

Type of document . Site Number . Year-Month . File *Year-Year* or Report name . pdf

example: *letter . Site Number . Year-Month . CorrespondanceFileYear-Year . pdf*

example: *report.Site Number.Year-Month.ReportName.pdf*

if a non-foilable site: add ".nf.pdf" at end of file name

Project Site numbers will be proceeded by the following:

Municipal Brownfields - B

Superfund - HW

Spills - SP

ERP - E

VCP - V

BCP - C

MINERAL SPRINGS

SOIL BORING AND MONITORING WELL INSTALLATION LOGS

National Fuel Gas
RETEC Project # 3-2075/14852

MARCH 2002



MW



DATE

STARTED 12-12-89

FINISHED 12-12-89

SHEET 1 OF 1



SUBSURFACE LOG

HOLE NO. MW-2

SURF. ELEV. NA

C.W. DEPTH See note

PROJECT Separator Pit Wells

LOCATION National Fuel Gas

BTA-89-173

Mineral Springs Rd, W.Seneca, NY

DEPTH-FT	SAMPLES	SAMPLE NO	BLOWS ON SAMPLER					PID on SAMPLE	SOIL OR ROCK CLASSIFICATION	NOTES
			0	6	12	18	N			
0		1	100	1.2				BG	Gray f-c GRAVEL and f-c Sand (moist, FILL)	Petroleum-like odor noted in sample S-2
		2	3	4				2.0-	Olive & black f-c SAND and Clayey Silt, some f-c Gravel, occasional petroleum stained lenses (moist, FILL)	
		3	3				7	15.0	Becomes gray & black, contains tr. slag	
5		4	3	6				5.0-	Brown Clayey SILT, tr. sand, occasional f-c SAND lenses, occasional petroleum stains (moist, medium)	
		5	2	2				10.0	Orange & brown mottled Silty CLAY, tr. sand, occasional tar-like inclusion (moist, medium)	WOH=Weight of hammer & rods.
		6	2	3			4	15.0	Grey f-m SAND, little Silt, tr. clay, occasional Clay partings, (wet, loose)	
10		7	4	5				20.0	Brown-grey f-c GRAVEL and tr. sand, little some Silty (wet, firm)	Free Standing Water observed at 7.7' below ground surface at boring completion.
		8	3	12					Boring complete at 16.0 ft. Auger to 15.0' Set Well	
		9	1	1			1			
15		10	16	18				28		
									4.0" ID PVC Monitoring Well installed at boring completion. Well tip set at 15.0 ft. See monitoring well completion report for details	PID = Organic vapors measured with Photoionization Detecotor (PID). Measurements recorded in parts-per-million (ppm) BG = Background measurements 0.0-0.3 ppm

N = No blows to drive 2 " spoon 12 " with 140 lb pin wt falling 30 " per blow. CLASSIFICATION Visual by

C = No blows to drive " casing " with " lb. weight falling " per blow. on-site geologist

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS (8-1/4")

MONITOR WELL COMPLETION REPORT:

WELL No. MW-2 JOB No. BTA-89-173

PROJECT: National Fuel Gas
Separator Pit Well

1. GATE BOX I.D.: 6.0 INCHES

2. SURFACE SEAL TYPE: Grout

3. BOREHOLE DIAMETER 10.0 INCHES

4. RISER PIPE:

a. TYPE Polyvinyl Chloride

b. I.D. 4.0 INCHES

c. LENGTH 5.0 FEET

d. JOINT TYPE threaded

5. BACKFILL:

TYPE Cement Grout

6. TYPE OF SEAL: Bentonite pellets

7. SCREEN:

a. TYPE Polyvinyl Chloride

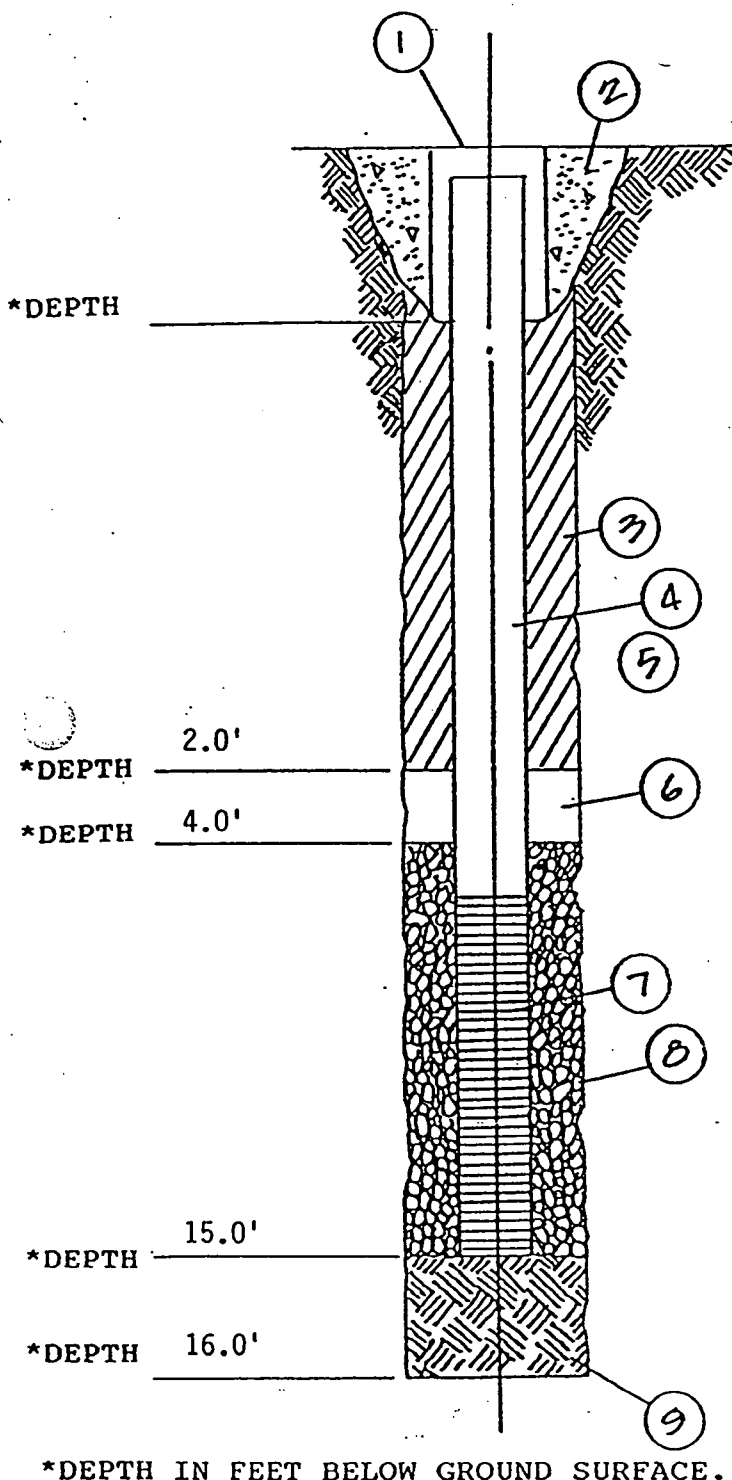
b. I.D. 4.0 INCHES

c. SLOT SIZE 0.020 In.

d. LENGTH 10.0 FT.

8. SCREEN FILTER TYPE: #4 Quartzite Sand

9. BACKFILL TYPE: Natural Soil



DATE

STARTED 12-18-89

FINISHED 12-18-89

SHEET 1 OF 1



SUBSURFACE LOG

HOLE NO. MW-3

SURF. ELEV. NA

G.W. DEPTH See note

PROJECT Separator Pit Wells

LOCATION National Fuel Gas

BTA-89-173

Mineral Springs Rd, W. Seneca, NY

DEPTH	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER				PID on SAMPLE	SOIL OR ROCK CLASSIFICATION	NOTES
			0-6	6-12	12-18	N			
0		1	18	27			2.2-	Gray CRUSHED STONE (moist, FILL)	
			43	10		70	2.4		
		2	10	7					
			4	3		11	BG		
5		3	4	3				Black to brown f-c Silty SAND, some f-c Gravel, little Clay (moist, FILL)	
			3	2		6	BG		
		4	2	7			0.2-		
			6	2		13	0.4	Brown to black f-c Silty SAND, some Wood, tr. gravel (wet, FILL)	WOH=Weight of hammer & drill rods.
		5	WOH	WOH		-		Contains little Slag	
10			100	2				Concrete slab (probable pit floor)	
								Boring terminated at 10.0 ft.	Free Standing Water noted at 6.0 ft. at boring completion.
15								Note: Boring MW-3 relocated 15.0 ft. west of original plans. ESI spoke to George Cox, PE of National Fuel Gas Both Mr. Cox & ESI looked at historical drawings to locate the pit. It is Mr. Cox's belief that this boring is within the limits of the separator pit.	Petroleum-like odor noted in Sample 5.
								Mr. Cox stated that no split spoon soil samples were required after new test boring locations.	PID = Organic vapors measured with Photoionization Detector (PID). Measurements recorded in parts per million (ppm)
									BG = Background measurements 0.0-0.3 ppm.

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 " per blow. CLASSIFICATION Visual by

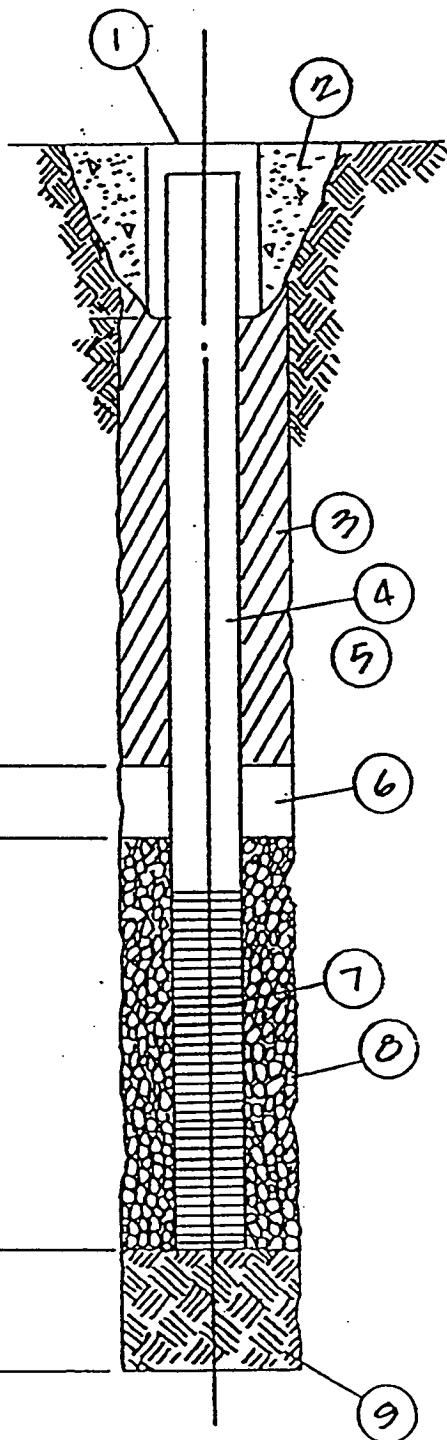
C = No. blows to drive " casing " with lb. weight falling " per blow. on-site geologist

METHOD OF INVESTIGATION ASTM D-1586 USING 8-1/4" HOLLOW STEM AUGERS

MONITOR WELL COMPLETION REPORT:

WELL No. MW-3 JOB No. BTA-89-173

PROJECT: National Fuel Gas
Separator Pit Wells



1. GATE BOX I.D.: 6.0 INCHES

2. SURFACE SEAL TYPE: Grout

3. BOREHOLE DIAMETER 10.0 INCHES

4. RISER PIPE:

a. TYPE Polyvinyl Chloride

b. I.D. 4.0 INCHES

c. LENGTH 2.0 FEET

d. JOINT TYPE threaded

5. BACKFILL:

a. TYPE Cement/Bentonite Grout

6. TYPE OF SEAL: Bentonite pellets

7. SCREEN:

a. TYPE Polyvinyl Chloride

b. I.D. 4.0 INCHES

c. SLOT SIZE 0.020 in.

d. LENGTH 10.0 FT.

8. SCREEN FILTER TYPE: #4 Quartzite Sand

9. BACKFILL TYPE: Natural Soils

*DEPTH IN FEET BELOW GROUND SURFACE.

DATE

STARTED 12-19-89

FINISHED 12-19-89

SHEET 1 OF 1



SUBSURFACE LOG

HOLE NO. MW-4

SURF. ELEV. NA

G. W. DEPTH See note

PROJECT Separator Pit Wells

LOCATION National Fuel Gas

BTA-89-173

Mineral Springs Rd., W. Seneca, NY

DEPTH FT.	SAMPLE NO	BLOWS ON SAMPLER				PID on SAMPLE	SOIL OR ROCK CLASSIFICATION	NOTES
		0-6	6-12	12-18	N			
0							Gray CRUSHED STONE (moist, FILL)	Frozen surface change at 0.5 ft.
		AUGER						
	1	8	4			6.0-	Black f-c SAND and Cinders, little Slag, tr. clay (moist, FILL)	
		3	2		7	6.8		
5	2	2	1				Contains little Silty Clay laminations	Free Standing Water observed at 10.0 ft. at boring completion
		2	3		3			
	3	3	3				Brown to gray mottled Silty CLAY, tr. sand (moist, soft)	
		2	5		5			
	4	1	1				Gray SILT and CLAY, some f-c SAND (wet, soft)	Free Standing Water observed at 10.0 ft. at boring completion
10		2	3		3			
15	5	4	8	8	16		Gray f-c Silty SAND and f-c gravel, tr. clay (wet, firm)	Free Standing Water observed at 10.0 ft. at boring completion
							Boring complete at 16.5'	
							4.0" ID PVC monitoring well installed upon boring completion. Well Tip set at 14.4 ft. See monitoring well completion report for details	

N = No blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 " per blow. CLASSIFICATION Visual by

C = No blows to drive " casing " with lb. weight falling " per blow on-site geologist

METHOD OF INVESTIGATION ASTM D-1586 USING 6-1/4" HOLLOW STEM AUGERS

MONITOR WELL COMPLETION REPORT:

WELL No. MW-4 JOB No. BTA-89-173
PROJECT: National Fuel Gas

Seperator Pit

1. GATE BOX I.D.: 6.0 INCHES

2. SURFACE SEAL TYPE: Grout

3. BOREHOLE DIAMETER 10.0 INCHES

4. RISER PIPE:

a. TYPE Polyvinyl Chloride

b. I.D. 4.0 INCHES

c. LENGTH 4.4 FEET

d. JOINT TYPE threaded

5. BACKFILL:

TYPE Cement/Bentonite Grout

6. TYPE OF SEAL: Bentonite pellets

7. SCREEN:

a. TYPE Polyvinyl Chloride

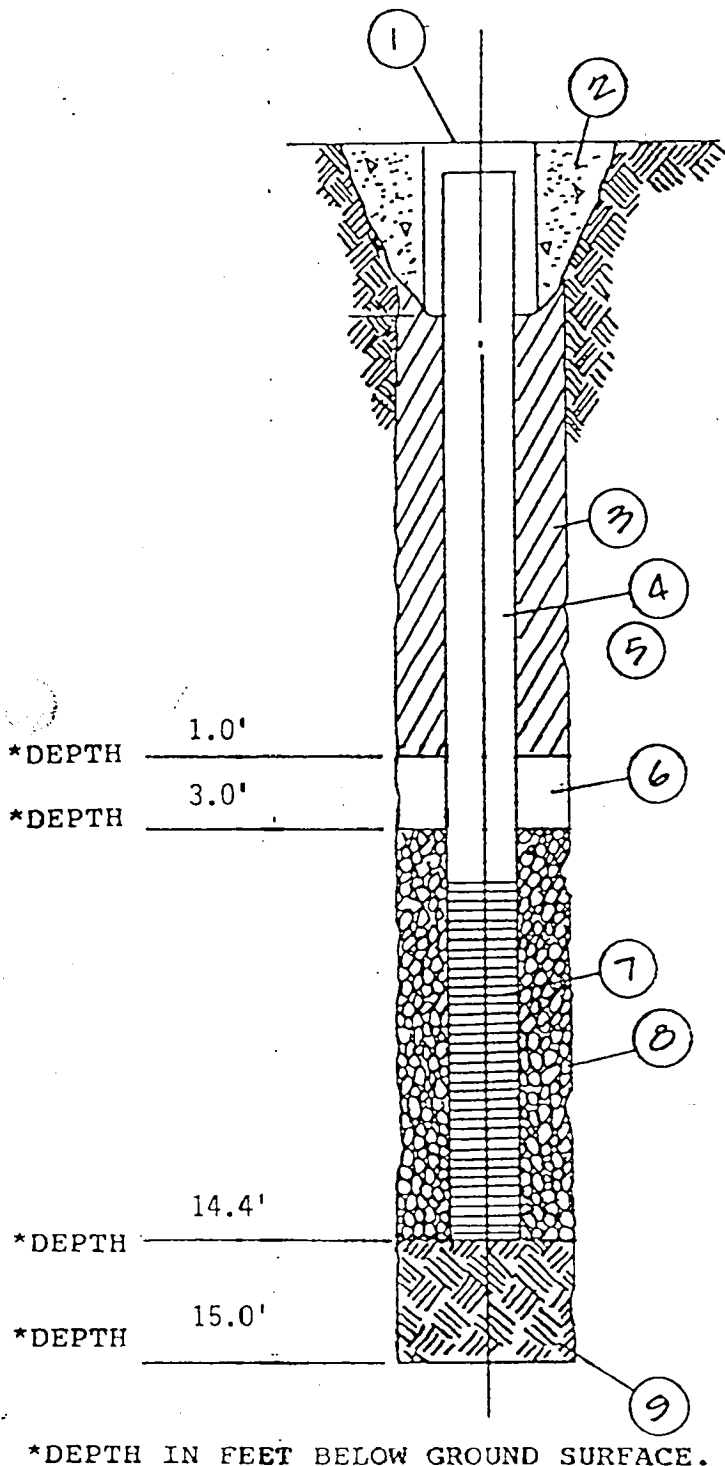
b. I.D. 4.0 INCHES

c. SLOT SIZE 0.020 In.

d. LENGTH 10.0 FT.

8. SCREEN FILTER TYPE: #4 Quartzite Sand

9. BACKFILL TYPE: Natural Soils





BORING/WELL INSTALLATION LOG

Monitor Well MW-5

Ithaca Sign Works Bldg
1001 W. Seneca St.
Suite 204
Ithaca, NY 14850
(607)277-5716

PROJECT NO: 3-2075-100	DRILLING CO.: SJB Drilling	MP ELEV.: 587.76' (MSL) TOC
CLIENT: NATIONAL FUEL GAS	DRILLER: Anthony Jakubczak	TOTAL DEPTH: 16'
SITE LOCATION: MINERAL SPRINGS ROAD	BORING ID: 4.25"	SURFACE ELEV.: 587.83' (MSL)
START DATE: 8-7-95 TIME: 1307	METHOD: HSA	WATER LEVEL DURING DRILLING: 5.10' bgs
COMPLETION DATE: 8-7-95 TIME: 1607	RIG TYPE: ATV Auger Rig	STICK-UP: NA'
WELL LOCATION:	LOGGED BY: James Edwards	

DEPTH (feet)	SAMPLE TYPE	RECOVERY	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW CTS.	U.S.C.S.	LITHOLOGY	DESCRIPTION	CONSTRUCTION DETAILS
									PROTECTIVE STEEL WELL MONUMENT W/ LOCKING COVER CONCRETE PAD
					5			FILL, brown, silty clay, 20% angular gravel. Cinders at 1.8', black, loose, moist.	
					9				
					16				
	SS	50		0.2	11			FILL, cinders, black, 10% silty clay, brown, moist. Silty clay at 3.8', grey, trace organic material.	
					4				
					4				
					5				
	SS	75		0.2	6			FILL, sandy silt, brown, 20% coal fragments, 10% angular and rounded pebbles, sample is moist.	
					2				
5					2				
					2				
	SS	10		0.4	2			SILTY CLAY, medium plasticity, grey, trace organic material, black staining in mottled pattern, moist.	
					9				
					8				
					10				
	SS	65		0	10			SILTY CLAY, grey, medium plasticity, trace organic material, pockets of brown staining, moist.	
					6				
					5				
					5	CL			
10	SS	70		0	6			SILTY CLAY, grey, medium plasticity, trace of pockets of brown staining, moist.	
					1				
					1				
					1				
	SS	10		0	1			SAND, sharp contact at 11.7' sand is grey, medium to fine grained, uniform, wet.	
					1				
					1				
	SS	80		0.2	1			SAND, grey, medium grained, uniform, loose, wet.	
					7	SM			
15					8			SAND, grey, gravelly, 40% hard angular gravel particles, 30% rounded particles, loose, wet.	
					8				
	SS	90		0	7				

REMARKS: The boring for this well was labeled Soil Boring SB #1

GS=Grab Sample
SS=Split Spoon Sample

REMEDATION TECHNOLOGIES, Inc.
Concord, MA Pittsburgh, PA Fort Collins, CO Austin, TX Chapel Hill, NC
Seattle, WA Billings, MT St. Paul, MN Mandeville, LA Tucson, AZ

BORING/WELL INSTALLATION LOG

Monitor Well MW-6

Ithaca Sign Works Bldg
1001 W. Seneca St.
Suite 204
Ithaca, NY 14850
(607)277-5716

PROJECT NO: 3-2075-100	DRILLING CO.: SJB Drilling	MP ELEV.: 588.57' (MSL) TOC
CLIENT: NATIONAL FUEL GAS	DRILLER: Anthony Jakubczak	TOTAL DEPTH: 16'
SITE LOCATION: MINERAL SPRINGS ROAD	BORING ID: 4.25"	SURFACE ELEV.: 588.77' (MSL)
START DATE: 8-7-95 TIME: 1600	METHOD: HSA	WATER LEVEL DURING DRILLING: 3.33' bgs
COMPLETION DATE: 8-8-95 TIME: 0900	RIG TYPE: ATV Auger Rig	STICK-UP: NA
WELL LOCATION:		LOGGED BY: James Edwards

DEPTH (feet)	SAMPLE TYPE	RECOVERY	SAMPLE DEPTH	PID HEADSPACE (DDM)	BLOW CTS.	U.S.C.S.	LITHOLOGY	DESCRIPTION	CONSTRUCTION DETAILS
									PROTECTIVE STEEL WELL MONUMENT W/ LOCKING COVER CONCRETE PAD
					10			FILL, clayey sand, brown, 10% gravel, brick and concrete fragments. Cinders at 1.6', black, dry.	
					16				
					21				
	SS	75		15	16			FILL, black cinders as above, trace of brick and concrete fragments, dry.	
					16				
					15				
					9				
	SS	80		14.5	8			FILL, black cinders as above, moist to wet.	
					8				
5					6				
					3			SILTY CLAY, grey, medium plasticity, black staining in mottled pattern, trace brown staining in pockets, moist.	
	SS	65		11	4				
					8				
					6	CL		SILTY CLAY, grey, medium plasticity, black staining in mottled pattern.	
					6			SLITY CLAY as above, moist.	
	SS	100		8.5	13				
					2				
					2			SILTY SAND, very fine grained, uniform, moist.	
10					3				
	SS	85		6.5	4			SILTY SAND, grey, fine, uniform, wet.	
					12				
					12				
	SS	45		10.5	2			SILTY SAND as above, wet, loose.	
					1				
					1	SM			
					1				
	SS	0		NA	MOH				
					MOH				
					1			SILTY SAND, grey, uniform, becomes medium to coarse grained at 15', 10% rounded gravel, trace wood fragments, wet.	
15					2				
					1				
	SS	100		1	1				

REMARKS: The boring for this well was labeled Soil Boring SB #2.

