MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

INTEROFFICE COMMUNICATION

TO: Amy Keranen, Project Manager, Marquette District Office
Remediation and Redevelopment Division

FROM: Olivia Sly, Geologist, Geological Services Section
Remediation and Redevelopment Division

DATE: October 19, 2022

SUBJECT: Calumet Dry Cleaners, Houghton County, Site ID #31000530
GSS Job #1433
Vapor Intrusion (VI) Investigation and Monitor Well Installation

This memorandum is for work requested by the Department of Environment, Great Lakes, and Energy (EGLE), Remediation and Redevelopment Division's (RRD's), Marquette District Office for the subject site located at 120 5th Street, in Calumet, Houghton County, Michigan (Fig 1). The Marquette District Office requested RRD's Geological Services Section (GSS) to investigate to further assess the potential vapor intrusion risk at the site and replace a destroyed groundwater monitor well. Staff conducted the field work on September 20 and 22, 2022. GSS received the final laboratory results on October 10, 2022.

This memorandum includes the following:

- Site Location Map (Figure 1)
- Site Map (Figure 2)
- Vapor Detections Map (Figure 3)
- Global Positioning System (GPS) Coordinates (Table 1)
- Soil Gas Analytical Laboratory Results (Table 2)
- Boring Log (Appendix A)
- Soil Gas Sampling Field Sheets (Appendix B)

The site is located on the southeastern corner of 5th and Portland Streets in a commercial area with apartments above businesses. The site was historically utilized as an on-site dry cleaner. In 2021, the buildings on the site were burned down and during debris removal underground storage tanks (USTs) were discovered. Chlorinated volatile organic compounds (VOCs) were detected in soils surrounding the USTs.

MONITORING WELL INSTALLATION AND SAMPLING

On September 20, 2022, GSS installed one temporary monitoring well (CF-TMW-14) at the site in the approximate location of the destroyed well TMW-11 (Appendix A). TMW-11 was destroyed during dig and haul activities that were conducted in August 2022. GPS coordinates are included in Table 1.

The GSS returned to sample the three existing monitoring wells on September 24, 2022; however, the monitoring wells were dry.

VAPOR POINT INSTALLATION AND SAMPLING

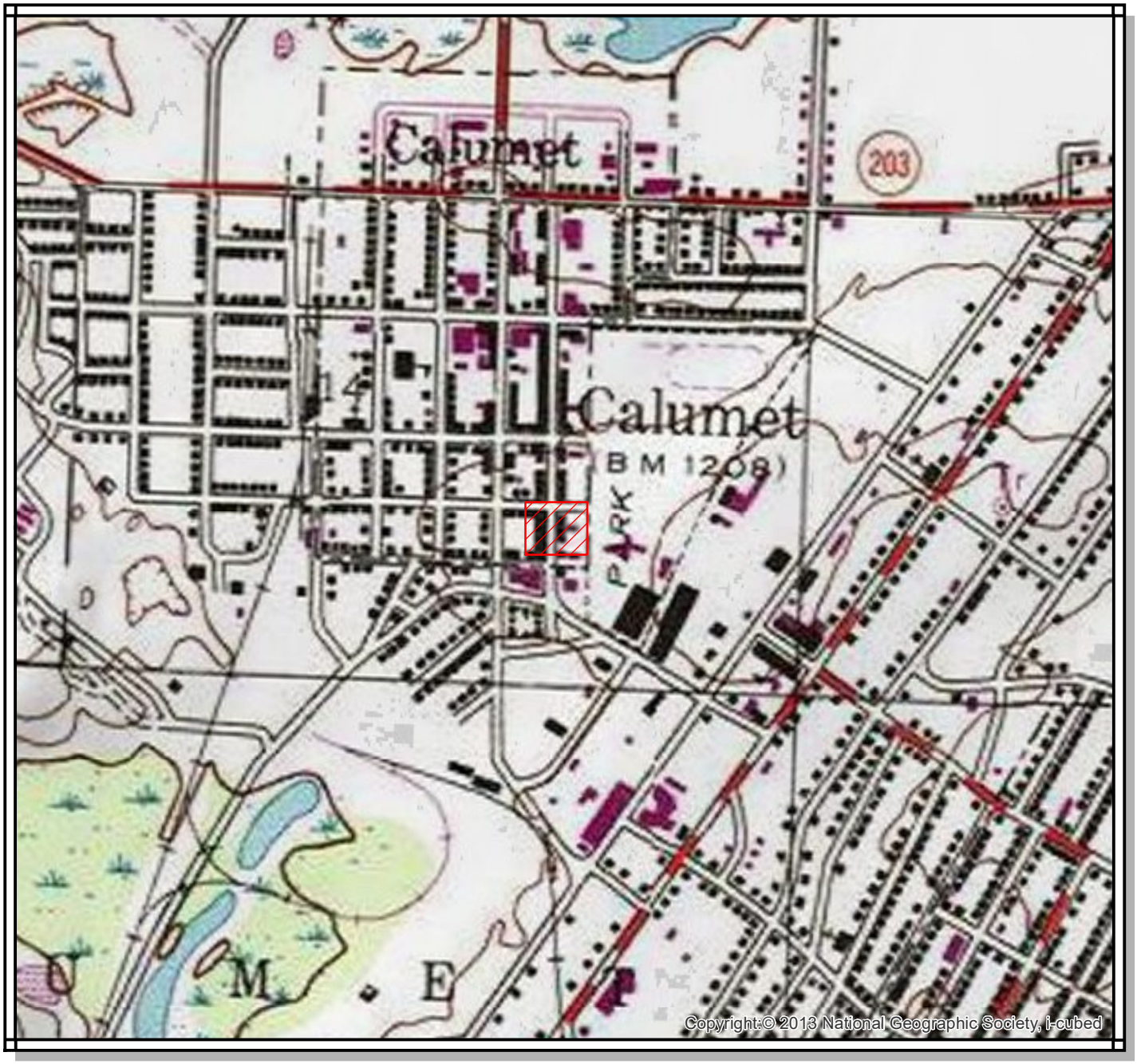
On September 22, 2022, GSS installed three sub-slab vapor pins in commercial building basements to the west of the site (Fig 2). These properties are hydraulically downgradient from the site and a vapor intrusion risk may be present.

