TENEN ENVIRONMENTAL

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June 8, 2018

New York State Department of Environmental Conservation
Division of Environmental Remediation
Remedial Bureau B
625 Broadway, 12th Floor
Albany, NY 12233-7016

Attn: Michael Komoroske

Re: Post-Remedial Sampling Plan
2103 Ralph Avenue – Brooklyn, NY
Block 8344, Lot 1 (portion)
BCP Site # C224205

Dear Mr. Komoroske:

Tenen Environmental, LLC (Tenen) has prepared this sampling plan to document post-remedial conditions and investigate emerging contaminants at the 2013 Ralph Avenue project. The plan includes sampling of indoor air, groundwater and soil vapor. The sampling will be completed in accordance with the approved Remedial Investigation Work Plan (RIWP), dated June 30, 2015. Sampling related to emerging contaminants was not included in the RIWP and additional information about sampling for these parameters is attached.

Background

On behalf of Georgetowne Center Brooklyn LLC (the Participant), Matthew M. Carroll, PE and Tenen have prepared a Remedial Investigation Report (RIR), a draft Interim Remedial Measures (IRM) Construction Completion Report (CCR) and a draft Alternatives Analysis (AA) for the above-referenced project. The draft IRM CCR detailed the removal of soil as F-listed hazardous waste and the installation of a sub-slab depressurization system (SSDS) and composite cover system.

Summary of Proposed Sampling

The following post-remedial and emerging contaminants-related sampling will be completed:

1. Indoor air sampling will be completed in the two units in which the SSDS was installed (the Site and an adjoining unit). Sampling will be completed in accordance with Section 3.2 of the RIWP.
2. Emerging contaminants will be sampled from three existing monitoring wells; one upgradient of the Site, one immediately downgradient of the Site and one further downgradient of the Site. Sampling will be completed in accordance with the February 2018 Groundwater Sampling for Emerging Contaminants guidance by the Department and Section 3.3 of the RIWP.
3. The RIR documented that tetrachloroethene (PCE) was detected in two of four downgradient, exterior soil vapor points installed by Tenen, at a maximum concentration of 6.92 micrograms per cubic meter (ug/m3). Previous downgradient, exterior sampling by others documented PCE in soil vapor downgradient of the Site. At soil vapor point SG-4, in the area of off-site property 1201 East 68th Street, PCE was detected at a concentration of 252 micrograms per cubic meter (ug/m3). If access to the property can be arranged, paired sub-slab soil vapor and indoor air samples will be collected from one location. If access cannot be arranged, exterior soil vapor samples will be collected from three locations.

Indoor Air Sampling

General Sampling Methodology
All samples will be collected in accordance with the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH, October 2006). An Indoor Air Quality Questionnaire and Building Inventory (Appendix B, NYSDOH Guidance) will be completed for each unit tested. Samples will be collected in accordance with the Quality Assurance Project Plan (QAPP).

The indoor air and ambient air samples will be collected from breathing height. The sampling flow rate will not exceed 0.2 liters per minute (L/min). Sampling will occur for a duration of eight hours to analyze the commercial exposure at these locations. Samples will be analyzed for TO-15 volatile organic compounds (VOCs).

Groundwater Sampling

General Sampling Methodology
All samples will be collected from existing monitoring wells MW-2, MW-5 and MW-6. Samples will be collected using low-flow techniques in accordance with EPA Region 1 Low-Stress (Low-Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells. (EQASOP-GW 001 Revision 3 dated July 30, 1996 Revised: January 19, 2010). All groundwater samples will be analyzed for 1,4-dioxane and perfluoroalkyl acids (PFAAs). Samples will be collected in accordance with the Quality Assurance Project Plan (QAPP) and the attached EPA 537 Field Sampling Guidelines.

The samples will be analyzed by EPA Methods 537 and 8270D SIM. The method detection limit (MDL) will be less than 2 nanograms per liter (ng/L) for PFAAs.

Soil Vapor Sampling

If access to the 1201 East 68th Street property can be arranged, paired sub-slab soil vapor and indoor air samples will be collected from one location. If access cannot be arranged, exterior soil vapor samples will be collected from three locations: SG-4, SG-10 and SG-11.

