AURORA LAKE

2018 Water Quality Assessment

Prepared for: Steven Milano
Aurora Lake Association
676 Rock Creek Dr.
Aurora, OH 44202

Project No.: 11079
Date: 3/7/2019

Prepared by:

EnviroScience
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5070 Stow Rd.
Stow, OH 44224
800-940-4025
www.EnviroScienceInc.com

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Authorization for Release

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The undersigned attest, to the best of their knowledge, that this document and the information contained herein is accurate and conforms to EnviroScience's internal Quality Assurance standards.

Jeff Niehaus
Biologist
Project Scientist

Julie Bingham
Restoration Group Manager
Certified Ecological Restoration Practitioner

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EXECUTIVE SUMMARY

The goal of the sampling and analysis was to illuminate the singular or cumulative cause of Aurora Lake's turbidity and perceived lake health degradation as a result of one or a combination of the following:

1. Abiotic contributions in the watershed, e.g., suspended silt from bank erosion upstream in the watershed (TSS sampling performed in primary tributary streams).
2. Tributary nutrient loading, e.g., phosphorus inputs from upstream in the watershed (analytical sampling of tributaries)
3. Biotic contributions from within the lake itself, e.g., phosphorus derived from the digestive processes of fish and plankton, and suspended in the water column.
4. Nutrients derived from Aurora Lake sediments, either physically resuspended by fish, boat, or wave action, or precipitated by oxidation-reduction processes at the sediment-water interface (analytical sediment sampling from multiple lake locations).

Our study aimed to determine if any of these factors are having a greater effect on the water quality and lake health to prioritize future management decisions. These decisions will be based on how to improve the overall health of the lake with actions such as dredging, watershed restoration, fishery management, treatment forebays, etc.

EnviroScience, Inc. tested several water quality parameters at Aurora Lake during 2018 in response to the Aurora Lake Association's increasing concern over turbidity and degrading water quality, including algae blooms. Targeted areas included open water, lake inlets and tributaries, as well as lake bottom sediment. When applicable sampling data was compared to the Ohio EPA Inland Lake Nutrient Criteria guidelines in effort to rank Aurora Lake's health to a common standard.

The results mostly showed that Aurora Lake is typical of other eutrophic lakes in Ohio; however, total phosphorus (TP) values of 0.19 mg/L and 0.24 mg/L were well above the Ohio EPA standard. The August 2018 Aurora Lake total Kjeldahl nitrogen (TKN) values, being between 1.3 – 1.9 mg/L, are also higher than the EPA values (0.6 – 1.2 mg/L). This suggests that Aurora Lake is slightly above the Ohio average, but not abnormal, in terms of TKN values.

Due to the past occurrences of algae blooms and the concern of increasing turbidity, it was anticipated that nutrient levels would be consistent with other eutrophic lakes of Ohio. The lake water samples were higher in TP than most lakes sampled by the Ohio EPA. TKN levels were greater than the average compared with total nitrogen, and total suspended solids (TSS) values were relatively normal, but highest in the SE Inlet location (see Figure 1).

Tributary water samples were collected at three primary locations (Glenwood Blvd, Aurora Lake Rd, and Sherwood Dr) three times from August to September 2018. Glenwood Blvd had consistently higher levels of TP and TSS than Aurora Lake Rd and Sherwood Dr. TKN values were similar among the three sites across all three sampling dates, and since they were not elevated in the lake water samples, they are not a concern in the tributaries.

The Glenwood Blvd site had higher TSS levels than the other tributaries on all dates sampled. According to these results, the Glenwood Blvd tributary contributes a much greater amount of TP

as well as TSS to the lake than the other two tributaries and in amounts that are indicative of impaired water quality.

A significant portion of a lake's phosphorus budget can reside in the sediment. Sediment samples were collected at ten different locations of the lake, including inlets, shorelines, and open water areas, and samples were tested for TP, TKN, and percent organic matter. The focus of this sampling was to not only determine nutrient levels in the sediment, but also to see if the deposition on the lake bottom was composed of biotic or abiotic components, i.e., organic particulates versus sand and/or silt. The median TP value of all lakes sampled by the Ohio EPA is 1098 mg/kg. Aurora Lake sediment data shows a range of 170-490 mg/kg. Ohio EPA's 75th and 90th percentiles are 1400 mg/kg and 1620 mg/kg respectively, so compared to these data the TP contained in Aurora Lake's sediment does not appear to be at a concerning level.

Even though the chemical composition of the sediment does not appear to be at a concerning level, the volume of sediment and loss of depth still may be. Results of the bathymetry study are not discussed in detail in this report, but the volume of sediment and its effects on the lake should still be considered. Lake dredging is sometimes implemented to remove sediment that has become excessive and contains harmful amounts of nutrients and/or pollutants. The Aurora Lake sediment test results show that these values are not necessarily at levels concerning enough to necessitate dredging of the lake to remove sediment solely because of accumulated phosphorus.

The 2018 zooplankton survey showed a typical assemblage and density of beneficial zooplankton. No exotic or invasive zooplankton species, such as zebra mussels, were observed in the sample. The zooplankton community consisted of desirable species at densities typical to sustain a fish community.

The results of the phytoplankton analysis show normal diversity and densities in the spring but later in the summer, phytoplankton diversity decreases, and cyanobacteria become predominant. Even though the cyanotoxin levels were below that of the standard, the summer dominance of cyanobacteria suggests that a potential human (and domestic animals) health risk is present in the lake at times. Chlorophyll *a* is a light-energy-absorbing pigment that occurs in all algae and is their primary photosynthetic pigment. The July 31, 2018 chlorophyll *a* sample yielded a value of less than 0.012 mg/L, which is the minimum detection level of the laboratory's spectrophotometer. When compared to Ohio EPA guidelines, over 50% of sampled lakes in Ohio were below 0.030 mg/L, which suggests that Aurora Lake's algal biomass is relatively low compared with other Ohio lakes, at least on the day it was sampled. Because both the cyanotoxin and chlorophyll *a* are cost-effective tests, EnviroScience recommends both these samples be collected on a regular basis to develop a better understanding of the algal community as well as a proactive safety precaution against toxic algae.

To expand upon the lake water and tributary sampling, a watershed evaluation was conducted to identify areas of potential restoration to improve water quality. Three main tributaries enter Aurora Lake, which have been defined as the Hawthorn Sherwood Rd Tributary, Glenwood Blvd. Tributary, and Aurora Lake Rd Tributary. In general, the largest threat to water quality for Aurora Lake is continued development without proper best management practices and stormwater controls. Due to Phase 2 Stormwater Development requirements, this issue is less common, but the Association should still be mindful. The opportunity to retrofit exists in older developments that either lack stormwater control infrastructure or where the infrastructure could be more functional. Furthermore, any existing "wet" in-line basins should be evaluated for retrofitting to a

dry or drain-down basin to encourage greater detention as well as filtering capabilities. Any area that can retain runoff longer, and particularly in a wetland system, should be considered. The Association should begin discussion with upstream property owners for any opportunities to retrofit basins. Any upstream locations where stream restoration can occur to re-attach existing streams to floodprone areas would be beneficial to the lake as well by preventing erosion, depositing fine sediments in floodplains instead of the lake, and filtering nutrients. The Glenwood Blvd entrance area and associated canal system was identified as one of the worst contributors to water quality. EnviroScience recommends considering a retrofit of this system and investigating dredging feasibility.

Revisiting the goals of the study, we have narrowed down the causes of Aurora Lake's turbidity and perceived lake health degradation:

1. Abiotic contributions in the watershed – TSS was highest in the Glenwood Blvd tributary.
2. Tributary nutrient loading – Relatively high amounts of TP were observed in the Glenwood Blvd tributary to Aurora Lake. This is identified as a source of nutrient loading.
3. Biotic contributions from within the lake itself – The extent of biotic internal recycling is unclear. It was expected that phytoplankton, chlorophyll *a*, and zooplankton densities would be hyperabundant, reflecting hypereutrophic conditions. Instead, these parameters represented a typical eutrophic lake in Ohio.
4. Nutrients derived from Aurora Lake sediments – Sediment nutrient levels were typical of other eutrophic lakes of Ohio; however, the TP concentrations were much higher in the shallow, island areas but unclear at this time as to why.

The data analyzed in this report distinguishes at least what the sources are and to what general extent they are contributing to the problem of increased turbidity and cyanobacteria, and overall water quality. A reduction in the amount of phosphorus and TSS entering the lake should be the priority in a long-term management plan to reduce the occurrence of cyanobacteria and to help increase the water clarity.

As stated above, lake dredging is implemented to remove sediment that has become excessive and contains harmful amounts of nutrients and/or pollutants, but that does not appear to be an issue. Instead, the volume of sediment from the bathymetry and sediment survey shows that the entirety of the historic lake basin is filled with sediment. A rough estimate of this volume is well over 1,000,000 cubic yards. A dredging project of that magnitude would not be feasible. Therefore, targeted dredging to increase the maximum depth of the lake along with clearing sediment laden canals and tributaries coves would be more prudent investment for both recreation and water quality. The Association could also investigate a treatment with aluminum sulfate, or alum. This treats the phosphorus in the water column and forms a precipitate of aluminum hydroxide, which binds with phosphorus and settles out of the water column. Once it settles on the lake bottom, it also acts as a barrier, binding to the phosphorus in the sediments so that it cannot be released into the water column or utilized by algae.

1.0 INTRODUCTION

Aurora Lake is an approximately 340-acre lake located in Aurora, Ohio in north Summit and Portage counties. It is a recreational impoundment in the Pond Brook watershed as it captures several of the several smaller tributaries and outlets to the mainstem of Pond Brook to the south. The watershed area encompasses approximately 7.5 square miles which is comprised of predominately residential and forested land-use types.

The Aurora Lake Association (ALA) expressed interest in a diagnostic study of the lake's water quality after becoming concerned that the lake's water quality is degrading. Their observations included: increased turbidity, excessive algae, low dissolved oxygen and an increase in the common carp (*Cyprinus carpio*) population. EnviroScience proposed several tasks to help the ALA gain a better understanding of the overall health of Aurora Lake. These tasks included:

1. A bathymetric survey of Aurora Lake with sediment depth estimates in select locations
2. Multiple carp removal events
3. Water Quality Sampling
    a. Lake Sampling
    b. Tributary Sampling
    c. Lake Sediment Sampling
4. Biotic Sampling
    a. Phytoplankton analysis
    b. Zooplankton analysis
    c. Chlorophyll *a*
    d. Cyanotoxin
5. Watershed and tributary analysis

Item 1, the bathymetry survey, was competed in the fall of 2017. The bathymetry map generated for that task is included as Appendix A in this report for reference. Item 2, carp removal events, are not detailed in this report other than to mention that two common carp removal events occurred on May 9, 2018 and on May 23, 2018. Over one ton of common carp was removed from the lake. Final quantities of common carp and estimated total biomass removed from the lake was determined and recorded by the ALA. A third carp removal event was put on hold and the remaining budget was used to sample sediment in ten locations of the lake. The remainder of the report will focus on the Aurora Lake water quality sampling and analysis, Items 3-5.

Throughout the 2018 season, a series of water samples were taken in open water areas, as well as Aurora Lake's primary tributaries, and tested for common diagnostic analytes, including total phosphorus (TP), total Kjeldahl nitrogen (TKN), and total suspended solids (TSS). These analytes are commonly tested in water quality studies. Phosphorus plays a major role in biological metabolism. Because it is usually less available in surface waters than other nutrients such as nitrogen, it is often the limiting nutrient for biota growth in a given waterbody. TP is an analyte that includes the amount of phosphorus combined in organic and inorganic forms. TKN is the quantity of nitrogen in organic form, plus of that contained in ammonium and ammonia, and is a required parameter for regulatory reporting at many water treatment plants. TSS is commonly

used to measure turbidity in a waterbody by quantifying suspended particles such as fine sand, silt, as well as algae in the water column. High TSS can limit light penetration for plant growth and be detrimental to biological processes.

In addition to the chemical analyses, zooplankton, phytoplankton, and chlorophyll *a* were sampled and analyzed to assess the status of the production of the lake from a lower trophic perspective. Zooplankton species composition and densities are not only useful for fisheries analysis, but can reflect environmental stressors as well and provide useful information to reference regarding the general condition and health of the lake. Chlorophyll *a* is a common measurement taken to estimate algal biomass (e.g., Trophic Status Index) and was sampled to supplement the Aurora Lake qualitative phytoplankton sample with a quantitative value. It can be used as a baseline to compare future measurements taken several times during the year, and to draw a trend in algal biomass and thus primary productivity over time.

Water samples were also tested for cyanotoxin. Testing for various toxins produced by cyanobacteria is becoming more common in the inland lakes of Ohio as harmful algal blooms (HABs) of cyanobacteria are commonplace in the summer months. The Ohio EPA has issued recreational health advisory limits and public beach closure limits on the levels of microcystin present in the waterbodies of Ohio. The Ohio EPA has also begun using NOAA's remotely detected phycocyanin pigment technology to report the presence of cyanobacteria to lake owners across the state, and diligence of regular monitoring for these toxins is strongly encouraged.

Sediment samples were tested for TP and TKN to quantify the potential nutrient availability in the sediment, and percent organic matter was tested to determine the proportion of organic (biotic) to inorganic contents.

The goal of the sampling and analysis was to illuminate the singular or cumulative cause of Aurora Lake's turbidity and perceived lake health degradation as a result of one or a combination of the following:

1. Abiotic contributions in the watershed, e.g., suspended silt from bank erosion upstream in the watershed (TSS sampling performed in primary tributary streams).
2. Tributary nutrient loading, e.g., phosphorus inputs from upstream in the watershed (analytical sampling of tributaries)
3. Biotic contributions from within the lake itself, e.g., phosphorus derived from the digestive processes of fish and plankton, and suspended in the water column.
4. Nutrients derived from Aurora Lake sediments, either physically resuspended by fish, boat, or wave action, or precipitated by oxidation-reduction processes at the sediment-water interface (analytical sediment sampling from multiple lake locations).

Our study aimed to determine if any of these factors are having a greater effect on the water quality and lake health to prioritize future management decisions. These decisions will be based on how to improve the overall health of the lake with actions such as dredging, watershed restoration, fishery management, treatment forebays, etc.

2.0 METHODS

2.1 LAKE WATER SAMPLING METHODS (ITEM 3A)

Water samples were collected on May 11 and on August 17, 2018 at two inlet locations and one open water location of the lake (NW Inlet, Midlake Top/Bottom, and SE Inlet; Figure 1). Lake water samples were collected at a depth of 0.5 meter, except for the lake bottom sample, which was collected at 0.5 meter from the bottom of the lake (3.7 meters). Each lake water sample was collected with a triple-rinsed Van Dorn horizontal water sampler, transferred to a collection jar, and stored on ice until delivery at TestAmerica Laboratory in North Canton, Ohio. Water quality analytes included in all samples were TP, TKN, and TSS. The TP and TKN collection jars also contained a preservative amount of H_2SO_4, adhering to standard sampling protocol for those respective analytes.

2.2 TRIBUTARY WATER SAMPLING METHODS (ITEM 3B)

Water samples were collected in three of Aurora Lake's main tributaries (Figure 2). Each tributary water sample was collected by directly positioning the collection jar in an upstream direction at the water surface and lowering the jar until almost completely full. Water quality analytes included in all samples were TP, TKN, and TSS. The TP and TKN collection jars also contained a preservative amount of H_2SO_4, adhering to standard sampling protocol.

2.3 SEDIMENT SAMPLING METHODS (ITEM 3C)

Sediment samples were collected at ten locations (Figure 3) throughout the lake, including several inlets and open water locations. Each sample was collected by deploying a triple-rinsed Petite Ponar sampler to the lake bottom to obtain a lake sediment grab approximately 6" x 6" in area, and approximately 4-6" in depth. The sediment sample was emptied into a triple-rinsed stainless-steel bucket and homogenized, then emptied into a sample jar and stored on ice. At the end of the sampling event, the samples were taken to the EnviroScience laboratory where they were frozen until delivery to TestAmerica Laboratory in North Canton, Ohio.

2.4 ZOOPLANKTON SAMPLING AND PROCESSING METHODS (ITEM 4A)

A zooplankton sample was collected at the NW Inlet location (Figure 1) on July 31, 2018 using a 0.3-meter diameter Wisconsin style tow net with a 0.2-meter throat and 50 µm mesh. A vertical tow was performed, sampling the water column at a depth of approximately 2 meters. Approximately 0.0628 cubic meters (62.8 liters) of water was sampled with the plankton net. The net was rinsed, and the collection jar removed. The sample was preserved in ethanol and transported to the EnviroScience laboratory for analysis.

The collection jar was transferred to a 500 mL container to analyze the zooplankton community using subsamples. The zooplankton were then identified to species and enumerated. Zooplankton abundance was estimated by calculating the volume of water sampled and the numbers of taxa within the zooplankton sample. Zooplankton density was reported in numbers per liter and presented in Table 4.

2.5 PHYTOPLANKTON SAMPLING AND PROCESSING METHODS (ITEM 4B)

Phytoplankton samples were collected at three locations (Figure 2) on May 11, 2018, and at the NW Inlet location only on July 31, 2018 using an integrated tube sampler to collect species from the water column in that location. The integrated tube sampler collects a column of water from the lake surface down to twice the Secchi depth. This is known as the photic zone, or the portion

of the lake where photosynthesis, and thus the phytoplankton, is mostly occurring. The sample was homogenized in a triple-rinsed stainless-steel bucket and transferred to a sample jar, then preserved with Lugol's solution and transported to the EnviroScience laboratory for analysis.

Samples were analyzed with an Olympus IX73 phase contrast microscope at 400x total magnification. Subsamples were concentrated for ease of identification, and each subsample was counted in an Utermohl plankton counting chamber. Phytoplankton taxa were reported in natural units per milliliter and cells per milliliter and presented on Table 5 and Table 6, and relative abundances of algal group at each sampling site are presented in Table 7.

2.6 CHLOROPHYLL *A* SAMPLING AND PROCESSING METHODS (ITEM 4C)

The water sample collected for chlorophyll *a* analysis was collected on July 31, 2018 at the NW Inlet location at a depth of 0.5 meters using a triple-rinsed Van Dorn horizontal sampler. The sample was taken to the EnviroScience laboratory, drawn through filter paper via vacuum filtration, and frozen until analysis.

Chlorophyll *a* was extracted from the filter using acetone, and the absorbance of the pigment was measured using a spectrophotometer. Concentrations of chlorophyll *a* and pheophytin *a* (the degraded form of chlorophyll *a*) in the sample was determined using Lorenzen's Pheopigment-corrected Chlorophyll *a* and Pheophytin *a* equations. Data were standardized to mg/cm^2, and the results are presented on Table 8.

2.7 CYANOTOXIN SAMPLING AND PROCESSING METHODS (ITEM 4D)

A portion of the homogenized phytoplankton sample was set aside for cyanotoxin analysis. This sample was stored on ice and taken to the EnviroScience laboratory. The sample was analyzed using ELISA methods for the presence of four common cyanotoxins: microcystin-ADDA, cylindrospermopsin, saxitoxin, and anatoxin-a. The results are presented on Table 8.

3.0 RESULTS AND DISCUSSION

Results and discussion of the analyses of the 2018 lake water samples, tributary water samples, and lake sediment samples are presented below.

3.1 LAKE WATER SAMPLES (ITEM 3A)

Lake water samples were collected on May 11 and on August 17, 2018 in three locations: NW Inlet, Midlake Top/Bottom, and SE Inlet (Figure 1) and tested by TestAmerica Laboratories. Water quality analytes included were TP, TKN, and TSS. For this study, we compared the levels of these selected analytes between lake sampling locations and the tributary locations sampled throughout the growing season to the statewide inland lake data compiled by the Ohio EPA (OEPA, 2010).

TP values for all three open water sampling locations collected on May 11, 2018 were below North Canton TestAmerica's detection limit of 0.10 mg/L (Table 1). TKN values for all three sites were below the detection limits as well (0.10 mg/L). TSS values were similar (6.0 – 8.0 mg/L), with the highest value occurring at the NW Inlet (8.0 mg/L). Since the TP and TKN values were lower than the laboratory's detection limits, the subsequent rounds of samples were sent to a different laboratory with lower detection limits (TestAmerica, Buffalo, NY). The detection limits are listed below the test results on Tables 1.

On August 17, 2018, the TP values were between 0.19 mg/L and 0.24 mg/L, and TKN values were between 1.3 mg/L and 1.9 mg/L. TSS values were more variable depending upon location. The lowest value occurred at the middle lake bottom location (12.0 mg/L). The middle lake top and NW Inlet locations were the same at 17.0 mg/L, and the SE Inlet location was the highest at 28.0 mg/L.

The Ohio EPA has developed Inland Lake Nutrient Criteria guidelines that are intended to protect the lake habitat use designation applicable to lakes as defined in Ohio's water quality standards (OEPA, 2010). They based their nutrient criteria on the 25th percentile of the lake median data of Ohio lakes sampled by Ohio EPA, to represent minimally impacted conditions protective of designated uses. For instance, the value associated with the 25th percentile for TP is 0.032 mg/L. Anything under this value is considered a minimally impacted condition. However, of all lakes sampled in Ohio, approximately 67% fell within a range of 0.03 and 0.07 mg/L. The TP levels observed at Aurora Lake in August 2018 were well above this range at 0.19 mg/L and 0.24 mg/L. The May 2018 TP values were below 0.10 mg/L (the minimum detection limit at the North Canton TestAmerica Laboratory), but still could have been higher than the 0.03 – 0.07 mg/L range.

Similarly, the 25th percentile value for Total Nitrogen in our region of Ohio is 0.740 mg/L. Total Nitrogen is the sum of TKN and nitrate-nitrite. Only TKN was tested at Aurora Lake, so it is not a direct comparison to the Ohio EPA nutrient criteria of Total Nitrogen. However, the nitrate-nitrite value is usually only a fraction of the TKN value, so an approximate comparison can still be made. Over 50% of the lakes sampled by Ohio EPA had Total Nitrogen values between 0.6 – 1.2 mg/L. The August 2018 Aurora Lake TKN values, being between 1.3 – 1.9 mg/L, are also higher than these values; however, over 30% of lakes sampled by Ohio EPA were over this range as well, so that puts Aurora Lake slightly above the Ohio average, but not abnormal, in terms of TKN values.

Most of the inland reservoirs of Ohio are considered eutrophic (highly productive) in terms of nutrients and thus algae and zooplankton, which supports forage fish and top predators. Mesotrophic lakes are less productive, and oligotrophic lakes are even less productive. At the other end of the spectrum, hypereutrophic conditions contain excessive amounts of nutrients, and many problems can arise as a result of these conditions such as HABs, hypoxia/anoxia (lack of dissolved oxygen), and fish kills.

Due to the past occurrences of algae blooms and the concern of increasing turbidity of Aurora Lake, it was anticipated that nutrient levels would be consistent with other eutrophic lakes of Ohio, or possibly higher, within the low range of hypereutrophic status. That is, containing a relatively high to very high amount of TP and TKN. This was observed in the samples collected in August 2018 and supports the concern that nutrient levels are higher than most lakes in Ohio, or at least the lakes sampled by the Ohio EPA.

In summary, the lake water samples were higher in total phosphorus than most lakes sampled by the Ohio EPA. TKN levels were greater than the average compared with total nitrogen, and TSS values were relatively normal, but highest in the SE Inlet location. Since we know phosphorus is higher than most lakes in Ohio, the next step is determining whether the phosphorus is being recycled internally in the lake or being loaded by external sources. Tributary water samples were taken and analyzed to determine this.

Figure 1. 2018 Open Water Lake Sampling Locations. Aurora Lake.

Sample Point

0 250 500 1,000 Feet

0 75 150 300 Meters

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Date: 8/22/2018 Path: P:\10_Projects\A\Aurora_Lake_ALA\430R\111079_Water Quality Assessment\Sediment Sampling\GIS\Map1_Site.mxd

Basemap courtesy of Esri.

Table 1. Aurora Lake Open Water Sampling Results

	Sampling Locations			
Sampling date: 5-11-2018	**NW Inlet**	**SE Inlet**	**Midlake Bottom**	**Midlake Top**
Total Phosphorus (mg/L)	<0.10	<0.10	<0.10	<0.10
Total Kjeldahl Nitrogen (mg/L)	<5.0	<5.0	<5.0	<5.0
Total Suspended Solids (mg/L)	8.0	7.0	6.0	6.0
Sampling date: 8-17-2018	**NW Inlet**	**SE Inlet**	**Midlake Bottom**	**Midlake Top**
Total Phosphorus (mg/L)	0.20	0.23	0.24	0.19
Total Kjeldahl Nitrogen (mg/L)	1.60	1.80	1.90	1.30
Total Suspended Solids (mg/L)	17.0	28.0	12.0	17.0
Detection Limits: Total Phosphorus: 0.10 mg/L (5-11-2018) and 0.01 mg/L (8-17-2018) Total Kjeldahl Nitrogen: 5.0 mg/L (5-11-2018) and 0.2 mg/L (8-17-2018) Total Suspended Solids: 4.0 mg/L				

3.2 TRIBUTARY WATER SAMPLES (ITEM 3B)

Tributary water samples were collected at three primary locations (Figure 2), three times from August to September 2018:

1. Glenwood Blvd – Pond Brook north of Glenwood boulevard (approximately 620 feet upstream) on the upstream side of a utility road crossing in the wooded area. (41.342868°, -81.406805°)

2. Aurora Lake Rd – An unnamed tributary that enters Aurora Lake from the northeast, through a culvert under Aurora Lake Road. (41.338170°, -81.381174°)

3. Sherwood Dr – An unnamed tributary that enters Aurora Lake from the southeast, at the west end of Sherwood Drive. (41.325838°, -81.375882°)

At each sampling event, water was collected under a different flow regime. Total 24-hour precipitation leading up to the sampling event is shown in Table 2. This was done to gauge the analytes under baseflow, moderate, and heavy discharge inputs to Aurora Lake.

Glenwood Blvd had consistently higher levels of TP and TSS than Aurora Lake Rd and Sherwood Dr (Table 2). TKN values were similar among the three sites across all three sampling dates.

Ohio EPA collects nutrient data on Ohio's streams and reports suggested criteria for the protection of aquatic life (OEPA, 1999). Similar to the lake data, we compared the nutrient levels of the tributary samples to Ohio EPA's criteria. In our region's headwater streams (drainage area < 20 mi^2) where biological conditions are considered "good," the median TP concentration was 0.05 mg/L. In headwater streams where biological conditions are "poor," the median TP concentration was 0.19 mg/L. These "good" and "poor" ratings are the narrative scores of the Ohio EPA's Index of Biological Integrity, and they correspond to scores that measure specific biological metrics

streams, determined by electrofishing surveys. All samples collected at the Glenwood Blvd site (Pond Brook) were above the concentration found in "good" streams, and the sample collected on 9/10/2018 was above the concentration of "poor" streams. The TP of the other two tributaries was below these levels.

TKN was not measured in Ohio EPA's study, so a comparison cannot be made to their results in terms of that analyte. However, as stated above the TKN concentrations were similar among the three sites, and since they were not elevated in the lake water samples, they are not a concern in the tributaries.

For TSS, Ohio EPA uses a water quality scale based on Ohio statewide reference site data. Using this scale, a TSS value of less than 10 mg/L is indicative of excellent water quality; 12-28 mg/L is normal; 29-133 mg/L is impaired; and greater than 133 mg/L is indicative of a severely impacted stream. Once again, the Glenwood Blvd site had higher TSS levels than the other tributaries on all dates sampled. At base flow (8/17/2018) it contained 19 mg/L, which is in the normal range. However, during rain events it contained 100 mg/L and 53 mg/L, while the other two tributaries stayed below 20 mg/L.

According to these results, the Glenwood Blvd tributary not only contributes a much greater amount of TP than the other two tributaries, but also in greater amounts than found in most streams rated as "good," or even the median of "poor" streams, in terms of biological integrity. Moreover, it is contributing more TSS to the lake than the other two tributaries and in amounts that are indicative of impaired water quality. In order to reduce the amount of phosphorus entering Aurora Lake from Pond Brook, restoration efforts should be evaluated for potential improvement or treatment of the water before entering Aurora Lake.

