

**TABLE 1
SAMPLE SUMMARY**

**NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK**

Matrix	Location	Date Collected	Depth Start	Depth End	Total Cyanide	SVOCs	VOCs
Groundwater	MW-1	9/9/2010	8	18	X	X	X
	MW-1 [BD-090910]	9/9/2010	8	18	X	X	X
	MW-2	9/9/2010	7.8	17.8	X	X	X
	MW-3	9/9/2010	5	15	X	X	X
	MW-4	9/9/2010	8	18	X	X	X
Soil	MW-01	8/4/2010	8	11	X	X	X
	MW-01	8/4/2010	11	14	X	X	X
	MW-2	8/9/2010	5	9	X	X	X
	MW-2	8/9/2010	17	17.8	X	X	X
	MW-3	8/9/2010	5	9	X	X	X
	MW-3 [BD-080910]	8/9/2010	5	9	X	X	X
	MW-3	8/9/2010	11	15.2	X	X	X
	MW-04	8/5/2010	2	3	X	X	X
	MW-04	8/5/2010	18	20	X	X	X
	SB-01	8/4/2010	8	11	X	X	X
	SB-01	8/4/2010	16	18	X	X	X
	SB-02	8/3/2010	8	10	X	X	X
	SB-02	8/3/2010	15.8	16.8	X	X	X
	SB-03	8/4/2010	2	3	X	X	X
	SB-03	8/4/2010	14.9	16.9	X	X	X
	SB-04	8/2/2010	8	11	X	X	X
	SB-04	8/2/2010	14	17	X	X	X
	SB-05	8/3/2010	8	10	X	X	X
	SB-05	8/3/2010	15.8	16.8	X	X	X
	SB-06	8/3/2010	8	10	X	X	X
	SB-06	8/3/2010	14.8	16.8	X	X	X
	SB-07	8/3/2010	8	10	X	X	X
	SB-07	8/3/2010	12.4	13.4	X	X	X
	SB-08	8/2/2010	8	10	X	X	X
	SB-08	8/2/2010	15	17.5	X	X	X
	SB-08 [BD-080210]	8/2/2010	15	17.5	X	X	X

Notes:

SVOCs = Semi-Volatile Organic Compounds.

VOCs = Volatile Organic Compounds.

Depths given in feet below grade.

[BD-#####] = Blind duplicate sample collected at this location.

**TABLE 2
MONITORING WELL CONSTRUCTION DETAILS**

**NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK**

Location ID	Date Completed	Well Diameter (in.)	Casing/ Screen Type	Screen Slot Size (in.)	Screen Length (ft.)	Depth to Screened Interval (ft. bgs)		Total Well Depth
						Top	Bottom	ft. bgs
MW-1	8/6/10	2	PVC	0.01	10.0	8.0	18.0	18.2
MW-2	8/11/10	2	PVC	0.01	10.0	7.8	17.8	17.8
MW-3	8/9/10	2	PVC	0.01	10.0	5.0	15.0	15.0
MW-4	8/5/10	2	PVC	0.01	10.0	8.0	18.0	18.0

Notes:

in. = inches.

Depths given in feet below ground surface (ft. bgs).

**TABLE 3
GROUNDWATER ELEVATIONS**

**NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK**

Well ID	Ref. Point Elevation (ft AMSL)	Depth to Water (ft below TIC)		Groundwater Elevation (ft AMSL)	
		9/9/2010	10/4/2010	9/9/2010	10/4/2010
MW-1	583.14	3.76	4.02	579.38	579.12
MW-2	582.91	1.64	1.85	581.27	581.06
MW-3	582.97	2.57	2.56	580.40	580.41
MW-4	585.19	2.59	2.67	582.60	582.52

Notes:

AMSL = above mean sea level.

ft = feet.

TIC = Top of Inner Casing.

Reference point for all wells is the top of inner casing, referenced to NAVD 1988.

**TABLE 4
SOIL SAMPLE ANALYTICAL RESULTS**

**NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK**

Location ID: Sample Depth(Feet): Date Collected:	Part 375 Restricted Use SCOs Commercial	Restricted Use SCOs Residential	Units	MW-01 8 - 11 08/04/10	MW-01 11 - 14 08/04/10	MW-2 5 - 9 08/09/10	MW-2 17 - 17.8 08/09/10	MW-3 5 - 9 08/09/10	MW-3 11 - 15.2 08/09/10	MW-4 2 - 3 08/05/10	MW-4 18 - 20 08/05/10	SB-01 8 - 11 08/04/10	SB-01 16 - 18 08/04/10	SB-02 8 - 10 08/03/10
Volatile Organics														
1,1,1,2-Tetrachloroethane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 U	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
1,1,1-Trichloroethane	500	100	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
1,1,2,2-Tetrachloroethane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
1,1,2-Trichloroethane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
1,1-Dichloroethane	240	26	mg/kg	0.0058 U	0.0083 U	0.0063 U	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
1,1-Dichloroethene	500	100	mg/kg	0.0058 U	0.0083 U	0.0063 U	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
1,2,3-Trichloropropane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
1,2-Dibromo-3-chloropropane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
1,2-Dibromoethane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
1,2-Dichlorobenzene	500	100	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 UJ	0.0057 U
1,2-Dichloroethane	30	3.1	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 UJ	0.0057 U
1,2-Dichloropropane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 U	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
1,3-Dichlorobenzene	280	49	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
1,4-Dichlorobenzene	130	13	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
2-Butanone	500	100	mg/kg	0.0027 J	0.042 U	0.032 UJ	0.028 U	0.0055 J [0.0051 J]	0.0040 J	0.011 J	0.028 U	0.0096 J	0.028 U	0.029 U
2-Chloroethylvinylether	--	--	mg/kg	0.029 U	0.042 U	0.032 U	0.028 U	0.029 U [0.030 U]	0.030 U	0.031 U	0.028 U	0.037 U	0.028 U	0.029 U
2-Hexanone	--	--	mg/kg	0.029 U	0.042 U	0.032 UJ	0.028 U	0.029 U [0.030 U]	0.030 U	0.031 U	0.028 U	0.037 U	0.028 U	0.029 U
4-Methyl-2-pentanone	--	--	mg/kg	0.029 U	0.042 U	0.032 UJ	0.028 U	0.029 U [0.030 U]	0.030 U	0.031 U	0.028 U	0.037 U	0.028 U	0.029 U
Acetone	500	100	mg/kg	0.029 UB	0.042 UB	0.032 UB	0.028 UB	0.031 UB [0.030 UB]	0.030 UB	0.075	0.028 UB	0.055 UB	0.028 UB	0.033 UB
Acrylonitrile	--	--	mg/kg	0.029 U	0.042 U	0.032 UJ	0.028 U	0.029 U [0.030 U]	0.030 U	0.031 U	0.028 U	0.037 U	0.028 U	0.029 U
Benzene	44	4.8	mg/kg	0.84 D	53 D	0.0063 UJ	0.0056 U	0.0027 J [0.0060 U]	0.0075	0.0043 J	0.0057 U	0.017	7.4 DJ	0.0057 U
Bromobenzene	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 U	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
Bromochloromethane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 U	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
Bromodichloromethane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
Bromoform	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 U	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
Bromomethane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 U	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
Carbon Disulfide	--	--	mg/kg	0.0058 U	0.0063 J	0.0063 U	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0034 J	0.0057 U
Carbon Tetrachloride	22	2.4	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
Chlorobenzene	500	100	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 UJ	0.0057 U
Chloroethane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 U	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
Chloroform	350	49	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
Chloromethane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 U	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
cis-1,2-Dichloroethene	500	100	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 UJ	0.0057 U
cis-1,3-Dichloropropene	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
Dibromochloromethane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
Ethylbenzene	390	41	mg/kg	0.0058 U	0.010	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.054 J	0.0057 U
Iodomethane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 U	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
Methylene Chloride	500	100	mg/kg	0.0039 J	0.0083 U	0.0063 UB	0.0056 UB	0.0059 UB [0.0060 UB]	0.0060 UB	0.0061 U	0.0057 UB	0.0050 J	0.0034 J	0.0032 J

See Notes on Page 9.

**TABLE 4
SOIL SAMPLE ANALYTICAL RESULTS**

**NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK**

Location ID: Sample Depth(Feet): Date Collected:	Part 375 Restricted Use SCOs Commercial	Restricted Use SCOs Residential	Units	MW-01 8 - 11 08/04/10	MW-01 11 - 14 08/04/10	MW-2 5 - 9 08/09/10	MW-2 17 - 17.8 08/09/10	MW-3 5 - 9 08/09/10	MW-3 11 - 15.2 08/09/10	MW-4 2 - 3 08/05/10	MW-4 18 - 20 08/05/10	SB-01 8 - 11 08/04/10	SB-01 16 - 18 08/04/10	SB-02 8 - 10 08/03/10
Volatile Organics (Cont.)														
Styrene	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
Tetrachloroethene	150	19	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 UJ	0.0057 U
Toluene	500	100	mg/kg	0.0058 U	0.0059 J	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.026 J	0.0057 U
trans-1,2-Dichloroethene	500	100	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 UJ	0.0057 U
trans-1,3-Dichloropropene	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
trans-1,4-Dichloro-2-butene	--	--	mg/kg	0.029 U	0.042 U	0.032 UJ	0.028 U	0.029 U [0.030 U]	0.030 U	0.031 U	0.028 U	0.037 U	0.028 U	0.029 U
Trichloroethene	200	21	mg/kg	0.0058 U	0.0083 U	0.0063 UJ	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 UJ	0.0057 U
Trichlorofluoromethane	--	--	mg/kg	0.0058 U	0.0083 U	0.0063 U	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
Vinyl Acetate	--	--	mg/kg	0.029 U	0.042 U	0.032 UJ	0.028 U	0.029 U [0.030 U]	0.030 U	0.031 U	0.028 U	0.037 U	0.028 U	0.029 U
Vinyl Chloride	13	0.9	mg/kg	0.0058 U	0.0083 U	0.0063 U	0.0056 U	0.0059 U [0.0060 U]	0.0060 U	0.0061 U	0.0057 U	0.0075 U	0.0056 U	0.0057 U
Xylenes (total)	500	100	mg/kg	0.012 U	0.0054 J	0.013 UJ	0.011 U	0.012 U [0.012 U]	0.012 U	0.012 U	0.011 U	0.0076 J	0.075 J	0.011 U
Total BTEX	--	--	mg/kg	0.84	53 J	ND	ND	0.0027 J [ND]	0.0075	0.0043 J	ND	0.025 J	7.6 J	ND
Total VOCs	--	--	mg/kg	0.85 J	53 J	ND	ND	0.0082 J [0.0051 J]	0.012 J	0.090 J	ND	0.039 J	7.6 J	0.0032 J
Semivolatile Organics														
1,2,4-Trichlorobenzene	--	--	mg/kg	0.39 U	0.54 U	2.1 U	0.37 U	1.9 U [2.0 U]	2.0 U	4.0 U	0.040 J	20 U	0.37 U	0.37 U
1,2-Dichlorobenzene	500	100	mg/kg	0.39 U	0.54 U	2.1 U	0.37 U	1.9 U [2.0 U]	2.0 U	4.0 U	0.37 U	20 U	0.37 U	0.37 U
1,3-Dichlorobenzene	280	49	mg/kg	0.39 U	0.54 U	2.1 U	0.37 U	1.9 U [2.0 U]	2.0 U	4.0 U	0.37 U	20 U	0.37 U	0.37 U
1,4-Dichlorobenzene	130	13	mg/kg	0.39 U	0.54 U	2.1 U	0.37 U	1.9 U [2.0 U]	2.0 U	4.0 U	0.37 U	20 U	0.37 U	0.37 U
2,2'-Oxybis(1-Chloropropane)	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
2,4,5-Trichlorophenol	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
2,4,6-Trichlorophenol	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
2,4-Dichlorophenol	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
2,4-Dimethylphenol	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
2,4-Dinitrophenol	--	--	mg/kg	0.39 U	0.54 U	2.1 U	0.37 U	1.9 U [2.0 U]	2.0 U	4.0 U	0.37 U	20 U	0.37 U	0.37 U
2,4-Dinitrotoluene	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
2,6-Dinitrotoluene	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
2-Chloronaphthalene	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
2-Chlorophenol	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
2-Methylnaphthalene	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.041 J	2.1 J [0.057 J]	0.14 J	0.42 J	0.19 U	0.93 J	0.041 J	0.19 U
2-Methylphenol	500	100	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
2-Nitroaniline	--	--	mg/kg	0.39 U	0.54 U	2.1 U	0.37 U	1.9 U [2.0 U]	2.0 U	4.0 U	0.37 U	20 U	0.37 U	0.37 U
2-Nitrophenol	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
3,3'-Dichlorobenzidine	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
3-Nitroaniline	--	--	mg/kg	0.39 U	0.54 U	2.1 U	0.37 U	1.9 U [2.0 U]	2.0 U	4.0 U	0.37 U	20 U	0.37 U	0.37 U
4,6-Dinitro-2-methylphenol	--	--	mg/kg	0.39 U	0.54 U	2.1 U	0.37 U	1.9 U [2.0 U]	2.0 U	4.0 U	0.37 U	20 U	0.37 U	0.37 U
4-Bromophenyl-phenylether	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
4-Chloro-3-Methylphenol	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U

See Notes on Page 9.