GS=Grab Sample
SS=Split Spoon Sample

REMEDICATION TECHNOLOGIES, Inc.
Concord, MA Pittsburgh, PA Fort Collins, CO Austin, TX Chapel Hill, NC
Seattle, WA Billings, MT St. Paul, MN Mandeville, LA Tucson, AZ

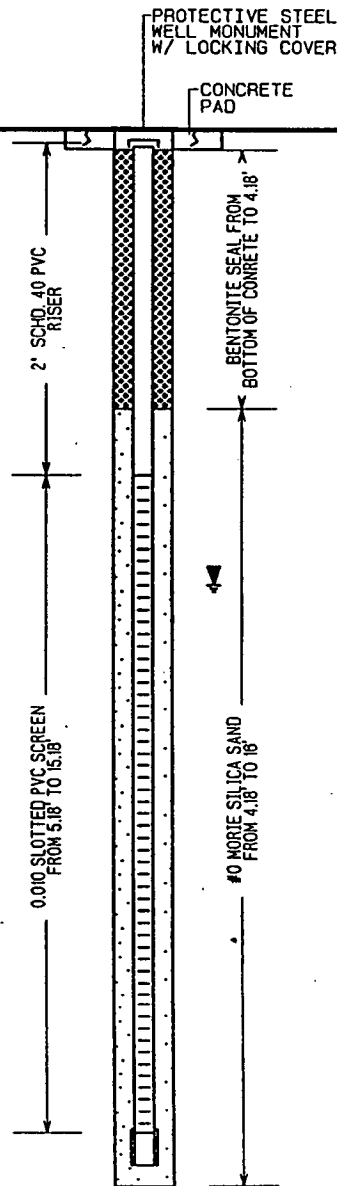


BORING/WELL INSTALLATION LOG Monitor Well MW-7

Ithaca Sign Works Bldg
1001 W. Seneca St.
Suite 204
Ithaca, NY 14850
(607)277-5716

PROJECT NO: 3-2075-100	DRILLING CO.: SJB Drilling	MP ELEV.: 587.26' (MSL) TOC
CLIENT: NATIONAL FUEL GAS	DRILLER: Anthony Jakubczak	TOTAL DEPTH: 16'
SITE LOCATION: MINERAL SPRINGS ROAD	BORING ID: 4.25'	SURFACE ELEV.: 587.59' (MSL)
START DATE: 8-8-95 TIME: 0924	METHOD: HSA	WATER LEVEL DURING DRILLING: 6.62' bgs
COMPLETION DATE: 8-8-95 TIME: 1105	RIG TYPE: ATV Auger Rig	STICK-UP: NA'
WELL LOCATION:	LOGGED BY: James Edwards	

DEPTH (feet)	SAMPLE TYPE	RECOVERY	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW CTS.	U.S.C.S.	LITHOLOGY	DESCRIPTION	CONSTRUCTION DETAILS
									PROTECTIVE STEEL WELL MONUMENT W/ LOCKING COVER CONCRETE PAD
					27			FILL, concrete fragments and black cinders, dry.	
					13				
					28			FILL, black cinders, trace of brick fragments, moist.	
					10				
	SS	75			8				
					7				
					5				
	SS	50		4	3				
					2				
5					4				
	SS	50		4	5			CLAY, grey, medium plasticity, mottled with grey and brown staining, moist.	
					6			CLAY, as above, brown staining in random pockets.	
					7				
	SS	50		4	7				
					10				
	SS	65		4	12	CL		CLAY, grey, grading to sandy clay at 9.8', sand is very fine grained.	
					2				
					3				
10	SS	75		3	5			CLAY, grey.	
					2				
					2				
	SS	80		2	2			SILTY SAND, grey, medium to fine grained, uniform, wet.	
					2				
	SS	80		2	2			SILTY SAND, grey, medium grained, uniform, loose, trace of organic material, wet.	
					12	SM			
	SS	100		3	1			SILTY SAND, grey, grades to coarse sand at 15.2', loose, wet.	
					3				
15					2				
					2				
	SS	80		75	3				



REMARKS: The boring for this well was labeled Soil Boring SB #3.

GS=Grab Sample
SS=Split Spoon Sample

REMEDATION TECHNOLOGIES, Inc.
Concord, MA Pittsburgh, PA Fort Collins, CO Austin, TX Chapel Hill, NC
Seattle, WA Billings, MT St. Paul, MN Mandeville, LA Tucson, AZ



BORING/WELL INSTALLATION LOG **Monitor Well MW-8**

Ithaca Sign Works Bldg
 1001 W. Seneca St.
 Suite 204
 Ithaca, NY 14850
 (607)277-5716

PROJECT NO: 3-2075-100	DRILLING CO.: SJB Drilling	MP ELEV.: 587.96' (MSL) TOC
CLIENT: NATIONAL FUEL GAS	DRILLER: Anthony Jakubczak	TOTAL DEPTH: 16'
SITE LOCATION: MINERAL SPRINGS ROAD	BORING ID: 4.25"	SURFACE ELEV.: 588.07' (MSL)
START DATE: 8-8-95 TIME: 1638	METHOD: HSA	WATER LEVEL DURING DRILLING: 7.83' bgs
COMPLETION DATE: 8-8-95 TIME: 1740	RIG TYPE: ATV Auger Rig	STICK-UP: NA
WELL LOCATION:	LOGGED BY: James Edwards	

DEPTH (feet)	SAMPLE TYPE	RECOVERY	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW CTS.	U.S.C.S.	LITHOLOGY	DESCRIPTION	CONSTRUCTION DETAILS
									PROTECTIVE STEEL WELL MONUMENT W/ LOCKING COVER CONCRETE PAD 2" SCH. 40 PVC RISER 0.010 SLOTTED PVC SCREEN FROM 4.16' TO 14.16' #10 MORTAR SILICA SAND FROM 3.16' TO 16' BENTONITE SEAL FROM BOTTOM OF CONCRETE TO 3.16'
5	SS	75	2		31			FILL, consists of pavement and crushed limestone in upper sample and a mixture of brown clay, black cinders and coal fragments in lower sample, sample is dry.	
					27				
					16				
					18			FILL, black cinders and brick fragments, dry.	
					23				
					18				
	SS	50	4		18			SILTY CLAY, grey, moist.	
					16			SILTY CLAY, grey, medium plasticity, black staining in random, mottled pattern, trace brown staining in pockets, sample is moist.	
					4				
					4				
	SS	80	0.5		8	CL		SILTY CLAY, grey, medium plasticity, brown and black staining in random pattern, mottled, dry.	
					12				
					8				
					10				
	SS	90	0		10			SILTY CLAY, grey, medium plasticity, uniform, moist.	
					4				
					4				
					4				
10	SS	75	0.7		4			SILTY SAND, grey, sharp contact with overlying sediment, uniform, moist.	
					1			SAND, grey, becomes coarse at 10.4', 20% gravel both angular and rounded, loose, wet.	
					12				
	SS	100	1		1				
					1	SM		SAND, grey, coarse, 20% rounded gravel, loose, wet.	
					1				
					1				
	SS	75	7		1				
					4				
15					4				
					5			SAND, grey, coarse grained, 30% gravel and cobbles, subrounded to angular, slight hydrocarbon odor, wet.	
	SS	75	50		6				

REMARKS: The boring for this well was labeled Soil Boring SB #4.

GS=Grab Sample
 SS=Split Spoon Sample

REMEDATION TECHNOLOGIES, Inc.
 Concord, MA Pittsburgh, PA Fort Collins, CO Austin, TX Chapel Hill, NC
 Seattle, WA Billings, MT St. Paul, MN Mandeville, LA Tucson, AZ



BORING/WELL INSTALLATION LOG

Monitor Well MW-9

Ithaca Sign Works Bldg
1001 W. Seneca St.
Suite 204
Ithaca, NY 14850
(607)277-5716

PROJECT NO: 3-2075-100	DRILLING CO.: SJB Drilling	MP ELEV.: 587.97' (MSL) TOC
CLIENT: NATIONAL FUEL GAS	DRILLER: Anthony Jakubczak	TOTAL DEPTH: 16'
SITE LOCATION: MINERAL SPRINGS ROAD	BORING ID: 4.25"	SURFACE ELEV.: 588.13' (MSL)
START DATE: 8-9-95 TIME: 1036	METHOD: HSA	WATER LEVEL DURING DRILLING: 7.75' bgs
COMPLETION DATE: 8-9-95 TIME: 1123	RIG TYPE: ATV Auger Rig	STICK-UP: NA
WELL LOCATION:	LOGGED BY: James Edwards	

DEPTH (feet)	SAMPLE TYPE	RECOVERY	SAMPLE DEPTH	PID HEADSPACE (ddm)	BLOW CTS.	U.S.C.S.	LITHOLOGY	DESCRIPTION	CONSTRUCTION DETAILS
									PROTECTIVE STEEL WELL MONUMENT W/ LOCKING COVER CONCRETE PAD
					18			FILL, grey, angular gravel, brick fragments, cinders and grey clay, sample is dry.	
					21				
					31				
	SS	75		3.6	6			FILL, black cinders, moderate hydrocarbon odor, moist to wet.	
					16				
					16				
	SS	70		48	4			FILL, black cinders as above, uniform, moist.	
					6				
5					3				
	SS	40		4	4			SILTY CALY, grey, black staining in mottled pattern.	
					6			SILTY CLAY, grey, trace black staining in mottled pattern, trace of brown staining in pockets.	
					6				
	SS	75		0.8	10			SILTY CLAY, grey, medium plasticity, uniform, moist.	
					2	CL			
					3				
10	SS	90		0.6	5			SILTY CLAY, as above.	
					2				
					2				
	SS	50		0.4	2			SAND, grey, fine grained, silty, uniform, sharp contact with overlying sediments.	
					2			SAND, grey, silty, fine grained then grading to medium grained at 13.2', uniform, wet.	
					1				
	SS	100		0.5	1	SM			
					1				
15					1				
					1				
	SS	80		0.5	1			SAND, grey, coarse grained, trace organic material, uniform, wet.	

REMARKS: The boring for this well was labeled Soil Boring SB #5.

GS=Grab Sample
SS=Split Spoon Sample

REMEDATION TECHNOLOGIES, Inc.
Concord, MA Pittsburgh, PA Fort Collins, CO Austin, TX Chapel Hill, NC
Seattle, WA Billings, MT St. Paul, MN Mandeville, LA Tucson, AZ

Page 1 of 1



BORING/WELL INSTALLATION LOG

Monitor Well MW-10

Ithaca Sign Works Bldg
1001 W. Seneca St.
Suite 204
Ithaca, NY 14850
(607)277-5716

PROJECT NO: 3-2075-100	DRILLING CO.: SJB Drilling	MP ELEV.: 587.61' (MSL) TOC
CLIENT: NATIONAL FUEL GAS	DRILLER: Anthony Jakubczak	TOTAL DEPTH: 16'
SITE LOCATION: MINERAL SPRINGS ROAD	BORING ID: 4.25"	SURFACE ELEV.: 587.94' (MSL)
START DATE: 8-9-95 TIME: 1441	METHOD: HSA	WATER LEVEL DURING DRILLING: 7.61' bgs
COMPLETION DATE: 8-9-95 TIME: 1548	RIG TYPE: ATV Auger Rig	STICK-UP: NA'
WELL LOCATION:	LOGGED BY: James Edwards	

DEPTH (feet)	SAMPLE TYPE	RECOVERY	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW CTS.	U.S.C.S.	LITHOLOGY	DESCRIPTION	CONSTRUCTION DETAILS
									PROTECTIVE STEEL WELL MONUMENT W/ LOCKING COVER CONCRETE PAD
	SS	60	4		37		>>>>>	FILL, consists of crushed stone, 10% grey clay, 20% angular pebbles and cobbles, dry.	
					28		>>>>>		
					30		>>>>>		
					21		>>>>>	FILL, grey clay and black cinders, wet.	
					21		>>>>>		
					20		>>>>>		
	SS	55	8		18		>>>>>		
					16		>>>>>	FILL, grey clay and gravel, moist.	
					8		>>>>>		
5					4		>>>>>		
					4		>>>>>		
	SS	45	6		5		>>>>>	FILL, grey, silty clay with 30% subrounded gravel, moist.	
					5		>>>>>		
					5		>>>>>		
	SS	60	450		5		>>>>>	FILL, with a wood fragment plug in the spoon, slight hydrocarbon odor, wet.	
					5		>>>>>		
10	SS	40	1000		3		>>>>>		
					2		>>>>>		
					2		>>>>>	FILL, consists of grey clay, black cinders and wood fragments, wet.	
					3		>>>>>		
					2		>>>>>		
	SS	75	50		1		>>>>>	SAND, grey, fine grained, loose, wet.	
					1		>>>>>		
					WOH		>>>>>	SILTY SAND, grey, loose, slight hydrocarbon odor but no visible contamination, wet.	
					WOH		>>>>>		
					WOH		>>>>>		
	SS	50	45		WOH	SM	>>>>>		
					1		>>>>>	SILTY SAND, grey, loose, trace wood fragments, slight hydrocarbon odor, wet.	
15					1		>>>>>		
					1		>>>>>		
	SS	75	50		3		>>>>>		

REMARKS: The boring for this well was labeled Soil Boring SB #6.

GS=Grab Sample
SS=Split Spoon Sample

REMEDATION TECHNOLOGIES, Inc.
Concord, MA Pittsburgh, PA Fort Collins, CO Austin, TX Chapel Hill, NC
Seattle, WA Billings, MT St. Paul, MN Mandeville, LA Tucson, AZ

MONITORING WELL LOG

MW-11

PROJECT NO.: 3-2075-680

CLIENT: NATIONAL FUEL GAS

LOCATION: MINERAL SPRINGS ROAD

START DATE: 6-30-97

GEOLOGIST: MARK HOFFERBERT

DRILLING CO.: MAXIM

DRILLER: RON BROWN

METHOD:

CASING I.D.:

TOTAL DEPTH: 18

HP ELEVATION: 590.03

SURFACE ELEVATION: 587.34

WATER LEVEL DURING DRILLING: 9.75

PVC STICK-UP: 2 1/2'

AUGER O.D./I.D. 4.25" ID

DEPTH (feet)	SAMPLE TIME	BLOW COUNTS	RECOVERY	PID Headspace (ppm)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
5				0.0	0-2	FILL		Fill material consisting of: 80% Clay 20% Debris.	
				0.0	2-4				
				0.0	4-6				
				2.9	6-8				
10				2.2	8-10	CL		Becomes SILTY CLAY, high plasticity, moist.	
				180	10-12			Trace hydrocarbon sheen and hydrocarbon odor.	
				86	12-14				
15				30	14-16	SW		Becomes SAND, uniform, poorly sorted, loose. Trace gravel, slight hydrocarbon sheen and odor.	
				25	16-18				
				22	18-20				
20								End of boring.	

REMARKS:

MONITORING WELL LOG MW-12

PROJECT NO.: 3-2075-680	DRILLING CO.: MAXIM	MP ELEVATION: 591.40
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION: 588.74
LOCATION: MINERAL SPRINGS ROAD	METHOD:	WATER LEVEL DURING DRILLING: 11.95
START DATE: 7-1-97	CASING I.D.:	PVC STICK-UP: 2 1/2"
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 15.0	AUGER O.D./I.D. 4.25"/10

DEPTH (feet)	SAMPLE TIME	BLOW COUNTS	RECOVERY	PID Headspace (ppm)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
							0-0.5' Topsoil		
				0.9	0.5-2	FILL		Fill material consisting of Ash/inders, black wood chips.	
				5.4				Black wood chips and peat mixture, slight hydrocarbon odor.	
				NA	2-4	CL		SILTY CLAY, uniform, firm, medium plasticity, gray.	
5				4.5	4-6				
				6.1	6-8				
				9.0	8-10				
10				4.5	10-12				
				1.8	12-14			Becomes wet.	
15				1.9	14-16	SP		Becomes sand, gray, loose, coarse, poorly sorted. 30% Gravel, gray, rounded.	
								End of boring.	

REMARKS: NA-not applicable.

MONITORING WELL LOG MW-13

PROJECT NO.: 3-2075-680	DRILLING CO.: MAXIM	MP ELEVATION: 591.85
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION: 592.33
LOCATION: MINERAL SPRINGS ROAD	METHOD:	WATER LEVEL DURING DRILLING: 13.68
START DATE: 7-2-97	CASING I.D.:	PVC STICK-UP: 2 1/2'
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 20	AUGER O.D./I.D. 4.25" ID

DEPTH (feet)	SAMPLE TIME	BLOW COUNTS	RECOVERY	PID Headspace (ppm)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
				0.0	0-2	CL		0-0.2' Topsoil CLAY, gray, uniform, firm, medium plasticity, moist.	
				0.0	2-4				
5				0.0	4-6				
				0.0	6-8				
				0.0	8-10				
10				0.0	10-12				
				0.0	12-14				
15				0.0	14-16				
				0.4	16-18	GP		Becomes GRAVEL, gray, loose, poorly sorted, wet. 30% Sand, gray, 10% Silt.	
				0.1	18-20	SP		SAND, loose, coarse, poorly sorted.	
20								End of boring.	

REMARKS:

MONITORING WELL LOG MW-14

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION: 589.81

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION: 590.02

LOCATION: MINERAL SPRINGS ROAD

METHOD:

WATER LEVEL DURING DRILLING: 12.45

START DATE: 7-2-97

CASING I.D.:

PVC STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 20

AUGER O.D./I.D. 4.25" 10

DEPTH (feet)	SAMPLE TIME	BLOW COUNTS	RECOVERY	PID Headspace (ppm)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
								0-0.5' Asphalt pavement.	
				0.0	0.5-2	CL		SILTY CLAY, gray, uniform, firm, medium plasticity, moist.	
				0.4	2-4				
5				0.0	4-6				2" PVC riser
				0.0	6-8				
				0.0	8-10				
10				0.0	10-12			Becomes wet.	
				0.0	12-14				
				0.0	14-16	ML		CLAYEY SILT, gray, firm, wet.	
15				0.0	16-18	SM		SILTY SAND, gray, loose, poorly sorted, wet.	
				0.0	18-20				
20								End of boring.	2" PVC 0.020 slot screen

Concrete seal

Bentonite Seal

#1 Mott Sand

REMARKS:

MONITORING WELL LOG MW-15

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION: 590.93

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION: 588.95

LOCATION: MINERAL SPRINGS ROAD

METHOD:

WATER LEVEL DURING DRILLING: 11.82

START DATE: 7-1-97

CASING I.D.:

PVC STICK-UP: 2 1/2'

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 18

AUGER O.D./I.D. 4.25" / 10

DEPTH (feet)	SAMPLE TIME	BLOW COUNTS	RECOVERY	PID Headspace (ppm)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
				23	0.5-2	FILL		0-0.5' Topsoil Fill material consisting of: silty clay and cinders.	
				0.0	2-4	CL		SILTY CLAY, gray, firm, medium plasticity.	
5				0.0	4-6				
				0.0	6-8				
				0.0	8-10				
10				0.0	10-12				
				0.0	12-14				
15				0.0	14-16			Becomes wet.	
				0.0	16-18	SP		SAND, gray, coarse, loose, wet.	
20								End of boring.	

