# 2019 WATER QUALITY MONITORING BELTZVILLE RESERVOIR LEHIGHTON, PENNSYLVANIA



U.S. Army Corps of Engineers Philadelphia District Environmental Resources Branch

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## Beltzville Reservoir Lehighton, Pennsylvania

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### 1.0 INTRODUCTION

#### 1.1 PURPOSE OF THE MONITORING PROGRAM

The U.S. Army Corps of Engineers (USACE) operates Beltzville Reservoir located in east-central Pennsylvania within the Delaware River Basin. Beltzville Reservoir provides flood control and a dependable water supply to downstream communities along the Pohopoco Creek and Lehigh River. Additionally, the reservoir provides important habitat for fish, waterfowl, and other wildlife, and recreational opportunities through fishing, boating, and swimming. Due to the broad range of uses and demands that Beltzville Reservoir serves, the USACE monitors water quality to compare with state water quality standards and to diagnose other problems that commonly effect reservoir health such as nutrient enrichment and toxic loadings. This report summarizes the results of water quality monitoring at Beltzville Reservoir from 27 June to 12 September 2019.

#### 1.2 DESCRIPTION OF BELTZVILLE RESERVOIR

Beltzville Reservoir was designed to provide flood control, water supply, and enhanced water quality to downstream communities along the Lehigh River. The damming of Pohopoco Creek approximately three miles upstream of its confluence with the Lehigh River formed the reservoir. The reservoir is located in Carbon County, 3 miles northeast of Lehighton and about 20 miles northwest of Allentown, Pennsylvania. The reservoir dams a drainage area of 96.3 square miles and can impound up to 13 billion gallons of water. The primary water source feeding into the lake is Pohopoco Creek as it flows southwest to the Lehigh River. Secondary water sources include Pine Run and Wild Creek, both entering the reservoir from the north. The reservoir is approximately 7 miles long and, when full, covers an area of 947 acres. The maximum depth of the lake is 140 feet near the face of the dam.

#### 1.3 ELEMENTS OF THE STUDY

The USACE, Philadelphia District, has been monitoring the water quality of Beltzville Reservoir since 1975. Over this time, the yearly monitoring designs have evolved to address new concerns such as the health of public drinking water and contamination of reservoir bottom sediments. The 2019 monitoring program included the following major elements:

- Monthly water quality and bacteria surface water monitoring of reservoir and upstream sources to evaluate compliance with Pennsylvania state water quality standards and to evaluate the health of the reservoir ecosystem starting on 27 June and ending on 12 September 2019; and
- Monthly profile samples for temperature, dissolved oxygen, chlorophyll a, pH, turbidity, and conductivity at all stations in the reservoir and watershed starting on 27 June and ending on 12 September 2019.

### 2.0 METHODS

#### 2.1 STRATIFICATION MONITORING

Physical stratification monitoring of the water column was conducted five times at Beltzville Reservoir between 27 June and 12 September 2019 (Table 2-1). Physical stratification parameters included depth, temperature, dissolved oxygen (DO), pH, turbidity, chlorophyll a, and conductivity. Physical stratification was monitored at seven fixed stations throughout the reservoir watershed (Fig. 2-1). Three stations were located within the reservoir body (BZ-3, BZ-6, and BZ-7) for which water quality was measured from the surface to the bottom in 5-foot increments. Surface water quality was measured at four stations, located in upstream source waters (BZ-2S on Pine Run, BZ-4S on Wild Creek, and BZ-5S on Pohopoco Creek) and BZ-1S downstream of the reservoir on Pohopoco Creek. The physical water quality parameters were measured with a calibrated YSI 6600 V2-4 water quality probe. For this report, all of the stratification monitoring results were summarized and compared to water quality standards enacted by the Pennsylvania Department of Environmental Protection (PADEP), when applicable.

### 2.2 WATER COLUMN CHEMISTRY MONITORING

Water column chemistry monitoring was conducted five times (once a month) at Beltzville Reservoir between 27 June and 12 September 2019 (Table 2-1). Water samples were collected at the seven fixed stations in the reservoir watershed (Fig. 2-1). Surface water samples were collected in release waters downstream of the reservoir (BZ-1S) and on upstream tributary sources Pine Run (BZ-2S), Wild Creek (BZ-4S), and Pohopoco Creek (BZ-5S). Surface, middle, and bottom water samples were collected at three reservoir stations (BZ-3, BZ-6, and BZ-7). Surface water samples were collected by opening sample containers approximately 1 foot below the water's surface. Middle and bottom water samples were collected with a Van Dorn design horizontal water bottle. Laboratory water sample analysis was conducted by M.J. Reider Associates, Inc Environmental Testing Laboratory located in Reading, Pennsylvania (U.S. EPA/PA DEP #06-00003) and SGS North America Inc. laboratory located in Dayton, New Jersey (DoD ELAP (ANAB L2248)).

Water samples from all depths were analyzed for ammonia, nitrite, nitrate, total Kjeldahl nitrogen, total phosphorus, soluble phosphorus, total dissolved solids, total suspended solids, biochemical oxygen demand, alkalinity, and total organic carbon. Table 2-2 summarizes the laboratory method detection limits, laboratory/Corps required reporting limits, state regulatory criteria, and allowable maximum hold times for each water quality parameter monitored.

 Table 2-1.
 Beltzville Reservoir water quality monitoring schedule for 2019

Date of Sample Collection	Physical Stratification Monitoring (All Stations)	Water Column Chemistry Monitoring (All Stations)	BTEX Monitoring <sup>(1)</sup> (BZ-3 and -6)	Trophic State Assessment (BZ-6)	Coliform Bacteria Monitoring (All Surface Stations)	Drinking Water Monitoring <sup>(2)</sup>
27 June	Χ	X	-	X	X	-
18 July	X	×	-	X	X	-
01 August	Χ	×	-	X	X	-
21 August	Χ	X	-	X	X	-
12 September	Χ	X	-	Χ	X	-

<sup>(1)</sup> BTEX sampling was not conducted in 2019 based on historically low and non-detectable levels of these parameters.

<sup>(2)</sup> Drinking water samples are sampled quarterly by personnel at each reservoir. This data has not been included within the reservoir water quality sampling report.



**Figure 2-1.** Water quality monitoring stations in 2019 at the U.S. Army Corps of Engineers Beltzville Reservoir located in Lehighton, Pennsylvania.

**Table 2-2.** Water quality test methods, detection limits, state regulatory criteria, and sample holding times for water quality parameters monitored at Beltzville Reservoir in 2019

Parameter	(2) Method	Laboratory Limit of Reporting	PADEP Surface Water Quality Criteria	Allowable Hold Times (Days)	
Total Alkalinity	SM20 2320 B-11	10.0 mg/L	Min. 20 mg/L CaCO₃	14	
Biochemical Oxygen Demand (BOD)	SM5210 B-11	5.0 mg/L	None	2	
Total Phosphorus	SM4500-P E	0.01 mg/L	None	28	
Diss./Ortho-Phosphate	NA	NA	None	28	
Soluble Phosphorus	SM4500-P E	0.007 mg/L	None	28	
Total Organic Carbon (TOC)	SM5310 B-11	1.0 mg/L	None	28	
Total Inorganic Carbon (TIC) *	NA	NA	None	28	
Total Carbon (TOC + TIC) *	NA	NA	None	28	
(1) Chlorophyll a	YSI Probe		None	In Situ	
Total Kjeldahl Nitrogen	EPA 351.2/ LACHAT	0.20 mg/L	None	28	
Ammonia	SM4500 H-11LACHAT	0.20 mg/L	Temp. and pH dependent	28	
Nitrate	EPA 353.2/ SM4500NO2B	0.11 mg/L	Maximum	28	
Nitrite	SM4500NO2 B-11	0.01 mg/L	10 mg/L (nitrate + nitrite)	28	
Total Dissolved Solids	SM2540 C-11	10.0 mg/L	Maximum 750 mg/L	7	
Total Suspended Solids	SM2540 D-11	4.0 mg/L	None	7	

<sup>(1)</sup> Chlorophyll a samples were recorded using a YSI 6600 with a chlorophyll sensor.

<sup>(2)</sup> Laboratory Methods Reference:

**EPA**- "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", 22<sup>nd</sup> Edition, 2012.

**SW846-** "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", 3<sup>rd</sup>. Edition, November 1986 and updates.

<sup>\*</sup> Total Inorganic Carbon and Total Carbon were not sampled for in 2019

#### 2.3 TROPHIC STATE DETERMINATION

The trophic state of Beltzville Reservoir was determined by methods outlined by Carlson (1977). In general, this method calculated trophic state indices (TSIs) independently for measures of total phosphorus, chlorophyll *a*, and secchi disk depth. Surface water measures of total phosphorus and chlorophyll *a* from chemistry monitoring were used independently in the determination of monthly trophic state (Table 2-1). Secchi disk depth was measured monthly at reservoir-body station BZ-6. Trophic state determinations were made using criteria defined by Carlson and EPA (1983) and calculated for the deepest portion of the reservoir (Station BZ-6).

#### 2.4 RESERVOIR BACTERIA MONITORING

Monitoring for coliform bacteria contaminants was conducted five times at Beltzville Reservoir between 27 June and 12 September 2019 (Table 2-1). Surface water samples were collected at all seven stations and analyzed for total coliform and fecal coliform each month. The samples were collected in the same manner as the chemistry samples or approximately 1-foot below the surface of the water. Table 2-3 presents the test methods, detection limits, PADEP standards, and sample holding times for the bacteria parameters monitored at Beltzville Reservoir in 2019. The bacteria analytical method was based on a membrane filtration technique. All of the samples were analyzed within their maximum allowable hold times. Laboratory analysis was conducted by Eurofins QC, LLC located in Horsham, Pennsylvania (NELAP/PA 46-05499).

<b>Table 2-3.</b> Water quality test methods, detection limits, PADEP standards, and sample holding times for bacteria parameters monitored at Beltzville Reservoir in 2019.											
Parameter	Total Coliform	Fecal Coliform									
Test method	SM 9223 B	SM 9222 D									
Limit of Quantification	10 clns/100-mls	1 clns/100-mls									
PADEP standard	None	Geometric mean < 200 clns/100-mls or a single sample reading of < 1000 clns/100-mls									
Max. allowable holding time	30 hours	30 hours									
Achieved holding time	< 30 hours	< 30 hours									

The PADEP monthly coliform bacteria standard is defined as a maximum geometric mean of 200 colonies/100-ml based on 5 consecutive samples collected on different days. In addition, a single sample standard of 1000 colonies/100-ml can also be used. These standards are most applicable at bathing beaches. Beltzville State Park maintains a bathing beach at Beltzville Reservoir and conducts bacteria sampling of that area. Given our logistical limitations (all monthly sampling conducted on one day) and the fact that water contact recreation is permitted within the reservoir, the coliform data collected by the Corps is compared to the single sample standard as a method of collecting and evaluating background coliform data on the main body of the reservoir. Although our sampling design does not fully meet PADEP guidelines for bathing beach monitoring, we feel that this interpretation of the coliform data meets the intent of the PADEP water quality standard for evaluating Beltzville Reservoir bacteria levels within the main reservoir body.

### 3.0 RESULTS AND DISCUSSION

#### 3.1 STRATIFICATION MONITORING

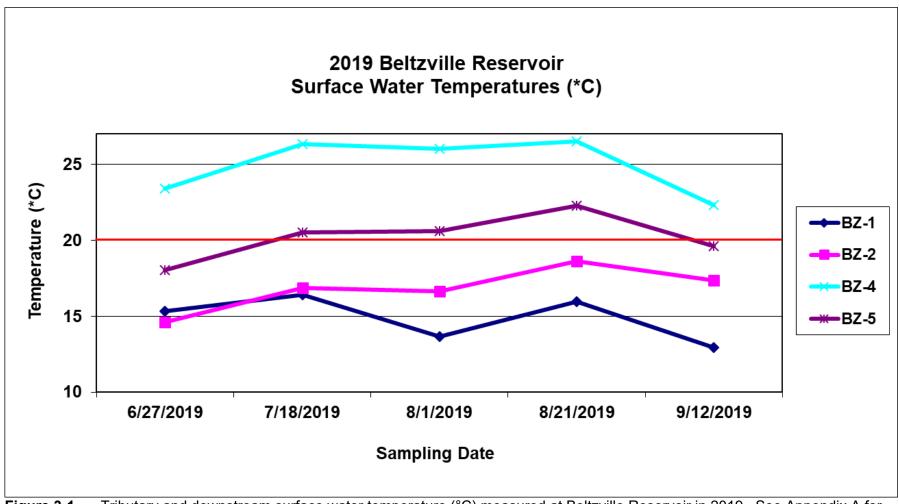
The following sections summarize the water quality monitoring results of the physical and chemical parameters: temperature, dissolved oxygen, and pH. Seasonal and spatial patterns of surface water quality measured throughout the reservoir watershed, and seasonal and depth related patterns of the stratified lake water column based on measures from the deepest portion of the reservoir (station BZ-6 or the "Tower") are described. The discussion of stratification is focused on this station as water quality problems related to depth are generally most severe in deeper water habitats. Corps personnel collected the physical and chemical water quality data discussed herein over the monitoring period from June to September 2019. All of the parameters were measured with a calibrated YSI 6600 V2-4 water quality probe and are presented in Appendix A.

### 3.1.1 Temperature

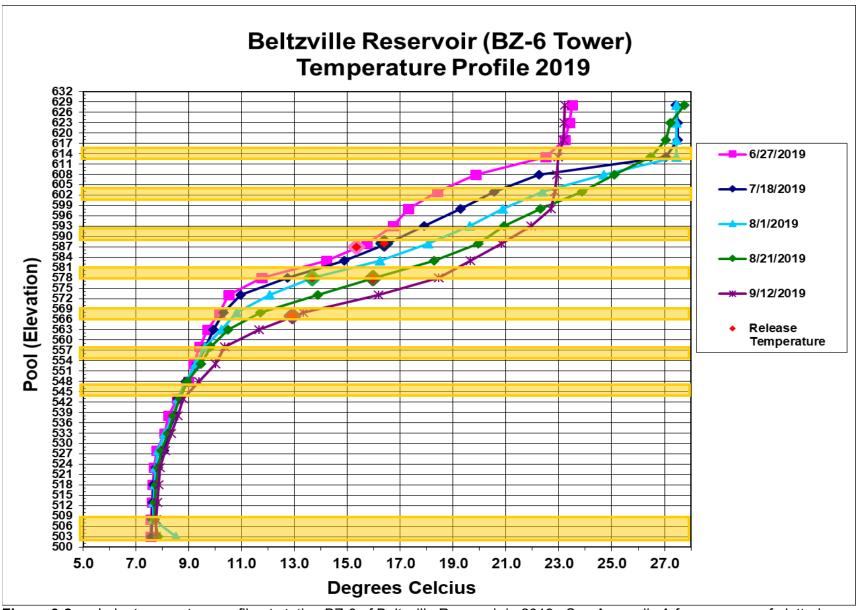
Temperature is the primary influencing factor on water density, affects the solubility of many chemicals compounds, and can therefore influence the effect of pollutants on aquatic life. Increased temperatures elevate the metabolic oxygen demand, in conjunction with reduced oxygen solubility, and can impact many species. Vertical stratification patterns naturally occurring in lakes affect the distribution of dissolved and suspended compounds.

Temperatures of the tributary and downstream release surface waters generally followed a similar seasonal pattern throughout the watershed of Beltzville Reservoir during 2019 with maximum surface water temperatures seen in late August (Fig. 3-1). The maximum upstream tributary temperature of 26.50 °C was seen at station BZ-4S on 21 August. The maximum downstream release (BZ-1S) surface water temperature was 16.4 °C on 18 July. Upstream and downstream waters have a variety of environmental and anthropogenic factors potentially influencing surface water temperature. Station BZ-1S is directly influenced by Beltzville Reservoir releases that are pulled from various locations in the water column and is dictated by reservoir release operations. Downstream release temperatures are managed to meet Pennsylvania State High Quality Cold Water Fishery standards. Station BZ-2S is a small well vegetated cold water tributary. Station BZ-4S is influenced by Wild Creek Reservoir releases upstream of Beltzville Reservoir and consistently maintained the highest average tributary surface water temperatures throughout the sampling season. Station BZ-5S is located in an open water area were Pohopoco Creek enters Beltzville Reservoir. These factors, amongst others, result in the temperature variations in surface water temperatures at each tributary station shown in Figure 3.1.

Beltzville Reservoir was stratified with respect to temperature in 2019 (Fig. 3-2). The reservoir surface waters are warmed by the sun and account for warmer surface water temperatures recorded at lake stations (BZ-3, BZ-7, and BZ-6). In June, the onset of stratification was apparent at Station BZ-6 with lake surface temperatures (23.50°C) approximately 15.94°C warmer than the lower water column (7.56°C). A strong stratification pattern was evident from June into August. In September, cooling surface temperatures and erosion of the epilimnion marked the onset of fall turnover and destratification within the reservoir.



**Figure 3-1.** Tributary and downstream surface water temperature (°C) measured at Beltzville Reservoir in 2019. See Appendix A for Summary of plotted values. Station BZ-1 reflects releases surface water temperatures downstream of Beltzville Reservoir. The coldwater species preference temperature of 20°C is shown as a red line reference.



**Figure 3-2.** Lake temperature profile at station BZ-6 of Beltzville Reservoir in 2019. See Appendix A for summary of plotted values. The yellow bars represent the locations of water control gates in the Beltzville Reservoir control tower. Corresponding downstream release water temperatures at Station BZ-1S on each sampling date is also presented.

### 3.1.2 Dissolved Oxygen

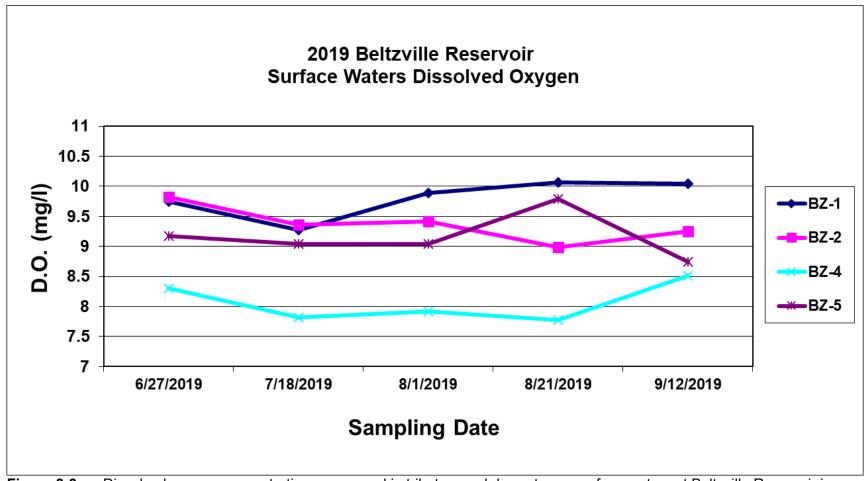
Dissolved oxygen (DO) is the measure of the amount of DO in water. Typically, DO concentrations in surface waters are less than 10 mg/L. Dissolved Oxygen concentrations are subject to diurnal and seasonal fluctuations that can be influenced, in part, by air and water temperature, river discharge, and photosynthetic activity. Dissolved Oxygen is essential to the respiratory metabolism of most aquatic organisms. It affects the availability and solubility of nutrients and subsequently the productivity of aquatic ecosystems. Low levels of dissolved oxygen can facilitate the release of nutrients from bottom sediments.

Dissolved oxygen (DO) in the tributary and release surface waters remained primarily within an 8-10 mg/L range of values and followed a similar seasonal pattern throughout the watershed of Beltzville Reservoir during 2019 (Fig. 3-3). Dissolved oxygen concentrations downstream of the reservoir (BZ-1S) averaged 9.82 mg/L for the sampling season. The upstream tributary stations (BZ-2S, -4S, -5S) ranged in values from 7.77 mg/L to 9.82 mg/L for the sampling season. The maximum DO reading of 10.06 mg/L occurred at BZ-1S on 21 August and a minimum reading of 7.77 mg/L occurred at BZ-4S on 21 August.

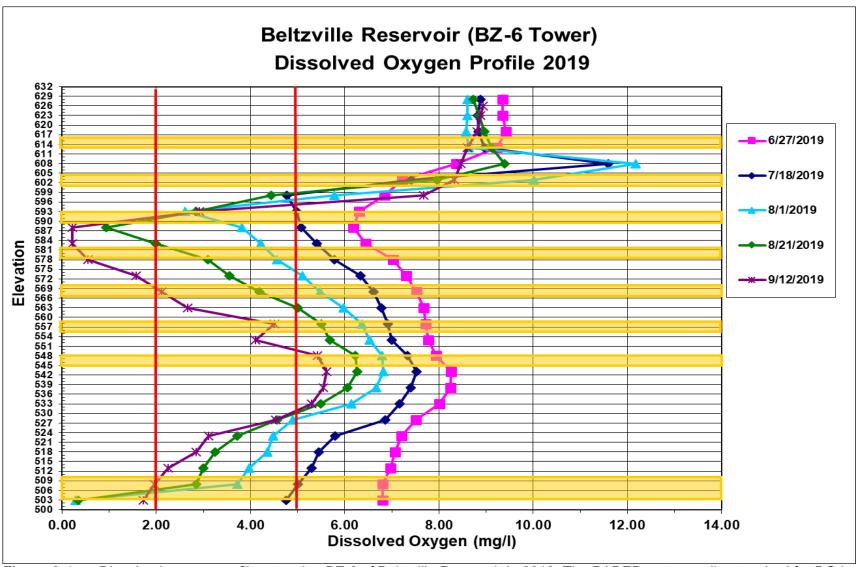
Dissolved Oxygen in the water column at station BZ-6 of Beltzville Reservoir from June through September, exhibited a metalimnetic oxygen minimum (negative heterograde curve) with concentrations decreasing, increasing and decreasing rapidly as measurements were taken from the surface to the lake bottom (Fig. 3-4). The most sever occurrence of these conditions was seen in August and September. This general pattern has been observed at station BZ-6 in previous years and may be due to a lens of low oxygenated water passing through the reservoir from upstream sources, a result of portal operations at the reservoir tower, respiratory oxygen consumption, lake topography or some other factor or combination of factors.

DO concentrations in the water column of Beltzville Reservoir were in compliance with PADEP water quality standards during 2019. The state water quality standard for DO is a minimum concentration of 5-mg/L in the epilimnion of stratified lakes. As shown in Figure 3-4, concentrations falling below the standard were not encountered in 2019, but did occur at greater depths below the epilimnion. DO concentrations measured in all surface waters of the reservoir were in compliance with the standard.

The health of aquatic ecosystems is impaired by low DO concentrations in the water column. Hypoxia, or conditions of DO less than 2 mg/L, is generally accepted as the threshold at which the most severe effects on biota occur. Bottom waters that are not mixed during stratification are depleted of oxygen primarily through biological respiration. In 2019, these conditions were seen in the water column at station BZ-6 in August and September (Appendix A).



**Figure 3-3.** Dissolved oxygen concentrations measured in tributary and downstream surface waters at Beltzville Reservoir in 2019. (The PADEP water quality standard for dissolved oxygen is a minimum concentration of 5 mg/L.) See Appendix A for summary of plotted values. Station BZ-1S reflects reservoir release surface waters downstream of Beltzville Reservoir.



**Figure 3-4.** Dissolved oxygen profile at station BZ-6 of Beltzville Reservoir in 2019. The PADEP water quality standard for DO is a minimum concentration of 5 mg/L in epilimnion. Start of hypoxia is shown as 2 mg/L. See Appendix A for summary of plotted values.

## 3.1.3 pH

PH is the measure of the hydrogen –ion concentration in the water. The pH scale is 0-14. A pH below 7 is considered acidic and a pH above 7 is basic. High pH values tend to facilitate solubilization of ammonia, salts, and heavy metals. Low pH levels tend to increase carbonic acid and carbon dioxide concentrations. Lethal effects of pH on aquatic life typically occur below pH 4.5 and above pH 9.5.

Measures of pH at upstream tributary (BZ-2S, BZ-4S and BZ-5S) and release (BZ-1S) surface water stations throughout the sampling season stayed within an acceptable range of values (6.78-8.53) and followed a similar seasonal pattern across all surface water stations at Beltzville Reservoir during 2019 (Fig. 3-5).

In all months sampled in 2019, pH values in the lake water column were slightly higher near the water surface, declined rapidly, and remained relatively constant throughout most of the remaining water column (Fig. 3-6). The higher pH readings near the surface can be attributed to algal productivity in the trophic zone of the lake. In July and early August a spike in pH readings was witnessed near the surface waters of the lake. This spike may be attributed to an algal bloom occurring at that time and depth. A slight variation in pH in bottom waters occurred in the portions of the water column experiencing anoxic or low oxygen conditions. This localized change in pH may be attributed to anaerobic oxidation processes in the bottom waters of the lake. The pH measures at all lake and tributary stations at Beltzville Reservoir during 2019 were not in compliance with PADEP pH criteria. The standard for pH is a range of acceptable measures between 6 and 9. Lake surface waters exceeded standards in July (9.59) and early August (9.60) at an approximate depth of 20 feet below the lake surface waters.

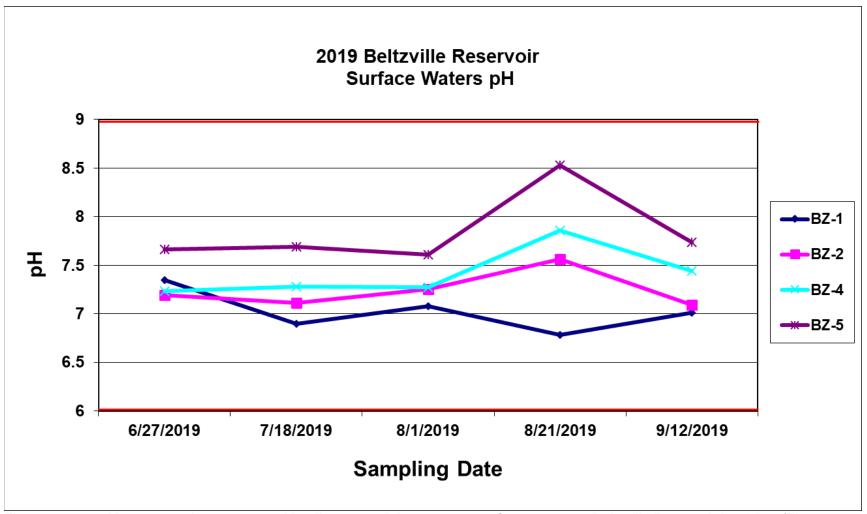


Figure 3-5. pH concentrations measured in tributary and downstream surface waters at Beltzville Reservoir in 2019. (The PADEP water quality standard for pH is between 6 and 9). See Appendix A for summary of plotted values.

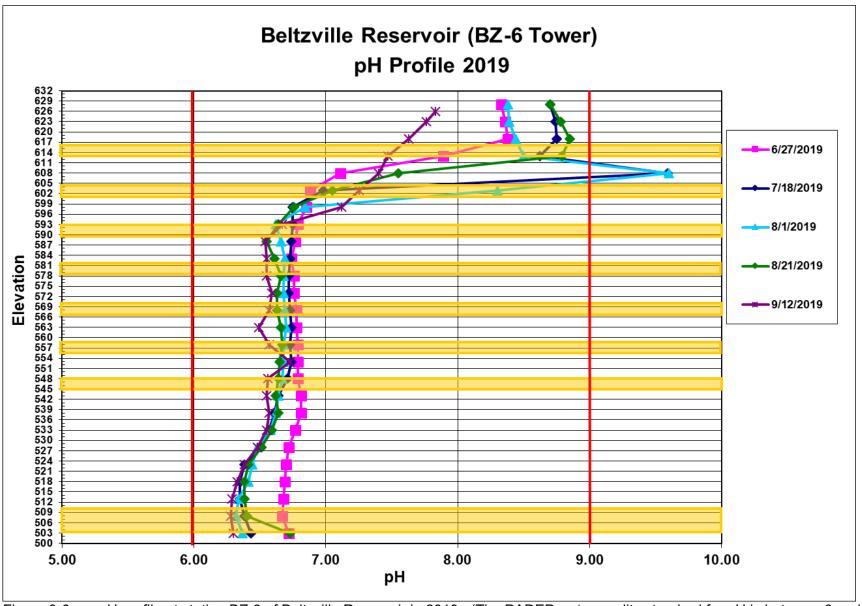


Figure 3-6. pH profile at station BZ-6 of Beltzville Reservoir in 2019. (The PADEP water quality standard for pH is between 6 and 9) See Appendix A for summary of plotted value

#### 3.2 WATER COLUMN CHEMISTRY MONITORING

The following sections describe temporal, spatial, and patterns relating to depth for the water quality parameters measured in surface, middle, and bottom waters of Beltzville Reservoir during 2019 (Table 3-2).

#### 3.2.1 Ammonia

Total Ammonia (NH3) is a measure of the most reduced inorganic form of nitrogen in water and includes dissolved ammonia and the ammonium ion. Ammonia is a small component of the nitrogen cycle but as an essential plant nutrient, it contributes to the trophic status of a water body. Elevated ammonia in the lower water column of deep, stratified lakes and reservoirs usually results in those that are affected by eutrophication and can result in excessive algal growths and impacts on recreation and drinking water supplies. In high concentrations, ammonia is toxic to aquatic life.

EPA guidance for ambient water quality criteria for Ammonia in freshwater are dependent on temperature and pH (EPA, 2013). Table 3.1 shows the acute and chronic criteria that are expected to protect freshwater aquatic life. The EPA (2013) also provides tables with the temperature and pH-dependent values of the acute criterion magnitude and the temperature and pH-dependent values of the chronic criterion magnitude. These tables provide an expected ammonia criteria over a wide range of pH and temperature values and can be utilized to evaluate field collected samples.

Table 3.1 Environmental Protection Agency Ammonia Freshwater Criteria (2013)										
2013 Final Aquatic Life Criteria for Ammonia (Magnitude, Frequency, and Duration)										
(mg TAN/L) pH 7.0, T=20°C										
Acute (1-hour average)	17									
Chronic (30-day rolling average)	1.9*									
*Not to exceed 2.5 times the CCC as a 4-day averag	e within the 30-days, i.e. 4.8 mg TAN/L at pH 7 and									
20°C, more than once in three years on average.										
Criteria frequency: Not to be exceeded more than one	ce in three years on average.									

Ammonia concentrations were low in Beltzville Reservoir during 2019. Concentrations measured at all stations and depths were less than the laboratory reporting limit of 0.20 mg/L during the entire sampling season. Concentrations of ammonia measured at Beltzville Reservoir were in compliance with the PADEP water quality standards during 2019. The state water quality standard for ammonia is dependent on temperature and pH (Table 3-1).

Table 3.2.	Table 3.2. Summary of surface, middle, and bottom water quality monitoring data for Beltzville Reservoir in 2019												
Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	6/27/2019	<10.0	<5.0	0.03	<0.20	<0.01	0.77	NS	50	<0.20	1.3	<0.01	<4.0
BZ-1S	7/18/2019	5.5	<3.4	<0.007	<0.20	0.02	0.72	NS	46	0.26	1.7	<0.01	17.6
	8/1/2019	25.0	<5.0	<0.007	<0.20	<0.01	0.84	NS	61	<0.20	1.7	<0.01	<4.0
	8/21/2019	<10.0	1.9	0.01	<0.20	<0.01	0.86	NS	54	1.5	1.6	<0.01	<4.0
	9/12/2019	<5.0	1.1	<0.007	<0.20	<0.01	0.80	NS	54	<0.20	1.3	<0.01	4.0
	6/27/2019	16.0	<5.0	<0.007	<0.20	<0.01	0.22	NS	31	<0.20	<1.0	<0.01	<4.0
	7/18/2019	10.5	<3.4	<0.007	<0.20	<0.01	0.25	NS	34	<0.20	1.5	<0.01	<4.0
	8/1/2019	20.0	<5.0	0.009	<0.20	<0.01	0.31	NS	61	<0.20	1.4	<0.01	<4.0
	8/21/2019	<10.0	1.2	<0.007	<0.20	<0.01	0.34	NS	56	<0.20	1.5	<0.01	<4.0
BZ-2S	9/12/2019	7.5	<1.0	<0.007	<0.20	<0.01	0.27	NS	56	<0.20	<1.0	<0.01	<4.0
DZ-23													

<b>Table 3.2 (</b>	Table 3.2 Continued. Summary of surface, middle, and bottom water quality monitoring data for Beltzville Reservoir in 2019												
		ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
Station	Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	6/27/2019	38.0	<5.0	<0.007	<0.20	<0.01	0.44	NS	44	0.31	1.9	<0.01	<4.0
	7/18/2019	11.0	<3.4	<0.007	<0.20	<0.01	0.31	NS	22	0.40	1.9	<0.01	<4.0
	8/1/2019	23.0	<5.0	<0.007	<0.20	<0.01	0.26	NS	53	<0.20	1.9	<0.01	<4.0
	8/21/2019	<10.0	1.2	<0.007	<0.20	<0.01	0.32	NS	52	<0.20	2.0	<0.01	<4.0
BZ-3S	9/12/2019	9.0	<1.0	<0.007	<0.20	<0.01	0.31	NS	41	<0.20	1.3	<0.01	<4.0
DZ-33													
	6/27/2019	<10.0	<5.0	0.01	<0.20	<0.01	0.75	NS	49	<0.20	<1.0	0.02	<4.0
	7/18/2019	12.0	<3.4	<0.007	<0.20	<0.01	0.60	NS	38	0.29	1.7	<0.01	<4.0
	8/1/2019	27.0	<5.0	<0.007	<0.20	0.09	0.73	NS	61	<0.20	1.5	<0.01	<4.0
	8/21/2019	<10.0	1.5	<0.007	<0.20	<0.01	0.84	NS	55	0.20	1.1	<0.01	<4.0
BZ-3M	9/12/2019	10.5	1.0	<0.007	<0.20	<0.01	0.78	NS	39	<0.20	1.1	<0.01	<4.0
DZ-3WI													

<b>Table 3.2 (</b>	Continued. Sui	mmary o	f surface,	, middle, a	nd botto	m water	quality n	nonitorin	g data fo	r Beltzvi	lle Rese	rvoir in 20	19
		ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
Station	Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	6/27/2019	10.0	<5.0	0.02	<0.20	<0.01	0.51	NS	60	0.28	<1.0	0.05	<4.0
	7/18/2019	10.5	<3.4	<0.007	<0.20	0.04	0.71	NS	48	<0.20	1.2	<0.01	<4.0
	8/1/2019	<10.0	<5.0	0.009	<0.20	<0.01	0.79	NS	58	<0.20	1.3	<0.01	<4.0
	8/21/2019	<10.0	<1.0	<0.007	<0.20	<0.01	0.85	NS	59	0.82	1.5	0.07	19.5
D7 2D	9/12/2019	11.0	<1.0	<0.007	<0.20	<0.01	0.70	NS	56	<0.20	1.2	<0.01	<4.0
BZ-3B													
	6/27/2019	<10.0	38.1	<0.007	<0.20	<0.01	1.2	NS	41	<0.20	<1.0	<0.01	<4.0
	7/18/2019	8.0	<3.4	0.009	<0.20	<0.01	1.2	NS	64	<0.20	<1.0	0.02	7.9
	8/1/2019	<10.0	<5.0	<0.007	<0.20	<0.01	0.17	NS	39	<0.20	1.7	0.02	4.8
	8/21/2019	<10.0	<1.0	<0.007	<0.20	<0.01	0.12	NS	32	0.31	1.5	<0.01	<4.0
D7 40	9/12/2019	<5.0	<1.0	<0.007	<0.20	<0.01	0.42	NS	39	<0.20	1.3	0.02	<4.0
BZ-4S													
	_		_	_	_							_	_

<b>Table 3.2 (</b>	Table 3.2 Continued. Summary of surface, middle, and bottom water quality monitoring data for Beltzville Reservoir in 2019												
		ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
Station	Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	6/27/2019	14.0	<5.0	0.02	<0.20	<0.01	1.2	NS	65	<0.20	<1.0	0.03	5.6
	7/18/2019	13.0	<3.4	0.01	0.24	<0.01	1.1	NS	60	0.22	1.7	0.02	6.0
	8/1/2019	15.0	<5.0	0.02	<0.20	<0.01	1.1	NS	66	0.24	1.5	0.04	<4.0
	8/21/2019	<10.0	1.7	0.01	<0.20	<0.01	1.2	NS	52	<0.20	2.1	0.02	20.9
BZ-5S	9/12/2019	14.0	1.6	<0.007	<0.20	<0.01	1.4	NS	67	<0.20	1.2	0.02	13.4
DZ-33													
	6/27/2019	25.0	<5.0	0.01	<0.20	<0.01	0.44	NS	49	<0.20	1.0	0.02	<4.0
	7/18/2019	10.5	<3.4	<0.007	<0.20	<0.01	0.28	NS	29	0.21	1.6	<0.01	<4.0
	8/1/2019	14.0	<5.0	0.01	<0.20	<0.01	0.28	NS	63	0.20	1.9	<0.01	<4.0
	8/21/2019	<5.0	<1.0	<0.007	<0.20	<0.01	0.26	NS	47	<0.20	1.9	<0.01	<4.0
BZ-6S	9/12/2019	10.0	<1.0	<0.007	<0.20	<0.01	0.36	NS	49	0.26	1.4	0.32	<4.0
DZ-03													
						•		-		•			

<b>Table 3.2 (</b>	Table 3.2 Continued. Summary of surface, middle, and bottom water quality monitoring data for Beltzville Reservoir in 2019												19
		ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
Station	Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	6/27/2019	37.0	<5.0	0.01	<0.20	<0.01	0.81	NS	48	<0.20	<1.0	0.02	<4.0
	7/18/2019	12.0	<3.4	<0.007	<0.20	0.05	0.74	NS	44	<0.20	1.4	<0.01	<4.0
	8/1/2019	14.0	<5.0	<0.007	<0.20	<0.01	0.85	NS	58	<0.20	1.4	<0.01	<4.0
	8/21/2019	<10.0	<1.0	<0.007	<0.20	0.03	0.89	NS	47	0.30	1.3	<0.01	<4.0
D7.6M	9/12/2019	<5.0	<1.0	<0.007	<0.20	<0.01	0.94	NS	170	<0.20	1.1	<0.01	<4.0
BZ-6M													
	6/27/2019	<10.0	<5.0	0.01	<0.20	<0.01	0.77	NS	42	<0.20	<1.0	0.03	<4.0
	7/18/2019	10.0	<4.5	<0.007	<0.20	0.03	0.75	NS	41	<0.20	1.1	<0.01	<4.0
	8/1/2019	15.0	<5.0	0.009	<0.20	<0.01	0.79	NS	59	<0.20	1.3	<0.01	<4.0
	8/21/2019	<5.0	1.4	<0.007	<0.20	<0.01	0.81	NS	49	0.24	1.0	0.31	6.6
D7 (D	9/12/2019	12.0	2.3	<0.007	<0.20	<0.01	0.57	NS	63	<0.20	1.3	0.11	4.6
BZ-6B													

<b>Table 3.2 (</b>	Table 3.2 Continued. Summary of surface, middle, and bottom water quality monitoring data for Beltzville Reservoir in 2019												
		ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
Station	Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	6/27/2019	10.0	<5.0	0.01	<0.20	<0.01	0.46	NS	21	<0.20	1.5	0.02	<4.0
	7/18/2019	10.5	<3.40	<0.007	<0.20	<0.01	0.27	NS	31	0.25	1.4	0.01	<4.0
	8/1/2019	12.0	<5.0	<0.007	<0.20	<0.01	0.22	NS	53	<0.20	1.9	<0.01	<4.0
	8/21/2019	<5.0	1.5	<0.007	<0.20	<0.01	0.23	NS	43	0.90	1.9	<0.01	<4.0
BZ-7S	9/12/2019	10.5	<1.0	0.009	<0.20	<0.01	0.29	NS	52	0.30	1.4	<0.01	<4.0
BZ-/S													
	6/27/2019	35.0	<5.0	0.01	<0.20	<0.01	0.90	NS	48	0.34	1.2	0.02	<4.0
	7/18/2019	11.5	<3.4	<0.007	<0.20	<0.01	0.85	NS	45	0.31	1.6	<0.01	<4.0
	8/1/2019	15.0	<5.0	<0.007	<0.20	<0.01	0.69	NS	69	<0.20	1.6	0.02	<4.0
	8/21/2019	<10.0	<1.0	<0.007	<0.20	<0.01	0.84	NS	47	0.39	1.6	<0.01	<4.0
BZ-7M	9/12/2019	11.0	<1.0	0.008	<0.20	<0.01	0.73	NS	60	<0.20	1.2	<0.01	<4.0
DZ-/WI													

<b>Table 3.2 (</b>	Table 3.2 Continued. Summary of surface, middle, and bottom water quality monitoring data for Beltzville Reservoir in 2019												
		ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
Station	Date	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
	6/27/2019	14.0	<5.0	0.008	<0.20	<0.01	0.91	NS	48	<0.20	1.5	<0.01	<4.0
	7/18/2019	14.0	<4.5	0.01	<0.20	0.07	0.77	NS	43	0.29	1.3	0.11	53.2
	8/1/2019	14.0	<5.0	<0.007	<0.20	<0.01	0.87	NS	70	<0.20	1.5	<0.01	<4.0
	8/21/2019	9.5	<1.0	<0.007	<0.20	<0.01	0.76	NS	47	0.30	1.3	<0.01	<4.0
D7 7D	9/12/2019	12.5	<1.0	<0.007	<0.20	<0.01	0.74	NS	62	<0.20	1.3	<0.01	<4.0
BZ-7B													
													·

<sup>&</sup>lt; Laboratory analysis result was less than the limit of quantification or limit of detection. NS- Not Sampled

#### 3.2.2 Nitrite and Nitrate

Nitrite (NO2) is a measure of a form of nitrogen that occurs as an intermediate in the nitrogen cycle. It is unstable and can rapidly be oxidized to nitrate or reduced to nitrogen gas. Nitrite is a source of nutrients for plants and can be toxic to aquatic life in relatively low concentrations. With the exception of six samples, concentrations measured at all other stations and depths were less than the laboratory reporting limit of 0.01 mg/L during the entire 2019 sampling season. The maximum recorded single sample of 0.09 mg/L was collected from station BZ-3M on 01 August.

Nitrate (NO3) is the measure of the most oxidized and stable form of nitrogen. It is the principal form of combined nitrogen in natural waters. Nitrate is the primary form of nitrogen used by plants as a nutrient to stimulate plant growth. Nitrate was distributed uniformly in the water column of Beltzville Reservoir during 2019 with sample results ranging from 0.22 mg/L to 1.40 mg/L (Table 3-2). The highest recorded single nitrate measure of 1.40 mg/L was measured on 12 September at station BZ-5S. Station BZ-5S maintained the highest seasonal mean concentration (1.20 mg/L) of all stations.

Beltzville Reservoir was in compliance with the PADEP water quality standard for nitrite and nitrate during 2019. The standard is a summed concentration of nitrite and nitrate of less than 10 mg/L. Throughout the monitoring period, a maximum summed concentration across all stations and depths of 1.41 mg/L was measured at station BZ-5S on 12 September.

## 3.2.3 Total Kjeldahl Nitrogen

Total Kjeldahl nitrogen (TKN) is a measure of organic nitrogen that includes ammonia. Organic nitrogen is not immediately available for biological activity and is therefore not available for plant growth until decomposition to inorganic form occurs. Total kjeldahl nitrogen (TKN) was low in the water column of Beltzville Reservoir during 2019 with single sample concentrations ranging from less than the 0.20 mg/L laboratory reporting limit to 1.5 mg/L (Table 3-2). The highest concentration of 1.5 mg/L was recorded at station BZ-1S on 21 August.

#### 3.2.4 Total Phosphorus

Total phosphorus (TP) is a measure of both organic and inorganic forms of phosphorus. It is an essential plant nutrient and is often the most limiting nutrient to plant growth in freshwater systems. Inputs of phosphorus are the prime contributing factors to eutrophication in most freshwater systems. Phosphorus bound to bottom sediments in lakes can be released when oxygen levels are depleted in bottom waters. This phosphorus then becomes available for plant growth.

EPA guidance for nutrient criteria in lakes and reservoirs suggests a maximum concentration for total phosphorus of 0.01-mg/L (EPA 2000). Lakes and reservoirs exceeding this concentration are more likely to experience algal bloom problems during the growing

season. In 2019, 56 of the 65 samples measured for total phosphorus were less than or slightly exceeding (0.02 mg/L) the EPA suggested maximum concentration and laboratory reporting limit of 0.01 mg/L (Table 3-2). The remaining 9 elevated samples were collected at deep water bottom stations and BZ-5S. Elevated TP readings in deep reservoir waters are typically associated with phosphorus release from bottom sediments during low oxygen conditions. Beltzville Reservoir experienced these conditions in 2019. Upstream tributary station BZ-5S (Pohopoco Creek) exceeded the EPA 0.01 mg/L suggested concentration throughout the sampling season. Land use or some other watershed factors contribute to nutrient loading in this tributary

#### 3.2.5 Dissolved Phosphorus

During the 2019 sampling season, twenty two samples measured at all stations and depths were greater than the laboratory reporting limit of 0.007 mg/L (Table 3-2). Upstream tributary station BZ-5S (Pohopoco Creek) exceeded the laboratory reporting limit on 4 of 5 sampling events and averaged 0.01 mg/L for all samples collected. Land use or some other watershed factors contribute to nutrient loading in this tributary

### 3.2.6 Total Dissolved Solids

Total dissolved solids (TDS) is a measure of the amount of non-filterable dissolved material in the water. Dissolved salts such as sulfate, magnesium, chloride, and sodium contribute to elevated levels. Concentrations of TDS in the water column of Beltzville Reservoir were consistently low during 2019 (Table 3-2). Concentrations among all stations and depths ranged from 21 to 170 mg/L. Total dissolved solids measured at Beltzville Reservoir in 2019 were in compliance with PADEP water quality standards. The state water quality standard for TDS is a maximum concentration of 500 mg/L.

#### 3.2.7 Total Suspended Solids

Total suspended solids (TSS) are a measure of the amount of filterable particulate matter that is suspended within the water column. High concentrations increase the turbidity of the water and can hinder photosynthetic activity, result in damage to fish gills, and cause impairment to spawning habitat (smothering). Total suspended solids concentrations in the waters of Beltzville Reservoir were low during 2019 (Table 3-2). Many concentrations measured at all stations and depths were less than or near the laboratory reporting limit of <4.0 mg/L. The maximum concentration of 53.2 mg/L was measured in lake bottom waters at station BZ-7B on 18 July. High measures of TSS can be the result of sample collection error associated with capturing disturbed fine sediments in the lake bottom sample during field sampling. This sampling error may apply to elevated or unexplained high TSS water samples collected at lake bottom water sampling stations such as BZ-6B, BZ-3B, and BZ-7B. Upstream tributary station BZ-5S (Pohopoco Creek) exceeded the laboratory reporting limit on 4 of 5 sampling events and averaged 9.98 mg/L for all samples collected. Land use or some other watershed factors contribute to nutrient and sediment loading in this tributary

### 3.2.8 Biochemical Oxygen Demand

Five-day biochemical oxygen demand (BOD5) is a measure of the oxygen-depleting burden imposed by organic material present in water. It measures the rate of oxygen uptake by organisms in the water sample over a period of time. It is an indicator of the quality of a water body and the degree of pollution by biodegradable organic matter can therefore be inferred. The five-day biochemical oxygen demand and commonly accepted water quality inferences are as follows:

- 1-2 mg/L is associated with very clean water and little biodegradable wastes;
- 3-5 mg/L is associated with moderately clean water with some biodegradable wastes:
- 6-9 mg/L is associated with fairly polluted water, many bacteria, and much biodegradable wastes;
- 10+ mg/L is associated with very polluted water and large amounts of biodegradable wastes.

Biochemical oxygen demand concentrations in the water column of Beltzville Reservoir were consistently low in all months and stations sampled (Table 3-2). With the exception of one upstream tributary sample all sample results were below laboratory reporting limits of <1.0 and <5.0 mg/L for the entire sampling season. Based on the seasonal sampling results, it is inferred that in 2019, Beltzville Reservoir and its associated tributaries fluctuated between very clean water with little biodegradable organic wastes and moderately clean water with some biodegradable wastes.

## 3.2.9 Alkalinity

Alkalinity (ALK) is a measure of the acid-neutralizing capacity of water. Waters that have high alkalinity values are considered undesirable because of excessive hardness and high concentrations of sodium salts. Water with low alkalinity has little capacity to buffer acidic inputs and is susceptible to acidification (low pH). The PADEP standard is a minimum concentration of 20-mg/L CaCO<sub>3</sub> except where natural conditions are less.

For all sampling stations and depths, alkalinity measures during 2019 ranged from 38.0 mg/L to <5.0 mg/L (Table 3-2). All but 8 reservoir and tributary samples measured were below the state minimum criteria (20 mg/L) during the sampling season. The natural alkalinity of water is largely dependent on the underlying geology and soils within the surrounding watershed. The typically low alkalinity measured at Beltzville Reservoir results from the regional geology, which is primarily sandstone and shale. Based on this, the reservoir waters and surrounding tributaries are in compliance with the PADEP alkalinity criteria, due to the regional natural conditions.

## 3.2.10 Total Organic Carbon

Total organic carbon (TOC) is a measurement of the amount of dissolved and particulate carbon that is bound in organic compounds. TOC can be derived from decaying vegetation,

bacterial growth, and metabolic activities of living organisms. The bulk of organic carbon in water is composed of humic substances and partly degraded animal and plant materials. Other sources of TOC can include agricultural chemicals such as herbicides and insecticides and also wastewater treatment plant discharges. The amount of carbon in a freshwater stream is an indicator of the organic character of the stream or water body. High organic content can increase the growth of microorganisms which contribute to the depletion of oxygen. Total organic carbon concentrations in the water column and tributaries of Beltzville Reservoir were low during 2019 (Table 3-2). Concentrations of TOC at all stations and depths ranged from <1.0 mg/L to 2.1 mg/L.

### 3.2.11 Chlorophyll a

Chlorophyll a is the measure of the plant chlorophyll a primary pigment which helps plants get energy from light. It is found in most plants, algae, and cyanobacteria. Chlorophyll a measures increase in relation to algal densities in a water body. Chlorophyll a concentrations in the surface waters (0-10 feet) of Beltzville Reservoir were low during 2019 (Appendix A). Concentrations measured in surface waters at all lake body stations ranged between 1.1 and 6.3 ug/L with an average seasonal concentration across all lake stations of 2.72 ug/L.

#### 3.3 TROPHIC STATE DETERMINATION

Carlson's (1977) trophic state index (TSI) is a method of quantitatively expressing the magnitude of eutrophication for a lake. The trophic state analysis calculates separate indices for eutrophication based on measures of total phosphorus, chlorophyll *a*, and secchi disk. Index values for each parameter range on the same scale from 0 (least enriched) to 100 (most enriched). The resulting indices can also be compared to qualitative threshold values that correspond to levels of eutrophication. Classification of Beltzville Reservoir was based on a single sample each month during the 2019 sampling season collected at station BZ-6 (Figure 3-7).

TSIs calculated for measures of total phosphorus classified Beltzville Reservoir as eutrophic in September (87.33), mesotrophic in June (47.35), and oligotrophic in July (37.35), early August (37.35) and late August (37.35). TSIs calculated for measures of secchi disk depth classified Beltzville Reservoir as mesotrophic in June (41.15) and oligotrophic in July (38.67), early August (35.57), late August (38.00), and September (38.33). TSIs calculated for measures of chlorophyll *a* classified Beltzville Reservoir as oligotrophic in early August (35.81) and late August (36.20), and mesotrophic in June (40.23), July (40.81), and September (42.31).

Carlson (1977) warned against averaging TSI values estimated for different parameters, and instead suggested giving priority to chlorophyll *a* in the summer and to phosphorus in the spring, fall, and winter. With this in mind and considering historic sampling results, the trophic state of the reservoir, based on TSI's, was oligotrophic/mesotrophic throughout the 2019 sampling season.

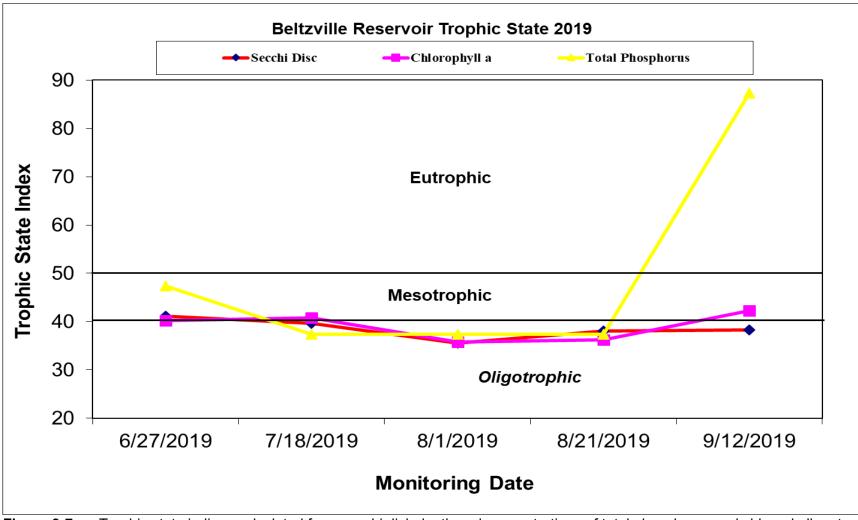
The EPA (1983) also provides criteria for defining the trophic conditions of lakes of the north-temperate zone based on concentrations of total phosphorus, chlorophyll *a*, and secchi depth (Table 3-3). Taking into account the general agreement between the EPA classifications with that of the Carlson TSI's, the trophic condition of Beltzville Reservoir was oligotrophic/mesotrophic in 2019.

	<b>Fable 3-3.</b> EPA trophic classification criteria and average monthly measures for Beltzville Reservoir in 2019.												
Water Quality Variable	Oligo- trophic	Meso- trophic	Eutrophic	27 June	18 July	01 August	21 August	12 September					
Total phosphorus (ppb)	<10	10-20	>20	<20	<10	<10	<10	320					
Chlorophyll a (ppb)	<4	4-10	>10	2.67	2.83	1.70	1.77	3.30					
Secchi disk depth (meters)	>4	2-4	<2	3.70	4.10	5.45	4.60	4.50					

#### 3.4 RESERVOIR BACTERIA MONITORING

Two forms of coliform bacteria contamination were monitored in the tributary and lake surface waters at Beltzville Reservoir during 2019 including total and fecal coliform (Table 3-4). Total coliform includes *escherica coliform* (*E. coli*) and related bacteria that are associated with fecal discharges. Fecal coliform bacteria are a subgroup of the total coliform and are normally associated with waste derived from human and other warm-blooded animals and indicate the presence of fecal contamination but not the associated risk.

Total coliform values for all stations ranged from 22 colonies/100-ml to greater than the detection limit of 20000 colonies/100-ml. Bacteria in natural waters are common and their presence in the sample is not necessarily a human health concern. With respect to PADEP water quality and recreational contact standards, fecal coliform bacteria has been replaced with an e-coli criteria. For purposes of the 2019 main reservoir and tributary bacteria sampling, previous fecal coliform criteria was used. Fecal contamination was low in Beltzville Reservoir and its tributaries during 2019. The previous standard for fecal coliform bacteria during the swimming season (from 1 May to 30 September) is a geometric mean not greater than 200 colonies/100-ml. Given that our regular monitoring was completed on one day grab samples, single sample results were then compared to the Pennsylvania Department of Health single sample standard of <1000 colonies/100-ml. The fecal coliform samples collected at Beltzville Reservoir did not exceed this standard during the 2019 sampling season. Upstream tributary Station BZ-5S consistently maintained the highest readings and may be a result of upstream watershed activities or land use. Water contact recreation is permitted at Beltzville Reservoir. However, the recreational swimming beach is monitored and managed by the Commonwealth of Pennsylvania. No long term elevated bacteria counts were recorded in the main reservoir body where public water recreation is also permitted.



**Figure 3-7.** Trophic state indices calculated from secchi disk depth and concentrations of total phosphorus and chlorophyll *a* at reservoir Station BZ-6 for Beltzville Reservoir in 2019.