**TABLE 4
SOIL SAMPLE ANALYTICAL RESULTS**

**NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK**

Location ID: Sample Depth(Feet): Date Collected:	Part 375 Restricted Use SCOs Commercial	Restricted Use SCOs Residential	Units	MW-01 8 - 11 08/04/10	MW-01 11 - 14 08/04/10	MW-2 5 - 9 08/09/10	MW-2 17 - 17.8 08/09/10	MW-3 5 - 9 08/09/10	MW-3 11 - 15.2 08/09/10	MW-04 2 - 3 08/05/10	MW-04 18 - 20 08/05/10	SB-01 8 - 11 08/04/10	SB-01 16 - 18 08/04/10	SB-02 8 - 10 08/03/10
Semivolatile Organics (Cont.)														
4-Chloroaniline	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
4-Chlorophenyl-phenylether	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
4-Methylphenol	500	100	mg/kg	0.39 U	0.54 U	2.1 U	0.37 U	0.082 J [2.0 U]	2.0 U	4.0 U	0.37 U	20 U	0.37 U	0.37 U
4-Nitroaniline	--	--	mg/kg	0.39 U	0.54 U	2.1 U	0.37 U	1.9 U [2.0 U]	2.0 U	4.0 U	0.37 U	20 U	0.37 U	0.37 U
4-Nitrophenol	--	--	mg/kg	0.39 U	0.54 U	2.1 U	0.37 U	1.9 U [2.0 U]	2.0 U	4.0 U	0.37 U	20 U	0.37 U	0.37 U
Acenaphthene	500	100	mg/kg	0.20 U	0.28 U	1.1 U	0.0093 J	2.5 J [0.16 J]	0.13 J	0.46 J	0.19 U	4.8 J	0.19 U	0.19 U
Acenaphthylene	500	100	mg/kg	0.20 U	0.28 U	1.1 U	0.011 J	0.43 J [0.071 J]	0.12 J	2.1 U	0.19 U	10 U	0.013 J	0.19 U
Anthracene	500	100	mg/kg	0.20 U	0.28 U	1.1 U	0.020 J	9.0 J [0.35 J]	0.20 J	1.7 J	0.19 U	9.4 J	0.19 U	0.014 J
Benzo(a)anthracene	5.6	1	mg/kg	0.20 U	0.28 U	0.079 J	0.027 J	11 J [1.2 J]	0.65 J	4.8	0.19 U	16	0.013 J	0.025 J
Benzo(a)pyrene	1	1	mg/kg	0.20 U	0.28 U	0.085 J	0.026 J	8.7 J [1.7 J]	0.79 J	7.1	0.19 U	16	0.19 U	0.19 U
Benzo(b)fluoranthene	5.6	1	mg/kg	0.20 U	0.28 U	0.11 J	0.024 J	7.5 J [1.5 J]	0.81 J	6.2	0.19 U	15	0.19 U	0.19 U
Benzo(g,h,i)perylene	500	100	mg/kg	0.20 U	0.28 U	0.056 J	0.020 J	3.7 [1.1]	0.54 J	5.9	0.19 U	8.0 J	0.19 U	0.19 U
Benzo(k)fluoranthene	56	3.9	mg/kg	0.20 U	0.28 U	1.1 UID4	0.011 J	3.9 J [0.76 J]	0.34 J	2.3	0.19 U	6.9 J	0.19 U	0.19 U
Benzyl Alcohol	--	--	mg/kg	0.39 U	0.54 U	2.1 U	0.0093 J	1.9 U [2.0 U]	2.0 U	4.0 U	0.37 U	20 U	0.37 U	0.37 U
bis(2-Chloroethoxy)methane	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
bis(2-Chloroethyl)ether	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
bis(2-Ethylhexyl)phthalate	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.50	0.99 U [0.37 J]	0.82 J	2.1 U	0.20	10 U	0.073 J	0.19 U
Butylbenzylphthalate	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
Chrysene	56	3.9	mg/kg	0.20 U	0.037 J	0.064 J	0.051 J	9.4 J [1.2 J]	0.76 J	4.7	0.050 J	15	0.042 J	0.024 J
Dibenzo(a,h)anthracene	0.56	0.33	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	1.7 J [0.23 J]	0.11 J	1.4 J	0.19 U	2.4 J	0.19 U	0.19 U
Dibenzofuran	350	59	mg/kg	0.20 U	0.28 U	1.1 U	0.0082 J	3.5 J [0.089 J]	0.10 J	0.44 J	0.19 U	3.1 J	0.19 U	0.19 U
Diethylphthalate	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.019 J	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
Dimethylphthalate	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
Di-n-Butylphthalate	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
Di-n-Octylphthalate	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
Fluoranthene	500	100	mg/kg	0.20 U	0.28 U	0.10 J	0.056 J	19 J [1.9 J]	1.6	7.5	0.19 U	31	0.19 U	0.043 J
Fluorene	500	100	mg/kg	0.20 U	0.28 U	1.1 U	0.015 J	5.4 J [0.13 J]	0.15 J	0.40 J	0.19 U	5.9 J	0.19 U	0.19 U
Hexachlorobenzene	6	1.2	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
Hexachlorobutadiene	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
Hexachlorocyclopentadiene	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
Hexachloroethane	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
Indeno(1,2,3-cd)pyrene	5.6	0.5	mg/kg	0.20 U	0.28 U	0.048 J	0.021 J	3.8 [1.0]	0.50 J	4.9	0.19 U	7.4 J	0.19 U	0.19 U
Isophorone	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
Naphthalene	500	100	mg/kg	0.20 U	0.28 U	1.1 U	0.19 UB	2.3 J [0.16 JB]	0.35 JB	0.34 J	0.19 U	4.0 J	1.7	0.19 UB
Nitrobenzene	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
N-Nitrosodimethylamine	--	--	mg/kg	0.39 U	0.54 U	2.1 U	0.37 U	1.9 U [2.0 U]	2.0 U	4.0 U	0.37 U	20 U	0.37 U	0.37 U
N-Nitroso-di-n-propylamine	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
N-Nitrosodiphenylamine	--	--	mg/kg	0.20 U	0.28 U	1.1 U	0.019 J	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U

See Notes on Page 9.

**TABLE 4
SOIL SAMPLE ANALYTICAL RESULTS**

**NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK**

Location ID: Sample Depth(Feet): Date Collected:	Part 375 Restricted Use SCOs Commercial	Restricted Use SCOs Residential	Units	MW-01 8 - 11 08/04/10	MW-01 11 - 14 08/04/10	MW-2 5 - 9 08/09/10	MW-2 17 - 17.8 08/09/10	MW-3 5 - 9 08/09/10	MW-3 11 - 15.2 08/09/10	MW-04 2 - 3 08/05/10	MW-04 18 - 20 08/05/10	SB-01 8 - 11 08/04/10	SB-01 16 - 18 08/04/10	SB-02 8 - 10 08/03/10
Semivolatile Organics (Cont.)														
Pentachlorophenol	6.7	6.7	mg/kg	0.39 UJ	0.54 UJ	2.1 U	0.37 U	1.9 U [2.0 U]	2.0 U	4.0 U	0.37 U	20 UJ	0.37 UJ	0.37 U
Phenanthrene	500	100	mg/kg	0.20 U	0.28 U	0.060 J	0.080 J	23 J [1.1 J]	1.1	6.1	0.028 J	40	0.059 J	0.049 J
Phenol	500	100	mg/kg	0.20 U	0.090 J	1.1 U	0.19 U	0.99 U [1.0 U]	1.0 U	2.1 U	0.19 U	10 U	0.19 U	0.19 U
Pyrene	500	100	mg/kg	0.20 U	0.28 U	0.091 J	0.056 J	16 J [1.7 J]	1.3	7.2	0.19 U	32	0.19 U	0.037 J
Total PAHs	--	--	mg/kg	ND	0.037 J	0.69 J	0.47 J	130 J [14 J]	9.6 J	61 J	0.078 J	210 J	1.9 J	0.19 J
Total SVOCs	--	--	mg/kg	ND	0.13 J	0.69 J	1.0 J	130 J [15 J]	11 J	62 J	0.32 J	220 J	1.9 J	0.19 J
Inorganics														
Cyanide	27	27	mg/kg	0.600 U	1.10 U	0.900 U	0.900 U	0.900 U [1.00 U]	1.10	1.00 U	1.00 U	2.60	1.20 U	0.900 U

See Notes on Page 9.

**TABLE 4
SOIL SAMPLE ANALYTICAL RESULTS**

**NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK**

Location ID: Sample Depth(Feet): Date Collected:	Part 375 Restricted Use SCOs Commercial	Restricted Use SCOs Residential I	Units	SB-02 15.8 - 16.8 08/03/10	SB-03 2 - 3 08/04/10	SB-03 14.9 - 16.9 08/04/10	SB-04 8 - 11 08/02/10	SB-04 14 - 17 08/02/10	SB-05 8 - 10 08/03/10	SB-05 15.8 - 16.8 08/03/10	SB-06 8 - 10 08/03/10	SB-06 14.8 - 16.8 08/03/10	SB-07 8 - 10 08/03/10	SB-07 12.4 - 13.4 08/03/10	SB-08 8 - 10 08/02/10	SB-08 15 - 17.5 08/02/10
Volatile Organics																
1,1,1,2-Tetrachloroethane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
1,1,1-Trichloroethane	500	100	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
1,1,2,2-Tetrachloroethane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
1,1,2-Trichloroethane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
1,1-Dichloroethane	240	26	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
1,1-Dichloroethene	500	100	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
1,2,3-Trichloropropane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
1,2-Dibromo-3-chloropropane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
1,2-Dibromoethane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
1,2-Dichlorobenzene	500	100	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
1,2-Dichloroethane	30	3.1	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
1,2-Dichloropropane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
1,3-Dichlorobenzene	280	49	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
1,4-Dichlorobenzene	130	13	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
2-Butanone	500	100	mg/kg	0.032 U	0.046 J	0.028 U	0.032 U	0.028 U	0.029 U	0.028 U	0.029 U	0.028 U	0.032 U	0.027 U	0.030 U	0.028 U [0.025 U]
2-Chloroethylvinylether	--	--	mg/kg	0.032 U	0.28 U	0.028 U	0.032 U	0.028 U	0.029 U	0.028 U	0.029 U	0.028 U	0.032 U	0.027 U	0.030 U	0.028 U [0.025 U]
2-Hexanone	--	--	mg/kg	0.032 U	0.28 U	0.028 U	0.032 U	0.028 U	0.029 U	0.028 U	0.029 U	0.028 U	0.032 U	0.027 U	0.030 U	0.028 U [0.025 U]
4-Methyl-2-pentanone	--	--	mg/kg	0.032 U	0.28 U	0.028 U	0.032 U	0.028 U	0.029 U	0.028 U	0.029 U	0.028 U	0.032 U	0.027 U	0.030 U	0.028 U [0.025 U]
Acetone	500	100	mg/kg	0.037 UB	0.18 J	0.028 UB	0.032 UB	0.028 UB	0.029 UB	0.028 UB	0.029 UB	0.028 UB	0.032 UB	0.027 UB	0.030 UB	0.028 UB [0.013 UB]
Acrylonitrile	--	--	mg/kg	0.032 U	0.28 U	0.028 U	0.032 U	0.028 U	0.029 U	0.028 U	0.029 U	0.028 U	0.032 U	0.027 U	0.030 U	0.028 U [0.025 U]
Benzene	44	4.8	mg/kg	0.018	0.056 U	0.0056 U	0.0064 U	0.032	0.0059 U	0.0057 U	0.0059 U	0.0056 U	2.5 D	0.029	0.0053 U	0.0061 U 7.0 D [5.1 D]
Bromobenzene	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Bromochloromethane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Bromodichloromethane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Bromoform	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Bromomethane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Carbon Disulfide	--	--	mg/kg	0.0064 U	0.041 J	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Carbon Tetrachloride	22	2.4	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Chlorobenzene	500	100	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Chloroethane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Chloroform	350	49	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Chloromethane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
cis-1,2-Dichloroethene	500	100	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
cis-1,3-Dichloropropene	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Dibromochloromethane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Ethylbenzene	390	41	mg/kg	0.0064 U	0.035 J	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.018	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Iodomethane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Methylene Chloride	500	100	mg/kg	0.0039 J	0.050 J	0.0035 J	0.0053 J	0.0052 J	0.0055 J	0.0047 J	0.0040 J	0.0044 J	0.0064 U	0.0034 J	0.0054 J	0.0052 J [0.0036 J]

See Notes on Page 9.

