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**2019 THIRD QUARTER REPORT**  
**WATER RESOURCES MONITORING**  
**BLACK BUTTE COPPER**

Prepared for:

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June 2020

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**2019 THIRD QUARTER REPORT**  
**WATER RESOURCES MONITORING**  
**BLACK BUTTE COPPER**

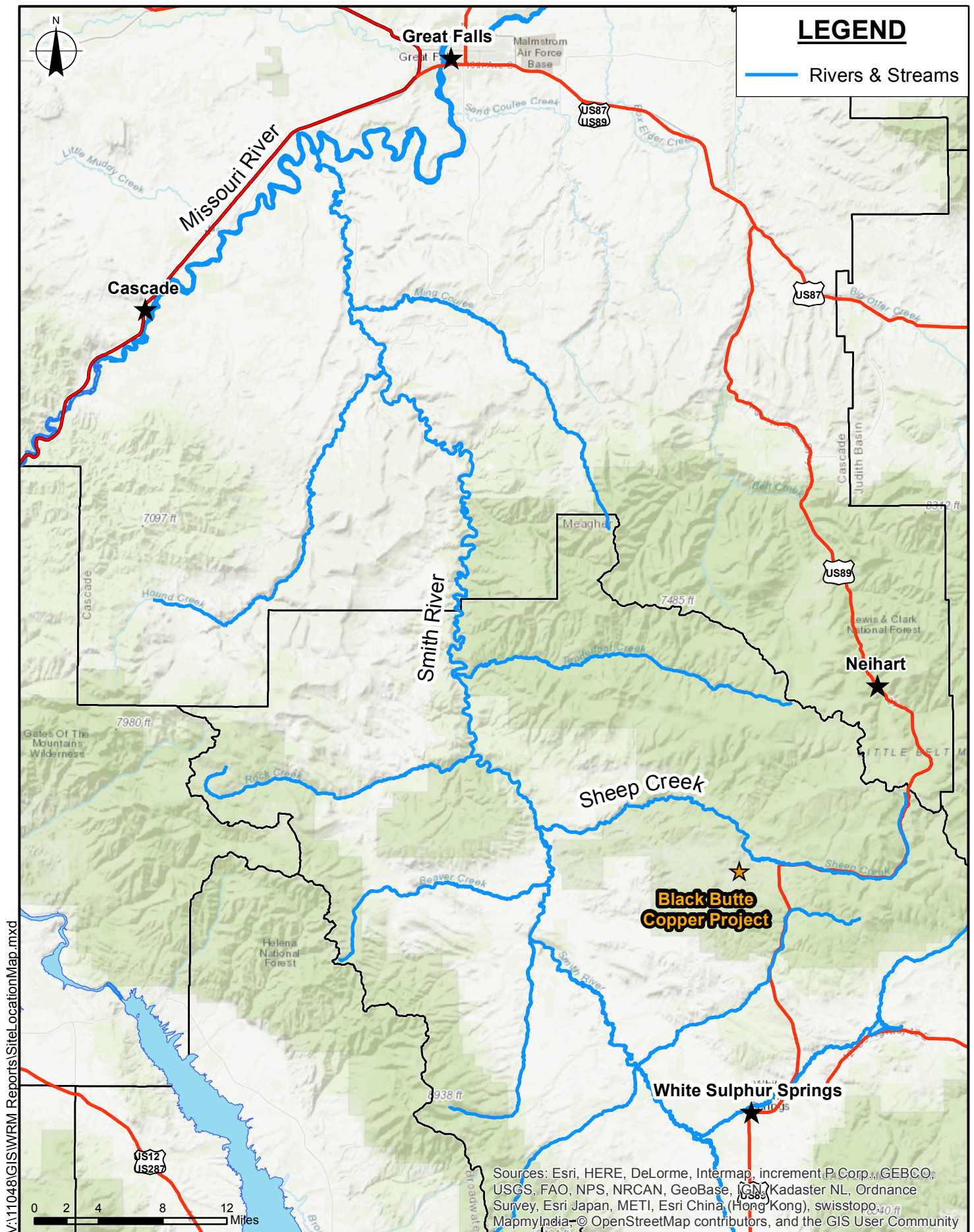
**1.0 INTRODUCTION**

Tintina Montana, Inc., a wholly owned subsidiary of Sandfire America Resources, Inc., contracted Hydrometrics, Inc. to conduct baseline water resources monitoring for the Black Butte Copper Project (Project) during the third quarter of 2019. The Project is located 15 miles north of White Sulphur Springs, in Meagher County, Montana (Figure 1). Baseline water resources monitoring and hydrologic investigations have been conducted at the Project since 2011 (Hydrometrics, 2015). The monitoring and investigations are being conducted in support of permitting activities for the exploration and development of copper-bearing massive sulfide deposits within the lower Newland Formation.

Water resources monitoring for the Project consists of monthly, quarterly, and annual monitoring programs which are conducted in accordance with the 2016 Field Sampling and Analysis Plan (FSAP) (Hydrometrics, 2016). The water resources monitoring programs are summarized below and the location, sampling schedule, and description of each water resources monitoring site is listed in Table 1.

*Monthly Monitoring Program*

The monthly monitoring program includes monitoring at eight surface water sites, consisting of collecting flow and stage measurements (where staff gages are present) and field parameters at all sites and water quality samples from seven of the sites; and monitoring at 17 spring sites (including nine developed springs), consisting of collecting flow measurements and field parameters at all sites and water quality samples from 11 of the sites.



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— Rivers & Streams

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Sources: Esri, HERE, DeLorme, Intermap, increment P. Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

**Figure 1**  
**Location Map**  
**Black Butte Copper Project**  
**Meagher County, Montana**

**TABLE 1. BASELINE MONITORING SITE DESCRIPTION AND SUMMARY**

Monitoring Site	Eastings (meters)	Northing (meters)	Monitoring Frequency	Flow or Water Level	Field Parameters	Lab Analysis	Location / Monitoring Well Construction
	WGS 1984 - UTM Zone 12 N						
<b>Surface Water Sites</b>							
SW-1	507148	5182710	M	X	X	X	Sheep Creek - Downgradient site; at bridge on County Road 119.
SW-2	511040	5179844	M	X	X	X	Sheep Creek - Upgradient site; Highway 89 right-of-way, approximately 0.6 miles east of county road intersection.
SW-3	506996	5180581	M	X	X	X	Unnamed tributary to Sheep Creek - at intersection of County Road 119 and USFS Road 64992.
SW-4	506308	5180114	Q	X	X	--	Unnamed tributary to Sheep Creek - approximately 0.6 miles southwest of County Road 119/USFS Road 6492 intersection.
SW-5	503914	5181465	Q	X	X	X	Unnamed tributary To Black Butte Creek - West of Moose Pass, where jeep trail crosses drainage.
SW-6	507919	5179536	Q	X	X	X	Unnamed tributary to Little Sheep Creek - approximately 0.25 miles south of County Road 119.
SW-8	509575	5179476	Q	X	X	--	Little Sheep Creek - Approximately 0.5 miles from Highway 89.
SW-9	503944	5179271	Q	X	X	--	Black Butte Creek - at USFS Road 6492 crossing.
SW-10	504665	5178322	Q	X	X	--	Butte Creek - approximately 0.7 miles upstream of SW-9.
SW-11	501951	5181021	Q	X	X	X	Black Butte Creek - Downgradient of confluence with Unnamed tributary to Butte Creek (west of Moose Pass).
SW-14	507876	5180008	M	X	X	X	Little Sheep Creek - Downstream of SW-8, approximately 1.0 miles from Highway 89.
SW-17	506919	5181218	M	X	X	X	Coon Creek - approximately 150 feet upstream of the confluence with Sheep Creek.
SW-18	507876	5180008	M	X	X	X	Coon Creek - head of drainage, upgradient of wetlands, south of USFS Road 6492.
SW-19	504745	5177675	M	X	X	--	Black Butte Creek - upstream of SW-10 in the SWSWSE Section 35 T12N R06E.
USGS-SC1	514509	5179419	M	X	X	X	Approximately 2.4 miles upstream of SW-2 on Sheep Creek.

**TABLE 1. BASELINE MONITORING SITE DESCRIPTION AND SUMMARY (CONTINUED)**

Monitoring Site	Easting (meters)	Northing (meters)	Monitoring Frequency	Flow or Water Level	Field Parameters	Lab Analysis	Location / Monitoring Well Construction
	WGS 1984 - UTM Zone 12 N						
<b>Springs</b>							
SP-1	506283.07	5180101.39	A	X	X	--	Spring/Seep on west bank of Coon Creek approximately 150 feet downgradient of surface water site SW-4.
SP-2	505833.97	5180907.34	A	X	X	--	Spring in small unnamed tributary drainage to lower Coon Creek in SESW Section 24 T12N R06E.
SP-3	506370.58	5182241.55	M	X	X	X	Spring in small unnamed tributary to Sheep Creek in NWNE Section 24 T12N R06E.
SP-4	506425.17	5180468.94	M	X	X	X	Spring at head of unnamed tributary to Coon Creek, in E2NE Section 25 T12N R06E.
SP-5	506478.82	5178985.42	M	X	X	X	Spring in upper Brush Creek drainage (formerly known as surface water SW-7 location).
SP-6	506219.58	5181027.89	M	X	X	X	Unnamed tributary drainage near mine site, located in SESW Section 24 T12N R06E.
SP-7	507693.69	5181137.92	M	X	X	X	North side of Strawberry Butte above tributary drainage to Sheep Creek.
SP-8	507995.89	5178745.24	A	X	X	--	North of unnamed tributary to Little Sheep Creek, approximately 0.75 miles south of USFS Road 6492 in SENW Section 31 T12N R07E.
SP-9	507502.03	5178577.92	A	X	X	--	North of unnamed tributary to Little Sheep Creek, approximately 0.3 miles west-southwest of SP-8 in SWNW Section 31 T12N R07E.
SP-10	506335.42	5178351.00	M	X	X	X	Headwaters of the southfork of Brush Creek, south of proposed portal, near the center of Section 36 T12N R06E.
SP-11*	506708	5181875	M	X	X	X	Hill slope east of Sheep Creek, in the SWNE Section 24 T12N R06E.
SP-12*	507098	5180685	M	X	X	X	Hay meadow area approximately 560 feet north of County Road 116 and USFS Road 6492 intersection.
SP-13*	507567	5181875	A	X	X	--	Unnamed tributary drainage of Sheep Creek, located approximately 730 feet west of SP-7 in the SESW Section 19 T12N R07E.

**TABLE 1. BASELINE MONITORING SITE DESCRIPTION AND SUMMARY (CONTINUED)**

Monitoring Site	Easting (meters)	Northing (meters)	Monitoring Frequency	Flow or Water Level	Field Parameters	Lab Analysis	Location / Monitoring Well Construction
	WGS 1984 - UTM Zone 12 N						
<b>Developed Springs</b>							
DS-1	506507.08	5178870.81	M	X	X	X	Developed spring, near surface water site SW-7 in upper drainage of Little Sheep Creek trib.
DS-2	505263.49	5180150.61	M	X	X	--	Developed seep/spring, southeast side of Black Butte upgradient of SP-1.
DS-3	505037.62	5181520.61	M	X	X	X	South of Moose Pass in Butte Creek drainage (upgradient of surface water site SW-5).
DS-4	506056.53	5181588.64	M	X	X	X	Unnamed tributary to Sheep Creek in Section 24 T12N R06E, north of mine area and southeast of Moose Pass.
DS-5	504761.45	5182484.96	A	X	X	--	Unnamed tributary to Sheep Creek, north of Moose Pass.
DS-6	504949.66	5182827.88	A	X	X	--	Unnamed tributary to Sheep Creek, north of Moose Pass and downstream of DS-5.
DS-7	506035.65	5181047.77	M	X	X	--	Developed spring in unnamed tributary of Coon Creek, located in SESW Section 24 T12N R06E.
DS-8	502530.17	5179153.21	M	X	X	--	Developed spring in unnamed tributary of Copper Creek, located in NWNW Section 34 T12N R06E.
DS-9	502734.06	5178282.03	M	X	X	--	Developed spring in unnamed tributary of Copper Creek, located in NESW Section 34 T12N R06E.
DS-10	503469.32	5177225.48	M	X	X	--	Developed spring in unnamed tributary of Black Butte Creek, in center of NE Sec. 03 T11N R06E.
DS-11	503314.85	5176650.87	M	X	X	--	Developed spring in unnamed tributary of Black Butte Creek, located in NWSE Sec. 03 T11N R06E.



**TABLE 1. BASELINE MONITORING SITE DESCRIPTION AND SUMMARY (CONTINUED)**

Monitoring Site	Easting (meters)	Northing (meters)	Monitoring Frequency	Flow or Water Level	Field Parameters	Lab Analysis	Location / Monitoring Well Construction
	WGS 1984 - UTM Zone 12 N						
<b>Seeps</b>							
Seep-1	507876.19	5179570.54	A	--	X	--	Seep on tributary to Little Sheep Creek (approximately 15' west of SW-6).
Seep-2	506310.6	5180089.2	A	--	X	--	Seep on east bank of Coon Creek (approximately 150 feet downgradient of SW-4).
Seep-3	507821.16	5180537.25	A	--	X	--	Seep located on eastern side of Strawberry Butte.
Seep-4	507530.57	5182486.29	A	--	X	--	Seep on hillside in SWSW Section 18 T12N R07E.
Seep-5	507768.38	5182748.77	A	--	X	--	Seep on hillside in SESW Section 18 T12N R07E.
Seep-6	507853.49	5182587.27	A	--	X	--	Seep on hillside in SESW Section 18 T12N R07E.
Seep-7	507155.4	5182821.06	A	--	X	--	Seep on eastern side of County Road 119 approximately 200 feet north of Sheep Creek bridge at SW-1.
Seep-8	506701.44	5180381.64	A	--	X	--	Seep area on west hillside adjacent to lower Coon Creek.
Seep-9	504825.48	5182475.68	A	--	X	--	Seep in unnamed tributary to Sheep Creek North of Moose Pass (downgradient of DS-5).
Seep-10	507270.05	5179164.8	A	--	X	--	Spring in upper Brush Creek, upstream of Seep 1, in NWNW Section 31 T12N R07E.

**TABLE 1. BASELINE MONITORING SITE DESCRIPTION AND SUMMARY (CONTINUED)**

Monitoring Site	Easting (meters)	Northing (meters)	Monitoring Frequency	Flow or Water Level	Field Parameters	Lab Analysis	Location / Monitoring Well Construction		
	WGS 1984 - UTM Zone 12 N						Total Depth	Perforated / Screen Interval	Gravel / Sand Pack Interval
<b>Monitoring Wells</b>							<b>feet, below ground surface</b>		
MW-1A	506935.22	5180841.55	Q	X	X	X	38	25 - 34	25 - 34
MW-1B	506934.19	5180845.46	Q	X	X	X	98	88 - 98	88 - 98
MW-2A	506598.18	5180331.93	Q	X	X	X	62	52 - 62	47 - 62
MW-2B	506596.96	5180328.73	Q	X	X	X	80	70 - 80	65 - 80
MW-3	506484.07	5180740.22	Q	X	X	X	305	285 - 305	278 - 305
MW-4A	507201.47	5180855.43	Q	X	X	X	23	14-23	11 - 23
MW-4B	507200.12	5180858.49	Q	X	X	X	59	39-59	37-59
MW-6A	507809.18	5179492.85	Q	X	X	X	15	5-15	3-15
MW-6B	507792.76	5179490.71	Q	X	X	X	50	40-50	37-50
MW-7	507451.70	5179500.71	Q	X	X	X	50	40-50	37-50
MW-8	507036.00	5179398.31	Q	X	X	X	80	70-80	67-80
MW-9	506592.96	5180725.46	Q	X	X	X	143	108-128	98-144
MW-10	506578.57	5179215.05	Q	X	X	X	90	70-90	67-90
MW-11	506464.72	5179117.47	Q	X	X	X	70	50-70	46-70
MW-12	506412.82	5179010.38	Q	X	X	X	61	40-61	37-61
MW-13	506477.79	5178855.81	Q	X	X	X	40	20-40	17-40
MW-14	508255.63	5179376.77	Q	X	--	--	68	56-66	53-68
MW-15	508290.89	5179071.07	Q	X	--	--	80	70-80	66-80
MW-16	507036.30	5180586.21	Q	X	X	X	57	37-57	34-57
MW-17	506654.57	5180130.74	Q	X	X	X	75	55-75	54-78
MW-18	506257.38	5179707.93	Q	X	X	X	32	12-32	10-32
MW-19	506878.42	5178925.74	Q	X	X	X	28	8-28	6-28
MW-20	507426.69	5179631.58	Q	X	X	X	37.5	17.5-37.5	14.5-37.5
SC12-116*	507030.00	5180380.00	Q	X	--	--	--	--	--
SC15-184*	507047.34	5178972.53	Q	--	X	X	99	55-85	49-90
SC15-185*	506355.46	5179094.24	Q	X	X	X	99	60-80	56.3-85
SC15-194*	506014.14	5179854.92	Q	X	X	X	99	60-80	56.3-85
SC15-198*	506621.36	5179854.92	Q	X	X	X	99	60-70	51.7-74

**TABLE 1. BASELINE MONITORING SITE DESCRIPTION AND SUMMARY (CONTINUED)**

Monitoring Site	Eastings (meters)	Northing (meters)	Monitoring Frequency	Flow or Water Level	Field Parameters	Lab Analysis	Location / Monitoring Well Construction		
	WGS 1984 - UTM Zone 12 N						Total Depth	Perforated / Screen Interval	Gravel / Sand Pack Interval
<b>Test Wells</b>							feet, below ground surface		
PW-1	506301.42	5180698.40	Q	X	--	--	213	171-211	108-213
PW-2	506443.15	5180865.03	Q	X	X	X	215	132-212	121-215
PW-3	506846.43	5180479.42	Q	X	X	X	131	90-127	80-131
PW-4	506849.44	5180701.75	Q	X	X	X	242	200-239	191-242
PW-5	506490.68	5181172.77	Q	X	--	--	565	515-555	508-560
PW-6N	506477.44	5181085.67	Q	X	--	--	1358	Open Hole	1159-1358
PW-7	507122.89	5180867.59	Q	--	X	X	1350	1306-1350	1300-1350
PW-8	506846.19	5180695.53	Q	X	X	X	184	139-179	132-179
PW-9	506598.38	5180721.88	Q	X	X	X	256	216-256	208-256
PW-10	506593.55	5180721.88	Q	X	X	X	370	319-359	310-370
<b>Piezometers</b>									
PZ-01	507650.01	5180255.63	Q	X	--	--	5.3	2.3-5.3	--
PZ-02	507400.72	5180778.79	Q	X	--	--	5.3	2.3-5.3	--
PZ-03	507249.21	5180618.91	Q	X	--	--	9.3	6.3-9.3	--
PZ-04	506991.74	5181110.82	Q	X	--	--	7.7	4.7-7.7	--
PZ-05	507080.04	5181214.68	Q	X	--	--	5.4	2.4-5.4	--
PZ-07A	506258.39	5180074.65	Q	X	--	--	6	3-6	--
PZ-07B	506258.47	5180075.00	Q	X	--	--	11	8-11	--
PZ-08	507090.31	5180573.81	Q	X	--	--	12	7-12	5-12
PZ-09	507883.78	5180178.58	Q	X	--	--	10	5-10	3-10
PZ-10	506590.91	5180679.01	Q	X	--	--	11	9-11	--
PZ-11R	507031.15	5180654.89	Q	X	--	--	11	9-11	--
PZ-12	506839.49	5180509.42	Q	X	--	--	7	5-7	--
PZ-13	507793.88	5180289.38	Q	X	--	--	7.5	5-7.5	--
PZ-14	507492.91	5180412.13	Q	X	--	--	5.5	3-5.5	--
PZ-15	507193.65	5180762.85	Q	X	--	--	8.5	6-8.5	--

Notes: \*Northings and Eastings are approximate.

M: Monthly; Q: Quarterly; and A: Annual monitoring program frequency

Surface water, springs, and seep monitoring sites are shown on Figure 2; groundwater monitoring sites are shown on Figure 3.

### *Quarterly Monitoring Program*

The quarterly monitoring program includes monitoring at seven surface water sites, consisting of collecting flow and stage measurements (where staff gages are present) and field parameters at all sites and water quality samples from three of the sites; and monitoring at 25 monitoring wells, 10 test wells, and 15 piezometers, consisting of collecting static water level (SWL) measurements at all sites and field parameters water quality samples from 32 of the wells.

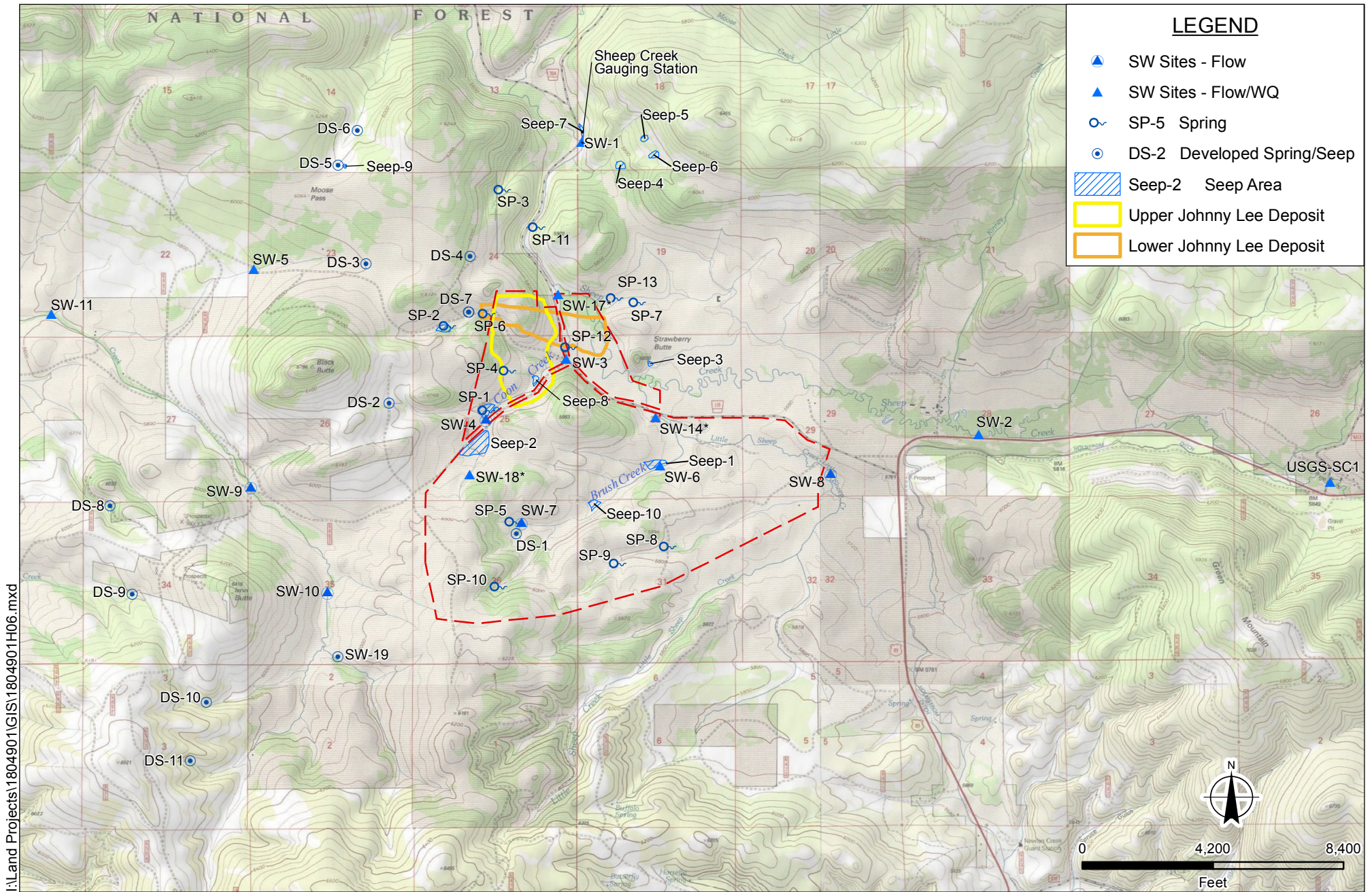
### *Annual Monitoring Program*

The annual monitoring program includes monitoring at seven spring sites (includes two developed springs), consisting of collecting flow measurements and field parameters at all sites; and monitoring at 10 seep sites, consisting of collecting field parameters at all sites.

The locations of the surface water, spring, and seep monitoring sites are shown on Figure 2 and the groundwater monitoring sites are shown on Figure 3. This report summarizes the results of the water resource monitoring programs conducted during the third quarter of 2019, including:

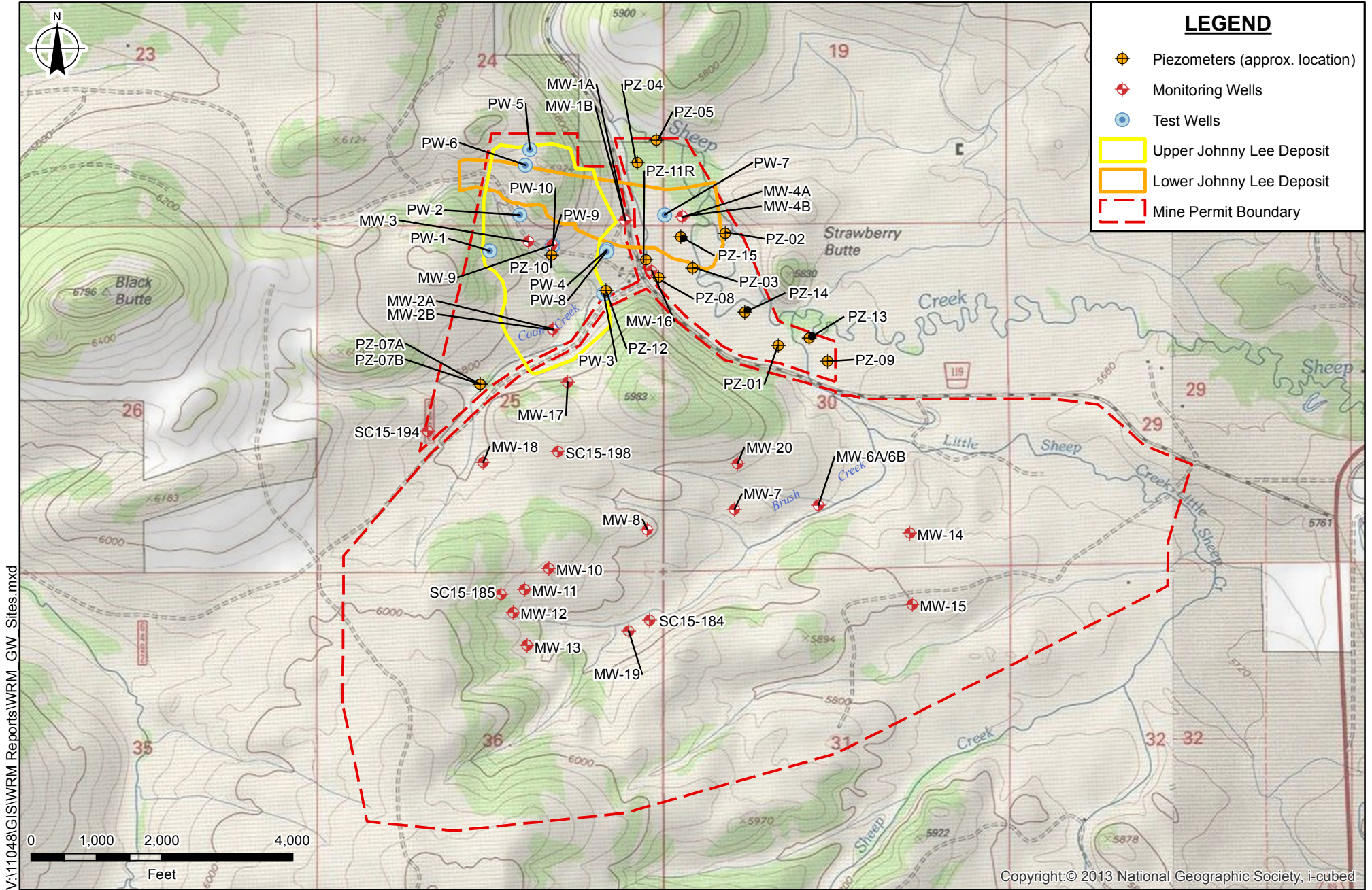
- Monthly monitoring in July 2019;
- Monthly monitoring in August 2019; and
- Monthly, quarterly, and annual monitoring in September 2019.

Water quality samples were submitted to Energy Laboratories in Helena, Montana for analysis of physical parameters, common ions, nutrients, and a comprehensive suite of trace constituents. The water quality parameters, analytical methods, and detection limits are listed in Tables 2 and 3 for surface water and groundwater, respectively. Samples collected from springs were submitted for analysis as groundwater according to Table 3. For surface water quality samples, trace metals (with the exception of aluminum) were analyzed for the total recoverable concentration; aluminum was analyzed for the dissolved fraction. For groundwater quality samples, all trace metals were analyzed for the dissolved fraction.



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**Figure 2**  
**Surface Water, Spring & Seep Monitoring Sites**  
**Black Butte Copper Project**  
**Meagher County, Montana**



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- ◆ Piezometers (approx. location)
- ◆ Monitoring Wells
- Test Wells
- Upper Johnny Lee Deposit
- Lower Johnny Lee Deposit
- Mine Permit Boundary

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**Figure 3**  
**Groundwater Monitoring Sites**  
**Black Butte Copper Project**  
**Meagher County, Montana**

**TABLE 2. PARAMETERS, METHODS, AND DETECTION LIMITS  
FOR SURFACE WATER MONITORING**

Parameter	Analytical Method <sup>(1)</sup>	Project-Required Detection Limit (mg/L)
<b>Physical Parameters</b>		
TDS	SM 2540C	4
TSS	SM 2540C	4
<b>Common Ions</b>		
Alkalinity	SM 2320B	4
Sulfate	300.0	1
Chloride	300.0/SM 4500CL-B	1
Fluoride	A4500-F C	0.1
Calcium	215.1/200.7	1
Magnesium	242.1/200.7	1
Sodium	273.1/200.7	1
Potassium	258.1/200.7	1
<b>Nutrients</b>		
Nitrate+Nitrite as N	353.2	0.003
Total Persulfate Nitrogen	A 4500-N-C	0.04
Total Phosphorus	E365.1	0.003
<b>Trace Constituents ( Total Recoverable except Aluminum [Diss])<sup>(2)</sup></b>		
Aluminum (Al)	200.7/200.8	0.009
Antimony (Sb)	200.7/200.8	0.0005
Arsenic (As)	200.8/SM 3114B	0.001
Barium (Ba)	200.7/200.8	0.003
Beryllium (Be)	200.7/200.8	0.0008
Cadmium (Cd)	200.7/200.8	0.00003
Chromium (Cr)	200.7/200.8	0.01
Cobalt (Co)	200.7/200.8	0.01
Copper (Cu)	200.7/200.8	0.002
Iron (Fe)	200.7/200.8	0.02
Lead (Pb)	200.7/200.8	0.0003
Manganese (Mn)	200.7/200.8	0.005
Mercury (Hg)	245.2/245.1/200.8/SM 3112B	0.000005
Molybdenum (Mo)	200.7/200.8	0.002
Nickel (Ni)	200.7/200.8	0.001
Selenium (Se)	200.7/200.8/SM 3114B	0.0002
Silver (Ag)	200.7/200.8	0.0002
Strontium (Sr)	200.7/200.8	0.0002
Thallium (Tl)	200.7/200.8	0.0002
Uranium (U)	200.7/200.8	0.008
Zinc (Zn)	200.7/200.8	0.002
<b>Field Parameters</b>		
Stream Flow	HF-SOP-37/-44/-46	NA
Water Temperature	HF-SOP-20	0.1 °C
Dissolved Oxygen (DO)	HF-SOP-22	0.1 mg/L
pH	HF-SOP-20	0.1 s.u.
Specific Conductance (SC)	HF-SOP-79	1 µmhos/cm

NOTES:

(1) Analytical methods are from *Standard Methods for the Examination of Water and Wastewater* (SM) or EPA's *Methods for Chemical Analysis of Water and Waste* (1983).

(2) Samples to be analyzed for dissolved constituents will be field-filtered through a 0.45 µm filter.

**TABLE 3. PARAMETERS, METHODS, AND DETECTION LIMITS  
FOR GROUNDWATER MONITORING**

Parameter	Analytical Method <sup>(1)</sup>	Project-Required Detection Limit (mg/L)
<b>Physical Parameters</b>		
TDS	SM 2540C	10
TSS	SM 2540C	10
<b>Common Ions</b>		
Alkalinity	SM 2320B	4
Sulfate	300.0	1
Chloride	300.0/SM 4500CL-B	1
Fluoride	A4500-F C	0.1
Calcium	215.1/200.7	1
Magnesium	242.1/200.7	1
Sodium	273.1/200.7	1
Potassium	258.1/200.7	1
<b>Nutrients</b>		
Nitrate+Nitrite as N	353.2	0.01
<b>Trace Constituents (Dissolved)<sup>(2)</sup></b>		
Aluminum (Al)	200.7/200.8	0.009
Antimony (Sb)	200.7/200.8	0.0005
Arsenic (As)	200.8/SM 3114B	0.001
Barium (Ba)	200.7/200.8	0.003
Beryllium (Be)	200.7/200.8	0.0008
Cadmium (Cd)	200.7/200.8	0.00003
Chromium (Cr)	200.7/200.8	0.01
Cobalt (Co)	200.7/200.8	0.01
Copper (Cu)	200.7/200.8	0.002
Iron (Fe)	200.7/200.8	0.02
Lead (Pb)	200.7/200.8	0.0003
Manganese (Mn)	200.7/200.8	0.005
Mercury (Hg)	245.2/245.1/200.8/SM 3112B	0.000005
Molybdenum (Mo)	200.7/200.8	0.002
Nickel (Ni)	200.7/200.8	0.001
Selenium (Se)	200.7/200.8/SM 3114B	0.0002
Silver (Ag)	200.7/200.8	0.0002
Strontium (Sr)	200.7/200.8	0.0002
Thallium (Tl)	200.7/200.8	0.0002
Uranium (U)	200.7/200.8	0.008
Zinc (Zn)	200.7/200.8	0.002
<b>Field Parameters</b>		
Water Level	HF-SOP-10	0.01 ft
Water Temperature	HF-SOP-20	0.1 °C
Dissolved Oxygen (DO)	HF-SOP-22	0.1 mg/L
pH	HF-SOP-20	0.1 s.u.
Specific Conductance (SC)	HF-SOP-79	1 µmhos/cm

NOTES:

(1) Analytical methods are from *Standard Methods for the Examination of Water and Wastewater* (SM) or EPA's *Methods for Chemical Analysis of Water and Waste* (1983).

(2) Samples to be analyzed for dissolved constituents will be field-filtered through a 0.45 µm filter.



## **2.0 WATER RESOURCES MONITORING**

### **2.1 SURFACE WATER**

Surface water monitoring was conducted in accordance with methodologies described in the FSAP, which consist of the following steps:

1. Collection of field parameters;
2. Water quality sample collection; and
3. Measurement of stream flow and stage.

The monthly surface water monitoring was conducted in accordance with the schedule described in Section 1.0. The monthly surface water monitoring, conducted in the third quarter of 2019, included the collection of field parameters, water quality samples, and flow measurements from six sites in July and August. Surface water monitoring site SW-18 was dry during the third quarter monitoring events. Duplicate samples were collected at surface water sites SW-17 in July and SW-2 in August.

The quarterly surface water monitoring (which includes the monthly monitoring sites) was conducted in September of 2019 in accordance with the schedule described in Section 1.0. The quarterly monitoring included the collection of field parameter measurements, water quality samples, and flow measurements at eight sites and field parameter and flow measurements at four sites. Surface water monitoring sites SW-5 and SW-18 were dry during the quarterly monitoring event. A duplicate sample was collected at surface water site SW-4 in September.

### **2.2 SPRINGS AND SEEPS**

The spring and seep monitoring was conducted in accordance with methodologies described in the FSAP, which consist of the following steps:

- Collection of field parameters;
- Water quality sample collection; and
- Collection of flow measurements.

The monthly spring monitoring was conducted in accordance with the schedule described in Section 1.0. Flow measurements were not collected at SP-11 and SP-12 during the third quarter due to the flow not being within a discernable channel and unsafe access, respectively.

The July monthly spring monitoring included the collection of field parameters, water quality samples, and flow measurements at eight sites; field parameters and flow measurements at six sites; and field parameter measurements and water quality samples at three sites. Flow measurements were not collected at DS-4 in July due to flow not being within a discernable channel. A duplicate sample was collected from DS-3 in July.

The August monthly spring monitoring included the collection of field parameters, water quality samples, and flow measurements at eight sites; field parameters and flow measurements at six sites; and field parameter measurements and water quality samples at three sites. Monitoring was not conducted at DS-4 in August due to no stagnant conditions and discernable flow. A duplicate sample was collected from SP-11 in August.

The September monthly spring and annual spring and seep monitoring included the collection of field parameters, water quality samples, and flow measurements at eight spring sites; field parameters and flow measurements at one spring site; and field parameter measurements and water quality samples at two spring sites; and field parameters at six seep sites. Monitoring was not conducted at DS-4, DS-5, DS-6, Seep-1, Seep-3, Seep-7, and Seep-8 due to dry conditions. Flow measurements from SP-13 were not collected due to flow not being within a discernable channel. A duplicate sample was collected at monitoring site SP-12 in September.

## **2.3 GROUNDWATER**

The groundwater monitoring conducted in the third quarter of 2019 consisted of the measurement of SWL and collection of field water quality parameters and water quality samples during the quarterly monitoring event in September. Supplemental water level monitoring is conducted at core hole SC12-116 and from five vibrating wire piezometers

(VWP) in core holes SC19-246 (GEOT18-7; 1 VWP), SC19-248 (GEOT18-8; 2 VWPs), and SC19-249 (GEOT18-9; 2 VWPs) for purpose of constructing the potentiometric surface for the site (Figure 4). Water quality monitoring is not conducted at the test wells when the ground is frozen or fully saturated to assure purge water does not discharge to any surface waters. Monitoring well SC15-184 and test well PW-7 are flowing artesian wells, which are shut in, and therefore SWL measurements are not collected from these sites.

