NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Region 8
6274 East Avon-Lima Road, Avon, NY 14414-9516
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July 30, 2019

Mr. Thomas Masaschi
One Flint St., LLC
120 East Avenue, 3rd Floor
Rochester, NY 14604

Dear Mr. Masaschi;

Re: Emerging Contaminants Sampling Work Plan;
June 25, 2019
5 & 15 Flint Street, Site #C828162
City of Rochester, Monroe County

The New York State Department of Environmental Conservation (the Department) has completed its review of the documents entitled Draft *Emerging Contaminants Sampling Work Plan* dated June 25, 2019 (the Work Plan) prepared by Ravi Engineering & Land Surveying, P.C. for the 5 & 15 Flint Street Site located in the City of Rochester. In accordance with 6 NYCRR Part 375-1.6, the Department has determined that the Work Plan substantially address the requirements of the Brownfield Cleanup Agreement. The Work Plan is hereby approved.

The Department understands that the emerging contaminant groundwater samples will be collected in November 2019.

Thank you for your cooperation and please contact me at frank.sowers@dec.ny.gov or (585) 226-5357 if you have any questions.

Sincerely,

Frank Sowers, P.E
Region 8
Division of Environmental Remediation

ec:

B. Conlon	L. Zicari
B. Schilling	P. Morton
S. Bogardus	M. Valle
J. Deming	M. Cruden
A. Knauf	W. Silkworth
J. Frazer	

RAVI ENGINEERING & LAND SURVEYING, P.C.

June 25, 2019

Frank Sowers, P.E.
NYS Department of Environmental Conservation
6274 East Avon-Lima Road
Avon, New York 14414

Re: Draft Emerging Contaminants Sampling Work Plan
Former Former Vacuum Oil Refinery
5, 15 Flint Street
Site ID: C828162
Rochester, New York 14621

Dear Mr. Sowers:

Ravi Engineering & Land Surveying, P.C. (RE&LS) has prepared this draft Emerging Contaminants Sampling Work Plan (ECSWP) to conduct groundwater sampling for emerging contaminants at the Former Vacuum Oil Refinery Brownfield Cleanup Program (BCP) site. The ECSWP was prepared in response to the January 15, 2019 letter from the New York State Department of Environmental Conservation (DEC) regarding the Statewide evaluation of remediation sites to better understand the risk posed to New Yorkers by 1,4-dioxane and per- and polyfluoroalkyl substances (PFAS). The draft ECSWP identifies the groundwater monitoring wells proposed for sampling and the sampling methods.

Two existing groundwater monitoring wells representative of potential source areas of these emerging contaminants are proposed for sampling. MW-4 is proposed for sampling from the 5 Flint Street parcel, and MW-6 is proposed from 15 Flint Street; these wells are selected because they are outside of the area where we encountered light non-aqueous phase liquid (LNAPL) on top of groundwater in previous sampling events.

We also propose to sample MW-8 from the 15 Flint Street property, which is an upgradient well located on the higher elevation at the west side of the Site. Figure 1 indicates the proposed sampling locations.

Methodology

The groundwater samples will be collected using low-flow purging and sampling methodology. Clean polyethylene sheeting will be placed adjacent to the well to protect purging and sampling equipment from contamination. Organic vapors will be measured with a photoionizing detector (PID) when the well cap is removed, and the static water level in the well will be measured.

Prior to sampling, the well will be purged using a GeoTech peristaltic pump (or equivalent) and high density polyethylene (HDPE) and/or silicone tubing; new tubing will be used at each sample location. Water quality indicators (pH, temperature, turbidity, specific conductance, dissolved oxygen (DO) and oxidation-reduction

potential (ORP)) will be measured in five-minute increments with a Horiba U-52 Flow Cell (or equivalent) and the measurements will be recorded in the field. Samples will be collected when three consecutive water quality parameter readings are within the limits listed below.

