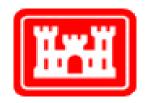
2019 WATER QUALITY MONITORING F.E. WALTER RESERVOIR WHITE HAVEN, PENNSYLVANIA



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

January 2020

F.E. Walter Reservoir White Haven, Pennsylvania

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1.0 INTRODUCTION

1.1 DESCRIPTION OF F.E. WALTER RESERVOIR

The U.S. Army Corps of Engineers (USACE) manages F.E. Walter Reservoir located in northeastern Pennsylvania within the Delaware River Basin. F.E. Walter Reservoir is an integral part of the Lehigh River Flood Control Program. The authorized purpose of this project is flood control. The reservoir project was authorized for recreation and specifically white water recreation as part of Public Law 100-676, Section 6, dated November 17, 1988. Located about 9 miles southeast of Wilkes-Barre, PA, the reservoir dams a drainage area of 288 square miles. The dam can impound up to 35.8 billion gallons of floodwater. The primary surface water input into the reservoir is the Lehigh River as it flows west between Luzerne and Carbon Counties. Bear Creek, a secondary surface water input, enters the reservoir from the north. Tobyhanna Creek drains an area to the southeast and joins the Lehigh River near the headwaters of the reservoir. The reservoir is approximately 3 miles long and approximately 50 feet deep when not operating for flood control or recreation. In an effort to maximize recreational potential in the reservoir and on the Lehigh River downstream, specifically recreational boating and fishing, the normal operating pool of 50 feet is raised an additional 70 feet in April of most years. The additional storage is used to augment low flows in the Lehigh River downstream as a fishery management tool and increase the number of recreational boating releases throughout the summer whitewater recreation season.

1.2 PURPOSE OF THE MONITORING PROGRAM

Foremost, F.E. Walter Reservoir provides flood control to downstream communities on the Lehigh River. Additionally, the reservoir provides important habitat for fish, waterfowl, and other wildlife, and recreational opportunities through fishing and boating both within the lake and downstream. Drinking water intakes exist at various locations on the Lehigh River downstream of the dam. Due to the broad range of uses and demands F.E. Walter Reservoir serves, the USACE monitors water quality and other aspects related to reservoir health primarily to ensure public health safety and protection of the environment. Water quality monitoring results are compared to state water quality standards and used to diagnose problems that commonly effect reservoir health such as nutrient enrichment and toxic loadings. This report summarizes the results of water quality monitoring at F.E. Walter Reservoir and its tributaries from June through September 2019.

1.3 ELEMENTS OF THE STUDY

The USACE, Philadelphia District, has been monitoring the water quality of F.E. Walter Reservoir since 1975. Over this time, yearly monitoring program designs have evolved to address new areas of concern such as human health aspects of drinking water, sediment contaminants within the reservoir basin, and a 2002 investigation of a hydrogen sulfide release near the tail water of the dam. The 2019 monitoring program was similar to those in recent

years. The major element of the monitoring includes monthly physical and chemical water quality and bacteria monitoring from June through September to evaluate compliance with the Pennsylvania state water quality standards and to monitor the overall health of the reservoir.

2.0 METHODS

2.1 PHYSICAL STRATIFICATION MONITORING

Physical stratification monitoring of the water column of F.E. Walter Reservoir was conducted five times between June and September 2019 at all stations (Table 2-1). Physical stratification parameters included temperature, dissolved oxygen (DO), pH, ORP, Chlorophyll a, depth, turbidity, and conductivity. Monitoring was conducted at seven fixed stations located throughout the reservoir watershed (Fig. 2-1). Surface water quality was monitored at stations downstream (outfall discharge) of the reservoir (WA-1S) and upstream tributary stations on Tobyhanna Creek (WA-3S), the Lehigh River (WA-4S), and Bear Creek (WA-5S). Stratification monitoring was conducted within the reservoir at a reservoir tower station (WA-2), Bear Creek arm of the lake (WA-6), and Lehigh River arm of the lake (WA-7) with water quality measured from the water surface to the bottom at 5-ft intervals. All of the water quality monitoring was conducted with a calibrated YSI 6600 V2-4 multi-parameter water quality sonde.

In this report, when applicable, water quality data recorded from stratification monitoring was compared to water quality standards mandated by the Pennsylvania Department of Environmental Protection (PADEP Chapter 93). The standard for DO is a minimum concentration of 5 mg/L, and that for pH is an acceptable range from 6 to 9. Temperatures criteria are based on seasonal guidelines. All of the water quality data collected during physical stratification monitoring is summarized in Appendix A.

2.2 WATER COLUMN CHEMISTRY MONITORING

Water column chemistry monitoring was conducted five times at F.E. Walter Reservoir between June and September 2019 (Table 2-1). Water samples were collected at the seven fixed stations throughout the reservoir drainage area (Fig. 2-1). Surface water samples were collected at stations downstream of the reservoir (WA-1S) and upstream on Tobyhanna Creek (WA-3S), the Lehigh River (WA-4S), and Bear Creek (WA-5S). Surface, middle, and bottom water samples were collected at each of the reservoir-body stations WA-2, WA-6, and WA-7. Surface water samples were collected by opening the sample containers approximately 0.5-1 foot below the water's surface. Middle and bottom samples were collected with a Van Dorn design water bottle sampler. All samples were placed on ice in a cooler and shipped to a certified laboratory for testing. 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 collected from surface, middle, and bottom depths were analyzed for ammonia, nitrite, nitrate, total Kjeldahl nitrogen (TKN), total phosphorus, soluble phosphorus, total dissolved solids (TDS), total suspended solids (TSS), biochemical oxygen demand (BOD), alkalinity, and total organic carbon (TOC). Table 2-2 summarizes the water quality parameters; laboratory method detection limits, laboratory required reporting limits, state water quality standards, and allowable maximum hold times for each.

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Table 2-1. F.E	. Walter Reserv	oir water quali	ty schedule for 20)19 monitorin	g		
Date of Sample Collection	(3) Physical Stratification Monitoring (All Stations)	Water Column Chemistry Monitoring (All Stations)	Trophic State Determination (WA-2)	Coliform Bacteria Monitoring (All Stations)	(4) Sediment Priority Pollutant Monitoring (WA-2)	(2) Lehigh Temperature Probes	(1) Drinking Watel Monitoring
26 June	Х	Х	Х	NS	NS	NS	NS
17 July	Х	Х	X	Х	NS	NS	NS
31 July	Х	Х	Х	Х	NS	NS	NS
21 August	X	X	X	X	NS	NS	NS
11 September	Х	X	Х	Х	NS	NS	NS

(1) Drinking water samples are sampled quarterly by personnel at each reservoir.(2) Lehigh River temperature probes continuously monitor river temperatures throughout the sampling period. They are periodically downloaded.(3) Physical stratification monitoring is conducted at all stations during routine monthly sampling.

(4) Sediment Sampling was not conducted in 2019 based on historic sampling results showing low probability of sediment contamination. NS- Not Sampled

Methods

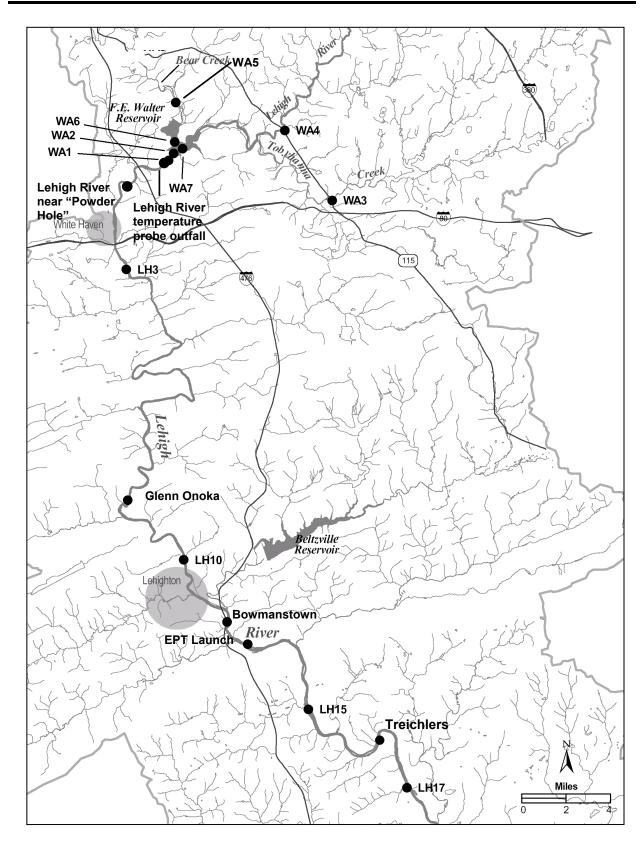


Figure 2-1. Location map for F.E. Walter Reservoir and historically sampled Lehigh River temperature probe monitoring stations.

Table 2-2. Water quality test methods, detection limits, state regulatory criteria, and sample holding times for water quality parameters monitored at F.E. Walter 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 10 mg/L	28	
Nitrite	SM4500NO2 B-11	0.01 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	

⁽¹⁾ Chlorophyll a samples were recorded using a YSI 6600 with a chlorophyll sensor.

⁽²⁾ 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", 22nd Edition, 2012.

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

^{*} Total Inorganic Carbon and Total Carbon were not sampled for in 2019

2.3 TROPHIC STATE DETERMINATION

The trophic state of F.E. Walter Reservoir was determined by methods outlined by Carlson (1977) and EPA (1983). In general, these methods calculate trophic state indices (TSIs) independently for total phosphorus and chlorophyll *a* concentrations, and secchi disk depth. Surface water measures of total phosphorus and chlorophyll *a* from chemistry monitoring were used independently in determining monthly TSI values. Secchi disk depth was measured only in surface waters in the reservoir-body. Trophic state determinations were calculated only for Station WA-2 within the reservoir.

2.4 RESERVOIR BACTERIA MONITORING

Max. allowable holding time

Achieved holding time

Monitoring for coliform bacteria contaminants was conducted five times at each sampling station between June and September 2019 at F.E. Walter Reservoir. Surface water samples were collected in the same manner as for chemical parameter samples, and analyzed for total and fecal coliform contamination. Table 2-3 presents the test methods, detection limits, PADEP standards, and sample holding times for the bacteria parameters monitored at F.E. Walter Reservoir in 2019. The bacteria analytical method was based on a membrane filtration technique. Laboratory analysis was conducted by Eurofins QC, LLC located in Horsham, Pennsylvania (NELAP/PA 46-05499).

Monthly coliform bacteria counts were compared to the PADEP single sample and swimming beach water quality standard for bacteria. 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. Application of this standard is not necessary at F.E. Walter because swimming and other human/water contact recreation is prohibited in the reservoir. However, it is useful in evaluating the bacteria conditions in the lake and watershed.

•	•	mits, PADEP standards, and sample nonitored at F.E. Walter Reservoir in
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

30 hours

< 30 hours

30 hours

< 30 hours

3.0 RESULTS AND DISCUSSION

3.1 STRATIFICATION MONITORING

The following sections describe temporal and spatial patterns for the water quality parameters of temperature, dissolved oxygen (DO) and pH measured throughout the F.E. Walter Reservoir and watershed during 2019. Additionally, patterns related to season and depths are described for station WA-2 which is located near the operations tower and maintains the greatest water depths in the reservoir. Maximum depths at station WA-2, during five separate monthly sampling days, vary between approximately 89 to 121 feet depending on 2019 reservoir operations (recreation and flood control) at the time of sampling. All of the stratification data collected during the 2019 monitoring period is 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 temperature stratification patterns naturally occurring in lakes affect the distribution of dissolved and suspended compounds.

Temperatures of the tributary surface waters (Stations WA-3S, -4S, and -5S) of the F.E. Walter Reservoir watershed generally followed a similar seasonal pattern throughout the monitoring period. Monthly sampling showed temperatures rising from early summer with peak surface temperatures seen in late August along with a decline in September (Fig. 3-1). Downstream release (Station WA-1S) surface water temperatures showed a similar trend with late July through September temperatures slightly warmer than tributary inflow temperatures. A maximum inflow temperature of 21.86 °C (WA-5S) was measured in September and maximum outflow temperature of 22.28 °C (WA-1S) was also seen in September. Surface water temperatures of the reservoir-body (Stations WA-2S, -6S, and -7S) were generally warmer than in tributaries and downstream of the dam as a result of warming from the sun and deep reservoir pool downstream releases. In-lake reservoir surface temperatures peaked in early-July at approximately 26.50 °C (Station WA-7S). In 2019, tributary and release water temperatures, at times, exceeded the Pennsylvania state water quality criteria for cold water fisheries.

The water column of F.E. Walter Reservoir was temperature stratified during the 2019 sampling season (Fig. 3-2). Due to operations in 2019, specifically the raising of the base pool level and recreational release operations, the temperature stratification within the reservoir was likely affected by bottom flood gate releases and flood control storage on various occasions during the season. This was particular evident in late August and into September when the pool level was reduced for recreational operations and reservoir profile temperatures showed a breakup of stratification in the water column. The reservoir tower was constructed with bottom flood control gates only and does not have the flexibility to withdrawal water from other locations in the water column with the exception of a small bypass control at elevation 1297'. As a result, deeper and typically cooler bottom waters are withdrawn first, likely causing a disruption in

stratification and accelerated depletion of cooler bottom waters. Overall, reservoir lake temperatures in 2019 showed stratification in late June that extended into August. Cooler deep water temperatures (less than 20 °C as a fishery place marker) were available into the mid July time period of the recreational season which is typical for most years.

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 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 oxygen can facilitate the release of nutrients from bottom sediments.

In 2019, DO in the tributary surface waters (stations WA-3S, -4S, and -5S) of F.E. Walter Reservoir remained relatively constant and within acceptable freshwater concentrations from June through September with recorded values ranging from 8.21 mg/L to 9.42 mg/L. These values can be attributed to typically well oxygenated stream and river systems and seasonal changes in water temperature. Station WA-1S located downstream of F.E. Walter Reservoir also maintained a similar seasonal pattern with recorded values ranging from 8.21 mg/L to 9.42 mg/L. This can be attributed, in part, to the aeration of reservoir bottom waters as it passes through the conduit system of the dam and is released downstream.

The water column of F.E. Walter Reservoir was weakly stratified with respect to DO during most of the sampling season (Fig. 3-4). The reservoir profile showed the formation of a metalimnetic dissolved oxygen minimum in late August. As seen in some oxygen versus depth profiles of lakes or reservoirs, concentrations of dissolved oxygen may be depleted in the metalimnion of the lake profile. This depletion is termed a negative heterograde curve or metalimnetic oxygen minimum. Metalimnetic minimums of dissolved oxygen in deep mesotrophic reservoirs are often seen and have been shown to also exist in the US Army Corps of Engineers Philadelphia District's Beltzville Reservoir. This water column profile formation may be a natural occurrence and/or man induced. In the case of F.E. Walter Reservoir, the severity of this occurrence appears influenced by seasonal recreational and flood control operations. In either case, the potential exists for negative impacts on water quality, recreational use, and aquatic species such as fish. The occurrence and severity of this DO formation will be monitored during future sampling efforts. In all months sampled the DO concentrations remained above state epilimnion DO criteria (minimum 5 mg/l).

The health of aquatic ecosystems can be impaired by low DO concentrations in the water column (<5.0 mg/L). The lowest DO concentration (0.77 mg/L) was recorded at the bottom of the reservoir during the 17 July sampling event (Fig. 3-4). Hypoxia, or conditions of DO concentrations less than 2 mg/L, is generally accepted as the threshold at which the most severe effects on biota occur. F.E. Walter Reservoir did experience hypoxic conditions in deeper reservoir waters during the 2019 sampling season. Low oxygen reservoir waters are re-

aerated as they pass through the conduit system of the reservoir during releases downstream. As a result, water releases from the deeper portions of the reservoir containing lower DO concentration did not negatively impact the DO concentrations of the Lehigh River downstream.

3.1.3 pH

PH is the measure of the hydrogen –ion concentration in the water. A pH below 7 is considered acidic and a pH above 7 is basic. The pH scale is 0-14 with the lower numbers being more acidic and the higher numbers being more 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 in tributary surface (WA-3S, -4S, and -5S) waters of F.E. Walter Reservoir generally followed a similar pattern during 2019 and remained relatively constant or within a narrow range of values (6.11-7.21) throughout the sampling season. The lowest pH level of 6.11 recorded during the sampling season occurred at station WA-5S during the 17 July sampling and the highest pH reading of 7.21 was recorded at Station WA-3S in September. Measures of pH at the downstream station WA-1S are directly influenced by bottom water column releases from the reservoir. Readings of pH at this station ranged from a high of 7.10 in late July to a low of 6.53 in early July (Fig. 3-5).

In 2019, measures of reservoir pH stayed within a tight range of values (6.15-7.19) from the surface to the bottom throughout the sampling season (Fig. 3-6). Slightly higher pH values were measured in the surface waters of the lake. Many factors can influence the pH of the reservoir water such as geology, wind, acid rain, algal productivity, deep water biological productivity and others. Measures of pH throughout the water column in all months sampled remained in compliance with PADEP water quality standards. The water quality standard for pH is a range of acceptable measures between 6 and 9.

3.2 WATER COLUMN CHEMISTRY MONITORING

Table 3-1 provides a summary of water column chemistry sampling for all stations and dates sampled at F.E. Walter Reservoir in 2019. The following sections describe the temporal, spatial, and depth related patterns for these water quality measures.

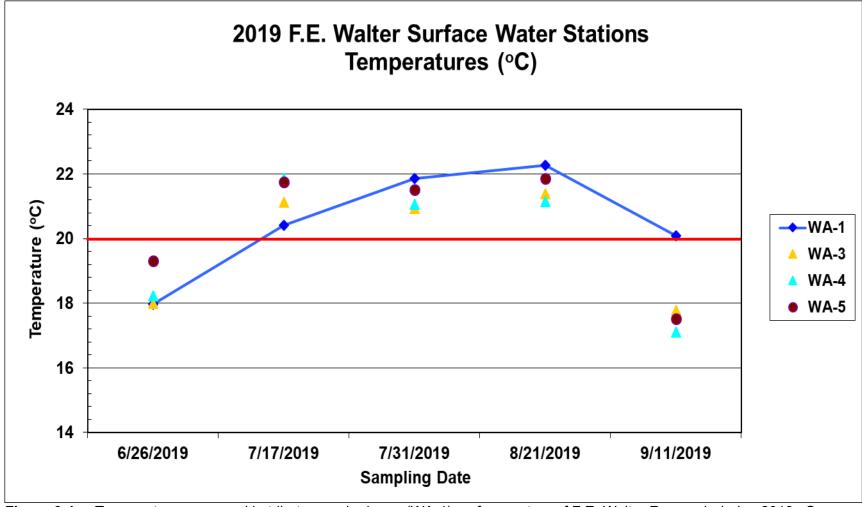


Figure 3-1. Temperature measured in tributary and release (WA-1) surface waters of F.E. Walter Reservoir during 2019. See Appendix A for a summary of the plotted values. The coldwater species preference temperature of 20°C is shown as a red line reference.

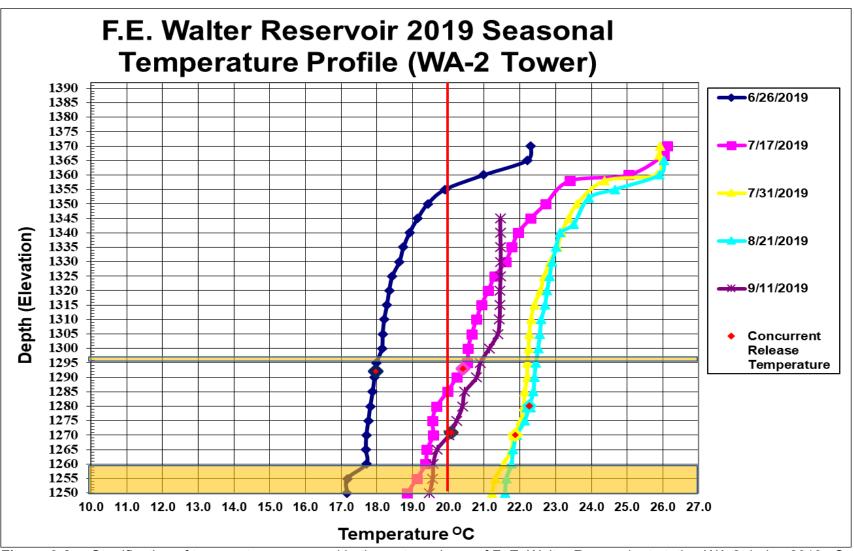


Figure 3-2. Stratification of temperature measured in the water column of F. E. Walter Reservoir at station WA-2 during 2019. See Appendix A for a summary of the plotted values. The coldwater species preference temperature of 20°C is shown as a red line reference.

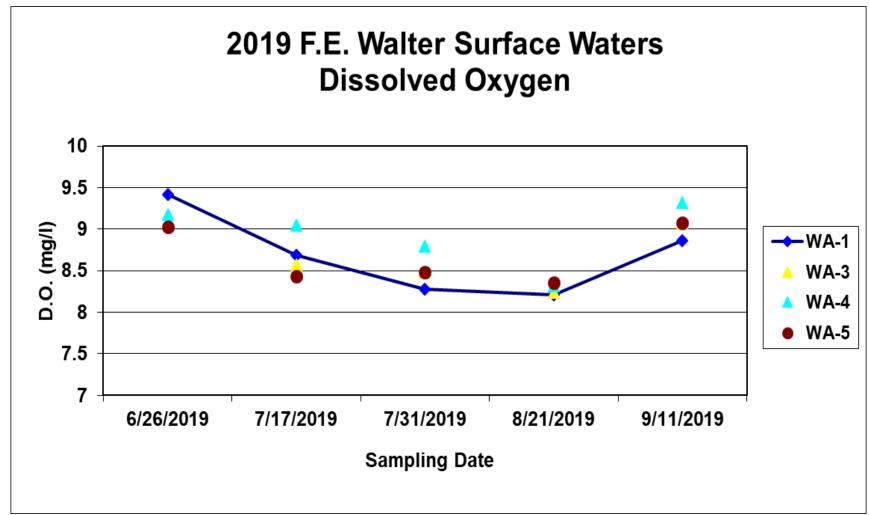


Figure 3-3. Dissolved oxygen measured in tributary and release (WA-1) surface waters of F. E. Walter Reservoir during 2019. See Appendix A for a summary of the plotted value.

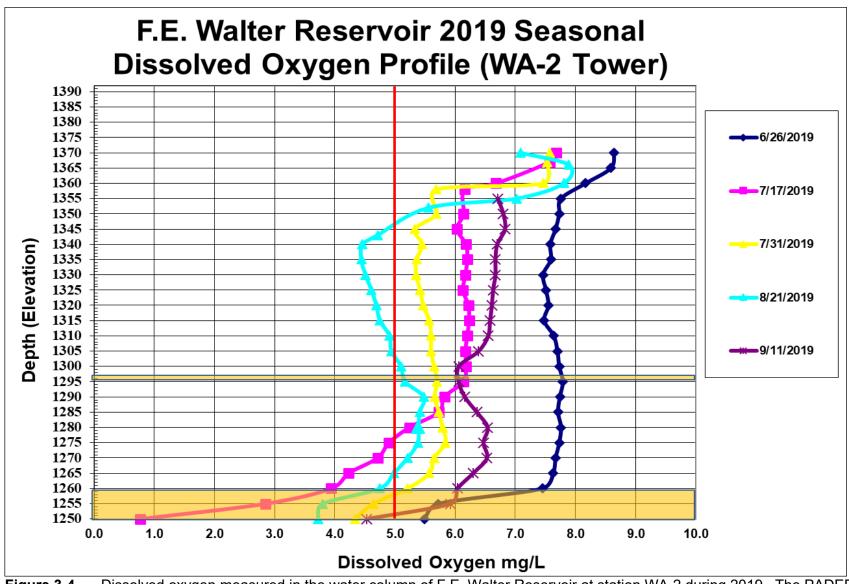


Figure 3-4. Dissolved oxygen measured in the water column of F.E. Walter Reservoir at station WA-2 during 2019. The PADEP WQ standard for DO is an epilimnion minimum concentration of 5 mg/L. See Appendix A for a summary of the plotted values.

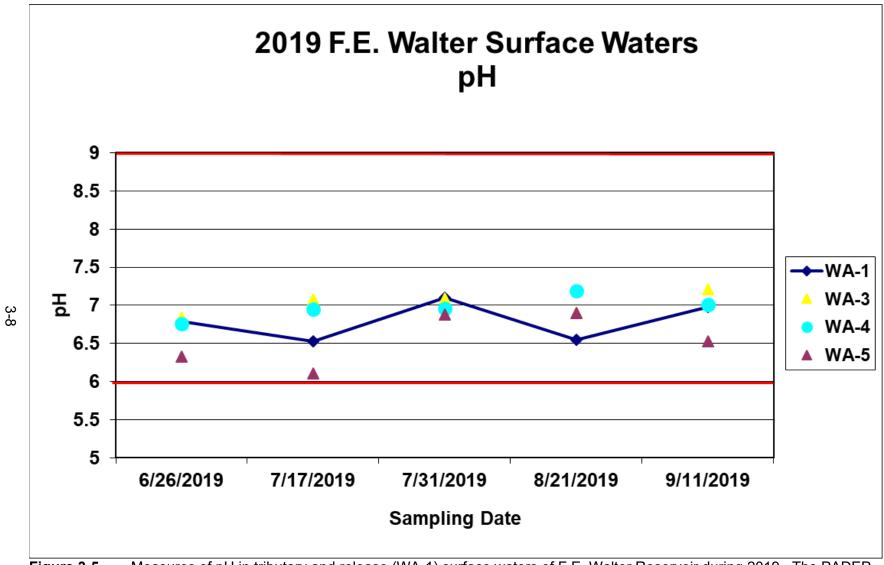


Figure 3-5. Measures of pH in tributary and release (WA-1) surface waters of F.E. Walter Reservoir during 2019. The PADEP WQ standard for pH is an acceptable range from 6 to 9. See Appendix A for a summary of the plotted values



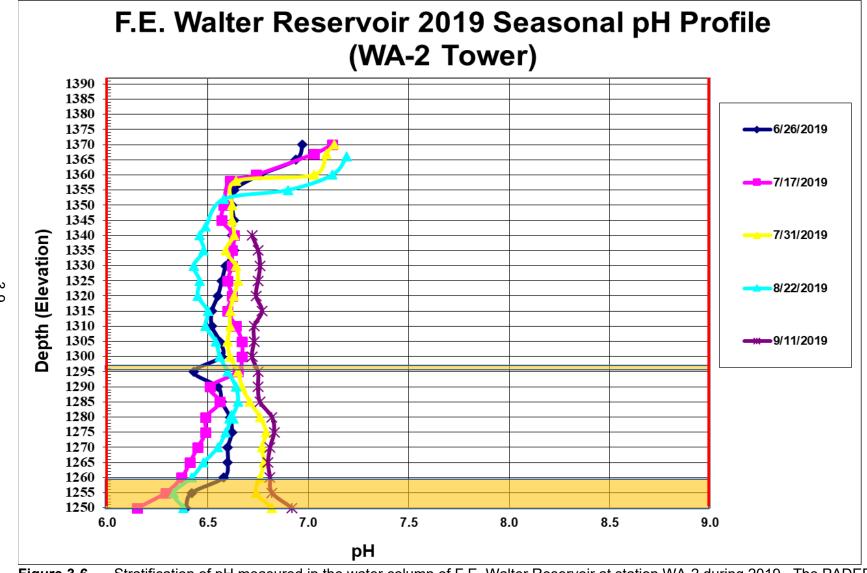


Figure 3-6. Stratification of pH measured in the water column of F.E. Walter Reservoir at station WA-2 during 2019. The PADEP water quality standard pH is an acceptable range from 6 to 9. See Appendix A for a summary of the plotted value.

Table 3-1. S	Table 3-1. Summary of surface, middle, and bottom water quality monitoring data for F.E. Walter 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
	6/26/2019	13	<10	<0.007	<0.20	<0.01	0.14	NS	36	0.36	5.5	<0.01	4.1
	7/17/2019	20	<3.4	0.009	<0.20	<0.01	0.11	NS	49	0.4	4.9	0.02	<4.0
	7/31/2019	35	<3.4	0.01	<0.20	<0.01	<0.11	NS	45	<0.20	6.7	<0.01	5
	8/21/2019	<5.0	1.7	0.02	<0.20	<0.01	0.12	NS	49	0.37	5.6	0.02	4.2
WA-01S	9/11/2019	17	<1.0	0.008	<0.20	<0.01	<0.11	NS	53	0.33	4.2	0.02	16.8
WA-015													
	6/26/2019	20	<10	<0.007	<0.20	<0.01	0.11	NS	39	0.29	5.2	<0.01	<4.0
	7/17/2019	<5.0	<3.4	<0.007	<0.20	<0.01	<0.11	NS	43	0.37	5.1	<0.01	<4.0
	7/31/2019	<10	<3.4	0.01	<0.20	<0.01	<0.11	NS	39	0.36	5.3	<0.01	<4.0
	8/21/2019	<5.0	1.3	0.01	<0.20	<0.01	<0.11	NS	43	0.29	5.2	<0.01	<4.0
WA-02S	9/11/2019	<10	<1.0	<0.007	<0.20	<0.01	<0.11	NS	54	<0.20	4.7	<0.01	<4.0
WA-025													

Table 3-1 c	Table 3-1 continued. Summary of surface, middle, and bottom water quality monitoring data for F.E. Walter 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
	6/26/2019	35	<10	<0.007	<0.20	<0.01	<0.11	NS	38	0.29	4.6	<0.01	<4.0
	7/17/2019	<5.0	4.3	<0.007	<0.20	<0.01	0.24	NS	43	0.32	4.8	<0.01	<4.0
	7/19/2017	<10	<3.4	0.01	<0.20	<0.01	<0.11	NS	45	0.27	6.1	<0.01	4.5
	8/21/2019	<10	1.3	0.01	<0.20	<0.01	<0.11	NS	43	0.31	5	<0.01	<4.0
WA-02M	9/11/2019	14	<1.0	<0.007	<0.20	<0.01	0.22	NS	48	<0.20	4.5	<0.01	<4.0
W/1-021VI													
	6/26/2019	12	<10	0.01	<0.20	<0.01	0.27	NS	44	0.55	6.1	0.04	31.3
	7/17/2019	<5.0	<3.4	<0.007	<0.20	<0.01	0.16	NS	50	0.42	5.3	<0.01	<4.0
	7/19/2019	25	<3.4	0.02	<0.20	<0.01	<0.11	NS	42	0.55	6.7	0.02	10
	8/21/2019	<10	1.1	0.02	<0.20	<0.01	<0.11	NS	60	0.4	5.3	0.05	20.5
WA-02B	9/11/2019	<10	1.2	0.008	<0.20	<0.01	<0.11	NS	49	<0.20	4.2	<0.01	9.8
WII 02B													

Table 3-1 c	Table 3-1 continued. Summary of surface, middle, and bottom water quality monitoring data for F.E. Walter 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
	6/26/2019	21	<10	0.01	<0.20	<0.01	0.16	NS	48	0.38	6.2	0.02	4.6
	7/17/2019	11.5	<3.4	0.02	<0.20	<0.01	0.23	NS	55	0.28	5	0.02	<4.0
	7/31/2019	35	<3.4	0.02	<0.20	<0.01	0.18	NS	58	0.42	6.5	0.02	<4.0
	8/21/2019	<10	1.5	0.02	<0.20	<0.01	0.15	NS	62	0.28	5.3	0.03	<4.0
WA-03S	9/11/2019	14	<1.0	<0.007	<0.20	<0.01	0.23	NS	57	<0.20	4.1	<0.01	<4.0
WA-033													
	6/26/2019	<10	<10	0.02	<0.20	<0.01	0.11	NS	42	0.36	4.7	0.05	<4.0
	7/17/2019	10.5	<4.4	0.01	<0.20	<0.01	0.13	NS	50	0.27	3.6	<0.01	<4.0
	7/31/2019	30	<3.4	0.01	<0.20	<0.01	<0.11	NS	36	0.49	5.7	0.02	<4.0
	8/21/2019	<10	3	0.01	<0.20	<0.01	0.35	NS	43	0.29	4.7	0.02	<4.0
WA-04S	9/11/2019	<10	<1.0	0.01	<0.20	<0.01	0.12	NS	52	<0.20	2.9	0.02	<4.0
WA-043													
													•

Table 3-1 co	Table 3-1 continued. Summary of surface, middle, and bottom water quality monitoring data for F.E. Walter 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
	6/26/2019	33	<10	<0.007	<0.20	<0.01	<0.11	NS	28	0.38	4	<0.01	<4.0
	7/17/2019	<5.0	<3.4	0.009	<0.20	<0.01	0.24	NS	49	0.31	4.5	<0.01	<4.0
	7/31/2019	40	<3.4	<0.007	<0.20	<0.01	<0.11	NS	36	0.32	5.1	<0.01	<4.0
	8/21/2019	<5.0	1	0.01	<0.20	<0.01	<0.11	NS	43	0.31	5.7	0.02	<4.0
WA-05S	9/11/2019	<10	1.7	<0.007	<0.20	<0.01	0.14	NS	42	<0.20	3.5	<0.01	<4.0
WA-038													
	6/26/2019	25	<10	<0.007	<0.20	<0.01	<0.11	NS	40	0.33	4.6	<0.01	<4.0
	7/17/2019	5	<3.4	0.008	<0.20	<0.01	0.15	NS	50	0.33	4.9	<0.01	<4.0
	7/31/2019	<10	<3.4	0.01	<0.20	<0.01	<0.11	NS	44	0.37	5.2	<0.01	<4.0
	8/21/2019	<10	1.5	0.01	<0.20	<0.01	<0.11	NS	37	0.29	5	0.02	<4.0
WA-06S	9/11/2019	<10	<1.0	0.008	<0.20	<0.01	0.19	NS	48	0.33	4.6	<0.01	<4.0
WA-003													

Table 3-1 co	Table 3-1 continued. Summary of surface, middle, and bottom water quality monitoring data for F.E. Walter 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
	6/26/2019	<10	<10	0.01	<0.20	<0.01	<0.11	NS	45	0.34	5.4	0.02	<4.0
	7/17/2019	<5.0	<3.4	0.008	<0.20	<0.01	0.3	NS	38	0.36	4.4	<0.01	<4.0
	7/31/2019	<10	<3.4	0.01	<0.20	<0.01	<0.11	NS	42	0.34	5.9	<0.01	<4.0
	8/21/2019	<10	<1.0	<0.007	<0.20	<0.01	<0.11	NS	39	0.27	5.2	<0.01	<4.0
WA-06M	9/11/2019	<10	1.2	<0.007	<0.20	<0.01	<0.11	NS	44	0.31	4.5	<0.01	<4.0
WA-00M													
	6/26/2019	14	<10	0.01	<0.20	<0.01	<0.11	NS	49	0.32	5.4	<0.01	5.2
	7/17/2019	5.5	<3.4	0.01	<0.20	<0.01	0.17	NS	39	0.87	5	0.03	14.1
	7/31/2019	<10	<3.4	0.01	<0.20	<0.01	<0.11	NS	43	0.34	6.5	<0.01	<4.0
	8/21/2019	<10	<1.0	<0.007	<0.20	<0.01	<0.11	NS	41	0.28	5.1	<0.01	12
WA-06B	9/11/2019	<10	1	0.01	<0.20	<0.01	<0.11	NS	57	0.28	4.2	<0.01	<4.0
W A-00D													

Table 3-1 co	Table 3-1 continued. Summary of surface, middle, and bottom water quality monitoring data for F.E. Walter 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
	6/26/2019	11	<10	0.009	<0.20	<0.01	<0.11	NS	41	0.22	5.3	<0.01	<4.0
	7/17/2019	7	<3.4	0.01	<0.20	<0.01	<0.11	NS	45	0.32	5.1	0.03	<4.0
	7/31/2019	<10	<3.4	0.01	<0.20	<0.01	<0.11	NS	43	0.4	5.7	<0.01	<4.0
	8/21/2019	<10	1.2	<0.007	<0.20	<0.01	<0.11	NS	32	0.27	4.5	<0.01	<4.0
WA-07S	9/11/2019	<10	<1.0	0.01	<0.20	<0.01	0.15	NS	42	<0.20	4.6	<0.01	<4.0
WA-0/S													
	6/26/2019	11	<10	0.009	<0.20	<0.01	<0.11	NS	46	0.48	5.4	<0.01	<4.0
	7/17/2019	6.5	<3.4	0.01	<0.20	<0.01	0.13	NS	50	0.33	5	<0.01	<4.0
	7/31/2019	<10	4.5	0.02	<0.20	<0.01	<0.11	NS	40	0.38	6.8	0.02	<4.0
	8/21/2019	<10	1.8	<0.007	<0.20	<0.01	<0.11	NS	45	0.26	4.8	<0.01	<4.0
WA-07M	9/11/2019	<10	<1.0	0.02	<0.20	<0.01	<0.11	NS	47	<0.20	4.6	0.02	<4.0
WA-U/M													

Table 3-1 c	Table 3-1 continued. Summary of surface, middle, and bottom water quality monitoring data for F.E. Walter 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
	6/26/2019	14	<10	0.009	<0.20	<0.01	<0.11	NS	50	0.3	6.1	0.07	15.6
	7/17/2019	7	<3.4	0.02	<0.20	<0.01	<0.11	NS	50	0.42	5.5	0.02	5.5
	7/31/2019	<10	19	0.01	<0.20	<0.01	<0.11	NS	55	0.46	7	0.02	<4.0
	8/21/2019	<10	1.1	0.02	<0.20	<0.01	<0.11	NS	61	0.25	5.1	0.02	30.6
WA-07B	9/11/2019	<10	<1.0	0.01	<0.20	<0.01	<0.11	NS	51	0.3	4.3	<0.01	9.8
WA-0/B													

< Laboratory analysis result was less than the limit of quantification or limit of detection. NS- Not Sampled

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 is an essential plant nutrient, it contributes to the trophic status of a water body. Excess ammonia contributes to eutrophication of water bodies. This can result in excessive algal growths and impacts on recreation and drinking water supplies. In high concentrations, ammonia is toxic to aquatic life.

Ammonia in the water column of F.E. Walter Reservoir was consistently low throughout the monitoring period with all sample results less than the minimum laboratory reporting limit (<0.20 mg/L). F.E. Walter Reservoir was in compliance with the PADEP water quality standard for ammonia during 2019. The water quality standard of ammonia is dependent on temperature and pH (Table 3-2). Throughout the monitoring period, all measures of ammonia were less than their respective criteria values.

Table 3.2 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 average 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	an once in three years on average.						

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. Concentrations of nitrite at F.E. Walter Reservoir were consistently low at all sampling stations during 2019. Concentrations of nitrite measured at all stations and depths were less than the minimum laboratory reporting limit of 0.01 mg/L (Table 3-1).

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 also consistently low at F.E. Walter Reservoir during 2019. For all stations and depths, sample results ranged from less than the laboratory reporting limit of 0.11 mg/L to a maximum of 0.35 mg/L in the upstream surface waters at station WA-4S on 21 August.

In 2019, F.E. Walter Reservoir was in compliance with the PADEP water quality standard for nitrogen. The water quality standard for nitrogen is a summed concentration of

nitrite and nitrate of less than 10-mg/L. Throughout the monitoring period, the summed concentrations for each station were well below this standard. The maximum summed concentration for any one sampling station did not exceed 0.46 mg/L.

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 an inorganic form occurs. TKN in the water column of F.E. Walter Reservoir was low during 2019 (Table 3-1). Concentrations measured at all reservoir stations ranged from less than the minimum laboratory reporting limit of 0.20 mg/L to a high of 0.87 mg/L in the reservoir bottom waters at station WA-6B on 17 July.

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. For all stations and depths, concentrations ranged from less than the reporting limit of 0.01 mg/L to a high of 0.07 mg/L (Table 3-1). The maximum single sample concentration was measured on 26 June in the reservoir bottom waters at station WA-07B.

3.2.5 Dissolved Phosphorus

Dissolved or soluble phosphorus (DISS P) in the water column of F.E. Walter Reservoir remained consistently low during 2019. For all stations and depths, concentrations ranged from less than the reporting limit of 0.007 mg/L to a high of 0.02 mg/L (Table 3-1). In freshwater environments, dissolved phosphorus is usually a limiting nutrient and is utilized by freshwater plants and algae during photosynthesis.

3.2.6 Total Dissolved Solids

Total Dissolved Solids (TDS) is a measure of the amount of filterable dissolved material in the water. Dissolved salts such as sulfate, magnesium, chloride, and sodium contribute to elevated levels. TDS in the lake and tributary stations of F.E. Walter Reservoir remained relatively constant and low during 2019. Concentrations at all stations and depths ranged from 28 to 62 mg/L (Table 3-1). F.E. Walter Reservoir and its tributaries were in compliance with the PADEP water quality standard for total dissolved solids during 2019. The water quality standard is a maximum concentration of 500-mg/L.

3.2.7 Total Suspended Solids

Total Suspended Solids (TSS) is a measure of the amount of non-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). TSS measures in the water column of F.E. Walter Reservoir were low in 2019 with many most results less than the reporting limit of 4.0 mg/L and ranging to a maximum concentration of 31.3 mg/L (Table 3-1). Elevated results were predominantly seen in the lake bottom water samples. This is likely a result of sampling error and suspended lake bottom sediments being captured in the sample during lake bottom water sampling. On occasion, bottom sediments are re-suspended during the process of collecting a sample from deeper waters. These elevated results do not always accurately reflect conditions at those stations and depths.

3.2.8 Biochemical Oxygen Demand

Five-day biochemical oxygen demand (BOD) 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 waters of F.E. Walter Reservoir were inconclusive in 2019 as a result of inconsistent laboratory reporting limits (Table 3-2). Recordable results ranged from 1.1 mg/L to 19.0 mg/L. In considering the overall infrequency of samples showing higher readings in addition to historical sampling results, it is inferred that F.E. Walter Reservoir and its associated tributaries fluctuated between very clean water with little biodegradable organic wastes to moderately clean waters with some biodegradable wastes in 2019.

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 CaCO₃ except where natural conditions are less.

Alkalinity measurements in the waters of F.E. Walter Reservoir were routinely low during 2019 but inconsistent laboratory reporting limits does not allow for an accurate assessment of conditions in the watershed. Concentrations measured at all stations and depths ranged from <5.0 mg/L to 40.0 mg/L CaCO₃ throughout the monitoring period (Table 3-1). The natural alkalinity of water is largely dependent on the underlying geology and soils within the surrounding watershed. The low alkalinity typically measured at F.E. Walter Reservoir probably results from the regional geology, which is primarily sandstone and shale (Van Diver 1990).

3.2.10 Total Organic Carbon

Total Organic Carbon (TOC) is a measure of the dissolved and particulate organic carbon in water. The bulk of organic carbon in water is composed of humic substances and partly degraded animal and plant materials. High levels of organic carbon coincide with a lowering of dissolved oxygen concentrations. Carbon is a nutrient required for biological processes. Total Organic Carbon (TOC) was measured in the water column and tributaries of F.E. Walter Reservoir (Table 3-1). Concentrations of TOC at all stations and depths ranged from 2.9 mg/L to 6.8 mg/L. Concentrations were similar across all stations and depths.