**Table 3-4** Bacteria counts (colonies/100ml) at Beltzville Reservoir and tributaries during 2019.

2019. <b>STATION</b>	DATE	Total Coliform (TC)		F	ecal Coliform (FC)	Escherichia coli	
	6/27/2019	>	2000		11	NS	
	7/18/2019	>	20000		41	NS	
BZ-1S	8/1/2019	>	2000		8	NS	
	8/21/2019		1410		47	NS	
	9/12/2019		3600		13	NS	
	6/27/2019	>	2000		28	NS	
	7/18/2019		14400		47	NS	
BZ-2S	8/1/2019	>	2000		21	NS	
	8/21/2019	>	2000		21	NS	
	9/12/2019		7900		18	NS	
	6/27/2019		160		4	NS	
	7/18/2019		17900	<	1	NS	
BZ-3S	8/1/2019	>	2000	<	1	NS	
	8/21/2019		22	<	1	NS	
	9/12/2019	>	2000		1	NS	
	6/27/2019	>	2000		7	NS	
	7/18/2019	>	20000		42	NS	
BZ-4S	8/1/2019		Lab Error		210	NS	
	8/21/2019	>	2000		42	NS	
	9/12/2019	>	20000		1	NS	
	6/27/2019	>	2000		29	NS	
	7/18/2019		19100		310	NS	
BZ-5S	8/1/2019	>	2000		300	NS	
	8/21/2019	>	2000		370	NS	
	9/12/2019	>	2000		27	NS	
	6/27/2019		210		3	NS	
	7/18/2019		11200		1	NS	
BZ-6S	8/1/2019	>	2000		4	NS	
	8/21/2019		580	<	1	NS	
	9/12/2019		1240	<	1	NS	
	6/27/2019		220		2	NS	
	7/18/2019		2500		3	NS	
BZ-7S	8/1/2019	>	2000	<	1	NS	
	8/21/2019		610	<	1	NS	
	9/12/2019	>	2000		1	NS	

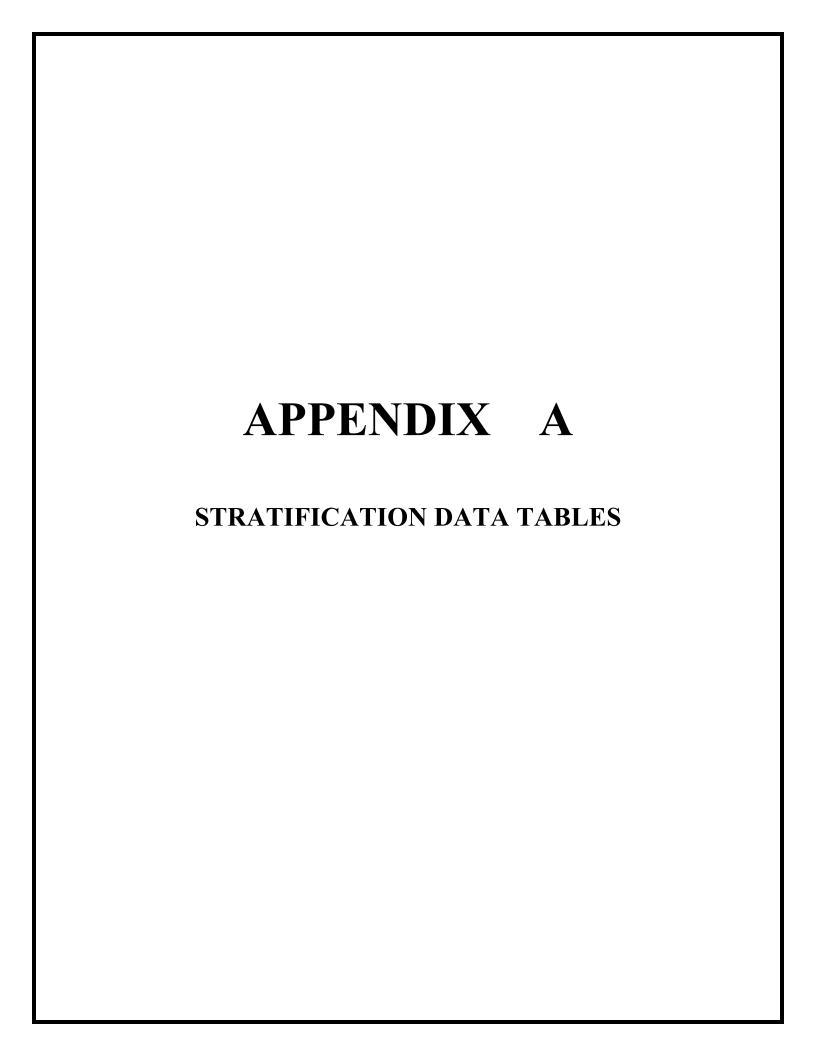
<sup>-</sup>Highlighted counts exceed single sample State (1000 fecal colonies/100ml) bathing beach criteria.

<sup>-</sup>NS = Not Sampled in 2019

<sup>-</sup>Lab Error = Excessive biological growth did not allow enumeration

### 4.0 REFERENCES

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Station	Date	Time	Depth	Temp	DO	DO	рΗ	pHmV	ORP	<b>Turbidity</b>	Chloro.	SpCond
	M/D/Y	hh:mm:ss	ft	С	%	mg/L		mV	mV	NTU	ug/L	mS/cm
	6/27/2019	7:06:07	0.5	15.35	97.5	9.75	7.35	-27.3	120.4	0.2	3.4	0.076
BZ-1S	7/18/2019	6:48:05	0.5	16.4	94.7	9.27	6.9	-1.1	189.7	0.3	3	0.077
Outfall	8/1/2019	6:41:49	0.5	13.67	95.3	9.89	7.08	-11.8	162.6	0.0	1.6	0.074
Pohopoco	8/21/2019	11:09:57	0.5	15.98	102	10.06	6.78	5.7	157	0.0	1.1	0.078
	9/12/2019	6:34:37	0.5	12.92	95.2	10.04	7.01	-7.4	209.3	0.0	2.1	0.074
	6/27/2019	11:25:40	0.5	14.59	96.5	9.82	7.19	-18.1	221.1	0.5	10.9	0.056
BZ-2S	7/18/2019	11:17:08	0.5	16.88	96.6	9.36	7.11	-13.6	197.6	0.3	1.1	0.066
Pine Run	8/1/2019	11:49:56	0.5	16.64	96.6	9.41	7.25	-21.7	201.4	4.2	1.4	0.068
Trib.	8/21/2019	14:35:33	0.5	18.62	96.1	8.99	7.56	-40	208.6	0.0	0.7	0.07
	9/12/2019	11:20:46	0.5	17.38	96.5	9.25	7.09	-12.4	210.4	0.0	8.0	0.065
		9:11:45	0.5	24.09	111	9.29	8.31	-84.8	167.4	0.6	1.7	0.078
		9:10:48	5	23.99	111	9.32	8.32	-85.4	168.8	0.0	2.5	0.078
		9:09:57	10	23.37	111	9.41	8.26	-81.7	169.3	0.3	2.5	0.077
		9:09:17	15	21.77	105	9.25	7.67	-46.8	175.7	0.2	4	0.074
		9:08:36	20	19.91	87.9	8.01	7.01	-7.5	190.1	1.2	5.6	0.074
BZ-3		9:07:49	25	18.58	79	7.39	6.9	-1.2	192.8	0.3	4.1	0.075
Bouy/Beach		9:06:46	30	17.58	72.4	6.91	6.84	2	193.7	0.4	2.5	0.079
		9:05:51	35	16.72	69.5	6.76	6.83	2.8	194.3	0.7	2.3	0.081
		9:04:23	40	15.82	64.3	6.37	6.75	7.2	194.4	0.0	1.6	0.080
	6/27/2019	9:03:52	45	14	62.6	6.45	6.74	7.9	194.7	0.0	2	0.074
		9:02:53	50	11.56	62.5	6.8	6.72	8.8	194.7	0.6	2.1	0.069
		9:02:04	55	10.63	62.6	6.96	6.73	8.4	193.7	0.0	1.1	0.068
		9:01:14	60	10.06	62.7	7.07	6.73	8.4	193.3	0.1	1.9	0.067
		9:00:18	65	9.67	65.3	7.43	6.74	7.7	191.7	0.0	1.2	0.066
		8:59:02	70	9.36	67.6	7.75	6.75	7	188.7	0.0	1.7	0.065
		8:58:15	75	9.04	69.2	7.99	6.75	6.9	187.2	0.0	1.7	0.065
		8:57:34	80	8.74	70.6	8.21	6.75	6.9	186.2	0.0	1	0.064
		8:56:52	85	8.51	71	8.3	6.74	7.3	185.2	0.0	1.2	0.064
		8:56:16	90	8.21	69.6	8.2	6.74	7.6	184.2	0.0	0.8	0.063
		8:55:28	95	8.02	65	7.69	6.72	8.4	181.9	0.0	0.8	0.063
		8:54:44	100	7.85	60.8	7.22	6.73	8	178.2	0.0	1.2	0.063
		8:53:50	105	7.8	59.4	7.06	6.81	3.7	171.5	0.0	0.4	0.063
L	L — — — —					L — — -	L	l		L — — — —		L

Station	Date	Time	Depth	Temp	DO	DO	рΗ	pHmV	ORP	Turbidity	Chloro.	SpCond
	M/D/Y	hh:mm:ss	ft	С	%	mg/L		mV	mV	NTU	ug/L	mS/cm
		8:57:46	0.5	27.61	111	8.77	8.63	-104.8	156.7	0.0	2.8	0.082
		8:56:56	5.0	27.63	111	8.76	8.64	-105.5	156.8	0.0	3.3	0.082
		8:55:29	10.0	27.6	112	8.8	8.69	-108.8	153.8	0.0	3	0.082
		8:53:46	15.0	25.66	140	11.41	9.49	-155.9	143.1	0.4	4.6	0.086
		8:52:48	20.0	22.25	123	10.7	9.19	-136.4	154.8	1.6	16.7	0.081
		8:51:49	25.0	20.63	79.5	7.14	6.93	-2.8	189.5	0.4	6.1	0.086
BZ-3		8:50:57	30.0	19.61	58.8	5.38	6.78	5.9	190.9	0.3	5.3	0.082
Bouy/Beach		8:50:21	35.0	18.29	54.7	5.15	6.74	8	191.6	0.0	3.2	0.080
		8:49:35	40.0	17.01	52.8	5.11	6.72	8.9	191	0.0	1.8	0.081
	7/18/2019	8:48:43	45.0	15.07	51.8	5.22	6.71	9.8	191	0.0	1.7	0.078
		8:47:49	50.0	12.01	54.2	5.83	6.69	10.7	191.7	0.0	1.3	0.072
		8:47:11	55.0	10.94	55.8	6.16	6.7	10.1	191.2	0.0	0.9	0.070
		8:46:36	60.0	10.39	57.6	6.44	6.7	9.6	190.5	0.0	0.7	0.067
		8:44:41	65.0	9.86	59.7	6.76	6.71	9.4	186.1	0.0	0.5	0.066
		8:43:41	70.0	9.5	61.8	7.06	6.73	7.9	182.5	0.0	0.4	0.065
		8:42:45	75.0	9.16	62.2	7.16	6.72	8.5	180.9	0.0	0.5	0.065
		8:42:04	80.0	8.91	61.4	7.11	6.73	8.4	178.4	0.0	0.3	0.065
		8:40:39	85.0	8.68	60.2	7.01	6.65	12.4	178.3	0.0	1	0.064
		8:39:57	90.0	8.46	60.3	7.06	6.61	15.1	178.9	0.0	1	0.064
		8:39:03	95.0	8.11	59.6	7.04	6.57	17.1	177.7	0.0	0.3	0.063
		8:37:52	100.0	7.87	48.2	5.72	6.52	19.8	172.5	0.6	1.1	0.064
		8:37:09	105.0	7.79	45.6	5.42	6.56	17.8	165.8	0.4	0.3	0.064
		8:35:58	107.0	7.76	42.9	5.11	6.65	12.5	148.5	1.5	1.7	0.064
L							L					
		09:28:21	0.5	27.67	109	8.6	8.45	-94.3	176.4	0.0	1.5	0.082
		9:27:44	5	27.65	109	8.59	8.47	-95.4	174.9	0.0	2.2	0.082
		9:26:49	10	27.5	109	8.59	8.39	-90.4	176.8	0.0	2.5	0.082
		9:25:44	15	27.42	109	8.6	8.34	-87.6	179	0.0	1.8	0.082
		9:24:12	20	24.8	144	11.92	9.56	-159.4	164.3	0.6	6.1	0.091
		9:22:56	25	22.52	109	9.45	7.41	-31.1	203.5	0.1	5.4	0.089
		9:21:11	30	20.92	63.8	5.69	6.8	4.5	215	0.0	4.5	0.088
BZ-3		9:19:51	35	19.39	34.6	3.19	6.62	15.2	218.7	0.0	1.9	0.084
Bouy/Beach	8/1/2019	9:17:57	40	18.21		3.92	6.66		219.6	0.0	1.7	0.081
		9:16:55	45	16.57	45.3	4.42	6.68	11.4	220.6	0.0	1.6	0.081
		9:15:53	50	14.29	44.1	4.51	6.63	14.1	223	0.0	0.6	0.076
		9:15:04	55	12.23	44.4	4.76	6.59	16.3	226.3	0.0	0.8	0.073
		9:14:13	60	10.89	47.3	5.23	6.62	14.2	225.4	0.0	1.2	0.070
		9:12:41	65	10.14	54.8	6.17	6.66	12.4	224.9	0.0	0.9	0.067
		9:11:47	70	9.69	55.5	6.31	6.65	12.8	225.9	0.0	1.1	0.066
		9:10:34	75	9.36	57.1	6.54	6.63	13.6	226.5	0.0	0.9	0.065
		9:09:38	80	8.99	56.6	6.54	6.59	16	228.8	0.0	0.8	0.065
		9:08:58	85	8.72	56.3	6.55	6.56	17.6	230.5	0.0	0.8	0.065
		9:07:49	90	8.4	54.9	6.44	6.46	23.3	236.1	0.0	0.4	0.064
		9:06:57	95	8.25	50.5	5.94	6.43	24.8	237.7	0.0	0.7	0.064
		9:06:19	100	8.02	45.7	5.41	6.44	24.5	238	0.3	0.6	0.064
		9:05:04	105	7.86	41.4	4.92	6.49	21.6	236.9	0.9	0.8	0.065
<b>L</b>		9:03:53	110	7.87	42.7	5.07	6.6	15.2	234.4	1.1	1.3	0.065

Station	Date	Time	Depth	Temp	DO	DO	рΗ	pHmV	ORP	Turbidity	Chloro.	SpCond
	M/D/Y	hh:mm:ss	ft	С	%	mg/L		mV	mV	NTU	ug/L	mS/cm
		12:56:52	0.5	27.66	112	8.79	8.71	-109.9	176.6	0.0	1.1	0.085
		12:56:19	5	27.51	112	8.85	8.75	-112	177.4	0.0	2.0	0.085
		12:55:30	10	27.14	113	8.94	8.78	-113.6	178.1	0.0	2.4	0.085
		12:54:48	15	26.61	113	9.03	8.64	-105.3	181.1	0.0	2.8	0.084
		12:54:02	20	25.5	113	9.23	7.82	-56.2	192.1	0.0	4.1	0.086
BZ-3		12:52:53	25	23.58	84.3	7.15	6.95	-4	213	0.4	6.0	0.091
Bouy/Beach		12:51:47	30	22.4	62.4	5.41	6.81	4.2	217.1	0.0	4.6	0.094
		12:49:22	35	21.14	37.5	3.33	6.67	12.3	221.5	0.0	1.0	0.088
		12:47:45	40	19.88	15.8	1.44	6.57	18.3	225.6	0.0	1.6	0.083
		12:46:27	45	17.87	27.4	2.6	6.59	16.5	229	0.0	1.4	0.083
	8/21/2019	12:45:10	50	16.96	38.5	3.73	6.66	12.6	229.2	0.0	2.5	0.082
		12:44:02	55	15.43	31.8	3.18	6.56	18	233.4	0.0	1.9	0.079
		12:43:31	60	12.56	32.6	3.47	6.62	14.4	232.5	0.0	1.5	0.075
		12:42:31	65	10.38	41.9	4.68	6.66	12.3	233.7	0.0	0.7	0.069
		12:41:14	70	10.03	49.2	5.55	6.66	12.2	235.8	0.0	1.2	0.067
		12:40:17	75	9.39	51.6	5.9	6.68	11.2	236.7	0.0	0.6	0.066
		12:39:17	80	9.2	51.1	5.88	6.72	8.6	235.5	0.0	0.9	0.065
		12:38:11	85	8.84	46.8	5.43	6.73	8.2	237	0.0	1.4	0.065
		12:37:14	90	8.59	45.4	5.3	6.78	5.5	236.3	0.0	1.1	0.065
		12:36:05	95	8.32	40.8	4.79	6.81	3.6	237.4	0.0	1.3	0.065
		12:34:43	100	8.1	36.9	4.36	6.93	-3.2	236.5	0.3	0.3	0.065
		12:33:43	105	8	33.8	4	7.04	-9.3	235.4	0.8	0.4	0.065
		12:33:06	110	7.97	32.1	3.8	7.11	-13.5	234.9	1.4	0.7	0.065
					. — — .		<u> </u>	 		 	. <b></b> .	
		0.44.00	0.5	00.45	100	0.04	7.00	05.5	105.5	0.0	4.0	0.000
		9:11:26	0.5	23.45	106	9.01	7.99	-65.5	195.5	0.0	4.0	0.082
		9:10:18	5	23.46	106	9	7.92	-61.5	194.5	0.0	3.8	0.082
		9:09:13	10	23.45	105	8.93	7.76	-52.4	195.6	0.0	4.1	0.082
		9:08:05	15	23.19	101	8.66	7.48	-35.7	200.2	0.0	3.9	0.081
		9:06:32	20	22.95	94.3	8.1	7.3	-24.6	203.9	0.0	3.3	0.081
		9:05:10	25	22.8	90.9	7.83	7.2	-18.9	205.1	0.1	3.0	0.081
BZ-3		9:03:11	30	22.59	79.9	6.91	7.01	-7.7	207.8	0.0	2.4	0.082
Bouy/Beach		9:01:01	35	21.76		3.01	6.67	12.3	215.2		1.9	0.09
	9/12/2019	9:00:01	40	20.87	19.9	1.78	6.61	16	217.9	0.0	1.0	0.092
		8:58:43	45	19.96	18.2	1.65	6.6	16.2	219.7	0.0	1.6	0.092
		8:57:19	50	18.14	8.7	0.82	6.55	18.9	221.9	0.0	1.0	0.085
		8:56:14	55	16.13	14	1.38	6.57	18	223.7	0.0	1.3	0.081
		8:55:12	60	13.64	15.5	1.61	6.57	17.3	225.3	0.1	1.1	0.077
		8:52:58	65	11.43	20.7	2.26	6.52	20.4	230.8	0.0	1.1	0.072
		8:50:53	70	10.49	33.2	3.7	6.56	18.1	230.1	0.0	1.1	0.069
		8:48:55	75	9.82	41.9	4.75	6.56	17.7	231	0.0	1.2	0.067
		8:48:02	80	9.37	42.6	4.88	6.55	18.2	232.1	0.0	1.0	0.066
		8:47:01	85	9.01	38.4	4.43	6.55	18.4	232.5	0.0	0.8	0.066
		8:45:31	90	8.62	33	3.85	6.47	22.8	237.7	0.0	0.9	0.066
		8:44:44	95	8.44	31.7	3.72	6.47	22.6	238.3	0.0	0.7	0.066
		8:43:12	100	8.2	27.7	3.26	6.52	19.7	237.5	0.7	8.0	0.067

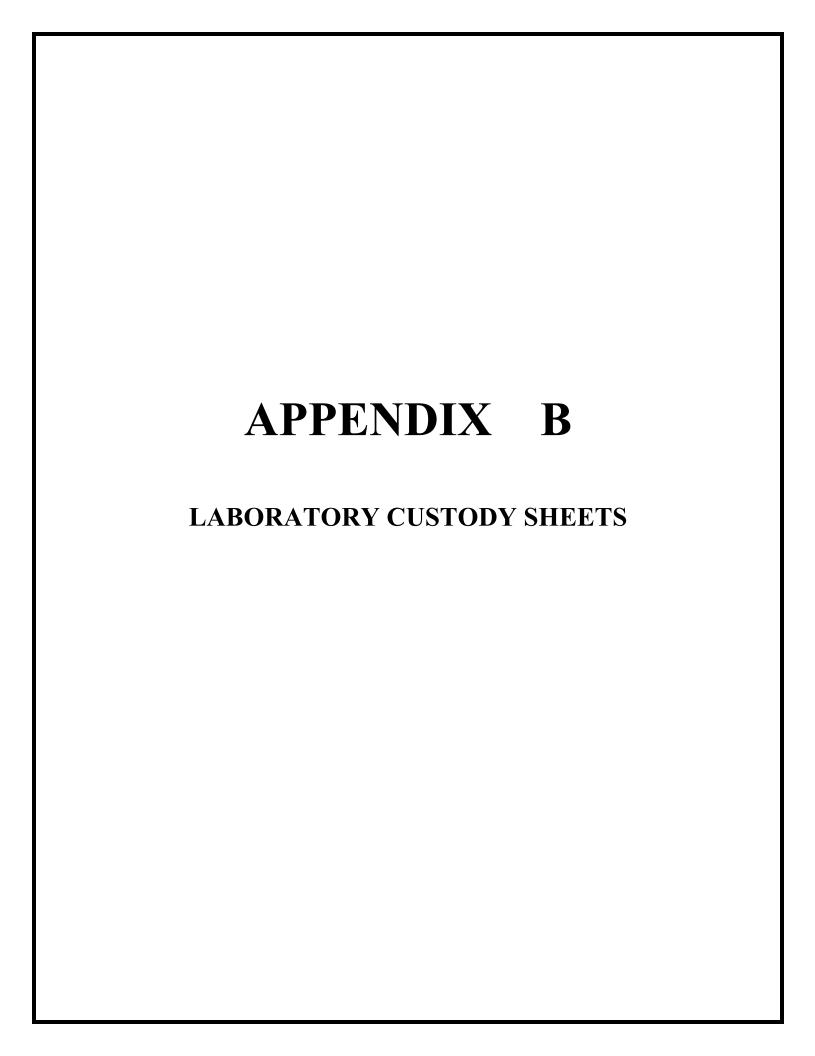
Station	Date	Time	Depth	Temp	DO	DO	рН	pHmV	ORP	<b>Turbidity</b>	Chloro.	SpCond
	M/D/Y	hh:mm:ss	ft	С	%	mg/L		mV	mV	NTU	ug/L	mS/cm
											_	
BZ-4S	6/27/2019	11:08:00	0.5	23.39	97.4	8.3	7.23	-20.5	188.2	0.0	8.0	0.037
Wild Creek	7/18/2019	11:02:12	0.5	26.32	96.9	7.82	7.28	-24	188.5	0.0	8.0	0.038
Upstream	8/1/2019	11:32:15	0.5	26.01	97.6	7.92	7.27	-23.1	176.1	0.0	0.9	0.034
	8/21/2019	14:22:41	0.5	26.5	96.6	7.77	7.86	-58.5	178.2	0.0	0.9	0.04
	9/12/2019	11:05:24	0.5	22.32	98	8.51	7.44	-32.8	194	0.0	1.2	0.037
BZ-5S	6/27/2019	10:52:51	0.5	18.05	97	9.17	7.66	-45.5	132.6	3.6	1.1	0.103
Pohopoco	7/18/2019	10:48:21	0.5	20.53	101	9.04	7.69	-47.4	162.9	3.6	1.5	0.113
Upstream	8/1/2019	11:15:47	0.5	20.59	101	9.04	7.61	-42.9	143.9	3.1	0.9	0.116
	8/21/2019	14:11:48	0.5	22.26	113	9.79	8.53	-97.4	148.8	4.8	0.8	0.12
	9/12/2019	10:51:33	0.5	19.62	95.4	8.74	7.74	-50.2	175.1	1.1	0.1	0.119
		8:29:58	0.5	23.5	110	9.35	8.33	-86	162.5	0.3	1.5	0.077
		8:29:02	5	23.4	110	9.35	8.36	-87.6	162.5	0.5	3.1	0.077
		8:28:06	10	23.22	110	9.42	8.38	-88.6	162.2	0.6	3.4	0.077
		8:26:52	15	22.49	107	9.23	7.89	-59.4	166.1	1.0	5.2	0.075
		8:26:08	20	19.86	91.8	8.37	7.11	-13.4	183.1	0.6	5.9	0.074
		8:24:15	25	18.41	76.9	7.22	6.88	0.1	187.2	0.7	6.1	0.075
		8:22:51	30	17.31	71.4	6.85	6.85	1.7	187.5	0.6	2.4	0.081
BZ-6		8:21:37	35	16.72	64.8	6.3	6.79	5.3	187.8	0.0	2.8	0.081
In-Lake		8:20:42	40	15.74	62.3	6.18	6.77	6	187.7	0.0	2.1	0.079
Tower		8:19:26	45	14.21	62.8	6.44	6.74	7.8	188	0.0	2.7	0.074
	6/27/2019	8:18:35	50	11.75	64.9	7.03	6.76	6.6	188.1	0.0	3.2	0.068
		8:17:24	55	10.51	65.6	7.31	6.76	6.4	188	0.0	2.4	0.067
Secchi		8:16:18	60	10.15	67	7.53	6.78	5.5	186.9	0.0	1.7	0.066
3.70 M		8:15:33	65	9.7	67.4	7.67	6.78	5.1	186.4	0.0	1.8	0.065
		8:14:56	70	9.42	67.5	7.72	6.79	5	185.9	0.0	1.6	0.065
		8:14:06	75	9.18	67.6	7.77	6.79	4.9	185.3	0.3	1.5	0.065
		8:13:14	80	8.98	68.7	7.94	6.79	4.8	184.6	0.4	1.4	0.064
		8:12:23	85	8.55	70.7	8.26	6.81	3.4	183.2	0.0	0.7	0.063
		8:11:00	90	8.23	70	8.24	6.81	3.7	182	0.0	1	0.063
		8:09:52	95	8.09	67.8	8.01	6.77	5.8	182.1	0.0	1	0.063
		8:08:52	100	7.79	63.1	7.51	6.72	8.4	182.5	0.1	1.5	0.063
		8:07:52	105	7.68	60.4	7.21	6.7	9.7	181.6	0.0	1	0.063
		8:07:03	110	7.63	59.2	7.07	6.69	10.5	180.6	0.0	0.5	0.063
		8:06:14	115	7.61	58.3	6.97	6.68	11	179.5	0.0	0.9	0.063
		8:04:07	120	7.56	56.8	6.8	6.67	11.4	175.6	0.0	0.6	0.063
L	<u></u>	8:03:23	125	7.56	56.9	6.81	6.72	8.8	172.8	0.0	0.8	0.063

Station	Date	Time	Depth	Temp	DO	DO	рН	pHmV	ORP	Turbidity	Chloro.	SpCond
	M/D/Y	hh:mm:ss	ft	C.	%	mg/L	•	mV	mV	NTU	ug/L	mS/cm
		8:17:54	0.5	27.42	112	8.88	8.7	-108.9	161.1	0.0	2.6	0.001
		8:16:39	5	27.49	112	8.83	8.74	-111.9	159.2	0.0	2.8	0.082
		8:15:40	10	27.49	112	8.84	8.75	-112	158.9	0.0	3.1	0.082
		8:14:41	15	27.06	113	8.97	8.62	-104.6	162.4	0.4	3.5	0.081
		8:13:29	20	22.25	133	11.59	9.59	-159.8	150.4	1.6	18.1	0.079
		8:11:18	25	20.55	82.5	7.42	6.98	-5.8	196.3	0.5	9.1	0.076
		8:10:14	30	19.28	51.7	4.77	6.75	7.4	201.2	0.4	6.8	0.077
		8:09:33	35	17.9	52.5	4.98	6.75	7.2	202.1	0.0	2	0.079
BZ-6		8:08:37	40	16.51	52	5.08	6.74	7.9	201.4	0.1	1.4	0.081
In-Lake		8:07:38	45	14.88	53.5	5.41	6.73	8.6	201.6	0.0	1.3	0.077
Tower	7/18/2019	8:06:41	50	12.74	54.6	5.78	6.72	9.2	202	0.0	1.2	0.071
		8:05:46	55	10.95	57.3	6.33	6.72	8.5	202.3	0.0	0.8	0.068
		8:04:53	60	10.3	58.9	6.61	6.73	8.4	202.2	0.0	0.5	0.067
Secchi		8:03:56	65	9.94	60	6.78	6.74	7.4	200.7	0.0	1	0.066
4.10 M		8:01:46	70	9.63	60.7	6.91	6.73	7.9	199.1	0.3	1.4	0.065
		7:59:27	75	9.31	61	7	6.74	7.8	196.1	0.0	1.2	0.065
		7:58:09	80	8.89	63.2	7.33	6.71	9.2	196.3	0.0	1.3	0.064
		7:56:51	85	8.59	64.4	7.52	6.64	13	198.3	0.0	0.4	0.064
		7:56:05	90	8.45	63.2	7.4	6.61	14.8	198.7	0.0	0.9	0.063
		7:55:11	95	8.2	60.8	7.17	6.57	17	198.9	0.0	0.8	0.063
		7:54:07	100	8.07	58	6.86	6.51	20.3	200	0.0	0.7	0.063
		7:52:19	105	7.76	48.6	5.79	6.38	27.5	202.6	0.0	0.5	0.063
		7:51:01	110	7.65	45.7	5.45	6.35	29.3	201.6	0.1	0.5	0.064
		7:50:11	115	7.64	44.4	5.3	6.35	29.3	199.7	0.5	1.3	0.064
		7:48:57	120	7.6	41.9	5.01	6.38	27.9	195.7	0.2	0.4	0.064
L	<u> </u>	7:47:55	125	7.59	39.8	4.76	6.43	24.9	192.2	1.0	1.2	0.064
		8:30:28	0.5	27.46	109	8.6	8.38	-90	163.7	0.0	1.3	0.082
		8:29:29	5.0	27.46	109	8.61	8.39	-90.7	163.2	0.0	1.7	0.082
		8:28:23	10	27.46	109	8.58	8.44	-93.6	161.8	0.0	2.1	0.082
		8:27:26	15	27.45	109	8.63	8.5	-97.4	160.8	0.0	2.2	0.082
		8:25:39	20	24.69	146	12.17	9.6	-161.9	146.1	1.2	5.4	0.090
		8:24:14	25	22.38	116	10.02	8.3	-84	168.5	0.0	4.7	0.081
		8:20:43	30	20.87	64.7	5.78	6.84	2.5	192.1	0.0	3.6	0.080
BZ-6		8:18:58	35	19.63	28.5	2.61	6.62	15.1	195.6		2.8	0.079
In-Lake		8:17:25	40	18.05	40.3	3.81	6.66	12.7	196.2	0.0	0.9	0.080
Tower	8/1/2019	8:16:19	45	16.23	43	4.22	6.69	10.7	196.1	0.0	1.1	0.080
		8:14:39	50	13.67	43.9	4.56	6.68	11.4	196.8	0.0	0.8	0.075
		8:13:02	55	12.07	47.4	5.1	6.68	11.1	196.7	0.0	1.7	0.072
Secchi		8:11:42	60	10.8	49.4	5.48	6.69	10.5	196.2	0.0	0.8	0.069
5.45 M		8:10:19	65	10.24	53.2	5.98	6.7	9.7	194.7	0.0	1.1	0.067
		8:08:53	70	9.6	55.9	6.36	6.68	10.8	195.3	0.0	0.6	0.066
		8:07:33	75	9.26	56.9	6.53	6.68	10.8	193.5	0.0	0.8	0.065
		8:06:23	80	8.92	58.7	6.79	6.67	11.5	192.5	0.0	0.3	0.064
		8:05:22	85	8.58	58.4	6.82	6.64	13.1	192.3	0.0	0.7	0.064
		8:04:37	90	8.41	56.8	6.66	6.62	14.6	191.9	0.0	1.3	0.064
		8:03:22	95	8.08	51.9	6.14	6.58	16.6	190.7	0.0	1.0	0.063
		8:00:28	100	7.84	41.2	4.9	6.48	21.9	188.6	0.3	0.5	0.064
		7:59:13	105	7.73	37.6	4.48	6.44	24.4	187.1	0.4	1.1	0.064
		7:58:05	110	7.7	36.5	4.36	6.41	26.2	185.2	0.4	0.5	0.064
		7:55:44	115	7.66	33.2	3.97	6.34	29.8	179.3	0.7	0.7	0.064
		7:54:22	120	7.66	31.1	3.72	6.32	30.8	172.5		1.9	0.064
L	<u> </u>	7:51:13	125	8.5	2.4	0.29	6.37	28.3	155.7	0.8	0.7	0.072

MIDIN   Ni:mmiss   ft   C   %   mg/L   mt/	Station	Date	Time	Depth	Temp	DO	DO	рΗ	pHmV	ORP	Turbidity	Chloro.	SpCond
12:18:06   5   27:23   112   8:85   8:78   1:13:9   145:4   0.0   2.1   0.085     12:17:17   10   27:06   1:13   8:79   8:17:79   144:5   0.0   2.0   0.085     12:16:24   15   26:47   1:13   9:11   8:79   1:14:2   145:9   0.0   2.9   0.084     12:15:31   20   25:11   1:14   9:39   7:55   4:01   1:19   0:0   5:1   0.09     12:15:58   25   23:87   94:3   7:96   7:05   9:9   17:31   0:0   6:9   0.093     12:12:05   30   22:31   5:11   4:44   6:76   7.2   177:8   0:0   3.9   0.093     12:12:05   30   22:31   5:11   4:44   6:76   7.2   177:8   0:0   3.9   0.093     12:10:19   35   20:93   3:18   2:41   6:41   3:8   177:9   0:0   1:8   0.083     12:06:57   4:5   18:27   21:2   1:99   6:11   15:5   176:8   0:0   2:0   0.081     12:05:53   55   13:88   3:44   3:55   6:33   1:4;   176:5   0:0   1:2   0.076     12:05:53   55   13:88   3:44   3:55   6:33   1:4;   176:5   0:0   1:2   0.076     12:05:54   55   13:88   3:44   3:55   6:63   1:4;   172:5   0:0   0:6   0:066     11:59:46   7:0   9:14   4:48   5:5   6:66   1:4;   172:5   0:0   0:6   0:066     11:59:46   7:0   9:44   4:48   5:5   6:66   1:4;   172:5   0:0   0:6   0:066     11:59:47   8:0   8:24   4:97   5:49   6:85   1:43   1:67:5   0:0   0:6   0:066     11:59:37   8:5   8:66   5:38   6:76   6:24   1:33   1:67:5   0:0   0:0   0:068     11:54:33   9:0   8:41   1:77   5:0   5:6   6:84   1:33   1:75:5   0:0   0:0   0:068     11:54:33   9:0   8:41   1:77   5:25   3:3   6:28   6:34   1:3   1:75:5   0:0   0:0   0:068     11:49:24   1:0   7:75   27:3   3:25   6:38   27:8   1:33:9   0:8   0:6   0:066     11:49:24   1:0   7:75   27:3   3:25   6:38   27:8   1:33:9   0:8   0:6   0:066     11:49:24   1:0   7:75   27:3   3:25   6:38   27:8   1:33:9   0:0   0:0   0:068     11:49:24   1:0   7:75   27:3   3:25   6:38   27:8   1:33:9   0:0   0:0   0:068     11:40:24   1:0   7:75   27:3   3:25   6:38   27:9   1:49   0:0   0:0   0:068     11:40:45   11:40:45   1:0   7:75   2:73   3:25   6:38   2:78   1:33:9   0:0   0:3   0:08     11:40:45   11:40:45   1:40:45   1:40:45   1:40:45		M/D/Y	hh:mm:ss	ft	С	%	mg/L		mV	mV	NTU	ug/L	mS/cm
12:17:17			12:18:41	0.5	27.74	111	8.73	8.7	-109.2	145.8	0.0	1.2	0.086
12-16-24			12:18:06		27.23	112	8.85	8.78	-113.9	145.4	0.0	2.1	
BZ-6 In-Lake Tower Secchi 4.6 12.15.31 20. 25.11 1144 9.39 7.55 40.1 16.19 0.00 5.1 0.00 6.9 0.093 12.12.05 30 22.31 5.11 4.44 6.76 7.2 177.8 0.0 3.9 0.093 0.093 18. 284 6.64 13.8 177.9 0.0 1.8 0.00 2.0 0.081 12.12.091 35 20.93 31.8 284 6.64 13.8 177.9 0.0 1.8 0.00 2.0 0.081 12.06.57 45 18.27 21.2 1.99 6.61 15.5 176.8 0.0 1.2 0.081 12.06.53 40 12.06.53 40 12.06.53 55 18.1 177.8 0.0 2.0 0.081 12.06.53 40 12.06.53 55 18.8 18.4 18.3 14.2 177.5 0.0 1.5 0.0 1.2 0.081 12.06.53 55 18.8 18.4 18.3 14.3 16.66 12.7 17.55 0.0 1.5 0.0 1.5 0.081 12.06.53 60 11.71 13.66 12.06.66 12.1 17.55 0.0 0.1 12.06.53 60 11.71 13.66 11.56.45 1													
BZ-6 In-Lake Tower Tower  8/21/2019  8/21/20									-114.2	145.9			
BZ-6 In-Lake Tower    12:12:05   30   22:31   51.1   4.44   6.76   7.2   177.8   0.0   3.9   0.093     12:10:19   35   20.93   31.8   2.48   6.64   13.8   177.9   0.0   1.8   0.083     12:06:53   40   19:95   10.4   0.94   6.55   19.1   178.8   0.0   2.0   0.081     12:06:57   45   18:27   21.2   19.9   6.61   15.5   176.8   0.0   1.2   0.081     12:06:31   50   16.02   31.4   3.1   6.66   12.7   175.5   0.0   1.5   0.08     12:03:33   55   13.88   34.4   3.55   6.63   14.2   176   0.1   1.2   0.076     12:01:53   60   11.71   38.6   4.19   6.63   14.2   176   0.1   1.2   0.076     12:00:66   65   10.48   44.8   5   6.66   12.1   172.5   0.0   0.6   0.068     11:59:46   70   9.84   48.6   5.5   6.67   11.8   170.9   0.0   0.0   0.066     11:56:45   80   8.94   53.7   6.22   6.64   13.3   167.5   0.0   1.2   0.065     11:56:43   80   8.94   53.7   6.22   6.64   13.3   167.5   0.0   1.2   0.065     11:56:33   90   8.41   51.7   6.06   6.64   13.3   167.5   0.0   0.9   0.066     11:59:34   90   8.41   51.7   6.06   6.64   13.3   167.5   0.0   0.9   0.064     11:52:37   95   8.21   46.6   5.49   6.59   16.1   158.3   0.0   0.7   0.064     11:59:44   110   7.75   27.3   3.25   6.38   27.8   153.9   0.8   0.6   0.065     11:49:24   105   7.84   31.3   3.72   6.41   25.8   156.2   0.4   1.3   0.064     11:49:24   105   7.84   31.3   3.72   6.41   25.8   156.2   0.4   1.3   0.064     11:42:37   125   7.84   2.8   3.46   6.73   6.1   2.5   1.72   0.1   1.0   0.064     11:42:37   125   7.84   2.8   3.46   6.73   6.1   2.5   1.09   0.0   3.3   0.081     8:26:50   5 23:21   104   8.83   7.76   5.23   167.7   0.0   3.3   0.081     8:26:33   30   2.27   8.98   6.87   7.77   3.49   16.9   0.0   3.3   0.081     8:24:13   15   22.98   100   8.61   7.47   3.49   16.9   0.0   3.3   0.081     8:24:13   55   16.8   6.5   9.65   6.55   19.1   19.5   0.0   3.0   0.064     14.56   11.4   1.5   5.7   1.5   1.5   1.5   1.5   1.5   1.5   1.0   1.5   0.08     8:26:26   1.6   1.6   1.5   1.6   1.5   1.6   1.5   1.0   1.5   0.08     8:26:30													
Name													
In-Lake Tower   8/21/2019													
Tower   R/21/2019   12:06:37   45   18:27   21:2   1.99   6.61   15:5   176.8   0.0   1.12   0.081													
Secthi   4.6													
12:03:53   55   13:88   34.4   3:55   6:63   14.2   176   0.1   1.2   0.076     12:01:53   60   11:71   38:6   4:19   6:63   14:1   174:6   0.0   1.8   0.072     12:00:56   65   10:48   44.8   5   6:66   12:1   172:5   0.0   0.6   0.068     11:59:46   70   9.84   48.6   5.5   6:67   11.8   170:9   0.0   0.9   0.066     11:58:19   75   9.45   49.7   5:69   6:65   12:5   169:3   0.0   0.6   0.066     11:56:45   80   8.94   53.7   6:22   6:64   13:3   167:5   0.0   0.1   2   0.065     11:55:37   85   8:66   53.8   6:27   6:62   14:3   166:7   0.0   0.9   0.064     11:52:37   95   8:21   46:6   5:49   6:59   16:1   158:3   0.0   0.7   0.064     11:51:03   100   7:95   38:5   4:56   6:51   20:5   157:2   0.1   1.0   0.064     11:49:24   110   7:75   27:3   3:25   6:38   27:8   153:9   0.8   0.6   0.065     11:46:21   120   7:7   23:9   23:6   6:4   24:4   149:6   0.065     11:42:37   125   7:84   2:8   0.34   6:73   8:1   107:9   38:6   1:3   0.064     11:42:37   125   7:84   2:8   0.34   6:73   8:1   107:9   38:6   1:3   0.065     8:26:50   5   23:22   105   8:93   7:83   5:63   16:9   0.0   3:1   0.081     8:24:59   10   23:18   103   8:81   7:63   44:7   16:5.5   0.0   3:4   0.081     8:22:22   25   22:85   9:69   8:33   7:78   -52:3   167:7   0.0   0.3   0.081     8:22:22   25   22:85   9:9   8:33   7:83   -56:3   16:9   0.0   3:5   0.081     8:16:53   40   20:83   24   0.22   6:55   19.4   10.4   0.0   0.055     8:13:48   50   18:46   5.9   0.55   6:55   19   19:63   0.0   0.3   0.00     8:11:33   55   18:18   16:18   16:17   17:58   19:18   10:1	Tower												
12:01:53		8/21/2019											
12:00:56   65   10:48   44.8   5   6.66   12:1   172:5   0.0   0.6   0.068     11:59:46   70   9.84   48.6   5.5   6.67   11.8   170:9   0.0   0.9   0.066     11:56:45   80   8.94   53.7   6.22   6.64   13:3   165.7   0.0   1.2   0.065     11:56:45   80   8.94   53.7   6.22   6.64   13:3   165.7   0.0   0.9   0.064     11:56:37   85   8.66   53.8   6.27   6.62   14.3   165.7   0.0   0.9   0.064     11:52:37   95   8.21   46.6   54.9   6.59   16.1   158.3   0.0   0.7   0.064     11:51:30   100   7.95   38.5   4.56   6.59   16.1   158.3   0.0   0.7   0.064     11:49:24   105   7.84   31.3   3.72   6.41   25.8   156.2   0.4   1.3   0.064     11:49:24   110   7.75   27.3   3.25   6.38   27.9   149.6   1.2   0.4   0.065     11:47:26   115   7.72   25.2   3   6.38   27.9   149.6   1.2   0.4   0.065     11:42:37   125   7.84   2.8   0.34   6.73   8.1   107.9   38.6   1.3   0.065     11:42:37   125   7.84   2.8   0.34   6.73   8.1   107.9   38.6   1.3   0.081     8:26:30   0.5   23:22   105   8.93   7.83   56:3   169.9   0.0   3.3   0.081     8:26:413   15   22.98   100   8.81   7.63   44.7   165.5   0.0   3.4   0.081     8:24:13   15   22.98   100   8.81   7.63   44.7   165.5   0.0   3.5   0.081     8:22:22   25   22.85   96.9   8.33   7.25   -22   163.4   0.0   4.2   0.081     8:21:38   30   22.71   89   7.67   7.12   4.12   164.1   0.0   3.5   0.081     8:21:38   30   22.71   89   7.67   7.12   4.12   164.1   0.0   3.5   0.081     8:21:38   30   22.71   89   7.67   7.12   4.12   164.1   0.0   3.5   0.081     8:21:38   30   22.71   89   7.67   7.12   4.12   164.1   0.0   3.5   0.081     8:21:38   30   22.71   89   7.67   7.12   4.12   164.1   0.0   3.5   0.081     8:21:38   30   22.71   89   7.67   7.12   4.12   164.1   0.0   3.5   0.081     8:15:35   45   16.65   2.5   0.22   6.55   19   196.3   0.0   0.7   0.090     8:11:13   55   16.18   16   1.57   6.59   16.5   196.8   0.0   1.5   0.082     8:15:35   45   45.65   2.5   2.22   6.55   19.4   10.7   0.0   0.7   0.084     8:15:35   95   8.33   4.5   6.57   17   17													
11:59:46													
11:58:19	4.6												
11:56:45													
11:55:37   85   8.66   53.8   6.27   6.62   14.3   165.7   0.0   0.9   0.064     11:54:33   90   8.41   51.7   6.06   6.64   13   161.4   0.0   0.7   0.064     11:51:03   100   7.95   38.5   4.56   6.51   20.5   157.2   0.1   1.0   0.064     11:49:24   105   7.84   31.3   3.72   6.41   25.8   156.2   0.4   1.3   0.064     11:49:24   110   7.75   27.3   3.25   6.38   27.9   149.6   1.2   0.4   0.065     11:47:26   115   7.72   25.2   3   6.38   27.9   149.6   1.2   0.4   0.065     11:46:21   120   7.7   23.9   2.85   6.4   26.4   142.7   1.4   0.6   0.065     11:46:21   120   7.7   23.9   2.85   6.4   26.4   142.7   1.4   0.6   0.065     11:42:37   125   7.84   2.8   0.34   6.73   8.1   107.9   38.6   1.3   0.081     8:26:30   0.5   23.22   105   8.93   7.83   56.3   169.9   0.0   3.3   0.081     8:24:59   10   23.18   103   8.81   7.63   44.7   165.5   0.0   3.4   0.081     8:24:13   15   22.98   100   8.61   7.47   -34.9   166.9   0.0   3.5   0.081     8:22:22   25   22.85   96.9   8.33   7.25   -22   163.4   0.0   4.2   0.081     8:21:38   30   22.71   89   7.77   7.12   14.2   164.1   0.0   3.5   0.081     8:21:38   30   22.71   89   7.77   7.12   14.2   164.1   0.0   3.5   0.081     8:16:53   40   20.83   2.4   0.22   6.55   19.4   104.7   0.0   1.9   0.091     4.5   9/12/2019   8:11:13   55   16.18   16   1.57   6.59   16.5   19.6   0.0   0.5   0.082     8:00:40   70   10.35   40.3   4.55   6.57   17   175.7   0.0   0.9   0.076     8:00:40   70   10.35   40.3   4.55   6.57   17   175.7   0.0   0.9   0.076     8:00:40   70   10.35   40.3   4.55   6.57   17   175.7   0.0   0.9   0.066     7:55:19   80   9.85   47.5   5.55   6.57   17   175.7   0.0   0.9   0.066     7:55:30   95   8.33   45   5.29   6.55   18.3   22.1   3.1   0.0   0.5   0.066     7:55:30   90   8.58   47.5   5.55   6.57   17.3   219   1.3   0.4   0.064     7:42:41   105   7.9   26.2   3.11   6.38   27.9   214.8   0.5   0.5   0.066     7:40:56   110   7.87   23.9   284   6.33   30.8   215   0.4   0.5   0.066     7:39:30   115   7.8   18.9													
11:54:33   90   8.41   51.7   6.06   6.64   13   161.4   0.0   0.7   0.064     11:52:37   95   8.21   46.6   5.49   6.59   16.1   158.3   0.0   0.7   0.064     11:51:03   100   7.95   38.5   4.56   6.51   20.5   157.2   0.1   1.0   0.064     11:49:24   105   7.84   31.3   3.72   6.41   25.8   156.2   0.4   1.3   0.064     11:48:24   110   7.75   27.3   3.25   6.38   27.8   153.9   0.8   0.6   0.065     11:47:26   115   7.72   25.2   3   6.38   27.9   149.6   1.2   0.4   0.065     11:46:21   120   7.7   23.9   2.85   6.4   26.4   142.7   1.4   0.6   0.065     11:46:21   120   7.7   23.9   2.85   6.4   26.4   142.7   1.4   0.6   0.065     11:46:21   120   7.7   23.9   2.85   6.4   26.4   142.7   1.4   0.6   0.065     11:42:37   125   7.84   2.8   0.34   6.73   8.1   107.9   38.6   1.3   0.081     8:26:50   5   23.21   104   8.88   7.6   5-53   169.9   0.0   3.1   0.081     8:24:59   10   23.18   103   8.81   7.63   -44.7   165.5   0.0   3.4   0.081     8:24:13   15   22.98   100   8.61   7.47   -34.9   166.9   0.0   3.5   0.081     8:22:22   25   22.85   96.9   8.33   7.25   -22   163.4   0.0   4.2   0.081     8:21:38   30   22.71   89   7.67   7.12   -14.2   164.1   0.0   3.5   0.081     8:16:53   40   20.83   2.4   0.22   6.54   19.7   133.1   0.0   2.1   0.088     8:15:35   45   19.65   2.5   0.22   6.55   19.4   10.7   0.0   1.4   0.084     8:15:35   45   19.65   2.5   0.22   6.55   19.4   10.7   0.0   1.4   0.084     8:09:10   60   13.33   20.2   2.11   6.57   17.7   197.5   0.0   0.9   0.076     8:07:13   65   11.66   24.5   2.66   6.49   21.9   197.9   0.0   0.3   0.080     8:01:46   75   10.01   36.4   4.11   6.73   8   159.5   0.0   1.4   0.067     7:55:19   80   9.38   47.3   5.42   6.55   18.2   21.3   1.3   0.1   0.065     7:53:06   90   8.58   47.5   5.55   6.57   17.7   197.5   0.0   0.7   0.064     7:42:41   105   7.9   26.2   3.11   6.38   27.9   214.8   0.5   0.5   0.065     7:37:17   120   7.76   16.5   1.96   6.28   33.5   20.97   16.1   2.3   0.066     7:37:17   120   7.76   16.5   1.96   6.													
11:52:37   95   8.21   46.6   5.49   6.59   16.1   158.3   0.0   0.7   0.064     11:51:03   100   7.95   38.5   4.56   6.51   20.5   157.2   0.1   1.0   0.064     11:49:24   105   7.84   31.3   3.72   6.41   25.8   156.2   0.4   1.3   0.064     11:48:24   110   7.75   27.3   3.25   6.38   27.8   153.9   0.8   0.6   0.065     11:48:24   110   7.75   27.3   3.25   6.38   27.9   149.6   1.2   0.4   0.065     11:48:21   120   7.7   23.9   2.85   6.4   26.4   142.7   1.4   0.6   0.66     11:48:23   120   7.7   23.9   2.85   6.4   26.4   142.7   1.4   0.6   0.065     11:42:37   125   7.84   2.8   0.34   6.73   8.1   107.9   38.6   1.3   0.065     11:42:37   125   7.84   2.8   0.34   6.73   8.1   107.9   38.6   1.3   0.065     8:26:30   0.5   23.22   105   8.93   7.83   -56.3   169.9   0.0   3.3   0.081     8:24:59   10   23.18   103   8.81   7.63   -44.7   165.5   0.0   3.4   0.081     8:24:13   15   22.98   100   8.61   7.47   -34.9   166.9   0.0   3.5   0.081     8:22:22   25   22.85   96.9   8.33   7.25   -22   163.4   0.0   4.2   0.081     8:22:22   25   22.85   96.9   8.33   7.25   -22   163.4   0.0   4.2   0.081     8:19:43   35   21.95   33.3   2.91   6.67   12.4   162.7   0.0   1.9   0.091     Tower   8:16:53   40   20.83   2.4   0.22   6.55   19.4   104.7   0.0   1.4   0.084     8:19:43   35   21.95   33.3   2.91   6.67   12.4   162.7   0.0   1.9   0.091     4.5   9/12/2019   8:11:13   55   16.18   16   1.57   6.59   16.5   196.8   0.0   1.5   0.08     8:00:40   70   10.35   40.3   4.51   6.57   17   175.7   0.0   0.9   0.066     8:00:40   70   10.35   40.3   4.51   6.57   17   175.7   0.0   0.9   0.066     7:55:39   85   8.78   48.3   5.61   6.55   18.3   221.3   1.3   0.1   0.065     7:53:06   90   8.58   47.5   5.55   6.57   17.3   219   1.3   0.4   0.064     7:42:41   105   7.9   26.2   3.11   6.38   27.9   214.8   0.5   0.5   0.066     7:37:17   120   7.76   16.5   1.96   6.28   33.5   20.97   16.1   2.3   0.066     7:37:17   120   7.76   16.5   1.96   6.28   33.5   20.97   16.1   2.3   0.066     7:37													
11:51:03													
11:49:24													
Handblack													
Hi-46:21   120   7.72   25.2   3   6.38   27.9   149.6   1.2   0.4   0.065     11:46:21   120   7.7   23.9   2.85   6.4   26.4   142.7   1.4   0.6   0.065     11:42:37   125   7.84   2.8   0.34   6.73   8.1   107.9   38.6   1.3   0.065     8:26:30   0.5   23.22   105   8.93   7.83   -56.3   169.9   0.0   3.3   0.081     8:25:50   5   23.21   104   8.88   7.6   -52.3   167.7   0.0   3.1   0.081     8:24:59   10   23.18   103   8.81   7.63   44.7   165.5   0.0   3.4   0.081     8:24:59   10   23.18   103   8.81   7.63   44.7   165.5   0.0   3.4   0.081     8:24:39   15   22.98   100   8.61   7.47   -34.9   166.9   0.0   3.5   0.081     8:24:38   30   22.71   89   7.67   7.12   -14.2   164.1   0.0   3.5   0.081     8:21:38   30   22.71   89   7.67   7.12   -14.2   164.1   0.0   3.5   0.081     8:19:43   35   21.95   33.3   2.91   6.67   12.4   162.7   0.0   1.9   0.091     8:16:53   40   20.83   2.4   0.22   6.54   19.7   133.1   0.0   2.1   0.088     8:15:35   45   19.65   2.5   0.22   6.55   19.4   104.7   0.0   1.4   0.084     8:13:48   50   18.46   5.9   0.55   6.55   19   196.3   0.0   0.5   0.082     8:11:13   55   16.18   16   1.57   6.59   16.5   196.8   0.0   1.5   0.08     8:00:40   70   10.35   40.3   4.51   6.57   17.7   175.7   0.0   0.9   0.076     8:00:40   70   10.35   40.3   4.51   6.57   17.7   175.7   0.0   0.9   0.068     8:01:46   75   10.01   36.4   4.11   6.73   17.7   175.7   0.0   0.9   0.068     7:54:39   85   8.78   48.3   5.61   6.55   18.3   221.3   1.3   0.1   0.065     7:54:39   85   8.78   48.3   5.61   6.55   18.3   221.3   1.3   0.1   0.065     7:54:39   85   8.78   48.3   5.61   6.55   18.3   221.3   1.3   0.1   0.065     7:54:41   105   7.9   26.2   3.11   6.38   27.9   214.8   0.5   0.5   0.066     7:42:41   105   7.9   26.2   3.11   6.38   27.9   214.8   0.5   0.5   0.066     7:40:56   110   7.87   23.9   2.84   6.33   30.8   215   0.4   0.5   0.066     7:39:30   115   7.8   18.9   2.25   6.29   32.6   214.2   45.1   0.6   0.066     7:39:30   115   7.8   18.9   2.25   6.29													
11:46:21   120   7.7   23.9   2.85   6.4   26.4   142.7   1.4   0.6   0.065     11:42:37   125   7.84   2.8   0.34   6.73   8.1   107.9   38.6   1.3   0.065     8:26:30   0.5   23.22   105   8.93   7.83   -56.3   169.9   0.0   3.3   0.081     8:26:50   5   23.21   104   8.88   7.76   -52.3   167.7   0.0   3.1   0.081     8:24:59   10   23.18   103   8.81   7.63   -44.7   165.5   0.0   3.4   0.081     8:24:13   15   22.98   100   8.61   7.47   -34.9   166.9   0.0   3.5   0.081     8:23:28   20   22.93   98.6   8.47   7.4   -34.9   166.9   0.0   3.5   0.081     8:21:38   30   22.71   89   7.67   7.12   -14.2   164.1   0.0   3.5   0.081     8:21:38   30   22.71   89   7.67   7.12   -14.2   164.1   0.0   3.5   0.081     8:19:43   35   21.95   33.3   2.91   6.67   12.4   162.7   0.0   1.9   0.091     Tower   8:16:53   40   20.83   2.4   0.22   6.54   19.7   133.1   0.0   2.1   0.088     8:15:35   45   19.65   2.5   0.22   6.55   19.4   104.7   0.0   1.4   0.084     8:13:48   50   18.46   5.9   0.55   6.55   19   196.3   0.0   0.5   0.082     8:09:10   60   13.33   20.2   2.11   6.57   17.7   197.5   0.0   0.9   0.076     8:07:12   65   11.66   24.5   2.66   6.49   21.9   197.9   0.0   0.8   0.072     8:07:12   65   11.66   24.5   2.66   6.49   21.9   197.9   0.0   0.8   0.072     8:07:12   65   10.01   36.4   4.11   6.73   8   159.5   0.0   1.4   0.066     7:54:39   85   8.78   48.3   5.61   6.55   18.3   221.3   1.3   0.1   0.065     7:54:39   85   8.78   48.3   5.61   6.55   18.3   221.3   1.3   0.1   0.065     7:54:39   100   8.12   38.3   4.53   6.48   22.4   218.5   0.0   0.5   0.064     7:42:41   105   7.9   26.2   3.11   6.38   27.9   214.8   0.5   0.5   0.066     7:42:41   105   7.9   26.2   3.11   6.38   27.9   214.8   0.5   0.5   0.066     7:39:30   115   7.8   18.9   2.25   6.29   3.26   214.2   45.1   0.6   0.066     7:39:30   115   7.8   18.9   2.25   6.29   3.26   214.2   45.1   0.6   0.066     7:39:30   115   7.8   18.9   2.25   6.29   3.26   214.2   45.1   0.6   0.066     7:39:30   115   7.8   18.9													
11:42:37   125   7.84   2.8   0.34   6.73   8.1   107.9   38.6   1.3   0.065     8:26:30   0.5   23:22   105   8.93   7.83   56.3   169.9   0.0   3.3   0.081     8:25:50   5   23:21   104   8.88   7.76   52:3   167.7   0.0   3.1   0.081     8:24:59   10   23:18   103   8.81   7.63   -44.7   165.5   0.0   3.4   0.081     8:24:13   15   22:98   100   8.61   7.47   34.9   166.9   0.0   3.5   0.081     8:23:28   20   22:93   98.6   8.47   7.4   -30.5   165.2   0.0   3.8   0.081     8:22:22   25   22.85   96.9   8.33   7.25   -22   163.4   0.0   4.2   0.081     8:21:38   30   22.71   89   7.67   7.12   -14.2   164.1   0.0   3.5   0.081     8:19:43   35   21:95   33.3   2.91   6.67   12.4   162.7   0.0   1.9   0.091     Tower   8:16:53   40   20:83   2.4   0.22   6.55   19.4   104.7   0.0   1.4   0.084     8:15:35   45   19.65   2.5   0.22   6.55   19   196.3   0.0   0.5   0.082     8:13:48   50   18:46   5.9   0.55   6.55   19   196.3   0.0   0.5   0.082     8:09:10   60   13:33   20:2   2.11   6.57   17.7   175.7   0.0   0.9   0.076     8:07:12   65   11:66   24.5   2.66   6.49   21.9   197.5   0.0   0.9   0.068     8:01:46   75   10:01   36:4   4.11   6.73   8   159:5   0.0   1.4   0.067     7:55:19   80   9.38   47:3   5.42   6.56   18   221:1   31.5   2.4   0.066     7:54:39   85   8.78   48:3   5.61   6.55   17:3   219   13.3   0.4   0.064     7:42:41   105   7.9   26:2   3.11   6:38   27:9   214.8   0.5   0.5   0.065     7:40:56   110   7.87   23:9   2.84   6:33   30:8   215   0.4   0.5   0.56     7:39:30   115   7.8   18:9   2.25   6:29   32:6   214.2   45:1   0.6   0.066     7:37:17   120   7.76   16:5   1.96   6:28   33:5   209.7   16:1   2.3   0.066     7:39:30   115   7.8   18:9   2.25   6:29   32:6   214.2   45:1   0.6   0.066     7:39:30   115   7.8   18:9   2.25   6:29   32:6   214.2   45:1   0.6   0.066     7:39:30   115   7.8   18:9   2.25   6:29   32:6   214.2   45:1   0.6   0.066     7:39:30   115   7.8   18:9   2.25   6:29   32:6   214.2   45:1   0.6   0.066     7:39:30   115   7.8   18:9   2.25													
Right   Righ													
Sechi   4.5   Sechi   Signature   Sechi   Signature   Sechi   Signature   Sechi   Signature   Signat	<b></b>	<b></b>											
Size													
BZ-6   In-Lake   Tower   Secchi   4.5   Secchi   4.5   Secchi   Singrit													
BZ-6 In-Lake Tower         8:23:28         20         22:93         98.6         8.47         7.4         -30.5         165.2         0.0         3.8         0.081           BZ-6 In-Lake In-Lake Tower           Secchi 8:19:43         30         22:71         89         7.67         7.12         -14.2         164.1         0.0         3.5         0.081           Secchi 8:19:43         35         21:95         33.3         2.91         6.67         12.4         162.7         0.0         1.9         0.091           Secchi 8:16:53         40         20:83         2.4         0.22         6.54         19.7         133.1         0.0         2.1         0.088           8:15:35         45         19.65         2.5         0.22         6.55         19.4         104.7         0.0         1.4         0.088           8:15:35         45         19.65         2.5         0.22         6.55         19.4         104.7         0.0         1.4         0.088           8:15:35         45         19.65         2.5         0.22         6.55         19.4         104.7         0.0         0.9         0.076           8:0:10:00													
BZ-6 In-Lake Tower         8:22:22         25         22.85         96.9         8.33         7.25         -22         163.4         0.0         4.2         0.081           BZ-6 In-Lake Bin-Lake Signature           Tower           8:19:43         35         21.95         33.3         2.91         6.67         12.4         162.7         0.0         1.9         0.091           8:16:53         40         20.83         2.4         0.22         6.54         19.7         133.1         0.0         2.1         0.088           8:15:35         45         19.65         2.5         0.22         6.55         19.4         104.7         0.0         1.4         0.084           8:13:48         50         18.46         5.9         0.55         6.55         19.4         104.7         0.0         1.4         0.084           8:13:48         50         18.46         5.9         0.55         6.55         19         196.3         0.0         0.5         0.082           8:09:10         60         13.33         20.2         2.11         6.57         17.7         197.5         0.0         0.9         0.076           8:07:40													
SZ-6   In-Lake   S:1:38   30   22.71   89   7.67   7.12   -14.2   164.1   0.0   3.5   0.081   8:19:43   35   21.95   33.3   2.91   6.67   12.4   162.7   0.0   1.9   0.091   8:16:53   40   20.83   2.4   0.22   6.54   19.7   133.1   0.0   2.1   0.088   8:15:35   45   19.65   2.5   0.22   6.55   19.4   104.7   0.0   1.4   0.084   8:13:48   50   18.46   5.9   0.55   6.55   19   196.3   0.0   0.5   0.082   8:09:10   60   13.33   20.2   2.11   6.57   17.7   197.5   0.0   0.9   0.076   8:07:12   65   11.66   24.5   2.66   6.49   21.9   197.9   0.0   0.8   0.072   8:02:40   70   10.35   40.3   4.51   6.57   17   175.7   0.0   0.9   0.068   8:01:46   75   10.01   36.4   4.11   6.73   8   159.5   0.0   1.4   0.066   7:54:39   85   8.78   48.3   5.61   6.55   18.3   221.3   1.3   0.1   0.065   7:53:06   90   8.58   47.5   5.55   6.57   17.3   219   1.3   0.4   0.064   7:51:35   95   8.33   45   5.29   6.55   18.4   218.5   0.0   0.7   0.064   7:42:41   105   7.9   26.2   3.11   6.38   27.9   214.8   0.5   0.5   0.065   7:39:30   115   7.8   18.9   2.25   6.29   32.6   214.2   45.1   0.6   0.066   7:37:17   120   7.76   16.5   1.96   6.28   33.5   209.7   16.1   2.3   0.066													
Notes   Single   Si	R7-6												
Tower         8:16:53         40         20.83         2.4         0.22         6.54         19.7         133.1         0.0         2.1         0.088           8:15:35         45         19.65         2.5         0.22         6.55         19.4         104.7         0.0         1.4         0.084           8.13:48         50         18.46         5.9         0.55         6.55         19         196.3         0.0         0.5         0.082           8:09:10         60         13.33         20.2         2.11         6.57         17.7         197.5         0.0         0.9         0.076           8:07:12         65         11.66         24.5         2.66         6.49         21.9         197.9         0.0         0.8         0.072           8:02:40         70         10.35         40.3         4.51         6.57         17         175.7         0.0         0.9         0.068           8:01:46         75         10.01         36.4         4.11         6.73         8         159.5         0.0         1.4         0.067           7:55:19         80         9.38         47.3         5.42         6.56         18													
Secchi         4.5       8:15:35       45       19.65       2.5       0.22       6.55       19.4       104.7       0.0       1.4       0.084         4.5       8:13:48       50       18.46       5.9       0.55       6.55       19       196.3       0.0       0.5       0.082         8:09:10       60       13.33       20.2       2.11       6.57       17.7       197.5       0.0       0.9       0.076         8:07:12       65       11.66       24.5       2.66       6.49       21.9       197.9       0.0       0.8       0.072         8:02:40       70       10.35       40.3       4.51       6.57       17       175.7       0.0       0.9       0.068         8:01:46       75       10.01       36.4       4.11       6.73       8       159.5       0.0       1.4       0.067         7:55:19       80       9.38       47.3       5.42       6.56       18       221.1       31.5       2.4       0.066         7:54:39       85       8.78       48.3       5.61       6.55       18.3       221.3       1.3       0.1       0.065         7:51:35													
Secchi         4.5       8:13:48       50       18.46       5.9       0.55       6.55       19       196.3       0.0       0.5       0.082         8:09:10       60       13.33       20.2       2.11       6.57       17.7       197.5       0.0       0.9       0.076         8:07:12       65       11.66       24.5       2.66       6.49       21.9       197.9       0.0       0.8       0.072         8:02:40       70       10.35       40.3       4.51       6.57       17       175.7       0.0       0.9       0.068         8:01:46       75       10.01       36.4       4.11       6.73       8       159.5       0.0       1.4       0.067         7:55:19       80       9.38       47.3       5.42       6.56       18       221.1       31.5       2.4       0.066         7:54:39       85       8.78       48.3       5.61       6.55       18.3       221.3       1.3       0.1       0.065         7:51:35       95       8.33       45       5.29       6.55       18.4       218.5       0.0       0.7       0.064         7:48:09       100 </th <th>lowei</th> <th></th>	lowei												
4.5       9/12/2019       8:11:13       55       16.18       16       1.57       6.59       16.5       196.8       0.0       1.5       0.08         8:09:10       60       13.33       20.2       2.11       6.57       17.7       197.5       0.0       0.9       0.076         8:07:12       65       11.66       24.5       2.66       6.49       21.9       197.9       0.0       0.8       0.072         8:02:40       70       10.35       40.3       4.51       6.57       17       175.7       0.0       0.9       0.068         8:01:46       75       10.01       36.4       4.11       6.73       8       159.5       0.0       1.4       0.067         7:55:19       80       9.38       47.3       5.42       6.56       18       221.1       31.5       2.4       0.066         7:54:39       85       8.78       48.3       5.61       6.55       18.3       221.3       1.3       0.1       0.065         7:53:06       90       8.58       47.5       5.55       6.57       17.3       219       1.3       0.4       0.064         7:48:09       100       8.12	Secchi												
8:09:10         60         13.33         20.2         2.11         6.57         17.7         197.5         0.0         0.9         0.076           8:07:12         65         11.66         24.5         2.66         6.49         21.9         197.9         0.0         0.8         0.072           8:02:40         70         10.35         40.3         4.51         6.57         17         175.7         0.0         0.9         0.068           8:01:46         75         10.01         36.4         4.11         6.73         8         159.5         0.0         1.4         0.067           7:55:19         80         9.38         47.3         5.42         6.56         18         221.1         31.5         2.4         0.066           7:54:39         85         8.78         48.3         5.61         6.55         18.3         221.3         1.3         0.1         0.065           7:53:06         90         8.58         47.5         5.55         6.57         17.3         219         1.3         0.4         0.064           7:48:09         100         8.12         38.3         4.53         6.48         22.4         218.5         0.0		9/12/2019											
8:07:12       65       11.66       24.5       2.66       6.49       21.9       197.9       0.0       0.8       0.072         8:02:40       70       10.35       40.3       4.51       6.57       17       175.7       0.0       0.9       0.068         8:01:46       75       10.01       36.4       4.11       6.73       8       159.5       0.0       1.4       0.067         7:55:19       80       9.38       47.3       5.42       6.56       18       221.1       31.5       2.4       0.066         7:54:39       85       8.78       48.3       5.61       6.55       18.3       221.3       1.3       0.1       0.065         7:53:06       90       8.58       47.5       5.55       6.57       17.3       219       1.3       0.4       0.064         7:51:35       95       8.33       45       5.29       6.55       18.4       218.5       0.0       0.7       0.064         7:48:09       100       8.12       38.3       4.53       6.48       22.4       218.5       0.0       0.5       0.065         7:40:56       110       7.87       23.9       2.84 <td< th=""><th>7.0</th><th>3, 12,2010</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></td<>	7.0	3, 12,2010											
8:02:40       70       10.35       40.3       4.51       6.57       17       175.7       0.0       0.9       0.068         8:01:46       75       10.01       36.4       4.11       6.73       8       159.5       0.0       1.4       0.067         7:55:19       80       9.38       47.3       5.42       6.56       18       221.1       31.5       2.4       0.066         7:54:39       85       8.78       48.3       5.61       6.55       18.3       221.3       1.3       0.1       0.065         7:53:06       90       8.58       47.5       5.55       6.57       17.3       219       1.3       0.4       0.064         7:51:35       95       8.33       45       5.29       6.55       18.4       218.5       0.0       0.7       0.064         7:48:09       100       8.12       38.3       4.53       6.48       22.4       218.5       0.0       0.5       0.064         7:42:41       105       7.9       26.2       3.11       6.38       27.9       214.8       0.5       0.5       0.065         7:40:56       110       7.87       23.9       2.84													
8:01:46         75         10.01         36.4         4.11         6.73         8         159.5         0.0         1.4         0.067           7:55:19         80         9.38         47.3         5.42         6.56         18         221.1         31.5         2.4         0.066           7:54:39         85         8.78         48.3         5.61         6.55         18.3         221.3         1.3         0.1         0.065           7:53:06         90         8.58         47.5         5.55         6.57         17.3         219         1.3         0.4         0.064           7:51:35         95         8.33         45         5.29         6.55         18.4         218.5         0.0         0.7         0.064           7:48:09         100         8.12         38.3         4.53         6.48         22.4         218.5         0.0         0.5         0.064           7:42:41         105         7.9         26.2         3.11         6.38         27.9         214.8         0.5         0.5         0.065           7:40:56         110         7.87         23.9         2.84         6.33         30.8         215         0.4         <													
7:55:19         80         9.38         47.3         5.42         6.56         18         221.1         31.5         2.4         0.066           7:54:39         85         8.78         48.3         5.61         6.55         18.3         221.3         1.3         0.1         0.065           7:53:06         90         8.58         47.5         5.55         6.57         17.3         219         1.3         0.4         0.064           7:51:35         95         8.33         45         5.29         6.55         18.4         218.5         0.0         0.7         0.064           7:48:09         100         8.12         38.3         4.53         6.48         22.4         218.5         0.0         0.5         0.064           7:42:41         105         7.9         26.2         3.11         6.38         27.9         214.8         0.5         0.5         0.065           7:40:56         110         7.87         23.9         2.84         6.33         30.8         215         0.4         0.5         0.065           7:39:30         115         7.8         18.9         2.25         6.29         32.6         214.2         45.1													
7:54:39         85         8.78         48.3         5.61         6.55         18.3         221.3         1.3         0.1         0.065           7:53:06         90         8.58         47.5         5.55         6.57         17.3         219         1.3         0.4         0.064           7:51:35         95         8.33         45         5.29         6.55         18.4         218.5         0.0         0.7         0.064           7:48:09         100         8.12         38.3         4.53         6.48         22.4         218.5         0.0         0.5         0.064           7:42:41         105         7.9         26.2         3.11         6.38         27.9         214.8         0.5         0.5         0.065           7:40:56         110         7.87         23.9         2.84         6.33         30.8         215         0.4         0.5         0.065           7:39:30         115         7.8         18.9         2.25         6.29         32.6         214.2         45.1         0.6         0.066           7:37:17         120         7.76         16.5         1.96         6.28         33.5         209.7         16.1													
7:53:06         90         8.58         47.5         5.55         6.57         17.3         219         1.3         0.4         0.064           7:51:35         95         8.33         45         5.29         6.55         18.4         218.5         0.0         0.7         0.064           7:48:09         100         8.12         38.3         4.53         6.48         22.4         218.5         0.0         0.5         0.064           7:42:41         105         7.9         26.2         3.11         6.38         27.9         214.8         0.5         0.5         0.065           7:40:56         110         7.87         23.9         2.84         6.33         30.8         215         0.4         0.5         0.065           7:39:30         115         7.8         18.9         2.25         6.29         32.6         214.2         45.1         0.6         0.066           7:37:17         120         7.76         16.5         1.96         6.28         33.5         209.7         16.1         2.3         0.066													
7:51:35         95         8.33         45         5.29         6.55         18.4         218.5         0.0         0.7         0.064           7:48:09         100         8.12         38.3         4.53         6.48         22.4         218.5         0.0         0.5         0.064           7:42:41         105         7.9         26.2         3.11         6.38         27.9         214.8         0.5         0.5         0.065           7:40:56         110         7.87         23.9         2.84         6.33         30.8         215         0.4         0.5         0.065           7:39:30         115         7.8         18.9         2.25         6.29         32.6         214.2         45.1         0.6         0.066           7:37:17         120         7.76         16.5         1.96         6.28         33.5         209.7         16.1         2.3         0.066													
7:48:09         100         8.12         38.3         4.53         6.48         22.4         218.5         0.0         0.5         0.064           7:42:41         105         7.9         26.2         3.11         6.38         27.9         214.8         0.5         0.5         0.065           7:40:56         110         7.87         23.9         2.84         6.33         30.8         215         0.4         0.5         0.065           7:39:30         115         7.8         18.9         2.25         6.29         32.6         214.2         45.1         0.6         0.066           7:37:17         120         7.76         16.5         1.96         6.28         33.5         209.7         16.1         2.3         0.066													
7:42:41     105     7.9     26.2     3.11     6.38     27.9     214.8     0.5     0.5     0.065       7:40:56     110     7.87     23.9     2.84     6.33     30.8     215     0.4     0.5     0.065       7:39:30     115     7.8     18.9     2.25     6.29     32.6     214.2     45.1     0.6     0.066       7:37:17     120     7.76     16.5     1.96     6.28     33.5     209.7     16.1     2.3     0.066													
7:40:56         110         7.87         23.9         2.84         6.33         30.8         215         0.4         0.5         0.065           7:39:30         115         7.8         18.9         2.25         6.29         32.6         214.2         45.1         0.6         0.066           7:37:17         120         7.76         16.5         1.96         6.28         33.5         209.7         16.1         2.3         0.066													
7:39:30													
7:37:17   120   7.76   16.5   1.96   6.28   33.5   209.7   16.1   2.3   0.066													
	L	<u> </u>											

