

**2019 WATER QUALITY MONITORING
BLUE MARSH RESERVOIR
LEESPORT, PENNSYLVANIA**



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

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**2019 Water Quality Monitoring
Blue Marsh Reservoir
Leesport, Pennsylvania**

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1.0 INTRODUCTION

1.1 PURPOSE OF THE MONITORING PROGRAM

The U.S. Army Corps of Engineers (USACE) manages Blue Marsh Reservoir located in east-central Pennsylvania on the Tulpehocken Creek, which is within the Delaware River Basin. Blue Marsh Reservoir provides flood control and a dependable water supply to downstream communities west of Reading, PA. Additionally, the reservoir provides important habitat for fish, waterfowl, and other wildlife, and recreational opportunities through fishing, boating, and swimming. Due to the broad range of uses and demands that Blue Marsh Reservoir serves, the USACE monitors water quality, and other aspects related to ecological health, primarily to ensure public health safety. Results from water quality monitoring are compared to state and federal water quality standards and used to diagnose other problems that commonly affect reservoir health such as low dissolved oxygen, nutrient enrichment and toxic loadings. This report summarizes the results of water quality monitoring at Blue Marsh Reservoir in 2019.

1.2 DESCRIPTION OF BLUE MARSH RESERVOIR

Blue Marsh Reservoir was designed to provide flood control, a water supply, and enhanced water quality to downstream communities along Tulpehocken Creek. Located about six miles northwest of Reading, Pennsylvania near Route 183, the reservoir dams a drainage area of 175 square miles. The dam, completed in 1979, can impound up to 42.3 billion gallons of water. The primary surface water inputs into Blue Marsh Reservoir other than Tulpehocken Creek include Wolf, Northkill, and Little Northkill Creek from the northwest; Spring Creek from the west; and Licking Creek from the northeast. The reservoir is approximately 6 miles long and is 52 feet deep immediately above the dam near Lower Heidelberg during normal summer pool.

1.3 ELEMENTS OF THE MONITORING

The USACE, Philadelphia District, has been monitoring the water quality of Blue Marsh Reservoir since 1979. Over this time, the yearly monitoring designs have evolved to address new concerns such as health of public drinking water and contamination of reservoir bottom sediments. The 2019 monitoring program follows that in most recent years and includes the following major elements:

- Monthly water quality and bacteria monitoring of reservoir and upstream sources to evaluate compliance with Pennsylvania state water quality standards and to evaluate the health of the reservoir ecosystem starting on 25 June and ending on 10 September 2019;
- Monthly profile samples for temperature, dissolved oxygen, chlorophyll, pH, turbidity, and conductivity at all stations in the reservoir and watershed;
- Twice weekly coliform bacteria monitoring at three beach stations - to ensure public health and safety at the Blue Marsh Reservoir swimming beach area; and
- Weekly and as needed algae samples at the Blue Marsh Reservoir swimming beach and other locations in the reservoir where algal blooms were observed from July through September.

2.0 METHODS

2.1 PHYSICAL STRATIFICATION MONITORING

Physical stratification monitoring of the water column was conducted monthly at Blue Marsh Reservoir from June through September 2019 (Table 2-1). Stratification parameters included temperature, dissolved oxygen (DO), pH, Chlorophyll a, turbidity, and conductivity. Monitoring was conducted at nine fixed stations located throughout the reservoir watershed (Fig. 2-1). Six stations were located within the reservoir body (BM-2, BM-6, BM-7, BM-8, BM-9, and BM-10) for which water quality was measured from surface to bottom at 5-ft depth intervals. Three stations (BM-1S, BM-5S, and BM-11S) were monitored for surface water quality only. All water quality parameters were measured with a calibrated YSI 6600 V2-4 water quality probe. For this report, all of the stratification monitoring results, when applicable, were summarized and compared to water quality standards established by the Pennsylvania Department of Environmental Protection (PADEP – Chapter 93 Water Quality Standards).

2.2 WATER COLUMN CHEMISTRY MONITORING

Water column chemistry monitoring was conducted five times at Blue Marsh Reservoir during the 2019 sampling season (Table 2-1). Water samples were collected at nine fixed stations in the reservoir watershed (Fig. 2-1). Surface water samples were collected at stations downstream of the reservoir (BM-1S), and upstream of the reservoir on Tulpehocken Creek (BM-5S) and Northkill Creek (BM-11S). Surface, middle, and bottom water samples were collected at the six stations within the reservoir (BM-2, BM-6, BM-7, BM-8, BM-9, and BM-10). Surface water samples were collected by opening sample containers approximately one foot below the surface of the water. Middle and bottom water samples were collected with a Van Dorn design horizontal water bottle sampler. Laboratory water sample analysis was conducted by M.J. Reider Associates, Inc Environmental Testing Laboratory located in Reading, Pennsylvania (U.S. EPA/PA DEP #06-00003) and SGS North America Inc. laboratory located in Dayton, New Jersey (DoD ELAP (ANAB L2248)).

Water samples from all depths were analyzed for ammonia, nitrite, nitrate, total Kjeldahl nitrogen, total phosphorus, soluble phosphorus, total dissolved solids, total suspended solids, biochemical oxygen demand, alkalinity, and total organic carbon. Table 2-2 summarizes the laboratory methods detection limits, state water quality standards, and sample holding times for each water quality parameter monitored.

Table 2-1. Water quality monitoring schedule of Blue Marsh Reservoir during 2019. Monitoring was conducted at 9 fixed stations located throughout the reservoir watershed.					
Date of Sample Collection	Physical Stratification Monitoring (all stations)	Water Column Chemistry Monitoring (all stations)	Trophic State Assessment (BM-6)	(1) Coliform Bacteria Monitoring (all stations)	(2) Algae Grab Samples (Observed Blooms)
25 June	X	X	X	X	
16 July	X	X	X	X	X
30 July	X	X	X	X	X
20 August	X	X	X	X	X
10 September	X	X	X	X	

(1) Surface water bacteria samples only
 (2) Algae samples were collected from observed algal blooms within the lake and swimming beach areas as needed.

2.3 TROPIC STATE DETERMINATION

The trophic state of Blue Marsh Reservoir was determined by methods outlined by Carlson (1977) and EPA (1983). In general, these methods calculated trophic state indices (TSIs) independently for measures of total phosphorus, chlorophyll *a*, and secchi disk depth. Surface water measures of total phosphorus and chlorophyll *a* from chemistry monitoring were averaged in the calculation of monthly TSIs (Table 2-1). Secchi disk depth was measured at station BM-6.

2.4 RESERVOIR COLIFORM BACTERIA MONITORING

Monitoring for coliform bacteria contaminants within the watershed was conducted monthly at Blue Marsh Reservoir. Water samples were analyzed for total and fecal coliforms. Surface water samples were tested at all stations. Table 2-3 presents the test methods, detection limits, PADEP water quality standards, and sample holding times for the bacteria parameters monitored at Blue Marsh Reservoir in 2019. The bacteria analytical method was based on a membrane filtration technique. All of the samples were analyzed within their respective maximum allowable hold times.

Table 2-2. Water quality test methods, detection limits, state regulatory criteria, and sample holding times for water quality parameters monitored at Blue Marsh 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 CaCO ₃	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 (nitrate + nitrite)	28
Nitrite	SM4500NO2 B-11	0.01 mg/L		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



Figure 2-1. Blue Marsh Reservoir and the location of the 9 fixed stations monitored for water quality during 2019

Table 2 3. Water quality test methods, detection limits, PADEP standards, and sample holding times for bacteria parameters monitored at Blue Marsh Reservoir in 2019.

Parameter	Total Coliform	Fecal Coliform	E-coli
Test method	SM 9223 B	SM 9222 D	SM 9222 D
Limit of Quantification	1 clns/100-mls	1 clns/100-mls	1 clns/100-mls
EPA/PADEP standard	None	Geometric mean < 200 clns/100-mls or a single sample reading of < 1000 clns/100-mls	Geometric mean 126 organisms/ 100 ml or a single sample 235 organisms/ 100 ml
Maximum allowable holding time	30 hours	30 hours	30 hours
Achieved holding time	< 30 hours	< 30 hours	< 30 hours

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

2.5 SWIMMING BEACH MONITORING

Bacteria monitoring was conducted on a twice weekly routine near the public swimming beach at the Dry Brooks day use area (Table 2-4) of Blue Marsh Reservoir to gauge compliance with Pennsylvania Department of Health and United States Environmental Protection Agency bathing beach water quality standards. These standards are in place to ensure public safety for this water contact recreation. Three stations (SB-1, SB-2, and SB-3) were monitored in the swimming beach area for total coliform and Escherichia coli (Figure 2-2). The coliform bacteria samples were collected and analyzed by the same methods used for monthly coliform bacteria sampling. The bacteria monitoring for Blue Marsh Swimming Beach follows a multi-step program of conditional monitoring and increased sampling frequency. Each step or “condition” of monitoring responds to incremental increases of coliform contamination, and reflected the risk to public health at the swimming beach area and the appropriate response for public safety to include beach closure.

Table 2-3. Sampling dates for coliform bacteria monitoring at the Blue Marsh Reservoir swimming beach during 2019

Week 1	13 and 16 May	Week 9	08 and 11 July
Week 2	20, 22, 23 and 24 May	Week 10	15 and 18 July
Week 3	28, 30 and 31 May	Week 11	22 and 25 July
Week 4	03 and 06 June	Week 12	29 July and 01 and 02 August
Week 5	10 and 13 June	Week 13	05 and 08 August
Week 6	17, 20 and 21 June	Week 14	12 and 15 August
Week 7	24, 25, 26 and 27 June	Week 15	19 and 22 August
Week 8	01 and 03 July	Week 16	26 and 29 August

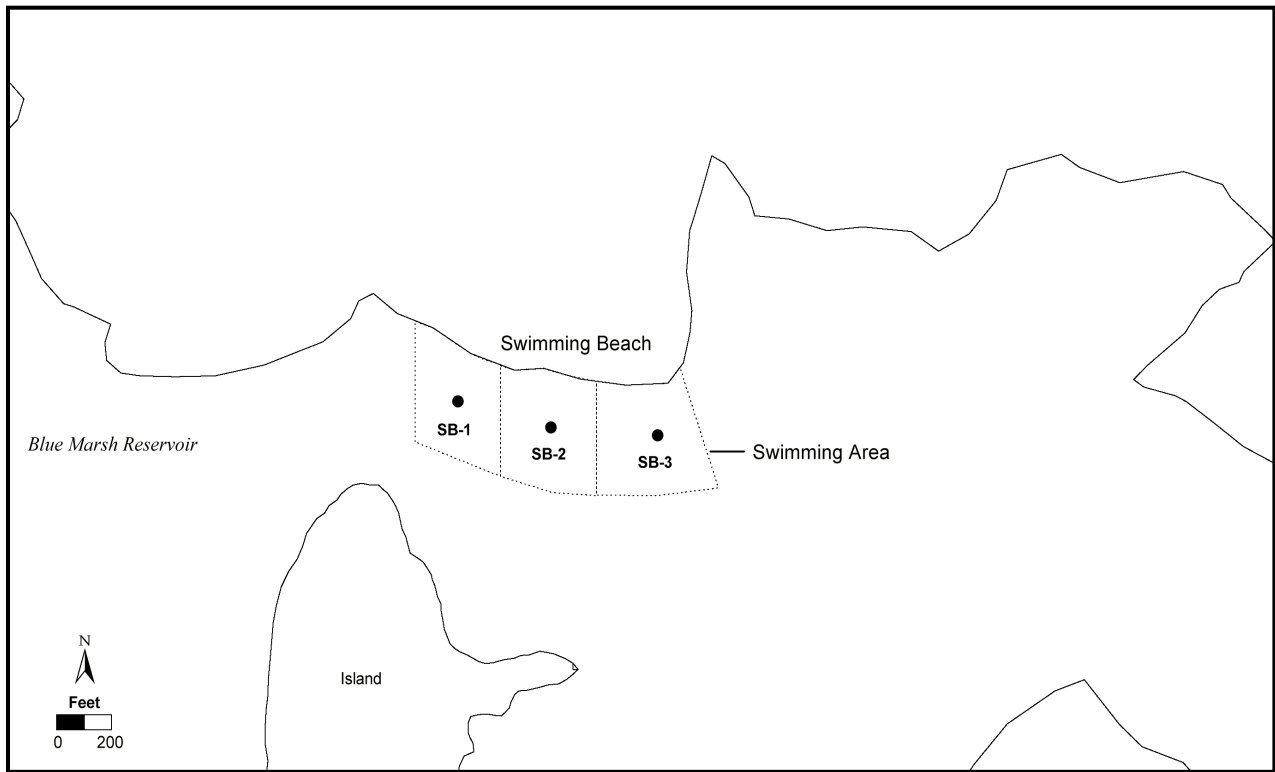


Figure 2-2. Swimming beach bacteriological monitoring stations at Blue Marsh Reservoir in 2019

2.6 LAKE ALGAE MONITORING

Algal blooms have been an historic issue at Blue Marsh Reservoir as the watershed is approximately 75% agriculture based usage. In 2019, heavy rains and warm air temperatures early in the season created conditions within Blue Marsh Reservoir that favored the development of algae blooms. High density blooms were observed in many locations throughout the reservoir. In cooperation with the Pennsylvania Department of Environmental Protection and Department of Health, an immediate response and monitoring plan was developed. Stakeholders and the public were notified of the risks of potential harmful toxic algae and the risks associated with contact recreation within the lake.

Sampling kits provided by the Pennsylvania Department of Environmental Protection were used to collect samples from the swimming beach area of Blue Marsh Reservoir and from high density algal blooms throughout the lake when they were observed. This sampling was conducted from July through September of 2019. Samples were collected each week and provided to the Pennsylvania Department of Environmental Protection for processing and analysis utilizing approved collection and analysis methodologies. Algae sample analysis included species identification, population density estimates and toxin production levels. Sample analysis was conducted at the Pennsylvania Department of Environmental Protection Bureau of Laboratories in Harrisburg, Pennsylvania and by Green Water Laboratories in Florida. No federal or Pennsylvania recreational waters and human contact criteria for cyanobacteria have been established to date. Lab analysis results were therefore compared to the Environmental Protection Agencies *Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin EPA 822-F-19-00*.

3.0 RESULTS AND DISCUSSION

3.1 STRATIFICATION MONITORING

The following sections summarize the results of water quality monitoring for physical and chemical parameters: temperature, dissolved oxygen, and pH. Seasonal and spatial patterns of surface water quality measured throughout the reservoir watershed, and seasonal and depth related patterns of the stratified water column based on measures from the deepest portion of the reservoir (station BM-6 or the “Tower”) are described. It is appropriate to focus discussion on tributary source waters influencing reservoir water quality and lake stratification at station BM-6 as water quality problems related to depth are generally most severe in deep water habitats. Corps personnel collected the physical/chemical water quality data discussed herein over the monitoring period from June through September 2019, the most biologically productive time of the year for the reservoir. All of the parameters were measured with a calibrated YSI 6600 V2-4 water quality probe and are presented in Appendix A.

3.1.1 Temperature

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

Surface water temperature seasonal patterns upstream of the reservoir at stations BM-5S and BM-11S closely resembled each other throughout the sampling season (Fig. 3-1). Maximum surface water temperatures at station BM-5S was 21.25°C in August and 22.99°C at station BM-11S in August. The maximum surface water temperature downstream of the reservoir at station BM-1S was 22.35°C in August with a minimum of 19.48°C in late June. Downstream temperatures are influenced through selective withdrawals at the Blue Marsh Dam. Annually the Corps performs selective withdrawal releases in an attempt to maintain temperatures downstream in the Tulpehocken Creek of less than 20°C in support of the trout fishery. The ability to meet this objective is dependent on meteorological conditions and other physical and operational limitations. The temperature objective was exceeded in 2019 from July through September.

Blue Marsh Reservoir was stratified with respect to temperature during 2019. The stratification pattern was most apparent at station BM-6 or the “Tower” station located in the deepest part of the reservoir (Fig. 3-2). The presence of temperature stratification was evident in June sampling with temperatures from surface (25.60°C) to bottom (17.63°C) differing by 7.97°C. The deeper and cooler temperature (<20°C) water was available for selective withdrawal to attempt to meet downstream temperature objectives until early July. Stratification peaked in late July and a noticeable shift to deeper warmer water temperatures was evident throughout the

summer. An erosion of the epilimnion was seen in September as the lake began the process of de-stratifying.

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.

Surface waters upstream of the reservoir at tributary stations BM-5S and BM-11S had similar seasonal DO patterns throughout the sampling season (Fig. 3-3). The maximum DO concentration of 9.68 mg/L was recorded in June at station BM-11S with a minimum recorded value of 7.51 mg/L in August at Station BM-11S. The maximum surface water DO concentration downstream of the dam at station BM-1S was 9.78 mg/L recorded in June with a minimum of 6.79 mg/L recorded in September.

Seasonal stratification and chemical and biological processes at Blue Marsh Reservoir dramatically influenced the distribution of DO in the water column during 2019 (Fig. 3-4). Stratification was apparent from late June through September at station BM-6, as DO concentrations decreased with depth with the exception of early July. Historically, the lower oxygen levels deeper in the lake progressively move up the water column to within approximately 15-feet of the surface in mid- to late August. In most years the surface waters remain oxygenated as a result of surface algal productivity and surface water wind mixing. In 2019, the DO pattern in the deeper water column was as pronounced as previous years. In late July sampling, only the top 0-5 feet of the reservoir was oxygenated at Station BM-6. The low DO conditions can be detrimental to water quality and aquatic life. Dissolved oxygen concentrations in the upper water column of Blue Marsh Reservoir were not in compliance with PADEP water quality standards during the 2019 sampling season during the July and August sampling. The Pennsylvania water quality standard for DO is a minimum concentration of 5 mg/L within the epilimnion of stratified lakes.

The health of aquatic ecosystems can be impaired by low DO concentrations in the water column. 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. In all months sampled during 2019, the water column of Blue Marsh was affected by hypoxia (Fig. 3-4). Hypoxic water occupied most of the water column in late July through August. Hypoxia in the lower water column is a symptom of eutrophication. Nutrients in the water column feed explosive algal growth at the surface photic zone. Dead and decaying algae sink to lower levels of the water column and during the process of decay; oxygen is removed from the water.

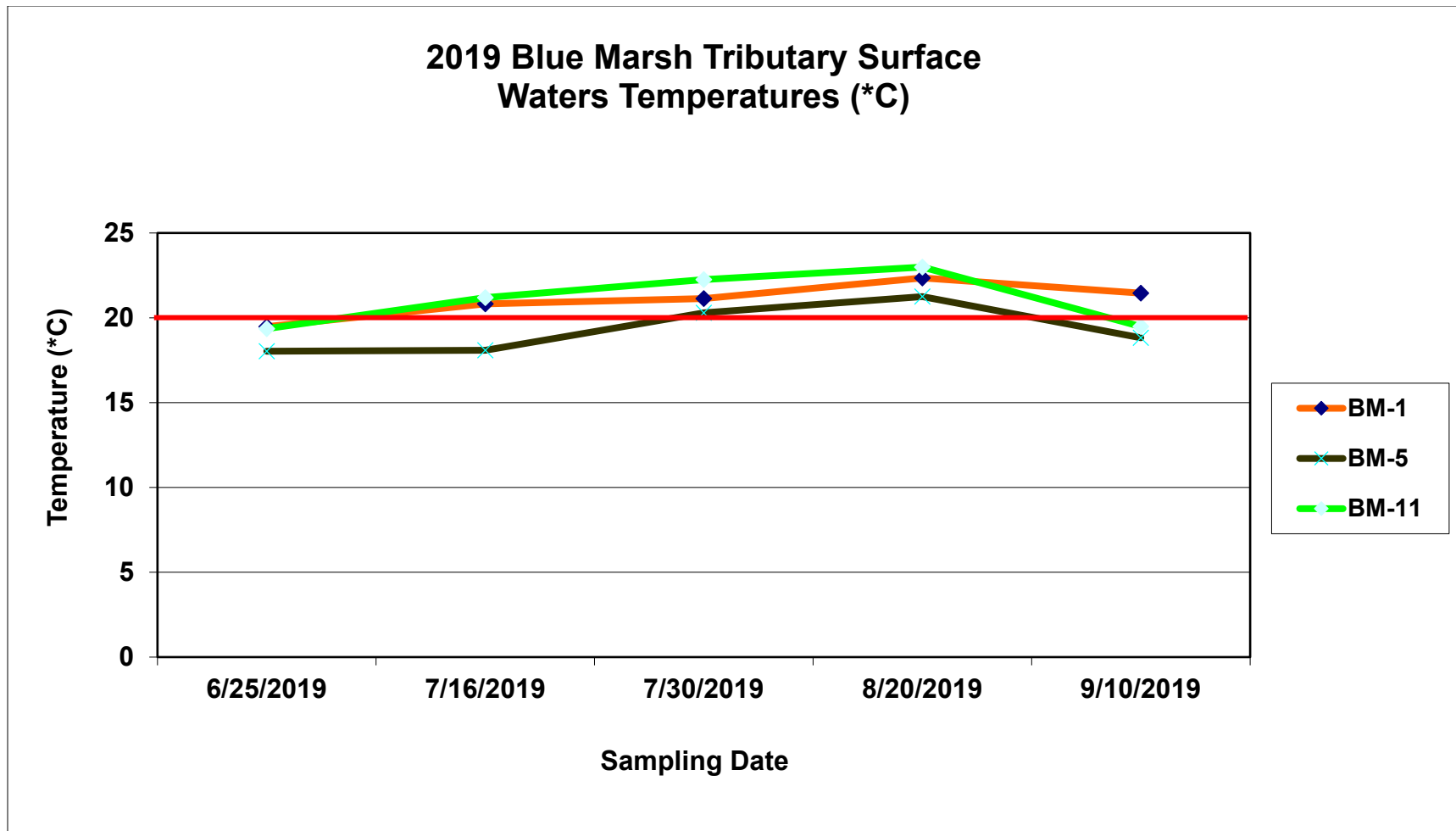


Figure 3-1. Tributary and downstream surface water temperatures (°C) measured at Blue Marsh Reservoir in 2019. Station BM-1S is located downstream of the reservoir. See Appendix A for summary of plotted values. The cold-water species preference temperature of 20°C is shown as a red line reference.

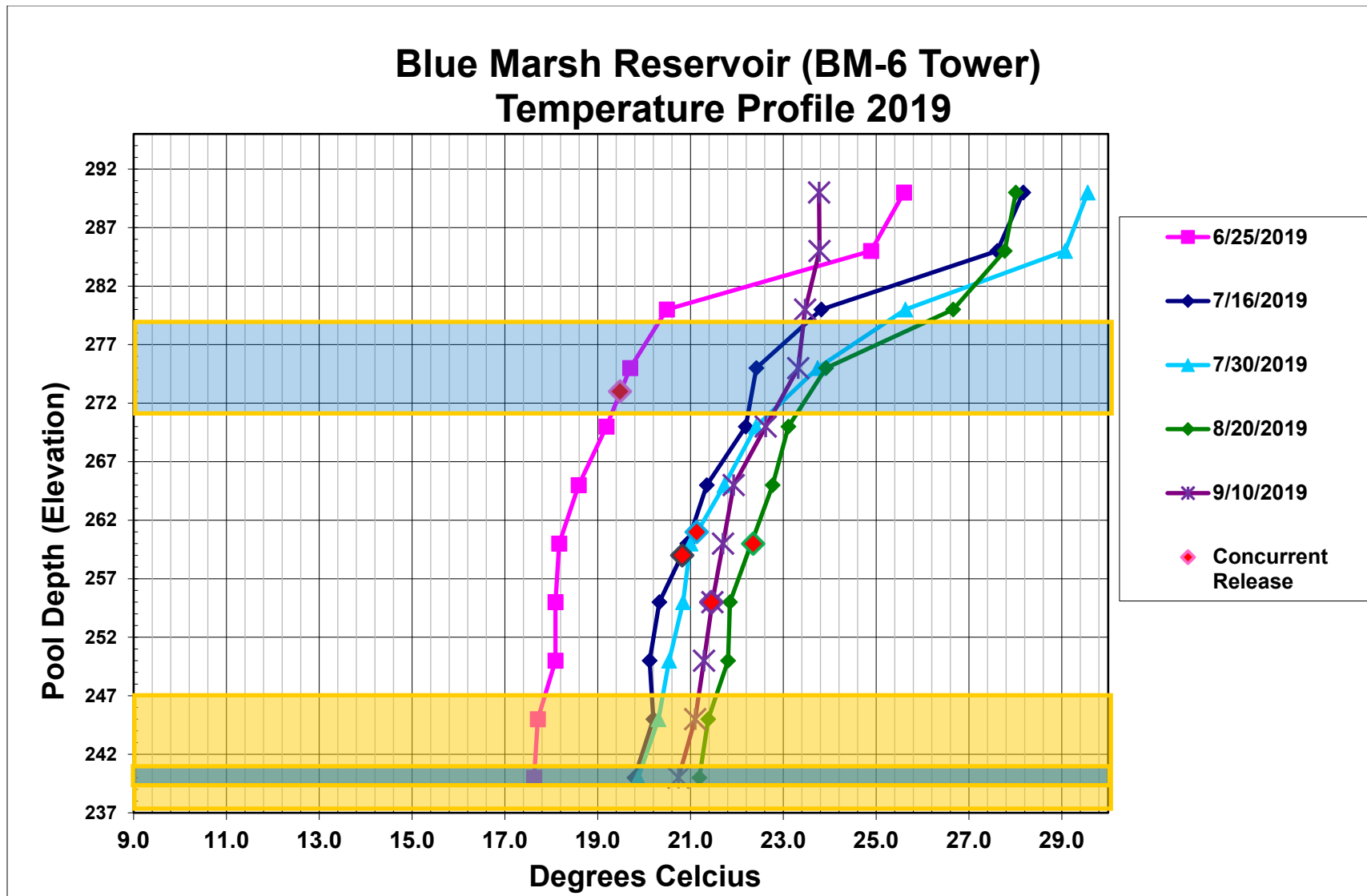


Figure 3-2. Temperature stratification and release portal elevations at station BM-6 of Blue Marsh Reservoir in 2019. See Appendix A for summary of plotted values.

3.1.3 pH

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

Measures of pH in the surface waters at Blue Marsh Reservoirs upstream and downstream sampling stations followed a similar pattern during 2019 (Fig. 3-5). In the months sampled, no pH measures violated the PADEP water quality standard maximum and minimum pH level of 9.0 and 6.0, respectively. For the entire monitoring period and at all surface water stream stations, pH ranged from 7.53 to 8.22.

The pH profile in the water column of Blue Marsh Reservoir was consistent with a stratified lake during 2019 (Fig. 3-6). Throughout the monitoring period the upper 0-10 feet of the water column had consistently higher pH measures than the deeper waters. During the sampling season, pH at the surface to a depth of approximately 10 feet ranged between 7.60 and 9.53. In contrast, measures of pH in the lower water column (>10 feet deep) were consistently lower during the monitoring period and ranged between 7.56 and 7.33. The higher pH in surface waters (euphotic zone) of the reservoir is a result of excessive algal blooms. As a function of increased productivity during photosynthesis, algae remove CO₂ from the water column. Dissolved CO₂ is slightly acidic; its reduction in the water column manifests an increase in pH. In 2019, this increased surface water productivity resulted in water samples at Blue Marsh Reservoir station BM-6 being slightly higher in pH than deeper waters. Lake surface waters violated the PADEP water quality standard maximum pH level of 9.0 during June through July.

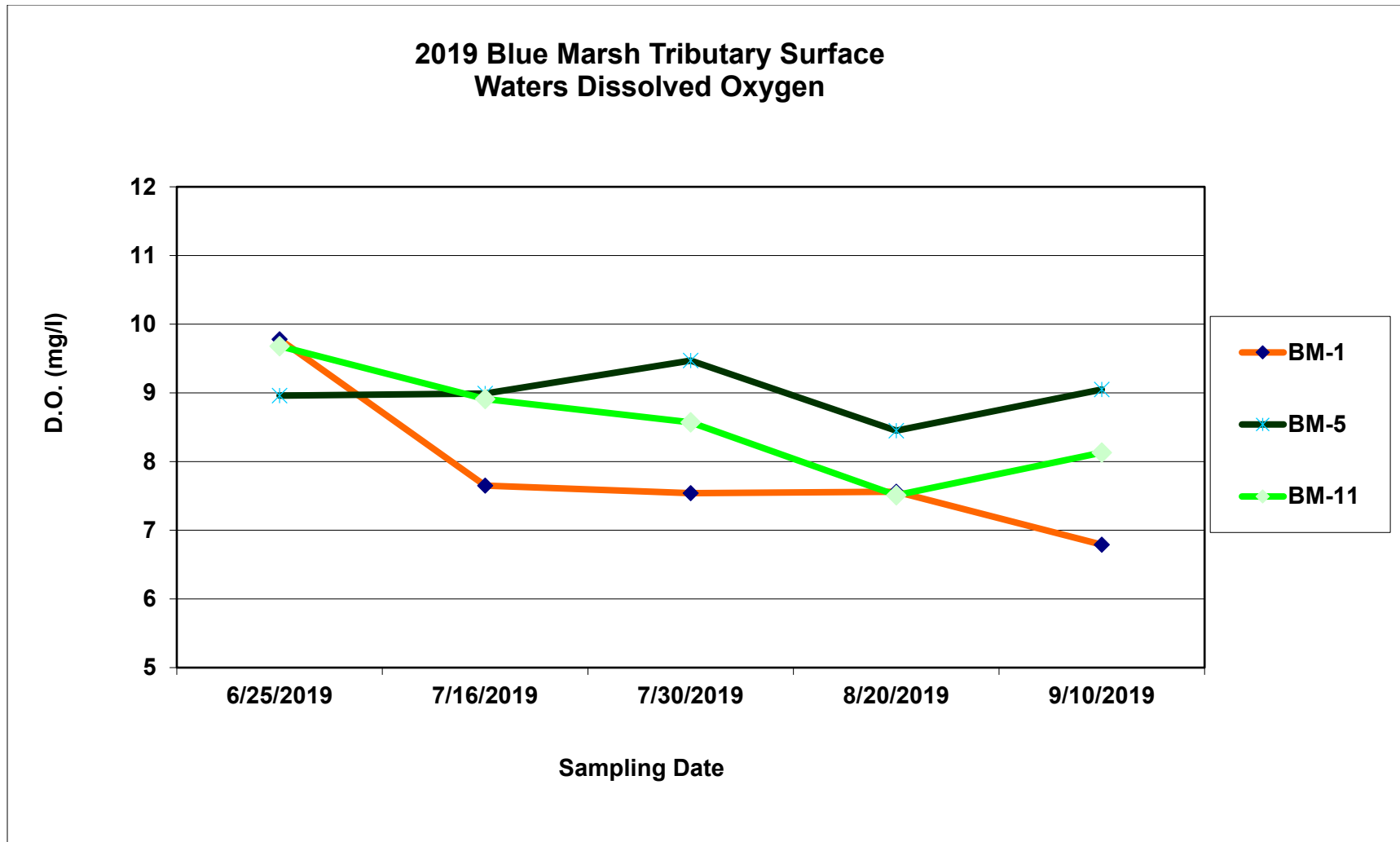


Figure 3-3. Tributary and outflow surface water dissolved oxygen concentrations measured at Blue Marsh Reservoir in 2019. (The PADEP water quality standard for DO is a minimum concentration of 5 mg/L.) See Appendix A for summary of plotted values.

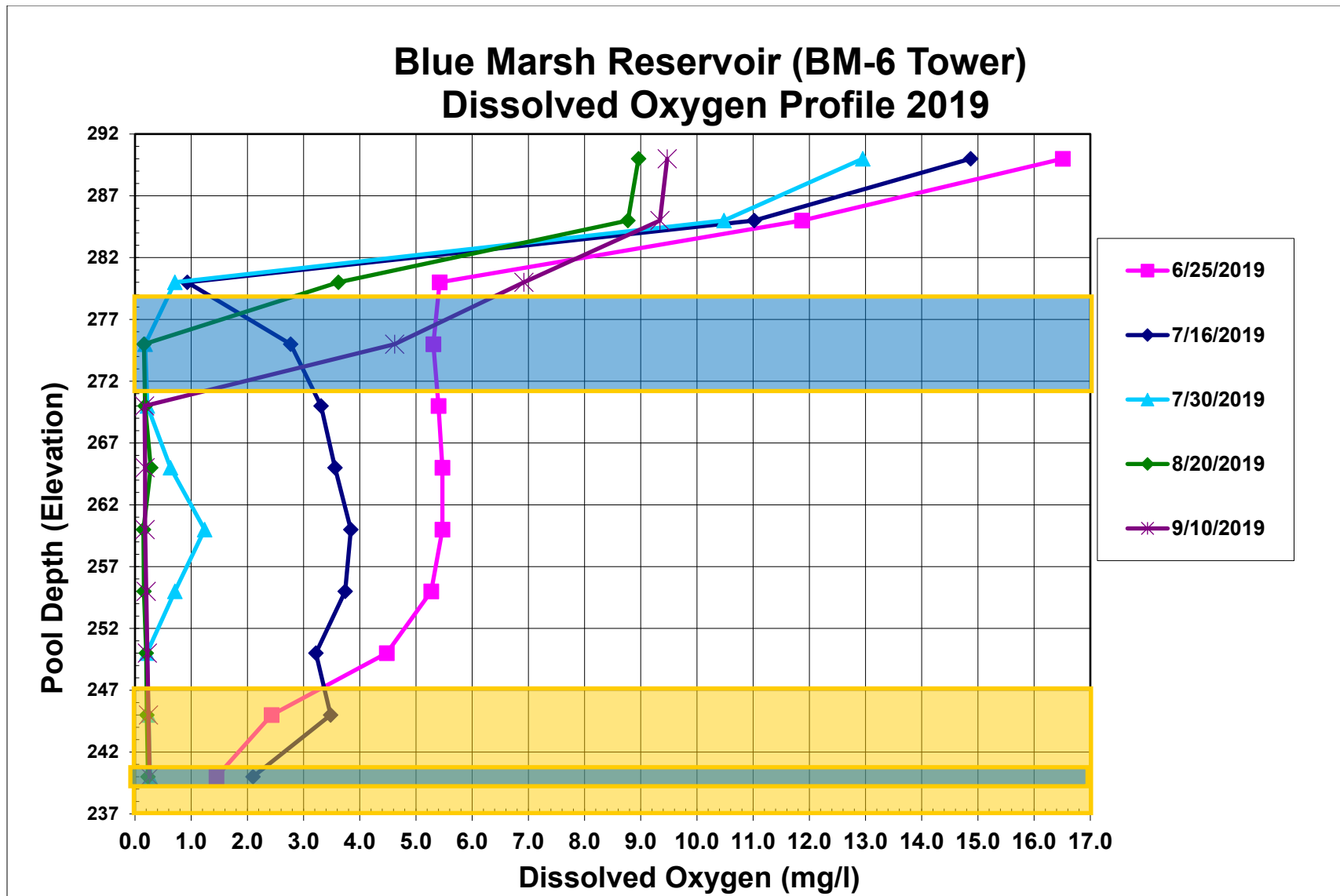


Figure 3-4. Release portal elevations and dissolved oxygen stratification at station BM-6 of Blue Marsh Reservoir in 2019. (PADEP water quality standard for DO is a minimum concentration of 5 mg/L.) See Appendix A for summary of plotted values.

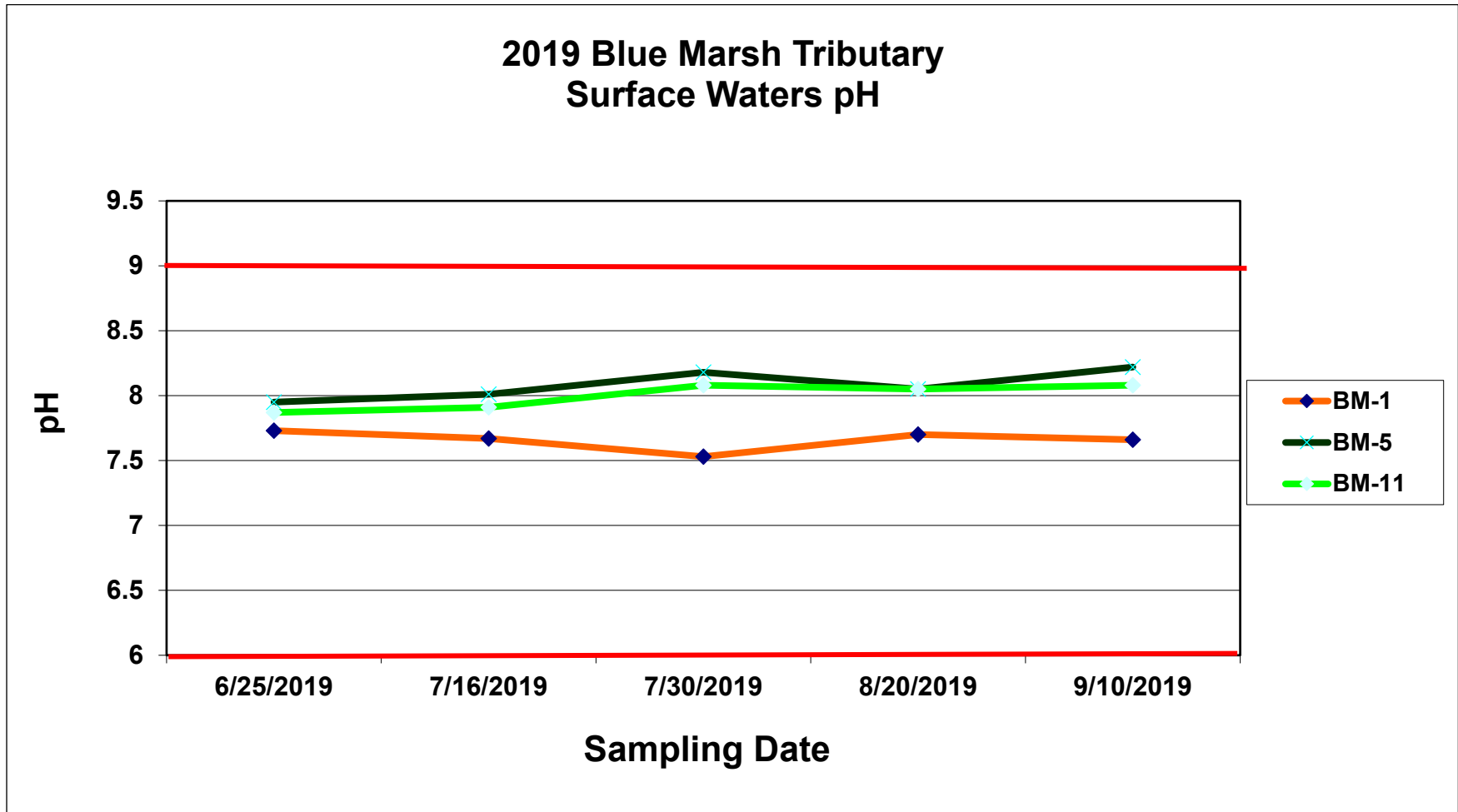


Figure 3-5. Tributary and outflow surface water pH measured at Blue Marsh Reservoir in 2019. (The PADEP water quality standard for pH is a range from 6 to 9.) See Appendix A for summary of plotted values.

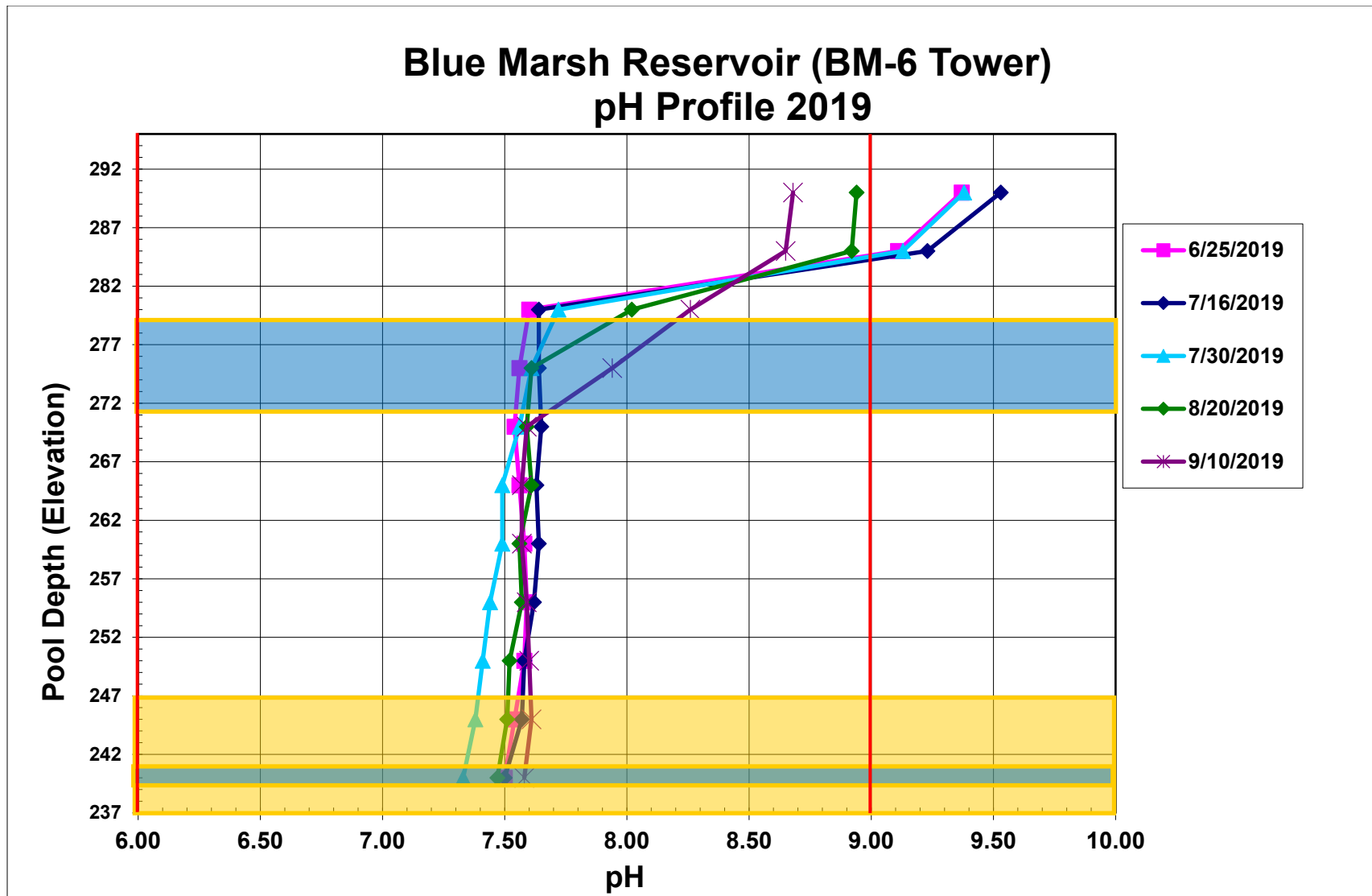


Figure 3-6. Release portal elevations and stratification of pH at station BM-6 of Blue Marsh Reservoir in 2019. (The PADEP water quality standard for pH is a range from 6 to 9.) See Appendix A for summary of plotted values.

3.2 WATER COLUMN CHEMISTRY MONITORING

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

3.2.1 Ammonia

Total Ammonia (NH₃) is a measure of the most reduced inorganic form of nitrogen in water and includes dissolved ammonia and the ammonium ion. Ammonia is a small component of the nitrogen cycle but as an essential plant nutrient, it contributes to the trophic status of a water body. 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.

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

Ammonia concentrations were low in Blue Marsh Reservoir during 2019 (Table 3-2). Concentrations measured for 30 samples did exceed the laboratory minimum reporting limit of 0.20 mg/L. These samples were collected primarily at bottom water sampling locations within the reservoir body. The maximum single recorded sample of 1.4 mg/L was collected from station BM-6B on 20 August. Concentrations of ammonia measured at Blue Marsh Reservoir were in compliance with the PADEP and EPA water quality standards during 2019.

Table 3.1 Environmental Protection Agency Ammonia Freshwater Criteria 2013	
2013 Final Aquatic Life Criteria for Ammonia (Magnitude, Frequency, and Duration) (mg TAN/L) pH 7.0, T=20°C	
Acute (1-hour average)	17
Chronic (30-day rolling average)	1.9*
*Not to exceed 2.5 times the CCC as a 4-day 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 once in three years on average.	

Table 3-2. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2019													
Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
BM-01S	6/25/2019	110	<33	0.03	<0.20	0.04	3.9	NS	216	0.80	2.3	0.08	11.0
	7/16/2019	135	<10	0.07	<0.20	0.04	4.0	NS	221	0.65	2.9	0.08	5.7
	7/30/2019	156	<5.0	0.04	0.21	0.10	4.0	NS	223	0.69	3.3	0.05	<4.0
	8/20/2019	144	8.5	0.02	0.27	0.24	3.6	NS	232	0.71	2.6	0.04	<4.0
	9/10/2019	150	5.1	0.02	0.32	0.25	3.3	NS	231	0.66	2.2	0.04	<4.0
BM-02S	6/25/2019	80.5	<3.3	0.04	0.20	0.05	2.4	NS	165	2.8	3.5	0.08	19.0
	7/16/2019	74	<14	0.04	<0.20	0.03	1.9	NS	156	1.4	21.8	0.04	12.5
	7/30/2019	75	<5.0	0.01	<0.20	0.03	1.9	NS	132	1.5	4.5	0.02	10.9
	8/20/2019	85.5	3.7	0.02	<0.20	0.11	2.1	NS	161	1.1	4.0	0.02	4.7
	9/10/2019	100	1.1	0.01	<0.20	0.12	2.2	NS	184	0.5	2.7	0.02	4.9

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2019														
Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS	
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
BM-02M	6/25/2019	90	<33	0.11	0.24	0.03	4.0	NS	165	0.69	2.4	0.12	7.8	
	7/16/2019	140	<10	0.10	0.27	0.04	4.0	NS	209	0.69	2.6	0.12	12	
	7/30/2019	165	<5.0	0.02	0.30	0.06	4.1	NS	235	0.84	2.7	0.02	<4.0	
	8/20/2019	131	6.1	<0.007	<0.20	0.26	3.1	NS	206	0.55	2.3	0.02	<4.0	
	9/10/2019	105	2.6	0.01	<0.20	0.11	2.6	NS	183	0.48	2.5	0.03	4.6	
BM-02B	6/25/2019	114	<33	0.06	<0.20	0.04	5.3	NS	226	0.48	1.7	0.10	21.9	
	7/16/2019	160	<10	0.08	0.52	0.04	4.2	NS	233	3.10	2.0	3.01	224	
	7/30/2019	165	<5.0	0.05	0.33	0.10	4.1	NS	232	0.91	2.6	0.05	4.1	
	8/20/2019	164	8.2	0.03	0.46	0.19	3.8	NS	236	0.84	2.6	0.81	72.4	
	9/10/2019	150	4.3	0.05	0.52	0.05	3.4	NS	236	0.98	2.8	0.07	12.2	

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2019

Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS	
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	
BM-05S	6/25/2019	179	<33	0.07	<0.20	0.02	6.6	NS	304	0.35	1.8	0.18	40.3	
	7/16/2019	243	<10	0.05	<0.20	<0.01	7.4	NS	346	<0.20	1.0	0.07	6.6	
	7/30/2019	240	<5.0	0.04	<0.20	0.01	7.6	NS	315	0.34	1.7	0.04	<4.0	
	8/20/2019	203	2.7	0.06	<0.20	0.02	7.1	NS	312	0.47	2.3	0.06	4.6	
	9/10/2019	210	3.2	0.05	<0.20	<0.01	7.9	NS	332	0.94	2.1	0.05	46	
BM-06S	6/25/2019	75	<33	0.09	<0.20	0.08	2.3	NS	164	1.40	11.1	0.32	21.4	
	7/16/2019	70	<10	0.03	<0.20	<0.01	2.0	NS	149	1.20	3.1	0.03	11.8	
	7/30/2019	111	<5.0	0.02	<0.20	0.03	1.8	NS	126	0.69	3.7	0.02	10	
	8/20/2019	86	4.6	0.01	<0.20	0.13	2.1	NS	146	0.70	3.9	<0.01	4.9	
	9/10/2019	105	2.2	0.01	<0.20	0.10	2.3	NS	194	0.38	3.5	0.02	4.8	

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2019													
Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
BM-06M	6/25/2019	95	<33	0.10	0.21	0.04	3.6	NS	174	0.47	2.5	0.11	9.3
	7/16/2019	118	<10	0.05	0.25	0.04	3.5	NS	208	0.59	2.6	0.07	5.6
	7/30/2019	135	<5.0	0.01	<0.20	0.32	3.9	NS	205	0.55	2.4	<0.01	<4.0
	8/20/2019	135	8.2	0.02	<0.20	0.27	3.4	NS	208	0.58	2.3	0.02	<4.0
	9/10/2019	110	1.4	<0.007	<0.20	0.13	2.4	NS	188	0.48	3.3	<0.01	4.0
BM-06B	6/25/2019	118	<33	0.07	<0.20	0.05	4.2	NS	220	0.70	2.2	0.09	9.4
	7/16/2019	166	<10	0.08	0.60	0.10	3.9	NS	255	0.99	2.2	0.09	38.5
	7/30/2019	196	<5.0	0.06	1.2	0.12	2.9	NS	241	1.7	2.4	0.08	8.2
	8/20/2019	177	13.0	0.04	1.4	0.15	3.0	NS	252	1.8	2.9	0.11	9.3
	9/10/2019	130	6.5	<0.007	0.26	0.21	3.3	NS	254	0.37	2.5	<0.01	<4.0

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2019

Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
BM-07S	6/25/2019	92	<33	0.06	<0.20	0.06	2.2	NS	171	3.7	4.2	0.07	25.1
	7/16/2019	80	<20	0.02	<0.20	0.04	1.9	NS	159	1.7	3.5	0.03	16.2
	7/30/2019	62	5.3	0.02	<0.20	0.02	1.9	NS	134	1.1	4.0	0.07	9.8
	8/20/2019	88	4.9	0.01	<0.20	0.09	2.1	NS	164	0.69	3.5	0.02	5.9
	9/10/2019	115	1.0	<0.007	<0.20	0.13	2.3	NS	193	<0.20	3.0	<0.01	5.0
BM-07M	6/25/2019	90	<33	0.05	<0.20	0.02	4.3	NS	174	0.72	2.4	0.10	16
	7/16/2019	130	<10	0.10	0.24	0.02	3.7	NS	206	0.68	2.4	0.12	8.5
	7/30/2019	115	<5.0	0.02	0.21	0.03	3.4	NS	175	0.69	2.6	0.03	<4.0
	8/20/2019	113	6.0	0.02	<0.20	0.31	3.1	NS	198	0.49	2.5	0.02	<4.0
	9/10/2019	115	2.5	0.01	<0.20	0.12	2.3	NS	175	0.49	3.0	0.01	5.0

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2019													
Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
BM-07B	6/25/2019	110	<33	0.07	<0.20	0.03	4.4	NS	186	0.65	2.1	0.08	9.9
	7/16/2019	208	<10	0.08	0.34	0.02	5.6	NS	246	1.1	1.6	0.40	94.6
	7/30/2019	153	<5.0	0.03	0.34	0.04	4.5	NS	224	0.34	2.3	0.03	8.7
	8/20/2019	178	7.8	0.04	0.67	0.16	3.4	NS	252	1.1	2.6	0.09	48.3
	9/10/2019	129	2.3	0.002	0.22	0.09	3.5	NS	242	0.71	2.6	0.05	20
BM-08S	6/25/2019	79	<33	0.04	<0.20	0.04	2.2	NS	140	1.6	3.2	0.06	13.1
	7/16/2019	73	<20	0.03	<0.20	0.03	1.7	NS	151	0.82	3.1	0.03	13.5
	7/30/2019	70	<5.0	0.02	<0.20	0.03	1.8	NS	117	0.72	4.3	0.02	8.9
	8/20/2019	89.5	4.9	0.02	<0.20	0.07	1.9	NS	155	0.67	4.1	0.04	5.2
	9/10/2019	145	1.8	0.008	<0.20	0.10	2.2	NS	186	<0.20	3.2	<0.01	5.9

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2019													
Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
BM-08M	6/25/2019	80	<33	0.02	<0.20	0.02	3.3	NS	173	0.48	1.9	0.03	8.2
	7/16/2019	93	<10	0.03	<0.20	0.02	2.8	NS	168	0.65	2.5	0.03	7.9
	7/30/2019	84	<5.0	0.02	<0.20	0.03	2.2	NS	130	0.98	3.3	0.04	11.6
	8/20/2019	109	3.0	0.01	0.22	0.05	2.5	NS	176	0.77	3.0	0.04	7.0
	9/10/2019	110	1.6	<0.007	<0.20	0.07	2.3	NS	167	<0.20	3.2	0.02	4.3
BM-08B	6/25/2019	81	<33	0.03	<0.20	0.02	3.6	NS	172	0.42	1.6	0.04	10.2
	7/16/2019	130	<10	0.06	0.42	0.02	2.9	NS	206	1.2	2.1	0.11	125
	7/30/2019	115	<5.0	0.04	1.0	0.05	2.5	NS	219	3.6	5.0	0.68	138
	8/20/2019	101	4.4	0.02	0.48	0.05	2.1	NS	182	0.75	2.8	0.13	27.8
	9/10/2019	121	2.1	0.01	<0.20	0.06	2.6	NS	189	0.97	3.0	0.18	57.6

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2019													
Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
BM-09S	6/25/2019	85	<100	0.10	<0.20	0.06	2.2	NS	174	5.5	4.4	0.12	30.8
	7/16/2019	80	<20	0.03	<0.20	0.03	1.8	NS	148	0.99	3.4	0.04	14.9
	7/30/2019	77	6.1	0.02	<0.20	0.03	1.9	NS	139	1.1	4.3	0.02	7.0
	8/20/2019	85	5.9	0.02	<0.20	0.07	2.0	NS	141	0.86	3.7	0.04	7.7
	9/10/2019	120	2.3	<0.007	<0.20	0.11	2.2	NS	186	0.46	3.2	<0.01	5.5
BM-09M	6/25/2019	100	<33	0.06	<0.20	<0.01	4.1	NS	176	0.40	2.4	0.07	8.2
	7/16/2019	125	<20	0.04	<0.20	0.02	3.7	NS	209	0.81	2.3	0.07	8.9
	7/30/2019	115	<5.0	0.01	<0.20	0.03	3.6	NS	193	0.42	2.5	0.03	4.1
	8/20/2019	151	5.5	0.05	0.25	0.20	4.1	NS	236	0.55	2.4	0.05	9.8
	9/10/2019	110	1.5	0.01	<0.20	0.06	2.5	NS	188	<0.20	3.0	0.02	4.2

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2019													
Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
BM-09B	6/25/2019	135	<33	0.04	<0.20	0.03	6.0	NS	227	0.53	1.2	0.06	76.3
	7/16/2019	210	<27	0.05	<0.20	<0.01	5.9	NS	323	0.85	1.3	0.16	61.3
	7/30/2019	140	<5.0	0.02	0.32	0.05	4.8	NS	278	0.84	2.1	0.07	37.6
	8/20/2019	181	3.3	0.07	0.61	0.06	4.1	NS	270	0.94	2.4	0.11	74.4
	9/10/2019	160	2.7	0.05	<0.20	0.04	4.6	NS	255	0.52	2.3	0.10	60
BM-10S	6/25/2019	83	<33	0.02	<0.20	0.06	2.3	NS	170	1.9	7.9	0.20	51.6
	7/16/2019	80	<68	0.08	<0.20	0.08	1.4	NS	171	3.5	5.1	0.10	34
	7/30/2019	79	<5.0	<0.007	<0.20	0.03	1.8	NS	124	1.1	3.5	0.05	10.8
	8/20/2019	84	4.3	0.03	<0.20	0.07	2.0	NS	149	0.71	3.7	0.03	7.2
	9/10/2019	130	3.3	0.02	<0.20	0.07	2.5	NS	183	0.51	3.3	0.02	6.3

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2019													
Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
BM-10M	6/25/2019	115	<33	0.04	<0.20	0.04	5.5	NS	223	0.72	1.7	0.11	31.8
	7/16/2019	122	<20	0.03	<0.20	0.03	3.7	NS	218	1.1	2.6	0.05	10.9
	7/30/2019	90	<5.0	0.03	<0.20	0.03	2.4	NS	150	1.3	3.4	0.05	13.0
	8/20/2019	122	2.9	0.02	<0.20	0.05	3.4	NS	209	0.70	3.2	0.05	10.3
	9/10/2019	117	4.1	0.03	<0.20	0.06	2.6	NS	188	0.48	3.4	0.04	6.9
BM-10B	6/25/2019	125	<33	0.06	<0.20	0.02	5.6	NS	222	0.28	1.3	0.06	26.5
	7/16/2019	202	<20	0.05	<0.20	0.02	5.9	NS	264	1.6	1.5	0.23	264
	7/30/2019	180	<5.0	0.01	<0.20	0.02	5.7	NS	247	3.4	2.4	0.21	112
	8/20/2019	166	2.9	0.10	0.54	0.02	4.9	NS	265	0.49	2.8	0.12	138
	9/10/2019	165	2.4	0.05	<0.20	0.03	5.6	NS	275	0.27	2.4	0.07	137

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2019

Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	PO4	TDS	TKN	TOC	TP	TSS
		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
BM-11S	6/25/2019	35	<33	0.04	<0.20	0.01	3.5	NS	99	0.33	2.0	0.04	12.0
	7/16/2019	130	<10	0.05	<0.20	<0.01	5.0	NS	208	0.40	1.1	0.05	11.9
	7/30/2019	70	<5.0	0.03	<0.20	<0.01	3.7	NS	125	0.44	1.9	0.04	6.8
	8/20/2019	84	1.8	0.05	<0.20	<0.01	2.6	NS	137	0.60	3.6	0.05	10.3
	9/10/2019	164	<1.0	0.04	<0.20	0.02	5.6	NS	270	<0.20	2.3	0.05	8.7

< Laboratory analysis result was less than the limit of quantification or limit of detection.

NS- Not Sampled

3.2.2 Nitrite and Nitrate

Nitrite (NO₂) is a measure of a form of nitrogen that occurs as an intermediate in the nitrogen cycle. It is unstable and can rapidly be oxidized to nitrate or reduced to nitrogen gas. Nitrite is a source of nutrients for plants and can be toxic to aquatic life in relatively low concentrations. Nitrite concentrations were low at Blue Marsh Reservoir during 2019 (Table 3-2). Concentrations ranged from less than the reporting limit of 0.01 mg/L to 0.32 mg/L during the sampling season.

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 concentrations maintained similar seasonal patterns across all stations in Blue Marsh Reservoir in 2019. Consistently higher concentrations were measured at upstream tributary station BM-5S (Table 3-2). Elevated nitrate concentrations at this station are likely attributed to agriculture in the upstream watershed. Concentrations at all sampling locations and depths ranged from 1.4 to 7.9 mg/L. Seasonal mean concentrations at surface tributary stations BM-5S (7.32 mg/L) maintained the highest concentrations of all stations and dates sampled.

Concentrations of nitrate and nitrite measured at Blue Marsh Reservoir were in compliance with PADEP water quality standards during 2019. The state water quality standard for nitrogen from nitrite and nitrate sources is a summed concentration of not more than 10 mg/L. Summed concentrations at all stations were less than the State standard. The highest nitrogen summed concentration of 7.91 mg/L occurred in the surface waters at station BM-5S in September.

3.2.3 Total Kjeldahl Nitrogen

Total Kjeldahl nitrogen (TKN) is a measure of organic nitrogen that is inclusive of ammonia. Organic nitrogen is not immediately available for biological activity and is therefore not available for plant growth until decomposition to inorganic form occurs. In general, TKN remained low but variable throughout the water column of Blue Marsh Reservoir in 2019 (Table 3-2). Concentrations measured at all stations and depths in the reservoir and tributaries ranged from less than the laboratory reporting limit of 0.20 mg/L to 5.5 mg/L.

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.

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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. Total phosphorus in the watershed and lake body of Blue Marsh Reservoir was frequently measured at concentrations well above this standard during 2019 (Table 3-2). Bottom deep waters within the lake and upstream tributary station BM-5S routinely had higher measured concentrations. This may be a direct result of nutrient enrichment in the upstream watershed and phosphorus release from bottom sediments during anoxic conditions experienced at Blue Marsh annually. In 2019, 97 of the 105 samples measured for total phosphorus at Blue Marsh Reservoir, including its tributaries, were greater than the EPA guideline. The single sample values for all stations and depths ranged from 3.01 mg/L to <0.01 mg/L. Agriculture and other land use found in the watershed contribute to the historic and currently measured elevated total phosphorus levels in Blue Marsh reservoir.

3.2.5 Total Dissolved Phosphorus

Total dissolved phosphorus (DISS P) in the water column of Blue Marsh Reservoir was consistently low during 2019. The single sample values for all stations and depths ranged from 0.11 mg/L to <0.007 mg/L (Table 3-2).

3.2.6 Total Dissolved Solids

Total dissolved solids (TDS) are a measure of the amount of non-filterable dissolved material in the water. Dissolved salts such as sulfate, magnesium, chloride, and sodium contribute to elevated levels. Total dissolved solids (TDS) in the water column of Blue Marsh Reservoir at all stations and depths ranged from 346 mg/L to 99 mg/L in 2019 (Table 3-2). Upstream tributary station BM-5S routinely had the highest monthly measured concentrations and maintained the highest seasonal sampling average of 322 mg/L. The state water quality standard for TDS is a maximum concentration of 500 mg/L. Total dissolved solids measured at Blue Marsh Reservoir in 2019 were in compliance with PADEP water quality standards.

3.2.7 Total Suspended Solids

Total suspended solids (TSS) are a measure of the amount of filterable particulate matter that is suspended within the water column. High concentrations increase the turbidity of the water and can hinder photosynthetic activity, result in damage to fish gills, and cause impairment to spawning habitat (smothering). Total suspended solids in the waters of Blue Marsh Reservoir were generally low during the 2019 sampling period (Table 3-2). Sample results at all stations and depths ranged from 224 mg/L to <4.0 mg/L (laboratory minimum reporting limit). The maximum and consistently higher TSS readings were taken in the deep bottom water samples at reservoir lake sampling stations. Uncharacteristically high single sample readings from these water samples can be attributed to sample collection error. Bottom sediments can be re-suspended during the sample collection process and are sometimes inadvertently included in the

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sample. Nearly all the elevated sample results occurred at or near bottom water sampling stations and likely were associated with sediment disturbance. The Pennsylvania Department of Environmental Protection has not issued a water quality standard for TSS.

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 Blue Marsh Reservoir were inconclusive in 2019 as a result of inconsistent laboratory reporting limits (Table 3-2). Measured results ranged from 1.0 mg/L to 13.0 mg/L. In considering the overall infrequency of samples showing higher readings in addition to historical sampling results, it is inferred that Blue Marsh 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. The Pennsylvania Department of Environmental Protection does not issue a water quality standard for BOD.

3.2.9 Alkalinity

Alkalinity 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.

Throughout the monitoring period in 2019, concentrations at all stations and depths for Blue Marsh Reservoir ranged from 35.0 mg/L CaCO₃ to 243 mg/L CaCO₃ (Table 3-2). Upstream tributary station BM-5S maintained the highest seasonal mean concentration of 215 mg/L CaCO₃. Concentrations of alkalinity measured at Blue Marsh Reservoir were in compliance with PADEP water quality standards for all samples collected during 2019.

3.2.10 Total Organic Carbon

Total organic carbon (TOC) is a measurement of the amount of dissolved and particulate carbon that is bound in organic compounds. TOC can be derived from decaying vegetation, bacterial growth, and metabolic activities of living organisms. The bulk of organic carbon in water is composed of humic substances and partly degraded animal and plant materials. Other sources of TOC can include agricultural chemicals such as herbicides and insecticides and also wastewater treatment plants. The amount of carbon in a freshwater stream is an indicator of the organic character of a water body. High organic content can increase the growth of microorganisms which contribute to the depletion of oxygen. Total organic carbon concentrations in the water column and tributaries of Blue Marsh Reservoir were low during 2019 (Table 3-1). Concentrations of TOC at all stations and depths ranged from 1.0 mg/L to 21.8 mg/L.

3.2.11 Chlorophyll a

Chlorophyll a is the measure of the plant chlorophyll “a” primary pigment which helps plants get energy from light. It is found in most plants, algae, and cyanobacteria. Chlorophyll a measures increase in relation to algal densities in a water body. Chlorophyll a is used as a measure of algal biomass. In 2019, the average concentration during the monitoring period for lake surface waters (<15 feet) at lake station BM-6 was 3.34 ug/L with the highest concentrations seen during early July and September (Appendix A). Upstream surface water stations BM-5S and BM-11S maintained lower concentrations throughout the sampling season. Algal productivity in tributary waters would be expected to be less than lake surface waters as a result of thermal warming, longer in lake water residence time, and increased nutrient concentrations and availability at lake stations.

3.3 TROPIC STATE DETERMINATION

Carlson’s (1977) trophic state index (TSI) is a method of quantitatively expressing the magnitude of eutrophication for a lake. The trophic state analysis calculates separate indices for eutrophication based on measures of total phosphorus, chlorophyll a, and secchi disk 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: oligotrophic (TSI <40), mesotrophic (TSI >40), and eutrophic (TSI >50).

During 2019, TSI’s calculated for measures of secchi disk depth classified Blue Marsh Reservoir as eutrophic in June (71.51), early July (63.22), late July (67.36), August (63.22) and September (56.78) (Fig. 3-7). TSI’s calculated for measures of total phosphorus (Figure 3-7) classified Blue Marsh Reservoir as eutrophic in June (87.33), early July (53.20), mesotrophic in late July (47.35) and September (47.35), and oligotrophic in August (37.35). TSI’s calculated for measures of chlorophyll a classified Blue Marsh Reservoir as mesotrophic in late July (49.11) and eutrophic in June (50.79), early July (53.73), August (50.14) and September (53.29).

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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 laboratory minimum detection limit for total phosphorus did not accurately reflect levels of total phosphorus in samples collected from Blue Marsh Reservoir in 2019 (see Section 3.2.4). With this in mind, the trophic state of the reservoir was predominantly eutrophic during the 2019 sampling season.

The EPA (1983) also provides criteria for defining the trophic conditions of lakes of the North Temperate Zone based on concentrations of total phosphorus, chlorophyll a, and secchi depth (Table 3-3). Utilizing the EPA classification, Blue Marsh Reservoir fluctuated between being mesotrophic and eutrophic at different points in time during the 2019 sampling season. Taking into account the general agreement between the EPA classifications with that of the Carlson TSI's, the trophic condition of Blue Marsh Reservoir was predominantly eutrophic in 2019.

Water Quality Variable	Oligo-trophic	Meso-trophic	Eutrophic	26 June	10 July	30 July	16 August	04 September
Total phos. (ppb)	<10	10-20	>20	320	30	20	10	20
Chlorophyll (ppb)	<4	4-10	>10	7.83	10.57	6.60	7.33	10.10
Secchi depth (m)	>4	2-4	<2	0.45	0.80	0.60	0.80	1.25

3.4 RESERVOIR COLIFORM BACTERIA MONITORING

Two forms of coliform bacteria contamination were monitored in the tributary and lake surface waters at Blue Marsh Reservoir during 2019 including total and fecal coliform (Table 3-4). Total coliform includes escherichia coli (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 contamination of Blue Marsh Reservoir at all lake sampling stations during the 2019 monitoring period ranging in values from 190 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. No State or federal standards exist for total coliform for water contact recreation.

With respect to PADEP water quality standards, fecal coliform bacteria has been replaced with an recreational e-coli criteria. For purposes of the 2019 reservoir and tributary bacteria sampling, the previous fecal coliform state criteria was used. 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

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day grab samples, single sample results were compared to the Pennsylvania Department of Health single sample standard of <1000 colonies/100-ml.

Fecal coliform contamination of Blue Marsh Reservoir was low at all lake body sampling stations during the 2019 monitoring period ranging in values from <1 colonies/100-ml to 47 colonies/100-ml. Elevated levels in all months sampled were seen at the upstream tributary stations BM-5S and BM-11S. Fecal coliform values for these two stations ranged from 270 colonies/100-ml to >6000 colonies/100-ml. The fecal coliform samples collected at Blue Marsh Reservoir did exceed the State single sample standard in 2019 on three occasions at the upstream tributary stations. Elevated counts at stations BM-5S and BM-11S are likely attributed to agricultural activities in those upstream watersheds. Water contact recreation, such as water skiing, is permitted at Blue Marsh Reservoir. No long term elevated bacteria counts were recorded in the main reservoir body. The Corps recreational public swimming beach area is monitored and managed separately from the monthly routine lake water quality sampling (see Section 3.5).

3.5 WEEKLY SWIMMING BEACH BACTERIA MONITORING

Weekly coliform bacteria monitoring was conducted at the public swimming beach of the Dry Brooks Day Use Area of Blue Marsh Reservoir to gauge compliance with Pennsylvania Department of Health and United States Environmental Protection Agency bathing beach water quality standards to ensure public safety for this water contact recreation area.

Escherichia coli is the most reliable indicator of fecal bacterial contamination of surface waters in the United States according to water quality standards set by the EPA (2000). The EPA recommendation for recreational water quality standards for *E. coli* is based on two criteria: a geometric mean of 126 organisms/ 100 ml (geometric mean of five samples collected over not more than a 30 consecutive day period) threshold and 235 organisms/ 100 ml (single water sample) threshold. Samples for *E. coli* analysis were collected twice weekly from 3 fixed beach area stations on each date in the regulated swimming area. During the 2019 recreation season, *E. coli* samples at the swimming beach area of Blue Marsh Reservoir exceeded the single sample criteria on seven occasions and the geometric mean criteria on four occasions (Table 3-5). Elevated bacteria and reservoir pool levels resulted in beach closure during the recreation season. High bacterial readings appeared to correlate with precipitation and subsequent runoff from the watershed and beach area which is populated with a resident Canada goose population.

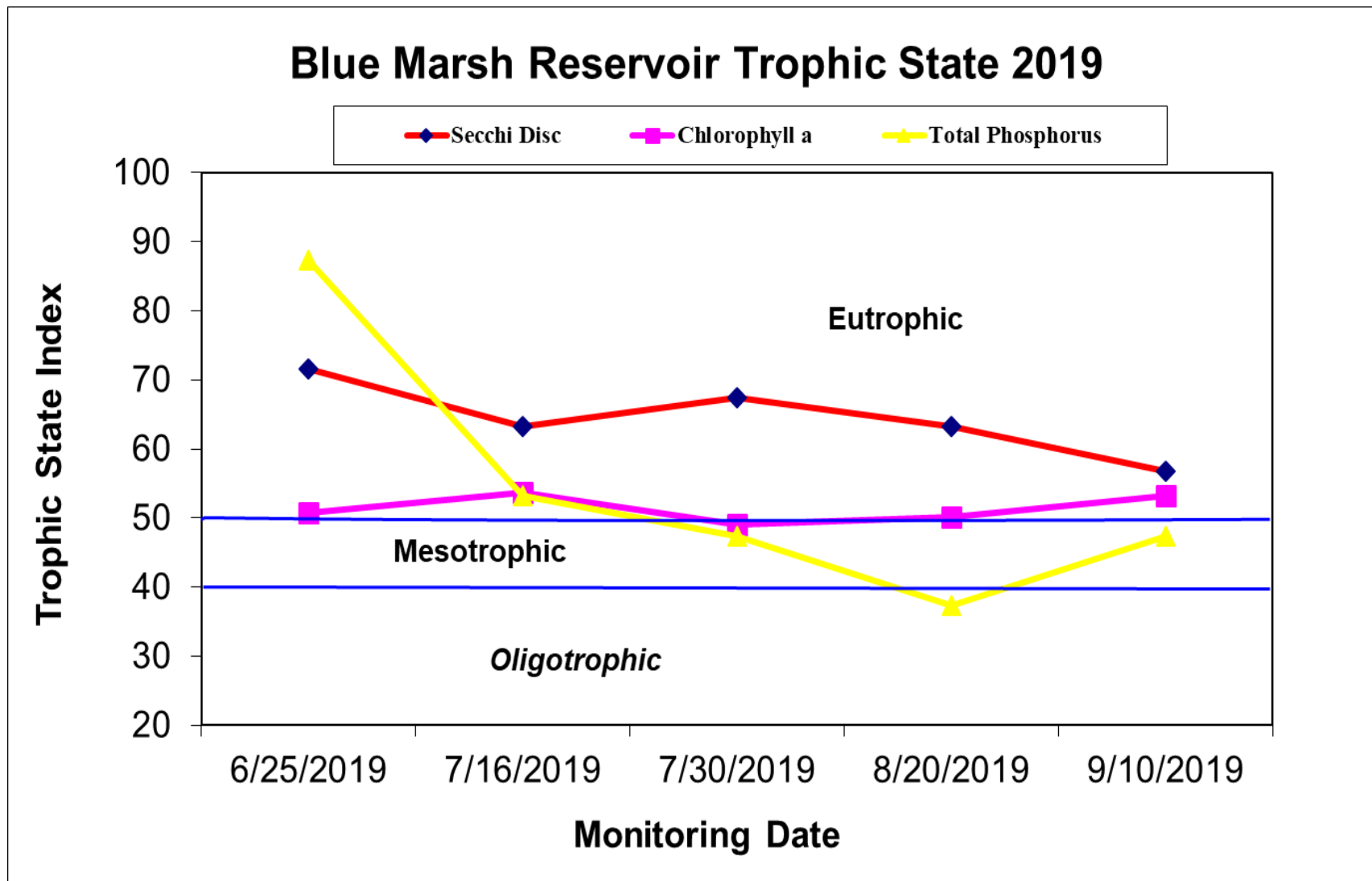


Figure 3-7. Trophic state indices calculated from secchi disk depth and concentrations of total phosphorus and chlorophyll *a* at Blue Marsh Reservoir in 2019.

