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MONTHLY REPORT OF THE OPERATIONS & MAINTENANCE ACTIVITIES (MAY 2023) CLAREMONT POLYCHEMICAL OPERABLE UNIT 5 GROUND WATER TREATMENT SYSTEM, OLD BETHPAGE, NY

**MONTHLY REPORT OF THE OPERATIONS & MAINTENANCE
ACTIVITIES (MAY 2023)
CLAREMONT POLYCHEMICAL OPERABLE UNIT 5 GROUND
WATER TREATMENT SYSTEM, OLD BETHPAGE, NY**

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LIST OF ACRONYMS AND ABBREVIATIONS

AS	Air Stripper
A/V	Air and Vacuum
ASF	Air Stripper feed
BNA	Base Neutral & Acid Extractables
CPC	Claremont Polychemical
CSE	Confined Space Entry
DOSR	Daily Operations Summary Report
EE	Electrical Engineer
GES	Groundwater & Environmental Services, Inc.
GPM	Gallons Per Minute
GWTS	Groundwater extraction, treatment, and reinjection system
HDR	Henningson, Durham & Richardson Architecture and Engineering, P.C.
HMI	Human Machine Interface
HVAC	Heating, Ventilation, and Air Conditioning
MTBA	Tert-Butyl-Methyl ether
MW	Monitoring Well
NYSDEC	New York State Department of Environmental Conservation
O&M	Operation and Maintenance
OU4	Operable Unit 4
OU5	Operable Unit 5
PD	Plant Discharge
PDB	Passive Diffusion Bag
PFAS	Per- and polyfluoroalkyl substances
PFOS	Perfluorooctanesulfonic acid
PFOA	Perfluorooctanoic acid
PID	Photoionization Detector
PFF	Pressure Filter Feed
PLC	Programmable Logic Controller
ppm	parts per million
PW	Process Water
Ramboll	Ramboll Americas Engineering Solutions, Inc.
RW	Recovery Well, Process Well
SPEDES	State Pollutant Discharge Elimination System
SSHP	Site Safety and Health Plan
SU	Standard pH Units
SVOCs	Semi-Volatile Organic Compounds
TBA	Tert-butyl alcohol
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TOC	Total Organic Carbon
TSS	Total Suspended Solids
US Water	US Water Services Corporation
VOCs	Volatile Organic Compounds,

1. OPERATION AND MAINTENANCE ACTIVITIES

On behalf of Ramboll Americas Engineering Solutions, Inc. (Ramboll), Groundwater & Environmental Services, Inc. (GES) continued the daily operation and maintenance (O&M) of the Claremont Polychemical (CPC) Superfund Site Groundwater Treatment System (GWTS) Operable Unit 5 (OU5) during the month of May 2023. In addition, former Operable Unit (OU4) was inspected once per month to ensure security and building code compliance. For this report every time plant is mentioned it refers to OU5. OU4 will be referred to as such whenever discussed. This report covers the O&M activities for the system during the period defined as beginning at approximately 0800 hours, May 1, 2023, through approximately 0830 hours, June 1, 2023. O&M conducted during this reporting period was guided by the site O&M Manual.

The GWTS – treatment plant, grounds, and well systems - were maintained for the 31 days in this reporting period during which the treatment system experienced no downtime.

Readings of the key plant process parameters are normally recorded each workday. These readings and the Human Machine Interface (HMI) flow trend lines are used to monitor the system's performance and condition. Selected readings are recorded in the daily database which is an electronic file maintained in the monthly operating documents folder. If the plant is not occupied, the system is monitored remotely.

The treatment process control and alarm systems are functional. The recovery well pumps, process pumps, and air stripper blower are operated in the automatic mode and are normally remotely controlled and monitored. RW5 recovery pump electric motor was replaced on May 1, 2023 and restarted the same day. RW4 recovery pump and electric motor were replaced and restarted on May 2, 2023.

1.1 Daily Operations Summary Reports

The GWTS's daily operations and maintenance activities, project tasks, and observations during this period are briefly described in the Daily Operations Summary Report (DOSR). The DOSR is based in part on the treatment system's daily operating worksheets and logs which include:

- Daily Operating Log – flow readings and calculations (Form-01)
- Daily Site and Safety Inspection – plant condition checklist (Form-02)
- Daily Plant Activity Notes – plant manager's daily summary (Form-03)
- Sign-In Sheet – GES/Ramboll employee on-site hours (Form-15)
- Daily Process Data Sheet – point process readings (Form-30)
- Logbook CPC 5-8– plant operator's daily logbook
- Daily Database – daily process readings (May 23 Database.xlsx)
- NYSDEC Log-in Sheet – Entry/Exit Log with COVID-19 Acknowledgement

1.2 Summary of Maintenance Activities

The operation and maintenance of the treatment system, facility, and associated equipment is performed in accordance with the site O&M Manual. These tasks and inspections incorporate the equipment manufacturers' recommendations, operations experience, and good engineering and

maintenance practices. A detailed accounting of the May activities is further provided in the plant operator's daily logbook.

Maintenance and project activities undertaken during the May period included:

- Routine and general maintenance tasks were conducted at the plant, on the grounds, and in the well fields.
- Single Air Stripper Feed (ASF) pumps were placed into hand mode and frequently switched to cycle their activity.
- The monthly process equipment tests were conducted.
- The Operable Unit 4 (OU4) comprehensive inspections were completed.
- The monthly Process/Recovery Well (RW) system inspection was completed.
- Recovery wells RW4 and RW5 were restarted following pump replacement.
- Basin 33 was inspected.
- The ASF pumps were lubricated, and the seals tightened.
- The OU5 comprehensive inspections were completed.
- The Pressure Filter Feed (PFF) pumps were lubricated, and the seals tightened.
- The fire alarm system components were inspected.
- The monthly electrical device survey was completed.
- The SUNY wellfield was inspected.

1.3 Maintenance Logs

The following operating logbooks are currently in use and maintained at OU5:

- CL-18 OU-4 Log (at OU4)
- CL-43 General Field Support Log (truck)
- CL-47 Misc. Projects Field Notebook (Pawel Mecinski)
- CPC 5-4 Project Support Logbook (site)
- CPC 5-8 Site Supervisor's Daily Logbook (Pawel Mecinski).

Except for log CPC 5-7, the completed logbooks associated with the project have been scanned, all are in storage at OU5, and are available for review.

2. TECHNICAL SUPPORT ACTIVITIES

2.1 GES/Ramboll Personnel

- GES maintained the system throughout the period.
- From May 8 through May 11, 2023, Liam Blake and Sara Hahne (Ramboll) on site for quarterly groundwater sampling and gauging event.
- From May 15 through May 16, 2023, Liam Blake (Ramboll) on site for quarterly groundwater sampling event.

2.2 NYSDEC Personnel, Sub - contractors, and Other Visitors

- On May 1 and May 2, 2023, US Water Industrial Group (USWIG) crew and Bay Crane operator on site to conduct RW5 and RW4 pump extraction and pump motor replacement, respectively.
- On May 4, 2023, Payson Long and Jeffrey Dyber (NYSDEC) conducted a site visit.
- On May 17, 2023, National Waste Services, LLC on site to empty the garbage container.

2.3 Deliveries

- On May 4, 2023, FedEx delivered sampling coolers and material for the upcoming quarterly groundwater sampling event.
- On May 8, 2023, FedEx delivered sampling material for the quarterly groundwater sampling event.

3. HEALTH AND SAFETY

Work at the Claremont GWTS OU5 was conducted in accordance with the approved and Ramboll adopted Site Safety and Health Plan (SSHP). Safety related activities during this period included:

- The water remained off at OU4. Both potable and non-potable lines were drained. (No sanitary water).
- Daily site safety inspections were completed as part of the routine O&M activities.

4. PLANNED ACTIVITIES AND SCHEDULES

The evaluation of the plant operating system and equipment is ongoing by GES/Ramboll. A list in the form of corrective actions or maintenance tasks has been generated as a monthly system status report. These reports are updated as needed and reviewed at least monthly. Both are electronically filed. The corrective action list is included at the end of this report as **Table 1** – Claremont Corrective Action Summary.

Upcoming tasks include:

- OU4 remains without water to the fire sprinkler system due to no heat in the building.
- OU4 potable water line was shut off due to pipe ruptures from frozen pipes.
- Air valve at MW-6 cluster in Bethpage State Park reinsertion.
- Investigate plant electric driven back-up heater failures.
- Close and exercise all globe valves at the non-operational recovery wells.
- OU5 Annual fire extinguisher inspection is due.
- OU5 Annual fire alarm inspection is due.

5. MONITORING WELL WATER ELEVATIONS

The monitoring well system's groundwater elevation data table was updated after the May 2023 quarterly GW elevation recording task. This database is available for review. The next set of synoptic water level measurements will be scheduled for September 2023 and will be conducted by Ramboll.

6. TREATMENT SYSTEM FLOWS

During the May period, the plant continued to operate in the auto control mode. The volume of treated water discharged by the treatment system to the selected recharge basin was calculated

from the plant influent and effluent flow meter readings. These readings are taken at the HMI and recorded in the daily database.

RW5 pressure switch was replaced on January 5, 2023, and the well was successfully restarted on automatic run mode. RW5 experienced electrical short across the motor windings on January 26, 2023, and was confirmed inoperable. The motor short circuiting was confirmed on March 13, 2023 during pump extraction and inspection activities. RW5 motor and wiring was replaced on May 1, 2023. RW5 has been operating normally since the replacement activities. RW3 continues to function normally. RW4 has been offline since August 17, 2022. Full replacement of pump, pump motor and down well wiring was completed on May 2, 2023. RW4 has been operating normally since the replacement activities. The old RW4 pump was inspected, and it was determined that the shaft has ceased up and broke off between the motor and pump connection.

During the month of May, the plant discharge was directed to Recharge Basin 33.

The total volume of treated water discharged from ~0800 hours May 1 to ~0830 hours June 1 was approximately 31,390,000 gallons. The data in **Table 2** is a summary of plant discharge flows.

A graphic representation of the system's daily plant discharge output is provided in **Figure 1** and the daily plant totalizer readings for May 2023 are provided in **Table 3**, both following the text of this report.

Under current conditions, the PLC and the control system are functioning as designed. Flows from the individual recovery wells are remotely read, transmitted, and totalized.

The flow summary for the individual components of the system can be found in **Table 4** at the end of this report.

7. CHEMICAL CONSUMPTION

The hydrochloric acid feed system is currently off-line, and the system is void of acid. There are four drums of virgin acid on site. No acid was used for water treatment purposes in May of 2023.

The sodium hydroxide storage system is currently not in use and the system is empty of caustic. There is no bulk sodium hydroxide on site and no caustic was used in May of 2023.

The sodium hypochlorite storage system is currently not in use and the system is empty of bleach. No bulk sodium hypochlorite is stored on site. No sodium hypochlorite was used in May of 2023.

8. WASTE DISPOSALS

Routine accumulation of waste materials continued from plant day to day operations. Waste removal is being handled by National Waste Services, LLC. Waste container was emptied on May 17, 2023.