**TABLE 4
SOIL SAMPLE ANALYTICAL RESULTS**

**NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK**

Location ID: Sample Depth(Feet): Date Collected:	Part 375 Restricted Use SCOs Commercial	Restricted Use SCOs Residential	Units	SB-02 15.8 - 16.8 08/03/10	SB-03 2 - 3 08/04/10	SB-03 14.9 - 16.9 08/04/10	SB-04 8 - 11 08/02/10	SB-04 14 - 17 08/02/10	SB-05 8 - 10 08/03/10	SB-05 15.8 - 16.8 08/03/10	SB-06 8 - 10 08/03/10	SB-06 14.8 - 16.8 08/03/10	SB-07 8 - 10 08/03/10	SB-07 12.4 - 13.4 08/03/10	SB-08 8 - 10 08/02/10	SB-08 15 - 17.5 08/02/10
Volatile Organics (Cont.)																
Styrene	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Tetrachloroethene	150	19	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Toluene	500	100	mg/kg	0.0046 J	0.026 J	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.047	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
trans-1,2-Dichloroethene	500	100	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
trans-1,3-Dichloropropene	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
trans-1,4-Dichloro-2-butene	--	--	mg/kg	0.032 U	0.28 U	0.028 U	0.032 U	0.028 U	0.029 U	0.028 U	0.029 U	0.028 U	0.032 U	0.027 U	0.030 U	0.028 U [0.025 U]
Trichloroethene	200	21	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Trichlorofluoromethane	--	--	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Vinyl Acetate	--	--	mg/kg	0.032 U	0.28 U	0.028 U	0.032 U	0.028 U	0.029 U	0.028 U	0.029 U	0.028 U	0.032 U	0.027 U	0.030 U	0.028 U [0.025 U]
Vinyl Chloride	13	0.9	mg/kg	0.0064 U	0.056 U	0.0056 U	0.0064 U	0.0056 U	0.0059 U	0.0057 U	0.0059 U	0.0056 U	0.0064 U	0.0053 U	0.0061 U	0.0055 U [0.0050 U]
Xylenes (total)	500	100	mg/kg	0.013 U	0.060 J	0.011 U	0.013 U	0.011 U	0.012 U	0.011 U	0.012 U	0.044	0.013 U	0.011 U	0.012 U	0.011 U [0.010 U]
Total BTEX	--	--	mg/kg	0.023 J	0.12 J	ND	ND	0.032	ND	ND	0.056	2.6	0.029	ND	ND	7.0 [5.1]
Total VOCs	--	--	mg/kg	0.027 J	0.44 J	0.0035 J	0.0053 J	0.037 J	0.0055 J	0.0047 J	0.060 J	2.6 J	0.029	0.0034 J	0.0054 J	7.0 J [5.1 J]
Semivolatile Organics																
1,2,4-Trichlorobenzene	--	--	mg/kg	2.1 U	9.5 U	1.5 U	0.42 U	0.37 U	0.38 U	0.37 U	0.39 U	0.36 U	0.41 U	0.35 U	0.40 U	0.37 U [0.32 U]
1,2-Dichlorobenzene	500	100	mg/kg	2.1 U	9.5 U	1.5 U	0.42 U	0.37 U	0.38 U	0.37 U	0.39 U	0.36 U	0.41 U	0.35 U	0.40 U	0.37 U [0.32 U]
1,3-Dichlorobenzene	280	49	mg/kg	2.1 U	9.5 U	1.5 U	0.42 U	0.37 U	0.38 U	0.37 U	0.39 U	0.36 U	0.41 U	0.35 U	0.40 U	0.37 U [0.32 U]
1,4-Dichlorobenzene	130	13	mg/kg	2.1 U	9.5 U	1.5 U	0.42 U	0.37 U	0.38 U	0.37 U	0.39 U	0.36 U	0.41 U	0.35 U	0.40 U	0.37 U [0.32 U]
2,2'-Oxybis(1-Chloropropane)	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
2,4,5-Trichlorophenol	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
2,4,6-Trichlorophenol	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
2,4-Dichlorophenol	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
2,4-Dimethylphenol	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.21	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
2,4-Dinitrophenol	--	--	mg/kg	2.1 U	9.5 U	1.5 U	0.42 U	0.37 U	0.38 U	0.37 U	0.39 U	0.36 U	0.41 U	0.35 U	0.40 U	0.37 U [0.32 U]
2,4-Dinitrotoluene	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
2,6-Dinitrotoluene	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
2-Chloronaphthalene	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
2-Chlorophenol	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
2-Methylnaphthalene	--	--	mg/kg	1.1 U	0.61 J	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.41	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
2-Methylphenol	500	100	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
2-Nitroaniline	--	--	mg/kg	2.1 U	9.5 U	1.5 U	0.42 U	0.37 U	0.38 U	0.37 U	0.39 U	0.36 U	0.41 U	0.35 U	0.40 U	0.37 U [0.32 U]
2-Nitrophenol	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
3,3'-Dichlorobenzidine	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
3-Nitroaniline	--	--	mg/kg	2.1 U	9.5 U	1.5 U	0.42 U	0.37 U	0.38 U	0.37 U	0.39 U	0.36 U	0.41 U	0.35 U	0.40 U	0.37 U [0.32 U]
4,6-Dinitro-2-methylphenol	--	--	mg/kg	2.1 U	9.5 U	1.5 U	0.42 U	0.37 U	0.38 U	0.37 U	0.39 U	0.36 U	0.41 U	0.35 U	0.40 U	0.37 U [0.32 U]
4-Bromophenyl-phenylether	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
4-Chloro-3-Methylphenol	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]

See Notes on Page 9.

**TABLE 4
SOIL SAMPLE ANALYTICAL RESULTS**

**NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK**

Location ID: Sample Depth(Feet): Date Collected:	Part 375 Restricted Use SCOs Commercial	Restricted Use SCOs Residential I	Units	SB-02 15.8 - 16.8 08/03/10	SB-03 2 - 3 08/04/10	SB-03 14.9 - 16.9 08/04/10	SB-04 8 - 11 08/02/10	SB-04 14 - 17 08/02/10	SB-05 8 - 10 08/03/10	SB-05 15.8 - 16.8 08/03/10	SB-06 8 - 10 08/03/10	SB-06 14.8 - 16.8 08/03/10	SB-07 8 - 10 08/03/10	SB-07 12.4 - 13.4 08/03/10	SB-08 8 - 10 08/02/10	SB-08 15 - 17.5 08/02/10
Semivolatile Organics (Cont.)																
4-Chloroaniline	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
4-Chlorophenyl-phenylether	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
4-Methylphenol	500	100	mg/kg	2.1 U	9.5 U	1.5 U	0.42 U	0.37 U	0.38 U	0.37 U	0.39 U	0.36 U	0.41 U	0.35 U	0.40 U	0.37 U [0.32 U]
4-Nitroaniline	--	--	mg/kg	2.1 U	9.5 U	1.5 U	0.42 U	0.37 U	0.38 U	0.37 U	0.39 U	0.36 U	0.41 U	0.35 U	0.40 U	0.37 U [0.32 U]
4-Nitrophenol	--	--	mg/kg	2.1 UJ	9.5 U	1.5 U	0.42 U	0.37 U	0.38 U	0.37 U	0.39 U	0.36 U	0.41 U	0.35 U	0.40 U	0.37 U [0.32 U]
Acenaphthene	500	100	mg/kg	1.1 U	0.81 J	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.41	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Acenaphthylene	500	100	mg/kg	1.1 U	0.45 J	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.026 J	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Anthracene	500	100	mg/kg	1.1 U	4.4 J	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.041 J [0.17 U]
Benzo(a)anthracene	5.6	1	mg/kg	1.1 U	9.7	0.77 U	0.024 J	0.042 J	0.022 J	0.043 J	0.030 J	0.027 J	0.21 U	0.18 U	0.034 J	0.037 J [0.17 U]
Benzo(a)pyrene	1	1	mg/kg	1.1 U	5.8	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Benzo(b)fluoranthene	5.6	1	mg/kg	1.1 U	9.8	0.77 U	0.22 U	0.19 U	0.022 J	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Benzo(g,h,i)perylene	500	100	mg/kg	1.1 U	6.4	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Benzo(k)fluoranthene	56	3.9	mg/kg	1.1 U	4.5 J	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Benzyl Alcohol	--	--	mg/kg	2.1 U	9.5 U	1.5 U	0.42 U	0.37 U	0.38 U	0.37 U	0.39 U	0.36 U	0.41 U	0.35 U	0.40 U	0.37 U [0.32 U]
bis(2-Chloroethoxy)methane	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
bis(2-Chloroethyl)ether	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
bis(2-Ethylhexyl)phthalate	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20	0.25	0.20 U	0.19 U	0.21 U	0.099 J	0.13 J	0.19 U [0.17 U]
Butylbenzylphthalate	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Chrysene	56	3.9	mg/kg	1.1 U	9.2	0.078 J	0.22 U	0.19 U	0.045 J	0.19 U	0.013 J	0.19 U	0.21 U	0.18 U	0.20 U	0.013 J [0.042 J]
Dibenzo(a,h)anthracene	0.56	0.33	mg/kg	1.1 U	1.5 J	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Dibenzofuran	350	59	mg/kg	1.1 U	9.9	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.13 J	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Diethylphthalate	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.012 J	0.20 U	0.016 J	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.024 J [0.17 U]
Dimethylphthalate	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Di-n-Butylphthalate	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Di-n-Octylphthalate	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Fluoranthene	500	100	mg/kg	1.1 U	28	0.77 U	0.22 U	0.19 U	0.019 J	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Fluorene	500	100	mg/kg	1.1 U	5.9	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.14 J	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Hexachlorobenzene	6	1.2	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Hexachlorobutadiene	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Hexachlorocyclopentadiene	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Hexachloroethane	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Indeno(1,2,3-cd)pyrene	5.6	0.5	mg/kg	1.1 U	5.9	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Isophorone	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Naphthalene	500	100	mg/kg	16 B	4.6 J	0.77 U	0.22 U	0.19 UB	0.20 UB	0.19 UB	0.20 UB	3.5	0.21 UB	0.18 U	0.20 UB	0.19 UB [0.17 UB]
Nitrobenzene	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
N-Nitrosodimethylamine	--	--	mg/kg	2.1 U	9.5 U	1.5 UJ	0.42 U	0.37 U	0.38 U	0.37 U	0.39 U	0.36 U	0.41 U	0.35 U	0.40 U	0.37 U [0.32 U]
N-Nitroso-di-n-propylamine	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
N-Nitrosodiphenylamine	--	--	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]

See Notes on Page 9.

