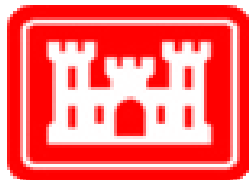


**2020 WATER QUALITY MONITORING
BLUE MARSH RESERVOIR
LEESPORT, PENNSYLVANIA**



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

March 2021

**2020 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 2020.

1.2 DESCRIPTION OF BLUE MARSH RESERVOIR

Blue Marsh Reservoir was designed to provide flood control, 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 2020 monitoring program follows that in most recent years and includes the following major elements:

- Monthly water quality and bacteria monitoring of reservoir and upstream tributary source waters to evaluate compliance with Pennsylvania state water quality standards and to evaluate the health of the reservoir ecosystem starting on 18 May and ending on 31 August 2020;
- Monthly profile samples for temperature, dissolved oxygen, chlorophyll, pH, turbidity, and conductivity at all stations in the reservoir and watershed;
- Twice weekly total coliform and Escherichia coli bacteria monitoring at three beach stations - to ensure public health and safety at the Blue Marsh Reservoir

- swimming beach area; and
- Random and conditions algae sampling at the Blue Marsh Reservoir swimming beach and other locations in the reservoir where algal blooms were observed from June through October.

2.0 METHODS

2.1 PHYSICAL STRATIFICATION MONITORING

Physical stratification monitoring of the water column was conducted monthly at Blue Marsh Reservoir from May through August 2020 (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 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) and the United States Environmental Protection Agency (EPA).

2.2 WATER COLUMN CHEMISTRY MONITORING

Water column chemistry monitoring was conducted five times at Blue Marsh Reservoir during the 2020 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 of the water column, and bottom water column 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).

Water samples collected 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 2020. 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)
18 May	X	X	X	X	
15 June	X	X	X	X	
06 July	X	X	X	X	
10 August	X	X	X	X	
31 August	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 and in coordination with PADEP.					

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 along with average chlorophyll *a* measures from YSI sensor 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 five times at Blue Marsh Reservoir between 18 May and 31 August. Water samples were analyzed for total and escherichia coliform contamination as indicators of risk. Surface water samples were tested at all stations. The samples were collected in the same manner as the chemistry samples or approximately 1-foot below the surface of the water. Table 2-3 presents the test methods, detection limits, United States Environmental Protection Agency (EPA) and Pennsylvania Department of Environmental Protection (PADEP) standards, and sample holding times for the bacteria parameters monitored at Blue Marsh Reservoir in 2020. The bacteria analytical method was based on a membrane filtration technique. All the samples were analyzed within their maximum allowable hold times. Laboratory analysis was conducted by M.J. Reider Associates, Inc Environmental Testing Laboratory located in Reading, Pennsylvania (U.S. EPA/PA DEP #06-00003).

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 2020

Parameter	(2) Method	Laboratory Limit of Reporting	PADEP Surface Water Quality Criteria	Allowable Hold Times (Days)
Total Alkalinity	SM20 2320 B	2.0 mg/L	Min. 20 mg/L CaCO ₃	14
Biochemical Oxygen Demand (BOD)	SM5210 B	2.0 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 F	0.05 mg/L	None	28
Total Organic Carbon (TOC)	SM5310 C	0.5 mg/L	None	28
Total Inorganic Carbon (TIC) *	NA	NA	None	28
Total Carbon (TOC + TIC) *	NA	NA	None	28
(1) Chlorophyll <i>a</i>	YSI Probe	----	None	In Situ
Total Kjeldahl Nitrogen	EPA 351.2	0.50 mg/L	None	28
Ammonia	ASTM D6919-03	0.10 mg/L	Temp. and pH dependent	28
Nitrate	EPA 300.0 Rev 2.1	0.10 mg/L	Maximum 10 mg/L (nitrate + nitrite)	28
Nitrite	EPA 300.0 Rev 2.1	0.10 mg/L		28
Total Dissolved Solids	SM2540 C	5.0 mg/L	Maximum 750 mg/L	7
Total Suspended Solids	SM2540 D	1.0 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.

ASTM International- Formerly American Society for Testing and Materials

* Total Inorganic Carbon and Total Carbon were not sampled for in 2020



Figure 2-1. Blue Marsh Reservoir and the location of the 9 fixed stations monitored for water quality during 2020

Table 2.3. Water quality test methods, detection limits, PADEP/EPA standards, and sample holding times for bacteria parameters monitored at Blue Marsh Reservoir in 2020.

Parameter	Total Coliform	Escherichia Coliform
Test method	SM 9223 B	SM 9223 B
Limit of Quantification	1 clns/100-mls	1 clns/100-mls
EPA/PADEP standard	None	Geometric mean <126 organisms/ 100 ml or a single sample <235 organisms/ 100 ml
Maximum allowable holding time	30 hours	30 hours
Holding time	< 30 hours	< 30 hours

Monthly surface water bacteria counts were compared to the EPA primary recreation water quality single sample standard for Escherichia coliform bacteria. Application of this standard applies to Blue Marsh Reservoir because swimming and other primary and secondary human/water contact recreation is permitted in the reservoir. 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 evaluating background coliform data on the main body of the reservoir including tributaries. 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 type of 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 reservoir body coliform bacteria sampling. The bacteria monitoring for the 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 reflects the

changing risk to public health at the swimming beach area and the appropriate response for public safety to include beach closure.

Week 1	04 June	Week 8	20 and 23 July
Week 2	08 and 11 June	Week 9	27 and 30 July
Week 3	16 and 18 June	Week 10	03 August
Week 4	22 and 25 June	Week 11	10 and 13 August
Week 5	29 June and 02 July	Week 12	17 and 20 August
Week 6	06 and 09 July	Week 13	24 and 27 August
Week 7	13, 15 and 16 July	Week 14	31 August and 03 September

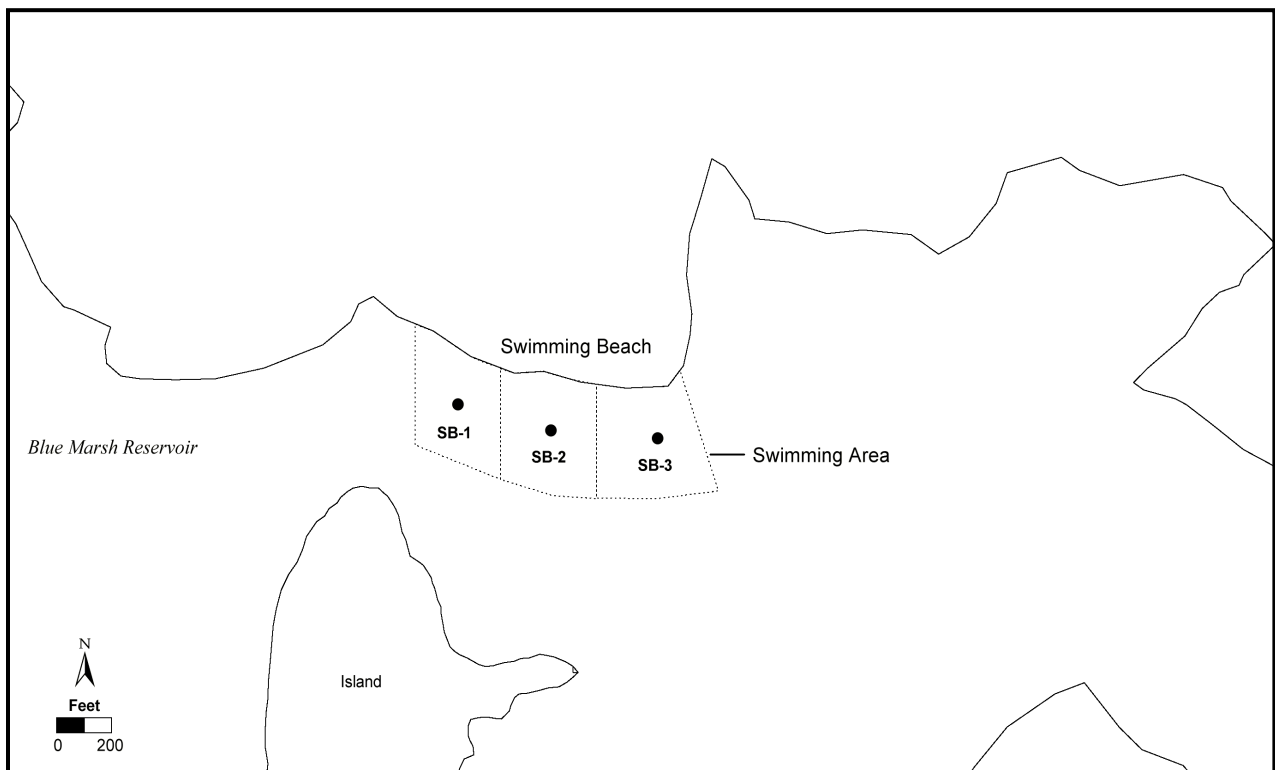


Figure 2-2. Swimming beach bacteriological monitoring stations at Blue Marsh Reservoir in 2020

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 2020, rains and warm air temperatures early in the summer 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 and throughout the sampling season. In cooperation with the Pennsylvania Department of Environmental Protection, an immediate response and monitoring plan was developed. Stakeholders and the public were notified of the risks of potential harmful toxic algae blooms 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 (Figure 2-3). Both USACE and PADEP staff conducted the sampling as needed. This sampling was conducted from July through October of 2020. Samples were collected as necessary following the identification of an algal bloom 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*.

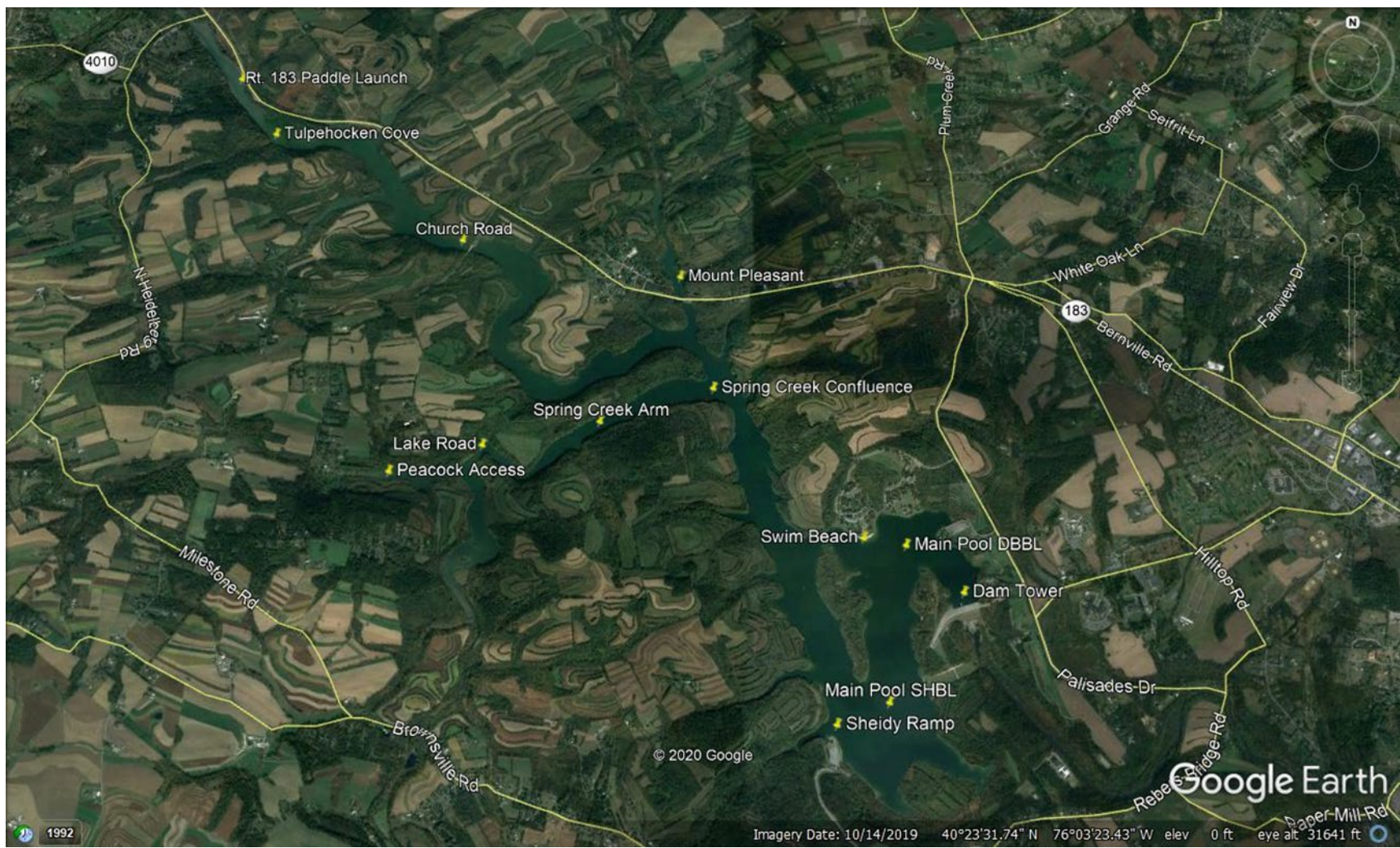


Figure 2-3. Pennsylvania Department of Environmental Protection and US Army Corps of Engineers harmful algal bloom sampling locations at Blue Marsh Reservoir in Reading, Pennsylvania.

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 May through August 2020, the most biologically productive time of the year for the reservoir. All 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 23.46°C in July and 22.73°C at station BM-11S in July. The maximum surface water temperature downstream of the reservoir at station BM-1S was 21.97°C in late August with a minimum of 14.19°C in May. Downstream temperatures are influenced through selective withdrawals at the Blue Marsh Dam. Annually the Corps performs selective withdrawal releases 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 2020 from late July through September.

Blue Marsh Reservoir was stratified with respect to temperature during 2020. 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 during May sampling with temperatures from surface (16.99°C) to bottom (11.68°C) differing by 5.31°C. The deeper and cooler temperature (<20°C) water was available for

selective withdrawal to attempt to meet downstream temperature objectives until early August. From August 3rd through the 5th, a rapid depletion of deeper cooler waters was observed at Blue Marsh Reservoir. Bottom flood control gates were utilized to reduce the reservoir pool storage by approximately 6 feet in preparation for Hurricane Isaias approaching the project area. This vacated flood storage space was subsequently refilled with warmer temperature tributary and lake surface waters when flood control operations were no longer needed. Stratification peaked in early August and a shift to deeper warmer water temperatures was evident throughout the remainder of summer. An erosion of the epilimnion was seen in late August 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 11.6 mg/L was recorded in May at station BM-5S with a minimum recorded value of 8.03 mg/L in late August at Station BM-11S. The maximum surface water DO concentration downstream of the dam at station BM-1S was 10.26 mg/L recorded in May with a minimum of 7.73 mg/L recorded in late August.

Seasonal stratification, chemical and biological processes and flood control operations at Blue Marsh Reservoir dramatically influenced the distribution of DO in the water column during 2020 (Fig. 3-4). Stratification was apparent from June through late August at station BM-6, as DO concentrations decreased with depth except for early August. Historically, the lower oxygen levels deeper in the lake progressively move up the water column to within approximately 10-feet of the surface in mid- to late August. In most years the surface waters remain oxygenated because of surface algal productivity and surface water wind mixing. In 2020, the DO pattern in the deeper water column was as pronounced as previous years. However, in early August, bottom waters were released downstream during flood control operations. This operation disrupted the stratification process within the lake. As the lake refilled to its summer recreational pool, the deeper waters become more oxygenated. As the lake pool became stabilized anoxic conditions reestablished throughout much of the water column by late August. 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 2020 sampling season during the July through late 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 2020, the water column of Blue Marsh was affected by hypoxia (Fig. 3-4). Hypoxic water occupied most of the water column in 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.

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 2020 (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 7.20 to 8.33.

The pH profile in the water column of Blue Marsh Reservoir was consistent with a stratified lake during 2020 (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 7.33 and 8.87. In contrast, measures of pH in the lower water column (>10 feet deep) were consistently lower during the monitoring period and ranged between 7.12 and 8.58. 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 2020, 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 did not violate the PADEP water quality standard maximum pH level of 9.0 during all months sampled.

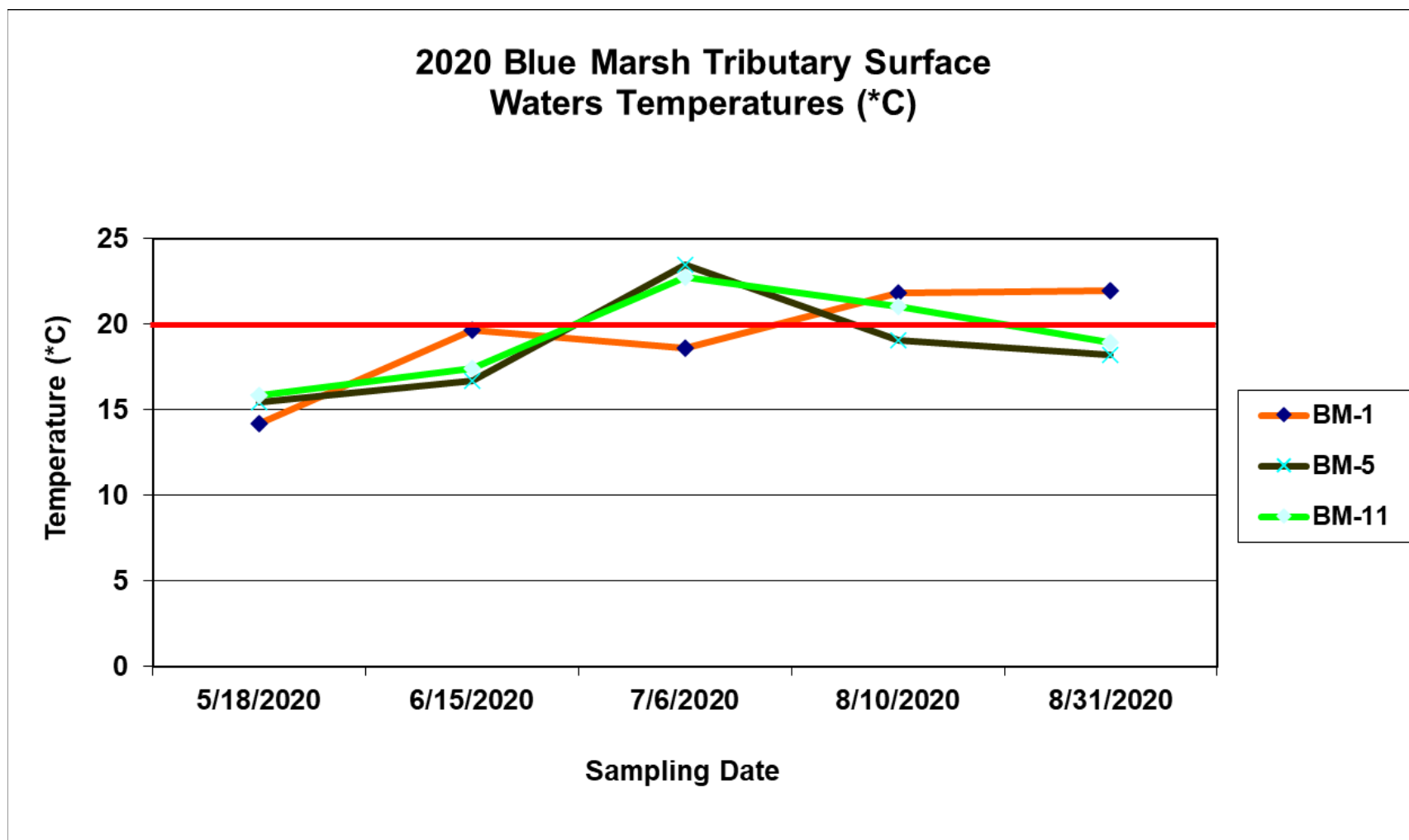


Figure 3-1. Tributary and downstream surface water temperatures ($^{\circ}\text{C}$) measured at Blue Marsh Reservoir in 2020. Station BM-1S is located downstream of the reservoir. See Appendix A for summary of plotted values. The cold-water species preference temperature of 20°C is shown as a red line reference.

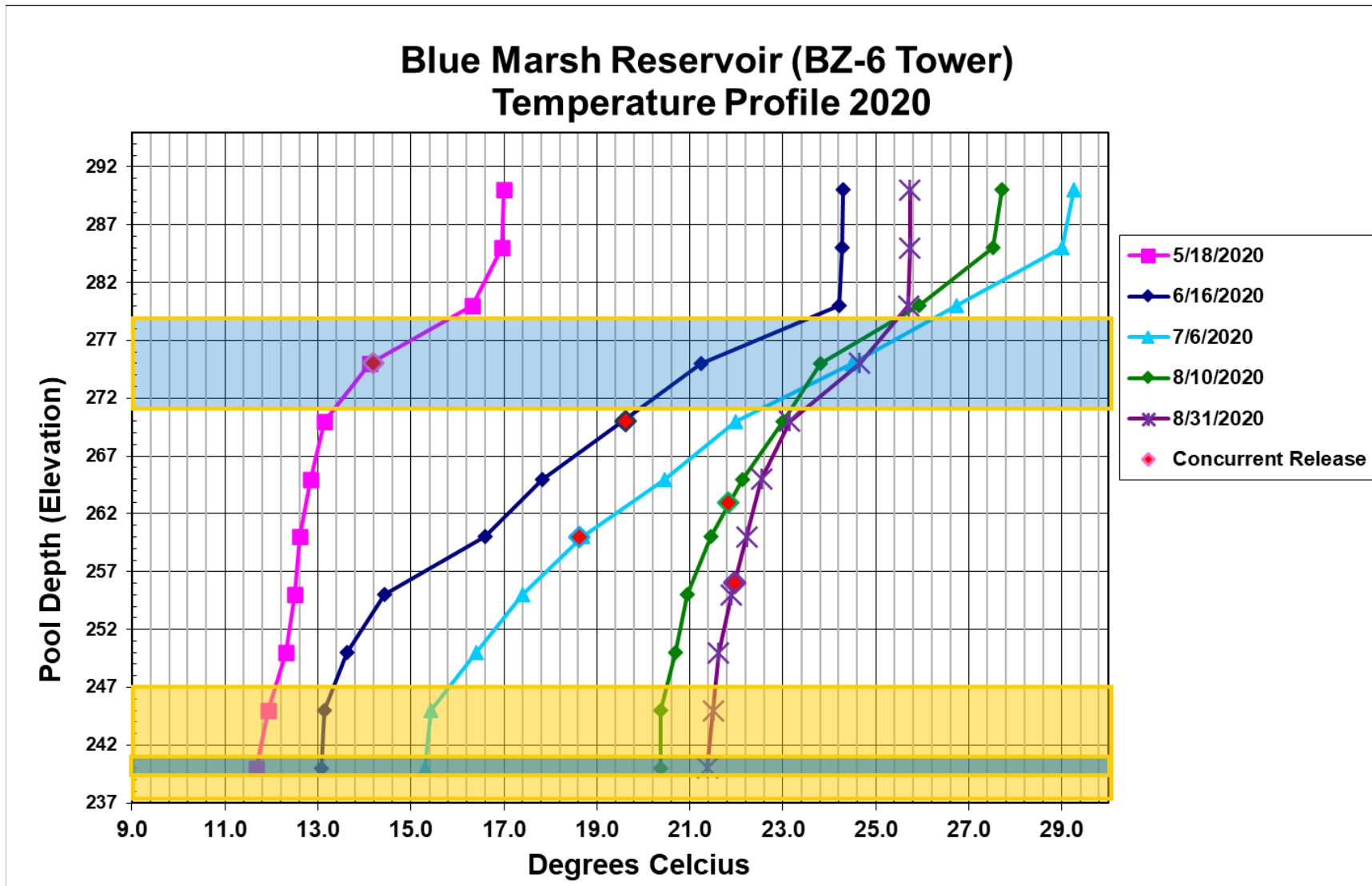


Figure 3-2. Temperature stratification and release portal elevations at station BM-6 of Blue Marsh Reservoir in 2020. See Appendix A for summary of plotted values

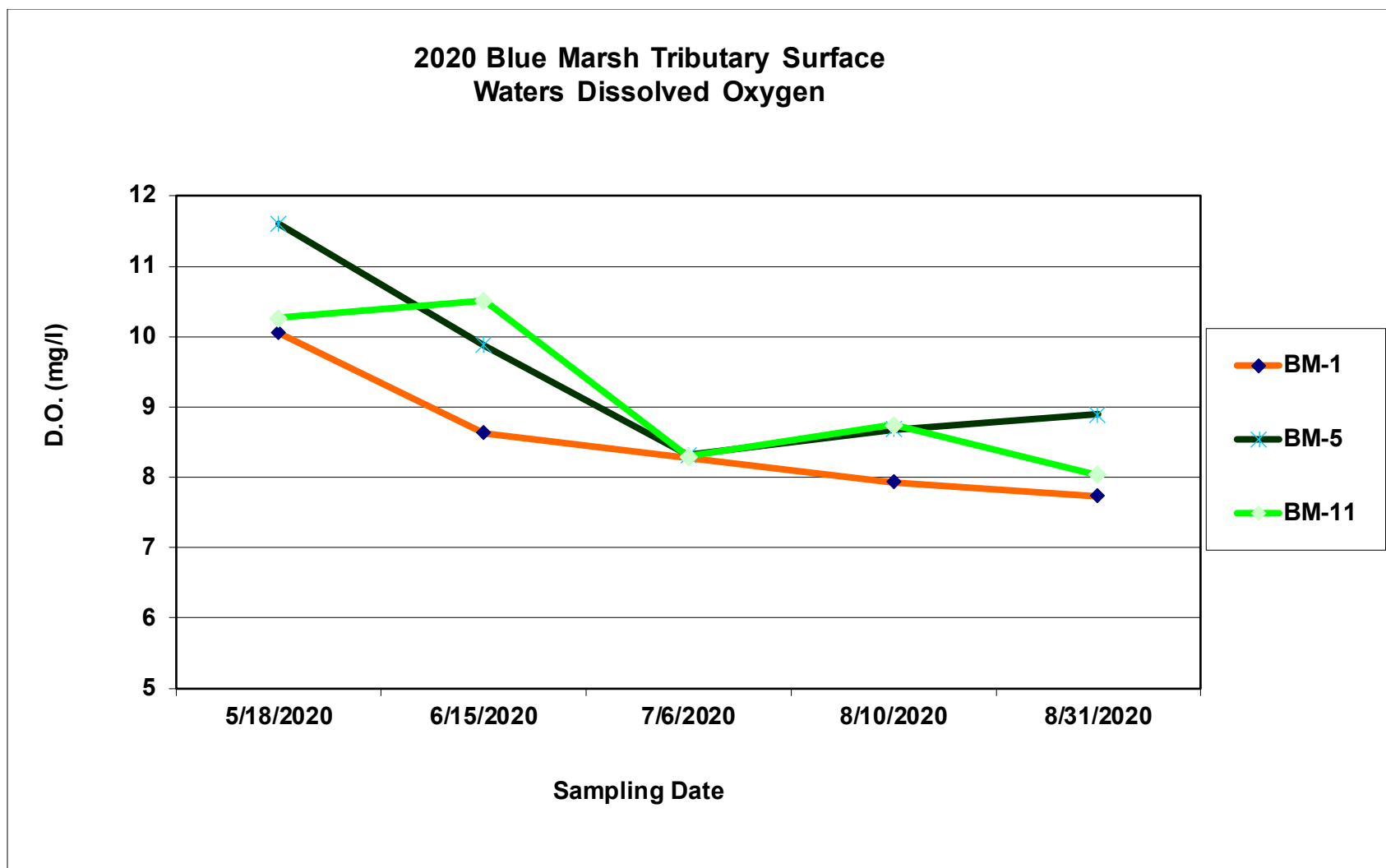


Figure 3-3. Tributary and outflow surface water dissolved oxygen concentrations measured at Blue Marsh Reservoir in 2020. (The PADEP water quality standard for DO is a minimum concentration of 5 mg/L.) See Appendix A for summary of plotted values.

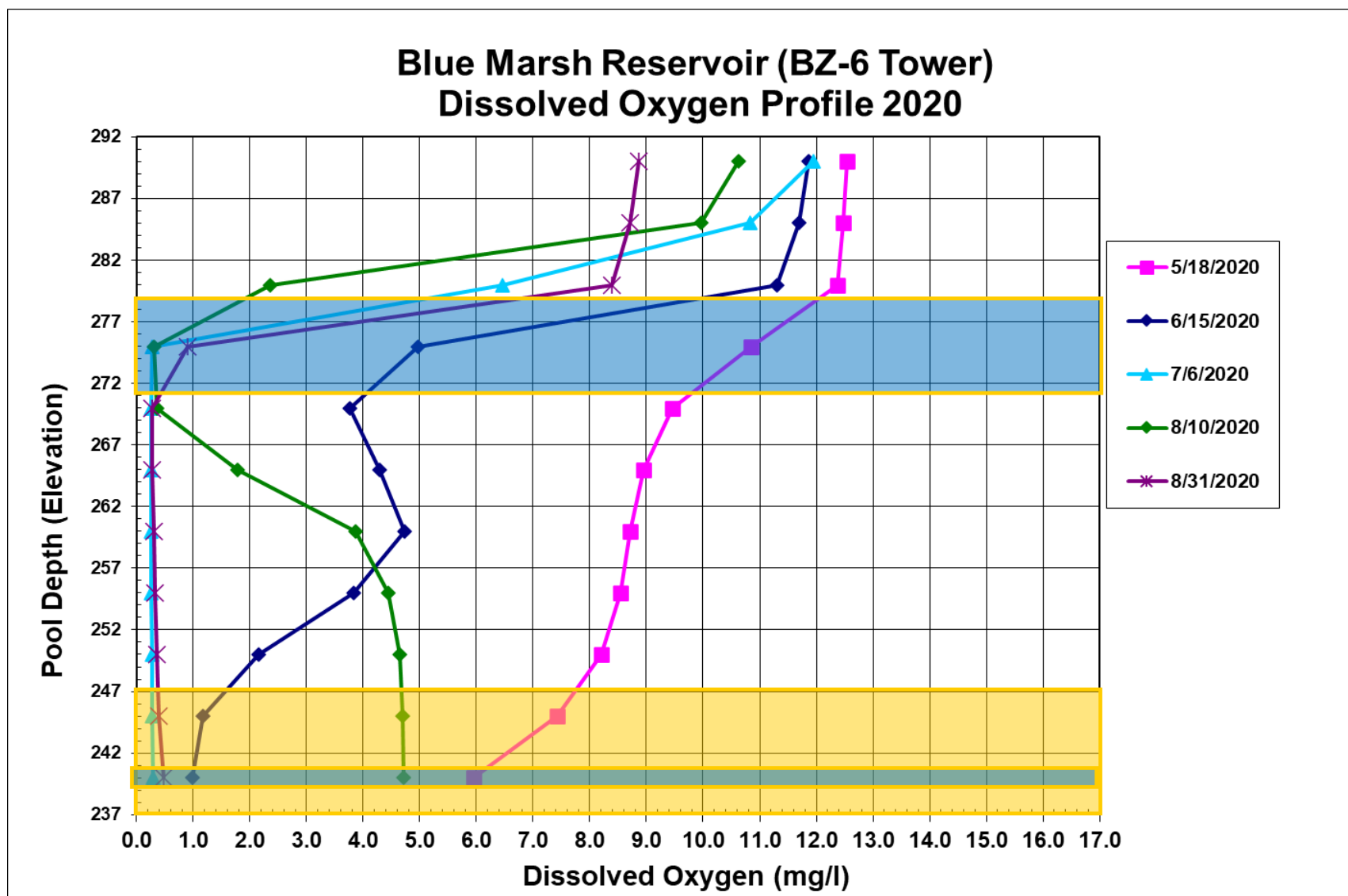


Figure 3-4. Release portal elevations and dissolved oxygen stratification at station BM-6 of Blue Marsh Reservoir in 2020. (PADEP water quality standard for DO is a minimum concentration of 5 mg/L.) See Appendix A for summary of plotted values.

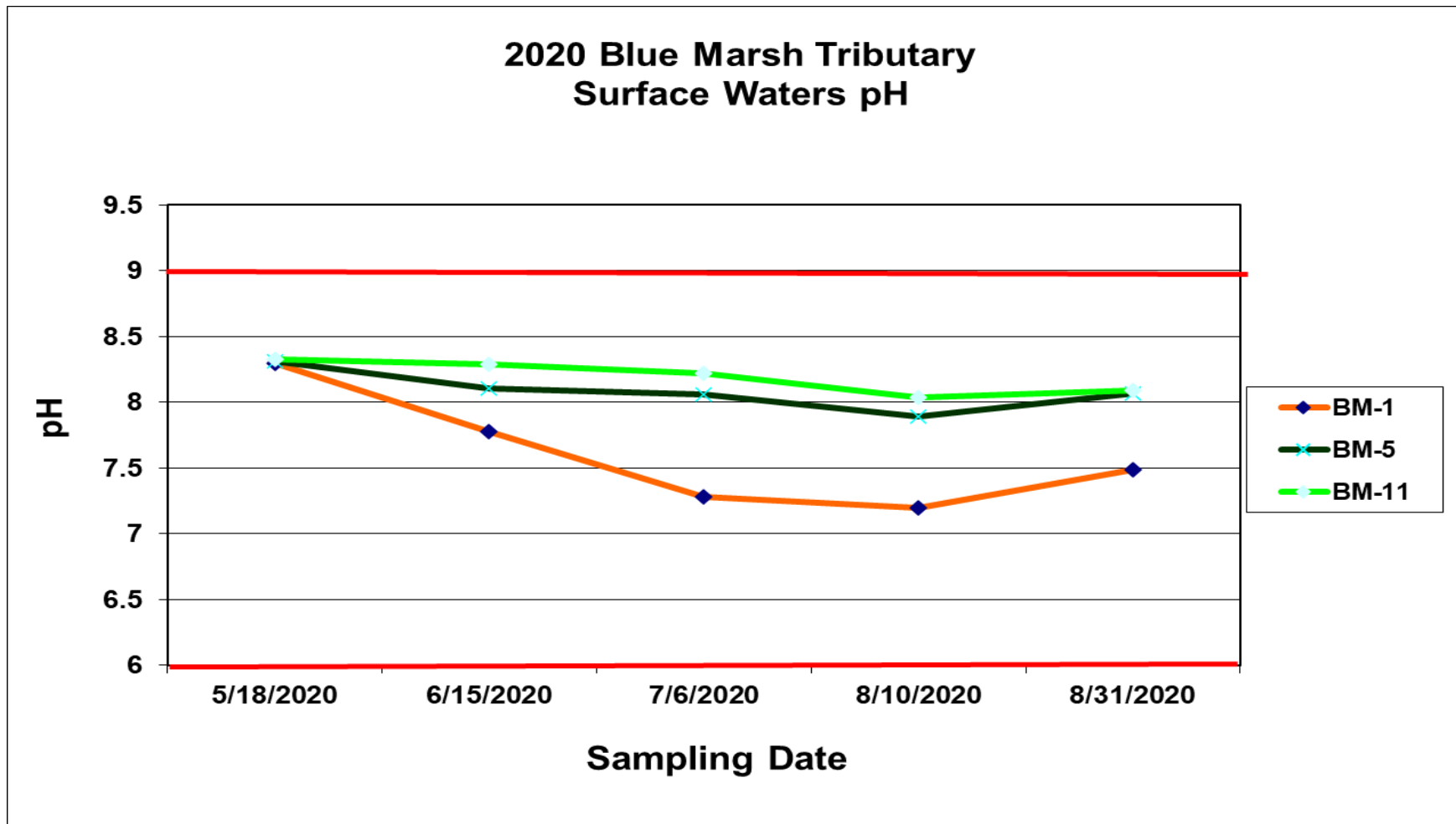


Figure 3-5. Tributary and outflow surface water pH measured at Blue Marsh Reservoir in 2020. (The PADEP water quality standard for pH is a range from 6 to 9.) See Appendix A for summary of plotted values.

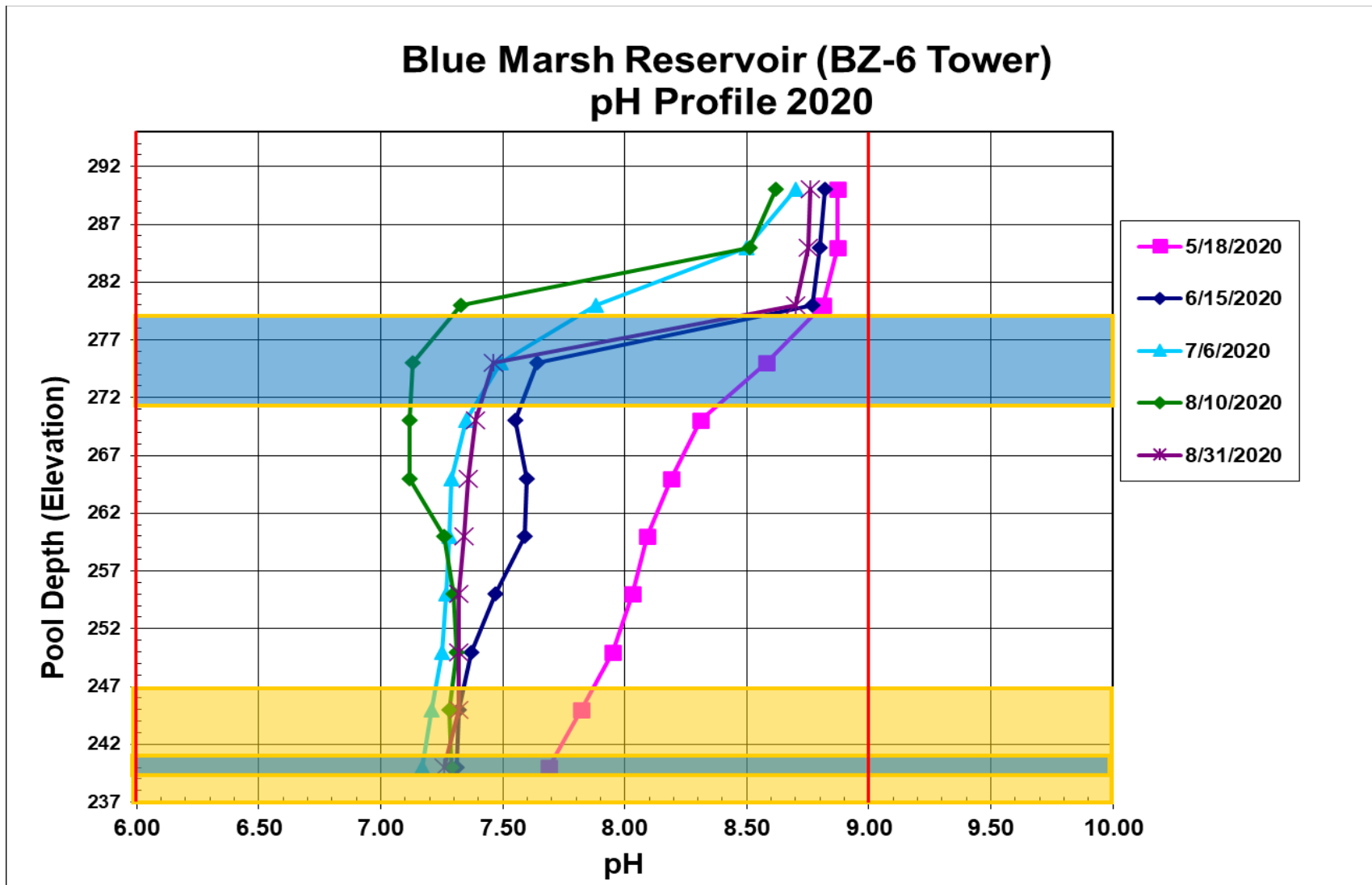


Figure 3-6. Release portal elevations and stratification of pH at station BM-6 of Blue Marsh Reservoir in 2020. (The PADEP water quality standard for pH is a range from 6 to 9.) See Appendix A for summary of plotted values.

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 2020 (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 2020 (Table 3-2). Concentrations measured for 52 samples collected from all sampling stations and depths throughout the sampling season did exceed the laboratory minimum reporting limit of 0.01 mg/L. These samples were collected primarily at bottom water sampling locations within the reservoir body. The maximum single recorded sample of 0.48 mg/L was collected from station BM-6D on 6 July and BM-7D on 15 June. Concentrations of ammonia measured at Blue Marsh Reservoir were in compliance with the PADEP and EPA water quality standards during 2020.