Table 2. Aurora Lake Tributary Sampling Results

24 Hour Precipitation	**<0.10"**	**2.64"**	**1.07"**
Total Phosphorus (mg/L)	8/17/2018	9/10/2018	9/25/2018
Glenwood Blvd	0.13	0.25	0.12
Aurora Lake Rd	0.10	0.018	0.037
Sherwood Dr	0.10	0.044	0.04
Total Kjeldahl Nitrogen (mg/L)	8/17/2018	9/10/2018	9/25/2018
Glenwood Blvd	0.61	0.93	0.41
Aurora Lake Rd	0.51	0.80	0.58
Sherwood Dr	0.71	0.60	0.40
Total Suspended Solids (mg/L)	8/17/2018	9/10/2018	9/25/2018
Glenwood Blvd	19.0	100.0	53.0
Aurora Lake Rd	5.0	15.0	6.0
Sherwood Dr	5.0	16.0	5.0

Analytical Lab Detection Limits:
Total Phosphorus: 0.010 mg/L
Total Kjeldahl Nitrogen: 0.2 mg/L
Total Suspended Solids: 4.0 mg/L

Ohio EPA
Total phosphorus concentrations for headwater streams in this region
IBI rating of Poor: 0.19 mg/L
IBI rating of Good to Very Good: 0.05 mg/L

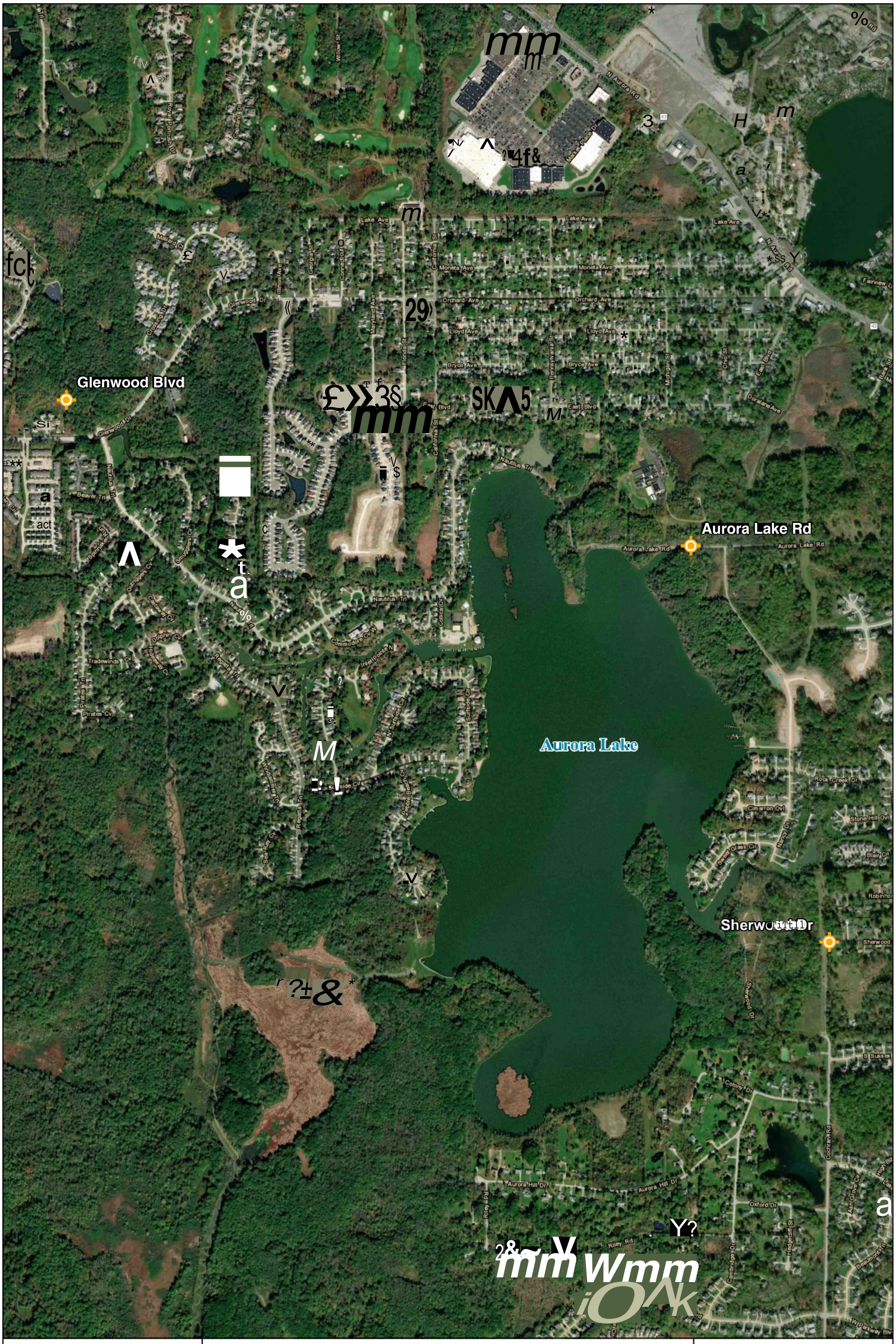

Figure 2. 2018 Tributary Sampling Locations. Aurora Lake.

Sample Point

0 400 800 1,600 Feet

0 125 250 500 Meters

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Basemap courtesy of Esri.

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3.3 SEDIMENT SAMPLES (ITEM 3C)

A significant portion of a lake's phosphorus budget can reside in the sediment. This phosphorus can be liberated by reduction-oxidation reactions depending on dissolved oxygen and pH levels as well as other water chemistry. Sediment samples were collected at ten different locations of the lake including inlets, shorelines and open water areas, and samples were tested for TP, TKN, and percent organic matter.

The focus of this sampling was to not only determine nutrient levels in the sediment, but also to see if the deposition on the lake bottom was composed of biotic or abiotic components, i.e., organic particulates versus sand and/or silt. The results of this sampling event are presented below in Table 3 and on Figure 3.

The median TP value of all lakes sampled by the Ohio EPA is 1098 mg/kg. Depending on the sampling location, Aurora Lake sediment data shows a range of 170 mg/kg at Site 5 and a maximum of 490 mg/kg at Site 10. Ohio EPA's 75th and 90th percentiles are 1400 mg/kg, and 1620 mg/kg respectively, so compared to these data the TP contained in Aurora Lake's sediment does not appear to be at a concerning level.

Ohio EPA collects total organic carbon percentage, whereas our study compared percent organic matter. Total organic carbon usually works out to be approximately half of the percent organic matter. With that assumption we can compare the Aurora Lake data with the state reference data. The Ohio EPA total organic carbon median is 3.96%, while the maximum is 50%. Halving the percent organic matter values to compare them with Ohio EPA's total organic carbon percentage values, we see that the Aurora Lake values are lower than the median in the inlet locations (Sites 2, 3, 5, 8, 9), and higher in in the open water locations (Sites 4, 6, 7). Since no sampling site deviates significantly from the median, it does not appear that the percent organic matter values are of concern. Sites 1 and 10 are significantly higher than the rest, but the reason is uncertain. Regardless, the two are also related in terms of TKN values.

Ohio EPA does not collect a TKN parameter in lake sediments so a comparison could not be made between the TKN values of Aurora Lake and other Ohio reference lakes; however, we can compare the TKN values in different areas of Aurora Lake. Sampling locations 1 and 10 stand apart from the rest of the TKN data. These also happen to be the locations of the highest percent organic matter. The significance of this correlation is unclear. It does not appear to be related to nutrient loading, especially since neither site is in close proximity to a tributary. One potential cause may be that both sampling sites are in shallow water depths near islands, and since these areas might have a greater biomass density of in terms of fish and wildlife use, more TKN and percent organic matter could be present in those locations.

Lake dredging is sometimes implemented to remove sediment that has become excessive and contains harmful amounts of nutrients and/or pollutants. The Aurora Lake sediment test results show that these values are not necessarily at levels concerning enough to necessitate dredging of the lake to remove accumulated phosphorus.

Table 3. Aurora Lake Tributary Sampling Results

Sampling Location	TKN (mg/Kg)	Total Phosphorus (mg/Kg)	Percent Organic Matter
1	7300	300	27.7
2	830	220	4.5
3	1400	250	6.7
4	3200	420	12.4
5	930	170	3.5
6	2400	470	11.7
7	2900	370	13.6
8	1400	250	6.5
9	1400	260	5.8
10	10000	490	44.8

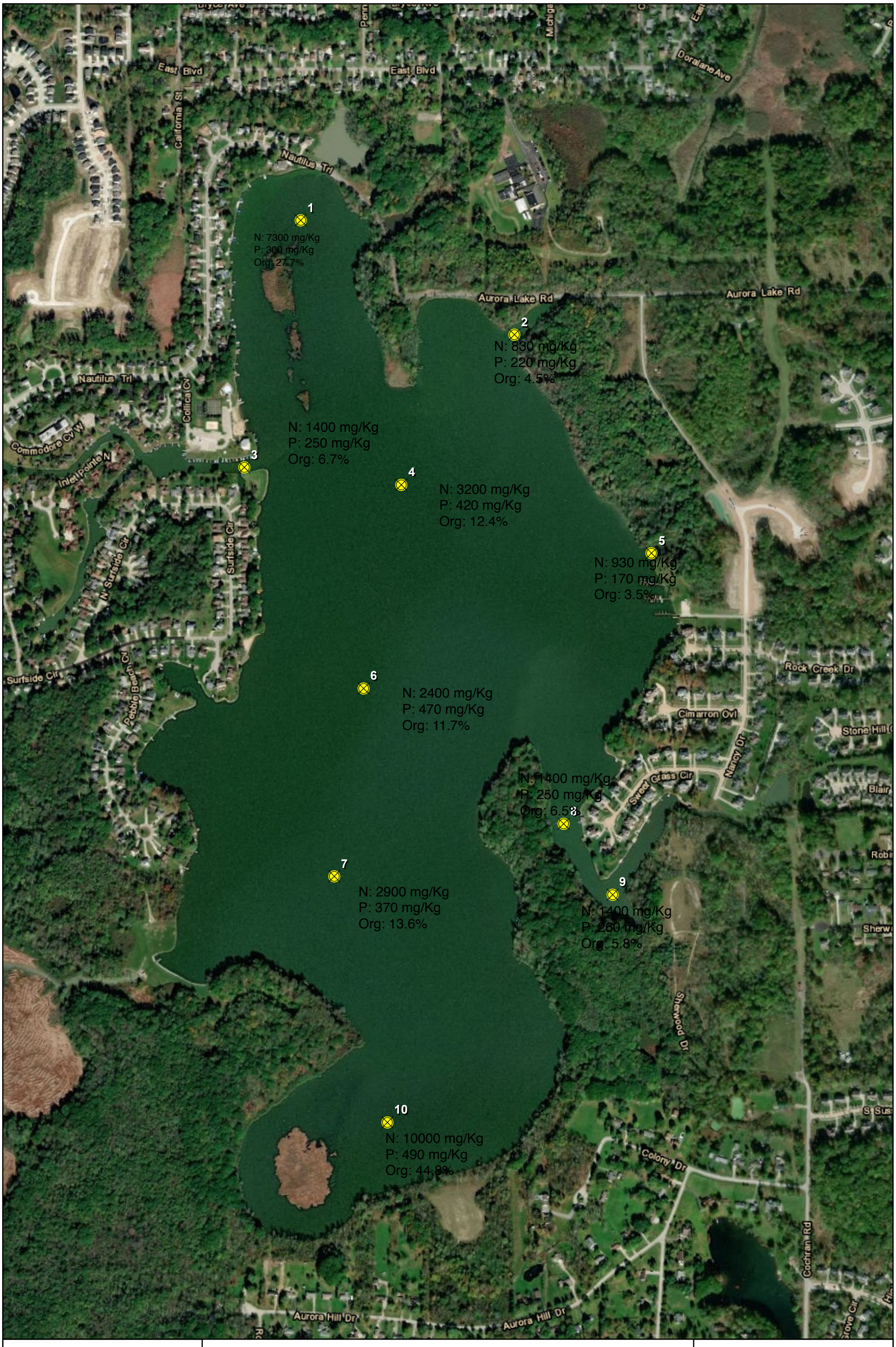

Figure 3. 2018 Sediment Sampling Locations. Aurora Lake.

Sample Point

0 250 500 1,000 Feet

0 75 150 300 Meters

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Date: 8/22/2018 Path: P:\10_Projects\A\Aurora_Lake_ALA\430R\11079_Water Quality Assessment\Sediment Sampling\GIS\Map1_Site.mxd

Basemap courtesy of Esri.

3.4 ZOOPLANKTON (ITEM 4A)

Zooplankton are microscopic invertebrates that are the second form of biological production in a waterbody after the primary producers (phytoplankton). They play a vital role in a lake's ecosystem by providing forage for larval and juvenile fish. Analysis of the lake's zooplankton can provide insight to the availability and quality of larval fish forage and reveal facets of the Aurora Lake food web from the lower trophic perspective. Zooplankton communities are dynamic, changing throughout the year, and respond to available phytoplankton communities as well as predation by larval fish. Their role in the food web is crucial to convert energy from the phytoplankton to a form that can be utilized by the larvae and juvenile fish populations of the lake, including top predators.

The results of the zooplankton sample identified 11 taxa that included species of calanoid copepods, cyclopoid copepods, cladocerans, and rotifers. Species abundance is expressed in numbers per liter on Table 4.

Overall, the 2018 zooplankton survey showed a typical assemblage and density of beneficial zooplankton, most notably the cladocerans *Daphnia galeata, Eubosmina coregoni*, and *Diaphanosoma birgei*, and the cyclopoid copepod *Mesocyclops edax*. Other taxa were present in healthy numbers as well and are listed in Table 4. No exotic or invasive zooplankton species, such as zebra mussel veligers (larvae), were observed in the sample. The zooplankton community consisted of desirable species at densities typical of other eutrophic lakes, and that would adequately sustain larvae and juveniles of the Aurora Lake fish community, such as largemouth bass, crappie, sunfish, and catfish.

Continuing zooplankton analysis can reveal long term trends in recruitment, food web dynamics, and reflect potential environmental stressors in the lake. Overall, we did not see any alarming results in the zooplankton community that could not continue to support a desirable fish population.

Table 4. Aurora Lake Zooplankton Analysis

	Density	
	Subsample	# / liter
Cladocera		
Eubosmina coregoni	10	16
Chydorus sp.	47	75
Daphnia galeata	64	102
Diaphanosoma birgei	7	11
Leptidora kindti	1	2
TOTAL Cladocera	**129**	**205**
Copepoda		
Calanoida		
Skistodiaptomus oregonensis	2	3
TOTAL Calanoida	**2**	**3**
Cyclopoida		
Mesocyclops edax	3	5
Cyclopoid copepodites	6	10
TOTAL Cyclopoida	**9**	**15**
Rotifera		
Asplanchna	1	2
Keratella	15	24
Polyarthra	40	64
TOTAL Rotifera	**56**	**90**
Copepod Nauplii		
Cyclopoid	0	0
Calanoid	11	18
TOTAL Nauplii	**11**	**18**

3.5 PHYTOPLANKTON (ITEM 4B)

Phytoplankton are the primary producers of the lake's ecosystem, generating energy from photosynthesis and passing that energy to the zooplankton and subsequently up through the food chain. The phytoplankton consist of green algae, yellow-green algae, euglenoids, dinoflagellates, diatoms, cryptophytes, and cyanobacteria (blue-green algae), among other taxonomic groups. Like zooplankton, phytoplankton communities are dynamic. Many environmental factors interact to regulate their spatial and seasonal growth and succession. Phytoplankton taxa have different temperature and light intensity requirements and tolerances, which account, at least in part, for seasonal succession. For example, diatoms are predominant in the cooler months of the spring, when temperatures and sunlight duration and intensity are below the optimal ranges for other phytoplankton taxa to thrive. As temperature and sunlight intensity increase throughout the growing season, green algae and other phytoplankton become more dominant. Summer populations of green algae usually increase until concentrations of nitrogen become reduced. Under these conditions, nitrogen-fixing cyanobacteria have competitive advantages and can proliferate, outcompeting other more beneficial algae taxa. Late summer is usually the time of year when HABs occur, and the cyanobacteria are the culprit. Since several cyanobacteria are known to produce toxins, HABs are now regularly monitored in lakes throughout the state, and public health advisory thresholds have been established by the Ohio EPA. The results of the phytoplankton analysis are presented below.

On May 11, 2018, the most notable taxon observed in all three sites was *Rhodomonas* sp., which is a common cryptophyte and beneficial algae, at relatively modest densities of approximately 3400 - 5400 cells per mL (c/mL). The relative abundance of this taxon was between 36% (NW Inlet) and 72% (mid-lake) of the samples collected on that day (Table 5), while the relative abundance of cyanobacteria was between 7% (SE Inlet) and 46% (NW Inlet). This contrasts with the relative abundance of the most common taxa observed on July 31, 2018. Cyanobacteria (blue-green algae) comprised 99% of the relative abundance of phytoplankton species encountered on that sampling event (Table 6), but relatively low phytoplankton densities overall. These numbers (NU or Natural Units per mL) reflect the possibly low (below detection limit of 0.012 ug/L) chlorophyll *a* values from the same water sample. The most abundant species observed were *Planktothrix agardhii* (88,360 c/mL), and *Aphanizomenon flos-aquae* (21,987 c/mL), both known to produce cyanotoxins. Both species' concentrations are listed as moderate human health risks under the World Health Organization's guidelines for threats to human health from recreational contact with cyanobacteria, although the cyanotoxin test in the same water sample resulted in values below the Ohio EPA's Public Health Advisory (PHA) for recreational waters. Typically, when public health advisory levels are exceeded, the cyanobacteria concentrations observed are in the hundreds of thousands of cells per mL.

The relative abundance by taxonomic group is presented on Table 7, which serves as a summary of both phytoplankton sampling events and demonstrates the temporal shift from beneficial algae to cyanobacteria. Note that when phytoplankton was sampled at multiple sites, the NW Inlet, fed by Pond Brook, contained the greatest density of cyanobacteria.

In summary, the results of the phytoplankton analysis show that in the late spring phytoplankton diversity and densities are at beneficial levels typical of other eutrophic lakes. Later in the summer, phytoplankton diversity decreases, and cyanobacteria are the predominant taxa. This is also typical of most eutrophic lakes, or at least a when notable increase of cyanobacteria occurs. Although cyanotoxin levels were below that of the PHA, the summer dominance of cyanobacteria suggests that a potential human (and domestic animals) health risk is present in the lake at times.

Table 5. Aurora Lake Phytoplankton Sampling Results (5-11-2018)

Sample_ID	Lab2_ID	NU_per_mL	Cells_per_mL	BioDataTaxonName	SCIENTIFICNAME	ALGALGROUP	PHYLUM	CLASS
30390	NW inlet	263	263	Undetermined diatom live	Undetermined diatom spp. live	Diatom	Diatom	Diatom
30390	NW inlet	432	432	Chlorella vulgaris	Chlorella vulgaris Beyerinck	Green Algae	Chlorophyta	Chlorophyceae
30390	NW inlet	131	131	Schroederia setigera	Schroederia setigera (Schröder) Lemmermann	Green Algae	Chlorophyta	Chlorophyceae
30390	NW inlet	19	75	Dictyosphaerium ehrenbergianum	Dictyosphaerium ehrenbergianum Nägeli	Green Algae	Chlorophyta	Chlorophyceae
30390	NW inlet	19	19	Monoraphidium contortum	Monoraphidium contortum (Thuret) Komárková-Legnerová	Green Algae	Chlorophyta	Chlorophyceae
30390	NW inlet	38	56	Elakatothrix gelatinosa	Elakatothrix gelatinosa Wille	Green Algae	Chlorophyta	Chlorophyceae
30390	NW inlet	75	75	Closterium acutum	Closterium acutum (Lyngbye) Brébisson ex Ralfs	Green Algae	Chlorophyta	Chlorophyceae
30390	NW inlet	75	864	Planktothrix agardhii	Planktothrix agardhii (Gomont) Anagnostidis and Komárek	Blue-Green Algae	Cyanophyta	Myxophyceae
30390	NW inlet	488	3,174	Limnothrix redekei	Limnothrix redekei (Van Goor)	Blue-Green Algae	Cyanophyta	Myxophyceae
30390	NW inlet	56	56	Dinobryon spp.	Dinobryon	Yellow-Green Algae	Chrysophyta	Chrysophyceae
30390	NW inlet	75	75	Asterionella spp.	Asterionella spp.	Diatom	Bacillariophyta	Bacillariophyceae
30390	NW inlet	225	225	Cryptomonas spp.	Cryptomonas spp.	Green Algae	Cryptophyta	Cryptophyceae
30390	NW inlet	3,418	3,418	Rhodomonas spp.	Rhodomonas spp.	Cryptophytes	Cryptophyta	Cryptophyceae
30390	NW inlet	19	19	Staurastrum sp.	Staurastrum	Green Algae	Chlorophyta	Chlorophyceae
30390	NW inlet	131	131	Dactylococcopsis sp.	Dactylococcopsis	Blue-Green Algae	Cyanophyta	Chlorophyceae
30390	NW inlet	75	75	Trachelomonas sp.	Trachelomonas	Euglenoids	Euglenophyta	Euglenophyceae
30390	NW inlet	113	113	Chlamydomonas spp.	Chlamydomonas spp.	Green Algae	Chlorophyta	Chlorophyceae
30390	NW inlet	56	263	Dolichospermum sp.	Dolichospermum	Blue-Green Algae	Cyanophyta	Myxophyceae
30390	NW inlet	19	38	Oocystis spp.	Oocystis	Green Algae	Chlorophyta	Chlorophyceae
30391	SE inlet	340	340	Undetermined diatom live	Undetermined diatom spp. live	Diatom	Diatom	Diatom
30391	SE inlet	73	194	Scenedesmus armatus	Scenedesmus armatus (Chodat) G. M.	Green Algae	Chlorophyta	Chlorophyceae
30391	SE inlet	24	24	Elakatothrix gelatinosa	Elakatothrix gelatinosa Wille	Green Algae	Chlorophyta	Chlorophyceae
30391	SE inlet	122	122	Closterium acutum	Closterium acutum (Lyngbye) Brébisson ex Ralfs	Green Algae	Chlorophyta	Chlorophyceae
30391	SE inlet	49	462	Limnothrix redekei	Limnothrix redekei (Van Goor)	Blue-Green Algae	Cyanophyta	Myxophyceae
30391	SE inlet	194	194	Asterionella spp.	Asterionella spp.	Diatom	Bacillariophyta	Bacillariophyceae
30391	SE inlet	802	802	Cryptomonas spp.	Cryptomonas spp.	Green Algae	Cryptophyta	Cryptophyceae
30391	SE inlet	5,493	5,493	Rhodomonas spp.	Rhodomonas spp.	Cryptophytes	Cryptophyta	Cryptophyceae
30391	SE inlet	122	122	Dactylococcopsis sp.	Dactylococcopsis	Blue-Green Algae	Cyanophyta	Chlorophyceae
30391	SE inlet	49	49	Trachelomonas sp.	Trachelomonas	Euglenoids	Euglenophyta	Euglenophyceae
30391	SE inlet	24	24	Chlorella spp.	Chlorella spp.	Green Algae	Chlorophyta	Chlorophyceae
30391	SE inlet	73	340	Oocystis spp.	Oocystis	Green Algae	Chlorophyta	Chlorophyceae
30393	Mid Lake	34	34	Undetermined diatom live	Undetermined diatom spp. live	Diatom	Diatom	Diatom
30393	Mid Lake	34	138	Scenedesmus quadricauda	Scenedesmus quadricauda (Turpin) Brébisson	Green Algae	Chlorophyta	Chlorophyceae
30393	Mid Lake	69	620	Cyanophyte filament - UNKNOWN	Cyanophyte	Blue-Green Algae	Blue-Green Algae	Blue-Green Algae
30393	Mid Lake	17	275	Merismopedia tenuissima	Merismopedia tenuissima	Blue-Green Algae	Cyanophyta	Myxophyceae
30393	Mid Lake	17	69	Dictyosphaerium pulchellum	Dictyosphaerium pulchellum Wood	Green Algae	Chlorophyta	Chlorophyceae
30393	Mid Lake	34	69	Elakatothrix gelatinosa	Elakatothrix gelatinosa Wille	Green Algae	Chlorophyta	Chlorophyceae
30393	Mid Lake	52	52	Closterium acutum	Closterium acutum (Lyngbye) Brébisson ex Ralfs	Green Algae	Chlorophyta	Chlorophyceae
30393	Mid Lake	17	344	Planktothrix agardhii	Planktothrix agardhii (Gomont) Anagnostidis and Komárek	Blue-Green Algae	Cyanophyta	Myxophyceae
30393	Mid Lake	344	344	Cryptomonas spp.	Cryptomonas spp.	Green Algae	Cryptophyta	Cryptophyceae
30393	Mid Lake	5,458	5,458	Rhodomonas spp.	Rhodomonas spp.	Cryptophytes	Cryptophyta	Cryptophyceae
30393	Mid Lake	17	17	Staurastrum sp.	Staurastrum	Green Algae	Chlorophyta	Chlorophyceae
30393	Mid Lake	34	34	Trachelomonas sp.	Trachelomonas	Euglenoids	Euglenophyta	Euglenophyceae
30393	Mid Lake	52	52	Chlamydomonas spp.	Chlamydomonas spp.	Green Algae	Chlorophyta	Chlorophyceae

Table 6. Aurora Lake Phytoplankton Sampling Results (7-31-2018)

Sample_ID	Lab2_ID	NU_per_mL	Cells_per_mL	BioDataTaxonName	SCIENTIFICNAME	ALGALGROUP	PHYLUM	CLASS
30455	Lake	34	34	Undetermined diatom live	Undetermined diatom spp. live	Diatom	Diatom	Diatom
30455	Lake	17	465	Aphanocapsa delicatissima	Aphanocapsa delicatissima W. West and G.S. West	Blue-Green Algae	Cyanophyta	Myxophyceae
30455	Lake	1,980	21,987	Aphanizomenon flos-aquae	Aphanizomenon flos-aquae (Linnaeus) Ralfs	Blue-Green Algae	Cyanophyta	Myxophyceae
30455	Lake	86	86	Schroederia setigera	Schroederia setigera (Schröder) Lemmermann	Green Algae	Chlorophyta	Chlorophyceae
30455	Lake	52	758	Crucigenia quadrata	Crucigenia quadrata Morren	Green Algae	Chlorophyta	Chlorophyceae
30455	Lake	17	17	Closterium acutum	Closterium acutum (Lyngbye) Brébisson ex Ralfs	Green Algae	Chlorophyta	Chlorophyceae
30455	Lake	2,307	88,360	Planktothrix agardhii	Planktothrix agardhii (Gomont) Anagnostidis and Komárek	Blue-Green Algae	Cyanophyta	Myxophyceae
30455	Lake	17	34	Didymocystis spp.	Didymocystis spp.	Green Algae	Chlorophyta	Chlorophyceae
30455	Lake	69	69	Trachelomonas sp.	Trachelomonas	Euglenoids	Euglenophyta	Euglenophyceae
30455	Lake	620	3,392	Phormidium sp.	Phormidium	Blue-Green Algae	Cyanophyta	Myxophyceae
30455	Lake	138	138	Chlamydomonas spp.	Chlamydomonas spp.	Green Algae	Chlorophyta	Chlorophyceae
30455	Lake	17	103	Oocystis spp.	Oocystis	Green Algae	Chlorophyta	Chlorophyceae

Table 7. Aurora Lake Phytoplankton Relative Abundance

	Cyanobacteria	Cryptophytes	Diatoms	Euglenoids	Green Algae	Yellow-green Algae
Site						
NW Inlet (May)	46.64%	35.97%	3.56%	0.79%	12.45%	0.59%
Mid Lake (May)	16.51%	72.71%	0.46%	0.46%	9.86%	0.0%
SE Inlet (May)	7.14%	67.26%	6.55%	0.60%	18.45%	0.0%
NW Inlet (July)	98.93%	0.0%	0.03%	0.06%	0.98%	0.0%

3.6 CHLOROPHYLL *A* (ITEM 4C)

Chlorophyll *a* is a light-energy-absorbing pigment that occurs in all algae and is their primary photosynthetic pigment. It is measured, along with TP and transparency (Secchi depth), to estimate total algal biomass in determining a lake's trophic status (Carlson, 1977) and is measured as a part Ohio EPA's inland lake nutrient monitoring program. The July 31, 2018 chlorophyll *a* sample yielded a value of less than 0.012 mg/L, which is the minimum detection level of the laboratory's spectrophotometer. According to the Ohio EPA's *Technical Support Document: Nutrient Criteria for Inland Lakes* (OEPA, 2010), a value of 0.012 mg/L corresponds to those found in approximately 19% of inland lakes in Ohio (a value of 0.014 mg/L represents the 25th percentile among comparable lakes in Ohio). In general, the observed chlorophyll *a* value of less than 0.012 mg/L is within the range most commonly encountered in Ohio's inland reservoirs. For perspective, over 50% of sampled lakes in Ohio were below 0.030 mg/L. This suggests that Aurora Lake's algal biomass is relatively low compared with other Ohio lakes and that although higher levels of TP were observed, it does not appear to be causing an elevated level of algal biomass, at least not on the day it was sampled.