**TABLE 4
SOIL SAMPLE ANALYTICAL RESULTS**

**NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK**

Location ID: Sample Depth(Feet): Date Collected:	Part 375 Restricted Use SCOs Commercial	Restricted Use SCOs Residential	Units	SB-02 15.8 - 16.8 08/03/10	SB-03 2 - 3 08/04/10	SB-03 14.9 - 16.9 08/04/10	SB-04 8 - 11 08/02/10	SB-04 14 - 17 08/02/10	SB-05 8 - 10 08/03/10	SB-05 15.8 - 16.8 08/03/10	SB-06 8 - 10 08/03/10	SB-06 14.8 - 16.8 08/03/10	SB-07 8 - 10 08/03/10	SB-07 12.4 - 13.4 08/03/10	SB-08 8 - 10 08/02/10	SB-08 15 - 17.5 08/02/10
Semivolatile Organics (Cont.)																
Pentachlorophenol	6.7	6.7	mg/kg	2.1 U	9.5 UJ	1.5 U	0.42 U	0.37 U	0.38 U	0.37 U	0.39 U	0.36 U	0.41 U	0.35 U	0.40 U	0.37 U [0.32 U]
Phenanthrene	500	100	mg/kg	0.10 J	40	0.090 J	0.22 U	0.051 J	0.026 J	0.022 J	0.20 U	0.14 J	0.21 U	0.18 U	0.20 U	0.042 J [0.032 J]
Phenol	500	100	mg/kg	1.1 U	4.9 U	0.77 U	0.22 U	0.19 U	0.20 U	0.19 U	0.20 U	0.036 J	0.21 U	0.18 U	0.20 U	0.047 J [0.044 J]
Pyrene	500	100	mg/kg	1.1 U	25	0.77 U	0.22 U	0.19 U	0.020 J	0.19 U	0.017 J	0.19 U	0.21 U	0.18 U	0.20 U	0.19 U [0.17 U]
Total PAHs	--	--	mg/kg	16 J	160 J	0.17 J	0.024 J	0.093 J	0.15 J	0.065 J	0.060 J	4.7 J	ND	ND	0.034 J	0.13 J [0.074 J]
Total SVOCs	--	--	mg/kg	16 J	170 J	0.17 J	0.024 J	0.11 J	0.35 J	0.33 J	0.060 J	5.0 J	ND	0.099 J	0.16 J	0.20 J [0.12 J]
Inorganics																
Cyanide	27	27	mg/kg	2.30	132 D	0.900 U	0.900 U	1.00 U	0.900 U	0.900 U	0.900 U	1.00 U	0.900 U	0.800 U	1.00 U	0.900 U [0.900 U]

See Notes on Page 9.

TABLE 4
SOIL SAMPLE ANALYTICAL RESULTS

NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK

Lab Qualifiers	Definition
B	Analyte was also detected in the associated method blank.
D	Compound quantitated using a secondary dilution.
J	Indicates an estimated value.
ND	None detected.
U	The compound was analyzed for but not detected. The associated value is the compound quantitation limit.

Notes:

mg/kg = milligrams per kilogram which is equivalent to parts per million (ppm).

Shading indicates that the sample result exceeds the NYSDEC 6 NYCRR Part 375 Restricted Use Soil Cleanup Objectives for Residential Use.

Italicized font indicates that the sample result exceeds the NYSDEC 6 NYCRR Part 375 Restricted Use Soil Cleanup Objectives for Commercial Use.

TABLE 5
GROUNDWATER SAMPLE ANALYTICAL RESULTS

NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK

Location ID: Date Collected:	NYSDEC TOGS 1.1.1 Standards/ Guidance Values ^[1]	Units	MW-1 09/09/10	MW-2 09/09/10	MW-3 09/09/10	MW-4 09/09/10
Volatile Organics						
1,1,1,2-Tetrachloroethane	- -	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
1,1,1-Trichloroethane	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
1,1,2,2-Tetrachloroethane	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
1,1,2-Trichloroethane	1	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
1,1-Dichloroethane	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
1,1-Dichloroethene	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
1,2,3-Trichloropropane	- -	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
1,2-Dibromo-3-chloropropane	0.04	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
1,2-Dibromoethane	0.0006	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
1,2-Dichlorobenzene	3	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
1,2-Dichloroethane	0.6	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
1,2-Dichloropropane	1	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
1,3-Dichlorobenzene	3	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
1,4-Dichlorobenzene	3	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
2-Butanone	50	ug/L	10 UJ [10 U]	10 U	40 U	10 U
2-Chloroethylvinylether	- -	ug/L	5.0 UJ [5.0 U]	5.0 U	20 U	5.0 U
2-Hexanone	50	ug/L	5.0 UJ [5.0 U]	5.0 U	20 U	5.0 U
4-Methyl-2-pentanone	- -	ug/L	5.0 UJ [5.0 U]	5.0 U	20 U	5.0 U
Acetone	50	ug/L	10 UJ [4.0 J]	10 U	51 UB	1.0 UB
Acrylonitrile	- -	ug/L	5.0 UJ [5.0 U]	5.0 U	20 U	5.0 U
Benzene	1	ug/L	28,000 D [25,000 D]	1.0 U	100	1.3 UB
Bromobenzene	- -	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Bromochloromethane	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Bromodichloromethane	50	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Bromoform	50	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Bromomethane	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Carbon Disulfide	60	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Carbon Tetrachloride	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Chlorobenzene	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Chloroethane	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Chloroform	7	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Chloromethane	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
cis-1,2-Dichloroethene	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
cis-1,3-Dichloropropene	0.4	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Dibromochloromethane	50	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Ethylbenzene	5	ug/L	33 J [31]	1.0 U	4.0 U	0.86 J
Iodomethane	- -	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Methylene Chloride	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Styrene	5	ug/L	2.6 J [2.6]	1.0 U	4.0 U	1.0 U
Tetrachloroethene	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Toluene	5	ug/L	13 J [14]	1.0 U	11	2.5
trans-1,2-Dichloroethene	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
trans-1,3-Dichloropropene	0.4	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U

See Notes on Page 4.

TABLE 5
GROUNDWATER SAMPLE ANALYTICAL RESULTS

NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK

Location ID: Date Collected:	NYSDEC TOGS 1.1.1 Standards/ Guidance Values ^[1]	Units	MW-1 09/09/10	MW-2 09/09/10	MW-3 09/09/10	MW-4 09/09/10
Volatile Organics (Cont.)						
trans-1,4-Dichloro-2-butene	--	ug/L	5.0 UJ [5.0 U]	5.0 U	20 U	5.0 U
Trichloroethene	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Trichlorofluoromethane	5	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Vinyl Acetate	--	ug/L	5.0 UJ [5.0 U]	5.0 U	20 U	5.0 U
Vinyl Chloride	2	ug/L	1.0 UJ [1.0 U]	1.0 U	4.0 U	1.0 U
Xylenes (total)	5	ug/L	40 J [42]	2.0 U	8.0 U	3.7
Total BTEX	--	ug/L	28,000 J [25,000]	ND	110	7.1 J
Total VOCs	--	ug/L	28,000 J [25,000 J]	ND	110	7.1 J
Semivolatile Organics						
1,2,4-Trichlorobenzene	5	ug/L	9.4 U [9.5 U]	9.5 U	9.5 U	9.8 U
1,2-Dichlorobenzene	3	ug/L	9.4 U [9.5 U]	9.5 U	9.5 U	9.8 U
1,3-Dichlorobenzene	3	ug/L	9.4 U [9.5 U]	9.5 U	9.5 U	9.8 U
1,4-Dichlorobenzene	3	ug/L	9.4 U [9.5 U]	9.5 U	9.5 U	9.8 U
2,2'-Oxybis(1-Chloropropane)	5	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
2,4,5-Trichlorophenol	1	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
2,4,6-Trichlorophenol	1	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
2,4-Dichlorophenol	1	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
2,4-Dimethylphenol	1	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
2,4-Dinitrophenol	1	ug/L	9.4 U [9.5 U]	9.5 U	9.5 U	9.8 U
2,4-Dinitrotoluene	5	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
2,6-Dinitrotoluene	5	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
2-Chloronaphthalene	10	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
2-Chlorophenol	1	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
2-Methylnaphthalene	--	ug/L	0.58 J [0.68 J]	4.7 U	4.8 U	4.9 U
2-Methylphenol	1	ug/L	4.7 U [4.7 U]	4.7 U	0.66 J	4.9 U
2-Nitroaniline	5	ug/L	9.4 U [9.5 U]	9.5 U	9.5 U	9.8 U
2-Nitrophenol	1	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
3,3'-Dichlorobenzidine	5	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
3-Nitroaniline	5	ug/L	9.4 U [9.5 U]	9.5 U	9.5 U	9.8 U
4,6-Dinitro-2-methylphenol	1	ug/L	9.4 U [9.5 U]	9.5 U	9.5 U	9.8 U
4-Bromophenyl-phenylether	--	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
4-Chloro-3-Methylphenol	1	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
4-Chloroaniline	5	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
4-Chlorophenyl-phenylether	--	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
4-Methylphenol	1	ug/L	9.4 U [9.5 U]	9.5 U	12	9.8 U
4-Nitroaniline	5	ug/L	9.4 U [9.5 U]	9.5 U	9.5 U	9.8 U
4-Nitrophenol	1	ug/L	9.4 U [9.5 U]	9.5 U	9.5 U	9.8 U
Acenaphthene	20	ug/L	4.7 U [4.7 U]	4.7 U	0.49 J	4.9 U
Acenaphthylene	--	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Anthracene	50	ug/L	4.7 U [0.30 J]	4.7 U	0.66 J	4.9 U
Benzo(a)anthracene	0.002	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Benzo(a)pyrene	0	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Benzo(b)fluoranthene	0.002	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U

See Notes on Page 4.

TABLE 5
GROUNDWATER SAMPLE ANALYTICAL RESULTS

NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK

Location ID: Date Collected:	NYSDEC TOGS 1.1.1 Standards/ Guidance Values ^[1]	Units	MW-1 09/09/10	MW-2 09/09/10	MW-3 09/09/10	MW-4 09/09/10
Semivolatile Organics (Cont.)						
Benzo(g,h,i)perylene	- -	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Benzo(k)fluoranthene	0.002	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Benzyl Alcohol	- -	ug/L	19 U [19 U]	19 U	19 U	20 U
bis(2-Chloroethoxy)methane	5	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
bis(2-Chloroethyl)ether	1	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
bis(2-Ethylhexyl)phthalate	5	ug/L	4.7 U [2.3 J]	4.3 J	4.8 U	4.9 U
Butylbenzylphthalate	50	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Chrysene	0.002	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Dibenzo(a,h)anthracene	- -	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Dibenzofuran	- -	ug/L	9.4 U [9.5 U]	9.5 U	9.5 U	9.8 U
Diethylphthalate	50	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Dimethylphthalate	50	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Di-n-Butylphthalate	50	ug/L	4.7 U [0.30 J]	4.7 U	0.31 J	4.9 U
Di-n-Octylphthalate	50	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Fluoranthene	50	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Fluorene	50	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Hexachlorobenzene	0.04	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Hexachlorobutadiene	0.5	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Hexachlorocyclopentadiene	5	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Hexachloroethane	5	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Indeno(1,2,3-cd)pyrene	0.002	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Isophorone	50	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Naphthalene	10	ug/L	4.7 U [4.7 U]	4.7 U	3.4 J	4.9 U
Nitrobenzene	0.4	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
N-Nitroso-di-n-propylamine	- -	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
N-Nitrosodiphenylamine	50	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Pentachlorophenol	1	ug/L	9.4 U [9.5 U]	9.5 U	9.5 U	9.8 U
Phenanthrene	50	ug/L	4.7 U [4.7 U]	0.45 J	0.64 J	4.9 U
Phenol	1	ug/L	15 [13]	4.7 U	22	4.9 U
Pyrene	50	ug/L	4.7 U [4.7 U]	4.7 U	4.8 U	4.9 U
Total PAHs	- -	ug/L	0.58 J [0.98 J]	0.45 J	5.2 J	ND
Total SVOCs	- -	ug/L	16 J [17 J]	4.8 J	40 J	ND
Inorganics						
Cyanide	200	ug/L	23.0 J [25.2 J]	719 J	324 J	20.0 UJ

See Notes on Page 4.

TABLE 5
GROUNDWATER SAMPLE ANALYTICAL RESULTS

NATIONAL FUEL
SITE CHARACTERIZATION
DUNKIRK FORMER MANUFACTURED GAS PLANT SITE
DUNKIRK, NEW YORK

Lab Qualifiers	Definition
J	Indicates an estimated value.
U	The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
ND	None detected.

Notes:

[1] Source: New York State Division of Water Technical and Operational Guidance Series (TOGS 1.1.1), Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (June 1998).

-- = No available standard/guidance value.