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 2020

Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	NO3-NO2	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	5/18/2020	117	2.2	<0.05	<0.01	0.03	4.24	4.27	268	<0.37	2.6	0.05	2
	6/15/2020	124	<2.0	0.07	0.17	0.04	4.04	4.08	207	0.43	3.2	<0.01	4
	7/6/2020	132	5.3	<0.05	0.05	0.11	3.52	3.63	220	<0.47	3.1	0.05	8
	8/10/2020	107	2.3	0.09	0.34	0.04	3.29	3.33	212	0.86	4.3	0.14	8
	8/31/2020	141	2.8	<0.05	0.27	0.28	3.55	3.83	210	0.49	2.7	0.03	9
	Mean	124	2.9	0.06	0.17	0.10	3.73	3.83	223	0.52	3.2	0.06	6.2
	Stdev	13	1.4	0.02	0.14	0.11	0.40	0.37	25	0.19	0.7	0.05	3.0
	Max	141	5.3	0.09	0.34	0.28	4.24	4.27	268	0.86	4.3	0.14	9
	Min	107	2	0.05	0.01	0.03	3.29	3.33	207	0.37	2.6	0.01	2
	No. of Det.	5	4	2	4	5	5	5	5	3	5	4	5
BM-02S	5/18/2020	117	2.2	0.05	<0.01	0.03	4.04	4.07	254	<0.37	2.5	0.02	2
	6/15/2020	115	2.9	<0.05	<0.01	0.03	3.85	3.88	155	0.37	2.9	0.05	9
	7/6/2020	89	2.9	<0.05	<0.01	0.03	3.31	3.34	148	<0.47	3.6	0.01	5
	8/10/2020	97	4.4	<0.05	0.03	0.04	2.27	2.31	188	1.05	3	0.05	8
	8/31/2020	85	3.5	<0.05	<0.01	0.08	1.92	2.00	185	0.89	3.5	0.02	3
	Mean	101	3.2	0.05	0.01	0.04	3.08	3.12	186	0.63	3.1	0.03	5
	Stdev	15	0.8	0.00	0.01	0.02	0.94	0.93	42	0.32	0.5	0.02	3
	Max	117	4.4	0.05	0.03	0.08	4.04	4.07	254	1.05	3.6	0.05	9
	Min	85	2.2	0.05	0.01	0.03	1.92	2	148	0.37	2.5	0.01	2
	No. of Det.	5	5	1	1	5	5	5	5	3	5	5	5

Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	NO3-NO2	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-02M	5/18/2020	116	<2.0	<0.05	<0.01	0.02	4.49	4.51	244	<0.37	1.9	0.02	1
	6/15/2020	121	<2.0	0.08	0.15	0.05	4.2	4.25	221	<0.37	3.6	0.06	3
	7/6/2020	142	<2.0	<0.05	0.05	0.18	4.37	4.55	227	<0.47	2.5	<0.01	12
	8/10/2020	92	3	<0.05	0.28	0.07	2.56	2.63	185	0.86	3.7	0.05	3
	8/31/2020	109	2.7	<0.05	<0.01	0.21	2.69	2.90	221	<0.47	2.8	0.01	2
	Mean	116	2.3	0.06	0.10	0.11	3.66	3.77	220	0.51	2.9	0.03	4.2
	Stdev	18	0.5	0.01	0.12	0.08	0.95	0.93	22	0.20	0.8	0.02	4.4
	Max	142	3.0	0.08	0.28	0.21	4.49	4.55	244	0.86	3.7	0.06	12
	Min	92	2.0	0.05	0.01	0.02	2.56	2.63	185	0.37	1.9	0.01	1
	No. of Det.	5	2	1	3	5	5	5	5	1	5	4	5
BM-02B	5/18/2020	132	<2.0	<0.05	0.04	0.04	4.87	4.91	283	<0.37	1.8	0.01	3
	6/15/2020	133	<2.0	0.05	0.16	0.06	4.24	4.30	239	<0.37	2.5	0.02	6
	7/6/2020	143	2.9	<0.05	0.06	0.29	3.53	3.82	231	<0.47	2.5	<0.01	4
	8/10/2020	108	<2.0	0.1	0.25	0.03	3.81	3.84	213	0.81	3.7	0.11	8
	8/31/2020	141	2.6	<0.05	<0.01	0.36	3.59	3.95	259	<0.47	2	0.02	3
	Mean	131	2.3	0.06	0.10	0.16	4.01	4.16	245	0.50	2.5	0.03	5
	Stdev	14	0.4	0.02	0.10	0.16	0.56	0.46	27	0.18	0.7	0.04	2
	Max	143	2.9	0.10	0.25	0.36	4.87	4.91	283	0.81	3.7	0.11	8
	Min	108	2.0	0.05	0.01	0.03	3.53	3.82	213	0.37	1.8	0.01	3
	No. of Det.	5	2	2	4	5	5	5	5	1	5	4	5

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2020

Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	NO3-NO2	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	5/18/2020	204	<2.0	<0.05	<0.01	0.03	7.32	7.35	380	<0.37	1.6	0.03	1
	6/15/2020	209	<2.0	0.07	<0.01	0.02	7.97	7.99	347	<0.37	1.4	0.06	13
	7/6/2020	208	<2.0	0.06	<0.01	0.01	7.11	7.12	317	<0.47	1.8	0.03	11
	8/10/2020	209	<2.0	0.08	0.03	<0.01	7.32	7.33	339	0.57	1.6	0.08	10
	8/31/2020	219	<2.0	0.07	<0.01	<0.01	7.49	7.50	367	<0.47	1.5	0.07	1
	Mean	210	2	0.07	0.01	0.02	7.44	7.46	350	0.45	1.6	0.05	7
	Stdev	6	0	0.01	0	0	0.32	0.33	25	0.08	0.1	0.02	6
	Max	219	2	0.08	0.03	0.03	7.97	7.99	380	0.57	1.8	0.08	13
	Min	204	2	0.05	0.01	0.01	7.11	7.12	317	0.37	1.4	0.03	1
	No. of Det.	5	0	4	1	3	5	5	5	1	5	5	5
BM-06S	5/18/2020	111	<2.0	<0.05	<0.01	0.03	4.03	4.06	248	<0.37	2.8	0.02	1
	6/15/2020	116	2.5	<0.05	<0.01	0.03	3.88	3.91	203	0.38	2.8	0.03	2
	7/6/2020	86	3.2	<0.05	<0.01	0.03	3.32	3.35	155	<0.47	3.1	<0.01	3
	8/10/2020	103	2.9	<0.05	<0.01	0.04	2.45	2.49	199	0.86	3	0.04	4
	8/31/2020	88	6.8	<0.05	<0.01	0.09	1.91	2.00	187	0.96	4	0.03	19
	Mean	101	3.5	0.05	0.01	0.04	3.12	3.16	198	0.61	3.1	0.03	6
	Stdev	13	1.9	0.00	0	0.03	0.92	0.89	34	0.28	0.5	0.01	7
	Max	116	6.8	0.05	0.01	0.09	4.03	4.06	248	0.96	4	0.04	19
	Min	86	2.0	0.05	0.01	0.03	1.91	2	155	0.37	2.8	0.01	1
	No. of Det.	5	4	0	0	5	5	5	5	3	5	4	5

Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	NO3-NO2	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	5/18/2020	118	<2.0	<0.05	<0.01	0.03	4.44	4.47	262	<0.37	1.9	0.03	1
	6/15/2020	121	<2.0	<0.05	0.12	0.04	4.28	4.32	215	<0.37	3.5	0.03	2
	7/6/2020	137	2.8	<0.05	<0.01	0.33	3.65	3.98	206	<0.47	2.8	0.04	4
	8/10/2020	92	2.8	0.09	0.4	0.06	2.55	2.61	186	0.72	4.8	0.15	3
	8/31/2020	117	2.4	<0.05	<0.01	0.21	2.99	3.20	206	0.53	2.8	0.01	2
	Mean	117	2.4	0.06	0.11	0.13	3.58	3.72	215	0.49	3.2	0.05	2
	Stdev	16	0.4	0.02	0.17	0.13	0.81	0.79	28	0.14	1.1	0.06	1
	Max	137	2.8	0.09	0.4	0.33	4.44	4.47	262	0.72	4.8	0.15	4
	Min	92	2.0	0.05	0.01	0.03	2.55	2.61	186	0.37	1.9	0.01	1
	No. of Det.	5	3	1	2	5	5	5	5	2	5	5	5
BM-06B	5/18/2020	131	<2.0	0.06	0.16	0.09	4.52	4.61	257	<0.37	1.9	0.03	9
	6/15/2020	132	<2.0	<0.05	0.26	0.07	3.87	3.94	231	<0.37	2	0.01	2
	7/6/2020	150	5.1	<0.05	0.48	0.2	2.49	2.69	220	0.55	2.5	0.12	12
	8/10/2020	104	<2.0	0.09	0.24	0.03	3.72	3.75	212	0.58	3.9	0.13	8
	8/31/2020	165	4.3	<0.05	0.33	0.26	3.39	3.65	274	0.96	2.2	0.05	6
	Mean	136	3.1	0.06	0.29	0.13	3.60	3.73	239	0.57	2.5	0.07	7
	Stdev	23	1.5	0.02	0.12	0.10	0.74	0.69	26	0.24	0.8	0.05	4
	Max	165	5.1	0.09	0.48	0.26	4.52	4.61	274	0.96	3.9	0.13	12
	Min	104	2.0	0.05	0.16	0.03	2.49	2.69	212	0.37	1.9	0.01	2
	No. of Det.	5	2	2	5	5	5	5	5	3	5	5	5

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2020

Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	NO3-NO2	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	5/18/2020	111	<2.0	<0.05	<0.01	0.02	4.11	4.13	231	<0.37	2.3	0.01	5
	6/15/2020	111	2.8	<0.05	<0.01	0.03	3.94	3.97	206	0.41	2.9	0.02	3
	7/6/2020	91	2.6	<0.05	<0.01	0.03	3.32	3.35	164	<0.47	3.1	0.04	5
	8/10/2020	95	5.2	<0.05	<0.01	0.04	2.34	2.38	192	0.58	3.3	0.04	7
	8/31/2020	89	4.4	<0.05	<0.01	0.08	2.01	2.09	194	0.97	3.4	0.03	8
	Mean	99	3.4	0.05	0.01	0.04	3.14	3.18	197	0.56	3.0	0.03	6
	Stdev	11	1.3	0.00	0	0.02	0.94	0.92	24.3	0.24	0.4	0.01	2
	Max	111	5.2	0.05	0.01	0.08	4.11	4.13	231	0.97	3.4	0.04	8
	Min	89	2.0	0.05	0.01	0.02	2.01	2.09	164	0.37	2.3	0.01	3
	No. of Det.	5	4	0	0	5	5	5	5	3	5	5	5
BM-07M	5/18/2020	120	<2.0	<0.05	<0.01	0.02	4.63	4.65	252	<0.37	1.8	0.03	2
	6/15/2020	129	<2.0	0.07	0.18	0.05	4.55	4.6	232	<0.37	2.6	0.05	5
	7/6/2020	139	<2.0	<0.05	0.09	0.08	4.58	4.66	240	1.53	2.4	0.03	10
	8/10/2020	94	2.7	<0.05	0.03	0.03	2.68	2.71	202	0.49	3	0.04	3
	8/31/2020	88	2.8	0.07	<0.01	0.08	2.02	2.10	191	0.66	3.3	0.04	3
	Mean	114.0	2.3	0.06	0.06	0.05	3.69	3.74	223	0.68	2.6	0.04	5
	Stdev	22.1	0.4	0.01	0.07	0.03	1.25	1.24	25.9	0.49	0.6	0.01	3
	Max	139	2.8	0.07	0.18	0.08	4.63	4.66	252	1.53	3.3	0.05	10
	Min	88	2.0	0.05	0.01	0.02	2.02	2.1	191	0.37	1.8	0.03	2
	No. of Det.	5	2	2	3	5	5	5	5	3	5	5	5

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2020

Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	NO3-NO2	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	5/18/2020	146	2	<0.05	0.02	0.05	4.97	5.02	265	0.96	1.9	0.13	87
	6/15/2020	148	<2.0	0.06	0.48	0.08	3.03	3.11	239	0.78	2	0.07	16
	7/6/2020	158	5.5	0.06	0.42	0.13	3.15	3.28	232	0.63	2.4	0.1	82
	8/10/2020	103	2.1	0.07	0.14	0.03	3.62	3.65	213	0.48	3.4	0.07	3
	8/31/2020	150	3.1	<0.05	0.22	0.16	3.64	3.80	284	0.85	2	0.06	3
	Mean	141	2.9	0.06	0.26	0.09	3.68	3.77	247	0.74	2.3	0.09	38
	Stdev	22	1.5	0.01	0.19	0.05	0.77	0.75	28	0.19	0.6	0.03	43
	Max	158	5.5	0.07	0.48	0.16	4.97	5.02	284	0.96	3.4	0.13	87
	Min	103	2.0	0.05	0.02	0.03	3.03	3.11	213	0.48	1.9	0.06	3
	No. of Det.	5	4	3	5	5	5	5	5	5	5	5	5
BM-08S	5/18/2020	113	3.7	<0.05	<0.01	0.02	4.24	4.26	233	<0.37	2.2	0.04	3
	6/15/2020	118	2.2	<0.05	0.03	0.03	3.89	3.92	211	<0.37	2.7	0.01	5
	7/6/2020	85	3	<0.05	<0.01	0.03	3.21	3.24	180	<0.47	3.2	<0.01	6
	8/10/2020	96	4.8	<0.05	0.03	0.03	2.26	2.29	196	0.69	3.2	0.05	8
	8/31/2020	88	4.6	<0.05	<0.01	0.05	2.04	2.09	192	0.87	3.2	0.02	6
	Mean	100	3.7	0.05	0.02	0.03	3.13	3.16	202	0.55	2.9	0.03	6
	Stdev	15	1.1	0.00	0.01	0.01	0.97	0.96	20	0.22	0.4	0.02	2
	Max	118	4.8	0.05	0.03	0.05	4.24	4.26	233	0.87	3.2	0.05	8
	Min	85	2.2	0.05	0.01	0.02	2.04	2.09	180	0.37	2.2	0.01	3
	No. of Det.	5	5	0	2	5	5	5	5	2	5	4	5

Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	NO3-NO2	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	5/18/2020	113	2.3	<0.05	<0.01	0.02	4.11	4.13	175	<0.37	2	0.06	3
	6/15/2020	116	4.2	<0.05	0.05	0.03	3.78	3.81	210	0.41	2.4	0.04	6
	7/6/2020	140	<2.0	<0.05	0.12	0.05	4.39	4.44	255	<0.47	2.3	0.07	4
	8/10/2020	89	2.6	<0.05	0.03	0.03	2.42	2.45	182	0.54	3	0.04	4
	8/31/2020	86	2.9	<0.05	<0.01	0.05	2.07	2.12	167	0.56	3.1	0.04	5
	Mean	109	2.8	0.05	0.04	0.04	3.35	3.39	198	0.47	2.6	0.05	4.4
	Stdev	22	0.9	0.00	0.05	0.01	1.04	1.04	36	0.08	0.5	0.01	1.1
	Max	140	4.2	0.05	0.12	0.05	4.39	4.44	255	0.56	3.1	0.07	6
	Min	86	2.0	0.05	0.01	0.02	2.07	2.12	167	0.37	2	0.04	3
No. of Det.	5	4	0	3	5	5	5	5	5	3	5	5	5
BM-08B	5/18/2020	122	<2.0	<0.05	<0.01	0.02	4.04	4.06	206	<0.37	1.9	0.05	11
	6/15/2020	121	<2.0	0.07	0.26	0.05	4.04	4.09	239	0.45	2.4	0.09	40
	7/6/2020	144	2.3	<0.05	0.24	0.16	3.67	3.83	237	<0.47	2.3	0.05	69
	8/10/2020	84	<2.0	<0.05	0.03	0.02	2.79	2.81	189	<0.47	3.2	0.09	7
	8/31/2020	110	2.8	<0.05	0.04	0.03	2.59	2.62	205	0.72	2.6	0.07	37
	Mean	116	2.2	0.05	0.12	0.06	3.43	3.48	215	0.50	2.5	0.07	32.8
	Stdev	22	0.3	0.01	0.12	0.06	0.69	0.71	22	0.13	0.5	0.02	25
	Max	144	2.8	0.07	0.26	0.16	4.04	4.09	239	0.72	3.2	0.09	69
	Min	84	2.0	0.05	0.01	0.02	2.59	2.62	189	0.37	1.9	0.05	7
No. of Det.	5	2	1	4	5	5	5	5	5	2	5	5	5

Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	NO3-NO2	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	5/18/2020	110	2.1	<0.05	<0.01	0.02	4.25	4.27	197	<0.37	2.2	0.02	1
	6/15/2020	116	2.3	<0.05	<0.01	0.03	3.92	3.95	192	<0.37	2.8	0.04	8
	7/6/2020	88	2.5	<0.05	<0.01	0.03	3.23	3.26	173	<0.47	3.2	0.04	7
	8/10/2020	94	3.1	<0.05	<0.01	0.03	2.3	2.33	199	0.54	3.3	0.05	2
	8/31/2020	92	4.4	<0.05	<0.01	0.06	2.09	2.15	185	0.83	3.2	0.03	6
	Mean	100	2.9	0.05	0.01	0.03	3.16	3.19	189	0.52	2.9	0.04	5
	Stdev	12	0.9	0.00	0.00	0.02	0.96	0.94	11	0.19	0.5	0.01	3
	Max	116	4.4	0.05	0.01	0.06	4.25	4.27	199	0.83	3.3	0.05	8
	Min	88	2.1	0.05	0.01	0.02	2.09	2.15	173	0.37	2.2	0.02	1
	No. of Det.	5	5	0	0	5	5	5	5	2	5	5	5
BM-09M	5/18/2020	133	<2.0	<0.05	<0.01	0.02	5.07	5.09	224	<0.37	1.8	0.02	2
	6/15/2020	142	<2.0	<0.05	0.17	0.04	5.15	5.19	257	<0.37	2.3	0.05	9
	7/6/2020	158	2.9	<0.05	0.14	0.12	4.82	4.94	214	<0.47	2.1	0.03	2
	8/10/2020	89	<2.0	<0.05	0.06	0.03	2.86	2.89	191	<0.47	3.1	0.04	4
	8/31/2020	117	3	<0.05	0.03	0.07	2.98	3.05	217	0.58	2.5	0.03	6
	Mean	128	2.4	0.05	0.08	0.06	4.18	4.23	221	0.45	2.4	0.03	4.6
	Stdev	26	0.5	0.00	0.07	0.04	1.15	1.16	24	0.09	0.5	0.01	3.0
	Max	158	3.0	0.05	0.17	0.12	5.15	5.19	257	0.58	3.1	0.05	9
	Min	89	2.0	0.05	0.01	0.02	2.86	2.89	191	0.37	1.8	0.02	2
	No. of Det.	5	2	0	4	5	5	5	5	1	5	5	5

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2020													
Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	NO3-NO2	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	5/18/2020	137	<2.0	<0.05	<0.01	0.02	5.07	5.09	231	<0.37	1.7	<0.01	2
	6/15/2020	133	<2.0	0.08	0.33	0.06	3.75	3.81	249	0.4	2.4	0.07	9
	7/6/2020	159	2.2	0.07	0.37	0.15	3.85	4.00	245	<0.47	2.3	0.08	18
	8/10/2020	141	<2.0	0.07	0.11	0.02	5.17	5.19	272	<0.47	2.6	0.09	8
	8/31/2020	159	<2.0	0.05	0.1	0.04	4.62	4.66	283	0.57	2.8	0.09	14
	Mean	146	2.0	0.06	0.18	0.06	4.49	4.55	256	0.46	2.4	0.07	10
	Stdev	12	0.1	0.01	0.16	0.05	0.67	0.63	21	0.08	0.4	0.03	6
	Max	159	2.2	0.08	0.37	0.15	5.17	5.19	283	0.57	2.8	0.09	18
	Min	133	2.0	0.05	0.01	0.02	3.75	3.81	231	0.37	1.7	0.01	2
	No. of Det.	5	1	4	4	5	5	5	5	5	2	5	4
BM-10S	5/18/2020	141	2.7	<0.05	<0.01	0.03	5.57	5.60	230	<0.37	1.9	<0.01	3
	6/15/2020	108	3.7	<0.05	<0.01	0.03	4.09	4.12	195	<0.37	2.6	0.02	10
	7/6/2020	79	3.1	<0.05	<0.01	0.03	3.1	3.13	148	0.63	3.3	<0.01	7
	8/10/2020	88	4.8	<0.05	<0.01	0.03	2.17	2.2	123	0.83	3.6	0.05	10
	8/31/2020	102	4.8	<0.05	<0.01	0.03	2.59	2.62	193	0.73	3.1	0.05	6
	Mean	104	3.8	0.05	0.01	0.03	3.50	3.53	178	0.59	2.9	0.03	7
	Stdev	24	1.0	0.00	0.00	0.00	1.36	1.36	42	0.21	0.7	0.02	3
	Max	141	4.8	0.05	0.01	0.03	5.57	5.6	230	0.83	3.6	0.05	10
	Min	79	2.7	0.05	0.01	0.03	2.17	2.2	123	0.37	1.9	0.01	3
	No. of Det.	5	5	0	0	5	5	5	5	5	3	5	3

Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	NO3-NO2	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	5/18/2020	144	<2.0	<0.05	<0.01	0.03	5.55	5.58	258	<0.37	1.8	0.02	5
	6/15/2020	132	<2.0	<0.05	0.08	0.03	4.91	4.94	242	<0.37	2.3	0.05	39
	7/6/2020	150	2.4	<0.05	<0.01	0.03	4.76	4.79	246	0.58	2.5	0.1	21
	8/10/2020	105	2.3	<0.05	0.02	0.02	3.43	3.45	177	0.59	2.9	0.04	5
	8/31/2020	105	4.6	<0.05	<0.01	0.03	2.65	2.68	136	0.75	3.1	0.05	6
	Mean	127	2.7	0.05	0.03	0.03	4.26	4.29	212	0.53	2.5	0.05	15
	Stdev	21	1.1	0	0.03	0.00	1.19	1.19	53	0.16	0.5	0.03	15
	Max	150	4.6	0.05	0.08	0.03	5.55	5.58	258	0.75	3.1	0.1	39
	Min	105	2.0	0.05	0.01	0.02	2.65	2.68	136	0.37	1.8	0.02	5
	No. of Det.	5	3	0	2	5	5	5	5	5	3	5	5
BM-10B	5/18/2020	155	<2.0	<0.05	0.05	0.03	5.49	5.52	261	<0.37	2.1	0.05	21
	6/15/2020	139	2.1	<0.05	0.14	0.03	5.23	5.26	249	0.52	2.3	0.08	38
	7/6/2020	181	3.5	0.07	0.35	0.08	4.34	4.42	283	1.25	2.3	0.15	76
	8/10/2020	151	<2.0	0.08	0.09	0.02	5.93	5.95	263	0.55	2.1	0.16	42
	8/31/2020	143	<2.0	<0.05	<0.01	0.03	3.91	3.94	204	0.5	3	0.08	19
	Mean	154	2.3	0.06	0.13	0.04	4.98	5.02	252	0.64	2.4	0.10	39
	Stdev	16	0.7	0.01	0.13	0.02	0.83	0.82	29	0.35	0.4	0.05	23
	Max	181	3.5	0.08	0.35	0.08	5.93	5.95	283	1.25	3	0.16	76
	Min	139	2.0	0.05	0.01	0.02	3.91	3.94	204	0.37	2.1	0.05	19
	No. of Det.	5	2	2	4	5	5	5	5	5	4	5	5

Table 3-2 continued. Summary of surface, middle, and bottom water quality monitoring data for Blue Marsh Reservoir in 2020

Station	Date	ALK	BOD5	DISS-P	NH3	NO2	NO3	NO3-NO2	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	5/18/2020	48	<2.0	<0.05	<0.01	0.01	2.55	2.56	107	<0.37	2	<0.01	1
	6/15/2020	68	<2.0	<0.05	<0.01	<0.01	4.16	4.17	141	<0.37	1.9	0.04	7
	7/6/2020	127	<2.0	0.07	<0.01	0.02	3.63	3.65	208	<0.47	2.4	0.2	3
	8/10/2020	43	<2.0	0.07	0.04	<0.01	4.27	4.28	123	<0.47	2.3	0.04	1
	8/31/2020	131	<2.0	0.1	<0.01	0.01	3.93	3.94	217	<0.47	2.5	0.07	1
	Mean	83	2.0	0.07	0.02	0.01	3.71	3.72	159	0.43	2.2	0.07	3
	Stdev	43	0.0	0.02	0.01	0.00	0.69	0.69	50	0.05	0.3	0.07	3
	Max	131	2.0	0.1	0.04	0.02	4.27	4.28	217	0.47	2.5	0.2	7
	Min	43	2.0	0.05	0.01	0.01	2.55	2.56	107	0.37	1.9	0.01	1
	No. of Det.	5	0	3	1	3	5	5	5	0	5	4	5

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

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 2020 (Table 3-2). Concentrations ranged from less than the reporting limit of 0.01 mg/L to 0.36 mg/L for all stations and depths 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 2020. 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 activities in the watershed and subsequent runoff and loading. Concentrations at all sampling locations and depths ranged from 1.91 to 7.97 mg/L. Seasonal mean concentrations at surface tributary stations BM-5S (7.44 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 2020. 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 and sampling dates were less than the State standard. The highest nitrogen summed concentration of 7.99 mg/L occurred in the surface waters at station BM-5S in June.

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 2020 (Table 3-2). Concentrations measured at all stations and depths in the reservoir and tributaries ranged from less than the laboratory reporting limit of 0.37 mg/L to 1.53 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.

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 2020 (Table 3-2). Bottom deep waters within the lake and upstream tributary stations BM-5S and BM-11S 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 in Blue Marsh Reservoir annually. In 2020, 89 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 0.20 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 elevated during 2020. However, most sampling results were less than the laboratory reporting limit. The single sample values for all stations and depths ranged from 0.10 mg/L to <0.05 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 380 mg/L to 107 mg/L in 2020 (Table 3-2). Upstream tributary station BM-5S routinely had the highest monthly measured concentrations and maintained the highest seasonal sampling average of 350 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 2020 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 2020 sampling period (Table 3-2). Sample results at all stations and depths ranged from 82 mg/L to 1.0 mg/L. The maximum and consistently higher TSS readings were taken in the deep bottom water samples at reservoir lake sampling stations. Uncharacteristically high single TSS 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 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 in the waters of Blue Marsh Reservoir ranged from 6.8 mg/L to <2.0 mg/L (Laboratory method minimum reporting limit) during the 2020 sampling period (Table 3-2). Considering the rare instances of elevated levels, it is inferred that upstream tributaries and the lake body of the reservoir ranged from very clean with little biodegradable wastes to moderately clean waters with some biodegradable wastes throughout the sampling season. The Pennsylvania Department of Environmental Protection (PADEP) 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 CaCO_3 except where natural conditions are less.

Throughout the monitoring period in 2020, concentrations at all stations and depths for Blue Marsh Reservoir ranged from 43.0 mg/L CaCO₃ to 219 mg/L CaCO₃ (Table 3-2). Upstream tributary station BM-5S maintained the highest seasonal mean concentration of 210 mg/L CaCO₃. Concentrations of alkalinity measured at Blue Marsh Reservoir were in compliance with PADEP water quality standards for all samples collected during 2020.

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 wastewater treatment plant discharges. The amount of carbon in a freshwater stream or lake 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 during 2020 were typical of what might be found in a eutrophic lake (Table 3-2). Concentrations of TOC at all stations and depths ranged from 1.4 mg/L to 4.8 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 2020, the average concentration during the monitoring period for lake surface waters (<=10 feet) at lake station BM-6 was 12.82 ug/L with the highest concentrations seen during early August (Appendix A). Upstream surface water tributary stations 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 TROPHIC STATE DETERMINATION

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

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During 2020, TSI's calculated for measures of secchi disk depth classified Blue Marsh Reservoir as eutrophic in May (51.53), June (56.22), July (58.63), early August (58.63) and late August (94.70) (Fig. 3-7). TSIs calculated for measures of total phosphorus (Figure 3-7) classified Blue Marsh Reservoir as eutrophic in June (53.20), early August (57.34) and late August (53.20), mesotrophic in May (47.35), and oligotrophic in July (37.35). TSI's calculated for measures of chlorophyll a classified Blue Marsh Reservoir as eutrophic in May (52.99), June (54.73), July (56.49), early August (58.04) and late August (55.14).

Carlson (1977) warned against averaging TSI values estimated for different parameters, and instead suggested giving priority to chlorophyll a in the summer and to phosphorus in the spring, fall, and winter. The trophic state of the reservoir was predominantly eutrophic during the 2020 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). Considering 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 2020.

Water Quality Variable	Oligo-trophic	Meso-trophic	Eutrophic	18 May	15 June	06 July	10 August	31 August
Total phos. (ppb)	<10	10-20	>20	20	30	10	40	30
Chlorophyll (ppb)	<4	4-10	>10	9.8	11.7	14.0	16.4	11.2
Secchi depth (m)	>4	2-4	<2	1.8	1.3	1.1	1.1	0.09

3.4 RESERVOIR COLIFORM BACTERIA MONITORING

Total coliform bacteria include *Escherichia coliform* (*E. coli*) and related bacteria that are associated with fecal discharges. Fecal coliform bacteria are a subgroup of the total coliform and are normally associated with waste derived from human and other warm-blooded animals and indicate the presence of fecal contamination but not the associated risk. With respect to EPA and PADEP water quality standards, fecal coliform bacteria standards have been replaced with a recommended *E. coli* criterion. Bacteria contamination was monitored in the tributary and lake surface waters at Blue Marsh Reservoir once monthly and twice in August (May-August) during 2020 (Table 3-4). Blue Marsh surface water samples were not analyzed for fecal coliform bacteria in 2020.

Escherichia coliform 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

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samples collected over not more than a 30 consecutive day period) threshold and 235 organisms/100 ml (single water sample) threshold.

Total coliform values for all stations ranged from 12 colonies/100-ml to greater than the detection limit of >2420 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.

Given that Corps regular monitoring was completed utilizing single day grab samples, single sample results were compared to the EPA/PADEP Escherichia coli single sample criteria in 2020. The E. coli samples collected at Blue Marsh Reservoir did exceed the 235 organisms/100 ml single water sample threshold on eight occasions in upstream tributary stations and on one occasion in the downstream release waters. Elevated levels in most months sampled were seen at the upstream tributary stations BM-5S and BM-11S. Escherichia coliform values for these two stations ranged from 79 colonies/100-ml to 816 colonies/100-ml. 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 also monitored for bacteria 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 routinely collected twice weekly from 3 fixed beach area stations on each date in the regulated swimming area. During the 2020 recreation season, E. coli samples at the swimming beach area of Blue Marsh Reservoir exceeded the single sample criteria on one occasion (Table 3-5). No bacteria caused beach closures occurred during the 2020 recreation season. High bacterial readings often correlate with precipitation and subsequent runoff from the watershed and beach area which is populated with a resident Canada goose population.

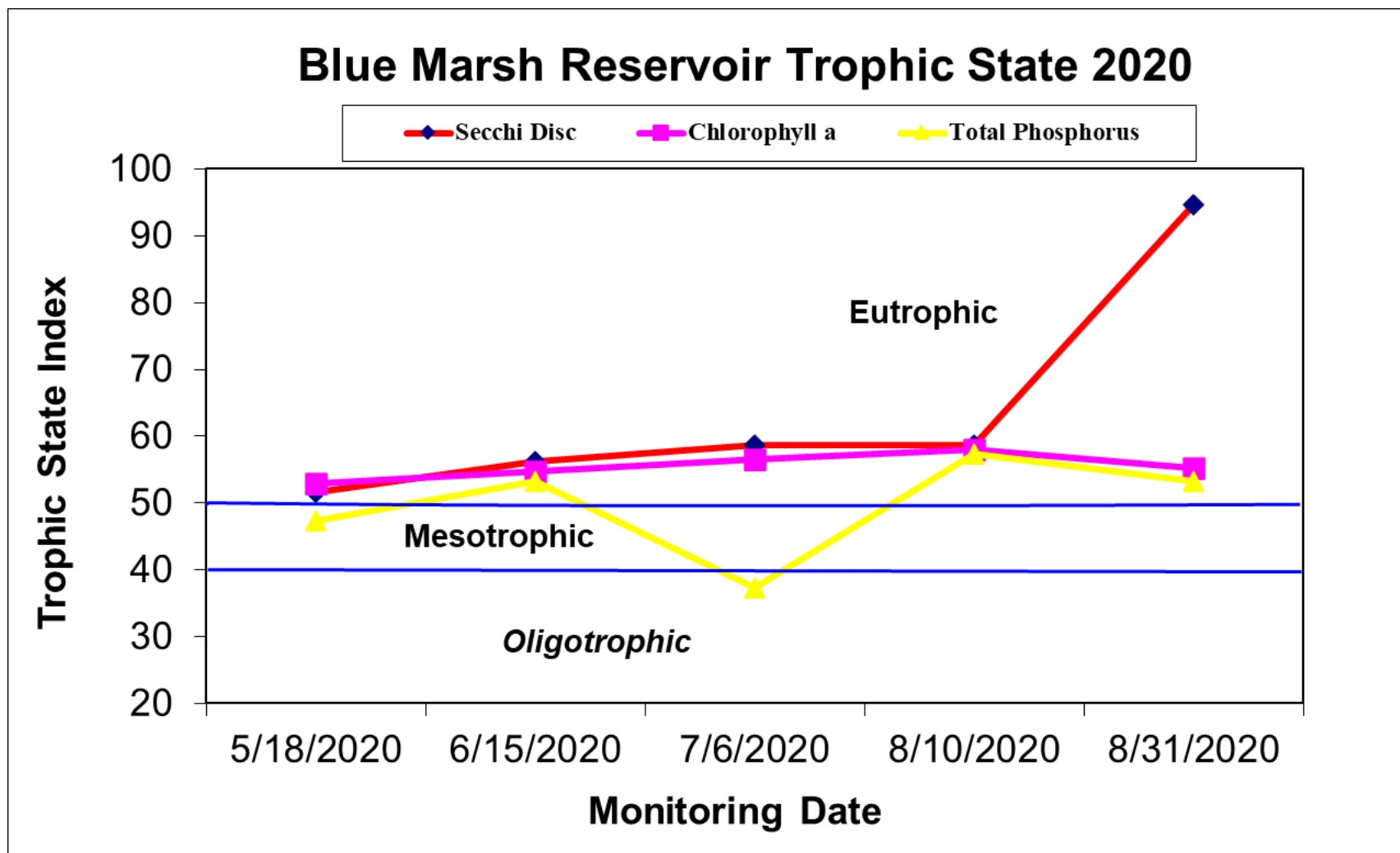


Figure 3-7. Trophic state indices calculated from secchi disk depth and concentrations of total phosphorus and chlorophyll *a* at Blue Marsh Reservoir in 2020.

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Table 3-4. Surface Water Stations Bacteria counts (colonies/100 ml) at Blue Marsh Reservoir during 2020. Shaded values indicate results were not in compliance with EPA and PA Department of Health water quality standards for E-coli levels at bathing beaches: maximum single count greater than 235 colonies/100-ml.

NS = Not Sampled

STATION	DATE	Total Coliform	Fecal Coliform(FC)	Escherichia coli
BM-1S	5/18/2020	326	NS	< 1
	6/15/2020	344	NS	6
	7/6/2020	> 2420	NS	10
	8/10/2020	> 2420	NS	411
	8/31/2020	2420	NS	< 1
BM-2S	5/18/2020	12	NS	< 1
	6/15/2020	172	NS	< 1
	7/6/2020	228	NS	1
	8/10/2020	291	NS	2
	8/31/2020	488	NS	< 1
BM-5S	5/18/2020	1410	NS	79
	6/15/2020	> 2420	NS	435
	7/6/2020	> 2420	NS	345
	8/10/2020	> 2420	NS	365
	8/31/2020	> 2420	NS	816
BM-6S	5/18/2020	34	NS	< 1
	6/15/2020	47	NS	< 1
	7/6/2020	308	NS	2
	8/10/2020	> 2420	NS	4
	8/31/2020	579	NS	3
BM-7S	5/18/2020	36	NS	< 1
	6/15/2020	165	NS	5
	7/6/2020	770	NS	2
	8/10/2020	770	NS	1
	8/31/2020	1990	NS	12
BM-8S	5/18/2020	62	NS	< 1
	6/15/2020	66	NS	1
	7/6/2020	517	NS	< 1
	8/10/2020	488	NS	2
	8/31/2020	1990	NS	14
BM-9S	5/18/2020	291	NS	5
	6/15/2020	91	NS	2
	7/6/2020	517	NS	2
	8/10/2020	1050	NS	5
	8/31/2020	2420	NS	10
BM-10S	5/18/2020	231	NS	2
	6/15/2020	249	NS	3
	7/6/2020	687	NS	1
	8/10/2020	1200	NS	7
	8/31/2020	2420	NS	88
BM-11S	5/18/2020	> 2420	NS	86
	6/15/2020	> 2420	NS	435
	7/6/2020	> 2420	NS	308
	8/10/2020	> 2420	NS	308
	8/31/2020	> 2420	NS	517

Table 3-5. Maximum counts and 5-day e-coli running geometric means of the three swimming beach stations of Blue Marsh Reservoir in 2020. Shaded values indicate results were not in compliance with EPA and PA Department 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	6/4/2020	47	-	-	-
Week 2	6/8/2020	52	-	-	-
	6/11/2020	6	-	-	-
Week 3	6/16/2020	10	-	-	-
	6/18/2020	4	11.10	9.93	6.97
Week 4	6/22/2020	27	11.10	8.91	5.21
	6/25/2020	15	8.66	8.62	4.66
Week 5	6/29/2020	4	9.17	6.92	4.46
	7/2/2020	55	12.89	8.50	6.05
Week 6	7/6/2020	8	9.77	9.51	9.17
	7/9/2020	118	9.98	10.80	14.74
Week 7	7/13/2020	2420	27.58	22.79	36.73
	7/15/2020	50	38.06	33.13	60.87
	7/16/2020	12	27.58	26.97	53.45
Week 8	7/20/2020	26	49.71	35.06	56.96
	7/23/2020	9	36.03	24.78	34.43
Week 9	7/27/2020	17	8.71	7.27	15.88
	7/30/2020	5	6.60	5.00	8.34
Week 10	8/3/2020	79	9.79	7.27	11.23
Week 11	8/10/2020	54	12.07	8.11	14.95
	8/13/2020	14	13.62	9.61	15.56
Week 12	8/17/2020	6	11.86	9.61	12.63
	8/20/2020	8	13.03	9.61	12.63
Week 13	8/24/2020	2	6.25	4.17	5.71
	8/27/2020	2	2.81	2.24	2.66
Week 14	8/31/2020	11	2.81	1.89	2.05
	9/3/2020	20	3.88	3.20	2.61

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 75% 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 summer 2020, Blue Marsh Reservoir experienced heavy rainfall events in the watershed in addition to extended periods of warm and sunny weather. U.S. Army Corps of Engineers staff observed varying densities of algal blooms throughout the reservoir. Figures 3-8 and 3-9 represent typical algal bloom conditions observed at Blue Marsh Reservoir annually. In response to these observations, the Philadelphia District took the following steps:

1. Initiated coordination with the Pennsylvania Department of Environmental Protection and water supply interests regarding response and monitoring plans.
2. Maintained posted public notices at lake recreational access locations (in addition to social media postings with links to Centers for Disease Control and Prevention cyanobacteria website) highlighting the presence and risks of potential harmful toxic algae and to pursue lake recreation at your own risk.
3. Initiated and conducted increased sampling and monitoring efforts in cooperation with the Pennsylvania Department of Environmental Protection.

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 at the reservoir swimming beach area and as needed (observation of an active bloom) at other

locations in the reservoir. Samples were analyzed for densities and types of algae organisms, cyanobacteria screening and if there were enough cyanobacteria, then a toxin analysis was completed. 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). Algae cell densities were elevated within many of the samples collected (Table 3-6). Toxin production levels were variable and did exceed the Environmental Protection Agency (2019) recommended recreational water criteria on 7 occasion for Microcystins / Nodularins and Cylindrospermopsin (Table 3-7). The Western Berks Water Authority maintains a raw water intake downstream of the reservoir in the Tulpehocken Creek and recently connected a direct lake water withdrawal pipeline to the existing reservoir water control tower. Finished and treated drinking water standards were not exceeded but raw water lake samples did exceed EPA/PADEP drinking water criteria within the lake surface waters on multiple occasions. No lake/reservoir recreational closures were initiated because of algal blooms or toxin production.

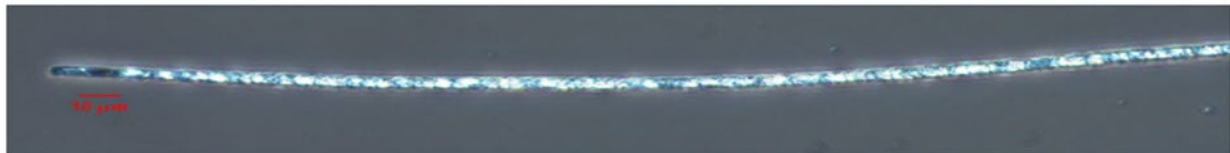


Figure 3-8. Photographs of typical algal bloom conditions at the Philadelphia District USACE Blue Marsh Reservoir during the summer recreational season.

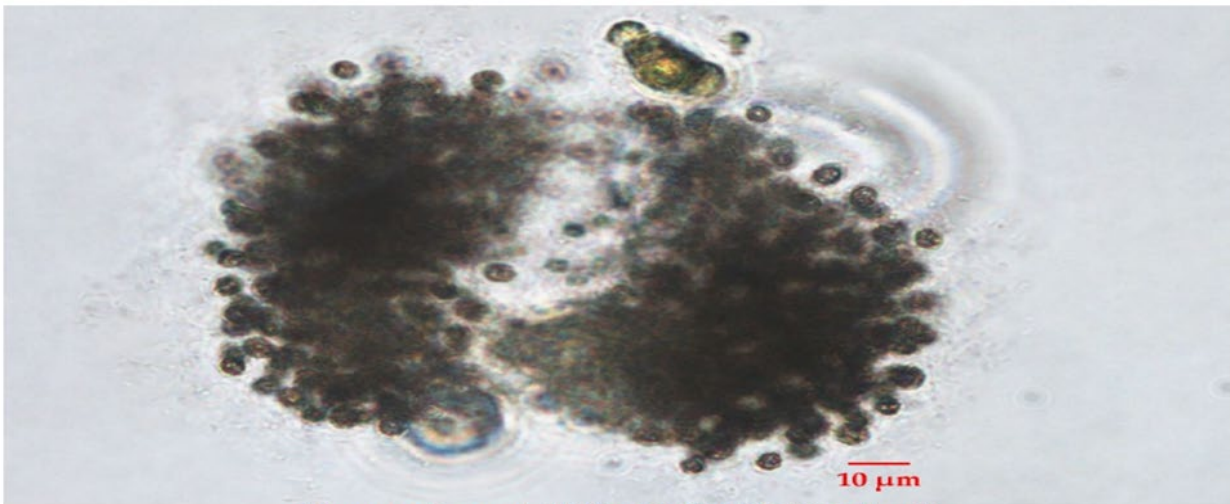


Figure 3-9. Photographs of typical algal bloom conditions at the Philadelphia District USACE Blue Marsh Reservoir during the summer recreational season.

Micrographs



Aphanizomenon sp. at 400X (20200609-0915-jbutt)



Microcystis sp. at 400X (20200609-1006-jbutt)

Figure 3-10. Laboratory microscopic photographs of toxigenic cyanobacteria found in Blue Marsh Reservoir water samples collected during the summer 2020 recreational season.