9. MONTHLY DISCHARGE MONITORING REPORT

The GWTS is operated under an equivalency permit from the NYSDEC. **Table 5** presents the Claremont OU5 O&M Sampling and Measurement requirements and their frequency. The analytical results for the plant discharge sampling conducted on May 2, 2023 indicate that the analyzed parameters were compliant with permit limits (**Table 6**). Monthly system sampling analytical results are provided in **Attachment 1**.

The OU5 GWTS plant's water discharge permit is in the process of being renewed by the NYSDEC.

10. PENDING ISSUES AND CONSIDERATIONS

Mechanical repairs have been made to the plant HVAC system at OU4. Upon testing, the gas supply appeared to be shut off. Ramboll is currently planning demolition of the OU4 building.

The sprinkler system at OU4 remains drained of water. The potable and non-potable water lines at OU4 have been drained.

The discrepancies/inaccuracies in the plant flow meter readings at OU5 may be due to the inappropriate configuration of the local piping. Future calibration or adjustment of pulse reading may be required.

Repairs have been made at RW4 and RW5. Both pumps have returned to operation.

The OU4 plant is offline and its disposition including that of the injection well system, and vapor carbon beds is pending.

The status of key aspects of OU4 are as follows:

- The plant heat is currently off, and the system is out of service.
- The fire alarm panels are off-line.
- The fire sprinkler system is currently off-line. The water has been drained from the system. An alarm system for the sprinkler has been installed with central monitoring.
- The facility is secure, and its physical monitoring continues.
- The facility and grounds are not maintained except for the facility entrance and plant egress points.
- NYSDEC plans on decommissioning and demolishing OU4. A team from Ramboll is in the process of developing bid documents for this work.

11. PLANT DOCUMENTS

Procedures and standard forms are written, reviewed, and revised as needed. As-built drawings are generated and updated as necessary.

12. MONITORING RESULTS

The CPC GWTS is monitored through the analysis of off-site laboratory analytical data and on-site field data.

12.1 Off-site Analytical Data Results

Monthly Plant Discharge (PD) samples are taken for organic analysis in compliance with the NYSDEC discharge permit. Quarterly groundwater samples are taken for organic analysis, and quarterly process water (PW) samples are taken for organic, inorganic, and generic analysis. At the direction of the NYSDEC in an August 17, 2022 email, analysis of Per- and polyfluoroalkyl substances (PFAS) and 1,4-dioxane were added to monthly sampling for both influent and effluent for the foreseeable future. The May 2023 PFAS and 1,4-dioxane influent and effluent results can be found in **Table 7** following the text of this report. Monthly system sampling analytical results are provided in **Attachment 1**.

The May sampling activities included:

- The May PD data was processed and submitted.
- Monthly system sampling was completed on May 2, 2023.
- Quarterly groundwater elevation monitoring and groundwater sampling via low flow method and passive diffusive bailers.

12.2 Field Data

12.2.1 Plant Discharge pH and Temperature

The treatment plant effluent is monitored for pH and temperature on a weekly basis to obtain a monthly average in compliance with the NYSDEC discharge permit requirements. These measurements are taken from the plant effluent at a controlled point with a calibrated portable meter. The plant discharge readings for May 2023 can be found in **Table 8** following the text of this report.

The May 2023 average pH measurement was 7.56 standard units (su). The NYSDEC discharge permit requires the plant discharge to have an average monthly pH between 6.5 and 8.5 su. The results for this month meet this requirement. Data showing the plant discharge's monthly average pH trend over several months is provided in **Table 9** following the text of this report.

12.2.2 Air Stripper (AS) Tower Air Monitoring

Using a calibrated photoionization detector (PID), the vapor discharge from the air stripper tower was monitored weekly for volatile organic compounds (VOCs). The measurements were taken from the tower's effluent air stream through Port B when the treatment system is online. The May 2023 readings from the AS tower are provided in **Table 10**.

Other routine data collected in May included:

- The electric and water meter readings at OU5 were recorded weekly.
- The plant vaults and selected areas were monitored for VOCs weekly.

- The plant sound levels were recorded bi-weekly.
- The monthly electric and gas meter readings for OU4 were recorded.
- The recharge basins were inspected weekly.
- The differential pressure readings across the AS Tower were recorded bi-weekly.

13. PROCESS ANALYSIS AND SYSTEM STATUS

The treatment system is currently operated 24/7 in the automatic mode. It is remotely monitored as necessary.

13.1 Extraction (RW) Processes

- The monthly system inspection was completed.
- The vault space heating units were deactivated on March 23, 2023.
- The recovery well pump system is remotely controlled and monitored, it operates in the auto mode.
- The pump at RW3 is online and fully functional.
- The pump at RW4 is online and fully functional following replacement on May 2, 2023.
- The pump at RW5 is online and fully functional following motor replacement on May 1, 2023.
- Pump flow readouts are transmitted to the plant and the totalizers for pumps RW3, and RW4 are fully functional. The local flow meter for RW5 occasionally stops transmitting.
- Air/Vacuum (A/V) valve at station 33+96 encountered a leak in May that required the vault to be pumped out and have its air/vacuum valve removed. Currently a stopper has been fitted to the pit that allows water to flow through the system.
- The Air/Vacuum (A/V) valve at station 16+57 and 17+10 remain isolated from the transmission line.
- RW1 and RW2 are offline and periodically run for preventative maintenance purposes. Their flow meters are not transmitting through the PLC. When repairs were made at RW1 in November 2021, stones were removed from the flow meterhousing. There was a thick coating of iron salt deposits on the housing and impeller.

13.2 AS Process

- The three OU5 ASF pumps in the AS Process are fully functional.
- Motors and seals were lubricated on a bi-weekly schedule. Seals were tightened and the drains were cleared as necessary.
- The AS tower main drain valve's manual actuator is not functional (fail open).
- The tower media appears clean as the pressure differential between the top and bottom ports remains relatively constant. The lower section of media has been visually inspected.
- The discharge valves for ASF P1 and P2 appear to be frozen in the open position.

13.3 PD Process

- The plant discharge flow is currently directed to Recharge Basin 33.
- The valve influent to Recharge Basin 1 remained closed during the May reporting period.
- Pump 1 has been taken out of service due to excessive noise and vibration. A full evaluation is required. Pumps 2 and 3 are fully functional.
- The motors and seals were lubricated as necessary.
- The discharge valve for PFF P3 has failed open.

13.4 Other

- The plant's first bank of lights is wired to the emergency-light recharging system. The circuit is kept on 24/7. The lamps appear burnt out. The second bank of lights provides sufficient lighting for general tasks. Additional work lights were installed around the plant area to further illuminate work areas.
- The potential for leaks in the water supply line running through the plant will continue to be monitored.
- The fire alarm and central monitoring systems are fully functional. The fire alarm system requires annual inspection for 2023.

14. GROUNDS

14.1 Plant Perimeter

- General outdoor clean-up tasks are on-going.
- The fencing is clear and secure.

14.2 Well Field

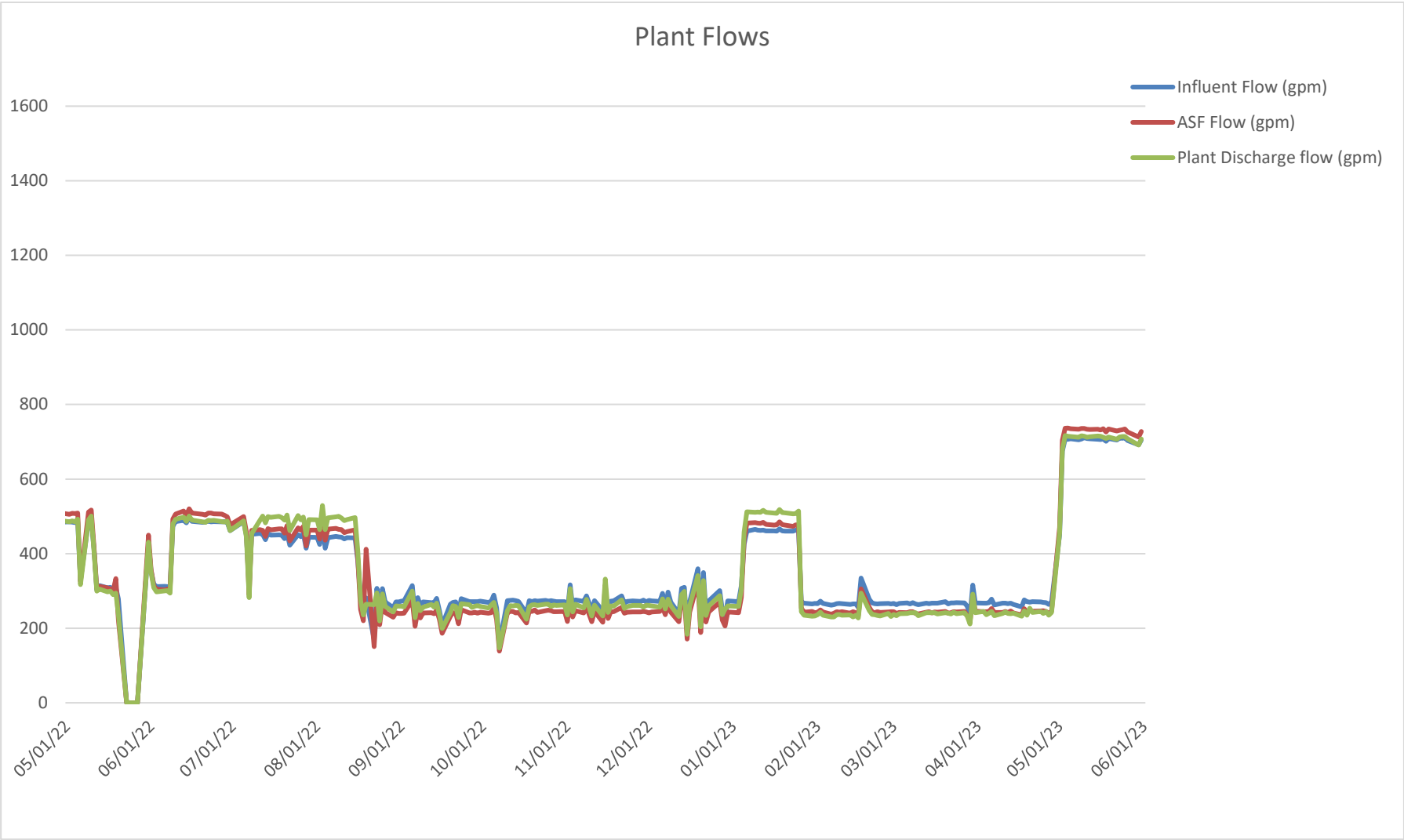
- Well field, and recharge basin inspections continue.

14.3 Other

- The CPC GWTF OU4 is secure.
- The property at and around the OU4 site continues to be inspected. While the grounds are not maintained, the treatment plant's entrance and egress points are kept clear and functional.