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. For the entire 2019 sampling season, chlorophyll a was low in the lake surface waters of F.E. Walter Reservoir (Appendix A). Concentrations for all sampling dates for lake stations at depths from 0-10 feet ranged from 3.0 ug/L to 5.8 ug/L.

3.3 TROPHIC STATE DETERMINATION

Carlson's (1977) trophic state index (TSI) is a method of expressing the extent of eutrophication of a lake, quantitatively. The trophic state analysis calculates separate indices for eutrophication based on measures of total phosphorus, chlorophyll *a*, and secchi disc depth. 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 F.E. Walter Reservoir was based on a single sample each month during the sampling season. It is important to note that variability in measurements not captured between sampling events and the resulting classification can occur. Figure 3-7 graphically shows this potential variability between samples.

TSIs calculated for measures of total phosphorus classified F.E. Walter Reservoir as oligotrophic in June (37.35), early July (37.35), late July (37.35), August (37.35) and September (37.35). TSIs calculated for measures of secchi disk depth classified F.E. Walter Reservoir as mesotrophic in June (45.69), early July (46.23), late July (47.09), August (47.38) and September (45.42). TSIs calculated for measures of chlorophyll *a* classified F.E. Walter Reservoir as mesotrophic in June (45.20), early July (43.70), late July (43.43), August (44.68), and September (42.40).

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. 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 classifying the trophic conditions of lakes of the North Temperate Zone based on concentrations of total phosphorus, chlorophyll *a*, and secchi disk depth (Table 3-3). Taking into account the general agreement between the EPA classifications with that of the Carlson TSIs, the trophic condition of F.E. Walter Reservoir fluctuated between being mesotrophic and oligotrophic throughout much of the 2019 sampling season.

Table 3-3. EPA trophic classification criteria and average monthly measures for F.E. Walter Reservoir in 2019.										
Water Quality Variable	Oligo- trophic	Meso- trophic	Eutrophic	26 June	17 July	31 July	21 Aug.	11 Sep.		
Total Phosphorus (ppb)	<10	10-20	>20	<10	<10	<10	<10	<10		
Chlorophyll a (ppb)	<4	4-10	>10	4.43	3.80	3.70	4.20	3.30		
Secchi Depth (m)	>4	2-4	<2	2.70	2.60	2.45	2.40	2.75		
	1		1							

3.4 RESERVOIR BACTERIA MONITORING

Two forms of coliform bacteria contamination were monitored in the tributary and lake surface waters at F.E. Walter 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 and dates ranged from 510 colonies/100-ml to >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 standards, fecal coliform bacteria has been replaced with an e-coli criteria. For purposes of the 2019 reservoir bacteria sampling, previous fecal coliform criteria was used to evaluate bacteria contamination in the reservoir. Fecal contamination was low in F.E. Walter Reservoir and higher in its upstream 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 F.E. Walter Reservoir did not exceed this standard in 2019. Water contact recreation is not permitted at F.E. Walter Reservoir.

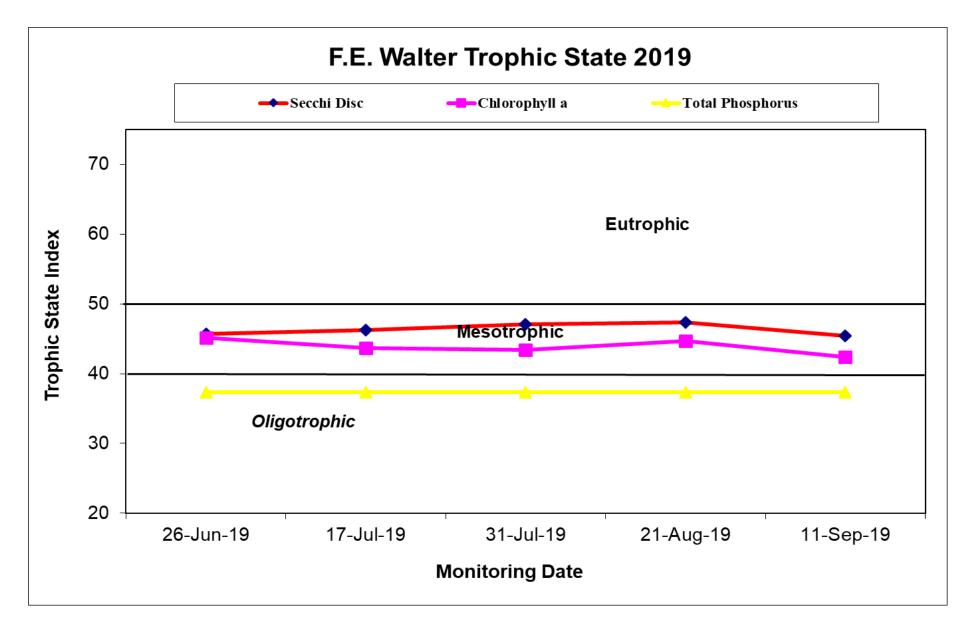


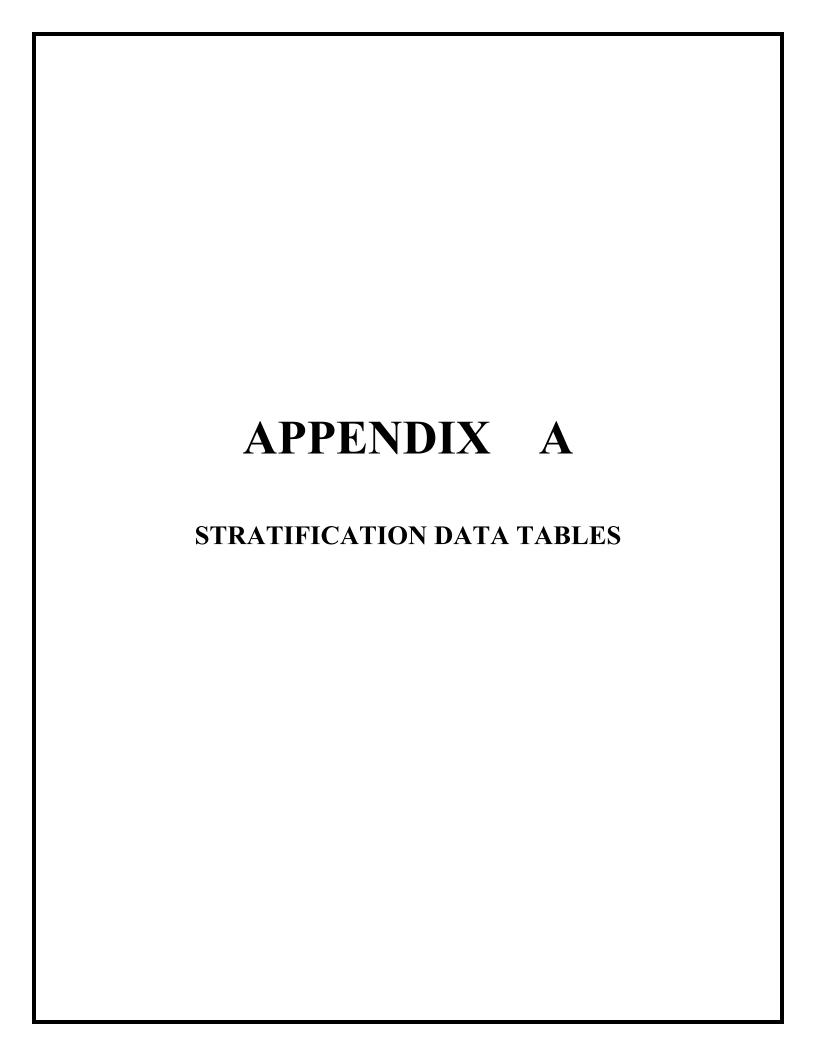
Figure 3-7.Carlson Trophic state indices calculated from secchi disk depth, concentrations of chlorophyll a and Total Phosphorus measured in surface waters of F.E. Walter Reservoir at Station WA-2 during 2019.

Table 3-4. Surface water bacteria counts (colonies/100 ml) at F.E. Walter Reservoir during 2019. Shaded values exceed State bacteria criteria. NS = Not Sampled in 2019 LE = Lab Error

STATION	DATE		Total Coliform	Fee	al Coliform	Escherichia coli		
	6/26/2019		LE		LE	NS		
	7/17/2019		11300		3	NS		
WA-1S	7/31/2019	>	2000		9	NS		
	8/21/2019	>	2000		32	NS		
	9/11/2019	>	20000	>	600	NS		
	6/26/2019		LE		LE	NS		
	7/17/2019		15300		2	NS		
WA-2S	7/31/2019	>	2000	<	1	NS		
	8/21/2019		960	<	1	NS		
	9/11/2019		709		22	NS		
	6/26/2019		LE		LE	NS		
	7/17/2019	>	20000		23	NS		
WA-3S	7/31/2019	>	2000		28	NS		
	8/21/2019	>	2000		38	NS		
	9/11/2019		7100		20	NS		
	6/26/2019		LE		LE	NS		
	7/17/2019	>	20000		70	NS		
WA-4S	7/31/2019	>	2000		68	NS		
	8/21/2019	>	2000		50	NS		
	9/11/2019		10000		26	NS		
	6/26/2019		LE		LE	NS		
	7/17/2019		8300		10	NS		
WA-5S	7/31/2019	>	2000		16	NS		
	8/21/2019	>	2000		18	NS		
	9/11/2019		NS		NS	NS		
	6/26/2019		LE		LE	NS		
	7/17/2019		7700		1	NS		
WA-6S	7/31/2019	>	2000	<	1	NS		
	8/21/2019		850	<	1	NS		
	9/11/2019		510	<	1	NS		
	6/26/2019		LE		LE	NS		
	7/17/2019	>	20000		1	NS		
WA-7S	7/31/2019	>	2000	<	1	NS		
	8/21/2019		1080		1	NS		
	9/11/2019		670		18	NS		

4.0 REFERENCES

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2019 F.E. Walter Water Quality Profiles

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
	6/26/2019	6:46:03	0.5	17.97	99.4	9.42	6.79	5	138.8	3.9	3.8	0.058
	7/17/2019	9:38:12	0.5	20.41	96.4	8.69	6.53	20.2	181	2.3	3.9	0.068
WA-1	7/31/2019	7:01:39	0.5	21.86	94.5	8.28	7.1	-12.9	172.7	4.8	4.1	0.071
Outfall	8/21/2019	9:10:56	0.5	22.28	94.4	8.21	6.55	19.8	189.3	3.3	2.7	0.076
	9/11/2019	9:06:50	0.5	20.08	97.6	8.86	6.98	-5.9	175.8	5.4	3.9	0.077
		7:55:05	0.5	22.3	99.4	8.64	6.97	-5.2	178.7	-0.3	4.2	0.067
		7:54:02	5	22.2	98.7	8.59	6.94	-3.4	178.7	-0.3	4.4	0.067
		7:53:04	10	20.99	91.6	8.17	6.76	6.8	183.3	0.0	4.7	0.065
		7:51:49	15	19.91	85.2	7.76	6.63	14.4	185.8	-0.1	4.7	0.064
		7:50:57	20	19.42	84.1	7.73	6.62	15.3	185.6	0.2	5.2	0.062
		7:50:02	25	19.14	82.9	7.67	6.63	14.7	185.1	0.6	4.9	0.064
		7:49:21	30	18.91	81.6	7.58	6.62	15	184.9	8.0	5.1	0.065
WA-2		7:48:35	35	18.74	81.4	7.59	6.63	14.7	184.2	0.6	4.2	0.065
		7:46:32	40	18.63	79.9	7.46	6.59	16.6	183.5	0.4	4.5	0.065
Lake		7:44:21	45	18.43	80	7.51	6.57	18	181.7	8.0	4.3	0.064
Tower	6/26/2019	7:43:31	50	18.34	80.3	7.55	6.55	19.1	181.4	0.1	4.6	0.061
		7:42:38	55	18.28	79.5	7.48	6.52	21	180.6	0.9	3.5	0.061
Secchi		7:41:43	60	18.2	81.1	7.64	6.52	20.9	179.6	1.5	4.2	0.056
2.70 M		7:40:55	65	18.16	81.7	7.70	6.56	18.4	178.2	1.0	4.6	0.059
		7:40:15	70	18.14	81.9	7.73	6.57	18.2	177.8	1.3	4.3	0.06
		7:38:53	75	17.99	82.3	7.79	6.43	25.9	177.4	0.9	3.1	0.049
		7:37:39	80	17.93	81.7	7.74	6.55	19.1	175.3	1.7	3.9	0.056
		7:36:49	85	17.88	81.3	7.71	6.57	17.6	175	2.0	5.1	0.058
		7:35:48	90	17.81	81.7	7.76	6.61	15.4	173.4	2.5	4.4	0.059
		7:34:41	95	17.76	81.2	7.73	6.62	15.2	173.3	2.4	4.6	0.06
		7:33:25	100	17.7	80.6	7.67	6.60	16	172.9	2.7	5.0	0.06
		7:32:28	105	17.69	80.1	7.63	6.60	16	171.3	3.1	4.4	0.059
		7:31:18	110	17.7	78.2	7.45	6.58	17.4	169.4	5.2	5.0	0.06
		7:29:31	115	17.17	59.4	5.72	6.42	26.5	168.6	16.6	4.9	0.06
		7:27:41	120	17.16	57	5.49	6.39	28.2	167.4	17.5	4.9	0.06

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
		7:40:21	0.5	26.12	94.9	7.68	7.12	-14.5	190.9	-0.8	3.8	0.077
		7:38:45	5	26.03	93.4	7.57	7.03	-9	192.0	-1	3.3	0.077
		7:37:46	10	25.04	80.9	6.68	6.74	8.4	198.2	-0.5	4.3	0.075
		7:37:07	15	23.40	72.4	6.16	6.61	16	201.7	-0.8	4	0.073
WA-2		7:36:30	20	22.72	71.2	6.14	6.58	17.8	201.9	-0.6	3.5	0.068
		7:35:55	25	22.30	69.4	6.03	6.57	18	202.3	-0.5	3.7	0.072
Lake		7:35:15	30	21.95	70.6	6.18	6.63	15	200.7	-0.4	3.3	0.074
Tower		7:34:36	35	21.77	70.6	6.20	6.62	15.3	200.1	-0.5	2.9	0.072
		7:33:56	40	21.60	70.0	6.17	6.62	15.2	199.6	-0.5	3.8	0.074
Secchi		7:33:22	45	21.30	69.1	6.13	6.60	16.4	199.6	-0.4	3.7	0.072
2.6 M	7/17/2019	7:30:08	50	21.11	69.9	6.22	6.62	15.4	194.7	-0.3	3.4	0.07
		7:29:12	55	20.92	69.7	6.23	6.60	16.2	194.0	-0.2	3.6	0.067
		7:28:40	60	20.78	69.3	6.20	6.64	13.9	192.7	-0.3	3.4	0.071
		7:25:20	65	20.65	68.8	6.17	6.67	12.4	186.9	-0.4	3.3	0.071
		7:24:48	70	20.55	68.7	6.18	6.67	12.1	187.1	0.1	4.4	0.073
		7:24:11	75	20.52	68.3	6.14	6.65	13.7	187.1	0	3.8	0.075
		7:22:31	80	20.23	64.3	5.82	6.51	21.5	185.9	0.3	3.1	0.062
		7:21:21	85	19.97	63.0	5.73	6.56	18.4	182.2	0.3	3.6	0.069
		7:19:14	90	19.67	57.2	5.24	6.49	22.8	177.4	1.5	3.4	0.067
		7:18:27	95	19.55	53.4	4.90	6.49	22.6	173.4	2.6	3.2	0.068
		7:16:59	100	19.57	51.4	4.71	6.45	25.2	169.5	2.3	3	0.068
		7:15:57	105	19.40	46.0	4.23	6.41	27.5	165.2	5.7	3.5	0.068
		7:13:34	110	19.36	42.8	3.94	6.37	29.5	149.7	6.5	3.2	0.068
		7:12:28	115	19.11	30.8	2.85	6.29	34.2	138.7	16.1	3.7	0.069
	<u></u>	7:09:04	120	18.85	8.3	0.77	6.15	42.7	100.2	35.3	0	0.072
		7:58:27	0.5	25.92	93.2	7.57	7.13	-14.9	207.6	0.0	3.8	0.078
		7:57:34	5	25.90	92.6	7.53	7.09	-12.7	207.9	-0.5	3.7	0.078
		7:56:35	10	25.83	91.7	7.46	7.03	-8.9	208.3	0.1	3.6	0.078
		7:54:57	15	24.36	68.0	5.69	6.64	14.1	217.8	-0.7	3.4	0.076
		7:54:20	20	23.60	67.1	5.69	6.62	15.3	218.1	-0.1	3.9	0.072
		7:53:39	25	23.36	62.6	5.33	6.62	15.2	217.9	-0.2	3.6	0.077
WA-2		7:53:02	30	23.16	63.7	5.45	6.63	15.1	217.6	-0.7	3.7	0.076
Lake		7:52:16	35	23.04	62.5	5.36	6.59	17.3	218.4	-0.9	3.3	0.075
Tower		7:50:51	40	22.84	62.2	5.35	6.64	14.1	215.1	-0.5	3.8	0.075
	,,	7:50:01	45	22.68	62.8	5.42	6.65	13.5	213.9	-0.1	3.7	0.074
Secchi	7/31/2019	7:49:10	50	22.57	63.3	5.47	6.63	14.7	213.4	0.1	3.8	0.073
2.45 M		7:48:30	55	22.40	64.2	5.57	6.61	16.1	213.2	0.1	4.2	0.072
		7:48:02	60	22.31	64.4	5.60	6.61	16.1	212.4	-0.1	4.2	0.066
		7:47:20	65	22.26	64.3	5.60	6.60	16.4	212.2	0.0	3.5	0.066
		7:46:50	70	22.24	64.9	5.65	6.61	15.7	212	0.4	3.9	0.067
		7:46:14	75	22.20	65.4	5.70	6.65	13.4	210.1	0.5	3.8	0.067
		7:45:37	80	22.20	65.0	5.66	6.67	12.5	209.4	0.3	3.5	0.067
		7:45:04	85	22.13	65.7	5.73	6.71	9.9	207.7	0.8	3.1	0.068
		7:44:30	90	22.11	66.4	5.79	6.76	7.2	206	0.6	3.4	0.068
		7:43:51	95	22.03	66.8	5.84	6.79	5.3	204.7	1.0	4.4	0.072
		7:42:50	100	21.83	64.4	5.65	6.77	6.4	203.3	2.4	4.3	0.072
		7:42:15	105	21.76	63.5	5.57	6.78	6.1	202	3.0	4.3	0.072
		7:41:16	110	21.54	59.1	5.21	6.76	6.9	200	5.3	3.9	0.073
		7:40:26	115	21.31	52.4	4.64	6.74	8.3	198.2	10.6	4.1	0.073
		7:38:54	120	21.22	48.9	4.34	6.82	3.4	197	18.6	3.8	0.073
L						L	L	<u> </u>	L <u></u>	 _		↓

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
		7:31:16	0.5	26.02	97.3	7.89	7.19	-18.3	172.8	-0.30	3.9	0.078
		7:30:18	5	25.91	96.1	7.81	7.12	-14.3	173.5	-0.10	3.8	0.078
		7:28:57	10	24.65	84.4	7.02	6.9	-1.4	180.0	-0.40	4.9	0.075
		7:26:45	15	23.92	66	5.56	6.58	17.6	186.1	-0.50	4.6	0.072
		7:25:43	20	23.50	55.4	4.71	6.49	23.0	187.7	-0.20	3.6	0.072
		7:24:37	25	23.12	52.1	4.46	6.46	24.9	188.2	-0.50	4.0	0.073
		7:23:31	30	23.02	51.7	4.44	6.48	23.6	186.1	-0.90	4.1	0.074
		7:21:50	35	22.90	52.4	4.51	6.43	26.6	186.7	-0.60	4.1	0.072
		7:20:58	40	22.83	53.6	4.61	6.46	24.8	183.9	-0.80	3.3	0.071
WA-2	0/04/0040	7:19:53	45	22.76	54.4	4.69	6.45	25.2	182.9	-0.30	3.6	0.070
Lake -	8/21/2019	7:18:49	50	22.70	55.1	4.75	6.5	22.4	179.2	-0.60	2.9	0.070
Tower		7:17:53	55	22.60	56.8	4.91	6.49	23.3	179.0	-0.40	3.8	0.069
0		7:17:18	60	22.56	57.2	4.94	6.54	20.3	175.8	-0.10	3.4	0.069
Secchi		7:16:26	65 70	22.51 22.45	58.9	5.10 5.17	6.56	18.6	174.0 171.8	0.30	3.3	0.071
2.4 M		7:15:50 7:14:57	70 75	22.45	59.6 63.2	5.48	6.6 6.64	16.5 14.2	169.3	0.60 1.10	3.0 3.1	0.071 0.072
		7:14:37	80	22.40	62.3	5.41	6.65	13.8	168.1	1.10	2.9	0.072
		7:14:12	85	22.36	62.3	5.41	6.62	15.0	168.7	1.60	3.3	0.073
		7:13:19	90	22.14	61.7	5.38	6.59	17.2	169.6	2.70	3.1	0.078
		7:12:20	95	21.91	59.5	5.21	6.55	19.4	170.2	4.40	2.3	0.080
		7:10:38	100	21.81	56.8	4.98	6.48	23.3	171.1	6.40	3.9	0.080
		7:09:28	105	21.76	54.1	4.75	6.42	27.1	170.9	9.60	2.6	0.080
		7:08:06	110	21.62	43.1	3.80	6.33	32.6	169.0	19.80	3.8	0.081
		7:06:21	115	21.58	42.2	3.72	6.38	29.3	169.4	29.30	4.5	0.082
		7:28:13	0.5	21.45	75.8	6.7	6.72	9.4	208.1	-0.20	3.5	0.071
		7:27:13	5	21.46	75.5	6.67	6.75	7.7	206.0	0.00	3.1	0.071
		7:26:07	10	21.46	75.5	6.67	6.76	7.3	204.8	-0.20	3.4	0.071
WA-2		7:25:10	15	21.46	75.1	6.63	6.75	7.7	204.2	-0.20	2.9	0.071
		7:24:20	20	21.44	74.9	6.61	6.74	8.4	204.1	-0.20	2.4	0.071
Lake		7:23:21	25	21.44	74.4	6.58	6.77	6.6	201.3	-0.10	3.6	0.071
Tower		7:22:11	30	21.43	74.1	6.55	6.73	8.5	201.7	0.00	3.2	0.071
		7:20:57	35	21.38	72.2	6.39	6.73	9.1	200.4	-0.50	2.8	0.071
Secchi		7:18:49	40	21.14	68.1	6.06	6.72	9.2	197.4	0.20	2.2	0.073
2.75 M	9/11/2019	7:17:21	45	20.89	67.9	6.06	6.75	7.9	194.4	0.80	3.0	0.073
		7:16:10	50	20.79	68.8	6.16	6.75	7.5	193.2	1.00	2.2	0.072
		7:15:05	55	20.46	70.6	6.36	6.76	7.2	192.4	2.20	2.8	0.072
		7:13:59	60	20.39	72.4	6.54	6.82	3.6	188.6	1.90	3.1	0.074
		7:12:49	65	20.23	71.5	6.47	6.83	3.0	186.8	1.90	2.9	0.075
		7:10:03	70 75	20.01	71.8	6.53	6.81	4.1	183.4	3.30	2.3	0.077
		7:09:08 7:06:25	75 80	19.68 19.58	68.9 65.9	6.3 6.04	6.8	4.7 3.8	181.9 173.9	6.70 6.90	3.0	0.077 0.078
		7:06.25	85	19.56	64.6	5.92	6.81 6.82	3.3	166.7	17.10	2.6	0.078
		7:04:05	88	19.30	49.3	4.53	6.92	-2.5	163.4	18.60	3.1	0.078
		7.01.07	00	13.47	49.0	4.00	0.32	-2.0	100.4	10.00	0.1	0.013
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2019 F.E. Walter Water Quality Profiles

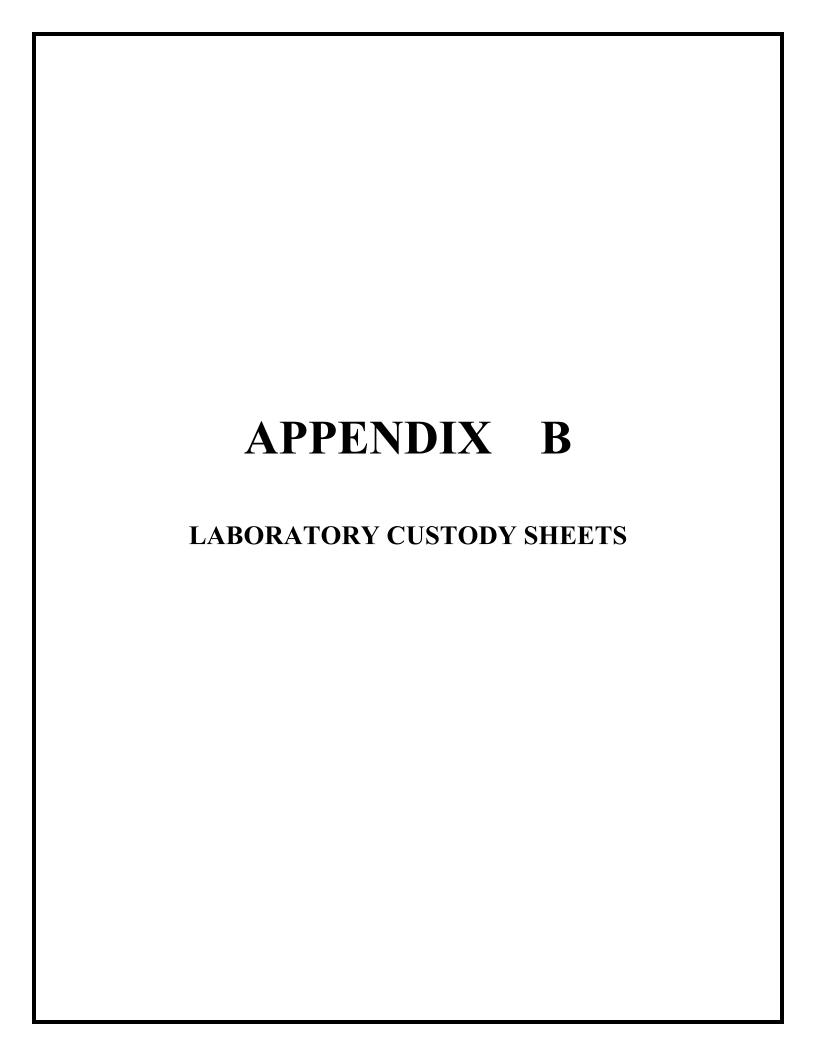
Station	Date	Time	Depth	Temp	DO	DO	рН	pHmV	ORP	Turbidity	Chloro.	SpCond
	M/D/Y	hh:mm:ss	ft	С	%	mg/L	-	mV	mV	NTU	ug/L	mS/cm
WA-3	6/26/2019	10:08:29	0.5	17.99	96.8	9.17	6.84	2.4	183.9	1.8	5.8	0.077
Tobyhanna		10:29:23	0.5	21.13	96.4	8.57	7.08	-12.1	202.4	0.5	3.4	0.096
Creek	7/31/2019	10:30:14	0.5	20.93	95	8.48	7.09	-12.6	213.6	0.4	4.1	0.091
Upstream	8/21/2019	9:30:27	0.5	21.39	93.1	8.24	6.9	-1.3	199.1	1	3.7	0.096
	9/11/2019	9:56:30	0.5	17.78	95.4	9.07	7.21	-19.6	209.1	0	3.1	0.096
10/0 4	6/26/2010	0.50.01	0.5	10.04	07.2	0.47	6.76	7.4	140 E	11.0	- F	0.050
WA-4	6/26/2019 7/17/2019	9:58:01 10:17:14	0.5 0.5	18.24 21.87	97.3 103.3	9.17 9.05	6.76 6.95	7.1 -4.4	148.5 170.8	14.6 -0.1	5 1.7	0.058 0.085
Lehigh River	7/31/2019	10:17:14	0.5	21.07	98.7	8.79	6.96	-4.4	199.3	3.5	3.5	0.003
Upstream	8/21/2019	9:52:32	0.5	21.05	93.6	8.32	7.19	-4.0	193.3	0.3	4.1	0.074
Opsticani	9/11/2019	9:43:48	0.5	17.1	96.6	9.32	7.13	-7.7	214.7	-0.6	2.3	0.077
	0/11/2010	0.10.10	0.0		00.0	0.02	7.01		2.1	0.0	2.0	0.011
	6/26/2019	09:37:59	0.5	19.31	97.9	9.03	6.33	31.9	193.6	0.2	3.3	0.041
WA-5	7/17/2019	9:58:08	0.5	21.75	96.0	8.43	6.11	45.4	200.3	3.6	2.9	0.059
Bear Creek	7/31/2019	10:00:19	0.5	21.51	96.1	8.48	6.88	0.0	193.6	-0.1	2.9	0.057
Upstream	8/21/2019	10:16:34	0.5	21.86	95.4	8.36	6.9	-1.0	179.0	0.3	4.7	0.056
	9/11/2019	9:24:54	0.5	17.51	94.9	9.08	6.53	20.3	231.0	-0.4	2.5	0.065
		8:26:40	0.5	22.51	100.1	8.66	6.99	-6.4	178.7	-0.2	4.2	0.067
		8:25:34	5	22.27	98.7	8.59	6.93	-2.9	180.8	-0.3	4.9	0.067
		8:24:33	10	20.85	91.1	8.14	6.72	9.3	186.2	0.1	4.3	0.064
		8:23:34	15	19.96	85.9	7.82	6.65	13.6	187.5	0.5	4.2	0.064
		8:22:46	20	19.51	84.1	7.72	6.62	14.9	187.6	0.2	4.9	0.064
WA-6		8:21:56	25	19.12	83.2	7.70	6.62	15.1	187.0	0.6	5.2	0.064
Bear Creek Lake Arm		8:21:00 8:20:07	30 35	18.91 18.69	81.7 81.0	7.59 7.56	6.58 6.55	17.5 18.9	186.5 185.7	0.4 0.5	4.7 4.2	0.064 0.063
Lake Ailii	6/26/2019	8:19:09	40	18.58	81.1	7.58	6.51	21.2	184.4	0.6	4.2	0.060
	0/20/2019	8:18:03	45	18.47	80.9	7.59	6.48	23.1	182.4	0.0	4.3	0.058
		8:17:11	50	18.42	81.6	7.66	6.46	24.6	180.4	0.6	4.1	0.056
		8:16:09	55	18.37	82.4	7.75	6.44	25.6	177.5	0.5	3.6	0.053
		8:15:02	60	18.27	82.9	7.80	6.41	27.2	174.3	1.2	3.4	0.051
		8:13:53	65	18.14	82.2	7.76	6.42	26.6	170.6	1.4	4.5	0.052
		8:12:44	70	18.05	81.8	7.74	6.40	28.1	166.3	2.2	3.9	0.051
		8:11:53	75	17.79	79.4	7.55	6.36	30.2	162.0	6.7	3.3	0.050
		8:11:02	80	17.75	79.4	7.56	6.36	30.1	153.3	7.4	3.6	0.049
		8:09:21	85	17.67	78.7	7.50	6.54	19.6	101.5	7.0	5.2	0.057
 								 			<u> </u>	
		8:07:18	0.5	26.22	94.9	7.67	7.04	-9.4	202.6	-0.7	3.5	0.075
		8:06:26	5	26.18	93.2	7.53	6.93	-3.1	203.9	-0.9	3.6	0.075
		8:05:43 8:04:22	10 15	24.96 23.49	83.5 74.0	6.9 6.29	6.75 6.58	8.1 17.5	208.5 212.3	-0.7 -0.7	4.7 3.8	0.074 0.07
WA-6		8:01:50	20	23.49	74.0	6.22	6.54	20.3	212.3	-0. <i>1</i> -1.1	3.3	0.07
Bear Creek		8:01:14	25	22.37	71.6	6.21	6.55	19.8	213.5	-0.8	3.7	0.008
Lake Arm		8:00:25	30	22.05	70.8	6.18	6.54	20	212.8	-0.0	3.3	0.073
	7/17/2019	7:59:18	35	21.75	70.6	6.2	6.43	26.7	214.3	-0.8	3.6	0.065
		7:58:27	40	21.57	69.9	6.17	6.35	31.1	215.4	-0.1	3.5	0.06
		7:57:40	45	21.45	69.4	6.14	6.34	32	215.9	0.1	3.2	0.06
		7:56:50	50	21.14	68.6	6.1	6.31	33.4	216.6	0.7	3.5	0.062
		7:56:07	55	20.86	67.5	6.04	6.23	37.9	218.6	0	3.5	0.059
		7:55:06	60	20.64	64.0	5.74	6.11	44.9	222	2.4	3.1	0.056
		7:54:12	65	20.43	64.3	5.8	6.13	44.2	223	1.5	2.9	0.057
		7:53:16	70	20.33	63.5	5.73	6.17	41.4	222.9	1.1	3.5	0.07
		7:52:39	75	20.19	62.1	5.62	6.13	43.9	223.4	1.4	3.5	0.069
		7:51:20	80	20.08	58.9	5.35	5.99	51.9	224.4	4	3.8	0.063
		7:49:37	85	19.8	57.8	5.27	6.32	32.7	200.6	9.2	3.5	0.068
L		/ 				<u> </u>	L 		L <u> </u>	 _	L _	<u> </u>

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
		9:20:04	0.5	26.05	92.2	7.48	6.96	-4.5	225.0	0.1	3.1	0.077
		9:19:10	5	26.02	91.2	7.39	6.91	-2.0	224.8	-0.3	3.7	0.077
		9:18:27	10	25.38	86.8	7.12	6.78	6.0	228.5	-0.1	3.0	0.077
		9:17:32	15	24.21	67.0	5.62	6.49	23.1	235.3	-0.5	3.2	0.071
		9:16:55	20	23.74	63.5	5.37	6.51	21.7	235.2	-0.6	3.9	0.077
		9:16:11	25	23.37	63.8	5.43	6.51	21.8	235.0	-0.3	3.9	0.077
WA-6		9:15:23	30	23.19	64.7	5.53	6.50	22.3	234.7	-0.1	4.6	0.076
Bear Creek		9:14:55	35	23.02	64.7	5.55	6.47	24.0	235.4	0.1	4.3	0.075
Lake Arm	7/31/2019	9:14:27	40	22.83	64.8	5.58	6.45	25.7	235.5	0.0	4.4	0.074
		9:13:55	45	22.74	64.4	5.55	6.38	29.3	236.1	0.4	3.6	0.070
		9:13:21	50	22.64	64.7	5.59	6.35	31.3	236.4	0.5	3.3	0.065
		9:12:48	55	22.55	65.0	5.62	6.37	30.1	236.1	0.2	3.4	0.064
		9:12:04	60	22.38	65.3	5.66	6.41	27.7	235.0	0.5	3.7	0.068
		9:11:17	65	22.29	65.9	5.73	6.44	26.2	234.8	0.4	4.4	0.069
		9:10:47	70	22.14	66.1	5.76	6.45	25.2	234.6	1.7	4.3	0.069
I		9:09:56 9:09:05	75 80	22.11 21.98	65.4 64.0	5.70 5.60	6.42 6.44	27.3 26.0	237.0 237.5	1.9 4.3	4.0	0.069 0.069
		9:09:05	85	21.98	64.4	5.63	6.48	23.5	236.9	4.3	4.6	0.069
}		7:58:17	0.5	26.31	96.7	7.8	7.03	-8.9	189	$-\frac{4.0}{-0.3}$	4.0	0.070
]		7:57:46	5	25.45	96.7	7.72	6.96	-o.9 -5	190.5	-0.3	4.2	0.078
		7:57:40	10	24.83	89.6	7.72	6.83	3.3	190.5	-0.3	4.3	0.077
		7:55:50	15	23.95	76.2	6.42	6.58	17.5	199.2	-0.3	3.2	0.073
		7:53:38	20	23.50	65.6	5.57	6.42	27.5	202.7	-0.1	3.7	0.07
		7:52:59	25	23.28	60.3	5.14	6.37	30.1	203.5	-0.7	2.8	0.069
		7:51:30	30	23.11	59.5	5.09	6.34	31.8	203.6	-0.6	3.6	0.069
WA-6		7:50:41	35	22.96	58.0	4.98	6.33	32.3	203.1	-0.1	3.1	0.069
Bear Creek		7:49:50	40	22.91	58.2	5.00	6.33	32.7	202.9	-0.4	3.1	0.068
Lake Arm	8/21/2019	7:48:45	45	22.79	59.4	5.12	6.29	34.9	204.3	-0.2	2.9	0.068
		7:48:02	50	22.72	59.6	5.14	6.28	35.5	204.9	0.2	3.2	0.068
		7:47:16	55	22.67	60.1	5.18	6.25	37.2	206.4	0.5	3	0.068
		7:46:09	60	22.58	57.4	4.96	6.16	42.5	211.9	0.0	3	0.071
		7:45:08	65	22.52	61.1	5.29	6.10	46.0	216.7	0.6	3.3	0.071
		7:44:34	70	22.39	63.0	5.47	6.08	47.0	218.4	1.0	3.1	0.077
		7:43:29	75	22.22	59.5	5.18	6.27	35.9	204.0	5.4	2.4	0.07
		7:42:43	80	22.12	59.4	5.18	6.42	27.2	195.9	6.5	3.3	0.072
L!												
		7:52:34	0.5	21.56	77.1	6.80	6.69	11.1	205.2	-0.1	3.7	0.071
		7:52:00	5	21.56	76.8	6.77	6.74	8.4	201.9	-0.4	3.4	0.071
j		7:51:07	10	21.56	76.3	6.73	6.74	7.9	200.3	0.4	3.4	0.071
		7:49:48	15	21.55	75.7	6.67	6.7	10.6	200.2	0.0	2.6	0.071
		7:48:55	20	21.54	75.1	6.63	6.71	9.9	197.5	0.0	3.3	0.071
\A/A ^	0/44/0040	7:47:39	25	21.46	72.2	6.38	6.67	12.4	196.2	0.1	2.6	0.071
WA-6	9/11/2019	7:46:52	30	21.39	72.5	6.41	6.68	11.7	193.4	0.0 0.2	3	0.07
Bear Creek		7:45:36 7:44:29	35	21.31	72.0	6.38	6.68	11.7	189.7		2.7	0.07
Lake Arm		7:44:29	40 45	21.22	71.0 70.8	6.31 6.31	6.69 6.69	11.0 11.3	184.9 181.0	0.4	2.8 3.2	0.073 0.073
		7:43:35	50	20.89	70.6	6.30	6.65	13.7	172.9	1.0	2.4	0.073
		7:42:06	55	20.69	70.3	6.33	6.61	15.8	161.5	2.9	3.3	0.072
		7:39:28	60	20.39	67.3	6.07	6.59	17.1	177.0	21.8	3.1	0.072
		1.00.20	50	20.00	57.0	3.07	3.55		. , , , ,	21.0	0.1	3.01
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2019 F.E. Walter Water Quality Profiles

Station	Date	Time	Depth	Temp	DO	DO	рН	pHmV	ORP	Turbidity	Chloro.	
	M/D/Y	hh:mm:ss	ft	С	%	mg/L		mV	mV	NTU	ug/L	mS/cm
		8:52:22	0.5	22.25	99.1	8.62	6.92	-2.1	192.6	0.2	5.4	0.068
		8:51:36	5	21.89	96.9	8.49	6.87	0.7	194.0	0.4	5.8	0.068
		8:50:47	10	20.87	90.2	8.06	6.71	9.8	197.9	0.2	5.4	0.065
		8:50:10	15	20.00	86.5	7.86	6.66	12.9	199.7	0.4	4.7	0.063
		8:49:32	20	19.61	85.7	7.85	6.67	12.3	199.4	0.5	4.7	0.065
=		8:48:51	25	19.06	84.5	7.82	6.66	13.0	199.7	1.2	5.0	0.064
WA-7	0/00/0040	8:47:58	30	18.85	83.0	7.72	6.64	13.9	199.5	0.9	5.2	0.064
Lehigh	6/26/2019	8:47:21	35	18.71	81.7	7.62	6.62	15.0	199.6	1.1	4.5	0.065
Lake Arm		8:45:59	40	18.54	81.7	7.65	6.63	14.7	198.6	0.8	4.4	0.065
		8:45:04	45	18.46	81.6	7.65	6.62	14.8	197.6	1.1	4.3	0.064
		8:44:21	50	18.38	81.7	7.67	6.62	15.1	196.9	0.9	4.2	0.064
		8:43:43	55	18.34	81.5	7.66 7.73	6.63	14.6 13.7	196.2	0.8 1.2	4.9	0.064
		8:42:55	60	18.27	82.1		6.64		195.0		4.4	0.064
		8:42:13	65	18.23 18.12	82.3	7.75	6.64	13.6	194.5	1.5	4.9	0.064
		8:41:09	70	18.05	82.5	7.79	6.65	13.4	193.3	1.4	3.8	0.063
		8:40:19 8:39:30	75 80	17.95	82.7 80.2	7.82 7.6	6.66 6.62	12.5 14.8	191.5 188.9	1.9 2.6	5.3 5.1	0.064 0.064
		8:39:30	80 85	17.95	80.2	7.69	6.65	13.5	188.9	7.3	4.5	0.064
}	 	8:44:21	0.5	26.50	95.3	7.69	7.08	-11.6	191.4	$\frac{7.3}{-0.4}$	3.8	0.065
		8:44:21	5	26.50	93.9	7.60	7.08	-9.0	200.8	-0.4 -0.5	3.8	0.079
		8:41:12	10	25.15	82.6	6.80	6.73	8.8	200.6	-0.5 -1.2	4.0	0.079
		8:40:39	15	23.51	73.6	6.25	6.63	14.8	206.8	-0.6	3.5	0.074
		8:39:56	20	22.69	72.0	6.21	6.64	14.2	206.9	-0.5	3.4	0.074
WA-7		8:38:55	25	22.17	71.4	6.23	6.63	14.8	206.2	-0.6	3.7	0.077
Lehigh		8:38:01	30	21.90	72.1	6.32	6.64	14.1	204.8	0	3.7	0.078
Lake Arm		8:37:08	35	21.70	70.4	6.19	6.59	16.9	203.8	-0.7	3.7	0.073
Lake Aiii	7/17/2019	8:36:33	40	21.55	70.4	6.18	6.6	16.7	203.1	0.3	3.7	0.074
	771772013	8:35:10	45	21.39	70.1	6.21	6.61	15.9	199.9	-0.6	3.5	0.076
		8:32:50	50	21.18	69.4	6.16	6.55	19.3	198.0	0.2	4.3	0.077
		8:32:16	55	21.02	68.5	6.10	6.51	21.7	198.2	-0.2	3.9	0.075
		8:31:32	60	20.88	66.5	5.94	6.46	24.5	197.9	0.6	3.6	0.077
		8:31:10	65	20.78	65.6	5.87	6.43	26.1	197.9	0.7	4.0	0.078
		8:29:26	70	20.62	63.4	5.70	6.23	37.8	197.2	1.5	3.7	0.078
		8:28:39	75	20.44	60.1	5.42	6.17	41.5	192.4	2.5	3.6	0.078
		8:27:41	80	20.10	53.9	4.89	6.21	39.2	177.9	26.6	4.6	0.077
		8:26:38	85	20.08	54.5	4.94	6.43	26.2	163.7	39.5	13.7	0.077
								 		(
		8:58:45	0.5	25.99	92.3	7.49	6.99	-6.5	209.1	0.10	3.5	0.080
		8:58:12	5	25.71	90.1	7.35	6.92	-2.4	210.3	-0.10	3.3	0.079
		8:57:27	10	25.25	86.0	7.08	6.81	4.2	212.1	-0.30	3.1	0.077
		8:56:27	15	24.34	67.6	5.66	6.57	18.3	217.1	-0.90	3.7	0.076
		8:56:07	20	23.77	68.2	5.77	6.58	18.0	217.4	-0.40	3.5	0.077
WA-7		8:55:49	25	23.40	69.9	5.95	6.62	15.5	215.3	0.00	3.7	0.077
Lehigh		8:54:47	30	23.06	69.0	5.92	6.58	17.8	215.2	0.40	4.7	0.077
Lake Arm	7/31/2019	8:54:34	35	22.95	68.8	5.91	6.58	17.5	214.5	0.10	4.2	0.077
		8:54:14	40	22.80	68.5	5.9	6.60	16.6	213.2	0.30	4.3	0.076
		8:53:37	45	22.68	68.0	5.87	6.61	16.1	211.4	0.20	4.4	0.076
		8:53:10	50	22.57	66.8	5.78	6.60	16.3	210.2	0.00	3.9	0.076
		8:52:44	55	22.51	65.8	5.7	6.61	15.8	208.5	-0.10	5.2	0.075
		8:51:26	60	22.38	68.5	5.95	6.63	14.5	205.0	1.00	4.8	0.075
		8:50:25	65	22.37	70.9	6.15	6.68	12.1	199.3	0.30	4.8	0.076
		8:50:00	70	22.34	72.2	6.27	6.67	12.7	198.2	0.10	4.4	0.076
		8:49:20	75	22.25	70.8	6.16	6.69	11.1	192.5	0.7	4.5	0.076
		8:48:06	80	22.14	68.7	5.99	6.66	13.0	183.0	2.1	4.2	0.076
L	L	8:46:21	85	21.99	67.7	5.92	6.74	8.3	184.2	12.1	4.5	0.077