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Table 3-4. Surface Water Stations Bacteria counts (colonies/100 ml) at Blue Marsh Reservoir during 2019. Shaded values exceed the Pennsylvania Department of Health water quality standard for bathing beach of 1,000 fecal coliform colonies/100-ml.

NS = Not Sampled AE = Analysis Error

STATION	DATE	Total Coliform	Fecal Coliform (FC)	Escherichia coli
BM-1S	6/25/2019	> 20000	170	NS
	7/16/2019	AE	170	NS
	7/30/2019	> 20000	29	NS
	8/20/2019	> 20000	30	NS
	9/10/2019	> 2000	2	NS
BM-2S	6/25/2019	2900	24	NS
	7/16/2019	> 2000	1	NS
	7/30/2019	5300	< 1	NS
	8/20/2019	9300	1	NS
	9/10/2019	> 200	1	NS
BM-5S	6/25/2019	AE	> 6000	NS
	7/16/2019	AE	> 600	NS
	7/30/2019	> 20000	440	NS
	8/20/2019	> 20000	270	NS
	9/10/2019	AE	> 600	NS
BM-6S	6/25/2019	845	13	NS
	7/16/2019	> 2000	< 1	NS
	7/30/2019	11700	7	NS
	8/20/2019	> 20000	4	NS
	9/10/2019	> 200	1	NS
BM-7S	6/25/2019	2200	10	NS
	7/16/2019	> 2000	11	NS
	7/30/2019	10600	6	NS
	8/20/2019	8300	5	NS
	9/10/2019	> 2000	< 1	NS
BM-8S	6/25/2019	16200	24	NS
	7/16/2019	1400	< 1	NS
	7/30/2019	3200	2	NS
	8/20/2019	260	< 1	NS
	9/10/2019	1380	< 1	NS
BM-9S	6/25/2019	4500	20	NS
	7/16/2019	> 2000	4	NS
	7/30/2019	12400	2	NS
	8/20/2019	2700	2	NS
	9/10/2019	> 2000	4	NS
BM-10S	6/25/2019	14700	47	NS
	7/16/2019	6600	38	NS
	7/30/2019	15200	5	NS
	8/20/2019	190	2	NS
	9/10/2019	930	1	NS
BM-11S	6/25/2019	> 20000	> 600	NS
	7/16/2019	AE	> 600	NS
	7/30/2019	> 20000	1100	NS
	8/20/2019	> 20000	4400	NS
	9/10/2019	AE	310	NS

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Table 3-5. Maximum counts and 5-day e-coli running geometric means of the three swimming beach stations of Blue Marsh Reservoir in 2019. Shaded values indicate results were not in compliance with PA Dep. of Health water quality standards for E-coli levels at bathing beaches: maximum single count greater than 235 colonies/100-ml; 5-day geometric mean greater than 126 colonies/100-ml.

Week	Date	Single Maximum Count	Sampling Station 5-Day Geometric Means		
			sb1	sb2	sb3
Week 1	5/13/2019	866	-	-	-
	5/16/2019	12	-	-	-
Week 2	5/20/2019	1730	-	-	-
	5/22/2019	23	-	-	-
	5/23/2019	13	25.42	24.30	78.77
	5/24/2019	30	31.07	32.82	35.00
Week 3	5/28/2019	10	34.41	26.35	28.59
	5/30/2019	411	23.50	20.67	21.45
	5/31/2019	93	32.63	30.79	26.32
Week 4	6/3/2019	25	30.32	36.98	24.85
	6/6/2019	31	21.97	38.01	28.35
Week 5	6/10/2019	37	23.16	42.52	44.23
	6/13/2019	5	10.55	18.86	17.51
Week 6	6/17/2019	27	7.42	14.02	14.74
	6/20/2019	2420	19.74	31.41	48.93
	6/21/2019	2420	65.53	72.22	101.61
Week 7	6/24/2019	59	81.21	105.24	111.55
	6/25/2019	46	121.51	131.10	181.80
	6/26/2019	62	157.74	103.04	214.69
	6/27/2019	5	38.20	33.34	51.91
Week 8	7/1/2019	15	10.61	10.07	21.91
	7/3/2019	15	6.76	8.05	15.36
Week 9	7/8/2019	166	10.94	13.02	19.38
	7/11/2019	5	6.68	9.10	8.49
Week 10	7/15/2019	6	8.81	9.43	9.75
	7/18/2019	29	10.79	10.84	11.13
Week 11	7/22/2019	10	10.18	7.24	11.13
	7/25/2019	32	4.83	5.07	8.20
Week 12	7/29/2019	31	5.76	8.72	16.30
	8/1/2019	548	14.71	21.51	29.89
	8/2/2019	20	14.13	22.67	27.75
Week 13	8/5/2019	18	20.22	31.88	28.29
	8/8/2019	308	48.21	40.35	32.49
Week 14	8/12/2019	63	60.71	53.77	26.41
	8/15/2019	36	35.08	24.60	22.35
Week 15	8/19/2019	24	35.82	27.81	21.10
	8/22/2019	172	56.26	38.52	26.89
Week 16	8/26/2019	6	25.59	17.95	16.15
	8/29/2019	60	21.25	17.77	12.45

3.6 ALGAE AND CYANOBACTERIA MONITORING

Cyanobacteria and algae are photosynthetic organisms found in aquatic environments. Cyanobacteria, formerly known as blue-green algae, are a group of bacteria. These bacteria were originally called blue-green algae because dense growths often turn the water pea green, brownish-green or blue-green. Dense growths of these organisms are often referred to as a “bloom”. They are found in all lakes and are a natural part of the lake ecosystem.

The development and proliferation (intensity) of algal blooms result from a combination of environmental factors including available nutrients (quantity and quality), sunlight, air and water temperature, ecosystem disturbance (stable or wind mixing conditions, turbidity), hydrology (precipitation, river flow and water storage levels) and water chemistry. As photosynthetic organisms, high nutrient and light concentrations can promote a population explosion and result in blooms, especially during warm weather. In high densities, some species of these organisms produce potent natural toxins. Not all blue-green algae or algal blooms are toxic. Blooms with the potential to harm human health or aquatic ecosystems are referred to as harmful algal blooms or HABs. In freshwater systems, cyanobacteria can produce HABs and toxins that can harm people, animals, aquatic ecosystems, drinking water supplies, and recreational activities, including swimming and recreational fishing.

Algal blooms have historically been a concern at Blue Marsh Reservoir as the watershed is approximately 80% agriculture and tributary inflows contain elevated levels of nutrients. In the watershed, runoff and soil erosion from fertilized agricultural areas and lawns, runoff from animal husbandry agricultural areas, erosion from river banks, river beds, and sewage effluent are major sources of nutrients entering water ways and tributaries of Blue Marsh Reservoir. All of these pathways are considered external sources and promote and support the growth of algae and cyanobacteria within the lake. In addition to these external sources, internal origins of nutrients comes from the reservoir sediments. Phosphate attaches to sediments. When dissolved oxygen concentrations are low in the water (anoxic conditions), sediments release phosphate into the water column. Anoxic conditions are experienced annually within Blue Marsh Reservoir causing the release of nutrients from bottom sediments. These nutrients are then recycled back into the water column and support the growth of algae and cyanobacteria.

In early summer 2019, Blue Marsh Reservoir experienced heavy rainfall events in the watershed along with extended periods of warm and sunny weather. Soon after, U.S. Army Corps of Engineers staff began to observe dense algal blooms throughout the reservoir (Figures 3-8 and 3-9). In response to these observations, the Philadelphia District took the following steps:

1. Initiated coordination with the Pennsylvania Department of Environmental Protection and Pennsylvania Department of Health in regard to a response and monitoring plan;
2. Initiated coordination with other Corps districts in regard to their response plans and criteria (Pennsylvania has no recreational criteria and the Environmental Protection Agency has a recommended recreational criteria (EPA 2019));
3. Posted a Public Notice (in addition to social media postings with links to Centers for Disease Control and Prevention cyanobacteria website) of risks of potential harmful toxic algae and to pursue lake recreation at your own risk;
4. Initiated coordination with Delaware River Basin Commission (Warning Potential Hazard post on Early Warning System) and Western Berks Water Authority who has a raw water supply intake located downstream of the dam; and

5. Conducted a site/reservoir tour of the existing lake conditions for both Pennsylvania Department of Environmental Protection and Water Supply interests along the Schuylkill River downstream.

In cooperation with the Pennsylvania Department of Environmental Protection, the Philadelphia District conducted sampling and testing of algal blooms throughout the reservoir to include the recreational swimming beach area. Samples were collected weekly at the swimming beach area and as needed at other locations on the reservoir. Sampling and laboratory test results shown high cell densities of cyanobacteria within the lake during bloom conditions and a variety of potential toxigenic producing genera (Figure 3-10). Although cell densities were elevated, toxin levels remained low and stayed within Environmental Protection Agency (2019) recommended recreational water limits (Table 3-6). The Pennsylvania Department of Health required the Western Berks Water Authority to conduct sampling of their finished water product. The Western Berks Water Authority maintains a raw water intake downstream of the reservoir on the Tulpehocken Creek. Drinking water standards were not exceeded at the raw water intake but did exceed criteria (EPA child drinking water criteria) within the lake surface waters on at least one occasion. No lake/reservoir closures were initiated as a result of algal toxins.



Figure 3-8. Photographs of algal blooms at the Philadelphia District USACE Blue Marsh Reservoir during the 2019 recreational summer season.



Figure 3-9. Photographs of algal blooms at the Philadelphia District USACE Blue Marsh Reservoir during the 2019 recreational summer season.

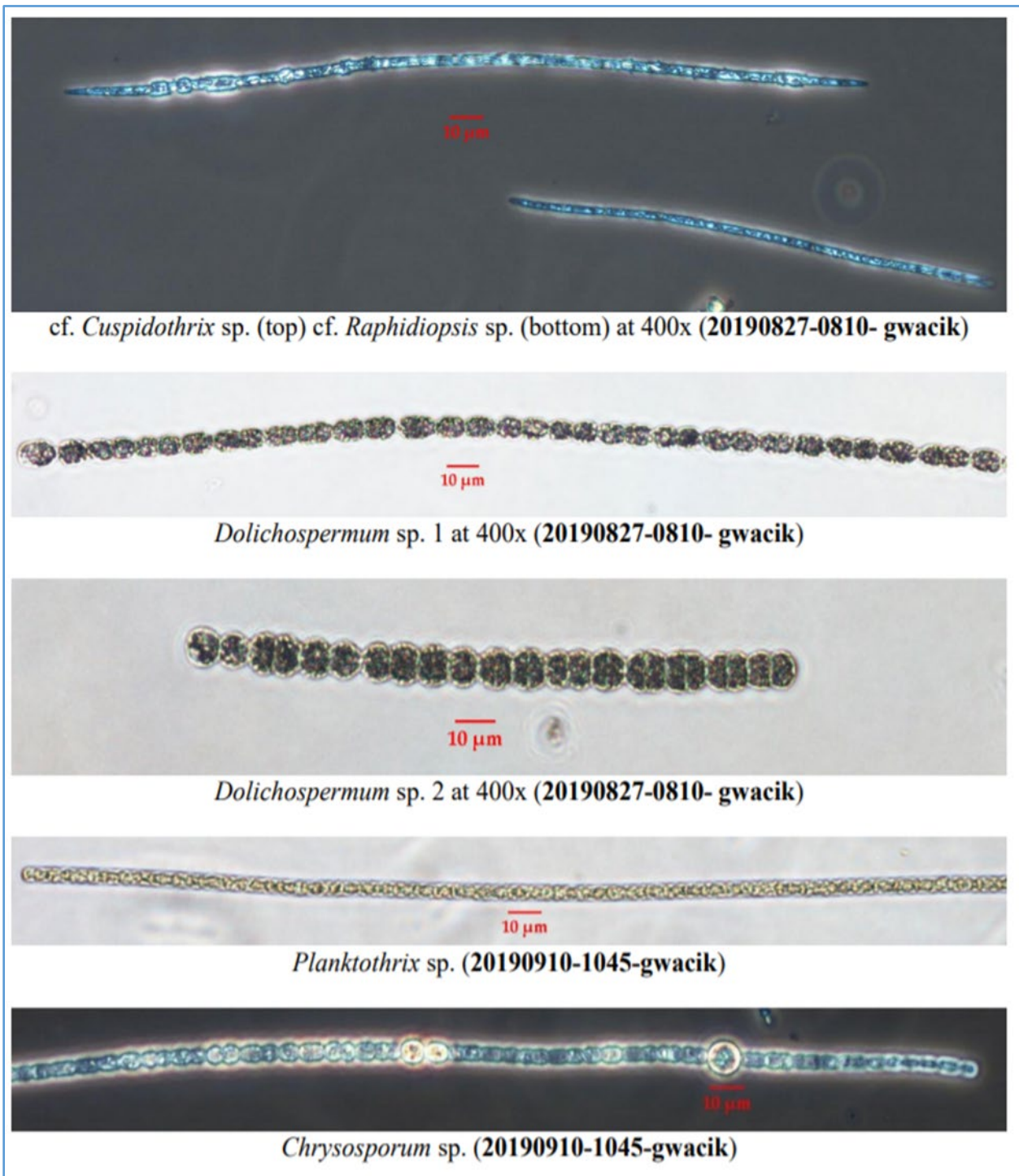


Figure 3-10. Laboratory microscopic photographs of toxigenic cyanobacteria found in Blue Marsh Reservoir water samples collected during the summer 2019 recreational season.

TABLE 3-6
Blue Marsh Reservoir 2019 Algae Sampling Results

PADEP Harrisburg Bureau of Laboratories, PA (BOL) Green Water Laboratories, FL (GW) µg/L - micrograms per liter = ppb - part per billion ND – Not Detected or less than laboratory detection limit		Hepatotoxins – Liver Damage		Neurotoxins – Nerve Damage	
		Microcystins / Nodularins	Cylindrospermopsin	Anatoxin-a	Saxitoxin
	PADEP Drinking Water Standard	0.3 ppb	0.7 ppb	NA	NA
	Ohio Drinking Water- Child	0.3 ppb	0.7 ppb	20.0 ppb	0.3 ppb
	EPA Drinking Water Health Advisories	0.3 - 1.6 ppb (Child) – (Adult)	0.7 - 3.0 ppb (Child) – (Adult)	NA	NA
	Ohio Contact Recreational Standard	6.0 ppb	5.0 ppb	80.0 ppb	0.8 ppb
	EPA Recommended Recreational Criteria	8.0 ppb	15.0 ppb	NA	NA
Date	Site				
7/2/19	Swimming Beach - Surface	0.578 ppb (BOL) ND (GW)	0.060 ppb (BOL) ND (GW)	ND (BOL) ND (GW)	ND (BOL) ND (GW)
7/2/19	Swimming Beach - Surface	0.702 ppb (BOL) ND (GW)	0.060 ppb (BOL) ND (GW)	ND (BOL) ND (GW)	ND (BOL) ND (GW)
7/2/19	Church Road Overpass - Surface	0.658 ppb (BOL) ND (GW)	0.059 ppb (BOL) ND (GW)	ND (BOL) ND (GW)	ND (BOL) ND (GW)
7/2/19	Main Reservoir Tower - Surface	0.661 ppb (BOL) ND (GW)	ND(BOL) ND (GW)	ND (BOL) ND (GW)	ND (BOL) ND (GW)
7/16/19	Swimming Beach - Surface	ND (GW)	ND (GW)	0.37 ppb (GW)	0.14 ppb (GW)
7/16/19	Swimming Beach - Composite	ND (GW)	ND (GW)	0.28 ppb (GW)	0.16 ppb (GW)
7/16/19	Main Reservoir Tower - Surface	ND (GW)	ND (GW)	0.35 ppb (GW)	0.14 ppb (GW)
7/16/19	Main Reservoir Tower - Bottom	ND (GW)	ND (GW)	ND (GW)	0.06 ppb (GW)
7/16/19	Church Road Overpass - Surface	ND (GW)	ND (GW)	0.30 ppb (GW)	0.20 ppb (GW)
7/16/19	Spring Creek Lake Arm - Surface	ND (GW)	ND (GW)	0.27 ppb (GW)	0.20 ppb (GW)
7/22/19	Swimming Beach - Surface	ND (GW)	ND (GW)	1.91 ppb (GW)	0.12 ppb (GW)
7/30/19	Swimming Beach - Surface	1.13 ppb (BOL)	2.238 ppb (BOL)	7.8 ppb (BOL)	0.25 ppb (BOL)

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		ND (GW)	ND (GW)	7.4 ppb (GW)	0.25 ppb (GW)
7/30/19	Church Road Overpass - Surface	.880 ppb (BOL) ND (GW)	1.520 ppb (BOL) ND (GW)	5.29 ppb (BOL) 6.4 ppb (GW)	0.23 ppb (BOL) 0.26 ppb (GW)
7/30/19	Main Reservoir Tower - Bottom	ND (BOL) ND (GW)	2.006 ppb (BOL) ND (GW)	2.060 ppb (BOL) ND (GW)	0.26 ppb (BOL) ND (GW)
8/27/19	Swimming Beach - Surface	ND (GW)	ND (GW)	ND (GW)	0.05 ppb (GW)
9/10/19	Main Reservoir Tower - Surface	ND (GW)	ND (GW)	0.06 ppb (GW)	ND (GW)
9/10/19	Main Reservoir Tower - Bottom	ND (GW)	ND (GW)	ND (GW)	ND (GW)
9/10/19	Church Road Overpass - Surface	4.0 ppb (GW)	ND (GW)	0.11 ppb (GW)	ND (GW)

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APPENDIX A

STRATIFICATION DATA TABLES

2019 Blue Marsh Stratification/Profile

Station	Date	Time	Depth	Temp	DO	DO	pH	pHmV	ORP	Turbidity	Chloro.	SpCond
	M/D/Y	hh:mm:ss	ft	C	%	mg/L		mV	mV	NTU	ug/L	mS/cm
BM-1	6/25/2019	13:47:36	0.5	19.48	106.6	9.78	7.73	-50.1	179.5	13.6	3.5	0.286
	7/16/2019	7:25:43	0.5	20.82	85.6	7.65	7.67	-46.3	144	6.9	3.2	0.315
	7/30/2019	7:17:15	0.5	21.13	84.9	7.54	7.53	-38.4	201.4	2.4	2.8	0.360
	8/20/2019	7:26:13	0.5	22.35	87.1	7.56	7.7	-48.3	162.8	1.2	2.8	0.391
	9/10/2019	7:16:31	0.5	21.45	77	6.79	7.66	-45.9	210.7	0.7	1.8	0.389
BM-2	6/25/2019	9:48:42	0.5	24.55	189	15.74	9.44	-152.2	142.9	41.2	8.9	0.240
		9:47:39	5.0	23.45	135.6	11.53	9.02	-126.7	158.2	15.1	6.7	0.242
		9:45:44	10.0	20.19	59.2	5.36	7.56	-39.8	188.2	11.2	4.3	0.237
		9:42:25	15.0	19.28	67.8	6.25	7.57	-40.2	187.3	12.0	3.5	0.244
		9:40:59	20.0	18.91	61.5	5.71	7.57	-40.6	186.8	12.1	3.3	0.259
		9:40:10	25.0	18.63	65	6.07	7.59	-41.4	186.4	11.7	3.1	0.261
		9:39:10	30.0	18.19	70.9	6.68	7.65	-44.8	185.5	13.4	2.9	0.284
		9:37:02	35.0	18.04	72.1	6.82	7.67	-46.1	183.5	15.0	2.3	0.292
		9:34:52	40.0	17.78	71.4	6.78	7.69	-47.1	180.9	20.0	2.6	0.305
BM-2	7/16/2019	9:37:51	0.5	28.5	213.6	16.56	9.66	-167.4	96.2	12.4	11.8	0.228
		9:36:22	5	27.6	162.9	12.84	9.41	-152	96.8	16.3	14.1	0.233
		9:34:52	10	23.93	39.2	3.3	7.77	-52.6	117	4.8	8.1	0.274
		9:33:59	15	21.89	40.2	3.52	7.65	-45.4	118.3	7.7	4	0.273
		9:32:52	20	21.3	44.4	3.93	7.64	-44.5	115.8	9.4	3.7	0.278
		9:31:21	25	20.75	47.9	4.28	7.61	-42.8	111	9.1	2.9	0.296
		9:30:12	30	20.46	49.6	4.46	7.61	-43.1	104.9	12.3	3.4	0.320
		9:28:54	35	20.22	50	4.52	7.63	-44	96.1	16.1	3.2	0.361
		9:27:31	40	19.88	32.3	2.94	7.59	-41.5	78.2	13.3	2.8	0.344
BM-2	7/30/2019	9:50:19	0.5	29.5	179.9	13.71	9.39	-151.8	116	6.5	5.7	0.242
		9:48:41	5	28.58	162.6	12.59	9.33	-147.7	115.4	8.7	8	0.241
		9:47:27	10	24.82	26.9	2.23	7.69	-48.1	142.2	2.1	5.4	0.335
		9:45:44	15	23.29	10.8	0.92	7.56	-40.3	140.6	0.9	4.5	0.362
		9:44:54	20	22.57	12.8	1.11	7.53	-38.6	139.3	1.3	3.2	0.376
		9:43:43	25	21.83	16.3	1.43	7.49	-35.8	135.7	3.5	3	0.366
		9:42:22	30	21.36	21.8	1.93	7.46	-34.3	127.9	2.4	2.7	0.366
		9:41:15	35	20.98	13.7	1.22	7.42	-32.1	116.4	4.8	2.8	0.369
		9:39:19	40	20.89	14.6	1.3	7.48	-35.4	124.5	46.1	12.3	0.369
BM-2	8/20/2019	9:33:58	0.5	27.95	118.7	9.29	8.94	-123.7	83.1	5.4	8.2	0.292
		9:32:50	5	27.69	113.7	8.95	8.91	-121.7	75.7	5.7	9.4	0.291
		9:31:06	10	26.15	35.1	2.84	7.89	-60.5	68.1	3.5	5.9	0.303
		9:29:43	15	24.27	2.3	0.19	7.59	-42	57.1	0.7	3.9	0.338
		9:28:22	20	23.32	2.3	0.2	7.53	-38.4	49.3	0.3	2.9	0.364
		9:26:44	25	22.46	2.5	0.22	7.46	-34.3	44.9	0.8	2.1	0.391
		9:25:47	30	22.07	2.7	0.24	7.46	-34	66.2	1.2	1.4	0.411
		9:24:43	35	21.77	3.2	0.28	7.46	-34.2	70.5	1.8	1.1	0.417
		9:23:27	40	21.69	4.4	0.39	7.56	-39.9	54.4	13.6	1.6	0.419

2019 Blue Marsh Stratification/Profile

Station	Date	Time	Depth	Temp	DO	DO	pH	pHmV	ORP	Turbidity	Chloro.	SpCond
	M/D/Y	hh:mm:ss	ft	C	%	mg/L		mV	mV	NTU	ug/L	mS/cm
BM-2	9/10/2019	9:24:02	0.5	23.81	128.2	10.82	8.92	-120.7	149.6	4.1	10.4	0.316
		9:23:03	5	23.76	125.3	10.59	8.9	-119.8	149.9	4.4	11.1	0.316
		9:21:29	10	23.42	96.1	8.17	8.55	-99.2	155.8	4.0	8	0.317
		9:19:24	15	23.14	36.6	3.13	7.8	-54.2	164.8	1.6	4.7	0.332
		9:18:22	20	22.55	2.9	0.25	7.61	-43.2	168.4	0.7	3.6	0.363
		9:17:12	25	22.08	9.4	0.82	7.64	-44.7	169.3	1.2	2	0.367
		9:16:09	30	21.71	8.2	0.72	7.65	-45.7	168.9	2.8	1.4	0.386
		9:14:58	35	21.53	4.7	0.41	7.66	-46	168.7	5.8	1.8	0.393
		9:12:48	40	21.13	25.3	2.25	7.76	-51.6	166.7	11.4	2.3	0.391
		9:11:13	42	20.9	38.1	3.4	7.82	-55.1	164.6	15.7	2.7	0.397
BM-5	6/25/2019	13:05:21	0.5	18.03	94.8	8.96	7.95	-62.4	162.1	44.9	4.4	0.432
	7/16/2019	12:44:35	0.5	18.09	95.3	8.99	8.01	-65.9	178.1	6.9	1.1	0.48
	7/30/2019	13:07:19	0.5	20.29	104.9	9.47	8.18	-76.3	197.3	3.3	1.7	0.516
	8/20/2019	12:46:35	0.5	21.25	95.4	8.45	8.05	-69	170.7	5.1	1.6	0.521
	9/10/2019	12:23:25	0.5	18.82	97.4	9.05	8.22	-78.3	153.6	5.9	1.1	0.512
BM-6 Secchi 0.45 M	6/25/2019	8:58:46	0.5	25.6	202.1	16.51	9.37	-148.8	139.5	49.3	10.8	0.235
		8:57:54	5	24.89	143.4	11.87	9.11	-132.6	148.8	15.5	7.6	0.242
		8:56:37	10	20.49	60.2	5.42	7.6	-42.2	182.7	10.9	5.1	0.240
		8:55:45	15	19.7	58.1	5.31	7.56	-39.6	183.8	12.6	3.7	0.244
		8:55:07	20	19.19	58.5	5.4	7.54	-38.8	184.2	12.6	3.8	0.248
		8:53:34	25	18.59	58.6	5.47	7.56	-39.8	184	11.1	3.3	0.268
		8:52:35	30	18.17	58.1	5.47	7.58	-41	183.9	11.6	2.2	0.297
		8:50:35	35	18.09	55.8	5.27	7.59	-41.7	182.1	13.8	2.7	0.296
		8:49:51	40	18.09	47.5	4.48	7.58	-40.6	182.2	12.9	2.8	0.305
		8:47:39	45	17.71	25.6	2.43	7.54	-38.4	182.2	12.7	2.5	0.361
8:45:47	50	17.63	15.2	1.45	7.5	-35.9	182.6	19.1	3.4	0.363		
BM-6 Secchi 0.80 M	7/16/2019	9:13:12	0.5	28.17	190.6	14.87	9.53	-159.4	132.1	12.4	11.2	0.232
		9:11:44	5	27.61	139.9	11.02	9.23	-141.2	139.9	16	12.5	0.237
		9:09:20	10	23.82	11	0.93	7.64	-45.2	169.3	4.2	8	0.299
		9:06:16	15	22.42	32	2.77	7.64	-45	170.9	4.5	5.8	0.285
		9:04:59	20	22.19	38	3.31	7.65	-45.2	170.7	5.6	5.3	0.279
		9:03:03	25	21.35	40.3	3.56	7.63	-44.5	171.4	6.8	3.2	0.292
		9:01:49	30	20.93	43.1	3.84	7.64	-44.6	171.9	6.6	2.4	0.311
		9:00:04	35	20.33	41.5	3.74	7.62	-43.4	172	8.1	2.7	0.328
		8:58:34	40	20.12	35.6	3.22	7.58	-41.3	171.9	8.7	2	0.338
		8:56:48	45	20.2	38.4	3.48	7.57	-40.8	170.4	8.5	2.5	0.333
8:55:33	50	19.79	23	2.1	7.5	-36.5	170.5	8	2.6	0.343		
8:54:01	52	19.14	2.9	0.26	7.48	-34.9	167.8	7	3	0.348		
BM-6 Secchi 0.60 M	7/30/2019	9:10:07	0.5	29.56	170.1	12.95	9.38	-151	103.5	7.3	5.2	0.237
		9:08:37	5	29.07	136.5	10.48	9.13	-135.6	98	7.5	7.6	0.246
		9:06:40	10	25.63	8.8	0.71	7.72	-50.3	103.3	2.7	7	0.319
		9:04:49	15	23.74	2.1	0.18	7.61	-43.5	99	1	4.5	0.333
		9:03:36	20	22.41	2.6	0.22	7.56	-40.2	107.2	1.2	4	0.314
		9:02:07	25	21.73	7.2	0.63	7.49	-36.2	110.3	0.6	3.1	0.341
		9:00:44	30	21	13.9	1.24	7.49	-36.1	105.5	1.5	3.1	0.365
		8:58:31	35	20.84	8	0.71	7.44	-33.1	90.5	2.8	2.9	0.369
		8:57:21	40	20.54	2.3	0.21	7.41	-31.4	81.1	3.5	2.4	0.378
		8:56:22	45	20.31	2.7	0.24	7.38	-29.5	73.2	4.8	2.5	0.383
8:54:46	50	19.87	2.9	0.27	7.33	-26.4	57	5.6	2.8	0.391		

2019 Blue Marsh Stratification/Profile

Station	Date	Time	Depth	Temp	DO	DO	pH	pHmV	ORP	Turbidity	Chloro.	SpCond
	M/D/Y	hh:mm:ss	ft	C	%	mg/L		mV	mV	NTU	ug/L	mS/cm
BM-6 Secchi 0.80 M	8/20/2019	9:02:26	0.5	28.01	114.6	8.96	8.94	-123.7	103.6	5.0	6.5	0.290
		9:01:01	5	27.77	111.7	8.77	8.92	-122.3	98.8	6.2	9.3	0.290
		8:57:11	10	26.66	45.1	3.62	8.02	-68.3	84.6	3.7	6.2	0.302
		8:53:56	15	23.92	1.9	0.16	7.61	-43.2	56.7	0.4	3.4	0.350
		8:52:41	20	23.11	2.2	0.18	7.59	-42.1	55.8	0.2	3.5	0.369
		8:51:54	25	22.77	3.2	0.28	7.61	-43	59.7	0.3	3.1	0.380
		8:48:51	30	22.31	1.8	0.15	7.56	-40.4	52.8	0.6	2.4	0.392
		8:47:10	35	21.85	1.8	0.16	7.57	-40.8	53.9	1.0	1.5	0.407
		8:43:31	40	21.81	2.3	0.2	7.52	-37.6	54.5	0.8	1.7	0.409
		8:42:56	45	21.38	2.4	0.21	7.51	-37.1	53.3	1.9	0.9	0.421
8:41:47	50	21.19	2.6	0.23	7.47	-35	51.9	2.6	1.8	0.424		
BM-6 Secchi 1.25 M	9/10/2019	8:51:17	0.5	23.77	112.1	9.47	8.68	-106.7	112.2	3.50	10.6	0.324
		8:49:51	5	23.78	110.6	9.34	8.65	-104.9	107.6	3.20	11.1	0.325
		8:47:32	10	23.47	81.5	6.92	8.26	-81.9	101.9	3.10	8.6	0.327
		8:45:21	15	23.32	54.2	4.62	7.94	-62.6	91	1.70	6.5	0.331
		8:42:42	20	22.62	2.0	0.17	7.59	-41.7	64.4	1.20	3.7	0.373
		8:41:27	25	21.93	2.0	0.18	7.57	-40.8	61.4	0.60	2.5	0.379
		8:40:43	30	21.7	2.0	0.18	7.57	-40.7	60	0.60	2.4	0.384
		8:39:05	35	21.47	2.3	0.20	7.59	-42	56.4	0.40	2.6	0.391
		8:37:30	40	21.29	2.4	0.22	7.6	-42.6	50	1.50	2.7	0.397
		8:35:49	45	21.1	2.7	0.24	7.61	-42.7	36.7	2.70	2.2	0.400
8:34:46	50	20.74	3.0	0.26	7.58	-41.3	22.7	5.20	1.8	0.408		
BM-7	6/25/2019	10:21:45	0.5	25.92	239.6	19.46	9.67	-166.7	125.3	45.3	12	0.240
		10:19:44	5.0	24.21	142.3	11.92	9.18	-136.8	152	13.1	6.4	0.237
		10:18:59	10.0	20.25	70	6.33	7.59	-41.4	181.8	10.7	4.4	0.221
		10:17:06	15.0	19.49	78.1	7.17	7.68	-46.7	180.8	11.1	3.1	0.260
		10:16:05	20.0	19.24	79.8	7.36	7.7	-47.9	180.2	12.3	2.3	0.270
		10:14:40	25.0	18.5	70.3	6.58	7.65	-44.8	180.7	13.9	2.8	0.277
		10:13:37	30.0	17.83	76.1	7.23	7.74	-50.2	179.6	28.0	2.1	0.328
BM-7	7/16/2019	10:11:57	0.5	27.64	213.4	16.81	9.61	-164.2	127.2	24.3	24.3	0.23
		10:10:57	5	27.2	183.3	14.55	9.48	-155.8	131.7	23.3	15.6	0.231
		10:07:39	10	24.03	70.1	5.89	7.98	-65	164.3	6.6	7.1	0.253
		10:06:40	15	22.15	72.8	6.34	7.84	-56.5	168.3	7.5	4	0.278
		10:05:38	20	21.31	61.9	5.48	7.7	-48.2	173.1	10.8	3.8	0.297
		10:04:22	25	21.15	62.3	5.53	7.75	-51	171.1	12.1	3.7	0.328
		10:03:20	30	20.34	60.2	5.43	7.82	-55.1	170.6	27.9	3.6	0.416
10:02:18	32	20.31	60.4	5.46	7.83	-55.5	170.6	39.3	4.4	0.417		
BM-7	7/30/2019	10:20:38	0.5	29.42	189.6	14.47	9.41	-152.7	151.1	7.6	8.7	0.241
		10:19:33	5	28.63	161.3	12.48	9.29	-144.9	160.5	8.1	10.6	0.241
		10:18:38	10	25.82	94.5	7.68	8.03	-68.3	186	3.4	7.8	0.281
		10:17:28	15	23.42	55.6	4.73	7.71	-49.1	192.9	2.1	4.8	0.321
		10:15:39	20	22.24	45.5	3.96	7.65	-45.8	192.6	2.3	3.8	0.355
		10:14:30	25	21.71	41.6	3.66	7.63	-44.1	191	4.5	3.3	0.376
		10:12:25	30	21.27	22.6	2	7.63	-44.4	179.9	21.7	5.4	0.375

2019 Blue Marsh Stratification/Profile

Station	Date	Time	Depth	Temp	DO	DO	pH	pHmV	ORP	Turbidity	Chloro.	SpCond
	M/D/Y	hh:mm:ss	ft	C	%	mg/L		mV	mV	NTU	ug/L	mS/cm
BM-7	8/20/2019	10:11:01	0.5	27.85	130.8	10.26	9.06	-130.9	148.8	5.3	9.6	0.285
		10:10:08	5	27.42	119.1	9.42	8.97	-125.3	151.6	5.2	11.5	0.283
		10:08:44	10	26.17	26.9	2.17	7.81	-55.6	170.8	3.6	5.7	0.304
		10:06:50	15	24.25	2.5	0.21	7.57	-40.9	174.6	1.3	4.2	0.329
		10:05:47	20	23.21	3.2	0.27	7.55	-39.7	179.6	1.6	3.5	0.355
		10:03:53	25	22.77	13.6	1.17	7.56	-40.4	182.4	4.9	1.8	0.396
		10:02:46	30	22.34	8.6	0.75	7.52	-38	183.7	9.3	1.4	0.421
		10:01:26	32	22.27	7.2	0.63	7.52	-37.6	182	12.8	2	0.425
BM-7	9/10/2019	9:47:17	0.5	23.69	123.1	10.42	8.84	-116	169	5.0	8.2	0.317
		9:46:11	5	23.6	116.9	9.91	8.79	-113.3	172.4	4.5	10.8	0.316
		9:45:25	10	23.39	94.8	8.07	8.5	-95.7	176.5	4.7	6.9	0.316
		9:44:18	15	23.18	66.7	5.69	8.14	-74.4	182.1	3.1	4.6	0.321
		9:43:12	20	22.7	59.6	5.13	8.02	-67.3	184	2.8	3.4	0.329
		9:41:54	25	22.06	47.8	4.17	7.87	-58.2	188.2	5.4	2.9	0.353
		9:40:39	30	21	63.4	5.65	7.91	-60.8	189	18.1	3.2	0.387
BM-8	6/25/2019	12:08:08	0.5	25.41	215.9	17.7	9.52	-157.6	132	20.0	8	0.227
		12:06:46	5.0	23.2	145.1	12.39	8.96	-123.1	151.2	10.0	6.4	0.238
		12:05:11	10.0	20.18	82.7	7.49	7.65	-45.2	169.9	9.9	4.2	0.206
		12:03:22	15.0	19.6	100.1	9.17	7.89	-58.9	166.3	10.3	3	0.247
		12:02:04	20.0	18.28	85.5	8.05	7.72	-49.3	168.5	15.1	3.1	0.262
		12:00:36	22.0	17.4	89.1	8.54	7.78	-52.4	166.5	18.8	3.2	0.290
BM-8	7/16/2019	11:40:03	0.5	29.05	274.7	21.1	9.91	-182.7	139.6	13.1	10.8	0.230
		11:38:42	5	26.92	125	9.97	9.09	-132.6	166.1	12.9	13.7	0.233
		11:37:23	10	23.78	129.6	10.95	8.81	-114.7	169.3	7.7	8.3	0.260
		11:36:16	15	22.24	90.9	7.9	8.04	-68.6	181.5	5.6	5	0.268
		11:35:23	20	21.23	73.3	6.5	7.82	-55.1	183.8	9.8	4.8	0.280
		11:34:24	22	20.68	64.6	5.79	7.79	-53.3	184.2	15.7	5.1	0.295
BM-8	7/30/2019	11:49:23	0.5	30.5	229.8	17.21	9.57	-163.3	141.6	6.6	8.2	0.240
		11:48:08	5	28.23	178	13.87	9.25	-142.8	158	9.4	16.8	0.246
		11:46:23	10	25.53	112.7	9.22	8.31	-85.5	180.6	5.2	10.3	0.287
		11:45:02	15	23.41	67.1	5.71	7.79	-54.1	189.1	9.299999	5.6	0.331
		11:43:24	20	22.27	12.5	1.09	7.63	-44.2	188.9	9.9	5	0.334
BM-8	8/20/2019	11:42:25	0.5	28.69	165.3	12.77	9.29	-145.3	159.1	4.5	9.3	0.274
		11:41:46	5	27.92	154	12.06	9.24	-142	162.7	6.7	19.7	0.272
		11:40:02	10	25.83	65.6	5.33	7.96	-64.4	189.9	4.3	6.1	0.293
		11:39:01	15	24.18	51.5	4.32	7.79	-53.8	194.2	5.8	4.3	0.328
		11:35:18	20	23.41	38.1	3.24	7.68	-47.1	192.8	10.4	4	0.332
BM-8	9/10/2019	11:22:10	0.5	24.17	141.5	11.86	9	-126.2	186.4	5	6.7	0.315
		11:21:15	5	23.77	138.6	11.71	9	-125.6	189.8	5.6	12.4	0.312
		11:20:03	10	23.31	102.3	8.72	8.65	-104.6	197.2	3.6	5.7	0.311
		11:18:41	15	23.08	87.6	7.49	8.45	-92.7	201	2.7	4.9	0.313
		11:17:35	20	22.59	87.1	7.52	8.39	-89	202.6	4.7	4.5	0.317
BM-9	6/25/2019	10:55:51	0.5	25.76	232.4	18.93	9.63	-164.4	129.7	60.8	19.2	0.239
		10:54:36	5	23.35	150.5	12.82	9.01	-126.5	152.5	11	7.3	0.235
		10:52:47	10	20.52	84.3	7.58	7.73	-49.8	177.2	10.5	3.7	0.248
		10:51:08	15	19.76	88.6	8.08	7.78	-53	175.8	11.6	2.5	0.279
		10:49:18	20	19.16	87.2	8.06	7.79	-53	174.5	12.8	3.1	0.297
		10:48:32	25	17.83	85	8.07	7.8	-53.5	174.4	19.3	2.6	0.340
		10:47:30	30	17.7	82.1	7.81	7.78	-52.3	172	25.5	2	0.341
		10:46:44	32	17.71	81.8	7.78	7.77	-52	170.3	30.3	3.3	0.341

2019 Blue Marsh Stratification/Profile

Station	Date	Time	Depth	Temp	DO	DO	pH	pHmV	ORP	Turbidity	Chloro.	SpCond
	M/D/Y	hh:mm:ss	ft	C	%	mg/L		mV	mV	NTU	ug/L	mS/cm
BM-9	7/16/2019	10:43:21	0.5	28.14	218.2	17.03	9.65	-166.5	116.5	14.9	13.5	0.234
		10:41:58	5	26.76	140.8	11.26	9.24	-141.2	128.2	13.7	13	0.240
		10:40:49	10	24.12	78.5	6.59	8.07	-70.8	146.5	7.4	7.4	0.247
		10:38:59	15	22.5	82	7.1	7.98	-64.9	146.9	7.7	3.9	0.329
		10:36:01	20	21.69	87.5	7.69	8.03	-67.6	137.1	13.9	4.1	0.371
		10:33:20	25	20.18	70.1	6.34	7.83	-55.6	126	24.7	4.1	0.423
		10:31:57	30	19.98	66.4	6.03	7.87	-57.8	112.3	50.9	4.5	0.426
BM-9	7/30/2019	10:49:50	0.5	30.28	195.2	14.67	9.43	-154.5	119.3	5.8	4.3	0.244
		10:48:42	5	28.21	156.9	12.23	9.22	-140.6	123.2	7.2	11.8	0.248
		10:46:30	10	25.22	94.3	7.76	7.88	-59.7	136.8	2.3	7.6	0.289
		10:45:12	15	23.51	74.3	6.31	7.78	-53.5	132.2	2.6	5.6	0.331
		10:44:05	20	22.58	63.9	5.52	7.78	-53	124.3	6.6	4.8	0.387
		10:43:04	25	21.94	52.9	4.62	7.72	-49.6	117.1	18	3.8	0.429
		10:41:25	30	21.4	22	1.94	7.66	-46	88.5	33.4	5	0.424
BM-9	8/20/2019	10:39:16	0.5	28.2	144.4	11.26	9.18	-138.3	107	5	10.1	0.279
		10:38:15	5	27.53	113.9	8.98	8.9	-121.1	109	5.3	13.3	0.283
		10:36:30	10	25.77	26.4	2.15	7.76	-52.6	117.9	2.3	3.6	0.308
		10:35:02	15	24.09	9.3	0.78	7.65	-45.8	116	1.7	2.8	0.340
		10:33:29	20	23.42	29.2	2.48	7.75	-51.6	111.1	3.7	2.2	0.394
		10:32:07	25	22.9	29.5	2.53	7.71	-49.2	106.4	10.7	1.9	0.424
		10:30:56	30	22.57	23.9	2.07	7.64	-45.2	101.2	24.7	2	0.442
10:29:08	32	22.26	9.4	0.82	7.59	-41.9	83.9	31.8	2.8	0.449		
BM-9	9/10/2019	10:13:32	0.5	23.6	123.9	10.5	8.84	-116.2	114	5.1	9.2	0.314
		10:12:35	5	23.5	113.5	9.64	8.75	-111.1	111.3	4.8	10.4	0.314
		10:11:42	10	23.27	89.9	7.67	8.42	-91.1	110.6	4.2	6.3	0.316
		10:10:30	15	23.04	71.3	6.11	8.15	-75.4	106.8	2.7	4.2	0.319
		10:09:34	20	22.67	75	6.47	8.13	-74	102	4.5	3.5	0.330
		10:08:13	25	22.01	90.2	7.87	8.09	-71.2	92.9	12.6	5.4	0.347
		10:07:24	30	20.05	78.4	7.11	7.94	-61.9	79.2	72.4	6	0.428
10:05:48	32	19.98	11.7	1.06	7.98	-64.7	176.6	0.0	0.2	0.431		
BM-10	6/25/2019	11:29:03	0.5	25.87	255.5	20.77	9.69	-167.5	114.7	141.4	26.7	0.234
		11:27:33	5	22.76	143.2	12.33	8.7	-107.5	142.9	10.2	5.8	0.240
		11:26:33	10	21.12	117.3	10.43	8.43	-90.9	149.9	8.3	3.3	0.315
		11:25:30	15	18.21	88.5	8.33	7.91	-60.1	158.2	37.0	2.7	0.367
		11:24:23	20	18.17	88.7	8.36	7.92	-60.7	156.2	43.9	3.1	0.366
BM-10	7/16/2019	11:11:58	0.5	29.22	292.2	22.38	9.94	-185	93.2	18.9	14.7	0.238
		11:10:01	5	26	129.3	10.48	8.91	-121.4	114	10.8	12.2	0.245
		11:08:29	10	24.59	162.8	13.54	8.88	-118.7	107.6	8.2	8.4	0.304
		11:06:32	15	20.42	80.2	7.23	7.97	-63.9	125.4	44.7	4.2	0.432
		11:05:12	18	20.07	81.2	7.37	8.01	-66.3	131.2	86.6	11.7	0.445
BM-10	7/30/2019	11:15:29	0.5	29.51	228.9	17.44	9.65	-167.3	138.9	8.9	11.3	0.235
		11:14:39	5	28.58	177.4	13.74	9.44	-154.2	148.2	8.4	10.4	0.232
		11:13:25	10	25.99	138.1	11.2	8.6	-102.6	168.2	10.3	10	0.326
		11:12:17	15	23.58	97.1	8.23	8.09	-71.5	180.5	28.5	4.8	0.428
		11:11:08	20	22.72	89.1	7.67	8.05	-69.4	175.3	70.7	6	0.454

2019 Blue Marsh Stratification/Profile

Station	Date	Time	Depth	Temp	DO	DO	pH	pHmV	ORP	Turbidity	Chloro.	SpCond
	M/D/Y	hh:mm:ss	ft	C	%	mg/L		mV	mV	NTU	ug/L	mS/cm
BM-10	8/20/2019	11:06:38	0.5	28.01	141.1	11.04	9.12	-134.5	157.7	4.7	17.4	0.279
		11:05:47	5	27.06	98.5	7.84	8.53	-99	168.5	5.4	11	0.303
		11:04:13	10	25.87	97.1	7.89	8.34	-87.2	172.9	9.9	4.6	0.346
		11:02:55	15	25.17	83.4	6.87	8.13	-74.7	176.6	14.3	3.7	0.366
		11:01:42	20	22.85	73.8	6.34	7.88	-59.4	186.1	66.1	4.4	0.445
BM-10	9/10/2019	10:44:13	0.5	23.88	139.9	11.8	8.97	-124.3	182	4.2	16.3	0.315
		10:43:11	5	23.49	124.6	10.58	8.84	-115.9	186	5	11.7	0.315
		10:42:09	10	22.97	125.6	10.77	8.68	-106.6	190.1	3.8	8.4	0.324
		10:40:47	15	22.67	137.9	11.89	8.64	-104.2	194	4.8	8.7	0.332
		10:39:00	20	19.75	97.9	8.93	8.14	-73.8	206.4	97.3	7	0.447
BM-11	6/25/2019	13:02:17	0.5	19.36	105.1	9.68	7.87	-57.7	139.4	13.9	2.5	0.154
	7/16/2019	12:41:34	0.5	21.19	100.3	8.91	7.91	-60.7	137.1	4.9	1.3	0.198
	7/30/2019	13:04:39	0.5	22.25	98.5	8.57	8.08	-70.9	178.4	7.5	1.1	0.249
	8/20/2019	12:43:31	0.5	22.99	87.6	7.51	8.05	-68.9	140.8	10.9	2.2	0.235
	9/10/2019	12:26:16	0.5	19.49	88.6	8.13	8.08	-70.5	179.5	5.80	1.3	0.312

APPENDIX B

BACTERIA SAMPLING DATA TABLES



M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9012531
Report: 05/14/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9012531-01 **Collected By:** Client **Sampled:** 05/13/19 12:50 **Received:** 05/13/19 13:28
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	11	mpn/100ml	1	SM 9223 B/Quantitray	05/13/19 15:57		JMW
Total Coliform	116	mpn/100ml	1	SM 9223 B/Quantitray	05/13/19 15:57		JMW

Lab ID: 9012531-02 **Collected By:** Client **Sampled:** 05/13/19 12:53 **Received:** 05/13/19 13:28
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	6	mpn/100ml	1	SM 9223 B/Quantitray	05/13/19 15:57		JMW
Total Coliform	292	mpn/100ml	1	SM 9223 B/Quantitray	05/13/19 15:57		JMW

Lab ID: 9012531-03 **Collected By:** Client **Sampled:** 05/13/19 12:56 **Received:** 05/13/19 13:28
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	866	mpn/100ml	1	SM 9223 B/Quantitray	05/13/19 15:57		JMW
Total Coliform	>2419.6	mpn/100ml	1	SM 9223 B/Quantitray	05/13/19 15:57		JMW



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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)



M.J. Reider Associates, Inc.

107 Angelica St, Reading PA, 19611
610-374-5129 www.mjreider.com

**WORK ORDER
Chain of Custody**

9012531



Client Code: 4092

Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr., Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr., Leesport, PA 19533

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

Collected By :
(Full Name)

Bianna Treichler

Comments: _____

9012531-01 SB-1

EC (#) SM 9223B, TC (#) SM 9223B

L

Matrix: Non-Potable Water

Type: Grab

Date: 13 MAY 19

Time: 1250

A - Sterile Pl 125ml NaThio

9012531-02 SB-2

EC (#) SM 9223B, TC (#) SM 9223B

C

Matrix: Non-Potable Water

Type: Grab

Date: 13 MAY 19

Time: 1253

A - Sterile Pl 125ml NaThio

9012531-03 SB-3

EC (#) SM 9223B, TC (#) SM 9223B

R

Matrix: Non-Potable Water

Type: Grab

Date: 13 MAY 19

Time: 1256

A - Sterile Pl 125ml NaThio

[Signature] 13 MAY 19 1328
Relinquished By Date/Time

Received By Date/Time

Relinquished By Date/Time

[Signature] 5-13-19 1328
Received at Laboratory By Date/Time

The Client, by signing (or having the client's agent sign), agrees to MJRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>10.2</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>[Signature]</u>
Entered By:	<u>[Signature]</u>

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:



Richard A Wheeler
Director of Field Services



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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)



M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9012532
Report: 05/20/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9012532-01 **Collected By:** Client **Sampled:** 05/16/19 11:40 **Received:** 05/16/19 13:04
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	6	mpn/100ml	1	SM 9223 B/Quantitray	05/16/19 15:41		JMW
Total Coliform	143	mpn/100ml	1	SM 9223 B/Quantitray	05/16/19 15:41		JMW

Lab ID: 9012532-02 **Collected By:** Client **Sampled:** 05/16/19 11:43 **Received:** 05/16/19 13:04
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	12	mpn/100ml	1	SM 9223 B/Quantitray	05/16/19 15:41		JMW
Total Coliform	435	mpn/100ml	1	SM 9223 B/Quantitray	05/16/19 15:41		JMW

Lab ID: 9012532-03 **Collected By:** Client **Sampled:** 05/16/19 11:46 **Received:** 05/16/19 13:04
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	11	mpn/100ml	1	SM 9223 B/Quantitray	05/16/19 15:41		JMW
Total Coliform	260	mpn/100ml	1	SM 9223 B/Quantitray	05/16/19 15:41		JMW



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610-374-5129 www.mjreider.com

**WORK ORDER
Chain of Custody**

9012532



Client Code: 4092

Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr., Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr., Leesport, PA 19533

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

Comments: _____

Collected By: Brianna Treichler
(Full Name)

9012532-01 SB-1

EC (#) SM 9223B, TC (#) SM 9223B L

Matrix: Non-Potable Water

Type: Grab

Date: 16 MAY 19

Time: 1140

A - Sterile Pl 125ml NaThio

9012532-02 SB-2

EC (#) SM 9223B, TC (#) SM 9223B C

Matrix: Non-Potable Water

Type: Grab

Date: 16 MAY 19

Time: 1143

A - Sterile Pl 125ml NaThio

9012532-03 SB-3

EC (#) SM 9223B, TC (#) SM 9223B R

Matrix: Non-Potable Water

Type: Grab

Date: 16 MAY 19

Time: 1146

A - Sterile Pl 125ml NaThio

[Signature] _____
Relinquished By Date/Time 5-16-19 1304 Received By _____ Date/Time _____

_____ Date/Time _____
Relinquished By Received at Laboratory By [Signature] Date/Time 5-16-19 1304

The Client, by signing (or having the client's agent sign), agrees to MJRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>15.4</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>[Signature]</u>
Entered By:	<u>[Signature]</u>

M.J. Reider Associates, Inc.

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Payment Terms

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Warranty & Litigation

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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)



M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9016693
Report: 05/21/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9016693-01 **Collected By:** Client **Sampled:** 05/20/19 08:23 **Received:** 05/20/19 08:56
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	687	mpn/100ml	1	SM 9223	05/20/19 15:57		JMW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223	05/20/19 15:57		JMW
				B/Quantitray			

Lab ID: 9016693-02 **Collected By:** Client **Sampled:** 05/20/19 08:26 **Received:** 05/20/19 08:56
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	980	mpn/100ml	1	SM 9223	05/20/19 15:57		JMW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223	05/20/19 15:57		JMW
				B/Quantitray			

Lab ID: 9016693-03 **Collected By:** Client **Sampled:** 05/20/19 08:29 **Received:** 05/20/19 08:56
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	1730	mpn/100ml	1	SM 9223	05/20/19 15:57		JMW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223	05/20/19 15:57		JMW
				B/Quantitray			



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M.J. Reider Associates, Inc.

107 Angelica St, Reading PA, 19611
610-374-5129 www.mjreider.com

Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

**BOTTLE ORDER
Chain of Custody**

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9016693

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By:
(Full Name)

Justin Hardy

Comments: _____

-01	SB-1		Matrix: Other Type: Grab	Date: <u>5-20-19</u> Time: <u>0823</u>
	EC (#) SM 9223B, TC (#) SM 9223B	<u>L</u>	A - Sterile Pl 125ml NaThio	
-02	SB-2		Matrix: Other Type: Grab	Date: <u>5-20-19</u> Time: <u>0826</u>
	EC (#) SM 9223B, TC (#) SM 9223B	<u>C</u>	A - Sterile Pl 125ml NaThio	
-03	SB-3		Matrix: Other Type: Grab	Date: <u>5-20-19</u> Time: <u>0829</u>
	EC (#) SM 9223B, TC (#) SM 9223B	<u>R</u>	A - Sterile Pl 125ml NaThio	

Justin Hardy

Relinquished By

0856 5-20-19
Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received at Laboratory By

Date/Time

Jean Vandzura

5-20-19 8:56

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>19.6</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>JSV</u>
Entered By:	<u>JSV</u>

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M.J. Reider Associates, Inc.

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Reviewed and Approved by:



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



M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9016976
Report: 05/24/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9016976-01 **Collected By:** Client **Sampled:** 05/22/19 08:20 **Received:** 05/22/19 08:51
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	18	mpn/100ml	1	SM 9223 B/Quantitray	05/22/19 15:20		JMW
Total Coliform	816	mpn/100ml	1	SM 9223 B/Quantitray	05/22/19 15:20		JMW

Lab ID: 9016976-02 **Collected By:** Client **Sampled:** 05/22/19 08:23 **Received:** 05/22/19 08:51
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	12	mpn/100ml	1	SM 9223 B/Quantitray	05/22/19 15:20		JMW
Total Coliform	328	mpn/100ml	1	SM 9223 B/Quantitray	05/22/19 15:20		JMW

Lab ID: 9016976-03 **Collected By:** Client **Sampled:** 05/22/19 08:26 **Received:** 05/22/19 08:51
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	23	mpn/100ml	1	SM 9223 B/Quantitray	05/22/19 15:20		JMW
Total Coliform	517	mpn/100ml	1	SM 9223 B/Quantitray	05/22/19 15:20		JMW



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M.J. Reider Associates, Inc.

107 Angelica St, Reading PA, 19611
610-374-5129 www.mjreider.com

Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

**BOTTLE ORDER
Chain of Custody**

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9016976

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3

PM: RAW



Collected By:
(Full Name)

Justin Hardy

Comments: _____

-01	SB-1	L	Matrix: Other Type: Grab	Date: <u>5-22-19</u> Time: <u>0820</u>
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile PI 125ml NaThio	
-02	SB-2	C	Matrix: Other Type: Grab	Date: <u>5-22-19</u> Time: <u>0823</u>
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile PI 125ml NaThio	
-03	SB-3	R	Matrix: Other Type: Grab	Date: <u>5-22-19</u> Time: <u>0826</u>
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile PI 125ml NaThio	

Justin Hardy

0851 5-22-19

Relinquished By

Date/Time

Received By

Date/Time

Jean Vandzow

5-22-19 08:51

Relinquished By

Date/Time

Received at Laboratory By

Date/Time

The Client, by signing (or having the client's agent sign), agrees to MJRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C): <u>17.1</u>	
Samples on Ice? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA	
Approved By: <u>JJV</u>	
Entered By:	

M.J. Reider Associates, Inc.

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M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9017130
Report: 05/24/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9017130-01 **Collected By:** Client **Sampled:** 05/23/19 08:09 **Received:** 05/23/19 09:45
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	13	mpn/100ml	1	SM 9223 B/Quantitray	05/23/19 14:53		JMW
Total Coliform	411	mpn/100ml	1	SM 9223 B/Quantitray	05/23/19 14:53		JMW

Lab ID: 9017130-02 **Collected By:** Client **Sampled:** 05/23/19 08:07 **Received:** 05/23/19 09:45
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	10	mpn/100ml	1	SM 9223 B/Quantitray	05/23/19 14:53		JMW
Total Coliform	921	mpn/100ml	1	SM 9223 B/Quantitray	05/23/19 14:53		JMW

Lab ID: 9017130-03 **Collected By:** Client **Sampled:** 05/23/19 08:11 **Received:** 05/23/19 09:45
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	8	mpn/100ml	1	SM 9223 B/Quantitray	05/23/19 14:53		JMW
Total Coliform	866	mpn/100ml	1	SM 9223 B/Quantitray	05/23/19 14:53		JMW



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Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

**BOTTLE ORDER
Chain of Custody**

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9017130

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By: Courtney Mayer
(Full Name)

Comments: _____

-01	SB-1	L	Matrix: Other Type: Grab A - Sterile Pl 125ml NaThio	Date: 5-23 Time: 8:09
	EC (#) SM 9223B, TC (#) SM 9223B			
-02	SB-2	C	Matrix: Other Type: Grab A - Sterile Pl 125ml NaThio	Date: 5-23 Time: 8:07
	EC (#) SM 9223B, TC (#) SM 9223B			
-03	SB-3	R	Matrix: Other Type: Grab A - Sterile Pl 125ml NaThio	Date: 5-23 Time: 8:11
	EC (#) SM 9223B, TC (#) SM 9223B			

Relinquished By: [Signature] Date/Time: 5/23/19 0945

Received By: [Signature] Date/Time: _____

Relinquished By: _____ Date/Time: _____

Received at Laboratory By: [Signature] Date/Time: 5/23/19 0945

The Client, by signing (or having the client's agent sign), agrees to MJRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	9
Samples on Ice?	Yes No NA
Approved By:	<u>[Signature]</u>
Entered By:	<u>[Signature]</u>

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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)



M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9017671
Report: 05/30/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9017671-01 **Collected By:** Client **Sampled:** 05/28/19 14:23 **Received:** 05/28/19 15:00
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	10	mpn/100ml	1	SM 9223 B/Quantitray	05/28/19 16:32		JMW
Total Coliform	>2419.6	mpn/100ml	1	SM 9223 B/Quantitray	05/28/19 16:32		JMW

Lab ID: 9017671-02 **Collected By:** Client **Sampled:** 05/28/19 14:26 **Received:** 05/28/19 15:00
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	4	mpn/100ml	1	SM 9223 B/Quantitray	05/28/19 16:32		JMW
Total Coliform	1990	mpn/100ml	1	SM 9223 B/Quantitray	05/28/19 16:32		JMW

Lab ID: 9017671-03 **Collected By:** Client **Sampled:** 05/28/19 14:29 **Received:** 05/28/19 15:00
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	4	mpn/100ml	1	SM 9223 B/Quantitray	05/28/19 16:32		JMW
Total Coliform	1300	mpn/100ml	1	SM 9223 B/Quantitray	05/28/19 16:32		JMW



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M.J. Reider Associates, Inc.

107 Angelica St, Reading PA, 19611
610-374-5129 www.mjreider.com

Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

**BOTTLE ORDER
Chain of Custody**

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9017671

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By: Olivia Robertson
(Full Name)

Comments: _____

-01	SB-1	L	Matrix: Other	Date: 5/28/19
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: 2:23
			A - Sterile PI 125ml NaThio	1423
-02	SB-2	C	Matrix: Other	Date: 5/28/19
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: 2:26
			A - Sterile PI 125ml NaThio	1426
-03	SB-3	R	Matrix: Other	Date: 5/28/19
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: 2:29
			A - Sterile PI 125ml NaThio	1429

Olivia Robertson 5/29/19 1500
Relinquished By Date/Time

Jane B. Khan 5/29/19 1500
Received By Date/Time
Received at Laboratory By Date/Time

Relinquished By _____ Date/Time _____

The Client, by signing (or having the client's agent sign), agrees to MJRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	13
Samples on Ice?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Approved By:	<u>RAW</u>
Entered By:	<u>RAW</u>

M.J. Reider Associates, Inc.

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Reviewed and Approved by:



Richard A Wheeler
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M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9017959
Report: 06/03/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9017959-01 **Collected By:** Client **Sampled:** 05/30/19 08:08 **Received:** 05/30/19 09:02
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	102	mpn/100ml	1	SM 9223	05/30/19 9:42		DRW
Total Coliform	2420	mpn/100ml	1	B/Quantitray SM 9223	05/30/19 9:42		DRW
				B/Quantitray			

Lab ID: 9017959-02 **Collected By:** Client **Sampled:** 05/30/19 08:10 **Received:** 05/30/19 09:02
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	291	mpn/100ml	1	SM 9223	05/30/19 9:42		DRW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223	05/30/19 9:42		DRW
				B/Quantitray			

Lab ID: 9017959-03 **Collected By:** Client **Sampled:** 05/30/19 08:12 **Received:** 05/30/19 09:02
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	411	mpn/100ml	1	SM 9223	05/30/19 9:42		DRW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223	05/30/19 9:42		DRW
				B/Quantitray			



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M.J. Reider Associates, Inc.

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610-374-5129 www.mjreider.com

Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

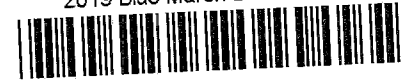
BOTTLE ORDER Chain of Custody

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9017959

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By: _____
(Full Name)

Comments: _____

-01	SB-1	L	Matrix: Other Type: Grab	Date: 5/30/19 Time: 0808
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile PI 125ml NaThio	
-02	SB-2	C	Matrix: Other Type: Grab	Date: 5/30/19 Time: 0810
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile PI 125ml NaThio	
-03	SB-3	R	Matrix: Other Type: Grab	Date: 5/30/19 Time: 0812
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile PI 125ml NaThio	

Ryan Schrettruff 5/30/19 0902
Relinquished By Date/Time

Emily Cyle 5-30-19 902
Received By Date/Time
Received at Laboratory By Date/Time

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	10.6
Samples on Ice?	Yes No NA
Approved By:	ECC
Entered By:	AS

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M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9018299
Report: 06/04/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9018299-01 **Collected By:** Client **Sampled:** 05/31/19 12:25 **Received:** 05/31/19 12:54
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	93	mpn/100ml	1	SM 9223	05/31/19 16:28		JMW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223	05/31/19 16:28		JMW
				B/Quantitray			

Lab ID: 9018299-02 **Collected By:** Client **Sampled:** 05/31/19 12:28 **Received:** 05/31/19 12:54
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	88	mpn/100ml	1	SM 9223	05/31/19 16:28		JMW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223	05/31/19 16:28		JMW
				B/Quantitray			

Lab ID: 9018299-03 **Collected By:** Client **Sampled:** 05/31/19 12:31 **Received:** 05/31/19 12:54
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Analyte Notes	Analyst
Microbiology							
Escherichia coli	64	mpn/100ml	1	SM 9223	05/31/19 16:28		JMW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223	05/31/19 16:28		JMW
				B/Quantitray			



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M.J. Reider Associates, Inc.

107 Angelica St, Reading PA, 19611
610-374-5129 www.mjreider.com

Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533
Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

BOTTLE ORDER
Chain of Custody

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9018299

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By:
(Full Name)

Justin Hardy

Comments: _____

-01	SB-1		Matrix: Other	Date: <u>5-31-19</u>
	EC (#) SM 9223B, TC (#) SM 9223B	<u>L</u>	Type: Grab	Time: <u>1225</u>
			A - Sterile Pl 125ml NaThio	
-02	SB-2		Matrix: Other	Date: <u>5-31-19</u>
	EC (#) SM 9223B, TC (#) SM 9223B	<u>C</u>	Type: Grab	Time: <u>1228</u>
			A - Sterile Pl 125ml NaThio	
-03	SB-3		Matrix: Other	Date: <u>5-31-19</u>
	EC (#) SM 9223B, TC (#) SM 9223B	<u>R</u>	Type: Grab	Time: <u>1231</u>
			A - Sterile Pl 125ml NaThio	

Justin Hardy 1254 5-31-19
Relinquished By Date/Time

Received By Date/Time

Relinquished By Date/Time

[Signature] 5-31-19 1254
Received at Laboratory By Date/Time

The Client, by signing (or having the client's agent sign), agrees to MJRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>3.1°</u>
Samples on Ice?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Approved By:	<u>[Signature]</u>
Entered By:	

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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)



M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9018482
Report: 06/05/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9018482-01 **Collected By:** Client **Sampled:** 06/03/19 09:56 **Received:** 06/03/19 10:30
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	25	mpn/100ml	1	SM 9223	06/03/19 15:16		JMW
Total Coliform	649	mpn/100ml	1	B/Quantitray SM 9223	06/03/19 15:16		JMW
				B/Quantitray			

Lab ID: 9018482-02 **Collected By:** Client **Sampled:** 06/03/19 09:59 **Received:** 06/03/19 10:30
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	6	mpn/100ml	1	SM 9223	06/03/19 15:16		JMW
Total Coliform	313	mpn/100ml	1	B/Quantitray SM 9223	06/03/19 15:16		JMW
				B/Quantitray			

Lab ID: 9018482-03 **Collected By:** Client **Sampled:** 06/03/19 10:02 **Received:** 06/03/19 10:30
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	4	mpn/100ml	1	SM 9223	06/03/19 15:16		JMW
Total Coliform	411	mpn/100ml	1	B/Quantitray SM 9223	06/03/19 15:16		JMW
				B/Quantitray			



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M.J. Reider Associates, Inc.

107 Angelica St, Reading PA, 19611
610-374-5129 www.mjreider.com

Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

BOTTLE ORDER
Chain of Custody

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9018482

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By: Justin Hardy
(Full Name)

Comments: _____

-01	SB-1	L	Matrix: Other Type: Grab	Date: <u>6-3-19</u> Time: <u>0956</u>
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile PI 125ml NaThio	
-02	SB-2	C	Matrix: Other Type: Grab	Date: <u>6-3-19</u> Time: <u>0959</u>
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile PI 125ml NaThio	
-03	SB-3	R	Matrix: Other Type: Grab	Date: <u>6-3-19</u> Time: <u>1002</u>
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile PI 125ml NaThio	

Justin Hardy 1030 6-3-19
Relinquished By Date/Time

Tjean Vandzura 10/3/19 10:30
Received at Laboratory By Date/Time

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>20.4</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>TSV</u>
Entered By:	<u>TSV</u>

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M.J. Reider Associates, Inc.

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Reviewed and Approved by:



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M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9019123
Report: 06/10/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9019123-01 **Collected By:** Client **Sampled:** 06/06/19 08:09 **Received:** 06/06/19 09:02
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	6	mpn/100ml	1	SM 9223 B/Quantitray	06/06/19 10:00		JMW
Total Coliform	2420	mpn/100ml	1	SM 9223 B/Quantitray	06/06/19 10:00		JMW

Lab ID: 9019123-02 **Collected By:** Client **Sampled:** 06/06/19 08:12 **Received:** 06/06/19 09:02
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	31	mpn/100ml	1	SM 9223 B/Quantitray	06/06/19 10:00		JMW
Total Coliform	1050	mpn/100ml	1	SM 9223 B/Quantitray	06/06/19 10:00		JMW

Lab ID: 9019123-03 **Collected By:** Client **Sampled:** 06/06/19 08:16 **Received:** 06/06/19 09:02
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	29	mpn/100ml	1	SM 9223 B/Quantitray	06/06/19 10:00		JMW
Total Coliform	1990	mpn/100ml	1	SM 9223 B/Quantitray	06/06/19 10:00		JMW



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M.J. Reider Associates, Inc.

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610-374-5129 www.mjreider.com

Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

BOTTLE ORDER Chain of Custody

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9019123

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By: Willow Shudge
(Full Name)

Comments: _____

-01	SB-1	L	EC (#) SM 9223B, TC (#) SM 9223B	Matrix: Other Type: Grab A - Sterile PI 125ml NaThio	Date: <u>6-6-19</u> Time: <u>8:00</u>
-02	SB-2	C	EC (#) SM 9223B, TC (#) SM 9223B	Matrix: Other Type: Grab A - Sterile PI 125ml NaThio	Date: <u>6-6-19</u> Time: <u>8:10</u>
-03	SB-3	R	EC (#) SM 9223B, TC (#) SM 9223B	Matrix: Other Type: Grab A - Sterile PI 125ml NaThio	Date: <u>6-6-19</u> Time: <u>8:16</u>

Willow Shudge June 6, 2019 9:02
Relinquished By Date/Time

Emily Cylch 6-6-19 9:02
Received By Date/Time

Relinquished By Date/Time

Received at Laboratory By Date/Time

The Client, by signing (or having the client's agent sign), agrees to MJRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>16</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>ecc</u>
Entered By:	<u>ecc</u>

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Richard A Wheeler
Director of Field Services



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M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9019568
Report: 06/12/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9019568-01 **Collected By:** Client **Sampled:** 06/10/19 08:12 **Received:** 06/10/19 08:59
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	13	mpn/100ml	1	SM 9223 B/Quantitray	06/10/19 16:10		JMW
Total Coliform	1730	mpn/100ml	1	SM 9223 B/Quantitray	06/10/19 16:10		JMW

Lab ID: 9019568-02 **Collected By:** Client **Sampled:** 06/10/19 08:15 **Received:** 06/10/19 08:59
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	7	mpn/100ml	1	SM 9223 B/Quantitray	06/10/19 16:10		JMW
Total Coliform	1200	mpn/100ml	1	SM 9223 B/Quantitray	06/10/19 16:10		JMW

Lab ID: 9019568-03 **Collected By:** Client **Sampled:** 06/10/19 08:18 **Received:** 06/10/19 08:59
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	37	mpn/100ml	1	SM 9223 B/Quantitray	06/10/19 16:10		JMW
Total Coliform	980	mpn/100ml	1	SM 9223 B/Quantitray	06/10/19 16:10		JMW



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M.J. Reider Associates, Inc.

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610-374-5129 www.mjreider.com

Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

BOTTLE ORDER
Chain of Custody

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9019568

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By: Justin Hardy
(Full Name)

Comments: _____

-01	SB-1	L	EC (#) SM 9223B, TC (#) SM 9223B	Matrix: Other Type: Grab A - Sterile PI 125ml NaThio	Date: 6-10-19 Time: 0812
-02	SB-2	C	EC (#) SM 9223B, TC (#) SM 9223B	Matrix: Other Type: Grab A - Sterile PI 125ml NaThio	Date: 6-10-19 Time: 0815
-03	SB-3	R	EC (#) SM 9223B, TC (#) SM 9223B	Matrix: Other Type: Grab A - Sterile PI 125ml NaThio	Date: 6-10-19 Time: 0818

Justin Hardy 0859 6-10-19
Relinquished By Date/Time

Jean Vanduzee 6-10-19 8:59
Received By Date/Time

Relinquished By _____ Date/Time _____

Received at Laboratory By _____ Date/Time _____

The Client, by signing (or having the client's agent sign), agrees to MJRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	14.8
Samples on Ice?	Yes No NA
Approved By:	JSV
Entered By:	JSV

M.J. Reider Associates, Inc.

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Richard A Wheeler
Director of Field Services



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



M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9020086
Report: 06/14/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9020086-01 **Collected By:** Client **Sampled:** 06/13/19 08:21 **Received:** 06/13/19 09:16
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	2	mpn/100ml	1	SM 9223 B/Quantitray	06/13/19 13:57		JMW
Total Coliform	866	mpn/100ml	1	SM 9223 B/Quantitray	06/13/19 13:57		JMW

Lab ID: 9020086-02 **Collected By:** Client **Sampled:** 06/13/19 08:24 **Received:** 06/13/19 09:16
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	5	mpn/100ml	1	SM 9223 B/Quantitray	06/13/19 13:57		JMW
Total Coliform	980	mpn/100ml	1	SM 9223 B/Quantitray	06/13/19 13:57		JMW

Lab ID: 9020086-03 **Collected By:** Client **Sampled:** 06/13/19 08:26 **Received:** 06/13/19 09:16
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	4	mpn/100ml	1	SM 9223 B/Quantitray	06/13/19 13:57		JMW
Total Coliform	1300	mpn/100ml	1	SM 9223 B/Quantitray	06/13/19 13:57		JMW



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M.J. Reider Associates, Inc.

