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26 June 2019

MEMORANDUM

TO: Payson Long, NYSDEC

FROM: Megan Miller, E.I.T.

SUBJECT: Letter Work Plan
Suffolk County Water Authority Production Well Sampling
National Heatset Printing Site
1 Adams Boulevard
Babylon, New York
Contract/WA No: D007624-16

EA Engineering, P.C., and its affiliate EA Science and Technology (EA) were tasked by the New York State Department of Environmental Conservation (NYSDEC) under Work Assignment Number (No.) D007624-16 to perform site management activities at the National Heatset Printing Co. State Superfund Site (Site). Activities performed by EA include: Operation and Maintenance (O&M) of the soil vapor extraction (SVE) system, onsite density-driven convection (DDC) systems, and offsite DDC system; remedial system optimization (RSO); and reporting. Routine groundwater sampling is currently performed by EA during quarterly groundwater monitoring events at the onsite and offsite treatment systems, and samples are analyzed via U.S. Environmental Protection Agency (EPA) Method 8260 by Hampton-Clarke. At the request of NYSDEC, EA also sampled select onsite and offsite wells in 2018 for emerging contaminants. Samples analyzed for 1,4-dioxane were submitted to Hampton-Clarke and per- and polyfluorinated alkyl substances (PFAS) samples were analyzed by Con-Test Analytical Laboratories.

NYSDEC has requested that EA sample public water supply wells in the vicinity of Site for PFAS and 1,4-dioxane in Spring 2019. EA has prepared this memorandum to serve as a Letter Work Plan for the sampling of Suffolk County Water Authority production wells within a 0.5-mile radius of the onsite and offsite treatment systems.

SITE DESCRIPTION

The National Heatset Printing Co. Site is currently a Class 2 Site listed on the NYSDEC Registry of Inactive Hazardous Waste Sites (Site No. 152140). The Site is located at 1 Adams Boulevard in the Hamlet of Farmingdale, Town of Babylon, Suffolk County, New York, and is identified as Block 1.00 and Lot 20.001 on the Town of Babylon Tax Map No. 132.20-1-3.2. A site location map is provided in **Figure 1**. The Site is currently owned by 1 Adams Boulevard Realty Corporation, managed by Finklestein Realty and leased by various tenants. The Site contains one 90,000 square foot warehouse on a 4.5-acre lot. The site is in an industrial area and is bounded by

railroad tracks to the north, Adams Boulevard and an industrial property to the south, an industrial property to the east, and an industrial property to the west.

TASK – GROUNDWATER SAMPLING

Samples will be collected from water supply wells in the vicinity of the Site in order to obtain samples representative of the aquifer in that location. Suffolk County Water Authority (SCWA) production wells within a 0.5-mile radius of the onsite and offsite treatment systems are provided in **Table 1** and included on **Figure 2**.

Table 1 Potable Supply Wells

Well Field Location	Production Well Identification	Proximity to which System
New Highway Pump Station and Tank Site	Well No. 1 S-66556 Well No. 2 S-79105	Onsite Systems
Great Neck Road Well Field and Pump Station	Well No. 1 S-51214 Well No. 3 S-115444 Well No. 4 S-134519	Offsite System
Albany Avenue Well Field, Pump Station & Elevated Tank	Well No. 4A S-111004 Well No. 5A S-132042 Well No. 6 S-63205	Offsite System

EA will be sampling wells at the Albany Avenue Pump Station near the offsite system. The two SCWA wells located at the New Highway Pump Station are out-of-service and will not be sampled.[1] EA was informed through correspondence with SCWA that the New Highway production wells have been out-of-service for a few years. The wells located at the Great Neck Road Well Field and Pump Station are being sampled for emerging contaminants under a separate NYSDEC site; additional samples are not required.

SCWA production wells will be sampled from a dedicated sampling tap. Production well sampling will include well purging, field water quality measurements, and sample collection at each well. Groundwater samples will be analyzed via EPA Method 537 by Contest Laboratories of East Longmeadow, Massachusetts, and analyzed via EPA Method 8260C SIM by Hampton-Clarke of Fairfield, New Jersey.

