

December 7, 2018

Mr. Kevin D. Moore
Specialty Granules LLC
13424 Pennsylvania Avenue, Suite 303
Hagerstown, MD 21742

**Re: Report of Toms Creek Baseline Surface Water Quality Monitoring Program –
Year 7 – October 2018
AECOM Project #60582911**

Dear Mr. Moore:

This letter report provides a summary of the Toms Creek annual surface water quality monitoring that was conducted on October 5, 2018. This sampling event represents the sixth annual round of monitoring following the initial year of quarterly monitoring. This monitoring program was undertaken by Specialty Granules LLC (SGI) as a condition of the land exchange agreement with Pennsylvania Department of Conservation and Natural Resources (PADCNR) and Adams County. The purpose of the monitoring program is to monitor surface water quality at key locations along Toms Creek to evaluate water quality trends in Toms Creek from the upstream reaches and tributaries downstream to where it enters Carrol Valley.

This report includes a description of the monitoring program, sample collection and analysis methodologies, and a summary of the sample results.

Introduction

AECOM was contracted by SGI to complete a water quality monitoring program in the upper mainstem of Toms Creek, and unnamed tributaries to Toms Creek within the upper watershed near its Charmian Facility. The Toms Creek monitoring network consists of nine (9) sampling locations (identified as TC-1 through TC-9) established on Toms Creek and unnamed tributaries to Toms Creek, upstream and downstream of the SGI Charmian facility (**Figure 1**). At the same time the samples are collected for chemical analyses, stream flow conditions are also measured and recorded. With the exception of TC-1, the drainage basin for the sampling locations consists mainly of forested uplands. Each sampling point was sampled quarterly beginning with the October, 2011 event through August, 2012. The monitoring network was to be sampled annually for five (5) additional years, with 2017 being the last planned year of monitoring. 2016 was planned to be the baseline year for operations at the site. However, the permit for the area has not been approved. As such, SGI intends to continue monitoring on an annual basis until the permit is approved. A quarterly sampling frequency to establish the operational baseline will be completed during the first year of operations at the site. Currently, this is estimated to be 2020/2021.

The water quality constituents analyzed as part of this monitoring program consist of field measured and laboratory water quality parameters. Field measured water quality parameters include dissolved oxygen (DO), pH, specific conductance, turbidity, and temperature. Laboratory analyzed water quality parameters include pH, total suspended solids (TSS), total dissolved solids (TDS), total alkalinity, total acidity, ammonia-nitrogen, nitrogen (as NO₂ and

NO₃), phosphate (as total phosphorus), sulfate, total metals (aluminum, iron, and manganese), dissolved metals (aluminum, arsenic, cadmium, copper, iron, lead, manganese, nickel, and zinc), and bacteriological parameters (total coliform, fecal coliform, and e. coli).

Sampling & Analysis Methodology

Sampling points on the mainstem of Toms Creek were selected at locations directly downstream of named and unnamed tributaries to Toms Creek to understand the water quality of Toms Creek and potential influences to water quality that may be attributed to contributions from different tributaries. As shown on **Figure 1**, a total of eight (8) sampling points (TC-1, TC-2, TC-3, TC-4, TC-5, TC-6, TC-7 and TC-9, from downstream to upstream) are located on the mainstem of Toms Creek within the upper watershed, with the sampling points after TC-9 located just downstream of where a tributary joins the mainstem. Sampling point TC-8 is located on an unnamed tributary that contributes flow from the uppermost reaches of the watershed to Toms Creek.

The samples were collected following Pennsylvania Department of Environmental Protection (PADEP) surface water quality sampling protocols (e.g., instructions for Module 1 – Stormwater, Form 3850-pm-BCW0008d). Samples were collected in mid-stream directly into laboratory-supplied bottle-ware, taking care not to overfill the bottles and lose preservative. Dissolved metal samples were field filtered prior to placing them in the preserved bottles using 0.45 micron disposable filters, which were replaced after each sample. Sample bottles were labeled with unique sample identifiers sample time, sample date, and requested analyses and packed in coolers with ice for storage and shipping. The sample containers were then delivered by AECOM personnel to ALS Environmental in Middletown, Pennsylvania, a PADEP-certified lab (PA 22-293). A Chain of Custody form was completed to document handling of each sample.

Samples were analyzed by the laboratory for pH, TSS, TDS, total alkalinity, total acidity, ammonia-nitrogen, nitrogen (as NO₂ and NO₃), phosphate (as total phosphorus), sulfate, total metals (aluminum, iron, and manganese), dissolved metals (aluminum, arsenic, cadmium, copper, iron, lead, manganese, nickel, and zinc), and bacteriological parameters (total coliform, fecal coliform, and e. coli) according to appropriate United States Environmental Protection Agency (USEPA) standard laboratory methodology in accordance to those contained in 40 CFR Part 136, “Guidelines for Establishing Test Procedures for the Analysis of Pollutants”.

Dissolved Oxygen (DO), pH, specific conductance, turbidity, and temperature were measured in the field using a Horiba U-22 water quality meter calibrated according to manufacturer specifications. In addition, the meter was calibrated in the field prior to use. The probes of the meter were rinsed with distilled water after the measurement of each sample and prior to use at the subsequent sample point.

Stream flow was measured using a Marsh-McBirney Flo-mate Model 2000 flow meter to record velocity at equal intervals across the stream bed. Two methods for stream flow were used, based on the depth of water column. Both methods obtain the mean stream flow at a section across the streambed. The \bar{U}_{max} method (for stream depths less than 6.5 inches) takes the flow rate reading and multiplies that number by 0.9 to obtain the mean flow for that interval. The second method (0.2, 0.4 and 0.8 depth method) obtains the mean velocities within an interval by



averaging flows at three (3) different depths within the water column where the stream depth is sufficient to obtain multiple measurements.

Summary of Results

Stream flow measurements are summarized in **Table 1**. **Table 2** provides the results of field and laboratory water quality analyses for the October 2018 sampling event. Historical data from previous events are summarized in **Table 3**, along with the 2018 results.

At the time of the sampling on October 5, 2018, stream flow in Toms Creek was higher than previous recorded values for this time of year at most sampling stations. More than 12 inches of rain were recorded at the rain gauge maintained by SGI at the Charmain Plant in September, and the yearly total through October 5th was 62.25 inches (average annual precipitation at Blue Ridge Summit is 42.42 inches – refer to the attached precipitation table from the Pitts Pond Pier). The flows measured in 2018 are among the highest recorded since monitoring began in 2011. Stream flow measurements recorded on October 5, 2018 ranged from 0.5 cubic feet per second (cfs) or 220 gallons per minute (gpm) at location TC-7 to 34.7 cfs (15,600 gpm) at location TC-2.

Field parameter measurements are included on **Tables 2** and **3**. The field pH readings ranged from 5.29 at TC-9 to 7.76 at TC-3. The DO readings varied from 5.3 mg/l at TC-7 to 7.5 mg/l at TC-2. Specific conductivity values ranged from 45 umhos/cm at TC-6 to 142 umhos/cm at TC-7. Turbidity levels ranged from 0 NTU (TC-3, TC-4, TC-7, and TC-9) to 1.70 NTU at TC-2.

A review of the laboratory results indicates a number of chemical constituents were reported as not reported (denoted by a less than “<” symbol), indicating that the actual concentration of that constituent is less than the laboratory reporting limit (RL). The constituents not reported in any of the samples during the October 2018 monitoring event included total acidity, ammonia nitrogen, phosphorus, and several dissolved metals (aluminum, arsenic, cadmium, copper, lead, nickel, and zinc).

Concentrations of metals were low in the samples and similar to the levels detected in previous monitoring. Dissolved iron was only reported at TC-6 (0.067 mg/l). Dissolved manganese was reported at TC-1 (0.0051 mg/l), TC-5 (0.0056 mg/l), TC-6 (0.0120 mg/l), TC-7 (0.0065 mg/l), TC-8 (0.0210 mg/l), and TC-9 (0.0087 mg/l). Low concentrations, within naturally occurring ranges of other inorganic constituents (total aluminum, total iron, and total manganese), were also detected at the following locations: total aluminum was detected in TC-9 (0.13 mg/l); total iron and total manganese were detected in all nine sampling stations at levels ranging from near the reporting limits (0.0056 mg/l vs 0.0078 mg/l manganese in TC-3) to 0.29 mg/l iron in TC-8 (refer to Table 2).

Sulfate was reported in all surface water samples at concentrations ranging from 3.7 mg/L in TC-9 to 14.4 mg/l in TC-7. Nitrogen as NO₂ and NO₃ was detected in all samples at low levels, ranging from 0.24 mg/l at TC-9 to 0.86 mg/l at TC-7.

Bacteriological components were detected in all samples: E. coli values range from 30 colony forming units (cfu)/100 ml at TC-9 to 101 cfu at TC-2; fecal coliform values range from 23



cfu/100 ml at TC-9 to 83 cfu/100 ml at TC-2; and TC-1 through TC-9 had total coliform values greater than 2,419.6 cfu/100 ml.

Discussion - Conclusions

The stream flow was high at the time of this year's monitoring event in early October compared to previous events, as a result of very high rainfall totals over the preceding months of 2018. Despite the higher flows, the field turbidity measurements were all low, as confirmed by all laboratory TSS results being below the reporting limit of 5 mg/l. Flow readings at several stations (TC-7; TC-4, TC-1) were lower than the preceding upstream measuring points, which is unexpected, given watershed area increases and additional tributaries enter the stream at successive downstream stations. These stations also were the only locations where 2018 flows were not the highest recorded during the history of monitoring. It was noted that the stream sections at TC-1, TC-4, and TC-7 have a coarse stream bed composition which may be a result of the low field flow readings. Portions of the stream appeared to be flowing in the coarse stream bed material within the banks and outside of the measured stream sections where the flows were calculated.

The levels of TDS and alkalinity were relatively low at all sampling locations, with TC-7 having higher values compared to the other sampling locations. TC-7 also had slightly higher sulfur levels compared to other locations. TC-6 was the only location where dissolved iron was reported (0.067 mg/l – the reporting limit is 0.06 mg/l). Dissolved manganese concentrations ranged from below the reporting limit of 0.005 mg/l in TC-2, TC-3, and TC-4, to a maximum of 0.021 mg/l in TC-8. Total metals were low throughout the stream, consistent with previous sampling events.

Concentrations of plant nutrients - nitrogen and phosphorus - were below detection (total phosphorus and ammonia nitrogen) or at low levels (nitrogen results as nitrate/nitrite were all below 1 mg/l) throughout the stream reach.