107 Angelica St, Reading PA, 19611
610-374-5129 www.mjreider.com

Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

**BOTTLE ORDER
Chain of Custody**

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9020086

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Comments: _____

Collected By:
(Full Name)

Amanda Aulenbach

-01	SB-1	L	Matrix: Other Type: Grab	Date: 6/13/19 Time: 0821
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile Pl 125ml NaThio	
-02	SB-2	C	Matrix: Other Type: Grab	Date: 6/13/19 Time: 0824
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile Pl 125ml NaThio	
-03	SB-3	R	Matrix: Other Type: Grab	Date: 6/13/19 Time: 0826
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile Pl 125ml NaThio	

Amanda Aulenbach 6/13/19 0916
Relinquished By Date/Time

[Signature] 6-13-19 916
Received By Date/Time

Relinquished By Date/Time

The Client, by signing (or having the client's agent sign), agrees to MIRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	13.2
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>[Signature]</u>
Entered By:	<u>[Signature]</u>

M.J. Reider Associates, Inc.

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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)



M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9020520
Report: 06/19/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9020520-01 **Collected By:** Client **Sampled:** 06/17/19 08:18 **Received:** 06/17/19 08:56
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	16	mpn/100ml	1	SM 9223	06/17/19 14:02		JMW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223 B/Quantitray	06/17/19 14:02		JMW

Lab ID: 9020520-02 **Collected By:** Client **Sampled:** 06/17/19 08:21 **Received:** 06/17/19 08:56
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	20	mpn/100ml	1	SM 9223	06/17/19 14:02		JMW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223 B/Quantitray	06/17/19 14:02		JMW

Lab ID: 9020520-03 **Collected By:** Client **Sampled:** 06/17/19 08:24 **Received:** 06/17/19 08:56
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	27	mpn/100ml	1	SM 9223	06/17/19 14:02		JMW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223 B/Quantitray	06/17/19 14:02		JMW



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M.J. Reider Associates, Inc.

107 Angelica St, Reading PA, 19611

610-374-5129 www.mjreider.com

Client Code: 4092

Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

BOTTLE ORDER

Chain of Custody

Client: US Army Corp of Engineers

Project: 2019 Blue Marsh Beach 1,2,3

9020520

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By:
(Full Name)

Justin Hardy

Comments: _____

-01	SB-1	L	Matrix: Other	Date: <u>6-17-19</u>
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: <u>0818</u>
			A - Sterile PI 125ml NaThio	
-02	SB-2	C	Matrix: Other	Date: <u>6-17-19</u>
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: <u>0821</u>
			A - Sterile PI 125ml NaThio	
-03	SB-3	R	Matrix: Other	Date: <u>6-17-19</u>
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: <u>0824</u>
			A - Sterile PI 125ml NaThio	

Justin Hardy

Relinquished By

6-17-19

Date/Time

0856

Relinquished By

Date/Time

Received By

Date/Time

Jean Vandzwe 6-17-19 8:56

Received at Laboratory By

Date/Time

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>17.0</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>JJV</u>
Entered By:	

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M.J. Reider Associates, Inc.

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Reviewed and Approved by:



Richard A Wheeler
Director of Field Services



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M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9021168
Report: 06/24/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9021168-01 **Collected By:** Client **Sampled:** 06/20/19 09:16 **Received:** 06/20/19 09:48
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	1200	mpn/100ml	1	SM 9223	06/20/19 14:44		JMW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223 B/Quantitray	06/20/19 14:44		JMW

Lab ID: 9021168-02 **Collected By:** Client **Sampled:** 06/20/19 09:18 **Received:** 06/20/19 09:48
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	1410	mpn/100ml	1	SM 9223	06/20/19 14:44		JMW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223 B/Quantitray	06/20/19 14:44		JMW

Lab ID: 9021168-03 **Collected By:** Client **Sampled:** 06/20/19 09:20 **Received:** 06/20/19 09:48
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	2420	mpn/100ml	1	SM 9223	06/20/19 14:44		JMW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223 B/Quantitray	06/20/19 14:44		JMW



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M.J. Reider Associates, Inc.

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610-374-5129 www.mjreider.com

**BOTTLE ORDER
Chain of Custody**

9021168

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Client Code: 4092
Project Manager: Richard A Wheeler

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533
Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Collected By: Courtney Moyer
(Full Name)

Comments: _____

-01	SB-1	L	Matrix: Other	Date: <u>June 20, 2019</u>
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: <u>09:16</u>
			A - Sterile PI 125ml NaThio	
-02	SB-2	C	Matrix: Other	Date: <u>June 20, 2019</u>
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: <u>09:18</u>
			A - Sterile PI 125ml NaThio	
-03	SB-3	R	Matrix: Other	Date: <u>June 20, 2019</u>
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: <u>09:20</u>
			A - Sterile PI 125ml NaThio	

Relinquished By: Courtney Moyer Date/Time: 6/20/19 9:48

Received By: _____ Date/Time: _____
Received at Laboratory By: Jean Vanduzer Date/Time: 6/20/19 9:48

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>20.6</u>
Samples on Ice?	Yes <input checked="" type="radio"/> No <input type="radio"/> NA <input type="radio"/>
Approved By:	<u>JJY</u>
Entered By:	<u>JJY</u>

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Reviewed and Approved by:



Richard A Wheeler
Director of Field Services



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Certificate of Analysis

M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Laboratory No.: 9021336

Report: 06/25/19

Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9021336-01 **Collected By:** Client **Sampled:** 06/21/19 13:12 **Received:** 06/21/19 13:50
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	2420	mpn/100ml	1	SM 9223	06/21/19 17:00		DRW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223	06/21/19 17:00		DRW
				B/Quantitray			

Lab ID: 9021336-02 **Collected By:** Client **Sampled:** 06/21/19 13:14 **Received:** 06/21/19 13:50
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	1990	mpn/100ml	1	SM 9223	06/21/19 17:00		DRW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223	06/21/19 17:00		DRW
				B/Quantitray			

Lab ID: 9021336-03 **Collected By:** Client **Sampled:** 06/21/19 13:16 **Received:** 06/21/19 13:50
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	1120	mpn/100ml	1	SM 9223	06/21/19 17:00		DRW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223	06/21/19 17:00		DRW
				B/Quantitray			



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



M.J. Reider Associates, Inc.

107 Angelica St, Reading PA, 19611
610-374-5129 www.mjreider.com

Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

**BOTTLE ORDER
Chain of Custody**

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9021336

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By:
(Full Name)

Jim Seudel

Comments:

Email results 6/22/19
and verbal on phone

DRW

-01	SB-1	L	Matrix: Other Type: Grab	Date: <u>June 21st, 2019</u> Time: <u>13:12</u>
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile PI 125ml NaThio	
-02	SB-2	C	Matrix: Other Type: Grab	Date: <u>June 21st, 2019</u> Time: <u>13:14</u>
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile PI 125ml NaThio	
-03	SB-3	R	Matrix: Other Type: Grab	Date: <u>June 21st, 2019</u> Time: <u>13:16</u>
	EC (#) SM 9223B, TC (#) SM 9223B		A - Sterile PI 125ml NaThio	

Jim Seudel

Relinquished By

6-21-19 13:50

Date/Time

Received By

Emily Cofe

Date/Time

6-21-19 13:50

Date/Time

Relinquished By

Date/Time

Received at Laboratory By

The Client, by signing (or having the client's agent sign), agrees to MJRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>10.7</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>ECC</u>
Entered By:	<u>EC</u>

M.J. Reider Associates, Inc.

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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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M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9021499
Report: 06/25/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9021499-01 **Collected By:** Client **Sampled:** 06/24/19 08:11 **Received:** 06/24/19 08:52
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	38	mpn/100ml	1	SM 9223	06/24/19 16:09		JMW
Total Coliform	1730	mpn/100ml	1	B/Quantitray SM 9223	06/24/19 16:09		JMW
				B/Quantitray			

Lab ID: 9021499-02 **Collected By:** Client **Sampled:** 06/24/19 08:14 **Received:** 06/24/19 08:52
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	46	mpn/100ml	1	SM 9223	06/24/19 16:09		JMW
Total Coliform	>2419.6	mpn/100ml	1	B/Quantitray SM 9223	06/24/19 16:09		JMW
				B/Quantitray			

Lab ID: 9021499-03 **Collected By:** Client **Sampled:** 06/24/19 08:17 **Received:** 06/24/19 08:52
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep Limit	Analysis Method	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	59	mpn/100ml	1	SM 9223	06/24/19 16:09		JMW
Total Coliform	1730	mpn/100ml	1	B/Quantitray SM 9223	06/24/19 16:09		JMW
				B/Quantitray			



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BOTTLE ORDER
Chain of Custody

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Client Code: 4092

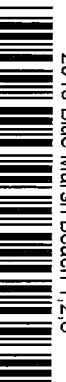
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

9021499
US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3

PM: RAW



Collected By: Justin Hardy

Comments: _____

-01 SB-1 Matrix:Other Date: 6-24-19
Type: Grab Time: 0811

EC (#) SM 9223B, TC (#) SM 9223B A - Sterile P1 125ml NaThio

-02 SB-2 Matrix:Other Date: 6-24-19
Type: Grab Time: 0814

EC (#) SM 9223B, TC (#) SM 9223B A - Sterile P1 125ml NaThio

-03 SB-3 Matrix:Other Date: 6-24-19
Type: Grab Time: 0817

EC (#) SM 9223B, TC (#) SM 9223B A - Sterile P1 125ml NaThio

Requisitioned By: Justin Hardy Date/Time: 6-24-19 0852

Received By: Sean Vandgraves Date/Time: 6-24-19 08:52

Requisitioned By: _____ Date/Time: _____

Received at Laboratory By: _____ Date/Time: _____

The Client, by signing (or having the client's agent sign), agrees to MIRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>17.3</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Approved By:	<u>JSV</u>
Entered By:	<u>JSV</u>

Report Template: int_COC Is

M.J. Reider Associates, Inc.

MJRA Terms & Conditions

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Reviewed and Approved by:



Richard A Wheeler
Director of Field Services



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M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9021705
Report: 06/27/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9021705-01 **Collected By:** Client **Sampled:** 06/25/19 08:40 **Received:** 06/25/19 09:31
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	15	mpn/100ml	1	SM 9223 B/Quantitray	06/25/19 10:13		JMW
Total Coliform	770	mpn/100ml	1	SM 9223 B/Quantitray	06/25/19 10:13		JMW

Lab ID: 9021705-02 **Collected By:** Client **Sampled:** 06/25/19 08:43 **Received:** 06/25/19 09:31
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	15	mpn/100ml	1	SM 9223 B/Quantitray	06/25/19 10:13		JMW
Total Coliform	1300	mpn/100ml	1	SM 9223 B/Quantitray	06/25/19 10:13		JMW

Lab ID: 9021705-03 **Collected By:** Client **Sampled:** 06/25/19 08:46 **Received:** 06/25/19 09:31
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Procedure	Incubated	Notes	Analyst
Microbiology							
Escherichia coli	46	mpn/100ml	1	SM 9223 B/Quantitray	06/25/19 10:13		JMW
Total Coliform	640	mpn/100ml	1	SM 9223 B/Quantitray	06/25/19 10:13		JMW



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M.J. Reider Associates, Inc.

107 Angelica St, Reading PA, 19611
610-374-5129 www.mjreider.com

Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

BOTTLE ORDER Chain of Custody

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9021705

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By:
(Full Name)

Taylor N Boyer

Comments: _____

-01	SB-1	L	Matrix: Other	Date: <u>6/25/19</u>
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: <u>8:40</u>
			A - Sterile PI 125ml NaThio	
-02	SB-2	C	Matrix: Other	Date: <u>6/25/19</u>
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: <u>8:43</u>
			A - Sterile PI 125ml NaThio	
-03	SB-3	R	Matrix: Other	Date: <u>6/25/19</u>
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: <u>8:46</u>
			A - Sterile PI 125ml NaThio	

Taylor Boyer 6/25/19 9:31
Relinquished By Date/Time

Received By Date/Time

Relinquished By Date/Time

J. G. Givens 6-25-19 9:31
Received at Laboratory By Date/Time

The Client, by signing (or having the client's agent sign), agrees to MJRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>18.1</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>[Signature]</u>
Entered By:	<u>[Signature]</u>

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Reviewed and Approved by:



Richard A Wheeler
Director of Field Services



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Certificate of Analysis

M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Laboratory No.: 9021934

Report: 06/27/19

Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9021934-01 **Collected By:** Client **Sampled:** 06/26/19 08:08 **Received:** 06/26/19 08:55
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	59	mpn/100ml	1	SM 9223	6/26/19	6/27/19		JMW
				B/Quantitray	15:28	9:31		
Total Coliform	2420	mpn/100ml	1	SM 9223	6/26/19	6/27/19		JMW
				B/Quantitray	15:28	9:31		

Lab ID: 9021934-02 **Collected By:** Client **Sampled:** 06/26/19 08:11 **Received:** 06/26/19 08:55
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	6	mpn/100ml	1	SM 9223	6/26/19	6/27/19		JMW
				B/Quantitray	15:28	9:31		
Total Coliform	770	mpn/100ml	1	SM 9223	6/26/19	6/27/19		JMW
				B/Quantitray	15:28	9:31		

Lab ID: 9021934-03 **Collected By:** Client **Sampled:** 06/26/19 08:14 **Received:** 06/26/19 08:55
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	62	mpn/100ml	1	SM 9223	6/26/19	6/27/19		JMW
				B/Quantitray	15:28	9:31		
Total Coliform	2420	mpn/100ml	1	SM 9223	6/26/19	6/27/19		JMW
				B/Quantitray	15:28	9:31		



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



M.J. Reider Associates, Inc.

107 Angelica St, Reading PA, 19611
610-374-5129 www.mjreider.com

Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

BOTTLE ORDER Chain of Custody

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9021934

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By: Justin Hardy
(Full Name)

Comments: _____

-01	SB-1	L	Matrix: Other	Date: 06-26-19
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: 0808
			A - Sterile Pl 125ml NaThio	
-02	SB-2	C	Matrix: Other	Date: 06-26-19
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: 0811
			A - Sterile Pl 125ml NaThio	
-03	SB-3	R	Matrix: Other	Date: 06-26-19
	EC (#) SM 9223B, TC (#) SM 9223B		Type: Grab	Time: 0814
			A - Sterile Pl 125ml NaThio	

Justin Hardy
Relinquished By _____ Date/Time: 6-26-19 0853

Jean Vandzuy
Received By _____ Date/Time: 6-26-19 8:55
Received at Laboratory By _____ Date/Time: _____

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	17.9
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	JJV
Entered By:	

The Client, by signing (or having the client's agent sign), agrees to MJRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

M.J. Reider Associates, Inc.

MJRA Terms & Conditions

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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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M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9025847
Report: 07/30/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9025847-01 **Collected By:** Client **Sampled:** 07/25/19 08:00 **Received:** 07/25/19 09:25
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	4	mpn/100ml	1	SM 9223	7/25/19	7/26/19		DRW
				B/Quantitray	10:48	11:21		
Total Coliform	914	mpn/100ml	1	SM 9223	7/25/19	7/26/19		DRW
				B/Quantitray	10:48	11:21		

Lab ID: 9025847-02 **Collected By:** Client **Sampled:** 07/25/19 08:03 **Received:** 07/25/19 09:25
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	28	mpn/100ml	1	SM 9223	7/25/19	7/26/19		DRW
				B/Quantitray	10:48	11:21		
Total Coliform	961	mpn/100ml	1	SM 9223	7/25/19	7/26/19		DRW
				B/Quantitray	10:48	11:21		

Lab ID: 9025847-03 **Collected By:** Client **Sampled:** 07/25/19 08:06 **Received:** 07/25/19 09:25
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	32	mpn/100ml	1	SM 9223	7/25/19	7/26/19		DRW
				B/Quantitray	10:48	11:21		
Total Coliform	1730	mpn/100ml	1	SM 9223	7/25/19	7/26/19		DRW
				B/Quantitray	10:48	11:21		



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M.J. Reider Associates, Inc.

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610-374-5129 www.mjreider.com

Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

**BOTTLE ORDER
Chain of Custody**

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9025847

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By: Brianna Treichler
(Full Name)

Comments: _____

-01 SB-1

EC (#) SM 9223B, TC (#) SM 9223B

L

Matrix: Other
Type: Grab

Date: 25 JUL 2019
Time: 0800

A - Sterile PI 125ml NaThio

-02 SB-2

EC (#) SM 9223B, TC (#) SM 9223B

C

Matrix: Other
Type: Grab

Date: 25 JUL 2019
Time: 0803

A - Sterile PI 125ml NaThio

-03 SB-3

EC (#) SM 9223B, TC (#) SM 9223B

R

Matrix: Other
Type: Grab

Date: 25 JUL 2019
Time: 0806

A - Sterile PI 125ml NaThio

[Signature]
Relinquished By _____ Date/Time 25 JUL 19 0925

Relinquished By _____ Date/Time _____

Received By _____ Date/Time _____
Emily Caylor
Received at Laboratory By _____ Date/Time 7-25-19 925

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>17.0C</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>ECC</u>
Entered By:	

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M.J. Reider Associates, Inc.

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Reviewed and Approved by:



Amy L Morriss For Richard A Wheeler
Director of Field Services



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Certificate of Analysis

M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Laboratory No.: 9026271

Report: 07/30/19

Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9026271-01 **Collected By:** Client **Sampled:** 07/29/19 07:59 **Received:** 07/29/19 08:43
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	12	mpn/100ml	1	SM 9223	7/29/19	7/30/19		JMW
				B/Quantitray	15:03	9:23		
Total Coliform	>2419.6	mpn/100ml	1	SM 9223	7/29/19	7/30/19		JMW
				B/Quantitray	15:03	9:23		

Lab ID: 9026271-02 **Collected By:** Client **Sampled:** 07/29/19 08:02 **Received:** 07/29/19 08:43
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	15	mpn/100ml	1	SM 9223	7/29/19	7/30/19		JMW
				B/Quantitray	15:03	9:23		
Total Coliform	>2419.6	mpn/100ml	1	SM 9223	7/29/19	7/30/19		JMW
				B/Quantitray	15:03	9:23		

Lab ID: 9026271-03 **Collected By:** Client **Sampled:** 07/29/19 08:05 **Received:** 07/29/19 08:43
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	30	mpn/100ml	1	SM 9223	7/29/19	7/30/19		JMW
				B/Quantitray	15:03	9:23		
Total Coliform	>2419.6	mpn/100ml	1	SM 9223	7/29/19	7/30/19		JMW
				B/Quantitray	15:03	9:23		



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M.J. Reider Associates, Inc.

107 Angelica St, Reading PA, 19611
610-374-5129 www.mjreider.com

Client Code: **4092**
Project Manager: **Richard A Wheeler**

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

BOTTLE ORDER
Chain of Custody

Client: **US Army Corp of Engineers**
Project: **2019 Blue Marsh Beach 1,2,3**

9026271

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By: Justin Hardy (Full Name) Comments: _____

-01	SB-1	L	Matrix: Other Type: Grab	Date: <u>7-29-19</u> Time: <u>0759</u>
EC (#) SM 9223B, TC (#) SM 9223B			A - Sterile PI 125ml NaThio	
-02	SB-2	C	Matrix: Other Type: Grab	Date: <u>7-29-19</u> Time: <u>0802</u>
EC (#) SM 9223B, TC (#) SM 9223B			A - Sterile PI 125ml NaThio	
-03	SB-3	R	Matrix: Other Type: Grab	Date: <u>7-29-19</u> Time: <u>0805</u>
EC (#) SM 9223B, TC (#) SM 9223B			A - Sterile PI 125ml NaThio	

Justin Hardy Relinquished By Date/Time: 0843 7-29-19

Jean Vandzura Received By Date/Time: 7/29/19 8:43

Relinquished By Date/Time: _____

Received at Laboratory By Date/Time: _____

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>20.9</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>JV</u>
Entered By:	<u>JV</u>

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Reviewed and Approved by:



Rafael A Quijada For Richard A Wheeler
Director of Field Services



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M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

Laboratory No.: 9027740
Report: 08/09/19
Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9027740-01 **Collected By:** Client **Sampled:** 08/08/19 08:24 **Received:** 08/08/19 08:58
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	308	mpn/100ml	1	SM 9223	8/8/19	8/9/19		JMW
				B/Quantitray	10:02	10:18		
Total Coliform	>2419.6	mpn/100ml	1	SM 9223	8/8/19	8/9/19		JMW
				B/Quantitray	10:02	10:18		

Lab ID: 9027740-02 **Collected By:** Client **Sampled:** 08/08/19 08:27 **Received:** 08/08/19 08:58
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	91	mpn/100ml	1	SM 9223	8/8/19	8/9/19		JMW
				B/Quantitray	10:02	10:18		
Total Coliform	>2419.6	mpn/100ml	1	SM 9223	8/8/19	8/9/19		JMW
				B/Quantitray	10:02	10:18		

Lab ID: 9027740-03 **Collected By:** Client **Sampled:** 08/08/19 08:29 **Received:** 08/08/19 08:58
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	64	mpn/100ml	1	SM 9223	8/8/19	8/9/19		JMW
				B/Quantitray	10:02	10:18		
Total Coliform	>2419.6	mpn/100ml	1	SM 9223	8/8/19	8/9/19		JMW
				B/Quantitray	10:02	10:18		



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M.J. Reider Associates, Inc.

107 Angelica St, Reading PA, 19611
610-374-5129 www.mjreider.com

Client Code: 4092

Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

BOTTLE ORDER

Chain of Custody

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9027740

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By:
(Full Name)

Mitchell Cole

Comments: _____

-01 SB-1

EC (#) SM 9223B, TC (#) SM 9223B

L

Matrix: Other
Type: Grab

A - Sterile Pl 125ml NaThio

Date: *8/8/19*
Time: *0824*

-02 SB-2

EC (#) SM 9223B, TC (#) SM 9223B

C

Matrix: Other
Type: Grab

A - Sterile Pl 125ml NaThio

Date: *8/8/19*
Time: *0827*

-03 SB-3

EC (#) SM 9223B, TC (#) SM 9223B

R

Matrix: Other
Type: Grab

A - Sterile Pl 125ml NaThio

Date: *8/8/19*
Time: *0829*

Mitchell Cole

Relinquished By

8/8/19 0858

Date/Time

Received By

Emily Caylor

Date/Time

8-8-19 858

Date/Time

Relinquished By

Date/Time

Received at Laboratory By

The Client, by signing (or having the client's agent sign), agrees to MJRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<i>27.0C</i>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<i>ECC</i>
Entered By:	<i>ECC</i>

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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)



Certificate of Analysis

M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Laboratory No.: 9028159

Report: 08/15/19

Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9028159-01 **Collected By:** Client **Sampled:** 08/12/19 08:04 **Received:** 08/12/19 09:37
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	38	mpn/100ml	1	SM 9223	8/12/19	8/13/19		JMW
				B/Quantitray	14:00	9:39		
Total Coliform	2420	mpn/100ml	1	SM 9223	8/12/19	8/13/19		JMW
				B/Quantitray	14:00	9:39		

Lab ID: 9028159-02 **Collected By:** Client **Sampled:** 08/12/19 08:07 **Received:** 08/12/19 09:37
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	63	mpn/100ml	1	SM 9223	8/12/19	8/13/19		JMW
				B/Quantitray	14:00	9:39		
Total Coliform	2420	mpn/100ml	1	SM 9223	8/12/19	8/13/19		JMW
				B/Quantitray	14:00	9:39		

Lab ID: 9028159-03 **Collected By:** Client **Sampled:** 08/12/19 08:11 **Received:** 08/12/19 09:37
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	11	mpn/100ml	1	SM 9223	8/12/19	8/13/19		JMW
				B/Quantitray	14:00	9:39		
Total Coliform	1200	mpn/100ml	1	SM 9223	8/12/19	8/13/19		JMW
				B/Quantitray	14:00	9:39		



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Client Code: 4092
Project Manager: Richard A Wheeler

Report To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

Invoice To: US Army Corp of Engineers - Scott Sunderland - 1268 Palisades Dr. - Leesport, PA 19533

**BOTTLE ORDER
Chain of Custody**

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9028159

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By: Olivia Robertson
(Full Name)

Comments: _____

-01 SB-1
EC (#) SM 9223B, TC (#) SM 9223B

L

Matrix: Other
Type: Grab
A - Sterile Pl 125ml NaThio

Date: 12 Aug 19
Time: 0804

-02 SB-2
EC (#) SM 9223B, TC (#) SM 9223B

C

Matrix: Other
Type: Grab
A - Sterile Pl 125ml NaThio

Date: 12 Aug 19
Time: 0807

-03 SB-3
EC (#) SM 9223B, TC (#) SM 9223B

R

Matrix: Other
Type: Grab
A - Sterile Pl 125ml NaThio

Date: 12 Aug 19
Time: 0811

Relinquished By: Olivia Robertson 8/12/19
Date/Time: 12/8/19 0937

Relinquished By: _____
Date/Time: _____

Received By: J. Guisales 8-12-19
Date/Time: 9:37
Received at Laboratory by: JSE 8-12-19

Received at Laboratory by: _____
Date/Time: _____

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>18.6</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>[Signature]</u>
Entered By:	<u>[Signature]</u>

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Certificate of Analysis

M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Laboratory No.: 9029112

Report: 08/21/19

Lab Contact: Richard A Wheeler

Attention: Scott Sunderland
Reported To: US Army Corp of Engineers
1268 Palisades Dr.
Leesport, PA 19533

Project Info: 2019 Blue Marsh Beach 1,2,3

Lab ID: 9029112-01 **Collected By:** Client **Sampled:** 08/19/19 08:24 **Received:** 08/19/19 09:55
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	10	mpn/100ml	1	SM 9223	8/19/19	8/20/19		JMW
				B/Quantitray	13:16	9:15		
Total Coliform	>2419.6	mpn/100ml	1	SM 9223	8/19/19	8/20/19		JMW
				B/Quantitray	13:16	9:15		

Lab ID: 9029112-02 **Collected By:** Client **Sampled:** 08/19/19 08:27 **Received:** 08/19/19 09:55
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	24	mpn/100ml	1	SM 9223	8/19/19	8/20/19		JMW
				B/Quantitray	13:16	9:15		
Total Coliform	>2419.6	mpn/100ml	1	SM 9223	8/19/19	8/20/19		JMW
				B/Quantitray	13:16	9:15		

Lab ID: 9029112-03 **Collected By:** Client **Sampled:** 08/19/19 08:30 **Received:** 08/19/19 09:55
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	15	mpn/100ml	1	SM 9223	8/19/19	8/20/19		JMW
				B/Quantitray	13:16	9:15		
Total Coliform	>2419.6	mpn/100ml	1	SM 9223	8/19/19	8/20/19		JMW
				B/Quantitray	13:16	9:15		



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**BOTTLE ORDER
Chain of Custody**

Client: US Army Corp of Engineers
Project: 2019 Blue Marsh Beach 1,2,3

9029112

PM: RAW

US Army Corp of Engineers
2019 Blue Marsh Beach 1,2,3



Collected By:
(Full Name)

Olivia Robertson

Comments: _____

-01 SB-1
EC (#) SM 9223B, TC (#) SM 9223B

L

Matrix: Other
Type: Grab
A - Sterile PI 125ml NaThio

Date: 8/19/19
Time: 0824

-02 SB-2
EC (#) SM 9223B, TC (#) SM 9223B

C

Matrix: Other
Type: Grab
A - Sterile PI 125ml NaThio

Date: 8/19/19
Time: 0827

-03 SB-3
EC (#) SM 9223B, TC (#) SM 9223B

R

Matrix: Other
Type: Grab
A - Sterile PI 125ml NaThio

Date: 8/19/19
Time: 0830

Olivia Robertson 8/19/19 0953
Relinquished By Date/Time

Tim Vandzura 8/19/19 9:55
Received By Date/Time

Relinquished By Date/Time

The Client, by signing (or having the client's agent sign), agrees to MJRA's Terms and Conditions and to pay for the above requested services including any additional associated fees incurred.

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>16.2°C</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>JSV</u>
Entered By:	<u>JSV</u>

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APPENDIX C

LABORATORY CUSTODY SHEETS

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: JC90585

Sampling Date: 06/25/19



Report to:

Army Corps of Engineers

joseph.m.loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 42



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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Test results relate only to samples analyzed.

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1

2

3

4

5



Sample Summary

USACE-Philadelphia District

Job No: JC90585

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC90585-1	06/25/19	13:50 GW	06/25/19	AQ	Surface Water	BM-1S
JC90585-2	06/25/19	09:15 GW	06/25/19	AQ	Surface Water	BM-2S
JC90585-3	06/25/19	09:15 GW	06/25/19	AQ	Surface Water	BM-2M
JC90585-4	06/25/19	09:15 GW	06/25/19	AQ	Surface Water	BM-2D
JC90585-5	06/25/19	13:10 GW	06/25/19	AQ	Surface Water	BM-5S
JC90585-6	06/25/19	08:45 GW	06/25/19	AQ	Surface Water	BM-6S
JC90585-7	06/25/19	08:45 GW	06/25/19	AQ	Surface Water	BM-6M
JC90585-8	06/25/19	08:45 GW	06/25/19	AQ	Surface Water	BM-6D
JC90585-9	06/25/19	10:05 GW	06/25/19	AQ	Surface Water	BM-7S
JC90585-10	06/25/19	10:05 GW	06/25/19	AQ	Surface Water	BM-7M
JC90585-11	06/25/19	10:05 GW	06/25/19	AQ	Surface Water	BM-7D
JC90585-12	06/25/19	11:50 GW	06/25/19	AQ	Surface Water	BM-8S
JC90585-13	06/25/19	11:50 GW	06/25/19	AQ	Surface Water	BM-8M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC90585

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC90585-14	06/25/19	11:50 GW	06/25/19	AQ	Surface Water	BM-8D
JC90585-15	06/25/19	10:35 GW	06/25/19	AQ	Surface Water	BM-9S
JC90585-16	06/25/19	10:35 GW	06/25/19	AQ	Surface Water	BM-9M
JC90585-17	06/25/19	10:35 GW	06/25/19	AQ	Surface Water	BM-9D
JC90585-18	06/25/19	11:15 GW	06/25/19	AQ	Surface Water	BM-10S
JC90585-19	06/25/19	11:15 GW	06/25/19	AQ	Surface Water	BM-10M
JC90585-20	06/25/19	11:15 GW	06/25/19	AQ	Surface Water	BM-10D
JC90585-21	06/25/19	13:00 GW	06/25/19	AQ	Surface Water	BM-11S

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: USACE-Philadelphia District

Job No JC90585

Site: Philadelphia District, Reservoir Sampling

Report Date 7/12/2019 9:36:54 AM

On 06/25/2019, 21 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 3.4 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JC90585 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: GP22245

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91084-1DUP, JC91084-1MS were used as the QC samples for Nitrogen, Total Kjeldahl.

Matrix: AQ

Batch ID: GP22246

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90585-2DUP, JC90585-2MS were used as the QC samples for Nitrogen, Total Kjeldahl.

General Chemistry By Method EPA 353.2/LACHAT

Matrix: AQ

Batch ID: GP22220

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90585-21DUP, JC90585-21MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.

Matrix: AQ

Batch ID: GP22263

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90585-1DUP, JC90585-1MS, JC90585-6MS 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 12, 2019

Page 1 of 6

General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ **Batch ID:** R179521

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-21 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179575

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179576

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179577

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179578

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179579

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179581

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179582

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179583

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179584

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-10 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179585

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179586

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179587

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-13 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179588

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

General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ **Batch ID:** R179588

- JC90585-14 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179589

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-15 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179590

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-16 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179591

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-17 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179592

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-18 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179593

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-19 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179595

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-20 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179596

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC90585-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

General Chemistry By Method SM2320 B-11

Matrix: AQ

Batch ID: GN97197

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90559-1DUP were used as the QC samples for Alkalinity, Total as CaCO₃.
- JC90585-1 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.

Matrix: AQ

Batch ID: GN97260

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90585-2DUP were used as the QC samples for Alkalinity, Total as CaCO₃.
- JC90585-3 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-6 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-8 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-5 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-2 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-4 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-7 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.

Matrix: AQ

Batch ID: GN97287

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90585-9DUP were used as the QC samples for Alkalinity, Total as CaCO₃.
- JC90585-10 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-11 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-13 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-9 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-18 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-12 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-21 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-19 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-14 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-17 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-16 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-15 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC90585-20 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:** GN97012

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90585-1DUP, JC90585-2DUP were used as the QC samples for Solids, Total Dissolved.

Matrix: AQ **Batch ID:** GN97041

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90649-1DUP were used as the QC samples for Solids, Total Dissolved.

General Chemistry By Method SM2540 D-11

Matrix: AQ **Batch ID:** GN96961

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90585-1DUP, JC90585-2DUP were used as the QC samples for Solids, Total Suspended.

Matrix: AQ **Batch ID:** GN96973

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90620-3DUP were used as the QC samples for Solids, Total Suspended.

General Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AQ **Batch ID:** GP22290

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90514-2DUP, JC90514-2MS, JC90514-2MSD were used as the QC samples for Nitrogen, Ammonia.

Matrix: AQ **Batch ID:** GP22313

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90623-1DUP, JC90623-1MS, JC90623-1MSD were used as the QC samples for Nitrogen, Ammonia.

Matrix: AQ **Batch ID:** GP22314

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90585-14DUP, JC90585-14MS, JC90585-14MSD were used as the QC samples for Nitrogen, Ammonia.

General Chemistry By Method SM4500NO2 B-11

Matrix: AQ **Batch ID:** GN96868

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90585-1DUP, JC90585-1MS were used as the QC samples for Nitrogen, Nitrite.

General Chemistry By Method SM5210 B-11

Matrix: AQ **Batch ID:** GP22026

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90585-1DUP, JC90585-21DUP were used as the QC samples for BOD, 5 Day.

General Chemistry By Method SM5310 B-11

Matrix: AQ **Batch ID:** GP22197

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90561-2MS, JC90561-2MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ **Batch ID:** GP22198

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90585-8MS, JC90585-8MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ **Batch ID:** GP22236

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC90595-4MS, JC90595-4MSD 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: JC90585
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 06/25/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC90585-1 BM-1S

Alkalinity, Total as CaCO ₃ ^a	110	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	3.9	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.9	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.043	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.80	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	216	10			mg/l	SM2540 C-11
Solids, Total Suspended	11.0	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.3	1.0			mg/l	SM5310 B-11

JC90585-2 BM-2S

Alkalinity, Total as CaCO ₃ ^a	80.5	5.0			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	2.4	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.5	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.054	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	2.8	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	165	10			mg/l	SM2540 C-11
Solids, Total Suspended	19.0	4.0			mg/l	SM2540 D-11
Total Organic Carbon	3.5	1.0			mg/l	SM5310 B-11

JC90585-3 BM-2M

Alkalinity, Total as CaCO ₃ ^a	90.0	5.0			mg/l	SM2320 B-11
Nitrogen, Ammonia	0.24	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.0	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.0	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.026	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.69	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	165	10			mg/l	SM2540 C-11
Solids, Total Suspended	7.8	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.4	1.0			mg/l	SM5310 B-11

JC90585-4 BM-2D

Alkalinity, Total as CaCO ₃ ^a	114	5.0			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	5.3	0.31			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.3	0.30			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.039	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.48	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	226	10			mg/l	SM2540 C-11
Solids, Total Suspended	21.9	4.0			mg/l	SM2540 D-11
Total Organic Carbon	1.7	1.0			mg/l	SM5310 B-11

Summary of Hits

Job Number: JC90585
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 06/25/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC90585-5 BM-5S

Alkalinity, Total as CaCO ₃ ^a	179	5.0			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	6.6	0.31			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	6.6	0.30			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.017	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.35	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	304	10			mg/l	SM2540 C-11
Solids, Total Suspended	40.3	4.0			mg/l	SM2540 D-11
Total Organic Carbon	1.8	1.0			mg/l	SM5310 B-11

JC90585-6 BM-6S

Alkalinity, Total as CaCO ₃ ^a	75.0	5.0			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	2.3	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.4	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.080	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.4	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	164	10			mg/l	SM2540 C-11
Solids, Total Suspended	21.4	4.0			mg/l	SM2540 D-11
Total Organic Carbon	11.1	1.0			mg/l	SM5310 B-11

JC90585-7 BM-6M

Alkalinity, Total as CaCO ₃ ^a	95.0	5.0			mg/l	SM2320 B-11
Nitrogen, Ammonia	0.21	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.6	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.6	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.041	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.47	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	174	10			mg/l	SM2540 C-11
Solids, Total Suspended	9.3	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.5	1.0			mg/l	SM5310 B-11

JC90585-8 BM-6D

Alkalinity, Total as CaCO ₃ ^a	118	5.0			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	4.2	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.3	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.053	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.70	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	220	10			mg/l	SM2540 C-11
Solids, Total Suspended	9.4	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.2	1.0			mg/l	SM5310 B-11

Summary of Hits

Job Number: JC90585
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 06/25/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC90585-9		BM-7S				
Alkalinity, Total as CaCO ₃ ^a		92.0	10		mg/l	SM2320 B-11
Nitrogen, Nitrate ^b		2.2	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.3	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.060	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		3.7	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		171	10		mg/l	SM2540 C-11
Solids, Total Suspended		25.1	4.0		mg/l	SM2540 D-11
Total Organic Carbon		4.2	1.0		mg/l	SM5310 B-11
JC90585-10		BM-7M				
Alkalinity, Total as CaCO ₃ ^a		90.0	10		mg/l	SM2320 B-11
Nitrogen, Nitrate ^b		4.3	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		4.3	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.022	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.72	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		174	10		mg/l	SM2540 C-11
Solids, Total Suspended		16.0	4.0		mg/l	SM2540 D-11
Total Organic Carbon		2.4	1.0		mg/l	SM5310 B-11
JC90585-11		BM-7D				
Alkalinity, Total as CaCO ₃ ^a		110	10		mg/l	SM2320 B-11
Nitrogen, Nitrate ^b		4.4	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		4.4	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.032	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.65	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		186	10		mg/l	SM2540 C-11
Solids, Total Suspended		9.9	4.0		mg/l	SM2540 D-11
Total Organic Carbon		2.1	1.0		mg/l	SM5310 B-11
JC90585-12		BM-8S				
Alkalinity, Total as CaCO ₃ ^a		79.0	10		mg/l	SM2320 B-11
Nitrogen, Nitrate ^b		2.2	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.2	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.035	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		1.6	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		140	10		mg/l	SM2540 C-11
Solids, Total Suspended		13.1	4.0		mg/l	SM2540 D-11
Total Organic Carbon		3.2	1.0		mg/l	SM5310 B-11

Summary of Hits

Job Number: JC90585
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 06/25/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC90585-13 BM-8M

Alkalinity, Total as CaCO ₃ ^a	80.0	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	3.3	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.3	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.024	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.48	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	173	10			mg/l	SM2540 C-11
Solids, Total Suspended	8.2	4.0			mg/l	SM2540 D-11
Total Organic Carbon	1.9	1.0			mg/l	SM5310 B-11

JC90585-14 BM-8D

Alkalinity, Total as CaCO ₃ ^a	81.0	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	3.6	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.6	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.024	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.42	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	172	10			mg/l	SM2540 C-11
Solids, Total Suspended	10.2	4.0			mg/l	SM2540 D-11
Total Organic Carbon	1.6	1.0			mg/l	SM5310 B-11

JC90585-15 BM-9S

Alkalinity, Total as CaCO ₃ ^a	85.0	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	2.2	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.3	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.057	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	5.5	0.60			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	174	10			mg/l	SM2540 C-11
Solids, Total Suspended	30.8	4.0			mg/l	SM2540 D-11
Total Organic Carbon	4.4	1.0			mg/l	SM5310 B-11

JC90585-16 BM-9M

Alkalinity, Total as CaCO ₃ ^a	100	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	4.1	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.1	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl	0.40	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	176	10			mg/l	SM2540 C-11
Solids, Total Suspended	8.2	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.4	1.0			mg/l	SM5310 B-11

Summary of Hits

Job Number: JC90585
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 06/25/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC90585-17 BM-9D

Alkalinity, Total as CaCO ₃ ^a	135	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	6.0	0.31			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	6.0	0.30			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.028	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.53	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	227	10			mg/l	SM2540 C-11
Solids, Total Suspended	76.3	4.0			mg/l	SM2540 D-11
Total Organic Carbon	1.2	1.0			mg/l	SM5310 B-11

JC90585-18 BM-10S

Alkalinity, Total as CaCO ₃ ^a	83.0	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	2.3	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.4	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.056	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.9	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	170	10			mg/l	SM2540 C-11
Solids, Total Suspended	51.6	4.0			mg/l	SM2540 D-11
Total Organic Carbon	7.9	1.0			mg/l	SM5310 B-11

JC90585-19 BM-10M

Alkalinity, Total as CaCO ₃ ^a	115	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	5.5	0.31			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.5	0.30			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.042	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.72	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	223	10			mg/l	SM2540 C-11
Solids, Total Suspended	31.8	4.0			mg/l	SM2540 D-11
Total Organic Carbon	1.7	1.0			mg/l	SM5310 B-11

JC90585-20 BM-10D

Alkalinity, Total as CaCO ₃ ^a	125	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	5.6	0.31			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.6	0.30			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.019	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.28	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	222	10			mg/l	SM2540 C-11
Solids, Total Suspended	26.5	4.0			mg/l	SM2540 D-11
Total Organic Carbon	1.3	1.0			mg/l	SM5310 B-11

Summary of Hits

Job Number: JC90585
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 06/25/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC90585-21 BM-11S

Alkalinity, Total as CaCO ₃ ^a	35.0	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	3.5	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.5	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.012	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.33	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	99.0	10			mg/l	SM2540 C-11
Solids, Total Suspended	12.9	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.0	1.0			mg/l	SM5310 B-11

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

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

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: BM-1S	Date Sampled: 06/25/19
Lab Sample ID: JC90585-1	Date Received: 06/25/19
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 CaCO ₃ ^a	110	10	mg/l	1	07/05/19 17:11	MS	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 15:23	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/10/19 13:45	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.9	0.11	mg/l	1	07/09/19 15:23	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.9	0.10	mg/l	1	07/09/19 15:23	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.043	0.010	mg/l	1	06/26/19 12:00	JO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.80	0.20	mg/l	1	07/09/19 11:48	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	216	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	11.0	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	2.3	1.0	mg/l	1	07/05/19 23:27	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-2S	Date Sampled: 06/25/19
Lab Sample ID: JC90585-2	Date Received: 06/25/19
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 CaCO ₃ ^a	80.5	5.0	mg/l	1	07/08/19 13:52	MP	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 15:28	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/10/19 13:46	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.4	0.11	mg/l	1	07/09/19 15:24	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.5	0.10	mg/l	1	07/09/19 15:24	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.054	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	2.8	0.20	mg/l	1	07/09/19 11:53	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	165	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	19.0	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	3.5	1.0	mg/l	1	07/05/19 23:39	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-2M	Date Sampled: 06/25/19
Lab Sample ID: JC90585-3	Date Received: 06/25/19
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 CaCO ₃ ^a	90.0	5.0	mg/l	1	07/08/19 13:52	MP	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 15:31	RI	SM5210 B-11
Nitrogen, Ammonia	0.24	0.20	mg/l	1	07/10/19 13:48	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.0	0.11	mg/l	1	07/09/19 15:25	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.0	0.10	mg/l	1	07/09/19 15:25	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.026	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.69	0.20	mg/l	1	07/09/19 11:53	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	165	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	7.8	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	2.4	1.0	mg/l	1	07/05/19 23:50	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-2D		Date Sampled: 06/25/19
Lab Sample ID: JC90585-4		Date Received: 06/25/19
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 CaCO ₃ ^a	114	5.0	mg/l	1	07/08/19 13:52	MP	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 15:48	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/10/19 13:49	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	5.3	0.31	mg/l	1	07/09/19 16:29	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.3	0.30	mg/l	3	07/09/19 16:29	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.039	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.48	0.20	mg/l	1	07/09/19 11:54	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	226	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	21.9	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	1.7	1.0	mg/l	1	07/06/19 00:24	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.4
4

Report of Analysis

Client Sample ID: BM-5S		Date Sampled: 06/25/19
Lab Sample ID: JC90585-5		Date Received: 06/25/19
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 CaCO ₃ ^a	179	5.0	mg/l	1	07/08/19 13:52	MP	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 15:52	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/10/19 13:54	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	6.6	0.31	mg/l	1	07/09/19 16:30	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	6.6	0.30	mg/l	3	07/09/19 16:30	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.017	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.35	0.20	mg/l	1	07/09/19 11:57	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	304	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	40.3	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	1.8	1.0	mg/l	1	07/06/19 00:36	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.5
4

Report of Analysis

Client Sample ID: BM-6S	Date Sampled: 06/25/19
Lab Sample ID: JC90585-6	Date Received: 06/25/19
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 CaCO ₃ ^a	75.0	5.0	mg/l	1	07/08/19 13:52	MP	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 15:55	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/10/19 13:55	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.3	0.11	mg/l	1	07/09/19 15:30	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.4	0.10	mg/l	1	07/09/19 15:30	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.080	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.4	0.20	mg/l	1	07/09/19 11:58	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	164	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	21.4	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	11.1	1.0	mg/l	1	07/06/19 00:47	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-6M	Date Sampled: 06/25/19
Lab Sample ID: JC90585-7	Date Received: 06/25/19
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 CaCO ₃ ^a	95.0	5.0	mg/l	1	07/08/19 13:52	MP	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 15:59	RI	SM5210 B-11
Nitrogen, Ammonia	0.21	0.20	mg/l	1	07/10/19 13:56	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.6	0.11	mg/l	1	07/09/19 15:32	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.6	0.10	mg/l	1	07/09/19 15:32	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.041	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.47	0.20	mg/l	1	07/09/19 11:59	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	174	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	9.3	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	2.5	1.0	mg/l	1	07/06/19 00:58	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.7
4

Report of Analysis

Client Sample ID: BM-6D		Date Sampled: 06/25/19
Lab Sample ID: JC90585-8		Date Received: 06/25/19
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 CaCO ₃ ^a	118	5.0	mg/l	1	07/08/19 13:59	MP	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 16:06	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/10/19 13:58	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.2	0.11	mg/l	1	07/09/19 15:33	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.3	0.10	mg/l	1	07/09/19 15:33	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.053	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.70	0.20	mg/l	1	07/09/19 11:59	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	220	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	9.4	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	2.2	1.0	mg/l	1	07/06/19 01:33	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-7S	Date Sampled: 06/25/19
Lab Sample ID: JC90585-9	Date Received: 06/25/19
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 CaCO ₃ ^a	92.0	10	mg/l	1	07/08/19 20:30	MS	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 16:09	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/10/19 13:59	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.2	0.11	mg/l	1	07/09/19 15:34	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.3	0.10	mg/l	1	07/09/19 15:34	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.060	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	3.7	0.20	mg/l	1	07/09/19 12:00	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	171	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	25.1	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	4.2	1.0	mg/l	1	07/06/19 02:14	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-7M	Date Sampled: 06/25/19
Lab Sample ID: JC90585-10	Date Received: 06/25/19
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 CaCO ₃ ^a	90.0	10	mg/l	1	07/08/19 20:30	MS	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 16:33	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 14:59	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.3	0.11	mg/l	1	07/09/19 15:35	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.3	0.10	mg/l	1	07/09/19 15:35	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.022	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.72	0.20	mg/l	1	07/09/19 12:01	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	174	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	16.0	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	2.4	1.0	mg/l	1	07/06/19 02:47	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-7D	Date Sampled: 06/25/19
Lab Sample ID: JC90585-11	Date Received: 06/25/19
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 CaCO ₃ ^a	110	10	mg/l	1	07/08/19 20:30	MS	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 16:35	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 15:01	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.4	0.11	mg/l	1	07/09/19 15:36	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.4	0.10	mg/l	1	07/09/19 15:36	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.032	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.65	0.20	mg/l	1	07/09/19 12:02	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	186	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	9.9	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	2.1	1.0	mg/l	1	07/06/19 02:58	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-8S	Date Sampled: 06/25/19
Lab Sample ID: JC90585-12	Date Received: 06/25/19
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 CaCO ₃ ^a	79.0	10	mg/l	1	07/08/19 20:30	MS	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 16:38	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 15:05	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.2	0.11	mg/l	1	07/09/19 15:37	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.2	0.10	mg/l	1	07/09/19 15:37	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.035	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.6	0.20	mg/l	1	07/09/19 12:03	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	140	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	13.1	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	3.2	1.0	mg/l	1	07/06/19 03:10	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-8M		Date Sampled: 06/25/19
Lab Sample ID: JC90585-13		Date Received: 06/25/19
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 CaCO ₃ ^a	80.0	10	mg/l	1	07/08/19 20:30	MS	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 16:41	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 15:07	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.3	0.11	mg/l	1	07/09/19 15:38	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.3	0.10	mg/l	1	07/09/19 15:38	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.024	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.48	0.20	mg/l	1	07/09/19 12:04	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	173	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	8.2	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	1.9	1.0	mg/l	1	07/06/19 03:21	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.13
4

Report of Analysis

Client Sample ID: BM-8D	Date Sampled: 06/25/19
Lab Sample ID: JC90585-14	Date Received: 06/25/19
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 CaCO ₃ ^a	81.0	10	mg/l	1	07/08/19 20:30	MS	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 16:43	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 15:15	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.6	0.11	mg/l	1	07/09/19 15:39	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.6	0.10	mg/l	1	07/09/19 15:39	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.024	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.42	0.20	mg/l	1	07/09/19 12:05	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	172	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	10.2	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	1.6	1.0	mg/l	1	07/06/19 03:32	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9S	Date Sampled: 06/25/19
Lab Sample ID: JC90585-15	Date Received: 06/25/19
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 CaCO ₃ ^a	85.0	10	mg/l	1	07/08/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 100	100	mg/l	1	06/26/19 16:47	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 15:17	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.2	0.11	mg/l	1	07/09/19 15:41	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.3	0.10	mg/l	1	07/09/19 15:41	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.057	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	5.5	0.60	mg/l	3	07/09/19 12:14	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	174	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	30.8	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	4.4	1.0	mg/l	1	07/06/19 03:43	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9M	Date Sampled: 06/25/19
Lab Sample ID: JC90585-16	Date Received: 06/25/19
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 CaCO ₃ ^a	100	10	mg/l	1	07/08/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 16:48	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 15:18	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.1	0.11	mg/l	1	07/09/19 15:44	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.1	0.10	mg/l	1	07/09/19 15:44	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.40	0.20	mg/l	1	07/09/19 12:08	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	176	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	8.2	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	2.4	1.0	mg/l	1	07/06/19 03:55	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9D	Date Sampled: 06/25/19
Lab Sample ID: JC90585-17	Date Received: 06/25/19
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 CaCO ₃ ^a	135	10	mg/l	1	07/08/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 17:02	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 15:23	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	6.0	0.31	mg/l	1	07/09/19 16:31	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	6.0	0.30	mg/l	3	07/09/19 16:31	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.028	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.53	0.20	mg/l	1	07/09/19 12:09	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	227	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	76.3	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	1.2	1.0	mg/l	1	07/06/19 04:05	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.17
4

Report of Analysis

Client Sample ID: BM-10S	Date Sampled: 06/25/19
Lab Sample ID: JC90585-18	Date Received: 06/25/19
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 CaCO ₃ ^a	83.0	10	mg/l	1	07/08/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 17:04	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 15:24	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.3	0.11	mg/l	1	07/09/19 15:46	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.4	0.10	mg/l	1	07/09/19 15:46	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.056	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.9	0.20	mg/l	1	07/09/19 12:10	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	170	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	51.6	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	7.9	1.0	mg/l	1	07/08/19 16:37	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-10M	Date Sampled: 06/25/19
Lab Sample ID: JC90585-19	Date Received: 06/25/19
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 CaCO ₃ ^a	115	10	mg/l	1	07/08/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 17:05	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 15:25	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	5.5	0.31	mg/l	1	07/09/19 16:32	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.5	0.30	mg/l	3	07/09/19 16:32	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.042	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.72	0.20	mg/l	1	07/09/19 12:10	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	223	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	31.8	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	1.7	1.0	mg/l	1	07/08/19 16:48	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-10D		Date Sampled: 06/25/19
Lab Sample ID: JC90585-20		Date Received: 06/25/19
Matrix: AQ - Surface Water		Percent Solids: n/a
Project: Philadelphia District, Reservoir Sampling		

4.20
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃ ^a	125	10	mg/l	1	07/08/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 17:07	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 15:27	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	5.6	0.31	mg/l	1	07/09/19 16:33	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.6	0.30	mg/l	3	07/09/19 16:33	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.019	0.010	mg/l	1	06/26/19 12:00	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.28	0.20	mg/l	1	07/09/19 12:11	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	222	10	mg/l	1	06/29/19 10:44	RC	SM2540 C-11
Solids, Total Suspended	26.5	4.0	mg/l	1	06/28/19 10:46	RC	SM2540 D-11
Total Organic Carbon	1.3	1.0	mg/l	1	07/08/19 17:01	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-11S	Date Sampled: 06/25/19
Lab Sample ID: JC90585-21	Date Received: 06/25/19
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 CaCO ₃ ^a	35.0	10	mg/l	1	07/08/19 21:03	MS	SM2320 B-11
BOD, 5 Day	< 33	33	mg/l	1	06/26/19 17:11	RI	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/11/19 15:28	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.5	0.11	mg/l	1	07/08/19 10:44	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.5	0.10	mg/l	1	07/08/19 10:44	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.012	0.010	mg/l	1	06/26/19 12:42	JOO	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.33	0.20	mg/l	1	07/09/19 12:12	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	99.0	10	mg/l	1	06/30/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	12.9	4.0	mg/l	1	06/28/19 17:53	RC	SM2540 D-11
Total Organic Carbon	2.0	1.0	mg/l	1	07/08/19 17:12	CD	SM5310 B-11

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

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

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SW

CHAIN OF CUSTODY

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

E

Client / Reporting Information, Project Information, Collection, Deliverable, Turn Around Time, Chain of Custody, and Laboratory Information sections.

5.1 5





CHAIN OF CUSTODY

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

Form containing Client/Reporting Information, Project Information, Billing Information, Collection table, Turn Around Time, Deliverable, and Chain of Custody signatures.

5.1 5



SGS Sample Receipt Summary

Job Number: JC90585

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 6/25/2019 5:50:00 PM

Delivery Method: _____

Airbill #s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (2.8); Cooler 2: (3.1); Cooler 3: (3.4); Cooler 4: (2.9); Cooler 5: (3.4); Cooler 6: (3.7); Cooler 7: (3.8);

Cooler Temps (Corrected) °C: Cooler 1: (2.4); Cooler 2: (2.7); Cooler 3: (3.0); Cooler 4: (2.5); Cooler 5: (3.0); Cooler 6: (3.3); Cooler 7: (3.4);

Cooler Security	<u>Y</u>	<u>or</u>	<u>N</u>		<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Cooler Temperature	<u>Y</u>	<u>or</u>	<u>N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	7		

Quality Control Preservation	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Sample Integrity - Documentation	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

Sample Integrity - Condition	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:	Intact		

Sample Integrity - Instructions	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Test Strip Lot #s:	pH 1-12: 229517	pH 12+: 208717	Other: (Specify) _____
--------------------	-----------------	----------------	------------------------

Comments

SM089-03
Rev. Date 12/7/17

5.1
5

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: JC90585XA

Sampling Date: 06/25/19

Report to:

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: **28**



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.

A handwritten signature in black ink, appearing to read "Mike Earp".

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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Test results relate only to samples analyzed.

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Sample Summary

USACE-Philadelphia District

Job No: JC90585XA

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
JC90585-1F	06/25/19	13:50 GW	06/25/19	AQ	Surface H2O Filtered	BM-1S
JC90585-1XA	06/25/19	13:50 GW	06/25/19	AQ	Surface Water	BM-1S
JC90585-2F	06/25/19	09:15 GW	06/25/19	AQ	Surface H2O Filtered	BM-2S
JC90585-2XA	06/25/19	09:15 GW	06/25/19	AQ	Surface Water	BM-2S
JC90585-3F	06/25/19	09:15 GW	06/25/19	AQ	Surface H2O Filtered	BM-2M
JC90585-3XA	06/25/19	09:15 GW	06/25/19	AQ	Surface Water	BM-2M
JC90585-4F	06/25/19	09:15 GW	06/25/19	AQ	Surface H2O Filtered	BM-2D
JC90585-4XA	06/25/19	09:15 GW	06/25/19	AQ	Surface Water	BM-2D
JC90585-5F	06/25/19	13:10 GW	06/25/19	AQ	Surface H2O Filtered	BM-5S
JC90585-5XA	06/25/19	13:10 GW	06/25/19	AQ	Surface Water	BM-5S
JC90585-6F	06/25/19	08:45 GW	06/25/19	AQ	Surface H2O Filtered	BM-6S
JC90585-6XA	06/25/19	08:45 GW	06/25/19	AQ	Surface Water	BM-6S
JC90585-7F	06/25/19	08:45 GW	06/25/19	AQ	Surface H2O Filtered	BM-6M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC90585XA

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC90585-7XA	06/25/19	08:45 GW	06/25/19	AQ	Surface Water	BM-6M
JC90585-8F	06/25/19	08:45 GW	06/25/19	AQ	Surface H2O Filtered	BM-6D
JC90585-8XA	06/25/19	08:45 GW	06/25/19	AQ	Surface Water	BM-6D
JC90585-9F	06/25/19	10:05 GW	06/25/19	AQ	Surface H2O Filtered	BM-7S
JC90585-9XA	06/25/19	10:05 GW	06/25/19	AQ	Surface Water	BM-7S
JC90585-10F	06/25/19	10:05 GW	06/25/19	AQ	Surface H2O Filtered	BM-7M
JC90585-10XA	06/25/19	10:05 GW	06/25/19	AQ	Surface Water	BM-7M
JC90585-11F	06/25/19	10:05 GW	06/25/19	AQ	Surface H2O Filtered	BM-7D
JC90585-11XA	06/25/19	10:05 GW	06/25/19	AQ	Surface Water	BM-7D
JC90585-12F	06/25/19	11:50 GW	06/25/19	AQ	Surface H2O Filtered	BM-8S
JC90585-12XA	06/25/19	11:50 GW	06/25/19	AQ	Surface Water	BM-8S
JC90585-13F	06/25/19	11:50 GW	06/25/19	AQ	Surface H2O Filtered	BM-8M
JC90585-13XA	06/25/19	11:50 GW	06/25/19	AQ	Surface Water	BM-8M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC90585XA

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
JC90585-14F	06/25/19	11:50 GW	06/25/19	AQ	Surface H2O Filtered	BM-8D
JC90585-14XA	06/25/19	11:50 GW	06/25/19	AQ	Surface Water	BM-8D
JC90585-15F	06/25/19	10:35 GW	06/25/19	AQ	Surface H2O Filtered	BM-9S
JC90585-15XA	06/25/19	10:35 GW	06/25/19	AQ	Surface Water	BM-9S
JC90585-16F	06/25/19	10:35 GW	06/25/19	AQ	Surface H2O Filtered	BM-9M
JC90585-16XA	06/25/19	10:35 GW	06/25/19	AQ	Surface Water	BM-9M
JC90585-17F	06/25/19	10:35 GW	06/25/19	AQ	Surface H2O Filtered	BM-9D
JC90585-17XA	06/25/19	10:35 GW	06/25/19	AQ	Surface Water	BM-9D
JC90585-18F	06/25/19	11:15 GW	06/25/19	AQ	Surface H2O Filtered	BM-10S
JC90585-18XA	06/25/19	11:15 GW	06/25/19	AQ	Surface Water	BM-10S
JC90585-19F	06/25/19	11:15 GW	06/25/19	AQ	Surface H2O Filtered	BM-10M
JC90585-19XA	06/25/19	11:15 GW	06/25/19	AQ	Surface Water	BM-10M
JC90585-20F	06/25/19	11:15 GW	06/25/19	AQ	Surface H2O Filtered	BM-10D



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC90585XA

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JC90585-20XA	06/25/19	11:15	06/25/19	AQ	Surface Water	BM-10D
JC90585-21F	06/25/19	13:00	06/25/19	AQ	Surface H2O Filtered	BM-11S
JC90585-21XA	06/25/19	13:00	06/25/19	AQ	Surface Water	BM-11S

Subcontract Lab Data

Report of Analysis



M.J. Reider Associates, Inc.
 ENVIRONMENTAL TESTING LABORATORY
 U.S. EPA/PA DEP #06-00003

Certificate of Analysis

2

Laboratory No.: 9022156
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

Lab ID: 9022156-01 **Collected By:** Client **Sampled:** 06/25/19 13:50 **Received:** 06/27/19 09:50
Sample Desc: BM-1S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.03	mg/l	0.007	0.05	SM 4500-P E	06/27/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.08	mg/l	0.01	0.01	SM 4500-P E	06/27/19		JCL

Lab ID: 9022156-02 **Collected By:** Client **Sampled:** 06/25/19 09:15 **Received:** 06/27/19 09:50
Sample Desc: BM-2S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.04	mg/l	0.007	0.05	SM 4500-P E	06/27/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.08	mg/l	0.01	0.01	SM 4500-P E	06/27/19		JCL

Lab ID: 9022156-03 **Collected By:** Client **Sampled:** 06/25/19 09:15 **Received:** 06/27/19 09:50
Sample Desc: BM-2M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.11	mg/l	0.007	0.05	SM 4500-P E	06/27/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.12	mg/l	0.01	0.01	SM 4500-P E	06/27/19		JCL



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2

Lab ID: 9022156-04 **Collected By:** Client **Sampled:** 06/25/19 09:15 **Received:** 06/27/19 09:50
Sample Desc: BM-2D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.06	mg/l	0.007	0.05	SM 4500-P E	06/27/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.10	mg/l	0.01	0.01	SM 4500-P E	06/27/19		JCL

Lab ID: 9022156-05 **Collected By:** Client **Sampled:** 06/25/19 13:10 **Received:** 06/27/19 09:50
Sample Desc: BM-5S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.18	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL

Lab ID: 9022156-06 **Collected By:** Client **Sampled:** 06/25/19 08:45 **Received:** 06/27/19 09:50
Sample Desc: BM-6S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.09	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.32	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL

Lab ID: 9022156-07 **Collected By:** Client **Sampled:** 06/25/19 08:45 **Received:** 06/27/19 09:50
Sample Desc: BM-6M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.10	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.11	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL



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2

Lab ID: 9022156-08 **Collected By:** Client **Sampled:** 06/25/19 10:05 **Received:** 06/27/19 09:50
Sample Desc: BM-6D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.09	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL

Lab ID: 9022156-09 **Collected By:** Client **Sampled:** 06/25/19 10:05 **Received:** 06/27/19 09:50
Sample Desc: BM-7S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.06	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.07	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL

Lab ID: 9022156-10 **Collected By:** Client **Sampled:** 06/25/19 11:50 **Received:** 06/27/19 09:50
Sample Desc: BM-7M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.05	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.10	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL

Lab ID: 9022156-11 **Collected By:** Client **Sampled:** 06/25/19 11:50 **Received:** 06/27/19 09:50
Sample Desc: BM-7D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.08	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL



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2

Lab ID: 9022156-12 **Collected By:** Client **Sampled:** 06/25/19 11:50 **Received:** 06/27/19 09:50
Sample Desc: BM-8S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.04	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.06	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL

Lab ID: 9022156-13 **Collected By:** Client **Sampled:** 06/25/19 11:50 **Received:** 06/27/19 09:50
Sample Desc: BM-8M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.03	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL

Lab ID: 9022156-14 **Collected By:** Client **Sampled:** 06/25/19 11:50 **Received:** 06/27/19 09:50
Sample Desc: BM-8D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.03	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.04	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL

Lab ID: 9022156-15 **Collected By:** Client **Sampled:** 06/25/19 10:35 **Received:** 06/27/19 09:50
Sample Desc: BM-9S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.10	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.12	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL



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2

Lab ID: 9022156-16 **Collected By:** Client **Sampled:** 06/25/19 10:35 **Received:** 06/27/19 09:50
Sample Desc: BM-9M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.06	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.07	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL

Lab ID: 9022156-17 **Collected By:** Client **Sampled:** 06/25/19 10:35 **Received:** 06/27/19 09:50
Sample Desc: BM-9D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.04	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.06	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL

Lab ID: 9022156-18 **Collected By:** Client **Sampled:** 06/25/19 11:15 **Received:** 06/27/19 09:50
Sample Desc: BM-10S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.20	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL

Lab ID: 9022156-19 **Collected By:** Client **Sampled:** 06/25/19 11:15 **Received:** 06/27/19 09:50
Sample Desc: BM-10M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.04	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.11	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL



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M.J. Reider Associates, Inc.

2

Lab ID: 9022156-20 **Collected By:** Client **Sampled:** 06/25/19 11:15 **Received:** 06/27/19 09:50
Sample Desc: BM-10D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.06	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.06	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL

Lab ID: 9022156-21 **Collected By:** Client **Sampled:** 06/25/19 13:00 **Received:** 06/27/19 09:50
Sample Desc: BM-11S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.04	mg/l	0.007	0.05	SM 4500-P E	06/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.04	mg/l	0.01	0.01	SM 4500-P E	06/28/19		JCL



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Quality Control

General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9F1573								
MB (B9F1573-BLK1) Prepared & Analyzed: 06/27/2019								
Phosphorus as P, Total	<0.01	0.01	mg/l					U
Batch B9F1624								
MB (B9F1624-BLK1) Prepared & Analyzed: 06/28/2019								
Phosphorus as P, Total	<0.01	0.01	mg/l					U
MB (B9F1624-BLK2) Prepared & Analyzed: 06/28/2019								
Phosphorus as P, Total	<0.01	0.01	mg/l					U
LFB (B9F1624-BS1) Prepared & Analyzed: 06/28/2019								
Phosphorus as P, Total	1.01	0.01	mg/l	101	80-120			
LFM (B9F1624-MS1) Source: 9022156-21 Prepared & Analyzed: 06/28/2019								
Phosphorus as P, Total	1.03	0.01	mg/l	98.7	80-120			
LFMD (B9F1624-MSD1) Source: 9022156-21 Prepared & Analyzed: 06/28/2019								
Phosphorus as P, Total	1.04	0.01	mg/l	100	80-120	1.35	20	

Dissolved General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9F1574								
MB (B9F1574-BLK1) Prepared & Analyzed: 06/27/2019								
Phosphorus as P, Dissolved	<0.05	0.05	mg/l					G-11, U
LFB (B9F1574-BS1) Prepared & Analyzed: 06/27/2019								
Phosphorus as P, Dissolved	1.01	0.05	mg/l		80-120			G-11
LFM (B9F1574-MS1) Source: 9022156-04 Prepared & Analyzed: 06/27/2019								
Phosphorus as P, Dissolved	1.06	0.05	mg/l	99.6	80-120			
LFMD (B9F1574-MSD1) Source: 9022156-04 Prepared & Analyzed: 06/27/2019								
Phosphorus as P, Dissolved	1.06	0.05	mg/l	99.1	80-120	0.473	20	
Batch B9F1625								
MB (B9F1625-BLK1) Prepared & Analyzed: 06/28/2019								
Phosphorus as P, Dissolved	<0.05	0.05	mg/l					G-11, U
LFB (B9F1625-BS1) Prepared & Analyzed: 06/28/2019								
Phosphorus as P, Dissolved	1.02	0.05	mg/l		80-120			G-11
LFM (B9F1625-MS1) Source: 9022156-05 Prepared & Analyzed: 06/28/2019								
Phosphorus as P, Dissolved	1.06	0.05	mg/l	99.4	80-120			
LFMD (B9F1625-MSD1) Source: 9022156-05 Prepared & Analyzed: 06/28/2019								
Phosphorus as P, Dissolved	1.07	0.05	mg/l	100	80-120	0.749	20	



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

Preparation Methods

Specific Method	Preparation Method	Prepared Date	Prepared By
9022156-01			
SM 4500-P E	SM 4500-P B	06/27/2019	JCL
9022156-02			
SM 4500-P E	SM 4500-P B	06/27/2019	JCL
9022156-03			
SM 4500-P E	SM 4500-P B	06/27/2019	JCL
9022156-04			
SM 4500-P E	SM 4500-P B	06/27/2019	JCL
9022156-05			
SM 4500-P E	SM 4500-P B	06/28/2019	JCL
9022156-06			
SM 4500-P E	SM 4500-P B	06/28/2019	JCL
9022156-07			
SM 4500-P E	SM 4500-P B	06/28/2019	JCL
9022156-08			
SM 4500-P E	SM 4500-P B	06/28/2019	JCL
9022156-09			
SM 4500-P E	SM 4500-P B	06/28/2019	JCL
9022156-10			
SM 4500-P E	SM 4500-P B	06/28/2019	JCL
9022156-11			
SM 4500-P E	SM 4500-P B	06/28/2019	JCL
9022156-12			
SM 4500-P E	SM 4500-P B	06/28/2019	JCL
9022156-13			
SM 4500-P E	SM 4500-P B	06/28/2019	JCL
9022156-14			
SM 4500-P E	SM 4500-P B	06/28/2019	JCL
9022156-15			
SM 4500-P E	SM 4500-P B	06/28/2019	JCL



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2

9022156-16

SM 4500-P E	SM 4500-P B	06/28/2019	JCL
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9022156-17

SM 4500-P E	SM 4500-P B	06/28/2019	JCL
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9022156-18

SM 4500-P E	SM 4500-P B	06/28/2019	JCL
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9022156-19

SM 4500-P E	SM 4500-P B	06/28/2019	JCL
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9022156-20

SM 4500-P E	SM 4500-P B	06/28/2019	JCL
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9022156-21

SM 4500-P E	SM 4500-P B	06/28/2019	JCL
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Notes and Definitions

- G-11 The sample was filtered after it was received at the laboratory.
- J Estimated value
- U Analyte was not detected above the indicated value.



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 www.sgs.com/ehsausa

Client / Reporting Information Company Name: Philadelphia District, Reservoir Sampling Street Address: Philadelphia District, Reservoir Sampling City: State: Zip:		Project Information Project Name: Philadelphia District, Reservoir Sampling Billing Information (if different from Report to): Company Name: Street Address: City: State: Zip:		Requested Analysis Filtergen, TPO4		Matrix Codes DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SEC - Sediment CL - Clay LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Waste FIB - Fibers EB - Envelope Blank RB - Phase Blank TB - Trip Blank	
Company Information State: Zip: City: State: Zip: Project Contact: tammy.mccloskey@sgs.com Phone #: Client Purchase Order # Sampler(s) Name(s): Project Manager: Attention: GW		Data Deliverable Information Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT (Level 3-4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "Y" = Results Only Commercial "P" = Results + QC Summary Commercial "C" = Results + QC Summary + Parallel Raw data		Comments / Special Instructions FILTERGEN = MJ Reader to filter prior to TPO4 analysis on samples noted per client instructions. (Each sample should be TPO4 total and TPO4 lab filtered). Rec'd temp @ on ice		LAB USE ONLY	
Sample ID / Point of Collection 1XA BM-1S 1F BM-1S 2XA BM-2S 2F BM-2S 3XA BM-3M 3F BM-3M 4XA BM-2D 4F BM-2D 5XA BM-5S 5F BM-5S 6XA BM-5S 6F BM-5S	Field ID / Point of Collection 1XA BM-1S 1F BM-1S 2XA BM-2S 2F BM-2S 3XA BM-3M 3F BM-3M 4XA BM-2D 4F BM-2D 5XA BM-5S 5F BM-5S 6XA BM-5S 6F BM-5S	Collection Date: 6/25/19 Time: 1:50:00 PM 6/25/19 1:50:00 PM 6/25/19 9:15:00 AM 6/25/19 9:15:00 AM 6/25/19 9:15:00 AM 6/25/19 9:15:00 AM 6/25/19 9:15:00 AM 6/25/19 1:10:00 PM 6/25/19 6:45:00 AM 6/25/19 8:45:00 AM	Number of preserved bottles ENCORS MECH DI Water NONE H2SO4 HNO3 HCl H2O2 H2O	Turnaround Time (Business days) 3 5 3 2 1 Other Due 7/2/2019	Approved By (SGS PMP) / Date: Date: 6/26/19 17:00 Received By: 3 Date / Time: 3 Relinquished By: 5 Date / Time: 5	Relinquished By: Date / Time: 2 Relinquished By: 4 Date / Time: 4 Relinquished By: 6 Date / Time: 6	Received By: Date / Time: 2 Received By: 4 Date / Time: 4 Received By: 6 Date / Time: 6

-01
 -02
 -03
 -04
 -05
 -06

9022156
 SGS North America
 Army Corp Reservoirs



Rec'd temp @ on ice
 Emily Coyler 6-27-19 950

* 2 cooler returns:
 \$54.30



9022156

Read temp on ice
Emily C. Cole
6.27.19 950

Client / Reporting Information		Project Information		Requested Analysis		Matrix Codes	
Company Name: Philadelphia District, Reservoir Sampling		Project Name: Philadelphia District, Reservoir Sampling		Requested Analysis: FILTERGEN, TPO4		Matrix Codes: RW - Drinking Water, CW - Cooling Water, WW - Wastewater, SW - Surface Water, SO - Soil, SE - Sludge, OI - Oil, LIQ - Other Liquid, AIR - Air, SOL - Other Solid, FV - Filter, FB - Equipment Blank, RB - Rinsate Blank, TB - Trip Blank	
Street Address: [Blank]		Billing Information (if different from Report to): [Blank]		LAB USE ONLY			
City: [Blank]		Company Name: [Blank]					
State: [Blank]		Street Address: [Blank]					
Zip: [Blank]		City: [Blank]					
Project Contact: tammy.mccleskey@sgs.com		Client Purchase Order #: [Blank]					
Phone #: [Blank]		Project Manager: [Blank]					
Sampler(s) Name(s): GW		Attention: [Blank]					
SGS Sample #	Field ID / Point of Collection	MECH/ID Val #	Date	Time	Sampled by	Matrix	Number of preserved bottles
13XA	BM-9M		6/25/19	11:50:00 AM	GW	AQ	ENCORE
13F	BM-9M		6/25/19	11:50:00 AM	GW	AQ	MECH
14XA	BM-9D		6/25/19	11:50:00 AM	GW	AQ	DWATER
14F	BM-9D		6/25/19	11:50:00 AM	GW	AQ	NON
15XA	BM-9S		6/25/19	10:35:00 AM	GW	AQ	FOH
15F	BM-9S		6/25/19	10:35:00 AM	GW	AQ	NOH
16XA	BM-9M		6/25/19	10:35:00 AM	GW	AQ	TS
16F	BM-9M		6/25/19	10:35:00 AM	GW	AQ	SS
17X	BM-9D		6/25/19	10:35:00 AM	GW	AQ	TS
17F	BM-9D		6/25/19	10:35:00 AM	GW	AQ	SS
18XA	BM-10S		6/25/19	11:15:00 AM	GW	AQ	TS
18F	BM-10S		6/25/19	11:15:00 AM	GW	AQ	SS

-13
-14
-15
-16
-17
-18

Approved By: (SGS PM): Date: 6/26/19 17:00
Relinquished by: 3
Relinquished by: 5
Relinquished by: 5

Commercial "A" (Level 1)
Commercial "B" (Level 2)
FULLT1 (Level 3+4)
NJ Reduced
Commercial "C"
Commercial "A" = Results Only
Commercial "B" = Results + GC Summary
Commercial "C" = Results + GC Summary + Final Raw data

Requiesced By: 2
Requiesced By: 4
Date / Time: 2
Date / Time: 4

Comments / Special Instructions: 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).