FIGURE

Figure 1
Plant Discharge Daily Flow



TABLES

Table 1
Claremont Corrective Actions Summary

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
The RW Discharge Manifold integrity is suspect	The condition of the various devices on the RW discharge manifold are suspect. The Air Vent valve in the vault on the N-side of the 6th fairway is leaking from the influent nipple. The shut-off valve was closed and the device isolated. The air-vent valve in the vault to the east of the 6th green is leaking. The shut-off valve was closed and the device isolated. The manifold employs isolation, venting, and drain valves as well as other devices. Along the path of the manifold are vaults which house some of these devices. These vaults need to be accessed, pumped out, and the devices tested. Two isolation valves were closed between RW1 and RW3. These valves seemed to hold.	Plant staff and outside contractors	Possible shutdown	May require a Confined Space Entry (CSE)
AS Tower main drain valve is not controlled	The valve does not respond to manipulation of its actuator. <i>This valve should be replaced.</i> <i>No further action is planned at this time.</i>	Operator	Plant will need to be shut down to change out the valve	None

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
OU4 fire alarm system is not functioning Central monitoring of the fire alarm system or fire suppression system does not exist OU4 electrical system has been unstable	The Nassau County Fire Code indicates that the sprinkler system must have central monitoring for flow and valve tampering. The fire alarm system needs to be replaced and centrally monitored. Several contractors have been at the site to propose options for the system. BK Fire installed central monitoring on the sprinkler system. Both are offline as the sprinkler system will remain drained until the HVAC system is repaired. Certain OU4 lights currently create a large amount of noise in the fan box within the control room. The southern lights flicker and then die including the emergency system. OU4 is currently being planned for demolition.	Plant operator, Electrical Engineer (EE) and outside vender	None at this time	Fire code violations. High altitude tasks, safety code violations
Several leaks were observed in the plant overhead water supply line	Adjacent to the north door a clam-shell type clamp was applied. The second leak observed above the AS Blower is not readily accessible. It is not problematic. <i>Repair work may require evaluation and outside resources. Currently the situation is controlled.</i>	Outside plumbing contractor	None	Sanitary water may be shut off during repairs

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
The float controls for the PFF pump system have intermittently shorted out causing the system to not properly control the pumping operation	The wiring of the pump control system is connected below grade. The junction box in the wet well is thought to be filled with water creating a problem with the float switches to control relay wiring. The box cannot be opened without damage to it and the conduit. This appears to have been a longstanding problem, as when switches have been replaced in the past, they were spliced outside the box. The float switches have been replaced and spliced above the sump but there remains a problem with the L2 circuit. The output from the W-2 relay was moved to the output for the W-1 relay. This has stopped the short cycling. <i>The control wiring should be changed and moved above grade. Currently the second splices to the floats are above ground outside the vault.</i>	Plant operator and GES resources	Plant shut down is required	Possible Confined Space Entry work
PFF P1 has failed	The pump when activated immediately makes a lot of noise, and the pump drop pipe shakes. Smoke/fumes emanated at the Motor-shaft connection. The motor appears to be good. The pump was removed from service, February 24, 2020. <i>It is recommended that the motor be disconnected, lifted, and the mechanical connection checked.</i>	Outside contractors	None anticipated	To be determined

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
As the ASF pumps cycle off/on, the check valves have started to slam closed. When reactivating, the motor starter contact is rather violent. Both actions tend to rattle the piping and fixtures	There is no available literature regarding the check valves, so the exact description of their functioning parts is to be determined. A softer start/stop control may fix this issue. <i>This will need further investigation. Soft-start equipment and variable frequency controls were discussed.</i>	Plant operator and EE support	If replacement or repairs are necessary, a plant shutdown will be required as the units can- not be isolated	To be determined
The flowmeters for system flow, ASF flow and plant discharge are out of sync with the flow meters on the recovery wells	While the ASF flow meter is the most out of line, it is plumbed correctly. The influent system flow meter and the plant discharge flow meters are piped incorrectly. The same style of relay is used to count pulses, but the meters have not been calibrated. The system needs further investigation to determine if any changes are warranted.	EE support	To be determined	none
EF-4 is not operatable	The fan is controlled through the mezzanine thermostat, but it does not appear to be operating. The fan requires electrical testing. The system was checked, it appears that the fan is not functioning. The fan should be replaced.	EE support	Only in an emergency	Only in an emergency
Wiring nests in main control console	The wiring in the main control console needs to be cleaned up and labeled, to facilitate problem troubleshooting and process improvements.	EE support	A shut down may be necessary	Electrical work

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
Pressure Filter Feed pump controls	With P1 out of service, the sequencing of pumps allows for the PFF vault to reach HHL conditions in certain circumstances. Reprogram the sequencing to eliminate the position of P1.	EE support	To be determined	To be determined
RW5 has failed	RW5 pump was replaced on October 10, 2022, however due to PLC signal loss, it cannot be operated in automatic mode. GES conducted troubleshooting and parts replacement without success. System controls were examined by a PLC certified technician mid-December and determined pressure switch failure. Used device has been installed while a new one has been ordered. The pump ran on auto mode from January 5, 2023 to January 26, 2023 until an electrical short at the motor disabled the safe operation of the pump. New pressure switch was installed on March 23, 2023. New pump motor installed on May 1, 2023.	Plant Operator and Ramboll.	Less water is treated	To be determined
RW4 has failed	RW4 started to experience possible motor thermal overload shutdowns on multiple occasions during August monitoring period. The pump motor fully shut down on August 17, 2022 and all troubleshooting/restarting attempts were unsuccessful. New pump and pump motor installed on May 2, 2023.	Plant Operator and US Water	Less water is treated	To be determined
Air vacuum valve removal	On May 22, 2022 RW4 was shut down due to a leak detected in the field near an air/vacuum valve pit. On May 24 2022 through May 25, 2022 water was pumped out of the vault and on May 31, 2022 a confined space entry was made to attempt to tighten the valve in an effort to stop the leak. This tightening was unsuccessful, and the valve was removed entirely and replaced with a blank flange until further	GES Mechanical Support	Less water is treated	Confined space entry required to do work in vault

Condition to be Corrected	Status and Actions	Resources	Plant Ops Impact	Health & Safety Impacts
	notice.			
Plant Electric Heater UH-3 failure and HVAC system performance	During sub-20 deg.F weather, the emergency electric heater failed. The HVAC system struggled to produce heat and the plant temperatures dipped to around mid-30's during that time.	Outside contractor	Water lines freezing	Equipment damage

Other Plant Conditions of Note (no action required at this time)

- The methane detection system is offline. **To function, it will need a technical inspection and maintenance.** However, methane does not currently appear to be a hazard.
- It has been determined that intrinsically safe components are no longer required in the plant.
- There has been no need for acid washing of the AS Tower media, the hydrochloric acid feed and storage system have not been operated. The tanks have not been filled and the level monitoring system has not been operated.

As previously noted, there are pieces of equipment that are out of service and require repairs. Currently there are no plans for addressing these conditions as the operation of this equipment is not necessary or needed for the operation of the treatment system.

Equipment	Fault	Status
Plant electric heater UH-1	Needs transformer	Heater is not needed
Plant electric heater UH-2	Needs relay timer and wiring repairs	Heater is not needed
Recovery well pump pressure switch assembly	Units are unwieldy and subject to vibration, corrosion, and leaks	Each unit requires assessment and disposition
NaOH sump pump	Pump is not operating	No water or chemicals stored in vault. Portable submersible pump in sump should suffice
Plant lights are wired to the emergency light charging system	Un-segregated light cannot be shut off. Several of the lamps may have burnt out	The bank of lights appear to have failed/burnt out. The second bank of lights are sufficient
Plant exhaust fans are part of methane system	Fans cannot be manually operated	Once the methane monitoring system is online, the fans can be operated
Plant discharge drain	Leak in Victaulic fitting	Drain line on plant discharge intermittently leaks. Parts are in-house. Not pressing
ASF pump isolation valve	Valve P1 has failed open	Not needed at this time

Equipment	Fault	Status
PFF pump isolation valve	Valve P3 has vailed open	Not needed at this time
RW1 flow meter	The meter is not operating	Pump is offline. Rocks were pulled from the housing and iron sediment was encrusting the flow meter impeller and housing
RW2 flow meter	The meter is not transmitting	Pump is offline
Air stripper flow meter	Non-functional and removed	
AH-1 condenser	Air conditioner is non-functional	Two window AC units in place
Plant outdoor lights	9 of 12 lights not functioning	Not a security issue

Table 2
Plant Discharge Average Flow & Volume

Period	Average Flow (gpm)	Average Daily volume (gal)	Total Period Flow (gal)	Min off	Min on
Q4 2016	517	745,000	68,540,000	7,309	125,171
Q1 2017	520	748,244	67,342,000	655	128,945
Q2 2017	576	829,130	76,280,000	6,165	126,315
Q3 2017	634	913,576	84,049,000	1,110	131,370
Q4 2017	256	368,762	33,926,110	69,165	63,315
Q1 2018	53	75,989	6,839,000	118,180	11,420
Q2 2018	179	258,284	23,762,103	102,929	29,551
Q3 2018	504	725,280	66,725,717	57,416	75,064
Q4 2018	726	1,045,065	96,145,984	23,734	108,746
Q1 2019	527	758,467	68,262,000	735	128,865
Q2 2019	662	953,877	87,756,724	405	132,075
Q3 2019	685	985,802	90,693,740	108	132,372
Q4 2019	655	943,871	82,116,780	5,039	129,326
Q1 2020	480	682,527	62,110,000	1,824	129,326
Q2 2020	698	996,998	88,732,846	3,838	127,185
Q3 2020	669	955,928	87,945,333	1,099	131,401
Q4 2020	695	1,001,365	92,125,539	52	132,497
Q1 2021	708	1,019,733	91,776,000	0	129,603
Q2 2021	709	1,021,317	92,939,850	0	131,040
Q3 2021	615	884,934	81,413,897	0	132,475
Q4 2021	677	928,370	85,410,047	6,317	126,185
Q1 2022	633	1,291,661	80,082,987	5,280	124,320
Q2 2022	434	624,605	53,716,000	12,200	123,840
Q3 2022	365	514,501	46,283,000	3,004	124,994

Period	Average Flow (gpm)	Average Daily volume (gal)	Total Period Flow (gal)	Min off	Min on
Q4 2022	257	369,307	34,007,000	491	132,154
Q1 2023	305	434,900	37,841,000	323	123,817
Apr 2023	240	344,323	10,674,000	204	44,406
May 2023	703	1,012,581	31,390,000	0	44,670

Acronyms: gal - gallons gpm – gallons per minute

Table 3
Plant Daily Totalizer Readings

May 2023 Flows						
Plant Influent			Plant Discharge		RW Discharge	
Date	Volume	Avg. Flow	Volume	Avg. Flow	Volume	Avg. Flow
05/01/23	-	246	-	242	-	270
05/02/23	677,000	470	654,000	454	648,000	450
05/03/23	1,014,000	704	977,000	678	972,000	675
05/04/23	1,060,000	736	1,032,000	717	1,018,000	707
05/05/23	1,061,000	737	1,029,000	715	1,018,000	707
05/08/23	3,175,000	735	3,085,000	714	3,060,000	708
05/09/23	1,056,000	733	1,025,000	712	1,016,000	706
05/10/23	1,059,000	735	1,031,000	716	1,019,000	708
05/11/23	1,059,000	735	1,029,000	715	1,024,000	711
05/12/23	1,056,000	733	1,025,000	712	1,021,000	709
05/15/23	3,165,000	733	3,082,000	713	3,060,000	708
05/16/23	1,056,000	733	1,030,000	715	1,018,000	707
05/17/23	1,054,000	732	1,029,000	715	1,017,000	706
05/18/23	1,058,000	735	1,025,000	712	1,019,000	708
05/19/23	1,046,000	726	1,021,000	709	1,010,000	701
05/22/23	3,172,000	734	3,079,000	713	3,062,000	709
05/23/23	1,050,000	729	1,018,000	707	1,015,000	705
05/24/23	1,053,000	731	1,026,000	713	1,023,000	710
05/25/23	1,076,000	732	1,050,000	714	1,043,000	710
05/26/23	1,035,000	734	1,007,000	714	1,002,000	711
05/30/23	4,185,000	727	4,080,000	708	4,052,000	703
05/31/23	1,048,000	728	1,016,000	706	1,017,000	706
06/01/23	1,070,000	728	1,040,000	707	1,036,000	705
May Total Plant Influent (Gal)			32,285,000			
May Total Plant Effluent (Gal)			31,390,000			
May Total RW Discharge (Gal)			31,170,000			