The laboratory pH readings were slightly lower than in previous years (most around 7.0 compared to 7.5 to 8.2 in previous years). Field pH readings showed greater variability, but were generally in the mid 7's, with the exception of readings from TC-8 (6.65) and TC-9 (5.29). The field meter is regularly calibrated by the vendor (Pine Environmental) and was calibrated in the field prior to use. The slightly lower pH values could be the results of the high precipitation values during the summer of 2018, which may contribute more water from runoff or short term recharge to the stream. Precipitation is expected to have low pH and a low buffering capacity.

E Coli and fecal coliform bacteria counts in the 2018 results were slightly higher in the two most downstream sampling stations (that had the highest flows), however, total coliform counts "too numerous to count" were reported at all sampling stations. In addition, fecal coliforms were detected at every sampling station.

Other parameters appear to be stable over time and over the stream length monitored, with fluctuations between sampling events that may be related to the high stream flow in October of 2018 and timing of recharge events compared to previous years that affect the baseflow chemical characteristics.



The sample results, to date, illustrate generally good water quality, although all reaches of the stream are impacted by coliform bacteria, including fecal coliform bacteria in the creek upstream of mining operations. Analyzed quality parameters exhibit expected temporal variability typical of a functioning, natural stream setting. The results also illustrate some variations in water quality within naturally occurring and expected ranges between different sampling locations and dates for some parameters that typically vary with flow or season in the natural environment.

Please contact me if you have any questions regarding this summary report.

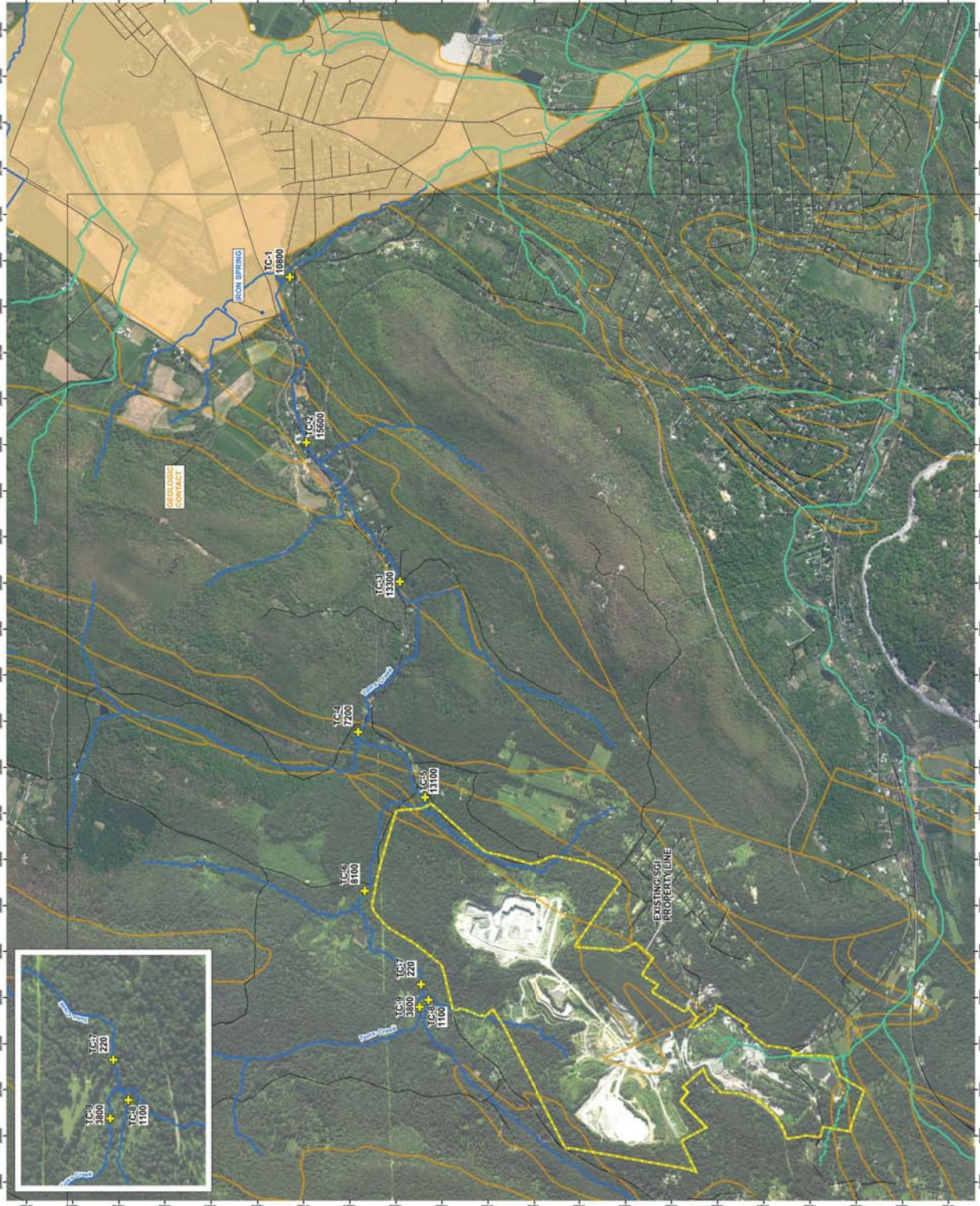
Sincerely,

AECOM

A handwritten signature in black ink, appearing to read 'Ryan K. Frenya'.

Ryan K. Frenya, PE
Project Manager

Figures



Legend

- Stream Samples**
Tens Creek Sample Location
Flow in Gallons per Minute
- Streams CH93 Designated Use**
CWF (Cold Water Fishes)
HC-CWF (High Quality-Cold Water Fishes)
WWF (Warm Water Fishes)
- Spring
- Boundary Lines**
Existing SGI Property Line
- Geology**
Classic/Metabasalt & Metarhyolite
Geologic Contact
Gettysburg Limestone Conglomerate

NOTES:
FLOW MEASUREMENTS ARE RECORDED AS GALLONS PER MINUTE.



Key Map
Not to Scale

NAD 1983 StatePlane, Pennsylvania, South, FIPS_3702, Feet
Projection: Lambert Conformal Conic
False Easting: 1985000.000000
False Northing: 1985000.000000
Central Meridian: -77.750000
Standard Parallel 1: 39.933333
Standard Parallel 2: 39.933333
Latitude Of Origin: 39.333333
Linear Unit: Foot_US
Datum: D_North_American_1983



REFERENCE:
AECOM CUSTOM DATA
PAGE CHAPTER 93 DESIGNATED STREAM USE
PAMAP AERIAL
PAMAP PROGRAM ROADS



AECOM

FIGURE 1
TOMS CREEK MONITORING
PROGRAM SAMPLE LOCATIONS
OCTOBER 05, 2018
SPECIALTY GRANULES LLC
BLUE RIDGE SUMMIT, PA
ADAMS COUNTY, PENNSYLVANIA

Prepared By:	BAS	Checked By:	DWM
Job:	80562911	Date:	10/30/2018

Tables

TABLE 1
October 2018 Toms Creek Stream Sampling Network
Summary of Streamflow Measurements

Sample Station	Date Measured	Flow (cfs)	Flow (gpm)
TC-1	10/5/2018	24.0	10,800
TC-2	10/5/2018	34.7	15,600
TC-3	10/5/2018	29.7	13,300
TC-4	10/5/2018	16.1	7,200
TC-5	10/5/2018	29.3	13,100
TC-6	10/5/2018	18.0	8,100
TC-7	10/5/2018	0.5	220
TC-8	10/5/2018	2.4	1,100
TC-9	10/5/2018	8.5	3,800

Notes:

cfs - Cubic Feet per Second.

gpm - Gallons per Minute.

Flow calculated using Hach HF950 flow meter at 1' intervals across stream bed

October 2018 Toms Creek Stream Sampling Network
Table 2

		Summary of Field and Laboratory Water Quality Results								
Sample ID	TC-1	TC-2	TC-3	TC-4	TC-5	TC-6	TC-7	TC-8	TC-9	
Sample Date	10/5/2018	10/5/2018	10/5/2018	10/5/2018	10/5/2018	10/5/2018	10/5/2018	10/5/2018	10/5/2018	
FIELD READINGS										
pH - Field (std. units)	7.60	7.72	7.76	7.70	7.65	7.59	7.34	6.65	5.29	
Specific Conductance - Field (umhos/m)	55	54	59	55	54	45	142	56	73	
Temperature - Field (°C)	16.1	15.9	16.0	16.0	16.2	16.3	16.7	16.5	17.8	
Dissolved Oxygen - Field (mg/L)	6.9	7.5	7.1	6.3	6.3	6.7	5.3	6.0	6.0	
Turbidity - Field (n.t.u.)	0.2	1.7	0.0	0.0	0.3	1.6	0.0	0.5	0.0	
LABORATORY RESULTS										
pH - Laboratory (at 25°C)	6.99	6.99	7.01	7.02	7.03	6.95	7.49	6.99	6.65	
Total Suspended Solids (mg/L)	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Total Dissolved Solids (mg/L)	37	26	37	12	40	33	113	20	24	
Total Alkalinity (Total as CaCO3)(mg/L)	25	24	25	23	20	16	72	21	7	
Total Acidity (mg/L)	<5	<5	<5	<5	<5	<5	<5	<5	<5	
Aluminum - Dissolved (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Arsenic - Dissolved (mg/L)	<0.008	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	
Cadmium - Dissolved (mg/L)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	
Copper - Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Iron - Dissolved (mg/L)	<0.060	<0.060	<0.060	<0.060	<0.060	0.067	<0.060	<0.060	<0.060	
Lead - Dissolved (mg/L)	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	
Manganese - Dissolved (mg/L)	0.0051	<0.0050	<0.0050	<0.0050	0.0056	0.0120	0.0065	0.0210	0.0087	
Nickel - Dissolved (mg/L)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	
Zinc - Dissolved (mg/L)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	
Aluminum - Total (mg/L)	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	<0.11	0.13	
Iron - Total (mg/L)	0.120	0.130	0.140	0.160	0.170	0.200	0.067	0.290	0.190	
Manganese - Total (mg/L)	0.0096	0.0084	0.0078	0.0110	0.0130	0.0190	0.0099	0.0430	0.0160	
Ammonia-Nitrogen (mg/L)	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	
Total Phosphorous (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	
Sulfate (mg/L)	5.1	4.9	5.8	4.8	6.2	5.7	14.4	4.8	3.7	
Nitrogen as NO ₂ and NO ₃ (mg/L)	0.52	0.44	0.46	0.44	0.42	0.44	0.86	0.50	0.24	
E. coli (CFU/100 ml)	75	101	41	57	51	59	52	55	30	
Fecal Coliforms (CFU/100 ml)	73	83	51	42	26	28	36	42	23	
Total Coliform (CFU/100 ml)	>2419.6	>2419.6	>2419.6	>2419.6	>2419.6	>2419.6	>2419.6	>2419.6	>2419.6	

NOTES:

1. TC-1 - Tom's Creek sample location 1.
2. "<Value" - Not Detected.
3. Alkalinity reported milligrams per liter (mg/L) CaCO₃.
4. Results in milligrams per liter: mg/L.
5. CFU/100 ml - colony-forming units per 100 milliliters of sample.
6. pH concentrations reported in Standard Units.
7. Specific conductance values reported in micromhos/centimeter at 25° Celsius.