NA = Not analyzed.

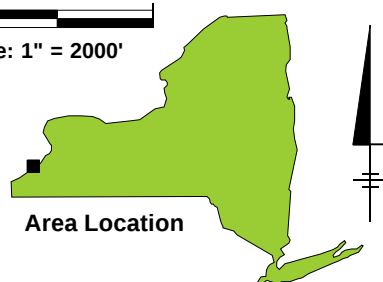
ug/L = micrograms per liter.

Shaded values indicate the result exceeds New York State Technical and Operational Guidance Series (1.1.1) Standards or Guidance Values.



REFERENCE: BASE MAP USGS 7.5 MIN. QUAD., DUNKIRK, NEW YORK, 1954, PHOTOREVISED 1979.

2000' 0 2000'
Approximate Scale: 1" = 2000'



Area Location

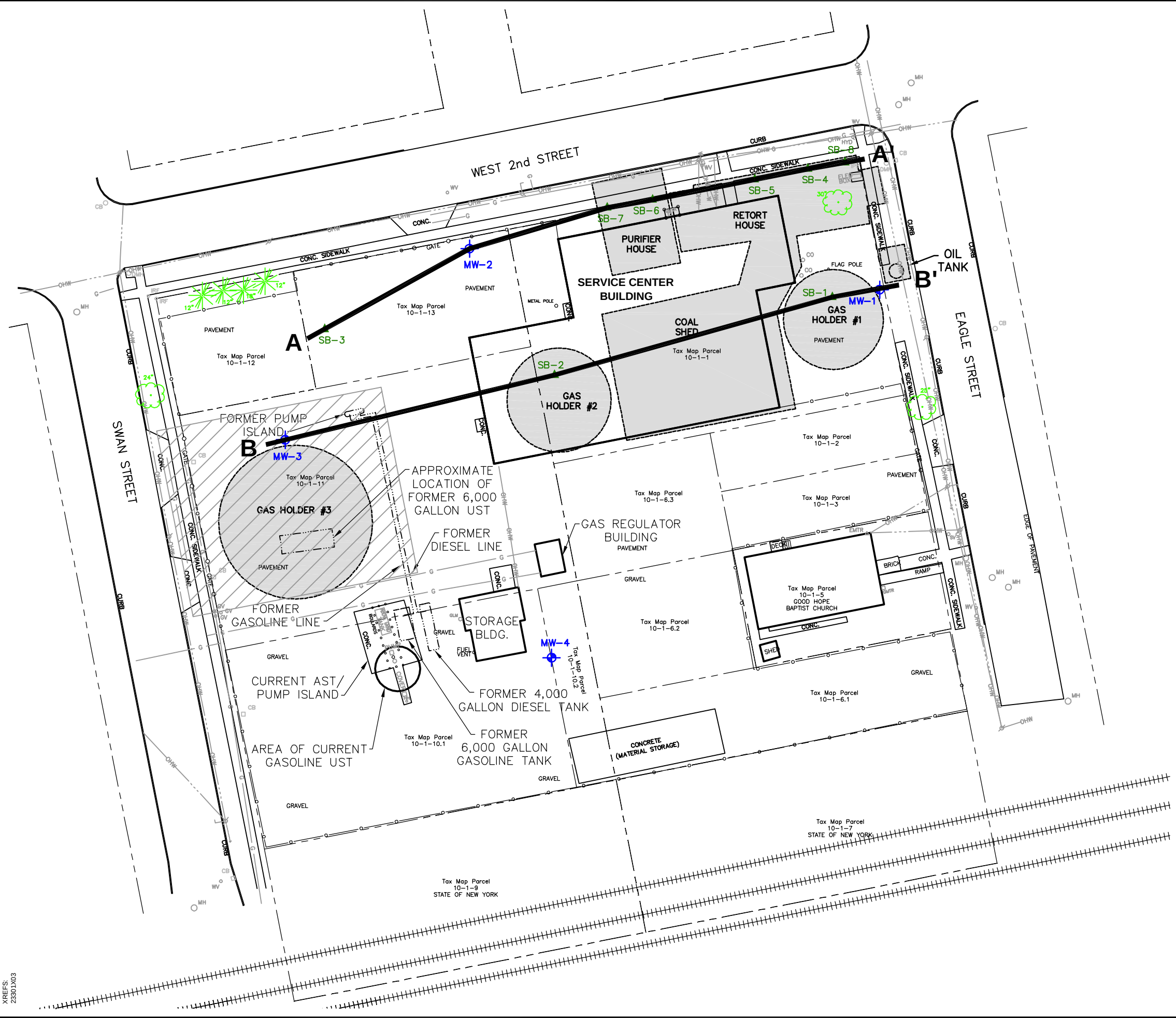
NATIONAL FUEL - DUNKIRK MGP
31 WEST SECOND STREET
DUNKIRK, NEW YORK, 14048
SITE CHARACTERIZATION

SITE LOCATION MAP



FIGURE
1

CITY: SYRACUSE, NY DIV: GROUP 14: ENV: CAD DB: LPOSENAUER LD: (Opt) PIC: (Opt) PM: (Reqd) TM: (Opt) LVR: (Opt) ON: OFF: REF: G: ENV: CAD: SYRACUSE: SECT: B023301000010000100003 SITE: CHAR: 23301.V01.dwg LAYOUT: 25: SAVER: 11/30/2010 11:25 AM ACADVER: 18.05 (LMS TECH) PAGES: 10 PLT: FULL: CTFB: PLOTTED: 11/30/2010 12:45 PM BY: POSENAUER, USA XREFS: 23301.X03

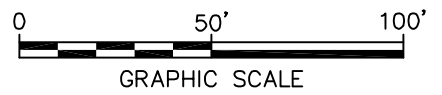


LEGEND:

- SOIL BORING
- MONITORING WELL
- FORMER MGP STRUCTURE
- FORMER PETROLEUM DISTRIBUTION STRUCTURES
- APPROXIMATE EXTENT OF PETROLEUM REMEDIATION AREA
- APPROXIMATE PROPERTY LINE
- RAILROAD
- EXISTING BUILDING
- CHAIN LINK FENCE
- GAS LINE
- OVERHEAD WIRES
- WATER LINE
- DECIDUOUS TREE
- CONIFEROUS TREE
- UTILITY MANHOLE
- UTILITY POLE
- UTILITY POLE W/LIGHT
- GUY WIRE
- ELECTRIC METER
- CATCH BASIN
- DRAINAGE MANHOLE
- GAS METER
- GAS LINE MARKER
- HYDRANT
- WATER VALVE
- CLEANOUT
- SEWER VENT
- HAND HOLE
- MAN WAY
- IRON ROD / PIPE FOUND
- CROSS SECTION LOCATION

A—A'

- NOTES:**
- ALL LOCATIONS APPROXIMATE.
 - BASEMAP FROM NYS GIS CLEARINGHOUSE WEBPAGE FOR ORTHOIMAGERY AND CT MALE SURVEY OBTAINED ON SEPTEMBER 14, 2010.
 - APPROXIMATE EXTENT OF PETROLEUM REMEDIATION AREA BASED ON A HAND SKETCH MAP PROVIDED BY NATIONAL FUEL ON JANUARY 26, 2009. DATE OF REMEDIATION NOT DEFINED ON THAT MAP.
 - LOCATIONS OF GAS HOLDERS 2 AND 3 DIGITIZED FROM A MAY 10, 1956 DRAWING PROVIDED BY NATIONAL FUEL. ALL OTHER MGP STRUCTURES DIGITIZED FROM 1893 AND 1904 SANBORN FIRE INSURANCE MAPS.
 - LOCATIONS OF FORMER USTs, PUMP ISLAND, AND ASSOCIATED DISTRIBUTION LINES FROM MESCH ENGINEERING, P.C. DRAWING ENTITLED "SITE PLAN", ORIGINAL DRAWING DATED 9/17/87.



