**STEWART ANG BASE AND NEWBURGH WATERSHED**

**ORANGE COUNTY**

**NEWBURGH, NEW YORK**

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# INVESTIGATION REPORT

**NYSDEC Site Number: 336089**


**Prepared by:**

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## 1.0 EXECUTIVE SUMMARY

Following the detection of perfluorinated compounds (PFCs), specifically perfluorooctane sulfonic acid (PFOS), in Lake Washington, the primary source of drinking water for the City of Newburgh, the New York State Department of Environmental Conservation (Department) conducted investigation activities within the Lake Washington Reservoir and watershed to determine sources of PFCs that are impacting surface water and groundwater within the watershed.

Sediment and surface water samples were collected in Lake Washington and surrounding tributaries and analyzed for PFCs, along with groundwater samples from existing monitoring wells at the Town of New Windsor Landfill. Surface water samples collected from Lake Washington, portions of Silver Stream, and the Stewart Air National Guard (ANG) base retention pond contained concentrations of PFOS at levels greater than the United States Environmental Protection Agency's (USEPA's) drinking water health advisory level of 70 parts per trillion (ppt). The highest PFOS concentrations were identified in surface water samples collected from the outfalls to the ANG base retention pond. The data indicates that the ANG Base is a significant contributor of PFOS contamination to the watershed and Lake Washington. The preliminary conceptual model of migration is that the storm sewer system at the ANG Base is intercepting a plume or plumes of groundwater contamination resulting from past releases of aqueous film-forming foam (AFFF) from the ANG's fire suppression system. Sediment in Lake Washington did not contain significant concentrations of PFOS and is unlikely to be an ongoing source of PFOS contamination to surface water.

Based on the PFOS concentrations detected in Lake Washington and its tributaries, the Department recommends that Interim Remedial Measures (IRMs) be evaluated and implemented to decrease PFOS levels discharging into and/or from the ANG Base stormwater collection system. Additionally, further site investigation work is recommended to determine the extent of PFOS that exists in on-site soil and groundwater. Investigation work may include on-site catch basin surface water sampling, soil sampling, and groundwater monitoring well installation and sampling.

## 2.0 INTRODUCTION

### 2.1 Site Description and Background

Perfluorinated compounds were detected in the City of Newburgh's drinking water supply during USEPA's third Unregulated Contaminant Monitoring Rule (UCMR3) sampling conducted in 2013 and 2014 and reported by the USEPA in April 2016. Specifically, PFOS, which has since been classified as a hazardous substance in New York State, was detected at concentrations greater than USEPA's May 2016 drinking water health advisory level of 70 ppt. Following notification of these detections, the Department performed investigations in a phased approach to understand the nature, extent and source or sources of PFC contamination to the City of Newburgh's drinking water system.

Historically, perfluorinated substances, including PFOS, have been used in carpets, leathers, textiles, upholstering, paper packaging, coating additives, waterproofing, and in firefighting foams. Perfluorooctane sulfonate is a solid white powder at room temperature and is generally present in solution in consumer, commercial, and industrial products as perfluorooctane sulfonic acid. The acronym PFOS will be used in this report to denote both perfluorooctane sulfonate and perfluorooctane sulfonic acid.

The Newburgh water treatment plant receives its drinking water from Lake Washington, which is currently fed by diversions from Silver Stream (located south and west of Lake Washington) and Patton Brook (located north and west of Lake Washington). The Stewart ANG base retention pond flows into Silver Stream, which was a source of water for Lake Washington until the diversion structure was closed by the City in June 2016. Patton Brook is diverted to Lake Washington through "Murphy's Ditch," an underground pipe leading to a box culvert on the north side of Lake Washington, along Route 300. Patton Brook is partially fed by wetlands which are located adjacent to the ANG base.

To evaluate sources of PFCs that are potentially impacting the Lake Washington watershed, sediment, surface water and groundwater sampling was conducted in Lake Washington and its surrounding tributaries in March through May 2016, and additional investigations are ongoing. A description of the activities completed and results of sampling conducted between March and May 2016 are detailed in this report. A copy of the Investigation Work Plan, dated

April 2016, is included as Attachment A. This Work Plan details the sampling protocols and laboratory analytical methods used as part of the investigation.

## 3.0 INVESTIGATION ACTIVITIES AND METHODOLOGY

Investigation work, including surface water sampling, sediment sampling, and groundwater sampling was completed at various locations within the watershed of the City of Newburgh's drinking water reservoirs, including Lake Washington and its tributaries, Brown's Pond, the ANG retention pond, and certain Town of New Windsor Landfill monitoring wells. As part of the project Quality Assurance/Quality Control (QA/QC) requirements, additional samples were collected during each sampling event for each media type, including a matrix spike/matrix spike duplicate (MS/MSD), one field duplicate, and one equipment blank. The investigation activities and methodology are described below. Sampling locations are shown on Figures 1 through 3.

### 3.1 Surface Water Sampling

Thirty surface water samples were collected at 23 locations within the Lake Washington watershed, as listed below:

| Location | Number of Samples Collected | Sample Locations |
|---|---|---|
| Lake Washington | 4 | LW-1 through LW-4 |
| Silver Stream and tributaries | 8 | SW-2 through SW-5, SW-8, SW-9 |
| Patton Brook and tributaries | 4 | SW-1, SW-6, SW-7, SW-10 |
| Wetland northwest of Lake Washington | 1 | WL-SW-1 |
| Brown's Pond | 2 | BP-SW-1, BP-SW-2 |
| ANG base retention pond | 11 | Outfall-A, Outfall-2, Outfall-3, Outfall-10, Outfall-17K |

Additionally, one sample was collected from a pond west of Stewart International Airport (SW-11) after noting that it receives the drainage from the area of the airport where an aircraft fire was extinguished using AFFF. This location is not within the Lake Washington watershed, but is a tributary of Beaverdam Lake. Although no surface water supplies are located in this watershed, certain public water supply wells may be in communication with surface waters in Beaverdam Lake.

Surface water samples were collected using the hand-held bottle method or the dipper and pond sampler method using a stainless steel dipping device. Following sampling collection, each surface water sample was placed into laboratory-supplied high density polyethylene (HDPE) bottles and placed on ice in a shipping cooler, cooled to 4 ± 2º C with ice, and delivered to TestAmerica within 48 hours of collection for analysis of PFOS, perfluorooctanoic acid (PFOA), perfluorohexanesulfonic acid (PFHxS), perfluoroheptanoic acid (PFHpA), perfluorononanoic acid (PFNA), and perfluorobutanesulfonic acid (PFBS) by Modified EPA Method 537. Each sample location was identified with latitude and longitude coordinates using a GPS receiver. When using the dipper and pond sampler method, the sampling equipment was decontaminated using Alconox detergent mixed with water and clean water rinse prior to proceeding to the next surface water sampling location.

### 3.2 Sediment Sampling

Nine sediment samples were collected at select surface water locations within the Lake Washington watershed to determine whether PFOS has accumulated in sediment and may be acting as an ongoing source. The sediment locations are listed below:

| Location | Number of Samples Collected | Sample Locations |
|---|---|---|
| Lake Washington | 4 | LW-SED-1 through LW-SED-4 |
| Silver Stream and tributaries | 3 | SED-2, SED-3, SED-5 |
| Wetland northwest of Lake Washington | 1 | WL-SED-1 |
| Brown’s Pond | 1 | BP-SED-1 |

Sediment samples were collected using a clean stainless steel hand auger. Following collection, surface water trapped in the auger was decanted and the sediment material was placed into a clean stainless steel bowl. Observations of the physical characteristics of the sediment were recorded including 1) sediment station designation; 2) sediment color, texture, and particle size; 3) presence of fill material; and 4) presence or absence of aquatic vegetation. A clean stainless steel scoop was then used to place the material into a laboratory-supplied HDPE sampling container which was placed on ice in a shipping cooler, cooled to 4 ± 2º C with ice, and delivered to TestAmerica within 48 hours of collection for PFCs analysis by Modified EPA Method 537. Each sample location was identified with latitude and longitude coordinates using a GPS receiver.

The sampling equipment was decontaminated using Alconox detergent mixed with water and clean water rinse prior to proceeding to the next sampling location.

### 3.3 Monitoring Well Sampling, Town of New Windsor Landfill

Groundwater samples were collected from four monitoring wells (MW-4S, MW-6S, MW-9S, and MW-10S) at the Town of New Windsor Landfill. Prior to sampling, the depth to groundwater and bottom of well were measured relative to the top of well casing using twine and a weight. A water interface probe could not be used due to the presence of PFCs in the equipment. Each well was purged of three well volumes by bailing with a stainless steel bailer. Water quality parameters including temperature, conductivity, pH, dissolved oxygen, oxidation reduction potential (ORP), and turbidity were recorded on groundwater sampling field forms. Following purging, a sample was collected using a stainless steel bailer and transferred into a laboratory-supplied HDPE container and placed on ice in a shipping cooler, cooled to 4 ± 2º C with ice, and delivered to TestAmerica within 48 hours of collection for PFCs analysis by Modified EPA Method 537. Dedicated sampling equipment was decontaminated using Alconox detergent mixed with water and clean water rinse prior to proceeding to the next surface water sampling location

## 4.0 ANALYTICAL RESULTS

### 4.1 Surface Water

Surface water samples were collected and sampled for PFCs. Analytical results are compared to the USEPA health advisory level of 70 ppt. The following discussion will focus on PFOS results, since it is the primary contaminant of concern of this investigation. Analytical results of each PFC sampled are depicted on Figure 1 and summarized in Table 1.

#### 4.1.1 <u>Lake Washington and Tributaries</u>

Four surface water samples were collected from Lake Washington. Each surface water sample contained detections of PFOS at concentrations exceeding the USEPA drinking water health advisory level, ranging from 165 ppt in LW-2 to 243 ppt in LW-3.

Six surface water samples (SW-2 through SW-5, SW-8, SW-9) were collected from the north, south and west branches of Silver Stream, and from the combined eastern branch that is diverted into Lake Washington. The north branch of Silver Stream drains the Stewart Airport retention pond, the south branch drains Brown's Pond, and the western branch runs parallel to Route 207 and receives runoff along its length from the southwestern portion of Stewart Airport. PFOS was not detected at or above the laboratory method detection limit (ND) in the southern branch of Silver Stream (SW-5). In the western branch of Silver Stream, PFOS levels increased from upstream to downstream, ranging from 3.5 ppt in SW-9, to 15.7 ppt in SW-8, and 62 ppt in SW-4, all below the USEPA drinking water health advisory level. Below the confluence with the north branch, PFOS levels in Silver Stream were significantly higher, increasing to 290 ppt in both SW-2 and SW-3 on March 16, 2016. These locations were re-sampled on March 31, 2016, and similar levels of PFOS were found (233 ppt and 286 ppt, respectively)

Four surface water samples (SW-1, SW-6, SW-7, and SW-10) were collected from Patton Brook. Concentrations of PFOS in these samples ranged from 6.08 ppt in SW-6 to 28 ppt in SW-1. These levels are all below the USEPA health advisory level. A surface water sample (WL-SW-1) was also collected from a wetland which feeds into Patton Brook, where PFOS was detected at 74 ppt.

#### 4.1.2 Brown's Pond

Surface water samples BP-SW-1 and BP-SW-2 were collected from Brown's Pond on April 28, 2016. PFOS was not detected in either sample.

#### 4.1.3 Air National Guard Retention Pond

Surface water samples were collected during two sampling events from four outfalls (Outfall-A, Outfall-2, Outfall-3, and Outfall-17K) which discharge into the ANG retention pond and Outfall-10, which discharges from the retention pond into Silver Stream. The first sampling event took place during a low flow condition, in which only a trace of rain had fallen in the previous three days, and the second sampling event took place during a rain event/high flow condition, in which approximately one-half inch of rain had fallen during the previous 12 hours.

During the low flow event, PFOS concentrations ranged from 480 ppt in Outfall-17K to 5,900 ppt in Outfall-3. During the high flow event, PFOS concentrations ranged from 60 ppt in Outfall-17K to 630 ppt in Outfall-3. With the exception of the retention pond outfall (Outfall-10), PFOS levels during the high flow event were approximately one-tenth to one-half the levels measured during low flow conditions.

Outfall-17K was additionally sampled on May 12, 2016 during a third sampling event in order to compare the PFOS concentration where it discharges to the retention pond to the PFOS concentration at the inlet to the culvert on the north side of the ANG base that collects surface water runoff from Route 17K. This culvert is a 48" reinforced concrete pipe that passes beneath the ANG Base and is reportedly in deteriorating condition with leaks and collapses at locations beneath the base. During this sampling event, PFOS was detected in Outfall-17K at 773 ppt and in SW-10 at 6.28 ppt, indicating that PFOS is being introduced to this pipe as it passes beneath the ANG Base.

#### 4.1.4 Beaverdam Lake Tributary

Sample SW-11 was taken from an unnamed tributary to Beaverdam Lake where it crosses Clark Street near the former USMC Housing area. PFOS was detected at 140 ppt in this sample.