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9022156

Client / Reporting Information		Project Information		Requested Analysis		Matrix Codes	
Company Name: Philadelphia District, Reservoir Sampling		Project Name: Philadelphia District, Reservoir Sampling		Requested Analysis: FILTERGEN, TPO4		Matrix Codes: DW - Drinking Water, GW - Ground Water, WW - Wastewater, SW - Surface Water, SO - Soil, SL - Sludge, SI - Slurry Infiltration, LIQ - Other Liquid, AIR - Air, SOL - Other Solid, VAP - Vapor, EB - Equipment Blank, RB - Rinse Blank, TB - Trip Blank	
Street Address: Street, City, State, Zip		Billing Information (if different from Report to): Company Name, Street Address, City, State, Zip		Comments / Special Instructions:		LAB USE ONLY	
Project Contact: family.micostokley@sgs.com		Client Purchase Order #		Comments / Special Instructions:		LAB USE ONLY	
Phone #		Attention:		Comments / Special Instructions:		LAB USE ONLY	
Sampler(s) Name(s): GW		Project Manager: a1		Comments / Special Instructions:		LAB USE ONLY	
Sample #	Field ID / Point of Collection	MEQ/ID/Vial #	Collection Date	Sampled by	Matrix	# of Vials	Number of Preserved Baffles
19XA	BM-10M		6/25/19 11:15:00 AM	GW	AQ		ENCORE
19F	BM-10M		6/25/19 11:15:00 AM	GW	AQ		ENCORE
20XA	BM-10D		6/25/19 11:15:00 AM	GW	AQ		ENCORE
20F	BM-10D		6/25/19 11:15:00 AM	GW	AQ		ENCORE
21XA	BM-11S		6/25/19 1:00:00 PM	GW	AQ		ENCORE
21F	BM-11S		6/25/19 1:00:00 PM	GW	AQ		ENCORE
Turnaround Time (Business days)							
Approved By (SGS PM) / Date:				Data Deliverable Information:			
<input type="checkbox"/> Standard to Business Days <input type="checkbox"/> 5 Business Days RUSH <input type="checkbox"/> 3 Business Days RUSH <input type="checkbox"/> 2 Business Days RUSH <input type="checkbox"/> 1 Business Day EMERGENCY <input checked="" type="checkbox"/> Other Due: 7/8/2019				<input type="checkbox"/> Commercial "X" (Level 1) <input type="checkbox"/> Commercial "Y" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "X" = Results Only Commercial "Y" = Results + QC Summary Commercial "C" = Results + QC Summary + Field Raw data			
Relinquished by: [Signature] Date / Time: 6/26/19 17:20				Relinquished by: [Signature] Date / Time: 6/26/19 17:20			
Relinquished by: [Signature] Date / Time: 6/26/19 17:20				Relinquished by: [Signature] Date / Time: 6/26/19 17:20			
Relinquished by: [Signature] Date / Time: 6/26/19 17:20				Relinquished by: [Signature] Date / Time: 6/26/19 17:20			

Rec'd King 0°
 on ice

Emily Coyne 950 627-19



9022156

Date / Time: 6/26/2019 12:26:19 PM

CSR: TAMMY

Job #: JC90585XA

Client Project: Philadelphia District, Reservoir Sampling

Deliverable: REDT2

TAT: Due 7/9/2019

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

Address: 107 Angelica Street

City: Reading

State: PA

Contact: Sample Receiving / Rich Wheeler

Phone: 610-374-5129

SGS Sample #	Client Sample Description	Analysis	Location	Sampled By	Date Sampled	Time Sampled	Aliquot
JC90585-1XA	BM-1S	TPO4..		GW	6/25/2019	1:50:00 PM	
JC90585-1F	BM-1S	FILTERGN..TPO4..		GW	6/25/2019	1:50:00 PM	
JC90585-2XA	BM-2S	TPO4..		GW	6/25/2019	9:15:00 AM	
JC90585-2F	BM-2S	FILTERGN..TPO4..		GW	6/25/2019	9:15:00 AM	
JC90585-3XA	BM-2M	TPO4..		GW	6/25/2019	9:15:00 AM	
JC90585-3F	BM-2M	FILTERGN..TPO4..		GW	6/25/2019	9:15:00 AM	
JC90585-4XA	BM-2D	TPO4..		GW	6/25/2019	9:15:00 AM	
JC90585-4F	BM-2D	FILTERGN..TPO4..		GW	6/25/2019	9:15:00 AM	
JC90585-5XA	BM-5S	TPO4..		GW	6/25/2019	1:10:00 PM	
JC90585-5F	BM-5S	FILTERGN..TPO4..		GW	6/25/2019	1:10:00 PM	
JC90585-6XA	BM-6S	TPO4..		GW	6/25/2019	8:45:00 AM	
JC90585-6F	BM-6S	FILTERGN..TPO4..		GW	6/25/2019	8:45:00 AM	
JC90585-7XA	BM-6M	TPO4..		GW	6/25/2019	8:45:00 AM	
JC90585-7F	BM-6M	FILTERGN..TPO4..		GW	6/25/2019	8:45:00 AM	
JC90585-8XA	BM-6D	TPO4..		GW	6/25/2019	10:05:00 AM	
JC90585-8F	BM-6D	FILTERGN..TPO4..		GW	6/25/2019	10:05:00 AM	
JC90585-9XA	BM-7S	TPO4..		GW	6/25/2019	10:05:00 AM	

9022156

JC90585-9F	BM-7S	FILTERGN_TPO4_	GW	6/25/2019	10:05:00 AM
JC90585-10XA	BM-7M	TPO4_	GW	6/25/2019	11:50:00 AM
JC90585-10F	BM-7M	FILTERGN_TPO4_	GW	6/25/2019	11:50:00 AM
JC90585-11XA	BM-7D	TPO4_	GW	6/25/2019	11:50:00 AM
JC90585-11F	BM-7D	FILTERGN_TPO4_	GW	6/25/2019	11:50:00 AM
JC90585-12XA	BM-8S	TPO4_	GW	6/25/2019	11:50:00 AM
JC90585-12F	BM-8S	FILTERGN_TPO4_	GW	6/25/2019	11:50:00 AM
JC90585-13XA	BM-8M	TPO4_	GW	6/25/2019	11:50:00 AM
JC90585-13F	BM-8M	FILTERGN_TPO4_	GW	6/25/2019	11:50:00 AM
JC90585-14XA	BM-8D	TPO4_	GW	6/25/2019	11:50:00 AM
JC90585-14F	BM-8D	FILTERGN_TPO4_	GW	6/25/2019	11:50:00 AM
JC90585-15XA	BM-9S	TPO4_	GW	6/25/2019	10:35:00 AM
JC90585-15F	BM-9S	FILTERGN_TPO4_	GW	6/25/2019	10:35:00 AM
JC90585-16XA	BM-9M	TPO4_	GW	6/25/2019	10:35:00 AM
JC90585-16F	BM-9M	FILTERGN_TPO4_	GW	6/25/2019	10:35:00 AM
JC90585-17XA	BM-9D	TPO4_	GW	6/25/2019	10:35:00 AM
JC90585-17F	BM-9D	FILTERGN_TPO4_	GW	6/25/2019	10:35:00 AM
JC90585-18XA	BM-10S	TPO4_	GW	6/25/2019	11:15:00 AM
JC90585-18F	BM-10S	FILTERGN_TPO4_	GW	6/25/2019	11:15:00 AM
JC90585-19XA	BM-10M	TPO4_	GW	6/25/2019	11:15:00 AM
JC90585-19F	BM-10M	FILTERGN_TPO4_	GW	6/25/2019	11:15:00 AM
JC90585-20XA	BM-10D	TPO4_	GW	6/25/2019	11:15:00 AM
JC90585-20F	BM-10D	FILTERGN_TPO4_	GW	6/25/2019	11:15:00 AM
JC90585-21XA	BM-11S	TPO4_	GW	6/25/2019	1:00:00 PM
JC90585-21F	BM-11S	FILTERGN_TPO4_	GW	6/25/2019	1:00:00 PM

9022156

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

Sample Management Receipt: _____ Date: _____

M.J. Reider Associates, Inc.

2

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)

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



sw

CHAIN OF CUSTODY

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TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/ehusa

E

31
3

Client / Reporting Information, Project Information, Collection, Deliverable, Turn Around Time, Chain of Custody table, and various checkboxes and signatures.





CHAIN OF CUSTODY

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TEL: 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/ehsusa

Client / Reporting Information		Project Information		FED-EX Tracking #		Batch Order Cont #													
Company Name: U.S. Army Corps of Eng		Project Name: USACE Reservoirs - Blue Marsh		SGS Quote #		SGS Job # JC90585													
Street Address: 100 Penn Sq East		Street: Reading PA		Requested Analysis				Matrix Codes											
City/State/Zip: Phila PA 19107		City/State/Zip: Reading PA																	
Project Contact: Joe Loeder		Client Purchase Order #: TM-001819-33		TP04 (sub to MS Reider) Alkalinity, Ammonia, BOD, TDS, TKN, TOC, TSS, XAN30				DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OL - Oil LIQ - Other Liquid AFR - Air SOL - Other Solids WPT - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank											
Phone #: 215-656-6545		Project Manager: Tammy McCluskey																	
Sample(s) Name(s): Greg Wacik 597-9780		Attention:		Number of preserved bottles: TP, NH3, PHOS, NH4, NO2, DI WTR, MEDI, BVCONE				LAB USE ONLY											
SGS Bottle #	Field ID / Point of Collection	MEQ/ML Val #	Date	Time	Sampled by	Site ID (Corp ID)	Matrix	# of bottles	TP	NH3	PHOS	NH4	NO2	DI WTR	MEDI	BVCONE			
12F	Bm-8S		6/25/19	1150	TCB	G SW	11	X									X	X	
13F	Bm-8M			1150	TCB	G SW	11	X									X	X	
14F	Bm-8D			1150	TCB	G SW	11	X									X	X	
15F	Bm-9S			1035	TCB	G SW	11	X									X	X	
16F	Bm-9M			1035	TCB	G SW	11	X									X	X	
17F	Bm-9D			1035	TCB	G SW	11	X									X	X	
18F	Bm-10S			1115	TCB	G SW	11	X									X	X	
19F	Bm-10M			1115	TCB	G SW	11	X									X	X	
20F	Bm-10D			1115	TCB	G SW	11	X									X	X	
21F	Bm-11S			1100	TCB	G SW	11	X									X	X	
Turn Around Time (Business Days)		Approved By (SGS Pst) / Date:		Deliverable		Comments / Special Instructions													
<input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days* <input type="checkbox"/> 2 Business Days* <input type="checkbox"/> 1 Business Day* <input type="checkbox"/> Other		Approval needed for 1-3 Business Day TAT		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> Full Tier 1 (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKOP		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDB Format		<input type="checkbox"/> DOD-QSMS		TCF/FCF to Eurofins lab. TP04 - to MS Reider lab.									
Signature: <i>[Signature]</i> Date / Time: 6/25/19 15:55		Signature: <i>[Signature]</i> Date / Time: 6/25/19		Signature: <i>[Signature]</i> Date / Time:		Signature: <i>[Signature]</i> Date / Time:		Signature: <i>[Signature]</i> Date / Time:		Signature: <i>[Signature]</i> Date / Time:		Signature: <i>[Signature]</i> Date / Time:		Signature: <i>[Signature]</i> Date / Time:		Signature: <i>[Signature]</i> Date / Time:		Signature: <i>[Signature]</i> Date / Time:	

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3

JC90585XA: Chain of Custody

Page 2 of 3



SGS Sample Receipt Summary

Job Number: JC90585

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 6/25/2019 5:50:00 PM

Delivery Method: _____

Airbill #'s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (2.8); Cooler 2: (3.1); Cooler 3: (3.4); Cooler 4: (2.9); Cooler 5: (3.4); Cooler 6: (3.7); Cooler 7: (3.8);

Cooler Temps (Corrected) °C: Cooler 1: (2.4); Cooler 2: (2.7); Cooler 3: (3.0); Cooler 4: (2.5); Cooler 5: (3.0); Cooler 6: (3.3); Cooler 7: (3.4);

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>	
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	7	

<u>Quality Control Preservation</u>	<u>Y or N</u>		<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y or N</u>	
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y or N</u>	
1. Sample recvd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Condition of sample:	Intact	

<u>Sample Integrity - Instructions</u>	<u>Y or N</u>		<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Test Strip Lot #s:	pH 1-12: 229517	pH 12+: 208717	Other: (Specify) _____
--------------------	-----------------	----------------	------------------------

Comments

SM089-03
Rev. Date 12/7/17

JC90585XA: Chain of Custody

Page 3 of 3

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: JC90585X

Sampling Date: 06/25/19

Report to:

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.

A handwritten signature in black ink, appearing to read "Mike Earp".

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.

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3.1: Chain of Custody	14



Sample Summary

USACE-Philadelphia District

Job No: JC90585X

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC90585-1X	06/25/19	13:50 GW	06/25/19	AQ	Surface Water	BM-1S
JC90585-2X	06/25/19	09:15 GW	06/25/19	AQ	Surface Water	BM-2S
JC90585-5X	06/25/19	13:10 GW	06/25/19	AQ	Surface Water	BM-5S
JC90585-6X	06/25/19	08:45 GW	06/25/19	AQ	Surface Water	BM-6S
JC90585-9X	06/25/19	10:05 GW	06/25/19	AQ	Surface Water	BM-7S
JC90585-12X	06/25/19	11:50 GW	06/25/19	AQ	Surface Water	BM-8S
JC90585-15X	06/25/19	10:35 GW	06/25/19	AQ	Surface Water	BM-9S
JC90585-18X	06/25/19	11:15 GW	06/25/19	AQ	Surface Water	BM-10S
JC90585-21X	06/25/19	13:00 GW	06/25/19	AQ	Surface Water	BM-11S

Subcontract Lab Data

Report of Analysis

Serialized: 07/10/2019 07:37pm 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:

L7138041



Authorized by: Douglas J. Gump
Client Services Manager

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

Account No: W08688, US ARMY CORPS OF ENGINEERS **P.O. No:** **Inv. No:** 1982733 PI
Project No: W08688, US ARMY CORPS OF ENGINEERS **PWSID No:**

Sample ID	Sample Description			Samp. Date/Time/Temp	Sampled by		
L7138041-1	BM-1S			06/25/19 01:50pm NA C	Customer		
		Received Date/Time/Temp 06/25/19 03:20pm 22.1 C		Iced (Y/N): Y			
		Exceeds recommended temperature for microbiological testing.(T)					
Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOLOGY -- BM-1S							
Total Coliform, MF	>20000		cfu/100ml	SM 9222B	1	100	06/25/19 06:22PM LK
Fecal Coliform, MF	170 E		cfu/100ml	SM 9222D	10	10	06/25/19 05:14PM ZS

Sample ID	Sample Description			Samp. Date/Time/Temp	Sampled by		
L7138041-2	BM-2S			06/25/19 09:15am NA C	Customer		
		Received Date/Time/Temp 06/25/19 03:20pm 22.1 C		Iced (Y/N): Y			
		Exceeds recommended temperature for microbiological testing.(T)					
Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOLOGY -- BM-2S							
Total Coliform, MF	2900		cfu/100ml	SM 9222B	1	100	06/25/19 05:09PM LK
Fecal Coliform, MF	24		cfu/100ml	SM 9222D	100	1	06/25/19 05:14PM ZS

PIN: 17757

Serial Number: 6525671

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

P.O. No:

Inv. No: 1982733 PI
PWSID No:

Sample ID L7138041-3	Sample Description BM-5S	Samp. Date/Time/Temp 06/25/19 01:10pm NA C	Sampled by Customer
Received Date/Time/Temp 06/25/19 03:20pm 22.1 C Iced (Y/N): Y Exceeds recommended temperature for microbiological testing.(T)			

Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
-----------	--------	------------	--------	----	----	--------------------------

ENVIRONMENTAL MICROBIOLOGY -- BM-5S

Total Coliform, MF	CONFLUENT GROWTH	cfu/100ml	SM 9222B	1	100	06/25/19 05:09PM LK
Fecal Coliform, MF	>6000	cfu/100ml	SM 9222D	1	100	06/25/19 05:14PM ZS

Sample ID L7138041-4	Sample Description BM-6S	Samp. Date/Time/Temp 06/25/19 08:45am NA C	Sampled by Customer
Received Date/Time/Temp 06/25/19 03:20pm 22.1 C Iced (Y/N): Y Exceeds recommended temperature for microbiological testing.(T)			

Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-6S

Total Coliform, MF	845	cfu/100ml	SM 9222B	10	10	06/25/19 04:18PM JG2
Fecal Coliform, MF	13	cfu/100ml	SM 9222D	100	1	06/25/19 04:21PM ZS

Sample ID L7138041-5	Sample Description BM-7S	Samp. Date/Time/Temp 06/25/19 10:05am NA C	Sampled by Customer
Received Date/Time/Temp 06/25/19 03:20pm 22.1 C Iced (Y/N): Y Exceeds recommended temperature for microbiological testing.(T)			

Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
-----------	--------	------------	--------	----	----	--------------------------

ENVIRONMENTAL MICROBIOLOGY -- BM-7S

Total Coliform, MF	2200	cfu/100ml	SM 9222B	1	100	06/25/19 05:09PM LK
Fecal Coliform, MF	10	cfu/100ml	SM 9222D	100	1	06/25/19 05:14PM ZS

Sample ID L7138041-6	Sample Description BM-8S	Samp. Date/Time/Temp 06/25/19 11:50am NA C	Sampled by Customer
Received Date/Time/Temp 06/25/19 03:20pm 22.1 C Iced (Y/N): Y Exceeds recommended temperature for microbiological testing.(T)			

Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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PIN: 17757

Serial Number: 6525671

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

P.O. No:

Inv. No: 1982733 PI
PWSID No:

Sample ID	Sample Description			Samp. Date/Time/Temp			Sampled by
L7138041-6	BM-8S			06/25/19 11:50am NA C			Customer
Received Date/Time/Temp 06/25/19 03:20pm 22.1 C Iced (Y/N): Y Exceeds recommended temperature for microbiological testing.(T)							
Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOLOGY -- BM-8S							
Total Coliform, MF	16200 E		cfu/100ml	SM 9222B	1	100	06/25/19 06:22PM LK
Fecal Coliform, MF	24		cfu/100ml	SM 9222D	100	1	06/25/19 05:14PM ZS

Sample ID	Sample Description			Samp. Date/Time/Temp			Sampled by
L7138041-7	BM-9S			06/25/19 10:35am NA C			Customer
Received Date/Time/Temp 06/25/19 03:20pm 22.1 C Iced (Y/N): Y Exceeds recommended temperature for microbiological testing.(T)							
Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOLOGY -- BM-9S							
Total Coliform, MF	4500		cfu/100ml	SM 9222B	1	100	06/25/19 05:09PM LK
Fecal Coliform, MF	20		cfu/100ml	SM 9222D	100	1	06/25/19 05:14PM ZS

Sample ID	Sample Description			Samp. Date/Time/Temp			Sampled by
L7138041-8	BM-10S			06/25/19 11:15am NA C			Customer
Received Date/Time/Temp 06/25/19 03:20pm 22.1 C Iced (Y/N): Y Exceeds recommended temperature for microbiological testing.(T)							
Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOLOGY -- BM-10S							
Total Coliform, MF	14700 E		cfu/100ml	SM 9222B	1	100	06/25/19 06:22PM LK
Fecal Coliform, MF	47		cfu/100ml	SM 9222D	100	1	06/25/19 05:14PM ZS

Sample ID	Sample Description			Samp. Date/Time/Temp			Sampled by
L7138041-9	BM-11S			06/25/19 01:00pm NA C			Customer
Received Date/Time/Temp 06/25/19 03:20pm 22.1 C Iced (Y/N): Y Exceeds recommended temperature for microbiological testing.(T)							
Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst

PIN: 17757

Serial Number: 6525671

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

P.O. No:

Inv. No: 1982733 PI
PWSID No:

Sample ID	Sample Description	Samp. Date/Time/Temp		Samp. Date/Time/Temp		Sampled by	
L7138041-9	BM-11S	06/25/19 03:20pm	22.1 C	06/25/19 01:00pm	NA C	Customer	
Received Date/Time/Temp 06/25/19 03:20pm 22.1 C Iced (Y/N): Y Exceeds recommended temperature for microbiological testing.(T)							
Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOLOGY -- BM-11S							
Total Coliform, MF	>20000		cfu/100ml	SM 9222B	1	100	06/25/19 05:09PM LK
Fecal Coliform, MF	>600		cfu/100ml	SM 9222D	10	10	06/25/19 05:14PM ZS

Sample Comments | Result Qualifiers:

L7138041-1 :

T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.

E: For microbiology testing by membrane filtration, the reported result was based on a colony count outside the recommended range of the test. The reported result may be considered an estimate.

L7138041-2 :

T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.

L7138041-3 :

T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.

L7138041-4 :

T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.

L7138041-5 :

T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.

L7138041-6 :

T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.

E: For microbiology testing by membrane filtration, the reported result was based on a colony count outside the recommended range of the test. The reported result may be considered an estimate.

L7138041-7 :

T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.

PIN: 17757

Serial Number: 6525671

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

P.O. No:

Inv. No: 1982733 PI
PWSID No:

degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.

L7138041-8 :

T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.

E: For microbiology testing by membrane filtration, the reported result was based on a colony count outside the recommended range of the test. The reported result may be considered an estimate.

L7138041-9 :

T: Samples for microbiological testing were received at the laboratory outside of the allowed temperature range of just above 0 to 10 degrees C. Because ice is present and the chilling process begun, the sample storage criteria is considered acceptable.



PIN: 17757

Serial Number: 6525671

DEFINITIONS

The following terms or abbreviations are used in this report:

<	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 Jordan Thorngren (Water Microbiology).

EQC Accreditations

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



CHAIN OF CUSTODY WORKSHEET

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

P7138041-1



Company Name:	Project Name:
USACE - Phila. District	USACE Reservoirs - Blue Marsh
Street Address:	
100 Penn Sq. East	
City, State, Zip:	
Phila. PA. 19107	
Project Contact:	Project #
Joe Loeper	Reading PA
Phone #:	Client Purchase Order #
215-6656-6545	TM-002019-55
Sample(s) Name(s):	Phone #
Greg Wacik 597-9780 Tammy McCosky	610

Matrix Codes
DX - Drinking Water
GW - Ground Water
WW - Wastewater
SW - Surface Water
SO - Sediment
SL - Sludge
OL - Oil
AIR - Air
SOL - Other Solids
WP - Wipe
FB - Field Blank
EB - Equipment Blank
RB - Release Blank
TB - Trip Blank

L7138041-1
 22.1C Iced: Y KC2
 CU/DJG 06/25/19 1525
 06/25/19 1553

Field ID / Point of Collection	Date	Time	Sampled By	Seal (s) Comp. (s)	# of Batches	Matrix Code	Number of Preserved Batches
Bm - 1S	6/25/19	1:50	GL	G SW	2	X	X
Bm - 8S	9:15	9:15	GL	G SW	2	X	X
Bm - 5S	1:10	1:10	GL	G SW	2	X	X
Bm - 6S	8:46	8:46	GL	G SW	2	X	X
Bm - 7S	10:05	10:05	GL	G SW	2	X	X
Bm - 8S	11:50	11:50	GL	G SW	2	X	X
Bm - 9S	10:35	10:35	GL	G SW	2	X	X
Bm - 10S	11:15	11:15	GL	G SW	2	X	X
Bm - 11S	1:00	1:00	GL	G SW	2	X	X

Number of Preserved Batches

ENCORE

AIR

OTHER

WATER

NOISE

SOIL

SLUDGE

WASTE

FIELD

LAB

OTHER

LAB USE ONLY

Approved By (SGS Prep, Name):

Commercial "A" (Level 1)

Commercial "B" (Level 2)

Commercial "C" (Level 3)

Full Tier 1 (Level 4)

Commercial "C"

NI OKDP

Commercial "A" = Results only, Commercial "B" = Results + QC Summary

Commercial "C" = Results + QC Summary + Partial Raw data

Sample Custody must be documented below each time samples change possession, including courier delivery.

Turn Around Time (Business Days)	Deliverable
10 Business Days	NYASP Category A
5 Business Days	NYASP Category B
3 Business Days	MA MCP Criteria
2 Business Days	CT MCP Criteria
1 Business Day	State Forms
Other	EDD Format
All data available via Lablink	

Received By: [Signature]	Date / Time: 6/25/19 2:00
Relinquished By: [Signature]	Date / Time: 6/25/19 2:00
Received By: [Signature]	Date / Time: 6/25/19 2:00
Relinquished By: [Signature]	Date / Time: 6/25/19 2:00

Approved By (SGS Prep, Name):

Commercial "A" (Level 1)

Commercial "B" (Level 2)

Commercial "C" (Level 3)

Full Tier 1 (Level 4)

Commercial "C"

NI OKDP

Commercial "A" = Results only, Commercial "B" = Results + QC Summary

Commercial "C" = Results + QC Summary + Partial Raw data

Sample Custody must be documented below each time samples change possession, including courier delivery.

Turn Around Time (Business Days)

Deliverable

NYASP Category A

NYASP Category B

MA MCP Criteria

CT MCP Criteria

State Forms

EDD Format

Commercial "A" = Results only, Commercial "B" = Results + QC Summary

Commercial "C" = Results + QC Summary + Partial Raw data

Sample Custody must be documented below each time samples change possession, including courier delivery.



Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



sw

CHAIN OF CUSTODY

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

E

Client / Reporting Information Company Name: U.S. Army Corps of Engineers Street Address: 100 Penn Sq. East City: Phila. State: PA Zip: 19107 Project Contact: Joe Loeper Phone #: 215-656-6545 Sampler(s) Name(s): Greg Wacik Phone #: 610-597-9780		Project Information Project Name: USACE Reservoirs - Blue Marsh Street: _____ Billing Information (if different from Report to): Company Name: _____ Project #: _____ Client Purchase Order #: TM-061819-33 Project Manager: Tammy McCloskey		Requested Analysis TP04 (Sub to MJS Reider) Alkalinity, Ammonia BOD, Total Diss. Solids TKN, TOC, TSS XN030		Matrix Codes DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SED - Sediment CL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solids WIP - Waste FB - Field Blank EB - Equipment Blank RB - Rinsate Blank TB - Trip Blank	
Collection MECH/ID Val # _____ Date _____ Time _____ Sampled by _____ Site ID (Comp-ID) _____ Matrix _____ # of bottles _____ # _____ MECH _____ HINC _____ HIR _____ HIR _____ HIR _____ HIR _____ HIR _____ HIR _____ HIR _____ HIR _____ HIR _____ HIR _____ HIR _____ HIR _____ HIR _____		Turn Around Time (Business Days) <input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Other _____ Approved by (SGS PRS / Date): _____		Deliverable <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKQP <input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input type="checkbox"/> DOD-QS4IS		Comments / Special Instructions TCF / FCF samples to Eurofins Lab. TP04 to MJS Reider Lab. INITIAL ASSESSMENT SA LABEL VERIFICATION	
SGS Sample # 1F Bm-1S 2F Bm-2S 3F Bm-2M 4F Bm-2D 5F Bm-5S 6F Bm-6S 7F Bm-6M 8F Bm-6D 9F Bm-7S 10F Bm-7M 11F Bm-7D		6/25/19 1:50 9:45 9:15 9:15 1:40 8:45 8:45 8:45 10:05 10:05 10:05		G SW 10 X G SW 11 X G SW 11 X G SW 11 X G SW 11 X G SW 11 X G SW 11 X G SW 11 X G SW 11 X G SW 11 X G SW 11 X		X X	
Chain of Custody Received by: _____ Date / Time: _____ Received by: _____ Date / Time: _____ Received by: _____ Date / Time: _____ Received by: _____ Date / Time: _____ Received by: _____ Date / Time: _____		28 CIP 3.1C 3.9C 3.4 CIP 3.1 CIP 3.8 CIP		Preserved where applicable: _____ Subject: _____ Therm. ID: _____ Color Temp. °C: _____			

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CHAIN OF CUSTODY

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

Form containing Client/Reporting Information, Project Information, Billing Information, Collection table, Turn Around Time, Deliverable, and Chain of Custody sections.



SGS Sample Receipt Summary

Job Number: JC90585

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 6/25/2019 5:50:00 PM

Delivery Method: _____

Airbill #s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (2.8); Cooler 2: (3.1); Cooler 3: (3.4); Cooler 4: (2.9); Cooler 5: (3.4); Cooler 6: (3.7); Cooler 7: (3.8);

Cooler Temps (Corrected) °C: Cooler 1: (2.4); Cooler 2: (2.7); Cooler 3: (3.0); Cooler 4: (2.5); Cooler 5: (3.0); Cooler 6: (3.3); Cooler 7: (3.4);

<u>Cooler Security</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	7		

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:	Intact		

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Test Strip Lot #s:	pH 1-12: 229517	pH 12+: 208717	Other: (Specify) _____
--------------------	-----------------	----------------	------------------------

Comments

SM089-03
Rev. Date 12/7/17

JC90585X: Chain of Custody

Page 3 of 3

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: JC91700

Sampling Date: 07/16/19

Report to:

Army Corps of Engineers

joseph.m.loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: **43**



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.

A handwritten signature in black ink, appearing to read "Mike Earp".

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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Test results relate only to samples analyzed.

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Sample Summary

USACE-Philadelphia District

Job No: JC91700

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC91700-1	07/16/19	07:20 GW	07/16/19	AQ	Surface Water	BM-1S
JC91700-2	07/16/19	09:30 GW	07/16/19	AQ	Surface Water	BM-2S
JC91700-3	07/16/19	09:30 GW	07/16/19	AQ	Surface Water	BM-2M
JC91700-4	07/16/19	09:30 GW	07/16/19	AQ	Surface Water	BM-2D
JC91700-5	07/16/19	12:45 GW	07/16/19	AQ	Surface Water	BM-5S
JC91700-6	07/16/19	08:45 GW	07/16/19	AQ	Surface Water	BM-6S
JC91700-7	07/16/19	08:45 GW	07/16/19	AQ	Surface Water	BM-6M
JC91700-8	07/16/19	08:45 GW	07/16/19	AQ	Surface Water	BM-6D
JC91700-9	07/16/19	10:00 GW	07/16/19	AQ	Surface Water	BM-7S
JC91700-10	07/16/19	10:00 GW	07/16/19	AQ	Surface Water	BM-7M
JC91700-11	07/16/19	10:00 GW	07/16/19	AQ	Surface Water	BM-7D
JC91700-12	07/16/19	11:30 GW	07/16/19	AQ	Surface Water	BM-8S
JC91700-13	07/16/19	11:30 GW	07/16/19	AQ	Surface Water	BM-8M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC91700

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC91700-14	07/16/19	11:30 GW	07/16/19	AQ	Surface Water	BM-8D
JC91700-15	07/16/19	10:40 GW	07/16/19	AQ	Surface Water	BM-9S
JC91700-16	07/16/19	10:40 GW	07/16/19	AQ	Surface Water	BM-9M
JC91700-17	07/16/19	10:40 GW	07/16/19	AQ	Surface Water	BM-9D
JC91700-18	07/16/19	11:00 GW	07/16/19	AQ	Surface Water	BM-10S
JC91700-19	07/16/19	11:00 GW	07/16/19	AQ	Surface Water	BM-10M
JC91700-20	07/16/19	11:00 GW	07/16/19	AQ	Surface Water	BM-10D
JC91700-21	07/16/19	12:45 GW	07/16/19	AQ	Surface Water	BM-11S

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: USACE-Philadelphia District

Job No JC91700

Site: Philadelphia District, Reservoir Sampling

Report Date 7/24/2019 4:01:29 PM

On 07/16/2019, 21 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 3.9 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JC91700 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: GP22470

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91700-1DUP, JC91700-1MS 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: GP22539

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91893-1DUP, JC91893-1MS 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: GP22524

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91330-26DUP, JC91330-26MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.
- Matrix Spike Recovery(s) for Nitrogen, Nitrate + Nitrite 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: GP22525

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91700-3DUP, JC91700-8MS, JC91700-3MS 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:** R179882

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179883

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179885

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-10 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179886

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179887

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179888

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179889

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179890

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179891

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179892

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179893

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179894

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179895

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-13 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179896

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

General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ **Batch ID:** R179896

- JC91700-14 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179897

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-15 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179898

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-16 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179899

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-17 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179900

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-18 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179901

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-19 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179902

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-20 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R179903

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC91700-21 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

General Chemistry By Method SM2320 B-11

Matrix: AQ

Batch ID: GN97808

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91700-1DUP were used as the QC samples for Alkalinity, Total as CaCO₃.
- JC91700-3 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-4 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-7 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-13 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-12 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-11 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-5 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-16 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-2 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-1 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-15 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-10 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-14 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-6 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-8 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-9 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-17 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.

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.
- JC91700-20 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-19 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-18 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC91700-21 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: GN97633

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91700-1DUP, JC91700-2DUP were used as the QC samples for Solids, Total Dissolved.

Matrix: AQ

Batch ID: GN97675

- 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 Dissolved.

General Chemistry By Method SM2540 D-11

Matrix: AQ **Batch ID:** GN97669

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91674-1DUP were used as the QC samples for Solids, Total Suspended.

Matrix: AQ **Batch ID:** GN97756

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91700-6DUP were used as the QC samples for Solids, Total Suspended.

Matrix: AQ **Batch ID:** GN97790

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91845-1DUP were used as the QC samples for Solids, Total Suspended.

General Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AQ **Batch ID:** GP22560

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91665-1DUP, JC91665-1MS, JC91665-1MSD were used as the QC samples for Nitrogen, Ammonia.

Matrix: AQ **Batch ID:** GP22561

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91700-17DUP, JC91700-17MS, JC91700-17MSD were used as the QC samples for Nitrogen, Ammonia.

General Chemistry By Method SM4500NO2 B-11

Matrix: AQ **Batch ID:** GN97619

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91700-1DUP, JC91700-1MS, JC91700-21DUP, JC91700-21MS were used as the QC samples for Nitrogen, Nitrite.

General Chemistry By Method SM5210 B-11

Matrix: AQ **Batch ID:** GP22444

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91700-1DUP, JC91700-21DUP were used as the QC samples for BOD, 5 Day.

General Chemistry By Method SM5310 B-11

Matrix: AQ

Batch ID: GP22465

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91625-40MS, JC91625-40MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ

Batch ID: GP22466

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91700-1MS, JC91700-1MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ

Batch ID: GP22467

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC91700-13MS, JC91700-13MSD 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: JC91700
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 07/16/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC91700-1 BM-1S

Alkalinity, Total as CaCO ₃ ^a	135	5.0			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	4.0	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.0	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.045	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.65	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	221	10			mg/l	SM2540 C-11
Solids, Total Suspended	5.7	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.9	1.0			mg/l	SM5310 B-11

JC91700-2 BM-2S

Alkalinity, Total as CaCO ₃ ^a	74.0	5.0			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	1.9	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.9	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.031	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.4	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	156	10			mg/l	SM2540 C-11
Solids, Total Suspended	12.5	4.0			mg/l	SM2540 D-11
Total Organic Carbon	21.8	1.0			mg/l	SM5310 B-11

JC91700-3 BM-2M

Alkalinity, Total as CaCO ₃ ^a	140	10			mg/l	SM2320 B-11
Nitrogen, Ammonia	0.27	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.0	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.0	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.036	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.69	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	209	10			mg/l	SM2540 C-11
Solids, Total Suspended	12.0	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.6	1.0			mg/l	SM5310 B-11

JC91700-4 BM-2D

Alkalinity, Total as CaCO ₃ ^a	160	5.0			mg/l	SM2320 B-11
Nitrogen, Ammonia	0.52	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.2	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.2	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.044	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	3.1	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	233	10			mg/l	SM2540 C-11
Solids, Total Suspended	224	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.0	1.0			mg/l	SM5310 B-11

Summary of Hits

Job Number: JC91700
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 07/16/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC91700-5 BM-5S

Alkalinity, Total as CaCO3 ^a	243	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	7.4	0.41			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	7.4	0.40			mg/l	EPA 353.2/LACHAT
Solids, Total Dissolved	346	10			mg/l	SM2540 C-11
Solids, Total Suspended	6.6	4.0			mg/l	SM2540 D-11
Total Organic Carbon	1.0	1.0			mg/l	SM5310 B-11

JC91700-6 BM-6S

Alkalinity, Total as CaCO3 ^a	70.0	5.0			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	2.0	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.0	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl	1.2	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	149	10			mg/l	SM2540 C-11
Solids, Total Suspended	11.8	4.0			mg/l	SM2540 D-11
Total Organic Carbon	3.1	1.0			mg/l	SM5310 B-11

JC91700-7 BM-6M

Alkalinity, Total as CaCO3 ^a	118	5.0			mg/l	SM2320 B-11
Nitrogen, Ammonia	0.25	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.5	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.5	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.045	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.59	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	208	10			mg/l	SM2540 C-11
Solids, Total Suspended	5.6	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.6	1.0			mg/l	SM5310 B-11

JC91700-8 BM-6D

Alkalinity, Total as CaCO3 ^a	166	10			mg/l	SM2320 B-11
Nitrogen, Ammonia	0.60	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.9	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.0	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.095	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.99	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	255	10			mg/l	SM2540 C-11
Solids, Total Suspended	38.5	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.2	1.0			mg/l	SM5310 B-11

Summary of Hits

Job Number: JC91700
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 07/16/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC91700-9 BM-7S

Alkalinity, Total as CaCO ₃ ^a	80.0	5.0			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	1.9	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.9	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.039	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.7	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	159	10			mg/l	SM2540 C-11
Solids, Total Suspended	16.2	4.0			mg/l	SM2540 D-11
Total Organic Carbon	3.5	1.0			mg/l	SM5310 B-11

JC91700-10 BM-7M

Alkalinity, Total as CaCO ₃ ^a	130	5.0			mg/l	SM2320 B-11
Nitrogen, Ammonia	0.24	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.7	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.7	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.022	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.68	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	206	10			mg/l	SM2540 C-11
Solids, Total Suspended	8.5	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.4	1.0			mg/l	SM5310 B-11

JC91700-11 BM-7D

Alkalinity, Total as CaCO ₃ ^a	208	5.0			mg/l	SM2320 B-11
Nitrogen, Ammonia	0.34	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	5.6	0.31			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.6	0.30			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.022	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.1	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	246	10			mg/l	SM2540 C-11
Solids, Total Suspended	94.6	4.0			mg/l	SM2540 D-11
Total Organic Carbon	1.6	1.0			mg/l	SM5310 B-11

JC91700-12 BM-8S

Alkalinity, Total as CaCO ₃ ^a	73.0	5.0			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	1.7	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.7	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.034	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.82	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	151	10			mg/l	SM2540 C-11
Solids, Total Suspended	13.5	4.0			mg/l	SM2540 D-11
Total Organic Carbon	3.1	1.0			mg/l	SM5310 B-11

Summary of Hits

Job Number: JC91700
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 07/16/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC91700-13 BM-8M

Alkalinity, Total as CaCO ₃ ^a	93.0	5.0			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	2.8	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.8	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.017	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.65	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	168	10			mg/l	SM2540 C-11
Solids, Total Suspended	7.9	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.5	1.0			mg/l	SM5310 B-11

JC91700-14 BM-8D

Alkalinity, Total as CaCO ₃ ^a	130	5.0			mg/l	SM2320 B-11
Nitrogen, Ammonia	0.42	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.9	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.9	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.021	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.2	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	206	10			mg/l	SM2540 C-11
Solids, Total Suspended	125	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.1	1.0			mg/l	SM5310 B-11

JC91700-15 BM-9S

Alkalinity, Total as CaCO ₃ ^a	80.0	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	1.8	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.8	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.029	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.99	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	148	10			mg/l	SM2540 C-11
Solids, Total Suspended	14.9	4.0			mg/l	SM2540 D-11
Total Organic Carbon	3.4	1.0			mg/l	SM5310 B-11

JC91700-16 BM-9M

Alkalinity, Total as CaCO ₃ ^a	125	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	3.7	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.7	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.022	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.81	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	209	10			mg/l	SM2540 C-11
Solids, Total Suspended	8.9	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.3	1.0			mg/l	SM5310 B-11

Summary of Hits

Job Number: JC91700
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 07/16/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC91700-17 BM-9D

Alkalinity, Total as CaCO ₃ ^a	210	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	5.9	0.31			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.9	0.30			mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl	0.85	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	323	10			mg/l	SM2540 C-11
Solids, Total Suspended	61.3	4.0			mg/l	SM2540 D-11
Total Organic Carbon	1.3	1.0			mg/l	SM5310 B-11

JC91700-18 BM-10S

Alkalinity, Total as CaCO ₃ ^a	80.0	5.0			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	1.4	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.5	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.081	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	3.5	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	171	10			mg/l	SM2540 C-11
Solids, Total Suspended	34.0	4.0			mg/l	SM2540 D-11
Total Organic Carbon	5.1	1.0			mg/l	SM5310 B-11

JC91700-19 BM-10M

Alkalinity, Total as CaCO ₃ ^a	122	5.0			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	3.7	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.7	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.026	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.1	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	218	10			mg/l	SM2540 C-11
Solids, Total Suspended	10.9	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.6	1.0			mg/l	SM5310 B-11

JC91700-20 BM-10D

Alkalinity, Total as CaCO ₃ ^a	202	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	5.9	0.31			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.9	0.30			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.021	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.6	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	264	10			mg/l	SM2540 C-11
Solids, Total Suspended	264	4.0			mg/l	SM2540 D-11
Total Organic Carbon	1.5	1.0			mg/l	SM5310 B-11

Summary of Hits

Job Number: JC91700
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 07/16/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC91700-21 BM-11S

Alkalinity, Total as CaCO ₃ ^a	130	5.0			mg/l	SM2320 B-11
BOD, 5 Day	< 10	10			mg/l	SM5210 B-11
Nitrogen, Nitrate ^b	5.0	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.0	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl	0.40	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	208	10			mg/l	SM2540 C-11
Solids, Total Suspended	11.9	4.0			mg/l	SM2540 D-11
Total Organic Carbon	1.1	1.0			mg/l	SM5310 B-11

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

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

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: BM-1S	Date Sampled: 07/16/19
Lab Sample ID: JC91700-1	Date Received: 07/16/19
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 CaCO ₃ ^a	135	5.0	mg/l	1	07/22/19 15:02	CM	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	07/17/19 22:00	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/24/19 10:33	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.0	0.11	mg/l	1	07/22/19 13:32	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.0	0.10	mg/l	1	07/22/19 13:32	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.045	0.010	mg/l	1	07/17/19 00:25	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.65	0.20	mg/l	1	07/19/19 12:55	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	221	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	5.7	4.0	mg/l	1	07/20/19 11:37	RC	SM2540 D-11
Total Organic Carbon	2.9	1.0	mg/l	1	07/19/19 02:38	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-2S	Date Sampled: 07/16/19
Lab Sample ID: JC91700-2	Date Received: 07/16/19
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 CaCO ₃ ^a	74.0	5.0	mg/l	1	07/22/19 15:02	CM	SM2320 B-11
BOD, 5 Day	< 14	14	mg/l	1	07/17/19 22:03	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/24/19 10:34	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	1.9	0.11	mg/l	1	07/22/19 13:33	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.9	0.10	mg/l	1	07/22/19 13:33	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.031	0.010	mg/l	1	07/17/19 00:25	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.4	0.20	mg/l	1	07/19/19 13:02	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	156	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	12.5	4.0	mg/l	1	07/20/19 11:37	RC	SM2540 D-11
Total Organic Carbon	21.8	1.0	mg/l	1	07/19/19 03:12	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-2M		Date Sampled: 07/16/19
Lab Sample ID: JC91700-3		Date Received: 07/16/19
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 CaCO ₃ ^a	140	10	mg/l	1	07/22/19 15:02	CM	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	07/17/19 22:05	EB	SM5210 B-11
Nitrogen, Ammonia	0.27	0.20	mg/l	1	07/24/19 10:35	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.0	0.11	mg/l	1	07/22/19 13:42	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.0	0.10	mg/l	1	07/22/19 13:42	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.036	0.010	mg/l	1	07/17/19 00:25	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.69	0.20	mg/l	1	07/19/19 13:02	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	209	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	12.0	4.0	mg/l	1	07/20/19 11:37	RC	SM2540 D-11
Total Organic Carbon	2.6	1.0	mg/l	1	07/19/19 03:23	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.3
4

Report of Analysis

Client Sample ID: BM-2D	Date Sampled: 07/16/19
Lab Sample ID: JC91700-4	Date Received: 07/16/19
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 CaCO ₃ ^a	160	5.0	mg/l	1	07/22/19 15:02	CM	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	07/17/19 22:08	EB	SM5210 B-11
Nitrogen, Ammonia	0.52	0.20	mg/l	1	07/24/19 10:37	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.2	0.11	mg/l	1	07/22/19 13:43	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.2	0.10	mg/l	1	07/22/19 13:43	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.044	0.010	mg/l	1	07/17/19 00:25	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	3.1	0.20	mg/l	1	07/19/19 13:03	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	233	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	224	4.0	mg/l	1	07/20/19 11:37	RC	SM2540 D-11
Total Organic Carbon	2.0	1.0	mg/l	1	07/19/19 03:34	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-5S		Date Sampled: 07/16/19
Lab Sample ID: JC91700-5		Date Received: 07/16/19
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 CaCO ₃ ^a	243	10	mg/l	1	07/22/19 15:02	CM	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	07/17/19 22:11	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/24/19 10:38	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	7.4	0.41	mg/l	1	07/22/19 14:27	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	7.4	0.40	mg/l	4	07/22/19 14:27	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/17/19 00:25	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	07/19/19 13:04	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	346	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	6.6	4.0	mg/l	1	07/20/19 11:37	RC	SM2540 D-11
Total Organic Carbon	1.0	1.0	mg/l	1	07/19/19 04:07	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.5
4

Report of Analysis

Client Sample ID: BM-6S		Date Sampled: 07/16/19
Lab Sample ID: JC91700-6		Date Received: 07/16/19
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 CaCO ₃ ^a	70.0	5.0	mg/l	1	07/22/19 15:02	CM	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	07/17/19 22:15	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/24/19 10:40	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.0	0.11	mg/l	1	07/22/19 13:45	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.0	0.10	mg/l	1	07/22/19 13:45	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/17/19 00:25	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.2	0.20	mg/l	1	07/19/19 13:05	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	149	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	11.8	4.0	mg/l	1	07/20/19 11:37	RC	SM2540 D-11
Total Organic Carbon	3.1	1.0	mg/l	1	07/19/19 04:19	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.6
4

Report of Analysis

Client Sample ID: BM-6M		Date Sampled: 07/16/19
Lab Sample ID: JC91700-7		Date Received: 07/16/19
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 CaCO ₃ ^a	118	5.0	mg/l	1	07/22/19 15:34	CM	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	07/17/19 22:18	EB	SM5210 B-11
Nitrogen, Ammonia	0.25	0.20	mg/l	1	07/24/19 10:41	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.5	0.11	mg/l	1	07/22/19 13:46	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.5	0.10	mg/l	1	07/22/19 13:46	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.045	0.010	mg/l	1	07/17/19 00:42	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.59	0.20	mg/l	1	07/19/19 13:06	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	208	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	5.6	4.0	mg/l	1	07/20/19 11:37	RC	SM2540 D-11
Total Organic Carbon	2.6	1.0	mg/l	1	07/19/19 04:30	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.7
4

Report of Analysis

Client Sample ID: BM-6D	Date Sampled: 07/16/19
Lab Sample ID: JC91700-8	Date Received: 07/16/19
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 CaCO ₃ ^a	166	10	mg/l	1	07/22/19 15:34	CM	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	07/17/19 22:21	EB	SM5210 B-11
Nitrogen, Ammonia	0.60	0.20	mg/l	1	07/24/19 10:43	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.9	0.11	mg/l	1	07/22/19 13:48	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.0	0.10	mg/l	1	07/22/19 13:48	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.095	0.010	mg/l	1	07/17/19 00:42	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.99	0.20	mg/l	1	07/19/19 13:08	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	255	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	38.5	4.0	mg/l	1	07/20/19 11:37	RC	SM2540 D-11
Total Organic Carbon	2.2	1.0	mg/l	1	07/19/19 04:41	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-7S	Date Sampled: 07/16/19
Lab Sample ID: JC91700-9	Date Received: 07/16/19
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 CaCO ₃ ^a	80.0	5.0	mg/l	1	07/22/19 15:34	CM	SM2320 B-11
BOD, 5 Day	< 20	20	mg/l	1	07/17/19 22:24	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/24/19 10:47	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	1.9	0.11	mg/l	1	07/22/19 13:49	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.9	0.10	mg/l	1	07/22/19 13:49	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.039	0.010	mg/l	1	07/17/19 00:42	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.7	0.20	mg/l	1	07/19/19 13:09	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	159	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	16.2	4.0	mg/l	1	07/20/19 11:37	RC	SM2540 D-11
Total Organic Carbon	3.5	1.0	mg/l	1	07/19/19 04:52	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-7M		Date Sampled: 07/16/19
Lab Sample ID: JC91700-10		Date Received: 07/16/19
Matrix: AQ - Surface Water		Percent Solids: n/a
Project: Philadelphia District, Reservoir Sampling		

4.10
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃ ^a	130	5.0	mg/l	1	07/22/19 15:34	CM	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	07/17/19 22:27	EB	SM5210 B-11
Nitrogen, Ammonia	0.24	0.20	mg/l	1	07/24/19 10:48	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.7	0.11	mg/l	1	07/22/19 13:50	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.7	0.10	mg/l	1	07/22/19 13:50	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.022	0.010	mg/l	1	07/17/19 00:42	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.68	0.20	mg/l	1	07/19/19 13:10	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	206	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	8.5	4.0	mg/l	1	07/22/19 10:08	RC	SM2540 D-11
Total Organic Carbon	2.4	1.0	mg/l	1	07/19/19 05:03	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-7D	Date Sampled: 07/16/19
Lab Sample ID: JC91700-11	Date Received: 07/16/19
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 CaCO ₃ ^a	208	5.0	mg/l	1	07/22/19 15:34	CM	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	07/17/19 22:29	EB	SM5210 B-11
Nitrogen, Ammonia	0.34	0.20	mg/l	1	07/24/19 10:50	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	5.6	0.31	mg/l	1	07/22/19 14:28	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.6	0.30	mg/l	3	07/22/19 14:28	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.022	0.010	mg/l	1	07/17/19 00:42	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.1	0.20	mg/l	1	07/19/19 13:11	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	246	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	94.6	4.0	mg/l	1	07/22/19 10:08	RC	SM2540 D-11
Total Organic Carbon	1.6	1.0	mg/l	1	07/19/19 05:37	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-8S		Date Sampled: 07/16/19
Lab Sample ID: JC91700-12		Date Received: 07/16/19
Matrix: AQ - Surface Water		Percent Solids: n/a
Project: Philadelphia District, Reservoir Sampling		

4.12
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃ ^a	73.0	5.0	mg/l	1	07/22/19 15:34	CM	SM2320 B-11
BOD, 5 Day	< 20	20	mg/l	1	07/17/19 22:32	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/24/19 10:51	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	1.7	0.11	mg/l	1	07/22/19 13:54	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.7	0.10	mg/l	1	07/22/19 13:54	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.034	0.010	mg/l	1	07/17/19 00:42	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.82	0.20	mg/l	1	07/19/19 13:12	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	151	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	13.5	4.0	mg/l	1	07/22/19 10:08	RC	SM2540 D-11
Total Organic Carbon	3.1	1.0	mg/l	1	07/19/19 05:48	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-8M	Date Sampled: 07/16/19
Lab Sample ID: JC91700-13	Date Received: 07/16/19
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 CaCO ₃ ^a	93.0	5.0	mg/l	1	07/22/19 15:34	CM	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	07/17/19 22:35	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/24/19 10:53	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.8	0.11	mg/l	1	07/22/19 13:55	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.8	0.10	mg/l	1	07/22/19 13:55	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.017	0.010	mg/l	1	07/17/19 00:42	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.65	0.20	mg/l	1	07/19/19 13:13	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	168	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	7.9	4.0	mg/l	1	07/22/19 10:08	RC	SM2540 D-11
Total Organic Carbon	2.5	1.0	mg/l	1	07/19/19 06:21	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-8D	Date Sampled: 07/16/19
Lab Sample ID: JC91700-14	Date Received: 07/16/19
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 CaCO ₃ ^a	130	5.0	mg/l	1	07/22/19 15:34	CM	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	07/17/19 22:38	EB	SM5210 B-11
Nitrogen, Ammonia	0.42	0.20	mg/l	1	07/24/19 10:54	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.9	0.11	mg/l	1	07/22/19 13:56	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.9	0.10	mg/l	1	07/22/19 13:56	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.021	0.010	mg/l	1	07/17/19 00:42	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.2	0.20	mg/l	1	07/19/19 13:13	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	206	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	125	4.0	mg/l	1	07/22/19 10:08	RC	SM2540 D-11
Total Organic Carbon	2.1	1.0	mg/l	1	07/19/19 06:55	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9S	Date Sampled: 07/16/19
Lab Sample ID: JC91700-15	Date Received: 07/16/19
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 CaCO ₃ ^a	80.0	10	mg/l	1	07/22/19 15:34	CM	SM2320 B-11
BOD, 5 Day	< 20	20	mg/l	1	07/17/19 22:41	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/24/19 10:56	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	1.8	0.11	mg/l	1	07/22/19 13:58	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.8	0.10	mg/l	1	07/22/19 13:58	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.029	0.010	mg/l	1	07/17/19 00:42	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.99	0.20	mg/l	1	07/19/19 13:14	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	148	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	14.9	4.0	mg/l	1	07/22/19 10:08	RC	SM2540 D-11
Total Organic Carbon	3.4	1.0	mg/l	1	07/19/19 07:06	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9M	Date Sampled: 07/16/19
Lab Sample ID: JC91700-16	Date Received: 07/16/19
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 CaCO ₃ ^a	125	10	mg/l	1	07/22/19 15:34	CM	SM2320 B-11
BOD, 5 Day	< 20	20	mg/l	1	07/17/19 22:45	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/24/19 10:57	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.7	0.11	mg/l	1	07/22/19 13:59	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.7	0.10	mg/l	1	07/22/19 13:59	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.022	0.010	mg/l	1	07/17/19 00:42	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.81	0.20	mg/l	1	07/23/19 12:54	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	209	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	8.9	4.0	mg/l	1	07/22/19 10:08	RC	SM2540 D-11
Total Organic Carbon	2.3	1.0	mg/l	1	07/19/19 07:17	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9D	Date Sampled: 07/16/19
Lab Sample ID: JC91700-17	Date Received: 07/16/19
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 CaCO ₃ ^a	210	10	mg/l	1	07/22/19 15:48	CM	SM2320 B-11
BOD, 5 Day	< 27	27	mg/l	1	07/17/19 22:47	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/24/19 11:09	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	5.9	0.31	mg/l	1	07/22/19 14:29	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.9	0.30	mg/l	3	07/22/19 14:29	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/17/19 00:50	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.85	0.20	mg/l	1	07/23/19 12:55	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	323	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	61.3	4.0	mg/l	1	07/22/19 10:08	RC	SM2540 D-11
Total Organic Carbon	1.3	1.0	mg/l	1	07/19/19 07:35	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.17
4

Report of Analysis

Client Sample ID: BM-10S	Date Sampled: 07/16/19
Lab Sample ID: JC91700-18	Date Received: 07/16/19
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 CaCO ₃ ^a	80.0	5.0	mg/l	1	07/22/19 16:16	CM	SM2320 B-11
BOD, 5 Day	< 68	68	mg/l	1	07/17/19 22:50	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/24/19 11:10	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	1.4	0.11	mg/l	1	07/22/19 14:01	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.5	0.10	mg/l	1	07/22/19 14:01	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.081	0.010	mg/l	1	07/17/19 00:50	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	3.5	0.20	mg/l	1	07/23/19 12:55	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	171	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	34.0	4.0	mg/l	1	07/22/19 10:08	RC	SM2540 D-11
Total Organic Carbon	5.1	1.0	mg/l	1	07/19/19 07:47	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-10M	Date Sampled: 07/16/19
Lab Sample ID: JC91700-19	Date Received: 07/16/19
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 CaCO ₃ ^a	122	5.0	mg/l	1	07/22/19 16:16	CM	SM2320 B-11
BOD, 5 Day	< 20	20	mg/l	1	07/17/19 22:53	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/24/19 11:11	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.7	0.11	mg/l	1	07/22/19 14:02	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.7	0.10	mg/l	1	07/22/19 14:02	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.026	0.010	mg/l	1	07/17/19 00:50	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.1	0.20	mg/l	1	07/23/19 12:58	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	218	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	10.9	4.0	mg/l	1	07/22/19 10:08	RC	SM2540 D-11
Total Organic Carbon	2.6	1.0	mg/l	1	07/19/19 07:58	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-10D	Date Sampled: 07/16/19
Lab Sample ID: JC91700-20	Date Received: 07/16/19
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 CaCO ₃ ^a	202	10	mg/l	1	07/22/19 16:16	CM	SM2320 B-11
BOD, 5 Day	< 20	20	mg/l	1	07/17/19 22:56	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/24/19 11:13	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	5.9	0.31	mg/l	1	07/22/19 14:31	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.9	0.30	mg/l	3	07/22/19 14:31	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.021	0.010	mg/l	1	07/17/19 00:50	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.6	0.20	mg/l	1	07/23/19 12:59	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	264	10	mg/l	1	07/17/19 15:00	RC	SM2540 C-11
Solids, Total Suspended	264	4.0	mg/l	1	07/22/19 10:08	RC	SM2540 D-11
Total Organic Carbon	1.5	1.0	mg/l	1	07/19/19 08:09	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-11S	Date Sampled: 07/16/19
Lab Sample ID: JC91700-21	Date Received: 07/16/19
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 CaCO ₃ ^a	130	5.0	mg/l	1	07/22/19 16:16	CM	SM2320 B-11
BOD, 5 Day	< 10	10	mg/l	1	07/17/19 23:26	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	07/24/19 11:14	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	5.0	0.11	mg/l	1	07/22/19 14:07	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.0	0.10	mg/l	1	07/22/19 14:07	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/17/19 00:50	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.40	0.20	mg/l	1	07/23/19 13:00	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	208	10	mg/l	1	07/18/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	11.9	4.0	mg/l	1	07/18/19 10:19	RC	SM2540 D-11
Total Organic Carbon	1.1	1.0	mg/l	1	07/19/19 01:53	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.21
4

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SW

CHAIN OF CUSTODY

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

E

Client / Reporting Information		Project Information		FED-EX Tracking #		Batch Order Control #																											
Company Name: U.S. Army Corps of Engineers		Project Name: USACE Reservoirs - Blue Marsh		SGS Quote #		SGS Job # JC91700																											
Street Address: 100 Penn Sq. East		Street:		Requested Analysis: TP04 (Sub to M3 Rechar) Alkalinity, Ammonia, BOD, Total Diss. Solids, TKN, TSS, XAN30				Matrix Codes: OW - 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 Solids WP - Wipe FB - Field Blank EB - Equipment Blank RB - River Blank TB - Trip Blank																									
City, State, Zip: Phila. PA 19107		City, State: Reading PA																															
Billing Information (if different from Report to):		Company Name:																															
Project Contact: Joe Louper		Project #:																															
Phone #: 215-456-6545		Client Purchase Order #:																															
Semote(s) (Member): Greg Wacik 610-597-9780		Project Manager: Timmy McCloskey		Street Address:		City:		State:		Zip:																							
Field ID / Point of Collection		MEQ/DI Val #		Date		Time		Sampled by		Grav ID (Core ID)		Matrix		# of bottles		TSS		NH ₄ N		NH ₃ N		NO ₂ -N		NO ₃ -N		D ₁₅ Water		NH ₄ OH		BIOGORE		LAB USE ONLY	
1F Bm-1S				7/16/19		0720		TW		G SW		9		X		X		X		X		X		X		X		X		X		B6	
2F Bm-2S				0930		0930		G SW		9		X		X		X		X		X		X		X		X		X		B21			
3F Bm-2M				0930		0930		G SW		9		X		X		X		X		X		X		X		X		X		GFLC			
4F Bm-2D				0930		0930		G SW		9		X		X		X		X		X		X		X		X		X		19L3			
5F Bm-5S				1245		1245		G SW		9		X		X		X		X		X		X		X		X		X		SUB			
6F Bm-6S				0845		0845		G SW		9		X		X		X		X		X		X		X		X		X		SUB			
7F Bm-6M				0845		0845		G SW		9		X		X		X		X		X		X		X		X		X		SUB			
8F Bm-6D				0845		0845		G SW		9		X		X		X		X		X		X		X		X		X		SUB			
9F Bm-7S				1000		1000		G SW		9		X		X		X		X		X		X		X		X		X		SUB			
10F Bm-7M				1000		1000		G SW		9		X		X		X		X		X		X		X		X		X		SUB			
11F Bm-7D				1000		1000		G SW		9		X		X		X		X		X		X		X		X		X		SUB			
Turn Around Time (Business Days)		Approved By (SGS Prep): / Date:		Deliverable		Comments / Special Instructions																											
<input type="checkbox"/> 10 Business Days <input type="checkbox"/> 9 Business Days <input type="checkbox"/> 3 Business Days* <input type="checkbox"/> 2 Business Days* <input type="checkbox"/> 1 Business Day* <input type="checkbox"/> Other <small>All data available via LabLink</small>		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ OKQP		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format		<input type="checkbox"/> DOD-QSAS Initial Assessment 3B/3A @ Label Verification →																											
Approved By: <i>[Signature]</i> Date / Time: 7/16/19 1340		Received By: <i>[Signature]</i> Date / Time: 7/16/19 1340		Approved By: <i>[Signature]</i> Date / Time: 7/16/19 1550		Received By: <i>[Signature]</i> Date / Time: 7/16/19 1550																											
Retinquished by: 3 Date / Time:		Retinquished by: 4 Date / Time:		Retinquished by: 5 Date / Time:		Retinquished by: 6 Date / Time:																											
Custody Seal #		<input type="checkbox"/> Intact <input type="checkbox"/> Not intact		<input type="checkbox"/> Preserved where applicable <input type="checkbox"/> Absent		<input type="checkbox"/> On Ice <input type="checkbox"/> Cooler Temp. °C																											

C 10 38 38 37 38 39 37 39

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CHAIN OF CUSTODY

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

Form containing Client/Reporting Information, Project Information, Requested Analysis, Matrix Codes, and a table of sample results with columns for Date, Time, Matrix, # of bottles, and various chemical parameters.

CIP 3.8 3.8 3.7 3.8 3.9 3.7 3.9





CHAIN OF CUSTODY

SGS North America Inc. - Dayton
 2235 Route 130, Dayton, NJ 08610
 TEL: 732-329-0200 FAX: 732-329-3499/3480
 www.sgs.com/ehusa

Client / Reporting Information Company Name: USACE - Phila. District Street Address: 100 Penn Sq. EAST City: Phila. PA. State: PA Zip: 19107 Project Contact: Joe Loeper Phone #: 215-656-6545 Samplers (Name(s)): Greg Wacik Phone #: 610-597-9700		Project Information Project Name: USACE Reservoirs - Blue Marsh Street: _____ Billing Information (if different from Report to): Company Name: _____ Street Address: _____ City: _____ State: _____ Zip: _____ Client Purchase Order #: _____ Project #: _____ Project Manager: Tammy McGosky Attention: _____		FED-Ex Tracking #: _____ Batch Order Control #: _____ SGS Order #: _____ SGS Job #: JC91700																																																																																																																																																																																						
Requested Analysis (List of analysis types to be performed)		Matrix Codes DW - Drinking Water GW - Ground Water W1 - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank		LAB USE ONLY																																																																																																																																																																																						
Collection <table border="1"> <thead> <tr> <th>SGS Name #</th> <th>Field ID / Point of Collection</th> <th>MEDWD/Val #</th> <th>Date</th> <th>Time</th> <th>Sampled by</th> <th>Env. ID/Comp. (C)</th> <th>Matrix</th> <th># of bottles</th> <th>INC</th> <th>NUCH</th> <th>HWCO</th> <th>NYSC</th> <th>NOTICE</th> <th>DI - Volume</th> <th>INCURE</th> <th>INCURE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Bm-1S</td> <td></td> <td>7/16/19</td> <td>0720</td> <td>WJ</td> <td>G</td> <td>SW</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>2</td> <td>Bm-2S</td> <td></td> <td></td> <td>0930</td> <td></td> <td>G</td> <td>SW</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>5</td> <td>Bm-5S</td> <td></td> <td></td> <td>1245</td> <td></td> <td>G</td> <td>SW</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>6</td> <td>Bm-6S</td> <td></td> <td></td> <td>0845</td> <td></td> <td>G</td> <td>SW</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>9</td> <td>Bm-7S</td> <td></td> <td></td> <td>1000</td> <td></td> <td>G</td> <td>SW</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>12</td> <td>Bm-8S</td> <td></td> <td></td> <td>1130</td> <td></td> <td>G</td> <td>SW</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>15</td> <td>Bm-9S</td> <td></td> <td></td> <td>1040</td> <td></td> <td>G</td> <td>SW</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>18</td> <td>Bm-10S</td> <td></td> <td></td> <td>1100</td> <td></td> <td>G</td> <td>SW</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> </tr> <tr> <td>21</td> <td>Bm-11S</td> <td></td> <td></td> <td>1245</td> <td></td> <td>G</td> <td>SW</td> <td>2</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>X</td> </tr> </tbody> </table>		SGS Name #	Field ID / Point of Collection	MEDWD/Val #	Date	Time	Sampled by	Env. ID/Comp. (C)	Matrix	# of bottles	INC	NUCH	HWCO	NYSC	NOTICE	DI - Volume	INCURE	INCURE	1	Bm-1S		7/16/19	0720	WJ	G	SW	2									X	2	Bm-2S			0930		G	SW	2									X	5	Bm-5S			1245		G	SW	2									X	6	Bm-6S			0845		G	SW	2									X	9	Bm-7S			1000		G	SW	2									X	12	Bm-8S			1130		G	SW	2									X	15	Bm-9S			1040		G	SW	2									X	18	Bm-10S			1100		G	SW	2									X	21	Bm-11S			1245		G	SW	2									X	Turn Around Time (Business Days) <input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days* <input type="checkbox"/> 2 Business Days* <input type="checkbox"/> 1 Business Day* <input type="checkbox"/> Other _____ *All data available via LabLink		Deliverable <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> Full Tier 1 (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKCP <input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> RI/RCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDB Format <input type="checkbox"/> DOD-QSAS		DELIVERED BY CUSTOMER	
SGS Name #	Field ID / Point of Collection	MEDWD/Val #	Date	Time	Sampled by	Env. ID/Comp. (C)	Matrix	# of bottles	INC	NUCH	HWCO	NYSC	NOTICE	DI - Volume	INCURE	INCURE																																																																																																																																																																										
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2	Bm-2S			0930		G	SW	2									X																																																																																																																																																																									
5	Bm-5S			1245		G	SW	2									X																																																																																																																																																																									
6	Bm-6S			0845		G	SW	2									X																																																																																																																																																																									
9	Bm-7S			1000		G	SW	2									X																																																																																																																																																																									
12	Bm-8S			1130		G	SW	2									X																																																																																																																																																																									
15	Bm-9S			1040		G	SW	2									X																																																																																																																																																																									
18	Bm-10S			1100		G	SW	2									X																																																																																																																																																																									
21	Bm-11S			1245		G	SW	2									X																																																																																																																																																																									
Approved By (SGS P#): _____ Date / Time: _____		Approved for 1-3 Business Day TAT		Sample Custody must be documented below each time samples change possession, including courier delivery.																																																																																																																																																																																						
Released By: [Signature] Date / Time: 7/16/19 1340		Received By: Schm Date / Time: 7/16/19 1340		Released By: _____ Date / Time: _____																																																																																																																																																																																						
Released By: _____ Date / Time: _____		Received By: Michele J. Huk Date / Time: 7/16/19 1758		Released By: _____ Date / Time: _____																																																																																																																																																																																						
Released By: _____ Date / Time: _____		Received By: _____ Date / Time: _____		Released By: _____ Date / Time: _____																																																																																																																																																																																						

5.1 5

CIP 5.3



SGS Sample Receipt Summary

Job Number: JC91700

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 7/16/2019 3:50:00 PM

Delivery Method:

Airbill #'s:

Cooler Temps (Raw Measured) °C: Cooler 1: (3.8); Cooler 2: (3.8); Cooler 3: (3.7); Cooler 4: (3.8); Cooler 5: (3.9); Cooler 6: (3.7); Cooler 7: (3.9);

Cooler Temps (Corrected) °C: Cooler 1: (3.8); Cooler 2: (3.8); Cooler 3: (3.7); Cooler 4: (3.8); Cooler 5: (3.9); Cooler 6: (3.7); Cooler 7: (3.9);

<u>Cooler Security</u>	<u>Y</u>	<u>or</u>	<u>N</u>		<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	7		

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:	Intact		

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Test Strip Lot #s:	pH 1-12: 229517	pH 12+: 208717	Other: (Specify)
--------------------	-----------------	----------------	------------------

Comments

SM089-03
Rev. Date 12/7/17

JC91700: Chain of Custody

Page 4 of 4

5.1
5

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: JC91700XA

Sampling Date: 07/16/19

Report to:

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: **29**



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.

A handwritten signature in black ink, appearing to read "Mike Earp".

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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Test results relate only to samples analyzed.