Production Well Sample Collection

Samples will be collected as outlined in the Standard Operating Procedure (SOP) Number 014, Collection of Production Well Samples and Number 073, Sampling for Per- and Polyfluorinated Alkyl Substances (included in Attachment A).

Sampling will be performed with the following equipment:

- Water quality meter with turbidity and flow through cell

[1] Through correspondence with SCWA on 10 May 2019, EA was informed that the New Highway Production wells have been out-of-service for several years.

- High-density polyethylene sample bottles prepared with preservative prior to mobilization by laboratory.

At the water supply wells, samples will be collected at a sampling valve (spigot). The valve will be opened and allowed to purge for 5 minutes. The sample will be collected after the 5-minute purge with one set of groundwater quality readings collected immediately after sampling.

PFAS Considerations

Due to the high sensitivity of these parameters and the potential sources of trace levels of PFAS, several precautions are to be taken to reduce the risk of false detections within samples as per SOP 073.

The following general preparations shall be taken prior to and during water sampling.

Food Considerations:

- Field personnel are to avoid the use of paper bags, paper packaging, aluminum foil, and coated paper packaging or coated textiles to be in contact with food products.
- Avoided eating any fried foods.
- Avoid eating snacks or meals within the immediate vicinity of the monitoring wells or inside the vehicle.
- Remove gloves prior to eating.
- Eat downwind of the well locations, if necessary.

Field Gear:

- Field personnel are to avoid plastic coating or glued materials, waterproof field books/paper, pens and sharpie markers. The use of aluminum clipboards is allowed with loose leaf paper.
- Wear disposable nitrile gloves at all times and change them frequently.
- Do not wear water resistant, waterproof, or stain-treated clothing. Field clothing is to be laundered with minimal use of soap and no fabric softeners or scented products shall be used. Clothing shall be rinsed with water after the initial cleaning.

Personal Hygiene:

- Field personnel shall not use shampoo, conditioner, hand cream, etc. as part of their personal cleaning/showering routine on the day of the sampling event. A shower the night before the sampling event, or a rinse with water the day of is acceptable.

- Moisturizers, cosmetics, sunscreen or insect repellent are not to be used throughout the duration of the sampling event.

- Handwashing with soap is allowed and the field personnel allowed extra rinsing time with water after use of soap.

Quality Assurance Samples

Field duplicates will be collected at a rate of 1 per 20 samples from parent sampling locations. Sample containers for duplicates will identified in a manner that they cannot be identified as duplicate samples by laboratory personnel.

Trip blanks are used to assess potential introduction of contaminant from sample containers or during transportation and storage. Trip blanks will be prepared by Hampton-Clarke and shall accompany each cooler of samples sent to the laboratory for analysis.

Field blanks are used to assess potential introduction of contaminants from the field atmosphere. Field blanks will be collected each day of sampling and sent to the laboratory for analysis.

If you have any questions or require additional information, please do not hesitate to contact Megan Miller at 315-565-6557.

MEM/dml

Attachments

cc: R. Casey (EA)
D. Conan (EA)
J. Hayward (EA)

Figures

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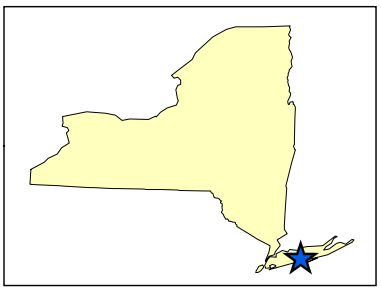

0 0.5 1 2
Miles

1 inch = 1.5 miles

N

Legend

★ Site Location

Figure 1
SITE LOCATION MAP
NATIONAL HEATSET SITE (152140)
BABYLON, NEW YORK
SUFFOLK COUNTY

Map Date: 4/19/2018
Source: ESRI, 2011

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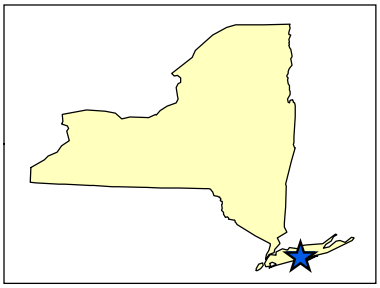