Station	Date	Time	Depth	Temp	DO	DO	рН	pHmV	ORP	Turbidity	Chloro.	SpCond
	M/D/Y	hh:mm:ss	ft	С	%	mg/L	-	mV	mV	NTU	ug/L	mS/cm
		9:55:00	0.5	25.4	114	9.35	8.55	-99.8	178.6	0.2	2.5	0.076
		9:53:52	5	25.16	113	9.31	8.51	-96.9	182.1	0.7	3.2	0.075
		9:53:06	10	23.74	107	9.07	7.46	-34.6	197.9	0.9	4.5	0.059
BZ-7		9:52:04	15	20.86	99.8	8.92	7.21	-19.4	207	1.3	3.4	0.08
Upper Lake		9:51:20	20	19.51	93.4	8.58	7.11	-13.6	210.5	1.6	2.8	0.088
No-Wake	6/27/2019	9:50:38	25	18.4	87.8	8.25	7.04	-9.4	212.7	1.5	1.7	0.09
		9:49:54	30	17.47	83.1	7.96	6.98	-6.2	214.2	1.3	1.1	0.088
		9:48:58	35	16.91	77.4	7.5	6.92	-2.5	215.3	1.1	1.2	0.086
		9:47:55	40	15.94	67.6	6.68	6.81	3.7	216.8	1.2	1.4	0.082
		9:47:00	45	13.43	55.7	5.81	6.68	11.2	220.2	0.5	1.4	0.076
		9:46:09	50	11.81	54.2	5.86	6.63	13.8	222.5	0.3	0.9	0.072
		9:45:23	55	11.04	54.5	6.01	6.65	13.1	222.1	0.2	0.9	0.07
L		9:43:52	60	11.17	56.3	6.18	6.75	7.2	218.8	0.2	0.9	0.071
		9:43:01	0.5	28.35	110	8.56	8.51	-98.3	171.1	0.0	2.1	0.08
		9:41:49	5	28.36	109	8.51	8.38	-90.1	173.5	0.0	2	0.08
BZ-7		9:39:44	10	26.44	109	8.74	7.41	-31.5	191.5	0.9	3.3	0.079
<b>Upper Lake</b>		9:38:18	15	23.85	107	8.99	7.33	-26.6	194.5	0.5	5.4	0.101
No-Wake	7/18/2019	9:33:28	20	21.98	75.2	6.58	6.91	-1.7	191.5	1.9	3.5	0.105
		9:32:45	25	20.8	63.2	5.65	6.82	3.4	191.7	1.3	3	0.099
		9:31:59	30	19.71	56.8	5.19	6.76	6.7	190.9	8.0	1.9	0.094
		9:30:50	35	18.35	50.4	4.73	6.7	10.2	189.2	0.2	0.7	0.089
		9:29:53	40	17.29	47.7	4.59	6.65	13.5	188	0.2	1.5	0.086
		9:29:06	45	16.36	43.6	4.27	6.61	15.4	185.1	0.6	1.1	0.084
		9:28:07	50	15.01	37.7	3.8	6.46	24.2	187.5	0.2	1.2	0.081
L	L <b></b>	9:27:10	53	13.61	37.3	3.88	6.53	20.1	177.2	0.6	0.3	0.077
		10:01:10	0.5	28.31	112	8.74	8.83	-117.4	139.1	0.0	2.1	0.081
		10:00:16	5	28.19	112	8.75	8.81	-116.1	138.3	0.0	2.8	0.082
		9:59:32	10	28.05	112	8.75	8.4	-91.4	140.4	0.0	3.4	0.080
BZ-7		9:58:48	15	26.07	117	9.48	7.63	-44.7	153.7	0.4	4.1	0.089
Upper Lake	8/1/2019	9:57:35	20	24.52	87.9	7.33	7.04	-9.7	162.5	0.7	2.9	0.102
No-Wake		9:56:37	25	22.95	72	6.18	6.92	-2.3	162	2.1	1.5	0.108
		9:54:57	30	20.94	41.3	3.69	6.68	11.5	158.3	0.9	1.4	0.098
		9:53:50	35	19.32	31.5	2.9	6.61	15.6	152.7	0.2	1.1	0.092
		9:53:01	40	17.56	29	2.77	6.61	15.8	147.6	0.2	1.1	0.088
		9:51:43	45	16.25	26.9	2.64	6.59	16.7	135.9	0.1	1.5	0.084
		9:50:51	50	13.54	26.6	2.77	6.59	16.3	126.4	0.3	1.4	0.077
L	L <u></u> _	9:49:15	55	11.72	29.5	3.2	6.7	9.7	101.6	4.5	1.1	0.073

Station	Date	Time	Depth	Temp	DO	DO	рΗ	pHmV	ORP	<b>Turbidity</b>	Chloro.	SpCond
	M/D/Y	hh:mm:ss	ft	С	%	mg/L		mV	mV	NTU	ug/L	mS/cm
		13:26:07	0.5	28.18	124	9.67	9.32	-146.5	145.2	0.0	1.8	0.087
		13:24:52	5	28.08	126	9.81	9.35	-148.6	145.7	0.0	4.8	0.086
		13:23:56	10	26.88	121	9.67	8.94	-123.6	152.8	0.0	6.3	0.076
		13:23:15	15	26.19	114	9.23	8.27	-83.3	159.1	0.0	5.3	0.083
		13:22:05	20	25.49	92.8	7.6	7.06	-10.9	177.7	0.0	4.8	0.074
BZ-7	8/21/2019	13:21:00	25	24.05	70.5	5.92	6.9	-1.2	180.4	0.3	1.5	0.093
<b>Upper Lake</b>		13:19:44	30	22.68	62.4	5.39	6.87	0.8	177.9	0.9	1.8	0.104
No-Wake		13:17:38	35	21.06	30.5	2.72	6.68	11.5	174.1	0.9	1.4	0.097
		13:16:18	40	19.84	12.7	1.15	6.62	15.3	169.7	0.5	1.8	0.093
		13:15:13	45	18.69	7	0.65	6.66	13	162.6	0.5	1.5	0.092
		13:14:12	50	17.41	5.6	0.54	6.74	7.7	152.1	0.6	1.1	0.089
		13:13:00	55	14.5	3.7	0.38	6.96	-4.6	126.8	0.5	1.3	0.084
		9:52:17	0.5	24.1	110	9.21	8.41	-91.1	164.2	0.0	2.1	0.083
		9:51:33	5	24.1	109	9.16	8.31	-85	162.6	0.0	2.7	0.083
		9:50:44	10	24.09	108	9.04	7.98	-65.5	164.8	0.0	2.6	0.082
		9:50:02	15	23.58	106	9.01	7.75	-51.8	165.3	0.0	3.1	0.080
		9:49:15	20	23.33	103	8.8	7.56	-40.4	167.5	0.0	3.9	0.078
BZ-7		9:45:56	25	22.86	91	7.82	7.19	-18.5	167.1	0.0	2.7	0.072
<b>Upper Lake</b>	9/12/2019	9:41:48	30	21.87	86.7	7.6	7.08	-12.1	157.7	0.4	2.3	0.084
No-Wake		9:39:33	35	20.81	75.7	6.77	6.94	-3.6	153.4	0.7	1.5	0.093
		9:38:28	40	20.57	64.9	5.83	6.84	2	149.8	0.1	1.2	0.092
		9:37:20	45	20.11	53.5	4.85	6.79	5	141.8	0.0	1.8	0.092
		9:35:39	50	19.26	32.5	2.99	6.76	7	121	1.2	1.5	0.092





Dayton, NJ 08/01/19

The results set forth herein are provided by SGS North America Inc.

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Automated Report



### **USACE-Philadelphia District**

Philadelphia District, Reservoir Sampling

CONTRACT#W912BU18D0003/TO#W912BU19F0065

SGS Job Number: JC90749

Sampling Date: 06/27/19



**Army Corps of Engineers** 

joseph.m.loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 28

TNI FORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499 s or modifications to this document.

Please share your ideas about

### **Sections:**

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# **Sample Summary**

USACE-Philadelphia District

Job No:

JC90749

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC90749-1	06/27/19	07:00 GW	06/27/19	AQ	Surface Water	BZ-1S
JC90749-2	06/27/19	11:20 GW	06/27/19	AQ	Surface Water	BZ-2S
JC90749-3	06/27/19	09:00 GW	06/27/19	AQ	Surface Water	BZ-3S
JC90749-4	06/27/19	09:00 GW	06/27/19	AQ	Surface Water	BZ-3M
JC90749-5	06/27/19	09:00 GW	06/27/19	AQ	Surface Water	BZ-3D
JC90749-6	06/27/19	11:15 GW	06/27/19	AQ	Surface Water	BZ-4S
JC90749-7	06/27/19	10:50 GW	06/27/19	AQ	Surface Water	BZ-5S
JC90749-8	06/27/19	08:00 GW	06/27/19	AQ	Surface Water	BZ-6S
JC90749-9	06/27/19	08:00 GW	06/27/19	AQ	Surface Water	BZ-6M
JC90749-10	06/27/19	08:00 GW	06/27/19	AQ	Surface Water	BZ-6D
JC90749-11	06/27/19	09:45 GW	06/27/19	AQ	Surface Water	BZ-7S
JC90749-12	06/27/19	09:45 GW	06/27/19	AQ	Surface Water	BZ-7M
JC90749-13	06/27/19	09:45 GW	06/27/19	AQ	Surface Water	BZ-7D

#### CASE NARRATIVE / CONFORMANCE SUMMARY

Client: USACE-Philadelphia District Job No JC90749

Site: Philadelphia District, Reservoir Sampling Report Date 7/17/2019 4:39:45 PM

On 06/27/2019, 13 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 3.3 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JC90749 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

#### General Chemistry By Method EPA 351.2/LACHAT

Matrix: AQ Batch ID: GP22392

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90749-1DUP, JC90749-1MS were used as the QC samples for Nitrogen, Total Kjeldahl.

#### General Chemistry By Method EPA 353.2/LACHAT

Matrix: AQ Batch ID: GP22340

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90743-3DUP, JC90749-2MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.

#### General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ Batch ID: R179714

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90749-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179715

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90749-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179716

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90749-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179717

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90749-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179718

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90749-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179719

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90749-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179720

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90749-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179721

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90749-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179722

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90749-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179723

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90749-10 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179724

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90749-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179725

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90749-13 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179727

The data for EPA353.2/SM4500NO2B meets quality control requirements.

Wednesday, July 17, 2019

JC90749-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

SGS

#### General Chemistry By Method SM2320 B-11

Matrix: AQ Batch ID: GN97318

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90749-1DUP were used as the QC samples for Alkalinity, Total as CaCO3.
- JC90749-11 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90749-7 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90749-4 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90749-5 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90749-6 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90749-10 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90749-3 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC90749-1 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90749-12 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC90749-8 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC90749-9 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC90749-13 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90749-2 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.

### General Chemistry By Method SM2540 C-11

Matrix: AQ Batch ID: GN97112

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90749-1DUP, JC90749-2DUP were used as the QC samples for Solids, Total Dissolved.

### General Chemistry By Method SM2540 D-11

Matrix: AQ Batch ID: GN97110

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90749-1DUP were used as the QC samples for Solids, Total Suspended.
- JC90749-1 for Solids, Total Suspended: Reported sample aliquot obtained from filtration of 500 mL of sample. Volume was reduced from 1 liter due to limited volume.
- JC90749-7 for Solids, Total Suspended: Reported sample aliquot obtained from filtration of 980 mL of sample. Volume was reduced from 1 liter due to limited volume.

#### General Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AQ Batch ID: GP22357

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90722-2DUP, JC90722-2MS, JC90722-2MSD were used as the QC samples for Nitrogen, Ammonia.

Matrix: AQ Batch ID: GP22358

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90793-1DUP, JC90793-1MS, JC90793-1MSD were used as the QC samples for Nitrogen, Ammonia.

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#### General Chemistry By Method SM4500NO2 B-11

Matrix: AQ Batch ID: GN96967

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90728-1DUP, JC90728-1MS were used as the QC samples for Nitrogen, Nitrite.

#### General Chemistry By Method SM5210 B-11

Matrix: AQ Batch ID: GP22078

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90722-2DUP were used as the QC samples for BOD, 5 Day.

#### General Chemistry By Method SM5310 B-11

Matrix: AQ Batch ID: GP22257

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90743-4MS, JC90743-4MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ Batch ID: GP22258

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90749-1MS, JC90749-1MSD were used as the QC samples for Total Organic Carbon.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

**Summary of Hits Job Number:** JC90749

Account: USACE-Philadelphia District

Philadelphia District, Reservoir Sampling 06/27/19 **Project:** 

**Collected:** 

Lab Sample ID Client Sa Analyte	mple ID Result/ Qual	RL	MDL	Units	Method
JC90749-1 BZ-1S					
Nitrogen, Nitrate <sup>a</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	0.77 0.77 50.0 1.3	0.11 0.10 10 1.0		mg/l mg/l mg/l mg/l	EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11
JC90749-2 BZ-2S					
Alkalinity, Total as CaCO3 Nitrogen, Nitrate <sup>a</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved	b 16.0 0.22 0.22 31.0	10 0.11 0.10 10		mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11
JC90749-3 BZ-3S					
Alkalinity, Total as CaCO3 Nitrogen, Nitrate <sup>a</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	0.44 0.44 0.31 44.0	10 0.11 0.10 0.20 10 1.0		mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC90749-4 BZ-3M					
Nitrogen, Nitrate <sup>a</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved	0.75 0.75 49.0	0.11 0.10 10		mg/l mg/l mg/l	EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11
JC90749-5 BZ-3D					
Alkalinity, Total as CaCO3 Nitrogen, Nitrate <sup>a</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved	b 10.0 0.51 0.51 0.28 60.0	10 0.11 0.10 0.20 10		mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT EPA 351.2/LACHAT SM2540 C-11
JC90749-6 BZ-4S					
BOD, 5 Day Nitrogen, Nitrate <sup>a</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved	38.1 1.2 1.2 41.0	5.0 0.11 0.10 10		mg/l mg/l mg/l mg/l	SM5210 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11

**Summary of Hits Job Number:** JC90749

Account: USACE-Philadelphia District

Philadelphia District, Reservoir Sampling 06/27/19 **Project:** 

**Collected:** 

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL MDL	Units	Method
JC90749-7 BZ-5S				
Alkalinity, Total as CaCO3 <sup>b</sup> Nitrogen, Nitrate <sup>a</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Solids, Total Suspended <sup>d</sup>	14.0 1.2 1.2 65.0 5.6	10 0.11 0.10 10 4.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM2540 D-11
JC90749-8 BZ-6S				
Alkalinity, Total as CaCO3 <sup>c</sup> Nitrogen, Nitrate <sup>a</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	25.0 0.44 0.44 49.0 1.0	10 0.11 0.10 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11
JC90749-9 BZ-6M				
Alkalinity, Total as CaCO3 <sup>c</sup> Nitrogen, Nitrate <sup>a</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved	37.0 0.81 0.81 48.0	10 0.11 0.10 10	mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11
JC90749-10 BZ-6D				
Nitrogen, Nitrate <sup>a</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved	0.77 0.77 42.0	0.11 0.10 10	mg/l mg/l mg/l	EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11
JC90749-11 BZ-7S				
Alkalinity, Total as CaCO3 <sup>b</sup> Nitrogen, Nitrate <sup>a</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	10.0 0.46 0.46 21.0 1.5	10 0.11 0.10 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11
JC90749-12 BZ-7M				
Alkalinity, Total as CaCO3 <sup>c</sup> Nitrogen, Nitrate <sup>a</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	35.0 0.90 0.90 0.34 48.0 1.2	10 0.11 0.10 0.20 10 1.0	mg/l mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11

**Summary of Hits Job Number:** JC90749

Account: USACE-Philadelphia District

**Project:** Philadelphia District, Reservoir Sampling

**Collected:** 06/27/19

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
JC90749-13 BZ-7D					
Alkalinity, Total as CaCO3 <sup>b</sup> Nitrogen, Nitrate <sup>a</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	14.0 0.91 0.91 48.0 1.5	10 0.11 0.10 10 1.0		mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11

- (a) Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)
- (b) Sample was titrated to a final pH of 4.2.
- (c) Sample was titrated to a final pH of 4.5.
- (d) Reported sample aliquot obtained from filtration of 980 mL of sample. Volume was reduced from 1 liter due to limited volume.





# Dayton, NJ

# Section 4

Report of Analysis

## 4

## **Report of Analysis**

Client Sample ID: BZ-1S Lab Sample ID: JC90749-1

Lab Sample ID:JC90749-1Date Sampled:06/27/19Matrix:AQ - Surface WaterDate Received:06/27/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	07/09/19 16:04	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	06/28/19 17:21	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 17:01	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>b</sup>	0.77	0.11	mg/l	1	07/12/19 13:22	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.77	0.10	mg/l	1	07/12/19 13:22	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/28/19 12:20	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/17/19 12:07	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	50.0	10	mg/l	1	07/02/19 16:00	RC	SM2540 C-11
Solids, Total Suspended <sup>c</sup>	< 4.0	4.0	mg/l	1	07/02/19 14:28	RC	SM2540 D-11
Total Organic Carbon	1.3	1.0	mg/l	1	07/09/19 16:16	CD	SM5310 B-11

- (a) Sample was titrated to a final pH of 4.2.
- (b) Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)
- (c) Reported sample aliquot obtained from filtration of 500 mL of sample. Volume was reduced from 1 liter due to limited volume.

## **Report of Analysis**

Client Sample ID: BZ-2S Lab Sample ID: JC90749-2

Matrix: AQ - Surface Water Date Received: 06/27/19
Parcent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

### **Date Sampled:** 06/27/19



Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	16.0	10	mg/l	1	07/09/19 16:04	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	06/28/19 17:24	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 17:05	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>b</sup>	0.22	0.11	mg/l	1	07/12/19 13:23	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.22	0.10	mg/l	1	07/12/19 13:23	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/28/19 12:20	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/17/19 12:31	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	31.0	10	mg/l	1	07/02/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/02/19 14:28	RC	SM2540 D-11
Total Organic Carbon	< 1.0	1.0	mg/l	1	07/09/19 17:23	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-3S Lab Sample ID: JC90749-3

Matrix: AQ - Surface Water

**Date Sampled:** 06/27/19 **Date Received:** 06/27/19 **Percent Solids:** n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	38.0	10	mg/l	1	07/09/19 16:04	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	06/28/19 17:27	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 17:07	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>b</sup>	0.44	0.11	mg/l	1	07/12/19 13:24	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.44	0.10	mg/l	1	07/12/19 13:24	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/28/19 12:20	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.31	0.20	mg/l	1	07/17/19 12:09	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	44.0	10	mg/l	1	07/02/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/02/19 14:28	RC	SM2540 D-11
Total Organic Carbon	1.9	1.0	mg/l	1	07/09/19 17:35	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.5.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

## **Report of Analysis**

**Client Sample ID:** BZ-3M Lab Sample ID: JC90749-4

**Date Sampled:** 06/27/19 Matrix: **Date Received:** 06/27/19 AQ - Surface Water Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	07/09/19 16:04	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	06/28/19 17:30	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 17:08	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.75	0.11	mg/l	1	07/12/19 13:25	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.75	0.10	mg/l	1	07/12/19 13:25	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/28/19 12:20	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/17/19 12:10	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	49.0	10	mg/l	1	07/02/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/02/19 14:28	RC	SM2540 D-11
Total Organic Carbon	< 1.0	1.0	mg/l	1	07/09/19 17:49	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

## **Report of Analysis**

Client Sample ID: BZ-3D Lab Sample ID: JC90749-5

Lab Sample ID:JC90749-5Date Sampled:06/27/19Matrix:AQ - Surface WaterDate Received:06/27/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	10.0	10	mg/l	1	07/09/19 16:04	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	06/28/19 17:33		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 17:09	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.51	0.11	mg/l	1	07/12/19 13:26	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.51	0.10	mg/l	1	07/12/19 13:26	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/28/19 12:20	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.28	0.20	mg/l	1	07/17/19 12:11	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	60.0	10	mg/l	1	07/02/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/02/19 14:28	RC	SM2540 D-11
Total Organic Carbon	< 1.0	1.0	mg/l	1	07/09/19 18:01	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

## **Report of Analysis**

Client Sample ID: BZ-4S Lab Sample ID: JC90749-6

Lab Sample ID:JC90749-6Date Sampled:06/27/19Matrix:AQ - Surface WaterDate Received:06/27/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	07/09/19 16:04	MS	SM2320 B-11
BOD, 5 Day	38.1	5.0	mg/l	1	06/28/19 17:36	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 17:11	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	1.2	0.11	mg/l	1	07/12/19 13:27	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.2	0.10	mg/l	1	07/12/19 13:27	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/28/19 12:20	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/17/19 12:12	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	41.0	10	mg/l	1	07/02/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/02/19 14:28	RC	SM2540 D-11
Total Organic Carbon	< 1.0	1.0	mg/l	1	07/09/19 18:09	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

## **Report of Analysis**

Client Sample ID: BZ-5S Lab Sample ID: JC90749-7

**Date Sampled:** 06/27/19 **Date Received:** 06/27/19 Matrix: AQ - Surface Water Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	14.0	10	mg/l	1	07/09/19 16:32	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	06/28/19 17:38		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 17:12	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	1.2	0.11	mg/l	1	07/12/19 13:28	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.2	0.10	mg/l	1	07/12/19 13:28	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/28/19 12:20	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/17/19 12:12	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	65.0	10	mg/l	1	07/02/19 16:00	RC	SM2540 C-11
Solids, Total Suspended <sup>c</sup>	5.6	4.0	mg/l	1	07/02/19 14:28	RC	SM2540 D-11
Total Organic Carbon	< 1.0	1.0	mg/l	1	07/09/19 18:23	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

<sup>(</sup>c) Reported sample aliquot obtained from filtration of 980 mL of sample. Volume was reduced from 1 liter due to limited volume.

Client Sample ID: BZ-6S Lab Sample ID: JC90749-8

**Date Sampled:** 06/27/19 Matrix: AQ - Surface Water **Date Received:** 06/27/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

### **General Chemistry**

Analyte	Result	$\mathbf{RL}$	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	25.0	10	mg/l	1	07/09/19 16:32	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	06/28/19 17:41	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 17:14	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>b</sup>	0.44	0.11	mg/l	1	07/12/19 13:29	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.44	0.10	mg/l	1	07/12/19 13:29	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/28/19 12:20	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/17/19 12:13	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	49.0	10	mg/l	1	07/02/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/02/19 14:28	RC	SM2540 D-11
Total Organic Carbon	1.0	1.0	mg/l	1	07/09/19 18:31	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.5.



Page 1 of 1

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

**Client Sample ID:** BZ-6M Lab Sample ID: JC90749-9

**Date Sampled:** 06/27/19 Matrix: AQ - Surface Water **Date Received:** 06/27/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

### Page 1 of 1

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	37.0	10	mg/l	1	07/09/19 16:32	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	06/28/19 17:44	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 17:15	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.81	0.11	mg/l	1	07/12/19 13:30	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.81	0.10	mg/l	1	07/12/19 13:30	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/28/19 12:20	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/17/19 12:31	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	48.0	10	mg/l	1	07/02/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/02/19 14:28	RC	SM2540 D-11
Total Organic Carbon	< 1.0	1.0	mg/l	1	07/09/19 18:46	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.5.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Page 1 of 1

Client Sample ID: BZ-6D Lab Sample ID: JC9074

**Lab Sample ID:** JC90749-10 **Matrix:** AQ - Surface Water **Date Sampled:** 06/27/19 **Date Received:** 06/27/19 **Percent Solids:** n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	07/09/19 16:32	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	06/28/19 17:47	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 17:17	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.77	0.11	mg/l	1	07/12/19 13:34	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.77	0.10	mg/l	1	07/12/19 13:34	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/28/19 12:20	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/17/19 12:32	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	42.0	10	mg/l	1	07/02/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/02/19 14:28	RC	SM2540 D-11
Total Organic Carbon	< 1.0	1.0	mg/l	1	07/09/19 18:54	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

## **Report of Analysis**

Client Sample ID: BZ-7S

Lab Sample ID: JC90749-11

Matrix: AQ - Surface Water

Date Sampled: 06/27/19

Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	10.0	10	mg/l	1	07/09/19 16:32	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	06/28/19 17:50	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 17:18	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.46	0.11	mg/l	1	07/12/19 13:35	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.46	0.10	mg/l	1	07/12/19 13:35	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/28/19 12:20	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/17/19 12:33	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	21.0	10	mg/l	1	07/02/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/02/19 14:28	RC	SM2540 D-11
Total Organic Carbon	1.5	1.0	mg/l	1	07/09/19 15:02	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Page 1 of 1

Client Sample ID: BZ-7M Lab Sample ID: JC90749-12

Matrix: AQ - Surface Water

**Date Sampled:** 06/27/19 **Date Received:** 06/27/19 **Percent Solids:** n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	35.0	10	mg/l	1	07/09/19 16:32	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	06/28/19 17:53	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 17:22	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.90	0.11	mg/l	1	07/12/19 13:36	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.90	0.10	mg/l	1	07/12/19 13:36	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/28/19 12:20	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.34	0.20	mg/l	1	07/17/19 12:34	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	48.0	10	mg/l	1	07/02/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/02/19 14:28	RC	SM2540 D-11
Total Organic Carbon	1.2	1.0	mg/l	1	07/09/19 15:14	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.5.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-7D Lab Sample ID: JC90749-13 **Date Sampled:** 06/27/19 Matrix: AQ - Surface Water **Date Received:** 06/27/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

### **General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method		
Alkalinity, Total as CaCO3 <sup>a</sup>	14.0	10	mg/l	1	07/09/19 16:32	MS	SM2320 B-11		
BOD, 5 Day	< 5.0	5.0	mg/l	1	06/28/19 17:55	RI	SM5210 B-11		
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 17:31	BM	SM4500NH3 H-11LACHAT		
Nitrogen, Nitrate b	0.91	0.11	mg/l	1	07/12/19 13:37	KI	EPA353.2/SM4500NO2B		
Nitrogen, Nitrate + Nitrite	0.91	0.10	mg/l	1	07/12/19 13:37	KI	EPA 353.2/LACHAT		
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/28/19 12:20	JOO	SM4500NO2 B-11		
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/17/19 12:35	KI	EPA 351.2/LACHAT		
Solids, Total Dissolved	48.0	10	mg/l	1	07/02/19 16:00	RC	SM2540 C-11		
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/02/19 14:28	RC	SM2540 D-11		
Total Organic Carbon	1.5	1.0	mg/l	1	07/09/19 15:26	CD	SM5310 B-11		

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

Page 1 of 1

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)



# Misc. Forms

Dayton, NJ

**Custody Documents and Other Forms** 

Includes the following where applicable:

• Chain of Custody

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JC90749: Chain of Custody Page 1 of 3

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JC90749: Chain of Custody Page 2 of 3

### **SGS Sample Receipt Summary**

Job Number: JC90	749 Client:	USACE-PHILADELPHIA DIS	TRICT Project: PHILADELPHIA D	ISTRICT, RESERVOIR SAMPL
Date / Time Received: 6/27/2	2019 4:40:00 PM	Delivery Method:	Airbill #'s:	
Cooler Temps (Raw Measured Cooler Temps (Corrected	,	Cooler 2: (3.5); Cooler 3: (3 Cooler 2: (3.1); Cooler 3: (3		
Cooler Security Y	or N	Y or N	Sample Integrity - Documentation	Y or N
<ol> <li>Custody Seals Present: ✓</li> <li>Custody Seals Intact: ✓</li> </ol>	3. COC Pr 4. Smpl Date		Sample labels present on bottles:     Container labeling complete:	
Cooler Temperature	Y or N		3. Sample container label / COC agree:	
Temp criteria achieved:     Cooler temp verification:     Cooler media:     No. Coolers:	IR Gun Ice (Bag)		Sample Integrity - Condition  1. Sample recvd within HT:  2. All containers accounted for:  3. Condition of sample:	Y or N  V   Intact
Quality Control Preservation	Y or N N/A		Sample Integrity - Instructions	Y or N N/A
<ol> <li>Trip Blank present / cooler:</li> <li>Trip Blank listed on COC:</li> <li>Samples preserved properly:</li> </ol>			Analysis requested is clear:     Bottles received for unspecified tests     Sufficient volume recvd for analysis:	
4. VOCs headspace free:			<ul><li>4. Compositing instructions clear:</li><li>5. Filtering instructions clear:</li></ul>	
Test Strip Lot #s: pH	1-12: 229517	pH 12+:	208717 Other: (Specify)	
Comments  SM089-03 Rev. Date 12/7/17				

JC90749: Chain of Custody

Page 3 of 3



Dayton, NJ 07/29/19

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report



**USACE-Philadelphia District** 

Philadelphia District, Reservoir Sampling

CONTRACT#W912BU18D0003/TO#W912BU19F0065

SGS Job Number: JC90749X

Sampling Date: 06/27/19



USACE-Philadelphia District 100 Penn Square East Philadelphia, PA 19107 Joseph.M.Loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 14

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Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499 s or modifications to this document.

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Please share your ideas about how we can serve you better at:

EHS.US.CustomerCare@sgs.com

### **Sections:**

## \_

### -1-

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## **Sample Summary**

USACE-Philadelphia District

Job No: JC90749X

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
JC90749-1X	06/27/19	07:00 GW	06/27/19	AQ	Surface Water	BZ-1S
JC90749-2X	06/27/19	11:20 GW	06/27/19	AQ	Surface Water	BZ-2S
JC90749-3X	06/27/19	09:00 GW	06/27/19	AQ	Surface Water	BZ-3S
JC90749-6X	06/27/19	11:15 GW	06/27/19	AQ	Surface Water	BZ-4S
JC90749-7X	06/27/19	10:50 GW	06/27/19	AQ	Surface Water	BZ-5S
JC90749-8X	06/27/19	08:00 GW	06/27/19	AQ	Surface Water	BZ-6S
JC90749-11X	06/27/19	09:45 GW	06/27/19	AQ	Surface Water	BZ-7S



## Dayton, NJ

## Section 2

Subcontract Lab Data
Report of Analysis



# **Analytical Report**

Serialized: 07/25/2019 09:32am QC36

KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130

DAYTON,NJ 08810

Regarding:

SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810

PROJECT ID:

W09769

LABORATORY REPORT NUMBER:

L7139178

Authorized by: Douglas J. Gump Client Services Manager

Darfl



# **Analytical Report**

KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810 Regarding: KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810

	: W09769, SGS NORTH W09769, SGS NORTH			P.O. No:		Inv. No: PWSID No:	PI
<b>Sample ID</b> L7139178-1	Sample Description BZ-1S Received Date/Ti	<b>me/Temp</b> 06/27	7/19 01:30pm 9.4 C	Iced (Y/N): Y		ate/Time/Temp 07:00am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	MENTAL MICROBIO	LOGY BZ-18	\$				
Total Coliform Fecal Coliform	,	>2000 11 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	06/27/19 02:58PM ARD 06/27/19 03:04PM ZS
<b>Sample ID</b> L7139178-2	Sample Description BZ-2S Received Date/Ti	<b>me/Temp</b> 06/27	7/19 01:30pm 9.4 C	Iced (Y/N): Y		ate/Time/Temp 11:20am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	MENTAL MICROBIO	LOGY BZ-28	}				
Total Coliform	·	>2000 28 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	06/27/19 05:21PM LK 06/27/19 10:03PM ZS

PIN: 28748 Serial Number: 6530284



# **Analytical Report**

	: W09769, SGS NORTH W09769, SGS NORTH			P.O. No:		Inv. No: PWSID No:	Pl
Sample ID L7139178-3	Sample Description BZ-3S Received Date/Tim	n <b>e/Temp</b> 06/27/	19 01:30pm 9.4 C	Iced (Y/N): Y		ate/Time/Temp 09:00am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY BZ-3S					
Total Coliform Fecal Coliforn		160 4 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	06/27/19 02:58PM ARD 06/27/19 10:03PM ZS
<b>Sample ID</b> L7139178-4	Sample Description BZ-4S Received Date/Tim	ne/Temp 06/27/	19 01:30pm 9.4 C	Iced (Y/N): Y		ate/Time/Temp 11:15am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY BZ-4S					
Total Coliform Fecal Coliform		>2000 7 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	06/27/19 05:21PM LK 06/27/19 10:03PM ZS
Sample ID L7139178-5	Sample Description BZ-5S Received Date/Tim	<b>1e/Temp</b> 06/27/	19 01:30pm 9.4 C	Iced (Y/N): Y		ate/Time/Temp 10:50am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY BZ-5S					
Total Coliform Fecal Coliform		>2000 29 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	06/27/19 05:21PM LK 06/27/19 10:03PM ZS
<b>Sample ID</b> L7139178-6	Sample Description BZ-6S Received Date/Tim	ne/Temp 06/27/	19 01:30pm 9.4 C	Iced (Y/N): Y		ate/Time/Temp 08:00am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst

PIN: 28748 Serial Number: 6530284



## **Analytical Report**

	: W09769, SGS NORTH W09769, SGS NORTH			P.O. No:		Inv. No: PWSID No:	PI
<b>Sample ID</b> L7139178-6	Sample Description BZ-6S Received Date/Tim	ne/Temp 06/27/	19 01:30pm 9.4 C	iced (Y/N): Y		te/Time/Temp 8:00am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY – BZ-6S					
Total Coliform Fecal Coliform	•	210 3 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	06/27/19 02:58PM ARD 06/27/19 10:03PM ZS
<b>Sample ID</b> L7139178-7	Sample Description BZ-7S Received Date/Tim	ne/Temp 06/27/	19 01:30pm 9.4 C	Iced (Y/N): Y		te/Time/Temp 9:45am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY BZ-7S					

SM 9222B

SM 9222D

10

100

10

06/27/19 02:58PM ARD

06/27/19 10:03PM ZS

### Sample Comments | Result Qualifiers:

#### L7139178-1:

Total Coliform, MF

Fecal Coliform, MF

Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory purposes.

cfu/100ml

cfu/100ml

#### L7139178-2:

Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory purposes.

### L7139178-3:

Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory purposes.

### L7139178-4:

Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory purposes.

### L7139178-5:

Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory purposes.

Page 4 of 6

PIN: 28748 Serial Number: 6530284

220



# **Analytical Report**

Account No: W09769, SGS NORTH AMERICA, INC. Project No: W09769, SGS NORTH AMERICA, INC.

P.O. No:

Inv. No: PWSID No:

Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory purposes.

L7139178-7:

Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory



PIN: 28748 Serial Number: 6530284

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### **DEFINITIONS**

### The following terms or abbreviations are used in this report:

Eurofins QC, LLC (EQC)

<	Less than: In conjunction with a numerical value,
_ `	indicates a concentration less than RL / MDL
>	Greater than: In conjunction with a numerical value,
^	indicates a concentration greater than RL / MDL
CFU	Colony Forming Unit
DF	Dilution Factor (For Microbiology, DF = volume of
DF.	sample tested)
DRY	Result was reported on a dry weight basis
MCL	EPA recommended "Maximum Contaminant Level"
MDL	Method Detection Limit
MF	Membrane Filtration
MPN	Most Probable Number
ND	For odor test: No Odor Observed
ND	For all other tests: Analyte concentration Not
ND	Detected greater than the RL / MDL

NEG	Negative / Absent
NTU	Nephelometric Turbidity Units
POS	Positive / Present
PPB (µg/L)	Parts per billion: equivalent to 1 microgram per kilogram (µg/Kg) for solids or one microgram per liter (µg/L) for aqueous samples
PPM (mg/L)	Parts per million: equivalent to 1 milligram per kilogram (mg/Kg) for solids or one milligram per liter (mg/L) for aqueous samples
PRES	Presumptive
QUAL	Qualifier (Q)
RL	Laboratory Reporting Limit or Limit of Quantitation (LOQ)
TNTC	Too Numerous To Count
TON	Threshold Odor Number

#### **Data Qualifiers**

J	Estimated value ≥ MDL, but < RL
Т	Temperature exceedance at receipt, refer to Sample Comments / Results Qualifiers section
Е	Estimated CFU count (Microbiology)
Q	Qualifier defined in Sample Comment section on report

#### Warranties, Terms, and Conditions

- Unless otherwise indicated in the Parameter field, analyses for environmental microbiology, odor, and pharmaceutical microbiology are performed at the EQC Horsham Facility (702 Electronic Dr. Horsham, PA 19044).
- Analyses for Field Parameters are performed by EQC Field staff. Locations and certifications are identified on the Chain of Custody as follows:
  - "ERF" = field staff performs tests under NJ State certification # 02015.
  - "VL" = field staff performs tests under NJ State certification # 06005.
  - "WG" = field staff performs tests under NJ State certification # PA001.
- Test results meet all TNI or other applicable regulatory agency requirements, including holding times and preservation, unless otherwise indicated.
- The report shall not be reproduced, except in full, without the written consent of the laboratory.
- · All samples are collected as "grab" samples unless otherwise identified.
- Reported results relate only to the sample as tested. EQC is not responsible for sample integrity unless sampling has been
  performed by a member of our staff.
- EQC is not responsible for sampling and/or testing omissions. Note that regulatory authorities may assess substantial fines for testing omissions. Please track your sample collection schedules and results on a regular basis (e.g. weekly, monthly, or quarterly) to ensure compliance. EQC's internet program "LIVE ACCESS" will provide you with real-time access to collection dates and testing results. Please contact Client Services for further information.
- The following personnel or their deputies have approved the results of the tests performed by EQC: Nicki Smith (Environmental Chemistry), Amanda Berd (Pharmaceutical Microbiology), and Jordan Thorngren (Water Microbiology).