Parameter	Limits
Turbidity	10% for values >5NTU
Dissolved Oxygen	10% for values >0.5 mg/L
Specific Conductance	3%
Temperature	3%
pH	±0.1 unit
Oxidation/Reduction Potential	±10 mV

Sampling Procedures

- An equipment blank will be collected prior to sample collection. Field quality control samples are described in the next section of this report.
- The PFAS sample jar will be filled first, followed by the 1,4-dioxane sampling jars. The samples will be placed in coolers and held on ice while the remainder of the samples is collected.
- Upgradient monitoring well MW-8 will be sampled first.
- The MW-6 and MW-4 samples will then be collected as described above. The remainder of the field quality control samples will then be collected.
- The samples will be transported to the laboratory by courier within 24 hours of collection.

To prevent cross-contamination, new disposable tubing will be used at each sample location. The sampler will wear non-powdered, disposable nitrile gloves while filling and sealing the sample bottles, and new nitrile gloves will be worn at each sample location, during equipment cleaning and decontamination, and while handling the media being sampled. Only “PFAS-free” water and Alconox will be used to decontaminate non-dedicated equipment that comes in contact with sample media.

Laboratory-provided ample containers, caps, coolers, labels, and chain-of-custody (COC) form will be utilized. Sample containers of samples requiring a preservative will be prepared by the laboratory before each sampling event. An effort will be made to ensure that sampling equipment and sample containers will not come in contact with aluminum foil, post-it notes, low density polyethylene (LDPE), glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including bottle cap liners with a PTFE layer; these materials will be prohibited from the sample collection staging area.

Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFC materials will be avoided. Handling of food and drink packaging materials, “plumbers thread seal tape,” waterproof field books, and permanent markers will be avoided.

Field Quality Control Samples

One equipment blank will be collected to monitor equipment cleanliness and decontamination procedures during field sampling. The equipment blank will be collected by pouring PFAS-free water over clean/decontaminated field equipment and supply tubing, and capturing the rinseate in a laboratory provided container.

One field duplicate sample will be collected to check on laboratory reproducibility, sampling technique, and sample variability. The duplicate sample will be coded so that the laboratory is not biased in performing the analyses.

One matrix spike/matrix spike duplicate (MS/MSD) sample will be collected to check on sample matrix effect and laboratory accuracy and precision. The ALS reporting limits for each of the TAL PFAS is attached.

PFAS Analysis

Samples will be analyzed for PFAS Target Analyte List (Table 1) by ALS by modified EPA Method 537. Reporting limits for PFOA and PFOS are not to exceed 2 nanograms per liter (ng/L). Samples will be analyzed by ALS; they are a laboratory holding ELAP certification for PFOA and PFOS in drinking water.

Table 1: PFAS Target Analyte List

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonates	**Perfluorobutanesulfonic acid** **Perfluorohexanesulfonic acid** Perfluoroheptanesulfonic acid **Perfluorooctanessulfonic acid** Perfluorodecanesulfonic acid	PFBS PFHx PFHpS PFOS PFDS	375-73-5 S 355-46-4 375-92-8 1763-23-1 335-77
Perfluoroalkyl carboxylates	Perfluorobutanoic acid Perfluoropentanoic acid Perfluorohexanoic acid **Perfluoroheptanoic acid** **Perfluorooctanoic acid** **Perfluorononanoic acid** Perfluorodecanoic acid Perfluoroundecanoic acid Perfluorododecanoic acid Perfluorotridecanoic acid Perfluorotetradecanoic acid	PFBA PFPeA PFHxA PFHpA PFOA PFNA PFDA PFUA/PFUdA PFDoA PFTriA/PFTrDA PFTA/PFTeDA	375-22-4\ 2706-90-3 307-24-4 375-85-9 335-67-1 375-95-1 335-76-2 2058-94-8 307-55-1 72629-94-8 376-06-7
Fluorinated Telomer Sulfonates	6:2 Fluorotelomer sulfonate 8:2 Fluorotelomer sulfonate	6:2 FTS 8:2 FTS	27619-97-2 39108-34-4
Perfluorooctane sulfonamides	Perfluroroctanesulfonamide	FOSA	754-91-6
Perfluorooctane sulfonamidoacetic acids	N-methyl perfluorooctanesulfonamidoacetic acid N-ethyl perfluorooctanesulfonamidoacetic acid	N-MeFOSAA N-EtFOSAA	2355-31-9 2991-50-6

1,4-Dioxane Analysis

Samples will be analyzed for 1,4-dioxane by EPA Method 8270 SIM. Reporting limits for 1,4-dioxane are not to exceed 0.35 µg/L.