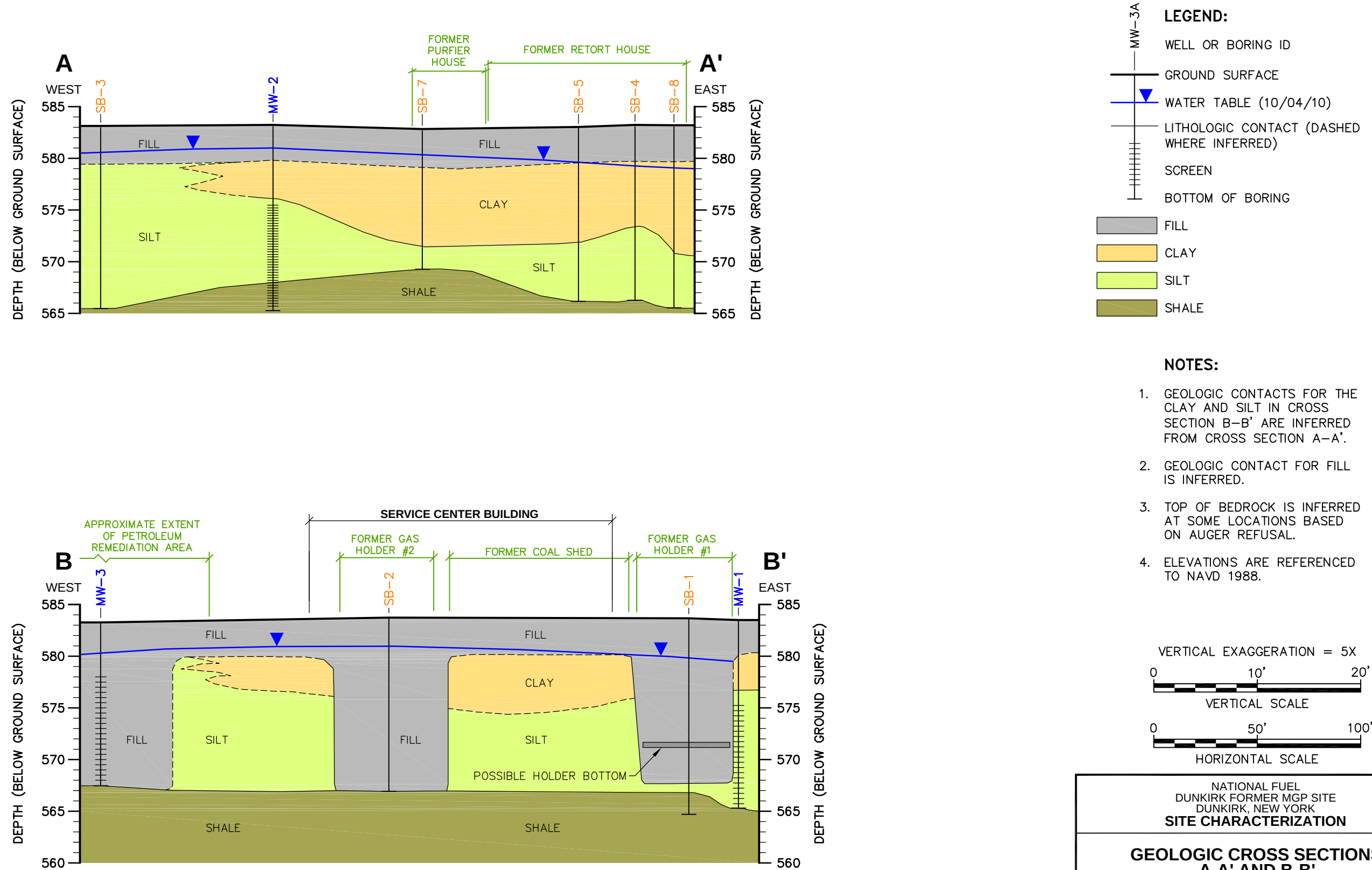
NATIONAL FUEL
DUNKIRK FORMER MGP SITE
DUNKIRK, NEW YORK
SITE CHARACTERIZATION

SITE MAP

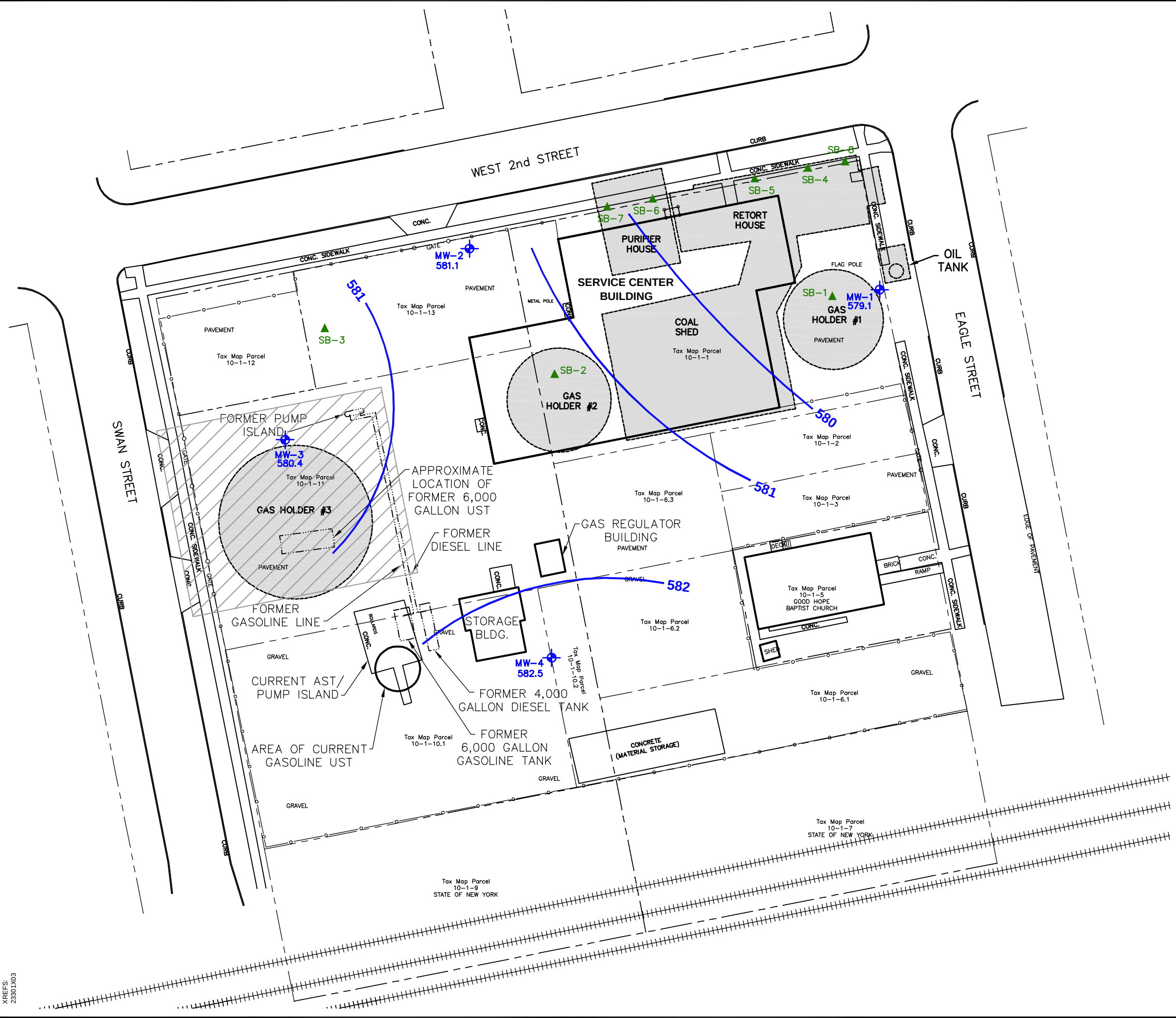
ARCADIS

FIGURE
2

CITY: SYRACUSE, NY DIV/GROUP: 14/ENV/CAV DB: LPOSEMAUER, W. JONES LD/OP: PM/REQD TM/OP: LVR/OP/ONE+OFF=REF*
G:\ENV\CAV\SYRACUSE\ACT\18002330\10003\SITECHAR\23301.V02.dwg LAYOUT: 35SAVED 12/2/2010 2:35 PM ACADVER: 18.0.5 (LMS TECH) PAGES/SETUP: ---PLOTSTYLETABLE: PLTFULL CTB PLOTTED: 12/2/2010 2:35 PM BY: JONES, WENDY
XREFS: 23301X03



CITY: SYRACUSE, NY DIV: GROUP 14: ENV: CAD DB: LPOSENAUER LD: (Opt) PIC: (Opt) PM: (Reqd) TM: (Opt) LVR: (Opt) ON: OFF: REF: G: ENV: CAD: SYRACUSE: SECT: B002330: 10003: 10000: 3: SITE: CHAR: 2330: 1: W01: DWG LAYOUT: 4: SAVED: 11/30/2010 12:47 PM ACADVER: 18.05 (LMS TECH) PAGES: 10: PLOT: PLT: PLOT: 12/1/2010 8:42 AM BY: POSENAUER, LISA

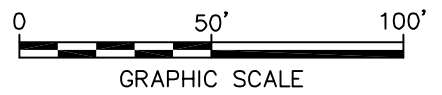


LEGEND:

- SOIL BORING
- MONITORING WELL
- GROUNDWATER CONTOUR
- GROUNDWATER ELEVATION (10/4/10)
- FORMER MGP STRUCTURE
- FORMER PETROLEUM DISTRIBUTION STRUCTURES
- APPROXIMATE EXTENT OF PETROLEUM REMEDIATION AREA
- APPROXIMATE PROPERTY LINE
- RAILROAD
- EXISTING BUILDING
- CHAIN LINK FENCE

NOTES:

- ALL LOCATIONS APPROXIMATE.
- BASEMAP FROM NYS GIS CLEARINGHOUSE WEBPAGE FOR ORTHOIMAGERY AND CT MALE SURVEY OBTAINED ON SEPTEMBER 14, 2010.
- APPROXIMATE EXTENT OF PETROLEUM REMEDIATION AREA BASED ON A HAND SKETCH MAP PROVIDED BY NATIONAL FUEL ON JANUARY 26, 2009. DATE OF REMEDIATION NOT DEFINED ON THAT MAP.
- LOCATIONS OF GAS HOLDERS 2 AND 3 DIGITIZED FROM A MAY 10, 1956 DRAWING PROVIDED BY NATIONAL FUEL. ALL OTHER MGP STRUCTURES DIGITIZED FROM 1893 AND 1904 SANBORN FIRE INSURANCE MAPS.
- LOCATIONS OF FORMER USTs, PUMP ISLAND, AND ASSOCIATED DISTRIBUTION LINES FROM MESCH ENGINEERING, P.C. DRAWING ENTITLED "SITE PLAN", ORIGINAL DRAWING DATED 9/17/87.



NATIONAL FUEL
DUNKIRK FORMER MGP SITE
DUNKIRK, NEW YORK
SITE CHARACTERIZATION

WATER TABLE CONTOURS - 10/4/10

FIGURE
4

Date Start/Finish: 8/4 - 8/6/10
Drilling Company: Parratt Wolff
Driller's Name: D. Richmond/J.C. Chevalier
Drilling Method: Geoprobe / HSA
Sampling Method: 4' Acetate Liner & 2' x 2" SS
Rig Type: Track-Mounted Geoprobe 6620 DT
 & Truck-Mounted Ingersoll Rand A300

Northing: 906490.5414
Easting: 945042.6278
Casing Elevation: 583.14' AMSL
Borehole Depth: 18.2' bgs
Surface Elevation: 583.50' AMSL
Descriptions By: L.Terrell

Well/Boring ID: MW-1
Client: National Fuel
Location: National Fuel Service Center
 Dunkirk, New York

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
585									
0								Boring location hand-cleared to 5' bgs (blind drilled to 5' bgs). Soil was screened with a PID at 1' intervals.	Steel Flush Mount Curb Box
		NA	0-5	NA	0.0				Concrete Pad
					0.2				Locking J-Plug
									Sand Drain (0.5-1' bgs)
580					0.0				Grout (1-4' bgs)
					0.2				2" Sch 40 PVC Riser (0.5-8' bgs)
5								Brown and gray CLAY, trace Silt, mottled, high plasticity, very stiff, moist.	Bentonite Seal (4-6' bgs)
		1	5-8	2.0	0.0				
575								Gray CLAY, trace Silt, high plasticity, very stiff, moist.	
		2	8-11	2.7	0.7	X		Gray SILT, trace Clay, non-plastic, stiff, slight coal tar-like odor, moist.	
10									
		3	11-14	3.0	20.4	X		Gray fine to coarse SAND, trace Silt and fine to medium sub-round Gravel, coal tar-like odor, wet.	Sand Pack (6-18.2' bgs)
570								Gray SILT, trace fine to coarse sub-angular Gravel and fine to coarse Sand, slight coal tar-like odor, moist to dry.	2" Sch 40 PVC 0.010" Slot Screen (8-18' bgs)
								Gray SILT, little fine Sand, trace fine to coarse sub-round to sub-angular Gravel and Clay, moist to dry.	
15		4	14-18	3.6	0.0				

Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; SS = Split Spoon; HSA = Hollow Stem Auger



Soil samples collected for VOCs, SVOCs and Total Cyanide at: 8-11' bgs and 11-14' bgs.
 Survey coordinates based on NYS Plane Coordinate System (NAD 83).
 Elevations based on NAVD 1988 obtained from GPS observations.
 Water elevation = 579.12' AMSL on 10/4/2010.

Date Start/Finish: 8/9-8/11/10
Drilling Company: Parratt Wolff
Driller's Name: D. Richmond/J.C. Chevalier
Drilling Method: Geoprobe / HSA
Sampling Method: 2' x 2" Split Spoon
Rig Type: Truck-Mounted Ingersoll Rand A300

Northing: 906511.1924
Easting: 944836.4844
Casing Elevation: 582.91' AMSL
Borehole Depth: 17.8' bgs
Surface Elevation: 583.22' AMSL

Well/Boring ID: MW-2
Client: National Fuel
Location: National Fuel Service Center
 Dunkirk, New York

Descriptions By: L.Terrell

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
585									
0								Boring location hand-cleared to 5' bgs (blind drilled to 5' bgs). Soil was screened with a PID at 1' intervals.	Steel Flush Mount Curb Box
580		NA	0-5	NA	0.0				Concrete Pad
					0.0				Locking J-Plug
					0.0				Sand Drain (0.5-2.0' bgs)
					0.0				Grout (2-4' bgs)
5					0.0			Gray CLAY, trace Silt, fine to coarse Sand and coarse sub-round Gravel, wet.	Bentonite Seal (4-6' bgs)
		1	5-7	0.3	0.0			Brown CLAY, trace Silt, medium plasticity, soft, wet.	2" Sch 40 PVC Riser (0.5-7.8' bgs)
								Brown SILT, trace Clay, non-plastic, soft, moist to wet.	
575		2	7-9	1.5	0.0	X			
								Rusty orange between 0.3-0.5' of recovery, trace fine sub-angular Gravel.	
10		3	9-11	1.2	0.0			Gray SILT, trace Clay and fine to medium sub-angular Gravel, non-plastic, stiff, moist.	2" Sch 40 PVC 0.010" Slot Screen (7.8-17.8' bgs)
		4	11-13	1.1	0.0				
570								No Recovery.	
		5	13-15	NR	NA				Sand Pack (6-17.8' bgs)
15		6	15-17	0.1	0.0			Gray fractured SHALE, dry.	

Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; NR = No Recovery; HSA = Hollow Stem Auger

Soil samples collected for VOCs, SVOCs and Total Cyanide at: 5-9' bgs (MS/MSD) and 17-17.8' bgs.
 Survey coordinates based on NYS Plane Coordinate System (NAD 83).
 Elevations based on NAVD 1988 obtained from GPS observations.
 Water elevation = 581.06' AMSL on 10/4/2010.



Client: National Fuel

Well/Boring ID: MW-2

Site Location:

Borehole Depth: 17.8' bgs

National Fuel Service Center
Dunkirk, New York**DRAFT**

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		6	15-17	0.1	0.0		△	Gray fractured SHALE, dry.	
						×	⊠	Yellow brown SILT, trace Clay and fine to medium sub-round Gravel, non-plastic, stiff, moist.	
		7	17-19	0.5	0.0		△	Dark gray fractured SHALE, dry.	
								Refusal with Augers at 17.8' bgs.	
565									
20									
560									
25									
555									
30									
550									
35									

Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; NR = No Recovery; HSA = Hollow Stem Auger

Soil samples collected for VOCs, SVOCs and Total Cyanide at: 5-9' bgs (MS/MSD) and 17-17.8' bgs.