### 4.2 Sediment

Nine sediment samples were collected from Lake Washington and its tributaries and sampled for PFCs. Sediment samples LW-SED-1 through LW-SED-4 were collected from Lake Washington and contained trace amounts of PFOS, ranging from ND in LW-SED-3 to 3.3 ppt in LW-SED-4.

Sediment samples SED-2, SED-3, and SED-5 were collected from Silver Stream and PFOS concentrations ranged from ND in SED-5 to 12 ppt in SED-2. The sediment sample collected from the wetland area northwest of Lake Washington (WL-SED-1) contained a trace amount of PFOS at 3.1 ppt and the PFOS was not detected in the sediment sample collected from Brown's Pond (BP-SED-1). The remaining PFCs sampled were not detected in the sediment samples, with the exception of SED-2. PFOA and PFHxS was detected in SED-2 at 0.36 and 0.7 ppt, respectively.

Analytical results are depicted on Figure 2 and summarized in Table 2.

### 4.3 Groundwater Monitoring Wells – Town of New Windsor Landfill

Four groundwater samples were collected from select monitoring wells (MW-4S, MW-6S, MW-9S, and MW-10S) at the Town of New Windsor Landfill and analyzed for PFCs (See Figure 3). Monitoring wells MW-4S, MW-6S, and MW-10S did not contain concentrations of PFCs at levels greater than the USEPA drinking water health advisory level. PFOS was not detected in MW-6S and MW-10S, and was found in MW-4S at 2.59 ppt. Monitoring well MW-9S contained concentrations of PFOS at 50.3 ppt, PFOA at 40.4 ppt, PFHxS at 86.6 ppt, PFHpA at 5.93 ppt and PFBS at 23.9 ppt.

## 5.0 QUALITY ASSURANCE/QUALITY CONTROL

As part of the project QA/QC requirements, additional samples were collected during each sampling event for each media type, including a matrix spike/matrix spike duplicate (MS/MSD), one field duplicate, and one equipment blank. The results are summarized below.

### 5.1 Surface Water

Five surface water sampling events were conducted within the Lake Washington watershed. During each event, QA/QC samples included an MS/MSD, one field duplicate, and one equipment blank.

Field duplicate precision results, expressed as relative percent difference (RPD), ranged from 0 to 15 percent, which is considered to be acceptable. A relative percent difference less than 25 percent is considered acceptable.

Analytes in all equipment blank samples were ND, with the exception of the equipment blank collected during the May 2, 2016 event, in which PFOS was detected at 3.3 ppt.

For the MS/MSD samples, the precision (RPD) and accuracy (percent recovery; %R) results for the samples collected on March 16, 2016, March 31, 2016, and May 2, 2016 are considered within range and acceptable. In the matrix spike sample collected on April 28, 2016, the percent recovery results were outside of the acceptance criteria for PFHpA, PFOA, PFNA, and PFBS. However the associated laboratory control sample (LCS) recovery was within acceptance limits, and the results are considered to be usable. The precision results for the designated spiked project sample collected on April 28, 2016 were within acceptable ranges, with the exception of the precision for PFHxS (27%). A relative percent difference between 25 and 50 percent causes the analytical result to be considered estimated.

### 5.2 Sediment

Field duplicate precision and MS/MS precision and accuracy results are all considered acceptable for the sediment samples. Therefore, all data is considered usable. The equipment blank did not contain detections of any of the PFCs analyzed.

### 5.3 Groundwater – Town of New Windsor Landfill

Matrix spike/matrix spike duplicate percent recovery results for PFOS, PFHxS, and PFBS in sample MW-9S are considered outside laboratory acceptance limits. Precision results are within the acceptable range. Field duplicate precision results are considered acceptable and the equipment blank did not contain detections of PFCs analyzed.

## 6.0 CONLUSIONS AND RECOMMENDATIONS

Based on the sampling conducted to date, the following conclusions are noted:

- Surface water samples collected from Lake Washington and portions of Silver Stream contained concentrations of PFOS at levels greater than the USEPA drinking water health advisory level.
- The highest PFOS concentrations were identified in surface water samples collected from the outfalls leading to and from the ANG base retention pond. Of these, the highest level detected is from the outfall which drains the eastern portion of the ANG Base (Outfall-3, 5,900 ppt)
- The highest PFOS concentrations in Silver Stream were found below the confluence with the north branch, which drains the ANG retention pond.
- PFOS concentrations analyzed in surface water samples collected from the outfalls into the ANG base retention pond during the low flow event were significantly higher than concentrations detected in samples collected during the high flow/rain event.
- PFOS levels in Patton Brook are well below the USEPA drinking water health advisory level.
- PFOS in Lake Washington and its watershed has not significantly partitioned into sediment, and sediment is unlikely to be an ongoing source of PFOS contamination to surface water.

The pattern of PFOS detections in the outfall samples during high and low flow conditions, and in the inlet and outlet samples of the 17K storm sewer pipe suggests that the on-site drainage system is intercepting a PFOS groundwater plume(s) below the water table and discharging it to the ANG Base retention pond. PFOS may have been released to the soil and groundwater during historic AFFF spills and other discharges which are known to have occurred at the site. Further site investigation work, including on-site catch basin sampling, soil sampling, and groundwater monitoring well installation and sampling, is recommended to determine if PFOS exists within the on-site soil and groundwater, determine its extent, and develop a remedial measure to prevent further releases to the watershed. Additional investigation should also be conducted in the Beaverdam Lake watershed to determine the level and extent of any impacts, and whether public supply wells are affected.

Based on the PFOS concentrations detected in Lake Washington and its tributaries, it is likely that the ANG Base retention pond is a source of PFOS concentrations detected in surface water samples collected from Lake Washington. Additional investigations should be performed to precisely delineate the groundwater plume(s) beneath the airport, whether any sources of contamination remain in soil that may be contributing to this plume, and whether any other outfalls are discharging PFCs to the environment. The Department further recommends that Interim Remedial Measures (IRMs) be evaluated and implemented at the ANG base, including efforts to eliminate PFOS discharging into and/or from the base stormwater collection system.

**TABLES**

**Table 1**
**Surface Water Analytical Data**
**Stewart ANG Base Site, Site ID 336089**
**Newburgh, Orange County, New York**

| Sampling Identification | Date | Units | PFOS | PFOA | PFHxS | PFHpA | PFNA | PFBS |
|---|---|---|---|---|---|---|---|---|
| SW-1-03-16-2016 | 3/16/2016 | ng/l | 28 | 5.5 | 28 | 3.3 | ND | 5.8 |
| SW-2-03-16-2016 | 3/16/2016 | ng/l | 290 | 45 | 120 | 37 | 7.4 | 14 |
| SW-3-03-16-2016 | 3/16/2016 | ng/l | 290 | 44 | 130 | 36 | 7.2 | 15 |
| SW-4-03-16-2016 | 3/16/2016 | ng/l | 62 | 11 | 42 | 6.6 | ND | 6.9 |
| SW-5-03-16-2016 | 3/16/2016 | ng/l | ND | ND | ND | ND | ND | ND |
| Outfall-A-03-16-2016 | 3/16/2016 | ng/l | 790 | 69 | 240 | 65 | 8.8 | 25 |
| Outfall-2-03-16-2016 | 3/16/2016 | ng/l | 560 | 220 | 210 | 120 | 28 | 26 |
| Outfall-3-03-16-2016 | 3/16/2016 | ng/l | 5900 | 180 | 430 | 130 | 43 | 50 |
| Outfall-10-03-16-2016 | 3/16/2016 | ng/l | 660 | 94 | 220 | 76 | 16 | 29 |
| Outfall-17K-03-16-2016 | 3/16/2016 | ng/l | 480 | 62 | 140 | 50 | 10 | 17 |
| LW-1-3-31-16 | 3/31/2016 | ng/l | 170 | 26.0 | 62.5 | 21.7 | 5.20 | 10.6 |
| LW-2-3-31-16 | 3/31/2016 | ng/l | 165 | 27.8 | 63.4 | 21.6 | 5.23 | 10.7 |
| LW-3-3-31-16 | 3/31/2016 | ng/l | 243 | 39.7 | 92.3 | 30.0 | 6.74 | 14.7 |
| LW-4-3-31-16 | 3/31/2016 | ng/l | 217 | 30.4 | 64.0 | 22.5 | 6.38 | 10.9 |
| SW-2-3-31-16 | 3/31/2016 | ng/l | 286 | 42.9 | 111 | 34.4 | 7.48 | 16.5 |
| SW-3-3-31-16 | 3/31/2016 | ng/l | 233 | 42.7 | 102 | 32.9 | 6.90 | 16.4 |
| WL-SW-1 | 4/28/2016 | ng/l | 74 | 9.6 | 57 | 5.5 | ND | 13 |
| BP-SW-1 | 4/28/2016 | ng/l | ND | 2.6 | ND | ND | ND | ND |
| BP-SW-2 | 4/28/2016 | ng/l | ND | 2.8 | ND | ND | ND | ND |
| Outfall-A | 5/2/2016 | ng/l | 340 | 14 | 25 | 7.2 | 4.1 | 3.2 |
| Outfall-2 | 5/2/2016 | ng/l | 110 | 21 | 13 | 9.3 | 2.9 | 3.0 |
| Outfall-3 | 5/2/2016 | ng/l | 630 | 20 | 83 | 12 | 3.1 | 4.5 |
| Outfall-10 | 5/2/2016 | ng/l | 580 | 78 | 100 | 51 | 13 | 15 |
| Outfall-17K | 5/2/2016 | ng/l | 60 | 11 | 14 | 10 | ND | 4.3 |
| SW-6 | 5/12/2016 | ng/l | 6.08 | 4.55 | ND | 1.97 | ND | 3.79 |
| SW-7 | 5/12/2016 | ng/l | 11.3 | 11.4 | 7.52 | 5.12 | ND | 3.59 |
| SW-8 | 5/12/2016 | ng/l | 15.7 | 21.7 | 55.5 | 11.8 | ND | 7.29 |
| SW-9 | 5/12/2016 | ng/l | 3.52 | 11.1 | ND | 3.96 | ND | ND |
| SW-10 | 5/12/2016 | ng/l | 6.28 | 4.49 | ND | 2.09 | ND | 3.53 |
| SW-11 | 5/12/2016 | ng/l | 140 | 19.1 | 75.7 | 11.3 | 3.09 | 6.94 |
| Outfall-17K | 5/12/2016 | ng/l | 773 | 90.5 | 302 | 58.6 | 15.7 | 40.7 |

ND - Not detected at or above the laboratory method detection limit
Results reported in nanograms per liter (ng/l)
PFOA - perfluorooctanoic acid
PFOS - perfluorooctanesulfonic acid
PFHpA - perfluoroheptanoic acid
PFNA - perfluorononanoic acid
PFBS - perfluorohexanesulfonic acid

**Table 2**
**Sediment Analytical Data**
**Stewart ANG Base Site, Site ID 336089**
**Newburgh, Orange County, New York**

| Sampling Identification | Date | Units | PFOS | PFOA | PFHxS | PFHpA | PFNA | PFBS |
|---|---|---|---|---|---|---|---|---|
| LW-SED-1 | 4/28/2016 | µg/kg | 0.84 | ND | ND | ND | ND | ND |
| LW-SED-2 | 4/28/2016 | µg/kg | 3.2 | ND | ND | ND | ND | ND |
| LW-SED-3 | 4/28/2016 | µg/kg | ND | ND | ND | ND | ND | ND |
| LW-SED-4 | 4/28/2016 | µg/kg | 3.3 | ND | ND | ND | ND | ND |
| SED-2 | 4/28/2016 | µg/kg | 12 | 0.36 | 0.70 | ND | ND | ND |
| SED-3 | 4/28/2016 | µg/kg | 1.6 | ND | ND | ND | ND | ND |
| SED-5 | 4/28/2016 | µg/kg | ND | ND | ND | ND | ND | ND |
| WL-SED-1 | 4/28/2016 | µg/kg | 3.1 | ND | ND | ND | ND | ND |
| BP-SED-1 | 4/28/2016 | µg/kg | ND | ND | ND | ND | ND | ND |

Notes:

ND - Not detected at or above the laboratory method detection limit
Results reported in micrograms per kilogram (µg/kg)
PFOA - perfluorooctanoic acid
PFOS - perfluorooctanesulfonic acid
PFHpA - perfluoroheptanoic acid
PFNA - perfluorononanoic acid
PFBS - perfluorohexanesulfonic acid