General Sub-Slab Soil Vapor and Indoor Air Sampling Methodology
Sub-slab soil vapor, indoor air and ambient air samples will be collected in accordance with the NYSDOH Soil Vapor Guidance. One sub-slab soil vapor sample will be collected from underneath the existing foundation slab of the 1201 East 68th Street building.

A temporary sub-slab soil vapor point will be installed using a hand-held hammer drill with a concrete drill bit. The drill bit will be extended less than two inches below the floor slab. A tracer gas (helium) will be used in accordance with the NYSDOH protocols to verify the integrity of the soil vapor probe seal. The indoor air and ambient air samples will be collected from breathing height. The sampling flow rate will not exceed 0.2 L/min. Sampling will occur for a duration of 24 hours to analyze the residential exposure at this location. Samples will be analyzed for TO-15 VOCs.

General Exterior Soil Vapor Sampling Methodology
If access to the 1201 East 68th Street property is not possible, exterior soil vapor and ambient air samples will be collected in accordance with the NYSDOH Soil Vapor Guidance. Soil vapor samples will be collected from soil vapor probes SG-4, SG-10 and SG-11; the probe at location SG-4 will be re-installed, the other two locations are existing probes.

A hand-held hammer drill will be used to install the exterior soil vapor sampling probe. The drill bit will be extended less than two inches below the sidewalk. The only proposed deviation from the RIWP is that the probe will be installed with a Gas Vapor Probe (GVP) Kit manufactured by AMS, Inc. A tracer gas (helium) will be used in accordance with the NYSDOH protocols to verify the integrity of the soil vapor probe seal. The ambient air sample will be collected from breathing height. The sampling flow rate will not exceed 0.2 L/min. Sampling will occur for a duration of eight hours to analyze the residential exposure at this location; given the exterior location, a 24 hour duration is not proposed. Samples will be analyzed for TO-15 VOCs.

Sample Analysis and Reporting

The samples were sent under chain-of-custody documentation to Alpha Analytical, Inc. (Alpha). Alpha is certified by the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) as LABIDs 11148 and 11627. Groundwater samples will be analyzed for 1,4-dioxane and PFAAs. All soil vapor, indoor air and ambient air samples will be analyzed for TO-15 VOCs.

Quality assurance and quality control samples will be collected in accordance with the RIWP, including the Quality Assurance Project Plan (QAPP).

A letter report documenting the post-remedial conditions will be provided.

Sincerely,
Tenen Environmental, LLC

Matthew M. Carroll, PE
Principal / Environmental Engineer

Attachment 1: Proposed Sample Locations
Attachment 2: EPA 537 Field Sampling Guidelines

Attachment 1
Proposed Sample Locations

2095 Ralph Avenue

2097 Ralph Avenue

2099 Ralph Avenue

2103 Ralph Avenue (Site)

2109 Ralph Avenue

PR-IA-2
(in open area)

BANCO POPULAR

EXTENTS OF COMPOSITE COVER
(CONCRETE SLAB AND VAPOR BARRIER)

JOYCE LESLIE

PR-IA-1
(in office space)

Avenue L

0 10' 20' 40'
Drawing Scale

CLIENT
2103 Ralph Avenue
Brooklyn, New York 11234
BCP Site #C224205

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DRAWN BY: LM
CHECKED BY: MC
DATE: June 2018
SCALE: As Noted

DRAWING TITLE:
Proposed Indoor Air Sample Locations

DRAWING NO.
Figure 1

LEGEND

Monitoring Well

Groundwater Contour
(10/14/2016 Sampling Event)

Groundwater Flow Direction

Georgetown Shopping Center

Parking Lot

2097 Ralph Avenue | 2099 Ralph Avenue | 2103 Ralph Avenue | 2109 Ralph Avenue | 2115 Ralph Avenue | 2117 Ralph Avenue

2095 Ralph Avenue

MW-5

Sample for Emerging Contaminants

VACANT | GK JEANS | PEARL VISION | JOYCE LESLIE | LIQUOR STORE | DRESS BARN

Offices

Bank Tellers

BANCO POPULAR

Offices

BR

Offices/Kitchen

Storage

Banking Safe

BR | BR | Offices | BR | Storage | Dressing Room | Storage

MW-4 1.43

1.52

MW-2

1.04 MW-3

1.61 MW-1

MW-7

SIDEWALK

-1.50

1.25

1.00

0.75

-0.50

0.25

Avenue L

MW-6 0.05

Sample for Emerging Contaminants

6624 Avenue L | 6628 Avenue L | 6632 Avenue L

E 68th Street

1201 East 68th Street

1205 East 68th Street

1207 East 68th Street

1211 East 68th Street

E 69th Street

0 20' 40' 80'