Toms Creek Stream Sampling Network
 Table 3
 Summary of Historical Field and Lab Water Quality Results

Sample ID	TC-9												
	Sample Date	10/17/2011	1/23/2012	5/22/2012	8/22/2012	9/12/2013	8/25/2014	8/19/2015	8/17/2016	9/26/2017	10/5/2018		
Flow (gpm)	610	2039	2331	363	592	1532	746	684	80	137.27	3600		
pH - Field (std. units)	6.56	6.74	7.86	7.89	7.53	7.46	7.27	7.89	7.84	8.53	5.29		
pH - Lab (std. units)	NA	6.8	7.2	6.8	7.1	7.2	7.27	7.69	7.39	7.39	6.85		
Specific Conductance - Field (umhos/cm)	44	27	74	48	78	42	44	68	9.9	9.9	73		
Temperature - Field (C)	12.5	2.63	12.85	19.61	20.81	15.67	19.08	22.06	20.69	17.75	17.75		
Dissolved Oxygen - Field (mg/L)	11.01	13.18	8.45	11.19	5	7.05	8.15	7.26	9.56	5.99	5.99		
Turbidity - Field (n.t.u.)	4.8	7.6	6.4	5.5	9.5	2.5	21.5	30	0.0	0.0	0.0		
Total Suspended Solids (mg/L)	<4.0	4.0	12.0	12.0	9.0	6.0	8.0	7.0	55	24	<5		
Total Dissolved Solids (mg/L)	<10.0	<10.0	55.0	37.0	<10.0	20	48	65	55	24	<5		
Total Alkalinity (Total as CaCO3)(mg/L)	10.0	12.0	<10.0	12.0	28.0	12.0	12.0	12	24	11	7		
Total Acidity (mg/L)	<10.0	<10.0	<10.0	<10.0	<10.0	<5.0	<5.0	<5	<5	<5	<5		
Aluminum - Dissolved (mg/L)	NA	<0.050	<0.050	<0.050	<0.050	0.07	<0.1	<0.10	<0.10	<0.10	<0.10		
Arsenic - Dissolved(mg/L)	NA	<0.005	<0.005	<0.005	<0.005	0.0032	<0.008	<0.0080	<0.0080	<0.0080	<0.0080		
Cadmium - Dissolved (mg/L)	NA	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	<0.0020	<0.0020	<0.0020	<0.0020		
Copper - Dissolved (mg/L)	NA	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.010	<0.010	<0.010	<0.010		
Iron - Dissolved (mg/L)	0.150	<0.070	0.0954	0.0754	0.0988	0.088	<0.06	0.12	<0.060	<0.060	<0.060		
Lead - Dissolved (mg/L)	NA	<0.005	<0.005	<0.005	<0.005	<0.002	<0.006	<0.0060	<0.0060	<0.0060	<0.0060		
Manganese - Dissolved (mg/L)	0.0259	<0.005	0.0075	0.0067	0.0076	0.0042	0.005	0.019	<0.0050	0.0087	0.0087		
Nickel - Dissolved (mg/L)	NA	<0.010	<0.010	<0.010	<0.010	<0.007	<0.02	<0.020	<0.020	<0.020	<0.020		
Zinc - Dissolved (mg/L)	NA	<0.010	<0.010	<0.010	<0.010	<0.007	<0.02	<0.020	<0.020	<0.020	<0.020		
Aluminum - Total (mg/L)	0.150	0.0624	0.176	0.302	0.276	0.14	<0.11	<0.11	<0.11	<0.11	0.13		
Arsenic - Total (mg/L)	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Cadmium - Total (mg/L)	<0.003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Copper - Total (mg/L)	<0.005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Iron - Total (mg/L)	0.136	<0.070	0.285	0.359	0.291	0.19	0.15	0.28	0.11	0.19	0.19		
Manganese - Total (mg/L)	0.0882	<0.005	0.019	0.0237	0.0204	0.013	0.013	0.032	0.01	0.016	0.016		
Nickel - Total (mg/L)	<0.010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Zinc - Total (mg/L)	<0.010	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Nitrogen Ammonia (mg/L)	<0.10	<0.10	<0.10	0.11	<0.10	0.075	<0.1	<0.100	<0.100	<0.100	<0.100		
Phosphorous (mg/L)	<0.030	<0.030	<0.030	0.061	<0.040	0.1	<0.10	<0.10	<0.10	<0.10	<0.10		
Sulfate (mg/L)	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	3.8	2.8	<2.0	3.7	3.7		
Nitrogen as NO₂ and NO₃ (mg/L)	<0.010	0.28	0.24	0.16	0.24	0.24	0.34	0.24	<0.20	0.24	0.24		
E. coli (CFU/100 ml)	18	2.0	14	110	340	110	85	517	77	30	30		
Fecal Coliform (CFU/100 ml)	NA	1.0	16	56	320	58	54	530	67	23	23		
Total Coliform (CFU/100 ml)	>200	770	2400	>2400	>2400	>2,419	>2,419.6	1200	>2419.6	>2419.6	>2419.6		

NOTES:

1. TC-9 - Toms Creek sample location. 1. See Figure 1
2. "Value" - Not Detected.
3. Alkalinity reported in milligrams per liter (mg/L) CaCO₃.
4. Analytical parameter concentrations reported in mg/L or CFU/100 ml - colony-forming units per 100 milliliters of sample.
5. gpm - gallons per minute.
6. pH concentrations reported in Standard Units.
7. Specific conductance values reported in microconductimeter at 25°C Celsius.
8. NA = Not analyzed

Attachment
Laboratory Reports & Chain of Custody Form

October 24, 2018

Mr. Randy Crispino
AECOM - Mechanicsburg
100 Sterling Parkway
Suite 205
Mechanicsburg, PA 17050

Certificate of Analysis

Project Name:	2016-SGI SURFACE WATER TESTING	Workorder:	2342854
Purchase Order:	60553363	Workorder ID:	Toms Creek

Dear Mr. Crispino:

Enclosed are the analytical results for samples received by the laboratory on Friday, October 5, 2018.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Mrs. Vanessa N Badman (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Environmental.

ALS Spring City: 10 Riverside Drive, Spring City, PA 19475 610-948-4903

Mrs. Vanessa N Badman
Project Coordinator

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

ALS Environmental Laboratory Locations Across North America

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SAMPLE SUMMARY

Workorder: 2342854 Toms Creek

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2342854001	TC 1	Water	10/5/2018 12:10	10/5/2018 13:50	Collected by Client
2342854002	TC 2	Water	10/5/2018 11:45	10/5/2018 13:50	Collected by Client
2342854003	TC 3	Water	10/5/2018 11:15	10/5/2018 13:50	Collected by Client
2342854004	TC 4	Water	10/5/2018 10:43	10/5/2018 13:50	Collected by Client
2342854005	TC 5	Water	10/5/2018 10:15	10/5/2018 13:50	Collected by Client
2342854006	TC 6	Water	10/5/2018 09:45	10/5/2018 13:50	Collected by Client
2342854007	TC 7	Water	10/5/2018 09:10	10/5/2018 13:50	Collected by Client
2342854008	TC 8	Water	10/5/2018 08:30	10/5/2018 13:50	Collected by Client
2342854009	TC 9	Water	10/5/2018 08:00	10/5/2018 13:50	Collected by Client

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SAMPLE SUMMARY

Workorder: 2342854 Toms Creek

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- All Waste Water analyses comply with methodology requirements of 40 CFR Part 136.
- All Drinking Water analyses comply with methodology requirements of 40 CFR Part 141.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are performed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix "S" followed by a method number (such as S2310B-97) refer to methods from "Standard Methods for the Examination of Water and Wastewater".
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND)
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Reporting Detection Limit
ND	Not Detected - indicates that the analyte was Not Detected at the RDL
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

 Lab ID: **2342854001** Date Collected: 10/5/2018 12:10 Matrix: Water
 Sample ID: **TC 1** Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Acidity, Total	ND	3	mg/L	5	SM2310B-2011			10/9/18 12:30	C_D	A
Alkalinity, Total	25	4	mg/L	5	SM2320B-2011			10/11/18 18:39	MSA	A
Ammonia-N	ND		mg/L	0.100	D6919-09			10/11/18 01:28	CMM	D
Dissolved Oxygen	11.5	2	mg/L	1.0	S4500OG-01			10/19/18 18:00	MLM	A
Nitrate/Nitrite-N	0.52		mg/L	0.20	EPA 300.0			10/6/18 10:01	CHW	A
pH	6.99	1	pH_Units		S4500HB-11			10/11/18 18:39	MSA	A
Phosphorus, Total	ND		mg/L	0.10	EPA 365.1	10/15/18 06:45	KXK	10/16/18 05:59	KXK	D
Sulfate	5.1		mg/L	2.0	EPA 300.0			10/6/18 10:01	CHW	A
Total Dissolved Solids	37		mg/L	5	S2540C-11			10/12/18 12:45	CXI	A
Total Suspended Solids	ND		mg/L	5	S2540D-11			10/11/18 15:34	D1C	A
Turbidity	1.66		NTU	0.10	SM2130B-2011			10/6/18 06:20	MBW	A
METALS										
Aluminum, Total	ND		mg/L	0.11	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:18	SRT	B1
Aluminum, Dissolved	ND		mg/L	0.10	SW846 6010C	10/9/18 07:22	SRT	10/15/18 12:58	SRT	C
Arsenic, Total	ND		mg/L	0.0090	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:18	SRT	B1
Arsenic, Dissolved	ND		mg/L	0.0080	SW846 6010C	10/9/18 07:22	SRT	10/15/18 12:58	SRT	C
Cadmium, Total	ND		mg/L	0.0022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:18	SRT	B1
Cadmium, Dissolved	ND		mg/L	0.0020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 12:58	SRT	C
Copper, Total	ND		mg/L	0.011	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:18	SRT	B1
Copper, Dissolved	ND		mg/L	0.010	SW846 6010C	10/9/18 07:22	SRT	10/15/18 12:58	SRT	C
Iron, Total	0.12		mg/L	0.067	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:18	SRT	B1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 12:58	SRT	C
Lead, Dissolved	ND		mg/L	0.0060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 12:58	SRT	C
Manganese, Total	0.0096		mg/L	0.0056	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:18	SRT	B1
Manganese, Dissolved	0.0051		mg/L	0.0050	SW846 6010C	10/9/18 07:22	SRT	10/15/18 12:58	SRT	C
Nickel, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:18	SRT	B1
Nickel, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 12:58	SRT	C
Zinc, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:18	SRT	B1
Zinc, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 12:58	SRT	C
MICROBIOLOGY										
E. Coli	75	5	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F
Fecal Coliform	73	7	CFU/100mL	1	S9222D-97	10/5/18 18:37	MXH	10/6/18 16:40	LLJ	G
Total Coliform	>2419.6	6	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: **2342854001**