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Sample Summary

USACE-Philadelphia District

Job No: JC91700XA

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
JC91700-1F	07/16/19	07:20 GW	07/16/19	AQ	Surface H2O Filtered	BM-1S
JC91700-1XA	07/16/19	07:20 GW	07/16/19	AQ	Surface Water	BM-1S
JC91700-2F	07/16/19	09:30 GW	07/16/19	AQ	Surface H2O Filtered	BM-2S
JC91700-2XA	07/16/19	09:30 GW	07/16/19	AQ	Surface Water	BM-2S
JC91700-3F	07/16/19	09:30 GW	07/16/19	AQ	Surface H2O Filtered	BM-2M
JC91700-3XA	07/16/19	09:30 GW	07/16/19	AQ	Surface Water	BM-2M
JC91700-4F	07/16/19	09:30 GW	07/16/19	AQ	Surface H2O Filtered	BM-2D
JC91700-4XA	07/16/19	09:30 GW	07/16/19	AQ	Surface Water	BM-2D
JC91700-5F	07/16/19	12:45 GW	07/16/19	AQ	Surface H2O Filtered	BM-5S
JC91700-5XA	07/16/19	12:45 GW	07/16/19	AQ	Surface Water	BM-5S
JC91700-6F	07/16/19	08:45 GW	07/16/19	AQ	Surface H2O Filtered	BM-6S
JC91700-6XA	07/16/19	08:45 GW	07/16/19	AQ	Surface Water	BM-6S
JC91700-7F	07/16/19	08:45 GW	07/16/19	AQ	Surface H2O Filtered	BM-6M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC91700XA

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC91700-7XA	07/16/19	08:45 GW	07/16/19	AQ	Surface Water	BM-6M
JC91700-8F	07/16/19	08:45 GW	07/16/19	AQ	Surface H2O Filtered	BM-6D
JC91700-8XA	07/16/19	08:45 GW	07/16/19	AQ	Surface Water	BM-6D
JC91700-9F	07/16/19	10:00 GW	07/16/19	AQ	Surface H2O Filtered	BM-7S
JC91700-9XA	07/16/19	10:00 GW	07/16/19	AQ	Surface Water	BM-7S
JC91700-10F	07/16/19	10:00 GW	07/16/19	AQ	Surface H2O Filtered	BM-7M
JC91700-10XA	07/16/19	10:00 GW	07/16/19	AQ	Surface Water	BM-7M
JC91700-11F	07/16/19	10:00 GW	07/16/19	AQ	Surface H2O Filtered	BM-7D
JC91700-11XA	07/16/19	10:00 GW	07/16/19	AQ	Surface Water	BM-7D
JC91700-12F	07/16/19	11:30 GW	07/16/19	AQ	Surface H2O Filtered	BM-8S
JC91700-12XA	07/16/19	11:30 GW	07/16/19	AQ	Surface Water	BM-8S
JC91700-13F	07/16/19	11:30 GW	07/16/19	AQ	Surface H2O Filtered	BM-8M
JC91700-13XA	07/16/19	11:30 GW	07/16/19	AQ	Surface Water	BM-8M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC91700XA

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
JC91700-14F	07/16/19	11:30 GW	07/16/19	AQ	Surface H2O Filtered	BM-8D
JC91700-14XA	07/16/19	11:30 GW	07/16/19	AQ	Surface Water	BM-8D
JC91700-15F	07/16/19	10:40 GW	07/16/19	AQ	Surface H2O Filtered	BM-9S
JC91700-15XA	07/16/19	10:40 GW	07/16/19	AQ	Surface Water	BM-9S
JC91700-16F	07/16/19	10:40 GW	07/16/19	AQ	Surface H2O Filtered	BM-9M
JC91700-16XA	07/16/19	10:40 GW	07/16/19	AQ	Surface Water	BM-9M
JC91700-17F	07/16/19	10:40 GW	07/16/19	AQ	Surface H2O Filtered	BM-9D
JC91700-17XA	07/16/19	10:40 GW	07/16/19	AQ	Surface Water	BM-9D
JC91700-18F	07/16/19	11:00 GW	07/16/19	AQ	Surface H2O Filtered	BM-10S
JC91700-18XA	07/16/19	11:00 GW	07/16/19	AQ	Surface Water	BM-10S
JC91700-19F	07/16/19	11:00 GW	07/16/19	AQ	Surface H2O Filtered	BM-10M
JC91700-19XA	07/16/19	11:00 GW	07/16/19	AQ	Surface Water	BM-10M
JC91700-20F	07/16/19	11:00 GW	07/16/19	AQ	Surface H2O Filtered	BM-10D



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC91700XA

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC91700-20XA	07/16/19	11:00 GW	07/16/19	AQ	Surface Water	BM-10D
JC91700-21F	07/16/19	12:45 GW	07/16/19	AQ	Surface H2O Filtered	BM-11S
JC91700-21XA	07/16/19	12:45 GW	07/16/19	AQ	Surface Water	BM-11S

Subcontract Lab Data

Report of Analysis



M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

2

Laboratory No.: 9024952
Report: 08/01/19
Lab Contact: Richard A Wheeler

Attention: Tammy McCloskey
Reported To: SGS North America
2235 US Highway 130
Dayton, NJ 08810

Project: Army Corp Reservoirs
JC91700XA

Lab ID: 9024952-01 **Collected By:** Client **Sampled:** 07/16/19 07:20 **Received:** 07/18/19 10:00
Sample Desc: BM-1S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l	0.007	0.05	SM 4500-P E	07/18/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.08	mg/l	0.01	0.01	SM 4500-P E	07/18/19		JCL

Lab ID: 9024952-02 **Collected By:** Client **Sampled:** 07/16/19 09:30 **Received:** 07/18/19 10:00
Sample Desc: BM-2S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.04	mg/l	0.007	0.05	SM 4500-P E	07/18/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.04	mg/l	0.01	0.01	SM 4500-P E	07/18/19		JCL

Lab ID: 9024952-03 **Collected By:** Client **Sampled:** 07/16/19 09:30 **Received:** 07/18/19 10:00
Sample Desc: BM-2M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.10	mg/l	0.007	0.05	SM 4500-P E	07/18/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.12	mg/l	0.01	0.01	SM 4500-P E	07/18/19		JCL



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2

Lab ID: 9024952-04 **Collected By:** Client **Sampled:** 07/16/19 09:30 **Received:** 07/18/19 10:00
Sample Desc: BM-2D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.08	mg/l	0.007	0.05	SM 4500-P E	07/19/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	3.01	mg/l	0.14	0.50	SM 4500-P E	07/19/19		JCL

Lab ID: 9024952-05 **Collected By:** Client **Sampled:** 07/16/19 12:45 **Received:** 07/18/19 10:00
Sample Desc: BM-5S **Sample Type:** Grab

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

Lab ID: 9024952-06 **Collected By:** Client **Sampled:** 07/16/19 08:45 **Received:** 07/18/19 10:00
Sample Desc: BM-6S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.03	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: 9024952-07 **Collected By:** Client **Sampled:** 07/16/19 08:45 **Received:** 07/18/19 10:00
Sample Desc: BM-6M **Sample Type:** Grab

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



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2

Lab ID: 9024952-08 **Collected By:** Client **Sampled:** 07/16/19 08:45 **Received:** 07/18/19 10:00
Sample Desc: BM-6D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.08	mg/l	0.007	0.05	SM 4500-P E	07/19/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.09	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL

Lab ID: 9024952-09 **Collected By:** Client **Sampled:** 07/16/19 10:00 **Received:** 07/18/19 10:00
Sample Desc: BM-7S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
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	0.03	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL

Lab ID: 9024952-10 **Collected By:** Client **Sampled:** 07/16/19 10:00 **Received:** 07/18/19 10:00
Sample Desc: BM-7M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.10	mg/l	0.007	0.05	SM 4500-P E	07/19/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.12	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL

Lab ID: 9024952-11 **Collected By:** Client **Sampled:** 07/16/19 10:00 **Received:** 07/18/19 10:00
Sample Desc: BM-7D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.08	mg/l	0.007	0.05	SM 4500-P E	07/19/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.40	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL



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2

Lab ID: 9024952-12 **Collected By:** Client **Sampled:** 07/16/19 11:30 **Received:** 07/18/19 10:00
Sample Desc: BM-8S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.03	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: 9024952-13 **Collected By:** Client **Sampled:** 07/16/19 11:30 **Received:** 07/18/19 10:00
Sample Desc: BM-8M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.03	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: 9024952-14 **Collected By:** Client **Sampled:** 07/16/19 11:30 **Received:** 07/18/19 10:00
Sample Desc: BM-8D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.06	mg/l	0.007	0.05	SM 4500-P E	07/19/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.11	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL

Lab ID: 9024952-15 **Collected By:** Client **Sampled:** 07/16/19 10:40 **Received:** 07/18/19 10:00
Sample Desc: BM-9S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.03	mg/l	0.007	0.05	SM 4500-P E	07/19/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.04	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL



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2

Lab ID: 9024952-16 **Collected By:** Client **Sampled:** 07/16/19 10:40 **Received:** 07/18/19 10:00
Sample Desc: BM-9M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.04	mg/l	0.007	0.05	SM 4500-P E	07/19/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.07	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL

Lab ID: 9024952-17 **Collected By:** Client **Sampled:** 07/16/19 10:40 **Received:** 07/18/19 10:00
Sample Desc: BM-9D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.05	mg/l	0.007	0.05	SM 4500-P E	07/19/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.16	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL

Lab ID: 9024952-18 **Collected By:** Client **Sampled:** 07/16/19 11:00 **Received:** 07/18/19 10:00
Sample Desc: BM-10S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.08	mg/l	0.007	0.05	SM 4500-P E	07/19/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.10	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL

Lab ID: 9024952-19 **Collected By:** Client **Sampled:** 07/16/19 11:00 **Received:** 07/18/19 10:00
Sample Desc: BM-10M **Sample Type:** Grab

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



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M.J. Reider Associates, Inc.

2

Lab ID: 9024952-20 **Collected By:** Client **Sampled:** 07/16/19 11:00 **Received:** 07/18/19 10:00
Sample Desc: BM-10D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.05	mg/l	0.007	0.05	SM 4500-P E	07/19/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.23	mg/l	0.01	0.01	SM 4500-P E	07/19/19		JCL

Lab ID: 9024952-21 **Collected By:** Client **Sampled:** 07/16/19 12:45 **Received:** 07/18/19 10:00
Sample Desc: BM-11S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.05	mg/l	0.007	0.05	SM 4500-P E	07/19/19	G-11,J	JCL
General Chemistry								
Phosphorus as P, Total	0.05	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 B9G1097								
MB (B9G1097-BLK1) Prepared & Analyzed: 07/18/2019								
Phosphorus as P, Total	<0.05	0.05	mg/l					U
Batch B9G1163								
MB (B9G1163-BLK1) Prepared & Analyzed: 07/19/2019								
Phosphorus as P, Total	<0.05	0.05	mg/l					U
MB (B9G1163-BLK2) Prepared & Analyzed: 07/19/2019								
Phosphorus as P, Total	<0.05	0.05	mg/l					U
MB (B9G1163-BLK3) Prepared & Analyzed: 07/19/2019								
Phosphorus as P, Total	<0.05	0.05	mg/l					U
LFB (B9G1163-BS1) Prepared & Analyzed: 07/19/2019								
Phosphorus as P, Total	1.01	0.05	mg/l	101	80-120			
LFM (B9G1163-MS1) Source: 9024952-05 Prepared & Analyzed: 07/19/2019								
Phosphorus as P, Total	1.05	0.05	mg/l	97.9	80-120			
LFMD (B9G1163-MSD1) Source: 9024952-05 Prepared & Analyzed: 07/19/2019								
Phosphorus as P, Total	1.05	0.05	mg/l	98.7	80-120	0.762	20	

Dissolved General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9G1098								
MB (B9G1098-BLK1) Prepared & Analyzed: 07/18/2019								
Phosphorus as P, Dissolved	<0.05	0.05	mg/l					G-11, U
LFB (B9G1098-BS1) Prepared & Analyzed: 07/18/2019								
Phosphorus as P, Dissolved	1.01	0.05	mg/l	101	80-120			G-11
LFM (B9G1098-MS1) Source: 9024952-01 Prepared & Analyzed: 07/18/2019								
Phosphorus as P, Dissolved	1.06	0.05	mg/l	98.7	80-120			
LFMD (B9G1098-MSD1) Source: 9024952-01 Prepared & Analyzed: 07/18/2019								
Phosphorus as P, Dissolved	1.07	0.05	mg/l	99.7	80-120	0.943	20	
Batch B9G1166								
MB (B9G1166-BLK1) Prepared & Analyzed: 07/19/2019								
Phosphorus as P, Dissolved	<0.05	0.05	mg/l					G-11, U
LFB (B9G1166-BS1) Prepared & Analyzed: 07/19/2019								
Phosphorus as P, Dissolved	1.01	0.05	mg/l	101	80-120			G-11



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

Preparation Methods

Specific Method	Preparation Method	Prepared Date	Prepared By
9024952-01			
SM 4500-P E	SM 4500-P B	07/18/2019	JCL
9024952-02			
SM 4500-P E	SM 4500-P B	07/18/2019	JCL
9024952-03			
SM 4500-P E	SM 4500-P B	07/18/2019	JCL
9024952-04			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9024952-05			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9024952-06			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9024952-07			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9024952-08			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9024952-09			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9024952-10			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9024952-11			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9024952-12			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9024952-13			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9024952-14			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL
9024952-15			
SM 4500-P E	SM 4500-P B	07/19/2019	JCL



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9024952-16

SM 4500-P E	SM 4500-P B	07/19/2019	JCL
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9024952-17

SM 4500-P E	SM 4500-P B	07/19/2019	JCL
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9024952-18

SM 4500-P E	SM 4500-P B	07/19/2019	JCL
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9024952-19

SM 4500-P E	SM 4500-P B	07/19/2019	JCL
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9024952-20

SM 4500-P E	SM 4500-P B	07/19/2019	JCL
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9024952-21

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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9024952
 SGS North America
 Army Corp Reservoirs

PM: RAW

Page 1 of 4

Company Name: Philadelphia District, Reservoir Sampling		Project Name: Philadelphia District, Reservoir Sampling		Matrix Codes																																																																									
Street Address: Street City State Zip		Billing Information (if different from Report to): Company Name Street Address City State Zip		Matrix Codes: DM - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SP - Spill OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid FIB - Fiber FBI - Field Blank EBE - Equipment Blank RB - Rinse Blank TB - Trip Blank																																																																									
Project Contact: E-mail Phone #		Client Purchase Order #		Matrix Codes: DM - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SP - Spill OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid FIB - Fiber FBI - Field Blank EBE - Equipment Blank RB - Rinse Blank TB - Trip Blank																																																																									
Sampler(s) Name(s) CW		Project Manager		Matrix Codes: DM - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SP - Spill OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid FIB - Fiber FBI - Field Blank EBE - Equipment Blank RB - Rinse Blank TB - Trip Blank																																																																									
SGS Sample #	Field ID / Point of Collection	MECHORD Visit #	Date	Time	Matrix	Number of preserved bottles	LAB USE ONLY																																																																						
1XA	BM-1S		7/16/19	7:20:00 AM	GW	1	-01																																																																						
1F	BM-1S		7/16/19	7:20:00 AM	GW	1	-01																																																																						
2XA	BM-2S		7/16/19	9:30:00 AM	GW	1	-02																																																																						
2F	BM-2S		7/16/19	9:30:00 AM	GW	1	-02																																																																						
3XA	BM-2M		7/16/19	9:30:00 AM	GW	1	-03																																																																						
3F	BM-2M		7/16/19	9:30:00 AM	GW	1	-03																																																																						
4XA	BM-2D		7/16/19	9:30:00 AM	GW	1	-04																																																																						
4F	BM-2D		7/16/19	9:30:00 AM	GW	1	-04																																																																						
5XA	BM-5S		7/16/19	12:45:00 PM	GW	1	-05																																																																						
5F	BM-5S		7/16/19	12:45:00 PM	GW	1	-05																																																																						
6XA	BM-6S		7/16/19	8:45:00 AM	GW	1	-06																																																																						
6F	BM-6S		7/16/19	8:45:00 AM	GW	1	-06																																																																						
<table border="1"> <tr> <th>Turnaround Time (Business days)</th> <th>Approved By (SGS PM) / Date:</th> <th>Commercial "A" (Level 1)</th> <th>Commercial "B" (Level 2)</th> <th>Commercial "C" (Level 3-4)</th> <th>NYASP Category A</th> <th>NYASP Category B</th> <th>State Form</th> <th>EDD Format</th> <th>Other REDT2</th> </tr> <tr> <td>Standard 10 Business Days</td> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>5 Business Days RUSH</td> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>3 Business Days RUSH</td> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>2 Business Days RUSH</td> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>1 Business Day EMERGENCY</td> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Other Due 7/30/2019</td> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </table>								Turnaround Time (Business days)	Approved By (SGS PM) / Date:	Commercial "A" (Level 1)	Commercial "B" (Level 2)	Commercial "C" (Level 3-4)	NYASP Category A	NYASP Category B	State Form	EDD Format	Other REDT2	Standard 10 Business Days		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	5 Business Days RUSH		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3 Business Days RUSH		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2 Business Days RUSH		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1 Business Day EMERGENCY		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Other Due 7/30/2019		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Handwritten: 07-18-19 10:00
 Army Reservoirs
 ≤ 6C on ice
 20071819



CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 ROUTE 130, DAYTON, NJ 08810
TEL. 732-229-0200 FAX: 732-225-3499/3480
www.sgs.com/usa

9024952

Client / Reporting Information Company Name: Philadelphia District, Reservoir Sampling Street Address: [Blank] City: [Blank] State: [Blank] Zip: [Blank]		Project Information Project Name: Philadelphia District, Reservoir Sampling Street Address: [Blank] City: [Blank] State: [Blank] Zip: [Blank]		Billing Information (if different from Report to) Company Name: [Blank] Street Address: [Blank] City: [Blank] State: [Blank] Zip: [Blank]		Requested Analysis Matrix Codes: DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SL - Sludge SED - Sediment LIQ - Other Liquid OIL - Oil AIR - Air SOL - Solid WGS - Wipes FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
Company Information Project Manager: [Blank] Phone: [Blank]		Collection Date: [Blank] Time: [Blank]		Filter Filter Type: [Blank]		LAB USE ONLY [Blank]	
Sampling Details Sample ID / Point of Collection: [Blank] MECH/DI: [Blank] Date: [Blank] Time: [Blank]		Preservation Preservative: [Blank]		Analysis Results [Blank]		Comments / Special Instructions [Blank]	

9024952

2071819

Money preservation 07-18-19 10:00





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Client / Reporting Information		Project Information		Requested Analysis		Matrix Codes												
Company Name: Philadelphia District, Reservoir Sampling		Project Name: Philadelphia District, Reservoir Sampling		Requested Analysis: M		Matrix Codes: DW - Drinking Water GW - Ground Water WW - Water SV - Surface Water So - Soil Sed - Sediment Sl - Sludge OI - Oil LC - Other Liquid AL - Air SOL - Other Solid A - As Received FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank												
Street Address: City: State: Zip:		Billing Information (if different from Report to): Company Name: State: Zip:		Requested Analysis: M		Matrix Codes: LAB USE ONLY												
Project Contact: E-mail: Phone #:		Project #: Client Purchase Order #:		Requested Analysis: M		Matrix Codes: LAB USE ONLY												
Sampler(s) Name(s): GW		Project Manager:		Requested Analysis: M		Matrix Codes: LAB USE ONLY												
SGS Sample #	Field ID / Point of Collection	MCHOP Vial #	Collection	Date	Time	Sampled by	Mark	# of bottles	H ₂ O	HNO ₃	H ₂ SO ₄	NH ₄ OH	NONP	DI Water	MCH	ENCORE	LAB USE ONLY	
13XA	BM-9M			7/16/19	11:30:00 AM	GW	AG	1									X	-13
13F	BM-9M			7/16/19	11:30:00 AM	GW	AG										X	-14
14XA	BM-9D			7/16/19	11:30:00 AM	GW	AG										X	-15
14F	BM-9D			7/16/19	11:30:00 AM	GW	AG										X	-16
15XA	BM-9S			7/16/19	10:40:00 AM	GW	AG										X	-17
15F	BM-9S			7/16/19	10:40:00 AM	GW	AG										X	-18
16XA	BM-9M			7/16/19	10:40:00 AM	GW	AG										X	
16F	BM-9M			7/16/19	10:40:00 AM	GW	AG										X	
17XA	BM-9D			7/16/19	10:40:00 AM	GW	AG										X	
17F	BM-9D			7/16/19	10:40:00 AM	GW	AG										X	
18XA	BM-10S			7/16/19	11:00:00 AM	GW	AG										X	
18F	BM-10S			7/16/19	11:00:00 AM	GW	AG										X	

07-18-19

Amy Jaramas
 07-18-19
 10:00



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 SGS North America Inc. - Dayton
 2235 Route 130, Dayton, NJ 08510
 TEL: 732-329-0200 FAX: 732-329-3493/3480
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Page 4 of 4

9024952

Client / Reporting Information		Project Information		Requested Analysis		Matrix Codes	
Company Name: Philadelphia District, Reservoir Sampling		Project Name: Philadelphia District, Reservoir Sampling		Requested Analysis: TP4, FILTERGN, TP4		Matrix Codes: DW - Drinking Water GW - Ground Water SW - Surface Water SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AP - As-Placed SOL - Solid WVP - Wipe FB - Field Blank EP - Equipment Blank RB - Rinsed Blank TB - Trip Blank	
Street Address: City: State: Zip:		Billing Information (if different from Report to): Company Name: Street Address: City: State: Zip:		Requested Analysis: TP4, FILTERGN, TP4		LAB USE ONLY	
Project Contact: tammy.mechoske@sgs.com		Project #:		Requested Analysis: TP4, FILTERGN, TP4		LAB USE ONLY	
Phone #:		Client Purchase Order #:		Requested Analysis: TP4, FILTERGN, TP4		LAB USE ONLY	
Sampler(s) Name(s): GW		Project Manager: g1		Requested Analysis: TP4, FILTERGN, TP4		LAB USE ONLY	
Field ID / Point of Collection		Collection		Requested Analysis: TP4, FILTERGN, TP4		LAB USE ONLY	
SS Sample #	MECHOSKE Well #	Date	Time	Sampled By	Mark	Number of preserved bottles	
19XA BM-10M		7/16/19	11:00:00 AM	GW	AQ	ENCORE MEOH DI Water KONER H2SO4 HNO3 HCl	-19
19F BM-10M		7/16/19	11:00:00 AM	GW	AQ		-20
20XA BM-10D		7/16/19	11:00:00 AM	GW	AQ		-20
20F BM-10D		7/16/19	11:00:00 AM	GW	AQ		-20
21XA BM-11S		7/16/19	12:45:00 PM	GW	AQ		-21
21F BM-11S		7/16/19	12:45:00 PM	GW	AQ		-21
Turnaround Time (Business days)		Data Deliverable Information		Comments / Special Instructions			
<input type="checkbox"/> Standard 10 Business Days <input type="checkbox"/> 5 Business Days RUSH <input type="checkbox"/> 3 Business Days RUSH <input type="checkbox"/> 2 Business Days RUSH <input type="checkbox"/> 1 Business Day EMERGENCY <input checked="" type="checkbox"/> Other Due 7/30/2019 Emergency & Rush TX data available via Leditlink. Approval needed for RUSH/Emergency/TAT		Approved By (SGS Only) / Date: <input type="checkbox"/> Commercial 'A' (Level 1) <input type="checkbox"/> Commercial 'B' (Level 2) <input type="checkbox"/> FULLT (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial 'C' Commercial 'A' = Results Only Commercial 'B' = Results + QC Summary Commercial 'C' = Results + QC Summary + Partial Raw data		Comments / Special Instructions: http://www.sgs.com/terms-and-conditions			
Relinquished by: Anne Kuey Date / Time: 7/16/19 10:51		Relinquished by: Fed Ex Date / Time: 7/16/19 10:51		Relinquished by: Fed Ex Date / Time: 7/16/19 10:51		Relinquished by: Fed Ex Date / Time: 7/16/19 10:51	
Relinquished by: Fed Ex Date / Time: 7/16/19 10:51		Relinquished by: Fed Ex Date / Time: 7/16/19 10:51		Relinquished by: Fed Ex Date / Time: 7/16/19 10:51		Relinquished by: Fed Ex Date / Time: 7/16/19 10:51	

*Nothing preserved for the office
 07.18.19 10:00*

9024952

Date / Time: 7/17/2019 12:02:08 PM
 CSR: BETHW
 Job #: JC91700XA
 Client Project: Philadelphia District, Reservoir Sampling
 Deliverable: REDT2
 TAT: Due 7/30/2019

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
JC91700-1XA	BM-1S	TPO4	-01	GW	7/16/2019	7:20:00 AM	
JC91700-1E	BM-1S	FILTERGN_TPO4		GW	7/16/2019	7:20:00 AM	
JC91700-2XA	BM-2S	TPO4		GW	7/16/2019	9:30:00 AM	
JC91700-2E	BM-2S	FILTERGN_TPO4	-02	GW	7/16/2019	9:30:00 AM	
JC91700-3XA	BM-2M	TPO4		GW	7/16/2019	9:30:00 AM	
JC91700-3E	BM-2M	FILTERGN_TPO4	-03	GW	7/16/2019	9:30:00 AM	
JC91700-4XA	BM-2D	TPO4		GW	7/16/2019	9:30:00 AM	
JC91700-4E	BM-2D	FILTERGN_TPO4	-04	GW	7/16/2019	9:30:00 AM	
JC91700-5XA	BM-5S	TPO4		GW	7/16/2019	12:45:00 PM	
JC91700-5E	BM-5S	FILTERGN_TPO4	-05	GW	7/16/2019	12:45:00 PM	
JC91700-6XA	BM-6S	TPO4		GW	7/16/2019	8:45:00 AM	
JC91700-6E	BM-6S	FILTERGN_TPO4	-06	GW	7/16/2019	8:45:00 AM	
JC91700-7XA	BM-6M	TPO4		GW	7/16/2019	8:45:00 AM	
JC91700-7E	BM-6M	FILTERGN_TPO4	-07	GW	7/16/2019	8:45:00 AM	
JC91700-8XA	BM-6D	TPO4		GW	7/16/2019	8:45:00 AM	
JC91700-8E	BM-6D	FILTERGN_TPO4	-08	GW	7/16/2019	8:45:00 AM	
JC91700-9XA	BM-7S	TPO4	-09	GW	7/16/2019	10:00:00 AM	

Handwritten circled text: HIR #



NOTE

JC91700-9E	BM-7S	FILTERGN_TPO4_	GW	7/16/2019	10:00:00 AM
JC91700-10XA	BM-7M	TPO4_	GW	7/16/2019	10:00:00 AM
JC91700-10F	BM-7M	FILTERGN_TPO4_	GW	7/16/2019	10:00:00 AM
JC91700-11XA	BM-7D	TPO4_	GW	7/16/2019	10:00:00 AM
JC91700-11F	BM-7D	FILTERGN_TPO4_	GW	7/16/2019	10:00:00 AM
JC91700-12XA	BM-8S	TPO4_	GW	7/16/2019	11:30:00 AM
JC91700-12F	BM-8S	FILTERGN_TPO4_	GW	7/16/2019	11:30:00 AM
JC91700-13XA	BM-8M	TPO4_	GW	7/16/2019	11:30:00 AM
JC91700-13F	BM-8M	FILTERGN_TPO4_	GW	7/16/2019	11:30:00 AM
JC91700-14XA	BM-8D	TPO4_	GW	7/16/2019	11:30:00 AM
JC91700-14F	BM-8D	FILTERGN_TPO4_	GW	7/16/2019	11:30:00 AM
JC91700-15XA	BM-9S	TPO4_	GW	7/16/2019	10:40:00 AM
JC91700-15F	BM-9S	FILTERGN_TPO4_	GW	7/16/2019	10:40:00 AM
JC91700-16XA	BM-9M	TPO4_	GW	7/16/2019	10:40:00 AM
JC91700-16F	BM-9M	FILTERGN_TPO4_	GW	7/16/2019	10:40:00 AM
JC91700-17XA	BM-9D	TPO4_	GW	7/16/2019	10:40:00 AM
JC91700-17F	BM-9D	FILTERGN_TPO4_	GW	7/16/2019	10:40:00 AM
JC91700-18XA	BM-10S	TPO4_	GW	7/16/2019	11:00:00 AM
JC91700-18F	BM-10S	FILTERGN_TPO4_	GW	7/16/2019	11:00:00 AM
JC91700-19XA	BM-10M	TPO4_	GW	7/16/2019	11:00:00 AM
JC91700-19F	BM-10M	FILTERGN_TPO4_	GW	7/16/2019	11:00:00 AM
JC91700-20XA	BM-10D	TPO4_	GW	7/16/2019	11:00:00 AM
JC91700-20F	BM-10D	FILTERGN_TPO4_	GW	7/16/2019	11:00:00 AM
JC91700-21XA	BM-11S	TPO4_	GW	7/16/2019	12:45:00 PM
JC91700-21F	BM-11S	FILTERGN_TPO4_	GW	7/16/2019	12:45:00 PM

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9024952

Comments:

9024952

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:



Rafael A Quijada For Richard A Wheeler
Director of Field Services



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

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NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current

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

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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SW

CHAIN OF CUSTODY

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

E

Client / Reporting Information		Project Information		FED-EX Tracking #		Batch Order Control #													
Company Name: U.S. Army Corps of Engineers		Project Name: USACE Reservoirs - Blue Marsh		SGS Order #		SGS Job # JC91700													
Street Address: 100 Penn Sq. East		Street:		Requested Analysis: TPO4 (Sub to MS Releas) Alkalinity, Ammonia, BOD, Total Diss. Solids, TKN, TCC, TSS, XAN30				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 Solids WP - Wipe FB - Field Blank EB - Equipment Blank RS - River Blank TB - Trip Blank											
City, State, Zip: Phila. PA 19107		City, State: Reading PA																	
Project Contact: Joe Louper		Billing Information (if different from Report to): Company Name:																	
Phone #: 215-456-6545		Street Address:																	
Semote(s) / Memo(s): Greg Wacik 610-597-9780		Client Purchase Order #:		City, State, Zip:		Attention:		LAB USE ONLY											
Project Manager: Timmy McCloskey		Collection:		Number of preserved bottles:															
Field ID / Point of Collection	MEQ/DI Val #	Date	Time	Sampled by	Grav ID (Core ID)	Matrix	# of bottles	TC	MPCH	HMDS	TRSD	NOPE	DI Water	MEQ/DI	ENDORE				
1F Bm-1S		7/16/19	0720	TK	G SW	20	X	X	X	X	X	X	X	X	X	X	X	X	X
2F Bm-2S			0930		G SW	9	X	X	X	X	X	X	X	X	X	X	X	X	B6
3F Bm-2M			0930		G SW	9	X	X	X	X	X	X	X	X	X	X	X	X	B21
4F Bm-2D			0930		G SW	9	X	X	X	X	X	X	X	X	X	X	X	X	GFLC
5F Bm-5S			1245		G SW	9	X	X	X	X	X	X	X	X	X	X	X	X	19L3
6F Bm-6S			0845		G SW	9	X	X	X	X	X	X	X	X	X	X	X	X	SUB
7F Bm-6M			0845		G SW	9	X	X	X	X	X	X	X	X	X	X	X	X	
8F Bm-6D			0845		G SW	9	X	X	X	X	X	X	X	X	X	X	X	X	
9F Bm-7S			1000		G SW	9	X	X	X	X	X	X	X	X	X	X	X	X	
10F Bm-7M			1000		G SW	9	X	X	X	X	X	X	X	X	X	X	X	X	
11F Bm-7D			1000		G SW	9	X	X	X	X	X	X	X	X	X	X	X	X	

31
3

C 10
38 38 37 38 39 37 39



CHAIN OF CUSTODY

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

Client / Reporting Information		Project Information		FED-EX Tracking #		Battle Order / Contract #															
Company Name: U.S. Army Corps of Eng		Project Name: USACE Reservoirs - Blue Marsh		SGS Quote #		SGS Job #															
Street Address: 100 Penn Sq East		Street:		Requested Analysis				Matrix Codes													
City, State, Zip: Phila PA 19107		Billing Information (if different from Report to):																			
Project Contact: Joe Loeper		Project #: Reading PA		TP04 (Sub to M3 Reider) Alkalinity, Ammonia, BOD, TDS, TKN, TOC TSS, XAN30				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 Solids WP - Wipe FB - Field Blank EP - Equipment Blank RB - Rinse Blank TB - Trip Blank													
Phone #: 215-656-6545		Client Purchase Order #:																			
Samplers (Name(s)): Greg Wacik 597-9780		Project Manager: Tammy McCloskey																			
Field ID / Point of Collection		MECH/DI Val #		Date		Time		Sampled		State (Comp ID)		Matrix		# of bottles		Number of preserved bottles					
12F Bm-8S				7/14/19		1300		G		SW		9		X		X		X			
13F Bm-8M				1300		1300		G		SW		9		X		X		X			
14F Bm-8D				1300		1300		G		SW		9		X		X		X			
15F Bm-9S				1040		1040		G		SW		9		X		X		X			
16F Bm-9M				1040		1040		G		SW		9		X		X		X			
17F Bm-9D				1040		1040		G		SW		9		X		X		X			
18F Bm-10S				1100		1100		G		SW		9		X		X		X			
19F Bm-10M				1100		1100		G		SW		9		X		X		X			
20F Bm-10D				1100		1100		G		SW		9		X		X		X			
21F Bm-11S				1245		1245		G		SW		9		X		X		X			
Turn Around Time (Business Days)		Approved By (SGS PM): / Date:		Deliverable		Comments / Special Instructions															
<input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days* <input type="checkbox"/> 2 Business Days* <input type="checkbox"/> 1 Business Day* <input type="checkbox"/> Other:		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKOP		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA RCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format		<input type="checkbox"/> DOD-QS45															
<input type="checkbox"/> All data available via LabLink * Approval needed for 1-3 Business Day TAT		Commercial "A" = Results only; Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data		http://www.sgs.com/en/terms-and-conditions																	
Relinquished by: [Signature]		Date / Time: 7/16/19 1340		Received by: [Signature]		Date / Time: 7/16/19 1340		Relinquished by: [Signature]		Date / Time: 7/16/19		Received by: [Signature]		Date / Time: 7/15/20		Received by: [Signature]					
Relinquished by: 3		Date / Time:		Received by: 3		Date / Time:		Relinquished by: 4		Date / Time:		Received by: 4		Date / Time:		Received by:					
Relinquished by:		Date / Time:		Received by: 5		Date / Time:		Custody Seal #		<input type="checkbox"/> Intact <input type="checkbox"/> Not intact		<input type="checkbox"/> Preserved where applicable <input type="checkbox"/> Absent		Therm. ID:		<input type="checkbox"/> On Ice <input type="checkbox"/> Cooler Temp. °C					

CIP 38 38 37 38 39 37 39

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CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08610
TEL: 732-329-0200 FAX: 732-329-3499/3480

Client / Reporting Information: USACE - Phila. District, 100 Penn Sq. East, Phila. PA 19107. Project Information: USACE Reservoirs - Blue Marsh. Collection table with 11 rows of samples (Bm-1S to Bm-11S) and various analysis results. Turn Around Time: 10 Business Days. Deliverable: Commercial "A" (Level 1). Chain of Custody: Received by Schum 7/16/19 1340, Requisitioned by Michelle Gaudio Hukavik.

DELIVERED BY CUSTOMER

CIP 5?

31 3



SGS Sample Receipt Summary

Job Number: JC91700

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 7/16/2019 3:50:00 PM

Delivery Method:

Airbill #s:

Cooler Temps (Raw Measured) °C: Cooler 1: (3.8); Cooler 2: (3.8); Cooler 3: (3.7); Cooler 4: (3.8); Cooler 5: (3.9); Cooler 6: (3.7); Cooler 7: (3.9);

Cooler Temps (Corrected) °C: Cooler 1: (3.8); Cooler 2: (3.8); Cooler 3: (3.7); Cooler 4: (3.8); Cooler 5: (3.9); Cooler 6: (3.7); Cooler 7: (3.9);

Cooler Security

Y or N

Y or N

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature

Y or N

- | | | |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | IR Gun | |
| 3. Cooler media: | Ice (Bag) | |
| 4. No. Coolers: | 7 | |

Quality Control Preservation

Y or N

N/A

- | | | | |
|---------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Sample Integrity - Documentation

Y or N

- | | | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Sample Integrity - Condition

Y or N

- | | | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample: | Intact | |

Sample Integrity - Instructions

Y or N

N/A

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2. Bottles received for unspecified tests | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3. Sufficient volume recvd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. Compositing instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Test Strip Lot #s: pH 1-12: 229517 pH 12+: 208717 Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

JC91700XA: Chain of Custody

Page 4 of 4

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: JC91700X

Sampling Date: 07/16/19

Report to:

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.

A handwritten signature in black ink, appearing to read "Mike Earp".

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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Test results relate only to samples analyzed.

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Section 3: Misc. Forms	13
3.1: Chain of Custody	14



Sample Summary

USACE-Philadelphia District

Job No: JC91700X

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
JC91700-1X	07/16/19	07:20 GW	07/16/19	AQ	Surface Water	BM-1S
JC91700-2X	07/16/19	09:30 GW	07/16/19	AQ	Surface Water	BM-2S
JC91700-5X	07/16/19	12:45 GW	07/16/19	AQ	Surface Water	BM-5S
JC91700-6X	07/16/19	08:45 GW	07/16/19	AQ	Surface Water	BM-6S
JC91700-9X	07/16/19	10:00 GW	07/16/19	AQ	Surface Water	BM-7S
JC91700-12X	07/16/19	11:30 GW	07/16/19	AQ	Surface Water	BM-8S
JC91700-15X	07/16/19	10:40 GW	07/16/19	AQ	Surface Water	BM-9S
JC91700-18X	07/16/19	11:00 GW	07/16/19	AQ	Surface Water	BM-10S
JC91700-21X	07/16/19	12:45 GW	07/16/19	AQ	Surface Water	BM-11S

Subcontract Lab Data

Report of Analysis

Serialized: 07/19/2019 08:47am 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:

L7144746



Authorized by: Douglas J. Gump
Client Services Manager

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

Account No: W08688, US ARMY CORPS OF ENGINEERS **P.O. No:** **Inv. No:** 1983967 PI
Project No: W08688, US ARMY CORPS OF ENGINEERS **PWSID No:**

Sample ID L7144746-1 **Sample Description** BM-1S **Samp. Date/Time/Temp** 07/16/19 07:20am NA C **Sampled by** Customer
Received Date/Time/Temp 07/16/19 02:58pm 5.3 C **Iced (Y/N):** Y

Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOLOGY -- BM-1S							
Total Coliform, MF	CONFLUENT GROWTH	10	cfu/100ml	SM 9222B	10	10	07/16/19 06:28PM LK
Fecal Coliform, MF	170 E, Q		cfu/100ml	SM 9222D	10	10	07/16/19 05:33PM JG2

Sample ID L7144746-2 **Sample Description** BM-2S **Samp. Date/Time/Temp** 07/16/19 09:30am NA C **Sampled by** Customer
Received Date/Time/Temp 07/16/19 02:58pm 5.3 C **Iced (Y/N):** Y

Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOLOGY -- BM-2S							
Total Coliform, MF	>2000 Q		cfu/100ml	SM 9222B	10	10	07/16/19 06:28PM LK
Fecal Coliform, MF	1 Q		cfu/100ml	SM 9222D	100	1	07/16/19 05:33PM JG2

PIN: 17757

Serial Number: 6528856

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

P.O. No:

Inv. No: 1983967 PI
PWSID No:

Sample ID L7144746-3	Sample Description BM-5S	Received Date/Time/Temp 07/16/19 02:58pm 5.3 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/16/19 12:45pm NA C	Sampled by Customer
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Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-5S

Total Coliform, MF	CONFLUENT GROWTH	cfu/100ml	SM 9222B	10	10	07/16/19 06:58PM	LK
Fecal Coliform, MF	>600 Q	cfu/100ml	SM 9222D	10	10	07/16/19 05:33PM	JG2

Sample ID L7144746-4	Sample Description BM-6S	Received Date/Time/Temp 07/16/19 02:58pm 5.3 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/16/19 08:45am NA C	Sampled by Customer
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Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-6S

Total Coliform, MF	>2000 Q	cfu/100ml	SM 9222B	10	10	07/16/19 06:28PM	LK
Fecal Coliform, MF	<1 Q	cfu/100ml	SM 9222D	100	1	07/16/19 05:33PM	JG2

Sample ID L7144746-5	Sample Description BM-7S	Received Date/Time/Temp 07/16/19 02:58pm 5.3 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/16/19 10:00am NA C	Sampled by Customer
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Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-7S

Total Coliform, MF	>2000 Q	cfu/100ml	SM 9222B	10	10	07/16/19 06:28PM	LK
Fecal Coliform, MF	11 Q	cfu/100ml	SM 9222D	100	1	07/16/19 05:33PM	JG2

Sample ID L7144746-6	Sample Description BM-8S	Received Date/Time/Temp 07/16/19 02:58pm 5.3 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/16/19 11:30am NA C	Sampled by Customer
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Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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PIN: 17757

Serial Number: 6528856

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

P.O. No:

Inv. No: 1983967 PI
PWSID No:

Sample ID L7144746-6	Sample Description BM-8S	Received Date/Time/Temp 07/16/19 02:58pm 5.3 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/16/19 11:30am NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-8S

Total Coliform, MF	1400 E	cfu/100ml	SM 9222B	10	10	07/16/19 06:58PM LK
Fecal Coliform, MF	<1	cfu/100ml	SM 9222D	100	1	07/16/19 05:33PM JG2

Sample ID L7144746-7	Sample Description BM-9S	Received Date/Time/Temp 07/16/19 02:58pm 5.3 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/16/19 10:40am NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-9S

Total Coliform, MF	>2000 Q	cfu/100ml	SM 9222B	10	10	07/16/19 06:28PM LK
Fecal Coliform, MF	4 Q	cfu/100ml	SM 9222D	100	1	07/16/19 05:33PM JG2

Sample ID L7144746-8	Sample Description BM-10S	Received Date/Time/Temp 07/16/19 02:58pm 5.3 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/16/19 11:00am NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-10S

Total Coliform, MF	6600	cfu/100ml	SM 9222B	1	100	07/16/19 06:58PM LK
Fecal Coliform, MF	38 Q	cfu/100ml	SM 9222D	100	1	07/16/19 05:33PM JG2

Sample ID L7144746-9	Sample Description BM-11S	Received Date/Time/Temp 07/16/19 02:58pm 5.3 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/16/19 12:45pm NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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PIN: 17757

Serial Number: 6528856

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

P.O. No:

Inv. No: 1983967 PI
PWSID No:

Sample ID	Sample Description	Samp. Date/Time/Temp	Sampled by
L7144746-9	BM-11S	07/16/19 12:45pm NA C	Customer
	Received Date/Time/Temp 07/16/19 02:58pm 5.3 C	Iced (Y/N): Y	

Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-11S

Total Coliform, MF	CONFLUENT GROWTH		cfu/100ml	SM 9222B	10	10	07/16/19 06:58PM LK
Fecal Coliform, MF	>600 Q		cfu/100ml	SM 9222D	10	10	07/16/19 05:33PM JG2

Sample Comments | Result Qualifiers:

L7144746-1 :

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.

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.

L7144746-2 :

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.

L7144746-3 :

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

L7144746-4 :

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.

L7144746-5 :

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

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

PIN: 17757

Serial Number: 6528856

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

P.O. No:

Inv. No: 1983967 PI
PWSID No:

L7144746-6 :

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.

L7144746-7 :

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.

L7144746-8 :

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.

L7144746-9 :

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.



PIN: 17757

Serial Number: 6528856

DEFINITIONS

The following terms or abbreviations are used in this report:

<	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 Jordan Thorngren (Water Microbiology).

EQC Accreditations

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



W08688

CHAIN OF CUSTODY

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

P7144746-1

of 1



FED-EX Tracking #
SGS Order #

Client / Reporting Information		Project Information	
Company Name: USACE - Phila. District	Project Name: USACE Reservoirs - Blue Marsh	Street: 100 Penn Sq. East	City/State/Zip: Phila. PA 19107
Project Contact: Joe Loeper	Client Purchase Order #:	Billing Information (if different from Report to): Company Name: Street Address: City: State: Zip:	Attention:
Phone #: 215-656-6545	Project Manager: Tammy McGosky	Matrix Codes: DW - Drinking Water GW - Ground Water WQ - Water SW - Surface Water SO - Sediment SI - Sludge OI - Oil AR - Air WP - Wipe FB - Field Blank EB - Equipment Blank RB - Release Blank TB - Trip Blank	
Sample(s) Name(s): Greg Wacik 597-9780	Collection:	LAB USE ONLY	
Field ID / Point of Collection: -1 BM-1S -2 BM-8S -3 BM-5S -4 BM-6S -5 BM-7S -6 BM-8S -7 BM-9S -8 BM-10S -9 BM-11S	Date/Time: 7/16/19 0720 0930 1245 0845 1000 1130 1040 1100 1245	L7144746-1 5.3C Iced: Y JAP MMJJAP 07/16/19 1458 07/16/19 1520	
SGS Barcode #	NEQ/ID/Vial #	DELIVERED BY CUSTOMER	
Turn Around Time (Business Days) Approved By (SGS Ref): Name:		Comments / Special Instructions	
<input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days* <input type="checkbox"/> 2 Business Days* <input type="checkbox"/> 1 Business Day* <input type="checkbox"/> Other <input type="checkbox"/> All data available via LabLink		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDO Format <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> Full Tier 1 (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DRQP <input type="checkbox"/> DOD-OSUS <input type="checkbox"/> DOB-OSUS	
Date / Time: 7/16/19 1350 Received By: [Signature] Date / Time: 7/16/19 1350 Received By: [Signature] Date / Time: 7/16/19 1350 Received By: [Signature]		Date / Time: 7/16/19 1458 Received By: [Signature] Date / Time: 7/16/19 1458 Received By: [Signature]	
Date / Time: 7/16/19 1350 Received By: [Signature]		Date / Time: 7/16/19 1458 Received By: [Signature]	
Date / Time: 7/16/19 1350 Received By: [Signature]		Date / Time: 7/16/19 1458 Received By: [Signature]	

CIP 5.3

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SW

CHAIN OF CUSTODY

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

E

Client / Reporting Information		Project Information		FED-EX Tracking #		Batch Order Control #																									
Company Name: U.S. Army Corps of Engineers		Project Name: USACE Reservoirs - Blue Marsh		SGS Order #		SGS Job # JC91700																									
Street Address: 100 Penn Sq. East		Street:		Requested Analysis: TP04 (Sub to MS Rechar) Alkalinity, Ammonia, BOD, Total Diss. Solids, TKN, TSS, XAN30				Matrix Codes: OW - 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 Solids WP - Wipe FB - Field Blank EB - Equipment Blank RB - River Blank TB - Trip Blank																							
City, State, Zip: Phila. PA 19107		City, State: Reading PA																													
Project Contact: Joe Louper		Billing Information (if different from Report to): Company Name:																													
Phone #: 215-656-6545		Street Address:																													
Semote(s) / Memo(s): Greg Wacik 610-597-9780		Client Purchase Order #:		City:		State:		Zip:																							
Project Manager: Timmy McCloskey		Attention:		Number of preserved bottles:																											
Collection:		Date:		Time:		Sampled by:		Grav ID (Core ID):		Matrix:		# of bottles:		TSS		NH ₄ N		NH ₃ N		NO ₂ -N		NO ₃ -N		D ₁₅ Water		BIOGORE		LAB USE ONLY			
Field ID / Point of Collection:		MEQ/MDL Val #:		Date:		Time:		Sampled by:		Grav ID (Core ID):		Matrix:		# of bottles:		TSS		NH ₄ N		NH ₃ N		NO ₂ -N		NO ₃ -N		D ₁₅ Water		BIOGORE		LAB USE ONLY	
1F Bm-1S				7/16/19		0720		N/A		G SW		9		X		X		X		X		X		X		X		X		B6	
2F Bm-2S				7/16/19		0930		G SW		9		X		X		X		X		X		X		X		X		B21			
3F Bm-2M				7/16/19		0930		G SW		9		X		X		X		X		X		X		X		X		G.P.C.			
4F Bm-2D				7/16/19		0930		G SW		9		X		X		X		X		X		X		X		X		19L3			
5F Bm-5S				7/16/19		1245		G SW		9		X		X		X		X		X		X		X		X		SUB			
6F Bm-6S				7/16/19		0845		G SW		9		X		X		X		X		X		X		X		X		SUB			
7F Bm-6M				7/16/19		0845		G SW		9		X		X		X		X		X		X		X		X		SUB			
8F Bm-6D				7/16/19		0845		G SW		9		X		X		X		X		X		X		X		X		SUB			
9F Bm-7S				7/16/19		1000		G SW		9		X		X		X		X		X		X		X		X		SUB			
10F Bm-7M				7/16/19		1000		G SW		9		X		X		X		X		X		X		X		X		SUB			
11F Bm-7D				7/16/19		1000		G SW		9		X		X		X		X		X		X		X		X		SUB			
Turn Around Time (Business Days)		Approved By (SGS Prep): / Date:		Deliverable:		Comments / Special Instructions:																									
<input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days* <input type="checkbox"/> 2 Business Days* <input type="checkbox"/> 1 Business Day* <input type="checkbox"/> Other		Approval needed for 1-3 Business Day TAT		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ OKQP		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format		Initial Assessment 3B/3A (2) Label Verification																							
Sample Custody must be documented below each time samples change possession, including courier delivery.		http://www.sgs.com/en/terms-and-conditions																													
Received by: [Signature]		Date / Time: 7/16/19 1340		Received by: [Signature]		Date / Time: 7/16/19 1340		Received by: [Signature]		Date / Time: 7/16/19 1550		Received by: [Signature]		Date / Time:		Received by: [Signature]		Date / Time:		Received by: [Signature]		Date / Time:		Received by: [Signature]		Date / Time:		Received by: [Signature]			
Retinquished by: 3		Date / Time:		Retinquished by: 4		Date / Time:		Retinquished by: 5		Date / Time:		Retinquished by: 6		Date / Time:		Retinquished by: 7		Date / Time:		Retinquished by: 8		Date / Time:		Retinquished by: 9		Date / Time:		Retinquished by: 10			
Custody Seal #		<input type="checkbox"/> Intact <input type="checkbox"/> Not intact		Preserved where applicable		<input type="checkbox"/> Absent <input type="checkbox"/> Present		Therm. ID:		<input type="checkbox"/> On Ice <input type="checkbox"/> Cooler Temp. °C																					

C 10 38 38 37 38 39 37 39

JC91700X: Chain of Custody

Page 1 of 4





CHAIN OF CUSTODY

SGS North America Inc. - Dayton
 2235 Route 130, Dayton, NJ 08810
 TEL 732-329-0200 FAX: 732-329-3499/3480
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Client / Reporting Information		Project Information		FED-EX Tracking #		Battle Order / Contract #													
Company Name: U.S. Army Corps of Eng		Project Name: USACE Reservoirs - Blue Marsh		SGS Quote #		SGS Job #													
Street Address: 100 Penn Sq East		Street:		Requested Analysis				Matrix Codes											
City, State, Zip: Phila PA 19107		Billing Information (if different from Report to): City, State, Zip: Reading PA																	
Project Contact: Joe Loeper		Project #:		Alkalinity, Ammonia, BOD, TDS, TKN, TOC, TSS, XAN30 (Sub to MS Resider)				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 Solids WP - Wipe FB - Field Blank EP - Equipment Blank RB - Rinse Blank TB - Trip Blank											
Phone #: 215-656-6545		Client Purchase Order #:																	
Samplers (Name(s)): Greg Wacik 597-9780		Project Manager: Tammy McCloskey																	
Field ID / Point of Collection		MECH/DI Val #		Date		Time		Sampled		State (Cont ID)		Matrix		# of bottles		Number of preserved bottles		LAB USE ONLY	
12F Bm-8S				7/14/19		1330		G		SW		9		X		X		X	
13F Bm-8M				1130		1130		G		SW		9		X		X		X	
14F Bm-8D				1040		1040		G		SW		9		X		X		X	
15F Bm-9S				1040		1040		G		SW		9		X		X		X	
16F Bm-9M				1100		1100		G		SW		9		X		X		X	
17F Bm-9D				1100		1100		G		SW		9		X		X		X	
18F Bm-10S				1100		1100		G		SW		9		X		X		X	
19F Bm-10M				1245		1245		G		SW		9		X		X		X	
20F Bm-10D																			
21F Bm-11S																			

CIP 38 38 37 38 39 37 39



CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08610
TEL: 732-329-0200 FAX: 732-329-3499/3480

Client / Reporting Information: USACE - Phila. District, 100 Penn Sq. East, Phila. PA 19107. Project Information: USACE Reservoirs - Blue Marsh. Analysis Matrix table with columns for Date, Time, Sampled by, Matrix, # of bottles, and various analysis codes (VCL, NH4N, etc.). Turn Around Time: 10 Business Days. Deliverable options: Commercial 'A', 'B', 'C', Full Tier 1, Commercial 'C', NJ DKCP, NYASP Category A, NYASP Category B, RA/RCP Criteria, CT RCP Criteria, State Forms, EDB Format. Chain of Custody table with columns for Date/Time, Received By, and Released By.

Vertical handwritten text: Fecal and Total Coliforms

DELIVERED BY CUSTOMER

CIP 5?



31 3

SGS Sample Receipt Summary

Job Number: JC91700

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 7/16/2019 3:50:00 PM

Delivery Method:

Airbill #s:

Cooler Temps (Raw Measured) °C: Cooler 1: (3.8); Cooler 2: (3.8); Cooler 3: (3.7); Cooler 4: (3.8); Cooler 5: (3.9); Cooler 6: (3.7); Cooler 7: (3.9);

Cooler Temps (Corrected) °C: Cooler 1: (3.8); Cooler 2: (3.8); Cooler 3: (3.7); Cooler 4: (3.8); Cooler 5: (3.9); Cooler 6: (3.7); Cooler 7: (3.9);

<u>Cooler Security</u>	<u>Y</u>	<u>or</u>	<u>N</u>		<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	7		

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:	Intact		

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Test Strip Lot #s:	pH 1-12: 229517	pH 12+: 208717	Other: (Specify)
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Comments

SM089-03
Rev. Date 12/7/17

JC91700X: Chain of Custody

Page 4 of 4

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: JC92437

Sampling Date: 07/30/19

Report to:

Army Corps of Engineers

joseph.m.loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 42



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.

A handwritten signature in black ink, appearing to read "Mike Earp".

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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Test results relate only to samples analyzed.

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Sample Summary

USACE-Philadelphia District

Job No: JC92437

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC92437-1	07/30/19	07:10 GW	07/30/19	AQ	Surface Water	BM-1S
JC92437-2	07/30/19	09:45 GW	07/30/19	AQ	Surface Water	BM-2S
JC92437-3	07/30/19	09:45 GW	07/30/19	AQ	Surface Water	BM-2M
JC92437-4	07/30/19	09:45 GW	07/30/19	AQ	Surface Water	BM-2D
JC92437-5	07/30/19	13:10 GW	07/30/19	AQ	Surface Water	BM-5S
JC92437-6	07/30/19	08:45 GW	07/30/19	AQ	Surface Water	BM-6S
JC92437-7	07/30/19	08:45 GW	07/30/19	AQ	Surface Water	BM-6M
JC92437-8	07/30/19	08:45 GW	07/30/19	AQ	Surface Water	BM-6D
JC92437-9	07/30/19	10:15 GW	07/30/19	AQ	Surface Water	BM-7S
JC92437-10	07/30/19	10:15 GW	07/30/19	AQ	Surface Water	BM-7M
JC92437-11	07/30/19	10:15 GW	07/30/19	AQ	Surface Water	BM-7D
JC92437-12	07/30/19	11:40 GW	07/30/19	AQ	Surface Water	BM-8S
JC92437-13	07/30/19	11:40 GW	07/30/19	AQ	Surface Water	BM-8M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC92437

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC92437-14	07/30/19	11:40 GW	07/30/19	AQ	Surface Water	BM-8D
JC92437-15	07/30/19	10:45 GW	07/30/19	AQ	Surface Water	BM-9S
JC92437-16	07/30/19	10:45 GW	07/30/19	AQ	Surface Water	BM-9M
JC92437-17	07/30/19	10:45 GW	07/30/19	AQ	Surface Water	BM-9D
JC92437-18	07/30/19	11:15 GW	07/30/19	AQ	Surface Water	BM-10S
JC92437-19	07/30/19	11:15 GW	07/30/19	AQ	Surface Water	BM-10M
JC92437-20	07/30/19	11:15 GW	07/30/19	AQ	Surface Water	BM-10D
JC92437-21	07/30/19	13:10 GW	07/30/19	AQ	Surface Water	BM-11S

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: USACE-Philadelphia District

Job No JC92437

Site: Philadelphia District, Reservoir Sampling

Report Date 8/12/2019 4:10:09 PM

On 07/30/2019, 21 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 3.7 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JC92437 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:** GP22820

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92600-1DUP, JC92600-1MS were used as the QC samples for Nitrogen, Total Kjeldahl.

Matrix: AQ **Batch ID:** GP22821

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92437-20DUP, JC92437-20MS were used as the QC samples for Nitrogen, Total Kjeldahl.

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:** GP22801

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92437-1DUP, JC92437-1MS, JC92437-4MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.
- Matrix Spike Recovery(s) for Nitrogen, Nitrate + Nitrite 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:** GP22802

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92437-20DUP, JC92437-20MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.

General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ **Batch ID:** R180179

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180180

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180181

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180182

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180183

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180184

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180185

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180186

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180187

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180188

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-10 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180189

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180190

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180191

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-13 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180192

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

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General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ **Batch ID:** R180192

- JC92437-14 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180193

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-15 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180194

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-16 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180195

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-17 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180196

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-18 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180197

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-19 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180198

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-20 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180199

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC92437-21 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

General Chemistry By Method SM2320 B-11

Matrix: AQ

Batch ID: GN98320

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92437-1DUP were used as the QC samples for Alkalinity, Total as CaCO₃.
- JC92437-1 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-5 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-3 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-10 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-11 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-12 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-13 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-14 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-2 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-17 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-4 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-7 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-6 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-15 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-8 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-9 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-20 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-19 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-18 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC92437-16 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.

Matrix: AQ

Batch ID: GN98324

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92486-2DUP were used as the QC samples for Alkalinity, Total as CaCO₃.
- JC92437-21 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:** GN98176

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92437-21DUP were used as the QC samples for Solids, Total Dissolved.

Matrix: AQ **Batch ID:** GN98250

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92437-1DUP, JC92437-2DUP were used as the QC samples for Solids, Total Dissolved.

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) JC92437-14DUP were used as the QC samples for Solids, Total Dissolved.

General Chemistry By Method SM2540 D-11

Matrix: AQ **Batch ID:** GN98165

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92430-3DUP were used as the QC samples for Solids, Total Suspended.

Matrix: AQ **Batch ID:** GN98249

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92437-1DUP were used as the QC samples for Solids, Total Suspended.
- JC92437-8 for Solids, Total Suspended: Reported sample aliquot obtained from filtration of 550 mL of sample. Volume was reduced from 1 liter as the sample clogged the filter at the higher volume.
- JC92437-9 for Solids, Total Suspended: Reported sample aliquot obtained from filtration of 550 mL of sample. Volume was reduced from 1 liter as the sample clogged the filter at the higher volume.

Matrix: AQ **Batch ID:** GN98274

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92600-1DUP were used as the QC samples for Solids, Total Suspended.
- JC92437-15 for Solids, Total Suspended: Reported sample aliquot obtained from filtration of 500 mL of sample. Volume was reduced from 1 liter as the sample clogged the filter at the higher volume.

General Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AQ **Batch ID:** GP22799

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92437-1MS, JC92437-1MSD, JC92437-1DUP were used as the QC samples for Nitrogen, Ammonia.
- RPD(s) for Duplicate for Nitrogen, Ammonia are outside control limits for sample GP22799-D1. RPD acceptable due to low duplicate and sample concentrations.

Matrix: AQ **Batch ID:** GP22800

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92437-19DUP, JC92437-19MS, JC92437-19MSD were used as the QC samples for Nitrogen, Ammonia.

Monday, August 12, 2019

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General Chemistry By Method SM4500NO2 B-11

Matrix: AQ **Batch ID:** GN98118

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92437-11DUP, JC92437-11MS were used as the QC samples for Nitrogen, Nitrite.

General Chemistry By Method SM5210 B-11

Matrix: AQ **Batch ID:** GP22737

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92437-1DUP, JC92437-21DUP were used as the QC samples for BOD, 5 Day.

General Chemistry By Method SM5310 B-11

Matrix: AQ **Batch ID:** GP22807

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92437-2MS, JC92437-2MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ **Batch ID:** GP22808

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92437-10MS, JC92437-10MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ **Batch ID:** GP22855

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC92354-3MS, JC92354-3MSD 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: JC92437
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 07/30/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JC92437-1		BM-1S				
Alkalinity, Total as CaCO ₃ ^a		156	10		mg/l	SM2320 B-11
Nitrogen, Ammonia		0.21	0.20		mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b		4.0	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		4.1	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.099	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.69	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		223	10		mg/l	SM2540 C-11
Total Organic Carbon		3.3	1.0		mg/l	SM5310 B-11
JC92437-2		BM-2S				
Alkalinity, Total as CaCO ₃ ^a		75.0	10		mg/l	SM2320 B-11
Nitrogen, Nitrate ^b		1.9	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		1.9	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.031	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		1.5	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		132	10		mg/l	SM2540 C-11
Solids, Total Suspended		10.9	4.0		mg/l	SM2540 D-11
Total Organic Carbon		4.5	1.0		mg/l	SM5310 B-11
JC92437-3		BM-2M				
Alkalinity, Total as CaCO ₃ ^a		165	10		mg/l	SM2320 B-11
Nitrogen, Ammonia		0.30	0.20		mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b		4.1	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		4.2	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.056	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.84	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		235	10		mg/l	SM2540 C-11
Total Organic Carbon		2.7	1.0		mg/l	SM5310 B-11
JC92437-4		BM-2D				
Alkalinity, Total as CaCO ₃ ^a		165	10		mg/l	SM2320 B-11
Nitrogen, Ammonia		0.33	0.20		mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b		4.1	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		4.2	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.096	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.91	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		232	10		mg/l	SM2540 C-11
Solids, Total Suspended		4.1	4.0		mg/l	SM2540 D-11
Total Organic Carbon		2.6	1.0		mg/l	SM5310 B-11

Summary of Hits

Job Number: JC92437
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 07/30/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC92437-5 BM-5S

Alkalinity, Total as CaCO ₃ ^a	240	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	7.6	0.41			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	7.6	0.40			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.011	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.34	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	315	10			mg/l	SM2540 C-11
Total Organic Carbon	1.7	1.0			mg/l	SM5310 B-11

JC92437-6 BM-6S

Alkalinity, Total as CaCO ₃ ^a	111	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	1.8	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.8	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.029	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.69	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	126	10			mg/l	SM2540 C-11
Solids, Total Suspended	10.0	4.0			mg/l	SM2540 D-11
Total Organic Carbon	3.7	1.0			mg/l	SM5310 B-11

JC92437-7 BM-6M

Alkalinity, Total as CaCO ₃ ^a	135	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	3.9	0.15			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.2	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.32	0.050			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.55	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	205	10			mg/l	SM2540 C-11
Total Organic Carbon	2.4	1.0			mg/l	SM5310 B-11

JC92437-8 BM-6D

Alkalinity, Total as CaCO ₃ ^a	196	10			mg/l	SM2320 B-11
Nitrogen, Ammonia	1.2	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.9	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.0	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.12	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.7	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	241	10			mg/l	SM2540 C-11
Solids, Total Suspended ^c	8.2	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.4	1.0			mg/l	SM5310 B-11

Summary of Hits

Job Number: JC92437
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 07/30/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC92437-9 BM-7S

Alkalinity, Total as CaCO ₃ ^a	62.0	10			mg/l	SM2320 B-11
BOD, 5 Day	5.3	5.0			mg/l	SM5210 B-11
Nitrogen, Nitrate ^b	1.9	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.9	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.021	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.1	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	134	10			mg/l	SM2540 C-11
Solids, Total Suspended ^c	9.8	4.0			mg/l	SM2540 D-11
Total Organic Carbon	4.0	1.0			mg/l	SM5310 B-11

JC92437-10 BM-7M

Alkalinity, Total as CaCO ₃ ^a	115	10			mg/l	SM2320 B-11
Nitrogen, Ammonia	0.21	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.4	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.4	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.031	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.69	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	175	10			mg/l	SM2540 C-11
Total Organic Carbon	2.6	1.0			mg/l	SM5310 B-11

JC92437-11 BM-7D

Alkalinity, Total as CaCO ₃ ^a	153	10			mg/l	SM2320 B-11
Nitrogen, Ammonia	0.34	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.5	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.5	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.040	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.34	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	224	10			mg/l	SM2540 C-11
Solids, Total Suspended	8.7	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.3	1.0			mg/l	SM5310 B-11

JC92437-12 BM-8S

Alkalinity, Total as CaCO ₃ ^a	70.0	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	1.8	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.8	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.034	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.72	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	117	10			mg/l	SM2540 C-11
Solids, Total Suspended	8.9	4.0			mg/l	SM2540 D-11
Total Organic Carbon	4.3	1.0			mg/l	SM5310 B-11

Summary of Hits

Job Number: JC92437
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 07/30/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC92437-13 BM-8M

Alkalinity, Total as CaCO ₃ ^a	84.0	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	2.2	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.2	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.030	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.98	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	130	10			mg/l	SM2540 C-11
Solids, Total Suspended	11.6	4.0			mg/l	SM2540 D-11
Total Organic Carbon	3.3	1.0			mg/l	SM5310 B-11

JC92437-14 BM-8D

Alkalinity, Total as CaCO ₃ ^a	115	10			mg/l	SM2320 B-11
Nitrogen, Ammonia	1.0	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.5	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.5	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.050	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	3.6	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	219	10			mg/l	SM2540 C-11
Solids, Total Suspended	138	4.0			mg/l	SM2540 D-11
Total Organic Carbon	5.0	1.0			mg/l	SM5310 B-11

JC92437-15 BM-9S

Alkalinity, Total as CaCO ₃ ^a	77.0	10			mg/l	SM2320 B-11
BOD, 5 Day	6.1	5.0			mg/l	SM5210 B-11
Nitrogen, Nitrate ^b	1.9	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.9	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.034	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.1	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	139	10			mg/l	SM2540 C-11
Solids, Total Suspended ^d	7.0	4.0			mg/l	SM2540 D-11
Total Organic Carbon	4.3	1.0			mg/l	SM5310 B-11

JC92437-16 BM-9M

Alkalinity, Total as CaCO ₃ ^a	115	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	3.6	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.6	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.029	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.42	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	193	10			mg/l	SM2540 C-11
Solids, Total Suspended	4.1	4.0			mg/l	SM2540 D-11

Summary of Hits

Job Number: JC92437
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 07/30/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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Total Organic Carbon		2.5	1.0		mg/l	SM5310 B-11
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JC92437-17 BM-9D

Alkalinity, Total as CaCO3 ^a	140	10			mg/l	SM2320 B-11
Nitrogen, Ammonia	0.32	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.8	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.9	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.053	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.84	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	278	10			mg/l	SM2540 C-11
Solids, Total Suspended	37.6	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.1	1.0			mg/l	SM5310 B-11

JC92437-18 BM-10S

Alkalinity, Total as CaCO3 ^a	79.0	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	1.8	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.8	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.027	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.1	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	124	10			mg/l	SM2540 C-11
Solids, Total Suspended	10.8	4.0			mg/l	SM2540 D-11
Total Organic Carbon	3.5	1.0			mg/l	SM5310 B-11

JC92437-19 BM-10M

Alkalinity, Total as CaCO3 ^a	90.0	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	2.4	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.4	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.028	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.3	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	150	10			mg/l	SM2540 C-11
Solids, Total Suspended	13.0	4.0			mg/l	SM2540 D-11
Total Organic Carbon	3.4	1.0			mg/l	SM5310 B-11

JC92437-20 BM-10D

Alkalinity, Total as CaCO3 ^a	180	10			mg/l	SM2320 B-11
Nitrogen, Nitrate ^b	5.7	0.31			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.7	0.30			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.018	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	3.4	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	247	10			mg/l	SM2540 C-11
Solids, Total Suspended	112	4.0			mg/l	SM2540 D-11

Summary of Hits

Job Number: JC92437
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 07/30/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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Total Organic Carbon		2.4	1.0		mg/l	SM5310 B-11
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JC92437-21 BM-11S

Alkalinity, Total as CaCO ₃ ^a		70.0	10		mg/l	SM2320 B-11
Nitrogen, Nitrate ^b		3.7	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		3.7	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl		0.44	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		125	10		mg/l	SM2540 C-11
Solids, Total Suspended		6.8	4.0		mg/l	SM2540 D-11
Total Organic Carbon		1.9	1.0		mg/l	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 as the sample clogged the filter at the higher volume.
- (d) Reported sample aliquot obtained from filtration of 500 mL of sample. Volume was reduced from 1 liter as the sample clogged the filter at the higher volume.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: BM-1S	Date Sampled: 07/30/19
Lab Sample ID: JC92437-1	Date Received: 07/30/19
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 CaCO ₃ ^a	156	10	mg/l	1	08/06/19 08:19	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:04	EB	SM5210 B-11
Nitrogen, Ammonia	0.21	0.20	mg/l	1	08/05/19 09:59	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.0	0.11	mg/l	1	08/05/19 16:33	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.1	0.10	mg/l	1	08/05/19 16:33	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.099	0.010	mg/l	1	07/30/19 22:52	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.69	0.20	mg/l	1	08/07/19 10:58	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	223	10	mg/l	1	08/03/19 11:11	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/03/19 08:49	RC	SM2540 D-11
Total Organic Carbon	3.3	1.0	mg/l	1	08/05/19 19:56	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-2S		Date Sampled: 07/30/19
Lab Sample ID: JC92437-2		Date Received: 07/30/19
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 CaCO ₃ ^a	75.0	10	mg/l	1	08/06/19 08:19	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:07	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/05/19 10:00	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	1.9	0.11	mg/l	1	08/05/19 16:34	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.9	0.10	mg/l	1	08/05/19 16:34	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.031	0.010	mg/l	1	07/30/19 22:52	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.5	0.20	mg/l	1	08/07/19 10:59	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	132	10	mg/l	1	08/03/19 11:11	RC	SM2540 C-11
Solids, Total Suspended	10.9	4.0	mg/l	1	08/03/19 08:49	RC	SM2540 D-11
Total Organic Carbon	4.5	1.0	mg/l	1	08/07/19 16:01	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.2
4

Report of Analysis

Client Sample ID: BM-2M	Date Sampled: 07/30/19
Lab Sample ID: JC92437-3	Date Received: 07/30/19
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 CaCO ₃ ^a	165	10	mg/l	1	08/06/19 08:19	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:11	EB	SM5210 B-11
Nitrogen, Ammonia	0.30	0.20	mg/l	1	08/05/19 10:02	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.1	0.11	mg/l	1	08/05/19 16:35	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.2	0.10	mg/l	1	08/05/19 16:35	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.056	0.010	mg/l	1	07/30/19 22:52	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.84	0.20	mg/l	1	08/07/19 11:00	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	235	10	mg/l	1	08/03/19 11:11	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/03/19 08:49	RC	SM2540 D-11
Total Organic Carbon	2.7	1.0	mg/l	1	08/07/19 16:34	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-2D	Date Sampled: 07/30/19
Lab Sample ID: JC92437-4	Date Received: 07/30/19
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 CaCO ₃ ^a	165	10	mg/l	1	08/06/19 08:19	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:15	EB	SM5210 B-11
Nitrogen, Ammonia	0.33	0.20	mg/l	1	08/05/19 10:06	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.1	0.11	mg/l	1	08/05/19 16:36	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.2	0.10	mg/l	1	08/05/19 16:36	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.096	0.010	mg/l	1	07/30/19 22:52	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.91	0.20	mg/l	1	08/07/19 11:01	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	232	10	mg/l	1	08/03/19 11:11	RC	SM2540 C-11
Solids, Total Suspended	4.1	4.0	mg/l	1	08/03/19 08:49	RC	SM2540 D-11
Total Organic Carbon	2.6	1.0	mg/l	1	08/07/19 16:45	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.4
4

Report of Analysis

Client Sample ID: BM-5S	Date Sampled: 07/30/19
Lab Sample ID: JC92437-5	Date Received: 07/30/19
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 CaCO ₃ ^a	240	10	mg/l	1	08/06/19 08:19	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:17	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/05/19 10:08	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	7.6	0.41	mg/l	1	08/05/19 17:25	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	7.6	0.40	mg/l	4	08/05/19 17:25	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.011	0.010	mg/l	1	07/30/19 22:52	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.34	0.20	mg/l	1	08/07/19 11:02	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	315	10	mg/l	1	08/03/19 11:11	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/03/19 08:49	RC	SM2540 D-11
Total Organic Carbon	1.7	1.0	mg/l	1	08/07/19 16:56	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.5
4

Report of Analysis

Client Sample ID: BM-6S		Date Sampled: 07/30/19
Lab Sample ID: JC92437-6		Date Received: 07/30/19
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 CaCO ₃ ^a	111	10	mg/l	1	08/06/19 08:19	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:20	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/05/19 10:09	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	1.8	0.11	mg/l	1	08/05/19 16:41	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.8	0.10	mg/l	1	08/05/19 16:41	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.029	0.010	mg/l	1	07/30/19 22:52	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.69	0.20	mg/l	1	08/07/19 11:05	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	126	10	mg/l	1	08/03/19 11:11	RC	SM2540 C-11
Solids, Total Suspended	10.0	4.0	mg/l	1	08/03/19 08:49	RC	SM2540 D-11
Total Organic Carbon	3.7	1.0	mg/l	1	08/07/19 17:07	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-6M	Date Sampled: 07/30/19
Lab Sample ID: JC92437-7	Date Received: 07/30/19
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 CaCO ₃ ^a	135	10	mg/l	1	08/06/19 08:45	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:23	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/05/19 10:11	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.9	0.15	mg/l	1	08/05/19 16:42	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.2	0.10	mg/l	1	08/05/19 16:42	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.32	0.050	mg/l	5	07/30/19 23:23	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.55	0.20	mg/l	1	08/07/19 11:06	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	205	10	mg/l	1	08/03/19 11:11	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/03/19 08:49	RC	SM2540 D-11
Total Organic Carbon	2.4	1.0	mg/l	1	08/07/19 17:51	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.7
4

Report of Analysis

Client Sample ID: BM-6D		Date Sampled: 07/30/19
Lab Sample ID: JC92437-8		Date Received: 07/30/19
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 CaCO ₃ ^a	196	10	mg/l	1	08/06/19 08:45	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:26	EB	SM5210 B-11
Nitrogen, Ammonia	1.2	0.20	mg/l	1	08/05/19 10:12	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.9	0.11	mg/l	1	08/05/19 16:43	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.0	0.10	mg/l	1	08/05/19 16:43	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.12	0.010	mg/l	1	07/30/19 23:09	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.7	0.20	mg/l	1	08/07/19 11:07	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	241	10	mg/l	1	08/03/19 11:11	RC	SM2540 C-11
Solids, Total Suspended ^c	8.2	4.0	mg/l	1	08/03/19 08:49	RC	SM2540 D-11
Total Organic Carbon	2.4	1.0	mg/l	1	08/07/19 18:02	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 as the sample clogged the filter at the higher volume.