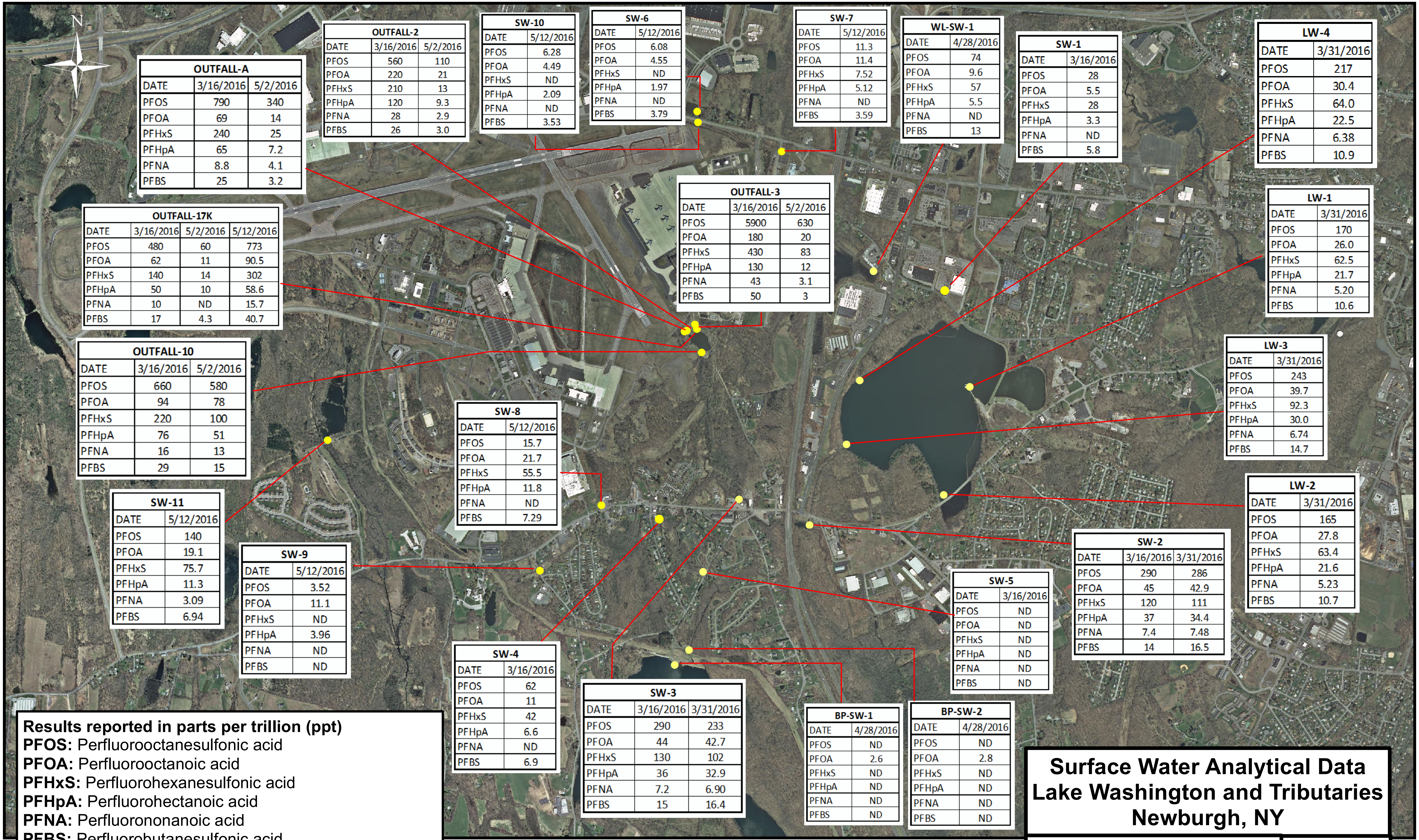
**Table 3**
**Groundwater Analytical Data - Town of New Windsor Landfill**
**Stewart ANG Base Site, Site ID 336089**
**Newburgh, Orange County, New York**

| Sampling Identification | Date | Units | PFOS | PFOA | PFHxS | PFHpA | PFNA | PFBS |
|---|---|---|---|---|---|---|---|---|
| MW-4S | 5/26/2016 | ng/l | 2.59 | ND | 3.72 | ND | ND | ND |
| MW-6S | 5/26/2016 | ng/l | ND | ND | ND | ND | ND | ND |
| MW-9S | 5/26/2016 | ng/l | 50.3 | 40.4 | 86.6 | 5.93 | ND | 23.9 |
| MW-10S | 5/26/2016 | ng/l | ND | 4.00 | 9.76 | 2.36 | ND | 8.08 |

Notes:

ND - Not detected at or above the laboratory method detection limit
Results reported in nanograms per liter (ng/l)
PFOA - perfluorooctanoic acid
PFOS - perfluorooctanesulfonic acid
PFHpA - perfluoroheptanoic acid
PFNA - perfluorononanoic acid
PFBS - perfluorohexanesulfonic acid

**FIGURES**




**OUTFALL-A**

| DATE | 3/16/2016 | 5/2/2016 |
|---|---|---|
| PFOS | 790 | 340 |
| PFOA | 69 | 14 |
| PFHxS | 240 | 25 |
| PFHpA | 65 | 7.2 |
| PFNA | 8.8 | 4.1 |
| PFBS | 25 | 3.2 |

**OUTFALL-2**

| DATE | 3/16/2016 | 5/2/2016 |
|---|---|---|
| PFOS | 560 | 110 |
| PFOA | 220 | 21 |
| PFHxS | 210 | 13 |
| PFHpA | 120 | 9.3 |
| PFNA | 28 | 2.9 |
| PFBS | 26 | 3.0 |

**SW-10**

| DATE | 5/12/2016 |
|---|---|
| PFOS | 6.28 |
| PFOA | 4.49 |
| PFHxS | ND |
| PFHpA | 2.09 |
| PFNA | ND |
| PFBS | 3.53 |

**SW-6**

| DATE | 5/12/2016 |
|---|---|
| PFOS | 6.08 |
| PFOA | 4.55 |
| PFHxS | ND |
| PFHpA | 1.97 |
| PFNA | ND |
| PFBS | 3.79 |

**SW-7**

| DATE | 5/12/2016 |
|---|---|
| PFOS | 11.3 |
| PFOA | 11.4 |
| PFHxS | 7.52 |
| PFHpA | 5.12 |
| PFNA | ND |
| PFBS | 3.59 |

**WL-SW-1**

| DATE | 4/28/2016 |
|---|---|
| PFOS | 74 |
| PFOA | 9.6 |
| PFHxS | 57 |
| PFHpA | 5.5 |
| PFNA | ND |
| PFBS | 13 |

**SW-1**

| DATE | 3/16/2016 |
|---|---|
| PFOS | 28 |
| PFOA | 5.5 |
| PFHxS | 28 |
| PFHpA | 3.3 |
| PFNA | ND |
| PFBS | 5.8 |

**LW-4**

| DATE | 3/31/2016 |
|---|---|
| PFOS | 217 |
| PFOA | 30.4 |
| PFHxS | 64.0 |
| PFHpA | 22.5 |
| PFNA | 6.38 |
| PFBS | 10.9 |

**OUTFALL-17K**

| DATE | 3/16/2016 | 5/2/2016 | 5/12/2016 |
|---|---|---|---|
| PFOS | 480 | 60 | 773 |
| PFOA | 62 | 11 | 90.5 |
| PFHxS | 140 | 14 | 302 |
| PFHpA | 50 | 10 | 58.6 |
| PFNA | 10 | ND | 15.7 |
| PFBS | 17 | 4.3 | 40.7 |

**OUTFALL-3**

| DATE | 3/16/2016 | 5/2/2016 |
|---|---|---|
| PFOS | 5900 | 630 |
| PFOA | 180 | 20 |
| PFHxS | 430 | 83 |
| PFHpA | 130 | 12 |
| PFNA | 43 | 3.1 |
| PFBS | 50 | 3 |

**LW-1**

| DATE | 3/31/2016 |
|---|---|
| PFOS | 170 |
| PFOA | 26.0 |
| PFHxS | 62.5 |
| PFHpA | 21.7 |
| PFNA | 5.20 |
| PFBS | 10.6 |

**OUTFALL-10**

| DATE | 3/16/2016 | 5/2/2016 |
|---|---|---|
| PFOS | 660 | 580 |
| PFOA | 94 | 78 |
| PFHxS | 220 | 100 |
| PFHpA | 76 | 51 |
| PFNA | 16 | 13 |
| PFBS | 29 | 15 |

**LW-3**

| DATE | 3/31/2016 |
|---|---|
| PFOS | 243 |
| PFOA | 39.7 |
| PFHxS | 92.3 |
| PFHpA | 30.0 |
| PFNA | 6.74 |
| PFBS | 14.7 |

**SW-8**

| DATE | 5/12/2016 |
|---|---|
| PFOS | 15.7 |
| PFOA | 21.7 |
| PFHxS | 55.5 |
| PFHpA | 11.8 |
| PFNA | ND |
| PFBS | 7.29 |

**SW-11**

| DATE | 5/12/2016 |
|---|---|
| PFOS | 140 |
| PFOA | 19.1 |
| PFHxS | 75.7 |
| PFHpA | 11.3 |
| PFNA | 3.09 |
| PFBS | 6.94 |

**SW-9**

| DATE | 5/12/2016 |
|---|---|
| PFOS | 3.52 |
| PFOA | 11.1 |
| PFHxS | ND |
| PFHpA | 3.96 |
| PFNA | ND |
| PFBS | ND |

**LW-2**

| DATE | 3/31/2016 |
|---|---|
| PFOS | 165 |
| PFOA | 27.8 |
| PFHxS | 63.4 |
| PFHpA | 21.6 |
| PFNA | 5.23 |
| PFBS | 10.7 |

**SW-2**

| DATE | 3/16/2016 | 3/31/2016 |
|---|---|---|
| PFOS | 290 | 286 |
| PFOA | 45 | 42.9 |
| PFHxS | 120 | 111 |
| PFHpA | 37 | 34.4 |
| PFNA | 7.4 | 7.48 |
| PFBS | 14 | 16.5 |

**SW-5**

| DATE | 3/16/2016 |
|---|---|
| PFOS | ND |
| PFOA | ND |
| PFHxS | ND |
| PFHpA | ND |
| PFNA | ND |
| PFBS | ND |

**SW-4**

| DATE | 3/16/2016 |
|---|---|
| PFOS | 62 |
| PFOA | 11 |
| PFHxS | 42 |
| PFHpA | 6.6 |
| PFNA | ND |
| PFBS | 6.9 |

**SW-3**

| DATE | 3/16/2016 | 3/31/2016 |
|---|---|---|
| PFOS | 290 | 233 |
| PFOA | 44 | 42.7 |
| PFHxS | 130 | 102 |
| PFHpA | 36 | 32.9 |
| PFNA | 7.2 | 6.90 |
| PFBS | 15 | 16.4 |

**BP-SW-1**

| DATE | 4/28/2016 |
|---|---|
| PFOS | ND |
| PFOA | 2.6 |
| PFHxS | ND |
| PFHpA | ND |
| PFNA | ND |
| PFBS | ND |

**BP-SW-2**

| DATE | 4/28/2016 |
|---|---|
| PFOS | ND |
| PFOA | 2.8 |
| PFHxS | ND |
| PFHpA | ND |
| PFNA | ND |
| PFBS | ND |

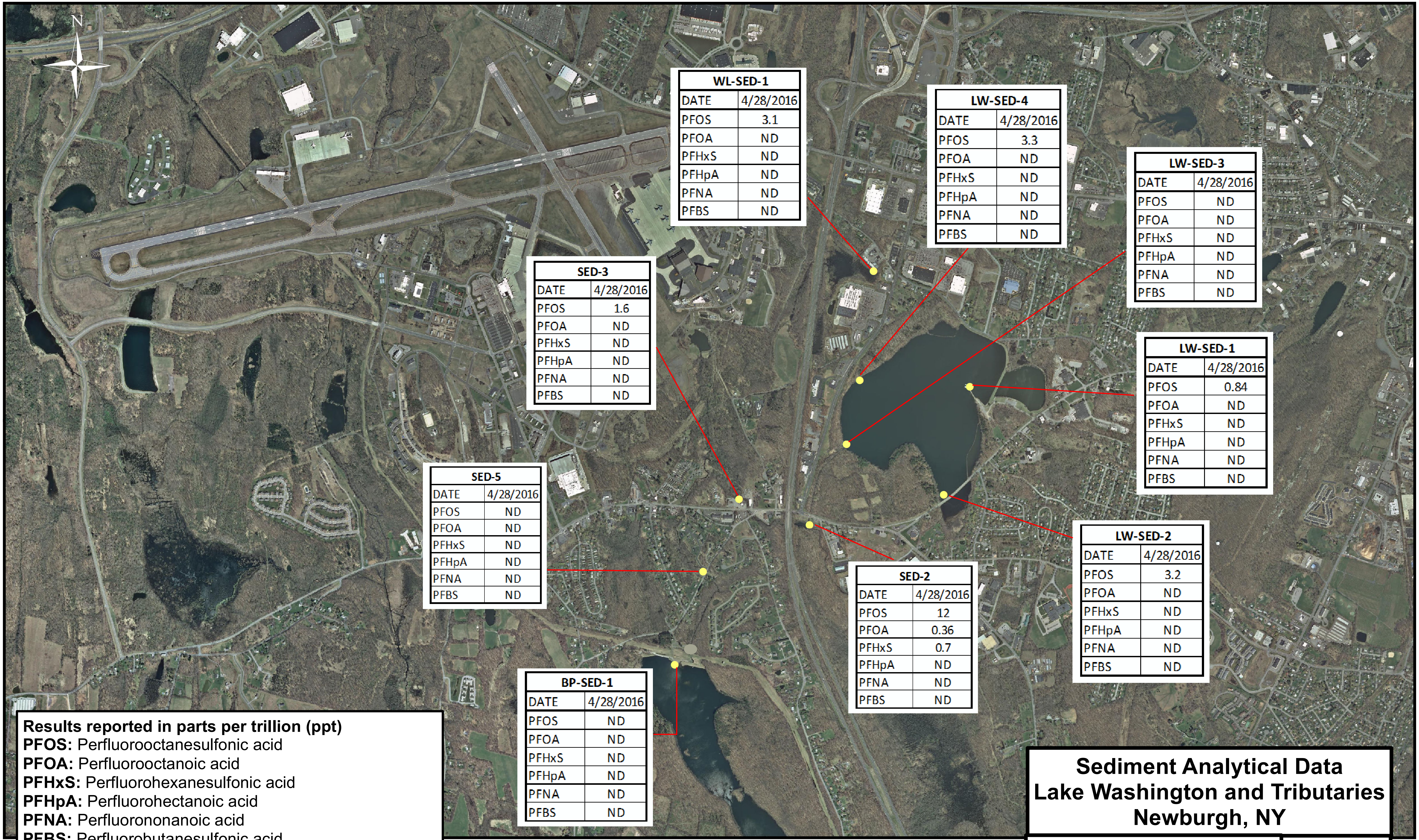
**Results reported in parts per trillion (ppt)**
**PFOS:** Perfluorooctanesulfonic acid
**PFOA:** Perfluorooctanoic acid
**PFHxS:** Perfluorohexanesulfonic acid
**PFHpA:** Perfluorohectanoic acid
**PFNA:** Perfluorononanoic acid
**PFBS:** Perfluorobutanesulfonic acid
**ND:** Non-detect
**Base map:** NYS GIS Orange County Orthoimagery 2015