Acronyms: gal - gallons

gpm – gallons per minute

Table 4
Pump System Flow Readings

April	On-Time Minutes (actual)	Avg. Flow (gpm)	Avg. Flow (gpd)	Total Flow (gal)
RW1*	5	149	0	745
RW2*	5	209	0	1,045
RW3	44,670	206	296,677	9,197,000
RW4	43,045	255	354,452	10,988,000
RW5	44,430	241	345,258	10,703,000
RW Totals	44,670	698	1,005,484	32,285,000
Plant Influent	44,670	723	1,041,452	31,390,000
Plant Effluent	44,670	703	1,012,581	31,170,000

Acronyms: gal - gallons gpm – gallons per minute gpd – gallons per day

The treatment process was online 31 days during this period with 0 minutes of downtime. Flows are taken from the HMI meter readings.

* Offline aside from monthly process equipment test to check their functionality. There are no average gallons per day.

Table 5
Claremont OU5 O&M Sampling/Measurement Program and Frequency

Measurement / Analyte	Sampling Location			
	System Influent	Plant Discharge	Recovery Wells	Monitoring Wells
Flow	Daily	Daily	Daily	NA
pH	Quarterly	Weekly	Quarterly	Quarterly
VOCs (+Tert-Butyl-Methyl ether (MTBA) & Tert-butyl alcohol (TBA))	Quarterly	Monthly	Quarterly	Quarterly
Semi-Volatile Organic Compound (SVOC) Base Neutral & Acid Extractables (BNA)	Quarterly	Monthly	NS	NS
Per- and polyfluoroalkyl substances (PFAS)	Monthly	Monthly	NS	Quarterly ⁽¹⁾
1,4-Dioxane	Monthly	Monthly	NS	Quarterly ⁽¹⁾
Total Kjeldahl Nitrogen→ (TKN)	NS	Quarterly	NS	NS
Total Suspended Solids (TSS)	Quarterly	NS	Quarterly	NS
Total Organic Carbon (TOC)	Quarterly	NS	NS	NS
Total Dissolved Solids (TDS)	NS	Quarterly	NS	NS
Cyanide	NS	Quarterly	NS	NS
Hexavalent Chromium	NS	Quarterly	NS	NS
Mercury	NS	Quarterly	NS	NS
Metals	Quarterly	Quarterly	Quarterly	NS
Anions	NS	Quarterly	NS	NS

Notes: NA – Not applicable; NS – Not sampled. ⁽¹⁾ – CPC wells only

Table 6
Plant Discharge Analytical Results
May 2, 2023

Parameters	Discharge Limitations (SPDES)	Units	Results
<i>pH (range)</i>	6.5 – 8.5	<i>su</i>	7.56
1,1,1-Trichloroethane	5	ug/l	U
1,1-Dichloroethane	5	ug/l	U
1,1-Dichloroethylene	5	ug/l	U
1,2- Dichloroethane	0.6	ug/l	U
Benzene	0.7	ug/l	U
Chlorobenzene	5	ug/l	U
Chloroform	7	ug/l	U
CIS 1,2-Dichloroethylene	5	ug/l	U
Ethylbenzene	5	ug/l	U
Methylene Chloride	5	ug/l	U
Tert-butyl alcohol (TBA)	Not indicated	ug/l	U
Tert-Butyl-Methyl ether (MTBA)	5	ug/l	U
Tetrachloroethylene (PCE)	5	ug/l	U
Toluene	5	ug/l	U
Trans 1,2-Dichloroethylene	5	ug/l	U
Trichloroethylene (TCE)	5	ug/l	U
Bis(2-ethylhexyl) phthalate	5	ug/l	U
Di-n-butyl phthalate	50	ug/l	U
Nitro Benzene	0.4	ug/l	U
Antimony, Total recoverable	3	ug/l	NS
Arsenic, Total recoverable	50	ug/l	NS
Barium, Total recoverable	2000	ug/l	NS
Chromium, Hexavalent	100	ug/l	NS
Lead, Total recoverable	50	ug/l	NS
Iron, Total recoverable	600	ug/l	NS
Manganese, Total recoverable	600	ug/l	NS
Mercury	Not indicated	ug/l	NS
Zinc	Not indicated	mg/l	NS
Nitrogen, Total (as N)	10	mg/l	NS
Selenium, Total recoverable	40	ug/l	NS
Solids, Total Dissolved	1000	mg/l	NS
Chloride Ion	NL	mg/l	NS
Cyanide	Not indicated	ug/l	NS
Fluoride Ion	NL	mg/l	NS

Parameters	Discharge Limitations (SPDES)	Units	Results
Sulfate Ion	NL	mg/l	NS
J – Estimated value U – Analyzed but not detected NL – Monitor only NS– Not sampled SPDES – State Pollutant Discharge Elimination System ug/l – micrograms per liter ng/l – nanograms per liter mg/l – milligrams per liter Discharge limitations updates as per the water discharge permit. Note: Parameters shaded in gray are analyzed quarterly with results generally being provided March, June, October, and December.			

Table 7
Emerging Contaminant Influent & Effluent Analytical Results
May 2, 2023

Parameters	Guidance Values	Units	Influent Results	Effluent Results
Perfluorooctanoic acid (PFOA)	10 ¹	ng/l	43 / 42	45 / 41
Perfluorooctanesulfonic acid (PFOS)	10 ¹	ng/l	19 / 19	21 / 20
1,4-Dioxane	1 ²	ug/l	20 / 24	20 / 20
J – Estimated value U – Analyzed but not detected ug/l – micrograms per liter ng/l – nanograms per liter x / x – indicates primary/duplicate results				
¹ New York State Department of Environmental Conservation, Sampling, Analysis and Assessment of Per- and Polyfluoroalkyl Substances (PFAS), November 2022. ² New York State, Department of Health, Subpart 5, Table 3, May 2018.				

Table 8
Effluent pH and Temperature Readings

Date	pH (su)	Temp (° C)
05/02/2023	7.71	18.1
05/08/2023	7.10	18.2
05/15/2023	7.63	16.8
05/22/2023	7.56	15.7
05/30/2023	7.79	15.0
April Average	7.56 su	15.4 °C

Table 9
Plant Discharge Monthly Average pH

Month	pH(su)
Aug '19	6.56
Sept '19	7.45
Oct '19	6.86
Nov '19	6.88
Dec '19	6.84
Jan '20	6.63
Feb '20	6.75
Mar '20	6.74
Apr '20	6.65
May '20	6.8
June '20	6.8
July '20	6.9
Aug '20	6.8
Sept '20	6.8
Oct. '20	6.95
Nov '20	6.8
Dec '20	6.64
Jan '21	6.8
Feb '21	6.75
Mar '21	6.76
Apr '21	7.28
May '21	7.53
June '21	7.44
July '21	7.41
Aug '21	7.42
Sept '21	7.13
Oct '21	7.10
Nov '21	7.09
Dec '21	7.01
Jan '22	6.90
Feb '22	6.90
Mar '22	6.80
Apr '22	6.78
May '22	6.79
June '22	6.79
July '22	7.01
Aug '22	6.99
Sept '22	7.19
Oct '22	7.62
Nov '22	7.68
Dec '22	7.52

Month	pH(su)
Jan '23	7.24
Feb '23	7.36
Mar '23	7.56
Apr '23	7.28
May '23	7.56

Plant Discharge Monthly Average pH Readings

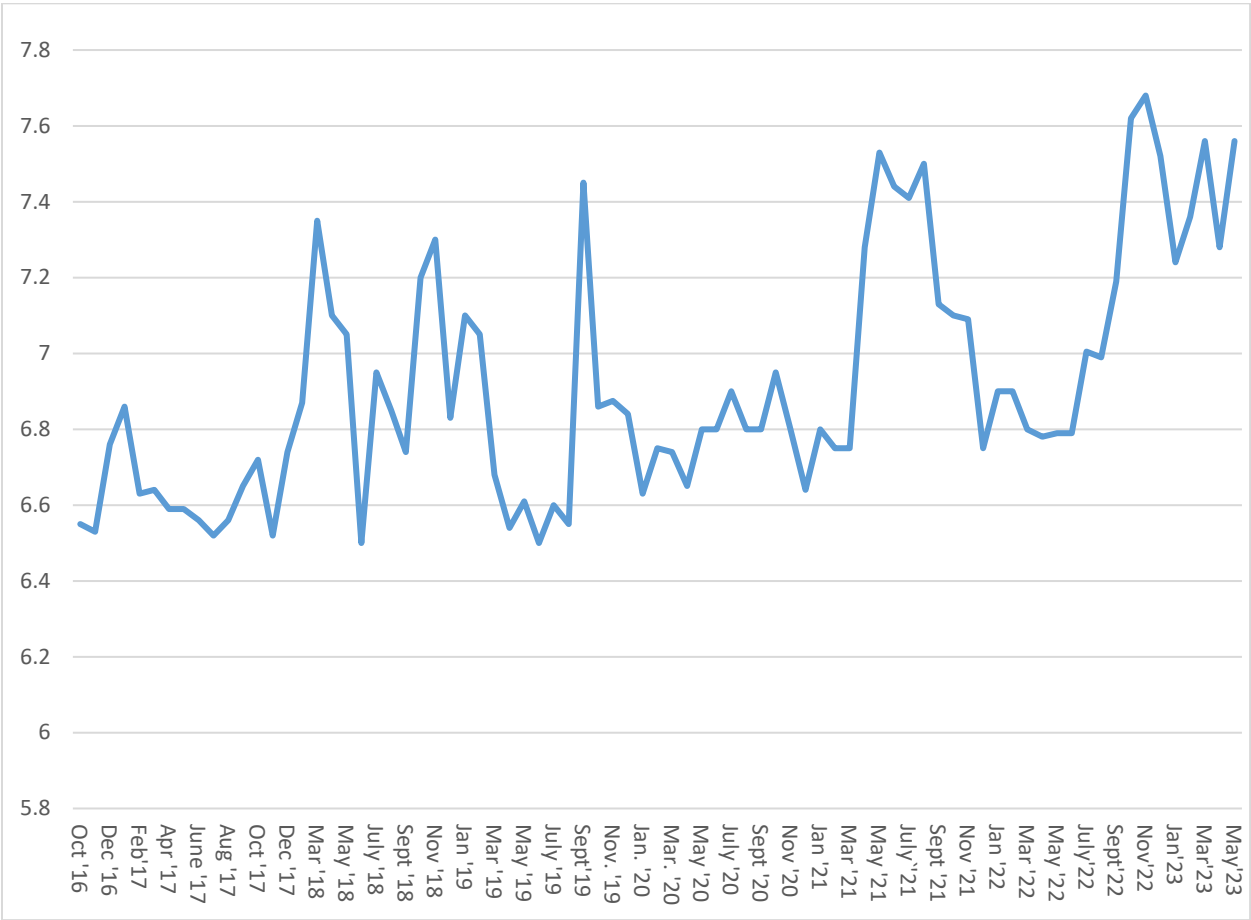


Table 10
AS Tower Air Monitoring Readings

Recorded Date	Port B (ppm)
05/02/2023	0.0
05/08/2023	0.0
05/15/2023	0.1
05/22/2023	0.2
05/30/2023	0.1