The groundwater monitoring was conducted in accordance with methodologies described in the FSAP, which consist of the following steps:

1. Measurement of SWL;
2. Well purging and monitoring for field parameter stabilization; and
3. Water quality sample collection.

In September 2019, SWL measurements were collected from 26 monitoring wells, nine test wells, core hole SC12-116, and 14 piezometers (PZ-07B was dry in September), and five vibrating wire piezometers. Field parameter measurements and water quality samples were collected from 25 monitoring wells and six test wells. Water quality monitoring was not conducted at wells MW-14 and MW-15 due to the remaining dye in the wells from the Eastern Underground Infiltration Gallery (UIG) tracer study. Additionally, water quality monitoring was not conducted at test well PW-7 due to no field access. A duplicate sample was collected from MW-3 in September.

### 3.0 RESULTS

The water level data collected during the third quarter of 2019 are provided in Table 4 and a comparison of vertical hydraulic gradients is provided in Table 5. The field parameters and analytical results for samples collected during the third quarter of 2019 are presented in Table 6 (surface water), Table 7 (springs), and Table 8 (groundwater). The laboratory analytical data reports for these monitoring events are in Appendix A and the quality assurance/quality control (QA/QC) program review summaries are in Appendix B. Below is a brief summary of the monitoring results.

#### 3.1 STREAM FLOW

Stream flows measured at surface water monitoring sites during the third quarter of 2019 were within the range of previous data and are summarized by water body and described below.

##### *Sheep Creek*

Flow measurements at Sheep Creek surface water monitoring sites (SW-1, SW-2, and USGS-SC1) ranged from 18.16 cfs at USGS-SC1 in September to 51.24 cfs at SW-1 in July.

##### *Little Sheep Creek*

Flow measurements at Little Sheep Creek surface water monitoring sites (SW-8 and SW-14) ranged from 0.68 cfs at SW-8 in September to 4.03 cfs at SW-14 in July.

##### *Coon Creek*

Flow measurements at Coon Creek surface water monitoring sites (SW-3, SW-4, SW-17, and SW-18) ranged from 0.008 cfs at SW-4 to 0.25 cfs at SW-17 in August. SW-18 was dry during all third quarter monitoring events.

##### *Brush Creek*

Flow measurements at the Brush Creek surface water monitoring site (SW-6) was 0.14 cfs during the quarterly monitoring event in September.

### *Black Butte Creek*

Flow measurements at Black Butte Creek surface water monitoring sites (SW-9, SW-10, SW-11, and SW-19) ranged from 0.40 cfs at SW-10 to 0.93 cfs at SW-11 in September. Flow measurements were not collected at the unnamed tributary to Black Butte Creek (SW-5) due to dry conditions.

### **3.2 SPRING FLOW**

The flow rates were not measured at SP-11 and SP-12 due to the flow not being within a discernable channel and unsafe access, respectively. The flow measurements during the monthly monitoring events are summarized below.

With the exception of site SP-7, the flows measured from springs during the July monthly monitoring event ranged from approximately 1 gpm at DS-2 to 15.3 gpm at SP-4. The flow measured at SP-7 in July was 99.6 gpm.

The flows measured from springs during the August monthly monitoring event ranged from approximately 0.4 gpm at DS-2 to 17.1 gpm at SP-7. The flow rate measured at SP-7 significantly decreased from 99.6 gpm in July to 17.1 gpm in August.

The flows measured from springs during the September annual monitoring event ranged from approximately 0.18 gpm at SP-5 to 15.3 gpm at SP-7. Flow rates are typically not measured at seep sites due to the diffuse nature seepage over a broad area with flow rates too low to measure at the point of discharge. However, the flow at Seep-10 was within a discernable channel and the measured rate (2.6 gpm) was within the range of values measured at springs.

### **3.3 GROUNDWATER LEVELS**

Groundwater levels measured in September of 2019 were consistent with previous data collected. The groundwater elevations were calculated for each well and piezometer from the SWL measurements and measuring point elevations and are listed in Table 4. The groundwater elevations were used to construct the potentiometric surface map shown on

**TABLE 4. SEPTEMBER 2019 WATER LEVEL DATA SUMMARY**

Well Name	Eastings	Northing	Ground Surface Elev.	Measuring Point Elev.	Static Water Level	Static Water Level	Water Level Elev.
	WGS 1984 UTM Zone 12 North		NGVD 29				
	meters		(feet, amsl <sup>1</sup> )		(feet, bmp <sup>1</sup> )	(feet, bgs <sup>1</sup> )	(feet, amsl)
<b>Monitoring Wells</b>							
MW-1A	506935.22	5180841.55	5635.81	5637.73	6.84	4.92	5630.89
MW-1B	506934.19	5180845.46	5636.14	5637.90	23.44	21.68	5614.46
MW-2A	506598.18	5180331.93	5743.72	5745.31	41.85	40.26	5703.46
MW-2B	506596.96	5180328.73	5743.44	5745.53	41.82	39.73	5703.71
MW-3	506484.07	5180740.22	5760.06	5762.17	38.99	36.88	5723.18
MW-4A	507201.47	5180855.43	5610.12	5612.12	3.61	1.61	5608.51
MW-4B	507200.12	5180858.49	5610.07	5612.07	3.62	1.62	5608.45
MW-6A	507809.18	5179492.90	5680.08	5681.87	8.44	6.65	5673.43
MW-6B	507792.76	5179490.70	5683.41	5685.31	11.60	9.70	5673.71
MW-7	507451.70	5179500.70	5747.48	5749.46	32.03	30.05	5717.43
MW-8	507036.00	5179398.30	5809.10	5810.93	30.14	28.31	5780.79
MW-9	506592.96	5180725.46	5744.35	5745.80	51.08	49.62	5694.72
MW-10	506578.57	5179215.05	5882.78	5886.11	74.56	71.23	5811.55
MW-11	506464.72	5179117.47	5854.74	5857.86	32.36	29.24	5825.50
MW-12	506412.82	5179010.38	5841.51	5844.75	26.72	23.48	5818.03
MW-13	506477.79	5178855.81	5819.07	5822.48	20.70	17.29	5801.78
MW-14	508255.63	5179376.77	5761.16	5763.87	39.77	37.06	5724.10
MW-15	508290.89	5179071.07	5795.26	5797.34	39.52	37.44	5757.82
MW-16	507036.30	5180586.21	5623.73	5625.59	7.15	5.29	5618.44
MW-17	506654.57	5180130.74	5793.51	5796.06	50.25	47.70	5745.81
MW-18	506257.38	5179707.93	5819.62	5821.97	16.21	13.86	5805.76
MW-19	506878.42	5178925.74	5758.95	5761.07	13.45	11.33	5747.62
MW-20	507426.69	5179631.58	5748.75	5750.62	21.49	19.62	5729.13
SC12-116	507030.00	5180380.00	--	5793.89	96.33	--	5697.56
SC15-184	507045.30	5178968.70	5743.83	5745.56	Artesian	--	--
SC15-185	506355.52	5179091.15	5879.64	5881.72	29.30	27.22	5852.42
SC15-194	506025.67	5179847.22	5817.96	5819.82	19.53	17.67	5800.29
SC15-198	506594.08	5179743.42	5865.75	5867.60	40.42	38.57	5827.18
<b>Test Wells</b>							
PW-1	506301.42	5180698.40	5912.07	5913.74	100.53	98.86	5813.21
PW-2	506443.15	5180865.00	5793.08	5794.88	51.00	49.20	5743.88
PW-3	506846.43	5180479.42	5655.21	5657.42	11.15	8.94	5646.27
PW-4	506849.44	5180688.26	5678.13	5680.01	52.40	50.52	5627.61
PW-5	506490.68	5181172.77	5913.22	5915.49	315.35	313.08	5600.14
PW-6N	506477.44	5181085.67	5895.43	5897.40	305.79	303.82	5591.61
PW-7	507122.89	5180867.59	5609.11	5611.15	Artesian	--	--
PW-8	506846.19	5180695.53	5679.12	5680.60	43.54	42.06	5637.06
PW-9	506598.38	5180721.88	5743.59	5745.05	46.88	45.42	5698.17
PW-10	506593.55	5180721.88	5743.57	5744.84	44.84	43.56	5700.00
<b>Piezometers</b>							
PZ-01	507650.00	5180256.00	5628.69	5630.34	2.91	1.26	5627.43
PZ-02	507400.70	5180779.00	5611.81	5613.51	3.13	1.43	5610.38
PZ-03	507249.20	5180619.00	5616.08	5617.74	4.2	2.54	5613.54
PZ-04	506991.70	5181111.00	5599.34	5602.7	1.71	-1.65	5600.99
PZ-05	507080.00	5181215.00	5598.16	5599.79	3.31	1.68	5596.48
PZ-07A	506258.39	5180074.65	5776.57	5777.5	1.81	0.88	5775.69
PZ-07B	506258.47	5180075.00	5776.57	5777.59	3.07	2.05	5774.52
PZ-08	507090.31	5180573.81	5618.9	5621.29	3.91	1.52	5617.38
PZ-09	507883.78	5180178.58	5634.73	5637.27	5.05	2.51	5632.22
PZ-10	506589.19	5180672.48	5723.51	5727.42	8.57	4.66	5718.85
PZ-11R	507031.15	5180654.89	5618.31	5622.24	5.87	1.94	5616.37
PZ-12	506844.43	5180513.76	5644.56	5646.55	5.37	3.38	5641.18
PZ-13	507793.88	5180289.38	5633.16	5637.27	8.48	4.36	5628.79
PZ-14	507492.91	5180412.13	5622.66	5625.68	5.3	2.28	5620.38
PZ-15	507193.65	5180762.85	5611.60	5614.45	3.08	0.23	5611.37
GEOT18-7	507127.93	5179860.23	5955.09	--	--	--	5786.44
GEOT18-8	507026.14	5180131.59	5972.28	--	--	--	5753.17
	507021.60	5180144.08	5972.28	--	--	--	5727.93
GEOT18-9	506923.28	5180406.49	5790.95	--	--	--	5655.88
	506911.63	5180438.52	5790.95	--	--	--	5648.74

<sup>1</sup>amsl: above mean sea level; bmp: below measuring point; bgs: below ground surface

Figure 4. The potentiometric data show that the overall groundwater flow direction in the bedrock is generally towards Sheep Creek, with an eastward flow direction in the vicinity of the Johnny Lee Deposit and a northeastern direction in the area between Coon Creek and Brush Creek (Figure 4). The hydraulic gradients in the bedrock aquifer were consistent with previous results, ranging from 0.04 to 0.08; the steepest gradient within the bedrock aquifer is located in the northern portion of the study area near wells MW-3 and PW-4; and the lower gradient is in the area north of MW-8. Within the alluvial system, the gradient is relatively low, ranging from 0.006 (measured between PZ-09 to PZ-01) to 0.008 (measured between PZ-01 and PZ-05).

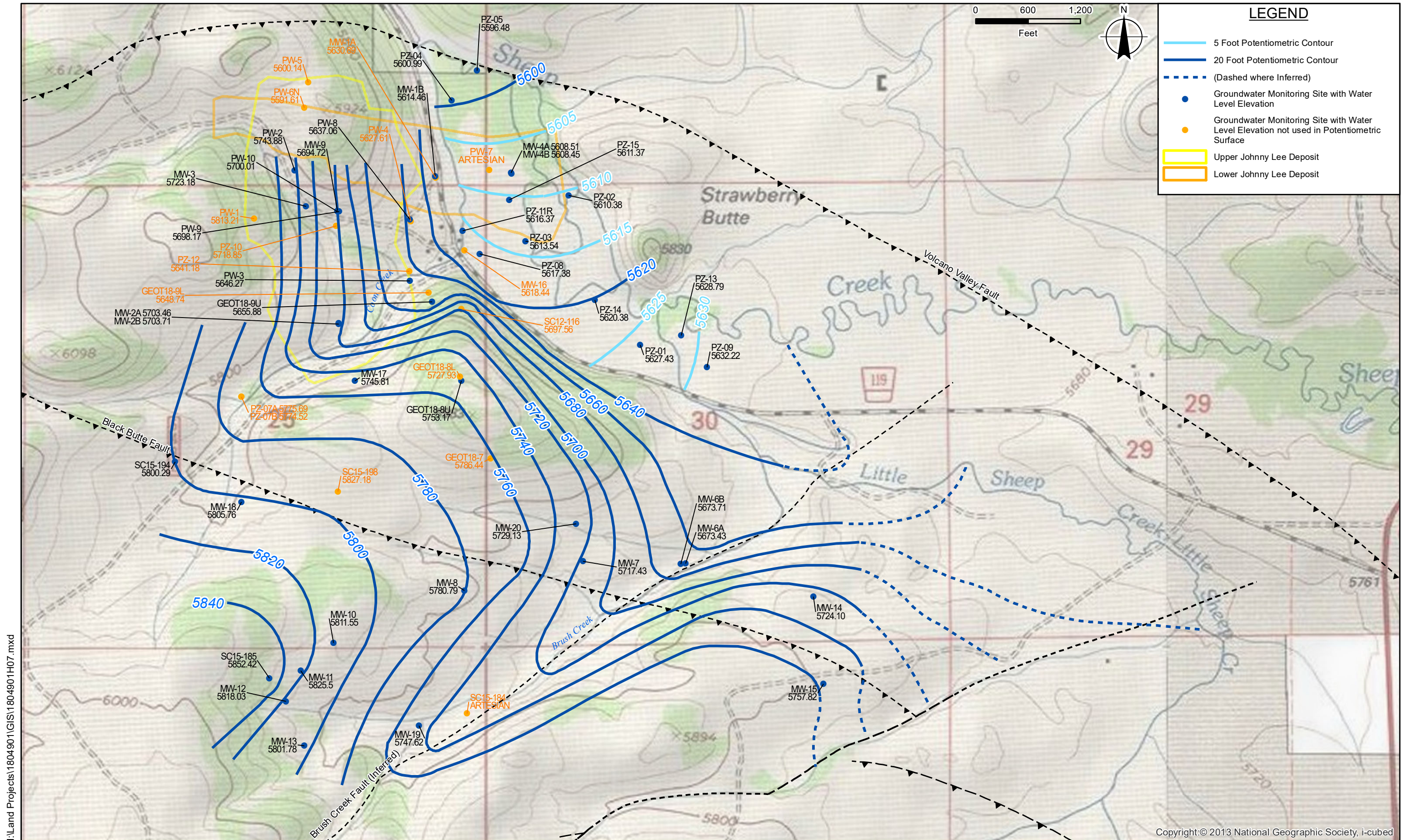
Vertical hydraulic gradients were evaluated in the areas where there are paired wells and triplicate wells as shown in Figure 4. The vertical gradients calculated from water level data in the third quarter of 2019 are similar to historic data and are listed in Table 5.

**TABLE 5. SUMMARY OF VERTICAL HYDRAULIC GRADIENTS**

Shallow Well	Deep Well	Location	Head Differential (ft)	Vertical Gradient (ft/ft)	Direction
MW-1A	MW-1B	Eastern edge of the Upper Johnny Lee Deposit	16.43	-0.259	Down
MW-2A	MW-2B	Southern portion of the Upper Johnny Lee Deposit	0.25	0.014	Up
MW-4A	MW-4B	Sheep Creek alluvial valley	0.06	<0.01	ND <sup>1</sup>
MW-6A	MW-6B	Near Brush Creek	0.28	<0.01	ND <sup>1</sup>
PW-8	PW-4	Eastern edge of the Upper Johnny Lee Deposit	9.45	-0.156	Down
MW-9	PW-9	Central area of the Upper Johnny Lee Deposit	3.45	0.029	Up
PW-9	PW-10	Central area of the Upper Johnny Lee Deposit	1.83	0.018	Up

NOTES:

<sup>1</sup> ND – vertical gradient is not discernable



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### 3.4 WATER QUALITY DATA

There were no exceedances of applicable Aquatic Life or Human Health Standards for surface water or springs during the third quarter of 2019.

The constituents that exceeded Human Health Standards (DEQ, 2019) for groundwater in the third quarter of 2019 include: arsenic at MW-1B, MW-3, MW-9, PW-4, PW-8, PW-9, and PW-10; strontium at MW-3, PW-4, PW-9, and PW-10; thallium at MW-1B, MW-2B, MW-9, and PW-8 (Table 8).

#### *Surface Water*

The surface water quality for the third quarter of 2019 was relatively similar at all of the surface water monitoring sites, which are characterized by the following:

- Calcium bicarbonate type water;
- Moderately hard to hard water;
- Basic pH (8.00 s.u. to 8.64 s.u.);
- Low total dissolved solids (173 to 274 mg/L); and
- Low level detection of metals at one or more sites, including: barium, iron, manganese, mercury, nickel, strontium, uranium, zinc, and dissolved aluminum (Table 6).

#### *Springs and Seeps*

The water quality for the third quarter of 2019 was relatively similar at monitoring sites, which are characterized by the following:

- Calcium bicarbonate type water;
- Moderately hard to hard water;
- Near neutral to basic pH (6.59 s.u. to 8.23 s.u.);
- Low to moderate total dissolved solids (54 mg/L to 255 mg/L); and
- Low levels of many dissolved metals, including: aluminum, arsenic, barium, copper, iron, manganese, mercury, nickel, selenium, strontium, thallium, uranium, and zinc (Table 7).





TABLE 6. THIRD QUARTER 2019 SURFACE WATER QUALITY DATA SUMMARY (CONTINUED)

Station Name	Reporting Units	Aquatic Life Standard Chronic*	Human Health Standard Surface water	USGS-SC1	USGS-SC1
Sample Date				8/21/19 12:35	9/23/19 16:15
Sample ID				BBC-1908-127	BBC-1909-103
Lab Name				Energy Labs	Energy Labs
Remarks					
Lab Sample ID				H19080621-008	H19090608-004
<b>Field Parameters</b>					
Dissolved Oxygen	mg/L			9.48	9.8
Field pH	s.u.			8.45	8.55
Field Specific Conductivity	umhos/cm			347	350
Flow	Cubic Ft Sec			24.42	18.16
Staff Gauge	Feet				
Water Temperature	Deg C			12.5	8.9
<b>Physical Parameters</b>					
Total Dissolved Solids	mg/L			203 D	206 D
Total Suspended Solids	mg/L			<4	<4
<b>Major Constituents - Commons Ions</b>					
Alkalinity as CaCO3	mg/L			190	190
Calcium (DIS)	mg/L			51	50
Chloride	mg/L			1	1
Fluoride	mg/L		4	<0.1	<0.1
Hardness as CaCO3	mg/L			179	178
Magnesium (DIS)	mg/L			13	13
Potassium (DIS)	mg/L			1	1
Sodium (DIS)	mg/L			2	2
Sulfate	mg/L			6	5
<b>Nutrients</b>					
Nitrate + Nitrite as N	mg/L		10	0.01	<0.01
Phosphorus (TOT)	mg/L			0.003	<0.003
Total Nitrogen as N (Persulfate)	mg/L			0.07	0.05
<b>Metals - Trace Constituents</b>					
Aluminum (DIS)	mg/L	0.087		<0.009	<0.009
Antimony (TRC)	mg/L		0.0056	<0.0005	<0.0005
Arsenic (TRC)	mg/L	0.15	0.01	<0.001	<0.001
Barium (TRC)	mg/L		1	0.076	0.074
Beryllium (TRC)	mg/L		0.004	<0.0008	<0.0008
Cadmium (TRC)	mg/L	0.00026	0.005	<0.00003	<0.00003
Chromium (TRC)	mg/L		0.1	<0.01	<0.01
Cobalt (TRC)	mg/L			<0.01	<0.01
Copper (TRC)	mg/L	0.0029	1.3	<0.002	<0.002
Iron (TRC)	mg/L	1		0.08	0.11
Lead (TRC)	mg/L	0.00054	0.015	<0.0003	<0.0003
Manganese (TRC)	mg/L			0.007	0.007
Mercury (TRC)	ug/L			<0.005	<0.005
Molybdenum (TRC)	mg/L			<0.002	<0.002
Nickel (TRC)	mg/L	0.016	0.1	<0.001	<0.001
Selenium (TRC)	mg/L	0.005	0.05	<0.0002	<0.0002
Silver (TRC)	mg/L		0.1	<0.0002	<0.0002
Strontium (TRC)	mg/L		4	0.15	0.154
Thallium (TRC)	mg/L		0.00024	<0.0002	<0.0002
Uranium (TRC)	mg/L		0.03	0.0004	0.0004
Zinc (TRC)	mg/L	0.037	2	<0.002	<0.004

**Definitions:**

- J = Field Duplicate sample exceeded QA/QC comparison control limits
- U = Field Blank sample exceeded QA/QC comparison control limits
- H = Holding time exceeded QA/QC comparison control limits
- D = Reporting limit increased due to sample matrix interference
- L = The lowest available reporting limit was used per method used for analysis
- NM = Not measured
- NF-ICE = Not flowing; ice on ground
- NM-ICE = Not measured; ice prohibitive
- NF-DRY = Not flowing; Dry ground

**Analyte concentration exceeds the standard for:**

	Aquatic Life Standard Chronic*
	Human Health Standard Surface water

**Source:**

Montana DEQ7 June 2019

TABLE 7. THIRD QUARTER 2019 SPRING AND SEEP WATER QUALITY DATA SUMMARY

Station Name	Reporting Units	Human Health Standard Groundwater	DS-1	DS-1	DS-1	DS-2	DS-2	DS-2	DS-3	DS-3	DS-3	DS-3	DS-4	DS-4	DS-4	DS-5	DS-6	DS-7	DS-7	DS-7	DS-8	
Sample Date			7/24/19 14:00	8/20/19 14:15	9/25/19 10:30	7/24/19 10:05	8/20/19 10:40	9/25/19 09:35	7/24/19 15:35	7/24/19 15:45	8/20/19 15:35	9/24/19 13:00	7/24/19 16:45	8/20/19 16:00	9/24/19 13:20	9/24/19 11:50	9/24/19 12:05	7/25/19 08:40	8/20/19 16:15	9/24/19 14:05	7/24/19 11:50	
Sample ID			BBC-1907-108	BBC-1908-108	BBC-1909-140	BBC-1907-100	BBC-1908-100	BBC-1909-138	BBC-1907-112	BBC-1907-113	BBC-1908-111	BBC-1909-120	BBC-1907-115	BBC-1908-112	BBC-1909-122	BBC-1909-117	BBC-1909-119	BBC-1907-116	BBC-1908-114	BBC-1909-124	BBC-1907-104	
Lab Name			Energy Labs	Energy Labs	Energy Labs	Hydro	Hydro	Hydro	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
Remarks						No Sample	No Sample	No Sample		Duplicate				No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample
Lab Sample ID		H19070585-002	H19080622-002	H19090658-006	z	z	z	H19070585-004	H19070585-005	H19080622-004	H19090658-001	H19070585-007	z	z	z	z	z	z	z	z	z	
<b>Field Parameters</b>																						
Dissolved Oxygen	mg/L		11.17	9.41	9.67	5.19	7.38	8.8	5.14		5.86	8.05	7.26				8.66	8.81	9.07	9.34	9.19	
Field pH	s.u.		7.95	8.08	8.11	7.17	7.33	7.94	8.23		8.07	7.03	7.7				7.26	6.81	7.72	7.49	7.73	
Field Specific Conductivity	umhos/cm		416	402	411	333	351	369	49		55.2	54	98				127	260	256	264	439	
Flow	Gallons Per Min		11.1	5.94	4.35	0.91	0.43	0.35	13.08		7.69	1	NM	NM	NF-DRY	NF-DRY	NM-DRY	10.51	6.24	6.78	5.44	
Water Temperature	Deg C		11.4	11	8.1	13.5	13.8	6.3	9.5		12.3	10.3	12.3				10.3	8.5	10	8.4	6.83	
<b>Physical Parameters</b>																						
Total Dissolved Solids	mg/L		222	232	228				54	60	58	56	69									
Total Suspended Solids	mg/L		<10	<10	<10				<10	<10	<10	<10	<10									
<b>Major Constituents - Commons Ions</b>																						
Alkalinity as CaCO3	mg/L		210	220	220				22	22	23	24	42									
Calcium (DIS)	mg/L		60	54	53				5	5	6	6	12									
Chloride	mg/L		<1	<1	<1				<1	<1	<1	<1	<1									
Fluoride	mg/L	4	0.1	0.1	0.1				<0.1	<0.1	<0.1	<0.1	<0.1									
Hardness as CaCO3	mg/L		238	219	215				22	23	21	21	45									
Magnesium (DIS)	mg/L		22	20	20				2	2	2	2	3									
Potassium (DIS)	mg/L		<1	<1	<1				1	1	1	1	<1									
Sodium (DIS)	mg/L		2	2	2				1	1	1	1	1									
Sulfate	mg/L		14	16	14				1	1	2	2	2									
<b>Nutrients</b>																						
Nitrate + Nitrite as N	mg/L	10	0.18	0.22	0.08				0.19	0.18	0.3	0.36	0.31									
<b>Metals - Trace Constituents</b>																						
Aluminum (DIS)	mg/L		<0.009	<0.009	<0.009				1.41 J	1.44 J	0.892	0.177	0.71 J									
Antimony (DIS)	mg/L	0.006	<0.0005	<0.0005	<0.0005				<0.0005	<0.0005	<0.0005	<0.0005	<0.0005									
Arsenic (DIS)	mg/L	0.01	<0.001	<0.001	<0.001				<0.001	<0.001	<0.001	<0.001	<0.001									
Barium (DIS)	mg/L	1	0.05	0.051	0.071				0.25	0.255	0.267	0.274	0.315									
Beryllium (DIS)	mg/L	0.004	<0.0008	<0.0008	<0.0008				<0.0008	<0.0008	<0.0008	<0.0008	<0.0008									
Cadmium (DIS)	mg/L	0.005	<0.00003	<0.00003	<0.00003				<0.00003	<0.00003	<0.00003	<0.00003	<0.00003									
Chromium (DIS)	mg/L	0.1	<0.01	<0.01	<0.01				<0.01	<0.01	<0.01	<0.01	<0.01									
Cobalt (DIS)	mg/L		<0.01	<0.01	<0.01				<0.01	<0.01	<0.01	<0.01	<0.01									
Copper (DIS)	mg/L	1.3	<0.002	<0.002	<0.002				0.002	0.002	<0.002	<0.002	<0.002									
Iron (DIS)	mg/L		<0.02	<0.02	<0.02				0.78	0.8	0.41	0.21	0.38									
Lead (DIS)	mg/L	0.015	<0.0003	<0.0003	<0.0003				<0.0003	<0.0003	<0.0003	<0.0003	<0.0003									
Manganese (DIS)	mg/L		<0.005	<0.005	<0.005				<0.005	<0.005	<0.005	<0.005	<0.005									
Mercury (DIS)	ug/L		<0.005	<0.005	<0.005				0.006	0.006	0.006	0.006	<0.005									
Molybdenum (DIS)	mg/L		<0.002	<0.002	<0.002				<0.002	<0.002	<0.002	<0.002	<0.002									
Nickel (DIS)	mg/L	0.1	<0.001	<0.001	<0.001				0.003	0.003	0.003	0.002	0.002									
Selenium (DIS)	mg/L	0.05	<0.0002	0.0002	<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002									
Silver (DIS)	mg/L	0.1	<0.0002	<0.0002	<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002									
Strontium (DIS)	mg/L	4	0.1	0.108	0.119				0.0297 L	0.0299 L	0.0292	0.0306	0.0456 L									
Thallium (DIS)	mg/L	0.002	<0.0002	<0.0002	<0.0002				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002									
Uranium (DIS)	mg/L	0.03	0.0006	0.0006	0.0007				<0.0002	<0.0002	<0.0002	<0.0002	<0.0002									
Zinc (DIS)	mg/L	2	<0.002	<0.002	<0.002				0.007 L	0.007 L	0.004	<0.002	<0.005									

**Definitions:**  
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 NM = Not measured  
 NF-ICE = Not flowing; ice on ground  
 NM-ICE = Not measured; ice prohibitive  
 NF-DRY = Not flowing; Dry ground

**Analyte concentration exceeds the standard for:**

Human Health Standard Groundwater

**Source:**  
 Montana DEQ7 June 2019

TABLE 7. THIRD QUARTER 2019 SPRING AND SEEP WATER QUALITY DATA SUMMARY (CONTINUED)

Station Name	Reporting Units	Human Health Standard Groundwater	DS-8	DS-8	DS-9	DS-9	DS-9	DS-10	DS-10	DS-10	DS-11	DS-11	DS-11	SEEP-1	SEEP-2	SEEP-3	SEEP-4	SEEP-5	SEEP-6	SEEP-7	SEEP-8	SEEP-9	
Sample Date			8/20/19 11:00	9/24/19 15:00	7/24/19 11:30	8/20/19 11:20	9/24/19 15:24	7/24/19 11:15	8/20/19 11:35	9/24/19 15:40	7/24/19 10:45	8/20/19 12:00	9/24/19 16:00	9/24/19 13:55	9/24/19 17:15	9/25/19 14:55	9/25/19 11:40	9/25/19 12:05	9/25/19 11:55	9/25/19 12:30	9/24/19 18:00	9/24/19 11:55	
Sample ID			BBC-1908-101	BBC-1909-128	BBC-1907-103	BBC-1908-102	BBC-1909-129	BBC-1907-102	BBC-1908-103	BBC-1909-130	BBC-1907-101	BBC-1908-104	BBC-1909-131	BBC-1909-121	BBC-1909-133	BBC-1909-151	BBC-1909-142	BBC-1909-144	BBC-1909-143	BBC-1909-145	BBC-1909-135	BBC-1909-118	
Lab Name			Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
Remarks			No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample
Lab Sample ID		z	z	z	z	z	z	z	z	z	z	z	z	z	z	z	z	z	z	z	z	z	
<b>Field Parameters</b>																							
Dissolved Oxygen	mg/L		8.93	10.15	8.1	8.03	8.94	8.55	8.85	9	10.09	9.29	10.25		0.78		7.84	9.92	3.35			6.28	
Field pH	s.u.		7.75	7.89	7.84	7.85	7.98	7.68	7.63	7.8	7.74	7.85	7.92		7.86		7.96	6.59	7.04			7.53	
Field Specific Conductivity	umhos/cm		429	456	355	367	375	338	384	391	427	418	445		411		67	76	84			148	
Flow	Gallons Per Min		3.12	3.77	10.88	7.26	4.75	3.97	3.71	2.89	7.38	3.75	2.09	NF-DRY	NF	NF-DRY	NF	NM	NF	NF	NF-DRY	NM	
Water Temperature	Deg C		9	8.3	10.9	9.4	7.9	9.7	7.9	7.6	7.5	10.2	7.3		8.9		10.7	10.1	9.1			9.6	
<b>Physical Parameters</b>																							
Total Dissolved Solids	mg/L																						
Total Suspended Solids	mg/L																						
<b>Major Constituents - Commons Ions</b>																							
Alkalinity as CaCO3	mg/L																						
Calcium (DIS)	mg/L																						
Chloride	mg/L																						
Fluoride	mg/L	4																					
Hardness as CaCO3	mg/L																						
Magnesium (DIS)	mg/L																						
Potassium (DIS)	mg/L																						
Sodium (DIS)	mg/L																						
Sulfate	mg/L																						
<b>Nutrients</b>																							
Nitrate + Nitrite as N	mg/L	10																					
<b>Metals - Trace Constituents</b>																							
Aluminum (DIS)	mg/L																						
Antimony (DIS)	mg/L	0.006																					
Arsenic (DIS)	mg/L	0.01																					
Barium (DIS)	mg/L	1																					
Beryllium (DIS)	mg/L	0.004																					
Cadmium (DIS)	mg/L	0.005																					
Chromium (DIS)	mg/L	0.1																					
Cobalt (DIS)	mg/L																						
Copper (DIS)	mg/L	1.3																					
Iron (DIS)	mg/L																						
Lead (DIS)	mg/L	0.015																					
Manganese (DIS)	mg/L																						
Mercury (DIS)	ug/L																						
Molybdenum (DIS)	mg/L																						
Nickel (DIS)	mg/L	0.1																					
Selenium (DIS)	mg/L	0.05																					
Silver (DIS)	mg/L	0.1																					
Strontium (DIS)	mg/L	4																					
Thallium (DIS)	mg/L	0.002																					
Uranium (DIS)	mg/L	0.03																					
Zinc (DIS)	mg/L	2																					

**Definitions:**  
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 NM = Not measured  
 NF-ICE = Not flowing; ice on ground  
 NM-ICE = Not measured; ice prohibitive  
 NF-DRY = Not flowing; Dry ground

**Analyte concentration exceeds the standard for:**  
 Human Health Standard Groundwater

**Source:**  
 Montana DEQ7 June 2019



**TABLE 7. THIRD QUARTER 2019 SPRING AND SEEP WATER QUALITY DATA SUMMARY (CONTINUED)**

Station Name	Reporting Units	Human Health Standard Groundwater	SP-9	SP-10	SP-10	SP-10	SP-11	SP-11	SP-11	SP-11	SP-12	SP-12	SP-12	SP-12	SP-13
Sample Date			9/25/19 08:35	7/24/19 13:10	8/20/19 13:20	9/24/19 16:45	7/25/19 10:15	8/21/19 10:00	8/21/19 10:20	9/25/19 13:00	7/25/19 10:00	8/21/19 09:00	9/25/19 13:20	9/25/19 13:40	9/25/19 14:15
Sample ID			BBC-1909-137	BBC-1907-106	BBC-1908-106	BBC-1909-132	BBC-1907-121	BBC-1908-120	BBC-1908-121	BBC-1909-146	BBC-1907-120	BBC-1908-118	BBC-1909-147	BBC-1909-148	BBC-1909-150
Lab Name			Hydro	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Hydro
Remarks			No Sample						Duplicate					Duplicate	No Sample
Lab Sample ID		z	H19070585-001	H19080622-001	H19090658-005	H19070585-012	H19080622-010	H19080622-011	H19090658-008	H19070585-011	H19080622-008	H19090658-009	H19090658-010	z	
<b>Field Parameters</b>															
Dissolved Oxygen	mg/L		7.12	7.83	7.95	7.98	6.61	6.93		7.3	4.6	5.64	7.29	7.29	6.62
Field pH	s.u.		7.61	7.8	8.1	8.13	7.65	7.59		7.23	7.76	8.1	7.17	7.17	7.33
Field Specific Conductivity	umhos/cm		371	394	402	418	196	192		194	415	419	433	433	321
Flow	Gallons Per Min		5.39	6.73	2.6	1.93	NM	NM		NM	NM	NM	NM	NM	NM
Water Temperature	Deg C		6.1	9.6	12.2	8.6	6.8	6.8		7.7	8.4	8.7	7.8	7.8	7.4
<b>Physical Parameters</b>															
Total Dissolved Solids	mg/L			208	235	235	122	117	116	120	244	239	255	255	
Total Suspended Solids	mg/L			<10	<10	12	<10	<10	<10	<10	10 J	<10	<10	<10	
<b>Major Constituents - Commons Ions</b>															
Alkalinity as CaCO3	mg/L			210	220	220	92	94	94	96	190	200	210	210	
Calcium (DIS)	mg/L			58	54	55	23	23	23	23	52	52	55	54	
Chloride	mg/L			<1	<1	<1	<1	<1	<1	<1	8	10	9	9	
Fluoride	mg/L	4		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	
Hardness as CaCO3	mg/L			228	217	217	91	92	92	94	224	222	238	234	
Magnesium (DIS)	mg/L			20	20	20	8	8	8	9	23	23	24	24	
Potassium (DIS)	mg/L			1	1	1	1	1	1	1	2	1	1	1	
Sodium (DIS)	mg/L			2	2	2	3	3	3	4	2	2	2	2	
Sulfate	mg/L			12	15	15	6	7	7	7	19	21	20	20	
<b>Nutrients</b>															
Nitrate + Nitrite as N	mg/L	10		0.18	0.22	0.24	0.22	0.26	0.26	0.24	0.42	0.26	0.24	0.24	
<b>Metals - Trace Constituents</b>															
Aluminum (DIS)	mg/L			<0.009	<0.009	<0.009	0.065 J	0.023	0.027	0.045	<0.009	<0.009	<0.009	<0.009	
Antimony (DIS)	mg/L	0.006		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Arsenic (DIS)	mg/L	0.01		<0.001	<0.001	<0.001	0.006	0.006	0.006	0.006	<0.001	<0.001	<0.001	<0.001	
Barium (DIS)	mg/L	1		0.052	0.052	0.055	0.309	0.304	0.301	0.307	0.173	0.172	0.184	0.184	
Beryllium (DIS)	mg/L	0.004		<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	
Cadmium (DIS)	mg/L	0.005		<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	
Chromium (DIS)	mg/L	0.1		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Cobalt (DIS)	mg/L			<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
Copper (DIS)	mg/L	1.3		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	
Iron (DIS)	mg/L			<0.02	<0.02	<0.02	0.03	<0.02	<0.02	<0.02	0.29	<0.02	0.02	0.02	
Lead (DIS)	mg/L	0.015		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	
Manganese (DIS)	mg/L			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.02	<0.005	<0.005	<0.005	
Mercury (DIS)	ug/L			<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Molybdenum (DIS)	mg/L			<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	
Nickel (DIS)	mg/L	0.1		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Selenium (DIS)	mg/L	0.05		<0.0002	0.0003	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Silver (DIS)	mg/L	0.1		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Strontium (DIS)	mg/L	4		0.104	0.113	0.12	0.0951	0.102	0.102	0.109	0.101	0.104	0.116	0.115	
Thallium (DIS)	mg/L	0.002		<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	
Uranium (DIS)	mg/L	0.03		0.0007	0.0007	0.0008	0.0004	0.0003	0.0003	0.0004	0.0006	0.0005	0.0006	0.0006	
Zinc (DIS)	mg/L	2		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	

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**Analyte concentration exceeds the standard for:**

Human Health Standard Groundwater

**Source:**

Montana DEQ7 June 2019



### *Groundwater*

Groundwater quality showed some differences related to well depths and completion zones; brief descriptions of water quality are summarized below based on groups of wells sharing similar completion and water quality results.

The monitoring wells MW-1A, MW-2A, MW-4A, and MW-6A are located in the shallow highly weathered bedrock or unconsolidated overburden and exhibited the following water quality characteristics:

- Calcium bicarbonate type water;
- Near neutral to slightly alkaline pH (7.19 to 7.66 s.u.);
- Low sulfate concentration (15 to 20 mg/L);
- Moderate total dissolved solids concentrations (206 mg/L to 328 mg/L); and
- Low concentrations of many dissolved metals, including: barium, strontium, and uranium at all wells; aluminum, copper, lead, and thallium at MW-1A; selenium at MW-2A; iron, manganese, and nickel at MW-4A (Table 8).