At least one hour after installation, staff sampled the vapor pins. Additionally, a fourth vapor pin was sampled that was installed in June 2022. Prior to sampling, a leak test was conducted on each vapor well to ensure there were no leaks in the fittings that may affect sample results. All pins passed the leak test. A 1-liter vacuum bottle with a 100 to 200-ml/minute regulator was used to collect a vapor sample from each pin. Staff collected the samples and conducted an initial field test using photoionization and GEM 2000 detectors (Appendix B).

The GSS submitted the samples to the EGLE Laboratory for VOC analyses using United State Environmental Protection Agency Method TO-15 (Table 2). The laboratory results are included in Content Manager (EGLE Laboratory/ 09/22/22 Air Sampling Results – 2209245). The VOC detections are summarized on Figure 3.

If you have any questions, contact me at 517-275-5617.

cc/att: Aaron Berndt, EGLE
Jeff Pincumbe, EGLE
Scott Densteadt, EGLE



N
W E
S

0 80 160 320 Meters

0 425 850 1,700 Feet

LEGEND

Site Location

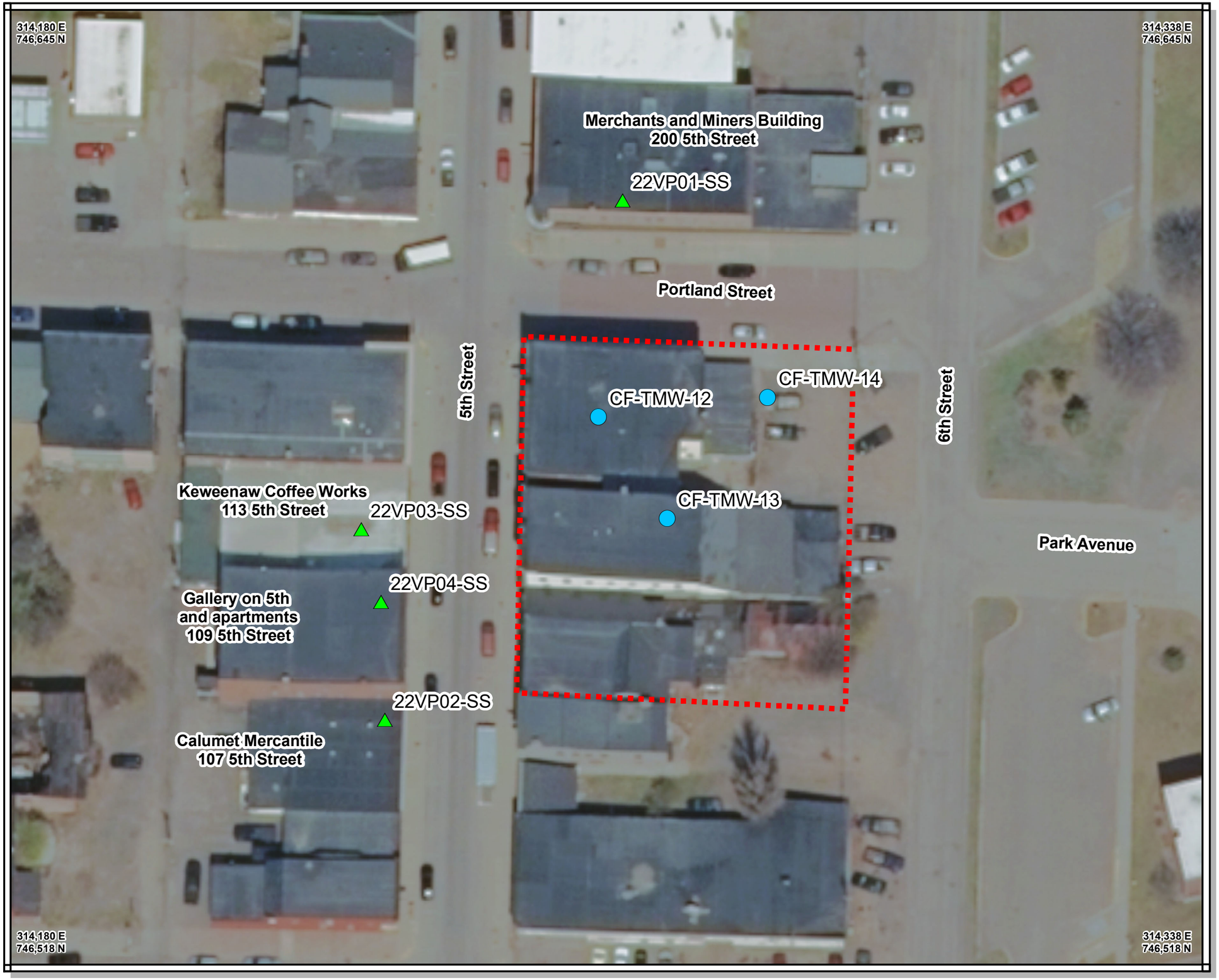
Datum: NAD83
Projection: Michigan GeoRef