Legend

- Suffolk County Water Authority Wells
- Suffolk County Water Authority Property
- National Heatset Printing, Onsite Monitoring Wells
- National Heatset Printing, Offsite Monitoring Wells
- Site Location

0 375 750 1,500
Feet

N

Figure 2
SUFFOLK COUNTY WELL LOCATIONS
NATIONAL HEATSET SITE (152140)
BABYLON, NEW YORK
SUFFOLK COUNTY

Map Date: 6/25/2019
Source: ESRI, 2011

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Attachment A

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Standard Operating Procedure No. 014
for
Collection of Production Well Samples

Prepared by

EA Engineering, Science, and Technology, Inc., PBC
225 Schilling Circle, Suite 400
Hunt Valley, Maryland 21031

Revision: 1
January 2019

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PROJECT-SPECIFIC VARIANCE FORM

This form is to be completed to indicate if there are any client-, project-, or site-specific variances to this Standard Operating Procedure (SOP) (**also check Box A**), or if this SOP is being used with no changes (**only check Box B**).

☐ **A. Variances required; cite section(s) of the SOP to which there is a variance**

☐ **B. No variances**

SOP No. 014	
SOP Section	**Variance**

Project Manager (Name)

Project Manager (Signature) Date

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CONTENTS

DOCUMENT REVISION HISTORY

ORIGINAL (MASTER) DOCUMENT REVISION HISTORY				
Revision Number	**Revision Date**	**Revision Summary**	**Revised By**	**Reviewed By**
1	1/23/2019	Systematic update and review	Jason Stroup, Scott Dobson	Matthew Bowman

1. SCOPE AND APPLICATION

The purpose of this Standard Operating Procedure (SOP) is to delineate protocols for the collection of groundwater samples from production wells. This protocol will allow for collection of samples from both active and inactive production wells (Section 3).

2. MATERIALS

The following equipment may be required:

Conductivity meter	pH meter
Dissolved oxygen meter	Sample bottles and labels
Logbook or field parameter form	Temperature meter
Oxidation-reduction potential probe	Turbidity meter

3. PROCEDURE

Upon arrival at the well site, sampling personnel should immediately don personal protective equipment required of the project, followed by setting up the sampling equipment and organizing supplies. If needed, due to muddy or contaminated ground and/or remoteness from sampling vehicle, place plastic sheeting at or around the sampling location as conditions warrant. Exercise caution not to step on and contaminate the sheeting.

If the well is remote from the sampling vehicle, set up the filtration equipment and place sample containers on the plastic sheet, uphill of the sampling location.

If a pump is to be used for filtration, situate the portable generator on level ground approximately 15 feet away from and downwind from the sampling location. All generator maintenance (oil and fueling) is to be performed offsite.

If the well is currently in use, as close as possible to the well, open a tap to a high enough flow rate that the pressure tank will drain so that the pump will come on during the purge. Allow the well to purge for approximately 3-5 minutes before taking parameter readings so that fresh groundwater is now circulating through the tank and piping system.

Purging may be accomplished through a garden hose or similar hose long enough to prevent ponding inside the well house or around the pumping and electrical equipment, when possible.

During purge time, field personnel should check to determine the type of containers for analysis, required volume, field quality control, and laboratory quality control needed per sampling location.

Obtain a sample of groundwater for temperature, conductivity, oxidation reduction potential, dissolved oxygen, turbidity, and pH measurements. Record values in the sampling logbook.

Take samples for physical stabilization (water quality) parameters every 5 minutes during the well purging process.

Allow the well to purge until the water quality parameters of pH, temperature, conductivity, turbidity, oxidation reduction potential, and dissolved oxygen measurements stabilize within 10 percent in three consecutive 5-minute sampling periods; purging will be considered complete and sampling may proceed. Slow water flow rate to a trickle.