Chlorophyll *a* is a very easy sample to obtain and a cost-effective test to run. This test would be preferred for continued evaluation of the trophic status of Aurora Lake. Regular chlorophyll *a* testing throughout the season from spring turnover to fall turnover is encouraged to establish a baseline and determine the trophic trajectory of the lake in the future.

Table 8. Aurora Lake Chlorophyll *a* and Cyanotoxin Sampling Results

Sampling date: 7-31-2018	**Location: NW Inlet**
Chlorophyll *a* (mg/L)	<0.012
Cyanotoxin analysis (ug/L)	
*Microcystin	0.373
Cylindrospermopsin	0.000
Saxitoxin	0.094
Anatoxin	0.000

Detection Limits:

Chlorophyll *a*: 0.012 mg/L
Microcystin: 0.15 ug/L
Cylindrospermopsin: 0.05 ug/L
Saxitoxin: 0.02 ug/L
Anatoxin-a: 0.15 ug/L

*OEPA Recreational limits for microcystin:
Public health advisory: 6.0 ug/L

3.7 CYANOTOXIN (ITEM 4D)

The cyanotoxin sample that was collected was analyzed for four known toxins: microcystin-ADDA, cylindrospermopsin, saxitoxin, and anatoxin-a. Cylindrospermopsin and anatoxin-a were not detected. The saxitoxin level was 0.094 ug/L and the microcystin-ADDA level was 0.373 ug/L. The Ohio EPA has issued recreational limits for microcystin-ADDA, with a public health advisory level of 6.0 ug/L, and an elevated public health advisory and beach closure level of 20.0 ug/L. Again, the levels observed at Aurora Lake were below these limits. Note that many factors can affect the cyanotoxin levels at Aurora Lake, including time of year and the sample location. For instance, a concentrated grab sample of surface water on a windward shore could easily produce an inflated value. All Ohio EPA methodology was adhered to when sampling and analyzing this sample.

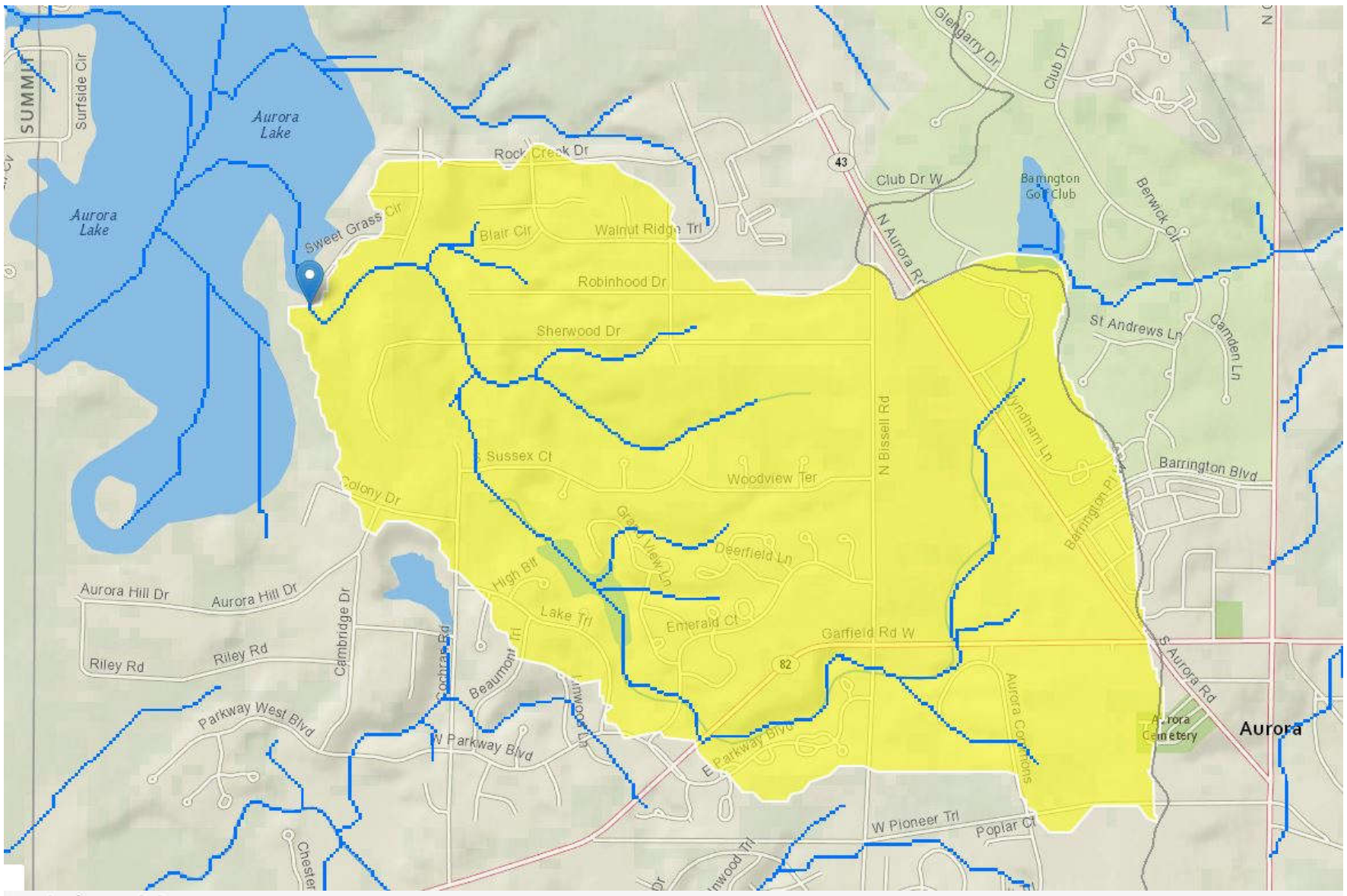
Cyanotoxin is also an easy sample to obtain and cost-effective test to run. Regular cyanotoxin testing throughout the summer, especially in the late summer, is encouraged as a general safety precaution for the Aurora Lake community.

4.0 WATERSHED AND TRIBUTARY ANALYSIS (ITEM 5)

4.1 HAWTHORN SHERWOOD RD TRIBUTARY

This tributary drains approximately 1.45 sq miles of the eastern side of Aurora Lake. The watershed is highly developed at 77% but maintains ~49% tree/forested cover. Impervious surface is moderate at 18.4%. Water quality impacts have been known to occur at percent impervious cover of >10% (CRWP 2004). Wetlands and other water bodies consist of 6.91% of the landscape.

Figure 4. Hawthorn Sherwood Rd Sub-Watershed



Basin Characteristics

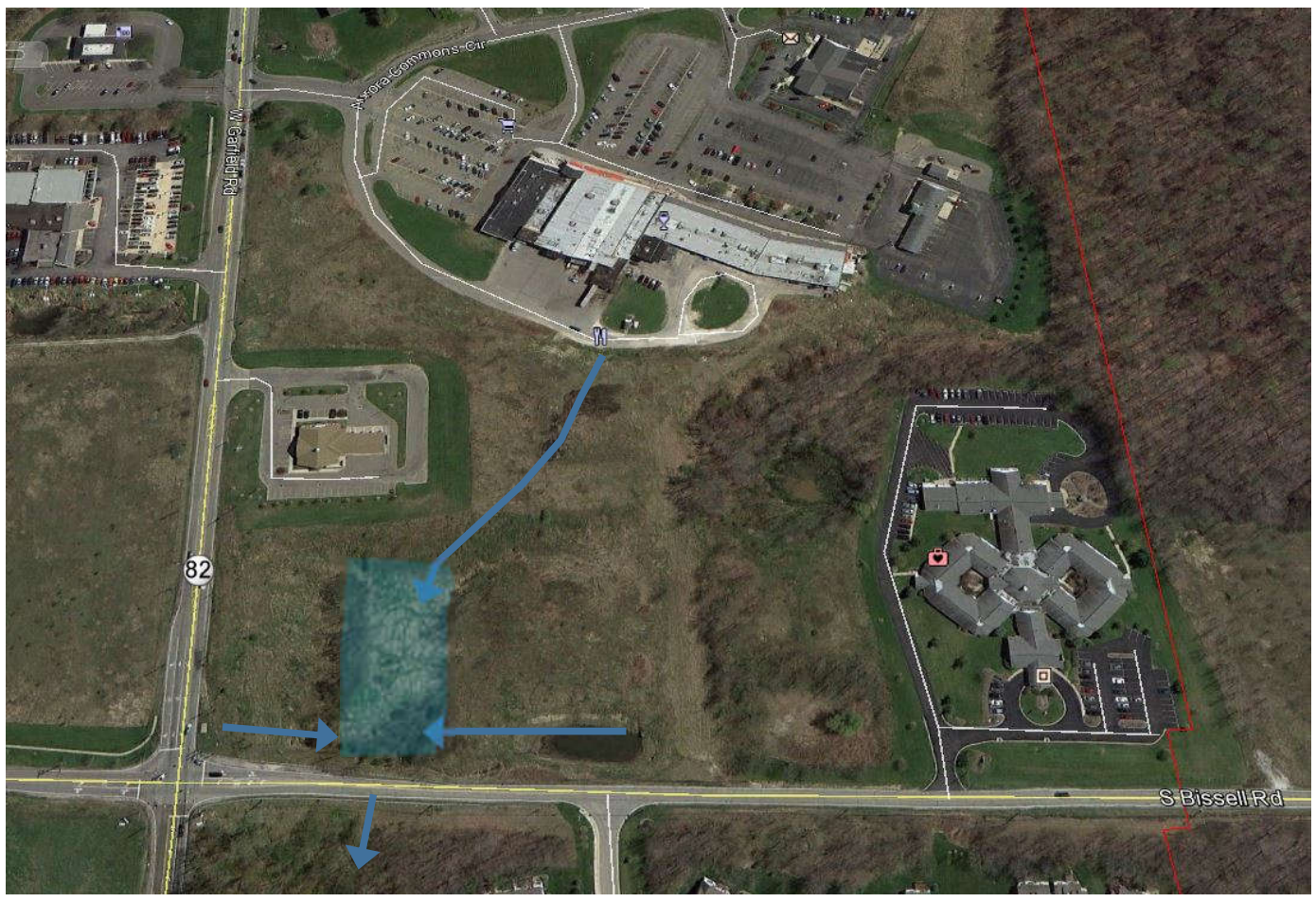
Parameter Code	Parameter Description	Value	Unit
CSL1085LFP	Change in elevation divided by length between points 10 and 85 percent of distance along the longest flow path to the basin divide, LFP from 2D grid	47.5	feet per mi
DRNAREA	Area that drains to a point on a stream	1.45	square miles
FOREST	Percentage of area covered by forest	49.4	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	77.7	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	18.4	percent
LC92STOR	Percentage of water bodies and wetlands determined from the NLCD	6.91	percent

The largest threat to water quality for this sub-watershed is continued development without proper best management practices and stormwater controls. Due to Phase 2 Stormwater Development requirements, this issue is less common, but the Association should still be mindful. The opportunity to retrofit exists in older developments that either lack stormwater control infrastructure or where the infrastructure could be more functional. Furthermore, any existing "wet" in-line basins should be evaluated for retrofitting to a dry or drain-down basin to encourage greater detention as well as filtering capabilities. Any area that can retain runoff longer and particularly in a wetland system should be considered.

Several opportunities exist in this sub-watershed. The stormwater routing for these areas was not fully researched and assumed drainage pathways were based on topography and USGS Streamstats mapping.

Beginning at the top of the watershed near the intersection of Route 82 and North Bissell Rd, a series of pipes and existing stormwater ponds direct drainage to one central location prior to be conveyed under SR82 to the south (Figure 5). This existing 1-acre, low-lying area could likely become a small regional control for stormwater with an analysis on of the outlet configuration and a retrofit design to encourage greater retention and slow drain down time. The property is currently for sale, and discussions with the City illuminate the value in some additional detention that could influence a development design or future City sponsored project.

Figure 5. Drainage Patterns North of South Bissell Rd



Moving south from SR 82, drainage enters a natural valley shaded by a mature wooded riparian corridor to the north of East Parkway Blvd and south of W. Garfield Rd (SR82). Drainage then flows into the first of two impoundments. The first is a small pond with a fountain and culvert outlet, which then flows into a much larger pond. This pond is an approximately 8.0-acre impoundment with a large concrete dam and spillway (Figure 6). Large impoundments such as these act to heat up the water facilitating algae growth often leading to a reduction in dissolved

oxygen and decrease in water quality. Houses in this neighborhood appear well-maintained and very green which assumes regular application of fertilizer, herbicides and pesticides.

Downstream of the pond, the water is discharged into another natural channel and wooded corridor that will have a cooling effect on the water. The stream channel is likely incised through this reach because of the presence of the dam and development runoff which often causes channel incision.

This preserved green space for the development presents a good opportunity to re-attach the stream to its original floodplain. This approach eliminates much of the bank erosion produced with channel incision and channel adjustment and allows regular overbank flooding into the wide valley floodplain to deposit nutrients and silt. Furthermore, it will greatly enhance fish habitat through the reach that can be accessible by migrating species from the lake into this tributary.

Once the stream hits the Cochran Road right of way, this tributary is heavily modified. The nice forested riparian corridor has been eliminated and the stream has been straightened and ditched for ~2,025ft. A straightened channel condition will continually be unstable and erode streambanks. Ideally, if a small floodplain bench can be restored to one side or the other along with woody plantings, this area would become much more stable and be less detrimental to the water quality. Communication with the Marsh Glen LLC could allow future restoration to the east side of the ditch as it appears this parcel is largely open space preservation for the development. The wetland draining out of the Marsh Glen could also undergo restoration to modify the ditch outlet such that wetland retention time increases.

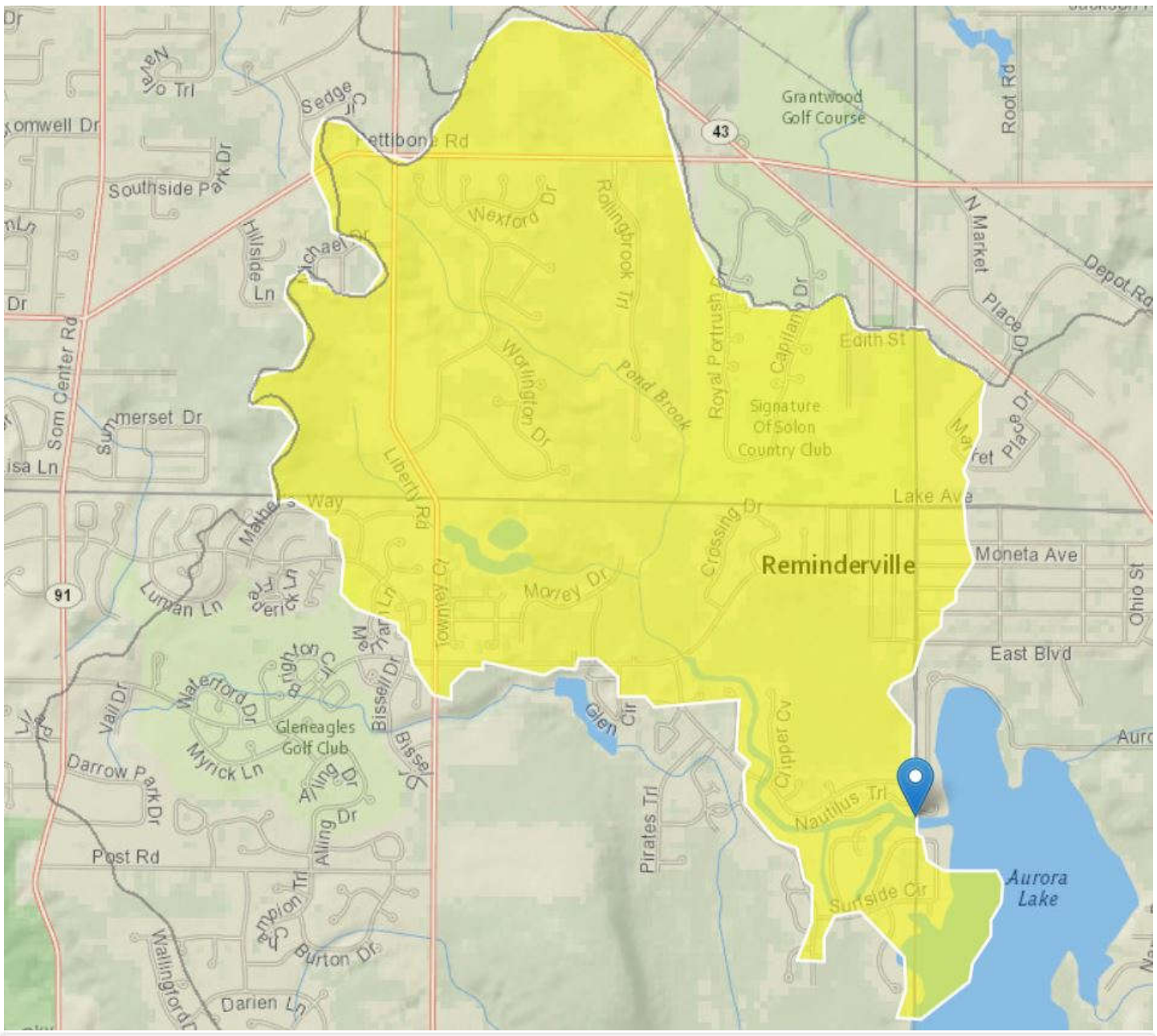
Figure 6. Large Spill for 8.0-Acre Impoundment and Greenspace

Figure 7. Cochran Road Access Road Ditch

4.2 GLENWOOD BLVD TRIBUTARY

This tributary drains approximately 3.17 sq miles of the northwestern side of Aurora Lake. The watershed is highly developed at 72.7% but maintains ~61% tree/forested cover. Impervious surface is moderate at 15.6%. Water quality impacts have been known to occur at a percent impervious cover of >10% (CRWP, 2004). Wetlands and other water bodies consist of 11.91% of the landscape.

Figure 8. Glenwood Blvd Sub-Watershed

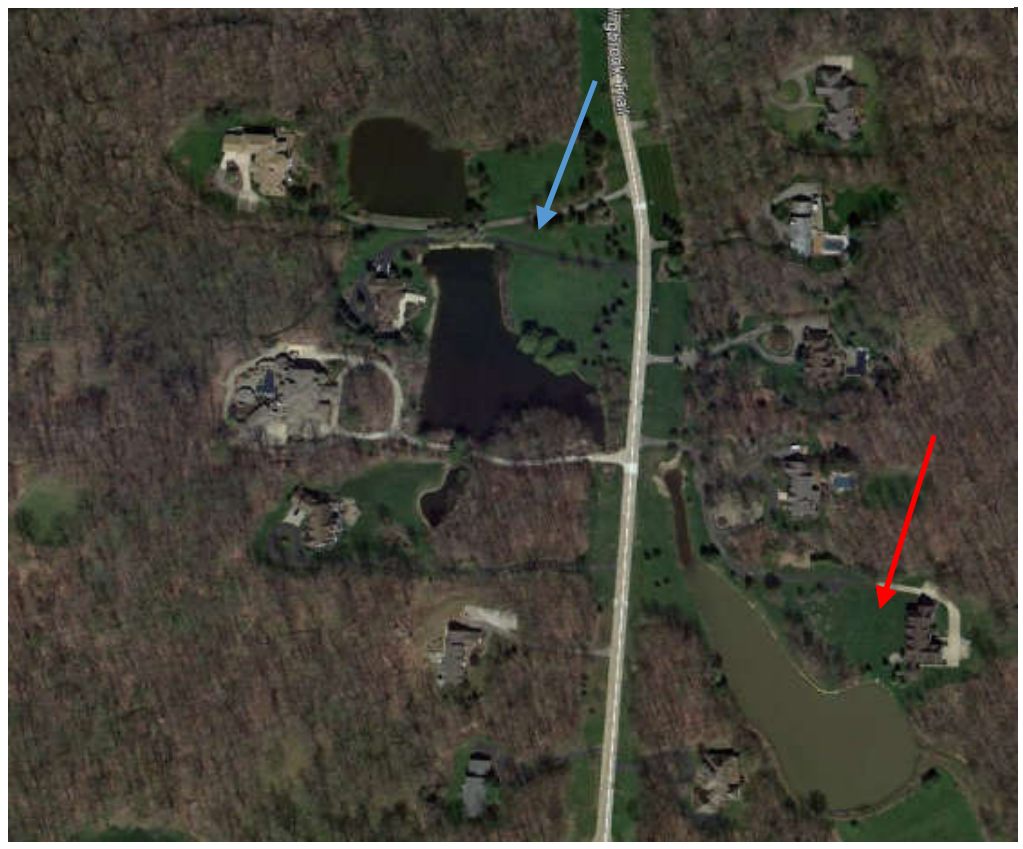


Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CSL1085LFP	Change in elevation divided by length between points 10 and 85 percent of distance along the longest flow path to the basin divide, LFP from 2D grid	15.3	feet per mi
DRNAREA	Area that drains to a point on a stream	3.17	square miles
FOREST	Percentage of area covered by forest	61.2	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	72.7	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	15.6	percent
LC92STOR	Percentage of water bodies and wetlands determined from the NLCD	11.9	percent

Water quality testing rated this sub-watershed with the lowest water quality. High levels of TP were observed in this location in each of the water quality sampling events. Because of these results, ALA should consider management alternatives to help improve the watershed in general as well as the long canal system, which feds the lake.

Figure 9. Rollingbrook Trail Ponds



The upper portion of the sub-watershed in proximity of Pettibone Road consists of both high-density homes off Stockwood Drive and low-density single-family large lot homes off of Rollingbrook Trail. Fortunately, it appears that a majority of the surrounding forest near waterways has been preserved. The Stockwood drive development has some small stormwater detention basins (Figure 8) while the Rollingbrook development does not. In Rollingbrook, it appears that drainage is conveyed to a series of ponds in the south and/or conveyed to the east and west into the forested streams. The ditches and drainageways convey water rapidly into these adjacent drainageways and ponds. The main ditch on Rolllingbrook is on the west side of the street, which conveys water into a series of ponds. The ponds are meant to be both decorative as well as serve as a location which to funnel stormwater. Figure 9 above shows the significant change in potential water quality as noted by the turbidity of the most southern pond. This pond could be investigated/inquired regarding past or on-going management and what is the source of the elevated turbidity.

Ponds, in general, are often areas of water quality degradation, because they are often managed poorly. Standing water becomes warm and often a majority of the aquatic plants are eliminated. Warmer water facilitates algae growth and a decreased ability to retain dissolved oxygen. This sub-watershed has numerous ponds.

Figure 10. Potential Morley Rd Basin Modification

The Morley Rd development has similar characteristics with respect to density as the Stockwood Drive development. A large decorative pond with several stormwater basins intercepts drainage prior to the discharge to the wooded streams and drainageways (Figure 10). One basin on the west side of Morley Rd should be evaluated for potential improvement. Currently, this is a wet-basin and similar to ponds, wet-basins are negative from a water quality perspective. The location of this particular basin does not serve an aesthetic purpose because it is not surrounded by homes. Instead this basin could be modified to have a lower permanent water level and encourage wetland plant development. This shift towards an emergent wetland basin will have greater water quality benefit by shading open water as well as the inherent filtering capabilities of wetlands.

As noted above, this sub-watershed has a preserved riparian corridor along almost all the streams and drainageways, which is a very positive characteristic. The stream morphology was investigated and we determined that a majority of the channels, at least in the lower reaches of the sub-watershed just to the north of Glenwood Drive, do not regularly access the overbank floodplain. Floodplain accessibility is vital for stream stability and function as it significantly reduces water depth in the channel as the water is spread in a shallow layer thereby reducing stream energy. Encouraging more floodplain accessibility in the lower reach of this sub-watershed could be an added benefit. This can be accomplished using in-channel rock riffle structures, engineered log-jams, or retrofitting the culvert entrance at Glenwood Drive.

The south side of Glenwood the stream has been replaced by an impounded canal. This canal averages 50ft wide and runs for ~5,900ft to the entrance of the marina. Several other canals act as spurs to other developments. The canals are a means for boats to travel to the main lake from the individual residential properties.

While the canal provides a service to boat traffic, they are detrimental to water quality and proper function. The canals have become a depository for leaves, organic matter, and silt from the upstream tributary creating a thick layer of sediment in the canal. Frequent boat traffic keeps the sediment re-suspended, maintaining high levels of turbidity.

The Glenwood entrance to Aurora Shores is an important area that should be considered for some important modifications. First and foremost, a wetland forebay should be considered immediately downstream of Glenwood culvert. The forebay would be separated from the main canal just upstream of the last resident with a structure to impound water at a higher elevation than normal lake level. The elevation drop could be conveyed with a rock riffle structure to provide aeration and fish passage or an abrupt drop from the structure to prevent fish passage into upstream channels. Regardless, the elevated forebay would help encourage more sediment deposition and provide a distinct separation from the main canal.

The forebay modification could be designed in numerous ways but it is important to attempt to capture as much solid sediment and organic matter as possible. Wetlands and vegetative floodplains are highly effective at performing both these functions. Therefore, the forebay could be designed to have a smaller open water area to capture solid sediment while the remaining forebay acts as a wetland filter. Figure 11 provides a conceptual approach to a forebay modification.