REMARKS:

MONITORING WELL LOG MW-16

REMEDATION TECHNOLOGIES, INC.

PROJECT NO: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION: 588.89

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION: 588.46

LOCATION: MINERAL SPRINGS ROAD

METHOD:

WATER LEVEL DURING DRILLING: 8.82

START DATE: 7-1-97

CASING I.D.:

PVC STICK-UP: 2 1/2"

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 18

AUGER O.D./I.D. 4.25" 10

DEPTH (feet)	SAMPLE TIME	BLOW COUNTS	RECOVERY	PID Headspace (ppm)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
				1.3	0-2	FILL		Fill material consisting of: Cinders, ash and debris. Blue staining from 1.3 to 3'.	
				0.0	2-4				
5				20	4-6	CL		CLAY, gray, firm, medium plasticity, wet. Blue Stain at 8" below ground surface.	2" PVC riser
				5.8	6-8				
10				4.1	8-10				
				2.0	10-12				
				0.0	12-14	CL		SANDY SILT, dry gray.	2" PVC 0.02 slot screen
15				0.0	14-16			CLAY, gray, firm, medium plasticity, wet.	
				0.0	16-18	SP		SAND, gray, coarse, poorly sorted, wet.	
20								End of boring.	concrete seal bentonite Seal #1 mobile sand

REMARKS:



WELL INSTALLATION LOG BORING: MW-17

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-680

DRILLING CO.: NORTHSTAR

MP ELEVATION: 587.28

CLIENT: NATIONAL FUEL GAS

DRILLER: JEFF THEW

SURFACE ELEVATION: 585.28

LOCATION: MINERAL SPRINGS ROAD

METHOD: HSA

WATER LEVEL DURING DRILLING:

START DATE: 1-22-98

CASING I.D.:

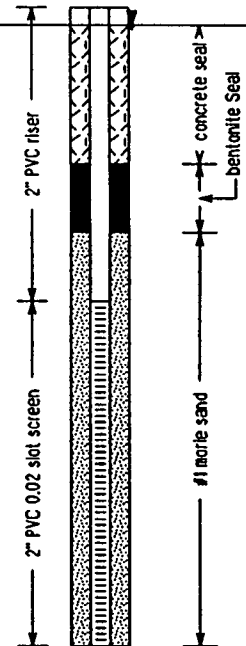
STICK-UP: 2 1/2'

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 18

AUGER O.D./I.D. 4.25" 10

DEPTH (feet)	SAMPLE TIME	BLOW COUNTS	RECOVERY	PID Headspace (ppm)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
5				3.5	0-2	FILL		0 - 0.5 Topsoil	
				3.5	2-4	CL		CLAY	
				2.1	4-6			Grey, firm, low plasticity, moist, no odor.	
				3.1	6-8			Becomes wet at 5.0.	
10				2.2	8-10			At 7.5 to 8.0 - 6-inch lense of peat, no odor.	
				1.7	10-12			At 11.0 becomes sandy clay, wet, no odor.	
15				2.6	12-14	SP		SAND	
				3.0	14-16	GP		Grey, fine grained, loose, uniform, well sorted.	
				3.2	16-18			SANDY GRAVEL	
								Grey, loose, poorly sorted, wet, no odor.	
20								End of boring.	
25									
30									
35									
40									



REMARKS:

WELL INSTALLATION LOG BORING: MW-18

PROJECT NO.: 3-2075-680

DRILLING CO.: NORTHSTAR

MP ELEVATION: 591.64

CLIENT: NATIONAL FUEL GAS

DRILLER: JEFF THEW

SURFACE ELEVATION: 589

LOCATION: MINERAL SPRINGS ROAD

METHOD: HSA

WATER LEVEL DURING DRILLING:

START DATE: 1-26-98

CASING I.D.:

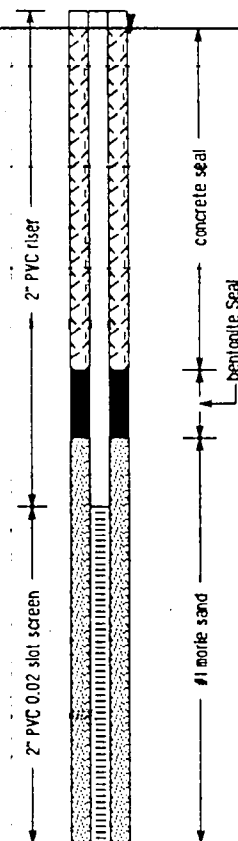
STICK-UP: 2 VZ'

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 26

AUGER O.D./I.D. 4.25" 1D

DEPTH (feet)	SAMPLE TIME	BLOW COUNTS	RECOVERY	PID Headspace (ppm)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
				0.3	0-2	FILL CL		0 - 0.5 Topsoil	
				0.3	2-4			SILTY CLAY	
								Grey, firm, moist, no odor.	
5				0.7	4-6	SP		SAND	
								Grey, loose, poorly sorted, wet, no odor.	
				0.4	6-8				
				0.5	8-10	CL		CLAY	
10								Grey, firm, uniform, low plasticity, moist, no odor.	
				0.7	10-12				
				0.6	12-14				
15				0.4	14-16			At 14.5 - becomes gravelly clay	
								At 16.0 - becomes soft	
				0.5	16-18				
20				0.5	18-20			Grey, soft, medium plasticity, moist, no odor.	
				0.5	20-22				
				0.5	22-24				
25				0.5					
								End of boring.	
30									
35									
40									



REMARKS:

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 THEM	SURFACE ELEVATION: 587.6
LOCATION: MINERAL SPRINGS	METHOD: HOLLOW STEM AUGER	WATER LEVEL DURING DRILLING:
START DATE: 5-4-89	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						CL		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, 1/29/88.

THERMORETEC, INC.

WELL INSTALLATION LOG

BORING: MW-20

587.30

587.7

PROJECT NO.: 3-2075-750

DRILLING CO.: NORTHSTAR

MP ELEVATION: 587.30

CLIENT: NATIONAL FUEL GAS

DRILLER: JEFF THEW

SURFACE ELEVATION: 587.7

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					2" PVC riser
				18.2					
10				16.7				Becomes wet at 12.0 feet.	Bentonite seal
				18.7					2" PVC 0.02 slot screen
15						GRAVEL		30% Grey silt, 70% Grey rounded gravel.	Unman 2085 sand
20								End of boring.	Cement bentonite grout concrete seal

REMARKS:

THERMORETEC, INC.

WELL INSTALLATION LOG
BORING: MW-21

587.88

588.2

PROJECT NO.: 3-2075-750	DRILLING CO.: NORTHSTAR	MP ELEVATION: 587.88
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEM	SURFACE ELEVATION: 588.2
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.	
						ML		GRAVEL, angular, rock pond shale.	
				17.9				CLAYEY SILT, brown, firm, uniform, moist, 10% very fine sand.	
5				13.8					
				18.2					
				0.6				20% very fine SAND, moist to wet.	
10				20.9					
				20.1		SM		Grey SILTY SAND, fine, uniform, wet, loose.	
15				22.1					
				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 THEM

SURFACE ELEVATION: 590.2

LOCATION: MINERAL SPRINGS

METHOD: HOLLOW STEM AUGER

WATER LEVEL DURING DRILLING:

START DATE: 5-4-99

CASING I.D.:

STICK-UP: 2 V2'

GEOLOGIST: JAMES EDWARDS

TOTAL DEPTH: 20

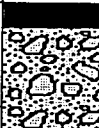
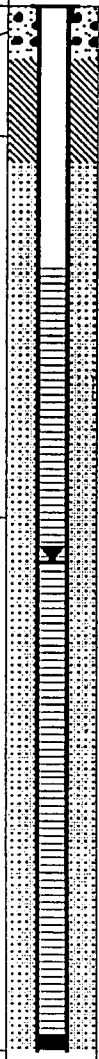
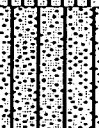
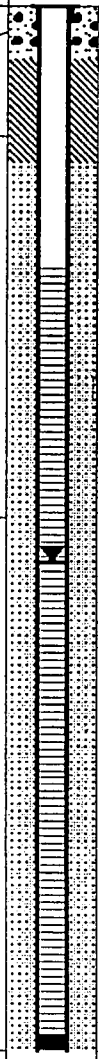
AUGER O.D./I.D.

DEPTH (feet)	SAMPLE TIME	BLOOM COUNTS	RECOVERY	PID Headspace (ppm)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
		3 21 31 22	30	0		FILL		FILL material 0-0.5 topsoil, Black silt and sand, 30% angular cobbles, slag fragments, ashes.	
		8 11 8 11	30	0				FILL, black clayey silt, trace brick fragments, well.	
5		3 3 5 7	10	0		ML		CLAYEY SILT, grey and brown in mottling pattern, firm, moist.	2" PVC riser
		4 4 5 7	80	0				CLAYEY SILT, black, firm, slight plasticity, moist.	
		6 8 8 8	90	0				CLAYEY SILT, grey and brown in mottled pattern, uniform, firm, moist.	
10		4 5 6 7	90	0				CLAYEY SILT, grey and brown, firm, medium plasticity, moist, uniform.	
		5 6 6 7	90	0				CLAYEY SILT, slight plasticity.	
		8 8 6 4	90	0				Trace nodules of peat.	
15		2 2 3 2	80	0				Becomes soft.	
		4 5 5 4	85	0		GP		CLAYEY SILT, grey, uniform, trace black staining, granitic pebbles at 16.0', medium plasticity, moist.	2" PVC 0.02 slot screen
20								CLAYEY SILT, grey, uniform, wood plug in split spoon tip.	
								GRAVEL, grey, rounded, poorly sorted, trace silt, grey coarse sand, wet.	
								End of boring	

REMARKS:

ID: MW23

Project Number: NFGD3-14852	Drilling Co.: Maxim Technologies Inc.	Surface Elevation: (MSL) 589.58
Client: National Fuel Gas	Driller: Randy Evans	Water Level During Drilling: 7.8 bgs
Site Location: Mineral Springs MGP	Casing ID: NA	Stickup: NA
Start Date: 4/11/00	Method: 4 1/4" ID Hollow Stem Auger	MP Elevation: (MSL) 589.28
Completion Date: 4/11/00	Logged By: James Edwards	Total Depth: 20.00 feet bgs
Location: "Site Entrance"		

Depth (ft)	Sample Depth	Recovery	Blow Counts /s"	PID (ppm)	Lithology (symbol)	Description	Well Construction
1	0-2	0.5	7 11 7 11	4.6		Asphalt Pavement	
2						Fill Fill material: Gravel ; grey; medium; rounded; loose; 20% Sand; wet.	
3	2-4	0.5	3 5 6 7	3.2		ML - Clayey Silt Grey and tan in mottled pattern; low plastic; firm; uniform; moist.	
4							
5	4-6	1.3	7 10 15 16	3.1			
6							
7	6-8	1.8	19 19 20 27	3.3		Becomes wet.	
8							
9	8-10	1.7	11 10 11 10	3.0			
10							
11	10-12	1.3	5 4 5 5	2.4		GM - Sandy Gravel Grey; fine to medium; round to subround; loose; wet.	
12							
13	12-14	0.3	7 6 5 3	2.2			
14							
15	14-16	0.5	7 6 10 18	3.8		Increasing sand content to 30%.	
16							
17	16-18	0.5	15 8 12 7	2.1		Sandy Gravel: Grey; loose; rounded to subround; 30% sand; wet.	
18							
19	18-20	1.2	15 10 13 18	2.8			
20							

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 V2'

GEOLOGIST: JAMES EDWARDS

TOTAL DEPTH: 28

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

DEPTH (feet)	SAMPLE TIME	BLOW COUNTS	RECOVERY	PID Headspace (ppm)	SAMPLE DEPTH	SOIL CLASS	LITHOLOGY	DESCRIPTION	WELL CONSTRUCTION
0				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.	2.7'
5						GP		SANDY GRAVEL Mixed with hydrocarbon product. At 8.0' becomes saturated with hydrocarbon product.	4" black iron riser
10						CL		CLAY Grey, firm, low plasticity, strong hydrocarbon odor. At 15.0' increasing gravel content.	Bentontie seal
15				11.8		GP		SANDY GRAVEL Grey, loose, poorly sorted, trace hydrocarbon sheen. Slight hydrocarbon sheen, wet. At 25.0' strong hydrocarbon sheen.	#0.040 stainless steel screen
20						CL		CLAY Grey, soft, medium plasticity, trace hydrocarbon odor and sheen.	#1275 Granular sand
25								End of boring.	
30									

REMARKS:

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

SB



SHEET 1 OF 1

EMPIRE

SOILS INVESTIGATIONS INC.

G. W. DEPTH see note

PROJECT Separator Pit Borings
BD-89-027

LOCATION National Fuel Gas
Mineral Springs Road, West Seneca, N.Y.

[illegible]

C = No blows to drive _____ " casing _____ " with _____ lb. weight falling _____ " per blow.

METHOD OF INVESTIGATION:

ASTM D-1586 USING HOLLOW STEM AUGERS

DATE

STARTED 3/22/89

FINISHED 3/22/89

SHEET 1 OF 1



SUBSURFACE LOG

HOLE NO. B-2

SURF. ELEV. N/A

G. W. DEPTH see note

PROJECT Separator Pit Borings

BD-89-027

LOCATION National Fuel Gas

Mineral Springs Road, West Seneca, N.Y.

DEPTH-FT.	SAMPLES	SAMPLE NO.	BLOWS ON SAMPLER				BLOW ON CASING C	SOIL OR ROCK CLASSIFICATION	NOTES
			0-6	6-12	12-18	18-24			
0		1	2	3				Brn. and Black CINDERS and Slag (moist, FILL)	Petroleum odor noted in Samples #2, #3, #4, #5 and #6
			5	7			8	Contains tr. brick (moist-wet)	
		2	17	18				Gray Silty CLAY, tr. sand, tr. organics (moist, medium)	
			9	4			27	Contains occasional f-c Sand lenses	
5		3	2	3					
			5	7			8		
		4	7	8					"Tar"-like inclusions noted in Sample #4 and #6
			12	13			20		
		5	3	4					
			5	7			9		
-10		6	5	5				Contains tr. wood	
			4	3			9		
								Boring Complete at 12.0'	Free standing water recorded at 3.2' at Boring Completion

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 "per blow.

C = No. blows to drive " casing " with lb. weight falling "per blow.

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

CLASSIFICATION Visual by Geologist

SHEET 1 OF 1

EMPIRE

SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

HOLE NO. B-3

SURF. ELEV. N/A

G. W. DEPTH see note

PROJECT Separator Pit Borings
BD-89-027

LOCATION National Fuel Gas
Mineral Springs Road, West Seneca, N.Y.

[illegible]

N = No. blows to drive 2 " spoon 12 " with 140 lb. pin wt. falling 30 " per blow.

C = No blows to drive _____" casing _____" with _____lb. weight falling _____" per blow.

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

CLASSIFICATION Visual by
Geologist

PAGE 1 OF 1

SUBSURFACE LOG

G. W. DEPTH see note

LOCATION National Fuel Gas
Mineral Springs Road, West Seneca, N.Y.

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

DATE STARTED: <u>10-17-94</u> FINISHED: <u>10-17-94</u>		EMPIRE SOILS INVESTIGATIONS INC.		SUBSURFACE LOG BD-94-049		BORING NO.: <u>B-2</u> SURF. ELEV.: <u>±</u> SHEET <u>1</u> OF <u>1</u>	
PROJECT: <u>Proposed Building</u> CLIENT: <u>National Fuel Gas</u>				LOCATION: <u>Mineral Springs Road</u> <u>West Seneca, New York</u>			

DEPTH-FT.	SAMPLE NO	BLOWS ON SAMPLER						SYMBOL	SOIL OR ROCK CLASSIFICATION	NOTES
		0	2	4	6	8	10			
0	1	8	10	100	0.3	REF			Topsoil (Approx 2 - inches) Gray brown Silty CLAY, little f-c sand, tr. cinders (moist, FILL)	
									Boring complete with sample spoon refusal at 1.3'	No free standing water encountered at boring completion
10										

DRILLER: <u>J. Jensen</u> METHOD OF INVESTIGATION: <u>ASTM D-1586 USING HOLLOW STEM AUGERS</u> WEATHER: _____	DRILL RIG: <u>CME-25</u> CLASSIFIED BY: <u>D. R. Steiner</u>
---	---

DATE STARTED: <u>10-17-84</u> FINISHED: <u>10-17-84</u>		EMPIRE SOILS INVESTIGATIONS INC.		SUBSURFACE LOG BD-84-049		BORING NO.: <u>B-4</u> SURF. ELEV.: <u>±</u> SHEET <u>1</u> OF <u>1</u>	
PROJECT: <u>Proposed Building</u> CLIENT: <u>National Fuel Gas</u>				LOCATION: <u>Mineral Springs Road</u> <u>West Seneca, New York</u>			

DEPTH-FT.	SAMPLE NO	BLOWS ON SAMPLER						SYMBOL	SOIL OR ROCK CLASSIFICATION	NOTES
		0	2	4	6	8	10			
0	1	2	6	7	9	13			Topsoil (Approx 2 - inches) Brown Silty CLAY, some f-c Sand, tr. gravel, tr. brick (moist, FILL)	
	2	100/0.4					REF		Contains f-c Sand, little Silty Clay	
									Boring complete with sample spoon refusal at 2.4'	No free standing water encountered at boring completion
8										
10										

DRILLER: <u>J. Jensen</u> METHOD OF INVESTIGATION: <u>ASTM D-1586 USING HOLLOW STEM AUGERS</u> WEATHER: _____	DRILL RIG: <u>CME-55</u> CLASSIFIED BY: <u>D. R. Steiner</u>
---	---

DATE
STARTED: 10-17-94
FINISHED: 10-17-94

EMPIRE

SOILS INVESTIGATIONS INC.

SUBSURFACE LOG

BD-94-046

BORING NO.: B-5
SURF. ELEV.: 2
SHEET 1 OF 1

PROJECT: Proposed Building
CLIENT: National Fuel Gas

LOCATION: Mineral Springs Road
West Seneca, New York

DEPTH-FT.	SAMPLE NO	BLOWS ON SAMPLER						SYMBOL	SOIL OR ROCK CLASSIFICATION	NOTES
		0	6	12	18	24	N			
0	1	3	7	7	7	14			Topsoil (Approx 3 - inches) Brown Silty Clay, tr. sand, tr. gravel, tr. brick, tr. cinders (moist, FILL)	
	2	100/0.1					REF		Boring complete with sample spoon refusal at 2.1'	No free standing water encountered at boring completion
5										
10										

DRILLER: J. Jensen

DRILL RIG: CME-EE

METHOD OF INVESTIGATION: ASTM D-1586 USING HOLLOW STEM AUGERS

WEATHER:

CLASSIFIED BY: D. B. Steiner

DATE STARTED: <u>10-17-94</u> FINISHED: <u>10-17-94</u>		EMPIRE SOILS INVESTIGATIONS INC.		SUBSURFACE LOG BD-94-049		BORING NO.: <u>B-6</u> SURF. ELEV.: <u>±</u> SHEET <u>1</u> OF <u>1</u>	
PROJECT: <u>Proposed Building</u> CLIENT: <u>National Fuel Gas</u>				LOCATION: <u>Mineral Springs Road</u> <u>West Seneca, New York</u>			

DEPTH-FT.	SAMPLE NO.	BLOWS ON SAMPLER							SYMBOL	SOIL OR ROCK CLASSIFICATION	NOTES
		0	1	2	3	4	5	N			
0	1	3	7	8	9	15				Topsoil (Approx 14 - inches)	
										Brown f. Sand, little Clayey Silt, tr. clinders, tr. slag, tr. brick (moist, FILL)	
	2	100/0.3'					REF			Contains silty Clay, tr.-little clinders	
										Boring complete with sample spoon refusal at 2.3'	
											No free standing water encountered at boring completion
10											

DRILLER: <u>J. Jensen</u> METHOD OF INVESTIGATION: <u>ASTM D-1586 USING HOLLOW STEM AUGERS</u> WEATHER: _____	DRILL RIG: <u>CME-25</u> CLASSIFIED BY: <u>D. R. Steiner</u>
---	---

DATE STARTED: <u>10-17-94</u> FINISHED: <u>10-17-94</u>		EMPIRE SOILS INVESTIGATIONS INC.		SUBSURFACE LOG BD-94-049		BORING NO.: <u>B-7</u> SURF. ELEV.: <u>±</u> SHEET <u>1</u> OF <u>1</u>	
PROJECT: <u>Proposed Building</u> CLIENT: <u>National Fuel Gas</u>				LOCATION: <u>Mineral Springs Road</u> <u>West Seneca, New York</u>			

DEPTH-FT.	SAMPLE NO	BLOWS ON SAMPLER							SYMBOL	SOIL OR ROCK CLASSIFICATION	NOTES	
		0	2	4	6	8	10	12				
0	1										Topsoil (Approx 12 - inches)	NQ '2' Size Core Cored Concrete 2.3' - 3.0' Rec - 0.8' (86%)
											Brown Silty Clay, tr. sand, tr. gravel, tr. clinders (moist, FILL)	
	2	100	0.3						REF	Contains "and" 1-6 Sand		
										Top of Concrete at 2.3' Massive Concrete 2.3' - 2'8" Broken Concrete 2.8' - 3.0'		
										Boring complete at 3.0'		
5												
10												

DRILLER: <u>J. Jensen</u> METHOD OF INVESTIGATION: <u>ASTM D-1586 USING HOLLOW STEM AUGERS</u> WEATHER: _____	DRILL RIG: <u>CME-52</u> CLASSIFIED BY: <u>D. R. Steiner</u>
---	---



BORING LOG BORING SB-01

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-680	DRILLING CO.: MAXIM	HP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRING ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-9-87	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 4	AUGER O.D./I.D.: 2" 10

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
						///	0-0.6 Topsoil.
					FILL	///	Fill material consisting of: Clay and debris, orange, moist. 0.3' of blue stained wood chips mixed with soil. 1' thick layer of blue stained wood chips mixed with soil.
					CL	///	SILTY CLAY, gray, firm, moist.
5							End of boring
10							

REMARKS:
SB-01 (2-4) analyzed for BTEX, PAH, TOC and cyanide.