The monitoring wells located in the shallow bedrock include MW-2B, MW-4B, MW-6B, MW-7, MW-8, MW-13, MW-16, MW-17, MW-18, MW-19, MW-20, and PW-3. The water quality at these wells is characterized by the following:

- Calcium-magnesium bicarbonate type water;
- Near neutral to slightly alkaline pH (7.25 to 7.98 s.u.);
- Low to moderate sulfate concentrations (7 to 151 mg/L);
- Moderate total dissolved solids concentrations (162 mg/L to 480 mg/L); and
- Low concentrations of numerous dissolved metals, including: barium, strontium, and uranium at all wells; arsenic, manganese, selenium, and thallium at MW-2B; aluminum, arsenic, iron, lead, manganese, molybdenum, and nickel at MW-7; arsenic, iron, and manganese at MW-8; arsenic, iron, manganese, and zinc at MW-16; selenium and zinc at MW-17; selenium at MW-18 and MW-20; and arsenic, iron, and manganese at PW-3 (Table 8).

The monitoring wells MW-1B, MW-3, MW-9, PW-2, PW-4, PW-8, and PW-9 are completed within or near the upper sulfide zone (USZ) and exhibit the following water quality characteristics:

- Calcium-magnesium bicarbonate-sulfate type water;
- Slightly acidic to near neutral pH (6.40 to 7.40 s.u.);
- Moderate to high sulfate (51 to 227 mg/L) concentrations;
- Elevated total dissolved solids concentrations (315 to 584 mg/L); and
- Low concentrations of numerous dissolved metals, including: arsenic, barium, iron, manganese, and strontium at all wells; antimony, cobalt, nickel, thallium and zinc at MW-1B; thallium and nickel at MW-3; lead and thallium at MW-9; nickel, zinc, thallium, and uranium at PW-4; antimony, thallium, lead, uranium, and zinc at PW-8. Similar to previous results, the concentration of iron at MW-1B (19 mg/L) and PW-4 (10.5 mg/L) was elevated in comparison to the concentration at other wells, which ranged from 0.85 mg/L to 3.36 mg/L.

The monitoring wells MW-10, MW-11, and MW-12 are completed in granodiorite and exhibit similar water quality, characterized by:

- Calcium bicarbonate water type;
- Near neutral to slightly alkaline pH (7.60 to 7.75);
- Low sulfate concentrations (4 to 12 mg/L);
- Moderate total dissolved solids concentrations (171 to 220 mg/L); and
- Low concentrations of numerous dissolved metals, including: barium and strontium at all wells; aluminum, molybdenum, and nickel at MW-10; and aluminum at MW-11 (Table 8).



**TABLE 8. THIRD QUARTER 2019 GROUNDWATER QUALITY SUMMARY (CONTINUED)**

Station Name	Reporting Units		MW-6B	MW-7	MW-7	MW-8	MW-8	MW-9	MW-9	MW-10	MW-10	MW-11	MW-11	MW-12	MW-12	MW-13	MW-13	MW-14	MW-15	MW-16	
Sample Date			9/19/19 13:30	9/16/19 17:46	9/19/19 15:20	9/16/19 17:55	9/19/19 15:00	9/16/19 12:20	9/20/19 12:40	9/16/19 16:18	9/19/19 11:30	9/16/19 16:22	9/19/19 11:00	9/16/19 16:28	9/19/19 10:25	9/16/19 16:30	9/19/19 09:55	9/16/19 18:20	9/16/19 18:17	9/16/19 14:42	
Sample ID		Human Health Standard Groundwater	BBC-1909-217	BBC-1909-10	BBC-1909-218	BBC-1909-11	BBC-1909-219	BBC-1909-12	BBC-1909-227	BBC-1909-13	BBC-1909-210	BBC-1909-14	BBC-1909-214	BBC-1909-15	BBC-1909-213	BBC-1909-16	BBC-1909-212	BBC-1909-17	BBC-1909-18	BBC-1909-19	
Lab Name			Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Hydro
Remarks				No Sample		No Sample		No Sample		No Sample		No Sample		No Sample		No Sample		No Sample		No Sample	No Sample
Lab Sample ID			H19090556-014	z	H19090556-015	z	H19090556-016	z	H19090556-024	z	H19090556-007	z	H19090556-011	z	H19090556-010	z	H19090556-009	z	z	z	
<b>Field Parameters</b>																					
Depth To Water	Feet		11.7	32.03	32.06	30.14	30.21	51.08	51.26	74.56	74.79	32.36	32.55	26.72	26.82	20.7	27.6	39.77	39.52	7.15	
Dissolved Oxygen	mg/L		3.66		4		0.08		0.06		7.71		9.31		8.38		8.09				
EH	Millivolts		256.493		190.417		102.608		173.536		261.153		259.021		269.295		267.812				
Field pH	s.u.		7.7		7.75		7.98		7.03		7.75		7.7		7.6		7.57				
Field Specific Conductivity	umhos/cm		454		526		308		791		356		315		412		425				
Water Temperature	Deg C		7.1		9.9		7.6		9.2		9.1		8.7		6.5		6.4				
<b>Physical Parameters</b>																					
Total Dissolved Solids	mg/L		252		327		162		529		197		177		220		231				
Total Suspended Solids	mg/L		<10		100		<10		<10		<10		12		<10		52				
<b>Major Constituents - Commons Ions</b>																					
Alkalinity as CaCO3	mg/L		230		230		150		250		190		170		220		220				
Calcium (DIS)	mg/L		47		57		25		82		42		43		56		58				
Chloride	mg/L		<1		4		<1		1		<1		<1		<1		<1				
Fluoride	mg/L	4	0.5		0.3		0.2		0.5		0.2		<0.1		0.1		0.1				
Hardness as CaCO3	mg/L		210		291		156		405		174		153		217		225				
Magnesium (DIS)	mg/L		23		36		23		49		17		11		19		20				
Potassium (DIS)	mg/L		1		1		<1		4		2		2		<1		<1				
Sodium (DIS)	mg/L		15		3		3		5		6		4		2		1				
Sulfate	mg/L		23		70		15		195		4		5		12		15				
<b>Nutrients</b>																					
Nitrate + Nitrite as N	mg/L	10	0.09		<0.01		<0.01		<0.01		0.57		0.4		0.15		0.16				
<b>Metals - Trace Constituents</b>																					
Aluminum (DIS)	mg/L		<0.009		0.037		<0.009		<0.009		<0.009		<0.009		<0.009		<0.009				
Antimony (DIS)	mg/L	0.006	<0.0005		<0.0005		<0.0005		<0.0005		<0.0005		<0.0005		<0.0005		<0.0005				
Arsenic (DIS)	mg/L	0.01	<0.001		0.001		0.002		0.012		<0.001		<0.001		<0.001		<0.001				
Barium (DIS)	mg/L	1	0.104		0.04		0.076		0.014		0.204		0.155		0.051		0.054				
Beryllium (DIS)	mg/L	0.004	<0.0008		<0.0008		<0.0008		<0.0008		<0.0008		<0.0008		<0.0008		<0.0008				
Cadmium (DIS)	mg/L	0.005	<0.00003		<0.00003		<0.00003		<0.00003		<0.00003		<0.00003		<0.00003		<0.00003				
Chromium (DIS)	mg/L	0.1	<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01				
Cobalt (DIS)	mg/L		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01		<0.01				
Copper (DIS)	mg/L	1.3	<0.002		<0.002		<0.002		<0.002		<0.002		<0.002		<0.002		<0.002				
Iron (DIS)	mg/L		<0.02		0.1		0.09		0.85		<0.02		<0.02		<0.02		<0.02				
Lead (DIS)	mg/L	0.015	<0.0003		0.0014		<0.0003		0.0008		<0.0003		<0.0003		<0.0003		<0.0003				
Manganese (DIS)	mg/L		<0.005		0.015		0.009		0.083		<0.005		<0.005		<0.005		<0.005				
Mercury (DIS)	ug/L		<0.005		<0.005		<0.005		<0.005		<0.005		<0.005		<0.005		<0.005				
Molybdenum (DIS)	mg/L		<0.002		0.003		<0.002		<0.002		0.004		<0.002		<0.002		<0.002				
Nickel (DIS)	mg/L	0.1	<0.001		0.001		<0.001		<0.001		<0.001		<0.001		<0.001		<0.001				
Selenium (DIS)	mg/L	0.05	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002				
Silver (DIS)	mg/L	0.1	<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002				
Strontium (DIS)	mg/L	4	0.225		0.158		0.0832		1.22 L		0.886		0.322		0.135		0.0963				
Thallium (DIS)	mg/L	0.002	<0.0002		<0.0002		<0.0002		0.0032		<0.0002		<0.0002		<0.0002		<0.0002				
Uranium (DIS)	mg/L	0.03	0.0006		0.002		0.0007		0.0009		0.0051		0.0015		0.0007		0.0005				
Zinc (DIS)	mg/L	2	<0.002		<0.002		<0.002		<0.002		<0.002		<0.002		<0.002		<0.002				

**Definitions:**

- J = Field Duplicate sample exceeded QA/QC comparison control limits
- U = Field Blank sample exceeded QA/QC comparison control limits
- H = Holding time exceeded QA/QC comparison control limits
- D = Reporting limit increased due to sample matrix interference
- L = The lowest available reporting limit was used per method used for analysis
- NM = Not measured
- NF-ICE = Not flowing; ice on ground
- NM-ICE = Not measured; ice prohibitive
- NF-DRY = Not flowing; Dry ground

**Analyte concentration exceeds the standard for:**

Human Health Standard Groundwater

**Source:**

Montana DEQ7 June 2019

**TABLE 8. THIRD QUARTER 2019 GROUNDWATER QUALITY SUMMARY (CONTINUED)**

Station Name	Reporting Units			MW-16	MW-17	MW-17	MW-18	MW-18	MW-19	MW-19	MW-20	MW-20	PW-1	PW-2	PW-2	PW-3	PW-3	PW-4	PW-4	PW-5	PW-6N
Sample Date				9/20/19 09:10	9/16/19 17:37	9/19/19 16:50	9/16/19 16:10	9/19/19 15:55	9/16/19 16:34	9/19/19 09:25	9/16/19 17:42	9/19/19 12:15	9/16/19 12:25	9/16/19 13:04	9/16/19 16:40	9/16/19 12:30	9/18/19 16:25	9/16/19 12:42	9/18/19 13:10	9/16/19 13:05	9/16/19 12:55
Sample ID				BBC-1909-224	BBC-1909-20	BBC-1909-221	BBC-1909-21	BBC-1909-220	BBC-1909-22	BBC-1909-211	BBC-1909-23	BBC-1909-215	BBC-1909-29	BBC-1909-30	BBC-1909-200	BBC-1909-31	BBC-1909-207	BBC-1909-32	BBC-1909-204	BBC-1909-33	BBC-1909-34
Lab Name		Human Health Standard Groundwater		Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Hydro
Remarks					No Sample		No Sample		No Sample		No Sample		No Sample	No Sample		No Sample		No Sample		No Sample	No Sample
Lab Sample ID				H19090556-021	z	H19090556-018	z	H19090556-017	z	H19090556-008	z	H19090556-012	z	z	H19090441-001	z	H19090556-004	z	H19090556-001	z	z
<b>Field Parameters</b>																					
Depth To Water	Feet			7.35	50.25	50.5	16.21	16.34	13.45	13.51	21.49	21.5	100.53	51	51	11.15	11.2	52.4	52.48	315.35	305.79
Dissolved Oxygen	mg/L			0.08		6.83		8.63		7.47		9.12			0.05		0.03		1.66		
EH	Millivolts			143.844		232.942		252.361		273.291		255.44			94.553		91.276		125.97		
Field pH	s.u.			7.25		7.75		7.76		7.52		7.74			7.4		7.29		6.95		
Field Specific Conductivity	umhos/cm			615		385		368		400		392			538		754		654		
Water Temperature	Deg C			6.8		7.4		6.7		7.7		8			9.1		7.2		9		
<b>Physical Parameters</b>																					
Total Dissolved Solids	mg/L			372		213		200		217		216			315		480		436		
Total Suspended Solids	mg/L			10		15		18		12		77			<10		10		25		
<b>Major Constituents - Commons Ions</b>																					
Alkalinity as CaCO3	mg/L			250		200		200		210		210			250		270		170		
Calcium (DIS)	mg/L			70		42		47		51		46			58		84		70		
Chloride	mg/L			2		1		<1		<1		<1			1		1		1		
Fluoride	mg/L	4		0.5		0.3		<0.1		0.1		<0.1			0.8		0.4		0.3		
Hardness as CaCO3	mg/L			326		202		191		208		207			291		398		320		
Magnesium (DIS)	mg/L			37		24		18		19		22			36		46		35		
Potassium (DIS)	mg/L			3		<1		<1		<1		1			5		4		2		
Sodium (DIS)	mg/L			4		2		2		2		1			3		5		4		
Sulfate	mg/L			95		8		7		14		8			51		151		176		
<b>Nutrients</b>																					
Nitrate + Nitrite as N	mg/L	10		<0.01		0.41		0.17		0.23		0.33			0.01		0.03		0.04		
<b>Metals - Trace Constituents</b>																					
Aluminum (DIS)	mg/L			<0.009		<0.009		<0.009		<0.009		<0.009			<0.009		<0.009		<0.009		
Antimony (DIS)	mg/L	0.006		<0.0005		<0.0005		<0.0005		<0.0005		<0.0005			<0.0005		<0.0005		<0.0005		
Arsenic (DIS)	mg/L	0.01		0.005		<0.001		<0.001		<0.001		<0.001			0.005		0.006		0.063		
Barium (DIS)	mg/L	1		0.017		0.267		0.098		0.086		0.188			0.034		0.011		0.048		
Beryllium (DIS)	mg/L	0.004		<0.0008		<0.0008		<0.0008		<0.0008		<0.0008			<0.0008		<0.0008		<0.0008		
Cadmium (DIS)	mg/L	0.005		<0.00003		<0.00003		<0.00003		<0.00003		<0.00003			<0.00003		<0.00003		<0.00003		
Chromium (DIS)	mg/L	0.1		<0.01		<0.01		<0.01		<0.01		<0.01			<0.01		<0.01		<0.01		
Cobalt (DIS)	mg/L			<0.01		<0.01		<0.01		<0.01		<0.01			<0.01		<0.01		<0.01		
Copper (DIS)	mg/L	1.3		<0.002		<0.002		<0.002		<0.002		<0.002			<0.002		<0.002		<0.002		
Iron (DIS)	mg/L			1.26		<0.02		<0.02		<0.02		<0.02			3.36		5.46		10.5		
Lead (DIS)	mg/L	0.015		<0.0003		<0.0003		<0.0003		<0.0003		<0.0003			<0.0003		<0.0003		<0.0003		
Manganese (DIS)	mg/L			0.039		<0.005		<0.005		<0.005		<0.005			0.061		0.045		0.137		
Mercury (DIS)	ug/L			<0.005		<0.005		<0.005		<0.005		<0.005			<0.005		<0.005		<0.005		
Molybdenum (DIS)	mg/L			<0.002		<0.002		<0.002		<0.002		<0.002			<0.002		<0.002		<0.002		
Nickel (DIS)	mg/L	0.1		<0.001		<0.001		<0.001		<0.001		<0.001			<0.001		<0.001		0.005		
Selenium (DIS)	mg/L	0.05		<0.0002		0.0008		0.0002		<0.0002		0.0002			<0.0002		<0.0002		<0.0002		
Silver (DIS)	mg/L	0.1		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002			<0.0002		<0.0002		<0.0002		
Strontium (DIS)	mg/L	4		0.287		0.103		0.1		0.148		0.0677		0.0865		0.313		9.88 L			
Thallium (DIS)	mg/L	0.002		<0.0002		<0.0002		<0.0002		<0.0002		<0.0002			<0.0002		<0.0002		0.0005		
Uranium (DIS)	mg/L	0.03		0.0017		0.0008		0.0004		0.0007		0.0005			0.0003		0.0011		0.0011		
Zinc (DIS)	mg/L	2		0.005		0.005		<0.002		<0.002		<0.002			<0.002		<0.002		0.007		

**Definitions:**  
 J = Field Duplicate sample exceeded QA/QC comparison control limits  
 U = Field Blank sample exceeded QA/QC comparison control limits  
 H = Holding time exceeded QA/QC comparison control limits  
 D = Reporting limit increased due to sample matrix interference  
 L = The lowest available reporting limit was used per method used for analysis  
 NM = Not measured  
 NF-ICE = Not flowing; ice on ground  
 NM-ICE = Not measured; ice prohibitive  
 NF-DRY = Not flowing; Dry ground

**Analyte concentration exceeds the standard for:**  
 Human Health Standard Groundwater

**Source:**  
 Montana DEQ7 June 2019

**TABLE 8. THIRD QUARTER 2019 GROUNDWATER QUALITY SUMMARY (CONTINUED)**

Station Name	Reporting Units	Human Health Standard Groundwater	PW-7	PW-7	PW-8	PW-8	PW-9	PW-9	PW-10	PW-10	SC12-116	SC15-184	SC15-184	SC15-185	SC15-185	SC15-194	SC15-194	SC15-198	SC15-198
Sample Date			7/10/19 12:10	9/16/19 15:00	9/16/19 12:43	9/17/19 17:55	9/16/19 12:52	9/17/19 16:05	9/16/19 12:51	9/17/19 12:05	9/16/19 17:33	9/16/19 16:36	9/20/19 14:25	9/16/19 16:25	9/23/19 12:50	9/16/19 18:32	9/23/19 11:50	9/16/19 16:14	9/23/19 13:40
Sample ID			BBC-1907-708	BBC-1909-35	BBC-1909-36	BBC-1909-203	BBC-1909-37	BBC-1909-202	BBC-1909-38	BBC-1909-201	BBC-1909-24	BBC-1909-25	BBC-1909-229	BBC-1909-26	BBC-1909-232	BBC-1909-27	BBC-1909-231	BBC-1909-28	BBC-1909-233
Lab Name			Energy Labs	Hydro	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs
Remarks				No Sample	No Sample		No Sample		No Sample		No Sample	No Sample		No Sample		No Sample		No Sample	
Lab Sample ID		H19070246-001	z	z	H19090441-004	z	H19090441-003	z	H19090441-002	z	z	H19090556-026	z	H19090608-011	z	H19090608-010	z	H19090608-012	
<b>Field Parameters</b>																			
Depth To Water	Feet		Artesian	Shut in	43.54	43.62	46.88	47.02	44.84	44.86	96.33	Shut in	0	29.3	29.59	19.53	19.57	40.42	40.9
Dissolved Oxygen	mg/L		0.11			0.02		0.03		2.36			7.26		4.64		0.46		7.97
EH	Millivolts				170.857			166.755		172.736			241.461		253.378		168.057		255.976
Field pH	s.u.		8.64		7.21		7.05		7.45				8		7.94		7.84		7.83
Field Specific Conductivity	umhos/cm		481		530		824		759				368		395		382		420
Water Temperature	Deg C		11.4		7.9		8.5		9.2				6.7		6.6		7.9		7.2
<b>Physical Parameters</b>																			
Total Dissolved Solids	mg/L		328			336		584		522			195		227		225		236
Total Suspended Solids	mg/L		<10			<10		<10		<10			<10		<10		<10		<10
<b>Major Constituents - Commons Ions</b>																			
Alkalinity as CaCO3	mg/L		290			190		210		220			190		210		180		230
Calcium (DIS)	mg/L		9			62		82		75			36		44		40		46
Chloride	mg/L		3			<1		1		<1			<1		<1		<1		2
Fluoride	mg/L	4	1.4			0.4		0.6		0.8			0.2		0.1		0.3		0.1
Hardness as CaCO3	mg/L		85			282		428		386			190		197		193		216
Magnesium (DIS)	mg/L		15			31		54		48			25		21		23		25
Potassium (DIS)	mg/L		8			2		3		5			<1		2		<1		<1
Sodium (DIS)	mg/L		99			3		13		11			2		4		2		3
Sulfate	mg/L		14			91		227		190			16		10		29		6
<b>Nutrients</b>																			
Nitrate + Nitrite as N	mg/L	10	<0.01			<0.01		<0.01		<0.01			0.28		0.24		<0.01		0.6
<b>Metals - Trace Constituents</b>																			
Aluminum (DIS)	mg/L		<0.009			<0.009		<0.009		<0.009			<0.009		0.011		<0.009		<0.009
Antimony (DIS)	mg/L	0.006	<0.0005			0.0008		<0.0005		<0.0005			<0.0005		<0.0005		<0.0005		<0.0005
Arsenic (DIS)	mg/L	0.01	0.002			0.012		0.085		0.063			<0.001		<0.001		0.001		<0.001
Barium (DIS)	mg/L	1	0.236			0.037		0.012		0.033			0.087		0.069		0.035		0.365
Beryllium (DIS)	mg/L	0.004	<0.0008			<0.0008		<0.0008		<0.0008			<0.0008		<0.0008		<0.0008		<0.0008
Cadmium (DIS)	mg/L	0.005	<0.00003			<0.00003		<0.00003		<0.00003			<0.00003		<0.00003		<0.00003		<0.00003
Chromium (DIS)	mg/L	0.1	<0.01			<0.01		<0.01		<0.01			<0.01		<0.01		<0.01		<0.01
Cobalt (DIS)	mg/L		<0.01			<0.01		<0.01		<0.01			<0.01		<0.01		<0.01		<0.01
Copper (DIS)	mg/L	1.3	<0.002			<0.002		<0.002		<0.002			<0.002		<0.002		<0.002		<0.002
Iron (DIS)	mg/L		0.83			0.88		2.13		0.41			<0.02		<0.02		0.03		<0.02
Lead (DIS)	mg/L	0.015	0.0004			0.0079		<0.0003		<0.0003			<0.0003		<0.0003		<0.0003		<0.0003
Manganese (DIS)	mg/L		0.072			0.096		0.032		0.109			<0.005		<0.005		<0.005		<0.005
Mercury (DIS)	ug/L		<0.005			<0.005		<0.005		<0.005			<0.005		<0.005		<0.005		0.005
Molybdenum (DIS)	mg/L		<0.002			<0.002		<0.002		<0.002			<0.002		0.004		<0.002		<0.002
Nickel (DIS)	mg/L	0.1	<0.001			<0.001		<0.001		<0.001			<0.001		<0.001		<0.001		<0.001
Selenium (DIS)	mg/L	0.05	<0.0002			<0.0002		<0.0002		<0.0002			0.0011		<0.0002		<0.0002		0.0002
Silver (DIS)	mg/L	0.1	<0.0002			<0.0002		<0.0002		<0.0002			<0.0002		<0.0002		<0.0002		<0.0002
Strontium (DIS)	mg/L	4	0.349			0.699 L		9.08 L		12.6 L			0.115		0.244		0.0702		0.101
Thallium (DIS)	mg/L	0.002	<0.0002			0.0025		0.0008		<0.0002			<0.0002		<0.0002		<0.0002		<0.0002
Uranium (DIS)	mg/L	0.03	<0.0002			0.001		0.0014		0.0008			0.001		0.0031		0.0008		0.0007
Zinc (DIS)	mg/L	2	0.148			0.003		<0.002		0.003			<0.002		<0.002		<0.002		<0.002

**Definitions:**  
J = Field Duplicate sample exceeded QA/QC comparison control limits  
U = Field Blank sample exceeded QA/QC comparison control limits  
H = Holding time exceeded QA/QC comparison control limits  
D = Reporting limit increased due to sample matrix interference  
L = The lowest available reporting limit was used per method used for analysis  
NM = Not measured  
NF-ICE = Not flowing; ice on ground  
NM-ICE = Not measured; ice prohibitive  
NF-DRY = Not flowing; Dry ground

**Analyte concentration exceeds the standard for:**  
Human Health Standard Groundwater

**Source:**  
Montana DEQ7 June 2019

The monitoring wells SC15-184, SC15-185, SC15-194, and SC15-198 exhibit similar water quality, characterized by the following:

- Calcium-magnesium bicarbonate type water;
- Near neutral to slightly alkaline pH (7.83 s.u. to 8.00 s.u.);
- Low sulfate concentrations (6 mg/L to 29 mg/L);
- Moderate total dissolved solids concentrations (195 mg/L to 236 mg/L); and
- Low concentrations of dissolved metals, including: barium, strontium, and uranium at all wells; selenium at SC15-184; and aluminum and molybdenum at SC15-185; iron at SC15-194; and selenium and mercury at SC15-198 (Table 8).

The test well PW-10 is completed in deeper bedrock comprised of dolomitic shale below the USZ. The groundwater at PW-10 is characterized by the following:

- Calcium-magnesium bicarbonate-sulfate type water;
- Near neutral pH (7.45 s.u.);
- Moderate sulfate concentrations (190 mg/L);
- Elevated total dissolved solids concentrations (522 mg/L); and
- Low concentrations of dissolved metals, including: arsenic, barium, iron, manganese, strontium, uranium, and zinc (Table 8).

### **3.5 QUALITY CONTROL**

The field quality control sample plan consists of collecting one field duplicate and one field blank sample for each source water (groundwater, surface water, and springs) and one rinsate blank for the groundwater sampling equipment during each monitoring event. Field duplicate samples are replicate samples, collected from a single sampling location, to evaluate the reproducibility (precision) of the field sampling protocols. The field blank samples are collected to evaluate potential contamination from ambient conditions during sampling, sample containers and preservatives, and laboratory processing and analysis. For the purposes of this project, field duplicates were collected by rinsing and filling two samples containers consecutively from the sampling location and preserving. The field blank samples

are collected by rinsing and pouring deionized (DI) water into sample containers and preserving. The rinsate (equipment) blanks, collected for groundwater quality sample analysis, consisted of sampling DI water after being processed through decontaminated sampling equipment (including filtration equipment as appropriate), collected into sample containers and preserved. The field quality control samples are identified with a sequential sample code and are submitted blind to the laboratory.

The data quality for the monitoring conducted in the third quarter of 2019 was evaluated using standard laboratory QC samples and field duplicates, blanks, and rinsate blanks. Field duplicates were collected at SW-17 and DS-3 in July, SW-2 and SP-11 in August, and SW-4, SP-12, and MW-3 in September 2019. Data quality reviews and QA/QC results for the third quarter are provided in Appendix B and a summary of field QC sample quality control limit exceedances are provided below. The QA/QC data did not indicate any systematic data quality issues for the third quarter of 2019.

#### July monitoring event:

- Field blank control limits were not exceeded in July.
- The field duplicate sample collected at SW-17 exceeded the control limits for total suspended solids (Appendix B).

#### August monitoring event:

- Field duplicate and blank control limits were not exceeded in August.

#### September monitoring event:

- The field rinsate blank sample exceeded the control limits for dissolved strontium (Appendix B).
- Field duplicate control limits were not exceeded in September.



## 4.0 REFERENCES

- DEQ, 2019. Circular DEQ-7, Montana Numeric Water Quality Standards. Montana Department of Environmental Quality – Water Quality Planning Bureau – Water Quality Standards and Modeling Section. June 2019.
- EPA, 1983. Methods for Chemical Analysis of Water and Wastes. EPA-600/14-79-020. Revised March 1983.
- Hydrometrics, Inc., 2015. Baseline Water Resources Monitoring and Hydrogeologic Investigations Report, Tintina Resources Black Butte Project. August 2015. Revised March 2017.
- Hydrometrics, Inc., 2016. Water Resources Monitoring Field Sampling and Analysis Plan, Black Butte Copper Project. June 2016.

**APPENDIX A**

**LABORATORY ANALYTICAL REPORT**



# ANALYTICAL SUMMARY REPORT

August 20, 2019

Tintina Resources Inc  
PO Box 431  
White Sulphur Springs, MT 59645-0431

Work Order: H19070583                      Quote ID: H1216

Project Name: 18049 July Monthly Sampling (SW)

Energy Laboratories Inc Helena MT received the following 9 samples for Tintina Resources Inc on 7/26/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H19070583-001	BBC-1907-107	07/24/19 13:40	07/26/19	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Mercury, Total Recoverable Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 Mercury Digestion by E245.1 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Dissolved Solids, Total Suspended
H19070583-002	BBC-1907-110	07/24/19 14:45	07/26/19	Surface Water	Same As Above
H19070583-003	BBC-1907-122	07/25/19 11:00	07/26/19	Surface Water	Same As Above
H19070583-004	BBC-1907-123	07/25/19 11:45	07/26/19	Surface Water	Same As Above
H19070583-005	BBC-1907-124	07/25/19 12:00	07/26/19	Surface Water	Same As Above
H19070583-006	BBC-1907-125	07/25/19 12:10	07/26/19	Surface Water	Same As Above
H19070583-007	BBC-1907-126	07/25/19 12:45	07/26/19	Surface Water	Same As Above
H19070583-008	BBC-1907-127	07/25/19 13:15	07/26/19	Surface Water	Same As Above
H19070583-009	BBC-1907-128	07/25/19 13:45	07/26/19	Surface Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



**CLIENT:** Tintina Resources Inc  
**Project:** 18049 July Monthly Sampling (SW)  
**Work Order:** H19070583

**Report Date:** 08/20/19

## **CASE NARRATIVE**

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Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 July Monthly Sampling (SW)  
**Lab ID:** H19070583-001  
**Client Sample ID:** BBC-1907-107

**Report Date:** 08/20/19  
**Collection Date:** 07/24/19 13:40  
**Date Received:** 07/26/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	8	mg/L		4		A2540 D	07/26/19 14:25 / RAT
Solids, Total Dissolved TDS @ 180 C	211	mg/L	D	10		A2540 C	07/26/19 14:11 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	07/29/19 12:47 / SRW
Chloride	ND	mg/L		1		E300.0	07/26/19 15:53 / SRW
Sulfate	9	mg/L		1		E300.0	07/26/19 15:53 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	07/29/19 11:25 / RAT
Hardness as CaCO3	197	mg/L		1		A2340 B	07/29/19 16:09 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.08	mg/L		0.01		E353.2	07/31/19 13:29 / abc
Nitrogen, Total	0.22	mg/L		0.04		A4500 N-C	08/01/19 10:00 / SRW
Phosphorus, Total as P	0.045	mg/L		0.003		E365.1	07/30/19 15:54 / SRW
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/01/19 14:01 / dck
Calcium	47	mg/L		1		E200.7	07/29/19 16:09 / sld
Magnesium	19	mg/L		1		E200.7	07/29/19 16:09 / sld
Potassium	1	mg/L		1		E200.7	07/29/19 16:09 / sld
Sodium	3	mg/L		1		E200.7	07/29/19 16:09 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	07/31/19 17:21 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/01/19 14:04 / dck
Barium	0.148	mg/L		0.003		E200.8	07/31/19 17:21 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/01/19 14:04 / dck
Cadmium	ND	mg/L		0.00003		E200.8	07/31/19 17:21 / dck
Chromium	ND	mg/L		0.01		E200.8	07/31/19 17:21 / dck
Cobalt	ND	mg/L		0.01		E200.8	07/31/19 17:21 / dck
Copper	ND	mg/L		0.002		E200.8	07/31/19 17:21 / dck
Iron	0.39	mg/L		0.02		E200.8	07/31/19 17:21 / dck
Lead	ND	mg/L		0.0003		E200.8	08/01/19 14:04 / dck
Manganese	0.027	mg/L		0.005		E200.8	07/31/19 17:21 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 10:34 / ber
Molybdenum	ND	mg/L		0.002		E200.8	07/31/19 17:21 / dck
Nickel	ND	mg/L		0.001		E200.8	08/01/19 14:04 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/01/19 14:04 / dck
Silver	ND	mg/L		0.0002		E200.8	08/01/19 14:04 / dck
Strontium	0.186	mg/L	L	0.0003		E200.8	08/01/19 14:04 / dck
Thallium	ND	mg/L		0.0002		E200.8	07/31/19 17:21 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	07/31/19 17:21 / dck
Zinc	ND	mg/L	D	0.02		E200.8	08/12/19 17:51 / eli-b

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 July Monthly Sampling (SW)  
**Lab ID:** H19070583-002  
**Client Sample ID:** BBC-1907-110

**Report Date:** 08/20/19  
**Collection Date:** 07/24/19 14:45  
**Date Received:** 07/26/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	6	mg/L		4		A2540 D	07/26/19 14:26 / RAT
Solids, Total Dissolved TDS @ 180 C	236	mg/L	D	10		A2540 C	07/26/19 14:11 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	07/29/19 12:53 / SRW
Chloride	3	mg/L		1		E300.0	07/26/19 16:07 / SRW
Sulfate	18	mg/L		1		E300.0	07/26/19 16:07 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	07/29/19 11:33 / RAT
Hardness as CaCO3	228	mg/L		1		A2340 B	07/29/19 16:13 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.02	mg/L		0.01		E353.2	07/31/19 13:33 / abc
Nitrogen, Total	0.12	mg/L		0.04		A4500 N-C	08/01/19 10:03 / SRW
Phosphorus, Total as P	0.015	mg/L		0.003		E365.1	07/30/19 15:55 / SRW
<b>METALS, DISSOLVED</b>							
Aluminum	0.018	mg/L		0.009		E200.8	08/01/19 14:06 / dck
Calcium	52	mg/L		1		E200.7	07/29/19 16:13 / sld
Magnesium	24	mg/L		1		E200.7	07/29/19 16:13 / sld
Potassium	1	mg/L		1		E200.7	07/29/19 16:13 / sld
Sodium	2	mg/L		1		E200.7	07/29/19 16:13 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	07/31/19 17:23 / dck
Arsenic	ND	mg/L		0.001		E200.8	07/31/19 17:23 / dck
Barium	0.169	mg/L		0.003		E200.8	07/31/19 17:23 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/01/19 14:08 / dck
Cadmium	ND	mg/L		0.00003		E200.8	07/31/19 17:23 / dck
Chromium	ND	mg/L		0.01		E200.8	07/31/19 17:23 / dck
Cobalt	ND	mg/L		0.01		E200.8	07/31/19 17:23 / dck
Copper	ND	mg/L		0.002		E200.8	07/31/19 17:23 / dck
Iron	0.19	mg/L		0.02		E200.8	07/31/19 17:23 / dck
Lead	ND	mg/L		0.0003		E200.8	08/01/19 14:08 / dck
Manganese	ND	mg/L		0.005		E200.8	07/31/19 17:23 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 10:44 / ber
Molybdenum	ND	mg/L		0.002		E200.8	07/31/19 17:23 / dck
Nickel	ND	mg/L		0.001		E200.8	08/01/19 14:08 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/01/19 14:08 / dck
Silver	ND	mg/L		0.0002		E200.8	08/01/19 14:08 / dck
Strontium	0.122	mg/L	L	0.0003		E200.8	08/01/19 14:08 / dck
Thallium	ND	mg/L		0.0002		E200.8	07/31/19 17:23 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	07/31/19 17:23 / dck
Zinc	0.009	mg/L	L	0.004		E200.8	08/12/19 17:55 / eli-b

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 July Monthly Sampling (SW)  
**Lab ID:** H19070583-003  
**Client Sample ID:** BBC-1907-122

**Report Date:** 08/20/19  
**Collection Date:** 07/25/19 11:00  
**Date Received:** 07/26/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	4	mg/L		4		A2540 D	07/26/19 14:26 / RAT
Solids, Total Dissolved TDS @ 180 C	185	mg/L	D	10		A2540 C	07/26/19 14:11 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	07/29/19 12:59 / SRW
Chloride	1	mg/L		1		E300.0	07/26/19 16:22 / SRW
Sulfate	5	mg/L		1		E300.0	07/26/19 16:22 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	07/29/19 11:42 / RAT
Hardness as CaCO3	167	mg/L		1		A2340 B	07/29/19 16:17 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	07/31/19 13:34 / abc
Nitrogen, Total	0.12	mg/L		0.04		A4500 N-C	08/01/19 10:07 / SRW
Phosphorus, Total as P	0.010	mg/L		0.003		E365.1	08/02/19 09:59 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/01/19 14:10 / dck
Calcium	48	mg/L		1		E200.7	07/29/19 16:17 / sld
Magnesium	12	mg/L		1		E200.7	07/29/19 16:17 / sld
Potassium	1	mg/L		1		E200.7	07/29/19 16:17 / sld
Sodium	2	mg/L		1		E200.7	07/29/19 16:17 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	07/31/19 17:25 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/01/19 14:13 / dck
Barium	0.102	mg/L		0.003		E200.8	07/31/19 17:25 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/01/19 14:13 / dck
Cadmium	ND	mg/L		0.00003		E200.8	07/31/19 17:25 / dck
Chromium	ND	mg/L		0.01		E200.8	07/31/19 17:25 / dck
Cobalt	ND	mg/L		0.01		E200.8	07/31/19 17:25 / dck
Copper	ND	mg/L		0.002		E200.8	07/31/19 17:25 / dck
Iron	0.13	mg/L		0.02		E200.8	07/31/19 17:25 / dck
Lead	ND	mg/L		0.0003		E200.8	07/31/19 17:25 / dck
Manganese	0.015	mg/L		0.005		E200.8	07/31/19 17:25 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 10:47 / ber
Molybdenum	ND	mg/L		0.002		E200.8	07/31/19 17:25 / dck
Nickel	ND	mg/L		0.001		E200.8	08/01/19 14:13 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/01/19 14:13 / dck
Silver	ND	mg/L		0.0002		E200.8	08/01/19 14:13 / dck
Strontium	0.136	mg/L	L	0.0003		E200.8	08/01/19 14:13 / dck
Thallium	ND	mg/L		0.0002		E200.8	07/31/19 17:25 / dck
Uranium	0.0003	mg/L		0.0002		E200.8	07/31/19 17:25 / dck
Zinc	ND	mg/L	L	0.004		E200.8	08/12/19 17:59 / eli-b

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 July Monthly Sampling (SW)  
**Lab ID:** H19070583-004  
**Client Sample ID:** BBC-1907-123

**Report Date:** 08/20/19  
**Collection Date:** 07/25/19 11:45  
**Date Received:** 07/26/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	19	mg/L		4		A2540 D	07/26/19 14:26 / RAT
Solids, Total Dissolved TDS @ 180 C	266	mg/L	D	10		A2540 C	07/26/19 14:11 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	07/29/19 13:05 / SRW
Chloride	4	mg/L		1		E300.0	07/26/19 16:36 / SRW
Sulfate	20	mg/L		1		E300.0	07/26/19 16:36 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	07/29/19 11:46 / RAT
Hardness as CaCO3	247	mg/L		1		A2340 B	07/29/19 16:21 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.11	mg/L		0.01		E353.2	07/31/19 13:35 / abc
Nitrogen, Total	0.37	mg/L		0.04		A4500 N-C	08/01/19 10:08 / SRW
Phosphorus, Total as P	0.011	mg/L		0.003		E365.1	07/30/19 16:02 / SRW
<b>METALS, DISSOLVED</b>							
Aluminum	0.021	mg/L		0.009		E200.8	08/01/19 14:15 / dck
Calcium	60	mg/L		1		E200.7	07/29/19 16:21 / sld
Magnesium	23	mg/L		1		E200.7	07/29/19 16:21 / sld
Potassium	1	mg/L		1		E200.7	07/29/19 16:21 / sld
Sodium	3	mg/L		1		E200.7	07/29/19 16:21 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	07/31/19 17:27 / dck
Arsenic	ND	mg/L		0.001		E200.8	07/31/19 17:27 / dck
Barium	0.157	mg/L		0.003		E200.8	07/31/19 17:27 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/01/19 14:17 / dck
Cadmium	ND	mg/L		0.00003		E200.8	07/31/19 17:27 / dck
Chromium	ND	mg/L		0.01		E200.8	07/31/19 17:27 / dck
Cobalt	ND	mg/L		0.01		E200.8	07/31/19 17:27 / dck
Copper	ND	mg/L		0.002		E200.8	07/31/19 17:27 / dck
Iron	0.37	mg/L		0.02		E200.8	07/31/19 17:27 / dck
Lead	ND	mg/L		0.0003		E200.8	07/31/19 17:27 / dck
Manganese	0.041	mg/L		0.005		E200.8	07/31/19 17:27 / dck
Mercury	0.007	ug/L		0.005		E245.1	08/01/19 10:51 / ber
Molybdenum	ND	mg/L		0.002		E200.8	07/31/19 17:27 / dck
Nickel	ND	mg/L		0.001		E200.8	07/31/19 17:27 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/01/19 14:17 / dck
Silver	ND	mg/L		0.0002		E200.8	08/01/19 14:17 / dck
Strontium	0.172	mg/L	L	0.0003		E200.8	08/01/19 14:17 / dck
Thallium	ND	mg/L		0.0002		E200.8	07/31/19 17:27 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	07/31/19 17:27 / dck
Zinc	0.005	mg/L	L	0.004		E200.8	08/12/19 18:03 / eli-b

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.





### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 July Monthly Sampling (SW)  
**Lab ID:** H19070583-005  
**Client Sample ID:** BBC-1907-124

**Report Date:** 08/20/19  
**Collection Date:** 07/25/19 12:00  
**Date Received:** 07/26/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	12	mg/L		4		A2540 D	07/26/19 14:27 / RAT
Solids, Total Dissolved TDS @ 180 C	266	mg/L	D	10		A2540 C	07/26/19 14:12 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	07/29/19 13:11 / SRW
Chloride	4	mg/L		1		E300.0	07/26/19 16:51 / SRW
Sulfate	20	mg/L		1		E300.0	07/26/19 16:51 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	07/29/19 11:50 / RAT
Hardness as CaCO3	250	mg/L		1		A2340 B	07/29/19 16:24 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.11	mg/L		0.01		E353.2	07/31/19 13:36 / abc
Nitrogen, Total	0.35	mg/L		0.04		A4500 N-C	08/01/19 10:09 / SRW
Phosphorus, Total as P	0.013	mg/L		0.003		E365.1	07/30/19 16:05 / SRW
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/01/19 14:33 / dck
Calcium	61	mg/L		1		E200.7	07/29/19 16:24 / sld
Magnesium	24	mg/L		1		E200.7	07/29/19 16:24 / sld
Potassium	ND	mg/L		1		E200.7	07/29/19 16:24 / sld
Sodium	3	mg/L		1		E200.7	07/29/19 16:24 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	07/31/19 17:37 / dck
Arsenic	ND	mg/L		0.001		E200.8	07/31/19 17:37 / dck
Barium	0.157	mg/L		0.003		E200.8	07/31/19 17:37 / dck
Beryllium	ND	mg/L		0.0008		E200.8	07/31/19 17:37 / dck
Cadmium	ND	mg/L		0.00003		E200.8	07/31/19 17:37 / dck
Chromium	ND	mg/L		0.01		E200.8	07/31/19 17:37 / dck
Cobalt	ND	mg/L		0.01		E200.8	07/31/19 17:37 / dck
Copper	ND	mg/L		0.002		E200.8	07/31/19 17:37 / dck
Iron	0.36	mg/L		0.02		E200.8	07/31/19 17:37 / dck
Lead	ND	mg/L		0.0003		E200.8	08/01/19 14:36 / dck
Manganese	0.041	mg/L		0.005		E200.8	07/31/19 17:37 / dck
Mercury	0.007	ug/L		0.005		E245.1	08/01/19 10:54 / ber
Molybdenum	ND	mg/L		0.002		E200.8	07/31/19 17:37 / dck
Nickel	ND	mg/L		0.001		E200.8	07/31/19 17:37 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/01/19 14:36 / dck
Silver	ND	mg/L		0.0002		E200.8	08/01/19 14:36 / dck
Strontium	0.169	mg/L	L	0.0003		E200.8	08/01/19 14:36 / dck
Thallium	ND	mg/L		0.0002		E200.8	07/31/19 17:37 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	07/31/19 17:37 / dck
Zinc	0.005	mg/L	L	0.004		E200.8	08/12/19 18:07 / eli-b

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 July Monthly Sampling (SW)  
**Lab ID:** H19070583-006  
**Client Sample ID:** BBC-1907-125

**Report Date:** 08/20/19  
**Collection Date:** 07/25/19 12:10  
**Date Received:** 07/26/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	07/26/19 14:27 / RAT
Solids, Total Dissolved TDS @ 180 C	217	mg/L	D	10		A2540 C	07/26/19 14:12 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	07/29/19 13:17 / SRW
Chloride	2	mg/L		1		E300.0	07/26/19 17:05 / SRW
Sulfate	6	mg/L		1		E300.0	07/26/19 17:05 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	07/29/19 11:54 / RAT
Hardness as CaCO3	206	mg/L		1		A2340 B	07/29/19 16:28 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	07/31/19 13:37 / abc
Nitrogen, Total	0.11	mg/L		0.04		A4500 N-C	08/01/19 10:10 / SRW
Phosphorus, Total as P	0.005	mg/L		0.003		E365.1	07/30/19 16:06 / SRW
<b>METALS, DISSOLVED</b>							
Aluminum	0.021	mg/L		0.009		E200.8	08/01/19 14:38 / dck
Calcium	55	mg/L		1		E200.7	07/29/19 16:28 / sld
Magnesium	17	mg/L		1		E200.7	07/29/19 16:28 / sld
Potassium	1	mg/L		1		E200.7	07/29/19 16:28 / sld
Sodium	2	mg/L		1		E200.7	07/29/19 16:28 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	07/31/19 17:39 / dck
Arsenic	ND	mg/L		0.001		E200.8	07/31/19 17:39 / dck
Barium	0.109	mg/L		0.003		E200.8	07/31/19 17:39 / dck
Beryllium	ND	mg/L		0.0008		E200.8	07/31/19 17:39 / dck
Cadmium	ND	mg/L		0.00003		E200.8	07/31/19 17:39 / dck
Chromium	ND	mg/L		0.01		E200.8	07/31/19 17:39 / dck
Cobalt	ND	mg/L		0.01		E200.8	07/31/19 17:39 / dck
Copper	ND	mg/L		0.002		E200.8	07/31/19 17:39 / dck
Iron	0.07	mg/L		0.02		E200.8	07/31/19 17:39 / dck
Lead	ND	mg/L		0.0003		E200.8	07/31/19 17:39 / dck
Manganese	0.007	mg/L		0.005		E200.8	07/31/19 17:39 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 10:57 / ber
Molybdenum	ND	mg/L		0.002		E200.8	07/31/19 17:39 / dck
Nickel	ND	mg/L		0.001		E200.8	08/01/19 14:40 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/01/19 14:40 / dck
Silver	ND	mg/L		0.0002		E200.8	08/01/19 14:40 / dck
Strontium	0.125	mg/L	L	0.0003		E200.8	08/01/19 14:40 / dck
Thallium	ND	mg/L		0.0002		E200.8	07/31/19 17:39 / dck
Uranium	0.0004	mg/L		0.0002		E200.8	07/31/19 17:39 / dck
Zinc	ND	mg/L	D	0.04		E200.8	08/12/19 18:26 / eli-b

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 July Monthly Sampling (SW)  
**Lab ID:** H19070583-007  
**Client Sample ID:** BBC-1907-126

**Report Date:** 08/20/19  
**Collection Date:** 07/25/19 12:45  
**Date Received:** 07/26/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	07/26/19 14:27 / RAT
Solids, Total Dissolved TDS @ 180 C	179	mg/L	D	10		A2540 C	07/26/19 14:12 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	07/29/19 13:23 / SRW
Chloride	1	mg/L		1		E300.0	07/26/19 17:20 / SRW
Sulfate	5	mg/L		1		E300.0	07/26/19 17:20 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	07/29/19 11:58 / RAT
Hardness as CaCO3	166	mg/L		1		A2340 B	07/29/19 16:32 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	07/31/19 13:39 / abc
Nitrogen, Total	0.06	mg/L		0.04		A4500 N-C	08/01/19 10:11 / SRW
Phosphorus, Total as P	0.004	mg/L		0.003		E365.1	07/30/19 16:07 / SRW
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/01/19 14:43 / dck
Calcium	48	mg/L		1		E200.7	07/29/19 16:32 / sld
Magnesium	11	mg/L		1		E200.7	07/29/19 16:32 / sld
Potassium	1	mg/L		1		E200.7	07/29/19 16:32 / sld
Sodium	2	mg/L		1		E200.7	07/29/19 16:32 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	07/31/19 17:41 / dck
Arsenic	ND	mg/L		0.001		E200.8	07/31/19 17:41 / dck
Barium	0.086	mg/L		0.003		E200.8	07/31/19 17:41 / dck
Beryllium	ND	mg/L		0.0008		E200.8	07/31/19 17:41 / dck
Cadmium	ND	mg/L		0.00003		E200.8	07/31/19 17:41 / dck
Chromium	ND	mg/L		0.01		E200.8	07/31/19 17:41 / dck
Cobalt	ND	mg/L		0.01		E200.8	07/31/19 17:41 / dck
Copper	ND	mg/L		0.002		E200.8	07/31/19 17:41 / dck
Iron	0.09	mg/L		0.02		E200.8	07/31/19 17:41 / dck
Lead	ND	mg/L		0.0003		E200.8	07/31/19 17:41 / dck
Manganese	0.008	mg/L		0.005		E200.8	07/31/19 17:41 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 11:00 / ber
Molybdenum	ND	mg/L		0.002		E200.8	07/31/19 17:41 / dck
Nickel	ND	mg/L		0.001		E200.8	08/01/19 14:45 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/01/19 14:45 / dck
Silver	ND	mg/L		0.0002		E200.8	08/01/19 14:45 / dck
Strontium	0.139	mg/L	L	0.0003		E200.8	08/01/19 14:45 / dck
Thallium	ND	mg/L		0.0002		E200.8	07/31/19 17:41 / dck
Uranium	0.0003	mg/L		0.0002		E200.8	07/31/19 17:41 / dck
Zinc	ND	mg/L	L	0.004		E200.8	08/12/19 18:30 / eli-b

**Report Definitions:**  
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QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 July Monthly Sampling (SW)  
**Lab ID:** H19070583-008  
**Client Sample ID:** BBC-1907-127

**Report Date:** 08/20/19  
**Collection Date:** 07/25/19 13:15  
**Date Received:** 07/26/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	07/26/19 14:27 / RAT
Solids, Total Dissolved TDS @ 180 C	188	mg/L	D	10		A2540 C	07/26/19 14:12 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	180	mg/L		4		A2320 B	07/29/19 13:29 / SRW
Chloride	1	mg/L		1		E300.0	07/26/19 17:34 / SRW
Sulfate	5	mg/L		1		E300.0	07/26/19 17:34 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	07/29/19 12:02 / RAT
Hardness as CaCO3	175	mg/L		1		A2340 B	07/29/19 16:36 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.01	mg/L		0.01		E353.2	07/31/19 13:40 / abc
Nitrogen, Total	0.05	mg/L		0.04		A4500 N-C	08/01/19 10:13 / SRW
Phosphorus, Total as P	0.004	mg/L		0.003		E365.1	07/30/19 16:08 / SRW
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/01/19 14:47 / dck
Calcium	50	mg/L		1		E200.7	07/29/19 16:36 / sld
Magnesium	12	mg/L		1		E200.7	07/29/19 16:36 / sld
Potassium	1	mg/L		1		E200.7	07/29/19 16:36 / sld
Sodium	2	mg/L		1		E200.7	07/29/19 16:36 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	07/31/19 17:44 / dck
Arsenic	ND	mg/L		0.001		E200.8	07/31/19 17:44 / dck
Barium	0.080	mg/L		0.003		E200.8	07/31/19 17:44 / dck
Beryllium	ND	mg/L		0.0008		E200.8	07/31/19 17:44 / dck
Cadmium	ND	mg/L		0.00003		E200.8	07/31/19 17:44 / dck
Chromium	ND	mg/L		0.01		E200.8	07/31/19 17:44 / dck
Cobalt	ND	mg/L		0.01		E200.8	07/31/19 17:44 / dck
Copper	ND	mg/L		0.002		E200.8	07/31/19 17:44 / dck
Iron	0.07	mg/L		0.02		E200.8	07/31/19 17:44 / dck
Lead	ND	mg/L		0.0003		E200.8	07/31/19 17:44 / dck
Manganese	0.006	mg/L		0.005		E200.8	07/31/19 17:44 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 11:10 / ber
Molybdenum	ND	mg/L		0.002		E200.8	07/31/19 17:44 / dck
Nickel	ND	mg/L		0.001		E200.8	08/01/19 14:49 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/01/19 14:49 / dck
Silver	ND	mg/L		0.0002		E200.8	08/01/19 14:49 / dck
Strontium	0.150	mg/L	L	0.0003		E200.8	08/01/19 14:49 / dck
Thallium	ND	mg/L		0.0002		E200.8	07/31/19 17:44 / dck
Uranium	0.0003	mg/L		0.0002		E200.8	07/31/19 17:44 / dck
Zinc	ND	mg/L	L	0.004		E200.8	08/12/19 18:34 / eli-b

**Report Definitions:**  
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QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 July Monthly Sampling (SW)  
**Lab ID:** H19070583-009  
**Client Sample ID:** BBC-1907-128

**Report Date:** 08/20/19  
**Collection Date:** 07/25/19 13:45  
**Date Received:** 07/26/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	07/26/19 14:27 / RAT
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	D	10		A2540 C	07/26/19 14:12 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	07/29/19 13:35 / SRW
Chloride	ND	mg/L		1		E300.0	07/26/19 19:01 / SRW
Sulfate	ND	mg/L		1		E300.0	07/26/19 19:01 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	07/29/19 12:06 / RAT
Hardness as CaCO3	ND	mg/L		1		A2340 B	08/07/19 09:32 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	07/31/19 13:41 / abc
Nitrogen, Total	ND	mg/L		0.04		A4500 N-C	08/01/19 10:14 / SRW
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	07/30/19 16:57 / SRW
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/01/19 14:52 / dck
Calcium	ND	mg/L		1		E200.7	07/29/19 16:40 / sld
Magnesium	ND	mg/L		1		E200.7	07/29/19 16:40 / sld
Potassium	ND	mg/L		1		E200.7	07/29/19 16:40 / sld
Sodium	ND	mg/L		1		E200.7	07/29/19 16:40 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	07/31/19 17:46 / dck
Arsenic	ND	mg/L		0.001		E200.8	07/31/19 17:46 / dck
Barium	ND	mg/L		0.003		E200.8	07/31/19 17:46 / dck
Beryllium	ND	mg/L		0.0008		E200.8	07/31/19 17:46 / dck
Cadmium	ND	mg/L		0.00003		E200.8	07/31/19 17:46 / dck
Chromium	ND	mg/L		0.01		E200.8	07/31/19 17:46 / dck
Cobalt	ND	mg/L		0.01		E200.8	07/31/19 17:46 / dck
Copper	ND	mg/L		0.002		E200.8	07/31/19 17:46 / dck
Iron	ND	mg/L		0.02		E200.8	07/31/19 17:46 / dck
Lead	ND	mg/L		0.0003		E200.8	07/31/19 17:46 / dck
Manganese	ND	mg/L		0.005		E200.8	07/31/19 17:46 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 11:13 / ber
Molybdenum	ND	mg/L		0.002		E200.8	07/31/19 17:46 / dck
Nickel	ND	mg/L		0.001		E200.8	08/01/19 14:54 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/01/19 14:54 / dck
Silver	ND	mg/L		0.0002		E200.8	08/01/19 14:54 / dck
Strontium	ND	mg/L	L	0.0003		E200.8	07/31/19 17:46 / dck
Thallium	ND	mg/L		0.0002		E200.8	07/31/19 17:46 / dck
Uranium	ND	mg/L		0.0002		E200.8	07/31/19 17:46 / dck
Zinc	ND	mg/L	D	0.008		E200.8	08/12/19 18:37 / eli-b

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19070583

**Report Date:** 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A2320 B										Batch: R146292
<b>Lab ID:</b> MBLK		Method Blank								Run: PHSC_101-H_190729A 07/29/19 12:21
Alkalinity, Total as CaCO3		ND	mg/L	2						
<b>Lab ID:</b> LCS		Laboratory Control Sample								Run: PHSC_101-H_190729A 07/29/19 12:27
Alkalinity, Total as CaCO3		590	mg/L	4.0	99	90	110			
<b>Lab ID:</b> H19070572-001ADUP		Sample Duplicate								Run: PHSC_101-H_190729A 07/29/19 12:41
Alkalinity, Total as CaCO3		110	mg/L	4.0				2.1	10	
<b>Lab ID:</b> H19070584-010BDUP		Sample Duplicate								Run: PHSC_101-H_190729A 07/29/19 14:35
Alkalinity, Total as CaCO3		140	mg/L	4.0				1.6	10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19070583

**Report Date:** 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>										
Batch: TDS190726A										
<b>Lab ID: MB-1_190726A</b>		Method Blank								
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
							Run: ACCU-124 (14410200)_19072		07/26/19 14:10	
<b>Lab ID: LCS-2_190726A</b>		Laboratory Control Sample								
Solids, Total Dissolved TDS @ 180 C		2000	mg/L	20	100	90	110			
							Run: ACCU-124 (14410200)_19072		07/26/19 14:10	
<b>Lab ID: H19070583-001A DUP</b>		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		208	mg/L	10				1.4	5	
							Run: ACCU-124 (14410200)_19072		07/26/19 14:11	
<b>Lab ID: H19070584-002A DUP</b>		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		140	mg/L	10				1.4	5	
							Run: ACCU-124 (14410200)_19072		07/26/19 14:13	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19070583

**Report Date:** 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 D</b>										
Batch: TSS190726A										
<b>Lab ID: MB-1_190726A</b>		Method Blank								
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
										Run: ACCU-124 (14410200)_19072 07/26/19 14:25
<b>Lab ID: LCS-2_190726A</b>		Laboratory Control Sample								
Solids, Total Suspended TSS @ 105 C		101	mg/L	10	101	80	120			Run: ACCU-124 (14410200)_19072 07/26/19 14:25
<b>Lab ID: H19070583-001ADUP</b>		Sample Duplicate								
Solids, Total Suspended TSS @ 105 C		8.80	mg/L	10						Run: ACCU-124 (14410200)_19072 07/26/19 14:26
										5
		- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.								
<b>Lab ID: H19070584-002ADUP</b>		Sample Duplicate								
Solids, Total Suspended TSS @ 105 C		10.4	mg/L	10						Run: ACCU-124 (14410200)_19072 07/26/19 14:28
										3.9 5

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.





## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070583

Report Date: 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: A4500 N-C</b>								Analytical Run: FIA203-HE_190801A			
<b>Lab ID: ICB</b>	Initial Calibration Blank, Instrument Blank										
Nitrogen, Total		-0.0175	mg/L	0.10		0	0			08/01/19 09:40	
<b>Lab ID: CCV</b>	Continuing Calibration Verification Standard										
Nitrogen, Total		0.528	mg/L	0.10	106	90	110			08/01/19 09:42	
<b>Lab ID: CCV</b>	Continuing Calibration Verification Standard										
Nitrogen, Total		0.526	mg/L	0.10	105	90	110			08/01/19 10:01	
<b>Lab ID: ICB</b>	Initial Calibration Blank, Instrument Blank										
Nitrogen, Total		-0.0131	mg/L	0.10		0	0			08/01/19 11:42	
<b>Method: A4500 N-C</b>								Batch: 46887			
<b>Lab ID: MB-46887</b>	Method Blank										
Nitrogen, Total		ND	mg/L	0.03						Run: FIA203-HE_190801A 08/01/19 09:43	
<b>Lab ID: LCS-46887</b>	Laboratory Control Sample										
Nitrogen, Total		7.42	mg/L	0.30	100	90	110			Run: FIA203-HE_190801A 08/01/19 09:44	
<b>Lab ID: LFB</b>	Laboratory Fortified Blank										
Nitrogen, Total		0.958	mg/L	0.10	96	90	110			Run: FIA203-HE_190801A 08/01/19 09:45	
<b>Lab ID: H19070583-002AMS</b>	Sample Matrix Spike										
Nitrogen, Total		1.06	mg/L	0.10	94	90	110			Run: FIA203-HE_190801A 08/01/19 10:04	
<b>Lab ID: H19070583-002AMSD</b>	Sample Matrix Spike Duplicate										
Nitrogen, Total		1.07	mg/L	0.10	95	90	110	0.9	20	Run: FIA203-HE_190801A 08/01/19 10:05	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19070583

**Report Date:** 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A4500-F C										Analytical Run: MANTECH 2_190729A
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								07/29/19 11:17
Fluoride		0.7	mg/L	0.1	97	90	110			
<b>Method:</b> A4500-F C										Batch: R146330
<b>Lab ID:</b> MBLK		Method Blank								07/29/19 11:21
Fluoride		ND	mg/L	0.03						Run: MANTECH 2_190729A
<b>Lab ID:</b> H19070583-001AMS		Sample Matrix Spike								07/29/19 11:29
Fluoride		1.1	mg/L	0.1	101	85	115			Run: MANTECH 2_190729A
<b>Lab ID:</b> H19070583-002ADUP		Sample Duplicate								07/29/19 11:38
Fluoride		0.2	mg/L	0.1				0.0	10	Run: MANTECH 2_190729A
<b>Lab ID:</b> H19070585-002ADUP		Sample Duplicate								07/29/19 12:27
Fluoride		0.1	mg/L	0.1				0.0	10	Run: MANTECH 2_190729A

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070583

Report Date: 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Analytical Run: ICP2-HE_190729C										
<b>Lab ID: ICV</b>	4	Initial Calibration Verification Standard								07/29/19 13:38
Calcium		40.0	mg/L	1.0	100	95	105			
Magnesium		39.4	mg/L	1.0	99	95	105			
Potassium		40.1	mg/L	1.0	100	95	105			
Sodium		40.0	mg/L	1.0	100	95	105			
<b>Lab ID: CCV-1</b>	4	Continuing Calibration Verification Standard								07/29/19 13:42
Calcium		25.5	mg/L	1.0	102	95	105			
Magnesium		24.8	mg/L	1.0	99	95	105			
Potassium		25.4	mg/L	1.0	102	95	105			
Sodium		25.4	mg/L	1.0	102	95	105			
<b>Lab ID: ICSA</b>	4	Interference Check Sample A								07/29/19 13:53
Calcium		479	mg/L	1.0	96	80	120			
Magnesium		533	mg/L	1.0	107	80	120			
Potassium		-0.0122	mg/L	1.0		0	0			
Sodium		0.00470	mg/L	1.0		0	0			
<b>Lab ID: ICSAB</b>	4	Interference Check Sample AB								07/29/19 13:57
Calcium		486	mg/L	1.0	97	80	120			
Magnesium		541	mg/L	1.0	108	80	120			
Potassium		20.2	mg/L	1.0	101	80	120			
Sodium		20.2	mg/L	1.0	101	80	120			
<b>Lab ID: CCV</b>	4	Continuing Calibration Verification Standard								07/29/19 15:58
Calcium		25.9	mg/L	1.0	104	90	110			
Magnesium		25.1	mg/L	1.0	100	90	110			
Potassium		24.9	mg/L	1.0	99	90	110			
Sodium		24.8	mg/L	1.0	99	90	110			
<b>Lab ID: CCV</b>	4	Continuing Calibration Verification Standard								07/29/19 18:41
Calcium		24.8	mg/L	1.0	99	90	110			
Magnesium		24.5	mg/L	1.0	98	90	110			
Potassium		25.3	mg/L	1.0	101	90	110			
Sodium		25.4	mg/L	1.0	102	90	110			
<b>Method: E200.7</b>										
Batch: R146322										
<b>Lab ID: MB</b>	4	Method Blank								Run: ICP2-HE_190729C 07/29/19 14:05
Calcium		0.08	mg/L	0.07						
Magnesium		ND	mg/L	0.01						
Potassium		ND	mg/L	0.06						
Sodium		ND	mg/L	0.02						
<b>Lab ID: LFB</b>	4	Laboratory Fortified Blank								Run: ICP2-HE_190729C 07/29/19 14:08
Calcium		51.9	mg/L	1.0	104	85	115			
Magnesium		51.3	mg/L	1.0	103	85	115			
Potassium		52.5	mg/L	1.0	105	85	115			
Sodium		52.5	mg/L	1.0	105	85	115			

**Qualifiers:**

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ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19070583

**Report Date:** 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Batch: R146322										
<b>Lab ID:</b> H19070420-001BMS2	4	Sample Matrix Spike								
										Run: ICP2-HE_190729C 07/29/19 15:54
Calcium		82.0	mg/L	1.0	109	70	130			
Magnesium		58.4	mg/L	1.0	108	70	130			
Potassium		52.8	mg/L	1.0	104	70	130			
Sodium		53.0	mg/L	1.0	104	70	130			
<b>Lab ID:</b> H19070420-001BMSD	4	Sample Matrix Spike Duplicate								
										Run: ICP2-HE_190729C 07/29/19 16:05
Calcium		79.5	mg/L	1.0	104	70	130	3.1	20	
Magnesium		56.8	mg/L	1.0	105	70	130	2.7	20	
Potassium		53.8	mg/L	1.0	106	70	130	1.9	20	
Sodium		54.5	mg/L	1.0	107	70	130	2.8	20	
<b>Lab ID:</b> H19070585-001BMS2	4	Sample Matrix Spike								
										Run: ICP2-HE_190729C 07/29/19 16:59
Calcium		108	mg/L	1.0	102	70	130			
Magnesium		72.8	mg/L	1.0	105	70	130			
Potassium		52.7	mg/L	1.0	103	70	130			
Sodium		53.4	mg/L	1.0	104	70	130			
<b>Lab ID:</b> H19070585-001BMSD	4	Sample Matrix Spike Duplicate								
										Run: ICP2-HE_190729C 07/29/19 17:02
Calcium		107	mg/L	1.0	100	70	130	0.9	20	
Magnesium		72.2	mg/L	1.0	104	70	130	0.8	20	
Potassium		54.6	mg/L	1.0	107	70	130	3.5	20	
Sodium		55.7	mg/L	1.0	108	70	130	4.1	20	
<b>Lab ID:</b> H19070585-011BMS2	4	Sample Matrix Spike								
										Run: ICP2-HE_190729C 07/29/19 18:26
Calcium		103	mg/L	1.0	102	70	130			
Magnesium		75.5	mg/L	1.0	106	70	130			
Potassium		54.1	mg/L	1.0	105	70	130			
Sodium		55.1	mg/L	1.0	105	70	130			
<b>Lab ID:</b> H19070585-011BMSD	4	Sample Matrix Spike Duplicate								
										Run: ICP2-HE_190729C 07/29/19 18:30
Calcium		103	mg/L	1.0	101	70	130	0.6	20	
Magnesium		75.1	mg/L	1.0	105	70	130	0.4	20	
Potassium		53.5	mg/L	1.0	104	70	130	0.9	20	
Sodium		54.8	mg/L	1.0	105	70	130	0.6	20	

**Qualifiers:**

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# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070583

Report Date: 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>		Analytical Run: ICPMS205-H_190731B								
<b>Lab ID: ICV</b>	16 Initial Calibration Verification Standard									07/31/19 09:52
Antimony		0.0610	mg/L	0.050	102	90	110			
Arsenic		0.0600	mg/L	0.0050	100	90	110			
Barium		0.0604	mg/L	0.10	101	90	110			
Beryllium		0.0305	mg/L	0.0010	102	90	110			
Cadmium		0.0308	mg/L	0.0010	103	90	110			
Chromium		0.0615	mg/L	0.010	102	90	110			
Cobalt		0.0614	mg/L	0.010	102	90	110			
Copper		0.0612	mg/L	0.010	102	90	110			
Iron		0.303	mg/L	0.020	101	90	110			
Lead		0.0608	mg/L	0.010	101	90	110			
Manganese		0.306	mg/L	0.010	102	90	110			
Molybdenum		0.0606	mg/L	0.0050	101	90	110			
Nickel		0.0615	mg/L	0.010	102	90	110			
Strontium		0.0597	mg/L	0.10	99	90	110			
Thallium		0.0601	mg/L	0.10	100	90	110			
Uranium		0.0590	mg/L	0.00030	98	90	110			
<b>Lab ID: ICSA</b>	16 Interference Check Sample A									07/31/19 09:55
Antimony		0.000231	mg/L	0.050						
Arsenic		-6.46E-06	mg/L	0.0050						
Barium		0.000216	mg/L	0.10						
Beryllium		-0.000155	mg/L	0.0010						
Cadmium		0.000133	mg/L	0.0010						
Chromium		0.000134	mg/L	0.010						
Cobalt		0.000263	mg/L	0.010						
Copper		-5.78E-05	mg/L	0.010						
Iron		101	mg/L	0.020	101	70	130			
Lead		6.64E-05	mg/L	0.010						
Manganese		-7.62E-05	mg/L	0.010						
Molybdenum		0.858	mg/L	0.0050	107	70	130			
Nickel		-0.000902	mg/L	0.010						
Strontium		0.00102	mg/L	0.10						
Thallium		-9.50E-06	mg/L	0.10						
Uranium		7.95E-06	mg/L	0.00030						
<b>Lab ID: ICSAB</b>	16 Interference Check Sample AB									07/31/19 09:57
Antimony		0.000178	mg/L	0.050		0	0			
Arsenic		0.0103	mg/L	0.0050	103	70	130			
Barium		0.000208	mg/L	0.10		0	0			
Beryllium		-0.000127	mg/L	0.0010		0	0			
Cadmium		0.0105	mg/L	0.0010	105	70	130			
Chromium		0.0211	mg/L	0.010	105	70	130			
Cobalt		0.0209	mg/L	0.010	105	70	130			
Copper		0.0204	mg/L	0.010	102	70	130			
Iron		104	mg/L	0.020	104	70	130			
Lead		6.33E-05	mg/L	0.010		0	0			

**Qualifiers:**

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ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070583

Report Date: 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
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Method: E200.8

Analytical Run: ICPMS205-H\_190731B

Lab ID: ICSAB

16 Interference Check Sample AB

07/31/19 09:57

Manganese		0.0206	mg/L	0.010	103	70	130			
Molybdenum		0.886	mg/L	0.0050	111	70	130			
Nickel		0.0196	mg/L	0.010	98	70	130			
Strontium		0.000933	mg/L	0.10		0	0			
Thallium		-3.48E-05	mg/L	0.10		0	0			
Uranium		1.76E-06	mg/L	0.00030		0	0			

Method: E200.8

Batch: 46807

Lab ID: MB-46807

18 Method Blank

Run: ICPMS205-H\_190731B

07/31/19 10:31

Antimony		ND	mg/L	0.0001						
Arsenic		ND	mg/L	4E-05						
Barium		ND	mg/L	9E-05						
Beryllium		ND	mg/L	6E-05						
Cadmium		ND	mg/L	3E-05						
Chromium		ND	mg/L	0.0001						
Cobalt		ND	mg/L	6E-05						
Copper		ND	mg/L	0.0002						
Iron		ND	mg/L	0.004						
Lead		ND	mg/L	4E-05						
Manganese		ND	mg/L	0.0003						
Molybdenum		ND	mg/L	2E-05						
Nickel		ND	mg/L	0.0001						
Selenium		ND	mg/L	5E-05						
Silver		ND	mg/L	9E-06						
Strontium		ND	mg/L	0.0003						
Thallium		ND	mg/L	4E-05						
Uranium		ND	mg/L	9E-06						

Lab ID: LCS-46807

18 Laboratory Control Sample

Run: ICPMS205-H\_190731B

07/31/19 10:54

Antimony		0.519	mg/L	0.0010	104	85	115			
Arsenic		0.468	mg/L	0.0010	94	85	115			
Barium		0.490	mg/L	0.050	98	85	115			
Beryllium		0.249	mg/L	0.0010	99	85	115			
Cadmium		0.248	mg/L	0.0010	99	85	115			
Chromium		0.485	mg/L	0.0050	97	85	115			
Cobalt		0.475	mg/L	0.0050	95	85	115			
Copper		0.478	mg/L	0.0050	96	85	115			
Iron		2.44	mg/L	0.020	98	85	115			
Lead		0.512	mg/L	0.0010	102	85	115			
Manganese		2.55	mg/L	0.0010	102	85	115			
Molybdenum		0.492	mg/L	0.0010	98	85	115			
Nickel		0.479	mg/L	0.0050	96	85	115			
Selenium		0.480	mg/L	0.0010	96	85	115			
Silver		0.0488	mg/L	0.0010	98	85	115			
Strontium		0.484	mg/L	0.010	97	85	115			
Thallium		0.496	mg/L	0.00050	99	85	115			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070583

Report Date: 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: 46807										
<b>Lab ID: LCS-46807</b>	18	Laboratory Control Sample			Run: ICPMS205-H_190731B			07/31/19 10:54		
Uranium		0.503	mg/L	0.00030	101	85	115			
<b>Lab ID: H19070583-006CMS3</b>	18	Sample Matrix Spike			Run: ICPMS205-H_190731B			07/31/19 17:57		
Antimony		0.515	mg/L	0.0010	103	70	130			
Arsenic		0.473	mg/L	0.0010	94	70	130			
Barium		0.598	mg/L	0.050	98	70	130			
Beryllium		0.247	mg/L	0.0010	99	70	130			
Cadmium		0.246	mg/L	0.0010	98	70	130			
Chromium		0.480	mg/L	0.0050	96	70	130			
Cobalt		0.465	mg/L	0.0050	93	70	130			
Copper		0.467	mg/L	0.0050	93	70	130			
Iron		2.54	mg/L	0.020	99	70	130			
Lead		0.443	mg/L	0.0010	89	70	130			
Manganese		2.58	mg/L	0.0010	103	70	130			
Molybdenum		0.482	mg/L	0.0010	96	70	130			
Nickel		0.468	mg/L	0.0050	94	70	130			
Selenium		0.474	mg/L	0.0010	95	70	130			
Silver		0.0460	mg/L	0.0010	92	70	130			
Strontium		0.606	mg/L	0.010	97	70	130			
Thallium		0.433	mg/L	0.00050	87	70	130			
Uranium		0.440	mg/L	0.00030	88	70	130			
<b>Lab ID: H19070583-006CMSD</b>	18	Sample Matrix Spike Duplicate			Run: ICPMS205-H_190731B			07/31/19 18:00		
Antimony		0.511	mg/L	0.0010	102	70	130	0.7	20	
Arsenic		0.473	mg/L	0.0010	94	70	130	0.0	20	
Barium		0.596	mg/L	0.050	97	70	130	0.4	20	
Beryllium		0.253	mg/L	0.0010	101	70	130	2.7	20	
Cadmium		0.245	mg/L	0.0010	98	70	130	0.4	20	
Chromium		0.485	mg/L	0.0050	97	70	130	1.1	20	
Cobalt		0.471	mg/L	0.0050	94	70	130	1.3	20	
Copper		0.474	mg/L	0.0050	95	70	130	1.5	20	
Iron		2.56	mg/L	0.020	100	70	130	0.8	20	
Lead		0.475	mg/L	0.0010	95	70	130	6.9	20	
Manganese		2.62	mg/L	0.0010	104	70	130	1.3	20	
Molybdenum		0.479	mg/L	0.0010	96	70	130	0.5	20	
Nickel		0.472	mg/L	0.0050	94	70	130	0.8	20	
Selenium		0.489	mg/L	0.0010	98	70	130	3.0	20	
Silver		0.0468	mg/L	0.0010	93	70	130	1.8	20	
Strontium		0.612	mg/L	0.010	98	70	130	1.0	20	
Thallium		0.464	mg/L	0.00050	93	70	130	6.8	20	
Uranium		0.468	mg/L	0.00030	93	70	130	6.1	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070583

Report Date: 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>										Analytical Run: ICPMS205-H_190801B	
<b>Lab ID: ICV</b>	8	Initial Calibration Verification Standard							08/01/19 11:43		
Aluminum		0.289	mg/L	0.10	96	90	110				
Arsenic		0.0602	mg/L	0.0050	100	90	110				
Beryllium		0.0312	mg/L	0.0010	104	90	110				
Lead		0.0606	mg/L	0.010	101	90	110				
Nickel		0.0619	mg/L	0.010	103	90	110				
Selenium		0.0629	mg/L	0.0050	105	90	110				
Silver		0.0306	mg/L	0.0050	102	90	110				
Strontium		0.0608	mg/L	0.10	101	90	110				
<b>Lab ID: ICSA</b>	8	Interference Check Sample A							08/01/19 11:45		
Aluminum		42.0	mg/L	0.10	105	70	130				
Arsenic		3.56E-06	mg/L	0.0050							
Beryllium		-3.78E-05	mg/L	0.0010							
Lead		8.67E-05	mg/L	0.010							
Nickel		3.30E-05	mg/L	0.010							
Selenium		7.64E-05	mg/L	0.0050							
Silver		2.23E-05	mg/L	0.0050							
Strontium		0.00106	mg/L	0.10							
<b>Lab ID: ICSAB</b>	8	Interference Check Sample AB							08/01/19 11:48		
Aluminum		45.0	mg/L	0.10	113	70	130				
Arsenic		0.0107	mg/L	0.0050	107	70	130				
Beryllium		5.06E-06	mg/L	0.0010		0	0				
Lead		8.65E-05	mg/L	0.010		0	0				
Nickel		0.0211	mg/L	0.010	105	70	130				
Selenium		0.0106	mg/L	0.0050	106	70	130				
Silver		0.00540	mg/L	0.0050	108	70	130				
Strontium		0.00109	mg/L	0.10		0	0				
<b>Method: E200.8</b>										Batch: 46807	
<b>Lab ID: MB-46807</b>	18	Method Blank							Run: ICPMS205-H_190801B		08/01/19 13:59
Antimony		ND	mg/L	0.0001							
Arsenic		ND	mg/L	4E-05							
Barium		ND	mg/L	9E-05							
Beryllium		ND	mg/L	6E-05							
Cadmium		ND	mg/L	3E-05							
Chromium		ND	mg/L	0.0001							
Cobalt		ND	mg/L	6E-05							
Copper		ND	mg/L	0.0002							
Iron		ND	mg/L	0.004							
Lead		ND	mg/L	4E-05							
Manganese		ND	mg/L	0.0003							
Molybdenum		ND	mg/L	2E-05							
Nickel		ND	mg/L	0.0001							
Selenium		ND	mg/L	5E-05							
Silver		ND	mg/L	9E-06							

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.





## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070583

Report Date: 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										Batch: 46807
<b>Lab ID: MB-46807</b>	18	Method Blank								Run: ICPMS205-H_190801B 08/01/19 13:59
Strontium		ND	mg/L	0.0003						
Thallium		ND	mg/L	4E-05						
Uranium		ND	mg/L	9E-06						
<b>Method: E200.8</b>										Batch: R146452
<b>Lab ID: LRB</b>		Method Blank								Run: ICPMS205-H_190801B 08/01/19 11:59
Aluminum		ND	mg/L	0.003						
<b>Lab ID: LFB</b>		Laboratory Fortified Blank								Run: ICPMS205-H_190801B 08/01/19 12:01
Aluminum		0.0481	mg/L	0.10	96	85	115			
<b>Lab ID: H19070583-001BMS</b>		Sample Matrix Spike								Run: ICPMS205-H_190801B 08/01/19 14:20
Aluminum		0.0500	mg/L	0.030	100	70	130			
<b>Lab ID: H19070583-001BMSD</b>		Sample Matrix Spike Duplicate								Run: ICPMS205-H_190801B 08/01/19 14:22
Aluminum		0.0520	mg/L	0.030	104	70	130	4.1	20	
<b>Lab ID: H19070584-002EMS</b>		Sample Matrix Spike								Run: ICPMS205-H_190801B 08/01/19 15:26
Aluminum		0.0516	mg/L	0.030	95	70	130			
<b>Lab ID: H19070584-002EMSD</b>		Sample Matrix Spike Duplicate								Run: ICPMS205-H_190801B 08/01/19 15:28
Aluminum		0.0548	mg/L	0.030	101	70	130	6.0	20	
<b>Method: E200.8</b>										Batch: B_135907
<b>Lab ID: H19070585-004B</b>		Post Digestion Spike								Run: SUB-B325473 08/10/19 06:28
Zinc		0.104	mg/L	0.010	98	70	130			
<b>Lab ID: H19070585-004B</b>		Post Digestion Spike Duplicate								Run: SUB-B325473 08/10/19 06:32
Zinc		0.106	mg/L	0.010	100	70	130	2.1	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070583

Report Date: 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E200.8										Analytical Run: SUB-B325523
<b>Lab ID:</b> QCS		Initial Calibration Verification Standard								08/12/19 21:24
Zinc		0.0517	mg/L	0.010	103	90	110			
<b>Lab ID:</b> QCS		Initial Calibration Verification Standard								08/12/19 12:07
Zinc		0.0533	mg/L	0.010	107	90	110			
<b>Method:</b> E200.8										Batch: B_135907
<b>Lab ID:</b> MB-135907		Method Blank								08/12/19 16:43
Zinc		ND	mg/L	0.006						Run: SUB-B325523
<b>Lab ID:</b> B19080727-001GMS4		Post Digestion Spike								08/12/19 17:29
Zinc		0.623	mg/L	0.028	105	70	130			Run: SUB-B325523
<b>Lab ID:</b> B19080727-001GMSD		Post Digestion Spike Duplicate								08/12/19 17:32
Zinc		0.621	mg/L	0.028	104	70	130	0.2	20	Run: SUB-B325523
<b>Lab ID:</b> B19080738-004BMS4		Post Digestion Spike								08/12/19 18:45
Zinc		0.103	mg/L	0.010	97	70	130			Run: SUB-B325523
<b>Lab ID:</b> B19080738-004BMSD		Post Digestion Spike Duplicate								08/12/19 18:49
Zinc		0.106	mg/L	0.010	99	70	130	2.7	20	Run: SUB-B325523

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19070583

**Report Date:** 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E245.1										Analytical Run: HGCV203-H_190801A
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								08/01/19 10:07
Mercury		0.102	ug/L	0.0050	102	90	110			
<b>Lab ID:</b> CCV1		Continuing Calibration Verification Standard								08/01/19 10:10
Mercury		0.0979	ug/L	0.0050	98	95	105			
<b>Method:</b> E245.1										Batch: 46881
<b>Lab ID:</b> MB-46881		Method Blank								08/01/19 10:25
Mercury		ND	ug/L	0.001						Run: HGCV203-H_190801A
<b>Lab ID:</b> LCS-46881		Laboratory Control Sample								08/01/19 10:28
Mercury		0.0480	ug/L	0.0050	96	90	110			Run: HGCV203-H_190801A
<b>Lab ID:</b> H19070583-001CMS		Sample Matrix Spike								08/01/19 10:38
Mercury		0.0562	ug/L	0.0050	106	70	130			Run: HGCV203-H_190801A
<b>Lab ID:</b> H19070583-001CMSD		Sample Matrix Spike Duplicate								08/01/19 10:41
Mercury		0.0530	ug/L	0.0050	99	70	130	5.8	20	Run: HGCV203-H_190801A
<b>Lab ID:</b> H19070589-002CMS		Sample Matrix Spike								08/01/19 11:23
Mercury		0.0517	ug/L	0.0050	99	70	130			Run: HGCV203-H_190801A
<b>Lab ID:</b> H19070589-002CMSD		Sample Matrix Spike Duplicate								08/01/19 11:26
Mercury		0.0554	ug/L	0.0050	106	70	130	7.0	20	Run: HGCV203-H_190801A

**Qualifiers:**

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ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070583

Report Date: 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E300.0</b>										Analytical Run: IC METROHM_190726A	
<b>Lab ID: ICV</b>	2	Initial Calibration Verification Standard								07/26/19 14:11	
Chloride		97.2	mg/L	1.0	97	90	110				
Sulfate		374	mg/L	1.0	93	90	110				
<b>Lab ID: CCV</b>	2	Continuing Calibration Verification Standard								07/26/19 14:40	
Chloride		51.4	mg/L	1.0	103	90	110				
Sulfate		204	mg/L	1.0	102	90	110				
<b>Lab ID: CCV</b>	2	Continuing Calibration Verification Standard								07/26/19 18:18	
Chloride		50.0	mg/L	1.0	100	90	110				
Sulfate		196	mg/L	1.0	98	90	110				
<b>Method: E300.0</b>										Batch: R146285	
<b>Lab ID: ICB</b>	2	Method Blank								Run: IC METROHM_190726A	07/26/19 13:57
Chloride		ND	mg/L	0.02							
Sulfate		ND	mg/L	0.08							
<b>Lab ID: LFB</b>	2	Laboratory Fortified Blank								Run: IC METROHM_190726A	07/26/19 14:26
Chloride		25.2	mg/L	1.0	101	90	110				
Sulfate		102	mg/L	1.0	102	90	110				
<b>Lab ID: H19070583-008AMS</b>	2	Sample Matrix Spike								Run: IC METROHM_190726A	07/26/19 17:49
Chloride		25.2	mg/L	1.0	96	90	110				
Sulfate		101	mg/L	1.0	96	90	110				
<b>Lab ID: H19070583-008AMSD</b>	2	Sample Matrix Spike Duplicate								Run: IC METROHM_190726A	07/26/19 18:03
Chloride		25.0	mg/L	1.0	95	90	110	0.9	20		
Sulfate		101	mg/L	1.0	95	90	110	0.6	20		

**Qualifiers:**

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ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070583

Report Date: 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E353.2</b>										Analytical Run: FIA203-HE_190731A
<b>Lab ID: ICV</b>		Initial Calibration Verification Standard								07/31/19 12:48
Nitrogen, Nitrate+Nitrite as N	1.00	mg/L	0.010	100	90	110				
<b>Lab ID: ICV</b>		Initial Calibration Verification Standard								07/31/19 12:50
Nitrogen, Nitrate+Nitrite as N	1.00	mg/L	0.010	100	90	110				
<b>Lab ID: ICV</b>		Initial Calibration Verification Standard								07/31/19 12:51
Nitrogen, Nitrate+Nitrite as N	1.00	mg/L	0.010	100	90	110				
<b>Lab ID: ICV</b>		Initial Calibration Verification Standard								07/31/19 12:52
Nitrogen, Nitrate+Nitrite as N	1.00	mg/L	0.010	100	90	110				
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								07/31/19 13:27
Nitrogen, Nitrate+Nitrite as N	0.455	mg/L	0.010	91	90	110				
<b>Method: E353.2</b>										Batch: R146411
<b>Lab ID: MBLK</b>		Method Blank								07/31/19 12:53
Nitrogen, Nitrate+Nitrite as N	ND	mg/L	0.009							Run: FIA203-HE_190731A
<b>Lab ID: LFB</b>		Laboratory Fortified Blank								07/31/19 12:54
Nitrogen, Nitrate+Nitrite as N	1.01	mg/L	0.011	101	90	110				Run: FIA203-HE_190731A
<b>Lab ID: H19070583-001DMS</b>		Sample Matrix Spike								07/31/19 13:30
Nitrogen, Nitrate+Nitrite as N	1.02	mg/L	0.011	94	90	110				Run: FIA203-HE_190731A
<b>Lab ID: H19070583-001DMSD</b>		Sample Matrix Spike Duplicate								07/31/19 13:31
Nitrogen, Nitrate+Nitrite as N	1.01	mg/L	0.011	93	90	110	0.9	10		Run: FIA203-HE_190731A
<b>Lab ID: H19070584-002GMS</b>		Sample Matrix Spike								07/31/19 13:48
Nitrogen, Nitrate+Nitrite as N	0.938	mg/L	0.011	94	90	110				Run: FIA203-HE_190731A
<b>Lab ID: H19070584-002GMSD</b>		Sample Matrix Spike Duplicate								07/31/19 13:49
Nitrogen, Nitrate+Nitrite as N	0.938	mg/L	0.011	94	90	110	0.0	10		Run: FIA203-HE_190731A

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070583

Report Date: 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E365.1</b>								Analytical Run: FIA202-HE_190730C			
<b>Lab ID: ICB</b>		Initial Calibration Blank, Instrument Blank								07/30/19 15:15	
Phosphorus, Total as P		-0.000430	mg/L	0.010		0	0				
<b>Lab ID: ICV</b>		Initial Calibration Verification Standard								07/30/19 15:17	
Phosphorus, Total as P		0.248	mg/L	0.010	99	90	110				
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								07/30/19 15:42	
Phosphorus, Total as P		0.0947	mg/L	0.010	95	90	110				
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								07/30/19 16:00	
Phosphorus, Total as P		0.0931	mg/L	0.010	93	90	110				
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								07/30/19 16:48	
Phosphorus, Total as P		0.0950	mg/L	0.010	95	90	110				
<b>Method: E365.1</b>								Batch: 46858			
<b>Lab ID: MB-46858</b>		Method Blank								07/30/19 15:18	
Phosphorus, Total as P		ND	mg/L	0.002						Run: FIA202-HE_190730C	
<b>Lab ID: LCS-46858</b>		Laboratory Control Sample								07/30/19 15:21	
Phosphorus, Total as P		0.405	mg/L	0.010	101	90	110			Run: FIA202-HE_190730C	
<b>Lab ID: H19070578-002CMS</b>		Sample Matrix Spike								07/30/19 15:45	
Phosphorus, Total as P		0.211	mg/L	0.010	101	90	110			Run: FIA202-HE_190730C	
<b>Lab ID: H19070578-002CMSD</b>		Sample Matrix Spike Duplicate								07/30/19 15:46	
Phosphorus, Total as P		0.210	mg/L	0.010	100	90	110	0.5	20	Run: FIA202-HE_190730C	
<b>Method: E365.1</b>								Batch: 46861			
<b>Lab ID: MB-46861</b>		Method Blank								07/30/19 15:22	
Phosphorus, Total as P		ND	mg/L	0.002						Run: FIA202-HE_190730C	
<b>Lab ID: LCS-46861</b>		Laboratory Control Sample								07/30/19 15:23	
Phosphorus, Total as P		0.413	mg/L	0.010	103	90	110			Run: FIA202-HE_190730C	
<b>Lab ID: H19070583-004DMS</b>		Sample Matrix Spike								07/30/19 16:03	
Phosphorus, Total as P		0.214	mg/L	0.010	102	90	110			Run: FIA202-HE_190730C	
<b>Lab ID: H19070583-004DMSD</b>		Sample Matrix Spike Duplicate								07/30/19 16:04	
Phosphorus, Total as P		0.217	mg/L	0.010	103	90	110	1.4	20	Run: FIA202-HE_190730C	
<b>Lab ID: H19070584-005GMS</b>		Sample Matrix Spike								07/30/19 16:18	
Phosphorus, Total as P		0.232	mg/L	0.010	106	90	110			Run: FIA202-HE_190730C	
<b>Lab ID: H19070584-005GMSD</b>		Sample Matrix Spike Duplicate								07/30/19 16:20	
Phosphorus, Total as P		0.223	mg/L	0.010	102	90	110	3.7	20	Run: FIA202-HE_190730C	

**Qualifiers:**

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ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19070583

**Report Date:** 08/20/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E365.1										Analytical Run: FIA202-HE_190802B
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								08/02/19 09:46
Phosphorus, Total as P		0.235	mg/L	0.010	94	90	110			
<b>Lab ID:</b> ICB		Initial Calibration Blank, Instrument Blank								08/02/19 09:47
Phosphorus, Total as P		0.00279	mg/L	0.010		0	0			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Tintina Resources Inc

Work Order: H19070583

Report Date: 08/16/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> E200.8										Analytical Run: ICPMS207-B_190812A	
<b>Lab ID:</b> QCS		Initial Calibration Verification Standard								08/12/19 12:07	
Zinc		0.0533	mg/L	0.010	107	90	110				
<b>Method:</b> E200.8										Batch: 135907	
<b>Lab ID:</b> MB-135907		Method Blank								Run: ICPMS207-B_190812A	08/12/19 16:43
Zinc		ND	mg/L	0.006							
<b>Lab ID:</b> LCS4-135907		Laboratory Control Sample								Run: ICPMS207-B_190812A	08/12/19 16:47
Zinc		0.107	mg/L	0.010	107	85	115				
<b>Lab ID:</b> B19080727-001GMS4		Sample Matrix Spike								Run: ICPMS207-B_190812A	08/12/19 17:29
Zinc		0.623	mg/L	0.028	105	70	130				
<b>Lab ID:</b> B19080727-001GMSD		Sample Matrix Spike Duplicate								Run: ICPMS207-B_190812A	08/12/19 17:32
Zinc		0.621	mg/L	0.028	104	70	130	0.2	20		
<b>Lab ID:</b> B19080738-004BMS4		Sample Matrix Spike								Run: ICPMS207-B_190812A	08/12/19 18:45
Zinc		0.103	mg/L	0.010	97	70	130				
<b>Lab ID:</b> B19080738-004BMSD		Sample Matrix Spike Duplicate								Run: ICPMS207-B_190812A	08/12/19 18:49
Zinc		0.106	mg/L	0.010	99	70	130	2.7	20		

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.





# Work Order Receipt Checklist

Tintina Resources Inc

H19070583

Login completed by: Jessica C. Smith

Date Received: 7/26/2019

Reviewed by: BL2000\rtooke

Received by: TLL

Reviewed Date: 8/1/2019

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	0.2°C On Ice		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

## Contact and Corrective Action Comments:

None

# Hydrometrics, Inc.

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

## CHAIN OF CUSTODY RECORD

PROJ. NO. 18049	PROJECT NAME July Monthly Sampling (SW)		NO. OF CONTAINERS	REMARKS																																				
	DATE	TIME																																						
SAMPLERS: (Signature) <i>[Signature]</i>																																								
DATE	TIME	SAMPLE NUMBER	NO. OF CONTAINERS	REMARKS																																				
7/24/19	1340	333C-1907-107	4	H19070583																																				
↓	1445	110	↓																																					
7/25/19	1100	122	↓																																					
↓	1145	123	↓																																					
↓	1200	124	↓																																					
↓	1210	125	↓																																					
↓	1245	126	↓																																					
↓	1315	127	↓																																					
↓	1345	128	↓																																					
<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:20%;">Relinquished (Signature)</td> <td style="width:20%;">Date / Time</td> <td style="width:20%;">Received by (Signature)</td> <td style="width:20%;">Lab</td> <td style="width:20%;">P.O. #</td> <td style="width:20%;">Shipped via: Bus FedEx UPS</td> </tr> <tr> <td><i>[Signature]</i></td> <td>7/26/19 1116</td> <td></td> <td>Energy Labs</td> <td>1311</td> <td>Other Tinting</td> </tr> <tr> <td>Relinquished (Signature)</td> <td>Date / Time</td> <td>Received by (Signature)</td> <td>Remarks</td> <td colspan="2"></td> </tr> <tr> <td></td> <td></td> <td></td> <td>0.2 TB on ice handled</td> <td colspan="2"></td> </tr> <tr> <td>Relinquished (Signature)</td> <td>Date / Time</td> <td>Received for Laboratory by (Signature)</td> <td>Date / Time</td> <td colspan="2"></td> </tr> <tr> <td></td> <td></td> <td><i>[Signature]</i></td> <td>7/26/19 1116</td> <td colspan="2"></td> </tr> </table>					Relinquished (Signature)	Date / Time	Received by (Signature)	Lab	P.O. #	Shipped via: Bus FedEx UPS	<i>[Signature]</i>	7/26/19 1116		Energy Labs	1311	Other Tinting	Relinquished (Signature)	Date / Time	Received by (Signature)	Remarks						0.2 TB on ice handled			Relinquished (Signature)	Date / Time	Received for Laboratory by (Signature)	Date / Time					<i>[Signature]</i>	7/26/19 1116		
Relinquished (Signature)	Date / Time	Received by (Signature)	Lab	P.O. #	Shipped via: Bus FedEx UPS																																			
<i>[Signature]</i>	7/26/19 1116		Energy Labs	1311	Other Tinting																																			
Relinquished (Signature)	Date / Time	Received by (Signature)	Remarks																																					
			0.2 TB on ice handled																																					
Relinquished (Signature)	Date / Time	Received for Laboratory by (Signature)	Date / Time																																					
		<i>[Signature]</i>	7/26/19 1116																																					
Enclosed: <input checked="" type="checkbox"/> Parameter sheet w/detection limits <input type="checkbox"/> QA / AC standard mixing instructions <input type="checkbox"/> Cover letter <input type="checkbox"/> Other Split Samples: <input type="checkbox"/> Accepted <input type="checkbox"/> Declined Signature _____																																								

Return results & electronic copy to:  
QA / QC Dept. at address at top of page

**TABLE 6. PARAMETERS, METHODS, AND DETECTION LIMITS  
FOR SURFACE WATER MONITORING**

Parameter	Analytical Method <sup>(1)</sup>	Project-Required Detection Limit (mg/L)
<b>Physical Parameters</b>		
TDS	SM 2540C	4
TSS	SM 2540C	4
<b>Common Ions</b>		
Alkalinity	SM 2320B	4
Sulfate	300.0	1
Chloride	300.0/SM 4500CL-B	1
Fluoride	A4500-F C	0.1
Calcium	215.1/200.7	1
Magnesium	242.1/200.7	1
Sodium	273.1/200.7	1
Potassium	258.1/200.7	1
<b>Nutrients</b>		
Nitrate+Nitrite as N	353.2	0.003
Total Persulfate Nitrogen	A 4500-N-C	0.04
Total Phosphorus	E365.1	0.003
<b>Trace Constituents (SW - Total Recoverable except Aluminum [Diss]<sup>(2)</sup></b>		
Aluminum (Al)	200.7/200.8	0.009
Antimony (Sb)	200.7/200.8	0.0005
Arsenic (As)	200.8/SM 3114B	0.001
Barium (Ba)	200.7/200.8	0.003
Beryllium (Be)	200.7/200.8	0.0008
Cadmium (Cd)	200.7/200.8	0.00003
Chromium (Cr)	200.7/200.8	0.01
Cobalt (Co)	200.7/200.8	0.01
Copper (Cu)	200.7/200.8	0.002
Iron (Fe)	200.7/200.8	0.02
Lead (Pb)	200.7/200.8	0.0003
Manganese (Mn)	200.7/200.8	0.005
Mercury (Hg)	245.2/245.1/200.8/SM 3112B	0.000005
Molybdenum (Mo)	200.7/200.8	0.002
Nickel (Ni)	200.7/200.8	0.001
Selenium (Se)	200.7/200.8/SM 3114B	0.0002
Silver (Ag)	200.7/200.8	0.0002
Strontium (Sr)	200.7/200.8	0.0002
Thallium (Tl)	200.7/200.8	0.0002
Uranium	200.7/200.8	0.008
Zinc (Zn)	200.7/200.8	0.002
<b>Field Parameters</b>		
Stream Flow	HF-SOP-37/-44/-46	NA
Water Temperature	HF-SOP-20	0.1 °C
Dissolved Oxygen (DO)	HF-SOP-22	0.1 mg/L
pH	HF-SOP-20	0.1 s.u.
Specific Conductance (SC)	HF-SOP-79	1 µmhos/cm

(1) Analytical methods are from *Standard Methods for the Examination of Water and Wastewater* (SM) or EPA's *Methods for Chemical Analysis of Water and Waste* (1983).

(2) Samples to be analyzed for dissolved constituents will be field-filtered through a 0.45 µm filter.



# ANALYTICAL SUMMARY REPORT

August 15, 2019

Tintina Resources Inc  
PO Box 431  
White Sulphur Springs, MT 59645-0431

Work Order: H19070585      Quote ID: H1216  
Project Name: 18049 Black Butte Copper (Springs)

Energy Laboratories Inc Helena MT received the following 13 samples for Tintina Resources Inc on 7/26/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H19070585-001	BBL-190C-106	07/24/19 13:10	07/26/19	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Mercury, Dissolved Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Mercury Digestion by E245.1 Solids, Total Dissolved Solids, Total Suspended
H19070585-002	BBC-1907-108	07/24/19 14:00	07/26/19	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Mercury, Dissolved Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Mercury Digestion by E245.1 Solids, Total Dissolved Solids, Total Suspended
H19070585-003	BBC-1907-109	07/24/19 14:20	07/26/19	Groundwater	Same As Above
H19070585-004	BBC-1907-112	07/24/19 15:35	07/26/19	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Mercury, Dissolved Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Metals Digestion by E200.2 Mercury Digestion by E245.1 Solids, Total Dissolved Solids, Total Suspended
H19070585-005	BBC-1907-113	07/24/19 15:45	07/26/19	Groundwater	Same As Above



## ANALYTICAL SUMMARY REPORT

H19070585-006	BBC-1907-114	07/24/19 16:20	07/26/19	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Mercury, Dissolved Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Mercury Digestion by E245.1 Solids, Total Dissolved Solids, Total Suspended
H19070585-007	BBC-1907-115	07/24/19 16:45	07/26/19	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Mercury, Dissolved Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Metals Digestion by E200.2 Mercury Digestion by E245.1 Solids, Total Dissolved Solids, Total Suspended
H19070585-008	BBC-1907-117	07/25/19 8:55	07/26/19	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Mercury, Dissolved Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Mercury Digestion by E245.1 Solids, Total Dissolved Solids, Total Suspended
H19070585-009	BBC-1907-118	07/25/19 9:15	07/26/19	Groundwater	Same As Above
H19070585-010	BBC-1907-119	07/25/19 9:35	07/26/19	Groundwater	Same As Above
H19070585-011	BBC-1907-120	07/25/19 10:00	07/26/19	Groundwater	Same As Above
H19070585-012	BBC-1907-121	07/25/19 10:15	07/26/19	Groundwater	Same As Above
H19070585-013	BBC-1907-129	07/25/19 14:30	07/26/19	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



**CLIENT:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Work Order:** H19070585

**Report Date:** 08/15/19

## **CASE NARRATIVE**

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Tests associated with analyst identified as ELI-B were subcontracted to Energy Laboratories, 1120 S. 27th St., Billings, MT, EPA Number MT00005.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Lab ID:** H19070585-001  
**Client Sample ID:** BBL-190C-106

**Report Date:** 08/15/19  
**Collection Date:** 07/24/19 13:10  
**Date Received:** 07/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	07/26/19 16:16 / RAT
Solids, Total Dissolved TDS @ 180 C	208	mg/L		10		A2540 C	07/26/19 16:08 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	07/29/19 18:00 / SRW
Chloride	ND	mg/L		1		E300.0	07/27/19 07:36 / SRW
Sulfate	12	mg/L		1		E300.0	07/27/19 07:36 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	07/29/19 12:10 / RAT
Hardness as CaCO3	228	mg/L		1		A2340 B	07/29/19 16:51 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.18	mg/L		0.01		E353.2	07/31/19 14:55 / abc
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/02/19 00:06 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/02/19 00:06 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/02/19 00:06 / dck
Barium	0.052	mg/L		0.003		E200.8	08/02/19 00:06 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/02/19 00:06 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/02/19 00:06 / dck
Calcium	58	mg/L		1		E200.7	07/29/19 16:51 / sld
Chromium	ND	mg/L		0.01		E200.8	08/02/19 00:06 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/02/19 00:06 / dck
Copper	ND	mg/L		0.002		E200.8	08/02/19 00:06 / dck
Iron	ND	mg/L		0.02		E200.7	07/29/19 16:51 / sld
Lead	ND	mg/L		0.0003		E200.8	08/02/19 00:06 / dck
Magnesium	20	mg/L		1		E200.7	07/29/19 16:51 / sld
Manganese	ND	mg/L		0.005		E200.8	08/02/19 00:06 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 12:31 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/02/19 00:06 / dck
Nickel	ND	mg/L		0.001		E200.8	08/02/19 00:06 / dck
Potassium	1	mg/L		1		E200.7	07/29/19 16:51 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/02/19 00:06 / dck
Silver	ND	mg/L		0.0002		E200.8	08/02/19 00:06 / dck
Sodium	2	mg/L		1		E200.7	07/29/19 16:51 / sld
Strontium	0.104	mg/L		0.0002		E200.8	08/02/19 00:06 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/02/19 00:06 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	08/02/19 00:06 / dck
Zinc	ND	mg/L		0.002		E200.8	08/02/19 00:06 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Lab ID:** H19070585-001  
**Client Sample ID:** BBC-1907-106

**Report Date:** 08/15/19  
**Collection Date:** 07/24/19 13:10  
**Date Received:** 07/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	07/26/19 16:16 / RAT
Solids, Total Dissolved TDS @ 180 C	208	mg/L		10		A2540 C	07/26/19 16:08 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	07/29/19 18:00 / SRW
Chloride	ND	mg/L		1		E300.0	07/27/19 07:36 / SRW
Sulfate	12	mg/L		1		E300.0	07/27/19 07:36 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	07/29/19 12:10 / RAT
Hardness as CaCO3	228	mg/L		1		A2340 B	07/29/19 16:51 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.18	mg/L		0.01		E353.2	07/31/19 14:55 / abc
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/02/19 00:06 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/02/19 00:06 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/02/19 00:06 / dck
Barium	0.052	mg/L		0.003		E200.8	08/02/19 00:06 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/02/19 00:06 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/02/19 00:06 / dck
Calcium	58	mg/L		1		E200.7	07/29/19 16:51 / sld
Chromium	ND	mg/L		0.01		E200.8	08/02/19 00:06 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/02/19 00:06 / dck
Copper	ND	mg/L		0.002		E200.8	08/02/19 00:06 / dck
Iron	ND	mg/L		0.02		E200.7	07/29/19 16:51 / sld
Lead	ND	mg/L		0.0003		E200.8	08/02/19 00:06 / dck
Magnesium	20	mg/L		1		E200.7	07/29/19 16:51 / sld
Manganese	ND	mg/L		0.005		E200.8	08/02/19 00:06 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 12:31 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/02/19 00:06 / dck
Nickel	ND	mg/L		0.001		E200.8	08/02/19 00:06 / dck
Potassium	1	mg/L		1		E200.7	07/29/19 16:51 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/02/19 00:06 / dck
Silver	ND	mg/L		0.0002		E200.8	08/02/19 00:06 / dck
Sodium	2	mg/L		1		E200.7	07/29/19 16:51 / sld
Strontium	0.104	mg/L		0.0002		E200.8	08/02/19 00:06 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/02/19 00:06 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	08/02/19 00:06 / dck
Zinc	ND	mg/L		0.002		E200.8	08/02/19 00:06 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.





### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Lab ID:** H19070585-002  
**Client Sample ID:** BBC-1907-108

**Report Date:** 08/15/19  
**Collection Date:** 07/24/19 14:00  
**Date Received:** 07/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	07/26/19 16:18 / RAT
Solids, Total Dissolved TDS @ 180 C	222	mg/L		10		A2540 C	07/26/19 16:08 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	07/29/19 18:06 / SRW
Chloride	ND	mg/L		1		E300.0	07/27/19 07:50 / SRW
Sulfate	14	mg/L		1		E300.0	07/27/19 07:50 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	07/29/19 12:22 / RAT
Hardness as CaCO3	238	mg/L		1		A2340 B	07/29/19 17:06 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.18	mg/L		0.01		E353.2	07/31/19 14:56 / abc
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/02/19 00:09 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/02/19 00:09 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/02/19 00:09 / dck
Barium	0.050	mg/L		0.003		E200.8	08/02/19 00:09 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/02/19 00:09 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/02/19 00:09 / dck
Calcium	60	mg/L		1		E200.7	07/29/19 17:06 / sld
Chromium	ND	mg/L		0.01		E200.8	08/02/19 00:09 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/02/19 00:09 / dck
Copper	ND	mg/L		0.002		E200.8	08/02/19 00:09 / dck
Iron	ND	mg/L		0.02		E200.7	07/29/19 17:06 / sld
Lead	ND	mg/L		0.0003		E200.8	08/02/19 00:09 / dck
Magnesium	22	mg/L		1		E200.7	07/29/19 17:06 / sld
Manganese	ND	mg/L		0.005		E200.8	08/02/19 00:09 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 12:54 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/02/19 00:09 / dck
Nickel	ND	mg/L		0.001		E200.8	08/02/19 00:09 / dck
Potassium	ND	mg/L		1		E200.7	07/29/19 17:06 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/02/19 00:09 / dck
Silver	ND	mg/L		0.0002		E200.8	08/02/19 00:09 / dck
Sodium	2	mg/L		1		E200.7	07/29/19 17:06 / sld
Strontium	0.100	mg/L		0.0002		E200.8	08/02/19 00:09 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/02/19 00:09 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	08/02/19 00:09 / dck
Zinc	ND	mg/L		0.002		E200.8	08/02/19 00:09 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Lab ID:** H19070585-003  
**Client Sample ID:** BBC-1907-109

**Report Date:** 08/15/19  
**Collection Date:** 07/24/19 14:20  
**Date Received:** 07/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	52	mg/L		10		A2540 D	07/26/19 16:16 / RAT
Solids, Total Dissolved TDS @ 180 C	223	mg/L		10		A2540 C	07/26/19 16:08 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	07/29/19 18:12 / SRW
Chloride	ND	mg/L		1		E300.0	07/27/19 08:05 / SRW
Sulfate	9	mg/L		1		E300.0	07/27/19 08:05 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	07/29/19 12:31 / RAT
Hardness as CaCO3	237	mg/L		1		A2340 B	07/29/19 17:10 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	07/31/19 14:58 / abc
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/02/19 00:12 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/02/19 00:12 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/02/19 00:12 / dck
Barium	0.057	mg/L		0.003		E200.8	08/02/19 00:12 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/02/19 00:12 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/02/19 00:12 / dck
Calcium	63	mg/L		1		E200.7	07/29/19 17:10 / sld
Chromium	ND	mg/L		0.01		E200.8	08/02/19 00:12 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/02/19 00:12 / dck
Copper	ND	mg/L		0.002		E200.8	08/02/19 00:12 / dck
Iron	ND	mg/L		0.02		E200.7	07/29/19 17:10 / sld
Lead	ND	mg/L		0.0003		E200.8	08/02/19 00:12 / dck
Magnesium	19	mg/L		1		E200.7	07/29/19 17:10 / sld
Manganese	ND	mg/L		0.005		E200.8	08/02/19 00:12 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 12:57 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/02/19 00:12 / dck
Nickel	ND	mg/L		0.001		E200.8	08/02/19 00:12 / dck
Potassium	ND	mg/L		1		E200.7	07/29/19 17:10 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/02/19 00:12 / dck
Silver	ND	mg/L		0.0002		E200.8	08/02/19 00:12 / dck
Sodium	2	mg/L		1		E200.7	07/29/19 17:10 / sld
Strontium	0.126	mg/L		0.0002		E200.8	08/02/19 00:12 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/02/19 00:12 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	08/02/19 00:12 / dck
Zinc	ND	mg/L		0.002		E200.8	08/02/19 00:12 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Lab ID:** H19070585-004  
**Client Sample ID:** BBC-1907-112

**Report Date:** 08/15/19  
**Collection Date:** 07/24/19 15:35  
**Date Received:** 07/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	07/26/19 16:16 / RAT
Solids, Total Dissolved TDS @ 180 C	54	mg/L		10		A2540 C	07/26/19 16:08 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	22	mg/L		4		A2320 B	07/29/19 18:18 / SRW
Chloride	ND	mg/L		1		E300.0	07/27/19 09:32 / SRW
Sulfate	1	mg/L		1		E300.0	07/27/19 09:32 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	07/29/19 12:35 / RAT
Hardness as CaCO3	22	mg/L		1		A2340 B	07/29/19 17:14 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.19	mg/L		0.01		E353.2	07/31/19 14:59 / abc
<b>METALS, DISSOLVED</b>							
Aluminum	1.41	mg/L		0.009		E200.8	08/10/19 06:06 / eli-b
Antimony	ND	mg/L		0.0005		E200.8	08/10/19 06:06 / eli-b
Arsenic	ND	mg/L		0.001		E200.8	08/10/19 06:06 / eli-b
Barium	0.250	mg/L		0.003		E200.8	08/10/19 06:06 / eli-b
Beryllium	ND	mg/L		0.0008		E200.8	08/14/19 01:16 / eli-b
Cadmium	ND	mg/L		0.00003		E200.8	08/10/19 06:06 / eli-b
Calcium	5	mg/L		1		E200.8	08/10/19 06:06 / eli-b
Chromium	ND	mg/L		0.01		E200.8	08/10/19 06:06 / eli-b
Cobalt	ND	mg/L		0.01		E200.8	08/10/19 06:06 / eli-b
Copper	0.002	mg/L		0.002		E200.8	08/10/19 06:06 / eli-b
Iron	0.78	mg/L		0.02		E200.8	08/10/19 06:06 / eli-b
Lead	ND	mg/L		0.0003		E200.8	08/10/19 06:06 / eli-b
Magnesium	2	mg/L		1		E200.8	08/10/19 06:06 / eli-b
Manganese	ND	mg/L		0.005		E200.8	08/10/19 06:06 / eli-b
Mercury	0.006	ug/L		0.005		E245.1	08/01/19 13:01 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/10/19 06:06 / eli-b
Nickel	0.003	mg/L		0.001		E200.8	08/10/19 06:06 / eli-b
Potassium	1	mg/L		1		E200.8	08/10/19 06:06 / eli-b
Selenium	ND	mg/L		0.0002		E200.8	08/10/19 06:06 / eli-b
Silver	ND	mg/L		0.0002		E200.8	08/10/19 06:06 / eli-b
Sodium	1	mg/L		1		E200.8	08/10/19 06:06 / eli-b
Strontium	0.0297	mg/L	L	0.0003		E200.8	08/10/19 06:06 / eli-b
Thallium	ND	mg/L		0.0002		E200.8	08/10/19 06:06 / eli-b
Uranium	ND	mg/L		0.0002		E200.8	08/10/19 06:06 / eli-b
Zinc	0.007	mg/L	L	0.005		E200.8	08/10/19 06:06 / eli-b

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
L - Lowest available reporting limit for the analytical method used.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Lab ID:** H19070585-005  
**Client Sample ID:** BBC-1907-113

**Report Date:** 08/15/19  
**Collection Date:** 07/24/19 15:45  
**Date Received:** 07/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	07/26/19 16:16 / RAT
Solids, Total Dissolved TDS @ 180 C	60	mg/L		10		A2540 C	07/26/19 16:09 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	22	mg/L		4		A2320 B	07/29/19 18:25 / SRW
Chloride	ND	mg/L		1		E300.0	07/27/19 09:47 / SRW
Sulfate	1	mg/L		1		E300.0	07/27/19 09:47 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	07/29/19 12:39 / RAT
Hardness as CaCO3	23	mg/L		1		A2340 B	07/29/19 17:18 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.18	mg/L		0.01		E353.2	07/31/19 15:00 / abc
<b>METALS, DISSOLVED</b>							
Aluminum	1.44	mg/L		0.009		E200.8	08/10/19 06:40 / eli-b
Antimony	ND	mg/L		0.0005		E200.8	08/10/19 06:40 / eli-b
Arsenic	ND	mg/L		0.001		E200.8	08/10/19 06:40 / eli-b
Barium	0.255	mg/L		0.003		E200.8	08/10/19 06:40 / eli-b
Beryllium	ND	mg/L		0.0008		E200.8	08/15/19 10:38 / eli-b
Cadmium	ND	mg/L		0.00003		E200.8	08/10/19 06:40 / eli-b
Calcium	5	mg/L		1		E200.8	08/10/19 06:40 / eli-b
Chromium	ND	mg/L		0.01		E200.8	08/10/19 06:40 / eli-b
Cobalt	ND	mg/L		0.01		E200.8	08/10/19 06:40 / eli-b
Copper	0.002	mg/L		0.002		E200.8	08/10/19 06:40 / eli-b
Iron	0.80	mg/L		0.02		E200.8	08/10/19 06:40 / eli-b
Lead	ND	mg/L		0.0003		E200.8	08/10/19 06:40 / eli-b
Magnesium	2	mg/L		1		E200.8	08/10/19 06:40 / eli-b
Manganese	ND	mg/L		0.005		E200.8	08/10/19 06:40 / eli-b
Mercury	0.006	ug/L		0.005		E245.1	08/01/19 13:04 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/10/19 06:40 / eli-b
Nickel	0.003	mg/L		0.001		E200.8	08/10/19 06:40 / eli-b
Potassium	1	mg/L		1		E200.8	08/10/19 06:40 / eli-b
Selenium	ND	mg/L		0.0002		E200.8	08/10/19 06:40 / eli-b
Silver	ND	mg/L		0.0002		E200.8	08/10/19 06:40 / eli-b
Sodium	1	mg/L		1		E200.8	08/10/19 06:40 / eli-b
Strontium	0.0299	mg/L	L	0.0003		E200.8	08/10/19 06:40 / eli-b
Thallium	ND	mg/L		0.0002		E200.8	08/10/19 06:40 / eli-b
Uranium	ND	mg/L		0.0002		E200.8	08/10/19 06:40 / eli-b
Zinc	0.007	mg/L	L	0.005		E200.8	08/10/19 06:40 / eli-b