Any hose that was used for purging and to collect parameter readings should be removed and NOT used to collect the sample.

For procedures for collecting samples, refer to SOP No. 013.

Before departing the sampling location, make sure the field form has been completed with the necessary information (e.g., location address, property/business owner contact information, types of analyzes collected, etc.). A field map should be completed illustrating the well location, storage tanks, filtration equipment, piping, and location of spigot or tap where the sample was collected. The sampling area should be examined before leaving to determine that the sampling tap is off, any trash or supplies have been picked up, all doors are closed, and the area is left as it was upon arrival.

If the well is not currently in use, use a pump and bailer, or low-flow pump for sampling. Refer to SOP No. 013 for purging and sampling protocol. Decontaminate equipment. Refer also to SOP Nos. 001, 002, 004, 005, 013, and 016.

4. MAINTENANCE

Not applicable.

5. PRECAUTIONS

Not applicable.

6. REFERENCES

Not applicable.

Standard Operating Procedure No. 073
for
Sampling for Per- and Polyfluorinated Alkyl Substances

Prepared by

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Revision 0
January 2019

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PROJECT-SPECIFIC VARIANCE FORM

This form is to be completed to indicate if there are client-, project-, or site-specific variances to this Standard Operating Procedure (SOP) (**check Box A**), or if this SOP is being used with no changes (**check Box B**). This form should be archived with the project files.

☐ **A. Variances required; cite section(s) of the SOP to which there is a variance**

☐ **B. No variances**

SOP No. 073	
SOP Section	**Variance**

Project Manager (Name)

Project Manager (Signature) Date

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CONTENTS

DOCUMENT REVISION HISTORY

ORIGINAL (MASTER) DOCUMENT REVISION HISTORY				
Revision Number	**Revision Date**	**Revision Summary**	**Revised By**	**Reviewed By**

1. SCOPE AND APPLICATION

The objective of this Standard Operating Procedure (SOP) is to delineate protocols for collecting environmental samples for analysis of per- and polyfluorinated alkyl substances (PFAS), also known generally as perfluoroalkyl compounds or chemicals (PFCs).

This SOP includes sampling procedures and requirements specific to analysis of PFAS, which are ubiquitous and have a high potential for cross-contamination from common consumer products and sampling materials, even when new and clean. This SOP should be used in combination with appropriate SOPs applicable to the target medium and sampling methodology (e.g., but not limited to SOP No. 007 Surface Water Sampling, SOP No. 013 Collection of Monitoring Well Samples, SOP No. 21 Sediment Sampling, SOP No. 25 Soil Sampling, or SOP No. 047 Direct-Push Technology Sampling).

This SOP was developed primarily based on guidance from the U.S. Army Corps of Engineers (2016) and the Interstate Technology Regulatory Council (ITRC 2018).

2. ACCEPTABLE MATERIALS

Table 1 provides a summary of Prohibited Items that should NOT be used or present during sampling for PFAS because they may contain PFAS, along with Acceptable (PFAS-free) Alternatives that may be used if appropriate for project requirements. In general, in the context of sampling events, PFAS are commonly found in waterproof and nonstick materials (including food packaging, rain gear, and anything containing Teflon®), personal care products, and certain plastics (e.g., low-density polyethylene [LDPE]) and synthetic fibers.

Table 1. Prohibited Items and Acceptable Alternatives for Use during PFAS Sampling

Prohibited Items	Acceptable Alternatives
Field Equipment	
Teflon-containing or LDPE materials (including tubing, bailers, tape)	HDPE or silicone materials
Waterproof field books, plastic clipboards, binders, or spiral hard cover notebooks	Loose paper (non-waterproof) on aluminum or Masonite clipboards
Sharpies®/markers, waterproof pens	Non-waterproof pens or pencils
Sticky notes (e.g., Post-It®) and glues	Not applicable
Re-usable chemical (blue) ice packs	Regular ice in polyethylene bags (double bagged)
Aluminum foil	Thin HDPE sheeting
Plastic spoons used in soil/sediment sampling	Stainless steel trowels/spoons
Reusable core liners	Single-use PVC or acetate liners
LDPE HydraSleeve	HDPE HydraSleeve
Field Clothing and Personal Protective Equipment	
New cotton clothing; synthetic water resistant, waterproof, or stain- treated clothing; clothing containing Gore-Tex™	Well-laundered clothing, defined as clothing that has been washed 6 or more times after purchase, made of natural fibers (preferably cotton)
Clothing laundered using fabric softener	No fabric softener
Boots (e.g., steel-toed or waders) containing Gore-Tex™ or waterproof coatings	Boots made with polyurethane or PVC with no waterproof coating

Prohibited Items	Acceptable Alternatives
Coated Tyvek® suits	Uncoated/plain Tyvek suits not containing PFAS
Cosmetics, shampoo, conditioner, body gel, moisturizers, hand cream, waxed dental floss, or other personal care products used on the day of sampling.	Use bar soap not containing moisturizers and rinse well on the day of sampling (including for hand washing). Use any other required products the night before (rather than the day of) sampling.
Paper towels	Air dryers (for hand drying)
No sunscreens or insect repellents except approved 100% natural products such as those noted in the Alternatives column.	**Acceptable Sunscreens:** Alba Organics Natural Sunscreen, Yes To Cucumbers, Aubrey Organics, Jason Natural Sun Block, Kiss My Face, "free" or "natural" sunscreens for babies **Acceptable Insect Repellents:** Jason Natural Quit Bugging Me, Repel Lemon Eucalyptus Insect Repellant, Herbal Armor, California Baby
Sample Containers	
LDPE or glass containers	HDPE containers (or polypropylene if required)
Teflon-lined caps	Unlined HDPE (or polypropylene if required) caps
Rain Events	
Rain gear that has been treated to make it waterproof/resistant and breathable (e.g., Gore-Tex™ treated)	PVC or polyurethane- or wax-coated rain gear that is confirmed not to contain PFAS, or utilize a gazebo tent that is only touched or moved prior to and following sampling activities.
Equipment Decontamination	
Decon 90	Alconox®, Liquinox® and/or Citranox®
Water from an onsite well	Potable water from municipal drinking water supply (not containing PFAS), and "PFAS-free" deionized water for final rinse
Food Considerations	
All food and drink, with exceptions noted in the Alternatives column. Paper food packaging (e.g., fast food wrappers, drink cups, paper bags) and foil, in particular, often contain PFAS.	Bottled water and hydration drinks (i.e., Gatorade® and Powerade®) to be brought and consumed only in the staging area
NOTES: HDPE = High-density polyethylene. PVC = Polyvinyl chloride.	

If a plastic product or chemical not included in the Acceptable Alternatives column of Table 1 is proposed for use, it is recommended that Safety Data Sheets and other references be reviewed prior to use to confirm that the material does not contain PFAS. Indications of potential PFAS ingredients, in addition to the items listed in Table 1, include the following materials (ITRC 2018):

- Polytetrafluoroethylene (fluorocarbon solids such as Teflon)
- Fluorinated ethylene propylene
- Ethylene tetrafluoroethylene
- Polyvinylidene fluoride
- Generally, any other ingredient names containing the prefix "fluoro."

3. PROCEDURES

As stated above, this SOP includes procedures specific to analysis of PFAS, and should be used in combination with the appropriate SOPs applicable to the target medium and sampling methodology.

3.1 GENERAL CONSIDERATIONS

Materials listed in the Prohibited Items column of Table 1 and other materials containing PFAS ingredients should not be used. However, in some cases, these materials must be used due to factors outside the control of the scope of the work or utility of the project team (e.g., health and safety requirements where other hazardous chemicals are present, or where the sampling requirements are prescriptive, unexpected, or time-sensitive). In these cases, the sampling team should purge/rinse equipment adequately with PFAS-free water where available, and collect additional quality control samples (Section 3.7) to assess the degree of cross-contamination associated with the use of known or suspected PFAS-containing materials during sampling.

NOTE: Most steel-toed boots are made from coated leather and synthetic fibers. PVC or polyurethane are preferred PFAS-free materials for boots. If not possible to obtain PFAS-free footwear that comply with specified health and safety requirements for personal protective equipment, then field personnel should minimize contact with footwear while in the sampling area, and always change gloves after touching footwear.

Disposable nitrile gloves shall be worn at all times during PFAS sampling activities. A new pair of nitrile gloves shall be donned after contacting potential contaminants including all non-decontaminated surfaces. New gloves shall also be donned before touching containers used for storage of PFAS samples, decontaminating re-usable sampling equipment, or handling quality control samples (Section 3.7).

Food shall not be eaten within 10 meters of any sampling area. Before eating or drinking, sampling personnel shall remove their gloves and any outer garments (e.g., coveralls) and leave the work area. When finished, sampling personnel shall wash their hands, remove any visible residue, and put new gloves and any outer garments back on prior to returning to the work area.

PFAS-containing stain resistant products are often applied to vehicle seats that have fabric upholstery. Therefore, if no outer garments (e.g., coveralls) will be worn, or if the outer garments will be worn in the field vehicle then, if feasible, the seats of the vehicle should be covered in a well-laundered cotton blanket to avoid contact between clothing and the seats.

Visitors to the sampling area shall remain at least 10 meters at a distance.

As indicated in Table 1, sampling personnel shall not use the personal care products or cosmetics (other than bar soap) prior to or during sample collection on any day. Additionally, clothes worn during sampling should be well-washed natural fibers.

Other personnel who come within 2-3 meters of the sample collection area should follow the guidelines above and in Table 1.

Fluids used during laboratory- or fieldwork (e.g., drilling for monitoring well installation or for deep soil sampling) should be confirmed PFAS-free.

When sampling on a surface water body, associated gear (e.g., waders, life preservers) should be confirmed PFAS-free.

3.2 EQUIPMENT DECONTAMINATION

Wherever possible, dedicated or disposable equipment shall be used to avoid the need for decontamination, which introduces additional potential for cross-contamination.

Large field equipment (e.g., drill rigs) should be decontaminated with potable water using steam or high-pressure water. Laboratory-certified "PFAS-free" water should be used to perform a final rinse of portions of the sampling equipment that will be in direct contact with samples, wherever practical.

Hand-held, non-dedicated sampling equipment, which is used at multiple field sampling locations, shall be decontaminated using the following procedure:

- Rinse with a non-PFAS-containing detergent (e.g., Alconox, Liquinox, or Citranox)
- Rinse with laboratory-provided, "PFAS-free" water (Grade 3 distilled, Millipore deionized)
- Rinse with methanol
- Rinse with laboratory-provided, "PFAS-free" deionized water.

The Safety Data Sheet for the selected detergent should be reviewed to ensure that it does not contain fluoro-surfactant ingredients.

Wherever possible, equipment should be rinsed with "PFAS-free" water immediately prior to use at each sampling location.

3.3 SAMPLE COLLECTION AND PRESERVATION

The sampling team shall coordinate with the analyzing laboratory regarding requirements for sample bottle, volume, and preservation requirements for samples for PFAS analysis, and the laboratory should provide certified "PFAS-free" containers. HDPE bottles with unlined caps are typically used for collection of samples for PFAS analyses. Polypropylene may also be used for specific applications (e.g., collection of drinking water samples to be analyzed for the short list of PFASs by Method 537) (Department of Defense Environmental Data Quality Workgroup 2017).

Containers for collection of PFAS samples shall never be left uncapped, either before or after sample collection, and the lid/cap shall be kept in a gloved hand and not be set down while removed from the container.

Sampling personnel shall put on a clean pair of nitrile gloves immediately prior to collection of each sample for PFAS analyses, prior to removing the lid from the sampling container. After the sample is collected and the container is closed, pens or pencils, but not markers, shall be used in completing sample labels or in the vicinity of samples during collection.

Following sample collection and addition of preservative (if required), sample containers for PFAS analyses shall be placed in coolers with new, double-bagged ice and not re-usable chemical ice packs unless confirmed PFAS-free and regulatorily accepted, such that meltwater does not contact sample containers during transport.

3.4 SOIL/SEDIMENT SAMPLING CONSIDERATIONS

Surface soil and sediment samples for PFAS analyses should be collected using a clean, stainless-steel tool (e.g., a trowel or Ponar grab sampler).

For field collection of soil and sediment cores, single-use PVC, HDPE, or acetate liners shall be used, and samples for PFAS analysis should be collected from the cores directly or using a stainless-steel tool.

3.5 GROUNDWATER SAMPLING CONSIDERATIONS

It is recommended that, where feasible, measurements of monitoring well water levels and well depths be performed after sampling for PFAS to avoid possible cross-contamination.

HDPE or silicone tubing shall be used for purging and sample collection, where applicable. Teflon and LDPE shall NOT be used. During sampling, sampling personnel shall ensure that no tubing or other equipment contacts the inside or rim of the sample bottle. Any foaming observed in the sample during collection should be noted on the chain-of-custody form that accompanies the samples to the analytical laboratory.

If analyses to be performed by the laboratory include less common PFAS chemicals that have relatively high volatility (including fluorotelomers and sulfonamide/alcohols such as fluorotelomer alcohols, fluorotelomer acrylates, and methyl/ethyl fluorosulfonamides and sulfonamidoethanols), then precautions should be taken during sample collection to minimize loss of volatiles (e.g., minimizing turbulence in water as it flows into the sample container).

If use of passive/no-purge sample collection technology is to be utilized, it is critical to confirm that the sampling device does not contain LDPE (e.g., HydraSleeves made of HDPE rather than LDPE may be requested for PFAS sampling).

Filtration is not recommended because the filter may sorb PFAS or be a source of PFAS contamination.

3.6 SURFACE WATER AND POREWATER SAMPLING CONSIDERATIONS

Capped surface water sample containers shall be rinsed multiple times with site surface water prior to sampling.

Because PFAS tend to accumulate at the air/water interface, specific procedures for surface water sampling shall be followed. After rinsing, the capped container shall be lowered into the surface water, with the top pointed down. The container shall then be reoriented with the top pointed upward and opened under water at the depth targeted for sampling, ideally at least 10 centimeters from both the sediment surface and the water surface. During sample collection, the sample collection point shall be positioned upstream of the sampler, gloves, etc. If an extension rod must be used due to the depth of sampling, the rod shall be made of clean, PFAS-free material.

For porewater sampling, the common stainless-steel and PVC samplers, with HDPE and silicone tubing, are acceptable. The samplers should not be reused at multiple sampling locations.

As for groundwater samples, filtration is not recommended.

3.7 FIELD QUALITY CONTROL SAMPLES

It is recommended that field blanks and equipment (i.e., rinsate) blanks be collected at least daily, using laboratory supplied "PFAS-free" water, to detect any cross-contamination that occurred despite precautions taken during sampling. If a peristaltic pump is used for sample collection, then at least one equipment blank should be collected by pumping "PFAS-free" water through the pump with clean HDPE tubing.

Field duplicates should also be collected to assess the precision of the results.

Analysis of trip blanks may be advisable on a project-specific basis, particularly if relatively volatile PFAS chemicals will be analyzed.

The same precautions taken during collection of specified samples should be taken during the collection of quality control samples (Section 3.7).

4. MAINTENANCE

Not applicable.

5. PRECAUTIONS

See detailed precautions noted above.

6. REFERENCES

Department of Defense Environmental Data Quality Workgroup. 2017. *Bottle Selection and other Sampling Considerations When Sampling for Per-and Poly-Fluoroalkyl Substances (PFAS).* Revision 1.2. July.

Interstate Technology Regulatory Council (ITRC). 2018. *Fact Sheet: Site Characterization Considerations, Sampling Precautions, and Laboratory Analytical Methods for Per- and Polyfluoroalkyl Substances (PFAS).* March.

U.S. Army Corps of Engineers. 2016. *Standard Operating Procedure 047: Per/Poly Fluorinated Alkyl Substances (PFAS) Field Sampling*. March.

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