Drawing Scale

CLIENT

Georgetown Shopping Center
2103 Ralph Avenue
Brooklyn, New York 11234

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LM	MC	June 2018	As Noted

DRAWING TITLE: Proposed Groundwater Sample Locations

DRAWING NO. Figure 2

LEGEND

- Sub-Slab Vapor Point
- Indoor / Ambient / Outdoor Air Sample Location
- Soil Vapor / Gas Point

NOTES:

- Identifiers in Red Signify RI Sampling Locations
- Identifiers in Black Signify Prior Sampling Locations
- Prior Sampling Completed Re:
  - -- Supplemental Subsurface Investigation, Impact Environmental, August 10, 2014.
  - -- Subsurface Investigation, Roux Associates, May 29, 2014.
- Previous Concentrations of Tetrachloroethene (PCE) are shown for Prior Sampling Locations

Georgetown Shopping Center
Parking Lot

Ralph Avenue
2095 Ralph Avenue
2097 Ralph Avenue
2099 Ralph Avenue
2103 Ralph Avenue
2109 Ralph Avenue
2115 Ralph Avenue
2117 Ralph Avenue

Ambient

SSV-CMD2
VACANT
SSV-BP1
Offices
IA-CMD2
61.2 ug/m³
IA-CMD3
SSV-CMD3
IA-CMD1
36.7 ug/m³
SSV-CMD1
80.7 ug/m³
BANCO POPULAR
SSV-BP2
IA-BP
Bank Tellers
Offices
BR
Offices/Kitchen
Banking Safe
Storage

SSV-GK2
294 ug/m³
GK JEANS
IA-GK
54.4 ug/m³
SSV-GK1
271 ug/m³
BR
Offices

IA-PV4
SV-PV4
SSV-PV2
936 ug/m³
PEARL VISION
IA-PV
123 ug/m³
SSV-PV1
2,010 ug/m³
IA-PV3
SV-PV3
SV083013
BR

SSV J21
IA J22
JOYCE LESLIE
Storage
SSV-JL3
IA JL1
Dressing Room
SSV-JL4
Storage

LIQUOR STORE
DRESS BARN

SG-1
140 ug/m³
SG-2
218 ug/m³
SG-5
12,100 ug/m³
OA-AVEL
0.909 ug/m³
SG-6
102 ug/m³
SG-7
SG-12
SIDEWALK