Table 3-6. PADEP organism counts (Organisms/ml) for algae samples collected at Blue Marsh Reservoir during the 2020 sampling season

Sampling Date: 8/14/2020

Sampling Sites	Microcystis	Cylindrospermopsis	Raphidiopsis	Pseudanabaena	Oscillatoria	Woronchinia	Planktothrix	Lyngbya	Dolichospermum	Cuspidothrix	Aphanizomenon
Lake Road	95		110	2100	76	19	3100	1300	76	950	890
Paddle Launch Rt.183	290			210	76		76	10	10	520	4000
Mt. Pleasant	95	38	610	1100	38		590	1100	150	690	4200

Sampling Date: 8/27/2020

Sampling Sites	Microcystis	Cylindrospermopsis	Raphidiopsis	Pseudanabaena	Oscillatoria	Woronchinia	Planktothrix	Lyngbya	Dolichospermum	Cuspidothrix	Aphanizomenon
Lake Road	6800		14000			210	2600	1200	9600		9200
DUA Swim Beach	57		1400					29	140		3900
Spring Creek Arm	1400					560	1500	10000	2500	3700	2300
Dam Tower				10					250	3700	3100
Sheidy Boat Ramp	76			38				57	230	1300	4300
Mt. Pleasant	1400		2300	29		110	1200	3000	2000		6600
Reservoir Body	38		210	76			95	300	300		1400
Tulpehocken Cove				76	800						38
Peacock Access			460	340	420						2600
Sheidy Ramp	170			2800				970			600

Sampling Date: 10/14/2020

Sampling Sites	Microcystis	Cylindrospermopsis	Raphidiopsis	Pseudanabaena	Oscillatoria	Woronchinia	Planktothrix	Lyngbya	Dolichospermum	Cuspidothrix	Aphanizomenon
Lake Road	2600					55000		17000	83000	1900	78000
Spring Creek Arm						10		20	180	520	1300
Dam Tower										610	
Sheidy Boat Ramp	4200					86000		15000	90000		66000
Mt. Pleasant	100					3100		760	19000		25000
Reservoir Body									80	1200	
Tulpehocken Cove						19		57			

Results and Discussion

Peacock Access	730					5500		2300	15000		19000
Sampling Date: 10/28/2020											
Sampling Sites	Microcystis	Cylindrospermopsis	Raphidiopsis	Pseudanabaena	Oscillatoria	Woronchinia	Planktothrix	Lyngbya	Dolichospermum	Cuspidothrix	Aphanizomenon
Lake Road	250					630		170	1800		520
Mt. Pleasant	95					2800		57	4400		610

Table 3-7. Blue Marsh Reservoir 2020 Algae Toxin Sampling Results

µg/L (micrograms per liter) = ppb (part per billion) = ng/ml (Nanogram per milliliter) 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				
7/30/20	Rt. 183 Paddle Launch – Blue Marsh Lake	1.52 ppb	ND	ND	ND
7/30/20	Lake Road – Blue Marsh Lake	ND	ND	0.30 ppb	ND
8/14/20	Mount Pleasant- Blue Marsh Lake	1.79 ppb	ND	0.07 ppb	ND
8/14/20	Lake Road – Blue Marsh Lake	4.80 ppb	ND	0.09 ppb	ND
8/14/20	Rt. 183 Paddle Launch – Blue Marsh Lake	3.20 ppb	ND	ND	ND
8/27/20	Dam Tower – Blue Marsh Lake	ND	ND	ND	ND
8/27/20	Swimming Beach – Blue Marsh Lake	ND	ND	ND	ND
8/27/20	DBBL Main Pool – Blue Marsh Lake	0.36 ppb	ND	ND	ND
8/27/20	SHBL Main Pool – Blue Marsh Lake	0.57 ppb	ND	ND	ND
8/27/20	Spring Ck. Confluence – Blue Marsh Lake	16.2 ppb	0.05 ppb	ND	0.08 ppb
8/27/20	Main Lake Body – Blue Marsh Lake	34.3 ppb	ND	ND	ND
8/27/20	Peacock Access – Blue Marsh Lake	5.3 ppb	ND	ND	ND
8/27/20	Mount Pleasant – Blue Marsh Lake	13.1 ppb	ND	ND	ND
8/27/20	Sheidy Boat Ramp – Blue Marsh Lake	1.91 ppb	ND	ND	ND
8/27/20	Tulpehocken Cove – Blue Marsh Lake	0.69 ppb	ND	ND	ND
8/27/20	Rt. 183 Paddle Launch – Blue Marsh Lake	ND	ND	ND	ND
10/14/20	Mount Pleasant- Blue Marsh Lake	11.1 ppb	ND	ND	ND

Results and Discussion

10/14/20	Peacock Access – Blue Marsh Lake	65.3 ppb	ND	ND	ND
10/14/20	Sheidy Boat Ramp – Blue Marsh Lake	306 ppb	ND	ND	ND
10/14/20	Lake Road – Blue Marsh Lake	171 ppb	ND	0.35 ppb	0.12 ppb
10/28/20	Mount Pleasant- Blue Marsh Lake	3.65 ppb	ND	ND	ND
10/28/20	Peacock Access – Blue Marsh Lake	ND	ND	ND	ND
10/28/20	Sheidy Boat Ramp – Blue Marsh Lake	ND	ND	ND	ND
10/28/20	Lake Road – Blue Marsh Lake	3.03 ppb	ND	ND	ND

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APPENDIX A

STRATIFICATION DATA TABLES

2020 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	5/18/2020	ERROR	0.5	14.19	98.1	10.05	8.30	-97.9	223.6	54.5	6.4	0.268
	6/15/2020	8:02:33	0.5	19.63	94.3	8.63	7.78	-69.5	174.2	48.5	7.8	0.324
	7/6/2020	7:21:49	1.103	18.62	88.6	8.28	7.28	-40.5	171.8	37.8	18.4	0.343
	8/10/2020	7:33:57	2.323	21.82	90.5	7.94	7.2	-35.9	214.6	43.1	5.2	0.291
	8/31/2020	7:30:12	0.5	21.97	88.5	7.73	7.49	-52.7	161.4	38.8	2.5	0.385
BM-2	5/18/2020	ERROR	0.5	16.82	129.9	12.6	8.84	-129.8	177.9	40.2	6.2	0.004
		ERROR	5.0	16.89	128.6	12.45	8.87	-131.4	174.6	40.9	9.3	0.277
		ERROR	10.0	15.53	122.4	12.19	8.77	-125.3	178.1	40.8	14.1	0.270
		ERROR	15.0	13.84	105.4	10.89	8.55	-112.2	182.9	40.7	11.8	0.263
		ERROR	20.0	13.31	93.3	9.75	8.36	-101.3	186.3	39.5	8.6	0.260
		ERROR	25.0	12.93	88.3	9.31	8.26	-95.8	187.9	40.0	7.3	0.263
		ERROR	30.0	12.58	85.3	9.06	8.08	-85.1	191.5	39.7	6.3	0.273
		ERROR	35.0	12.26	80.8	8.65	7.99	-79.9	194.1	40.3	4.5	0.282
		ERROR	40.0	11.97	74.3	8	7.91	-75.6	196.5	41.4	3.9	0.286
		ERROR	42	11.95	72.2	7.78	7.92	-76.2	197.6	42.8	4.3	0.286
BM-2	6/15/2020	10:20:09	0.5	24.67	150.4	12.49	8.86	-133.9	85.1	34.4	11.8	0.333
		10:19:13	5	24.54	147.5	12.28	8.85	-133.2	83.2	35.7	17.3	0.334
		10:17:17	10	24.3	134.4	11.24	8.77	-128.6	76.8	35.7	12.8	0.335
		10:15:28	15	21.31	55.8	4.94	7.69	-64.3	82.7	35.2	9.8	0.353
		10:14:29	20	19.5	43.3	3.97	7.57	-56.9	84.4	33.6	7.6	0.317
		10:13:20	25	18.2	36.5	3.44	7.53	-54.6	82.9	34.7	6.8	0.308
		10:12:21	30	16.61	42.4	4.13	7.59	-58.1	79.1	34.0	3.5	0.332
		10:10:44	35	14.84	30.2	3.05	7.57	-56.8	71.5	34.7	3.1	0.316
10:09:09	40	14.35	23.6	2.41	7.59	-57.7	57.6	35.3	3.7	0.312		
BM-2	7/6/2020	9:30:15	0.5	29.45	160	12.2	8.77	-130.2	75.3	32.1	13.5	0.323
		9:29:26	5	29.14	155.4	11.92	8.71	-126.3	71.4	33.5	17.4	0.322
		9:27:57	10	27	81.5	6.49	7.83	-73.5	72.6	33.1	13.3	0.357
		9:25:59	15	24.32	18.1	1.51	7.4	-47.5	68.6	31.6	9.2	0.407
		9:24:53	20	21.99	3.3	0.28	7.37	-45.7	57	30.3	6.1	0.394
		9:24:03	25	20.17	3.4	0.31	7.37	-45.3	56.1	28.9	4.5	0.383
		9:22:45	30	19	4	0.37	7.41	-47.7	54.9	29.0	4.5	0.363
		9:21:30	35	17.69	5.1	0.49	7.42	-48.4	72.3	29.5	3.6	0.342
9:20:48	40	16.55	6.7	0.65	7.48	-51.6	88.6	30.2	2.6	0.337		
BM-2	8/10/2020	9:33:11	0.5	27.71	157.6	12.39	8.84	-133.7	160.6	32.4	22.1	0.316
		9:31:53	5	27.43	151.3	11.95	8.69	-124.6	169.8	33.2	31.6	0.315
		9:30:05	10	25.76	26.6	2.17	7.27	-40.1	203.1	29.7	10.4	0.323
		9:27:35	15	24.1	7.1	0.6	7.21	-36.7	204.7	30	5.9	0.307
		9:24:38	20	22.45	32.6	2.83	7.29	-41.1	203.3	30.7	4.7	0.271
		9:22:15	25	21.7	44.8	3.94	7.38	-46	201.2	32.6	4.4	0.280
		9:20:24	30	21.31	52.6	4.65	7.47	-51.4	198.4	36.5	4.9	0.292
		9:19:43	35	21.05	51.3	4.57	7.49	-52.6	197.9	38.7	4.6	0.298
9:18:03	40	20.27	52	4.7	7.65	-62.1	195.2	49.3	6.8	0.290		

2020 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	8/31/2020	9:37:03	0.5	25.65	116	9.46	8.79	-129.8	73.1	36.6	13.1	0.280
		9:36:00	5	25.64	112.9	9.21	8.76	-128	70.7	36.6	12.1	0.280
		9:34:51	10	25.62	107.8	8.8	8.67	-122.7	69	36.7	13.1	0.281
		9:32:38	15	24.68	13.8	1.14	7.4	-47.6	71.5	29.8	5.3	0.331
		9:30:55	20	23.22	3.7	0.31	7.3	-41.6	67.9	28.6	3.2	0.364
		9:29:31	25	22.76	3.1	0.27	7.3	-41.6	63.5	28.8	1.9	0.380
		9:28:43	30	22.26	3.2	0.28	7.3	-41.5	60.4	29.3	2.5	0.389
		9:27:19	35	21.76	3.5	0.31	7.33	-43.3	49.8	30.2	2.2	0.401
		9:26:32	40	21.47	3.7	0.32	7.33	-43.2	54.1	47.2	5.9	0.409
BM-5	5/18/2020	ERROR	1.0	15.44	116.3	11.6	8.31	-98.8	174.5	39.8	1	0.451
	6/15/2020	13:35:28	1.0	16.67	101.6	9.87	8.11	-88	173.2	49.2	2	0.476
	7/6/2020	12:27:35	0.5	23.46	98	8.32	8.06	-86.3	163.2	45.2	1.6	0.541
	8/10/2020	12:22:14	0.5	19.04	93.8	8.68	7.89	-75.5	191.7	49.8	1.9	0.485
	8/31/2020	12:44:41	0.5	18.23	94.5	8.89	8.07	-86	153.6	37	1.5	0.509
BM-6 Secchi 1.80 M	5/18/2020	ERROR	0.5	16.99	129.9	12.55	8.87	-131.8	169.9	40.3	5.7	0.277
		ERROR	5	16.95	129.1	12.48	8.87	-131.4	172.4	40.7	9.8	0.277
		ERROR	10	16.33	126.4	12.37	8.81	-127.8	174.3	41.1	13.9	0.274
		ERROR	15	14.12	105.7	10.85	8.58	-113.9	180.1	40.5	11.9	0.263
		ERROR	20	13.13	90	9.45	8.31	-98.3	184.1	40.4	8.8	0.261
		ERROR	25	12.85	84.7	8.95	8.19	-91.3	185.7	39.9	8.9	0.263
		ERROR	30	12.61	82.1	8.72	8.09	-85.6	187.1	40.2	6	0.268
		ERROR	35	12.5	80.3	8.55	8.03	-82.2	187.9	40.4	5.9	0.271
		ERROR	40	12.31	76.7	8.2	7.95	-78.1	189.1	40.3	4.1	0.274
		ERROR	45	11.92	68.9	7.43	7.82	-70.6	192	40.8	3.1	0.280
		ERROR	50	11.68	54.8	5.95	7.69	-63.1	196.3	45.5	3.8	0.284
BM-6 Secchi 1.30 M	6/15/2020	9:46:46	0.5	24.29	141.8	11.87	8.82	-131.6	123.7	33.3	9.9	0.334
		9:43:29	5	24.28	139.7	11.69	8.8	-130.3	121.4	34.3	14.1	0.335
		9:42:23	10	24.21	135	11.31	8.77	-128.5	120.3	34.2	11.1	0.335
		9:39:10	15	21.25	56	4.96	7.64	-61.3	133.6	33.1	11.6	0.328
		9:35:55	20	19.55	41	3.76	7.55	-56	131.2	33.2	9.3	0.315
		9:31:35	25	17.83	45.2	4.29	7.6	-58.8	127	34.7	5.7	0.325
		9:30:25	30	16.6	48.6	4.73	7.59	-58	127.4	33.1	4.2	0.326
		9:28:16	35	14.44	37.6	3.84	7.47	-50.6	127.9	32.4	2.4	0.300
		9:26:36	40	13.63	20.7	2.15	7.37	-44.8	131.1	33.7	2.4	0.301
		9:24:00	45	13.13	11.2	1.18	7.32	-42.2	139.4	56.9	55.8	0.297
9:22:10	50	13.07	9.3	0.98	7.31	-41.7	145.2	34.2	0.7	0.296		
BM-6 Secchi 1.10 M	7/6/2020	9:02:54	0.5	29.27	156.2	11.95	8.7	-125.8	86.2	32.1	14.4	0.320
		9:01:22	5	29	140.9	10.83	8.5	-114.1	80.4	32	14.1	0.321
		8:59:18	10	26.74	80.8	6.46	7.88	-76.6	72.7	32.9	13.5	0.351
		8:56:43	15	24.49	3.3	0.27	7.49	-53.2	43.9	32.9	12.1	0.381
		8:53:37	20	21.98	2.9	0.25	7.35	-44.3	36.2	30.6	7	0.381
		8:52:30	25	20.46	2.8	0.25	7.29	-41.1	36.8	29.8	5	0.369
		8:51:19	30	18.69	2.7	0.26	7.28	-40.5	35.7	29	3.8	0.339
		8:50:10	35	17.41	2.7	0.26	7.27	-39.7	38.5	29.3	3.9	0.327
		8:48:05	40	16.4	2.7	0.27	7.25	-38.2	56.8	30	2.9	0.327
		8:47:24	45	15.42	2.7	0.27	7.21	-36	62.7	34.6	3.4	0.327
8:46:35	50	15.31	2.9	0.29	7.17	-33.8	65.1	32.1	3	0.327		

2020 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 1.10 M	8/10/2020	8:53:53	0.5	27.72	135.2	10.63	8.62	-120.8	157.1	31.5	13.1	0.336
		8:52:57	5	27.52	126.3	9.97	8.51	-113.9	159.9	31.5	22	0.337
		8:50:42	10	25.94	29	2.36	7.33	-43.4	188.8	30.5	14.1	0.346
		8:48:35	15	23.81	3.6	0.3	7.13	-31.6	196.2	30.6	5.7	0.321
		8:47:57	20	23	4.1	0.35	7.12	-31.1	197.4	30.1	4.2	0.293
		8:46:24	25	22.13	20.5	1.79	7.12	-30.9	201.1	31.5	5.1	0.245
		8:42:52	30	21.45	43.8	3.87	7.26	-39.2	198.6	33.7	4.5	0.295
		8:41:24	35	20.95	49.9	4.45	7.3	-41.5	197.8	39.9	5	0.306
		8:40:45	40	20.7	51.8	4.64	7.31	-41.9	197.7	41.0	4.9	0.296
		8:39:42	45	20.38	52	4.69	7.28	-40.5	199.8	47.3	6.2	0.288
8:38:10	50	20.37	52.4	4.72	7.29	-40.9	200.2	48.7	5.9	0.288		
BM-6 Secchi 0.09 M	8/31/2020	9:07:53	0.5	25.73	108.9	8.87	8.76	-128.4	89.4	35.00	12.3	0.279
		9:06:23	5	25.74	106.9	8.71	8.75	-127.9	86.1	36.00	12.8	0.279
		9:05:17	10	25.7	102.9	8.39	8.7	-125	83.9	36.10	11.5	0.277
		9:02:44	15	24.65	10.9	0.90	7.46	-51.2	88.1	29.70	5.3	0.332
		9:01:42	20	23.15	3.1	0.27	7.39	-46.9	87.6	28.40	3.8	0.346
		9:00:51	25	22.54	3.3	0.28	7.36	-45	88.2	27.90	2.7	0.362
		8:59:36	30	22.22	3.5	0.30	7.34	-43.8	91.7	28.40	2.2	0.372
		8:58:10	35	21.9	3.8	0.33	7.32	-43	93.4	28.40	1.6	0.384
		8:57:09	40	21.62	4.0	0.35	7.32	-42.5	94.4	28.70	2.1	0.400
		8:56:15	45	21.5	4.5	0.40	7.32	-42.5	96.4	28.80	2.8	0.404
8:54:32	50	21.37	5.3	0.47	7.26	-39	101.6	54.60	8.2	0.407		
BM-7	5/18/2020	ERROR	0.5	17.29	132.8	12.75	8.85	-130.3	145.9	40.3	5.5	0.282
		ERROR	5.0	17.04	133.3	12.86	8.83	-129.3	146.6	40.8	11.8	0.282
		ERROR	10.0	16.86	128.5	12.45	8.78	-126.6	147.1	41.1	12.6	0.280
		ERROR	15.0	14.03	111.4	11.46	8.43	-105.5	152.9	40.4	11.2	0.301
		ERROR	20.0	13.17	102.1	10.7	8.31	-98.2	153.4	39.6	8.4	0.281
		ERROR	25.0	12.84	92.2	9.74	8.14	-88.5	154.7	40.3	5.7	0.277
		ERROR	30.0	12.46	84.3	8.98	8	-80.6	157.5	40.6	5.1	0.288
		ERROR	32.0	12.25	77.6	8.31	7.8	-69.4	166.9	42.9	4.3	0.294
BM-7	6/15/2020	11:05:00	0.5	24.4	127.3	10.62	8.71	-124.9	153.7	35.6	10.9	0.346
		11:04:12	5	24.16	122.9	10.31	8.66	-121.9	157.1	36.1	13.7	0.345
		11:02:47	10	24.03	113.2	9.52	8.54	-115	161.8	35.4	12.2	0.344
		11:01:20	15	21.47	62.6	5.52	7.79	-70.2	176.5	37.4	7.4	0.374
		10:59:07	20	19.31	47.9	4.41	7.65	-61.9	182.9	37.8	4.1	0.347
		10:57:49	25	18.27	38.4	3.61	7.53	-54.8	189.9	35.6	3.7	0.327
		10:56:44	30	16.86	25.3	2.45	7.51	-53.4	192.4	37.8	3.5	0.327
10:54:53	35	14.87	5.6	0.57	7.5	-52.6	197.1	43.2	2.5	0.326		
BM-7	7/6/2020	9:58:56	0.5	29.11	155.3	11.91	8.73	-128	73.1	32.4	14.4	0.336
		9:58:21	5	28.59	151.7	11.74	8.69	-125.3	70.5	34.5	20.3	0.331
		9:57:03	10	27.34	122.1	9.67	8.2	-95.3	69.8	33.0	15.9	0.348
		9:55:07	15	24.23	53.1	4.45	7.54	-56	70.9	31.5	10.4	0.433
		9:52:58	20	21.92	3.3	0.29	7.38	-46.5	44.9	31.0	5.7	0.416
		9:52:13	25	20.23	3.4	0.3	7.39	-46.9	38.2	30.7	3.9	0.390
		9:50:33	30	18.9	3.8	0.35	7.38	-45.9	25.5	40.3	4.2	0.381
9:49:02	32	18.61	6.1	0.57	7.47	-51.3	33.8	41.5	4.1	0.379		

2020 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	8/10/2020	9:58:12	0.5	27.38	141.2	11.16	8.57	-117.7	178.1	33.2	12.8	0.314
		9:57:08	5	26.91	134.2	10.7	8.46	-110.7	185	34.4	22.3	0.311
		9:55:10	10	25.95	77.9	6.32	7.7	-65.3	202.2	32.2	10.5	0.299
		9:54:02	15	23.64	68.2	5.77	7.58	-57.9	206	31.5	5.5	0.290
		9:53:14	20	22.58	65.8	5.69	7.58	-57.9	206.8	32.4	4.2	0.288
		9:52:06	25	22.18	67.2	5.85	7.61	-59.5	207	34.9	4.5	0.287
		9:50:55	30	20.99	64.2	5.72	7.65	-62.2	206.5	48.1	5.2	0.322
BM-7	8/31/2020	10:08:35	0.5	25.5	105.6	8.64	8.58	-117.4	103.4	35.4	11.5	0.288
		10:07:45	5	25.5	104.8	8.58	8.57	-116.9	102.9	35.5	12.3	0.288
		10:06:44	10	25.49	99.5	8.15	8.41	-107.6	108.5	35.4	11.5	0.289
		10:04:50	15	24.86	54.4	4.51	7.55	-56.7	123.9	31.3	6.7	0.343
		10:03:24	20	23.7	47.2	4	7.49	-52.7	124.4	31.6	4.3	0.369
		10:01:19	25	22.98	11.4	0.98	7.38	-46.4	126.6	32.3	3.1	0.401
		9:59:00	30	22.56	10.1	0.87	7.45	-50.3	124.8	37.8	3.2	0.442
BM-8	5/18/2020	ERROR	0.5	17.53	138	13.18	8.84	-130.1	176.8	49.7	7.6	0.289
		ERROR	5.0	17.47	137.7	13.17	8.85	-130.7	176.9	50.8	9.6	0.288
		ERROR	10.0	16.61	135.1	13.15	8.81	-128.2	180.9	50.7	15	0.280
		ERROR	15.0	14.66	126.4	12.82	8.64	-117.9	186.5	49.9	16.1	0.269
		ERROR	20.0	13.5	104.9	10.92	8.27	-96.4	197.4	49.4	8.2	0.295
		ERROR	22.0	13.24	100.6	10.54	8.22	-93.4	199.4	49.9	8.2	0.287
BM-8	6/15/2020	12:46:26	0.5	24.67	136.1	11.3	8.78	-129.3	180.9	34.6	7.9	0.348
		12:45:26	5	24.54	134.6	11.21	8.78	-129.3	184.7	35.1	11.5	0.347
		12:44:40	10	23.77	117.4	9.92	8.57	-116.2	190.9	35.0	13.4	0.346
		12:42:50	15	21.2	82.1	7.28	7.86	-74.3	211	40.7	8.2	0.347
		12:41:20	20	19.31	39.7	3.66	7.64	-61.2	218.4	37.7	5.2	0.334
		12:40:22	22	18.61	34.1	3.19	7.69	-63.8	220.8	41.8	3.8	0.3329999
BM-8	7/6/2020	11:38:39	0.5	30.28	196.6	14.78	8.89	-138	173.6	31.4	10.7	0.326
		11:37:27	5	28.98	190.4	14.64	8.68	-124.7	189.8	34.7	21.4	0.319
		11:35:20	10	26.44	123.7	9.95	8	-83.7	207.5	34.2	17.1	0.354
		11:33:07	15	23.87	44	3.7	7.55	-56.3	216.9	31.5	8.9	0.428
		11:31:05	20	22.22	6.1	0.53	7.43	-48.9	223	30.5	6.1	0.425
BM-8	8/10/2020	11:37:41	0.5	28.72	192.4	14.86	8.85	-134.7	200	33.7	12.4	0.309
		11:36:43	5	27.23	151.2	11.99	8.57	-117.7	211.2	34.1	24.7	0.304
		11:35:46	10	25.36	102.1	8.38	7.91	-78.1	224.8	31.8	10.6	0.281
		11:35:02	15	23.72	100.2	8.48	7.86	-74.7	225.8	32.6	8.2	0.272
		11:33:39	20	22.61	91.8	7.93	7.79	-70.3	228.2	34.1	6.5	0.268
		11:32:39	22	21.75	95.5	8.39	7.85	-73.8	227	38.6	6.9	0.286
BM-8	8/31/2020	11:46:19	0.5	25.64	130.4	10.64	8.81	-131.5	125.7	34.9	15.2	0.287
		11:45:42	5	25.63	127.1	10.37	8.78	-129.4	127.2	35.3	15	0.288
		11:44:30	10	25.56	111.8	9.14	8.57	-116.7	133.8	34.6	11.4	0.292
		11:42:35	15	24.99	86.1	7.11	8.03	-84.9	146.5	31.9	6.9	0.310
		11:40:09	20	23.37	67.2	5.72	7.68	-64.3	155.9	34.7	6.5	0.330
BM-9	5/18/2020	ERROR	0.5	17.72	136.6	12.99	8.82	-128.9	161.4	40.6	5.6	0.289
		ERROR	5	17.43	138.8	13.28	8.81	-128.5	163	40.8	9	0.291
		ERROR	10	16.52	136.5	13.31	8.75	-124.8	165.1	40.9	14.7	0.285
		ERROR	15	15.49	128.9	12.85	8.55	-112.7	170.2	41	11.2	0.323
		ERROR	20	13.78	104.7	10.83	8.38	-102.5	174.2	40.7	10	0.301
		ERROR	25	12.82	91.1	9.62	8.09	-85.9	179.8	41.2	6.1	0.297
		ERROR	30	12.61	81.9	8.69	7.94	-77.2	183.5	50.3	7	0.303

2020 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	6/15/2020	11:41:38	0.5	24.54	133.9	11.15	8.75	-127.4	176	35.1	10	0.3469999
		11:40:47	5	24.21	128.4	10.75	8.68	-123.1	180	35.6	14.3	0.345
		11:39:03	10	23.21	83.5	7.13	8.02	-84.1	194.7	35.4	15.4	0.378
		11:37:54	15	21.5	73.5	6.48	7.92	-77.8	200.1	39.7	8	0.385
		11:36:52	20	19.67	74.1	6.78	7.87	-74.3	206.7	48.4	5.9	0.398
		11:35:15	25	17.94	33.3	3.15	7.55	-55.7	215.3	39.3	3.3	0.330
		11:33:38	30	16.44	14.7	1.44	7.54	-55.3	218.9	41.5	3.3	0.329
		11:32:35	32	15.94	11	1.09	7.58	-57.2	220.7	41.8	3	0.329
BM-9	7/6/2020	10:27:24	0.5	29.41	178.9	13.65	8.85	-134.9	80.4	32.4	15	0.326
		10:26:13	5	28.83	160	12.34	8.71	-126.4	78.5	33.2	18.5	0.330
		10:24:50	10	26.78	120.6	9.64	7.98	-82.3	85.5	31.8	18.4	0.364
		10:23:02	15	24.47	67.2	5.6	7.59	-58.9	84.6	33.7	12	0.446
		10:21:13	20	22.36	9.8	0.85	7.4	-47.5	71.5	31.2	7.2	0.437
		10:19:26	25	20.45	3.9	0.35	7.4	-47.6	50.5	34.4	4.8	0.403
		10:18:12	30	19.23	5.2	0.48	7.43	-49	40.6	49.7	4.7	0.401
		BM-9	8/10/2020	10:26:29	0.5	27.97	160.3	12.55	8.68	-124.5	186.2	33.2
10:25:04	5			26.85	126.4	10.09	8.34	-103.6	196.7	33.8	20.4	0.305
10:24:08	10			25.45	86	7.04	7.68	-64.5	211.4	31.9	10.8	0.294
10:22:35	15			24.06	77.3	6.5	7.66	-62.7	212.8	32.2	6.2	0.297
10:21:28	20			22.88	84.9	7.3	7.67	-63.5	212.6	35.2	6.1	0.315
10:20:29	25			21.24	78.8	6.99	7.62	-60.5	214.3	45.0	4.8	0.364
10:19:08	30			21.02	76.2	6.78	7.67	-63.2	212.3	54.4	5.2	0.368
BM-9	8/31/2020	10:35:50	0.5	25.5	113.8	9.31	8.63	-120.5	87.8	34.9	13.6	0.291
		10:34:54	5	25.49	110.5	9.04	8.55	-115.8	89.4	34.9	12.8	0.292
		10:33:49	10	25.47	103.3	8.46	8.39	-106.5	91.1	34.3	12.6	0.291
		10:32:56	15	24.94	78.9	6.52	7.86	-74.6	97.8	34.4	7.8	0.303
		10:30:09	20	23.77	45.5	3.85	7.55	-56.5	96.1	31	3.4	0.428
		10:28:40	25	23.23	45	3.84	7.57	-57.7	90.9	36	3.7	0.459
		10:27:26	30	22.74	38.7	3.33	7.55	-56.1	86	40.4	4.3	0.444
BM-10	5/18/2020	ERROR	0.5	18.81	133	12.37	8.53	-112.6	165.4	52.3	8.8	0.344
		ERROR	5	18.76	129.1	12.02	8.49	-110.1	166.3	52.4	9.6	0.364
		ERROR	10	18.44	109.6	10.27	8.26	-96.6	170.9	55.3	5.5	0.367
		ERROR	15	17.09	90.5	8.72	8.03	-83.2	175.1	70.0	2.9	0.372
		ERROR	20	13.66	67.6	7.01	7.83	-71.1	181.8	61.7	25.6	0.334
BM-10	6/15/2020	12:11:57	0.5	24.86	183.4	15.18	8.9	-136.5	144.2	35.9	15.6	0.342
		12:10:52	5	24.09	162.1	13.61	8.66	-121.9	147.7	37	14.1	0.348
		12:09:26	10	23.51	154	13.08	8.55	-115.1	148.6	38.2	14.1	0.347
		12:08:01	15	21.59	102.4	9.01	8.05	-85.7	155.8	69.5	11.2	0.361
		12:06:08	20	19.43	97.1	8.92	8.07	-86.3	150.7	68.39999	5.7	0.403
BM-10	7/6/2020	11:01:27	0.5	30.38	236.4	17.74	8.9	-138.5	148.9	34.5	11.6	0.305
		11:00:10	5	28.7	214.2	16.55	8.61	-120.5	159.4	37	21.4	0.302
		10:58:43	10	27.39	173.8	13.74	8.05	-86.3	170.1	39.3	24.1	0.375
		10:55:53	15	24.44	86	7.17	7.75	-68	174	64.2	11.9	0.490
		10:53:37	20	22.53	11.8	1.02	7.5	-53.5	172	66.6	9.7	0.468

2020 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	8/10/2020	11:02:44	0.5	28	213.7	16.72	8.98	-142.2	190.1	35.1	14.6	0.296
		11:01:28	5	26.84	157.8	12.6	8.61	-120	203.1	34.3	19.7	0.298
		11:00:07	10	25.41	139	11.39	8.33	-102.7	212.6	33.1	10	0.323
		10:58:20	15	21.97	92.3	8.06	7.69	-64.4	229.5	48.6	4.9	0.372
		10:56:02	20	21.24	87.3	7.73	7.68	-64	228.4	72.5	4.2	0.408
BM-10	8/31/2020	11:09:01	0.5	24.9	124.6	10.31	8.51	-113.2	121	34.4	12.1	0.316
		11:07:55	5	24.84	115.7	9.58	8.4	-106.6	123.5	34.9	10.8	0.319
		11:06:36	10	24.59	107.5	8.94	8.24	-97.3	126.1	38.8	8.5	0.330
		11:05:18	15	23.22	89.2	7.61	7.92	-78.4	133.1	41.1	6.2	0.384
		11:03:50	20	22.21	78.1	6.79	7.81	-71.6	134.2	63.2	4.7	0.438
BM-11	5/18/2020	ERROR	1.0	15.85	103.7	10.26	8.33	-100.3	162.9	37.3	2.4	0.151
	6/15/2020	13:33:27	1.0	17.42	109.7	10.51	8.29	-98.6	150.7	40.7	1.5	0.139
	7/6/2020	12:23:12	0.5	22.73	96.4	8.3	8.22	-95.6	146.5	48.3	2.5	0.523
	8/10/2020	12:19:43	0.5	21.03	98.1	8.74	8.04	-84.7	188.7	36.2	2.5	0.181
	8/31/2020	12:40:24	0.5	18.97	86.7	8.03	8.09	-87.4	156	40.10	2.7	0.465

APPENDIX B

BACTERIA SAMPLING DATA TABLES

BLUE MARSH RESERVOIR SWIMMING BEACH MONITORING PROGRAM RESULTS
E-coli Coliform 2020

<u>DAY</u>	<u>DATE</u>	<u>FECAL COLIFORM</u>			<u>Arith. AVG.&LOG</u>	<u>E-COLI</u>			<u>Ave./LOG</u>
		<u>SB1</u>	<u>SB2</u>	<u>SB3</u>		<u>SB1</u>	<u>SB2</u>	<u>SB3</u>	
Thur.	4-Jun				#DIV/0!	27.00	31.00	47.00	35.00
Mon.	8-Jun				#DIV/0!	52.00	13.00	14.00	26.33
Thur.	11-Jun				#DIV/0!	3.00	6.00	5.00	4.67
Tues.	16-Jun				#DIV/0!	10.00	10.00	5.00	8.33
Thur.	18-Jun				#DIV/0!	4.00	4.00	1.00	3.00
5 smpl. Log Value		#NUM!	#NUM!	#NUM!	#DIV/0!	1.05	1.00	0.84	1.01
5 smpl. Geo. Mean		#NUM!	#NUM!	#NUM!	#DIV/0!	11.10	9.93	6.97	10.15
Mon.	22-Jun				#DIV/0!	27.00	18.00	11.00	18.67
5 smpl. Log Value		#NUM!	#NUM!	#NUM!	#DIV/0!	1.05	0.95	0.72	0.95
5 smpl. Geo. Mean		#NUM!	#NUM!	#NUM!	#DIV/0!	11.10	8.91	5.21	8.95
Thur.	25-Jun				#DIV/0!	15.00	11.00	8.00	11.33
5 smpl. Log Value		#NUM!	#NUM!	#NUM!	#DIV/0!	0.94	0.94	0.67	0.88
5 smpl. Geo. Mean		#NUM!	#NUM!	#NUM!	#DIV/0!	8.66	8.62	4.66	7.56
Mon.	29-Jun				#DIV/0!	4.00	2.00	4.00	3.33
5 smpl. Log Value		#NUM!	#NUM!	#NUM!	#DIV/0!	0.96	0.84	0.65	0.85
5 smpl. Geo. Mean		#NUM!	#NUM!	#NUM!	#DIV/0!	9.17	6.92	4.46	7.07
Thur.	2-Jul				#DIV/0!	55.00	28.00	23.00	35.33
5 smpl. Log Value		#NUM!	#NUM!	#NUM!	#DIV/0!	1.11	0.93	0.78	0.97
5 smpl. Geo. Mean		#NUM!	#NUM!	#NUM!	#DIV/0!	12.89	8.50	6.05	9.43
Mon.	6-Jul				#DIV/0!	1.00	7.00	8.00	5.33
5 smpl. Log Value		#NUM!	#NUM!	#NUM!	#DIV/0!	0.99	0.98	0.96	1.02
5 smpl. Geo. Mean		#NUM!	#NUM!	#NUM!	#DIV/0!	9.77	9.51	9.17	10.59
Thur.	9-Jul				#DIV/0!	30.00	34.00	118.00	60.67
5 smpl. Log Value		#NUM!	#NUM!	#NUM!	#DIV/0!	1.00	1.03	1.17	1.13
5 smpl. Geo. Mean		#NUM!	#NUM!	#NUM!	#DIV/0!	9.98	10.80	14.74	13.40
Mon.	13-Jul				#DIV/0!	2420.00	461.00	770.00	1217.00
5 smpl. Log Value		#NUM!	#NUM!	#NUM!	#DIV/0!	1.44	1.36	1.57	1.53

5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	27.58	22.79	36.73	34.14
Wed. 15-Jul				#DIV/0!	20.00	13.00	50.00	27.67
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	1.58	1.52	1.78	1.72
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	38.06	33.13	60.87	52.13
Thur. 16-Jul				#DIV/0!	11.00	10.00	12.00	11.00
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	1.44	1.43	1.73	1.62
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	27.58	26.97	53.45	41.28
Mon. 20-Jul				#DIV/0!	19.00	26.00	11.00	18.67
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	1.70	1.54	1.76	1.72
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	49.71	35.06	56.96	53.03
Thur. 23-Jul				#DIV/0!	6.00	6.00	9.00	7.00
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	1.56	1.39	1.53	1.54
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	36.03	24.78	34.05	34.43
Mon. 27-Jul				#DIV/0!	2.00	1.00	17.00	6.67
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	0.94	0.86	1.20	1.08
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	8.71	7.27	15.88	12.15
Thur. 30-Jul				#DIV/0!	5.00	2.00	2.00	3.00
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	0.82	0.70	0.92	0.89
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	6.60	5.00	8.34	7.79
Mon. 3-Aug				#DIV/0!	79.00	65.00	53.00	65.67
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	0.99	0.86	1.05	1.05
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	9.79	7.27	11.23	11.14
Mon. 10-Aug				#DIV/0!	54.00	45.00	46.00	48.33
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	1.08	0.91	1.17	1.13
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	12.07	8.11	14.95	13.48
Thur. 13-Aug				#DIV/0!	11.00	14.00	11.00	12.00
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	1.13	0.98	1.19	1.18
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	13.62	9.61	15.56	15.01
Mon. 17-Aug				#DIV/0!	1.00	1.00	6.00	2.67
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	1.07	0.98	1.10	1.10
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	11.86	9.61	12.63	12.50
Thur. 20-Aug				#DIV/0!	8.00	2.00	2.00	4.00
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	1.11	0.98	1.10	1.12

BLUE MARSH BEACH BACTERIA DATA

5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	13.03	9.61	12.63	13.24
Mon. 24-Aug				#DIV/0!	2.00	1.00	1.00	1.33
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	0.80	0.62	0.76	0.78
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	6.25	4.17	5.71	6.07
Thur. 27-Aug				#DIV/0!	1.00	2.00	1.00	1.33
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	0.45	0.35	0.42	0.47
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	2.81	2.24	2.66	2.96
Mon. 31-Aug				#DIV/0!	11.00	6.00	3.00	6.67
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	0.45	0.28	0.31	0.42
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	2.81	1.89	2.05	2.63
Thur. 3-Sep				#DIV/0!	5.00	14.00	20.00	13.00
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	0.59	0.51	0.42	0.56
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	3.88	3.20	2.61	3.61
Thur.				#DIV/0!				#DIV/0!
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	#NUM!	#NUM!	#NUM!	#DIV/0!
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	#NUM!	#NUM!	#NUM!	#DIV/0!
Mon.				#DIV/0!				#DIV/0!
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	#NUM!	#NUM!	#NUM!	#DIV/0!
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	#NUM!	#NUM!	#NUM!	#DIV/0!
Thur.				#DIV/0!				#DIV/0!
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	#NUM!	#NUM!	#NUM!	#DIV/0!
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	#NUM!	#NUM!	#NUM!	#DIV/0!
Fri.				#DIV/0!				#DIV/0!
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	#NUM!	#NUM!	#NUM!	#DIV/0!
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	#NUM!	#NUM!	#NUM!	#DIV/0!
Mon.				#DIV/0!				#DIV/0!
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	#NUM!	#NUM!	#NUM!	#DIV/0!
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	#NUM!	#NUM!	#NUM!	#DIV/0!
Thur.				#DIV/0!				#DIV/0!
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	#NUM!	#NUM!	#NUM!	#DIV/0!
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	#NUM!	#NUM!	#NUM!	#DIV/0!
Mon.				#DIV/0!				#DIV/0!
5 smpl. Log Value	#NUM!	#NUM!	#NUM!	#DIV/0!	#NUM!	#NUM!	#NUM!	#DIV/0!
5 smpl. Geo. Mean	#NUM!	#NUM!	#NUM!	#DIV/0!	#NUM!	#NUM!	#NUM!	#DIV/0!
Thur.				#DIV/0!				#DIV/0!

BLUE MARSH BEACH BACTERIA DATA

APPENDIX C

LABORATORY CUSTODY SHEETS



Certificate of Analysis

M.J. Reider Associates, Inc.

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

Laboratory No.: 2015558

Report: 05/27/20

Lab Contact: Richard A Wheeler

Attention: David Wertz

Project: 2020 - Blue Marsh Reservoir

Reported To: Tetra Tech

USACE, Phila Dist. Env.Resources Branch 100 Penn Square E.
Arlington, VA 22201

Lab ID: 2015558-01

Collected By: Client

Sampled: 05/18/20 08:00

Received: 05/18/20 14:00

Sample Desc: BM-1S

Sample Type: Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/21/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	117	mg CaCO ₃ /L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	2.2	mg/l	2.0	2.0	SM 5210 B	05/19/20 11:20		ARG
Nitrate as N	4.24	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 17:33		MRW
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 17:33	J	MRW
Nitrate+Nitrite as N	4.27	mg/l	0.182	1.10	CALCULATED	05/18/20 17:33		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	05/21/20		RCE
Solids, Total Dissolved	268	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	2.6	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	2	mg/l	1	1	SM 2540 D	05/19/20		TMH
Microbiology								
Escherichia coli	<1	mpn/100ml	1		SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32	JMW
Total Coliform	326	mpn/100ml	1		SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32	JMW



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

M.J. Reider Associates, Inc.

Lab ID: 2015558-02 **Collected By:** Client **Sampled:** 05/18/20 09:20 **Received:** 05/18/20 14:00
Sample Desc: BM-2S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.05	mg/l		0.05	SM 4500-P F	05/21/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	117	mg CaCO ₃ /L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	2.2	mg/l	2.0	2.0	SM 5210 B	05/19/20 11:20		ARG
Nitrate as N	4.04	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 17:50		MRW
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 17:50	J	MRW
Nitrate+Nitrite as N	4.07	mg/l	0.182	1.10	CALCULATED	05/18/20 17:50		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	05/21/20	J	RCE
Solids, Total Dissolved	254	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	2.5	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	2	mg/l	1	1	SM 2540 D	05/19/20		TMH
Microbiology								
Escherichia coli	<1	mpn/100ml	1		SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32	JMW
Total Coliform	12	mpn/100ml	1		SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2015558-03 **Collected By:** Client **Sampled:** 05/18/20 09:20 **Received:** 05/18/20 14:00
Sample Desc: BM-2M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/21/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	116	mg CaCO3/L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 13:25		ARG
Nitrate as N	4.49	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 18:07		MRW
Nitrite as N	0.02	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 18:07	J	MRW
Nitrate+Nitrite as N	4.51	mg/l	0.182	1.10	CALCULATED	05/18/20 18:07		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	05/19/20	J	RCE
Solids, Total Dissolved	244	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	1.9	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	1	mg/l	1	1	SM 2540 D	05/19/20		TMH

Lab ID: 2015558-04 **Collected By:** Client **Sampled:** 05/18/20 09:20 **Received:** 05/18/20 14:00
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		0.05	SM 4500-P F	05/21/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	132	mg CaCO3/L		2	SM 2320 B	05/19/20		APR
Ammonia as N	0.04	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	J	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 11:20		ARG
Nitrate as N	4.87	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 19:14		MRW
Nitrite as N	0.04	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 19:14	J	MRW
Nitrate+Nitrite as N	4.91	mg/l	0.182	1.10	CALCULATED	05/18/20 19:14		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.01	mg/l	0.01	0.05	SM 4500-P E	05/19/20	J	RCE
Solids, Total Dissolved	283	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	1.8	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	05/19/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2015558-05 **Collected By:** Client **Sampled:** 05/18/20 12:45 **Received:** 05/18/20 14:00
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		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	204	mg CaCO ₃ /L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 11:30		ARG
Nitrate as N	7.32	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 19:31		MRW
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 19:31	J	MRW
Nitrate+Nitrite as N	7.35	mg/l	0.182	1.10	CALCULATED	05/18/20 19:31		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	05/19/20	J	RCE
Solids, Total Dissolved	380	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	1.6	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	1	mg/l	1	1	SM 2540 D	05/19/20		TMH
Microbiology								
Escherichia coli	79	mpn/100ml	1		SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32	JMW
Total Coliform	1410	mpn/100ml	1		SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32	JMW



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Lab ID: 2015558-06 **Collected By:** Client **Sampled:** 05/18/20 08:47 **Received:** 05/18/20 14:00
Sample Desc: BM-6S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	111	mg CaCO ₃ /L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 13:25		ARG
Nitrate as N	4.03	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 19:48		MRW
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 19:48	J	MRW
Nitrate+Nitrite as N	4.06	mg/l	0.182	1.10	CALCULATED	05/18/20 19:48		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	05/19/20	J	RCE
Solids, Total Dissolved	248	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	2.8	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	1	mg/l	1	1	SM 2540 D	05/19/20		TMH
	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	<1	mpn/100ml	1	SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32		JMW
Total Coliform	34	mpn/100ml	1	SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32		JMW



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M.J. Reider Associates, Inc.