Date Collected: 10/5/2018 12:10

Matrix: Water

Sample ID: **TC 1**

Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
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Mrs. Vanessa N Badman
 Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: **2342854002** Date Collected: 10/5/2018 11:45 Matrix: Water
Sample ID: **TC 2** Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Acidity, Total	ND	3	mg/L	5	SM2310B-2011			10/9/18 12:30	C_D	A
Alkalinity, Total	24	4	mg/L	5	SM2320B-2011			10/11/18 19:16	MSA	E
Ammonia-N	ND		mg/L	0.100	D6919-09			10/11/18 01:41	CMM	D
Dissolved Oxygen	11.6	2	mg/L	1.0	S4500OG-01			10/19/18 18:00	MLM	A
Nitrate/Nitrite-N	0.44		mg/L	0.20	EPA 300.0			10/6/18 10:13	CHW	A
pH	6.99	1	pH_Units		S4500HB-11			10/11/18 19:16	MSA	A
Phosphorus, Total	ND		mg/L	0.10	EPA 365.1	10/15/18 06:45	KXK	10/16/18 05:59	KXK	D
Sulfate	4.9		mg/L	2.0	EPA 300.0			10/6/18 10:13	CHW	A
Total Dissolved Solids	26		mg/L	5	S2540C-11			10/12/18 12:45	CXI	A
Total Suspended Solids	ND		mg/L	5	S2540D-11			10/11/18 15:34	D1C	A
Turbidity	1.48		NTU	0.10	SM2130B-2011			10/6/18 06:20	MBW	A
METALS										
Aluminum, Total	ND		mg/L	0.11	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:22	SRT	B1
Aluminum, Dissolved	ND		mg/L	0.10	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:02	SRT	C
Arsenic, Total	ND		mg/L	0.0090	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:22	SRT	B1
Arsenic, Dissolved	ND		mg/L	0.0080	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:02	SRT	C
Cadmium, Total	ND		mg/L	0.0022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:22	SRT	B1
Cadmium, Dissolved	ND		mg/L	0.0020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:02	SRT	C
Copper, Total	ND		mg/L	0.011	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:22	SRT	B1
Copper, Dissolved	ND		mg/L	0.010	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:02	SRT	C
Iron, Total	0.13		mg/L	0.067	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:22	SRT	B1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:02	SRT	C
Lead, Dissolved	ND		mg/L	0.0060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:02	SRT	C
Manganese, Total	0.0084		mg/L	0.0056	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:22	SRT	B1
Manganese, Dissolved	ND		mg/L	0.0050	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:02	SRT	C
Nickel, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:22	SRT	B1
Nickel, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:02	SRT	C
Zinc, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:22	SRT	B1
Zinc, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:02	SRT	C
MICROBIOLOGY										
E. Coli	101	5	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F
Fecal Coliform	83	7	CFU/100mL	1	S9222D-97	10/5/18 18:37	MXH	10/6/18 16:40	LLJ	G
Total Coliform	>2419.6	6	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: **2342854002**

Date Collected: 10/5/2018 11:45

Matrix: Water

Sample ID: **TC 2**

Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

 Lab ID: **2342854003** Date Collected: 10/5/2018 11:15 Matrix: Water
 Sample ID: **TC 3** Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Acidity, Total	ND	3	mg/L	5	SM2310B-2011			10/9/18 12:30	C_D	A
Alkalinity, Total	25	4	mg/L	5	SM2320B-2011			10/11/18 19:26	MSA	E
Ammonia-N	ND		mg/L	0.100	D6919-09			10/11/18 01:55	CMM	D
Dissolved Oxygen	11.6	2	mg/L	1.0	S4500OG-01			10/19/18 18:00	MLM	A
Nitrate/Nitrite-N	0.46		mg/L	0.20	EPA 300.0			10/6/18 11:38	CHW	A
pH	7.01	1	pH_Units		S4500HB-11			10/11/18 19:26	MSA	A
Phosphorus, Total	ND		mg/L	0.10	EPA 365.1	10/15/18 06:45	KXK	10/16/18 05:59	KXK	D
Sulfate	5.8		mg/L	2.0	EPA 300.0			10/6/18 11:38	CHW	A
Total Dissolved Solids	37		mg/L	5	S2540C-11			10/12/18 12:45	CXI	A
Total Suspended Solids	ND		mg/L	5	S2540D-11			10/11/18 15:34	D1C	A
Turbidity	1.72		NTU	0.10	SM2130B-2011			10/6/18 06:20	MBW	A
METALS										
Aluminum, Total	ND		mg/L	0.11	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:33	SRT	B1
Aluminum, Dissolved	ND		mg/L	0.10	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:06	SRT	C
Arsenic, Total	ND		mg/L	0.0090	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:33	SRT	B1
Arsenic, Dissolved	ND		mg/L	0.0080	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:06	SRT	C
Cadmium, Total	ND		mg/L	0.0022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:33	SRT	B1
Cadmium, Dissolved	ND		mg/L	0.0020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:06	SRT	C
Copper, Total	ND		mg/L	0.011	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:33	SRT	B1
Copper, Dissolved	ND		mg/L	0.010	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:06	SRT	C
Iron, Total	0.14		mg/L	0.067	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:33	SRT	B1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:06	SRT	C
Lead, Dissolved	ND		mg/L	0.0060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:06	SRT	C
Manganese, Total	0.0078		mg/L	0.0056	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:33	SRT	B1
Manganese, Dissolved	ND		mg/L	0.0050	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:06	SRT	C
Nickel, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:33	SRT	B1
Nickel, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:06	SRT	C
Zinc, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:33	SRT	B1
Zinc, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:06	SRT	C
MICROBIOLOGY										
E. Coli	41	5	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F
Fecal Coliform	51		CFU/100mL	1	S9222D-97	10/5/18 18:37	MXH	10/6/18 16:40	LLJ	G
Total Coliform	>2419.6	6	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: **2342854003**

Date Collected: 10/5/2018 11:15

Matrix: Water

Sample ID: **TC 3**

Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: **2342854004** Date Collected: 10/5/2018 10:43 Matrix: Water
Sample ID: **TC 4** Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Acidity, Total	ND	3	mg/L	5	SM2310B-2011			10/9/18 12:30	C_D	A
Alkalinity, Total	23	4	mg/L	5	SM2320B-2011			10/11/18 19:35	MSA	E
Ammonia-N	ND		mg/L	0.100	D6919-09			10/11/18 02:08	CMM	D
Dissolved Oxygen	11.7	2	mg/L	1.0	S4500OG-01			10/19/18 18:00	MLM	A
Nitrate/Nitrite-N	0.44		mg/L	0.20	EPA 300.0			10/6/18 11:51	CHW	A
pH	7.02	1	pH_Units		S4500HB-11			10/11/18 19:35	MSA	A
Phosphorus, Total	ND		mg/L	0.10	EPA 365.1	10/15/18 06:45	KXK	10/16/18 05:59	KXK	D
Sulfate	4.8		mg/L	2.0	EPA 300.0			10/6/18 11:51	CHW	A
Total Dissolved Solids	12		mg/L	5	S2540C-11			10/12/18 12:45	CXI	A
Total Suspended Solids	ND		mg/L	5	S2540D-11			10/11/18 15:34	D1C	A
Turbidity	1.61		NTU	0.10	SM2130B-2011			10/6/18 06:20	MBW	A
METALS										
Aluminum, Total	ND		mg/L	0.11	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:37	SRT	B1
Aluminum, Dissolved	ND		mg/L	0.10	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:10	SRT	C
Arsenic, Total	ND		mg/L	0.0090	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:37	SRT	B1
Arsenic, Dissolved	ND		mg/L	0.0080	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:10	SRT	C
Cadmium, Total	ND		mg/L	0.0022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:37	SRT	B1
Cadmium, Dissolved	ND		mg/L	0.0020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:10	SRT	C
Copper, Total	ND		mg/L	0.011	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:37	SRT	B1
Copper, Dissolved	ND		mg/L	0.010	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:10	SRT	C
Iron, Total	0.16		mg/L	0.067	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:37	SRT	B1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:10	SRT	C
Lead, Dissolved	ND		mg/L	0.0060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:10	SRT	C
Manganese, Total	0.011		mg/L	0.0056	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:37	SRT	B1
Manganese, Dissolved	ND		mg/L	0.0050	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:10	SRT	C
Nickel, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:37	SRT	B1
Nickel, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:10	SRT	C
Zinc, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:37	SRT	B1
Zinc, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:10	SRT	C
MICROBIOLOGY										
E. Coli	57	5	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F
Fecal Coliform	42		CFU/100mL	1	S9222D-97	10/5/18 18:37	MXH	10/6/18 16:40	LLJ	G
Total Coliform	>2419.6	6	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: **2342854004**

Date Collected: 10/5/2018 10:43

Matrix: Water

Sample ID: **TC 4**

Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
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 Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: 2342854005	Date Collected: 10/5/2018 10:15	Matrix: Water
Sample ID: TC 5	Date Received: 10/5/2018 13:50	

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Acidity, Total	ND	3	mg/L	5	SM2310B-2011			10/9/18 12:30	C_D	A
Alkalinity, Total	20	4	mg/L	5	SM2320B-2011			10/11/18 19:44	MSA	E
Ammonia-N	ND		mg/L	0.100	D6919-09			10/11/18 02:22	CMM	D
Dissolved Oxygen	11.8	2	mg/L	1.0	S4500OG-01			10/19/18 18:00	MLM	A
Nitrate/Nitrite-N	0.42		mg/L	0.20	EPA 300.0			10/6/18 18:21	CHW	A
pH	7.03	1	pH_Units		S4500HB-11			10/11/18 19:44	MSA	A
Phosphorus, Total	ND		mg/L	0.10	EPA 365.1	10/15/18 06:45	KXK	10/16/18 05:59	KXK	D
Sulfate	6.2		mg/L	2.0	EPA 300.0			10/6/18 18:21	CHW	A
Total Dissolved Solids	40		mg/L	5	S2540C-11			10/12/18 12:45	CXI	A
Total Suspended Solids	ND		mg/L	5	S2540D-11			10/11/18 15:34	D1C	A
Turbidity	1.48		NTU	0.10	SM2130B-2011			10/6/18 06:20	MBW	A
METALS										
Aluminum, Total	ND		mg/L	0.11	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:41	SRT	B1
Aluminum, Dissolved	ND		mg/L	0.10	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:13	SRT	C
Arsenic, Total	ND		mg/L	0.0090	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:41	SRT	B1
Arsenic, Dissolved	ND		mg/L	0.0080	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:13	SRT	C
Cadmium, Total	ND		mg/L	0.0022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:41	SRT	B1
Cadmium, Dissolved	ND		mg/L	0.0020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:13	SRT	C
Copper, Total	ND		mg/L	0.011	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:41	SRT	B1
Copper, Dissolved	ND		mg/L	0.010	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:13	SRT	C
Iron, Total	0.17		mg/L	0.067	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:41	SRT	B1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:13	SRT	C
Lead, Dissolved	ND		mg/L	0.0060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:13	SRT	C
Manganese, Total	0.013		mg/L	0.0056	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:41	SRT	B1
Manganese, Dissolved	0.0056		mg/L	0.0050	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:13	SRT	C
Nickel, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:41	SRT	B1
Nickel, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:13	SRT	C
Zinc, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:41	SRT	B1
Zinc, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:13	SRT	C
MICROBIOLOGY										
E. Coli	51	5	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F
Fecal Coliform	26		CFU/100mL	1	S9222D-97	10/5/18 18:12	MXH	10/6/18 16:40	LLJ	G
Total Coliform	>2419.6	6	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: **2342854005**