RETEC

REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-02

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MPE ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-9-97

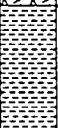
CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 4

AUGER O.D./I.D.: 2" ID

DEPTH (feet)	RECOVERY (ft)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
							0-0.6 Topsoil.
					FILL		Fill material consisting of: 50% CLAY 50% Gravel, gray, rounded. At 2-3', becomes soil mixed with blue stained wood chips, loose, moist
					CL		SILTY CLAY, gray, firm, moist.
5							End of boring.
10							

REMARKS:



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-03

PROJECT NO.: 3-2075-680	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-9-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 4	AUGER O.D./I.D.: 2" ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
							0-0.6 Topsoil
					FILL		Fill material consisting of: Silty Clay and debris. Becomes soil mixed with blue stained wood chips, loose, moist, trace hydrocarbon product.
					CL		SILTY CLAY, gray, firm, medium plasticity, moist.
5							End of boring.
10							

REMARKS:



BORING LOG BORING SB-04

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-9-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 4

AUGER O.D./I.D.: 2" ID

DEPTH (feet)	RECOVERY (ft)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
					FILL		0-0.6' Fill material consisting of: Gray, rounded gravel. Becomes SILTY CLAY, gray, firm, moist. Fill material consisting of: Clay, brick fragments and ash.
					CL		SILTY CLAY, gray, firm, medium plasticity, moist.
5							End of boring.
10							

REMARKS:



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-05

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-9-97

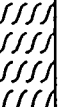
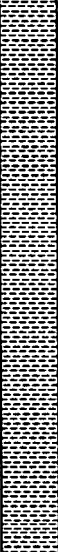
CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 8

AUGER O.D./I.D.: 2" ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
							0-1' Topsoil.
					FILL		Fill material from 1-1.5', Soil mixed with blue stained wood chips.
					CH		Clay to 3.5' below ground surface.
5					CL		3.5-4.0' SILTY CLAY with 0.4" lense of ash, slight hydrocarbon odor. Becomes CLAY, black hydrocarbon staining and slight hydrocarbon odor. CLAY, gray, firm, moist.
10							End of boring.

REMARKS:



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-06

PROJECT NO: 3-2075-680	DRILLING CO: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-9-87	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 3	AUGER O.D./I.D.: 2" 10

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
							0-0.5' Topsoil.
					FILL		Fill material consisting of: Clay and debris. Becomes black ash with slight hydrocarbon odor.
					CL		Becomes SILTY CLAY, firm, moist, medium plasticity.
5							End of boring.

REMARKS:



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-07

PROJECT NO.: 3-2075-680

CLIENT: NATIONAL FUEL GAS

LOCATION: MINERAL SPRINGS ROAD

START DATE: 7-9-97

GEOLOGIST: MARK HOFFERBERT

DRILLING CO.: MAXIM

DRILLER: RON BROWN

METHOD: GEOPROBE

CASING I.D.:

TOTAL DEPTH: 4

HP ELEVATION:

SURFACE ELEVATION:

WATER LEVEL DURING DRILLING: NA

STICK-UP: NA

AUGER O.D./I.D.: 2" 10

DEPTH (feet)	RECOVERY (ft)	SAMPLE DEPTH	PTD HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
					CL		SILTY CLAY, gray, firm, moist, medium plasticity. Gravel lens at 1' below ground surface.
5							End of boring.
10							

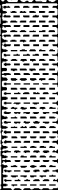
REMARKS:

RETEC

REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-08

PROJECT NO.: 3-2075-080	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-9-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 4	AUGER O.D./I.D.: 2" ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
							0-0.6' Topsoil.
					FILL		Fill material consisting of: Clay and gravel. Coal fragments in lens.
					CL		SILTY CLAY, gray, firm, medium plasticity, moist.
5							End of boring.
10							

REMARKS:



REMEDIAATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-09

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD.

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-9-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 6.5

AUGER O.D./I.D.: 2" ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
							0-0.5' Topsoil.
					FILL		Fill material consisting of: Gravely Clay, gray, moist. Becomes fill material consisting of: Gravel mixed with hydrocarbon product. Becomes fill material consisting of: Sand, gravel and slag mixture, Fill consisting of Coal fragments and gravel mixed with hydrocarbon product.
5					CL		CLAY, black hydrocarbon like staining, hydrocarbon odor, moist.
							End of boring.
10							

REMARKS:

RETEC

REMEDIATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-10

PROJECT NO.: 3-2075-660

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: 3.0

START DATE: 7-9-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 8

AUGER O.D./I.D.: 2" 10

DEPTH (feet)	RECOVERY (ft)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			29		FILL		Fill material consisting of: Clayey Silt, brick fragments, concrete fragments.
			22.8				Becomes wet.
5			125				Fill becomes saturated with hydrocarbon product, black, low viscosity, strong hydrocarbon odor.
			877				Concrete.
							End of boring.
10							

REMARKS:

Sample SB10/11 (4-8) analyzed for BTEX, PAH, PCBs and cyanide.



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-11

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: 3.0

START DATE: 7-8-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 8

AUGER O.D./I.D.: 2" ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			10.8		FILL		Fill material consisting of: Clayey Silt, brick fragments, concrete fragments.
			18.3				
5			35.4				Fill becomes saturated with hydrocarbon product, black, low viscosity, strong hydrocarbon odor.
			737				Concrete.
							End of boring.
10							

REMARKS:

Sample SB10/11 (4-8) analyzed for BTEX, PAH, PCBs and cyanide.



BORING LOG BORING SB-12

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-680	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-9-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2" / 10

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5			18		FILL		Fill material consisting of Silty Clay, gravel, brick and concrete fragments.
			108				Becomes fill material consisting of: clay and debris, slight hydrocarbon odor.
			33				
			38.7				7-10', becomes fill material saturated with hydrocarbon product.
10			185				
			75		CL		Becomes clay, black hydrocarbon staining, firm, medium plasticity slight hydrocarbon odor.
			138				Clay, black hydrocarbon staining, firm, medium plasticity, slight hydrocarbon odor.
15			183		GP		Silty Gravel, wet, loose, poorly sorted.
							End of boring.

REMARKS:

Sample SB12 (12-16) analyzed for BTEX, PAH, TOC and cyanide.



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-13

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-9-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 6

AUGER O.D./I.D.: 2" ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOCK COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			14.1		FILL		Fill material consisting of: Silty Clay mixed with concrete and brick fragments.
			67				SAND, black hydrocarbon staining, moist.
			467		CL		SILTY CLAY, saturated with hydrocarbon product, black, low viscosity, strong hydrocarbon odor.
5			79				Concrete.
							End of boring.

REMARKS:

Sample SB-13 (3-6.5) analyzed for BTEX, PAH, and cyanide.

BORING LOG BORING SB-14

PROJECT NO.: 3-2075-680	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS RD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-8-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2" / 10

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
		0-2	10.9		FILL		Fill material consisting of: Silty clay mixed with concrete and brick fragments, trace black hydrocarbon staining.
		2-4	10.0		CL		Clay, black hydrocarbon staining, firm, moist.
5		4-6	13.7				Clay, gray, firm, slight hydrocarbon odor.
		6-8	8.1				Clay, black hydrocarbon staining, slight hydrocarbon odor.
		8-10	9.1				Clay, gray, firm, slight hydrocarbon odor.
10		10-12	8.7				
		12-14	11.1		SM		Silty sand, gray, poorly sorted, wet.
15			10.7				
							End of boring.

REMARKS:

BORING LOG
BORING SB-15

REMEDICATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-9-97

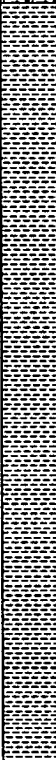
CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 8

AUGER O.D./I.D.: 2" 10

DEPTH (feet)	RECOVERY (ft)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	10.2		FILL		Fill material consisting of: Silty Clay mixed with concrete and brick fragments.
		2-4	46.3		CL		Clay, black hydrocarbon staining, slight hydrocarbon odor.
		4-6	20.0				Clay, visible hydrocarbon product.
		6-8	NA				Concrete at 8' below ground surface.
							End of boring.
10							

REMARKS:

BORING LOG BORING SB-16

PROJECT NO.: 3-2075-680	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-8-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 12	AUGER O.D./I.D.: 2" ID

DEPTH (feet)	RECOVERY (ft)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
		0-2	5.0		FILL		Fill material consisting of: Silty clay mixed with brick and concrete fragments. 1
		2-4	302		CL		SILTY CLAY, firm, medium plasticity, black hydrocarbon staining, strong hydrocarbon odor.
5		4-6	17				
		6-8	33				
		8-10	NA				CLAY, firm, medium plasticity.
10		10-12	6.1				
							End of boring.

REMARKS:



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-17

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-10-87

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 8

AUGER O.D./I.D.: 2" ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			4.4		FILL		Fill material consisting of: SILTY CLAY mixed with brick fragments.
			9.0				
5			NA				
			181				Fill becomes saturated with hydrocarbon product.
							Concrete at 8.0' below ground surface.
10							End of boring.

REMARKS:

Sample SB-17 (2-8) analyzed for BTEX, PAH, PCB and cyanide.

BORING LOG BORING SB-18

PROJECT NO.: 3-2075-680	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-10-87	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2" / 10

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5	NR	0-2	5.8		FILL		Fill material consisting of: Silty clay mixed with concrete and brick fragments.
		2-4	13.8				Black hydrocarbon staining, slight hydrocarbon odor.
		4-6	8.0		CL		SANDY CLAY, gray, firm, moist, stringers of hydrocarbon product
		6-8	77				
10	NR	8-12	NA		GP		GRAVEL mixed with stringers of hydrocarbon product. Poor sample recovery.
15	NR	12-16	70		CL		CLAY saturated with hydrocarbon product. Poor sample recovery.
							End of boring.

REMARKS:

NA-not applicable.
NR-no recovery.



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-19

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-10-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 12

AUGER O.D./I.D.: 2" ID

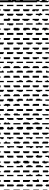
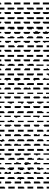
DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			12.2		FILL		Fill material consisting of: Silty Clay mixed with concrete and brick fragments.
			1.9				Fill with black hydrocarbon staining.
5			1.8		CL		SANDY CLAY, gray, firm.
					SM		SILTY SAND, gray, moist.
			1.3		CL		SILTY CLAY, gray, firm, moist.
			1.3		SM		SAND, gray, coarse, loose, moist.
10			10.7		CH		CLAY, gray, firm, medium plasticity, moist.
							End of boring.

REMARKS:

Sample SB19 (8-12) analyzed for BTEX, PAH and cyanide.

BORING LOG BORING SB-20

PROJECT NO: 3-2075-680	DRILLING CO: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-9-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 12	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (gpa)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			11.9		FILL		Fill material consisting of: Silty clay mixed with gravel, concrete and bricks.
			4.1		CL		SILTY CLAY, trace black hydrocarbon staining and slight hydrocarbon odor.
5			15.1				SANDY CLAY, gray, firm wet.
			65				
			10.7		SM		SILTY SAND, gray, loose, poorly sorted.
10			29				
							End of boring.

REMARKS:

Sample SB-20 (8-12) analyzed for BTEX, PAH and cyanide.



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-21

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD.

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-10-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 16

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	1.6		FILL		Fill material consisting of: Gravel and brick fragments.
		2-4	5.0				
		4-6	2.0				Fill consisting of: Silt and debris.
		6-8	1.2				
		8-10	0.8				Fill material consisting of: clay, gravel and debris.
10		10-12	1.6		CL		SILTY CLAY, firm, medium plasticity.
		12-14	1.5				
		14-16	2.1				SILTY CLAY, trace sand, gray, wet.
15							End of boring.

REMARKS:



BORING LOG BORING SB-22

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-080

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-10-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 18

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOM COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	4.7		FILL		Fill material consisting of: Gravel, cobbles and silty clay.
		2-4	4.7				
		4-6	9.0				Fill material consisting of gravel.
							Black hydrocarbon staining and hydrocarbon odor.
10		6-8	5.4		CL		CLAY, gray, firm, moist, slight hydrocarbon odor.
		8-10	6.1				
		10-12	5.0				CLAY, trace silt and gravel, wet.
		12-14	3.7				Visible hydrocarbon sheen, slight hydrocarbon odor.
15		14-16	1.2		SC		CLAYEY SAND, gray, firm, slight hydrocarbon odor.
		16-18	NA		SP		SAND, gray, medium.
20							End of boring.

REMARKS:

NA-not applicable.



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-23

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION: ~ 587.9

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-10-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 16

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	0.7		FILL		Fill material consisting of: Debris, silty sand, gravel.
		2-4	2.3				Black hydrocarbon staining, slight hydrocarbon odor.
		4-6	1.9				
10		6-8	1.8		CL		SILTY CLAY, gray, firm, medium plasticity.
		8-10	1.8				Trace gravel, becomes wet.
		10-12	1.1				
15		12-14	1.8		SC		CLAYEY SAND, trace gravel.
		14-16	0.6				SAND, gray, loose, wet.
							End of boring.

REMARKS:



BORING LOG BORING SB-24

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-860

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-10-87

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 16

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			2.2		FILL		Fill material consisting of: Gravel, silty clay and debris.
			0.6				
5			NA		CL		SANDY CLAY, gray, firm, moist, trace gravel.
			3.5				Becomes wet.
							SILTY CLAY, gray, firm, wet.
10			1.6				
			1.3				SANDY CLAY, gray, firm, wet.
			1.3		SM		SAND, gray, loose, coarse, wet, slight hydrocarbon odor.
15			3.1				
							End of boring

REMARKS:

Sample SB24-25 (12-16) analyzed for PCB. (composite sample)
NA-not applicable.



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-25

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-10-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 16

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			1.8		FILL		Fill material consisting of: Silty clay, gravel and cinders.
			0.8				
5			1.8				Fill consists of: Silty clay, cinders, brick fragments and gravel.
					GP		SILTY GRAVEL, gray, poorly sorted, trace cobbles, wet.
10			0.5				
			0.7		CL		SANDY CLAY, gray, firm, slight hydrocarbon odor.
			2.0				
					SM		SAND, gray, loose, wet.
15			1.1				
							End of boring.

REMARKS:

Sample SB24/25 (12-16) analyzed for PCBs. (composite sample)



BORING LOG BORING SB-26

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION: 586.61
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-10-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			2.6		FILL		Fill material consisting of: Cinders, concrete fragments and gravel.
			33.0				0.5' thick lens of tar-like material mixed with gravel.
5			2.6				
			0.8		CL		CLAY, gray, firm, medium plasticity.
			1.5				
10			2.1		SC		CLAYEY SAND, gray, loose, wet, trace gravel.
			2.7				
			1.6		CL		CLAY, gray, firm, wet, trace gravel.
15							
							End of boring.

REMARKS:

Sample SB26 (2-4) analyzed for BTEX, PAH, and cyanide.



BORING LOG BORING SB-27

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE:

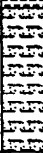
CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 16

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	0.5		FILL		Fill material consisting of: coal fragments, cinders, silty clay.
		2-4	2.4				3-4' becomes black cinders.
		4-6	0.5				
		6-8	0.5				CL
8-10		0.9	Slight hydrocarbon odor.				
10-12		1.2					
15		12-14	1.4		SC		
		14-16	1.3		GP		SANDY GRAVEL, gray, loose, wet, slight hydrocarbon odor.
						End of boring.	

REMARKS:



REMEDIAL TECHNOLOGIES, INC.

BORING LOG
BORING SB-28

PROJECT NO.: 3-2075-680	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-10-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (ft)	SAMPLE DEPTH	PTD HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	1.2		FILL		Fill material consisting of: Cinders, brick fragments, wood fragments, coal fragments.
		2-4	2.2				Slight hydrocarbon odor.
		4-6	1.3				
10		6-8	1.6		CL		SILTY CLAY, gray, firm, medium plasticity.
		8-10	4.1				
		10-12	0.9				
15		12-14	1.3		SP		SAND, gray, loose, coarse. Becomes wet.
		14-16	3.1				
							End of boring.

REMARKS:



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-29

PROJECT NO.: 3-2075-680	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-11-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			9.4		FILL		Fill material consisting of: Brick fragments, gravel, silty clay and cinders.
			9.8				Becomes brick and coal fragments and cinders, slight odor.
5			13.7		CL		SANDY CLAY, gray, firm, moist.
			10.1				
			7.6				
10			44				Becomes soft, trace brown silt.
			89				Becomes wet, visible hydrocarbon product.
15			39.2				Clay, strong hydrocarbon odor.
							End of boring.

REMARKS:

Sample SB29 (10-16) analyzed for BTEX, PAHs, TOC and cyanide.



BORING LOG BORING SB-30

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-11-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 16

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	P10 HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	2.1		FILL		Fill material consisting of: Brick fragments, cinders, gravel and silty clay.
		2-4	1.3				
		4-6	1.9				
		6-8	2.5				
		8-10	NA				
10		10-12	1.3		CL		CLAY, gray, firm, medium plasticity. Wet, slight hydrocarbon odor.
		12-14	1.2				
		14-16	4.5				
15					SP		SAND, gray, loose, medium, wet.
							End of boring.

REMARKS:

NA-not applicable.



BORING LOG BORING SB-31

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE:	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	P/D HEADSPACE (ppa)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	2.1		FILL		Fill material consisting of: Silty Clay, gravel cinders, ashes.
		2-4	131				3-4' Cinders.
		4-6	53				0.5' lens of cinders, strong hydrocarbon odor.
10		6-8	50.3		CL		CLAY, gray, firm, medium plasticity, slight hydrocarbon odor.
		8-10	19				
		10-12	101				Visible hydrocarbon sheen, strong hydrocarbon odor.
		12-14	73				CLAY becomes wet, slight hydrocarbon odor.
		14-16	32				SANDY CLAY, gray, firm, wet.
15							End of boring.

REMARKS:



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-32

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-11-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 16

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (IU)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5			3.0		FILL		Fill material consisting of: rock fragments, cinders, brick fragments.
			2.3				3-4" Sand lens, brown, loose.
			2.5				Brick fragments.
			4.5		CL		SANDY CLAY, gray, loose, medium plasticity, wet.
10			3.0				
			6.6				
			5.0				Trace of gravel.
15			3.8		SP		SAND, gray, coarse, wet.
							End of boring.

REMARKS:

Sample SB32 (10-16) analyzed for BTEX, PAHs and cyanide.

BORING LOG BORING SB-33

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-11-97

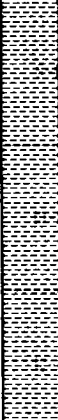
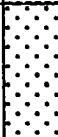
CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 16

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	0.8		FILL		Fill material consisting of: silty clay, rock fragments and concrete fragments.
		2-4	1.9				
		4-6	1.5				
		6-8	1.5				Clinders and sand mixed with fill material.
10		8-10	2.9		CL		CLAY, gray, medium plasticity, moist.
		10-12	2.9				
		12-14	4.1				Becomes wet, slight hydrocarbon odor.
15		14-16	3.4		SG		Gravelly sand, gray, loose, wet, slight hydrocarbon odor.
							End of boring.

REMARKS:



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-34

PROJECT NO.: 3-2075-680	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-11-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (IU)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	4.2		FILL		Fill material consisting of: rock fragments, coal fragments, cinders and concrete fragments.
		2-4	2.4				
		4-6	3.0				0.4' lens of coal fragments.
10		6-8	3.6		CL		SANDY CLAY, gray, firm, medium plasticity, moist.
		8-10	11.3				
		10-12	NA				
15		12-14	8.9		SP		SAND, gray, loose, coarse, moist.
							Becomes wet.
		14-16	10.9				Trace gravel at 16' below ground surface.
							End of boring.

REMARKS:

NA-not applicable.



BORING LOG BORING SB-35

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-680	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-11-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (gpm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION	
5		0-2	6.5		FILL		Fill material consisting of: silty clay, brick fragments.	
		2-4	4.2					
		4-6	2.2		CL		CLAY, gray, firm, medium plasticity, moist.	
		6-8	1.8					
		8-10	2.0					
		10-12	1.8					
10			12-14		2.2	SP		SAND, gray, loose, poorly sorted, wet.
14-16		2.2						
15						End of boring.		