Lab ID: 2015558-07 **Collected By:** Client **Sampled:** 05/18/20 08:47 **Received:** 05/18/20 14:00
Sample Desc: BM-6M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/19/20	G-17, G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	118	mg CaCO3/L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 11:30		ARG
Nitrate as N	4.44	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 20:04		MRW
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 20:04	J	MRW
Nitrate+Nitrite as N	4.47	mg/l	0.182	1.10	CALCULATED	05/18/20 20:04		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	05/19/20	J	RCE
Solids, Total Dissolved	262	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	1.9	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	1	mg/l	1	1	SM 2540 D	05/19/20		TMH

Lab ID: 2015558-08 **Collected By:** Client **Sampled:** 05/18/20 08:47 **Received:** 05/18/20 14:00
Sample Desc: BM-6D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.06	mg/l		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	131	mg CaCO3/L		2	SM 2320 B	05/19/20		APR
Ammonia as N	0.16	mg/l	0.01	0.10	ASTM D6919-03	05/19/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 13:25		ARG
Nitrate as N	4.52	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 20:55		MRW
Nitrite as N	0.09	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 20:55	J	MRW
Nitrate+Nitrite as N	4.61	mg/l	0.182	1.10	CALCULATED	05/18/20 20:55		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	05/19/20	J	RCE
Solids, Total Dissolved	257	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	1.9	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	9	mg/l	1	1	SM 2540 D	05/19/20		TMH



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Lab ID: 2015558-09 **Collected By:** Client **Sampled:** 05/18/20 09:56 **Received:** 05/18/20 14:00
Sample Desc: BM-7S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	111	mg CaCO ₃ /L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 13:25		ARG
Nitrate as N	4.11	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 21:12		MRW
Nitrite as N	0.02	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 21:12	J	MRW
Nitrate+Nitrite as N	4.13	mg/l	0.182	1.10	CALCULATED	05/18/20 21:12		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.01	mg/l	0.01	0.05	SM 4500-P E	05/19/20	J	RCE
Solids, Total Dissolved	231	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	2.3	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	5	mg/l	1	1	SM 2540 D	05/19/20		TMH
	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	<1	mpn/100ml	1	SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32		JMW
Total Coliform	36	mpn/100ml	1	SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32		JMW



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M.J. Reider Associates, Inc.

Lab ID: 2015558-10 **Collected By:** Client **Sampled:** 05/18/20 09:56 **Received:** 05/18/20 14:00
Sample Desc: BM-7M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	120	mg CaCO3/L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 13:25		ARG
Nitrate as N	4.63	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 21:28		MRW
Nitrite as N	0.02	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 21:28	J	MRW
Nitrate+Nitrite as N	4.65	mg/l	0.182	1.10	CALCULATED	05/18/20 21:28		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	05/19/20	J	RCE
Solids, Total Dissolved	252	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	1.8	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	2	mg/l	1	1	SM 2540 D	05/19/20		TMH

Lab ID: 2015558-11 **Collected By:** Client **Sampled:** 05/18/20 09:56 **Received:** 05/18/20 14:00
Sample Desc: BM-7D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	146	mg CaCO3/L		2	SM 2320 B	05/19/20		APR
Ammonia as N	0.02	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	J	APR
Biochemical Oxygen Demand	2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 13:25		ARG
Nitrate as N	4.97	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 21:45		MRW
Nitrite as N	0.05	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 21:45	J	MRW
Nitrate+Nitrite as N	5.02	mg/l	0.182	1.10	CALCULATED	05/18/20 21:45		MRW
Nitrogen, Total Kjeldahl (TKN)	0.96	mg/l	0.37	0.50	EPA 351.2	05/20/20	Q-10	SNF
Phosphorus as P, Total	0.13	mg/l	0.01	0.05	SM 4500-P E	05/19/20		RCE
Solids, Total Dissolved	265	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	1.9	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	87	mg/l	1	1	SM 2540 D	05/19/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2015558-12 **Collected By:** Client **Sampled:** 05/18/20 12:00 **Received:** 05/18/20 14:00
Sample Desc: BM-8S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst	
Dissolved General Chemistry									
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML	
General Chemistry									
Alkalinity, Total to pH 4.5	113	mg CaCO ₃ /L		2	SM 2320 B	05/19/20		APR	
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR	
Biochemical Oxygen Demand	3.7	mg/l	2.0	2.0	SM 5210 B	05/19/20 11:30		ARG	
Nitrate as N	4.24	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 22:02		MRW	
Nitrite as N	0.02	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 22:02	J	MRW	
Nitrate+Nitrite as N	4.26	mg/l	0.182	1.10	CALCULATED	05/18/20 22:02		MRW	
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF	
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	05/19/20	J	RCE	
Solids, Total Dissolved	233	mg/l	4	5	SM 2540 C	05/19/20		TMH	
Total Organic Carbon	2.2	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD	
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	05/19/20		TMH	
	Result	Unit	Rep. Limit		Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology									
Escherichia coli	<1	mpn/100ml	1		SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32		JMW
Total Coliform	62	mpn/100ml	1		SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32		JMW



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M.J. Reider Associates, Inc.

Lab ID: 2015558-13 **Collected By:** Client **Sampled:** 05/18/20 12:00 **Received:** 05/18/20 14:00
Sample Desc: BM-8M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	113	mg CaCO3/L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	2.3	mg/l	2.0	2.0	SM 5210 B	05/19/20 13:25		ARG
Nitrate as N	4.11	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 22:19		MRW
Nitrite as N	0.02	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 22:19	J	MRW
Nitrate+Nitrite as N	4.13	mg/l	0.182	1.10	CALCULATED	05/18/20 22:19		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.06	mg/l	0.01	0.05	SM 4500-P E	05/19/20		RCE
Solids, Total Dissolved	175	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	2.0	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	05/19/20		TMH

Lab ID: 2015558-14 **Collected By:** Client **Sampled:** 05/18/20 12:00 **Received:** 05/18/20 14:00
Sample Desc: BM-8D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	122	mg CaCO3/L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 11:30		ARG
Nitrate as N	4.04	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 23:09		MRW
Nitrite as N	0.02	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 23:09	J	MRW
Nitrate+Nitrite as N	4.06	mg/l	0.182	1.10	CALCULATED	05/18/20 23:09		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	05/19/20	J	RCE
Solids, Total Dissolved	206	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	1.9	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	11	mg/l	1	1	SM 2540 D	05/19/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2015558-15 **Collected By:** Client **Sampled:** 05/18/20 10:27 **Received:** 05/18/20 14:00
Sample Desc: BM-9S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	110	mg CaCO ₃ /L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	2.1	mg/l	2.0	2.0	SM 5210 B	05/19/20 13:25		ARG
Nitrate as N	4.25	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 23:26		MRW
Nitrite as N	0.02	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 23:26	J	MRW
Nitrate+Nitrite as N	4.27	mg/l	0.182	1.10	CALCULATED	05/18/20 23:26		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	05/19/20	J	RCE
Solids, Total Dissolved	197	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	2.2	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	1	mg/l	1	1	SM 2540 D	05/19/20		TMH
Microbiology								
Escherichia coli	5	mpn/100ml	1		SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32	JMW
Total Coliform	291	mpn/100ml	1		SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2015558-16 **Collected By:** Client **Sampled:** 05/18/20 10:27 **Received:** 05/18/20 14:00
Sample Desc: BM-9M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	133	mg CaCO3/L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 13:25		ARG
Nitrate as N	5.07	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/18/20 23:43		MRW
Nitrite as N	0.02	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/18/20 23:43	J	MRW
Nitrate+Nitrite as N	5.09	mg/l	0.182	1.10	CALCULATED	05/18/20 23:43		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	05/19/20	J	RCE
Solids, Total Dissolved	224	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	1.8	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	2	mg/l	1	1	SM 2540 D	05/19/20		TMH

Lab ID: 2015558-17 **Collected By:** Client **Sampled:** 05/18/20 10:27 **Received:** 05/18/20 14:00
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		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	137	mg CaCO3/L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 13:25		ARG
Nitrate as N	5.07	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/19/20 0:00		MRW
Nitrite as N	0.02	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/19/20 0:00	J	MRW
Nitrate+Nitrite as N	5.09	mg/l	0.182	1.10	CALCULATED	05/19/20 0:00		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	05/19/20	U	RCE
Solids, Total Dissolved	231	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	1.7	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	2	mg/l	1	1	SM 2540 D	05/19/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2015558-18 **Collected By:** Client **Sampled:** 05/18/20 11:00 **Received:** 05/18/20 14:00
Sample Desc: BM-10S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	141	mg CaCO ₃ /L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	2.7	mg/l	2.0	2.0	SM 5210 B	05/19/20 13:25		ARG
Nitrate as N	5.57	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/19/20 0:17		MRW
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/19/20 0:17	J	MRW
Nitrate+Nitrite as N	5.60	mg/l	0.182	1.10	CALCULATED	05/19/20 0:17		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	05/19/20	U	RCE
Solids, Total Dissolved	230	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	1.9	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	05/19/20		TMH
Microbiology								
Escherichia coli	2	mpn/100ml	1		SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32	JMW
Total Coliform	231	mpn/100ml	1		SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2015558-19 **Collected By:** Client **Sampled:** 05/18/20 11:00 **Received:** 05/18/20 14:00
Sample Desc: BM-10M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	144	mg CaCO3/L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 13:25		ARG
Nitrate as N	5.55	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/19/20 1:08		MRW
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/19/20 1:08	J	MRW
Nitrate+Nitrite as N	5.58	mg/l	0.182	1.10	CALCULATED	05/19/20 1:08		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	05/19/20	J	RCE
Solids, Total Dissolved	258	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	1.8	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	5	mg/l	1	1	SM 2540 D	05/19/20		TMH

Lab ID: 2015558-20 **Collected By:** Client **Sampled:** 05/18/20 11:00 **Received:** 05/18/20 14:00
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		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	155	mg CaCO3/L		2	SM 2320 B	05/19/20		APR
Ammonia as N	0.05	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	J	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 13:25		ARG
Nitrate as N	5.49	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/19/20 1:26		MRW
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/19/20 1:26	J	MRW
Nitrate+Nitrite as N	5.52	mg/l	0.182	1.10	CALCULATED	05/19/20 1:26		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	U	SNF
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	05/19/20		RCE
Solids, Total Dissolved	261	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	2.1	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	21	mg/l	1	1	SM 2540 D	05/19/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2015558-21 **Collected By:** Client **Sampled:** 05/18/20 12:41 **Received:** 05/18/20 14:00
Sample Desc: BM-11S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	05/19/20	G-11, G-17	TML
General Chemistry								
Alkalinity, Total to pH 4.5	48	mg CaCO ₃ /L		2	SM 2320 B	05/19/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	05/19/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	05/19/20 13:25		ARG
Nitrate as N	2.55	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	05/19/20 1:43		MRW
Nitrite as N	0.01	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	05/19/20 1:43	J	MRW
Nitrate+Nitrite as N	2.56	mg/l	0.182	1.10	CALCULATED	05/19/20 1:43		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	05/20/20	Q-10a, U	SNF
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	05/19/20	U	RCE
Solids, Total Dissolved	107	mg/l	4	5	SM 2540 C	05/19/20		TMH
Total Organic Carbon	2.0	mg/l	0.3	0.5	SM 5310 C	05/19/20		ALD
Solids, Total Suspended	1	mg/l	1	1	SM 2540 D	05/19/20		TMH
Microbiology								
Escherichia coli	86	mpn/100ml	1		SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32	JMW
Total Coliform	>2419.6	mpn/100ml	1		SM 9223 B/Quantitray	5/18/20 15:32	5/19/20 15:32	JMW



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Preparation Methods

Specific Method	Preparation Method	Prep Batch	Prepared Date	Prepared By
2015558-01				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0E1112	05/20/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0E1220	05/21/2020	RCE
2015558-02				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0E1112	05/20/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0E1220	05/21/2020	RCE
2015558-03				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0E1112	05/20/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
2015558-04				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0E1112	05/20/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
2015558-05				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
2015558-06				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
2015558-07				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
2015558-08				
Dissolved General Chemistry				



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SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
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2015558-09

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
-------------	-------------	---------	------------	-----

2015558-10

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
-------------	-------------	---------	------------	-----

2015558-11

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
-------------	-------------	---------	------------	-----

2015558-12

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
-------------	-------------	---------	------------	-----

2015558-13

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
-------------	-------------	---------	------------	-----

2015558-14

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
-------------	-------------	---------	------------	-----

2015558-15

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
-------------	-------------	---------	------------	-----

2015558-16

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
-------------	-------------	---------	------------	-----

2015558-17

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
-------------	-------------	---------	------------	-----

2015558-18

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
-------------	-------------	---------	------------	-----

2015558-19

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
-------------	-------------	---------	------------	-----

2015558-20

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
-------------	-------------	---------	------------	-----

2015558-21

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0E1054	05/19/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0E1055	05/19/2020	RCE
-------------	-------------	---------	------------	-----

Notes and Definitions

- G-11 The sample was filtered after it was received at the laboratory.
- G-17 The sample was preserved in the laboratory.
- J Estimated value
- Q-10 The matrix spike(s) were outside acceptable limits of 90-110% recovery at 85.6%.
- Q-10a The matrix spike(s) were outside acceptable limits of 90-110% recovery at 89.5% and 87.3%.
- U Analyte was not detected above the indicated value.



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**WORK ORDER
Chain of Custody**

2015558



Client Code: 3157

Project Manager: Richard A Wheeler

Report To: Tetra Tech - David Wertz - USACE, Phila Dist. Env. Resources Branch 100 Penn Square E., Arlington, VA 22201

Invoice To: Tetra Tech - David Wertz - USACE, Phila Dist. Env. Resources Branch 100 Penn Square E., Arlington, VA 22201

Client: Tetra Tech

Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By: Gregory Wack
(Full Name)

2015558-01 BM-1S

^{Jm}
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO₂-N EPA 300.0, NO₃-N EPA 300.0, NO₂-N, NO₃-N, Combined
NO₃+NO₂, PO₄-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH₃-N D6919-03, PO₄ SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

Date: 5/18/20

Time: 0800

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Sterile Pl 125ml NaThio
- D - Pl 500ml H2SO4
- E - Pl 250ml NP
- F - Pl 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

2015558-02 BM-2S

^{Jm}
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO₂-N EPA 300.0, NO₃-N EPA 300.0, NO₂-N, NO₃-N, Combined
NO₃+NO₂, PO₄-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH₃-N D6919-03, PO₄ SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

Date: 5/18/20

Time: 0920

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Sterile Pl 125ml NaThio
- D - Pl 500ml H2SO4
- E - Pl 250ml NP
- F - Pl 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

[Signature] 5/18/20 1:30
Relinquished By Date/Time

Ben North 5-18-20 1335
Received By Date/Time

Relinquished By Date/Time

Ben North 5-18-20 1400
Received By Date/Time

Relinquished By Date/Time

Received at Laboratory By Date/Time

Sample Kit Prepared By: <u>[Signature]</u> QMS PV	Date/Time <u>5/18/20</u>
Sample Temp (°C): Samples on Ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Approved By: <u>[Signature]</u>
Entered By:	

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



Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By: _____
(Full Name)

Gregory Wacik

2015558-03 BM-2M

SMK
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
Date: 5/18/20
Time: 0920
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

2015558-04 BM-2D

SMK
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
Date: 5/18/20
Time: 0920
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

2015558-05 BM-5S

JML
NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, BOD SM 5210B, EC (#) SM 9223B
Confirmation, NO2-N EPA 300.0, TC (#) SM 9223B
Alk SM 2320B, PO4 SM 4500P-E, TSS SM 2540D, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C

Matrix: Non-Potable Water
Type: Grab
Date: 5/18/20
Time: 1245
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Sterile Pl 125ml NaThio
D - Pl 500ml H2SO4
E - Pl 250ml NP
F - Pl 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

Gregory Wacik

5/18/20 1:30

Becky Nantz

5-18-20 13:35

Relinquished By _____ Date/Time _____

Received By _____ Date/Time _____

Relinquished By _____ Date/Time _____

Received at Laboratory By _____ Date/Time _____

Sample Kit Prepared By: <i>QMS JSV</i>	Date/Time <u>5/11/20</u>
Sample Temp (°C): <u>41</u>	Samples on Ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Approved By: <i>BSM</i>	Entered By: _____



Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By: _____
(Full Name)

Gregory Wacik

2015558-06 BM-6S

TMK
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B, NO2-N EPA 300.0, NO3-N EPA 300.0
Alk SM 2320B, PO4 SM 4500P-E, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 5/18/20
Time: 0847

Type: Grab

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Sterile Pl 125ml NaThio
- D - Pl 500ml H2SO4
- E - Pl 250ml NP
- F - Pl 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

2015558-07 BM-6M

TMK
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D, PO4 SM 4500P-E

Matrix: Non-Potable Water

Date: 5/18/20
Time: 0847

Type: Grab

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Pl 500ml H2SO4
- D - Pl 250ml NP
- E - Pl 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspc
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc

2015558-08 BM-6D

TMK
NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, BOD SM 5210B, NO2-N EPA 300.0
PO4 SM 4500P-E, Alk SM 2320B, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 5/18/20
Time: 0847

Type: Grab

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Pl 500ml H2SO4
- D - Pl 250ml NP
- E - Pl 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspc
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc

[Signature] 5/18/20 1:30

Ben Nish 5-18-20 1335

Relinquished By _____ Date/Time _____

Received By *Ben Nish* Date/Time _____

Relinquished By _____ Date/Time _____

Received at Laboratory By *Ben Nish* Date/Time 5-18-20 1400

Sample Kit Prepared By: <i>UBJ AMS JSV</i>	Date/Time: <u>5/11/20</u>
Sample Temp (°C): <u>4</u>	
Samples on Ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
Approved By: <i>BSA</i>	
Entered By: _____	



Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By : Gregory Wacik
(Full Name)

2015558-09 BM-7S

^{Final} BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Sterile Pl 125ml NaThio
D - Pl 500ml H2SO4
E - Pl 250ml NP
F - Pl 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

Date: 5/18/20
Time: 0950

2015558-10 BM-7M

^{Final} BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 5/18/20
Time: 0950

2015558-11 BM-7D

^{Final} BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 5/18/20
Time: 0950

Gregory Wacik 5/18/20 1:30

Ben Nantz 5-18-20 1335

Relinquished By _____ Date/Time _____

Received By Ben Nantz Date/Time _____

Relinquished By _____ Date/Time _____

Received at Laboratory Ben Nantz Date/Time 5-18-20 1400

Sample Kit Prepared By: <u>W QMS JSV</u>	Date/Time <u>5/11/20</u>
Sample Temp (°C): <u>4</u>	Samples on Ice? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By: <u>BSW</u>	
Entered By:	



Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By: _____
(Full Name)

Gregory Wacik

2015558-12 BM-8S

JMK
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 5/18/20
Time: 1200

Type: Grab

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Sterile Pl 125ml NaThio
- D - Pl 500ml H2SO4
- E - Pl 250ml NP
- F - Pl 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

2015558-13 BM-8M

JMK
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 5/18/20
Time: 1200

Type: Grab

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Pl 500ml H2SO4
- D - Pl 250ml NP
- E - Pl 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspc
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc

2015558-14 BM-8D

JMK
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 5/18/20
Time: 1200

Type: Grab

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Pl 500ml H2SO4
- D - Pl 250ml NP
- E - Pl 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspc
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc

Gregory Wacik 5/18/20 1:30

Ben Nuth 5-18-20 1335

Relinquished By _____ Date/Time _____

Received By _____ Date/Time _____

Relinquished By _____ Date/Time _____

Ben Nuth 5-18-20 1400

Relinquished By _____ Date/Time _____

Received at Laboratory By _____ Date/Time _____

Sample Kit Prepared By: <i>WMS JLV</i>	Date/Time <u>5/18/20</u>
Sample Temp (°C): <u>4</u>	Samples on Ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Approved By: <i>WMS</i>	Entered By: _____



Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Comments:

Collected By: Gregory Wacik

2015558-15 BM-9S

BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
Date: 5/18/20
Time: 1027
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Sterile Pl 125ml NaThio
D - Pl 500ml H2SO4
E - Pl 250ml NP
F - Pl 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

2015558-16 BM-9M

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, TOC SM 5310C, TSS SM 2540D, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2

Matrix: Non-Potable Water
Type: Grab
Date: 5/18/20
Time: 1027
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

2015558-17 BM-9D

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
Date: 5/18/20
Time: 1027
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Relinquished By: [Signature] Date/Time: 5/18/20 1:30

Received By: [Signature] Date/Time: 5-18-20 1335

Relinquished By: Date/Time:

Received By: [Signature] Date/Time:

Relinquished By: Date/Time:

Received at Laboratory By: [Signature] Date/Time: 5-18-20 1400

Sample Kit Prepared By: [Signature] Date/Time: 5/11/20
Sample Temp (°C): 9
Samples on Ice? [X] Yes [] No [] NA
Approved By: [Signature]
Entered By:



Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Comments:

Collected By: Gregory Wack
(Full Name)

2015558-18 BM-10S

BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
Date: 5/18/20
Time: 1100
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Sterile Pl 125ml NaThio
D - Pl 500ml H2SO4
E - Pl 250ml NP
F - Pl 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

2015558-19 BM-10M

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
Date: 5/18/20
Time: 1100
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

2015558-20 BM-10D

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
Date: 5/18/20
Time: 1100
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Relinquished By: [Signature] Date/Time: 5/18/20 1:30

Received By: [Signature] Date/Time: 5-18-20 1335

Relinquished By: Date/Time:

Received By: Date/Time:

Relinquished By: Date/Time:

Received at Laboratory By: [Signature] Date/Time: 5-18-20 1400

Sample Kit Prepared By: [Signature] Date/Time: 5/11/20
Sample Temp (°C): 4
Samples on Ice? Yes No NA
Approved By: [Signature]
Entered By:



Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Collected By:
(Full Name)

Gregory Wacik

Comments: _____

2015558-21 BM-11S

Wacik
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO₂-N EPA 300.0, NO₃-N EPA 300.0, NO₂-N, NO₃-N, Combined
NO₃+NO₂, PO₄-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH₃-N D6919-03, PO₄ SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

Date: *5/18/20*
Time: *12:4*

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Sterile Pl 125ml NaThio
- D - Pl 500ml H₂SO₄
- E - Pl 250ml NP
- F - Pl 500ml Lab Filtered
- G - Vial Amber 40ml H₃PO₄, minimal hdspc
- H - Vial Amber 40ml H₃PO₄, minimal hdspc
- I - Vial Amber 40ml H₃PO₄, minimal hdspc

Gregory Wacik 5/18/20 1:30

Relinquished By: _____ Date/Time: _____

Ben Nantz 5-18-20 1335

Received By: _____ Date/Time: _____

Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: _____

Relinquished By: _____ Date/Time: _____

Ben Nantz 5-18-20 1400

Received at Laboratory By: _____ Date/Time: _____

Sample Kit Prepared By: <i>US QMS</i>	Date/Time: <i>5/18/20</i>
Sample Temp (°C): <i>4</i>	Samples on Ice? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By: <i>BSW</i>	Entered By: <i>BSW</i>

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



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.

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

Certificate of Analysis

Laboratory No.: 2016280
Report: 06/24/20
Lab Contact: Richard A Wheeler

Attention: David Wertz
Reported To: Tetra Tech

Project: 2020 - Blue Marsh Reservoir

USACE, Phila Dist. Env.Resources Branch 100 Penn Square E.
Arlington, VA 22201

Lab ID: 2016280-01 **Collected By:** Client **Sampled:** 06/15/20 08:00 **Received:** 06/15/20 14:15
Sample Desc: BM-1S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l		0.05	SM 4500-P F	06/19/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	124	mg CaCO3/L		2	SM 2320 B	06/16/20		APR
Ammonia as N	0.17	mg/l	0.01	0.10	ASTM D6919-03	06/16/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	06/16/20 11:50		JMK
Nitrate as N	4.04	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 16:14		TML
Nitrite as N	0.04	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 16:14	J	TML
Nitrate+Nitrite as N	4.08	mg/l	0.182	1.10	CALCULATED	06/15/20 16:14		TML
Nitrogen, Total Kjeldahl (TKN)	0.43	mg/l	0.37	0.50	EPA 351.2	06/18/20	J	RCE
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	06/18/20	U	RCE
Solids, Total Dissolved	207	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	3.2	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	4	mg/l	1	1	SM 2540 D	06/16/20		TMH
Microbiology								
Escherichia coli	6	mpn/100ml	1		SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40	JMW
Total Coliform	344	mpn/100ml	1		SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40	JMW



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Lab ID: 2016280-02 **Collected By:** Client **Sampled:** 06/15/20 10:15 **Received:** 06/15/20 14:15
Sample Desc: BM-2S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	115	mg CaCO ₃ /L		2	SM 2320 B	06/16/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	06/16/20	U	APR
Biochemical Oxygen Demand	2.9	mg/l	2.0	2.0	SM 5210 B	06/16/20 13:45		JMK
Nitrate as N	3.85	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 16:30		TML
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 16:30	J	TML
Nitrate+Nitrite as N	3.88	mg/l	0.182	1.10	CALCULATED	06/15/20 16:30		TML
Nitrogen, Total Kjeldahl (TKN)	0.37	mg/l	0.37	0.50	EPA 351.2	06/18/20	J	RCE
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	06/16/20	J	RCE
Solids, Total Dissolved	155	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.9	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	9	mg/l	1	1	SM 2540 D	06/16/20		TMH
Microbiology								
Escherichia coli	<1	mpn/100ml	1		SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40	JMW
Total Coliform	172	mpn/100ml	1		SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2016280-03 **Collected By:** Client **Sampled:** 06/15/20 10:15 **Received:** 06/15/20 14:15
Sample Desc: BM-2M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.08	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	121	mg CaCO3/L		2	SM 2320 B	06/16/20		APR
Ammonia as N	0.15	mg/l	0.01	0.10	ASTM D6919-03	06/16/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	06/16/20 13:00		JMK
Nitrate as N	4.20	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 16:47		TML
Nitrite as N	0.05	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 16:47	J	TML
Nitrate+Nitrite as N	4.25	mg/l	0.182	1.10	CALCULATED	06/15/20 16:47		TML
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	06/18/20	U	RCE
Phosphorus as P, Total	0.06	mg/l	0.01	0.05	SM 4500-P E	06/16/20		RCE
Solids, Total Dissolved	221	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	3.6	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	06/16/20		TMH

Lab ID: 2016280-04 **Collected By:** Client **Sampled:** 06/15/20 10:15 **Received:** 06/15/20 14:15
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		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	133	mg CaCO3/L		2	SM 2320 B	06/16/20		APR
Ammonia as N	0.16	mg/l	0.01	0.10	ASTM D6919-03	06/16/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	06/16/20 13:00		JMK
Nitrate as N	4.24	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 17:04		TML
Nitrite as N	0.06	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 17:04	J	TML
Nitrate+Nitrite as N	4.30	mg/l	0.182	1.10	CALCULATED	06/15/20 17:04		TML
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	06/18/20	U	RCE
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	06/16/20	J	RCE
Solids, Total Dissolved	239	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.5	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	6	mg/l	1	1	SM 2540 D	06/16/20		TMH



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Lab ID: 2016280-05 **Collected By:** Client **Sampled:** 06/15/20 13:30 **Received:** 06/15/20 14:15
Sample Desc: BM-5S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	209	mg CaCO ₃ /L		2	SM 2320 B	06/16/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	06/16/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	06/16/20 13:00		JMK
Nitrate as N	7.97	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 17:21		TML
Nitrite as N	0.02	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 17:21	J	TML
Nitrate+Nitrite as N	7.99	mg/l	0.182	1.10	CALCULATED	06/15/20 17:21		TML
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	06/18/20	U	RCE
Phosphorus as P, Total	0.06	mg/l	0.01	0.05	SM 4500-P E	06/16/20		RCE
Solids, Total Dissolved	347	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	1.4	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	13	mg/l	1	1	SM 2540 D	06/16/20		TMH
Microbiology								
Escherichia coli	435	mpn/100ml	1		SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40	JMW
Total Coliform	>2420	mpn/100ml	1		SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2016280-06 **Collected By:** Client **Sampled:** 06/15/20 09:15 **Received:** 06/15/20 14:15
Sample Desc: BM-6S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	116	mg CaCO ₃ /L		2	SM 2320 B	06/16/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	06/16/20	U	APR
Biochemical Oxygen Demand	2.5	mg/l	2.0	2.0	SM 5210 B	06/16/20 13:45		JMK
Nitrate as N	3.88	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 18:11		TML
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 18:11	J	TML
Nitrate+Nitrite as N	3.91	mg/l	0.182	1.10	CALCULATED	06/15/20 18:11		TML
Nitrogen, Total Kjeldahl (TKN)	0.38	mg/l	0.37	0.50	EPA 351.2	06/18/20	J	RCE
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	06/16/20	J	RCE
Solids, Total Dissolved	203	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.8	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	2	mg/l	1	1	SM 2540 D	06/16/20		TMH
Microbiology								
Escherichia coli	<1	mpn/100ml	1		SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40	JMW
Total Coliform	47	mpn/100ml	1		SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2016280-07 **Collected By:** Client **Sampled:** 06/15/20 09:15 **Received:** 06/15/20 14:15
Sample Desc: BM-6M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	121	mg CaCO3/L		2	SM 2320 B	06/16/20		APR
Ammonia as N	0.12	mg/l	0.01	0.10	ASTM D6919-03	06/16/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	06/16/20 11:50		JMK
Nitrate as N	4.28	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 18:28		TML
Nitrite as N	0.04	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 18:28	J	TML
Nitrate+Nitrite as N	4.32	mg/l	0.182	1.10	CALCULATED	06/15/20 18:28		TML
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	06/18/20	U	RCE
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	06/16/20	J	RCE
Solids, Total Dissolved	215	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	3.5	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	2	mg/l	1	1	SM 2540 D	06/16/20		TMH

Lab ID: 2016280-08 **Collected By:** Client **Sampled:** 06/15/20 09:15 **Received:** 06/15/20 14:15
Sample Desc: BM-6D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	132	mg CaCO3/L		2	SM 2320 B	06/16/20		APR
Ammonia as N	0.26	mg/l	0.01	0.10	ASTM D6919-03	06/16/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	06/16/20 11:50		JMK
Nitrate as N	3.87	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 19:19		TML
Nitrite as N	0.07	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 19:19	J	TML
Nitrate+Nitrite as N	3.94	mg/l	0.182	1.10	CALCULATED	06/15/20 19:19		TML
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	06/18/20	U	RCE
Phosphorus as P, Total	0.01	mg/l	0.01	0.05	SM 4500-P E	06/16/20	J	RCE
Solids, Total Dissolved	231	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.0	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	2	mg/l	1	1	SM 2540 D	06/16/20		TMH



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Lab ID: 2016280-09 **Collected By:** Client **Sampled:** 06/15/20 11:00 **Received:** 06/15/20 14:15
Sample Desc: BM-7S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst	
Dissolved General Chemistry									
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML	
General Chemistry									
Alkalinity, Total to pH 4.5	111	mg CaCO ₃ /L		2	SM 2320 B	06/16/20		APR	
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	06/16/20	U	APR	
Biochemical Oxygen Demand	2.8	mg/l	2.0	2.0	SM 5210 B	06/16/20 13:45		JMK	
Nitrate as N	3.94	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 19:36		TML	
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 19:36	J	TML	
Nitrate+Nitrite as N	3.97	mg/l	0.182	1.10	CALCULATED	06/15/20 19:36		TML	
Nitrogen, Total Kjeldahl (TKN)	0.41	mg/l	0.37	0.50	EPA 351.2	06/18/20	J	RCE	
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	06/16/20	J	RCE	
Solids, Total Dissolved	206	mg/l	4	5	SM 2540 C	06/16/20		TMH	
Total Organic Carbon	2.9	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD	
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	06/16/20		TMH	
	Result	Unit	Rep. Limit		Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology									
Escherichia coli	5	mpn/100ml	1		SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40		JMW
Total Coliform	165	mpn/100ml	1		SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40		JMW



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M.J. Reider Associates, Inc.

Lab ID: 2016280-10 **Collected By:** Client **Sampled:** 06/15/20 11:00 **Received:** 06/15/20 14:15
Sample Desc: BM-7M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	129	mg CaCO3/L		2	SM 2320 B	06/16/20		APR
Ammonia as N	0.18	mg/l	0.01	0.10	ASTM D6919-03	06/16/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	06/16/20 11:50		JMK
Nitrate as N	4.55	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 19:52		TML
Nitrite as N	0.05	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 19:52	J	TML
Nitrate+Nitrite as N	4.60	mg/l	0.182	1.10	CALCULATED	06/15/20 19:52		TML
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	06/18/20	U	RCE
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	06/16/20		RCE
Solids, Total Dissolved	232	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.6	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	5	mg/l	1	1	SM 2540 D	06/16/20		TMH

Lab ID: 2016280-11 **Collected By:** Client **Sampled:** 06/15/20 11:00 **Received:** 06/15/20 14:15
Sample Desc: BM-7D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.06	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	148	mg CaCO3/L		2	SM 2320 B	06/16/20		APR
Ammonia as N	0.48	mg/l	0.01	0.10	ASTM D6919-03	06/16/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	06/16/20 11:50		JMK
Nitrate as N	3.03	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 20:09		TML
Nitrite as N	0.08	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 20:09	J	TML
Nitrate+Nitrite as N	3.11	mg/l	0.182	1.10	CALCULATED	06/15/20 20:09		TML
Nitrogen, Total Kjeldahl (TKN)	0.78	mg/l	0.37	0.50	EPA 351.2	06/18/20		RCE
Phosphorus as P, Total	0.07	mg/l	0.01	0.05	SM 4500-P E	06/16/20		RCE
Solids, Total Dissolved	239	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.0	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	16	mg/l	1	1	SM 2540 D	06/16/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2016280-12 **Collected By:** Client **Sampled:** 06/15/20 12:45 **Received:** 06/15/20 14:15
Sample Desc: BM-8S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	118	mg CaCO ₃ /L		2	SM 2320 B	06/16/20		APR
Ammonia as N	0.03	mg/l	0.01	0.10	ASTM D6919-03	06/16/20	J	APR
Biochemical Oxygen Demand	2.2	mg/l	2.0	2.0	SM 5210 B	06/16/20 13:45		JMK
Nitrate as N	3.89	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 20:26		TML
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 20:26	J	TML
Nitrate+Nitrite as N	3.92	mg/l	0.182	1.10	CALCULATED	06/15/20 20:26		TML
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	06/18/20	U	RCE
Phosphorus as P, Total	0.01	mg/l	0.01	0.05	SM 4500-P E	06/16/20	J	RCE
Solids, Total Dissolved	211	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.7	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	5	mg/l	1	1	SM 2540 D	06/16/20		TMH
Microbiology								
Escherichia coli	1	mpn/100ml	1		SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40	JMW
Total Coliform	66	mpn/100ml	1		SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40	JMW



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Lab ID: 2016280-13 **Collected By:** Client **Sampled:** 06/15/20 12:45 **Received:** 06/15/20 14:15
Sample Desc: BM-8M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	116	mg CaCO3/L		2	SM 2320 B	06/16/20		APR
Ammonia as N	0.05	mg/l	0.01	0.10	ASTM D6919-03	06/16/20	J	APR
Biochemical Oxygen Demand	4.2	mg/l	2.0	2.0	SM 5210 B	06/16/20 11:50		JMK
Nitrate as N	3.78	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 20:43		TML
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 20:43	J	TML
Nitrate+Nitrite as N	3.81	mg/l	0.182	1.10	CALCULATED	06/15/20 20:43		TML
Nitrogen, Total Kjeldahl (TKN)	0.41	mg/l	0.37	0.50	EPA 351.2	06/18/20	J	RCE
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	06/16/20	J	RCE
Solids, Total Dissolved	210	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.4	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	6	mg/l	1	1	SM 2540 D	06/16/20		TMH

Lab ID: 2016280-14 **Collected By:** Client **Sampled:** 06/15/20 12:45 **Received:** 06/15/20 14:15
Sample Desc: BM-8D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	121	mg CaCO3/L		2	SM 2320 B	06/16/20		APR
Ammonia as N	0.26	mg/l	0.01	0.10	ASTM D6919-03	06/16/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	06/16/20 11:50		JMK
Nitrate as N	4.04	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 21:00		TML
Nitrite as N	0.05	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 21:00	J	TML
Nitrate+Nitrite as N	4.09	mg/l	0.182	1.10	CALCULATED	06/15/20 21:00		TML
Nitrogen, Total Kjeldahl (TKN)	0.45	mg/l	0.37	0.50	EPA 351.2	06/18/20	J	RCE
Phosphorus as P, Total	0.09	mg/l	0.01	0.05	SM 4500-P E	06/16/20		RCE
Solids, Total Dissolved	239	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.4	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	40	mg/l	1	1	SM 2540 D	06/16/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2016280-15 **Collected By:** Client **Sampled:** 06/15/20 11:45 **Received:** 06/15/20 14:15
Sample Desc: BM-9S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	116	mg CaCO ₃ /L		2	SM 2320 B	06/16/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	06/16/20	U	APR
Biochemical Oxygen Demand	2.3	mg/l	2.0	2.0	SM 5210 B	06/16/20 13:45		JMK
Nitrate as N	3.92	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 21:17		TML
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 21:17	J	TML
Nitrate+Nitrite as N	3.95	mg/l	0.182	1.10	CALCULATED	06/15/20 21:17		TML
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	06/18/20	U	RCE
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	06/16/20	J	RCE
Solids, Total Dissolved	192	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.8	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	8	mg/l	1	1	SM 2540 D	06/16/20		TMH
Microbiology								
Escherichia coli	2	mpn/100ml	1		SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40	JMW
Total Coliform	91	mpn/100ml	1		SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2016280-16 **Collected By:** Client **Sampled:** 06/15/20 11:45 **Received:** 06/15/20 14:15
Sample Desc: BM-9M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	142	mg CaCO3/L		2	SM 2320 B	06/16/20		APR
Ammonia as N	0.17	mg/l	0.01	0.10	ASTM D6919-03	06/16/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	06/16/20 11:50		JMK
Nitrate as N	5.15	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 16:34		TML
Nitrite as N	0.04	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 16:34	J	TML
Nitrate+Nitrite as N	5.19	mg/l	0.182	1.10	CALCULATED	06/15/20 16:34		TML
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	06/18/20	U	RCE
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	06/16/20	J	RCE
Solids, Total Dissolved	257	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.3	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	9	mg/l	1	1	SM 2540 D	06/16/20		TMH

Lab ID: 2016280-17 **Collected By:** Client **Sampled:** 06/15/20 11:45 **Received:** 06/15/20 14:15
Sample Desc: BM-9D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.08	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	133	mg CaCO3/L		2	SM 2320 B	06/16/20		APR
Ammonia as N	0.33	mg/l	0.01	0.10	ASTM D6919-03	06/16/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	06/16/20 11:50		JMK
Nitrate as N	3.75	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 18:15		TML
Nitrite as N	0.06	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 18:15	J	TML
Nitrate+Nitrite as N	3.81	mg/l	0.182	1.10	CALCULATED	06/15/20 18:15		TML
Nitrogen, Total Kjeldahl (TKN)	0.40	mg/l	0.37	0.50	EPA 351.2	06/18/20	J	RCE
Phosphorus as P, Total	0.07	mg/l	0.01	0.05	SM 4500-P E	06/16/20		RCE
Solids, Total Dissolved	249	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.4	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	9	mg/l	1	1	SM 2540 D	06/16/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2016280-18 **Collected By:** Client **Sampled:** 06/15/20 12:15 **Received:** 06/15/20 14:15
Sample Desc: BM-10S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	108	mg CaCO ₃ /L		2	SM 2320 B	06/16/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	06/16/20	U	APR
Biochemical Oxygen Demand	3.7	mg/l	2.0	2.0	SM 5210 B	06/16/20 13:45		JMK
Nitrate as N	4.09	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 18:31		TML
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 18:31	J	TML
Nitrate+Nitrite as N	4.12	mg/l	0.182	1.10	CALCULATED	06/15/20 18:31		TML
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	06/18/20	U	RCE
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	06/16/20	J	RCE
Solids, Total Dissolved	195	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.6	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	10	mg/l	1	1	SM 2540 D	06/16/20		TMH
	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	3	mpn/100ml	1	SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40		JMW
Total Coliform	249	mpn/100ml	1	SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40		JMW



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M.J. Reider Associates, Inc.

Lab ID: 2016280-19 **Collected By:** Client **Sampled:** 06/15/20 12:15 **Received:** 06/15/20 14:15
Sample Desc: BM-10M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	132	mg CaCO3/L		2	SM 2320 B	06/16/20		APR
Ammonia as N	0.08	mg/l	0.01	0.10	ASTM D6919-03	06/16/20	J	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	06/16/20 11:50		JMK
Nitrate as N	4.91	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 16:51		TML
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 16:51	J	TML
Nitrate+Nitrite as N	4.94	mg/l	0.182	1.10	CALCULATED	06/15/20 16:51		TML
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	06/18/20	U	RCE
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	06/16/20		RCE
Solids, Total Dissolved	242	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.3	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	39	mg/l	1	1	SM 2540 D	06/16/20		TMH

Lab ID: 2016280-20 **Collected By:** Client **Sampled:** 06/15/20 12:15 **Received:** 06/15/20 14:15
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		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	139	mg CaCO3/L		2	SM 2320 B	06/16/20		APR
Ammonia as N	0.14	mg/l	0.01	0.10	ASTM D6919-03	06/16/20		APR
Biochemical Oxygen Demand	2.1	mg/l	2.0	2.0	SM 5210 B	06/16/20 11:50		JMK
Nitrate as N	5.23	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 17:07		TML
Nitrite as N	0.03	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 17:07	J	TML
Nitrate+Nitrite as N	5.26	mg/l	0.182	1.10	CALCULATED	06/15/20 17:07		TML
Nitrogen, Total Kjeldahl (TKN)	0.52	mg/l	0.37	0.50	EPA 351.2	06/18/20		RCE
Phosphorus as P, Total	0.08	mg/l	0.01	0.05	SM 4500-P E	06/16/20		RCE
Solids, Total Dissolved	249	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	2.3	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	38	mg/l	1	1	SM 2540 D	06/16/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2016280-21 **Collected By:** Client **Sampled:** 06/15/20 13:30 **Received:** 06/15/20 14:15
Sample Desc: BM-11S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	06/17/20	G-11	TML
General Chemistry								
Alkalinity, Total to pH 4.5	68	mg CaCO ₃ /L		2	SM 2320 B	06/16/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	06/16/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	06/16/20 11:50		JMK
Nitrate as N	4.16	mg/l	0.18	1.00	EPA 300.0 Rev 2.1	06/15/20 17:24		TML
Nitrite as N	<0.007	mg/l	0.007	0.10	EPA 300.0 Rev 2.1	06/15/20 17:24	U	TML
Nitrate+Nitrite as N	<4.17	mg/l	0.182	1.10	CALCULATED	06/15/20 17:24		TML
Nitrogen, Total Kjeldahl (TKN)	<0.37	mg/l	0.37	0.50	EPA 351.2	06/18/20	U	RCE
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	06/16/20	J	RCE
Solids, Total Dissolved	141	mg/l	4	5	SM 2540 C	06/16/20		TMH
Total Organic Carbon	1.9	mg/l	0.3	0.5	SM 5310 C	06/16/20		ALD
Solids, Total Suspended	7	mg/l	1	1	SM 2540 D	06/16/20		TMH
	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	435	mpn/100ml	1	SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40		JMW
Total Coliform	>2420	mpn/100ml	1	SM 9223 B/Quantitray	6/15/20 15:16	6/16/20 9:40		JMW



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Preparation Methods

Specific Method	Preparation Method	Prep Batch	Prepared Date	Prepared By
2016280-01				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F1088	06/17/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F1087	06/18/2020	RCE
2016280-02				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
2016280-03				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
2016280-04				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
2016280-05				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
2016280-06				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
2016280-07				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
2016280-08				
Dissolved General Chemistry				



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SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
2016280-09				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
2016280-10				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
2016280-11				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
2016280-12				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
2016280-13				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
2016280-14				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
2016280-15				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
2016280-16				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE



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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.