#### **EQC** Accreditations

Horsham Facility	NELAP/State IDs-	PA: 46-05499	NJ:	PA093	NY:	12080	MD: 357
East Rutherford Facility Vineland Facility	State ID- State ID-	NJ: 02015 NJ: 06005					
Wind Gap Facility	State ID-	NJ: PA001					



### Dayton, NJ

Misc. Forms	
Custody Documents and O	ther Forms
Luchy doe the following where or	li-cable.
Includes the following where ap	oplicable:

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SGS	SCO SC	AIN OF CUSTODY 3S North America Inc Dayton 2235 Route 139, Dayton, NJ 08810 732-329-0200 FAX: 732-329-3499/3489 www.sgs.com/ebsuss	FED-EX Tracking # SGS Quote #	Page 1 o	11 <u>Z</u>
Client / Reporting Information		ct Information		Requested Analysis	Matrix Codes
Company Name:	Project Name:	6 0 11 41	7 6 5		
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100 Penn Sq. East Zp		Billing information (if different from Report to)	1 2 2 3		SW - Surface Water SO - Soil
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Phila. PA 19107 Project Confact E-mail	Letighton PA	Street Aridness	Amm	d	OI-08
Joe Loeper			ו מו	M	LKQ - Other Liquid AIR - Air
Phone #	Client Purchase Order #	City : Starte	150b T 4XT	<i>χν</i> Ο3σ	SOL - Other Solid WP - Wips
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Grea Wacik 597-9780	Project Manager Tammy McClosky Collector	Attention:	1.47 31 17	*	RB - Rinse Blank
1 43 mile 047-9780	Collector	Number of preserve	Bottles 3 = A	.	TB - Trip Blenk
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3F BZ-3S	0900	6 500 2 X X	X X X X		64615
4F BZ-3M	0900	1 G SW 2 X X	\		1961
50 BZ-3D	0900	F G SW 2 X X	XXXX		
6F BZ-4S	1115	FG SW 3 X X	XXXX	<del></del>	
7F BZ-55	1/257	6 Sco 2 X X	XXXX		<b>—</b>
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JC90749X: Chain of Custody Page 1 of 3

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JC90749X: Chain of Custody Page 2 of 3

### **SGS Sample Receipt Summary**

Job Number:	JC9074	9	с	lient:	USACE-PI	HILAD	ELPH	IA DIS	STRICT	Project:	PHILADELPHIA	DISTRICT	, RE	SERVO	DIR SAMPL
Date / Time Received:	6/27/20	19 4:	:40:00 PM	1	Delivery I	Metho	d:			Airbill #'s	s:				
Cooler Temps (Raw Mea	asured) '	C:	Cooler 1:	(3.6);	Cooler 2:	(3.5);	Coole	r 3: (3	3.7); Cooler 4: (3.7	7);					
Cooler Temps (Cor	rected)	C:	Cooler 1:	(3.2);	Cooler 2:	(3.1);	Coole	r 3: (3	3.3); Cooler 4: (3.3	3);					
Cooler Security	<u>Y o</u>	r <b>N</b>	_				or N		Sample Integrit	ty - Docume	entation	<u>Y</u>	or	N	
1. Custody Seals Present:	✓				resent:	✓			1. Sample labels	present on b	ottles:	$\checkmark$			
2. Custody Seals Intact:	✓		] 4. Sm	pl Date	es/Time OK	<b>✓</b>		]	2. Container labe	eling complete	e:	$\checkmark$			
Cooler Temperature		Υ	or N						3. Sample contain	iner label / CC	OC agree:	✓			
1. Temp criteria achieved:		<b>✓</b>							Sample Integri	ity - Conditi	on	<u>Y</u>	or	N_	
<ol><li>Cooler temp verification</li></ol>	n:	I	IR Gun						Sample recvd	_		<b>✓</b>			
3. Cooler media:		lc	ce (Bag)						2. All containers		:	<b>~</b>			
4. No. Coolers:			4						3. Condition of sa	ample:			Intac	t	
Quality Control Preserv	<u>vation</u>	Υ_	or N	N/A	<u>.</u>				Sample Integri	ity - Instruc	tions	Y	or	N	N/A
1. Trip Blank present / coo	oler:		✓						Analysis reque	ested is clear	:	<b>~</b>			
2. Trip Blank listed on CO	C:		<b>✓</b>						2. Bottles receive	ed for unspec	cified tests			✓	
3. Samples preserved pro	perly:	<b>✓</b>							Sufficient volu	ume recvd for	analysis:	<b>~</b>			
4. VOCs headspace free:				<b>✓</b>					4. Compositing i	instructions cl	ear:				$\checkmark$
									5. Filtering instru	uctions clear:					$\checkmark$
Test Strip Lot #s:	pH 1-	12:	229	9517		p	)H 12+:	: <u> </u>	208717	Ott	ner: (Specify)				
Comments															
CM080 03															

SM089-03 Rev. Date 12/7/17

JC90749X: Chain of Custody

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Dayton, NJ 07/18/19

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USACE-Philadelphia District

Philadelphia District, Reservoir Sampling

CONTRACT#W912BU18D0003/TO#W912BU19F0065

SGS Job Number: JC90749XA

Sampling Date: 06/27/19



USACE-Philadelphia District 100 Penn Square East Philadelphia, PA 19107 Joseph.M.Loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 21

TNI LABORATORA

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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Please share your ideas about



### **Sections:**

## \_\_

### -1-

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## **Sample Summary**

USACE-Philadelphia District

Job No: JC90749XA

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC90749-1F	06/27/19	07:00 GW	06/27/19	AQ	Surface H2O Filtered	BZ-1S
JC90749-1XA	06/27/19	07:00 GW	06/27/19	AQ	Surface Water	BZ-1S
JC90749-2F	06/27/19	11:20 GW	06/27/19	AQ	Surface H2O Filtered	BZ-2S
JC90749-2XA	06/27/19	11:20 GW	06/27/19	AQ	Surface Water	BZ-2S
JC90749-3F	06/27/19	09:00 GW	06/27/19	AQ	Surface H2O Filtered	BZ-3S
JC90749-3XA	06/27/19	09:00 GW	06/27/19	AQ	Surface Water	BZ-3S
JC90749-4F	06/27/19	09:00 GW	06/27/19	AQ	Surface H2O Filtered	BZ-3M
JC90749-4XA	06/27/19	09:00 GW	06/27/19	AQ	Surface Water	BZ-3M
JC90749-5F	06/27/19	09:00 GW	06/27/19	AQ	Surface H2O Filtered	BZ-3D
JC90749-5XA	06/27/19	09:00 GW	06/27/19	AQ	Surface Water	BZ-3D
JC90749-6F	06/27/19	11:15 GW	06/27/19	AQ	Surface H2O Filtered	BZ-4S
JC90749-6XA	06/27/19	11:15 GW	06/27/19	AQ	Surface Water	BZ-4S
JC90749-7F	06/27/19	10:50 GW	06/27/19	AQ	Surface H2O Filtered	BZ-5S



# Sample Summary (continued)

USACE-Philadelphia District

Job No: JC90749XA

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Comple	Collected			Matri		Client
Sample Number	Collected Date	Time By	Received			Sample ID
JC90749-7XA	06/27/19	10:50 GW	06/27/19	AQ	Surface Water	BZ-5S
JC90749-8F	06/27/19	08:00 GW	06/27/19	AQ	Surface H2O Filtered	BZ-6S
JC90749-8XA	06/27/19	08:00 GW	06/27/19	AQ	Surface Water	BZ-6S
JC90749-9F	06/27/19	08:00 GW	06/27/19	AQ	Surface H2O Filtered	BZ-6M
JC90749-9XA	06/27/19	08:00 GW	06/27/19	AQ	Surface Water	BZ-6M
JC90749-10F	06/27/19	08:00 GW	06/27/19	AQ	Surface H2O Filtered	BZ-6D
JC90749-10XA	406/27/19	08:00 GW	06/27/19	AQ	Surface Water	BZ-6D
JC90749-11F	06/27/19	09:45 GW	06/27/19	AQ	Surface H2O Filtered	BZ-7S
JC90749-11X	406/27/19	09:45 GW	06/27/19	AQ	Surface Water	BZ-7S
JC90749-12F	06/27/19	09:45 GW	06/27/19	AQ	Surface H2O Filtered	BZ-7M
JC90749-12X	406/27/19	09:45 GW	06/27/19	AQ	Surface Water	BZ-7M
JC90749-13F	06/27/19	09:45 GW	06/27/19	AQ	Surface H2O Filtered	BZ-7D
JC90749-13X	<b>4</b> 06/27/19	09:45 GW	06/27/19	AQ	Surface Water	BZ-7D



## Dayton, NJ

## Section 2

Report of Analysis	Subcontract Lab Data	
	Report of Analysis	



Certificate of Analysis

**Laboratory No.:** 9023002 **Report:** 07/09/19

**Project:** Army Corp Reservoirs

Lab Contact: Richard A Wheeler

Attention: Tammy McCloskey

Reported To: SGS North America

2235 US Highway 130 Dayton, NJ 08810

**Lab ID:** 9023002-01 **Collected By:** Client **Sampled:** 06/27/19 07:00 **Received:** 07/03/19 10:40

Sample Desc: BZ-1S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.03	mg/l	0.007	0.05	SM 4500-P E	07/05/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/05/19		JCL

**Lab ID:** 9023002-02 **Collected By:** Client **Sampled:** 06/27/19 11:20 **Received:** 07/03/19 10:40

Sample Desc: BZ-2S Sample Type: Grab

				Rep.					
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst	
Dissolved General Chemist	ry								
Phosphorus as P,	< 0.007	mg/l	0.007	0.05	SM 4500-P E	07/05/19	G-11, U	JCL	
Dissolved									
General Chemistry									
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/05/19	U	JCL	

**Lab ID:** 9023002-03 **Collected By:** Client **Sampled:** 06/27/19 09:00 **Received:** 07/03/19 10:40

Sample Desc: BZ-3S Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P,	< 0.007	mg/l	0.007	0.05	SM 4500-P E	07/05/19	G-11, U	JCL
Dissolved								
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/05/19		JCL



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**Lab ID:** 9023002-04 **Collected By:** Client **Sampled:** 06/27/19 09:00 **Received:** 07/03/19 10:40

Sample Desc: BZ-3M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst	
Dissolved General Chemist	t <b>r</b> y								
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	07/05/19	G-11, J	JCL	
General Chemistry									
Phosphorus as P, Total	0.02	mg/l	0.01	0.01	SM 4500-P E	07/05/19		JCL	

**Lab ID:** 9023002-05 **Collected By:** Client **Sampled:** 06/27/19 09:00 **Received:** 07/03/19 10:40

Sample Desc: BZ-3D Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	07/05/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.05	mg/l	0.01	0.01	SM 4500-P E	07/05/19		JCL

**Lab ID:** 9023002-06 **Collected By:** Client **Sampled:** 06/27/19 11:15 **Received:** 07/03/19 10:40

Sample Desc: BZ-4S Sample Type: Grab

				Rep.					
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst	
Dissolved General Chemist	try								
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	07/05/19	G-11, U	JCL	
General Chemistry									
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/05/19		JCL	

**Lab ID:** 9023002-07 **Collected By:** Client **Sampled:** 06/27/19 10:50 **Received:** 07/03/19 10:40

Sample Desc: BZ-5S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	07/05/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.03	mg/l	0.01	0.01	SM 4500-P E	07/05/19		JCL



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**Lab ID:** 9023002-08 **Collected By:** Client **Sampled:** 06/27/19 08:00 **Received:** 07/03/19 10:40

Sample Desc: BZ-6S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst	
Dissolved General Chemist	t <b>r</b> y								
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	07/05/19	G-11, J	JCL	
General Chemistry									
Phosphorus as P, Total	0.02	mg/l	0.01	0.01	SM 4500-P E	07/05/19		JCL	

**Lab ID:** 9023002-09 **Collected By:** Client **Sampled:** 06/27/19 08:00 **Received:** 07/03/19 10:40

Sample Desc: BZ-6M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	07/05/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.01	SM 4500-P E	07/05/19		JCL

**Lab ID:** 9023002-10 **Collected By:** Client **Sampled:** 06/27/19 08:00 **Received:** 07/03/19 10:40

Sample Desc: BZ-6D Sample Type: Grab

				Rep.					
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst	
Dissolved General Chemist	ry								
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	07/05/19	G-11, J	JCL	
General Chemistry									
Phosphorus as P, Total	0.03	mg/l	0.01	0.01	SM 4500-P E	07/05/19		JCL	

**Lab ID:** 9023002-11 **Collected By:** Client **Sampled:** 06/27/19 08:00 **Received:** 07/03/19 10:40

Sample Desc: BZ-7S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	07/05/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.01	SM 4500-P E	07/05/19		JCL



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**Lab ID:** 9023002-12 **Collected By:** Client **Sampled:** 06/27/19 08:00 **Received:** 07/03/19 10:40

Sample Desc: BZ-7M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	07/05/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.01	SM 4500-P E	07/05/19		JCL

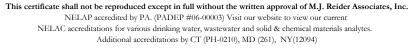
**Lab ID:** 9023002-13 **Collected By:** Client **Sampled:** 06/27/19 08:00 **Received:** 07/03/19 10:40

Sample Desc: BZ-7D Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	try							
Phosphorus as P, Dissolved	0.008	mg/l	0.007	0.05	SM 4500-P E	07/05/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/05/19		JCL



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### **Quality Control**

### **General Chemistry**

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9G0288								
MB (B9G0288-BLK1)				Prepared & Ana	alyzed: 07/05/20	19		
Phosphorus as P, Total	< 0.01	0.01	mg/l					U
LFB (B9G0288-BS1)				Prepared & Ana	alyzed: 07/05/20	19		
Phosphorus as P, Total	1.00	0.01	mg/l	100	80-120			
LFM (B9G0288-MS1)		Source: 9023002-13	;	Prepared & Ana	alyzed: 07/05/20	19		
Phosphorus as P, Total	0.98	0.01	mg/l	98.3	80-120			
LFMD (B9G0288-MSD1)		Source: 9023002-13	;	Prepared & Ana	alyzed: 07/05/20	19		
Phosphorus as P, Total	0.99	0.01	mg/l	99.1	80-120	0.811	20	

### **Dissolved General Chemistry**

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9G0289								
MB (B9G0289-BLK1)				Prepared & Ana	dyzed: 07/05/20	19		
Phosphorus as P, Dissolved	< 0.05	0.05	mg/l					G-11, U
MB (B9G0289-BLK2)				Prepared & Ana	llyzed: 07/05/20	19		
Phosphorus as P, Dissolved	< 0.05	0.05	mg/l	·				U
LFB (B9G0289-BS1)				Prepared & Ana	llyzed: 07/05/20	19		
Phosphorus as P, Dissolved	1.00	0.05	mg/l		80-120			G-11
LFM (B9G0289-MS1)		Source: 9023002-01		Prepared & Ana	llyzed: 07/05/20	19		
Phosphorus as P, Dissolved	1.00	0.05	mg/l	96.3	80-120			
LFMD (B9G0289-MSD1)		Source: 9023002-01		Prepared & Ana	llyzed: 07/05/20	19		
Phosphorus as P, Dissolved	0.98	0.05	mg/l	95.0	80-120	1.31	20	



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### **Preparation Methods**

Specific Method	Preparation Method	Prepared Date	Prepared By
9023002-01			
SM 4500-P E	SM 4500-P B	07/05/2019	JCL
9023002-02			
SM 4500-P E	SM 4500-P B	07/05/2019	JCL
9023002-03			
SM 4500-P E	SM 4500-P B	07/05/2019	JCL
9023002-04			
SM 4500-P E	SM 4500-P B	07/05/2019	JCL
9023002-05			
SM 4500-P E	SM 4500-P B	07/05/2019	JCL
9023002-06			
SM 4500-P E	SM 4500-P B	07/05/2019	JCL
9023002-07			
SM 4500-P E	SM 4500-P B	07/05/2019	JCL
9023002-08			
SM 4500-P E	SM 4500-P B	07/05/2019	JCL
9023002-09			
SM 4500-P E	SM 4500-P B	07/05/2019	JCL
9023002-10			
SM 4500-P E	SM 4500-P B	07/05/2019	JCL
9023002-11			
SM 4500-P E	SM 4500-P B	07/05/2019	JCL
9023002-12			
SM 4500-P E	SM 4500-P B	07/05/2019	JCL
9023002-13			
SM 4500-P E	SM 4500-P B	07/05/2019	JCL



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### **Notes and Definitions**

G-11 The sample was filtered after it was received at the laboratory.

J Estimated value

U Analyte was not detected above the indicated value.



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Recid temp 3.8° on ice CIM - Drinking Water
WWW-Water
WWW-Water
SW-Surface Water
SW-Surface Water
SW-Surface Water
SW-Surface
WW-Wape
RB-Field Blank
RB-Fie LAB USE ONLY Matrix Code r to filter prior to TPO4 analysis on samples noted Each sample should be TPO4 total and TPO4 lab )Z Page 2 of 3 JC90749XA e le SGS Job# Reed trup 3.8° ic 오인 K7319 pg 113 LAB USE ONLY FILTERGEN = MJ Reider to filter prior to TPO4 analysis on samples noted per client instructions. (Each sample should be TPO4 total and TPO4 lab filtered). PM: RAW 9023002 SGS North America Army Corp Reservoirs Date / Time: | Commercial \*\* (\*\* (\*\* of \*\*) | MYAP Category A | Commercial \*\* (\*\* (\*\* of \*\*) | MYAP Category A | Commercial \*\* (\*\* (\*\* of \*\*) | MYAP Category A | MYAP Category A | MYAP Category A | MYAP Category B | MYAP CA , POGT, NERBELL Billing Information (if different from Report to) Company Name CHAIN OF CUSTODY SGS North America Inc. - Dayton 2235 Rotal 130, Dayton, NJ 08810 TEL. 722-229-4200 FAX, 722-229-4893/480 www.sgs.comfolfusus rstody Seal # Metrix AQ 9:00:00 AM GW AQ ğ 9:00:00 AM GW AQ 9:00:00 AM GW AQ 6/27/19 9:00:00 AM GW AQ AQ 11:15:00 AM GW AQ 11:15:00 AM GW AQ Project Information 7:00:00 AM GW 7:00:00 AM GW 6/27/19 11:20:00 AM GW 11:20:00 AM GW 6/27/19 9:00:00 AM GW 9:00:00 AM GW Pall a 17. digenous Br. te NEX Project Name: Philadelphia District, Reservoir Sampling Street 6/27/19 6/27/19 6/27/19 6/27/19 6/27/19 6/27/19 6/27/19 6/27/19 6/27/19 pproved By (SGS PM): / Date: | Returbed of the subness Days
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JC80749XA.xls Rev. Date: 4/10/18

CUSTO	4
ဥ	Amorion Inc
CHAIN	ACM ACA

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9023002

JC90749XA

\$ dol. SDS

SGS Quote #

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---

DW - Drinking Water OW - Corund Water WW - Water So - Souling SE- Sudge SE- Sudge SED-Sediment OI - OI LIQ - Ober Light MP - Wipe PP - Field Brak RB - Field B LAB USE ONLY Matrix Codes FILTERGEN = MJ Reider to filter prior to TPO4 analysis on samples noted per client instructions. (Each sample should be TPO4 total and TPO4 lab filtered). Cooler Temp. 'C On fce Preserved where applicable Date / Time: Sample Custody must be documented below each time samples change possession in Referenced by FATEX Intact Not intact NYASP Category A

NYASP Category B

State Forms

EDD Format FILTERGN, TPO4, × DI Malet Billing Information (if different from Report to) Relinquished By: \*os\*H Custody Seal # HOO?
HCI
HCI
HCI Commercial "A" (Level 1)

Commercial "B" (Level 2)

FULLT1 (Level 3+4)

NJ Reduced

Commercial "C" Matrix Ā Ā Street Address ω 8:00:00 AM GW Project Inform 8:00:00 AM Philadelphia District, Reservoir Sampling State Tkne 6/27/19 6/27/19 Date Received By: Approved By (SGS PM): / Date: Standard 10 Business Days

Standard 10 Business Days RISH

Business Days RUSH

1 Business Day RUSH

1 Business Day RUSH

K Ofter Due 7177/2019

E Theregency & Rush 174 Adda greatible Vill Labinik, Approve Inveded for RUSH Client Purchase Order # 7/2/19 17:US MEOHVDI Vial # Project # Date / Time: Client / Reporting Information Field ID / Point of Collection tammy.mccloskey@sgs.com 13XA BZ-7D Sampler(s) Name(s) GW Relinquished by: Relinquished by: reet Address

JC90749XA.xls Rev. Date: 4/10/18

Date / Time: 7/1/2019 2:27:51 PM

CSR: TAMMY Job#: JC90749XA

Client Project: Philadelphia District, Reservoir Sampling

Deliverable: REDT2

TAT: Due 7/11/2019

Sub Lab: MJ Reider Associates Inc, Env. Testing Laboratories

Address: 107 Angelica Street

City: Reading

State: PA

Zip: 19611 Contact: Sample Receiving / Rich Wheeler

Phone: 610-374-5129

	Client Sample Description	Analysis	Location	Sampled By	Date Sampled	Time Sampled	Aliquot
BZ-18	18	TPO4.		<u>GW</u>	6/27/2019	7:00:00 AM	
BZ-18	18	FILTERGN, TPO4.		<u>GW</u>	6/27/2019	7:00:00 AM	
BZ	<u>BZ-2S</u>	TPO4.		GW	6/27/2019	11:20:00 AM	
BZ.	<u>BZ-2S</u>	FILTERGN, TPO4.		GW	6/27/2019	11:20:00 AM	
BZ	<u>BZ-3S</u>	TPO4,		<u>GW</u>	6/27/2019	9:00:00 AM	
BZ	BZ-3S	FILTERGN,TPO4,		<u>GW</u>	6/27/2019	9:00:00 AM	
BZ	BZ-3M	<u>TPO4.</u>		<u>W</u>	6/27/2019	9:00:00 AM	
BZ	BZ-3M	FILTERGN,TPO4.		<u>@W</u>	6/27/2019	9:00:00 AM	
<u>B</u> 2	BZ-3D	TPO4.		<u>GW</u>	6/27/2019	9:00:00 AM	
BZ	<u>BZ-3D</u>	FILTERGN TPO4,		<u>GW</u>	6/27/2019	9:00:00 AM	
<u>BZ</u>	<u>BZ-4S</u>	TP04,		<u>@W</u>	6/27/2019	11:15:00 AM	
<u>BZ</u>	BZ-4S	FILTERGN, TPO4,		<u>GW</u>	6/27/2019	11:15:00 AM	
<u>BZ</u>	BZ-5S	TP04.		<u>GW</u>	6/27/2019	10:50:00 AM	
<u>BZ</u>	<u>BZ-58</u>	FILTERGN, TPO4.		<u>@W</u>	6/27/2019	10:50:00 AM	
<u>[8]</u>	<u>BZ-6S</u>	TPO4,		<u>GW</u>	6/27/2019	8:00:00 AM	
ΩI	<u>BZ-6S</u>	FILTERGN,TPO4,		<u>GW</u>	6/27/2019	8:00:00 AM	
Ш	BZ-6M	TP04.		<u>GW</u>	6/27/2019	8:00:00 AM	



Page 11 of 12

	8:00:00 AM	6/27/2019	<u>W5</u>	FILTERGN TPO4	<u>BZ-7D</u>	JC90749-13F
	8:00:00 AM	6/27/2019	₩Đ	TPO4.	<u>BZ-7D</u>	JC90749-13XA
	8:00:00 AM	6/27/2019	<u>W</u> 5	FILTERGN, TPO4.	BZ-7M	JC90749-12F
	8:00:00 AM	6/27/2019	<u>₩</u> 5	TPO4	BZ-7M	JC90749-12XA
•	8:00:00 AM	6/27/2019	₩ <del>S</del>	FILTERGN, TPO4.	BZ-7S	JC90749-11E
	8:00:00 AM	6/27/2019	₩Đ	TPO4.	BZ-7S	JC90749-11XA
	8:00:00 AM	6/27/2019	<u>₩</u> 5	FILTERGN, TPO4.	BZ-6D	JC90749-10F
	8:00:00 AM	6/27/2019	<u>₩2</u>	TPO4.	BZ-6D	JC90749-10XA
	8:00:00 AM	6/27/2019	4023002	FILTERGN,TPO4.	<u>BZ-6M</u>	JC90749-9F

Comments: FILTERGEN = MJ Reider to filter prior to TPO4 analysis on samples noted per client instructions. (Each sample should be TPO4 total and TPO4 lab filtered).

Sample Management Receipt:

Date: 7.3.19 1040

SGS

#### **MJRA Terms & Conditions**

All samples submitted must be accompanied by signed documentation representing a Chain of Custody (COC). The COC Record acts as a contract between the client and MJRA. Signing the COC form gives approval for MJRA to perform the requested analyses and is an agreement to pay for the cost of such analyses. COC Records must be completed in black or blue indelible ink (must not run when wet). COC documentation begins at the time of sample collection. Client is required to document all sample details prior to releasing samples to MJRA. All samples must be placed on ice immediately after sampling and shipped or delivered to the laboratory in a manner that will maintain the sample temperature above freezing and below 6C (loose ice is preferred).

### Sample Submission, Sample Acceptance & Sampling Containers

Included on the COC must be the sample description, date and time of collection (including start and stop for composites), container size and type, preservative information, sample matrix, indication of whether the sample is a grab or composite, number of containers & a list of the tests to be performed. Poor sample collection technique, inappropriate sampling containers and/or improper sample preservation may lead to sample rejection. Suitable sample containers, labels, and preservatives (as applicable), along with blank COCs are provided at no additional cost.

#### **Turnaround Times (TAT)**

Average TAT for test results range from 5 to 15 working days depending on the specific analyses and time of year submitted. Faster turnaround times (\*RUSH TAT) may be available depending on the current workload in a particular department and the nature of the analyses requested. We encourage you to verify requests for expedited sample results with one of our Technical Directors prior to sample submittal. Without confirmation from a Technical Director, your results may not be completed by your deadline. \*RUSH TAT Surcharges are applied for expedited turnaround times.

#### Analytical Results, Sample Collection Integrity & Subcontracting

Analytical values are for the sample as submitted and relate only to the item tested. The value indicates a snapshot of the constituent content of the sample at the time of sample collection. Analytical results can be impacted by poor sample collection technique and/or improper preservation. All sample collection completed by MJRA was performed in accordance with applicable regulatory protocols or as specified in customer specific sampling plans. Constituent content will vary over time based on the matrix of the sample and the physical and chemical changes to its environment. All sample results and laboratory reports are strictly confidential. Results will not be available to anyone except the primary client or authorized party representing the client unless MJRA receives additional permissions from the client. When necessary, MJRA will subcontract certain analyses to a third party accredited laboratory. If client prohibits subcontracting, it must be provided in writing and include instruction on how to proceed with client samples that require third party analyses.

### **Payment Terms**

Payment Terms are Net 30 days. Prices are subject to change without notice. A standing monthly charge of 1.5% of the clients over-30-day-unpaid balance may be added to the balance after 30 days and each month thereafter (day 31, 61, 91 etc.). The laboratory accepts all major credit cards, ACH transactions, checks and cash. New clients must pay for all services rendered prior to sample collection and/or in some cases report processing. Clients must contact the MJRA accounting department to pursue a credit-based account. MJRA reserves the right to terminate the client's credit account and to refuse to perform additional services on a credit basis if any balance is outstanding for more than 60 days.

### Warranty & Litigation

MJRA does not guarantee any results of its services but has agreed to use its best efforts, in accordance with the standards and practices of the industry, to cause such results to be accurate and complete. We disclaim any other warranties, expressed or implied, including a warranty of fitness for a particular purpose and warranty of merchantability. Clients agree that they shall reimburse MJRA for any and all fees, cost and litigation expenses, including reasonable attorney fees incurred by MJRA in obtaining payment for the services rendered. All costs associated with compliance with any subpoena for documents, testimony, or any other purpose relating to work performed by MJRA, for a client, shall be paid by that client. MJRA's aggregate liability for negligent acts and omissions and of an intentional breach by MJRA will not exceed the fee paid for the services. Client agrees to indemnify and hold MJRA harmless for any and all liabilities in excess of said amount. Neither MJRA nor the client shall be liable to the other for special, incidental consequential or punitive liability or damages included but not limited to those arising from delay, loss of use, loss of profits or revenues. MJRA will not be liable to the client unless the client has notified MJRA of the discovery of the alleged negligent act, error, omissions or breach within 30 days of the

Reviewed and Approved by:

Richard A Wheeler Director of Field Services



107 Angelica Street O Reading, PA 19611 O www.mjreider.com (610) 374-5129 O fax (610) 374-7234

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NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

Additional accreditations by CT (PH-0210), MD (261), NY(12094)

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## Dayton, NJ

Misc. Forms	
Custody Documents and Other Forms	
Includes the following where applicable:  • Chain of Custody	

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JC90749XA: Chain of Custody Page 1 of 3

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All data available via Leblink Approval needed for 1-3 Business out 1777 Commercial "C" = Results + OC Sunfinary + Partial Rew Ample Custody must be documented below each time samples change possession, include	aw data uding cour	ier delive	ry.		htt	o://www.sg	s.com/en/	terms-and-conditions			
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JC90749XA: Chain of Custody Page 2 of 3

### **SGS Sample Receipt Summary**

Job Number: Job	C90749	Client:	USACE-PHILADELPHIA DIS	TRICT Project:	PHILADELPHIA DISTR	RICT, RES	SERVOIR SAMPL
Date / Time Received: 6/	27/2019 4	40:00 PM	Delivery Method:	Airbill #	's:		
	-		Cooler 2: (3.5); Cooler 3: (3 Cooler 2: (3.1); Cooler 3: (3				
Cooler Security  1. Custody Seals Present: 2. Custody Seals Intact:	Y or N	3. COC P		Sample Integrity - Docum 1. Sample labels present on 2. Container labeling complete	bottles:	Y or ✓	<u>N</u>
Cooler Temperature  1. Temp criteria achieved: 2. Cooler temp verification: 3. Cooler media: 4. No. Coolers:	<b>✓</b>	or N IR Gun te (Bag)		3. Sample Integrity - Condi 1. Sample recvd within HT: 2. All containers accounted to 3. Condition of sample:	tion	Y or  Intact	N
Quality Control Preserval  1. Trip Blank present / cooler  2. Trip Blank listed on COC:  3. Samples preserved proper  4. VOCs headspace free:	:	or N N/A	·	Sample Integrity - Instru  1. Analysis requested is cle 2. Bottles received for unsp 3. Sufficient volume recvd fe 4. Compositing instructions 5. Filtering instructions clea	ar: ecified tests or analysis: clear:	Y or  ✓  ✓  ✓	
Test Strip Lot #s:	pH 1-12:	229517	pH 12+:	208717 (	Other: (Specify)		
Comments							

Rev. Date 12/7/17

JC90749XA: Chain of Custody

Page 3 of 3



Dayton, NJ 08/20/19

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report



**USACE-Philadelphia District** 

Philadelphia District, Reservoir Sampling

CONTRACT#W912BU18D0003/TO#W912BU19F0065

SGS Job Number: JC91885

Sampling Date: 07/18/19



Army Corps of Engineers

joseph.m.loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 29

ELAP ACCREOLAR TO THE LABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

This report shall not be reproduced, except in its entirety, without the written approval of SGS. Test results relate only to samples analyzed.

SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499

SGS

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# **Sample Summary**

USACE-Philadelphia District

Job No:

JC91885

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC91885-1	07/18/19	06:40 GW	07/18/19	AQ	Surface Water	BZ-1S
JC91885-2	07/18/19	11:25 GW	07/18/19	AQ	Surface Water	BZ-2S
JC91885-3	07/18/19	08:30 GW	07/18/19	AQ	Surface Water	BZ-3S
JC91885-4	07/18/19	08:30 GW	07/18/19	AQ	Surface Water	BZ-3M
JC91885-5	07/18/19	08:30 GW	07/18/19	AQ	Surface Water	BZ-3D
JC91885-6	07/18/19	11:05 GW	07/18/19	AQ	Surface Water	BZ-4S
JC91885-7	07/18/19	10:50 GW	07/18/19	AQ	Surface Water	BZ-5S
JC91885-8	07/18/19	07:45 GW	07/18/19	AQ	Surface Water	BZ-6S
JC91885-9	07/18/19	07:45 GW	07/18/19	AQ	Surface Water	BZ-6M
JC91885-10	07/18/19	07:45 GW	07/18/19	AQ	Surface Water	BZ-6D
JC91885-11	07/18/19	09:30 GW	07/18/19	AQ	Surface Water	BZ-7S
JC91885-12	07/18/19	09:30 GW	07/18/19	AQ	Surface Water	BZ-7M
JC91885-13	07/18/19	09:30 GW	07/18/19	AQ	Surface Water	BZ-7D

#### CASE NARRATIVE / CONFORMANCE SUMMARY

Client: USACE-Philadelphia District Job No JC91885

Site: Philadelphia District, Reservoir Sampling Report Date 7/30/2019 12:22:25 P

On 07/18/2019, 13 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 3.7 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JC91885 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

#### General Chemistry By Method EPA 351.2/LACHAT

Matrix: AQ Batch ID: GP22637

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91885-1DUP, JC91885-1MS were used as the QC samples for Nitrogen, Total Kjeldahl.

### General Chemistry By Method EPA 353.2/LACHAT

Matrix: AQ Batch ID: GP22558

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91729-1DUP, JC91729-1MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.

Matrix: AO Batch ID: GP22559

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91885-8MS, JC91930-3DUP were used as the QC samples for Nitrogen, Nitrate + Nitrite.

**Tuesday, July 30, 2019** 

#### General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ Batch ID: R179983

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91885-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179984

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91885-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179985

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91885-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179986

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91885-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179987

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91885-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179995

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91885-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AO Batch ID: R179996

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91885-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179998

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91885-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AO Batch ID: R179999

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91885-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180000

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91885-10 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180001

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91885-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180002

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91885-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180003

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91885-13 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Tuesday, July 30, 2019 Page 2 of 4

#### General Chemistry By Method SM2320 B-11

Matrix: AQ Batch ID: GN97914

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91885-1DUP were used as the QC samples for Alkalinity, Total as CaCO3.
- JC91885-10 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC91885-6 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC91885-5 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC91885-4 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC91885-3 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC91885-2 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC91885-1 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC91885-13 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC91885-7 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC91885-12 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC91885-9 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC91885-8 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC91885-11 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.

#### **General Chemistry By Method SM2540 C-11**

Matrix: AQ Batch ID: GN97881

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91885-1DUP were used as the QC samples for Solids, Total Dissolved.

#### General Chemistry By Method SM2540 D-11

Matrix: AQ Batch ID: GN97874

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91885-1DUP were used as the QC samples for Solids, Total Suspended.

#### General Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AO Batch ID: GP22621

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91829-1DUP, JC91829-1MS, JC91829-1MSD were used as the QC samples for Nitrogen, Ammonia.

#### General Chemistry By Method SM4500NO2 B-11

Matrix: AO Batch ID: GN97713

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91885-1DUP, JC91885-1MS were used as the QC samples for Nitrogen, Nitrite.

**Tuesday, July 30, 2019** 

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#### General Chemistry By Method SM5210 B-11

Matrix: AQ Batch ID: GP22506

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91885-1DUP were used as the QC samples for BOD, 5 Day.
- RPD(s) for Duplicate for BOD, 5 Day are outside control limits for sample GP22506-D1. RPD acceptable due to low duplicate and sample concentrations.

#### General Chemistry By Method SM5310 B-11

Matrix: AQ Batch ID: GP22493

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91885-11MS, JC91885-11MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ Batch ID: GP22494

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91885-1MS, JC91885-1MSD were used as the QC samples for Total Organic Carbon.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

**Tuesday, July 30, 2019** 

**Summary of Hits Job Number:** JC91885

USACE-Philadelphia District Account:

Philadelphia District, Reservoir Sampling 07/18/19 **Project:** 

**Collected:** 

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL MDL	Units	Method
JC91885-1 BZ-1S				
Alkalinity, Total as CaCO3 <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Solids, Total Suspended Total Organic Carbon	5.5 0.72 0.74 0.020 0.26 46.0 17.6 1.7	5.0 0.11 0.10 0.010 0.20 10 4.0 1.0	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM4500NO2 B-11 EPA 351.2/LACHAT SM2540 C-11 SM2540 D-11 SM5310 B-11
JC91885-2 BZ-2S				
Alkalinity, Total as CaCO3 <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	10.5 0.25 0.25 34.0 1.5	5.0 0.11 0.10 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11
JC91885-3 BZ-3S				
Alkalinity, Total as CaCO3 <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	11.0 0.31 0.31 0.40 22.0 1.9	5.0 0.11 0.10 0.20 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC91885-4 BZ-3M				
Alkalinity, Total as CaCO3 <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	12.0 0.60 0.61 0.29 38.0 1.7	5.0 0.11 0.10 0.20 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC91885-5 BZ-3D				
Alkalinity, Total as CaCO3 <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Nitrite Solids, Total Dissolved Total Organic Carbon	10.5 0.71 0.75 0.037 48.0 1.2	5.0 0.11 0.10 0.010 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM4500NO2 B-11 SM2540 C-11 SM5310 B-11

Summary of Hits
Job Number: JC91885
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 07/18/19

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL MDL	Units	Method
JC91885-6 BZ-4S				
Alkalinity, Total as CaCO3 <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Solids, Total Suspended	8.0 1.2 1.2 64.0 7.9	5.0 0.11 0.10 10 4.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM2540 D-11
JC91885-7 BZ-5S				
Alkalinity, Total as CaCO3 <sup>a</sup> Nitrogen, Ammonia Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Solids, Total Suspended Total Organic Carbon	13.0 0.24 1.1 1.1 0.22 60.0 6.0 1.7	5.0 0.20 0.11 0.10 0.20 10 4.0 1.0	mg/l mg/l mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 SM4500NH3 H-11LACHAT EPA353.2/SM4500NO2B EPA 353.2/LACHAT EPA 351.2/LACHAT SM2540 C-11 SM2540 D-11 SM5310 B-11
JC91885-8 BZ-6S				
Alkalinity, Total as CaCO3 <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	10.5 0.28 0.29 0.21 29.0 1.6	5.0 0.11 0.10 0.20 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC91885-9 BZ-6M				
Alkalinity, Total as CaCO3 <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Nitrite Solids, Total Dissolved Total Organic Carbon	12.0 0.74 0.78 0.045 44.0 1.4	5.0 0.11 0.10 0.010 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM4500NO2 B-11 SM2540 C-11 SM5310 B-11
JC91885-10 BZ-6D				
Alkalinity, Total as CaCO3 <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Nitrite Solids, Total Dissolved	10.0 0.75 0.78 0.030 41.0	5.0 0.11 0.10 0.010 10	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM4500NO2 B-11 SM2540 C-11

**Summary of Hits Job Number:** JC91885

Account: USACE-Philadelphia District

**Project:** Philadelphia District, Reservoir Sampling

**Collected:** 07/18/19

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
·					
Total Organic Carbon	1.1	1.0		mg/l	SM5310 B-11
JC91885-11 BZ-7S					
Alkalinity, Total as CaCO3 <sup>a</sup>	10.5	5.0		mg/l	SM2320 B-11
Nitrogen, Nitrate <sup>b</sup>	0.27	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.27	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl	0.25	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	31.0	10		mg/l	SM2540 C-11
Total Organic Carbon	1.4	1.0		mg/l	SM5310 B-11
JC91885-12 BZ-7M					
Alkalinity, Total as CaCO3 <sup>a</sup>	11.5	5.0		mg/l	SM2320 B-11
Nitrogen, Nitrate b	0.85	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.85	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl	0.31	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	45.0	10		mg/l	SM2540 C-11
Total Organic Carbon	1.6	1.0		mg/l	SM5310 B-11
JC91885-13 BZ-7D					
Alkalinity, Total as CaCO3 <sup>a</sup>	14.0	5.0		mg/l	SM2320 B-11
Nitrogen, Nitrate b	0.77	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.83	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.065	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.29	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	43.0	10		mg/l	SM2540 C-11
Solids, Total Suspended	53.2	4.0		mg/l	SM2540 D-11
Total Organic Carbon	1.3	1.0		mg/l	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)



# Dayton, NJ

# Section 4

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# **Report of Analysis**

Client Sample ID: BZ-1S Lab Sample ID: JC91885-1

Lab Sample ID:JC91885-1Date Sampled:07/18/19Matrix:AQ - Surface WaterDate Received:07/18/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	5.5	5.0	mg/l	1	07/25/19 09:13	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/19/19 21:33		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/26/19 12:36	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.72	0.11	mg/l	1	07/24/19 16:01	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.74	0.10	mg/l	1	07/24/19 16:01	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.020	0.010	mg/l	1	07/18/19 23:15	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.26	0.20	mg/l	1	07/30/19 10:24	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	46.0	10	mg/l	1	07/24/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	17.6	4.0	mg/l	1	07/24/19 09:41	RC	SM2540 D-11
Total Organic Carbon	1.7	1.0	mg/l	1	07/20/19 02:41	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-2S Lab Sample ID: JC91885-2

Lab Sample ID:JC91885-2Date Sampled:07/18/19Matrix:AQ - Surface WaterDate Received:07/18/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

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Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	10.5	5.0	mg/l	1	07/25/19 09:13	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/19/19 21:36		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/26/19 12:37	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.25	0.11	mg/l	1	07/24/19 16:02	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.25	0.10	mg/l	1	07/24/19 16:02	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/18/19 23:15	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/30/19 10:25	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	34.0	10	mg/l	1	07/24/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/24/19 09:41	RC	SM2540 D-11
Total Organic Carbon	1.5	1.0	mg/l	1	07/20/19 03:14	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-3S Lab Sample ID: JC91885-3 **Date Sampled:** 07/18/19 Matrix: AQ - Surface Water **Date Received:** 07/18/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

### **General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	11.0	5.0	mg/l	1	07/25/19 09:13	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/19/19 21:39		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/26/19 12:39	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.31	0.11	mg/l	1	07/24/19 16:03	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.31	0.10	mg/l	1	07/24/19 16:03	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/18/19 23:15	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.40	0.20	mg/l	1	07/30/19 10:26	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	22.0	10	mg/l	1	07/24/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/24/19 09:41	RC	SM2540 D-11
Total Organic Carbon	1.9	1.0	mg/l	1	07/20/19 03:25	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



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<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-3M Lab Sample ID: JC91885-4

**Date Sampled:** 07/18/19 Matrix: **Date Received:** 07/18/19 AQ - Surface Water Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

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Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	12.0	5.0	mg/l	1	07/25/19 09:13	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/19/19 21:41		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/26/19 12:40		SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.60	0.11	mg/l	1	07/24/19 16:04	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.61	0.10	mg/l	1	07/24/19 16:04	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/18/19 23:15	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.29	0.20	mg/l	1	07/30/19 10:26	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	38.0	10	mg/l	1	07/24/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/24/19 09:41	RC	SM2540 D-11
Total Organic Carbon	1.7	1.0	mg/l	1	07/20/19 03:37	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-3D Lab Sample ID: JC91885-5

**Date Sampled:** 07/18/19 Matrix: AQ - Surface Water **Date Received:** 07/18/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

### **General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	10.5	5.0	mg/l	1	07/25/19 09:13	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/19/19 21:45		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/26/19 12:42		SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.71	0.11	mg/l	1	07/24/19 16:05	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.75	0.10	mg/l	1	07/24/19 16:05	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.037	0.010	mg/l	1	07/18/19 23:15	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/30/19 10:27	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	48.0	10	mg/l	1	07/24/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/24/19 09:41	RC	SM2540 D-11
Total Organic Carbon	1.2	1.0	mg/l	1	07/20/19 03:48	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

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<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

# **Report of Analysis**

Client Sample ID: BZ-4S Lab Sample ID: JC91885-6

**Date Sampled:** 07/18/19 Matrix: AQ - Surface Water **Date Received:** 07/18/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	8.0	5.0	mg/l	1	07/25/19 09:13	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/19/19 21:48		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/26/19 12:43		SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	1.2	0.11	mg/l	1	07/24/19 16:07	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.2	0.10	mg/l	1	07/24/19 16:07	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/18/19 23:15	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/30/19 10:28	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	64.0	10	mg/l	1	07/24/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	7.9	4.0	mg/l	1	07/24/19 09:41	RC	SM2540 D-11
Total Organic Carbon	< 1.0	1.0	mg/l	1	07/20/19 03:59	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-5S Lab Sample ID: JC91885-7

Lab Sample ID:JC91885-7Date Sampled:07/18/19Matrix:AQ - Surface WaterDate Received:07/18/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	13.0	5.0	mg/l	1	07/25/19 09:43	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/19/19 21:51		SM5210 B-11
Nitrogen, Ammonia	0.24	0.20	mg/l	1	07/26/19 12:45	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	1.1	0.11	mg/l	1	07/24/19 16:08	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.1	0.10	mg/l	1	07/24/19 16:08	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/18/19 23:36	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.22	0.20	mg/l	1	07/30/19 10:31	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	60.0	10	mg/l	1	07/24/19	RC	SM2540 C-11
Solids, Total Suspended	6.0	4.0	mg/l	1	07/24/19 09:41	RC	SM2540 D-11
Total Organic Carbon	1.7	1.0	mg/l	1	07/20/19 04:32	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

# 4

# **Report of Analysis**

Client Sample ID: BZ-6S Lab Sample ID: JC91885-8

Lab Sample ID:JC91885-8Date Sampled:07/18/19Matrix:AQ - Surface WaterDate Received:07/18/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	10.5	5.0	mg/l	1	07/25/19 09:43	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/19/19 21:54		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/26/19 12:49	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.28	0.11	mg/l	1	07/24/19 16:29	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.29	0.10	mg/l	1	07/24/19 16:29	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/18/19 23:36	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.21	0.20	mg/l	1	07/30/19 10:32	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	29.0	10	mg/l	1	07/24/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/24/19 09:41	RC	SM2540 D-11
Total Organic Carbon	1.6	1.0	mg/l	1	07/20/19 04:43	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

# **Report of Analysis**

Client Sample ID: BZ-6M Lab Sample ID: JC91885-9

Lab Sample ID:JC91885-9Date Sampled:07/18/19Matrix:AQ - Surface WaterDate Received:07/18/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	12.0	5.0	mg/l	1	07/25/19 09:43	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/19/19 21:57		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/26/19 12:50		SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.74	0.11	mg/l	1	07/24/19 16:30	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.78	0.10	mg/l	1	07/24/19 16:30	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.045	0.010	mg/l	1	07/18/19 23:36	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/30/19 10:33	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	44.0	10	mg/l	1	07/24/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/24/19 09:41	RC	SM2540 D-11
Total Organic Carbon	1.4	1.0	mg/l	1	07/20/19 04:55	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

# **Report of Analysis**

 Client Sample ID:
 BZ-6D

 Lab Sample ID:
 JC91885-10
 Date Sampled:
 07/18/19

 Matrix:
 AQ - Surface Water
 Date Received:
 07/18/19

 Percent Solids:
 n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	10.0	5.0	mg/l	1	07/25/19 09:43	CM	SM2320 B-11
BOD, 5 Day	< 4.5	4.5	mg/l	1	07/19/19 22:00		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/26/19 12:52	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.75	0.11	mg/l	1	07/24/19 16:31	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.78	0.10	mg/l	1	07/24/19 16:31	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.030	0.010	mg/l	1	07/18/19 23:36	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/30/19 10:34	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	41.0	10	mg/l	1	07/24/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/24/19 09:41	RC	SM2540 D-11
Total Organic Carbon	1.1	1.0	mg/l	1	07/20/19 05:06	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

# **Report of Analysis**

**Client Sample ID:** BZ-7S Lab Sample ID: JC91885-11 **Date Sampled:** 07/18/19 Matrix: AQ - Surface Water **Date Received:** 07/18/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

### **General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	10.5	5.0	mg/l	1	07/25/19 09:43	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/19/19 22:03	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/26/19 12:53	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.27	0.11	mg/l	1	07/24/19 16:32	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.27	0.10	mg/l	1	07/24/19 16:32	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/18/19 23:36	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.25	0.20	mg/l	1	07/30/19 10:35	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	31.0	10	mg/l	1	07/24/19	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/24/19 09:41	RC	SM2540 D-11
Total Organic Carbon	1.4	1.0	mg/l	1	07/20/19 00:38	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

JC91885

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-7M

Lab Sample ID:JC91885-12Date Sampled:07/18/19Matrix:AQ - Surface WaterDate Received:07/18/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	11.5	5.0	mg/l	1	07/25/19 09:43	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/19/19 22:07	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/26/19 12:55	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.85	0.11	mg/l	1	07/24/19 16:33	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.85	0.10	mg/l	1	07/24/19 16:33	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/18/19 23:36	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.31	0.20	mg/l	1	07/30/19 10:36	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	45.0	10	mg/l	1	07/24/19	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/24/19 09:41	RC	SM2540 D-11
Total Organic Carbon	1.6	1.0	mg/l	1	07/20/19 01:11	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-7D Lab Sample ID: JC91885-13 **Date Sampled:** 07/18/19 Matrix: AQ - Surface Water **Date Received:** 07/18/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

### **General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	14.0	5.0	mg/l	1	07/25/19 09:43	CM	SM2320 B-11
BOD, 5 Day	< 4.5	4.5	mg/l	1	07/19/19 22:10		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/26/19 12:56		SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.77	0.11	mg/l	1	07/24/19 16:35	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.83	0.10	mg/l	1	07/24/19 16:35	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.065	0.010	mg/l	1	07/18/19 23:36	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.29	0.20	mg/l	1	07/30/19 10:36	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	43.0	10	mg/l	1	07/24/19	RC	SM2540 C-11
Solids, Total Suspended	53.2	4.0	mg/l	1	07/24/19 09:41	RC	SM2540 D-11
Total Organic Carbon	1.3	1.0	mg/l	1	07/20/19 01:23	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

Page 1 of 1

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)



# Misc. Forms

Dayton, NJ

**Custody Documents and Other Forms** 

Includes the following where applicable:

• Chain of Custody

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Deliverable

NYASP Category A

NYASP Category B

NAMCP Criteria

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State Forms

EDD Format

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Commercial "C" = Results + QC Summary + Parial Raw data
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Commercial "A" (Level 1)
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Full Tier! (Level 4)
Commercial "C"
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5 Business Days
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TOF/FCF Samples To Euro RNS lab

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JC91885: Chain of Custody Page 3 of 4

### **SGS Sample Receipt Summary**

Job Number: JC	91885 Client:	USACE-PHILADELPHIA DIS	STRICT Project:	PHILADELPHIA DISTRICT	, RESERVOIR	SAMPL
Date / Time Received: 7/	18/2019 4:54:00 PM	Delivery Method:	Airbill #	s:		
Cooler Temps (Raw Measu Cooler Temps (Correc		Cooler 2: (3.3); Cooler 3: (3 Cooler 2: (3.3); Cooler 3: (3	, ,			
Custody Seals Present:	Y or N		Sample Integrity - Docum  1. Sample labels present on I  2. Container labeling complet  3. Sample container label / C  Sample Integrity - Condit  1. Sample recvd within HT:  2. All containers accounted for  3. Condition of sample:	oottles:  e:  OC agree:  Y  ion  Y	or N	
Quality Control Preservati  1. Trip Blank present / cooler:  2. Trip Blank listed on COC:  3. Samples preserved properl  4. VOCs headspace free:			1. Analysis requested is cleat 2. Bottles received for unspet 3. Sufficient volume recvd for 4. Compositing instructions of 5. Filtering instructions clear	r:   cified tests   r analysis:   dear:	□ ☑ □	/A ✓ ✓
Test Strip Lot #s:	pH 1-12: 229517	pH 12+:	208717 O	ther: (Specify)		
Comments						

SM089-03 Rev. Date 12/7/17

JC91885: Chain of Custody

Page 4 of 4



Dayton, NJ 08/22/19

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report



USACE-Philadelphia District

Philadelphia District, Reservoir Sampling

CONTRACT#W912BU18D0003/TO#W912BU19F0065

SGS Job Number: JC91885X

Sampling Date: 07/18/19



USACE-Philadelphia District 100 Penn Square East Philadelphia, PA 19107 Joseph.M.Loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 15

TNI FABORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

This report shall not be reproduced, except in its entirety, without the written approval of SGS. Test results relate only to samples analyzed.

SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499 s or modifications to this document.

Please share your ideas about

# **Sections:**

# \_

### -1-

**Table of Contents** 

Section 1: Sample Summary	3
Section 2: Subcontract Lab Data	4
Section 3: Misc. Forms	11
3.1: Chain of Custody	12





# **Sample Summary**

USACE-Philadelphia District

Job No:

JC91885X

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC91885-1X	07/18/19	06:40 GW	07/18/19	AQ	Surface Water	BZ-1S
JC91885-2X	07/18/19	11:25 GW	07/18/19	AQ	Surface Water	BZ-2S
JC91885-3X	07/18/19	08:30 GW	07/18/19	AQ	Surface Water	BZ-3S
JC91885-6X	07/18/19	11:05 GW	07/18/19	AQ	Surface Water	BZ-4S
JC91885-7X	07/18/19	10:50 GW	07/18/19	AQ	Surface Water	BZ-5S
JC91885-8X	07/18/19	07:45 GW	07/18/19	AQ	Surface Water	BZ-6S
JC91885-11X	07/18/19	09:30 GW	07/18/19	AQ	Surface Water	BZ-7S



# Dayton, NJ

# Section 2

Subcontract Lab Data	
Report of Analysis	

# Analytical Report

Serialized: 08/05/2019 05:17pm QC36

KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130

DAYTON,NJ 08810

Regarding:

SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810

**PROJECT ID:** 

W09769 USACE

LABORATORY REPORT NUMBER:

L7146880

Authorized by: Douglas J. Gump Client Services Manager

DarJU



# **Eurofins QC, LLC**

# Analytical Report Printed 08/05/19 17:17 QC36

KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810

Regarding: KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810

	: W09769, SGS NORTH W09769 USACE, USA	,		P.O. No:		Inv. No: PWSID No:	1986711 PI
<b>Sample ID</b> L7146880-1	Sample Description BZ-1S Received Date/Tin	n <b>e/Temp</b> 07/18	/19 12:59pm 8.0 C	Iced (Y/N): Y		ate/Time/Temp 06:40am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	MENTAL MICROBIOL	OGY BZ-1S					
Total Coliform Fecal Coliforn		>20000 Q 41 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	07/18/19 03:19PM LK 07/18/19 02:43PM JG2
<b>Sample ID</b> L7146880-2	Sample Description BZ-2S Received Date/Tin	n <b>e/Temp</b> 07/18	/19 12:59pm 8.0 C	Iced (Y/N): Y		ate/Time/Temp 06:40am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	MENTAL MICROBIOL	OGY BZ-2S					
Total Coliform Fecal Coliforn		14400 E, Q 47 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	07/18/19 03:55PM LK 07/18/19 02:43PM JG2

PIN: 28748 Serial Number: 6534313

# **Eurofins QC, LLC**

# Analytical Report Printed 08/05/19 17:17

	: W09769, SGS NORTH W09769 USACE, USAC			P.O. No:		Inv. No: PWSID No:	1986711 PI
<b>Sample ID</b> L7146880-3	Sample Description BZ-3S Received Date/Tim	ne/Temp 07/18/	19 12:59pm 8.0 C	Iced (Y/N): Y		ate/Time/Temp 06:40am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY BZ-3S					
Total Coliform Fecal Coliform		17900 E, Q <1 Q	cfu/100ml cfu/100ml		1 100	100 1	07/18/19 03:19PM LK 07/18/19 02:43PM JG2
<b>Sample ID</b> L7146880-4	Sample Description BZ-4S Received Date/Tim	ne/Temp 07/18/	19 12:59pm 8.0 C	Iced (Y/N): Y		ate/Time/Temp 06:40am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY BZ-4S					
Total Coliform Fecal Coliform	,	>20000 Q 42 Q	cfu/100ml cfu/100ml		1 100	100 1	07/18/19 03:19PM LK 07/18/19 02:43PM JG2
<b>Sample ID</b> L7146880-5	Sample Description BZ-5S Received Date/Tim	ne/Temp 07/18/	19 12:59pm 8.0 C	Iced (Y/N): Y		ate/Time/Temp 06:40am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY BZ-5S					
Total Coliform Fecal Coliform	,	19100 E, Q 310 Q	cfu/100ml cfu/100ml		1 10	100 10	07/18/19 03:19PM LK 07/18/19 02:43PM JG2
<b>Sample ID</b> L7146880-6	Sample Description BZ-6S Received Date/Tim	ne/Temp 07/18/	19 12:59pm 8.0 C	Iced (Y/N): Y		ate/Time/Temp 06:40am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst

PIN: 28748 Serial Number: 6534313

# **Eurofins QC, LLC**

Account No: W09769, SGS NORTH AMERICA, INC.

# **Analytical Report**

Inv. No:

1986711 PI

Project No:	W09769 USACE, USACE				PWSID No:	
<b>Sample ID</b> L7146880-6	Sample Description BZ-6S Received Date/Time/Temp 07	7/18/19 12:59pm 8.0 C	Iced (Y/N): Y	•	ate/Time/Temp 06:40am NA C	Sampled by Customer
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst

P.O. No:

**ENVIRONMENTAL MICROBIOLOGY -- BZ-6S** 

Total Coliform, MF cfu/100ml SM 9222B 100 07/18/19 03:19PM LK 11200 E, Q Fecal Coliform, MF cfu/100ml SM 9222D 100 07/18/19 02:43PM JG2 1 Q

Sample ID Sample Description L7146880-7 BZ-7S Received Date/Ti		3/19 12:59pm 8.0 C	Iced (Y/N): Y	•	te/Time/Temp 6:40am NA C	Sampled by Customer					
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst					
ENVIRONMENTAL MICROBIO	LOGY BZ-7S										
Total Coliform, MF Fecal Coliform, MF	2500 Q 3 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	07/18/19 03:19PM LK 07/18/19 02:43PM JG2					

#### Sample Comments | Result Qualifiers:

#### L7146880-1:

- Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory
- Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7146880-2:

- Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory purposes.
- E: For microbiology testing by membrane filtration, the reported result was based on a colony count outside the recommended range of the test. The reported result may be considered an estimate.
- Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7146880-3:

- Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory
- E: For microbiology testing by membrane filtration, the reported result was based on a colony count outside the recommended range of the

PIN: 28748 Serial Number: 6534313

# **Eurofins QC, LLC**

# **Analytical Report**

Account No: W09769, SGS NORTH AMERICA, INC. P.O. No: Inv. No: 1986711 PI PWSID No:

Project No: W09769 USACE, USACE

test. The reported result may be considered an estimate.

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7146880-4:

- Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory
- Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7146880-5:

- Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory purposes.
- E: For microbiology testing by membrane filtration, the reported result was based on a colony count outside the recommended range of the test. The reported result may be considered an estimate.
- Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7146880-6:

- Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory
- E: For microbiology testing by membrane filtration, the reported result was based on a colony count outside the recommended range of the test. The reported result may be considered an estimate.
- Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7146880-7:

Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory

Page 5 of 6

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.