ATTACHMENT 1
QUARTERLY O&M SAMPLING ANALYTICAL RESULTS –MAY 2, 2023

May 11, 2023

Payson Long
NYDEC_Ramboll US Consulting, Inc. - Syracuse
333 West Washington Street, PO Box 4873
Syracuse, NY 13221

Project Location: Old Bethage, New York
Client Job Number:
Project Number: 130015
Laboratory Work Order Number: 23E0583

Enclosed are results of analyses for samples as received by the laboratory on May 3, 2023. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kyle A. Murray
Project Manager

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39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332NYDEC_Ramboll US Consulting, Inc. - Syracuse
333 West Washington Street, PO Box 4873
Syracuse, NY 13221
ATTN: Payson Long

REPORT DATE: 5/11/2023

PURCHASE ORDER NUMBER: 144165

PROJECT NUMBER: 130015

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 23E0583

The results of analyses performed on the following samples submitted to CON-TEST, a Pace Analytical Laboratory, are found in this report.

PROJECT LOCATION: Old Bethage, New York

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
PD-CP-00-050223	23E0583-01	Ground Water		Draft Method 1633	
PD-CP-01-050223	23E0583-02	Ground Water		Draft Method 1633	
ASF-CP-00-050223	23E0583-03	Ground Water		Draft Method 1633	
ASF-CP-01-050223	23E0583-04	Ground Water		Draft Method 1633	

CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

The results of analyses reported only relate to samples submitted to Con-Test, a Pace Analytical Laboratory, for testing.

I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.



Lisa A. Worthington
Technical Representative

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Old Bethage, New York

Sample Description:

Work Order: 23E0583

Date Received: 5/3/2023

Field Sample #: PD-CP-00-050223

Sampled: 5/2/2023 09:00

Sample ID: 23E0583-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	30	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluoropentanoic acid (PFPeA)	28	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluorohexanoic acid (PFHxA)	31	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluoroheptanoic acid (PFHpA)	15	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluorooctanoic acid (PFOA)	45	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluorononanoic acid (PFNA)	53	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluorodecanoic acid (PFDA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluoroundecanoic acid (PFUnA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluorododecanoic acid (PFDoA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluorobutanesulfonic acid (PFBS)	4.7	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluoropentanesulfonic acid (PFPeS)	3.7	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluorohexanesulfonic acid (PFHxS)	12	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluorooctanesulfonic acid (PFOS)	21	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluorononanesulfonic acid (PFNS)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
N-MeFOSAA (NMeFOSAA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
N-EtFOSAA (NEtFOSAA)	2.5	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	ND	9.3	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.3	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
9Cl-PF3ONS (F53B Minor)	ND	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
11Cl-PF3OUDS (F53B Major)	ND	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.3	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
2H,2H,3H,3H-Perfluorooctanoic acid (FPePA)(5:3FTCA)	ND	47	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	47	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Old Bethage, New York

Sample Description:

Work Order: 23E0583

Date Received: 5/3/2023

Field Sample #: PD-CP-00-050223

Sampled: 5/2/2023 09:00

Sample ID: 23E0583-01

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:11	AMS
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
13C4-PFBA	72.6	20-150						5/10/23 16:11	
13C5-PFPeA	72.8	20-150						5/10/23 16:11	
13C5-PFHxA	73.8	20-150						5/10/23 16:11	
13C4-PFHpA	77.7	20-150						5/10/23 16:11	
13C8-PFOA	71.3	20-150						5/10/23 16:11	
13C9-PFNA	72.9	20-150						5/10/23 16:11	
13C6-PFDA	76.5	20-150						5/10/23 16:11	
13C7-PFUnA	71.7	20-150						5/10/23 16:11	
13C2-PFDoA	64.9	20-150						5/10/23 16:11	
13C2-PFTeDA	62.6	20-150						5/10/23 16:11	
13C3-PFBS	79.2	20-150						5/10/23 16:11	
13C3-PFHxS	74.1	20-150						5/10/23 16:11	
13C8-PFOS	74.1	20-150						5/10/23 16:11	
13C2-4:2FTS	132	20-150						5/10/23 16:11	
13C2-6:2FTS	106	20-150						5/10/23 16:11	
13C2-8:2FTS	85.5	20-150						5/10/23 16:11	
13C8-PFOSA	68.9	20-150						5/10/23 16:11	
D3-NMeFOSA	53.8	20-150						5/10/23 16:11	
D5-NEtFOSA	56.8	20-150						5/10/23 16:11	
D3-NMeFOSAA	72.5	20-150						5/10/23 16:11	
D5-NEtFOSAA	70.5	20-150						5/10/23 16:11	
D7-NMeFOSE	64.4	20-150						5/10/23 16:11	
D9-NEtFOSE	61.7	20-150						5/10/23 16:11	
13C3-HFPO-DA	67.0	20-150						5/10/23 16:11	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Old Bethage, New York

Sample Description:

Work Order: 23E0583

Date Received: 5/3/2023

Field Sample #: PD-CP-00-050223

Sampled: 5/2/2023 09:00

Sample ID: 23E0583-01

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	ND	10	mg/L	1		Draft Method 1633	5/4/23	5/4/23 13:29	LL

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Old Bethage, New York

Sample Description:

Work Order: 23E0583

Date Received: 5/3/2023

Field Sample #: PD-CP-01-050223

Sampled: 5/2/2023 09:00

Sample ID: 23E0583-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	28	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluoropentanoic acid (PFPeA)	27	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluorohexanoic acid (PFHxA)	28	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluoroheptanoic acid (PFHpA)	14	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluorooctanoic acid (PFOA)	41	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluorononanoic acid (PFNA)	51	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluorodecanoic acid (PFDA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluoroundecanoic acid (PFUnA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluorododecanoic acid (PFDoA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluorobutanesulfonic acid (PFBS)	4.5	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluoropetanesulfonic acid (PFPeS)	3.7	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluorohexanesulfonic acid (PFHxS)	11	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluorooctanesulfonic acid (PFOS)	20	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluorononanesulfonic acid (PFNS)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
N-MeFOSAA (NMeFOSAA)	ND	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
N-EtFOSAA (NEtFOSAA)	2.3	0.93	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	ND	9.3	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.3	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
9Cl-PF3ONS (F53B Minor)	ND	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
11Cl-PF3OUDS (F53B Major)	ND	3.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.3	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
2H,2H,3H,3H-Perfluorooctanoic acid (FPePA) (5:3FTCA)	ND	46	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
3-Perfluoroheptyl propanoic acid (FHPrPA) (7:3FTCA)	ND	46	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Old Bethage, New York

Sample Description:

Work Order: 23E0583

Date Received: 5/3/2023

Field Sample #: PD-CP-01-050223

Sampled: 5/2/2023 09:00

Sample ID: 23E0583-02

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:27	AMS
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
13C4-PFBA	85.3	20-150						5/10/23 16:27	
13C5-PFPeA	85.0	20-150						5/10/23 16:27	
13C5-PFHxA	86.6	20-150						5/10/23 16:27	
13C4-PFHpA	91.4	20-150						5/10/23 16:27	
13C8-PFOA	80.2	20-150						5/10/23 16:27	
13C9-PFNA	83.2	20-150						5/10/23 16:27	
13C6-PFDA	84.4	20-150						5/10/23 16:27	
13C7-PFUnA	83.0	20-150						5/10/23 16:27	
13C2-PFDoA	80.1	20-150						5/10/23 16:27	
13C2-PFTeDA	67.9	20-150						5/10/23 16:27	
13C3-PFBS	84.9	20-150						5/10/23 16:27	
13C3-PFHxS	79.3	20-150						5/10/23 16:27	
13C8-PFOS	83.3	20-150						5/10/23 16:27	
13C2-4:2FTS	138	20-150						5/10/23 16:27	
13C2-6:2FTS	115	20-150						5/10/23 16:27	
13C2-8:2FTS	92.9	20-150						5/10/23 16:27	
13C8-PFOSA	78.3	20-150						5/10/23 16:27	
D3-NMeFOSA	64.9	20-150						5/10/23 16:27	
D5-NEtFOSA	66.8	20-150						5/10/23 16:27	
D3-NMeFOSAA	85.0	20-150						5/10/23 16:27	
D5-NEtFOSAA	81.6	20-150						5/10/23 16:27	
D7-NMeFOSE	75.4	20-150						5/10/23 16:27	
D9-NEtFOSE	77.2	20-150						5/10/23 16:27	
13C3-HFPO-DA	88.4	20-150						5/10/23 16:27	

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Project Location: Old Bethage, New York

Sample Description:

Work Order: 23E0583

Date Received: 5/3/2023

Field Sample #: PD-CP-01-050223

Sampled: 5/2/2023 09:00

Sample ID: 23E0583-02

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	ND	10	mg/L	1		Draft Method 1633	5/4/23	5/4/23 13:29	LL

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Project Location: Old Bethage, New York

Sample Description:

Work Order: 23E0583

Date Received: 5/3/2023

Field Sample #: ASF-CP-00-050223

Sampled: 5/2/2023 10:10

Sample ID: 23E0583-03

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	29	3.8	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluoropentanoic acid (PFPeA)	26	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluorohexanoic acid (PFHxA)	29	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluoroheptanoic acid (PFHpA)	14	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluorooctanoic acid (PFOA)	43	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluorononanoic acid (PFNA)	48	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluorodecanoic acid (PFDA)	ND	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluoroundecanoic acid (PFUnA)	ND	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluorododecanoic acid (PFDoA)	ND	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluorobutanesulfonic acid (PFBS)	4.5	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluoropetanesulfonic acid (PFPeS)	3.3	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluorohexanesulfonic acid (PFHxS)	11	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluorooctanesulfonic acid (PFOS)	19	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluorononanesulfonic acid (PFNS)	ND	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.8	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.8	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.8	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
N-MeFOSAA (NMeFOSAA)	ND	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
N-EtFOSAA (NEtFOSAA)	1.7	0.95	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	ND	9.5	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.5	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.8	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	3.8	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
9Cl-PF3ONS (F53B Minor)	ND	3.8	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
11Cl-PF3OUDS (F53B Major)	ND	3.8	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.5	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
2H,2H,3H,3H-Perfluorooctanoic acid (FPePA)(5:3FTCA)	ND	48	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	48	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS

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Project Location: Old Bethage, New York

Sample Description:

Work Order: 23E0583

Date Received: 5/3/2023

Field Sample #: ASF-CP-00-050223

Sampled: 5/2/2023 10:10

Sample ID: 23E0583-03

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:42	AMS
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
13C4-PFBA	82.2	20-150						5/10/23 16:42	
13C5-PFPeA	77.4	20-150						5/10/23 16:42	
13C5-PFHxA	78.1	20-150						5/10/23 16:42	
13C4-PFHpA	84.7	20-150						5/10/23 16:42	
13C8-PFOA	75.2	20-150						5/10/23 16:42	
13C9-PFNA	78.0	20-150						5/10/23 16:42	
13C6-PFDA	79.4	20-150						5/10/23 16:42	
13C7-PFUnA	74.3	20-150						5/10/23 16:42	
13C2-PFDoA	71.2	20-150						5/10/23 16:42	
13C2-PFTeDA	63.8	20-150						5/10/23 16:42	
13C3-PFBS	83.0	20-150						5/10/23 16:42	
13C3-PFHxS	79.6	20-150						5/10/23 16:42	
13C8-PFOS	78.0	20-150						5/10/23 16:42	
13C2-4:2FTS	135	20-150						5/10/23 16:42	
13C2-6:2FTS	107	20-150						5/10/23 16:42	
13C2-8:2FTS	83.2	20-150						5/10/23 16:42	
13C8-PFOSA	65.2	20-150						5/10/23 16:42	
D3-NMeFOSA	57.9	20-150						5/10/23 16:42	
D5-NEtFOSA	56.3	20-150						5/10/23 16:42	
D3-NMeFOSAA	70.9	20-150						5/10/23 16:42	
D5-NEtFOSAA	72.3	20-150						5/10/23 16:42	
D7-NMeFOSE	68.1	20-150						5/10/23 16:42	
D9-NEtFOSE	64.6	20-150						5/10/23 16:42	
13C3-HFPO-DA	83.7	20-150						5/10/23 16:42	

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Project Location: Old Bethage, New York

Sample Description:

Work Order: 23E0583

Date Received: 5/3/2023

Field Sample #: ASF-CP-00-050223

Sampled: 5/2/2023 10:10

Sample ID: 23E0583-03

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	ND	10	mg/L	1		Draft Method 1633	5/4/23	5/4/23 13:29	LL

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Old Bethage, New York

Sample Description:

Work Order: 23E0583

Date Received: 5/3/2023

Field Sample #: ASF-CP-01-050223

Sampled: 5/2/2023 10:10

Sample ID: 23E0583-04

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluorobutanoic acid (PFBA)	29	3.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluoropentanoic acid (PFPeA)	26	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluorohexanoic acid (PFHxA)	28	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluoroheptanoic acid (PFHpA)	14	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluorooctanoic acid (PFOA)	42	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluorononanoic acid (PFNA)	47	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluorodecanoic acid (PFDA)	ND	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluoroundecanoic acid (PFUnA)	ND	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluorododecanoic acid (PFDoA)	ND	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluorotridecanoic acid (PFTrDA)	ND	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluorotetradecanoic acid (PFTeDA)	ND	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluorobutanesulfonic acid (PFBS)	4.6	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluoropentanesulfonic acid (PFPeS)	3.6	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluorohexanesulfonic acid (PFHxS)	12	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluorooctanesulfonic acid (PFOS)	19	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluorononanesulfonic acid (PFNS)	ND	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluorodecanesulfonic acid (PFDS)	ND	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluorododecanesulfonic acid (PFDoS)	ND	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluorooctanesulfonamide (PFOSA)	ND	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
N-MeFOSAA (NMeFOSAA)	ND	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
N-EtFOSAA (NEtFOSAA)	1.7	0.97	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	ND	9.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
4,8-Dioxo-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
11Cl-PF3OUDS (F53B Major)	ND	3.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.7	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
2H,2H,3H,3H-Perfluorooctanoic acid (FPePA)(5:3FTCA)	ND	48	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	48	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Old Bethage, New York

Sample Description:

Work Order: 23E0583

Date Received: 5/3/2023

Field Sample #: ASF-CP-01-050223

Sampled: 5/2/2023 10:10

Sample ID: 23E0583-04

Sample Matrix: Ground Water

Semivolatile Organic Compounds by - LC/MS-MS

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	1.9	ng/L	1		Draft Method 1633	5/8/23	5/10/23 16:58	AMS
Surrogates	% Recovery	Recovery Limits	Flag/Qual						
13C4-PFBA	77.7	20-150						5/10/23 16:58	
13C5-PFPeA	73.8	20-150						5/10/23 16:58	
13C5-PFHxA	75.2	20-150						5/10/23 16:58	
13C4-PFHpA	82.2	20-150						5/10/23 16:58	
13C8-PFOA	73.5	20-150						5/10/23 16:58	
13C9-PFNA	71.8	20-150						5/10/23 16:58	
13C6-PFDA	70.6	20-150						5/10/23 16:58	
13C7-PFUnA	66.7	20-150						5/10/23 16:58	
13C2-PFDoA	63.4	20-150						5/10/23 16:58	
13C2-PFTeDA	55.3	20-150						5/10/23 16:58	
13C3-PFBS	79.2	20-150						5/10/23 16:58	
13C3-PFHxS	72.4	20-150						5/10/23 16:58	
13C8-PFOS	73.0	20-150						5/10/23 16:58	
13C2-4:2FTS	123	20-150						5/10/23 16:58	
13C2-6:2FTS	101	20-150						5/10/23 16:58	
13C2-8:2FTS	78.1	20-150						5/10/23 16:58	
13C8-PFOSA	63.2	20-150						5/10/23 16:58	
D3-NMeFOSA	49.7	20-150						5/10/23 16:58	
D5-NEtFOSA	50.2	20-150						5/10/23 16:58	
D3-NMeFOSAA	66.9	20-150						5/10/23 16:58	
D5-NEtFOSAA	62.0	20-150						5/10/23 16:58	
D7-NMeFOSE	60.3	20-150						5/10/23 16:58	
D9-NEtFOSE	52.9	20-150						5/10/23 16:58	
13C3-HFPO-DA	83.8	20-150						5/10/23 16:58	

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

Project Location: Old Bethage, New York

Sample Description:

Work Order: 23E0583

Date Received: 5/3/2023

Field Sample #: ASF-CP-01-050223

Sampled: 5/2/2023 10:10

Sample ID: 23E0583-04

Sample Matrix: Ground Water

Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total)

Analyte	Results	RL	Units	Dilution	Flag/Qual	Method	Date Prepared	Date/Time Analyzed	Analyst
Total Suspended Solids	ND	10	mg/L	1		Draft Method 1633	5/4/23	5/4/23 13:29	LL

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332**Sample Extraction Data****Draft Method 1633**

Lab Number [Field ID]	Batch	Initial [mL]	Date
23E0583-01 [PD-CP-00-050223]	B339245	50.0	05/04/23
23E0583-02 [PD-CP-01-050223]	B339245	50.0	05/04/23
23E0583-03 [ASF-CP-00-050223]	B339245	50.0	05/04/23
23E0583-04 [ASF-CP-01-050223]	B339245	50.0	05/04/23

Prep Method: Draft Method 1633 **Analytical Method: Draft Method 1633** **Meatballs were extracted on 5/4/2023 per NO PREP in Batch B339245**

Lab Number [Field ID]	Batch	Initial [mL]	Final [mL]	Date
23E0583-01 [PD-CP-00-050223]	B339322	536	5.00	05/08/23
23E0583-02 [PD-CP-01-050223]	B339322	540	5.00	05/08/23
23E0583-03 [ASF-CP-00-050223]	B339322	525	5.00	05/08/23
23E0583-04 [ASF-CP-01-050223]	B339322	516	5.00	05/08/23

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B339322 - Draft Method 1633										
Blank (B339322-BLK1)				Prepared: 05/04/23 Analyzed: 05/10/23						
Perfluorobutanoic acid (PFBA)	ND	3.9	ng/L							
Perfluoropentanoic acid (PFPeA)	ND	2.0	ng/L							
Perfluorohexanoic acid (PFHxA)	ND	0.98	ng/L							
Perfluoroheptanoic acid (PFHpA)	ND	0.98	ng/L							
Perfluorooctanoic acid (PFOA)	ND	0.98	ng/L							
Perfluorononanoic acid (PFNA)	ND	0.98	ng/L							
Perfluorodecanoic acid (PFDA)	ND	0.98	ng/L							
Perfluoroundecanoic acid (PFUnA)	ND	0.98	ng/L							
Perfluorododecanoic acid (PFDoA)	ND	0.98	ng/L							
Perfluorotridecanoic acid (PFTrDA)	ND	0.98	ng/L							
Perfluorotetradecanoic acid (PFTeDA)	ND	0.98	ng/L							
Perfluorobutanesulfonic acid (PFBS)	ND	0.98	ng/L							
Perfluoropetanesulfonic acid (PFPeS)	ND	0.98	ng/L							
Perfluorohexanesulfonic acid (PFHxS)	ND	0.98	ng/L							
Perfluoroheptanesulfonic acid (PFHpS)	ND	0.98	ng/L							
Perfluorooctanesulfonic acid (PFOS)	ND	0.98	ng/L							
Perfluorononanesulfonic acid (PFNS)	ND	0.98	ng/L							
Perfluorodecanesulfonic acid (PFDS)	ND	0.98	ng/L							
Perfluorododecanesulfonic acid (PFDoS)	ND	0.98	ng/L							
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	ND	3.9	ng/L							
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	ND	3.9	ng/L							
Perfluorooctanesulfonamide (PFOSA)	ND	0.98	ng/L							
N-methyl perfluorooctanesulfonamide (NMeFOSA)	ND	0.98	ng/L							
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	ND	0.98	ng/L							
N-MeFOSAA (NMeFOSAA)	ND	0.98	ng/L							
N-EtFOSAA (NEtFOSAA)	ND	0.98	ng/L							
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	ND	9.8	ng/L							
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	ND	9.8	ng/L							
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND	3.9	ng/L							
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	ND	3.9	ng/L							
9Cl-PF3ONS (F53B Minor)	ND	3.9	ng/L							
11Cl-PF3OUdS (F53B Major)	ND	3.9	ng/L							
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	ND	9.8	ng/L							
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	ND	49	ng/L							
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	ND	49	ng/L							
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	ND	2.0	ng/L							
Perfluoro-3-methoxypropanoic acid (PFMPA)	ND	2.0	ng/L							
Perfluoro-4-methoxybutanoic acid (PFMBA)	ND	2.0	ng/L							
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	ND	2.0	ng/L							
Surrogate: 13C4-PFBA	85.3		ng/L	98.3		86.8	20-150			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B339322 - Draft Method 1633
Blank (B339322-BLK1)