General Chemistry

SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
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2016280-17

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
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2016280-18

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
-------------	-------------	---------	------------	-----

2016280-19

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
-------------	-------------	---------	------------	-----

2016280-20

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
-------------	-------------	---------	------------	-----

2016280-21

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0F0936	06/15/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0F0934	06/16/2020	RCE
-------------	-------------	---------	------------	-----

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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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**

2016280



Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Report To: Tetra Tech - David Wertz - USACE, Phila Dist. Env. Resources Branch 100 Penn Square E., Arlington, VA 22201

Invoice To: Tetra Tech - David Wertz - USACE, Phila Dist. Env. Resources Branch 100 Penn Square E., Arlington, VA 22201

Comments: _____

Collected By : Gregory Wacik
(Full Name)

2016280-01 BM-1S

^{TMK} BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 6/15/20

Type: Grab

Time: 1350

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H2SO4
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

2016280-02 BM-2S

^{TMK} BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 6/15/20

Type: Grab

Time: 1065

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H2SO4
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

[Signature] 6/15/20 135

Relinquished By Date/Time

Ben North 6-15-20 1350

Received By Date/Time

Relinquished By _____ Date/Time _____

Ben North 6-15-20 1415

Received By Date/Time

Relinquished By _____ Date/Time _____

Received at Laboratory By Date/Time

Sample Kit Prepared By: <u>[Signature]</u>	Date/Time: <u>6/15/20</u>
Sample Temp (°C): <u>8</u>	
Samples on Ice? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA	
Approved By: <u>[Signature]</u>	
Entered By: _____	



Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By : Gregory Wacik
(Full Name)

2016280-03 BM-2M

jm BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 6/15/20

Type: Grab

Time: 1015

- A - PI 500ml NP, minimal hdspe
- B - PI Liter NP
- C - PI 500ml H2SO4
- D - PI 250ml NP
- E - PI 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspe
- G - Vial Amber 40ml H3PO4, minimal hdspe
- H - Vial Amber 40ml H3PO4, minimal hdspe

2016280-04 BM-2D

jm BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 6/15/20

Type: Grab

Time: 1015

- A - PI 500ml NP, minimal hdspe
- B - PI Liter NP
- C - PI 500ml H2SO4
- D - PI 250ml NP
- E - PI 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspe
- G - Vial Amber 40ml H3PO4, minimal hdspe
- H - Vial Amber 40ml H3PO4, minimal hdspe

2016280-05 BM-5S

jm NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, BOD SM 5210B, EC (#) SM 9223B
Confirmation, NO2-N EPA 300.0, TC (#) SM 9223B
Alk SM 2320B, PO4 SM 4500P-E, TSS SM 2540D, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C

Matrix: Non-Potable Water

Date: 6/15/20

Type: Grab

Time: 130

- A - PI 500ml NP, minimal hdspe
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H2SO4
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspe
- H - Vial Amber 40ml H3PO4, minimal hdspe
- I - Vial Amber 40ml H3PO4, minimal hdspe

Relinquished By: [Signature] Date/Time: 6/15/20 1:35 Received By: Bay North Date/Time: 6-15-20 1350

Relinquished By: _____ Date/Time: _____ Received By: Bay North Date/Time: _____

Relinquished By: _____ Date/Time: _____ Received at Laboratory By: Bay North Date/Time: 6-15-20 1415

Sample Kit Prepared By: <u>[Signature]</u>	Date/Time: <u>5/18/20</u>
Sample Temp (°C): <u>8</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>	

Client Code: 3157
 Project Manager: Richard A Wheeler

Client: Tetra Tech
 Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By: Gregory Wacik
 (Full Name)

2016280-06 BM-6S

^{DMK} BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B, NO2-N EPA 300.0, NO3-N EPA 300.0
 Alk SM 2320B, PO4 SM 4500P-E, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
 Type: Grab
 Date: 6/15/20
 Time: 915
 A - PI 500ml NP, minimal hdspc
 B - PI Liter NP
 C - Sterile PI 125ml NaThio
 D - PI 500ml H2SO4
 E - PI 250ml NP
 F - PI 500ml Lab Filtered
 G - Vial Amber 40ml H3PO4, minimal hdspc
 H - Vial Amber 40ml H3PO4, minimal hdspc
 I - Vial Amber 40ml H3PO4, minimal hdspc

2016280-07 BM-6M

^{DMK} BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
 Alk SM 2320B, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D, PO4 SM 4500P-E

Matrix: Non-Potable Water
 Type: Grab
 Date: 6/15/20
 Time: 915
 A - PI 500ml NP, minimal hdspc
 B - PI Liter NP
 C - PI 500ml H2SO4
 D - PI 250ml NP
 E - PI 500ml Lab Filtered
 F - Vial Amber 40ml H3PO4, minimal hdspc
 G - Vial Amber 40ml H3PO4, minimal hdspc
 H - Vial Amber 40ml H3PO4, minimal hdspc

2016280-08 BM-6D

NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, BOD SM 5210B, NO2-N EPA 300.0
 PO4 SM 4500P-E, Alk SM 2320B, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
 Type: Grab
 Date: 6/15/20
 Time: 915
 A - PI 500ml NP, minimal hdspc
 B - PI Liter NP
 C - PI 500ml H2SO4
 D - PI 250ml NP
 E - PI 500ml Lab Filtered
 F - Vial Amber 40ml H3PO4, minimal hdspc
 G - Vial Amber 40ml H3PO4, minimal hdspc
 H - Vial Amber 40ml H3PO4, minimal hdspc

Relinquished By: [Signature] Date/Time: 6/15/20 1235
 Received By: Ben Smith Date/Time: 6-15-20 1350
 Relinquished By: _____ Date/Time: _____
 Received By: Ben Smith Date/Time: 6-15-20 1415
 Relinquished By: _____ Date/Time: _____
 Received at Laboratory By: _____ Date/Time: _____

Sample Kit Prepared By: <u>[Signature]</u>	Date/Time: <u>6/15/20</u>
Sample Temp (°C): <u>8</u>	Samples on Ice? <u>Yes</u> No NA
Approved By: <u>[Signature]</u>	Entered By: <u>[Signature]</u>

Client Code: 3157
 Project Manager: Richard A Wheeler

Client: Tetra Tech
 Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By: Gregory Wacik
 (Full Name)

2016280-09 BM-7S

SM
 BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
 Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
 Type: Grab
 Date: 6/15/20
 Time: 11:00
 A - PI 500ml NP, minimal hdspc
 B - PI Liter NP
 C - Sterile PI 125ml NaThio
 D - PI 500ml H2SO4
 E - PI 250ml NP
 F - PI 500ml Lab Filtered
 G - Vial Amber 40ml H3PO4, minimal hdspc
 H - Vial Amber 40ml H3PO4, minimal hdspc
 I - Vial Amber 40ml H3PO4, minimal hdspc

2016280-10 BM-7M

SM
 BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
 Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
 Type: Grab
 Date: 6/15/20
 Time: 11:00
 A - PI 500ml NP, minimal hdspc
 B - PI Liter NP
 C - PI 500ml H2SO4
 D - PI 250ml NP
 E - PI 500ml Lab Filtered
 F - Vial Amber 40ml H3PO4, minimal hdspc
 G - Vial Amber 40ml H3PO4, minimal hdspc
 H - Vial Amber 40ml H3PO4, minimal hdspc

2016280-11 BM-7D

SM
 BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
 Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
 Type: Grab
 Date: 6/15/20
 Time: 11:00
 A - PI 500ml NP, minimal hdspc
 B - PI Liter NP
 C - PI 500ml H2SO4
 D - PI 250ml NP
 E - PI 500ml Lab Filtered
 F - Vial Amber 40ml H3PO4, minimal hdspc
 G - Vial Amber 40ml H3PO4, minimal hdspc
 H - Vial Amber 40ml H3PO4, minimal hdspc

Relinquished By: [Signature] Date/Time: 6/15/20 1:35
 Received By: Ben North Date/Time: 6-15-20 1350
 Relinquished By: _____ Date/Time: _____
 Received By: Ben North Date/Time: 6-15-20 1415
 Relinquished By: _____ Date/Time: _____
 Received at Laboratory By: _____ Date/Time: _____

Sample Kit Prepared By: <i>BSW</i>	Date/Time <u>5/18/20</u>
Sample Temp (°C): <u>8</u>	Samples on Ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Approved By: <i>BSW</i>	Entered By: <u>[Signature]</u>



M.J. Reider Associates, Inc.

2016280

Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By: Gregory Wacik
(Full Name)

2016280-12 BM-8S

^{smk} BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water Date: 6/15/20
Type: Grab Time: 1245
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - Sterile PI 125ml NaThio
D - PI 500ml H2SO4
E - PI 250ml NP
F - PI 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

2016280-13 BM-8M

^{smk} BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water Date: 6/15/20
Type: Grab Time: 1245
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H2SO4
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

2016280-14 BM-8D

^{smk} BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water Date: 6/15/20
Type: Grab Time: 1245
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H2SO4
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Relinquished By: [Signature] Date/Time: 6/15/20 1:35
Received By: Ben N/A Date/Time: 6-15-20 1350
Relinquished By: _____ Date/Time: _____
Received By: Ben N/A Date/Time: 6-15-20 1415
Relinquished By: _____ Date/Time: _____
Received at Laboratory By: _____ Date/Time: _____

Sample Kit Prepared By: <u>[Signature]</u>	Date/Time: <u>5/18/20</u>
Sample Temp (°C): <u>8</u>	Samples on Ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Approved By: <u>[Signature]</u>	Entered By: _____



Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Comments:

Collected By: Gregory Wacik

2016280-15 BM-9S

BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - Sterile PI 125ml NaThio
D - PI 500ml H2SO4
E - PI 250ml NP
F - PI 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

Date: 6/15/20
Time: 1145

2016280-16 BM-9M

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, TOC SM 5310C, TSS SM 2540D, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2

Matrix: Non-Potable Water
Type: Grab
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H2SO4
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 6/15/20
Time: 1145

2016280-17 BM-9D

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H2SO4
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 6/15/20
Time: 1145

Handwritten signatures and dates for Relinquished By, Received By, and Received at Laboratory By.

Sample Kit Prepared By: Date/Time
Sample Temp (°C):
Samples on Ice?
Approved By:
Entered By:



Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By: Gregory Wacik
(Full Name)

2016280-18 BM-10S

^{TKN} BOD SM 5210B, EC (#) SM 9223B Confirmation, NO₂-N EPA 300.0, NO₃-N EPA 300.0, NO₂-N, NO₃-N, Combined NO₃+NO₂, PO₄-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH₃-N D6919-03, PO₄ SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water Date: 6/15/20
Type: Grab Time: 1215
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - Sterile PI 125ml NaThio
D - PI 500ml H₂SO₄
E - PI 250ml NP
F - PI 500ml Lab Filtered
G - Vial Amber 40ml H₃PO₄, minimal hdspc
H - Vial Amber 40ml H₃PO₄, minimal hdspc
I - Vial Amber 40ml H₃PO₄, minimal hdspc

2016280-19 BM-10M

^{TKN} BOD SM 5210B, NO₂-N EPA 300.0, NO₃-N EPA 300.0, NO₂-N, NO₃-N, Combined NO₃+NO₂, PO₄-D SM 4500P-F
Alk SM 2320B, NH₃-N D6919-03, PO₄ SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water Date: 6/15/20
Type: Grab Time: 1215
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H₂SO₄
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H₃PO₄, minimal hdspc
G - Vial Amber 40ml H₃PO₄, minimal hdspc
H - Vial Amber 40ml H₃PO₄, minimal hdspc

2016280-20 BM-10D

^{TKN} BOD SM 5210B, NO₂-N EPA 300.0, NO₃-N EPA 300.0, NO₂-N, NO₃-N, Combined NO₃+NO₂, PO₄-D SM 4500P-F
Alk SM 2320B, NH₃-N D6919-03, PO₄ SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water Date: 6/15/20
Type: Grab Time: 1215
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H₂SO₄
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H₃PO₄, minimal hdspc
G - Vial Amber 40ml H₃PO₄, minimal hdspc
H - Vial Amber 40ml H₃PO₄, minimal hdspc

[Signature] 6/15/20 1:35
Relinquished By Date/Time

Ben North 6-15-20 1350
Received By Date/Time

Relinquished By Date/Time

Ben North 6-15-20 1415
Received at Laboratory By Date/Time

Relinquished By Date/Time

Sample Kit Prepared By: <u>[Signature]</u>	Date/Time <u>6/18/20</u>
Sample Temp (°C): <u>8</u>	
Samples on Ice? <u>Yes</u>	No <input type="checkbox"/> NA <input type="checkbox"/>
Approved By: <u>[Signature]</u>	
Entered By: <u>[Signature]</u>	



Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By :
(Full Name)

Gregory Wacik

2016280-21 BM-11S

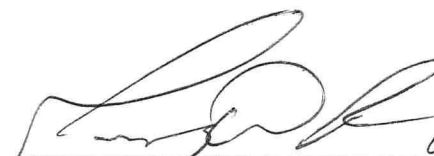
^{From} BOD SM 5210B, EC (#) SM 9223B Confirmation, NO₂-N EPA 300.0, NO₃-N EPA 300.0, NO₂-N, NO₃-N, Combined NO₃+NO₂, PO₄-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH₃-N D6919-03, PO₄ SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

Date: 6/15/20
Time: 1:30

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H₂SO₄
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H₃PO₄, minimal hdspc
- H - Vial Amber 40ml H₃PO₄, minimal hdspc
- I - Vial Amber 40ml H₃PO₄, minimal hdspc

	<u>6/15/20 1:35</u>	<u>Buy N/A</u>	<u>6-15-20 1350</u>
Relinquished By	Date/Time	Received By	Date/Time
_____	_____	<u>Buy N/A</u>	<u>6-15-20 1415</u>
Relinquished By	Date/Time	Received By	Date/Time
_____	_____	Received at Laboratory By	Date/Time

Sample Kit Prepared By:	Date/Time
<u>RTJV</u>	<u>5/18/20</u>
Sample Temp (°C):	<u>8</u>
Samples on Ice?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Approved By:	<u>RTJV</u>
Entered By:	<u>RTJV</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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M.J. Reider Associates, Inc.

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

Certificate of Analysis

Laboratory No.: 2019015
Report: 07/22/20
Lab Contact: Richard A Wheeler

Attention: David Wertz
Reported To: Tetra Tech

Project: 2020 - Blue Marsh Reservoir

USACE, Phila Dist. Env.Resources Branch 100 Penn Square E.
Arlington, VA 22201

Lab ID: 2019015-01 **Collected By:** Client **Sampled:** 07/06/20 07:15 **Received:** 07/06/20 14:30
Sample Desc: BM-1S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst	
Dissolved General Chemistry									
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF	
General Chemistry									
Alkalinity, Total to pH 4.5	132	mg CaCO3/L		2	SM 2320 B	07/07/20		APR	
Ammonia as N	0.05	mg/l	0.01	0.10	ASTM D6919-03	07/07/20	J	APR	
Biochemical Oxygen Demand	5.3	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW	
Nitrate as N	3.52	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 15:20		MRW	
Nitrite as N	0.11	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 15:20		MRW	
Nitrate+Nitrite as N	3.63	mg/l	0.125	1.10	CALCULATED	07/06/20 15:20		MRW	
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/10/20	Q-10a, U	SNF	
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	07/07/20		RCE	
Solids, Total Dissolved	220	mg/l	4	5	SM 2540 C	07/07/20		TMH	
Total Organic Carbon	3.1	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD	
Solids, Total Suspended	8	mg/l	1	1	SM 2540 D	07/07/20		TMH	
	Result	Unit	Rep. Limit		Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology									
Escherichia coli	10	mpn/100ml	1		SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11		JMW
Total Coliform	>2420	mpn/100ml	1		SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11		JMW



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Lab ID: 2019015-02 **Collected By:** Client **Sampled:** 07/06/20 09:30 **Received:** 07/06/20 14:30
Sample Desc: BM-2S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	89	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	07/07/20	U	APR
Biochemical Oxygen Demand	2.9	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	3.31	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 15:36		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 15:36	J	MRW
Nitrate+Nitrite as N	3.34	mg/l	0.125	1.10	CALCULATED	07/06/20 15:36		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/10/20	U	SNF
Phosphorus as P, Total	0.01	mg/l	0.01	0.05	SM 4500-P E	07/07/20	J	RCE
Solids, Total Dissolved	148	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	3.6	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	5	mg/l	1	1	SM 2540 D	07/07/20		TMH
Microbiology								
Escherichia coli	1	mpn/100ml	1		SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11	JMW
Total Coliform	228	mpn/100ml	1		SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2019015-03 **Collected By:** Client **Sampled:** 07/06/20 09:30 **Received:** 07/06/20 14:30
Sample Desc: BM-2M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	142	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR
Ammonia as N	0.05	mg/l	0.01	0.10	ASTM D6919-03	07/07/20	J	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	4.37	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 15:53		MRW
Nitrite as N	0.18	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 15:53		MRW
Nitrate+Nitrite as N	4.55	mg/l	0.125	1.10	CALCULATED	07/06/20 15:53		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/10/20	U	SNF
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	07/07/20	U	RCE
Solids, Total Dissolved	227	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	2.5	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	12	mg/l	1	1	SM 2540 D	07/07/20		TMH

Lab ID: 2019015-04 **Collected By:** Client **Sampled:** 07/06/20 09:30 **Received:** 07/06/20 14:30
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		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	143	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR
Ammonia as N	0.06	mg/l	0.01	0.10	ASTM D6919-03	07/07/20	J	APR
Biochemical Oxygen Demand	2.9	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	3.53	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 16:44		MRW
Nitrite as N	0.29	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 16:44		MRW
Nitrate+Nitrite as N	3.82	mg/l	0.125	1.10	CALCULATED	07/06/20 16:44		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/10/20	U	SNF
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	07/07/20	U	RCE
Solids, Total Dissolved	231	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	2.5	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	4	mg/l	1	1	SM 2540 D	07/07/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2019015-05 **Collected By:** Client **Sampled:** 07/06/20 12:25 **Received:** 07/06/20 14:30
Sample Desc: BM-5S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst	
Dissolved General Chemistry									
Phosphorus as P, Dissolved	0.06	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF	
General Chemistry									
Alkalinity, Total to pH 4.5	208	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR	
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	07/07/20	U	APR	
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW	
Nitrate as N	7.11	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 17:34		MRW	
Nitrite as N	0.01	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 17:34	J	MRW	
Nitrate+Nitrite as N	7.12	mg/l	0.125	1.10	CALCULATED	07/06/20 17:34		MRW	
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/10/20	U	SNF	
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	07/07/20	J	RCE	
Solids, Total Dissolved	317	mg/l	4	5	SM 2540 C	07/07/20		TMH	
Total Organic Carbon	1.8	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD	
Solids, Total Suspended	11	mg/l	1	1	SM 2540 D	07/07/20		TMH	
	Result	Unit	Rep. Limit		Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology									
Escherichia coli	345	mpn/100ml	1		SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11		JMW
Total Coliform	>2420	mpn/100ml	1		SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11		JMW



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M.J. Reider Associates, Inc.

Lab ID: 2019015-06 **Collected By:** Client **Sampled:** 07/06/20 08:30 **Received:** 07/06/20 14:30
Sample Desc: BM-6S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	86	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	07/07/20	U	APR
Biochemical Oxygen Demand	3.2	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	3.32	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 17:51		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 17:51	J	MRW
Nitrate+Nitrite as N	3.35	mg/l	0.125	1.10	CALCULATED	07/06/20 17:51		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/10/20	U	SNF
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	07/07/20	U	RCE
Solids, Total Dissolved	155	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	3.1	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	07/07/20		TMH
	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	2	mpn/100ml	1	SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11		JMW
Total Coliform	308	mpn/100ml	1	SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11		JMW



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M.J. Reider Associates, Inc.

Lab ID: 2019015-07 **Collected By:** Client **Sampled:** 07/06/20 08:30 **Received:** 07/06/20 14:30
Sample Desc: BM-6M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	137	mg CaCO3/L		2	SM 2320 B	07/07/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	07/07/20	U	APR
Biochemical Oxygen Demand	2.8	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	3.65	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 18:08		MRW
Nitrite as N	0.33	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 18:08		MRW
Nitrate+Nitrite as N	3.98	mg/l	0.125	1.10	CALCULATED	07/06/20 18:08		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/10/20	U	SNF
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	07/07/20	J	RCE
Solids, Total Dissolved	206	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	2.8	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	4	mg/l	1	1	SM 2540 D	07/07/20		TMH

Lab ID: 2019015-08 **Collected By:** Client **Sampled:** 07/06/20 08:30 **Received:** 07/06/20 14:30
Sample Desc: BM-6D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	150	mg CaCO3/L		2	SM 2320 B	07/07/20		APR
Ammonia as N	0.48	mg/l	0.01	0.10	ASTM D6919-03	07/07/20		APR
Biochemical Oxygen Demand	5.1	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	2.49	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 18:25		MRW
Nitrite as N	0.20	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 18:25		MRW
Nitrate+Nitrite as N	2.69	mg/l	0.125	1.10	CALCULATED	07/06/20 18:25		MRW
Nitrogen, Total Kjeldahl (TKN)	0.55	mg/l	0.47	0.50	EPA 351.2	07/10/20		SNF
Phosphorus as P, Total	0.12	mg/l	0.01	0.05	SM 4500-P E	07/07/20		RCE
Solids, Total Dissolved	220	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	2.5	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	12	mg/l	1	1	SM 2540 D	07/07/20		TMH



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Lab ID: 2019015-09 **Collected By:** Client **Sampled:** 07/06/20 10:00 **Received:** 07/06/20 14:30
Sample Desc: BM-7S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	91	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	07/07/20	U	APR
Biochemical Oxygen Demand	2.6	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	3.32	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 18:41		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 18:41	J	MRW
Nitrate+Nitrite as N	3.35	mg/l	0.125	1.10	CALCULATED	07/06/20 18:41		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/10/20	U	SNF
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	07/07/20	J	RCE
Solids, Total Dissolved	164	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	3.1	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	5	mg/l	1	1	SM 2540 D	07/07/20		TMH
Microbiology								
Escherichia coli	2	mpn/100ml	1		SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11	JMW
Total Coliform	770	mpn/100ml	1		SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2019015-10 **Collected By:** Client **Sampled:** 07/06/20 10:00 **Received:** 07/06/20 14:30
Sample Desc: BM-7M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	139	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR
Ammonia as N	0.09	mg/l	0.01	0.10	ASTM D6919-03	07/07/20	J	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	4.58	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 18:58		MRW
Nitrite as N	0.08	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 18:58	J	MRW
Nitrate+Nitrite as N	4.66	mg/l	0.125	1.10	CALCULATED	07/06/20 18:58		MRW
Nitrogen, Total Kjeldahl (TKN)	1.53	mg/l	0.47	0.50	EPA 351.2	07/10/20		SNF
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	07/07/20	J	RCE
Solids, Total Dissolved	240	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	2.4	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	10	mg/l	1	1	SM 2540 D	07/07/20		TMH

Lab ID: 2019015-11 **Collected By:** Client **Sampled:** 07/06/20 10:00 **Received:** 07/06/20 14:30
Sample Desc: BM-7D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.06	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	158	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR
Ammonia as N	0.42	mg/l	0.01	0.10	ASTM D6919-03	07/07/20		APR
Biochemical Oxygen Demand	5.5	mg/l	2.0	2.0	SM 5210 B	07/14/20 11:00	C-34	RCE
Nitrate as N	3.15	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 19:15		MRW
Nitrite as N	0.13	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 19:15		MRW
Nitrate+Nitrite as N	3.28	mg/l	0.125	1.10	CALCULATED	07/06/20 19:15		MRW
Nitrogen, Total Kjeldahl (TKN)	0.63	mg/l	0.47	0.50	EPA 351.2	07/10/20	Q-10	SNF
Phosphorus as P, Total	0.10	mg/l	0.01	0.05	SM 4500-P E	07/07/20		RCE
Solids, Total Dissolved	232	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	2.4	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	82	mg/l	1	1	SM 2540 D	07/07/20		TMH



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Lab ID: 2019015-12 **Collected By:** Client **Sampled:** 07/06/20 11:28 **Received:** 07/06/20 14:30
Sample Desc: BM-8S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	85	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	07/07/20	U	APR
Biochemical Oxygen Demand	3.0	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	3.21	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 19:32		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 19:32	J	MRW
Nitrate+Nitrite as N	3.24	mg/l	0.125	1.10	CALCULATED	07/06/20 19:32		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/10/20	U	SNF
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	07/07/20	U	RCE
Solids, Total Dissolved	180	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	3.2	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	6	mg/l	1	1	SM 2540 D	07/07/20		TMH
	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	<1	mpn/100ml	1	SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11		JMW
Total Coliform	517	mpn/100ml	1	SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11		JMW



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M.J. Reider Associates, Inc.

Lab ID: 2019015-13 **Collected By:** Client **Sampled:** 07/06/20 11:28 **Received:** 07/06/20 14:30
Sample Desc: BM-8M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	140	mg CaCO3/L		2	SM 2320 B	07/07/20		APR
Ammonia as N	0.12	mg/l	0.01	0.10	ASTM D6919-03	07/07/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	4.39	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 19:49		MRW
Nitrite as N	0.05	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 19:49	J	MRW
Nitrate+Nitrite as N	4.44	mg/l	0.125	1.10	CALCULATED	07/06/20 19:49		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/10/20	U	SNF
Phosphorus as P, Total	0.07	mg/l	0.01	0.05	SM 4500-P E	07/07/20		RCE
Solids, Total Dissolved	255	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	2.3	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	4	mg/l	1	1	SM 2540 D	07/07/20		TMH

Lab ID: 2019015-14 **Collected By:** Client **Sampled:** 07/06/20 11:28 **Received:** 07/06/20 14:30
Sample Desc: BM-8D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	144	mg CaCO3/L		2	SM 2320 B	07/07/20		APR
Ammonia as N	0.24	mg/l	0.01	0.10	ASTM D6919-03	07/07/20		APR
Biochemical Oxygen Demand	2.3	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	3.67	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 20:56		MRW
Nitrite as N	0.16	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 20:56		MRW
Nitrate+Nitrite as N	3.83	mg/l	0.125	1.10	CALCULATED	07/06/20 20:56		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/10/20	U	SNF
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	07/07/20	J	RCE
Solids, Total Dissolved	237	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	2.3	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	69	mg/l	1	1	SM 2540 D	07/07/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2019015-15 **Collected By:** Client **Sampled:** 07/06/20 10:17 **Received:** 07/06/20 14:30
Sample Desc: BM-9S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	88	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	07/07/20	U	APR
Biochemical Oxygen Demand	2.5	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	3.23	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 21:13		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 21:13	J	MRW
Nitrate+Nitrite as N	3.26	mg/l	0.125	1.10	CALCULATED	07/06/20 21:13		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/10/20	U	SNF
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	07/07/20	J	RCE
Solids, Total Dissolved	173	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	3.2	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	7	mg/l	1	1	SM 2540 D	07/07/20		TMH
Microbiology								
Escherichia coli	2	mpn/100ml	1		SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11	JMW
Total Coliform	517	mpn/100ml	1		SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2019015-16 **Collected By:** Client **Sampled:** 07/06/20 10:17 **Received:** 07/06/20 14:30
Sample Desc: BM-9M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	158	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR
Ammonia as N	0.14	mg/l	0.01	0.10	ASTM D6919-03	07/07/20		APR
Biochemical Oxygen Demand	2.9	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	4.82	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 21:30		MRW
Nitrite as N	0.12	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 21:30		MRW
Nitrate+Nitrite as N	4.94	mg/l	0.125	1.10	CALCULATED	07/06/20 21:30		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/10/20	U	SNF
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	07/07/20	J	RCE
Solids, Total Dissolved	214	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	2.1	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	2	mg/l	1	1	SM 2540 D	07/07/20		TMH

Lab ID: 2019015-17 **Collected By:** Client **Sampled:** 07/06/20 10:17 **Received:** 07/06/20 14:30
Sample Desc: BM-9D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	159	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR
Ammonia as N	0.37	mg/l	0.01	0.10	ASTM D6919-03	07/07/20		APR
Biochemical Oxygen Demand	2.2	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	3.85	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 21:47		MRW
Nitrite as N	0.15	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 21:47		MRW
Nitrate+Nitrite as N	4.00	mg/l	0.125	1.10	CALCULATED	07/06/20 21:47		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/10/20	U	SNF
Phosphorus as P, Total	0.08	mg/l	0.01	0.05	SM 4500-P E	07/07/20		RCE
Solids, Total Dissolved	245	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	2.3	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	18	mg/l	1	1	SM 2540 D	07/07/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2019015-18 **Collected By:** Client **Sampled:** 07/06/20 10:55 **Received:** 07/06/20 14:30
Sample Desc: BM-10S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst	
Dissolved General Chemistry									
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF	
General Chemistry									
Alkalinity, Total to pH 4.5	79	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR	
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	07/07/20	U	APR	
Biochemical Oxygen Demand	3.1	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW	
Nitrate as N	3.10	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 22:37		MRW	
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 22:37	J	MRW	
Nitrate+Nitrite as N	3.13	mg/l	0.125	1.10	CALCULATED	07/06/20 22:37		MRW	
Nitrogen, Total Kjeldahl (TKN)	0.63	mg/l	0.47	0.50	EPA 351.2	07/08/20		SNF	
Phosphorus as P, Total	<0.01	mg/l	0.01	0.05	SM 4500-P E	07/07/20	U	RCE	
Solids, Total Dissolved	148	mg/l	4	5	SM 2540 C	07/07/20		TMH	
Total Organic Carbon	3.3	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD	
Solids, Total Suspended	7	mg/l	1	1	SM 2540 D	07/07/20		TMH	
	Result	Unit	Rep. Limit		Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology									
Escherichia coli	1	mpn/100ml	1		SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11		JMW
Total Coliform	687	mpn/100ml	1		SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11		JMW



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M.J. Reider Associates, Inc.

Lab ID: 2019015-19 **Collected By:** Client **Sampled:** 07/06/20 10:55 **Received:** 07/06/20 14:30
Sample Desc: BM-10M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	150	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	07/07/20	U	APR
Biochemical Oxygen Demand	2.4	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	4.76	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 22:54		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 22:54	J	MRW
Nitrate+Nitrite as N	4.79	mg/l	0.125	1.10	CALCULATED	07/06/20 22:54		MRW
Nitrogen, Total Kjeldahl (TKN)	0.58	mg/l	0.47	0.50	EPA 351.2	07/08/20		SNF
Phosphorus as P, Total	0.10	mg/l	0.01	0.05	SM 4500-P E	07/07/20		RCE
Solids, Total Dissolved	246	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	2.5	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	21	mg/l	1	1	SM 2540 D	07/07/20		TMH

Lab ID: 2019015-20 **Collected By:** Client **Sampled:** 07/06/20 10:55 **Received:** 07/06/20 14:30
Sample Desc: BM-10D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l		0.05	SM 4500-P F	07/08/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	181	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR
Ammonia as N	0.35	mg/l	0.01	0.10	ASTM D6919-03	07/07/20		APR
Biochemical Oxygen Demand	3.5	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	4.34	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 23:11		MRW
Nitrite as N	0.08	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 23:11	J	MRW
Nitrate+Nitrite as N	4.42	mg/l	0.125	1.10	CALCULATED	07/06/20 23:11		MRW
Nitrogen, Total Kjeldahl (TKN)	1.25	mg/l	0.47	0.50	EPA 351.2	07/08/20		SNF
Phosphorus as P, Total	0.15	mg/l	0.01	0.05	SM 4500-P E	07/07/20		RCE
Solids, Total Dissolved	283	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	2.3	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	76	mg/l	1	1	SM 2540 D	07/07/20		TMH



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

M.J. Reider Associates, Inc.

Lab ID: 2019015-21 **Collected By:** Client **Sampled:** 07/06/20 12:25 **Received:** 07/06/20 14:30
Sample Desc: BM-11S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l		0.05	SM 4500-P F	07/10/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	127	mg CaCO ₃ /L		2	SM 2320 B	07/07/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	07/07/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	07/07/20 11:50		MRW
Nitrate as N	3.63	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	07/06/20 23:28		MRW
Nitrite as N	0.02	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	07/06/20 23:28	J	MRW
Nitrate+Nitrite as N	3.65	mg/l	0.125	1.10	CALCULATED	07/06/20 23:28		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	07/08/20	U	SNF
Phosphorus as P, Total	0.20	mg/l	0.01	0.05	SM 4500-P E	07/13/20		RCE
Solids, Total Dissolved	208	mg/l	4	5	SM 2540 C	07/07/20		TMH
Total Organic Carbon	2.4	mg/l	0.3	0.5	SM 5310 C	07/07/20		ALD
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	07/07/20		TMH
Microbiology								
Escherichia coli	308	mpn/100ml	1		SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11	JMW
Total Coliform	>2420	mpn/100ml	1		SM 9223 B/Quantitray	7/6/20 15:11	7/7/20 9:11	JMW



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Preparation Methods

Specific Method	Preparation Method	Prep Batch	Prepared Date	Prepared By
2019015-01				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-02				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-03				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-04				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-05				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-06				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-07				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-08				
Dissolved General Chemistry				



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SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-09				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-10				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-11				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-12				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-13				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-14				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-15				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
2019015-16				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE



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M.J. Reider Associates, Inc.

General Chemistry

SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
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2019015-17

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
-------------	-------------	---------	------------	-----

2019015-18

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
-------------	-------------	---------	------------	-----

2019015-19

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
-------------	-------------	---------	------------	-----

2019015-20

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0G0279	07/06/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0G0281	07/07/2020	RCE
-------------	-------------	---------	------------	-----

2019015-21

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0G0464	07/08/2020	QMS
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0G0719	07/13/2020	RCE
-------------	-------------	---------	------------	-----

Notes and Definitions

- C-34 The sample was reanalyzed outside of the required 48-hour hold time by 145 hours. The original dilutions were not appropriate for this sample.
- G-11 The sample was filtered after it was received at the laboratory.
- J Estimated value
- Q-10 The matrix spike(s) were outside acceptable limits of 90-110% recovery at 86.6% and 85.4%.
- Q-10a The matrix spike(s) were outside acceptable limits of 90-110% recovery at 89.5%.
- U Analyte was not detected above the indicated value.



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**WORK ORDER
Chain of Custody**

2019015



Client Code: **3157**
Project Manager: **Richard A Wheeler**

Client: **Tetra Tech**
Project: **2020 - Blue Marsh Reservoir**

Report To: Tetra Tech - David Wertz - USACE, Phila Dist. Env.Resources Branch 100 Penn Square E., Arlington, VA 22201

Invoice To: Tetra Tech - David Wertz - USACE, Phila Dist. Env.Resources Branch 100 Penn Square E., Arlington, VA 22201

Collected By :
(Full Name)

Gregory Wacik

Comments: _____

2019015-01 BM-1S

JAF JAF
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO₂-N EPA 300.0, NO₃-N EPA 300.0, NO₂-N, NO₃-N, Combined NO₃+NO₂, PO₄-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH₃-N D6919-03, PO₄ SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

Date: 7/6/20

Time: 0715

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H2SO4
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

2019015-02 BM-2S

JAF JAF
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO₂-N EPA 300.0, NO₃-N EPA 300.0, NO₂-N, NO₃-N, Combined NO₃+NO₂, PO₄-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH₃-N D6919-03, PO₄ SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

Date: 7/6/20

Time: 0930

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H2SO4
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

<i>Gregory Wacik</i>	<u>7/6/20 2100</u>	<i>JAF</i>	<u>7-6-20 1415</u>
Relinquished By	Date/Time	Received By	Date/Time
		<i>JAF</i>	<u>7-6-20 1430</u>
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received at Laboratory By	Date/Time

Sample Kit Prepared By: <i>JAF</i>	Date/Time <u>6/10/20</u>
Sample Temp (°C): Samples on Ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Approved By: <i>JAF</i>
Entered By:	



M.J. Reider Associates, Inc.

2019015

Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Collected By: Gregory Wasik
(Full Name)

Comments:

2019015-03 BM-2M

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 7/6/20
Time: 0930

2019015-04 BM-2D

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 7/6/20
Time: 0930

2019015-05 BM-5S

NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, BOD SM 5210B, EC (#) SM 9223B
Confirmation, NO2-N EPA 300.0, TC (#) SM 9223B
Alk SM 2320B, PO4 SM 4500P-E, TSS SM 2540D, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Sterile Pl 125ml NaThio
D - Pl 500ml H2SO4
E - Pl 250ml NP
F - Pl 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

Date: 7/6/20
Time: 1225

Relinquished By: [Signature] Date/Time: 7/6/20 2:00
Relinquished By: Date/Time:
Relinquished By: Date/Time:

Received By: [Signature] Date/Time: 7-6-20 1415
Received By: [Signature] Date/Time: 7-6-20 1430
Received at Laboratory By: Date/Time:

Sample Kit Prepared By: [Signature] Date/Time: 6/10/20
Sample Temp (°C): 12
Samples on Ice? [X] No NA
Approved By: [Signature]
Entered By:



Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By: _____
(Full Name)

Gregory Waalk

2019015-06 BM-6S

JMK
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO₂-N, NO₃-N, Combined NO₃+NO₂, PO₄-D SM 4500P-F, TC (#) SM 9223B, NO₂-N EPA 300.0, NO₃-N EPA 300.0
Alk SM 2320B, PO₄ SM 4500P-E, NH₃-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

Date: 7/6/20
Time: 0830

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H₂SO₄
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H₃PO₄, minimal hdspc
- H - Vial Amber 40ml H₃PO₄, minimal hdspc
- I - Vial Amber 40ml H₃PO₄, minimal hdspc

2019015-07 BM-6M

JMK
BOD SM 5210B, NO₂-N EPA 300.0, NO₃-N EPA 300.0, NO₂-N, NO₃-N, Combined NO₃+NO₂, PO₄-D SM 4500P-F
Alk SM 2320B, NH₃-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D, PO₄ SM 4500P-E

Matrix: Non-Potable Water

Type: Grab

Date: 7/6/20
Time: 0830

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - PI 500ml H₂SO₄
- D - PI 250ml NP
- E - PI 500ml Lab Filtered
- F - Vial Amber 40ml H₃PO₄, minimal hdspc
- G - Vial Amber 40ml H₃PO₄, minimal hdspc
- H - Vial Amber 40ml H₃PO₄, minimal hdspc

2019015-08 BM-6D

JMK
NO₃-N EPA 300.0, NO₂-N, NO₃-N, Combined NO₃+NO₂, PO₄-D SM 4500P-F, BOD SM 5210B, NO₂-N EPA 300.0
PO₄ SM 4500P-E, Alk SM 2320B, NH₃-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

Date: 7/6/20
Time: 0830

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - PI 500ml H₂SO₄
- D - PI 250ml NP
- E - PI 500ml Lab Filtered
- F - Vial Amber 40ml H₃PO₄, minimal hdspc
- G - Vial Amber 40ml H₃PO₄, minimal hdspc
- H - Vial Amber 40ml H₃PO₄, minimal hdspc

Relinquished By: *[Signature]* Date/Time: 7/6/20 2:00

Received By: *[Signature]* Date/Time: 7-6-20 1415

Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: _____

Relinquished By: _____ Date/Time: _____

Received at Laboratory By: *[Signature]* Date/Time: 7-6-20 1430

Sample Kit Prepared By: <i>[Signature]</i>	Date/Time: <u>6/10/20</u>
Sample Temp (°C): <u>12</u>	Samples on Ice? <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Approved By: <i>[Signature]</i>	
Entered By: _____	



Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Collected By: Gregory Wacik
(Full Name)

Comments: _____

2019015-09 BM-7S

JMK *JAF* *JAF*
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab

Date: 7/6/20
Time: 1000

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H2SO4
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

2019015-10 BM-7M

JMK *JAF* *JAF* *J* *J*
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab

Date: 7/6/20
Time: 1000

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - PI 500ml H2SO4
- D - PI 250ml NP
- E - PI 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspc
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc

2019015-11 BM-7D

JMK *JAF* *JAF* *J*
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab

Date: 7/6/20
Time: 1000

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - PI 500ml H2SO4
- D - PI 250ml NP
- E - PI 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspc
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc

Gregory Wacik

7/6/20 2:00

J

7/6/20 14:15

Relinquished By _____	Date/Time _____	Received By _____	Date/Time _____
Relinquished By _____	Date/Time _____	Received By _____	Date/Time _____
Relinquished By _____	Date/Time _____	Received at Laboratory By _____	Date/Time _____

Sample Kit Prepared By: <i>JW</i>	Date/Time: <u>6/10/20</u>
Sample Temp (°C): <u>12</u>	Samples on Ice? <input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Approved By: <i>JBS</i>	
Entered By: _____	



M.J. Reider Associates, Inc.

2019015

Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Collected By: Gregory Wack

Comments:

2019015-12 BM-8S

BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab

Date: 7/6/20
Time: 1128

- A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Sterile Pl 125ml NaThio
D - Pl 500ml H2SO4
E - Pl 250ml NP
F - Pl 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

2019015-13 BM-8M

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab

Date: 7/6/20
Time: 1128

- A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

2019015-14 BM-8D

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab

Date: 7/6/20
Time: 1128

- A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Relinquished By: [Signature] Date/Time: 7/6/20 2:00

Received By: [Signature] Date/Time: 7/6/20 1415

Relinquished By: Date/Time:

Received By: Date/Time: 7/6/20 1420

Relinquished By: Date/Time:

Received at Laboratory By: Date/Time:

Table with 2 columns: Sample Kit Prepared By, Date/Time; Sample Temp (°C), Samples on Ice?; Approved By, Entered By.



M.J. Reider Associates, Inc.