0 1,000 2,000 3,000 4,000 Feet

# Surface Water Analytical Data Lake Washington and Tributaries Newburgh, NY

New York State Department of Environmental Conservation

**Figure 1**




| WL-SED-1 | |
|---|---|
| DATE | 4/28/2016 |
| PFOS | 3.1 |
| PFOA | ND |
| PFHxS | ND |
| PFHpA | ND |
| PFNA | ND |
| PFBS | ND |

| LW-SED-4 | |
|---|---|
| DATE | 4/28/2016 |
| PFOS | 3.3 |
| PFOA | ND |
| PFHxS | ND |
| PFHpA | ND |
| PFNA | ND |
| PFBS | ND |

| LW-SED-3 | |
|---|---|
| DATE | 4/28/2016 |
| PFOS | ND |
| PFOA | ND |
| PFHxS | ND |
| PFHpA | ND |
| PFNA | ND |
| PFBS | ND |

| SED-3 | |
|---|---|
| DATE | 4/28/2016 |
| PFOS | 1.6 |
| PFOA | ND |
| PFHxS | ND |
| PFHpA | ND |
| PFNA | ND |
| PFBS | ND |

| LW-SED-1 | |
|---|---|
| DATE | 4/28/2016 |
| PFOS | 0.84 |
| PFOA | ND |
| PFHxS | ND |
| PFHpA | ND |
| PFNA | ND |
| PFBS | ND |

| SED-5 | |
|---|---|
| DATE | 4/28/2016 |
| PFOS | ND |
| PFOA | ND |
| PFHxS | ND |
| PFHpA | ND |
| PFNA | ND |
| PFBS | ND |

| LW-SED-2 | |
|---|---|
| DATE | 4/28/2016 |
| PFOS | 3.2 |
| PFOA | ND |
| PFHxS | ND |
| PFHpA | ND |
| PFNA | ND |
| PFBS | ND |

| SED-2 | |
|---|---|
| DATE | 4/28/2016 |
| PFOS | 12 |
| PFOA | 0.36 |
| PFHxS | 0.7 |
| PFHpA | ND |
| PFNA | ND |
| PFBS | ND |

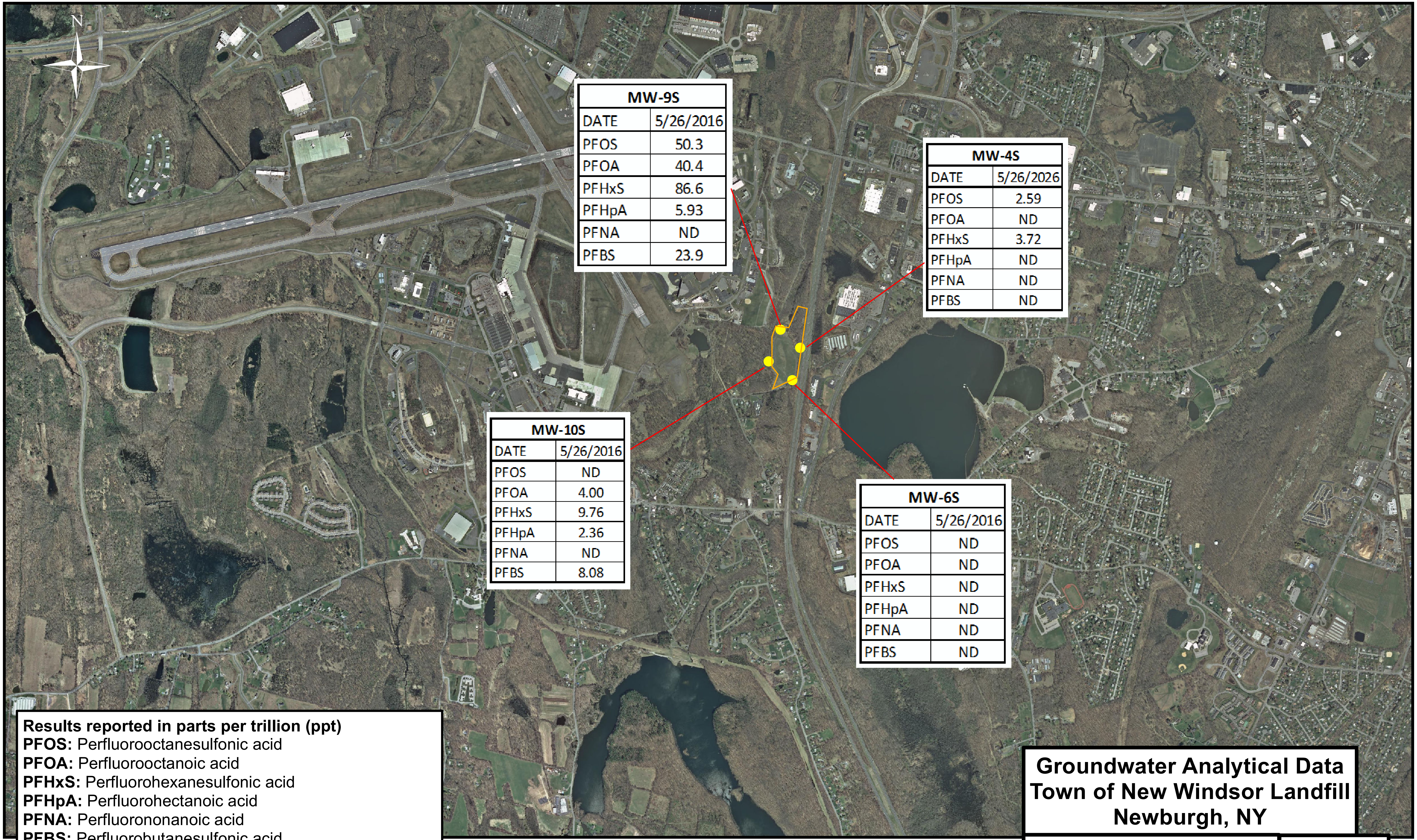
| BP-SED-1 | |
|---|---|
| DATE | 4/28/2016 |
| PFOS | ND |
| PFOA | ND |
| PFHxS | ND |
| PFHpA | ND |
| PFNA | ND |
| PFBS | ND |

**Results reported in parts per trillion (ppt)**
**PFOS:** Perfluorooctanesulfonic acid
**PFOA:** Perfluorooctanoic acid
**PFHxS:** Perfluorohexanesulfonic acid
**PFHpA:** Perfluorohectanoic acid
**PFNA:** Perfluorononanoic acid
**PFBS:** Perfluorobutanesulfonic acid
**ND:** Non-detect
**Base map:** NYS GIS Orange County Orthoimagery 2015

# Sediment Analytical Data
# Lake Washington and Tributaries
# Newburgh, NY

New York State
Department of Environmental Conservation

**Figure 2**




| MW-9S | |
|---|---|
| DATE | 5/26/2016 |
| PFOS | 50.3 |
| PFOA | 40.4 |
| PFHxS | 86.6 |
| PFHpA | 5.93 |
| PFNA | ND |
| PFBS | 23.9 |

| MW-4S | |
|---|---|
| DATE | 5/26/2026 |
| PFOS | 2.59 |
| PFOA | ND |
| PFHxS | 3.72 |
| PFHpA | ND |
| PFNA | ND |
| PFBS | ND |

| MW-10S | |
|---|---|
| DATE | 5/26/2016 |
| PFOS | ND |
| PFOA | 4.00 |
| PFHxS | 9.76 |
| PFHpA | 2.36 |
| PFNA | ND |
| PFBS | 8.08 |

| MW-6S | |
|---|---|
| DATE | 5/26/2016 |
| PFOS | ND |
| PFOA | ND |
| PFHxS | ND |
| PFHpA | ND |
| PFNA | ND |
| PFBS | ND |

**Results reported in parts per trillion (ppt)**
**PFOS:** Perfluorooctanesulfonic acid
**PFOA:** Perfluorooctanoic acid
**PFHxS:** Perfluorohexanesulfonic acid
**PFHpA:** Perfluorohectanoic acid
**PFNA:** Perfluorononanoic acid
**PFBS:** Perfluorobutanesulfonic acid
**ND:** Non-detect
**Base map:** NYS GIS Orange County Orthoimagery 2015

0 1,000 2,000 3,000 4,000 Feet

**Groundwater Analytical Data**
**Town of New Windsor Landfill**
**Newburgh, NY**

New York State
Department of Environmental Conservation

**Figure 3**

# ATTACHMENT A

# APRIL 2016 INVESTIGATION WORK PLAN

**STEWART ANG BASE AND NEWBURGH WATERSHED**

**ORANGE COUNTY**

**NEWBURGH, NEW YORK**

# Investigation Work Plan

**Prepared by:**

New York State Department of Environmental Conservation

625 Broadway, Albany, New York 12233

April 2016

# 1.0 EXECUTIVE SUMMARY

Following the detection of perfluorinated compounds (PFCs), specifically perfluorooctane sulfonic acid (PFOS), in Lake Washington, the primary source of drinking water for the City of Newburgh, the New York State Department of Environmental Conservation (Department) conducted investigation activities within the Lake Washington Reservoir and watershed to determine sources of PFCs that are impacting surface water and groundwater within the watershed.

Sediment and surface water samples were collected in Lake Washington and surrounding tributaries and analyzed for PFCs, along with groundwater samples from existing monitoring wells at the Town of New Windsor Landfill. Surface water samples collected from Lake Washington, portions of Silver Stream, and the Stewart Air National Guard (ANG) base retention pond contained concentrations of PFOS at levels greater than the United States Environmental Protection Agency's (USEPA's) drinking water health advisory level of 70 parts per trillion (ppt). The highest PFOS concentrations were identified in surface water samples collected from the outfalls to the ANG base retention pond. The data indicates that the ANG Base is a significant contributor of PFOS contamination to the watershed and Lake Washington. The preliminary conceptual model of migration is that the storm sewer system at the ANG Base is intercepting a plume or plumes of groundwater contamination resulting from past releases of aqueous film-forming foam (AFFF) from the ANG's fire suppression system. Sediment in Lake Washington did not contain significant concentrations of PFOS and is unlikely to be an ongoing source of PFOS contamination to surface water.

Based on the PFOS concentrations detected in Lake Washington and its tributaries, the Department recommends that Interim Remedial Measures (IRMs) be evaluated and implemented to decrease PFOS levels discharging into and/or from the ANG Base stormwater collection system. Additionally, further site investigation work is recommended to determine the extent of PFOS that exists in on-site soil and groundwater. Investigation work may include on-site catch basin surface water sampling, soil sampling, and groundwater monitoring well installation and sampling.

## 1.0 EXECUTIVE SUMMARY

The City of Newburgh Drinking Water Reservoir is currently being investigated for the presence of perfluorinated compounds (PFCs), including perfluooroctane sulfanate (PFOS), by the New York State Department of Environmental Conservation (Department).

The objective of this investigation is to evaluate sources of PFCs that are potentially impacting the Washington Lake Drinking Water Reservoir. To achieve this objective, sediment, surface water, and, if necessary, pore water samples will be collected in Washington Lake and surrounding tributaries. Additionally, sediment and surface water samples will be collected for analysis from targeted catch basins that are part of the Stewart Air National Guard (ANG) base storm water sewer system to refine areas of concern for further investigation.

The investigation activities will be completed in a phased approach. Phase 1 includes collecting samples from the City of Newburgh drinking water reservoirs and tributaries to determine whether PFOS has accumulated in sediment. If PFOS is present in sediment at significant concentrations, pore water samples will be collected to determine whether such sediment represents a source of re-contamination to the water column. Phase 2 will consist of sediment and surface water sampling at select catch basins and the retention pond located at the ANG base.