Source: USGS 7.5 minute quadrangle

Calumet Cleaners
100 block of 5th Street
Calumet, Houghton County
T56N R33W Sec 14

SITE LOCATION MAP

GEOLOGIST **Olivia Sly** GEOLOGICAL SERVICES SECTION	EGLE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY	**CREATION DATE** **October 2022**
Remediation and Redevelopment Division		**FIGURE 1**



LEGEND

- Temporary Monitoring Well
- Vapor Pin
- Approximate Site Boundary

- DATUM - NAD83
- PROJECTION: MICHIGAN GEOREF
- NORTHING AND EASTING COORDINATES (IN METERS) ARE IN CORNERS OF MAP

AERIAL PHOTO SOURCE: MI CENTER FOR SHARED SOLUTIONS
AERIAL PHOTO DATE: 2010
AERIAL RESOLUTION: 1 foot Natural Color

N W E S

0 2.75 5.5 11 Meters

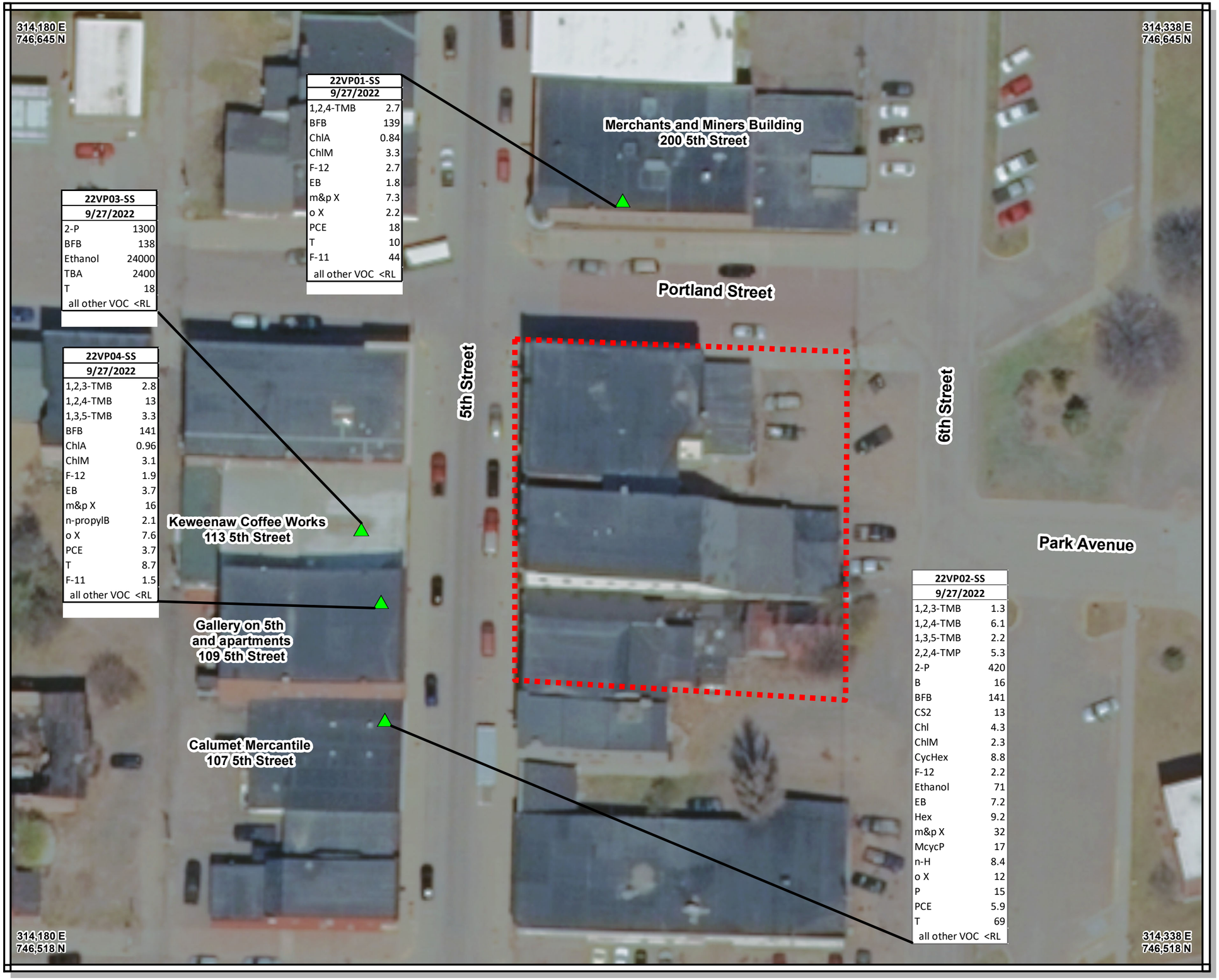
0 10 20 40 Feet

1 inch = 42 feet

Calumet Drycleaners
SITE ID 31000530
100 block of 5th Street
Calumet, Houghton County

SITE MAP

GEOLOGIST		CREATION DATE
Jeff Pincumbe Geological Services Section	EGLE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY	September 2022
Remediation and Redevelopment Division		FIGURE 2



22VP01-SS	
9/27/2022	
1,2,4-TMB	2.7
BFB	139
ChlA	0.84
ChlM	3.3
F-12	2.7
EB	1.8
m&p X	7.3
o X	2.2
PCE	18
T	10
F-11	44
all other VOC	<RL

22VP03-SS	
9/27/2022	
2-P	1300
BFB	138
Ethanol	24000
TBA	2400
T	18
all other VOC	<RL

22VP04-SS	
9/27/2022	
1,2,3-TMB	2.8
1,2,4-TMB	13
1,3,5-TMB	3.3
BFB	141
ChlA	0.96
ChlM	3.1
F-12	1.9
EB	3.7
m&p X	16
n-propylB	2.1
o X	7.6
PCE	3.7
T	8.7
F-11	1.5
all other VOC	<RL

22VP02-SS	
9/27/2022	
1,2,3-TMB	1.3
1,2,4-TMB	6.1
1,3,5-TMB	2.2
2,2,4-TMP	5.3
2-P	420
B	16
BFB	141
CS2	13
Chl	4.3
ChlM	2.3
CycHex	8.8
F-12	2.2
Ethanol	71
EB	7.2
Hex	9.2
m&p X	32
McycP	17
n-H	8.4
o X	12
P	15
PCE	5.9
T	69
all other VOC	<RL

LEGEND

- Vapor Pin
- Approximate Site Boundary

TMB - Trimethylbenzene
TMP - Trimethylpentane
2-P - Acetone
B - Benzene
BFB - Bromofluorobenzene
CS2 - Carbon disulfide
Chl – Chloroform
ChlA - Chloroethane
ChlM - Chloromethane
CycHex – Cyclohexane
F-11 - Trichlorofluoromethane
F-12 - Dichlorodifluoromethane
EB - Ethylbenzene
Hex - Hexane
McycP - Methylcyclopentane
n-H - n-Heptane
P - Pentane
PCE - Tetrachloroethylene
T – Toluene
TBA – Tertiary Butyl Alchohol
X - Xylenes

all data is in ug/m3

- DATUM - NAD83
- PROJECTION: MICHIGAN GEOREF
- NORTHING AND EASTING COORDINATES (IN METERS) ARE IN CORNERS OF MAP

AERIAL PHOTO SOURCE: MI CENTER FOR SHARED SOLUTIONS
AERIAL PHOTO DATE: 2010
AERIAL RESOLUTION: 1 foot Natural Color

N W E S

0 2.75 5.5 11 Meters

0 10 20 40 Feet

1 inch = 42 feet

Calumet Drycleaners
SITE ID 31000530
100 block of 5th Street
Calumet, Houghton County

VAPOR DETCTIONS MAP

GEOLOGIST		CREATION DATE
Jeff Pincumbe Geological Services Section	EGLE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY	October 2022
Remediation and Redevelopment Division		FIGURE 3

Location	Latitude	Longitude	Northing	Easting
CF-TMW-12	47.245140896	-88.452421005	746591.252	314257.878
CF-TMW-13	47.245022093	-88.452295047	746577.757	314266.994
CF-TMW-14	47.245170652	-88.452125208	746593.854	314280.355

Michigan Department of Environment, Great Lakes, and Energy Analytical Testing Report
Work Order: 2209245
Report Date: 10/10/2022
Client: EGLE-RRD-UP
Attention: Amy Keranen
Project Name: CALUMET DRY CLEANERS
Project Number: 31000530

Note: This is not the original data. Please refer to PDF/Hardcopy Report.