Date Collected: 10/5/2018 10:15

Matrix: Water

Sample ID: **TC 5**

Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
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 Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: **2342854006**

Date Collected: 10/5/2018 09:45

Matrix: Water

Sample ID: **TC 6**

Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Acidity, Total	ND	3	mg/L	5	SM2310B-2011			10/9/18 12:30	C_D	A
Alkalinity, Total	16	4	mg/L	5	SM2320B-2011			10/11/18 19:53	MSA	E
Ammonia-N	ND		mg/L	0.100	D6919-09			10/11/18 02:36	CMM	D
Dissolved Oxygen	11.5	2	mg/L	1.0	S4500OG-01			10/19/18 18:00	MLM	A
Nitrate/Nitrite-N	0.44		mg/L	0.20	EPA 300.0			10/6/18 18:33	CHW	A
pH	6.95	1	pH_Units		S4500HB-11			10/11/18 19:53	MSA	A
Phosphorus, Total	ND		mg/L	0.10	EPA 365.1	10/15/18 06:45	KXX	10/16/18 05:59	KXX	D
Sulfate	5.7		mg/L	2.0	EPA 300.0			10/6/18 18:33	CHW	A
Total Dissolved Solids	33		mg/L	5	S2540C-11			10/12/18 12:45	CXI	A
Total Suspended Solids	ND		mg/L	5	S2540D-11			10/11/18 15:34	D1C	A
Turbidity	1.78		NTU	0.10	SM2130B-2011			10/6/18 06:20	MBW	A
METALS										
Aluminum, Total	ND		mg/L	0.11	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:44	SRT	B1
Aluminum, Dissolved	ND		mg/L	0.10	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:17	SRT	C
Arsenic, Total	ND		mg/L	0.0090	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:44	SRT	B1
Arsenic, Dissolved	ND		mg/L	0.0080	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:17	SRT	C
Cadmium, Total	ND		mg/L	0.0022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:44	SRT	B1
Cadmium, Dissolved	ND		mg/L	0.0020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:17	SRT	C
Copper, Total	ND		mg/L	0.011	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:44	SRT	B1
Copper, Dissolved	ND		mg/L	0.010	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:17	SRT	C
Iron, Total	0.20		mg/L	0.067	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:44	SRT	B1
Iron, Dissolved	0.067		mg/L	0.060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:17	SRT	C
Lead, Dissolved	ND		mg/L	0.0060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:17	SRT	C
Manganese, Total	0.019		mg/L	0.0056	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:44	SRT	B1
Manganese, Dissolved	0.012		mg/L	0.0050	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:17	SRT	C
Nickel, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:44	SRT	B1
Nickel, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:17	SRT	C
Zinc, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:44	SRT	B1
Zinc, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:17	SRT	C
MICROBIOLOGY										
E. Coli	59	5	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F
Fecal Coliform	28	7	CFU/100mL	1	S9222D-97	10/5/18 18:52	MXH	10/6/18 16:52	LLJ	G
Total Coliform	>2419.6	6	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: **2342854006**

Date Collected: 10/5/2018 09:45

Matrix: Water

Sample ID: **TC 6**

Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
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Mrs. Vanessa N Badman
 Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: **2342854007** Date Collected: 10/5/2018 09:10 Matrix: Water
Sample ID: **TC 7** Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Acidity, Total	ND	3	mg/L	5	SM2310B-2011			10/9/18 12:30	C_D	A
Alkalinity, Total	72	4	mg/L	5	SM2320B-2011			10/11/18 20:03	MSA	E
Ammonia-N	ND		mg/L	0.100	D6919-09			10/11/18 03:16	CMM	D
Dissolved Oxygen	11.7	2	mg/L	1.0	S4500OG-01			10/19/18 18:00	MLM	A
Nitrate/Nitrite-N	0.86		mg/L	0.20	EPA 300.0			10/6/18 18:46	CHW	A
pH	7.49	1	pH_Units		S4500HB-11			10/11/18 20:03	MSA	A
Phosphorus, Total	ND		mg/L	0.10	EPA 365.1	10/15/18 06:45	KXK	10/16/18 05:59	KXK	D
Sulfate	14.4		mg/L	2.0	EPA 300.0			10/6/18 18:46	CHW	A
Total Dissolved Solids	113		mg/L	5	S2540C-11			10/11/18 16:15	CXI	A
Total Suspended Solids	ND		mg/L	5	S2540D-11			10/11/18 15:34	D1C	A
Turbidity	1.09		NTU	0.10	SM2130B-2011			10/6/18 06:20	MBW	A
METALS										
Aluminum, Total	ND		mg/L	0.11	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:48	SRT	B1
Aluminum, Dissolved	ND		mg/L	0.10	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:21	SRT	C
Arsenic, Total	ND		mg/L	0.0090	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:48	SRT	B1
Arsenic, Dissolved	ND		mg/L	0.0080	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:21	SRT	C
Cadmium, Total	ND		mg/L	0.0022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:48	SRT	B1
Cadmium, Dissolved	ND		mg/L	0.0020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:21	SRT	C
Copper, Total	ND		mg/L	0.011	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:48	SRT	B1
Copper, Dissolved	ND		mg/L	0.010	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:21	SRT	C
Iron, Total	0.067		mg/L	0.067	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:48	SRT	B1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:21	SRT	C
Lead, Dissolved	ND		mg/L	0.0060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:21	SRT	C
Manganese, Total	0.0099		mg/L	0.0056	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:48	SRT	B1
Manganese, Dissolved	0.0065		mg/L	0.0050	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:21	SRT	C
Nickel, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:48	SRT	B1
Nickel, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:21	SRT	C
Zinc, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:48	SRT	B1
Zinc, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:21	SRT	C
MICROBIOLOGY										
E. Coli	52	5	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F
Fecal Coliform	36	7	CFU/100mL	1	S9222D-97	10/5/18 18:52	MXH	10/6/18 16:52	LLJ	G
Total Coliform	>2419.6	6	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: **2342854007** Date Collected: 10/5/2018 09:10 Matrix: Water
 Sample ID: **TC 7** Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
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Vanessa N. Badman
 Mrs. Vanessa N Badman
 Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

 Lab ID: **2342854008** Date Collected: 10/5/2018 08:30 Matrix: Water
 Sample ID: **TC 8** Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Acidity, Total	ND	3	mg/L	5	SM2310B-2011			10/9/18 12:30	C_D	A
Alkalinity, Total	21	4	mg/L	5	SM2320B-2011			10/11/18 20:12	MSA	E
Ammonia-N	ND		mg/L	0.100	D6919-09			10/11/18 03:30	CMM	D
Dissolved Oxygen	11.6	2	mg/L	1.0	S4500OG-01			10/19/18 18:00	MLM	A
Nitrate/Nitrite-N	0.50		mg/L	0.20	EPA 300.0			10/6/18 12:39	CHW	A
pH	6.99	1	pH_Units		S4500HB-11			10/11/18 20:12	MSA	A
Phosphorus, Total	ND		mg/L	0.10	EPA 365.1	10/15/18 06:45	KXK	10/16/18 05:59	KXK	D
Sulfate	4.8		mg/L	2.0	EPA 300.0			10/6/18 12:39	CHW	A
Total Dissolved Solids	20		mg/L	5	S2540C-11			10/11/18 16:15	CXI	A
Total Suspended Solids	ND		mg/L	5	S2540D-11			10/11/18 15:34	D1C	A
Turbidity	2.94		NTU	0.10	SM2130B-2011			10/6/18 06:45	MBW	A
METALS										
Aluminum, Total	ND		mg/L	0.11	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:52	SRT	B1
Aluminum, Dissolved	ND		mg/L	0.10	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:25	SRT	C
Arsenic, Total	ND		mg/L	0.0090	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:52	SRT	B1
Arsenic, Dissolved	ND		mg/L	0.0080	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:25	SRT	C
Cadmium, Total	ND		mg/L	0.0022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:52	SRT	B1
Cadmium, Dissolved	ND		mg/L	0.0020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:25	SRT	C
Copper, Total	ND		mg/L	0.011	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:52	SRT	B1
Copper, Dissolved	ND		mg/L	0.010	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:25	SRT	C
Iron, Total	0.29		mg/L	0.067	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:52	SRT	B1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:25	SRT	C
Lead, Dissolved	ND		mg/L	0.0060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:25	SRT	C
Manganese, Total	0.043		mg/L	0.0056	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:52	SRT	B1
Manganese, Dissolved	0.021		mg/L	0.0050	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:25	SRT	C
Nickel, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:52	SRT	B1
Nickel, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:25	SRT	C
Zinc, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:52	SRT	B1
Zinc, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:25	SRT	C
MICROBIOLOGY										
E. Coli	55	5	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F
Fecal Coliform	42	7	CFU/100mL	1	S9222D-97	10/5/18 18:37	MXH	10/6/18 16:40	LLJ	G
Total Coliform	>2419.6	6	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: **2342854008**