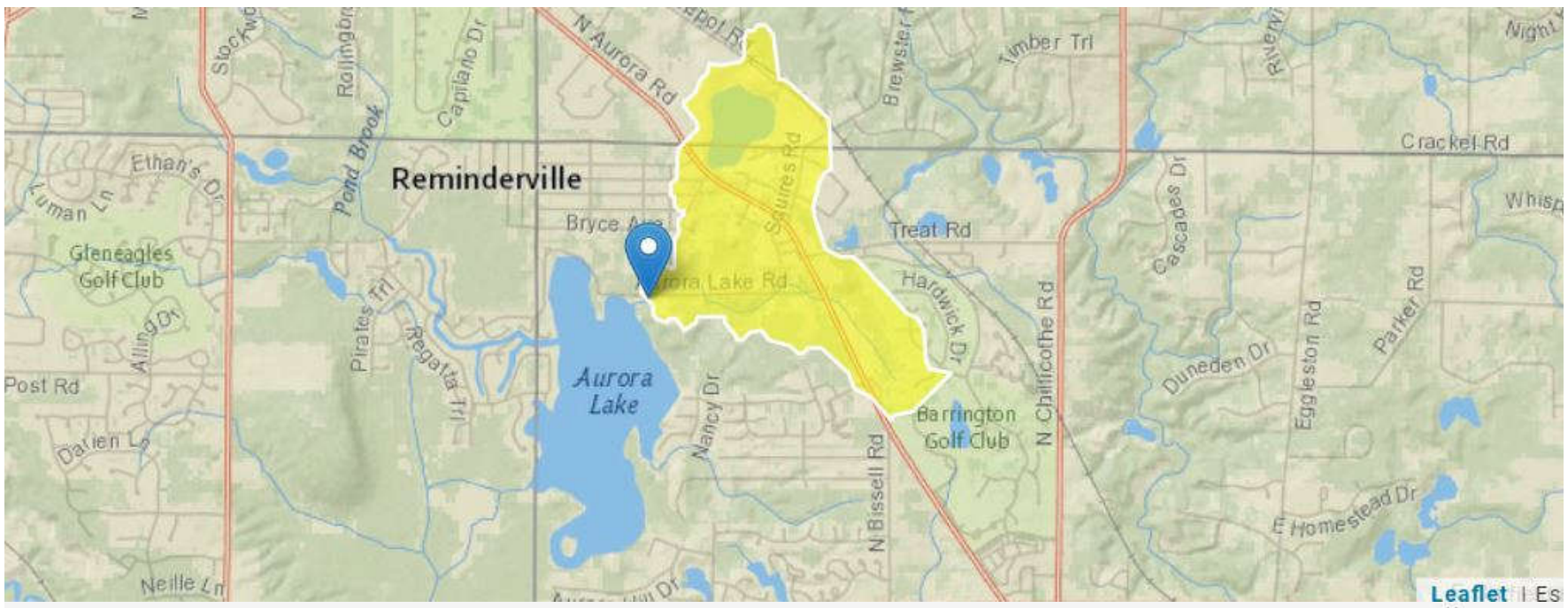
It is recommended that the remaining canal system be dredged. Once the forebay is established, or simultaneously while the work is being accomplished, the dredging of the canals will remove any legacy sediment. The forebay will greatly minimize any sediment from being re-deposited in the canal. Residents will see direct activity behind their homes but will benefit from improved navigation of the canals and likely increased water clarity. If water clarity improves, vegetation should be allowed to colonize to a degree. The best staging for dredging activities in the canal system is the large open space at the Glenwood entrance. Other smaller access and staging areas are scarce, but there may be some potential in the vicinity of the Nautilus Trail bridge crossing. However, consultation with a dredging contractor is recommended. EnviroScience has a working relationship with Metropolitan Dredging that specializes in hydraulic dredging, which would be the preferred method here.

Figure 11. Potential Glenwood Tributary Forebay Modification

4.3 GEAUGA LAKE / AURORA LAKE ROAD TRIBUTARY

This tributary drains approximately 1.08 sq miles of the northeastern side of Aurora Lake. The watershed is highly developed at 62.9% and only has ~40.9% tree/forested cover. Impervious surface is high at 21.2%. Water quality impacts have been known to occur at percent impervious cover of >10% (CRWP 2004). Wetlands and other water bodies consist of 16.1% of the landscape.

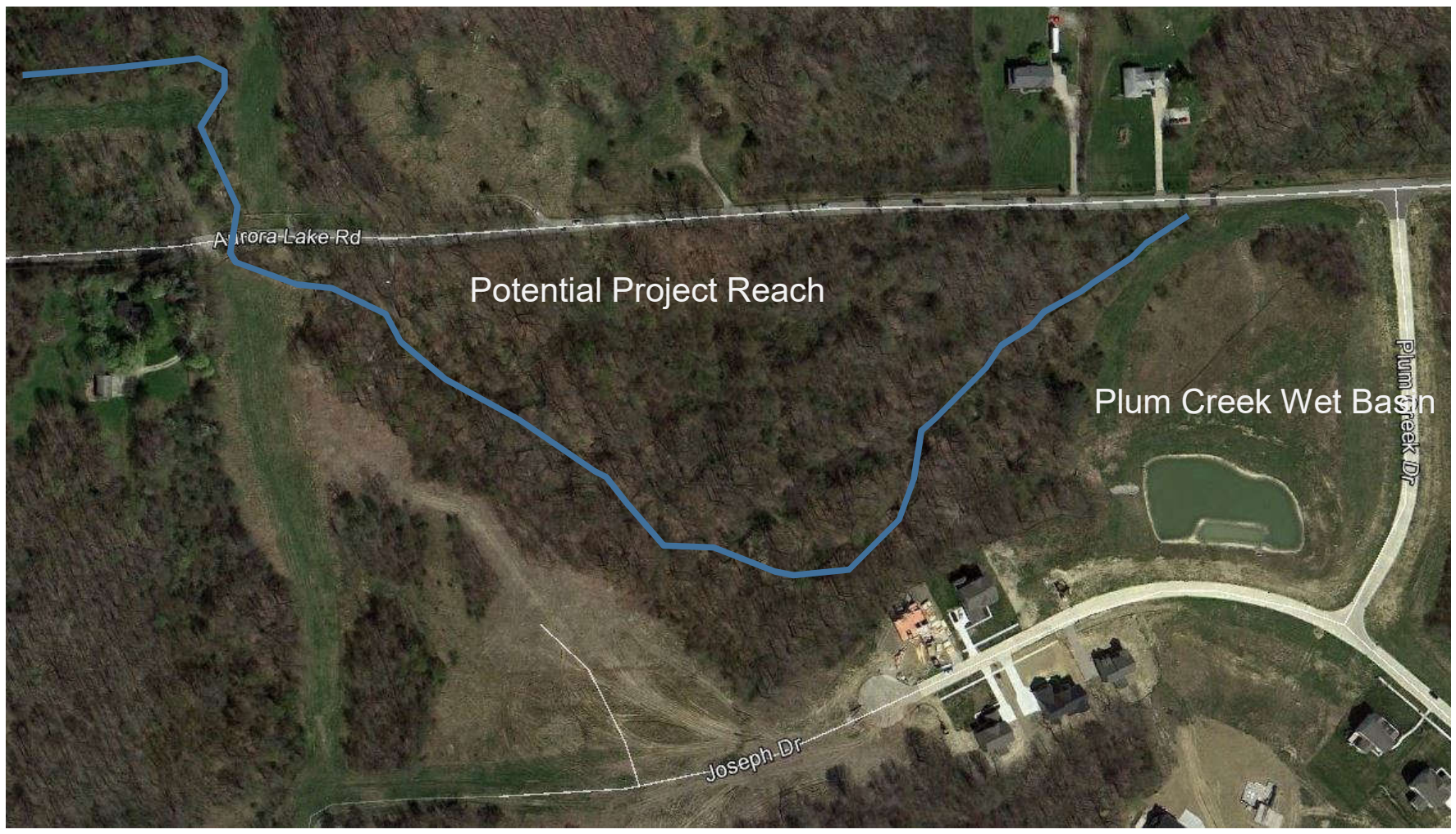
Figure 12. Geauga Lake / Aurora Lake Rd Sub-Watershed



			miles
FOREST	Percentage of area covered by forest	40.9	percent
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	62.9	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	21.2	percent
LC92STOR	Percentage of water bodies and wetlands determined from the NLCD	16.1	percent

This sub-watershed has essentially a northern fork which originates in Geauga Lake and flows south while the eastern fork drains portions of the Hawthorn and Barrington developments (Figure 12). Similar to the other sub-watersheds, a good portion of the drainageways and streams have intact wooded riparian corridors which is positive. The Barrington development drains portions of a golf course. The concern here is during the summer months the runoff contains elevated levels of fertilizer and pesticides. This study did not specifically test for those parameters but given the distance between the golf course and the lake through natural stream corridors has a likely negligible impact. If the concern persists then EnviroScience could focus analysis on some specific parameters. Runoff and stormwater from the Hawthorn development is intercepted in a wet basin located west of Plum Creek Dr. The preference on dry or wetland basins has already been discussed.

Figure 13. Potential Aurora Lake Road Tributary Channel Restoration



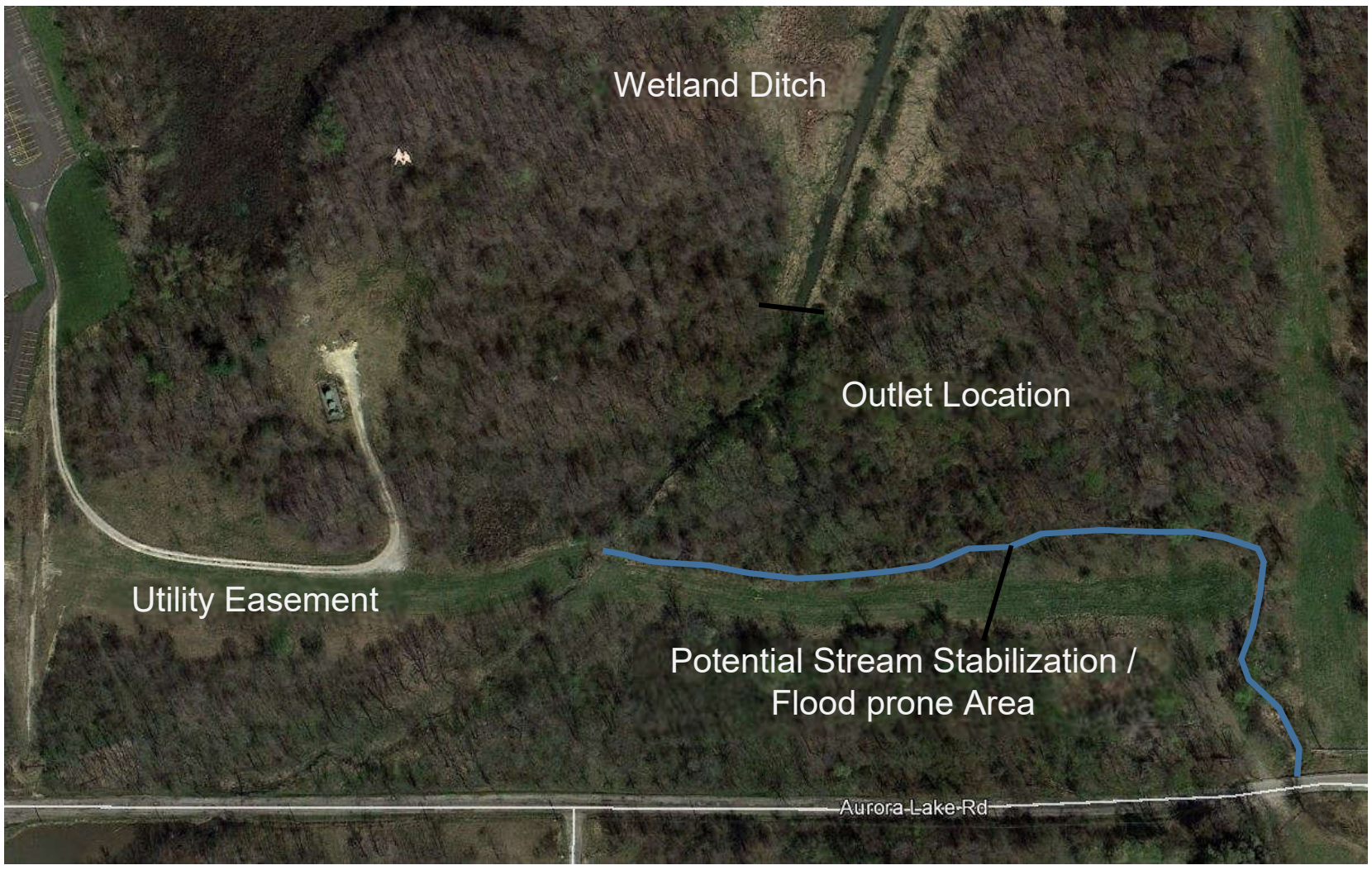
Downstream of the Hawthorn basin, water is conveyed through a natural wooded stream corridor (Figure 13). Access permission was requested but denied to evaluate the property. However, observations from the road crossing and aerials suggest this channel is incised from its original floodplain. If ownership would be amenable in the future, the area upstream of Aurora Lake Rd and immediately downstream could benefit from channel restoration and re-attachment to the floodplain. More description on the specific activities for restoration and floodplain re-attachment is provided below. The main goal of a project in this reach would be to preserve the existing forested canopy while re-attaching the stream to its floodplain.

The northern fork of the sub-watershed begins at Geauga Lake and flows south. There is a large wetland system south of North Aurora Road that was previously modified with a ditch in an attempt to drain the lake. As a result, the area became a large wetland. Prior to disturbance, this appears to be a remnant kettle lake similar to a smaller system to the southeast on the Valley Christian Academy property. The southern end of the wetland appeared to be a natural formation that acted as the outlet; however, excavation widened and lowered the outlet to drain the lake likely at the same time the ditch was created. A project here has obvious benefits. Any drainage coming into the lake would be filtered through a large high-quality wetland. Valley Christian Academy was gracious enough to allow a site visit and would be amenable to further conversations regarding a project. Options were discussed in the field regarding potential funding. The largest hurdle will likely be collectively discussing and getting approval from the other land owners.

A new outlet could be designed for the wetland to also encourage stormwater detention. The ditch also likely serves as a spawning and rearing area for invasive carp. Valley Christian Academy representatives have observed large carp in the channel. This channel also serves as a conduit for any escaped carp from Geauga Lake.

The channel downstream of the wetland outlet is stable and morphologically functional. This channel confluences with the tributary draining the Hawthorn development in the vicinity of a small footbridge and a gas line easement The Hawthorn branch tributary parallels this easement. The entire channel length along the easement up to Aurora Lake Rd could benefit from channel restoration to improve flood prone area and streambed stability (Figure 14).

Figure 14. Aurora Lake Rd Tributary



The following text regarding in-channel restoration and structures is applicable to each of the sub-watershed discussions. To accomplish the goals described above of improving floodplain accessibility, in-channel riffle structures can be designed and constructed to raise the streambed elevation along the lower reach. These are constructed using imported aggregates sized appropriately so they are not mobile during flood flows. As an alternative to using rock, a less costly but only semi-permanent method would involve constructing logjams at key locations and engineering them such that flood flow does not flank the structures. Projects that require the placement of fill using rock or other hard structures require Federal United States Army Corps of Engineers (USACE) permitting which typically requires 3-6 months of coordination. Projects creating logjams do not require permitting but, in both instances, plan review and coordination will have to occur with the local municipality and floodplain administrator. In-channel projects can be funded through various grant opportunities or private funding. Grant applicants must be a 501C3 organization or a municipality. The design and permitting of in-channel restoration work will typically cost 15-25% of the construction budget. Construction costs are highly dependent on the scope of the work. Cost per lineal foot (LF) of design and construction can range from $100-450/LF.

5.0 CONCLUSIONS

The objective of the 2018 Aurora Lake water quality study was to evaluate the overall health of the lake by identifying problems in terms of nutrients in the water and sediment; turbidity; primary and secondary production; presence of cyanotoxins; and to assess the watershed and tributary inputs to Aurora Lake.

Revisiting the goals of these tests, we have narrowed down the causes of Aurora Lake's turbidity and perceived lake health degradation:

5. Abiotic contributions in the watershed, e.g., suspended silt from bank erosion upstream in the watershed (TSS sampling performed in primary tributary streams).

    - TSS was highest in the SE Inlet, and although not quite in the "impaired" range, it was at the high end of "normal." It is likely that the substantial amount of sediment in the adjacent cove is regularly resuspended by boat traffic and by fish, and is adding to the turbidity levels of Aurora Lake.

6. Tributary nutrient loading, e.g., phosphorus inputs from upstream in the watershed (analytical sampling of tributaries during storm events).

    - Relatively high amounts of total phosphorus were observed in the Glenwood Blvd tributary to Aurora Lake. This is identified as a source of nutrient loading.

7. Biotic contributions from within the lake itself, e.g., phosphorus derived from the digestive processes of fish and plankton and suspended in the water column (zooplankton / phytoplankton).

    - The extent of biotic internal recycling is unclear. It was expected that phytoplankton, chlorophyll *a*, and zooplankton densities would be hyperabundant, reflecting hypereutrophic conditions. Instead, these parameters represented a typical eutrophic lake in Ohio. It should be noted that many eutrophic lakes in Ohio also have similar turbidity issues and cyanobacteria blooms in the late summer.

8. Nutrients derived from Aurora Lake sediments, either physically resuspended by fish, boat or wave action, or precipitated by oxidation-reduction processes at the sediment-water interface (analytical sediment sampling from multiple lake locations).

    - Sediment nutrient levels were also typical of other eutrophic lakes of Ohio; however, they were much higher in the shallow, island areas. If these areas are sources of elevated TP in the water column, it is unclear why the rest of the sites sampled contained relatively normal amounts of nutrients and organic matter.

From our water quality testing of the lake, we have determined that in mid-summer, the lake water samples were higher in TP than most lakes sampled by the Ohio EPA. TKN levels did not appear to be a concern, and TSS values were relatively normal, but highest in the SE Inlet location. Due to the eutrophic qualities of Aurora Lake, and because previous fish surveys conducted have shown that it is a quality fishery, it can be assumed that at least a portion of the phosphorus in

the lake is internally recycled by the lake's biota. Moreover, the TP levels contained in the sediments were enough to contribute to the lake's water quality but were not elevated beyond typical conditions. Of all the water quality and biotic sampling conducted, the only disproportionate contributor of lower water quality were the TP levels associated with the Glenwood Blvd tributary (Pond Brook). As Aurora Lake's primary tributary, this could likely be the main source of phosphorus within the lake.

Much larger hydrologic and nutrient budget studies could be conducted to comprehensively quantify the phosphorus coming into and out of the lake, as well as measuring what is being internally recycled within the lake. However, the data collected in this report distinguish at least what the sources are and to what general extent they are contributing to the problem of increased turbidity and cyanobacteria. A reduction in the amount of phosphorus and TSS entering the lake should be the priority in a long-term management plan to reduce the occurrence of cyanobacteria, the potential for HABs, and to help increase the clarity of the water.

To accomplish this, several approaches are described above that aim to treat the water entering Aurora Lake. Additional options that aim to treat the phosphorus already in the water include dredging and alum treatments. As stated above, lake dredging is implemented to remove sediment that has become excessive and contains harmful amounts of nutrients and/or pollutants. Some of the sediments in the open water areas of Aurora Lake are quite deep (approximately 12 ft of sediment). This area of the lake is essentially the historic, natural lake basin before the surrounding area was impounded to current water levels. It appears from the bathymetry and sediment survey that the entirety of the historic lake basin is filled with sediment. A rough estimate of this volume is well over 1,000,000 cubic yards. A dredging project of that magnitude would not be feasible, and lake sediment test results show that phosphorus may not necessarily reside at levels concerning enough to dredge the lake. And so, another option is treating the lake with aluminum sulfate, or alum. This treats the phosphorus in the water column and forms a precipitate of aluminum hydroxide, which binds with phosphorus and settles out of the water column. Once it settles on the lake bottom, it also acts as a barrier, binding to the phosphorus in the sediments so that it cannot be released into the water column or utilized by algae. Thus, it can effectively treat both the phosphorus in the water column and prevent internal recycling of phosphorus from the sediment. Regardless of the approaches described above to restore and improve the water quality of Aurora Lake, continued monitoring of the lake and tributary parameters is recommended to supplement the 2018 baseline data, and to track the Aurora Lake's water quality progress in the future.

6.0 LITERATURE CITED

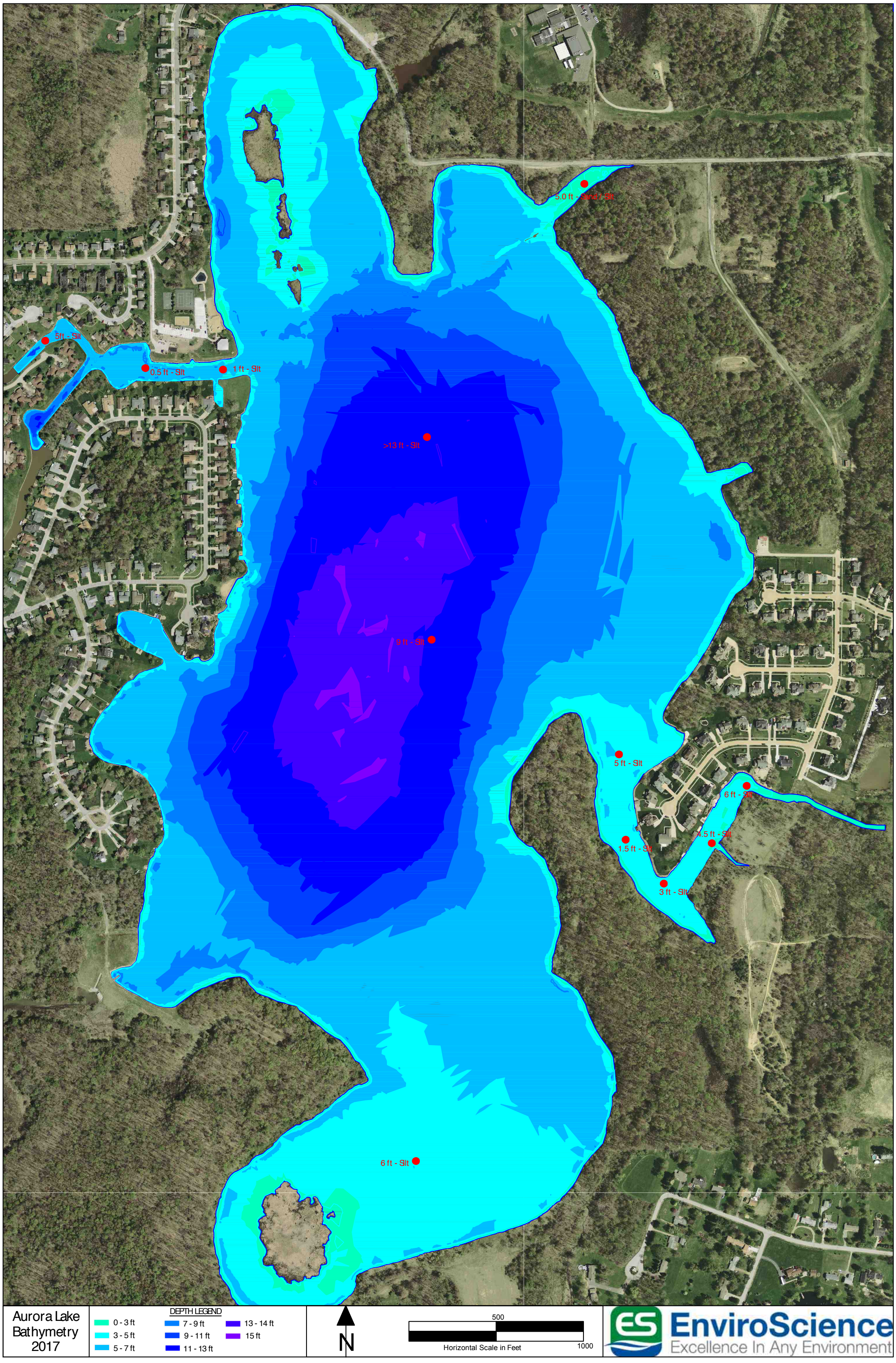
Chagrin River Watershed Partners, Inc. 2004. Chagrin River Watershed: Impervious Area Study

Ohio Environmental Protection Agency. 2010. Technical Support Document: Nutrient Criteria for Inland Lakes in Ohio.

Ohio Environmental Protection Agency. 1999. Association Between Nutrients, Habitat, and the Aquatic Biota in Ohio Rivers and Streams. Technical Bulletin MAS/1999-1-1.

Appendix A

Aurora Lake Bathymetry and Sediment Depth Map


5.0 ft - Sand / Silt
5ft - Silt
0.5 ft - Silt
1 ft - Silt
>13 ft - Silt
9 ft - Silt
5 ft - Silt
6 ft - Silt
4.5 ft - Silt
1.5 ft - Silt
3 ft - Silt
6 ft - Silt
Aurora Lake Bathymetry 2017
DEPTH LEGEND
0 - 3 ft
3 - 5 ft
5 - 7 ft
7 - 9 ft
9 - 11 ft
11 - 13 ft
13 - 14 ft
15 ft
N
500
1000
Horizontal Scale in Feet
EnviroScience
Excellence In Any Environment

Appendix B

TestAmerica Analytical Reports

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-101803-1
Client Project/Site: Aurora Lake Monitoring

For:
EnviroScience Inc
5070 Stow Rd.
Stow, Ohio 44224

Attn: Alex Valigosky

Authorized for release by:
10/9/2018 4:10:20 PM

Leslie Howell, Project Manager I
(330)966-9266
leslie.howell@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Glossary

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

Case Narrative

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-101803-1

Job ID: 240-101803-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative
240-101803-1

Comments
The TKN and Total Phosphorus analysis were performed at TestAmerica Buffalo Laboratory.

Receipt
The samples were received on 9/25/2018 2:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.1º C.