General Method	Analyte	Units	Method	RDL				
CLIENT ID					22VP01-SS	22VP02-SS	22VP03-SS	22VP04-SS
DATE SAMPLED					27-Sep-22	27-Sep-22	27-Sep-22	27-Sep-22
MATRIX					Air	Air	Air	Air
Organics-Volatiles	1,1,1-Trichloroethane	ug/m3	TO-15	320	ND	ND	ND	ND
Organics-Volatiles	1,1,2,2-Tetrachloroethane	ug/m3	TO-15	400	ND	ND	ND	ND
Organics-Volatiles	1,1,2-Trichloroethane	ug/m3	TO-15	320	ND	ND	ND	ND
Organics-Volatiles	1,1,2-Trichlorotrifluoroethane	ug/m3	TO-15	450	ND	ND	ND	ND
Organics-Volatiles	1,1-Dichloroethane	ug/m3	TO-15	240	ND	ND	ND	ND
Organics-Volatiles	1,1-Dichloroethylene	ug/m3	TO-15	230	ND	ND	ND	ND
Organics-Volatiles	1,2,3-Trichlorobenzene	ug/m3	TO-15	1,500	ND	ND	ND	ND
Organics-Volatiles	1,2,3-Trichloropropane	ug/m3	TO-15	360	ND	ND	ND	ND
Organics-Volatiles	1,2,3-Trimethylbenzene	ug/m3	TO-15	290	ND	1.3	ND	2.8
Organics-Volatiles	1,2,4-Trichlorobenzene	ug/m3	TO-15	730	ND	ND	ND	ND
Organics-Volatiles	1,2,4-Trimethylbenzene	ug/m3	TO-15	290	2.7	6.1	ND	13
Organics-Volatiles	1,2-Dibromo-3-chloropropane	ug/m3	TO-15	570	ND	ND	ND	ND
Organics-Volatiles	1,2-Dibromoethane	ug/m3	TO-15	450	ND	ND	ND	ND
Organics-Volatiles	1,2-Dichlorobenzene	ug/m3	TO-15	350	ND	ND	ND	ND
Organics-Volatiles	1,2-Dichloroethane	ug/m3	TO-15	240	ND	ND	ND	ND
Organics-Volatiles	1,2-Dichloropropane	ug/m3	TO-15	270	ND	ND	ND	ND
Organics-Volatiles	1,3,5-Trimethylbenzene	ug/m3	TO-15	290	ND	2.2	ND	3.3
Organics-Volatiles	1,3-Butadiene	ug/m3	TO-15	130	ND	ND	ND	ND
Organics-Volatiles	1,3-Dichlorobenzene	ug/m3	TO-15	350	ND	ND	ND	ND
Organics-Volatiles	1,4-Dichlorobenzene	ug/m3	TO-15	350	ND	ND	ND	ND
Organics-Volatiles	2,2,4-Trimethylpentane	ug/m3	TO-15	690	ND	5.3	ND	ND
Organics-Volatiles	2-Butanone (MEK)	ug/m3	TO-15	2,900	ND	ND	ND	ND
Organics-Volatiles	2-Methylnaphthalene	ug/m3	TO-15	5,700	ND	ND	ND	ND
Organics-Volatiles	4-Methyl-2-pentanone (MIBK)	ug/m3	TO-15	810	ND	ND	ND	ND
Organics-Volatiles	Acetone	ug/m3	TO-15	12,000	ND	420	1,300	ND
Organics-Volatiles	Acetonitrile	ug/m3	TO-15	330	ND	ND	ND	ND
Organics-Volatiles	Acrylonitrile	ug/m3	TO-15	210	ND	ND	ND	ND
Organics-Volatiles	Benzene	ug/m3	TO-15	190	ND	16	ND	ND
Organics-Volatiles	Bromobenzene	ug/m3	TO-15	380	ND	ND	ND	ND
Organics-Volatiles	Bromodichloromethane	ug/m3	TO-15	400	ND	ND	ND	ND
Organics-Volatiles	Bromofluorobenzene	ug/m3	TO-15		139	141	138	141
Organics-Volatiles	Bromoform	ug/m3	TO-15	610	ND	ND	ND	ND
Organics-Volatiles	Bromomethane	ug/m3	TO-15	230	ND	ND	ND	ND
Organics-Volatiles	Carbon disulfide	ug/m3	TO-15	180	ND	13	ND	ND
Organics-Volatiles	Carbon tetrachloride	ug/m3	TO-15	370	ND	ND	ND	ND
Organics-Volatiles	Chlorobenzene	ug/m3	TO-15	270	ND	ND	ND	ND