PIN: 28748 Serial Number: 6534313



#### **DEFINITIONS**

#### The following terms or abbreviations are used in this report:

Eurofins QC, LLC (EQC)

<	Less than: In conjunction with a numerical value,
	indicates a concentration less than RL / MDL
>	Greater than: In conjunction with a numerical value,
	indicates a concentration greater than RL / MDL
CFU	Colony Forming Unit
DF	Dilution Factor (For Microbiology, DF = volume of
DF	sample tested)
DRY	Result was reported on a dry weight basis
MCL	EPA recommended "Maximum Contaminant Level"
MDL	Method Detection Limit
MF	Membrane Filtration
MPN	Most Probable Number
ND	For odor test: No Odor Observed
ND	For all other tests: Analyte concentration Not
ND	Detected greater than the RL / MDL

NEG	Negative / Absent
NTU	Nephelometric Turbidity Units
POS	Positive / Present
PPB (µg/L)	Parts per billion: equivalent to 1 microgram per kilogram (µg/Kg) for solids or one microgram per liter (µg/L) for aqueous samples
PPM (mg/L)	Parts per million: equivalent to 1 milligram per kilogram (mg/Kg) for solids or one milligram per liter (mg/L) for aqueous samples
PRES	Presumptive
QUAL	Qualifier (Q)
RL	Laboratory Reporting Limit or Limit of Quantitation (LOQ)
TNTC	Too Numerous To Count
TON	Threshold Odor Number

#### **Data Qualifiers**

J	Estimated value ≥ MDL, but < RL
T	Temperature exceedance at receipt, refer to Sample Comments / Results Qualifiers section
E	Estimated CFU count (Microbiology)
Q	Qualifier defined in Sample Comment section on report

#### Warranties, Terms, and Conditions

- Unless otherwise indicated in the Parameter field, analyses for environmental microbiology, odor, and pharmaceutical microbiology are performed at the EQC Horsham Facility (702 Electronic Dr. Horsham, PA 19044).
- Analyses for Field Parameters are performed by EQC Field staff. Locations and certifications are identified on the Chain of Custody as follows:
  - "ERF" = field staff performs tests under NJ State certification # 02015.
  - "VL" = field staff performs tests under NJ State certification # 06005.
  - "WG" = field staff performs tests under NJ State certification # PA001.
- Test results meet all TNI or other applicable regulatory agency requirements, including holding times and preservation, unless otherwise indicated.
- · The report shall not be reproduced, except in full, without the written consent of the laboratory.
- · All samples are collected as "grab" samples unless otherwise identified.
- Reported results relate only to the sample as tested. EQC is not responsible for sample integrity unless sampling has been
  performed by a member of our staff.
- EQC is not responsible for sampling and/or testing omissions. Note that regulatory authorities may assess substantial fines for
  testing omissions. Please track your sample collection schedules and results on a regular basis (e.g. weekly, monthly, or quarterly)
  to ensure compliance. EQC's internet program "LIVE ACCESS" will provide you with real-time access to collection dates and testing
  results. Please contact Client Services for further information.
- The following personnel or their deputies have approved the results of the tests performed by EQC: Nicki Smith (Environmental Chemistry), Amanda Berd (Pharmaceutical Microbiology), and Zachary Smith (Water Microbiology).

#### **EQC** Accreditations

Horsham Facility	NELAP/State IDs-	PA: 46-05499	NJ: PA093	NY: 12080	MD: 357
East Rutherford Facility Vineland Facility Wind Gap Facility	State ID- State ID- State ID-	NJ: 02015 NJ: 06005 NJ: PA001			



## Dayton, NJ

Section 3

Misc.	Forms

**Custody Documents and Other Forms** 

Includes the following where applicable:

• Chain of Custody

CHAIN OF CUSTODY  SGS North America Inc Dayton												Page <u>1</u> of <u>2</u>											
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					.sgs.com	ehsusa										lequested	. Anabu			<u>C 11</u>	Matrix Codes		
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Project Contact  City  PA  19107  Project Contact  E-mail	Project #	11CIV	173	Street Addre	185								C	-	g					l	LIQ - Other Liquid		
Joe Loeper								ale		Zio		15	+	5	3					ļ	SOL - Other Solid		
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JC91885X: Chain of Custody Page 1 of 4

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JC91885X: Chain of Custody Page 2 of 4 SGS

#### CHAIN OF CUSTODY

Page	Ł	of	1
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JC91885X: Chain of Custody Page 3 of 4

### **SGS Sample Receipt Summary**

Job Number: Job	C91885	Client:	USACE-PHILADELPHIA DISTRICT			Project: PHILADELPHIA	DISTRICT	, RESERVO	OIR SAMPL
Date / Time Received: 7/	18/2019 4:54:00	PM	Delivery Met	hod:		Airbill #'s:			
Cooler Temps (Raw Measu	ured) °C: Coole	er 1: (3.6);	Cooler 2: (3.3	3); Cooler 3: (3	3.7); Cooler 4: (3.5	5); Cooler 5: (3.4);			
Cooler Temps (Correct	cted) °C: Coole	er 1: (3.6);	Cooler 2: (3.3	3); Cooler 3: (3	3.7); Cooler 4: (3.5	5); Cooler 5: (3.4);			
Cooler Security	Y or N			Y or N	Sample Integrit	y - Documentation	<u>Y</u>	or N	
1. Custody Seals Present:		3. COC P			1. Sample labels	present on bottles:	$\checkmark$		
2. Custody Seals Intact:	<b>✓</b>	Smpl Date	es/Time OK	✓ □	2. Container labe	eling complete:	$\checkmark$		
Cooler Temperature	Y or N	_			Sample contain	ner label / COC agree:	<b>✓</b>		
1. Temp criteria achieved:	<b>✓</b>	]			Sample Integri	ty - Condition	<u>Y</u>	or N	
2. Cooler temp verification:	IR Gur	1			Sample recvd		<b>✓</b>		
3. Cooler media:	Ice (Bag	g)			2. All containers		<b>✓</b>		
4. No. Coolers:	5				3. Condition of sa	ample:	_	Intact	
Quality Control Preservat	ion Y or I	N N/A	ı		Sample Integri	ty - Instructions	Υ	or N	N/A
1. Trip Blank present / cooler	: 🗆 🔽				Analysis requi	<del>-</del>	<u> </u>		
2. Trip Blank listed on COC:						ed for unspecified tests		✓	
3. Samples preserved proper	ly: 🔽	]			Sufficient volu	ime recvd for analysis:	<b>~</b>		
4. VOCs headspace free:		<b>✓</b>			4. Compositing i	nstructions clear:			$\checkmark$
					5. Filtering instru	uctions clear:			✓
Test Strip Lot #s:	pH 1-12:	229517		pH 12+:	208717	Other: (Specify)			
Comments									
SM089-03									
Rev. Date 12/7/17									

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JC91885X: Chain of Custody

Page 4 of 4



Dayton, NJ 08/05/19

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report



**USACE-Philadelphia District** 

Philadelphia District, Reservoir Sampling

CONTRACT#W912BU18D0003/TO#W912BU19F0065

SGS Job Number: JC91885XA

Sampling Date: 07/18/19



USACE-Philadelphia District 100 Penn Square East Philadelphia, PA 19107 Joseph.M.Loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 23

TNI FORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

This report shall not be reproduced, except in its entirety, without the written approval of SGS. Test results relate only to samples analyzed.

SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499
s or modifications to this document.

Please share your ideas about

### **Sections:**

## \_

### -1-

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Section 1: Sample Summary	3
Section 2: Subcontract Lab Data	5
Section 3: Misc. Forms	19
3.1: Chain of Custody	20



## **Sample Summary**

USACE-Philadelphia District

Job No: JC91885XA

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC91885-1F	07/18/19	06:40 G	W 07/18/19	AQ	Surface H2O Filtered	BZ-1S
JC91885-1XA	07/18/19	06:40 G	W 07/18/19	AQ	Surface Water	BZ-1S
JC91885-2F	07/18/19	11:25 G	W 07/18/19	AQ	Surface H2O Filtered	BZ-2S
JC91885-2XA	07/18/19	11:25 G	W 07/18/19	AQ	Surface Water	BZ-2S
JC91885-3F	07/18/19	08:30 G	W 07/18/19	AQ	Surface H2O Filtered	BZ-3S
JC91885-3XA	07/18/19	08:30 G	W 07/18/19	AQ	Surface Water	BZ-3S
JC91885-4F	07/18/19	08:30 G	W 07/18/19	AQ	Surface H2O Filtered	BZ-3M
JC91885-4XA	07/18/19	08:30 G	W 07/18/19	AQ	Surface Water	BZ-3M
JC91885-5F	07/18/19	08:30 G	W 07/18/19	AQ	Surface H2O Filtered	BZ-3D
JC91885-5XA	07/18/19	08:30 G	W 07/18/19	AQ	Surface Water	BZ-3D
JC91885-6F	07/18/19	11:05 G	W 07/18/19	AQ	Surface H2O Filtered	BZ-4S
JC91885-6XA	07/18/19	11:05 G	W 07/18/19	AQ	Surface Water	BZ-4S
JC91885-7F	07/18/19	10:50 G	W 07/18/19	AQ	Surface H2O Filtered	BZ-5S



# Sample Summary (continued)

USACE-Philadelphia District

Job No: JC91885XA

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC91885-7XA	07/18/19	10:50 GW	07/18/19	AQ	Surface Water	BZ-5S
JC91885-8F	07/18/19	07:45 GW	07/18/19	AQ	Surface H2O Filtered	BZ-6S
JC91885-8XA	07/18/19	07:45 GW	07/18/19	AQ	Surface Water	BZ-6S
JC91885-9F	07/18/19	07:45 GW	07/18/19	AQ	Surface H2O Filtered	BZ-6M
JC91885-9XA	07/18/19	07:45 GW	07/18/19	AQ	Surface Water	BZ-6M
JC91885-10F	07/18/19	07:45 GW	07/18/19	AQ	Surface H2O Filtered	BZ-6D
JC91885-10X	A07/18/19	07:45 GW	07/18/19	AQ	Surface Water	BZ-6D
JC91885-11F	07/18/19	09:30 GW	07/18/19	AQ	Surface H2O Filtered	BZ-7S
JC91885-11X	A07/18/19	09:30 GW	07/18/19	AQ	Surface Water	BZ-7S
JC91885-12F	07/18/19	09:30 GW	07/18/19	AQ	Surface H2O Filtered	BZ-7M
JC91885-12X	A07/18/19	09:30 GW	07/18/19	AQ	Surface Water	BZ-7M
JC91885-13F	07/18/19	09:30 GW	07/18/19	AQ	Surface H2O Filtered	BZ-7D
JC91885-13X	A07/18/19	09:30 GW	07/18/19	AQ	Surface Water	BZ-7D



# Dayton, NJ

# Section 2

Subcontract Lab Data
Report of Analysis



Certificate of Analysis

**Laboratory No.:** 9025550 **Report:** 08/01/19

Army Corp Reservoirs

Lab Contact: Richard A Wheeler

Attention: Tammy McCloskey

Reported To: SGS North America

**Lab ID:** 9025550-01

2235 US Highway 130 Dayton, NJ 08810

**Collected By:** Client **Sampled:** 07/18/19 06:40 **Received:** 07/23/19 10:00

Sample Desc: BZ-1S Sample Type: Grab

Rep. Result Unit MDL Procedure Limit Analyzed Notes Analyst Dissolved General Chemistry Phosphorus as P, 0.007 0.05 < 0.007 SM 4500-P E. 07/24/19 G-11, U JCL mg/l Dissolved General Chemistry Phosphorus as P, Total < 0.01 mg/l 0.010.05 SM 4500-P E 07/24/19 U JCL

**Lab ID:** 9025550-02 **Collected By:** Client **Sampled:** 07/18/19 11:25 **Received:** 07/23/19 10:00

Sample Desc: BZ-2S Sample Type: Grab

Rep. Unit MDL Limit Result Procedure Analyzed Notes Analyst Dissolved General Chemistry Phosphorus as P, < 0.007 0.007 0.05 SM 4500-P E 07/24/19 G-11, U JCL mg/l Dissolved General Chemistry Phosphorus as P, Total 0.05 SM 4500-P E < 0.01 mg/l 0.01 07/24/19 U JCL

**Lab ID:** 9025550-03 **Collected By:** Client **Sampled:** 07/18/19 08:30 **Received:** 07/23/19 10:00

Sample Desc: BZ-3S Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P,	< 0.007	mg/l	0.007	0.05	SM 4500-P E	07/24/19	G-11, U	JCL
Dissolved								
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	07/24/19	U	JCL



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Page 1 of 13



**Lab ID:** 9025550-04 **Collected By:** Client **Sampled:** 07/18/19 08:30 **Received:** 07/23/19 10:00

Sample Desc: BZ-3M Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	t <b>r</b> y							
Phosphorus as P,	< 0.007	mg/l	0.007	0.05	SM 4500-P E	07/24/19	G-11, U	JCL
Dissolved								
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	07/24/19	U	JCL

**Lab ID:** 9025550-05 **Collected By:** Client **Sampled:** 07/18/19 08:30 **Received:** 07/23/19 10:00

Sample Desc: BZ-3D Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst	
Dissolved General Chemist	ry								
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	07/24/19	G-11, U	JCL	
General Chemistry									
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	07/24/19	U	JCL	

**Lab ID:** 9025550-06 **Collected By:** Client **Sampled:** 07/18/19 11:05 **Received:** 07/23/19 10:00

Sample Desc: BZ-4S Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.009	mg/l	0.007	0.05	SM 4500-P E	07/24/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	07/24/19	J	JCL

**Lab ID:** 9025550-07 **Collected By:** Client **Sampled:** 07/18/19 10:50 **Received:** 07/23/19 10:00

Sample Desc: BZ-5S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	07/24/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	07/24/19	J	JCL



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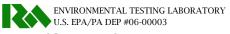
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**Lab ID:** 9025550-08 **Collected By:** Client **Sampled:** 07/18/19 07:45 **Received:** 07/23/19 10:00

Sample Desc: BZ-6S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemis	try							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	07/24/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	07/24/19	U	JCL

**Lab ID:** 9025550-09 **Collected By:** Client **Sampled:** 07/18/19 07:45 **Received:** 07/23/19 10:00

Sample Desc: BZ-6M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst	
Dissolved General Chemist	ry								
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	07/24/19	G-11, U	JCL	
General Chemistry									
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	07/24/19	U	JCL	

**Lab ID:** 9025550-10 **Collected By:** Client **Sampled:** 07/18/19 07:45 **Received:** 07/23/19 10:00

Sample Desc: BZ-6D Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	07/24/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	07/24/19	U	JCL

 Lab ID:
 9025550-11
 Collected By:
 Client
 Sampled:
 07/18/19
 09:30
 Received:
 07/23/19
 10:00

Sample Desc: BZ-7S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	07/24/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	07/24/19	U	JCL



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**Lab ID:** 9025550-12 **Collected By:** Client **Sampled:** 07/18/19 09:30 **Received:** 07/23/19 10:00

Sample Desc: BZ-7M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	07/24/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	07/24/19	U	JCL

**Lab ID:** 9025550-13 **Collected By:** Client **Sampled:** 07/18/19 09:30 **Received:** 07/23/19 10:00

Sample Desc: BZ-7D Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	07/24/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.11	mg/l	0.01	0.05	SM 4500-P E	07/24/19		JCL



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#### **Quality Control**

#### **General Chemistry**

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9G1393								
MB (B9G1393-BLK1)				Prepared & Ana	alyzed: 07/24/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9G1393-BLK2)				Prepared & Ana	alyzed: 07/24/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9G1393-BLK3)				Prepared & Ana	alyzed: 07/24/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
LFB (B9G1393-BS1)				Prepared & Ana	alyzed: 07/24/20	19		
Phosphorus as P, Total	1.01	0.05	mg/l	101	80-120			
LFM (B9G1393-MS1)		Source: 9025550-12		Prepared & Ana	alyzed: 07/24/20	19		
Phosphorus as P, Total	1.00	0.05	mg/l	100	80-120			
LFMD (B9G1393-MSD1)		Source: 9025550-12		Prepared & Ana	alyzed: 07/24/20	19		
Phosphorus as P, Total	1.00	0.05	mg/l	99.9	80-120	0.300	20	

#### **Dissolved General Chemistry**

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9G1394								
MB (B9G1394-BLK1)				Prepared & An	alyzed: 07/24/20	19		
Phosphorus as P, Dissolved	< 0.05	0.05	mg/l					G-11, U
LFB (B9G1394-BS1)				Prepared & An	alyzed: 07/24/20	19		
Phosphorus as P, Dissolved	1.02	0.05	mg/l	102	80-120			G-11
LFM (B9G1394-MS1)		Source: 9025550-02		Prepared & An	alyzed: 07/24/20	19		
Phosphorus as P, Dissolved	1.00	0.05	mg/l	99.8	80-120			
LFMD (B9G1394-MSD1)		Source: 9025550-02		Prepared & An	alyzed: 07/24/20	19		
Phosphorus as P, Dissolved	1.01	0.05	mg/l	101	80-120	1.10	20	



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#### **Preparation Methods**

Specific Method	Preparation Method	Prepared Date	Prepared By
9025550-01			
SM 4500-P E	SM 4500-P B	07/24/2019	JCL
9025550-02			
SM 4500-P E	SM 4500-P B	07/24/2019	JCL
9025550-03			
SM 4500-P E	SM 4500-P B	07/24/2019	JCL
9025550-04			
SM 4500-P E	SM 4500-P B	07/24/2019	JCL
9025550-05			
SM 4500-P E	SM 4500-P B	07/24/2019	JCL
9025550-06			
SM 4500-P E	SM 4500-P B	07/24/2019	JCL
9025550-07			
SM 4500-P E	SM 4500-P B	07/24/2019	JCL
9025550-08			
SM 4500-P E	SM 4500-P B	07/24/2019	JCL
9025550-09			
SM 4500-P E	SM 4500-P B	07/24/2019	JCL
9025550-10			
SM 4500-P E	SM 4500-P B	07/24/2019	JCL
9025550-11			
SM 4500-P E	SM 4500-P B	07/24/2019	JCL
9025550-12			
SM 4500-P E	SM 4500-P B	07/24/2019	JCL
9025550-13			
SM 4500-P E	SM 4500-P B	07/24/2019	JCL



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#### **Notes and Definitions**

G-11 The sample was filtered after it was received at the laboratory.

J Estimated value

U Analyte was not detected above the indicated value.



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Page 1 of 3

JC91885XA

SGS Job#

CHAIN

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www.sgs.com/ehsusa

FED-EX Tracking #

SGS Quote #

Army Corp Reservoirs SGS North America OW - Drinking Water COW - Counted Water WW - Water SW - Sulfrace Water SO - Soli BL- Studge SED-Sediment OI - Oil LIQ - Other Liquid AR - Aku SOL - Other Soli WP - Wipe P FB - Field Blank R B- 9025550 LAB USE ONLY 3.7°04 ice http://www.sgs.com/en/terms-and-conditions Matrix Codes Cooler Temp, 'C Comments / Special Instructions On Ice Requested Analysis Date / Time: 10:00 41000le 7-23-19 Preserved where applicable × × , <del>1</del>041 Standard to Business Days RUSH
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Commercial "B" (Level 2)

FULT1 (Level 3+4)

NJ Reduced

Commercial "C" ивон нсі # of bottles Matrix Ā ğ AQ AQ Ā Ą ğ Ą ΑQ ð Ą Ā Project Information Street Address 8:30:00 AM GW 11:05:00 AM GW 6:40:00 AM GW 11:25:00 AM GW 8:30:00 AM GW 8:30:00 AM GW 8:30:00 AM GW 8:30:00 AM GW 11:05:00 AM GW 6:40:00 AM GW 11:25:00 AM GW 8:30:00 AM GW Philadelphia District, Reservoir Sampling TIMe 7/18/19 7/18/19 7/18/19 7/18/19 7/18/19 7/18/19 7/18/19 7/18/19 7/18/19 7/18/19 7/18/19 7/18/19 Date Approved By (SGS PM): / Date: Client Purchase Order # Date/Time: Re Date/Time: Re Project Manage MEOH/DI Vial # Project Name: Date / Time: Client / Reporting Information Turnaround Time ( Business days) Field ID / Point of Collection tammy.mccloskey@sgs.com 6XA BZ-4S 6F BZ-4S 3XA BZ-3S 3F BZ-3S 5XA BZ-3D 5F BZ-3D Sampler(s) Name(s) GW 1XA BZ-1S BZ-1S BZ-2S ZYA BZ-2S 4XA BZ-3M Relinquished by: Relinquished by: oject Contact treet Address 2XA SOS Sample # #

PM: RAW

JC91885XA.xls Rev. Date: 4/10/18

CHAIN OF CUSTODY

902550

Page 2 of 3

Bottle Order Control # # qof SSS

8GS Quote #

(A) (B) (A)

CW- Christing Water CW- Cround Water WW- Warr SW- Surface Water SO- Sell SE- Sudge SED-Sediment Light Color Light Color Light Color Light Color Light Color Light Color Light Color Light Color Light Color Light Color Light Solor Color Sell Self- Color Sell Self- Color Sell Self- Color Sell Self- Color Sell Self- Color Sell Self- Color Sell Self- Color Sell Self- Color Sell Self- Color Sell Self- Color Sell Self- Color Sell Self- Color Sell Self- Color Sell- C

Matrix Codes

LAB USE ONLY

SGS North America Inc. - Dayton 2235 Route 130, Dayton, NJ 08810 TEL 732-329-0200 FAX: 732-329-3499/3480 www.sgs.com/ehsusa

http://www.sgs.com/en/terms-and-conditions JC91885XA 9 0 Requested Analysis 7-23-19:00 2 Preserved where applicable Date / Time: × × × , 40qT Commercial "B" = Results + QC Summary
Commercial "C" = Results + QC Summary + Partial Raw data | Intact | Not Intact nented below each time samples change possession, including  $\chi$ NYASP Category A
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X Other REDT2 ENCORE 믕 MEOH DI Mater Data Deliverable Information Commercial "A" = Results Only Billing Information (if different from Report to) Company Name \*OS\*H Relinquished By: Sustody Seal # State Commercial "A" (Level 1)

Commercial "B" (Level 2)

FULLT1 (Level 3+4)

NJ Reduced

Commercial "C" HOEN нсі # of bottles Matrix AQ AQ ΑQ Ą Ą ΑĠ Ā Ā Ą A Ä Ā Street Address Project Information š 10:50:00 AM GW 7:45:00 AM GW 7:45:00 AM GW 9:30:00 AM GW ΘW Š 10:50:00 AM GW 7:45:00 AM GW 7:45:00 AM GW 7:45:00 AM GW 7:45:00 AM GW Çį Custody must be docur 下や及 9:30:00 AM 9:30:00 AM 9:30:00 AM Philadelphia District, Reservoir Sampling Time 7/18/19 7/18/19 Approval needed for RUSH/Emergency TAT 7/18/19 7/18/19 7/18/19 7/18/19 7/18/19 7/18/19 7/18/19 7/18/19 7/18/19 7/18/19 celved By: Date eceived By: tecelved By: Approved By (SGS PM): / Date: Client Purchase Order # 1 Eple (7:00 Project Manager MEOH/DI Vial# Date / Time: Clent / Reporting Information Company Name: Turnaround Time (Business days) Field ID / Point of Collection Standard to Business Days
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Days Rush Talk data available. 1 Business Day EMERGENCY tammy.mccloskey@sgs.com E-mail Reunquished by: Sampler(s) Name(s) GW 9F BZ-6M 12XA BZ-7M BZ-58 BZ-5S BZ-6S BZ-6S BZ-6D 11XA BZ-7S BZ-78 BZ-6D Relinquished by: Relinquished by: Project Contact Street Address # auoul 3, 10F 10XA 11F SGS Sample # ž 7F 8XA #

Page 9 of 13

Cooler Temp, 'C

JC91885XA.xls Rev. Date: 4/10/18

Page 10 of 13

Cooler Temp. 'C

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Preserved where applicable

Custody Seal #

Date / Time:

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CHAIN OF CUSTODY

Page 3 of 3

902550

Bottle Order Control# SGS Job#

FED-EX Tracking # SGS Quote #

JC91885XA

SGS North America Inc. - Dayton 2238 Route 19, Dayton, NJ 08810 TEL. 732-329-3499/3480 www.sgs.com/ehsusa

_	Cilent /	Client / Reporting Information				Project Information	nforma	tion									Redu	ested A	Requested Analysis				Ma	Matrix Codes
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à	Phone #		ľ	Client Purchase Order#	Jrder #		City			State			Zip	u									30. FB < 50.	SOL - Other Solid WP - Wipe FB - Field Blank
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JC91885XA.xls Rev. Date: 4/10/18

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Date / Time: 7/22/2019 9:04:21 AM

CSR: BETHW Job#: JC91885XA

Client Project: Philadelphia District, Reservoir Sampling

REDT2 Deliverable:

TAT: Due 8/1/2019

Sub Lab: MJ Reider Associates Inc, Env. Testing Laboratories

Address: 107 Angelica Street

City: Reading

State: PA

Zip: 19611 Contact: Sample Receiving / Rich Wheeler

Phone: 610-377-5100

	AI. Due of 1/2018		Phone: 610-374-5129				
SGS Sample #	Client Sample Description	Analysis	Location	Sampled By	Date Sampled	Time Sampled	Aliquot
JC91885-1XA	<u>BZ-18</u>	TP04.		<u>W</u> S	7/18/2019	6:40:00 AM	
JC91885-1F	<u>BZ-18</u>	FILTERGN, TPO4.		GW	7/18/2019	6:40:00 AM	
JC91885-2XA	<u>BZ-28</u>	TPO4,		<u>GW</u>	7/18/2019	11:25:00 AM	
JC91885-2F	<u>BZ-28</u>	FILTERGN, TPO4,		<u>GW</u>	7/18/2019	11:25:00 AM	
JC91885-3XA	<u>BZ-38</u>	TPO4.		<u>R</u>	7/18/2019	8:30:00 AM	
JC91885-3F	<u>BZ-3S</u>	FILTERGN,TPO4,		<u>R</u>	7/18/2019	8:30:00 AM	
JC91885-4XA	BZ-3M	<u>TPO4,</u>		<u>GW</u>	7/18/2019	8:30:00 AM	
JC91885-4F	<u>BZ-3M</u>	FILTERGN, TPO4.		<u>GW</u>	7/18/2019	8:30:00 AM	
JC91885-5XA	<u>BZ-3D</u>	TPO4,		<u>GW</u>	7/18/2019	8:30:00 AM	
JC91885-5F	<u>BZ-3D</u>	FILTERGN, TPO4,		GW	7/18/2019	8:30:00 AM	
JC91885-6XA	<u>BZ-48</u>	TPO4.		<u>GW</u>	7/18/2019	11:05:00 AM	
JC91885-6F	<u>BZ-48</u>	FILTERGN,TPO4,		GW	7/18/2019	11:05:00 AM	
JC91885-7XA	<u>BZ-58</u>	TPO4.		<u>GW</u>	7/18/2019	10;50:00 AM	
JC91885-7F	<u>BZ-58</u>	FILTERGN, TPO4.		GW	7/18/2019	10:50:00 AM	
JC91885-8XA	<u>BZ-68</u>	TPO4.		<u>GW</u>	7/18/2019	7:45:00 AM	
JC91885-8F	<u>BZ-68</u>	FILTERGN, TPO4,		<u>GW</u>	7/18/2019	7:45:00 AM	
JC91885-9XA	BZ-6M	TPO4.		<u>GW</u>	7/18/2019	7:45:00 AM	

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	<u>GW</u>	<u>QW</u>	<u>GW</u>	<u>R</u>	<u>W</u>	<u>GW</u>	<u>GW</u>	<u>GW</u>	QW.
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	JC91885-9F	JC91885-10XA	JC91885-10F	JC91885-11XA	JC91885-11E	JC91885-12XA	JC91885-12F	JC91885-13XA	JC91885-13F

Date:

Sample Management Receipt:

Comments:

SGS

#### **MJRA Terms & Conditions**

All samples submitted must be accompanied by signed documentation representing a Chain of Custody (COC). The COC Record acts as a contract between the client and MJRA. Signing the COC form gives approval for MJRA to perform the requested analyses and is an agreement to pay for the cost of such analyses. COC Records must be completed in black or blue indelible ink (must not run when wet). COC documentation begins at the time of sample collection. Client is required to document all sample details prior to releasing samples to MJRA. All samples must be placed on ice immediately after sampling and shipped or delivered to the laboratory in a manner that will maintain the sample temperature above freezing and below 6C (loose ice is preferred).

#### Sample Submission, Sample Acceptance & Sampling Containers

Included on the COC must be the sample description, date and time of collection (including start and stop for composites), container size and type, preservative information, sample matrix, indication of whether the sample is a grab or composite, number of containers & a list of the tests to be performed. Poor sample collection technique, inappropriate sampling containers and/or improper sample preservation may lead to sample rejection. Suitable sample containers, labels, and preservatives (as applicable), along with blank COCs are provided at no additional cost.

#### **Turnaround Times (TAT)**

Average TAT for test results range from 5 to 15 working days depending on the specific analyses and time of year submitted. Faster turnaround times (\*RUSH TAT) may be available depending on the current workload in a particular department and the nature of the analyses requested. We encourage you to verify requests for expedited sample results with one of our Technical Directors prior to sample submittal. Without confirmation from a Technical Director, your results may not be completed by your deadline. \*RUSH TAT Surcharges are applied for expedited turnaround times.

#### Analytical Results, Sample Collection Integrity & Subcontracting

Analytical values are for the sample as submitted and relate only to the item tested. The value indicates a snapshot of the constituent content of the sample at the time of sample collection. Analytical results can be impacted by poor sample collection technique and/or improper preservation. All sample collection completed by MJRA was performed in accordance with applicable regulatory protocols or as specified in customer specific sampling plans. Constituent content will vary over time based on the matrix of the sample and the physical and chemical changes to its environment. All sample results and laboratory reports are strictly confidential. Results will not be available to anyone except the primary client or authorized party representing the client unless MJRA receives additional permissions from the client. When necessary, MJRA will subcontract certain analyses to a third party accredited laboratory. If client prohibits subcontracting, it must be provided in writing and include instruction on how to proceed with client samples that require third party analyses.

#### **Payment Terms**

Payment Terms are Net 30 days. Prices are subject to change without notice. A standing monthly charge of 1.5% of the clients over-30-day-unpaid balance may be added to the balance after 30 days and each month thereafter (day 31, 61, 91 etc.). The laboratory accepts all major credit cards, ACH transactions, checks and cash. New clients must pay for all services rendered prior to sample collection and/or in some cases report processing. Clients must contact the MJRA accounting department to pursue a credit-based account. MJRA reserves the right to terminate the client's credit account and to refuse to perform additional services on a credit basis if any balance is outstanding for more than 60 days.

#### **Warranty & Litigation**

MJRA does not guarantee any results of its services but has agreed to use its best efforts, in accordance with the standards and practices of the industry, to cause such results to be accurate and complete. We disclaim any other warranties, expressed or implied, including a warranty of fitness for a particular purpose and warranty of merchantability. Clients agree that they shall reimburse MJRA for any and all fees, cost and litigation expenses, including reasonable attorney fees incurred by MJRA in obtaining payment for the services rendered. All costs associated with compliance with any subpoena for documents, testimony, or any other purpose relating to work performed by MJRA, for a client, shall be paid by that client. MJRA's aggregate liability for negligent acts and omissions and of an intentional breach by MJRA will not exceed the fee paid for the services. Client agrees to indemnify and hold MJRA harmless for any and all liabilities in excess of said amount. Neither MJRA nor the client shall be liable to the other for special, incidental consequential or punitive liability or damages included but not limited to those arising from delay, loss of use, loss of profits or revenues. MJRA will not be liable to the client unless the client has notified MJRA of the discovery of the alleged negligent act, error, omissions or breach within 30 days of the

Reviewed and Approved by:

Rafael A Quijada For Richard A Wheeler Director of Field Services



107 Angelica Street O Reading, PA 19611 O www.mjreider.com (610) 374-5129 O fax (610) 374-7234

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NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

Additional accreditations by CT (PH-0210), MD (261), NY(12094)

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## Dayton, NJ

Section 3

Misc. Forms

**Custody Documents and Other Forms** 

Includes the following where applicable:

• Chain of Custody

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JC91885XA: Chain of Custody Page 3 of 4

### **SGS Sample Receipt Summary**

Job Number: JC918	885 Client:	USACE-PHILADELPHIA DISTRICT	$ \begin{array}{c} \textbf{Project:} & \underline{ \text{PHILADELPHIA DISTRICT, RESERVOIR SAMPL} \end{array} $
Date / Time Received: 7/18/2	2019 4:54:00 PM	Delivery Method:	Airbill #'s:
	, , , , , , , , , , , , , , , , , , , ,	Cooler 2: (3.3); Cooler 3: (3.7); Cooler 4: (3.5) Cooler 2: (3.3); Cooler 3: (3.7); Cooler 4: (3.5)	
1. Custody Seals Present:  ✓ 2. Custody Seals Intact: ✓	or N	resent:   Solution   Institute	y - Documentation  Y or N  present on bottles:  ling complete:  or label / COC agree:
1. Temp criteria achieved: 2. Cooler temp verification: 3. Cooler media: 4. No. Coolers:	Y or N  IR Gun  Ice (Bag)  5	Sample Integrit  1. Sample recvd v  2. All containers a  3. Condition of sa	ty - Condition  within HT:  within HT:  within HT:
Quality Control Preservation			ty - Instructions Y or N N/A
<ol> <li>Trip Blank present / cooler:</li> <li>Trip Blank listed on COC:</li> </ol>		Analysis reque     Bottles receive	ested is clear:  ed for unspecified tests
Samples preserved properly:     VOCs headspace free:		Sufficient volui     Compositing ir     Filtering instru	
Test Strip Lot #s: pH	1-12: 229517	pH 12+:208717	Other: (Specify)
Comments SM089-03			

Rev. Date 12/7/17

JC91885XA: Chain of Custody Page 4 of 4



Dayton, NJ 08/27/19

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report



**USACE-Philadelphia District** 

Philadelphia District, Reservoir Sampling

Beltzville

SGS Job Number: JC92566

Sampling Date: 08/01/19



Army Corps of Engineers

joseph.m.loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 28

TNI SORATORI

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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## **Sample Summary**

Job No:

JC92566

USACE-Philadelphia District

Philadelphia District, Reservoir Sampling Project No: Beltzville

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC92566-1	08/01/19	06:40 GW	08/01/19	AQ	Surface Water	BZ-1S
JC92566-2	08/01/19	11:50 GW	08/01/19	AQ	Surface Water	BZ-2S
JC92566-3	08/01/19	09:00 GW	08/01/19	AQ	Surface Water	BZ-3S
JC92566-4	08/01/19	09:00 GW	08/01/19	AQ	Surface Water	BZ-3M
JC92566-5	08/01/19	09:00 GW	08/01/19	AQ	Surface Water	BZ-3D
JC92566-6	08/01/19	11:30 GW	08/01/19	AQ	Surface Water	BZ-4S
JC92566-7	08/01/19	11:15 GW	08/01/19	AQ	Surface Water	BZ-5S
JC92566-8	08/01/19	08:00 GW	08/01/19	AQ	Surface Water	BZ-6S
JC92566-9	08/01/19	08:00 GW	08/01/19	AQ	Surface Water	BZ-6M
JC92566-10	08/01/19	08:00 GW	08/01/19	AQ	Surface Water	BZ-6D
JC92566-11	08/01/19	09:45 GW	08/01/19	AQ	Surface Water	BZ-7S
JC92566-12	08/01/19	09:45 GW	08/01/19	AQ	Surface Water	BZ-7M
JC92566-13	08/01/19	09:45 GW	08/01/19	AQ	Surface Water	BZ-7D

#### CASE NARRATIVE / CONFORMANCE SUMMARY

Client: USACE-Philadelphia District Job No JC92566

Site: Philadelphia District, Reservoir Sampling Report Date 8/16/2019 2:12:52 PM

On 08/01/2019, 13 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 4.1 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JC92566 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

#### General Chemistry By Method EPA 351.2/LACHAT

Matrix: AQ Batch ID: GP22969

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92566-1DUP, JC92566-1MS were used as the QC samples for Nitrogen, Total Kjeldahl.

#### General Chemistry By Method EPA 353.2/LACHAT

Matrix: AQ Batch ID: GP22894

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

Friday, August 16, 2019

■ Sample(s) JC92500-5DUP, JC92566-1MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.

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## General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ Batch ID: R180258

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92566-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180259

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92566-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180260

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92566-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180261

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92566-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180262

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92566-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180263

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92566-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180264

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92566-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180265

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92566-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AO Batch ID: R180266

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92566-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180267

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92566-10 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180268

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92566-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180269

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92566-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180270

■ The data for EPA353.2/SM4500NO2B meets quality control requirements.

Friday, August 16, 2019

JC92566-13 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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### General Chemistry By Method SM2320 B-11

Matrix: AQ Batch ID: GN98432

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92500-5DUP were used as the QC samples for Alkalinity, Total as CaCO3.
- JC92566-1 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC92566-7 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92566-10 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92566-2 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC92566-3 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC92566-4 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC92566-13 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92566-8 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92566-11 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92566-12 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92566-5 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92566-6 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92566-9 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.

### **General Chemistry By Method SM2540 C-11**

Matrix: AQ Batch ID: GN98332

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92566-1DUP were used as the QC samples for Solids, Total Dissolved.

Matrix: AO Batch ID: GN98398

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92566-11DUP were used as the QC samples for Solids, Total Dissolved.

## General Chemistry By Method SM2540 D-11

Matrix: AQ Batch ID: GN98384

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92566-1DUP were used as the QC samples for Solids, Total Suspended.

### General Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AQ Batch ID: GP22971

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.

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Sample(s) JC92566-1DUP, JC92566-1MS, JC92566-1MSD were used as the QC samples for Nitrogen, Ammonia.

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## General Chemistry By Method SM4500NO2 B-11

Matrix: AQ Batch ID: GN98209

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92566-1DUP, JC92566-1MS were used as the QC samples for Nitrogen, Nitrite.

## General Chemistry By Method SM5210 B-11

Matrix: AQ Batch ID: GP22778

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92535-4DUP were used as the QC samples for BOD, 5 Day.
- RPD(s) for Duplicate for BOD, 5 Day are outside control limits. High RPD due to low results.

### **General Chemistry By Method SM5310 B-11**

Matrix: AQ Batch ID: GP22886

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92566-1MS, JC92566-1MSD were used as the QC samples for Total Organic Carbon.
- GP22886-B1: average of 3 injections

Matrix: AQ Batch ID: GP22887

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92496-11MS, JC92496-11MSD were used as the QC samples for Total Organic Carbon.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

Friday, August 16, 2019

**Summary of Hits Job Number:** JC92566

USACE-Philadelphia District Account:

Philadelphia District, Reservoir Sampling 08/01/19 **Project:** 

**Collected:** 

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL MDL	Units	Method
JC92566-1 BZ-1S				
Alkalinity, Total as CaCO3 <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	25.0 0.84 0.85 61.0 1.7	10 0.11 0.10 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11
JC92566-2 BZ-2S				
Alkalinity, Total as CaCO3 <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	20.0 0.31 0.31 61.0 1.4	10 0.11 0.10 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11
JC92566-3 BZ-3S				
Alkalinity, Total as CaCO3 <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	23.0 0.26 0.26 53.0 1.9	10 0.11 0.10 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11
JC92566-4 BZ-3M				
Alkalinity, Total as CaCO3 <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Nitrite Solids, Total Dissolved Total Organic Carbon	27.0 0.73 0.82 0.091 61.0 1.5	10 0.11 0.10 0.010 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM4500NO2 B-11 SM2540 C-11 SM5310 B-11
JC92566-5 BZ-3D				
Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	0.79 0.79 58.0 1.3	0.11 0.10 10 1.0	mg/l mg/l mg/l mg/l	EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11
JC92566-6 BZ-4S				
Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved	0.17 0.17 39.0	0.11 0.10 10	mg/l mg/l mg/l	EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11

**Summary of Hits Job Number:** JC92566

Account:

USACE-Philadelphia District
Philadelphia District, Reservoir Sampling
08/01/19 **Project:** 

**Collected:** 

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL MDL	Units	Method
	4.8	4.0	mg/l	SM2540 D-11
Total Organic Carbon	1.7	1.0	mg/l	SM5310 B-11
JC92566-7 BZ-5S				
	15.0	10	mg/l	SM2320 B-11
Ç ,	1.1	0.11	mg/l	EPA353.2/SM4500NO2B
Ç ,	1.1 0.24	0.10	mg/l	EPA 353.2/LACHAT EPA 351.2/LACHAT
3	66.0	0.20 10	mg/l mg/l	SM2540 C-11
	1.5	1.0	mg/l	SM5310 B-11
JC92566-8 BZ-6S			•	
Alkalinity, Total as CaCO3 <sup>c</sup>	14.0	10	mg/l	SM2320 B-11
	0.28	0.11	mg/l	EPA353.2/SM4500NO2B
-	0.28	0.10	mg/l	EPA 353.2/LACHAT
-	0.20	0.20	mg/l	EPA 351.2/LACHAT
	63.0	10	mg/l	SM2540 C-11
	1.9	1.0	mg/l	SM5310 B-11
JC92566-9 BZ-6M				
Alkalinity, Total as CaCO3 c	14.0	10	mg/l	SM2320 B-11
Nitrogen, Nitrate <sup>b</sup>	0.85	0.11	mg/l	EPA353.2/SM4500NO2B
<b>C</b> ,	0.85	0.10	mg/l	EPA 353.2/LACHAT
·	58.0	10	mg/l	SM2540 C-11
Total Organic Carbon	1.4	1.0	mg/l	SM5310 B-11
JC92566-10 BZ-6D				
Alkalinity, Total as CaCO3 <sup>c</sup>	15.0	10	mg/l	SM2320 B-11
Nitrogen, Nitrate <sup>b</sup>	0.79	0.11	mg/l	EPA353.2/SM4500NO2B
<b>C</b> ,	0.79	0.10	mg/l	EPA 353.2/LACHAT
*	59.0	10	mg/l	SM2540 C-11
Total Organic Carbon	1.3	1.0	mg/l	SM5310 B-11
JC92566-11 BZ-7S				
Alkalinity, Total as CaCO3 <sup>c</sup>	12.0	10	mg/l	SM2320 B-11
	0.22	0.11	mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.22	0.10	mg/l	EPA 353.2/LACHAT
-		4.0	/4	~~
Solids, Total Dissolved	53.0 1.9	10 1.0	mg/l mg/l	SM2540 C-11 SM5310 B-11

**Summary of Hits Job Number:** JC92566

Account: USACE-Philadelphia District

**Project:** Philadelphia District, Reservoir Sampling

**Collected:** 08/01/19

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
JC92566-12 BZ-7M					
Alkalinity, Total as CaCO3 <sup>c</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon  JC92566-13 BZ-7D	15.0 0.69 0.70 69.0 1.6	10 0.11 0.10 10 1.0		mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11
Alkalinity, Total as CaCO3 <sup>c</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	14.0 0.87 0.87 70.0 1.5	10 0.11 0.10 10 1.0		mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.5.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

<sup>(</sup>c) Sample was titrated to a final pH of 4.2.





# Dayton, NJ

# Section 4

Sample Results	
Report of Analysis	

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**Date Sampled:** 08/01/19

# **Report of Analysis**

Client Sample ID: BZ-1S Lab Sample ID: JC92566-1

Matrix: AQ - Surface Water **Date Received:** 08/01/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	25.0	10	mg/l	1	08/07/19 20:39	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	08/02/19 16:03		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/13/19 10:15	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.84	0.11	mg/l	1	08/08/19 16:37	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.85	0.10	mg/l	1	08/08/19 16:37	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/01/19 22:40	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/14/19 11:27	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	61.0	10	mg/l	1	08/06/19 15:37	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/07/19 10:38	RC	SM2540 D-11
Total Organic Carbon	1.7	1.0	mg/l	1	08/09/19 21:56	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.5.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-2S Lab Sample ID: JC92566-2

**Date Sampled:** 08/01/19 Matrix: AQ - Surface Water **Date Received:** 08/01/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

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Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	20.0	10	mg/l	1	08/07/19 20:39	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	08/02/19 16:33	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/13/19 10:19	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.31	0.11	mg/l	1	08/08/19 16:39	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.31	0.10	mg/l	1	08/08/19 16:39	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/01/19 22:40	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/14/19 11:23	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	61.0	10	mg/l	1	08/06/19 15:37	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/07/19 10:38	RC	SM2540 D-11
Total Organic Carbon	1.4	1.0	mg/l	1	08/09/19 22:30	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.5.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-3S Lab Sample ID: JC92566-3

Lab Sample ID:JC92566-3Date Sampled:08/01/19Matrix:AQ - Surface WaterDate Received:08/01/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	23.0	10	mg/l	1	08/07/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	08/02/19 16:35		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/13/19 10:20	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.26	0.11	mg/l	1	08/08/19 16:40	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.26	0.10	mg/l	1	08/08/19 16:40	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/01/19 22:40	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/14/19 11:24	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	53.0	10	mg/l	1	08/06/19 15:37	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/07/19 10:38	RC	SM2540 D-11
Total Organic Carbon	1.9	1.0	mg/l	1	08/09/19 22:41	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.5.



<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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# **Report of Analysis**

Client Sample ID: BZ-3M Lab Sample ID: JC92566-4

Lab Sample ID:JC92566-4Date Sampled:08/01/19Matrix:AQ - Surface WaterDate Received:08/01/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	27.0	10	mg/l	1	08/07/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	08/02/19 16:37		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/13/19 10:22	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.73	0.11	mg/l	1	08/08/19 16:41	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.82	0.10	mg/l	1	08/08/19 16:41	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.091	0.010	mg/l	1	08/01/19 22:40	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/16/19 10:21	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	61.0	10	mg/l	1	08/06/19 15:37	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/07/19 10:38	RC	SM2540 D-11
Total Organic Carbon	1.5	1.0	mg/l	1	08/09/19 22:52	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.5.



<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-3D Lab Sample ID: JC92566-5

**Date Sampled:** 08/01/19 Matrix: AQ - Surface Water **Date Received:** 08/01/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

## **General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	08/07/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	08/02/19 16:39	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/13/19 10:23	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.79	0.11	mg/l	1	08/08/19 16:42	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.79	0.10	mg/l	1	08/08/19 16:42	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/01/19 22:40	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/14/19 11:26	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	58.0	10	mg/l	1	08/06/19 15:37	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/07/19 10:38	RC	SM2540 D-11
Total Organic Carbon	1.3	1.0	mg/l	1	08/09/19 23:04	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



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<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-4S Lab Sample ID: JC92566-6

**Date Sampled:** 08/01/19 Matrix: AQ - Surface Water **Date Received:** 08/01/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

# **General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	08/07/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	08/02/19 16:41	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/13/19 10:25	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.17	0.11	mg/l	1	08/08/19 16:43	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.17	0.10	mg/l	1	08/08/19 16:43	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/01/19 22:40	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/14/19 11:28	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	39.0	10	mg/l	1	08/06/19 15:37	RC	SM2540 C-11
Solids, Total Suspended	4.8	4.0	mg/l	1	08/07/19 10:38	RC	SM2540 D-11
Total Organic Carbon	1.7	1.0	mg/l	1	08/09/19 23:15	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



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<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-5S Lab Sample ID: JC92566-7

**Date Sampled:** 08/01/19 Matrix: AQ - Surface Water **Date Received:** 08/01/19 Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	15.0	10	mg/l	1	08/07/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	08/02/19 16:44		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/13/19 10:26	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	1.1	0.11	mg/l	1	08/08/19 16:46	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.1	0.10	mg/l	1	08/08/19 16:46	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/01/19 22:53	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.24	0.20	mg/l	1	08/16/19 10:22	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	66.0	10	mg/l	1	08/06/19 15:37	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/07/19 10:38	RC	SM2540 D-11
Total Organic Carbon	1.5	1.0	mg/l	1	08/09/19 23:26	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-6S Lab Sample ID: JC92566-8

**Date Sampled:** 08/01/19 Matrix: AQ - Surface Water **Date Received:** 08/01/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

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Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	14.0	10	mg/l	1	08/07/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	08/02/19 16:46		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/13/19 10:28	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.28	0.11	mg/l	1	08/08/19 16:48	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.28	0.10	mg/l	1	08/08/19 16:48	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/01/19 22:53	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.20	0.20	mg/l	1	08/14/19 11:29	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	63.0	10	mg/l	1	08/06/19 15:37	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/07/19 10:38	RC	SM2540 D-11
Total Organic Carbon	1.9	1.0	mg/l	1	08/09/19 23:37	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-6M Lab Sample ID: JC92566-9

Matrix: AQ - Surface Water **Date Received:** 08/01/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

## **General Chemistry**

Analyte	Result	$\mathbf{RL}$	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	14.0	10	mg/l	1	08/07/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	08/02/19 17:32	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/13/19 10:29	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.85	0.11	mg/l	1	08/08/19 16:49	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.85	0.10	mg/l	1	08/08/19 16:49	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/01/19 22:53	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/14/19 11:32	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	58.0	10	mg/l	1	08/06/19 15:37	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/07/19 10:38	RC	SM2540 D-11
Total Organic Carbon	1.4	1.0	mg/l	1	08/10/19 00:11	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



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**Date Sampled:** 08/01/19

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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# **Report of Analysis**

 Client Sample ID:
 BZ-6D

 Lab Sample ID:
 JC92566-10
 Date Sampled:
 08/01/19

 Matrix:
 AQ - Surface Water
 Date Received:
 08/01/19

 Percent Solids:
 n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	15.0	10	mg/l	1	08/07/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	08/02/19 17:35		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/13/19 10:30	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.79	0.11	mg/l	1	08/08/19 16:50	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.79	0.10	mg/l	1	08/08/19 16:50	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/01/19 22:53	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/14/19 11:33	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	59.0	10	mg/l	1	08/06/19 15:37	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/07/19 10:38	RC	SM2540 D-11
Total Organic Carbon	1.3	1.0	mg/l	1	08/10/19 00:29	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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# **Report of Analysis**

 Client Sample ID:
 BZ-7S

 Lab Sample ID:
 JC92566-11
 Date Sampled:
 08/01/19

 Matrix:
 AQ - Surface Water
 Date Received:
 08/01/19

 Percent Solids:
 n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	12.0	10	mg/l	1	08/07/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	08/02/19 17:37		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/13/19 10:32	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.22	0.11	mg/l	1	08/08/19 16:51	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.22	0.10	mg/l	1	08/08/19 16:51	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/01/19 22:53	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/14/19 11:33	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	53.0	10	mg/l	1	08/07/19 14:27	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/07/19 10:38	RC	SM2540 D-11
Total Organic Carbon	1.9	1.0	mg/l	1	08/09/19 19:57	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-7M Lab Sample ID: JC92560

Lab Sample ID: JC92566-12

Matrix: AQ - Surface Water

Philadelphia District, Reservoir Sampling

**Date Sampled:** 08/01/19 **Date Received:** 08/01/19

Percent Solids: n/a

## **General Chemistry**

**Project:** 

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	15.0	10	mg/l	1	08/07/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	08/02/19 17:39	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/13/19 10:36	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.69	0.11	mg/l	1	08/08/19 16:52	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.70	0.10	mg/l	1	08/08/19 16:52	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/01/19 22:53	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/16/19 10:23	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	69.0	10	mg/l	1	08/07/19 14:27	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/07/19 10:38	RC	SM2540 D-11
Total Organic Carbon	1.6	1.0	mg/l	1	08/09/19 20:08	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-7D Lab Sample ID: JC92566-13 **Date Sampled:** 08/01/19 Matrix: AQ - Surface Water **Date Received:** 08/01/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

## **General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	14.0	10	mg/l	1	08/07/19 21:25	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	08/02/19 17:41	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/13/19 10:38	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.87	0.11	mg/l	1	08/08/19 16:53	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.87	0.10	mg/l	1	08/08/19 16:53	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/01/19 22:53	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/14/19 11:35	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	70.0	10	mg/l	1	08/07/19 14:27	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/07/19 10:38	RC	SM2540 D-11
Total Organic Carbon	1.5	1.0	mg/l	1	08/09/19 20:19	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

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<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)



# Misc. Forms

Dayton, NJ

**Custody Documents and Other Forms** 

Includes the following where applicable:

• Chain of Custody

SGS	s	HAIN OF CUSTODY SGS North America Inc Dayton 2235 Route 130, Dayton, NJ 08810	Page 1 of 2	7 1
		732-329-0200 FAX: 732-329-3499/3480	SGS Guote x SGS Job # TO OOF / /	
Client / Reporting Information	Proje	www.sgs.com/ehsusa	SCS 1000 JC 92566	_
Company Name:	Project Name:		Requested Analysis Matrix Cod	ies
USACE - Phila District	USACE Rese	enoirs - Beltzuille	Winding Color  Or Color Color  Or Co	Valor
100 Penn Sq. East	City Siale	Billing Information (if different from Report to)	SW - Surface W	Vater
Phila. PA 19107		Company Name Straet Address	S. Studge SED Sedimen Oi-Oi	int
Joe Loeper			AIR-AI	1
Phone # 315 - 656 - 6545 Sampler(s) Name(s) 7 - 65 - 65 - 65 - 65 - 65 - 65 - 65 -	Client Purchase Order#	City State Zip		nk
Sempler(s) Name(s) 6/0 Phone #	Tamny McClosky	Attention:  Number of preserved Boston	CB - Kinga Bas	anti.
Sos Semple # Field ID / Point of Collection	MEONIO: VIOL® Trine	Sampled Chan (6) Matrix bosses & E E E E E E E E E E	HOUSE ON THE BEAUTIFUL AND BEA	
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-	Approved By (SGS PM): / Date:	Commercial "A" (Level 1) NYASP Category A		<u> </u>
10 Business Days 6 Business Days		Commercial "B" (Level 2) NYASP Catagory 8  NJ Reduced (Level 3) MA MCP Criteria_	□ DOD-OSMS TPO 4 Samples TO MIT Reider	
3 Business Days*		Full Tiers (Level 4) CT RCP Criteria		
2 Business Days"		Commercial "C" State Forms	TCF/FCF Samples to	
1 Business Day*	administrative and the second second	NJ DKQP EDD Format Commercial "A" * Results only, Commercial "B" * Re	TCF/FCF Samples to Eurofins Lab,	
All deta-officiable via Lablink Appl	roval needed for 1-3 Business Day TAT	Commercial "C" = Results + QC Summary + Partis	Raw data http://www.scs.com/en/terms-end-condition	15
Belliautorios by: Day! The	e: Recolved By:	primet be documented below each time samples change possession in Retinquented By:	cluding courier delivery.	-
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> JC92566: Chain of Custody Page 1 of 3

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JC92566: Chain of Custody Page 2 of 3

# **SGS Sample Receipt Summary**

Job Number: JC9	2566		Client: US	SACE-PHILADE	LPHIA DI	STRICT	Project: PHILADELPHIA	DISTRICT,	RESERV	OIR SAMPL
Date / Time Received: 8/1/2	2019 5:2	29:00 PM	De	elivery Method:	:		Airbill #'s:			
Cooler Temps (Raw Measure Cooler Temps (Correcte	-									
Cooler Security Y	or N	L		<u>Y o</u>	or N	Sample Integrit	ty - Documentation	<u>Y</u>	or N	
1. Custody Seals Present:			COC Prese			Sample labels	present on bottles:	$\checkmark$		
2. Custody Seals Intact:	] [	] 4. Sm	npl Dates/Tii	ime OK 🗸		2. Container labe	eling complete:	$\checkmark$		
Cooler Temperature	<u>Y</u>	or N				3. Sample contai	ner label / COC agree:	$\checkmark$		
1. Temp criteria achieved:	$\checkmark$					Sample Integri	ty - Condition	<u>Y</u>	or N	
Cooler temp verification:		IR Gun				Sample recvd	within HT:	<b>✓</b>		
3. Cooler media:	lo	ce (Bag)				2. All containers	accounted for:	<b>✓</b>		
4. No. Coolers:		4				3. Condition of sa	ample:	l	ntact	
Quality Control Preservatio	<u>n Y</u>	or N	N/A			Sample Integri	ty - Instructions	<u>Y</u>	or N	N/A
Trip Blank present / cooler:		$\checkmark$				1. Analysis requ	ested is clear:	<b>~</b>		
2. Trip Blank listed on COC:		$\checkmark$				2. Bottles receiv	ed for unspecified tests		✓	
3. Samples preserved properly:	<b>✓</b>					Sufficient volu	ime recvd for analysis:	<b>~</b>		
4. VOCs headspace free:			<b>✓</b>			4. Compositing i	nstructions clear:			✓
						5. Filtering instru	uctions clear:			$\checkmark$
Test Strip Lot #s: pł	H 1-12:	22	9517	_ pH	I 12+:	208717	Other: (Specify)			
Comments										
SM089-03 Rev. Date 12/7/17										

1101. 2410 127711

JC92566: Chain of Custody

Page 3 of 3



Dayton, NJ 08/16/19

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report



**USACE-Philadelphia District** 

Philadelphia District, Reservoir Sampling

Beltzville

SGS Job Number: JC92566X

Sampling Date: 08/01/19



USACE-Philadelphia District 100 Penn Square East Philadelphia, PA 19107 Joseph.M.Loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 16



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

This report shall not be reproduced, except in its entirety, without the written approval of SGS. Test results relate only to samples analyzed.

SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499 s or modifications to this document.