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
		8:22:28	0.5	25.61	96	7.85	7.05	-10.4	197.7	-0.5	4.3	0.078
		8:21:18	5	25.58	94.2	7.7	6.98	-5.8	197.1	-0.3	4.3	0.078
		8:20:13	10	24.53	82.4	6.87	6.77	6.7	201.7	-0.7	4.3	0.075
		8:18:45	15	23.84	62.9	5.31	6.49	23.4	206.5	-0.5	4.0	0.073
		8:17:59	20	23.53	54.9	4.66	6.44	26.3	207.1	-0.2	3.7	0.074
		8:17:11	25	23.28	52.9	4.51	6.42	27.3	207.5	-0.3	4.1	0.074
		8:16:38	30	23.13	54.1	4.63	6.45	25.2	206.2	-0.3	4.2	0.076
		8:15:21	35	22.95	53.5	4.59	6.44	25.8	205.8	0.2	3.4	0.077
WA-7	8/21/2019	8:14:15	40	22.90	54.5	4.68	6.45	25.6	205.1	0.0	3.5	0.077
Lehigh		8:13:26	45	22.80	55.6	4.79	6.47	24.2	203.4	2.5	3.8	0.078
Lake Arm		8:12:35	50	22.73	57	4.92	6.48	23.6	201.9	2.0	4.1	0.078
		8:11:51	55	22.66	58.2	5.02	6.50	22.6	200.7	10.2	3.9	0.079
		8:10:40	60	22.64	61.8	5.33	6.60	16.6	198.1	4.2	3.9	0.079
L								<u> </u>				
		8:22:34	0.5	21.8	80	7.02	6.76	6.8	208.9	-0.1	3.7	0.072
		8:21:20	5	21.76	77.6	6.81	6.73	9	209.3	-0.8	3.1	0.072
		8:20:39	10	21.6	73.4	6.47	6.68	11.6	209.9	0.1	3.4	0.072
		8:19:37	15	21.55	72.2	6.37	6.69	11.4	208.0	0.5	3	0.072
		8:18:44	20	21.48	71.2	6.29	6.67	12.5	207.3	0	2.4	0.072
		8:17:26	25	21.45	70.7	6.24	6.65	13.2	205.7	0.3	3.2	0.072
WA-7		8:16:49	30	21.42	70.8	6.26	6.67	12.1	203.7	-0.3	2.9	0.072
Lehigh	9/11/2019	8:14:33	35	21.34	70.4	6.23	6.66	13.0	199.9	0.7	2.7	0.072
Lake Arm		8:13:51	40	21.19	70.9	6.29	6.69	11.3	196.8	0.3	3.2	0.073
		8:12:41	45	20.95	72.5	6.47	6.75	7.9	190.6	1	2.5	0.074
		8:11:10	50	20.70	76.7	6.88	6.73	8.8	186.1	1.7	3	0.076
		8:10:01	55	20.47	76.9	6.92	6.73	9.0	177.6	1.7	2.8	0.076
		8:09:08	60	20.16	76.7	6.95	6.71	9.9	170.5	4.3	2.8	0.078





Dayton, NJ 08/01/19

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: JC90656

Sampling Date: 06/26/19



Army Corps of Engineers

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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

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Sample Summary

USACE-Philadelphia District

Job No:

JC90656

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

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC90656-1	06/26/19	06:40 GW	06/26/19	AQ	Surface Water	WA-1S
JC90656-2	06/26/19	07:30 GW	06/26/19	AQ	Surface Water	WA-2S
JC90656-3	06/26/19	07:30 GW	06/26/19	AQ	Surface Water	WA-2M
JC90656-4	06/26/19	07:30 GW	06/26/19	AQ	Surface Water	WA-2D
JC90656-5	06/26/19	10:10 GW	06/26/19	AQ	Surface Water	WA-3S
JC90656-6	06/26/19	10:00 GW	06/26/19	AQ	Surface Water	WA-4S
JC90656-7	06/26/19	09:40 GW	06/26/19	AQ	Surface Water	WA-5S
JC90656-8	06/26/19	08:05 GW	06/26/19	AQ	Surface Water	WA-6S
JC90656-9	06/26/19	08:05 GW	06/26/19	AQ	Surface Water	WA-6M
JC90656-10	06/26/19	08:05 GW	06/26/19	AQ	Surface Water	WA-6D
JC90656-11	06/26/19	08:40 GW	06/26/19	AQ	Surface Water	WA-7S
JC90656-12	06/26/19	08:40 GW	06/26/19	AQ	Surface Water	WA-7M
JC90656-13	06/26/19	08:40 GW	06/26/19	AQ	Surface Water	WA-7D

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: USACE-Philadelphia District Job No JC90656

Site: Philadelphia District, Reservoir Sampling Report Date 7/15/2019 9:47:34 AM

On 06/26/2019, 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 JC90656 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: GP22278

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90656-1DUP, JC90656-1MS 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.

General Chemistry By Method EPA 353.2/LACHAT

Matrix: AQ Batch ID: GP22264

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90660-2DUP, JC90660-2MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.

Matrix: AQ Batch ID: GP22283

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90656-5DUP, JC90656-5MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.

Monday, July 15, 2019

General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ Batch ID: R179611

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90656-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179612

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90656-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179613

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90656-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179614

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90656-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179625

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90656-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179626

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90656-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179627

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90656-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179628

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90656-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AO Batch ID: R179629

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90656-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179630

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90656-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179631

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90656-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179632

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90656-13 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179643

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90656-10 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: GN97317

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90656-1DUP were used as the QC samples for Alkalinity, Total as CaCO3.
- JC90656-10 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90656-5 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC90656-3 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC90656-2 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC90656-6 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90656-4 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90656-1 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90656-13 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90656-12 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90656-8 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC90656-7 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC90656-9 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC90656-11 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: GN97063

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90656-1DUP were used as the QC samples for Solids, Total Dissolved.

General Chemistry By Method SM2540 D-11

Matrix: AO Batch ID: GN97031

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90701-1DUP were used as the QC samples for Solids, Total Suspended.

General Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AO Batch ID: GP22315

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90655-5DUP, JC90655-5MS, JC90655-5MSD were used as the QC samples for Nitrogen, Ammonia.

General Chemistry By Method SM4500NO2 B-11

Matrix: AO Batch ID: GN96916

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90655-4DUP, JC90655-4MS were used as the QC samples for Nitrogen, Nitrite.

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General Chemistry By Method SM5210 B-11

Matrix: AQ Batch ID: GP22043

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90656-1DUP were used as the QC samples for BOD, 5 Day.

General Chemistry By Method SM5310 B-11

Matrix: AQ Batch ID: GP22235

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91138-3MS, JC91138-3MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ Batch ID: GP22239

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90656-1MS, JC90656-1MSD 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

Monday, July 15, 2019

Summary of Hits Job Number: JC90656

USACE-Philadelphia District Account:

Philadelphia District, Reservoir Sampling 06/26/19 **Project:**

Collected:

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL MDL	Units	Method
JC90656-1 WA-1S				
Alkalinity, Total as CaCO3 ^a Nitrogen, Nitrate ^b Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Solids, Total Suspended Total Organic Carbon	13.0 0.14 0.14 0.36 36.0 4.1 5.5	10 0.11 0.10 0.20 10 4.0 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 SM2540 D-11 SM5310 B-11
JC90656-2 WA-2S				
Alkalinity, Total as CaCO3 ^c Nitrogen, Nitrate ^b Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	20.0 0.11 0.11 0.29 39.0 5.2	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
JC90656-3 WA-2M				
Alkalinity, Total as CaCO3 ^c Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	35.0 0.29 38.0 4.6	10 0.20 10 1.0	mg/l mg/l mg/l mg/l	SM2320 B-11 EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC90656-4 WA-2D				
Alkalinity, Total as CaCO3 ^a Nitrogen, Nitrate ^b Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Solids, Total Suspended Total Organic Carbon	12.0 0.27 0.27 0.55 44.0 31.3 6.1	10 0.11 0.10 0.20 10 4.0 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 SM2540 D-11 SM5310 B-11
JC90656-5 WA-3S				
Alkalinity, Total as CaCO3 ^c Nitrogen, Nitrate ^b Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Solids, Total Suspended Total Organic Carbon	21.0 0.16 0.16 0.38 48.0 4.6 6.2	10 0.11 0.10 0.20 10 4.0 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 SM2540 D-11 SM5310 B-11

Summary of Hits Job Number: JC90656

Account:

USACE-Philadelphia District
Philadelphia District, Reservoir Sampling
06/26/19 **Project:**

Collected:

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC90656-6	WA-4S					
Nitrogen, Nitrate Nitrogen, Nitrate Nitrogen, Total I Solids, Total Dis Total Organic Ca	e + Nitrite Kjeldahl solved	0.11 0.11 0.36 42.0 4.7	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
JC90656-7	WA-5S					
Alkalinity, Total Nitrogen, Total I Solids, Total Dis Total Organic Ca	Kjeldahl solved	33.0 0.38 28.0 4.0	10 0.20 10 1.0		mg/l mg/l mg/l mg/l	SM2320 B-11 EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC90656-8	WA-6S					
Alkalinity, Total Nitrogen, Total I Solids, Total Dis Total Organic Ca	Kjeldahl solved	25.0 0.33 40.0 4.6	10 0.20 10 1.0		mg/l mg/l mg/l mg/l	SM2320 B-11 EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC90656-9	WA-6M					
Nitrogen, Total I Solids, Total Dis Total Organic Ca	solved	0.34 45.0 5.4	0.20 10 1.0		mg/l mg/l mg/l	EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC90656-10	WA-6D					
Alkalinity, Total Nitrogen, Total I Solids, Total Dis Solids, Total Sus Total Organic Ca	Kjeldahl solved pended	14.0 0.32 49.0 5.2 5.4	10 0.20 10 4.0 1.0		mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA 351.2/LACHAT SM2540 C-11 SM2540 D-11 SM5310 B-11
JC90656-11	WA-7S					
Alkalinity, Total Nitrogen, Total I Solids, Total Dis Total Organic Ca	Kjeldahl solved	11.0 0.22 41.0 5.3	10 0.20 10 1.0		mg/l mg/l mg/l mg/l	SM2320 B-11 EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11

Summary of Hits Job Number: JC90656

Account: USACE-Philadelphia District

Project: Philadelphia District, Reservoir Sampling

Collected: 06/26/19

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
JC90656-12 WA-7M					
Alkalinity, Total as CaCO3 ^a Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon JC90656-13 WA-7D	11.0 0.48 46.0 5.4	10 0.20 10 1.0		mg/l mg/l mg/l mg/l	SM2320 B-11 EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
Alkalinity, Total as CaCO3 ^a Nitrogen, Total Kjeldahl Solids, Total Dissolved Solids, Total Suspended Total Organic Carbon	14.0 0.30 50.0 15.6 6.1	10 0.20 10 4.0 1.0		mg/l mg/l mg/l mg/l	SM2320 B-11 EPA 351.2/LACHAT SM2540 C-11 SM2540 D-11 SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

⁽c) Sample was titrated to a final pH of 4.5.



Dayton, NJ

Section 4

Sample Results	
Report of Analysis	

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Report of Analysis

Client Sample ID: WA-1S Lab Sample ID: JC90656-1

Lab Sample ID:JC90656-1Date Sampled:06/26/19Matrix:AQ - Surface WaterDate Received:06/26/19Percent Solids:n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	13.0	10	mg/l	1	07/09/19 15:00	MS	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	06/27/19 12:15		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 16:07	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.14	0.11	mg/l	1	07/09/19 16:24	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.14	0.10	mg/l	1	07/09/19 16:24	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/27/19 15:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.36	0.20	mg/l	1	07/12/19 13:42	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	36.0	10	mg/l	1	07/01/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	4.1	4.0	mg/l	1	06/30/19 12:20	RC	SM2540 D-11
Total Organic Carbon	5.5	1.0	mg/l	1	07/09/19 02:41	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.



⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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Report of Analysis

Client Sample ID: WA-2S Lab Sample ID: JC90656-2

Lab Sample ID:JC90656-2Date Sampled:06/26/19Matrix:AQ - Surface WaterDate Received:06/26/19Percent Solids:n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

RL = Reporting Limit

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	20.0	10	mg/l	1	07/09/19 15:00	MS	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	06/27/19 12:21		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 16:09	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.11	0.11	mg/l	1	07/09/19 16:25	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.11	0.10	mg/l	1	07/09/19 16:25	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/27/19 15:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.29	0.20	mg/l	1	07/12/19 13:43	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	39.0	10	mg/l	1	07/01/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	06/30/19 12:20	RC	SM2540 D-11
Total Organic Carbon	5.2	1.0	mg/l	1	07/09/19 03:37	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-2M Lab Sample ID: JC90656-3

Date Sampled: 06/26/19 Matrix: **Date Received:** 06/26/19 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 ^a	35.0	10	mg/l	1	07/09/19 15:00	MS	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	06/27/19 12:48	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 16:10	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	07/09/19 16:27	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	07/09/19 16:27	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/27/19 15:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.29	0.20	mg/l	1	07/12/19 13:44	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	38.0	10	mg/l	1	07/01/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	06/30/19 12:20	RC	SM2540 D-11
Total Organic Carbon	4.6	1.0	mg/l	1	07/09/19 03:48	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.

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⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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Report of Analysis

Client Sample ID: WA-2D Lab Sample ID: JC90656-4

Lab Sample ID:JC90656-4Date Sampled:06/26/19Matrix:AQ - Surface WaterDate Received:06/26/19Percent Solids:n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	12.0	10	mg/l	1	07/09/19 15:00	MS	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	06/27/19 12:51	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 16:22	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	0.27	0.11	mg/l	1	07/09/19 16:28	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.27	0.10	mg/l	1	07/09/19 16:28	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/27/19 15:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.55	0.20	mg/l	1	07/12/19 13:45	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	44.0	10	mg/l	1	07/01/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	31.3	4.0	mg/l	1	06/30/19 12:20	RC	SM2540 D-11
Total Organic Carbon	6.1	1.0	mg/l	1	07/09/19 04:00	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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Report of Analysis

Client Sample ID: WA-3S Lab Sample ID: JC90656-5

Lab Sample ID:JC90656-5Date Sampled:06/26/19Matrix:AQ - Surface WaterDate Received:06/26/19Percent Solids:n/a

Project: Philadelphia District, Reservoir Sampling

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General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	21.0	10	mg/l	1	07/09/19 15:00	MS	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	06/27/19 12:53		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 16:23	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.16	0.11	mg/l	1	07/10/19 09:07	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.16	0.10	mg/l	1	07/10/19 09:07	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/27/19 15:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.38	0.20	mg/l	1	07/12/19 13:45	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	48.0	10	mg/l	1	07/01/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	4.6	4.0	mg/l	1	06/30/19 12:20	RC	SM2540 D-11
Total Organic Carbon	6.2	1.0	mg/l	1	07/09/19 04:12	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.



⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-4S Lab Sample ID: JC90656-6

Date Sampled: 06/26/19 Matrix: AQ - Surface Water **Date Received:** 06/26/19 Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	07/09/19 15:00	MS	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	06/27/19 12:55		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 16:25	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.11	0.11	mg/l	1	07/10/19 09:08	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.11	0.10	mg/l	1	07/10/19 09:08	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/27/19 15:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.36	0.20	mg/l	1	07/12/19 13:46	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	42.0	10	mg/l	1	07/01/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	06/30/19 12:20	RC	SM2540 D-11
Total Organic Carbon	4.7	1.0	mg/l	1	07/09/19 04:23	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.



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⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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Report of Analysis

Client Sample ID: WA-5S Lab Sample ID: JC90656-7

Date Sampled: 06/26/19 Matrix: AQ - Surface Water **Date Received:** 06/26/19 Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

RL = Reporting Limit

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	33.0	10	ma/1	1	07/09/19 15:17	MC	SM2320 B-11
•			mg/l	1			SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	06/27/19 12:57	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 16:26	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	< 0.11	0.11	mg/l	1	07/10/19 09:10	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	07/10/19 09:10	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/27/19 15:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.38	0.20	mg/l	1	07/12/19 13:49	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	28.0	10	mg/l	1	07/01/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	06/30/19 12:20	RC	SM2540 D-11
Total Organic Carbon	4.0	1.0	mg/l	1	07/09/19 04:36	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.



⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-6S Lab Sample ID: JC90656-8

Date Sampled: 06/26/19 Matrix: AQ - Surface Water **Date Received:** 06/26/19 Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	25.0	10	mg/l	1	07/09/19 15:17	MS	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	06/27/19 12:59		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 16:31		SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	07/10/19 09:11	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	07/10/19 09:11	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/27/19 15:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.33	0.20	mg/l	1	07/12/19 13:50	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	40.0	10	mg/l	1	07/01/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	06/30/19 12:20		SM2540 D-11
Total Organic Carbon	4.6	1.0	mg/l	1	07/09/19 04:47	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.

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⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-6M
Lab Sample ID: JC90656-9
Matrix: AQ - Surface Water
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Project: Philadelphia District, Reservoir Sampling

Date Sampled: 06/26/19

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Date Received: 06/26/19 **Percent Solids:** n/a

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	07/09/19 15:17	MS	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	06/27/19 13:27		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 16:32	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	07/10/19 09:12	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	07/10/19 09:12	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/27/19 15:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.34	0.20	mg/l	1	07/12/19 13:51	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	45.0	10	mg/l	1	07/01/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	06/30/19 12:20	RC	SM2540 D-11
Total Organic Carbon	5.4	1.0	mg/l	1	07/09/19 05:00	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-6D Lab Sample ID: JC90656-10 **Date Sampled:** 06/26/19 Matrix: **Date Received:** 06/26/19 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 ^a	14.0	10	mg/l	1	07/09/19 15:17	MS	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	06/27/19 13:30	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 16:34	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	07/10/19 09:15	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	07/10/19 09:15	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/27/19 15:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.32	0.20	mg/l	1	07/12/19 13:51	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	49.0	10	mg/l	1	07/01/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	5.2	4.0	mg/l	1	06/30/19 12:20	RC	SM2540 D-11
Total Organic Carbon	5.4	1.0	mg/l	1	07/09/19 05:34	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.



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⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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Report of Analysis

Client Sample ID: WA-7S

Lab Sample ID: JC90656-11

Matrix: AQ - Surface Water

Date Sampled: 06/26/19

Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	11.0	10	mg/l	1	07/09/19 15:17	MS	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	06/27/19 13:32		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 16:35	BM	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	07/10/19 09:16	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	07/10/19 09:16	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/27/19 15:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.22	0.20	mg/l	1	07/12/19 13:52	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	41.0	10	mg/l	1	07/01/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	06/30/19 12:20	RC	SM2540 D-11
Total Organic Carbon	5.3	1.0	mg/l	1	07/08/19 13:59	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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Client Sample ID: WA-7M

Lab Sample ID: JC90656-12

Matrix: AQ - Surface Water

Date Sampled: 06/26/19

Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

Analyte		Result	RL	Units	DF	Analyzed	By	Method
	Alkalinity, Total as CaCO3 ^a	11.0	10	mg/l	1	07/09/19 15:17	MS	SM2320 B-11
	BOD, 5 Day	< 10	10	mg/l	1	06/27/19 13:34		SM5210 B-11
	Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 16:36	BM	SM4500NH3 H-11LACHAT
	Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	07/10/19 09:17	KI	EPA353.2/SM4500NO2B
	Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	07/10/19 09:17	KI	EPA 353.2/LACHAT
	Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/27/19 15:00	JOO	SM4500NO2 B-11
	Nitrogen, Total Kjeldahl	0.48	0.20	mg/l	1	07/12/19 13:53	KI	EPA 351.2/LACHAT
	Solids, Total Dissolved	46.0	10	mg/l	1	07/01/19 15:00	RC	SM2540 C-11
	Solids, Total Suspended	< 4.0	4.0	mg/l	1	06/30/19 12:20	RC	SM2540 D-11
	Total Organic Carbon	5.4	1.0	mg/l	1	07/08/19 14:10	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-7D Lab Sample ID: JC90656-13 **Date Sampled:** 06/26/19 Matrix: AQ - Surface Water **Date Received:** 06/26/19 Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

Analyte		Result	RL	Units	DF	Analyzed	By	Method		
	Alkalinity, Total as CaCO3 ^a	14.0	10	mg/l	1	07/09/19 15:17	MS	SM2320 B-11		
	BOD, 5 Day	< 10	10	mg/l	1	06/27/19 13:36		SM5210 B-11		
	Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/12/19 16:38	BM	SM4500NH3 H-11LACHAT		
	Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	07/10/19 09:19	KI	EPA353.2/SM4500NO2B		
	Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	07/10/19 09:19	KI	EPA 353.2/LACHAT		
	Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/27/19 15:00	JOO	SM4500NO2 B-11		
	Nitrogen, Total Kjeldahl	0.30	0.20	mg/l	1	07/12/19 13:54	KI	EPA 351.2/LACHAT		
	Solids, Total Dissolved	50.0	10	mg/l	1	07/01/19 15:00	RC	SM2540 C-11		
	Solids, Total Suspended	15.6	4.0	mg/l	1	06/30/19 12:20	RC	SM2540 D-11		
	Total Organic Carbon	6.1	1.0	mg/l	1	07/08/19 14:48	CD	SM5310 B-11		

⁽a) Sample was titrated to a final pH of 4.2.

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⁽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

960	SGS North America Inc.	- Davton	Page 1 of 2									
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Joe Loeper			BALX	OI - OS LIQ - Other Liqutal								
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215-656-6545 Sample(s) Name(s) 600 Phone 8	Project Manager Attention:		TPOY (506) Alkalianty, Bod TDS TOC, TSS	WP - Wipe FB - Field Blank								
Greg Wacik 597-9780	Tanny McClosky			E8-Equipment Blank R8 - Rinse Blank								
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JC90656: Chain of Custody Page 1 of 3

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JC90656: Chain of Custody Page 2 of 3

JC90656

SGS Sample Receipt Summary

Job Number: JC906	Client:	USACE-PHILADELPHIA DIS	TRICT Project:	PHILADELPHIA DISTRIC	T, RESERVOIR	SAMPL
Date / Time Received: 6/26/2	019 5:16:00 PM	Delivery Method:	Airbill #	's:		
Cooler Temps (Raw Measured) Cooler Temps (Corrected)	, , ,	Cooler 2: (3.6); Cooler 3: (3 Cooler 2: (3.2); Cooler 3: (3				
Cooler Security 1. Custody Seals Present: 2. Custody Seals Intact: ✓	or N ☐ 3. COC Pi ☐ 4. Smpl Date		Sample Integrity - Docum 1. Sample labels present on I 2. Container labeling complete	bottles:		
Cooler Temperature 1. Temp criteria achieved: 2. Cooler temp verification: 3. Cooler media: 4. No. Coolers: Quality Control Preservation 1. Trip Blank present / cooler: 2. Trip Blank listed on COC: 3. Samples preserved properly: 4. VOCs headspace free:	Y or N IR Gun Ice (Bag) Y or N N/A Y or N O/A Y O O O		3. Sample container label / C Sample Integrity - Condit 1. Sample recvd within HT: 2. All containers accounted fo 3. Condition of sample: Sample Integrity - Instruct 1. Analysis requested is cleat 2. Bottles received for unspect 3. Sufficient volume recvd fo 4. Compositing instructions of 5. Filtering instructions clear	tion Y or: Ctions Ar: Excified tests Or analysis: Clear:	or N	- N/A -
Test Strip Lot #s: pH 1	I-12: <u>229517</u>	pH 12+:	208717 O	Other: (Specify)		
Comments						

SM089-03 Rev. Date 12/7/17

JC90656: Chain of Custody

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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: JC90656X

Sampling Date: 06/26/19



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)

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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. rictly prohibited.

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

EHS.US.CustomerCare@sgs.com

Sections:

N

-1-

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Sample Summary

USACE-Philadelphia District

Job No:

JC90656X

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

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
JC90656-1X	06/26/19	06:40 GW	06/26/19	AQ	Surface Water	WA-1S
JC90656-2X	06/26/19	07:30 GW	06/26/19	AQ	Surface Water	WA-2S
JC90656-5X	06/26/19	10:10 GW	06/26/19	AQ	Surface Water	WA-3S
JC90656-6X	06/26/19	10:00 GW	06/26/19	AQ	Surface Water	WA-4S
JC90656-7X	06/26/19	09:40 GW	06/26/19	AQ	Surface Water	WA-5S
JC90656-8X	06/26/19	08:05 GW	06/26/19	AQ	Surface Water	WA-6S
JC90656-11X	06/26/19	08:40 GW	06/26/19	AQ	Surface Water	WA-7S



Dayton, NJ

Section 2

Subcontract Lab Data
Report of Analysis

Analytical Report

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:

L7146700

Authorized by: Douglas J. Gump Client Services Manager

Dalfl



Analytical Report Printed 07/29/19 12:23 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,	AMERICA, INC.		P.O. No:		Inv. No: PWSID No:	PI
Sample ID L7146700-1	Sample Description WA-1S Received Date/Tin	ne/Temp 07/17	/19 05:40pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 09:40am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	MENTAL MICROBIOL	OGY WA-18	8				
Total Coliform Fecal Coliforn		11300 E, Q 3 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	07/17/19 07:38PM KC2 07/17/19 07:44PM JG2
Sample ID L7146700-2	Sample Description WA-2S Received Date/Tin	n e/Temp 07/17	/19 05:40pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 07:10am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	MENTAL MICROBIOL	OGY WA-28	S				
Total Coliform Fecal Coliforn		15300 E, Q 2 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	07/17/19 07:38PM KC2 07/17/19 07:44PM JG2

Page 2 of 8

Analytical Report Printed 07/29/19 12:23

	: W09769, SGS NORTH W09769 USACE,	AMERICA, INC			P.O. No:		Inv. No: PWSID No:	PI
Sample ID L7146700-3	Sample Description WA-3S Received Date/Tim	e/Temp 07/17	/19 05:40)pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 0:30am NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY WA-38	8					
Total Coliform Fecal Coliforn		>20000 Q 23 Q		cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	07/17/19 07:38PM KC2 07/17/19 07:44PM JG2
Sample ID L7146700-4	Sample Description WA-4S Received Date/Tim	e/Temp 07/17	/19 05:40	pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 0:15am NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY WA-49	S					
Total Coliform Fecal Coliforn	,	>20000 Q 70 E, Q		cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 10	100 10	07/17/19 07:38PM KC2 07/17/19 07:44PM JG2
Sample ID L7146700-5	Sample Description WA-5S Received Date/Tim	e/Temp 07/17	/19 05:40	pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 0:00am NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY WA-58	8					
Total Coliform Fecal Coliforn	,	8300 E, Q 10 E, Q		cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 10	100 10	07/17/19 09:00PM KC2 07/17/19 07:44PM JG2
Sample ID L7146700-6	Sample Description WA-6S Received Date/Tim	e/Temp 07/17	/19 05:40)pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 08:00am NA C	Sampled by Customer
		Result		Units	Method	DF	RL	Test Date, Time, Analyst

Analytical Report Printed 07/29/19 12:23

	V09769, SGS NORTH A V09769 USACE,	AMERICA, INC.			P.O. No:		Inv. No: PWSID No:	PI
	Sample Description VA-6S Received Date/Time	e /Temp 07/17/	19 05:40	0pm 3.4 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
ENVIRONME	ENTAL MICROBIOLO	OGY WA-6S						
Total Coliform, Fecal Coliform,		7700 Q 1 Q		cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	07/17/19 09:00PM KC2 07/17/19 07:44PM JG2
	Sample Description NA-7S Received Date/Time	e /Temp 07/17/	19 05:40	0pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 08:30am NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONME	ENTAL MICROBIOLO	OGY WA-7S						
Total Coliform, I Fecal Coliform,		>20000 Q 1 Q		cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	07/17/19 09:00PM KC2 07/17/19 07:44PM JG2
	Sample Description PR-1S Received Date/Time	e /Temp 07/17/	19 05:40	0pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 2:10pm NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONME	ENTAL MICROBIOLO	OGY PR-1S						
Total Coliform, Fecal Coliform,		16500 E, Q 60 E, Q		cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 10	100 10	07/17/19 07:38PM KC2 07/17/19 07:44PM JG2
	Sample Description PR-2S Received Date/Time	e/Temp 07/17/	19 05:40	0pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 11:20pm NA C	Sampled by Customer

Page 4 of 8

Analytical Report Printed 07/29/19 12:23

Account No: W09769, SGS NORT Project No: W09769 USACE,	H AMERICA, INC		P.O. No:		Inv. No: PWSID No:	PI
Sample ID Sample Description L7146700-9 PR-2S Received Date/T		7/19 05:40pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 11:20pm NA C	Sampled by Customer
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIO	LOGY PR-2S	:				
Total Coliform, MF Fecal Coliform, MF	4300 Q 1 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	07/17/19 09:00PM KC2 07/17/19 07:44PM JG2
Sample ID Sample Description L7146700-10 PR-3S Received Date/T		7/19 05:40pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 2:50pm NA C	Sampled by Customer
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIO	LOGY PR-3S	;				
Total Coliform, MF Fecal Coliform, MF	1964 E, Q <1 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	07/17/19 09:00PM KC2 07/17/19 07:44PM JG2
Sample ID Sample Description L7146700-11 PR-4S Received Date/T		7/19 05:40pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 1:45am NA C	Sampled by Customer
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIO	LOGY PR-4S					
Total Coliform, MF Fecal Coliform, MF	>20000 Q 9 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	07/17/19 09:00PM KC2 07/17/19 07:44PM JG2

Sample Comments | Result Qualifiers:

L7146700-1:

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.

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.

Analytical Report

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

L7146700-2:

- 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: 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.

L7146700-3:

- 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.

L7146700-4:

- 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.

I 7146700-5 ·

- 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: 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.

L7146700-6:

- 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.

L7146700-7:

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

Page 6 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.

L7146700-8:

Analytical Report

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

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: 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.

L7146700-9:

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.

L7146700-10:

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.

L7146700-11:

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

Page 7 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.





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
Ť	Temperature exceedance at receipt, refer to Sample Comments / Results Qualifiers section
Е	Estimated CFU count (Microbiology)
	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 Wind Gap Facility	State ID- State ID- State ID-	NJ: 02015 NJ: 06005 NJ: PA001					



Dayton, NJ

• Chain of Custody

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

SSS North American fin Dayton TEL 739-296-2008 Pack Client / Reporting Information TEL 739-296-2008 Pack TEL 739-2008 Pack TEL 739-296-2008 Pack TEL 739-2008	CAC	SW CH	HAIN OF CUST	ODY		Done 1 -	-2
The 13 - 25 - 2400 Face 13 - 23 - 2400 Face 15 - 25 - 25 Face 15 - 25 - 25 Face 15 - 25			SGS North America Inc [Dayton			
Colored Reporting Information SPACE - Child District USACE - RESOLUTION SPACE - Child District USACE - RESOLUTION STORE - Child District STORE - Child Distr			2235 Route 130, Dayton, NJ (08810	FED-EX Tracking #	Bottle Order Conspil # - 04 . C	C 22
Control Cont				-3499/3480	SGS Curate #	SGS 300 0 00 00 00 00 00 00 00 00 00 00 00	4- 36
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Control Cont			,			1 Analysis	Matrix Codes
Control Cont	Street Address	USACE Kese	WOIRS - F.E. L	Dalter			DW - Ordniking Water
Philo	100 Pena Se East	Couch					GW - Ground Water
The control of the	City State Zip			Report to)			SW - Surface Water
The control of the	Phila PA 19107	White HAVEN A	4		D 8 3 0		St Slixtge
The control of the	TAR LARGE	Prolect#	Street Address		5 1 3		01-05
F WA-IS	Phone #	Client Purchase Order #	Cây .	Plate	BAITX		AIR - Air
F WA-IS	215-656-6545	TM-061819-32		очане Др	9 7 2 7		
F WA-IS	Sampler(s) Name(s)	Project Manager	Attention:		34431		
F WA-IS	161 60 Macik 597-4189	lanmy Michosley	<u> </u>				R8 - Rinse Blank
F WA-IS				- Number of preserved School	रा चे व व व		10 - Inpoem
F WA-IS	ses senute = Field ID / Point of Collection	NEOH/DI Val # Date Tone		전 및 및 등 H	加 3 2 9 9		
10 Business Days	IF 1/19-16						LAB USE ONLY
SF WA-am				X X	XXXX		1
St. W.A AD		0730	13 G Sw 9	X	XXXX		107
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GE WA - VS Flower General A A A A A A A A A	MP WA-2D	0730	MAG Sun 9	XXX	X X X X	++++	
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Turn Around Time (Business Days) Approved by (BOS PME Fiber: Observed by (BOS PME Fiber: Commercial ** (Level 4) NYASP Category A DOD-GSMS CFF/FCF SampUs To	6F WA-45	1000	K/7.			+	1961
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Second State Seco					XXXX		
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Turn Around Time (Business Days) Deliverable Commercial "A" (Level 1) NYASP Category A DOD-GSMS TCF/FCF SampUs TO Business Days DISSINGED DAYS DISSINGED DAYS DOD-GSMS TCF/FCF SampUs TO Business Days DISSINGED DAYS DISINGED DAYS DISSINGED DAYS					XXXX		
Turn Around Time (Business Days) Approved by (SCS PM): Flute: Commercial "A" (Level 1)		009	MADMA	XIXIIII	XXXX	MITIMI ASESSATION	BRA
10 Business Days Commercial "A" (Lavel 1) NYASP Category A DOD-QSMS TCF/FCF SampUL TO						THE PERSONNENT	
Approved by (SCS PRE): Flower: Commental "A" (Level 1) NYASP Category A DOD-QSMS TCF/FCF Samples TO	Turn Around Time (Bu	siness Days)				ABEL VERIFICATION	
10 Business Days			Commercial "A" "			Comments / Special Ins	
3 Businese Days					DOD-OSMS TCF/	FCF Samples	70
3 Business Days'					ام، رع	Eus Joh	
1 Sustinaes Day'	_				- ,		
Ad date availables of Lobie in Approved meeded for 1-3 Business Day TAT Commercial "A" = Reads only, Commercial "B" = Reads on Commany Commercial "A" = Reads only, Commercial "B" = Reads on Commany Commercial "A" = Reads only, Commercial "B" = Reads on Commany Commercial "A" = Reads only, Commercial "B" = Reads on Commany Commercial "A" = Reads only, Commercial "B" = Reads on Commany Into Investment Process Int				=	TONE	1 sander	
Sample Clastody must be documented below each time samples change possession, including courier delivery. Packed by Packe			Commercial "A"	Results only, Commercial "R" = Parets	+ OC 0:	Posdon la	
Paracipation by Control Time: Procedured by School of Time: School of Street St		Sample Custody m			data	http://www.sgs.com/en/terr	s-and-conditions
Reinquistand by: Description: Received By: Received By: Construction by: Description: Received By: Received By: Construction by: Description: Received By: Received By: Construction by: Description: Received By:	1/2/1/2 . 18 . 18 . 18 . 18 . 18 . 18 . 18 . 1	Raceived for	R	elinquistor of)	Outo / Time:	To	
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JC90656X: Chain of Custody Page 1 of 3

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				TEL.			FAX: 7 s.com/e		-3499/	3480				SGS Qu	ote #					SGS Job	#	70	90	656
	Client / Reporting Information			. Projec	t Inforn	nation												Reques	ted An	atysis				Matrix Codes
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Phone £	je Loeper	Client Purcha			City					State			Žip	ا م	1	S	1							SOL - Other Solid WP - Wipe
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JC90656X: Chain of Custody Page 2 of 3

SGS Sample Receipt Summary

Job Number: Job	C90656	Client:	USACE-PHI	ILADELPHIA DI	STRICT	Project: PHILADELPHIA D	ISTRICT	, RESERVO	OIR SAMPL
Date / Time Received: 6	/26/2019 5:16:00	PM	Delivery Me	ethod:		Airbill #'s:			
Cooler Temps (Raw Measi	•								
Cooler Temps (Corre	cted) °C: Coole	er 1: (3.0);	Cooler 2: (3	3.2); Cooler 3: (3.3); Cooler 4: (3.	1);			
Cooler Security	Y or N			Y or N	Sample Integrit	ty - Documentation	<u>Y</u>	or N	
1. Custody Seals Present:		3. COC P	resent:	ightharpoons	Sample labels	present on bottles:	✓		
2. Custody Seals Intact:	✓ □ 4.	Smpl Date	s/Time OK	lacksquare	2. Container labe	eling complete:	\checkmark		
Cooler Temperature	Y or N	_			3. Sample contai	iner label / COC agree:	\checkmark		
1. Temp criteria achieved:	V]			Sample Integri	ity - Condition	<u>Y</u>	or N	
2. Cooler temp verification:	IR Gun	ı			Sample recvd		V		
3. Cooler media:	lce (Bag	J)			2. All containers		✓		
4. No. Coolers:	4				3. Condition of sa	ample:	•	Intact	
Quality Control Preserva	tion Y or M	N N/A			Sample Integri	ity - Instructions	Y	or N	N/A
1. Trip Blank present / cooler	: 🗆 🔽				1. Analysis regu	=	<u>·</u>		
2. Trip Blank listed on COC:						red for unspecified tests		<u>✓</u>	
3. Samples preserved prope	rly: 🗸 🗆]			3. Sufficient volu	ume recvd for analysis:	_ ✓		
4. VOCs headspace free:						instructions clear:			\checkmark
					5. Filtering instru	uctions clear:			\checkmark
Test Strip Lot #s:	pH 1-12:	229517		pH 12+:	208717	Other: (Specify)		_	
Comments									
SM089-03									
Rev. Date 12/7/17									

JC90656X: Chain of Custody

Page 3 of 3



Dayton, NJ 07/18/19

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: JC90656XA

Sampling Date: 06/26/19



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: 22

TNI 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)

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Please share your ideas about how we can serve you better at: EHS.US.CustomerCare@sgs.com SGS

Sections:

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



Sample Summary

USACE-Philadelphia District

Job No: JC90656XA

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

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC90656-1F	06/26/19	06:40 GW	06/26/19	AQ	Surface H2O Filtered	WA-1S
JC90656-1XA	06/26/19	06:40 GW	06/26/19	AQ	Surface Water	WA-1S
JC90656-2F	06/26/19	07:30 GW	06/26/19	AQ	Surface H2O Filtered	WA-2S
JC90656-2XA	06/26/19	07:30 GW	06/26/19	AQ	Surface Water	WA-2S
JC90656-3F	06/26/19	07:30 GW	06/26/19	AQ	Surface H2O Filtered	WA-2M
JC90656-3XA	06/26/19	07:30 GW	06/26/19	AQ	Surface Water	WA-2M
JC90656-4F	06/26/19	07:30 GW	06/26/19	AQ	Surface H2O Filtered	WA-2D
JC90656-4XA	06/26/19	07:30 GW	06/26/19	AQ	Surface Water	WA-2D
JC90656-5F	06/26/19	10:10 GW	06/26/19	AQ	Surface H2O Filtered	WA-3S
JC90656-5XA	06/26/19	10:10 GW	06/26/19	AQ	Surface Water	WA-3S
JC90656-6F	06/26/19	10:00 GW	06/26/19	AQ	Surface H2O Filtered	WA-4S
JC90656-6XA	06/26/19	10:00 GW	06/26/19	AQ	Surface Water	WA-4S
JC90656-7F	06/26/19	09:40 GW	06/26/19	AQ	Surface H2O Filtered	WA-5S



Sample Summary (continued)

USACE-Philadelphia District

Job No: JC90656XA

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

Sample Number	Collected Date	Time	Ву	Received	Matri Code		Client Sample ID
JC90656-7XA	06/26/19	09:40	GW	06/26/19	AQ	Surface Water	WA-5S
JC90656-8F	06/26/19	08:05	GW	06/26/19	AQ	Surface H2O Filtered	WA-6S
JC90656-8XA	06/26/19	08:05	GW	06/26/19	AQ	Surface Water	WA-6S
JC90656-9F	06/26/19	08:05	GW	06/26/19	AQ	Surface H2O Filtered	WA-6M
JC90656-9XA	06/26/19	08:05	GW	06/26/19	AQ	Surface Water	WA-6M
JC90656-10F	06/26/19	08:05	GW	06/26/19	AQ	Surface H2O Filtered	WA-6D
JC90656-10X	A06/26/19	08:05	GW	06/26/19	AQ	Surface Water	WA-6D
JC90656-11F	06/26/19	08:40	GW	06/26/19	AQ	Surface H2O Filtered	WA-7S
JC90656-11X	A06/26/19	08:40	GW	06/26/19	AQ	Surface Water	WA-7S
JC90656-12F	06/26/19	08:40	GW	06/26/19	AQ	Surface H2O Filtered	WA-7M
JC90656-12X	A06/26/19	08:40	GW	06/26/19	AQ	Surface Water	WA-7M
JC90656-13F	06/26/19	08:40	GW	06/26/19	AQ	Surface H2O Filtered	WA-7D
JC90656-13X	A06/26/19	08:40	GW	06/26/19	AQ	Surface Water	WA-7D