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

Method Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-101803-1

Method	Method Description	Protocol	Laboratory
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL CAN
SM 4500 P E	Phosphorus	SM	TAL BUF
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

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

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-101803-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-101803-1	GLENWOOD BLVD	Water	09/25/18 13:45	09/25/18 14:45
240-101803-2	AURORA LAKE RD	Water	09/25/18 13:30	09/25/18 14:45
240-101803-3	SHERWOOD DR	Water	09/25/18 13:10	09/25/18 14:45

Detection Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-101803-1

Client Sample ID: GLENWOOD BLVD — Lab Sample ID: 240-101803-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	0.41		0.20	0.15	mg/L	1		351.2	Total/NA
Total Suspended Solids	53		4.0	2.2	mg/L	1		SM 2540D	Total/NA
Phosphorus	0.12		0.010	0.0050	mg/L	1		SM 4500 P E	Total/NA
Phosphorus as PO4	0.37		0.031	0.015	mg/L	1		SM 4500 P E	Total/NA

Client Sample ID: AURORA LAKE RD — Lab Sample ID: 240-101803-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	0.58		0.20	0.15	mg/L	1		351.2	Total/NA
Total Suspended Solids	6.0		4.0	2.2	mg/L	1		SM 2540D	Total/NA
Phosphorus	0.037		0.010	0.0050	mg/L	1		SM 4500 P E	Total/NA
Phosphorus as PO4	0.11		0.031	0.015	mg/L	1		SM 4500 P E	Total/NA

Client Sample ID: SHERWOOD DR — Lab Sample ID: 240-101803-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	0.40		0.20	0.15	mg/L	1		351.2	Total/NA
Total Suspended Solids	5.0		4.0	2.2	mg/L	1		SM 2540D	Total/NA
Phosphorus	0.040		0.010	0.0050	mg/L	1		SM 4500 P E	Total/NA
Phosphorus as PO4	0.12		0.031	0.015	mg/L	1		SM 4500 P E	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-101803-1

Client Sample ID: GLENWOOD BLVD

Date Collected: 09/25/18 13:45
Date Received: 09/25/18 14:45

Lab Sample ID: 240-101803-1

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	0.41		0.20	0.15	mg/L		10/04/18 12:55	10/05/18 08:15	1
Total Suspended Solids	53		4.0	2.2	mg/L			09/28/18 09:19	1
Phosphorus	0.12		0.010	0.0050	mg/L			10/01/18 12:05	1
Phosphorus as PO4	0.37		0.031	0.015	mg/L			10/01/18 12:05	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-101803-1

Client Sample ID: AURORA LAKE RD

Date Collected: 09/25/18 13:30
Date Received: 09/25/18 14:45

Lab Sample ID: 240-101803-2

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	0.58		0.20	0.15	mg/L		10/04/18 12:55	10/05/18 08:15	1
Total Suspended Solids	6.0		4.0	2.2	mg/L			09/28/18 09:19	1
Phosphorus	0.037		0.010	0.0050	mg/L			10/01/18 12:05	1
Phosphorus as PO4	0.11		0.031	0.015	mg/L			10/01/18 12:05	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-101803-1

Client Sample ID: SHERWOOD DR

Date Collected: 09/25/18 13:10
Date Received: 09/25/18 14:45

Lab Sample ID: 240-101803-3

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	0.40		0.20	0.15	mg/L		10/04/18 12:55	10/05/18 08:16	1
Total Suspended Solids	5.0		4.0	2.2	mg/L			09/28/18 14:41	1
Phosphorus	0.040		0.010	0.0050	mg/L			10/01/18 12:05	1
Phosphorus as PO4	0.12		0.031	0.015	mg/L			10/01/18 12:05	1

QC Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-101803-1

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 480-437715/1-A
Matrix: Water
Analysis Batch: 437993

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 437715

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.20	0.15	mg/L		10/04/18 12:55	10/05/18 07:47	1

Lab Sample ID: LCS 480-437715/2-A
Matrix: Water
Analysis Batch: 437993

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 437715

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	2.50	2.67		mg/L		107	90 - 110

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 240-347693/1
Matrix: Water
Analysis Batch: 347693

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	2.2	mg/L			09/28/18 09:19	1

Lab Sample ID: LCS 240-347693/2
Matrix: Water
Analysis Batch: 347693

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	64.2	52.0		mg/L		81	64 - 120

Lab Sample ID: MB 240-347799/1
Matrix: Water
Analysis Batch: 347799

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	2.2	mg/L			09/28/18 14:41	1

Lab Sample ID: LCS 240-347799/2
Matrix: Water
Analysis Batch: 347799

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	64.2	63.0		mg/L		98	64 - 120

Lab Sample ID: 240-101803-3 DU
Matrix: Water
Analysis Batch: 347799

Client Sample ID: SHERWOOD DR
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	5.0		5.00		mg/L		0	10

QC Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-101803-1

Method: SM 4500 P E - Phosphorus

Lab Sample ID: MB 480-437074/3
Matrix: Water
Analysis Batch: 437074

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	ND		0.010	0.0050	mg/L			10/01/18 12:05	1
Phosphorus as PO4	ND		0.031	0.015	mg/L			10/01/18 12:05	1

Lab Sample ID: LCS 480-437074/4
Matrix: Water
Analysis Batch: 437074

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Phosphorus			0.200	0.197		mg/L		98	90 - 110		
Phosphorus as PO4			0.613	0.604		mg/L		99	90 - 110		

QC Association Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-101803-1

General Chemistry

Analysis Batch: 347693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-101803-1	GLENWOOD BLVD	Total/NA	Water	SM 2540D	
240-101803-2	AURORA LAKE RD	Total/NA	Water	SM 2540D	
MB 240-347693/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 240-347693/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 347799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-101803-3	SHERWOOD DR	Total/NA	Water	SM 2540D	
MB 240-347799/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 240-347799/2	Lab Control Sample	Total/NA	Water	SM 2540D	
240-101803-3 DU	SHERWOOD DR	Total/NA	Water	SM 2540D	

Analysis Batch: 437074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-101803-1	GLENWOOD BLVD	Total/NA	Water	SM 4500 P E	
240-101803-2	AURORA LAKE RD	Total/NA	Water	SM 4500 P E	
240-101803-3	SHERWOOD DR	Total/NA	Water	SM 4500 P E	
MB 480-437074/3	Method Blank	Total/NA	Water	SM 4500 P E	
LCS 480-437074/4	Lab Control Sample	Total/NA	Water	SM 4500 P E	

Prep Batch: 437715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-101803-1	GLENWOOD BLVD	Total/NA	Water	351.2	
240-101803-2	AURORA LAKE RD	Total/NA	Water	351.2	
240-101803-3	SHERWOOD DR	Total/NA	Water	351.2	
MB 480-437715/1-A	Method Blank	Total/NA	Water	351.2	
LCS 480-437715/2-A	Lab Control Sample	Total/NA	Water	351.2	

Analysis Batch: 437993

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-101803-1	GLENWOOD BLVD	Total/NA	Water	351.2	437715
240-101803-2	AURORA LAKE RD	Total/NA	Water	351.2	437715
240-101803-3	SHERWOOD DR	Total/NA	Water	351.2	437715
MB 480-437715/1-A	Method Blank	Total/NA	Water	351.2	437715
LCS 480-437715/2-A	Lab Control Sample	Total/NA	Water	351.2	437715

Lab Chronicle

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-101803-1

Client Sample ID: GLENWOOD BLVD

Lab Sample ID: 240-101803-1

Date Collected: 09/25/18 13:45

Matrix: Water

Date Received: 09/25/18 14:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			437715	10/04/18 12:55	AEF	TAL BUF
Total/NA	Analysis	351.2		1	437993	10/05/18 08:15	CLT	TAL BUF
Total/NA	Analysis	SM 2540D		1	347693	09/28/18 09:19	MAC	TAL CAN
Total/NA	Analysis	SM 4500 P E		1	437074	10/01/18 12:05	RP	TAL BUF

Client Sample ID: AURORA LAKE RD

Lab Sample ID: 240-101803-2

Date Collected: 09/25/18 13:30

Matrix: Water

Date Received: 09/25/18 14:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			437715	10/04/18 12:55	AEF	TAL BUF
Total/NA	Analysis	351.2		1	437993	10/05/18 08:15	CLT	TAL BUF
Total/NA	Analysis	SM 2540D		1	347693	09/28/18 09:19	MAC	TAL CAN
Total/NA	Analysis	SM 4500 P E		1	437074	10/01/18 12:05	RP	TAL BUF

Client Sample ID: SHERWOOD DR

Lab Sample ID: 240-101803-3

Date Collected: 09/25/18 13:10

Matrix: Water

Date Received: 09/25/18 14:45

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			437715	10/04/18 12:55	AEF	TAL BUF
Total/NA	Analysis	351.2		1	437993	10/05/18 08:16	CLT	TAL BUF
Total/NA	Analysis	SM 2540D		1	347799	09/28/18 14:41	MAC	TAL CAN
Total/NA	Analysis	SM 4500 P E		1	437074	10/01/18 12:05	RP	TAL BUF

Laboratory References:

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

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: EnviroScience Inc
TestAmerica Job ID: 240-101803-1
Project/Site: Aurora Lake Monitoring

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18 *
Minnesota	NELAP	5	039-999-348	12-31-18 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-19
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-17-9	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18 *

Laboratory: TestAmerica Buffalo

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0686	07-06-19
California	State Program	9	2931	04-01-19
Connecticut	State Program	1	PH-0568	09-30-20
Florida	NELAP	4	E87672	06-30-19
Georgia	State Program	4	10026 (NY)	03-31-19
Georgia	State Program	4	956	03-31-19
Illinois	NELAP	5	200003	09-30-18 *
Iowa	State Program	7	374	03-01-19
Kansas	NELAP	7	E-10187	01-31-19
Kentucky (DW)	State Program	4	90029	12-31-18
Kentucky (UST)	State Program	4	30	03-31-19
Kentucky (WW)	State Program	4	90029	12-31-18
Louisiana	NELAP	6	02031	06-30-19
Maine	State Program	1	NY00044	12-04-18 *
Maryland	State Program	3	294	03-31-19
Massachusetts	State Program	1	M-NY044	06-30-19
Michigan	State Program	5	9937	03-31-19
Minnesota	NELAP	5	036-999-337	12-31-18
New Hampshire	NELAP	1	2337	11-17-18 *
New Jersey	NELAP	2	NY455	06-30-19
New York	NELAP	2	10026	03-31-19
North Dakota	State Program	8	R-176	03-31-19
Oklahoma	State Program	6	9421	08-31-19
Oregon	NELAP	10	NY200003	06-09-19
Pennsylvania	NELAP	3	68-00281	07-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-101803-1

Laboratory: TestAmerica Buffalo (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Rhode Island	State Program	1	LAO00328	12-30-18
Tennessee	State Program	4	TN02970	03-31-19
Texas	NELAP	6	T104704412-15-6	07-31-19
USDA	Federal		P330-11-00386	02-06-21
Virginia	NELAP	3	460185	09-14-19
Washington	State Program	10	C784	02-10-19
Wisconsin	State Program	5	998310390	08-31-19

4.2 / 5.1

Chain of Custody Record

TestAmerica Canton
4101 Shuffel Street NW

North Canton, OH 44720-6900
phone 330.497.9396 fax 330.497.0772

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☑ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	**Project Manager: Jeff Niehaus**	**Site Contact: Jeff Niehaus**	**Date:** 9-25-18	COC No:
EnviroScience, Inc.	**Tel/Fax: 330 688 0111**	**Lab Contact: Leslie Howell**	**Carrier:**	_____ of _____ COCs
5070 Stow Rd	**Analysis Turnaround Time**			Sampler:
Stow OH 44224	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
330 688 0111	TAT if different from Below _____			Walk-in Client:
330 688 3858	☐ 2 weeks			Lab Sampling:
Project Name: Aurora Lake Monitoring	☐ 1 week			
Site: Aurora Lake	☐ 2 days			Job / SDG No.:
P O # 11079 / 240-99263-1	☐ 1 day			

Sample Identification	**Sample Date**	**Sample Time**	**Sample Type (C=Comp, G=Grab)**	**Matrix**	**# of Cont.**	**Filtered Sample (Y / N)**	**Perform MS / MSD (Y / N)**	**351.2 TAL BUF**	**SM2540D**	**SM4500 P E TAL BUF**	Sample Specific Notes:
Glenwood Blvd			G	W	2	N	N	X	X	X	
Aurora Lake Rd			G	W	2	N	N	X	X	X	
Sherwood Dr			G	W	2	N	N	X	X	X	

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____		
Relinquished by: Chris Koch	Company: Enviroscience	Date/Time: 9-25-18 2:45 pm	Received by:	Company: TA	Date/Time: 9/25/18 1445
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.15, dated 9/27/2017

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 101803**
Canton Facility

Client ENVIROSCIENCE Site Name —

Cooler Received on 9-25-18 Opened on 9-25-18

Cooler unpacked by: JOP

FedEx: 1st Grd Exp UPS FAS Clipper (Client Drop Off) TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # TA Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag (None) Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF +0.9 °C) Observed Cooler Temp. 4.2 °C Corrected Cooler Temp. 5.1 °C
   IR GUN #36 (CF +0.6°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity — Yes (No)
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No (NA)
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? Yes No (NA)
3. Shippers' packing slip attached to the cooler(s)? Yes (No)
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes (No)
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? (Yes) No NA pH Strip Lot# **HC849161**
13. Were VOAs on the COC? Yes (No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes (No)
16. Was a LL Hg or Me Hg trip blank present? _____ Yes (No)

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

No sample dates or times on COC, Labels= Glenwood 9/25 @ 1345, Aurora 9/25 @ 1330, Sherwood 9/25 @ 1310 - will log per labels.

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____.

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
GLENWOOD BLVD	240-101803-A-1	Plastic 250ml - with Sulfuric Acid	<2	_____	_____
AURORA LAKE RD	240-101803-A-2	Plastic 250ml - with Sulfuric Acid	<2	_____	_____
SHERWOOD DR	240-101803-A-3	Plastic 250ml - with Sulfuric Acid	<2	_____	_____

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Howell, Leslie	Carrier Tracking No(s):	COC No: 240-93147.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: leslie.howell@testamericainc.com	State of Origin: Ohio	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-101803-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 10/5/2018			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298				
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	PO #:			
Email:	WO #:			
Project Name: Aurora Lake Monitoring	Project #: 24020271			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	4500_P_E	351.2/351.2_Prep	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
GLENWOOD BLVD (240-101803-1)	9/25/18	13:45 Eastern		Water			X	X	1	
AURORA LAKE RD (240-101803-2)	9/25/18	13:30 Eastern		Water			X	X	1	
SHERWOOD DR (240-101803-3)	9/25/18	13:10 Eastern		Water			X	X	1	

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

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

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

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by: Charles D	9-26-18 16:36	240		9/27/18 0930	TAB.
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: #1 3.0°

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: EnviroScience Inc

Job Number: 240-101803-1

Login Number: 101803
List Number: 2
Creator: Hulbert, Michael J

List Source: TestAmerica Buffalo
List Creation: 09/27/18 04:08 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.0 #1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-100988-1
Client Project/Site: Aurora Lake Monitoring

For:
EnviroScience Inc
5070 Stow Rd.
Stow, Ohio 44224

Attn: Alex Valigosky

Authorized for release by:
9/27/2018 11:52:46 AM

Leslie Howell, Project Manager I
(330)966-9266
leslie.howell@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Definitions/Glossary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100988-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100988-1

Job ID: 240-100988-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative
240-100988-1

Comments
The 351.2 Total Kjeldahl Nitrogen and the 4500PE Phosphorus analyses were performed at the TestAmerica Buffalo laboratory.

No additional comments.

Receipt
The samples were received on 9/10/2018 2:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9º C.

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

Method Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100988-1

Method	Method Description	Protocol	Laboratory
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL CAN
SM 4500 P E	Phosphorus	SM	TAL BUF
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

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

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100988-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-100988-1	GLENWOOD BLVD	Water	09/10/18 10:45	09/10/18 14:25
240-100988-2	AURORA LAKE RD	Water	09/10/18 11:45	09/10/18 14:25
240-100988-3	SHERWOOD DR	Water	09/10/18 11:15	09/10/18 14:25

Detection Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100988-1

Client Sample ID: GLENWOOD BLVD — Lab Sample ID: 240-100988-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	0.93		0.20	0.15	mg/L	1		351.2	Total/NA
Total Suspended Solids	100		4.0	2.2	mg/L	1		SM 2540D	Total/NA
Phosphorus	0.25	B	0.010	0.0050	mg/L	1		SM 4500 P E	Total/NA
Phosphorus as PO4	0.76	B	0.031	0.015	mg/L	1		SM 4500 P E	Total/NA

Client Sample ID: AURORA LAKE RD — Lab Sample ID: 240-100988-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	0.80	F1	0.20	0.15	mg/L	1		351.2	Total/NA
Total Suspended Solids	15		4.0	2.2	mg/L	1		SM 2540D	Total/NA
Phosphorus	0.018	B	0.010	0.0050	mg/L	1		SM 4500 P E	Total/NA
Phosphorus as PO4	0.056	B	0.031	0.015	mg/L	1		SM 4500 P E	Total/NA

Client Sample ID: SHERWOOD DR — Lab Sample ID: 240-100988-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	0.60		0.20	0.15	mg/L	1		351.2	Total/NA
Total Suspended Solids	16		4.0	2.2	mg/L	1		SM 2540D	Total/NA
Phosphorus	0.044	B	0.010	0.0050	mg/L	1		SM 4500 P E	Total/NA
Phosphorus as PO4	0.14	B	0.031	0.015	mg/L	1		SM 4500 P E	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100988-1

Client Sample ID: GLENWOOD BLVD

Date Collected: 09/10/18 10:45
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100988-1

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	0.93		0.20	0.15	mg/L		09/17/18 16:00	09/26/18 12:56	1
Total Suspended Solids	100		4.0	2.2	mg/L			09/13/18 12:00	1
Phosphorus	0.25	B	0.010	0.0050	mg/L			09/12/18 11:25	1
Phosphorus as PO4	0.76	B	0.031	0.015	mg/L			09/12/18 11:25	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100988-1

Client Sample ID: AURORA LAKE RD

Date Collected: 09/10/18 11:45
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100988-2

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	0.80	F1	0.20	0.15	mg/L		09/17/18 16:00	09/26/18 12:56	1
Total Suspended Solids	15		4.0	2.2	mg/L			09/13/18 12:00	1
Phosphorus	0.018	B	0.010	0.0050	mg/L			09/12/18 11:25	1
Phosphorus as PO4	0.056	B	0.031	0.015	mg/L			09/12/18 11:25	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100988-1

Client Sample ID: SHERWOOD DR

Date Collected: 09/10/18 11:15
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100988-3

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	0.60		0.20	0.15	mg/L		09/17/18 16:00	09/26/18 12:56	1
Total Suspended Solids	16		4.0	2.2	mg/L			09/13/18 12:00	1
Phosphorus	0.044	B	0.010	0.0050	mg/L			09/12/18 11:25	1
Phosphorus as PO4	0.14	B	0.031	0.015	mg/L			09/12/18 11:25	1

QC Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100988-1

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 480-434818/1-A
Matrix: Water
Analysis Batch: 436340

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434818

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.20	0.15	mg/L		09/17/18 16:00	09/26/18 12:28	1

Lab Sample ID: LCS 480-434818/2-A
Matrix: Water
Analysis Batch: 436340

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434818

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	2.50	2.67		mg/L		107	90 - 110

Lab Sample ID: 240-100988-2 MS
Matrix: Water
Analysis Batch: 436340

Client Sample ID: AURORA LAKE RD
Prep Type: Total/NA
Prep Batch: 434818

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	0.80	F1	1.00	1.98	F1	mg/L		119	90 - 110

Lab Sample ID: 240-100988-1 DU
Matrix: Water
Analysis Batch: 436340

Client Sample ID: GLENWOOD BLVD
Prep Type: Total/NA
Prep Batch: 434818

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Kjeldahl Nitrogen	0.93		0.957		mg/L		3	20

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 240-345184/1
Matrix: Water
Analysis Batch: 345184

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	2.2	mg/L			09/13/18 12:00	1

Lab Sample ID: LCS 240-345184/2
Matrix: Water
Analysis Batch: 345184

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	64.2	63.0		mg/L		98	64 - 120

Lab Sample ID: 240-100988-1 DU
Matrix: Water
Analysis Batch: 345184

Client Sample ID: GLENWOOD BLVD
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Suspended Solids	100		99.0		mg/L		2	10

QC Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100988-1

Method: SM 4500 P E - Phosphorus

Lab Sample ID: MB 480-434027/3
Matrix: Water
Analysis Batch: 434027

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	0.00918	J	0.010	0.0050	mg/L			09/12/18 11:25	1
Phosphorus as PO4	0.0281	J	0.031	0.015	mg/L			09/12/18 11:25	1

Lab Sample ID: LCS 480-434027/4
Matrix: Water
Analysis Batch: 434027

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	0.200	0.221		mg/L		110	90 - 110
Phosphorus as PO4	0.613	0.677		mg/L		110	90 - 110

QC Association Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100988-1

General Chemistry

Analysis Batch: 345184

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100988-1	GLENWOOD BLVD	Total/NA	Water	SM 2540D	
240-100988-2	AURORA LAKE RD	Total/NA	Water	SM 2540D	
240-100988-3	SHERWOOD DR	Total/NA	Water	SM 2540D	
MB 240-345184/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 240-345184/2	Lab Control Sample	Total/NA	Water	SM 2540D	
240-100988-1 DU	GLENWOOD BLVD	Total/NA	Water	SM 2540D	

Analysis Batch: 434027

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100988-1	GLENWOOD BLVD	Total/NA	Water	SM 4500 P E	
240-100988-2	AURORA LAKE RD	Total/NA	Water	SM 4500 P E	
240-100988-3	SHERWOOD DR	Total/NA	Water	SM 4500 P E	
MB 480-434027/3	Method Blank	Total/NA	Water	SM 4500 P E	
LCS 480-434027/4	Lab Control Sample	Total/NA	Water	SM 4500 P E	

Prep Batch: 434818

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100988-1	GLENWOOD BLVD	Total/NA	Water	351.2	
240-100988-2	AURORA LAKE RD	Total/NA	Water	351.2	
240-100988-3	SHERWOOD DR	Total/NA	Water	351.2	
MB 480-434818/1-A	Method Blank	Total/NA	Water	351.2	
LCS 480-434818/2-A	Lab Control Sample	Total/NA	Water	351.2	
240-100988-2 MS	AURORA LAKE RD	Total/NA	Water	351.2	
240-100988-1 DU	GLENWOOD BLVD	Total/NA	Water	351.2	

Analysis Batch: 436340

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100988-1	GLENWOOD BLVD	Total/NA	Water	351.2	434818
240-100988-2	AURORA LAKE RD	Total/NA	Water	351.2	434818
240-100988-3	SHERWOOD DR	Total/NA	Water	351.2	434818
MB 480-434818/1-A	Method Blank	Total/NA	Water	351.2	434818
LCS 480-434818/2-A	Lab Control Sample	Total/NA	Water	351.2	434818
240-100988-2 MS	AURORA LAKE RD	Total/NA	Water	351.2	434818
240-100988-1 DU	GLENWOOD BLVD	Total/NA	Water	351.2	434818

Lab Chronicle

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100988-1

Client Sample ID: GLENWOOD BLVD

Lab Sample ID: 240-100988-1

Date Collected: 09/10/18 10:45

Matrix: Water

Date Received: 09/10/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			434818	09/17/18 16:00	DCB	TAL BUF
Total/NA	Analysis	351.2		1	436340	09/26/18 12:56	CLT	TAL BUF
Total/NA	Analysis	SM 2540D		1	345184	09/13/18 12:00	ACR	TAL CAN
Total/NA	Analysis	SM 4500 P E		1	434027	09/12/18 11:25	RP	TAL BUF

Client Sample ID: AURORA LAKE RD

Lab Sample ID: 240-100988-2

Date Collected: 09/10/18 11:45

Matrix: Water

Date Received: 09/10/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			434818	09/17/18 16:00	DCB	TAL BUF
Total/NA	Analysis	351.2		1	436340	09/26/18 12:56	CLT	TAL BUF
Total/NA	Analysis	SM 2540D		1	345184	09/13/18 12:00	ACR	TAL CAN
Total/NA	Analysis	SM 4500 P E		1	434027	09/12/18 11:25	RP	TAL BUF

Client Sample ID: SHERWOOD DR

Lab Sample ID: 240-100988-3

Date Collected: 09/10/18 11:15

Matrix: Water

Date Received: 09/10/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			434818	09/17/18 16:00	DCB	TAL BUF
Total/NA	Analysis	351.2		1	436340	09/26/18 12:56	CLT	TAL BUF
Total/NA	Analysis	SM 2540D		1	345184	09/13/18 12:00	ACR	TAL CAN
Total/NA	Analysis	SM 4500 P E		1	434027	09/12/18 11:25	RP	TAL BUF

Laboratory References:

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

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: EnviroScience Inc
TestAmerica Job ID: 240-100988-1
Project/Site: Aurora Lake Monitoring

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-19
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-17-9	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18

Laboratory: TestAmerica Buffalo

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0686	07-06-19
California	State Program	9	2931	04-01-19
Connecticut	State Program	1	PH-0568	09-30-18 *
Florida	NELAP	4	E87672	06-30-19
Georgia	State Program	4	10026 (NY)	03-31-19
Georgia	State Program	4	956	03-31-19
Illinois	NELAP	5	200003	09-30-18 *
Iowa	State Program	7	374	03-01-19
Kansas	NELAP	7	E-10187	01-31-19
Kentucky (DW)	State Program	4	90029	12-31-18
Kentucky (UST)	State Program	4	30	03-31-19
Kentucky (WW)	State Program	4	90029	12-31-18
Louisiana	NELAP	6	02031	06-30-19
Maine	State Program	1	NY00044	12-04-18
Maryland	State Program	3	294	03-31-19
Massachusetts	State Program	1	M-NY044	06-30-19
Michigan	State Program	5	9937	03-31-19
Minnesota	NELAP	5	036-999-337	12-31-18
New Hampshire	NELAP	1	2337	11-17-18 *
New Jersey	NELAP	2	NY455	06-30-19
New York	NELAP	2	10026	03-31-19
North Dakota	State Program	8	R-176	03-31-19
Oklahoma	State Program	6	9421	08-31-19
Oregon	NELAP	10	NY200003	06-09-19
Pennsylvania	NELAP	3	68-00281	07-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100988-1

Laboratory: TestAmerica Buffalo (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Rhode Island	State Program	1	LAO00328	12-30-18
Tennessee	State Program	4	TN02970	03-31-19
Texas	NELAP	6	T104704412-15-6	07-31-19
USDA	Federal		P330-11-00386	02-06-21
Virginia	NELAP	3	460185	09-14-19
Washington	State Program	10	C784	02-10-19
Wisconsin	State Program	5	998310390	08-31-19

TestAmerica Canton
4101 Shuffel Street NW

North Canton, OH 44720-6900
phone 330.497.9396 fax 330.497.0772

20/2.9

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	**Project Manager: Jeff Niehaus**	**Site Contact: Jeff Niehaus**	**Date: 9/10/2018**	COC No:
EnviroScience Inc	**Tel/Fax: 330.814.1418**	**Lab Contact: Leslie Howell**	**Carrier:** Jeff Niehaus	1 of 1 COCs
5070 Stow Rd	**Analysis Turnaround Time**			Sampler:
Stow OH 44224	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
330.688.0111 Phone	TAT if different from Below _____			Walk-in Client:
330.688.3858 FAX	☐ 2 weeks			Lab Sampling:
Project Name: Aurora Lake Monitoring	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
Project Number: 240-99263-1	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	351.2 TAL BUF	SM2540D	SM4500 P E TAL BUF	Sample Specific Notes:
Glenwood Blvd	9/10/18	10:45	G	W	2	N	N	X	X	X	
Aurora Lake Rd	9/10/18	11:45	1	1	1	1	1	X	X	X	
Sherwood Dr	9/10/18	11:15	1	1	1	1	1	X	X	X	

240-100988 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Send to TAL Buffalo for lower detection limits

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd: _____ Corr'd: _____		Therm ID No.: _____
Relinquished by:	Company: ES	Date/Time: 9/10/18 14:25	Received by:	Company: TAL	Date/Time: 9/10/18 1425
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.15, dated 9/27/2017

TestAmerica Canton Sample Receipt Form/Narrative **Login # : 100988**
Canton Facility

Client Environscience Site Name _____ Cooler unpacked by: DSO

Cooler Received on 9/10/18 Opened on 9/10/18

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 7 B Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF +0.9 °C) Observed Cooler Temp. 2.0 °C Corrected Cooler Temp. 2.9 °C
   IR GUN #36 (CF +0.6°C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity_____ Yes (No)
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No (NA)
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? Yes No (NA)
3. Shippers' packing slip attached to the cooler(s)? Yes (No)
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes (No)
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? (Yes) No NA pH Strip Lot# **HC849161**
13. Were VOAs on the COC? Yes (No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes (No)
16. Was a LL Hg or Me Hg trip blank present? _____ Yes (No)

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: DSO

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s):_____.

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
GLENWOOD BLVD	240-100988-A-1	Plastic 250ml - with Sulfuric Acid	<2	_____	_____
AURORA LAKE RD	240-100988-A-2	Plastic 250ml - with Sulfuric Acid	<2	_____	_____
SHERWOOD DR	240-100988-A-3	Plastic 250ml - with Sulfuric Acid	<2	_____	_____

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Howell, Leslie	Carrier Tracking No(s):	COC No: 240-92347.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: leslie.howell@testamericainc.com	State of Origin: Ohio	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-100988-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 9/20/2018			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298				
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	PO #:			
Email:	WO #:			
Project Name: Aurora Lake Monitoring	Project #: 24020271			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	4500_P_E	351.2/351.2_Prep	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
GLENWOOD BLVD (240-100988-1)	9/10/18	10:45 Eastern		Water			X	X	1	
AURORA LAKE RD (240-100988-2)	9/10/18	11:45 Eastern		Water			X	X	1	
SHERWOOD DR (240-100988-3)	9/10/18	11:15 Eastern		Water			X	X	1	

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
R [illegible]	9/10/18 1645	240	[illegible]	9/11/18 1000	TAB.
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: #1 3.6°

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: EnviroScience Inc

Job Number: 240-100988-1

Login Number: 100988
List Number: 2
Creator: Hulbert, Michael J

List Source: TestAmerica Buffalo
List Creation: 09/11/18 05:22 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.6 #1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	True	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-100987-1
Client Project/Site: Aurora Lake Monitoring

For:
EnviroScience Inc
5070 Stow Rd.
Stow, Ohio 44224

Attn: Alex Valigosky

Authorized for release by:
9/28/2018 5:09:32 PM

Leslie Howell, Project Manager I
(330)966-9266
leslie.howell@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Definitions/Glossary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
H	Sample was prepped or analyzed beyond the specified holding time
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Job ID: 240-100987-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative
240-100987-1

Comments
No additional comments.

Receipt
The samples were received on 9/10/2018 2:25 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.9º C.