Please share your ideas about

# **Sections:**

# \_\_

# **Table of Contents**

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Section 1: Sample Summary	3
Section 2: Subcontract Lab Data	
Section 3: Misc. Forms	13
3.1: Chain of Custody	14



# **Sample Summary**

USACE-Philadelphia District

JC92566X Job No:

Philadelphia District, Reservoir Sampling Project No: Beltzville

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
JC92566-1X	08/01/19	06:40 GW	08/01/19	AQ	Surface Water	BZ-1S
JC92566-2X	08/01/19	11:50 GW	08/01/19	AQ	Surface Water	BZ-2S
JC92566-3X	08/01/19	09:00 GW	08/01/19	AQ	Surface Water	BZ-3S
JC92566-6X	08/01/19	11:30 GW	08/01/19	AQ	Surface Water	BZ-4S
JC92566-7X	08/01/19	11:15 GW	08/01/19	AQ	Surface Water	BZ-5S
JC92566-8X	08/01/19	08:00 GW	08/01/19	AQ	Surface Water	BZ-6S
JC92566-11X	08/01/19	09:45 GW	08/01/19	AQ	Surface Water	BZ-7S



# Dayton, NJ

# Section 2

Subcontract Lab Data
Report of Analysis

# Analytical Report

Serialized: 08/16/2019 10:16am QC35

KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130

DAYTON,NJ 08810

Regarding:

SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810

**PROJECT ID:** 

W09769 USACE

LABORATORY REPORT NUMBER:

L7147935

Authorized by: Douglas J. Gump Client Services Manager

DarJU



# **Analytical Report**

KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810 Regarding: KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810

	: W09769, SGS NORTH W09769 USACE, USA		C.	P.O. No:		Inv. No: PWSID No:	PI
<b>Sample ID</b> L7147935-1	Sample Description BZ-1S Received Date/Til	me/Temp 08/0	01/19 01:46pm 5.3 C	Iced (Y/N): Y		ate/Time/Temp 06:40am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	MENTAL MICROBIO	LOGY BZ-1	S				
Total Coliform Fecal Coliforn		>2000 Q 8 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	08/01/19 04:37PM LK 08/01/19 06:00PM LK
<b>Sample ID</b> L7147935-2	Sample Description BZ-2S Received Date/Ti	me/Temp 08/0	01/19 01:46pm 5.3 C	Iced (Y/N): Y		ate/Time/Temp 11:50am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	MENTAL MICROBIO	LOGY BZ-2	S				
Total Coliform	*	>2000 21 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	08/01/19 04:37PM LK 08/01/19 06:00PM LK

PIN: 28748 Serial Number: 6536943

# **Analytical Report**

	W09769, SGS NORTH W09769 USACE, USAC		<b>).</b>	P.O. No:		Inv. No: PWSID No:	PI
Sample ID Sample Description L7147935-3 BZ-3S Received Date/Time/Temp 08/01/19 01:46pm 5.3 C			Iced (Y/N): Y	Samp. Date/Time/Temp 08/01/19 09:00am NA C		Sampled by Customer	
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	ENTAL MICROBIOL	OGY BZ-38	S				
Total Coliform Fecal Coliform		>2000 <1 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	08/01/19 04:37PM LK 08/01/19 06:00PM LK
<b>Sample ID</b> L7147935-4	Sample Description BZ-4S Received Date/Tim	ne/Temp 08/0	1/19 01:46pm 5.3 C	Iced (Y/N): Y		ate/Time/Temp 11:30am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	ENTAL MICROBIOL	OGY BZ-49	3				
Total Coliform Fecal Coliform		CONFLUENT 210 Q	GROWTldfu/100ml cfu/100ml	SM 9222B SM 9222D	10 10	10 10	08/01/19 04:37PM LK 08/01/19 06:00PM LK
<b>Sample ID</b> L7147935-5	Sample Description BZ-5S Received Date/Tim	ne/Temp 08/0	1/19 01:46pm 5.3 C	Iced (Y/N): Y		ate/Time/Temp 11:15am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	ENTAL MICROBIOL	OGY BZ-58	S				
Total Coliform Fecal Coliform		>2000 300 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 10	10 10	08/01/19 04:37PM LK 08/01/19 06:00PM LK
Sample ID         Sample Description           L7147935-6         BZ-6S           Received Date/Time/Temp         08/01/19 01:46pm 5.3 C		Iced (Y/N): Y	<b>Samp. Date/Time/Temp</b> 08/01/19 08:00am NA C		Sampled by Customer		
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst

PIN: 28748 Serial Number: 6536943

# **Analytical Report**

Account No: W09769, SGS NORTH AMERICA, INC. Project No: W09769 USACE, USACE				P.O. No:	Inv. No: PWSID No:		Pl	
<b>Sample ID</b> L7147935-6	Sample Description BZ-6S Received Date/Tin	<b>ne/Temp</b> 08/01/	/19 01:46pm 5.3 C	Iced (Y/N): Y		ate/Time/Temp 08:00am NA C	Sampled by Customer	
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst	
ENVIRONM	ENTAL MICROBIOL	OGY BZ-6S						
Total Coliform, Fecal Coliform	,	>2000 Q 4 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	08/01/19 04:37PM LK 08/01/19 06:00PM LK	
<b>Sample ID</b> L7147935-7	Sample Description BZ-7S Received Date/Tin	n <b>e/Temp</b> 08/01/	/19 01:46pm 5.3 C	Iced (Y/N): Y		ate/Time/Temp 9:45am NA C	Sampled by Customer	
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst	
ENVIRONM	ENTAL MICROBIOL	OGY BZ-7S						
Total Coliform		>2000 <1 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	08/01/19 04:37PM LK 08/01/19 06:00PM LK	

#### Sample Comments | Result Qualifiers:

### L7147935-1:

- Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory
- Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

### L7147935-3:

- Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory
- Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7147935-4:

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

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PIN: 28748 Serial Number: 6536943

# **Analytical Report**

Account No: W09769, SGS NORTH AMERICA, INC. P.O. No: ы Inv. No: Project No: W09769 USACE, USACE PWSID No:

#### L7147935-5:

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7147935-6:

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory purposes.

#### L7147935-7:

Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory

Page 5 of 8

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.



PIN: 28748 Serial Number: 6536943



#### DEFINITIONS

#### The following terms or abbreviations are used in this report:

Eurofins QC, LLC (EQC)

<	Less than: In conjunction with a numerical value,				
	indicates a concentration less than RL / MDL				
>	Greater than: In conjunction with a numerical value,				
	indicates a concentration greater than RL / MDL				
CFU	Colony Forming Unit				
DF	Dilution Factor (For Microbiology, DF = volume of				
DF	sample tested)				
DRY	Result was reported on a dry weight basis				
MCL	EPA recommended "Maximum Contaminant Level"				
MDL	Method Detection Limit				
MF	Membrane Filtration				
MPN	Most Probable Number				
ND	For odor test: No Odor Observed				
ND	For all other tests: Analyte concentration Not				
ND	Detected greater than the RL / MDL				

NEG	Negative / Absent
NTU	Nephelometric Turbidity Units
POS	Positive / Present
PPB (µg/L)	Parts per billion: equivalent to 1 microgram per kilogram (µg/Kg) for solids or one microgram per liter (µg/L) for aqueous samples
PPM (mg/L)	Parts per million: equivalent to 1 milligram per kilogram (mg/Kg) for solids or one milligram per liter (mg/L) for aqueous samples
PRES	Presumptive
QUAL	Qualifier (Q)
RL	Laboratory Reporting Limit or Limit of Quantitation (LOQ)
TNTC	Too Numerous To Count
TON	Threshold Odor Number

#### **Data Qualifiers**

J	Estimated value ≥ MDL, but < RL
T	Temperature exceedance at receipt, refer to Sample Comments / Results Qualifiers section
E	Estimated CFU count (Microbiology)
Q	Qualifier defined in Sample Comment section on report

#### Warranties, Terms, and Conditions

- Unless otherwise indicated in the Parameter field, analyses for environmental microbiology, odor, and pharmaceutical microbiology are performed at the EQC Horsham Facility (702 Electronic Dr. Horsham, PA 19044).
- Analyses for Field Parameters are performed by EQC Field staff. Locations and certifications are identified on the Chain of Custody as follows:
  - "ERF" = field staff performs tests under NJ State certification # 02015.
  - "VL" = field staff performs tests under NJ State certification # 06005.
  - "WG" = field staff performs tests under NJ State certification # PA001.
- Test results meet all TNI or other applicable regulatory agency requirements, including holding times and preservation, unless otherwise indicated.
- · The report shall not be reproduced, except in full, without the written consent of the laboratory.
- · All samples are collected as "grab" samples unless otherwise identified.
- Reported results relate only to the sample as tested. EQC is not responsible for sample integrity unless sampling has been
  performed by a member of our staff.
- EQC is not responsible for sampling and/or testing omissions. Note that regulatory authorities may assess substantial fines for
  testing omissions. Please track your sample collection schedules and results on a regular basis (e.g. weekly, monthly, or quarterly)
  to ensure compliance. EQC's internet program "LIVE ACCESS" will provide you with real-time access to collection dates and testing
  results. Please contact Client Services for further information.
- The following personnel or their deputies have approved the results of the tests performed by EQC: Nicki Smith (Environmental Chemistry), Amanda Berd (Pharmaceutical Microbiology), and Zachary Smith (Water Microbiology).

### **EQC** Accreditations

Horsham Facility	NELAP/State IDs	PA: 46-05499	NJ: PA09	3 NY: 120	80 MD: 357
East Rutherford Facility Vineland Facility Wind Gap Facility	State ID- State ID- State ID-	NJ: 02015 NJ: 06005 NJ: PA001			

T so T alord

P7147935-1

CHAIN OF CUSTODY

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## **Anna Marie Smith**

From:

Wasserman, Beth (Dayton) < Beth. Wasserman@sgs.com>

Sent:

Thursday, August 01, 2019 4:44 PM

To:

Anna Marie Smith

Cc:

McCloskey, Tammy (Dayton); DeGraw, Kristin (Dayton)

Subject:

RE: [EXTERNAL] FW: USACE

## **EXTERNAL EMAIL\***

Hi Ann,

Per client, please analyze out of hold.

Thank you,
Beth Wasserman
Environment, Health & Safety
Project Manager Assistant

### SGS North America Inc.

2235 US Hwy 130 Dayton, NJ 08810

Phone: +1 732 329 0200 x 14563 **NEW** Direct: +1 732 355 4563 **NEW** E-mail: <u>Beth.Wasserman@sgs.com</u>



### **CONTINUOUS SERVICE IMPROVEMENT!**

Our goal is to continuously improve our service to you. Please share your ideas about how we can serve you better at EHS.US.CustomerCare@sgs.com.Your feedback is appreciated!

SGS

From: <u>AnnSmith@eurofinsUS.com</u> < <u>AnnSmith@eurofinsUS.com</u>>

Sent: Thursday, August 01, 2019 2:33 PM

To: DeGraw, Kristin (Dayton) < Kristin.DeGraw@sgs.com>

Subject: RE: [EXTERNAL] FW: USACE

Here you go! Appears it was only 1 sample at 640.

Best Regards,

#### **Ann Smith**

Sales Manager Eurofins QC, LLC

Mobile: 1-215-444-5254 Fax: 1-215-392-0626





1



# Dayton, NJ

Misc. Forms  Custody Documents and Other Forms
Includes the following where applicable:

SGS	_> "	HAIN OF CUSTODY GGS North America Inc Dayton 2235 Route 130, Dayton, NJ 08810	Page 1 of Z
		. 732-329-0200 FAX: 732-329-3499/3480	SGS Quote # SGS Job # TO CO TO /
Client / Reporting Information	. Proje	www.sgs.com/ehsusa	SGS. Inbe JC 92566  Requested Analysis Multip Corder
Company Name:	Project Name:		Widelia Codes
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Jue Loeper	Client Purchase Order #	City State Zip	SOL-Other Solid
315 - 656 - 6545 Sampler(s) Name(s) (60 Phone	# Project Meneger	Attention:	SCC. Other Solid WP - Wipe FB - Fleid Blank EB-Equipment Blank RB - Rines Blank
Sempler(s) Name(s) Grea WaGik 597-978	Tamer McClosky	CA (O) INC.	WP-Wips FB-Flad Blank EB-Ead-Stance Blank RB-Riman Blank RB-Riman Blank RB-Riman Blank RB-Riman Blank
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GF BZ-45	1/30	GSW 9 X X	XXXX
7F BZ-55	11/5	6 5cu 9 X X	XXXX
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Other All data or believes Labilrie An	proval needed for 1-3 Business Day TAT	Commercial "A" = Results only: Commercial "B" = Res	utes + OC Summery CUTOHINS COLO
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JC92566X: Chain of Custody Page 1 of 3

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JC92566X: Chain of Custody Page 2 of 3

# **SGS Sample Receipt Summary**

Job Number: JO	C92566 Client:	USACE-PHILADELPHIA DIS	TRICT Project: PHILADELPHIA	DISTRICT, RESERVOIR SAMPL
Date / Time Received: 8/	/1/2019 5:29:00 PM	Delivery Method:	Airbill #'s:	
Cooler Temps (Raw Measu	ured) °C: Cooler 1: (3.2);	Cooler 2: (3.3); Cooler 3: (4	.2); Cooler 4: (2.8);	
Cooler Temps (Correc	<b>cted) °C:</b> Cooler 1: (3.1);	Cooler 2: (3.2); Cooler 3: (4	.1); Cooler 4: (2.7);	
Cooler Security	Y or N	Y or N	Sample Integrity - Documentation	Y or N
1. Custody Seals Present:	<b>☑</b> 3. COC P		Sample labels present on bottles:	
2. Custody Seals Intact:	✓ 4. Smpl Date	es/Time OK 🔽 🗌	Container labeling complete:	
Cooler Temperature	Y or N		3. Sample container label / COC agree:	
1. Temp criteria achieved:	<b>✓</b>		Sample Integrity - Condition	Y or N
2. Cooler temp verification:	IR Gun		1. Sample recvd within HT:	
3. Cooler media:	Ice (Bag)		2. All containers accounted for:	
4. No. Coolers:	4		3. Condition of sample:	Intact
Quality Control Preservat	tion Y or N N/A		Sample Integrity - Instructions	Y or N N/A
1. Trip Blank present / cooler	:		Analysis requested is clear:	<u> </u>
2. Trip Blank listed on COC:			Bottles received for unspecified tests	
3. Samples preserved proper	rly: 🔽 🗌		Sufficient volume recvd for analysis:	
4. VOCs headspace free:			Compositing instructions clear:	
			5. Filtering instructions clear:	
Test Strip Lot #s:	pH 1-12: 229517	pH 12+:	208717 Other: (Specify)	
Comments				
SM089-03				
Rev. Date 12/7/17				

1101. 2010 12/1/11

JC92566X: Chain of Custody

Page 3 of 3



Dayton, NJ 08/22/19

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report



**USACE-Philadelphia District** 

Philadelphia District, Reservoir Sampling

Beltzville

SGS Job Number: JC92566XA

Sampling Date: 08/01/19



USACE-Philadelphia District 100 Penn Square East Philadelphia, PA 19107 Joseph.M.Loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 20



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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SGS

# **Sections:**

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# -1-

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Section 3: Misc. Forms	<b>17</b>
3.1: Chain of Custody	18



# **Sample Summary**

USACE-Philadelphia District

Job No: JC92566XA

Philadelphia District, Reservoir Sampling Project No: Beltzville

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC92566-1F	08/01/19	06:40 GW	08/01/19	AQ	Surface H2O Filtered	BZ-1S
JC92566-1XA	08/01/19	06:40 GW	08/01/19	AQ	Surface Water	BZ-1S
JC92566-2F	08/01/19	11:50 GW	08/01/19	AQ	Surface H2O Filtered	BZ-2S
JC92566-2XA	08/01/19	11:50 GW	08/01/19	AQ	Surface Water	BZ-2S
JC92566-3F	08/01/19	09:00 GW	08/01/19	AQ	Surface H2O Filtered	BZ-3S
JC92566-3XA	08/01/19	09:00 GW	08/01/19	AQ	Surface Water	BZ-3S
JC92566-4F	08/01/19	09:00 GW	08/01/19	AQ	Surface H2O Filtered	BZ-3M
JC92566-4XA	08/01/19	09:00 GW	08/01/19	AQ	Surface Water	BZ-3M
JC92566-5F	08/01/19	09:00 GW	08/01/19	AQ	Surface H2O Filtered	BZ-3D
JC92566-5XA	08/01/19	09:00 GW	08/01/19	AQ	Surface Water	BZ-3D
JC92566-6F	08/01/19	11:30 GW	08/01/19	AQ	Surface H2O Filtered	BZ-4S
JC92566-6XA	08/01/19	11:30 GW	08/01/19	AQ	Surface Water	BZ-4S
JC92566-7F	08/01/19	11:15 GW	08/01/19	AQ	Surface H2O Filtered	BZ-5S



# Sample Summary (continued)

Job No:

JC92566XA

USACE-Philadelphia District

Philadelphia District, Reservoir Sampling Project No: Beltzville

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC92566-7XA	08/01/19	11:15 GW	08/01/19	AQ	Surface Water	BZ-5S
JC92566-8F	08/01/19	08:00 GW	08/01/19	AQ	Surface H2O Filtered	BZ-6S
JC92566-8XA	08/01/19	08:00 GW	08/01/19	AQ	Surface Water	BZ-6S
JC92566-9F	08/01/19	08:00 GW	08/01/19	AQ	Surface H2O Filtered	BZ-6M
JC92566-9XA	08/01/19	08:00 GW	08/01/19	AQ	Surface Water	BZ-6M
JC92566-10F	08/01/19	08:00 GW	08/01/19	AQ	Surface H2O Filtered	BZ-6D
JC92566-10X	<b>A</b> 08/01/19	08:00 GW	08/01/19	AQ	Surface Water	BZ-6D
JC92566-11F	08/01/19	09:45 GW	08/01/19	AQ	Surface H2O Filtered	BZ-7S
JC92566-11X	408/01/19	09:45 GW	08/01/19	AQ	Surface Water	BZ-7S
JC92566-12F	08/01/19	09:45 GW	08/01/19	AQ	Surface H2O Filtered	BZ-7M
JC92566-12X	<b>40</b> 8/01/19	09:45 GW	08/01/19	AQ	Surface Water	BZ-7M
JC92566-13F	08/01/19	09:45 GW	08/01/19	AQ	Surface H2O Filtered	BZ-7D
JC92566-13X	A08/01/19	09:45 GW	08/01/19	AQ	Surface Water	BZ-7D



# Dayton, NJ

# Section 2

Report of Analysis	Subcontract Lab Data	
	Report of Analysis	



**Certificate of Analysis** 

 Report:
 08/09/19

 Lab Contact:
 Amy L Morriss

Attention: Tammy McCloskey Project: Army Corp Reservoirs

Reported To: SGS North America

2235 US Highway 130 Dayton, NJ 08810

**Lab ID:** 9027531-01 **Collected By:** Client **Sampled:** 08/01/19 06:40 **Received:** 08/07/19 09:50

Sample Desc: BZ-1S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/08/19	U	JCL

**Lab ID:** 9027531-02 **Collected By:** Client **Sampled:** 08/01/19 11:50 **Received:** 08/07/19 09:50

Sample Desc: BZ-2S Sample Type: Grab

Rep. Unit MDL Limit Result Procedure Analyzed Notes Analyst Dissolved General Chemistry Phosphorus as P, 0.009 0.007 0.05 SM 4500-P E 08/08/19 G-11, J JCL mg/l Dissolved General Chemistry Phosphorus as P, Total 0.05 SM 4500-P E 08/08/19 U JCL < 0.01 mg/l 0.01

**Lab ID:** 9027531-03 **Collected By:** Client **Sampled:** 08/01/19 09:00 **Received:** 08/07/19 09:50

Sample Desc: BZ-3S Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/08/19	U	JCL



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Additional accreditations by CT (PH-0210), MD (261), NY(12094)

Page 1 of 11



**Lab ID:** 9027531-04 **Collected By:** Client **Sampled:** 08/01/19 09:00 **Received:** 08/07/19 09:50

Sample Desc: BZ-3M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/08/19	U	JCL

**Lab ID:** 9027531-05 **Collected By:** Client **Sampled:** 08/01/19 09:00 **Received:** 08/07/19 09:50

Sample Desc: BZ-3D Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst	
Dissolved General Chemist	try								
Phosphorus as P, Dissolved	0.009	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, J	JCL	
General Chemistry									
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/08/19	U	JCL	

**Lab ID:** 9027531-06 **Collected By:** Client **Sampled:** 08/01/19 11:30 **Received:** 08/07/19 09:50

Sample Desc: BZ-4S Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/08/19	J	JCL

**Lab ID:** 9027531-07 **Collected By:** Client **Sampled:** 08/01/19 11:15 **Received:** 08/07/19 09:50

Sample Desc: BZ-5S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	08/08/19	J	JCL



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Page 2 of 11



**Lab ID:** 9027531-08 **Collected By:** Client **Sampled:** 08/01/19 08:00 **Received:** 08/07/19 09:50

Sample Desc: BZ-6S Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	try							
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/08/19	U	JCL

**Lab ID:** 9027531-09 **Collected By:** Client **Sampled:** 08/01/19 08:00 **Received:** 08/07/19 09:50

Sample Desc: BZ-6M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/08/19	U	JCL

**Lab ID:** 9027531-10 **Collected By:** Client **Sampled:** 08/01/19 08:00 **Received:** 08/07/19 09:50

Sample Desc: BZ-6D Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.009	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/08/19	U	JCL

**Lab ID:** 9027531-11 **Collected By:** Client **Sampled:** 08/01/19 09:45 **Received:** 08/07/19 09:50

Sample Desc: BZ-7S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/08/19	U	JCL



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**Lab ID:** 9027531-12 **Collected By:** Client **Sampled:** 08/01/19 09:45 **Received:** 08/07/19 09:50

Sample Desc: BZ-7M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	t <b>r</b> y							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/08/19	J	JCL

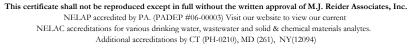
**Lab ID:** 9027531-13 **Collected By:** Client **Sampled:** 08/01/19 09:45 **Received:** 08/07/19 09:50

Sample Desc: BZ-7D Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/08/19	U	JCL

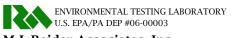


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# **Quality Control**

# **General Chemistry**

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9H0457								
MB (B9H0457-BLK1)				Prepared & Ana	alyzed: 08/08/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9H0457-BLK2)				Prepared & Ana	alyzed: 08/08/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9H0457-BLK3)				Prepared & Ana	alyzed: 08/08/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
LFB (B9H0457-BS1)				Prepared & Ana	alyzed: 08/08/20	19		
Phosphorus as P, Total	1.00	0.05	mg/l	99.6	80-120			
LFM (B9H0457-MS1)		Source: 9027531-02		Prepared & Ana	alyzed: 08/08/20	19		
Phosphorus as P, Total	1.01	0.05	mg/l	101	80-120			
LFMD (B9H0457-MSD1)		Source: 9027531-02		Prepared & Ana	alyzed: 08/08/20	19		
Phosphorus as P, Total	1.00	0.05	mg/l	100	80-120	0.794	20	

## Dissolved General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9H0458								
MB (B9H0458-BLK1)				Prepared & Ana	alyzed: 08/08/20	19		
Phosphorus as P, Dissolved	< 0.05	0.05	mg/l					G-11, U
LFB (B9H0458-BS1)				Prepared & Ana	alyzed: 08/08/20	19		
Phosphorus as P, Dissolved	1.00	0.05	mg/l	99.5	80-120			G-11
LFM (B9H0458-MS1)		Source: 9027531-09		Prepared & Ana	alyzed: 08/08/20	19		
Phosphorus as P, Dissolved	1.00	0.05	mg/l	99.7	80-120			
LFMD (B9H0458-MSD1)		Source: 9027531-09		Prepared & Ana	alyzed: 08/08/20	19		
Phosphorus as P, Dissolved	0.99	0.05	mg/l	99.1	80-120	0.604	20	



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## **Preparation Methods**

Specific Method	Preparation Method	Prepared Date	Prepared By
9027531-01			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027531-02			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027531-03			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027531-04			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027531-05			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027531-06			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027531-07			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027531-08			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027531-09			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027531-10			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027531-11			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027531-12			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027531-13			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL



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## **Notes and Definitions**

G-11 The sample was filtered after it was received at the laboratory.

J Estimated value

U Analyte was not detected above the indicated value.



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Page 1 of 3

SGS North America Inc. - Dayton 2235 Route 130, Dayton, NJ 08810 TEL. 732-239-2300 FAX: 732-339-3498/3480 www.ece.com/obserses

			IEL. 732-329-0200 FAX: 732-329-3499/3480 www.sqs.com/ehsusa	29-0200 FAX: 732-32: www.sqs.com/ehsusa	<ol> <li>732-329</li> <li>η/ehsusa</li> </ol>	-3499/3480		ſα	SGS Quote #			SGS Job#	JC92566XA	
Client / Reporting Information			Project	Project Information							Dogwood	Ameliania		Marie Contract
Company Name	Project Name							l	F		reduested Arialysis	Hidiysis		Matrix Codes
	Philadelphia	Philadelphia District, Reservoir Sampling	oir Sampling									9027531	727	PM: ALM
Street Address	Street											7	- 3	
City State	Zip City		State	Billing Inford	nation (If diff	Billing Information (if different from Report to)	oort to)					SGS North America	America	
					!					-	`	Army Corp Reservoirs	Keservoirs Keservoirs	
Project Contact E-mail michelle jenkins@sgs.com	Project #			Street Address	5									
Phone #	Client Purchase Order	Order #		City		State	2	Zip	u	_				
Sampler(s) Name(s)	Phone Project Manage			Attention.					704					EB-Equipment Blank
OW COW								-	31,					TB - Trip Blank
			Collection			Numb	Number of preserved Bottles	ottles						
SGS Sample a Field ID / Point of Collection	MEOH/D) Vial #	Date	Time	Sampled by Ma	Matrix bottles	HNO <sup>2</sup> N <sup>9</sup> OH HCI	DI Water	ENCOSE	FILTE					LAB USE ONLY
1XA BZ-1S		8/1/19	6:40:00 AM	GW	AQ				×					
1F BZ-1S / 01		8/1/19	6:40:00 AM	GW #	AQ				×					
2XA BZ-2S		8/1/19	11:50:00 AM	GW	AQ				×					
2F BZ-2S -63		8/1/19	11:50:00 AM	GW A	AQ				×					
3XA BZ-3S		8/1/19	9:00:00 AM	Ν̈́Θ	AQ				×					
3F BZ-3S ~-07		8/1/19	9:00:00 AM	GW	ΑQ		_		×					
4XA BZ-3M		8/1/19	9:00:00 AM	GW	Aa				×					
4F BZ-3M / OL		8/1/19	9:00:00 AM	MD GW	AQ				×					
5XA BZ-3D		8/1/19	9:00:00 AM	NO NO	ΑQ				×					
5F BZ-30 >-05		8/1/19	9:00:00 AM	GW	AQ				×					
6XA BZ-4S		8/1/19	11:30:00 AM	GW	Aa				×					
6F BZ-4S /-OL		8/1/19	11:30:00 AM	GW	AQ				×					
Turnaround Time ( Business days)					Date	Data Deliverable Information	nformation				ŭ	Comments / Special Instructions	nstructions	
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Standard 10 Business Days					Commercial "B" ( Level 2)	-evel 2}	¥ ;	NYASP Category B	83					
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Business Days RUSH				[ ]	Commercial "C"			X Other RFDT2						
1 Business Day EMERGENCY				]	Comme	Commercial "A" = Results Only	ts Only							
X  Other   Due 8/15/2019   Superior   Due 8/15/2019   Due 10   Superior   Due 10	Approval needed for RUS	SHIEmergency TAT			Comme	cial "B" = Resu	Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data	nary nary + Partial	Raw data			http://www.	bito ilaman ene comfantame-and-modilione	accition of post
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Cooler Temp. \*C

Preserved where applicable

Intact Not intact

Date / Times

Relinquished by

JC92566XA Rev Date, 4/10/16

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# CHAIN OF CUSTODY

SGS North America Inc Dayton 2235 Route 130, Dayton, NJ 08810 TEL. 732-329-0200 FAX: 732-329-3489/3480
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FED-EX Tracking #

Offices ( Description )			ž.	ege.ww	constanta	158			-	-			,	COPPOSITE.	
Company Name	Project Name		Project Information	Informa	tion			l	1	-	R	Requested Analysis	nalysis		Matrix Codes
	Philadeiphia	Philadelphia District, Reservoir Sampling	oir Sampting												DW - Drinking Water
Street Address	Street														GW - Ground Water WW - Water SW - Surface Water
Gity State Zip	City		State	Gompan Compan	Name	Billing Information (if different from Report to) Company Name	n Report to		T						SV - Sulface vvaler SO - Solf SL - Sludge
Protect Contact E-mail michelle jenkins@sgs.com	Project #			Street Address	dress						-	•			SED-Segment OI - Oil LIQ - Other Liquid AIR - Air
Phone #	Client Purchase Order #	Order #		Clly		is.	State	Zip	U 						SOL - Other Solid WP - Wipe
s) Name(s)	Phone Project Manage			Attention											FB - Field Blank EB-Equipment Blank
ΜĐ									O9T.						RB - Rinse Blank TB - Trip Blank
			Collection		F		tumber of pri	Number of preserved Bottles							2
SGS Surmer Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled	Malnx	to a of HCI HCI NaOH	"OS'H	MEOH DI Mater NONE	ENCORE	, 40qT					LAB USE ONLY
7XA BZ-5S		8/1/19	11:15:00 AM	GW	AQ		E			×					
7F BZ-5S <b>/-</b> 0'7		8/1/19	11:15:00 AM	SW	AQ				×	+					
8XA BZ-6S		8/1/19	8:00:00 AM	GW	Aa				-	×					
8F BZ-6S <b>&gt;-Q</b> \$		8/1/19	8:00:00 AM	GW	ΑQ				×	+					
4		8/1/19	8:00:00 AM	Ŋ Ö	Ag					×					
9F BZ-5M <b>7-09</b>		8/1/19	8:00:00 AM	9W	AQ				×						
10XA BZ-6D		8/1/19	8:00:00 AM	GW	AQ					×					
10F BZ-6D / O		8/1/19	8:00:00 AM	Ŋ.	AQ	-			×			-			
11XA BZ-7S		8/1/18	9:45:00 AM	ŊS O	a A					×		-			
11F BZ-7S /-/		8/1/19	9.45:00 AM	ΜS	AQ	-			×	-					
12XA BZ-7M 🗸		8/1/19	9:45:00 AM	GW	Aa				-	×					
12F BZ-7M /-13		8/1/19	9:45:00 AM	NO	AQ				×	L					
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[	Approved By (SGS PM); / Date	S PM); / Oate:			ommercial	Commercial "A" (Level 1)	Ш	NYASP	NYASP Category A						
Standard 10 Business Days					ommercial	Commercial "B" ( Level 2)	Ш	NYASP	NYASP Category B						
3 Business Days Rush				][	FULLT1 (Level 3+4)	ei 3+4 )	ш	State Forms	rms		<u>,</u>				
2 Business Days RUSH		Ì			Commercial "C"		JE	V Other PEDITS	rmat SEDT2	1					
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JC92566XA Rev Date: 4/10/18

# CHAIN OF CUSTODY

Page 3 of 3 902753

Client / Reporting Information									-										
Company Name	Project Name	Name		Project	Project Information	tion					+			Rednes	Requested Analysis	ysis			Matrix Cod
	Philade	elphia Dist	Philadelphia District, Reservoir Sampling	ir Sampling															DW - Drinki
Street Address	Street										П								GW - Ground W WW - Water
City State	Zip Cifty			State	Stilling Informa Company Name	formation Name	Billing information (if different from Report to) Company Name	If from Re	port to)		<del></del>								SC - Soil SL - Sludge
Protect Contact E-mail michello.jenklns@sgs.com	Project #	2			Street Address	dress					$\overline{}$								OI - Oll
Phone #	Client P.	Client Purchase Order #	er#		City			State		Zip	N								SOL - Oth WP - V
Sampler(s) Name(s) GW	Phone Project Manager	Manager			Attention						, 409T				-				FB - Field Blar EB-Equipment B RB - Rinse Bla
		H		Collection	П		H	Numbr	Number of preserved Bottles	ed Bottles	GN ,								d: -81
Sample # Field ID / Point of Collection	MEOH/D! Vial #	2: Vial #	Date	Time	Sampled by	Matrix	# of pottles	HOP MGOH HCI	NONE 1º80°	NCORE NEOH	RBTJIR	, <b>4</b> 041	-						
13XA BZ-7D			8/1/19	9:45:00 AM	GW	å					-	×		-	-	-		+	TYO CO
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Turnaround Time ( Business days)		$\parallel$					Data De	lverable li	Data Deliverable Information	].	-		-		Commer	ots / Sooci	Comments / Special Instructions	-	
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Standard 10 Business Days			1			ommercial	Commercial "B" ( Level 2)	12)	$\tilde{\Box}$	NYASP Category B	legory B								
3 Business Days RUSH			1			FULLT1 (Level 3+4)	evel 3+4 )			State Forms	e :								
2 Business Days RUSH					][	Commercial "C"	ļ.		][	Y Other PEDTS	# E								
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X Other Due 8/15/2019 Prergelicy & Pash T/A data available via Labink	2019 silable va Lablink Approval needed for RUSH/Emergency TAT	or RUSH/Em	Tergency TAT			ō ပိ	Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data	'B' = Resu. C' = Resul	Its + QC St	ummary ummary + F	Partial Ray	data				Polito: Plan		10 m	1
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JC92566XA Rev Date 4/10/18

#### **MJRA Terms & Conditions**

All samples submitted must be accompanied by signed documentation representing a Chain of Custody (COC). The COC Record acts as a contract between the client and MJRA. Signing the COC form gives approval for MJRA to perform the requested analyses and is an agreement to pay for the cost of such analyses. COC Records must be completed in black or blue indelible ink (must not run when wet). COC documentation begins at the time of sample collection. Client is required to document all sample details prior to releasing samples to MJRA. All samples must be placed on ice immediately after sampling and shipped or delivered to the laboratory in a manner that will maintain the sample temperature above freezing and below 6C (loose ice is preferred).

#### Sample Submission, Sample Acceptance & Sampling Containers

Included on the COC must be the sample description, date and time of collection (including start and stop for composites), container size and type, preservative information, sample matrix, indication of whether the sample is a grab or composite, number of containers & a list of the tests to be performed. Poor sample collection technique, inappropriate sampling containers and/or improper sample preservation may lead to sample rejection. Suitable sample containers, labels, and preservatives (as applicable), along with blank COCs are provided at no additional cost.

#### **Turnaround Times (TAT)**

Average TAT for test results range from 5 to 15 working days depending on the specific analyses and time of year submitted. Faster turnaround times (\*RUSH TAT) may be available depending on the current workload in a particular department and the nature of the analyses requested. We encourage you to verify requests for expedited sample results with one of our Technical Directors prior to sample submittal. Without confirmation from a Technical Director, your results may not be completed by your deadline. \*RUSH TAT Surcharges are applied for expedited turnaround times.

#### Analytical Results, Sample Collection Integrity & Subcontracting

Analytical values are for the sample as submitted and relate only to the item tested. The value indicates a snapshot of the constituent content of the sample at the time of sample collection. Analytical results can be impacted by poor sample collection technique and/or improper preservation. All sample collection completed by MJRA was performed in accordance with applicable regulatory protocols or as specified in customer specific sampling plans. Constituent content will vary over time based on the matrix of the sample and the physical and chemical changes to its environment. All sample results and laboratory reports are strictly confidential. Results will not be available to anyone except the primary client or authorized party representing the client unless MJRA receives additional permissions from the client. When necessary, MJRA will subcontract certain analyses to a third party accredited laboratory. If client prohibits subcontracting, it must be provided in writing and include instruction on how to proceed with client samples that require third party analyses.

#### **Payment Terms**

Payment Terms are Net 30 days. Prices are subject to change without notice. A standing monthly charge of 1.5% of the clients over-30-day-unpaid balance may be added to the balance after 30 days and each month thereafter (day 31, 61, 91 etc.). The laboratory accepts all major credit cards, ACH transactions, checks and cash. New clients must pay for all services rendered prior to sample collection and/or in some cases report processing. Clients must contact the MJRA accounting department to pursue a credit-based account. MJRA reserves the right to terminate the client's credit account and to refuse to perform additional services on a credit basis if any balance is outstanding for more than 60 days.

#### Warranty & Litigation

MJRA does not guarantee any results of its services but has agreed to use its best efforts, in accordance with the standards and practices of the industry, to cause such results to be accurate and complete. We disclaim any other warranties, expressed or implied, including a warranty of fitness for a particular purpose and warranty of merchantability. Clients agree that they shall reimburse MJRA for any and all fees, cost and litigation expenses, including reasonable attorney fees incurred by MJRA in obtaining payment for the services rendered. All costs associated with compliance with any subpoena for documents, testimony, or any other purpose relating to work performed by MJRA, for a client, shall be paid by that client. MJRA's aggregate liability for negligent acts and omissions and of an intentional breach by MJRA will not exceed the fee paid for the services. Client agrees to indemnify and hold MJRA harmless for any and all liabilities in excess of said amount. Neither MJRA nor the client shall be liable to the other for special, incidental consequential or punitive liability or damages included but not limited to those arising from delay, loss of use, loss of profits or revenues. MJRA will not be liable to the client unless the client has notified MJRA of the discovery of the alleged negligent act, error, omissions or breach within 30 days of the

Reviewed and Approved by:

any L Muriss

Amy L Morriss Project Manager



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Additional accreditations by CT (PH-0210), MD (261), NY(12094)

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# Dayton, NJ

Custody	Documents and Other Forms
•	

• Chain of Custody

-	

SGS	$\leq \bigvee$		SG	SS North 235 Route 32-329-02	America 130, Days 00 FAX:	Inc E on, NJ ( 732-329	Daytor 08810	1			FED EX	Tracking :	s -					ter Convol	N.	1 of _	<b>2</b>
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JC92566XA: Chain of Custody Page 1 of 3

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JC92566XA: Chain of Custody Page 2 of 3

# **SGS Sample Receipt Summary**

Job Number: JC9	2566 Client:	USACE-PHILADELPHIA DISTI	RICT Project: PHILAD	ELPHIA DISTRICT, RESERVOIR SAMPL
Date / Time Received: 8/1/2	2019 5:29:00 PM	Delivery Method:	Airbill #'s:	
		Cooler 2: (3.3); Cooler 3: (4.2) Cooler 2: (3.2); Cooler 3: (4.1)		
Cooler Security  1. Custody Seals Present: 2. Custody Seals Intact:		resent:	Sample Integrity - Documentation  1. Sample labels present on bottles:  2. Container labeling complete:	
Cooler Temperature  1. Temp criteria achieved: 2. Cooler temp verification: 3. Cooler media: 4. No. Coolers:	Y or N  ✓ □  IR Gun  Ice (Bag)  4	!	3. Sample container label / COC agree  Sample Integrity - Condition  1. Sample recvd within HT:  2. All containers accounted for:  3. Condition of sample:	Y or N  ✓ □  Intact
Quality Control Preservation  1. Trip Blank present / cooler:  2. Trip Blank listed on COC:  3. Samples preserved properly:  4. VOCs headspace free:			Sample Integrity - Instructions  1. Analysis requested is clear:  2. Bottles received for unspecified tes  3. Sufficient volume recvd for analysis  4. Compositing instructions clear:  5. Filtering instructions clear:	Y or N N/A  V □  ts □
Test Strip Lot #s: pł	H 1-12: 229517	pH 12+:	208717 Other: (Sp	ecify)
Comments SM089-03				

SM089-03 Rev. Date 12/7/17

JC92566XA: Chain of Custody

Page 3 of 3



Dayton, NJ 09/10/19

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report



USACE-Philadelphia District

Philadelphia District, Reservoir Sampling

CONTRACT#W912BU18D0003/TO#W912BU19F0065

SGS Job Number: JC93663

Sampling Date: 08/21/19



Army Corps of Engineers

joseph.m.loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 30

TNI FORATORY

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499



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# **Sample Summary**

USACE-Philadelphia District

Job No:

JC93663

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC93663-1	08/21/19	11:10 GW	08/21/19	AQ	Surface Water	BZ-1S
JC93663-2	08/21/19	14:40 GW	08/21/19	AQ	Surface Water	BZ-2S
JC93663-3	08/21/19	12:30 GW	08/21/19	AQ	Surface Water	BZ-3S
JC93663-4	08/21/19	12:30 GW	08/21/19	AQ	Surface Water	BZ-3M
JC93663-5	08/21/19	12:30 GW	08/21/19	AQ	Surface Water	BZ-3D
JC93663-6	08/21/19	14:30 GW	08/21/19	AQ	Surface Water	BZ-4S
JC93663-7	08/21/19	14:15 GW	08/21/19	AQ	Surface Water	BZ-5S
JC93663-8	08/21/19	11:45 GW	08/21/19	AQ	Surface Water	BZ-6S
JC93663-9	08/21/19	11:45 GW	08/21/19	AQ	Surface Water	BZ-6M
JC93663-10	08/21/19	11:45 GW	08/21/19	AQ	Surface Water	BZ-6D
JC93663-11	08/21/19	13:15 GW	08/21/19	AQ	Surface Water	BZ-7S
JC93663-12	08/21/19	13:15 GW	08/21/19	AQ	Surface Water	BZ-7M
JC93663-13	08/21/19	13:15 GW	08/21/19	AQ	Surface Water	BZ-7D

# CASE NARRATIVE / CONFORMANCE SUMMARY

USACE-Philadelphia District Job No JC93663

Site: Philadelphia District, Reservoir Sampling Report Date 9/4/2019 4:50:22 PM

On 08/21/2019, 13 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 3.6 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JC93663 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

# General Chemistry By Method EPA 351.2/LACHAT

Matrix: AO Batch ID: GP23359

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93689-4DUP, JC93689-4MS were used as the QC samples for Nitrogen, Total Kjeldahl.
- Matrix Spike Recovery(s) for Nitrogen, Total Kjeldahl are outside control limits. Spike recovery indicates possible matrix interference.

# General Chemistry By Method EPA 353.2/LACHAT

Batch ID: GP23398 Matrix: AO

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93663-1DUP, JC93663-1MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.

Page 1 of 4

# General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ Batch ID: R180705

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93663-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180707

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93663-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180708

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93663-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180709

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93663-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180710

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93663-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180711

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93663-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180712

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93663-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180713

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93663-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AO Batch ID: R180714

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93663-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180715

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93663-10 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180716

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93663-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180717

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93663-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180718

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93663-13 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Wednesday, September 04, 2019

Page 2 of 4

## General Chemistry By Method SM2320 B-11

Matrix: AQ Batch ID: GN99376

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93690-1DUP were used as the QC samples for Alkalinity, Total as CaCO3.
- JC93663-8 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93663-7 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93663-12 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93663-6 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93663-10 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93663-5 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93663-3 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93663-13 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93663-2 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93663-9 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93663-1 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93663-11 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93663-4 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.

## General Chemistry By Method SM2540 C-11

Matrix: AO Batch ID: GN99188

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93663-1DUP were used as the QC samples for Solids, Total Dissolved.

## General Chemistry By Method SM2540 D-11

Matrix: AQ Batch ID: GN99186

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93663-1DUP were used as the QC samples for Solids, Total Suspended.
- JC93663-1 for Solids, Total Suspended: Reported sample aliquot obtained from filtration of 550 mL of sample. Volume was reduced from 1 liter due to limited volume.

#### General Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AQ Batch ID: GP23396

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93690-1DUP, JC93690-1MSD were used as the QC samples for Nitrogen, Ammonia.
- Matrix Spike Recovery(s) for Nitrogen, Ammonia are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

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## General Chemistry By Method SM4500NO2 B-11

Matrix: AQ Batch ID: GN98981

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93663-1DUP, JC93663-1MS were used as the QC samples for Nitrogen, Nitrite.

## General Chemistry By Method SM5210 B-11

Matrix: AQ Batch ID: GP23197

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93663-8DUP were used as the QC samples for BOD, 5 Day.
- JC93663-7 for BOD, 5 Day: DO depetion was less than 2.
- JC93663-1 for BOD, 5 Day: DO depetion was less than 2.
- JC93663-2 for BOD, 5 Day: DO depetion was less than 2.
- JC93663-3 for BOD, 5 Day: DO depetion was less than 2.
- JC93663-10 for BOD, 5 Day: DO depetion was less than 2.
- JC93663-4 for BOD, 5 Day: DO depetion was less than 2.
- JC93663-11 for BOD, 5 Day: DO depetion was less than 2.

## General Chemistry By Method SM5310 B-11

Matrix: AQ Batch ID: GP23347

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93663-1MS, JC93663-1MSD were used as the QC samples for Total Organic Carbon.

Matrix: AO Batch ID: GP23405

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93663-11MS, JC93663-11MSD were used as the QC samples for Total Organic Carbon.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

**Summary of Hits Job Number:** JC93663

USACE-Philadelphia District Account:

Philadelphia District, Reservoir Sampling 08/21/19 **Project:** 

**Collected:** 

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL MD	L Units	Method
JC93663-1 BZ-1S				
BOD, 5 Day <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	1.9 0.86 0.86 1.5 54.0 1.6	1.0 0.11 0.10 0.20 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM5210 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC93663-2 BZ-2S				
BOD, 5 Day <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	1.2 0.34 0.34 56.0 1.5	1.0 0.11 0.10 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM5210 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11
JC93663-3 BZ-3S				
BOD, 5 Day <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	1.2 0.32 0.32 52.0 2.0	1.0 0.11 0.10 10 1.0	mg/l mg/l mg/l mg/l	SM5210 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11
JC93663-4 BZ-3M				
BOD, 5 Day <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	1.5 0.84 0.84 0.20 55.0	1.0 0.11 0.10 0.20 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM5210 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC93663-5 BZ-3D				
Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Solids, Total Suspended Total Organic Carbon	0.85 0.85 0.82 59.0 19.5	0.11 0.10 0.20 10 4.0 1.0	mg/l mg/l mg/l mg/l mg/l	EPA353.2/SM4500NO2B EPA 353.2/LACHAT EPA 351.2/LACHAT SM2540 C-11 SM2540 D-11 SM5310 B-11

**Summary of Hits Job Number:** JC93663

USACE-Philadelphia District Account:

Philadelphia District, Reservoir Sampling 08/21/19 **Project:** 

**Collected:** 

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL MDL	Units	Method			
JC93663-6 BZ-4S							
Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	0.12 0.12 0.31 32.0 1.5	0.11 0.10 0.20 10 1.0	mg/l mg/l mg/l mg/l mg/l	EPA353.2/SM4500NO2B EPA 353.2/LACHAT EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11			
JC93663-7 BZ-5S							
BOD, 5 Day <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Solids, Total Suspended Total Organic Carbon	1.7 1.2 1.2 52.0 20.9 2.1	1.0 0.11 0.10 10 4.0 1.0	mg/l mg/l mg/l mg/l mg/l	SM5210 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM2540 D-11 SM5310 B-11			
JC93663-8 BZ-6S							
Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	0.26 0.27 47.0 1.9	0.11 0.10 10 1.0	mg/l mg/l mg/l mg/l	EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11			
JC93663-9 BZ-6M							
Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	0.89 0.89 0.30 47.0 1.3	0.11 0.10 0.20 10 1.0	mg/l mg/l mg/l mg/l mg/l	EPA353.2/SM4500NO2B EPA 353.2/LACHAT EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11			
JC93663-10 BZ-6D							
BOD, 5 Day <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Solids, Total Suspended Total Organic Carbon	1.4 0.81 0.81 0.24 49.0 6.6 1.0	1.0 0.11 0.10 0.20 10 4.0 1.0	mg/l mg/l mg/l mg/l mg/l mg/l	SM5210 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT EPA 351.2/LACHAT SM2540 C-11 SM2540 D-11 SM5310 B-11			
JC93663-11 BZ-7S							
BOD, 5 Day <sup>a</sup>	1.5	1.0	mg/l	SM5210 B-11			

**Summary of Hits Job Number:** JC93663

Account: USACE-Philadelphia District

**Project:** Philadelphia District, Reservoir Sampling

**Collected:** 08/21/19

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method		
Nitrogen, Nitrate b	0.23	0.11		mg/l	EPA353.2/SM4500NO2B		
Nitrogen, Nitrate + Nitrite	0.23	0.10		mg/l	EPA 353.2/LACHAT		
Nitrogen, Total Kjeldahl	0.90	0.20		mg/l	EPA 351.2/LACHAT		
Solids, Total Dissolved	43.0	10		mg/l	SM2540 C-11		
Total Organic Carbon	1.9	1.0		mg/l	SM5310 B-11		
JC93663-12 BZ-7M							
Nitrogen, Nitrate <sup>b</sup>	0.84	0.11		mg/l	EPA353.2/SM4500NO2B		
Nitrogen, Nitrate + Nitrite	0.84	0.10		mg/l	EPA 353.2/LACHAT		
Nitrogen, Total Kjeldahl	0.39	0.20		mg/l	EPA 351.2/LACHAT		
Solids, Total Dissolved	47.0	10		mg/l	SM2540 C-11		
Total Organic Carbon	1.6	1.0		mg/l	SM5310 B-11		
JC93663-13 BZ-7D							
Alkalinity, Total as CaCO3 <sup>c</sup>	9.5	5.0		mg/l	SM2320 B-11		
Nitrogen, Nitrate b	0.76	0.11		mg/l	EPA353.2/SM4500NO2B		
Nitrogen, Nitrate + Nitrite	0.76	0.10		mg/l	EPA 353.2/LACHAT		
Nitrogen, Total Kjeldahl	0.30	0.20		mg/l	EPA 351.2/LACHAT		
Solids, Total Dissolved	47.0	10		mg/l	SM2540 C-11		
Total Organic Carbon	1.3	1.0		mg/l	SM5310 B-11		

<sup>(</sup>a) DO depetion was less than 2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

<sup>(</sup>c) Sample was titrated to a final pH of 4.2.





# Dayton, NJ

# Section 4

Sample Results	
Report of Analysis	

# **Report of Analysis**

Client Sample ID: BZ-1S Lab Sample ID: JC93663-1

Lab Sample ID:JC93663-1Date Sampled:08/21/19Matrix:AQ - Surface WaterDate Received:08/21/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

# **General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	08/30/19 12:23	UP	SM2320 B-11
BOD, 5 Day b	1.9	1.0	mg/l	1	08/22/19 21:00	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/03/19 14:39	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>c</sup>	0.86	0.11	mg/l	1	09/03/19 10:56	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.86	0.10	mg/l	1	09/03/19 10:56	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/21/19 23:29	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.5	0.20	mg/l	1	08/30/19 13:57	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	54.0	10	mg/l	1	08/28/19 08:48	RC	SM2540 C-11
Solids, Total Suspended <sup>d</sup>	< 4.0	4.0	mg/l	1	08/27/19 09:35	RC	SM2540 D-11
Total Organic Carbon	1.6	1.0	mg/l	1	08/30/19 00:59	CD	SM5310 B-11

- (a) Sample was titrated to a final pH of 4.2.
- (b) DO depetion was less than 2.
- (c) Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)
- (d) Reported sample aliquot obtained from filtration of 550 mL of sample. Volume was reduced from 1 liter due to limited volume.

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### **Report of Analysis**

Client Sample ID: BZ-2S Lab Sample ID: JC93663-2

Lab Sample ID:JC93663-2Date Sampled:08/21/19Matrix:AQ - Surface WaterDate Received:08/21/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	08/30/19 12:23	HD	SM2320 B-11
			0	1			
BOD, 5 Day b	1.2	1.0	mg/l	1	08/22/19 21:03		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/03/19 14:40	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>c</sup>	0.34	0.11	mg/l	1	09/03/19 10:57	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.34	0.10	mg/l	1	09/03/19 10:57	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/21/19 23:29	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/30/19 13:57	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	56.0	10	mg/l	1	08/28/19 08:48	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/27/19 09:35	RC	SM2540 D-11
Total Organic Carbon	1.5	1.0	mg/l	1	08/30/19 01:33	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) DO depetion was less than 2.

<sup>(</sup>c) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

### **Report of Analysis**

Client Sample ID: BZ-3S Lab Sample ID: JC93663-3

Lab Sample ID:JC93663-3Date Sampled:08/21/19Matrix:AQ - Surface WaterDate Received:08/21/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	08/30/19 12:23	UP	SM2320 B-11
BOD, 5 Day <sup>b</sup>	1.2	1.0	mg/l	1	08/22/19 21:05	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/03/19 14:42	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>c</sup>	0.32	0.11	mg/l	1	09/03/19 10:58	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.32	0.10	mg/l	1	09/03/19 10:58	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/21/19 23:29	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/30/19 13:58	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	52.0	10	mg/l	1	08/28/19 08:48	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/27/19 09:35	RC	SM2540 D-11
Total Organic Carbon	2.0	1.0	mg/l	1	08/30/19 01:44	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) DO depetion was less than 2.

<sup>(</sup>c) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

### **Report of Analysis**

Client Sample ID: BZ-3M Lab Sample ID: JC93663-4

Lab Sample ID:JC93663-4Date Sampled:08/21/19Matrix:AQ - Surface WaterDate Received:08/21/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	08/30/19 12:23	UP	SM2320 B-11
BOD, 5 Day b	1.5	1.0	mg/l	1	08/22/19 21:07	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/03/19 14:43	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>c</sup>	0.84	0.11	mg/l	1	09/03/19 10:59	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.84	0.10	mg/l	1	09/03/19 10:59	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/21/19 23:29	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.20	0.20	mg/l	1	09/04/19 14:28	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	55.0	10	mg/l	1	08/28/19 08:48	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/27/19 09:35	RC	SM2540 D-11
Total Organic Carbon	1.1	1.0	mg/l	1	08/30/19 01:55	CD	SM5310 B-11

- (a) Sample was titrated to a final pH of 4.2.
- (b) DO depetion was less than 2.
- (c) Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

### **Report of Analysis**

Client Sample ID: BZ-3D Lab Sample ID: JC93663-5

Lab Sample ID:JC93663-5Date Sampled:08/21/19Matrix:AQ - Surface WaterDate Received:08/21/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	08/30/19 12:23	ПÞ	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	08/22/19 21:10		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/03/19 14:45	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.85	0.11	mg/l	1	09/03/19 11:00	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.85	0.10	mg/l	1	09/03/19 11:00	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/21/19 23:29	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.82	0.20	mg/l	1	09/04/19 14:29	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	59.0	10	mg/l	1	08/28/19 08:48	RC	SM2540 C-11
Solids, Total Suspended	19.5	4.0	mg/l	1	08/27/19 09:35	RC	SM2540 D-11
Total Organic Carbon	1.5	1.0	mg/l	1	08/30/19 02:28	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

### **Report of Analysis**

Client Sample ID: BZ-4S Lab Sample ID: JC93663-6

Lab Sample ID:JC93663-6Date Sampled:08/21/19Matrix:AQ - Surface WaterDate Received:08/21/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	08/30/19 14:30	UP	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	08/22/19 21:13		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/03/19 14:46	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>b</sup>	0.12	0.11	mg/l	1	09/03/19 11:04	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.12	0.10	mg/l	1	09/03/19 11:04	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/21/19 23:29	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.31	0.20	mg/l	1	09/04/19 14:30	BM	EPA 351.2/LACHAT
Solids, Total Dissolved	32.0	10	mg/l	1	08/28/19 08:48	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/27/19 09:35	RC	SM2540 D-11
Total Organic Carbon	1.5	1.0	mg/l	1	08/30/19 02:40	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

### 4

### **Report of Analysis**

Client Sample ID: BZ-5S Lab Sample ID: JC93663-7

Lab Sample ID:JC93663-7Date Sampled:08/21/19Matrix:AQ - Surface WaterDate Received:08/21/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
	10				00/00/10 1/ 00		
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	08/30/19 14:30	UP	SM2320 B-11
BOD, 5 Day <sup>b</sup>	1.7	1.0	mg/l	1	08/22/19 21:15	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/03/19 14:47	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>c</sup>	1.2	0.11	mg/l	1	09/03/19 11:05	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.2	0.10	mg/l	1	09/03/19 11:05	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/21/19 23:47	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/30/19 14:03	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	52.0	10	mg/l	1	08/28/19 08:48	RC	SM2540 C-11
Solids, Total Suspended	20.9	4.0	mg/l	1	08/27/19 09:35	RC	SM2540 D-11
Total Organic Carbon	2.1	1.0	mg/l	1	08/30/19 02:51	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) DO depetion was less than 2.

<sup>(</sup>c) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

### **Report of Analysis**

Client Sample ID: BZ-6S Lab Sample ID: JC93663-8

Lab Sample ID:JC93663-8Date Sampled:08/21/19Matrix:AQ - Surface WaterDate Received:08/21/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 5.0	5.0	mg/l	1	08/30/19 14:30	UP	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	08/22/19 22:02	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/03/19 14:52	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.26	0.11	mg/l	1	09/03/19 11:06	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.27	0.10	mg/l	1	09/03/19 11:06	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/21/19 23:47	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/30/19 14:04	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	47.0	10	mg/l	1	08/28/19 08:48	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/27/19 09:35	RC	SM2540 D-11
Total Organic Carbon	1.9	1.0	mg/l	1	08/30/19 03:05	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

### 4

### **Report of Analysis**

Client Sample ID: BZ-6M Lab Sample ID: JC93663-9

Lab Sample ID:JC93663-9Date Sampled:08/21/19Matrix:AQ - Surface WaterDate Received:08/21/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	08/30/19 14:30	UP	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	08/22/19 22:04		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/03/19 14:53	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.89	0.11	mg/l	1	09/03/19 11:07	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.89	0.10	mg/l	1	09/03/19 11:07	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/21/19 23:47	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.30	0.20	mg/l	1	08/30/19 14:05	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	47.0	10	mg/l	1	08/28/19 08:48	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/27/19 09:35	RC	SM2540 D-11
Total Organic Carbon	1.3	1.0	mg/l	1	08/30/19 03:13	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

### **Report of Analysis**

 Client Sample ID:
 BZ-6D

 Lab Sample ID:
 JC93663-10
 Date Sampled:
 08/21/19

 Matrix:
 AQ - Surface Water
 Date Received:
 08/21/19

 Percent Solids:
 n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 5.0	5.0	mg/l	1	08/30/19 14:30	UP	SM2320 B-11
BOD, 5 Day b	1.4	1.0	mg/l	1	08/22/19 22:06		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/03/19 14:55	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>c</sup>	0.81	0.11	mg/l	1	09/03/19 11:08	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.81	0.10	mg/l	1	09/03/19 11:08	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/21/19 23:47	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.24	0.20	mg/l	1	08/30/19 14:06	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	49.0	10	mg/l	1	08/28/19 08:48	RC	SM2540 C-11
Solids, Total Suspended	6.6	4.0	mg/l	1	08/27/19 09:35	RC	SM2540 D-11
Total Organic Carbon	1.0	1.0	mg/l	1	08/30/19 03:24	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) DO depetion was less than 2.