Dayton, NJ

Section 2

Subcontract Lab Data
Report of Analysis



Certificate of Analysis

Laboratory No.: 9022356 **Report:** 07/03/19

Lab Contact: Richard A Wheeler

Attention: Tammy McCloskey

Reported To: SGS North America

2235 US Highway 130 Dayton, NJ 08810 Project: Army Corp Reservoirs

JC906656XA

Lab ID: 9022356-01 **Collected By:** Client **Sampled:** 06/26/19 06:40 **Received:** 06/28/19 09:20

Sample Desc: WA-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	07/01/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/01/19	U	JCL

Lab ID: 9022356-02 **Collected By:** Client **Sampled:** 06/26/19 07:30 **Received:** 06/28/19 09:20

Sample Desc: WA-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 07/01/19 G-11, U JCL mg/l Dissolved General Chemistry Phosphorus as P, Total 0.01 SM 4500-P E 07/01/19 JCL < 0.01 mg/l 0.01

Lab ID: 9022356-03 **Collected By:** Client **Sampled:** 06/26/19 07:30 **Received:** 06/28/19 09:20

Sample Desc: WA-2M 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	07/01/19	G-11, U	JCL
Dissolved								
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/01/19		JCL



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Lab ID: 9022356-04 **Collected By:** Client **Sampled:** 06/26/19 07:30 **Received:** 06/28/19 09:20

Sample Desc: WA-2D Sample Type: Grab

	Result	Unit	MDL	Rep. 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	07/01/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.04	mg/l	0.01	0.01	SM 4500-P E	07/01/19		JCL

Lab ID: 9022356-05 **Collected By:** Client **Sampled:** 06/26/19 10:10 **Received:** 06/28/19 09:20

Sample Desc: WA-3S 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	07/01/19	G-11, J	JCL	
General Chemistry									
Phosphorus as P, Total	0.02	mg/l	0.01	0.01	SM 4500-P E	07/01/19		JCL	

Lab ID: 9022356-06 **Collected By:** Client **Sampled:** 06/26/19 10:00 **Received:** 06/28/19 09:20

Sample Desc: WA-4S Sample Type: Grab

				Rep.				
	Result	Unit	MDL	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	07/01/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.05	mg/l	0.01	0.01	SM 4500-P E	07/01/19		JCL

Lab ID: 9022356-07 **Collected By:** Client **Sampled:** 06/26/19 09:40 **Received:** 06/28/19 09:20

Sample Desc: WA-5S 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	07/01/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/01/19		JCL



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Lab ID: 9022356-08 **Collected By:** Client **Sampled:** 06/26/19 08:05 **Received:** 06/28/19 09:20

Sample Desc: WA-6S Sample Type: Grab

	Result	Unit	MDL	Rep. 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	07/01/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/01/19	U	JCL

Lab ID: 9022356-09 **Collected By:** Client **Sampled:** 06/26/19 08:05 **Received:** 06/28/19 09:20

Sample Desc: WA-6M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistr	y					•		,
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	07/01/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.01	SM 4500-P E	07/01/19		JCL

Lab ID: 9022356-10 **Collected By:** Client **Sampled:** 06/26/19 08:05 **Received:** 06/28/19 09:20

Sample Desc: WA-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	07/01/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/01/19		JCL

Lab ID: 9022356-11 **Collected By:** Client **Sampled:** 06/26/19 08:40 **Received:** 06/28/19 09:20

Sample Desc: WA-7S Sample Type: Grab

	Result	Unit	MDL	Rep. 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	07/01/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/01/19		JCL



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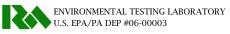
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Lab ID: 9022356-12 **Collected By:** Client **Sampled:** 06/26/19 08:40 **Received:** 06/28/19 09:20

Sample Desc: WA-7M Sample Type: Grab

	Result	Unit	MDL	Rep. 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	07/01/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/01/19		JCL

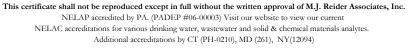
Lab ID: 9022356-13 **Collected By:** Client **Sampled:** 06/26/19 08:40 **Received:** 06/28/19 09:20

Sample Desc: WA-7D Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	t r y							
Phosphorus as P,	0.009	mg/l	0.007	0.05	SM 4500-P E	07/01/19	G-11, J	JCL
Dissolved								
General Chemistry								
Phosphorus as P, Total	0.07	mg/l	0.01	0.01	SM 4500-P E	07/01/19		JCL



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Quality Control

General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9G0032								
MB (B9G0032-BLK1)				Prepared & Ana	alyzed: 07/01/20	19		
Phosphorus as P, Total	< 0.01	0.01	mg/l					U
MB (B9G0032-BLK2)				Prepared & An	alyzed: 07/01/20	19		
Phosphorus as P, Total	< 0.01	0.01	mg/l					U
LFB (B9G0032-BS1)	1.02	0.01	/1	*	alyzed: 07/01/20	19		
Phosphorus as P, Total	1.02	0.01	mg/l	102	80-120			

Dissolved General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9G0037								
MB (B9G0037-BLK1)				Prepared & Ana	alyzed: 07/01/20	19		
Phosphorus as P, Dissolved	< 0.05	0.05	mg/l					G-11, U
LFB (B9G0037-BS1)				Prepared & An	alyzed: 07/01/20	19		
Phosphorus as P, Dissolved	1.01	0.05	mg/l		80-120			G-11
LFM (B9G0037-MS1)		Source: 9022356-01		Prepared & An	alyzed: 07/01/20	19		
Phosphorus as P, Dissolved	1.00	0.05	mg/l	100	80-120			
LFMD (B9G0037-MSD1)		Source: 9022356-01		Prepared & An	alyzed: 07/01/20	19		
Phosphorus as P, Dissolved	1.00	0.05	mg/l	100	80-120	0.299	20	



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Preparation Methods

Specific Method	Preparation Method	Prepared Date	Prepared By
9022356-01			
SM 4500-P E	SM 4500-P B	07/01/2019	JCL
9022356-02			
SM 4500-P E	SM 4500-P B	07/01/2019	JCL
9022356-03			
SM 4500-P E	SM 4500-P B	07/01/2019	JCL
9022356-04			
SM 4500-P E	SM 4500-P B	07/01/2019	JCL
9022356-05			
SM 4500-P E	SM 4500-P B	07/01/2019	JCL
9022356-06			
SM 4500-P E	SM 4500-P B	07/01/2019	JCL
9022356-07			
SM 4500-P E	SM 4500-P B	07/01/2019	JCL
9022356-08			
SM 4500-P E	SM 4500-P B	07/01/2019	JCL
9022356-09			
SM 4500-P E	SM 4500-P B	07/01/2019	JCL
9022356-10			
SM 4500-P E	SM 4500-P B	07/01/2019	JCL
9022356-11			
SM 4500-P E	SM 4500-P B	07/01/2019	JCL
9022356-12			
SM 4500-P E	SM 4500-P B	07/01/2019	JCL
9022356-13			
SM 4500-P E	SM 4500-P B	07/01/2019	JCL



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

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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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				2235 Ro	2235 Route 130, Dayton, NJ 08810	Jayton,	NJ 08810				FED-EXT	FED-EX Tracking #		Bot	Bottle Order Control	#10		
				TEL. 732-329-0200 FAX: 732-329-3499/3480 www.sgs.com/ehsusa	9-0200 FAX: 732-329 www.sgs.com/ehsusa	X: 732 om/ehst	-329-3499 Isa	3480			SGS Quote #	*		SG	SGS Job#	JC90656XA	56XA	
				Project	Project Information	uo							Re	Requested Analysis	/sis			Matrix Code
		Project Name: Philadelphia [Project Name: Philadelphia District, Reservoir Sampling	ir Samplina								-			_			DW - Drinking V
Street Address		Street										-					_	GW - Ground We
City	State Zip	City		State	Billing Info Company N	ame	Billing Information (if different from Report to) Company Name	om Repo	t to)									SC-Soil SC-Sludge
Project Contact tammy.mcclo	roject Contact E-mail tammy.mccloskey@sgs.com	Project #			Street Address	888					W							OI-OII LIQ-Other Liq AIR-Air
Phone #		Client Purchase Order #	Order #		city			State		фZ								SOL - Other Sc WP - Wipe
Sampler(s) Name(s) GW	e(s) Phone	ne Project Manager			Attention:						, \$OqT							FB - Field Blan EB-Equipment Bla RB - Rinse Blan
				Collection	\mid	F	-	Number of	Number of preserved Bottles	Bottles	, NE	_						TB - Trip Blan
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□ Z Bu	2 Business Days RUSH				:	Commercial "C"	ŗ,		X Other REDT2	r RED	2							
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DW - Drinking Water WW - Vasier WW - Surface Water SO - Sulface Water SO - Soli BED-Sediment O - OI LIQ - Other Liquid SOL - Other Solid WP - Wips of WP - Wips of BE - Field Blank FB - Field FB

Page 1 of 3

PM: RAW

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JC90656XA.xis Rev. Date: 4/10/18

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Į	Client / Reporting Information			Project	Project Information	no							Rec	Requested Analysis	alysis		Ž	Matrix Codes
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Street Address	Address	Street										_			-		38.	GW - Ground Water WW - Water SW - Surface Water
City	State Zip	City		State	Company	billing information (if different from Report to) Company Name	interent fro	m Report	9							-	55	SO - Soil SL- Studge SED-Sediment
Project	Project Contact E-mail tammy,mcoloskey@sgs.com	Project #			Street Address	ress				T	V							OI - OII LIQ - Other Liquid AIR - Air
Phone #	25-	Client Purchase Order #	rder#		City		8	State	ďΖ		,						8 8	SOL - Other Solid WP - Wipe
Sampler GW	(s) Namo(s)	Phone Project Manager			Attention:						, 4 041,						2 4 2 5	EB-Equipment Blank RB - Rinse Blank TB - The Blank
				Collection		-	H	Number of p	preserved Botlles	П	NO.							- Inp blank
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	Tumaround Time (Business days)						Data Deliverable Information	able Infon	nation					Com	Comments / Special Instructions	Instructions		
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			Sample Custody must		cumentec	be documented below each time samples change possession, including courier delivery.	time san	ples char	ige posse	ssion, incl	ading co	urler deli	rery.					
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Page 3 of 3

Bottle Order Control # # dol. 8B8

FED-EX Tracking #

SGS Quote #

Matrix Codes

JC90656XA

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

DW - Dinking Water
WW - Vader
WW - Surrano Water
So - Soli
BL - Budga
SED-Sadiment
OI - Oil
LIQ - Other Louid
NP - Wipe Brief
Re - Field Blank
E B- Field Blank
Re B - Field Blank
Re B http://www.sgs.com/en/terms-and-conditions FILTERGEN = MJ Reider to filter prior to TPO4 analysis on samples noted per client instructions. (Each sample should be TPO4 total and TPO4 total filtered). Cooler Temp. 'C 🕏 Comments / Special Instructions on les ecelved By: Requested Analysis Therm. (D: Preserved where applicable , 40qT Intact Not intact W , tott, naretje MEOH NONE NONE Billing Information (if different from Report to) Company Name H°2O°
HMO°
MBOH
HCI
HCI
HCI
HCI Relinguished By: Commercial "A" (Level 1)

Commercial "B" (Level 2)

FULT7 (Level 3+4)

NJ Reduced

Commercial "C" - F 5 RECEIVED WONDER Matrix Ā AQ Project Information Street Address 8:40:00 AM GW 8:40:00 AM GW Philadelphia District, Reservoir Sampling Time 6/26/19 6/26/19 data available via Lablink Approval needed for RUSH/Emergency TAT Date Approved By (SGS PM); / Date: 6/27/9/7/6 Project Manager MEOH/DI Vial# Date / Time: Phone Client / Reporting Information Company Name: 1 umaround Time (Business days) Field ID / Point of Collection □ Standard 10 Business Days
 □ 6 Business Days RUSH
 □ 2 Business Days RUSH
 □ 2 Business Days RUSH
 □ 1 TITOQUEU
 □ 1 TITOQUEU E-mail Project Contact E-m tammy.mccloskey@sgs.com State WA-7D WA-7D Relinquished by: Street Address 13XA SGS Sample # Š 13F

LAB USE ONLY

Page 10 of 13

JC90656XA.xls Rev, Date: 4/10/18

92226

Date / Time: 6/27/2019 1:25:35 PM

CSR: TAMMY

JC90656XA Job #:

Client Project: Philadelphia District, Reservoir Sampling

Deliverable: REDT2

TAT: Due 7/10/2019

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

FILTERGN, TPO4
FILTERGN,TPO4
FILTERGN TPO4
TP04,
FILTERGN,TPO4
<u>TPO4</u> ,
FILTERGN,TPO4
TP04.
FILTERGN,TPO4
TPO4.
FILTERGN,TPO4

Page 11 of 13

Page 12 of 13

8:05:00 AM	8:05:00 AM	8:05:00 AM	8:40:00 AM	8:40:00 AM	8:40:00 AM	8:40:00 AM	8:40:00 AM	8:40:00 AM
6/26/2019	6/26/2019	6/26/2019	6/26/2019	6/26/2019	6/26/2019	6/26/2019	6/26/2019	6/26/2019
<u>GW</u>	<u>GW</u>	<u>GW</u>	<u>GW</u>	<u>GW</u>	<u>GW</u>	<u>GW</u>	<u>GW</u>	<u>GW</u>
FILTERGN, TPO4,	TPO4.	FILTERGN, TPO4,	IPO4,	FILTERGN, TPO4,	TPO4,	FILTERGN, TPO4.	<u>TPO4.</u>	FILTERGN, TPO4.
WA-6M	WA-6D	WA-6D	WA-7S	WA-78	WA-7M	WA-7M	WA-7D	WA-7D
JC90656-9F	JC90656-10XA	JC90656-10F	JC90656-11XA	JC90656-11F	JC90656-12XA	JC90656-12F	JC90656-13XA	JC90656-13F

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).

9022356

Sample Management Receipt:

Date:

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



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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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		North America Inc Dayton		Page 1 of 2
	2235	5 Route 130, Dayton, NJ 08810	FED-EX Tracking #	Bottle Order Constrait #
•	TEL 732-3	-329-0200 FAX: 732-329-3499/3480	SGS Curde #	Botton Orrigo Compat #4 - 061819- 32
Client / Reporting Information	. Project Infe	www.sgs.com/ehsusa		JC 90 656
Company Name:	Project Name:		Requested An	alysis Matrix Codes
USACE - Phila. District	USACE RESERVO	irs-F.E. Walter	Reider)	DW - Drinking Water
100 Pens So East			Po Mrs Reid Ammowia TKN XAXO 3.0	GW - Ground Water WW - Water
100 Pen Sz. East Cay State PA P10.7 Prolect Cortact E-mail		ling Information (If different from Report to)		SW - Surface Water
Phila PA 19107	White HAVEN A			SO-Soli SL-Stidge
TAR LARGE C	Protect # Stree	et Address	Amma TKN XXO3	SED-Sediment OI - OS
Joe Loeper	Client Purchase Order £ City	State 7h		LIQ - Other Liquid AFR - Air
Samoler(s) Neme(s) 60 Phone 8	TM-061819-32	State Zp	(506 TO ME) 125, AMD: 135, XAD:	SOL - Other Subd
Greg Wacik 597-9780	Project Manager Affent	ntion;	3 4 6 8	FB - Flett Blank EB-Equipment Blank
161 60 Wacik 597-4780	lammy McClustey		9 2 1 1	RS - Rinse Blank TB - Trip Elank
		- Number of preserved Bottos	राचा वा वा ।	10 - Imposite
ses Serveto # Field ID / Point of Collection	MEOH/DI Visil # Date Time by	Tabled Game (et) Waster politics D H O O O STROME BOOK TO DO STROM	TPOY (sub.) Alkalium'dy, Bod, TDS, TOC, TSS,	
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3F WA-am	0730		XXXX	453
YF WA-2D	0730		XXXX	
5F WA-35	11 019		* X X X	L12.73
6F WA-45	101015	G S Q Q X X X	XXXX	1961
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The state of the s	1 940 de	6 5w 9 x X	XXXX	
8F WA- 65	805	G 5 W 9 X X X X	XXXX	
9F WA . 6M		Je sw 9 X X III X	CXXX	
PF WA- #UD	1 805 XII	MG SW 9 X X		
		 		WITH ASESSMENT 3B 0
				ADEL MEGICIA
Turn Around Time (Bus	iness Days)	Deliverable		ABEL VERIFICATION
10 Businees Days	Approved By (SGS PM); PDate:	Commercial "A" (Level 1) NYASP Category A	DOD-QSMS TOTAL	Comments / Special Instructions
5 Business Days		Commercial "B" (Level 2) NYASP Catagory B NJ Reduced (Level 3) MA MCP Citieste	- CF/F	CF Samples to
3 Business Days*		MA MCP Criteria Full Tier I (Level 4) CT RCP Criteria	- HOUS	ns lab
2 Businese Days*		Commercial "C" State Forms		samples to
1 Business Day*	[C	NJ DKQP ED9 Format	TPO4.	samples to
	ovel needed for 1-3 Business Day TAT	Commercial "A" = Results only, Commercial "B" = Results + Commercial "C" = Results + OC Summary + Parial Raw d	OC Summary 175 KG	lider lab
Railinguithed by: Date / Time.	Sample Custody must be o	documented below each time samples change possession, includin	ng courier delivery.	http://www.sgs.com/en/terms-end-conditions
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Relinquished by: Date / Time: 5	Recolved By:	4 Custody Seal # Intact	Preserved where soull std.	
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JC90656XA: Chain of Custody Page 1 of 3

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		www.sgs.com/ehsusa		SOS COCH S	JC 90656
Client / Reporting Information	Project Name:	t information		Requested A	Analysis Matrix Codes
Company Name: USACE - Phila. District Street Address	USACE Reser	voirs - F.E.	Walter	TO MS REIGHT) L. ANORONIA S. TKN XN030	DW - Drinking Water GW - Ground Water
100 Penn Sq. East	Steel	Billing Information (If different from Company Name		1 2 2 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	WW - Water SW - Surface Water SO - Soil
100 Penn Sg. East Chy State PA. 19107 Protect Cortact E-mail	White Haven PA	Street Address		MS Rider Anmowa	SL- Studge SED-Sediment OI - Oil
Toe Loeper	Project #	Street Address			LIQ - Other Liquid AIR - Air
ru d	Client Purchase Order #	City	State Zip	1 1 4 20 1	SOL - Other Solid WP - Wipe
215-656-65 45	TM-061819-32			Sub II	FB - Field Blank EB-Equipment Blank
215 - 656 - 65 45 Sampler(s) Name(s) 610 - Phone # Grea Wacik 597 9 780	Tanny McCosky	Attention:			RB - Rinse Stank TB - Trip Stank
	Conscion		Number of preserved Bottles	1 외 전 의 의	
Sangia # Field ID / Point of Collection	MEOH/DI Vial # Date Time	Sempled Grab (G) # of boxtion	HCI NaOH HNO, H,SO, NONE ON Water MEOH ENCORE	PIKAL BOD Tac	LAB USE ONLY
11F WA-7S	6/20/19/540	5 G SW 9	X X	XXXX	
12F U) A -7M	del24e/9840	LD 6 500 9	<u> </u>	X X X	
UP WA-7D	0/240/19840	MP G 5W 9	XXX	XXXX	
	(
Turn Around Time (Bus	siness Days)		Deliverable		Comments / Special Instructions
	Approved By (SGS PM): / Date:	Commercial "A" (Level 1	,	DOD-QSM5 TCF/	FCF Samples To
10 Business Days 5 Business Days		Commercial "B" (Level 2) NJ Reduced (Level 3)) NYASP Category B MA MCP Criteria	E cons	fins lab.
3 Business Days*	and the second s	Full Tier I (Level 4)	CT RCP Critteria_		H113 196.
2 Business Days*		Commercial "C"	State Forms	-Day	samples To
1 Business Day*		NJ DKQP	EDD Format		Relder lab
All data praisable via Labink Appr	oval needed for 1-3 Business Day TAT		A" = Results only; Commercial "B" = Res N "C" = Results + QC Summary + Partial		http://www.sgs.com/en/terms-end-conditions
Stellinguished by:	Sample Custody n	nust be documented below each tie	me samples change possession, in		Boorland Bu
1 /m WK 6/24/19	3:15 1	shah	2 18 Shah	6/26/14 17:16	, 2
Resinquished by: Date / Time	e: Received By: 3	-	Relinquished By: 4	Date / Time:	Received By:

JC90656XA: Chain of Custody Page 2 of 3

SGS Sample Receipt Summary

Job Number:	JC90656	;	Client:	USACE-PI	HILAD	ELPHI	A DISTRICT	Project: PHILADEL	PHIA DISTRICT	, RESERV	OIR SAMPL
Date / Time Received:	6/26/201	9 5:16:00	PM	Delivery N	/letho	d:		Airbill #'s:			
Cooler Temps (Raw Meas	•						, ,	**			
Cooler Security 1. Custody Seals Present: 2. Custody Seals Intact: Cooler Temperature 1. Temp criteria achieved: 2. Cooler temp verification: 3. Cooler media: 4. No. Coolers:		Y or N IR Gun Ice (Bag 4		es/Time OK	Y	or N	Sample labels Container labels Sample container	iner label / COC agree: ity - Condition within HT: accounted for:	Y Z Y Y Z	or N	
Quality Control Preserva 1. Trip Blank present / coole 2. Trip Blank listed on COC: 3. Samples preserved prope 4. VOCs headspace free:	er: : erly:	Y or M		ı			Analysis requ Bottles receiv Sufficient volu	ved for unspecified tests ume recvd for analysis: instructions clear:	Y	or N □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	N/A
Test Strip Lot #s:	pH 1-1	2:	229517		ŗ	oH 12+:	208717	Other: (Specify	y)		
Comments SM089-03 Rev. Date 12/7/17											

JC90656XA: Chain of Custody

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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: JC91796

Sampling Date: 07/17/19



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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SGS

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Sample Summary

USACE-Philadelphia District

Job No:

JC91796

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

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC91796-1	07/17/19	09:40 GW	07/17/19	AQ	Surface Water	WA-1S
JC91796-2	07/17/19	07:10 GW	07/17/19	AQ	Surface Water	WA-2S
JC91796-3	07/17/19	07:10 GW	07/17/19	AQ	Surface Water	WA-2M
JC91796-4	07/17/19	07:10 GW	07/17/19	AQ	Surface Water	WA-2D
JC91796-5	07/17/19	10:30 GW	07/17/19	AQ	Surface Water	WA-3S
JC91796-6	07/17/19	10:15 GW	07/17/19	AQ	Surface Water	WA-4S
JC91796-7	07/17/19	10:00 GW	07/17/19	AQ	Surface Water	WA-5S
JC91796-8	07/17/19	08:00 GW	07/17/19	AQ	Surface Water	WA-6S
JC91796-9	07/17/19	08:00 GW	07/17/19	AQ	Surface Water	WA-6M
JC91796-10	07/17/19	08:00 GW	07/17/19	AQ	Surface Water	WA-6D
JC91796-11	07/17/19	08:30 GW	07/17/19	AQ	Surface Water	WA-7S
JC91796-12	07/17/19	08:30 GW	07/17/19	AQ	Surface Water	WA-7M
JC91796-13	07/17/19	08:30 GW	07/17/19	AQ	Surface Water	WA-7D

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: USACE-Philadelphia District Job No JC91796

Site: Philadelphia District, Reservoir Sampling Report Date 7/26/2019 10:45:38 A

On 07/17/2019, 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 3.1 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JC91796 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: GP22570

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91795-8DUP, JC91795-8MS were used as the QC samples for Nitrogen, Total Kjeldahl.

General Chemistry By Method EPA 353.2/LACHAT

Matrix: AQ Batch ID: GP22548

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91921-1DUP, JC91921-1MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.

Matrix: AO Batch ID: GP22549

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91796-2DUP, JC91796-2MS, JC91796-7MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.
- Matrix Spike Recovery(s) for Nitrogen, Nitrate + Nitrite are outside control limits. Spike recovery indicates possible matrix interference.

Friday, July 26, 2019 Page 1 of 4

General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ Batch ID: R179924

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91796-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179925

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91796-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179926

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91796-13 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179938

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91796-10 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179947

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91796-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179948

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91796-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179949

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91796-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179950

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91796-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179951

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91796-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179952

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91796-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179953

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91796-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179954

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91796-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R179955

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91796-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Friday, July 26, 2019 Page 2 of 4

General Chemistry By Method SM2320 B-11

Matrix: AQ Batch ID: GN97809

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91790-2DUP were used as the QC samples for Alkalinity, Total as CaCO3.
- JC91796-3 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC91796-4 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC91796-1 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC91796-2 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.

Matrix: AQ Batch ID: GN97810

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91796-5DUP were used as the QC samples for Alkalinity, Total as CaCO3.
- JC91796-5 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC91796-6 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC91796-7 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC91796-10 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC91796-13 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC91796-8 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC91796-9 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC91796-11 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC91796-12 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.

General Chemistry By Method SM2540 C-11

Matrix: AQ

Batch ID: GN97791

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91796-1DUP were used as the QC samples for Solids, Total Dissolved.

General Chemistry By Method SM2540 D-11

Matrix: AQ

Batch ID: GN97828

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91795-1DUP were used as the QC samples for Solids, Total Suspended.

Matrix: AQ

Batch ID: GN97847

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91796-11DUP were used as the QC samples for Solids, Total Suspended.
- JC91796-11 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.

Friday, July 26, 2019 Page 3 of 4

SGS

General Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AQ Batch ID: GP22601

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92091-1DUP, JC92091-1MS, JC92091-1MSD 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.

Matrix: AQ Batch ID: GP22602

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91796-8DUP, JC91796-8MS, JC91796-8MSD were used as the QC samples for Nitrogen, Ammonia.

General Chemistry By Method SM4500NO2 B-11

Matrix: AQ Batch ID: GN97714

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91796-1DUP, JC91796-1MS were used as the QC samples for Nitrogen, Nitrite.

General Chemistry By Method SM5210 B-11

Matrix: AQ Batch ID: GP22476

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91795-1DUP were used as the QC samples for BOD, 5 Day.

General Chemistry By Method SM5310 B-11

Matrix: AQ Batch ID: GP22479

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91796-1MS, JC91796-1MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ Batch ID: GP22480

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91796-11MS, JC91796-11MSD 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, July 26, 2019 Page 4 of 4

SGS

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Summary of Hits Job Number: JC91796

USACE-Philadelphia District Account:

Philadelphia District, Reservoir Sampling 07/17/19 **Project:**

Collected:

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL MDL	Units	Method
JC91796-1 WA-1S				
Alkalinity, Total as CaCO3 ^a Nitrogen, Nitrate ^b Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	20.0 0.11 0.11 0.40 49.0 4.9	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
JC91796-2 WA-2S				
Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	0.37 43.0 5.1	0.20 10 1.0	mg/l mg/l mg/l	EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC91796-3 WA-2M				
BOD, 5 Day Nitrogen, Nitrate ^b Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	4.3 0.24 0.24 0.32 43.0 4.8	3.4 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
JC91796-4 WA-2D				
Nitrogen, Nitrate ^b Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	0.16 0.16 0.42 50.0 5.3	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
JC91796-5 WA-3S				
Alkalinity, Total as CaCO3 ^a Nitrogen, Nitrate ^b Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	11.5 0.23 0.23 0.28 55.0 5.0	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
JC91796-6 WA-4S				
Alkalinity, Total as CaCO3 ^a Nitrogen, Nitrate ^b	10.5 0.13	5.0 0.11	mg/l mg/l	SM2320 B-11 EPA353.2/SM4500NO2B

Summary of Hits
Job Number: JC91796
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 07/17/19

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL MDL	Units	Method
Nitrogen, Nitrate + Nitrite	0.13	0.10	mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl	0.27	0.20	mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	50.0	10	mg/l	SM2540 C-11
Total Organic Carbon	3.6	1.0	mg/l	SM5310 B-11
JC91796-7 WA-5S				
Nitrogen, Nitrate b	0.24	0.11	mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.24	0.10	mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl	0.31	0.20	mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	49.0	10	mg/l	SM2540 C-11
Total Organic Carbon	4.5	1.0	mg/l	SM5310 B-11
JC91796-8 WA-6S				
Alkalinity, Total as CaCO3 ^a	5.0	5.0	mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	0.15	0.11	mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.15	0.10	mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl	0.33	0.20	mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	50.0	10	mg/l	SM2540 C-11
Total Organic Carbon	4.9	1.0	mg/l	SM5310 B-11
JC91796-9 WA-6M				
Nitrogen, Nitrate b	0.30	0.11	mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.30	0.10	mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl	0.36	0.20	mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	38.0	10	mg/l	SM2540 C-11
Total Organic Carbon	4.4	1.0	mg/l	SM5310 B-11
JC91796-10 WA-6D				
Alkalinity, Total as CaCO3 ^a	5.5	5.0	mg/l	SM2320 B-11
Nitrogen, Nitrate b	0.17	0.11	mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.17	0.10	mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl	0.87	0.20	mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	39.0	10	mg/l	SM2540 C-11
Solids, Total Suspended	14.1	4.0	mg/l	SM2540 D-11
Total Organic Carbon	5.0	1.0	mg/l	SM5310 B-11
JC91796-11 WA-7S				
Alkalinity, Total as CaCO3 ^a	7.0	5.0	mg/l	SM2320 B-11
Nitrogen, Total Kjeldahl	0.32	0.20	mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	45.0	10	mg/l	SM2540 C-11
			-	

Summary of Hits Job Number: JC91796

Account: USACE-Philadelphia District

Project: Philadelphia District, Reservoir Sampling

Collected: 07/17/19

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Total Organic Carbon	5.1	1.0		mg/l	SM5310 B-11
JC91796-12 WA-7M					
Alkalinity, Total as CaCO3 ^a Nitrogen, Nitrate ^b Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon JC91796-13 WA-7D	6.5 0.13 0.13 0.33 50.0 5.0	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
Alkalinity, Total as CaCO3 ^a Nitrogen, Total Kjeldahl Solids, Total Dissolved Solids, Total Suspended Total Organic Carbon	7.0 0.42 50.0 5.5 5.5	5.0 0.20 10 4.0 1.0		mg/l mg/l mg/l mg/l	SM2320 B-11 EPA 351.2/LACHAT SM2540 C-11 SM2540 D-11 SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)





Dayton, NJ

Section 4

Sample Results		
Report of Analysis		
report of 1 marysis		

Report of Analysis

Client Sample ID: WA-1S Lab Sample ID: JC91796-1

Lab Sample ID:JC91796-1Date Sampled:07/17/19Matrix:AQ - Surface WaterDate Received:07/17/19Percent Solids:n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	20.0	5.0	mg/l	1	07/22/19 16:45	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/18/19 20:53	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/25/19 15:00	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.11	0.11	mg/l	1	07/23/19 11:54	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.11	0.10	mg/l	1	07/23/19 11:54	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/19/19 02:25	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.40	0.20	mg/l	1	07/25/19 11:23	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	49.0	10	mg/l	1	07/22/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/23/19 10:23	RC	SM2540 D-11
Total Organic Carbon	4.9	1.0	mg/l	1	07/19/19 18:00	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.



⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Report of Analysis

Client Sample ID: WA-2S Lab Sample ID: JC91796-2

Lab Sample ID:JC91796-2Date Sampled:07/17/19Matrix:AQ - Surface WaterDate Received:07/17/19Percent Solids:n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 5.0	5.0	mg/l	1	07/22/19 16:45	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/18/19 20:55	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/25/19 15:02	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	< 0.11	0.11	mg/l	1	07/23/19 12:09	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	07/23/19 12:09	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/19/19 02:25	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.37	0.20	mg/l	1	07/25/19 11:24	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	43.0	10	mg/l	1	07/22/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/23/19 10:23	RC	SM2540 D-11
Total Organic Carbon	5.1	1.0	mg/l	1	07/19/19 18:33	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Report of Analysis

Client Sample ID: WA-2M

Lab Sample ID: JC91796-3

Matrix: AQ - Surface Water

Date Sampled: 07/17/19

Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 5.0	5.0	mg/l	1	07/22/19 16:45	CM	SM2320 B-11
BOD, 5 Day	4.3	3.4	mg/l	1	07/18/19 20:57		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/25/19 15:06	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.24	0.11	mg/l	1	07/23/19 12:10	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.24	0.10	mg/l	1	07/23/19 12:10	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/19/19 02:25	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.32	0.20	mg/l	1	07/25/19 11:25	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	43.0	10	mg/l	1	07/22/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/23/19 10:23	RC	SM2540 D-11
Total Organic Carbon	4.8	1.0	mg/l	1	07/19/19 18:44	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.



⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Report of Analysis

Client Sample ID: WA-2D Lab Sample ID: JC91796-4

Lab Sample ID:JC91796-4Date Sampled:07/17/19Matrix:AQ - Surface WaterDate Received:07/17/19Percent Solids:n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 5.0	5.0	mg/l	1	07/22/19 16:45	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/18/19 21:00	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/25/19 15:07	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.16	0.11	mg/l	1	07/23/19 12:11	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.16	0.10	mg/l	1	07/23/19 12:11	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/19/19 02:25	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.42	0.20	mg/l	1	07/25/19 11:26	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	50.0	10	mg/l	1	07/22/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/23/19 10:23	RC	SM2540 D-11
Total Organic Carbon	5.3	1.0	mg/l	1	07/19/19 18:55	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.



⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Report of Analysis

Client Sample ID: WA-3S Lab Sample ID: JC91796-5

Matrix: AQ - Surface Water Date Received: 07/17/19
Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Date Sampled: 07/17/19

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	11.5	5.0	mg/l	1	07/25/19 17:03	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/18/19 21:03	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/25/19 15:09	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.23	0.11	mg/l	1	07/23/19 12:12	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.23	0.10	mg/l	1	07/23/19 12:12	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/19/19 02:25	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.28	0.20	mg/l	1	07/25/19 11:27	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	55.0	10	mg/l	1	07/22/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/23/19 10:23	RC	SM2540 D-11
Total Organic Carbon	5.0	1.0	mg/l	1	07/19/19 19:06	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Report of Analysis

Client Sample ID: WA-4S Lab Sample ID: JC91796-6

Date Sampled: 07/17/19 Matrix: AQ - Surface Water **Date Received:** 07/17/19 Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	10.5	5.0	mg/l	1	07/25/19 17:03	CM	SM2320 B-11
BOD, 5 Day	< 4.4	4.4	mg/l	1	07/18/19 21:08		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/25/19 15:10		SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.13	0.11	mg/l	1	07/23/19 12:13	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.13	0.10	mg/l	1	07/23/19 12:13	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/19/19 02:25	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.27	0.20	mg/l	1	07/25/19 11:29	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	50.0	10	mg/l	1	07/22/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/23/19 10:23	RC	SM2540 D-11
Total Organic Carbon	3.6	1.0	mg/l	1	07/19/19 19:18	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.



⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Report of Analysis

Client Sample ID: WA-5S Lab Sample ID: JC91796-7

Matrix: AQ - Surface Water **Date Received:** 07/17/19 Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Date Sampled: 07/17/19

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 5.0	5.0	mg/l	1	07/25/19 17:03	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/18/19 21:11		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/25/19 15:12	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.24	0.11	mg/l	1	07/23/19 12:17	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.24	0.10	mg/l	1	07/23/19 12:17	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/19/19 02:39	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.31	0.20	mg/l	1	07/25/19 11:30	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	49.0	10	mg/l	1	07/22/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/23/19 10:23	RC	SM2540 D-11
Total Organic Carbon	4.5	1.0	mg/l	1	07/19/19 19:29	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.



⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Report of Analysis

Client Sample ID: WA-6S Lab Sample ID: JC91796-8

Date Sampled: 07/17/19 Matrix: AQ - Surface Water **Date Received:** 07/17/19

Project: Philadelphia District, Reservoir Sampling

Percent Solids: n/a

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	5.0	5.0	mg/l	1	07/25/19 17:03	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/18/19 21:15		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/25/19 15:23	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.15	0.11	mg/l	1	07/23/19 12:18	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.15	0.10	mg/l	1	07/23/19 12:18	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/19/19 02:39	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.33	0.20	mg/l	1	07/25/19 11:31	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	50.0	10	mg/l	1	07/22/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/23/19 10:23	RC	SM2540 D-11
Total Organic Carbon	4.9	1.0	mg/l	1	07/19/19 19:40	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.



⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-6M

Lab Sample ID: JC91796-9

Matrix: AQ - Surface Water

Date Sampled: 07/17/19

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 ^a	< 5.0	5.0	mg/l	1	07/25/19 17:03	СМ	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/18/19 21:18	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/25/19 15:25	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.30	0.11	mg/l	1	07/23/19 12:19	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.30	0.10	mg/l	1	07/23/19 12:19	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/19/19 02:39	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.36	0.20	mg/l	1	07/25/19 11:32	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	38.0	10	mg/l	1	07/22/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/23/19 10:23	RC	SM2540 D-11
Total Organic Carbon	4.4	1.0	mg/l	1	07/23/19 10:16	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-6D Lab Sample ID: JC91796-10 **Date Sampled:** 07/17/19 Matrix: AQ - Surface Water **Date Received:** 07/17/19 Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	5.5	5.0	mg/l	1	07/25/19 17:03	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/18/19 21:21		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/25/19 15:26	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.17	0.11	mg/l	1	07/23/19 12:20	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.17	0.10	mg/l	1	07/23/19 12:20	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/19/19 02:39	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.87	0.20	mg/l	1	07/25/19 11:33	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	39.0	10	mg/l	1	07/22/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	14.1	4.0	mg/l	1	07/23/19 10:23	RC	SM2540 D-11
Total Organic Carbon	5.0	1.0	mg/l	1	07/23/19 10:27	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.



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⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-7S Lab Sample ID: JC91796-11 **Date Sampled:** 07/17/19 **Date Received:** 07/17/19 Matrix: 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 ^a	7.0	5.0	mg/l	1	07/25/19 17:10	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/18/19 21:24		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/25/19 15:28	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	07/23/19 12:21	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	07/23/19 12:21	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/19/19 02:39	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.32	0.20	mg/l	1	07/25/19 11:33	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	45.0	10	mg/l	1	07/22/19 15:30	RC	SM2540 C-11
Solids, Total Suspended ^c	< 4.0	4.0	mg/l	1	07/23/19 11:47	RC	SM2540 D-11
Total Organic Carbon	5.1	1.0	mg/l	1	07/23/19 12:43	CD	SM5310 B-11

- (a) Sample was titrated to a final pH of 4.5.
- (b) Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)
- (c) 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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Client Sample ID: WA-7M

Lab Sample ID: JC91796-12

Matrix: AQ - Surface Water

Date Sampled: 07/17/19

Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	6.5	5.0	mg/l	1	07/25/19 17:10	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/18/19 21:28		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/25/19 15:29	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.13	0.11	mg/l	1	07/23/19 12:22	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.13	0.10	mg/l	1	07/23/19 12:22	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/19/19 02:39	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.33	0.20	mg/l	1	07/25/19 11:34	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	50.0	10	mg/l	1	07/22/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	07/23/19 11:47	RC	SM2540 D-11
Total Organic Carbon	5.0	1.0	mg/l	1	07/23/19 13:17	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-7D Lab Sample ID: JC91796-13 **Date Sampled:** 07/17/19 Matrix: AQ - Surface Water **Date Received:** 07/17/19 Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	7.0	5.0	mg/l	1	07/25/19 17:10	CM	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	07/18/19 21:30		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/25/19 15:30	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	07/23/19 12:24	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	07/23/19 12:24	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/19/19 02:39	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.42	0.20	mg/l	1	07/25/19 11:35	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	50.0	10	mg/l	1	07/22/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	5.5	4.0	mg/l	1	07/23/19 11:47	RC	SM2540 D-11
Total Organic Carbon	5.5	1.0	mg/l	1	07/23/19 13:28	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.