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
L - Lowest available reporting limit for the analytical method used.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Lab ID:** H19070585-006  
**Client Sample ID:** BBC-1907-114

**Report Date:** 08/15/19  
**Collection Date:** 07/24/19 16:20  
**Date Received:** 07/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	20	mg/L		10		A2540 D	07/26/19 16:17 / RAT
Solids, Total Dissolved TDS @ 180 C	113	mg/L		10		A2540 C	07/26/19 16:10 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	69	mg/L		4		A2320 B	07/29/19 18:31 / SRW
Chloride	ND	mg/L		1		E300.0	07/27/19 10:01 / SRW
Sulfate	6	mg/L		1		E300.0	07/27/19 10:01 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	07/29/19 12:43 / RAT
Hardness as CaCO3	75	mg/L		1		A2340 B	07/29/19 17:21 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.19	mg/L		0.01		E353.2	07/31/19 15:04 / abc
<b>METALS, DISSOLVED</b>							
Aluminum	0.396	mg/L		0.009		E200.8	08/02/19 00:16 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/02/19 00:16 / dck
Arsenic	0.002	mg/L		0.001		E200.8	08/02/19 00:16 / dck
Barium	0.262	mg/L		0.003		E200.8	08/02/19 00:16 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/02/19 00:16 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/02/19 00:16 / dck
Calcium	22	mg/L		1		E200.7	07/29/19 17:21 / sld
Chromium	ND	mg/L		0.01		E200.8	08/02/19 00:16 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/02/19 00:16 / dck
Copper	ND	mg/L		0.002		E200.8	08/02/19 00:16 / dck
Iron	0.06	mg/L		0.02		E200.7	07/29/19 17:21 / sld
Lead	ND	mg/L		0.0003		E200.8	08/02/19 00:16 / dck
Magnesium	5	mg/L		1		E200.7	07/29/19 17:21 / sld
Manganese	ND	mg/L		0.005		E200.8	08/02/19 00:16 / dck
Mercury	0.006	ug/L		0.005		E245.1	08/01/19 13:07 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/02/19 00:16 / dck
Nickel	0.001	mg/L		0.001		E200.8	08/02/19 00:16 / dck
Potassium	1	mg/L		1		E200.7	07/29/19 17:21 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/02/19 00:16 / dck
Silver	ND	mg/L		0.0002		E200.8	08/02/19 00:16 / dck
Sodium	2	mg/L		1		E200.7	07/29/19 17:21 / sld
Strontium	0.0602	mg/L		0.0002		E200.8	08/02/19 00:16 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/02/19 00:16 / dck
Uranium	ND	mg/L		0.0002		E200.8	08/02/19 00:16 / dck
Zinc	ND	mg/L		0.002		E200.8	08/02/19 00:16 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Lab ID:** H19070585-007  
**Client Sample ID:** BBC-1907-115

**Report Date:** 08/15/19  
**Collection Date:** 07/24/19 16:45  
**Date Received:** 07/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	07/26/19 16:17 / RAT
Solids, Total Dissolved TDS @ 180 C	69	mg/L		10		A2540 C	07/26/19 16:10 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	42	mg/L		4		A2320 B	07/29/19 18:37 / SRW
Chloride	ND	mg/L		1		E300.0	07/27/19 10:16 / SRW
Sulfate	2	mg/L		1		E300.0	07/27/19 10:16 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	07/29/19 12:47 / RAT
Hardness as CaCO3	45	mg/L		1		A2340 B	07/29/19 17:25 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.31	mg/L		0.01		E353.2	07/31/19 15:07 / abc
<b>METALS, DISSOLVED</b>							
Aluminum	0.710	mg/L		0.009		E200.8	08/10/19 06:45 / eli-b
Antimony	ND	mg/L		0.0005		E200.8	08/10/19 06:45 / eli-b
Arsenic	0.001	mg/L		0.001		E200.8	08/10/19 06:45 / eli-b
Barium	0.315	mg/L		0.003		E200.8	08/10/19 06:45 / eli-b
Beryllium	ND	mg/L		0.0008		E200.8	08/15/19 10:42 / eli-b
Cadmium	ND	mg/L		0.00003		E200.8	08/10/19 06:45 / eli-b
Calcium	12	mg/L		1		E200.8	08/10/19 06:45 / eli-b
Chromium	ND	mg/L		0.01		E200.8	08/10/19 06:45 / eli-b
Cobalt	ND	mg/L		0.01		E200.8	08/10/19 06:45 / eli-b
Copper	ND	mg/L		0.002		E200.8	08/10/19 06:45 / eli-b
Iron	0.38	mg/L		0.02		E200.8	08/10/19 06:45 / eli-b
Lead	ND	mg/L		0.0003		E200.8	08/10/19 06:45 / eli-b
Magnesium	3	mg/L		1		E200.8	08/10/19 06:45 / eli-b
Manganese	ND	mg/L		0.005		E200.8	08/10/19 06:45 / eli-b
Mercury	ND	ug/L		0.005		E245.1	08/01/19 13:10 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/10/19 06:45 / eli-b
Nickel	0.002	mg/L		0.001		E200.8	08/10/19 06:45 / eli-b
Potassium	ND	mg/L		1		E200.8	08/10/19 06:45 / eli-b
Selenium	ND	mg/L		0.0002		E200.8	08/10/19 06:45 / eli-b
Silver	ND	mg/L		0.0002		E200.8	08/10/19 06:45 / eli-b
Sodium	1	mg/L		1		E200.8	08/10/19 06:45 / eli-b
Strontium	0.0456	mg/L	L	0.0003		E200.8	08/10/19 06:45 / eli-b
Thallium	ND	mg/L		0.0002		E200.8	08/10/19 06:45 / eli-b
Uranium	ND	mg/L		0.0002		E200.8	08/10/19 06:45 / eli-b
Zinc	ND	mg/L	L	0.005		E200.8	08/10/19 06:45 / eli-b

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 L - Lowest available reporting limit for the analytical method used.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Lab ID:** H19070585-008  
**Client Sample ID:** BBC-1907-117

**Report Date:** 08/15/19  
**Collection Date:** 07/25/19 08:55  
**Date Received:** 07/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	07/26/19 16:17 / RAT
Solids, Total Dissolved TDS @ 180 C	160	mg/L		10		A2540 C	07/26/19 16:10 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	130	mg/L		4		A2320 B	07/29/19 18:44 / SRW
Chloride	ND	mg/L		1		E300.0	07/27/19 10:30 / SRW
Sulfate	9	mg/L		1		E300.0	07/27/19 10:30 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	07/29/19 12:51 / RAT
Hardness as CaCO3	146	mg/L		1		A2340 B	07/29/19 18:07 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.36	mg/L		0.01		E353.2	07/31/19 15:08 / abc
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/02/19 00:43 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/02/19 00:43 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/02/19 00:43 / dck
Barium	0.208	mg/L		0.003		E200.8	08/02/19 00:43 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/02/19 00:43 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/02/19 00:43 / dck
Calcium	36	mg/L		1		E200.7	07/29/19 18:07 / sld
Chromium	ND	mg/L		0.01		E200.8	08/02/19 00:43 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/02/19 00:43 / dck
Copper	ND	mg/L		0.002		E200.8	08/02/19 00:43 / dck
Iron	ND	mg/L		0.02		E200.7	07/29/19 18:07 / sld
Lead	ND	mg/L		0.0003		E200.8	08/02/19 00:43 / dck
Magnesium	13	mg/L		1		E200.7	07/29/19 18:07 / sld
Manganese	ND	mg/L		0.005		E200.8	08/02/19 00:43 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 13:20 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/02/19 00:43 / dck
Nickel	ND	mg/L		0.001		E200.8	08/02/19 00:43 / dck
Potassium	ND	mg/L		1		E200.7	07/29/19 18:07 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/02/19 00:43 / dck
Silver	ND	mg/L		0.0002		E200.8	08/02/19 00:43 / dck
Sodium	2	mg/L		1		E200.7	07/29/19 18:07 / sld
Strontium	0.0696	mg/L		0.0002		E200.8	08/02/19 00:43 / dck
Thallium	0.0005	mg/L		0.0002		E200.8	08/02/19 00:43 / dck
Uranium	0.0004	mg/L		0.0002		E200.8	08/02/19 00:43 / dck
Zinc	ND	mg/L		0.002		E200.8	08/02/19 00:43 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Lab ID:** H19070585-009  
**Client Sample ID:** BBC-1907-118

**Report Date:** 08/15/19  
**Collection Date:** 07/25/19 09:15  
**Date Received:** 07/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	10	mg/L		10		A2540 D	07/26/19 16:17 / RAT
Solids, Total Dissolved TDS @ 180 C	236	mg/L		10		A2540 C	07/26/19 16:10 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	07/29/19 18:49 / SRW
Chloride	ND	mg/L		1		E300.0	07/27/19 10:45 / SRW
Sulfate	26	mg/L		1		E300.0	07/27/19 10:45 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	07/29/19 12:55 / RAT
Hardness as CaCO3	219	mg/L		1		A2340 B	07/29/19 18:11 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.28	mg/L		0.01		E353.2	07/31/19 15:09 / abc
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/02/19 00:46 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/02/19 00:46 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/02/19 00:46 / dck
Barium	0.113	mg/L		0.003		E200.8	08/02/19 00:46 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/02/19 00:46 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/02/19 00:46 / dck
Calcium	47	mg/L		1		E200.7	07/29/19 18:11 / sld
Chromium	ND	mg/L		0.01		E200.8	08/02/19 00:46 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/02/19 00:46 / dck
Copper	ND	mg/L		0.002		E200.8	08/02/19 00:46 / dck
Iron	0.08	mg/L		0.02		E200.7	07/29/19 18:11 / sld
Lead	ND	mg/L		0.0003		E200.8	08/02/19 00:46 / dck
Magnesium	25	mg/L		1		E200.7	07/29/19 18:11 / sld
Manganese	0.018	mg/L		0.005		E200.8	08/02/19 00:46 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 13:23 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/02/19 00:46 / dck
Nickel	ND	mg/L		0.001		E200.8	08/02/19 00:46 / dck
Potassium	2	mg/L		1		E200.7	07/29/19 18:11 / sld
Selenium	0.0003	mg/L		0.0002		E200.8	08/02/19 00:46 / dck
Silver	ND	mg/L		0.0002		E200.8	08/02/19 00:46 / dck
Sodium	2	mg/L		1		E200.7	07/29/19 18:11 / sld
Strontium	0.0641	mg/L		0.0002		E200.8	08/02/19 00:46 / dck
Thallium	0.0002	mg/L		0.0002		E200.8	08/02/19 00:46 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	08/02/19 00:46 / dck
Zinc	ND	mg/L		0.002		E200.8	08/02/19 00:46 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.





### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Lab ID:** H19070585-010  
**Client Sample ID:** BBC-1907-119

**Report Date:** 08/15/19  
**Collection Date:** 07/25/19 09:35  
**Date Received:** 07/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	07/26/19 16:17 / RAT
Solids, Total Dissolved TDS @ 180 C	188	mg/L		10		A2540 C	07/26/19 16:10 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	160	mg/L		4		A2320 B	07/29/19 18:55 / SRW
Chloride	2	mg/L		1		E300.0	07/27/19 10:59 / SRW
Sulfate	10	mg/L		1		E300.0	07/27/19 10:59 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	07/29/19 12:59 / RAT
Hardness as CaCO3	162	mg/L		1		A2340 B	07/29/19 18:15 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.30	mg/L		0.01		E353.2	07/31/19 15:11 / abc
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/02/19 00:50 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/02/19 00:50 / dck
Arsenic	0.003	mg/L		0.001		E200.8	08/02/19 00:50 / dck
Barium	0.116	mg/L		0.003		E200.8	08/02/19 00:50 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/02/19 00:50 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/02/19 00:50 / dck
Calcium	42	mg/L		1		E200.7	07/29/19 18:15 / sld
Chromium	ND	mg/L		0.01		E200.8	08/02/19 00:50 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/02/19 00:50 / dck
Copper	ND	mg/L		0.002		E200.8	08/02/19 00:50 / dck
Iron	ND	mg/L		0.02		E200.7	07/29/19 18:15 / sld
Lead	ND	mg/L		0.0003		E200.8	08/02/19 00:50 / dck
Magnesium	14	mg/L		1		E200.7	07/29/19 18:15 / sld
Manganese	ND	mg/L		0.005		E200.8	08/02/19 00:50 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 13:26 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/02/19 00:50 / dck
Nickel	ND	mg/L		0.001		E200.8	08/02/19 00:50 / dck
Potassium	3	mg/L		1		E200.7	07/29/19 18:15 / sld
Selenium	0.0003	mg/L		0.0002		E200.8	08/02/19 00:50 / dck
Silver	ND	mg/L		0.0002		E200.8	08/02/19 00:50 / dck
Sodium	5	mg/L		1		E200.7	07/29/19 18:15 / sld
Strontium	0.154	mg/L		0.0002		E200.8	08/02/19 00:50 / dck
Thallium	0.0010	mg/L		0.0002		E200.8	08/02/19 00:50 / dck
Uranium	0.0009	mg/L		0.0002		E200.8	08/02/19 00:50 / dck
Zinc	ND	mg/L		0.002		E200.8	08/02/19 00:50 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Lab ID:** H19070585-011  
**Client Sample ID:** BBC-1907-120

**Report Date:** 08/15/19  
**Collection Date:** 07/25/19 10:00  
**Date Received:** 07/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	10	mg/L		10		A2540 D	07/26/19 16:18 / RAT
Solids, Total Dissolved TDS @ 180 C	244	mg/L		10		A2540 C	07/26/19 16:10 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	07/29/19 19:03 / SRW
Chloride	8	mg/L		1		E300.0	07/27/19 11:14 / SRW
Sulfate	19	mg/L		1		E300.0	07/27/19 11:14 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	07/29/19 13:03 / RAT
Hardness as CaCO3	224	mg/L		1		A2340 B	07/29/19 18:19 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.42	mg/L		0.01		E353.2	07/31/19 15:12 / abc
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/02/19 00:53 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/02/19 00:53 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/02/19 00:53 / dck
Barium	0.173	mg/L		0.003		E200.8	08/02/19 00:53 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/02/19 00:53 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/02/19 00:53 / dck
Calcium	52	mg/L		1		E200.7	07/29/19 18:19 / sld
Chromium	ND	mg/L		0.01		E200.8	08/02/19 00:53 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/02/19 00:53 / dck
Copper	ND	mg/L		0.002		E200.8	08/02/19 00:53 / dck
Iron	0.29	mg/L		0.02		E200.7	07/29/19 18:19 / sld
Lead	ND	mg/L		0.0003		E200.8	08/02/19 00:53 / dck
Magnesium	23	mg/L		1		E200.7	07/29/19 18:19 / sld
Manganese	0.020	mg/L		0.005		E200.8	08/02/19 00:53 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 13:30 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/02/19 00:53 / dck
Nickel	ND	mg/L		0.001		E200.8	08/02/19 00:53 / dck
Potassium	2	mg/L		1		E200.7	07/29/19 18:19 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/02/19 00:53 / dck
Silver	ND	mg/L		0.0002		E200.8	08/02/19 00:53 / dck
Sodium	2	mg/L		1		E200.7	07/29/19 18:19 / sld
Strontium	0.101	mg/L		0.0002		E200.8	08/02/19 00:53 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/02/19 00:53 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	08/02/19 00:53 / dck
Zinc	ND	mg/L		0.002		E200.8	08/02/19 00:53 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Lab ID:** H19070585-012  
**Client Sample ID:** BBC-1907-121

**Report Date:** 08/15/19  
**Collection Date:** 07/25/19 10:15  
**Date Received:** 07/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	07/26/19 16:18 / RAT
Solids, Total Dissolved TDS @ 180 C	122	mg/L		10		A2540 C	07/26/19 16:11 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	92	mg/L		4		A2320 B	07/29/19 19:09 / SRW
Chloride	ND	mg/L		1		E300.0	07/27/19 11:29 / SRW
Sulfate	6	mg/L		1		E300.0	07/27/19 11:29 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	07/29/19 13:16 / RAT
Hardness as CaCO3	91	mg/L		1		A2340 B	07/29/19 18:34 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.22	mg/L		0.01		E353.2	07/31/19 15:13 / abc
<b>METALS, DISSOLVED</b>							
Aluminum	0.065	mg/L		0.009		E200.8	08/02/19 00:56 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/02/19 00:56 / dck
Arsenic	0.006	mg/L		0.001		E200.8	08/02/19 00:56 / dck
Barium	0.309	mg/L		0.003		E200.8	08/02/19 00:56 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/02/19 00:56 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/02/19 00:56 / dck
Calcium	23	mg/L		1		E200.7	07/29/19 18:34 / sld
Chromium	ND	mg/L		0.01		E200.8	08/02/19 00:56 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/02/19 00:56 / dck
Copper	ND	mg/L		0.002		E200.8	08/02/19 00:56 / dck
Iron	0.03	mg/L		0.02		E200.8	08/02/19 00:56 / dck
Lead	ND	mg/L		0.0003		E200.8	08/02/19 00:56 / dck
Magnesium	8	mg/L		1		E200.7	07/29/19 18:34 / sld
Manganese	ND	mg/L		0.005		E200.8	08/02/19 00:56 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 13:33 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/02/19 00:56 / dck
Nickel	ND	mg/L		0.001		E200.8	08/02/19 00:56 / dck
Potassium	1	mg/L		1		E200.7	07/29/19 18:34 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/02/19 00:56 / dck
Silver	ND	mg/L		0.0002		E200.8	08/02/19 00:56 / dck
Sodium	3	mg/L		1		E200.7	07/29/19 18:34 / sld
Strontium	0.0951	mg/L		0.0002		E200.8	08/02/19 00:56 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/02/19 00:56 / dck
Uranium	0.0004	mg/L		0.0002		E200.8	08/02/19 00:56 / dck
Zinc	ND	mg/L		0.002		E200.8	08/02/19 00:56 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs)  
**Lab ID:** H19070585-013  
**Client Sample ID:** BBC-1907-129

**Report Date:** 08/15/19  
**Collection Date:** 07/25/19 14:30  
**Date Received:** 07/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	07/26/19 16:19 / RAT
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	07/26/19 16:11 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	07/29/19 19:15 / SRW
Chloride	ND	mg/L		1		E300.0	07/27/19 11:43 / SRW
Sulfate	ND	mg/L		1		E300.0	07/27/19 11:43 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	07/29/19 13:24 / RAT
Hardness as CaCO3	ND	mg/L		1		A2340 B	08/07/19 09:32 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	07/31/19 15:14 / abc
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/02/19 00:59 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/02/19 00:59 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/02/19 00:59 / dck
Barium	ND	mg/L		0.003		E200.8	08/02/19 00:59 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/02/19 00:59 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/02/19 00:59 / dck
Calcium	ND	mg/L		1		E200.7	07/29/19 18:37 / sld
Chromium	ND	mg/L		0.01		E200.8	08/02/19 00:59 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/02/19 00:59 / dck
Copper	ND	mg/L		0.002		E200.8	08/02/19 00:59 / dck
Iron	ND	mg/L		0.02		E200.7	07/29/19 18:37 / sld
Lead	ND	mg/L		0.0003		E200.8	08/02/19 00:59 / dck
Magnesium	ND	mg/L		1		E200.7	07/29/19 18:37 / sld
Manganese	ND	mg/L		0.005		E200.8	08/02/19 00:59 / dck
Mercury	ND	ug/L		0.005		E245.1	08/01/19 13:36 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/02/19 00:59 / dck
Nickel	ND	mg/L		0.001		E200.8	08/02/19 00:59 / dck
Potassium	ND	mg/L		1		E200.7	07/29/19 18:37 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/02/19 00:59 / dck
Silver	ND	mg/L		0.0002		E200.8	08/02/19 00:59 / dck
Sodium	ND	mg/L		1		E200.7	07/29/19 18:37 / sld
Strontium	ND	mg/L		0.0002		E200.8	08/02/19 00:59 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/02/19 00:59 / dck
Uranium	ND	mg/L		0.0002		E200.8	08/02/19 00:59 / dck
Zinc	ND	mg/L		0.002		E200.8	08/02/19 00:59 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Billings, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19070585

**Report Date:** 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>		Analytical Run: ICPMS208-B_190809A									
<b>Lab ID: QCS</b>	23	Initial Calibration Verification Standard							08/10/19 00:32		
Aluminum		0.247	mg/L	0.10	99	90	110				
Antimony		0.0495	mg/L	0.050	99	90	110				
Arsenic		0.0482	mg/L	0.0050	96	90	110				
Barium		0.0503	mg/L	0.10	101	90	110				
Cadmium		0.0256	mg/L	0.0010	102	90	110				
Calcium		2.54	mg/L	0.50	101	90	110				
Chromium		0.0502	mg/L	0.010	100	90	110				
Cobalt		0.0513	mg/L	0.010	103	90	110				
Copper		0.0519	mg/L	0.010	104	90	110				
Iron		0.249	mg/L	0.020	99	90	110				
Lead		0.0490	mg/L	0.010	98	90	110				
Magnesium		2.63	mg/L	0.50	105	90	110				
Manganese		0.249	mg/L	0.010	99	90	110				
Molybdenum		0.0490	mg/L	0.0050	98	90	110				
Nickel		0.0506	mg/L	0.010	101	90	110				
Potassium		2.46	mg/L	0.50	98	90	110				
Selenium		0.0506	mg/L	0.0050	101	90	110				
Silver		0.0252	mg/L	0.0050	101	90	110				
Sodium		2.43	mg/L	0.50	97	90	110				
Strontium		0.0494	mg/L	0.10	99	90	110				
Thallium		0.0479	mg/L	0.10	96	90	110				
Uranium		0.0508	mg/L	0.00030	102	90	110				
Zinc		0.0507	mg/L	0.010	101	90	110				

<b>Method: E200.8</b>									Batch: 135907		
<b>Lab ID: MB-135907</b>	23	Method Blank							Run: ICPMS208-B_190809A 08/10/19 04:54		
Aluminum		ND	mg/L	0.006							
Antimony		ND	mg/L	0.00002							
Arsenic		ND	mg/L	0.0002							
Barium		ND	mg/L	0.0004							
Cadmium		ND	mg/L	0.00002							
Calcium		ND	mg/L	0.07							
Chromium		ND	mg/L	0.0002							
Cobalt		ND	mg/L	0.00001							
Copper		ND	mg/L	0.0004							
Iron		ND	mg/L	0.002							
Lead		ND	mg/L	0.00009							
Magnesium		ND	mg/L	0.008							
Manganese		ND	mg/L	0.00005							
Molybdenum		0.00002	mg/L	0.00001							
Nickel		ND	mg/L	0.00006							
Potassium		ND	mg/L	0.09							
Selenium		ND	mg/L	0.00002							
Silver		ND	mg/L	8E-06							
Sodium		ND	mg/L	0.01							

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Tintina Resources Inc

Work Order: H19070585

Report Date: 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: 135907										
<b>Lab ID: MB-135907</b>	23	Method Blank						Run: ICPMS208-B_190809A	08/10/19 04:54	
Strontium		ND	mg/L	0.0003						
Thallium		ND	mg/L	0.00001						
Uranium		ND	mg/L	5E-06						
Zinc		ND	mg/L	0.005						
<b>Lab ID: LCS4-135907</b>										
23 Laboratory Control Sample										
Run: ICPMS208-B_190809A										
08/10/19 04:59										
Aluminum		0.427	mg/L	0.030	85	85	115			
Antimony		0.0971	mg/L	0.0010	97	85	115			
Arsenic		0.0949	mg/L	0.0010	95	85	115			
Barium		0.0964	mg/L	0.050	96	85	115			
Cadmium		0.0496	mg/L	0.0010	99	85	115			
Calcium		4.43	mg/L	1.0	89	85	115			
Chromium		0.0957	mg/L	0.0050	96	85	115			
Cobalt		0.0965	mg/L	0.0050	97	85	115			
Copper		0.0969	mg/L	0.0050	97	85	115			
Iron		0.471	mg/L	0.020	94	85	115			
Lead		0.0947	mg/L	0.0010	95	85	115			
Magnesium		4.81	mg/L	1.0	96	85	115			
Manganese		0.476	mg/L	0.0010	95	85	115			
Molybdenum		0.0922	mg/L	0.0010	92	85	115			
Nickel		0.0970	mg/L	0.0050	97	85	115			
Potassium		4.61	mg/L	1.0	92	85	115			
Selenium		0.0976	mg/L	0.0010	98	85	115			
Silver		0.00956	mg/L	0.0010	96	85	115			
Sodium		4.75	mg/L	1.0	95	85	115			
Strontium		0.0959	mg/L	0.010	96	85	115			
Thallium		0.0939	mg/L	0.00050	94	85	115			
Uranium		0.0923	mg/L	0.00030	92	85	115			
Zinc		0.102	mg/L	0.010	102	85	115			
<b>Lab ID: H19070585-004BMS4</b>										
23 Sample Matrix Spike										
Run: ICPMS208-B_190809A										
08/10/19 06:28										
Aluminum		2.05	mg/L	0.030	128	70	130			
Antimony		0.0989	mg/L	0.0010	99	70	130			
Arsenic		0.0956	mg/L	0.0010	95	70	130			
Barium		0.347	mg/L	0.050	96	70	130			
Cadmium		0.0497	mg/L	0.0010	99	70	130			
Calcium		10.0	mg/L	1.0	95	70	130			
Chromium		0.0981	mg/L	0.0050	96	70	130			
Cobalt		0.0988	mg/L	0.0050	98	70	130			
Copper		0.102	mg/L	0.0050	100	70	130			
Iron		1.32	mg/L	0.020	108	70	130			
Lead		0.0975	mg/L	0.0010	97	70	130			
Magnesium		6.47	mg/L	1.0	95	70	130			
Manganese		0.484	mg/L	0.0010	96	70	130			
Molybdenum		0.0936	mg/L	0.0010	94	70	130			
Nickel		0.101	mg/L	0.0050	98	70	130			

**Qualifiers:**

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ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Tintina Resources Inc

Work Order: H19070585

Report Date: 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: 135907										
<b>Lab ID:</b>	<b>H19070585-004BMS4</b>	23	Sample Matrix Spike							
										Run: ICPMS208-B_190809A
										08/10/19 06:28
Potassium		5.77	mg/L	1.0	95	70	130			
Selenium		0.100	mg/L	0.0010	100	70	130			
Silver		0.00964	mg/L	0.0010	96	70	130			
Sodium		6.14	mg/L	1.0	95	70	130			
Strontium		0.125	mg/L	0.010	95	70	130			
Thallium		0.0960	mg/L	0.00050	96	70	130			
Uranium		0.0960	mg/L	0.00030	96	70	130			
Zinc		0.104	mg/L	0.010	98	70	130			
<b>Lab ID: H19070585-004BMSD</b>										
		23	Sample Matrix Spike Duplicate							
										Run: ICPMS208-B_190809A
										08/10/19 06:32
Aluminum		1.94	mg/L	0.030	105	70	130	5.7	20	
Antimony		0.0971	mg/L	0.0010	97	70	130	1.9	20	
Arsenic		0.0980	mg/L	0.0010	97	70	130	2.4	20	
Barium		0.346	mg/L	0.050	95	70	130	0.3	20	
Cadmium		0.0495	mg/L	0.0010	99	70	130	0.5	20	
Calcium		10.1	mg/L	1.0	96	70	130	0.6	20	
Chromium		0.101	mg/L	0.0050	99	70	130	2.8	20	
Cobalt		0.0969	mg/L	0.0050	97	70	130	1.9	20	
Copper		0.0999	mg/L	0.0050	97	70	130	2.3	20	
Iron		1.29	mg/L	0.020	103	70	130	1.9	20	
Lead		0.0950	mg/L	0.0010	95	70	130	2.6	20	
Magnesium		6.68	mg/L	1.0	99	70	130	3.3	20	
Manganese		0.497	mg/L	0.0010	98	70	130	2.7	20	
Molybdenum		0.0927	mg/L	0.0010	93	70	130	1.0	20	
Nickel		0.103	mg/L	0.0050	100	70	130	2.4	20	
Potassium		5.88	mg/L	1.0	97	70	130	1.8	20	
Selenium		0.100	mg/L	0.0010	100	70	130	0.3	20	
Silver		0.00967	mg/L	0.0010	96	70	130	0.3	20	
Sodium		6.30	mg/L	1.0	98	70	130	2.6	20	
Strontium		0.127	mg/L	0.010	98	70	130	1.9	20	
Thallium		0.0927	mg/L	0.00050	93	70	130	3.5	20	
Uranium		0.0926	mg/L	0.00030	92	70	130	3.7	20	
Zinc		0.106	mg/L	0.010	100	70	130	2.1	20	

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Tintina Resources Inc

Work Order: H19070585

Report Date: 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> E200.8										Analytical Run: ICPMS208-B_190813A	
<b>Lab ID:</b> QCS		Initial Calibration Verification Standard								08/14/19 00:12	
Beryllium		0.0243	mg/L	0.0010	97	90	110				
<b>Method:</b> E200.8										Batch: 135907	
<b>Lab ID:</b> MB-135907		Method Blank								Run: ICPMS208-B_190813A	08/14/19 01:03
Beryllium		ND	mg/L	0.00002							
<b>Lab ID:</b> LCS4-135907		Laboratory Control Sample								Run: ICPMS208-B_190813A	08/14/19 01:07
Beryllium		0.0574	mg/L	0.0010	115	85	115				
<b>Lab ID:</b> H19070585-004BMS4		Sample Matrix Spike								Run: ICPMS208-B_190813A	08/14/19 01:20
Beryllium		0.0587	mg/L	0.0010	117	70	130				
<b>Lab ID:</b> H19070585-004BMSD		Sample Matrix Spike Duplicate								Run: ICPMS208-B_190813A	08/14/19 01:24
Beryllium		0.0592	mg/L	0.0010	118	70	130	1.0	20		
<b>Method:</b> E200.8										Analytical Run: ICPMS208-B_190814A	
<b>Lab ID:</b> QCS		Initial Calibration Verification Standard								08/15/19 01:24	
Beryllium		0.0231	mg/L	0.0010	92	90	110				
<b>Method:</b> E200.8										Batch: 135907	
<b>Lab ID:</b> MB-135907		Method Blank								Run: ICPMS208-B_190814A	08/14/19 15:20
Beryllium		ND	mg/L	0.00002							
<b>Lab ID:</b> LCS4-135907		Laboratory Control Sample								Run: ICPMS208-B_190814A	08/14/19 15:25
Beryllium		0.0429	mg/L	0.0010	86	85	115				

**Qualifiers:**

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ND - Not detected at the reporting limit.





# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19070585

**Report Date:** 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A2320 B										Batch: R146292
<b>Lab ID:</b> MBLK		Method Blank								Run: PHSC_101-H_190729A 07/29/19 17:03
Alkalinity, Total as CaCO3		ND	mg/L	2						
<b>Lab ID:</b> LCS		Laboratory Control Sample								Run: PHSC_101-H_190729A 07/29/19 17:09
Alkalinity, Total as CaCO3		570	mg/L	4.0	96	90	110			
<b>Lab ID:</b> H19070584-031BDUP		Sample Duplicate								Run: PHSC_101-H_190729A 07/29/19 17:25
Alkalinity, Total as CaCO3		130	mg/L	4.0				0.6	10	
<b>Lab ID:</b> H19070589-001ADUP		Sample Duplicate								Run: PHSC_101-H_190729A 07/29/19 19:28
Alkalinity, Total as CaCO3		110	mg/L	4.0				1.4	10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19070585

**Report Date:** 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>										
Batch: TDS190726A										
<b>Lab ID: MB-49_190726A</b>		Method Blank								
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
										Run: ACCU-124 (14410200)_19072 07/26/19 14:19
<b>Lab ID: LCS-50_190726A</b>		Laboratory Control Sample								
Solids, Total Dissolved TDS @ 180 C		2000	mg/L	20	100	90	110			Run: ACCU-124 (14410200)_19072 07/26/19 14:20
<b>Lab ID: H19070584-032A DUP</b>		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		224	mg/L	10				0.9	5	Run: ACCU-124 (14410200)_19072 07/26/19 14:20
<b>Lab ID: H19070585-013A DUP</b>		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10					5	Run: ACCU-124 (14410200)_19072 07/26/19 16:11

- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.