2019015

Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Collected By:
(Full Name)

Gregory Wacik

Comments:

2019015-15 BM-9S

BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab

Date: 7/6/20
Time: 1017

- A - Pl 500ml NP, minimal hdspe
B - Pl Liter NP
C - Sterile Pl 125ml NaThio
D - Pl 500ml H2SO4
E - Pl 250ml NP
F - Pl 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspe
H - Vial Amber 40ml H3PO4, minimal hdspe
I - Vial Amber 40ml H3PO4, minimal hdspe

2019015-16 BM-9M

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, TOC SM 5310C, TSS SM 2540D, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2

Matrix: Non-Potable Water
Type: Grab

Date: 7/6/20
Time: 1017

- A - Pl 500ml NP, minimal hdspe
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspe
G - Vial Amber 40ml H3PO4, minimal hdspe
H - Vial Amber 40ml H3PO4, minimal hdspe

2019015-17 BM-9D

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab

Date: 7/6/20
Time: 1017

- A - Pl 500ml NP, minimal hdspe
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspe
G - Vial Amber 40ml H3PO4, minimal hdspe
H - Vial Amber 40ml H3PO4, minimal hdspe

Relinquished By: [Signature] Date/Time: 7/6/20 2:00

Received By: [Signature] Date/Time: 7.6.20 1425

Relinquished By: Date/Time:

Received By: [Signature] Date/Time: 7.6.20 1430

Relinquished By: Date/Time:

Received at Laboratory By: Date/Time:

Table with 2 columns: Sample Kit Prepared By, Date/Time; Sample Temp (C), Samples on Ice?; Approved By, Entered By.



M.J. Reider Associates, Inc.

2019015

Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Collected By:
(Full Name)

Gregory Wacik

Comments:

2019015-18 BM-10S

BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab

Date: 7/6/20
Time: 1055

- A - Pl 500ml NP, minimal hdspe
B - Pl Liter NP
C - Sterile Pl 125ml NaThio
D - Pl 500ml H2SO4
E - Pl 250ml NP
F - Pl 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspe
H - Vial Amber 40ml H3PO4, minimal hdspe
I - Vial Amber 40ml H3PO4, minimal hdspe

2019015-19 BM-10M

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab

Date: 7/6/20
Time: 1055

- A - Pl 500ml NP, minimal hdspe
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspe
G - Vial Amber 40ml H3PO4, minimal hdspe
H - Vial Amber 40ml H3PO4, minimal hdspe

2019015-20 BM-10D

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab

Date: 7/6/20
Time: 1055

- A - Pl 500ml NP, minimal hdspe
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspe
G - Vial Amber 40ml H3PO4, minimal hdspe
H - Vial Amber 40ml H3PO4, minimal hdspe

Relinquished By: [Signature] Date/Time: 7/6/20 2:00
Relinquished By: Date/Time:
Relinquished By: Date/Time:

Received By: [Signature] Date/Time: 7-6-20 1415
Received By: [Signature] Date/Time: 7-6-20 1430
Received at Laboratory By: Date/Time:

Sample Kit Prepared By: [Signature] Date/Time: 7/6/20
Sample Temp (C): 12
Samples on Ice? [X] No NA
Approved By: [Signature]
Entered By: [Signature]



Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By: Gregory Wacik
(Full Name)

2019015-21 BM-11S

^{JAF} BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined
^{JAF} NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
Date: 7/6/20
Time: 1225
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Sterile Pl 125ml NaThio
D - Pl 500ml H2SO4
E - Pl 250ml NP
F - Pl 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

[Signature] 7/6/20 2:00
Relinquished By Date/Time

Relinquished By Date/Time

Relinquished By Date/Time

[Signature] 7-6-20 1405
Received By Date/Time

[Signature] 7-6-20 1430
Received By Date/Time

[Signature]
Received at Laboratory By Date/Time

Sample Kit Prepared By: <u>[Signature]</u>	Date/Time: <u>6/10/20</u>
Sample Temp (°C): <u>6/2</u>	Samples on Ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Approved By: <u>[Signature]</u>	Entered By: <u>[Signature]</u>

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.

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.: 2021818
Report: 08/19/20
Lab Contact: Richard A Wheeler

Attention: David Wertz
Reported To: Tetra Tech

Project: 2020 - Blue Marsh Reservoir

USACE, Phila Dist. Env.Resources Branch 100 Penn Square E.
Arlington, VA 22201

Lab ID: 2021818-01 **Collected By:** Client **Sampled:** 08/10/20 07:30 **Received:** 08/10/20 14:15
Sample Desc: BM-1S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.09	mg/l		0.05	SM 4500-P F	08/14/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	107	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.34	mg/l	0.01	0.10	ASTM D6919-03	08/11/20		APR
Biochemical Oxygen Demand	2.3	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	3.29	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 17:41		MRW
Nitrite as N	0.04	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 17:41	J	MRW
Nitrate+Nitrite as N	3.33	mg/l	0.125	1.10	CALCULATED	08/10/20 17:41		MRW
Nitrogen, Total Kjeldahl (TKN)	0.86	mg/l	0.47	0.50	EPA 351.2	08/14/20		SNF
Phosphorus as P, Total	0.14	mg/l	0.01	0.05	SM 4500-P E	08/13/20		RCE
Solids, Total Dissolved	212	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	4.3	mg/l	0.3	0.5	SM 5310 C	08/11/20		ALD
Solids, Total Suspended	8	mg/l	1	1	SM 2540 D	08/11/20		TMH
Microbiology								
Escherichia coli	411	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32		JMW
Total Coliform	>2420	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	M-08	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2021818-02 **Collected By:** Client **Sampled:** 08/10/20 09:30 **Received:** 08/10/20 14:15
Sample Desc: BM-2S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	97	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.03	mg/l	0.01	0.10	ASTM D6919-03	08/11/20	J	APR
Biochemical Oxygen Demand	4.4	mg/l	2.0	2.0	SM 5210 B	08/11/20 12:30		SLM
Nitrate as N	2.27	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/11/20 2:58		MRW
Nitrite as N	0.04	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/11/20 2:58	J	MRW
Nitrate+Nitrite as N	2.31	mg/l	0.125	1.10	CALCULATED	08/11/20 2:58		MRW
Nitrogen, Total Kjeldahl (TKN)	1.05	mg/l	0.47	0.50	EPA 351.2	08/14/20		SNF
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	08/11/20		RCE
Solids, Total Dissolved	188	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	3.0	mg/l	0.3	0.5	SM 5310 C	08/11/20		ALD
Solids, Total Suspended	8	mg/l	1	1	SM 2540 D	08/11/20		TMH
Microbiology								
Escherichia coli	2	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW
Total Coliform	291	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2021818-03 **Collected By:** Client **Sampled:** 08/10/20 09:30 **Received:** 08/10/20 14:15
Sample Desc: BM-2M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	92	mg CaCO3/L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.28	mg/l	0.01	0.10	ASTM D6919-03	08/11/20		APR
Biochemical Oxygen Demand	3.0	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	2.56	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 18:14		MRW
Nitrite as N	0.07	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 18:14	J	MRW
Nitrate+Nitrite as N	2.63	mg/l	0.125	1.10	CALCULATED	08/10/20 18:14		MRW
Nitrogen, Total Kjeldahl (TKN)	0.86	mg/l	0.47	0.50	EPA 351.2	08/14/20		SNF
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	08/11/20		RCE
Solids, Total Dissolved	185	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	3.7	mg/l	0.3	0.5	SM 5310 C	08/11/20		ALD
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	08/11/20		TMH

Lab ID: 2021818-04 **Collected By:** Client **Sampled:** 08/10/20 09:30 **Received:** 08/10/20 14:15
Sample Desc: BM-2D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.10	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	108	mg CaCO3/L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.25	mg/l	0.01	0.10	ASTM D6919-03	08/11/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	3.81	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 18:31		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 18:31	J	MRW
Nitrate+Nitrite as N	3.84	mg/l	0.125	1.10	CALCULATED	08/10/20 18:31		MRW
Nitrogen, Total Kjeldahl (TKN)	0.81	mg/l	0.47	0.50	EPA 351.2	08/14/20		SNF
Phosphorus as P, Total	0.11	mg/l	0.01	0.05	SM 4500-P E	08/11/20		RCE
Solids, Total Dissolved	213	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	3.7	mg/l	0.3	0.5	SM 5310 C	08/11/20		ALD
Solids, Total Suspended	8	mg/l	1	1	SM 2540 D	08/11/20		TMH



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Lab ID: 2021818-05 **Collected By:** Client **Sampled:** 08/10/20 12:30 **Received:** 08/10/20 14:15
Sample Desc: BM-5S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.08	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	209	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.03	mg/l	0.01	0.10	ASTM D6919-03	08/11/20	J	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	7.32	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 18:48		MRW
Nitrite as N	<0.01	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 18:48	U	MRW
Nitrate+Nitrite as N	<7.33	mg/l	0.125	1.10	CALCULATED	08/10/20 18:48		MRW
Nitrogen, Total Kjeldahl (TKN)	0.57	mg/l	0.47	0.50	EPA 351.2	08/14/20		SNF
Phosphorus as P, Total	0.08	mg/l	0.01	0.05	SM 4500-P E	08/11/20		RCE
Solids, Total Dissolved	339	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	1.6	mg/l	0.3	0.5	SM 5310 C	08/11/20		ALD
Solids, Total Suspended	10	mg/l	1	1	SM 2540 D	08/11/20		TMH
Microbiology								
Escherichia coli	365	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW
Total Coliform	>2420	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2021818-06 **Collected By:** Client **Sampled:** 08/10/20 08:45 **Received:** 08/10/20 14:15
Sample Desc: BM-6S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	103	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	08/11/20	U	APR
Biochemical Oxygen Demand	2.9	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	2.45	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 19:05		MRW
Nitrite as N	0.04	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 19:05	J	MRW
Nitrate+Nitrite as N	2.49	mg/l	0.125	1.10	CALCULATED	08/10/20 19:05		MRW
Nitrogen, Total Kjeldahl (TKN)	0.86	mg/l	0.47	0.50	EPA 351.2	08/14/20		SNF
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	08/11/20	J	RCE
Solids, Total Dissolved	199	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	3.0	mg/l	0.3	0.5	SM 5310 C	08/11/20		ALD
Solids, Total Suspended	4	mg/l	1	1	SM 2540 D	08/11/20		TMH
Microbiology								
Escherichia coli	4	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW
Total Coliform	>2420	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2021818-07 **Collected By:** Client **Sampled:** 08/10/20 08:45 **Received:** 08/10/20 14:15
Sample Desc: BM-6M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.09	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	92	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.40	mg/l	0.01	0.10	ASTM D6919-03	08/11/20		APR
Biochemical Oxygen Demand	2.8	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	2.55	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 19:22		MRW
Nitrite as N	0.06	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 19:22	J	MRW
Nitrate+Nitrite as N	2.61	mg/l	0.125	1.10	CALCULATED	08/10/20 19:22		MRW
Nitrogen, Total Kjeldahl (TKN)	0.72	mg/l	0.47	0.50	EPA 351.2	08/12/20	Q-10	TML
Phosphorus as P, Total	0.15	mg/l	0.01	0.05	SM 4500-P E	08/11/20		RCE
Solids, Total Dissolved	186	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	4.8	mg/l	0.3	0.5	SM 5310 C	08/11/20		ALD
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	08/11/20		TMH

Lab ID: 2021818-08 **Collected By:** Client **Sampled:** 08/10/20 08:45 **Received:** 08/10/20 14:15
Sample Desc: BM-6D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.09	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	104	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.24	mg/l	0.01	0.10	ASTM D6919-03	08/11/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	3.72	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 19:38		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 19:38	J	MRW
Nitrate+Nitrite as N	3.75	mg/l	0.125	1.10	CALCULATED	08/10/20 19:38		MRW
Nitrogen, Total Kjeldahl (TKN)	0.58	mg/l	0.47	0.50	EPA 351.2	08/12/20		TML
Phosphorus as P, Total	0.13	mg/l	0.01	0.05	SM 4500-P E	08/11/20		RCE
Solids, Total Dissolved	212	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	3.9	mg/l	0.3	0.5	SM 5310 C	08/11/20		ALD
Solids, Total Suspended	8	mg/l	1	1	SM 2540 D	08/11/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2021818-09 **Collected By:** Client **Sampled:** 08/10/20 10:00 **Received:** 08/10/20 14:15
Sample Desc: BM-7S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	95	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	08/11/20	U	APR
Biochemical Oxygen Demand	5.2	mg/l	2.0	2.0	SM 5210 B	08/11/20 12:30		SLM
Nitrate as N	2.34	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 19:55		MRW
Nitrite as N	0.04	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 19:55	J	MRW
Nitrate+Nitrite as N	2.38	mg/l	0.125	1.10	CALCULATED	08/10/20 19:55		MRW
Nitrogen, Total Kjeldahl (TKN)	0.58	mg/l	0.47	0.50	EPA 351.2	08/12/20		TML
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	08/11/20	J	RCE
Solids, Total Dissolved	192	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	3.3	mg/l	0.3	0.5	SM 5310 C	08/11/20		ALD
Solids, Total Suspended	7	mg/l	1	1	SM 2540 D	08/11/20		TMH
Microbiology								
Escherichia coli	1	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW
Total Coliform	770	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2021818-10 **Collected By:** Client **Sampled:** 08/10/20 10:00 **Received:** 08/10/20 14:15
Sample Desc: BM-7M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	94	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.03	mg/l	0.01	0.10	ASTM D6919-03	08/11/20	J	APR
Biochemical Oxygen Demand	2.7	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	2.68	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 21:02		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 21:02	J	MRW
Nitrate+Nitrite as N	2.71	mg/l	0.125	1.10	CALCULATED	08/10/20 21:02		MRW
Nitrogen, Total Kjeldahl (TKN)	0.49	mg/l	0.47	0.50	EPA 351.2	08/12/20	J	TML
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	08/11/20	J	RCE
Solids, Total Dissolved	202	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	3.0	mg/l	0.3	0.5	SM 5310 C	08/11/20		ALD
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	08/11/20		TMH

Lab ID: 2021818-11 **Collected By:** Client **Sampled:** 08/10/20 10:00 **Received:** 08/10/20 14:15
Sample Desc: BM-7D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	103	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.14	mg/l	0.01	0.10	ASTM D6919-03	08/11/20		APR
Biochemical Oxygen Demand	2.1	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	3.62	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 21:19		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 21:19	J	MRW
Nitrate+Nitrite as N	3.65	mg/l	0.125	1.10	CALCULATED	08/10/20 21:19		MRW
Nitrogen, Total Kjeldahl (TKN)	0.48	mg/l	0.47	0.50	EPA 351.2	08/12/20	J	TML
Phosphorus as P, Total	0.07	mg/l	0.01	0.05	SM 4500-P E	08/11/20		RCE
Solids, Total Dissolved	213	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	3.4	mg/l	0.3	0.5	SM 5310 C	08/13/20		ALD
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	08/11/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2021818-12 **Collected By:** Client **Sampled:** 08/10/20 11:30 **Received:** 08/10/20 14:15
Sample Desc: BM-8S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	96	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.03	mg/l	0.01	0.10	ASTM D6919-03	08/11/20	J	APR
Biochemical Oxygen Demand	4.8	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	2.26	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 21:36		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 21:36	J	MRW
Nitrate+Nitrite as N	2.29	mg/l	0.125	1.10	CALCULATED	08/10/20 21:36		MRW
Nitrogen, Total Kjeldahl (TKN)	0.69	mg/l	0.47	0.50	EPA 351.2	08/12/20		TML
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	08/11/20		RCE
Solids, Total Dissolved	196	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	3.2	mg/l	0.3	0.5	SM 5310 C	08/13/20		ALD
Solids, Total Suspended	8	mg/l	1	1	SM 2540 D	08/11/20		TMH
Microbiology								
Escherichia coli	2	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW
Total Coliform	488	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2021818-13 **Collected By:** Client **Sampled:** 08/10/20 11:30 **Received:** 08/10/20 14:15
Sample Desc: BM-8M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	89	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.03	mg/l	0.01	0.10	ASTM D6919-03	08/11/20	J	APR
Biochemical Oxygen Demand	2.6	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	2.42	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 21:53		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 21:53	J	MRW
Nitrate+Nitrite as N	2.45	mg/l	0.125	1.10	CALCULATED	08/10/20 21:53		MRW
Nitrogen, Total Kjeldahl (TKN)	0.54	mg/l	0.47	0.50	EPA 351.2	08/12/20		TML
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	08/11/20	J	RCE
Solids, Total Dissolved	182	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	3.0	mg/l	0.3	0.5	SM 5310 C	08/13/20		ALD
Solids, Total Suspended	4	mg/l	1	1	SM 2540 D	08/11/20		TMH

Lab ID: 2021818-14 **Collected By:** Client **Sampled:** 08/10/20 11:30 **Received:** 08/10/20 14:15
Sample Desc: BM-8D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	84	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.03	mg/l	0.01	0.10	ASTM D6919-03	08/11/20	J	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	2.79	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 22:43		MRW
Nitrite as N	0.02	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 22:43	J	MRW
Nitrate+Nitrite as N	2.81	mg/l	0.125	1.10	CALCULATED	08/10/20 22:43		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	08/12/20	U	TML
Phosphorus as P, Total	0.09	mg/l	0.01	0.05	SM 4500-P E	08/11/20		RCE
Solids, Total Dissolved	189	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	3.2	mg/l	0.3	0.5	SM 5310 C	08/13/20		ALD
Solids, Total Suspended	7	mg/l	1	1	SM 2540 D	08/11/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2021818-15 **Collected By:** Client **Sampled:** 08/10/20 10:20 **Received:** 08/10/20 14:15
Sample Desc: BM-9S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	94	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	08/11/20	U	APR
Biochemical Oxygen Demand	3.1	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	2.30	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 23:00		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 23:00	J	MRW
Nitrate+Nitrite as N	2.33	mg/l	0.125	1.10	CALCULATED	08/10/20 23:00		MRW
Nitrogen, Total Kjeldahl (TKN)	0.54	mg/l	0.47	0.50	EPA 351.2	08/12/20		TML
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	08/11/20		RCE
Solids, Total Dissolved	199	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	3.3	mg/l	0.3	0.5	SM 5310 C	08/13/20		ALD
Solids, Total Suspended	2	mg/l	1	1	SM 2540 D	08/11/20		TMH
Microbiology								
Escherichia coli	5	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW
Total Coliform	1050	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2021818-16 **Collected By:** Client **Sampled:** 08/10/20 10:20 **Received:** 08/10/20 14:15
Sample Desc: BM-9M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	89	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.06	mg/l	0.01	0.10	ASTM D6919-03	08/11/20	J	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	2.86	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 23:17		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 23:17	J	MRW
Nitrate+Nitrite as N	2.89	mg/l	0.125	1.10	CALCULATED	08/10/20 23:17		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	08/12/20	U	TML
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	08/11/20	J	RCE
Solids, Total Dissolved	191	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	3.1	mg/l	0.3	0.5	SM 5310 C	08/13/20		ALD
Solids, Total Suspended	4	mg/l	1	1	SM 2540 D	08/11/20		TMH

Lab ID: 2021818-17 **Collected By:** Client **Sampled:** 08/10/20 10:20 **Received:** 08/10/20 14:15
Sample Desc: BM-9D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	141	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.11	mg/l	0.01	0.10	ASTM D6919-03	08/11/20		APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	5.17	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 23:34		MRW
Nitrite as N	0.02	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 23:34	J	MRW
Nitrate+Nitrite as N	5.19	mg/l	0.125	1.10	CALCULATED	08/10/20 23:34		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	08/12/20	U, Q-10a	TML
Phosphorus as P, Total	0.09	mg/l	0.01	0.05	SM 4500-P E	08/11/20		RCE
Solids, Total Dissolved	272	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	2.6	mg/l	0.3	0.5	SM 5310 C	08/13/20		ALD
Solids, Total Suspended	8	mg/l	1	1	SM 2540 D	08/11/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2021818-18 **Collected By:** Client **Sampled:** 08/10/20 10:50 **Received:** 08/10/20 14:15
Sample Desc: BM-10S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	88	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	08/11/20	U	APR
Biochemical Oxygen Demand	4.8	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	2.17	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/10/20 23:51		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/10/20 23:51	J	MRW
Nitrate+Nitrite as N	2.20	mg/l	0.125	1.10	CALCULATED	08/10/20 23:51		MRW
Nitrogen, Total Kjeldahl (TKN)	0.83	mg/l	0.47	0.50	EPA 351.2	08/12/20		TML
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	08/11/20	J	RCE
Solids, Total Dissolved	123	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	3.6	mg/l	0.3	0.5	SM 5310 C	08/13/20		ALD
Solids, Total Suspended	10	mg/l	1	1	SM 2540 D	08/11/20		TMH
Microbiology								
Escherichia coli	7	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW
Total Coliform	1200	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2021818-19 **Collected By:** Client **Sampled:** 08/10/20 10:50 **Received:** 08/10/20 14:15
Sample Desc: BM-10M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	105	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.02	mg/l	0.01	0.10	ASTM D6919-03	08/11/20	J	APR
Biochemical Oxygen Demand	2.3	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	3.43	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/11/20 0:08		MRW
Nitrite as N	0.02	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/11/20 0:08	J	MRW
Nitrate+Nitrite as N	3.45	mg/l	0.125	1.10	CALCULATED	08/11/20 0:08		MRW
Nitrogen, Total Kjeldahl (TKN)	0.59	mg/l	0.47	0.50	EPA 351.2	08/12/20		TML
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	08/11/20	J	RCE
Solids, Total Dissolved	177	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	2.9	mg/l	0.3	0.5	SM 5310 C	08/13/20		ALD
Solids, Total Suspended	5	mg/l	1	1	SM 2540 D	08/11/20		TMH

Lab ID: 2021818-20 **Collected By:** Client **Sampled:** 08/10/20 10:50 **Received:** 08/10/20 14:15
Sample Desc: BM-10D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.08	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	151	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.09	mg/l	0.01	0.10	ASTM D6919-03	08/11/20	J	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	5.93	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/11/20 1:49		MRW
Nitrite as N	0.02	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/11/20 1:49	J	MRW
Nitrate+Nitrite as N	5.95	mg/l	0.125	1.10	CALCULATED	08/11/20 1:49		MRW
Nitrogen, Total Kjeldahl (TKN)	0.55	mg/l	0.47	0.50	EPA 351.2	08/12/20		TML
Phosphorus as P, Total	0.16	mg/l	0.01	0.05	SM 4500-P E	08/11/20		RCE
Solids, Total Dissolved	263	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	2.1	mg/l	0.3	0.5	SM 5310 C	08/13/20		ALD
Solids, Total Suspended	42	mg/l	1	1	SM 2540 D	08/11/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2021818-21 **Collected By:** Client **Sampled:** 08/10/20 12:30 **Received:** 08/10/20 14:15
Sample Desc: BM-11S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l		0.05	SM 4500-P F	08/13/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	43	mg CaCO ₃ /L		2	SM 2320 B	08/12/20		APR
Ammonia as N	0.04	mg/l	0.01	0.10	ASTM D6919-03	08/11/20	J	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	08/11/20 10:30		SLM
Nitrate as N	4.27	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/11/20 2:07		MRW
Nitrite as N	<0.01	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/11/20 2:07	U	MRW
Nitrate+Nitrite as N	<4.28	mg/l	0.125	1.10	CALCULATED	08/11/20 2:07		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	08/12/20	U	TML
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	08/11/20	J	RCE
Solids, Total Dissolved	123	mg/l	4	5	SM 2540 C	08/11/20		TMH
Total Organic Carbon	2.3	mg/l	0.3	0.5	SM 5310 C	08/12/20		ALD
Solids, Total Suspended	1	mg/l	1	1	SM 2540 D	08/11/20		TMH
Microbiology								
Escherichia coli	308	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW
Total Coliform	>2420	mpn/100ml	1		SM 9223 B/Quantitray	8/10/20 15:32	8/11/20 9:34	JMW



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Preparation Methods

Specific Method	Preparation Method	Prep Batch	Prepared Date	Prepared By
2021818-01				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0643	08/13/2020	QMS
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0740	08/13/2020	RCE
2021818-02				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
2021818-03				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
2021818-04				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
2021818-05				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
2021818-06				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
2021818-07				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
2021818-08				
Dissolved General Chemistry				



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SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
2021818-09				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
2021818-10				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
2021818-11				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
2021818-12				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
2021818-13				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
2021818-14				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
2021818-15				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
2021818-16				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE



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General Chemistry

SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
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2021818-17

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
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2021818-18

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
-------------	-------------	---------	------------	-----

2021818-19

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
-------------	-------------	---------	------------	-----

2021818-20

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
-------------	-------------	---------	------------	-----

2021818-21

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H0562	08/10/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H0563	08/11/2020	RCE
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Notes and Definitions

- G-11 The sample was filtered after it was received at the laboratory.
- J Estimated value
- M-08 The analysis hold time of 8 hours was exceeded by 2 minutes.
- Q-10 The matrix spike(s) were outside acceptable limits of 90-110% recovery at 83.6% and 87.2%.
- Q-10a The matrix spike(s) were outside acceptable limits of 90-110% recovery at 86.2%.
- U Analyte was not detected above the indicated value.



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**WORK ORDER
Chain of Custody**

2021818



Client Code: 3157

Project Manager: Richard A Wheeler

Report To: Tetra Tech - David Wertz - USACE, Phila Dist. Env.Resources Branch 100 Penn Square E., Arlington, VA 22201

Invoice To: Tetra Tech - David Wertz - USACE, Phila Dist. Env.Resources Branch 100 Penn Square E., Arlington, VA 22201

Client: Tetra Tech

Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By: _____
(Full Name)

Gregory Wacik

2021818-01 BM-1S

Grab
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined
NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H2SO4
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/10/20
Time: 0730

2021818-02 BM-2S

SM
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined
NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H2SO4
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/10/20
Time: 0930

Relinquished By: _____ Date/Time: 8/10/20 1:55

Relinquished By: _____ Date/Time: _____

Relinquished By: _____ Date/Time: _____

Received By: *[Signature]* Date/Time: 8/10/20 1355

Received By: *[Signature]* Date/Time: 8-10-20 1415

Received at Laboratory By: _____ Date/Time: _____

Sample Kit Prepared By: <i>JBS</i>	Date/Time <u>6:30</u>
Sample Temp (°C): Samples on Ice? <i>[initials]</i> No NA	Approved By: <i>[Signature]</i>
Entered By: _____	Page 19 of 29



M.J. Reider Associates, Inc.

2021818

Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By :
(Full Name)

Gregoay Wacik

2021818-03 BM-2M

Jmp
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 8/10/20
Time: 0930

Type: Grab

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Pl 500ml H2SO4
- D - Pl 250ml NP
- E - Pl 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspc
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc

2021818-04 BM-2D

Jmp
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 8/10/20
Time: 0930

Type: Grab

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Pl 500ml H2SO4
- D - Pl 250ml NP
- E - Pl 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspc
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc

2021818-05 BM-5S

Jmk
NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, BOD SM 5210B, EC (#) SM 9223B
Confirmation, NO2-N EPA 300.0, TC (#) SM 9223B
Alk SM 2320B, PO4 SM 4500P-E, TSS SM 2540D, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C

Matrix: Non-Potable Water

Date: 8/10/20
Time: 1230

Type: Grab

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Sterile Pl 125ml NaThio
- D - Pl 500ml H2SO4
- E - Pl 250ml NP
- F - Pl 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

Relinquished By: *[Signature]* Date/Time: 8/10/20 1:55

Received By: *[Signature]* Date/Time: 8-10-20 1355

Relinquished By: _____ Date/Time: _____

Received By: *[Signature]* Date/Time: 8-10-20 1415

Relinquished By: _____ Date/Time: _____

Received at Laboratory By: _____ Date/Time: _____

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>8</u>
Samples on Ice?	No NA
Approved By:	<i>[Signature]</i>
Entered By:	<i>[Signature]</i>



Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Comments:

Collected By :
(Full Name)

Gregory Wacik

2021818-06 BM-6S

Jmk
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B, NO2-N EPA 300.0, NO3-N EPA 300.0
Alk SM 2320B, PO4 SM 4500P-E, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 8/10/20
Time: 0845

- Type: Grab
- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H2SO4
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

2021818-07 BM-6M

Jmk
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D, PO4 SM 4500P-E

Matrix: Non-Potable Water

Date: 8/10/20
Time: 0845

- Type: Grab
- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - PI 500ml H2SO4
- D - PI 250ml NP
- E - PI 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspc
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc

2021818-08 BM-6D

Jmk
NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, BOD SM 5210B, NO2-N EPA 300.0
PO4 SM 4500P-E, Alk SM 2320B, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 8/10/20
Time: 0845

- Type: Grab
- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - PI 500ml H2SO4
- D - PI 250ml NP
- E - PI 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspc
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc

Relinquished By: *[Signature]* Date/Time: 8/10/20 1:55

Relinquished By: _____ Date/Time: _____

Relinquished By: _____ Date/Time: _____

Received By: *[Signature]* Date/Time: 8-10-20 1355

Received By: _____ Date/Time: 8-10-20 1415

Received at Laboratory By: _____ Date/Time: _____

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>8</u>
Samples on Ice?	<input checked="" type="checkbox"/> No <input type="checkbox"/> NA
Approved By:	<i>[Signature]</i>
Entered By:	<i>[Signature]</i>



M.J. Reider Associates, Inc.

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

**WORK ORDER
Chain of Custody**

2021818



Client Code: 3157

Project Manager: Richard A Wheeler

Report To: Tetra Tech - David Wertz - USACE, Phila Dist. Env.Resources Branch 100 Penn Square E., Arlington, VA 22201

Invoice To: Tetra Tech - David Wertz - USACE, Phila Dist. Env.Resources Branch 100 Penn Square E., Arlington, VA 22201

Client: Tetra Tech

Project: 2020 - Blue Marsh Reservoir

Collected By :
(Full Name)

Gregory Wacik

Comments: _____

2021818-01 BM-1S

Jmk
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined
NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H2SO4
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/10/20

Time: 0730

2021818-02 BM-2S

Jmk
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined
NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H2SO4
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/10/20

Time: 0930

Relinquished By: _____ Date/Time: 8/10/20 1:55

Received By: _____ Date/Time: 8/10/20 1:55

Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: 8/10/20 1:45

Relinquished By: _____ Date/Time: _____

Received at Laboratory By: _____ Date/Time: _____

Sample Kit Prepared By: <i>JBS</i>	Date/Time <u>6-30</u>
Sample Temp (°C): <u>8</u>	Samples on Ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Approved By: <i>JBS</i>	Entered By: <i>JBS</i>

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.



M.J. Reider Associates, Inc.

2021818

Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Collected By: Gregory Wacik
(Full Name)

Comments:

2021818-03 BM-2M

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/10/20
Time: 0930

2021818-04 BM-2D

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/10/20
Time: 0930

2021818-05 BM-5S

NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, BOD SM 5210B, EC (#) SM 9223B
Confirmation, NO2-N EPA 300.0, TC (#) SM 9223B
Alk SM 2320B, PO4 SM 4500P-E, TSS SM 2540D, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Sterile Pl 125ml NaThio
D - Pl 500ml H2SO4
E - Pl 250ml NP
F - Pl 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/10/20
Time: 1230

Relinquished By: [Signature] Date/Time: 8/10/20 1:55

Received By: [Signature] Date/Time: 8-10-20 1355

Relinquished By: Date/Time:

Received By: Date/Time: 8-10-20 1415

Relinquished By: Date/Time:

Received at Laboratory By: Date/Time:

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



M.J. Reider Associates, Inc.

2021818

Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Collected By:
(Full Name)

Gregory Wacik

Comments:

2021818-06 BM-6S

BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B, NO2-N EPA 300.0, NO3-N EPA 300.0
Alk SM 2320B, PO4 SM 4500P-E, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab

Date: 8/10/20
Time: 0845

- A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Sterile Pl 125ml NaThio
D - Pl 500ml H2SO4
E - Pl 250ml NP
F - Pl 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

2021818-07 BM-6M

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D, PO4 SM 4500P-E

Matrix: Non-Potable Water
Type: Grab

Date: 8/10/20
Time: 0845

- A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

2021818-08 BM-6D

NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, BOD SM 5210B, NO2-N EPA 300.0
PO4 SM 4500P-E, Alk SM 2320B, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab

Date: 8/10/20
Time: 0845

- A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Relinquished By

Date/Time

8/10/20 1:55

Received By

Date/Time

8-10-20 1355

Relinquished By

Date/Time

Received By

Date/Time

8-10-20 1415

Relinquished By

Date/Time

Received at Laboratory By

Date/Time

Sample Kit Prepared By: Date/Time
Sample Temp (°C):
Samples on Ice?
Approved By:
Entered By:
Page 24 of 29



M.J. Reider Associates, Inc.

2021818

Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Comments:

Collected By: Gregory Wacik

2021818-09 BM-7S

BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - Sterile PI 125ml NaThio
D - PI 500ml H2SO4
E - PI 250ml NP
F - PI 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/10/20
Time: 1000

2021818-10 BM-7M

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H2SO4
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/10/20
Time: 1000

2021818-11 BM-7D

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H2SO4
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/10/20
Time: 1000

Relinquished By: [Signature] Date/Time: 8/10/20 1:55
Received By: [Signature] Date/Time: 8-10-20 1355
Relinquished By: [Signature] Date/Time:
Received By: [Signature] Date/Time: 8-10-20 1415
Relinquished By: [Signature] Date/Time:
Received at Laboratory By: [Signature] Date/Time:

Sample Kit Prepared By:
Date/Time:
Sample Temp (°C):
Samples on Ice?
Approved By:
Entered By:



Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Comments: _____

Collected By: Gregory Wack
(Full Name)

2021818-15 BM-9S

Jmk
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 8/14/20

Type: Grab

Time: 1020

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Sterile Pl 125ml NaThio
- D - Pl 500ml H2SO4
- E - Pl 250ml NP
- F - Pl 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

2021818-16 BM-9M

Jmk
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, TOC SM 5310C, TSS SM 2540D, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2

Matrix: Non-Potable Water

Date: 8/14/20

Type: Grab

Time: 1020

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Pl 500ml H2SO4
- D - Pl 250ml NP
- E - Pl 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspc
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc

2021818-17 BM-9D

Jmk
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 8/14/20

Type: Grab

Time: 1020

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Pl 500ml H2SO4
- D - Pl 250ml NP
- E - Pl 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspc
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc

Relinquished By: [Signature] Date/Time: 8/10/20 1:55

Received By: [Signature] Date/Time: 8-10-20 1355

Relinquished By: _____ Date/Time: _____

Received By: [Signature] Date/Time: 8-10-20 1415

Relinquished By: _____ Date/Time: _____

Received at Laboratory By: _____ Date/Time: _____

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



Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Comments:

Collected By: Gregory Wack

2021818-12 BM-8S

BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 8/10/20

Type: Grab

Time: 1130

- A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - Sterile PI 125ml NaThio
D - PI 500ml H2SO4
E - PI 250ml NP
F - PI 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

2021818-13 BM-8M

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 8/10/20

Type: Grab

Time: 1130

- A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H2SO4
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

2021818-14 BM-8D

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 8/10/20

Type: Grab

Time: 1130

- A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H2SO4
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Relinquished By: [Signature] Date/Time: 8/10/20 1:55

Received By: [Signature] Date/Time: 8-10-20 1355
Received By: [Signature] Date/Time: 8-10-20 1415
Received at Laboratory By: [Signature] Date/Time:

Sample Kit Prepared By: Date/Time
Sample Temp (°C):
Samples on Ice?
Approved By:
Entered By:



M.J. Reider Associates, Inc.

2021818

Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Comments:

Collected By :
(Full Name)

Gregory Warwick

2021818-18 BM-10S

JMK
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

Date: *8/10/20*
Time: *1050*

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H2SO4
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

2021818-19 BM-10M

JMK
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

Date: *8/10/20*
Time: *1050*

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - PI 500ml H2SO4
- D - PI 250ml NP
- E - PI 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspc
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc

2021818-20 BM-10D

JMK
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

Date: *8/10/20*
Time: *1050*

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - PI 500ml H2SO4
- D - PI 250ml NP
- E - PI 500ml Lab Filtered
- F - Vial Amber 40ml H3PO4, minimal hdspc
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc

[Signature]
Relinquished By _____ Date/Time *8/10/20 1:55*

[Signature]
Received By _____ Date/Time *8-10-20 1355*

Relinquished By _____ Date/Time _____

Received By _____ Date/Time *8-10-20 1415*

Relinquished By _____ Date/Time _____

Received at Laboratory By _____ Date/Time _____

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<i>8</i>
Samples on Ice?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Approved By:	<i>[Signature]</i>
Entered By:	<i>[Signature]</i>

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

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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M.J. Reider Associates, Inc.

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

Certificate of Analysis

Laboratory No.: 2026760
Report: 09/09/20
Lab Contact: Richard A Wheeler

Attention: David Wertz
Reported To: Tetra Tech

Project: 2020 - Blue Marsh Reservoir

USACE, Phila Dist. Env.Resources Branch 100 Penn Square E.
Arlington, VA 22201

Lab ID: 2026760-01 **Collected By:** Client **Sampled:** 08/31/20 12:45 **Received:** 08/31/20 13:50
Sample Desc: BM-11S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.10	mg/l		0.05	SM 4500-P F	09/04/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	131	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	3.93	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 17:22		MRW
Nitrite as N	0.01	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 17:22	J	MRW
Nitrate+Nitrite as N	3.94	mg/l	0.125	1.10	CALCULATED	08/31/20 17:22		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	09/03/20	U	SNF
Phosphorus as P, Total	0.07	mg/l	0.01	0.05	SM 4500-P E	09/03/20		RCE
Solids, Total Dissolved	217	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	2.5	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	1	mg/l	1	1	SM 2540 D	09/01/20		TMH
Microbiology								
Escherichia coli	517	mpn/100ml	1		SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09	JMW
Total Coliform	>2420	mpn/100ml	1		SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2026760-02 **Collected By:** Client **Sampled:** 08/31/20 09:25 **Received:** 08/31/20 13:50
Sample Desc: BM-2S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	85	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	3.5	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	1.92	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 17:39		MRW
Nitrite as N	0.08	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 17:39	J	MRW
Nitrate+Nitrite as N	2.00	mg/l	0.125	1.10	CALCULATED	08/31/20 17:39		MRW
Nitrogen, Total Kjeldahl (TKN)	0.89	mg/l	0.47	0.50	EPA 351.2	09/03/20		SNF
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	09/01/20	J	RCE
Solids, Total Dissolved	185	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	3.5	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	09/01/20		TMH
Microbiology								
Escherichia coli	<1	mpn/100ml	1		SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09	JMW
Total Coliform	488	mpn/100ml	1		SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2026760-03 **Collected By:** Client **Sampled:** 08/31/20 09:25 **Received:** 08/31/20 13:50
Sample Desc: BM-2M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	109	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	2.7	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	2.69	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 17:56		MRW
Nitrite as N	0.21	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 17:56		MRW
Nitrate+Nitrite as N	2.90	mg/l	0.125	1.10	CALCULATED	08/31/20 17:56		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	09/03/20	U	SNF
Phosphorus as P, Total	0.01	mg/l	0.01	0.05	SM 4500-P E	09/01/20	J	RCE
Solids, Total Dissolved	221	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	2.8	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	2	mg/l	1	1	SM 2540 D	09/01/20		TMH

Lab ID: 2026760-04 **Collected By:** Client **Sampled:** 08/31/20 09:25 **Received:** 08/31/20 13:50
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		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	141	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	2.6	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	3.59	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 18:13		MRW
Nitrite as N	0.36	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 18:13		MRW
Nitrate+Nitrite as N	3.95	mg/l	0.125	1.10	CALCULATED	08/31/20 18:13		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	09/03/20	U	SNF
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	09/01/20	J	RCE
Solids, Total Dissolved	259	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	2.0	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	09/01/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2026760-05 **Collected By:** Client **Sampled:** 08/31/20 12:45 **Received:** 08/31/20 13:50
Sample Desc: BM-5S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	219	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	7.49	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 19:03		MRW
Nitrite as N	<0.01	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 19:03	U	MRW
Nitrate+Nitrite as N	<7.50	mg/l	0.125	1.10	CALCULATED	08/31/20 19:03		MRW
Nitrogen, Total Kjeldahl (TKN)	<0.47	mg/l	0.47	0.50	EPA 351.2	09/03/20	U	SNF
Phosphorus as P, Total	0.07	mg/l	0.01	0.05	SM 4500-P E	09/01/20		RCE
Solids, Total Dissolved	367	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	1.5	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	1	mg/l	1	1	SM 2540 D	09/01/20		TMH
Microbiology								
Escherichia coli	816	mpn/100ml	1		SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09	JMW
Total Coliform	>2420	mpn/100ml	1		SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2026760-06 **Collected By:** Client **Sampled:** 08/31/20 08:45 **Received:** 08/31/20 13:50
Sample Desc: BM-6S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	88	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	6.8	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	1.91	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 19:20		MRW
Nitrite as N	0.09	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 19:20	J	MRW
Nitrate+Nitrite as N	2.00	mg/l	0.125	1.10	CALCULATED	08/31/20 19:20		MRW
Nitrogen, Total Kjeldahl (TKN)	0.96	mg/l	0.47	0.50	EPA 351.2	09/02/20		TML
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	09/01/20	J	RCE
Solids, Total Dissolved	187	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	4.0	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	19	mg/l	1	1	SM 2540 D	09/01/20		TMH
Microbiology								
Escherichia coli	3	mpn/100ml	1		SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09	JMW
Total Coliform	579	mpn/100ml	1		SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2026760-07 **Collected By:** Client **Sampled:** 08/31/20 08:45 **Received:** 08/31/20 13:50
Sample Desc: BM-6M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	117	mg CaCO3/L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	2.4	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	2.99	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 19:37		MRW
Nitrite as N	0.21	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 19:37		MRW
Nitrate+Nitrite as N	3.20	mg/l	0.125	1.10	CALCULATED	08/31/20 19:37		MRW
Nitrogen, Total Kjeldahl (TKN)	0.53	mg/l	0.47	0.50	EPA 351.2	09/02/20		TML
Phosphorus as P, Total	0.01	mg/l	0.01	0.05	SM 4500-P E	09/01/20	J	RCE
Solids, Total Dissolved	206	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	2.8	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	2	mg/l	1	1	SM 2540 D	09/01/20		TMH

Lab ID: 2026760-08 **Collected By:** Client **Sampled:** 08/31/20 08:45 **Received:** 08/31/20 13:50
Sample Desc: BM-6D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	165	mg CaCO3/L		2	SM 2320 B	09/02/20		APR
Ammonia as N	0.33	mg/l	0.01	0.10	ASTM D6919-03	09/01/20		APR
Biochemical Oxygen Demand	4.3	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	3.39	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 19:54		MRW
Nitrite as N	0.26	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 19:54		MRW
Nitrate+Nitrite as N	3.65	mg/l	0.125	1.10	CALCULATED	08/31/20 19:54		MRW
Nitrogen, Total Kjeldahl (TKN)	0.96	mg/l	0.47	0.50	EPA 351.2	09/02/20		TML
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	09/01/20		RCE
Solids, Total Dissolved	274	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	2.2	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	6	mg/l	1	1	SM 2540 D	09/01/20		TMH



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Lab ID: 2026760-09 **Collected By:** Client **Sampled:** 08/31/20 10:00 **Received:** 08/31/20 13:50
Sample Desc: BM-7S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	89	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	4.4	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	2.01	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 21:01		MRW
Nitrite as N	0.08	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 21:01	J	MRW
Nitrate+Nitrite as N	2.09	mg/l	0.125	1.10	CALCULATED	08/31/20 21:01		MRW
Nitrogen, Total Kjeldahl (TKN)	0.97	mg/l	0.47	0.50	EPA 351.2	09/02/20		TML
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	09/01/20	J	RCE
Solids, Total Dissolved	194	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	3.4	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	8	mg/l	1	1	SM 2540 D	09/01/20		TMH
Microbiology								
Escherichia coli	12	mpn/100ml	1		SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09	JMW
Total Coliform	1990	mpn/100ml	1		SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09	JMW



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M.J. Reider Associates, Inc.