Organics-Volatiles	Chloroethane	ug/m3	TO-15	160	0.84	ND	ND	0.96
Organics-Volatiles	Chloroform	ug/m3	TO-15	290	ND	4.3	ND	ND
Organics-Volatiles	Chloromethane	ug/m3	TO-15	120	3.3	2.3	ND	3.1
Organics-Volatiles	cis-1,2-Dichloroethylene	ug/m3	TO-15	230	ND	ND	ND	ND
Organics-Volatiles	cis-1,3-Dichloropropylene	ug/m3	TO-15	270	ND	ND	ND	ND
Organics-Volatiles	Cyclohexane	ug/m3	TO-15	200	ND	8.8	ND	ND
Organics-Volatiles	Dibromochloromethane	ug/m3	TO-15	500	ND	ND	ND	ND
Organics-Volatiles	Dichlorodifluoromethane	ug/m3	TO-15	290	2.7	2.2	ND	1.9
Organics-Volatiles	Diethyl ether	ug/m3	TO-15	600	ND	ND	ND	ND
Organics-Volatiles	Diisopropyl Ether	ug/m3	TO-15	250	ND	ND	ND	ND
Organics-Volatiles	Ethanol	ug/m3	TO-15	9,300	ND	71	24,000	ND
Organics-Volatiles	Ethylbenzene	ug/m3	TO-15	260	1.8	7.2	ND	3.7
Organics-Volatiles	Ethyltertiarybutylether	ug/m3	TO-15	250	ND	ND	ND	ND
Organics-Volatiles	Hexachloroethane	ug/m3	TO-15	570	ND	ND	ND	ND
Organics-Volatiles	Hexane	ug/m3	TO-15	690	ND	9.2	ND	ND
Organics-Volatiles	Isopropyl Alcohol	ug/m3	TO-15	12,000	ND	ND	ND	ND
Organics-Volatiles	Isopropylbenzene	ug/m3	TO-15	290	ND	ND	ND	ND
Organics-Volatiles	m & p - Xylene	ug/m3	TO-15	260	7.3	32	ND	16
Organics-Volatiles	Methylcyclopentane	ug/m3	TO-15	200	ND	17	ND	ND
Organics-Volatiles	Methylene chloride	ug/m3	TO-15	200	ND	ND	ND	ND
Organics-Volatiles	Methyltertiarybutylether	ug/m3	TO-15	350	ND	ND	ND	ND
Organics-Volatiles	Naphthalene	ug/m3	TO-15	5,200	ND	ND	ND	ND
Organics-Volatiles	n-Butylbenzene	ug/m3	TO-15	1,100	ND	ND	ND	ND
Organics-Volatiles	n-Heptane	ug/m3	TO-15	240	ND	8.4	ND	ND
Organics-Volatiles	n-Propylbenzene	ug/m3	TO-15	290	ND	ND	ND	2.1
Organics-Volatiles	o-Xylene	ug/m3	TO-15	260	2.2	12	ND	7.6
Organics-Volatiles	Pentane	ug/m3	TO-15	580	ND	15	ND	ND
Organics-Volatiles	sec-Butylbenzene	ug/m3	TO-15	320	ND	ND	ND	ND
Organics-Volatiles	Styrene	ug/m3	TO-15	250	ND	ND	ND	ND
Organics-Volatiles	tert-Butylbenzene	ug/m3	TO-15	1,100	ND	ND	ND	ND
Organics-Volatiles	tertiary Butyl Alcohol	ug/m3	TO-15	15,000	ND	ND	2,400	ND
Organics-Volatiles	tertiaryAmylmethylether	ug/m3	TO-15	250	ND	ND	ND	ND
Organics-Volatiles	Tetrachloroethylene	ug/m3	TO-15	400	18	5.9	ND	3.7
Organics-Volatiles	Tetrahydrofuran	ug/m3	TO-15	170	ND	ND	ND	ND
Organics-Volatiles	Toluene	ug/m3	TO-15	220	10	69	18	8.7
Organics-Volatiles	trans-1,2-Dichloroethylene	ug/m3	TO-15	230	ND	ND	ND	ND
Organics-Volatiles	trans-1,3-Dichloropropylene	ug/m3	TO-15	270	ND	ND	ND	ND
Organics-Volatiles	Trichloroethylene	ug/m3	TO-15	320	ND	ND	ND	ND
Organics-Volatiles	Trichlorofluoromethane	ug/m3	TO-15	330	44	ND	ND	1.5
Organics-Volatiles	Vinyl chloride	ug/m3	TO-15	150	ND	ND	ND	ND