General Chemistry
Method(s) 351.2: The following samples were analyzed outside of analytical holding time due to ceased operation of instrument, required repair. .SITE 1 (240-100987-1), SITE 2 (240-100987-2), SITE 3 (240-100987-3), SITE 4 (240-100987-4), SITE 5 (240-100987-5), SITE 6 (240-100987-6), SITE 7 (240-100987-7), SITE 8 (240-100987-8), SITE 9 (240-100987-9) and SITE 10 (240-100987-10).

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

Method Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Method	Method Description	Protocol	Laboratory
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
Moisture	Percent Moisture	EPA	TAL BUF
SM 4500 P E	Phosphorus	SM	TAL BUF
ASTM D2974	Moisture, Ash and Organic Matter	ASTM	TAL PIT
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
SM 4500 P B	Phosphorous, Total and Ortho	SM	TAL BUF

Protocol References:

ASTM = ASTM International

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

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

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Sample Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-100987-1	SITE 1	Solid	08/24/18 14:00	09/10/18 14:25
240-100987-2	SITE 2	Solid	08/24/18 14:15	09/10/18 14:25
240-100987-3	SITE 3	Solid	08/24/18 16:30	09/10/18 14:25
240-100987-4	SITE 4	Solid	08/24/18 15:30	09/10/18 14:25
240-100987-5	SITE 5	Solid	08/24/18 15:50	09/10/18 14:25
240-100987-6	SITE 6	Solid	08/24/18 16:10	09/10/18 14:25
240-100987-7	SITE 7	Solid	08/24/18 15:55	09/10/18 14:25
240-100987-8	SITE 8	Solid	08/24/18 15:20	09/10/18 14:25
240-100987-9	SITE 9	Solid	08/24/18 15:10	09/10/18 14:25
240-100987-10	SITE 10	Solid	08/24/18 15:40	09/10/18 14:25

Detection Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 1 — Lab Sample ID: 240-100987-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	7300	H B	590	260	mg/Kg	10	☼	351.2	Total/NA
Phosphorus	300		20	8.0	mg/Kg	10	☼	SM 4500 P E	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	27.7		0.5	0.5	%	1		ASTM D2974	Total/NA

Client Sample ID: SITE 2 — Lab Sample ID: 240-100987-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	830	H B	76	33	mg/Kg	5	☼	351.2	Total/NA
Phosphorus	220		5.6	2.2	mg/Kg	10	☼	SM 4500 P E	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	4.5		0.5	0.5	%	1		ASTM D2974	Total/NA

Client Sample ID: SITE 3 — Lab Sample ID: 240-100987-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	1400	H B	110	48	mg/Kg	5	☼	351.2	Total/NA
Phosphorus	250		7.7	3.1	mg/Kg	10	☼	SM 4500 P E	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	6.7		0.5	0.5	%	1		ASTM D2974	Total/NA

Client Sample ID: SITE 4 — Lab Sample ID: 240-100987-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	3200	H B	190	84	mg/Kg	5	☼	351.2	Total/NA
Phosphorus	420		13	5.2	mg/Kg	10	☼	SM 4500 P E	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	12.4		0.5	0.5	%	1		ASTM D2974	Total/NA

Client Sample ID: SITE 5 — Lab Sample ID: 240-100987-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	930	H B	86	37	mg/Kg	5	☼	351.2	Total/NA
Phosphorus	170		6.0	2.4	mg/Kg	10	☼	SM 4500 P E	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	3.5		0.5	0.5	%	1		ASTM D2974	Total/NA

Client Sample ID: SITE 6 — Lab Sample ID: 240-100987-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	2400	H B	180	77	mg/Kg	5	☼	351.2	Total/NA
Phosphorus	470		13	5.0	mg/Kg	10	☼	SM 4500 P E	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	11.7		0.5	0.5	%	1		ASTM D2974	Total/NA

Client Sample ID: SITE 7 — Lab Sample ID: 240-100987-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	2900	H B	210	92	mg/Kg	5	☼	351.2	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 7 (Continued) — Lab Sample ID: 240-100987-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	370		15	6.0	mg/Kg	10	☼	SM 4500 P E	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	13.6		0.5	0.5	%	1		ASTM D2974	Total/NA

Client Sample ID: SITE 8 — Lab Sample ID: 240-100987-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	1400	H B	110	48	mg/Kg	5	☼	351.2	Total/NA
Phosphorus	250		7.9	3.1	mg/Kg	10	☼	SM 4500 P E	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	6.5		0.5	0.5	%	1		ASTM D2974	Total/NA

Client Sample ID: SITE 9 — Lab Sample ID: 240-100987-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	1400	H B	98	43	mg/Kg	5	☼	351.2	Total/NA
Phosphorus	260		7.2	2.9	mg/Kg	10	☼	SM 4500 P E	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	5.8		0.5	0.5	%	1		ASTM D2974	Total/NA

Client Sample ID: SITE 10 — Lab Sample ID: 240-100987-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	10000	H B	660	290	mg/Kg	10	☼	351.2	Total/NA
Phosphorus	490		24	9.4	mg/Kg	10	☼	SM 4500 P E	Total/NA

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Total Organic Matter	44.8		0.5	0.5	%	1		ASTM D2974	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 1

Date Collected: 08/24/18 14:00
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-1

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	83.3		0.1	0.1	%			09/25/18 19:37	1
Percent Solids	16.7		0.1	0.1	%			09/25/18 19:37	1

Method: ASTM D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	27.7		0.5	0.5	%			09/17/18 05:44	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 1
Date Collected: 08/24/18 14:00
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-1
Matrix: Solid
Percent Solids: 16.7

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	7300	H B	590	260	mg/Kg	☼	09/17/18 16:00	09/26/18 14:20	10
Phosphorus	300		20	8.0	mg/Kg	☼	09/13/18 14:50	09/13/18 14:50	10

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 2

Date Collected: 08/24/18 14:15
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-2

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	38.2		0.1	0.1	%			09/25/18 19:37	1
Percent Solids	61.8		0.1	0.1	%			09/25/18 19:37	1

Method: ASTM D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	4.5		0.5	0.5	%			09/17/18 05:44	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 2
Date Collected: 08/24/18 14:15
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-2
Matrix: Solid
Percent Solids: 61.8

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	830	H B	76	33	mg/Kg	☼	09/17/18 16:00	09/26/18 14:11	5
Phosphorus	220		5.6	2.2	mg/Kg	☼	09/13/18 14:50	09/13/18 14:50	10

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 3

Date Collected: 08/24/18 16:30
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-3

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	56.1		0.1	0.1	%			09/25/18 19:37	1
Percent Solids	43.9		0.1	0.1	%			09/25/18 19:37	1

Method: ASTM D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	6.7		0.5	0.5	%			09/17/18 05:44	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 3
Date Collected: 08/24/18 16:30
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-3
Matrix: Solid
Percent Solids: 43.9

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	1400	H B	110	48	mg/Kg	☼	09/17/18 16:00	09/26/18 14:02	5
Phosphorus	250		7.7	3.1	mg/Kg	☼	09/13/18 14:50	09/13/18 14:50	10

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 4

Date Collected: 08/24/18 15:30
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-4

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	74.7		0.1	0.1	%			09/25/18 19:37	1
Percent Solids	25.3		0.1	0.1	%			09/25/18 19:37	1

Method: ASTM D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	12.4		0.5	0.5	%			09/17/18 05:44	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 4
Date Collected: 08/24/18 15:30
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-4
Matrix: Solid
Percent Solids: 25.3

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	3200	H B	190	84	mg/Kg	☼	09/17/18 16:00	09/26/18 14:02	5
Phosphorus	420		13	5.2	mg/Kg	☼	09/13/18 14:50	09/13/18 14:50	10

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 5

Date Collected: 08/24/18 15:50
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-5

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	44.4		0.1	0.1	%			09/25/18 19:37	1
Percent Solids	55.6		0.1	0.1	%			09/25/18 19:37	1

Method: ASTM D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	3.5		0.5	0.5	%			09/17/18 05:44	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 5
Date Collected: 08/24/18 15:50
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-5
Matrix: Solid
Percent Solids: 55.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	930	H B	86	37	mg/Kg	☼	09/17/18 16:00	09/26/18 14:11	5
Phosphorus	170		6.0	2.4	mg/Kg	☼	09/13/18 14:50	09/13/18 14:50	10

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 6

Date Collected: 08/24/18 16:10
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-6

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	72.4		0.1	0.1	%			09/25/18 19:37	1
Percent Solids	27.6		0.1	0.1	%			09/25/18 19:37	1

Method: ASTM D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	11.7		0.5	0.5	%			09/17/18 05:44	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 6
Date Collected: 08/24/18 16:10
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-6
Matrix: Solid
Percent Solids: 27.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	2400	H B	180	77	mg/Kg	☼	09/17/18 16:00	09/26/18 14:02	5
Phosphorus	470		13	5.0	mg/Kg	☼	09/13/18 14:50	09/13/18 14:50	10

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 7

Date Collected: 08/24/18 15:55
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-7

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	76.9		0.1	0.1	%			09/25/18 19:37	1
Percent Solids	23.1		0.1	0.1	%			09/25/18 19:37	1

Method: ASTM D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	13.6		0.5	0.5	%			09/17/18 05:44	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 7
Date Collected: 08/24/18 15:55
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-7
Matrix: Solid
Percent Solids: 23.1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	2900	H B	210	92	mg/Kg	☼	09/17/18 16:00	09/26/18 14:02	5
Phosphorus	370		15	6.0	mg/Kg	☼	09/13/18 14:50	09/13/18 14:50	10

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 8

Date Collected: 08/24/18 15:20
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-8

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	55.6		0.1	0.1	%			09/25/18 19:37	1
Percent Solids	44.4		0.1	0.1	%			09/25/18 19:37	1

Method: ASTM D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	6.5		0.5	0.5	%			09/17/18 05:44	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 8
Date Collected: 08/24/18 15:20
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-8
Matrix: Solid
Percent Solids: 44.4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	1400	H B	110	48	mg/Kg	☼	09/17/18 16:00	09/26/18 14:11	5
Phosphorus	250		7.9	3.1	mg/Kg	☼	09/13/18 14:50	09/13/18 14:50	10

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 9

Date Collected: 08/24/18 15:10
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-9

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	51.4		0.1	0.1	%			09/25/18 19:37	1
Percent Solids	48.6		0.1	0.1	%			09/25/18 19:37	1

Method: ASTM D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	5.8		0.5	0.5	%			09/17/18 05:44	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 9
Date Collected: 08/24/18 15:10
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-9
Matrix: Solid
Percent Solids: 48.6

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	1400	H B	98	43	mg/Kg	☼	09/17/18 16:00	09/26/18 14:11	5
Phosphorus	260		7.2	2.9	mg/Kg	☼	09/13/18 14:50	09/13/18 14:50	10

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 10

Date Collected: 08/24/18 15:40
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-10

Matrix: Solid

General Chemistry

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Percent Moisture	85.6		0.1	0.1	%			09/25/18 19:37	1
Percent Solids	14.4		0.1	0.1	%			09/25/18 19:37	1

Method: ASTM D2974 - Moisture, Ash and Organic Matter

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Matter	44.8		0.5	0.5	%			09/17/18 05:44	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 10
Date Collected: 08/24/18 15:40
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-10
Matrix: Solid
Percent Solids: 14.4

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	10000	H B	660	290	mg/Kg	☼	09/17/18 16:00	09/26/18 14:20	10
Phosphorus	490		24	9.4	mg/Kg	☼	09/13/18 14:50	09/13/18 14:50	10

QC Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 480-434819/1-A
Matrix: Solid
Analysis Batch: 436340

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434819

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	4.53	J	9.8	4.2	mg/Kg		09/17/18 16:00	09/26/18 12:28	1

Lab Sample ID: LCS 480-434819/2-A
Matrix: Solid
Analysis Batch: 436340

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434819

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	120	122		mg/Kg		102	90 - 110

Lab Sample ID: 240-100987-1 MS
Matrix: Solid
Analysis Batch: 436340

Client Sample ID: SITE 1
Prep Type: Total/NA
Prep Batch: 434819

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	7300	H B	293	8510	4	mg/Kg	☼	400	90 - 110

Lab Sample ID: 240-100987-10 MS
Matrix: Solid
Analysis Batch: 436340

Client Sample ID: SITE 10
Prep Type: Total/NA
Prep Batch: 434819

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	10000	H B	335	10400	4	mg/Kg	☼	112	90 - 110

Lab Sample ID: 240-100987-1 DU
Matrix: Solid
Analysis Batch: 436340

Client Sample ID: SITE 1
Prep Type: Total/NA
Prep Batch: 434819

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Kjeldahl Nitrogen	7300	H B	7540		mg/Kg	☼	3	20

Method: SM 4500 P E - Phosphorus

Lab Sample ID: MB 480-434280/1-A
Matrix: Solid
Analysis Batch: 434282

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 434280

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	ND		0.36	0.14	mg/Kg		09/13/18 14:50	09/13/18 14:50	1

Lab Sample ID: LCSSRM 480-434280/2-A
Matrix: Solid
Analysis Batch: 434282

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 434280

Analyte	Spike Added	LCSSRM Result	LCSSRM Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	1170	640		mg/Kg		54.7	23.0 - 159.0

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Method: SM 4500 P E - Phosphorus (Continued)

Lab Sample ID: 240-100987-1 MS
Matrix: Solid
Analysis Batch: 434282

Client Sample ID: SITE 1
Prep Type: Total/NA
Prep Batch: 434280

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	300		981	1250		mg/Kg	☼	97	52 - 148

Lab Sample ID: 240-100987-1 MSD
Matrix: Solid
Analysis Batch: 434282

Client Sample ID: SITE 1
Prep Type: Total/NA
Prep Batch: 434280

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phosphorus	300		946	1150		mg/Kg	☼	90	52 - 148	8	20

Method: ASTM D2974 - Moisture, Ash and Organic Matter

Lab Sample ID: 240-100987-1 DU
Matrix: Solid
Analysis Batch: 256966

Client Sample ID: SITE 1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Organic Matter	27.7			27.5		%				0.9	20

QC Association Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

General Chemistry

Prep Batch: 434280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100987-1	SITE 1	Total/NA	Solid	SM 4500 P B	
240-100987-2	SITE 2	Total/NA	Solid	SM 4500 P B	
240-100987-3	SITE 3	Total/NA	Solid	SM 4500 P B	
240-100987-4	SITE 4	Total/NA	Solid	SM 4500 P B	
240-100987-5	SITE 5	Total/NA	Solid	SM 4500 P B	
240-100987-6	SITE 6	Total/NA	Solid	SM 4500 P B	
240-100987-7	SITE 7	Total/NA	Solid	SM 4500 P B	
240-100987-8	SITE 8	Total/NA	Solid	SM 4500 P B	
240-100987-9	SITE 9	Total/NA	Solid	SM 4500 P B	
240-100987-10	SITE 10	Total/NA	Solid	SM 4500 P B	
MB 480-434280/1-A	Method Blank	Total/NA	Solid	SM 4500 P B	
LCSSRM 480-434280/2-A	Lab Control Sample	Total/NA	Solid	SM 4500 P B	
240-100987-1 MS	SITE 1	Total/NA	Solid	SM 4500 P B	
240-100987-1 MSD	SITE 1	Total/NA	Solid	SM 4500 P B	

Analysis Batch: 434282

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100987-1	SITE 1	Total/NA	Solid	SM 4500 P E	434280
240-100987-2	SITE 2	Total/NA	Solid	SM 4500 P E	434280
240-100987-3	SITE 3	Total/NA	Solid	SM 4500 P E	434280
240-100987-4	SITE 4	Total/NA	Solid	SM 4500 P E	434280
240-100987-5	SITE 5	Total/NA	Solid	SM 4500 P E	434280
240-100987-6	SITE 6	Total/NA	Solid	SM 4500 P E	434280
240-100987-7	SITE 7	Total/NA	Solid	SM 4500 P E	434280
240-100987-8	SITE 8	Total/NA	Solid	SM 4500 P E	434280
240-100987-9	SITE 9	Total/NA	Solid	SM 4500 P E	434280
240-100987-10	SITE 10	Total/NA	Solid	SM 4500 P E	434280
MB 480-434280/1-A	Method Blank	Total/NA	Solid	SM 4500 P E	434280
LCSSRM 480-434280/2-A	Lab Control Sample	Total/NA	Solid	SM 4500 P E	434280
240-100987-1 MS	SITE 1	Total/NA	Solid	SM 4500 P E	434280
240-100987-1 MSD	SITE 1	Total/NA	Solid	SM 4500 P E	434280

Prep Batch: 434819

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100987-1	SITE 1	Total/NA	Solid	351.2	
240-100987-2	SITE 2	Total/NA	Solid	351.2	
240-100987-3	SITE 3	Total/NA	Solid	351.2	
240-100987-4	SITE 4	Total/NA	Solid	351.2	
240-100987-5	SITE 5	Total/NA	Solid	351.2	
240-100987-6	SITE 6	Total/NA	Solid	351.2	
240-100987-7	SITE 7	Total/NA	Solid	351.2	
240-100987-8	SITE 8	Total/NA	Solid	351.2	
240-100987-9	SITE 9	Total/NA	Solid	351.2	
240-100987-10	SITE 10	Total/NA	Solid	351.2	
MB 480-434819/1-A	Method Blank	Total/NA	Solid	351.2	
LCS 480-434819/2-A	Lab Control Sample	Total/NA	Solid	351.2	
240-100987-1 MS	SITE 1	Total/NA	Solid	351.2	
240-100987-10 MS	SITE 10	Total/NA	Solid	351.2	
240-100987-1 DU	SITE 1	Total/NA	Solid	351.2	

General Chemistry (Continued)

Analysis Batch: 436175

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100987-1	SITE 1	Total/NA	Solid	Moisture	
240-100987-2	SITE 2	Total/NA	Solid	Moisture	
240-100987-3	SITE 3	Total/NA	Solid	Moisture	
240-100987-4	SITE 4	Total/NA	Solid	Moisture	
240-100987-5	SITE 5	Total/NA	Solid	Moisture	
240-100987-6	SITE 6	Total/NA	Solid	Moisture	
240-100987-7	SITE 7	Total/NA	Solid	Moisture	
240-100987-8	SITE 8	Total/NA	Solid	Moisture	
240-100987-9	SITE 9	Total/NA	Solid	Moisture	
240-100987-10	SITE 10	Total/NA	Solid	Moisture	

Analysis Batch: 436340

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100987-1	SITE 1	Total/NA	Solid	351.2	434819
240-100987-2	SITE 2	Total/NA	Solid	351.2	434819
240-100987-3	SITE 3	Total/NA	Solid	351.2	434819
240-100987-4	SITE 4	Total/NA	Solid	351.2	434819
240-100987-5	SITE 5	Total/NA	Solid	351.2	434819
240-100987-6	SITE 6	Total/NA	Solid	351.2	434819
240-100987-7	SITE 7	Total/NA	Solid	351.2	434819
240-100987-8	SITE 8	Total/NA	Solid	351.2	434819
240-100987-9	SITE 9	Total/NA	Solid	351.2	434819
240-100987-10	SITE 10	Total/NA	Solid	351.2	434819
MB 480-434819/1-A	Method Blank	Total/NA	Solid	351.2	434819
LCS 480-434819/2-A	Lab Control Sample	Total/NA	Solid	351.2	434819
240-100987-1 MS	SITE 1	Total/NA	Solid	351.2	434819
240-100987-10 MS	SITE 10	Total/NA	Solid	351.2	434819
240-100987-1 DU	SITE 1	Total/NA	Solid	351.2	434819

Geotechnical

Analysis Batch: 256966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100987-1	SITE 1	Total/NA	Solid	ASTM D2974	
240-100987-2	SITE 2	Total/NA	Solid	ASTM D2974	
240-100987-3	SITE 3	Total/NA	Solid	ASTM D2974	
240-100987-4	SITE 4	Total/NA	Solid	ASTM D2974	
240-100987-5	SITE 5	Total/NA	Solid	ASTM D2974	
240-100987-6	SITE 6	Total/NA	Solid	ASTM D2974	
240-100987-7	SITE 7	Total/NA	Solid	ASTM D2974	
240-100987-8	SITE 8	Total/NA	Solid	ASTM D2974	
240-100987-9	SITE 9	Total/NA	Solid	ASTM D2974	
240-100987-10	SITE 10	Total/NA	Solid	ASTM D2974	
240-100987-1 DU	SITE 1	Total/NA	Solid	ASTM D2974	

Lab Chronicle

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 1

Lab Sample ID: 240-100987-1

Date Collected: 08/24/18 14:00
Matrix: Solid
Date Received: 09/10/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	436175	09/25/18 19:37	MDH	TAL BUF
Total/NA	Analysis	ASTM D2974		1	256966	09/17/18 05:44	CLL	TAL PIT

Client Sample ID: SITE 1

Lab Sample ID: 240-100987-1

Date Collected: 08/24/18 14:00
Matrix: Solid
Date Received: 09/10/18 14:25
Percent Solids: 16.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			434819	09/17/18 16:00	DCB	TAL BUF
Total/NA	Analysis	351.2		10	436340	09/26/18 14:20	CLT	TAL BUF
Total/NA	Prep	SM 4500 P B			434280	09/13/18 14:50	DCB	TAL BUF
Total/NA	Analysis	SM 4500 P E		10	434282	09/13/18 14:50	DCB	TAL BUF

Client Sample ID: SITE 2

Lab Sample ID: 240-100987-2

Date Collected: 08/24/18 14:15
Matrix: Solid
Date Received: 09/10/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	436175	09/25/18 19:37	MDH	TAL BUF
Total/NA	Analysis	ASTM D2974		1	256966	09/17/18 05:44	CLL	TAL PIT

Client Sample ID: SITE 2

Lab Sample ID: 240-100987-2

Date Collected: 08/24/18 14:15
Matrix: Solid
Date Received: 09/10/18 14:25
Percent Solids: 61.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			434819	09/17/18 16:00	DCB	TAL BUF
Total/NA	Analysis	351.2		5	436340	09/26/18 14:11	CLT	TAL BUF
Total/NA	Prep	SM 4500 P B			434280	09/13/18 14:50	DCB	TAL BUF
Total/NA	Analysis	SM 4500 P E		10	434282	09/13/18 14:50	DCB	TAL BUF

Client Sample ID: SITE 3

Lab Sample ID: 240-100987-3

Date Collected: 08/24/18 16:30
Matrix: Solid
Date Received: 09/10/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	436175	09/25/18 19:37	MDH	TAL BUF
Total/NA	Analysis	ASTM D2974		1	256966	09/17/18 05:44	CLL	TAL PIT

Lab Chronicle

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 3
Date Collected: 08/24/18 16:30
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-3
Matrix: Solid
Percent Solids: 43.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			434819	09/17/18 16:00	DCB	TAL BUF
Total/NA	Analysis	351.2		5	436340	09/26/18 14:02	CLT	TAL BUF
Total/NA	Prep	SM 4500 P B			434280	09/13/18 14:50	DCB	TAL BUF
Total/NA	Analysis	SM 4500 P E		10	434282	09/13/18 14:50	DCB	TAL BUF

Client Sample ID: SITE 4
Date Collected: 08/24/18 15:30
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-4
Matrix: Solid
Percent Solids: 25.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	436175	09/25/18 19:37	MDH	TAL BUF
Total/NA	Analysis	ASTM D2974		1	256966	09/17/18 05:44	CLL	TAL PIT
Total/NA	Prep	351.2			434819	09/17/18 16:00	DCB	TAL BUF
Total/NA	Analysis	351.2		5	436340	09/26/18 14:02	CLT	TAL BUF
Total/NA	Prep	SM 4500 P B			434280	09/13/18 14:50	DCB	TAL BUF
Total/NA	Analysis	SM 4500 P E		10	434282	09/13/18 14:50	DCB	TAL BUF

Client Sample ID: SITE 5
Date Collected: 08/24/18 15:50
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	436175	09/25/18 19:37	MDH	TAL BUF
Total/NA	Analysis	ASTM D2974		1	256966	09/17/18 05:44	CLL	TAL PIT

Client Sample ID: SITE 5
Date Collected: 08/24/18 15:50
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-5
Matrix: Solid
Percent Solids: 55.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			434819	09/17/18 16:00	DCB	TAL BUF
Total/NA	Analysis	351.2		5	436340	09/26/18 14:11	CLT	TAL BUF
Total/NA	Prep	SM 4500 P B			434280	09/13/18 14:50	DCB	TAL BUF
Total/NA	Analysis	SM 4500 P E		10	434282	09/13/18 14:50	DCB	TAL BUF

Lab Chronicle

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 6

Date Collected: 08/24/18 16:10
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-6

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	436175	09/25/18 19:37	MDH	TAL BUF
Total/NA	Analysis	ASTM D2974		1	256966	09/17/18 05:44	CLL	TAL PIT

Client Sample ID: SITE 6

Date Collected: 08/24/18 16:10
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-6

Matrix: Solid
Percent Solids: 27.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			434819	09/17/18 16:00	DCB	TAL BUF
Total/NA	Analysis	351.2		5	436340	09/26/18 14:02	CLT	TAL BUF
Total/NA	Prep	SM 4500 P B			434280	09/13/18 14:50	DCB	TAL BUF
Total/NA	Analysis	SM 4500 P E		10	434282	09/13/18 14:50	DCB	TAL BUF

Client Sample ID: SITE 7

Date Collected: 08/24/18 15:55
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-7

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	436175	09/25/18 19:37	MDH	TAL BUF
Total/NA	Analysis	ASTM D2974		1	256966	09/17/18 05:44	CLL	TAL PIT

Client Sample ID: SITE 7

Date Collected: 08/24/18 15:55
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-7

Matrix: Solid
Percent Solids: 23.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			434819	09/17/18 16:00	DCB	TAL BUF
Total/NA	Analysis	351.2		5	436340	09/26/18 14:02	CLT	TAL BUF
Total/NA	Prep	SM 4500 P B			434280	09/13/18 14:50	DCB	TAL BUF
Total/NA	Analysis	SM 4500 P E		10	434282	09/13/18 14:50	DCB	TAL BUF

Client Sample ID: SITE 8

Date Collected: 08/24/18 15:20
Date Received: 09/10/18 14:25

Lab Sample ID: 240-100987-8

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	436175	09/25/18 19:37	MDH	TAL BUF
Total/NA	Analysis	ASTM D2974		1	256966	09/17/18 05:44	CLL	TAL PIT

Lab Chronicle

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Client Sample ID: SITE 8

Lab Sample ID: 240-100987-8
Date Collected: 08/24/18 15:20
Matrix: Solid
Date Received: 09/10/18 14:25
Percent Solids: 44.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			434819	09/17/18 16:00	DCB	TAL BUF
Total/NA	Analysis	351.2		5	436340	09/26/18 14:11	CLT	TAL BUF
Total/NA	Prep	SM 4500 P B			434280	09/13/18 14:50	DCB	TAL BUF
Total/NA	Analysis	SM 4500 P E		10	434282	09/13/18 14:50	DCB	TAL BUF

Client Sample ID: SITE 9

Lab Sample ID: 240-100987-9
Date Collected: 08/24/18 15:10
Matrix: Solid
Date Received: 09/10/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	436175	09/25/18 19:37	MDH	TAL BUF
Total/NA	Analysis	ASTM D2974		1	256966	09/17/18 05:44	CLL	TAL PIT

Client Sample ID: SITE 9

Lab Sample ID: 240-100987-9
Date Collected: 08/24/18 15:10
Matrix: Solid
Date Received: 09/10/18 14:25
Percent Solids: 48.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			434819	09/17/18 16:00	DCB	TAL BUF
Total/NA	Analysis	351.2		5	436340	09/26/18 14:11	CLT	TAL BUF
Total/NA	Prep	SM 4500 P B			434280	09/13/18 14:50	DCB	TAL BUF
Total/NA	Analysis	SM 4500 P E		10	434282	09/13/18 14:50	DCB	TAL BUF

Client Sample ID: SITE 10

Lab Sample ID: 240-100987-10
Date Collected: 08/24/18 15:40
Matrix: Solid
Date Received: 09/10/18 14:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	436175	09/25/18 19:37	MDH	TAL BUF
Total/NA	Analysis	ASTM D2974		1	256966	09/17/18 05:44	CLL	TAL PIT