## 2.0 INTRODUCTION

### 2.1 Site Description and Background

The City of Newburgh Drinking Water Reservoir is currently being investigated for the presence of perfluorinated compounds (PFCs) including perfluooroctane sulfanate (PFOS) by the New York State Department of Environmental Conservation (Department). The Newburgh water treatment plant receives its water from Lake Washington, which is currently fed by diversions from Silver Stream and Patton Brook (Figure 1). The Stewart Air National Guard Base (ANG) retention pond feeds into Silver Stream, which is a source of water for Lake Washington. Patton Brook is partially fed by wetlands which are located adjacent to the ANG base. Patton Brook is diverted to Lake Washington through “Murphy’s Ditch,” which is an underground pipe leading to a box culvert on the north side of Lake Washington. The diversion is made at a gatehouse located on Route 300.

In March 2016, surface water samples were collected in five outfall locations attached to the storm sewer system of the ANG base. These outfall locations discharge into a retention pond south of the ANG base. Surface water samples were also collected in Washington Lake, Silver Stream, and at the Murphy's Ditch Gatehouse. Surface water samples were analyzed for PFOS and results ranged from non-detect in Silver Stream (just north of Brown's Pond) to 5,900 parts per trillion (ppt) at Outfall-3, which discharges into the ANG retention pond.

### 2.2 Objective

The objective of this investigation is to evaluate sources of PFCs that are potentially impacting the Lake Washington Drinking Water Reservoir. To achieve this objective, sediment sampling, pore water sampling, and additional surface water sampling will be conducted in Lake Washington and surrounding tributaries. Additionally, sediment and surface water will be collected (to the extent feasible) for analysis from targeted catch basins that are part of the ANG storm water sewer system to refine areas of concern (AOCs) for further investigation.

## 3.0 INVESTIGATION SCOPE OF WORK

Investigation work will be completed in the Lake Washington watershed, and on the Stewart Air National Guard Base as described below. As part of Quality Assurance/Quality Control (QA/QC), additional samples will be collected for each media type including a matrix spike/matrix spike duplicate (MS/MSD), one field duplicate, and one equipment blank. Parameters including conductivity and temperature will be recorded. Proposed sampling locations are dependent on accessibility and volume of material present. Sediment and surface water samples will also be collected from ten catch basins at the ANG (to the extent feasible), as shown on Figure 2. The proposed off-site sampling locations are depicted on Figure 3.

### 3.1 Phase 1: City of Newburgh Drinking Water Reservoirs and Tributaries

To determine whether PFOS has accumulated in sediment, and may be acting as an ongoing source, sediment will be collected from Lake Washington and its tributaries. If sediment is found to contain significant levels of PFOS, pore water samples will be taken to determine whether the sediment contamination represents an on-going source of re-contamination to the water column. In addition, a surface water sample will be taken from Browns Pond, a potential alternate water supply, to assess the presence of PFOS.

#### 3.1.1 Sediment Sampling

Ten sediment samples will be collected within Lake Washington and its tributaries, if locations are deemed accessible. Sediment samples will be collected in locations that surface water samples were previously collected. This includes surface water samples collected in silver stream and at the diversion dam (SW-2, SW-3, and SW-5), and surface water samples collected in Lake Washington (LW-1 through LW-4). Two additional sediment samples will be collected in the wetlands located between the ANG base and Lake Washington and one additional sample will be collected where Brown's Pond discharges to Silver Stream. These wetlands partially feed Patton Brook. The first sample will be collected where the wetlands discharge into Patton Brook and the second sample will be collected on the perimeter of the wetland and the ANG base. See Figure 3 for approximate sediment sample locations. QA/QC samples will also be collected including one MS/MSD, one field duplicate, and one equipment blank.

#### 3.1.2 Pore Water Sampling

If sediment is determined to be a potential source of surface water re-contamination, pore water samples will be collected at each sediment sampling location within the City of Newburgh drinking water reservoirs and tributaries, as described in Section 2.1.1. QA/QC samples will also be collected including an MS/MSD, one field duplicate, and one equipment blank.

#### 3.1.3 Surface Water Sampling

Surface water samples will be collected at proposed sediment sampling locations where surface water samples were not previously collected. Two surface water samples will be collected (if accessible) in the wetlands area that partially feeds Patton Brook and one surface water sample where Brown's Pond discharges to Silver Stream. These samples will be co-located with the proposed sediment samples. See Figure 3 for proposed locations. One MS/MSD, one field duplicate, and one equipment blank will also be collected.

## 3.2 Phase 2: Stewart Air National Guard Base

The following scope of work will be performed on the ANG base by the Department or the Department of Defense to identify areas of the base that are primary sources of PFOS in the outfalls, and to assess the potential for sediments to re-contaminate surface water in areas of higher contamination.

### 3.2.1 Catch Basin Water Sampling

Water samples will be collected at strategic catch basins, if there is enough volume to collect a sample, to screen potential areas of the ANG base as sources of PFOS contamination found in the outfalls. The catch basins targeted for sampling are based on the flow networks to the outfalls, which discharge to the retention pond. The targeted catch basins and specific areas of concern to be sampled are presented in the following below. Additionally, QA/QC samples will be collected including an MS/MSD, one field duplicate, and one equipment blank.

| Catch Basin to be Sampled | Final Outfall Destination | AOCs to Investigate |
|---|---|---|
| CB-2 | Outfall 003 (East leg) | Central Eastern Portion of Site |
| C-48 | Outfall 003 (East leg) | Hangar 301 |
| Catch Basin on McGuire Way | Outfall 003 (East leg) | O/W Separator and Tank Storage on NE Corner of Site |
| #4 | Outfall 003 (West leg) | Tank Storage on NE Corner of the Site |
| C-15 | Outfall 003 (West leg) | Hangar 300 |
| C-8 | Outfall 003 (West leg) | Hangar 101 |
| C-4 | Outfall 003 (West leg) | Building 105 (Former Fire Station) |
| CB-1A | Outfall 002 | Apron |
| CB #2 and CB #4 | Outfall 002 | Hangar 100 |

### 3.2.2 Sediment Sampling

Sediment samples will be collected at the ANG base from ten catch basins in order to refine potential PFC areas of concern for further investigation.

### 3.2.3 Retention Pond Sampling

To determine whether sediment located at the outfalls surrounding the ANG retention pond (Outfall-A, Outfall-2, Outfall-3, Outfall-10, and Outfall 17K) are a potential source of ongoing PFOS contamination, sediment and pore water samples will be collected at these locations. The higher levels of PFOS in water column samples collected from these locations will provide an assessment of sediment quality and potential for water column re-contamination at a greater range of concentrations.

## 4.0 SAMPLING METHODOLOGY

### 4.1 Sediment

Upon arrival to the sediment sampling location, a depth to sediment measurement will be collected to record the water depth. Field personnel will record observations of the physical characteristics of the sediment and sampling location including 1) sample station designation; 2) sediment color, texture, and particle size; 3) presence of fill material; 4) presence or absence of aquatic vegetation; and 4) apparent depositional and erosional environment at the station. The sediment sample will be collected via Ponar or hand auger. Surface water collected with the sediment will be decanted, the sampling device will be opened, and the sediment material will be placed into a stainless steel tray or bowl. A stainless steel scoop shall be used to place the material into a laboratory-supplied high density polyethylene (HDPE) sampling container for analysis of PFOS via Test Method PFC-IDA. Following sample collection, the sample bottles will be placed on ice in the shipping cooler, cooled to 4 ± 2º C with ice, and delivered to the laboratory within 48 hours of collection. Each sample location will be identified with latitude and longitude coordinates using a GPS receiver so the location may be resampled in the future. The sampling equipment will be decontaminated using a standard two step procedure with detergent and clean water rinse prior to proceeding to the next sediment sampling location.

### 4.2 Pore Water

Sediment pore water is collected using a pore water extracting device, or by centrifuging a whole sediment sample in the laboratory. A stainless steel tube with a screened zone (ex. PushPoint™ sampler) shall be inserted into the sediment to the desired depth, and pore water is extracted using a syringe or peristaltic pump. Pore water is collected through the opposite end of the device by connecting HDPE tubing and using a syringe or peristaltic pump to extract the sample. The pore water sampling device should be used with a stainless steel flange to form a water tight seal and eliminate, to the extent possible, surface water intrusion during sample collection. Sampling shall be completed under low-flow conditions and the following in-situ readings will be monitored during sample collection at each pore water sample location: pH, DO, specific conductivity, ORP, temperature, and turbidity. When the indicator parameters have stabilized, purging is considered complete and the pore water sample may be collected. The sample will be collected directly from the HDPE tubing into the laboratory supplied HDPE bottleware for analysis of PFOS via Test Method PFC-IDA. Samples must be directly placed on ice in the shipping cooler, cooled to $4 \pm 2^{o}$ C with ice, and delivered to the laboratory within 48 hours of collection. Standard decontamination procedures shall be followed prior to proceeding to the next sampling location.

### 4.3 Surface Water

Surface water samples will be collected using the hand-held bottle method or the dipper and pond sampler method. The surface water sample shall be placed into laboratory-supplied HDPE sampling bottles for analysis of PFOS via Test Method PFC-IDA. Following sample collection, the sample bottles will be placed on ice in the shipping cooler, cooled to $4 \pm 2^{o}$ C with ice, and delivered to the laboratory within 48 hours of collection. Each sample location will be identified with latitude and longitude coordinates using a GPS receiver so the location may be resampled in the future. The following in-situ readings will be obtained following sample collection at each surface water sampling location: pH, dissolved oxygen (DO), specific conductivity, oxygen reduction potential (ORP), temperature, and turbidity. If using the dipper and pond sampler method, the sampling equipment must be decontaminated using a standard two step procedure with detergent and clean water rinse prior to proceeding to the next sediment sampling location.

## 5.0 SCHEDULE

The investigation activities will commence upon approval of this Work Plan. It is anticipated that the activities will take 2-3 days to complete. A report will be prepared and submitted approximately 60 days after the completion of the field work.

## 6.0 REPORTING

A final report will be prepared which will summarize findings of this investigation. The report will include summary tables for each media, figures which depict sampling locations and analytical data, and laboratory data packages.