Survey coordinates based on NYS Plane Coordinate System (NAD 83).

Elevations based on NAVD 1988 obtained from GPS observations.

Water elevation = 581.06' AMSL on 10/4/2010.



Date Start/Finish: 8/9/10
Drilling Company: Parratt Wolff
Driller's Name: D. Richmond/J.C. Chevalier
Drilling Method: Geoprobe / HSA
Sampling Method: 2' x 2" Split Spoon
Rig Type: Truck-Mounted Ingersoll Rand A300

Northing: 906415.1166
Easting: 944743.8061
Casing Elevation: 582.97' AMSL
Borehole Depth: 15.8' bgs
Surface Elevation: 583.28' AMSL

Well/Boring ID: MW-3
Client: National Fuel
Location: National Fuel Service Center
Dunkirk, New York

Descriptions By: L.Terrell

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
585									
0								Boring location hand-cleared to 5' bgs (blind drilled to 5' bgs). Soil was screened with a PID at 1' intervals.	Steel Flush Mount Curb Box
580		NA	0-5	NA	0.0				Concrete Pad
					0.0				Locking J-Plug
					0.0				Sand Drain (0.5-1.5' bgs)
					0.0				Bentonite Seal (1.5-3.5' bgs)
5					0.0				2" Sch 40 PVC Riser (0.5-5' bgs)
		1	5-7	0.7	0.5			Gray CLAY, trace Silt, high plasticity, stiff, slight coal tar-like odor, moist.	
						X			
		2	7-9	0.8	0.0			Gray to olive green CLAY, trace Silt, mottled, high plasticity, stiff, slight coal tar-like odor, moist.	
575								Dark brown CLAY, trace Silt, medium plasticity, stiff, moist.	
10		3	9-11	0.1	0.0				2" Sch 40 PVC 0.010" Slot Screen (5-15' bgs)
		4	11-13	0.7	0.0			Gray to olive green CLAY, trace Silt, trace red Brick, fine to coarse sub-round to sub-angular Gravel, mottled, slight coal tar-like odor, dark brown last 0.1' of recovery, moist.	
570						X		Red BRICK, little Concrete and gray Clay, trace Silt, wet.	
		5	13-15	0.3	0.0				Sand Pack (3.5-15.8' bgs)
15		6	15-17	0.1	0.0			Dark brown SILT, CLAY, and fine to coarse SAND, trace red Brick, Wood, and fine sub-round Gravel, wet. Refusal with augers at 15.8' bgs.	

Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; HSA = Hollow Stem Auger

Soil samples collected for VOCs, SVOCs and Total Cyanide at: 5-9' bgs (BD-080910) and 11-15.2' bgs.
Survey coordinates based on NYS Plane Coordinate System (NAD 83).
Elevations based on NAVD 1988 obtained from GPS observations.
Water elevation = 580.41' AMSL on 10/4/2010.



Northings: 906305.6752
Easting: 944877.7664
Casing Elevation: 585.19' AMSL
Borehole Depth: 20.1' bgs
Surface Elevation: 585.69' AMSL
Descriptions By: L.Terrell

Well/Boring ID: MW-4

Client: National Fuel

Location: National Fuel Service Center
Dunkirk, New York

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0									
585					0.0			Boring location hand-cleared to 5' bgs (blind drilled to 5' bgs). Soil was screened with a PID at 1' intervals.	
		NA	0-5	NA	0.0	X			Steel Flush Mount Curb Box Concrete Pad Locking J-Plug Sand Drain (0.5-2' bgs) Grout (2-4' bgs) 2" Sch 40 PVC Riser (0.5-8' bgs) Bentonite Seal (4-6' bgs)
					0.0				
					0.0				
5									
580		1	5-8	2.2	0.2			Brown and gray CLAY, trace Silt, mottled, high plasticity, very stiff, moist.	
		2	8-11	3.0	0.1			Gray CLAY, trace Silt, high plasticity, stiff, moist to wet.	
10									
575								Gray SILT, trace fine to medium sub-round to sub-angular Gravel, fine to coarse Sand and Clay, black fractured Rock at 1.1' of recovery, moist to wet.	Sand Pack (6-20.5' bgs) 2" Sch 40 PVC 0.010" Slot Screen (8-18' bgs)
		3	11-14	3.0	0.0				
15									
570		4	14-18	3.6	0.1			Gray SILT, little fine Sand, trace fine to medium sub-round to sub-angular Gravel, moist to dry.	



Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; SS = Split Spoon; HSA = Hollow Stem Auger

Soil samples collected for VOCs, SVOCs and Total Cyanide at: 2-3' bgs (LD-080510) and 18-20' bgs.
Survey coordinates based on NYS Plane Coordinate System (NAD 83).
Elevations based on NAVD 1988 obtained from GPS observations.
Water elevation = 582.52' AMSL on 10/4/2010.

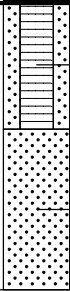
Client: National Fuel

Well/Boring ID: MW-4

Site Location:

Borehole Depth: 20.1' bgs

National Fuel Service Center
Dunkirk, New York**DRAFT**

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		4	14-18	3.6	0.1			Gray SILT, little fine Sand, trace fine to medium sub-round to sub-angular Gravel, moist to dry.	
20	565	5	18-22	2.0	0.0	X		Black fractured SHALE in tip of sampler.	
								Refusal with Augers at 20.5' bgs.	
25	560								
30	555								
35	550								



Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; SS = Split Spoon; HSA = Hollow Stem Auger

Soil samples collected for VOCs, SVOCs and Total Cyanide at: 2-3' bgs (LD-080510) and 18-20' bgs.
Survey coordinates based on NYS Plane Coordinate System (NAD 83).
Elevations based on NAVD 1988 obtained from GPS observations.
Water elevation = 582.52' AMSL on 10/4/2010.

DRAFT

Date Start/Finish: 8/3/10 Drilling Company: Parratt Wolff Driller's Name: D. Richmond/J.C. Chevalier Drilling Method: Geoprobe / HSA Sampling Method: 4' Acetate Liner Rig Type: Track-Mounted Geoprobe 6620 DT Rig Type 2	Northing: 906447.6804 Easting: 944879.2445 Casing Elevation: NA Borehole Depth: 16.8' bgs Surface Elevation: 583.75' AMSL Descriptions By: L.Terrell	Well/Boring ID: SB-2 Client: National Fuel Location: National Fuel Service Center Dunkirk, New York DRAFT
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
585									
0									
		NA	0-5	NA	NA			Boring location hand-cleared to 5' bgs (blind drilled to 5' bgs). Soil was screened with PID at 1' intervals.	Boring completed with concrete (0-0.5' bgs) Boring backfilled with bentonite/cement grout (0.5-16.8' bgs)
580									
5		1	5-8	1.0	0.0			Black to dark gray fine to coarse SAND, little fine angular to sub-round Gravel, loose, petroleum-like odor, wet.	
575		2	8-11	3.0	0.0	X		Black fine to medium SAND, trace yellow Brick, Concrete, and Metal, brown seam 1" thick at 2.8' of recovery, wet.	
10									
		3	11-14	3.0	0.0			Black fine to medium SAND, trace red Brick and Metal, loose, slight coal tar-like odor between 0- 2' of recovery, wet.	
570									
		4	14-17	2.8	0.0			Slight coal tar-like odor between 0-2.8' of recovery.	
15									

	Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level Soil samples collected for VOCs, SVOCs and Total Cyanide at: 8-10' bgs and 15.8-16.8' bgs. Survey coordinates based on NYS Plane Coordinate System (NAD 83). Elevations based on NAVD 1988 obtained from GPS observations.
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Client: National Fuel

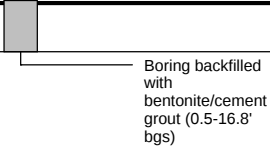
Well/Boring ID: SB-2

Site Location:

National Fuel Service Center
Dunkirk, New York

Borehole Depth: 16.8' bgs

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		4	14-17	2.8	0.0	X		Trace degraded Concrete, red Brick and Metal between 2.7-2.8' of recovery.	
565								Refusal at 16.8' bgs.	
20									
560									
25									
555									
30									
550									
35									

Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level

Soil samples collected for VOCs, SVOCs and Total Cyanide at: 8-10' bgs and 15.8-16.8' bgs.
Survey coordinates based on NYS Plane Coordinate System (NAD 83).
Elevations based on NAVD 1988 obtained from GPS observations.



Date Start/Finish: 8/4-8/5/10 Drilling Company: Parratt Wolff Driller's Name: D. Richmond/J.C. Chevalier Drilling Method: Geoprobe / HSA Sampling Method: 4' Acetate Liner & 2' x 2" SS Rig Type: Track-Mounted Geoprobe 6620 DT & Truck-Mounted Ingersoll Rand A300	Northing: 906470.7189 Easting: 944763.7093 Casing Elevation: NA Borehole Depth: 17.5' bgs Surface Elevation: 583.13' AMSL Descriptions By: L.Terrell	Well/Boring ID: SB-3 Client: National Fuel Location: National Fuel Service Center Dunkirk, New York DRAFT
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
585									
0					0.0			Boring location hand-cleared to 5' bgs (blind drilled to 5' bgs). Soil was screened with a PID at 1' intervals.	
		NA	0-5	NA	0.5	X			
580					0.0				
					0.0				
5		1	5-8	3.0	0.0			Brown gray SILT, little Clay, mottled, low plasticity, very stiff, slight coal tar-like odor, moist to wet.	
								Brown SILT, trace Clay and fine angular Gravel, non-plastic, medium stiff, moist to wet.	
575								Trace gray fine to coarse sub-angular Gravel.	
		2	8-11	3.0	0.0				Boring backfilled with bentonite/cement grout (0.5-17.5' bgs)
10									
		3	11-14	3.0	0.2			Gray SILT, trace fine to coarse sub-angular Gravel and fine Sand, moist to dry.	
570								Gray fine SAND and SILT, trace fine sub-angular Gravel, moist to dry.	
15		4	14-17	2.7	1.2				
						X			

	Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; SS = Split Spoon; HSA = Hollow Stem Auger
	Soil samples collected for VOCs, SVOCs and Total Cyanide at: 2-3' bgs and 14.9-16.9' bgs. After completing boring with Geoprobe equipment, blind drilled down to 17' bgs with augers to confirm top of bedrock. Survey coordinates based on NYS Plane Coordinate System (NAD 83).

Client: National Fuel

Well/Boring ID: SB-3

Site Location:

National Fuel Service Center
Dunkirk, New York

Borehole Depth: 17.5' bgs

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		4	14-17	2.7	1.2			Gray fine SAND and SILT, trace fine sub-angular Gravel, moist to dry.	
								Black fractured SHALE in the nose of the sampler, slight odor.	
565		5	17-19	0.1	0.0			Refusal with augers at 17.5' bgs.	Boring backfilled with bentonite/cement grout (0.5-17.5' bgs)
20									
560									
25									
555									
30									
550									
35									

Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; SS = Split Spoon; HSA = Hollow Stem Auger

Soil samples collected for VOCs, SVOCs and Total Cyanide at: 2-3' bgs and 14.9-16.9' bgs.

After completing boring with Geoprobe equipment, blind drilled down to 17' bgs with augers to confirm top of bedrock.

Survey coordinates based on NYS Plane Coordinate System (NAD 83).