Client Sample ID: SITE 10

Lab Sample ID: 240-100987-10
Date Collected: 08/24/18 15:40
Matrix: Solid
Date Received: 09/10/18 14:25
Percent Solids: 14.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			434819	09/17/18 16:00	DCB	TAL BUF
Total/NA	Analysis	351.2		10	436340	09/26/18 14:20	CLT	TAL BUF
Total/NA	Prep	SM 4500 P B			434280	09/13/18 14:50	DCB	TAL BUF
Total/NA	Analysis	SM 4500 P E		10	434282	09/13/18 14:50	DCB	TAL BUF

Lab Chronicle

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Laboratory References:

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

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Accreditation/Certification Summary

Client: EnviroScience Inc
TestAmerica Job ID: 240-100987-1
Project/Site: Aurora Lake Monitoring

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-19
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18 *
Minnesota	NELAP	5	039-999-348	12-31-18 *
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-19
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-17-9	08-31-19
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-19
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18 *

Laboratory: TestAmerica Buffalo

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0686	07-06-19
California	State Program	9	2931	04-01-19
Connecticut	State Program	1	PH-0568	09-30-18 *
Florida	NELAP	4	E87672	06-30-19
Georgia	State Program	4	10026 (NY)	03-31-19
Georgia	State Program	4	956	03-31-19
Illinois	NELAP	5	200003	09-30-18 *
Iowa	State Program	7	374	03-01-19
Kansas	NELAP	7	E-10187	01-31-19
Kentucky (DW)	State Program	4	90029	12-31-18
Kentucky (UST)	State Program	4	30	03-31-19
Kentucky (WW)	State Program	4	90029	12-31-18
Louisiana	NELAP	6	02031	06-30-19
Maine	State Program	1	NY00044	12-04-18
Maryland	State Program	3	294	03-31-19
Massachusetts	State Program	1	M-NY044	06-30-19
Michigan	State Program	5	9937	03-31-19
Minnesota	NELAP	5	036-999-337	12-31-18
New Hampshire	NELAP	1	2337	11-17-18 *
New Jersey	NELAP	2	NY455	06-30-19
New York	NELAP	2	10026	03-31-19
North Dakota	State Program	8	R-176	03-31-19
Oklahoma	State Program	6	9421	08-31-19
Oregon	NELAP	10	NY200003	06-09-19
Pennsylvania	NELAP	3	68-00281	07-31-19

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100987-1

Laboratory: TestAmerica Buffalo (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Rhode Island	State Program	1	LAO00328	12-30-18
Tennessee	State Program	4	TN02970	03-31-19
Texas	NELAP	6	T104704412-15-6	07-31-19
USDA	Federal		P330-11-00386	02-06-21
Virginia	NELAP	3	460185	09-14-19
Washington	State Program	10	C784	02-10-19
Wisconsin	State Program	5	998310390	08-31-19

Laboratory: TestAmerica Pittsburgh

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0690	06-27-19
California	State Program	9	2891	04-30-19
Connecticut	State Program	1	PH-0688	09-30-18
Florida	NELAP	4	E871008	06-30-19
Illinois	NELAP	5	200005	06-30-19
Kansas	NELAP	7	E-10350	01-31-19
Louisiana	NELAP	6	04041	06-30-19
Nevada	State Program	9	PA00164	07-31-19
New Hampshire	NELAP	1	2030	04-04-19
New Jersey	NELAP	2	PA005	06-30-19
New York	NELAP	2	11182	03-31-19
North Carolina (WW/SW)	State Program	4	434	12-31-18
Oregon	NELAP	10	PA-2151	01-28-19
Pennsylvania	NELAP	3	02-00416	04-30-19
South Carolina	State Program	4	89014	04-30-19
Texas	NELAP	6	T104704528-15-2	03-31-19
US Fish & Wildlife	Federal		LE94312A-1	07-31-19
USDA	Federal		P330-16-00211	06-26-19
Utah	NELAP	8	PA001462015-4	05-31-19
Virginia	NELAP	3	460189	09-14-19
West Virginia DEP	State Program	3	142	01-31-19
Wisconsin	State Program	5	998027800	08-31-19

TestAmerica Canton
4101 Shuffel Street NW

North Canton, OH 44720-6900
phone 330.497.9396 fax 330.497.0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact	**Project Manager: Jeff Niehaus**	**Site Contact: Jeff Niehaus**	**Date: 09/10/2018**	COC No:
EnviroScience Inc	**Tel/Fax: 330.814.1418**	**Lab Contact: Leslie Howell**	**Carrier:**	_____ of _____ COCs
5070 Stow Rd	**Analysis Turnaround Time**			Sampler:
Stow OH 44224	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
330.688.0111 Phone	TAT if different from Below _____			Walk-in Client:
330.688.3858 FAX	☐ 2 weeks			Lab Sampling:
Project Name: Aurora Lake Sediment Monitoring	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
Project Number: 240-99263-1	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	ATSM D2974	351.2	SM4500 P E	Sample Specific Notes:
Site 1	8/24/2018	1400	C	Sed	2	N	N	X	X	X	
Site 2	8/24/18	1415	C	Sed	2	N	N	X	X	X	
Site 3	8/24/18	1630	C	Sed	2	N	N	X	X	X	
Site 4	8/24/18	1530	C	Sed	2	N	N	X	X	X	
Site 5	8/24/18	1550	C	Sed	2	N	N	X	X	X	
Site 6	8/24/18	1610	C	Sed	2	N	N	X	X	X	
Site 7	8/24/18	1555	C	Sed	2	N	N	X	X	X	
Site 8	8/24/18	1520	C	Sed	2	N	N	X	X	X	
Site 9	8/24/18	1510	C	Sed	2	N	N	X	X	X	
Site 10	8/24/18	1540	C	Sed	2	N	N	X	X	X	

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☑ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

Relinquished by:	Company: ES	Date/Time: 9/10/18 1215	Received by:	Company: ES	Date/Time: 9/10/18 1215
Relinquished by:	Company: ES	Date/Time: 9/10/18 14:25	Received by:	Company: TAC	Date/Time: 9/10/18 1425
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.15, dated 9/27/2017

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 160987
Canton Facility

Client Environscience Site Name _____ Cooler unpacked by: DSD

Cooler Received on 9/10/18 Opened on 9/10/18

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 7A Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam Plastic Bag None Other _____

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF +0.9 °C) Observed Cooler Temp. 2.0 °C Corrected Cooler Temp. 2.9 °C
   IR GUN #36 (CF +0.6°C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity_____	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	No
8. Could all bottle labels be reconciled with the COC?	Yes	No
9. Were correct bottle(s) used for the test(s) indicated?	Yes	No
10. Sufficient quantity received to perform indicated analyses?	Yes	No
11. Are these work share samples?	Yes	No
If yes, Questions 12-16 have been checked at the originating laboratory.		
12. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# **HC849161**
13. Were VOAs on the COC?	Yes	No
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No NA
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____	Yes	No
16. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: DSD

_____

_____

_____

_____

_____

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s):_____.

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

240-100987 Chain of Custody

tAmerica
ER IN ENVIRONMENTAL TESTING

50.1

of 2

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Howell, Leslie	Accreditations Required (See note):	Job #: 240-100987-1
Client Contact: Shipping/Receiving	Phone:	E-Mail: leslie.howell@testamericainc.com		
Company: TestAmerica Laboratories, Inc.				
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 9/20/2018			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Aurora Lake Monitoring	Project #: 24020271			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	D_2974/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
SITE 1 (240-100987-1)	8/24/18	14:00 Eastern		Solid			X	1	
SITE 2 (240-100987-2)	8/24/18	14:15 Eastern		Solid			X	1	
SITE 3 (240-100987-3)	8/24/18	16:30 Eastern		Solid			X	1	
SITE 4 (240-100987-4)	8/24/18	15:30 Eastern		Solid			X	1	
SITE 5 (240-100987-5)	8/24/18	15:50 Eastern		Solid			X	1	
SITE 6 (240-100987-6)	8/24/18	16:10 Eastern		Solid			X	1	
SITE 7 (240-100987-7)	8/24/18	15:55 Eastern		Solid			X	1	
SITE 8 (240-100987-8)	8/24/18	15:20 Eastern		Solid			X	1	
SITE 9 (240-100987-9)	8/24/18	15:10 Eastern		Solid			X	1	

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Charles Gantt	9-10-18 16:48	240	[signature]	9/11/18 1000	TALCA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 09/20/2016

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Howell, Leslie	Carrier Tracking No(s):	COC No: 240-92350.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: leslie.howell@testamericainc.com	State of Origin: Ohio	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-100987-1
Address: 301 Alpha Drive, RIDC Park,	Due Date Requested: 9/20/2018			
City: Pittsburgh	TAT Requested (days):			
State, Zip: PA, 15238				
Phone: 412-963-7058(Tel) 412-963-2468(Fax)	PO #:			
Email:	WO #:			
Project Name: Aurora Lake Monitoring	Project #: 24020271			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	D_2974/ (MOD) Local Method	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
SITE 10 (240-100987-10)	8/24/18	15:40 Eastern		Solid			X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. I

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

Empty Kit Relinquished by:		Date:	Time:	Method of Shipment:		
Relinquished by: Charles Davitt	Date/Time: 9-10-18 16:48	Company 240	Received by:	Date/Time: 9/11/18 1000	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company	

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

Ver: 09.20.2016

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Howell, Leslie	Carrier Tracking No(s):	COC No: 240-92347.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: leslie.howell@testamericainc.com	State of Origin: Ohio	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-100987-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 9/11/2018			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298				
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	PO #:			
Email:	WO #:			
Project Name: Aurora Lake Monitoring	Project #: 24020271			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	351.2/351.2_Prep	4500_P_E/SM4500_P_B (MOD) Local Method	Moisture	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
SITE 1 (240-100987-1)	8/24/18	14:00 Eastern		Solid			X	X	X	1	
SITE 2 (240-100987-2)	8/24/18	14:15 Eastern		Solid			X	X	X	1	
SITE 3 (240-100987-3)	8/24/18	16:30 Eastern		Solid			X	X	X	1	
SITE 4 (240-100987-4)	8/24/18	15:30 Eastern		Solid			X	X	X	1	
SITE 5 (240-100987-5)	8/24/18	15:50 Eastern		Solid			X	X	X	1	
SITE 6 (240-100987-6)	8/24/18	16:10 Eastern		Solid			X	X	X	1	
SITE 7 (240-100987-7)	8/24/18	15:55 Eastern		Solid			X	X	X	1	
SITE 8 (240-100987-8)	8/24/18	15:20 Eastern		Solid			X	X	X	1	
SITE 9 (240-100987-9)	8/24/18	15:10 Eastern		Solid			X	X	X	1	

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
R Isom	8/10/18 - 1645	TA24	[signature]	9/11/18 1000	TAB.
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: #1 3.6° C

Ver: 09/20/2016

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Howell, Leslie	Carrier Tracking No(s):	COC No: 240-92347.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: leslie.howell@testamericainc.com	State of Origin: Ohio	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-100987-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 9/11/2018			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298				
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	PO #:			
Email:	WO #:			
Project Name: Aurora Lake Monitoring	Project #: 24020271			
Site:	SSOW#:			

Preservation Codes:

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

Other:

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	351.2/351.2_Prep	4500_P_E/SM4500_P_B (MOD) Local Method	Moisture	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
SITE 10 (240-100987-10)	8/24/18	15:40 Eastern		Solid			X	X	X	1	

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. I

Possible Hazard Identification *Unconfirmed*		***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For _____ Months*	
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2	Special Instructions/QC Requirements:	
Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:
Relinquished by: R Hall	Date/Time: 9/10/18 1645	Company TA354	Received by: [signature]
Relinquished by:	Date/Time:	Company	Received by:
Relinquished by:	Date/Time:	Company	Received by:

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:	Date/Time: 9/11/18 1000	Company NTS
			Date/Time:	Company
			Date/Time:	Company

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: EnviroScience Inc

Job Number: 240-100987-1

Login Number: 100987
List Number: 2
Creator: Hulbert, Michael J

List Source: TestAmerica Buffalo
List Creation: 09/11/18 05:22 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.6 #1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	False	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

Login Sample Receipt Checklist

Client: EnviroScience Inc

Job Number: 240-100987-1

Login Number: 100987
List Number: 3
Creator: Neri, Tom

List Source: TestAmerica Pittsburgh
List Creation: 09/11/18 06:11 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	4.1
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	N/A	Received project as a subcontract.
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-100102-1
Client Project/Site: Aurora Lake Monitoring

For:
EnviroScience Inc
5070 Stow Rd.
Stow, Ohio 44224

Attn: Alex Valigosky

Authorized for release by:
8/30/2018 3:08:12 PM

Leslie Howell, Project Manager I
(330)966-9266
leslie.howell@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Definitions/Glossary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

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

Case Narrative

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Job ID: 240-100102-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative
240-100102-1

Comments
The 351.2 Total Kjeldahl Nitrogen and the 4500_P_E Phosphorus analyses were performed at the TestAmerica Buffalo laboratory.

No additional comments.

Receipt
The samples were received on 8/18/2018 10:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.8º C.

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

Method Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Method	Method Description	Protocol	Laboratory
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF
SM 2540D	Solids, Total Suspended (TSS)	SM	TAL CAN
SM 4500 P E	Phosphorus	SM	TAL BUF
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL BUF

Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

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

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-100102-1	NW INLET	Water	08/17/18 18:00	08/18/18 10:15
240-100102-2	SE INLET	Water	08/17/18 17:25	08/18/18 10:15
240-100102-3	MID LAKE BOTTOM	Water	08/17/18 17:45	08/18/18 10:15
240-100102-4	MID LAKE TOP	Water	08/17/18 17:40	08/18/18 10:15
240-100102-5	GLENWOOD BLVD	Water	08/17/18 18:30	08/18/18 10:15
240-100102-6	AURORA LAKE RD	Water	08/17/18 18:55	08/18/18 10:15
240-100102-7	SHERWOOD DR	Water	08/17/18 19:15	08/18/18 10:15

Detection Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Client Sample ID: NW INLET — Lab Sample ID: 240-100102-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	1.6	F1	0.20	0.15	mg/L	1		351.2	Total/NA
Total Suspended Solids	17		4.0	2.2	mg/L	1		SM 2540D	Total/NA
Phosphorus	0.20	B	0.010	0.0050	mg/L	1		SM 4500 P E	Total/NA
Phosphorus as PO4	0.62	B	0.031	0.015	mg/L	1		SM 4500 P E	Total/NA

Client Sample ID: SE INLET — Lab Sample ID: 240-100102-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	1.8		0.20	0.15	mg/L	1		351.2	Total/NA
Total Suspended Solids	28		4.0	2.2	mg/L	1		SM 2540D	Total/NA
Phosphorus	0.23	B	0.010	0.0050	mg/L	1		SM 4500 P E	Total/NA
Phosphorus as PO4	0.69	B	0.031	0.015	mg/L	1		SM 4500 P E	Total/NA

Client Sample ID: MID LAKE BOTTOM — Lab Sample ID: 240-100102-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	1.9		0.20	0.15	mg/L	1		351.2	Total/NA
Total Suspended Solids	12		4.0	2.2	mg/L	1		SM 2540D	Total/NA
Phosphorus	0.24	B	0.010	0.0050	mg/L	1		SM 4500 P E	Total/NA
Phosphorus as PO4	0.74	B	0.031	0.015	mg/L	1		SM 4500 P E	Total/NA

Client Sample ID: MID LAKE TOP — Lab Sample ID: 240-100102-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	1.3		0.20	0.15	mg/L	1		351.2	Total/NA
Total Suspended Solids	17		4.0	2.2	mg/L	1		SM 2540D	Total/NA
Phosphorus	0.19	B	0.010	0.0050	mg/L	1		SM 4500 P E	Total/NA
Phosphorus as PO4	0.57	B	0.031	0.015	mg/L	1		SM 4500 P E	Total/NA

Client Sample ID: GLENWOOD BLVD — Lab Sample ID: 240-100102-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	0.61		0.20	0.15	mg/L	1		351.2	Total/NA
Total Suspended Solids	19		4.0	2.2	mg/L	1		SM 2540D	Total/NA
Phosphorus	0.13	B	0.010	0.0050	mg/L	1		SM 4500 P E	Total/NA
Phosphorus as PO4	0.38	B	0.031	0.015	mg/L	1		SM 4500 P E	Total/NA

Client Sample ID: AURORA LAKE RD — Lab Sample ID: 240-100102-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	0.51		0.20	0.15	mg/L	1		351.2	Total/NA
Total Suspended Solids	5.0		4.0	2.2	mg/L	1		SM 2540D	Total/NA
Phosphorus	0.10	B	0.010	0.0050	mg/L	1		SM 4500 P E	Total/NA
Phosphorus as PO4	0.31	B	0.031	0.015	mg/L	1		SM 4500 P E	Total/NA

Client Sample ID: SHERWOOD DR — Lab Sample ID: 240-100102-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Total Kjeldahl Nitrogen	0.71		0.20	0.15	mg/L	1		351.2	Total/NA
Total Suspended Solids	5.0		4.0	2.2	mg/L	1		SM 2540D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Client Sample ID: SHERWOOD DR (Continued) — Lab Sample ID: 240-100102-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Phosphorus	0.10	B	0.010	0.0050	mg/L	1		SM 4500 P E	Total/NA
Phosphorus as PO4	0.31	B	0.031	0.015	mg/L	1		SM 4500 P E	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Client Sample ID: NW INLET
Date Collected: 08/17/18 18:00
Date Received: 08/18/18 10:15

Lab Sample ID: 240-100102-1
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	1.6	F1	0.20	0.15	mg/L		08/22/18 08:20	08/23/18 15:55	1
Total Suspended Solids	17		4.0	2.2	mg/L			08/20/18 09:02	1
Phosphorus	0.20	B	0.010	0.0050	mg/L			08/27/18 12:30	1
Phosphorus as PO4	0.62	B	0.031	0.015	mg/L			08/27/18 12:30	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Client Sample ID: SE INLET

Date Collected: 08/17/18 17:25
Date Received: 08/18/18 10:15

Lab Sample ID: 240-100102-2

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	1.8		0.20	0.15	mg/L		08/22/18 08:20	08/23/18 17:58	1
Total Suspended Solids	28		4.0	2.2	mg/L			08/20/18 09:02	1
Phosphorus	0.23	B	0.010	0.0050	mg/L			08/27/18 12:30	1
Phosphorus as PO4	0.69	B	0.031	0.015	mg/L			08/27/18 12:30	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Client Sample ID: MID LAKE BOTTOM

Date Collected: 08/17/18 17:45
Date Received: 08/18/18 10:15

Lab Sample ID: 240-100102-3

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	1.9		0.20	0.15	mg/L		08/22/18 08:20	08/23/18 15:55	1
Total Suspended Solids	12		4.0	2.2	mg/L			08/21/18 08:50	1
Phosphorus	0.24	B	0.010	0.0050	mg/L			08/27/18 12:30	1
Phosphorus as PO4	0.74	B	0.031	0.015	mg/L			08/27/18 12:30	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Client Sample ID: MID LAKE TOP
Date Collected: 08/17/18 17:40
Date Received: 08/18/18 10:15

Lab Sample ID: 240-100102-4
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	1.3		0.20	0.15	mg/L		08/24/18 07:45	08/27/18 12:07	1
Total Suspended Solids	17		4.0	2.2	mg/L			08/21/18 08:50	1
Phosphorus	0.19	B	0.010	0.0050	mg/L			08/27/18 12:30	1
Phosphorus as PO4	0.57	B	0.031	0.015	mg/L			08/27/18 12:30	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Client Sample ID: GLENWOOD BLVD

Date Collected: 08/17/18 18:30
Date Received: 08/18/18 10:15

Lab Sample ID: 240-100102-5

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	0.61		0.20	0.15	mg/L		08/24/18 07:45	08/27/18 12:07	1
Total Suspended Solids	19		4.0	2.2	mg/L			08/21/18 08:50	1
Phosphorus	0.13	B	0.010	0.0050	mg/L			08/27/18 12:30	1
Phosphorus as PO4	0.38	B	0.031	0.015	mg/L			08/27/18 12:30	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Client Sample ID: AURORA LAKE RD

Date Collected: 08/17/18 18:55
Date Received: 08/18/18 10:15

Lab Sample ID: 240-100102-6

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	0.51		0.20	0.15	mg/L		08/24/18 07:45	08/27/18 10:35	1
Total Suspended Solids	5.0		4.0	2.2	mg/L			08/21/18 08:50	1
Phosphorus	0.10	B	0.010	0.0050	mg/L			08/27/18 12:30	1
Phosphorus as PO4	0.31	B	0.031	0.015	mg/L			08/27/18 12:30	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Client Sample ID: SHERWOOD DR

Date Collected: 08/17/18 19:15
Date Received: 08/18/18 10:15

Lab Sample ID: 240-100102-7

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	0.71		0.20	0.15	mg/L		08/24/18 07:45	08/27/18 10:35	1
Total Suspended Solids	5.0		4.0	2.2	mg/L			08/21/18 08:50	1
Phosphorus	0.10	B	0.010	0.0050	mg/L			08/27/18 12:30	1
Phosphorus as PO4	0.31	B	0.031	0.015	mg/L			08/27/18 12:30	1

QC Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Method: 351.2 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 480-430865/1-A
Matrix: Water
Analysis Batch: 431222

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 430865

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.20	0.15	mg/L		08/22/18 08:20	08/23/18 14:31	1

Lab Sample ID: LCS 480-430865/2-A
Matrix: Water
Analysis Batch: 431222

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 430865

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	2.50	2.73		mg/L		109	90 - 110

Lab Sample ID: 240-100102-1 MS
Matrix: Water
Analysis Batch: 431222

Client Sample ID: NW INLET
Prep Type: Total/NA
Prep Batch: 430865

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	1.6	F1	1.00	2.97	F1	mg/L		137	90 - 110

Lab Sample ID: MB 480-431288/1-A
Matrix: Water
Analysis Batch: 431605

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 431288

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Kjeldahl Nitrogen	ND		0.20	0.15	mg/L		08/24/18 07:45	08/27/18 08:30	1

Lab Sample ID: LCS 480-431288/2-A
Matrix: Water
Analysis Batch: 431605

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 431288

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Kjeldahl Nitrogen	2.50	2.49		mg/L		99	90 - 110

Method: SM 2540D - Solids, Total Suspended (TSS)

Lab Sample ID: MB 240-341600/1
Matrix: Water
Analysis Batch: 341600

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	2.2	mg/L			08/20/18 09:02	1

Lab Sample ID: LCS 240-341600/2
Matrix: Water
Analysis Batch: 341600

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	90.9	92.0		mg/L		101	64 - 120

Method: SM 2540D - Solids, Total Suspended (TSS) (Continued)

Lab Sample ID: MB 240-341808/1
Matrix: Water
Analysis Batch: 341808

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0	2.2	mg/L			08/21/18 08:50	1

Lab Sample ID: LCS 240-341808/2
Matrix: Water
Analysis Batch: 341808

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Suspended Solids	90.9	85.0		mg/L		94	64 - 120

Method: SM 4500 P E - Phosphorus

Lab Sample ID: MB 480-431584/3
Matrix: Water
Analysis Batch: 431584

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Phosphorus	0.00820	J	0.010	0.0050	mg/L			08/27/18 12:30	1
Phosphorus as PO4	0.0251	J	0.031	0.015	mg/L			08/27/18 12:30	1

Lab Sample ID: LCS 480-431584/4
Matrix: Water
Analysis Batch: 431584

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Phosphorus	0.200	0.199		mg/L		100	90 - 110
Phosphorus as PO4	0.613	0.612		mg/L		100	90 - 110

QC Association Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

General Chemistry

Analysis Batch: 341600

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100102-1	NW INLET	Total/NA	Water	SM 2540D	
240-100102-2	SE INLET	Total/NA	Water	SM 2540D	
MB 240-341600/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 240-341600/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Analysis Batch: 341808

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100102-3	MID LAKE BOTTOM	Total/NA	Water	SM 2540D	
240-100102-4	MID LAKE TOP	Total/NA	Water	SM 2540D	
240-100102-5	GLENWOOD BLVD	Total/NA	Water	SM 2540D	
240-100102-6	AURORA LAKE RD	Total/NA	Water	SM 2540D	
240-100102-7	SHERWOOD DR	Total/NA	Water	SM 2540D	
MB 240-341808/1	Method Blank	Total/NA	Water	SM 2540D	
LCS 240-341808/2	Lab Control Sample	Total/NA	Water	SM 2540D	

Prep Batch: 430865

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100102-1	NW INLET	Total/NA	Water	351.2	
240-100102-2	SE INLET	Total/NA	Water	351.2	
240-100102-3	MID LAKE BOTTOM	Total/NA	Water	351.2	
MB 480-430865/1-A	Method Blank	Total/NA	Water	351.2	
LCS 480-430865/2-A	Lab Control Sample	Total/NA	Water	351.2	
240-100102-1 MS	NW INLET	Total/NA	Water	351.2	

Analysis Batch: 431222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100102-1	NW INLET	Total/NA	Water	351.2	430865
240-100102-2	SE INLET	Total/NA	Water	351.2	430865
240-100102-3	MID LAKE BOTTOM	Total/NA	Water	351.2	430865
MB 480-430865/1-A	Method Blank	Total/NA	Water	351.2	430865
LCS 480-430865/2-A	Lab Control Sample	Total/NA	Water	351.2	430865
240-100102-1 MS	NW INLET	Total/NA	Water	351.2	430865

Prep Batch: 431288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100102-4	MID LAKE TOP	Total/NA	Water	351.2	
240-100102-5	GLENWOOD BLVD	Total/NA	Water	351.2	
240-100102-6	AURORA LAKE RD	Total/NA	Water	351.2	
240-100102-7	SHERWOOD DR	Total/NA	Water	351.2	
MB 480-431288/1-A	Method Blank	Total/NA	Water	351.2	
LCS 480-431288/2-A	Lab Control Sample	Total/NA	Water	351.2	

Analysis Batch: 431584

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100102-1	NW INLET	Total/NA	Water	SM 4500 P E	
240-100102-2	SE INLET	Total/NA	Water	SM 4500 P E	
240-100102-3	MID LAKE BOTTOM	Total/NA	Water	SM 4500 P E	
240-100102-4	MID LAKE TOP	Total/NA	Water	SM 4500 P E	
240-100102-5	GLENWOOD BLVD	Total/NA	Water	SM 4500 P E	
240-100102-6	AURORA LAKE RD	Total/NA	Water	SM 4500 P E	
240-100102-7	SHERWOOD DR	Total/NA	Water	SM 4500 P E	

QC Association Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

General Chemistry (Continued)

Analysis Batch: 431584 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 480-431584/3	Method Blank	Total/NA	Water	SM 4500 P E	
LCS 480-431584/4	Lab Control Sample	Total/NA	Water	SM 4500 P E	

Analysis Batch: 431605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-100102-4	MID LAKE TOP	Total/NA	Water	351.2	431288
240-100102-5	GLENWOOD BLVD	Total/NA	Water	351.2	431288
240-100102-6	AURORA LAKE RD	Total/NA	Water	351.2	431288
240-100102-7	SHERWOOD DR	Total/NA	Water	351.2	431288
MB 480-431288/1-A	Method Blank	Total/NA	Water	351.2	431288
LCS 480-431288/2-A	Lab Control Sample	Total/NA	Water	351.2	431288

Lab Chronicle

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Client Sample ID: NW INLET
Date Collected: 08/17/18 18:00
Date Received: 08/18/18 10:15

Lab Sample ID: 240-100102-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			430865	08/22/18 08:20	CLT	TAL BUF
Total/NA	Analysis	351.2		1	431222	08/23/18 15:55	CLT	TAL BUF
Total/NA	Analysis	SM 2540D		1	341600	08/20/18 09:02	MAC	TAL CAN
Total/NA	Analysis	SM 4500 P E		1	431584	08/27/18 12:30	RP	TAL BUF

Client Sample ID: SE INLET
Date Collected: 08/17/18 17:25
Date Received: 08/18/18 10:15