Prepared: 05/04/23 Analyzed: 05/10/23

Surrogate: 13C5-PFPeA	42.7		ng/L	49.2		86.8	20-150			
Surrogate: 13C5-PFHxA	20.9		ng/L	24.6		85.2	20-150			
Surrogate: 13C4-PFHpA	22.5		ng/L	24.6		91.4	20-150			
Surrogate: 13C8-PFOA	20.4		ng/L	24.6		82.9	20-150			
Surrogate: 13C9-PFNA	10.3		ng/L	12.3		83.7	20-150			
Surrogate: 13C6-PFDA	10.3		ng/L	12.3		83.5	20-150			
Surrogate: 13C7-PFUnA	10.5		ng/L	12.3		85.1	20-150			
Surrogate: 13C2-PFDoA	10.9		ng/L	12.3		88.5	20-150			
Surrogate: 13C2-PFTeDA	11.1		ng/L	12.3		90.2	20-150			
Surrogate: 13C3-PFBS	21.3		ng/L	24.6		86.4	20-150			
Surrogate: 13C3-PFHxS	20.4		ng/L	24.6		82.9	20-150			
Surrogate: 13C8-PFOS	21.5		ng/L	24.6		87.3	20-150			
Surrogate: 13C2-4:2FTS	56.9		ng/L	49.2		116	20-150			
Surrogate: 13C2-6:2FTS	40.8		ng/L	49.2		83.0	20-150			
Surrogate: 13C2-8:2FTS	37.5		ng/L	49.2		76.3	20-150			
Surrogate: 13C8-PFOA	18.4		ng/L	24.6		74.8	20-150			
Surrogate: D3-NMeFOSA	12.7		ng/L	24.6		51.8	20-150			
Surrogate: D5-NEtFOSA	11.0		ng/L	24.6		44.8	20-150			
Surrogate: D3-NMeFOSAA	29.7		ng/L	49.2		60.5	20-150			
Surrogate: D5-NEtFOSAA	27.9		ng/L	49.2		56.7	20-150			
Surrogate: D7-NMeFOSE	118		ng/L	246		48.0	20-150			
Surrogate: D9-NEtFOSE	92.3		ng/L	246		37.5	20-150			
Surrogate: 13C3-HFPO-DA	83.5		ng/L	98.3		84.9	20-150			

LCS (B339322-BS1)

Prepared: 05/04/23 Analyzed: 05/10/23

Perfluorobutanoic acid (PFBA)	8.38	4.0	ng/L	7.91		106	40-150			
Perfluoropentanoic acid (PFPeA)	3.89	2.0	ng/L	3.96		98.4	40-150			
Perfluorohexanoic acid (PFHxA)	1.87	0.99	ng/L	1.98		94.4	40-150			
Perfluoroheptanoic acid (PFHpA)	1.76	0.99	ng/L	1.98		88.8	40-150			
Perfluorooctanoic acid (PFOA)	1.90	0.99	ng/L	1.98		96.0	40-150			
Perfluorononanoic acid (PFNA)	1.82	0.99	ng/L	1.98		91.8	40-150			
Perfluorodecanoic acid (PFDA)	1.81	0.99	ng/L	1.98		91.2	40-150			
Perfluoroundecanoic acid (PFUnA)	1.83	0.99	ng/L	1.98		92.5	40-150			
Perfluorododecanoic acid (PFDoA)	1.84	0.99	ng/L	1.98		92.9	40-150			
Perfluorotridecanoic acid (PFTTrDA)	1.80	0.99	ng/L	1.98		90.7	40-150			
Perfluorotetradecanoic acid (PFTeDA)	1.83	0.99	ng/L	1.98		92.5	40-150			
Perfluorobutanesulfonic acid (PFBS)	1.62	0.99	ng/L	1.76		92.1	40-150			
Perfluoropentanesulfonic acid (PFPeS)	1.87	0.99	ng/L	1.86		100	40-150			
Perfluorohexanesulfonic acid (PFHxS)	1.82	0.99	ng/L	1.81		101	40-150			
Perfluoroheptanesulfonic acid (PFHpS)	1.75	0.99	ng/L	1.88		92.8	40-150			
Perfluorooctanesulfonic acid (PFOS)	1.98	0.99	ng/L	1.84		108	40-150			
Perfluorononanesulfonic acid (PFNS)	1.77	0.99	ng/L	1.90		92.8	40-150			
Perfluorodecanesulfonic acid (PFDS)	1.74	0.99	ng/L	1.91		91.2	40-150			
Perfluorododecanesulfonic acid (PFDoS)	1.85	0.99	ng/L	1.92		96.5	40-150			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	7.03	4.0	ng/L	7.42		94.7	40-150			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	7.63	4.0	ng/L	7.52		102	40-150			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	8.15	4.0	ng/L	7.62		107	40-150			
Perfluorooctanesulfonamide (PFOSA)	1.88	0.99	ng/L	1.98		95.0	40-150			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	1.86	0.99	ng/L	1.98		93.8	40-150			

39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

QUALITY CONTROL
Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B339322 - Draft Method 1633
LCS (B339322-BS1)

Prepared: 05/04/23 Analyzed: 05/10/23

N-ethyl perfluorooctanesulfonamide (NEtFOSA)	1.78	0.99	ng/L	1.98		89.9	40-150			
N-MeFOSAA (NMeFOSAA)	1.68	0.99	ng/L	1.98		85.1	40-150			
N-EtFOSAA (NEtFOSAA)	1.80	0.99	ng/L	1.98		90.8	40-150			
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	18.5	9.9	ng/L	19.8		93.7	40-150			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	18.8	9.9	ng/L	19.8		95.0	40-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	6.12	4.0	ng/L	7.91		77.4	40-150			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	5.71	4.0	ng/L	7.47		76.5	40-150			
9Cl-PF3ONS (F53B Minor)	6.16	4.0	ng/L	7.42		83.0	40-150			
11Cl-PF3OUdS (F53B Major)	6.14	4.0	ng/L	7.47		82.1	40-150			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	19.4	9.9	ng/L	19.8		97.9	40-150			
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	93.4	49	ng/L	98.9		94.4	40-150			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	84.4	49	ng/L	98.9		85.3	40-150			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	3.24	2.0	ng/L	3.52		92.1	40-150			
Perfluoro-3-methoxypropanoic acid (PFMPA)	3.88	2.0	ng/L	3.96		98.0	40-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	3.41	2.0	ng/L	3.96		86.2	40-150			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	3.71	2.0	ng/L	3.96		93.7	40-150			
Surrogate: 13C4-PFBA	89.6		ng/L	98.9		90.6	20-150			
Surrogate: 13C5-PFPeA	47.9		ng/L	49.5		96.8	20-150			
Surrogate: 13C5-PFHxA	22.6		ng/L	24.7		91.4	20-150			
Surrogate: 13C4-PFHpA	23.4		ng/L	24.7		94.7	20-150			
Surrogate: 13C8-PFOA	21.4		ng/L	24.7		86.7	20-150			
Surrogate: 13C9-PFNA	11.0		ng/L	12.4		88.7	20-150			
Surrogate: 13C6-PFDA	11.1		ng/L	12.4		89.4	20-150			
Surrogate: 13C7-PFUnA	10.8		ng/L	12.4		87.4	20-150			
Surrogate: 13C2-PFDoA	11.0		ng/L	12.4		88.5	20-150			
Surrogate: 13C2-PFTeDA	11.6		ng/L	12.4		93.8	20-150			
Surrogate: 13C3-PFBS	21.0		ng/L	24.7		85.1	20-150			
Surrogate: 13C3-PFHxS	21.4		ng/L	24.7		86.4	20-150			
Surrogate: 13C8-PFOS	21.7		ng/L	24.7		87.9	20-150			
Surrogate: 13C2-4:2FTS	46.6		ng/L	49.5		94.3	20-150			
Surrogate: 13C2-6:2FTS	41.7		ng/L	49.5		84.2	20-150			
Surrogate: 13C2-8:2FTS	38.6		ng/L	49.5		78.0	20-150			
Surrogate: 13C8-PFOSA	20.5		ng/L	24.7		82.8	20-150			
Surrogate: D3-NMeFOSA	17.5		ng/L	24.7		70.8	20-150			
Surrogate: D5-NEtFOSA	17.3		ng/L	24.7		70.1	20-150			
Surrogate: D3-NMeFOSAA	33.2		ng/L	49.5		67.1	20-150			
Surrogate: D5-NEtFOSAA	32.7		ng/L	49.5		66.1	20-150			
Surrogate: D7-NMeFOSE	200		ng/L	247		80.8	20-150			
Surrogate: D9-NEtFOSE	193		ng/L	247		77.9	20-150			
Surrogate: 13C3-HFPO-DA	97.9		ng/L	98.9		99.0	20-150			

LCS (B339322-BS2)

Prepared: 05/04/23 Analyzed: 05/10/23

Perfluorobutanoic acid (PFBA)	90.0	3.9	ng/L	94.6		95.1	40-150			
Perfluoropentanoic acid (PFPeA)	45.4	2.0	ng/L	47.3		96.0	40-150			

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QUALITY CONTROL
Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B339322 - Draft Method 1633
LCS (B339322-BS2)

Prepared: 05/04/23 Analyzed: 05/10/23

Perfluorohexanoic acid (PFHxA)	22.8	0.99	ng/L	23.6		96.3	40-150			
Perfluoroheptanoic acid (PFHpA)	21.3	0.99	ng/L	23.6		90.0	40-150			
Perfluorooctanoic acid (PFOA)	21.9	0.99	ng/L	23.6		92.5	40-150			
Perfluorononanoic acid (PFNA)	22.6	0.99	ng/L	23.6		95.8	40-150			
Perfluorodecanoic acid (PFDA)	22.6	0.99	ng/L	23.6		95.7	40-150			
Perfluoroundecanoic acid (PFUnA)	21.5	0.99	ng/L	23.6		91.0	40-150			
Perfluorododecanoic acid (PFDoA)	21.1	0.99	ng/L	23.6		89.2	40-150			
Perfluorotridecanoic acid (PFTrDA)	21.1	0.99	ng/L	23.6		89.3	40-150			
Perfluorotetradecanoic acid (PFTeDA)	21.2	0.99	ng/L	23.6		89.6	40-150			
Perfluorobutanesulfonic acid (PFBS)	20.1	0.99	ng/L	21.0		95.8	40-150			
Perfluoropentanesulfonic acid (PFPeS)	21.1	0.99	ng/L	22.2		94.8	40-150			
Perfluorohexanesulfonic acid (PFHxS)	20.5	0.99	ng/L	21.6		94.6	40-150			
Perfluoroheptanesulfonic acid (PFHpS)	20.7	0.99	ng/L	22.5		91.8	40-150			
Perfluorooctanesulfonic acid (PFOS)	19.1	0.99	ng/L	21.9		87.2	40-150			
Perfluorononanesulfonic acid (PFNS)	20.4	0.99	ng/L	22.8		89.4	40-150			
Perfluorodecanesulfonic acid (PFDS)	21.2	0.99	ng/L	22.8		93.0	40-150			
Perfluorododecanesulfonic acid (PFDoS)	22.6	0.99	ng/L	22.9		98.5	40-150			
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	86.9	3.9	ng/L	88.7		98.0	40-150			
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	82.3	3.9	ng/L	89.8		91.6	40-150			
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	91.5	3.9	ng/L	91.0		101	40-150			
Perfluorooctanesulfonamide (PFOSA)	22.1	0.99	ng/L	23.6		93.3	40-150			
N-methyl perfluorooctanesulfonamide (NMeFOSA)	20.4	0.99	ng/L	23.6		86.3	40-150			
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	21.5	0.99	ng/L	23.6		90.8	40-150			
N-MeFOSAA (NMeFOSAA)	21.2	0.99	ng/L	23.6		89.5	40-150			
N-EtFOSAA (NEtFOSAA)	21.4	0.99	ng/L	23.6		90.3	40-150			
N-methylperfluorooctanesulfonamidoethanol (NMeFOSE)	218	9.9	ng/L	236		92.1	40-150			
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	233	9.9	ng/L	236		98.7	40-150			
Hexafluoropropylene oxide dimer acid (HFPO-DA)	78.6	3.9	ng/L	94.6		83.1	40-150			
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	71.0	3.9	ng/L	89.3		79.5	40-150			
9Cl-PF3ONS (F53B Minor)	74.5	3.9	ng/L	88.7		84.0	40-150			
11Cl-PF3OUDS (F53B Major)	74.3	3.9	ng/L	89.3		83.2	40-150			
3-Perfluoropropyl propanoic acid (FPrPA) (3:3FTCA)	243	9.9	ng/L	236		103	40-150			
2H,2H,3H,3H-Perfluorooctanoic acid (FPePA)(5:3FTCA)	1250	49	ng/L	1180		106	40-150			
3-Perfluoroheptyl propanoic acid (FHpPA) (7:3FTCA)	1180	49	ng/L	1180		100	40-150			
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEESA)	40.9	2.0	ng/L	42.1		97.2	40-150			
Perfluoro-3-methoxypropanoic acid (PFMPA)	48.3	2.0	ng/L	47.3		102	40-150			
Perfluoro-4-methoxybutanoic acid (PFMBA)	44.1	2.0	ng/L	47.3		93.2	40-150			
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	47.5	2.0	ng/L	47.3		100	40-150			
Surrogate: 13C4-PFBA	84.8		ng/L	98.5		86.1	20-150			
Surrogate: 13C5-PFPeA	41.8		ng/L	49.3		84.8	20-150			
Surrogate: 13C5-PFHxA	20.0		ng/L	24.6		81.2	20-150			