REMARKS:



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-36

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD.

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-11-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 16

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
						////	0-0.5' Topsoil.
			0.8		FILL		Fill material consisting of: rock fragments and silty clay.
			2.0				Becomes mixture of silty clay and blue stained wood chips.
5			2.0				Gray, medium plasticity.
			1.6				1' Layer of blue stained wood chips mixed with silt.
			1.4		CL		SILTY CLAY, gray, firm, medium plasticity.
10			1.2				
			1.8				
					SM		SILTY SAND, gray, loose, poorly sorted, trace rounded gravel
15			1.6				
							End of boring.

REMARKS:

Sample SB36 (2-6) analyzed for BTEX, PAHs and cyanide.

BORING LOG BORING SB-37

PROJECT NO.: 3-2075-680	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-11-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (ft)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
						////	0-0.5' Topsoil
		0-2	6.8		FILL		Fill material consisting of Silty Clay, gravel and debris.
		2-4	5.7				0.5' thick layer of blue stained wood chips, wet.
5		4-6	0.7		CL		CLAY, gray with blue staining, slight hydrocarbon odor.
		6-8	3.1				GRAVELY CLAY, gray loose, slight hydrocarbon odor.
		8-10	3.2				CLAY, gray, firm, medium plasticity.
10		10-12	4.6				
		12-14	2.6		SP		SAND, gray, coarse, loose, poorly sorted, wet.
15		14-16	4.1				Trace gravel
							End of boring.

REMARKS:



PROJECT NO.: 3-2075-680

CLIENT: NATIONAL FUEL GAS

LOCATION: MINERAL SPRINGS ROAD

START DATE: 7-11-87

GEOLOGIST: MARK HOFFERBERT

DRILLING CO.: MAXIM

DRILLER: RON BROWN

METHOD: GEOPROBE

CASING I.D.:

TOTAL DEPTH 16

MP ELEVATION:

SURFACE ELEVATION:

WATER LEVEL DURING DRILLING: NA

STICK-UP: NA

AUGER O.D./I.D.: 2"

REMARKS:



BORING LOG BORING SB-39

REMEDATION TECHNOLOGIES, INC.

PROJECT NO: 3-2075-680	DRILLING CO: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-11-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	0.7		FILL	////	0-0.5' Topsoil
		2-4	3.4				Fill material consisting of: Clayey silt, gravel and debris.
		4-6	1.5				
		6-8	1.2			SP	SAND, gray, loose, poorly sorted.
		8-10	1.4				Becomes wet.
		10-12	1.4				
		12-14	1.1				
		14-16	1.1				SAND, trace clay in nodules.
15							End of boring.

REMARKS:



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-40

PROJECT NO.: 3-2075-680	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION: 987
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-11-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (ft)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	0.4		FILL		Fill material consisting of: Gravel cobbles, silty clay.
		2-4	0.5				
		4-6	0.8				Blue stained wood chips in 0.2' thick lens. Slight hydrocarbon odor.
10		6-8	0.6		CL		SILTY CLAY, gray, medium plasticity, firm, moist.
		8-10	0.5				
		10-12	0.4				Becomes wet.
15		12-14	0.5				
		14-16	0.5				
							End of boring.

REMARKS:

BORING LOG
BORING SB-41

REMEDICATION TECHNOLOGIES, INC.

PROJECT NO: 3-2075-680

DRILLING CO: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION: ~~574.44~~ 583.94

LOCATION: MINERAL SPRINGS ROAD.

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-23-87

CASING LD:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH 16

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOM COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5 							

REMARKS:



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-42

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-23-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 16

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			0.0		FILL		Fill material consisting of: Gravel, coal fragments and silty clay.
			3.6				
5			2.0				Gravel and blue stained wood chips mixed with clay.
			1.0		CL		SILTY CLAY, brown, loose, moist.
			1.5				
10			0.0				Becomes wet.
			0.0				
15			0.0		SP		SAND, gray, loose, poorly sorted 50% Gravel, rounded.
							End of boring.

REMARKS:

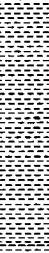
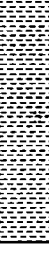
SB42 (4-6) analyzed for BTEX, PAH, and cyanide.



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-43

PROJECT NO: 3-2075-680	DRILLING CO: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-23-87	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 8	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (IU)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	0.0				0-0.5' Topsoil.
					FILL		Fill material consisting of gravel, silty clay and debris.
		2-4	0.0		CL		CLAY, gray, firm. lens of 0.2' of blue stained wood chips.
		4-6	0.0				
		6-8	0.0				SILTY CLAY, brown, firm, moist.
10							End of boring.

REMARKS:



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-44

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-23-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 16

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	P/D HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
					FILL		Fill material consisting of: Gravel and debris.
			1.0		CL		SILTY CLAY, gray, firm, moist.
			1.0				
5			1.0				
			8.7		SP		Becomes wet. SAND, gray, loose, wet, visible hydrocarbon product in stringers.
10			NA				
			2.7		GP		SANDY GRAVEL, gray, loose, poorly sorted, visible hydrocarbon product in stringers.
			2.8				
15			1.0				SANDY GRAVEL, gray, rounded, poorly sorted, trace hydrocarbon sheen.
							End of boring.

REMARKS:

NA-not applicable.

Sample SB44 (8-12) analyzed for BTEX, PAH and cyanide.

Sample SB44 (12-16) analyzed for BTEX, PAH and cyanide.

BORING LOG
BORING SB-45

REMEDIAATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-23-87

CASING LD:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH 18

AUGER O.D./I.D.: 2"

[illegible]

REMARKS:



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-46

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-23-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 16

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
						////	0-0.5' Topsoil.
		0-2	4.4		FILL		Fill material consisting of: cinders, gravel and silty clay.
		2-4	5.2		CL		SILTY CLAY, gray, firm, medium plasticity.
5		4-6	4.4				Hydrocarbon odor.
		6-8	3.6				
		8-10	0.0				SILTY CLAY, gray, hydrocarbon odor.
10		10-12	60				Visible hydrocarbon product in stringers.
		12-14	8.3		GP		GRAVEL, gray, loose, rounded, slight hydrocarbon odor.
15		14-16	4.3		SP		SAND, gray, loose, coarse, poorly sorted, wet.
							End of boring.

REMARKS:



BORING LOG BORING SB-47

REMEDATION TECHNOLOGIES, INC.

PROJECT NO: 3-2075-680	DRILLING CO: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-23-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (ft)	SAMPLE DEPTH	PTD HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
						////	0-0.5' Topsoil
		0-2	25		CL		SILTY CLAY, gray, firm, moist.
		2-4	20				
5	NR	4-6	NA				
	NR	6-8	NA				
		8-10	150				Visible hydrocarbon product in stringers.
10		10-12	91				SANDY CLAY, visible hydrocarbon product in stringers.
		12-14	112		SP		SAND, gray loose, visible hydrocarbon product in stringers.
15		14-16	71		GP		GRAVEL, gray, poorly sorted, visible hydrocarbon product in stringers.
							End of boring.

REMARKS:

NA-not applicable.
NR-no recovery.



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-48

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-23-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 16

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	0.0		FILL		Fill material consisting of: concrete fragments and silt clay.
		2-4	0.0				
		4-6	0.0				
		6-8	0.0				Fill material consisting of: coal fragments and silty clay.
10		8-10	0.0		CL		SILTY CLAY, gray, firm, medium plasticity.
		10-12	0.0				
		12-14	0.0				
15		14-16	4.6		SP		SAND, gray, coarse, poorly sorted, wet.
					GP		GRAVEL, rounded, loose, wet.
							End of boring.

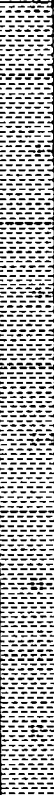
REMARKS:



BORING LOG BORING SB-49

REMEDATION TECHNOLOGIES, INC.

PROJECT NO: 3-2075-680	DRILLING CO: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION:
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-23-97	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (gpm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-2	NA		FILL		Fill material consisting of: silty clay and debris. 0.4' lens of blue stained wood chips, saturated with hydrocarbon product.
		2-4	4.6		CL		SILTY CLAY, gray, firm, moist. 0.4' lens of visible hydrocarbon product in clay.
		4-6	33				
		6-8	21				
		8-10	3.4				
		10-12	1.7				Becomes wet.
		12-14	2.4				SANDY CLAY, gray, firm, wet.
		14-16	4.4				GP
15						End of boring.	

REMARKS:
NA-not applicable.



REMEDATION TECHNOLOGIES, INC.

BORING LOG
BORING SB-50

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-23-87

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 16

AUGER O.D./I.D.: 2" /

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
						////	0-0.5' Topsoil.
			3.7		FILL		Fill material consisting of silty clay and gravel.
			3.7				
5			5.4		CL		Clay, firm gray, moist.
			5.4				
			7.3				1.0' lens of clay with slight hydrocarbon odor.
10			26				
			10.6				Becomes wet, hydrocarbon sheen and odor.
							CLAY, gray, firm, wet.
15			20.1				
							End of boring.

REMARKS:

Sample SB50 (10-14) analyzed for BTEX, PAH and cyanide.

BORING LOG BORING SB-51

PROJECT NO.: 3-2075-660	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION: ~ 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 7-23-87	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 16	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
							0-0.5' Asphalt pavement.
			5.5		FILL		Fill material consisting of concrete fragments and silty clay.
			0.0				
			0.0				3.5-5' Blue stained wood chips, moist.
5			2.6		CL		CLAY, gray, firm, moist, medium plasticity.
			0.0				
			0.0				
10			0.0				
			0.0				
			0.0		SP		SAND, gray, loose, poorly sorted, 50% gray, gravel, rounded.
15			0.0				
							End of boring.

REMARKS:

Sample SB51 (4-6) analyzed for BTEX, PAH and cyanide.



BORING LOG BORING SB-52

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-680

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: RON BROWN

SURFACE ELEVATION:

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 7-23-97

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 20

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5		0-4	1.0		FILL		Fill material consisting of: coal fragments, brick fragments, wood, gravel and silty clay.
		4-8	2.8				
		8-10	0.0				
10		10-12	1.0		CL		CLAY, gray, firm, medium plasticity, moist.
		12-14	0.0		SP		GRAVELY SAND, gray, loose, poorly sorted, wet.
		14-16	0.0		CL		CLAY, gray, firm, wet.
15		16-20	1.0		GP		GRAVEL, loose, poorly sorted, wet.
					CL		CLAY, gray, firm, wet.
20							End of boring.

REMARKS:

BORING LOG BORING SB-53

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-08-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 12	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (feet)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			0.5		SC		0-0.5 CLAY mixed with gravel
			3.9		SC		SAND
			2.7		OL		Black, loose, no odor, moist
5			0.6		CL		SILT
			11		CL		Grey, firm, low plasticity, moist, no odor
10			11				
15							End of boring.
20							
25							
30							
35							
40							

REMARKS:

REMEDIAL TECHNOLOGIES, INC.		BORING LOG BORING SB-54					
PROJECT NO.: 3-2075-880			DRILLING CO.: NORTHSTAR			NP ELEVATION:	
CLIENT: NATIONAL FUEL GAS			DRILLER: JEFF THEV			SURFACE ELEVATION: 588	
LOCATION: MINERAL SPRINGS ROAD			METHOD: GEOPROBE			WATER LEVEL DURING DRILLING: NA	
START DATE: 1-08-98			CASING I.D.:			STICK-UP: NA	
GEOLOGIST: MARK HOFFERBERT			TOTAL DEPTH: 8			AUGER O.D./I.D.: 2"	
DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ft)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5			0.5		GP		GRAVEL Grey, poorly sorted, loose, moist, no odor
			5.2		CL		
			11.8				
			11.8				
10							End of boring.
15							
20							
25							
30							
35							
40							
REMARKS:							

BORING LOG

BORING SB-55

REMEDICATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEY	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-08-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 7	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			8.8		GP		GRAVEL
					FILL		Grey, poorly sorted
			3.3		CL		Fill material consisting of: blue stained sand and gravel, slight hydrocarbon odor
5			42				CLAY Grey, firm, low plasticity, moist, no odor
10							End of boring.
15							
20							
25							
30							
35							
40							

REMARKS

BORING LOG BORING SB-56

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-08-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 7	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			20		FILL		Fill material consisting of: silt, gravel, ash. At 10 - 1-inch lense of blue stained silt.
5			19		CL		CLAY Grey, firm, uniform, moist, no odor
10							End of boring.
15							
20							
25							
30							
35							
40							

REMARKS:

BORING LOG

BORING SB-57

REMEDIATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	WPE ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 587.5
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-08-88	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 8	AUGER O.D./I.D.: 2"

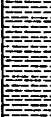
DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (pcal)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5			5.3		FILL		Fill material consisting of: grey gravel mixed with ash, moist, no odor
			2.0				
			3.0				At 5.0 gravel becomes fine grained.
10					CL		At 8.0 becomes clay.
							End of boring.
15							
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-58

REMEDATION TECHNOLOGIES, INC.

PROJECT NO: 3-2075-880	DRILLING CO: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 589.8
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-08-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 20	AUGER O.D./I.D.: 2"

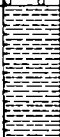
DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ft)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			2.9		FILL		Fill material consisting of 50% silt and 50% gravel. At 2.0 - lense of very fine coal fragments mixed with silty clay.
			3.8				
5			2.3		CL		CLAY Grey, firm, uniform, trace orange staining in mottled pattern, no odor.
			2.3				
			2.4				
10			2.4				
			2.4				
			2.7				
15			2.4				
			4.4		SP		SAND Grey, well sorted, wet, slight hydrocarbon odor.
			3.8		GP		GRAVEL Subround, grey, loose.
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-59

REMEDIATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 589
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-08-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 8	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (feet)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			8.0		GP		Topsoil then gravel Grey, rounded, trace silty clay.
			40.0				At 3.2 becomes saturated with hydrocarbon product.
5			49.9		CL		CLAY Grey, firm, low plasticity, hydrocarbon odor.
			108				
10							End of boring.
15							
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-60

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-080	DRILLING CO.: NORTHSTAR	NP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 589
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-08-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 8	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			3.5		CL		Topsoil then gravelly clay
					GP		Silly gravel
			8.0		CL		GRAVELLY CLAY
			11.8				Trace hydrocarbon staining
5			4.7				At 4.0 becomes saturated with hydrocarbon product
							Clay
10							End of boring.
15							
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-61

REMEDIAL TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-890	DRILLING CO.: NORTHSTAR	NP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 590
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-09-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 20	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			1.8		FILL		Asphalt (2')
					CL		Fill material consisting of: sand and gravel
			2.7				At 1.8 - 2-inch lense of organic debris, trace hydrocarbon odor
					GP		CLAY
5			2.5				Grey, firm, low plasticity, moist
					CL		GRAVEL
			0.5				Coarse grained, poorly sorted, wet, slight hydrocarbon odor
							Clay
10			1.3				Grey, firm, low plasticity, wet
			1.0				
15							
			4.1				
					GP		SANDY GRAVEL
20			1.8				Poorly sorted, loose, trace silt, wet
							End of boring
25							
30							
35							
40							

REMARKS

BORING LOG BORING SB-62

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880

DRILLING CO.: NORTHSTAR

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: JEFF THEW

SURFACE ELEVATION: 588

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 1-09-98

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 12

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			3.3		FILL		0 - 0.5 feet Asphalt pavement Fill material consisting of: Sand and gravel.
			5.5				At 3.2 - Driller reports refusal 4-inch lense of sandy gravel, trace hydrocarbon staining, trace hydrocarbon odor.
5			2.5		CL		From 3.2 to 4.2 - Concrete slab
							CLAY Grey, firm, uniform, moist, no odor
			3.5		SP		At 8.0 - 8-inch sand lense, no odor
10					CL		Clay
							End of boring.
15							
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-63

REMEDATION TECHNOLOGIES, INC.

PROJECT NO: 3-2075-880	DILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRIER: JEFF THEY	SURFACE ELEVATION: 589.5
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-19-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 20	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			0.3		FILL		Fill material consisting of: gravel mixed with ashes, no odor, moist.
			0.5		CL		CLAY
5			1.2				Grey, firm, slight plasticity, moist, no odor.
			0.3				
10			1.1				At 12.2 - Silt content increases, trace gravel.
			0.2		SS		SAND
15			0.4				Grey, fine grained, well sorted, wet, no odor.
					GP		Trace gravel from 19.0 to 20.0
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-64

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-19-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (feet)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
					FILL		Fill material consisting of gravel and metal fragments
			2.0		GP		GRAVEL
5			2.0		CL		Grey, wet, slight hydrocarbon odor. CLAY Grey, firm, moist, no odor.
10			0.5				Silty clay, firm, wet, no odor.
15			0.5		GP		SANDY GRAVEL Poorly sorted, loose, slight hydrocarbon odor.
20							End of boring.
25							
30							
35							
40							

REMARKS:

REMEDIAL TECHNOLOGIES, INC.		BORING LOG BORING SB-65					
PROJECT NO.: 3-2075-080		DRILLING CO.: NORTHSTAR		NP ELEVATION:			
CLIENT: NATIONAL FUEL GAS		DRILLER: JEFF THEW		SURFACE ELEVATION: 588			
LOCATION: MINERAL SPRINGS ROAD		METHOD: GEOPROBE		WATER LEVEL DURING DRILLING: NA			
START DATE: 1-19-98		CASING I.D.:		STICK-UP: NA			
GEOLOGIST: MARK HOFFERBERT		TOTAL DEPTH: 18		AUGER O.D./I.D.: 2"			
DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (gpm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			9.0		FILL		Fill material consisting of gravel and sand.
			58.0				At 3.5 - 8-inch lens of ashes and sand, strong hydrocarbon odor.
5			2.0		CL		CLAY Grey, firm, low plasticity, no odor.
10			1.0				At 11.0 becomes silty clay, wet, no odor.
15			1.3		SG		SAND Grey, fine grained, loose, well sorted, wet.
20							End of boring.
25							
30							
35							
40							
REMARKS:							

BORING LOG BORING SB-66

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 589
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-19-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5			3.5		FILL		Fill material consisting of clay mixed with ashes, no odor.
			14.4				At 4.0 - becomes wet, slight hydrocarbon odor.
			12.9		CL		CLAY
10			18.1				Grey, firm, low plasticity.
			10.0				At 11.0 - becomes silty
15			5.4		SP		SAND
							Grey, fine grained, well sorted, wet, no odor.
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-67

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880

DRILLING CO.: NORTHSTAR

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: JEFF THEW

SURFACE ELEVATION: 587

LOCATION: MINERAL SPRINGS ROAD

METHOD: GEOPROBE

WATER LEVEL DURING DRILLING: NA

START DATE: 1-19-98

CASING I.D.:

STICK-UP: NA

GEOLOGIST: MARK HOFFERBERT

TOTAL DEPTH: 18

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (feet)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			0.4		FILL		Fill material consisting of gravel and clay, no odor.
5	20		0.2		CL		CLAY Grey, firm, low plasticity, no odor.
10			2.5		SP		Becomes wet at 9.0 SAND Grey, loose, fine grained, well sorted, slight hydrocarbon odor.
15							End of boring.
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-68

REMEDIATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 589
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-19-98	CASING ID:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ft)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			2.0		FILL		Topsoil then fill material consisting of black sand and gravel, no odor.
			0.7				
5			8.3		CL		CLAY Black, slight hydrocarbon staining and odor, trace hydrocarbon sheen.
			5.5				
10			7.6				Becomes wet at 12.0.
					sg		SAND Grey, loose, fine grained, wet.
15							End of boring.
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-69

REMEDIAL TECHNOLOGIES, INC.

PROJECT NO: 3-2075-880	DRILLING CO.: NORTHSTAR	NP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-20-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

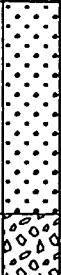
DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			0.5		FILL	CLAY	0 - 0.5 - Topsoil
5	10		0.3				CLAY Grey, firm, low plasticity.
10							At 7.0 - Trace fine gravel, wet.
15			17				At 8.0 - Silt content increases.
20							
25							
30							
35							
40							End of boring.