Lab Sample ID: 240-100102-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			430865	08/22/18 08:20	CLT	TAL BUF
Total/NA	Analysis	351.2		1	431222	08/23/18 17:58	CLT	TAL BUF
Total/NA	Analysis	SM 2540D		1	341600	08/20/18 09:02	MAC	TAL CAN
Total/NA	Analysis	SM 4500 P E		1	431584	08/27/18 12:30	RP	TAL BUF

Client Sample ID: MID LAKE BOTTOM
Date Collected: 08/17/18 17:45
Date Received: 08/18/18 10:15

Lab Sample ID: 240-100102-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			430865	08/22/18 08:20	CLT	TAL BUF
Total/NA	Analysis	351.2		1	431222	08/23/18 15:55	CLT	TAL BUF
Total/NA	Analysis	SM 2540D		1	341808	08/21/18 08:50	MAC	TAL CAN
Total/NA	Analysis	SM 4500 P E		1	431584	08/27/18 12:30	RP	TAL BUF

Client Sample ID: MID LAKE TOP
Date Collected: 08/17/18 17:40
Date Received: 08/18/18 10:15

Lab Sample ID: 240-100102-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			431288	08/24/18 07:45	CLT	TAL BUF
Total/NA	Analysis	351.2		1	431605	08/27/18 12:07	CLT	TAL BUF
Total/NA	Analysis	SM 2540D		1	341808	08/21/18 08:50	MAC	TAL CAN
Total/NA	Analysis	SM 4500 P E		1	431584	08/27/18 12:30	RP	TAL BUF

Client Sample ID: GLENWOOD BLVD
Date Collected: 08/17/18 18:30
Date Received: 08/18/18 10:15

Lab Sample ID: 240-100102-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			431288	08/24/18 07:45	CLT	TAL BUF
Total/NA	Analysis	351.2		1	431605	08/27/18 12:07	CLT	TAL BUF

Lab Chronicle

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Client Sample ID: GLENWOOD BLVD

Lab Sample ID: 240-100102-5
Date Collected: 08/17/18 18:30
Matrix: Water
Date Received: 08/18/18 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	SM 2540D		1	341808	08/21/18 08:50	MAC	TAL CAN
Total/NA	Analysis	SM 4500 P E		1	431584	08/27/18 12:30	RP	TAL BUF

Client Sample ID: AURORA LAKE RD

Lab Sample ID: 240-100102-6
Date Collected: 08/17/18 18:55
Matrix: Water
Date Received: 08/18/18 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			431288	08/24/18 07:45	CLT	TAL BUF
Total/NA	Analysis	351.2		1	431605	08/27/18 10:35	CLT	TAL BUF
Total/NA	Analysis	SM 2540D		1	341808	08/21/18 08:50	MAC	TAL CAN
Total/NA	Analysis	SM 4500 P E		1	431584	08/27/18 12:30	RP	TAL BUF

Client Sample ID: SHERWOOD DR

Lab Sample ID: 240-100102-7
Date Collected: 08/17/18 19:15
Matrix: Water
Date Received: 08/18/18 10:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	351.2			431288	08/24/18 07:45	CLT	TAL BUF
Total/NA	Analysis	351.2		1	431605	08/27/18 10:35	CLT	TAL BUF
Total/NA	Analysis	SM 2540D		1	341808	08/21/18 08:50	MAC	TAL CAN
Total/NA	Analysis	SM 4500 P E		1	431584	08/27/18 12:30	RP	TAL BUF

Laboratory References:

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

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: EnviroScience Inc
TestAmerica Job ID: 240-100102-1
Project/Site: Aurora Lake Monitoring

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-19
Illinois	NELAP	5	200004	07-31-18 *
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-19
Nevada	State Program	9	OH00048	07-31-19
New Jersey	NELAP	2	OH001	06-30-19
New York	NELAP	2	10975	03-31-19
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-19
Pennsylvania	NELAP	3	68-00340	08-31-19 *
Texas	NELAP	6	T104704517-17-9	08-31-18 *
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18 *
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18

Laboratory: TestAmerica Buffalo

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Arkansas DEQ	State Program	6	88-0686	07-06-19
California	State Program	9	2931	04-01-19
Connecticut	State Program	1	PH-0568	09-30-18 *
Florida	NELAP	4	E87672	06-30-19
Georgia	State Program	4	10026 (NY)	03-31-19
Illinois	NELAP	5	200003	09-30-18
Iowa	State Program	7	374	03-01-19
Kansas	NELAP	7	E-10187	01-31-19
Kentucky (DW)	State Program	4	90029	12-31-18
Kentucky (UST)	State Program	4	30	03-31-19
Kentucky (WW)	State Program	4	90029	12-31-18
Louisiana	NELAP	6	02031	06-30-19
Maine	State Program	1	NY00044	12-04-18
Maryland	State Program	3	294	03-31-19
Massachusetts	State Program	1	M-NY044	06-30-19
Michigan	State Program	5	9937	03-31-19
Minnesota	NELAP	5	036-999-337	12-31-18
New Hampshire	NELAP	1	2337	11-17-18
New Jersey	NELAP	2	NY455	06-30-19
New York	NELAP	2	10026	03-31-19
North Dakota	State Program	8	R-176	03-31-19
Oklahoma	State Program	6	9421	08-31-18 *
Oregon	NELAP	10	NY200003	06-09-19
Pennsylvania	NELAP	3	68-00281	07-31-19
Rhode Island	State Program	1	LAO00328	12-30-18

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Accreditation/Certification Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-100102-1

Laboratory: TestAmerica Buffalo (Continued)

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Tennessee	State Program	4	TN02970	03-31-19
Texas	NELAP	6	T104704412-15-6	07-31-19
USDA	Federal		P330-11-00386	02-06-21
Virginia	NELAP	3	460185	09-14-18 *
Washington	State Program	10	C784	02-10-19
Wisconsin	State Program	5	998310390	08-31-18 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Canton
4101 Shuffel Street NW

North Canton, OH 44720-6900
phone 330.497.9396 fax 330.497.0772

28/C28

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	Project Manager: Jeff Niehaus	Site Contact: Alex Valigosky	Date: 8/18/2018	COC No:
EnviroScience, Inc.	Tel/Fax: 419 376 0263	Lab Contact: Leslie Howell	Carrier: Kevin Reed	) of 1 COCs
5070 Stow Rd	Analysis Turnaround Time			Sampler:
Stow OH 44224	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
3306880111	TAT if different from Below			Walk-in Client:
3306883858	☐ 2 weeks			Lab Sampling:
Project Name: Aurora Lake Monitoring	☐ 1 week			Job / SDG No.:
Site:	☐ 2 days			
Project # 240-99263-1	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	351.2 TAL BUF	SM2540D TAL CAN	SM4500 P E TAL BUF	Sample Specific Notes:
NW Inlet	8/17/18	1800	G	W	2	N	N	X	X	X	
SE Inlet	8/17/18	1725						X	X	X	
Mid Lake Bottom		1745						X	X	X	
Mid Lake Top		1740						X	X	X	
Glenwood Blvd		1830						X	X	X	
Aurora Lake Rd		1855						X	X	X	
Sherwood Dr		1915						X	X	X	

240-100102 Chain of Custody

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other 3 1 3

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:
Highlighted samples need to go to TAL BUF for lower detection limits

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:		Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:
Relinquished by:	Company: ES	Date/Time: 8/17 2000	Received by:	Company: ES	Date/Time: 8/17 2000
Relinquished by:	Company: ES	Date/Time: 8/18/1015	Received by:	Company: TAC	Date/Time: 8/18/18 1015
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.15, dated 9/27/2017

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 100102
Canton Facility

Client Enviro Science Site Name _____ Cooler unpacked by: PM

Cooler Received on 8/18 Opened on 8/18

FedEx: 1st Grd Exp UPS FAS Clipper (Client Drop Off) TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA Foam Box Client Cooler Box Other _____

Packing material used: Bubble Wrap Foam (Plastic Bag) None Other _____

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **+0** °C) Observed Cooler Temp. 2.8 °C Corrected Cooler Temp. 2.8 °C
   IR GUN #36 (CF **-0.3**°C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity_____ Yes (No)
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No (NA)
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? Yes No (NA)
3. Shippers' packing slip attached to the cooler(s)? Yes (No)
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes (No)
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes (No)
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? (Yes) No NA pH Strip Lot# **HC849161**
13. Were VOAs on the COC? Yes (No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes (No)
16. Was a LL Hg or Me Hg trip blank present? _____ Yes (No)

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: JR

18. SAMPLE CONDITION

Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____.

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
NW INLET	240-100102-B-1	Plastic 500ml - with Sulfuric Acid	<2	_____	_____
SE INLET	240-100102-B-2	Plastic 500ml - with Sulfuric Acid	<2	_____	_____
MID LAKE BOTTOM	240-100102-B-3	Plastic 500ml - with Sulfuric Acid	<2	_____	_____
MID LAKE TOP	240-100102-B-4	Plastic 500ml - with Sulfuric Acid	<2	_____	_____
GLENWOOD BLVD	240-100102-B-5	Plastic 500ml - with Sulfuric Acid	<2	_____	_____
AURORA LAKE RD	240-100102-B-6	Plastic 500ml - with Sulfuric Acid	<2	_____	_____
SHERWOOD DR	240-100102-B-7	Plastic 500ml - with Sulfuric Acid	<2	_____	_____

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Howell, Leslie	Carrier Tracking No(s):	COC No: 240-91348.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: leslie.howell@testamericainc.com	State of Origin: Ohio	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note):		Job #: 240-100102-1
Address: 10 Hazelwood Drive, ,	Due Date Requested: 8/30/2018			
City: Amherst	TAT Requested (days):			
State, Zip: NY, 14228-2298				
Phone: 716-691-2600(Tel) 716-691-7991(Fax)	PO #:			
Email:	WO #:			
Project Name: Aurora Lake Monitoring	Project #: 24020271			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	4500_P_E	351.2/351.2_Prep	Total Number of containers	Special Instructions/Note:
			Preservation Code:							
NW INLET (240-100102-1)	8/17/18	18:00 Eastern		Water			X	X	1	
SE INLET (240-100102-2)	8/17/18	17:25 Eastern		Water			X	X	1	
MID LAKE BOTTOM (240-100102-3)	8/17/18	17:45 Eastern		Water			X	X	1	
MID LAKE TOP (240-100102-4)	8/17/18	17:40 Eastern		Water			X	X	1	
GLENWOOD BLVD (240-100102-5)	8/17/18	18:30 Eastern		Water			X	X	1	
AURORA LAKE RD (240-100102-6)	8/17/18	18:55 Eastern		Water			X	X	1	
SHERWOOD DR (240-100102-7)	8/17/18	19:15 Eastern		Water			X	X	1	

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

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

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

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Charles Gantt	8-20-18 15:38	240		8/21/18 0945	MTS.
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: #1 3.0°

Ver: 09/20/2016

Login Sample Receipt Checklist

Client: EnviroScience Inc

Job Number: 240-100102-1

Login Number: 100102
List Number: 2
Creator: Hulbert, Michael J

List Source: TestAmerica Buffalo
List Creation: 08/21/18 03:52 PM

Question	Answer	Comment
Radioactivity either was not measured or, if measured, is at or below background	True	
The cooler's custody seal, if present, is intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	3.0 #1
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the sample IDs on the containers and the COC.	True	
Samples are received within Holding Time (Excluding tests with immediate HTs)..	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
VOA sample vials do not have headspace or bubble is <6mm (1/4") in diameter.	N/A	
If necessary, staff have been informed of any short hold time or quick TAT needs	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Sampling Company provided.	True	
Samples received within 48 hours of sampling.	False	
Samples requiring field filtration have been filtered in the field.	N/A	
Chlorine Residual checked.	N/A	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Tel: (330)497-9396

TestAmerica Job ID: 240-95517-1
Client Project/Site: Aurora Lake Monitoring

For:
EnviroScience Inc
5070 Stow Rd.
Stow, Ohio 44224

Attn: Alex Valigosky

Leslie A Howell

Authorized for release by:
5/23/2018 12:12:34 PM

Leslie Howell, Project Manager I
(330)497-9396
leslie.howell@testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Glossary

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

Case Narrative

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-95517-1

Job ID: 240-95517-1

Laboratory: TestAmerica Canton

Narrative

Job Narrative
240-95517-1

Comments
No additional comments.

Receipt
The samples were received on 5/11/2018 3:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.3º C.

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

Method Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-95517-1

Method	Method Description	Protocol	Laboratory
2540 D-2011	Total Suspended Solids (Dried at 103-105°C)	SM	TAL CAN
SM4500 P E-2011	Phosphorus	SM	TAL CAN
SM4500_NH3_C	Kjeldahl Nitrogen, Total	SM	TAL CAN
SM4500Norg_C	Preparation, Nitrogen -Total Kjeldahl	SM	TAL CAN

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Sample Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-95517-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-95517-1	NW INLET	Water	05/11/18 10:50	05/11/18 15:00
240-95517-2	SE INLET	Water	05/11/18 09:15	05/11/18 15:00
240-95517-3	MIDLAKE BOTTOM	Water	05/11/18 10:35	05/11/18 15:00
240-95517-4	MIDLAKE TOP	Water	05/11/18 10:25	05/11/18 15:00

Detection Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-95517-1

Client Sample ID: NW INLET — Lab Sample ID: 240-95517-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	8.0		4.0		mg/L	1		2540 D-2011	Total/NA

Client Sample ID: SE INLET — Lab Sample ID: 240-95517-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	7.0		4.0		mg/L	1		2540 D-2011	Total/NA

Client Sample ID: MIDLAKE BOTTOM — Lab Sample ID: 240-95517-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	6.0		4.0		mg/L	1		2540 D-2011	Total/NA

Client Sample ID: MIDLAKE TOP — Lab Sample ID: 240-95517-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Total Suspended Solids	6.0		4.0		mg/L	1		2540 D-2011	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-95517-1

Client Sample ID: NW INLET
Date Collected: 05/11/18 10:50
Date Received: 05/11/18 15:00

Lab Sample ID: 240-95517-1
Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	**8.0**		4.0		mg/L			05/16/18 09:38	1
Total Phosphorus as P	ND		0.10		mg/L			05/22/18 12:33	1
Nitrogen, Kjeldahl	ND		5.0		mg/L		05/21/18 16:11	05/22/18 10:16	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-95517-1

Client Sample ID: SE INLET

Date Collected: 05/11/18 09:15
Date Received: 05/11/18 15:00

Lab Sample ID: 240-95517-2

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	**7.0**		4.0		mg/L			05/16/18 09:38	1
Total Phosphorus as P	ND		0.10		mg/L			05/22/18 12:36	1
Nitrogen, Kjeldahl	ND		5.0		mg/L		05/21/18 16:11	05/22/18 10:16	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-95517-1

Client Sample ID: MIDLAKE BOTTOM

Date Collected: 05/11/18 10:35
Date Received: 05/11/18 15:00

Lab Sample ID: 240-95517-3

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	**6.0**		4.0		mg/L			05/16/18 09:38	1
Total Phosphorus as P	ND		0.10		mg/L			05/22/18 09:57	1
Nitrogen, Kjeldahl	ND		5.0		mg/L		05/21/18 16:11	05/22/18 10:16	1

Client Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-95517-1

Client Sample ID: MIDLAKE TOP

Date Collected: 05/11/18 10:25
Date Received: 05/11/18 15:00

Lab Sample ID: 240-95517-4

Matrix: Water

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	**6.0**		4.0		mg/L			05/16/18 09:38	1
Total Phosphorus as P	ND		0.10		mg/L			05/22/18 10:00	1
Nitrogen, Kjeldahl	ND		5.0		mg/L		05/21/18 16:11	05/22/18 10:16	1

QC Sample Results

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-95517-1

Method: 2540 D-2011 - Total Suspended Solids (Dried at 103-105°C)

Lab Sample ID: MB 240-327093/1
Matrix: Water
Analysis Batch: 327093

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Suspended Solids	ND		4.0		mg/L			05/16/18 09:38	1

Lab Sample ID: LCS 240-327093/2
Matrix: Water
Analysis Batch: 327093

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Suspended Solids			33.7	23.0		mg/L		68	64 - 120		

Method: SM4500 P E-2011 - Phosphorus

Lab Sample ID: MB 240-327944/3
Matrix: Water
Analysis Batch: 327944

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Phosphorus as P	ND		0.10		mg/L			05/22/18 08:55	1

Lab Sample ID: LCS 240-327944/4
Matrix: Water
Analysis Batch: 327944

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Phosphorus as P			0.447	0.433		mg/L		97	77 - 120		

Lab Sample ID: MB 240-327990/3
Matrix: Water
Analysis Batch: 327990

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Phosphorus as P	ND		0.10		mg/L			05/22/18 12:04	1

Lab Sample ID: LCS 240-327990/4
Matrix: Water
Analysis Batch: 327990

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Phosphorus as P			0.447	0.494		mg/L		110	77 - 120		

Method: SM4500_NH3_C - Kjeldahl Nitrogen, Total

Lab Sample ID: MB 240-327840/1-A
Matrix: Water
Analysis Batch: 327966

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 327840

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	ND		5.0		mg/L		05/21/18 16:11	05/22/18 10:16	1

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-95517-1

Method: SM4500_NH3_C - Kjeldahl Nitrogen, Total (Continued)

Lab Sample ID: LCS 240-327840/2-A
Matrix: Water
Analysis Batch: 327966

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 327840

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrogen, Kjeldahl	9.58	10.5		mg/L		110	59 - 126

QC Association Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-95517-1

General Chemistry

Analysis Batch: 327093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-95517-1	NW INLET	Total/NA	Water	2540 D-2011	
240-95517-2	SE INLET	Total/NA	Water	2540 D-2011	
240-95517-3	MIDLAKE BOTTOM	Total/NA	Water	2540 D-2011	
240-95517-4	MIDLAKE TOP	Total/NA	Water	2540 D-2011	
MB 240-327093/1	Method Blank	Total/NA	Water	2540 D-2011	
LCS 240-327093/2	Lab Control Sample	Total/NA	Water	2540 D-2011	

Prep Batch: 327840

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-95517-1	NW INLET	Total/NA	Water	SM4500Norg_C	
240-95517-2	SE INLET	Total/NA	Water	SM4500Norg_C	
240-95517-3	MIDLAKE BOTTOM	Total/NA	Water	SM4500Norg_C	
240-95517-4	MIDLAKE TOP	Total/NA	Water	SM4500Norg_C	
MB 240-327840/1-A	Method Blank	Total/NA	Water	SM4500Norg_C	
LCS 240-327840/2-A	Lab Control Sample	Total/NA	Water	SM4500Norg_C	

Analysis Batch: 327944

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-95517-3	MIDLAKE BOTTOM	Total/NA	Water	SM4500 P E-2011	
240-95517-4	MIDLAKE TOP	Total/NA	Water	SM4500 P E-2011	
MB 240-327944/3	Method Blank	Total/NA	Water	SM4500 P E-2011	
LCS 240-327944/4	Lab Control Sample	Total/NA	Water	SM4500 P E-2011	

Analysis Batch: 327966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-95517-1	NW INLET	Total/NA	Water	SM4500_NH3_C	327840
240-95517-2	SE INLET	Total/NA	Water	SM4500_NH3_C	327840
240-95517-3	MIDLAKE BOTTOM	Total/NA	Water	SM4500_NH3_C	327840
240-95517-4	MIDLAKE TOP	Total/NA	Water	SM4500_NH3_C	327840
MB 240-327840/1-A	Method Blank	Total/NA	Water	SM4500_NH3_C	327840
LCS 240-327840/2-A	Lab Control Sample	Total/NA	Water	SM4500_NH3_C	327840

Analysis Batch: 327990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-95517-1	NW INLET	Total/NA	Water	SM4500 P E-2011	
240-95517-2	SE INLET	Total/NA	Water	SM4500 P E-2011	
MB 240-327990/3	Method Blank	Total/NA	Water	SM4500 P E-2011	
LCS 240-327990/4	Lab Control Sample	Total/NA	Water	SM4500 P E-2011	

Lab Chronicle

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-95517-1

Client Sample ID: NW INLET
Date Collected: 05/11/18 10:50
Date Received: 05/11/18 15:00

Lab Sample ID: 240-95517-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540 D-2011		1	327093	05/16/18 09:38	JMB	TAL CAN
Total/NA	Analysis	SM4500 P E-2011		1	327990	05/22/18 12:33	TPH	TAL CAN
Total/NA	Prep	SM4500Norg_C			327840	05/21/18 16:11	MMM	TAL CAN
Total/NA	Analysis	SM4500_NH3_C		1	327966	05/22/18 10:16	MMM	TAL CAN

Client Sample ID: SE INLET
Date Collected: 05/11/18 09:15
Date Received: 05/11/18 15:00

Lab Sample ID: 240-95517-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540 D-2011		1	327093	05/16/18 09:38	JMB	TAL CAN
Total/NA	Analysis	SM4500 P E-2011		1	327990	05/22/18 12:36	TPH	TAL CAN
Total/NA	Prep	SM4500Norg_C			327840	05/21/18 16:11	MMM	TAL CAN
Total/NA	Analysis	SM4500_NH3_C		1	327966	05/22/18 10:16	MMM	TAL CAN

Client Sample ID: MIDLAKE BOTTOM
Date Collected: 05/11/18 10:35
Date Received: 05/11/18 15:00

Lab Sample ID: 240-95517-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540 D-2011		1	327093	05/16/18 09:38	JMB	TAL CAN
Total/NA	Analysis	SM4500 P E-2011		1	327944	05/22/18 09:57	TPH	TAL CAN
Total/NA	Prep	SM4500Norg_C			327840	05/21/18 16:11	MMM	TAL CAN
Total/NA	Analysis	SM4500_NH3_C		1	327966	05/22/18 10:16	MMM	TAL CAN

Client Sample ID: MIDLAKE TOP
Date Collected: 05/11/18 10:25
Date Received: 05/11/18 15:00

Lab Sample ID: 240-95517-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2540 D-2011		1	327093	05/16/18 09:38	JMB	TAL CAN
Total/NA	Analysis	SM4500 P E-2011		1	327944	05/22/18 10:00	TPH	TAL CAN
Total/NA	Prep	SM4500Norg_C			327840	05/21/18 16:11	MMM	TAL CAN
Total/NA	Analysis	SM4500_NH3_C		1	327966	05/22/18 10:16	MMM	TAL CAN

Laboratory References:
TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

Accreditation/Certification Summary

Client: EnviroScience Inc
Project/Site: Aurora Lake Monitoring

TestAmerica Job ID: 240-95517-1

Laboratory: TestAmerica Canton

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

Authority	Program	EPA Region	Identification Number	Expiration Date
California	State Program	9	2927	02-23-19
Connecticut	State Program	1	PH-0590	12-31-19
Florida	NELAP	4	E87225	06-30-18 *
Illinois	NELAP	5	200004	07-31-18
Kansas	NELAP	7	E-10336	01-31-19
Kentucky (UST)	State Program	4	58	02-23-19
Kentucky (WW)	State Program	4	98016	12-31-18
Minnesota	NELAP	5	039-999-348	12-31-18
Minnesota (Petrofund)	State Program	1	3506	07-31-18
Nevada	State Program	9	OH-000482008A	07-31-18
New Jersey	NELAP	2	OH001	06-30-18 *
New York	NELAP	2	10975	03-31-19
Ohio VAP	State Program	5	CL0024	09-06-19
Oregon	NELAP	10	4062	02-23-19
Pennsylvania	NELAP	3	68-00340	08-31-18
Texas	NELAP	6	T104704517-17-9	08-31-18
USDA	Federal		P330-16-00404	12-28-19
Virginia	NELAP	3	460175	09-14-18
Washington	State Program	10	C971	01-12-19
West Virginia DEP	State Program	3	210	12-31-18

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

TestAmerica Canton
4101 Shuffel Street NW
North Canton, OH 44720
Phone (330) 497-9396 Fax (330) 497-0772

Chain of Custody Record

2.2/C23

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: A Valigosky	Lab PM: Howell, Leslie	Carrier Tracking No(s):	COC No: 240-50770-21863.1
Client Contact: Alex Valigosky	Phone: 419 376 0263	E-Mail: leslie.howell@testamericainc.com		Page: Page 1 of 1
Company: EnviroScience Inc		Analysis Requested		Job #:
Address: 5070 Stow Rd.	Due Date Requested:			Preservation Codes: A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
City: Stow	TAT Requested (days):			
State, Zip: OH, 44224				
Phone: 330-688-0111(Tel)	PO #: Purchase Order not required			
Email: avaligosky@enviroscienceinc.com	WO #:			
Project Name: Aurora Lake Monitoring	Project #: 24015916			
Site:	SSOW#:			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	4500_P_E; SM4500Norg_C	2540D - Local Method	Total Num	Special Instructions/Note:
			Preservation Code:				S	N		
NW Inlet	5/11/18	1050	G	Water			X	X	2	1, S
SE Inlet	5/11/18	0915	G	Water			X	X	2	1, S
Mid Lake Bottom	5/11/18	1035	G	Water			X	X	2	1, S
Mid Lake Top	5/11/18	1025	G	Water			X	X	2	1, S
				Water						
				Water						
				Water						
				Water						

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

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

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

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by: A. Valigosky	Date/Time: 5/11/18 1500	Company: ES	Received by:	Date/Time: 5-11-18 1520	Company: TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

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

Ver: 08/04/2016

TestAmerica Canton Sample Receipt Form/Narrative **Login # :** 95517
Canton Facility

Client ENVIRO SCIENCE Site Name —

Cooler Received on 5-11-18 Opened on 5-11-18

Cooler unpacked by: POP

FedEx: 1st Grd Exp UPS FAS Clipper (Client Drop Off) TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # TA Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam (Plastic Bag) None Other

COOLANT: (Wet Ice) Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt ☐ See Multiple Cooler Form
   IR GUN# IR-8 (CF **+0.1** °C) Observed Cooler Temp. 2.2 °C Corrected Cooler Temp. 2.3 °C
   IR GUN #36 (CF **+0.3**°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °C
   ~~IR GUN # 627 (CF **-1.3**°C) Observed Cooler Temp. ____ °C Corrected Cooler Temp. ____ °C~~

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity — Yes (No)
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No (NA)
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   -Were tamper/custody seals intact and uncompromised? Yes No (NA)
3. Shippers' packing slip attached to the cooler(s)? Yes (No)
4. Did custody papers accompany the sample(s)? (Yes) No
5. Were the custody papers relinquished & signed in the appropriate place? (Yes) No
6. Was/were the person(s) who collected the samples clearly identified on the COC? (Yes) No
7. Did all bottles arrive in good condition (Unbroken)? (Yes) No
8. Could all bottle labels be reconciled with the COC? (Yes) No
9. Were correct bottle(s) used for the test(s) indicated? (Yes) No
10. Sufficient quantity received to perform indicated analyses? (Yes) No
11. Are these work share samples? Yes (No)
    If yes, Questions 12-16 have been checked at the originating laboratory.
12. Were all preserved sample(s) at the correct pH upon receipt? (Yes) No NA pH Strip Lot# **HC732776**
13. Were VOAs on the COC? Yes (No)
14. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No (NA)
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # ____ Yes (No)
16. Was a LL Hg or Me Hg trip blank present? ____ Yes (No)

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM ____ Date ____ by ____ via Verbal Voice Mail Other

Concerning ____

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: P.O.P.

18. SAMPLE CONDITION

Sample(s) ____ were received after the recommended holding time had expired.
Sample(s) ____ were received in a broken container.
Sample(s) ____ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) ____ were further preserved in the laboratory.
Time preserved: ____ Preservative(s) added/Lot number(s): ____.

WI-NC-099

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
NW INLET	240-95517-B-1	Plastic 250ml - with Sulfuric Acid	<2	_____	_____
SE INLET	240-95517-B-2	Plastic 250ml - with Sulfuric Acid	<2	_____	_____
MIDLAKE BOTTOM	240-95517-B-3	Plastic 250ml - with Sulfuric Acid	<2	_____	_____
MIDLAKE TOP	240-95517-B-4	Plastic 250ml - with Sulfuric Acid	<2	_____	_____