RL = Reporting Limit

4.8
4

Report of Analysis

Client Sample ID: BM-7S		Date Sampled: 07/30/19
Lab Sample ID: JC92437-9		Date Received: 07/30/19
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 CaCO ₃ ^a	62.0	10	mg/l	1	08/06/19 08:45	MS	SM2320 B-11
BOD, 5 Day	5.3	5.0	mg/l	1	07/31/19 21:30	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/05/19 10:13	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	1.9	0.11	mg/l	1	08/05/19 16:44	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.9	0.10	mg/l	1	08/05/19 16:44	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.021	0.010	mg/l	1	07/30/19 23:09	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.1	0.20	mg/l	1	08/07/19 11:08	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	134	10	mg/l	1	08/03/19 11:11	RC	SM2540 C-11
Solids, Total Suspended ^c	9.8	4.0	mg/l	1	08/03/19 08:49	RC	SM2540 D-11
Total Organic Carbon	4.0	1.0	mg/l	1	08/07/19 18:14	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 as the sample clogged the filter at the higher volume.

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-7M	Date Sampled: 07/30/19
Lab Sample ID: JC92437-10	Date Received: 07/30/19
Matrix: AQ - Surface Water	Percent Solids: n/a
Project: Philadelphia District, Reservoir Sampling	

4.10
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃ ^a	115	10	mg/l	1	08/06/19 08:45	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:33	EB	SM5210 B-11
Nitrogen, Ammonia	0.21	0.20	mg/l	1	08/05/19 10:15	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.4	0.11	mg/l	1	08/05/19 16:45	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.4	0.10	mg/l	1	08/05/19 16:45	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.031	0.010	mg/l	1	07/30/19 23:09	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.69	0.20	mg/l	1	08/07/19 11:08	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	175	10	mg/l	1	08/03/19 11:11	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/03/19 08:49	RC	SM2540 D-11
Total Organic Carbon	2.6	1.0	mg/l	1	08/07/19 18:47	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-7D	Date Sampled: 07/30/19
Lab Sample ID: JC92437-11	Date Received: 07/30/19
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 CaCO ₃ ^a	153	10	mg/l	1	08/06/19 08:45	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:37	EB	SM5210 B-11
Nitrogen, Ammonia	0.34	0.20	mg/l	1	08/05/19 10:16	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.5	0.11	mg/l	1	08/05/19 16:46	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.5	0.10	mg/l	1	08/05/19 16:46	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.040	0.010	mg/l	1	07/30/19 23:09	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.34	0.20	mg/l	1	08/07/19 11:09	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	224	10	mg/l	1	08/03/19 11:11	RC	SM2540 C-11
Solids, Total Suspended	8.7	4.0	mg/l	1	08/03/19 08:49	RC	SM2540 D-11
Total Organic Carbon	2.3	1.0	mg/l	1	08/07/19 19:21	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-8S		Date Sampled: 07/30/19
Lab Sample ID: JC92437-12		Date Received: 07/30/19
Matrix: AQ - Surface Water		Percent Solids: n/a
Project: Philadelphia District, Reservoir Sampling		

4.12
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃ ^a	70.0	10	mg/l	1	08/06/19 08:45	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:40	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/05/19 10:18	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	1.8	0.11	mg/l	1	08/05/19 16:47	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.8	0.10	mg/l	1	08/05/19 16:47	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.034	0.010	mg/l	1	07/30/19 23:09	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.72	0.20	mg/l	1	08/12/19 11:16	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	117	10	mg/l	1	08/03/19 11:11	RC	SM2540 C-11
Solids, Total Suspended	8.9	4.0	mg/l	1	08/03/19 08:49	RC	SM2540 D-11
Total Organic Carbon	4.3	1.0	mg/l	1	08/07/19 19:32	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-8M	Date Sampled: 07/30/19
Lab Sample ID: JC92437-13	Date Received: 07/30/19
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 CaCO ₃ ^a	84.0	10	mg/l	1	08/06/19 08:45	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:43	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/05/19 10:19	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.2	0.11	mg/l	1	08/05/19 16:48	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.2	0.10	mg/l	1	08/05/19 16:48	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.030	0.010	mg/l	1	07/30/19 23:23	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.98	0.20	mg/l	1	08/07/19 11:11	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	130	10	mg/l	1	08/03/19 11:11	RC	SM2540 C-11
Solids, Total Suspended	11.6	4.0	mg/l	1	08/03/19 08:49	RC	SM2540 D-11
Total Organic Carbon	3.3	1.0	mg/l	1	08/07/19 20:06	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-8D	Date Sampled: 07/30/19
Lab Sample ID: JC92437-14	Date Received: 07/30/19
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 CaCO ₃ ^a	115	10	mg/l	1	08/06/19 08:45	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:45	EB	SM5210 B-11
Nitrogen, Ammonia	1.0	0.20	mg/l	1	08/05/19 10:23	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.5	0.11	mg/l	1	08/05/19 16:50	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.5	0.10	mg/l	1	08/05/19 16:50	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.050	0.010	mg/l	1	07/30/19 23:23	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	3.6	0.20	mg/l	1	08/07/19 11:12	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	219	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	138	4.0	mg/l	1	08/05/19 09:46	RC	SM2540 D-11
Total Organic Carbon	5.0	1.0	mg/l	1	08/07/19 20:17	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9S		Date Sampled: 07/30/19
Lab Sample ID: JC92437-15		Date Received: 07/30/19
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 CaCO ₃ ^a	77.0	10	mg/l	1	08/06/19 08:45	MS	SM2320 B-11
BOD, 5 Day	6.1	5.0	mg/l	1	07/31/19 21:47	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/05/19 10:25	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	1.9	0.11	mg/l	1	08/05/19 16:53	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.9	0.10	mg/l	1	08/05/19 16:53	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.034	0.010	mg/l	1	07/30/19 23:23	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.1	0.20	mg/l	1	08/07/19 11:14	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	139	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended ^c	7.0	4.0	mg/l	1	08/05/19 09:46	RC	SM2540 D-11
Total Organic Carbon	4.3	1.0	mg/l	1	08/07/19 20:28	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 500 mL of sample. Volume was reduced from 1 liter as the sample clogged the filter at the higher volume.

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9M	Date Sampled: 07/30/19
Lab Sample ID: JC92437-16	Date Received: 07/30/19
Matrix: AQ - Surface Water	Percent Solids: n/a
Project: Philadelphia District, Reservoir Sampling	

4.16
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃ ^a	115	10	mg/l	1	08/06/19 08:45	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:50	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/05/19 10:26	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.6	0.11	mg/l	1	08/05/19 16:54	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.6	0.10	mg/l	1	08/05/19 16:54	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.029	0.010	mg/l	1	07/30/19 23:23	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.42	0.20	mg/l	1	08/12/19 11:17	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	193	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	4.1	4.0	mg/l	1	08/05/19 09:46	RC	SM2540 D-11
Total Organic Carbon	2.5	1.0	mg/l	1	08/07/19 20:39	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9D	Date Sampled: 07/30/19
Lab Sample ID: JC92437-17	Date Received: 07/30/19
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 CaCO ₃ ^a	140	10	mg/l	1	08/06/19 09:00	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:52	EB	SM5210 B-11
Nitrogen, Ammonia	0.32	0.20	mg/l	1	08/05/19 10:28	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.8	0.11	mg/l	1	08/05/19 16:55	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.9	0.10	mg/l	1	08/05/19 16:55	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.053	0.010	mg/l	1	07/30/19 23:23	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.84	0.20	mg/l	1	08/07/19 11:16	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	278	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	37.6	4.0	mg/l	1	08/05/19 09:46	RC	SM2540 D-11
Total Organic Carbon	2.1	1.0	mg/l	1	08/07/19 20:50	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-10S	Date Sampled: 07/30/19
Lab Sample ID: JC92437-18	Date Received: 07/30/19
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 CaCO ₃ ^a	79.0	10	mg/l	1	08/06/19 09:00	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:55	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/05/19 10:29	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	1.8	0.11	mg/l	1	08/05/19 16:56	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	1.8	0.10	mg/l	1	08/05/19 16:56	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.027	0.010	mg/l	1	07/30/19 23:23	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.1	0.20	mg/l	1	08/07/19 11:17	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	124	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	10.8	4.0	mg/l	1	08/05/19 09:46	RC	SM2540 D-11
Total Organic Carbon	3.5	1.0	mg/l	1	08/07/19 21:02	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-10M	Date Sampled: 07/30/19
Lab Sample ID: JC92437-19	Date Received: 07/30/19
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 CaCO ₃ ^a	90.0	10	mg/l	1	08/06/19 09:00	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 21:59	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/05/19 10:41	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.4	0.11	mg/l	1	08/05/19 16:57	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.4	0.10	mg/l	1	08/05/19 16:57	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.028	0.010	mg/l	1	07/30/19 23:23	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.3	0.20	mg/l	1	08/07/19 11:18	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	150	10	mg/l	1	08/05/19 16:00	RC	SM2540 C-11
Solids, Total Suspended	13.0	4.0	mg/l	1	08/05/19 09:46	RC	SM2540 D-11
Total Organic Carbon	3.4	1.0	mg/l	1	08/07/19 21:13	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-10D		Date Sampled: 07/30/19
Lab Sample ID: JC92437-20		Date Received: 07/30/19
Matrix: AQ - Surface Water		Percent Solids: n/a
Project: Philadelphia District, Reservoir Sampling		

4.20
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃ ^a	180	10	mg/l	1	08/06/19 09:00	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 22:04	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/05/19 10:42	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	5.7	0.31	mg/l	1	08/05/19 17:29	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.7	0.30	mg/l	3	08/05/19 17:29	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.018	0.010	mg/l	1	07/30/19 23:23	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	3.4	0.20	mg/l	1	08/12/19 11:07	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	247	10	mg/l	1	08/01/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	112	4.0	mg/l	1	08/05/19 09:46	RC	SM2540 D-11
Total Organic Carbon	2.4	1.0	mg/l	1	08/08/19 02:44	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-11S		Date Sampled: 07/30/19
Lab Sample ID: JC92437-21		Date Received: 07/30/19
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 CaCO ₃ ^a	70.0	10	mg/l	1	08/06/19 09:28	MS	SM2320 B-11
BOD, 5 Day	< 5.0	5.0	mg/l	1	07/31/19 22:21	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/05/19 10:44	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.7	0.11	mg/l	1	08/05/19 17:06	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.7	0.10	mg/l	1	08/05/19 17:06	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	07/30/19 23:23	EB	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.44	0.20	mg/l	1	08/12/19 11:08	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	125	10	mg/l	1	08/01/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	6.8	4.0	mg/l	1	08/01/19 09:50	RC	SM2540 D-11
Total Organic Carbon	1.9	1.0	mg/l	1	08/08/19 02:55	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.21
4

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SW

CHAIN OF CUSTODY

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

E

Client / Reporting Information Company Name: U.S Army Corps of Engineers Street Address: 100 Penn Sq East City: Phila. PA State: PA Zip: 19107 Project Contact: Joe Looper E-mail: _____ Phone #: 215-656-6545		Project Information Project Name: USACE Reservoirs - Blue Marsh Street: _____ Billing Information (if different from Report to): Company Name: _____ Project # _____ Street Address: _____ City: _____ State: _____ Zip: _____ Client Purchase Order # _____ Project Manager: Greg Wacik Phone #: 610-597-9780 Tommy McCleskey Attention: _____		FED-EX Tracking # SGS Quote # Back Order Control # SGS Job #		Requested Analysis Matrix Codes			
Requested Analysis TPO4 (Sub to NJ Releas) Alkalinity: Ammonia BOD: Total Diss. Solids TKN: TOC, TSS XN030		Matrix Codes DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LO - Other Liquid AR - Air SOL - Other Solids WP - Wipe FB - Field Blank EB - Equipment Blank RB - River Blank TB - Trip Blank		LAB USE ONLY C53 G51 L1871 19F1					
Collection MECH/DI/Val # _____ Date _____ Time _____ Sampled by _____ Cont. # _____ Matrix _____ # of bottles _____ MECH _____ HANCO _____ HUSO _____ MOLE _____ DI Sample _____ MECH _____ INCHG _____		Number of preserved bottles MECH _____ HANCO _____ HUSO _____ MOLE _____ DI Sample _____ MECH _____ INCHG _____		Turn Around Time (Business Days) <input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Other _____ All data generated on disk		Deliverable <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKQP <input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDO Format <input type="checkbox"/> DOD-QSIS		Comments / Special Instructions INITIAL ASSESSMENT 3A/3B @ LABEL VERIFICATION _____ http://www.sgs.com/en/terms-and-conditions	
Approved by (SGS PM): _____ Approved needed for 1-3 Business Day TAT		Commercial "A" = Results only, Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data		Sample Custody must be documented below each time sampling change possession, including courier delivery. http://www.sgs.com/en/terms-and-conditions					
Requested by: _____ Date / Time: 7/30/19 1:50 Received by: _____ Date / Time: 7/31/19 17:41		Requested by: _____ Date / Time: 7/31/19 15:00 Received by: _____ Date / Time: 7/31/19 17:41		Requested by: _____ Date / Time: 7/31/19 15:00 Received by: _____ Date / Time: 7/31/19 17:41					
Requested by: _____ Date / Time: _____ Received by: _____ Date / Time: _____		Requested by: _____ Date / Time: _____ Received by: _____ Date / Time: _____		Requested by: _____ Date / Time: _____ Received by: _____ Date / Time: _____					
Custody Seal # _____ <input type="checkbox"/> Intact <input type="checkbox"/> Not intact		Preserved where applicable <input type="checkbox"/> Aspet <input type="checkbox"/> Therm. ID: _____		On Ice <input type="checkbox"/> Ceiling Temp. _____ 3.60°F 3.80°F 3.71°F 3.50°F					

5.1
5





CHAIN OF CUSTODY

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

Client / Reporting Information		Project Information		Requested Analysis		Matrix Codes													
Company Name: U.S. Army Corps of Eng Street Address: 100 Penn Sq. East City State Zip: Phila. PA 19107 Project Contact: Joe Loeper Phone #: 215-656-6545 Samplers (Name(s)): Greg Wacik		Project Name: USACE Reservoirs - Blue Marsh Street: Reading PA Billing Information (if different from Report to): Company Name: Reading PA Street Address: Reading PA City State Zip: Reading PA Client Purchase Order #: Tammy McLashay Attention: Tammy McLashay		Requested Analysis: TPH (sub to M5 Resider) Alkalinity, Ammonia, BOD, TDS, TKN, TOC, TSS, XMO30		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 - Waste FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank													
SGS Bottle #	Field ID / Point of Collection	MECH/ID / Vol #	Date	Time	Sampled By	Site ID / Corp ID	Matrix	# of bottles	PH	HHO	HHO2	N-NO3	N-NO2	NO3E	DI Water	MECH	ENCLOSURE	LAB USE ONLY	
12F	Bm-8S		7/31/19	11:40	[Signature]	G SW		9	X		X							X	X
13F	Bm-8M			10:40	[Signature]	G SW		9	X		X							X	X
14F	Bm-8D			11:40	[Signature]	G SW		9	X		X							X	X
15F	Bm-9S			10:45	[Signature]	G SW		9	X		X							X	X
16F	Bm-9M			10:45	[Signature]	G SW		9	X		X							X	X
17F	Bm-9D			10:45	[Signature]	G SW		9	X		X							X	X
18F	Bm-10S			11:15	[Signature]	G SW		9	X		X							X	X
19F	Bm-10M			11:15	[Signature]	G SW		9	X		X							X	X
20F	Bm-10D			11:15	[Signature]	G SW		9	X		X							X	X
21F	Bm-11S			1:10	[Signature]	G SW		9	X		X							X	X

5.1
5



SGS Sample Receipt Summary

Job Number: JC92437

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 7/30/2019 5:41:00 PM

Delivery Method: _____

Airbill #s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (3.6); Cooler 2: (3.8); Cooler 3: (3.7); Cooler 4: (3.2); Cooler 5: (3.2); Cooler 6: (3.3); Cooler 7: (3.5);

Cooler Temps (Corrected) °C: Cooler 1: (3.5); Cooler 2: (3.7); Cooler 3: (3.6); Cooler 4: (3.1); Cooler 5: (3.1); Cooler 6: (3.2); Cooler 7: (3.4);

<u>Cooler Security</u>	<u>Y</u>	<u>or</u>	<u>N</u>		<u>Y</u>	<u>or</u>	<u>N</u>
1. Custody Seals Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Cooler temp verification:	IR Gun		
3. Cooler media:	Ice (Bag)		
4. No. Coolers:	7		

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:	Intact		

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Test Strip Lot #s:	pH 1-12: 229517	pH 12+: 208717	Other: (Specify) _____
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Comments

SM089-03
Rev. Date 12/7/17

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5

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: JC92437XA

Sampling Date: 07/30/19

Report to:

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: **26**



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.

A handwritten signature in black ink, appearing to read "Mike Earp".

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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Test results relate only to samples analyzed.

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Sample Summary

USACE-Philadelphia District

Job No: JC92437XA

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
JC92437-1F	07/30/19	07:10 GW	07/30/19	AQ	Surface H2O Filtered	BM-1S
JC92437-1XA	07/30/19	07:10 GW	07/30/19	AQ	Surface Water	BM-1S
JC92437-2F	07/30/19	09:45 GW	07/30/19	AQ	Surface Water	BM-2S
JC92437-2XA	07/30/19	09:45 GW	07/30/19	AQ	Surface Water	BM-2S
JC92437-3F	07/30/19	09:45 GW	07/30/19	AQ	Surface H2O Filtered	BM-2M
JC92437-3XA	07/30/19	09:45 GW	07/30/19	AQ	Surface Water	BM-2M
JC92437-4F	07/30/19	09:45 GW	07/30/19	AQ	Surface H2O Filtered	BM-2D
JC92437-4XA	07/30/19	09:45 GW	07/30/19	AQ	Surface Water	BM-2D
JC92437-5F	07/30/19	13:10 GW	07/30/19	AQ	Surface H2O Filtered	BM-5S
JC92437-5XA	07/30/19	13:10 GW	07/30/19	AQ	Surface Water	BM-5S
JC92437-6F	07/30/19	08:45 GW	07/30/19	AQ	Surface H2O Filtered	BM-6S
JC92437-6XA	07/30/19	08:45 GW	07/30/19	AQ	Surface Water	BM-6S
JC92437-7F	07/30/19	08:45 GW	07/30/19	AQ	Surface H2O Filtered	BM-6M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC92437XA

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC92437-7XA	07/30/19	08:45 GW	07/30/19	AQ	Surface Water	BM-6M
JC92437-8F	07/30/19	08:45 GW	07/30/19	AQ	Surface H2O Filtered	BM-6D
JC92437-8XA	07/30/19	08:45 GW	07/30/19	AQ	Surface Water	BM-6D
JC92437-9F	07/30/19	10:15 GW	07/30/19	AQ	Surface H2O Filtered	BM-7S
JC92437-9XA	07/30/19	10:15 GW	07/30/19	AQ	Surface Water	BM-7S
JC92437-10F	07/30/19	10:15 GW	07/30/19	AQ	Surface H2O Filtered	BM-7M
JC92437-10XA	07/30/19	10:15 GW	07/30/19	AQ	Surface Water	BM-7M
JC92437-11F	07/30/19	10:15 GW	07/30/19	AQ	Surface H2O Filtered	BM-7D
JC92437-11XA	07/30/19	10:15 GW	07/30/19	AQ	Surface Water	BM-7D
JC92437-12F	07/30/19	11:40 GW	07/30/19	AQ	Surface H2O Filtered	BM-8S
JC92437-12XA	07/30/19	11:40 GW	07/30/19	AQ	Surface Water	BM-8S
JC92437-13F	07/30/19	11:40 GW	07/30/19	AQ	Surface H2O Filtered	BM-8M
JC92437-13XA	07/30/19	11:40 GW	07/30/19	AQ	Surface Water	BM-8M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC92437XA

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
JC92437-14F	07/30/19	11:40 GW	07/30/19	AQ	Surface H2O Filtered	BM-8D
JC92437-14XA	07/30/19	11:40 GW	07/30/19	AQ	Surface Water	BM-8D
JC92437-15F	07/30/19	10:45 GW	07/30/19	AQ	Surface H2O Filtered	BM-9S
JC92437-15XA	07/30/19	10:45 GW	07/30/19	AQ	Surface Water	BM-9S
JC92437-16F	07/30/19	10:45 GW	07/30/19	AQ	Surface H2O Filtered	BM-9M
JC92437-16XA	07/30/19	10:45 GW	07/30/19	AQ	Surface Water	BM-9M
JC92437-17F	07/30/19	10:45 GW	07/30/19	AQ	Surface H2O Filtered	BM-9D
JC92437-17XA	07/30/19	10:45 GW	07/30/19	AQ	Surface Water	BM-9D
JC92437-18F	07/30/19	11:15 GW	07/30/19	AQ	Surface H2O Filtered	BM-10S
JC92437-18XA	07/30/19	11:15 GW	07/30/19	AQ	Surface Water	BM-10S
JC92437-19F	07/30/19	11:15 GW	07/30/19	AQ	Surface H2O Filtered	BM-10M
JC92437-19XA	07/30/19	11:15 GW	07/30/19	AQ	Surface Water	BM-10M
JC92437-20F	07/30/19	11:15 GW	07/30/19	AQ	Surface H2O Filtered	BM-10D



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC92437XA

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JC92437-20XA	07/30/19	11:15	GW	07/30/19	AQ Surface Water	BM-10D
JC92437-21F	07/30/19	13:10	GW	07/30/19	AQ Surface H2O Filtered	BM-11S
JC92437-21XA	07/30/19	13:10	GW	07/30/19	AQ Surface Water	BM-11S

Subcontract Lab Data

Report of Analysis



M.J. Reider Associates, Inc.
 ENVIRONMENTAL TESTING LABORATORY
 U.S. EPA/PA DEP #06-00003

Certificate of Analysis

2

Laboratory No.: 9027747
Report: 08/12/19
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: 9027747-01 **Collected By:** Client **Sampled:** 07/30/19 07:10 **Received:** 08/08/19 09:42
Sample Desc: BM-1S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.04	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11,J	JCL
General Chemistry								
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	08/09/19	J	JCL

Lab ID: 9027747-02 **Collected By:** Client **Sampled:** 07/30/19 09:45 **Received:** 08/08/19 09:42
Sample Desc: BM-2S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11,J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/09/19	J	JCL

Lab ID: 9027747-03 **Collected By:** Client **Sampled:** 07/30/19 09:45 **Received:** 08/08/19 09:42
Sample Desc: BM-2M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11,J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/09/19	J	JCL



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

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



M.J. Reider Associates, Inc.

2

Lab ID: 9027747-04 **Collected By:** Client **Sampled:** 07/30/19 09:45 **Received:** 08/08/19 09:42
Sample Desc: BM-2D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.05	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	08/09/19	J	JCL

Lab ID: 9027747-05 **Collected By:** Client **Sampled:** 07/30/19 13:10 **Received:** 08/08/19 09:42
Sample Desc: BM-5S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.04	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	08/09/19	J	JCL

Lab ID: 9027747-06 **Collected By:** Client **Sampled:** 07/30/19 08:45 **Received:** 08/08/19 09:42
Sample Desc: BM-6S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/09/19	J	JCL

Lab ID: 9027747-07 **Collected By:** Client **Sampled:** 07/30/19 08:45 **Received:** 08/08/19 09:42
Sample Desc: BM-6M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	08/09/19	U	JCL



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2

Lab ID: 9027747-08 **Collected By:** Client **Sampled:** 07/30/19 08:45 **Received:** 08/08/19 09:42
Sample Desc: BM-6D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.06	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.08	mg/l	0.01	0.05	SM 4500-P E	08/09/19		JCL

Lab ID: 9027747-09 **Collected By:** Client **Sampled:** 07/30/19 10:15 **Received:** 08/08/19 09:42
Sample Desc: BM-7S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.07	mg/l	0.01	0.05	SM 4500-P E	08/09/19		JCL

Lab ID: 9027747-10 **Collected By:** Client **Sampled:** 07/30/19 10:15 **Received:** 08/08/19 09:42
Sample Desc: BM-7M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	08/09/19	J	JCL

Lab ID: 9027747-11 **Collected By:** Client **Sampled:** 07/30/19 10:15 **Received:** 08/08/19 09:42
Sample Desc: BM-7D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.03	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	08/09/19	J	JCL



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2

Lab ID: 9027747-12 **Collected By:** Client **Sampled:** 07/30/19 11:40 **Received:** 08/08/19 09:42
Sample Desc: BM-8S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/09/19	J	JCL

Lab ID: 9027747-13 **Collected By:** Client **Sampled:** 07/30/19 11:40 **Received:** 08/08/19 09:42
Sample Desc: BM-8M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	08/09/19	J	JCL

Lab ID: 9027747-14 **Collected By:** Client **Sampled:** 07/30/19 11:40 **Received:** 08/08/19 09:42
Sample Desc: BM-8D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.04	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.68	mg/l	0.01	0.05	SM 4500-P E	08/09/19		JCL

Lab ID: 9027747-15 **Collected By:** Client **Sampled:** 07/30/19 10:45 **Received:** 08/08/19 09:42
Sample Desc: BM-9S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/09/19	J	JCL



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2

Lab ID: 9027747-16 **Collected By:** Client **Sampled:** 07/30/19 10:45 **Received:** 08/08/19 09:42
Sample Desc: BM-9M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	08/09/19	J	JCL

Lab ID: 9027747-17 **Collected By:** Client **Sampled:** 07/30/19 10:45 **Received:** 08/08/19 09:42
Sample Desc: BM-9D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.07	mg/l	0.01	0.05	SM 4500-P E	08/09/19		JCL

Lab ID: 9027747-18 **Collected By:** Client **Sampled:** 07/30/19 11:15 **Received:** 08/08/19 09:42
Sample Desc: BM-10S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.007	mg/l	0.007	0.05	SM 4500-P E	08/09/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	08/09/19	J	JCL

Lab ID: 9027747-19 **Collected By:** Client **Sampled:** 07/30/19 11:15 **Received:** 08/08/19 09:42
Sample Desc: BM-10M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.03	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	08/08/19	J	JCL



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2

Lab ID: 9027747-20 **Collected By:** Client **Sampled:** 07/30/19 11:15 **Received:** 08/08/19 09:42
Sample Desc: BM-10D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.21	mg/l	0.01	0.05	SM 4500-P E	08/08/19		JCL

Lab ID: 9027747-21 **Collected By:** Client **Sampled:** 07/30/19 13:10 **Received:** 08/08/19 09:42
Sample Desc: BM-11S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.03	mg/l	0.007	0.05	SM 4500-P E	08/08/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	08/08/19	J	JCL



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Quality Control

General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9H0457								
MB (B9H0457-BLK1)								
Phosphorus as P, Total	<0.05	0.05	mg/l					U
Prepared & Analyzed: 08/08/2019								
MB (B9H0457-BLK2)								
Phosphorus as P, Total	<0.05	0.05	mg/l					U
Prepared & Analyzed: 08/08/2019								
MB (B9H0457-BLK3)								
Phosphorus as P, Total	<0.05	0.05	mg/l					U
Prepared & Analyzed: 08/08/2019								
LFB (B9H0457-BS1)								
Phosphorus as P, Total	1.00	0.05	mg/l	99.6	80-120			
Prepared & Analyzed: 08/08/2019								
Batch B9H0517								
MB (B9H0517-BLK1)								
Phosphorus as P, Total	<0.05	0.05	mg/l					U
Prepared & Analyzed: 08/09/2019								
MB (B9H0517-BLK2)								
Phosphorus as P, Total	<0.05	0.05	mg/l					U
Prepared & Analyzed: 08/09/2019								
LFB (B9H0517-BS1)								
Phosphorus as P, Total	1.01	0.05	mg/l	101	80-120			
Prepared & Analyzed: 08/09/2019								
LFM (B9H0517-MS1)								
Phosphorus as P, Total	1.00	0.05	mg/l	98.5	80-120			
Source: 9027747-03 Prepared & Analyzed: 08/09/2019								
LFMD (B9H0517-MSD1)								
Phosphorus as P, Total	1.00	0.05	mg/l	98.3	80-120	0.200	20	
Prepared & Analyzed: 08/09/2019								

Dissolved General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9H0458								
MB (B9H0458-BLK1)								
Phosphorus as P, Dissolved	<0.05	0.05	mg/l					G-11, U
Prepared & Analyzed: 08/08/2019								
LFB (B9H0458-BS1)								
Phosphorus as P, Dissolved	1.00	0.05	mg/l	99.5	80-120			G-11
Prepared & Analyzed: 08/08/2019								
Batch B9H0518								
MB (B9H0518-BLK1)								
Phosphorus as P, Dissolved	<0.05	0.05	mg/l					G-11, U
Prepared & Analyzed: 08/09/2019								
MB (B9H0518-BLK2)								
Phosphorus as P, Dissolved	<0.05	0.05	mg/l					U
Prepared & Analyzed: 08/09/2019								
LFB (B9H0518-BS1)								
Phosphorus as P, Dissolved	1.00	0.05	mg/l	100	80-120			G-11
Prepared & Analyzed: 08/09/2019								



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Dissolved General Chemistry (Continued)

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9H0518 (Continued)								
LFM (B9H0518-MS1)								
Phosphorus as P, Dissolved	1.00	0.05	mg/l	98.5	80-120			
								Source: 9027747-16 Prepared & Analyzed: 08/09/2019
LFMD (B9H0518-MSD1)								
Phosphorus as P, Dissolved	1.00	0.05	mg/l	99.1	80-120	0.601	20	
								Source: 9027747-16 Prepared & Analyzed: 08/09/2019



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Preparation Methods

Specific Method	Preparation Method	Prepared Date	Prepared By
9027747-01			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL
9027747-02			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL
9027747-03			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL
9027747-04			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL
9027747-05			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL
9027747-06			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL
9027747-07			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL
9027747-08			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL
9027747-09			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL
9027747-10			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL
9027747-11			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL
9027747-12			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL
9027747-13			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL
9027747-14			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL
9027747-15			
SM 4500-P E	SM 4500-P B	08/09/2019	JCL



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9027747-16

SM 4500-P E SM 4500-P B 08/09/2019 JCL

9027747-17

SM 4500-P E SM 4500-P B 08/09/2019 JCL

9027747-18

SM 4500-P E SM 4500-P B 08/09/2019 JCL

9027747-19

SM 4500-P E SM 4500-P B 08/08/2019 JCL

9027747-20

SM 4500-P E SM 4500-P B 08/08/2019 JCL

9027747-21

SM 4500-P E SM 4500-P B 08/08/2019 JCL

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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 www.sgs.com/usa

9027747

SGS North America
 Army Corp Reservoirs



PM: ALM

Client / Reporting Information		Project Information		Matrix Codes	
Company Name: Philadelphia District, Reservoir Sampling	Project Name: Philadelphia District, Reservoir Sampling	State	City	Street Address	
Street Address	Street	State	City	State	Zip
City	City	State	City	State	Zip
Project Contact TAMMY.INC@SGS.COM	Project #	Billing Information (if different from Report to)		Company Name	
Phone #	Client Purchase Order #	Street Address	City	State	Zip
Sampler(s) Name(s) GW	Phone / Project Manager	Attention			

SGS Sample #	Field ID / Point of Collection	MECHID/Use #	Date	Time	Collection										# of bottles	Matrix	AQ					
					HI	MO	HQ	H2O	H5O	H2S	NONE	DI	ME	EN								
1XA	BM-1S		7/30/19	7:10:00 AM																		
1F	BM-1S		7/30/19	7:10:00 AM																		
2XA	BM-2S		7/30/19	9:45:00 AM																		
2F	BM-2S		7/30/19	9:45:00 AM																		
3XA	BM-2M		7/30/19	9:45:00 AM																		
3F	BM-2M		7/30/19	9:45:00 AM																		
4XA	BM-2D		7/30/19	9:45:00 AM																		
4F	BM-2D		7/30/19	9:45:00 AM																		
5XA	BM-5S		7/30/19	1:10:00 PM																		
5F	BM-5S		7/30/19	1:10:00 PM																		
6XA	BM-6S		7/30/19	8:45:00 AM																		
6F	BM-6S		7/30/19	8:45:00 AM																		

Matrix Codes	LAB USE ONLY	Comments / Special Instructions
SW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SCL - Sludge SLO - Solid OIL - Oil LH - Other Liquid AIR - Air SOL - Other Solid VIB - Vibration FER - Ferrous EBE - Entrained Blank RB - Rinse Blank TB - Trip Blank		

Approved By (SGS PM) / Date:	Approved by (SGS PM) / Date:	Requisitioned By:	Requisitioned By:
 	8/1/19 11:00	<i>Amel Buchner</i>	<i>Jade Flynn</i>
3. Requisitioned by:	Date / Time:	3. Received By:	Date / Time:
	8/1/19 11:00		8-8-19 9:43
5. Requisitioned by:	Date / Time:	5. Received By:	Date / Time:
			8-8-19 2

Sample Custody must be documented below each time samples change possession, including courier delivery.

Requisitioned By: *FedEx*

Requisitioned By: *FedEx*

Date / Time: 8-8-19 11:00

Date / Time: 8-8-19 9:43

Received By: *Jade Flynn*

Received By: *Jade Flynn*

Date / Time: 8-8-19 2

Date / Time: 8-8-19 2

Requisitioned By: *FedEx*

Requisitioned By: *FedEx*

Date / Time: 8-8-19 2

Date / Time: 8-8-19 2



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 www.sgs.com/eiususa



Client / Reporting Information		Project Information				Billing Information (if different from Report to)		Requested Analysis		Matrix Codes	
Company Name Philadelphia District, Reservoir Sampling		Project Name Philadelphia District, Reservoir Sampling				Company Name		Requested Analysis		Matrix Codes	
Street Address City State Zip		City State Zip		Street Address City State Zip		Company Name		Requested Analysis		Matrix Codes	
Project Contact E-mail Phone #		Client Purchase Order #		Attention		Company Name		Requested Analysis		Matrix Codes	
Sample(s) Name(s) GW		Project Manager a1		City		Company Name		Requested Analysis		Matrix Codes	
SGS Sample #	Field ID / Point of Collection	MECHORD Val #	Date	Time	Sampled by	Mark	# of bottles	Matrix	AG	AG	LAB USE ONLY
19XA	BM-10M		7/30/19	11:15:00 AM	GW	AG					
19F	BM-10M		7/30/19	11:15:00 AM	GW	AG					
20XA	BM-100		7/30/19	11:15:00 AM	GW	AG					
20F	BM-100		7/30/19	11:15:00 AM	GW	AG					
21XA	BM-11S		7/30/19	1:10:00 PM	GW	AG					
21F	BM-11S		7/30/19	1:10:00 PM	GW	AG					

Turnaround Time (Business days)	Approved By (SGS PM) / Date:	Received By (SGS PM) / Date:
<input type="checkbox"/> Standard 16 Business Days		
<input type="checkbox"/> 6 Business Days RUSH		
<input type="checkbox"/> 3 Business Days RUSH		
<input type="checkbox"/> 2 Business Days RUSH		
<input type="checkbox"/> 1 Business Day EMERGENCY		
<input checked="" type="checkbox"/> Other Due 8/13/2019		
Emergency & Rush turn around times available via Lablink. Approval needed for RUSH/Emergency. AT		
Sample Custody must be documented below each time samples change possession, including courier delivery.	Requisitioned By: <i>FedEx</i>	Received By: <i>FedEx</i>
	Date / Time: <i>8/1/19</i>	Date / Time: <i>8/1/19</i>
Requisitioned By: <i>FedEx</i>	Received By: <i>FedEx</i>	Received By: <i>FedEx</i>
Date / Time: <i>8/1/19</i>	Date / Time: <i>8/1/19</i>	Date / Time: <i>8/1/19</i>
Requisitioned By: <i>FedEx</i>	Received By: <i>FedEx</i>	Received By: <i>FedEx</i>
Date / Time: <i>8/1/19</i>	Date / Time: <i>8/1/19</i>	Date / Time: <i>8/1/19</i>

Requester	Requester Title	Requester Phone	Requester Email	Requester Address	Requester City	Requester State	Requester Zip
<i>Jade Lynn Quersale</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>	<i>...</i>



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.

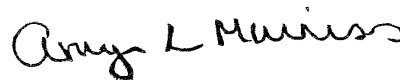
Payment Terms

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:



Amy L Morriss
Project Manager



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

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NELAP accredited by PA. (PADEP #06-00003) Visit our website to view our current
NELAC accreditations for various drinking water, wastewater and solid & chemical materials analytes.
Additional accreditations by CT (PH-0210), MD (261), NY(12094)

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SW

CHAIN OF CUSTODY

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

E

Client / Reporting Information Company Name: U.S Army Corps of Engineers Street Address: 100 Penn Sq East City: Phila. PA State: PA Zip: 19107 Project Contact: Joe Looper E-mail: _____ Phone #: 215-656-6545		Project Information Project Name: USACE Reservoirs - Blue Marsh Street: _____ Billing Information (if different from Report to): Company Name: _____ Project #: _____ Street Address: _____ City: _____ State: _____ Zip: _____ Attention: _____		FED-EX Tracking #: _____ Back Order Control #: TM-011719-105 SGS Quote #: _____ SGS Job #: JC92437	
Matrix Codes: DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SI - Sludge SED - Sediment OI - Oil LO - Other Liquid AR - Air SOL - Other Solids WP - Wipe FB - Field Blank EB - Equipment Blank RB - Flow Blank TB - Trip Blank		Requested Analysis TPO4 (Sub to MS Releaser) Alkalinity: Ammonia BOD: Total Diss. Solids TKN: TOC, TSS XN030		LAB USE ONLY C53 G51 L87L 19F1	
Turn Around Time (Business Days) <input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Other _____ All data generated on disk		Deliverable <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKQP		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDO Format <input type="checkbox"/> DOD-QSIS	
Approved by (SGS PM): _____ Date / Time: _____		Approved needed for 1-3 Business Day TAT		Comments / Special Instructions: INITIAL ASSESSMENT 3A/3B @ LABEL VERIFICATION _____	
Requested by: _____ Date / Time: 7/31/09 1:50		Received By: _____ Date / Time: _____		Requested by: _____ Date / Time: 7/31/09 1:50	
Requested by: _____ Date / Time: 7/31/09 1:50		Received By: _____ Date / Time: 7/31/09 1:50		Requested by: _____ Date / Time: _____	
Requested by: _____ Date / Time: _____		Received By: _____ Date / Time: _____		Requested by: _____ Date / Time: _____	

31
3

3.20
3.20
3.30
3.50





CHAIN OF CUSTODY

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

Form containing Client/Reporting Information, Project Information, Requested Analysis, Matrix Codes, and a data table with columns for Sample ID, Date, Time, Matrix, and various test results.

31
3

JC92437XA: Chain of Custody

Page 2 of 3



SGS Sample Receipt Summary

Job Number: JC92437

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 7/30/2019 5:41:00 PM

Delivery Method: _____

Airbill #s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (3.6); Cooler 2: (3.8); Cooler 3: (3.7); Cooler 4: (3.2); Cooler 5: (3.2); Cooler 6: (3.3); Cooler 7: (3.5);

Cooler Temps (Corrected) °C: Cooler 1: (3.5); Cooler 2: (3.7); Cooler 3: (3.6); Cooler 4: (3.1); Cooler 5: (3.1); Cooler 6: (3.2); Cooler 7: (3.4);

Cooler Security

- | | |
|--|---|
| <u>Y or N</u> | <u>Y or N</u> |
| 1. Custody Seals Present: <input checked="" type="checkbox"/> <input type="checkbox"/> | 3. COC Present: <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 2. Custody Seals Intact: <input checked="" type="checkbox"/> <input type="checkbox"/> | 4. Smpl Dates/Time OK: <input checked="" type="checkbox"/> <input type="checkbox"/> |

Cooler Temperature

- | |
|---|
| <u>Y or N</u> |
| 1. Temp criteria achieved: <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 2. Cooler temp verification: <u>IR Gun</u> |
| 3. Cooler media: <u>Ice (Bag)</u> |
| 4. No. Coolers: <u>7</u> |

Quality Control Preservation

- | | |
|---|------------|
| <u>Y or N</u> | <u>N/A</u> |
| 1. Trip Blank present / cooler: <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> | |
| 2. Trip Blank listed on COC: <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> | |
| 3. Samples preserved properly: <input checked="" type="checkbox"/> <input type="checkbox"/> | |
| 4. VOCs headspace free: <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> | |

Sample Integrity - Documentation

- | |
|---|
| <u>Y or N</u> |
| 1. Sample labels present on bottles: <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 2. Container labeling complete: <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 3. Sample container label / COC agree: <input checked="" type="checkbox"/> <input type="checkbox"/> |

Sample Integrity - Condition

- | |
|---|
| <u>Y or N</u> |
| 1. Sample recvd within HT: <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 2. All containers accounted for: <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 3. Condition of sample: <u>Intact</u> |

Sample Integrity - Instructions

- | | |
|--|------------|
| <u>Y or N</u> | <u>N/A</u> |
| 1. Analysis requested is clear: <input checked="" type="checkbox"/> <input type="checkbox"/> | |
| 2. Bottles received for unspecified tests: <input type="checkbox"/> <input checked="" type="checkbox"/> | |
| 3. Sufficient volume recvd for analysis: <input checked="" type="checkbox"/> <input type="checkbox"/> | |
| 4. Compositing instructions clear: <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> | |
| 5. Filtering instructions clear: <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> | |

Test Strip Lot #s: pH 1-12: 229517 pH 12+: 208717 Other: (Specify) _____

Comments

SM089-03
Rev. Date 12/7/17

JC92437XA: Chain of Custody

Page 3 of 3

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: JC92437X

Sampling Date: 07/30/19

Report to:

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.

A handwritten signature in black ink, appearing to read "Mike Earp".

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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Test results relate only to samples analyzed.

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Section 2: Subcontract Lab Data	4
Section 3: Misc. Forms	13
3.1: Chain of Custody	14



Sample Summary

USACE-Philadelphia District

Job No: JC92437X

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
JC92437-1X	07/30/19	07:10 GW	07/30/19	AQ	Surface Water	BM-1S
JC92437-2X	07/30/19	09:45 GW	07/30/19	AQ	Surface Water	BM-2S
JC92437-5X	07/30/19	13:10 GW	07/30/19	AQ	Surface Water	BM-5S
JC92437-6X	07/30/19	08:45 GW	07/30/19	AQ	Surface Water	BM-6S
JC92437-9X	07/30/19	10:15 GW	07/30/19	AQ	Surface Water	BM-7S
JC92437-12X	07/30/19	11:40 GW	07/30/19	AQ	Surface Water	BM-8S
JC92437-15X	07/30/19	10:45 GW	07/30/19	AQ	Surface Water	BM-9S
JC92437-18X	07/30/19	11:15 GW	07/30/19	AQ	Surface Water	BM-10S
JC92437-21X	07/30/19	13:10 GW	07/30/19	AQ	Surface Water	BM-11S

Subcontract Lab Data

Report of Analysis

Serialized: 08/05/2019 05:48pm 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:

L7147785



Authorized by: Douglas J. Gump
Client Services Manager

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

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

P.O. No:

Inv. No: 1986725 PI
PWSID No:

Sample ID	Sample Description	Received Date/Time/Temp	Iced (Y/N)	Samp. Date/Time/Temp	Sampled by
L7147785-1	BM-1S	07/30/19 03:00pm 3.8 C	Y	07/30/19 07:10am NA C	Customer

Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOLOGY -- BM-1S							
Total Coliform, MF	>20000 Q		cfu/100ml	SM 9222B	1	100	07/30/19 07:37PM LK
Fecal Coliform, MF	29 Q		cfu/100ml	SM 9222D	100	1	07/31/19 12:12AM LK

Sample ID	Sample Description	Received Date/Time/Temp	Iced (Y/N)	Samp. Date/Time/Temp	Sampled by
L7147785-2	BM-2S	07/30/19 03:00pm 3.8 C	Y	07/30/19 09:45am NA C	Customer

Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOLOGY -- BM-2S							
Total Coliform, MF	5300 Q		cfu/100ml	SM 9222B	1	100	07/30/19 07:37PM LK
Fecal Coliform, MF	<1 Q		cfu/100ml	SM 9222D	100	1	07/31/19 12:12AM LK

PIN: 28748

Serial Number: 6534343

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

P.O. No:

Inv. No: 1986725 PI
PWSID No:

Sample ID L7147785-3	Sample Description BM-5S	Received Date/Time/Temp 07/30/19 03:00pm 3.8 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/30/19 01:10pm NA C	Sampled by Customer
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Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-5S

Total Coliform, MF	>20000 Q		cfu/100ml	SM 9222B	1	100	07/30/19 08:13PM SRK
Fecal Coliform, MF	440 Q		cfu/100ml	SM 9222D	10	10	07/30/19 10:52PM LK

Sample ID L7147785-4	Sample Description BM-6S	Received Date/Time/Temp 07/30/19 03:00pm 3.8 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/30/19 08:45am NA C	Sampled by Customer
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Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-6S

Total Coliform, MF	11700 E, Q		cfu/100ml	SM 9222B	1	100	07/30/19 08:13PM SRK
Fecal Coliform, MF	7 Q		cfu/100ml	SM 9222D	100	1	07/31/19 12:12AM LK

Sample ID L7147785-5	Sample Description BM-7S	Received Date/Time/Temp 07/30/19 03:00pm 3.8 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/30/19 10:15am NA C	Sampled by Customer
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Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-7S

Total Coliform, MF	10600 E, Q		cfu/100ml	SM 9222B	1	100	07/30/19 07:37PM LK
Fecal Coliform, MF	6 Q		cfu/100ml	SM 9222D	100	1	07/30/19 10:52PM LK

Sample ID L7147785-6	Sample Description BM-8S	Received Date/Time/Temp 07/30/19 03:00pm 3.8 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/30/19 11:40am NA C	Sampled by Customer
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Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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PIN: 28748

Serial Number: 6534343

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

P.O. No:

Inv. No: 1986725 PI
PWSID No:

Sample ID L7147785-6	Sample Description BM-8S	Received Date/Time/Temp 07/30/19 03:00pm 3.8 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/30/19 11:40am NA C	Sampled by Customer
--------------------------------	------------------------------------	--	----------------------	--	-------------------------------

Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-8S

Total Coliform, MF	3200 Q		cfu/100ml	SM 9222B	1	100	07/30/19 07:37PM LK
Fecal Coliform, MF	2 Q		cfu/100ml	SM 9222D	100	1	07/30/19 10:52PM LK

Sample ID L7147785-7	Sample Description BM-9S	Received Date/Time/Temp 07/30/19 03:00pm 3.8 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/30/19 10:45am NA C	Sampled by Customer
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Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-9S

Total Coliform, MF	12400 E, Q		cfu/100ml	SM 9222B	1	100	07/30/19 07:37PM LK
Fecal Coliform, MF	2 Q		cfu/100ml	SM 9222D	100	1	07/30/19 10:52PM LK

Sample ID L7147785-8	Sample Description 35	Received Date/Time/Temp 07/30/19 03:00pm 3.8 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/30/19 11:15am NA C	Sampled by Customer
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Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- 35

Total Coliform, MF	15200 E, Q		cfu/100ml	SM 9222B	1	100	07/30/19 07:37PM LK
Fecal Coliform, MF	5 Q		cfu/100ml	SM 9222D	100	1	07/31/19 12:12AM LK

Sample ID L7147785-9	Sample Description 30	Received Date/Time/Temp 07/30/19 03:00pm 3.8 C	Iced (Y/N): Y	Samp. Date/Time/Temp 07/30/19 01:10pm NA C	Sampled by Customer
--------------------------------	---------------------------------	--	----------------------	--	-------------------------------

Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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PIN: 28748

Serial Number: 6534343

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

P.O. No:

Inv. No: 1986725 PI
PWSID No:

Sample ID	Sample Description	Samp. Date/Time/Temp	Sampled by
L7147785-9	30 Received Date/Time/Temp 07/30/19 03:00pm 3.8 C Iced (Y/N): Y	07/30/19 01:10pm NA C	Customer

Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- 30

Total Coliform, MF	>20000 Q		cfu/100ml	SM 9222B	1	100	07/30/19 08:13PM SRK
Fecal Coliform, MF	1100 E, Q		cfu/100ml	SM 9222D	1	100	07/30/19 10:52PM LK

Sample Comments | Result Qualifiers:

L7147785-1 :

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.

L7147785-2 :

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.

L7147785-3 :

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.

L7147785-4 :

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.

L7147785-5 :

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.

PIN: 28748

Serial Number: 6534343

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

P.O. No:

Inv. No: 1986725 PI
PWSID No:

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.

L7147785-6 :

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.

L7147785-7 :

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.

L7147785-8 :

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.

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.

L7147785-9 :

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

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



PIN: 28748

Serial Number: 6534343

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



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

Client / Reporting Information

Company Name: **USACE - Phila. District**
 Street: **100 Penn Sq. East**
 City: **Phila. PA** Zip: **19107**
 Project Contact: **Joe Loeper** E-mail:
 Phone #: **215-656-6545** Phone #: **610-610-6545**
 Sample(s) Name(s): **Greg Wancik 597-9780 Tammy McGosky** Collector

Project Information

Project Name: **USACE Reservoirs - Blive Marsh**
 Billing Information (if different from Report to):
 Company Name:
 Street Address:
 City: State: Zip:
 Attention:

Matrix Codes

DIV - Drinking Water
 GW - Ground Water
 SW - Surface Water
 SO - Soil
 SL - Sludge
 SED - Sediment
 OI - Oil
 LI - Other Liquid
 AF - Air
 SOL - Other Solid
 WP - Waste
 FB - Field Blank
 EB - Equipment Blank
 RB - Reuse Blank
 TB - Trip Blank

LAB USE ONLY

SGS Barcode #	Field ID / Point of Collection	MECH/ID/Vial #	Date	Time	Sampled by	Env. (to) Agency	Lab #	# of bottles	HC	NOH	HQA	TSO	NORE	DI Water	MECH	ENCORE
	Bm-1S		7/31/19	0710	RB	G	SW	2	X	X	X	X	X	X	X	X
	Bm-8S			0715		G	SW	2	X	X	X	X	X	X	X	X
	Bm-5S			0845		G	SW	2	X	X	X	X	X	X	X	X
	Bm-6S			1015		G	SW	2	X	X	X	X	X	X	X	X
	Bm-7S			1140		G	SW	2	X	X	X	X	X	X	X	X
	Bm-8S			0745		G	SW	2	X	X	X	X	X	X	X	X
	Bm-9S			1115		G	SW	2	X	X	X	X	X	X	X	X
	Bm-10S			1115		G	SW	2	X	X	X	X	X	X	X	X
	Bm-11S			1110		G	SW	2	X	X	X	X	X	X	X	X

DELIVERED BY CUSTOMER

all 110, 100 fecal & coli

Turn Around Time (Business Days)

Approved by (SGS Field) / Date: **L7147785-1**
 3.8C fecal & coli
 CU/MMMJ 07/30/19 1616
 07/30/19 1657

Deliverable

Commercial "A" (Level 1)
 Commercial "B" (Level 2)
 Full Tier 1 (Level 4)
 Commercial "C"
 NJ DKCP
 Commercial Summary
 Partial Raw Data

Approval needed for 1-3 Business Day TAT

Requested by: **[Signature]** Date / Time: **7/30/19 1:50**
 Relinquished by: **[Signature]** Date / Time: **7/30/19 1614**
 Released by: **[Signature]** Date / Time: **7/30/19 1616**
 Released by: **[Signature]** Date / Time: **7/30/19 1657**

Retention / Storage

Retained By: **[Signature]** Date / Time: **7/30/19 1616**
 Retained By: **[Signature]** Date / Time: **7/30/19 1657**

Shipping / Tracking

Tracking # **P7147785-1**

Matrix Codes

DIV - Drinking Water
 GW - Ground Water
 SW - Surface Water
 SO - Soil
 SL - Sludge
 SED - Sediment
 OI - Oil
 LI - Other Liquid
 AF - Air
 SOL - Other Solid
 WP - Waste
 FB - Field Blank
 EB - Equipment Blank
 RB - Reuse Blank
 TB - Trip Blank

LAB USE ONLY

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SW

CHAIN OF CUSTODY

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

E

Client / Reporting Information Company Name: U.S Army Corps of Engineers Street Address: 100 Penn Sq East City: Phila. PA State: PA Zip: 19107 Project Contact: Joe Cooper E-mail: _____ Phone #: 215-656-6545		Project Information Project Name: USACE Reservoirs - Blue Marsh Street: _____ Billing Information (if different from Report to): Company Name: _____ Street Address: _____ City: _____ State: _____ Zip: _____ Attention: _____ Client Purchase Order #: _____ Project Manager: Greg Wacik Phone #: 610-597-9780 Tommy McCleskey		FED-EX Tracking # Back Order Control # SGS Quote #: _____ SGS Job #: TM-011719-105 JC92437			
Requested Analysis TP04 (Sub to NJ Rider) Alkalinity, Ammonia, BOD, Total Diss. Solids, TKN, TCC, TSS, XN030		Matrix Codes DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SI - Sludge SED - Sediment OI - Oil LO - Other Liquid AR - Air SOL - Other Solids WP - Wipe FB - Field Blank EB - Equipment Blank RB - River Blank TB - Trip Blank		LAB USE ONLY C53 G51 L1871 19F1			
Turn Around Time (Business Days) <input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Other _____ All data generated on disk		Approved by (SGS PM): _____ Date / Time: _____		Deliverable <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKQP <input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDO Format <input type="checkbox"/> DOD-QSIS		Comments / Special Instructions INITIAL ASSESSMENT 3A/3B @ LABEL VERIFICATION _____	
Sample Custody Approved needed for 1-3 Business Day TAT		Commercial "A" = Results only, Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data http://www.sgs.com/en/terms-and-conditions		Signature / Date / Time 1. 7/30/19 1:50 2. 7/30/19 1:50 3. 7/30/19 1:50 4. 7/30/19 1:50 5. 7/30/19 1:50			

31
3

3.20
3.20
3.30
3.50





CHAIN OF CUSTODY

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

Form containing Client/Reporting Information, Project Information, Requested Analysis, Matrix Codes, and a data table with columns for Sample #, Field ID, Date, Time, Matrix, and various test results.

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3

JC92437X: Chain of Custody

Page 2 of 3



SGS Sample Receipt Summary

Job Number: JC92437

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 7/30/2019 5:41:00 PM

Delivery Method: _____

Airbill #'s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (3.6); Cooler 2: (3.8); Cooler 3: (3.7); Cooler 4: (3.2); Cooler 5: (3.2); Cooler 6: (3.3); Cooler 7: (3.5);

Cooler Temps (Corrected) °C: Cooler 1: (3.5); Cooler 2: (3.7); Cooler 3: (3.6); Cooler 4: (3.1); Cooler 5: (3.1); Cooler 6: (3.2); Cooler 7: (3.4);

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>	
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	7	

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:	Intact		

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Test Strip Lot #s: pH 1-12: 229517 pH 12+: 208717 Other: (Specify) _____

Comments

SM089-03
Rev. Date 12/7/17

JC92437X: Chain of Custody

Page 3 of 3

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: JC93544

Sampling Date: 08/20/19

Report to:

Army Corps of Engineers

joseph.m.loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: 42



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.

A handwritten signature in black ink, appearing to read "Mike Earp".

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.

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Sample Summary

USACE-Philadelphia District

Job No: JC93544

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
JC93544-1	08/20/19	07:20 GW	08/20/19	AQ	Surface Water	BM-1S
JC93544-2	08/20/19	09:30 GW	08/20/19	AQ	Surface Water	BM-2S
JC93544-3	08/20/19	09:30 GW	08/20/19	AQ	Surface Water	BM-2M
JC93544-4	08/20/19	09:30 GW	08/20/19	AQ	Surface Water	BM-2D
JC93544-5	08/20/19	12:40 GW	08/20/19	AQ	Surface Water	BM-5S
JC93544-6	08/20/19	08:30 GW	08/20/19	AQ	Surface Water	BM-6S
JC93544-7	08/20/19	08:30 GW	08/20/19	AQ	Surface Water	BM-6M
JC93544-8	08/20/19	08:30 GW	08/20/19	AQ	Surface Water	BM-6D
JC93544-9	08/20/19	10:10 GW	08/20/19	AQ	Surface Water	BM-7S
JC93544-10	08/20/19	10:10 GW	08/20/19	AQ	Surface Water	BM-7M
JC93544-11	08/20/19	10:10 GW	08/20/19	AQ	Surface Water	BM-7D
JC93544-12	08/20/19	11:40 GW	08/20/19	AQ	Surface Water	BM-8S
JC93544-13	08/20/19	11:40 GW	08/20/19	AQ	Surface Water	BM-8M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC93544

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC93544-14	08/20/19	11:40 GW	08/20/19	AQ	Surface Water	BM-8D
JC93544-15	08/20/19	10:30 GW	08/20/19	AQ	Surface Water	BM-9S
JC93544-16	08/20/19	10:30 GW	08/20/19	AQ	Surface Water	BM-9M
JC93544-17	08/20/19	10:30 GW	08/20/19	AQ	Surface Water	BM-9D
JC93544-18	08/20/19	11:00 GW	08/20/19	AQ	Surface Water	BM-10S
JC93544-19	08/20/19	11:00 GW	08/20/19	AQ	Surface Water	BM-10M
JC93544-20	08/20/19	11:00 GW	08/20/19	AQ	Surface Water	BM-10D
JC93544-21	08/20/19	12:40 GW	08/20/19	AQ	Surface Water	BM-11S

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: USACE-Philadelphia District

Job No JC93544

Site: Philadelphia District, Reservoir Sampling

Report Date 9/3/2019 9:34:46 AM

On 08/20/2019, 21 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 JC93544 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:** GP23232

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93773-1DUP, JC93773-1MS were used as the QC samples for Nitrogen, Total Kjeldahl.

Matrix: AQ **Batch ID:** GP23233

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93544-1DUP, JC93544-1MS were used as the QC samples for Nitrogen, Total Kjeldahl.

Matrix: AQ **Batch ID:** GP23296

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93524-2DUP, JC93524-2MS were used as the QC samples for Nitrogen, Total Kjeldahl.

General Chemistry By Method EPA 353.2/LACHAT

Matrix: AQ **Batch ID:** GP23315

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93524-2DUP, JC93544-1MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.

Matrix: AQ **Batch ID:** GP23316

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93689-4DUP, JC93689-4MS were used as the QC samples for Nitrogen, Nitrate + Nitrite.

General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ **Batch ID:** R180632

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180633

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180634

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180635

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180636

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180637

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180638

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180639

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180640

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180641

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-10 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180642

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180651

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180652

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-13 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180653

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

General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ **Batch ID:** R180653

- JC93544-14 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180654

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-15 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180655

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-16 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180656

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-17 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180657

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-18 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180658

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-19 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180659

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-20 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R180660

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC93544-21 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

General Chemistry By Method SM2320 B-11

Matrix: AQ

Batch ID: GN99192

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93423-2DUP were used as the QC samples for Alkalinity, Total as CaCO₃.
- JC93544-1 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.

Matrix: AQ

Batch ID: GN99201

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93544-2DUP were used as the QC samples for Alkalinity, Total as CaCO₃.
- JC93544-11 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-17 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-16 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-15 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-14 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-18 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-10 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-7 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-6 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-5 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-4 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-9 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-2 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-8 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-21 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-12 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-19 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-13 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-20 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC93544-3 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: GN99003

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93524-2DUP were used as the QC samples for Solids, Total Dissolved.

Matrix: AQ

Batch ID: GN99052

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93544-1DUP, JC93544-2DUP were used as the QC samples for Solids, Total Dissolved.

General Chemistry By Method SM2540 D-11

Matrix: AQ **Batch ID:** GN98986

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93497-2DUP were used as the QC samples for Solids, Total Suspended.

Matrix: AQ **Batch ID:** GN99051

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93544-1DUP, JC93544-2DUP were used as the QC samples for Solids, Total Suspended.

General Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AQ **Batch ID:** GP23273

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93544-1DUP, JC93544-1MS, JC93544-1MSD were used as the QC samples for Nitrogen, Ammonia.

Matrix: AQ **Batch ID:** GP23332

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93544-14DUP, JC93544-14MS, JC93544-14MSD were used as the QC samples for Nitrogen, Ammonia.

General Chemistry By Method SM4500NO2 B-11

Matrix: AQ **Batch ID:** GN98923

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93524-2DUP, JC93524-2MS were used as the QC samples for Nitrogen, Nitrite.

General Chemistry By Method SM5210 B-11

Matrix: AQ **Batch ID:** GP23166

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93544-1DUP, JC93544-21DUP were used as the QC samples for BOD, 5 Day.
- JC93544-17 for BOD, 5 Day: DO depletion less than 2.
- JC93544-20 for BOD, 5 Day: DO depletion less than 2.
- JC93544-21 for BOD, 5 Day: DO depletion less than 2.
- JC93544-19 for BOD, 5 Day: DO depletion less than 2.
- JC93544-18 for BOD, 5 Day: DO depletion less than 2.

General Chemistry By Method SM5310 B-11

Matrix: AQ**Batch ID:** GP23343

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93544-1MS, JC93544-1MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ**Batch ID:** GP23344

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93544-11MS, JC93544-11MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ**Batch ID:** GP23345

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC93544-21MS, JC93544-21MSD 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: JC93544
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 08/20/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC93544-1 BM-1S

Alkalinity, Total as CaCO ₃ ^a	144	10			mg/l	SM2320 B-11
BOD, 5 Day	8.5	1.7			mg/l	SM5210 B-11
Nitrogen, Ammonia	0.27	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.6	0.15			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.8	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.24	0.050			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.71	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	232	10			mg/l	SM2540 C-11
Total Organic Carbon	2.6	1.0			mg/l	SM5310 B-11

JC93544-2 BM-2S

Alkalinity, Total as CaCO ₃ ^a	85.5	5.0			mg/l	SM2320 B-11
BOD, 5 Day	3.7	1.7			mg/l	SM5210 B-11
Nitrogen, Nitrate ^b	2.1	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.2	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.11	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.1	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	161	10			mg/l	SM2540 C-11
Solids, Total Suspended	4.7	4.0			mg/l	SM2540 D-11
Total Organic Carbon	4.0	1.0			mg/l	SM5310 B-11

JC93544-3 BM-2M

Alkalinity, Total as CaCO ₃ ^a	131	10			mg/l	SM2320 B-11
BOD, 5 Day	6.1	1.7			mg/l	SM5210 B-11
Nitrogen, Nitrate ^b	3.1	0.15			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.4	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.26	0.050			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.55	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	206	10			mg/l	SM2540 C-11
Total Organic Carbon	2.3	1.0			mg/l	SM5310 B-11

JC93544-4 BM-2D

Alkalinity, Total as CaCO ₃ ^a	164	10			mg/l	SM2320 B-11
BOD, 5 Day	8.2	1.7			mg/l	SM5210 B-11
Nitrogen, Ammonia	0.46	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.8	0.15			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.0	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.19	0.050			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.84	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	236	10			mg/l	SM2540 C-11

Summary of Hits

Job Number: JC93544
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 08/20/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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Solids, Total Suspended		72.4	4.0		mg/l	SM2540 D-11
Total Organic Carbon		2.6	1.0		mg/l	SM5310 B-11

JC93544-5 BM-5S

Alkalinity, Total as CaCO3 ^a		203	10		mg/l	SM2320 B-11
BOD, 5 Day		2.7	1.7		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		7.1	0.41		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		7.1	0.40		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.018	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.47	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		312	10		mg/l	SM2540 C-11
Solids, Total Suspended		4.6	4.0		mg/l	SM2540 D-11
Total Organic Carbon		2.3	1.0		mg/l	SM5310 B-11

JC93544-6 BM-6S

Alkalinity, Total as CaCO3 ^a		86.0	5.0		mg/l	SM2320 B-11
BOD, 5 Day		4.6	1.7		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		2.1	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.2	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.13	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.70	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		146	10		mg/l	SM2540 C-11
Solids, Total Suspended		4.9	4.0		mg/l	SM2540 D-11
Total Organic Carbon		3.9	1.0		mg/l	SM5310 B-11

JC93544-7 BM-6M

Alkalinity, Total as CaCO3 ^a		135	10		mg/l	SM2320 B-11
BOD, 5 Day		8.2	1.7		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		3.4	0.15		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		3.7	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.27	0.050		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.58	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		208	10		mg/l	SM2540 C-11
Total Organic Carbon		2.3	1.0		mg/l	SM5310 B-11

JC93544-8 BM-6D

Alkalinity, Total as CaCO3 ^a		177	10		mg/l	SM2320 B-11
BOD, 5 Day		13.0	1.7		mg/l	SM5210 B-11
Nitrogen, Ammonia		1.4	0.20		mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b		3.0	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		3.1	0.10		mg/l	EPA 353.2/LACHAT

Summary of Hits

Job Number: JC93544
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 08/20/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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Nitrogen, Nitrite		0.15	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		1.8	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		252	10		mg/l	SM2540 C-11
Solids, Total Suspended		9.3	4.0		mg/l	SM2540 D-11
Total Organic Carbon		2.9	1.0		mg/l	SM5310 B-11

JC93544-9 BM-7S

Alkalinity, Total as CaCO3 ^a		88.0	5.0		mg/l	SM2320 B-11
BOD, 5 Day		4.9	1.7		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		2.1	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.2	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.090	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.69	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		164	10		mg/l	SM2540 C-11
Solids, Total Suspended		5.9	4.0		mg/l	SM2540 D-11
Total Organic Carbon		3.5	1.0		mg/l	SM5310 B-11

JC93544-10 BM-7M

Alkalinity, Total as CaCO3 ^a		113	5.0		mg/l	SM2320 B-11
BOD, 5 Day		6.0	1.7		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		3.1	0.15		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		3.4	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.31	0.050		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.49	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		198	10		mg/l	SM2540 C-11
Total Organic Carbon		2.5	1.0		mg/l	SM5310 B-11

JC93544-11 BM-7D

Alkalinity, Total as CaCO3 ^a		178	10		mg/l	SM2320 B-11
BOD, 5 Day		7.8	1.7		mg/l	SM5210 B-11
Nitrogen, Ammonia		0.67	0.20		mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b		3.4	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		3.6	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.16	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		1.1	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		252	10		mg/l	SM2540 C-11
Solids, Total Suspended		48.3	4.0		mg/l	SM2540 D-11
Total Organic Carbon		2.6	1.0		mg/l	SM5310 B-11

JC93544-12 BM-8S

Alkalinity, Total as CaCO3 ^a		89.5	5.0		mg/l	SM2320 B-11
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Summary of Hits

Job Number: JC93544
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 08/20/19



Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
BOD, 5 Day		4.9	1.7		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		1.9	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.0	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.071	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.67	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		155	10		mg/l	SM2540 C-11
Solids, Total Suspended		5.2	4.0		mg/l	SM2540 D-11
Total Organic Carbon		4.1	1.0		mg/l	SM5310 B-11

JC93544-13 BM-8M

Alkalinity, Total as CaCO3 ^a		109	5.0		mg/l	SM2320 B-11
BOD, 5 Day		3.0	1.7		mg/l	SM5210 B-11
Nitrogen, Ammonia		0.22	0.20		mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b		2.5	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.6	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.052	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.77	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		176	10		mg/l	SM2540 C-11
Solids, Total Suspended		7.0	4.0		mg/l	SM2540 D-11
Total Organic Carbon		3.0	1.0		mg/l	SM5310 B-11

JC93544-14 BM-8D

Alkalinity, Total as CaCO3 ^a		101	5.0		mg/l	SM2320 B-11
BOD, 5 Day		4.4	1.7		mg/l	SM5210 B-11
Nitrogen, Ammonia		0.48	0.20		mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b		2.1	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.2	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.053	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.75	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		182	10		mg/l	SM2540 C-11
Solids, Total Suspended		27.8	4.0		mg/l	SM2540 D-11
Total Organic Carbon		2.8	1.0		mg/l	SM5310 B-11

JC93544-15 BM-9S

Alkalinity, Total as CaCO3 ^a		85.0	5.0		mg/l	SM2320 B-11
BOD, 5 Day		5.9	1.7		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		2.0	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.1	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.073	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.86	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		141	10		mg/l	SM2540 C-11
Solids, Total Suspended		7.7	4.0		mg/l	SM2540 D-11

Summary of Hits

Job Number: JC93544
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 08/20/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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Total Organic Carbon		3.7	1.0		mg/l	SM5310 B-11
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JC93544-16 BM-9M

Alkalinity, Total as CaCO3 ^a	151	10			mg/l	SM2320 B-11
BOD, 5 Day	5.5	1.7			mg/l	SM5210 B-11
Nitrogen, Ammonia	0.25	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.1	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.2	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.15	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.55	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	236	10			mg/l	SM2540 C-11
Solids, Total Suspended	9.8	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.4	1.0			mg/l	SM5310 B-11

JC93544-17 BM-9D

Alkalinity, Total as CaCO3 ^a	181	10			mg/l	SM2320 B-11
BOD, 5 Day ^c	3.3	1.7			mg/l	SM5210 B-11
Nitrogen, Ammonia	0.61	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.1	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.2	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.064	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.94	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	270	10			mg/l	SM2540 C-11
Solids, Total Suspended	74.4	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.4	1.0			mg/l	SM5310 B-11

JC93544-18 BM-10S

Alkalinity, Total as CaCO3 ^a	84.0	5.0			mg/l	SM2320 B-11
BOD, 5 Day ^c	4.3	1.7			mg/l	SM5210 B-11
Nitrogen, Nitrate ^b	2.0	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.1	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.067	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.71	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	149	10			mg/l	SM2540 C-11
Solids, Total Suspended	7.2	4.0			mg/l	SM2540 D-11
Total Organic Carbon	3.7	1.0			mg/l	SM5310 B-11

JC93544-19 BM-10M

Alkalinity, Total as CaCO3 ^a	122	5.0			mg/l	SM2320 B-11
BOD, 5 Day ^c	2.9	1.7			mg/l	SM5210 B-11
Nitrogen, Nitrate ^b	3.4	0.11			mg/l	EPA353.2/SM4500NO2B

Summary of Hits

Job Number: JC93544
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 08/20/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
		Nitrogen, Nitrate + Nitrite	3.4	0.10		mg/l EPA 353.2/LACHAT
		Nitrogen, Nitrite	0.046	0.010		mg/l SM4500NO2 B-11
		Nitrogen, Total Kjeldahl	0.70	0.20		mg/l EPA 351.2/LACHAT
		Solids, Total Dissolved	209	10		mg/l SM2540 C-11
		Solids, Total Suspended	10.3	4.0		mg/l SM2540 D-11
		Total Organic Carbon	3.2	1.0		mg/l SM5310 B-11

JC93544-20 BM-10D

		Alkalinity, Total as CaCO3 ^a	166	10		mg/l SM2320 B-11
		BOD, 5 Day ^c	2.9	1.7		mg/l SM5210 B-11
		Nitrogen, Ammonia	0.54	0.20		mg/l SM4500NH3 H-11LACHAT
		Nitrogen, Nitrate ^b	4.9	0.11		mg/l EPA353.2/SM4500NO2B
		Nitrogen, Nitrate + Nitrite	4.9	0.10		mg/l EPA 353.2/LACHAT
		Nitrogen, Nitrite	0.022	0.010		mg/l SM4500NO2 B-11
		Nitrogen, Total Kjeldahl	0.49	0.20		mg/l EPA 351.2/LACHAT
		Solids, Total Dissolved	265	10		mg/l SM2540 C-11
		Solids, Total Suspended	138	4.0		mg/l SM2540 D-11
		Total Organic Carbon	2.8	1.0		mg/l SM5310 B-11

JC93544-21 BM-11S

		Alkalinity, Total as CaCO3 ^a	84.0	5.0		mg/l SM2320 B-11
		BOD, 5 Day ^c	1.8	1.7		mg/l SM5210 B-11
		Nitrogen, Nitrate ^b	2.6	0.11		mg/l EPA353.2/SM4500NO2B
		Nitrogen, Nitrate + Nitrite	2.6	0.10		mg/l EPA 353.2/LACHAT
		Nitrogen, Total Kjeldahl	0.60	0.20		mg/l EPA 351.2/LACHAT
		Solids, Total Dissolved	137	10		mg/l SM2540 C-11
		Solids, Total Suspended	10.3	4.0		mg/l SM2540 D-11
		Total Organic Carbon	3.6	1.0		mg/l SM5310 B-11