REMARKS:

BORING LOG BORING SB-70

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 584
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-20-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			0.5		FILL CL		0 - 0.5 - Topsoil CLAY Grey, firm, low plasticity, moist Becomes wet at 3.5. Trace organic peat at 8.0.
5			0.5				
			15		SP		SAND Grey, loose, fine grained, wet, no odor.
10							
			0.5		GP		SANDY GRAVEL Loose, wet, poorly sorted, no odor.
15							
							End of boring.
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-71

REMEDIAL TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRIJER: JEFF THEW	SURFACE ELEVATION: 584
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-20-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (feet)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			0.8		FILL	CLAY	0 - 0.5 - Topsoil
5			0.5		CL	CLAY	CLAY Grey, firm, no odor. At 2.0 trace gravel, wet. At 4.0 - 8-inch lense of black peat material. Becomes silty clay at 7.0.
10			0.9		GS	SAND	SAND Grey, fine grained, loose, wet, no odor.
15			8.3		GP	SANDY GRAVEL	SANDY GRAVEL Poorly sorted, wet, no odor.
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-72

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	NP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 587.5
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-20-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (gpm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			3.4		FILL		Fill material consisting of: sandy gravel, firm.
			23.2				
5			7.1		CL		At 3.8 - 4-inch lense of sandy gravel with hydrocarbon sheen and odor. CLAY Grey, firm, low plasticity, moist.
10			18				
			2.3		SP		Becomes wet at 12.0. SAND
15					GP		Grey, fine grained, loose, no odor, wet. SANDY GRAVEL
							Poorly sorted, loose, wet, no odor.
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-73

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-080	DRILLING CO.: NORTHSTAR	NP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEY	SURFACE ELEVATION: 587.5
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-20-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			2.4		FILL		Fill material consisting of sand and gravel.
			4.8				
5					CL		At 3.8 - 4-inch lense of gravel, trace hydrocarbon odor and sheen. CLAY Grey, firm, low plasticity.
			0.4				
10							
			3.2				Clay becomes silty and wet at 13.0.
15					GP		GRAVEL Grey, poorly sorted, wet, no odor. End of boring.
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-74

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 587.5
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-20-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			4.8		FILL		Fill material consisting of sand and gravel.
			12.5		CL		At 3.0 - 4-inch lense of gravel, with hydrocarbon sheen and odor.
5			10.7				CLAY Grey, firm, low plasticity, moist.
10							
15			8.8		SP		GRAVELLY SAND Poorly sorted, loose, wet.
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-75

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEY	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-20-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			2.0		FILL		Fill material consisting of sand and gravel.
			34.0				
5			10		CL		At 3.8 - 4-inch lense of sandy gravel with hydrocarbon odor and sheen, wet. CLAY Grey, firm, low plasticity, moist. Becomes silty clay at 8.0.
10			0.5				
			2.8		SP		SAND Grey, fine grained, loose, wet, trace fine gravel.
15							
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-76

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-21-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (pore)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			0.5		FILL CL		0 - 0.5 Topsoil
5			0.9				SANDY CLAY
							Trace organic debris consisting of peat, roots, moist, no odor.
							CLAY
							Grey, firm, low plasticity.
10			1.8				Becomes wet at 8.0.
							Becomes silty clay at 9.0.
15			0.2		sg		SAND
							Grey, fine grained, loose, trace fine gravel.
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-77

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRELLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 585
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-21-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			0.9		FILL CL		0 - 0.5 Topsoil
5			12				CLAY Grey, firm, low plasticity, no odor.
10			10				Becomes wet at 8.5. Increasing silt content at 7.0.
15			0.8		GP		SANDY GRAVEL Grey, poorly sorted, loose, wet, no odor.
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-78

REMEDATION TECHNOLOGIES, INC.

PROJECT NO: 3-2075-880	DRILLING CO: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 585
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-21-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (ft)	SAMPLE DEPTH	PTD HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			0.3		FILL		0 - 2.0 Topsoil and clay, no odor
5			20		CL		SILTY CLAY Grey, firm, low plasticity, moist, no odor.
10			17		SP		SAND Grey, fine grained, loose, wet, no odor.
15			17		GP		SANDY GRAVEL Grey, loose, poorly sorted, wet, no odor.
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-79

REMEDIATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	NP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 587.5
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-21-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	R/O HEADSPACE (feet)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			9.8		FILL		Fill material consisting of gravel and ashes.
			28.0				At 3.8 - 4.8 sandy gravel mixed with hydrocarbon product.
5			5.8		CL		CLAY Grey, firm, low plasticity, moist. Becomes wet at 8.0.
10			3.9				
			5.8				
15					SP		SAND Grey, fine grained, loose, wet, no odor.
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-80

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 587.5
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-21-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (feet)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			0.2		FILL		Fill material consisting of sand, gravel, clay and ashes, moist, no odor.
5			1.0		CL		CLAY Grey, firm, low plasticity, no odor.
10							
			14.8		SP		SAND Silty clay become wet at 13.0. Grey, fine grained, loose, wet, slight hydrocarbon odor.
15							End of boring.
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-81

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	NP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-21-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2'

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (in)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5			18		FILL		Fill material consisting of sand, gravel and ashes, moist, no odor.
			43				
10			14		CL		CLAY Grey, firm, low plasticity, moist, no odor. Becomes wet at 9.0.
			28				
15					SG		SAND Grey, fine grained, loose, wet, no odor.
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-82

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-080	DRILLING CO.: NORTHSTAR	NP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-28-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			2.8		FILL		Fill material consisting of sand and gravel, moist.
			43.0				3.0 to 7.0 sand with hydrocarbon product.
5			11.5				
			10.7		CL		CLAY
			8.8		SP		Grey, firm
10							SAND
			3.9		CL		Grey, loose, saturated with hydrocarbon product.
			4.0				CLAY
15			6.3				Grey, firm, wet, trace silt, trace sand, no odor.
							End of boring.
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-83

REMEDATION TECHNOLOGIES, INC.

PROJECT NO: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEY	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: GEOPROBE	WATER LEVEL DURING DRILLING: NA
START DATE: 1-28-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: MARK HOFFERBERT	TOTAL DEPTH: 10	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ft)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			2.4		FILL		Fill material consisting of sand and gravel.
			55.2				At 3.0 - 5.0 fill mixed with hydrocarbon product.
5			52.3		CL		CLAY
			5.1				Grey, firm, low plasticity, wet.
10			5.1				
							End of boring.
15							
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-84

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-090	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: STEVE BOCHENEK	SURFACE ELEVATION: 589
LOCATION: MINERAL SPRINGS ROAD	METHOD: DIRECT PUSH	WATER LEVEL DURING DRILLING: NA
START DATE: 3-31-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: DAVID YUDIKAITIS	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (gpm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
	80		5.8		FILL		0 - 0.5 Asphalt pavement Fill material consisting of mixed gravel, silt and sand, light brown
			4.2		CL		Silty clay - Grey and brown, firm, wet, no odor
5	70		5.2				Silty clay - Grey firm, wet
			5.8				Gravel lense, wet
							Obstruction at 7.0 - gravel plug in core tip
10	100		4.1				Silty clay - Grey firm, orange staining in mottled pattern
			7.0				
	100		5.5				
15			6.0				Silty clay - Grey with orange staining in mottled pattern, firm, uniform, wet
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-85

REMEDICATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-890

DRELLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DROLLER: STEVE BOCHENEK

SURFACE ELEVATION: 589

LOCATION: MINERAL SPRINGS ROAD

METHOD: DIRECT PUSH

WATER LEVEL DURING DRILLING: NA

START DATE: 3-31-98

CASING I.D.:

STICK-UP: NA

GEOLOGIST: DAVID YUDKAITIS

TOTAL DEPTH: 18

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ft)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
	70		3.5		FILL		0 - 0.5 Asphalt pavement
			4.5		CL		Fill material consisting of mixed rock fragments, brown silt and sand
5	80		5.0				At 2.0 - 8" lens of black cinders
			4.3				Silty clay - Grey, uniform
							Silty clay - Grey with orange staining in mottled pattern, dry
10	70		6.1				Driller reports obstruction at 7.0 feet
			6.0		SG		Silty sand - Grey, loose, trace gravel
	100		6.5				Silty sand - Grey
15			6.8		GP		Gravel - Grey, trace cobbles
							End of boring.
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-86

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-890

DRILLING CO.: MAXIM

NP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: STEVE BOCHENEK

SURFACE ELEVATION: 589

LOCATION: MINERAL SPRINGS ROAD

METHOD: DIRECT PUSH

WATER LEVEL DURING DRILLING: NA

START DATE: 3-31-98

CASING I.D.:

STICK-UP: NA

GEOLOGIST: JAMES EDWARDS

TOTAL DEPTH: 18

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
	90		3.0		FILL		0 - 0.5 Asphalt pavement Fill material consisting of rock fragments, coal chips and brown sand
			3.8		CL		Silty clay - Black, firm, uniform, no odor, moist Becomes grey at 3.0, trace brown staining in mottled pattern
5	100		3.8				Clay - Grey with orange staining in mottled pattern, firm, moist, no odor
			8.1				Clay - Grey and brown
10	100		8.8				
			5.8		SN		Silty sand - Brown and grey, firm, very fine, no odor, wet Becomes coarse at 11.7
	100		8.9				Silty sand - Grey, loose, wet. 20% rounded gravel, trace cobble, no odor
15			8.1		GP		Sandy gravel - Grey, loose, wet, poorly sorted, no odor
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-87

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-890	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: STEVE BOCHENEK	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: DIRECT PUSH	WATER LEVEL DURING DRILLING: NA
START DATE: 3-31-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (ft)	SAMPLE DEPTH	PID HEADSPACE (ft)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
	80		22.1		FILL		Fill material consisting of brown, silty gravel and sand Becomes brown and black clinders and ash fragments Becomes black, wet, strong hydrocarbon odor
5	100		77		CL		Gray silty clay Silty clay - Grey, trace orange staining in mottled pattern, slight hydrocarbon odor, moist, uniform, firm
			54.8				
	70		75.7				Silty clay - Grey, trace orange staining in mottled pattern, slight hydrocarbon odor, firm, uniform, moist
10			59.7				Lense 2" - Gravel with strong hydrocarbon odor Becomes soft
	100		51		SP		Sand - Grey, loose, well sorted, wet, slight hydrocarbon odor
15			25.2				
							End of boring.
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-88

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-890	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: STEVE BOCHENEK	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: DIRECT PUSH	WATER LEVEL DURING DRILLING: NA
START DATE: 3-31-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 8	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
	70		28.1		FILL		Fill material consisting of black, silty clay mixed with rock fragments and debris
			33.2				At 3.2 becomes broken red brick fragments and broken rock fragments
5	40		32.7				Brick fragments mixed with grey clayey silt
							Driller reports refusal at 8.0 concrete fragments found in core tip
							End of boring.
10							
15							
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-89

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-890	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: STEVE BOCHENEK	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: DIRECT PUSH	WATER LEVEL DURING DRILLING: NA
START DATE: 3-31-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5	70		10.1		FILL		Fill material consisting of black cinders and gravel
			10.2				Brown clayey silt
							Black fine grained silt and ash
							Black ashes, cinders, silt mixture
	100		24.7				Fill material consisting of ashes, cinders, gravel, wet, hydrocarbon odor, spots of sheen in water
10			8.4		CL		Silty clay - Grey, uniform
	100		29.0				Silty clay - Grey with orange staining in mottled pattern, uniform, firm, no odor
			44.5		SP		Silty sand - Loose, grey, uniform, wet, well sorted, slight hydrocarbon odor
15	100		18.0				
			37.0				Silty sand - Grey, uniform, loose well sorted, wet, slight hydrocarbon odor
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-90

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-090	DRILLING CO.: MAXIM	WP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: STEVE BOCHENEK	SURFACE ELEVATION: 587
LOCATION: MINERAL SPRINGS ROAD	METHOD: DIRECT PUSH	WATER LEVEL DURING DRILLING: NA
START DATE: 3-31-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 12	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (ft)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION	
5	80		19.2		FILL		Fill material consisting of silty clay mixed with gravel	
						6-inch lense of tar-like material, hardened, black, strong odor		
	100		38.8		GP		Gravel fill material	
	28.8				CL			Silty clay - Grey, uniform, firm, trace orange staining in mottled pattern, no odor, moist
10	100	41		Silty clay - Grey and tan, moist, wet, uniform, slight hydrocarbon odor, increasing silty content				
	48							
15							End of boring.	
20								
25								
30								
35								
40								

REMARKS:

BORING LOG BORING SB-91

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2015-890	DRIILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRIILLER: STEVE BOCHENEK	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: DIRECT PUSH	WATER LEVEL DURING DRILLING: NA
START DATE: 4-1-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			0.3		FILL		Fill material consisting of brown silty sand Black ashes, cinders, wood fragments, nodules of white paste, trace blue staining Grey silty clay Wood fragments
5			30.1		CL		Silty clay Silty clay - Grey with orange staining in mottled pattern, uniform, stiff, moist, no odor
			17.8				
			13.8				
10			3.2				Silty clay - Grey and orange in mottled pattern, uniform, stiff, moist, no odor
			28.2		SP		Silty sand - Grey, loose, uniform, well sorted, slight hydrocarbon odor
15			19.5		GP		Silty gravel - Grey, rounded, coarse, poorly sorted, slight hydrocarbon odor
							End of boring.
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-92

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-890	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: STEVE BOCHENEK	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: DIRECT PUSH	WATER LEVEL DURING DRILLING: NA
START DATE: 4-1-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
	100		8.1		FILL		Fill material consisting of topsoil then
			8.1				Grey and brown silty clay and gravel, trace ashes, coal fragments
5	100		9.2		CL		Silty clay - Grey, firm, uniform, moist
			10.1				Silty clay - Grey, uniform, firm, mottled orange staining, no odor
10	70		8.0		SP		Silty sand - Grey, loose, uniform, no odor, wet
	100		9.1				
			5.1				Silty sand - Grey, loose, uniform, wet
15			8.2		GP		Silty gravel - Round, poorly sorted, loose, wet
							End of boring.
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-93

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-890

DRILLING CO.: MAXIM

MP ELEVATION:

CLIENT: NATIONAL FUEL GAS

DRILLER: STEVE BOCHENEK

SURFACE ELEVATION: 588

LOCATION: MINERAL SPRINGS ROAD

METHOD: DIRECT PUSH

WATER LEVEL DURING DRILLING: NA

START DATE: 4-1-98

CASING I.D.:

STICK-UP: NA

GEOLOGIST: JAMES EDWARDS

TOTAL DEPTH: 18

AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (feet)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			4.0		FILL		Fill material consisting of grey, gravel road base
			8.8		C		4" Lense of blue stained wood chips Grey clay, stiff, uniform, trace blue staining
5			3.4				Silty clay - Grey and orange mottled pattern, uniform, firm, moist, no odor
			4.2				
10			3.5				Silty clay - Grey, orange stain in mottled pattern, firm, uniform, moist
			11.0				
			12.1		SP		Silty sand - Poor recovery in core, loose sand, trace gravel in spoon core tip, slight hydrocarbon odor, wet
15							
20							End of boring.
25							
30							
35							
40							

REMARKS:

BORING LOG

BORING SB-94

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-890	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: STEVE BOCHENEK	SURFACE ELEVATION: 588
LOCATION: MINERAL SPRINGS ROAD	METHOD: DIRECT PUSH	WATER LEVEL DURING DRILLING: NA
START DATE: 4-1-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 8	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
	90		10.2		FILL		Fill material consisting of broken rock fragments, silt and sand
			18.2		CL		2" lense of black clnders
5	100		18.2				Silty clay - Grey, firm, uniform
			11.2				Grey silty clay, uniform, firm, no odor, moist
10							End of boring.
15							
20							
25							
30							
35							
40							

REMARKS:

BORING LOG BORING SB-95

REMEDIATION TECHNOLOGIES, INC.

PROJECT NO: 3-2015-890	DRLING CO: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: STEVE BOCHENEK	SURFACE ELEVATION: 587
LOCATION: MINERAL SPRINGS ROAD	METHOD: DIRECT PUSH	WATER LEVEL DURING DRILLING: NA
START DATE: 4-1-98	CASING I.D.:	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 18	AUGER O.D./I.D.: 2"

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ft)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
	90		2.2		FILL		Fill material consisting of silt and gravel mixture (road base)
			14.0				
5	100		6.2		CL		At 3.8 - 2' lens of blue stained wood chips, strong odor
			3.3				Silty clay - Grey uniform, stiff
							Silty clay - Grey and orange in mottled pattern, stiff, uniform, no odor
10	100		7.8				
			11.2				Increasing silt content
	100		11.8		SP		Silty sand - Grey, loose, well sorted
15			11.5				Becomes coarse
					GP		Gravel - Round to subround, poorly sorted, slight hydrocarbon odor
							End of boring.
20							
25							
30							
35							
40							

REMARKS

RETEC			SOIL BORING LOG		SB96	
Remediation Technologies, Inc.						
PROJECT NO:		3 - 2075 - 680		DATE:		August 6, 1998
CLIENT:		National Fuel Gas		GEOLOGIST:		Mark Hofferbert
SITE:		Mineral Springs Road		EQUIPMENT:		2"x4" Direct Push Core Barrel
LOCATION:		Eastern Drainage Ditch		OPERATOR:		Maxim Technologies
				GROUND ELEVATION:		579.6
				MP ELEVATION:		
				DEPTH TO WATER:		
				WATER ELEVATION:		~ 580.0
DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION	
1						
2		8.0		Soft Sediments		
3						
4						
5						
6		4.6		Silty Clay		
7						
8				Wet Sand No odor		
				End of Boring		
9						
10						
11						
12						
13						
Comments: Borehole backfilled to grade with bentonite/portland grout.						

RETEC		SOIL BORING LOG		SB97	
Remediation Technologies, Inc.					
PROJECT NO: 3 - 2075 - 680		DATE: August 6, 1998		GROUND ELEVATION: 579.6	
CLIENT: National Fuel Gas		GEOLOGIST: Mark Hofferbert		MP ELEVATION:	
SITE: Mineral Springs Road		EQUIPMENT: 2"x4" Direct Push Core Barrel		DEPTH TO WATER:	
LOCATION: Eastern Drainage Ditch		OPERATOR: Maxim Technologies		WATER ELEVATION: ~ 580.0	
DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1		na		No Recovery	
2					
3					
4					
5				Soft Sediments Faint Hydrocarbon odor	
6		27.3		Silty Clay	
7				Wet Sand Hydrocarbon Sheen	
8					
End of Boring					
9					
10					
11					
12					
13					
Comments: Borehole backfilled to grade with bentonite/portland grout.					

RETEC			SOIL BORING LOG		SB98	
Remediation Technologies, Inc.						
PROJECT NO:		3 - 2075 - 680		DATE:		August 6, 1998
CLIENT:		National Fuel Gas		GEOLOGIST:		Mark Hofferbert
SITE:		Mineral Springs Road		EQUIPMENT:		2"x4" Direct Push Core Barrel
LOCATION:		Eastern Drainage Ditch		OPERATOR:		Maxim Technologies
GROUND ELEVATION:		579.6		MP ELEVATION:		
DEPTH TO WATER:				WATER ELEVATION:		~ 580.0
DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION	
1						
2		32.1		Soft Sediments Hydrocarbon Odor		
3						
4				Wet Sand Hydrocarbon Sheen		
End of Boring						
5						
6						
7						
8						
9						
10						
11						
12						
13						
Comments: Borehole backfilled to grade with bentonite/portland grout.						

RETEC

SOIL BORING LOG

SB99

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	August 6, 1998	GROUND ELEVATION:	579.8
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	
LOCATION:	Eastern Drainage Ditch	OPERATOR:	Maxim Technologies	WATER ELEVATION:	- 580.0

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1					
2		137		Soft Sediments Hydrocarbon Odor	
3					
4					
5					
6		83.0		Wet Sand Hydrocarbon Sheen, Product	
7					
8					
End of Boring					
9					
10					
11					
12					
13					

Comments:

Borehole backfilled to grade with bentonite/portland grout.

RETEC

SOIL BORING LOG

SB100

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	August 6, 1998	GROUND ELEVATION:	579.7
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	
LOCATION:	Eastern Drainage Ditch	OPERATOR:	Maxim Technologies	WATER ELEVATION:	~ 580.0

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1					
2		31.0		Soft Sediments	
3					
4					
5					
6		23.7		Wet Gravelly Sand Faint Hydrocarbon Odor	
7					
8					
9				End of Boring	
10					
11					
12					
13					

Comments:

Borehole backfilled to grade with bentonite/portland grout.

RETEC

SOIL BORING LOG

SB101

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	August 6, 1998	GROUND ELEVATION:	579.7
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	
LOCATION:	Eastern Drainage Ditch	OPERATOR:	Maxim Technologies	WATER ELEVATION:	~ 581.0

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1					
2		55.9		Soft Sediments Hydrocarbon Sheen	
3					
4				6" Very Soft Clay	
5		31.7		Wet Sand Hydrocarbon Odor, Product	
6					
				End of Boring / REFUSAL	
7					
8					
9					
10					
11					
12					
13					

Comments:

Borehole backfilled to grade with bentonite/portland grout.

RETEC

SOIL BORING LOG

SB102

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	August 6, 1998	GROUND ELEVATION:	578.7
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	
LOCATION:	Eastern Drainage Ditch	OPERATOR:	Maxim Technologies	WATER ELEVATION:	~ 581.0

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1					
2		52.9		Soft Sediments Faint Hydrocarbon Odor	
3					
4				Silty Clay Hydrocarbon Sheen	
5		na			
6				Wet Sandy Gravel / Poor Recovery Hydrocarbon Sheen	
7					
				End of Boring / REFUSAL	
8					
9					
10					
11					
12					
13					

Comments:

Borehole backfilled to grade with bentonite/portland grout.

RETEC

SOIL BORING LOG

SB103

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	August 6, 1998	GROUND ELEVATION:	578.9
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	
LOCATION:	Eastern Drainage Ditch	OPERATOR:	Maxim Technologies	WATER ELEVATION:	- 581.0

DEPTH	SAMPLE	PID	SOIL	SOIL	MONITORING
BCS	INTERVAL	HEADSPACE	LITHOLOGY	DESCRIPTION	WELL
(feet)		(ppm)		LOG	CONSTRUCTION
1				Soft Sediments	
2		32.6		Hydrocarbon Odor	
3					
4					
5				Wet Sand	
6		59.7		Hydrocarbon Sheen	
7					
8				Brown Sand	
				No Sheen	
				End of Boring	
9					
10					
11					
12					
13					

Comments:

Borehole backfilled to grade with bentonite/portland grout.