Avenue L

SG-3
22.6 ug/m³
SG-8
SG-9
A-1
SG-4
252 ug/m³
SG-10
SG-11

6624 Avenue L
6628 Avenue L
6632 Avenue L
E 68th Street
E 69th Street

1201 East 68th Street
1205 East 68th Street
1207 East 68th Street
1211 East 68th Street

Alternate Soil Vapor Sample Location

Alternate Soil Vapor Sample Location

Alternate Soil Vapor Sample Location

Proposed Sub-Slab Soil Vapor and Indoor Air Sample Location

0 20' 40' 80'
Drawing Scale

Rev. 11/8/16 Per NYSDEC Comments

CLIENT
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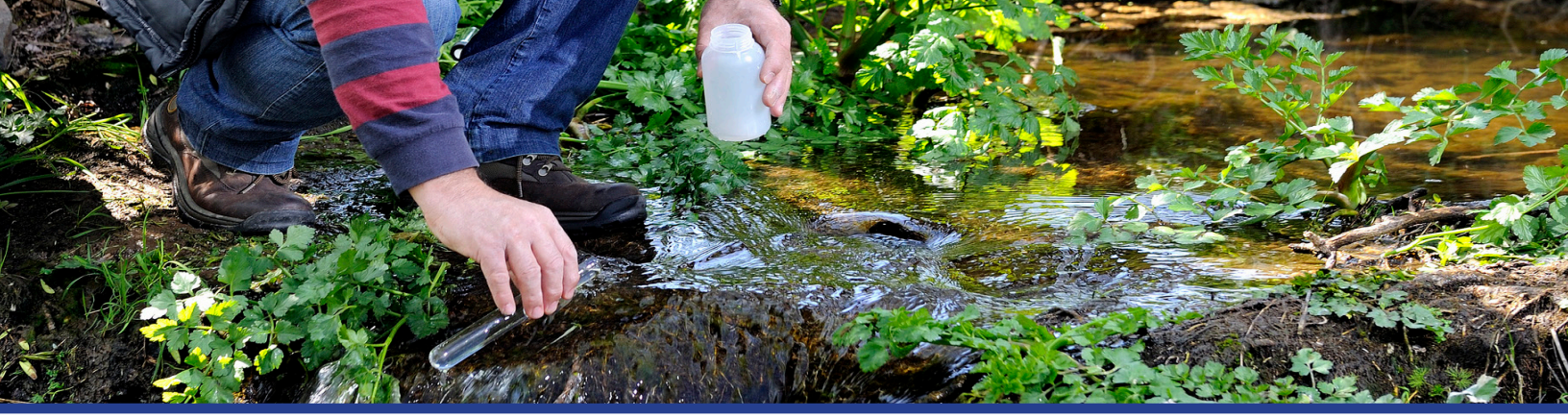
DRAWING TITLE: Proposed Soil Vapor Sample Locations

DRAWING NO.: Figure 3

Attachment 2
EPA 537 Field Sampling Guidelines



EPA 537 (PFAS) Field Sampling Guidelines

PLEASE READ INSTRUCTIONS ENTIRELY PRIOR TO SAMPLING EVENT

Sampling for PFAS via EPA 537 can be challenging due to the prevalence of these compounds in consumer products. The following guidelines are strongly recommended when conducting sampling.

Reference-NHDES https://www.des.nh.gov/organization/divisions/waste/hwrb/documents/pfc-stakeholder-notification-20161122.pdf

FIELD CLOTHING and PPE

- No clothing or boots containing Gore-Tex®
- All safety boots made from polyurethane and PVC
- No materials containing Tyvek®
- Do not use fabric softener on clothing to be worn in field
- Do not used cosmetics, moisturizers, hand cream, or other related products the morning of sampling
- Do not use unauthorized sunscreen or insect repellant (see reference above for acceptable products)

FOOD CONSIDERATIONS

No food or drink on-site with exception of bottled water and/or hydration drinks (i.e., Gatorade and Powerade) that is available for consumption only in the staging area

OTHER RECOMMENDATIONS

Sample for PFAS first! Other containers for other methods may have PFAS present on their sampling containers

SAMPLE CONTAINERS

- All sample containers made of HDPE or polypropylene
- Caps are unlined and made of HDPE or polypropylene (no Teflon® -lined caps)

WET WEATHER (AS APPLICABLE)

Wet weather gear made of polyurethane and PVC only

EQUIPMENT DECONTAMINATION

- "PFAS-free" water on-site for decontamination of sample equipment. No other water sources to be used
- Only Alconox and Liquinox can be used as decontamination materials

FIELD EQUIPMENT

- Must not contain Teflon® (aka PTFE) or LDPE materials
- All sampling materials must be made from stainless steel, HDPE, acetate, silicon, or polypropylene
- No waterproof field books can be used
- No plastic clipboards, binders, or spiral hard cover notebooks can be used
- No adhesives (i.e. Post-It® Notes) can be used
- Sharpies and permanent markers not allowed; regular ball point pens are acceptable
- Aluminum foil must not be used
- Keep PFC samples in separate cooler, away from sampling containers that may contain PFAS
- Coolers filled with regular ice only - Do not use chemical (blue) ice packs