Grey indicates analyte was detected.
ND = Not Detected

APPENDIX A

Calumet Dry Cleaners, Houghton County
Site ID #31000530

Boring Log

BORING/WELL: CF-TMW-14

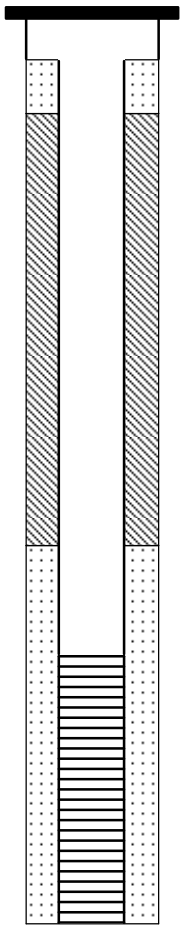
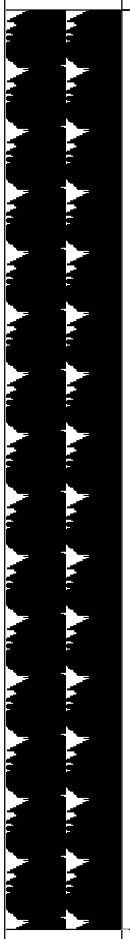
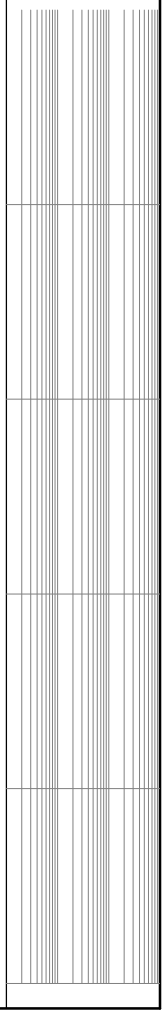
SITE: Calumet Dry Cleaners