Date Collected: 10/5/2018 08:30

Matrix: Water

Sample ID: **TC 8**

Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
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Mrs. Vanessa N Badman
 Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: 2342854009 **Date Collected:** 10/5/2018 08:00 **Matrix:** Water
Sample ID: TC 9 **Date Received:** 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
WET CHEMISTRY										
Acidity, Total	ND	3	mg/L	5	SM2310B-2011			10/9/18 12:30	C_D	A
Alkalinity, Total	7	4	mg/L	5	SM2320B-2011			10/11/18 20:58	MSA	A
Ammonia-N	ND		mg/L	0.100	D6919-09			10/15/18 01:17	NJA	D
Dissolved Oxygen	11.8	2	mg/L	1.0	S4500OG-01			10/19/18 18:00	MLM	A
Nitrate/Nitrite-N	0.24		mg/L	0.20	EPA 300.0			10/6/18 12:52	CHW	A
pH	6.65	1	pH_Units		S4500HB-11			10/11/18 20:58	MSA	A
Phosphorus, Total	ND		mg/L	0.10	EPA 365.1	10/15/18 06:45	KXK	10/16/18 05:59	KXK	D
Sulfate	3.7		mg/L	2.0	EPA 300.0			10/6/18 12:52	CHW	A
Total Dissolved Solids	24		mg/L	5	S2540C-11			10/11/18 16:15	CXI	A
Total Suspended Solids	ND		mg/L	5	S2540D-11			10/11/18 15:34	D1C	A
Turbidity	1.90		NTU	0.10	SM2130B-2011			10/6/18 06:45	MBW	A
METALS										
Aluminum, Total	0.13		mg/L	0.11	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:55	SRT	B1
Aluminum, Dissolved	ND		mg/L	0.10	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:28	SRT	C
Arsenic, Total	ND		mg/L	0.0090	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:55	SRT	B1
Arsenic, Dissolved	ND		mg/L	0.0080	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:28	SRT	C
Cadmium, Total	ND		mg/L	0.0022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:55	SRT	B1
Cadmium, Dissolved	ND		mg/L	0.0020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:28	SRT	C
Copper, Total	ND		mg/L	0.011	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:55	SRT	B1
Copper, Dissolved	ND		mg/L	0.010	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:28	SRT	C
Iron, Total	0.19		mg/L	0.067	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:55	SRT	B1
Iron, Dissolved	ND		mg/L	0.060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:28	SRT	C
Lead, Dissolved	ND		mg/L	0.0060	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:28	SRT	C
Manganese, Total	0.016		mg/L	0.0056	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:55	SRT	B1
Manganese, Dissolved	0.0087		mg/L	0.0050	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:28	SRT	C
Nickel, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:55	SRT	B1
Nickel, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:28	SRT	C
Zinc, Total	ND		mg/L	0.022	SW846 6010C	10/10/18 13:20	BMK	10/12/18 11:55	SRT	B1
Zinc, Dissolved	ND		mg/L	0.020	SW846 6010C	10/9/18 07:22	SRT	10/15/18 13:28	SRT	C
MICROBIOLOGY										
E. Coli	30	5	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F
Fecal Coliform	23	7	CFU/100mL	1	S9222D-97	10/5/18 18:37	MXH	10/6/18 16:40	LLJ	G
Total Coliform	>2419.6	6	MPN/100mL	1	S9223B-04	10/6/18 12:45	LLJ	10/7/18 12:53	MBR	F

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

Lab ID: **2342854009** Date Collected: 10/5/2018 08:00 Matrix: Water
 Sample ID: **TC 9** Date Received: 10/5/2018 13:50

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
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Vanessa N. Badman
 Mrs. Vanessa N Badman
 Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2342854001	1	TC 1	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854001	2	TC 1	S4500OG-01	Dissolved Oxygen
The dissolved oxygen analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854001	3	TC 1	SM2310B-2011	Acidity, Total
The Total Acidity is titrated to a pH of 8.3 and reported as mg CaCO3/L.				
2342854001	4	TC 1	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2342854001	5	TC 1	S9223B-04	E. Coli
Analyte was analyzed past the 8 hour holding time.				
2342854001	6	TC 1	S9223B-04	Total Coliform
Analyte was analyzed past the 8 hour holding time.				
2342854001	7	TC 1	S9222D-97	Fecal Coliform
This is an estimated result. based on non-ideal colony counts. Per PADEP guidelines, results that do not fall between 20-60 colonies on a single plate are to be reported as an estimated value.				
2342854002	1	TC 2	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854002	2	TC 2	S4500OG-01	Dissolved Oxygen
The dissolved oxygen analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854002	3	TC 2	SM2310B-2011	Acidity, Total
The Total Acidity is titrated to a pH of 8.3 and reported as mg CaCO3/L.				
2342854002	4	TC 2	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2342854002	5	TC 2	S9223B-04	E. Coli
Analyte was analyzed past the 8 hour holding time.				
2342854002	6	TC 2	S9223B-04	Total Coliform
Analyte was analyzed past the 8 hour holding time.				
2342854002	7	TC 2	S9222D-97	Fecal Coliform
This is an estimated result. based on non-ideal colony counts. Per PADEP guidelines, results that do not fall between 20-60 colonies on a single plate are to be reported as an estimated value.				
2342854003	1	TC 3	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854003	2	TC 3	S4500OG-01	Dissolved Oxygen
The dissolved oxygen analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854003	3	TC 3	SM2310B-2011	Acidity, Total
The Total Acidity is titrated to a pH of 8.3 and reported as mg CaCO3/L.				

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

2342854003	4	TC 3	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2342854003	5	TC 3	S9223B-04	E. Coli
Analyte was analyzed past the 8 hour holding time.				
2342854003	6	TC 3	S9223B-04	Total Coliform
Analyte was analyzed past the 8 hour holding time.				
2342854004	1	TC 4	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854004	2	TC 4	S4500OG-01	Dissolved Oxygen
The dissolved oxygen analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854004	3	TC 4	SM2310B-2011	Acidity, Total
The Total Acidity is titrated to a pH of 8.3 and reported as mg CaCO ₃ /L.				
2342854004	4	TC 4	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2342854004	5	TC 4	S9223B-04	E. Coli
Analyte was analyzed past the 8 hour holding time.				
2342854004	6	TC 4	S9223B-04	Total Coliform
Analyte was analyzed past the 8 hour holding time.				
2342854005	1	TC 5	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854005	2	TC 5	S4500OG-01	Dissolved Oxygen
The dissolved oxygen analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854005	3	TC 5	SM2310B-2011	Acidity, Total
The Total Acidity is titrated to a pH of 8.3 and reported as mg CaCO ₃ /L.				
2342854005	4	TC 5	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2342854005	5	TC 5	S9223B-04	E. Coli
Analyte was analyzed past the 8 hour holding time.				
2342854005	6	TC 5	S9223B-04	Total Coliform
Analyte was analyzed past the 8 hour holding time.				
2342854006	1	TC 6	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854006	2	TC 6	S4500OG-01	Dissolved Oxygen
The dissolved oxygen analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854006	3	TC 6	SM2310B-2011	Acidity, Total
The Total Acidity is titrated to a pH of 8.3 and reported as mg CaCO ₃ /L.				
2342854006	4	TC 6	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

2342854006	5	TC 6	S9223B-04	E. Coli
Analyte was analyzed past the 8 hour holding time.				
2342854006	6	TC 6	S9223B-04	Total Coliform
Analyte was analyzed past the 8 hour holding time.				
2342854006	7	TC 6	S9222D-97	Fecal Coliform
Analyte was analyzed past the 8 hour holding time.				
2342854007	1	TC 7	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854007	2	TC 7	S4500OG-01	Dissolved Oxygen
The dissolved oxygen analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854007	3	TC 7	SM2310B-2011	Acidity, Total
The Total Acidity is titrated to a pH of 8.3 and reported as mg CaCO ₃ /L.				
2342854007	4	TC 7	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2342854007	5	TC 7	S9223B-04	E. Coli
Analyte was analyzed past the 8 hour holding time.				
2342854007	6	TC 7	S9223B-04	Total Coliform
Analyte was analyzed past the 8 hour holding time.				
2342854007	7	TC 7	S9222D-97	Fecal Coliform
Analyte was analyzed past the 8 hour holding time.				
2342854008	1	TC 8	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854008	2	TC 8	S4500OG-01	Dissolved Oxygen
The dissolved oxygen analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854008	3	TC 8	SM2310B-2011	Acidity, Total
The Total Acidity is titrated to a pH of 8.3 and reported as mg CaCO ₃ /L.				
2342854008	4	TC 8	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2342854008	5	TC 8	S9223B-04	E. Coli
Analyte was analyzed past the 8 hour holding time.				
2342854008	6	TC 8	S9223B-04	Total Coliform
Analyte was analyzed past the 8 hour holding time.				
2342854008	7	TC 8	S9222D-97	Fecal Coliform
Analyte was analyzed past the 8 hour holding time.				
2342854009	1	TC 9	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2342854009	2	TC 9	S4500OG-01	Dissolved Oxygen
The dissolved oxygen analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				

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ANALYTICAL RESULTS

Workorder: 2342854 Toms Creek

2342854009	3	TC 9	SM2310B-2011	Acidity, Total
The Total Acidity is titrated to a pH of 8.3 and reported as mg CaCO3/L.				
2342854009	4	TC 9	SM2320B-2011	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2342854009	5	TC 9	S9223B-04	E. Coli
Analyte was analyzed past the 8 hour holding time.				
2342854009	6	TC 9	S9223B-04	Total Coliform
Analyte was analyzed past the 8 hour holding time.				
2342854009	7	TC 9	S9222D-97	Fecal Coliform
Analyte was analyzed past the 8 hour holding time.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2342854 Toms Creek

Lab ID	Sample ID	Analysis Method	Prep Method
2342854001	TC 1	D6919-09	
2342854001	TC 1	EPA 300.0	
2342854001	TC 1	EPA 365.1	EPA 365.1
2342854001	TC 1	S2540C-11	
2342854001	TC 1	S2540D-11	
2342854001	TC 1	S4500HB-11	
2342854001	TC 1	S4500OG-01	
2342854001	TC 1	S9222D-97	S9222D-97
2342854001	TC 1	S9223B-04	S9223B-04
2342854001	TC 1	SM2130B-2011	
2342854001	TC 1	SM2310B-2011	
2342854001	TC 1	SM2320B-2011	
2342854001	TC 1	SW846 6010C	SW846 3015
2342854001	TC 1	SW846 6010C	SW846 6010C
2342854002	TC 2	D6919-09	
2342854002	TC 2	EPA 300.0	
2342854002	TC 2	EPA 365.1	EPA 365.1
2342854002	TC 2	S2540C-11	
2342854002	TC 2	S2540D-11	
2342854002	TC 2	S4500HB-11	
2342854002	TC 2	S4500OG-01	
2342854002	TC 2	S9222D-97	S9222D-97
2342854002	TC 2	S9223B-04	S9223B-04
2342854002	TC 2	SM2130B-2011	
2342854002	TC 2	SM2310B-2011	
2342854002	TC 2	SM2320B-2011	
2342854002	TC 2	SW846 6010C	SW846 3015
2342854002	TC 2	SW846 6010C	SW846 6010C
2342854003	TC 3	D6919-09	
2342854003	TC 3	EPA 300.0	
2342854003	TC 3	EPA 365.1	EPA 365.1
2342854003	TC 3	S2540C-11	
2342854003	TC 3	S2540D-11	
2342854003	TC 3	S4500HB-11	
2342854003	TC 3	S4500OG-01	
2342854003	TC 3	S9222D-97	S9222D-97
2342854003	TC 3	S9223B-04	S9223B-04
2342854003	TC 3	SM2130B-2011	
2342854003	TC 3	SM2310B-2011	
2342854003	TC 3	SM2320B-2011	
2342854003	TC 3	SW846 6010C	SW846 3015
2342854003	TC 3	SW846 6010C	SW846 6010C
2342854004	TC 4	D6919-09	
2342854004	TC 4	EPA 300.0	
2342854004	TC 4	EPA 365.1	EPA 365.1
2342854004	TC 4	S2540C-11	