<sup>(</sup>c) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

### **Report of Analysis**

Client Sample ID: BZ-7S Lab Sample ID: JC93663-11

Lab Sample ID:JC93663-11Date Sampled:08/21/19Matrix:AQ - Surface WaterDate Received:08/21/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 5.0	5.0	mg/l	1	08/30/19 14:30	UP	SM2320 B-11
BOD, 5 Day b	1.5	1.0	mg/l	1	08/22/19 22:08	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/03/19 14:56	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>c</sup>	0.23	0.11	mg/l	1	09/03/19 11:09	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.23	0.10	mg/l	1	09/03/19 11:09	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/21/19 23:47	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.90	0.20	mg/l	1	08/30/19 14:07	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	43.0	10	mg/l	1	08/28/19 08:48	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/27/19 09:35	RC	SM2540 D-11
Total Organic Carbon	1.9	1.0	mg/l	1	09/03/19 15:18	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) DO depetion was less than 2.

<sup>(</sup>c) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: BZ-7M

Lab Sample ID:JC93663-12Date Sampled:08/21/19Matrix:AQ - Surface WaterDate Received:08/21/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 10	10	mg/l	1	08/30/19 14:30	UP	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	08/22/19 22:10	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/03/19 14:58	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.84	0.11	mg/l	1	09/03/19 11:10	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.84	0.10	mg/l	1	09/03/19 11:10	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/21/19 23:47	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.39	0.20	mg/l	1	08/30/19 14:07	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	47.0	10	mg/l	1	08/28/19 08:48	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/27/19 09:35	RC	SM2540 D-11
Total Organic Carbon	1.6	1.0	mg/l	1	09/03/19 16:10	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

### **Report of Analysis**

Client Sample ID: BZ-7D Lab Sample ID: JC9366

Lab Sample ID:JC93663-13Date SMatrix:AQ - Surface WaterDate I

**Project:** Philadelphia District, Reservoir Sampling

**Date Sampled:** 08/21/19 **Date Received:** 08/21/19 **Percent Solids:** n/a

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	9.5	5.0	mg/l	1	08/30/19 14:30	UP	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	08/22/19 22:12	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/03/19 14:59	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.76	0.11	mg/l	1	09/03/19 11:12	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.76	0.10	mg/l	1	09/03/19 11:12	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/21/19 23:47	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.30	0.20	mg/l	1	08/30/19 14:08	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	47.0	10	mg/l	1	08/28/19 08:48	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/27/19 09:35	RC	SM2540 D-11
Total Organic Carbon	1.3	1.0	mg/l	1	09/03/19 16:52	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)



### Misc. Forms

Dayton, NJ

**Custody Documents and Other Forms** 

Includes the following where applicable:

• Chain of Custody

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Phone #	Client Purchase Order #	City ·	State Zip	1 2 7 3 8	1	SOL - Other Solid WP - Wipa
315 - 656 - 6545 Sampler(s) Name(s) 7 - 62 Phone #	Project Manager	Attention:		(Sub To Nity ( TKN)		FB - Field Blank EB-Equipment Blank
Sampler(s) Name(s) 6/0 Phone 4 Greg WaGik 597-9780	Tammy McClo	sky			1	RB - Rinse Blank TB - Trip Blank
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JC93663: Chain of Custody Page 3 of 5

### **SGS Sample Receipt Summary**

Job Number:	JC936	C93663 Client: US			USACE-PHILADELPHIA DISTRICT P					Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL							
Date / Time Received:	8/21/20	)19 6	:38:00 P	M	Delivery M	letho	d:			Airbill #'s	Airbill #s:						
Cooler Temps (Raw Meas	sured)		Cooler 8: (3.6);	1: (3.7);	Cooler 2: (	3.6);	Coole	r 3: (2	.9); Cooler 4: (3.2)	); Cooler 5	5: (3.5); C	ooler 6: (3.	5); Co	oler 7	7: (3.3);	Cooler	
Cooler Temps (Corr	ected)		Cooler 8: (3.5);		Cooler 2: (	3.5);	Coole	r 3: (2	.8); Cooler 4: (3.1	); Cooler 5	5: (3.4); C	cooler 6: (3.	4); Co	oler 7	7: (3.2);	Cooler	
Cooler Security	Υ (	or N	L			<u>Y</u>	or N	- 1	Sample Integrity	y - Docume	<u>entation</u>		<u>Y</u>	or	N_		
1. Custody Seals Present:	$\checkmark$		3.	COC P	resent:	✓		]	Sample labels p	oresent on b	ottles:		<b>✓</b>				
2. Custody Seals Intact:	$\checkmark$		] 4. Sr	npl Date	s/Time OK	✓		]	Container labeli				<b>~</b>				
Cooler Temperature		<u>Y</u>	or N						Sample contain	•			<b>✓</b>				
Temp criteria achieved:		<b>✓</b>							Sample Integrit	v - Conditi	ion		<u>Y</u>	or	N		
2. Cooler temp verification:			IR Gun						Sample recvd w	-			<b>~</b>				
3. Cooler media:		lo	ce (Bag)						All containers a		r:		<b>~</b>				
4. No. Coolers:			8						Condition of sar				•	Intac	t		
Quality Control Preserv	<u>ation</u>	<u>Y</u>	or N	N/A					Sample Integrit	v - Instruc	tions		Υ	or	N	N/A	
1. Trip Blank present / cool	er:		$\checkmark$						Analysis reque	•			<u> </u>				
2. Trip Blank listed on COC	<b>:</b>		✓						Bottles receive						<u></u>		
3. Samples preserved prop	erly:	<b>V</b>							Sufficient volur	·			<b>□</b>				
4. VOCs headspace free:				<b>✓</b>					4. Compositing in	structions c	lear:					✓	
									5. Filtering instruc	ctions clear:						$\checkmark$	
Test Strip Lot #s:	pH 1	-12:	2:	29517		ŗ	oH 12+:		208717	Ot	ther: (Spec	cify)					
Comments																	
SM090 03																	

SM089-03 Rev. Date 12/7/17

> JC93663: Chain of Custody Page 4 of 5

JC93663: Chain of Custody Page 5 of 5



Dayton, NJ 09/11/19

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0 **Automated Report** 



**USACE-Philadelphia District** 

Philadelphia District, Reservoir Sampling

CONTRACT#W912BU18D0003/TO#W912BU19F0065

SGS Job Number: JC93663X

Sampling Date: 08/21/19



USACE-Philadelphia District 100 Penn Square East Philadelphia, PA 19107 Joseph. M. Loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 17

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

This report shall not be reproduced, except in its entirety, without the written approval of SGS. Test results relate only to samples analyzed.

SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499 Please share your ideas about how we can serve you better at:

EHS.US.CustomerCare@sgs.com

### **Sections:**

-1-

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Section 2: Subcontract Lab Data	4
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3.1: Chain of Custody	13



### **Sample Summary**

USACE-Philadelphia District

Job No: JC93663X

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
JC93663-1X	08/21/19	11:10 GW	08/21/19	AQ	Surface Water	BZ-1S
JC93663-2X	08/21/19	14:40 GW	08/21/19	AQ	Surface Water	BZ-2S
JC93663-3X	08/21/19	12:30 GW	08/21/19	AQ	Surface Water	BZ-3S
JC93663-6X	08/21/19	14:30 GW	08/21/19	AQ	Surface Water	BZ-4S
JC93663-7X	08/21/19	14:15 GW	08/21/19	AQ	Surface Water	BZ-5S
JC93663-8X	08/21/19	11:45 GW	08/21/19	AQ	Surface Water	BZ-6S
JC93663-11X	08/21/19	13:15 GW	08/21/19	AQ	Surface Water	BZ-7S



### Dayton, NJ

## Section 2

Subcontract Lab Data	
Report of Analysis	

## Analytical Report

Serialized: 09/05/2019 06:09pm QC35

KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130

DAYTON,NJ 08810

Regarding:

SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810

**PROJECT ID:** 

W09769 USACE

LABORATORY REPORT NUMBER:

L7156478

Authorized by: Douglas J. Gump Client Services Manager

DarJU



## Analytical Report Printed 09/05/19 18:09 QC35

KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810

Regarding: KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810

	: W09769, SGS NORTH W09769 USACE, USA	,	<b>)</b> .	P.O. No:		Inv. No: PWSID No:	1990908 PI			
<b>Sample ID</b> L7156478-1	Sample Description BZ-1S Received Date/Tin	n <b>e/Temp</b> 08/2 <sup>-</sup>	1/19 05:02pm 5.4 C	Iced (Y/N): Y		ate/Time/Temp 11:10am NA C	Sampled by Customer			
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst			
ENVIRONM	MENTAL MICROBIOL	OGY BZ-18	S							
Total Coliform Fecal Coliform	,	1410 E, Q 47	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	08/21/19 07:08PM JG2 08/21/19 06:45PM JG2			
<b>Sample ID</b> L7156478-2	Sample Description BZ-2S Received Date/Tin	<b>ne/Temp</b> 08/2 <sup>-</sup>	1/19 05:02pm 5.4 C	Iced (Y/N): Y		ate/Time/Temp )2:40pm NA C	Sampled by Customer			
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst			
ENVIRONM	MENTAL MICROBIOL	OGY BZ-28	S							
Total Coliform Fecal Coliforn		>2000 Q 21	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	08/21/19 07:08PM JG2 08/21/19 06:45PM JG2			

# Analytical Report Printed 09/05/19 18:09

	V09769, SGS NORTH V09769 USACE, USAC				P.O. No:		Inv. No: PWSID No:	1990908 PI
	Sample Description 8Z-3S Received Date/Tim	<b>e/Temp</b> 08/21/1	19 05:02	2pm 5.4 C	Iced (Y/N): Y		ate/Time/Temp 12:30pm NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONME	NTAL MICROBIOL	OGY BZ-3S						
Total Coliform, N Fecal Coliform,		22 Q <1		cfu/100ml cfu/100ml	SM 9222B SM 9222D	100 100	1	08/21/19 07:08PM JG2 08/21/19 06:45PM JG2
	Sample Description 8Z-4S Received Date/Tim	<b>e/Temp</b> 08/21/1	19 05:02	2pm 5.4 C	Iced (Y/N): Y		ate/Time/Temp 02:30pm NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONME	NTAL MICROBIOL	OGY BZ-4S						
Total Coliform, N Fecal Coliform,		>2000 Q 42		cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	08/21/19 07:08PM JG2 08/21/19 06:45PM JG2
	Sample Description 8Z-5S Received Date/Tim	<b>e/Temp</b> 08/21/1	19 05:02	2pm 5.4 C	Iced (Y/N): Y		ate/Time/Temp )2:15pm NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONME	NTAL MICROBIOL	OGY BZ-5S						
Total Coliform, N Fecal Coliform,		>2000 Q 370		cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 10	10 10	08/21/19 07:08PM JG2 08/21/19 06:45PM JG2
	Sample Description 3Z-6S Received Date/Tim	<b>e/Temp</b> 08/21/1	19 05:02	2pm 5.4 C	Iced (Y/N): Y		ate/Time/Temp I1:45am NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst

### **Analytical Report**

DF

RL

Test Date, Time, Analyst

Account No: W09769, SGS NORTH AMERICA, INC. P.O. No: Inv. No: 1990908 PI Project No: W09769 USACE, USACE PWSID No:

Sample ID Sample Description Samp. Date/Time/Temp Sampled by

**Qual Units** 

L7156478-6 BZ-6S 08/21/19 11:45am NA C Customer Received Date/Time/Temp 08/21/19 05:02pm 5.4 C Iced (Y/N): Y

Method

**ENVIRONMENTAL MICROBIOLOGY -- BZ-6S** 

Result

<1

08/21/19 07:08PM JG2 Total Coliform, MF 580 Q cfu/100ml SM 9222B 10 10 Fecal Coliform, MF cfu/100ml SM 9222D 08/21/19 06:45PM JG2 100

Sample ID **Sample Description** Samp. Date/Time/Temp Sampled by L7156478-7 08/21/19 01:15pm NA C BZ-7S Customer

Received Date/Time/Temp 08/21/19 05:02pm 5.4 C Iced (Y/N): Y

Parameter Result **Qual Units** Method DF RL Test Date, Time, Analyst **ENVIRONMENTAL MICROBIOLOGY -- BZ-7S** Total Coliform, MF 610 Q cfu/100ml SM 9222B 10 10 08/21/19 07:08PM JG2 Fecal Coliform, MF <1 cfu/100ml SM 9222D 100 08/21/19 06:45PM JG2

#### Sample Comments | Result Qualifiers:

**Parameter** 

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

E: For microbiology testing by membrane filtration, the reported result was based on a colony count outside the recommended range of the test. The reported result may be considered an estimate.

#### L7156478-2:

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7156478-3:

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### I 7156478-4 ·

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7156478-5:

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available,

# Analytical Report Printed 09/05/19 18:09

P.O. No:

Account No: W09769, SGS NORTH AMERICA, INC.

Project No: W09769 USACE, USACE

Inv. No: PWSID No: 1990908 PI

the reported result may not be acceptable for regulatory purposes.

#### L7156478-6:

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7156478-7:

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.





#### DEFINITIONS

#### The following terms or abbreviations are used in this report:

Eurofins QC, LLC (EQC)

<	Less than: In conjunction with a numerical value, indicates a concentration less than RL / MDL
>	Greater than: In conjunction with a numerical value, indicates a concentration greater than RL / MDL
CFU	Colony Forming Unit
DF	Dilution Factor (For Microbiology, DF = volume of sample tested)
DRY	Result was reported on a dry weight basis
MCL	EPA recommended "Maximum Contaminant Level"
MDL	Method Detection Limit
MF	Membrane Filtration
MPN	Most Probable Number
ND	For odor test: No Odor Observed
ND	For all other tests: Analyte concentration Not Detected greater than the RL / MDL

NEG	Negative / Absent
NTU	Nephelometric Turbidity Units
POS	Positive / Present
PPB (µg/L)	Parts per billion: equivalent to 1 microgram per kilogram (µg/Kg) for solids or one microgram per liter (µg/L) for aqueous samples
PPM (mg/L)	Parts per million: equivalent to 1 milligram per kilogram (mg/Kg) for solids or one milligram per liter (mg/L) for aqueous samples
PRES	Presumptive
QUAL	Qualifier (Q)
RL	Laboratory Reporting Limit or Limit of Quantitation (LOQ)
TNTC	Too Numerous To Count
TON	Threshold Odor Number

#### **Data Qualifiers**

J	Estimated value > MDL, but < RL
Т	Temperature exceedance at receipt, refer to Sample Comments / Results Qualifiers section
E	Estimated CFU count (Microbiology)
Q	Qualifier defined in Sample Comment section on report

#### Warranties, Terms, and Conditions

- Unless otherwise indicated in the Parameter field, analyses for environmental microbiology, odor, and pharmaceutical microbiology are performed at the EQC Horsham Facility (702 Electronic Dr. Horsham, PA 19044).
- Analyses for Field Parameters are performed by EQC Field staff. Locations and certifications are identified on the Chain of Custody as follows:
  - "ERF" = field staff performs tests under NJ State certification # 02015.
  - "VL" = field staff performs tests under NJ State certification # 06005.
  - "WG" = field staff performs tests under NJ State certification # PA001.
- Test results meet all TNI or other applicable regulatory agency requirements, including holding times and preservation, unless otherwise indicated.
- · The report shall not be reproduced, except in full, without the written consent of the laboratory.
- · All samples are collected as "grab" samples unless otherwise identified.
- Reported results relate only to the sample as tested. EQC is not responsible for sample integrity unless sampling has been
  performed by a member of our staff.
- EQC is not responsible for sampling and/or testing omissions. Note that regulatory authorities may assess substantial fines for
  testing omissions. Please track your sample collection schedules and results on a regular basis (e.g. weekly, monthly, or quarterly)
  to ensure compliance. EQC's internet program "LIVE ACCESS" will provide you with real-time access to collection dates and testing
  results. Please contact Client Services for further information.
- The following personnel or their deputies have approved the results of the tests performed by EQC: Nicki Smith (Environmental Chemistry), Amanda Berd (Pharmaceutical Microbiology), and Zachary Smith (Water Microbiology).

#### **EQC** Accreditations

Horsham Facility

East Rutherford Facility
Vineland Facility
Vind Gap Facility
Wind Gap Facility

NELAP/State IDsNJ: 02015
NJ: 06005
NJ: PA093 NY: 12080 MD: 357

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CHAIN OF CUSTODY WO 9769

Page 7 of 7



### Dayton, NJ

Section 3

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Misc.	Forms
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**Custody Documents and Other Forms** 

Includes the following where applicable:

• Chain of Custody

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JC93663X: Chain of Custody Page 1 of 5

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JC93663X: Chain of Custody Page 2 of 5

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JC93663X: Chain of Custody Page 3 of 5

### **SGS Sample Receipt Summary**

Job Number:	JC93663		_ Client:	USACE-PHI	ILADELPHIA DIS	STRICT	Project: PHILADELPHIA	DISTRICT	, RESERV	OIR SAMPL
Date / Time Received: 8	3/21/201	9 6:38:0	00 PM	Delivery Me	ethod:		Airbill #'s:			
	-	8: (3	3.6);				; Cooler 5: (3.5); Cooler 6:			
Cooler Temps (Corre	ected) °(	8: (3		Cooler 2: (3	3.5); Cooler 3: (2	2.8); Cooler 4: (3.1)	; Cooler 5: (3.4); Cooler 6:	(3.4); Co	ooler 7: (3.2	); Cooler
Cooler Security  1. Custody Seals Present: 2. Custody Seals Intact:  Cooler Temperature  1. Temp criteria achieved: 2. Cooler temp verification:	_	O or			<u>Y or N</u> ☑ □  ☑ □	Sample labels p     Container labeli	ng complete: er label / COC agree: y - Condition	Y  V  Y  Y  Y		
<ul><li>3. Cooler media:</li><li>4. No. Coolers:</li></ul>		Ice (Ba	ag)			Sample recvo w     All containers ac		<b>V</b>		
Quality Control Preserva		Y or				3. Condition of sar  Sample Integrity	y - Instructions	<u>ү</u>	or N	N/A
Trip Blank present / coole     Trip Blank listed on COC:     Samples preserved prope     VOCs headspace free:	: [ erly: [					l	d for unspecified tests ne recvd for analysis: structions clear:		<b>y</b>	<b>y</b>
Trip Blank listed on COC:     Samples preserved property.	: [ erly: [				pH 12+:	Bottles received     Sufficient volun     Compositing in	d for unspecified tests ne recvd for analysis: structions clear:	□ <b>▽</b> □		<b>V</b>

SM089-03 Rev. Date 12/7/17

JC93663X: Chain of Custody

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JC93663X: Chain of Custody Page 5 of 5



Dayton, NJ 08/29/19

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0 **Automated Report** 



**USACE-Philadelphia District** 

Philadelphia District, Reservoir Sampling

CONTRACT#W912BU18D0003/TO#W912BU19F0065

SGS Job Number: JC93663XA

Sampling Date: 08/21/19



USACE-Philadelphia District 100 Penn Square East Philadelphia, PA 19107 Joseph. M. Loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 24

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499 Please share your ideas about

## **Sections:**

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## -1-

**Table of Contents** 

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19
20



## **Sample Summary**

USACE-Philadelphia District

Job No: JC93663XA

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC93663-1F	08/21/19	11:10 GW	08/21/19	AQ	Surface H2O Filtered	BZ-1S
JC93663-1XA	08/21/19	11:10 GW	08/21/19	AQ	Surface Water	BZ-1S
JC93663-2F	08/21/19	14:40 GW	08/21/19	AQ	Surface H2O Filtered	BZ-2S
JC93663-2XA	08/21/19	14:40 GW	08/21/19	AQ	Surface Water	BZ-2S
JC93663-3F	08/21/19	12:30 GW	08/21/19	AQ	Surface H2O Filtered	BZ-3S
JC93663-3XA	08/21/19	12:30 GW	08/21/19	AQ	Surface Water	BZ-3S
JC93663-4F	08/21/19	12:30 GW	08/21/19	AQ	Surface H2O Filtered	BZ-3M
JC93663-4XA	08/21/19	12:30 GW	08/21/19	AQ	Surface Water	BZ-3M
JC93663-5F	08/21/19	12:30 GW	08/21/19	AQ	Surface H2O Filtered	BZ-3D
JC93663-5XA	08/21/19	12:30 GW	08/21/19	AQ	Surface Water	BZ-3D
JC93663-6F	08/21/19	14:30 GW	08/21/19	AQ	Surface H2O Filtered	BZ-4S
JC93663-6XA	08/21/19	14:30 GW	08/21/19	AQ	Surface Water	BZ-4S
JC93663-7F	08/21/19	14:15 GW	08/21/19	AQ	Surface H2O Filtered	BZ-5S



# Sample Summary (continued)

USACE-Philadelphia District

Job No:

JC93663XA

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC93663-7XA	08/21/19	14:15 GW	08/21/19	AQ	Surface Water	BZ-5S
JC93663-8F	08/21/19	11:45 GW	08/21/19	AQ	Surface H2O Filtered	BZ-6S
JC93663-8XA	08/21/19	11:45 GW	08/21/19	AQ	Surface Water	BZ-6S
JC93663-9F	08/21/19	11:45 GW	08/21/19	AQ	Surface H2O Filtered	BZ-6M
JC93663-9XA	08/21/19	11:45 GW	08/21/19	AQ	Surface Water	BZ-6M
JC93663-10F	08/21/19	11:45 GW	08/21/19	AQ	Surface H2O Filtered	BZ-6D
JC93663-10X	A08/21/19	11:45 GW	08/21/19	AQ	Surface Water	BZ-6D
JC93663-11F	08/21/19	13:15 GW	08/21/19	AQ	Surface H2O Filtered	BZ-7S
JC93663-11X	A08/21/19	13:15 GW	08/21/19	AQ	Surface Water	BZ-7S
JC93663-12F	08/21/19	13:15 GW	08/21/19	AQ	Surface H2O Filtered	BZ-7M
JC93663-12X	A08/21/19	13:15 GW	08/21/19	AQ	Surface Water	BZ-7M
JC93663-13F	08/21/19	13:15 GW	08/21/19	AQ	Surface H2O Filtered	BZ-7D
JC93663-13X	A08/21/19	13:15 GW	08/21/19	AQ	Surface Water	BZ-7D



## Dayton, NJ

## Section 2

Subcontract Lab Data	
Report of Analysis	



**Certificate of Analysis** 

**Laboratory No.:** 9030181 **Report:** 08/29/19 **Lab Contact:** Amy L Morriss

Attention: Tammy McCloskey Project: Army Corp Reservoirs

Reported To: SGS North America

2235 US Highway 130 Dayton, NJ 08810

**Lab ID:** 9030181-01 **Collected By:** Client **Sampled:** 08/21/19 11:10 **Received:** 08/27/19 09:39

Sample Desc: BZ-1S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/28/19	U	JCL

**Lab ID:** 9030181-02 **Collected By:** Client **Sampled:** 08/21/19 14:40 **Received:** 08/27/19 09:39

Sample Desc: BZ-2S Sample Type: Grab

				Rep.					
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst	
Dissolved General Chemistry									
Phosphorus as P,	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, U	JCL	
Dissolved									
General Chemistry									
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/28/19	U	JCL	

**Lab ID:** 9030181-03 **Collected By:** Client **Sampled:** 08/21/19 12:30 **Received:** 08/27/19 09:39

Sample Desc: BZ-3S Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P,	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, U	JCL
Dissolved								
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/28/19	U	JCL



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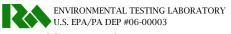
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**Lab ID:** 9030181-04 **Collected By:** Client **Sampled:** 08/21/19 12:30 **Received:** 08/27/19 09:39

Sample Desc: BZ-3M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/28/19	U	JCL

**Lab ID:** 9030181-05 **Collected By:** Client **Sampled:** 08/21/19 12:30 **Received:** 08/27/19 09:39

Sample Desc: BZ-3D Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	0.07	mg/l	0.01	0.05	SM 4500-P E	08/28/19		JCL

**Lab ID:** 9030181-06 **Collected By:** Client **Sampled:** 08/21/19 14:30 **Received:** 08/27/19 09:39

Sample Desc: BZ-4S Sample Type: Grab

				Rep.					
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst	
Dissolved General Chemist	ry								
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, U	JCL	
General Chemistry									
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/28/19	U	JCL	

**Lab ID:** 9030181-07 **Collected By:** Client **Sampled:** 08/21/19 14:15 **Received:** 08/27/19 09:39

Sample Desc: BZ-5S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/28/19	J	JCL



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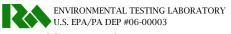
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**Lab ID:** 9030181-08 **Collected By:** Client **Sampled:** 08/21/19 11:45 **Received:** 08/27/19 09:39

Sample Desc: BZ-6S Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	try							
Phosphorus as P,	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, U	JCL
Dissolved								
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/28/19	U	JCL

**Lab ID:** 9030181-09 **Collected By:** Client **Sampled:** 08/21/19 11:45 **Received:** 08/27/19 09:39

Sample Desc: BZ-6M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst	
Dissolved General Chemist	ry								
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, U	JCL	
General Chemistry									
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/28/19	U	JCL	

**Lab ID:** 9030181-10 **Collected By:** Client **Sampled:** 08/21/19 11:45 **Received:** 08/27/19 09:39

Sample Desc: BZ-6D Sample Type: Grab

				Rep.					
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst	
Dissolved General Chemist	try								
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, U	JCL	
General Chemistry									
Phosphorus as P, Total	0.31	mg/l	0.01	0.05	SM 4500-P E	08/28/19		JCL	

**Lab ID:** 9030181-11 **Collected By:** Client **Sampled:** 08/21/19 13:15 **Received:** 08/27/19 09:39

Sample Desc: BZ-7S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/28/19	U	JCL



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**Lab ID:** 9030181-12 **Collected By:** Client **Sampled:** 08/21/19 13:15 **Received:** 08/27/19 09:39

Sample Desc: BZ-7M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/28/19	U	JCL

**Lab ID:** 9030181-13 **Collected By:** Client **Sampled:** 08/21/19 13:15 **Received:** 08/27/19 09:39

Sample Desc: BZ-7D Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/28/19	U	JCL



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## **Quality Control**

## **General Chemistry**

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9H1622			0	,				
MB (B9H1622-BLK1)				Prepared & Ana	alyzed: 08/28/20	)19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9H1622-BLK2)				Prepared & An	alyzed: 08/28/20	)19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
LFB (B9H1622-BS1)				Prepared & An	alyzed: 08/28/20	)19		
Phosphorus as P, Total	1.01	0.05	mg/l	101	80-120			
D 4 DOTTAGE								
Batch B9H1637								
MB (B9H1637-BLK1)				Prepared & An	alyzed: 08/28/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U

## Dissolved General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9H1623								
MB (B9H1623-BLK1)				Prepared & Ana	alyzed: 08/28/20	19		
Phosphorus as P, Dissolved	< 0.05	0.05	mg/l					G-11, U
MB (B9H1623-BLK2)				Prepared & Ana	alyzed: 08/28/20	19		
Phosphorus as P, Dissolved	< 0.05	0.05	mg/l					U
LFB (B9H1623-BS1)				Prepared & Ana	alyzed: 08/28/20	19		
Phosphorus as P, Dissolved	1.00	0.05	mg/l	100	80-120			G-11
LFM (B9H1623-MS1)		Source: 9030181-06		Prepared & Ana	alyzed: 08/28/20	19		
Phosphorus as P, Dissolved	1.00	0.05	mg/l	99.5	80-120			
LFMD (B9H1623-MSD1)		Source: 9030181-06		Prepared & Ana	alyzed: 08/28/20	19		
Phosphorus as P, Dissolved	0.99	0.05	mg/l	98.8	80-120	0.706	20	
Batch B9H1638								
MB (B9H1638-BLK1)				Prepared & Ana	alyzed: 08/28/20	19		
Phosphorus as P, Dissolved	< 0.05	0.05	mg/l					G-11, U
LFB (B9H1638-BS1)				Prepared & Ana	alyzed: 08/28/20	19		
Phosphorus as P, Dissolved	1.00	0.05	mg/l	100	80-120			G-11



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## **Preparation Methods**

Specific Method	Preparation Method	Prepared Date	Prepared By
9030181-01			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030181-02			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030181-03			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030181-04			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030181-05			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030181-06			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030181-07			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030181-08			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030181-09			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030181-10			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030181-11			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030181-12			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030181-13			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL



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### **Notes and Definitions**

G-11 The sample was filtered after it was received at the laboratory.

J Estimated value

U Analyte was not detected above the indicated value.



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Clinical Parporting Information   Project Name	age 1 of 3	ontrol#	JC93663XA	Matrix Codes		A DUNAU - CHOMA	WW - Water SW - Surface Water	SC - Soil	OI-OI LIQ-Other Liquid	SOL - Other Solic	WP - Wipe FB - Fiold Blank	EB-Equipment blar REB - Rinse Blank TB - Trin Blank		LAB USE ONLY													Comments / Special Instructions						http://www.sgs.com/en/terms-and-condition	Received By:	Received By:	on ice Cooler Temp. 'C	
Tell, 732,528   Activity American Internation   Tell, 732,538   Activity American Internation   Tell, 732,538   Activity American Internation   Tell, 732,538   Activity American Internation   Tell, 732,538   Activity American Internation   Tell, 732,538   Activity American Internation   Tell, 732,538   Activity American Internation   Tell, 732,538   Activity American Internation   Tell, 732,538   Activity American International   Tell, 732,538   Activity American International   Tell, 732,538   Activity American International   Tell, 732,538   Activity American International   Tell, 732,538   Activity American International   Tell, 732,538   Activity American International   Tell, 732,538   Activity American International   Tell, 732,538   Activity American International   Tell, 732,538   Activity American International   Tell, 732,538   Activity American International   Tell, 732,538   Activity American International   Tell,	America Reservoirs									_				, toq1	×		×		×		X		×		×						1		ta	oourier delivery.  Date / Time:	Date / Time:	Preserved where applicable	
Reporting Information Reporting Information Reporting Information Project Nume: Philadelphila Dista Street	SGS North						from Donners tol	Iroin Report to)	nd	-	ďΖ	ÞO⊲T,	П	EIFLES ENCOSE DI Malet NONE H <sup>2</sup> 20" HNO <sup>2</sup>		×		×		×		×		×			verable Information			EDD Format	X Other REDT2	A" = Results Only 8" = Results + OC Summan	C" = Results + QC Summary + Partial Raw da	amples change possession, including inquished By:	Inquished By:	ody Seal #	
Reporting Information Reporting Information Reporting Information Project Nume: Philadelphia Dista Street S	IN OF CL	Route 130, Dayton,	29-0200 FAX: 732	act Information		lg	Olithea Information of the		Street Address		ČÍ.	Attention:		Matrix # of bottes	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	Data De	Commercial "A" (Leve	Commercial "B" (Leve	NJ Reduced	Commercial "C"	Commercial	Commercial "	se documented below each time s	2001		55.60
Reporting Information  Reporting Information  E-mail  Gasas.com  D / Point of Collection  Phone  Phone  S Days RUSH S Days RUSH S Days RUSH S Days RUSH S Days RUSH S Days RUSH S Days RUSH C C C C C C C C C C C C C C C C C C C	CHA	2235 F	TEL. 732-3	Proje	6;	la District, Reservoir Samplin.		State			ase Order#	naer	Collection	Date														(SGS PM): / Date:					RUSH/Emergency TAT	Ιĕ.	Rec'yetallog	Received y:	
Reporting  Busines  Sine  Cond Time  O Point  O Busines  S Days RH  O Busines  S Days RH  O Busines  S Days RH  O Busines  O Point  O Busines  O Busines  O Point  O Busines  O Point  O Busines  O Point  O Busines  O				lon		Philadelphi	Street	$\top$	Project #			Phone Project Mana												-			ays)	Approved By (			Control of the Contro		ablink Approval needed for R	9	1	Date / Time:	
			Andrews Population for several Holosoft for the Andrews of the And	Client / Reporting Informati	pany Name:		t Address	State	o colonia	miny microsvey@sgs.com	# 81	pler(s) Name(s)	***************************************				ļ	-								BZ-4S			Standard 10 Business Days 5 Business Days RUSH	3 Business Days RUSH	2 Business Days RUSH	1 Business Day EMERGENCY	1 60	elinquished for:	13	}	

PM: ALM

**9030181** SGS North America

955 2542

JC93663XA.xls Rev. Date: 4/10/18

Wb Page 9 of 13

Page 2 of 3	Battle Order Control #	SGS Job# JC93663XA	Analysis Matrix Codes	DW - Drinking v	WW - Water SW - Surface Water	SO - Soil SL- Skudge SED-Sediment	OI - Oil I.IQ - Other Liquid AIR - Air	SOL Other Sali: WP - Wipe FB - Flield Blank	EB-Equipment Blank RB - Rinse Blank TB - Tip Blank	N IND BUT IND												Comments / Special Instructions					http://www.sgs.com/en/terms-and-conditions	Received By:	0
		The same of the sa	Requested Analysis																									Date / Time:	
	FED-EX Tracking #	SGS Quote #					71	ų ·	, 404T,	FILTERGN	+-	×	×	×	×	×	×	×	×	×	×		A V				al Raw data	a inco di inco	
Δ						om Keport to)		State Zip		Number of prescrived Bothes NAME TO THE STAT	1											Data Deliverable Information	NYASP Category A		EDD Format	= Results Only	Commercial "G" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data	compare crassical mass to a documented perior egain first samples or range possession, mounting bounds univery Refrictabled By:  Ref.   F.   P.     P.     P.     Date    Date	
USTO	nc Dayto n, NJ 08810	32-329-3499/ susa				Island Information (if different from Keport to) Company Name				ioi podi podi podi podi podi podi podi p	1	2	2	2	2	2	2	2	2 6	4 64	2	Data Deliv	Commercial "A" (Level 1)	FULLT1 (Level 3+4)	ed lal "C"	Commercial "A" = Results Only	Commercial 'B'	Relific	•
OF C	america II 30, Daytor	29-0200 FAX: 732-328 www.sgs.com/ehsusa	rmation			Company Name	Street Address		Attention:	Sampled		GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	-	GW AQ		Commerc		☐ NJ Reduced	7		Day Day In	
CHAIN OF CUSTODY	SGS North America Inc Dayton 2235 Route 130, Dayton, NJ 08810	TEL. 732-329-0200 FAX: 732-329-3499/3480 www.sgs.com/ehsusa	Project Information	ir Sampling		State Corr	Stre	City	Atte	Collection	PM	2:15:00 PM G	11:45:00 AM G	11:45:00 AM G	11:45:00 AM G	11:45:00 AM G			1:15:00 PM G	- 1	1:15:00 PM G			با لـ			-	2000	ز ز
		1		strict, Reservo				der #		180	8/21/19	8/21/19	8/21/19	8/21/19	8/21/19	8/21/19	8/21/19	8/21/19	8/21/19	8/21/19	8/21/19		M): / Date:		]		Emergency TAT	Received By: Col	
				Project Name: Philadelphia District, Reservoir Sampling	Street	City	Project#	Client Purchase Order #	Project Manager	MEOH/DI Vist#													Approved By (SGS PM): / Date:				I needed for RUSH	ate / Time:	2
			Client / Reporting Information			State	E-mail		Phone	Field ID / Point of Collection												Turnaround Time ( Business days)	Oftendard 40 Business Dave	Days RUSH	Days RUSH Days RUSH	1 Business Day EMERGENCY	Due 3/4/2019 th TIA data available via Leblink Approval needed for RUSH/Emergency TAT	Date/T	
			Client / Re	Company Name:	Street Address	IS .	Project Contact E-n tammy.mccloskey@sgs.com	*	Sampler(s) Name(s) GW	İ	I	BZ-5S	BZ-6S	BZ-6S	BZ-6M	BZ-6M			BZ-7S		BZ-7M	Turnaro	- Charles	5 Business Days RUSH	3 Business Days RUSH	1 Bushess	Emergency & Rush T/A data available	Relinquisperby	\ \ \
				Compi	Street	Cily	Project	Phone #	Sampleri	SGS Sample #	10%	7F	8xv	8	4X6	96			11XA	12 12XA	12F	<u> </u>					Em	Rel	1

9030181

1000 @ 1°C on ice

JC93663XA.xls Rev. Date: 4/10/18

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9030181 Page 3 of 3	Bottle Crder Control #	SGS Joh # JC9363XA	Requested Analysis Matrix Codes	DW - Drinking W	WW - Water SW - Surface Water	a6pn(s -7s)	IC - IO - IO - IO - IO - IO - IO - IO -	LIQ - Other Liq AIR - Air	SOL - Other Solid WP - Wipe FIR - Field Blank	EB-Equipment Blank RB - Rinse Blank	IB- trip diar	TVB DSE ONLY								Comments / Special Instructions						here and the supplementations are workfront		Date / Time: Received By:	Date / Time: Received By:	Preserved Where applicable On ice Cooler Temp. 'C
≽	2235 Route 130, Dayton, NJ 08810	TEL. 732-329-0200 FAX: 732-329-3499/3480 scs Quote# www.sgs.com/ehsusa	Project Information		The state of the s	Billing Information (if different from Report to) Company Name	Street Address.		City State Zip	Attention:	Number of necessarial Bellion	Sampled Material Act of the Control	GW AQ 2	GW AQ 2						Data Deliverable Information		Commercial "B" ( Level 2) NYASP Category B		<u>ح</u> [ر	Commercial "A" = Results Only	Commercial "8" = Results + QC Summary Commercial "C" = Results + OC Summary + Dartial Results and Acta	Sample Custody must be documented below each time samples change possession, including courier delivery.	Reinquished By:	1000 e Reinquismed By:	istody Seal # Intact
CHAIN	2235 Routs	TEL, 732-329-0; www	Proje	Project Name: Philadelphia District, Reservoir Sampling	Н-	City State	Project #		Olient Purchase Order #	Project Manager	Collector		8/21/19 1:15:00 PM	8/21/19 1:15:00 PM	1						Approved By (SGS PM): / Date:	Made and Association and Assoc				ablink Approval needed for RUSH/Emergency TAT	Sample Custody must be doo	The Brill 13-14 Br. Feel &	Time: Ragely BB: 1, 1, 100 B	Received By:
			Client / Reporting Information	Company Name:	Street Address	City State Zip	Project Contact F-mail	: :loskey@sgs.c	Phone #	Sampler(s) Name(s) Phone GW		sos Sampe # Field ID / Point of Collection	3 13XA BZ-7D	13F BZ-7D			The state of the s			Turnaround Time ( Business days)		Standard 10 Business Days	3 Business Days RUSH	☐ 2 Business Days RUSH	1 Business Day EMERGENCY	Emergency & Rush T/A data available via ablink Approv		Relinquisheddy Dafe /	Relifiquished by: _QC &_ Dank!	Relinquished by: U Date / Time:

rcud @ (" c onice ubbr)
8/2749

JC93663XA.xls Rev. Date: 4/10/18

Date / Time: 8/26/2019 11:45:09 AM

CSR: TAMMY

Job #: JC93663XA

Client Project: Philadelphia District, Reservoir Sampling

Deliverable: REDT2

TAT: Due 9/4/2019

Secondary Sub Lab: MJ Reider Associates Inc, Env. Testing Laboratories

Address: 107 Angelica Street City: Reading

1

ं र िंं State: PA

Zip: 19611

Contact: Sample Receiving / Rich Wheeler

Phone: 610-374-5129

SGS Sample #	Client Sample Description	Analysis	Location	Sampled By	Date Sampled	Time Sampled	Aliquot
JC93663-1XA	BZ-1S	<u>TPO4 , </u>		<u>GW</u>	8/21/2019	11:10:00 AM	A LABORATA AND MUNICIPAL PROPERTY.
JC93663-1F	BZ-1S	FILTERGN,TPO4.		<u>GW</u>	8/21/2019	11:10:00 AM	
JC93663-2XA	<u>BZ-2S</u>	TPO4.		<u>GW</u>	8/21/2019	2:40:00 PM	
JC93663-2F	<u>BZ-2S</u>	FILTERGN, TPO4.		<u>GW</u>	8/21/2019	2:40:00 PM	
JC93663-3XA	<u>BZ-3S</u>	TPO4.		GW	8/21/2019	12:30:00 PM	
JC93663-3F	<u>BZ-3S</u>	FILTERGN, TPO4,		<u>GW</u>	8/21/2019	12:30:00 PM	
JC93663-4XA	BZ-3M	TPO4.		<u>GW</u>	8/21/2019	12:30:00 PM	
JC93663-4F	BZ-3M	FILTERGN, TPO4, 1784		<u>GW</u>	8/21/2019	12:30:00 PM	
JC93663-5XA	BZ-3D	TPO4.		<u>GW</u>	8/21/2019	12:30:00 PM	
JC93663-5F	BZ-3D	FILTERGN, TPO4.		<u>GW</u>	8/21/2019	12:30:00 PM	
JC93663-6XA	BZ-4S	TPO4.		<u>GW</u>	8/21/2019	2:30:00 PM	
JC93663-6F	BZ-4S	S FILTERGN, TPO4, REAL		<u>GW</u>	8/21/2019	2:30:00 PM	
JC93663-7XA	<u>BZ-5S</u>	TPO4.		<u>GW</u>	8/21/2019	2:15:00 PM	,
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Date:

Sample Management Receipt:

Comments:

SGS

#### **MJRA Terms & Conditions**

All samples submitted must be accompanied by signed documentation representing a Chain of Custody (COC). The COC Record acts as a contract between the client and MJRA. Signing the COC form gives approval for MJRA to perform the requested analyses and is an agreement to pay for the cost of such analyses. COC Records must be completed in black or blue indelible ink (must not run when wet). COC documentation begins at the time of sample collection. Client is required to document all sample details prior to releasing samples to MJRA. All samples must be placed on ice immediately after sampling and shipped or delivered to the laboratory in a manner that will maintain the sample temperature above freezing and below 6C (loose ice is preferred).

#### Sample Submission, Sample Acceptance & Sampling Containers

Included on the COC must be the sample description, date and time of collection (including start and stop for composites), container size and type, preservative information, sample matrix, indication of whether the sample is a grab or composite, number of containers & a list of the tests to be performed. Poor sample collection technique, inappropriate sampling containers and/or improper sample preservation may lead to sample rejection. Suitable sample containers, labels, and preservatives (as applicable), along with blank COCs are provided at no additional cost.

#### **Turnaround Times (TAT)**

Average TAT for test results range from 5 to 15 working days depending on the specific analyses and time of year submitted. Faster turnaround times (\*RUSH TAT) may be available depending on the current workload in a particular department and the nature of the analyses requested. We encourage you to verify requests for expedited sample results with one of our Technical Directors prior to sample submittal. Without confirmation from a Technical Director, your results may not be completed by your deadline. \*RUSH TAT Surcharges are applied for expedited turnaround times.

#### Analytical Results, Sample Collection Integrity & Subcontracting

Analytical values are for the sample as submitted and relate only to the item tested. The value indicates a snapshot of the constituent content of the sample at the time of sample collection. Analytical results can be impacted by poor sample collection technique and/or improper preservation. All sample collection completed by MJRA was performed in accordance with applicable regulatory protocols or as specified in customer specific sampling plans. Constituent content will vary over time based on the matrix of the sample and the physical and chemical changes to its environment. All sample results and laboratory reports are strictly confidential. Results will not be available to anyone except the primary client or authorized party representing the client unless MJRA receives additional permissions from the client. When necessary, MJRA will subcontract certain analyses to a third party accredited laboratory. If client prohibits subcontracting, it must be provided in writing and include instruction on how to proceed with client samples that require third party analyses.

#### **Payment Terms**

Payment Terms are Net 30 days. Prices are subject to change without notice. A standing monthly charge of 1.5% of the clients over-30-day-unpaid balance may be added to the balance after 30 days and each month thereafter (day 31, 61, 91 etc.). The laboratory accepts all major credit cards, ACH transactions, checks and cash. New clients must pay for all services rendered prior to sample collection and/or in some cases report processing. Clients must contact the MJRA accounting department to pursue a credit-based account. MJRA reserves the right to terminate the client's credit account and to refuse to perform additional services on a credit basis if any balance is outstanding for more than 60 days.

#### Warranty & Litigation

MJRA does not guarantee any results of its services but has agreed to use its best efforts, in accordance with the standards and practices of the industry, to cause such results to be accurate and complete. We disclaim any other warranties, expressed or implied, including a warranty of fitness for a particular purpose and warranty of merchantability. Clients agree that they shall reimburse MJRA for any and all fees, cost and litigation expenses, including reasonable attorney fees incurred by MJRA in obtaining payment for the services rendered. All costs associated with compliance with any subpoena for documents, testimony, or any other purpose relating to work performed by MJRA, for a client, shall be paid by that client. MJRA's aggregate liability for negligent acts and omissions and of an intentional breach by MJRA will not exceed the fee paid for the services. Client agrees to indemnify and hold MJRA harmless for any and all liabilities in excess of said amount. Neither MJRA nor the client shall be liable to the other for special, incidental consequential or punitive liability or damages included but not limited to those arising from delay, loss of use, loss of profits or revenues. MJRA will not be liable to the client unless the client has notified MJRA of the discovery of the alleged negligent act, error, omissions or breach within 30 days of the

Reviewed and Approved by:

Rafael A Quijada For Amy L Morriss Project Manager



107 Angelica Street O Reading, PA 19611 O www.mjreider.com (610) 374-5129 O fax (610) 374-7234

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NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

Additional accreditations by CT (PH-0210), MD (261), NY(12094)

Page 13 of 13





## Dayton, NJ

Misc. Forms	

**Custody Documents and Other Forms** 

Includes the following where applicable:

• Chain of Custody

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JC93663XA: Chain of Custody Page 1 of 5

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JC93663XA: Chain of Custody Page 2 of 5

On Ice

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	USACE RESER	voirs - Beltz	zville				DW - Drinking Water GW - Ground Water
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815-656-6545	Client Purchase Order # Project Manager	Cay .	State Zip	<b>B</b>			AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank
ampler(a) Name(e) 6/6 Phone 4	Project Manager Tanny McClosky Cotype	Attention:	Number of preserved Boston	and			EB-Equipment Blank RB - Rinse Blank TB - Trip Blank
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	ovel needed for 1-3 Business Day TAT Sample Custody n	Commercial tust be documented below each time				http://www.sqs.com/en	/terms-and-conditions
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			-				54°C TUB

JC93663XA: Chain of Custody Page 3 of 5

## **SGS Sample Receipt Summary**

Job Number:	JC93663	Client:	USACE-PHILADELPHIA DI	STRICT Project: PHILADELPHIA I	DISTRICT	, RESERV	OIR SAMPL
Date / Time Received:	8/21/2019 6	:38:00 PM	Delivery Method:	Airbill #'s:			
Cooler Temps (Raw Mea		Cooler 1: (3.7); 8: (3.6);	Cooler 2: (3.6); Cooler 3: (2	2.9); Cooler 4: (3.2); Cooler 5: (3.5); Cooler 6:	(3.5); Co	ooler 7: (3.3	); Cooler
Cooler Temps (Corr		Cooler 1: (3.6); 8: (3.5);	Cooler 2: (3.5); Cooler 3: (2	2.8); Cooler 4: (3.1); Cooler 5: (3.4); Cooler 6:	(3.4); Co	ooler 7: (3.2	; Cooler
Cooler Security	Y or N	_	Y or N	Sample Integrity - Documentation	<u>Y</u>	or N	
1. Custody Seals Present:	<b>✓</b>	3. COC P	resent:	Sample labels present on bottles:	<b>✓</b>		
2. Custody Seals Intact:	<b>✓</b>	4. Smpl Date	s/Time OK 🗸 🗌	Container labeling complete:	✓		
Cooler Temperature	<u>Y</u>	or N		3. Sample container label / COC agree:	<b>✓</b>		
Temp criteria achieved:	<b>✓</b>			Sample Integrity - Condition	<u>Y</u>	or N	
2. Cooler temp verification:		IR Gun		Sample recvd within HT:	<b>✓</b>		
3. Cooler media:	lo	ce (Bag)		All containers accounted for:	~		
4. No. Coolers:	-	8		3. Condition of sample:		Intact	
Quality Control Preserv	ation Y	or N N/A		Sample Integrity - Instructions	Υ	or N	N/A
1. Trip Blank present / cool	er:	<b>v</b>		Analysis requested is clear:	<u> </u>		
2. Trip Blank listed on COC	;:	<b>v</b>		Bottles received for unspecified tests		<b>✓</b>	
3. Samples preserved prop	erly:			Sufficient volume recvd for analysis:	✓		
4. VOCs headspace free:				Compositing instructions clear:			✓
						_	
·				5. Filtering instructions clear:			✓
Test Strip Lot #s:	pH 1-12:		pH 12+:	5. Filtering instructions clear:			
Test Strip Lot #s:			pH 12+:	5. Filtering instructions clear:			
			pH 12+:	5. Filtering instructions clear:			
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SM089-03 Rev. Date 12/7/17

> JC93663XA: Chain of Custody Page 4 of 5

JC93663XA: Chain of Custody Page 5 of 5



Dayton, NJ 10/05/19

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

## Technical Report for

**USACE-Philadelphia District** 

Philadelphia District, Reservoir Sampling

CONTRACT#W912BU18D0003/TO#W912BU19F0065

SGS Job Number: JC94924

Sampling Date: 09/12/19



Army Corps of Engineers

joseph.m.loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 29

ELAP ACCREOLAR BOTTON

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Laura Degenhardt General Manager

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SGS

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## **Sample Summary**

USACE-Philadelphia District

Job No: JC94924

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC94924-1	09/12/19	06:30 GW	09/12/19	AQ	Surface Water	BZ-1S
JC94924-2	09/12/19	11:20 GW	09/12/19	AQ	Surface Water	BZ-2S
JC94924-3	09/12/19	08:45 GW	09/12/19	AQ	Surface Water	BZ-3S
JC94924-4	09/12/19	08:45 GW	09/12/19	AQ	Surface Water	BZ-3M
JC94924-5	09/12/19	08:45 GW	09/12/19	AQ	Surface Water	BZ-3D
JC94924-6	09/12/19	11:10 GW	09/12/19	AQ	Surface Water	BZ-4S
JC94924-7	09/12/19	11:00 GW	09/12/19	AQ	Surface Water	BZ-5S
JC94924-8	09/12/19	07:45 GW	09/12/19	AQ	Surface Water	BZ-6S
JC94924-9	09/12/19	07:45 GW	09/12/19	AQ	Surface Water	BZ-6M
JC94924-10	09/12/19	07:45 GW	09/12/19	AQ	Surface Water	BZ-6D
JC94924-11	09/12/19	09:40 GW	09/12/19	AQ	Surface Water	BZ-7S
JC94924-12	09/12/19	09:40 GW	09/12/19	AQ	Surface Water	BZ-7M
JC94924-13	09/12/19	09:40 GW	09/12/19	AQ	Surface Water	BZ-7D

## CASE NARRATIVE / CONFORMANCE SUMMARY

Client: USACE-Philadelphia District Job No JC94924

Site: Philadelphia District, Reservoir Sampling Report Date 9/30/2019 9:58:42 AM

On 09/12/2019, 13 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 3.8 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JC94924 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

### General Chemistry By Method EPA 351.2/LACHAT

Matrix: AQ Batch ID: GP23816

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94924-1DUP, JC94924-1MS were used as the QC samples for Nitrogen, Total Kjeldahl.
- Matrix Spike Recovery(s) for Nitrogen, Total Kjeldahl are outside control limits. Spike recovery indicates possible matrix interference.

Matrix: AQ Batch ID: GP23862

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94821-13DUP, JC94821-13MS were used as the QC samples for Nitrogen, Total Kjeldahl.

### General Chemistry By Method EPA 353.2/LACHAT

Matrix: AQ Batch ID: GP23913

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94924-1DUP, JC94924-1MS, JC94924-4MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.

### General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ Batch ID: R181390

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94924-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181391

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94924-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181392

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94924-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181393

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94924-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181394

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94924-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181395

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94924-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181396

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94924-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181397

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94924-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181398

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94924-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181399

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94924-10 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181400

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94924-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181401

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94924-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181402

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94924-13 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

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#### General Chemistry By Method SM2320 B-11

Matrix: AQ Batch ID: GN411

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94924-1DUP were used as the QC samples for Alkalinity, Total as CaCO3.
- JC94924-11 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94924-12 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94924-8 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94924-1 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94924-5 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94924-2 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94924-6 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94924-10 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94924-13 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94924-3 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94924-7 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94924-9 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94924-4 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.

## General Chemistry By Method SM2540 C-11

Matrix: AQ Batch ID: GN136

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94924-1DUP were used as the QC samples for Solids, Total Dissolved.

## General Chemistry By Method SM2540 D-11

Matrix: AQ Batch ID: GN176

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC95027-1DUP were used as the QC samples for Solids, Total Suspended.

#### General Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AO Batch ID: GP23837

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94890-5DUP, JC94890-5MS, JC94890-5MSD were used as the QC samples for Nitrogen, Ammonia.

Matrix: AO Batch ID: GP23838

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94992-2DUP, JC94992-2MSD were used as the QC samples for Nitrogen, Ammonia.
- Matrix Spike Recovery(s) for Nitrogen, Ammonia are outside control limits. Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

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### General Chemistry By Method SM4500NO2 B-11

Matrix: AQ Batch ID: GN99926

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94890-5DUP, JC94890-5MS were used as the QC samples for Nitrogen, Nitrite.

#### General Chemistry By Method SM5210 B-11

Matrix: AQ Batch ID: GP23660

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94957-1DUP were used as the QC samples for BOD, 5 Day.
- JC94924-7 for BOD, 5 Day: Sample set up with 3 separate dilutions, but DO difference is less than 2 on all of the dilutions. Results reported are from the lawest dilution.
- JC94924-10 for BOD, 5 Day: Sample set up with 3 separate dilutions, but DO difference is less than 2 on all of the dilutions. Results reported are from the lawest dilution.
- JC94924-4 for BOD, 5 Day: Sample set up with 3 separate dilutions, but DO difference is less than 2 on all of the dilutions. Results reported are from the lawest dilution.
- JC94924-1 for BOD, 5 Day: Sample set up with 3 separate dilutions, but DO difference is less than 2 on all of the dilutions. Results reported are from the lawest dilution.