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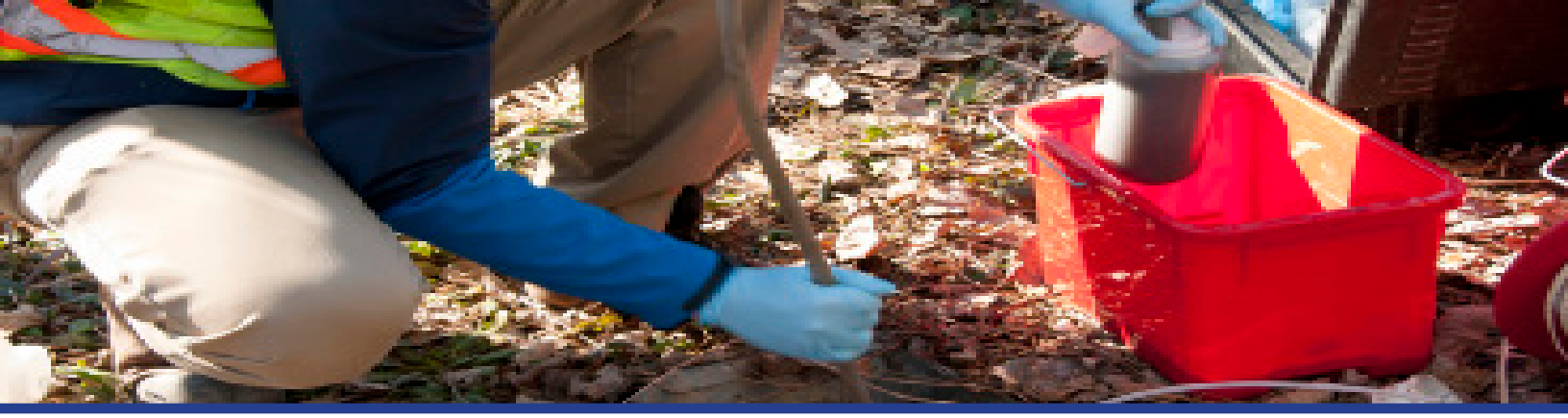


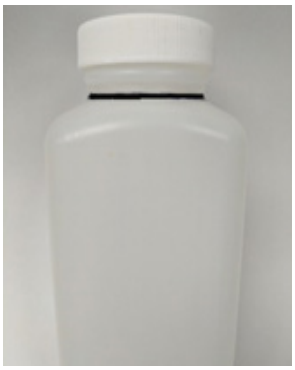
EPA 537 (PFAS) Field Sampling Guidelines

PLEASE READ INSTRUCTIONS ENTIRELY PRIOR TO SAMPLING EVENT

Sampler must wash hands before wearing nitrile gloves in order to limit contamination during sampling. Each sample set requires a set of containers to comply with the method as indicated below. **Sample set is composed of samples collected from the same sample site and at the same time.*

Container Count	Container Type	Preservative
3 Sampling Containers - Empty	250 mL container	Pre preserved with 1.25 g Trizma
1 Reagent Water for Field Blank use	250 mL container	Pre preserved with 1.25 g Trizma
P1 Field Blank (FRB) - Empty	250 mL container	Unpreserved

Sampling container must be filled to the neck. For instructional purposes a black line has been drawn to illustrate the required fill level for each of the 3 Sample containers



Field blanks are recommended and the containers have been provided, please follow the instructions below.

Field Blank Instructions:

1. Locate the Reagent Water container from the bottle order. The Reagent Water container will be pre-filled with PFAS-free water and is preserved with Trizma.
2. Locate the empty container labeled "Field Blank".
3. Open both containers and proceed to transfer contents of the "Reagent Water" container into the "Field Blank" container.
4. If field blanks are to be analyzed, they need to be noted on COC, and will be billed accordingly as a sample.

Both the empty Reagent Water container and the filled Field Blank container must be returned to the lab along with the samples taken.

Sampling Instructions:

1. Each sampling event requires 3 containers to be filled to the neck of the provided containers for each sampling location.
2. Before sampling, remove faucet aerator, run water for 5 min, slow water to flow of pencil to avoid splashing and fill sample containers to neck of container (as previously illustrated) and invert 5 times.
3. Do not overfill or rinse the container.
4. Close containers securely. Place containers in sealed ZipLoc® bags, and in a separate cooler (no other container types).
5. Ensure Chain-of-Custody and all labels on containers contain required information. Place sample, Field Blank and empty Reagent Blank containers in ice filled cooler (do not use blue ice) and return to the laboratory. Samples should be kept at 4°C ±2. Samples must not exceed 10°C during first 48 hours after collection. Hold time is 14 days.

Please contact your Alpha Analytical project manager with additional questions or concerns.

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