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2342854 Toms Creek

Lab ID	Sample ID	Analysis Method	Prep Method
2342854004	TC 4	S2540D-11	
2342854004	TC 4	S4500HB-11	
2342854004	TC 4	S4500OG-01	
2342854004	TC 4	S9222D-97	S9222D-97
2342854004	TC 4	S9223B-04	S9223B-04
2342854004	TC 4	SM2130B-2011	
2342854004	TC 4	SM2310B-2011	
2342854004	TC 4	SM2320B-2011	
2342854004	TC 4	SW846 6010C	SW846 3015
2342854004	TC 4	SW846 6010C	SW846 6010C
2342854005	TC 5	D6919-09	
2342854005	TC 5	EPA 300.0	
2342854005	TC 5	EPA 365.1	EPA 365.1
2342854005	TC 5	S2540C-11	
2342854005	TC 5	S2540D-11	
2342854005	TC 5	S4500HB-11	
2342854005	TC 5	S4500OG-01	
2342854005	TC 5	S9222D-97	S9222D-97
2342854005	TC 5	S9223B-04	S9223B-04
2342854005	TC 5	SM2130B-2011	
2342854005	TC 5	SM2310B-2011	
2342854005	TC 5	SM2320B-2011	
2342854005	TC 5	SW846 6010C	SW846 3015
2342854005	TC 5	SW846 6010C	SW846 6010C
2342854006	TC 6	D6919-09	
2342854006	TC 6	EPA 300.0	
2342854006	TC 6	EPA 365.1	EPA 365.1
2342854006	TC 6	S2540C-11	
2342854006	TC 6	S2540D-11	
2342854006	TC 6	S4500HB-11	
2342854006	TC 6	S4500OG-01	
2342854006	TC 6	S9222D-97	S9222D-97
2342854006	TC 6	S9223B-04	S9223B-04
2342854006	TC 6	SM2130B-2011	
2342854006	TC 6	SM2310B-2011	
2342854006	TC 6	SM2320B-2011	
2342854006	TC 6	SW846 6010C	SW846 3015
2342854006	TC 6	SW846 6010C	SW846 6010C
2342854007	TC 7	D6919-09	
2342854007	TC 7	EPA 300.0	
2342854007	TC 7	EPA 365.1	EPA 365.1
2342854007	TC 7	S2540C-11	
2342854007	TC 7	S2540D-11	
2342854007	TC 7	S4500HB-11	
2342854007	TC 7	S4500OG-01	
2342854007	TC 7	S9222D-97	S9222D-97

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2342854 Toms Creek

Lab ID	Sample ID	Analysis Method	Prep Method
2342854007	TC 7	S9223B-04	S9223B-04
2342854007	TC 7	SM2130B-2011	
2342854007	TC 7	SM2310B-2011	
2342854007	TC 7	SM2320B-2011	
2342854007	TC 7	SW846 6010C	SW846 3015
2342854007	TC 7	SW846 6010C	SW846 6010C
2342854008	TC 8	D6919-09	
2342854008	TC 8	EPA 300.0	
2342854008	TC 8	EPA 365.1	EPA 365.1
2342854008	TC 8	S2540C-11	
2342854008	TC 8	S2540D-11	
2342854008	TC 8	S4500HB-11	
2342854008	TC 8	S4500OG-01	
2342854008	TC 8	S9222D-97	S9222D-97
2342854008	TC 8	S9223B-04	S9223B-04
2342854008	TC 8	SM2130B-2011	
2342854008	TC 8	SM2310B-2011	
2342854008	TC 8	SM2320B-2011	
2342854008	TC 8	SW846 6010C	SW846 3015
2342854008	TC 8	SW846 6010C	SW846 6010C
2342854009	TC 9	D6919-09	
2342854009	TC 9	EPA 300.0	
2342854009	TC 9	EPA 365.1	EPA 365.1
2342854009	TC 9	S2540C-11	
2342854009	TC 9	S2540D-11	
2342854009	TC 9	S4500HB-11	
2342854009	TC 9	S4500OG-01	
2342854009	TC 9	S9222D-97	S9222D-97
2342854009	TC 9	S9223B-04	S9223B-04
2342854009	TC 9	SM2130B-2011	
2342854009	TC 9	SM2310B-2011	
2342854009	TC 9	SM2320B-2011	
2342854009	TC 9	SW846 6010C	SW846 3015
2342854009	TC 9	SW846 6010C	SW846 6010C

ALS Environmental Laboratory Locations Across North America
Canada: Burlington · Calgary · Centre of Excellence · Edmonton · Fort McMurray · Fort St. John · Grande Prairie · London · Mississauga · Richmond Hill · Saskatoon · Thunder Bay
Vancouver Waterloo · Winnipeg · Yellowknife **United States:** Cincinnati · Everett · Fort Collins · Holland · Houston · Middletown · Salt Lake City · Spring City · York **Mexico:** Monterrey

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430

**CHAIN OF CUSTODY/
REQUEST FOR ANALYSIS**

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT/
SAMPLER. INSTRUCTIONS ON THE BACK.

Page 1 of 2
Courier:
Tracking #:



Co. Name: AECOM
Contact (Report to): DAVE MCONEY
Address: 100 STERLING PARKWAY
SUITE 205
MECHANICSBORO, PA 17050
Phone: 717-635-1109
PO#:

Project Name/Location: Tom's Creek
ALS Quote #:
TAT: Normal-Standard TAT is 10-12 business days.
 Rush-Subject to ALS approval and surcharges.

Date Required:
Approved By:

Sample	Description/Location	COC Comments	Sample Date	Military Time
1	TC 1		5/22/16	1210
2	TC 2		5/22/16	1145
3	TC 3		5/23/16	1115
4	TC 4		5/23/16	1045
5	TC 5		5/23/16	1015
6	TC 6		5/23/16	0945
7	TC 7		5/23/16	0910
8	TC 8		5/23/16	0830

SAMPLED BY (Please Print): TYLER BEACH
Relinquished By / Company Name: AECOM
Date: 10/18/18
Time: 1350
Received By / Company Name: GUN AG
Date: 10/18/18
Time: 1350
Project Comments: Full Fumes Received 5/10/18/18 5510/18/18
*Not received 5/10/18/18 5510/18/18

Container Type	Site	Preservative	NO3/NH4 SO4 TREN TOS	TOTAL METALS	DISSOLVED METALS	PHOSPHORUS & AMMONIA	ALKALINITY & ACIDITY	TOTAL CATIONS & ANIONS	FEAR CATIONS
26	250ml	250ml	250ml	250ml	250ml	250ml	250ml	100ml	100ml
26	250ml	250ml	250ml	250ml	250ml	250ml	250ml	100ml	100ml
26	250ml	250ml	250ml	250ml	250ml	250ml	250ml	100ml	100ml
26	250ml	250ml	250ml	250ml	250ml	250ml	250ml	100ml	100ml
26	250ml	250ml	250ml	250ml	250ml	250ml	250ml	100ml	100ml
26	250ml	250ml	250ml	250ml	250ml	250ml	250ml	100ml	100ml
26	250ml	250ml	250ml	250ml	250ml	250ml	250ml	100ml	100ml
26	250ml	250ml	250ml	250ml	250ml	250ml	250ml	100ml	100ml
26	250ml	250ml	250ml	250ml	250ml	250ml	250ml	100ml	100ml

Correct containers?	(if present) Seals Intact?	Correct sample volume?	Correct preservation?	Headspace/Volatiles?	Container in good condition?
Y	Y	Y	Y	Y	Y
N	N	N	N	N	N
N	N	N	N	N	N
N	N	N	N	N	N
N	N	N	N	N	N
N	N	N	N	N	N

ALS FIELD SERVICES
Pickup <input type="checkbox"/>
Labor <input type="checkbox"/>
Composite Sampling <input type="checkbox"/>
Rental Equipment <input type="checkbox"/>
Other <input type="checkbox"/>

Enter Number of Containers Per Analysis	Standard	Data Deliverable	SIWA Form? <input type="checkbox"/>	SIWA Samples Ducted In? <input type="checkbox"/>
1	CLP-like	CLP-like	Yes <input type="checkbox"/>	MD <input type="checkbox"/>
1	NJ-Reduced	NJ-Reduced	Yes <input type="checkbox"/>	NJ <input type="checkbox"/>
1	NJ-Full	NJ-Full	Yes <input type="checkbox"/>	NY <input type="checkbox"/>
1	Other	Other	Yes <input type="checkbox"/>	PA <input checked="" type="checkbox"/>
1	Other	Other	Yes <input type="checkbox"/>	Other <input type="checkbox"/>

ANALYSES/METHOD REQUESTED

Notes:
No. of Coolers: 318
Therm. ID: 318
Receptor information: (Specify by Sampling Method)
Perennial Ice: COOL HERE
Cooler Temp: 1°C

34 Dogwood Lane
Middletown, PA 17057
P. 717-944-5541
F. 717-944-1430



**CHAIN OF CUSTODY/
REQUEST FOR ANALYSIS**

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT/
SAMPLER. INSTRUCTIONS ON THE BACK.

Page 2 of 2
Counter: _____
Tracking #: _____

23400854

Co. Name: AECOM
 Contact (Report to): DAUC MOONEY Phone: 717-635-7907
 Address: 100 STEELWICH PARKWAY SUITE 205
 MECHANICSBURG PA 17050
 Bill to (if different than Report to): PO#: _____
 Project Name#: TOM'S CREEK ALS Quote #: _____
 TAT: Normal-Standard TAT is 10-12 business days. Date Required: _____
 Rush-Subject to ALS approval and surcharges. Approved By: _____
 Email? Y N
 Fax? Y N

Container Type	Size	Preservative	Matrix	DO, PH, NO3, NH2 S04	TOX, TOXICITY	TOTAL METALS	DISSOLVED METALS	PHOSPHORUS & AMMONIA	ACRAVICIN & ACTIVITY	TOTAL COLIFORM, E. COLI	FECAL COLIFORM
9	200	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3
9	200	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3
9	200	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3
9	200	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3
9	200	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3
9	200	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3
9	200	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3
9	200	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3
9	200	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3
9	200	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3	NO3

Receipt Information (Completed by Service Provider)
 Performed by: S. J. BERE
 Cooler Temp: A.C
 Therm. ID: 318
 No. of Coolers:
 Notes:
 Correct containers? N
 Correct sample volume? N
 Correct preservation? N
 Headspace/Volatiles? N
 Container in good condition? N

ALS FIELD SERVICES
 Pickup
 Labor
 Composite Sampling
 Rental Equipment
 Other

Enter Number of Containers Per Analysis
 Standard CLP-like NJ-Reduced NJ-Full
 SOWA Forms? Yes No
 State Samples Collected in? MD NJ NY PA
 EDS Required? If yes, format type: _____
 DOD Criteria Required?