Lab ID: 2026760-10 **Collected By:** Client **Sampled:** 08/31/20 10:00 **Received:** 08/31/20 13:50
Sample Desc: BM-7M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	0.07	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	88	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	2.8	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	2.02	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 21:18		MRW
Nitrite as N	0.08	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 21:18	J	MRW
Nitrate+Nitrite as N	2.10	mg/l	0.125	1.10	CALCULATED	08/31/20 21:18		MRW
Nitrogen, Total Kjeldahl (TKN)	0.66	mg/l	0.47	0.50	EPA 351.2	09/02/20		TML
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	09/01/20	J	RCE
Solids, Total Dissolved	191	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	3.3	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	09/01/20		TMH

Lab ID: 2026760-11 **Collected By:** Client **Sampled:** 08/31/20 10:00 **Received:** 08/31/20 13:50
Sample Desc: BM-7D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	150	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	0.22	mg/l	0.01	0.10	ASTM D6919-03	09/01/20		APR
Biochemical Oxygen Demand	3.1	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	3.64	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 21:35		MRW
Nitrite as N	0.16	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 21:35		MRW
Nitrate+Nitrite as N	3.80	mg/l	0.125	1.10	CALCULATED	08/31/20 21:35		MRW
Nitrogen, Total Kjeldahl (TKN)	0.85	mg/l	0.47	0.50	EPA 351.2	09/02/20		TML
Phosphorus as P, Total	0.06	mg/l	0.01	0.05	SM 4500-P E	09/01/20		RCE
Solids, Total Dissolved	284	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	2.0	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	3	mg/l	1	1	SM 2540 D	09/01/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2026760-12 **Collected By:** Client **Sampled:** 08/31/20 11:45 **Received:** 08/31/20 13:50
Sample Desc: BM-8S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	88	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	4.6	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	2.04	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 21:52		MRW
Nitrite as N	0.05	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 21:52	J	MRW
Nitrate+Nitrite as N	2.09	mg/l	0.125	1.10	CALCULATED	08/31/20 21:52		MRW
Nitrogen, Total Kjeldahl (TKN)	0.87	mg/l	0.47	0.50	EPA 351.2	09/02/20		TML
Phosphorus as P, Total	0.02	mg/l	0.01	0.05	SM 4500-P E	09/01/20	J	RCE
Solids, Total Dissolved	192	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	3.2	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	6	mg/l	1	1	SM 2540 D	09/01/20		TMH
	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	14	mpn/100ml	1	SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09		JMW
Total Coliform	1990	mpn/100ml	1	SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09		JMW



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M.J. Reider Associates, Inc.

Lab ID: 2026760-13 **Collected By:** Client **Sampled:** 08/31/20 11:45 **Received:** 08/31/20 13:50
Sample Desc: BM-8M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	86	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	2.9	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	2.07	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 22:42		MRW
Nitrite as N	0.05	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 22:42	J	MRW
Nitrate+Nitrite as N	2.12	mg/l	0.125	1.10	CALCULATED	08/31/20 22:42		MRW
Nitrogen, Total Kjeldahl (TKN)	0.56	mg/l	0.47	0.50	EPA 351.2	09/02/20		TML
Phosphorus as P, Total	0.04	mg/l	0.01	0.05	SM 4500-P E	09/01/20	J	RCE
Solids, Total Dissolved	167	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	3.1	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	5	mg/l	1	1	SM 2540 D	09/01/20		TMH

Lab ID: 2026760-14 **Collected By:** Client **Sampled:** 08/31/20 11:45 **Received:** 08/31/20 13:50
Sample Desc: BM-8D **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	110	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	0.04	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	J	APR
Biochemical Oxygen Demand	2.8	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	2.59	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 22:59		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 22:59	J	MRW
Nitrate+Nitrite as N	2.62	mg/l	0.125	1.10	CALCULATED	08/31/20 22:59		MRW
Nitrogen, Total Kjeldahl (TKN)	0.72	mg/l	0.47	0.50	EPA 351.2	09/02/20		TML
Phosphorus as P, Total	0.07	mg/l	0.01	0.05	SM 4500-P E	09/01/20		RCE
Solids, Total Dissolved	205	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	2.6	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	37	mg/l	1	1	SM 2540 D	09/01/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2026760-15 **Collected By:** Client **Sampled:** 08/31/20 10:30 **Received:** 08/31/20 13:50
Sample Desc: BM-9S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	92	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	4.4	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	2.09	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 23:16		MRW
Nitrite as N	0.06	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 23:16	J	MRW
Nitrate+Nitrite as N	2.15	mg/l	0.125	1.10	CALCULATED	08/31/20 23:16		MRW
Nitrogen, Total Kjeldahl (TKN)	0.83	mg/l	0.47	0.50	EPA 351.2	09/02/20		TML
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	09/01/20	J	RCE
Solids, Total Dissolved	185	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	3.2	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	6	mg/l	1	1	SM 2540 D	09/01/20		TMH
	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	10	mpn/100ml	1	SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09		JMW
Total Coliform	2420	mpn/100ml	1	SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09		JMW



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M.J. Reider Associates, Inc.

Lab ID: 2026760-16 **Collected By:** Client **Sampled:** 08/31/20 10:30 **Received:** 08/31/20 13:50
Sample Desc: BM-9M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	117	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	0.03	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	J	APR
Biochemical Oxygen Demand	3.0	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	2.98	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 23:32		MRW
Nitrite as N	0.07	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 23:32	J	MRW
Nitrate+Nitrite as N	3.05	mg/l	0.125	1.10	CALCULATED	08/31/20 23:32		MRW
Nitrogen, Total Kjeldahl (TKN)	0.58	mg/l	0.47	0.50	EPA 351.2	09/02/20		TML
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	09/01/20	J	RCE
Solids, Total Dissolved	217	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	2.5	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	6	mg/l	1	1	SM 2540 D	09/01/20		TMH

Lab ID: 2026760-17 **Collected By:** Client **Sampled:** 08/31/20 10:30 **Received:** 08/31/20 13:50
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		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	159	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	0.10	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	J	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	4.62	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	08/31/20 23:49		MRW
Nitrite as N	0.04	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	08/31/20 23:49	J	MRW
Nitrate+Nitrite as N	4.66	mg/l	0.125	1.10	CALCULATED	08/31/20 23:49		MRW
Nitrogen, Total Kjeldahl (TKN)	0.57	mg/l	0.47	0.50	EPA 351.2	09/02/20		TML
Phosphorus as P, Total	0.09	mg/l	0.01	0.05	SM 4500-P E	09/01/20		RCE
Solids, Total Dissolved	283	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	2.8	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	14	mg/l	1	1	SM 2540 D	09/01/20		TMH



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M.J. Reider Associates, Inc.

Lab ID: 2026760-18 **Collected By:** Client **Sampled:** 08/31/20 11:00 **Received:** 08/31/20 13:50
Sample Desc: BM-10S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	102	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	4.8	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	2.59	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	09/01/20 0:06		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	09/01/20 0:06	J	MRW
Nitrate+Nitrite as N	2.62	mg/l	0.125	1.10	CALCULATED	09/01/20 0:06		MRW
Nitrogen, Total Kjeldahl (TKN)	0.73	mg/l	0.47	0.50	EPA 351.2	09/02/20		TML
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	09/01/20	J	RCE
Solids, Total Dissolved	193	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	3.1	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	6	mg/l	1	1	SM 2540 D	09/01/20		TMH
	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	88	mpn/100ml	1	SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09		JMW
Total Coliform	2420	mpn/100ml	1	SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09		JMW



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M.J. Reider Associates, Inc.

Lab ID: 2026760-19 **Collected By:** Client **Sampled:** 08/31/20 11:00 **Received:** 08/31/20 13:50
Sample Desc: BM-10M **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	105	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	4.6	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	2.65	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	09/01/20 0:57		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	09/01/20 0:57	J	MRW
Nitrate+Nitrite as N	2.68	mg/l	0.125	1.10	CALCULATED	09/01/20 0:57		MRW
Nitrogen, Total Kjeldahl (TKN)	0.75	mg/l	0.47	0.50	EPA 351.2	09/02/20		TML
Phosphorus as P, Total	0.05	mg/l	0.01	0.05	SM 4500-P E	09/01/20		RCE
Solids, Total Dissolved	136	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	3.1	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	6	mg/l	1	1	SM 2540 D	09/01/20		TMH

Lab ID: 2026760-20 **Collected By:** Client **Sampled:** 08/31/20 11:00 **Received:** 08/31/20 13:50
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		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	143	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	<0.01	mg/l	0.01	0.10	ASTM D6919-03	09/01/20	U	APR
Biochemical Oxygen Demand	<2.0	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	3.91	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	09/01/20 1:48		MRW
Nitrite as N	0.03	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	09/01/20 1:48	J	MRW
Nitrate+Nitrite as N	3.94	mg/l	0.125	1.10	CALCULATED	09/01/20 1:48		MRW
Nitrogen, Total Kjeldahl (TKN)	0.50	mg/l	0.47	0.50	EPA 351.2	09/02/20	J	TML
Phosphorus as P, Total	0.08	mg/l	0.01	0.05	SM 4500-P E	09/01/20		RCE
Solids, Total Dissolved	204	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	3.0	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	19	mg/l	1	1	SM 2540 D	09/01/20		TMH



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

M.J. Reider Associates, Inc.

Lab ID: 2026760-21 **Collected By:** Client **Sampled:** 08/31/20 07:30 **Received:** 08/31/20 13:50
Sample Desc: BM-1S **Sample Type:** Grab

	Result	Unit	MDL	Rep. Limit	Analysis Method	Analyzed	Notes	Analyst
Dissolved General Chemistry								
Phosphorus as P, Dissolved	<0.05	mg/l		0.05	SM 4500-P F	09/01/20	G-11	SNF
General Chemistry								
Alkalinity, Total to pH 4.5	141	mg CaCO ₃ /L		2	SM 2320 B	09/02/20		APR
Ammonia as N	0.27	mg/l	0.01	0.10	ASTM D6919-03	09/01/20		APR
Biochemical Oxygen Demand	2.8	mg/l	2.0	2.0	SM 5210 B	09/01/20 12:30		SLM
Nitrate as N	3.55	mg/l	0.11	1.00	EPA 300.0 Rev 2.1	09/01/20 2:06		MRW
Nitrite as N	0.28	mg/l	0.01	0.10	EPA 300.0 Rev 2.1	09/01/20 2:06		MRW
Nitrate+Nitrite as N	3.83	mg/l	0.125	1.10	CALCULATED	09/01/20 2:06		MRW
Nitrogen, Total Kjeldahl (TKN)	0.49	mg/l	0.47	0.50	EPA 351.2	09/02/20	J	TML
Phosphorus as P, Total	0.03	mg/l	0.01	0.05	SM 4500-P E	09/01/20	J	RCE
Solids, Total Dissolved	210	mg/l	4	5	SM 2540 C	09/01/20		TMH
Total Organic Carbon	2.7	mg/l	0.3	0.5	SM 5310 C	09/02/20		HRG
Solids, Total Suspended	9	mg/l	1	1	SM 2540 D	09/01/20		TMH
Microbiology								
Escherichia coli	<1	mpn/100ml	1		SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09	JMW
Total Coliform	2420	mpn/100ml	1		SM 9223 B/Quantitray	8/31/20 15:17	9/1/20 10:09	JMW



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Preparation Methods

Specific Method	Preparation Method	Prep Batch	Prepared Date	Prepared By
2026760-01				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0I0182	09/02/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0I0179	09/03/2020	RCE
2026760-02				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
2026760-03				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
2026760-04				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
2026760-05				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
2026760-06				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
2026760-07				
Dissolved General Chemistry				
SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
General Chemistry				
SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
2026760-08				
Dissolved General Chemistry				



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SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
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2026760-09

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
-------------	-------------	---------	------------	-----

2026760-10

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
-------------	-------------	---------	------------	-----

2026760-11

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
-------------	-------------	---------	------------	-----

2026760-12

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
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2026760-13

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
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2026760-14

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
-------------	-------------	---------	------------	-----

2026760-15

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
-------------	-------------	---------	------------	-----

2026760-16

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
-------------	-------------	---------	------------	-----



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General Chemistry

SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
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2026760-17

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
-------------	-------------	---------	------------	-----

2026760-18

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
-------------	-------------	---------	------------	-----

2026760-19

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
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2026760-20

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
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General Chemistry

SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
-------------	-------------	---------	------------	-----

2026760-21

Dissolved General Chemistry

SM 4500-P F	SM 4500-P B	B0H1831	08/31/2020	RCE
-------------	-------------	---------	------------	-----

General Chemistry

SM 4500-P E	SM 4500-P B	B0H1834	09/01/2020	RCE
-------------	-------------	---------	------------	-----

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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WORK ORDER Chain of Custody

2026760



Client Code: 3157

Project Manager: Richard A Wheeler

Report To: Tetra Tech - David Wertz - USACE, Phila Dist. Env.Resources Branch 100 Penn Square E., Arlington, VA 22201

Invoice To: Tetra Tech - David Wertz - USACE, Phila Dist. Env.Resources Branch 100 Penn Square E., Arlington, VA 22201

Client: Tetra Tech

Project: 2020 - Blue Marsh Reservoir

Comments: Bag 11s and 1s switched (11s → 1s) (1s → 11s)

Collected By:

(Full Name)

Gregory Waack

2026760-01 BM-1S 11S

mm mm
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H2SO4
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/31/20

Time: 1245

2026760-02 BM-2S

mm mm
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

- A - PI 500ml NP, minimal hdspc
- B - PI Liter NP
- C - Sterile PI 125ml NaThio
- D - PI 500ml H2SO4
- E - PI 250ml NP
- F - PI 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/31/20

Time: 0925

Relinquished By: [Signature] Date/Time: 8/31/20 1:20

Received By: Ben N... Date/Time: 8-31-20 1330

Relinquished By: _____ Date/Time: _____

Received By: _____ Date/Time: _____

Relinquished By: _____ Date/Time: _____

Received at Laboratory By: Ben N... Date/Time: 8-31-20 1350

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: <u>[Signature]</u>	Date/Time: <u>8-11-20</u>
Sample Temp (°C): <u>8</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>	



Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Collected By: Gregory Wacik
(Full Name)

Comments: _____

2026760-03 BM-2M

W BOD SM 5210B, NO₂-N EPA 300.0, NO₃-N EPA 300.0, NO₂-N, NO₃-N, Combined NO₃+NO₂, PO₄-D SM 4500P-F
Alk SM 2320B, NH₃-N D6919-03, PO₄ SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H₂SO₄
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H₃PO₄, minimal hdspc
G - Vial Amber 40ml H₃PO₄, minimal hdspc
H - Vial Amber 40ml H₃PO₄, minimal hdspc

Date: 8/31/20
Time: 0925

2026760-04 BM-2D

W BOD SM 5210B, NO₂-N EPA 300.0, NO₃-N EPA 300.0, NO₂-N, NO₃-N, Combined NO₃+NO₂, PO₄-D SM 4500P-F
Alk SM 2320B, NH₃-N D6919-03, PO₄ SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H₂SO₄
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H₃PO₄, minimal hdspc
G - Vial Amber 40ml H₃PO₄, minimal hdspc
H - Vial Amber 40ml H₃PO₄, minimal hdspc

Date: 8/31/20
Time: 0925

2026760-05 BM-5S

W BOD SM 5210B, EC (#) SM 9223B Confirmation, PO₄-D SM 4500P-F, TC (#) SM 9223B, NO₂-N EPA 300.0, NO₃-N EPA 300.0, NO₂-N, NO₃-N, Combined NO₃+NO₂
Alk SM 2320B, NH₃-N D6919-03, TDS SM 2540C, TKN EPA 351.2, PO₄ SM 4500P-E, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Sterile Pl 125ml NaThio
D - Pl 500ml H₂SO₄
E - Pl 250ml NP
F - Pl 500ml Lab Filtered
G - Vial Amber 40ml H₃PO₄, minimal hdspc
H - Vial Amber 40ml H₃PO₄, minimal hdspc
I - Vial Amber 40ml H₃PO₄, minimal hdspc

Date: 8/31/20
Time: 1245

[Signature]
Relinquished By _____ Date/Time 8/31/20 1:20
Relinquished By _____ Date/Time _____
Relinquished By _____ Date/Time _____

Bay NFB
Received By _____ Date/Time 8-31-20 1330
Bay NFB
Received at Laboratory By _____ Date/Time 8-31-20 1350

Sample Kit Prepared By: <i>[Signature]</i>	Date/Time: <u>8-11-20</u>
Sample Temp (°C): <u>8</u>	Samples on Ice? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By: <i>[Signature]</i>	Entered By: <i>[Signature]</i>



Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Collected By: (Full Name)

Gregory Wacik

Comments:

2026760-06 BM-6S

EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, BOD SM 5210B, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D, Alk SM 2320B, PO4 SM 4500P-E

Matrix: Non-Potable Water

Type: Grab

Date: 8/31/20
Time: 0845

- A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - Sterile PI 125ml NaThio
D - PI 500ml H2SO4
E - PI 250ml NP
F - PI 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

2026760-07 BM-6M

NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, BOD SM 5210B, NO2-N EPA 300.0 PO4 SM 4500P-E, Alk SM 2320B, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Type: Grab

Date: 8/31/20
Time: 0845

- A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H2SO4
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

2026760-08 BM-6D

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F Alk SM 2320B, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D, PO4 SM 4500P-E

Matrix: Non-Potable Water

Type: Grab

Date: 8/31/20
Time: 0845

- A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H2SO4
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Handwritten signature for Relinquished By

8/31/20 1:20

Received By: Ben N/A

8/31/20 1330

Relinquished By

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received at Laboratory By

8/31/20 1350

Table with 2 columns: Sample Kit Prepared By, Date/Time, Sample Temp (C), Samples on Ice?, Approved By, Entered By.



M.J. Reider Associates, Inc.

2026760

Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Collected By: Gregory Wacik

Comments:

2026760-09 BM-7S

BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water Date: 8/31/20
Type: Grab Time: 1000
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Sterile Pl 125ml NaThio
D - Pl 500ml H2SO4
E - Pl 250ml NP
F - Pl 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

2026760-10 BM-7M

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water Date: 8/31/20
Type: Grab Time: 1000
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

2026760-11 BM-7D

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water Date: 8/31/20
Type: Grab Time: 1000
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Relinquished By: [Signature] Date/Time: 8/31/20 1:20
Received By: [Signature] Date/Time: 8-31-20 1330
Relinquished By: [Signature] Date/Time:
Received By: [Signature] Date/Time:
Relinquished By: [Signature] Date/Time:
Received at Laboratory By: [Signature] Date/Time: 8-31-20 1350

Table with 2 columns: Sample Kit Prepared By, Date/Time; Sample Temp (°C), Samples on Ice; Approved By, Entered By.



Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Collected By :
(Full Name)

Gregory Wacik

Comments: _____

2026760-12 BM-8S

kw
BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - Sterile PI 125ml NaThio
D - PI 500ml H2SO4
E - PI 250ml NP
F - PI 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/31/20
Time: 1145

2026760-13 BM-8M

kw
BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H2SO4
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/31/20
Time: 1145

2026760-14 BM-8D

kw
NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, BOD SM 5210B, NO2-N EPA 300.0
PO4 SM 4500P-E, Alk SM 2320B, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H2SO4
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/31/20
Time: 1145

Gregory Wacik
Relinquished By _____ Date/Time 8/31/20 1:20
Relinquished By _____ Date/Time _____
Relinquished By _____ Date/Time _____

Ben Nantz
Received By _____ Date/Time 8-31-20 1330
Received By _____ Date/Time _____
Received at Laboratory By _____ Date/Time 8-31-20 1350

Sample Kit Prepared By: <i>WJ</i>	Date/Time <u>8-11-20</u>
Sample Temp (°C): <u>8</u>	Samples on Ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA
Approved By: <i>WJ</i>	Entered By: <i>WJ</i>



Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Collected By: Gregory Wacik
(Full Name)

Comments: _____

2026760-15 BM-9S

WR
NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, BOD SM 5210B, EC (#) SM 9223B
Confirmation, PO4-D SM 4500P-F, TC (#) SM 9223B
PO4 SM 4500P-E, TOC SM 5310C, TSS SM 2540D, Alk SM 2320B, NH3-N D6919-03, TDS SM 2540C, TKN EPA 351.2

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Sterile Pl 125ml NaThio
D - Pl 500ml H2SO4
E - Pl 250ml NP
F - Pl 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/31/20
Time: 1030

2026760-16 BM-9M

WR
BOD SM 5210B, PO4-D SM 4500P-F, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2
Alk SM 2320B, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, NH3-N D6919-03, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/31/20
Time: 1030

2026760-17 BM-9D

WR
NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, BOD SM 5210B
NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, Alk SM 2320B, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - Pl 500ml NP, minimal hdspc
B - Pl Liter NP
C - Pl 500ml H2SO4
D - Pl 250ml NP
E - Pl 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/31/20
Time: 1030

[Signature]
Relinquished By _____
Date/Time 8/31/20 1:20

Ben N...
Received By _____
Date/Time 8-31-20 1330

Relinquished By _____
Date/Time _____

Ben N...
Received By _____
Date/Time _____

Relinquished By _____
Date/Time _____

Ben N...
Received at Laboratory By _____
Date/Time 8-31-20 1350

Sample Kit Prepared By: <i>WR</i>	Date/Time: <u>8-11-20</u>
Sample Temp (°C): <u>8</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Approved By: <i>BSW</i>	
Entered By: <i>[Signature]</i>	



Client Code: 3157
Project Manager: Richard A Wheeler

Client: Tetra Tech
Project: 2020 - Blue Marsh Reservoir

Collected By: Gregory Wacik

Comments:

2026760-18 BM-10S

BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - Sterile PI 125ml NaThio
D - PI 500ml H2SO4
E - PI 250ml NP
F - PI 500ml Lab Filtered
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc
I - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/31/20
Time: 1100

2026760-19 BM-10M

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H2SO4
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/31/20
Time: 1100

2026760-20 BM-10D

BOD SM 5210B, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F
Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water
Type: Grab
A - PI 500ml NP, minimal hdspc
B - PI Liter NP
C - PI 500ml H2SO4
D - PI 250ml NP
E - PI 500ml Lab Filtered
F - Vial Amber 40ml H3PO4, minimal hdspc
G - Vial Amber 40ml H3PO4, minimal hdspc
H - Vial Amber 40ml H3PO4, minimal hdspc

Date: 8/31/20
Time: 1100

Relinquished By: [Signature] Date/Time: 8/31/20 1:20

Received By: [Signature] Date/Time: 8-31-20 1330

Relinquished By: _____ Date/Time: _____

Received By: [Signature] Date/Time: 8-31-20 1350

Relinquished By: _____ Date/Time: _____

Received at Laboratory By: _____ Date/Time: _____

Sample Kit Prepared By: [Signature] Date/Time: 8-11-20
Sample Temp (°C): 8
Samples on Ice? [Yes] No NA
Approved By: [Signature]
Entered By: [Signature]



Client Code: 3157

Client: Tetra Tech

Project Manager: Richard A Wheeler

Project: 2020 - Blue Marsh Reservoir

Collected By: (Full Name)

Gregory Wacik

Comments:

2026760-21 BM-118 15

BOD SM 5210B, EC (#) SM 9223B Confirmation, NO2-N EPA 300.0, NO3-N EPA 300.0, NO2-N, NO3-N, Combined NO3+NO2, PO4-D SM 4500P-F, TC (#) SM 9223B Alk SM 2320B, NH3-N D6919-03, PO4 SM 4500P-E, TDS SM 2540C, TKN EPA 351.2, TOC SM 5310C, TSS SM 2540D

Matrix: Non-Potable Water

Date: 8/31/20

Type: Grab

Time: 0730

- A - Pl 500ml NP, minimal hdspc
- B - Pl Liter NP
- C - Sterile Pl 125ml NaThio
- D - Pl 500ml H2SO4
- E - Pl 250ml NP
- F - Pl 500ml Lab Filtered
- G - Vial Amber 40ml H3PO4, minimal hdspc
- H - Vial Amber 40ml H3PO4, minimal hdspc
- I - Vial Amber 40ml H3PO4, minimal hdspc

Relinquished By: [Signature] Date/Time: 8/31/20 1:20

Received By: [Signature] Date/Time: 8-31-20 1330

Relinquished By: _____ Date/Time: _____

Received By: [Signature] Date/Time: 8-31-20 1350

Relinquished By: _____ Date/Time: _____

Received at Laboratory By: _____ Date/Time: _____

Sample Kit Prepared By: [Signature]	Date/Time: 8-11-20
Sample Temp (°C): 8	
Samples on Ice? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA	
Approved By: [Signature]	
Entered By: [Signature]	

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)



Certificate of Analysis

M.J. Reider Associates, Inc.

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

Laboratory No.: 2018833

Report: 06/08/20

Lab Contact: Richard A Wheeler

Attention: Scott Sunderland

Reported To: US Army Corp of Engineers

1268 Palisades Dr.

Leesport, PA 19533

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2018833-01

Collected By: Client

Sampled: 06/04/20 08:00

Received: 06/04/20 08:30

Sample Desc: SB-1 L

Sample Type: Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	27	mpn/100ml	1	SM 9223	6/4/20	6/5/20		JMW
				B/Quantitray	10:44	10:57		
Total Coliform	870	mpn/100ml	1	SM 9223	6/4/20	6/5/20		JMW
				B/Quantitray	10:44	10:57		

Lab ID: 2018833-02

Collected By: Client

Sampled: 06/04/20 08:03

Received: 06/04/20 08:30

Sample Desc: SB-2 C

Sample Type: Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	31	mpn/100ml	1	SM 9223	6/4/20	6/5/20		JMW
				B/Quantitray	10:44	10:57		
Total Coliform	1550	mpn/100ml	1	SM 9223	6/4/20	6/5/20		JMW
				B/Quantitray	10:44	10:57		

Lab ID: 2018833-03

Collected By: Client

Sampled: 06/04/20 08:05

Received: 06/04/20 08:30

Sample Desc: SB-3 R

Sample Type: Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	47	mpn/100ml	1	SM 9223	6/4/20	6/5/20		JMW
				B/Quantitray	10:44	10:57		
Total Coliform	1990	mpn/100ml	1	SM 9223	6/4/20	6/5/20		JMW
				B/Quantitray	10:44	10:57		



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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

BOTTLE ORDER

Chain of Custody

2018833

PM: RAW

US Army Corp of Engineers
2020 Blue Marsh Beach 1,2,3



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
2020

Collected By:
(Full Name)

Jaeden Mathias

Comments: _____

-01 SB-1

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

L

Matrix: Other
Type: Grab

A - Sterile Pl 125ml NaThio

Date: 4 JUN 2020
Time: 0800

-02 SB-2

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

C

Matrix: Other
Type: Grab

A - Sterile Pl 125ml NaThio

Date: 4 JUN 2020
Time: 0803

-03 SB-3

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

R

Matrix: Other
Type: Grab

A - Sterile Pl 125ml NaThio

Date: 4 JUN 2020
Time: 0805

Jan M 6/4/20 8:30

Relinquished By _____ Date/Time _____

Jan M 6/4/20 8:30

Relinquished By _____ Date/Time _____

Jan M 6/4/20 8:30

Relinquished By _____ Date/Time _____

Received By _____ Date/Time _____

Received By _____ Date/Time _____

Steven Sandzue 6-4-20 8:30

Received at Laboratory By _____ Date/Time _____

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>20°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>

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

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

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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:



Rafael A Quijada For 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.: 2019200
Report: 06/10/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2019200-01 **Collected By:** Client **Sampled:** 06/08/20 07:47 **Received:** 06/08/20 08:24
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	52	mpn/100ml	1	SM 9223	6/8/20	6/9/20		JMW
				B/Quantitray	11:02	11:02		
Total Coliform	921	mpn/100ml	1	SM 9223	6/8/20	6/9/20		JMW
				B/Quantitray	11:02	11:02		

Lab ID: 2019200-02 **Collected By:** Client **Sampled:** 06/08/20 07:49 **Received:** 06/08/20 08:24
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	13	mpn/100ml	1	SM 9223	6/8/20	6/9/20		JMW
				B/Quantitray	11:02	11:02		
Total Coliform	727	mpn/100ml	1	SM 9223	6/8/20	6/9/20		JMW
				B/Quantitray	11:02	11:02		

Lab ID: 2019200-03 **Collected By:** Client **Sampled:** 06/08/20 07:51 **Received:** 06/08/20 08:24
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	14	mpn/100ml	1	SM 9223	6/8/20	6/9/20		JMW
				B/Quantitray	11:02	11:02		
Total Coliform	488	mpn/100ml	1	SM 9223	6/8/20	6/9/20		JMW
				B/Quantitray	11:02	11:02		



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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
2020

2019200

PM: RAW

US Army Corp of Engineers
2020 Blue Marsh Beach 1,2,3



Collected By: Jacden Mathias
(Full Name)

Comments: _____

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

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

Date: Jun 8th, 2020
Time: 0747

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

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

Date: Jun 8th, 2020
Time: 0749

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

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

Date: Jun 8th, 2020
Time: 0751

<u>Jacden Mathias</u>	<u>6/8/20 0824</u>	_____	_____
Relinquished By	Date/Time	Received By	Date/Time
<u>Jacden Mathias</u>	_____	_____	_____
Relinquished By	Date/Time	Received By	Date/Time
<u>Jacden Mathias</u>	_____	<u>Teen Vandzura</u>	<u>6/8 8:24</u>
Relinquished By	Date/Time	Received at Laboratory By	Date/Time

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>17°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>

M.J. Reider Associates, Inc.

MJRA Terms & Conditions

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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.: 2019636
Report: 06/15/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2019636-01 **Collected By:** Client **Sampled:** 06/11/20 08:05 **Received:** 06/11/20 08:41
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	3	mpn/100ml	1	SM 9223	6/11/20	6/12/20		JMW
				B/Quantitray	10:32	10:55		
Total Coliform	276	mpn/100ml	1	SM 9223	6/11/20	6/12/20		JMW
				B/Quantitray	10:32	10:55		

Lab ID: 2019636-02 **Collected By:** Client **Sampled:** 06/11/20 08:09 **Received:** 06/11/20 08:41
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	6	mpn/100ml	1	SM 9223	6/11/20	6/12/20		JMW
				B/Quantitray	10:32	10:55		
Total Coliform	411	mpn/100ml	1	SM 9223	6/11/20	6/12/20		JMW
				B/Quantitray	10:32	10:55		

Lab ID: 2019636-03 **Collected By:** Client **Sampled:** 06/11/20 08:14 **Received:** 06/11/20 08:41
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	5	mpn/100ml	1	SM 9223	6/11/20	6/12/20		JMW
				B/Quantitray	10:32	10:55		
Total Coliform	361	mpn/100ml	1	SM 9223	6/11/20	6/12/20		JMW
				B/Quantitray	10:32	10:55		



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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
2020

2019636

PM: RAW

US Army Corp of Engineers
2020 Blue Marsh Beach 1,2,3



Comments: _____

Collected By: Courtney Mayer
(Full Name)

-01	SB-1	EC (#) SM 9223B, TC (#) SM 9223B	Matrix: Other Type: Grab A - Sterile PI 125ml NaThio	Date: <u>6/11/2020</u> Time: <u>8:05</u>
-02	SB-2	EC (#) SM 9223B, TC (#) SM 9223B	Matrix: Other Type: Grab A - Sterile PI 125ml NaThio	Date: <u>6/11/2020</u> Time: <u>8:09</u>
-03	SB-3	EC (#) SM 9223B, TC (#) SM 9223B	Matrix: Other Type: Grab A - Sterile PI 125ml NaThio	Date: <u>6/11/2020</u> Time: <u>8:14</u>

<u>Courtney Mayer</u>	<u>6/11/2020 8:41</u>	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	<u>Juan Vandezure</u>	<u>6-11-20 8:41</u>
Relinquished By	Date/Time	Received at Laboratory By	Date/Time

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>23°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>

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.

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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.: 2020187
Report: 06/18/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2020187-01 **Collected By:** Client **Sampled:** 06/16/20 07:51 **Received:** 06/16/20 08:22
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	6/16/20	6/17/20		JMW
				B/Quantitray	9:51	10:09		
Total Coliform	548	mpn/100ml	1	SM 9223	6/16/20	6/17/20		JMW
				B/Quantitray	9:51	10:09		

Lab ID: 2020187-02 **Collected By:** Client **Sampled:** 06/16/20 07:54 **Received:** 06/16/20 08:22
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	10	mpn/100ml	1	SM 9223	6/16/20	6/17/20		JMW
				B/Quantitray	9:51	10:09		
Total Coliform	517	mpn/100ml	1	SM 9223	6/16/20	6/17/20		JMW
				B/Quantitray	9:51	10:09		

Lab ID: 2020187-03 **Collected By:** Client **Sampled:** 06/16/20 07:56 **Received:** 06/16/20 08:22
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	5	mpn/100ml	1	SM 9223	6/16/20	6/17/20		JMW
				B/Quantitray	9:51	10:09		
Total Coliform	308	mpn/100ml	1	SM 9223	6/16/20	6/17/20		JMW
				B/Quantitray	9:51	10:09		



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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
2020

2020187

PM: RAW

US Army Corp of Engineers
2020 Blue Marsh Beach 1,2,3



Collected By: Colin Lynch
(Full Name)

Comments: _____

-01 SB-1 Matrix: Other Date: 06/16/20
Type: Grab Time: 07:51
EC (#) SM 9223B, TC (#) SM 9223B A - Sterile PI 125ml NaThio

-02 SB-2 Matrix: Other Date: 06/16/20
Type: Grab Time: 07:54
EC (#) SM 9223B, TC (#) SM 9223B A - Sterile PI 125ml NaThio

-03 SB-3 Matrix: Other Date: 06/16/20
Type: Grab Time: 07:56
EC (#) SM 9223B, TC (#) SM 9223B A - Sterile PI 125ml NaThio

<u>Jaden Mathias</u>	<u>06/16/20</u>	<u>08:22</u>	Received By	Date/Time
Relinquished By	Date/Time			
	<u>06/16/20</u>	<u>08:22</u>	Received By	Date/Time
Relinquished By	Date/Time			
	<u>06/16/20</u>	<u>08:22</u>	<u>Jean Vandzura</u>	<u>6-16-20 8:22</u>
Relinquished By	Date/Time		Received at Laboratory By	Date/Time

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>18°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>[Signature]</u>

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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.: 2019915

Report: 06/22/20

Lab Contact: Richard A Wheeler

Attention: Scott Sunderland

Reported To: US Army Corp of Engineers

1268 Palisades Dr.

Leesport, PA 19533

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2019915-01

Collected By: Client

Sampled: 06/18/20 08:00

Received: 06/18/20 09:00

Sample Desc: SB-1 L

Sample Type: Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	4	mpn/100ml	1	SM 9223	6/18/20	6/19/20		JMW
				B/Quantitray	11:03	11:18		
Total Coliform	579	mpn/100ml	1	SM 9223	6/18/20	6/19/20		JMW
				B/Quantitray	11:03	11:18		

Lab ID: 2019915-02

Collected By: Client

Sampled: 06/18/20 08:03

Received: 06/18/20 09:00

Sample Desc: SB-2 C

Sample Type: Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	4	mpn/100ml	1	SM 9223	6/18/20	6/19/20		JMW
				B/Quantitray	11:03	11:18		
Total Coliform	479	mpn/100ml	1	SM 9223	6/18/20	6/19/20		JMW
				B/Quantitray	11:03	11:18		

Lab ID: 2019915-03

Collected By: Client

Sampled: 06/18/20 08:06

Received: 06/18/20 09:00

Sample Desc: SB-3 R

Sample Type: Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	<1	mpn/100ml	1	SM 9223	6/18/20	6/19/20		JMW
				B/Quantitray	11:03	11:18		
Total Coliform	326	mpn/100ml	1	SM 9223	6/18/20	6/19/20		JMW
				B/Quantitray	11:03	11:18		



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



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**WORK ORDER
Chain of Custody**

2019915



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: 2020 Blue Marsh Beach 1,2,3

Collected By :

Bianna Treichler

(Full Name)

Comments: _____

2019915-01 SB-1

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

L

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: *06/18/2020*

Time: *0800*

2019915-02 SB-2

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

C

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: *06/18/2020*

Time: *0803*

2019915-03 SB-3

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

R

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: *06/18/2020*

Time: *0806*

[Signature]

6/18/2020 0900

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received at Laboratory By

Date/Time

Jean Vandzura 6-18-20 0900

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

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.

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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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M.J. Reider Associates, Inc.

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

Certificate of Analysis

Laboratory No.: 2019148
Report: 06/24/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2019148-01 **Collected By:** Client **Sampled:** 06/22/20 07:40 **Received:** 06/22/20 08:09
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	27	mpn/100ml	1	SM 9223	6/22/20	6/23/20		JMW
				B/Quantitray	10:17	10:47		
Total Coliform	980	mpn/100ml	1	SM 9223	6/22/20	6/23/20		JMW
				B/Quantitray	10:17	10:47		

Lab ID: 2019148-02 **Collected By:** Client **Sampled:** 06/22/20 07:40 **Received:** 06/22/20 08:09
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	18	mpn/100ml	1	SM 9223	6/22/20	6/23/20		JMW
				B/Quantitray	10:17	10:47		
Total Coliform	548	mpn/100ml	1	SM 9223	6/22/20	6/23/20		JMW
				B/Quantitray	10:17	10:47		

Lab ID: 2019148-03 **Collected By:** Client **Sampled:** 06/22/20 07:40 **Received:** 06/22/20 08:09
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	6/22/20	6/23/20		JMW
				B/Quantitray	10:17	10:47		
Total Coliform	272	mpn/100ml	1	SM 9223	6/22/20	6/23/20		JMW
				B/Quantitray	10:17	10:47		



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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

WORK ORDER Chain of Custody

Client: US Army Corp of Engineers

Project: 2020 Blue Marsh Beach 1,2,3

2019148



Collected By :

(Full Name)

Collin McCulloch

Comments: _____

2019148-01 SB-1

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: June 22, 2020

Time: 0740

2019148-02 SB-2

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: June 22, 2020

Time: 0740

2019148-03 SB-3

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: June 22, 2020

Time: 0740

Collin McCulloch 6/22/20 8:09am

Relinquished By

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received at Laboratory By

Date/Time

Emily Caylor 6/22/20 809

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>22°</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<i>ECC</i>
Entered By:	<i>coll</i>

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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.: 2019149
Report: 06/29/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2019149-01 **Collected By:** Client **Sampled:** 06/25/20 07:55 **Received:** 06/25/20 08:37
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	15	mpn/100ml	1	SM 9223	6/25/20	6/26/20		JMW
				B/Quantitray	10:13	10:25		
Total Coliform	1990	mpn/100ml	1	SM 9223	6/25/20	6/26/20		JMW
				B/Quantitray	10:13	10:25		

Lab ID: 2019149-02 **Collected By:** Client **Sampled:** 06/25/20 07:56 **Received:** 06/25/20 08:37
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	11	mpn/100ml	1	SM 9223	6/25/20	6/26/20		JMW
				B/Quantitray	10:13	10:25		
Total Coliform	1120	mpn/100ml	1	SM 9223	6/25/20	6/26/20		JMW
				B/Quantitray	10:13	10:25		

Lab ID: 2019149-03 **Collected By:** Client **Sampled:** 06/25/20 07:58 **Received:** 06/25/20 08:37
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	8	mpn/100ml	1	SM 9223	6/25/20	6/26/20		JMW
				B/Quantitray	10:13	10:25		
Total Coliform	770	mpn/100ml	1	SM 9223	6/25/20	6/26/20		JMW
				B/Quantitray	10:13	10:25		



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**WORK ORDER
Chain of Custody**

2019149



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: 2020 Blue Marsh Beach 1,2,3

Comments: _____

Collected By : Courtney Mayer
(Full Name)

2019149-01 SB-1

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 6/25/20
Time: 755

2019149-02 SB-2

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 6/25/20
Time: 756

2019149-03 SB-3

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 6/25/20
Time: 758

<u>Courtney Mayer</u>	<u>6/25/20 8:37</u>	_____	_____
Relinquished By	Date/Time	Received By	Date/Time
_____	Date/Time	_____	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
_____	Date/Time	<u>[Signature]</u>	<u>062520 0837</u>
Relinquished By	Date/Time	Received at Laboratory By	Date/Time

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>17</u>
Samples on Ice?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
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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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.: 2020763
Report: 06/30/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2020763-01 **Collected By:** Client **Sampled:** 06/29/20 07:51 **Received:** 06/29/20 08:32
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	4	mpn/100ml	1	SM 9223	6/29/20	6/30/20		JMW
				B/Quantitray	10:37	10:42		
Total Coliform	649	mpn/100ml	1	SM 9223	6/29/20	6/30/20		JMW
				B/Quantitray	10:37	10:42		

Lab ID: 2020763-02 **Collected By:** Client **Sampled:** 06/29/20 07:54 **Received:** 06/29/20 08:32
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	2	mpn/100ml	1	SM 9223	6/29/20	6/30/20		JMW
				B/Quantitray	10:37	10:42		
Total Coliform	629	mpn/100ml	1	SM 9223	6/29/20	6/30/20		JMW
				B/Quantitray	10:37	10:42		

Lab ID: 2020763-03 **Collected By:** Client **Sampled:** 06/29/20 07:57 **Received:** 06/29/20 08:32
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	4	mpn/100ml	1	SM 9223	6/29/20	6/30/20		JMW
				B/Quantitray	10:37	10:42		
Total Coliform	816	mpn/100ml	1	SM 9223	6/29/20	6/30/20		JMW
				B/Quantitray	10:37	10:42		



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



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**WORK ORDER
Chain of Custody**

2020763



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: 2020 Blue Marsh Beach 1,2,3

Comments: _____

Collected By :
(Full Name)

Daniel Witmer

2020763-01 SB-1 L

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: June 24th, 2020

Time: 7:51

2020763-02 SB-2 C

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: June 29th, 2020

Time: 7:54

2020763-03 SB-3 R

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: June 29th, 2020

Time: 7:57

Richard A Wheeler 6/29/20 0832
Relinquished By Date/Time

Received By Date/Time

Relinquished By Date/Time

Received By Date/Time

Relinquished By Date/Time

Jean Vandzura 6-29-20 8:32
Received at Laboratory By Date/Time

Sample Kit Prepared By: <u><i>[Signature]</i></u>	Date/Time <u>062220</u>
Sample Temp (°C): <u>21°C</u>	
Samples on Ice? <input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA	
Approved By: <u><i>JW</i></u>	
Entered By: <u><i>JW</i></u>	

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.