- (a) Sample was titrated to a final pH of 4.5.
- (b) Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)
- (c) DO depletion less than 2.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: BM-1S	Date Sampled: 08/20/19
Lab Sample ID: JC93544-1	Date Received: 08/20/19
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 CaCO ₃ ^a	144	10	mg/l	1	08/27/19 11:00	UP	SM2320 B-11
BOD, 5 Day	8.5	1.7	mg/l	1	08/21/19 20:33	EB	SM5210 B-11
Nitrogen, Ammonia	0.27	0.20	mg/l	1	08/27/19 15:30	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.6	0.15	mg/l	1	08/28/19 15:17	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.8	0.10	mg/l	1	08/28/19 15:17	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.24	0.050	mg/l	5	08/20/19 22:52	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.71	0.20	mg/l	1	08/26/19 16:32	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	232	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	2.6	1.0	mg/l	1	08/29/19 12:42	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-2S	Date Sampled: 08/20/19
Lab Sample ID: JC93544-2	Date Received: 08/20/19
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 CaCO ₃ ^a	85.5	5.0	mg/l	1	08/27/19 12:25	UP	SM2320 B-11
BOD, 5 Day	3.7	1.7	mg/l	1	08/21/19 20:38	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/27/19 15:31	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.1	0.11	mg/l	1	08/28/19 15:18	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.2	0.10	mg/l	1	08/28/19 15:18	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.11	0.010	mg/l	1	08/20/19 22:13	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.1	0.20	mg/l	1	08/26/19 16:34	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	161	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	4.7	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	4.0	1.0	mg/l	1	08/29/19 13:16	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-2M		Date Sampled: 08/20/19
Lab Sample ID: JC93544-3		Date Received: 08/20/19
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 CaCO ₃ ^a	131	10	mg/l	1	08/27/19 12:25	UP	SM2320 B-11
BOD, 5 Day	6.1	1.7	mg/l	1	08/21/19 20:42	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/27/19 15:33	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.1	0.15	mg/l	1	08/28/19 15:20	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.4	0.10	mg/l	1	08/28/19 15:20	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.26	0.050	mg/l	5	08/20/19 23:22	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.55	0.20	mg/l	1	08/26/19 16:35	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	206	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	2.3	1.0	mg/l	1	08/29/19 13:27	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.3
4

Report of Analysis

Client Sample ID: BM-2D	Date Sampled: 08/20/19
Lab Sample ID: JC93544-4	Date Received: 08/20/19
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 CaCO ₃ ^a	164	10	mg/l	1	08/27/19 12:25	UP	SM2320 B-11
BOD, 5 Day	8.2	1.7	mg/l	1	08/21/19 20:43	EB	SM5210 B-11
Nitrogen, Ammonia	0.46	0.20	mg/l	1	08/27/19 15:34	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.8	0.15	mg/l	1	08/28/19 15:21	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.0	0.10	mg/l	1	08/28/19 15:21	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.19	0.050	mg/l	5	08/20/19 23:22	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.84	0.20	mg/l	1	08/26/19 16:36	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	236	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	72.4	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	2.6	1.0	mg/l	1	08/29/19 13:38	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-5S Lab Sample ID: JC93544-5 Matrix: AQ - Surface Water Project: Philadelphia District, Reservoir Sampling	Date Sampled: 08/20/19 Date Received: 08/20/19 Percent Solids: n/a
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General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃ ^a	203	10	mg/l	1	08/27/19 12:25	UP	SM2320 B-11
BOD, 5 Day	2.7	1.7	mg/l	1	08/21/19 20:46	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/27/19 15:36	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	7.1	0.41	mg/l	1	08/28/19 16:03	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	7.1	0.40	mg/l	4	08/28/19 16:03	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.018	0.010	mg/l	1	08/20/19 22:13	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.47	0.20	mg/l	1	08/26/19 16:37	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	312	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	4.6	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	2.3	1.0	mg/l	1	08/29/19 13:49	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.5
4

Report of Analysis

Client Sample ID: BM-6S	Date Sampled: 08/20/19
Lab Sample ID: JC93544-6	Date Received: 08/20/19
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 CaCO ₃ ^a	86.0	5.0	mg/l	1	08/27/19 12:25	UP	SM2320 B-11
BOD, 5 Day	4.6	1.7	mg/l	1	08/21/19 20:47	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/27/19 15:40	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.1	0.11	mg/l	1	08/28/19 15:23	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.2	0.10	mg/l	1	08/28/19 15:23	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.13	0.010	mg/l	1	08/20/19 22:13	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.70	0.20	mg/l	1	08/26/19 16:38	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	146	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	4.9	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	3.9	1.0	mg/l	1	08/29/19 14:55	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-6M	Date Sampled: 08/20/19
Lab Sample ID: JC93544-7	Date Received: 08/20/19
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 CaCO ₃ ^a	135	10	mg/l	1	08/27/19 12:25	UP	SM2320 B-11
BOD, 5 Day	8.2	1.7	mg/l	1	08/21/19 20:56	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/27/19 15:41	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.4	0.15	mg/l	1	08/28/19 15:26	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.7	0.10	mg/l	1	08/28/19 15:26	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.27	0.050	mg/l	5	08/20/19 23:22	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.58	0.20	mg/l	1	08/26/19 16:39	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	208	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	2.3	1.0	mg/l	1	08/29/19 15:06	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-6D		Date Sampled: 08/20/19
Lab Sample ID: JC93544-8		Date Received: 08/20/19
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 CaCO ₃ ^a	177	10	mg/l	1	08/27/19 14:39	UP	SM2320 B-11
BOD, 5 Day	13.0	1.7	mg/l	1	08/21/19 21:00	EB	SM5210 B-11
Nitrogen, Ammonia	1.4	0.20	mg/l	1	08/27/19 15:43	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.0	0.11	mg/l	1	08/28/19 15:27	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.1	0.10	mg/l	1	08/28/19 15:27	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.15	0.010	mg/l	1	08/20/19 22:13	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.8	0.20	mg/l	1	08/26/19 16:39	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	252	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	9.3	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	2.9	1.0	mg/l	1	08/29/19 15:17	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.8
4

Report of Analysis

Client Sample ID: BM-7S	Date Sampled: 08/20/19
Lab Sample ID: JC93544-9	Date Received: 08/20/19
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 CaCO ₃ ^a	88.0	5.0	mg/l	1	08/27/19 14:39	UP	SM2320 B-11
BOD, 5 Day	4.9	1.7	mg/l	1	08/21/19 21:15	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/27/19 15:44	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.1	0.11	mg/l	1	08/28/19 15:29	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.2	0.10	mg/l	1	08/28/19 15:29	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.090	0.010	mg/l	1	08/20/19 22:32	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.69	0.20	mg/l	1	08/26/19 16:40	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	164	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	5.9	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	3.5	1.0	mg/l	1	08/29/19 15:28	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-7M	Date Sampled: 08/20/19
Lab Sample ID: JC93544-10	Date Received: 08/20/19
Matrix: AQ - Surface Water	Percent Solids: n/a
Project: Philadelphia District, Reservoir Sampling	

4.10
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃ ^a	113	5.0	mg/l	1	08/27/19 14:39	UP	SM2320 B-11
BOD, 5 Day	6.0	1.7	mg/l	1	08/21/19 21:20	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/27/19 15:46	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.1	0.15	mg/l	1	08/28/19 15:30	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.4	0.10	mg/l	1	08/28/19 15:30	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.31	0.050	mg/l	5	08/20/19 23:22	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.49	0.20	mg/l	1	08/26/19 16:41	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	198	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	2.5	1.0	mg/l	1	08/29/19 15:39	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-7D	Date Sampled: 08/20/19
Lab Sample ID: JC93544-11	Date Received: 08/20/19
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 CaCO ₃ ^a	178	10	mg/l	1	08/27/19 14:39	UP	SM2320 B-11
BOD, 5 Day	7.8	1.7	mg/l	1	08/21/19 21:22	EB	SM5210 B-11
Nitrogen, Ammonia	0.67	0.20	mg/l	1	08/27/19 15:47	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.4	0.11	mg/l	1	08/28/19 15:31	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.6	0.10	mg/l	1	08/28/19 15:31	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.16	0.010	mg/l	1	08/20/19 22:32	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	1.1	0.20	mg/l	1	08/26/19 16:42	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	252	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	48.3	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	2.6	1.0	mg/l	1	08/29/19 16:20	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-8S		Date Sampled: 08/20/19
Lab Sample ID: JC93544-12		Date Received: 08/20/19
Matrix: AQ - Surface Water		Percent Solids: n/a
Project: Philadelphia District, Reservoir Sampling		

4.12
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃ ^a	89.5	5.0	mg/l	1	08/27/19 14:39	UP	SM2320 B-11
BOD, 5 Day	4.9	1.7	mg/l	1	08/21/19 21:25	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/27/19 15:49	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	1.9	0.11	mg/l	1	08/28/19 15:49	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.0	0.10	mg/l	1	08/28/19 15:49	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.071	0.010	mg/l	1	08/20/19 22:32	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.67	0.20	mg/l	1	08/26/19 16:45	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	155	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	5.2	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	4.1	1.0	mg/l	1	08/30/19 13:48	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-8M	Date Sampled: 08/20/19
Lab Sample ID: JC93544-13	Date Received: 08/20/19
Matrix: AQ - Surface Water	Percent Solids: n/a
Project: Philadelphia District, Reservoir Sampling	

4.13
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃ ^a	109	5.0	mg/l	1	08/27/19 14:39	UP	SM2320 B-11
BOD, 5 Day	3.0	1.7	mg/l	1	08/21/19 21:26	EB	SM5210 B-11
Nitrogen, Ammonia	0.22	0.20	mg/l	1	08/29/19 15:51	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.5	0.11	mg/l	1	08/28/19 15:50	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.6	0.10	mg/l	1	08/28/19 15:50	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.052	0.010	mg/l	1	08/20/19 22:32	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.77	0.20	mg/l	1	08/26/19 16:45	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	176	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	7.0	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	3.0	1.0	mg/l	1	08/30/19 13:59	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-8D	Date Sampled: 08/20/19
Lab Sample ID: JC93544-14	Date Received: 08/20/19
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 CaCO ₃ ^a	101	5.0	mg/l	1	08/27/19 14:39	UP	SM2320 B-11
BOD, 5 Day	4.4	1.7	mg/l	1	08/21/19 21:30	EB	SM5210 B-11
Nitrogen, Ammonia	0.48	0.20	mg/l	1	08/29/19 15:52	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.1	0.11	mg/l	1	08/28/19 15:53	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.2	0.10	mg/l	1	08/28/19 15:53	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.053	0.010	mg/l	1	08/20/19 22:52	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.75	0.20	mg/l	1	08/26/19 16:46	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	182	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	27.8	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	2.8	1.0	mg/l	1	08/30/19 14:10	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9S	Date Sampled: 08/20/19
Lab Sample ID: JC93544-15	Date Received: 08/20/19
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 CaCO ₃ ^a	85.0	5.0	mg/l	1	08/27/19 14:39	UP	SM2320 B-11
BOD, 5 Day	5.9	1.7	mg/l	1	08/21/19 21:34	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/29/19 15:54	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.0	0.11	mg/l	1	08/28/19 15:54	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.1	0.10	mg/l	1	08/28/19 15:54	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.073	0.010	mg/l	1	08/20/19 22:52	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.86	0.20	mg/l	1	08/26/19 16:47	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	141	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	7.7	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	3.7	1.0	mg/l	1	08/30/19 14:21	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9M	Date Sampled: 08/20/19
Lab Sample ID: JC93544-16	Date Received: 08/20/19
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 CaCO ₃ ^a	151	10	mg/l	1	08/27/19 14:39	UP	SM2320 B-11
BOD, 5 Day	5.5	1.7	mg/l	1	08/21/19 21:39	EB	SM5210 B-11
Nitrogen, Ammonia	0.25	0.20	mg/l	1	08/29/19 15:55	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.1	0.11	mg/l	1	08/28/19 15:55	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.2	0.10	mg/l	1	08/28/19 15:55	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.15	0.010	mg/l	1	08/20/19 22:52	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.55	0.20	mg/l	1	08/26/19 16:48	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	236	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	9.8	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	2.4	1.0	mg/l	1	08/30/19 14:32	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9D	Date Sampled: 08/20/19
Lab Sample ID: JC93544-17	Date Received: 08/20/19
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 CaCO ₃ ^a	181	10	mg/l	1	08/27/19 14:39	UP	SM2320 B-11
BOD, 5 Day ^b	3.3	1.7	mg/l	1	08/21/19 21:40	EB	SM5210 B-11
Nitrogen, Ammonia	0.61	0.20	mg/l	1	08/29/19 16:00	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	4.1	0.11	mg/l	1	08/28/19 15:57	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.2	0.10	mg/l	1	08/28/19 15:57	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.064	0.010	mg/l	1	08/20/19 22:52	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.94	0.20	mg/l	1	08/26/19 16:49	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	270	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	74.4	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	2.4	1.0	mg/l	1	08/30/19 14:44	CD	SM5310 B-11

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

(b) DO depletion less than 2.

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

RL = Reporting Limit

4.17
4

Report of Analysis

Client Sample ID: BM-10S	Date Sampled: 08/20/19
Lab Sample ID: JC93544-18	Date Received: 08/20/19
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 CaCO ₃ ^a	84.0	5.0	mg/l	1	08/27/19 14:55	UP	SM2320 B-11
BOD, 5 Day ^b	4.3	1.7	mg/l	1	08/21/19 21:43	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/29/19 16:01	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	2.0	0.11	mg/l	1	08/28/19 15:58	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.1	0.10	mg/l	1	08/28/19 15:58	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.067	0.010	mg/l	1	08/20/19 22:52	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.71	0.20	mg/l	1	08/26/19 16:50	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	149	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	7.2	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	3.7	1.0	mg/l	1	08/30/19 14:55	CD	SM5310 B-11

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

(b) DO depletion less than 2.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-10M	Date Sampled: 08/20/19
Lab Sample ID: JC93544-19	Date Received: 08/20/19
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 CaCO ₃ ^a	122	5.0	mg/l	1	08/27/19 14:55	UP	SM2320 B-11
BOD, 5 Day ^b	2.9	1.7	mg/l	1	08/21/19 21:46	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/29/19 16:02	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	3.4	0.11	mg/l	1	08/28/19 15:59	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.4	0.10	mg/l	1	08/28/19 15:59	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.046	0.010	mg/l	1	08/20/19 22:52	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.70	0.20	mg/l	1	08/26/19 16:51	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	209	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	10.3	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	3.2	1.0	mg/l	1	08/30/19 15:28	CD	SM5310 B-11

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

(b) DO depletion less than 2.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-10D	Date Sampled: 08/20/19
Lab Sample ID: JC93544-20	Date Received: 08/20/19
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 CaCO ₃ ^a	166	10	mg/l	1	08/27/19 14:55	UP	SM2320 B-11
BOD, 5 Day ^b	2.9	1.7	mg/l	1	08/21/19 21:48	EB	SM5210 B-11
Nitrogen, Ammonia	0.54	0.20	mg/l	1	08/29/19 16:04	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	4.9	0.11	mg/l	1	08/28/19 16:00	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.9	0.10	mg/l	1	08/28/19 16:00	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.022	0.010	mg/l	1	08/20/19 22:52	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.49	0.20	mg/l	1	08/28/19 11:52	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	265	10	mg/l	1	08/23/19 14:45	RC	SM2540 C-11
Solids, Total Suspended	138	4.0	mg/l	1	08/23/19 09:52	RC	SM2540 D-11
Total Organic Carbon	2.8	1.0	mg/l	1	08/30/19 15:39	CD	SM5310 B-11

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

(b) DO depletion less than 2.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-11S	Date Sampled: 08/20/19
Lab Sample ID: JC93544-21	Date Received: 08/20/19
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 CaCO ₃ ^a	84.0	5.0	mg/l	1	08/27/19 14:55	UP	SM2320 B-11
BOD, 5 Day ^b	1.8	1.7	mg/l	1	08/21/19 21:59	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	08/29/19 16:05	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	2.6	0.11	mg/l	1	08/28/19 16:01	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.6	0.10	mg/l	1	08/28/19 16:01	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	08/20/19 22:52	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.60	0.20	mg/l	1	08/26/19 16:28	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	137	10	mg/l	1	08/22/19 15:30	RC	SM2540 C-11
Solids, Total Suspended	10.3	4.0	mg/l	1	08/22/19 09:58	RC	SM2540 D-11
Total Organic Carbon	3.6	1.0	mg/l	1	08/30/19 16:13	CD	SM5310 B-11

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

(b) DO depletion less than 2.

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

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SW

CHAIN OF CUSTODY

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

e

Client / Reporting Information Company Name: U.S. Army Corps of Engineers Street Address: 100 Penn Sq. East City: Phila. PA State: PA Zip: 19107 Project Contact: Joe Louper Phone #: 215-656-6545 Sample(s) Name(s): Greg Wacik Phone #: 610-597-9780		Project Information Project Name: USACE Reservoirs - Blue Marsh Street: _____ Billing Information (if different from Report to): Company Name: _____ Project # _____ State: _____ Client Purchase Order # _____ City: _____ State: _____ Zip: _____ Project Manager: Timmy McCleskey Attention: _____		FED-EX Tracking # SGS Order # _____ Batch Order Control # BW-081219-3 SGS Job # JC93544																	
Requested Analysis TPO4 (Sub to M3 Residue) Alkalinity - Ammonia BOD, Total Diss. Solids TKN, TOC, TSS XM030		Matrix Codes DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solids WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank		LAB USE ONLY B27 G273 19C2 SUB																	
Field ID / Point of Collection	MEQNDI Val #	Date	Time	Sampled By	Env ID / Contactor	Matrix	# of bottles	NO	NH4	NH3	NH2	NH3	NH4	NH3	NH2	NH3	NH4	NH3	NH2	NH3	
1F Bm-1S		8/20/19	0720	JK	G	SW	9	X													
2F Bm-2S			0730		G	SW	9	X													
3F Bm-2M			0730		G	SW	9	X													
4F Bm-2D			0730		G	SW	9	X													
5F Bm-5S			0740		G	SW	9	X													
6F Bm-6S			0830		G	SW	9	X													
7F Bm-6M			0830		G	SW	9	X													
8F Bm-6D			0830		G	SW	9	X													
9F Bm-7S			1010		G	SW	9	X													
10F Bm-7M			1010		G	SW	9	X													
11F Bm-7D			1010		G	SW	9	X													

5.1 5

38 38 39 38 37 37 38





CHAIN OF CUSTODY

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

Form containing Client/Reporting Information, Project Information, Billing Information, and a large table for sample collection details including Field ID, Date, Time, and various analysis results.

Handwritten numbers: 3.8 3.8 3.9 3.8 3.7 3.7 3.8

SGS Sample Receipt Summary

Job Number: JC93544

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 8/20/2019 4:32:00 PM

Delivery Method: _____

Airbill #s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (3.8); Cooler 2: (3.8); Cooler 3: (3.9); Cooler 4: (3.7); Cooler 5: (3.7); Cooler 6: (3.8); Cooler 7: (3.8);

Cooler Temps (Corrected) °C: Cooler 1: (3.7); Cooler 2: (3.7); Cooler 3: (3.8); Cooler 4: (3.6); Cooler 5: (3.6); Cooler 6: (3.7); Cooler 7: (3.7);

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>	
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>
1. Temp criteria achieved:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Cooler temp verification:	IR Gun
3. Cooler media:	Ice (Bag)
4. No. Coolers:	7

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>		<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y</u>	<u>or</u>	<u>N</u>
1. Sample recvd within HT:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>		<input type="checkbox"/>
3. Condition of sample:			Intact

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>		<input checked="" type="checkbox"/>	
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Test Strip Lot #s:	pH 1-12: 229517	pH 12+: 208717	Other: (Specify) _____
--------------------	-----------------	----------------	------------------------

Comments

SM089-03
Rev. Date 12/7/17

JC93544: Chain of Custody

Page 3 of 3

5.1
5

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: JC93544XA

Sampling Date: 08/20/19

Report to:

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

ATTN: Joseph Loeper

Total number of pages in report: **15**



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.

A handwritten signature in black ink, appearing to read "Mike Earp".

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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Test results relate only to samples analyzed.

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3.1: Chain of Custody	13



Sample Summary

USACE-Philadelphia District

Job No: JC93544XA

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
JC93544-1XA	08/20/19	07:20 GW	08/20/19	AQ	Surface Water	BM-1S
JC93544-2XA	08/20/19	09:30 GW	08/20/19	AQ	Surface Water	BM-2S
JC93544-5XA	08/20/19	12:40 GW	08/20/19	AQ	Surface Water	BM-5S
JC93544-6XA	08/20/19	08:30 GW	08/20/19	AQ	Surface Water	BM-6S
JC93544-9XA	08/20/19	10:10 GW	08/20/19	AQ	Surface Water	BM-7S
JC93544-12XA	08/20/19	11:40 GW	08/20/19	AQ	Surface Water	BM-8S
JC93544-15XA	08/20/19	10:30 GW	08/20/19	AQ	Surface Water	BM-9S
JC93544-18XA	08/20/19	11:00 GW	08/20/19	AQ	Surface Water	BM-10S
JC93544-21XA	08/20/19	12:40 GW	08/20/19	AQ	Surface Water	BM-11S

Subcontract Lab Data

Report of Analysis

Serialized: 09/05/2019 05:59pm 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:

L7154966



Authorized by: Douglas J. Gump
Client Services Manager

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

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

P.O. No:

Inv. No: 1990906 PI
PWSID No:

Sample ID	Sample Description	Samp. Date/Time/Temp	Sampled by
L7154966-1	BM-1S	08/20/19 07:20am NA C	Customer
Received Date/Time/Temp 08/20/19 03:00pm 3.0 C		Iced (Y/N): Y	

Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOLOGY -- BM-1S							
Total Coliform, MF	>20000 Q		cfu/100ml	SM 9222B	1	100	08/20/19 06:28PM SRK
Fecal Coliform, MF	30		cfu/100ml	SM 9222D	100	1	08/20/19 09:33PM KC2

Sample ID	Sample Description	Samp. Date/Time/Temp	Sampled by
L7154966-2	BM-2S	08/20/19 09:30am NA C	Customer
Received Date/Time/Temp 08/20/19 03:00pm 3.0 C		Iced (Y/N): Y	

Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOLOGY -- BM-2S							
Total Coliform, MF	9300 E		cfu/100ml	SM 9222B	1	100	08/20/19 06:28PM SRK
Fecal Coliform, MF	1		cfu/100ml	SM 9222D	100	1	08/20/19 09:33PM KC2

PIN: 28748

Serial Number: 6542353

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

P.O. No:

Inv. No: 1990906 PI
PWSID No:

Sample ID L7154966-3	Sample Description BM-5S	Received Date/Time/Temp 08/20/19 03:00pm 3.0 C	Iced (Y/N): Y	Samp. Date/Time/Temp 08/20/19 12:40pm NA C	Sampled by Customer
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Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-5S

Total Coliform, MF	>20000		cfu/100ml	SM 9222B	1	100	08/20/19 06:28PM SRK
Fecal Coliform, MF	270		cfu/100ml	SM 9222D	10	10	08/20/19 09:33PM KC2

Sample ID L7154966-4	Sample Description BM-6S	Received Date/Time/Temp 08/20/19 03:00pm 3.0 C	Iced (Y/N): Y	Samp. Date/Time/Temp 08/20/19 08:30am NA C	Sampled by Customer
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Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-6S

Total Coliform, MF	>20000 Q		cfu/100ml	SM 9222B	1	100	08/20/19 06:28PM SRK
Fecal Coliform, MF	4		cfu/100ml	SM 9222D	100	1	08/20/19 09:33PM KC2

Sample ID L7154966-5	Sample Description BM-7S	Received Date/Time/Temp 08/20/19 03:00pm 3.0 C	Iced (Y/N): Y	Samp. Date/Time/Temp 08/20/19 10:10am NA C	Sampled by Customer
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Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-7S

Total Coliform, MF	8300 E, Q		cfu/100ml	SM 9222B	1	100	08/20/19 06:28PM SRK
Fecal Coliform, MF	5		cfu/100ml	SM 9222D	100	1	08/20/19 09:33PM KC2

Sample ID L7154966-6	Sample Description BM-8S	Received Date/Time/Temp 08/20/19 03:00pm 3.0 C	Iced (Y/N): Y	Samp. Date/Time/Temp 08/20/19 11:40am NA C	Sampled by Customer
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Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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PIN: 28748

Serial Number: 6542353

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

P.O. No:

Inv. No: 1990906 PI
PWSID No:

Sample ID L7154966-6	Sample Description BM-8S	Received Date/Time/Temp 08/20/19 03:00pm 3.0 C	Iced (Y/N): Y	Samp. Date/Time/Temp 08/20/19 11:40am NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-8S

Total Coliform, MF	260	cfu/100ml	SM 9222B	10	10	08/20/19 06:28PM SRK
Fecal Coliform, MF	<1	cfu/100ml	SM 9222D	100	1	08/20/19 09:33PM KC2

Sample ID L7154966-7	Sample Description BM-9S	Received Date/Time/Temp 08/20/19 03:00pm 3.0 C	Iced (Y/N): Y	Samp. Date/Time/Temp 08/20/19 10:30am NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-9S

Total Coliform, MF	2700	cfu/100ml	SM 9222B	1	100	08/20/19 06:28PM SRK
Fecal Coliform, MF	2	cfu/100ml	SM 9222D	100	1	08/20/19 09:33PM KC2

Sample ID L7154966-8	Sample Description BM-10S	Received Date/Time/Temp 08/20/19 03:00pm 3.0 C	Iced (Y/N): Y	Samp. Date/Time/Temp 08/20/19 11:00am NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-10S

Total Coliform, MF	190 E	cfu/100ml	SM 9222B	10	10	08/20/19 06:28PM SRK
Fecal Coliform, MF	2	cfu/100ml	SM 9222D	100	1	08/20/19 09:33PM KC2

Sample ID L7154966-9	Sample Description BM-11S	Received Date/Time/Temp 08/20/19 03:00pm 3.0 C	Iced (Y/N): Y	Samp. Date/Time/Temp 08/20/19 12:40pm NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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PIN: 28748

Serial Number: 6542353

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

P.O. No:

Inv. No: 1990906 PI
PWSID No:

Sample ID	Sample Description	Samp. Date/Time/Temp	Sampled by
L7154966-9	BM-11S	08/20/19 12:40pm NA C	Customer
	Received Date/Time/Temp 08/20/19 03:00pm 3.0 C Iced (Y/N): Y		

Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-11S

Total Coliform, MF	>20000		cfu/100ml	SM 9222B	1	100	08/20/19 06:28PM SRK
Fecal Coliform, MF	4400 Q		cfu/100ml	SM 9222D	1	100	08/20/19 09:33PM KC2

Sample Comments | Result Qualifiers:

L7154966-1 :

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

L7154966-2 :

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.

L7154966-4 :

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

L7154966-5 :

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

E: For microbiology testing by membrane filtration, the reported result was based on a colony count outside the recommended range of the test. The reported result may be considered an estimate.

L7154966-8 :

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.

L7154966-9 :

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



PIN: 28748

Serial Number: 6542353

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



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

W00m69 USACE
 Page 1 of 1

Client / Reporting Information Company Name: USACE - Phila. District Street Address: 100 Penn Sq. East City: Phila. PA State: PA Zip: 19107 Project Contact: Joe Loeper E-mail: Phone #: 215-6576-6545 Phone #: 610- Sample(s) Name(s): Greg Wacik 597-9780 Tammy McCosky		Project Information Project Name: USACE Reservoirs - Blive Marsh Billing Information (if different from Report to): Company Name: Street Address: City: State: Zip: Attention:	
Requested Analysis <div style="border: 1px solid black; padding: 5px; display: inline-block;"> P7154966-1 </div> Matrix Codes: DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SED - Sediment CI - Oil LO - Other Liquid AFR - Air SOL - Other Solid WPF - Wipes FB - Field Blank EB - Equipment Blank RB - Release Blank TB - Trip Blank LAB USE ONLY		Requested Analysis Matrix Codes: DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SED - Sediment CI - Oil LO - Other Liquid AFR - Air SOL - Other Solid WPF - Wipes FB - Field Blank EB - Equipment Blank RB - Release Blank TB - Trip Blank LAB USE ONLY	
Turn Around Time (Business Days) Approved by (SGS emp./ client): <input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day Other: All data available in Lablog		Deliverable L7154966-1 3.0C Iced:Y DJG/JAP 08/20/19 1500 08/20/19 1610 Commercial "A" = Results Commercial "B" = Results + OC Summary + Partial Raw data Commercial "C" = Results + OC Summary + Partial Raw data Requiring by: 2 Requiring by: 4 Requiring by: 5	
Sample Collection Date: 8/20/19 Time: 0720 Date: 0830 Time: 0730 Date: 1240 Time: 0830 Date: 1010 Time: 1140 Date: 1030 Time: 1100 Date: 1240 Time: 1240		Comments / Special Instructions Lud (GWS) 1110 100 3.00C P/B both feed total Col from team http://www.sgs.com/en/tema-and-conditions	
Received By: [Signature] Date/TIME: 8/20/19 1400 Received By: [Signature] Date/TIME: 8/20/19 1510 Received By: [Signature] Date/TIME: 8/20/19 1510		Received By: [Signature] Date/TIME: 8/20/19 1510 Received By: [Signature] Date/TIME: 8/20/19 1510	

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SW

CHAIN OF CUSTODY

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

e

Form containing Client/Reporting Information, Project Information, Collection data table, Turn Around Time, Deliverable, and Chain of Custody tracking sections.

Table with columns for Requested Analysis and Matrix Codes. Includes handwritten notes: TPO4 (Sub to M3 Releaser), Alkalinity, Ammonia, BOD, Total Diss. Solids, TKN, TOC, TSS, XN030.

31
3

38 38 39 38 37 37 38

JC93544XA: Chain of Custody





CHAIN OF CUSTODY

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

Form containing Client/Reporting Information, Project Information, Billing Information, and a detailed table of samples with columns for Field ID, Date, Time, Matrix, and various analysis results. Includes handwritten notes and signatures.

Handwritten numbers: 3.8 3.8 3.9 3.8 3.7 3.7 3.8

JC93544XA: Chain of Custody

Page 2 of 3



SGS Sample Receipt Summary

Job Number: JC93544

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 8/20/2019 4:32:00 PM

Delivery Method: _____

Airbill #s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (3.8); Cooler 2: (3.8); Cooler 3: (3.9); Cooler 4: (3.7); Cooler 5: (3.7); Cooler 6: (3.8); Cooler 7: (3.8);

Cooler Temps (Corrected) °C: Cooler 1: (3.7); Cooler 2: (3.7); Cooler 3: (3.8); Cooler 4: (3.6); Cooler 5: (3.6); Cooler 6: (3.7); Cooler 7: (3.7);

Cooler Security

Y or N

Y or N

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature

Y or N

- | | | |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | IR Gun | |
| 3. Cooler media: | Ice (Bag) | |
| 4. No. Coolers: | 7 | |

Quality Control Preservation

Y or N

N/A

- | | | | |
|---------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Sample Integrity - Documentation

Y or N

- | | | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Sample Integrity - Condition

Y or N

- | | | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample: | Intact | |

Sample Integrity - Instructions

Y or N

N/A

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2. Bottles received for unspecified tests | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3. Sufficient volume recvd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. Compositing instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Test Strip Lot #s: pH 1-12: 229517 pH 12+: 208717 Other: (Specify) _____

Comments

SM089-03
Rev. Date 12/7/17

JC93544XA: Chain of Custody

Page 3 of 3

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: JC93544X

Sampling Date: 08/20/19

Report to:

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: **29**



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.

A handwritten signature in black ink, appearing to read 'Mike Earp'.

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.

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Sample Summary

USACE-Philadelphia District

Job No: JC93544X

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
JC93544-1F	08/20/19	07:20 GW	08/20/19	AQ	Surface H2O Filtered	BM-1S
JC93544-1X	08/20/19	07:20 GW	08/20/19	AQ	Surface Water	BM-1S
JC93544-2F	08/20/19	09:30 GW	08/20/19	AQ	Surface H2O Filtered	BM-2S
JC93544-2X	08/20/19	09:30 GW	08/20/19	AQ	Surface Water	BM-2S
JC93544-3F	08/20/19	09:30 GW	08/20/19	AQ	Surface H2O Filtered	BM-2M
JC93544-3X	08/20/19	09:30 GW	08/20/19	AQ	Surface Water	BM-2M
JC93544-4F	08/20/19	09:30 GW	08/20/19	AQ	Surface H2O Filtered	BM-2D
JC93544-4X	08/20/19	09:30 GW	08/20/19	AQ	Surface Water	BM-2D
JC93544-5F	08/20/19	12:40 GW	08/20/19	AQ	Surface H2O Filtered	BM-5S
JC93544-5X	08/20/19	12:40 GW	08/20/19	AQ	Surface Water	BM-5S
JC93544-6F	08/20/19	08:30 GW	08/20/19	AQ	Surface H2O Filtered	BM-6S
JC93544-6X	08/20/19	08:30 GW	08/20/19	AQ	Surface Water	BM-6S
JC93544-7F	08/20/19	08:30 GW	08/20/19	AQ	Surface H2O Filtered	BM-6M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC93544X

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC93544-7X	08/20/19	08:30 GW	08/20/19	AQ	Surface Water	BM-6M
JC93544-8F	08/20/19	08:30 GW	08/20/19	AQ	Surface H2O Filtered	BM-6D
JC93544-8X	08/20/19	08:30 GW	08/20/19	AQ	Surface Water	BM-6D
JC93544-9F	08/20/19	10:10 GW	08/20/19	AQ	Surface H2O Filtered	BM-7S
JC93544-9X	08/20/19	10:10 GW	08/20/19	AQ	Surface Water	BM-7S
JC93544-10F	08/20/19	10:10 GW	08/20/19	AQ	Surface H2O Filtered	BM-7M
JC93544-10X	08/20/19	10:10 GW	08/20/19	AQ	Surface Water	BM-7M
JC93544-11F	08/20/19	10:10 GW	08/20/19	AQ	Surface H2O Filtered	BM-7D
JC93544-11X	08/20/19	10:10 GW	08/20/19	AQ	Surface Water	BM-7D
JC93544-12F	08/20/19	11:40 GW	08/20/19	AQ	Surface H2O Filtered	BM-8S
JC93544-12X	08/20/19	11:40 GW	08/20/19	AQ	Surface Water	BM-8S
JC93544-13F	08/20/19	11:40 GW	08/20/19	AQ	Surface H2O Filtered	BM-8M
JC93544-13X	08/20/19	11:40 GW	08/20/19	AQ	Surface Water	BM-8M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC93544X

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
JC93544-14F	08/20/19	11:40 GW	08/20/19	AQ	Surface H2O Filtered	BM-8D
JC93544-14X	08/20/19	11:40 GW	08/20/19	AQ	Surface Water	BM-8D
JC93544-15F	08/20/19	10:30 GW	08/20/19	AQ	Surface H2O Filtered	BM-9S
JC93544-15X	08/20/19	10:30 GW	08/20/19	AQ	Surface Water	BM-9S
JC93544-16F	08/20/19	10:30 GW	08/20/19	AQ	Surface H2O Filtered	BM-9M
JC93544-16X	08/20/19	10:30 GW	08/20/19	AQ	Surface Water	BM-9M
JC93544-17F	08/20/19	10:30 GW	08/20/19	AQ	Surface H2O Filtered	BM-9D
JC93544-17X	08/20/19	10:30 GW	08/20/19	AQ	Surface Water	BM-9D
JC93544-18F	08/20/19	11:00 GW	08/20/19	AQ	Surface H2O Filtered	BM-10S
JC93544-18X	08/20/19	11:00 GW	08/20/19	AQ	Surface Water	BM-10S
JC93544-19F	08/20/19	11:00 GW	08/20/19	AQ	Surface H2O Filtered	BM-10M
JC93544-19X	08/20/19	11:00 GW	08/20/19	AQ	Surface Water	BM-10M
JC93544-20F	08/20/19	11:00 GW	08/20/19	AQ	Surface H2O Filtered	BM-10D



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC93544X

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC93544-20X	08/20/19	11:00 GW	08/20/19	AQ	Surface Water	BM-10D
JC93544-21F	08/20/19	12:40 GW	08/20/19	AQ	Surface H2O Filtered	BM-11S
JC93544-21X	08/20/19	12:40 GW	08/20/19	AQ	Surface Water	BM-11S

Subcontract Lab Data

Report of Analysis



M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

2

Laboratory No.: 9030185
Report: 09/03/19
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: 9030185-01 **Collected By:** Client **Sampled:** 08/20/19 07:20 **Received:** 08/27/19 09:39
Sample Desc: BM-1S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	08/28/19	J	JCL

Lab ID: 9030185-02 **Collected By:** Client **Sampled:** 08/20/19 09:30 **Received:** 08/27/19 09:39
Sample Desc: BM-2S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/28/19	J	JCL

Lab ID: 9030185-03 **Collected By:** Client **Sampled:** 08/20/19 09:30 **Received:** 08/27/19 09:39
Sample Desc: BM-2M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.007	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/28/19	J	JCL



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2

Lab ID: 9030185-04 **Collected By:** Client **Sampled:** 08/20/19 09:30 **Received:** 08/27/19 09:39
Sample Desc: BM-2D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.03	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.81	mg/l	0.01	0.05	SM 4500-P E	08/28/19		JCL

Lab ID: 9030185-05 **Collected By:** Client **Sampled:** 08/20/19 12:40 **Received:** 08/27/19 09:39
Sample Desc: BM-5S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.06	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.06	mg/l	0.01	0.05	SM 4500-P E	08/28/19		JCL

Lab ID: 9030185-06 **Collected By:** Client **Sampled:** 08/20/19 08:30 **Received:** 08/27/19 09:39
Sample Desc: BM-6S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	08/28/19	U	JCL

Lab ID: 9030185-07 **Collected By:** Client **Sampled:** 08/20/19 08:30 **Received:** 08/27/19 09:39
Sample Desc: BM-6M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/28/19	J	JCL



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2

Lab ID: 9030185-08 **Collected By:** Client **Sampled:** 08/20/19 08:30 **Received:** 08/27/19 09:39
Sample Desc: BM-6D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.04	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.11	mg/l	0.01	0.05	SM 4500-P E	08/28/19		JCL

Lab ID: 9030185-09 **Collected By:** Client **Sampled:** 08/20/19 10:10 **Received:** 08/27/19 09:39
Sample Desc: BM-7S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	08/28/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	08/28/19	J	JCL

Lab ID: 9030185-10 **Collected By:** Client **Sampled:** 08/20/19 10:10 **Received:** 08/27/19 09:39
Sample Desc: BM-7M **Sample Type:** Grab

	Result	Unit	MDL	Rep. 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	0.02	mg/l	0.01	0.05	SM 4500-P E	08/29/19	J	JCL

Lab ID: 9030185-11 **Collected By:** Client **Sampled:** 08/20/19 10:10 **Received:** 08/27/19 09:39
Sample Desc: BM-7D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.04	mg/l	0.007	0.05	SM 4500-P E	08/29/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.09	mg/l	0.01	0.05	SM 4500-P E	08/29/19		JCL



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2

Lab ID: 9030185-12 **Collected By:** Client **Sampled:** 08/20/19 11:40 **Received:** 08/27/19 09:39
Sample Desc: BM-8S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
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	0.04	mg/l	0.01	0.05	SM 4500-P E	08/29/19	J	JCL

Lab ID: 9030185-13 **Collected By:** Client **Sampled:** 08/20/19 11:40 **Received:** 08/27/19 09:39
Sample Desc: BM-8M **Sample Type:** Grab

	Result	Unit	MDL	Rep. 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	0.04	mg/l	0.01	0.05	SM 4500-P E	08/29/19	J	JCL

Lab ID: 9030185-14 **Collected By:** Client **Sampled:** 08/20/19 11:40 **Received:** 08/27/19 09:39
Sample Desc: BM-8D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
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	0.13	mg/l	0.01	0.05	SM 4500-P E	08/29/19		JCL

Lab ID: 9030185-15 **Collected By:** Client **Sampled:** 08/20/19 10:30 **Received:** 08/27/19 09:39
Sample Desc: BM-9S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
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	0.04	mg/l	0.01	0.05	SM 4500-P E	08/29/19	J	JCL



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Lab ID: 9030185-16 **Collected By:** Client **Sampled:** 08/20/19 10:30 **Received:** 08/27/19 09:39
Sample Desc: BM-9M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.05	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	J	JCL

Lab ID: 9030185-17 **Collected By:** Client **Sampled:** 08/20/19 10:30 **Received:** 08/27/19 09:39
Sample Desc: BM-9D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l	0.007	0.05	SM 4500-P E	08/29/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.11	mg/l	0.01	0.05	SM 4500-P E	08/29/19		JCL

Lab ID: 9030185-18 **Collected By:** Client **Sampled:** 08/20/19 11:00 **Received:** 08/27/19 09:39
Sample Desc: BM-10S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.03	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: 9030185-19 **Collected By:** Client **Sampled:** 08/20/19 11:00 **Received:** 08/27/19 09:39
Sample Desc: BM-10M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
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



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Lab ID: 9030185-20 **Collected By:** Client **Sampled:** 08/20/19 11:00 **Received:** 08/27/19 09:39
Sample Desc: BM-10D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Procedure	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.10	mg/l	0.007	0.05	SM 4500-P E	08/29/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.12	mg/l	0.01	0.05	SM 4500-P E	08/29/19		JCL

Lab ID: 9030185-21 **Collected By:** Client **Sampled:** 08/20/19 12:40 **Received:** 08/27/19 09:39
Sample Desc: BM-11S **Sample Type:** Grab

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



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Quality Control

General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9H1637								
MB (B9H1637-BLK1) Prepared & Analyzed: 08/28/2019								
Phosphorus as P, Total	<0.05	0.05	mg/l					U
LFM (B9H1637-MS1) Source: 9030185-01 Prepared & Analyzed: 08/28/2019								
Phosphorus as P, Total	1.01	0.05	mg/l	96.2	80-120			
LFMD (B9H1637-MSD1) Source: 9030185-01 Prepared & Analyzed: 08/28/2019								
Phosphorus as P, Total	1.02	0.05	mg/l	97.7	80-120	1.48	20	
Batch B9H1705								
MB (B9H1705-BLK1) Prepared & Analyzed: 08/29/2019								
Phosphorus as P, Total	<0.05	0.05	mg/l					U
MB (B9H1705-BLK2) Prepared & Analyzed: 08/29/2019								
Phosphorus as P, Total	<0.05	0.05	mg/l					U
MB (B9H1705-BLK3) Prepared & Analyzed: 08/29/2019								
Phosphorus as P, Total	<0.05	0.05	mg/l					U
LFB (B9H1705-BS1) Prepared & Analyzed: 08/29/2019								
Phosphorus as P, Total	1.02	0.05	mg/l	102	80-120			
LFM (B9H1705-MS1) Source: 9030185-12 Prepared & Analyzed: 08/29/2019								
Phosphorus as P, Total	1.00	0.05	mg/l	96.9	80-120			
LFMD (B9H1705-MSD1) Source: 9030185-12 Prepared & Analyzed: 08/29/2019								
Phosphorus as P, Total	1.03	0.05	mg/l	99.6	80-120	2.65	20	

Dissolved General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9H1638								
MB (B9H1638-BLK1) Prepared & Analyzed: 08/28/2019								
Phosphorus as P, Dissolved	<0.05	0.05	mg/l					G-11, U
LFB (B9H1638-BS1) Prepared & Analyzed: 08/28/2019								
Phosphorus as P, Dissolved	1.00	0.05	mg/l	100	80-120			G-11
LFM (B9H1638-MS1) Source: 9030185-09 Prepared & Analyzed: 08/28/2019								
Phosphorus as P, Dissolved	1.02	0.05	mg/l	100	80-120			
LFMD (B9H1638-MSD1) Source: 9030185-09 Prepared & Analyzed: 08/28/2019								
Phosphorus as P, Dissolved	1.00	0.05	mg/l	98.9	80-120	1.58	20	
Batch B9H1707								
MB (B9H1707-BLK1) Prepared & Analyzed: 08/29/2019								
Phosphorus as P, Dissolved	<0.05	0.05	mg/l					G-11, U



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Dissolved General Chemistry (Continued)

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B9H1707 (Continued)								
LFB (B9H1707-BS1)								
Phosphorus as P, Dissolved	1.01	0.05	mg/l	101	80-120			G-11

Prepared & Analyzed: 08/29/2019



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Preparation Methods

Specific Method	Preparation Method	Prepared Date	Prepared By
9030185-01			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030185-02			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030185-03			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030185-04			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030185-05			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030185-06			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030185-07			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030185-08			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030185-09			
SM 4500-P E	SM 4500-P B	08/28/2019	JCL
9030185-10			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030185-11			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030185-12			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030185-13			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030185-14			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL
9030185-15			
SM 4500-P E	SM 4500-P B	08/29/2019	JCL



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9030185-16

SM 4500-P E SM 4500-P B 08/29/2019 JCL

9030185-17

SM 4500-P E SM 4500-P B 08/29/2019 JCL

9030185-18

SM 4500-P E SM 4500-P B 08/29/2019 JCL

9030185-19

SM 4500-P E SM 4500-P B 08/29/2019 JCL

9030185-20

SM 4500-P E SM 4500-P B 08/29/2019 JCL

9030185-21

SM 4500-P E SM 4500-P B 08/29/2019 JCL

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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 TEL: 732-329-0200 FAX: 732-329-34
 www.sgs.com/nahusa

9030185

SGS North America
 Army Corp Reservoirs

PM: ALM

1 of 4



Client / Reporting Information		Project Information																					
Company Name: Philadelphia District, Reservoir Sampling		Project Name: Philadelphia District, Reservoir Sampling																					
Street Address: Street		Billing Information (if different from Report to):																					
City	State	City	State																				
Zip		City	State																				
Project Contact: Email: tammy.mccostley@sgs.com		Street Address																					
Phone #		City	State																				
Client Purchase Order #		Zip																					
Project Manager		Attention:																					
Phone																							
Sample ID(s)																							
GW																							
SGS Sample #	Field ID / Point of Collection	MCH/DI Visit #	Date	Time	Collection	Sampled by	Matrix	# of bottles	Number of preservative bottles				LAB USE ONLY										
1F	BM-1S		8/20/19	7:20:00 AM	GW	AQ	2		ENCOR														
1X	BM-1S		8/20/19	7:20:00 AM	GW	AQ	2		MECH														
2F	BM-2S		8/20/19	9:30:00 AM	GW	AQ	2		DI WATER														
2X	BM-2S		8/20/19	9:30:00 AM	GW	AQ	2		NONE														
3F	BM-2M		8/20/19	9:30:00 AM	GW	AQ	2		H2SO4														
3X	BM-2M		8/20/19	9:30:00 AM	GW	AQ	2		HNO3														
4F	BM-2D		8/20/19	9:30:00 AM	GW	AQ	2		HCl														
4X	BM-2D		8/20/19	9:30:00 AM	GW	AQ	2		ENCOR														
5F	BM-5S		8/20/19	12:40:00 PM	GW	AQ	2																
5X	BM-5S		8/20/19	12:40:00 PM	GW	AQ	2																
6F	BM-6S		8/20/19	8:30:00 AM	GW	AQ	2																
6X	BM-6S		8/20/19	8:30:00 AM	GW	AQ	2																
Turnaround Time (Business days)		Approved by (SGS PM): Date:		Data Deliverable Information		Comments / Special Instructions																	
<input type="checkbox"/> Standard 10 Business Days <input type="checkbox"/> 6 Business Days RUSH <input type="checkbox"/> 3 Business Days RUSH <input type="checkbox"/> 2 Business Days RUSH <input type="checkbox"/> 1 Business Day EMERGENCY <input checked="" type="checkbox"/> Other Date: 8/22/19 Emergency & Rush T/A data of labile X/Lab. Label. Approval needed for RUSH/Emergency TAT		<input type="checkbox"/> Comment "A" (Level 1) <input type="checkbox"/> Comment "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input checked="" type="checkbox"/> Other REDT2		http://www.sgs.com/en/terms-and-conditions																	
Relinquished By: [Signature]		Received By: [Signature]		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00			
Relinquished By: [Signature]		Received By: [Signature]		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00			
Relinquished By: [Signature]		Received By: [Signature]		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00		Date / Time: 8/26/19 17:00			

For 10-10-19

rcud@19 on ice
 8/27/19



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 2235 Route 130, Dayton, NJ 08810
 TEL: 732-328-0200 FAX: 732-328-3499/3480
 www.sgs.com/ehususa

40 30185

Client / Reporting Information Company Name: Philadelphia District, Reservoir Sampling Street: _____ City: _____ State: _____ Zip: _____ Project # _____ Client Purchase Order # _____ Project Manager: _____ Attention: _____		Project Information Billing Information (if different from Report to): _____ Street Address: _____ City: _____ State: _____ Zip: _____ Attention: _____	
Requested Analysis Matrix Codes: DW - Drinking Water, WW - Wastewater, SW - Surface Water, etc. Matrix: _____ LAB USE ONLY: _____		Comments / Special Instructions _____	
Sample Information SPS Sample #: 19F, 19X, 20F, 20X, 21F, 21X Field ID / Point of Collection: BM-10M, BM-10M, BM-10D, BM-10D, BM-11S, BM-11S Date: 8/20/19 Time: 11:00:00 AM, 11:00:00 AM, 11:00:00 AM, 12:40:00 PM, 12:40:00 PM Matrix: AQ, AQ, AQ, AQ, AQ, AQ Sampled by: _____ Method: GW, GW, GW, GW, GW, GW		Deliverable Information Commercial "A" (Level 1) <input type="checkbox"/> NYASP Category A Commercial "B" (Level 2) <input type="checkbox"/> NYASP Category B FULT1 (Level 3+4) <input type="checkbox"/> State Forms NJ Reduced <input type="checkbox"/> EDD Format Commercial "C" <input checked="" type="checkbox"/> Other REDT2 Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw Data Sample Custody must be documented below each time samples change possession, including courier delivery.	
Requisitioned By: _____ Relinquished By: FedEx Relinquished By: _____		Received By: _____ Received By: _____ Received By: _____	
Date / Time: 8/20/19 17:00 Date / Time: _____ Date / Time: _____		Date / Time: _____ Date / Time: _____ Date / Time: _____	

route 10c on ice
 UBM
 812714

Handwritten signature

9030185

Date / Time: 8/26/2019 11:34:02 AM
 CSR: TAMMY
 Job #: JC93544X
 Client Project: Philadelphia District, Reservoir Sampling
 Deliverable: REDT2
 TAT: Due 9/9/2019

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
JC93544-1F	BM-1S	FILTERGN_TPO4	SUB	GW	8/20/2019	7:20:00 AM	
JC93544-1X	BM-1S	TPO4		GW	8/20/2019	7:20:00 AM	
JC93544-2F	BM-2S	FILTERGN_TPO4	SUB	GW	8/20/2019	9:30:00 AM	
JC93544-2X	BM-2S	TPO4		GW	8/20/2019	9:30:00 AM	
JC93544-3F	BM-2M	FILTERGN_TPO4	SUB	GW	8/20/2019	9:30:00 AM	
JC93544-3X	BM-2M	TPO4		GW	8/20/2019	9:30:00 AM	
JC93544-4F	BM-2D	FILTERGN_TPO4	SUB	GW	8/20/2019	9:30:00 AM	
JC93544-4X	BM-2D	TPO4		GW	8/20/2019	9:30:00 AM	
JC93544-5F	BM-5S	FILTERGN_TPO4	SUB	GW	8/20/2019	12:40:00 PM	
JC93544-5X	BM-5S	TPO4		GW	8/20/2019	12:40:00 PM	
JC93544-6F	BM-6S	FILTERGN_TPO4	SUB	GW	8/20/2019	8:30:00 AM	
JC93544-6X	BM-6S	TPO4		GW	8/20/2019	8:30:00 AM	
JC93544-7F	BM-6M	FILTERGN_TPO4	SUB	GW	8/20/2019	8:30:00 AM	
JC93544-7X	BM-6M	TPO4		GW	8/20/2019	8:30:00 AM	
JC93544-8F	BM-6D	FILTERGN_TPO4	SUB	GW	8/20/2019	8:30:00 AM	
JC93544-8X	BM-6D	TPO4		GW	8/20/2019	8:30:00 AM	
JC93544-9F	BM-7S	FILTERGN_TPO4	SUB	GW	8/20/2019	10:10:00 AM	



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JC93544-9X	BM-7S	TPO4	BM-7S	GW	8/20/2019	10:10:00 AM
JC93544-10F	BM-7M	FILTERGN_TPO4	BM-7M	GW	8/20/2019	10:10:00 AM
JC93544-10X	BM-7M	TPO4	BM-7M	GW	8/20/2019	10:10:00 AM
JC93544-11F	BM-7D	FILTERGN_TPO4	BM-7D	GW	8/20/2019	10:10:00 AM
JC93544-11X	BM-7D	TPO4	BM-7D	GW	8/20/2019	10:10:00 AM
JC93544-12F	BM-8S	FILTERGN_TPO4	BM-8S	GW	8/20/2019	11:40:00 AM
JC93544-12X	BM-8S	TPO4	BM-8S	GW	8/20/2019	11:40:00 AM
JC93544-13F	BM-8M	FILTERGN_TPO4	BM-8M	GW	8/20/2019	11:40:00 AM
JC93544-13X	BM-8M	TPO4	BM-8M	GW	8/20/2019	11:40:00 AM
JC93544-14F	BM-8D	FILTERGN_TPO4	BM-8D	GW	8/20/2019	11:40:00 AM
JC93544-14X	BM-8D	TPO4	BM-8D	GW	8/20/2019	11:40:00 AM
JC93544-15F	BM-9S	FILTERGN_TPO4	BM-9S	GW	8/20/2019	10:30:00 AM
JC93544-15X	BM-9S	TPO4	BM-9S	GW	8/20/2019	10:30:00 AM
JC93544-16F	BM-9M	FILTERGN_TPO4	BM-9M	GW	8/20/2019	10:30:00 AM
JC93544-16X	BM-9M	TPO4	BM-9M	GW	8/20/2019	10:30:00 AM
JC93544-17F	BM-9D	FILTERGN_TPO4	BM-9D	GW	8/20/2019	10:30:00 AM
JC93544-17X	BM-9D	TPO4	BM-9D	GW	8/20/2019	10:30:00 AM
JC93544-18F	BM-10S	FILTERGN_TPO4	BM-10S	GW	8/20/2019	11:00:00 AM
JC93544-18X	BM-10S	TPO4	BM-10S	GW	8/20/2019	11:00:00 AM
JC93544-19F	BM-10M	FILTERGN_TPO4	BM-10M	GW	8/20/2019	11:00:00 AM
JC93544-19X	BM-10M	TPO4	BM-10M	GW	8/20/2019	11:00:00 AM
JC93544-20F	BM-10D	FILTERGN_TPO4	BM-10D	GW	8/20/2019	11:00:00 AM
JC93544-20X	BM-10D	TPO4	BM-10D	GW	8/20/2019	11:00:00 AM
JC93544-21F	BM-11S	FILTERGN_TPO4	BM-11S	GW	8/20/2019	12:40:00 PM
JC93544-21X	BM-11S	TPO4	BM-11S	GW	8/20/2019	12:40:00 PM



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9030185

Comments: 2

Sample Management Receipt:

Date:

[Handwritten signature]

M.J. Reider Associates, Inc.

2

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:



Amy L Morriss
Project Manager



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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)

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SW

CHAIN OF CUSTODY

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

e

Client / Reporting Information Company Name: U.S. Army Corps of Engineers Street Address: 100 Penn Sq. East City: Phila. State: PA Zip: 19107 Project Contact: Joe Louper Phone #: 215-656-6545 Sample(s) Name(s): Greg Wacik Phone #: 610-597-9780		Project Information Project Name: USACE Reservoirs - Blue Marsh Street: _____ Billing Information (if different from Report to): Company Name: _____ Project # _____ State: PA Client Purchase Order: _____ City: _____ State: _____ Zip: _____ Project Manager: Timmy McCleskey Attention: _____		FED-EX Tracking # SGS Order # _____ Matrix Codes: DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solids WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
Requested Analysis TPO4 (Sub to M3 Residue) Alkalinity - Ammonia BOD, Total Diss. Solids TKN, TOC, TSS XM030		LAB USE ONLY B27 G273 19C2 SUB			
Turn Around Time (Business Days) <input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Other _____ All data available on Lablink		Deliverable <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> Full Tier 1 (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKGP <input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input type="checkbox"/> DDD-QSAS		Comments / Special Instructions Initial Assessment SA AC Label Verification _____ *Approval needed for 1-3 Business Day TAT	
Sample Custody must be documented below each time samples change possession, including courier delivery.					
Relinquished By: _____ Date / Time: 8/20/19 1:40		Received By: _____ Date / Time: _____		Relinquished By: _____ Date / Time: 8/20/19	
Relinquished By: _____ Date / Time: _____		Received By: _____ Date / Time: 8/20/19 1530		Relinquished By: _____ Date / Time: _____	
Relinquished By: _____ Date / Time: _____		Received By: _____ Date / Time: _____		Relinquished By: _____ Date / Time: _____	

38 38 39 38 37 37 38



CHAIN OF CUSTODY

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TEL 732-329-0200 FAX: 732-329-3499/3480
www.sgs.com/ehsusa

Form containing Client/Reporting Information, Project Information, Billing Information, and a detailed table of samples with columns for Field ID, Date, Time, Matrix, and various analysis results. Includes handwritten notes and signatures.

Handwritten numbers: 3.8 3.8 3.9 3.8 3.7 3.7 3.8

JC93544X: Chain of Custody

Page 2 of 3



SGS Sample Receipt Summary

Job Number: JC93544

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 8/20/2019 4:32:00 PM

Delivery Method:

Airbill #s:

Cooler Temps (Raw Measured) °C: Cooler 1: (3.8); Cooler 2: (3.8); Cooler 3: (3.9); Cooler 4: (3.7); Cooler 5: (3.7); Cooler 6: (3.8); Cooler 7: (3.8);

Cooler Temps (Corrected) °C: Cooler 1: (3.7); Cooler 2: (3.7); Cooler 3: (3.8); Cooler 4: (3.6); Cooler 5: (3.6); Cooler 6: (3.7); Cooler 7: (3.7);

Cooler Security

Y or N

Y or N

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature

Y or N

- | | | |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | IR Gun | |
| 3. Cooler media: | Ice (Bag) | |
| 4. No. Coolers: | 7 | |

Quality Control Preservation

Y or N

N/A

- | | | | |
|---------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Sample Integrity - Documentation

Y or N

- | | | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Sample Integrity - Condition

Y or N

- | | | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample: | Intact | |

Sample Integrity - Instructions

Y or N

N/A

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2. Bottles received for unspecified tests | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3. Sufficient volume recvd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. Compositing instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Test Strip Lot #s: pH 1-12: 229517 pH 12+: 208717 Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

JC93544X: Chain of Custody

Page 3 of 3

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: JC94706

Sampling Date: 09/10/19

Report to:

Army Corps of Engineers

joseph.m.loeper@usace.army.mil

ATTN: Joseph Loeper

Total number of pages in report: **43**



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.

A handwritten signature in black ink, appearing to be "LDH".

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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Test results relate only to samples analyzed.

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5



Sample Summary

USACE-Philadelphia District

Job No: JC94706

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC94706-1	09/10/19	07:15 GW	09/10/19	AQ	Surface Water	BM-1S
JC94706-2	09/10/19	09:15 GW	09/10/19	AQ	Surface Water	BM-2S
JC94706-3	09/10/19	09:15 GW	09/10/19	AQ	Surface Water	BM-2M
JC94706-4	09/10/19	09:15 GW	09/10/19	AQ	Surface Water	BM-2D
JC94706-5	09/10/19	12:30 GW	09/10/19	AQ	Surface Water	BM-5S
JC94706-6	09/10/19	08:30 GW	09/10/19	AQ	Surface Water	BM-6S
JC94706-7	09/10/19	08:30 GW	09/10/19	AQ	Surface Water	BM-6M
JC94706-8	09/10/19	08:30 GW	09/10/19	AQ	Surface Water	BM-6D
JC94706-9	09/10/19	09:45 GW	09/10/19	AQ	Surface Water	BM-7S
JC94706-10	09/10/19	09:45 GW	09/10/19	AQ	Surface Water	BM-7M
JC94706-11	09/10/19	09:45 GW	09/10/19	AQ	Surface Water	BM-7D
JC94706-12	09/10/19	11:15 GW	09/10/19	AQ	Surface Water	BM-8S
JC94706-13	09/10/19	11:15 GW	09/10/19	AQ	Surface Water	BM-8M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC94706

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC94706-14	09/10/19	11:15 GW	09/10/19	AQ	Surface Water	BM-8D
JC94706-15	09/10/19	10:10 GW	09/10/19	AQ	Surface Water	BM-9S
JC94706-16	09/10/19	10:10 GW	09/10/19	AQ	Surface Water	BM-9M
JC94706-17	09/10/19	10:10 GW	09/10/19	AQ	Surface Water	BM-9D
JC94706-18	09/10/19	10:45 GW	09/10/19	AQ	Surface Water	BM-10S
JC94706-19	09/10/19	10:45 GW	09/10/19	AQ	Surface Water	BM-10M
JC94706-20	09/10/19	10:45 GW	09/10/19	AQ	Surface Water	BM-10D
JC94706-21	09/10/19	12:30 GW	09/10/19	AQ	Surface Water	BM-11S

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: USACE-Philadelphia District

Job No JC94706

Site: Philadelphia District, Reservoir Sampling

Report Date 9/26/2019 9:15:46 AM

On 09/10/2019, 21 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 4.1 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JC94706 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: GP23725

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94697-2DUP, JC94697-2MS were used as the QC samples for Nitrogen, Total Kjeldahl.

Matrix: AQ

Batch ID: GP23726

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94706-13DUP, JC94706-13MS were used as the QC samples for Nitrogen, Total Kjeldahl.

General Chemistry By Method EPA 353.2/LACHAT

Matrix: AQ

Batch ID: GP23791

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94706-1DUP, JC94706-5MS, JC94706-1MS 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.
- Matrix Spike Recovery(s) for Nitrogen, Nitrate + Nitrite 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: GP23792

- 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, 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:** R181235

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-1 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181236

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-2 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181237

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-3 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181238

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-4 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181239

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-5 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181240

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-6 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181241

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-7 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181242

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-8 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181243

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-9 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181244

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-10 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181245

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-11 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181246

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-12 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181247

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-13 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181248

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

General Chemistry By Method EPA353.2/SM4500NO2B

Matrix: AQ **Batch ID:** R181248

- JC94706-14 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181249

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-15 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181250

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-16 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181251

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-17 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181252

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-18 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181253

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-19 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181254

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-20 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

Matrix: AQ **Batch ID:** R181255

- The data for EPA353.2/SM4500NO2B meets quality control requirements.
- JC94706-21 for Nitrogen, Nitrate: Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)

General Chemistry By Method SM2320 B-11

Matrix: AQ

Batch ID: GN141

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94680-1DUP were used as the QC samples for Alkalinity, Total as CaCO₃.
- JC94706-1 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.

Matrix: AQ

Batch ID: GN142

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94706-2DUP were used as the QC samples for Alkalinity, Total as CaCO₃.
- JC94706-8 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-6 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-15 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-20 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-16 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-18 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-7 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-5 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-9 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-14 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-13 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-12 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-11 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-10 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-19 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-2 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-4 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-17 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-3 for Alkalinity, Total as CaCO₃: Sample was titrated to a final pH of 4.5.
- JC94706-21 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: GN30

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94706-1DUP, JC94706-2DUP were used as the QC samples for Solids, Total Dissolved.

Matrix: AQ

Batch ID: GN5

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

General Chemistry By Method SM2540 D-11

Matrix: AQ **Batch ID:** GN29

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94706-1DUP, JC94706-2DUP were used as the QC samples for Solids, Total Suspended.

Matrix: AQ **Batch ID:** GN4

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94679-2DUP were used as the QC samples for Solids, Total Suspended.

General Chemistry By Method SM4500NH3 H-11LACHAT

Matrix: AQ **Batch ID:** GP23764

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94697-1DUP, JC94697-1MS, JC94697-1MSD were used as the QC samples for Nitrogen, Ammonia.

Matrix: AQ **Batch ID:** GP23766

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94706-14DUP, JC94706-14MS, JC94706-14MSD were used as the QC samples for Nitrogen, Ammonia.

General Chemistry By Method SM4500NO2 B-11

Matrix: AQ **Batch ID:** GN99792

- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94706-5DUP, JC94706-5MS were used as the QC samples for Nitrogen, Nitrite.

General Chemistry By Method SM5210 B-11

Matrix: AQ

Batch ID: GP23603

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94706-1DUP, JC94706-21DUP were used as the QC samples for BOD, 5 Day.
- JC94706-12 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 lowest dilution.
- JC94706-13 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 lowest dilution.
- JC94706-9 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 lowest dilution.
- JC94706-6 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 lowest dilution.
- JC94706-11 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 lowest dilution.
- JC94706-15 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 lowest dilution.
- JC94706-7 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 lowest dilution.
- JC94706-20 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 lowest dilution.
- JC94706-14 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 lowest dilution.
- JC94706-16 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 lowest dilution.
- JC94706-2 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 lowest dilution.

General Chemistry By Method SM5310 B-11

Matrix: AQ

Batch ID: GP23783

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94702-11MS, JC94702-11MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ

Batch ID: GP23875

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94706-4MS, JC94706-4MSD were used as the QC samples for Total Organic Carbon.