Sample No.	Sample Date	Military Time	COC Comments	Date	Time	Received By / Company Name
1	TC-9	0800		05/18	1350	DAUC MOONEY AECOM
2						
3						
4						
5						
6						
7						
8						
9						

SAMPLED BY (Please Print): TYLER BEAM
 Project Comments: Full F-101100
 Requisitioned By / Company Name: AECOM
 Date: 05/18/13
 Time: 1350
 Received By / Company Name: DAUC MOONEY AECOM
 Date: 05/18/13
 Time: 1350

Copies: WHITE - ORIGINAL CANARY - CUSTOMER COPY
 * G=Grab; C=Composite
 **Matrix: A=Air; D=W-Drinking Water; G=W-Groundwater; O=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipes; WW=Wastewater
 ***Container Type: AG-Ambor Glass; CG-Clear Glass, PL-Plastic. Container Size: 260ml, 500ml, 1L, 8oz, etc. Preservative: HCl, HNO3, NaOH, etc.
 Rev 01-2013

23#2854

AFCOM

10/5/18

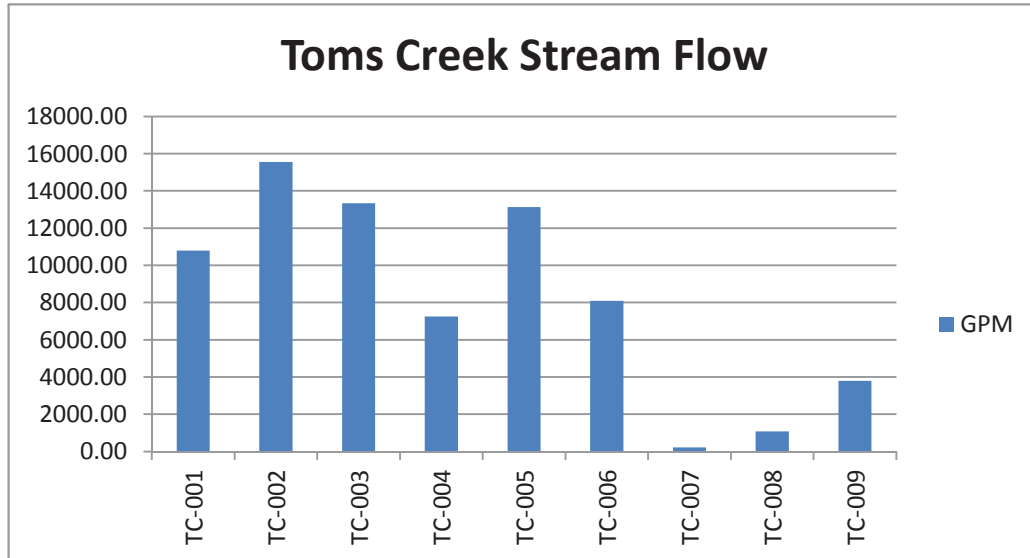
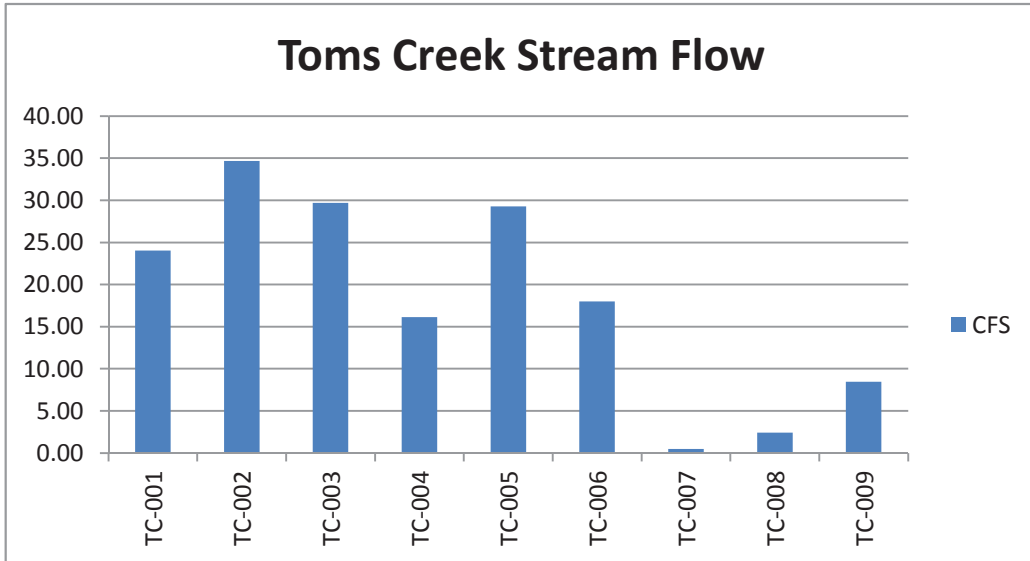
TC-1 Tc/Ec 10052018008	TC-4 Fecal 10052018015	TC-8 Tc/Ec 10052018022
TC-1 Fecal 10052018009	TC-5 Tc/Ec 10052018016	TC-8 Fecal 10052018023
TC-2 Tc/Ec 10052018010	TC-5 Fecal 10052018017	TC-9 Tc/Ec 10052018024
TC-2 Fecal 10052018011	TC-6 Tc/Ec 10052018018	TC-9 Fecal 10052018025
TC-3 Tc/Ec 10052018012	TC-6 Fecal 10052018019	
TC-3 Fecal 10052018013	TC-7 Tc/Ec 10052018020	
TC-4 Tc/Ec 10052018014	TC-7 Fecal 10052018021	

**Attachment
Field Data**

SGI Annual Toms Creek Monitoring
2018

Site Name	Location		Flow	
	Lat	Long	Cubic Feet per second (CFS)	Gallon per Minute (GPM)
TC-001	39.775492°	-77.393543°	24.02	10782.64
TC-002	39.774604°	-77.406771°	34.66	15555.46
TC-003	39.769134°	-77.417354°	29.71	13335.72
TC-004	39.771621°	-77.429166°	16.14	7242.65
TC-005	39.767905°	-77.433560°	29.26	13134.16
TC-006	39.770962°	-77.440973°	18.01	8083.93
TC-007	39.767768°	-77.448790°	0.49	219.05
TC-008	39.767485°	-77.449725°	2.41	1082.81
TC-009	39.768043°	-77.450029°	8.45	3794.81

SGI Annual Toms Creek Monitoring
2018



CFS = cubic feet per second

GPM = gallons per minute

SGI Toms Creek Annual Monitoring
2018

Site	Location		pH	Specific Conductivity (µS/m)	ORP (mV)	Dissolved Oxygen (mg/L)	Temperature (C°)	Turbidity (NTU)
	Lat	Long						
TC - 001	39.775492°	-77.393543°	7.60	55.00	207.00	6.90	16.10	0.20
TC - 002	39.774604°	-77.406771°	7.72	54.00	265.00	7.50	15.90	1.70
TC - 003	39.769134°	-77.417354°	7.76	59.00	215.00	7.10	16.00	0.00
TC - 004	39.771621°	-77.429166°	7.70	55.00	213.00	6.30	16.00	0.00
TC - 005	39.767905°	-77.433560°	7.65	54.00	225.00	6.30	16.20	0.30
TC - 006	39.770962°	-77.440973°	7.59	45.00	223.00	6.70	16.30	1.60
TC - 007	39.767768°	-77.448790°	7.34	142.00	282.00	5.30	16.70	0.00
TC - 008	39.767485°	-77.449725°	6.65	56.00	292.00	6.00	16.50	0.50
TC - 009	39.768043°	-77.450029°	5.29	73.00	*MCAR	6.00	17.80	0.00

Notes:

*MCAR- Missing Completely at Random

Attachment
2018 Precipitation Data – SGI Charmain Plant



CHARMIAN PLANT, BLUE RIDGE SUMMIT, PA

2018 Precipitation

Prepared By: *Matthew R. Watson*
Environmental Coordinator

Monthly Measurable Precipitation 2018 - PITTS POND

Month	January	February	March	April	May	June	July	August	September	October	November	December
Precip.	0.10 9 1.33 13 0.10 17 1.86 23 0.22 29 0.12 30	1.16 5 0.52 12 0.06 15 0.84 16 0.84 17 0.32 20 0.08 22 0.49 24 0.80 26	0.56 2 1.43 22 0.09 28 0.23 29 0.22 31	0.87 3 0.33 4 0.02 5 0.06 11 0.05 12 3.12 16 0.80 17 0.23 18 0.23 19 1.25 21 23	1.27 7 0.03 8 0.25 11 0.76 14 0.06 15 0.18 16 0.37 19 0.26 20 0.28 31	0.44 1 0.52 2 1.13 4 0.46 6 2.09 24 0.08 26 0.03 28 0.28 31	0.88 5 0.67 18 5.00 22 2.00 23 0.89 24 2.22 9 0.15 14 0.42 31	0.16 1 0.64 2 1.28 3 0.51 4 0.32 10 1.88 11 0.28 13 0.03 15 0.11 16 0.22 13 0.24 16 0.19 14 0.48 20 0.23 18 1.90 22 0.31 22 1.90 22 0.10 24 0.50 25 1.41 25 0.05 26 0.48 27 1.30 28	0.04 4 0.08 5 0.52 6 1.64 8 4.86 12 0.28 13 0.03 15 0.11 16 0.24 16 0.19 14 0.48 20 0.23 18 1.90 22 0.31 22 1.90 22 0.10 24 0.50 25 1.41 25 0.05 26 0.48 27 1.30 28	0.03 3 0.60 5 0.01 8 0.11 11 0.54 12 0.19 13 0.11 16 0.02	=	=
Monthly Total (Inches)	3.73	5.11	2.53	5.48	4.52	7.03	12.23	8.26	12.73	1.61	0.00	0.00
Annual Monthly Average	2.66	2.74	3.71	3.81	4.14	4.19	3.74	3.14	4.04	3.24	3.66	3.35
Average Annual Precipitation	Total for Year = 63.23											

* T = Trace Amounts of Precipitation

* Measurement recorded at Pitts Pond Pier at 9:00am on the date gauge is emptied

RED = Below Average Precipitation

Total Precipitation 2018