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QUALITY CONTROL
Semivolatile Organic Compounds by - LC/MS-MS - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B339322 - Draft Method 1633
LCS (B339322-BS2)

Prepared: 05/04/23 Analyzed: 05/10/23

Surrogate: 13C4-PFHpA	22.0		ng/L	24.6		89.3	20-150			
Surrogate: 13C8-PFOA	20.4		ng/L	24.6		83.0	20-150			
Surrogate: 13C9-PFNA	10.2		ng/L	12.3		82.5	20-150			
Surrogate: 13C6-PFDA	10.1		ng/L	12.3		81.7	20-150			
Surrogate: 13C7-PFUnA	10.2		ng/L	12.3		82.7	20-150			
Surrogate: 13C2-PFDoA	10.6		ng/L	12.3		85.8	20-150			
Surrogate: 13C2-PFTeDA	11.2		ng/L	12.3		90.9	20-150			
Surrogate: 13C3-PFBS	19.5		ng/L	24.6		79.3	20-150			
Surrogate: 13C3-PFHxS	20.5		ng/L	24.6		83.2	20-150			
Surrogate: 13C8-PFOS	21.4		ng/L	24.6		86.8	20-150			
Surrogate: 13C2-4:2FTS	43.5		ng/L	49.3		88.2	20-150			
Surrogate: 13C2-6:2FTS	43.1		ng/L	49.3		87.5	20-150			
Surrogate: 13C2-8:2FTS	41.6		ng/L	49.3		84.5	20-150			
Surrogate: 13C8-PFOSA	20.6		ng/L	24.6		83.8	20-150			
Surrogate: D3-NMeFOSA	17.9		ng/L	24.6		72.6	20-150			
Surrogate: D5-NEtFOSA	17.7		ng/L	24.6		71.7	20-150			
Surrogate: D3-NMeFOSAA	39.3		ng/L	49.3		79.9	20-150			
Surrogate: D5-NEtFOSAA	36.7		ng/L	49.3		74.5	20-150			
Surrogate: D7-NMeFOSE	203		ng/L	246		82.4	20-150			
Surrogate: D9-NEtFOSE	188		ng/L	246		76.3	20-150			
Surrogate: 13C3-HFPO-DA	96.0		ng/L	98.5		97.5	20-150			

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QUALITY CONTROL
Conventional Chemistry Parameters by EPA/APHA/SW-846 Methods (Total) - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B339245 - Draft Method 1633
Blank (B339245-BLK1)

Prepared & Analyzed: 05/04/23

Total Suspended Solids	ND	5.0	mg/L							
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LCS (B339245-BS1)

Prepared & Analyzed: 05/04/23

Total Suspended Solids	179	5.0	mg/L	200		89.5	64.1-125			
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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
ND	Not Detected
RL	Reporting Limit is at the level of quantitation (LOQ)
DL	Detection Limit is the lower limit of detection determined by the MDL study
MCL	Maximum Contaminant Level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.

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CERTIFICATIONS
Certified Analyses included in this Report

Analyte	Certifications
<i>Draft Method 1633 in Water</i>	
Total Suspended Solids	CT,MA,NH,NY,RI,NC,ME,VA
Perfluorobutanoic acid (PFBA)	NY,NH-P
Perfluoropentanoic acid (PFPeA)	NY,NH-P
Perfluorohexanoic acid (PFHxA)	NY,NH-P
Perfluoroheptanoic acid (PFHpA)	NY,NH-P
Perfluorooctanoic acid (PFOA)	NY,NH-P
Perfluorononanoic acid (PFNA)	NY,NH-P
Perfluorodecanoic acid (PFDA)	NY,NH-P
Perfluoroundecanoic acid (PFUnA)	NY,NH-P
Perfluorododecanoic acid (PFDoA)	NY,NH-P
Perfluorotridecanoic acid (PFTrDA)	NY,NH-P
Perfluorotetradecanoic acid (PFTeDA)	NY,NH-P
Perfluorobutanesulfonic acid (PFBS)	NY,NH-P
Perfluoropetanesulfonic acid (PFPeS)	NY,NH-P
Perfluorohexanesulfonic acid (PFHxS)	NY,NH-P
Perfluoroheptanesulfonic acid (PFHpS)	NY,NH-P
Perfluorooctanesulfonic acid (PFOS)	NY,NH-P
Perfluorononanesulfonic acid (PFNS)	NH-P
Perfluorodecanesulfonic acid (PFDS)	NH-P
Perfluorododecanesulfonic acid (PFDoS)	NH-P
1H,1H,2H,2H-Perfluorohexane sulfonic acid (4:2FTS)	NH-P
1H,1H,2H,2H-Perfluorooctane sulfonic acid (6:2FTS)	NY,NH-P
1H,1H,2H,2H-Perfluorodecane sulfonic acid (8:2FTS)	NY,NH-P
Perfluorooctanesulfonamide (PFOSA)	NH-P
N-methyl perfluorooctanesulfonamide (NMeFOSA)	NH-P
N-ethyl perfluorooctanesulfonamide (NEtFOSA)	NH-P
N-MeFOSAA (NMeFOSAA)	NY,NH-P
N-EtFOSAA (NEtFOSAA)	NY,NH-P
N-methylperfluorooctanesulfonamidoethanol(NMeFOSE)	NH-P
N-ethylperfluorooctanesulfonamidoethanol (NEtFOSE)	NH-P
Hexafluoropropylene oxide dimer acid (HFPO-DA)	NY,NH-P
4,8-Dioxa-3H-perfluorononanoic acid (ADONA)	NY,NH-P
9Cl-PF3ONS (F53B Minor)	NY,NH-P
11Cl-PF3OUdS (F53B Major)	NY,NH-P
3-Perfluoropropyl propanoic acid (FPrPA)(3:3FTCA)	NH-P
2H,2H,3H,3H-Perfluorooctanoic acid(FPePA)(5:3FTCA)	NH-P
3-Perfluoroheptyl propanoic acid (FHpPA)(7:3FTCA)	NH-P
Perfluoro(2-ethoxyethane)sulfonic acid (PFEEA)	NY,NH-P
Perfluoro-3-methoxypropanoic acid (PFMPA)	NY,NH-P
Perfluoro-4-methoxybutanoic acid (PFMBA)	NH-P
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA)	NH-P

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Code	Description	Number	Expires
MA	Massachusetts DEP	M-MA100	06/30/2024
CT	Connecticut Department of Public Health	PH-0821	12/31/2024
NY	New York State Department of Health	10899 NELAP	04/1/2024
NH	New Hampshire Environmental Lab	2516 NELAP	02/5/2024
RI	Rhode Island Department of Health	LAO00373	12/30/2023
NC	North Carolina Div. of Water Quality	652	12/31/2023
ME	State of Maine	MA00100	06/9/2023
VA	Commonwealth of Virginia	460217	12/14/2023
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2023

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East Longmeadow, MA. 01028
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Log In Back-Sheet

Login Sample Receipt Checklist – (Rejection Criteria Listing
– Using Acceptance Policy) Any False statement will be
brought to the attention of the Client – True or False



Client Ramboll

Project NYSDCE Claremont Polychemical Site

MCP/RCP Required N/A

Deliverable Package Req. N/A

Location Syracuse, NY

PWSID# (When Applicable) N/A

Arrival Method:

Courier ☐ Fed Ex ☒ Walk In ☐ Other ☐

Received By / Date / Time AAH / 5-3-23 / 0946

Back-Sheet By / Date / Time AAH / 5-5-23 / 1420

Temperature Method Temp Gun # 5

Temp ☒ < 6° C Actual Temperature 3.7°C

Rush Samples: Yes / ☒ No Notify

Short Hold: Yes / ☒ No Notify

Notes regarding Samples/COC outside of SOP:

	True	False
Received on Ice	☒	☐
Received in Cooler	☒	☐
Custody Seal: DATE TIME	☐	☒
COC Relinquished	☒	☐
COC/Samples Labels Agree	☒	☐
All Samples in Good Condition	☒	☐
Samples Received within Holding Time	☒	☐
Is there enough Volume	☒	☐
Proper Media/Container Used	☒	☐
Splitting Samples Required	☒	☐
MS/MSD	☐	☒
Trip Blanks	☐	☒
Lab to Filters	☒ AAH	☒
COC Legible	☒	☐
COC Included: (Check all included)		
Client ☒	Analysis ☒	Sampler Name ☒
Project ☐	IDs ☒	Collection Date/Time ☒
All Samples Proper pH:	N/A	☐

Container (Circle when applicable)	UnP	HCl	HNO3	H2SO4	NaOH	Trizma	Na2S2O3	Other Preservative
1L Amber Plastic								
500 mL Amber Plastic	8							
250 mL Amber Plastic								
Other Amber Clear Plastic	4							
16oz Amber Clear								
8oz Amber Clear								
4oz Amber Clear								
2oz Amber Clear								
Col/Bacteria								
Flashpoint								
Plastic Bag								
SOC Kit								
Perchlorate								
Encore								
Frozen								
Proper Headspace	UnP	HCl	MeOH	Bisulfate	DI	Thiosulfate	Sulfuric	Other
Vials								