Date Start/Finish: 8/2/10 Drilling Company: Parratt Wolff Driller's Name: D. Richmond/J.C. Chevalier Drilling Method: Geoprobe / HSA Sampling Method: 4' Acetate Liner Rig Type: Track-Mounted Geoprobe 6620 DT Rig Type 2	Northing: 906551.3235 Easting: 945006.5616 Casing Elevation: NA Borehole Depth: 16.8' bgs Surface Elevation: 583.24' AMSL Descriptions By: L.Terrell	Well/Boring ID: SB-4 Client: National Fuel Location: National Fuel Service Center Dunkirk, New York DRAFT
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
585									
0									
					0.0			Boring location hand-cleared to 5' bgs (blind drilled to 5' bgs). Soil was screened with a PID at 1' intervals.	Boring completed with grass and soil (0-0.5' bgs)
	580	NA	0-5	NA	0.0				
					0.0				
5					0.0				
		1	5-8	3.0	0.0			Gray brown CLAY, trace Silt, mottled, medium plasticity, stiff, moist.	
	575								
		2	8-11	2.8	0.0	X		Gray CLAY and SILT, slight plasticity, moist to wet.	Boring backfilled with bentonite/cement grout (0.5-16.8' bgs)
10									
		3	11-14	3.0	0.0			Gray SILT, trace fine sub-round to sub-angular Gravel, moist.	
	570								
								Moist to dry.	
15		4	14-17	3.0	0.0	X			

	Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; HSA = Hollow Stem Auger Soil samples collected for VOCs, SVOCs and Total Cyanide at: 8-11' bgs and 14-17' bgs (MS/MSD). Survey coordinates based on NYS Plane Coordinate System (NAD 83). Elevations based on NAVD 1988 obtained from GPS observations.
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Client: National Fuel

Well/Boring ID: SB-4

Site Location:

National Fuel Service Center
Dunkirk, New York

Borehole Depth: 16.8' bgs

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		4	14-17	3.0	0.0	X		Gray SILT, trace fine sub-round to sub-angular Gravel, moist. Dark gray to black fractured Shale in the tip of the sampler.	
565								Refusal at 16.8' bgs.	Boring backfilled with bentonite/cement grout (0.5-16.8' bgs)
20									
560									
25									
555									
30									
550									
35									

Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; HSA = Hollow Stem Auger

Soil samples collected for VOCs, SVOCs and Total Cyanide at: 8-11' bgs and 14-17' bgs (MS/MSD).
Survey coordinates based on NYS Plane Coordinate System (NAD 83).
Elevations based on NAVD 1988 obtained from GPS observations.



Date Start/Finish: 8/3/10

Drilling Company: Parratt Wolff

Driller's Name: D. Richmond/J.C. Chevalier

Drilling Method: Geoprobe / HSA

Sampling Method: 4' Acetate Liner

Rig Type: Track-Mounted Geoprobe 6620 DT

Rig Type 2

Northing: 906545.9857

Easting: 944979.7888

Casing Elevation: NA

Borehole Depth: 16.8' bgs

Surface Elevation: 583.05' AMSL

Descriptions By: L.Terrell

Well/Boring ID: SB-5

Client: National Fuel

Location: National Fuel Service Center
Dunkirk, New York

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
585									
0									
					0.0			Boring location hand-cleared to 5' bgs (blind drilled to 5' bgs). Soil was screened with a PID at 1' intervals.	
					0.0				
580		NA	0-5	NA	0.0				
					0.0				
					0.0				
5					0.0				
		1	5-8	2.5	0.0			Brown gray CLAY, trace Silt, mottled, high plasticity, stiff, moist.	
575									
		2	8-11	2.8	0.0	X		Gray CLAY, little Silt, medium plasticity, medium stiff, moist to wet.	
10									
		3	11-14	2.9	0.0			Gray SILT, trace fine to coarse sub-round to round Gravel, fine to coarse Sand and Clay, moist to wet.	
570									
15		4	14-17	3.0	0.0			No Clay, moist to dry.	



ARCADIS

Infrastructure, environment, buildings

Remarks:

bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; HSA = Hollow Stem Auger

Soil samples collected for VOCs, SVOCs and Total Cyanide at: 8-10' bgs and 15.8-16.8' bgs .

Survey coordinates based on NYS Plane Coordinate System (NAD 83).

Elevations based on NAVD 1988 obtained from GPS observations.

Project: B0023301.0001 Template:G:\LogFiles\B0023301\boring_well geoprobe 2007analytical.lfx
Data File:SB-5.dat

Date11/30/2010 Created/Edited by:LGT/NPS

Page: 1 of 2

Client: National Fuel

Well/Boring ID: SB-5

Site Location:

National Fuel Service Center
Dunkirk, New York

Borehole Depth: 16.8' bgs

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		4	14-17	3.0	0.0	X		Gray SILT, trace fine to coarse sub-round to round Gravel, fine to coarse Sand and Clay, moist to wet.	
565								Refusal at 16.8' bgs.	Boring backfilled with bentonite/cement grout (0.5-16.8' bgs)
20									
560									
25									
555									
30									
550									
35									

Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; HSA = Hollow Stem Auger

Soil samples collected for VOCs, SVOCs and Total Cyanide at: 8-10' bgs and 15.8-16.8' bgs .

Survey coordinates based on NYS Plane Coordinate System (NAD 83).

Elevations based on NAVD 1988 obtained from GPS observations.



Date Start/Finish: 8/3-8/5/10

Drilling Company: Parratt Wolff

Driller's Name: D. Richmond/J.C. Chevalier

Drilling Method: Geoprobe / HSA

Sampling Method: 4' Acetate Liner & 2' x 2" SS

Rig Type: Track-Mounted Geoprobe 6620 DT & Truck-Mounted Ingersoll Rand A300

Northing: 906535.8123

Eastings: 944928.5302

Casing Elevation: NA

Borehole Depth: 18' bgs

Surface Elevation: 582.91' AMSL

Descriptions By: L.Terrell

Well/Boring ID: SB-6

Client: National Fuel

Location: National Fuel Service Center
Dunkirk, New York

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
585									
0					0.0			Boring location hand-cleared to 5' bgs (blind drilled to 5' bgs). Soil was screened with a PID at 1' intervals.	++ ++ Boring completed with grass and soil (0-0.5' bgs)
580		NA	0-5	NA	0.0				
5					0.0				
		1	5-8	2.5	0.0			Brown and gray CLAY, trace Silt, mottled, high plasticity, stiff, moist.	
575									
		2	8-11	3.0	0.0	X		Gray CLAY, trace Silt, high plasticity, medium stiff, moist to wet.	▼ Boring backfilled to grade with bentonite/cement grout (0.5-18' bgs)
10									
		3	11-14	3.0	0.0			Gray SILT, trace fine to coarse sub-round to sub-angular Gravel, fine to coarse Sand and Clay, slight plasticity, very stiff, moist to wet.	
570									
		4	14-17	2.8	0.0			Gray SILT, trace fine to coarse sub-round to sub-angular Gravel and fine to coarse Sand, slight coal tar-like odor between 0.5-2.8' of recovery, moist to dry.	
15						X			



Remarks:

bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, SS = Split Spoon; HSA = Hollow Stem Auger

Soil samples collected for VOCs, SVOCs and Total Cyanide at: 8-10' bgs and 14.8-16.8' bgs.

After completing boring with Geoprobe equipment, blind drilled down to 17' bgs with augers to confirm top of bedrock.

Survey coordinates based on NYS Plane Coordinate System (NAD 83).

Project: B0023301.0001 Template:G:\LogFiles\B0023301\boring_well geoprobe 2007analytical 2.ldfx
Data File:SB-6.dat

Date11/30/2010 Created/Edited by:LGT/NPS

Page: 1 of 2

Client: National Fuel

Well/Boring ID: SB-6

Site Location:

National Fuel Service Center
Dunkirk, New York

Borehole Depth: 18' bgs

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		4	14-17	2.8	5.2			Gray SILT, trace fine to coarse sub-round to sub-angular Gravel and fine to coarse Sand, slight coal tar-like odor between 0.5-2.8' of recovery, moist to dry.	
565		5	17-19	0.1	0.0			Dark gray fractured SHALE in nose of sampler.	
								Refusal with augers at 18' bgs.	Boring backfilled to grade with bentonite/cement grout (0.5-18' bgs)
20									
560									
25									
555									
30									
550									
35									

Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level, SS = Split Spoon; HSA = Hollow Stem Auger

Soil samples collected for VOCs, SVOCs and Total Cyanide at: 8-10' bgs and 14.8-16.8' bgs.

After completing boring with Geoprobe equipment, blind drilled down to 17' bgs with augers to confirm top of bedrock.

Survey coordinates based on NYS Plane Coordinate System (NAD 83).



Date Start/Finish: 8/3/10 Drilling Company: Parratt Wolff Driller's Name: D. Richmond/J.C. Chevalier Drilling Method: Geoprobe / HSA Sampling Method: 4' Acetate Liner Rig Type: Track-Mounted Geoprobe 6620 DT Rig Type 2	Northing: 906531.8140 Easting: 944905.7168 Casing Elevation: NA Borehole Depth: 13.4' bgs Surface Elevation: 582.83' AMSL Descriptions By: L.Terrell	Well/Boring ID: SB-7 Client: National Fuel Location: National Fuel Service Center Dunkirk, New York DRAFT
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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
585									
0									
					0.0			Boring location hand-cleared to 5' bgs (blind drilled to 5' bgs). Soil was screened with a PID at 1' intervals.	Boring completed with grass and soil (0-0.5' bgs)
580		NA	0-5	NA	0.0				
					0.0				
					0.0				
5					0.0				
		1	5-8	2.3	0.0			Brown and gray CLAY, trace Silt, mottled, high plasticity, very stiff, slight coal tar-like odor, moist.	
575									
		2	8-11	3.0	0.0	X		Gray CLAY, trace Silt, high plasticity, stiff.	
10									
								Gray SILT, trace Clay, non-plastic, medium stiff, moist to wet.	
570		3	11-14	2.2	0.0	X		Gray SILT, trace fine to coarse sub-round to round Gravel and fine to coarse Sand, moist to wet. Gray fractured Shale in the tip of the sampler.	Boring backfilled with bentonite/cement grout (0.5-13.4' bgs)
								Refusal at 13.4' bgs.	
15		4							

	Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; HSA = Hollow Stem Auger
	Soil samples collected for VOCs, SVOCs and Total Cyanide at: 8-10' bgs and 12.4-13.4' bgs. Survey coordinates based on NYS Plane Coordinate System (NAD 83). Elevations based on NAVD 1988 obtained from GPS observations.

Date Start/Finish: 8/2/10
Drilling Company: Parratt Wolff
Driller's Name: D. Richmond/J.C. Chevalier
Drilling Method: Geoprobe / HSA
Sampling Method: 4' Acetate Liner
Rig Type: Track-Mounted Geoprobe 6620 DT

Northing: 906554.5445
Easting: 945025.2347
Casing Elevation: NA

Borehole Depth: 17.5' bgs
Surface Elevation: 583.19' AMSL

Descriptions By: L.Terrell

Well/Boring ID: SB-8

Client: National Fuel

Location: National Fuel Service Center
Dunkirk, New York

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
585									
0									
580		NA	0-5	NA	0.0			Boring location hand-cleared to 5' bgs (blind drilled to 5' bgs). Soil was screened with PID at 1' intervals.	Boring completed with grass and soil (0-0.5' bgs)
5					0.0				
					0.0				
					0.0				
					0.0				
575		1	5-8	2.4	0.0			Gray brown CLAY, trace Silt, mottled, high plasticity, very stiff, moist to dry.	
10								Moist to wet.	Boring backfilled with bentonite/cement grout (0-17.5' bgs)
		2	8-12	4.0	0.0	X			
								Gray SILT, trace coarse sub-round Gravel and Clay, non-plastic, moist to wet.	
								Gray SILT, trace fine to medium sub-round to sub-angular Gravel and Clay, moist to wet.	
570		3	12-15	2.5	0.0				
								Gray fine SAND, moist to wet.	
								Gray medium SAND, moist to wet.	
15		4	15-18	2.5	0.0			Gray SILT, trace fine to medium sub-round to sub-angular Gravel, hard, moist to dry.	



Infrastructure, environment, buildings

Remarks:

bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; HSA = Hollow Stem Auger

Soil samples collected for VOCs, SVOCs and Total Cyanide at: 8-10' bgs and 15-17.5' bgs (Dup-1-080210).

Survey coordinates based on NYS Plane Coordinate System (NAD 83).

Elevations based on NAVD 1988 obtained from GPS observations.

Client: National Fuel

Well/Boring ID: SB-8

Site Location:

National Fuel Service Center
Dunkirk, New York

Borehole Depth: 17.5' bgs

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
		4	15-18	2.5	0.0	X		Black to dark gray fractured Shale in the tip of the sampler.	
565								Refusal at 17.5' bgs.	Boring backfilled with bentonite/cement grout (0-17.5' bgs)
20									
560									
25									
555									
30									
550									
35									

Remarks: bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; HSA = Hollow Stem Auger



Soil samples collected for VOCs, SVOCs and Total Cyanide at: 8-10' bgs and 15-17.5' bgs (Dup-1-080210).
Survey coordinates based on NYS Plane Coordinate System (NAD 83).
Elevations based on NAVD 1988 obtained from GPS observations.