AECOM
1600 Perimeter Park Drive Suite 400
Morrisville, NC 27560
919-461-1194

September 25, 2018

Mr. Michael Belveg
Assistant Engineer
Division of Environmental Remediation
New York State Department of Environmental Conservation
615 Erie Boulevard West
Syracuse, NY 13204-2400

Subject: Emerging Contaminants Groundwater Sampling Work Plan
United Technologies Corporation / Carrier Corporation
Thompson Road Facility, Syracuse, New York
Corrective Action Order — Index CO 7-20051118-4
Site Registry No.: 734043

Dear Mr. Belveg:

On behalf of United Technologies Corporation (UTC), AECOM Technical Services, Inc. (AECOM) has prepared this Emerging Contaminants Groundwater Sampling Work Plan (Work Plan) in response to your letter request of March 13, 2018, directing emerging contaminants (1,4-dioxane and polyfluoroalkyl substances [PFAS]) groundwater sampling at the UTC Carrier Corporation (Carrier) Site in Syracuse, New York (**Figure 1**). It was agreed during a conference call on March 22, 2018, that prior to the next annual sampling event a brief Work Plan would be provided to New York State Department of Environmental Conservation (NYSDEC) summarizing the sampling methods.

In order to meet this requirement, this Work Plan identifies ten wells proposed for sampling, the sampling methods, and a sampling schedule. This Work Plan will be used in conjunction with the Annual Site-Wide Groundwater Monitoring Plan (GMP) dated October 2017, which is the current document guiding groundwater sampling at the Site. Please refer to the GMP for routine field work activities, field forms, and quality assurance procedures.

Scope of Work

To meet NYSDEC's requirement to evaluate for the presence of 1,4-dioxane and PFAS at the Site, groundwater samples will be collected from ten existing monitoring wells. **Figure 2** shows the locations of the site-wide groundwater sampling wells and highlights those wells to be sampled for PFAS and I,4-dioxane). **Table 1** provides the rationale for selection of the wells for PFAS/1,4-dioxane sampling. Nine of the ten proposed wells are part of the existing routine annual groundwater sampling network; well MW-14D has been added to provide a second deep well for 1,4-dioxane and PFAS analyses.

Samples will be collected and analyzed in accordance with the guidance information provided with the March 13, 2018 NYSDEC correspondence, which included:

- *Collection of Groundwater Samples for Perfluorooctanoic Acid (PFOA) and Perfluorinated Compounds (PFCs) from Monitoring Wells Sample Protocol Revision 1.2* (June 29, 2016); and,
- *Groundwater Sampling for Emerging Contaminants* (April 2018).

This guidance information is provided as **Attachment 1** to this Work Plan.

Field Methodology

The samples will be collected by personnel trained to perform PFAS sampling. Purged groundwater will be transferred to appropriate on-site containers for appropriate characterization and disposal. Recommended sample bottle requirements, preservation, and holding times are provided in **Table 2**. The estimated number of samples is shown in **Table 3**.

Since PFAS are to be analyzed, the following techniques will be used in conjunction with, or instead of, the procedures cited in the GMP:

- Use only laboratory certified "PFAS-free" water for equipment decontamination.
- Use only Alconox® or Liquinox® soap for decontamination.
- Do not use Sharpies, only ball point pens.
- Do not use waterproof field books, only loose paper on aluminum clipboards.
- Do not wear the following:
  - Personal hygiene items (cosmetics, lotions, moisturizers).
  - Sunscreens and insect repellants. Instead, wear long sleeve/light colored 100% cotton shirts and wide brimmed hats.
  - New or unwashed clothing.
  - Clothing washed with fabric softeners.
  - Treated clothing (i.e., waterproof, water resistant, stain-resistant, etc.).
  - Treated boots (i.e., waterproof, water resistant, stain-resistant, etc.).
  - Coated Tyvek® suits.
- Do not handle prepackaged food products immediately prior to sampling.
- Wear a new pair of disposable powderless nitrile gloves prior to sample collection.
- Do not use fluoropolymer bailers, pump bladders, tubing, valves and other pump parts.
- Do not use anything with Teflon®.
- Use high-density polyethylene (HDPE) and silicon materials only.
- Do not use glass containers.
- Do not use aluminum foil.
- Do not filter samples in the field.

The PFAS Sampling Checklist, provided in **Attachment 2**, will be filled out prior to the beginning of the field sampling event and if there are staffing or associated sampling equipment changes. Groundwater samples will be collected from ten existing monitoring wells and analyzed for the following parameters (in addition to the routine annual analytical parameters with the exception of MW-14D):

- 1,4-dioxane by EPA Method 8270D Selective Ion Monitoring (SIM); and,
- 21 PFAS compounds by EPA Method 537 Modified (low level):

Chemical Name	Abbreviation	CAS Number
Perfluorobutanesulfonic acid	PFBS	375-73-5
Perfluorohexanesulfonic acid	PFHxS	355-46-4
Perfluoroheptanesulfonic acid	PFHpS	375-93-8
Perfluorooctanesulfonic acid	PFOS	1763-23-1
Perfluorodecanesulfonic acid	PFDS	335-77-3
Perfluorobutanoic acid	PFBA	275-22-4
Perfluoropentanoic acid	PFPeA	2706-90-3
Perfluorohexanoic acid	PFHxA	307-24-4
Perfluoroheptanoic acid	PFHpA	375-85-9
Perfluorooctanoic acid	PFOA	335-67-1
Perfluorononanoic acid	PFNA	375-95-1
Perfluorodecanoic acid	PFDA	335-76-2
Perfluoroundecanoic acid	PFUA/PFUdA	2058-94-8
Perfluorododecanoic acid	PFDoA	307-55-1
Perfluorotridecanoic acid	PFTriA/PFTrDA	72629-94-8
Perfluorotetradecanoic acid	PFTA/PFTeDA	376-06-7
6:2 Fluorotelomer sulfonate	6:2 FTS	27619-97-2
8:2 Fluorotelomer sulfonate	8:2 FTS	39108-34-4
Perfluorooctanesulfonamide	FOSA	75409106
N-methyl perfluorooctanesulfonamidoacetic acid	N-MeFOSAA	2355-31-9
N-ethyl perlfuorooctanesulfonamidoaceetic acid	N-EtFOSAA	2991-50-6

The samples will be delivered to Eurofins Spectrum Analytical Inc. (Eurofins), a New York State Department of Health Environmental Laboratory Approval Program-(ELAP) approved analytical laboratory. Eurofins' ELAP certifications for PFOA and Perfluorodecanesulfonic acid (PFOS) in drinking water by EPA Method 537 Modified and for 1,4-dioxane in non-potable water by EPA Method 8270D SIM are provided in **Attachment 3** for your reference.

Quality Assurance

The laboratory has stated that they can achieve the method detection limit of 2 nanograms/liter (ng/L) for each PFAS target analyte. Additionally, the laboratory has stated that they can achieve the method detection limit of 0.28 micrograms/liter (µg/L) for 1,4-dioxane.

Quality control samples (i.e., matrix spike/matrix spike duplicate, field duplicate, equipment blank, and field blank) will be collected as summarized in **Table 3**. Equipment and field blanks will be collected with PFAS-free water supplied by the laboratory. The laboratory will provide the results in an Analytical Services Protocol (ASP) Category B equivalent data deliverable. A Data Usability Summary Report (DUSR) will be prepared for all data acquired and included with the groundwater sampling summary report.

Schedule

The collection of 1,4-dioxane and PFAS groundwater samples is scheduled to occur along with the routine annual groundwater sampling in October 2018. NYSDEC will be provided at least seven day advance notice of the planned sampling date.

Reporting

The groundwater sample results will be provided as a summary report upon the completion of groundwater sampling and data assessment activities.

If you have any questions or comments, please contact me at (919) 461-1194.

Sincerely yours,

Peter Hollatz, P.E.
Project Manager

Peter.Hollatz@aecom.com

Attachments:

Tables 1, 2, and 3
Figures 1 and 2
Attachment 1 – NYSDEC provided Sampling Guidance Documents
Attachment 2 – PFAS Sampling Checklist
Attachment 3 - NYSDOH ELAP Certifications

cc: John Wolski, UTC

Tables

Table 1

Rationale for Sampling

UTC Carrier
NYSDEC Site No. 734043

Well ID	Rationale	Well Depth
DP-MW-04	Upgradient Location	Shallow
AR-MW-02	Representative of Site Conditions	Shallow
MW-10	Downgradient Location	Shallow
MW-3S	Representative of Site Conditions	Shallow
MW-3D	Representative of Site Conditions	Deep
MW-14	Downgradient Location	Shallow
MW-14D	Downgradient Location	Deep
MW-17	Downgradient Location	Shallow
MW-70	Representative of Site Conditions, historical 1,4-dioxane J-flag detection	Shallow
MW-71	Side Gradient Location, historical 1,4-dioxane J-flag detection. Transformer yard fire near TR12 in which fire suppression form may have been used. MW-71 is a nearby well	Shallow

Table 2
Sample Bottle, Volume, Preservation, and Holding Time Summary

UTC Carrier
NYSDEC Site No. 734043

MATRIX/ANALYSIS	Analytical Method	Sample Bottles		Preservation	Holding Time	
		Material	Size		Extraction	Analysis
Groundwater						
1,4-Dioxane	SW846 8270D SIM	Amber Glass	2 1-L	Cool, 4°C	7 days	40 days from extraction
21 PFAS Compounds	537 Modified	HDPE	2 250 mL	Cool, 4°C	14 days	28 days from extraction

Table 3
Summary of Proposed Samples

UTC Carrier
NYSDEC Site No. 734043

Analysis	Analytical Method	Field Sample Quantity	Matrix Spike (MS) or LCS	MS Duplicate	Field Duplicate	Field Blank	Equipment Blank	Total Analyses
1,4-Dioxane	SW846 8270D SIM	10	1	1	2	1	1	16
21 PFAS Compounds	Method 537 Modified	10	1	1	2	1	1	16

Notes:
SW-846: Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
LCS = Laboratory Control Sample
MS/MSD - 1/20
Equipment/Field Blank - 1/10

Figures

N

SANDERS CREEK

CARRIER PKWY

SWTP

FIRST ST

THOMPSON RD

KINNE ST

VERIZON SERVICE RD

MW-05R MW-80 MW-17 MW-21 MW-65 MW-42 MW-14D MW-14 MW-68 MW-67 MW-58 MW-66 MW-57 MW-43 MW-56 TR3-MW-01 MW-55 MW-54D MW-79 TR3-MW-02 MW-53 PLR061 MW-59 MW-18 MW-11 MW-60 PLR060 MW-52 TR3-PW-02 MW-50 MW-62 TR3-PW-01 TR3-GB-03 MW-61 MW-47 MW-46 MW-54 PLR058 MW-48 PLR056 PLR057 B00107 B00109 B00108 B00102 B00101 MW-51 AR-SB-04 AR-SB-02 AR-MW-01 AR-MW-02 AR-MW-03 AR-MW-04 AR-MW-06 AR-MW-05 MW-45 B00104 MW-20 B00110 MW-41D B00105 B00106 PLR002 PLR001 B00103 MW-44 MW-49 MW-70 MW-10 MW-78 MW-81 MW-82 MW-83 MW-40D MW-38 MW-06 FDPZ02 FDPZ04 MW-37 FDPZ01 FDPZ03 MW-19 MW-36 MW-39 MW-73 MW-23 MW-24 MW-35D MW-31 DCDPZ04 DCDPZ02 MW-33 MW-34 DCDPZ01 DCDPZ03 MW-32 MW-30 MW-26 SSIPZ04 SSIPZ03 MW-28 SSIPZ02 MW-29 SSIPZ01 MW-25 MW-27 SSIPZ05 MW-03S MW-03D MW-13D2 MW-22D MW-71 MW-69 MW-84 MW-08 MW-75 MW-77 MW-76

TR-1 TR-2 TR-3 TR-4 TR-5 TR-6 TR-7 TR-7A TR-6A TR-8 TR-10 TR-10A TR-11 TR-12 TR-13 TR-14 TR-18 TR-18S TR-19 TR-20 TR-21 TR-21A TR-23 A&R

B00116 B00115 B00114 B00113 B00111 B00112

MW-72 MW-09 MW-74 MW-16D

DP-MW-01 DP-MW-02 DP-MW-04 DP-MW-05 DP-MW-03

FORMER DEBRIS PILE AREA

Legend

- Monitoring Well
- Piezometer
- Pump Well
- Building

300 0 300 Feet

SITE-WIDE GROUNDWATER MONITORING PLAN
UTC/CARRIER SITE
SITE-WIDE GROUNDWATER NETWORK

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FIGURE 1

J:\Projects\60310231_UTCAOCGRI\MISC\GIS\Maps\SITE-WIDE\MONITORING PLAN\01 SITE-WIDE GW NETWORK.mxd 10/24/2017

N

SANDERS CREEK

CARRIER PKWY

MW-17
MW-21
TR3-MW-02
MW-79
MW-58
MW-66
MW-18
MW-57
MW-14
MW-14D
MW-50
TR-3
TR3-PW-01
SWTP
MW-48
AR-MW-02
A&R
TR-2
MW-70
AR-MW-06
MW-44
MW-45
PARKING LOT R
MW-10
FIRST ST
MW-38
TR-18
MW-19
MW-23
TR-18S
THOMPSON RD
TR-4
TR-5
TR-19
TR-20
MW-77
KINNE ST
MW-03S
MW-03D
MW-75
MW-26
MW-84
TR-1
MW-69
MW-76
TR-6
MW-71
TR-7
TR-7A
TR-6A
TR-21
TR-11
TR-10
TR-21A
FORMER DEBRIS
PILE AREA
MW-09
TR-8
DP-MW-04
TR-13
TR-23
TR-10A
TR-12
TR-14
VERIZON SERVICE RD

Legend

- Monitoring Well
- Pump Well
- Building
- PFAS Sampling Location

300 0 300 Feet

SITE-WIDE GROUNDWATER MONITORING PLAN
UTC/CARRIER SITE
PROPOSED PFAS SAMPLING WELLS

AECOM

FIGURE 2

J:\Projects\60310231_UTCAOCGRI\MISC\GIS\Maps\SITE-WIDE\MONITORING PLAN\03 PROPOSED GW SAMPLING NETWORK.mxd 10/24/2017

Attachment 1

NYSDEC provided Sampling Guidance Documents

Collection of Groundwater Samples for Perfluorooctanoic Acid (PFOA) and Perfluorinated Compounds (PFCs) from Monitoring Wells Sample Protocol

Samples collected using this protocol are intended to be analyzed for perfluorooctanoic acid (PFOA) and other perfluorinated compounds by Modified (Low Level) Test Method 537.

The procedure used must be consistent with the NYSDEC March 1991 Sampling Guidelines and Protocols http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf with the following materials limitations.

At this time acceptable materials for sampling include: stainless steel, high density polyethylene (HDPE), PVC, silicone, acetate and polypropylene. Equipment blanks should be generated at least daily. Additional materials may be acceptable if pre-approved by NYSDEC. Requests to use alternate equipment should include clean equipment blanks. **NOTE: Grunfos pumps and bladder pumps are known to contain PFC materials (e.g. Teflon™ washers for Grunfos pumps and LDPE bladders for bladder pumps).** All sampling equipment components and sample containers should not come in contact with aluminum foil, low density polyethylene (LDPE), glass or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer. Standard two step decontamination using detergent and clean water rinse will be performed for equipment that does come in contact with PFC materials. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFC materials must be avoided. Many food and drink packaging materials and “plumbers thread seal tape” contain PFCs.

All clothing worn by sampling personnel must have been laundered multiple times. The sampler must wear nitrile gloves while filling and sealing the sample bottles.

Pre-cleaned sample bottles with closures, coolers, ice, sample labels and a chain of custody form will be provided by the laboratory.

1. Fill two pre-cleaned 500 mL HDPE or polypropylene bottle with the sample.
2. Cap the bottles with an acceptable cap and liner closure system.
3. Label the sample bottles.
4. Fill out the chain of custody.
5. Place in a cooler maintained at 4 ± 2º Celsius.

Collect one equipment blank for every sample batch, not to exceed 20 samples.

Collect one field duplicate for every sample batch, not to exceed 20 samples.

Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, not to exceed 20 samples.

Request appropriate data deliverable (Category A or B) and an electronic data deliverable.

Groundwater Sampling for Emerging Contaminants

April 2018

Issue: NYSDEC has committed to analyzing representative groundwater samples at remediation sites for emerging contaminants (1,4-dioxane and PFAS) as described in the below guidance.

Implementation

NYSDEC project managers will be contacting site owners to schedule sampling for these chemicals. Only groundwater sampling is required. The number of samples required will be similar to the number of samples where "full TAL/TCL sampling" would typically be required in a remedial investigation. If sampling is not feasible (e.g., the site no longer has any monitoring wells in place), sampling may be waived on a site-specific basis after first considering potential sources of these chemicals and whether there are water supplies nearby.

Upon a new site being brought into any program (i.e., SSF, BCP), PFAS and 1,4-dioxane will be incorporated into the investigation of groundwater as part of the standard "full TAL/TCL" sampling. Until an SCO is established for PFAS, soil samples do not need to be analyzed for PFAS unless groundwater contamination is detected. Separate guidance will be developed to address sites where emerging contaminants are found in the groundwater. The analysis currently performed for SVOCs in soil is adequate for evaluation of 1,4-dioxane, which already has an established SCO.

Analysis and Reporting

Labs should provide a full category B deliverable, and a DUSR should be prepared by a data validator, and the electronic data submission should meet the requirements provided at: https://www.dec.ny.gov/chemical/62440.html ,

The work plan should explicitly describe analysis and reporting requirements.

PFAS sample analysis: Currently, ELAP does not offer certification for PFAS compounds in matrices other than finished drinking water. However, laboratories analyzing environmental samples (ex. soil, sediments, and groundwater) are required, by DER, to hold ELAP certification for PFOA and PFOS in drinking water by EPA Method 537 or ISO 25101.

Modified EPA Method 537 is the preferred method to use for groundwater samples due to the ability to achieve 2 ng/L (ppt) detection limits. If contract labs or work plans submitted by responsible parties indicate that they are not able to achieve similar reporting limits, the project manager should discuss this with a DER chemist. Note: Reporting limits for PFOA and PFOS should not exceed 2 ng/L.

PFAS sample reporting: DER has developed a PFAS target analyte list (below) with the intent of achieving reporting consistency between labs for commonly reportable analytes. It is expected that reported results for PFAS will include, at a minimum, all the compounds listed. This list may be updated in the future as new information is learned and as labs develop new capabilities. If lab and/or matrix specific issues are encountered for any particular compounds, the NYSDEC project manager will make case-by-case decisions as to whether particular analytes may be temporarily or permanently discontinued from analysis for each site. Any technical lab issues should be brought to the attention of a NYSDEC chemist.

Some sampling using this full PFAS target analyte list is needed to understand the nature of contamination. It may also be critical to differentiate PFAS compounds associated with a site from other

sources of these chemicals. Like routine refinements to parameter lists based on investigative findings, the full PFAS target analyte list may not be needed for all sampling intended to define the extent of contamination. Project managers may approve a shorter analyte list (e.g., just the UCMR3 list) for some reporting on a case by case basis.

1,4-Dioxane Analysis and Reporting: The method detection limit (MDL) for 1,4-dioxane should be no higher than 0.28 µg/l (ppb). ELAP offers certification for both EPA Methods 8260 and 8270. In order to get the appropriate detection limits, the lab would need to run either of these methods in "selective ion monitoring" (SIM) mode. DER is advising the use of method 8270, since this method provides a more robust extraction procedure, uses a larger sample volume, and is less vulnerable to interference from chlorinated solvents (we acknowledge that 8260 has been shown to have a higher recovery in some studies).

Full PFAS Target Analyte List

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

Bold entries depict the 6 original UCMR3 chemicals

Attachment 2

PFAS Sampling Checklist

PFAS Sampling Checklist

Project No.:
Project Location:
Signature:
Date:

Team Members

Yes	No	
Yes	**No**	Has field sampling staff received needed training certification?
		Comments:
Yes	**No**	Was a briefing held for field sampling staff?
		Comments:
Yes	**No**	Were additional PFAS sampling instructions given to field sampling staff?
		Comments:
Yes	**No**	Have personal clothing and PPE requirements been followed by all field sampling staff?
		Comments:
Yes	**No**	Were lotions and sunscreen used for field sampling staff?
		Comment:

Sample Collection

Yes	No	
Yes	**No**	Has a PFAS-free water source been identified?
		Comment
		Source of PFAS-free water:
Yes	**No**	Have all sampling items, parts and equipment been inspected to be free of PFAS?
		Comment:
Yes	**No**	Has sampling location sequence been communicated to avoid cross-contaminations?
		Comment:
Yes	**No**	Have drilling fluids been evaluated and shown to be free of PFAS?
		Comment:
Yes	**No**	Use of PFAS-free decontamination solution?
		Brand name of decontamination solution:
Yes	**No**	Have all field logs, notebooks, pens, labels been inspected, and do they meet PFAS sampling guidance requirements?
		Comment:
Yes	**No**	Have all sample shipping materials (ice, Ziploc® bags) been inspected, and do they meet PFAS sampling guidance requirements?
		Comment:
Yes	**No**	Have all blanks arrived at the site and will they be collected to verify cross-contamination?
		Comment:

Document Control

Yes	No	
Yes	**No**	Have all variances from sampling guidance been documented?
		Comment:

Other Comments:

Attachment 3

NYSDOH ELAP Certifications

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2019
Issued April 01, 2018
Revised June 15, 2018

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MS. PHYLLIS SHILLER
PHOENIX ENVIRONMENTAL LABS
587 EAST MIDDLE TURNPIKE
MANCHESTER, CT 06040

NY Lab Id No: 11301

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Volatile Halocarbons	
Vinyl chloride	EPA 8260C
	EPA 624.1
Volatiles Organics	
1,4-Dioxane	EPA 8260C
	EPA 8270D
	EPA 8270D SIM
2-Butanone (Methylethyl ketone)	EPA 8260C
2-Hexanone	EPA 8260C
4-Methyl-2-Pentanone	EPA 8260C
Acetone	EPA 8260C
	EPA 624.1
Carbon Disulfide	EPA 8260C
Cyclohexane	EPA 8260C
Di-ethyl ether	EPA 8260C
Ethylene Glycol	EPA 8015D
Isobutyl alcohol	EPA 8015D
Methyl acetate	EPA 8260C
Methyl cyclohexane	EPA 8260C
Vinyl acetate	EPA 8260C
Sample Preparation Methods	
	SM 4500-P B(5)-2011
	EPA 5030C
	SM 4500-CN B-2011 and C-2011
	EPA 3010A
	EPA 3005A
Sample Preparation Methods	
	EPA 3510C
	EPA 3520C
	EPA 3020A
	SM 4500-NH3 B-2011
	EPA 9010C

Serial No.: 58423

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER

Expires 12:01 AM April 01, 2019
Issued April 01, 2018
Revised April 13, 2018

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DUANE LUCKENBILL
EUROFINS LANCASTER LABORATORIES
ENVIRONMENTAL LLC
2425 NEW HOLLAND PIKE
LANCASTER, PA 17601-5994

NY Lab Id No: 10670

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards (2003) for the category ENVIRONMENTAL ANALYSES POTABLE WATER
All approved analytes are listed below:

Organohalide Pesticides	
Metribuzin	EPA 525.2
Propachlor	EPA 525.2
Simazine	EPA 525.2
Perfluorinated Alkyl Acids	
Perfluorooctanesulfonic acid (PFOS)	EPA 537
Perfluorooctanoic acid (PFOA)	EPA 537
Trihalomethanes	
Bromodichloromethane	EPA 524.2
Bromoform	EPA 524.2
Chloroform	EPA 524.2
Dibromochloromethane	EPA 524.2
Total Trihalomethanes	EPA 524.2
Volatile Aromatics	
1,2,3-Trichlorobenzene	EPA 524.2
1,2,4-Trichlorobenzene	EPA 524.2
1,2,4-Trimethylbenzene	EPA 524.2
1,2-Dichlorobenzene	EPA 524.2
1,3,5-Trimethylbenzene	EPA 524.2
1,3-Dichlorobenzene	EPA 524.2
1,4-Dichlorobenzene	EPA 524.2
2-Chlorotoluene	EPA 524.2
4-Chlorotoluene	EPA 524.2
Benzene	EPA 524.2
Bromobenzene	EPA 524.2
Volatile Aromatics	
Chlorobenzene	EPA 524.2
Ethyl benzene	EPA 524.2
Hexachlorobutadiene	EPA 524.2
Isopropylbenzene	EPA 524.2
n-Butylbenzene	EPA 524.2
n-Propylbenzene	EPA 524.2
p-Isopropyltoluene (P-Cymene)	EPA 524.2
sec-Butylbenzene	EPA 524.2
Styrene	EPA 524.2
tert-Butylbenzene	EPA 524.2
Toluene	EPA 524.2
Total Xylenes	EPA 524.2
Volatile Halocarbons	
1,1,1,2-Tetrachloroethane	EPA 524.2
1,1,1-Trichloroethane	EPA 524.2
1,1,2,2-Tetrachloroethane	EPA 524.2
1,1,2-Trichloroethane	EPA 524.2
1,1-Dichloroethane	EPA 524.2
1,1-Dichloroethene	EPA 524.2
1,1-Dichloropropene	EPA 524.2
1,2,3-Trichloropropane	EPA 524.2
1,2-Dichloroethane	EPA 524.2
1,2-Dichloropropane	EPA 524.2
1,3-Dichloropropane	EPA 524.2
2,2-Dichloropropane	EPA 524.2

Serial No.: 58290