RETEC

SOIL BORING LOG

SB104

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	August 6, 1998	GROUND ELEVATION:	579.0
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	
LOCATION:	Eastern Drainage Ditch	OPERATOR:	Maxim Technologies	WATER ELEVATION:	~ 581.0

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Soft Sediments	
2		2.3			
3					
4					
5				Wet Sand	
6		40.5		Hydrocarbon Sheen	
7					
8					
9				End of Boring	
10					
11					
12					
13					

Comments:

Borehole backfilled to grade with bentonite/portland grout.

RETEC

SOIL BORING LOG

SB105

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	August 6, 1998	GROUND ELEVATION:	579.5
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	
LOCATION:	Eastern Drainage Ditch	OPERATOR:	Maxim Technologies	WATER ELEVATION:	~ 581.0

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1					
2		11.8			
3				Soft Sediments Faint Hydrocarbon Odor	
4					
5					
6		42.9			
7					
8				Silty Clay	
9		56.7		Wet Gavelly Sand Faint Hydrocarbon Sheen	
10				End of Boring / REFUSAL	
11					
12					
13					

Comments:

Borehole backfilled to grade with bentonite/portland grout.

RETEC

SOIL BORING LOG

SB106

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	August 6, 1998	GROUND ELEVATION:	579.7
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	
LOCATION:	Eastern Drainage Ditch	OPERATOR:	Maxim Technologies	WATER ELEVATION:	~ 581.0

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1					
2		26.6		Soft Sediments	
3					
4					
5					
6		74.5		Silty Clay Trace veins of hydrocarbon product	
7					
8					
9		18.1		Wet Sand No odor	
10				End of Boring	
11					
12					
13					

Comments:

Borehole backfilled to grade with bentonite/portland grout.

RETEC

SOIL BORING LOG

SB107

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	August 6, 1998	GROUND ELEVATION:	580.1
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	
LOCATION:	Eastern Drainage Ditch	OPERATOR:	Maxim Technologies	WATER ELEVATION:	- 581.0

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1					
2		10.4		Soft Sediments	
3					
4					
5			5	Silty Clay No odor	
6		6.3	6		
7			7	Wet Sand No odor	
8			8		
				End of Boring	
9					
10					
11					
12					
13					

Comments:

Borehole backfilled to grade with bentonite/portland grout.

RETEC		SOIL BORING LOG		SB108	
Remediation Technologies, Inc.					
PROJECT NO: 3 - 2075 - 680		DATE: August 7, 1998		GROUND ELEVATION: 581.4	
CLIENT: National Fuel Gas		GEOLOGIST: Mark Hofferbert		MP ELEVATION:	
SITE: Mineral Springs Road		EQUIPMENT: 2"x4" Direct Push Core Barrel		DEPTH TO WATER:	
LOCATION: Eastern Drainage Ditch		OPERATOR: Maxim Technologies		WATER ELEVATION: ~ 581.0	
DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1		na		No Recovery	
2					
3					
4					
5				Soft Sediments No odor	
6		3.1			
7					
8				Silty Clay	
9					
10		2.5		Wet Sand No odor	
11					
				End of Boring	
12					
13					
Comments: Borehole backfilled to grade with bentonite/portland grout.					

RETEC

SOIL BORING LOG

SB109

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	August 7, 1998	GROUND ELEVATION:	581.6
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	
LOCATION:	Eastern Drainage Ditch	OPERATOR:	Maxim Technologies	WATER ELEVATION:	~ 581.0

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Soft Sediments Blue stained wood chips	
2		8.9			
3				Soft Sediments No blue stain	
4					
5					
6		15.0			
7					
8				Silty Clay	
9					
10		12.6			
11				Wet Sandy Clay No odor	
12				End of Boring	
13					

Comments:

Borehole backfilled to grade with bentonite/portland grout.

RETEC

SOIL BORING LOG

SB110

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	August 7, 1998	GROUND ELEVATION:	581.1
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	
LOCATION:	Eastern Drainage Ditch	OPERATOR:	Maxim Technologies	WATER ELEVATION:	~ 581.0

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1					
2		na		No Recovery	
3					
4					
5					
6		2.5		Silty Clay No Staining	
7					
8				Wet Sand No odor	
				End of Boring	
9					
10					
11					
12					
13					

Comments:

Borehole backfilled to grade with bentonite/portland grout.

RETEC

SOIL BORING LOG

SB111

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	October 21, 1998	GROUND ELEVATION:	~ 587.5
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MPELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	NA
LOCATION:	(Former) Building # 4	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Misc. Fill	
2		0.0		Gravel with fragments of clinkers, ash, brick and concrete.	
3					
4					
5				Silty Clay	
6		0.0		No odor.	
7					
8					
End of Boring					
9					
10					
11					
12					
13					

Comments:

RETEC			SOIL BORING LOG		SB112	
Remediation Technologies, Inc.						
PROJECT NO:		3 - 2075 - 680		DATE:		October 21, 1998
CLIENT:		National Fuel Gas		GEOLOGIST:		Mark Hofferbert
SITE:		Mineral Springs Road		EQUIPMENT:		2"x4" Direct Push Core Barrel
LOCATION:		(Former) Building # 4		OPERATOR:		Maxim Technologies
				GROUND ELEVATION:		~ 587.5
				MP ELEVATION:		
				DEPTH TO WATER:		NA
				WATER ELEVATION:		NA
DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION	
1						
2		0.0		Misc. Fill Gravel with fragments of clinkers, ash, brick and concrete. Trace blue stained soil at 1.0'bgs.		
3						
4						
5						
6		0.0		Silty Clay No odor.		
7						
8						
				End of Boring		
9						
10						
11						
12						
13						
Comments:						

RETEC

SOIL BORING LOG

SB113

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	October 21, 1998	GROUND ELEVATION:	- 587.5
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	NA
LOCATION:	(Former) Building # 4	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Misc. Fill Gravel with fragments of clinkers, ash, brick and concrete.	
2		0.0	2		
3			3		
4			4	Silty Clay No odor.	
5			5		
6		0.0	6		
7			7		
8			8		
End of Boring					
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB114

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	October 21, 1998	GROUND ELEVATION:	~ 587.5
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	NA
LOCATION:	(Former) Building # 4	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Misc. Fill Gravel with fragments of clinkers, ash, brick and concrete.	
2		0.0			
3					
4					
5				Silty Clay No odor.	
6		0.0			
7					
8					
				End of Boring	
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB115

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	October 21, 1998	GROUND ELEVATION:	~ 587.5
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	NA
LOCATION:	(Former) Building # 4	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Misc. Fill Gravel with fragments of clinkers, ash, brick and concrete.	
2		0.0		Blue stained fill and wood chips	
3				Sandy Gravel	
4					
5				Silty Clay No odor.	
6		0.0			
7					
8				End of Boring	
9					
10					
11					
12					
13					

Comments:

RETEC			SOIL BORING LOG		SB116	
Remediation Technologies, Inc.						
PROJECT NO:		3 - 2075 - 680		DATE:		October 21, 1998
CLIENT:		National Fuel Gas		GEOLOGIST:		Mark Hofferbert
SITE:		Mineral Springs Road		EQUIPMENT:		2"x4" Direct Push Core Barrel
LOCATION:		(Former) Building # 4		OPERATOR:		Maxim Technologies
				GROUND ELEVATION:		~ 587.5
				MP ELEVATION:		
				DEPTH TO WATER:		NA
				WATER ELEVATION:		NA
DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION	
1				Misc. Fill Gravel with fragments of clinkers, ash, brick and concrete.		
2		0.0				
3				Silty Clay		
4				Misc. Fill Orange stain.		
5				Silty Clay No odor.		
6		0.0				
7						
8				End of Boring		
9						
10						
11						
12						
13						
Comments:						

RETEC

SOIL BORING LOG

SB117

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	October 21, 1998	GROUND ELEVATION:	- 587.5
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	NAI
LOCATION:	(Former) Building # 4	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NAI

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1					
2		0.0		Misc. Fill Gravel with fragments of clinkers, ash, brick and concrete.	
3					
4					
5					
6		0.0		Silty Clay No odor.	
7					
8					
				End of Boring	
9					
10					
11					
12					
13					

Comments:

RETEC		SOIL BORING LOG		SB118	
Remediation Technologies, Inc.					
PROJECT NO: 3 - 2075 - 680		DATE: October 21, 1998		GROUND ELEVATION: ~ 587.5	
CLIENT: National Fuel Gas		GEOLOGIST: Mark Hofferbert		MP ELEVATION:	
SITE: Mineral Springs Road		EQUIPMENT: 2"x4" Direct Push Core Barrel		DEPTH TO WATER: NA	
LOCATION: (Former) Building # 4		OPERATOR: Maxim Technologies		WATER ELEVATION: NA	
DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Misc. Fill Gravel with fragments of clinkers, ash, brick and concrete.	
2		2.4			
3				Blue stained fill and wood chips	
4					
5					
6		1.1		Silty Clay No odor.	
7					
8					
End of Boring					
9					
10					
11					
12					
13					
Comments:					

RETEC

SOIL BORING LOG

SB119

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	October 21, 1998	GROUND ELEVATION:	~ 587.5
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	NA
LOCATION:	(Former) Building # 4	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Misc. Fill Gravel with fragments of clinkers, ash, brick and concrete.	
2		9.4			
3				Blue stained fill and wood chips	
4					
5					
6		0.0		Silty Clay No odor.	
7					
8					
				End of Boring	
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB120

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	October 21, 1998	GROUND ELEVATION:	~ 587.5
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	NA
LOCATION:	(Former) Building # 4	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Misc. Fill Gravel with fragments of clinkers, ash, brick and concrete.	
2		0.0			
3					
4				Blue stained fill and wood chips	
5				Silty Clay No odor.	
6		6.6			
7					
8					
				End of Boring	
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB121

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	October 21, 1998	GROUND ELEVATION:	~ 587.5
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	NA
LOCATION:	(Former) Building # 4	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Misc. Fill Gravel with fragments of clinkers, ash, brick and concrete.	
2		13			
3				Trace blue staining between 2.5 - 3.0'	
4					
5				Silty Clay No odor.	
6		0.1			
7					
8					
End of Boring					
9					
10					
11					
12					
13					

Comments:

				SOIL BORING LOG		SB122	
Remediation Technologies, Inc.							
PROJECT NO:		3 - 2075 - 680		DATE:		October 21, 1998	
CLIENT:		National Fuel Gas		GEOLOGIST:		Mark Hofferbert	
SITE:		Mineral Springs Road		EQUIPMENT:		2"x4" Direct Push Core Barrel	
LOCATION:		(Former) Building # 4		OPERATOR:		Maxim Technologies	
GROUND ELEVATION:		~ 587.5		MP ELEVATION:			
DEPTH TO WATER:		NA		WATER ELEVATION:		NA	
DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG		MONITORING WELL CONSTRUCTION	
1							
2		0.0		Misc. Fill Gravel with fragments of clinkers, ash, brick and concrete.			
3							
4							
5							
6		0.0		Silty Clay No odor.			
7							
8							
				End of Boring			
9							
10							
11							
12							
13							
Comments:							

RETEC

SOIL BORING LOG

SB123

Remediation Technologies, Inc.

PROJECT NO:	3 - 2075 - 680	DATE:	October 21, 1998	GROUND ELEVATION:	~ 587.5
CLIENT:	National Fuel Gas	GEOLOGIST:	Mark Hofferbert	MP ELEVATION:	
SITE:	Mineral Springs Road	EQUIPMENT:	2"x4" Direct Push Core Barrel	DEPTH TO WATER:	NA
LOCATION:	(Former) Building # 4	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1		0.0		Misc. Fill Gravel with fragments of clinkers, ash, brick and concrete.	
2					
3				Driller reports refusal at 2.5 feet	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					

Comments:

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	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					
2		0.0			
3					
4					
5					
6		0.0			
7					
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 - 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		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				Silty Clay Grey; trace brown staining in mottled pattern; uniform; firm, slight plasticity; moist.	
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					
5				At 4.5 - Fill Material Becomes: Gravel; trace blue staining; loose; unsorted; trace white ashes.	
6		0.0			
7				Silty Clay Grey; trace brown staining in mottled pattern; uniform; firm; slight plasticity; moist.	
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				Silty Clay Grey; trace brown staining in mottled pattern; uniform; firm; slight plasticity; moist.	
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.	
3				At 2.0 - Fill Material Becomes: Brown Sand; trace gravel; trace brick fragments; trace slag fragments; wet; slight odor.	
4					
5				At 4.0 - Fill Material Becomes: Gravel; black loose; mixed with 50 % black sand, loose, wet.	
6		0.0			
7					
8					
9					
10		0.0			
11				Silty Clay Grey; trace brown staining in mottled pattern; uniform; firm; slight plasticity; moist.	
12					
13				End of Boring	

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:	Maaim 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'	
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'	
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	
9					
10					
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'	
2		0.0		Brown silty sand mixed with roots and sod; moist	
3				Fill Material Consisting of: Gravel and cobbles mixed with brown clayey silt; black sand; cinders, slag fragments; moist, loose.	
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

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		00		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 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: 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.	
5				End of Boring	
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 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: 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		0.0		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				Silty Clay Grey; trace brown staining in mottled pattern; uniform; firm; slight plasticity; moist.	
6		0.0			
7					
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				Silty Clay Grey; trace brown staining in mottled pattern; uniform; firm; slight plasticity; moist.	
13				End of Boring	
Comments:					

RIETEC

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				Silty Clay Grey; trace 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		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				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

SB149

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				Asphalt Pavement	
2		00		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		Fill Material Consisting of: Limestone rock fragments (road base) 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

SB151

PROJECT NO:	3 - 2075 - 710	DATE:	May 19, 1999	GROUND ELEVATION:	587.91
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					
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

SB152

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				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					
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

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				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:	587.9
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 BCS (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.	
5				End of Boring	
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					
6		4.5		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

SB156

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				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					
6		0		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

SB157

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				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		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

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 BCS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1					
2		0			
3					
4					
5					
6		0			
7					
8					
				End of Boring	
9					
10					
11					
12					
13					

Comments:

RETEC

SOIL BORING LOG

SB159

PROJECT NO:	3 - 2075 - 710	DATE:	June 10, 1999	GROUND ELEVATION:	-588.5
CLIENT:	National Fuel Gas	GEOLOGIST:	Charlie Burke	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	Fuel Island Area	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: 0 - 2' - Gravel	
2				From 2 - 2.5' Black cinders and ashes	
3				Clayey Silt Brown and Grey; moist.	
4	SB159	0			
5				Silty Clay Grey; trace brown staining in mottled pattern; uniform; stiff; moist.	
6					
7					
8					
End of Boring					
9					
10					
11					
12					
13					

Comments:

PID Headspace taken from composite soil sample 0 - 8 feet bgs
Laboratory Sample SB159 collected from 0 to 8' bgs
Analyzed for Semi-volatiles STARS List - Method 8270

RETEC

SOIL BORING LOG

SB160

PROJECT NO:	3 - 2075 - 710	DATE:	June 20, 1999	GROUND ELEVATION:	-588.5
CLIENT:	National Fuel Gas	GEOLOGIST:	Charlie Burke	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4' Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	Fuel Island Area	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.	
2				From 1.5 - 2.0 Black cinders; slight hydrocarbon - like odor.	
3				Silty Clay Grey; trace brown staining in mottled pattern; uniform; stiff; moist.	
4	SB160	8.3			
5					
6					
7					
8				End of Boring	
9					
10					
11					
12					
13					

Comments:
 PID Headspace taken from composite soil sample 0 - 8 feet bgs
 Laboratory Sample SB160 collected from 0 to 8' bgs
 Analyzed for Semi-volatiles STARS List - Method 8270

RETEC

SOIL BORING LOG

SB161

PROJECT NO:	3 - 2075 - 710	DATE:	June 20, 1999	GROUND ELEVATION:	-588.5
CLIENT:	National Fuel Gas	GEOLOGIST:	Charlie Burke	MP ELEVATION:	NA
SITE:	Mineral Springs Road	EQUIPMENT:	2" x 4" Direct Push - MacroCore Barrel	DEPTH TO WATER:	NA
LOCATION:	Fuel Island Area	OPERATOR:	Maxim Technologies	WATER ELEVATION:	NA

DEPTH BGS (feet)	SAMPLE INTERVAL	PID HEADSPACE (ppm)	SOIL LITHOLOGY	SOIL DESCRIPTION LOG	MONITORING WELL CONSTRUCTION
1				Topsoil then:	
2				Fill Material Consisting of:	
3				Gravel; cinders, bricks;	
4					
5				At 4.0 feet bgs fill becomes:	
6				Silt, brown and grey; mixed with some fill comprised of cinders	
7				Driller reports refusal - hard surface encountered	
8				End of Boring	
9					
10					
11					
12					
13					

Comments:

PID Headspace taken from composite soil sample 0 - 6 feet bgs
Laboratory Sample SB160 collected from 0 to 6' bgs
Analyzed for Semi-volatiles STARS List - Method 8270

DB



BORING LOG BORING DB1

REMEDIATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 587.9
LOCATION: MINERAL SPRINGS ROAD	METHOD: HSA	WATER LEVEL DURING DRILLING: NA
START DATE: 1-21-98	CASING I.D.: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 30.0 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			2.1		FLL		Fill material consisting of sandy gravel. At 2.0 fill consists of wood fragments mixed with clay.
5			1.2		CL		At 4.0 slight hydrocarbon odor and 1/2 inch lense of blue stained soil. CLAY Grey, firm, low plasticity, moist, no odor.
10			1.3				
15			0.4		SP		SAND Grey, loose, fine grained, wet, no odor. Becomes coarse at 13.0.
20					GP		GRAVEL Grey, fine grained, poorly sorted, wet, no odor.
25							
30			0.8		CL		CLAY Grey, soft, medium plasticity, wet, no odor.
35							
40							End of boring.

REMARKS:

BORING LOG BORING DB2

REMEDIATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 587.9
LOCATION: MINERAL SPRINGS ROAD	METHOD: HSA	WATER LEVEL DURING DRILLING: NA
START DATE: 1-28-98	CASING I.D.: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 30.0 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (in)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5			12		FILL		Fill material consisting of gravel and clay.
			10				
			19				
			20		CL		At 5.8 - 2-inch lense of sandy gravel, hydrocarbon sheen. CLAY Grey, firm, low plasticity, moist, no odor.
10			12				
			12				
			0.8				At 13.0 increasing sand content.
15			10				
					SP		SAND Grey, fine grained, loose, wet, no odor.
20			0.7				
			13		GP		SANDY GRAVEL Grey, poorly sorted, loose, wet, no odor.
			13				
25			18		CL		CLAY Grey, soft, moist, trace gravel.
			0.9				
			0.7				
30							End of boring.
35							
40							

REMARKS:

BORING LOG BORING DB3

REMEDATION TECHNOLOGIES, INC.

PROJECT NO: 3-2075-880	BORING CO: NORTHSTAR	WPE ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 588.53
LOCATION: MINERAL SPRINGS ROAD	METHOD: HSA	WATER LEVEL DURING DRILLING: NA
START DATE: 1-27-98	CASING ID: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 39.5 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (ppt)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			9.1		FILL		0 - 0.5 Topsoil. Fill material consisting of clay and debris. At 2.0 - 3-inch lense of blue stained wood chips.
5			19.0				
			31.0		GP		SANDY GRAVEL Mixed with hydrocarbon product. At 8.0 - becomes saturated with hydrocarbon product, non-viscous.
			51.3				
10			64.5		CL		CLAY Grey, firm, low plasticity, strong hydrocarbon odor.
			44.0				
			28.5				
15			48.2				At 15.0 - increasing gravel content.
			43.0				
20			24.6		GP		SANDY GRAVEL Grey, loose, poorly sorted, trace hydrocarbon sheen. Slight hydrocarbon sheen, wet
			13.6				
			14.2				
25			39.3				At 25.0 strong hydrocarbon sheen.
			5.8		CL		CLAY Grey, soft, medium plasticity, trace hydrocarbon odor and sheen.
30			7.3				
			2.0				
			1.0				
35			2.3				
			2.3				
			2.7		GP		At 38.0 - Becomes sandy gravel, no odor
40							At 39.5 - Driller reports refusal

REMARKS

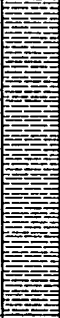
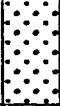
End of boring.

562.5

BORING LOG BORING DB4

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 587.27
LOCATION: MINERAL SPRINGS ROAD	METHOD: HSA	WATER LEVEL DURING DRILLING: NA
START DATE: 1-29-98	CASING I.D.: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 24 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (gpm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			15		FILL		Fill material consisting of sand and gravel, ashes and brick fragments, moist, no odor.
5			7.0				
			0.7		CL		CLAY Grey, firm, moist, no odor.
			0.8				
10			12				
			13				
			0.9				Becomes wet at 12.0.
15			11		SP		SAND Grey, fine, loose, no odor.
			8.0		GP		SANDY GRAVEL Grey, loose, poorly sorted. At 18.0 - Slight hydrocarbon odor.
20			10.3				At 21.0 - 12-inch lense of hydrocarbon product.
			5.4		CL		CLAY Grey, soft, medium plasticity, no odor.
25							End of boring.
30							
35							
40							

REMARKS:

BORING LOG BORING DB5

REMEDATION TECHNOLOGIES, INC.