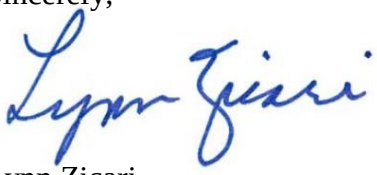
Reporting

The laboratory will generate NYSDEC Analytical Services Protocol (ASP) Category B data deliverable packages. The data will be validated by an independent data validator. A Data Usability Summary Report (DUSR) will be generated to confirm that the data meet the project specific criteria for data quality and data use. An electronic data deliverable (EDD) will be submitted electronically to the NYSDEC via the Environmental Information Management System (EIMS).

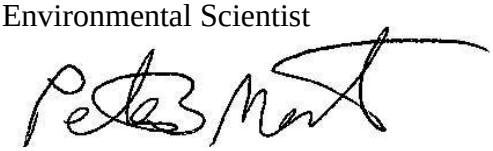
Schedule

We propose that sampling will take place in November 2019, and the results will be submitted in December 2019. This will allow for the dense seasonal vegetation to die off, allowing easier access for well sampling equipment.

Sincerely,



Lynn Zicari
Environmental Scientist



Peter S. Morton, P.G., C.P.G.
Project Manager

Figure 1: Proposed Sample Location Map

Attachment: ALS Reporting Limits

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An MBE/DBE Firm
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PROJECT MANAGER: P.M.

MAPPING BY: A.A.

MAP SCALE: 1" = 100'

PROJECT NAME:
5, 15 FLINT STREET
ROCHESTER, NEW YORK
BROWNFIELD CLEANUP PROGRAM
NYSDEC SITE #C828162

TITLE: PROPOSED PFAS SAMPLING

PROJECT NO: 45-14-003-0L

DATE: APRIL 2016

DRAWING NO: FIGURE 1

METHOD	DEFAULT PREP METHOD	ANALYTE	CAS No.	MATRIX	MDLa	MRL	UNITS
537 Mod - B-15 Compliant		Perfluorobutanoic acid (PFBA)	375-22-4	Water	0.22	5.0	ng/L
537 Mod - B-15 Compliant		Perfluoropentanoiic Acid (PFPeA)	2706-90-3	Water	1.6	5.0	ng/L
537 Mod - B-15 Compliant		Perfluorobutane sulfonic acid (PFBS)	375-73-5	Water	0.27	5.0	ng/L
537 Mod - B-15 Compliant		Perfluorohexanoic acid (PFHxA)	307-24-4	Water	8.9	20	ng/L
537 Mod - B-15 Compliant		Perfluoroheptanoic acid (PFHpA)	375-85-9	Water	0.68	5.0	ng/L
537 Mod - B-15 Compliant		Perfluorohexane sulfonic acid (PFHxS)	355-46-4	Water	0.77	5.0	ng/L
537 Mod - B-15 Compliant		Perfluorooctanoic acid (PFOA)	335-67-1	Water	0.38	2.0	ng/L
537 Mod - B-15 Compliant		Perfluorononanoic acid (PFNA)	375-95-1	Water	1.4	5.0	ng/L
537 Mod - B-15 Compliant		Perfluorooctane sulfonic acid (PFOS)	1763-23-1	Water	0.32	5.0	ng/L
537 Mod - B-15 Compliant		Perfluorodecanoic acid (PFDA)	335-76-2	Water	1.2	5.0	ng/L
537 Mod - B-15 Compliant		Perfluoroundecanoic acid (PFUnDA)	2058-94-8	Water	1.50	5.0	ng/L
537 Mod - B-15 Compliant		Perfluorodecane sulfonic acid (PFDS)	335-77-3	Water	0.87	5.0	ng/L
537 Mod - B-15 Compliant		Perfluorododecanoic acid (PFDoDA)	307-55-1	Water	1.2	5.0	ng/L
537 Mod - B-15 Compliant		Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	Water	0.46	5.0	ng/L
537 Mod - B-15 Compliant		Perfluorooctanesulfonamide (FOSA)	754-91-6	Water	0.59	5.0	ng/L
537 Mod - B-15 Compliant		Perfluorotridecanoic acid (PFTrDA)	72629-94-8	Water	1.9	5.0	ng/L
537 Mod - B-15 Compliant		Perfluorotetradecanoic acid (PFTeDA)	376-06-7	Water	2.4	5.0	ng/L
537 Mod - B-15 Compliant		N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	2355-31-9	Water	0.88	5.0	ng/L
537 Mod - B-15 Compliant		N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	2991-50-6	Water	0.94	5.0	ng/L
537 Mod - B-15 Compliant		6:2 Fluorotelomer sulfonic acid (6:2 FTS)	27619-97-2	Water	0.46	5.0	ng/L
537 Mod - B-15 Compliant		8:2 Fluorotelomer sulfonic acid (8:2 FTS)	39108-34-4	Water	0.25	5.0	ng/L

