10247 10248 10249 10250 10251 10252 10253 10254 10255 10256 10257 10258 10259 10260 10261 10262 10263 10264 10265 10266 10267 10268 10269 10270 10271 10272 10273 10274 10275 10276 10277 10278 10279 10280 10281 10282 10283 10284 10285 10286 10287 10288 10289 10290 10291 10292 10293 10294 10295 10296 10297 10298 10299 10300 10301 10302 10303 10304 10305 10306 10307 10308 10309 10310 10311 10312 10313 10314 10315 10316 10317 10318 10319 10320 10321 10322 10323 10324 10325 10326 10327 10328 10329 10330 10331 10332 10333 10334 10335 10336 10337 10338 10339 10340 10341 10342 10343 10344 10345 10346 10347 10348 10349 10350 10351 10352 10353 10354 10355 10356 10357 10358 10359 10360 10361 10362 10363 10364 10365 10366 10367 10368 10369 10370 10371 10372 10373 10374 10375 10376 10377 10378 10379 10380 10381 10382 10383 10384 10385 10386 10387 10388 10389 10390 10391 10392 10393 10394 10395 10396 10397 10398 10399 10400 10401 10402 10403 10404 10405 10406 10407 10408 10409 10410 10411 10412 10413 10414 10415 10416 10417 10418 10419 10420 10421 10422 10423 10424 10425 10426 10427 10428 10429 10430 10431 10432 10433 10434 10435 10436 10437 10438 10439 10440 10441 10442 10443 10444 10445 10446 10447 10448 10449 10450 10451 10452 10453 10454 10455 10456 10457 10458 10459 10460 10461 10462 10463 10464 10465 10466 10467 10468 10469 10470 10471 10472 10473 10474 10475 10476 10477 10478 10479 10480 10481 10482 10483 10484 10485 10486 10487 10488 10489 10490 10491 10492 10493 10494 10495 10496 10497 10498 10499 10500 10501 10502 10503 10504 10505 10506 10507 10508 10509 10510 10511 10512 10513 10514 10515 10516 10517 10518 10519 10520 10521 10522 10523 10524 10525 10526 10527 10528 10529 10530 10531 10532 10533 10534 10535 10536 10537 10538 10539 10540 10541 10542 10543 10544 10545 10546 10547 10548 10549 10550 10551 10552 10553 10554 10555 10556 10557 10558 10559 10560 10561 10562 10563 10564 10565 10566 10567 10568 10569 10570 10571 10572 10573 10574 10575 10576 10577 10578 10579 10580 10581 10582 10583 10584 10585 10586 10587 10588 10589 10590 10591 10592 10593 10594 10595 10596 10597 10598 10599 10600 10601 10602 10603 10604 10605 10606 10607 10608 10609 10610 10611 10612 10613 10614 10615 10616 10617 10618 10619 10620 10621 10622 10623 10624 10625 10626 10627 10628 10629 10630 10631 10632 10633 10634 10635 10636 10637 10638 10639 10640 10641 10642 10643 10644 10645 10646 10647 10648 10649 10650 10651 10652 10653 10654 10655 10656 10657 10658 10659 10660 10661 10662 10663 10664 10665 10666 10667 10668 10669 10670 10671 10672 10673 10674 10675 10676 10677 10678 10679 10680 10681 10682 10

[Handwritten numbers:]
0473
19674 D53
002420627-18

COMMENTS
INSTRUCTIONS

S, SPECIAL
IONS ETC (to

LAB SAMPLE ID

(14b)

[illegible]

by: (Signature)	Date:	Time:	SAMPLE CUSTODIAN REMARKS (COMPLETED BY LABORATORY):		
	5/29/99		QA/QC LEVEL	TURNAROUND:	SAMPLE RECEIPT
by: (Signature)	Date:	Time:	LEVEL I ☐	ROUTINE ☐	TOTAL # CONTAINERS RECEIVED ?
			LEVEL II ☐	24 HOUR ☐	COC SEALS PRESENT ?
			LEVEL III ☐	1 WEEK ☐	COC SEALS INTACT ?
by: (Signature)	Date:	Time:	OTHER ☐	OTHER _____	RECEIVED CONTAINERS INTACT ?
					TEMPERATURE ?

RECEIVED

JUL 14 1999

NYSDEC - REG. 9

FOIL
REL UNREL