## General Chemistry By Method SM5310 B-11

Matrix: AQ Batch ID: GP23945

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94924-1MS, JC94924-1MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ Batch ID: GP23946

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94924-11MS, JC94924-11MSD were used as the QC samples for Total Organic Carbon.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

**Summary of Hits Job Number:** JC94924

Account: USACE-Philadelphia District

Philadelphia District, Reservoir Sampling 09/12/19 **Project:** 

**Collected:** 

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL MDL	Units	Method
JC94924-1 BZ-1S				
BOD, 5 Day <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Solids, Total Suspended Total Organic Carbon	1.1 0.80 0.80 54.0 4.0 1.3	1.0 0.11 0.10 10 4.0 1.0	mg/l mg/l mg/l mg/l mg/l	SM5210 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM2540 D-11 SM5310 B-11
JC94924-2 BZ-2S				
Alkalinity, Total as CaCO3 <sup>c</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved	7.5 0.27 0.27 56.0	5.0 0.11 0.10 10	mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11
JC94924-3 BZ-3S				
Alkalinity, Total as CaCO3 <sup>c</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	9.0 0.31 0.31 41.0 1.3	5.0 0.11 0.10 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11
JC94924-4 BZ-3M				
Alkalinity, Total as CaCO3 <sup>c</sup> BOD, 5 Day <sup>a</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	10.5 1.0 0.78 0.78 39.0 1.1	5.0 1.0 0.11 0.10 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 SM5210 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11
JC94924-5 BZ-3D				
Alkalinity, Total as CaCO3 <sup>c</sup> Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	11.0 0.70 0.70 56.0 1.2	5.0 0.11 0.10 10 1.0	mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B EPA 353.2/LACHAT SM2540 C-11 SM5310 B-11
JC94924-6 BZ-4S				
Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite	0.42 0.42	0.11 0.10	mg/l mg/l	EPA353.2/SM4500NO2B EPA 353.2/LACHAT

**Summary of Hits Job Number:** JC94924

Account: USACE-Philadelphia District

Philadelphia District, Reservoir Sampling 09/12/19 **Project:** 

**Collected:** 

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL MD	L Units	Method
Solids, Total Dissolved	39.0	10	mg/l	SM2540 C-11
Total Organic Carbon	1.3	1.0	mg/l	SM5310 B-11
JC94924-7 BZ-5S				
Alkalinity, Total as CaCO3 <sup>c</sup>	14.0	5.0	mg/l	SM2320 B-11
BOD, 5 Day <sup>a</sup>	1.6	1.0	mg/l	SM5210 B-11
Nitrogen, Nitrate <sup>b</sup> Nitrogen, Nitrate + Nitrite	1.4 1.4	0.11 0.10	mg/l mg/l	EPA353.2/SM4500NO2B EPA 353.2/LACHAT
Solids, Total Dissolved	67.0	10	mg/l	SM2540 C-11
Solids, Total Suspended	13.4	4.0	mg/l	SM2540 D-11
Total Organic Carbon	1.2	1.0	mg/l	SM5310 B-11
JC94924-8 BZ-6S				
Alkalinity, Total as CaCO3 <sup>c</sup>	10.0	5.0	mg/l	SM2320 B-11
Nitrogen, Nitrate b	0.36	0.11	mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.36	0.10	mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl	0.26	0.20	mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	49.0	10	mg/l	SM2540 C-11
Total Organic Carbon	1.4	1.0	mg/l	SM5310 B-11
JC94924-9 BZ-6M				
Nitrogen, Nitrate <sup>b</sup>	0.94	0.11	mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.94	0.10	mg/l	EPA 353.2/LACHAT
Solids, Total Dissolved	170	10	mg/l	SM2540 C-11
Total Organic Carbon	1.1	1.0	mg/l	SM5310 B-11
JC94924-10 BZ-6D				
Alkalinity, Total as CaCO3 <sup>c</sup>	12.0	5.0	mg/l	SM2320 B-11
BOD, 5 Day <sup>a</sup>	2.3	1.0	mg/l	SM5210 B-11
Nitrogen, Nitrate <sup>b</sup>	0.57	0.11	mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.57	0.10	mg/l	EPA 353.2/LACHAT
Solids, Total Dissolved	63.0	10	mg/l	SM2540 C-11
Solids, Total Suspended	46.0	4.0	mg/l	SM2540 D-11
Total Organic Carbon	1.3	1.0	mg/l	SM5310 B-11
JC94924-11 BZ-7S				
Alkalinity, Total as CaCO3 <sup>c</sup>	10.5	5.0	mg/l	SM2320 B-11
Nitrogen, Nitrate <sup>b</sup>	0.29	0.11	mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.29	0.10	mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl	0.30	0.20	mg/l	EPA 351.2/LACHAT

**Summary of Hits Job Number:** JC94924

Account: USACE-Philadelphia District

**Project:** Philadelphia District, Reservoir Sampling

**Collected:** 09/12/19

Lab Sample ID Client Sample ID	Result/	DI.	MDI	TI24	M-d- J
Analyte	Qual	RL	MDL	Units	Method
Solids, Total Dissolved	52.0	10		mg/l	SM2540 C-11
Total Organic Carbon	1.4	1.0		mg/l	SM5310 B-11
JC94924-12 BZ-7M					
Alkalinity, Total as CaCO3 <sup>c</sup>	11.0	5.0		mg/l	SM2320 B-11
Nitrogen, Nitrate b	0.73	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.73	0.10		mg/l	EPA 353.2/LACHAT
Solids, Total Dissolved	60.0	10		mg/l	SM2540 C-11
Total Organic Carbon	1.2	1.0		mg/l	SM5310 B-11
JC94924-13 BZ-7D					
Alkalinity, Total as CaCO3 <sup>c</sup>	12.5	5.0		mg/l	SM2320 B-11
Nitrogen, Nitrate b	0.74	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.75	0.10		mg/l	EPA 353.2/LACHAT
Solids, Total Dissolved	62.0	10		mg/l	SM2540 C-11
Total Organic Carbon	1.3	1.0		mg/l	SM5310 B-11

<sup>(</sup>a) Sample set up with 3 separate dilutions, but DO difference is less than 2 on all of the dilutions. Results reported are from the lawest dilution.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

<sup>(</sup>c) Sample was titrated to a final pH of 4.2.





## Dayton, NJ

## Section 4

Sample Results	
Report of Analysis	

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## 4

## **Report of Analysis**

Client Sample ID: BZ-1S Lab Sample ID: JC94924-1

Lab Sample ID:JC94924-1Date Sampled:09/12/19Matrix:AQ - Surface WaterDate Received:09/12/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

## **General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 5.0	5.0	mg/l	1	09/25/19 12:31	UP	SM2320 B-11
BOD, 5 Day b	1.1	1.0	mg/l	1	09/13/19 21:40		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/24/19 12:30	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>c</sup>	0.80	0.11	mg/l	1	09/26/19 16:36	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.80	0.10	mg/l	1	09/26/19 16:36	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/13/19 00:47	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/23/19 10:58	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	54.0	10	mg/l	1	09/19/19 16:30	RC	SM2540 C-11
Solids, Total Suspended	4.0	4.0	mg/l	1	09/18/19 19:30	EB	SM2540 D-11
Total Organic Carbon	1.3	1.0	mg/l	1	09/27/19 15:52	CD	SM5310 B-11

- (a) Sample was titrated to a final pH of 4.2.
- (b) Sample set up with 3 separate dilutions, but DO difference is less than 2 on all of the dilutions. Results reported are from the lawest dilution.
- (c) Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

## Page 1 of 1

## **Report of Analysis**

Client Sample ID: BZ-2S Lab Sample ID: JC94924-2

Lab Sample ID:JC94924-2Date Sampled:09/12/19Matrix:AQ - Surface WaterDate Received:09/12/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

## **General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	7.5	5.0	mg/l	1	09/25/19 12:31	UP	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/13/19 21:42	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/24/19 12:31	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.27	0.11	mg/l	1	09/26/19 16:37	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.27	0.10	mg/l	1	09/26/19 16:37	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/13/19 00:47	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/23/19 11:04	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	56.0	10	mg/l	1	09/19/19 16:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/18/19 19:30	EB	SM2540 D-11
Total Organic Carbon	< 1.0	1.0	mg/l	1	09/27/19 16:57	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

# Report of Analysis

Client Sample ID: BZ-3S Lab Sample ID: JC94924-3

Lab Sample ID:JC94924-3Date Sampled:09/12/19Matrix:AQ - Surface WaterDate Received:09/12/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	9.0	5.0	mg/l	1	09/25/19 12:31	UP	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/13/19 21:43	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/25/19 15:18	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.31	0.11	mg/l	1	09/26/19 16:38	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.31	0.10	mg/l	1	09/26/19 16:38	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/13/19 00:47	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/23/19 10:59	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	41.0	10	mg/l	1	09/19/19 16:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/18/19 19:30	EB	SM2540 D-11
Total Organic Carbon	1.3	1.0	mg/l	1	09/27/19 17:08	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

# **Report of Analysis**

**Client Sample ID:** BZ-3M **Lab Sample ID:** JC94924-4

Lab Sample ID:JC94924-4Date Sampled:09/12/19Matrix:AQ - Surface WaterDate Received:09/12/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	10.5	5.0	mg/l	1	09/25/19 12:31	UP	SM2320 B-11
BOD, 5 Day b	1.0	1.0	mg/l	1	09/13/19 21:45	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/25/19 15:19	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>c</sup>	0.78	0.11	mg/l	1	09/26/19 16:40	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.78	0.10	mg/l	1	09/26/19 16:40	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/13/19 00:47	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/23/19 11:00	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	39.0	10	mg/l	1	09/19/19 16:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/18/19 19:30	EB	SM2540 D-11
Total Organic Carbon	1.1	1.0	mg/l	1	09/27/19 17:20	CD	SM5310 B-11

- (a) Sample was titrated to a final pH of 4.2.
- (b) Sample set up with 3 separate dilutions, but DO difference is less than 2 on all of the dilutions. Results reported are from the lawest dilution.
- (c) Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

# **Report of Analysis**

Client Sample ID: BZ-3D Lab Sample ID: JC94924-5

**Date Sampled:** 09/12/19 Matrix: **Date Received:** 09/12/19 AQ - Surface Water Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	11.0	5.0	mg/l	1	09/25/19 12:31	UP	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/13/19 21:47	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/25/19 15:21	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.70	0.11	mg/l	1	09/26/19 16:41	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.70	0.10	mg/l	1	09/26/19 16:41	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/13/19 00:47	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/23/19 11:01	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	56.0	10	mg/l	1	09/19/19 16:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/18/19 19:30	EB	SM2540 D-11
Total Organic Carbon	1.2	1.0	mg/l	1	09/27/19 17:31	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

# **Report of Analysis**

Client Sample ID: BZ-4S

Lab Sample ID: JC94924-6

Matrix: AQ - Surface Water

Date Sampled: 09/12/19

Date Received: 09/12/19

Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 5.0	5.0	mg/l	1	09/25/19 12:31	ПÞ	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/13/19 21:48		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/25/19 15:22		SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.42	0.11	mg/l	1	09/26/19 16:42	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.42	0.10	mg/l	1	09/26/19 16:42	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/13/19 00:47	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/23/19 11:05	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	39.0	10	mg/l	1	09/19/19 16:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/18/19 19:30	EB	SM2540 D-11
Total Organic Carbon	1.3	1.0	mg/l	1	09/27/19 17:42	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

# **Report of Analysis**

Client Sample ID: BZ-5S Lab Sample ID: JC94924-7

Lab Sample ID:JC94924-7Date Sampled:09/12/19Matrix:AQ - Surface WaterDate Received:09/12/19Percent Solids:n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	14.0	5.0	mg/l	1	09/25/19 12:56	UP	SM2320 B-11
BOD, 5 Day b	1.6	1.0	mg/l	1	09/13/19 21:51	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/25/19 15:24	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>c</sup>	1.4	0.11	mg/l	1	09/26/19 16:45	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.4	0.10	mg/l	1	09/26/19 16:45	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/13/19 01:11	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/25/19 11:53	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	67.0	10	mg/l	1	09/19/19 16:30	RC	SM2540 C-11
Solids, Total Suspended	13.4	4.0	mg/l	1	09/18/19 19:30	EB	SM2540 D-11
Total Organic Carbon	1.2	1.0	mg/l	1	09/27/19 17:53	CD	SM5310 B-11

- (a) Sample was titrated to a final pH of 4.2.
- (b) Sample set up with 3 separate dilutions, but DO difference is less than 2 on all of the dilutions. Results reported are from the lawest dilution.
- (c) Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

# **Report of Analysis**

Client Sample ID: BZ-6S Lab Sample ID: JC94924-8 Matrix: AQ - Surface Water

**Date Sampled:** 09/12/19 **Date Received:** 09/12/19 Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	10.0	5.0	mg/l	1	09/25/19 12:56	UP	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/13/19 21:53	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/25/19 15:25	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.36	0.11	mg/l	1	09/26/19 16:46	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.36	0.10	mg/l	1	09/26/19 16:46	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/13/19 01:11	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.26	0.20	mg/l	1	09/25/19 11:48	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	49.0	10	mg/l	1	09/19/19 16:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/18/19 19:30	EB	SM2540 D-11
Total Organic Carbon	1.4	1.0	mg/l	1	09/27/19 18:04	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

# **Report of Analysis**

**Client Sample ID:** BZ-6M Lab Sample ID: JC94924-9

**Date Sampled:** 09/12/19 Matrix: **Date Received:** 09/12/19 AQ - Surface Water

**Project:** Philadelphia District, Reservoir Sampling

# Percent Solids: n/a

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	< 5.0	5.0	mg/l	1	09/25/19 12:56	UP	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/13/19 21:55		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/25/19 15:26	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.94	0.11	mg/l	1	09/26/19 16:47	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.94	0.10	mg/l	1	09/26/19 16:47	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/13/19 01:11	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/25/19 11:49	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	170	10	mg/l	1	09/19/19 16:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/18/19 19:30	EB	SM2540 D-11
Total Organic Carbon	1.1	1.0	mg/l	1	09/27/19 18:15	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

# **Report of Analysis**

 Client Sample ID:
 BZ-6D

 Lab Sample ID:
 JC94924-10
 Date Sampled:
 09/12/19

 Matrix:
 AQ - Surface Water
 Date Received:
 09/12/19

 Percent Solids:
 n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	12.0	5.0	mg/l	1	09/25/19 12:56	UP	SM2320 B-11
BOD, 5 Day b	2.3	1.0	mg/l	1	09/13/19 21:56	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/25/19 15:28	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate <sup>c</sup>	0.57	0.11	mg/l	1	09/26/19 16:49	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.57	0.10	mg/l	1	09/26/19 16:49	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/13/19 01:11	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/25/19 11:55	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	63.0	10	mg/l	1	09/19/19 16:30	RC	SM2540 C-11
Solids, Total Suspended	46.0	4.0	mg/l	1	09/18/19 19:30	EB	SM2540 D-11
Total Organic Carbon	1.3	1.0	mg/l	1	09/27/19 18:27	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Sample set up with 3 separate dilutions, but DO difference is less than 2 on all of the dilutions. Results reported are from the lawest dilution.

<sup>(</sup>c) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

# **Report of Analysis**

**Client Sample ID:** BZ-7S Lab Sample ID: JC94924-11 **Date Sampled:** 09/12/19 Matrix: **Date Received:** 09/12/19 AQ - Surface Water Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

# **General Chemistry**

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	10.5	5.0	mg/l	1	09/25/19 12:56	UP	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/13/19 21:58	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/25/19 15:29	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.29	0.11	mg/l	1	09/26/19 16:50	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.29	0.10	mg/l	1	09/26/19 16:50	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/13/19 01:11	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.30	0.20	mg/l	1	09/25/19 11:51	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	52.0	10	mg/l	1	09/19/19 16:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/18/19 19:30	EB	SM2540 D-11
Total Organic Carbon	1.4	1.0	mg/l	1	09/27/19 19:23	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



Page 1 of 1

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

# **Report of Analysis**

Page 1 of 1

Client Sample ID: BZ-7M

Lab Sample ID: JC94924-12

Matrix: AQ - Surface Water

Date Sampled: 09/12/19

Date Received: 09/12/19

Percent Solids: n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	11.0	5.0	mg/l	1	09/25/19 12:56	UP	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/13/19 21:59		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/25/19 15:34	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.73	0.11	mg/l	1	09/26/19 16:51	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.73	0.10	mg/l	1	09/26/19 16:51	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/13/19 01:11	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/25/19 12:00	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	60.0	10	mg/l	1	09/19/19 16:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/18/19 19:30	EB	SM2540 D-11
Total Organic Carbon	1.2	1.0	mg/l	1	09/27/19 19:56	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.

<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

# **Report of Analysis**

 Client Sample ID:
 BZ-7D

 Lab Sample ID:
 JC94924-13
 Date Sampled:
 09/12/19

 Matrix:
 AQ - Surface Water
 Date Received:
 09/12/19

 Percent Solids:
 n/a

**Project:** Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 <sup>a</sup>	12.5	5.0	mg/l	1	09/25/19 12:56	UP	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/13/19 22:02		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/25/19 15:35	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.74	0.11	mg/l	1	09/26/19 16:52	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.75	0.10	mg/l	1	09/26/19 16:52	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/13/19 01:11	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/25/19 11:56	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	62.0	10	mg/l	1	09/19/19 16:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/18/19 19:30	EB	SM2540 D-11
Total Organic Carbon	1.3	1.0	mg/l	1	09/27/19 20:07	CD	SM5310 B-11

<sup>(</sup>a) Sample was titrated to a final pH of 4.2.



<sup>(</sup>b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)



# Misc. Forms

Dayton, NJ

**Custody Documents and Other Forms** 

Includes the following where applicable:

• Chain of Custody

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JC94924: Chain of Custody Page 3 of 4

# **SGS Sample Receipt Summary**

Job Number: JC94	1924	Client:	USACE-PHILADE	ELPHIA DIS	STRICT	Project: PHILADELPHIA D	ISTRICT,	RESERV	OIR SAMPL
Date / Time Received: 9/12/	/2019 6:11	:00 PM	<b>Delivery Method</b>	:		Airbill #'s:			
Cooler Temps (Raw Measure Cooler Temps (Correcte	-								
Cooler Security  1. Custody Seals Present: 2. Custody Seals Intact:		3. COC P	resent:	or N		y - Documentation  present on bottles:	<u>Y</u>	or N	
Cooler Temperature	Y or	N_				ner label / COC agree:	<b>✓</b>		
1. Temp criteria achieved: 2. Cooler temp verification: 3. Cooler media: 4. No. Coolers:	Ice (	Gun Bag)			Sample Integrit  1. Sample recvd v  2. All containers a  3. Condition of sa	within HT: accounted for:	<b>✓</b>	or N	
Quality Control Preservation  1. Trip Blank present / cooler:  2. Trip Blank listed on COC:  3. Samples preserved properly:  4. VOCs headspace free:	Y •	r N N/A  V			Sample Integrit  1. Analysis reque  2. Bottles receive  3. Sufficient volu	ty - Instructions ested is clear: ed for unspecified tests me recvd for analysis: nstructions clear:		or N	N/A  ☑  ☑
Test Strip Lot #s: pH	l 1-12:	229517	pŀ	H 12+:	208717	Other: (Specify)			
Comments  SM089-03 Rev. Date 12/7/17									

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JC94924: Chain of Custody

Page 4 of 4



Dayton, NJ 10/07/19

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report



USACE-Philadelphia District

Philadelphia District, Reservoir Sampling

CONTRACT#W912BU18D0003/TO#W912BU19F0065

SGS Job Number: JC94924X

Sampling Date: 09/12/19



USACE-Philadelphia District 100 Penn Square East Philadelphia, PA 19107 Joseph.M.Loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 23

TNI LABORATOR

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Laura Degenhardt General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

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# **Sections:**

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3.1: Chain of Custody	20





# **Sample Summary**

USACE-Philadelphia District

Job No: JC94924X

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC94924-1F	09/12/19	06:30 GW	09/12/19	AQ	Surface H2O Filtered	BZ-1S
JC94924-1X	09/12/19	06:30 GW	09/12/19	AQ	Surface Water	BZ-1S
JC94924-2F	09/12/19	11:20 GW	09/12/19	AQ	Surface H2O Filtered	BZ-2S
JC94924-2X	09/12/19	11:20 GW	09/12/19	AQ	Surface Water	BZ-2S
JC94924-3F	09/12/19	08:45 GW	09/12/19	AQ	Surface H2O Filtered	BZ-3S
JC94924-3X	09/12/19	08:45 GW	09/12/19	AQ	Surface Water	BZ-3S
JC94924-4F	09/12/19	08:45 GW	09/12/19	AQ	Surface H2O Filtered	BZ-3M
JC94924-4X	09/12/19	08:45 GW	09/12/19	AQ	Surface Water	BZ-3M
JC94924-5F	09/12/19	08:45 GW	09/12/19	AQ	Surface H2O Filtered	BZ-3D
JC94924-5X	09/12/19	08:45 GW	09/12/19	AQ	Surface Water	BZ-3D
JC94924-6F	09/12/19	11:10 GW	09/12/19	AQ	Surface H2O Filtered	BZ-4S
JC94924-6X	09/12/19	11:10 GW	09/12/19	AQ	Surface Water	BZ-4S
JC94924-7F	09/12/19	11:00 GW	09/12/19	AQ	Surface H2O Filtered	BZ-5S



# Sample Summary (continued)

USACE-Philadelphia District

Job No:

JC94924X

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC94924-7X	09/12/19	11:00 GW	09/12/19	AQ	Surface Water	BZ-5S
JC94924-8F	09/12/19	07:45 GW	09/12/19	AQ	Surface H2O Filtered	BZ-6S
JC94924-8X	09/12/19	07:45 GW	09/12/19	AQ	Surface Water	BZ-6S
JC94924-9F	09/12/19	07:45 GW	09/12/19	AQ	Surface H2O Filtered	BZ-6M
JC94924-9X	09/12/19	07:45 GW	09/12/19	AQ	Surface Water	BZ-6M
JC94924-10F	09/12/19	07:45 GW	09/12/19	AQ	Surface H2O Filtered	BZ-6D
JC94924-10X	09/12/19	07:45 GW	09/12/19	AQ	Surface Water	BZ-6D
JC94924-11F	09/12/19	09:40 GW	09/12/19	AQ	Surface H2O Filtered	BZ-7S
JC94924-11X	09/12/19	09:40 GW	09/12/19	AQ	Surface Water	BZ-7S
JC94924-12F	09/12/19	09:40 GW	09/12/19	AQ	Surface H2O Filtered	BZ-7M
JC94924-12X	09/12/19	09:40 GW	09/12/19	AQ	Surface Water	BZ-7M
JC94924-13F	09/12/19	09:40 GW	09/12/19	AQ	Surface H2O Filtered	BZ-7D
JC94924-13X	09/12/19	09:40 GW	09/12/19	AQ	Surface Water	BZ-7D



# Dayton, NJ

# Section 2

Subcontract Lab Data	
Report of Analysis	



**Certificate of Analysis** 

Report: 09/23/19

Army Corp Reservoirs

Lab Contact: Amy L Morriss

Attention: Tammy McCloskey

Reported To: SGS North America

**Lab ID:** 9033112-01

2235 US Highway 130 Dayton, NJ 08810

**Collected By:** Client **Sampled:** 09/12/19 06:30 **Received:** 09/18/19 10:23

Sample Desc: BZ-1S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	09/19/19	U	JCL

**Lab ID:** 9033112-02 **Collected By:** Client **Sampled:** 09/12/19 11:20 **Received:** 09/18/19 10:23

Sample Desc: BZ-2S Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P,	< 0.007	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, U	JCL
Dissolved								
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	09/19/19	U	JCL

**Lab ID:** 9033112-03 **Collected By:** Client **Sampled:** 09/12/19 08:45 **Received:** 09/18/19 10:23

Sample Desc: BZ-3S Sample Type: Grab

Rep. MDL Limit Analysis Method Result Unit Analyzed Notes Analyst Dissolved General Chemistry Phosphorus as P, < 0.007 0.007 0.05 SM 4500-P E 09/19/19 G-11, U JCL mg/l Dissolved General Chemistry Phosphorus as P, Total < 0.01 0.01 0.05 SM 4500-P E 09/19/19 U JCL mg/l



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**Lab ID:** 9033112-04 **Collected By:** Client **Sampled:** 09/12/19 08:45 **Received:** 09/18/19 10:23

Sample Desc: BZ-3M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	<del></del> t <b>r</b> y				,	•		,
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	09/19/19	U	JCL

**Lab ID:** 9033112-05 **Collected By:** Client **Sampled:** 09/12/19 08:45 **Received:** 09/18/19 10:23

Sample Desc: BZ-3D Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	09/19/19	U	JCL

**Lab ID:** 9033112-06 **Collected By:** Client **Sampled:** 09/12/19 11:00 **Received:** 09/18/19 10:23

Sample Desc: BZ-4S Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	09/19/19	J	JCL

**Lab ID:** 9033112-07 **Collected By:** Client **Sampled:** 09/12/19 11:00 **Received:** 09/18/19 10:23

Sample Desc: BZ-5S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	09/19/19	J	JCL



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**Lab ID:** 9033112-08 **Collected By:** Client **Sampled:** 09/12/19 07:45 **Received:** 09/18/19 10:23

Sample Desc: BZ-6S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	try							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	0.32	mg/l	0.01	0.05	SM 4500-P E	09/19/19		JCL

**Lab ID:** 9033112-09 **Collected By:** Client **Sampled:** 09/12/19 07:45 **Received:** 09/18/19 10:23

Sample Desc: BZ-6M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	try							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	09/19/19	U	JCL

**Lab ID:** 9033112-10 **Collected By:** Client **Sampled:** 09/12/19 07:45 **Received:** 09/18/19 10:23

Sample Desc: BZ-6D Sample Type: Grab

				Rep.					
	Result	Unit	MDL	Limit	Analysis Method	Analyzed	Notes	Analyst	
Dissolved General Chemist	ry								
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, U	JCL	
General Chemistry									
Phosphorus as P, Total	0.11	mg/l	0.01	0.05	SM 4500-P E	09/19/19		JCL	

**Lab ID:** 9033112-11 **Collected By:** Client **Sampled:** 09/12/19 09:40 **Received:** 09/18/19 10:23

Sample Desc: BZ-7S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	ry					•		•
Phosphorus as P, Dissolved	0.009	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	09/19/19	U	JCL



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**Lab ID:** 9033112-12 **Collected By:** Client **Sampled:** 09/12/19 09:40 **Received:** 09/18/19 10:23

Sample Desc: BZ-7M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.008	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	09/19/19	U	JCL

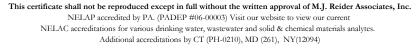
**Lab ID:** 9033112-13 **Collected By:** Client **Sampled:** 09/12/19 09:40 **Received:** 09/18/19 10:23

Sample Desc: BZ-7D Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	try							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	09/19/19	U	JCL



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# **Quality Control**

#### **General Chemistry**

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9I1172								
MB (B9I1172-BLK1)				Prepared & Ana	lyzed: 09/19/201	9		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9I1172-BLK2)				Prepared & Ana	lyzed: 09/19/201	9		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9I1172-BLK3)				Prepared & Ana	lyzed: 09/19/201	9		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
LFB (B9I1172-BS1)				Dranged & Ang	lyzed: 09/19/201	0		
Phosphorus as P, Total	1.02	0.05	mg/l	102	80-120	,		
rnosphorus as r, rotai	1.02	0.03	mg/ i	102	00-120			
Batch B9I1192								
MB (B9I1192-BLK1)				Prepared & Ana	lyzed: 09/19/201	9		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9I1192-BLK2)				Prepared & Ana	lyzed: 09/19/201	9		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9I1192-BLK3)				Prepared & Ana	lyzed: 09/19/201	)		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
LFB (B9I1192-BS1)				Dranged & Ang	lyzed: 09/19/201	0		
Phosphorus as P, Total	1.02	0.05	mg/l	102	80-120	,		
i nosphorus as r, Totai	1.02	0.05	111g/1	102	00-120			

#### Dissolved General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9I1173								
MB (B9I1173-BLK1)				Prepared & Ana	alyzed: 09/19/20	19		
Phosphorus as P, Dissolved	< 0.05	0.05	mg/l					G-11, U
LFB (B9I1173-BS1)				Prepared & Ana	alyzed: 09/19/20	19		
Phosphorus as P, Dissolved	1.02	0.05	mg/l	102	80-120			G-11
LFM (B9I1173-MS1)		Source: 9033112-03		Prepared & Ana	alyzed: 09/19/20	19		
Phosphorus as P, Dissolved	0.98	0.05	mg/l	98.4	80-120			
LFMD (B9I1173-MSD1)		Source: 9033112-03		Prepared & Ana	alyzed: 09/19/20	19		
Phosphorus as P, Dissolved	0.97	0.05	mg/l	97.2	80-120	1.23	20	
Batch B9I1193								
MB (B9I1193-BLK1)				Prepared & Ana	alyzed: 09/19/20	19		
Phosphorus as P, Dissolved	< 0.05	0.05	mg/l					G-11, U
LFB (B9I1193-BS1)				Prepared & Ana	alyzed: 09/19/20	19		
Phosphorus as P, Dissolved	1.01	0.05	mg/l	101	80-120			G-11



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# **Preparation Methods**

Specific Method	Preparation Method	Prepared Date	Prepared By
9033112-01			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033112-02			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033112-03			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033112-04			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033112-05			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033112-06			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033112-07			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033112-08			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033112-09			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033112-10			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033112-11			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033112-12			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033112-13			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL



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#### **Notes and Definitions**

G-11 The sample was filtered after it was received at the laboratory.

J Estimated value

U Analyte was not detected above the indicated value.



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CHAIN OF CUSTODY				Matrix Codes	N - Drinking Water W - Ground Water	WW - Water SW - Surface Water	SO - Soil SL- Studge SED-Sediment	Of - Oil LIQ - Other Liquid	SOL Other Solid WP - Wipe	FB - Field Blank 3-Equipment Blank	RB - Rinse Blank TB - Trip Blank	> inc paid de		***************************************																and-rouditions				D. dua	2,2° 2,6' 6'
Collection   Col	e 2 of	der Control # .								ш						7.									Special Instructions					in flamass are comfantlerine.		d By:	d By:	On ice Gooler Te	Ç
Collection   Project Name   Commendative   Commen		Bottle O	tor sos	Requested Analysis	-					•	-														Comments				*			/ Time:		herm. IC	5701
Information	4033	FEO-EX Tracking #	SGS Quote #						T	, 40	ogt, v	ורובאפו	×	+	×	×	×	×	×	×	×	×	×	×		Category B	, sm	rmat	EDIZ	/ Partial Raw data	sion, including courier delive			Intact Not intact	b) 181161 18
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Information	N OF CUST	ute 130, Dayton, NJ 08	ww.sgs.com/ehsusa	Information			Company Name	Street Address	City	Attention:		Matrix	GW AQ	GW	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	GW AQ	Cara Cara	Commercial 'B" (L	FULLT1 (Level 3+4	NJ Reduced	Commercial "C"	Commerc	coumented below each tin	3			8. 3. S.
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Peorting Information  The Collection  The Coll				Design Manager	Philadelphia Distric	Street		Project#	Client Purchase Order #	hone Project Manager		MEOH/DI Vial #	3	3	3	3	9	3	3	55	3	3	3	3	T and SOS of the beautiful	du con la constitu				proval needed for RUSH/Emer	S	110 (7) (60) Received 1			
				leporting Information			State Zip	E-mail		d		/ Point of Collection											A PROPERTY.	and Time ( Business days)	(ekan sepilieno ) pilili him	Standard 10 Business Days	5 Business Days RUSH	bays RUSH	Day EMERGENCY	7/A data available via Lablink Ap		TO THE	270	Da	

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_	tamı	.mccloskey@sgs.d						,										LIQ - Omer Liquid AIR - Air
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	Sampler( GW	Sampler(s) Name(s) GW	Phone Project Manager			Attention:					1001		-			<del>,</del>		EB-Equipment Blan RB - Rinse Blank
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	SDS Sample #	Field ID / Point of Collection	MEOH/DI Vial #	Date		Sampled	Matrix # o	of bottles	HAOS SE	DI Water	ENCORE M	, 409T	· · · ·					LAB USE ONL)
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JC94924X.xls Rev. Date: 4/10/18

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Job #: JC94924X

City: Reading State: PA Client Project: Philadelphia District, Reservoir Sampling

Deliverable: REDT2

TAT: Due 10/2/2019

Sub'Lab: MJ Reider Associates Inc, Env. Testing Laboratories Address: 107 Angelica Street

Charles Charles and Charles

W. C. C.

34 34 27

Contact: Sample Receiving / Rich Wheeler

Phone: 610-374-5129

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Sample Management Receipt:

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SGS

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#### **MJRA Terms & Conditions**

All samples submitted must be accompanied by signed documentation representing a Chain of Custody (COC). The COC Record acts as a contract between the client and MJRA. Signing the COC form gives approval for MJRA to perform the requested analyses and is an agreement to pay for the cost of such analyses. COC Records must be completed in black or blue indelible ink (must not run when wet). COC documentation begins at the time of sample collection. Client is required to document all sample details prior to releasing samples to MJRA. All samples must be placed on ice immediately after sampling and shipped or delivered to the laboratory in a manner that will maintain the sample temperature above freezing and below 6C (loose ice is preferred).

#### Sample Submission, Sample Acceptance & Sampling Containers

Included on the COC must be the sample description, date and time of collection (including start and stop for composites), container size and type, preservative information, sample matrix, indication of whether the sample is a grab or composite, number of containers & a list of the tests to be performed. Poor sample collection technique, inappropriate sampling containers and/or improper sample preservation may lead to sample rejection. Suitable sample containers, labels, and preservatives (as applicable), along with blank COCs are provided at no additional cost.

#### **Turnaround Times (TAT)**

Average TAT for test results range from 5 to 15 working days depending on the specific analyses and time of year submitted. Faster turnaround times (\*RUSH TAT) may be available depending on the current workload in a particular department and the nature of the analyses requested. We encourage you to verify requests for expedited sample results with one of our Technical Directors prior to sample submittal. Without confirmation from a Technical Director, your results may not be completed by your deadline. \*RUSH TAT Surcharges are applied for expedited turnaround times.

#### Analytical Results, Sample Collection Integrity & Subcontracting

Analytical values are for the sample as submitted and relate only to the item tested. The value indicates a snapshot of the constituent content of the sample at the time of sample collection. Analytical results can be impacted by poor sample collection technique and/or improper preservation. All sample collection completed by MJRA was performed in accordance with applicable regulatory protocols or as specified in customer specific sampling plans. Constituent content will vary over time based on the matrix of the sample and the physical and chemical changes to its environment. All sample results and laboratory reports are strictly confidential. Results will not be available to anyone except the primary client or authorized party representing the client unless MJRA receives additional permissions from the client. When necessary, MJRA will subcontract certain analyses to a third party accredited laboratory. If client prohibits subcontracting, it must be provided in writing and include instruction on how to proceed with client samples that require third party analyses.

#### **Payment Terms**

Payment Terms are Net 30 days. Prices are subject to change without notice. A standing monthly charge of 1.5% of the clients over-30-day-unpaid balance may be added to the balance after 30 days and each month thereafter (day 31, 61, 91 etc.). The laboratory accepts all major credit cards, ACH transactions, checks and cash. New clients must pay for all services rendered prior to sample collection and/or in some cases report processing. Clients must contact the MJRA accounting department to pursue a credit-based account. MJRA reserves the right to terminate the client's credit account and to refuse to perform additional services on a credit basis if any balance is outstanding for more than 60 days.

#### Warranty & Litigation

MJRA does not guarantee any results of its services but has agreed to use its best efforts, in accordance with the standards and practices of the industry, to cause such results to be accurate and complete. We disclaim any other warranties, expressed or implied, including a warranty of fitness for a particular purpose and warranty of merchantability. Clients agree that they shall reimburse MJRA for any and all fees, cost and litigation expenses, including reasonable attorney fees incurred by MJRA in obtaining payment for the services rendered. All costs associated with compliance with any subpoena for documents, testimony, or any other purpose relating to work performed by MJRA, for a client, shall be paid by that client. MJRA's aggregate liability for negligent acts and omissions and of an intentional breach by MJRA will not exceed the fee paid for the services. Client agrees to indemnify and hold MJRA harmless for any and all liabilities in excess of said amount. Neither MJRA nor the client shall be liable to the other for special, incidental consequential or punitive liability or damages included but not limited to those arising from delay, loss of use, loss of profits or revenues. MJRA will not be liable to the client unless the client has notified MJRA of the discovery of the alleged negligent act, error, omissions or breach within 30 days of the

Reviewed and Approved by:

any L Muriss

Amy L Morriss Project Manager



107 Angelica Street O Reading, PA 19611 O www.mjreider.com (610) 374-5129 O fax (610) 374-7234

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NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current

NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

Additional accreditations by CT (PH-0210), MD (261), NY(12094)

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# Dayton, NJ

Misc. Forms	
Custody Documents and Other Forms	
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ARelipadial		Date / Time:	Sample	Custody m	ust be d	ogument				nples c	change					ourler d		ate (T								
1	705	2/9/140	15/6	en	W	_			5/	LV	۰ <u>د م</u>	M	sl	_		9//	1/19	ote / Ti	<b>3</b> ^5	5	2/1	llib	no	Leat	ther	<u>~</u>
Relinquish 3	oproy:	Dato / Time:	Received By:						Kolifiqu	lahed B	ly:						-	late / Ti	no:		Receive	d By:				
Relinquish	od by:	Date / Time:	Roceived By:						Custody	y Soal #				<u>п</u>	lad	F	reserved	where a	ppilcobi	,	17		On ice		coler Tam	p. *C

JC94924X: Chain of Custody Page 3 of 4

### **SGS Sample Receipt Summary**

Job Number: Job	C94924	Client:	USACE-PH	ILADELPHIA	DISTRICT	Project: PHILADELPHIA	DISTRICT	, RESERVO	OIR SAMPL		
Date / Time Received: 9	/12/2019 6:11:00	PM	Delivery Mo	ethod:		Airbill #'s:	Airbill #'s:				
Cooler Temps (Raw Meas	•										
Cooler Temps (Corre	cted) °C: Coole	er 1: (3.3);	Cooler 2: (2	2.6); Cooler 3	3: (3.8); Cooler 4: (2.	7);					
Cooler Security	Y or N			Y or N	Sample Integri	ty - Documentation	<u>Y</u>	or N			
1. Custody Seals Present:		3. COC P	resent:	<b>✓</b>	Sample labels	s present on bottles:	<b>✓</b>				
2. Custody Seals Intact:	<b>✓</b> □ 4.	Smpl Date	s/Time OK	<b>✓</b>	2. Container labe	•	$\checkmark$				
Cooler Temperature	Y or N	_			3. Sample conta	iner label / COC agree:	<b>✓</b>				
1. Temp criteria achieved:	✓ _	]			Sample Integr	ity - Condition	<u>Y</u>	or N			
2. Cooler temp verification:	IR Gun	ı			Sample recvd		<b>✓</b>				
3. Cooler media:	Ice (Bag	1)			2. All containers		<b>~</b>				
4. No. Coolers:	4				3. Condition of s	ample:		Intact			
Quality Control Preserva	tion Y or I	N N/A	ı		Sample Integr	ity - Instructions	Υ	or N	N/A		
1. Trip Blank present / cooler	: 🗆 🔽				Analysis requ	=	<u> </u>				
2. Trip Blank listed on COC:						ved for unspecified tests		<b>✓</b>			
3. Samples preserved prope	rly: 🔽	]			Sufficient vol	ume recvd for analysis:	_ _				
4. VOCs headspace free:						instructions clear:			$\checkmark$		
					5. Filtering instr	uctions clear:			V		
Test Strip Lot #s:	pH 1-12:	229517		pH 12+:	208717	Other: (Specify)					
Comments											
SM089-03											
Rev. Date 12/7/17											

JC94924X: Chain of Custody

Page 4 of 4



Dayton, NJ 09/16/19

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report



**USACE-Philadelphia District** 

Philadelphia District, Reservoir Sampling

CONTRACT#W912BU18D0003/TO#W912BU19F0065

SGS Job Number: JC94924XA

Sampling Date: 09/12/19



USACE-Philadelphia District 100 Penn Square East Philadelphia, PA 19107 Joseph.M.Loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 16



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp General Manager

Client Service contact: Tammy McCloskey 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

This report shall not be reproduced, except in its entirety, without the written approval of SGS. Test results relate only to samples analyzed.

Please share your ideas about how we can serve you better at:

EHS.US.CustomerCare@sgs.com

1 of 16

### **Sections:**

#### -1-

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Section 1: Sample Summary	3
Section 2: Subcontract Lab Data	4
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3.1: Chain of Custody	13



### **Sample Summary**

USACE-Philadelphia District

Job No: JC94924XA

Philadelphia District, Reservoir Sampling Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC94924-1XA	09/12/19	06:30 GW	09/12/19	AQ	Surface Water	BZ-1S
JC94924-2XA	09/12/19	11:20 GW	09/12/19	AQ	Surface Water	BZ-2S
JC94924-3XA	09/12/19	08:45 GW	09/12/19	AQ	Surface Water	BZ-3S
JC94924-6XA	09/12/19	11:10 GW	09/12/19	AQ	Surface Water	BZ-4S
JC94924-7XA	09/12/19	11:00 GW	09/12/19	AQ	Surface Water	BZ-5S
JC94924-8XA	09/12/19	07:45 GW	09/12/19	AQ	Surface Water	BZ-6S
JC94924-11X	<b>A</b> 09/12/19	09:40 GW	09/12/19	AQ	Surface Water	BZ-7S



## Dayton, NJ

## Section 2

Subcontract Lab Data
Report of Analysis



## Analytical Report

Serialized: 09/16/2019 10:39am QC35

KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130

DAYTON,NJ 08810

Regarding:

SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810

**PROJECT ID:** 

W09769 USACE

LABORATORY REPORT NUMBER:

L7160959

Authorized by: Douglas J. Gump Client Services Manager

DarJU



# Analytical Report Printed 09/16/19 10:39 QC35

KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810

Regarding: KRISTIN DEGRAW SGS NORTH AMERICA, INC. 2235 ROUTE 130 DAYTON, NJ 08810

	: W09769, SGS NO W09769 USACE,	ORTH AMERICA, IN USACE	C.	P.O. No	:	Inv. No: PWSID No:	1991782 PI
<b>Sample ID</b> L7160959-1		te/Time/Temp 09/		2.9 C <b>Iced (Y/N):</b> Y bbiological testing.(T)	09/12/19	ate/Time/Temp 06:30am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	MENTAL MICRO	BIOLOGY BZ-1	S				
Total Coliform Fecal Coliforr	,	3600 Q 13 Q	cfu/1( cfu/1(	• • • • • • • • • • • • • • • • • • • •	1 100	100 1	09/12/19 03:56PM SRK 09/12/19 05:46PM SRK
Samula ID	Samula Dagarin	4ion			Sama D	ata/Tima/Tamp	Compled by
<b>Sample ID</b> L7160959-2		te/Time/Temp 09/		2.9 C   Iced (Y/N): Y obiological testing.(T)	09/12/19	ate/Time/Temp 11:20am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	MENTAL MICRO	BIOLOGY BZ-2	es.				
Total Coliform Fecal Coliforn	,	7900 Q 18	cfu/10 cfu/10	• • • • • • • • • • • • • • • • • • • •	1 100	100 1	09/12/19 03:56PM SRK 09/12/19 05:46PM SRK

PIN: 28748 Serial Number: 6544403

# Analytical Report Printed 09/16/19 10:39

	: W09769, SGS NORTH W09769 USACE, USA				P.O. No:		Inv. No: PWSID No:	1991782 PI
<b>Sample ID</b> L7160959-3	Sample Description BZ-3S Received Date/Tin Exceeds recomme						ate/Time/Temp 08:45am NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY BZ-3S						
Total Coliform Fecal Coliforn		>2000 Q 1 Q		cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	09/12/19 03:56PM SRK 09/12/19 05:46PM SRK
<b>Sample ID</b> L7160959-4	Sample Description BZ-4\$ Received Date/Tin Exceeds recomme						ate/Time/Temp 1:10am NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY BZ-4S						
Total Coliform Fecal Coliforn		>20000 Q 27		cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	09/12/19 03:56PM SRK 09/12/19 05:46PM SRK
<b>Sample ID</b> L7160959-5	Sample Description BZ-5S Received Date/Tin Exceeds recomme						ate/Time/Temp 1:00am NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY BZ-5S						
Total Coliform Fecal Coliforn	,	>20000 Q 210		cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 10	100 10	09/12/19 03:56PM SRK 09/12/19 05:46PM SRK
<b>Sample ID</b> L7160959-6	Sample Description BZ-6S Received Date/Tin						ate/Time/Temp 17:45am NA C	Sampled by Customer
	Exceeds recomme	ended temperat	ure for	microbiolo	ogical testing.(T)			

PIN: 28748 Serial Number: 6544403

## **Analytical Report**

Printed 09/16/19 10:39

DF

10

100

RL

10

Test Date, Time, Analyst

09/12/19 03:56PM SRK

09/12/19 05:46PM SRK

	W09769, SGS NORTH W09769 USACE, USA	,		P.O. No:		Inv. No: PWSID No:	1991782 PI		
<b>Sample ID</b> L7160959-6			/19 01:55pm 12.9 C ture for microbiole			ate/Time/Temp 07:45am NA C	Sampled by Customer		
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst		
ENVIRON	MENTAL MICROBIO	LOGY BZ-6S							
Total Coliforn		1240 E, Q <1 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	09/12/19 03:56PM SRK 09/12/19 05:46PM SRK		
<b>Sample ID</b> L7160959-7			/19 01:55pm 12.9 C ture for microbiole		•	ate/Time/Temp 09:40am NA C	Sampled by Customer		

Method

SM 9222B

SM 9222D

#### Sample Comments | Result Qualifiers:

**ENVIRONMENTAL MICROBIOLOGY -- BZ-7S** 

#### L7160959-1:

Parameter

Total Coliform, MF

Fecal Coliform, MF

T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.

**Qual Units** 

cfu/100ml

cfu/100ml

Result

>2000 Q

1 Q

- Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory purposes.
- Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7160959-2:

T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7160959-3:

- T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.
- Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory

PIN: 28748 Serial Number: 6544403

## **Analytical Report**

Account No: W09769, SGS NORTH AMERICA, INC. P.O. No: Inv. No: 1991782 PI PWSID No:

Project No: W09769 USACE, USACE

#### purposes.

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7160959-4:

T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable. Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available,

the reported result may not be acceptable for regulatory purposes.

#### L7160959-5:

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.

#### L7160959-6:

- Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory purposes.
- T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.
- E: For microbiology testing by membrane filtration, the reported result was based on a colony count outside the recommended range of the test. The reported result may be considered an estimate.
- Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.

#### L7160959-7:

- T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.
- Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory purposes.
- Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available, the reported result may not be acceptable for regulatory purposes.



PIN: 28748 Serial Number: 6544403



#### **DEFINITIONS**

#### The following terms or abbreviations are used in this report:

Eurofins QC, LLC (EQC)

<	Less than: In conjunction with a numerical value,
	indicates a concentration less than RL / MDL
>	Greater than: In conjunction with a numerical value,
	indicates a concentration greater than RL / MDL
CFU	Colony Forming Unit
DF	Dilution Factor (For Microbiology, DF = volume of
DF	sample tested)
DRY	Result was reported on a dry weight basis
MCL	EPA recommended "Maximum Contaminant Level"
MDL	Method Detection Limit
MF	Membrane Filtration
MPN	Most Probable Number
ND	For odor test: No Odor Observed
ND	For all other tests: Analyte concentration Not
ND	Detected greater than the RL / MDL

NEG	Negative / Absent
NTU	Nephelometric Turbidity Units
POS	Positive / Present
PPB (µg/L)	Parts per billion: equivalent to 1 microgram per kilogram (µg/Kg) for solids or one microgram per liter (µg/L) for aqueous samples
PPM (mg/L)	Parts per million: equivalent to 1 milligram per kilogram (mg/Kg) for solids or one milligram per liter (mg/L) for aqueous samples
PRES	Presumptive
QUAL	Qualifier (Q)
RL	Laboratory Reporting Limit or Limit of Quantitation (LOQ)
TNTC	Too Numerous To Count
TON	Threshold Odor Number

#### **Data Qualifiers**

J	Estimated value > MDL, but < RL
Т	Temperature exceedance at receipt, refer to Sample Comments / Results Qualifiers section
E	Estimated CFU count (Microbiology)
Q	Qualifier defined in Sample Comment section on report

#### Warranties, Terms, and Conditions

- Unless otherwise indicated in the Parameter field, analyses for environmental microbiology, odor, and pharmaceutical microbiology are performed at the EQC Horsham Facility (702 Electronic Dr. Horsham, PA 19044).
- Analyses for Field Parameters are performed by EQC Field staff. Locations and certifications are identified on the Chain of Custody as follows:
  - "ERF" = field staff performs tests under NJ State certification # 02015.
  - "VL" = field staff performs tests under NJ State certification # 06005.
  - "WG" = field staff performs tests under NJ State certification # PA001.
- Test results meet all TNI or other applicable regulatory agency requirements, including holding times and preservation, unless otherwise indicated.
- The report shall not be reproduced, except in full, without the written consent of the laboratory.
- · All samples are collected as "grab" samples unless otherwise identified.
- Reported results relate only to the sample as tested. EQC is not responsible for sample integrity unless sampling has been
  performed by a member of our staff.
- EQC is not responsible for sampling and/or testing omissions. Note that regulatory authorities may assess substantial fines for
  testing omissions. Please track your sample collection schedules and results on a regular basis (e.g. weekly, monthly, or quarterly)
  to ensure compliance. EQC's internet program "LIVE ACCESS" will provide you with real-time access to collection dates and testing
  results. Please contact Client Services for further information.
- The following personnel or their deputies have approved the results of the tests performed by EQC: Nicki Smith (Environmental Chemistry), Amanda Berd (Pharmaceutical Microbiology), and Zachary Smith (Water Microbiology).

#### **EQC** Accreditations

Horsham Facility	NELAP/State IDs	PA: 46-05499	NJ: PA09	3 NY: 1208	80 MD: 357
East Rutherford Facility Vineland Facility Wind Gap Facility	State ID- State ID- State ID-	NJ: 02015 NJ: 06005 NJ: PA001			

	•			La Lord
Page L of L  (9959-1	Drinking Water  - Gerund Water  - We Surface Water  - So - Soli  - Su-Sandge  - Su-Sandge  - Su-Sandment  - Oli - Olher Liquid  - Alf - Alf  - Alf - Alf  - Sol Other Liquid  - Alf - Alf  - Sol Other Solid  - Whe  - FB - Flad Slank  - FB - Flad Slank  - FB - Flad Slank  - FB - Flag Slank  - FB - The Blank  - The Blank  - The Blank  - The Blank	LAB USE ONLY	Comments / Special Instructions  O POLICIA + EMPERATURE  DEAL SE / EOC 2.9°C  Stock of the conditions  With the Seas comfenderms and conditions	On the Cooler Tomp. 'C.
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C.W. O. Client / Reporting Information Company Name:	USACE - Phila. District USAC Street Address  100 Penn Se. East Street  City Phila. PA, 19107  Project Contact  To e Loaper  Phone # Project Wardenso  315 - (65 10 - 6645  Samperie) Name(6)  Group Wardenso  Group Wardenso  Samperie) Name(6)  Group Wardenso  Group Warden	Sures & Reid 10 / Point of Collection  8 2 - 35  8 2 - 35  8 2 - 35  8 2 - 45  8 2 - 45  8 2 - 45  8 2 - 45  8 2 - 45  8 2 - 45	siness Days noss Days noss Days noss Days noss Days noss Days	Reinrquished by:

SGS



### Dayton, NJ

Misc. Forms
Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody

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Other  All data suggests via Lablink  'Approval needed for 1-3 Business Day TAT  Comm									euits only Results	, Com	mercia Summa	il "B" = icv + P=	Result	s + QC 8 w date	umman	,		CU	u D	ፈገ ላ				/terms	-and-conditions
Sample Custody must be documented below each time									nples c	havig	e poss	osslor	ı, ingk	ding c	ourier o						1	171	-	.cms	en-conditions
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JC94924XA: Chain of Custody Page 1 of 4

	SGS	CHAIN OF CUST  SGS North America Inc 1 2235 Route 130, Dayton, NJ												FEDEX	Tracking #		· · · · · · · · · · · · · · · · · · ·			Page <u>2</u> of <u>2</u>							
n may are no					732-329-	0200	FAX: 7	32-329		3480				SGS Q	cte #					SGS Job	, #		TC9	4924			
	Client / Reporting Information			Prolec	t Inform		.com/e	nsusa						+				Reques	sted Ar	alvsis			<u> </u>	Matrix Codes			
Сотрат	y Name:	Project Name							,		11			29.70	•	S							$\neg$				
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100	Penn Sq. East Iq. PA, 19107	City			Billing In	formatic			n Report to)						200	Ś	•						1	SW - Surface Water SO - Soil			
oh.	IQ. PA, 19107	Lehic	State Company Name											۔ ا ج	ğ	705	C				1 1			SL- Studge SED-Sediment			
Project (	Contact E-mail	Project #	J. 11.C.C		Street Ad	aress		······							B	,-	XV03	4						OI - Oil LIQ - Other Liquid			
	ive Loeper	Client Purcha	en Order it		City					State			lo .	_  £	1 3	` ≥l	. 2							AIR - Air SOL - Other Solid			
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Sampler	r(s) Name(s) (6/0 Phone #	Project Mana	ner ner		Attention										3	1-								EB-Equipment Blank RB - Rinse Blank			
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				T	<u> </u>			ļ	П	T	ΤŢ	18	Twi	تج ⊢	¥	Bob,	Tac							<del>                                     </del>			
SGS Sample #	Field ID / Point of Collection	MEOH/DI Visil 6	Date	Time	5 mpled	Grab (G) Comp (C)	Metrix	# of bottles	呈	A S	\$ 12 E	Dr Wat	ENCOR!	100±	Œ	В	+							LAB USE ONLY			
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12F	62-7M		9/2/19	0940	24	G	SW	9	X		X			X	X	X	X			. 1							
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	Turn Alburd Time (bu		SGS PM); / Date;		-	Comr	nerclai "A	" (Level	1)			ASP Cat	egory A	٠		DOD-G	SM5	(	2								
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CHAIN OF CUSTODY		Page <u></u> ∠ of ∠
SGS North America Inc Dayton	FEO-EX Tracking #	Battle Order Control til

		2235 Route 130, Dayton, NJ 08810 TEL. 732-329-0200 FAX: 732-329-3499/3480										FED-EX Tracking # Battle Order Cor						der Come	Jonard 11			
	Т					3499/3	3480				SGS Qu	cte #					SGS Jai	) #	1924			
Client / Reporting Information		Dualos		w.sgs.com/e	nsusa						+-					-4-4 0				3 ( 1		
Company Name:	Project Name		t Informat	uon							┼	Γ	Г Т		Regue	Sted A	nalysis	1			Matrix Codes	
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USACE- Phila. Dist	Street	CE RESE	voirs -Beltzville											- 1		l	1	1			GW - Ground Water WW - Water	
100 Penn Sq. Ea	ST		Billing Information (If different from Report to)									l	1			ļ	1	1		- 1	SW - Surface Water	
City State	Zip City	State	Company Name									l				1		1 1			SO - Soil SL- Studge	
Phila PA. 191	07												ŀ			l	1	1 1			SED-Sediment OI - OI	
Project Contact E-mail	Project #		065							ع [	ł	1	- 1		l	1				LIQ - Other Liquid		
Joe Loeper	Client Purcha		City				State		Zb		1 ₺	1	1	ł		ļ	1			- 1	AIR - Air SOL - Other Solid	
Phone #			Cay			٠	OHE NO.		24			]	1 1	ł			1		. 1		WP - Wipa FB - Field Blank	
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sos sample # Field ID / Point of Collection	MECH/DI Visi A	Date Time	Stampted of the by C	Problem Josep (C) Medrix	bottles	모	HWO.	ZOTE N	DI VION	ENCO	1 1	1					1		. 1	i	LAB USE ONLY	
1 BZ-1S		9/12/190630	A	GSW	2	$\vdash$	$\dashv \uparrow$		$\Box$		Y						1	$\vdash$	-		<del>                                     </del>	
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							П	Т	П	П				-		150					7	
Turn Around T	ime (Business Days)						Deli	verat	ole							<u> </u>		Comm	nents / 5	Special Ins	tructions	
	Approved By (S	GS PM): / Date:		Commercial "A	" (Level 1	1)		NYAS	SP Categ	јогу А			DOD-QS	MS	_		1.	_		· 1.	1 1	
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6 Businoss Days				NJ Roduced (L					CP Crite					- I	_		'∼		1.	1/2		
3 Business Days*		-		Full Tier I (Lev					CP Criti	orla					اع	u	5	US	1C	W)		
2 Business Days*	******************	-		Commercial "C	;*				Forms													
1 Business Day*			NJ DKQP					Format_						12	900	. /A	D7 1	1,60	1E0	c		
Other All date available via Labilek					suits only; ( Results +					Summe	y	- 1	12.		///	to://ww	ı⊂e w.sqs.c	om/en/tern	ns-and-conditions			
	ust be dog	umented bolo								courler	delivery.											
Relination by:	Received by Lean	WY Restriction By: Mall									9/	11/19	ote / Tin	<b>3</b> .^ና	-5	Rogelia	Mix	ish-	leath	Rana		
Relinquisharby: Pato / Time: Received Dr.				Colliforulated By:								111	7	ato / Tin			Resolve			Survik.	~~~	
3	Date / Time:	3				4											4					
Relinquished by:	Roceived By:				Custod	y Soal #			Ä	Intact		Preserved	where a	ppilcabl	۰.			On Ice	Cool	or Tomp. *C		

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### **SGS Sample Receipt Summary**

Job Number: J	C94924 Clie	ent: USACE-PH	HILADELPHIA DI	STRICT	Project: PHILADELPHIA	DISTRICT, R	RESERVO	IR SAMPL
Date / Time Received: 9	/12/2019 6:11:00 PM	Delivery N	lethod:		Airbill #'s:			
Cooler Temps (Raw Meas	,	,,	. ,,	,,	,,			
Cooler Temps (Corre	cted) °C: Cooler 1: (	3.3); Cooler 2: (	(2.6); Cooler 3: (	3.8); Cooler 4: (2.7	7);			
Cooler Security	Y or N		Y or N	Sample Integrit	y - Documentation	<u>Y</u> o	or N	
1. Custody Seals Present:	<b>☑</b> 3. C0	OC Present:		Sample labels	present on bottles:	<b>✓</b>		
2. Custody Seals Intact:	2. Custody Seals Intact: 4. Smp			2. Container labe	•	$\checkmark$		
Cooler Temperature	Y or N			3. Sample contain	ner label / COC agree:	<b>✓</b>		
1. Temp criteria achieved:	<b>v</b>			Sample Integri	ty - Condition	<u>Y o</u>	r N	
2. Cooler temp verification:	IR Gun			Sample recvd	- <del>-</del>	<b>V</b>		
3. Cooler media:	Ice (Bag)			2. All containers		<b>~</b>		
4. No. Coolers:	4			3. Condition of sa		_	tact	
Quality Control Preserva	tion Y or N	N/A			ty - Instructions	Υo	r N	M/A
1. Trip Blank present / coole	r: 🗌 🗸			Analysis requal	- <del>-</del>	<u></u>		10/23
2. Trip Blank listed on COC:					ed for unspecified tests		<u></u>	
Samples preserved prope	rly: 🔽 🗌				ime recvd for analysis:	<u></u> ✓		
VOCs headspace free:		✓			nstructions clear:			<b>✓</b>
				5. Filtering instru				<b>~</b>
				o. I mening mone	actions siden.			
Test Strip Lot #s:	pH 1-12: 2295	17	pH 12+:	208717	Other: (Specify)			
Comments								
SM089-03								
Rev. Date 12/7/17								

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