537 Mod	Perfluorobutanoic acid (PFBA)	375-22-4	Soil	0.39	1.0	ng/g
537 Mod	Perfluorobutane sulfonic acid (PFBS)	375-73-5	Soil	0.22	1.0	ng/g
537 Mod	Perfluoropentanoic acid (PFPeA)	2706-90-3	Soil	0.21	1.0	ng/g
537 Mod	Perfluorohexanoic acid (PFHxA)	307-24-4	Soil	0.31	1.0	ng/g
537 Mod	Perfluorohexane sulfonic acid (PFHxS)	355-46-4	Soil	0.30	1.0	ng/g
537 Mod	Perfluoroheptanoic acid (PFHpA)	375-85-9	Soil	0.19	1.0	ng/g
537 Mod	Perfluoroheptane sulfonic acid (PFHpS)	375-92-8	Soil	0.062	1.0	ng/g
537 Mod	Perfluorooctanoic acid (PFOA)	335-67-1	Soil	0.13	1.0	ng/g
537 Mod	Perfluorooctane sulfonic acid (PFOS)	1763-23-1	Soil	0.13	1.0	ng/g
537 Mod	Perfluorononanoic acid (PFNA)	375-95-1	Soil	0.33	1.0	ng/g
537 Mod	Perfluorodecanoic acid (PFDA)	335-76-2	Soil	0.26	1.0	ng/g
537 Mod	Perfluorodecane sulfonic acid (PFDS)	335-77-3	Soil	0.17	1.0	ng/g
537 Mod	Perfluoroundecanoic acid (PFUnDA)	2058-94-8	Soil	0.18	1.0	ng/g
537 Mod	Perfluorododecanoic acid (PFDoDA)	307-55-1	Soil	0.27	1.0	ng/g
537 Mod	Perfluorooctane sulfonamide (FOSA)	754-91-6	Soil	0.067	1.0	ng/g
537 Mod	Perfluorotridecanoic acid (PFTrDA)	72629-94-8	Soil	0.21	1.0	ng/g
537 Mod	Perfluorotetradecanoic acid (PFTeDA)	376-06-7	Soil	0.18	1.0	ng/g
537 Mod	N-Methyl perfluorooctane sulfonamidoacetic acid (MeFOSAA)	2355-31-9	Soil	0.27	1.0	ng/g
537 Mod	N-Ethyl perfluorooctane sulfonamidoacetic acid (EtFOSAA)	2991-50-6	Soil	0.20	1.0	ng/g
537 Mod	6:2 Fluorotelomersulfonic acid (6:2 FTS)	27619-97-2	Soil	0.15	1.0	ng/g
537 Mod	8:2 Fluorotelomersulfonic acid (8:2 FTS)	39108-34-4	Soil	0.029	1.0	ng/g