# City of Newburgh Drinking Water Reservoirs

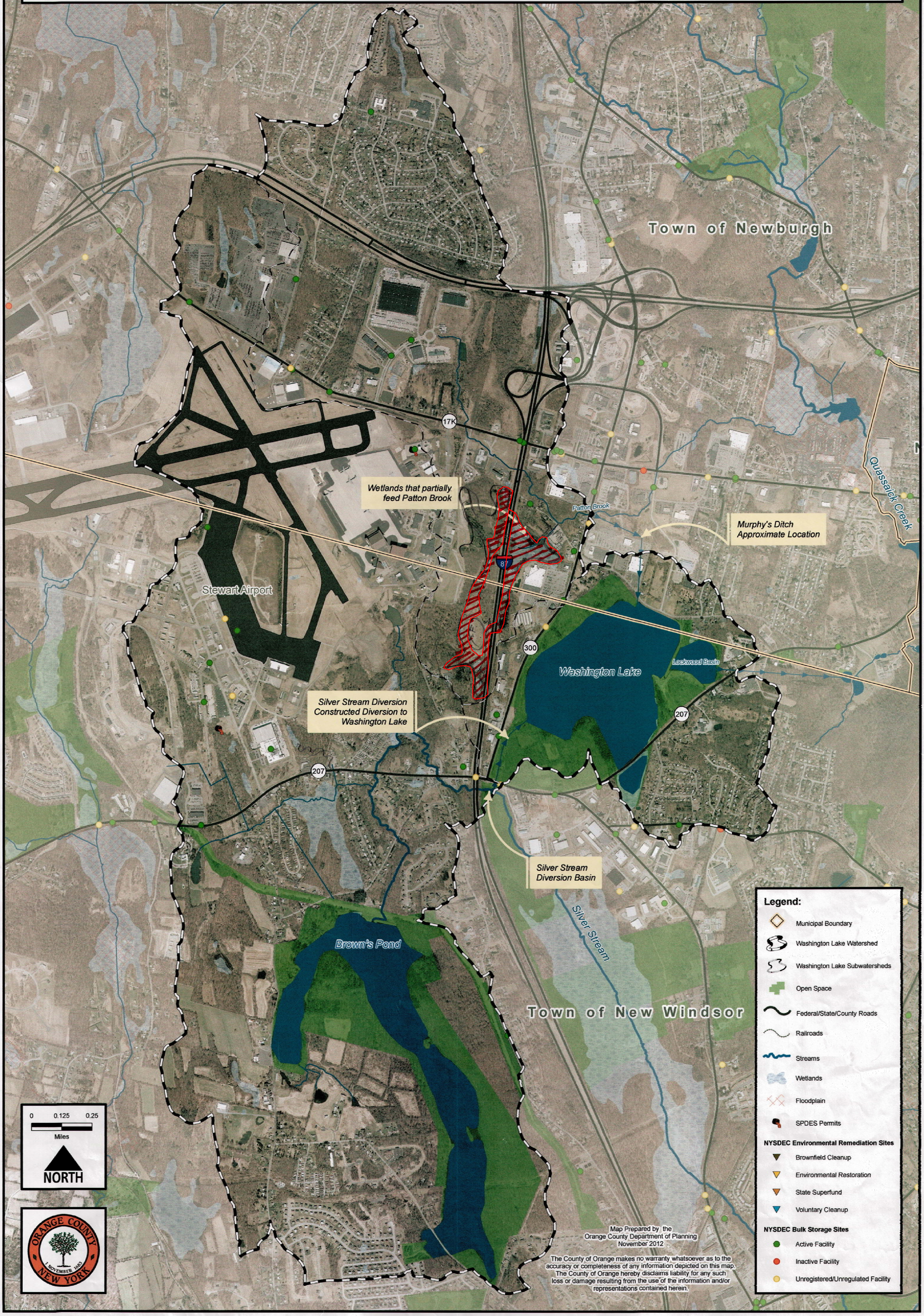
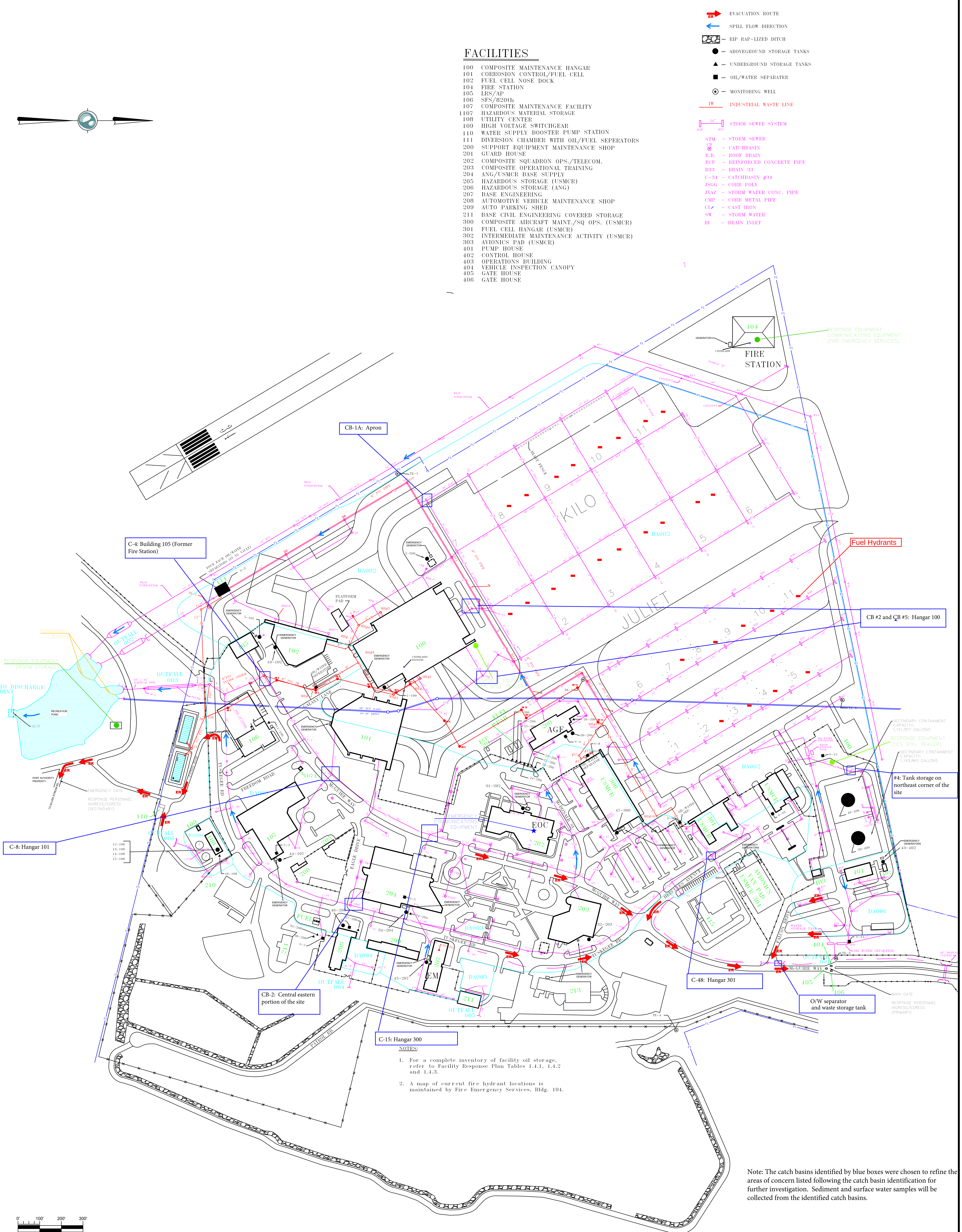



FIGURE 1




| | | | | |
|---|---|---|---|---|
| CLIENT LOGO | CLIENT<br>105TH AIRLIFT WING<br>NEW YORK AIR NATIONAL GUARD, STEWART INTERNATIONAL AIRPORT<br>NEWBURGH, NY | DWN BY: MEH<br>CHK'D BY: TM | PROJECT<br>105TH AIRLIFT WING | REV. NO.: FINAL<br>DATE: JANUARY 2013 |
| | | DATUM:<br>PROJECTION:<br>SCALE: AS SHOWN | TITLE<br>Figure 2: Catch Basin Sampling Locations | PROJECT NO:<br>FIGURE No. |

Investiate O/W separator

# Surface Water Sample Locations
Newburgh, NY

# PFCs Sampling Checklist

Date: ______________________

Weather (*temp./precipitation*): _______________________ Site Name: ________________________________

### *Field Clothing and PPE:*

- ☐ No clothing or boots containing Gore-Tex™
- ☐ All safety boots made from polyurethane and PVC
- ☐ No materials containing Tyvek®
- ☐ Field crew has not used fabric softener on clothing
- ☐ Field crew has not used cosmetics, moisturizers, hand cream, or other related products this morning
- ☐ Field crew has not applied unauthorized sunscreen or insect repellant

### *Field Equipment:*

- ☐ No Teflon® or LDPE containing materials on-site
- ☐ All sample materials made from stainless steel, HDPE, acetate, silicon, or polypropylene
- ☐ No waterproof field books on-site
- ☐ No plastic clipboards, binders, or spiral hard cover notebooks on-site
- ☐ No adhesives (Post-It Notes) on-site
- ☐ Coolers filled with regular ice only. No chemical (blue) ice packs in possession

### *Sample Containers:*

- ☐ All sample containers made of HDPE or polypropylene
- ☐ Caps are unlined and made of HDPE or polypropylene

### *Wet Weather (as applicable):*

- ☐ Wet weather gear made of polyurethane and PVC only

### *Equipment Decontamination:*

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

### *Food Considerations:*

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

If any applicable boxes cannot be checked, the Field Lead shall describe the noncompliance issues below and work with field personnel to address noncompliance issues prior to commencement of that day's work. Corrective action shall include removal of noncompliance items from the site or removal of worker offsite until in compliance.

Describe the noncompliance issues (include personnel not in compliance) and action/outcome of noncompliance:

______________________________________________________________________________________

______________________________________________________________________________________

______________________________________________________________________________________

Field Lead Name: _________________________________

Field Lead Signature: _________________________________ Time: ______________________

# PFC Sampling – Prohibited and Acceptable Items

| Prohibited | Acceptable |
|---|---|
| **Field Equipment** | |
| Teflon® containing materials | High-density polyethylene (HDPE) materials |
| Low density polyethylene (LDPE) materials | Acetate Liners |
| | Silicon Tubing |
| Waterproof field books | Loose paper (non-waterproof) |
| Plastic clipboards, binders, or spiral hard cover notebooks | Aluminum field clipboards or with Masonite |
| | Sharpies®, pens |
| Post-It Notes® | |
| Chemical (blue) ice packs | Regular ice |
| **Field Clothing and PPE** | |
| New cotton clothing or synthetic water resistant, waterproof, or stain-treated clothing, clothing containing Gore-Tex™ | Well-laundered clothing made of natural fibers (preferable cotton) |
| Clothing laundered using fabric softener | No fabric softener |
| Boots containing Gore-Tex™ | Boots made with polyurethane and PVC |
| Tyvek® | Cotton clothing |
| No cosmetics, moisturizers, hand cream, or other related products as part of personal cleaning/showering routine on the morning of sampling | **Sunscreens** - Alba Organics Natural Sunscreen, Yes To Cucumbers, Aubrey Organics, Jason Natural Sun Block, Kiss my face, Baby sunscreens that are "free" or "natural"<br><br>**Insect Repellents** - Jason Natural Quit Bugging Me, Repel Lemon Eucalyptus Insect repellant, Herbal Armor, California Baby Natural Bug Spray, BabyGanics<br><br>**Sunscreen and insect repellant -** Avon Skin So Soft Bug Guard Plus – SPF 30 Lotion |
| **Sample Containers** | |
| LDPE or glass containers | HDPE or polypropylene |
| Teflon-lined caps | Unlined polypropylene caps |
| **Rain Events** | |
| Waterproof or resistant rain gear | Gazebo tent that is only touched or moved prior to and following sampling activities |
| **Equipment Decontamination** | |
| Decon 90® | Alconox® and/or Liquinox® |
| Water from an on-site well | Potable water from municipal drinking water supply |
| **Food Considerations** | |
| All food and drink, with exceptions noted on right | Bottled water and hydration fluids (i.e, Gatorade® and Powerade®) to be brought and consumed only in the staging areas |

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

TESTAMERICA LABORATORIES SACRAMENTO
880 Riverside Parkway
West Sacramento, CA 95605
Lisa Stafford Phone: 916 374 4308

ENVIRONMENTAL

Valid To: January 31, 2017 Certificate Number: 2928.01

In recognition of the successful completion of the A2LA evaluation process, (including an assessment of the laboratory's compliance with ISO IEC 17025:2005, the 2009 TNI Standard, and the requirements of the DoD Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in version 5.0 of the DoD Quality Systems Manual for Environmental Laboratories) accreditation is granted to this laboratory to perform recognized EPA methods using the following testing technologies and in the analyte categories identified below:

Testing Technologies

Inductively Coupled Plasma (ICP), ICP-Mass Spectroscopy, Atomic Absorption Spectroscopy (flame), Gas Chromatography(GC), GC- Mass Spectroscopy, High Resolution Gas Chromatography/High Resolution Mass Spectroscopy, Liquid Chromatography(LC),LC- Mass Spectroscopy, Ion Chromatography, Spectrophotometry, Misc.-Electronic Probes