BOREHOLE LOG

COUNTY: Hougton
TOWNSHIP: Calumet
TOWN: 56N
RANGE: 33W
SECTION: 14
LOCATION DESCRIPTION: Replacing CF-TMW-11

DATE: 9/21/22
DRILLER: Chris Coulter
GEOLOGIST: Brandon LaJoie
DRILL METHOD: Direct Push
TOTAL DEPTH: 17'

ERNIE#: 31000530

WELL CONSTRUCTION	LITHOLOGIC LOG	DESCRIPTION	DEPTH	SAMPLE ID	SAMPLE TYPE	FIELD SCREENING RESULTS	PID ppm 0 1000
		Grd. Expendable point used. No Recovery. E.O.B.	0 5 10 15				

VERTICAL DATUM:
GRD. ELEVATION:
T.O.C.:
S.W.L.: Dry
CASING: PVC Riser
SCREEN: 5' PVC Screen
WELL DEPTH: 12-17'
COMPLETION NOTES: Used expendable point in approx location of CF-TMW-11

LATITUDE: 47.245170652
LONGITUDE: -88.452125208
DATUM: NAD83
NORTHING: 746593.854
EASTING: 314280.355

APPENDIX B

Calumet Dry Cleaners, Houghton County
Site ID #31000530

Soil Gas Sampling Field Sheets

V.I. Sampling Field Sheet

Sample Point ID: 22VP01-SS

Date: 9/22/22

Site Name: Calumet Cleaners County: Houghton

Site Address: 120 5th St, Calumet

Sampler's Name: D. Sly, W. Rogers

Project Manager: Amy Kaarlun District: UP

Suspected COC's: Petroleum: _____ Solvent: X

Point Information

Point/Well Name: 22VP01-SS Point/Well Location: N end Mechanic's Mine bldg

Point/Well Installation Date: June 2022

Sub Slab: X Soil Gas Probe: _____ Depth: _____

Permanent: X Temporary: _____ Screen Material Used: _____

Weather Conditions: clear Temp.: 46°F Rain Event: Y / N Amount of Rain: ~2"

Surface Type: Asphalt: _____ Concrete: X Grass: _____ Surface Thickness: _____ inches

Surface Staining: Y / N Comments: _____

Pressure (Home): -0.0000 Pressure (Sampling Point): -0.0025 Pressure (After Sampling): _____

Leak Detection

Bottle Vac #: 1315 Regulator #: 6020 814 wing nut

Tubing Type: Teflon: _____ Polyethylene: _____ Master Flex: X

Tubing Certified Clean: Y / N Field Purged with Nitrogen: Y / N

Leak Test Performed: Y / N On Vapor Point: X On Soil Gas Point: _____

Tracer Gas Utilized: Y / N Helium: X Total Volume of Tubing: 30 ml X 3 = 90 Total

Evidence of Leakage: Y / N

Initial Field Readings: O2 20.7 % CO2: 0.2 % CH4: 0 % CO: 0 % H2S: 0 ppm

Barometric Pressure: 28.94 in/Hg GEM Used: Y / N

Regulator Gauge Baseline Reading: 0 in/Hg

Initial Bottle Vac Pressure Reading: -26 in/Hg Start Time: 1054

Final Bottle Vac Pressure Reading: -1 in/Hg Stop Time: 1059

Evidence of Moisture in Bottle Vac: Y / N

CO2: ~ ppm LEL: 0 % VOC: 0 ppm O2: ~ % PID Used: Y / N

V.I. Sampling Field Sheet

Sample Point ID: 22VP02-SS

Date: 9/22/22

County: Houghton

Site Name: Calumet cleaners

Site Address: 120 5th, Calumet

Sampler's Name: W. Rogers, O. SIV

District: UP

Project Manager: Amy Kramer

Solvent: X

Suspected COC's: Petroleum:

Point Information

Point/Well Name: 22VP02-SS

Point/Well Location: E end Mercantile bldg

Point/Well Installation Date: 9/22/22 @ 320

Depth:

Sub Slab: X

Soil Gas Probe:

Screen Material Used:

Permanent: X

Temporary:

Rain Event: Y / N

Amount of Rain: ~2"

Weather Conditions: clear

Temp.: 46°F

Surface Thickness: 4 inches

Surface Type:

Asphalt:

Concrete: X

Grass:

Surface Staining: Y / N

Comments:

Pressure (Home): 0.0001

Pressure (Sampling Point):

Pressure (After Sampling): 0.0000

Leak Detection

Bottle Vac #: 1422

Regulator #: 822

Master Flex: X

Tubing Type:

Teflon:

Polyethylene:

Tubing Certified Clean: Y / N

Field Purged with Nitrogen: Y / N

Leak Test Performed: Y / N

On Vapor Point: X

On Soil Gas Point:

Tracer Gas Utilized: Y / N

Helium: X

Total Volume of Tubing: 30 ml X 3 = 90 Total

Evidence of Leakage: Y / N

Initial Field Readings:

O2 20.6 %

CO2: 0.1 %

CH4: 0 %

CO: 0 %

H2S: 0 P

Barometric Pressure: 29.59 in/Hg

GEM Used: Y / N

Regulator Gauge Baseline Reading: 0 in/Hg

Vac Pressure Reading: -24 in/Hg

Start Time: 951

9:59

V.I. Sampling Field Sheet

Sample Point ID: 22VP03-SS

Date: 9/22/22

Site Name: Calumet Cleaners County: UP Houghton

Site Address: 120 5th, Calumet

Sampler's Name: D. Sly, W. Rogers

Project Manager: Amy Keranen District: U.P

Suspected COC's: Petroleum: _____ Solvent: X

Point Information

Point/Well Name: 22VP03-SS Point/Well Location: E basement of Kearsarge Office

Point/Well Installation Date: 9/22/22

Sub Slab: X Soil Gas Probe: _____ Depth: _____

Permanent: X Temporary: _____ Screen Material Used: _____

Weather Conditions: clear Temp.: 40°F Rain Event: Y / N Amount of Rain: ~2"

Surface Type: Asphalt: _____ Concrete: X Grass: _____ Surface Thickness: 2 inches

Surface Staining: Y / N Comments: _____

Pressure (Home): 0.000 Pressure (Sampling Point): _____ Pressure (After Sampling): 0.009

Leak Detection

Bottle Vac #: 1840 **Regulator #:** 829

Tubing Type: Teflon: _____ Polyethylene: _____ Master Flex: X

Tubing Certified Clean: Y / N Field Purged with Nitrogen: Y / N

Leak Test Performed: Y / N On Vapor Point: X On Soil Gas Point: _____

Tracer Gas Utilized: Y / N Helium: X Total Volume of Tubing: 30 ml X 3 = 90 Total

Evidence of Leakage: Y / N leak not unable to stop pumped anyway

Initial Field Readings: O2 20.5 % CO2: 0.1 % CH4: 0 % CO: 0 % H2S: 0 ppm

Barometric Pressure: 28.94 in/Hg **GEM Used:** Y / N

Regulator Gauge Baseline Reading: 0 in/Hg

Initial Bottle Vac Pressure Reading: -28 in/Hg **Start Time:** 1027

Final Bottle Vac Pressure Reading: -1 in/Hg **Stop Time:** 1033

Evidence of Moisture in Bottle Vac: Y / N

CO2: _____ ppm LEL: 0 % VOC: 0 ppm O2: _____ % **PID Used:** Y / N

V.I. Sampling Field Sheet

Sample Point ID: 22VP04-SS

Date: 9/22/22

Site Name: Calumet Caverns County: Houghton

Site Address: 170 5th Street, Calumet

Sampler's Name: D. Sly ~~J. Plumber~~ W. Rogers

Project Manager: Anni Keranen District: U.P

Suspected COC's: Petroleum: _____ Solvent: X

Point Information

Point/Well Name: 22VP04-SS Point/Well Location: E end of gallery basement

Point/Well Installation Date: 9/22/22 1230

Sub Slab: X Soil Gas Probe: _____ Depth: _____

Permanent: X Temporary: _____ Screen Material Used: stainless implant

Weather Conditions: clear Temp.: 46°F Rain Event: Y / N Amount of Rain: 2"

Surface Type: Asphalt: _____ Concrete: X Grass: _____ Surface Thickness: 2 inches

Surface Staining: Y / N Comments: _____

Pressure (Home): 0.001 Pressure (Sampling Point): ~~0.0036~~ Pressure (After Sampling): 0.0030

Leak Detection

Bottle Vac #: 1770 **Regulator #:** 842

Tubing Type: Teflon: _____ Polyethylene: _____ Master Flex: X

Tubing Certified Clean: Y / N Field Purged with Nitrogen: Y / N

Leak Test Performed: Y / N On Vapor Point: X On Soil Gas Point: _____

Tracer Gas Utilized: Y / N Helium: X Total Volume of Tubing: 30 ml X 3 = 90 Total

Evidence of Leakage: Y / N

Initial Field Readings: O2 20.4 % CO2: 0.1 % CH4: 0 % CO: 0 % H2S: 0 ppm

Barometric Pressure: 28.92 in/Hg **GEM Used:** Y / N

Regulator Gauge Baseline Reading: 0 in/Hg

Initial Bottle Vac Pressure Reading: -26 in/Hg **Start Time:** 1319

Final Bottle Vac Pressure Reading: -2 in/Hg **Stop Time:** 1329

Evidence of Moisture in Bottle Vac: Y / N

CO2: — ppm LEL: 0 % VOC: 0 ppm O2: — % **PID Used:** Y / N