Matrix: AQ

Batch ID: GP23876

- All samples were prepared within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC94706-14MS, JC94706-14MSD 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

Thursday, September 26, 2019

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Summary of Hits

Job Number: JC94706
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 09/10/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC94706-1 BM-1S

Alkalinity, Total as CaCO ₃ ^a	150	10			mg/l	SM2320 B-11
BOD, 5 Day	5.1	1.0			mg/l	SM5210 B-11
Nitrogen, Ammonia	0.32	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.3	0.20			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.5	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.25	0.10			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.66	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	231	10			mg/l	SM2540 C-11
Total Organic Carbon	2.2	1.0			mg/l	SM5310 B-11

JC94706-2 BM-2S

Alkalinity, Total as CaCO ₃ ^a	100	10			mg/l	SM2320 B-11
BOD, 5 Day ^c	1.1	1.0			mg/l	SM5210 B-11
Nitrogen, Nitrate ^b	2.2	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.3	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.12	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.45	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	184	10			mg/l	SM2540 C-11
Solids, Total Suspended	4.9	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.7	1.0			mg/l	SM5310 B-11

JC94706-3 BM-2M

Alkalinity, Total as CaCO ₃ ^a	105	10			mg/l	SM2320 B-11
BOD, 5 Day	2.6	1.0			mg/l	SM5210 B-11
Nitrogen, Nitrate ^b	2.6	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.7	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.11	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.48	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	183	10			mg/l	SM2540 C-11
Solids, Total Suspended	4.6	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.5	1.0			mg/l	SM5310 B-11

JC94706-4 BM-2D

Alkalinity, Total as CaCO ₃ ^a	150	10			mg/l	SM2320 B-11
BOD, 5 Day	4.3	1.0			mg/l	SM5210 B-11
Nitrogen, Ammonia	0.52	0.20			mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.4	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.5	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.053	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.98	0.20			mg/l	EPA 351.2/LACHAT

Summary of Hits

Job Number: JC94706
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 09/10/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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Solids, Total Dissolved		236	10		mg/l	SM2540 C-11
Solids, Total Suspended		12.2	4.0		mg/l	SM2540 D-11
Total Organic Carbon		2.8	1.0		mg/l	SM5310 B-11

JC94706-5 BM-5S

Alkalinity, Total as CaCO3 ^a		210	10		mg/l	SM2320 B-11
BOD, 5 Day		3.2	1.0		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		7.9	0.41		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		7.9	0.40		mg/l	EPA 353.2/LACHAT
Nitrogen, Total Kjeldahl		0.94	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		332	10		mg/l	SM2540 C-11
Solids, Total Suspended		46.0	4.0		mg/l	SM2540 D-11
Total Organic Carbon		2.1	1.0		mg/l	SM5310 B-11

JC94706-6 BM-6S

Alkalinity, Total as CaCO3 ^a		105	10		mg/l	SM2320 B-11
BOD, 5 Day ^c		2.2	1.0		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		2.3	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.4	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.13	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.38	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		194	10		mg/l	SM2540 C-11
Solids, Total Suspended		4.8	4.0		mg/l	SM2540 D-11
Total Organic Carbon		3.5	1.0		mg/l	SM5310 B-11

JC94706-7 BM-6M

Alkalinity, Total as CaCO3 ^a		110	10		mg/l	SM2320 B-11
BOD, 5 Day ^c		1.4	1.0		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		2.4	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.5	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.13	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.48	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		188	10		mg/l	SM2540 C-11
Solids, Total Suspended		4.0	4.0		mg/l	SM2540 D-11
Total Organic Carbon		3.3	1.0		mg/l	SM5310 B-11

JC94706-8 BM-6D

Alkalinity, Total as CaCO3 ^a		130	10		mg/l	SM2320 B-11
BOD, 5 Day		6.5	1.0		mg/l	SM5210 B-11
Nitrogen, Ammonia		0.26	0.20		mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b		3.3	0.20		mg/l	EPA353.2/SM4500NO2B

Summary of Hits

Job Number: JC94706
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 09/10/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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Nitrogen, Nitrate + Nitrite		3.5	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.21	0.10		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.37	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		254	10		mg/l	SM2540 C-11
Total Organic Carbon		2.5	1.0		mg/l	SM5310 B-11

JC94706-9 BM-7S

Alkalinity, Total as CaCO3 ^a		115	10		mg/l	SM2320 B-11
BOD, 5 Day ^c		1.0	1.0		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		2.3	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.4	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.13	0.010		mg/l	SM4500NO2 B-11
Solids, Total Dissolved		193	10		mg/l	SM2540 C-11
Solids, Total Suspended		5.0	4.0		mg/l	SM2540 D-11
Total Organic Carbon		3.0	1.0		mg/l	SM5310 B-11

JC94706-10 BM-7M

Alkalinity, Total as CaCO3 ^a		115	10		mg/l	SM2320 B-11
BOD, 5 Day		2.5	1.0		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		2.3	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.4	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.12	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.49	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		175	10		mg/l	SM2540 C-11
Solids, Total Suspended		5.0	4.0		mg/l	SM2540 D-11
Total Organic Carbon		3.0	1.0		mg/l	SM5310 B-11

JC94706-11 BM-7D

Alkalinity, Total as CaCO3 ^a		129	10		mg/l	SM2320 B-11
BOD, 5 Day ^c		2.3	1.0		mg/l	SM5210 B-11
Nitrogen, Ammonia		0.22	0.20		mg/l	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b		3.5	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		3.6	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.085	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.71	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		242	10		mg/l	SM2540 C-11
Solids, Total Suspended		20.0	4.0		mg/l	SM2540 D-11
Total Organic Carbon		2.6	1.0		mg/l	SM5310 B-11

JC94706-12 BM-8S

Alkalinity, Total as CaCO3 ^a		145	10		mg/l	SM2320 B-11
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Summary of Hits

Job Number: JC94706
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 09/10/19



Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
BOD, 5 Day ^c		1.8	1.0		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		2.2	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.3	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.10	0.010		mg/l	SM4500NO2 B-11
Solids, Total Dissolved		186	10		mg/l	SM2540 C-11
Solids, Total Suspended		5.9	4.0		mg/l	SM2540 D-11
Total Organic Carbon		3.2	1.0		mg/l	SM5310 B-11
JC94706-13 BM-8M						
Alkalinity, Total as CaCO3 ^a		110	10		mg/l	SM2320 B-11
BOD, 5 Day ^c		1.6	1.0		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		2.3	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.4	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.074	0.010		mg/l	SM4500NO2 B-11
Solids, Total Dissolved		167	10		mg/l	SM2540 C-11
Solids, Total Suspended		4.3	4.0		mg/l	SM2540 D-11
Total Organic Carbon		3.2	1.0		mg/l	SM5310 B-11
JC94706-14 BM-8D						
Alkalinity, Total as CaCO3 ^a		121	10		mg/l	SM2320 B-11
BOD, 5 Day ^c		2.1	1.0		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		2.6	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.7	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.056	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.97	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		189	10		mg/l	SM2540 C-11
Solids, Total Suspended		57.6	4.0		mg/l	SM2540 D-11
Total Organic Carbon		3.0	1.0		mg/l	SM5310 B-11
JC94706-15 BM-9S						
Alkalinity, Total as CaCO3 ^a		120	10		mg/l	SM2320 B-11
BOD, 5 Day ^c		2.3	1.0		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		2.2	0.11		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		2.3	0.10		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.11	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.46	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		186	10		mg/l	SM2540 C-11
Solids, Total Suspended		5.5	4.0		mg/l	SM2540 D-11
Total Organic Carbon		3.2	1.0		mg/l	SM5310 B-11

Summary of Hits

Job Number: JC94706
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 09/10/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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JC94706-16 BM-9M

Alkalinity, Total as CaCO3 ^a	110	10			mg/l	SM2320 B-11
BOD, 5 Day ^c	1.5	1.0			mg/l	SM5210 B-11
Nitrogen, Nitrate ^b	2.5	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.6	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.057	0.010			mg/l	SM4500NO2 B-11
Solids, Total Dissolved	188	10			mg/l	SM2540 C-11
Solids, Total Suspended	4.2	4.0			mg/l	SM2540 D-11
Total Organic Carbon	3.0	1.0			mg/l	SM5310 B-11

JC94706-17 BM-9D

Alkalinity, Total as CaCO3 ^a	160	10			mg/l	SM2320 B-11
BOD, 5 Day	2.7	1.0			mg/l	SM5210 B-11
Nitrogen, Nitrate ^b	4.6	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.6	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.038	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.52	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	255	10			mg/l	SM2540 C-11
Solids, Total Suspended	60.0	4.0			mg/l	SM2540 D-11
Total Organic Carbon	2.3	1.0			mg/l	SM5310 B-11

JC94706-18 BM-10S

Alkalinity, Total as CaCO3 ^a	130	10			mg/l	SM2320 B-11
BOD, 5 Day	3.3	1.0			mg/l	SM5210 B-11
Nitrogen, Nitrate ^b	2.5	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.6	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.068	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.51	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	183	10			mg/l	SM2540 C-11
Solids, Total Suspended	6.3	4.0			mg/l	SM2540 D-11
Total Organic Carbon	3.3	1.0			mg/l	SM5310 B-11

JC94706-19 BM-10M

Alkalinity, Total as CaCO3 ^a	117	10			mg/l	SM2320 B-11
BOD, 5 Day	4.1	1.0			mg/l	SM5210 B-11
Nitrogen, Nitrate ^b	2.6	0.11			mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.7	0.10			mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.060	0.010			mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.48	0.20			mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved	188	10			mg/l	SM2540 C-11
Solids, Total Suspended	6.9	4.0			mg/l	SM2540 D-11

Summary of Hits

Job Number: JC94706
Account: USACE-Philadelphia District
Project: Philadelphia District, Reservoir Sampling
Collected: 09/10/19



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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Total Organic Carbon		3.4	1.0		mg/l	SM5310 B-11
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JC94706-20 BM-10D

Alkalinity, Total as CaCO3 ^a		165	10		mg/l	SM2320 B-11
BOD, 5 Day ^c		2.4	1.0		mg/l	SM5210 B-11
Nitrogen, Nitrate ^b		5.6	0.31		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		5.6	0.30		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.025	0.010		mg/l	SM4500NO2 B-11
Nitrogen, Total Kjeldahl		0.27	0.20		mg/l	EPA 351.2/LACHAT
Solids, Total Dissolved		275	10		mg/l	SM2540 C-11
Solids, Total Suspended		137	4.0		mg/l	SM2540 D-11
Total Organic Carbon		2.4	1.0		mg/l	SM5310 B-11

JC94706-21 BM-11S

Alkalinity, Total as CaCO3 ^a		164	10		mg/l	SM2320 B-11
Nitrogen, Nitrate ^b		5.6	0.31		mg/l	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite		5.6	0.30		mg/l	EPA 353.2/LACHAT
Nitrogen, Nitrite		0.016	0.010		mg/l	SM4500NO2 B-11
Solids, Total Dissolved		270	10		mg/l	SM2540 C-11
Solids, Total Suspended		8.7	4.0		mg/l	SM2540 D-11
Total Organic Carbon		2.3	1.0		mg/l	SM5310 B-11

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

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

(c) Sample set up with 3 separate dilutions, but DO difference is less than 2 on all of the dilutions. Results reported are from the lowest dilution.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: BM-1S	Date Sampled: 09/10/19
Lab Sample ID: JC94706-1	Date Received: 09/10/19
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 CaCO ₃ ^a	150	10	mg/l	1	09/18/19 13:15	MS	SM2320 B-11
BOD, 5 Day	5.1	1.0	mg/l	1	09/11/19 19:42	EB	SM5210 B-11
Nitrogen, Ammonia	0.32	0.20	mg/l	1	09/19/19 15:27	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.3	0.20	mg/l	1	09/20/19 14:28	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.5	0.10	mg/l	1	09/20/19 14:28	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.25	0.10	mg/l	1	09/11/19 00:28	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.66	0.20	mg/l	1	09/19/19 11:11	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	231	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	2.2	1.0	mg/l	1	09/21/19 02:11	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-2S	Date Sampled: 09/10/19
Lab Sample ID: JC94706-2	Date Received: 09/10/19
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 CaCO ₃ ^a	100	10	mg/l	1	09/18/19 14:02	MS	SM2320 B-11
BOD, 5 Day ^b	1.1	1.0	mg/l	1	09/11/19 19:44	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 15:28	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	2.2	0.11	mg/l	1	09/20/19 14:29	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.3	0.10	mg/l	1	09/20/19 14:29	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.12	0.010	mg/l	1	09/10/19 22:52	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.45	0.20	mg/l	1	09/19/19 11:12	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	184	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	4.9	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	2.7	1.0	mg/l	1	09/21/19 02:45	CD	SM5310 B-11

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

(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 lowest dilution.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-2M	Date Sampled: 09/10/19
Lab Sample ID: JC94706-3	Date Received: 09/10/19
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 CaCO ₃ ^a	105	10	mg/l	1	09/18/19 14:02	MS	SM2320 B-11
BOD, 5 Day	2.6	1.0	mg/l	1	09/11/19 19:46	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 15:29	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.6	0.11	mg/l	1	09/20/19 14:30	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.7	0.10	mg/l	1	09/20/19 14:30	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.11	0.010	mg/l	1	09/10/19 22:52	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.48	0.20	mg/l	1	09/19/19 11:13	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	183	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	4.6	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	2.5	1.0	mg/l	1	09/21/19 02:56	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-2D		Date Sampled: 09/10/19
Lab Sample ID: JC94706-4		Date Received: 09/10/19
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 CaCO ₃ ^a	150	10	mg/l	1	09/18/19 14:02	MS	SM2320 B-11
BOD, 5 Day	4.3	1.0	mg/l	1	09/11/19 19:48	EB	SM5210 B-11
Nitrogen, Ammonia	0.52	0.20	mg/l	1	09/19/19 15:31	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.4	0.11	mg/l	1	09/20/19 14:31	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.5	0.10	mg/l	1	09/20/19 14:31	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.053	0.010	mg/l	1	09/10/19 22:52	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.98	0.20	mg/l	1	09/23/19 10:26	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	236	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	12.2	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	2.8	1.0	mg/l	1	09/25/19 21:47	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.4
4

Report of Analysis

Client Sample ID: BM-5S		Date Sampled: 09/10/19
Lab Sample ID: JC94706-5		Date Received: 09/10/19
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 CaCO ₃ ^a	210	10	mg/l	1	09/18/19 14:02	MS	SM2320 B-11
BOD, 5 Day	3.2	1.0	mg/l	1	09/11/19 20:00	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 15:32	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	7.9	0.41	mg/l	1	09/20/19 15:48	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	7.9	0.40	mg/l	4	09/20/19 15:48	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	< 0.010	0.010	mg/l	1	09/10/19 22:52	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.94	0.20	mg/l	1	09/19/19 11:14	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	332	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	46.0	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	2.1	1.0	mg/l	1	09/25/19 22:21	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.5
4

Report of Analysis

Client Sample ID: BM-6S	Date Sampled: 09/10/19
Lab Sample ID: JC94706-6	Date Received: 09/10/19
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 CaCO ₃ ^a	105	10	mg/l	1	09/18/19 14:02	MS	SM2320 B-11
BOD, 5 Day ^b	2.2	1.0	mg/l	1	09/11/19 20:02	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 15:34	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	2.3	0.11	mg/l	1	09/20/19 14:36	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.4	0.10	mg/l	1	09/20/19 14:36	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.13	0.010	mg/l	1	09/10/19 22:52	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.38	0.20	mg/l	1	09/19/19 11:15	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	194	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	4.8	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	3.5	1.0	mg/l	1	09/25/19 22:33	CD	SM5310 B-11

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

(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 lowest dilution.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-6M	Date Sampled: 09/10/19
Lab Sample ID: JC94706-7	Date Received: 09/10/19
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 CaCO ₃ ^a	110	10	mg/l	1	09/18/19 14:02	MS	SM2320 B-11
BOD, 5 Day ^b	1.4	1.0	mg/l	1	09/11/19 20:03	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 15:35	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	2.4	0.11	mg/l	1	09/20/19 14:37	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.5	0.10	mg/l	1	09/20/19 14:37	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.13	0.010	mg/l	1	09/10/19 23:09	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.48	0.20	mg/l	1	09/19/19 11:16	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	188	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	4.0	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	3.3	1.0	mg/l	1	09/25/19 22:44	CD	SM5310 B-11

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

(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 lowest dilution.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-6D		Date Sampled: 09/10/19
Lab Sample ID: JC94706-8		Date Received: 09/10/19
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 CaCO ₃ ^a	130	10	mg/l	1	09/18/19 14:51	MS	SM2320 B-11
BOD, 5 Day	6.5	1.0	mg/l	1	09/11/19 20:05	EB	SM5210 B-11
Nitrogen, Ammonia	0.26	0.20	mg/l	1	09/19/19 15:37	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	3.3	0.20	mg/l	1	09/20/19 14:38	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.5	0.10	mg/l	1	09/20/19 14:38	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.21	0.10	mg/l	1	09/11/19 00:47	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.37	0.20	mg/l	1	09/19/19 11:17	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	254	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	< 4.0	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	2.5	1.0	mg/l	1	09/25/19 22:55	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.8
4

Report of Analysis

Client Sample ID: BM-7S	Date Sampled: 09/10/19
Lab Sample ID: JC94706-9	Date Received: 09/10/19
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 CaCO ₃ ^a	115	10	mg/l	1	09/18/19 14:51	MS	SM2320 B-11
BOD, 5 Day ^b	1.0	1.0	mg/l	1	09/11/19 20:07	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 15:41	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	2.3	0.11	mg/l	1	09/20/19 14:39	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.4	0.10	mg/l	1	09/20/19 14:39	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.13	0.010	mg/l	1	09/10/19 23:09	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/19/19 11:18	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	193	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	5.0	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	3.0	1.0	mg/l	1	09/25/19 23:07	CD	SM5310 B-11

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

(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 lowest dilution.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-7M	Date Sampled: 09/10/19
Lab Sample ID: JC94706-10	Date Received: 09/10/19
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 CaCO ₃ ^a	115	10	mg/l	1	09/18/19 14:51	MS	SM2320 B-11
BOD, 5 Day	2.5	1.0	mg/l	1	09/11/19 20:09	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 15:42	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.3	0.11	mg/l	1	09/20/19 14:40	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.4	0.10	mg/l	1	09/20/19 14:40	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.12	0.010	mg/l	1	09/10/19 23:09	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.49	0.20	mg/l	1	09/19/19 11:20	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	175	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	5.0	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	3.0	1.0	mg/l	1	09/25/19 23:45	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-7D	Date Sampled: 09/10/19
Lab Sample ID: JC94706-11	Date Received: 09/10/19
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 CaCO ₃ ^a	129	10	mg/l	1	09/18/19 14:51	MS	SM2320 B-11
BOD, 5 Day ^b	2.3	1.0	mg/l	1	09/11/19 20:11	EB	SM5210 B-11
Nitrogen, Ammonia	0.22	0.20	mg/l	1	09/19/19 15:44	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	3.5	0.11	mg/l	1	09/20/19 14:42	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	3.6	0.10	mg/l	1	09/20/19 14:42	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.085	0.010	mg/l	1	09/10/19 23:09	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.71	0.20	mg/l	1	09/19/19 11:21	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	242	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	20.0	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	2.6	1.0	mg/l	1	09/25/19 23:55	CD	SM5310 B-11

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

(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 lowest dilution.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-8S	Date Sampled: 09/10/19
Lab Sample ID: JC94706-12	Date Received: 09/10/19
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 CaCO ₃ ^a	145	10	mg/l	1	09/18/19 14:51	MS	SM2320 B-11
BOD, 5 Day ^b	1.8	1.0	mg/l	1	09/11/19 20:13	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 15:45	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	2.2	0.11	mg/l	1	09/20/19 14:43	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.3	0.10	mg/l	1	09/20/19 14:43	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.10	0.010	mg/l	1	09/10/19 23:09	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/19/19 11:22	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	186	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	5.9	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	3.2	1.0	mg/l	1	09/26/19 00:07	CD	SM5310 B-11

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

(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 lowest dilution.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-8M	Date Sampled: 09/10/19
Lab Sample ID: JC94706-13	Date Received: 09/10/19
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 CaCO ₃ ^a	110	10	mg/l	1	09/18/19 14:51	MS	SM2320 B-11
BOD, 5 Day ^b	1.6	1.0	mg/l	1	09/11/19 20:14	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 15:47	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	2.3	0.11	mg/l	1	09/20/19 14:44	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.4	0.10	mg/l	1	09/20/19 14:44	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.074	0.010	mg/l	1	09/10/19 23:09	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/19/19 11:27	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	167	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	4.3	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	3.2	1.0	mg/l	1	09/26/19 00:18	CD	SM5310 B-11

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

(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 lowest dilution.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-8D		Date Sampled: 09/10/19
Lab Sample ID: JC94706-14		Date Received: 09/10/19
Matrix: AQ - Surface Water		Percent Solids: n/a
Project: Philadelphia District, Reservoir Sampling		

4.14
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃ ^a	121	10	mg/l	1	09/18/19 14:51	MS	SM2320 B-11
BOD, 5 Day ^b	2.1	1.0	mg/l	1	09/11/19 20:16	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 15:58	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	2.6	0.11	mg/l	1	09/20/19 14:45	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.7	0.10	mg/l	1	09/20/19 14:45	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.056	0.010	mg/l	1	09/10/19 23:09	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.97	0.20	mg/l	1	09/19/19 11:28	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	189	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	57.6	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	3.0	1.0	mg/l	1	09/26/19 01:07	CD	SM5310 B-11

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

(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 lowest dilution.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9S		Date Sampled: 09/10/19
Lab Sample ID: JC94706-15		Date Received: 09/10/19
Matrix: AQ - Surface Water		Percent Solids: n/a
Project: Philadelphia District, Reservoir Sampling		

4.15
4

General Chemistry

Analyte	Result	RL	Units	DF	Analyzed	By	Method
Alkalinity, Total as CaCO ₃ ^a	120	10	mg/l	1	09/18/19 14:51	MS	SM2320 B-11
BOD, 5 Day ^b	2.3	1.0	mg/l	1	09/11/19 20:20	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 16:00	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	2.2	0.11	mg/l	1	09/20/19 14:46	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.3	0.10	mg/l	1	09/20/19 14:46	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.11	0.010	mg/l	1	09/10/19 23:09	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.46	0.20	mg/l	1	09/19/19 11:31	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	186	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	5.5	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	3.2	1.0	mg/l	1	09/26/19 01:40	CD	SM5310 B-11

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

(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 lowest dilution.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9M	Date Sampled: 09/10/19
Lab Sample ID: JC94706-16	Date Received: 09/10/19
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 CaCO ₃ ^a	110	10	mg/l	1	09/18/19 14:51	MS	SM2320 B-11
BOD, 5 Day ^b	1.5	1.0	mg/l	1	09/11/19 20:22	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 16:01	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	2.5	0.11	mg/l	1	09/20/19 14:49	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.6	0.10	mg/l	1	09/20/19 14:49	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.057	0.010	mg/l	1	09/10/19 23:09	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/19/19 11:32	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	188	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	4.2	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	3.0	1.0	mg/l	1	09/26/19 02:17	CD	SM5310 B-11

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

(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 lowest dilution.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-9D	Date Sampled: 09/10/19
Lab Sample ID: JC94706-17	Date Received: 09/10/19
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 CaCO ₃ ^a	160	10	mg/l	1	09/18/19 14:51	MS	SM2320 B-11
BOD, 5 Day	2.7	1.0	mg/l	1	09/11/19 20:24	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 16:03	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	4.6	0.11	mg/l	1	09/20/19 14:51	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	4.6	0.10	mg/l	1	09/20/19 14:51	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.038	0.010	mg/l	1	09/10/19 23:26	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.52	0.20	mg/l	1	09/19/19 11:33	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	255	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	60.0	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	2.3	1.0	mg/l	1	09/26/19 02:28	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-10S	Date Sampled: 09/10/19
Lab Sample ID: JC94706-18	Date Received: 09/10/19
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 CaCO ₃ ^a	130	10	mg/l	1	09/18/19 14:56	MS	SM2320 B-11
BOD, 5 Day	3.3	1.0	mg/l	1	09/11/19 20:26	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 16:04	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.5	0.11	mg/l	1	09/20/19 14:52	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.6	0.10	mg/l	1	09/20/19 14:52	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.068	0.010	mg/l	1	09/10/19 23:26	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.51	0.20	mg/l	1	09/19/19 11:34	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	183	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	6.3	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	3.3	1.0	mg/l	1	09/26/19 02:40	CD	SM5310 B-11

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

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

RL = Reporting Limit

4.18
4

Report of Analysis

Client Sample ID: BM-10M	Date Sampled: 09/10/19
Lab Sample ID: JC94706-19	Date Received: 09/10/19
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 CaCO ₃ ^a	117	10	mg/l	1	09/18/19 14:56	MS	SM2320 B-11
BOD, 5 Day	4.1	1.0	mg/l	1	09/11/19 20:28	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 16:05	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	2.6	0.11	mg/l	1	09/20/19 14:53	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	2.7	0.10	mg/l	1	09/20/19 14:53	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.060	0.010	mg/l	1	09/10/19 23:26	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.48	0.20	mg/l	1	09/19/19 11:35	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	188	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	6.9	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	3.4	1.0	mg/l	1	09/26/19 02:51	CD	SM5310 B-11

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

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-10D	Date Sampled: 09/10/19
Lab Sample ID: JC94706-20	Date Received: 09/10/19
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 CaCO ₃ ^a	165	10	mg/l	1	09/18/19 14:56	MS	SM2320 B-11
BOD, 5 Day ^b	2.4	1.0	mg/l	1	09/11/19 20:30	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 16:07	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^c	5.6	0.31	mg/l	1	09/20/19 15:49	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.6	0.30	mg/l	3	09/20/19 15:49	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.025	0.010	mg/l	1	09/10/19 23:26	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	0.27	0.20	mg/l	1	09/19/19 11:36	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	275	10	mg/l	1	09/16/19 08:00	RC	SM2540 C-11
Solids, Total Suspended	137	4.0	mg/l	1	09/16/19 09:44	RC	SM2540 D-11
Total Organic Carbon	2.4	1.0	mg/l	1	09/26/19 03:02	CD	SM5310 B-11

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

(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 lowest dilution.

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

RL = Reporting Limit

Report of Analysis

Client Sample ID: BM-11S	Date Sampled: 09/10/19
Lab Sample ID: JC94706-21	Date Received: 09/10/19
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 CaCO ₃ ^a	164	10	mg/l	1	09/18/19 14:56	MS	SM2320 B-11
BOD, 5 Day	< 1.0	1.0	mg/l	1	09/11/19 21:48	EB	SM5210 B-11
Nitrogen, Ammonia	< 0.20	0.20	mg/l	1	09/19/19 16:08	KI	SM4500NH3 H-11LACHAT
Nitrogen, Nitrate ^b	5.6	0.31	mg/l	1	09/20/19 15:50	KI	EPA353.2/SM4500NO2B
Nitrogen, Nitrate + Nitrite	5.6	0.30	mg/l	3	09/20/19 15:50	KI	EPA 353.2/LACHAT
Nitrogen, Nitrite	0.016	0.010	mg/l	1	09/10/19 23:26	CM	SM4500NO2 B-11
Nitrogen, Total Kjeldahl	< 0.20	0.20	mg/l	1	09/19/19 11:44	KI	EPA 351.2/LACHAT
Solids, Total Dissolved	270	10	mg/l	1	09/15/19 12:14	RC	SM2540 C-11
Solids, Total Suspended	8.7	4.0	mg/l	1	09/15/19 09:46	RC	SM2540 D-11
Total Organic Carbon	2.3	1.0	mg/l	1	09/26/19 03:14	CD	SM5310 B-11

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

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

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



CHAIN OF CUSTODY

SGS North America Inc. - Dayton
2235 Route 130, Dayton, NJ 08810
TEL: 732-329-0200 FAX: 732-329-3489/3480
www.sgs.com/ehsusa

Client / Reporting Information Company Name: U.S. Army Corps of Engineers Street Address: 100 Penn Sq East City: Phila. PA State: PA Zip: 19107 Project Contact: Joe Cooper Phone #: 215-656-6545			Project Information Project Name: USACE Reservoirs - Blue Marsh Street: _____ Billing Information (if different from Report to): Company Name: Reading PA Project #: _____ Street Address: _____ Client Purchase Order #: _____ City: _____ State: _____ Zip: _____ Sample(s) Name(s): 610 - Project Manager: Tommy McCleskey Attention: _____ Phone #: 610-547-9780					FED-EX Tracking # _____ Bulk Order Control # _____ SGS Order # _____ SGS Job # JC94706		Requested Analysis Matrix Codes: DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OL - Oil LO - Other Liquid AR - Air SOL - Other Solids WP - Waste FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank LAB USE ONLY 31 63872 19B 5UB				
Turn Around Time (Business Days) <input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input checked="" type="checkbox"/> 3 Business Days <input type="checkbox"/> 2 Business Days <input type="checkbox"/> 1 Business Day <input type="checkbox"/> Other _____ All data available <input type="checkbox"/> <input checked="" type="checkbox"/>	Approved By (SGS PA): / Date: INITIAL ASSESSMENT _____ LABEL VERIFICATION _____ Approval needed for 1-3 Business Day TAT		Deliverable <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKQP			<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format		Comments / Special Instructions INITIAL ASSESSMENT _____ LABEL VERIFICATION _____ http://www.sgs.com/en/terms-and-conditions						
Relinquished By: _____ Date / Time: _____ Relinquished By: _____ Date / Time: _____ Relinquished By: _____ Date / Time: _____ Relinquished By: _____ Date / Time: _____	Date / Time: _____ Received By: _____ Date / Time: _____ Received By: _____ Date / Time: _____ Received By: _____			Date / Time: _____ Received By: _____ Date / Time: _____ Received By: _____ Date / Time: _____ Received By: _____										
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Relinquished By: _____ Date / Time: _____	Date / Time: _____ Received By: _____		Date / Time: _____ Received By: _____			Date / Time: _____ Received By: _____								

TPO4 (Sub to M.J. Reiter)
 Alkalinity, Ammonia,
 BOD, Total Diss. Solids,
 TKN, TOC, TSS,
 XN030

3-6 284-1
 3-2 893-6
 4-2 893-6





CHAIN OF CUSTODY

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

Client / Reporting Information		Project Information		FED-Ex Tracking #		Batch Order / Courier #									
Company Name: U.S. Army Corps of Eng		Project Name: USACE Reservoirs - Blue Marsh		SGS Quote #		SGS Job # JC94706									
Street Address: 100 Penn Sq East		Street:		Requested Analysis				Matrix Codes							
City State Zip: Phila PA 19107		City State: Reading PA													
Project Contact: Joe Looper		Project #:		IPOH (sub to MS Resider) Alkalinity, Ammonia, BOD, TDS, TKN, TOC, TSS, XMO30				DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OL - Oil LIQ - Other Liquids AFR - Air SOL - Other Solids WIP - Waste FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank							
Phone #: 215-656-6545		Client Purchase Order #:													
Sample(s) Name(s): Greg Wacik 610-377-9780		Project Manager: Tammy McCluskey		Billing Information (if different from Report to)				LAB USE ONLY							
Field ID / Point of Collection		MECHID / Val #		Date / Time		Sampled		Size (if Core IC)		Matrix		# of bottles		Number of preserved Subsets	
12F BM-8S				9/10/19 1115		7		G SW		9		X		X	
13F BM-8M				1115		G SW		9		X		X		X	
14F BM-8D				1115		G SW		9		X		X		X	
15F BM-9S				1010		G SW		9		X		X		X	
16F BM-9M				1010		G SW		9		X		X		X	
17F BM-9D				1010		G SW		9		X		X		X	
18F BM-10S				1045		G SW		9		X		X		X	
19F BM-10M				1045		G SW		9		X		X		X	
20F BM-10D				1045		G SW		9		X		X		X	
21F BM-11S				1230		G SW		9		X		X		X	
Turn Around Time (Business Days)		Approved By (SGS PE) / Date:		Deliverable		Comments / Special Instructions									
<input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days* <input type="checkbox"/> 2 Business Days** <input type="checkbox"/> 1 Business Day* <input type="checkbox"/> Other _____		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ OKGP		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Form <input type="checkbox"/> EDD Format		<input type="checkbox"/> DOD-QS45									
All data available on Label		Approval needed for 1-3 Business Day TAT		Commercial "A" = Results only; Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data		http://www.sgs.com/en/terms-and-conditions									
Retrieved by: [Signature]		Date / Time: 9/10/19 2:50		Retrieved by: [Signature]		Date / Time: 9/10/19 17:00									
Retrieved by: [Signature]		Date / Time: 3		Retrieved by: [Signature]		Date / Time: 4									
Retrieved by: [Signature]		Date / Time: 5		Retrieved by: [Signature]		Date / Time: 4									
Custody Seal #		<input type="checkbox"/> Intact <input type="checkbox"/> Not intact		Preserved when applicable		<input type="checkbox"/> On Ice <input type="checkbox"/> Cooler Temp. °C									

5.1 5

JC94706: Chain of Custody

Page 2 of 4





CHAIN OF CUSTODY

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

Client / Reporting Information		Project Information		FED-EX Tracking #	Batch Order Control #
Company Name: USACE - Phila. District Street Address: 100 Penn Sq. East City: Phila. PA State: PA Zip: 19107		Project Name: USACE Reservoirs - Blue Marsh Street: _____ Billing Information (if different from Report to) Company Name: _____		SGS Order #	SGS Job # JC94706
Project Contact: Joe Loeper E-mail: _____ Phone #: 215-656-6545		Client Purchase Order # _____ Project Manager: Tammy McGosky		Requested Analysis Matrix Codes DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SD - Sed. SL - Sludge SED - Sediment CI - Oil LI - Other Liquid AIR - Air SOL - Other Solids WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rins. Blank TB - Trip Blank	
Sample(s) Name(s): _____ Project Manager: Tammy McGosky		Project # _____ Street Address: _____ City: _____ State: _____ Zip: _____			
Turn Around Time (Business Days) <input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days* <input type="checkbox"/> 2 Business Days* <input type="checkbox"/> 1 Business Day* <input type="checkbox"/> Other _____		Deliverable <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ DKGP <input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Forms <input type="checkbox"/> EDB Format <input type="checkbox"/> DOD-OS&S			
Approved By (SGS P&I): _____ Date: _____		Comments / Special Instructions _____ _____		LAB USE ONLY	
All data available on Lablink		* Approval needed for 1-3 Business Day TAT		Commercial "A" = Results only; Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data Sample Custody must be documented below each time sample changes possession, including courier delivery. http://www.sgs.com/en/terms-and-conditions	
Relinquished by: [Signature]	Date / Time: 9/10/19 2:00	Received By: [Signature]	Date / Time: _____	Relinquished by: [Signature]	Date / Time: 9/10/19 16:06
Relinquished by: _____	Date / Time: _____	Received By: _____	Date / Time: _____	Relinquished by: _____	Date / Time: _____
Relinquished by: _____	Date / Time: _____	Received By: _____	Date / Time: _____	Relinquished by: _____	Date / Time: _____
Intact <input type="checkbox"/> Not intact <input type="checkbox"/> Preserved where applicable <input type="checkbox"/> Absent <input type="checkbox"/>		Therm. ID: _____		On Ice <input type="checkbox"/> Cooler Temp. °C: 2.16	

Fecal and Total Coliforms

JC94706: Chain of Custody

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9/10/19
16:06



SGS Sample Receipt Summary

Job Number: JC94706

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 9/10/2019 5:20:00 PM

Delivery Method:

Airbill #s:

Cooler Temps (Raw Measured) °C: Cooler 1: (3.6); Cooler 2: (3.2); Cooler 3: (4.2); Cooler 4: (3.8); Cooler 5: (3.9); Cooler 6: (4.1); Cooler 7: (3.6);

Cooler Temps (Corrected) °C: Cooler 1: (3.5); Cooler 2: (3.1); Cooler 3: (4.1); Cooler 4: (3.7); Cooler 5: (3.8); Cooler 6: (4.0); Cooler 7: (3.5);

Cooler Security

Y or N

Y or N

- | | | | | | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature

Y or N

- | | | |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | IR Gun | |
| 3. Cooler media: | Ice (Bag) | |
| 4. No. Coolers: | 7 | |

Quality Control Preservation

Y or N

N/A

- | | | | |
|---------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Sample Integrity - Documentation

Y or N

- | | | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Sample Integrity - Condition

Y or N

- | | | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample: | Intact | |

Sample Integrity - Instructions

Y or N

N/A

- | | | | |
|---|-------------------------------------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2. Bottles received for unspecified tests | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 3. Sufficient volume recvd for analysis: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4. Compositing instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Test Strip Lot #s: pH 1-12: 229517 pH 12+: 208717 Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

JC94706: Chain of Custody

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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: JC94706XA

Sampling Date: 09/10/19

Report to:

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.

A handwritten signature in black ink, appearing to read "Mike Earp".

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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Test results relate only to samples analyzed.

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Section 1: Sample Summary	3
Section 2: Subcontract Lab Data	4
Section 3: Misc. Forms	13
3.1: Chain of Custody	14



Sample Summary

USACE-Philadelphia District

Job No: JC94706XA

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Matrix Received	Code	Type	Client Sample ID
	Date	Time By				
JC94706-1XA	09/10/19	07:15 GW	09/10/19	AQ	Surface Water	BM-1S
JC94706-2XA	09/10/19	09:15 GW	09/10/19	AQ	Surface Water	BM-2S
JC94706-5XA	09/10/19	12:30 GW	09/10/19	AQ	Surface Water	BM-5S
JC94706-6XA	09/10/19	08:30 GW	09/10/19	AQ	Surface Water	BM-6S
JC94706-9XA	09/10/19	09:45 GW	09/10/19	AQ	Surface Water	BM-7S
JC94706-12XA	09/10/19	11:15 GW	09/10/19	AQ	Surface Water	BM-8S
JC94706-15XA	09/10/19	10:10 GW	09/10/19	AQ	Surface Water	BM-9S
JC94706-18XA	09/10/19	10:45 GW	09/10/19	AQ	Surface Water	BM-10S
JC94706-21XA	09/10/19	12:30 GW	09/10/19	AQ	Surface Water	BM-11S

Subcontract Lab Data

Report of Analysis

Serialized: 09/14/2019 08:25am 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:

L7159333



Authorized by: Douglas J. Gump
Client Services Manager

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

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

P.O. No:

Inv. No: 1991698 PI
PWSID No:

Sample ID	Sample Description	Samp. Date/Time/Temp	Sampled by
L7159333-1	BLUE MARSH, BM-1S	09/10/19 07:15am NA C	Customer
	Received Date/Time/Temp 09/10/19 04:06pm 2.6 C Iced (Y/N): Y		

Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOLOGY -- BLUE MARSH, BM-1S						
Total Coliform, MF	>2000 E	cfu/100ml	SM 9222B	10	10	09/10/19 07:49PM JG2
Fecal Coliform, MF	2	cfu/100ml	SM 9222D	100	1	09/10/19 06:00PM SRK

Sample ID	Sample Description	Samp. Date/Time/Temp	Sampled by
L7159333-2	BM-2S	09/10/19 09:15am NA C	Customer
	Received Date/Time/Temp 09/10/19 04:06pm 2.6 C Iced (Y/N): Y		

Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
ENVIRONMENTAL MICROBIOLOGY -- BM-2S						
Total Coliform, MF	>200 E	cfu/100ml	SM 9222B	100	1	09/10/19 07:49PM JG2
Fecal Coliform, MF	1	cfu/100ml	SM 9222D	100	1	09/10/19 06:00PM SRK

PIN: 28748

Serial Number: 6544141

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

P.O. No:

Inv. No: 1991698 PI
PWSID No:

Sample ID L7159333-3	Sample Description BM-5S	Received Date/Time/Temp 09/10/19 04:06pm 2.6 C	Iced (Y/N): Y	Samp. Date/Time/Temp 09/10/19 12:30pm NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-5S

Total Coliform, MF	CONFLUENT GROWTH	cfu/100ml	SM 9222B	10	10	09/10/19 07:49PM JG2
Fecal Coliform, MF	>600 E	cfu/100ml	SM 9222D	10	10	09/10/19 06:00PM SRK

Sample ID L7159333-4	Sample Description BM-6S	Received Date/Time/Temp 09/10/19 04:06pm 2.6 C	Iced (Y/N): Y	Samp. Date/Time/Temp 09/10/19 08:30am NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-6S

Total Coliform, MF	>200 E	cfu/100ml	SM 9222B	100	1	09/10/19 07:49PM JG2
Fecal Coliform, MF	1	cfu/100ml	SM 9222D	100	1	09/10/19 06:00PM SRK

Sample ID L7159333-5	Sample Description BM-7S	Received Date/Time/Temp 09/10/19 04:06pm 2.6 C	Iced (Y/N): Y	Samp. Date/Time/Temp 09/10/19 09:45am NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-7S

Total Coliform, MF	>2000 E	cfu/100ml	SM 9222B	10	10	09/10/19 07:49PM JG2
Fecal Coliform, MF	<1	cfu/100ml	SM 9222D	100	1	09/10/19 06:00PM SRK

Sample ID L7159333-6	Sample Description BM-8S	Received Date/Time/Temp 09/10/19 04:06pm 2.6 C	Iced (Y/N): Y	Samp. Date/Time/Temp 09/10/19 11:15am NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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PIN: 28748

Serial Number: 6544141

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

P.O. No:

Inv. No: 1991698 PI
PWSID No:

Sample ID L7159333-6	Sample Description BM-8S	Received Date/Time/Temp 09/10/19 04:06pm 2.6 C	Iced (Y/N): Y	Samp. Date/Time/Temp 09/10/19 11:15am NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-8S

Total Coliform, MF	1380 E	cfu/100ml	SM 9222B	10	10	09/10/19 07:49PM JG2
Fecal Coliform, MF	<1	cfu/100ml	SM 9222D	100	1	09/10/19 06:00PM SRK

Sample ID L7159333-7	Sample Description BM-9S	Received Date/Time/Temp 09/10/19 04:06pm 2.6 C	Iced (Y/N): Y	Samp. Date/Time/Temp 09/10/19 10:10am NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-9S

Total Coliform, MF	>2000 E	cfu/100ml	SM 9222B	10	10	09/10/19 07:49PM JG2
Fecal Coliform, MF	4	cfu/100ml	SM 9222D	100	1	09/10/19 06:00PM SRK

Sample ID L7159333-8	Sample Description BM-10S	Received Date/Time/Temp 09/10/19 04:06pm 2.6 C	Iced (Y/N): Y	Samp. Date/Time/Temp 09/10/19 10:45am NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-10S

Total Coliform, MF	930 E	cfu/100ml	SM 9222B	10	10	09/10/19 07:49PM JG2
Fecal Coliform, MF	1	cfu/100ml	SM 9222D	100	1	09/10/19 06:00PM SRK

Sample ID L7159333-9	Sample Description BM-11S	Received Date/Time/Temp 09/10/19 04:06pm 2.6 C	Iced (Y/N): Y	Samp. Date/Time/Temp 09/10/19 12:30pm NA C	Sampled by Customer
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Parameter	Result	Qual Units	Method	DF	RL	Test Date, Time, Analyst
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PIN: 28748

Serial Number: 6544141

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

P.O. No:

Inv. No: 1991698 PI
PWSID No:

Sample ID	Sample Description	Samp. Date/Time/Temp	Sampled by
L7159333-9	BM-11S	09/10/19 12:30pm NA C	Customer
	Received Date/Time/Temp 09/10/19 04:06pm 2.6 C Iced (Y/N): Y		

Parameter	Result	Qual	Units	Method	DF	RL	Test Date, Time, Analyst
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ENVIRONMENTAL MICROBIOLOGY -- BM-11S

Total Coliform, MF	CONFLUENT GROWTH		cfu/100ml	SM 9222B	10	10	09/10/19 07:49PM JG2
Fecal Coliform, MF	310		cfu/100ml	SM 9222D	10	10	09/10/19 06:00PM SRK

Sample Comments | Result Qualifiers:

L7159333-1 :

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.

L7159333-2 :

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.

L7159333-3 :

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.

L7159333-4 :

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.

L7159333-5 :

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.

L7159333-6 :

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.

L7159333-7 :

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.

L7159333-8 :

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: 6544141

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

P.O. No:

Inv. No: 1991698 PI
PWSID No:



PIN: 28748

Serial Number: 6544141

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

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



SW

CHAIN OF CUSTODY

SGS North America Inc. - Dayton
 2235 Route 130, Dayton, NJ 08810
 TEL: 732-329-0200 FAX: 732-329-3489/3480
 www.sgs.com/ehsusa

E

FED-EX Tracking # SGS Order #		Batch Order Control # SGS Job # JC94706	
Client / Reporting Information Company Name: U.S Army Corps of Engineers Street Address: 100 Penn Sq East City: Phila. State: PA Zip: 19107 Project Contact: Joe Cooper Phone #: 215-656-6545		Project Information Project Name: USACE Reservoirs - Blue Marsh Street: _____ Billing Information (if different from Report to): Company Name: _____ Project #: _____ Street Address: _____ Client Purchase Order #: _____ City: _____ State: _____ Zip: _____ Sample(s) Name(s): 610 Phone #: _____ Project Manager: Tommy McCleskey Attention: _____	
Requested Analysis TPO4 (Sub to MJ Reiter) Alkalinity, Ammonia, BOD, Total Diss. Solids, TKN, TOC, TSS, XN030		Matrix Codes DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solids WP - Waste FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
Collection MEQND# Val # _____ Date _____ Time _____ Sampled by: _____ Site ID (Core ID): _____ Matrix: _____ # of Isolates: _____ Parameters: <input checked="" type="checkbox"/> pH <input checked="" type="checkbox"/> NH4 <input checked="" type="checkbox"/> NH3 <input checked="" type="checkbox"/> HNO3 <input checked="" type="checkbox"/> H2O2 <input checked="" type="checkbox"/> NO3 <input checked="" type="checkbox"/> DI Volume <input checked="" type="checkbox"/> MEQND <input checked="" type="checkbox"/> BOD/TOC		LAB USE ONLY Turn Around Time (Business Days) _____ Approved By (SGS PM) / Date: _____ INITIAL ASSESSMENT _____ LABEL VERIFICATION _____ Comments / Special Instructions: _____	
Deliverable <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> NYASP Category A <input type="checkbox"/> DOD-QSAS <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NYASP Category B <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> Full Tier 1 (Level 4) <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> Commercial "C" <input type="checkbox"/> State Forms <input type="checkbox"/> NJ DKOP <input type="checkbox"/> EDD Format		Approved for 1-3 Business Day TAT Commercial "A" = Results only; Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data http://www.sgs.com/en/terms-and-conditions	
Relinquished By: _____ Date / Time: _____ Relinquished By: _____ Date / Time: _____ Relinquished By: _____ Date / Time: _____		Received By: _____ Date / Time: _____ Received By: _____ Date / Time: _____ Received By: _____ Date / Time: _____	
Custody Seal # _____ <input type="checkbox"/> Inset <input type="checkbox"/> Preserved where applicable <input type="checkbox"/> Not used <input type="checkbox"/> Assent <input type="checkbox"/> Therm. ID: _____ On Ice <input type="checkbox"/> Cooler Temp. °C _____		3.6 3.2 4.2	

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JC94706XA: Chain of Custody





CHAIN OF CUSTODY

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

Client / Reporting Information		Project Information		FED-Ex Tracking #		Batch Order / Courier #	
Company Name: U.S. Army Corps of Eng		Project Name: USACE Reservoirs - Blue Marsh		SGS Quote #		SGS Job # JC94706	
Street Address: 100 Penn Sq. East		Street: Reading PA		Requested Analysis:		Matrix Codes:	
City, State, Zip: Phila. PA 19107		Billing Information (if different from Report to): Company Name: Reading PA		I.P.O.H. (sub to M.S. Resider) Alkalinity, Ammonia, B.O.D., T.D.S., T.K.N., T.O.C., T.S.S., X.M.O.3.0		DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OIL - OIL LIQ - Other Liquids AIR - Air SOL - Other Solids WIP - Waste FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank	
Project Contact: Joe Looper		Project #:					
Phone #: 215-656-6545		Client Purchase Order #:		Number of preserved Subsets:		LAB USE ONLY	
Semester(s) Name(s): Greg Wacik 610-347-9780		Project Manager: Tammy McCluskey		Collection:			
Field ID / Point of Collection		MECHID / Vol #		Date		Time	
12F BM-8S				9/10/19		1115	
13F BM-8M				1115		1115	
14F BM-8D				1115		1115	
15F BM-9S				1010		1010	
16F BM-9M				1010		1010	
17F BM-9D				1010		1010	
18F BM-10S				1045		1045	
19F BM-10M				1045		1045	
20F BM-10D				1045		1045	
21F BM-11S				1230		1230	
Turn Around Time (Business Days)		Approved By (SGS P#): / Date:		Deliverable		Comments / Special Instructions	
<input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days* <input type="checkbox"/> 2 Business Days* <input type="checkbox"/> 1 Business Day* <input type="checkbox"/> Other		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ OKGP		<input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> State Form <input type="checkbox"/> EDD Format		<input type="checkbox"/> DOD-QS45	
All data available on Label		Approval needed for 1-3 Business Day TAT		Commercial "A" = Results only; Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data		http://www.sgs.com/en/terms-and-conditions	
Relinquished by: [Signature]		Date / Time: 9/10/19 2:50		Relinquished by: [Signature]		Date / Time: 9/10/19 17:00	
Relinquished by: [Signature]		Date / Time: 3		Relinquished by: [Signature]		Date / Time: 4	
Relinquished by: [Signature]		Date / Time: 5		Relinquished by: [Signature]		Date / Time: 4	
Custody Seal #		Intact		Preserved where applicable		On Ice	
		Not intact		Absent		Therm. ID	

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JC94706XA: Chain of Custody

Page 2 of 4



SGS Sample Receipt Summary

Job Number: JC94706

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 9/10/2019 5:20:00 PM

Delivery Method:

Airbill #s:

Cooler Temps (Raw Measured) °C: Cooler 1: (3.6); Cooler 2: (3.2); Cooler 3: (4.2); Cooler 4: (3.8); Cooler 5: (3.9); Cooler 6: (4.1); Cooler 7: (3.6);

Cooler Temps (Corrected) °C: Cooler 1: (3.5); Cooler 2: (3.1); Cooler 3: (4.1); Cooler 4: (3.7); Cooler 5: (3.8); Cooler 6: (4.0); Cooler 7: (3.5);

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>	
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	IR Gun	
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	7	

<u>Quality Control Preservation</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Trip Blank listed on COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Samples preserved properly:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. VOCs headspace free:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y or N</u>	
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y or N</u>	
1. Sample recvd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Condition of sample:	Intact	

<u>Sample Integrity - Instructions</u>	<u>Y</u>	<u>or</u>	<u>N</u>	<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Bottles received for unspecified tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sufficient volume recvd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Compositing instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Test Strip Lot #s:	pH 1-12: 229517	pH 12+: 208717	Other: (Specify)
--------------------	-----------------	----------------	------------------

Comments

SM089-03
Rev. Date 12/7/17

JC94706XA: Chain of Custody

Page 4 of 4

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: JC94706X

Sampling Date: 09/10/19

Report to:

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: **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.

A handwritten signature in black ink, appearing to read "Laura Degenhardt".

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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Test results relate only to samples analyzed.

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Sample Summary

USACE-Philadelphia District

Job No: JC94706X

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC94706-1FX	09/10/19	07:15 GW	09/10/19	AQ	Surface H2O Filtered	BM-1S
JC94706-1X	09/10/19	07:15 GW	09/10/19	AQ	Surface Water	BM-1S
JC94706-2FX	09/10/19	09:15 GW	09/10/19	AQ	Surface H2O Filtered	BM-2S
JC94706-2X	09/10/19	09:15 GW	09/10/19	AQ	Surface Water	BM-2S
JC94706-3FX	09/10/19	09:15 GW	09/10/19	AQ	Surface H2O Filtered	BM-2M
JC94706-3X	09/10/19	09:15 GW	09/10/19	AQ	Surface Water	BM-2M
JC94706-4FX	09/10/19	09:15 GW	09/10/19	AQ	Surface H2O Filtered	BM-2D
JC94706-4X	09/10/19	09:15 GW	09/10/19	AQ	Surface Water	BM-2D
JC94706-5FX	09/10/19	12:30 GW	09/10/19	AQ	Surface H2O Filtered	BM-5S
JC94706-5X	09/10/19	12:30 GW	09/10/19	AQ	Surface Water	BM-5S
JC94706-6FX	09/10/19	08:30 GW	09/10/19	AQ	Surface H2O Filtered	BM-6S
JC94706-6X	09/10/19	08:30 GW	09/10/19	AQ	Surface Water	BM-6S
JC94706-7FX	09/10/19	08:30 GW	09/10/19	AQ	Surface H2O Filtered	BM-6M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC94706X

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC94706-7X	09/10/19	08:30 GW	09/10/19	AQ	Surface Water	BM-6M
JC94706-8FX	09/10/19	08:30 GW	09/10/19	AQ	Surface H2O Filtered	BM-6D
JC94706-8X	09/10/19	08:30 GW	09/10/19	AQ	Surface Water	BM-6D
JC94706-9FX	09/10/19	09:45 GW	09/10/19	AQ	Surface H2O Filtered	BM-7S
JC94706-9X	09/10/19	09:45 GW	09/10/19	AQ	Surface Water	BM-7S
JC94706-10FX	09/10/19	09:45 GW	09/10/19	AQ	Surface H2O Filtered	BM-7M
JC94706-10X	09/10/19	09:45 GW	09/10/19	AQ	Surface Water	BM-7M
JC94706-11FX	09/10/19	09:45 GW	09/10/19	AQ	Surface H2O Filtered	BM-7D
JC94706-11X	09/10/19	09:45 GW	09/10/19	AQ	Surface Water	BM-7D
JC94706-12FX	09/10/19	11:15 GW	09/10/19	AQ	Surface H2O Filtered	BM-8S
JC94706-12X	09/10/19	11:15 GW	09/10/19	AQ	Surface Water	BM-8S
JC94706-13FX	09/10/19	11:15 GW	09/10/19	AQ	Surface H2O Filtered	BM-8M
JC94706-13X	09/10/19	11:15 GW	09/10/19	AQ	Surface Water	BM-8M



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC94706X

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC94706-14FX	09/10/19	11:15 GW	09/10/19	AQ	Surface H2O Filtered	BM-8D
JC94706-14X	09/10/19	11:15 GW	09/10/19	AQ	Surface Water	BM-8D
JC94706-15FX	09/10/19	10:10 GW	09/10/19	AQ	Surface H2O Filtered	BM-9S
JC94706-15X	09/10/19	10:10 GW	09/10/19	AQ	Surface Water	BM-9S
JC94706-16FX	09/10/19	10:10 GW	09/10/19	AQ	Surface H2O Filtered	BM-9M
JC94706-16X	09/10/19	10:10 GW	09/10/19	AQ	Surface Water	BM-9M
JC94706-17FX	09/10/19	10:10 GW	09/10/19	AQ	Surface H2O Filtered	BM-9D
JC94706-17X	09/10/19	10:10 GW	09/10/19	AQ	Surface Water	BM-9D
JC94706-18FX	09/10/19	10:45 GW	09/10/19	AQ	Surface H2O Filtered	BM-10S
JC94706-18X	09/10/19	10:45 GW	09/10/19	AQ	Surface Water	BM-10S
JC94706-19FX	09/10/19	10:45 GW	09/10/19	AQ	Surface H2O Filtered	BM-10M
JC94706-19X	09/10/19	10:45 GW	09/10/19	AQ	Surface Water	BM-10M
JC94706-20FX	09/10/19	10:45 GW	09/10/19	AQ	Surface H2O Filtered	BM-10D



Sample Summary

(continued)

USACE-Philadelphia District

Job No: JC94706X

Philadelphia District, Reservoir Sampling

Project No: CONTRACT#W912BU18D0003/TO#W912BU19F0065

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
JC94706-20X	09/10/19	10:45 GW	09/10/19	AQ	Surface Water	BM-10D
JC94706-21FX	09/10/19	12:30 GW	09/10/19	AQ	Surface H2O Filtered	BM-11S
JC94706-21X	09/10/19	12:30 GW	09/10/19	AQ	Surface Water	BM-11S

Subcontract Lab Data

Report of Analysis



M.J. Reider Associates, Inc.

ENVIRONMENTAL TESTING LABORATORY
U.S. EPA/PA DEP #06-00003

Certificate of Analysis

2

Laboratory No.: 9033115
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: 9033115-01 **Collected By:** Client **Sampled:** 09/10/19 07:15 **Received:** 09/18/19 10:15
Sample Desc: BM-1S **Sample Type:** Grab

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

Lab ID: 9033115-02 **Collected By:** Client **Sampled:** 09/10/19 09:15 **Received:** 09/18/19 10:15
Sample Desc: BM-2S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
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: 9033115-03 **Collected By:** Client **Sampled:** 09/10/19 09:15 **Received:** 09/18/19 10:15
Sample Desc: BM-2M **Sample Type:** Grab

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



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



M.J. Reider Associates, Inc.

2

Lab ID: 9033115-04 **Collected By:** Client **Sampled:** 09/10/19 09:15 **Received:** 09/18/19 10:15
Sample Desc: BM-2D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.05	mg/l	0.007	0.05	SM 4500-P E	09/19/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.07	mg/l	0.01	0.05	SM 4500-P E	09/19/19		JCL

Lab ID: 9033115-05 **Collected By:** Client **Sampled:** 09/10/19 12:30 **Received:** 09/18/19 10:15
Sample Desc: BM-5S **Sample Type:** Grab

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

Lab ID: 9033115-06 **Collected By:** Client **Sampled:** 09/10/19 08:30 **Received:** 09/18/19 10:15
Sample Desc: BM-6S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
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: 9033115-07 **Collected By:** Client **Sampled:** 09/10/19 08:30 **Received:** 09/18/19 10:15
Sample Desc: BM-6M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.007	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	09/23/19	U	JCL



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2

Lab ID: 9033115-08 **Collected By:** Client **Sampled:** 09/10/19 08:30 **Received:** 09/18/19 10:15
Sample Desc: BM-6D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.007	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	09/23/19	U	JCL

Lab ID: 9033115-09 **Collected By:** Client **Sampled:** 09/10/19 09:45 **Received:** 09/18/19 10:15
Sample Desc: BM-7S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.007	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	09/23/19	U	JCL

Lab ID: 9033115-10 **Collected By:** Client **Sampled:** 09/10/19 09:45 **Received:** 09/18/19 10:15
Sample Desc: BM-7M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	09/23/19	U	JCL

Lab ID: 9033115-11 **Collected By:** Client **Sampled:** 09/10/19 09:45 **Received:** 09/18/19 10:15
Sample Desc: BM-7D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	09/23/19	J	JCL



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2

Lab ID: 9033115-12 **Collected By:** Client **Sampled:** 09/10/19 11:15 **Received:** 09/18/19 10:15
Sample Desc: BM-8S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.008	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	09/23/19	U	JCL

Lab ID: 9033115-13 **Collected By:** Client **Sampled:** 09/10/19 11:15 **Received:** 09/18/19 10:15
Sample Desc: BM-8M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.007	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	09/23/19	J	JCL

Lab ID: 9033115-14 **Collected By:** Client **Sampled:** 09/10/19 11:15 **Received:** 09/18/19 10:15
Sample Desc: BM-8D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.18	mg/l	0.01	0.05	SM 4500-P E	09/23/19		JCL

Lab ID: 9033115-15 **Collected By:** Client **Sampled:** 09/10/19 10:10 **Received:** 09/18/19 10:15
Sample Desc: BM-9S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.007	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11, U	JCL
General Chemistry								
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	09/23/19	U	JCL



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Lab ID: 9033115-16 **Collected By:** Client **Sampled:** 09/10/19 10:10 **Received:** 09/18/19 10:15
Sample Desc: BM-9M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.01	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11,J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	09/23/19	J	JCL

Lab ID: 9033115-17 **Collected By:** Client **Sampled:** 09/10/19 10:10 **Received:** 09/18/19 10:15
Sample Desc: BM-9D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.05	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11,J	JCL
General Chemistry								
Phosphorus as P, Total	0.10	mg/l	0.01	0.05	SM 4500-P E	09/23/19		JCL

Lab ID: 9033115-18 **Collected By:** Client **Sampled:** 09/10/19 10:45 **Received:** 09/18/19 10:15
Sample Desc: BM-10S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.02	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11,J	JCL
General Chemistry								
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	09/23/19	J	JCL

Lab ID: 9033115-19 **Collected By:** Client **Sampled:** 09/10/19 10:45 **Received:** 09/18/19 10:15
Sample Desc: BM-10M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.03	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11,J	JCL
General Chemistry								
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	09/23/19	J	JCL



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2

Lab ID: 9033115-20 **Collected By:** Client **Sampled:** 09/10/19 10:45 **Received:** 09/18/19 10:15
Sample Desc: BM-10D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.05	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11	JCL
General Chemistry								
Phosphorus as P, Total	0.07	mg/l	0.01	0.05	SM 4500-P E	09/23/19		JCL

Lab ID: 9033115-21 **Collected By:** Client **Sampled:** 09/10/19 12:30 **Received:** 09/18/19 10:15
Sample Desc: BM-11S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.04	mg/l	0.007	0.05	SM 4500-P E	09/23/19	G-11, J	JCL
General Chemistry								
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	09/23/19	J	JCL



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Quality Control

General Chemistry

	Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
Batch B911192								
MB (B911192-BLK1)								Prepared & Analyzed: 09/19/2019
Phosphorus as P, Total	<0.05	0.05	mg/l					U
MB (B911192-BLK2)								Prepared & Analyzed: 09/19/2019
Phosphorus as P, Total	<0.05	0.05	mg/l					U
MB (B911192-BLK3)								Prepared & Analyzed: 09/19/2019
Phosphorus as P, Total	<0.05	0.05	mg/l					U
LFB (B911192-BS1)								Prepared & Analyzed: 09/19/2019
Phosphorus as P, Total	1.02	0.05	mg/l	102	80-120			
Batch B911333								
MB (B911333-BLK1)								Prepared & Analyzed: 09/23/2019
Phosphorus as P, Total	<0.05	0.05	mg/l					U
MB (B911333-BLK2)								Prepared & Analyzed: 09/23/2019
Phosphorus as P, Total	<0.05	0.05	mg/l					U
MB (B911333-BLK3)								Prepared & Analyzed: 09/23/2019
Phosphorus as P, Total	<0.05	0.05	mg/l					U
LFB (B911333-BS1)								Prepared & Analyzed: 09/23/2019
Phosphorus as P, Total	1.01	0.05	mg/l	101	80-120			
LFM (B911333-MS1)								Source: 9033115-09 Prepared & Analyzed: 09/23/2019
Phosphorus as P, Total	0.98	0.05	mg/l	98.2	80-120			



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General Chemistry (Continued)

Batch B911333 (Continued)

LFMD (B911333-MSD1)

Phosphorus as P, Total

Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
0.98	0.05	mg/l	97.6	80-120	0.613	20	

Dissolved General Chemistry

Batch B911193

MB (B911193-BLK1)

Phosphorus as P, Dissolved

Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
<0.05	0.05	mg/l					G-11, U

LFB (B911193-BS1)

Phosphorus as P, Dissolved

Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
1.01	0.05	mg/l	101	80-120			G-11

LFM (B911193-MS1)

Phosphorus as P, Dissolved

Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
1.00	0.05	mg/l	97.7	80-120			

LFMD (B911193-MSD1)

Phosphorus as P, Dissolved

Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
0.99	0.05	mg/l	97.0	80-120	0.702	20	

Batch B911334

MB (B911334-BLK1)

Phosphorus as P, Dissolved

Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
<0.05	0.05	mg/l					G-11, U

LFB (B911334-BS1)

Phosphorus as P, Dissolved

Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
1.02	0.05	mg/l	102	80-120			G-11

LFM (B911334-MS1)

Phosphorus as P, Dissolved

Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
1.01	0.05	mg/l	97.1	80-120			

LFMD (B911334-MSD1)

Phosphorus as P, Dissolved

Result	Reporting Limit	Units	%REC	%REC Limits	RPD	RPD Limit	Analyte Notes
1.00	0.05	mg/l	96.4	80-120	0.697	20	



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Preparation Methods

Specific Method	Preparation Method	Prepared Date	Prepared By
9033115-01			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033115-02			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033115-03			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033115-04			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033115-05			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033115-06			
SM 4500-P E	SM 4500-P B	09/19/2019	JCL
9033115-07			
SM 4500-P E	SM 4500-P B	09/23/2019	JCL
9033115-08			
SM 4500-P E	SM 4500-P B	09/23/2019	JCL
9033115-09			
SM 4500-P E	SM 4500-P B	09/23/2019	JCL
9033115-10			
SM 4500-P E	SM 4500-P B	09/23/2019	JCL
9033115-11			
SM 4500-P E	SM 4500-P B	09/23/2019	JCL
9033115-12			
SM 4500-P E	SM 4500-P B	09/23/2019	JCL
9033115-13			
SM 4500-P E	SM 4500-P B	09/23/2019	JCL
9033115-14			
SM 4500-P E	SM 4500-P B	09/23/2019	JCL
9033115-15			
SM 4500-P E	SM 4500-P B	09/23/2019	JCL



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2

9033115-16

SM 4500-P E SM 4500-P B 09/23/2019 JCL

9033115-17

SM 4500-P E SM 4500-P B 09/23/2019 JCL

9033115-18

SM 4500-P E SM 4500-P B 09/23/2019 JCL

9033115-19

SM 4500-P E SM 4500-P B 09/23/2019 JCL

9033115-20

SM 4500-P E SM 4500-P B 09/23/2019 JCL

9033115-21

SM 4500-P E SM 4500-P B 09/23/2019 JCL

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
 www.sgs.com/lehuausa

CHAIN OF GUSTODY Page 3 of 4
 9033115

Client / Reporting Information		Project Information		Matrix Codes				
Company Name:	Philadelphia District, Reservoir Sampling	Project Name:	Philadelphia District, Reservoir Sampling	Matrix Codes:	DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SED - Sediment LID - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FIB - Field Blank EBC - Enrichment Blank RFB - Rise Blank TB - Trip Blank			
Street Address:	Street	Street:	Street	Requested Analysis:	LAB USE ONLY			
City:	City	City:	City					
State:	State	State:	State					
Zip:	Zip	Zip:	Zip					
Project Contact:	Project #	Project #:	Project #					
Phone #:	Phone #	Client Purchase Order #:	Client Purchase Order #					
Sampler(s) Name(s):	Phone	Project Manager:	Project Manager					
Sampler #	Field ID / Point of Collection	METHOD	Vial #	Sampled By	Mark	# of bottles	Number of preserved bottles	Matrix Code
13FX	BM-9M >-13	GW	1	GW	AQ	1	1	
14X	BM-9D >-14	GW	1	GW	AQ	1	1	
14FX	BM-9D >-14	GW	1	GW	AQ	1	1	
15X	BM-9S >-15	GW	1	GW	AQ	1	1	
15FX	BM-9S >-15	GW	1	GW	AQ	1	1	
16FX	BM-9M >-16	GW	1	GW	AQ	1	1	
17FX	BM-9D >-17	GW	1	GW	AQ	1	1	
17X	BM-9D >-17	GW	1	GW	AQ	1	1	
18FX	BM-10S >-18	GW	1	GW	AQ	1	1	
18X	BM-10S >-18	GW	1	GW	AQ	1	1	
Turnaround Time (Business days)		Approved By (SGS Pkg) / Date:		Data Deliverable Information		Comments / Special Instructions		
<input type="checkbox"/> Standard 10 Business Days <input type="checkbox"/> 5 Business Days RUSH <input type="checkbox"/> 3 Business Days RUSH <input type="checkbox"/> 2 Business Days RUSH <input type="checkbox"/> 1 Business Day EMERGENCY <input checked="" type="checkbox"/> Other Due 10/22/2019 Emergency & Rush TA data available w/1 lablink. Approval needed for RUSH/Emergency TAT.		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" Commercial "A" = Results Only Commercial "B" = Results + CC Summary Commercial "C" = Results + CC Summary + Partial Raw data		<input type="checkbox"/> NVASP Category A <input type="checkbox"/> NVASP Category B <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input checked="" type="checkbox"/> Other REDT2		Filter, TP4 FILTER, TP4		
Relinquished by:	Date / Time:	Relinquished by:	Date / Time:	Relinquished by:	Date / Time:	Relinquished by:	Date / Time:	Relinquished by:
3	9/17/19	1	9/17/19	2	9/18/19	2	9/18/19	2
5		3		4		4	10:15	4
Relinquished by:	Date / Time:	Relinquished by:	Date / Time:	Relinquished by:	Date / Time:	Relinquished by:	Date / Time:	Relinquished by:
Ch custody Seat #	Ch custody Seat #	Ch custody Seat #	Ch custody Seat #	Ch custody Seat #	Ch custody Seat #	Ch custody Seat #	Ch custody Seat #	Ch custody Seat #
Therm. ID:	Therm. ID:	Therm. ID:	Therm. ID:	Therm. ID:	Therm. ID:	Therm. ID:	Therm. ID:	Therm. ID:
On/low	On/low	On/low	On/low	On/low	On/low	On/low	On/low	On/low
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cooler Temp. °C	Cooler Temp. °C	Cooler Temp. °C	Cooler Temp. °C	Cooler Temp. °C	Cooler Temp. °C	Cooler Temp. °C	Cooler Temp. °C	Cooler Temp. °C
http://www.sgs.com/terms-and-conditions	http://www.sgs.com/terms-and-conditions	http://www.sgs.com/terms-and-conditions	http://www.sgs.com/terms-and-conditions	http://www.sgs.com/terms-and-conditions	http://www.sgs.com/terms-and-conditions	http://www.sgs.com/terms-and-conditions	http://www.sgs.com/terms-and-conditions	http://www.sgs.com/terms-and-conditions

9033115

Date / Time: 9/17/2019 10:36:19 AM
 CSR: TAMMY
 Job #: JC94706X
 Client Project: Philadelphia District, Reservoir Sampling
 Deliverable: REDT2
 TAT: Due 10/2/2019

Sub Lab: MJ Reider Associates Inc, Env. Testing Laboratories
 Address: 107 Angelica Street
 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
JC94706-1X	BM-1S	TPO4		GW	9/10/2019	7:15:00 AM	
JC94706-1FX	BM-1S	FILTERGN_TPO4		GW	9/10/2019	7:15:00 AM	
JC94706-2FX	BM-2S	FILTERGN_TPO4		GW	9/10/2019	9:15:00 AM	
JC94706-2X	BM-2S	TPO4		GW	9/10/2019	9:15:00 AM	
JC94706-3X	BM-2M	TPO4		GW	9/10/2019	9:15:00 AM	
JC94706-3FX	BM-2M	FILTERGN_TPO4		GW	9/10/2019	9:15:00 AM	
JC94706-4X	BM-2D	TPO4		GW	9/10/2019	9:15:00 AM	
JC94706-4FX	BM-2D	FILTERGN_TPO4		GW	9/10/2019	9:15:00 AM	
JC94706-5X	BM-5S	TPO4		GW	9/10/2019	12:30:00 PM	
JC94706-5FX	BM-5S	FILTERGN_TPO4		GW	9/10/2019	12:30:00 PM	
JC94706-6FX	BM-6S	FILTERGN_TPO4		GW	9/10/2019	8:30:00 AM	
JC94706-6X	BM-6S	TPO4		GW	9/10/2019	8:30:00 AM	
JC94706-7FX	BM-6M	FILTERGN_TPO4		GW	9/10/2019	8:30:00 AM	
JC94706-7X	BM-6M	TPO4		GW	9/10/2019	8:30:00 AM	
JC94706-8FX	BM-6D	FILTERGN_TPO4		GW	9/10/2019	8:30:00 AM	
JC94706-8X	BM-6D	TPO4		GW	9/10/2019	8:30:00 AM	
JC94706-9FX	BM-7S	FILTERGN_TPO4		GW	9/10/2019	9:45:00 AM	

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JC94706-9X	BM-7S	TPO4	GW	9/10/2019	9:45:00 AM
JC94706-10X	BM-7M	TPO4	GW	9/10/2019	9:45:00 AM
JC94706-10FX	BM-7M	FILTERGN_TPO4	GW	9/10/2019	9:45:00 AM
JC94706-11FX	BM-7D	FILTERGN_TPO4	GW	9/10/2019	9:45:00 AM
JC94706-11X	BM-7D	TPO4	GW	9/10/2019	9:45:00 AM
JC94706-12FX	BM-8S	FILTERGN_TPO4	GW	9/10/2019	11:15:00 AM
JC94706-12X	BM-8S	TPO4	GW	9/10/2019	11:15:00 AM
JC94706-13FX	BM-8M	FILTERGN_TPO4	GW	9/10/2019	11:15:00 AM
JC94706-13X	BM-8M	TPO4	GW	9/10/2019	11:15:00 AM
JC94706-14X	BM-8D	TPO4	GW	9/10/2019	11:15:00 AM
JC94706-14FX	BM-8D	FILTERGN_TPO4	GW	9/10/2019	11:15:00 AM
JC94706-15X	BM-9S	TPO4	GW	9/10/2019	10:10:00 AM
JC94706-15FX	BM-9S	FILTERGN_TPO4	GW	9/10/2019	10:10:00 AM
JC94706-16FX	BM-9M	FILTERGN_TPO4	GW	9/10/2019	10:10:00 AM
JC94706-16X	BM-9M	TPO4	GW	9/10/2019	10:10:00 AM
JC94706-17FX	BM-9D	FILTERGN_TPO4	GW	9/10/2019	10:10:00 AM
JC94706-17X	BM-9D	TPO4	GW	9/10/2019	10:10:00 AM
JC94706-18FX	BM-10S	FILTERGN_TPO4	GW	9/10/2019	10:45:00 AM
JC94706-18X	BM-10S	TPO4	GW	9/10/2019	10:45:00 AM
JC94706-19FX	BM-10M	FILTERGN_TPO4	GW	9/10/2019	10:45:00 AM
JC94706-19X	BM-10M	TPO4	GW	9/10/2019	10:45:00 AM
JC94706-20FX	BM-10D	FILTERGN_TPO4	GW	9/10/2019	10:45:00 AM
JC94706-20X	BM-10D	TPO4	GW	9/10/2019	10:45:00 AM
JC94706-21FX	BM-11S	FILTERGN_TPO4	GW	9/10/2019	12:30:00 PM
JC94706-21X	BM-11S	TPO4	GW	9/10/2019	12:30:00 PM

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Comments:

Sample Management Receipt:

Date:

M.J. Reider Associates, Inc.

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MJRA Terms & Conditions

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

Sample Submission, Sample Acceptance & Sampling Containers

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

Turnaround Times (TAT)

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

Analytical Results, Sample Collection Integrity & Subcontracting

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

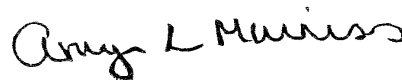
Payment Terms

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

Warranty & Litigation

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

Reviewed and Approved by:



Amy L Morriss
Project Manager



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NELAC 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)

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



CHAIN OF CUSTODY

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

Client / Reporting Information Company Name: USACE - Phila. District Street Address: 100 Penn Sq. East City: Phila. PA State: PA Zip: 19107 Project Contact: Joe Loeper E-mail: _____ Phone #: 215-656-6545		Project Information Project Name: USACE Reservoirs - Blue Marsh Street: _____ Billing Information (if different from Report to): Company Name: _____ Project # _____ Street Address: _____ Client Purchase Order # _____ City: _____ State: _____ Zip: _____ Project Manager: Tammy McGosky Attention: _____ Phone #: 610-597-9780		FED-EX Tracking # _____ Both Order Contact # _____ SGS Order # _____ SGS Job # JC94706			
Requested Analysis Matrix Codes: DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SD - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solids WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinsate Blank TB - Trip Blank		LAB USE ONLY		Federal and Tribal Centers			
Collection Date: 9/10/19 Time: 8:15 Sampled By: MT Matrix: G SW # of bottles: 2 MECH/ID/Vol # _____		Number of preserved bottles: PCB _____ MECH _____ MEQ _____ MEQ/SL/SD _____ NIOIE _____ 21 Volume _____ BIOGORE _____ BIOGORE _____					
1 Bm-1S		9:15				G SW 2	
2 Bm-2S		12:30				G SW 2	
5 Bm-5S		08:30				G SW 2	
6 Bm-6S		09:15				G SW 2	
9 Bm-7S		11:15				G SW 2	
12 Bm-8S		10:10				G SW 2	
15 Bm-9S		10:45				G SW 2	
18 Bm-10S		12:30				G SW 2	
21 Bm-11S							
Turn Around Time (Business Days) <input type="checkbox"/> 10 Business Days <input type="checkbox"/> 5 Business Days <input type="checkbox"/> 3 Business Days* <input type="checkbox"/> 2 Business Days* <input type="checkbox"/> 1 Business Day* <input type="checkbox"/> Other _____		Approved By (SGS P#): / Date: _____ * Approval needed for 1-3 Business Day TAT		Deliverable <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> NYASP Category A <input type="checkbox"/> DOD-OS&IS <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NYASP Category B <input type="checkbox"/> NJ Reduced (Level 3) <input type="checkbox"/> MA MCP Criteria <input type="checkbox"/> Full Tier I (Level 4) <input type="checkbox"/> CT RCP Criteria <input type="checkbox"/> Commercial "C" <input type="checkbox"/> State Forms <input type="checkbox"/> NJ DKQP <input type="checkbox"/> EDB Format			
All data available to Lablink		Commercial "A" = Results only; Commercial "B" = Results + QC Summary Commercial "C" = Results + QC Summary + Partial Raw data		Comments / Special Instructions			
Sample Custody must be documented below each time sample changes possession, including courier delivery. http://www.sgs.com/en/terms-and-conditions							
Relinquished by: [Signature]	Date / Time: 9/10/19 2:00	Received By: [Signature]	Date / Time: 9/10/19 16:36	Relinquished by: [Signature]	Date / Time: 9/10/19 16:06		
Relinquished by: _____	Date / Time: _____	Received By: _____	Date / Time: _____	Relinquished by: _____	Date / Time: _____		
Relinquished by: _____	Date / Time: _____	Received By: _____	Date / Time: _____	Relinquished by: _____	Date / Time: _____		
Custody Seal # _____		<input type="checkbox"/> Intact <input type="checkbox"/> Preserved where applicable <input type="checkbox"/> Not intact <input type="checkbox"/> Absent		Therm. ID: _____ On log: <input checked="" type="checkbox"/> Cooler Temp. °C: 2.16			

JC94706X: Chain of Custody

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SGS Sample Receipt Summary

Job Number: JC94706

Client: USACE-PHILADELPHIA DISTRICT

Project: PHILADELPHIA DISTRICT, RESERVOIR SAMPL

Date / Time Received: 9/10/2019 5:20:00 PM

Delivery Method: _____

Airbill #s: _____

Cooler Temps (Raw Measured) °C: Cooler 1: (3.6); Cooler 2: (3.2); Cooler 3: (4.2); Cooler 4: (3.8); Cooler 5: (3.9); Cooler 6: (4.1); Cooler 7: (3.6);

Cooler Temps (Corrected) °C: Cooler 1: (3.5); Cooler 2: (3.1); Cooler 3: (4.1); Cooler 4: (3.7); Cooler 5: (3.8); Cooler 6: (4.0); Cooler 7: (3.5);

Cooler Security

- | | <u>Y or N</u> | | | <u>Y or N</u> | |
|---------------------------|-------------------------------------|--------------------------|-----------------------|-------------------------------------|--------------------------|
| 1. Custody Seals Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3. COC Present: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Custody Seals Intact: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 4. Smpl Dates/Time OK | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Cooler Temperature

- | | <u>Y or N</u> | |
|------------------------------|-------------------------------------|--------------------------|
| 1. Temp criteria achieved: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Cooler temp verification: | IR Gun | |
| 3. Cooler media: | Ice (Bag) | |
| 4. No. Coolers: | 7 | |

Quality Control Preservation

- | | <u>Y</u> | <u>or</u> | <u>N</u> | <u>N/A</u> |
|---------------------------------|-------------------------------------|-----------|-------------------------------------|-------------------------------------|
| 1. Trip Blank present / cooler: | <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Trip Blank listed on COC: | <input type="checkbox"/> | | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Samples preserved properly: | <input checked="" type="checkbox"/> | | <input type="checkbox"/> | |
| 4. VOCs headspace free: | <input type="checkbox"/> | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Sample Integrity - Documentation

- | | <u>Y or N</u> | |
|--|-------------------------------------|--------------------------|
| 1. Sample labels present on bottles: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Container labeling complete: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |

Sample Integrity - Condition

- | | <u>Y or N</u> | |
|----------------------------------|-------------------------------------|--------------------------|
| 1. Sample recvd within HT: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 3. Condition of sample: | Intact | |

Sample Integrity - Instructions

- | | <u>Y</u> | <u>or</u> | <u>N</u> | <u>N/A</u> |
|---|-------------------------------------|-----------|-------------------------------------|-------------------------------------|
| 1. Analysis requested is clear: | <input checked="" type="checkbox"/> | | <input type="checkbox"/> | |
| 2. Bottles received for unspecified tests | <input type="checkbox"/> | | <input checked="" type="checkbox"/> | |
| 3. Sufficient volume recvd for analysis: | <input checked="" type="checkbox"/> | | <input type="checkbox"/> | |
| 4. Compositing instructions clear: | <input type="checkbox"/> | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear: | <input type="checkbox"/> | | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Test Strip Lot #s:	pH 1-12: 229517	pH 12+: 208717	Other: (Specify) _____
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Comments

SM089-03
Rev. Date 12/7/17

JC94706X: Chain of Custody

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