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⁽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

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CHAIN OF CUSTODY

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	SGS	North America Inc Dayton		Page _ of _	_
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JC91796: Chain of Custody Page 1 of 3

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JC91796: Chain of Custody Page 2 of 3

SGS Sample Receipt Summary

Job Number: JC917	796 Client:	USACE-PHILADELPHIA DIS	TRICT PHILA	ADELPHIA DISTRICT	Γ, RESERVOI	R SAMPL
Date / Time Received: 7/17/2	019 7:38:00 PM	Delivery Method:	Airbill #'s:			
• •	, , ,	, ,	9); Cooler 4: (2.7); Cooler 5: (2.8 9); Cooler 4: (2.7); Cooler 5: (2.8		, ,	
Cooler Security 1. Custody Seals Present: 2. Custody Seals Intact: ✓	or N 3. COC Pi 4. Smpl Date		Sample Integrity - Documentation 1. Sample labels present on bottles: 2. Container labeling complete:		or N	
Cooler Temperature 1. Temp criteria achieved:	Y or N		3. Sample container label / COC agr	_		
2. Cooler temp verification: 3. Cooler media: 4. No. Coolers:	IR Gun Ice (Bag) 7		Sample Integrity - Condition 1. Sample recvd within HT: 2. All containers accounted for: 3. Condition of sample:	<u>Y</u> <u>V</u>	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 or N N/A		Sample Integrity - Instructions 1. Analysis requested is clear: 2. Bottles received for unspecified t 3. Sufficient volume recvd for analy 4. Compositing instructions clear:	ests	or N	 N/A ✓
Test Strip Lot #s: pH ²	1-12: 229517	pH 12+:	5. Filtering instructions clear: 208717 Other: (Specify)		▽
Comments SM089-03 Rev. Date 12/7/17						

JC91796: Chain of Custody

Page 3 of 3



Dayton, NJ 07/30/19

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: JC91796X

Sampling Date: 07/17/19



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

TNI TABORATORY

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
how we can serve you better at:
EHS.US.CustomerCare@sgs.com

SGS

Sections:

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-1-

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Sample Summary

USACE-Philadelphia District

JC91796X Job No:

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

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
JC91796-1X	07/17/19	09:40 GW	07/17/19	AQ	Surface Water	WA-1S
JC91796-2X	07/17/19	07:10 GW	07/17/19	AQ	Surface Water	WA-2S
JC91796-5X	07/17/19	10:30 GW	07/17/19	AQ	Surface Water	WA-3S
JC91796-6X	07/17/19	10:15 GW	07/17/19	AQ	Surface Water	WA-4S
JC91796-7X	07/17/19	10:00 GW	07/17/19	AQ	Surface Water	WA-5S
JC91796-8X	07/17/19	08:00 GW	07/17/19	AQ	Surface Water	WA-6S
JC91796-11X	07/17/19	08:30 GW	07/17/19	AQ	Surface Water	WA-7S



Dayton, NJ

Section 2

Subcontract Lab Data
Report of Analysis



Analytical Report

Serialized: 07/19/2019 11:00am QC36

JOSEPH M. LOEPER US ARMY CORPS OF ENGINEERS 100 PENN SQUARE EAST WANAMAKER BUILDING PHILADELPHIA,PA 19107

Regarding:

US ARMY CORPS OF ENGINEERS 100 PENN SQUARE EAST WANAMAKER BUILDING PHILADELPHIA, PA 19107

PROJECT ID:

W08688

LABORATORY REPORT NUMBER:

L7146700

Authorized by: Douglas J. Gump Client Services Manager

DarJU



Analytical Report Printed 07/19/19 11:00 QC36

JOSEPH M. LOEPER US ARMY CORPS OF ENGINEERS 100 PENN SQUARE EAST WANAMAKER BUILDING PHILADELPHIA, PA 19107

Regarding: JOSEPH M. LOEPER US ARMY CORPS OF ENGINEERS 100 PENN SQUARE EAST WANAMAKER BUILDING PHILADELPHIA, PA 19107

	: W08688, US ARMY CO W08688, US ARMY CO			P.O. No:		Inv. No: PWSID No:	1983986 PI			
Sample ID L7146700-1	Sample Description WA-1S Received Date/Tir	m e/Temp 07/17	/19 05:40pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 09:40am NA C	Sampled by Customer			
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst			
ENVIRONM	MENTAL MICROBIO	LOGY WA-19	8							
Total Coliform Fecal Coliforn		11300 E, Q 3 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	07/17/19 07:38PM KC2 07/17/19 07:44PM JG2			
Sample ID L7146700-2	Sample Description WA-2S Received Date/Tir	ne/Temp 07/17	/19 05:40pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 07:10am NA C	Sampled by Customer			
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst			
ENVIRONM	MENTAL MICROBIO	LOGY WA-29	5							
Total Coliform	*	15300 E, Q 2 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	07/17/19 07:38PM KC2 07/17/19 07:44PM JG2			

Analytical Report Printed 07/19/19 11:00

	: W08688, US ARMY CC W08688, US ARMY CC			P.O. No:		Inv. No: PWSID No:	1983986 PI
Sample ID L7146700-3	Sample Description WA-3S Received Date/Tim	ne/Temp 07/17/	19 05:40pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 10:30am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY WA-3S					
Total Coliform Fecal Coliforn		>20000 Q 23 Q	cfu/100ml cfu/100ml		1 100	100 1	07/17/19 07:38PM KC2 07/17/19 07:44PM JG2
Sample ID L7146700-4	Sample Description WA-4S Received Date/Tim	ne/Temp 07/17/	19 05:40pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 10:15am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY WA-4S					
Total Coliform Fecal Coliforn	,	>20000 Q 70 E, Q	cfu/100ml cfu/100ml		1 10	100 10	07/17/19 07:38PM KC2 07/17/19 07:44PM JG2
Sample ID Sample Description L7146700-5 WA-5S Received Date/Time/Temp 07/		ne/Temp 07/17/	19 05:40pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 10:00am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY WA-5S					
Total Coliform Fecal Coliforn	,	8300 E, Q 10 E, Q	cfu/100ml cfu/100ml		1 10	100 10	07/17/19 09:00PM KC2 07/17/19 07:44PM JG2
Sample ID L7146700-6	Sample Description WA-6S Received Date/Tim	ne/Temp 07/17/	19 05:40pm 3.4 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

Analytical Report Printed 07/19/19 11:00

Account No: W08688, US A			P.O. No:		Inv. No: PWSID No:	1983986 PI		
Sample ID Sample Desc L7146700-6 WA-6S Received	ription Date/Time/Temp 07/17	7/19 05:40pm 3.4 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		
ENVIRONMENTAL MICI	ROBIOLOGY WA-6	S						
Total Coliform, MF Fecal Coliform, MF	7700 Q 1 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	07/17/19 09:00PM KC2 07/17/19 07:44PM JG2		
Sample ID Sample Desc L7146700-7 WA-7S Received	ription Date/Time/Temp 07/17	7/19 05:40pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 08:30am NA C	Sampled by Customer		
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst		
ENVIRONMENTAL MICE	ROBIOLOGY WA-7	S						
Total Coliform, MF Fecal Coliform, MF	>20000 Q 1 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	07/17/19 09:00PM KC2 07/17/19 07:44PM JG2		
Sample ID Sample Desc L7146700-8 PR-1S Received	ription Date/Time/Temp 07/17	7/19 05:40pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 12:10pm NA C	Sampled by Customer		
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst		
ENVIRONMENTAL MICE	ROBIOLOGY PR-18	;						
Total Coliform, MF Fecal Coliform, MF	16500 E, Q 60 E, Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 10	100 10	07/17/19 07:38PM KC2 07/17/19 07:44PM JG2		
Sample ID Sample Desc L7146700-9 PR-2S Received I	ription Date/Time/Temp 07/17	7/19 05:40pm 3.4 C	Iced (Y/N): Y		ate/Time/Temp 01:20pm NA C	Sampled by Customer		
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst		

Page 4 of 9

Analytical ReportPrinted 07/19/19 11:00

Account No: W08688, US ARMY CO Project No: W08688, US ARMY CO				P.O. No:		Inv. No: PWSID No:	1983986 PI
Sample ID Sample Description L7146700-9 PR-2S Received Date/Tir	ne/Temp 07/17/1	19 05:40pr	m 3.4 C	Iced (Y/N): Y		te/Time/Temp 1:20pm NA C	Sampled by Customer
Parameter	Result	Qual U	nits	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOI	LOGY PR-2S						
Total Coliform, MF Fecal Coliform, MF	4300 Q 1 Q		u/100ml u/100ml	SM 9222B SM 9222D	1 100	100 1	07/17/19 09:00PM KC2 07/17/19 07:44PM JG2
Sample ID Sample Description L7146700-10 PR-3S Received Date/Time/Temp 07/17/19 05:40pm 3.4 C				Iced (Y/N): Y		te/Time/Temp 2:50pm NA C	Sampled by Customer
Parameter	Result	Qual U	nits	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOI	LOGY PR-3S						
Total Coliform, MF Fecal Coliform, MF	1964 E, Q <1 Q		u/100ml u/100ml	SM 9222B SM 9222D	10 100	10 1	07/17/19 09:00PM KC2 07/17/19 07:44PM JG2
Sample ID Sample Description L7146700-11 PR-4S Received Date/Time/Temp 07/17/19 05:40pm 3.4 C		m 3.4 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/17/19 11:45am NA C		Sampled by Customer	
Parameter	Result	Qual U	nits	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOI	LOGY PR-4S						
Total Coliform, MF Fecal Coliform, MF	>20000 Q 9 Q		u/100ml u/100ml	SM 9222B SM 9222D	1 100	100 1	07/17/19 09:00PM KC2 07/17/19 07:44PM JG2

Sample Comments | Result Qualifiers:

L7146700-1:

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.

Analytical Report

Printed 07/19/19 11:00

Account No: W08688, US ARMY CORPS OF ENGINEERS P.O. No: Inv. No: 1983986 PI

Project No: W08688, US ARMY CORPS OF ENGINEERS PWSID No:

L7146700-2:

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: 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.

L7146700-3:

- 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.

L7146700-4:

- 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.

L7146700-5:

- 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: 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.

L7146700-6:

- 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.

L7146700-7:

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

Page 6 of 9

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.

L7146700-8:

Analytical Report

Account No: W08688, US ARMY CORPS OF ENGINEERS P.O. No:

Project No: W08688, US ARMY CORPS OF ENGINEERS

Inv. No: 1983986 PI PWSID No:

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: 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.

L7146700-9:

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.

L7146700-10:

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.

L7146700-11:

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

Page 7 of 9

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								
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								
שאו	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 Wind Gap Facility	State ID- State ID- State ID-	NJ: 02015 NJ: 06005 NJ: PA001					

WOSCHAIN OF CUSTODY

Page 1 of 1

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

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Dayton, NJ

Section 3

Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody

	SW		CUSTODY perica Inc Dayton		Page of	1 <u>2</u>
		2235 Route 130	Dayton, NJ 98810 FAX: 732-329-3499/3480	FED-EX Tracking #	Bottle Onder Control of	
Ctient / Reporting Information			FAX: 732-329-3499/3480 s.com/ehsusa	SGS Outsite #	568 xm + T/9	1796
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Cry State D Zp Philo PA P10 7	City	State Company Name	n (If different from Report to)			SW - Surface Water SO - Soil
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NYASP Category B

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CT RCP Criteria

State Forms

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NJ Reduced (Lovel 3)
Full Tier I (Levol 4)
Commercial "C"
NJ DKQP

5 Business Days
3 Business Days
2 Business Days*

JC91796X: Chain of Custody Page 1 of 3

TCF/FCF Samples to Eurofins lab

TPO4 samples to

11719 1938

Client / Reporting Information			CHAIN OF CUSTODY SGS North America Inc Dayton 2235 Route 130, Dayton, NJ 08810									Page '2 of _2 FED.EX Tracking # Bather Green Control IV								
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JC91796X: Chain of Custody Page 2 of 3

SGS Sample Receipt Summary

Job Number: J	Job Number: JC91796 Client:			DELPHIA DI	STRICT	Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL				
Date / Time Received: 7	/17/2019 7:38:00	PM	Delivery Metho	od:		Airbill #'s:				
	•	. ,	, ,	,	,	r); Cooler 5: (2.8); Cooler 6: (. ,		
Cooler Temps (Corre	cted) °C: Coole	r 1: (3.1);	Cooler 2: (2.7)	Cooler 3: (2.9); Cooler 4: (2.7	'); Cooler 5: (2.8); Cooler 6: ((2.3); Coole	er 7: (2.9);		
Cooler Security	Y or N		<u> Y</u>	or N	Sample Integrit	y - Documentation	<u>Y</u> c	or N		
1. Custody Seals Present:	$leve{}$	3. COC Pr	esent:		Sample labels	present on bottles:	~			
2. Custody Seals Intact:	✓	Smpl Dates	s/Time OK		2. Container label		✓			
Cooler Temperature	Y or N	_			3. Sample contair	ner label / COC agree:	\checkmark			
1. Temp criteria achieved:	V				Sample Integrit	ty - Condition	<u>Y</u> 0	or N		
2. Cooler temp verification:	IR Gun				Sample recvd v	vithin HT:	~			
3. Cooler media:	lce (Bag)			All containers a	accounted for:	✓			
4. No. Coolers:	7				3. Condition of sa	mple:	In	tact		
Quality Control Preserva	tion Y or M	I N/A			Sample Integrit	ty - Instructions	<u>Y</u> 0	or N	N/A	
1. Trip Blank present / coole	r: 🗌 🔽				Analysis reque	ested is clear:	V			
2. Trip Blank listed on COC:						ed for unspecified tests		✓		
3. Samples preserved prope	rly: 🔽 🗆				Sufficient volu	me recvd for analysis:	~			
4. VOCs headspace free:		~			4. Compositing in	nstructions clear:			✓	
					5. Filtering instru	ctions clear:			~	
Test Strip Lot #s:	pH 1-12:	229517		pH 12+:	208717	Other: (Specify)				
Comments										
SM089-03										
Rev. Date 12/7/17										

JC91796X: Chain of Custody

Page 3 of 3



Dayton, NJ 08/02/19

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: JC91796XA

Sampling Date: 07/17/19



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: 22

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

Sections:

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-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: JC91796XA

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

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC91796-1F	07/17/19	09:40 GW	07/17/19	AQ	Surface H2O Filtered	WA-1S
JC91796-1XA	07/17/19	09:40 GW	07/17/19	AQ	Surface Water	WA-1S
JC91796-2F	07/17/19	07:10 GW	07/17/19	AQ	Surface H2O Filtered	WA-2S
JC91796-2XA	07/17/19	07:10 GW	07/17/19	AQ	Surface Water	WA-2S
JC91796-3F	07/17/19	07:10 GW	07/17/19	AQ	Surface H2O Filtered	WA-2M
JC91796-3XA	07/17/19	07:10 GW	07/17/19	AQ	Surface Water	WA-2M
JC91796-4F	07/17/19	07:10 GW	07/17/19	AQ	Surface H2O Filtered	WA-2D
JC91796-4XA	07/17/19	07:10 GW	07/17/19	AQ	Surface Water	WA-2D
JC91796-5F	07/17/19	10:30 GW	07/17/19	AQ	Surface H2O Filtered	WA-3S
JC91796-5XA	07/17/19	10:30 GW	07/17/19	AQ	Surface Water	WA-3S
JC91796-6F	07/17/19	10:15 GW	07/17/19	AQ	Surface H2O Filtered	WA-4S
JC91796-6XA	07/17/19	10:15 GW	07/17/19	AQ	Surface Water	WA-4S
JC91796-7F	07/17/19	10:00 GW	07/17/19	AQ	Surface H2O Filtered	WA-5S



Sample Summary (continued)

USACE-Philadelphia District

Job No:

JC91796XA

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

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC91796-7XA	07/17/19	10:00 GW	07/17/19	AQ	Surface Water	WA-5S
JC91796-8F	07/17/19	08:00 GW	07/17/19	AQ	Surface H2O Filtered	WA-6S
JC91796-8XA	07/17/19	08:00 GW	07/17/19	AQ	Surface Water	WA-6S
JC91796-9F	07/17/19	08:00 GW	07/17/19	AQ	Surface H2O Filtered	WA-6M
JC91796-9XA	07/17/19	08:00 GW	07/17/19	AQ	Surface Water	WA-6M
JC91796-10F	07/17/19	08:30 GW	07/17/19	AQ	Surface H2O Filtered	WA-6D
JC91796-10X	A07/17/19	08:30 GW	07/17/19	AQ	Surface Water	WA-6D
JC91796-11F	07/17/19	08:30 GW	07/17/19	AQ	Surface H2O Filtered	WA-7S
JC91796-11X	A07/17/19	08:30 GW	07/17/19	AQ	Surface Water	WA-7S
JC91796-12F	07/17/19	08:30 GW	07/17/19	AQ	Surface H2O Filtered	WA-7M
JC91796-12X	A07/17/19	08:30 GW	07/17/19	AQ	Surface Water	WA-7M
JC91796-13F	07/17/19	08:30 GW	07/17/19	AQ	Surface H2O Filtered	WA-7D
JC91796-13X	A07/17/19	08:30 GW	07/17/19	AQ	Surface Water	WA-7D



Dayton, NJ

Section 2

Subcontract Lab Data
Report of Analysis



Certificate of Analysis

Laboratory No.: 9025200 **Report:** 08/01/19

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: 9025200-01 **Collected By:** Client **Sampled:** 07/17/19 09:40 **Received:** 07/19/19 09:54

Sample Desc: WA-1S Sample Type: Grab

	Result	Unit	MDL	Rep. 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	07/19/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL

Lab ID: 9025200-02 **Collected By:** Client **Sampled:** 07/17/19 07:10 **Received:** 07/19/19 09:54

Sample Desc: WA-2S Sample Type: Grab

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

Lab ID: 9025200-03 **Collected By:** Client **Sampled:** 07/17/19 07:10 **Received:** 07/19/19 09:54

Sample Desc: WA-2M 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	07/19/19	G-11, U	JCL
Dissolved								
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL



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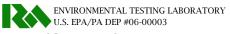
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Lab ID: 9025200-04 **Collected By:** Client **Sampled:** 07/17/19 07:10 **Received:** 07/19/19 09:54

Sample Desc: WA-2D 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	07/19/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL

Lab ID: 9025200-05 **Collected By:** Client **Sampled:** 07/17/19 10:30 **Received:** 07/19/19 09:54

Sample Desc: WA-3S 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	07/19/19	G-11, J	JCL	
General Chemistry									
Phosphorus as P, Total	0.02	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL	

Lab ID: 9025200-06 **Collected By:** Client **Sampled:** 07/17/19 10:15 **Received:** 07/19/19 09:54

Sample Desc: WA-4S 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	07/19/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL

Lab ID: 9025200-07 **Collected By:** Client **Sampled:** 07/17/19 10:00 **Received:** 07/19/19 09:54

Sample Desc: WA-5S Sample Type: Grab

	Result	Unit	MDL	Rep. 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	07/19/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL



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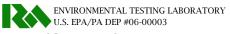
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Lab ID: 9025200-08 **Collected By:** Client **Sampled:** 07/17/19 08:00 **Received:** 07/19/19 09:54

Sample Desc: WA-6S Sample Type: Grab

				Rep.				
	Result	Unit	MDL	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	07/19/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL

Lab ID: 9025200-09 **Collected By:** Client **Sampled:** 07/17/19 08:00 **Received:** 07/19/19 09:54

Sample Desc: WA-6M Sample Type: Grab

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

Lab ID: 9025200-10 **Collected By:** Client **Sampled:** 07/17/19 08:30 **Received:** 07/19/19 09:54

Sample Desc: WA-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	07/19/19	G-11, J	JCL	
General Chemistry									
Phosphorus as P, Total	0.03	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL	

Lab ID: 9025200-11 **Collected By:** Client **Sampled:** 07/17/19 08:30 **Received:** 07/19/19 09:54

Sample Desc: WA-7S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analvzed	Notes	Analyst
Dissolved General Chemist		0.111				1111117 2 1 11	1,000	- 223,070
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	07/19/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL



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Lab ID: 9025200-12 **Collected By:** Client **Sampled:** 07/17/19 08:30 **Received:** 07/19/19 09:54

Sample Desc: WA-7M Sample Type: Grab

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

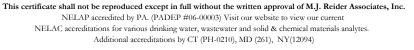
Lab ID: 9025200-13 **Collected By:** Client **Sampled:** 07/17/19 08:30 **Received:** 07/19/19 09:54

Sample Desc: WA-7D 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	07/19/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL



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Quality Control General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9G1189								
MB (B9G1189-BLK1)				Prepared & Ana	alyzed: 07/19/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9G1189-BLK2)				Prepared & Ana	alyzed: 07/19/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9G1189-BLK3)				Prepared & Ana	alyzed: 07/19/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
LFB (B9G1189-BS1)				Prepared & Ana	alyzed: 07/19/20	19		
Phosphorus as P, Total	1.00	0.05	mg/l	100	80-120			

Dissolved General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9G1190								
MB (B9G1190-BLK1)				Prepared & Ana	alyzed: 07/19/20	19		
Phosphorus as P, Dissolved	< 0.05	0.05	mg/l					G-11, U
LFB (B9G1190-BS1)				Prepared & Ana	alyzed: 07/19/20	19		
Phosphorus as P, Dissolved	1.02	0.05	mg/l	102	80-120			G-11
LFM (B9G1190-MS1)		Source: 9025200-13		Prepared & Ana	alyzed: 07/19/20	19		
Phosphorus as P, Dissolved	1.02	0.05	mg/l	99.2	80-120			
LFMD (B9G1190-MSD1)		Source: 9025200-13		Prepared & Ana	alyzed: 07/19/20	19		
Phosphorus as P, Dissolved	1.01	0.05	mg/l	98.8	80-120	0.394	20	



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Preparation Methods

Specific Method	Preparation Method	Prepared Date	Prepared By
9025200-01			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9025200-02			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9025200-03			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9025200-04			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9025200-05			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9025200-06			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9025200-07			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9025200-08			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9025200-09			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9025200-10			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9025200-11			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9025200-12			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9025200-13			
SM 4500-P E	SM 4500-P B	07/19/2019	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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Client / Reporting Information Company Name:

reet Address

siect Contact E-mail tammy.mccloskey@sgs.com

Sampler(s) Name(s) GW

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Я	Amendan Inc
CHAIN	41000

SGS North America Inc. - 2236 Route 130, Dayton, NJ TEL. 732-329-0200 FAX: 732-324 www.sgs.com/ehsusa

SGS North America	Army Corp Reservoir		
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PM: RAW

9025200

SGS North America Army Corp Reservoirs

Natrix Codes

JC91796XA

	Project Name:		Project Information	nforma	uol)edner	Neducoted Allayora	атуэта			Matrix Codes
	Philadelphia (Philadelphia District, Reservoir Sampling	ir Sampling																		DW - Drinking Water GW - Ground Water
	Street												_		_				_		WW - Water
				H Billing in	formation	Billing information (if different from Report to)	ğ	n Re	ort t	۶											SW - Surfe
diZ	City		State	Company Name	Name																SL- Sludge SED-Sediment Of - Oil
	Project#			Street Address	dress																LIQ - Other Liquid AIR - Air
	Client Purchase Order #	Order #		A)O			20	State													WP - Wipe Field Blank
Phone	Phone Project Manager			Attention:									\$0 9 T,								RB - Rinse Blank TB - Trip Blank
			Collection					Numb	ir of pi	eserve.	Number of preserved Bottles		еи	_							
	MEOH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles	N ^g OH HCl	4ио²	*os*H	DI Water	WEOH	ENCORE	FILTER	, > 04T							LAB USE ONLY
		7/17/19	9:40:00 AM	MΘ	AQ									×							
		91/17/19	9:40:00 AM	ВW	Ą		Н	\vdash					×								
		7/17/19	7:10:00 AM	МĐ	ΑQ									×							
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Field ID / Point of Collection

1XA WA-1S 1F WA-1S SXA WA-2S 2F WA-2S

\$51,82 Cooler Neturn UPS alm, 7119119 rud @ 10c onice 1897 Intact Preserved where applicable

http://www.sgs.com/en/terms-and-conditions

Received By:

Comments / Special Instructions

Cooler Temp. *C

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Redireptation By: AM(G 0954 Date 17mm:

Date / Time:

Relinquished by:

9

Commercial "9" = Results + GO Summary - Partiel Raw data
Support TAT
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Commercial "A" (Level 1)

Commercial "B" (Level 2)

FULT1 (Level 3+4)

NJ Reduced

Commercial "C"

Approved By (SGS PM); / Date

Turnaround Time (Business days)

5XA WA-38 5F WA-38

-UN 6XA WA-4S

WA-4S

96

-63 3XA WA-ZM

3F WA-2M T AXA WA-2D 4F WA-2D Standard 10 Business Days

Studeness Days RusH

Balleness Days RusH

Days Particles Days RusH

Balleness Days PutRH

Heart Day Particles

Other Day 7/2/2/199

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SGS North America Inc. - Dayton 2238 Route 130, Dayton, NJ 08810 TEL 732-329-0200 FAX: 732-329-3499/3480 www.sgs.com/ehsusa

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Bottle Order Control # SGS Job#

FED-EX Tracking # SGS Quote #

		Client / Reporting Information			Project Information	nforma	tion								Rec	Requested Analysis	nalysis			Ξ	Matrix Codes
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	Project Contact	olect Contact E-mail tammy.mccloskey@sgs.com	Project#			Street Address	dress					Ī								<u> </u>	LIQ - Other Liquid AIR - Air SOI - Other Solid
	Phone #		Client Purchase Order #	se Order #		city			State		다									3 2	WP - Wipe FB - Field Blank
	Sampler(s) Name(s)	Phone Project Manager	der		Attention						, 109Т,								2 2 2	EB-Equipment Blank RB - Rinse Blank TB - Trip Blank
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Date / Time: 7/18/2019 1:30:42 PM

BETHW CSR:

Job #: JC91796XA

Client Project: Philadelphia District, Reservoir Sampling

REDT2 Deliverable:

TAT: Due 7/31/2019

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

SGS Sample #	Client Sample Description	Analysis	Location	Sampled By	Date Sampled	Time Sampled	Aliquot
JC91796-1XA	WA-1S	TPO4.		M9	7/17/2019	9:40:00 AM	
JC91796-1E	WA-1S	FILTERGN, TPO4,		<u>QW</u>	7/17/2019	9:40:00 AM	
JC91796-2XA	WA-2S	TPO4.		<u>QW</u>	7/17/2019	7:10:00 AM	
JC91796-2F	WA-2S	FILTERGN, TPO4,		<u>QW</u>	7/17/2019	7:10:00 AM	
JC91796-3XA	WA-2M	TPO4.		₩ _O	7/17/2019	7:10:00 AM	
JC91796-3F	WA-2M	FILTERGN, TPO4.		<u>QW</u>	7/17/2019	7:10:00 AM	
JC91796-4XA	WA-2D	IPO4.		<u>@</u>	7/17/2019	7:10:00 AM	
JC91796-4F	WA-2D	FILTERGN, TPO4,		<u>QW</u>	7/17/2019	7:10:00 AM	
JC91796-5XA	WA-3S	TPO4,		<u>GW</u>	7/17/2019	10:30:00 AM	
JC91796-5F	WA-3S	FILTERGN, TPO4,		<u>GW</u>	7/17/2019	10:30:00 AM	
JC91796-6XA	WA-4S	IPO4.		<u>@W</u>	7/17/2019	10:15:00 AM	
JC91796-6F	WA-4S	FILTERGN, TPO4,		<u>GW</u>	7/17/2019	10:15:00 AM	
JC91796-7XA	WA-58	TPO4.		<u>GW</u>	7/17/2019	10:00:00 AM	
JC91796-7F	<u>WA-5S</u>	FILTERGN, TPO4.		<u>GW</u>	7/17/2019	10:00:00 AM	
JC91796-8XA	<u>WA-6S</u>	TPO4.		<u>GW</u>	7/17/2019	8:00:00 AM	
JC91796-8F	WA-68	FILTERGN, TPO4,		<u>GW</u>	7/17/2019	8:00:00 AM	
JC91796-9XA	WA-6M	TPO4.		<u>GW</u>	7/17/2019	8:00:00 AM	

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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 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

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- 1	Aisc.	Forms
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Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody

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CHAIN OF CUSTODY

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	approved By (SGS PM): / Date: Com	mercial "A" (Level 1) NYASP Category A		Comments / Special Instructions
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JC91796XA: Chain of Custody Page 1 of 3

	HAIN OF CUSTOD	Υ	•	Page <u>2</u> of <u>2</u>	
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T	2235 Route 130, Dayton, NJ 08810 EL. 732-329-0200 FAX: 732-329-3499/3	3480	SGS Quote #	SGS Job # To C 1 2 C 1	ł
	www.sgs.com/ehsusa			5GS JODE JC 91796	1
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USACE-Phila. District USACE Res	ervoirs - F.E. W	alter	Rider) 10ma N	DW - Drinking Water GW - Ground Water WW - Water	
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City State Zip City S	Company Name	(10)		SL- Studge SED-Sediment	
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2 Business Days*	Commercial "C"	State Forms EDD Format	TP04	sampus 10	
n	Commercial "A" = Res	suts only; Commercial "B" = Resu	alts + QC Summery MS	Reider lab	1
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JC91796XA: Chain of Custody Page 2 of 3

SGS Sample Receipt Summary

Job Number: J	C91796	Client:	USACE-PHILA	DELPHIA DI	STRICT	Project: PHILADELPHIA	DISTRICT, F	RESERVO	IR SAMPL
Date / Time Received: 7	/17/2019 7:38:00	PM	Delivery Metho	od:		Airbill #'s:			
	•	. ,	, ,	•	,	7); Cooler 5: (2.8); Cooler 6:		. ,	
Cooler Temps (Corre	cted) °C: Coole	r 1: (3.1);	Cooler 2: (2.7)	Cooler 3: (2	2.9); Cooler 4: (2.7	7); Cooler 5: (2.8); Cooler 6:	(2.3); Coole	er 7: (2.9);	
Cooler Security	Y or N		<u> Y</u>	or N	Sample Integrit	y - Documentation	<u>Y</u> c	or N	
1. Custody Seals Present:	$leve{}$	3. COC Pr	esent:		Sample labels	present on bottles:	✓		
2. Custody Seals Intact:	✓	Smpl Dates	s/Time OK		2. Container label	•	✓		
Cooler Temperature	Y or N	_			3. Sample contair	ner label / COC agree:	\checkmark		
1. Temp criteria achieved:	V				Sample Integrit	ty - Condition	<u>Y</u> 0	or N	
2. Cooler temp verification:	IR Gun				Sample recvd v	within HT:	✓		
3. Cooler media:	lce (Bag)			All containers a	accounted for:	✓		
4. No. Coolers:	7				3. Condition of sa	ample:	In	tact	
Quality Control Preserva	tion Y or M	I N/A			Sample Integrit	ty - Instructions	<u>Y</u> 0	or N	N/A
1. Trip Blank present / coole	r: 🗌 🔽				Analysis reque	ested is clear:	~		
2. Trip Blank listed on COC:						ed for unspecified tests		✓	
3. Samples preserved prope	rly: 🔽 🗆				Sufficient volu	me recvd for analysis:	~		
4. VOCs headspace free:		V			4. Compositing in	•			\checkmark
					5. Filtering instru	ctions clear:			\checkmark
Test Strip Lot #s:	pH 1-12:	229517		pH 12+:	208717	Other: (Specify)			
Comments									
SM089-03									
Rev. Date 12/7/17									

JC91796XA: Chain of Custody

Page 3 of 3



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

F.E. Water

SGS Job Number: JC92496

Sampling Date: 07/31/19



Army Corps of Engineers

joseph.m.loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 28

TNI Lyboratory

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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G.



Sample Summary

Job No:

JC92496

USACE-Philadelphia District

Philadelphia District, Reservoir Sampling Project No: F.E. Water

Sample	Collected			Matri		Client
Number	Date	Time By	Received	Code	Туре	Sample ID
JC92496-1	07/31/19	07:00 GW	07/31/19	AQ	Surface Water	WA-1S
JC92496-2	07/31/19	07:45 GW	07/31/19	AQ	Surface Water	WA-2S
JC92496-3	07/31/19	07:45 GW	07/31/19	AQ	Surface Water	WA-2M
JC92496-4	07/31/19	07:45 GW	07/31/19	AQ	Surface Water	WA-2D
JC92496-5	07/31/19	10:35 GW	07/31/19	AQ	Surface Water	WA-3S
JC92496-6	07/31/19	10:15 GW	07/31/19	AQ	Surface Water	WA-4S
JC92496-7	07/31/19	10:00 GW	07/31/19	AQ	Surface Water	WA-5S
JC92496-8	07/31/19	09:05 GW	07/31/19	AQ	Surface Water	WA-6S
JC92496-9	07/31/19	09:05 GW	07/31/19	AQ	Surface Water	WA-6M
JC92496-10	07/31/19	09:05 GW	07/31/19	AQ	Surface Water	WA-6D
JC92496-11	07/31/19	09:00 GW	07/31/19	AQ	Surface Water	WA-7S
JC92496-12	07/31/19	09:00 GW	07/31/19	AQ	Surface Water	WA-7M
JC92496-13	07/31/19	09:00 GW	07/31/19	AQ	Surface Water	WA-7D

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: USACE-Philadelphia District Job No JC92496

Site: Philadelphia District, Reservoir Sampling Report Date 8/12/2019 4:19:15 PM

On 07/31/2019, 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 JC92496 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: GP22907

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92437-12DUP, JC92437-12MS 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

Matrix: AQ Batch ID: GP22893

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92496-1MS, JC92730-1DUP 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: R180234

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92496-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180235

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92496-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180236

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92496-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180237

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92496-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180238

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92496-10 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180239

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92496-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180243

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92496-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180244

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92496-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AO Batch ID: R180245

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92496-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180246

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92496-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180247

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92496-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180248

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92496-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180249

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

Monday, August 12, 2019

JC92496-13 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

SGS

General Chemistry By Method SM2320 B-11

Matrix: AQ Batch ID: GN98359

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92496-1DUP were used as the QC samples for Alkalinity, Total as CaCO3.
- JC92496-10 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92496-1 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC92496-4 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC92496-6 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC92496-3 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92496-2 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92496-11 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92496-5 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC92496-9 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92496-12 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92496-7 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC92496-13 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC92496-8 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: GN98277

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92496-1DUP were used as the QC samples for Solids, Total Dissolved.

General Chemistry By Method SM2540 D-11

Matrix: AQ Batch ID: GN98322

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92496-1DUP were used as the QC samples for Solids, Total Suspended.
- JC92496-4 for Solids, Total Suspended: Reported sample aliquot obtained from filtration of 600 mL of sample. Volume was reduced from 1 liter due to nature of sample matrix.

General Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AQ Batch ID: GP22858

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92496-1DUP, JC92496-1MS, JC92496-1MSD were used as the QC samples for Nitrogen, Ammonia.

General Chemistry By Method SM4500NO2 B-11

Matrix: AQ Batch ID: GN98162

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92496-1DUP, JC92496-1MS were used as the QC samples for Nitrogen, Nitrite.

Monday, August 12, 2019

Page 3 of 4

General Chemistry By Method SM5210 B-11

Matrix: AQ Batch ID: GP22758

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92496-1DUP were used as the QC samples for BOD, 5 Day.

General Chemistry By Method SM5310 B-11

Matrix: AQ Batch ID: GP22885

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92496-1MS, JC92496-1MSD were used as the QC samples for Total Organic Carbon.

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

Summary of Hits Job Number: JC92496

Account: USACE-Philadelphia District

Philadelphia District, Reservoir Sampling 07/31/19 **Project:**

Collected:

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC92496-1	WA-1S					
Alkalinity, Tota	l as CaCO3 ^a	35.0	10		mg/l	SM2320 B-11
Solids, Total Di	ssolved	45.0	10		mg/l	SM2540 C-11
Solids, Total Su		5.0	4.0		mg/l	SM2540 D-11
Total Organic C	arbon	6.7	1.0		mg/l	SM5310 B-11
JC92496-2	WA-2S					
Nitrogen, Total	Kjeldahl	0.36	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Di	ssolved	39.0	10		mg/l	SM2540 C-11
Total Organic C	arbon	5.3	1.0		mg/l	SM5310 B-11
JC92496-3	WA-2M					
Nitrogen, Total	Kjeldahl	0.27	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Di	ssolved	45.0	10		mg/l	SM2540 C-11
Solids, Total Su	spended	4.5	4.0		mg/l	SM2540 D-11
Total Organic C	arbon	6.1	1.0		mg/l	SM5310 B-11
JC92496-4	WA-2D					
Alkalinity, Tota	l as CaCO3 ^a	25.0	10		mg/l	SM2320 B-11
Nitrogen, Total		0.55	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Di		42.0	10		mg/l	SM2540 C-11
Solids, Total Su		10.0	4.0		mg/l	SM2540 D-11
Total Organic C	arbon	6.7	1.0		mg/l	SM5310 B-11
JC92496-5	WA-3S					
Alkalinity, Tota	l as CaCO3 ^a	35.0	10		mg/l	SM2320 B-11
Nitrogen, Nitrat		0.18	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrat		0.18	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Total		0.42	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Di		58.0	10		mg/l	SM2540 C-11
Total Organic C	arbon	6.5	1.0		mg/l	SM5310 B-11
JC92496-6	WA-4S					
Alkalinity, Tota	l as CaCO3 ^a	30.0	10		mg/l	SM2320 B-11
Nitrogen, Total		0.49	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Di		36.0	10		mg/l	SM2540 C-11
Total Organic C	arbon	5.7	1.0		mg/l	SM5310 B-11

Summary of Hits Job Number: JC92496

USACE-Philadelphia District Account:

Philadelphia District, Reservoir Sampling 07/31/19 **Project:**

Collected:

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC92496-7	WA-5S					
Alkalinity, Total Nitrogen, Total Solids, Total Dis Total Organic Ca	Kjeldahl ssolved	40.0 0.32 36.0 5.1	10 0.20 10 1.0		mg/l mg/l mg/l mg/l	SM2320 B-11 EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC92496-8	WA-6S					
Nitrogen, Total Dis Solids, Total Dis Total Organic Ca	ssolved	0.37 44.0 5.2	0.20 10 1.0		mg/l mg/l mg/l	EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC92496-9	WA-6M					
Nitrogen, Total Solids, Total Organic Ca	ssolved	0.34 42.0 5.9	0.20 10 1.0		mg/l mg/l mg/l	EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC92496-10	WA-6D					
Nitrogen, Total Solids, Total Organic Co	ssolved	0.34 43.0 6.5	0.20 10 1.0		mg/l mg/l mg/l	EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC92496-11	WA-7S					
Nitrogen, Total Solids, Total Organic Co	ssolved	0.40 43.0 5.7	0.20 10 1.0		mg/l mg/l mg/l	EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC92496-12	WA-7M					
BOD, 5 Day Nitrogen, Total Solids, Total Organic Co	ssolved	4.5 0.38 40.0 6.8	3.4 0.20 10 1.0		mg/l mg/l mg/l mg/l	SM5210 B-11 EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC92496-13	WA-7D					
BOD, 5 Day Nitrogen, Total Solids, Total Organic Co	ssolved	19.0 0.46 55.0 7.0	3.4 0.20 10 1.0		mg/l mg/l mg/l mg/l	SM5210 B-11 EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11

W

Summary of Hits Job Number: JC92496

Account: USACE-Philadelphia District

Project: Philadelphia District, Reservoir Sampling

Collected: 07/31/19

Analyte Qual RL MDL Units Method	Lab Sample ID Client Sample	ID Result/					
	Analyte	Qual	RL	MDL	Units	Method	

(a) Sample was titrated to a final pH of 4.5.

- (b) Reported sample aliquot obtained from filtration of 600 mL of sample. Volume was reduced from 1 liter due to nature of sample matrix.
- (c) Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)





Dayton, NJ

Section 4

Sample Results	
Report of Analysis	

Client Sample ID: WA-1S Lab Sample ID: JC92496-1

Date Sampled: 07/31/19 Matrix: AQ - Surface Water **Date Received:** 07/31/19 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 ^a	35.0	10	mg/l	1	08/06/19 15:52	MS	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	08/01/19 19:59		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/07/19 15:11	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	08/08/19 16:02	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/08/19 16:02	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/31/19 23:05	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	08/12/19 11:18	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	45.0	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	5.0	4.0	mg/l	1	08/06/19 09:44	RC	SM2540 D-11
Total Organic Carbon	6.7	1.0	mg/l	1	08/08/19 22:58	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-2S Lab Sample ID: JC92496-2

Date Sampled: 07/31/19 Matrix: **Date Received:** 07/31/19 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 ^a	< 10	10	mg/l	1	08/06/19 15:52	MS	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	08/01/19 20:50	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/07/19 15:20	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	08/08/19 16:03	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/08/19 16:03	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/31/19 23:05	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.36	0.20	mg/l	1	08/12/19 11:19	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	39.0	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/06/19 09:44	RC	SM2540 D-11
Total Organic Carbon	5.3	1.0	mg/l	1	08/09/19 00:04	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.



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⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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Report of Analysis

Client Sample ID: WA-2M Lab Sample ID: JC92496-3

Matrix: AQ - Surface Water

Date Sampled: 07/31/19 **Date Received:** 07/31/19 **Percent Solids:** n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	08/06/19 15:52	MS	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	08/01/19 20:52	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/07/19 15:24	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	< 0.11	0.11	mg/l	1	08/08/19 16:06	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/08/19 16:06	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/31/19 23:05	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.27	0.20	mg/l	1	08/12/19 11:21	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	45.0	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	4.5	4.0	mg/l	1	08/06/19 09:44	RC	SM2540 D-11
Total Organic Carbon	6.1	1.0	mg/l	1	08/09/19 00:15	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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Report of Analysis

Client Sample ID: WA-2D Lab Sample ID: JC92496-4

Lab Sample ID:JC92496-4Date Sampled:07/31/19Matrix:AQ - Surface WaterDate Received:07/31/19Percent Solids:n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	25.0	10	mg/l	1	08/06/19 15:52	MS	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	08/01/19 21:05	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/07/19 15:25	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	08/08/19 16:07	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/08/19 16:07	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/31/19 23:05	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.55	0.20	mg/l	1	08/12/19 11:22	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	42.0	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended ^c	10.0	4.0	mg/l	1	08/06/19 09:44	RC	SM2540 D-11
Total Organic Carbon	6.7	1.0	mg/l	1	08/09/19 00:26	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

⁽c) Reported sample aliquot obtained from filtration of 600 mL of sample. Volume was reduced from 1 liter due to nature of sample matrix.

Client Sample ID: WA-3S Lab Sample ID: JC92496-5

Date Sampled: 07/31/19 Matrix: AQ - Surface Water **Date Received:** 07/31/19 Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	35.0	10	mg/l	1	08/06/19 15:52	MS	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	08/01/19 21:10		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/07/19 15:27	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.18	0.11	mg/l	1	08/08/19 16:08	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.18	0.10	mg/l	1	08/08/19 16:08	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/31/19 23:05	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.42	0.20	mg/l	1	08/12/19 11:23	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	58.0	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/06/19 09:44	RC	SM2540 D-11
Total Organic Carbon	6.5	1.0	mg/l	1	08/09/19 00:38	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.



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⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-4S Lab Sample ID: JC92496-6

Date Sampled: 07/31/19 Matrix: **Date Received:** 07/31/19 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 ^a	30.0	10	mg/l	1	08/06/19 15:52	MS	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	08/01/19 21:13	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/07/19 15:28	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	08/08/19 16:09	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/08/19 16:09	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/31/19 23:05	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.49	0.20	mg/l	1	08/12/19 11:24	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	36.0	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/06/19 09:44	RC	SM2540 D-11
Total Organic Carbon	5.7	1.0	mg/l	1	08/09/19 00:49	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.



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⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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Report of Analysis

Client Sample ID: WA-5S Lab Sample ID: JC92496-7

Date Sampled: 07/31/19 Matrix: **Date Received:** 07/31/19 AQ - Surface Water Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	40.0	10	mg/l	1	08/06/19 16:24	MS	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	08/01/19 21:15	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/07/19 15:30	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	08/08/19 16:11	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/08/19 16:11	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/31/19 23:20	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.32	0.20	mg/l	1	08/12/19 11:25	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	36.0	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/06/19 09:44	RC	SM2540 D-11
Total Organic Carbon	5.1	1.0	mg/l	1	08/09/19 01:00	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.



⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-6S Lab Sample ID: JC92496-8

Date Sampled: 07/31/19 Matrix: AQ - Surface Water **Date Received:** 07/31/19 Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	08/06/19 16:24	MS	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	08/01/19 21:19	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/07/19 15:31	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	08/08/19 16:12	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/08/19 16:12	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/31/19 23:20	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.37	0.20	mg/l	1	08/12/19 11:26	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	44.0	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/06/19 09:44	RC	SM2540 D-11
Total Organic Carbon	5.2	1.0	mg/l	1	08/09/19 01:11	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

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⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-6M Lab Sample ID: JC92496-9

Date Sampled: 07/31/19 Matrix: **Date Received:** 07/31/19 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 ^a	< 10	10	mg/l	1	08/06/19 16:24	MS	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	08/01/19 21:21		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/07/19 15:32	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	08/08/19 16:13	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/08/19 16:13	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/31/19 23:20	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.34	0.20	mg/l	1	08/12/19 11:27	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	42.0	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/06/19 09:44	RC	SM2540 D-11
Total Organic Carbon	5.9	1.0	mg/l	1	08/09/19 01:22	CD	SM5310 B-11

- (a) Sample was titrated to a final pH of 4.2.
- (b) Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

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Report of Analysis

 Client Sample ID:
 WA-6D

 Lab Sample ID:
 JC92496-10
 Date Sampled:
 07/31/19

 Matrix:
 AQ - Surface Water
 Date Received:
 07/31/19

 Percent Solids:
 n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	08/06/19 16:24	MS	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	08/01/19 21:24		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/07/19 15:34	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	08/08/19 16:14	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/08/19 16:14	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/31/19 23:20	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.34	0.20	mg/l	1	08/12/19 11:27	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	43.0	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/06/19 09:44	RC	SM2540 D-11
Total Organic Carbon	6.5	1.0	mg/l	1	08/09/19 01:34	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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Report of Analysis

Client Sample ID: WA-7S

Lab Sample ID: JC92496-11

Matrix: AQ - Surface Water

Date Sampled: 07/31/19

Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	08/06/19 16:24	MS	SM2320 B-11
BOD, 5 Day	< 3.4	3.4	mg/l	1	08/01/19 21:27		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/07/19 15:35	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	08/08/19 16:15	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/08/19 16:15	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/31/19 23:20	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.40	0.20	mg/l	1	08/12/19 11:28	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	43.0	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/06/19 09:44	RC	SM2540 D-11
Total Organic Carbon	5.7	1.0	mg/l	1	08/09/19 18:39	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

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Client Sample ID: WA-7M

Lab Sample ID: JC92496-12

Matrix: AQ - Surface Water

Date Sampled: 07/31/19

Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	08/06/19 16:24	MS	SM2320 B-11
BOD, 5 Day	4.5	3.4	mg/l	1	08/01/19 21:30		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/07/19 15:37	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	08/08/19 16:16	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/08/19 16:16	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/31/19 23:20	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.38	0.20	mg/l	1	08/12/19 11:29	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	40.0	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/06/19 09:44	RC	SM2540 D-11
Total Organic Carbon	6.8	1.0	mg/l	1	08/09/19 19:35	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-7D Lab Sample ID: JC92496-13 **Date Sampled:** 07/31/19 Matrix: AQ - Surface Water **Date Received:** 07/31/19 Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	08/06/19 16:24	MS	SM2320 B-11
BOD, 5 Day	19.0	3.4	mg/l	1	08/01/19 21:33	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/07/19 15:41	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	08/08/19 16:20	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/08/19 16:20	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/31/19 23:20	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.46	0.20	mg/l	1	08/12/19 11:32	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	55.0	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/06/19 09:44	RC	SM2540 D-11
Total Organic Carbon	7.0	1.0	mg/l	1	08/09/19 19:46	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

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⁽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

CHAIN OF CUSTODY

Page	1	of	2
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	· ·	SGS North America Inc Dayton		Page of			
		2235 Route 130, Dayton, M.I negan	FED-EX Tracking #	Rettle Order Control of			
_	TEL	- 732-329-0200 FAX: 732-329-3499/3480	SGS Oursia #	SGS Job 4 - C C C C C L L C C			
Client / Reporting Information	Proj	vww.sgs.com/ehsusa ect Information		JC 92496			
Company Name:	Project Name:		Requested				
USACE -Phila District	T USACE Rese	noirs - F.E. Walter	Reider)	DW - Drinking Weiler			
MA Page C. C.	Street	7.0.100/61	o Mis Reid Ammowin TKN XXXX3C	GW - Ground Water			
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Sempler(s) Name(s) (A) Phon	e # Project Manager	Attention:	41 TA 175 175 175 175	WP - Wipe FB - Fletd Stank			
Grea Wacik 597-978	O Tammy McClusto.	, , , , , , , , , , , , , , , , , , , ,		E8-Equipment Blank			
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	Approved By (SGS PM): /*Date:	Commercial "A" (Level 1) NYASP Category A	DOD-GRAS	Comments / Special Instructions			
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3 Business Days*		NJ Reduced (Level 3) MA MCP Criteria	Eurof	ins lab			
2 Business Days"		Fult Tier I (Lavol 4) CT RCP Criteria	_				
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Other All depends about via Labora.		Commercial "A" = Results only, Commercial "B" = Beach	nore t	Posto - la (
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Talenta Inches	one: Pennium Cur . //	ust be decumented below each time samples change possession, inclu	ding courier delivery.				
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JC92496: Chain of Custody Page 1 of 3

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JC92496: Chain of Custody Page 2 of 3

SGS Sample Receipt Summary

Job Number: JC92	2496 C	lient: USACE-PI	HILADELPHIA DIS	STRICT P	roject: PHILADELPHIA DI	STRICT,	RESERVO	OIR SAMPL
Date / Time Received: 7/31/2	2019 6:45:00 PM	Delivery N	Method:		Airbill #'s:			
Cooler Temps (Raw Measured	•	` ''	` ''	,, ,,	Cooler 5: (3.7); Cooler 6: (3 Cooler 5: (3.6); Cooler 6: (3	,,	` '	,
Cooler Security Y	or N		Y or N	Sample Integrity -	<u>Documentation</u>	<u>Y</u>	or N	
 Custody Seals Present: Custody Seals Intact: 		COC Present: pl Dates/Time OK	✓✓	Sample labels pre Container labeling		>		
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) 7			Sample Integrity 1. Sample recvd with 2. All containers acc 3. Condition of samp	nin HT: counted for:	▽	or N	
Quality Control Preservation	Y or N	N/A		Sample Integrity	- Instructions	Υ	or N	N/A
 Trip Blank present / cooler: Trip Blank listed on COC: 		▽		Analysis requests Bottles received	ed is clear: for unspecified tests	✓	□	
3. Samples preserved properly:4. VOCs headspace free:		✓		Sufficient volume Compositing inst Filtering instruction	ructions clear:			>
Test Strip Lot #s: pH	1-12:22	9517	pH 12+:	208717	Other: (Specify)		_	
Comments SM089-03 Rev. Date 12/7/17								

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JC92496: 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

F.E. Water

SGS Job Number: JC92496X

Sampling Date: 07/31/19



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

Sections:

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-1-

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Section 2: Subcontract Lab Data	4
Section 3: Misc. Forms	14
3.1: Chain of Custody	15



Sample Summary

USACE-Philadelphia District

Job No: JC92496X

Philadelphia District, Reservoir Sampling Project No: F.E. Water

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
JC92496-1X	07/31/19	07:00 GW	07/31/19	AQ	Surface Water	WA-1S
JC92496-2X	07/31/19	07:45 GW	07/31/19	AQ	Surface Water	WA-2S
JC92496-5X	07/31/19	10:35 GW	07/31/19	AQ	Surface Water	WA-3S
JC92496-6X	07/31/19	10:15 GW	07/31/19	AQ	Surface Water	WA-4S
JC92496-7X	07/31/19	10:00 GW	07/31/19	AQ	Surface Water	WA-5S
JC92496-8X	07/31/19	09:05 GW	07/31/19	AQ	Surface Water	WA-6S
JC92496-11X	07/31/19	09:00 GW	07/31/19	AQ	Surface Water	WA-7S



Dayton, NJ

Section 2

Subcontract Lab Data
Report of Analysis



Analytical Report

Serialized: 08/21/2019 08:50am 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:

L7147730

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	
Sample ID Sample Description WA-1S Received Date/Time/Temp 07/31/19 05:00pm 1.0 C			C Iced (Y/N): Y		Samp. Date/Time/Temp Sampled by 07/31/19 07:00am NA C Customer		
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	ENTAL MICROBIO	LOGY WA-1	IS				
Total Coliform, Fecal Coliform		>2000 Q 9 Q	cfu/100n cfu/100n		10 100	10 1	07/31/19 08:15PM LK 07/31/19 07:25PM LK
Sample ID L7147730-2	Sample Description WA-2S Received Date/Ti	m e/Temp 07/3	1/19 05:00pm 1.0 (C Iced (Y/N): Y		ate/Time/Temp 07:45am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	ENTAL MICROBIO	LOGY WA-2	28				
Total Coliform, Fecal Coliform		>2000 Q <1 Q	cfu/100n cfu/100n		10 100	10 1	07/31/19 08:15PM LK 07/31/19 07:25PM LK

Analytical Report

Account No: W09769, S Project No: W09769 US	GGS NORTH AMERICA, INC. SACE, USACE		P.O. No:		Inv. No: PWSID No:	PI			
Sample ID Sample Description L7147730-3 WA-3S Received Date/Time/Temp 07/31/19 05:00pm 1.0 C			Iced (Y/N): Y	Samp. Date/Time/Temp 07/31/19 10:35am NA C		Sampled by Customer			
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst			
ENVIRONMENTAL MICROBIOLOGY WA-3S									
Total Coliform, MF Fecal Coliform, MF	>2000 Q 28 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	07/31/19 08:15PM LK 07/31/19 07:25PM LK			
Sample ID Sample Do L7147730-4 WA-4S Receiv	escription ed Date/Time/Temp 07/31/	19 05:00pm 1.0 C	Iced (Y/N): Y		ate/Time/Temp 10:15am NA C	Sampled by Customer			
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst			
ENVIRONMENTAL M	ICROBIOLOGY WA-4S	1							
Total Coliform, MF Fecal Coliform, MF	>2000 Q 68 E, Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	07/31/19 08:15PM LK 07/31/19 07:25PM LK			
Sample ID Sample Do WA-5S Receiv	escription ed Date/Time/Temp 07/31/	19 05:00pm 1.0 C	Iced (Y/N): Y	Samp. Da 07/31/19 1	ate/Time/Temp 10:00am NA C	Sampled by Customer			
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst			
ENVIRONMENTAL M	ICROBIOLOGY WA-58								
Total Coliform, MF Fecal Coliform, MF	>2000 Q 16 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	07/31/19 08:15PM LK 07/31/19 07:25PM LK			
Sample ID Sample Do L7147730-6 WA-6S Receiv	escription ed Date/Time/Temp 07/31/	19 05:00pm 1.0 C	Iced (Y/N): Y		ate/Time/Temp 09:05am NA C	Sampled by Customer			
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst			

Analytical Report

Account No: W09769, SGS NORTH AMERICA, INC. Project No: W09769 USACE, USACE					P.O. No:		Inv. No: PWSID No:	PI
Sample ID L7147730-6	Sample Description WA-6S Received Date/Tim	ne/Temp 07/31/1	9 05:0	0pm 1.0 C	Iced (Y/N): Y		te/Time/Temp 9:05am NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY WA-6S						
Total Coliform Fecal Coliforn		>2000 Q <1 Q		cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	07/31/19 08:15PM LK 07/31/19 07:25PM LK
Sample ID L7147730-7	Sample Description WA-7S Received Date/Tim	ne/Temp 07/31/1	9 05:0	0pm 1.0 C	Iced (Y/N): Y		te/Time/Temp 9:00am NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY WA-7S						
Total Coliform Fecal Coliforn	,	>2000 Q <1 Q		cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	07/31/19 08:15PM LK 07/31/19 07:25PM LK
Sample ID L7147730-8	Sample Description PR-1S Received Date/Tim	ne/Temp 07/31/1	9 05:0	0pm 1.0 C	Iced (Y/N): Y		te/Time/Temp 2:05pm NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY PR-1S						
Total Coliform	n, MF	>2000 Q		cfu/100ml	SM 9222B	10	10	07/31/19 08:15PM LK
Sample ID L7147730-9	Sample Description PR-2S Received Date/Tim	ne/Temp 07/31/1	9 05:0	0pm 1.0 C	Iced (Y/N): Y		te/Time/Temp 1:00pm NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY PR-2S						
Total Coliform Fecal Coliform	,	880 E, Q <1 Q		cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	07/31/19 08:15PM LK 07/31/19 07:25PM LK

Analytical Report

	W09769, SGS NORTH W09769 USACE, USAC	: .	P.O. No:		Inv. No: PWSID No:	PI	
Sample ID Sample Description L7147730-10 PR-3S Received Date/Time/Temp 07/31/19 05:00pm 1.0 C			Iced (Y/N): Y	Samp. Date/Time/Temp 07/31/19 12:45pm NA C		Sampled by Customer	
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	ENTAL MICROBIOL	OGY PR-38	;				
Total Coliform, Fecal Coliform		780 <1	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	07/31/19 08:15PM LK 07/31/19 07:25PM LK
Sample ID Sample Description L7147730-11 PR-4S Received Date/Time/Temp 07/31/19 05:00pm 1.0 C			Iced (Y/N): Y	•	ate/Time/Temp 11:45am NA C	Sampled by Customer	
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst

SM 9222B

SM 9222D

10

100

10

07/31/19 08:15PM LK

07/31/19 07:25PM LK

Sample Comments | Result Qualifiers:

ENVIRONMENTAL MICROBIOLOGY -- PR-4S

>2000 Q

12 Q

L7147730-1:

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

cfu/100ml

cfu/100ml

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.

L7147730-2:

- 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.

L7147730-3:

- 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.

L7147730-4:

Analytical Report

Account No: W09769, SGS NORTH AMERICA, INC.

P.O. No: Inv. No: PI
Project No: W09769 USACE, USACE

PWSID No:

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.

L7147730-5:

- Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory purposes.
- Q: Fecal coliform, SM 9222D, result was compromised due to water from the water bath used for incubation leaking into the plastic bag containing the sample plate. 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.

L7147730-6:

- 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.

L7147730-7:

- 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.

L7147730-8:

- 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.

L7147730-9:

- 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: Fecal coliform, SM 9222D, result was compromised due to water from the water bath used for incubation leaking into the plastic bag containing the sample plate. 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.

L7147730-10:

Q: For microbiological test, this sample was received in an unverified container. Because container lot quality records are not available,

Page 6 of 9

Eurofins QC, LLC

Analytical Report

Account No: W09769, SGS NORTH AMERICA, INC.

Project No: W09769 USACE, USACE

PWSID No:

the reported result may not be acceptable for regulatory purposes.

L7147730-11:

- Q: Microbiological testing was conducted outside of the recommended holding time of 8 hours. Results may not be acceptable for regulatory numbers
- Q: Fecal coliform, SM 9222D, result was compromised due to water from the water bath used for incubation leaking into the plastic bag containing the sample plate. 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: 6538344



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

East Rutherford Facility
Vineland Facility
Vind Gap Facility
Wind Gap Facility

NELAP/State IDsNJ: 02015
NJ: 06005
NJ: PA093 NY: 12080 MD: 357

PA093 NY: 12080 MD: 357

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Page 9 of 9

Dayton, NJ

Section 3

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody

CHAIN OF CUSTODY

Page	i	of	2

	;	SGS North America Inc Dayton		Page of				
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JC92496X: Chain of Custody Page 1 of 3

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JC92496X: Chain of Custody Page 2 of 3

SGS Sample Receipt Summary

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Cooler Temps (Cor	rected)	C:	Cooler 1:	(3.6)	; Cooler 2:	(3.7);	Cooler	3: (3.7); Cooler 4: (3.7	7); Cooler 5: (3.6); Cooler 6	6: (3.8); Co	oler 7: (3.7);
Cooler Security	<u> Y o</u>	<u>r N</u>	_			<u>Y</u>	or N	Sample Integrit	ty - Documentation	<u>Y</u>	or N	
1. Custody Seals Present:	V				resent:	✓		1. Sample labels	present on bottles:	\checkmark		
2. Custody Seals Intact:	✓] 4. Smp	I Date	es/Time OK	✓		2. Container labe	eling complete:	✓		
Cooler Temperature		Y	or N					3. Sample contai	iner label / COC agree:	\checkmark		
1. Temp criteria achieved:		✓						Sample Integri	ity - Condition	<u>Y</u>	or N	
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3. Cooler media:		lc	e (Bag)					2. All containers	accounted for:	✓		
4. No. Coolers:			7					3. Condition of sa	ample:		Intact	
Quality Control Preserve	<u>vation</u>	<u>Y</u>	or N	N/A	<u>\</u>			Sample Integri	ity - Instructions	<u>Y</u>	or N	N/A
1. Trip Blank present / coo	oler:			✓				1. Analysis requ	ested is clear:	~		
2. Trip Blank listed on CO	C:			✓				2. Bottles receiv	red for unspecified tests		✓	
3. Samples preserved pro	perly:	✓						Sufficient volu	ume recvd for analysis:	~		
4. VOCs headspace free:				✓				4. Compositing i	instructions clear:			\checkmark
								5. Filtering instru	uctions clear:			~
Test Strip Lot #s:	pH 1-	12: _	229	517			pH 12+:	208717	Other: (Specify)			
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SM089-03												

SM089-03 Rev. Date 12/7/17

JC92496X: Chain of Custody

Page 3 of 3



Dayton, NJ 08/14/19

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

F.E. Water

SGS Job Number: JC92496XA

Sampling Date: 07/31/19



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)

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:

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-1-

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Section 1: Sample Summary	3
Section 2: Subcontract Lab Data	5
Section 3: Misc. Forms	1
3.1: Chain of Custody	18



Sample Summary

USACE-Philadelphia District

Job No: JC92496XA

Philadelphia District, Reservoir Sampling Project No: F.E. Water

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC92496-1F	07/31/19	07:00 GW	07/31/19	AQ	Surface H2O Filtered	WA-1S
JC92496-1XA	07/31/19	07:00 GW	07/31/19	AQ	Surface Water	WA-1S
JC92496-2F	07/31/19	07:45 GW	07/31/19	AQ	Surface H2O Filtered	WA-2S
JC92496-2XA	07/31/19	07:45 GW	07/31/19	AQ	Surface Water	WA-2S
JC92496-3F	07/31/19	07:45 GW	07/31/19	AQ	Surface H2O Filtered	WA-2M
JC92496-3XA	07/31/19	07:45 GW	07/31/19	AQ	Surface Water	WA-2M
JC92496-4F	07/31/19	07:45 GW	07/31/19	AQ	Surface H2O Filtered	WA-2D
JC92496-4XA	07/31/19	07:45 GW	07/31/19	AQ	Surface Water	WA-2D
JC92496-5F	07/31/19	10:35 GW	07/31/19	AQ	Surface H2O Filtered	WA-3S
JC92496-5XA	07/31/19	10:35 GW	07/31/19	AQ	Surface Water	WA-3S
JC92496-6F	07/31/19	10:15 GW	07/31/19	AQ	Surface H2O Filtered	WA-4S
JC92496-6XA	07/31/19	10:15 GW	07/31/19	AQ	Surface Water	WA-4S
JC92496-7F	07/31/19	10:00 GW	07/31/19	AQ	Surface H2O Filtered	WA-5S



Sample Summary (continued)

Job No:

JC92496XA

USACE-Philadelphia District

Philadelphia District, Reservoir Sampling Project No: F.E. Water

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC92496-7XA	07/31/19	10:00 GW	07/31/19	AQ	Surface Water	WA-5S
JC92496-8F	07/31/19	09:05 GW	07/31/19	AQ	Surface H2O Filtered	WA-6S
JC92496-8XA	07/31/19	09:05 GW	07/31/19	AQ	Surface Water	WA-6S
JC92496-9F	07/31/19	09:05 GW	07/31/19	AQ	Surface H2O Filtered	WA-6M
JC92496-9XA	07/31/19	09:05 GW	07/31/19	AQ	Surface Water	WA-6M
JC92496-10F	07/31/19	09:05 GW	07/31/19	AQ	Surface H2O Filtered	WA-6D
JC92496-10X	407/31/19	09:05 GW	07/31/19	AQ	Surface Water	WA-6D
JC92496-11F	07/31/19	09:00 GW	07/31/19	AQ	Surface H2O Filtered	WA-7S
JC92496-11X	407/31/19	09:00 GW	07/31/19	AQ	Surface Water	WA-7S
JC92496-12F	07/31/19	09:00 GW	07/31/19	AQ	Surface H2O Filtered	WA-7M
JC92496-12X	407/31/19	09:00 GW	07/31/19	AQ	Surface Water	WA-7M
JC92496-13F	07/31/19	09:00 GW	07/31/19	AQ	Surface H2O Filtered	WA-7D
JC92496-13X	407/31/19	09:00 GW	07/31/19	AQ	Surface Water	WA-7D



Dayton, NJ

Section 2

Subcontract Lab Data
Report of Analysis



Certificate of Analysis

Laboratory No.: 9027530 **Report:** 08/09/19

Lab Contact: Amy L Morriss

Attention: Tammy McCloskey Reported To: SGS North America

> 2235 US Highway 130 Dayton, NJ 08810

Lab ID: 9027530-01 Collected By: Client **Sampled:** 07/31/19 07:00 **Received:** 08/07/19 09:50

Project: Army Corp Reservoirs

Sample Desc: WA-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	08/08/19	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: 9027530-02 Collected By: Client **Sampled:** 07/31/19 07:45 **Received:** 08/07/19 09:50

Sample Desc: WA-2S 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	08/08/19	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: 9027530-03 Collected By: Client **Sampled:** 07/31/19 07:45 **Received:** 08/07/19 09:50

Sample Desc: WA-2M Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P,	0.01	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, J	JCL
Dissolved								
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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Page 1 of 11



Lab ID: 9027530-04 **Collected By:** Client **Sampled:** 07/31/19 07:45 **Received:** 08/07/19 09:50

Sample Desc: WA-2D Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	t r y							
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	0.02	mg/l	0.01	0.05	SM 4500-P E	08/08/19	J	JCL

Lab ID: 9027530-05 **Collected By:** Client **Sampled:** 07/31/19 10:35 **Received:** 08/07/19 09:50

Sample Desc: WA-3S 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	0.02	mg/l	0.01	0.05	SM 4500-P E	08/08/19	J	JCL	

Lab ID: 9027530-06 **Collected By:** Client **Sampled:** 07/31/19 10:15 **Received:** 08/07/19 09:50

Sample Desc: WA-4S 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	08/08/19	G-11, J	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: 9027530-07 **Collected By:** Client **Sampled:** 07/31/19 10:00 **Received:** 08/07/19 09:50

Sample Desc: WA-5S 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: 9027530-08 **Collected By:** Client **Sampled:** 07/31/19 09:05 **Received:** 08/07/19 09:50

Sample Desc: WA-6S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemis	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: 9027530-09 **Collected By:** Client **Sampled:** 07/31/19 09:05 **Received:** 08/07/19 09:50

Sample Desc: WA-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	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: 9027530-10 **Collected By:** Client **Sampled:** 07/31/19 09:05 **Received:** 08/07/19 09:50

Sample Desc: WA-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	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: 9027530-11 **Collected By:** Client **Sampled:** 07/31/19 09:00 **Received:** 08/07/19 09:50

Sample Desc: WA-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	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



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Lab ID: 9027530-12 **Collected By:** Client **Sampled:** 07/31/19 09:00 **Received:** 08/07/19 09:50

Sample Desc: WA-7M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	t r y							
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	0.02	mg/l	0.01	0.05	SM 4500-P E	08/08/19	J	JCL

Lab ID: 9027530-13 **Collected By:** Client **Sampled:** 07/31/19 09:00 **Received:** 08/07/19 09:50

Sample Desc: WA-7D Sample Type: Grab

	Result	Unit	MDL	Rep. 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	0.02	mg/l	0.01	0.05	SM 4500-P E	08/08/19	J	JCL



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Quality Control General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9H0439								
MB (B9H0439-BLK1)				Prepared & An	alyzed: 08/08/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9H0439-BLK2)				Prepared & An	alyzed: 08/08/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
LFB (B9H0439-BS1)				Prepared & An	alyzed: 08/08/20	19		
Phosphorus as P, Total	1.02	0.05	mg/l	102	80-120			
LFM (B9H0439-MS1)		Source: 9027530-03	,	Prepared & An	alyzed: 08/08/20	19		
Phosphorus as P, Total	1.00	0.05	mg/l	100	80-120			
LFMD (B9H0439-MSD1)		Source: 9027530-03	;	Prepared & An	alyzed: 08/08/20	19		
Phosphorus as P, Total	1.02	0.05	mg/l	102	80-120	1.48	20	

Dissolved General Chemistry

		Reporting			%REC		RPD	Analyte
	Result	Limit	Units	%REC	Limits	RPD	Limit	Notes
Batch B9H0442								
MB (B9H0442-BLK1)				Prepared & An	alyzed: 08/08/20	19		
Phosphorus as P, Dissolved	< 0.05	0.05	mg/l					G-11, U
LFB (B9H0442-BS1)				Prepared & An	alyzed: 08/08/20	19		
Phosphorus as P, Dissolved	1.03	0.05	mg/l	103	80-120			G-11
LFM (B9H0442-MS1)		Source: 9027530-08		Prepared & An	alyzed: 08/08/20	19		
Phosphorus as P, Dissolved	1.00	0.05	mg/l	98.6	80-120			
LFMD (B9H0442-MSD1)		Source: 9027530-08		Prepared & An	alyzed: 08/08/20	19		
Phosphorus as P, Dissolved	1.00	0.05	mg/l	99.1	80-120	0.500	20	



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Preparation Methods

Specific Method	Preparation Method	Prepared Date	Prepared By
9027530-01			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027530-02			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027530-03			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027530-04			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027530-05			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027530-06			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027530-07			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027530-08			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027530-09			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027530-10			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027530-11			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027530-12			
SM 4500-P E	SM 4500-P B	08/08/2019	JCL
9027530-13			
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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			SGS North America Inc Dayton 2235 Route 130, Dayton, NJ 08810	th Ame ıte 130,	rica In Dayton,	GS North America Inc Dayto 2235 Route 130, Dayton, NJ 08810	uo o			FED-EX	FED-EX Tracking #			Bottle Order Control #	
			TEL. 732-329-0200 FAX: 732-329-3499/3480 www.sqs.com/ehsusa	0200 F	29-0200 FAX: 732-329 www.sgs.com/ehsusa	:-329-345 usa	9/3480			SGS Ounte	# eto			SGS Job#	ဝင္
Client / Reporting Information			Project Information	nformat	ion					L			:	-1 12	
Company Name:	Project Name: Philadelphia	Project Name: Philadelphia District, Reservoir Sampling	oir Sampling											905	
Street Address	Street									11				SGS No	2
City State	Zip City		State	Billing In Company	ormation Name	Billing Information (if different from Report to) Company Name	from Reg	iort to)						Army Cor	≣ۃ
Project Contact E-mail tammy, mccloskey@sqs.com	Project #			Street Address	iress		-			_			=		
Phone #	Client Purchase Order #	Order #		City			State		diZ	4			-	_	
Sampler(s) Name(s) GW	Phone Project Manager			Attention:						, 409T					
			Collection				Numbe	r of preserved	d Bottles	'еи					
SSS Sample #: Field ID / Point of Collection	MEOH/DI Vial #	Date	Time	Sampled	Matrix	HCI pottles	NaOH cONH	DI MS161 NONE H ⁵ 20°	ENCORE	RETLIE	, 409T				
1XA WA-1S		7/31/19	7:00:00 AM	ØW	AQ	t					×		1		\top
1F WA-1S 7-0}		7/31/19	7:00:00 AM	GW	ΑQ				L	×					\top
2XA WA-2S		7/31/19	7:45:00 AM	0W	Aa			F			×				+-
2F WA-2S 1-07		7/31/19	7:45:00 AM	W.S	å			_	-	×			_		T
3XA WA-2M		7/31/19	7:45:00 AM	ĕ S	ΑQ						×				T
3F WA-2M /-03		7/31/19	7:45:00 AM	0W	ΑQ					×					1
4XA WA-2D		7/31/19	7:45:00 AM	Q.W	ΑQ						×				
4F WA-2D /-64		7/31/19	7:45:00 AM	GW	ΑQ					×					T
		7/31/19	10:35:00 AM	GW	ΑQ						×				
5F WA-3S / -05		7/31/19	10:35:00 AM	GW	AO			_		×					t
6XA WA-4S		7/31/19	10:15:00 AM	QW	AQ						×				1
6F WA-4S /06		7/31/19	10:15:00 AM	GW	AQ					×					-
(umaround Time (Business days)						Data De	verable l	Data Deliverable Information			ŀ		Com	Comments / Special Instruction	ructic
Standard 10 Business Days	Approved By (SGS PM): / Date:	5 PM): / Date:			ommercial	Commercial "A" (Level 1) Commercial "B" (Level 2)	5 (2)		NYASP Category A NYASP Category B	gory A gory B					
3 Business Days RUSH					FULLT1 (Level 3+4) NJ Reduced	svel 3+4)			State Forms EDD Format						
				٥	Commercial "C"	ئ را		×	X Other REDT2	T2					
I Business Day EMRRGENCY X Other Day BIA422019 Represent Representation Bias Approval needed for RUS	H/Emergency TAT			000	Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary	A" = Resu B" = Resu C" = Resu	Its Only Its + QC Su	mmary	D leiter				7		
	47.00	Sample Cus	Sample Custody must be documented below each time samples change possession, including courier delivery.	cumente	d below	ach time	samples	change p	ossession	, includir	g courier d	elivery.		o con a contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contraction of the contr	25
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Relinquished by:	Date / Time:	Received By: 5				ō	Custody Seal #	Th.	ac	intaci		Preserved where applicable	able	6 01	On Ice
										IND Black			Inem. ic	-	

PM: ALM

Army Corp Reservoirs SGS North America 9027530

Matrix Codes

JC92496XA

Page 1 of 3

WP*- wpe FB - Field Blank EB-Equipment Blank RB - Rinse Blank TB - Trip Blank

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http://www.sgs.com/en/terms-and-conditions

Comments / Special Instructions

Cooler Temp. *C

JC92496XA Rev. Date. 4/10/18

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Matrix Codes

JC92496XA

SGS Job #

Requested Analysis

DW - Diesking Water
GW - Ground Water
SW - Surface Water
SO - Surface Water
SO - Soil
BL - Studge
SED-Sodiment
OI - Oil
LIO - Oilher Liquel
SOL - Oilher Liquel
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Project Information

Philadelphia District, Reservoir Sampling

Billing Information (If different from Report to) Company Name

treet Address

State

Client Purchase Order #

Project #

lammy.mccloskey@sgs.com

Sampler(s) Name(s) GW

WA-58 WA-5S

7XA

WA-6S

WA-6S

8XA 8F 9XA

7.5

WA-6D

10F 11XA

WA-6D

10XA

96

WA-7S WA-7S

> 7 12XA

WA-7M

12F

WA-7M

E-mail

State

FED-EX Tracking #

SGS Quote #

http://www.sgs.com/en/terms-and-conditions

8-7-19 9:50₂

Date / Time:

Relinquished by:

Comments / Special Instructions

Cooler Temp. *C

Them. 1D. Ve | 6 Onteg



Client / Reporting Information Company Name:

JC92496XA Rev Date 4/10/18

	A Track	

Page 3 of 3 9027530

405			Matrix Codes	DW - Drinking Water	GW - Ground Water WW - Water	SW - Surface Water SO - Soil SL- Sludge SED-Sediment	OI - Oil LIQ - Other Liquid AIR - Air	SOL - Other Solid WP - Wipe FB - Fleid Blank	EB-Equipment Blank RB - Rinse Blank TB - Trio Black		LAB USE ONLY															s-and-conditions		9		Cooler Temp. ¹C
Page 3 of 3	Alroi #	JC92496XA																		al Instructions						http://www.sgs.com/en/lerms-and-conditions		A SOLA		On to
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CHAIN OF CUSTODY	2235 Route 130, Dayton, NJ 08810	32-329-3499/3 [,] hsusa				Billing Information (If different from Report to) Company Name		State		_	M®OH HC! pottes									Data Delivera	Commercial "A" (Level 1)	FULLT1 (Level 3+4)	pa	lal "C"	Commercial "A" = Results Only	Commercial "B" = Commercial "C" =	v each time sam	2	Refinquished By:	Custody Seal#
OF C	te 130, Dayto	29-0200 FAX: 732-329 www.sgs.com/ehsusa	Project Information			Billing Informatic Company Name	Street Address	City	Attention:		Sampled Matrix	GW AQ	GW AQ								Commerc	FULT	NJ Reduced	Commercial "C"			cumented belov	\		
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JC92496XA 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



107 Angelica Street O Reading, PA 19611 O www.mjreider.com O (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

• Chain of Custody

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

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CHAIN OF CUSTODY SGS North America Inc. - Dayton

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JC92496XA: Chain of Custody
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JC92496XA: Chain of Custody Page 2 of 3

SGS Sample Receipt Summary

Job Number: JC92496 Client:		Client: US/	ACE-PHILADELPHIA DIS	TRICT Project:	Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL				
Date / Time Received: 7/31/2019 6:45:00 PM		PM Del	livery Method:	Airbill	Airbill #'s:				
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Cooler Security 1. Custody Seals Present: 2. Custody Seals Intact: Cooler Temperature 1. Temp criteria achieved: 2. Cooler temp verification: 3. Cooler media:	Y or N ✓ □ 4. ✓ □ 1. IR Gun Ice (Bag]		Sample Integrity - Docur 1. Sample labels present or 2. Container labeling compl 3. Sample container label / Sample Integrity - Cond 1. Sample recvd within HT: 2. All containers accounted	bottles: ete: COC agree: y ition y	or N			
4. No. Coolers: Quality Control Preserva 1. Trip Blank present / coole 2. Trip Blank listed on COC. 3. Samples preserved prope 4. VOCs headspace free:	er:			3. Condition of sample: Sample Integrity - Instru 1. Analysis requested is cle 2. Bottles received for unsp 3. Sufficient volume recvd t 4. Compositing instructions 5. Filtering instructions clean	part: pedified tests for analysis: pedified:	Intact or N N/A I U			
Test Strip Lot #s:	pH 1-12:	229517	pH 12+:	208717	Other: (Specify)				
Comments SM089-03 Rev. Date 12/7/17									

JC92496XA: 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: JC93662

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



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

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Sample Summary

USACE-Philadelphia District

Job No:

JC93662

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

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC93662-1	08/21/19	09:10 GW	08/21/19	AQ	Surface Water	WA-1S
JC93662-2	08/21/19	07:10 GW	08/21/19	AQ	Surface Water	WA-2S
JC93662-3	08/21/19	07:10 GW	08/21/19	AQ	Surface Water	WA-2M
JC93662-4	08/21/19	07:10 GW	08/21/19	AQ	Surface Water	WA-2D
JC93662-5	08/21/19	09:25 GW	08/21/19	AQ	Surface Water	WA-3S
JC93662-6	08/21/19	09:50 GW	08/21/19	AQ	Surface Water	WA-4S
JC93662-7	08/21/19	10:15 GW	08/21/19	AQ	Surface Water	WA-5S
JC93662-8	08/21/19	07:40 GW	08/21/19	AQ	Surface Water	WA-6S
JC93662-9	08/21/19	07:40 GW	08/21/19	AQ	Surface Water	WA-6M
JC93662-10	08/21/19	07:40 GW	08/21/19	AQ	Surface Water	WA-6D
JC93662-11	08/21/19	08:15 GW	08/21/19	AQ	Surface Water	WA-7S
JC93662-12	08/21/19	08:15 GW	08/21/19	AQ	Surface Water	WA-7M
JC93662-13	08/21/19	08:15 GW	08/21/19	AQ	Surface Water	WA-7D

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: USACE-Philadelphia District Job No JC93662

Site: Philadelphia District, Reservoir Sampling Report Date 9/4/2019 9:17:23 AM

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 JC93662 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: GP23297

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93662-1DUP, JC93662-1MS were used as the QC samples for Nitrogen, Total Kjeldahl.

General Chemistry By Method EPA 353.2/LACHAT

Matrix: AQ Batch ID: GP23383

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93941-1DUP, JC93662-1MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.
- Matrix Spike Recovery(s) for Nitrogen, Nitrate + Nitrite are outside control limits. Spike recovery indicates possible matrix interference.

General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ Batch ID: R180675

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93662-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180676

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93662-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180677

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93662-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180678

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93662-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180679

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93662-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180680

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93662-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180681

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93662-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180682

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93662-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AO Batch ID: R180683

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93662-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180684

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93662-10 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180685

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93662-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180686

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93662-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R180687

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93662-13 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Wednesday, September 04, 2019

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General Chemistry By Method SM2320 B-11

Matrix: AQ Batch ID: GN99326

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93689-4DUP were used as the QC samples for Alkalinity, Total as CaCO3.
- JC93662-8 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93662-12 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93662-7 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93662-10 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93662-9 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93662-13 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93662-6 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93662-1 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93662-5 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93662-11 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93662-2 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93662-3 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC93662-4 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: GN99132

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93662-1DUP were used as the QC samples for Solids, Total Dissolved.

General Chemistry By Method SM2540 D-11

Matrix: AO Batch ID: GN99131

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93662-1DUP, JC93662-2DUP were used as the QC samples for Solids, Total Suspended.
- JC93662-2 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.
- JC93662-1 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: GP23373

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

Wednesday, September 04, 2019

Sample(s) JC93689-4DUP, JC93689-4MS, JC93689-4MSD were used as the QC samples for Nitrogen, Ammonia.

SGS

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) JC93662-1DUP, JC93662-1MS were used as the QC samples for Nitrogen, Nitrite.

General Chemistry By Method SM5210 B-11

Matrix: AO

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) JC93662-1DUP were used as the QC samples for BOD, 5 Day.
- JC93662-3 for BOD, 5 Day: DO depetion was less than 2.
- JC93662-4 for BOD, 5 Day: DO depetion was less than 2.
- JC93662-1 for BOD, 5 Day: DO depetion was less than 2.
- JC93662-8 for BOD, 5 Day: DO depetion was less than 2.
- JC93662-2 for BOD, 5 Day: DO depetion was less than 2.
- JC93662-11 for BOD, 5 Day: DO depetion was less than 2.
- JC93662-5 for BOD, 5 Day: DO depetion was less than 2.
- JC93662-13 for BOD, 5 Day: DO depetion was less than 2.
- JC93662-12 for BOD, 5 Day: DO depetion was less than 2.
- JC93662-7 for BOD, 5 Day: DO depetion was less than 2.

General Chemistry By Method SM5310 B-11

Matrix: AQ

Batch ID: GP23346

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93662-1MS, JC93662-1MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ

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

Wednesday, September 04, 2019

Page 4 of 4

Summary of Hits Job Number: JC93662

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
JC93662-1 WA-1S				
BOD, 5 Day ^a Nitrogen, Nitrate ^b Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Solids, Total Suspended ^c Total Organic Carbon	1.7 0.12 0.12 0.37 49.0 4.2 5.6	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
JC93662-2 WA-2S				
BOD, 5 Day ^a Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	1.3 0.29 43.0 5.2	1.0 0.20 10 1.0	mg/l mg/l mg/l mg/l	SM5210 B-11 EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC93662-3 WA-2M				
BOD, 5 Day ^a Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	1.3 0.31 43.0 5.0	1.0 0.20 10 1.0	mg/l mg/l mg/l mg/l	SM5210 B-11 EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11
JC93662-4 WA-2D				
BOD, 5 Day ^a Nitrogen, Total Kjeldahl Solids, Total Dissolved Solids, Total Suspended Total Organic Carbon	1.1 0.40 60.0 20.5 5.3	1.0 0.20 10 4.0 1.0	mg/l mg/l mg/l mg/l mg/l	SM5210 B-11 EPA 351.2/LACHAT SM2540 C-11 SM2540 D-11 SM5310 B-11
JC93662-5 WA-3S				
BOD, 5 Day ^a Nitrogen, Nitrate ^b Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	1.5 0.15 0.15 0.28 62.0 5.3	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
JC93662-6 WA-4S				
BOD, 5 Day Nitrogen, Nitrate ^b	3.0 0.35	1.0 0.11	mg/l mg/l	SM5210 B-11 EPA353.2/SM4500NO2B

Summary of Hits Job Number: JC93662

Account:

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

Collected:

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL MI	OL Units	Method
Nitrogen, Nitrate + Nitrite	0.35	0.10	mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl	0.29	0.20	mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	43.0	10	mg/l	SM2540 C-11
Total Organic Carbon	4.7	1.0	mg/l	SM5310 B-11
JC93662-7 WA-5S				
BOD, 5 Day ^a	1.0	1.0	mg/l	SM5210 B-11
Nitrogen, Total Kjeldahl	0.31	0.20	mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	43.0	10	mg/l	SM2540 C-11
Total Organic Carbon	5.7	1.0	mg/l	SM5310 B-11
JC93662-8 WA-6S				
BOD, 5 Day ^a	1.5	1.0	mg/l	SM5210 B-11
Nitrogen, Total Kjeldahl	0.29	0.20	mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	37.0	10	mg/l	SM2540 C-11
Total Organic Carbon	5.0	1.0	mg/l	SM5310 B-11
JC93662-9 WA-6M				
Nitrogen, Total Kjeldahl	0.27	0.20	mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	39.0	10	mg/l	SM2540 C-11
Total Organic Carbon	5.2	1.0	mg/l	SM5310 B-11
JC93662-10 WA-6D				
Nitrogen, Total Kjeldahl	0.28	0.20	mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	41.0	10	mg/l	SM2540 C-11
Solids, Total Suspended	12.0	4.0	mg/l	SM2540 D-11
Total Organic Carbon	5.1	1.0	mg/l	SM5310 B-11
JC93662-11 WA-7S				
BOD, 5 Day ^a	1.2	1.0	mg/l	SM5210 B-11
Nitrogen, Total Kjeldahl	0.27	0.20	mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	32.0	10	mg/l	SM2540 C-11
Total Organic Carbon	4.5	1.0	mg/l	SM5310 B-11
JC93662-12 WA-7M				
BOD, 5 Day ^a	1.8	1.0	mg/l	SM5210 B-11
Nitrogen, Total Kjeldahl	0.26	0.20	mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	45.0	10	mg/l	SM2540 C-11
Total Organic Carbon	4.8	1.0	mg/l	SM5310 B-11

Summary of Hits Job Number: JC93662

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
JC93662-13 WA-7D					
BOD, 5 Day ^a	1.1	1.0		mg/l	SM5210 B-11
Nitrogen, Total Kjeldahl	0.25	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	61.0	10		mg/l	SM2540 C-11
Solids, Total Suspended	30.6	4.0		mg/l	SM2540 D-11
Total Organic Carbon	5.1	1.0		mg/l	SM5310 B-11

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





Dayton, NJ

Section 4

Sample Results	
Report of Analysis	

4

Report of Analysis

Client Sample ID: WA-1S Lab Sample ID: JC93662-1

Lab Sample ID:JC93662-1Date 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 ^a	< 5.0	5.0	mg/l	1	08/29/19 14:39	SJG	SM2320 B-11
BOD, 5 Day b	1.7	1.0	mg/l	1	08/22/19 19:40	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/30/19 16:13	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	0.12	0.11	mg/l	1	08/30/19 16:33	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.12	0.10	mg/l	1	08/30/19 16:33	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/22/19 00:02	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.37	0.20	mg/l	1	08/28/19 11:56	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	49.0	10	mg/l	1	08/26/19 15:24	RC	SM2540 C-11
Solids, Total Suspended ^d	4.2	4.0	mg/l	1	08/26/19 09:42	RC	SM2540 D-11
Total Organic Carbon	5.6	1.0	mg/l	1	08/30/19 18:27	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.

Report of Analysis

Client Sample ID: WA-2S Lab Sample ID: JC93662-2

Lab Sample ID:JC93662-2Date 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 ^a	< 5.0	5.0	mg/l	1	08/29/19 14:39	SJG	SM2320 B-11
BOD, 5 Day b	1.3	1.0	mg/l	1	08/22/19 19:44	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/30/19 16:14	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	< 0.11	0.11	mg/l	1	08/30/19 16:34	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/30/19 16:34	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/22/19 00:02	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.29	0.20	mg/l	1	08/28/19 11:57	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	43.0	10	mg/l	1	08/26/19 15:24	RC	SM2540 C-11
Solids, Total Suspended ^d	< 4.0	4.0	mg/l	1	08/26/19 09:42	RC	SM2540 D-11
Total Organic Carbon	5.2	1.0	mg/l	1	08/30/19 19:01	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.