PROJECT NO: 3-2075-880	DRILLING CO: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 589
LOCATION: MINERAL SPRINGS ROAD	METHOD: HSA	WATER LEVEL DURING DRILLING: NA
START DATE: 1-30-98	CASING I.D.: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 24 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (feet)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			8.5		FILL		Fill material consisting of sand and gravel, no odor, moist.
			8.3		CL		CLAY
5			53.0				Grey, firm, moist. At 5.0 - 1-inch lense of sand, trace hydrocarbon sheen.
			12.2				At 8.0 - 10.0 - trace hydrocarbon product in thin lenses in clay.
10			18.3		SP		SAND
			18.0				Grey, fine grained, loose, trace hydrocarbon sheen.
			29.7				
15			38.4		GP		SANDY GRAVEL
			40.5				Poorly sorted, loose, strong hydrocarbon sheen. At 18.0 to 21.5 gravel mixed with hydrocarbon product.
20			30.8				
			8.3		CL		CLAY
			8.8				Grey, soft, medium plasticity, wet.
25							End of boring.
30							
35							
40							

REMARKS

BORING LOG BORING DB6

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-080	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEY	SURFACE ELEVATION: 588.38
LOCATION: MINERAL SPRINGS ROAD	METHOD: HSA	WATER LEVEL DURING DRILLING: NA
START DATE: 1-29-88	CASING I.D.: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 28 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (ft)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			0.8		FILL		0 - 0.5 Topsoil Fill material consisting of 3-foot thick layer of blue stained wood chips, slight hydrocarbon odor.
			13.4				
5			5.3		CL		CLAY Grey, firm, moist, no odor.
			2.0				
10			11				
			3.0		SP		SAND Grey, fine grained, loose, wet, no odor.
			0.8				
15			10		GP		SANDY GRAVEL Loose, poorly sorted, wet, no odor.
			15				
			0.5				
20			13		CL		CLAY Grey, soft, uniform, wet, no odor.
			1.9				
25			13				
							End of boring.
30							
35							
40							

REMARKS:

BORING LOG BORING DB7

REMEDIAL TECHNOLOGIES, INC.

PROJECT NO: 3-2075-080	DRILLING CO: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEV	SURFACE ELEVATION: 587.52
LOCATION: MINERAL SPRINGS ROAD	METHOD: MSA	WATER LEVEL DURING DRILLING: NA
START DATE: 1-29-98	CASING I.D.: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 28 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PTD HEADSPACE (feet)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
			0.6		FILL		Fill material consisting of sand and gravel mixed with ashes, no odor, moist.
			0.8				
5			0.6		CL		CLAY Grey, firm, low plasticity, moist, no odor.
			1.1				
10			0.5				
			1.1				Increasing silt content at 12.0.
			0.8				
15			2.3		SP		SAND Grey, fine grained, loose, uniform, wet, no odor.
			3.0		GP		SANDY GRAVEL Grey, poorly sorted, loose, wet, no odor.
			5.1				
20			0.9				
			0.4				
25			1.4		CL		CLAY Grey, soft, medium plasticity, trace gravel.
							End of boring.
30							
35							
40							

REMARKS

BORING LOG BORING DB8

REMEDIATION TECHNOLOGIES, INC.

PROJECT NO: 3-2075-880	DRILLING CO: NORTHSTAR	NP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEY	SURFACE ELEVATION: 595.80
LOCATION: MINERAL SPRINGS ROAD	METHOD: HSA	WATER LEVEL DURING DRILLING: NA
START DATE: 2-2-88	CASING ID: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 34 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
10					FILL		FILL MATERIAL
70			21				50% angular gravel chips, 50% clay - brown, moist, no odor
5			5.2				90% silty clay - brown, moist, no odor, trace brick fragments 10% granular gravel chips
30			4.2				70% silty clay - brown, moist, no odor, mixed with 30% concrete fragments
70			3.9				90% silty clay and 10% gravel, brick fragments, trace concrete fragments
50			4.2				50% brick fragments trace (nodules) coal fragments and 50% gray silty clay, moist
10			2.0				90% silty clay, brown, moist, trace rounded gravel
70			3.3				At 11.7 Metal screen, slight hydrocarbon odor
85			10.8				Gravel chips, concrete fragments, brick fragments, wood plug in spoon tip, refusal at 13.5
15			28		CL		CLAY
75			22				Dark grey, firm, moist, trace roots, trace nodules of orange staining, no odor
80			14.0				Dark grey, uniform, moist, trace hydrocarbon odor and thin black partings of silt
100			28				Dark grey, uniform, moist, slight hydrocarbon odor
20			22		SP		SAND
80			14.0				Very fine, wet, 2-inch lense of hydrocarbon product
80			28				Grey, coarse, poorly sorted, hydrocarbon odor, spots of sheen at 21.8, wet
25			32				Grey, coarse, poorly sorted at 23.8 becomes fine, 1-inch lense of hydrocarbon product, (black tar-like material)
70			371				Grey, coarse, poorly sorted
80			38		GP		GRAVEL
40							Grey, rounded, poorly sorted, wet, strong hydrocarbon odor, hydrocarbon sheen
40							Grey, rounded, poorly sorted, loose, wet, slight hydrocarbon odor
30							Grey, rounded, poorly sorted, loose, wet, at 29.8 becomes saturated with hydrocarbon product, nonviscous
70					CL		Saturated with tar-like material from 30.0 to 30.8
30							CLAY
35							Grey, soft, uniform and moist
40							Grey, soft, uniform and moist

REMARKS:

582

565.3

BORING LOG BORING DB9

REMEDIATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRIILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRIILLER: JEFF THEW	SURFACE ELEVATION: 596.83
LOCATION: LANDELL NORTH	METHOD: HSA	WATER LEVEL DURING DRILLING: NA
START DATE: 2-2-88	CASING I.D.: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 34.0 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (feet)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
0	10				FILL		FILL MATERIAL
10							90% brown silty clay and 10% gravel, angular, wet, no odor
20			13				90% brown silty clay and 10% gravel, angular, wet, no odor
30			14				50% brown silty clay, wet and 50% broken rock fragments
40			22				80% grey gravel, 20% concrete fragments, and 20% grey silt, trace coal in nodules, trace spots of sheen
50			16				80% clay - brown, stiff, mixed with 40% rounded gravel, wet, no odor
60			18				Gravel and clay mixture, wet, no odor. At 11.8 becomes red and tan brick fragments - broken, no odor
70			18				Refusal at 13.0, fill material - grey silty gravel, compact, wet, no odor
80			19		ML		Grey gravel mixed with tan clay
90			20		CL		Black organic silt lens, 2-inches thick
100			18				CLAY
110			19				Grey, no odor, wet, trace roots
120			19				Grey, uniform, wet, no odor
130			18		SN		Trace brown silt in horizontal partings. At 19.7 trace orange peat/organic debris in lens
140			24				Poor recovery, clay in spoon tip
150			12		GP		CLAYEY SAND
160			10				Very fine, uniform, wet, soft, no odor
170			18				Very fine, uniform, well sorted, wet, no odor
180			18		GP		GRAVEL
190			19				Medium, poorly sorted, round to subrounded, wet, loose, slight hydrocarbon odor
200							Coarse, poorly sorted, wet, loose, no odor. At 29.8 becomes grey clay
210			18		CL		CLAY
220			19				Uniform, grey, soft, wet, no odor
230							Uniform, trace gravel, wet, no odor
240							
250							
260							
270							
280							
290							
300							
310							
320							
330							
340							

REMARKS:

REMEDIAL TECHNOLOGIES, INC.				BORING LOG BORING DB10			
PROJECT NO: 3-2075-880				DRILLING CO: NORTHSTAR		NP ELEVATION:	
CLIENT: NATIONAL FUEL GAS				DRILLER: JEFF THEW		SURFACE ELEVATION: 597.75	
LOCATION: MINERAL SPRINGS ROAD				METHOD: HSA		WATER LEVEL DURING DRILLING: NA	
START DATE: 2-3-98				CASING I.D.: NA		STICK-UP: NA	
GEOLOGIST: JAMES EDWARDS				TOTAL DEPTH: 38.0 Feet		AUGER O.D./I.D.: 4.25 ID	
DEPTH (feet)	RECOVERY (in)	SAMPLE DEPTH	PID HEADSPACE (ppl)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5	50		17		FILL		FILL MATERIAL 50% concrete fragments and 50% silty clay, brown, firm, wet, no odor 90% brown clay - firm and 10% concrete and rock fragments 90% clay, brown, firm, moist, no odor and 10% brick and concrete fragments 90% rock fragments and 10% grey silt, wet, no odor No sample due to poor recovery - driller reports refusal at 9.0 70% broken rock fragments, 10% brown clay, silt mix and 10% asphalt pavement 90% clay - brown, firm, moist, no odor and 10% rock fragments 50% broken bricks and 50% black silt, no odor, wet
10	30		18				
	40		12				
	10		0				
	0		0				
	70		10				
	60		12				
15	20		19				
	40		2.4		CL		CLAY Grey, firm, uniform, moist, no odor No recovery, clay plug in spoon tip Grey, firm, wet, no odor
20	0		3.1				
	30		2.2		SP		SAND Very fine, grey, loose, uniform, no odor Very fine, uniform, well sorted, wet, loose, no odor
	50		2.8				
25	50		12		GP		GRAVEL Medium, loose, poorly sorted, rounded, no odor Loose, poorly sorted, rounded, slight hydrocarbon odor, wet Poorly sorted, rounded, slight hydrocarbon odor, wet, loose Poorly sorted, rounded, wet, loose, very slight hydrocarbon odor
	40		2.0				
	30		2.1				
	40		3.2				
	60		3.8		CL		CLAY Grey, soft, uniform, slight hydrocarbon odor Grey, soft, uniform, wet, slight hydrocarbon odor
35	30		3.0				
40							
REMARKS:							

BORING LOG BORING DB11

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-880	DRILLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 596.57
LOCATION: LANDELL CENTRAL	METHOD: HSA	WATER LEVEL DURING DRILLING: NA
START DATE: 2-3-98	CASING LOG: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 34.0 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (feet)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
20			12		FILL		FILL MATERIAL
50			3.2				90% silty clay and 10% broken rock fragments, firm, moist, no odor
60			4.8				90% silty clay - firm, brown, no odor and 10% rock, concrete, asphalt fragments
80			7.1				80% clay - brown, firm, no odor and 20% wood fragments
100			7.8				90% clay - brown, firm, no odor, mixed with 10% rock fragments, coal chips, concrete fragments, moist, no odor
120			5.1				90% clay - grey and brown, firm, mixed with 10% rock fragments, trace coal chips, moist, no odor
140			8.1				Limited recovery due to concrete plug in spoon tip
160			9.8				90% silty clay mixed with 10% brick and rock fragments - moist, no odor
180			13.0		CL		At 15.0 - 1 inch lense of black organic silt.
200			29.0		CL		CLAY
220			53.0		GP		Grey, uniform, stiff, moist, no odor
240			82.0		GP		Grey, firm, uniform, mottled with orange stain in nodules, moist, no odor
260			49.0		GP		SAND
280			48.0		GP		Grey, uniform, well sorted, loose, at 19.7 saturated with hydrocarbon product
300			97.5		GP		Grey, loose, wet, strong hydrocarbon odor and sheen
320			30.1		CL		GRAVEL
340			11.9		CL		Poorly sorted, loose, wet, strong hydrocarbon odor and hydrocarbon sheen
							Sandy, poorly sorted, angular, trace cobbles, hydrocarbon sheen 24-25
							Sandy, poorly sorted, loose, trace cobbles, wet angular and subround, strong hydrocarbon odor, hydrocarbon sheen
							Sandy, poorly sorted, loose, hydrocarbon sheen, strong odor, becomes firm at 23.6.
							CLAY
							Grey, soft, uniform, moist, strong hydrocarbon odor
							Grey, soft, uniform, slight hydrocarbon odor

REMARKS:

BORING LOG BORING DB12

REMEDIATION TECHNOLOGIES, INC.

PROJECT NO: 3-2075-880	DRILLING CO: NORTHSTAR	NP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEW	SURFACE ELEVATION: 598.63
LOCATION: CENTER LANDFILL/EAST	METHOD: HSA	WATER LEVEL DURING DRILLING: NA
START DATE: 2-3-98	CASING I.D.: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 38.0 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (pore)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
70			7.3		FILL		FILL MATERIAL
20			0.2				95% clay - brown, firm, moist, no odor and 5% gravel - rounded
40			2.9				90% clay - brown, firm, wet and 10% gravel - rounded
20			8.4				90% clay - brown, stiff, moist, no odor mixed with 10% broken rock fragments
0			0				90% clay - brown, stiff, wet, no odor, and 10% rock fragments, trace coal chips
100			3.1				No sample, auger through concrete, brick, wood and metal fence
30			2.1				80% clay - brown, stiff, no odor and 20% rock fragments, wood fragments at 11.0 - strong hydrocarbon odor in wood
20			5.2				80% concrete fragments and 40% clay - brown, stiff, trace hydrocarbon stain and odor from 13.8 to 13.8
80			4.2				90% clay - brown, soft, black staining and hydrocarbon odor 15.5 - 18.0
40			3.5		CL		Brown, firm. At 17.2 - 2-inch lense of black organic silt
10			4.2				CLAY
20			9.7				Grey, stiff, moist, no odor
30			34.4		GP		Grey, stiff, low plasticity
80			8.8				Poor recovery, grey, no odor
100			11.3				Grey, soft, no odor. At 24.0 sand - grey, well sorted, uniform, wet, no odor
0			3.4				SANDY GRAVEL
0			13.4				Poorly sorted, angular and rounded, loose, wet, very slight hydrocarbon odor
35			3.2		CL		Poorly sorted, angular to subround, loose, wet, slight hydrocarbon odor.
							Poorly sorted, angular to subround, firm, wet, slight hydrocarbon odor
							Poorly sorted, loose, wet, rounded, slight hydrocarbon odor
							Poorly sorted, rounded, slight hydrocarbon odor.
							CLAY
							Grey, soft, medium plasticity
							Soft, grey, medium plasticity, slight hydrocarbon odor

REMARKS:

BORING LOG BORING DB13

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-680	DORLING CO.: NORTHSTAR	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: JEFF THEY	SURFACE ELEVATION: 588.60
LOCATION: MINERAL SPRINGS ROAD	METHOD: HSA	WATER LEVEL DURING DRILLING: NA
START DATE: 2-4-98	CASING ID: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 28.0 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
5	50		20		FILL		FILL MATERIAL consisting of: 90% brown clay - dry, firm, no odor, mixed with 10% broken concrete fragments 90% clay - brown, firm, moist, no odor, mixed with 10% brick fragments, gravel, nails 90% brown clay and rock fragments
	50		4.0				
	30		2.1		CL		CLAY Grey, firm, black silt lense 2-inches thick Grey, firm, high silt content, low plasticity Grey, firm, uniform, low plasticity, moist, no odor Grey, firm, uniform, low plasticity, moist, no odor Grey, loose, low plasticity
	50		4.4				
10	30		3.4				
	45		5.1		SP		SAND Very fine, grey, wet, loose, no odor Grey, loose, wet, no odor Loose, poorly sorted, no odor, wet, 10% gravel rounded
	50		2.1				
15	60		2.2				
	80		2.8		GP		SANDY GRAVEL Rounded to subrounded, loose, 20% grey sand, wet, no odor Grey, loose, rounded, poorly sorted, wet, no odor Poor recovery due to cobble plug in spoon tip - Driller reports change at 23.0'
20	40		3.8				
	50		5.2		CL		CLAY Grey, soft, high silt content, 10% grey pebbles and cobbles in random pattern, no odor Grey, soft, medium plasticity, 15% grey rounded pebbles in random unsorted pattern, wet, no odor
	10		5.0				
25	70		5.0				
	80		20				
30							
35							
40							

REMARKS:

BORING LOG BORING DB14

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-890	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION: 590
LOCATION: MINERAL SPRINGS ROAD	METHOD: HSA	WATER LEVEL DURING DRILLING: NA
START DATE: 4-2-98	CASING I.D.: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 30.0 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
	10		0.0		FILL		Fill material consisting of road base gravel fill - loose, wet
	90		3.0		CL		SILTY CLAY Grey, trace black staining at 3.0, trace brown silt in pockets, no odor, moist
5	70		2.3				Grey, trace orange staining, firm, uniform, no odor, moist
	10		4.4				Grey and orange staining in mottled pattern, firm, uniform, moist, no odor Increasing sand content
	80		6.1		SP		SILTY SAND No odor, moist Grey and brown, fine grained, loose, uniform, moist, no odor
10	85		7.2				
	50		13.1				Becomes all grey at 13.7
15	90		21		GP		Grey, uniform, very fine grained
	100		4.2				GRAVEL Round, grey, moist, no odor Very loose, poorly sorted, round to subround, wet, no odor
	80		4.1				Grey, loose, poorly sorted, wet, no odor
20	80		4.5				Grey, loose, poorly sorted, trace cobbles, wet, no odor
	70		12.7				Grey, loose, poorly sorted, trace cobbles, wet, no odor
25	100		6.6		CL		CLAY Grey to tan, soft, uniform, thin seams of silt in horizontal partings
	100		11.1				Grey with tan, soft, uniform, medium plasticity, trace rounded gravel
	100		6.1				Grey and tan, soft, uniform, no odor, wet
30							End of boring.
35							
40							

REMARKS:

BORING LOG BORING DB15

REMEDATION TECHNOLOGIES, INC.

PROJECT NO.: 3-2075-890	DRILLING CO.: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION: 590
LOCATION: MINERAL SPRINGS ROAD	METHOD: HSA	WATER LEVEL DURING DRILLING: NA
START DATE: 4-2-98	CASING I.D.: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 30.0 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
	80		4.2		FILL		0 - 8" asphalt Unable to sample due to obstruction, augered to 4.0
	80		3.1		CL		Black silt loess, no odor
5	100		3.2				SILTY CLAY Grey and brown in mottled pattern, firm, moist, no odor Grey and orange in mottled pattern, firm, uniform, no odor
	80		4.1				
	80		4.1				Orange and grey, uniform, firm, moist, no odor Increasing sand content
10	50		4.1		SP		SILTY SAND Grey and orange Loose, moist, poorly sorted, no odor, 20% rounded gravel
	70		2.1				
15	80		3.8		GP		SILTY GRAVEL Loose, poorly sorted, wet, slight hydrocarbon odor Coarse, trace cobbles, poorly sorted, grey, loose, no odor
	80		3.2				
	80		2.1				Coarse, angular to subround, poorly sorted, loose grey, no odor
20	70		4.1				Grey, poorly sorted, coarse, angular and rounded, slight hydrocarbon odor
	40		2.1				Grey poorly sorted, loose, angular and subround, slight hydrocarbon odor
25	80		1.1		CL		CLAY Grey to tan, soft, uniform, wet, no odor, trace rounded cobbles
	70		3.1				
	80		3.8				
30							End of boring.
35							
40							

REMARKS:

BORING LOG BORING DB16

REMEDATION TECHNOLOGIES, INC.

PROJECT NO: 3-2075-890	DRILLING CO: MAXIM	MP ELEVATION:
CLIENT: NATIONAL FUEL GAS	DRILLER: RON BROWN	SURFACE ELEVATION: 590
LOCATION: MINERAL SPRINGS ROAD	METHOD: HSA	WATER LEVEL DURING DRILLING: NA
START DATE: 4-2-98	CASING I.D.: NA	STICK-UP: NA
GEOLOGIST: JAMES EDWARDS	TOTAL DEPTH: 28.0 Feet	AUGER O.D./I.D.: 4.25 ID

DEPTH (feet)	RECOVERY (%)	SAMPLE DEPTH	PID HEADSPACE (ppm)	BLOW COUNTS	SOIL CLASS	LITHOLOGY	DESCRIPTION
0	10		1.0		FILL		Fill material consisting of mixture of broken rock fragments, brown clayey silt and sand, moist, no odor
40			8.1				Black cinders and ash fragments, trace coal fragments, dry, no odor
5	10		5.1				Black cinders and ash fragments, poor recovery due to cobble in spoon tip
	10		7.1				No recovery due to plug in spoon tip (cobble)
90			8.2		CL		SILTY CLAY
80			4.5		GP		Grey and orange in mottled pattern, no odor
80			8.0		GP		SILTY SAND Grey, uniform, fine, well sorted, slight hydrocarbon odor Grey, fine, uniform, wet
15	70		7.1				GRAVEL Grey, poorly sorted, round to subround, wet, loose, slight hydrocarbon odor Increasing sand content
100			8.8				SILTY GRAVEL Grey, loose, round to subround, poorly sorted, slight hydrocarbon odor, wet
100			7.2				
20	50		14.0				GRAVEL Grey, poorly sorted, loose, angular to subround, slight hydrocarbon odor, wet Grey, poorly sorted, wet, slight hydrocarbon odor
50			7.8				
25	100		4.2		CL		SILTY CLAY Uniform, grey (light), medium plasticity, moist to wet, slight odor
100			5.8				CLAY Grey, uniform, soft, medium plasticity
30							End of boring.
35							
40							

REMARKS: