Annual Report

Peter Cooper Gowanda Site

(Zoar Valley Gateway Park)

Gowanda, New York

Prepared for

Gowanda Area Redevelopment Corporation

Gowanda, New York

April 2020

Barton&Loguidice

Peter Cooper Gowanda Site
(Zoar Valley Gateway Park)
Gowanda, New York

Annual Report

April 2020

Prepared For:

Gowanda Area Redevelopment Corporation
Gowanda, New York

Prepared By:

Barton & Loguidice, D.P.C.
443 Electronics Parkway
Liverpool, New York 13088

CERTIFICATION

I, Scott D Nostrand, P.E. of Barton & Loguidice, D.P.C. at 443 Electronics Parkway, Liverpool, New York 13088, am currently a registered professional engineer licensed by the State of New York. I certify that all information and statements in this Annual Summary Report for the Peter Cooper Gowanda Site (a.k.a. Zoar Valley Gateway Park) are true. I make this certification on behalf of the Site Owner, Gowanda Area Redevelopment Corporation (GARC), and have been authorized and designated by GARC to sign this certification for the site.

P.E. Stamp/Signature

April 10, 2020

Date

TABLE OF CONTENTS

1.0 BACKGROUND AND SITE DESCRIPTION

The Subject Site is an approximate 26-acre property located off Palmer Street, in the Village of Gowanda, Cattaraugus County, New York (see Figures 1 and 2). The Site is bordered to the north by Cattaraugus Creek; to the south by Palmer Street; to the west by a former hydroelectric dam and wetland area; and to the east by residential properties.

The Site was previously used to manufacture animal glue and industrial adhesives. Peter Cooper Corporation (PCC) and/or its predecessors, Eastern Tanners Glue Company, manufactured animal glue at the Site from 1904 to 1972. When the animal glue product line was terminated, PCC continued to produce synthetic industrial adhesives until the plant closed in 1985. Between 1925 and October 1970, PCC used the northwest portion of the property (a 5-acre area known as the "Elevated Fill Subarea") to pile sludge remaining after the animal glue manufacturing process. These wastes, known as "cookhouse sludge" because of a cooking cycle that occurred just prior to extraction of the glue, were derived from animal hides, some of which were chrome-tanned hides obtained from tanneries. The waste material has been shown to contain elevated levels of chromium, arsenic, zinc, and several organic compounds.

In 1998, EPA prepared a Hazard Ranking System Model score for the Site and added it to the National Priority List (NPL) on April 6, 1998. In April 2000, EPA issued a Unilateral Administrative Order (UAO) CERCLA-02-2000-2014 to fourteen potentially responsible parties (PRPs) directing that they complete a remedial investigation and feasibility study (RI/FS) for the Site.

The UAO became effective May 1, 2000. The RI/FS was performed on behalf of the PRPs by Benchmark Environmental Engineering and Science, PLLC (Benchmark) and its sub-consultant, Geomatrix, Inc. The RI field investigation activities were performed from August 2000 to April 2001, and the final RI report was submitted to EPA in November 2003. The FS was substantially completed by the PRPs in July 2004, and was finalized in June 2005.

Concurrent with completion of RI activities, the Village of Gowanda in association with the University at Buffalo developed a Reuse Assessment and Concept Plan for the Site that concluded that the "highest and best use" of the remainder of the property outside of the 5-acre Elevated Fill Subarea after cleanup would be as a multi-use recreational facility, specifically a public park incorporating elements such as a walking/biking trail, fishing access, outdoor picnic areas, and athletic fields. The New York State Department of Environmental Conservation and the USEPA agreed that use in this capacity would require placement of clean cover soils one foot of cover placed in passive recreational areas and two feet placed in active recreational areas.

Based upon the results of the RI/FS, a Record of Decision (ROD) was signed on September 30, 2006. Specifically, the ROD called for:

- Excavating three "hot spot" soil areas identified across the Site and consolidating them within the Elevated Fill Subarea, followed by capping the 5-acre Elevated Fill Subarea of the inactive landfill area with a 12-inch low permeability soil cap, followed by 6-inches of topsoil and seed.

- Collecting leachate/groundwater seeps that were observed discharging from the Elevated Fill Subarea to Cattaraugus Creek. The collected leachate is pumped through a pretreatment building where it may be pretreated, if necessary, with hydrogen peroxide to remove hydrogen sulfide prior to discharge to the sanitary sewer for final treatment at the local Publicly Owned Treatment Works (POTW).
- Stabilizing the bank of Cattaraugus Creek along the Elevated Fill Area with a poly liner and heavy riprap stone.
- Installing a groundwater diversion system to limit groundwater migration through the Elevated Fill Subarea. (*Subsequent engineering analyses by Benchmark and Geomatrix demonstrated that this element would not provide additional benefit. USEPA agreed and ultimately removed this requirement from the remedial design*).
- Installing a passive gas venting system for proper venting of the 5-acre Elevated Fill Subarea.
- Performing long-term operation and maintenance of the remedial measures including inspections and repairs of the landfill cap, gas venting, and leachate collection and pretreatment systems;
- Performing post-remedial surface water and groundwater quality monitoring; and
- Evaluating Site conditions at least once every five years to determine if the remedy remains protective.

This remedy also includes certain institutional controls, including an environmental easement which limits future use of the Site and the groundwater to ensure that the implemented remedial measures will not be disturbed and that the Site will not be redeveloped for purposes other than a park. A Site Management Plan was also required to ensure appropriate handling of subsurface soils during redevelopment and to formalize the post-remedial operation, maintenance and monitoring requirements.

Following issuance of the ROD, the Village of Gowanda and the PRPs entered into discussions concerning the Village's redevelopment goals. An agreement was reached whereby the Gowanda Area Redevelopment Corporation (GARC) took ownership of the Site and agreed to perform certain post-remedial operation, maintenance and monitoring activities in exchange for provision of specific non-remedial site enhancements and funding by the PRPs to facilitate park redevelopment.

On February 12, 2009, a Consent Decree stipulating the required remedial construction elements was entered in United States District Court. On March 15, 2009, Benchmark was approved by EPA as the supervising contractor to conduct the remedial design and construction work at the Site.

1.1 Remedial Construction

Conditional approval to start site preparation and hotspot removal was issued to Benchmark in July 2009. The remedial measures and above-described non-remedial enhancements were substantially completed by December 2009; the final Elevated Fill Subarea cover system topsoil and seeding work was completed in summer of 2010.

On September 9, 2010, a final inspection was conducted by the USEPA. Based on the results of the inspection, it was determined that the required remedial construction was complete. The only outstanding element was the placement of clean cover soil over the remainder of the site, which has since been completed by GARC.

1.2 Post-Remedial Operation, Maintenance, and Monitoring

Post-Remedial Operation, Maintenance and Monitoring (OM&M) responsibilities were initially shared by the PRPs who undertook the remedial work (deemed the cooperating PRPs, or cPRPs) and GARC in accordance with the September 2010 Site Management Plan (SMP) prepared by Benchmark. In general, the responsibilities include:

- Semi-annual sampling of five onsite monitoring wells and three surface water locations with associated reporting to EPA (cPRPs);
- Semi-annual inspection of the landfill cover system and creek bank (cPRPs);
- Cover system mowing and maintenance (GARC);
- Leachate/groundwater collection and pretreatment, including sampling of the pretreatment system effluent per a discharge permit issued by the POTW (GARC);
- Other site maintenance (GARC).

Semi-annual post-remedial groundwater monitoring began in July 2011 and continued through June 2013. The groundwater monitoring were consistently favorable, indicating no adverse impact to Cattaraugus Creek from the Site and few parameters above the NY State groundwater quality standards. Based upon these results USEPA approved a request by the cPRPs to reduce the monitoring frequency from semi-annual to annual. Annual groundwater monitoring reports submitted by the cPRPs since that time have shown similar favorable results.

Similarly, visual inspections of the final cover indicate that the vegetation is well established, with no evidence of erosion. There are no indications of leachate breakouts or staining on the cover system. The gas venting system continues to mitigate any gas build up beneath the cover system. Inspections of the creek bank indicate no washouts where stabilization was constructed as part of the remedial activities.

Concerning the groundwater/seep collection and pretreatment system, the Village of Gowanda, on behalf of GARC, collects effluent samples that routinely demonstrate conformance with Significant Industrial User (SIU) permit limits. In addition, pretreatment with peroxide has not

been necessary to achieve sulfide discharge limits since the collection system was started up in 2010.

1.3 Regulatory Status

On September 17, 2010 EPA issued a Preliminary Close Out Report (PCOR) which determined that construction activities at the Peter Cooper Landfill Superfund site have been completed in accordance with the Close-Out Procedures for National Priorities List Sites (OSWER Directive 9320.2-09A-P). The New York State Department of Environmental Conservation, which had previously listed the Site as a "Class 2" Site (indicating it poses a significant threat to public health and the environment) due to its federal NPL status, subsequently reclassified the site to "Class 4" (i.e., properly closed – requires continued management).

The first five-year review for the Site was undertaken by the USEPA in October 2014. The purpose of the five-year review is to determine if the remedy is and will continue to be protective of human health and the environment. The triggering action for the statutory five-year review is the initiation of on-site remedial construction, which began at the Site in late 2009.

The 5 year review Report was issued by the USEPA in April 2015. The report concluded "*based upon reviews of the Record of Decision, annual groundwater sampling results, and site inspection reports as prepared by the potentially responsible parties, as well as a site visit conducted by United States Environmental Protection Agency personnel on October 30, 2014, the remedy is functioning as intended by the decision document and is protective of human health and the environment. An environmental easement has been placed on the site property to address any future uses of the property which would impact contaminated soil left in place, and to prohibit groundwater use unless groundwater quality standards are met. The site management plan requires continued monitoring of the site. There are no recommendations or follow-up actions identified in this five-year review.*"

The site remained on the NPL pending completion of clean cover placement in the planned park redevelopment area outside of the Elevated Fill Subarea, which was completed in 2017. Subsequently, on May 1, 2019, USEPA issued a Final Close Out Report (FCOP). The FCOP stated "*The Site meets all the Site-completion requirements as specified in Close Out Procedures for National Priorities List Sites (OSWER Directive 9320.2-22, May 2011). Specifically, the implemented remedy achieved the degree of cleanup specified in the ROD for all pathways of exposure. The remedy, remedial action objectives, and associated cleanup goals are consistent with agency policy and guidance. No further Superfund response action is needed to protect human health and the environment.*

The only continuing remedial efforts at the Site are the ongoing maintenance of the landfill cap, the groundwater and surface water monitoring and insuring that the institutional controls in the form of restrictive covenant to restrict the use of on-Site groundwater as a source of potable or process water and to restrict activities on the Site that could compromise the integrity of the cap

remain in place and continue to be effective. Five-year reviews will continue to be performed to ensure the remedy remains protective." NYSDEC issued a concurrence letter on June 25, 2019, and USEPA delisted the site from the NPL on July 30, 2019.

The site is owned by GARC. Following delisting of the site, the cPRPs responsibility for monitoring of the site has ended, and GARC has retained Barton & Loguidice D.P.C. to perform monitoring activities. Ongoing maintenance of the cap and other components of the remedy, plus the operation of the leachate collection and treatment system is performed by the Village of Gowanda.

2.0 SUMMARY OF SITE REMEDY PERFORMANCE

2.1 Elevated Fill Subarea Cover System

Great Lakes Environmental & Safety Consultants, Inc., under contract to GARC, performed an annual inspections in April 2019 (See Appendix A). The reports indicated that vegetation on the elevated Fill Subarea remains well established, with no evidence of erosion. There was some evidence of traffic and rutting was observed in multiple locations. Damage appeared to be attributed to truck and ATV traffic on the capped area, and some ponded water was observed. There are no signs of leachate breakouts or staining on the cover system. Inspections of the creek bank identified no washouts where stabilization was constructed as part of the remedial activities. However, large trees and shrubs were observed to be growing out of the rip rap area along the creek.

2.2 Monitoring Wells and Gas Vents

MW-2S(R) was observed to not be capped or locked. There were no signs of damage to the gas vents nor stressed vegetation around vents.

2.3 Groundwater and Surface Water Quality

The final groundwater and surface water sampling event to be collected on an annual basis was performed in October 2018. Since that sampling, USEPA has agreed to a sampling interval of 15 months, with the next sampling event scheduled for winter 2020. Therefore, no groundwater or surface water samples were collected during this reporting period.

2.4 Emerging Contaminant Groundwater Quality

Pursuant to the request of NYSDEC, a one-time testing of the groundwater for 1,4-dioxane and per- and polyfluoroalkyl substances (PFAS) was performed by Benchmark on behalf of the cPRPs on April 1, 2019. The sampling report is attached as Appendix B. The document reports that all samples fall below NYSDEC guidance of 70 ng/L for total PFOA and PFOS compounds and 500 ng/L for total PFAS. The remaining PFAS were reported as non-detect. 1,4-Dioxane was reported as non-detect at all monitoring locations.

Since this report was issued, NYSDEC has released additional PFAS guidance (Guidelines for Sampling and Analysis of PFAS under NYSDEC's Part 375 Remedial Programs, January 2020) recommending evaluating PFOA and PFOS concentrations to a screening level of 10 ng/L and other PFAS compounds to a screening level of 100 ng/L. All samples were below these new screening levels.

2.5 Groundwater/Seep Collection and Pretreatment

Concerning the groundwater/seep collection and pretreatment system, the Village of Gowanda, on behalf of GARC, performs semi-annual monitoring of discharges to the sanitary sewer in accordance with the SIU permit for the facility (rev. January 2013 – see Appendix C).

Data collected during the 2019 calendar year are summarized in Table 1 and presented in Appendix D. The results show conformance with permit limits. (A second semi-annual sample was inadvertently not collected) Pretreatment with peroxide was not necessary to achieve sulfide discharge limits during the reporting period.

3.0 SITE IMPROVEMENTS

3.1 2019 Repairs and Improvements

During 2019, the following repairs were made at the site:

- The Village of Gowanda replaced a leachate collection pump that had failed.
- Small trees growing at the location of the stream bank stabilization areas were removed by an outside contractor retained by the Village of Gowanda.
- The ruts observed on the landfill cap were filled and reseeded by an outside contractor retained by the Village of Gowanda.

3.2 Planned Future Improvements

Planned improvements for the upcoming 2020 reporting period include:

- Construction of kayak access point.
- Construction of a creekside amphitheater

4.0 OPERATION AND MAINTENANCE COSTS

Costs incurred by the Village of Gowanda are detailed in Appendix E. The summary of the costs is provided below:

	1/2019-3/2019	4/2019-5/2019	6/2019-10/2019	11/2019-12/2019
Leachate Pump Station Electric	$580.35	$247.63	$3,287.16	$290.35
Sampling Labor	$504.30	$605.16	$1,008.60	$379.28
Mowing		$200.00		
Microbac Testing		$789.25		
Monitoring System Annual Fee	$56.25			
Admin Expense Monitoring & Processing		$37.50	$93.75	$37.50
Leachate Flow	$301.17	$217.92	$302.25	$180.26
Chemicals		$47.90		
Pump Replacement		$2,483.34		
Good Neighbor Tree Removal			$3,000.00	
Great Lakes Environmental (2019 PRR)				$5,100.00
M.W. Offhause & Sons Fill &Cover Ruts			$430.00	
Gernatt Asphalt Classifier Silt Fill			$71.83	
Total	$1,442.07	$4,628.70	$8,193.59	$5,987.39

TABLE 1
SUI Permit Discharge Monitoring Summary

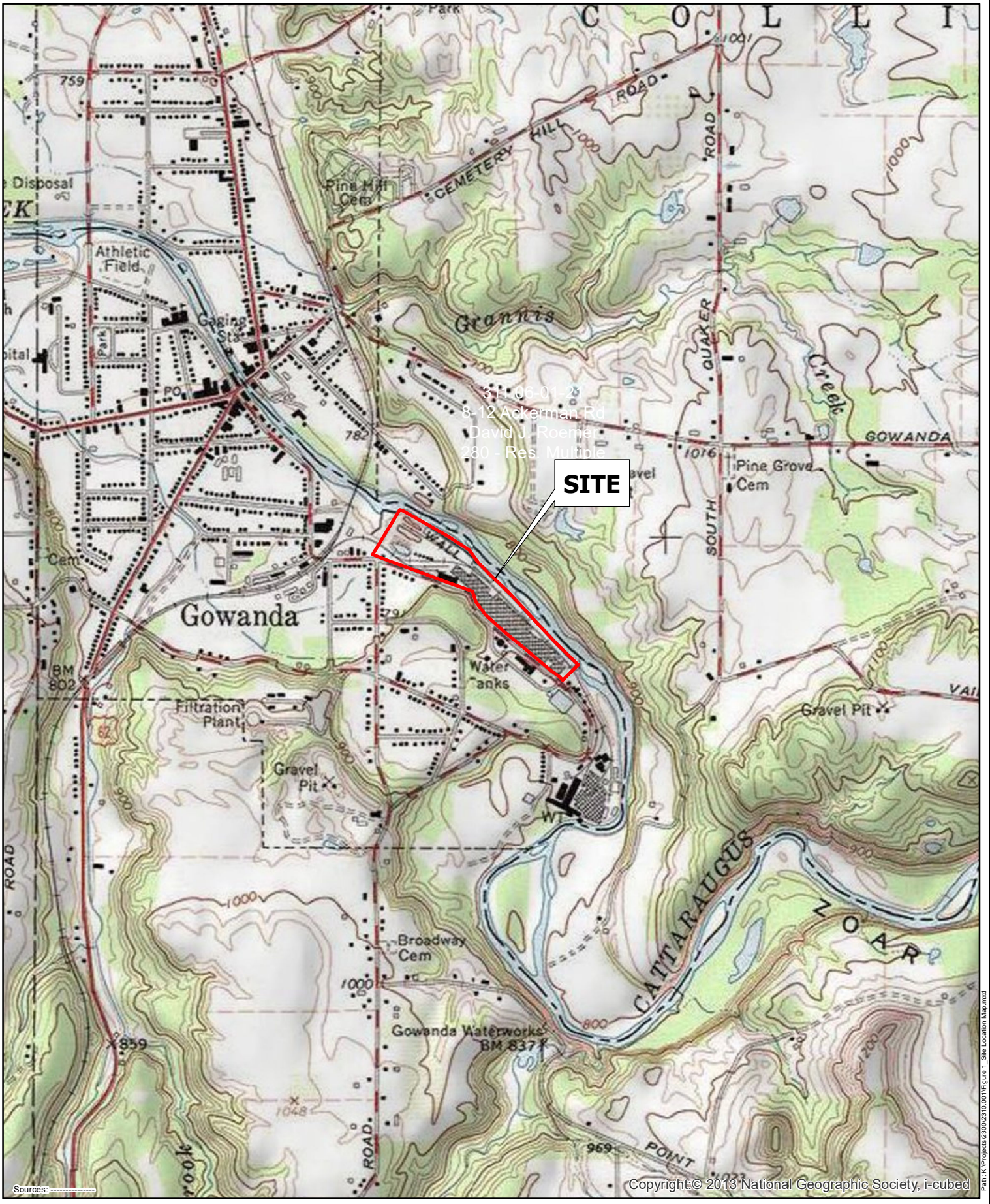
Table 1
SIU Permit Compliance Summary
2019

Date	PH Min. 5.0 Max. 10.5 SU	Temp. Deg C	D.O. Min. 2.0 Daily mg/l	Totalizer Meter Reading gpd	Average Daily Flow gpd	Total Daily Flow MGD MGD	5-day BOD mg/l	Suspended Solids mg/l	Phenols mg/l	TKN mg/l	Sulfates mg/l	Sulfides (Outside Lab) mg/l	Amonia mg/l	Tot. Org. Halogens mg/l	BOD Loading lbs/day	Sus. Solids Load lbs/day	Phenol Loading lbs/day	Amonia Loading lbs/day	Sulfides (in house results) mg/l
Daily maximum	**5.0-10.5**		**2 mg/L**		**30,000 gpd**									**0.1 mg/l**	**200 lbs/day**	**181 lbs/day**	**0.78 lbs/day**	**75 lbs/day**	**9 mg/l**
1/1/2019				7,287,533.00	13,927.00	0.013927													
1/7/2019	7.46	50.40	5.80	7,370,245.00	82,712.00	0.082712													
1/14/2019	7.35	52.30	4.30	7,461,292.00	91,047.00	0.091047													
1/21/2019	7.35	47.30	5.30	7,521,020.00	59,728.00	0.059728													
1/28/2019	7.29	49.30	2.60	7,591,848.00	70,828.00	0.070828													
1/31/2019				7,617,472.00	25,624.00	0.025624													
2/1/2019				7,623,271.00	5,799.00	0.005799													
2/4/2019	7.24	53.30	4.60	7,644,623.00	21,352.00	0.021352													
2/11/2019	7.16	49.60	3.90	7,721,658.00	77,035.00	0.077035													
2/18/2019	7.28	48.00	2.40	7,782,968.00	61,310.00	0.061310													
2/25/2019	7.38	51.50	3.60	7,783,000.00	32.00	0.000032													
2/28/2019				7,791,621.00	8,621.00	0.008621													
3/1/2019				7,794,335.00	2,714.00	0.002714													
3/4/2019	7.04	50.30	3.00	7,797,570.00	3,235.00	0.003235													
3/11/2019	7.38	47.50	3.60	7,814,740.00	17,170.00	0.017170													
3/18/2019	7.34	48.30	3.60	7,832,475.00	17,735.00	0.017735													
3/25/2019	7.36	51.80	3.70	7,853,218.00	20,743.00	0.020743													
3/31/2019				7,875,964.00	22,746.00	0.022746													
4/1/2019	7.32	54.90	4.10	7,875,969.00	5.00	0.000005													
4/4/2019					10,338.00	0.010338	7.00	5.00	0.0055	186.00	263.00	1.00	188.00		0.60	0.43	0.0005	16.21	
4/8/2019	7.24	56.50	4.30	7,912,606.00	36,637.00	0.036637													
4/15/2019	7.10	48.70	4.40	7,941,075.00	28,469.00	0.028469													
4/22/2019	7.29	56.50	4.30	8,013,860.00	72,785.00	0.072785													
4/29/2019	7.28	58.90	5.90	8,070,139.00	56,279.00	0.056279													
4/30/2019				8,070,139.00	0.00	0.000000													
5/1/2019				8,077,634.00	7,495.00	0.007495													
5/6/2019	7.30	55.30	4.60	8,123,776.00	46,142.00	0.046142													
5/13/2019	7.22	57.10	3.20	8,183,776.00	60,000.00	0.060000													
5/20/2019	7.29	59.80	5.60	8,250,955.00	67,179.00	0.067179													
5/27/2019	7.26	59.30	3.30	8,288,544.00	37,589.00	0.037589													
5/31/2019				8,301,453.00	12,909.00	0.012909													
6/1/2019				8,301,453.00	0.00	0.000000													
6/3/2019	7.34	58.90	2.60	8,301,453.00	0.00	0.000000													
6/10/2019	7.27	62.70	4.50	8,344,282.00	42,829.00	0.042829													
6/17/2019	7.21	60.50	3.60	8,377,013.00	32,731.00	0.032731													
6/24/2019	7.23	64.80	4.90	8,445,380.00	68,367.00	0.068367													
6/30/2019				8,485,020.00	39,640.00	0.039640													
7/1/2019	7.30	67.30	4.40	8,488,766.00	3,746.00	0.003746													
7/8/2019	7.29	66.60	3.70	8,537,176.00	48,410.00	0.048410													
7/15/2019	7.21	65.90	4.00	8,566,650.00	29,474.00	0.029474													
7/22/2019	7.33	65.20	5.40	8,600,456.00	33,806.00	0.033806													
7/29/2019	7.07	65.20	3.10	8,625,554.00	25,098.00	0.025098													
7/31/2019				8,632,868.00	7,314.00	0.007314													
8/1/2019				8,636,671.00	3,803.00	0.003803													

Table 1
SIU Permit Compliance Summary
2019

Date	PH Min. 5.0 Max. 10.5 SU	Temp. Deg C	D.O. Min. 2.0 Daily mg/l	Totalizer Meter Reading gpd	Average Daily Flow gpd	Total Daily Flow MGD MGD	5-day BOD mg/l	Suspended Solids mg/l	Phenols mg/l	TKN mg/l	Sulfates mg/l	Sulfides (Outside Lab) mg/l	Amonia mg/l	Tot. Org. Halogens mg/l	BOD Loading lbs/day	Sus. Solids Load lbs/day	Phenol Loading lbs/day	Amonia Loading lbs/day	Sulfides (in house results) mg/l
Daily maximum	**5.0-10.5**		**2 mg/L**		**30,000 gpd**									**0.1 mg/l**	**200 lbs/day**	**181 lbs/day**	**0.78 lbs/day**	**75 lbs/day**	**9 mg/l**
8/5/2019	7.16	66.50	3.80	8,649,186.00	12,515.00	0.012515													
8/12/2019	7.16	68.50	4.40	8,672,854.00	23,668.00	0.023668													
8/19/2019	7.11	66.60	2.70	8,694,769.00	21,915.00	0.021915													
8/26/2019	7.14	67.30	2.70	8,717,384.00	22,615.00	0.022615													
8/31/2019				8,731,270.00	13,886.00	0.013886													
9/1/2019				8,734,440.00	3,170.00	0.003170													
9/2/2019	7.16	70.90	3.30	8,736,029.00	1,589.00	0.001589													
9/9/2019	7.19	65.90	3.40	8,756,535.00	20,506.00	0.020506													
9/16/2019	7.17	68.00	3.30	8,779,169.00	22,634.00	0.022634													
9/23/2019	7.20	67.50	5.00	8,795,884.00	16,715.00	0.016715													
9/30/2019	7.20	68.00	3.90	8,812,768.00	16,884.00	0.016884													
10/1/2019				8,815,472.00	2,704.00	0.002704													
10/7/2019	7.22	64.20	3.40	8,830,081.00	14,609.00	0.014609													
10/15/2019	7.39	61.50	4.00	8,850,735.00	20,654.00	0.020654													
10/21/2019	7.30	65.90	3.80	8,871,401.00	20,666.00	0.020666													
10/28/2019	7.21	63.20	3.70	8,896,150.00	24,749.00	0.024749													
10/31/2019				8,905,973.00	9,823.00	0.009823													
11/1/2019				8,911,126.00	5,153.00	0.005153													
11/4/2019	7.15	60.80	5.00	8,930,807.00	19,681.00	0.019681													
11/11/2019	7.24	58.60	5.70	8,973,113.00	42,306.00	0.042306													
11/18/2019	7.41	52.10	6.20	9,007,234.00	34,121.00	0.034121													
11/25/2019	7.17	54.30	4.00	9,013,808.00	6,574.00	0.006574													
11/30/2019				9,039,742.00	25,934.00	0.025934													
12/1/2019				9,043,885.00	4,143.00	0.004143													
12/2/2019	7.01	56.70	3.50	9,050,741.00	6,856.00	0.006856													
12/9/2019	7.48	52.90	6.20	9,100,176.00	49,435.00	0.049435													
12/16/2019	7.12	50.50	5.00	9,156,832.00	56,656.00	0.056656													
12/23/2019	7.35	51.10	2.50	9,208,491.00	51,659.00	0.051659													
12/30/2019	7.23	56.90	3.20	9,259,679.00	51,188.00	0.051188													
12/31/2019				9,266,511.00	6,832.00	0.006832													

FIGURE 1
Site Location Map



Barton & Loguidice

1 inch = 2,000 feet

Peter Cooper Site

Site Location Map

Erie and Cattaraugus Counties March 2020 New York

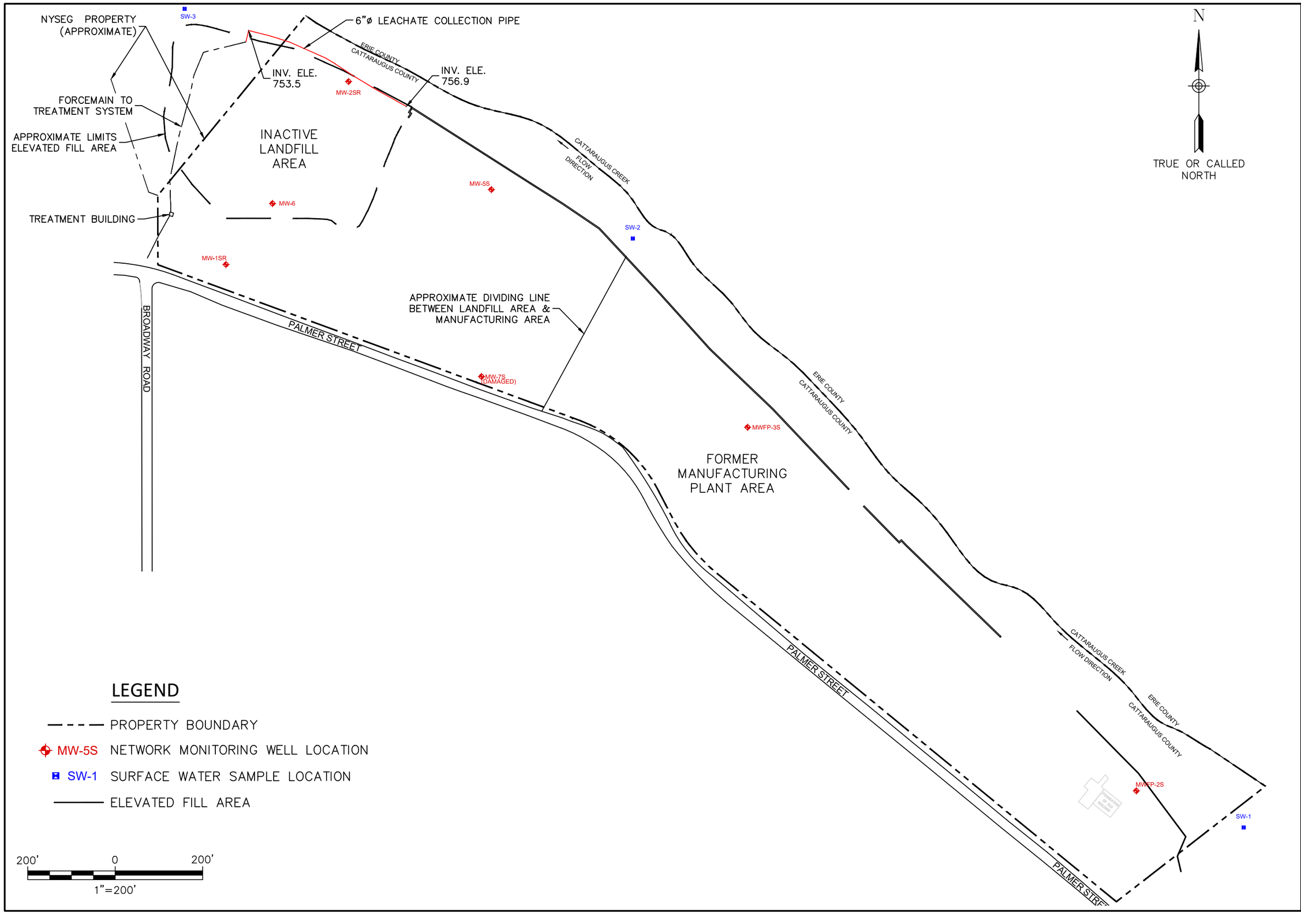
Figure 1

-

Project No. 2310.001

Path: K:\Projects\2300\2310.001\Figure 1_Site Location Map.mxd

FIGURE 2
Site Plan



VILLAGE OF GOWANDA
PETER COOPER GOWANDA SITE
CATTARAUGUS COUNTY, NEW YORK

SITE PLAN

VILLAGE OF GOWANDA

Barton & Loguidice

Date
MARCH 2020

Scale
AS SHOWN

Figure Number
2

Project Number
2310.001.001

Plotted: Mar 19, 2020 - 1:20PM SYR By: bas
Z:\BL-Vault\D2\18217AD2-1C71-4823-8927-99D5C4054147\0\1990000-1990999\1990149\L\L\2310.001.001 - Fig 2 SITE PLAN (ID 1990149).dwg

APPENDIX A
2019 Site Inspection Report and Photos

GREAT LAKES ENVIRONMENTAL & SAFETY CONSULTANTS, INC.

Field Inspection Report
Peter Cooper Gowanda Landfill Site

Date of Inspection: Mon Apr 29, 2019
On-Site Inspector: Mark Mol
P.E.: Ken Kloeber, PE

Property Access	Photo ID
Paved areas, parking lot and walking path, were not in need of repair.	N/A
A small informational sign for the park users was observed between the park area and the capped landfill	1, 2
No reports of trespassing were communicated to the inspector during the inspection. However, the capped area is not fenced off and access from all sides is unimpeded. The inspector observed ATV tracks on the cap.	3

Final Surface Cover/Vegetation	Photo ID
Cover is in place, but damaged in a few locations. The cover is not a wild vegetative cover, but an agricultural hay blend. Mike Hutchinson said that a farmer hays the field once a year.	N/A
No evidence of erosion or distressed vegetation was observed.	N/A
Evidence of traffic and rutting was observed in multiple locations. Damage appeared to be attributed to truck and ATV traffic on the capped area.	3, 4, 5, 6, 7
Water ponding on the cap was observed in two locations.	8,9

Gas Vent System	Photo ID
No signs of stressed vegetation around gas vents, no damage to vents, and Mike Hutchinson said that regular maintenance tasks involving these vents were being completed.	N/A

Groundwater Monitoring	Photo ID
MW-2S(R) was observed to not be capped or locked. Mike Hutchinson gave the inspector a lock and plug to place on this well. The plug was the wrong size and did not fit, but the inspector did close and lock the well.	10, 11

Notes	Photo ID
Sulfurous odors were observed when standing next to the middle gas vent and at the northwest corner of the property.	N/A
Mike Hutchinson detailed that Pump #1 was replaced April 25-26, 2019. An issue with the floats and pump controller was the cause. The pump was replaced by RP Mechanical. The electrical work was completed by electrician Roger Burzak.	N/A
Large trees and shrubs were observed to be growing out of the rip rap area along the creek.	12, 13
Leachate treatment building - cell antenna for pump alarm system is exposed and located in an area susceptible to vandalism.	14

Photo 1 – Small posting next to asphalt walking path.

Photo 2 – Clearer view of posting.

Photo 3 – ATV tracks on cap.

Photo 4 – Truck ruts on cap.

Provided By: Great Lakes Environmental & Safety Consultants, Inc.

Photo 5 – Truck ruts on cap.

Photo 6 – Fresh tire tracks on cap.

Photo 7 – Tire tracks on cap.

Photo 8 – Ponding water on cap.

Provided By: Great Lakes Environmental & Safety Consultants, Inc.

Photo 9 – Ponding water on cap.

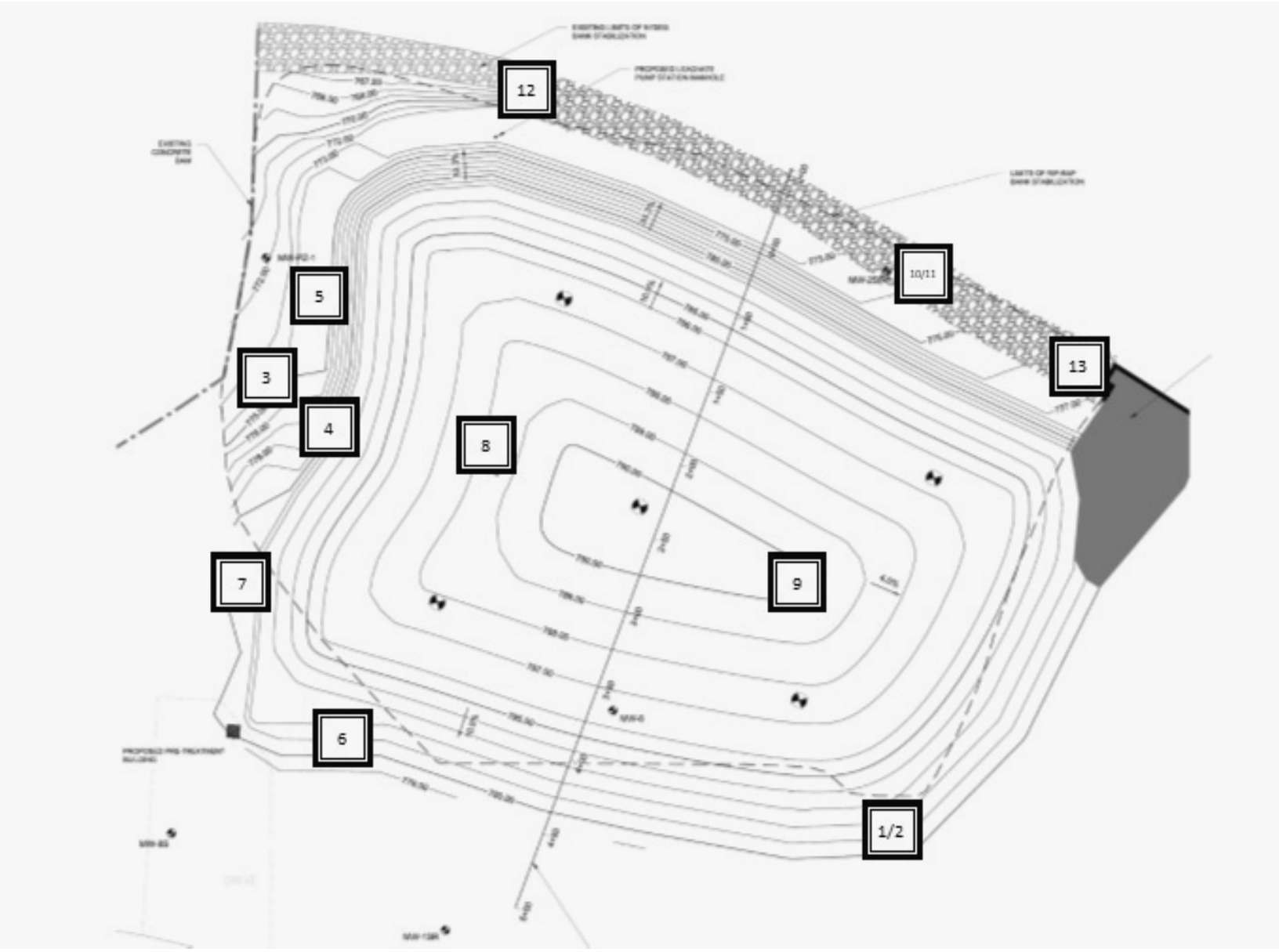
Photo 10 – MW-2S(R) found uncapped and unlocked.

Photo 13 – View upstream from rip rap at concrete wall beginning showing trees and shrub growth.

Photo 14 – Treatment Building – Alarm cell antenna location and mount susceptible to vandalism.

Photo 11 – MW-2S(R) with wrong size cap, MW-5S lid was locked by Great Lakes.

Photo 12 – View upstream from lift station manhole with visible trees and shrubs growing in rip rap.


12
10/11
13
5
3
4
8
7
9
6
1/2

Peter Cooper Superfund Site
Palmer Street - Gowanda NY

Corrective Actions
(Site SMP / Site S/FMP / Site OM&MP / Site Agreement)

Property: ☐ GARC ☐ NYSEG

Date prepared: 8/26/2019

Preparer's Name: Ken Kloeber PE

Describe issue(s) to be addressed [*include sketches, photos, location information as appropriate*]:

Mature woody vegetation well-rooted in rip-rap along the creek (new rip-rap section.)

During inspection various truck, ATV ruts observed on landfill cap.

MW plug needs replacing with proper size (MW-2R at creek bank.)

See 4/29/2019 site inspection report and photo log for locations.

The Environmental Inspection of the noted property determined the need for corrective action. This form documents that the required corrective action(s) were completed.

Corrective Action(s) taken; include Dates (addressed) / By (staff or contractor name):

CERTIFICATION [*include photos, sketches, locations as appropriate to show action(s) taken*]

I hereby certify that the corrective action(s) described were completed according to all relevant requirements of the *Site Management Plan* and *Soil/Fill Management Plan, Site OM&M Plan, Site Agreement* and all other applicable documents.

By: David L. Smith Signature

Position or Title Mayor Date 9/13/19

APPENDIX B
Emerging Contaminant Sampling Report

August 26, 2019

Mr. Maurice Moore
Professional Geologist 1
NYSDEC Division of Environmental Remediation
270 Michigan Avenue
Buffalo, NY 14203

Re: Emerging Contaminants Groundwater Sampling Report
Peter Cooper Gowanda Site, Gowanda, NY
NYSDEC Site No. 905003a

Dear Mr. Moore:

On behalf of the cooperating Potentially Responsible Parties (cPRPs), Benchmark Environmental Engineering and Science, PLLC (Benchmark) has prepared this emerging contaminant groundwater sampling report for the above referenced Site. The groundwater sampling was performed in general accordance with the NYSDEC-approved May 30, 2019 Work Plan, which was prepared in response to a letter the cPRPs received on March 18, 2019 from the Department requiring that the Site be sampled for 1,4-dioxane and per- and polyfluoroalkyl substances (PFAS).

PREPARATION

On April 1st, 2019 Benchmark removed dedicated low-density polyethylene (LDPE) tubing from the wells and redeveloped them using PVC bailers with nylon bailer cord. Wells designated for emergent contaminant sampling, including upgradient monitoring wells MW-1SR & MW-7S and down gradient monitoring wells MWFP-2S, MWFP-3S & MW-5S (See Attached Figures 1&2), were purged of 3 well volumes (or to dryness) to mitigate potential positive PFAS bias. Redevelopment notes are presented in Attachment 1.

SAMPLING PROCEDURE

Benchmark field personnel performed the sampling event on June 21st, 2019. Prior to sampling, a field blank/equipment blank was prepared for the groundwater monitoring event. The blank was compromised of laboratory supplied PFAS-free water which was poured over and/or brought into direct contact with all sampling equipment (bailer, rope, tubing, gloves water level tape, etc.). The uncapped blank was then placed near the field crew while preparations for well purge and sampling took place (prepare bottle set, calibrate groundwater quality meters, prepare bailers for sampling). This is intended to capture ambient PFAS

compounds that may emanate from the field crew or equipment during typical preparations associated with groundwater sampling. The equipment blank was then sealed and returned to the cooler on ice.

The groundwater wells were purged and sampled using dedicated disposable PVC bailers and nylon bailer cord, except for MW-1SR and MWFP-3 (both wells have slight bends in their PVC risers at approximately 3 ft that precludes use of a bailer). Accordingly, these wells were purged and sampled with a peristaltic pump using silicon tubing. Starting with the upgradient locations first, groundwater quality parameters (pH, temperature, turbidity, ORP, specific conductance) were periodically recorded and three (3) well volume were removed. Upgradient monitoring location MW-7S has appeared to have been damaged and groundwater samples could not be collected from that location. Upon removal of three well volumes, groundwater samples for the emergent contaminants were collected. Samples for PFAS analysis were collected first and transferred to laboratory provided containers: two (2) 250 ml plastic bottles unpreserved for each well location. Samples collected for 1,4-dioxine analysis were placed into laboratory provided containers comprised of two (2) one-liter unpreserved amber bottles per well location. In addition to the above-described blank, quality assurance/quality control (QA/QC) samples collected during the event included one (1) site-specific blind duplicate (BD) sample collected at MW-5S and one (1) matrix spike/matrix spike duplicate (MS/MSD) sample collected from MW-1SR.

Before groundwater samples were collected, sampling personnel donned nitrile gloves while handling empty sample containers, filling sample containers, sealing sample containers, and placing containers into sample coolers. New gloves were donned at each sample location. Samples were placed on ice prior to transportation to the laboratory. All purge water was run through granular activated carbon prior to discharge on the ground surface. Field data sheets are in Attachment 1.

SAMPLE ANALYSIS

Groundwater samples were sent under chain of custody command to Eurofins TestAmerica, Buffalo, an ELAP certified laboratory which provided a Category B deliverable package for preparation of a Data Validation Usability Summary Report (DUSR) by a third-party data validator.

Samples for PFAS analysis were analyzed via a modified EPA Method 537 with targeted reporting limits of 2 nanograms per liter (ng/l). Due to matrix interferences in downgradient sample locations dilution was required during analysis, raising laboratory reporting limits. As further discussed below, the elevated reporting limits for these locations did not affect the ability to evaluate the data against current guidance levels.

Samples collected for 1,4-dioxine were analyzed via EPA Method 8270 Selective Ion Monitoring (SIM) mode to achieve reporting limits of 0.28 micrograms per liter (µg/l).

ANALYTICAL RESULTS

Analytical results are summarized on Table 1; the analytical data package is presented in Attachment 2. Non-detect results are noted with their corresponding reporting limit. Several PFAS were detected in the laboratory method blank and were flagged with B qualifiers.

As indicated in Table 1, all samples fall below NYSDEC guidance of 70 ng/L for total PFOA and PFOS compounds and 500 ng/L for total PFAS. The remaining PFAS were reported as non-detect. 1,4 – Dioxane was reported as non-detect at all monitoring locations.

Data Validation Services reviewed and validated the analytical data. The Data Usability Summary Report (DUSR) is included in Attachment 3. Of note, perfluorooctane sulfonic acid (PFOA) was validated as non-detect at monitoring points MW-1SR, MWFP-2, and MW-5S.

CONCLUSIONS

Concentrations for both total PFOA and PFOS & total PFAS fell well below the NYSDEC Emergent Contaminant thresholds. Although matrix interference raised reporting limits at downgradient monitoring locations, the sum of the detected concentrations and reporting limits for non-detect parameters also fall below both NYSDEC thresholds for these compounds.

Based on these sampling results, no further sampling for emerging contaminants is proposed.

We are presently uploading the data in electronic data delivery (EDD) format to NYSDEC's EQuIS database. In the interim, please feel free to contact me with any questions.

Sincerely,
Benchmark Environmental Engineering & Science, PLLC

Thomas H. Forbes, P.E.
Principal Engineer

CC: S. Henry (USEPA)
W. D'Angelo
S. Davis
T. Blazicek
R. Biltekoff

File: 0021-010-500

TABLES

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

TABLE 1

SUMMARY OF EMERGING CONTAMINANTS GROUNDWATER ANALYTICAL RESULTS

PETER COOPER SITE
GOWANDA, NEW YORK

PARAMETERS [1]	NYSDEC Emergent Contaminant Threshold [2]	Sample Location and Date						
		MW-1SR [3]	MWFP-2	MWFP-3	MW-5S	MW-7S [4]	Blind Dup [5]	Field Blank
		6/21/2019	6/21/2019	6/21/2019	6/21/2019	6/21/2019	6/21/2019	6/21/2019
1,4 Dioxane - ug/L								
1,4 Dioxane	**0.35**	ND < 0.01	ND < 0.01	ND < 0.01	ND < 0.01	NS	ND < 0.01	NA
Perfluorinated Alkyl Acids - ng/L								
Perfluorobutanoic acid (PFBA)	--	4	4.6 J	ND < 4.1	11	NS	13	ND < 0.89
Perfluoropentanoic acid (PFPeA)	--	0.94 J	4.8 J	ND < 2.6	2.9 J	NS	5.4 J	ND < 0.56
Perfluorobutanesulfonic acid (PFBS)	--	0.64 J	2.8 J	ND < 4.1	ND < 2.1	NS	2 J	ND < 0.44
Perflurorohexanoic acid (PFHxA)	--	ND < 0.62	7.9 J	4.7 J	ND < 3.3	NS	4.3 J	0.85 J
Perfluoroheptanoic acid (PFHpA)	--	0.94 J	ND < 3.7	ND < 3.7	ND < 3.9	NS	ND < 3.6	ND < 0.81
Perfluorohexanesulfonic acid (PFHxS)	--	ND < 0.65	10	5.5 J	ND < 3.5	NS	ND < 3.1	ND < 0.71
Perfluorooctanoic acid (PFOA)	--	ND < 0.51	ND < 2.6	ND < 2.6	ND < 2.7	NS	6.1 JB	0.62 JB
1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2FTS)	--	ND < 3.7	ND < 19	ND < 19	ND < 20	NS	ND < 18	ND < 4.1
Perfluoroheptanesulfonic acid (PFHpS)	--	ND < 0.77	ND < 3.9	ND < 3.9	ND < 4.1	NS	ND < 3.7	ND < 0.85
Perfluorononanoic acid (PFNA)	--	ND < 0.22	ND < 1.1	ND < 1.1	ND < 1.9	NS	2.3 J+	ND < 0.24
Perfluorooctanesulfonic acid (PFOS)	--	ND < 0.49	ND < 2.5	6.9 J+	ND < 2.6	NS	ND < 2.4	0.57 J+
Perfluorodecanoic acid (PFDA)	--	ND < 0.62	ND < 3.2	ND < 3.1	ND < 3.3	NS	ND < 3.0	ND < 0.69
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2FTS)	--	ND < 2.4	ND < 12	ND < 12	ND < 13	NS	ND < 11	ND < 2.6
N-Methyl Perfluorooctanesulfonamidoacetic acid (NMeFOSAA)	--	ND < 1.4	ND < 7.0	ND < 6.9	ND < 7.3	NS	ND < 6.7	ND < 1.5
Perfluoroundecanoic Acid (PFUnA)	--	ND < 0.43	ND < 2.2	ND < 2.2	ND < 2.3	NS	ND < 2.1	ND < 0.47
Perfluorodecanesulfonic acid (PFDS)	--	ND < 0.73	ND < 3.7	ND < 3.7	ND < 3.9	NS	ND < 3.5	ND < 0.80
Perfluorooctanesulfonamide (FOSA)	--	ND < 8.1	ND < 41	ND < 41	ND < 43	NS	ND < 39	ND < 8.9
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	--	ND < 1.2	ND < 6.1	ND < 6.1	ND < 6.5	NS	ND < 5.9	ND < 1.3
Perfluorododecanoic Acid (PFDoA)	--	ND < 0.48	ND < 2.4	ND < 2.4	ND < 2.5	NS	2.4 J	ND < 0.53
Perfluorotridecanoic Acid (PFTriA)	--	ND < 0.49	ND < 2.5	ND < 2.4	ND < 2.6	NS	ND < 2.4	ND < 0.54
Perfluorotetradecanoic acid (PFTeA)	--	ND < 0.75	ND < 3.7	ND < 3.7	ND < 4.0	NS	ND < 3.6	ND < 0.82
Total PFOA and PFOS	**70**	*0.0*	*0.0*	*6.9*	*0.0*	--	*6.1*	*1.2*
Total PFAS	**500**	*6.5*	*30.1*	*17.1*	*13.9*	--	*35.5*	*2.0*

Notes:

1. Only parameters detected at a minimum of one sample location are presented in this table; all other compounds were reported as non-detect.
2. Contaminant threshold values per NYSDEC Emergent Contaminant Initial Site Sampling Results Checklist.
3. MS/MSD was collected at MW-1SR.
4. MW-7S was not sampled due to well damage.
5. Blind duplicate sample was collected at MW-5S.

Definitions:

ng/L = nanograms per liter
ug/L = micrograms per liter
"--" = No contaminant threshold value available for the parameter.
NA = Sample not analyzed for parameter.
NS = No sample collected due to well damage.
ND < 3.7 = Parameter not detected above method detection limit.
J = Estimated Value - The target analyte concentration is below the Reporting Limit (RL) but above the the Method Detection Limit (MDL)
J+ = The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased high.
B = Compound was found in the Blank and Sample.
I = Value is EMPC (estimated maximum possible concentration).
"*" = LCS or LCSD is outside acceptance limits

BOLD = Result exceeds NYSDEC Emergent Contaminant Threshold.

FIGURES

F:\CAD\Benchmark\Collier Shannon\Gowanda Site\GROUNDWATER MONITORING PLAN\Figure 1. Former Manufacturing Plant Area.dwg, 9/16/2010 3:53:04 PM, Adobe PDF

SW-2

CONCRETE RETAINING WALL PATIALLY BURIED

APPROXIMATE DIVIDING LINE BETWEEN LANDFILL AREA & MANUFACTURING AREA

CENTERLINE OF 16.0' WIDE REMAINS OF RAILROAD BED

780

785

MW-7S

MWFP-3S

ERIE COUNTY
CATTARAUGUS COUNTY

FORMER MANUFACTURING PLANT AREA

EWTR

WOODED AREA

CONCRETE RETAINING WALL PATIALLY BURIED

CATTARAUGUS CREEK FLOW DIRECTION

PALMER STREET

BLACKTOP DRIVE

RUBBLE

FOUNDATION OF OLD BUILDING

RET WALL

RET WALL CONCRETE

790

775

MWFP-2S

SW-1

ERIE COUNTY
CATTARAUGUS COUNTY

PALMER STREET

LEGEND

- MWF-2S — NETWORK MONITORING WELL LOCATION
- SW-1 — SURFACE WATER SAMPLE LOCATION
- PROPERTY LINE

160' 0' 160' 320'

SCALE: 1 INCH = 160 FEET
SCALE IN FEET
(approximate)

DATE: FEBRUARY 2005 (REV SEPTEMBER 2010)
DRAFTED BY: BCH (REV AJZ)
FILEPATH:

BENCHMARK
Environmental Engineering & Science, PLLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NEW YORK 14218
(716) 856-0599

JOB NO.: 0021-001-900

GROUNDWATER & SURFACE WATER MONITORING LOCATIONS - FORMER MANUFACTURING PLANT AREA

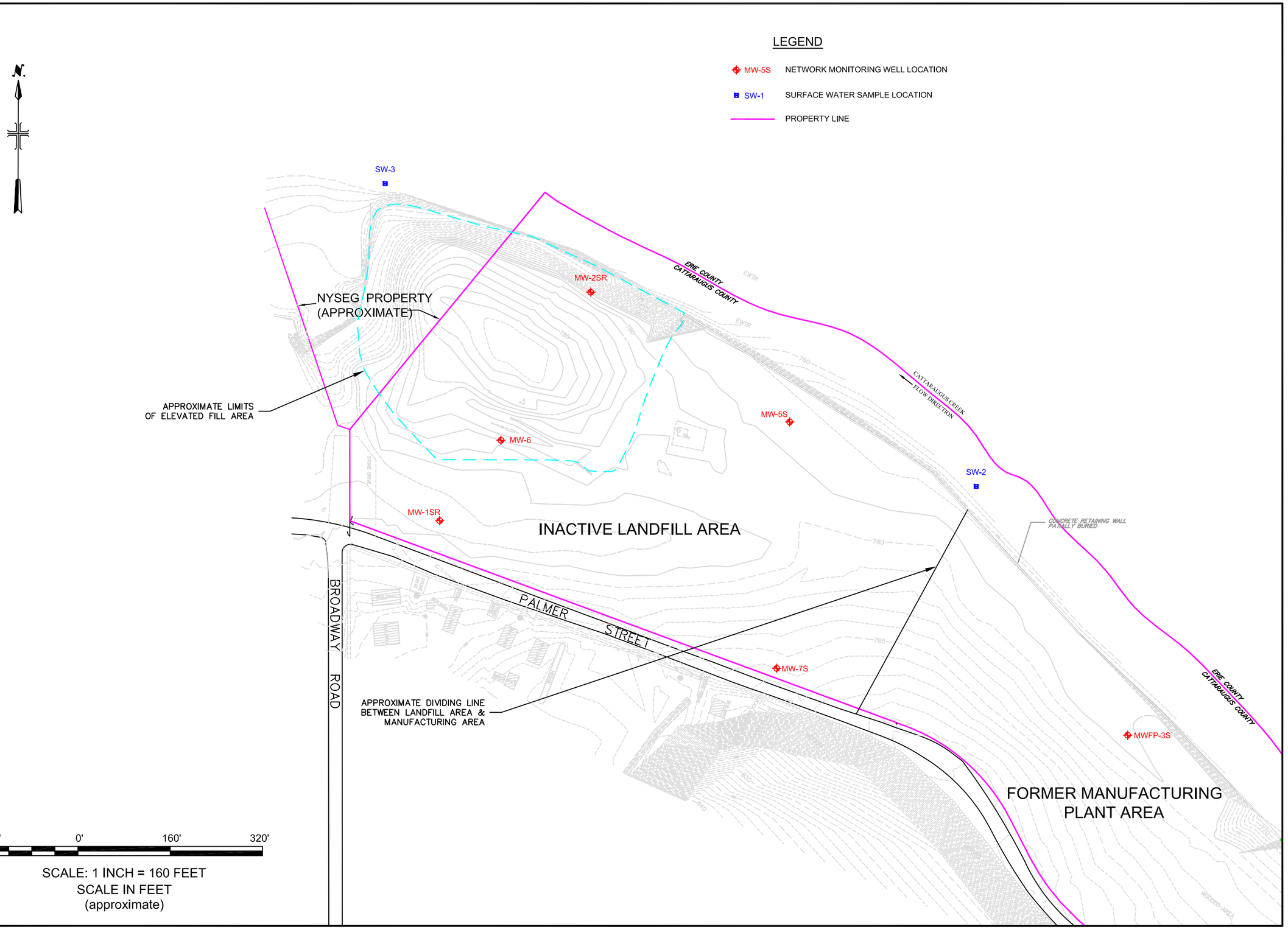
GROUNDWATER MONITORING PLAN

PETER COOPER GOWANDA SITE
GOWANDA, NEW YORK

PREPARED FOR
RESPONDANTS FOR PETER COOPER GOWANDA SITE

FIGURE 1

F:\CAD\Benchmark\Collier Shannon\Gowanda Site\GROUNDWATER MONITORING PLAN\Figure 2; Inactive Landfill Area.dwg, 9/16/2010 3:53:54 PM, Adobe PDF



DATE: FEBRUARY 2005 (REV SEPTEMBER 2010)
DRAFTED BY: BCH (REV AJZ)
FILEPATH:

BENCHMARK
Environmental
Engineering &
Science, PLLC
2558 HAMBURG TURNPIKE
SUITE 300
BUFFALO, NEW YORK 14218
(716) 856-0599

JOB NO.: 0021-001-900

GROUNDWATER & SURFACE WATER MONITORING LOCATIONS - INACTIVE LANDFILL AREA

GROUNDWATER MONITORING PLAN

PETER COOPER GOWANDA SITE
GOWANDA, NEW YORK

PREPARED FOR
RESPONDANTS FOR PETER COOPER GOWANDA SITE

FIGURE 2

ATTACHMENT 1

FIELD DATA SHEET

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

EQUIPMENT CALIBRATION LOG

PROJECT INFORMATION:

Project Name: **Peter Cooper - Gowanda Site**

Project No.: 0021-010-500

Client: Collier Shannon

Date: 6/21/19

Instrument Source: ☐ BM ☐ Rental

METER TYPE	UNITS	TIME	MAKE/MODEL	SERIAL NUMBER	CAL. BY	STANDARD	POST CAL. READING	SETTINGS
☒ pH meter	units		Myron L Company Ultra Meter 6P	606987 ☒		4.00	4.07	4.0
				6212375 ☐		7.00	7.05	7.0
						10.01	10.01	10.0
☒ Turbidity meter	NTU		Hach 2100P Turbidimeter	06120C020523 ☐		< 0.4	Kitchen	10.8 NTU 10
						20		
				07110C026405 ☒		100		
						800		
☒ Sp. Cond. meter	uS mS		Myron L Company Ultra Meter 6P	606987 ☒		7.00 mS @ 25 °C	6,995	7,000
				6212375 ☐				
☐ PID	ppm		MinRAE 2000			open air zero		MIBK response factor = 1.0
						_____ ppm Iso. Gas		
☐ Dissolved Oxygen	ppm		HACH Model HQ30d			100% Satuartion		
☐ Particulate meter	mg/m^3					zero air		
☐ Oxygen	%					open air		
☐ Hydrogen sulfide	ppm					open air		
☐ Carbon monoxide	ppm					open air		
☐ LEL	%					open air		
☐ Radiation Meter	uR/H					background area		
☐								

ADDITIONAL REMARKS:

PREPARED BY: DAC3 **DATE:** 6/21/19

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

GROUNDWATER FIELD FORM

Project Name: Peter Cooper Gowanda Site-Emerging Contaminants Sampling Date: 6/20/19

Location: Gowanda, NY Project No.: 0021-010-500 Field Team: RLD

Well No. MW-1SR | Diameter (inches): 2" | Sample Date / Time: 6/21/19 1050

Product Depth (fbTOR): – | Water Column (ft): ~~5.68~~ 5.21 | DTW when sampled: 7.0

DTW (static) (fbTOR): 6.68 | One Well Volume (gal): 0.84 | Purpose: ☐ Development ☐ Sample ☑ Purge & Sample

Total Depth (fbTOR): 11.89 | Total Volume Purged (gal): 2.50 | Purge Method: Peristaltic

Time		Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0	Initial								
1036	1	~~7.05~~ 7.0	0.75	6.91	15.2	771.0	6.50	–	-43	Clear No Odor
1043	2	7.0	1.50	6.84	14.4	701.8	2.33	–	-54	"
1048	3	7.0	2.50	6.84	14.0	691.4	1.19	–	-43	"
	4									
	5									
	6									
	7									
	8									
	9									
	10									
Sample Information: MS/MSD Collected										
1050	S1	7.0	–	6.93	13.4	690.5	1.23	–	-37	"
1114	S2	7.0	–	6.91	15.0	712.5	1.07	–	-37	

Well No. MW-7S | Diameter (inches): 2" | Sample Date / Time:

Product Depth (fbTOR): – | Water Column (ft): 0.15 | DTW when sampled:

DTW (static) (fbTOR): 9.85 | One Well Volume (gal): | Purpose: ☐ Development ☐ Sample ☑ Purge & Sample

Total Depth (fbTOR): 10.0 | Total Volume Purged (gal): | Purge Method:

Time		Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0	Initial								
	1									
	2									
	3									
	4									
	5									
	6									
	7									
	8									
	9									
	10									
Sample Information: No Sample well Damaged										
	S1									
	S2									

REMARKS: Insufficient water, well Damaged

Note: All water level measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY: RLD

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

GROUNDWATER FIELD FORM

Project Name: Peter Cooper Gowanda Site-Emerging Contaminants Sampling Date: 6/20/19

Location: Gowanda, NY Project No.: 0021-010-500 Field Team: RLD

Well No. MW-5S			Diameter (inches): 2"			Sample Date / Time: 6/20/19			
Product Depth (fbTOR): –			Water Column (ft): 4.65			DTW when sampled ☐ Development ☐ Sample ☑ Purge &			
DTW (static) (fbTOR): 11.98			One Well Volume (gal): 0.75			Purpose:			
Total Depth (fbTOR): 16.63			Total Volume Purged (gal):			Purge Method: Bailer			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
1337	1 12.0	0.75	6.69	15.6	1561	98.1	–	-79	SC 1561
1340	2 12.0	1.50	6.70	~~17.04~~ 15.0	1704	82.3	–	-78	"
1344	3 12.0	2.25	6.69	14.5	1621	96.4	–	-75	"
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information: Blind Dup									
1349	S1 12.0	–	6.69	15.0	1802	111	–	-75	"
1359	S2 12.0	–	6.75	16.3	1912	171	–	-91	"

Well No. MWFP-3S			Diameter (inches): 2"			Sample Date / Time: 6/20/19			
Product Depth (fbTOR): –			Water Column (ft): 6.95			DTW when sampled: 7.0			
DTW (static) (fbTOR): 6.78			One Well Volume (gal): 1.13			Purpose: ☐ Development ☐ Sample ☑ Purge &			
Total Depth (fbTOR): 13.73			Total Volume Purged (gal): 3.50			Purge Method: Peristaltic			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
1252	1 7.0	1.0	6.75	16.5	584.9	5.92	–	-19	"
1300	2 7.0	2.25	6.66	15.1	628.0	3.54	–	0	"
1306	3 7.0	3.50	6.69	15.5	648.4	1.85	–	-1	"
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
1309	S1 7.0	–	6.71	14.9	657.6	1.48	–	5	"
1316	S2 7.0	–	6.64	16.0	668.5	1.18	–	1	"

REMARKS:

Note: All water level measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY: RLD

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

GROUNDWATER FIELD FORM

Project Name: Peter Cooper Gowanda Site-Emerging Contaminants Sampling Date: 6/20/19

Location: Gowanda, NY Project No.: 0021-010-500 Field Team: RLD

Well No. MWFP-2S			Diameter (inches): 2"			Sample Date / Time: 6/20/19 1206			
Product Depth (fbTOR): —			Water Column (ft): 4.55			DTW when sampled: 11.91			
DTW (static) (fbTOR): 9.55			One Well Volume (gal): 0.74			Purpose: ☐ Development ☐ Sample ☑ Purge &			
Total Depth (fbTOR): 14.10			Total Volume Purged (gal):			Purge Method: ~~lowflow~~ PVC Bailer			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1155	0 ~~Initial~~ 11.91	0.75	7.29	14.5	877.4	15.4	—	-109	Slight Odor
1159	1 12.0	1.5	7.31	13.8	896.7	4.32	—	-117	
1202	2 12.02	2.25	7.34	13.4	918.1	4.19	—	-118	
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
1206	S1 11.91	—	7.31	13.8	908.4	4.50	—	-115	
1214	S2 12.90	—	7.34	13.4	928.0	7.35	—	-115	

Well No.			Diameter (inches):			Sample Date / Time:			
Product Depth (fbTOR):			Water Column (ft):			DTW when sampled:			
DTW (static) (fbTOR):			One Well Volume (gal):			Purpose: ☐ Development ☐ Sample ☑ Purge &			
Total Depth (fbTOR):			Total Volume Purged (gal):			Purge Method: lowflow			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
	S1								
	S2								

REMARKS:

Note: All water level measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY: RLD

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

GROUNDWATER FIELD FORM

Project Name: Peter Cooper Site Date: 4-1-2019

Location: Cowanda Project No.: Field Team:

Well No. MW-75	Diameter (inches): 2	Sample Date / Time:
Product Depth (fbTOR):	Water Column (ft): 0.97	DTW when sampled:
DTW (static) (fbTOR): 9.41	One Well Volume (gal): 0.16	Purpose: ☒ Development ☐ Sample ☐ Purge & Sample
Total Depth (fbTOR): 10.38	Total Volume Purged (gal):	Purge Method: PVC Bailer w/ nylon rope

Time		Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1000	0	Initial	0.00							Sl Turbid, no odor
1030	1	Dry	0.20							" " " "
1400	2	Dry	0.35							Turbid, no odor
	3									
	4									
	5									
	6									
	7									
	8									
	9									
	10									
Sample Information:										
	S1									
	S2									

Well No. MW FP-25	Diameter (inches): 2 in	Sample Date / Time:
Product Depth (fbTOR):	Water Column (ft): 4.35	DTW when sampled:
DTW (static) (fbTOR): 9.73	One Well Volume (gal): 0.71	Purpose: ☒ Development ☐ Sample ☐ Purge & Sample
Total Depth (fbTOR): 14.08	Total Volume Purged (gal):	Purge Method: PVC Bailer w/ nylon rope

Time		Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1040	0	Initial	0.00							Sl Turbid no odor
1050	1	12.10	1.00							" " " "
1055	2	12.54	2.00							Clear, no odor
1100	3	13.05	3.00							" " "
	4									
	5									
	6									
	7									
	8									
	9									
	10									
Sample Information:										
	S1									
	S2									

REMARKS: 75 depth usually deeper

Note: All water level measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY: CEH

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

GROUNDWATER FIELD FORM

Project Name: Peter Cooper Site Date: 4-1-2019

Location: Gowanda Project No.: Field Team:

Well No. MW FP-35			Diameter (inches): 2			Sample Date / Time:			
Product Depth (fbTOR):			Water Column (ft): 6.55			DTW when sampled:			
DTW (static) (fbTOR): 6.76			One Well Volume (gal): 1.07			Purpose: ☒ Development ☐ Sample ☐ Purge & Sample			
Total Depth (fbTOR): 13.31			Total Volume Purged (gal):			Purge Method: Pvc Bailer / nylon rope			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1110	0 Initial	0.00							Turbid, no odor
1130	1 6.99	1.25							SL Turbid, no odor
1142	2 7.05	2.50							" " "
1153	3 7.06	3.75							" " "
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
	S1								
	S2								

Well No. MW-5S			Diameter (inches): 2			Sample Date / Time:			
Product Depth (fbTOR):			Water Column (ft): 4.77			DTW when sampled:			
DTW (static) (fbTOR): 11.88			One Well Volume (gal): 0.78			Purpose: ☒ Development ☐ Sample ☐ Purge & Sample			
Total Depth (fbTOR): 16.65			Total Volume Purged (gal):			Purge Method: Pvc Bailer w/ nylon rope			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1210	0 Initial	0.00							orange, SL Turbid, no odor
1215	1 12.03	1.00							" " "
1220	2 12.00	2.00							" " "
1225	3 12.04	3.00							SL Turbid, no odor
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
	S1								
	S2								

REMARKS: used 1 inch Bailer for MW FP-35

Note: All water level measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY: CEH

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

GROUNDWATER FIELD FORM

Project Name: Peter Cooper Site Date: 4-1-2019

Location: Gowanda Project No.: Field Team:

Well No. MW-25R	Diameter (inches): 2	Sample Date / Time:
Product Depth (fbTOR):	Water Column (ft): —	DTW when sampled:
DTW (static) (fbTOR): Dry	One Well Volume (gal):	Purpose: ☒ Development ☐ Sample ☐ Purge & Sample
Total Depth (fbTOR): 14.91	Total Volume Purged (gal):	Purge Method: PVC Bailer / nylon rope

Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
	S1								
	S2								

Well No. MW-15R	Diameter (inches): 2	Sample Date / Time:
Product Depth (fbTOR):	Water Column (ft): 5.7	DTW when sampled:
DTW (static) (fbTOR): 6.21	One Well Volume (gal): 0.93	Purpose: ☒ Development ☐ Sample ☐ Purge & Sample
Total Depth (fbTOR): 11.91	Total Volume Purged (gal):	Purge Method: PVC Bailer / nylon rope

Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1300	0 Initial	0.00							clear, no odor
1318	1 6.41	1.00							" " "
1327	2 6.51	2.00							" " "
1340	3 6.49	3.00							" " "
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
	S1								
	S2								

REMARKS: well 25R Dry
used 1 inch bailer for MW-15R

Note: All water level measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY: CEH

BENCHMARK ENVIRONMENTAL ENGINEERING & SCIENCE, PLLC

GROUNDWATER FIELD FORM

Project Name: Peter Cooper Site Date: 4-1-2019

Location: Gowanda Project No.: Field Team:

Well No. MW-6			Diameter (inches): 2			Sample Date / Time:			
Product Depth (fbTOR):			Water Column (ft): 10.16			DTW when sampled:			
DTW (static) (fbTOR): 14.08			One Well Volume (gal): 1.66			Purpose: ☒ Development ☐ Sample ☐ Purge & Sample			
Total Depth (fbTOR): 24.24			Total Volume Purged (gal):			Purge Method: PVC Bailer w/ nylon rope			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
1430	0 Initial	0.00							
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
	S1								
	S2								

Well No.			Diameter (inches):			Sample Date / Time:			
Product Depth (fbTOR):			Water Column (ft):			DTW when sampled:			
DTW (static) (fbTOR):			One Well Volume (gal):			Purpose: ☐ Development ☐ Sample ☐ Purge & Sample			
Total Depth (fbTOR):			Total Volume Purged (gal):			Purge Method:			
Time	Water Level (fbTOR)	Acc. Volume (gallons)	pH (units)	Temp. (deg. C)	SC (uS)	Turbidity (NTU)	DO (mg/L)	ORP (mV)	Appearance & Odor
	0 Initial								
	1								
	2								
	3								
	4								
	5								
	6								
	7								
	8								
	9								
	10								
Sample Information:									
	S1								
	S2								

REMARKS:

Note: All water level measurements are in feet, distance from top of riser.

Volume Calculation

Diam.	Vol. (g/ft)
1"	0.041
2"	0.163
4"	0.653
6"	1.469

Stabilization Criteria

Parameter	Criteria
pH	± 0.1 unit
SC	± 3%
Turbidity	± 10%
DO	± 0.3 mg/L
ORP	± 10 mV

PREPARED BY: CEH

ATTACHMENT 2

EUROFINS TEST AMERICA LABORATORIES
SAMPLE DATA SUMMARY PACKAGE

JUNE 2019

eurofins | Environment Testing TestAmerica

ANALYTICAL REPORT

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Tel: (716)691-2600

Laboratory Job ID: 480-155323-1
Client Project/Site: Benchmark-Peter Cooper sites
Revision: 1

For:
Benchmark Env. Eng. & Science, PLLC
2558 Hamburg Turnpike
Suite 300
Lackawanna, New York 14218

Attn: Mr. Tom Forbes

Authorized for release by:
8/9/2019 3:30:41 PM

Brian Fischer, Manager of Project Management
(716)504-9835
brian.fischer@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Benchmark Env. Eng. & Science, PLLC
Project/Site: Benchmark-Peter Cooper sites

Job ID: 480-155323-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
E	Result exceeded calibration range.

LCMS

Qualifier	Qualifier Description
*	LCS or LCSD is outside acceptance limits.
B	Compound was found in the blank and sample.
I	Value is EMPC (estimated maximum possible concentration).
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Case Narrative

Client: Benchmark Env. Eng. & Science, PLLC
Project/Site: Benchmark-Peter Cooper sites

Job ID: 480-155323-1

Job ID: 480-155323-1

Laboratory: Eurofins TestAmerica, Buffalo

Narrative

Job Narrative
480-155323-1

Comments
This report has been revised to re-format the report.

Receipt
The samples were received on 6/21/2019 4:11 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.9º C.

GC/MS Semi VOA
Method(s) 8270D SIM ID: The breakdown of 4,4'-DDT in the tuning evaluation exceeded 20%. Breakdown is not a criteria of the method but rather an internal check performed by the laboratory to evaluate the peak shape of 1,4-Dioxane and 1,4-Dioxane-d8. No adverse performance was observed and QC recoveries were in control. The data have been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

LCMS
Method(s) 537 (modified): The method blank for preparation batch 200-144676 and analytical batch 200-145634 contained Perfluorooctanoic acid (PFOA) and Perfluorononanoic acid (PFNA) above the method detection limit. This target analyte concentration was less than half the reporting limit (1/2RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Method(s) 537 (modified): Results for samples MWFP-3S (480-155323-1), MWFP-2S (480-155323-4), MWS-5S (480-155323-5) and BLIND DUP (480-155323-6) were reported from the analysis of a diluted extract due to high concentration of non-target analytes in the analysis of the undiluted extract. The dilution factor was applied to the labeled internal standard area counts and these area counts were within acceptance limits

Method(s) 537 (modified): The following samples were diluted due to the abundance of non-target analytes: MWFP-3S (480-155323-1), MWFP-2S (480-155323-4), MWS-5S (480-155323-5) and BLIND DUP (480-155323-6). A more concentrated analysis was not possible.

Method(s) 537 (modified): The laboratory control sample (LCS) associated with preparation batch 200-144676 and analytical batch 200-145634 was outside acceptance criteria for N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA), N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA), Perfluorooctanesulfonic acid (PFOS) and Perfluorononanoic acid (PFNA). Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Organic Prep
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Benchmark Env. Eng. & Science, PLLC
Project/Site: Benchmark-Peter Cooper sites

Job ID: 480-155323-1

Client Sample ID: MWFP-3S — Lab Sample ID: 480-155323-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	4.7	J	8.1	3.1	ng/L	5		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	5.5	J	8.1	3.2	ng/L	5		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	6.9	J B *	8.1	2.5	ng/L	5		537 (modified)	Total/NA

Client Sample ID: MW-1SR — Lab Sample ID: 480-155323-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	4.0		1.6	0.81	ng/L	1		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	0.94	J	1.6	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	1.4	J	1.6	0.62	ng/L	1		537 (modified)	Total/NA
Perfluoroheptanoic acid (PFHpA)	0.94	J	1.6	0.74	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.7	B	1.6	0.51	ng/L	1		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	0.33	J B *	1.6	0.22	ng/L	1		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	0.64	J	1.6	0.40	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	1.7	I B *	1.6	0.49	ng/L	1		537 (modified)	Total/NA

Client Sample ID: FIELD BLANK — Lab Sample ID: 480-155323-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorohexanoic acid (PFHxA)	0.85	J	1.8	0.68	ng/L	1		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	0.62	J B	1.8	0.56	ng/L	1		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	0.57	J B *	1.8	0.54	ng/L	1		537 (modified)	Total/NA

Client Sample ID: MWFP-2S — Lab Sample ID: 480-155323-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	4.6	J	8.2	4.1	ng/L	5		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	4.8	J	8.2	2.6	ng/L	5		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	7.9	J	8.2	3.1	ng/L	5		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	2.9	J B	8.2	2.6	ng/L	5		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.8	J	8.2	2.0	ng/L	5		537 (modified)	Total/NA
Perfluorohexanesulfonic acid (PFHxS)	10		8.2	3.3	ng/L	5		537 (modified)	Total/NA

Client Sample ID: MWS-5S — Lab Sample ID: 480-155323-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	11		8.6	4.3	ng/L	5		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	2.9	J	8.6	2.7	ng/L	5		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	3.4	J B	8.6	2.7	ng/L	5		537 (modified)	Total/NA

Client Sample ID: BLIND DUP — Lab Sample ID: 480-155323-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Perfluorobutanoic acid (PFBA)	13		7.9	3.9	ng/L	5		537 (modified)	Total/NA
Perfluoropentanoic acid (PFPeA)	5.4	J	7.9	2.5	ng/L	5		537 (modified)	Total/NA
Perfluorohexanoic acid (PFHxA)	4.3	J	7.9	3.0	ng/L	5		537 (modified)	Total/NA
Perfluorooctanoic acid (PFOA)	6.1	J B	7.9	2.5	ng/L	5		537 (modified)	Total/NA
Perfluorononanoic acid (PFNA)	2.3	J B *	7.9	1.1	ng/L	5		537 (modified)	Total/NA
Perfluorododecanoic acid (PFDoA)	2.4	J	7.9	2.3	ng/L	5		537 (modified)	Total/NA
Perfluorobutanesulfonic acid (PFBS)	2.0	J	7.9	1.9	ng/L	5		537 (modified)	Total/NA
Perfluorooctanesulfonic acid (PFOS)	3.6	J B *	7.9	2.4	ng/L	5		537 (modified)	Total/NA

This Detection Summary does not include radiochemical test results.

Client: Benchmark Env. Eng. & Science, PLLC
Project/Site: Benchmark-Peter Cooper sites

Job ID: 480-155323-1

Client Sample ID: MWFP-3S

Date Collected: 06/21/19 13:09
Date Received: 06/21/19 16:11

Lab Sample ID: 480-155323-1

Matrix: Water

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		06/25/19 15:44	07/01/19 17:10	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*27*		*15 - 110*	*06/25/19 15:44*	*07/01/19 17:10*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		8.1	4.1	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluoropentanoic acid (PFPeA)	ND		8.1	2.6	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluorohexanoic acid (PFHxA)	**4.7**	**J**	8.1	3.1	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluoroheptanoic acid (PFHpA)	ND		8.1	3.7	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluorooctanoic acid (PFOA)	ND		8.1	2.6	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluorononanoic acid (PFNA)	ND	*	8.1	1.1	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluorodecanoic acid (PFDA)	ND		8.1	3.1	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluoroundecanoic acid (PFUnA)	ND		8.1	2.2	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluorododecanoic acid (PFDoA)	ND		8.1	2.4	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluorotridecanoic acid (PFTriA)	ND		8.1	2.4	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluorotetradecanoic acid (PFTeA)	ND		8.1	3.7	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluorobutanesulfonic acid (PFBS)	ND		8.1	2.0	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluorohexanesulfonic acid (PFHxS)	**5.5**	**J**	8.1	3.2	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluoroheptanesulfonic Acid (PFHpS)	ND		8.1	3.9	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluorodecanesulfonic acid (PFDS)	ND		8.1	3.7	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluorooctanesulfonic acid (PFOS)	**6.9**	**J B ***	8.1	2.5	ng/L		07/02/19 11:25	07/30/19 11:50	5
Perfluorooctanesulfonamide (FOSA)	ND		41	41	ng/L		07/02/19 11:25	07/30/19 11:50	5
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	*	81	6.9	ng/L		07/02/19 11:25	07/30/19 11:50	5
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	*	81	6.1	ng/L		07/02/19 11:25	07/30/19 11:50	5
6:2 FTS	ND		81	19	ng/L		07/02/19 11:25	07/30/19 11:50	5
8:2 FTS	ND		81	12	ng/L		07/02/19 11:25	07/30/19 11:50	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*72*		*25 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
13C4 PFBA	*88*		*25 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
13C5-PFPeA DNU	*89*		*25 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
13C2 PFHxA	*100*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
13C4 PFHpA	*101*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
13C4 PFOA	*97*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
13C5 PFNA	*81*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
13C2 PFDA	*97*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
13C2 PFUnA	*77*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
13C2 PFDoA	*89*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
13C2 PFTeDA	*66*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
13C3 PFBS	*104*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
18O2 PFHxS	*121*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
13C4 PFOS	*88*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
d3-NMeFOSAA	*71*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
d5-NEtFOSAA	*69*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*
M2-6:2 FTS	*97*		*25 - 150*	*07/02/19 11:25*	*07/30/19 11:50*	*5*

Client: Benchmark Env. Eng. & Science, PLLC
Project/Site: Benchmark-Peter Cooper sites

Job ID: 480-155323-1

Client Sample ID: MWFP-3S
Date Collected: 06/21/19 13:09
Date Received: 06/21/19 16:11

Lab Sample ID: 480-155323-1
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	88		25 - 150	07/02/19 11:25	07/30/19 11:50	5

Client Sample ID: MW-1SR
Lab Sample ID: 480-155323-2

Date Collected: 06/21/19 10:50
Matrix: Water
Date Received: 06/21/19 16:11

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		06/25/19 15:44	07/01/19 16:46	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*33*		*15 - 110*	*06/25/19 15:44*	*07/01/19 16:46*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**4.0**		1.6	0.81	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluoropentanoic acid (PFPeA)	**0.94**	**J**	1.6	0.51	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluorohexanoic acid (PFHxA)	**1.4**	**J**	1.6	0.62	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluoroheptanoic acid (PFHpA)	**0.94**	**J**	1.6	0.74	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluorooctanoic acid (PFOA)	**2.7**	**B**	1.6	0.51	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluorononanoic acid (PFNA)	**0.33**	**J B ***	1.6	0.22	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluorodecanoic acid (PFDA)	ND		1.6	0.62	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluoroundecanoic acid (PFUnA)	ND		1.6	0.43	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluorododecanoic acid (PFDoA)	ND		1.6	0.48	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluorotridecanoic acid (PFTriA)	ND		1.6	0.49	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluorotetradecanoic acid (PFTeA)	ND		1.6	0.75	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluorobutanesulfonic acid (PFBS)	**0.64**	**J**	1.6	0.40	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.6	0.65	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.6	0.77	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.6	0.73	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluorooctanesulfonic acid (PFOS)	**1.7**	**I B ***	1.6	0.49	ng/L		07/02/19 11:25	07/30/19 11:58	1
Perfluorooctanesulfonamide (FOSA)	ND		8.1	8.1	ng/L		07/02/19 11:25	07/30/19 11:58	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	*	16	1.4	ng/L		07/02/19 11:25	07/30/19 11:58	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	*	16	1.2	ng/L		07/02/19 11:25	07/30/19 11:58	1
6:2 FTS	ND		16	3.7	ng/L		07/02/19 11:25	07/30/19 11:58	1
8:2 FTS	ND		16	2.4	ng/L		07/02/19 11:25	07/30/19 11:58	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*77*		*25 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
13C4 PFBA	*78*		*25 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
13C5-PFPeA DNU	*84*		*25 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
13C2 PFHxA	*99*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
13C4 PFHpA	*96*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
13C4 PFOA	*93*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
13C5 PFNA	*75*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
13C2 PFDA	*89*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
13C2 PFUnA	*78*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
13C2 PFDoA	*91*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
13C2 PFTeDA	*67*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
13C3 PFBS	*100*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
18O2 PFHxS	*120*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
13C4 PFOS	*83*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
d3-NMeFOSAA	*72*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
d5-NEtFOSAA	*72*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*
M2-6:2 FTS	*91*		*25 - 150*	*07/02/19 11:25*	*07/30/19 11:58*	*1*

Client: Benchmark Env. Eng. & Science, PLLC
Project/Site: Benchmark-Peter Cooper sites

Job ID: 480-155323-1

Client Sample ID: MW-1SR
Date Collected: 06/21/19 10:50
Date Received: 06/21/19 16:11

Lab Sample ID: 480-155323-2
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	84		25 - 150	07/02/19 11:25	07/30/19 11:58	1

Client: Benchmark Env. Eng. & Science, PLLC
Project/Site: Benchmark-Peter Cooper sites

Job ID: 480-155323-1

Client Sample ID: FIELD BLANK

Date Collected: 06/21/19 09:30
Date Received: 06/21/19 16:11

Lab Sample ID: 480-155323-3

Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		1.8	0.89	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluoropentanoic acid (PFPeA)	ND		1.8	0.56	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluorohexanoic acid (PFHxA)	**0.85**	**J**	1.8	0.68	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluoroheptanoic acid (PFHpA)	ND		1.8	0.81	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluorooctanoic acid (PFOA)	**0.62**	**J B**	1.8	0.56	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluorononanoic acid (PFNA)	ND	*	1.8	0.24	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluorodecanoic acid (PFDA)	ND		1.8	0.69	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluoroundecanoic acid (PFUnA)	ND		1.8	0.47	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluorododecanoic acid (PFDoA)	ND		1.8	0.53	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluorotridecanoic acid (PFTriA)	ND		1.8	0.54	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluorotetradecanoic acid (PFTeA)	ND	I	1.8	0.82	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluorobutanesulfonic acid (PFBS)	ND		1.8	0.44	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluorohexanesulfonic acid (PFHxS)	ND		1.8	0.71	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		1.8	0.85	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluorodecanesulfonic acid (PFDS)	ND		1.8	0.80	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluorooctanesulfonic acid (PFOS)	**0.57**	**J B ***	1.8	0.54	ng/L		07/02/19 11:25	07/30/19 12:23	1
Perfluorooctanesulfonamide (FOSA)	ND		8.9	8.9	ng/L		07/02/19 11:25	07/30/19 12:23	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	*	18	1.5	ng/L		07/02/19 11:25	07/30/19 12:23	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	*	18	1.3	ng/L		07/02/19 11:25	07/30/19 12:23	1
6:2 FTS	ND		18	4.1	ng/L		07/02/19 11:25	07/30/19 12:23	1
8:2 FTS	ND		18	2.6	ng/L		07/02/19 11:25	07/30/19 12:23	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*88*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
13C4 PFBA	*112*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
13C5-PFPeA DNU	*104*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
13C2 PFHxA	*103*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
13C4 PFHpA	*99*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
13C4 PFOA	*103*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
13C5 PFNA	*100*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
13C2 PFDA	*107*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
13C2 PFUnA	*100*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
13C2 PFDoA	*114*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
13C2 PFTeDA	*75*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
13C3 PFBS	*101*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
18O2 PFHxS	*128*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
13C4 PFOS	*99*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
d3-NMeFOSAA	*85*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
d5-NEtFOSAA	*83*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
M2-6:2 FTS	*91*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*
M2-8:2 FTS	*96*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:23*	*1*

Client Sample ID: MWFP-2S
Date Collected: 06/21/19 12:06
Date Received: 06/21/19 16:11

Lab Sample ID: 480-155323-4
Matrix: Water

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		06/25/19 15:44	07/01/19 17:34	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*33*		*15 - 110*	*06/25/19 15:44*	*07/01/19 17:34*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**4.6**	**J**	8.2	4.1	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluoropentanoic acid (PFPeA)	**4.8**	**J**	8.2	2.6	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluorohexanoic acid (PFHxA)	**7.9**	**J**	8.2	3.1	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluoroheptanoic acid (PFHpA)	ND		8.2	3.7	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluorooctanoic acid (PFOA)	**2.9**	**J B**	8.2	2.6	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluorononanoic acid (PFNA)	ND	*	8.2	1.1	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluorodecanoic acid (PFDA)	ND		8.2	3.2	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluoroundecanoic acid (PFUnA)	ND		8.2	2.2	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluorododecanoic acid (PFDoA)	ND		8.2	2.4	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluorotridecanoic acid (PFTriA)	ND		8.2	2.5	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluorotetradecanoic acid (PFTeA)	ND		8.2	3.8	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluorobutanesulfonic acid (PFBS)	**2.8**	**J**	8.2	2.0	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluorohexanesulfonic acid (PFHxS)	**10**		8.2	3.3	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluoroheptanesulfonic Acid (PFHpS)	ND		8.2	3.9	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluorodecanesulfonic acid (PFDS)	ND		8.2	3.7	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluorooctanesulfonic acid (PFOS)	ND	*	8.2	2.5	ng/L		07/02/19 11:25	07/30/19 12:31	5
Perfluorooctanesulfonamide (FOSA)	ND		41	41	ng/L		07/02/19 11:25	07/30/19 12:31	5
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	*	82	7.0	ng/L		07/02/19 11:25	07/30/19 12:31	5
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	*	82	6.1	ng/L		07/02/19 11:25	07/30/19 12:31	5
6:2 FTS	ND		82	19	ng/L		07/02/19 11:25	07/30/19 12:31	5
8:2 FTS	ND		82	12	ng/L		07/02/19 11:25	07/30/19 12:31	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*70*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
13C4 PFBA	*87*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
13C5-PFPeA DNU	*98*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
13C2 PFHxA	*103*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
13C4 PFHpA	*93*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
13C4 PFOA	*94*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
13C5 PFNA	*80*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
13C2 PFDA	*103*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
13C2 PFUnA	*79*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
13C2 PFDoA	*101*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
13C2 PFTeDA	*75*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
13C3 PFBS	*104*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
18O2 PFHxS	*116*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
13C4 PFOS	*82*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
d3-NMeFOSAA	*70*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
d5-NEtFOSAA	*80*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*
M2-6:2 FTS	*87*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:31*	*5*

Client: Benchmark Env. Eng. & Science, PLLC
Project/Site: Benchmark-Peter Cooper sites

Job ID: 480-155323-1

Client Sample ID: MWFP-2S
Date Collected: 06/21/19 12:06
Date Received: 06/21/19 16:11

Lab Sample ID: 480-155323-4
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	91		25 - 150	07/02/19 11:25	07/30/19 12:31	5

Client: Benchmark Env. Eng. & Science, PLLC
Project/Site: Benchmark-Peter Cooper sites

Job ID: 480-155323-1

Client Sample ID: MWS-5S

Date Collected: 06/21/19 13:49
Date Received: 06/21/19 16:11

Lab Sample ID: 480-155323-5

Matrix: Water

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		06/25/19 15:44	07/01/19 17:57	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*32*		*15 - 110*	*06/25/19 15:44*	*07/01/19 17:57*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**11**		8.6	4.3	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluoropentanoic acid (PFPeA)	**2.9**	**J**	8.6	2.7	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluorohexanoic acid (PFHxA)	ND		8.6	3.3	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluoroheptanoic acid (PFHpA)	ND		8.6	3.9	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluorooctanoic acid (PFOA)	**3.4**	**J B**	8.6	2.7	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluorononanoic acid (PFNA)	ND	*	8.6	1.2	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluorodecanoic acid (PFDA)	ND		8.6	3.3	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluoroundecanoic acid (PFUnA)	ND		8.6	2.3	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluorododecanoic acid (PFDoA)	ND		8.6	2.5	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluorotridecanoic acid (PFTriA)	ND		8.6	2.6	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluorotetradecanoic acid (PFTeA)	ND		8.6	4.0	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluorobutanesulfonic acid (PFBS)	ND		8.6	2.1	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluorohexanesulfonic acid (PFHxS)	ND		8.6	3.5	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluoroheptanesulfonic Acid (PFHpS)	ND		8.6	4.1	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluorodecanesulfonic acid (PFDS)	ND		8.6	3.9	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluorooctanesulfonic acid (PFOS)	ND	*	8.6	2.6	ng/L		07/02/19 11:25	07/30/19 12:39	5
Perfluorooctanesulfonamide (FOSA)	ND		43	43	ng/L		07/02/19 11:25	07/30/19 12:39	5
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	*	86	7.3	ng/L		07/02/19 11:25	07/30/19 12:39	5
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	*	86	6.5	ng/L		07/02/19 11:25	07/30/19 12:39	5
6:2 FTS	ND		86	20	ng/L		07/02/19 11:25	07/30/19 12:39	5
8:2 FTS	ND		86	13	ng/L		07/02/19 11:25	07/30/19 12:39	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*81*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
13C4 PFBA	*85*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
13C5-PFPeA DNU	*95*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
13C2 PFHxA	*97*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
13C4 PFHpA	*93*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
13C4 PFOA	*93*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
13C5 PFNA	*85*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
13C2 PFDA	*93*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
13C2 PFUnA	*88*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
13C2 PFDoA	*97*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
13C2 PFTeDA	*77*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
13C3 PFBS	*103*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
18O2 PFHxS	*111*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
13C4 PFOS	*91*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
d3-NMeFOSAA	*83*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
d5-NEtFOSAA	*74*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
M2-6:2 FTS	*89*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*
M2-8:2 FTS	*87*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:39*	*5*

Client Sample ID: BLIND DUP
Lab Sample ID: 480-155323-6

Date Collected: 06/21/19 00:00
Matrix: Water
Date Received: 06/21/19 16:11

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		06/25/19 15:44	07/01/19 18:21	1

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*34*		*15 - 110*	*06/25/19 15:44*	*07/01/19 18:21*	*1*

Method: 537 (modified) - Fluorinated Alkyl Substances

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	**13**		7.9	3.9	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluoropentanoic acid (PFPeA)	**5.4**	**J**	7.9	2.5	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluorohexanoic acid (PFHxA)	**4.3**	**J**	7.9	3.0	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluoroheptanoic acid (PFHpA)	ND		7.9	3.6	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluorooctanoic acid (PFOA)	**6.1**	**J B**	7.9	2.5	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluorononanoic acid (PFNA)	**2.3**	**J B ***	7.9	1.1	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluorodecanoic acid (PFDA)	ND		7.9	3.0	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluoroundecanoic acid (PFUnA)	ND		7.9	2.1	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluorododecanoic acid (PFDoA)	**2.4**	**J**	7.9	2.3	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluorotridecanoic acid (PFTriA)	ND		7.9	2.4	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluorotetradecanoic acid (PFTeA)	ND		7.9	3.6	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluorobutanesulfonic acid (PFBS)	**2.0**	**J**	7.9	1.9	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluorohexanesulfonic acid (PFHxS)	ND		7.9	3.1	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluoroheptanesulfonic Acid (PFHpS)	ND		7.9	3.7	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluorodecanesulfonic acid (PFDS)	ND	I	7.9	3.5	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluorooctanesulfonic acid (PFOS)	**3.6**	**J B ***	7.9	2.4	ng/L		07/02/19 11:25	07/30/19 12:55	5
Perfluorooctanesulfonamide (FOSA)	ND		39	39	ng/L		07/02/19 11:25	07/30/19 12:55	5
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	*	79	6.7	ng/L		07/02/19 11:25	07/30/19 12:55	5
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	*	79	5.9	ng/L		07/02/19 11:25	07/30/19 12:55	5
6:2 FTS	ND		79	18	ng/L		07/02/19 11:25	07/30/19 12:55	5
8:2 FTS	ND		79	11	ng/L		07/02/19 11:25	07/30/19 12:55	5

Isotope Dilution	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*66*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
13C4 PFBA	*80*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
13C5-PFPeA DNU	*86*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
13C2 PFHxA	*90*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
13C4 PFHpA	*86*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
13C4 PFOA	*84*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
13C5 PFNA	*82*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
13C2 PFDA	*86*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
13C2 PFUnA	*75*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
13C2 PFDoA	*90*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
13C2 PFTeDA	*78*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
13C3 PFBS	*93*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
18O2 PFHxS	*114*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
13C4 PFOS	*83*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
d3-NMeFOSAA	*70*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
d5-NEtFOSAA	*66*		*50 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*
M2-6:2 FTS	*94*		*25 - 150*	*07/02/19 11:25*	*07/30/19 12:55*	*5*

Client: Benchmark Env. Eng. & Science, PLLC
Project/Site: Benchmark-Peter Cooper sites

Job ID: 480-155323-1

Client Sample ID: BLIND DUP
Date Collected: 06/21/19 00:00
Date Received: 06/21/19 16:11

Lab Sample ID: 480-155323-6
Matrix: Water

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Isotope Dilution	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
M2-8:2 FTS	81		25 - 150	07/02/19 11:25	07/30/19 12:55	5

Isotope Dilution Summary

Client: Benchmark Env. Eng. & Science, PLLC
Job ID: 480-155323-1
Project/Site: Benchmark-Peter Cooper sites

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	DXE (15-110)
480-155323-1	MWFP-3S	27
480-155323-2	MW-1SR	33
480-155323-2 MS	MW-1SR	35
480-155323-2 MSD	MW-1SR	38
480-155323-4	MWFP-2S	33
480-155323-5	MWS-5S	32
480-155323-6	BLIND DUP	34
LCS 480-479551/2-A	Lab Control Sample	41
MB 480-479551/1-A	Method Blank	39

Surrogate Legend

DXE = 1,4-Dioxane-d8

Method: 537 (modified) - Fluorinated Alkyl Substances

Matrix: Water **Prep Type: Total/NA**

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFOSA (25-150)	PFBA (25-150)	PFPeA (25-150)	PFHxA (50-150)	PFHpA (50-150)	PFOA (50-150)	PFNA (50-150)	PFDA (50-150)
480-155323-1	MWFP-3S	72	88	89	100	101	97	81	97
480-155323-2	MW-1SR	77	78	84	99	96	93	75	89
480-155323-2 MS	MW-1SR	82	74	81	91	90	93	77	90
480-155323-2 MSD	MW-1SR	84	81	90	96	99	94	80	91
480-155323-3	FIELD BLANK	88	112	104	103	99	103	100	107
480-155323-4	MWFP-2S	70	87	98	103	93	94	80	103
480-155323-5	MWS-5S	81	85	95	97	93	93	85	93
480-155323-6	BLIND DUP	66	80	86	90	86	84	82	86
LCS 200-144676/2-A	Lab Control Sample	78	99	96	105	100	101	91	112
MB 200-144676/1-A	Method Blank	65	95	90	98	94	98	88	100

		Percent Isotope Dilution Recovery (Acceptance Limits)							
Lab Sample ID	Client Sample ID	PFUnA (50-150)	PFDoA (50-150)	PFTDA (50-150)	3C3-PFBS (50-150)	PFHxS (50-150)	PFOS (50-150)	-NMeFOSA (50-150)	-NEtFOSA (50-150)
480-155323-1	MWFP-3S	77	89	66	104	121	88	71	69
480-155323-2	MW-1SR	78	91	67	100	120	83	72	72
480-155323-2 MS	MW-1SR	84	98	63	94	111	84	72	72
480-155323-2 MSD	MW-1SR	83	91	62	100	123	87	77	73
480-155323-3	FIELD BLANK	100	114	75	101	128	99	85	83
480-155323-4	MWFP-2S	79	101	75	104	116	82	70	80
480-155323-5	MWS-5S	88	97	77	103	111	91	83	74
480-155323-6	BLIND DUP	75	90	78	93	114	83	70	66
LCS 200-144676/2-A	Lab Control Sample	91	91	69	104	129	103	86	74
MB 200-144676/1-A	Method Blank	82	77	58	100	118	99	79	72

		Percent Isotope Dilution Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	M262FTS (25-150)	M282FTS (25-150)
480-155323-1	MWFP-3S	97	88
480-155323-2	MW-1SR	91	84
480-155323-2 MS	MW-1SR	86	83
480-155323-2 MSD	MW-1SR	89	78
480-155323-3	FIELD BLANK	91	96

Isotope Dilution Summary

Client: Benchmark Env. Eng. & Science, PLLC
Job ID: 480-155323-1
Project/Site: Benchmark-Peter Cooper sites

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Matrix: Water
Prep Type: Total/NA

		Percent Isotope Dilution Recovery (Acceptance Limits)									
		M262FTS	M282FTS								
Lab Sample ID	Client Sample ID	(25-150)	(25-150)								
480-155323-4	MWFP-2S	87	91								
480-155323-5	MWS-5S	89	87								
480-155323-6	BLIND DUP	94	81								
LCS 200-144676/2-A	Lab Control Sample	84	95								
MB 200-144676/1-A	Method Blank	84	86								

Surrogate Legend

PFOSA = 13C8 FOSA
PFBA = 13C4 PFBA
PFPeA = 13C5-PFPeA DNU
PFHxA = 13C2 PFHxA
PFHpA = 13C4 PFHpA
PFOA = 13C4 PFOA
PFNA = 13C5 PFNA
PFDA = 13C2 PFDA
PFUnA = 13C2 PFUnA
PFDoA = 13C2 PFDoA
PFTDA = 13C2 PFTeDA
13C3-PFBS = 13C3 PFBS
PFHxS = 18O2 PFHxS
PFOS = 13C4 PFOS
d3-NMeFOSAA = d3-NMeFOSAA
d5-NEtFOSAA = d5-NEtFOSAA
M262FTS = M2-6:2 FTS
M282FTS = M2-8:2 FTS

Method: 8270D SIM ID - Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)

Lab Sample ID: MB 480-479551/1-A
Matrix: Water
Analysis Batch: 480296

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 479551

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dioxane	ND		0.20	0.10	ug/L		06/25/19 15:44	07/01/19 15:09	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Dioxane-d8	*39*		*15 - 110*	*06/25/19 15:44*	*07/01/19 15:09*	*1*

Lab Sample ID: LCS 480-479551/2-A
Matrix: Water
Analysis Batch: 480296

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 479551

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane			1.00	1.15		ug/L		115	40 - 140		

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,4-Dioxane-d8	*41*		*15 - 110*

Lab Sample ID: 480-155323-2 MS
Matrix: Water
Analysis Batch: 480296

Client Sample ID: MW-1SR
Prep Type: Total/NA
Prep Batch: 479551

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
1,4-Dioxane	ND		1.00	1.12		ug/L		112	40 - 140		

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
1,4-Dioxane-d8	*35*		*15 - 110*

Lab Sample ID: 480-155323-2 MSD
Matrix: Water
Analysis Batch: 480296

Client Sample ID: MW-1SR
Prep Type: Total/NA
Prep Batch: 479551

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,4-Dioxane	ND		1.00	1.33	E	ug/L		133	40 - 140	17	20

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,4-Dioxane-d8	*38*		*15 - 110*

Method: 537 (modified) - Fluorinated Alkyl Substances

Lab Sample ID: MB 200-144676/1-A
Matrix: Water
Analysis Batch: 145634

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 144676

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorobutanoic acid (PFBA)	ND		2.0	1.0	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluoropentanoic acid (PFPeA)	ND		2.0	0.63	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluorohexanoic acid (PFHxA)	ND		2.0	0.76	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluoroheptanoic acid (PFHpA)	ND		2.0	0.91	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluorooctanoic acid (PFOA)	0.696	J	2.0	0.63	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluorononanoic acid (PFNA)	0.288	J	2.0	0.27	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluorodecanoic acid (PFDA)	ND		2.0	0.77	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluoroundecanoic acid (PFUnA)	ND		2.0	0.53	ng/L		07/02/19 11:25	07/30/19 11:10	1

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: MB 200-144676/1-A
Matrix: Water
Analysis Batch: 145634

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 144676

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Perfluorododecanoic acid (PFDoA)	ND		2.0	0.59	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluorotridecanoic acid (PFTriA)	ND		2.0	0.60	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluorotetradecanoic acid (PFTeA)	ND		2.0	0.92	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluorobutanesulfonic acid (PFBS)	ND		2.0	0.49	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluorohexanesulfonic acid (PFHxS)	ND		2.0	0.80	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluoroheptanesulfonic Acid (PFHpS)	ND		2.0	0.95	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluorodecanesulfonic acid (PFDS)	ND		2.0	0.90	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluorooctanesulfonic acid (PFOS)	1.04	J	2.0	0.61	ng/L		07/02/19 11:25	07/30/19 11:10	1
Perfluorooctanesulfonamide (FOSA)	ND		10	10	ng/L		07/02/19 11:25	07/30/19 11:10	1
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND		20	1.7	ng/L		07/02/19 11:25	07/30/19 11:10	1
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND		20	1.5	ng/L		07/02/19 11:25	07/30/19 11:10	1
6:2 FTS	ND		20	4.6	ng/L		07/02/19 11:25	07/30/19 11:10	1
8:2 FTS	ND		20	2.9	ng/L		07/02/19 11:25	07/30/19 11:10	1

Isotope Dilution	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
13C8 FOSA	*65*		*25 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
13C4 PFBA	*95*		*25 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
13C5-PFPeA DNU	*90*		*25 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
13C2 PFHxA	*98*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
13C4 PFHpA	*94*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
13C4 PFOA	*98*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
13C5 PFNA	*88*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
13C2 PFDA	*100*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
13C2 PFUnA	*82*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
13C2 PFDoA	*77*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
13C2 PFTeDA	*58*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
13C3 PFBS	*100*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
18O2 PFHxS	*118*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
13C4 PFOS	*99*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
d3-NMeFOSAA	*79*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
d5-NEtFOSAA	*72*		*50 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
M2-6:2 FTS	*84*		*25 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*
M2-8:2 FTS	*86*		*25 - 150*	*07/02/19 11:25*	*07/30/19 11:10*	*1*

Lab Sample ID: LCS 200-144676/2-A
Matrix: Water
Analysis Batch: 145634

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 144676

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	40.0	47.5		ng/L		119	50 - 150
Perfluoropentanoic acid (PFPeA)	40.0	50.1		ng/L		125	50 - 150
Perfluorohexanoic acid (PFHxA)	40.0	45.6		ng/L		114	70 - 130
Perfluoroheptanoic acid (PFHpA)	40.0	51.1		ng/L		128	70 - 130
Perfluorooctanoic acid (PFOA)	40.0	47.4		ng/L		118	70 - 130
Perfluorononanoic acid (PFNA)	40.0	54.1	*	ng/L		135	70 - 130
Perfluorodecanoic acid (PFDA)	40.0	50.5		ng/L		126	70 - 130

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: LCS 200-144676/2-A
Matrix: Water
Analysis Batch: 145634

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 144676

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluoroundecanoic acid (PFUnA)	40.0	46.3		ng/L		116	70 - 130
Perfluorododecanoic acid (PFDoA)	40.0	46.2		ng/L		115	70 - 130
Perfluorotridecanoic acid (PFTriA)	40.0	49.0		ng/L		123	70 - 130
Perfluorotetradecanoic acid (PFTeA)	40.0	45.9		ng/L		115	70 - 130
Perfluorobutanesulfonic acid (PFBS)	35.4	41.1		ng/L		116	70 - 130
Perfluorohexanesulfonic acid (PFHxS)	36.4	32.9		ng/L		90	70 - 130
Perfluoroheptanesulfonic Acid (PFHpS)	38.1	46.9		ng/L		123	50 - 150
Perfluorodecanesulfonic acid (PFDS)	38.6	40.7		ng/L		106	50 - 150
Perfluorooctanesulfonic acid (PFOS)	37.1	49.5	*	ng/L		133	70 - 130
Perfluorooctanesulfonamide (FOSA)	40.0	50.0		ng/L		125	50 - 150
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	40.0	59.3	*	ng/L		148	70 - 130
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	40.0	60.7	*	ng/L		152	70 - 130
6:2 FTS	37.9	46.7		ng/L		123	50 - 150
8:2 FTS	38.3	44.0		ng/L		115	50 - 150

Isotope Dilution	*LCS %Recovery*	*LCS Qualifier*	*Limits*
13C8 FOSA	*78*		*25 - 150*
13C4 PFBA	*99*		*25 - 150*
13C5-PFPeA DNU	*96*		*25 - 150*
13C2 PFHxA	*105*		*50 - 150*
13C4 PFHpA	*100*		*50 - 150*
13C4 PFOA	*101*		*50 - 150*
13C5 PFNA	*91*		*50 - 150*
13C2 PFDA	*112*		*50 - 150*
13C2 PFUnA	*91*		*50 - 150*
13C2 PFDoA	*91*		*50 - 150*
13C2 PFTeDA	*69*		*50 - 150*
13C3 PFBS	*104*		*50 - 150*
18O2 PFHxS	*129*		*50 - 150*
13C4 PFOS	*103*		*50 - 150*
d3-NMeFOSAA	*86*		*50 - 150*
d5-NEtFOSAA	*74*		*50 - 150*
M2-6:2 FTS	*84*		*25 - 150*
M2-8:2 FTS	*95*		*25 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 480-155323-2 MS
Matrix: Water
Analysis Batch: 145634

Client Sample ID: MW-1SR
Prep Type: Total/NA
Prep Batch: 144676

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Perfluorobutanoic acid (PFBA)	4.0		34.3	45.3		ng/L		120	40 - 160
Perfluoropentanoic acid (PFPeA)	0.94	J	34.3	44.9		ng/L		128	40 - 160
Perfluorohexanoic acid (PFHxA)	1.4	J	34.3	40.9		ng/L		115	40 - 160
Perfluoroheptanoic acid (PFHpA)	0.94	J	34.3	46.0		ng/L		131	40 - 160
Perfluorooctanoic acid (PFOA)	2.7	B	34.3	43.0		ng/L		118	40 - 160
Perfluorononanoic acid (PFNA)	0.33	J B *	34.3	45.8		ng/L		133	40 - 160
Perfluorodecanoic acid (PFDA)	ND		34.3	42.6		ng/L		124	40 - 160
Perfluoroundecanoic acid (PFUnA)	ND		34.3	38.5		ng/L		112	40 - 160
Perfluorododecanoic acid (PFDoA)	ND		34.3	38.5		ng/L		112	40 - 160
Perfluorotridecanoic acid (PFTriA)	ND		34.3	38.7		ng/L		113	40 - 160
Perfluorotetradecanoic acid (PFTeA)	ND		34.3	43.1		ng/L		126	40 - 160
Perfluorobutanesulfonic acid (PFBS)	0.64	J	30.3	37.4		ng/L		121	40 - 160
Perfluorohexanesulfonic acid (PFHxS)	ND		31.2	31.5		ng/L		101	40 - 160
Perfluoroheptanesulfonic Acid (PFHpS)	ND		32.7	46.4		ng/L		142	40 - 160
Perfluorodecanesulfonic acid (PFDS)	ND		33.1	38.9		ng/L		117	40 - 160
Perfluorooctanesulfonic acid (PFOS)	1.7	I B *	31.8	44.2		ng/L		134	40 - 160
Perfluorooctanesulfonamide (FOSA)	ND		34.3	45.1		ng/L		131	40 - 160
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	*	34.3	47.9		ng/L		140	40 - 160
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	*	34.3	51.8		ng/L		151	40 - 160
6:2 FTS	ND		32.5	42.0		ng/L		129	40 - 160
8:2 FTS	ND		32.9	39.2		ng/L		119	40 - 160

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
13C8 FOSA	*82*		*25 - 150*
13C4 PFBA	*74*		*25 - 150*
13C5-PFPeA DNU	*81*		*25 - 150*
13C2 PFHxA	*91*		*50 - 150*
13C4 PFHpA	*90*		*50 - 150*
13C4 PFOA	*93*		*50 - 150*
13C5 PFNA	*77*		*50 - 150*
13C2 PFDA	*90*		*50 - 150*
13C2 PFUnA	*84*		*50 - 150*
13C2 PFDoA	*98*		*50 - 150*
13C2 PFTeDA	*63*		*50 - 150*
13C3 PFBS	*94*		*50 - 150*
18O2 PFHxS	*111*		*50 - 150*
13C4 PFOS	*84*		*50 - 150*
d3-NMeFOSAA	*72*		*50 - 150*
d5-NEtFOSAA	*72*		*50 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 480-155323-2 MS
Matrix: Water
Analysis Batch: 145634

Client Sample ID: MW-1SR
Prep Type: Total/NA
Prep Batch: 144676

Isotope Dilution	*MS %Recovery*	*MS Qualifier*	*Limits*
M2-6:2 FTS	*86*		*25 - 150*
M2-8:2 FTS	*83*		*25 - 150*

Lab Sample ID: 480-155323-2 MSD
Matrix: Water
Analysis Batch: 145634

Client Sample ID: MW-1SR
Prep Type: Total/NA
Prep Batch: 144676

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Perfluorobutanoic acid (PFBA)	4.0		32.7	43.2		ng/L		120	40 - 160	5	30
Perfluoropentanoic acid (PFPeA)	0.94	J	32.7	41.1		ng/L		123	40 - 160	9	30
Perfluorohexanoic acid (PFHxA)	1.4	J	32.7	41.4		ng/L		122	40 - 160	1	20
Perfluoroheptanoic acid (PFHpA)	0.94	J	32.7	42.7		ng/L		128	40 - 160	7	20
Perfluorooctanoic acid (PFOA)	2.7	B	32.7	43.9		ng/L		126	40 - 160	2	20
Perfluorononanoic acid (PFNA)	0.33	J B *	32.7	49.6		ng/L		151	40 - 160	8	20
Perfluorodecanoic acid (PFDA)	ND		32.7	42.9		ng/L		131	40 - 160	1	20
Perfluoroundecanoic acid (PFUnA)	ND		32.7	37.1		ng/L		113	40 - 160	4	20
Perfluorododecanoic acid (PFDoA)	ND		32.7	40.3		ng/L		123	40 - 160	5	20
Perfluorotridecanoic acid (PFTriA)	ND		32.7	38.0		ng/L		116	40 - 160	2	20
Perfluorotetradecanoic acid (PFTeA)	ND		32.7	44.1		ng/L		135	40 - 160	2	20
Perfluorobutanesulfonic acid (PFBS)	0.64	J	28.9	36.1		ng/L		123	40 - 160	4	20
Perfluorohexanesulfonic acid (PFHxS)	ND		29.8	28.9		ng/L		97	40 - 160	9	20
Perfluoroheptanesulfonic Acid (PFHpS)	ND		31.2	43.3		ng/L		139	40 - 160	7	30
Perfluorodecanesulfonic acid (PFDS)	ND		31.6	39.5		ng/L		125	40 - 160	2	30
Perfluorooctanesulfonic acid (PFOS)	1.7	I B *	30.4	41.5		ng/L		131	40 - 160	6	20
Perfluorooctanesulfonamide (FOSA)	ND		32.7	43.6		ng/L		133	40 - 160	3	30
N-methylperfluorooctanesulfonamidoacetic acid (NMeFOSAA)	ND	*	32.7	43.5		ng/L		133	40 - 160	10	20
N-ethylperfluorooctanesulfonamidoacetic acid (NEtFOSAA)	ND	*	32.7	49.4		ng/L		151	40 - 160	5	20
6:2 FTS	ND		31.0	38.6		ng/L		124	40 - 160	8	30
8:2 FTS	ND		31.4	44.0		ng/L		140	40 - 160	12	30

Isotope Dilution	*MSD %Recovery*	*MSD Qualifier*	*Limits*
13C8 FOSA	*84*		*25 - 150*
13C4 PFBA	*81*		*25 - 150*
13C5-PFPeA DNU	*90*		*25 - 150*
13C2 PFHxA	*96*		*50 - 150*
13C4 PFHpA	*99*		*50 - 150*
13C4 PFOA	*94*		*50 - 150*
13C5 PFNA	*80*		*50 - 150*
13C2 PFDA	*91*		*50 - 150*
13C2 PFUnA	*83*		*50 - 150*

Method: 537 (modified) - Fluorinated Alkyl Substances (Continued)

Lab Sample ID: 480-155323-2 MSD
Matrix: Water
Analysis Batch: 145634

Client Sample ID: MW-1SR
Prep Type: Total/NA
Prep Batch: 144676

Isotope Dilution	MSD %Recovery	MSD Qualifier	Limits
13C2 PFDoA	91		50 - 150
13C2 PFTeDA	62		50 - 150
13C3 PFBS	100		50 - 150
18O2 PFHxS	123		50 - 150
13C4 PFOS	87		50 - 150
d3-NMeFOSAA	77		50 - 150
d5-NEtFOSAA	73		50 - 150
M2-6:2 FTS	89		25 - 150
M2-8:2 FTS	78		25 - 150

QC Association Summary

Client: Benchmark Env. Eng. & Science, PLLC
Job ID: 480-155323-1
Project/Site: Benchmark-Peter Cooper sites

GC/MS Semi VOA

Prep Batch: 479551

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155323-1	MWFP-3S	Total/NA	Water	3510C	
480-155323-2	MW-1SR	Total/NA	Water	3510C	
480-155323-4	MWFP-2S	Total/NA	Water	3510C	
480-155323-5	MWS-5S	Total/NA	Water	3510C	
480-155323-6	BLIND DUP	Total/NA	Water	3510C	
MB 480-479551/1-A	Method Blank	Total/NA	Water	3510C	
LCS 480-479551/2-A	Lab Control Sample	Total/NA	Water	3510C	
480-155323-2 MS	MW-1SR	Total/NA	Water	3510C	
480-155323-2 MSD	MW-1SR	Total/NA	Water	3510C	

Analysis Batch: 480296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155323-1	MWFP-3S	Total/NA	Water	8270D SIM ID	479551
480-155323-2	MW-1SR	Total/NA	Water	8270D SIM ID	479551
480-155323-4	MWFP-2S	Total/NA	Water	8270D SIM ID	479551
480-155323-5	MWS-5S	Total/NA	Water	8270D SIM ID	479551
480-155323-6	BLIND DUP	Total/NA	Water	8270D SIM ID	479551
MB 480-479551/1-A	Method Blank	Total/NA	Water	8270D SIM ID	479551
LCS 480-479551/2-A	Lab Control Sample	Total/NA	Water	8270D SIM ID	479551
480-155323-2 MS	MW-1SR	Total/NA	Water	8270D SIM ID	479551
480-155323-2 MSD	MW-1SR	Total/NA	Water	8270D SIM ID	479551

LCMS

Prep Batch: 144676

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155323-1	MWFP-3S	Total/NA	Water	3535	
480-155323-2	MW-1SR	Total/NA	Water	3535	
480-155323-3	FIELD BLANK	Total/NA	Water	3535	
480-155323-4	MWFP-2S	Total/NA	Water	3535	
480-155323-5	MWS-5S	Total/NA	Water	3535	
480-155323-6	BLIND DUP	Total/NA	Water	3535	
MB 200-144676/1-A	Method Blank	Total/NA	Water	3535	
LCS 200-144676/2-A	Lab Control Sample	Total/NA	Water	3535	
480-155323-2 MS	MW-1SR	Total/NA	Water	3535	
480-155323-2 MSD	MW-1SR	Total/NA	Water	3535	

Analysis Batch: 145634

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
480-155323-1	MWFP-3S	Total/NA	Water	537 (modified)	144676
480-155323-2	MW-1SR	Total/NA	Water	537 (modified)	144676
480-155323-3	FIELD BLANK	Total/NA	Water	537 (modified)	144676
480-155323-4	MWFP-2S	Total/NA	Water	537 (modified)	144676
480-155323-5	MWS-5S	Total/NA	Water	537 (modified)	144676
480-155323-6	BLIND DUP	Total/NA	Water	537 (modified)	144676
MB 200-144676/1-A	Method Blank	Total/NA	Water	537 (modified)	144676
LCS 200-144676/2-A	Lab Control Sample	Total/NA	Water	537 (modified)	144676
480-155323-2 MS	MW-1SR	Total/NA	Water	537 (modified)	144676
480-155323-2 MSD	MW-1SR	Total/NA	Water	537 (modified)	144676

Lab Chronicle

Client: Benchmark Env. Eng. & Science, PLLC
Project/Site: Benchmark-Peter Cooper sites

Job ID: 480-155323-1

Client Sample ID: MWFP-3S
Date Collected: 06/21/19 13:09
Date Received: 06/21/19 16:11

Lab Sample ID: 480-155323-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			479551	06/25/19 15:44	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	480296	07/01/19 17:10	RJS	TAL BUF
Total/NA	Prep	3535			144676	07/02/19 11:25	TPB	TAL BUR
Total/NA	Analysis	537 (modified)		5	145634	07/30/19 11:50	JM1	TAL BUR

Client Sample ID: MW-1SR
Date Collected: 06/21/19 10:50
Date Received: 06/21/19 16:11

Lab Sample ID: 480-155323-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			479551	06/25/19 15:44	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	480296	07/01/19 16:46	RJS	TAL BUF
Total/NA	Prep	3535			144676	07/02/19 11:25	TPB	TAL BUR
Total/NA	Analysis	537 (modified)		1	145634	07/30/19 11:58	JM1	TAL BUR

Client Sample ID: FIELD BLANK
Date Collected: 06/21/19 09:30
Date Received: 06/21/19 16:11

Lab Sample ID: 480-155323-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3535			144676	07/02/19 11:25	TPB	TAL BUR
Total/NA	Analysis	537 (modified)		1	145634	07/30/19 12:23	JM1	TAL BUR

Client Sample ID: MWFP-2S
Date Collected: 06/21/19 12:06
Date Received: 06/21/19 16:11

Lab Sample ID: 480-155323-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			479551	06/25/19 15:44	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	480296	07/01/19 17:34	RJS	TAL BUF
Total/NA	Prep	3535			144676	07/02/19 11:25	TPB	TAL BUR
Total/NA	Analysis	537 (modified)		5	145634	07/30/19 12:31	JM1	TAL BUR

Client Sample ID: MWS-5S
Date Collected: 06/21/19 13:49
Date Received: 06/21/19 16:11

Lab Sample ID: 480-155323-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			479551	06/25/19 15:44	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	480296	07/01/19 17:57	RJS	TAL BUF
Total/NA	Prep	3535			144676	07/02/19 11:25	TPB	TAL BUR
Total/NA	Analysis	537 (modified)		5	145634	07/30/19 12:39	JM1	TAL BUR

Lab Chronicle

Client: Benchmark Env. Eng. & Science, PLLC
Project/Site: Benchmark-Peter Cooper sites

Job ID: 480-155323-1

Client Sample ID: BLIND DUP

Date Collected: 06/21/19 00:00
Date Received: 06/21/19 16:11

Lab Sample ID: 480-155323-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			479551	06/25/19 15:44	ATG	TAL BUF
Total/NA	Analysis	8270D SIM ID		1	480296	07/01/19 18:21	RJS	TAL BUF
Total/NA	Prep	3535			144676	07/02/19 11:25	TPB	TAL BUR
Total/NA	Analysis	537 (modified)		5	145634	07/30/19 12:55	JM1	TAL BUR

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL BUR = Eurofins TestAmerica, Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: Benchmark Env. Eng. & Science, PLLC
Job ID: 480-155323-1
Project/Site: Benchmark-Peter Cooper sites

Laboratory: Eurofins TestAmerica, Buffalo

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
New York	NELAP	2	10026	03-31-20

Laboratory: Eurofins TestAmerica, Burlington

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP		L2336	02-25-20
ANAB	DoD		L2336	02-25-20
Connecticut	State Program	1	PH-0751	09-30-19
DE Haz. Subst. Cleanup Act (HSCA)	State Program	3	NA	02-01-20
Florida	NELAP	4	E87467	06-30-20
Florida	NELAP		E87467	06-01-20
Minnesota	NELAP	5	050-999-436	12-31-19
New Hampshire	NELAP	1	2006	12-18-19
New Jersey	NELAP	2	VT972	06-30-20
New Jersey	NELAP		VT972	06-30-20
New York	NELAP	2	10391	04-01-20
New York	NELAP		<cert No.>	03-31-20
Pennsylvania	NELAP	3	68-00489	04-30-20
Pennsylvania	NELAP		68-00489	04-30-20
Rhode Island	State Program	1	LAO00298	12-30-19
US Fish & Wildlife	Federal		LE-058448-0	07-31-19
USDA	Federal		P330-11-00093	07-24-20
Vermont	State Program	1	VT-4000	12-31-19
Virginia	NELAP	3	460209	12-14-19

Method Summary

Client: Benchmark Env. Eng. & Science, PLLC
Project/Site: Benchmark-Peter Cooper sites

Job ID: 480-155323-1

Method	Method Description	Protocol	Laboratory
8270D SIM ID	Semivolatile Organic Compounds (GC/MS SIM / Isotope Dilution)	SW846	TAL BUF
537 (modified)	Fluorinated Alkyl Substances	EPA	TAL BUR
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL BUF
3535	Solid-Phase Extraction (SPE)	SW846	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL BUF = Eurofins TestAmerica, Buffalo, 10 Hazelwood Drive, Amherst, NY 14228-2298, TEL (716)691-2600

TAL BUR = Eurofins TestAmerica, Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: Benchmark Env. Eng. & Science, PLLC
Project/Site: Benchmark-Peter Cooper sites

Job ID: 480-155323-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
480-155323-1	MWFP-3S	Water	06/21/19 13:09	06/21/19 16:11	
480-155323-2	MW-1SR	Water	06/21/19 10:50	06/21/19 16:11	
480-155323-3	FIELD BLANK	Water	06/21/19 09:30	06/21/19 16:11	
480-155323-4	MWFP-2S	Water	06/21/19 12:06	06/21/19 16:11	
480-155323-5	MWS-5S	Water	06/21/19 13:49	06/21/19 16:11	
480-155323-6	BLIND DUP	Water	06/21/19 00:00	06/21/19 16:11	

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

eurofins | Environment Testing TestAmerica

Client Information	Sampler: TAB	Lab PM: Fischer, Brian J	Carrier Tracking No(s):	COC No: 480-131607-29706.2
Client Contact: Mr. Rick Dubisz	Phone: 716 818-8358	E-Mail: brian.fischer@testamericainc.com		Page: Page 2 of 2
Company: Benchmark Env. Eng. & Science, PLLC				Job #:
Address: 2558 Hamburg Turnpike Suite 300	Due Date Requested:			
City: Lackawanna	TAT Requested (days):			
State, Zip: NY, 14218				
Phone:	PO #: Purchase Order Requested			
Email: rdubisz@benchmarkturnkey.com	WO #:			
Project Name: Benchmark-Peter Cooper sites(Emerging)	Project #: 48004066			
Site: New York	SSOW#:			

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, M - Hexane, N - None, O - AsNaO2, P - Na2O4S

480-155323 Chain of Custody

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA - PFAS, Standard List (21 Analytes)	8270D_SIM_MS_ID - 1,4-dioxane	Total Number	Special Instructions/Note:
			Preservation Code:				N	N		
MWFP-3S	6/21/19	1309	grab	Water			X	X	4	
MW-1SR		1050		Water			X	X	4	
~~MW-7SR~~				Water						
BLIND DUP	6/21/19	1200	grab	Water			X	X	4	
MS MW-1SR	6/21/19	1050		Water			X	X	4	
MSD MW-1SR		1050		Water			X	X	4	
Field Blank		~~0930~~					X		2	
MWFP-2S		1206	grab				X	X	4	
MWS-5S		1349					X	X	4	

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements: CAT B

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
	6/21/19			6/21/19 1614	TAB
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: 5.9 # ICE

Ver: 01/16/2019

Eurofins TestAmerica, Buffalo
10 Hazelwood Drive
Amherst, NY 14228-2298
Phone: 716-691-2600 Fax: 716-691-7991

Chain of Custody Record

480-155323 Chain of Custody

Eurofins | Environment Testing TestAmerica

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Fischer, Brian J	399.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: brian.fischer@testamericainc.com	New York — Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): NELAP - New York	Job #: 480-155323-1
Address: 30 Community Drive, Suite 11,	Due Date Requested: 6/27/2019		
City: South Burlington	TAT Requested (days):		
State, Zip: VT, 05403			
Phone: 802-660-1990(Tel) 802-660-1919(Fax)	PO #:		
Email:	WO #:		
Project Name: Benchmark-Peter Cooper sites	Project #: 48004066		
Site: Peter Cooper Markhams	SSOW#:		

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	PFC_IDA/3535_IVWT PFAS, Standard List (21 Analytes)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
MWFP-3S (480-155323-1)	6/21/19	13:09 Eastern		Water			X	2	Report problematic anaytes to 20 ng/l - match Sacremento's limits.
MW-1SR (480-155323-2)	6/21/19	10:50 Eastern		Water			X	2	Report problematic anaytes to 20 ng/l - match Sacremento's limits.
MW-1SR (480-155323-2MS)	6/21/19	10:50 Eastern	MS	Water			X	2	Report problematic anaytes to 20 ng/l - match Sacremento's limits.
MW-1SR (480-155323-2MSD)	6/21/19	10:50 Eastern	MSD	Water			X	2	Report problematic anaytes to 20 ng/l - match Sacremento's limits.
FIELD BLANK (480-155323-3)	6/21/19	09:30 Eastern		Water			X	2	Report problematic anaytes to 20 ng/l - match Sacremento's limits.
MWFP-2S (480-155323-4)	6/21/19	12:06 Eastern		Water			X	2	Report problematic anaytes to 20 ng/l - match Sacremento's limits.
MWS-5S (480-155323-5)	6/21/19	13:49 Eastern		Water			X	2	Report problematic anaytes to 20 ng/l - match Sacremento's limits.
BLIND DUP (480-155323-6)	6/21/19	Eastern		Water			X	2	Report problematic anaytes to 20 ng/l - match Sacremento's limits.

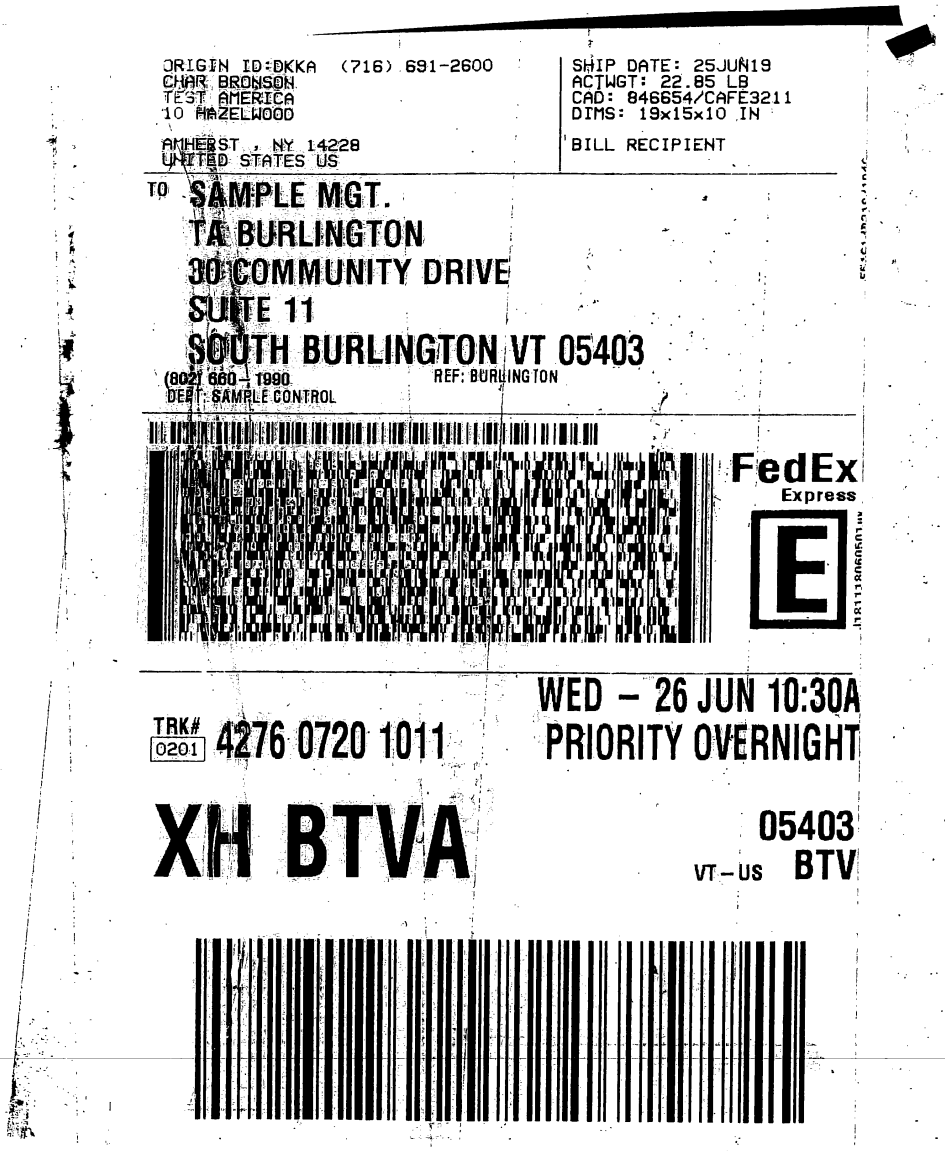
Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 6-25-19 1615	Company	Received by:	Date/Time: 6/26/19 0955	Company TAB
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.: NA	Cooler Temperature(s) °C and Other Remarks: 2.7

Ver: 01/16/2019



ORIGIN ID:DKKA (716) 691-2600
CHAR BRONSON
TEST AMERICA
10 HAZELWOOD

AMHERST , NY 14228
UNITED STATES US

SHIP DATE: 25JUN19
ACTWGT: 22.85 LB
CAD: 846654/CAFE3211
DIMS: 19x15x10 IN

BILL RECIPIENT

TO SAMPLE MGT.
TA BURLINGTON
30 COMMUNITY DRIVE
SUITE 11
SOUTH BURLINGTON VT 05403
(802) 660-1990 REF: BURLINGTON
DEPT: SAMPLE CONTROL

FedEx Express

TRK# 0201 4276 0720 1011

WED - 26 JUN 10:30A
PRIORITY OVERNIGHT

XH BTVA

05403
VT-US BTV

Login Sample Receipt Checklist

Client: Benchmark Env. Eng. & Science, PLLC

Job Number: 480-155323-1

Login Number: 155323
List Number: 1
Creator: Kolb, Chris M

List Source: Eurofins TestAmerica, Buffalo

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	BENCHMARK
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	True	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: Benchmark Env. Eng. & Science, PLLC

Job Number: 480-155323-1

Login Number: 155323
List Number: 2
Creator: Mohn, Taylor J

List Source: Eurofins TestAmerica, Burlington
List Creation: 06/26/19 01:08 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Seal present with no number.
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.7ºC
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	N/A	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

ATTACHMENT 3

DATA USABILITY SUMMARY REPORT (DUSR)

JUNE 2019

Data Validation Services

120 Cobble Creek Road P. O. Box 208
North Creek, NY 12853
Phone (518) 251-4429
harry@frontiernet.net

October 8, 2019

Thomas Forbes
Turnkey Environmental Restoration, LLC
2558 Hamburg Turnpike Suite 300
Buffalo, NY 14218

RE: Validation of the Peter Cooper Brownfield Cleanup Program (BCP) Site Analytical Data
Data Usability Summary Report (DUSR)
Eurofin TestAmerica SDG No. 480-155323-1

Dear Mr. Forbes:

Review has been completed for the data package generated by Eurofin TestAmerica that pertains to samples collected 06/21/19 at the Peter Cooper BCP site. Four aqueous samples, one field duplicate, and a field blank were processed for per- and poly fluorinated alkyl substances (PFAS) by a modified USEPA method 537 and 1,4-dioxane by USEPA method 8270D Selective Ion Monitoring (SIM).

The data packages submitted by the laboratory contain full deliverables for validation, but this usability report is generated from review of the QC summary form information, with full review of sample raw data and limited review of associated QC raw data. The reported QC summary forms and sample raw data have been reviewed for application of validation qualifiers, with guidance from the USEPA national and regional validation documents, and in consideration for the specific requirements of the analytical methodology. The following items were reviewed:

* Data Completeness
* Case Narrative
* Custody Documentation
* Holding Times
* Surrogate, Isotopic Dilution, and Internal Standard Recoveries
* Method and Field Blanks
* Laboratory Control Sample (LCS)
* Matrix Spike Recoveries and Correlations
* Blind Field Duplicate Correlations
* Instrumental Tunes
* Initial and Continuing Calibration Standards
* Method Compliance
* Sample Result Verification

Those items listed above which show deficiencies are discussed within the text of this narrative. All of the other items were determined to be acceptable for the DUSR level review, as discussed in NYS DER-10 Appendix B Section 2.0 (c). Documentation of the outlying parameters cited in this report can be found in the laboratory data package.

In summary, results for the samples are usable either as reported or with minor qualification or edit.

Data completeness, accuracy, precision, representativeness, reproducibility, sensitivity, and comparability are acceptable.

The laboratory modifications to the USEPA method 537 are significant, including acceptance ranges, consistent in many respects to the advances in the available monitoring compounds. Validation actions are based on the laboratory procedures, in consideration that the laboratory undergoes NYS DOH certifications and NYS SOP review.

The client sample identifications are attached to this text. Also included in this report is the EQuIS EDD with recommended qualifiers/edits applied in red.

1,4-Dioxane by EPA 8270D SIM

Holding times were met. Blanks show no contamination. Calibration standards show acceptable responses.

Surrogate standard recoveries are within the laboratory acceptance ranges and internal standard recoveries are within protocol limits.

Matrix spikes performed on MW-1SR show acceptable recoveries and correlations. LCS recoveries are compliant.

The blind field duplicate correlation of MW-5S is acceptable.

PFAS by Modified EPA Method 537

PFAS compounds are identified by their common acronyms in this report. The EDDs reference both the technical names and the acronyms.

The following detected results are considered external contamination and edited to reflect non-detection due to presence in the associated field and/or method blanks:

- PFHxA and PFNA in MW-1SR
- PFOA in all samples except BLIND DUP and FIELD BLANK
- PFOS in all samples except MWFP-3S and FIELD BLANK

Matrix spike recoveries and correlations of MW-1SR and the blind field duplicate correlation of MW-5S are within validation guidelines.

The detected result for PFNA in BLIND DUP and the detected results for PFOS in MWFP-3S and FIELD BLANK are qualified as estimated, with a high bias, due to elevated recoveries in the associated LCS.

Holding times were met. Isotopic dilution surrogate standards and internal standard recoveries are within laboratory acceptance ranges.

Due to matrix interferences, three of the samples and the field duplicate were processed at fivefold dilution, resulting in proportionally elevated reporting limits.

Please do not hesitate to contact me if questions or comments arise during your review of this report.

Very truly yours,

Judy Harry

Attachments: Validation Data Qualifier Definitions
Sample Identifications
Qualified Laboratory EQuIS EDD

VALIDATION DATA QUALIFIER DEFINITIONS

U	The analyte was analyzed for, but was not detected above the level of the associated reported quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
J-	The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased low.
J+	The analyte was positively identified; the associated numerical value is an estimated quantity that may be biased high.
UJ	The analyte was analyzed for, but was not detected. The associated reported quantitation limit is approximate and may be inaccurate or imprecise.
NJ	The detection is tentative in identification and estimated in value. Although there is presumptive evidence of the analyte, the result should be used with caution as a potential false positive and/or elevated quantitative value.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control limits. The analyte may or may not be present.
EMPC	The results do not meet all criteria for a confirmed identification. The quantitative value represents the Estimated Maximum Possible Concentration of the analyte in the sample.

Sample Summaries

Project Name: 2924 HAMBURG TURNPIKE
Project Number: 0345-015-001-008

Lab Number: L1940870
Report Date: 09/23/19

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1940870-01	MW-1	WATER	LACKAWANNA NY	09/06/19 13:57	09/06/19
L1940870-02	BLIND DUP	WATER	LACKAWANNA NY	09/06/19 12:00	09/06/19
L1940870-03	MW-2	WATER	LACKAWANNA NY	09/06/19 12:33	09/06/19
L1940870-04	MW-5	WATER	LACKAWANNA NY	09/06/19 11:50	09/06/19
L1940870-05	EQUIPMENT BLANK	WATER	LACKAWANNA NY	09/06/19 10:45	09/06/19
L1940870-06	FIELD BLANK	WATER	LACKAWANNA NY	09/06/19 10:20	09/06/19

APPENDIX C
SIU Permit Requirements

TABLE 2 (revised Sampling and Monitoring) EFFECTIVE 1/1/13

Annual samples to be done in January, semi-annual samples to be done in June

Parameter	Sampling Location	Frequency	Sample Type
USEPA Priority Pollutant	Pre treatment building	Annual Effective 1/1/13	Grab
Sulfates	Pre treatment building	2x per year effective 1/1/13	24/hr. Composite
Sulfides (collected both prior to and following pre-treatment)	Pre treatment building	2x per year effective 1/1/13	24/hr. Composite
BOD/5	Pre treatment building	2x per year Effective 1/1/13	Composite
TSS	Pre treatment building		
Phenols	Per treatment building		
Ammonia	Pre treatment building		
TKN	Pre treatment building		
PH (field measured)	Pre treatment building	weekly	24/hr. Composite
METALS	Pre treatment building	annual Effective 1/1/13	24 hr. composite
Arsenic			
Calcium			
Total Chromium			
Hexavalent Chromium			
Cooper			
Cyanide			
Lead			
Mercury			
Nickel			
Silver			
Zinc			
Dissolved Oxygen	Pre treatment building	weekly	GRAB

TABLE 1 (Effluent Limitations)

Parameter	Daily Maximum Concentration	lb/d Daily Maximum
Flow	30,000 gpd	-
Total Toxic Organic Compounds (TTO)	1.37 mg/L	-
Total Organic Halogen (TOX)	0.1	-
BOD	-	200lb/d
COD	monitor only	-
Total Solids	-	181 lb/d
pH	5.0 – 10.5	-
Total Arsenic 0.0062 lb/d	-	
Total Chromium	-	0.032 lb/d
Hex Chromium lb/d	-	0.0048
Phenol	-	0.78 lb/d
Ammonia	-	75 lb/d
Dissolved Oxygen[1]	2.0 mg/L	-
Sulfides	9.0mg/L	-

[1] The discharge shall maintain a minimum concentration of Dissolved Oxygen content of 2.0 mg/L when sulfide concentrations are in excess of 9.0 mg/L.

c) Modification of Local Limits.

In accordance with the Municipal Code, the established local limits are subject to change and shall be modified as needed based on regulatory requirements and standards, GSTP operation, performance and processes, the industrial user base, potable water quality and domestic wastewater characteristics. Modification to the established local limits must be reviewed and approved prior to implementation. Implementation shall be effective thirty (30) days from notice of acceptance of the modified limits. New local limits will be issued as an addendum to this wastewater discharge permit. Any modification of local limits that would require the Permittee to construct and operate, or modify an existing pretreatment system, shall include a reasonable schedule of compliance.

Part 3. Operation and maintenance of pollution controls.

a) Proper operation and maintenance

APPENDIX D
Laboratory Data – SIU Permit Compliance Sampling

MICROBAC®

Microbac Laboratories Inc., Pittsburgh Division

CERTIFICATE OF ANALYSIS

9041758

Gowanda, Village of WWTP

Andrew Carriero
27 East Main Street
Gowanda, NY 14070

Project Name: Peter Cooper for Priority Pollutant

Project / PO Number: N/A
Received: 04/04/2019
Reported: 04/16/2019

Analytical Testing Parameters

Client Sample ID: Peter Cooper Composite
Sample Matrix: Aqueous
Lab Sample ID: 9041758-01
Collected By: A.Carriero
Collection Date: 04/04/2019 7:30

Inorganics	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 300.0, Rv. 2.1							
Sulfate	**263**	5.00	mg/L		04/09/19 1748	04/09/19 1748	BAC
Method: HACH 8000							
Chemical Oxygen Demand (COD)	**45.7**	5.00	mg/L		04/05/19 0900	04/05/19 1425	BAC
Method: SM 2540 D-97,-11							
Total Suspended Solids - TSS	<5.0	5.0	mg/L			04/09/19 1630	JRS
Method: SM 4500 NH3 B/F-97,-11							
Ammonia as N	**188**	22.5	mg/L		04/10/19 0800	04/10/19 1457	BAC
Method: SM 4500 NH3 C/F-97,-11							
Total Kjeldahl Nitrogen - TKN	**186**	25.0	mg/L		04/15/19 0800	04/15/19 1430	BAC
Method: SM 4500 P B,E-99,-11							
Phosphorus, Total as P	**0.634**	0.100	mg/L		04/08/19 1000	04/09/19 1001	BAC

Metals, Total	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA 200.7, Rv. 4.4							
Antimony	<0.030	0.030	mg/L		04/05/19 1501	04/09/19 1410	CDC
Arsenic	<0.010	0.010	mg/L		04/05/19 1501	04/09/19 1410	CDC
Beryllium	<0.0003	0.0003	mg/L		04/05/19 1501	04/09/19 1410	CDC
Chromium	**0.032**	0.002	mg/L		04/05/19 1501	04/09/19 1410	CDC
Copper	**0.023**	0.004	mg/L		04/05/19 1501	04/09/19 1410	CDC
Lead	<0.007	0.007	mg/L		04/05/19 1501	04/09/19 1410	CDC
Nickel	<0.007	0.007	mg/L		04/05/19 1501	04/09/19 1410	CDC
Selenium	<0.020	0.020	mg/L		04/05/19 1501	04/09/19 1410	CDC
Silver	<0.004	0.004	mg/L		04/05/19 1501	04/09/19 1410	CDC
Thallium	<0.025	0.025	mg/L	**Y**	04/05/19 1501	04/09/19 1410	CDC
Zinc	**0.012**	0.010	mg/L		04/05/19 1501	04/09/19 1410	CDC
Cadmium	<0.0006	0.0006	mg/L		04/05/19 1501	04/09/19 1410	CDC

General Chemistry	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Method: SM 5210 B							

CERTIFICATE OF ANALYSIS

9041758

Client Sample ID:	Peter Cooper Composite		
Sample Matrix:	Aqueous	**Collected By:**	A.Carriero
Lab Sample ID:	9041758-01	**Collection Date:**	04/04/2019 7:30

General Chemistry	Result	RL	Units	Note	Prepared	Analyzed	Analyst
BOD5	**7**	4	mg/L		04/05/19 1558	04/10/19 1233	MKM

Analyses Subcontracted to: Microbac Laboratories, Inc. - Ohio Valley

	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA420.1							
Phenolics, Total	<0.00550	0.00550	mg/L			04/09/19 1000	TB

608	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Method: 608.3							
4,4'-DDD	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
4,4'-DDE	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
4,4'-DDT	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Aldrin	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
alpha-BHC	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
alpha-Chlordane	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Aroclor-1016	<0.505	0.505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Aroclor-1221	<0.505	0.505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Aroclor-1232	<0.505	0.505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Aroclor-1242	<0.505	0.505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Aroclor-1248	<0.505	0.505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Aroclor-1254	<0.505	0.505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Aroclor-1260	<0.505	0.505	ug/L		04/09/19 1045	04/11/19 0814	ECL
beta-BHC	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Chlordane	<0.505	0.505	ug/L		04/09/19 1045	04/11/19 0814	ECL
delta-BHC	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Dieldrin	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Endosulfan I	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Endosulfan II	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Endosulfan sulfate	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Endrin	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Endrin Aldehyde	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Endrin Ketone	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
gamma-BHC (Lindane)	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
gamma-Chlordane	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Heptachlor	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Heptachlor epoxide	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Methoxychlor	<0.0505	0.0505	ug/L		04/09/19 1045	04/11/19 0814	ECL
Toxaphene	<1.01	1.01	ug/L		04/09/19 1045	04/11/19 0814	ECL
Surrogate: 2,4,5,6-Tetrachloro-m-xylene	52.6	Limit: 20-180	% Rec		04/09/19 1045	04/11/19 0814	ECL
Surrogate: Decachlorobiphenyl	35.0	Limit: 20-140	% Rec		04/09/19 1045	04/11/19 0814	ECL

CERTIFICATE OF ANALYSIS

9041758

Client Sample ID:	Peter Cooper Composite		
Sample Matrix:	Aqueous	**Collected By:**	A.Carriero
Lab Sample ID:	9041758-01	**Collection Date:**	04/04/2019 7:30

BNA Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Method: 625.1							
1,2,4-Trichlorobenzene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
1,2-Dichlorobenzene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
1,3-Dichlorobenzene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
1,4-Dichlorobenzene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
2,4,6-Trichlorophenol	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
2,4-Dichlorophenol	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
2,4-Dimethylphenol	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
2,4-Dinitrophenol	<51.0	51.0	ug/L		04/09/19 1500	04/10/19 1928	SCB
2,4-Dinitrotoluene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
2,6-Dinitrotoluene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
2-Chloronaphthalene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
2-Chlorophenol	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
2-Methyl-4,6-dinitrophenol	<51.0	51.0	ug/L		04/09/19 1500	04/10/19 1928	SCB
2-Nitrophenol	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
3,3'-Dichlorobenzidine	<20.4	20.4	ug/L		04/09/19 1500	04/10/19 1928	SCB
4-Bromophenyl phenyl ether	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
4-Chloro-3-methylphenol	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
4-Chlorophenyl phenyl ether	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
4-Nitrophenol	<51.0	51.0	ug/L		04/09/19 1500	04/10/19 1928	SCB
Acenaphthene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Acenaphthylene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Anthracene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Benzidine	<51.0	51.0	ug/L		04/09/19 1500	04/10/19 1928	SCB
Benzo(a)anthracene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Benzo(a)pyrene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Benzo(b)fluoranthene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Benzo(g,h,i)Perylene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Benzo(k)fluoranthene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Bis(2-Chloroethoxy)Methane	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Bis(2-Chloroethyl)ether	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
bis(2-Chloroisopropyl)ether	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
bis(2-Ethylhexyl)phthalate	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Butyl benzyl phthalate	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Chrysene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Di-N-Butylphthalate	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Di-n-octyl phthalate	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Dibenzo(a,h)Anthracene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Diethyl phthalate	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Dimethyl phthalate	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Fluoranthene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Fluorene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Hexachlorobenzene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB

CERTIFICATE OF ANALYSIS

9041758

Client Sample ID:	Peter Cooper Composite		
Sample Matrix:	Aqueous	**Collected By:**	A.Carriero
Lab Sample ID:	9041758-01	**Collection Date:**	04/04/2019 7:30

BNA Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Hexachlorobutadiene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Hexachlorocyclopentadiene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Hexachloroethane	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Indeno(1,2,3-cd)pyrene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Isophorone	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
N-Nitrosodi-n-propylamine	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
N-Nitrosodimethylamine	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Diphenylamine/n-Nitrosodiphenylamine	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Naphthalene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Nitrobenzene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Pentachlorophenol	<51.0	51.0	ug/L		04/09/19 1500	04/10/19 1928	SCB
Phenanthrene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Phenol	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Pyrene	<10.2	10.2	ug/L		04/09/19 1500	04/10/19 1928	SCB
Surrogate: 2,4,6-Tribromophenol	116	Limit: 22-142	% Rec		04/09/19 1500	04/10/19 1928	SCB
Surrogate: 2-Fluorobiphenyl	102	Limit: 43-116	% Rec		04/09/19 1500	04/10/19 1928	SCB
Surrogate: 2-Fluorophenol	58.2	Limit: 19-119	% Rec		04/09/19 1500	04/10/19 1928	SCB
Surrogate: Nitrobenzene-d5	93.2	Limit: 35-114	% Rec		04/09/19 1500	04/10/19 1928	SCB
Surrogate: p-Terphenyl-d14	65.7	Limit: 10-130	% Rec		04/09/19 1500	04/10/19 1928	SCB
Surrogate: Phenol-D5	50.1	Limit: 10-94	% Rec		04/09/19 1500	04/10/19 1928	SCB

CYANIDE	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Method: SM4500-CN-C,E-1999							
Cyanide	<0.0100	0.0100	mg/L			04/11/19 1015	APH

Library Search	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Method: 625.1							
n-Hexadecanoic acid	**15.7**		ug/L		04/09/19 1500	04/10/19 1928	SCB
Octadecanoic acid	**10.1**		ug/L		04/09/19 1500	04/10/19 1928	SCB
Heptacosane	**34.0**		ug/L		04/09/19 1500	04/10/19 1928	SCB
Tetratetracontane	**44.2**		ug/L		04/09/19 1500	04/10/19 1928	SCB
Tetratriacontane	**32.3**		ug/L		04/09/19 1500	04/10/19 1928	SCB

Sulfide	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Method: SM4500-S-(-2)-F-2000							
Sulfide	<1.00	1.00	mg/L			04/09/19 1451	APH

CERTIFICATE OF ANALYSIS

9041758

Client Sample ID:	Peter Cooper Grab		
Sample Matrix:	Aqueous	**Collected By:**	A.Carriero
Lab Sample ID:	9041758-02	**Collection Date:**	04/03/2019 14:30

Analyses Subcontracted to: Microbac Laboratories, Inc. - Ohio Valley

Volatile Organics	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Method: EPA624.1							
1,1,1-Trichloroethane	<5.00	5.00	ug/L			04/05/19 2133	JDS
1,1,2,2-Tetrachloroethane	<5.00	5.00	ug/L			04/05/19 2133	JDS
1,1,2-Trichloroethane	<5.00	5.00	ug/L			04/05/19 2133	JDS
1,1-Dichloroethane	<5.00	5.00	ug/L			04/05/19 2133	JDS
1,1-Dichloroethene	<5.00	5.00	ug/L			04/05/19 2133	JDS
1,2-Dichlorobenzene	<5.00	5.00	ug/L			04/05/19 2133	JDS
1,2-Dichloroethane	<5.00	5.00	ug/L			04/05/19 2133	JDS
1,2-Dichloropropane	<5.00	5.00	ug/L			04/05/19 2133	JDS
1,3-Dichlorobenzene	<5.00	5.00	ug/L			04/05/19 2133	JDS
1,4-Dichlorobenzene	<5.00	5.00	ug/L			04/05/19 2133	JDS
2-Chloroethyl vinyl ether	<10.0	10.0	ug/L			04/05/19 2133	JDS
Acrolein	<10.0	10.0	ug/L			04/05/19 2133	JDS
Acrylonitrile	<10.0	10.0	ug/L			04/05/19 2133	JDS
Benzene	<5.00	5.00	ug/L			04/05/19 2133	JDS
Bromodichloromethane	<5.00	5.00	ug/L			04/05/19 2133	JDS
Bromoform	<5.00	5.00	ug/L			04/05/19 2133	JDS
Bromomethane	<10.0	10.0	ug/L			04/05/19 2133	JDS
Carbon tetrachloride	<5.00	5.00	ug/L			04/05/19 2133	JDS
Chlorobenzene	<5.00	5.00	ug/L			04/05/19 2133	JDS
Chloroethane	<10.0	10.0	ug/L			04/05/19 2133	JDS
Chloroform	<5.00	5.00	ug/L			04/05/19 2133	JDS
Chloromethane	<10.0	10.0	ug/L			04/05/19 2133	JDS
cis-1,3-Dichloropropene	<5.00	5.00	ug/L			04/05/19 2133	JDS
Dibromochloromethane	<5.00	5.00	ug/L			04/05/19 2133	JDS
Ethyl benzene	<5.00	5.00	ug/L			04/05/19 2133	JDS
Methylene chloride	<5.00	5.00	ug/L			04/05/19 2133	JDS
Tetrachloroethene	<5.00	5.00	ug/L			04/05/19 2133	JDS
Toluene	<5.00	5.00	ug/L			04/05/19 2133	JDS
trans-1,2-Dichloroethene	<5.00	5.00	ug/L			04/05/19 2133	JDS
trans-1,3-Dichloropropene	<5.00	5.00	ug/L			04/05/19 2133	JDS
Trichloroethene	<5.00	5.00	ug/L			04/05/19 2133	JDS
Trichlorofluoromethane	<10.0	10.0	ug/L			04/05/19 2133	JDS
Vinyl chloride	<10.0	10.0	ug/L			04/05/19 2133	JDS
Surrogate: 1,2-Dichloroethane-d4	94.6	Limit: 63-140	% Rec			04/05/19 2133	JDS
Surrogate: p-Bromofluorobenzene	89.5	Limit: 60-140	% Rec			04/05/19 2133	JDS
Surrogate: Toluene-d8	95.7	Limit: 60-140	% Rec			04/05/19 2133	JDS

Definitions

RL: Reporting Limit

Y: This analyte is not on the laboratory's current scope of accreditation.

MICROBAC®

Microbac Laboratories Inc., Pittsburgh Division

CERTIFICATE OF ANALYSIS

9041758

Project Requested Certification(s)

Microbac Laboratories Inc., Pittsburgh Division	
10121	New York State Department of Health
Microbac Laboratories, Inc. - Ohio Valley	
460187	Commonwealth of Virginia (NELAC)
10861	New York Department of Health ID
OH004	State of New Jersey (NELAC)

Report Comments

Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.

Reviewed and Approved By:

Tina Sharer

Administration

Reported: 04/16/2019 14:05

MICROBAC®

CHAIN OF CUSTODY

Put bar code here

9041758

Microbac Pittsburgh Division
100 Marshall Drive
Warrendale, PA 15086
724.772.0610

Gowanda, Village of WWTP
PM: Tina Sharer

Client /Company Name: Village of Gowanda Sewer Dept		Contact Name: Andrew Carriero	
Address: 27 E. Main Street		Bill To/PO#:	
City/State/Zip: Gowanda, NY 14070			
Phone: 716-532-5931	Email/Fax: gowandawwtp@mail.com	Potential Hazards: Non-Hazard [X] Hazard [ ] Radioactive [ ]	
Project Name/ID: **Priority Pollutant – Peter Cooper**		Disposal: Dispose of [X] Return [ ] Retain [ ]	
Sampled By: A. CARRIERO	Due Date:	Compliance Sample: Yes [X] No [ ]	State: **NY**
Shipped By: Microbac Courier	Tracking #:	PWSID#:	Monitoring Period:
Type Code: G-Grab C-Composite	Comp. Start: 4-3-19 / 7:30A	Comp. Stop: 4-4-19 / 7:30A	

Matrix Code: DW-Potable water WW-Nonpotable water SS-Soil/Sludge F-Food S-Swab O-Other

	Sample Identification	Date Taken	Time Taken	Type G	Type C	Matrix	Tot. # Cont.	Preservatives None	HNO3	H2SO4	NaOH	HCl	Thio	Other	Analyses: Total Phos :: COD :: Dist. NH3 :: TKN	Acid Extractables/Base Neutral Extractables by EPA 625 :: Pesticides/PCBs by EPA 608:: Five Peaks on BNA Scan	Ag, As, Be, Cd, Cr, Cu, Hg, Ni, Pb, Sb, Se, Tl, Zn	BOD :: SO4 :: TSS	Phenolics, Total by EPA 420.1	Sulfide by SM4500-S2 F	Cyanide, Total	Volatile Organics by EPA 624 :: Five Peaks on VOC Scan	
	Peter Cooper Composite	4-4-19	7:30A		X	WW	~~10~~ 9	4	1	2	1			1	X	X	X	X	X	X	X		
	Peter Cooper Grab	4-3-19	9:30A, 2:30P	X		WW	3						3									X	

Instructions/Comments:

Relinquished By: A. Carriero	Date/Time: 4-4-19 /	Received By: Steven Schaffer	Date/Time: 4-4-19 0901	Temp 0.4 °C
Relinquished By: Steven Schaffer	Date/Time: 4-4-19	Received By:	Date/Time: 4-4-19 1060	Iced: Y N
Relinquished By:	Date/Time: 4-4-19 1115	Received By: (Alex)	Date/Time: 4/4/19 1115	Intact: Y N
Relinquished By: (Alex)	Date/Time: 4/4/19 1335	Received By: Tina Sharer	Date/Time: 04-04-19 13:35	

QC270 V6

Microbac

Laboratory Report Number: L19040448

Michael Goodling
Microbac Laboratories
100 Marshall Drive
Warrendale, PA 15086

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac's Ohio Valley Division (OVD). If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed below.

Laboratory Contact:
–
(740) 373-4071
Alicia.walker@microbac.com

I certify that all test results meet all of the requirements of the accrediting authority listed below. All results for soil samples are reported on a 'dry-weight' basis unless specified otherwise. Analytical results for water and wastes are reported on a 'as received' basis unless specified otherwise. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

This report was certified on April 15 2019

Leslie Bucina – Laboratory Manager

State of Origin: NY
Accrediting Authority: Department of Health ID:10861
QAPP: Microbac OVD

Record of Sample Receipt and Inspection

Comments/Discrepancies

This is the record of the shipment conditions and the inspection records for the samples received and reported as a sample delivery group (SDG). All of the samples were inspected and observed to conform to our receipt policies, except as noted below.

The following discrepancies were noted:

Discrepancy	Resolution
Sample ID: 9041758-01. No Metals received. BRG	Please proceed with the remaining analyses listed on the COC. ADW

Coolers

Cooler #	Temperature Gun	Temperature	COC #	Airbill #	Temp Required?
00110065	I	2.0		1001891730610004575000710812487373	X
00115451	I	1.0		1001891730610004575000710812487432	X
00116117	I	1.0		710812487410	X

Inspection Checklist

#	Question	Result
1	Were shipping coolers sealed?	Yes
2	Were custody seals intact?	NA
3	Were cooler temperatures in range of 0-6?	Yes
4	Was ice present?	Yes
5	Were COC's received/information complete/signed and dated?	Yes
6	Were sample containers intact and match COC?	No
7	Were sample labels intact and match COC?	Yes
8	Were the correct containers and volumes received?	Yes
9	Were samples received within EPA hold times?	Yes
10	Were correct preservatives used? (water only)	Yes
11	Were pH ranges acceptable? (voa's excluded)	Yes
12	Were VOA samples free of headspace (less than 6mm)?	Yes

Samples Received

Client ID	Laboratory ID	Date Collected	Date Received
9041758-01	L19040448-01	04/04/2019 07:30	04/05/2019 12:02
9041758-02	L19040448-02	04/04/2019 14:30	04/05/2019 12:02

Login Number: L19040448
Department: Semivolatiles
Analyst: Sarah Bogolin

METHOD

Preparation 3510C/1311

Analysis 40 CFR Part 136 625.1

HOLDING TIMES

Sample Preparation: All holding times were met.

Sample Analysis: All holding times were met.

PREPARATION

Sample preparation proceeded normally.

CALIBRATION

Initial Calibration: For all compounds that yielded a %RSD greater than 15%, linear or higher order equations were applied. All acceptance criteria were met.

Alternate Source Standards: Hexachlorocyclopentadiene exceeded the limit for percent difference, biased high. The associated sample was non-detect for the high outlier.

Sample #	Analyte	Date	Result	Lower	Upper	Type
WG702171-11	Hexachlorocyclopentadiene	2019-04-04 14:37:00	0.000		40	RPD

Continuing Calibration and Tune: In the CCV 2,4-dinitrophenol exceeded the limit for percent difference, biased high. The associated sample was non-detect for the high outlier.

BATCH QA/QC

Method Blank: All acceptance criteria were met.

Laboratory Control Sample: In the LCS Diphenylamine/n-Nitrosodiphenylamine exceeded the percent recovery limit, biased high; in the LCSdup percent recovery was within acceptable limits. The associated sample was non-detect for the high outlier.

Sample #	Analyte	Date	Result	Lower	Upper	Type
WG702775-02	Diphenylamine/n-Nitrosodiphenylamine	2019-04-10 12:31:00	112	40	110	Recovery

Matrix Spikes: There were no MS/MSD results associated with this sample delivery group, due to insufficient volume of sample. The laboratory included an LCS and LCS duplicate in the preparation batch in lieu of the NELAC prescribed MS/MSD. Microbac recommends site specific MS/MSD samples to avoid possible data qualification.

SAMPLES

Samples: Sample 01, was run at a 2X dilution due to a foamy sample matrix.

Internal Standards: All acceptance criteria were met.

Surrogates: All acceptance criteria were met.

Manual Integration Reason Codes

Reason #1: Data System Fails to Select Correct Peak In some cases the chromatography system selects and integrates the 'wrong peak'. In this case the analyst must correct the selection and force the system to integrate the proper peak. Other times the system may miss the peakcompletely.

Reason #2: Data System Splits the Peak Incorrectly or Integrates a False Peak as a Rider Peak This phenomena is common at low concentrations where the signal:noise ratio is low. A single compound (peak) is incorrectly split into multiple peaks or integrated as a main peak with one or more rider peaks resulting in low areacounts for the target compound.

Reason #3: Improperly Integrated Isomers and/or coeluting compounds. This system often fails to distinguish coeluting compounds and or isomers. The integration areas and concentrations are wrong, and they must be corrected by manual integration. Prime examples are benzo(k)fluoranthene andbenzo(b)fluoranthene which are often unresolved and integrated improperly when both are present at low concentrations in standards or samples.

Reason #4: System Establishes Incorrect Baseline There are numerous situations in chromatography where the system establishes the baseline incorrectly. Some baseline errors will be obvious to the analyst and should be corrected via manual procedures.

Reason #5: Miscellaneous Other situations involving integration errors may require in-depth review and technical judgment. These cases should be brought to the attention of the laboratory management. If the form of manual integration is not clearly covered by these four cases, then review and approval by the Managing Director or the QAO will be required.

I certify that this data package is in compliance with the terms and conditions agreed to by the client and Microbac Laboratories Inc., both technically and for completeness, except for the conditions noted above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or designated person, as verified by the following signature.

Narrative ID: 148161
Approved By: Leslie Bucina

Certificate of Analysis

Sample #:	L19040448-01	**PrePrep Method:**	N/A	**Instrument:**	HPMS12
Client ID:	9041758-01	**Prep Method:**	3510C	**Prep Date:**	04/09/2019 15:00
Matrix:	Water 2	**Analytical Method:**	625.1	**Cal Date:**	04/04/2019 13:52
Workgroup #:	WG702919	**Analyst:**	SCB	**Run Date:**	04/10/2019 19:28
Collect Date:	04/04/2019 07:30	**Dilution:**	1	**File ID:**	12M71122
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
n-Hexadecanoic acid		15.7	TIC	0.000	0.000
Octadecanoic acid		10.1	TIC	0.000	0.000
Tetratetracontane		23.3	TIC	0.000	0.000
Heptacosane		34.0	TIC	0.000	0.000
Tetratetracontane		44.2	TIC	0.000	0.000
Tetratetracontane		42.9	TIC	0.000	0.000
Tetratriacontane		32.3	TIC	0.000	0.000
Heptacosane		16.5	TIC	0.000	0.000

TIC	Library Search Compound

Sample #:	L19040448-01	**PrePrep Method:**	N/A	**Instrument:**	HPMS12
Client ID:	9041758-01	**Prep Method:**	3510C	**Prep Date:**	04/09/2019 15:00
Matrix:	Water 2	**Analytical Method:**	625.1	**Cal Date:**	04/04/2019 13:52
Workgroup #:	WG702919	**Analyst:**	SCB	**Run Date:**	04/10/2019 19:28
Collect Date:	04/04/2019 07:30	**Dilution:**	2	**File ID:**	12M71122
Sample Tag:	DL01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
1,2,4-Trichlorobenzene	120-82-1		U	10.2	5.10
1,2-Dichlorobenzene	95-50-1		U	10.2	5.10
1,3-Dichlorobenzene	541-73-1		U	10.2	5.10
1,4-Dichlorobenzene	106-46-7		U	10.2	5.10
2,4,6-Trichlorophenol	88-06-2		U	10.2	5.10
2,4-Dichlorophenol	120-83-2		U	10.2	5.10
2,4-Dimethylphenol	105-67-9		U	10.2	5.10
2,4-Dinitrophenol	51-28-5		U	51.0	25.5
2,4-Dinitrotoluene	121-14-2		U	10.2	5.10
2,6-Dinitrotoluene	606-20-2		U	10.2	5.10
2-Chloronaphthalene	91-58-7		U	10.2	5.10
2-Chlorophenol	95-57-8		U	10.2	5.10
2-Methyl-4,6-dinitrophenol	534-52-1		U	51.0	25.5
2-Nitrophenol	88-75-5		U	10.2	5.10
3,3'-Dichlorobenzidine	91-94-1		U	20.4	5.10

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
4-Bromophenyl phenyl ether	101-55-3		U	10.2	5.10
4-Chloro-3-methylphenol	59-50-7		U	10.2	5.10
4-Chlorophenyl phenyl ether	7005-72-3		U	10.2	5.10
4-Nitrophenol	100-02-7		U	51.0	25.5
Acenaphthene	83-32-9		U	10.2	5.10
Acenaphthylene	208-96-8		U	10.2	5.10
Anthracene	120-12-7		U	10.2	5.10
Benzidine	92-87-5		U	51.0	25.5
Benzo(a)anthracene	56-55-3		U	10.2	5.10
Benzo(a)pyrene	50-32-8		U	10.2	5.10
Benzo(b)fluoranthene	205-99-2		U	10.2	5.10
Benzo(g,h,i)Perylene	191-24-2		U	10.2	5.10
Benzo(k)fluoranthene	207-08-9		U	10.2	5.10
Bis(2-Chloroethoxy)Methane	111-91-1		U	10.2	5.10
Bis(2-Chloroethyl)ether	111-44-4		U	10.2	5.10
bis(2-Chloroisopropyl)ether	108-60-1		U	10.2	5.10
bis(2-Ethylhexyl)phthalate	117-81-7		U	10.2	5.10
Butyl benzyl phthalate	85-68-7		U	10.2	5.10
Chrysene	218-01-9		U	10.2	5.10
Di-N-Butylphthalate	84-74-2		U	10.2	5.10
Di-n-octyl phthalate	117-84-0		U	10.2	5.10
Dibenzo(a,h)Anthracene	53-70-3		U	10.2	5.10
Diethyl phthalate	84-66-2		U	10.2	5.10
Dimethyl phthalate	131-11-3		U	10.2	5.10
Fluoranthene	206-44-0		U	10.2	5.10
Fluorene	86-73-7		U	10.2	5.10
Hexachlorobenzene	118-74-1		U	10.2	5.10
Hexachlorobutadiene	87-68-3		U	10.2	5.10
Hexachlorocyclopentadiene	77-47-4		U	10.2	5.10
Hexachloroethane	67-72-1		U	10.2	5.10
Indeno(1,2,3-cd)pyrene	193-39-5		U	10.2	5.10
Isophorone	78-59-1		U	10.2	5.10
N-Nitrosodi-n-propylamine	621-64-7		U	10.2	5.10
N-Nitrosodimethylamine	62-75-9		U	10.2	5.10
Diphenylamine/n-Nitrosodiphenylamine	86-30-6		U	10.2	5.10
Naphthalene	91-20-3		U	10.2	5.10
Nitrobenzene	98-95-3		U	10.2	5.10
Pentachlorophenol	87-86-5		U	51.0	25.5
Phenanthrene	85-01-8		U	10.2	5.10

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Phenol	108-95-2		U	10.2	5.10
Pyrene	129-00-0		U	10.2	5.10

Surrogate	Recovery	Lower Limit	Upper Limit	Q
2,4,6-Tribromophenol	116	22	142	
2-Fluorobiphenyl	102	43	116	
2-Fluorophenol	58.2	19	119	
Nitrobenzene-d5	93.2	35	114	
p-Terphenyl-d14	65.7	10	130	
Phenol-D5	50.1	10	94	

U	Not detected at or above adjusted sample detection limit

Sample #: L19040448-01
Client ID: 9041758-01
Matrix: Water 2
Workgroup #: WG702926
Collect Date: 04/04/2019 07:30
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 3510C
Analytical Method: 608.3
Analyst: ECL
Dilution: 1
Units: ug/L

Instrument: HP15
Prep Date: 04/09/2019 10:45
Cal Date: 04/10/2019 21:36
Run Date: 04/11/2019 08:14
File ID: 15G72018.R

Analyte	CAS #	Result	Qual	RL	MDL
4,4'-DDD	72-54-8		U	0.0505	0.0101
4,4'-DDE	72-55-9		U	0.0505	0.0101
4,4'-DDT	50-29-3		U	0.0505	0.0101
Aldrin	309-00-2		U	0.0505	0.0101
alpha-BHC	319-84-6		U	0.0505	0.0101
alpha-Chlordane	5103-71-9		U	0.0505	0.0101
Aroclor-1016	12674-11-2		U	0.505	0.253
Aroclor-1221	11104-28-2		U	0.505	0.253
Aroclor-1232	11141-16-5		U	0.505	0.253
Aroclor-1242	53469-21-9		U	0.505	0.253
Aroclor-1248	12672-29-6		U	0.505	0.253
Aroclor-1254	11097-69-1		U	0.505	0.253
Aroclor-1260	11096-82-5		U	0.505	0.253
beta-BHC	319-85-7		U	0.0505	0.0101
Chlordane	57-74-9		U	0.505	0.253
delta-BHC	319-86-8		U	0.0505	0.0101
Dieldrin	60-57-1		U	0.0505	0.0101
Endosulfan I	959-98-8		U	0.0505	0.0101
Endosulfan II	33213-65-9		U	0.0505	0.0101
Endosulfan sulfate	1031-07-8		U	0.0505	0.0101
Endrin	72-20-8		U	0.0505	0.0101

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
Endrin Aldehyde	7421-93-4		U	0.0505	0.0101
Endrin Ketone	53494-70-5		U	0.0505	0.0101
gamma-BHC (Lindane)	58-89-9		U	0.0505	0.0101
gamma-Chlordane	5103-74-2		U	0.0505	0.0101
Heptachlor	76-44-8		U	0.0505	0.0101
Heptachlor epoxide	1024-57-3		U	0.0505	0.0101
Methoxychlor	72-43-5		U	0.0505	0.0101
Toxaphene	8001-35-2		U	1.01	0.303

Surrogate	Recovery	Lower Limit	Upper Limit	Q
2,4,5,6-Tetrachloro-m-xylene	52.6	20	180	
Decachlorobiphenyl	35.0	20	140	

U	Not detected at or above adjusted sample detection limit

Sample #: L19040448-01 **PrePrep Method:** N/A **Instrument:** UV-2600
Client ID: 9041758-01 **Prep Method:** SM4500-CN-C,E-1999 **Prep Date:** N/A
Matrix: Water 2 **Analytical Method:** SM4500-CN-C,E-1999 **Cal Date:** 02/28/2019 14:49
Workgroup #: WG702869 **Analyst:** APH **Run Date:** 04/11/2019 10:15
Collect Date: 04/04/2019 07:30 **Dilution:** 1 **File ID:** 00.1904111015-07
Sample Tag: Total **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Cyanide	57-12-5		U	0.0100	0.00500

U	Not detected at or above adjusted sample detection limit

Sample #: L19040448-01 **PrePrep Method:** N/A **Instrument:** UV-2600
Client ID: 9041758-01 **Prep Method:** 420.1 **Prep Date:** N/A
Matrix: Water 2 **Analytical Method:** 420.1 **Cal Date:** 03/05/2019 11:45
Workgroup #: WG702545 **Analyst:** TB **Run Date:** 04/09/2019 10:00
Collect Date: 04/04/2019 07:30 **Dilution:** 1.1 **File ID:** 00.1904091000-21
Sample Tag: **Units:** mg/L

Analyte	CAS #	Result	Qual	RL	MDL
Phenolics, Total	64743-03-9		U	0.00550	0.00330

U	Not detected at or above adjusted sample detection limit

Certificate of Analysis

Sample #:	L19040448-01	**PrePrep Method:**	N/A	**Instrument:**	BURET
Client ID:	9041758-01	**Prep Method:**	SM4500-S-(-2)-F-2000	**Prep Date:**	N/A
Matrix:	Water 2	**Analytical Method:**	SM4500-S-(-2)-F-2000	**Cal Date:**	
Workgroup #:	WG702764	**Analyst:**	APH	**Run Date:**	04/09/2019 14:51
Collect Date:	04/04/2019 07:30	**Dilution:**	1	**File ID:**	ET.1904091451-04
Sample Tag:		**Units:**	mg/L		

Analyte	CAS #	Result	Qual	RL	MDL
Sulfide	18496-25-8		U	1.00	1.00

U	Not detected at or above adjusted sample detection limit

Sample #:	L19040448-02	**PrePrep Method:**	N/A	**Instrument:**	HPMS17
Client ID:	9041758-02	**Prep Method:**	5030B/5030C/5035A	**Prep Date:**	N/A
Matrix:	Water 2	**Analytical Method:**	624.1	**Cal Date:**	02/05/2019 19:23
Workgroup #:	WG702398	**Analyst:**	JDS	**Run Date:**	04/05/2019 21:33
Collect Date:	04/04/2019 14:30	**Dilution:**	1	**File ID:**	17M0285065
Sample Tag:	01	**Units:**	ug/L		

Analyte	CAS #	Result	Qual	RL	MDL
1,1,1-Trichloroethane	71-55-6		U	5.00	0.250
1,1,2,2-Tetrachloroethane	79-34-5		U	5.00	0.250
1,1,2-Trichloroethane	79-00-5		U	5.00	0.250
1,1-Dichloroethane	75-34-3		U	5.00	0.250
1,1-Dichloroethene	75-35-4		U	5.00	0.500
1,2-Dichlorobenzene	95-50-1		U	5.00	0.250
1,2-Dichloroethane	107-06-2		U	5.00	0.250
1,2-Dichloropropane	78-87-5		U	5.00	0.250
1,3-Dichlorobenzene	541-73-1		U	5.00	0.250
1,4-Dichlorobenzene	106-46-7		U	5.00	0.250
2-Chloroethyl vinyl ether	110-75-8		U	10.0	5.00
Acrolein	107-02-8		U	10.0	2.50
Acrylonitrile	107-13-1		U	10.0	2.50
Benzene	71-43-2		U	5.00	0.250
Bromodichloromethane	75-27-4		U	5.00	0.250
Bromoform	75-25-2		U	5.00	0.500
Bromomethane	74-83-9		U	10.0	0.500
Carbon tetrachloride	56-23-5		U	5.00	0.250
Chlorobenzene	108-90-7		U	5.00	0.250
Chloroethane	75-00-3		U	10.0	0.500
Chloroform	67-66-3		U	5.00	0.250
Chloromethane	74-87-3		U	10.0	0.500

Certificate of Analysis

Analyte	CAS #	Result	Qual	RL	MDL
cis-1,3-Dichloropropene	10061-01-5		U	5.00	0.250
Dibromochloromethane	124-48-1		U	5.00	0.250
Ethyl benzene	100-41-4		U	5.00	0.250
Methylene chloride	75-09-2		U	5.00	0.250
Tetrachloroethene	127-18-4		U	5.00	0.250
Toluene	108-88-3		U	5.00	0.250
trans-1,2-Dichloroethene	156-60-5		U	5.00	0.250
trans-1,3-Dichloropropene	10061-02-6		U	5.00	0.500
Trichloroethene	79-01-6		U	5.00	0.250
Trichlorofluoromethane	75-69-4		U	10.0	0.250
Vinyl chloride	75-01-4		U	10.0	0.500

Surrogate	Recovery	Lower Limit	Upper Limit	Q
1,2-Dichloroethane-d4	94.6	63	140	
p-Bromofluorobenzene	89.5	60	140	
Toluene-d8	95.7	60	140	

U	Not detected at or above adjusted sample detection limit

Sample #: L19040448-02
Client ID: 9041758-02
Matrix: Water 2
Workgroup #: WG702398
Collect Date: 04/04/2019 14:30
Sample Tag: 01

PrePrep Method: N/A
Prep Method: 5030B/5030C/5035A
Analytical Method: 624.1
Analyst: JDS
Dilution: 1
Units: ppm

Instrument: HPMS17
Prep Date: N/A
Cal Date: 02/05/2019 19:23
Run Date: 04/05/2019 21:33
File ID: 17M0285065

Certificate of Analysis

Microbac Laboratories Inc.
Ohio Valley Division Analyst List
April 15, 2019

001 - BIO-CHEM TESTING WVDEP 220	002 - REIC Consultants, Inc. WVDEP 060
003 - Sturm Environmental	004 - MICROBAC PITTSBURGH
005 - ES LABORATORIES	006 - ALCOSAN LABORATORIES
007 - ALS LABORATORIES	008 - BENCHMARK LABORATORIES
010 - MICROBAC CHICAGOLAND	AC - AMBER R. CARMICHAEL
ACG - ALEX C. GEDON	ADC - ANTHONY D. CANTER
ADG - APRIL D. GREENE	ADW - ALICIA D. WALKER
ALS - ADRIANE L. STEED	APH - ANDREW P. HOUT
AT - Asa R. Timmons	ATK - ALEX T. KLINTWORTH
AWE - ANDREW W. ESSIG	AZH - AFTER HOURS
BLG - BRENDA L. GREENWALT	BRG - BRENDA R. GREGORY
CAS - Craig A. Smith	CEB - CHAD E. BARNES
CLC - CHRYS L. CRAWFORD	COR - Corporate IT
CPD - CHAD P. DAVIS	CSH - CHRIS S. HILL
DIH - DEANNA I. HESSON	DLB - DAVID L. BUMGARNER
DLP - DOROTHY L. PAYNE	DSM - DAVID S. MOSSOR
ECL - ERIC C. LAWSON	EEA - EMILY E. ALLEN
EGS - EMILY G. SHILLING	EPT - ETHAN P. TIDD
ERP - ERIN R. PORTER	JAO - Jeff A. Ogle
JDH - JUSTIN D. HESSON	JDS - JARED D. SMITH
JKP - JACQUELINE K. PARSONS	JLR - JIMMY L. RUSH
JRH - Justin R. Hill	JST - JOSHUA S. TAYLOR
JTP - JOSHUA T. PEMBERTON	JWR - JOHN W. RICHARDS
JYH - JI Y. HU	KAK - KATHY A. KIRBY
KEB - KATIE E. BARNES	KEH - Katelyn E. Hoover
KFR - KARISSA F. REYNOLDS	KHR - KIM H. RHODES
KKB - KERRI K. BUCK	KMC - KAYLA M. CHEVALIER
KMG - KALEN M. GANDOR	KRA - KATHY R. ALBERTSON
KRP - KATHY R. PARSONS	KWD - Kurtis W. Decker
LLS - LARRY L. STEPHENS	LSB - LESLIE S. BUCINA
LSJ - LAURA S. JONES	MAP - MARLA A. PORTER
MES - MARY E. SCHILLING	MMB - MAREN M. BEERY
MRT - MICHELLE R. TAYLOR	PDM - PIERCE D. MORRIS
PIT - MICROBAC WARRENDALE	RLB - BOB BUCHANAN
RNM - Rene N. Miller	RNP - RICK N. PETTY
SAV - SARAH A. VANDENBERG	SCB - SARAH C. BOGOLIN
SLM - STEPHANIE L. MOSSBURG	TB - TODD BOYLE
TMM - TAMMY M. MORRIS	VC - VICKI COLLIER
XXX - UNAVAILABLE OR SUBCONTRACT	ZTB - ZACH T. BARNES

Microbac Laboratories Inc.
List of Valid Qualifiers
April 15, 2019

Qualkey: STD_ND=U

Qualifier	Description
*	Surrogate or spike compound out of range
+	Correlation coefficient for the MSA is less than 0.995
<	Result is less than the associated numerical value.
>	Result is greater than the associated numerical value.
A	See the report narrative
B	Analyte present in method blank
B1	Target analyte detected in method blank at or above the method reporting limit
B3	Target analyte detected in calibration blank at or above the method reporting limit
B4	The BOD unseeded dilution water blank exceeded 0.2 mg/L
C	Confirmed by GC/MS
CG	Confluent growth
CT1	The cooler temperature at receipt exceeded regulatory guidance.
DL	Surrogate or spike compound was diluted out
E	Estimated concentration due to sample matrix interference
EDL	Elevated sample reporting limits, presence of non-target analytes
EMPC	Estimated Maximum Possible Concentration
F, S	Estimated result below quantitation limit; method of standard additions(MSA)
FL	Free Liquid
FP1	Did not ignite.
H1	Sample analysis performed past holding time.
I	Semiquantitative result (out of instrument calibration range)
J	The analyte was positively identified, but the quantitation was below the RL
J,B	Analyte detected in both the method blank and sample above the MDL.
J,CT1	Estimated. The cooler temperature at receipt exceeded the regulatory guidance.
J,H1	The analyte was positively identified, but the quantitation was below the RL. Sample analysis performed past holding time
J,P	Estimate; columns don't agree to within 40%
J,S	Estimated concentration; analyzed by method of standard addition (MSA)
L	Sample reporting limits elevated due to matrix interference
L1	The associated blank spike (LCS) recovery was above the laboratory acceptance limits.
L2	The associated blank spike (LCS) recovery was below the laboratory acceptance limits.
M	Matrix effect; the concentration is an estimate due to matrix effect.
N	Tentatively identified compound(TIC)
NA	Not applicable
ND, S	Not detected; analyzed by method of standard addition (MSA)
ND,L	Not detected; sample reporting limit (RL) elevated due to interference
NF	Not found by library search
NFL	No free liquid
NI	Non-ignitable
NR	Analyte is not required to be analyzed
NS	Not spiked
P	Concentrations >40% difference between the two GC columns
Q	One or more quality control criteria failed. See narrative.
QNS	Quantity of sample not sufficient to perform analysis
RA	Reanalysis confirms reported results
RE	Reanalysis confirms sample matrix interference
S	Analyzed by method of standard addition (MSA)
SMI	Sample matrix interference on surrogate
SP	Reported results are for spike compounds only
TIC	Library Search Compound
TNTC	Too numerous to count
U	Not detected at or above adjusted sample detection limit
U,CT1	Not detected. The cooler temperature at receipt exceeded regulatory guidance.
U,H1	Not detected; sample analysis performed past holding time.
UJ	Undetected; the MDL and RL are estimated due to quality control discrepancies.
W	Post-digestion spike for furnace AA out of control limits
X	Exceeds regulatory limit
X, S	Exceeds regulatory limit; method of standard additions (MSA)
Y	This analyte is not on the laboratory's current scope of accreditation.
Z	Cannot be resolved from isomer - see below

Microbac Laboratories Inc., Pittsburgh Division

MICROBAC®

SUBCONTRACT ORDER

9041758

SENDING LABORATORY:

Microbac Laboratories Inc., Pittsburgh Division
100 Marshall Drive
Warrendale, PA 15086
Phone: 724-772-0610
Project Manager: Tina Sharer

RECEIVING LABORATORY:

Microba
158 STA
MARIET
Phone: 7

Microbac OVD
Received: 04/05/2019 12:02
By: BRENDA GREGORY
221000136467

Brenda Gregory

Project Info:

		Client:	Gowanda, Village of WWTP		
Project Name:	Priority Pollutant - Peter Coo	Project Type:	ENV-WasteWater	Report TAT:	7
Project No:	Peter Cooper for Priority Poll	Project Location:	New York	Due:	04/15/2019 00:00

Sample ID: 9041758-01 — Matrix: Aqueous — Sampled: 04/04/2019 07:30

Analysis	Method	Analysis Due	Expires
Acid Extractables by EPA 625	**EPA 625**	**04/15/2019 00:00**	**04/11/2019 07:30**
2,4,6-Trichlorophenol	0.01 mg/L	2,4-Dichlorophenol	0.01 mg/L
2,4-Dimethylphenol	0.01 mg/L	2,4-Dinitrophenol	0.05 mg/L
2-Chlorophenol	0.01 mg/L	2-Methyl-4,6-Dinitrophenol	0.05 mg/L
2-Methylphenol (o-Cresol)	0.01 mg/L	2-Nitrophenol	0.01 mg/L
4-Chloro-3-Methylphenol	0.01 mg/L	4-Methylphenol (p-Cresol)	0.01 mg/L
4-Nitrophenol	0.01 mg/L	Pentachlorophenol	50 mg/L
Phenol	10 mg/L		
Base Neutral Extractables by EPA 625	**EPA 625**	**04/15/2019 00:00**	**04/11/2019 07:30**
1,2,4-Trichlorobenzene	0.001 ppb	1,2-Diphenylhydrazine	0.01 ppb
2,4-Dinitrotoluene (2,4-DNT)	0.01 ppb	2,6-Dinitrotoluene (2,6-DNT)	0.01 ppb
2-Chloronaphthalene	0.01 ppb	3,3'-Dichlorobenzidine	50 ppb
4-Bromophenyl Phenyl Ether	10 ppb	4-Chlorophenyl phenylether	0.01 ppb
Acenaphthene	0.01 ppb	Acenaphthylene	0.01 ppb
Anthracene	0.01 ppb	Benzidine	0.05 ppb
Benzo(a)anthracene	10 ppb	Benzo(a)pyrene	10 ppb
Benzo(b)fluoranthene	10 ppb	Benzo(g,h,i)perylene	10 ppb
Benzo(k)fluoranthene	10 ppb	bis(2-Chloroethoxy)methane	10 ppb
bis(2-Chloroethyl)ether	10 ppb	bis(2-Chloroisopropyl)ether	10 ppb
bis(2-Ethylhexyl)phthalate	10 ppb	Butyl benzyl phthalate	10 ppb
Chrysene	10 ppb	Dibenzo(a,h)anthracene	10 ppb
Diethyl phthalate	10 ppb	Dimethyl phthalate	10 ppb
Di-n-butyl phthalate	10 ppb	Di-n-octyl phthalate	10 ppb
Fluoranthene	10 ppb	Fluorene	10 ppb
Hexachlorobenzene	10 ppb	Hexachlorobutadiene	0.0005 ppb
Hexachlorocyclopentadiene	10 ppb	Hexachloroethane	10 ppb
Indeno(1,2,3-cd)pyrene	10 ppb	Isophorone	10 ppb
Naphthalene	0.0005 ppb	Nitrobenzene	10 ppb
n-Nitroso-Dimethylamine	10 ppb	n-Nitrosodi-n-propylamine	10 ppb
n-Nitrosodiphenylamine	10 ppb	Phenanthrene	10 ppb
Pyrene	10 ppb		
Cyanide, Total by SM 4500-CN C/E	**SM 4500 CN C/E-99,-11**	**04/15/2019 00:00**	**04/18/2019 07:30**
Cyanide	0.006 mg/L		
Five Peaks On BNA Scan	**EPA 625**	**04/15/2019 00:00**	**04/07/2019 07:30**
Five Peaks on scan	mg/L		
Five Peaks On VOC Scan	**EPA 624**	**04/15/2019 00:00**	**04/05/2019 07:30**
Five Peaks on scan	~		

SUBCONTRACT ORDER
9041758

Sample ID: 9041758-01 | **Matrix: Aqueous** | **Sampled: 04/04/2019 07:30**

Analysis	Method	Analysis Due	Expires
Mercury EPA 245.1	**EPA 245.1**	**04/15/2019 00:00**	**05/02/2019 07:30**
Mercury	0.0002 mg/L		
Pesticides/PCBs by EPA 608	**EPA 608**	**04/15/2019 00:00**	**04/11/2019 07:30**
4,4'-DDD	0.04 µg/L	4,4'-DDE	0.04 µg/L
4,4'-DDT	0.04 µg/L	Aldrin	0.2 µg/L
alpha-BHC (alpha-Hexachlorocyclohexane)	0.2 µg/L	Arochlor-1016 (PCB-1016)	0.05 µg/L
Arochlor-1221 (PCB-1221)	0.05 µg/L	Arochlor-1232 (PCB-1232)	0.05 µg/L
Arochlor-1242 (PCB-1242)	0.05 µg/L	Arochlor-1248 (PCB-1248)	0.05 µg/L
Arochlor-1254 (PCB-1254)	0.05 µg/L	Arochlor-1260 (PCB-1260)	0.05 µg/L
beta-BHC (beta-Hexachlorocyclohexane)	0.004 µg/L	Chlordane (tech.)	0.4 µg/L
Chlorine - Total Residual	0.1 µg/L	delta-BHC	0.04 µg/L
Dieldrin	0.005 µg/L	Endosulfan I	0.04 µg/L
Endosulfan II	0.04 µg/L	Endosulfan Sulfate	0.04 µg/L
Endrin	0.04 µg/L	Endrin Aldehyde	0.04 µg/L
gamma-BHC (Lindane, gamma-Hexachlorocyclol	0.04 µg/L	Heptachlor	0.04 µg/L
Heptachlor Epoxide	0.04 µg/L	Toxaphene (Chlorinated camphene)	0.8 µg/L
Phenolics, Total by EPA 420.1	**EPA 420.1 (1978)**	**04/15/2019 00:00**	**05/02/2019 07:30**
Phenols - 4AAP	0.005 mg/L		
Sulfide by SM4500-S2 F	**SM 4500 S2 F-00**	**04/15/2019 00:00**	**04/11/2019 07:30**
Sulfide as S	5 mg/L		

Sample ID: 9041758-02 **Matrix: Aqueous** **Sampled: 04/03/2019 14:30**

Analysis	Method	Analysis Due	Expires
Volatile Organics by EPA 624	**EPA 624**	**04/15/2019 00:00**	**04/17/2019 14:30**
1,1,1,2-Tetrachloroethane	0.00031 mg/L	1,1,1-Trichloroethane	0.00039 mg/L
1,1,2,2-Tetrachloroethane	0.00076 mg/L	1,1,2-Trichloroethane	0.00061 mg/L
1,1-Dichloroethane	0.00043 mg/L	1,1-Dichloroethene (1,1-Dichloroethylene)	0.00047 mg/L
1,1-Dichloropropene (1,1-Dichloropropylene)	0.0004 mg/L	1,2,3-Trichlorobenzene	0.00064 mg/L
1,2,3-Trichloropropane	0.00072 mg/L	1,2,4-Trichlorobenzene	0.001 mg/L
1,2,4-Trimethylbenzene	0.00039 mg/L	1,2-Dibromo-3-Chloropropane (DBCP)	0.00081 mg/L
1,2-Dibromoethane (Ethylene dibromide) (EDB)	0.00042 mg/L	1,2-Dichlorobenzene	0.00043 mg/L
1,2-Dichloroethane	0.00041 mg/L	1,2-Dichloropropane	0.00021 mg/L
1,3,5-Trimethylbenzene	0.00019 mg/L	1,3-Dichlorobenzene	0.005 mg/L
1,3-Dichloropropane	0.00009 mg/L	1,4-Dichlorobenzene	0.0006 mg/L
1,4-Dioxane	0 mg/L	1-Bromopropane	0.005 mg/L
2,2-Dichloropropane	0.00057 mg/L	2-Butanone (MEK)	0.005 mg/L
2-Chloroethyl vinyl ether	0.005 mg/L	2-Chlorotoluene	0.00066 mg/L
2-Hexanone	0.005 mg/L	3-Chloro-1-Propene	0 mg/L
4-Chlorotoluene	0.00045 mg/L	4-Isopropyltoluene (p-Isopropyltoluene)	0.00016 mg/L
4-Methyl-2-pentanone (MIBK)	0.005 mg/L	Acetone	0.01 mg/L
Acrolein	0.05 mg/L	Acrylonitrile	0.05 mg/L
Benzene	0.005 mg/L	Bromobenzene	0.005 mg/L
Bromochloromethane	0.005 mg/L	Bromodichloromethane	0.005 mg/L
Bromoform	0.005 mg/L	Carbon disulfide	0 mg/L
Carbon tetrachloride	0.005 mg/L	Chlorobenzene	0.005 mg/L
Chlorodibromomethane (Dibromochloromethane)	0.005 mg/L	Chloroethane (Ethyl Chloride)	0.005 mg/L
Chloroform	0.005 mg/L	cis-1,2-Dichloroethene	0.005 mg/L
cis-1,3-Dichloropropene	0.005 mg/L	Dibromomethane (Methylene Bromide)	0.005 mg/L
Dichlorodifluoromethane (Freon-12)	0.005 mg/L	Ethylbenzene	5 mg/L
Hexachlorobutadiene	0.005 mg/L	Iodomethane (Methyl iodide)	0 mg/L
Isopropylbenzene (Cumene)	0.005 mg/L	m,p-Xylene	0 mg/L
m+p-xylene	0.01 mg/L	Methyl bromide (Bromomethane)	0.005 mg/L
Methyl chloride (Chloromethane)	0.005 mg/L	Methyl iso-butyl ketone (MIBK)	0 mg/L
Methyl tert-butyl ether (MTBE)	0.005 mg/L	Methylene chloride (Dichloromethane)	0 mg/L
Naphthalene	0.005 mg/L	n-Butyl Benzene	0.005 mg/L
n-Propylbenzene	0.005 mg/L	o-Xylene	0.005 mg/L
p-Isopropyltoluene	0 mg/L	p-Xylene	0 mg/L
sec-Butylbenzene	0.005 mg/L	Styrene	0.005 mg/L
tert-Butylbenzene	0.005 mg/L	Tetrachloroethylene (Perchloroethylene)	0.25 mg/L
Toluene	0.005 mg/L	trans-1,2-Dichloroethene	0.0005 mg/L
trans-1,3-Dichloropropene	0.005 mg/L	trans-1,4-Dichloro-2-butene	0.005 mg/L
Trichloroethene (Trichloroethylene)	0.001 mg/L	Trichlorofluoromethane (Freon 11)	0.005 mg/L
Vinyl acetate	0 mg/L	Vinyl chloride	0.005 mg/L

Rachel M 4/4/19

Released By Date Received By Date

Released By Date Received By Date

MICROBAC®

Cooler ID 6467

COOLER TEMP >6° C LOG

SAMPLE ID	Bottle 1 °C	Bottle 2 °C	Bottle 3 °C	Bottle 4 °C	Bottle 5 °C	Bottle 6 °C

4-5-19 BG

pH Lot # HC8634603 pH Exceptions

SAMPLE ID	Bottle 1	Bottle 2	Bottle 3	Bottle 4	Bottle 5	Bottle 6

4-5-19 BG

PRESERVATIVE EXCEPTIONS

__NONE

__AS NOTED

BG 4-5-19

Document Control # 1957
Last 10-07-2016

Issued to: Document Master File

NELAP Addendum - January 3, 2019

Non-NELAP LIMS Product and Description

The following is a list of those tests that are not included in the Microbac – OVD NELAP Scope of Accreditation:

Heat of Combustion (BTU)
Total Halide by Bomb Combustion (TX)
Particle Sizing - 200 Mesh (PS200)
Specific Gravity/Density (SPGRAV)
Total Residual Chlorine (CL-TRL)
Total Volatile Solids (all forms) (TVS)
Total Coliform Bacteria (all methods)
Fecal Coliform Bacteria (all methods)
Sulfite (SO3)
Propionaldehyde (HPLC-UV)

SOLID AND HAZARDOUS CHEMICALS
Nitrogen, Ammonia by Method 350.1
Chromium, Hexavalent, Leachable by SM3500 Cr-B 2009
Phenolics, Total by Method 420.1
ASTM D3987-06

NELAP Accreditation by Laboratory SOP

NONPOTABLE WATER

OVD HPLC02/HPLC-UV

Nitroglycerin
Acetic acid
Butyric acid
Lactic acid
Propionic acid
Pyruvic acid

OVD MSS01/GC-MS

1,4-Phenylenediamine
1-Methylnaphthalene
1,4-Dioxane
Atrazine
Benzaldehyde
Biphenyl
Caprolactam
Hexamethylphosphoramide (HMPA)
Pentachlorobenzene
Pentachloroethane

NELAP Accreditation by Laboratory SOP

NONPOTABLE WATER

OVD MSV01/GC-MS

1, 1, 2-Trichloro-1,2,2-trifluoroethane
1,3-Butadiene
Cyclohexane
Cyclohexanone
Dimethyl disulfide
Dimethylsulfide
Ethyl-t-butylether (ETBE)
Isoprene
Methylacetate
Methylcyclohexane
T-amylmethylether (TAME)
Tetrahydrofuran (THF)

OVD HPLC07/HPLC-MS-MS

Hexamethylphosphoramide (XMPA-LCMS)

OVD HPLC12/HPLC/UV

Acetate
Formate

OVD RSK01/GC-FID

Acetylene
Propane

OVD K9305/ISE

Fluoroborate

NELAP Accreditation by Laboratory SOP

SOLID AND HAZARDOUS CHEMICALS

OVD MSS0I/GC-MS

1-Methylnaphthalene
Benzaldehyde
Biphenyl
Caprolactam
Pentachloroethane

NELAP Accreditation by Laboratory SOP

SOLID AND HAZARDOUS CHEMICALS

OVD MSV0I/GC-MS

1.3-Butadiene
Cyclohexane
Cyclohexanone
Dimethyl disulfide
Dimethylsulfide
Ethyl-t-butylether (ETBE)
lsoprene
Methylacetate
Methylcyclohexane
n-Hexane
T-amylmethylether (TAME)

MICROBAC®

Microbac Laboratories Inc., Pittsburgh Division

CERTIFICATE OF ANALYSIS

9094077

Gowanda, Village of WWTP

Andrew Carriero
27 East Main Street
Gowanda, NY 14070

Project Name: Peter Cooper Semi- Annual

Project / PO Number: N/A
Received: 09/26/2019
Reported: 10/15/2019

Analytical Testing Parameters

Client Sample ID: Peter Cooper Samples
Sample Matrix: Aqueous
Lab Sample ID: 9094077-01
Collected By: A.Carriero
Collection Date: 09/26/2019 7:15

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 300.0, Rv. 2.1								
Sulfate	**234**	5.00	mg/L	10		09/27/19 2126	09/27/19 2126	BAD
SM 2540 D-11								
Total Suspended Solids - TSS	**6.5**	5.0	mg/L	1			09/28/19 1545	KTR
SM 4500 NH3 B/F-11								
Ammonia as N	**153**	7.50	mg/L	25		09/27/19 1010	09/27/19 1334	BAD
SM 4500 NH3 C/F-11								
Total Kjeldahl Nitrogen - TKN	**207**	25.0	mg/L	20		10/03/19 0800	10/03/19 1654	BAD

General Chemistry	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
SM 5210 B								
BOD5	**14**	4	mg/L	1		09/27/19 1252	10/02/19 0857	MKM

Analyses Subcontracted to: Microbac Laboratories Inc., - Marietta, OH

Inorganics	Result	RL	Units	Dilution	Note	Prepared	Analyzed	Analyst
EPA 420.1, Rv 1978								
Phenols - 4AAP	<0.0050	0.0050	mg/L	1		10/07/19 0834	10/09/19 1100	TB
SM4500-S2 F-2000								
Sulfide as S	**1.79**	1.00	mg/L	1		09/27/19 1341	09/27/19 1352	EPT

Definitions

RL: Reporting Limit

Project Requested Certification(s)

Microbac Laboratories Inc., - Marietta, OH
10861 New York State Department of Health
Microbac Laboratories Inc., Pittsburgh Division
10121 New York State Department of Health

MICROBAC®

Microbac Laboratories Inc., Pittsburgh Division

CERTIFICATE OF ANALYSIS

9094077

Report Comments

Samples were received in proper condition and the reported results conform to applicable accreditation standard unless otherwise noted.

The data and information on this, and other accompanying documents, represents only the sample(s) analyzed. This report is incomplete unless all pages indicated in the footnote are present and an authorized signature is included.

Reviewed and Approved By:

Tina Sharer

Administration

Reported: 10/15/2019 09:11

Page 3 of 3

MICROBAC®

CHAIN OF CUSTODY

Page 1 of 1

9094077

Gowanda, Village of WWTP

PM: Tina Sharer

Microbac Pittsburgh Division
100 Marshall Drive
Warrendale, PA 15086

724.772.0610

Client /Company Name: Village of Gowanda Sewer Dept	Contact Name: Andrew Carriero
Address: 27 E. Main Street	Bill To/PO#:
City/State/Zip: Gowanda, NY 14070	
Phone: 716-532-5931 / Email/Fax: gowandawwtp@mail.com	Potential Hazards: Non-Hazard [X] Hazard [ ] Radioactive [ ]
Project Name/ID: **Peter Cooper** Semi-ANNUAL	Disposal: Dispose of [X] Return [ ] Retain [ ]
Sampled By: A- CARRIERO / Due Date:	Compliance Sample: Yes [X] No [ ] / State: **NY**
Shipped By: Microbac Courier / Tracking #:	PWSID#: / Monitoring Period:
Type Code: G-Grab C-Composite / Comp. Start: 9-25-19/7:15A / Comp. Stop: 9-26-19/7:15A	Preservatives

Matrix Code: DW-Potable water WW-Nonpotable water SS-Soil/Sludge F-Food S-Swab O-Other

Sample Identification	Date Taken	Time Taken	Type G	Type C	Matrix	Tot. # Cont.	None	HNO3	H2SO	NaOH	HCl	Thio	Other	Dist. NH3 :: TKN	Phenolics, Total by EPA 420.1	Sulfide by SM4500-S2 F	BOD :: SO4 :: TSS
Peter Cooper	9-26-19	7:15A		X	WW	4	1	1	1				1	X	X	X	X

Instructions/Comments:

Relinquished By:	Date/Time:	Received By:	Date/Time:	
A Carriero	9-26-19	[signature]	9-26-19 0830	Temp 0.7 °C
[signature]	9-26-19 1145	[signature] (Courier)	9/26/19 1145	Iced: (Y) N
[signature] (Courier)	9/26/19 1430	Kayley Bolo	9/26/19 1430	Intact: (Y) N

QC270 V6

APPENDIX E
O&M Cost Summary

PETER COOPER SITE
138 Palmer Street, Gowanda, NY 14070
April 2018 - March 2019

$33.62

Leachate Pump Station Electric

Electrical Service (NYSEG) 1003-3457-754

Sampling Labor

Village of Gowanda Sewer Employee: April 2018@ $21.85/hr plus 53.87% fringe.

As itemized

As itemized: Mowing @ $50/hr and Microbac Sampling Invoices. Cellular data for monitoring system at Peter Cooper Site

Admin Monitor & Maint.

Includes office support to manage, process, and document Peter Cooper expenses, and prepare report @ $75/hour

Peter Cooper Leachate Flow

Flow per month as documented by Sewer Flow Meter at Peter Cooper Site. Flow was not included in billing since at least Jan 2015.

Payment Date	Service Dates	Amount
~~4/12/2018~~	~~3/13/18- 4/3/18~~	~~$ 93.69~~
~~5/16/2018~~	~~4/4/18- 5/4/18~~	~~$ 190.64~~
~~6/18/2018~~	~~5/5/18- 6/6/18~~	~~$ 98.92~~
~~7/15/2018~~	~~6/7/18- 7/7/18~~	~~$ 73.82~~
~~8/21/2018~~	~~7/8/18- 8/4/18~~	~~$ 64.14~~
~~9/18/2018~~	~~8/5/18- 9/7/18~~	~~$ 71.63~~
~~10/16/2018~~	~~9/8/18- 10/3/18~~	~~$ 84.84~~
~~11/19/2018~~	~~10/4/18- 11/2/18~~	~~$ 160.25~~
~~12/18/2018~~	~~11/3/18- 12/5/18~~	~~$ 185.26~~
1/24/2019	12/6/18- 1/8/19	$ 177.67
2/12/2019	1/9/19- 2/5/19	$ 168.37
3/18/2019	2/6/19 - 3/7/19	$ 126.41
4/4/2019	3/8/19 - 4/3/19	$ 107.90
TOTALS		**$ 1,603.54**

Month	Hrs	Amount
~~Apr-18~~	~~6~~	~~$ 201.72~~
~~May-18~~	~~4.5~~	~~$ 151.29~~
~~Jun-18~~	~~5~~	~~$ 168.10~~
~~Jul-18~~	~~6~~	~~$ 201.72~~
~~Aug-18~~	~~5.5~~	~~$ 184.91~~
~~Sep-18~~	~~5~~	~~$ 168.10~~
~~Oct-18~~	~~8.5~~	~~$ 285.77~~
~~Nov-18~~	~~7~~	~~$ 235.34~~
~~Dec-18~~	~~5.5~~	~~$ 184.91~~
Jan-19	5	$ 168.10
Feb-19	5	$ 168.10
Mar-19	5	$ 168.10
TOTALS	**68**	**$ 2,286.16**

Service/Item	Amount
~~Mowing 8/24/18~~	~~$ 175.00~~
~~(3.5 hours)~~	
~~Microbac~~	
~~Inv #AA8K02553~~	~~$ 111.59~~
~~Inv# CA8E01323~~	~~$ 734.93~~
Cyclops Monitoring System	
12 mo. cellular data	$ 360.00
monitors high level	
and daily flows	
TOTALS	**$ 1,381.52**

Month	Hrs	Amount
~~Apr-18~~	~~0.25~~	~~$ 18.75~~
~~May-18~~	~~0.25~~	~~$ 18.75~~
~~Jun-18~~	~~0.25~~	~~$ 18.75~~
~~Jul-18~~	~~0.25~~	~~$ 18.75~~
~~Aug-18~~	~~0.25~~	~~$ 18.75~~
~~Sep-18~~	~~0.25~~	~~$ 18.75~~
~~Oct-18~~	~~0.25~~	~~$ 18.75~~
~~Nov-18~~	~~0.25~~	~~$ 18.75~~
~~Dec-18~~	~~0.25~~	~~$ 18.75~~
Jan-19	0.25	$ 18.75
Feb-19	0.25	$ 18.75
Mar-19	2.25	$ 18.75
TOTALS	**5**	**$ 225.00**

Month	Flow	Amount
~~Year 2015~~	~~2758.986~~	~~$1,379.49~~
~~Year 2016~~	~~1801.983~~	~~$901.01~~
~~Year 2017~~	~~3244.66~~	~~$1,622.35~~
~~Year 2018~~	~~3235.085~~	~~$1,617.54~~
Jan-19	343.866	$171.93
Feb-19	174.149	$87.07
Mar-19	84.343	$42.17
TOTALS	**11643.07**	**$5,821.56**

Electric	~~$ 1,603.54~~	$580.35
Sampling Labor	~~$ 2,286.16~~	$504.30
Mowing & Microbac	~~$ 1,381.52~~	--
Admin	~~$ 225.00~~	$ 56.25
Flow	~~$ 5,821.56~~	$301.17
TOTAL REIMB REQUEST	~~$ 11,317.78~~	$1,442.07

PETER COOPER SITE
138 Palmer Street, Gowanda, NY 14070
April 2019 - May 2019

$33.62

Leachate Pump Station Electric

Electrical Service (NYSEG) 1003-3457-754

Payment Date	Service Dates	Amount
5/14/2019	4/4/19- 5/3/19	$ 137.28
5/31/2019	5/4/19 - 6/6/19	$ 110.35
TOTALS		**$ 247.63**

Electric	$ 247.63
Sampling Labor	$ 805.16
Mowing & Microbac	$ 3,320.49
Admin	$ 37.50
Flow	$ 217.92
TOTAL REIMB REQUEST	$ 4,628.70

Sampling Labor

Village of Gowanda Sewer Employee: April 2018@ $21.85/hr plus 53.87% fringe. Mowing @ $50/hr

Month	Hrs	Amount
Apr-19	13	$ 437.06
May-19	5	$ 168.10
5/15/2018 Mowing	4	$ 200.00
TOTALS	**22**	**$ 805.16**

As itemized

As itemized: Mowing @ $50/hr and Microbac Sampling Invoices. Cellular data for monitoring system at Peter Cooper Site

Service/Item	Amount
Microbac	
Inv #AA9D02078	$ 789.25
Priority Pollutant	
Chemicals	$ 47.90
Hydro Peroxide	
Pump Replacement	$ 2,483.34
As Itemized on Attached	
TOTALS	**$ 3,320.49**

Admin Monitor & Maint.

Includes office support to manage, process, and document Peter Cooper expenses, and prepare report @ $75/hour

Month	Hrs	Amount
Apr-19	0.25	$ 18.75
May-19	0.25	$ 18.75
TOTALS	**0.5**	**$ 37.50**

Peter Cooper Leachate Flow

Flow per month as documented by Sewer Flow Meter at Peter Cooper Site.

Month	Flow	Amount
Apr-19	204.513	$102.26
May-19	231.314	$115.66
TOTALS	**435.827**	**$217.92**

PETER COOPER SITE
138 Palmer Street, Gowanda, NY 14070
June 2019 - Oct 2019

$33.62

Leachate Pump Station Electric

Electrical Service (NYSEG) 1003-3457-754

Payment Date	Service Dates	Amount
7/23/2019	6/7/19 - 7/8/19	$ 100.77
8/20/2019	7/9/19 - 8/6/19	$ 68.31
9/17/2019	8/7/19 - 9/4/19	$ 59.55
10/22/2019	9/5/19 - 10/4/19	$ 58.53

Sampling Labor

Village of Gowanda Sewer Employee: April 2018@ $21.85/hr plus 53.87% fringe. Mowing @ $50/hr

Month	Hrs	Amount
Jun-19	7	$ 235.34
Jul-19	5.5	$ 184.91
Aug-19	7	$ 235.34
Sep-19	5.5	$ 184.91
Oct-19	5	$ 168.10

As itemized

As itemized: Site maintenance as required.

Service/Item	Amount
Good Neighbor	
Tree Removal at site	$ 3,000.00
M.W. Offhause & Sons	
Fill & Cover Ruts	$ 430.00
Gernatt Asphalt Products	
Classifier Silt Fill	$ 71.83

Admin Monitor & Maint.

Includes office support to manage, process, and document Peter Cooper expenses, and prepare report @ $75/hour

Month	Hrs	Amount
Jun-19	0.25	$ 18.75
Jul-19	0.25	$ 18.75
Aug-19	0.25	$ 18.75
Sep-19	0.25	$ 18.75
Oct-19	0.25	$ 18.75

Peter Cooper Leachate Flow

Flow per month as documented by Sewer Flow Meter at Peter Cooper Site.

Month	Flow	Amount
Jun-19	183.567	$91.78
Jul-19	147.848	$73.92
Aug-19	98.402	$49.20
Sep-19	81.498	$40.75
Oct-19	93.205	$46.60

TOTALS	$ 287.16	30	$ 1,008.60	$ 3,501.83	1.25	$ 93.75	604.52	$302.25

Electric	$ 287.16
Sampling Labor	$ 1,008.60
Mowing & Microbac	$ 3,501.83
Admin	$ 93.75
Flow	$ 302.25
TOTAL REIMB REQUEST	$ 5,193.59

PETER COOPER SITE
138 Palmer Street, Gowanda, NY 14070
Reimbursement Period: Nov - Dec 2019

General Fund Reimbursement
Electric - Leachate Pump Station
Electrical Service (NYSEG) 1003-3457-754

Sewer Fund Charges
Sampling Labor $34.48
Labor as documented by Sewer Employees $22.41 Rate/hr plus 53.87% fringe. Mowing @ $50/hr

Special Project Fund Reimbursement
As itemized
As itemized: Site maintenance as required.

General Fund Charges
Admin Monitor & Maint.
Village Admin processing of Reimbursment Requests @ $75/hour

Sewer Fund Charges
Peter Cooper Leachate Flow
Flow per month as documented by Sewer Flow Meter at Peter Cooper Site.

Payment Date	Service Dates	Amount	Month	Hrs	Amount	Service/Item	Amount	Month	Hrs	Amount	Month	Flow	Amount
11/19/2019	10/5/19 - 11/6/19	$ 150.11	Nov-19	5	$ 172.40	Great Lakes	$ 5,100.00	November	0.25	$18.75	Nov-19	133.769	$66.88
12/17/2019	11/7/19 - 12/6/19	$ 140.24	Dec-19	6	$ 206.88	Environmental		December	0.25	$18.75	Dec-19	226.769	$113.38
						To prepare the 2019 Peter Cooper Periodic Review.							
TOTALS		$ 290.35		11	$ 379.28		$ 5,100.00		0.5	$ 37.50		360.538	$180.26

Reimbursment Request Total		
Electric	$	290.35
Sampling Labor	$	379.28
Itemized Expenses	$	5,100.00
Admin Support	$	37.50
Leachate Flow	$	180.26
TOTAL REIMB REQUEST	$	5,987.39

VILLAGE OF GOWANDA

"Gateway to the Southern Tier"

27 E. Main Street • Gowanda, NY 14070
(716) 532-3353 • Fax (716) 532-2938

"The Village of Gowanda is an Equal Opportunity Provider and Employer"

April 10, 2019

Thomas Skivington
Institutional Services
Assistant Vice President
Private Wealth Management
10 Tripps Lane, RTL 125
Riverside, RI 02915

Dear Mr. Skivington,

Enclosed you will find the O&M Expense Reimbursement Invoice and all supporting documentation for the Peter Cooper Site Agreement for the period April 2018 – March 2019.

The expense report is itemized as attached:	
Leachate Pump Station Electric:	$ 1,603.54
Sampling Labor:	$ 2,286.16
Mowing:	$ 175.00
Microbac Testing:	$ 846.52
Monitoring System Annual Fee:	$ 360.00
Admin Expense Monitoring & Processing:	$ 225.00
Leachate Flow:	$ 5,821.56
TOTAL	**$ 11,317.78**

Please contact me if you need any additional information or have any other questions at (716) 532-3353.

Thank you,

Traci R. Hopkins, Treasurer
Village of Gowanda

Cc: *Sherrel Henry, EPA*
Mourice Moore, DEC
Tom Forbes, Benchmark
John Walgus, GARC
Mike Hutchinson, GARC

VILLAGE OF GOWANDA

"Gateway to the Southern Tier"

27 E Main Street ♦ Gowanda NY 14070

(716)532-3353 ♦ Fax (716)532-2938

"The Village of Gowanda is an Equal Opportunity Provider and Employer."

June 25, 2019

Thomas Skivington
Institutional Services
Assistant Vice President
Private Wealth Management
10 Tripps Lane, RTL 125
Riverside, RI 02915

Dear Mr. Skivington,

Enclosed you will find the O&M Expense Reimbursement Invoice and all supporting documentation for the Peter Cooper Site Agreement for the period April 2019 – May 2019 to close out expenses through the end of the Village Fiscal Year (5/31/19).

The expense report is itemized as attached:

Leachate Pump Station Electric:	$ 247.63
Sampling Labor:	$ 605.16
Mowing:	$ 200.00
Microbac Testing:	$ 789.25
Chemicals:	$ 47.90
Pump Replacement:	$ 2,483.34
Admin Expense Monitoring & Processing:	$ 37.50
Leachate Flow:	$ 217.92
TOTAL	**$ 4,628.70**

Please contact me if you need any additional information or have any other questions at (716) 532-3353.

Thank you,

Traci R. Hopkins, Treasurer
Village of Gowanda

Cc: Sherrel Henry, EPA
Maurice Moore, DEC
Tom Forbes, Benchmark
John Walgus, GARC
Mike Hutchinson, GARC

VILLAGE OF GOWANDA

"Gateway to the Southern Tier"
27 E Main Street ♦ Gowanda NY 14070
(716)532-3353 ♦ Fax (716)532-2938

"The Village of Gowanda is an Equal Opportunity Provider and Employer."

October 31, 2019

Thomas Skivington
Institutional Services
Assistant Vice President
Private Wealth Management
10 Tripps Lane, RTL 125
Riverside, RI 02915

Dear Mr. Skivington,

Enclosed you will find the O&M Expense Reimbursement Invoice and all supporting documentation for the Peter Cooper Site Agreement for the period June 2019 – October 2019. These are all expenses related to the operation and maintenance of the site.

The expense report is itemized as attached:

Leachate Pump Station Electric:	$ 287.16
Sampling Labor:	$ 1,008.60
Good Neighbor Tree Removal at Site:	$ 3,000.00
M.W. Offhause & Sons Fill &Cover Ruts	$ 430.00
Gernatt Asphalt Classifier Silt Fill	$ 71.83
Admin Expense Monitoring & Processing:	$ 93.75
Leachate Flow:	$ 302.25
TOTAL	**$ 5,193.59**

Please contact me if you need any additional information or have any other questions at (716) 532-3353.

Thank you,

Traci R. Hopkins

Traci R. Hopkins, Treasurer
Village of Gowanda

Cc: *Sherrel Henry, EPA*
Maurice Moore, DEC
Tom Forbes, Benchmark
John Walgus, GARC
Mike Hutchinson, GARC

The experience to
listen
The power to
solve℠

Barton
&Loguidice

www.bartonandloguidice.com