Report of Analysis

Client Sample ID: WA-2M Lab Sample ID: JC93662-3

Lab Sample ID:JC93662-3Date 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
	1.0	10	/4		00/20/10 11 20		
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	08/29/19 14:39	SJG	SM2320 B-11
BOD, 5 Day ^b	1.3	1.0	mg/l	1	08/22/19 19:46	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/30/19 16:15	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	< 0.11	0.11	mg/l	1	08/30/19 16:35	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/30/19 16:35	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/22/19 00:02	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.31	0.20	mg/l	1	08/28/19 11:58	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	43.0	10	mg/l	1	08/26/19 15:24	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/26/19 09:42	RC	SM2540 D-11
Total Organic Carbon	5.0	1.0	mg/l	1	08/30/19 19:12	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: WA-2D Lab Sample ID: JC93662-4

Lab Sample ID:JC93662-4Date 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 ^a	< 10	10	mg/l	1	08/29/19 14:39	SIG	SM2320 B-11
BOD, 5 Day b	1.1	1.0	mg/l	1	08/22/19 19:48		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/30/19 16:17	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	< 0.11	0.11	mg/l	1	08/30/19 16:36	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/30/19 16:36	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/22/19 00:02	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.40	0.20	mg/l	1	08/28/19 12:00	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	60.0	10	mg/l	1	08/26/19 15:24	RC	SM2540 C-11
Solids, Total Suspended	20.5	4.0	mg/l	1	08/26/19 09:42	RC	SM2540 D-11
Total Organic Carbon	5.3	1.0	mg/l	1	08/30/19 19:23	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)

4

Report of Analysis

Client Sample ID: WA-3S Lab Sample ID: JC93662-5

Lab Sample ID:JC93662-5Date 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 ^a	< 10	10	mg/l	1	08/29/19 14:39	SJG	SM2320 B-11
BOD, 5 Day b	1.5	1.0	mg/l	1	08/22/19 19:50	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/30/19 16:18	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	0.15	0.11	mg/l	1	08/30/19 16:37	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.15	0.10	mg/l	1	08/30/19 16:37	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/22/19 00:02	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.28	0.20	mg/l	1	08/28/19 12:01	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	62.0	10	mg/l	1	08/26/19 15:24	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/26/19 09:42	RC	SM2540 D-11
Total Organic Carbon	5.3	1.0	mg/l	1	08/30/19 19:34	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)

4

Report of Analysis

Client Sample ID: WA-4S Lab Sample ID: JC93662-6

Lab Sample ID:JC93662-6Date 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 ^a	< 10	10	mg/l	1	08/29/19 15:29	SIG	SM2320 B-11
BOD, 5 Day	3.0	1.0	mg/l	1	08/22/19 19:52		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/30/19 16:20	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.35	0.11	mg/l	1	08/30/19 16:39	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.35	0.10	mg/l	1	08/30/19 16:39	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/22/19 00:02	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.29	0.20	mg/l	1	08/28/19 12:02	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	43.0	10	mg/l	1	08/26/19 15:24	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/26/19 09:42	RC	SM2540 D-11
Total Organic Carbon	4.7	1.0	mg/l	1	08/30/19 20:08	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

4

Report of Analysis

Client Sample ID: WA-5S Lab Sample ID: JC93662-7

Lab Sample ID:JC93662-7Date 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
Alkalinity, Total as CaCO3 ^a	< 5.0	5.0	mg/l	1	08/29/19 15:29	SJG	SM2320 B-11
BOD, 5 Day b	1.0	1.0	mg/l	1	08/22/19 19:54	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/30/19 16:21	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	< 0.11	0.11	mg/l	1	08/30/19 16:40	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/30/19 16:40	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/22/19 00:02	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.31	0.20	mg/l	1	08/28/19 12:03	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	43.0	10	mg/l	1	08/26/19 15:24	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/26/19 09:42	RC	SM2540 D-11
Total Organic Carbon	5.7	1.0	mg/l	1	08/30/19 20:19	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: WA-6S Lab Sample ID: JC93662-8

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 ^a	< 10	10	mg/l	1	08/29/19 15:29	SIG	SM2320 B-11
BOD, 5 Day b	1.5	1.0	mg/l	1	08/22/19 19:56		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/30/19 16:23	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	< 0.11	0.11	mg/l	1	08/30/19 16:41	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/30/19 16:41	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/22/19 00:02	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.29	0.20	mg/l	1	08/28/19 12:04	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	37.0	10	mg/l	1	08/26/19 15:24	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/26/19 09:42	RC	SM2540 D-11
Total Organic Carbon	5.0	1.0	mg/l	1	08/30/19 20:30	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)

4

Report of Analysis

Client Sample ID: WA-6M Lab Sample ID: JC93662-9

Lab Sample ID:JC93662-9Date 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 ^a	< 10	10	mg/l	1	08/29/19 15:29	SJG	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	08/22/19 19:58	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/30/19 16:24	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	08/30/19 16:44	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/30/19 16:44	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/22/19 00:02	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.27	0.20	mg/l	1	08/28/19 12:05	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	39.0	10	mg/l	1	08/26/19 15:24	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/26/19 09:42	RC	SM2540 D-11
Total Organic Carbon	5.2	1.0	mg/l	1	08/30/19 20:41	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Report of Analysis

 Client Sample ID:
 WA-6D

 Lab Sample ID:
 JC93662-10
 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 ^a	< 10	10	mg/l	1	08/29/19 15:29	SJG	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	08/22/19 20:00	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/30/19 16:26	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	08/30/19 16:45	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/30/19 16:45	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/22/19 00:02	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.28	0.20	mg/l	1	08/28/19 12:06	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	41.0	10	mg/l	1	08/26/19 15:24	RC	SM2540 C-11
Solids, Total Suspended	12.0	4.0	mg/l	1	08/26/19 09:42	RC	SM2540 D-11
Total Organic Carbon	5.1	1.0	mg/l	1	08/30/19 20:52	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Report of Analysis

Client Sample ID: WA-7S

Lab Sample ID: JC93662-11

Matrix: AQ - Surface Water

Date Sampled: 08/21/19

Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	08/29/19 15:29	SJG	SM2320 B-11
BOD, 5 Day b	1.2	1.0	mg/l	1	08/22/19 20:02	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/30/19 16:31	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	< 0.11	0.11	mg/l	1	08/30/19 16:49	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/30/19 16:49	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/22/19 00:02	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.27	0.20	mg/l	1	08/28/19 12:06	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	32.0	10	mg/l	1	08/26/19 15:24	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/26/19 09:42	RC	SM2540 D-11
Total Organic Carbon	4.5	1.0	mg/l	1	09/03/19 14:45	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

RL = Reporting Limit

⁽b) DO depetion was less than 2.

⁽c) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-7M Lab Sample ID: JC93662-12 **Date Sampled:** 08/21/19 Matrix: **Date Received:** 08/21/19 AQ - Surface Water Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	08/29/19 15:29	SJG	SM2320 B-11
BOD, 5 Day b	1.8	1.0	mg/l	1	08/22/19 20:03	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/30/19 16:33	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	< 0.11	0.11	mg/l	1	08/30/19 16:50	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/30/19 16:50	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/22/19 00:02	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.26	0.20	mg/l	1	08/28/19 12:07	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	45.0	10	mg/l	1	08/26/19 15:24	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/26/19 09:42	RC	SM2540 D-11
Total Organic Carbon	4.8	1.0	mg/l	1	09/03/19 14:56	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: WA-7D

Lab Sample ID: JC93662-13

Matrix: AQ - Surface Water

Date Sampled: 08/21/19

Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	08/29/19 15:29	SJG	SM2320 B-11
BOD, 5 Day b	1.1	1.0	mg/l	1	08/22/19 20:04	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/30/19 16:34	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	< 0.11	0.11	mg/l	1	08/30/19 16:51	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	08/30/19 16:51	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/22/19 00:02	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.25	0.20	mg/l	1	08/28/19 12:08	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	61.0	10	mg/l	1	08/26/19 15:24	RC	SM2540 C-11
Solids, Total Suspended	30.6	4.0	mg/l	1	08/26/19 09:42	RC	SM2540 D-11
Total Organic Carbon	5.1	1.0	mg/l	1	09/03/19 15:07	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)



Misc. Forms

Dayton, NJ

Custody Documents and Other Forms

Includes the following where applicable:

• Chain of Custody

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JC93662: Chain of Custody Page 3 of 5

SGS Sample Receipt Summary

Job Number: JC936	62 Client:	USACE-PHILADELPHIA DIST	RICT Project: PHILADELPHIA D	ISTRICT, RESERVOIR SAMPL
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1. Temp criteria achieved: 2. Cooler temp verification: 3. Cooler media: 4. No. Coolers: Quality Control Preservation 1. Trip Blank present / cooler: 2. Trip Blank listed on COC: 3. Samples preserved properly: 4. VOCs headspace free:	IR Gun Ice (Bag)		Sample Integrity - Condition 1. Sample recvd within HT: 2. All containers accounted for: 3. Condition of sample: Sample Integrity - Instructions 1. Analysis requested is clear: 2. Bottles received for unspecified tests 3. Sufficient volume recvd for analysis: 4. Compositing instructions clear: 5. Filtering instructions clear:	Y or N
Test Strip Lot #s: pH 1	-12: 229517	pH 12+:	208717 Other: (Specify)	
SM089-03 Rev. Date 12/7/17				

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JC93662: Chain of Custody

JC93662: 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: JC93662X

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

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

EHS.US.CustomerCare@sgs.com

SGS

Sections:

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Section 3: Misc. Forms	12
3.1: Chain of Custody	13





Sample Summary

USACE-Philadelphia District

Job No:

JC93662X

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

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
JC93662-1X	08/21/19	09:10 GW	08/21/19	AQ	Surface Water	WA-1S
JC93662-2X	08/21/19	07:10 GW	08/21/19	AQ	Surface Water	WA-2S
JC93662-5X	08/21/19	09:25 GW	08/21/19	AQ	Surface Water	WA-3S
JC93662-6X	08/21/19	09:50 GW	08/21/19	AQ	Surface Water	WA-4S
JC93662-7X	08/21/19	10:15 GW	08/21/19	AQ	Surface Water	WA-5S
JC93662-8X	08/21/19	07:40 GW	08/21/19	AQ	Surface Water	WA-6S
JC93662-11X	08/21/19	08:15 GW	08/21/19	AQ	Surface Water	WA-7S



Dayton, NJ

Section 2

Report of Analysis	Subcontract Lab Data	
	Report of Analysis	

Analytical Report

Serialized: 09/05/2019 06:07pm 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:

L7156477

Authorized by: Douglas J. Gump Client Services Manager

DarJU



Analytical Report Printed 09/05/19 18:07 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		C.	P.O. No:		Inv. No: PWSID No:	1990907 PI
Sample ID L7156477-1	Sample Description WA-1S Received Date/Tin	ne/Temp 08/2	21/19 05:02pm 5.4 C	Iced (Y/N): Y		ate/Time/Temp 09:10am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	MENTAL MICROBIOI	OGY WA-	1S				
Total Coliform Fecal Coliforn		>2000 Q 32 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	08/21/19 06:31PM JG2 08/21/19 07:17PM KC2
Sample ID L7156477-2	Sample Description WA-2S Received Date/Tin	ne/Temp 08/2	21/19 05:02pm 5.4 C	Iced (Y/N): Y		ate/Time/Temp 07:10am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	MENTAL MICROBIOI	OGY WA-	2S				
Total Coliform	,	960 E, Q <1 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	08/21/19 06:31PM JG2 08/21/19 07:17PM KC2

PIN: 28748 Serial Number: 6542362

Analytical Report Printed 09/05/19 18:07

	: W09769, SGS NORTH W09769 USACE, USAC				P.O. No:		Inv. No: PWSID No:	1990907 PI
Sample ID L7156477-3	Sample Description WA-3S Received Date/Tim	n e/Temp 08/21/	19 05:02	2pm 5.4 C	Iced (Y/N): Y		ate/Time/Temp 19:25am NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	ENTAL MICROBIOL	OGY WA-3S						
Total Coliform Fecal Coliform		>2000 Q 38 Q		cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	08/21/19 06:31PM JG2 08/21/19 07:17PM KC2
Sample ID L7156477-4	Sample Description WA-4S Received Date/Tim	ne/Temp 08/21/	19 05:02	2pm 5.4 C	Iced (Y/N): Y		ate/Time/Temp 09:50am NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	IENTAL MICROBIOL	OGY WA-4S						
Total Coliform Fecal Coliform	*	>2000 Q 50 Q		cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	08/21/19 06:31PM JG2 08/21/19 07:17PM KC2
Sample ID L7156477-5	Sample Description WA-5S Received Date/Tim	ne/Temp 08/21/	19 05:02	2pm 5.4 C	Iced (Y/N): Y		ate/Time/Temp 0:15am NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	ENTAL MICROBIOL	OGY WA-5S						
Total Coliform Fecal Coliform	*	>2000 Q 18 Q		cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	08/21/19 06:31PM JG2 08/21/19 07:17PM KC2
Sample ID L7156477-6	Sample Description WA-6S Received Date/Tim	ne/Temp 08/21/	19 05:02	2pm 5.4 C	Iced (Y/N): Y		ate/Time/Temp)7:40am NA C	Sampled by Customer
Parameter		Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst

PIN: 28748 Serial Number: 6542362

Analytical Report

	0: W09769, SGS NORTH W09769 USACE, USA	,	C.	P.O. No:		Inv. No: PWSID No:	1990907 PI
Sample ID L7156477-6	Sample Description WA-6S Received Date/Ti	me/Temp 08/2	21/19 05:02pm 5.4 C	Iced (Y/N): Y		ate/Time/Temp 07:40am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	MENTAL MICROBIO	LOGY WA-	6S				

Total Coliform, MF 850 E, Q cfu/100ml SM 9222B 08/21/19 06:31PM JG2 10 Fecal Coliform, MF cfu/100ml SM 9222D 08/21/19 07:17PM KC2 <1 Q 100

Sample ID **Sample Description** Samp. Date/Time/Temp Sampled by L7156477-7 08/21/19 08:15am NA C WA-7S Customer

Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOL	OGY WA-7S					
Total Coliform, MF Fecal Coliform, MF	1080 E, Q 1 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	08/21/19 06:31PM JG2 08/21/19 06:45PM JG2

Sample Comments | Result Qualifiers:

L7156477-1:

- 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.

L7156477-2:

- 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.
- 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.

L7156477-3:

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

Page 4 of 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.

PIN: 28748 Serial Number: 6542362

Analytical Report

Printed 09/05/19 18:07

 Account No: W09769, SGS NORTH AMERICA, INC.
 P.O. No:
 Inv. No:
 1990907 PI

Project No: W09769 USACE, USACE PWSID No:

L7156477-4:

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.

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

L7156477-5:

- 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.

L7156477-6:

- 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.
- 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.

L7156477-7:

- 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.
- 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.



PIN: 28748 Serial Number: 6542362



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
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	State ID-	NJ: 02015					
Vineland Facility	State ID-	NJ: 06005					
Wind Gap Facility	State ID-	NJ: PA001					

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CHAIN OF CUSTODY

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Battle Order Control #

FED-EX Tracking ≠

SGS North America Inc. - Dayton

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JC93662X: Chain of Custody Page 1 of 5

	CAC		CHAIN OF CUSTODY																		Page <u>'2</u> of <u>2</u>					
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JC93662X: Chain of Custody Page 2 of 5

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315 - 656 - 6545 Sempler(e) Name(s) 6/0 - Phone #	Project Mane	ger		Attention:								g g		1		1					WP - Wipe FB - Field Blank	
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JC93662X: Chain of Custody Page 3 of 5

SGS Sample Receipt Summary

Job Number:	JC93662	Client:	USACE-PHILA	DELPHIA DIS	STRICT P	roject: PHILADELPHIA DI	ISTRICT	T, RESERV	OIR SAMPL
Date / Time Received:	3/21/2019 6:3	8:00 PM	Delivery Meth	od:		Airbill #'s:			
Cooler Temps (Raw Meas		Cooler 1: (3.7); : (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: (3.6	i); Cooler
Cooler Temps (Corre		Cooler 1: (3.6); : (3.5);	Cooler 2: (3.5)	; Cooler 3: (2	2.8); Cooler 4: (3.1);	Cooler 5: (3.4); Cooler 6: (3.4)	3.4); Co	ooler 7: (3.5); Cooler
Cooler Security	Y or N		<u>_Y</u>	or N	Sample Integrity -	<u>Documentation</u>	<u>Y</u>	or N	
1. Custody Seals Present:	✓	3. COC P			Sample labels pre	esent on bottles:	✓		
2. Custody Seals Intact:		4. Smpl Date	s/Time OK		Container labeling	complete:	\checkmark		
Cooler Temperature	<u>Y o</u>	<u>r N</u>			3. Sample container	label / COC agree:	\checkmark		
1. Temp criteria achieved:	✓				Sample Integrity -	- Condition	<u>Y</u>	or N	
2. Cooler temp verification:	IR	Gun			Sample recvd with		✓		
3. Cooler media:	lce	(Bag)			All containers according		v		
4. No. Coolers:		8			3. Condition of samp	ble:		Intact	
Quality Control Preserva	ation Y	or N N/A			Sample Integrity -	- Instructions	Υ	or N	N/A
1. Trip Blank present / coole	er:	✓			Analysis requeste		<u> </u>		
2. Trip Blank listed on COC	: 🗆				' '	for unspecified tests		✓	
3. Samples preserved prope	erly:				Sufficient volume	•	<u></u>		
4. VOCs headspace free:	П				Compositing instr	•			✓
·					5. Filtering instruction				\checkmark
Test Strip Lot #s:	pH 1-12:	229517		pH 12+:	208717	Other: (Specify)		_	
Comments									

SM089-03 Rev. Date 12/7/17

JC93662X: Chain of Custody

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JC93662X: Chain of Custody Page 5 of 5



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: JC93662XA

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: 25

TNI LABORATORI

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:

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-1-

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



Sample Summary

USACE-Philadelphia District

Job No: JC93662XA

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

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC93662-1F	08/21/19	09:10 GW	08/21/19	AQ	Surface H2O Filtered	WA-1S
JC93662-1XA	08/21/19	09:10 GW	08/21/19	AQ	Surface Water	WA-1S
JC93662-2F	08/21/19	07:10 GW	08/21/19	AQ	Surface H2O Filtered	WA-2S
JC93662-2XA	08/21/19	07:10 GW	08/21/19	AQ	Surface Water	WA-2S
JC93662-3F	08/21/19	07:10 GW	08/21/19	AQ	Surface H2O Filtered	WA-2M
JC93662-3XA	08/21/19	07:10 GW	08/21/19	AQ	Surface Water	WA-2M
JC93662-4F	08/21/19	07:10 GW	08/21/19	AQ	Surface H2O Filtered	WA-2D
JC93662-4XA	08/21/19	07:10 GW	08/21/19	AQ	Surface Water	WA-2D
JC93662-5F	08/21/19	09:25 GW	08/21/19	AQ	Surface H2O Filtered	WA-3S
JC93662-5XA	08/21/19	09:25 GW	08/21/19	AQ	Surface Water	WA-3S
JC93662-6F	08/21/19	09:50 GW	08/21/19	AQ	Surface H2O Filtered	WA-4S
JC93662-6XA	08/21/19	09:50 GW	08/21/19	AQ	Surface Water	WA-4S
JC93662-7F	08/21/19	10:15 GW	08/21/19	AQ	Surface H2O Filtered	WA-5S



Sample Summary (continued)

USACE-Philadelphia District

Job No: JC93662XA

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

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC93662-7XA	08/21/19	10:15 GW	08/21/19	AQ	Surface Water	WA-5S
JC93662-8F	08/21/19	07:40 GW	08/21/19	AQ	Surface H2O Filtered	WA-6S
JC93662-8XA	08/21/19	07:40 GW	08/21/19	AQ	Surface Water	WA-6S
JC93662-9F	08/21/19	07:40 GW	08/21/19	AQ	Surface H2O Filtered	WA-6M
JC93662-9XA	08/21/19	07:40 GW	08/21/19	AQ	Surface Water	WA-6M
JC93662-10F	08/21/19	07:40 GW	08/21/19	AQ	Surface H2O Filtered	WA-6D
JC93662-10X	A08/21/19	07:40 GW	08/21/19	AQ	Surface Water	WA-6D
JC93662-11F	08/21/19	08:15 GW	08/21/19	AQ	Surface H2O Filtered	WA-7S
JC93662-11X	A08/21/19	08:15 GW	08/21/19	AQ	Surface Water	WA-7S
JC93662-12F	08/21/19	08:15 GW	08/21/19	AQ	Surface H2O Filtered	WA-7M
JC93662-12X	A08/21/19	08:15 GW	08/21/19	AQ	Surface Water	WA-7M
JC93662-13F	08/21/19	08:15 GW	08/21/19	AQ	Surface H2O Filtered	WA-7D
JC93662-13X	A08/21/19	08:15 GW	08/21/19	AQ	Surface Water	WA-7D



Dayton, NJ

Section 2

Subcontract Lab Data
Report of Analysis



Certificate of Analysis

Lab Contact: 9030188 **Report:** 09/03/19 **Lab Contact:** Amy L Morriss

Attention: Tammy McCloskey Project: Army Corp Reservoirs

Reported To: SGS North America 2235 US Highway 130

2235 US Highway 130 Dayton, NJ 08810

Lab ID: 9030188-01 **Collected By:** Client **Sampled:** 08/21/19 09:10 **Received:** 08/27/19 09:39

Sample Desc: WA-1S 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	08/29/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/29/19	J	JCL

Lab ID: 9030188-02 **Collected By:** Client **Sampled:** 08/21/19 07:10 **Received:** 08/27/19 09:39

Sample Desc: WA-2S Sample Type: Grab

				Rep.						
	Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst		
Dissolved General Chemistry										
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	08/29/19	G-11, J	JCL		
General Chemistry										
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/29/19	U	JCL		

Lab ID: 9030188-03 **Collected By:** Client **Sampled:** 08/21/19 07:10 **Received:** 08/27/19 09:39

Sample Desc: WA-2M Sample Type: Grab

			Rep.				
Result	Unit	MDL	Limit	Procedure	Analyzed	Notes	Analyst
y							
0.01	mg/l	0.007	0.05	SM 4500-P E	08/29/19	G-11, J	JCL
0.02	mg/l	0.01	0.05	SM 4500-P E	08/29/19	J	JCL
	y 0.01	y 0.01 mg/l	y 0.01 mg/l 0.007	Result Unit MDL Limit y 0.01 mg/l 0.007 0.05	Result Unit MDL Limit Procedure y 0.01 mg/l 0.007 0.05 SM 4500-P E	Result Unit MDL Limit Procedure Analyzed y 0.01 mg/l 0.007 0.05 SM 4500-P E 08/29/19	Result Unit MDL Limit Procedure Analyzed Notes y 0.01 mg/l 0.007 0.05 SM 4500-P E 08/29/19 G-11, J



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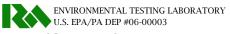
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Lab ID: 9030188-04 **Collected By:** Client **Sampled:** 08/21/19 07:10 **Received:** 08/27/19 09:39

Sample Desc: WA-2D Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	try							
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	08/29/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	08/29/19		JCL

Lab ID: 9030188-05 **Collected By:** Client **Sampled:** 08/21/19 09:25 **Received:** 08/27/19 09:39

Sample Desc: WA-3S 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	08/29/19	G-11, J	JCL	
General Chemistry									
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	08/29/19	J	JCL	

Lab ID: 9030188-06 **Collected By:** Client **Sampled:** 08/21/19 09:50 **Received:** 08/27/19 09:39

Sample Desc: WA-4S 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	08/29/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/29/19	J	JCL

Lab ID: 9030188-07 **Collected By:** Client **Sampled:** 08/21/19 10:15 **Received:** 08/27/19 09:39

Sample Desc: WA-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	08/29/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/29/19	J	JCL



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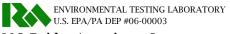
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Lab ID: 9030188-08 **Collected By:** Client **Sampled:** 08/21/19 07:40 **Received:** 08/27/19 09:39

Sample Desc: WA-6S 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	08/29/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/29/19	J	JCL

Lab ID: 9030188-09 **Collected By:** Client **Sampled:** 08/21/19 07:40 **Received:** 08/27/19 09:39

Sample Desc: WA-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	08/29/19	G-11, U	JCL	
General Chemistry									
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/29/19	U	JCL	

Lab ID: 9030188-10 **Collected By:** Client **Sampled:** 08/21/19 07:40 **Received:** 08/27/19 09:39

Sample Desc: WA-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	08/29/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/29/19	U	JCL

Lab ID: 9030188-11 **Collected By:** Client **Sampled:** 08/21/19 08:15 **Received:** 08/27/19 09:39

Sample Desc: WA-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	08/29/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/29/19	U	JCL



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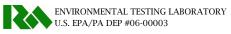
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Lab ID: 9030188-12 **Collected By:** Client **Sampled:** 08/21/19 08:15 **Received:** 08/27/19 09:39

Sample Desc: WA-7M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemist	t r y							
Phosphorus as P, Dissolved	< 0.007	mg/l	0.007	0.05	SM 4500-P E	08/29/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	< 0.01	mg/l	0.01	0.05	SM 4500-P E	08/29/19	U	JCL

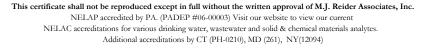
Lab ID: 9030188-13 **Collected By:** Client **Sampled:** 08/21/19 08:15 **Received:** 08/27/19 09:39

Sample Desc: WA-7D 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	08/29/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/29/19	J	JCL

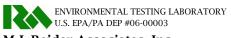


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Quality Control

General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9H1705								
MB (B9H1705-BLK1)				Prepared & Ana	alyzed: 08/29/201	9		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9H1705-BLK2)				Prepared & Ana	alyzed: 08/29/201	9		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9H1705-BLK3)				Prepared & Ana	alyzed: 08/29/201	9		
Phosphorus as P, Total	< 0.05	0.05	mg/l	1				U
LFB (B9H1705-BS1)				Prepared & An	alyzed: 08/29/201	9		
Phosphorus as P, Total	1.02	0.05	mg/l	102	80-120			
Batch B9H1743								
MB (B9H1743-BLK1)				Prepared & Ana	alyzed: 08/29/201	9		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9H1743-BLK2)				Prepared & Ana	alyzed: 08/29/201	9		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
LFB (B9H1743-BS1)				Prepared & Ana	alyzed: 08/29/201	9		
Phosphorus as P, Total	1.00	0.05	mg/l	100	80-120			
LFM (B9H1743-MS1)		Source: 9030188-11		Prepared & Ana	alyzed: 08/29/201	9		
Phosphorus as P, Total	1.00	0.05	mg/l	99.8	80-120			
LFMD (B9H1743-MSD1)		Source: 9030188-11		Prepared & An	alyzed: 08/29/201	9		
Phosphorus as P, Total	0.99	0.05	mg/l	99.1	80-120	0.704	20	
1								

Dissolved General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9H1707	Resurt	Lillit	Omto	/orcec	Limito	KI D	Limit	Hotes
MB (B9H1707-BLK1)				Prepared & Ana	alyzed: 08/29/20)19		
Phosphorus as P, Dissolved	< 0.05	0.05	mg/l					G-11, U
LFB (B9H1707-BS1)				Prepared & Ana	alyzed: 08/29/20)19		
Phosphorus as P, Dissolved	1.01	0.05	mg/l	101	80-120			G-11
LFM (B9H1707-MS1)		Source: 9030188-05		Prepared & Ana	alyzed: 08/29/20)19		
Phosphorus as P, Dissolved	1.01	0.05	mg/l	99.8	80-120			
LFMD (B9H1707-MSD1)		Source: 9030188-05		Prepared & Ana	alyzed: 08/29/20)19		
Phosphorus as P, Dissolved	1.02	0.05	mg/l	100	80-120	0.394	20	
Batch B9H1742								
MB (B9H1742-BLK1)				Prepared & Ana	1 1 00 /00 /0/			



Phosphorus as P, Dissolved

< 0.05

0.05

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mg/l

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G-11, U



Dissolved	General	Chemistry	(Continued)

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9H1742 (Continued)								
LFB (B9H1742-BS1)				Prepared & An	alyzed: 08/29/20)19		
Phosphorus as P, Dissolved	1.01	0.05	mg/l	101	80-120			G-11
LFM (B9H1742-MS1)		Source: 9030188-12	2	Prepared & An	alyzed: 08/29/20	019		
Phosphorus as P, Dissolved	0.99	0.05	mg/l	99.3	80-120			
LFMD (B9H1742-MSD1)		Source: 9030188-12	2	Prepared & An	alyzed: 08/29/20)19		
Phosphorus as P, Dissolved	0.99	0.05	mg/l	98.9	80-120	0.404	20	



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Preparation Methods

Specific Method	Preparation Method	Prepared Date	Prepared By
9030188-01			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030188-02			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030188-03			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030188-04			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030188-05			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030188-06			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030188-07			
SM 4500-P \to	SM 4500-P B	08/29/2019	JCL
9030188-08			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030188-09			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030188-10			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030188-11			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030188-12			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030188-13			
SM 4500-P E	SM 4500-P B	08/29/2019	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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	٦	Client / Reporting Information			Project Information	format	ion	•						Redne	Requested Analysis	lysis			Matrix Codes
	Company Name:	lame:	Project.Name: Philadelphia D	Project Name: Philadelphia District, Reservoir Sampling	ir Sampling														OW - Drinking Water
100	Street Address	888	Street													•			WW - Water SW - Surface Water
Т	Au	State	City		State	Company Name	billing Information (if different from Report to) Company Namo	different fro	ш кероп	0						•		J.J.	SO - Soil SL- Sludge SED-Sediment
	Project Contact tammy.mcc	oject Contact E-mail tammy.mccloskey@sgs.com	Project#			Street Address	ress					И							OI - Oil LIQ - Other Liquid AIR - Air
100	Phone #		Client Purchase Order #	Order #		ČÍF)		S	State	7	ďΖ	¢							SOL - Other Solid WP - Wipe FB - Field Blank
157	Sampler(s) Name(s) GW		Phone Project Manager			Attention:						409T,							EB-Equipment Blank RB - Rinse Blank TR - Trin Blank
					Collection	П	F		Number of	preserved Botiles	ottles	мэх							Y I I
	SGS Sampto #	Field ID / Point of Collection	MEOH/DI Vial#	Date	Time	Sampled by	Matrix # of	a of bottles	HO97 HANG?	DI Mater NONE	ENCORE	FILTER	, 404T			-			LAB USE ONLY
	1X V	WA-1S		8/21/19	9:10:00 AM	αw	AQ	2					×						
	1F V	WA-18		8/21/19	9:10:00 AM	ΜĐ	ΑQ	2				×							
رم	2XA V	WA-2S		8/21/19	7:10:00 AM	SW GW	AQ	2			_		×						
	2F V	WA-2S		8/21/19	7:10:00 AM	ΛΘ	ΑQ	2				×							
S)	3XA V	WA-2M		8/21/19	7:10:00 AM	ΝS	ΑQ	2					×					-	
٦	3F V	WA-2M		8/21/19	7:10:00 AM	ΝS	ΑQ	2			_	×						-	
30	4XA V	WA-2D		8/21/19	7:10:00 AM	Ŋg B	ΑQ	2	_				×						
7	4F V	WA-2D		8/21/19	7:10:00 AM	Ν̈́S	φ	2				×							
10	5XA V	WA-3S		8/21/19	9:25:00 AM	GW GW	Aa	2	<u> </u>				×						
닠	5F V	WA-3S		8/21/19	9:25:00 AM	ΝS	Q.	2	ļ		-	×							
13	6XA V	WA-4S		8/21/19	9:50:00 AM	Ø.	ą	2	-				×					-	
\preceq	6F V			8/21/19	9:50:00 AM	GW	ΑQ	2			_	×							
	-	Turnaround Time (Business days)						Data Deliverable Information	rable Info	rmation					Comm	Comments / Special Instructions	al Instruction	JS.	
	Ë	Standard 10 Business Days	Approved By (SGS PM): / Date:	PM); / Date:			Commercial "A" (Level 1)	A" (Level 1) B" (Level 2)		<u>}</u> }	NYASP Category A	ory A			ļ			: 	
		5 Business Days RUSH					FULLT1 (Level 3+4)	el 3+4)		i ii	State Forms	1							
		3 Business Days RUSH					NJ Reduced			ā П	EDD Format								
		2 Business Days RUSH					Commercial "C"	ڻ. ن		X other REDT2	r REDT	2	T						
	ΠĒ				***		8 8	Commercial "A" **Results Only Commercial "R" = Results + OC Summer	*Results (Only FOC Sum	200		***						
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9030188 FED-EX Tracking # SGS Quote # CHAIN OF CUSTODY
SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ, 08310
TEL. 732-232-0400 - PAX; 732-329-3499/3480

Project Information

Client / Reporting Information Company Name:

Philadelphia District, Reservoir Sampling

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Billing Information (if different from Report to) Company Name

Street Address

Client Purchase Order # Project Manager

Project #

tammy.mccloskey@sgs.com

Phone #

Sampler(s) Name(s) GW

State

Street Address

Matrix Codes

Requested Analysis

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Contact: Sample Receiving / Rich Wheeler Phone: 610-374-5129

TAT: Due 9/4/2019

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Comments:

Sample Management Receipt:

Date:

8/2/1/2018 <u>\$410019</u> 37.2010 4 1 2016 A 1 2016 36.77.23 S 7.40 JUN 1.4. 1. 1.

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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Dayton, NJ

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

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4. VOCs headspace free:				pH 12+:	Compositing instructions clear: Filtering instructions clear:				V
4. VOCs headspace free: Test Strip Lot #s:				pH 12+:	Compositing instructions clear: Filtering instructions clear:				V
4. VOCs headspace free: Test Strip Lot #s:				pH 12+:	Compositing instructions clear: Filtering instructions clear:				V
4. VOCs headspace free: Test Strip Lot #s:				pH 12+:	Compositing instructions clear: Filtering instructions clear:				V
4. VOCs headspace free: Test Strip Lot #s:				pH 12+:	Compositing instructions clear: Filtering instructions clear:				V
4. VOCs headspace free: Test Strip Lot #s:				pH 12+:	Compositing instructions clear: Filtering instructions clear:				✓

SM089-03 Rev. Date 12/7/17

> JC93662XA: Chain of Custody Page 4 of 5

JC93662XA: 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



USACE-Philadelphia District

Philadelphia District, Reservoir Sampling

CONTRACT#W912BU18D0003/TO#W912BU19F0065

SGS Job Number: JC94821

Sampling Date: 09/11/19



Army Corps of Engineers

joseph.m.loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 30

TNI FORATORA

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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SGS

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Sample Summary

USACE-Philadelphia District

Job No:

JC94821

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

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
JC94821-1	09/11/19	09:05 GW	09/11/19	AQ	Surface Water	WA-1S
JC94821-2	09/11/19	07:10 GW	09/11/19	AQ	Surface Water	WA-2S
JC94821-3	09/11/19	07:10 GW	09/11/19	AQ	Surface Water	WA-2M
JC94821-4	09/11/19	07:10 GW	09/11/19	AQ	Surface Water	WA-2D
JC94821-5	09/11/19	10:00 GW	09/11/19	AQ	Surface Water	WA-3S
JC94821-6	09/11/19	09:45 GW	09/11/19	AQ	Surface Water	WA-4S
JC94821-7	09/11/19	09:30 GW	09/11/19	AQ	Surface Water	WA-5S
JC94821-8	09/11/19	07:50 GW	09/11/19	AQ	Surface Water	WA-6S
JC94821-9	09/11/19	07:50 GW	09/11/19	AQ	Surface Water	WA-6M
JC94821-10	09/11/19	07:50 GW	09/11/19	AQ	Surface Water	WA-6D
JC94821-11		08:30 GW	09/11/19		Surface Water	WA-7S
JC94821-12	09/11/19	08:30 GW	09/11/19	AQ	Surface Water	WA-7M
JC94821-13	09/11/19	08:30 GW	09/11/19	AQ	Surface Water	WA-7D

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: USACE-Philadelphia District Job No JC94821

Site: Philadelphia District, Reservoir Sampling Report Date 9/30/2019 9:45:27 AM

On 09/11/2019, 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 5 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JC94821 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: GP23773

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94761-1DUP, JC94761-1MS 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: GP23774

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94821-1DUP, JC94821-1MS 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.
- RPD(s) for Duplicate for Nitrogen, Total Kjeldahl are outside control limits for sample GP23774-D1. RPD acceptable due to low duplicate and sample concentrations.

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: GP23851

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94821-1DUP, JC94821-5MS, JC94821-1MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.
- Matrix Spike Recovery(s) for Nitrogen, Nitrate + Nitrite are outside control limits. Spike recovery indicates possible matrix interference.

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General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ Batch ID: R181299

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94821-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181300

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94821-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181301

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94821-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181302

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94821-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181303

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94821-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181304

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94821-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181305

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94821-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181306

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94821-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AO Batch ID: R181307

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94821-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181308

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94821-10 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181309

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94821-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181310

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94821-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)

Matrix: AQ Batch ID: R181311

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94821-13 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: GN243

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94210-2RDUP were used as the QC samples for Alkalinity, Total as CaCO3.
- JC94821-9 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94821-10 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94821-11 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94821-3 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94821-13 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94821-6 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94821-8 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94821-7 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94821-1 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.5.
- JC94821-4 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94821-12 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94821-2 for Alkalinity, Total as CaCO3: Sample was titrated to a final pH of 4.2.
- JC94821-5 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: GN113

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94821-13DUP were used as the QC samples for Solids, Total Dissolved.

Matrix: AO Batch ID: GN89

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94821-1DUP were used as the QC samples for Solids, Total Dissolved.

General Chemistry By Method SM2540 D-11

Matrix: AQ Batch ID: GN114

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94821-13DUP were used as the QC samples for Solids, Total Suspended.

Matrix: AQ Batch ID: GN88

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

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Sample(s) JC94821-1DUP were used as the QC samples for Solids, Total Suspended.

General Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AQ Batch ID: GP23829

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94821-1DUP, JC94821-1MS, JC94821-1MSD were used as the QC samples for Nitrogen, Ammonia.

General Chemistry By Method SM4500NO2 B-11

Matrix: AQ Batch ID: GN99859

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94634-11DUP, JC94634-11MS were used as the QC samples for Nitrogen, Nitrite.

General Chemistry By Method SM5210 B-11

Matrix: AQ Batch ID: GP23625

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94820-1DUP were used as the QC samples for BOD, 5 Day.
- JC94821-9 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.
- JC94821-7 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.
- JC94821-4 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.
- JC94821-10 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.

General Chemistry By Method SM5310 B-11

Matrix: AO Batch ID: GP23936

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94821-1MS, JC94821-1MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ Batch ID: GP23937

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94986-2MS, JC94986-2MSD 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

Monday, September 30, 2019

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Summary of Hits Job Number: JC94821

Account:

USACE-Philadelphia District

Philadelphia District, Reservoir Sampling 09/11/19 **Project:**

Collected:

Lab Sample ID Client Sample II Analyte	D Result/ Qual	RL	MDL	Units	Method		
JC94821-1 WA-1S							
Alkalinity, Total as CaCO3 ^a Nitrogen, Total Kjeldahl Solids, Total Dissolved Solids, Total Suspended Total Organic Carbon	17.0 0.33 53.0 16.8 4.2	10 0.20 10 4.0 1.0		mg/l mg/l mg/l mg/l mg/l	SM2320 B-11 EPA 351.2/LACHAT SM2540 C-11 SM2540 D-11 SM5310 B-11		
JC94821-2 WA-2S							
Solids, Total Dissolved Total Organic Carbon	54.0 4.7	10 1.0		mg/l mg/l	SM2540 C-11 SM5310 B-11		
JC94821-3 WA-2M							
Alkalinity, Total as CaCO3 ^b Nitrogen, Nitrate ^c Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	14.0 0.22 0.22 48.0 4.5	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		
JC94821-4 WA-2D							
BOD, 5 Day ^d Solids, Total Dissolved Solids, Total Suspended Total Organic Carbon	1.2 49.0 9.8 4.2	1.0 10 4.0 1.0		mg/l mg/l mg/l mg/l	SM5210 B-11 SM2540 C-11 SM2540 D-11 SM5310 B-11		
JC94821-5 WA-3S							
Alkalinity, Total as CaCO3 ^b Nitrogen, Nitrate ^c Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	14.0 0.23 0.23 57.0 4.1	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		
JC94821-6 WA-4S							
Nitrogen, Nitrate ^c Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	0.12 0.12 52.0 2.9	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		

Summary of Hits Job Number: JC94821

Account:

USACE-Philadelphia District Philadelphia District, Reservoir Sampling 09/11/19 **Project:**

Collected:

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method	
JC94821-7 WA-5S						
BOD, 5 Day ^d Nitrogen, Nitrate ^c Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	1.7 0.14 0.14 42.0 3.5	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	
JC94821-8 WA-6S						
Nitrogen, Nitrate ^c Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	0.19 0.19 0.33 48.0 4.6	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	
JC94821-9 WA-6M						
BOD, 5 Day ^d Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	1.2 0.31 44.0 4.5	1.0 0.20 10 1.0		mg/l mg/l mg/l mg/l	SM5210 B-11 EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11	
JC94821-10 WA-6D						
BOD, 5 Day ^d Nitrogen, Total Kjeldahl Solids, Total Dissolved Total Organic Carbon	1.0 0.28 57.0 4.2	1.0 0.20 10 1.0		mg/l mg/l mg/l mg/l	SM5210 B-11 EPA 351.2/LACHAT SM2540 C-11 SM5310 B-11	
JC94821-11 WA-7S						
Nitrogen, Nitrate ^c Nitrogen, Nitrate + Nitrite Solids, Total Dissolved Total Organic Carbon	0.15 0.15 42.0 4.6	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	
JC94821-12 WA-7M						
Solids, Total Dissolved Total Organic Carbon	47.0 4.6	10 1.0		mg/l mg/l	SM2540 C-11 SM5310 B-11	
JC94821-13 WA-7D						
Nitrogen, Total Kjeldahl	0.30	0.20		mg/l	EPA 351.2/LACHAT	

Summary of Hits Job Number: JC94821

Account: USACE-Philadelphia District

Project: Philadelphia District, Reservoir Sampling

Collected: 09/11/19

Lab Sample ID Client Sample ID Analyte	Result/ Qual	RL	MDL	Units	Method
Solids, Total Dissolved	51.0	10		mg/l	SM2540 C-11
Solids, Total Suspended	9.8	4.0		mg/l	SM2540 D-11
Total Organic Carbon	4.3	1.0		mg/l	SM5310 B-11

- (a) Sample was titrated to a final pH of 4.5.
- (b) Sample was titrated to a final pH of 4.2.
- (c) Calculated as: (Nitrogen, Nitrate + Nitrite) (Nitrogen, Nitrite)
- (d) 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.





Dayton, NJ

Section 4

Sample Results		
Report of Analysis		

Report of Analysis

Client Sample ID: WA-1S Lab Sample ID: JC94821-1

Lab Sample ID:JC94821-1Date Sampled:09/11/19Matrix:AQ - Surface WaterDate Received:09/11/19Percent Solids:n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	17.0	10	mg/l	1	09/20/19 08:42	MS	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/12/19 19:58	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/23/19 15:40	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	09/24/19 13:42	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	09/24/19 13:42	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/11/19 22:29	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.33	0.20	mg/l	1	09/20/19 10:23	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	53.0	10	mg/l	1	09/17/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	16.8	4.0	mg/l	1	09/17/19 10:44	RC	SM2540 D-11
Total Organic Carbon	4.2	1.0	mg/l	1	09/27/19 18:31	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.5.



⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Report of Analysis

Client Sample ID: WA-2S Lab Sample ID: JC94821-2

Date Sampled: 09/11/19 Matrix: **Date Received:** 09/11/19 AQ - Surface Water Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	09/20/19 08:42	MS	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/12/19 20:00	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/23/19 15:41	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	< 0.11	0.11	mg/l	1	09/24/19 13:33	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	09/24/19 13:33	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/11/19 22:29	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/20/19 10:24	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	54.0	10	mg/l	1	09/17/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/17/19 10:44	RC	SM2540 D-11
Total Organic Carbon	4.7	1.0	mg/l	1	09/27/19 19:32	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Report of Analysis

Client Sample ID: WA-2M Lab Sample ID: JC94821-3

Date Sampled: 09/11/19 Matrix: **Date Received:** 09/11/19 AQ - Surface Water Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	14.0	10	mg/l	1	09/20/19 08:42	MS	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/12/19 20:45	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/23/19 15:43	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.22	0.11	mg/l	1	09/24/19 13:34	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.22	0.10	mg/l	1	09/24/19 13:34	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/11/19 22:29	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/20/19 10:24	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	48.0	10	mg/l	1	09/17/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/17/19 10:44	RC	SM2540 D-11
Total Organic Carbon	4.5	1.0	mg/l	1	09/27/19 19:43	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.



⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Date Sampled: 09/11/19

Report of Analysis

Client Sample ID: WA-2D Lab Sample ID: JC94821-4

Matrix: AQ - Surface Water Date Received: 09/11/19
Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	09/20/19 08:42	MS	SM2320 B-11
BOD, 5 Day b	1.2	1.0	mg/l	1	09/12/19 20:47		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/23/19 15:44	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate c	< 0.11	0.11	mg/l	1	09/24/19 13:35	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	09/24/19 13:35	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/11/19 22:29	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/20/19 10:25	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	49.0	10	mg/l	1	09/17/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	9.8	4.0	mg/l	1	09/17/19 10:44	RC	SM2540 D-11
Total Organic Carbon	4.2	1.0	mg/l	1	09/27/19 19:54	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: WA-3S Lab Sample ID: JC94821-5

General Chemistry

Date Sampled: 09/11/19 Matrix: **Date Received:** 09/11/19 AQ - Surface Water Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	14.0	10	mg/l	1	09/20/19 09:10	MS	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/12/19 20:49	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/23/19 15:46	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	0.23	0.11	mg/l	1	09/24/19 13:36	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.23	0.10	mg/l	1	09/24/19 13:36	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/11/19 22:29	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/20/19 10:34	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	57.0	10	mg/l	1	09/17/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/17/19 10:44	RC	SM2540 D-11
Total Organic Carbon	4.1	1.0	mg/l	1	09/27/19 20:05	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Client Sample ID: WA-4S Lab Sample ID: JC94821-6

Lab Sample ID:JC94821-6Date Sampled:09/11/19Matrix:AQ - Surface WaterDate Received:09/11/19Percent Solids:n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	09/20/19 09:10	MS	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/12/19 20:50	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/23/19 16:43	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.12	0.11	mg/l	1	09/24/19 13:40	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.12	0.10	mg/l	1	09/24/19 13:40	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/11/19 22:29	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/20/19 10:29	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	52.0	10	mg/l	1	09/17/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/17/19 10:44	RC	SM2540 D-11
Total Organic Carbon	2.9	1.0	mg/l	1	09/27/19 20:16	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.



⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Report of Analysis

Client Sample ID: WA-5S Lab Sample ID: JC94821-7

Lab Sample ID:JC94821-7Date Sampled:09/11/19Matrix:AQ - Surface WaterDate Received:09/11/19Percent Solids:n/a

Project: Philadelphia District, Reservoir Sampling

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Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	09/20/19 09:10	MS	SM2320 B-11
BOD, 5 Day b	1.7	1.0	mg/l	1	09/12/19 20:52	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/23/19 16:44	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	0.14	0.11	mg/l	1	09/24/19 13:41	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.14	0.10	mg/l	1	09/24/19 13:41	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/11/19 22:29	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/20/19 10:29	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	42.0	10	mg/l	1	09/17/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/17/19 10:44	RC	SM2540 D-11
Total Organic Carbon	3.5	1.0	mg/l	1	09/27/19 20:28	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: WA-6S Lab Sample ID: JC94821-8

Lab Sample ID:JC94821-8Date Sampled:09/11/19Matrix:AQ - Surface WaterDate Received:09/11/19Percent Solids:n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	09/20/19 09:10	MS	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/12/19 20:54	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/23/19 16:46	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.19	0.11	mg/l	1	09/24/19 13:43	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.19	0.10	mg/l	1	09/24/19 13:43	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/11/19 22:29	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.33	0.20	mg/l	1	09/20/19 10:30	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	48.0	10	mg/l	1	09/17/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/17/19 10:44	RC	SM2540 D-11
Total Organic Carbon	4.6	1.0	mg/l	1	09/27/19 20:39	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Date Sampled: 09/11/19

Report of Analysis

Client Sample ID: WA-6M Lab Sample ID: JC94821-9

Matrix: **Date Received:** 09/11/19 AQ - Surface Water Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	09/20/19 09:10	MS	SM2320 B-11
BOD, 5 Day b	1.2	1.0	mg/l	1	09/12/19 20:55	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/23/19 16:47	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate c	< 0.11	0.11	mg/l	1	09/24/19 13:44	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	09/24/19 13:44	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/11/19 22:51	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.31	0.20	mg/l	1	09/23/19 10:29	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	44.0	10	mg/l	1	09/17/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/17/19 10:44	RC	SM2540 D-11
Total Organic Carbon	4.5	1.0	mg/l	1	09/27/19 20:50	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:
 WA-6D

 Lab Sample ID:
 JC94821-10
 Date Sampled:
 09/11/19

 Matrix:
 AQ - Surface Water
 Date Received:
 09/11/19

 Percent Solids:
 n/a

Project: Philadelphia District, Reservoir Sampling

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	09/20/19 09:10	MS	SM2320 B-11
BOD, 5 Day b	1.0	1.0	mg/l	1	09/12/19 20:57	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/23/19 16:49		SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	< 0.11	0.11	mg/l	1	09/24/19 13:45	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	09/24/19 13:45	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/11/19 22:51	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.28	0.20	mg/l	1	09/23/19 10:30	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	57.0	10	mg/l	1	09/17/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/17/19 10:44	RC	SM2540 D-11
Total Organic Carbon	4.2	1.0	mg/l	1	09/27/19 21:32	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: WA-7S Lab Sample ID: JC94821-11 **Date Sampled:** 09/11/19 Matrix: **Date Received:** 09/11/19 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 ^a	< 10	10	mg/l	1	09/20/19 09:10	MS	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/12/19 21:00	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/23/19 16:50	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	0.15	0.11	mg/l	1	09/24/19 13:46	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	0.15	0.10	mg/l	1	09/24/19 13:46	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/11/19 22:51	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/20/19 10:33	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	42.0	10	mg/l	1	09/17/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/17/19 10:44	RC	SM2540 D-11
Total Organic Carbon	4.6	1.0	mg/l	1	09/27/19 22:10	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.



Page 1 of 1

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Report of Analysis

Date Sampled: 09/11/19 **Date Received:** 09/11/19

Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

AQ - Surface Water

JC94821-12

General Chemistry

Lab Sample ID:

Matrix:

Client Sample ID: WA-7M

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	09/20/19 09:10	MS	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/12/19 21:03		SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/23/19 16:52	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	< 0.11	0.11	mg/l	1	09/24/19 13:48	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	09/24/19 13:48	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/11/19 22:51	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/23/19 10:37	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	47.0	10	mg/l	1	09/17/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/17/19 10:44	RC	SM2540 D-11
Total Organic Carbon	4.6	1.0	mg/l	1	09/27/19 22:21	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

⁽b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Report of Analysis

Date Sampled: 09/11/19 **Date Received:** 09/11/19 AQ - Surface Water

Percent Solids: n/a

Project: Philadelphia District, Reservoir Sampling

JC94821-13

General Chemistry

Lab Sample ID:

Matrix:

Client Sample ID: WA-7D

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO3 ^a	< 10	10	mg/l	1	09/20/19 09:10	MS	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/12/19 21:05	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/23/19 16:53	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate b	< 0.11	0.11	mg/l	1	09/24/19 13:49	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	< 0.10	0.10	mg/l	1	09/24/19 13:49	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/11/19 22:51	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.30	0.20	mg/l	1	09/25/19 11:47	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	51.0	10	mg/l	1	09/17/19 18:02	RC	SM2540 C-11
Solids, Total Suspended	9.8	4.0	mg/l	1	09/17/19 16:40	RC	SM2540 D-11
Total Organic Carbon	4.3	1.0	mg/l	1	09/27/19 22:32	CD	SM5310 B-11

⁽a) Sample was titrated to a final pH of 4.2.

Page 1 of 1

⁽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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JC94821: Chain of Custody Page 1 of 5

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JC94821: Chain of Custody Page 2 of 5

On Ice

SGS Sample Receipt Summary

Job Number: JC94821 Client:		SACE-PHILADELPHIA DIS	TRICT Project: PHILA	Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL				
Date / Time Received: 9/11/2019 6:4	5:00 PM De	elivery Method: Accu	test Courier Airbill #'s:					
Cooler Temps (Raw Measured) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps (Corrected) °C: Cooler Temps	, ,	, ,	9); Cooler 4: (3.7); Cooler 5: (3.1); 8); Cooler 4: (3.6); Cooler 5: (3.0);					
Cooler Security 1. Custody Seals Present: 2. Custody Seals Intact: Cooler Temperature Y or N □ □ □ □ □ V or N □ □ □ □ □ V or N □ □ □ □ □ V or N □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	3. COC Prese 4. Smpl Dates/Ti		Sample Integrity - Documentatio 1. Sample labels present on bottles: 2. Container labeling complete: 3. Sample container label / COC agre					
Temp criteria achieved: Cooler temp verification:	Gun (Bag)		Sample Integrity - Condition 1. Sample recvd within HT: 2. All containers accounted for: 3. Condition of sample: Sample Integrity - Instructions 1. Analysis requested is clear: 2. Bottles received for unspecified te 3. Sufficient volume recvd for analysis	Y or N ✓ □ Intact Y or N N/A ✓ □ ✓ □ ✓ □ ✓ □ ✓ □ ✓ □ ✓ □ ✓				
4. VOCs headspace free:			4. Compositing instructions clear:5. Filtering instructions clear:					
Test Strip Lot #s: pH 1-12:	229517	pH 12+:	208717 Other: (S	pecify)				
Comments -7 TCF/FCF volume was not s	nt to Eurofins lab a	and was rec'd with samples to	SGS.					

SM089-02 Rev. Date 12/1/16

JC94821: Chain of Custody Page 3 of 5

SGS

-7 Cancel TCF/FCF as Euofins did not receive volumes.

JC94821: Chain of Custody Page 4 of 5

CHAIN OF CUSTODY

			JC94820
Page	1	of	 509482

303			GS North America Inc 2235 Route 130, Dayton, NJ	08810	FED-EX Tracking # Buttle Order Control U					
		TEL.	732-329-0200 FAX: 732-329 www.sgs.com/ehsusa		SGS Quete #	SGS JS	ib#			
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Street Address 100 Penn Sy EouST City State PA 19107 Project Contact E-mail	City	State	Billing Information (if different fro Company Name	m Report to)				WW - Water SW - Surface Water SO - Soil SL- Studge		
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7 WA-55		930	6508	X	X					
8 WA-US		750	1 G 300 2	<u> </u>	X					
11 WA-75		330	1 6 SW 2	<u> </u>	x					
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JC94821: Chain of Custody Page 5 of 5



Dayton, NJ 10/07/19

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: JC94821X

Sampling Date: 09/11/19



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

TNI 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.

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

SGS

Sections:

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Section 3: Misc. Forms	19
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Sample Summary

USACE-Philadelphia District

Job No: JC94821X

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

Sample Number	Collected Date	Time By	Received	Matri Code		Client Sample ID
JC94821-1F	09/11/19	09:05 GW	09/11/19	AQ	Surface Water	WA-1S
JC94821-1X	09/11/19	09:05 GW	09/11/19	AQ	Surface Water	WA-1S
JC94821-2F	09/11/19	07:10 GW	09/11/19	AQ	Surface Water	WA-2S
JC94821-2X	09/11/19	07:10 GW	09/11/19	AQ	Surface Water	WA-2S
JC94821-3F	09/11/19	07:10 GW	09/11/19	AQ	Surface Water	WA-2M
JC94821-3X	09/11/19	07:10 GW	09/11/19	AQ	Surface Water	WA-2M
JC94821-4F	09/11/19	07:10 GW	09/11/19	AQ	Surface Water	WA-2D
JC94821-4X	09/11/19	07:10 GW	09/11/19	AQ	Surface Water	WA-2D
JC94821-5F	09/11/19	10:00 GW	09/11/19	AQ	Surface Water	WA-3S
JC94821-5X	09/11/19	10:00 GW	09/11/19	AQ	Surface Water	WA-3S
JC94821-6F	09/11/19	09:45 GW	09/11/19	AQ	Surface Water	WA-4S
JC94821-6X	09/11/19	09:45 GW	09/11/19	AQ	Surface Water	WA-4S
JC94821-7F	09/11/19	09:30 GW	09/11/19	AQ	Surface Water	WA-5S



Sample Summary (continued)

USACE-Philadelphia District

Job No: JC94821X

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

Sample	Collected			Matr	ix	Client
Number	Date	Time By	Received			Sample ID
JC94821-7X	09/11/19	09:30 GW	09/11/19	AQ	Surface Water	WA-5S
JC94821-8F	09/11/19	07:50 GW	09/11/19	AQ	Surface Water	WA-6S
JC94821-8X	09/11/19	07:50 GW	09/11/19	AQ	Surface Water	WA-6S
JC94821-9F	09/11/19	07:50 GW	09/11/19	AQ	Surface Water	WA-6M
JC94821-9X	09/11/19	07:50 GW	09/11/19	AQ	Surface Water	WA-6M
JC94821-10F	09/11/19	07:50 GW	09/11/19	AQ	Surface Water	WA-6D
JC94821-10X	09/11/19	07:50 GW	09/11/19	AQ	Surface Water	WA-6D
JC94821-11F	09/11/19	08:30 GW	09/11/19	AQ	Surface Water	WA-7S
JC94821-11X	09/11/19	08:30 GW	09/11/19	AQ	Surface Water	WA-7S
JC94821-12F	09/11/19	08:30 GW	09/11/19	AQ	Surface Water	WA-7M
JC94821-12X	09/11/19	08:30 GW	09/11/19	AQ	Surface Water	WA-7M
JC94821-13F	09/11/19	08:30 GW	09/11/19	AQ	Surface Water	WA-7D
JC94821-13X	09/11/19	08:30 GW	09/11/19	AQ	Surface Water	WA-7D



Dayton, NJ

Section 2

Subcontract Lab Data
Report of Analysis



Certificate of Analysis

Laboratory No.: 9033114 **Report:** 09/23/19 **Lab Contact:** Amy L Morriss

Attention: Tammy McCloskey

Reported To: SGS North America

2235 US Highway 130 Dayton, NJ 08810 **Project:** Army Corp Reservoirs

Lab ID: 9033114-01

Sample Desc: WA-1S

Collected By: Client

Sampled: 09/11/19 09:05 **Received:** 09/18/19 10:15

Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	try							
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	0.02	mg/l	0.01	0.05	SM 4500-P E	09/19/19	J	JCL

Lab ID: 9033114-02 **Collected By:** Client **Sampled:** 09/11/19 07:10 **Received:** 09/18/19 10:15

Sample Desc: WA-2S 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	< 0.01	mg/l	0.01	0.05	SM 4500-P E	09/19/19	U	JCL	

Lab ID: 9033114-03 **Collected By:** Client **Sampled:** 09/11/19 07:10 **Received:** 09/18/19 10:15

Sample Desc: WA-2M 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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NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.

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

Page 1 of 13



Lab ID: 9033114-04 **Collected By:** Client **Sampled:** 09/11/19 07:10 **Received:** 09/18/19 10:15

Sample Desc: WA-2D Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	 t r y				,	•		•
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: 9033114-05 **Collected By:** Client **Sampled:** 09/11/19 10:00 **Received:** 09/18/19 10:15

Sample Desc: WA-3S 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: 9033114-06 **Collected By:** Client **Sampled:** 09/11/19 09:45 **Received:** 09/18/19 10:15

Sample Desc: WA-4S Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, J	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: 9033114-07 **Collected By:** Client **Sampled:** 09/11/19 09:30 **Received:** 09/18/19 10:15

Sample Desc: WA-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	< 0.01	mg/l	0.01	0.05	SM 4500-P E	09/19/19	U	JCL



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Lab ID: 9033114-08 **Collected By:** Client **Sampled:** 09/11/19 07:50 **Received:** 09/18/19 10:15

Sample Desc: WA-6S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	 t r y				,	•		,
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: 9033114-09 **Collected By:** Client **Sampled:** 09/11/19 07:50 **Received:** 09/18/19 10:15

Sample Desc: WA-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: 9033114-10 **Collected By:** Client **Sampled:** 09/11/19 07:50 **Received:** 09/18/19 10:15

Sample Desc: WA-6D Sample Type: Grab

				Rep.				
	Result	Unit	MDL	Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	ry							
Phosphorus as P, Dissolved	0.01	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:
 9033114-11
 Collected By:
 Client
 Sampled:
 09/11/19 08:30
 Received:
 09/18/19 10:15

Sample Desc: WA-7S Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	ry					•		•
Phosphorus as P, Dissolved	0.01	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: 9033114-12 **Collected By:** Client **Sampled:** 09/11/19 08:30 **Received:** 09/18/19 10:15

Sample Desc: WA-7M Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	 t r y				,	•		•
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	09/19/19	J	JCL

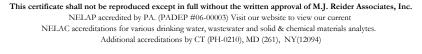
Lab ID: 9033114-13 **Collected By:** Client **Sampled:** 09/11/19 08:30 **Received:** 09/18/19 10:15

Sample Desc: WA-7D Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemist	try							
Phosphorus as P, Dissolved	0.01	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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Quality Control

General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9I1192								
MB (B9I1192-BLK1)				Prepared & Ana	alyzed: 09/19/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9I1192-BLK2)				Prepared & Ana	alyzed: 09/19/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
MB (B9I1192-BLK3)				Prepared & Ana	alyzed: 09/19/20	19		
Phosphorus as P, Total	< 0.05	0.05	mg/l					U
LFB (B9I1192-BS1)				Prepared & Ana	alyzed: 09/19/20	19		
Phosphorus as P, Total	1.02	0.05	mg/l	102	80-120			
LFM (B9I1192-MS1)		Source: 9033114-01		Prepared & Ana	alyzed: 09/19/20	19		
Phosphorus as P, Total	0.99	0.05	mg/l	97.4	80-120			
LFMD (B9I1192-MSD1)		Source: 9033114-01		Prepared & Ana	alyzed: 09/19/20	19		
Phosphorus as P, Total	0.98	0.05	mg/l	96.8	80-120	0.609	20	

Dissolved General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
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
9033114-01			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033114-02			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033114-03			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033114-04			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033114-05			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033114-06			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033114-07			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033114-08			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033114-09			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033114-10			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033114-11			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033114-12			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033114-13			
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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SGS North America Inc. - Dayton 2235 Route 130, Dayton, NJ 08810 TEL, 732-329-0200 FAX: 732-329-3499/3480

Requested Analysis FILTERGN,TPO4, ЕИСОВЕ МЕОН NONE NORE Billing Information (if different from Report to)
Company Name Matrix # of bottles HCI NaOH . 35°40. Ā Project Information Street Address Š 8;30:00 AM Philadelphia District, Reservoir Sampling State Time 9/11/19 Date Client Purchase Order # Project Manager MEORI/DI Vial # Client / Reporting Information Field ID / Point of Collection 7/olect Contact E-m tammy.mccloskey@sgs.com

State

Street Address

UW. Drinking Wester
OW. County Vasier
SW. County Vasier
SW. Surface Water
SO. Soll
SEL. Studge
SED-Sediment
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Matrix Codes

JC94821X

8GS Job#

LAB USE ONLY

Cooler Temp. 'C & http://www.sgs.com/en/terms-and-conditions Received By: Preserved where applicable Date / Time: Commercial '9" = Results + CIC Summay + Pargial Raw data

Commercial 'Commercial tact Not Intact Relinquished By: tustody Seal # Commercial "A" (Level 1)

Commercial "B" (Level 2)

FULLT1 (Level 3+4)

NJ Reduced

Commercial "C" Received By Maler Level V Approved By (SGS PM); / Date: Date / Time: Turnaround Time (Business days) | Standard 10 Business Days
| 6 Business Days RUSH
| 2 Business Days RUSH
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| 1 Business Days RUSH
| 1 Business Day EMPERENCY
| 3 Other Day EMPERENCY
| 3 Other Day EMPERENCY
| 4 Other Days Content of 102/2018 Retinquished by:

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SGS Sampte # 13F 13X

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8:30:00 AM

9/11/19

JC94821X.xls Rev. Date; 4/10/18

4112606

Date / Time: 9/17/2019 10:38:37 AM

CSR: TAMMY

JC94821X Job #:

Client Project: Philadelphia District, Reservoir Sampling

Deliverable: REDT2

TAT: Due 10/2/2019

Sub Eab: MJ Reider Associates Inc, Env. Testing Eaboratories

Address: 107 Angelica Street

City: Reading

Contact: Sample Receiving / Rich Wheeler

5129
-374-
610-
Phone:

Sample # Sa JC94821-1F	Sample Description				Sampled)ate	<u>a</u>	_
JC94821-1F	1	поп	Analysis	Location	By	Sampled	Sampled	Aliquot
	WA-18	10	FILTERGN, TPO4,	SUB.	GW	9/11/2019	9:05:00 AM	
JC94821-1X	WA-18		TP04,		<u>GW</u>	9/11/2019	9:05:00 AM	
JC94821-2F	WA-2S	ل ا	FILTERGN, TPO4,	SUB,	GW	9/11/2019	7:10:00 AM	
JC94821-2X	WA-28		TP04,		GW	9/11/2019	7:10:00 AM	
JC94821-3F	WA-2M	03	FILTERGN, TPO4,	SUB.	<u>GW</u>	9/11/2019	7:10:00 AM	
JC94821-3X	WA-ZM		TP04.		<u>GW</u>	9/11/2019	7:10:00 AM	
JC94821-4F	WA-2D	ho	FILTERGN, TPO4,	SUB	GW	9/11/2019	7:10:00 AM	
JC94821-4X	WA-2D		TP04		<u>GW</u>	9/11/2019	7:10:00 AM	
JC94821-5F	WA-3S	50	FILTERGN, TPO4,	SUB,	MS GW	9/11/2019	10:00:00 AM	
JC94821-5X	WA-3S		TP04.		GW	9/11/2019	10:00:00 AM	
JC94821-6F	WA-4S	90	FILTERGN, TPO4	SUB,	<u>GW</u>	9/11/2019	9:45:00 AM	
JC94821-6X	WA-4S		TP04,		GW	9/11/2019	9:45:00 AM	
JC94821-7F	WA-5S	10	FILTERGN, TPO4,	SUB.	GW G	9/11/2019	9:30:00 AM	
JC94821-7X	WA-5S		17.5 TPO4.		<u>GW</u>	9/11/2019	9:30:00 AM	e in the second
JC94821-8F	WA-6S	% 0	FILTERGN, TPO4, Mark S	SUB,	GW	9/11/2019	7:50:00 AM	
JC94821-8X	WA-6S		MARSON STATEMENT WAS SE	*	<u>RM</u>	9/11/2019	7:50:00 AM	•.
JC94821-9F	WA-6M	60	S SEELTERGN TPO4 , VASAV	SUBS	<u>@</u>	25.35 GW 3 3 9/11/2019	7:50:00 AM Page 11	e 11 of 13

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	JC94821-9X	JC94821-10F	JC94821-10X	JC94821-11F	JC94821-11X	JC94821-12F	JC94821-12X	JC94821-13F	JC94821-13X

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Comments:

Sample Management Receipt:

Date:

M.J. Reider Associates, Inc.

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 O (610) 374-5129 O fax (610) 374-7234

This certificate shall not be reproduced except in full without the written approval of M.J. Reider Associates, Inc.

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)

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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100 Penn Sq. East							GW - Ground Water
Phila PA 19107	White HAVEN	Billing Information (If different to a Company Name	from Report to)	OMS Reid Ammowia TKN	XXV03.0		WW - Water SW - Surface Water SO - Soil SL- Studge
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Turn Around Time (But	iness Days)	 	<u> </u>				
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10 Business Days		Commercial "B" (Level		DOD-QSM5	TCF/FC	F Samples	*
5 Business Days 3 Business Days*		NJ Reduced (Lovel 3)	MA MCP Criteria		8,000	- let	''
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1 Business Day*	26	Commercial "C"	State Forms				1
Other		□ NJ DKQP	ED0 Format		11404 3	amples to	- 1
All date available as totales Appro	vel needed for 1-3 Business Day YAT	Commercial	A" = Results only, Commercial "B" = Results at "C" = Results + OC Summary + Parial Rev	+ QC Summary	IN2 KO	der lab	ŀ
Reproductive by:	Sample Custody e	nust be documented below each to	ime samples change possession, inclu	ding courier delivery.	<u></u>	to://www.sas.com/en/terms	-and-conditions
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			<u>.</u>	5.1, 3.4,	3.7, 3.	7, 3.1, 3.4,	4.2

JC94821X: Chain of Custody Page 1 of 5

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303		GGS North America Inc Dayton 2235 Route 130, Dayton, NJ 08810 . 732-329-0200 FAX: 732-329-3499/3480	FEO-EX Tracking ≠	Bathe Order Corrugi st
	166	www.sgs.com/ehsusa	SGS Quote #	SGS Job# JC94821
Client / Reporting Information		ect Information	Requested	
Company Name:	Project Name:			
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Phone #	Client Purchase Order #	City State Zip	1 1 1 2 1	SOL - Other Solid WP - Wips FB - Field Blank
215 - 656 - 65 4 Sampler(s) Name(s) 610 - Phor	ne # Project Manager	Attention:		EB-Equipment Blank
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sas sample # Field ID / Point of Collection	MEOH/DI Vizi # Date Time	Sempled Greb 15) Torsic Day Berning Greb 15) Meltris: Bottlios DY HORY TORSIC BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING BERNING	FROY (GUE) ROD, TDS TOC, TSS.	LAB USE ONLY
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12F WA-7M	7/11/19 083		XXXX	
3F WA-7D	9/11/19/083	olog sw 9 x x	XXXX	
Turn Around Time (Business Days)	Deliverable		Comments / Special Instructions
10 Business Days	Approved By (SGS PM): / Date:	Commercial "A" (Lavel 1) NYASP Category A Commercial "B" (Level 2) NYASP Category B	DOD-QSMS TCF/	FCF samples to fins lab. samples to Relder lab
5 Business Days	The second second second	NJ Reduced (Lovel 3) MA MCP Criteria	Euro	fos lab
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2 Business Days"		Commercial "C" State Forms	TONK	samples To
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JC94821X: Chain of Custody Page 2 of 5

TPo4 samples To MZ Reider lab http://www.sgs.com/en/terms-end-conditio

On Ice

SGS Sample Receipt Summary

Job Number: JC94	4821 Client:	USACE-PHILADELPH	IIA DISTRICT	Project: PHILADELPHIA D	ISTRICT, RESERVOIR SAMPL
Date / Time Received: 9/11	/2019 6:45:00 PM	Delivery Method:	Accutest Courier	Airbill #'s:	
Cooler Temps (Raw Measure Cooler Temps (Correcte	,			7); Cooler 5: (3.1); Cooler 6: (3); Cooler 5: (3.0); Cooler 6: (
Cooler Security 1. Custody Seals Present: 2. Custody Seals Intact: Cooler Temperature			Sample labels Container labe	y - Documentation present on bottles: ling complete: ner label / COC agree:	<u>Y</u> or N ✓ □ ✓ □ ✓ □
Temp criteria achieved: Cooler temp verification: Cooler media: No. Coolers:	IR Gun Ice (Bag) 7		Sample Integri 1. Sample recvd v 2. All containers a 3. Condition of sa	within HT: accounted for:	Y or N V Intact
Quality Control Preservation 1. Trip Blank present / cooler: 2. Trip Blank listed on COC: 3. Samples preserved properly: 4. VOCs headspace free:			Analysis reque Bottles receive Sufficient volu	ed for unspecified tests me recvd for analysis: nstructions clear:	Y or N N/A
Test Strip Lot #s: ph	H 1-12: 229517	pH 12+	-: <u>208717</u>	Other: (Specify)	
Comments -7 TCF/FCF volume	was not sent to Eurofins la	ab and was rec'd with sar	nples to SGS.		

SM089-02 Rev. Date 12/1/16

JC94821X: Chain of Custody Page 3 of 5 -7 Cancel TCF/FCF as Euofins did not receive volumes.

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JC94821X: Chain of Custody Page 4 of 5

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CHAIN OF CUSTODY

Faro Sins CHAIN OF CUSTODY RECTORDS	0 6.0
CHAIN OF CUSTODY SGS North America Inc Dayton Page of SC O	4821
2235 Route 130, Dayton, NJ 08810	1
TEL. 732-329-0200 FAX: 732-329-3499/3480 SSS Outle # SSS 155 # www.sgs.com/ehsusa	1
Client / Reporting Information Project Information C Requested Analysis Main's Codes	1
Company Norma: Project Norma:	1
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JC94821X: Chain of Custody Page 5 of 5



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: JC94821XA

Sampling Date: 09/11/19



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: 18

TNI FABORATORA

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 how we can serve you better at:

SGS

Sections:

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-1-

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3.1: Chain of Custody	14



Sample Summary

USACE-Philadelphia District

Job No: JC94821XA

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

Sample Number	Collected Date	Time By	Received	Matr Code		Client Sample ID
JC94821-1XA	09/11/19	09:05 GW	09/11/19	AQ	Surface Water	WA-1S
JC94821-2XA	09/11/19	07:10 GW	09/11/19	AQ	Surface Water	WA-2S
JC94821-5XA	09/11/19	10:00 GW	09/11/19	AQ	Surface Water	WA-3S
JC94821-6XA	09/11/19	09:45 GW	09/11/19	AQ	Surface Water	WA-4S
JC94821-8XA	09/11/19	07:50 GW	09/11/19	AQ	Surface Water	WA-6S
JC94821-11X	A09/11/19	08:30 GW	09/11/19	AQ	Surface Water	WA-7S



Dayton, NJ

Section 2

Subcontract Lab Data	
Report of Analysis	



Analytical Report

Serialized: 09/16/2019 11:07am 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:

L7160946

Authorized by: Douglas J. Gump Client Services Manager

DarJU

Analytical Report Printed 09/16/19 11:06 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		C.	P.O. No:		Inv. No: PWSID No:	1991795 PI			
Sample ID L7160946-1	Sample Description WA-1S Received Date/Tin	n e/Temp 09/1	1/19 05:50pm 4.8 C	Iced (Y/N): Y		ate/Time/Temp 09:05am NA C	Sampled by Customer			
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst			
ENVIRONM	MENTAL MICROBIOL	OGY WA-	18							
Total Coliform Fecal Coliform		>20000 Q >600 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 10	100 10	09/11/19 07:10PM KC2 09/11/19 10:21PM KC2			
Sample ID L7160946-2	Sample Description WA-2S Received Date/Tin	n e/Temp 09/1	1/19 05:50pm 4.8 C	Iced (Y/N): Y		ate/Time/Temp 07:10am NA C	Sampled by Customer			
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst			
ENVIRONM	MENTAL MICROBIOL	OGY WA-	2S							
Total Coliform	,	709 Q 22 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	09/11/19 06:53PM KC2 09/11/19 10:21PM KC2			

Analytical Report Printed 09/16/19 11:06

	W09769, SGS NORTH W09769 USACE, USAC			P.O. No:		Inv. No: PWSID No:	1991795 PI
Sample ID L7160946-3	Sample Description WA-3S Received Date/Tim	ne/Temp 09/11/1	9 05:50pm 4.8 (C Iced (Y/N): Y		ate/Time/Temp 10:00am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	ENTAL MICROBIOL	OGY WA-3S					
Total Coliform Fecal Coliform		7100 Q 20 Q	cfu/100r cfu/100r		1 100	100 1	09/11/19 07:10PM KC2 09/11/19 10:21PM KC2
Sample ID L7160946-4	Sample Description WA-4S Received Date/Tim	ne/Temp 09/11/1	9 05:50pm 4.8 (C Iced (Y/N): Y		ate/Time/Temp 09:45am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	ENTAL MICROBIOL	OGY WA-4S					
Total Coliform Fecal Coliform		10000 E, Q 26 Q	cfu/100r cfu/100r		1 100	100 1	09/11/19 07:10PM KC2 09/11/19 10:21PM KC2
Sample ID L7160946-6	Sample Description WA-6S Received Date/Tim	ne/Temp 09/11/1	9 05:50pm 4.8 (C Iced (Y/N): Y		ate/Time/Temp 07:50am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONM	ENTAL MICROBIOL	OGY WA-6S					
Total Coliform Fecal Coliform	,	510 Q <1 Q	cfu/100r cfu/100r		10 100	10 1	09/11/19 07:10PM KC2 09/11/19 10:21PM KC2
Sample ID L7160946-7	Sample Description WA-7S Received Date/Tim	ne/Temp 09/11/1	9 05:50pm 4.8 (C Iced (Y/N): Y		ate/Time/Temp 08:30am NA C	Sampled by Customer
Parameter		Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst

Analytical Report Printed 09/16/19 11:07

Account No: W09769, SGS NORTH Project No: W09769 USACE, USA) .	P.O. No:		Inv. No: PWSID No:	1991795 PI
Sample ID Sample Description L7160946-7 WA-7S Received Date/Ti		1/19 05:50pm 4.8 C	Iced (Y/N): Y		ate/Time/Temp 08:30am NA C	Sampled by Customer
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIO	LOGY WA-7	s				
Total Coliform, MF Fecal Coliform, MF	670 Q 18 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	09/11/19 07:10PM KC2 09/11/19 10:21PM KC2
Sample ID Sample Description L7160946-8 PR-1S Received Date/Ti		1/19 05:50pm 4.8 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
ENVIRONMENTAL MICROBIO	LOGY PR-18	S				
Total Coliform, MF Fecal Coliform, MF	>2000 22 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	10 100	10 1	09/11/19 06:53PM KC2 09/11/19 10:21PM KC2
Sample ID Sample Description L7160946-9 PR-2S Received Date/Ti		1/19 05:50pm 4.8 C	Iced (Y/N): Y		ate/Time/Temp 01:15pm NA C	Sampled by Customer
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIO	LOGY PR-29	3				
Total Coliform, MF Fecal Coliform, MF	4200 13 Q	cfu/100ml cfu/100ml	SM 9222B SM 9222D	1 100	100 1	09/11/19 06:53PM KC2 09/11/19 10:21PM KC2
Sample ID Sample Description L7160946-10 PR-3S Received Date/Ti		1/19 05:50pm 4.8 C	Iced (Y/N): Y		ate/Time/Temp 12:40pm NA C	Sampled by Customer
Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst

Analytical Report

Printed 09/16/19 11:07

 Account No:
 W09769, SGS NORTH AMERICA, INC.
 P.O. No:
 Inv. No:
 1991795 PI

 Project No:
 W09769 USACE, USACE
 PWSID No:

Sample ID Sample Description Samp. Date/Time/Temp Sampled by

L7160946-10 PR-3S 09/11/19 12:40pm NA C Customer Received Date/Time/Temp 09/11/19 05:50pm 4.8 C lced (Y/N): Y

Parameter Result Qual Units Method DF RL Test Date, Time, Analyst

ENVIRONMENTAL MICROBIOLOGY -- PR-3S

Total Coliform, MF 5700 cfu/100ml SM 9222B 1 100 09/11/19 06:53PM KC2 Fecal Coliform, MF <1 Q cfu/100ml SM 9222D 100 1 09/11/19 10:21PM KC2

 Sample ID
 Sample Description
 Samp. Date/Time/Temp
 Sampled by

 L7160946-11
 PR-4S
 09/11/19 11:30am NA C
 Customer

Received Date/Time/Temp 09/11/19 05:50pm 4.8 C Iced (Y/N): Y

Parameter Result **Qual Units** Method DF RL Test Date, Time, Analyst **ENVIRONMENTAL MICROBIOLOGY -- PR-4S** Total Coliform, MF 41000 cfu/100ml SM 9222B 1000 09/11/19 06:53PM KC2 .1 09/11/19 10:21PM KC2 Fecal Coliform, MF 5 Q cfu/100ml SM 9222D 100

Sample Comments | Result Qualifiers:

L7160946-1:

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

L7160946-2:

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

L7160946-3:

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

L7160946-4:

- 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.

L7160946-6:

Analytical Report Printed 09/16/19 11:07

Account No: W09769, SGS NORTH AMERICA, INC. P.O. No: Inv. No: 1991795 PI

Project No: W09769 USACE, USACE

PWSID No:

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

L7160946-7:

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

L7160946-8:

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

L7160946-9:

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

L7160946-10:

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

L7160946-11:

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





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:	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					

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			Matrix Codes	DW - Drinking Water GW - Ground Water	WW - Water SW - Surface Weter	SC - Solidge SED-Sediment	UQ - Other Liquid	WP - Wpe FB - Field Blank	EB-Equipment Blank RB - Rinse Blank TB - Trip Blank		LAB USE ONLY					- 107# (S				O M PERMINA			al Instructions	1 1 1 1	(3:10)		-8-		http://www.sqs.com/en/terms-and-conditions	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	P	Coalor Temp .C	7.000	1-12 0 0 0 0 1 1-18	
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- CUSTODY	SGS North America Inc Dayton 2235 Route 130, Dayton, NJ 08810	9-0200 FAX: 732-329-3499/ www.sgs.com/ehsusa		-FE.W	tion (If different from Repor	Company Name					Matrix	Sio,	GiS)	०ड	€ 000	3	SW 3	30	50 3		So B	SW &		Commercial "A" (Level 1)	Commercial "B" (Lovel 2)	NJ Roduced (Lovel 3)	Commercial "C"	NJ DKQP	Commercial "A" = Results ont Commercial "C" = Results	documented balow each time samp	Rolln	Country		Q.	
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Dayton, NJ

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

Ctlent / Reporting Information	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.con/elbsusa	FED-EX Tracking σ SGS Ounde #	Page 1 of 2-
Company Name:	Project Information		JC94821
USACE - Phila District	USACE RESERVIRS - F. E. Walter	Requested A	nalysis Matrix Codes DW - Drinking Weter
100 Penn Sq. East Phila PA 19107	Bulling Information (if different from Report to) City State Company Name	o Ms Reid Ammowia TKN XA2030	GW - Ground Water WW - Water SW - Surface Water
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215-656-6545 Sembler(s) Name(s) 60 Phone # Greg Wacik 597-9780	Protect Marrager TEINMY McCluskey	4 (1) (2)	FB - Fletd Blank EB-Equipment Blank RB - Rinse Blank
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	commercial "A" = Results only, Commercial "B" = Results	+ QC Summary MT PC	samples to
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JC94821XA: Chain of Custody Page 1 of 5

328	CHAIN OF CUSTODY
	SCS North America Inc. Douten

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COMME			TEL. 732-329-0200 FAX: 732-329-3499/3480									SGS Quote #						SGS JOD# 509				1811				
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Phone # 215 - 656 - 65 45 Sampler(s) Name(s) 610 - Phone 4 Greg (Mac) K 5979780		45			Attention:							3	۲	TOS	SS								WP - Wipe FB - Field Slank EB-Equipment Slank			
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SGS Sample #	Field ID / Point of Collection	MEOH/DI VIzi #	Date	Time		Grab (G) Comp (C)	Matrix	# of bottles	모	HOH	HWO,	PKOPEE CH Whoter	MEOH	ENCORE	TP04 (sub	AIKalimM	BoD	Tac								LAB USE ONLY
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JC94821XA: Chain of Custody Page 2 of 5

Page <u>2</u> of <u>2</u>

SGS Sample Receipt Summary

Job Number: JC94821 Client:	USACE-PHILADELPHIA DIS	STRICT PHIL	ADELPHIA DISTRICT, RESERVOIR SAMPL
Date / Time Received: 9/11/2019 6:45:00 PM	Delivery Method: Acc	utest Courier Airbill #'s:	
Cooler Temps (Raw Measured) °C: Cooler 1: (5.1); Cooler Temps (Corrected) °C: Cooler 1: (5.0);	, ,		
Cooler Security 1. Custody Seals Present: 2. Custody Seals Intact: Cooler Temperature 1. Temp criteria achieved: 2. Cooler temp verification: 3. Cooler media: 4. No. Coolers: Cuality Control Preservation 1. Trip Blank present / cooler: 2. Trip Blank listed on COC: 3. Samples preserved properly: 4. VOCs headspace free: Cooler Temperature Y or N N/A Y or N N/A Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Cooler N Coo		Sample Integrity - Documentation 1. Sample labels present on bottless 2. Container labeling completes 3. Sample container label / COC ag Sample Integrity - Condition 1. Sample recvd within HT: 2. All containers accounted for: 3. Condition of sample: Sample Integrity - Instructions 1. Analysis requested is clear: 2. Bottles received for unspecified of the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the sample in the samp	
Test Strip Lot #s: pH 1-12:229517 Comments -7 TCF/FCF volume was not sent to Eurofins I:	pH 12+:	208717 Other: (Specify)

SM089-02 Rev. Date 12/1/16

JC94821XA: Chain of Custody Page 3 of 5 -7 Cancel TCF/FCF as Euofins did not receive volumes.

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JC94821XA: Chain of Custody Page 4 of 5 EaroSins

JOR LORDER

215-656-6545

Field ID / Point of Collection

WA-18

WA-25

WA-35

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WA-75

PR-25

PR- 45

10 Business Days 5 Business Days 3 Business Days 2 Business Days

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Other
All data avallable via Lablia

PR-15 JO94820-

(0 WA-45

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Client / Reporting Information

USACE-Phila District

19107

Sampler(e) Name(s) (0/0 - Phona # Project Manager Greg (Daci K 597-9780 Tammy McCloskey

White Haven

Approved By (SGS PM): / Date:

Approval needed for 1-3 Business Day TAT

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Commercial "A" (Level 1)

Commercial *A (Lovel 2)

Commercial *B" (Lovel 2)

NJ Reduced (Lovel 3)

Full Tier I (Level 4)

Commercial *C"

NJ DKQP

CHAIN

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	GS North America Inc Dayton 2235 Route 130, Dayton, NJ 08810	FED-EX Tracking #	Potitie Order Connol si						
TEL	. 732-329-0200 FAX: 732-329-3499/3480 www.sgs.com/ehsusa	SGS Quete #							
. Proje	act Information	Requested A	fatrix Codes						
	BILLING INFORMATION (If different from Report to)	Carifor	GW	- Drinking Water /- Ground Water WW - Water - Surface Water SO - Soil					
State Haven PA	Company Name Straet Address	Tolal		SL-Studge SL-Studge SED-Sadiment OI-OI Q-Other Liquid					
ent Purchaso Order#	City State Zip Attention:	and	FE E8-E	DL - Other Solid WP - Wipe B - Field Blank Equipment Blank 3 - Rinso Blank					
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Deliverable NYASP Category A

NYASP Category B
MA MCP Criteria
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State Forms

EDD Format

Commercial "A" = Results only; Commercial "B" = Results + QC Summary

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