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| **Metals** | | | |
| Aluminum | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Antimony | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Arsenic | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Barium | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Beryllium | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Boron | EPA 6010B/6020/6010C/6020A | EPA 6010B/6020/6010C/6020A | --------------------- |
| Cadmium | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Calcium | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Chromium (Total) | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Chromium (Hexavalent) | EPA 7196A | EPA 7196A | --------------------- |
| Cobalt | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Copper | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Iron | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Lead | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Magnesium | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Manganese | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| Mercury | EPA 7470A | EPA 7471A/7471B | --------------------- |
| Molybdenum | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Nickel | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Phosphorus | EPA 6020/6020A | EPA 6020/6020A | --------------------- |
| Potassium | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Selenium | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Silica | EPA 6010B/6010C | --------------------------------------- | --------------------- |
| Silicon | EPA 6010B/6010C | --------------------------------------- | --------------------- |
| Silver | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Sodium | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Strontium | EPA 6020/6020A | EPA 6020/6020A | --------------------- |
| Thallium | EPA 6010B/6020/6010C/6020A | EPA 6010B/6020/6010C/6020A | EPA 6020/6020A |
| Tin | EPA 6010B/6020/6010C/6020A | EPA 6010B/6020/6010C/6020A | --------------------- |
| Titanium | EPA 6010B/6020/6010C/6020A | EPA 6010B/6020/6010C/6020A | --------------------- |
| Uranium | EPA 6020/6020A | EPA 6020/6020A | --------------------- |
| Vanadium | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| Zinc | EPA 6010B/6010C/6020/6020A | EPA 6010B/6010C/6020/6020A | EPA 6020/6020A |
| **Nutrients** | | | |
| Nitrate | EPA 353.2/9056A/300.0 | EPA 353.2/ 9056A/300.0 | --------------------- |
| Nitrate-nitrite | EPA 353.2 | EPA 353.2 | --------------------- |
| Nitrite | EPA 353.2/9056A/300.0 | EPA 353.2/9056A/300.0 | --------------------- |
| Orthophosphate | EPA 9056A/300.0 | EPA 9056A/300.0 | --------------------- |
| **Wet Chemistry** | | | |
| Alkalinity | SM 2320B (1997) | --------------------------------------- | --------------------- |
| Chemical Oxygen Demand | EPA 410.4 | --------------------------------------- | --------------------- |
| Nitrocellulose | WS-WC-0050/353.2 Modified | WS-WC-0050/353.2 Modified | --------------------- |
| Perchlorate | EPA 6850 | EPA 6850 | --------------------- |
| pH | EPA 9040B/9040C | EPA 9045C/9045D | --------------------- |
| Bromide | EPA 9056A/300.0 | EPA 9056A/300.0 | --------------------- |
| Chloride | EPA 9056A/300.0 | EPA 9056A/300.0 | --------------------- |
| Fluoride | EPA 9056A/300.0 | EPA 9056A/300.0 | --------------------- |
| Sulfate | EPA 9056A/300.0 | EPA 9056A/300.0 | --------------------- |
| Solids, Total | SM2540B (1997) | --------------------------------------- | --------------------- |
| Solids, Total Suspended | SM2540D (1997) | --------------------------------------- | --------------------- |
| Solids, Total Dissolved | SM2540C (1997) | --------------------------------------- | --------------------- |
| %Moisture | --------------------------------------- | ASTM D2216 | |
| TSP (Total Suspended Particulate) | --------------------------------------- | --------------------------------------- | 40CFR Part 50 App B |
| PM10 | --------------------------------------- | --------------------------------------- | 40CFR Part 50 App J |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| **Hazardous Waste Characteristics** | | | |
| TCLP Extractables | --------------------------------------- | EPA 1311 | --------------------- |
| TCLP Inorganics | --------------------------------------- | EPA 1311 | --------------------- |
| **Purgeable Organics (volatiles)** | | | |
| 1,1,1,2-Tetrachloroethane | EPA 8260B/8260C | EPA 8260B/8260C | --------------------- |
| 1,1,1-Trichloroethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| 1,1,2,2-Tetrachloroethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| 1,1,2-Trichloroethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| 1,1-2-Trichloro-1,2-2-trifluorethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15-SIM |
| 1,1-Dichloroethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| 1,1-Dichloroethene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| 1,1-Dichloropropene | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| 1,2,3-Trichlorobenzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| 1,2,3-Trichloropropane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| 1,2,4-Trichlorobenzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| 1,2,4-Trimethylbenzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| 1,2-Dibromo-3-chloropropane | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| 1,2-Dibromoethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| 1,2-Dichlorobenzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| 1,2-Dichloroethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| 1,2-Dichloropropane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| 1,3,5-Trimethylbenzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| 1,3-Dichlorobenzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| 1,3-Dichloropropane | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| 1,4-Dichlorobenzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| 1,4-Dioxane | --------------------------------------- | --------------------------------------- | TO14A/TO15/ TO15 SIM |
| 1-Chlorocyclohexane | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| 2,2-Dichloropropane | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| 2-Butanone (MEK) | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| 2-Chlorotoluene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| 2-Hexanone (MBK) | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| 2-Methyl-2-propanol (tert-Butyl Alcohol, TBA) | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| 4-Chlorotoluene | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| 4-Ethyltoluene | ---------------------------------------- | ---------------------------------------- | TO14A/TO15 |
| 4-Isopropyltoluene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| 4-Methyl-2-pentanone (MIBK) | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| Acetone | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| Acrolein | ---------------------------------------- | ---------------------------------------- | TO14A/TO15/ TO15 SIM |
| Allyl Chloride | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| Alpha Methyl Styrene | ---------------------------------------- | ---------------------------------------- | TO14A/TO15 |
| Benzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Benzyl Chloride | ---------------------------------------- | ---------------------------------------- | TO14A/TO15/ TO15 SIM |
| Bromobenzene | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| Bromochloromethane | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| Bromodichloromethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Bromoform | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| Bromomethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| Butadiene (1,3-Butadiene) | ---------------------------------------- | ---------------------------------------- | TO14A/TO15/ TO15 SIM |
| Butane | ---------------------------------------- | ---------------------------------------- | TO14A/TO15 |
| Carbon Disulfide | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| Carbon Tetrachloride | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Chlorobenzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Chlorodifluoromethane | ---------------------------------------- | ---------------------------------------- | TO14A/TO15 |
| Chloroethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Chloroform | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Chloromethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| cis-1,2-Dichloroethene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| cis-1,3-Dichloropropene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Cyclohexane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| Dibromochloromethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Dibromomethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| Dichlorodifluoromethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Diisopropyl Ether (DIPE) | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| Dimethyl Disulfide | WS-MS-0003 | WS-MS-0003 | EPA 15/16 |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| Ethyl Acetate | ---------------------------------------- | ---------------------------------------- | TO14A/TO15 |
| Ethylbenzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Ethylmethacrylate | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| Ethyl tert-butyl Ether (ETBE) | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| Hexachlorobutadiene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Hexane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| Iodomethane | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| Isobutanol (2-Methyl-1-propanol) | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| Isooctane (2,2,4-Trimethylpentane) | ---------------------------------------- | ---------------------------------------- | TO14A/TO15 |
| Isopropyl Alcohol | ---------------------------------------- | ---------------------------------------- | TO14A/TO15 |
| Isopropylbenzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| m & p Xylene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Methyl tert-butyl Ether (MTBE) | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Methylene Chloride | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Naphthalene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| n-Butanol | ---------------------------------------- | ---------------------------------------- | TO14A/TO15 |
| n-Butylbenzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| n-Heptane | ---------------------------------------- | ---------------------------------------- | TO14A/TO15 |
| n-Nonane | ---------------------------------------- | ---------------------------------------- | TO14A/TO15 |
| n-Octane | ---------------------------------------- | ---------------------------------------- | TO14A/TO15 |
| n-Propylbenzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| o-Xylene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Pentane | ---------------------------------------- | ---------------------------------------- | TO14A/TO15 |
| Propene | ---------------------------------------- | ---------------------------------------- | TO14A/TO15 |
| sec-Butylbenzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| Styrene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| t-Amyl methyl Ether (TAME) | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| t-1,4-Dichloro-2-Butene | EPA 8260B/8260C | EPA 8260B/8260C | ---------------------- |
| tert-Butylbenzene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| Tetrachloroethene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Tetrahydrofuran | ---------------------------------------- | ---------------------------------------- | TO14A/TO15 |
| Toluene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| trans-1,2-Dichloroethene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| trans-1,3-Dichloropropene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| Trichloroethene | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Trichlorofluoromethane | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Vinyl Acetate | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15 |
| Vinyl Bromide | --------------------------------------- | --------------------------------------- | TO14A/TO15 |
| Vinyl Chloride | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Xylenes, Total | EPA 8260B/8260C | EPA 8260B/8260C | TO14A/TO15/ TO15 SIM |
| Carbon Dioxide | --------------------------------------- | --------------------------------------- | ASTM1946D/3C |
| Nitrogen | --------------------------------------- | --------------------------------------- | ASTM1946D/3C |
| Oxygen | --------------------------------------- | --------------------------------------- | ASTM1946D/3C |
| Helium | --------------------------------------- | --------------------------------------- | ASTM1946D/3C |
| Hydrogen | --------------------------------------- | --------------------------------------- | ASTM1946D/3C |
| Methane | --------------------------------------- | --------------------------------------- | ASTM1946D/3C |
| Gasoline Range Organics (GRO) | EPA 8260B/AK101MS | EPA 8260B/AK101MS | TO14A/TO15 |
| TPH as Gasoline | EPA 8260B/AK101MS | EPA 8260B/AK101MS | TO14A/TO15 |
| **Extractable Organics (semivolatiles)** | | | |
| 1,2,4,5-Tetrachlorobenzene | EPA 8270C/8270D | EPA 8270C/8270D | --------------------- |
| 1,2,4-Trichlorobenzene | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 1,2-Dichlorobenzene | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 1,2-Diphenylhydrazine (as Azobenzene) | EPA 8270C/8270D | EPA 8270C/8270D | --------------------- |
| 1,3-Dichlorobenzene | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 1,3-Dinitrobenzene | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 1,4-Dichlorobenzene | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 1-Methylnaphthalene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| 2,3,4,6-Tetrachlorophenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 2,4,5-Trichlorophenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 2,4,6-Trichlorophenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 2,4-Dichlorophenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 2,4-Dimethylphenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 2,4-Dinitrophenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 2,4-Dinitrotoluene | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 2,6-Dichlorophenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 2,6-Dinitrotoluene | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 2-Chloronaphthalene | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 2-Chlorophenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 2-Methylnaphthalene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| 2-Methylphenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 2-Nitroaniline | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 2-Nitrophenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 3&4-Methylphenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 3,3'-Dichlorobenzidine | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 3-Nitroaniline | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 4,6-Dinitro-2-methylphenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 4-Bromophenyl phenyl ether | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 4-Chloro-3-methylphenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 4-Chloroaniline | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 4-Chlorophenyl phenyl ether | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 4-Nitroaniline | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| 4-Nitrophenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Acenaphthene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Acenaphthylene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Aniline | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Anthracene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Benzo(a)anthracene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Benzo(a)pyrene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Benzo(b)fluoranthene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Benzo(g,h,i)perylene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Benzo(k)fluoranthene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Benzoic Acid | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Benzyl Alcohol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Benzyl butyl Phthalate | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Biphenyl | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Bis(2-chloroethoxy) Methane | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Bis(2-chloroethyl) Ether | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Bis(2-chloroisopropyl) Ether | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Carbazole | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Chrysene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| | | | TO-13A Modified |
| Bis (2-ethylhexyl) Phthalate | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Dibenz(a,h)anthracene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Dibenzofuran | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Diethyl Phthalate | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Dimethyl Phthalate | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Di-n-butyl Phthalate | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Di-n-octyl Phthalate | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Fluoranthene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Fluorene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Hexachlorobenzene | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Hexachlorobutadiene | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Hexachlorocyclopentadiene | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Hexachloroethane | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Indeno(1,2,3-c,d) Pyrene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Isophorone | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Naphthalene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Nitrobenzene | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| n-Nitrosodimethylamine | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| n-Nitrosodi-n-propylamine | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| n-Nitrosodiphenylamine | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Pentachlorophenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Phenanthrene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM/ | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Phenol | EPA 8270C/8270D | EPA 8270C/8270D | TO-13A |
| Pyrene | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | EPA 8270C/8270D/8270C-SIM/ 8270D-SIM | WS-MS-0006/ TO-13A/ TO-13A Modified |
| Pyridine | WS-MS-0005 | WS-MS-0005 | --------------------- |
| 1,4-Dioxane | WS-MS-0011/8270C-SIM Modified | WS-MS-0011/8270C-SIM Modified | ---------------------- |
| Diesel Range Organics (DRO) | EPA 8015B/8015C/8015D/ AK102 | EPA 8015B/8015C8015D/ AK102 | ---------------------- |
| Residual Range Organics | AK103 | AK103 | ---------------------- |
| Motor Oil Range Organics (MRO) | EPA 8015B/8015C8015D | EPA 8015B/8015C8015D | ---------------------- |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| **Dioxins** | | | |
| 2,3,7,8-TeCDD | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| 1,2,3,7,8-PeCDD | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| 1,2,3,4,7,8-HxCDD | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| 1,2,3,6,7,8-HxCDD | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| 1,2,3,7,8,9-HxCDD | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| 1,2,3,4,6,7,8-HpCDD | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| OCDD | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| 2,3,7,8-TeCDF | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| 1,2,3,7,8-PeCDF | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| 2,3,4,7,8-PeCDF | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| 1,2,3,4,7,8-HxCDF | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| 1,2,3,6,7,8-HxCDF | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| 1,2,3,7,8,9-HxCDF | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| 2,3,4,6,7,8-HxCDF | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| 1,2,3,4,6,7,8-HpCDF | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| 1,2,3,4,7,8,9-HpCDF | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| OCDF | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| Total TCDD | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| Total PeCDD | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| Total HxCDD | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| Total HeptaCDD | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| Total TCDF | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| Total PeCDF | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| Total HxCDF | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |
| Total HpCDF | EPA 8280A/8280B/8290/8290A/ 1613B | EPA 8280A/8280B/ 8290/ 8290A/1613B | ---------------------- |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| **Chemical Warfare Degradates** | | | |
| 1,4-Dithiane | WS-MS-0003/8270C-SIM Modified | WS-MS-0003/8270C-SIM Modified | --------------------- |
| Benzothiazole | WS-MS-0003/8270C-SIM Modified | WS-MS-0003/8270C-SIM Modified | --------------------- |
| p-Chlorophenyl methylsulfide | WS-MS-0003/8270C-SIM Modified | WS-MS-0003/8270C-SIM Modified | --------------------- |
| p-Chlorophenyl methylsulfoxide | WS-MS-0003/8270C-SIM Modified | WS-MS-0003/8270C-SIM Modified | --------------------- |
| p-Chlorophenyl methylsulfone | WS-MS-0003/8270C-SIM Modified | WS-MS-0003/8270C-SIM Modified | --------------------- |
| Chloropicrin | WS-MS-0003/8270C-SIM Modified | WS-MS-0003/8270C-SIM Modified | --------------------- |
| Acetophenone | WS-MS-0003/8270C-SIM Modified | WS-MS-0003/8270C-SIM Modified | --------------------- |
| 2-Chloroacetophenone | WS-MS-0003/8270C-SIM Modified | WS-MS-0003/8270C-SIM Modified | --------------------- |
| 1,4-Oxathiane | WS-MS-0003/8270C-SIM Modified | WS-MS-0003/8270C-SIM Modified | --------------------- |
| Diisopropylmethylphosphate (DIMP) | WS-LC-0004/8321A Modified | WS-LC-0004/8321A Modified | --------------------- |
| Dimethylmethylphosphonate (DMMP) | WS-LC-0004/8321A Modified | WS-LC-0004/8321A Modified | --------------------- |
| Ethyl methylphosphonic acid (EMPA) | WS-LC-0004/8321A Modified | WS-LC-0004/8321A Modified | --------------------- |
| Isopropyl methylphosphonic acid (IMPA) | WS-LC-0004/8321A Modified | WS-LC-0004/8321A Modified | --------------------- |
| Methylphosphonic acid (MPA) | WS-LC-0004/8321A Modified | WS-LC-0004/8321A Modified | --------------------- |
| Thiodiglycol (2,2'-Thiodiethanol) (TDG) | WS-LC-0004/8321A Modified | WS-LC-0004/8321A Modified | --------------------- |
| **Nitroaromatics** | | | --------------------- |
| 2-Amino-4,6-dinitrotoluene | EPA 8330A/8330B | EPA 8330A/8330B | --------------------- |
| 4-Amino-2,6-dinitrotoluene | EPA 8330A/8330B | EPA 8330A/8330B | --------------------- |
| 3,5-Dinitroaniline | EPA 8330A/8330B | EPA 8330A/8330B | --------------------- |
| 1,3-Dinitrobenzene | EPA 8330A/8330B | EPA 8330A/8330B | --------------------- |
| 2,4-Dinitrotoluene | EPA 8330A/8330B | EPA 8330A/8330B | --------------------- |
| 2,6-Dinitrotoluene | EPA 8330A/8330B | EPA 8330A/8330B | --------------------- |
| Glycerol trinitrate (Nitroglycerin) | EPA 8330A/8330B | EPA 8330A/8330B | --------------------- |
| Hexahydro-1,3,5-trinitro-1,3,5-triazine (Hexogen) | EPA 8330A/8330B | EPA 8330A/8330B | --------------------- |
| Methyl-2,4,6-trinitrophenylnitramine | EPA 8330A/8330B | EPA 8330A/8330B | --------------------- |
| Nitrobenzene | EPA 8330A/8330B | EPA 8330A/8330B | --------------------- |
| 2-Nitrotoluene (o-Nitrotoluene) | EPA 8330A/8330B | EPA 8330A/8330B | --------------------- |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
| --- | --- | --- | --- |
| 3-Nitrotoluene (m-Nitrotoluene) | EPA 8330A/8330B | EPA 8330A/8330B | ---------------------- |
| 4-Nitrotoluene (p-Nitrotoluene) | EPA 8330A/8330B | EPA 8330A/8330B | ---------------------- |
| Octahydro-1,3,5,7-tetranitro1,3,5,7-tetracine (Octogen) | EPA 8330A/8330B | EPA 8330A/8330B | ---------------------- |
| Picric acid | EPA 8330A/8330B | EPA 8330A/8330B | ---------------------- |
| Pentaerythritol Tetranitrate | EPA 8330A/8330B | EPA 8330A/8330B | ---------------------- |
| 1,3,5-Trinitrobenzene | EPA 8330A/8330B | EPA 8330A/8330B | ---------------------- |
| 2,4,6-Trinitrotoluene | EPA 8330A/8330B | EPA 8330A/8330B | ---------------------- |
| Hexahydro-1,3-dinitroso-5-nitro-1,3,5,triazine (DNX) | EPA 8330A/8330B | EPA 8330A/8330B | ---------------------- |
| Hexahydro-1,3,5-trinitroso-1,3,5-triazine (TNX) | EPA 8330A/8330B | EPA 8330A/8330B | ---------------------- |
| 1-Nitroso-3,5-dinitro-1,3,5-triazacyclohexane (MNX) | EPA 8330A/8330B | EPA 8330A/8330B | ---------------------- |
| Nitroguanidine | WS-LC-0010/8330A Modified | WS-LC-0010/8330A Modified | ---------------------- |
| **Nitrosamines** | | | |
| N-Nitrosodimethyl amine (NDMA) | WS-MS-0012/521 Modified | WS-MS-0012/521 Modified | ---------------------- |
| **Perfluoro Compounds** | | | ---------------------- |
| 6:2 Fluorotelomer sulfonate (6:2 FTS) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| 8:2 Fluorotelomer sulfonate (8:2 FTS) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| 2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol [N-Et-FOSE] | WS-ID-0021/8290 Modified | WS-ID-0021/8290 Modified | ---------------------- |
| 2-(N-Methylperfluoro-1-octanesulfonamido)-ethanol [N-Me-FOSE] | WS-ID-0021/8290 Modified | WS-ID-0021/8290 Modified | ---------------------- |
| N-Ethyl perfluorooctane sulfonamide (EtFOSA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| N-Ethyl perfluorooctanesulfon amidacetic acid (EtFOSAA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| N-Methyl perfluorooctane sulfonamide (MeFOSA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| N-Methyl perfluorooctanesulfon amidoacetic acide (MeFOSAA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluorooctanoic acid | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluorooctane Sulfonate | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluorobutyric acid (PFBA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluoropentanoic acid (PFPA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| Perfluorohexanoic acid (PFHxA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluoroheptanoic acid (PFHpA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluorononanoic acid (PFNA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluorodecanoic acid (PFDA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluoroundecanoic acid (PFUDA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluorododecanoic acid (PFDoDA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluorotridecanoic acid (PFTriA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluorotetradecanoic acid (PDTeA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluorobutane Sulfonate (PFBS) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluorohexane Sulfonate (PFHxS) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluoroheptane Sulfonate (PFHpS) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluorodecane Sulfonate (PFDS) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| Perfluoroocatane Sulfonamide (FOSA) | WS-LC-0025/537 Modified | WS-LC-0025/537 Modified | ---------------------- |
| **Pesticides/PCBs** | | | |
| Aldrin | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| a-BHC | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| b-BHC | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| d-BHC | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| g-BHC (Lindane) | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| a-Chlordane | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| g-Chlordane | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| 4,4'-DDD | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| 4,4'-DDE | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| 4,4'-DDT | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| Dieldrin | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| Endosulfan I | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| Endosulfan II | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| Endosulfan sulfate | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| Endrin | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| Endrin Aldehyde | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| Endrin Ketone | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| Heptachlor | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| Heptachlor Epoxide | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| Methoxychlor | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| Toxaphene | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| Chlordane (technical) | EPA 8081A/8081B | EPA 8081A/8081B | ---------------------- |
| **PCB (Aroclors)** | | | |
| PCB-1016 | EPA 8082/8082A | EPA 8082/8082A | TO-4A/TO-10A |
| PCB-1221 | EPA 8082/8082A | EPA 8082/8082A | TO-4A/TO-10A |
| PCB-1232 | EPA 8082/8082A | EPA 8082/8082A | TO-4A/TO-10A |
| PCB-1242 | EPA 8082/8082A | EPA 8082/8082A | TO-4A/TO-10A |
| PCB-1248 | EPA 8082/8082A | EPA 8082/8082A | TO-4A/TO-10A |
| PCB-1254 | EPA 8082/8082A | EPA 8082/8082A | TO-4A/TO-10A |
| PCB-1260 | EPA 8082/8082A | EPA 8082/8082A | TO-4A/TO-10A |
| PCB-1262 | EPA 8082/8082A | EPA 8082/8082A | TO-4A/TO-10A |
| PCB-1268 | EPA 8082/8082A | EPA 8082/8082A | TO-4A/TO-10A |
| **PCB (congeners) – removed references to BZ and IUPAC numbers.** | | | |
| PCB 1 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 2 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 3 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 4 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 5 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 6 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 7 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 8 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 9 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 10 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 11 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 12 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 13 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 14 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 15 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 16 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 17 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 18 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 19 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 20 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 21 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 22 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 23 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 24 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 25 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 26 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 27 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| PCB 28 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 29 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 30 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 32 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 31 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 33 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 34 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 35 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 36 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 37 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 38 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 39 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 40 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 41 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 42 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 43 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 44 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 45 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 46 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 47 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 48 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 49 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 50 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 51 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 52 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 53 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 54 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 55 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 56 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 57 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 58 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 59 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 60 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 61 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 62 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 63 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 64 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 65 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 66 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 67 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 68 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 69 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 70 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| PCB 71 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 72 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 73 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 74 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 75 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 76 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 77 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 78 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 79 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 80 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 81 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 82 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 83 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 84 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 85 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 86 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 87 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 88 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 89 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 90 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 91 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 92 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 93 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 94 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 95 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 96 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 97 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 98 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 99 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 100 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 101 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 102 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 103 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 104 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 105 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 106 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 107 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 108 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 109 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 110 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 111 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 112 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 113 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| PCB 114 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 115 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 116 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 117 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 118 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 119 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 120 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 121 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 122 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 123 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 124 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 125 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 126 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 127 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 128 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 129 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 130 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 131 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 132 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 133 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 134 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 135 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 136 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 137 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 138 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 139 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 140 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 141 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 142 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 143 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 144 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 145 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 146 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 147 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 148 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 149 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 150 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 151 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 152 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 153 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 154 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 155 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 156 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| PCB 157 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 158 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 159 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 160 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 161 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 162 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 163 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 164 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 165 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 166 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 167 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 168 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 169 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 170 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 171 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 172 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 173 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 174 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 175 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 176 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 177 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 178 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 179 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 180 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 181 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 182 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 183 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 184 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 185 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 186 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 187 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 188 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 189 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 190 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 191 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 192 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 193 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 194 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 195 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 196 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 197 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 198 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 199 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |

| Parameter/Analyte | Non-Potable Water | Solid/Hazardous Waste | Air |
|---|---|---|---|
| PCB 200 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 201 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 202 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 203 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 204 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 205 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 206 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 207 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 208 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| PCB 209 | EPA 1668A/1668C | EPA 1668A/1668C | ---------------------- |
| **Metals Digestion** | | | |
| Acid Digestion Total Rcoverable or Dissolved Metals | EPA 3005A | --------------------------------------- | ---------------------- |
| Acid Digestion for Total Metals | EPA 3010A | --------------------------------------- | ---------------------- |
| Acid Digestion of Sediments, Sludges and Soils | --------------------------------------- | EPA 3050B | EPA 3050B |
| **Organic Preparation Methods** | | | |
| Separatory Funnel Liquid-Liquid Extraction | --------------------------------------- | EPA 3510C | ---------------------- |
| Ultrasonic Extraction | --------------------------------------- | EPA 3550B/3550C | ---------------------- |
| Waste Dilution | EPA 3580A | EPA 3580A | ---------------------- |
| Solid-Phase Extraction | EPA 3535A | --------------------------------------- | ---------------------- |
| Volatiles Purge and Trap | EPA 5030B/5030C | EPA 5030B | ---------------------- |
| Volatiles Purge and Trap for Solids | --------------------------------------- | EPA 5035/5035A | ---------------------- |
| Semivolatiles in Air | --------------------------------------- | --------------------------------------- | TO-13 |
| Chemical Warfare Degradates (in solid) | --------------------------------------- | WS-OP-0005 | ---------------------- |
| Microwave Assisted Extraction | --------------------------------------- | EPA 3546 | ---------------------- |
| **Organic Cleanup Procedures** | | | |
| Florisil Cleanup | EPA 3620B/3620C | EPA 3620B/3620C | EPA 3620B/ 3620C |
| Sulfur Cleanup | EPA 3660A | EPA 3660A | EPA 3660A |
| Sulfuric Acid Cleanup | EPA 3665A | EPA 3665A | EPA 3665A |
| Silica Gel Cleanup | EPA 3630C | EPA 3630C | ---------------------- |

| Parameter/Analyte | Potable Water |
|---|---|
| **Perfluoro Compunds** | |
| Perfluorobutane Sulfonate (PFBS) | EPA 537 |
| Perfluoroheptanoic acid (PFHpA) | EPA 537 |
| Perfluorohexane Sulfonate (PFHxS) | EPA 537 |
| Perfluorononanoic acid (PFNA) | EPA 537 |
| Perfluorooctanoic acid (PFOA) | EPA 537 |
| Perfluoroocatane Sulfonate (PFOS) | EPA 537 |

# Accredited Laboratory

A2LA has accredited

# TESTAMERICA SACRAMENTO

*West Sacramento, CA*

for technical competence in the field of

## Environmental Testing

In recognition of the successful completion of the A2LA evaluation process that includes an assessment of the laboratory's compliance with ISO/IEC 17025:2005, the 2009 TNI Environmental Testing Laboratory Standard, and the requirements of the Department of Defense Environmental Laboratory Accreditation Program (DoD ELAP) as detailed in version 5.0 of the DoD Quality System Manual for Environmental Laboratories (QSM), accreditation is granted to this laboratory to perform recognized EPA methods as defined on the associated A2LA Environmental Scope of Accreditation. This accreditation demonstrates technical competence for this defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).

AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION
CORPORATE SEAL 1978
DISTRICT OF COLUMBIA
A2LA

Presented this 30th day of December 2015.

Senior Director of Quality & Communications
For the Accreditation Council
Certificate Number 2928.01
Valid to January 31, 2017
Revised May 6, 2016

*For the tests to which this accreditation applies, please refer to the laboratory's Environmental Scope of Accreditation.*