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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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M.J. Reider Associates, Inc.

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

Certificate of Analysis

Laboratory No.: 2021671
Report: 07/08/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2021671-01 **Collected By:** Client **Sampled:** 07/02/20 08:24 **Received:** 07/02/20 09:50
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	55	mpn/100ml	1	SM 9223	7/2/20	7/3/20		JMW
				B/Quantitray	10:25	12:44		
Total Coliform	1730	mpn/100ml	1	SM 9223	7/2/20	7/3/20		JMW
				B/Quantitray	10:25	12:44		

Lab ID: 2021671-02 **Collected By:** Client **Sampled:** 07/02/20 08:24 **Received:** 07/02/20 09:50
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	28	mpn/100ml	1	SM 9223	7/2/20	7/3/20		JMW
				B/Quantitray	10:25	12:44		
Total Coliform	1990	mpn/100ml	1	SM 9223	7/2/20	7/3/20		JMW
				B/Quantitray	10:25	12:44		

Lab ID: 2021671-03 **Collected By:** Client **Sampled:** 07/02/20 08:24 **Received:** 07/02/20 09:50
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	23	mpn/100ml	1	SM 9223	7/2/20	7/3/20		JMW
				B/Quantitray	10:25	12:44		
Total Coliform	>2420	mpn/100ml	1	SM 9223	7/2/20	7/3/20		JMW
				B/Quantitray	10:25	12:44		



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**WORK ORDER
Chain of Custody**

2021671



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: 2020 Blue Marsh Beach 1,2,3

Comments: _____

Collected By: Collin Mculloch
(Full Name)

2021671-01 SB-1(L)
EC (#) SM 9223B, TC (#) SM 9223B

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 7/12/2020
Time: 0824

2021671-02 SB-2(C)
EC (#) SM 9223B, TC (#) SM 9223B

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 7/12/2020
Time: 0824

2021671-03 SB-3(R)
EC (#) SM 9223B, TC (#) SM 9223B

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 7/12/2020
Time: 0824

<u>Collin Mculloch</u>	<u>7/12/20 9:50am</u>	_____	_____
Relinquished By	Date/Time	Received By	Date/Time
_____	_____	_____	_____
Relinquished By	Date/Time	Received By	Date/Time
_____	_____	<u>Nancy Greenwald</u>	<u>07-02-20 0950</u>
Relinquished By	Date/Time	Received at Laboratory By	Date/Time

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>20</u>
Samples on Ice?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Approved By:	<u>[Signature]</u>
Entered By:	<u>[Signature]</u>

M.J. Reider Associates, Inc.

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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.: 2021672

Report: 07/08/20

Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2021672-01 **Collected By:** Client **Sampled:** 07/06/20 08:30 **Received:** 07/06/20 08:55
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	1	mpn/100ml	1	SM 9223	7/6/20	7/7/20		JMW
				B/Quantitray	13:52	9:02		
Total Coliform	411	mpn/100ml	1	SM 9223	7/6/20	7/7/20		JMW
				B/Quantitray	13:52	9:02		

Lab ID: 2021672-02 **Collected By:** Client **Sampled:** 07/06/20 08:30 **Received:** 07/06/20 08:55
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	7	mpn/100ml	1	SM 9223	7/6/20	7/7/20		JMW
				B/Quantitray	13:52	9:02		
Total Coliform	1120	mpn/100ml	1	SM 9223	7/6/20	7/7/20		JMW
				B/Quantitray	13:52	9:02		

Lab ID: 2021672-03 **Collected By:** Client **Sampled:** 07/06/20 08:30 **Received:** 07/06/20 08:55
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	8	mpn/100ml	1	SM 9223	7/6/20	7/7/20		JMW
				B/Quantitray	13:52	9:02		
Total Coliform	1120	mpn/100ml	1	SM 9223	7/6/20	7/7/20		JMW
				B/Quantitray	13:52	9:02		



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**WORK ORDER
Chain of Custody**

2021672



Client Code: 4092
Project Manager: Richard A Wheeler

Client: US Army Corp of Engineers
Project: 2020 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 :
(Full Name)

Sarah James

Comments: _____

2021672-01 SB-1 L

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 07/06/2020
Time: 0830

2021672-02 SB-2 C

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 07/06/2020
Time: 0830

2021672-03 SB-3 R

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 07/06/2020
Time: 0830

Sarah James

07/06/2020 8:55

Relinquished By

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received at Laboratory By

Date/Time

Jean Vandzura 7-6-20 8:55

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>24°C</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>JJV</u>
Entered By:	<u>JJV</u>

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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.: 2020764

Report: 07/10/20

Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2020764-01 **Collected By:** Client **Sampled:** 07/09/20 08:07 **Received:** 07/09/20 08:49
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	30	mpn/100ml	1	SM 9223	7/9/20	7/10/20		JMW
				B/Quantitray	9:52	10:24		
Total Coliform	2420	mpn/100ml	1	SM 9223	7/9/20	7/10/20		JMW
				B/Quantitray	9:52	10:24		

Lab ID: 2020764-02 **Collected By:** Client **Sampled:** 07/09/20 08:08 **Received:** 07/09/20 08:49
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	34	mpn/100ml	1	SM 9223	7/9/20	7/10/20		JMW
				B/Quantitray	9:52	10:24		
Total Coliform	2420	mpn/100ml	1	SM 9223	7/9/20	7/10/20		JMW
				B/Quantitray	9:52	10:24		

Lab ID: 2020764-03 **Collected By:** Client **Sampled:** 07/09/20 08:10 **Received:** 07/09/20 08:49
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	118	mpn/100ml	1	SM 9223	7/9/20	7/10/20		JMW
				B/Quantitray	9:52	10:24		
Total Coliform	>2420	mpn/100ml	1	SM 9223	7/9/20	7/10/20		JMW
				B/Quantitray	9:52	10:24		



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



M.J. Reider Associates, Inc.

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**WORK ORDER
Chain of Custody**

2020764



Client Code: 4092
Project Manager: Richard A Wheeler

Client: US Army Corp of Engineers
Project: 2020 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 : Callin McCalloch
(Full Name)

Comments: _____

2020764-01 SB-1 L

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 7/9/2020
Time: 0807

2020764-02 SB-2 C

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 7/9/2020
Time: 0808

2020764-03 SB-3 R

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 7/9/2020
Time: 0810

Callin McCalloch 7/9/2020 8:49am
Relinquished By Date/Time

Received By Date/Time

Relinquished By Date/Time

Received By [Signature] 7/9/20 0849 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: <u>[Signature]</u>	Date/Time <u>062220</u>
Sample Temp (°C): Samples on Ice?	<u>21</u> Yes <input checked="" type="radio"/> No <input type="radio"/> NA <input type="radio"/>
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)

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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.: 2022696
Report: 07/14/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2022696-01 **Collected By:** Client **Sampled:** 07/13/20 09:31 **Received:** 07/13/20 09:50
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	2420	mpn/100ml	1	SM 9223	7/13/20	7/14/20		JMW
				B/Quantitray	10:40	11:02		
Total Coliform	>2420	mpn/100ml	1	SM 9223	7/13/20	7/14/20		JMW
				B/Quantitray	10:40	11:02		

Lab ID: 2022696-02 **Collected By:** Client **Sampled:** 07/13/20 09:31 **Received:** 07/13/20 09:50
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	461	mpn/100ml	1	SM 9223	7/13/20	7/14/20		JMW
				B/Quantitray	10:40	11:02		
Total Coliform	>2420	mpn/100ml	1	SM 9223	7/13/20	7/14/20		JMW
				B/Quantitray	10:40	11:02		

Lab ID: 2022696-03 **Collected By:** Client **Sampled:** 07/13/20 09:31 **Received:** 07/13/20 09:50
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	770	mpn/100ml	1	SM 9223	7/13/20	7/14/20		JMW
				B/Quantitray	10:40	11:02		
Total Coliform	>2420	mpn/100ml	1	SM 9223	7/13/20	7/14/20		JMW
				B/Quantitray	10:40	11:02		



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**WORK ORDER
Chain of Custody**

2022696



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: 2020 Blue Marsh Beach 1,2,3

Collected By: Kirsten Bell
(Full Name)

Comments: _____

2022696-01 SB-1 L

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 7/13/20
Time: 0931

2022696-02 SB-2 C

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 7/13/20
Time: 0931

2022696-03 SB-3 R

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 7/13/20
Time: 0931

KM

07/13/20 0950

Relinquished By _____ Date/Time _____ Received By _____ Date/Time _____

Relinquished By _____ Date/Time _____ Received By _____ Date/Time _____

Relinquished By _____ Date/Time _____ Received at Laboratory By Amy Greenawald Date/Time 07-13-20 0950

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>23</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

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Sample Submission, Sample Acceptance & Sampling Containers

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Turnaround Times (TAT)

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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.: 2023451
Report: 07/16/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2023451-01 **Collected By:** Client **Sampled:** 07/15/20 08:24 **Received:** 07/15/20 09:00
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	20	mpn/100ml	1	SM 9223	7/15/20	7/16/20		JMW
				B/Quantitray	9:17	9:18		
Total Coliform	1990	mpn/100ml	1	SM 9223	7/15/20	7/16/20		JMW
				B/Quantitray	9:17	9:18		

Lab ID: 2023451-02 **Collected By:** Client **Sampled:** 07/15/20 08:31 **Received:** 07/15/20 09:00
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	13	mpn/100ml	1	SM 9223	7/15/20	7/16/20		JMW
				B/Quantitray	9:17	9:18		
Total Coliform	>2420	mpn/100ml	1	SM 9223	7/15/20	7/16/20		JMW
				B/Quantitray	9:17	9:18		

Lab ID: 2023451-03 **Collected By:** Client **Sampled:** 07/15/20 08:39 **Received:** 07/15/20 09:00
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	50	mpn/100ml	1	SM 9223	7/15/20	7/16/20		JMW
				B/Quantitray	9:17	9:18		
Total Coliform	>2420	mpn/100ml	1	SM 9223	7/15/20	7/16/20		JMW
				B/Quantitray	9:17	9:18		



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



M.J. Reider Associates, Inc.

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610-374-5129 www.mjreider.com

**WORK ORDER
Chain of Custody**

2023451



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: 2020 Blue Marsh Beach 1,2,3

Collected By :
(Full Name)

Courtney Moyer

Comments: _____

2023451-01 SB-1 L

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 7/15/2020
Time: 8:24

2023451-02 SB-2 C

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 7/15/2020
Time: 8:31

2023451-03 SB-3 R

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 7/15/2020
Time: 8:39

Courtney Moyer

Relinquished By

7/15/2020 9:00
Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received at Laboratory By

Date/Time

Jean Vandzura

7-15-20 9:00

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>22</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No
Approved By:	<u>JSV</u>
Entered By:	<u>JSV</u>

M.J. Reider Associates, Inc.

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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.: 2022695
Report: 07/22/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2022695-01 **Collected By:** Client **Sampled:** 07/20/20 08:25 **Received:** 07/20/20 08:45
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	19	mpn/100ml	1	SM 9223	7/20/20	7/21/20		JMW
				B/Quantitray	10:33	10:34		
Total Coliform	756	mpn/100ml	1	SM 9223	7/20/20	7/21/20		JMW
				B/Quantitray	10:33	10:34		

Lab ID: 2022695-02 **Collected By:** Client **Sampled:** 07/20/20 08:25 **Received:** 07/20/20 08:45
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	26	mpn/100ml	1	SM 9223	7/20/20	7/21/20		JMW
				B/Quantitray	10:33	10:34		
Total Coliform	1010	mpn/100ml	1	SM 9223	7/20/20	7/21/20		JMW
				B/Quantitray	10:33	10:34		

Lab ID: 2022695-03 **Collected By:** Client **Sampled:** 07/20/20 08:25 **Received:** 07/20/20 08:45
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	11	mpn/100ml	1	SM 9223	7/20/20	7/21/20		JMW
				B/Quantitray	10:33	10:34		
Total Coliform	1730	mpn/100ml	1	SM 9223	7/20/20	7/21/20		JMW
				B/Quantitray	10:33	10:34		



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



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**WORK ORDER
Chain of Custody**

2022695



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: 2020 Blue Marsh Beach 1,2,3

Collected By: Kirsten Bell
(Full Name)

Comments: _____

2022695-01 SB-1 L

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 20 July 2020
Time: 0825

2022695-02 SB-2 C

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 20 July 2020
Time: 0825

2022695-03 SB-3 R

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 20 July 2020
Time: 0825

Relinquished By _____	Date/Time _____	Received By _____	Date/Time _____
Relinquished By <u>[Signature]</u>	Date/Time <u>20 July 2020</u>	Received By <u>Jean Vandzou</u>	Date/Time <u>7-20-20 8:45</u>
Relinquished By _____	Date/Time <u>0845</u>	Received at Laboratory By _____	Date/Time _____

Sample Kit Prepared By: _____	Date/Time _____
Sample Temp (°C): <u>26°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>	

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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Sample Submission, Sample Acceptance & Sampling Containers

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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.: 2023450
Report: 07/22/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2023450-01 **Collected By:** Client **Sampled:** 07/16/20 08:29 **Received:** 07/16/20 09:06
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	11	mpn/100ml	1	SM 9223	7/16/20	7/17/20		JMW
				B/Quantitray	9:50	9:51		
Total Coliform	1410	mpn/100ml	1	SM 9223	7/16/20	7/17/20		JMW
				B/Quantitray	9:50	9:51		

Lab ID: 2023450-02 **Collected By:** Client **Sampled:** 07/16/20 08:34 **Received:** 07/16/20 09:06
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	10	mpn/100ml	1	SM 9223	7/16/20	7/17/20		JMW
				B/Quantitray	9:50	9:51		
Total Coliform	1730	mpn/100ml	1	SM 9223	7/16/20	7/17/20		JMW
				B/Quantitray	9:50	9:51		

Lab ID: 2023450-03 **Collected By:** Client **Sampled:** 07/16/20 08:38 **Received:** 07/16/20 09:06
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	12	mpn/100ml	1	SM 9223	7/16/20	7/17/20		JMW
				B/Quantitray	9:50	9:51		
Total Coliform	1300	mpn/100ml	1	SM 9223	7/16/20	7/17/20		JMW
				B/Quantitray	9:50	9:51		



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WORK ORDER Chain of Custody

2023450



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: 2020 Blue Marsh Beach 1,2,3

Collected By :

(Full Name)

Courtney Moyer

Comments: _____

2023450-01 SB-1 L

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 7/16/2020

Time: 8:29

2023450-02 SB-2 C

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 7/16/2020

Time: 8:34

2023450-03 SB-3 R

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 7/16/2020

Time: 8:38

Courtney Moyer

Relinquished By

7/16/2020 9:06

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received at Laboratory By

Date/Time

Nancy Greenawald
07/16/20 09:06

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>21</u>
Samples on Ice?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Approved By:	<i>[Signature]</i>
Entered By:	<i>[Signature]</i>

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.

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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.: 2019916

Report: 07/24/20

Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2019916-01 **Collected By:** Client **Sampled:** 07/23/20 08:00 **Received:** 07/23/20 08:53
Sample Desc: SB-1 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	6	mpn/100ml	1	SM 9223	7/23/20	7/24/20		JMW
				B/Quantitray	9:56	10:11		
Total Coliform	>2420	mpn/100ml	1	SM 9223	7/23/20	7/24/20		JMW
				B/Quantitray	9:56	10:11		

Lab ID: 2019916-02 **Collected By:** Client **Sampled:** 07/23/20 08:04 **Received:** 07/23/20 08:53
Sample Desc: SB-2 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	6	mpn/100ml	1	SM 9223	7/23/20	7/24/20		JMW
				B/Quantitray	9:56	10:11		
Total Coliform	1730	mpn/100ml	1	SM 9223	7/23/20	7/24/20		JMW
				B/Quantitray	9:56	10:11		

Lab ID: 2019916-03 **Collected By:** Client **Sampled:** 07/23/20 08:06 **Received:** 07/23/20 08:53
Sample Desc: SB-3 **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	9	mpn/100ml	1	SM 9223	7/23/20	7/24/20		JMW
				B/Quantitray	9:56	10:11		
Total Coliform	>2420	mpn/100ml	1	SM 9223	7/23/20	7/24/20		JMW
				B/Quantitray	9:56	10:11		



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**WORK ORDER
Chain of Custody**

2019916



Client Code: 4092
Project Manager: Richard A Wheeler

Client: US Army Corp of Engineers
Project: 2020 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

Comments: _____

Collected By : Justin Ulrich
(Full Name)

2019916-01 SB-1

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 8:00 am 7/23/20
Time: 8:00 am

2019916-02 SB-2

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 8:04 am 7/23/20
Time: 8:04 am

2019916-03 SB-3

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 8:06 am 7/23/20
Time: 8:06 am

<u>Justin Ulrich</u>	<u>Justin Ulrich</u>	<u>Time: 08:53</u>
Relinquished By	Date/Time	Received By
_____	_____	_____
Relinquished By	Date/Time	Received By
_____	_____	<u>Jean Vandzura</u>
Relinquished By	Date/Time	Received at Laboratory By
_____	_____	<u>7-23-20 8:53</u>

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>21</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>JVA</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.: 2024295
Report: 07/29/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2024295-01 **Collected By:** Client **Sampled:** 07/27/20 08:10 **Received:** 07/27/20 09:24
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	2	mpn/100ml	1	SM 9223	7/27/20	7/28/20		JMW
				B/Quantitray	10:47	10:51		
Total Coliform	>2420	mpn/100ml	1	SM 9223	7/27/20	7/28/20		JMW
				B/Quantitray	10:47	10:51		

Lab ID: 2024295-02 **Collected By:** Client **Sampled:** 07/27/20 08:10 **Received:** 07/27/20 09:24
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	1	mpn/100ml	1	SM 9223	7/27/20	7/28/20		JMW
				B/Quantitray	10:47	10:51		
Total Coliform	1120	mpn/100ml	1	SM 9223	7/27/20	7/28/20		JMW
				B/Quantitray	10:47	10:51		

Lab ID: 2024295-03 **Collected By:** Client **Sampled:** 07/27/20 08:10 **Received:** 07/27/20 09:24
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	17	mpn/100ml	1	SM 9223	7/27/20	7/28/20		JMW
				B/Quantitray	10:47	10:51		
Total Coliform	>2420	mpn/100ml	1	SM 9223	7/27/20	7/28/20		JMW
				B/Quantitray	10:47	10:51		



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



M.J. Reider Associates, Inc.

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610-374-5129 www.mjreider.com

**WORK ORDER
Chain of Custody**

2024295



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: 2020 Blue Marsh Beach 1,2,3

Collected By :
(Full Name)

Colin Lynch

Comments: _____

2024295-01 SB-1 L

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 7/27/20

Time: 8:10

2024295-02 SB-2 C

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 7/27/20

Time: 8:10

2024295-03 SB-3 R

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 7/27/20

Time: 8:10

Relinquished By _____ Date/Time _____ Received By _____ Date/Time _____

Relinquished By *Colin Lynch* Date/Time 7/27/20 9:24 Received By *Joan Vontzue* Date/Time 7-27-20 9:24

Relinquished By _____ Date/Time _____ Received at Laboratory By _____ Date/Time _____

Sample Kit Prepared By: _____ Date/Time _____

Sample Temp (°C): 25

Samples on Ice? Yes No NA

Approved By: *JSV*

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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Sample Submission, Sample Acceptance & Sampling Containers

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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.: 2025314

Report: 08/04/20

Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2025314-01 **Collected By:** Client **Sampled:** 07/30/20 08:25 **Received:** 07/30/20 08:55
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	5	mpn/100ml	1	SM 9223	7/30/20	7/31/20		JMW
				B/Quantitray	10:12	10:19		
Total Coliform	1300	mpn/100ml	1	SM 9223	7/30/20	7/31/20		JMW
				B/Quantitray	10:12	10:19		

Lab ID: 2025314-02 **Collected By:** Client **Sampled:** 07/30/20 08:25 **Received:** 07/30/20 08:55
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	2	mpn/100ml	1	SM 9223	7/30/20	7/31/20		JMW
				B/Quantitray	10:12	10:19		
Total Coliform	1550	mpn/100ml	1	SM 9223	7/30/20	7/31/20		JMW
				B/Quantitray	10:12	10:19		

Lab ID: 2025314-03 **Collected By:** Client **Sampled:** 07/30/20 08:25 **Received:** 07/30/20 08:55
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	2	mpn/100ml	1	SM 9223	7/30/20	7/31/20		JMW
				B/Quantitray	10:12	10:19		
Total Coliform	2420	mpn/100ml	1	SM 9223	7/30/20	7/31/20		JMW
				B/Quantitray	10:12	10:19		



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**WORK ORDER
Chain of Custody**

2025314



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: 2020 Blue Marsh Beach 1,2,3

Collected By: Kirsten Bell
(Full Name)

Comments: _____

2025314-01 SB-1 L
EC (#) SM 9223B, TC (#) SM 9223B

Matrix: Non-Potable Water
Type: Grab
A - Sterile Pl 125ml NaThio

Date: ~~08/25~~ 07/30/20
Time: 0825

2025314-02 SB-2 C
EC (#) SM 9223B, TC (#) SM 9223B

Matrix: Non-Potable Water
Type: Grab
A - Sterile Pl 125ml NaThio

Date: ~~08~~ 07/30/20
Time: 0825

2025314-03 SB-3 R
EC (#) SM 9223B, TC (#) SM 9223B

Matrix: Non-Potable Water
Type: Grab
A - Sterile Pl 125ml NaThio

Date: 07/30/20
Time: 0825

KM

07/30/2020 0855

Relinquished By _____ Date/Time _____ Received By _____ Date/Time _____

Relinquished By _____ Date/Time _____ Received By _____ Date/Time _____

Relinquished By _____ Date/Time _____ Received at Laboratory By Joan Vandzura Date/Time 7/30/20 8:55

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>26</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<u>KDV</u>
Entered By:	_____

M.J. Reider Associates, Inc.

MJRA Terms & Conditions

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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.: 2026262
Report: 08/05/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2026262-01 **Collected By:** Client **Sampled:** 08/03/20 08:25 **Received:** 08/03/20 08:47
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	79	mpn/100ml	1	SM 9223	8/3/20	8/4/20		JMW
				B/Quantitray	10:47	11:13		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/3/20	8/4/20		JMW
				B/Quantitray	10:47	11:13		

Lab ID: 2026262-02 **Collected By:** Client **Sampled:** 08/03/20 08:25 **Received:** 08/03/20 08:47
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	65	mpn/100ml	1	SM 9223	8/3/20	8/4/20		JMW
				B/Quantitray	10:47	11:13		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/3/20	8/4/20		JMW
				B/Quantitray	10:47	11:13		

Lab ID: 2026262-03 **Collected By:** Client **Sampled:** 08/03/20 08:25 **Received:** 08/03/20 08:47
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	53	mpn/100ml	1	SM 9223	8/3/20	8/4/20		JMW
				B/Quantitray	10:47	11:13		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/3/20	8/4/20		JMW
				B/Quantitray	10:47	11:13		



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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: 2020 Blue Marsh Beach 1,2,3

2026262

PM: RAW

US Army Corp of Engineers
2020 Blue Marsh Beach 1,2,3



Collected By: Kirsten Bell
(Full Name)

Comments: _____

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

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

Date: 08/03/2020
Time: 0825

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

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

Date: 08/03/2020
Time: 0825

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

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

Date: 08/03/2020
Time: 0825

[Signature] _____
Relinquished By Date/Time: 08/03/20 0847

Relinquished By _____
Date/Time: _____

Relinquished By _____
Date/Time: _____

Received By _____
Date/Time: _____
Jean VanBuren _____
Received at Laboratory By Date/Time: 8/3/20 8:47

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>24°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>JCV</u>

M.J. Reider Associates, Inc.

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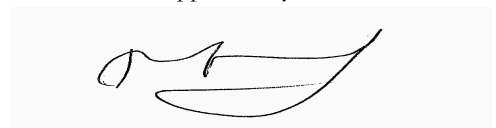
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Reviewed and Approved by:



Rafael A Quijada For 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.: 2025313

Report: 08/07/20

Lab Contact: Richard A Wheeler

Attention: Scott Sunderland

Reported To: US Army Corp of Engineers

1268 Palisades Dr.

Leesport, PA 19533

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2025313-01

Collected By: Client

Sampled: 08/06/20 08:24

Received: 08/06/20 09:01

Sample Desc: SB-1 L

Sample Type: Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	28	mpn/100ml	1	SM 9223	8/6/20	8/7/20		JMW
				B/Quantitray	13:15	9:13		
Total Coliform	2420	mpn/100ml	1	SM 9223	8/6/20	8/7/20		JMW
				B/Quantitray	13:15	9:13		

Lab ID: 2025313-02

Collected By: Client

Sampled: 08/06/20 08:28

Received: 08/06/20 09:01

Sample Desc: SB-2 C

Sample Type: Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	33	mpn/100ml	1	SM 9223	8/6/20	8/7/20		JMW
				B/Quantitray	13:15	9:13		
Total Coliform	2420	mpn/100ml	1	SM 9223	8/6/20	8/7/20		JMW
				B/Quantitray	13:15	9:13		

Lab ID: 2025313-03

Collected By: Client

Sampled: 08/06/20 08:34

Received: 08/06/20 09:01

Sample Desc: SB-3 R

Sample Type: Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	214	mpn/100ml	1	SM 9223	8/6/20	8/7/20		JMW
				B/Quantitray	13:15	9:13		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/6/20	8/7/20		JMW
				B/Quantitray	13:15	9:13		



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**WORK ORDER
Chain of Custody**

2025313



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: 2020 Blue Marsh Beach 1,2,3

Comments: _____

Collected By :
(Full Name)

Courtney Mayer

2025313-01 SB-1 L

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 8/6/2020

Time: 8:24

2025313-02 SB-2 C

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 8/6/2020

Time: 8:28

2025313-03 SB-3 R

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 8/6/2020

Time: 8:34

Courtney Mayer

8/6/2020 9:01

Relinquished By

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received at Laboratory By

Date/Time

Nancy Greenawald 08/06/20 0901

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>21</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<i>[Signature]</i>
Entered By:	<i>[Signature]</i>

M.J. Reider Associates, Inc.

MJRA Terms & Conditions

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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.: 2026251
Report: 08/12/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2026251-01 **Collected By:** Client **Sampled:** 08/10/20 08:30 **Received:** 08/10/20 08:55
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	54	mpn/100ml	1	SM 9223	8/10/20	8/11/20		JMW
				B/Quantitray	15:32	9:34		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/10/20	8/11/20		JMW
				B/Quantitray	15:32	9:34		

Lab ID: 2026251-02 **Collected By:** Client **Sampled:** 08/10/20 08:30 **Received:** 08/10/20 08:55
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	45	mpn/100ml	1	SM 9223	8/10/20	8/11/20		JMW
				B/Quantitray	15:32	9:34		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/10/20	8/11/20		JMW
				B/Quantitray	15:32	9:34		

Lab ID: 2026251-03 **Collected By:** Client **Sampled:** 08/10/20 08:30 **Received:** 08/10/20 08:55
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	46	mpn/100ml	1	SM 9223	8/10/20	8/11/20		JMW
				B/Quantitray	15:32	9:34		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/10/20	8/11/20		JMW
				B/Quantitray	15:32	9:34		



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**WORK ORDER
Chain of Custody**

2026251



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: 2020 Blue Marsh Beach 1,2,3

Collected By :

Kirsten Bell

(Full Name)

Comments: _____

2026251-01 SB-1 L

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 08/10/20
Time: 0830

2026251-02 SB-2 C

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 08/10/20
Time: 0830

2026251-03 SB-3 R

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 08/10/20
Time: 0830

[Signature]

08/10/20 0855

Relinquished By _____ Date/Time _____ Received By _____ Date/Time _____

Relinquished By _____ Date/Time _____ Received By _____ Date/Time _____

Relinquished By _____ Date/Time _____ Received at Laboratory By *[Signature]* 8/10/20 0855 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
<i>SJT JTJ</i>	<u>8/3/20 12pm</u>
Sample Temp (°C):	<u>25</u>
Samples on Ice?	Yes <input checked="" type="radio"/> No <input type="radio"/> NA <input type="radio"/>
Approved By:	<i>[Signature]</i>
Entered By:	<i>[Signature]</i>

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.: 2026250
Report: 08/14/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2026250-01 **Collected By:** Client **Sampled:** 08/13/20 08:02 **Received:** 08/13/20 09:03
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	11	mpn/100ml	1	SM 9223	8/13/20	8/14/20		JMW
				B/Quantitray	10:45	10:59		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/13/20	8/14/20		JMW
				B/Quantitray	10:45	10:59		

Lab ID: 2026250-02 **Collected By:** Client **Sampled:** 08/13/20 08:02 **Received:** 08/13/20 09:03
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	14	mpn/100ml	1	SM 9223	8/13/20	8/14/20		JMW
				B/Quantitray	10:45	10:59		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/13/20	8/14/20		JMW
				B/Quantitray	10:45	10:59		

Lab ID: 2026250-03 **Collected By:** Client **Sampled:** 08/13/20 08:02 **Received:** 08/13/20 09:03
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	11	mpn/100ml	1	SM 9223	8/13/20	8/14/20		JMW
				B/Quantitray	10:45	10:59		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/13/20	8/14/20		JMW
				B/Quantitray	10:45	10:59		



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**WORK ORDER
Chain of Custody**

2026250



Client Code: 4092
Project Manager: Richard A Wheeler

Client: US Army Corp of Engineers
Project: 2020 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 : Zachary Shenk
(Full Name)

Comments: _____

2026250-01 SB-1 L

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 8/13/2020
Time: 0802

2026250-02 SB-2 C

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 8/13/2020
Time: 0802

2026250-03 SB-3 R

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 8/13/2020
Time: 0802

Zachary Shenk

8/13/2020 0903

Relinquished By _____ Date Time

Received By _____ Date Time

Relinquished By _____ Date Time

Received By _____ Date Time

Relinquished By _____ Date Time

Received By Nancy Greenawald Date Time 8/13/20 0903

Sample Kit Prepared By: <u>SP JSV</u>	Date/Time <u>8/13/20 12pm</u>
Sample Temp (°C): <u>21</u>	Samples on Ice? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
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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M.J. Reider Associates, Inc.

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

Certificate of Analysis

Laboratory No.: 2026960
Report: 08/19/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2026960-01 **Collected By:** Client **Sampled:** 08/17/20 08:15 **Received:** 08/17/20 08:54
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	1	mpn/100ml	1	SM 9223	8/17/20	8/18/20		JMW
				B/Quantitray	15:43	10:36		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/17/20	8/18/20		JMW
				B/Quantitray	15:43	10:36		

Lab ID: 2026960-02 **Collected By:** Client **Sampled:** 08/17/20 08:15 **Received:** 08/17/20 08:54
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	1	mpn/100ml	1	SM 9223	8/17/20	8/18/20		JMW
				B/Quantitray	15:43	10:36		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/17/20	8/18/20		JMW
				B/Quantitray	15:43	10:36		

Lab ID: 2026960-03 **Collected By:** Client **Sampled:** 08/17/20 08:15 **Received:** 08/17/20 08:54
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	6	mpn/100ml	1	SM 9223	8/17/20	8/18/20		JMW
				B/Quantitray	15:43	10:36		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/17/20	8/18/20		JMW
				B/Quantitray	15:43	10:36		



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WORK ORDER

Chain of Custody

2026960



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: 2020 Blue Marsh Beach 1,2,3

Collected By :

(Full Name)

Sarah James

Comments: _____

2026960-01 SB-1 L

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 8/17/2020

Time: 8:15

2026960-02 SB-2 C

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 8/17/2020

Time: 8:15

2026960-03 SB-3 R

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 8/17/2020

Time: 8:15

Sarah James 8/17/20 8:54

Relinquished By

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received at Laboratory By

Date/Time

Jason Vandzura 8/17/20 8:54

Sample Kit Prepared By:	Date/Time

Sample Temp (°C):	<u>20°C</u>
Samples on Ice?	<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="radio"/> NA
Approved By:	<i>[Signature]</i>
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.

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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.: 2026959
Report: 08/24/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2026959-01 **Collected By:** Client **Sampled:** 08/20/20 13:55 **Received:** 08/20/20 14:25
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	8	mpn/100ml	1	SM 9223	8/20/20	8/21/20		JMW
				B/Quantitray	16:08	11:25		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/20/20	8/21/20		JMW
				B/Quantitray	16:08	11:25		

Lab ID: 2026959-02 **Collected By:** Client **Sampled:** 08/20/20 13:55 **Received:** 08/20/20 14:25
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	2	mpn/100ml	1	SM 9223	8/20/20	8/21/20		JMW
				B/Quantitray	16:08	11:25		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/20/20	8/21/20		JMW
				B/Quantitray	16:08	11:25		

Lab ID: 2026959-03 **Collected By:** Client **Sampled:** 08/20/20 13:55 **Received:** 08/20/20 14:25
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	2	mpn/100ml	1	SM 9223	8/20/20	8/21/20		JMW
				B/Quantitray	16:08	11:25		
Total Coliform	>2420	mpn/100ml	1	SM 9223	8/20/20	8/21/20		JMW
				B/Quantitray	16:08	11:25		



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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

**WORK ORDER
Chain of Custody**

2026959



Client: US Army Corp of Engineers
Project: 2020 Blue Marsh Beach 1,2,3

Collected By : Kirsten Bell (Full Name) Comments: _____

2026959-01 SB-1 L

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 08/20/20
Time: 1355

2026959-02 SB-2 C

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 08/20/20
Time: 1355

2026959-03 SB-3 R

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

Matrix: Non-Potable Water

Type: Grab

A - Sterile PI 125ml NaThio

Date: 08/20/20
Time: 1355

KRB 08/20/20 1425
Relinquished By Date/Time

Relinquished By Date/Time

Relinquished By Date/Time

Received By Date/Time

Received By Date/Time

Received at Laboratory By: Nancy Greenhouse Date/Time: 8/20/20 1425

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>24</u>
Samples on Ice?	Yes No NA
Approved By:	<u>(Signature)</u>
Entered By:	<u>(Signature)</u>

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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.: 2027908
Report: 08/27/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2027908-01 **Collected By:** Client **Sampled:** 08/24/20 08:10 **Received:** 08/24/20 08:57
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	2	mpn/100ml	1	SM 9223	8/24/20	8/25/20		JMW
				B/Quantitray	10:30	11:04		
Total Coliform	1410	mpn/100ml	1	SM 9223	8/24/20	8/25/20		JMW
				B/Quantitray	10:30	11:04		

Lab ID: 2027908-02 **Collected By:** Client **Sampled:** 08/24/20 08:13 **Received:** 08/24/20 08:57
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	1	mpn/100ml	1	SM 9223	8/24/20	8/25/20		JMW
				B/Quantitray	10:30	11:04		
Total Coliform	816	mpn/100ml	1	SM 9223	8/24/20	8/25/20		JMW
				B/Quantitray	10:30	11:04		

Lab ID: 2027908-03 **Collected By:** Client **Sampled:** 08/24/20 08:17 **Received:** 08/24/20 08:57
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	1	mpn/100ml	1	SM 9223	8/24/20	8/25/20		JMW
				B/Quantitray	10:30	11:04		
Total Coliform	501	mpn/100ml	1	SM 9223	8/24/20	8/25/20		JMW
				B/Quantitray	10:30	11:04		



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**WORK ORDER
Chain of Custody**

2027908



Client Code: 4092
Project Manager: Richard A Wheeler

Client: US Army Corp of Engineers
Project: 2020 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 : Nathan Freiwald, Blue Marsh
(Full Name)

Comments: _____

2027908-01 SB-1 L

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 8/24/20
Time: 8:10

2027908-02 SB-2 C

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 8/24/20
Time: 8:13

2027908-03 SB-3 R

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 8/24/20
Time: 8:17

<u>[Signature]</u>	<u>8/24/20 8:57</u>	_____	_____
Relinquished By	Date/Time	Received By	Date/Time
_____	_____	_____	_____
Relinquished By	Date/Time	Received By	Date/Time
_____	_____	<u>[Signature]</u>	<u>8/24/20 8:57</u>
Relinquished By	Date/Time	Received at Laboratory By	Date/Time

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>19</u>
Samples on Ice?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Approved By:	<u>[Signature]</u>
Entered 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.: 2027909
Report: 08/31/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2027909-01 **Collected By:** Client **Sampled:** 08/27/20 07:55 **Received:** 08/27/20 08:20
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	1	mpn/100ml	1	SM 9223	8/27/20	8/28/20		JMW
				B/Quantitray	14:13	9:31		
Total Coliform	1730	mpn/100ml	1	SM 9223	8/27/20	8/28/20		JMW
				B/Quantitray	14:13	9:31		

Lab ID: 2027909-02 **Collected By:** Client **Sampled:** 08/27/20 07:55 **Received:** 08/27/20 08:20
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	2	mpn/100ml	1	SM 9223	8/27/20	8/28/20		JMW
				B/Quantitray	14:13	9:31		
Total Coliform	816	mpn/100ml	1	SM 9223	8/27/20	8/28/20		JMW
				B/Quantitray	14:13	9:31		

Lab ID: 2027909-03 **Collected By:** Client **Sampled:** 08/27/20 07:55 **Received:** 08/27/20 08:20
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	1	mpn/100ml	1	SM 9223	8/27/20	8/28/20		JMW
				B/Quantitray	14:13	9:31		
Total Coliform	1120	mpn/100ml	1	SM 9223	8/27/20	8/28/20		JMW
				B/Quantitray	14:13	9:31		



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Project: 2020 Blue Marsh Beach 1,2,3

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

Comments: _____

Collected By : Kirsten Bell
(Full Name)

2027909-01 SB-1 L

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 08/27/20
Time: 0755

2027909-02 SB-2 C

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 08/27/20
Time: 0755

2027909-03 SB-3 R

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 08/27/20
Time: 0755

KMB 08/27 0820
Relinquished By Date/Time

Received By Date/Time

Relinquished By Date/Time

Jean Vandzura 8-27-20 8:20
Received at Laboratory By Date/Time

Relinquished By Date/Time

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>22°C</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:



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.: 2028690
Report: 09/01/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2028690-01 **Collected By:** Client **Sampled:** 08/31/20 07:33 **Received:** 08/31/20 08:50
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	11	mpn/100ml	1	SM 9223	8/31/20	9/1/20		JMW
				B/Quantitray	15:17	10:09		
Total Coliform	980	mpn/100ml	1	SM 9223	8/31/20	9/1/20		JMW
				B/Quantitray	15:17	10:09		

Lab ID: 2028690-02 **Collected By:** Client **Sampled:** 08/31/20 07:36 **Received:** 08/31/20 08:50
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	8/31/20	9/1/20		JMW
				B/Quantitray	15:17	10:09		
Total Coliform	1200	mpn/100ml	1	SM 9223	8/31/20	9/1/20		JMW
				B/Quantitray	15:17	10:09		

Lab ID: 2028690-03 **Collected By:** Client **Sampled:** 08/31/20 07:30 **Received:** 08/31/20 08:50
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	3	mpn/100ml	1	SM 9223	8/31/20	9/1/20		JMW
				B/Quantitray	15:17	10:09		
Total Coliform	770	mpn/100ml	1	SM 9223	8/31/20	9/1/20		JMW
				B/Quantitray	15:17	10:09		



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**WORK ORDER
Chain of Custody**

2028690



Client Code: 4092
Project Manager: Richard A Wheeler

Client: US Army Corp of Engineers
Project: 2020 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 : Jeff Piscanio
(Full Name)

Comments: _____

2028690-01 SB-1 L	Matrix: Non-Potable Water	Date: <u>8/31/20</u>
EC (#) SM 9223B, TC (#) SM 9223B	Type: Grab	Time: <u>0733</u>
	A - Sterile PI 125ml NaThio	

2028690-02 SB-2 C	Matrix: Non-Potable Water	Date: <u>8/31/20</u>
EC (#) SM 9223B, TC (#) SM 9223B	Type: Grab	Time: <u>0736</u>
	A - Sterile PI 125ml NaThio	

2028690-03 SB-3 R	Matrix: Non-Potable Water	Date: <u>8/31/20</u>
EC (#) SM 9223B, TC (#) SM 9223B	Type: Grab	Time: <u>0730</u>
	A - Sterile PI 125ml NaThio	

<u>J. Piscanio</u>	<u>8/31/20 8:50</u>		
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	<u>Jean Vandzura</u>	<u>8-31-20 8:50</u>
		Received at Laboratory By	Date/Time

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>16°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>[Signature]</u>

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M.J. Reider Associates, Inc.

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

Certificate of Analysis

Laboratory No.: 2029702
Report: 09/08/20
Lab Contact: Richard A Wheeler

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

Project Info: 2020 Blue Marsh Beach 1,2,3

Lab ID: 2029702-01 **Collected By:** Client **Sampled:** 09/03/20 08:20 **Received:** 09/03/20 09:00
Sample Desc: SB-1 L **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	5	mpn/100ml	1	SM 9223	9/3/20	9/4/20		JMW
				B/Quantitray	15:48	10:31		
Total Coliform	921	mpn/100ml	1	SM 9223	9/3/20	9/4/20		JMW
				B/Quantitray	15:48	10:31		

Lab ID: 2029702-02 **Collected By:** Client **Sampled:** 09/03/20 08:23 **Received:** 09/03/20 09:00
Sample Desc: SB-2 C **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	14	mpn/100ml	1	SM 9223	9/3/20	9/4/20		JMW
				B/Quantitray	15:48	10:31		
Total Coliform	1730	mpn/100ml	1	SM 9223	9/3/20	9/4/20		JMW
				B/Quantitray	15:48	10:31		

Lab ID: 2029702-03 **Collected By:** Client **Sampled:** 09/03/20 08:24 **Received:** 09/03/20 09:00
Sample Desc: SB-3 R **Sample Type:** Grab

	Result	Unit	Rep. Limit	Analysis Method	Incubated	Analyzed	Notes	Analyst
Microbiology								
Escherichia coli	20	mpn/100ml	1	SM 9223	9/3/20	9/4/20		JMW
				B/Quantitray	15:48	10:31		
Total Coliform	1990	mpn/100ml	1	SM 9223	9/3/20	9/4/20		JMW
				B/Quantitray	15:48	10:31		



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**WORK ORDER
Chain of Custody**

2029702



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: 2020 Blue Marsh Beach 1,2,3

Collected By :
(Full Name)

Jeff Piscanio

Comments: Goose in test site, overnight rain

2029702-01 SB-1 L

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 9/3/20
Time: 8:20

2029702-02 SB-2 C

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 9/3/20
Time: 8:23

2029702-03 SB-3 R

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

Matrix: Non-Potable Water
Type: Grab
A - Sterile PI 125ml NaThio

Date: 9/3/20
Time: 8:24

Jeff Piscanio

9/3/20 0900

Relinquished By

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Received By

Date/Time

Relinquished By

Date/Time

Jean Vandzura
Received at Laboratory By

9-3-20 0900
Date/Time

Sample Kit Prepared By:	Date/Time
Sample Temp (°C):	<u>21°C</u>
Samples on Ice?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Approved By:	<u>JV</u>
Entered By:	

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