**Qualifiers:**

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ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19070585

**Report Date:** 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 D</b>										
Batch: TSS190726A										
<b>Lab ID: MB-49_190726A</b>		Method Blank								
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
								Run: ACCU-124 (14410200)_19072	07/26/19 14:36	
<b>Lab ID: LCS-50_190726A</b>		Laboratory Control Sample								
Solids, Total Suspended TSS @ 105 C		103	mg/L	10	103	80	120			
								Run: ACCU-124 (14410200)_19072	07/26/19 14:36	
<b>Lab ID: H19070584-032ADUP</b>		Sample Duplicate								
Solids, Total Suspended TSS @ 105 C		47.6	mg/L	10				1.7	5	
								Run: ACCU-124 (14410200)_19072	07/26/19 16:15	
<b>Lab ID: H19070585-013ADUP</b>		Sample Duplicate								
Solids, Total Suspended TSS @ 105 C		4.00	mg/L	10					5	
								Run: ACCU-124 (14410200)_19072	07/26/19 16:19	

**Qualifiers:**

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ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19070585

**Report Date:** 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A4500-F C										Analytical Run: MANTECH 2_190729A
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								07/29/19 11:17
Fluoride		0.7	mg/L	0.1	97	90	110			
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								07/29/19 12:14
Fluoride		1.0	mg/L	0.1	98	90	110			
<b>Lab ID:</b> CCV 1		Continuing Calibration Verification Standard								07/29/19 13:07
Fluoride		1.0	mg/L	0.1	97	90	110			
<b>Method:</b> A4500-F C										Batch: R146330
<b>Lab ID:</b> MBLK		Method Blank								07/29/19 11:21
Fluoride		ND	mg/L	0.03						Run: MANTECH 2_190729A
<b>Lab ID:</b> H19070583-001AMS		Sample Matrix Spike								07/29/19 11:29
Fluoride		1.1	mg/L	0.1	101	85	115			Run: MANTECH 2_190729A
<b>Lab ID:</b> H19070585-002ADUP		Sample Duplicate								07/29/19 12:27
Fluoride		0.1	mg/L	0.1				0.0	10	Run: MANTECH 2_190729A
<b>Lab ID:</b> H19070585-012AMS		Sample Matrix Spike								07/29/19 13:20
Fluoride		1.1	mg/L	0.1	97	85	115			Run: MANTECH 2_190729A
<b>Lab ID:</b> H19070585-013ADUP		Sample Duplicate								07/29/19 13:28
Fluoride		ND	mg/L	0.1					10	Run: MANTECH 2_190729A

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070585

Report Date: 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Analytical Run: ICP2-HE_190729C										
<b>Lab ID: ICV</b>	5	Initial Calibration Verification Standard								07/29/19 13:38
Calcium		40.0	mg/L	1.0	100	95	105			
Iron		4.00	mg/L	0.020	100	95	105			
Magnesium		39.4	mg/L	1.0	99	95	105			
Potassium		40.1	mg/L	1.0	100	95	105			
Sodium		40.0	mg/L	1.0	100	95	105			
<b>Lab ID: CCV-1</b>	5	Continuing Calibration Verification Standard								07/29/19 13:42
Calcium		25.5	mg/L	1.0	102	95	105			
Iron		2.52	mg/L	0.020	101	95	105			
Magnesium		24.8	mg/L	1.0	99	95	105			
Potassium		25.4	mg/L	1.0	102	95	105			
Sodium		25.4	mg/L	1.0	102	95	105			
<b>Lab ID: ICSA</b>	5	Interference Check Sample A								07/29/19 13:53
Calcium		479	mg/L	1.0	96	80	120			
Iron		186	mg/L	0.020	93	80	120			
Magnesium		533	mg/L	1.0	107	80	120			
Potassium		-0.0122	mg/L	1.0		0	0			
Sodium		0.00470	mg/L	1.0		0	0			
<b>Lab ID: ICSAB</b>	5	Interference Check Sample AB								07/29/19 13:57
Calcium		486	mg/L	1.0	97	80	120			
Iron		190	mg/L	0.020	95	80	120			
Magnesium		541	mg/L	1.0	108	80	120			
Potassium		20.2	mg/L	1.0	101	80	120			
Sodium		20.2	mg/L	1.0	101	80	120			
<b>Lab ID: CCV</b>	5	Continuing Calibration Verification Standard								07/29/19 16:44
Calcium		25.8	mg/L	1.0	103	90	110			
Iron		2.58	mg/L	0.020	103	90	110			
Magnesium		24.8	mg/L	1.0	99	90	110			
Potassium		25.1	mg/L	1.0	100	90	110			
Sodium		25.0	mg/L	1.0	100	90	110			
<b>Lab ID: CCV</b>	5	Continuing Calibration Verification Standard								07/29/19 17:56
Calcium		25.2	mg/L	1.0	101	90	110			
Iron		2.51	mg/L	0.020	100	90	110			
Magnesium		24.7	mg/L	1.0	99	90	110			
Potassium		24.6	mg/L	1.0	99	90	110			
Sodium		24.6	mg/L	1.0	98	90	110			
<b>Method: E200.7</b>										
Batch: R146322										
<b>Lab ID: MB</b>	5	Method Blank								07/29/19 14:05
Run: ICP2-HE_190729C										
Calcium		0.08	mg/L	0.07						
Iron		ND	mg/L	0.01						
Magnesium		ND	mg/L	0.01						
Potassium		ND	mg/L	0.06						

**Qualifiers:**

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# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070585

Report Date: 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Batch: R146322										
<b>Lab ID: MB</b>	5	Method Blank								
Run: ICP2-HE_190729C										
07/29/19 14:05										
Sodium		ND	mg/L	0.02						
<b>Lab ID: LFB</b>	5	Laboratory Fortified Blank								
Run: ICP2-HE_190729C										
07/29/19 14:08										
Calcium		51.9	mg/L	1.0	104	85	115			
Iron		5.16	mg/L	0.020	103	85	115			
Magnesium		51.3	mg/L	1.0	103	85	115			
Potassium		52.5	mg/L	1.0	105	85	115			
Sodium		52.5	mg/L	1.0	105	85	115			
<b>Lab ID: H19070585-001BMS2</b>	5	Sample Matrix Spike								
Run: ICP2-HE_190729C										
07/29/19 16:59										
Calcium		108	mg/L	1.0	102	70	130			
Iron		5.25	mg/L	0.020	105	70	130			
Magnesium		72.8	mg/L	1.0	105	70	130			
Potassium		52.7	mg/L	1.0	103	70	130			
Sodium		53.4	mg/L	1.0	104	70	130			
<b>Lab ID: H19070585-001BMSD</b>	5	Sample Matrix Spike Duplicate								
Run: ICP2-HE_190729C										
07/29/19 17:02										
Calcium		107	mg/L	1.0	100	70	130	0.9	20	
Iron		5.23	mg/L	0.020	105	70	130	0.4	20	
Magnesium		72.2	mg/L	1.0	104	70	130	0.8	20	
Potassium		54.6	mg/L	1.0	107	70	130	3.5	20	
Sodium		55.7	mg/L	1.0	108	70	130	4.1	20	
<b>Lab ID: H19070585-011BMS2</b>	5	Sample Matrix Spike								
Run: ICP2-HE_190729C										
07/29/19 18:26										
Calcium		103	mg/L	1.0	102	70	130			
Iron		5.42	mg/L	0.020	103	70	130			
Magnesium		75.5	mg/L	1.0	106	70	130			
Potassium		54.1	mg/L	1.0	105	70	130			
Sodium		55.1	mg/L	1.0	105	70	130			
<b>Lab ID: H19070585-011BMSD</b>	5	Sample Matrix Spike Duplicate								
Run: ICP2-HE_190729C										
07/29/19 18:30										
Calcium		103	mg/L	1.0	101	70	130	0.6	20	
Iron		5.41	mg/L	0.020	103	70	130	0.1	20	
Magnesium		75.1	mg/L	1.0	105	70	130	0.4	20	
Potassium		53.5	mg/L	1.0	104	70	130	0.9	20	
Sodium		54.8	mg/L	1.0	105	70	130	0.6	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070585

Report Date: 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>		Analytical Run: ICPMS205-H_190801B								
<b>Lab ID: ICV</b>	20 Initial Calibration Verification Standard									08/01/19 17:09
Aluminum		0.296	mg/L	0.10	99	90	110			
Antimony		0.0601	mg/L	0.050	100	90	110			
Arsenic		0.0598	mg/L	0.0050	100	90	110			
Barium		0.0607	mg/L	0.10	101	90	110			
Beryllium		0.0300	mg/L	0.0010	100	90	110			
Cadmium		0.0306	mg/L	0.0010	102	90	110			
Chromium		0.0612	mg/L	0.010	102	90	110			
Cobalt		0.0621	mg/L	0.010	104	90	110			
Copper		0.0619	mg/L	0.010	103	90	110			
Iron		0.308	mg/L	0.020	103	90	110			
Lead		0.0606	mg/L	0.010	101	90	110			
Manganese		0.310	mg/L	0.010	103	90	110			
Molybdenum		0.0598	mg/L	0.0050	100	90	110			
Nickel		0.0614	mg/L	0.010	102	90	110			
Selenium		0.0610	mg/L	0.0050	102	90	110			
Silver		0.0306	mg/L	0.0050	102	90	110			
Strontium		0.0596	mg/L	0.10	99	90	110			
Thallium		0.0601	mg/L	0.10	100	90	110			
Uranium		0.0594	mg/L	0.00030	99	90	110			
Zinc		0.0629	mg/L	0.010	105	90	110			
<b>Lab ID: ICSA</b>	20 Interference Check Sample A									08/01/19 17:12
Aluminum		41.5	mg/L	0.10	104	70	130			
Antimony		0.000233	mg/L	0.050						
Arsenic		1.78E-05	mg/L	0.0050						
Barium		0.000178	mg/L	0.10						
Beryllium		2.92E-05	mg/L	0.0010						
Cadmium		0.000121	mg/L	0.0010						
Chromium		0.000164	mg/L	0.010						
Cobalt		0.000282	mg/L	0.010						
Copper		0.000164	mg/L	0.010						
Iron		100	mg/L	0.020	100	70	130			
Lead		8.93E-05	mg/L	0.010						
Manganese		0.000251	mg/L	0.010						
Molybdenum		0.845	mg/L	0.0050	106	70	130			
Nickel		0.000216	mg/L	0.010						
Selenium		0.000113	mg/L	0.0050						
Silver		2.65E-05	mg/L	0.0050						
Strontium		0.000959	mg/L	0.10						
Thallium		2.75E-05	mg/L	0.10						
Uranium		6.80E-06	mg/L	0.00030						
Zinc		0.000268	mg/L	0.010						
<b>Lab ID: ICSAB</b>	20 Interference Check Sample AB									08/01/19 17:15
Aluminum		43.8	mg/L	0.10	109	70	130			
Antimony		0.000188	mg/L	0.050		0	0			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19070585

**Report Date:** 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>		Analytical Run: ICPMS205-H_190801B								
<b>Lab ID: ICSAB</b>	20 Interference Check Sample AB									08/01/19 17:15
Arsenic		0.0109	mg/L	0.0050	109	70	130			
Barium		0.000176	mg/L	0.10		0	0			
Beryllium		-1.38E-05	mg/L	0.0010		0	0			
Cadmium		0.0108	mg/L	0.0010	108	70	130			
Chromium		0.0218	mg/L	0.010	109	70	130			
Cobalt		0.0217	mg/L	0.010	109	70	130			
Copper		0.0213	mg/L	0.010	107	70	130			
Iron		108	mg/L	0.020	108	70	130			
Lead		9.14E-05	mg/L	0.010		0	0			
Manganese		0.0222	mg/L	0.010	111	70	130			
Molybdenum		0.900	mg/L	0.0050	113	70	130			
Nickel		0.0215	mg/L	0.010	108	70	130			
Selenium		0.0109	mg/L	0.0050	109	70	130			
Silver		0.00535	mg/L	0.0050	107	70	130			
Strontium		0.00112	mg/L	0.10		0	0			
Thallium		1.65E-05	mg/L	0.10		0	0			
Uranium		3.18E-07	mg/L	0.00030		0	0			
Zinc		0.0106	mg/L	0.010	106	70	130			

<b>Method: E200.8</b>		Batch: R146452									
<b>Lab ID: LRB</b>	20 Method Blank									Run: ICPMS205-H_190801B	08/01/19 17:31
Aluminum		ND	mg/L	0.003							
Antimony		ND	mg/L	9E-05							
Arsenic		ND	mg/L	4E-05							
Barium		ND	mg/L	2E-05							
Beryllium		ND	mg/L	0.0001							
Cadmium		ND	mg/L	3E-05							
Chromium		ND	mg/L	0.0002							
Cobalt		ND	mg/L	9E-05							
Copper		ND	mg/L	0.0001							
Iron		0.009	mg/L	0.002							
Lead		8E-05	mg/L	3E-05							
Manganese		ND	mg/L	0.0003							
Molybdenum		ND	mg/L	2E-05							
Nickel		ND	mg/L	0.0002							
Selenium		ND	mg/L	2E-05							
Silver		ND	mg/L	2E-05							
Strontium		ND	mg/L	0.0001							
Thallium		ND	mg/L	1E-05							
Uranium		ND	mg/L	1E-05							
Zinc		ND	mg/L	0.0003							

<b>Lab ID: LFB</b>	20 Laboratory Fortified Blank									Run: ICPMS205-H_190801B	08/01/19 17:34
Aluminum		0.0469	mg/L	0.10	94	85	115				
Antimony		0.0467	mg/L	0.050	93	85	115				
Arsenic		0.0492	mg/L	0.0050	98	85	115				

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.





# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070585

Report Date: 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
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Method: E200.8

Batch: R146452

Lab ID:	LFB	20 Laboratory Fortified Blank				Run: ICPMS205-H_190801B		08/01/19 17:34
Barium		0.0491	mg/L	0.10	98	85	115	
Beryllium		0.0527	mg/L	0.0010	105	85	115	
Cadmium		0.0492	mg/L	0.0010	98	85	115	
Chromium		0.0493	mg/L	0.010	99	85	115	
Cobalt		0.0490	mg/L	0.010	98	85	115	
Copper		0.0497	mg/L	0.010	99	85	115	
Iron		0.157	mg/L	0.020	105	85	115	
Lead		0.0481	mg/L	0.010	96	85	115	
Manganese		0.0498	mg/L	0.010	100	85	115	
Molybdenum		0.0481	mg/L	0.0050	96	85	115	
Nickel		0.0494	mg/L	0.010	99	85	115	
Selenium		0.0521	mg/L	0.0050	104	85	115	
Silver		0.0197	mg/L	0.0050	99	85	115	
Strontium		0.0489	mg/L	0.10	98	85	115	
Thallium		0.0477	mg/L	0.10	95	85	115	
Uranium		0.0472	mg/L	0.00030	94	85	115	
Zinc		0.0496	mg/L	0.010	99	85	115	

Lab ID:	H19070585-006BMS	20 Sample Matrix Spike				Run: ICPMS205-H_190801B		08/02/19 00:28
Aluminum		0.436	mg/L	0.030		70	130	A
Antimony		0.0468	mg/L	0.0010	94	70	130	
Arsenic		0.0495	mg/L	0.0010	96	70	130	
Barium		0.313	mg/L	0.050		70	130	A
Beryllium		0.0511	mg/L	0.0010	102	70	130	
Cadmium		0.0480	mg/L	0.0010	96	70	130	
Chromium		0.0473	mg/L	0.0050	93	70	130	
Cobalt		0.0481	mg/L	0.0050	95	70	130	
Copper		0.0491	mg/L	0.0050	94	70	130	
Iron		0.312	mg/L	0.020	92	70	130	
Lead		0.0487	mg/L	0.0010	97	70	130	
Manganese		0.0502	mg/L	0.0010	95	70	130	
Molybdenum		0.0458	mg/L	0.0010	92	70	130	
Nickel		0.0489	mg/L	0.0050	95	70	130	
Selenium		0.0518	mg/L	0.0010	103	70	130	
Silver		0.0190	mg/L	0.0010	95	70	130	
Strontium		0.104	mg/L	0.010	87	70	130	
Thallium		0.0488	mg/L	0.00050	98	70	130	
Uranium		0.0481	mg/L	0.00030	96	70	130	
Zinc		0.0496	mg/L	0.010	97	70	130	

Lab ID:	H19070585-006BMSD	20 Sample Matrix Spike Duplicate				Run: ICPMS205-H_190801B		08/02/19 00:31
Aluminum		0.429	mg/L	0.030		70	130	1.5 20 A
Antimony		0.0472	mg/L	0.0010	94	70	130	0.7 20
Arsenic		0.0503	mg/L	0.0010	97	70	130	1.5 20
Barium		0.312	mg/L	0.050		70	130	0.1 20 A
Beryllium		0.0483	mg/L	0.0010	97	70	130	5.7 20

**Qualifiers:**

RL - Analyte reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070585

Report Date: 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>											
Batch: R146452											
<b>Lab ID:</b>	<b>H19070585-006BMSD</b>	20 Sample Matrix Spike Duplicate			Run: ICPMS205-H_190801B			08/02/19 00:31			
Cadmium		0.0481	mg/L	0.0010	96	70	130	0.2	20		
Chromium		0.0476	mg/L	0.0050	94	70	130	0.7	20		
Cobalt		0.0487	mg/L	0.0050	96	70	130	1.2	20		
Copper		0.0495	mg/L	0.0050	95	70	130	0.8	20		
Iron		0.312	mg/L	0.020	91	70	130	0.3	20		
Lead		0.0489	mg/L	0.0010	98	70	130	0.4	20		
Manganese		0.0511	mg/L	0.0010	97	70	130	1.8	20		
Molybdenum		0.0460	mg/L	0.0010	92	70	130	0.3	20		
Nickel		0.0487	mg/L	0.0050	95	70	130	0.4	20		
Selenium		0.0506	mg/L	0.0010	101	70	130	2.4	20		
Silver		0.0190	mg/L	0.0010	95	70	130	0.0	20		
Strontium		0.105	mg/L	0.010	90	70	130	1.2	20		
Thallium		0.0488	mg/L	0.00050	98	70	130	0.0	20		
Uranium		0.0485	mg/L	0.00030	97	70	130	0.7	20		
Zinc		0.0500	mg/L	0.010	98	70	130	0.8	20		
<b>Lab ID:</b>	<b>H19070594-003AMS</b>	20 Sample Matrix Spike			Run: ICPMS205-H_190801B			08/02/19 01:17			
Aluminum		0.0583	mg/L	0.030	103	70	130				
Antimony		0.0468	mg/L	0.0010	94	70	130				
Arsenic		0.0474	mg/L	0.0010	94	70	130				
Barium		0.0606	mg/L	0.050	100	70	130				
Beryllium		0.0470	mg/L	0.0010	94	70	130				
Cadmium		0.0477	mg/L	0.0010	95	70	130				
Chromium		0.0465	mg/L	0.0050	93	70	130				
Cobalt		0.0470	mg/L	0.0050	94	70	130				
Copper		0.0472	mg/L	0.0050	94	70	130				
Iron		0.175	mg/L	0.020	94	70	130				
Lead		0.0480	mg/L	0.0010	96	70	130				
Manganese		0.0512	mg/L	0.0010	96	70	130				
Molybdenum		0.0484	mg/L	0.0010	91	70	130				
Nickel		0.0470	mg/L	0.0050	94	70	130				
Selenium		0.0484	mg/L	0.0010	97	70	130				
Silver		0.0188	mg/L	0.0010	94	70	130				
Strontium		0.0866	mg/L	0.010	88	70	130				
Thallium		0.0478	mg/L	0.00050	96	70	130				
Uranium		0.0478	mg/L	0.00030	94	70	130				
Zinc		0.0493	mg/L	0.010	98	70	130				
<b>Lab ID:</b>	<b>H19070594-003AMSD</b>	20 Sample Matrix Spike Duplicate			Run: ICPMS205-H_190801B			08/02/19 01:20			
Aluminum		0.0562	mg/L	0.030	98	70	130	3.8	20		
Antimony		0.0473	mg/L	0.0010	95	70	130	1.0	20		
Arsenic		0.0470	mg/L	0.0010	93	70	130	0.9	20		
Barium		0.0600	mg/L	0.050	98	70	130	1.1	20		
Beryllium		0.0476	mg/L	0.0010	95	70	130	1.3	20		
Cadmium		0.0478	mg/L	0.0010	96	70	130	0.1	20		
Chromium		0.0462	mg/L	0.0050	92	70	130	0.8	20		

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070585

Report Date: 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										Batch: R146452
<b>Lab ID: H19070594-003AMSD</b>										20 Sample Matrix Spike Duplicate
										Run: ICPMS205-H_190801B
Cobalt		0.0467	mg/L	0.0050	93	70	130	0.7	20	
Copper		0.0470	mg/L	0.0050	94	70	130	0.5	20	
Iron		0.173	mg/L	0.020	93	70	130	1.1	20	
Lead		0.0477	mg/L	0.0010	95	70	130	0.5	20	
Manganese		0.0507	mg/L	0.0010	95	70	130	1.0	20	
Molybdenum		0.0481	mg/L	0.0010	90	70	130	0.7	20	
Nickel		0.0468	mg/L	0.0050	94	70	130	0.5	20	
Selenium		0.0486	mg/L	0.0010	97	70	130	0.3	20	
Silver		0.0187	mg/L	0.0010	94	70	130	0.3	20	
Strontium		0.0873	mg/L	0.010	89	70	130	0.8	20	
Thallium		0.0476	mg/L	0.00050	95	70	130	0.4	20	
Uranium		0.0478	mg/L	0.00030	94	70	130	0.0	20	
Zinc		0.0489	mg/L	0.010	97	70	130	0.9	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070585

Report Date: 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E245.1										Analytical Run: HGCV202-H_190801B
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								08/01/19 12:10
Mercury		0.100	ug/L	0.0050	100	90	110			
<b>Lab ID:</b> CCV1		Continuing Calibration Verification Standard								08/01/19 12:14
Mercury		0.0982	ug/L	0.0050	98	95	105			
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								08/01/19 13:13
Mercury		0.0976	ug/L	0.0050	98	90	110			
<b>Method:</b> E245.1										Batch: 46840
<b>Lab ID:</b> MB-46840		Method Blank								08/01/19 12:21
Mercury		ND	ug/L	0.002						Run: HGCV202-H_190801B
<b>Lab ID:</b> LCS-46840		Laboratory Control Sample								08/01/19 12:24
Mercury		0.0476	ug/L	0.0050	95	90	110			Run: HGCV202-H_190801B
<b>Lab ID:</b> H19070585-001BMS		Sample Matrix Spike								08/01/19 12:34
Mercury		0.0499	ug/L	0.0050	100	70	130			Run: HGCV202-H_190801B
<b>Lab ID:</b> H19070585-001BMSD		Sample Matrix Spike Duplicate								08/01/19 12:37
Mercury		0.0466	ug/L	0.0050	93	70	130	6.9	20	Run: HGCV202-H_190801B
<b>Lab ID:</b> H19070585-013BMS		Sample Matrix Spike								08/01/19 13:39
Mercury		0.0491	ug/L	0.0050	98	70	130			Run: HGCV202-H_190801B
<b>Lab ID:</b> H19070585-013BMSD		Sample Matrix Spike Duplicate								08/01/19 13:43
Mercury		0.0494	ug/L	0.0050	99	70	130	0.6	20	Run: HGCV202-H_190801B

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070585

Report Date: 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E300.0</b>										Analytical Run: IC METROHM_190726A	
<b>Lab ID: ICV</b>	2	Initial Calibration Verification Standard								07/26/19 14:11	
Chloride		97.2	mg/L	1.0	97	90	110				
Sulfate		374	mg/L	1.0	93	90	110				
<b>Lab ID: CCV</b>	2	Continuing Calibration Verification Standard								07/27/19 05:11	
Chloride		47.9	mg/L	1.0	96	90	110				
Sulfate		190	mg/L	1.0	95	90	110				
<b>Lab ID: CCV</b>	2	Continuing Calibration Verification Standard								07/27/19 08:49	
Chloride		48.2	mg/L	1.0	96	90	110				
Sulfate		188	mg/L	1.0	94	90	110				
<b>Method: E300.0</b>										Batch: R146285	
<b>Lab ID: ICB</b>	2	Method Blank								Run: IC METROHM_190726A	07/26/19 13:57
Chloride		ND	mg/L	0.02							
Sulfate		ND	mg/L	0.08							
<b>Lab ID: LFB</b>	2	Laboratory Fortified Blank								Run: IC METROHM_190726A	07/26/19 14:26
Chloride		25.2	mg/L	1.0	101	90	110				
Sulfate		102	mg/L	1.0	102	90	110				
<b>Lab ID: H19070585-003AMS</b>	2	Sample Matrix Spike								Run: IC METROHM_190726A	07/27/19 08:19
Chloride		23.2	mg/L	1.0	91	90	110				
Sulfate		99.4	mg/L	1.0	91	90	110				
<b>Lab ID: H19070585-003AMSD</b>	2	Sample Matrix Spike Duplicate								Run: IC METROHM_190726A	07/27/19 08:34
Chloride		23.2	mg/L	1.0	91	90	110	0.1	20		
Sulfate		100	mg/L	1.0	91	90	110	0.6	20		
<b>Lab ID: H19070585-013AMS</b>	2	Sample Matrix Spike								Run: IC METROHM_190726A	07/27/19 11:58
Chloride		22.9	mg/L	1.0	92	90	110				
Sulfate		92.1	mg/L	1.0	92	90	110				
<b>Lab ID: H19070585-013AMSD</b>	2	Sample Matrix Spike Duplicate								Run: IC METROHM_190726A	07/27/19 12:12
Chloride		22.5	mg/L	1.0	90	90	110	1.9	20		
Sulfate		90.2	mg/L	1.0	90	90	110	2.0	20		

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19070585

Report Date: 08/15/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E353.2</b>										Analytical Run: FIA203-HE_190731A
<b>Lab ID: ICV</b>		Initial Calibration Verification Standard								07/31/19 12:52
Nitrogen, Nitrate+Nitrite as N		1.00	mg/L	0.010	100	90	110			
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								07/31/19 14:44
Nitrogen, Nitrate+Nitrite as N		0.455	mg/L	0.010	91	90	110			
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								07/31/19 15:01
Nitrogen, Nitrate+Nitrite as N		0.461	mg/L	0.010	92	90	110			
<b>Method: E353.2</b>										Batch: R146411
<b>Lab ID: MBLK</b>		Method Blank								07/31/19 12:53
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009						Run: FIA203-HE_190731A
<b>Lab ID: LFB</b>		Laboratory Fortified Blank								07/31/19 12:54
Nitrogen, Nitrate+Nitrite as N		1.01	mg/L	0.011	101	90	110			Run: FIA203-HE_190731A
<b>Lab ID: H19070584-032GMS</b>		Sample Matrix Spike								07/31/19 14:48
Nitrogen, Nitrate+Nitrite as N		0.974	mg/L	0.011	97	90	110			Run: FIA203-HE_190731A
<b>Lab ID: H19070584-032GMSD</b>		Sample Matrix Spike Duplicate								07/31/19 14:49
Nitrogen, Nitrate+Nitrite as N		0.986	mg/L	0.011	99	90	110	1.2	10	Run: FIA203-HE_190731A
<b>Lab ID: H19070585-006CMS</b>		Sample Matrix Spike								07/31/19 15:05
Nitrogen, Nitrate+Nitrite as N		1.12	mg/L	0.011	93	90	110			Run: FIA203-HE_190731A
<b>Lab ID: H19070585-006CMSD</b>		Sample Matrix Spike Duplicate								07/31/19 15:06
Nitrogen, Nitrate+Nitrite as N		1.13	mg/L	0.011	94	90	110	1.0	10	Run: FIA203-HE_190731A
<b>Lab ID: H19070599-001AMS</b>		Sample Matrix Spike								07/31/19 15:21
Nitrogen, Nitrate+Nitrite as N		3.19	mg/L	0.022	93	90	110			Run: FIA203-HE_190731A
<b>Lab ID: H19070599-001AMSD</b>		Sample Matrix Spike Duplicate								07/31/19 15:23
Nitrogen, Nitrate+Nitrite as N		3.15	mg/L	0.022	91	90	110	1.4	10	Run: FIA203-HE_190731A

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# Work Order Receipt Checklist

Tintina Resources Inc

H19070585

Login completed by: Wanda Johnson

Date Received: 7/26/2019

Reviewed by: BL2000\rtooke

Received by: TLL

Reviewed Date: 7/29/2019

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	°C See Comments		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

## Contact and Corrective Action Comments:

Cooler 1 was received at 0.0C, Cooler 2 at -0.3C both received on ice. Sample BBC-1907-108 metals containers have a time of 1:08, used time from COC. wj 7/26/19

**CHAIN OF CUSTODY RECORD**



**Hydrometrics, Inc.**  
 3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

PROJ. NO. 18049  
 PROJECT NAME: July Monthly Monitoring (Springs)  
 SAMPLERS: (Signature) [Signature]

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CON-TAINERS	Commons UF / RAW	Nutrients UF / H <sub>2</sub> SO <sub>4</sub>	Diss. Metal F / HNO <sub>3</sub>	CN UF / NaOH	Total Metals UF / HNO <sub>3</sub>	Total Recoverable Metals UF / HNO <sub>3</sub>	BTEX	TPH	REMARKS
7/24/19	1310		X	133A-1907-106	3	X	X	X						H19070585
	1400			108		X	X	X						
	1420			109		X	X	X						
	1535			112		X	X	X						
	1545			113		X	X	X						
	1620			114		X	X	X						
	1645			115		X	X	X						
				116		X	X	X						
7/25/19	0855		X	133A-1907-117										
	0915			118										
	0935			119										
	1000			120										
	1015			121										
	1430			129										
Relinquished (Signature)				Date / Time	Received by (Signature)	Lab Energy2 Lab								
[Signature]				7/24/19 1116	[Signature]	P.O. # B3-11 Tintina								
Relinquished (Signature)				Date / Time	Received by (Signature)	Shipped via: Bus FedEx UPS								
[Signature]					[Signature]	Air Bill #								
Relinquished (Signature)				Date / Time	Received for Laboratory by (Signature)	Remarks: CI=0.0, C2=-0.3								
[Signature]					[Signature]	TBS on ice hand del.								

HFORM-1 07/11  
 Action Print 406-442-7595

Return results & electronic copy to:  
 QA / QC Dept. at address at top of page

Split Samples:  
 Accepted  Declined \_\_\_\_\_ Signature

Enclosed:  
 Parameter sheet w/detection limits  
 QA / AC standard mixing instructions  Cover letter  
 Other \_\_\_\_\_



**TABLE 5. PARAMETERS, METHODS, AND DETECTION LIMITS  
FOR GROUNDWATER MONITORING**

Parameter	Analytical Method <sup>(1)</sup>	Project-Required Detection Limit (mg/L)
<b>Physical Parameters</b>		
TDS ✓	SM 2540C	10
TSS ✓	SM 2540C	10
<b>Common Ions</b>		
Alkalinity ✓	SM 2320B	4
Sulfate ✓	300.0	1
Chloride ✓	300.0/SM 4500CL-B	1
Fluoride ✓	A4500-F C	0.1
Calcium ✓	215.1/200.7	1
Magnesium ✓	242.1/200.7	1
Sodium ✓	273.1/200.7	1
Potassium ✓	258.1/200.7	1
<b>Nutrients</b>		
Nitrate+Nitrite as N	353.2	0.01
<b>Trace Constituents (Dissolved)<sup>(2)</sup></b>		
Aluminum (Al) ✓	200.7/200.8	0.009
Antimony (Sb) ✓	200.7/200.8	0.0005
Arsenic (As) ✓	200.8/SM 3114B	0.001
Barium (Ba) ✓	200.7/200.8	0.003
Beryllium (Be) ✓	200.7/200.8	0.0008
Cadmium (Cd) ✓	200.7/200.8	0.00003
Chromium (Cr) ✓	200.7/200.8	0.01
Cobalt (Co) ✓	200.7/200.8	0.01
Copper (Cu) ✓	200.7/200.8	0.002
Iron (Fe) ✓	200.7/200.8	0.02
Lead (Pb) ✓	200.7/200.8	0.0003
Manganese (Mn) ✓	200.7/200.8	0.005
Mercury (Hg) ✓	245.2/245.1/200.8/SM 3112B	0.000005
Molybdenum (Mo) ✓	200.7/200.8	0.002
Nickel (Ni) ✓	200.7/200.8	0.001
Selenium (Se) ✓	200.7/200.8/SM 3114B	0.0002
Silver (Ag) ✓	200.7/200.8	0.0002
Strontium (Sr) ✓	200.7/200.8	0.0002
Thallium (Tl) ✓	200.7/200.8	0.0002
Uranium ✓	200.7/200.8	0.008
Zinc (Zn) ✓	200.7/200.8	0.002
<b>Field Parameters</b>		
Stream Flow	HF-SOP-37/-44/-46	NA
Water Temperature	HF-SOP-20	0.1 °C
Dissolved Oxygen (DO)	HF-SOP-22	0.1 mg/L
pH	HF-SOP-20	0.1 s.u.
Specific Conductance (SC)	HF-SOP-79	1 µmhos/cm

(1) Analytical methods are from *Standard Methods for the Examination of Water and Wastewater* (SM) or EPA's *Methods for Chemical Analysis of Water and Waste* (1983).

(2) Samples to be analyzed for dissolved constituents will be field-filtered through a 0.45 µm filter.



# ANALYTICAL SUMMARY REPORT

September 07, 2019

Tintina Resources Inc  
PO Box 431  
White Sulphur Springs, MT 59645-0431

Work Order: H19080621      Quote ID: H1216

Project Name: 18049 Black Butte Copper (SW)

Energy Laboratories Inc Helena MT received the following 9 samples for Tintina Resources Inc on 8/22/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H19080621-001	BBC-1908-107	08/20/19 13:50	08/22/19	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Mercury, Total Recoverable Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 Mercury Digestion by E245.1 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Dissolved Solids, Total Suspended
H19080621-002	BBC-1908-110	08/20/19 15:00	08/22/19	Surface Water	Same As Above
H19080621-003	BBC-1908-122	08/21/19 10:40	08/22/19	Surface Water	Same As Above
H19080621-004	BBC-1908-123	08/21/19 11:00	08/22/19	Surface Water	Same As Above
H19080621-005	BBC-1908-124	08/21/19 11:20	08/22/19	Surface Water	Same As Above
H19080621-006	BBC-1908-125	08/21/19 11:50	08/22/19	Surface Water	Same As Above
H19080621-007	BBC-1908-126	08/21/19 12:15	08/22/19	Surface Water	Same As Above
H19080621-008	BBC-1908-127	08/21/19 12:35	08/22/19	Surface Water	Same As Above
H19080621-009	BBC-1908-128	08/21/19 13:15	08/22/19	Surface Water	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (SW)  
**Lab ID:** H19080621-001  
**Client Sample ID:** BBC-1908-107

**Report Date:** 09/07/19  
**Collection Date:** 08/20/19 13:50  
**Date Received:** 08/22/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	5	mg/L		4		A2540 D	08/22/19 13:12 / RAT
Solids, Total Dissolved TDS @ 180 C	207	mg/L	D	10		A2540 C	08/22/19 13:48 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	08/22/19 14:52 / SRW
Chloride	ND	mg/L		1		E300.0	08/23/19 02:46 / SRW
Sulfate	10	mg/L		1		E300.0	08/23/19 02:46 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	08/22/19 13:11 / SRW
Hardness as CaCO3	206	mg/L		1		A2340 B	08/27/19 10:29 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.09	mg/L		0.01		E353.2	08/23/19 12:29 / cmm
Nitrogen, Total	0.20	mg/L		0.04		A4500 N-C	08/27/19 10:04 / cmm
Phosphorus, Total as P	0.011	mg/L		0.003		E365.1	08/26/19 16:15 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/24/19 04:07 / sld
Calcium	49	mg/L		1		E200.7	08/27/19 06:24 / sld
Magnesium	20	mg/L		1		E200.7	08/27/19 06:24 / sld
Potassium	1	mg/L		1		E200.7	08/27/19 06:24 / sld
Sodium	3	mg/L		1		E200.7	08/27/19 06:24 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 16:51 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 16:51 / dck
Barium	0.150	mg/L		0.003		E200.8	08/29/19 16:51 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 16:51 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 16:51 / dck
Chromium	ND	mg/L		0.01		E200.8	08/29/19 16:51 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 16:51 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 16:51 / dck
Iron	0.19	mg/L		0.02		E200.8	08/29/19 16:51 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 16:51 / dck
Manganese	0.012	mg/L		0.005		E200.8	08/29/19 16:51 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 10:49 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 16:51 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 16:51 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/30/19 11:53 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 16:51 / dck
Strontium	0.183	mg/L		0.0002		E200.7	08/27/19 03:22 / sld
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 16:51 / dck
Uranium	0.0008	mg/L		0.0002		E200.8	08/29/19 16:51 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 16:51 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (SW)  
**Lab ID:** H19080621-002  
**Client Sample ID:** BBC-1908-110

**Report Date:** 09/07/19  
**Collection Date:** 08/20/19 15:00  
**Date Received:** 08/22/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	4	mg/L		4		A2540 D	08/22/19 13:12 / RAT
Solids, Total Dissolved TDS @ 180 C	244	mg/L	D	10		A2540 C	08/22/19 13:48 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	08/22/19 14:58 / SRW
Chloride	4	mg/L		1		E300.0	08/23/19 03:01 / SRW
Sulfate	21	mg/L		1		E300.0	08/23/19 03:01 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	08/22/19 13:15 / SRW
Hardness as CaCO3	216	mg/L		1		A2340 B	08/27/19 10:29 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.08	mg/L		0.01		E353.2	08/23/19 12:30 / cmm
Nitrogen, Total	0.17	mg/L		0.04		A4500 N-C	08/27/19 10:05 / cmm
Phosphorus, Total as P	0.018	mg/L		0.003		E365.1	08/26/19 16:16 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/24/19 04:09 / sld
Calcium	47	mg/L		1		E200.7	08/27/19 06:48 / sld
Magnesium	24	mg/L		1		E200.7	08/27/19 06:48 / sld
Potassium	1	mg/L		1		E200.7	08/27/19 06:48 / sld
Sodium	2	mg/L		1		E200.7	08/27/19 06:48 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 16:53 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 16:53 / dck
Barium	0.172	mg/L		0.003		E200.8	08/29/19 16:53 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 16:53 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 16:53 / dck
Chromium	ND	mg/L		0.01		E200.8	08/29/19 16:53 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 16:53 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 16:53 / dck
Iron	0.05	mg/L		0.02		E200.8	08/29/19 16:53 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 16:53 / dck
Manganese	ND	mg/L		0.005		E200.8	08/29/19 16:53 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 10:59 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 16:53 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 16:53 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/30/19 11:55 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 16:53 / dck
Strontium	0.123	mg/L		0.0002		E200.7	08/27/19 03:26 / sld
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 16:53 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	08/29/19 16:53 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 16:53 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (SW)  
**Lab ID:** H19080621-003  
**Client Sample ID:** BBC-1908-122

**Report Date:** 09/07/19  
**Collection Date:** 08/21/19 10:40  
**Date Received:** 08/22/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	5	mg/L		4		A2540 D	08/22/19 13:12 / RAT
Solids, Total Dissolved TDS @ 180 C	178	mg/L	D	10		A2540 C	08/22/19 13:48 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	160	mg/L		4		A2320 B	08/22/19 15:05 / SRW
Chloride	1	mg/L		1		E300.0	08/23/19 03:15 / SRW
Sulfate	6	mg/L		1		E300.0	08/23/19 03:15 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	08/22/19 13:19 / SRW
Hardness as CaCO3	150	mg/L		1		A2340 B	08/27/19 10:29 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	08/23/19 12:31 / cmm
Nitrogen, Total	0.10	mg/L		0.04		A4500 N-C	08/27/19 10:06 / cmm
Phosphorus, Total as P	0.009	mg/L		0.003		E365.1	08/26/19 16:17 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/24/19 04:11 / sld
Calcium	42	mg/L		1		E200.7	08/27/19 06:52 / sld
Magnesium	11	mg/L		1		E200.7	08/27/19 06:52 / sld
Potassium	1	mg/L		1		E200.7	08/27/19 06:52 / sld
Sodium	2	mg/L		1		E200.7	08/27/19 06:52 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 16:55 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 16:55 / dck
Barium	0.108	mg/L		0.003		E200.8	08/29/19 16:55 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 16:55 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 16:55 / dck
Chromium	ND	mg/L		0.01		E200.8	08/29/19 16:55 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 16:55 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 16:55 / dck
Iron	0.13	mg/L		0.02		E200.8	08/29/19 16:55 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 16:55 / dck
Manganese	0.014	mg/L		0.005		E200.8	08/29/19 16:55 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 11:02 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 16:55 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 16:55 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/29/19 16:55 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 16:55 / dck
Strontium	0.123	mg/L		0.0002		E200.7	08/27/19 03:54 / sld
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 16:55 / dck
Uranium	0.0003	mg/L		0.0002		E200.8	08/29/19 16:55 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 16:55 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (SW)  
**Lab ID:** H19080621-004  
**Client Sample ID:** BBC-1908-123

**Report Date:** 09/07/19  
**Collection Date:** 08/21/19 11:00  
**Date Received:** 08/22/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	5	mg/L		4		A2540 D	08/22/19 13:12 / RAT
Solids, Total Dissolved TDS @ 180 C	256	mg/L	D	10		A2540 C	08/22/19 13:48 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	08/22/19 15:11 / SRW
Chloride	5	mg/L		1		E300.0	08/23/19 03:30 / SRW
Sulfate	25	mg/L		1		E300.0	08/23/19 03:30 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	08/22/19 13:23 / SRW
Hardness as CaCO3	219	mg/L		1		A2340 B	08/27/19 10:29 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.11	mg/L		0.01		E353.2	08/23/19 12:32 / cmm
Nitrogen, Total	0.23	mg/L		0.04		A4500 N-C	08/27/19 10:08 / cmm
Phosphorus, Total as P	0.010	mg/L		0.003		E365.1	08/26/19 16:18 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/24/19 04:14 / sld
Calcium	50	mg/L		1		E200.7	08/27/19 06:57 / sld
Magnesium	23	mg/L		1		E200.7	08/27/19 06:57 / sld
Potassium	1	mg/L		1		E200.7	08/27/19 06:57 / sld
Sodium	3	mg/L		1		E200.7	08/27/19 06:57 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 16:57 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 16:57 / dck
Barium	0.159	mg/L		0.003		E200.8	08/29/19 16:57 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 16:57 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 16:57 / dck
Chromium	ND	mg/L		0.01		E200.8	08/29/19 16:57 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 16:57 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 16:57 / dck
Iron	0.21	mg/L		0.02		E200.8	08/29/19 16:57 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 16:57 / dck
Manganese	0.024	mg/L		0.005		E200.8	08/29/19 16:57 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 11:06 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 16:57 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 16:57 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/30/19 11:57 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 16:57 / dck
Strontium	0.138	mg/L		0.0002		E200.7	08/27/19 03:58 / sld
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 16:57 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	08/29/19 16:57 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 16:57 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (SW)  
**Lab ID:** H19080621-005  
**Client Sample ID:** BBC-1908-124

**Report Date:** 09/07/19  
**Collection Date:** 08/21/19 11:20  
**Date Received:** 08/22/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	08/22/19 13:13 / RAT
Solids, Total Dissolved TDS @ 180 C	229	mg/L	D	10		A2540 C	08/22/19 13:49 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	08/22/19 15:17 / SRW
Chloride	2	mg/L		1		E300.0	08/23/19 03:44 / SRW
Sulfate	7	mg/L		1		E300.0	08/23/19 03:44 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	08/22/19 13:27 / SRW
Hardness as CaCO3	202	mg/L		1		A2340 B	08/27/19 10:29 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.02	mg/L		0.01		E353.2	08/23/19 12:34 / cmm
Nitrogen, Total	0.12	mg/L		0.04		A4500 N-C	08/27/19 10:09 / cmm
Phosphorus, Total as P	0.009	mg/L		0.003		E365.1	08/26/19 16:19 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/24/19 04:16 / sld
Calcium	51	mg/L		1		E200.7	08/27/19 07:01 / sld
Magnesium	18	mg/L		1		E200.7	08/27/19 07:01 / sld
Potassium	1	mg/L		1		E200.7	08/27/19 07:01 / sld
Sodium	3	mg/L		1		E200.7	08/27/19 07:01 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 17:00 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 17:00 / dck
Barium	0.120	mg/L		0.003		E200.8	08/29/19 17:00 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 17:00 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 17:00 / dck
Chromium	ND	mg/L		0.01		E200.8	08/29/19 17:00 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 17:00 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 17:00 / dck
Iron	0.06	mg/L		0.02		E200.8	08/29/19 17:00 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 17:00 / dck
Manganese	0.008	mg/L		0.005		E200.8	08/29/19 17:00 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 11:09 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 17:00 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 17:00 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/29/19 17:00 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 17:00 / dck
Strontium	0.122	mg/L		0.0002		E200.7	08/27/19 04:02 / sld
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 17:00 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	08/29/19 17:00 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 17:00 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (SW)  
**Lab ID:** H19080621-006  
**Client Sample ID:** BBC-1908-125

**Report Date:** 09/07/19  
**Collection Date:** 08/21/19 11:50  
**Date Received:** 08/22/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	08/22/19 13:13 / RAT
Solids, Total Dissolved TDS @ 180 C	173	mg/L	D	10		A2540 C	08/22/19 13:49 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	160	mg/L		4		A2320 B	08/22/19 15:23 / SRW
Chloride	1	mg/L		1		E300.0	08/23/19 03:58 / SRW
Sulfate	5	mg/L		1		E300.0	08/23/19 03:58 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	08/22/19 13:32 / SRW
Hardness as CaCO3	152	mg/L		1		A2340 B	08/27/19 10:29 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	08/23/19 12:35 / cmm
Nitrogen, Total	0.08	mg/L		0.04		A4500 N-C	08/27/19 10:10 / cmm
Phosphorus, Total as P	0.006	mg/L		0.003		E365.1	08/26/19 16:20 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/24/19 04:32 / sld
Calcium	43	mg/L		1		E200.7	08/27/19 07:05 / sld
Magnesium	11	mg/L		1		E200.7	08/27/19 07:05 / sld
Potassium	1	mg/L		1		E200.7	08/27/19 07:05 / sld
Sodium	2	mg/L		1		E200.7	08/27/19 07:05 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 17:02 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 17:02 / dck
Barium	0.102	mg/L		0.003		E200.8	08/29/19 17:02 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 17:02 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 17:02 / dck
Chromium	ND	mg/L		0.01		E200.8	08/29/19 17:02 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 17:02 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 17:02 / dck
Iron	0.11	mg/L		0.02		E200.8	08/29/19 17:02 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 17:02 / dck
Manganese	0.008	mg/L		0.005		E200.8	08/29/19 17:02 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 11:12 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 17:02 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 17:02 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/29/19 17:02 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 17:02 / dck
Strontium	0.124	mg/L		0.0002		E200.7	08/27/19 04:06 / sld
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 17:02 / dck
Uranium	0.0003	mg/L		0.0002		E200.8	08/29/19 17:02 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 17:02 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.





### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (SW)  
**Lab ID:** H19080621-007  
**Client Sample ID:** BBC-1908-126

**Report Date:** 09/07/19  
**Collection Date:** 08/21/19 12:15  
**Date Received:** 08/22/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	08/22/19 13:13 / RAT
Solids, Total Dissolved TDS @ 180 C	175	mg/L	D	10		A2540 C	08/22/19 13:49 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	160	mg/L		4		A2320 B	08/22/19 15:29 / SRW
Chloride	1	mg/L		1		E300.0	08/23/19 04:13 / SRW
Sulfate	6	mg/L		1		E300.0	08/23/19 04:13 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	08/22/19 13:36 / SRW
Hardness as CaCO3	153	mg/L		1		A2340 B	08/27/19 10:29 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	08/23/19 12:36 / cmm
Nitrogen, Total	0.08	mg/L		0.04		A4500 N-C	08/27/19 10:11 / cmm
Phosphorus, Total as P	0.007	mg/L		0.003		E365.1	08/26/19 16:21 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/24/19 04:34 / sld
Calcium	43	mg/L		1		E200.7	08/27/19 07:09 / sld
Magnesium	11	mg/L		1		E200.7	08/27/19 07:09 / sld
Potassium	1	mg/L		1		E200.7	08/27/19 07:09 / sld
Sodium	2	mg/L		1		E200.7	08/27/19 07:09 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 17:04 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 17:04 / dck
Barium	0.102	mg/L		0.003		E200.8	08/29/19 17:04 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 17:04 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 17:04 / dck
Chromium	ND	mg/L		0.01		E200.8	08/29/19 17:04 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 17:04 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 17:04 / dck
Iron	0.11	mg/L		0.02		E200.8	08/29/19 17:04 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 17:04 / dck
Manganese	0.009	mg/L		0.005		E200.8	08/29/19 17:04 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 11:22 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 17:04 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 17:04 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/29/19 17:04 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 17:04 / dck
Strontium	0.129	mg/L		0.0002		E200.7	08/27/19 04:10 / sld
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 17:04 / dck
Uranium	0.0003	mg/L		0.0002		E200.8	08/29/19 17:04 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 17:04 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (SW)  
**Lab ID:** H19080621-008  
**Client Sample ID:** BBC-1908-127

**Report Date:** 09/07/19  
**Collection Date:** 08/21/19 12:35  
**Date Received:** 08/22/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	08/22/19 13:13 / RAT
Solids, Total Dissolved TDS @ 180 C	203	mg/L	D	10		A2540 C	08/22/19 13:49 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	08/22/19 15:35 / SRW
Chloride	1	mg/L		1		E300.0	08/23/19 04:27 / SRW
Sulfate	6	mg/L		1		E300.0	08/23/19 04:27 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	08/22/19 13:48 / SRW
Hardness as CaCO3	179	mg/L		1		A2340 B	08/27/19 10:29 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.01	mg/L		0.01		E353.2	08/23/19 12:37 / cmm
Nitrogen, Total	0.07	mg/L		0.04		A4500 N-C	08/27/19 10:12 / cmm
Phosphorus, Total as P	0.003	mg/L		0.003		E365.1	08/27/19 08:49 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/24/19 04:37 / sld
Calcium	51	mg/L		1		E200.7	08/27/19 07:13 / sld
Magnesium	13	mg/L		1		E200.7	08/27/19 07:13 / sld
Potassium	1	mg/L		1		E200.7	08/27/19 07:13 / sld
Sodium	2	mg/L		1		E200.7	08/27/19 07:13 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 17:07 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 17:07 / dck
Barium	0.076	mg/L		0.003		E200.8	08/29/19 17:07 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 17:07 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 17:07 / dck
Chromium	ND	mg/L		0.01		E200.8	08/29/19 17:07 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 17:07 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 17:07 / dck
Iron	0.08	mg/L		0.02		E200.8	08/29/19 17:07 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 17:07 / dck
Manganese	0.007	mg/L		0.005		E200.8	08/29/19 17:07 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 11:25 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 17:07 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 17:07 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/29/19 17:07 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 17:07 / dck
Strontium	0.150	mg/L		0.0002		E200.7	08/27/19 04:14 / sld
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 17:07 / dck
Uranium	0.0004	mg/L		0.0002		E200.8	08/29/19 17:07 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 17:07 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (SW)  
**Lab ID:** H19080621-009  
**Client Sample ID:** BBC-1908-128

**Report Date:** 09/07/19  
**Collection Date:** 08/21/19 13:15  
**Date Received:** 08/22/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	08/22/19 13:13 / RAT
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	D	10		A2540 C	08/22/19 13:52 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	08/22/19 15:42 / SRW
Chloride	ND	mg/L		1		E300.0	08/23/19 04:42 / SRW
Sulfate	ND	mg/L		1		E300.0	08/23/19 04:42 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	08/22/19 13:56 / SRW
Hardness as CaCO3	ND	mg/L		1		A2340 B	08/27/19 10:29 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	08/23/19 12:41 / cmm
Nitrogen, Total	ND	mg/L		0.04		A4500 N-C	08/27/19 10:16 / cmm
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	08/27/19 08:52 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/24/19 04:39 / sld
Calcium	ND	mg/L		1		E200.7	08/27/19 07:17 / sld
Magnesium	ND	mg/L		1		E200.7	08/27/19 07:17 / sld
Potassium	ND	mg/L		1		E200.7	08/27/19 07:17 / sld
Sodium	ND	mg/L		1		E200.7	08/27/19 07:17 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 17:25 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 17:25 / dck
Barium	ND	mg/L		0.003		E200.8	08/29/19 17:25 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 17:25 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 17:25 / dck
Chromium	ND	mg/L		0.01		E200.8	08/29/19 17:25 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 17:25 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 17:25 / dck
Iron	ND	mg/L		0.02		E200.8	08/29/19 17:25 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 17:25 / dck
Manganese	ND	mg/L		0.005		E200.8	08/29/19 17:25 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 11:28 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 17:25 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 17:25 / dck
Selenium	ND	mg/L		0.0002		E200.8	08/29/19 17:25 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 17:25 / dck
Strontium	ND	mg/L		0.0002		E200.7	08/27/19 04:18 / sld
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 17:25 / dck
Uranium	ND	mg/L		0.0002		E200.8	08/29/19 17:25 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 17:25 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19080621

**Report Date:** 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A2320 B										Batch: R147096
<b>Lab ID:</b> MBLK		Method Blank								Run: PHSC_101-H_190822A 08/22/19 14:07
Alkalinity, Total as CaCO3		ND	mg/L	2						
<b>Lab ID:</b> LCS		Laboratory Control Sample								Run: PHSC_101-H_190822A 08/22/19 14:11
Alkalinity, Total as CaCO3		600	mg/L	4.0	100	90	110			
<b>Lab ID:</b> H19080618-021ADUP		Sample Duplicate								Run: PHSC_101-H_190822A 08/22/19 14:30
Alkalinity, Total as CaCO3		120	mg/L	4.0				0.6	10	
<b>Lab ID:</b> H19080622-008ADUP		Sample Duplicate								Run: PHSC_101-H_190822A 08/22/19 16:37
Alkalinity, Total as CaCO3		200	mg/L	4.0				1.8	10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19080621

**Report Date:** 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>										
Batch: TDS190822A										
<b>Lab ID: MB-25_190822A</b>		Method Blank								
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
							Run: ACCU-124 (14410200)_19082			08/22/19 13:47
<b>Lab ID: LCS-26_190822A</b>		Laboratory Control Sample								
Solids, Total Dissolved TDS @ 180 C		2000	mg/L	20	100	90	110			
							Run: ACCU-124 (14410200)_19082			08/22/19 13:48
<b>Lab ID: H19080621-001A DUP</b>		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		208	mg/L	10				0.5	5	
							Run: ACCU-124 (14410200)_19082			08/22/19 13:48
<b>Lab ID: H19080622-002A DUP</b>		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		233	mg/L	10				0.4	5	
							Run: ACCU-124 (14410200)_19082			08/22/19 13:53

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19080621

**Report Date:** 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 D</b>										
Batch: TSS190822A										
<b>Lab ID: MB-1_190822A</b>		Method Blank								
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
								Run: ACCU-124 (14410200)_19082	08/22/19 13:11	
<b>Lab ID: LCS-2_190822A</b>		Laboratory Control Sample								
Solids, Total Suspended TSS @ 105 C		93.0	mg/L	10	93	80	120			
								Run: ACCU-124 (14410200)_19082	08/22/19 13:11	
<b>Lab ID: H19080621-001ADUP</b>		Sample Duplicate								
Solids, Total Suspended TSS @ 105 C		5.20	mg/L	10						5
								Run: ACCU-124 (14410200)_19082	08/22/19 13:12	
<b>Lab ID: H19080622-002ADUP</b>		Sample Duplicate								
Solids, Total Suspended TSS @ 105 C		2.00	mg/L	10						5
								Run: ACCU-124 (14410200)_19082	08/22/19 13:14	

- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19080621

**Report Date:** 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500 N-C</b>								Analytical Run: FIA203-HE_190827C		
<b>Lab ID: ICB</b>	Initial Calibration Blank, Instrument Blank									
Nitrogen, Total		-0.00675	mg/L	0.10		0	0			08/27/19 09:48
<b>Lab ID: CCV</b>								Continuing Calibration Verification Standard		
Nitrogen, Total		0.504	mg/L	0.10	101	90	110			08/27/19 09:49
<b>Method: A4500 N-C</b>								Batch: 47449		
<b>Lab ID: LFB</b>	Laboratory Fortified Blank									
Nitrogen, Total		0.997	mg/L	0.10	100	90	110			08/27/19 09:51
<b>Lab ID: MB-47449</b>	Method Blank									
Nitrogen, Total		ND	mg/L	0.03						08/27/19 09:52
<b>Lab ID: LCS-47449</b>	Laboratory Control Sample									
Nitrogen, Total		7.65	mg/L	0.30	103	90	110			08/27/19 09:53
<b>Lab ID: H19080621-008AMS</b>	Sample Matrix Spike									
Nitrogen, Total		1.04	mg/L	0.10	97	90	110			08/27/19 10:14
<b>Lab ID: H19080621-008AMSD</b>	Sample Matrix Spike Duplicate									
Nitrogen, Total		1.03	mg/L	0.10	96	90	110	1.0	20	08/27/19 10:15

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19080621

**Report Date:** 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> A4500-F C										Analytical Run: MANTECH 2_190822A	
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								08/22/19 10:52	
Fluoride		0.7	mg/L	0.1	97	90	110				
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								08/22/19 12:42	
Fluoride		1.0	mg/L	0.1	98	90	110				
<b>Lab ID:</b> CCV 1		Continuing Calibration Verification Standard								08/22/19 13:40	
Fluoride		1.0	mg/L	0.1	97	90	110				
<b>Method:</b> A4500-F C										Batch: R147145	
<b>Lab ID:</b> MBLK		Method Blank								Run: MANTECH 2_190822A	08/22/19 10:56
Fluoride		ND	mg/L	0.03							
<b>Lab ID:</b> H19080618-021AMS		Sample Matrix Spike								Run: MANTECH 2_190822A	08/22/19 12:55
Fluoride		1.0	mg/L	0.1	93	85	115				
<b>Lab ID:</b> H19080618-022ADUP		Sample Duplicate								Run: MANTECH 2_190822A	08/22/19 13:03
Fluoride		0.0	mg/L	0.1						10	
<b>Lab ID:</b> H19080621-008ADUP		Sample Duplicate								Run: MANTECH 2_190822A	08/22/19 13:52
Fluoride		0.1	mg/L	0.1						10	
<b>Lab ID:</b> H19080622-009AMS		Sample Matrix Spike								Run: MANTECH 2_190822A	08/22/19 14:46
Fluoride		1.2	mg/L	0.1	96	85	115				

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.





# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080621

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Analytical Run: ICP2-HE_190826C										
<b>Lab ID: ICV</b>	5	Initial Calibration Verification Standard								08/26/19 16:03
Calcium		40.1	mg/L	1.0	100	95	105			
Magnesium		39.7	mg/L	1.0	99	95	105			
Potassium		40.7	mg/L	1.0	102	95	105			
Sodium		40.8	mg/L	1.0	102	95	105			
Strontium		0.809	mg/L	0.10	101	95	105			
<b>Lab ID: CCV-1</b>	5	Continuing Calibration Verification Standard								08/26/19 16:11
Calcium		25.6	mg/L	1.0	103	95	105			
Magnesium		24.8	mg/L	1.0	99	95	105			
Potassium		25.2	mg/L	1.0	101	95	105			
Sodium		25.1	mg/L	1.0	101	95	105			
Strontium		2.56	mg/L	0.10	102	95	105			
<b>Lab ID: ICSA</b>	5	Interference Check Sample A								08/26/19 16:24
Calcium		519	mg/L	1.0	104	80	120			
Magnesium		562	mg/L	1.0	112	80	120			
Potassium		0.00544	mg/L	1.0		0	0			
Sodium		-0.00119	mg/L	1.0		0	0			
Strontium		-0.0310	mg/L	0.10		0	0			
<b>Lab ID: ICSAB</b>	5	Interference Check Sample AB								08/26/19 16:28
Calcium		516	mg/L	1.0	103	80	120			
Magnesium		559	mg/L	1.0	112	80	120			
Potassium		19.7	mg/L	1.0	99	80	120			
Sodium		19.2	mg/L	1.0	96	80	120			
Strontium		0.998	mg/L	0.10	100	80	120			
<b>Lab ID: CCV</b>	5	Continuing Calibration Verification Standard								08/27/19 02:49
Calcium		24.9	mg/L	1.0	100	90	110			
Magnesium		24.8	mg/L	1.0	99	90	110			
Potassium		25.5	mg/L	1.0	102	90	110			
Sodium		25.6	mg/L	1.0	102	90	110			
Strontium		2.52	mg/L	0.10	101	90	110			
<b>Lab ID: CCV</b>	5	Continuing Calibration Verification Standard								08/27/19 03:38
Calcium		26.5	mg/L	1.0	106	90	110			
Magnesium		25.9	mg/L	1.0	104	90	110			
Potassium		24.6	mg/L	1.0	99	90	110			
Sodium		24.2	mg/L	1.0	97	90	110			
Strontium		2.46	mg/L	0.10	98	90	110			
<b>Lab ID: CCV</b>	5	Continuing Calibration Verification Standard								08/27/19 05:43
Calcium		26.2	mg/L	1.0	105	90	110			
Magnesium		25.4	mg/L	1.0	102	90	110			
Potassium		24.7	mg/L	1.0	99	90	110			
Sodium		24.5	mg/L	1.0	98	90	110			
Strontium		2.53	mg/L	0.10	101	90	110			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080621

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.7</b> <span style="float: right;">Analytical Run: ICP2-HE_190826C</span>											
<b>Lab ID: CCV</b>	5	Continuing Calibration Verification Standard								08/27/19 06:33	
Calcium		25.9	mg/L	1.0	103	90	110				
Magnesium		25.2	mg/L	1.0	101	90	110				
Potassium		25.4	mg/L	1.0	102	90	110				
Sodium		25.2	mg/L	1.0	101	90	110				
Strontium		2.54	mg/L	0.10	102	90	110				
<b>Method: E200.7</b> <span style="float: right;">Batch: 47389</span>											
<b>Lab ID: MB-47389</b>		Method Blank								Run: ICP2-HE_190826C	08/27/19 03:13
Strontium		ND	mg/L	0.0002							
<b>Lab ID: LCS-47389</b>		Laboratory Control Sample								Run: ICP2-HE_190826C	08/27/19 03:18
Strontium		0.478	mg/L	0.010	96	85	115				
<b>Lab ID: H19080621-002CDIL</b>		Serial Dilution								Run: ICP2-HE_190826C	08/27/19 03:30
Strontium		0.117	mg/L	0.010		0	0	5.1	10		
<b>Lab ID: H19080621-002CMS3</b>		Sample Matrix Spike								Run: ICP2-HE_190826C	08/27/19 03:46
Strontium		0.597	mg/L	0.010	95	70	130				
<b>Lab ID: H19080621-002CMSD</b>		Sample Matrix Spike Duplicate								Run: ICP2-HE_190826C	08/27/19 03:50
Strontium		0.597	mg/L	0.010	95	70	130	0.1	20		
<b>Lab ID: H19080621-009CDIL</b>		Serial Dilution								Run: ICP2-HE_190826C	08/27/19 04:22
Strontium		ND	mg/L	0.010		0	0		10		
<b>Lab ID: H19080621-009CMS3</b>		Sample Matrix Spike								Run: ICP2-HE_190826C	08/27/19 04:39
Strontium		0.478	mg/L	0.010	96	70	130				
<b>Lab ID: H19080621-009CMSD</b>		Sample Matrix Spike Duplicate								Run: ICP2-HE_190826C	08/27/19 04:43
Strontium		0.476	mg/L	0.010	95	70	130	0.2	20		
<b>Method: E200.7</b> <span style="float: right;">Batch: R147244</span>											
<b>Lab ID: MB</b>	4	Method Blank								Run: ICP2-HE_190826C	08/26/19 16:36
Calcium		ND	mg/L	0.07							
Magnesium		ND	mg/L	0.01							
Potassium		ND	mg/L	0.06							
Sodium		ND	mg/L	0.02							
<b>Lab ID: LFB</b>	4	Laboratory Fortified Blank								Run: ICP2-HE_190826C	08/26/19 16:40
Calcium		54.8	mg/L	1.0	110	85	115				
Magnesium		53.6	mg/L	1.0	107	85	115				
Potassium		51.6	mg/L	1.0	103	85	115				
Sodium		50.9	mg/L	1.0	102	85	115				
<b>Lab ID: H19080621-001BMS2</b>	4	Sample Matrix Spike								Run: ICP2-HE_190826C	08/27/19 06:40
Calcium		92.3	mg/L	1.0	86	70	130				
Magnesium		69.2	mg/L	1.0	98	70	130				
Potassium		55.6	mg/L	1.0	108	70	130				
Sodium		58.0	mg/L	1.0	111	70	130				

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19080621

**Report Date:** 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Batch: R147244										
<b>Lab ID:</b> H19080621-001BMS2	4	Sample Matrix Spike								
										Run: ICP2-HE_190826C 08/27/19 06:40
<b>Lab ID:</b> H19080621-001BMSD	4	Sample Matrix Spike Duplicate								Run: ICP2-HE_190826C 08/27/19 06:44
Calcium		90.4	mg/L	1.0	83	70	130	2.1	20	
Magnesium		67.8	mg/L	1.0	95	70	130	2.1	20	
Potassium		54.3	mg/L	1.0	106	70	130	2.5	20	
Sodium		56.6	mg/L	1.0	108	70	130	2.4	20	
<b>Lab ID:</b> H19080622-002BMS2	4	Sample Matrix Spike								Run: ICP2-HE_190826C 08/27/19 07:41
Calcium		102	mg/L	1.0	96	70	130			
Magnesium		70.6	mg/L	1.0	100	70	130			
Potassium		54.8	mg/L	1.0	108	70	130			
Sodium		56.9	mg/L	1.0	111	70	130			
<b>Lab ID:</b> H19080622-002BMSD	4	Sample Matrix Spike Duplicate								Run: ICP2-HE_190826C 08/27/19 07:45
Calcium		103	mg/L	1.0	99	70	130	1.3	20	
Magnesium		71.1	mg/L	1.0	101	70	130	0.7	20	
Potassium		55.0	mg/L	1.0	108	70	130	0.4	20	
Sodium		56.7	mg/L	1.0	110	70	130	0.4	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19080621

**Report Date:** 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E200.8										Analytical Run: ICPMS205-H_190823B
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								08/23/19 23:24
Aluminum		0.301	mg/L	0.10	100	90	110			
<b>Lab ID:</b> ICSA		Interference Check Sample A								08/23/19 23:27
Aluminum		39.9	mg/L	0.10	100	70	130			
<b>Lab ID:</b> ICSAB		Interference Check Sample AB								08/23/19 23:29
Aluminum		38.8	mg/L	0.10	97	70	130			
<b>Method:</b> E200.8										Batch: R147192
<b>Lab ID:</b> LRB		Method Blank								08/23/19 23:40
Aluminum		ND	mg/L	0.003						Run: ICPMS205-H_190823B
<b>Lab ID:</b> LFB		Laboratory Fortified Blank								08/23/19 23:43
Aluminum		0.0505	mg/L	0.10	101	85	115			Run: ICPMS205-H_190823B
<b>Lab ID:</b> H19080621-002BMS		Sample Matrix Spike								08/24/19 04:18
Aluminum		0.0502	mg/L	0.030	100	70	130			Run: ICPMS205-H_190823B
<b>Lab ID:</b> H19080621-002BMSD		Sample Matrix Spike Duplicate								08/24/19 04:21
Aluminum		0.0518	mg/L	0.030	104	70	130	3.1	20	Run: ICPMS205-H_190823B

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080621

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>		Analytical Run: ICPMS205-H_190829B								
<b>Lab ID: ICV</b>	18 Initial Calibration Verification Standard									08/29/19 13:18
Antimony		0.0613	mg/L	0.050	102	90	110			
Arsenic		0.0616	mg/L	0.0050	103	90	110			
Barium		0.0620	mg/L	0.10	103	90	110			
Beryllium		0.0294	mg/L	0.0010	98	90	110			
Cadmium		0.0308	mg/L	0.0010	103	90	110			
Chromium		0.0623	mg/L	0.010	104	90	110			
Cobalt		0.0622	mg/L	0.010	104	90	110			
Copper		0.0622	mg/L	0.010	104	90	110			
Iron		0.321	mg/L	0.020	107	90	110			
Lead		0.0591	mg/L	0.010	98	90	110			
Manganese		0.318	mg/L	0.010	106	90	110			
Molybdenum		0.0609	mg/L	0.0050	102	90	110			
Nickel		0.0623	mg/L	0.010	104	90	110			
Selenium		0.0612	mg/L	0.0050	102	90	110			
Silver		0.0307	mg/L	0.0050	102	90	110			
Thallium		0.0594	mg/L	0.10	99	90	110			
Uranium		0.0579	mg/L	0.00030	96	90	110			
Zinc		0.0635	mg/L	0.010	106	90	110			
<b>Lab ID: ICSA</b>	18 Interference Check Sample A									08/29/19 13:20
Antimony		0.000191	mg/L	0.050						
Arsenic		8.39E-06	mg/L	0.0050						
Barium		0.000162	mg/L	0.10						
Beryllium		-4.84E-05	mg/L	0.0010						
Cadmium		7.91E-05	mg/L	0.0010						
Chromium		0.000162	mg/L	0.010						
Cobalt		0.000271	mg/L	0.010						
Copper		4.47E-05	mg/L	0.010						
Iron		102	mg/L	0.020	102	70	130			
Lead		8.65E-05	mg/L	0.010						
Manganese		0.000298	mg/L	0.010						
Molybdenum		0.888	mg/L	0.0050	111	70	130			
Nickel		9.66E-05	mg/L	0.010						
Selenium		0.000146	mg/L	0.0050						
Silver		1.98E-05	mg/L	0.0050						
Thallium		2.55E-05	mg/L	0.10						
Uranium		6.85E-06	mg/L	0.00030						
Zinc		0.000201	mg/L	0.010						
<b>Lab ID: ICSAB</b>	18 Interference Check Sample AB									08/29/19 13:22
Antimony		0.000167	mg/L	0.050		0	0			
Arsenic		0.0102	mg/L	0.0050	102	70	130			
Barium		0.000209	mg/L	0.10		0	0			
Beryllium		-3.48E-05	mg/L	0.0010		0	0			
Cadmium		0.0108	mg/L	0.0010	107	70	130			
Chromium		0.0217	mg/L	0.010	108	70	130			

**Qualifiers:**

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ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080621

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>		Analytical Run: ICPMS205-H_190829B									
<b>Lab ID: ICSAB</b>	18	Interference Check Sample AB							08/29/19 13:22		
Cobalt		0.0214	mg/L	0.010	107	70	130				
Copper		0.0207	mg/L	0.010	104	70	130				
Iron		104	mg/L	0.020	104	70	130				
Lead		8.33E-05	mg/L	0.010		0	0				
Manganese		0.0220	mg/L	0.010	110	70	130				
Molybdenum		0.897	mg/L	0.0050	112	70	130				
Nickel		0.0211	mg/L	0.010	105	70	130				
Selenium		0.0101	mg/L	0.0050	101	70	130				
Silver		0.00524	mg/L	0.0050	105	70	130				
Thallium		1.66E-05	mg/L	0.10		0	0				
Uranium		2.33E-06	mg/L	0.00030		0	0				
Zinc		0.0117	mg/L	0.010	117	70	130				

<b>Method: E200.8</b>		Batch: 47389									
<b>Lab ID: MB-47389</b>	18	Method Blank							Run: ICPMS205-H_190829B 08/29/19 16:48		
Antimony		ND	mg/L	0.0001							
Arsenic		8E-05	mg/L	4E-05							
Barium		ND	mg/L	9E-05							
Beryllium		ND	mg/L	6E-05							
Cadmium		ND	mg/L	3E-05							
Chromium		0.0001	mg/L	0.0001							
Cobalt		ND	mg/L	6E-05							
Copper		ND	mg/L	0.0002							
Iron		ND	mg/L	0.004							
Lead		ND	mg/L	4E-05							
Manganese		ND	mg/L	0.0003							
Molybdenum		5E-05	mg/L	2E-05							
Nickel		ND	mg/L	0.0001							
Selenium		0.0001	mg/L	5E-05							
Silver		1E-05	mg/L	9E-06							
Thallium		ND	mg/L	4E-05							
Uranium		ND	mg/L	9E-06							
Zinc		ND	mg/L	0.001							

<b>Lab ID: LCS-47389</b>	18	Laboratory Control Sample							Run: ICPMS205-H_190829B 08/29/19 17:09		
Antimony		0.517	mg/L	0.0010	103	85	115				
Arsenic		0.466	mg/L	0.0010	93	85	115				
Barium		0.483	mg/L	0.050	97	85	115				
Beryllium		0.227	mg/L	0.0010	91	85	115				
Cadmium		0.241	mg/L	0.0010	96	85	115				
Chromium		0.474	mg/L	0.0050	95	85	115				
Cobalt		0.491	mg/L	0.0050	98	85	115				
Copper		0.462	mg/L	0.0050	92	85	115				
Iron		2.44	mg/L	0.020	98	85	115				
Lead		0.484	mg/L	0.0010	97	85	115				
Manganese		2.44	mg/L	0.0010	97	85	115				

**Qualifiers:**

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# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080621

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: 47389										
<b>Lab ID: LCS-47389</b>	18 Laboratory Control Sample				Run: ICPMS205-H_190829B			08/29/19 17:09		
Molybdenum		0.504	mg/L	0.0010	101	85	115			
Nickel		0.462	mg/L	0.0050	92	85	115			
Selenium		0.477	mg/L	0.0010	95	85	115			
Silver		0.0474	mg/L	0.0010	95	85	115			
Thallium		0.486	mg/L	0.00050	97	85	115			
Uranium		0.479	mg/L	0.00030	96	85	115			
Zinc		0.466	mg/L	0.010	93	85	115			
<b>Lab ID: H19080621-002CMS3</b>	18 Sample Matrix Spike				Run: ICPMS205-H_190829B			08/29/19 17:11		
Antimony		0.511	mg/L	0.0010	102	70	130			
Arsenic		0.478	mg/L	0.0010	96	70	130			
Barium		0.664	mg/L	0.050	98	70	130			
Beryllium		0.227	mg/L	0.0010	91	70	130			
Cadmium		0.244	mg/L	0.0010	97	70	130			
Chromium		0.476	mg/L	0.0050	95	70	130			
Cobalt		0.488	mg/L	0.0050	98	70	130			
Copper		0.461	mg/L	0.0050	92	70	130			
Iron		2.49	mg/L	0.020	98	70	130			
Lead		0.492	mg/L	0.0010	98	70	130			
Manganese		2.52	mg/L	0.0010	101	70	130			
Molybdenum		0.498	mg/L	0.0010	100	70	130			
Nickel		0.461	mg/L	0.0050	92	70	130			
Selenium		0.477	mg/L	0.0010	95	70	130			
Silver		0.0476	mg/L	0.0010	95	70	130			
Thallium		0.496	mg/L	0.00050	99	70	130			
Uranium		0.492	mg/L	0.00030	98	70	130			
Zinc		0.466	mg/L	0.010	93	70	130			
<b>Lab ID: H19080621-002CMSD</b>	18 Sample Matrix Spike Duplicate				Run: ICPMS205-H_190829B			08/29/19 17:14		
Antimony		0.507	mg/L	0.0010	101	70	130	0.9	20	
Arsenic		0.477	mg/L	0.0010	95	70	130	0.2	20	
Barium		0.662	mg/L	0.050	98	70	130	0.2	20	
Beryllium		0.226	mg/L	0.0010	91	70	130	0.4	20	
Cadmium		0.243	mg/L	0.0010	97	70	130	0.0	20	
Chromium		0.478	mg/L	0.0050	96	70	130	0.4	20	
Cobalt		0.492	mg/L	0.0050	98	70	130	0.8	20	
Copper		0.461	mg/L	0.0050	92	70	130	0.2	20	
Iron		2.52	mg/L	0.020	99	70	130	1.1	20	
Lead		0.497	mg/L	0.0010	99	70	130	0.8	20	
Manganese		2.54	mg/L	0.0010	102	70	130	0.8	20	
Molybdenum		0.491	mg/L	0.0010	98	70	130	1.4	20	
Nickel		0.463	mg/L	0.0050	93	70	130	0.3	20	
Selenium		0.482	mg/L	0.0010	96	70	130	1.0	20	
Silver		0.0473	mg/L	0.0010	95	70	130	0.6	20	
Thallium		0.500	mg/L	0.00050	100	70	130	0.9	20	
Uranium		0.486	mg/L	0.00030	97	70	130	1.2	20	

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# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080621

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: 47389										
<b>Lab ID:</b>	<b>H19080621-002CMSD</b>	18	Sample Matrix Spike Duplicate							
	Zinc		0.470 mg/L	0.010	94	70	130	0.9	20	
Run: ICPMS205-H_190829B 08/29/19 17:14										
<b>Lab ID:</b>	<b>H19080621-009CMS3</b>	18	Sample Matrix Spike							
	Antimony		0.509 mg/L	0.0010	102	70	130			
	Arsenic		0.482 mg/L	0.0010	96	70	130			
	Barium		0.493 mg/L	0.050	99	70	130			
	Beryllium		0.235 mg/L	0.0010	94	70	130			
	Cadmium		0.249 mg/L	0.0010	100	70	130			
	Chromium		0.492 mg/L	0.0050	98	70	130			
	Cobalt		0.506 mg/L	0.0050	101	70	130			
	Copper		0.474 mg/L	0.0050	95	70	130			
	Iron		2.52 mg/L	0.020	101	70	130			
	Lead		0.510 mg/L	0.0010	102	70	130			
	Manganese		2.61 mg/L	0.0010	104	70	130			
	Molybdenum		0.494 mg/L	0.0010	99	70	130			
	Nickel		0.477 mg/L	0.0050	95	70	130			
	Selenium		0.489 mg/L	0.0010	98	70	130			
	Silver		0.0486 mg/L	0.0010	97	70	130			
	Thallium		0.511 mg/L	0.00050	102	70	130			
	Uranium		0.486 mg/L	0.00030	97	70	130			
	Zinc		0.484 mg/L	0.010	97	70	130			
Run: ICPMS205-H_190829B 08/29/19 17:46										
<b>Lab ID:</b>	<b>H19080621-009CMSD</b>	18	Sample Matrix Spike Duplicate							
	Antimony		0.510 mg/L	0.0010	102	70	130	0.3	20	
	Arsenic		0.473 mg/L	0.0010	95	70	130	2.0	20	
	Barium		0.492 mg/L	0.050	98	70	130	0.2	20	
	Beryllium		0.233 mg/L	0.0010	93	70	130	0.7	20	
	Cadmium		0.248 mg/L	0.0010	99	70	130	0.5	20	
	Chromium		0.478 mg/L	0.0050	96	70	130	2.8	20	
	Cobalt		0.492 mg/L	0.0050	98	70	130	2.8	20	
	Copper		0.463 mg/L	0.0050	93	70	130	2.5	20	
	Iron		2.45 mg/L	0.020	98	70	130	2.7	20	
	Lead		0.495 mg/L	0.0010	99	70	130	2.9	20	
	Manganese		2.54 mg/L	0.0010	101	70	130	2.8	20	
	Molybdenum		0.499 mg/L	0.0010	100	70	130	0.9	20	
	Nickel		0.464 mg/L	0.0050	93	70	130	2.7	20	
	Selenium		0.488 mg/L	0.0010	97	70	130	0.3	20	
	Silver		0.0486 mg/L	0.0010	97	70	130	0.1	20	
	Thallium		0.496 mg/L	0.00050	99	70	130	3.0	20	
	Uranium		0.479 mg/L	0.00030	96	70	130	1.6	20	
	Zinc		0.472 mg/L	0.010	94	70	130	2.6	20	

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19080621

**Report Date:** 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> E200.8										Analytical Run: ICPMS205-H_190830B	
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								08/30/19 10:54	
Selenium		0.0604	mg/L	0.0050	101	90	110				
<b>Lab ID:</b> ICSA		Interference Check Sample A								08/30/19 10:57	
Selenium		0.000137	mg/L	0.0050							
<b>Lab ID:</b> ICSAB		Interference Check Sample AB								08/30/19 10:59	
Selenium		0.0103	mg/L	0.0050	103	70	130				
<b>Method:</b> E200.8										Batch: 47389	
<b>Lab ID:</b> MB-47389	4	Method Blank								Run: ICPMS205-H_190830B	08/30/19 11:41
Arsenic		ND	mg/L	4E-05							
Cadmium		ND	mg/L	3E-05							
Iron		ND	mg/L	0.004							
Selenium		5E-05	mg/L	5E-05							

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19080621

**Report Date:** 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E245.1										Analytical Run: HGCV203-H_190828A
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								08/28/19 10:25
Mercury		0.103	ug/L	0.0050	103	90	110			
<b>Lab ID:</b> CCV1		Continuing Calibration Verification Standard								08/28/19 10:29
Mercury		0.103	ug/L	0.0050	103	95	105			
<b>Method:</b> E245.1										Batch: 47457
<b>Lab ID:</b> MB-47257		Method Blank								08/28/19 10:36
Mercury		ND	ug/L	0.001						Run: HGCV203-H_190828A
<b>Lab ID:</b> LCS-47257		Laboratory Control Sample								08/28/19 10:39
Mercury		0.0508	ug/L	0.0050	102	90	110			Run: HGCV203-H_190828A
<b>Lab ID:</b> H19080621-001CMS		Sample Matrix Spike								08/28/19 10:53
Mercury		0.0553	ug/L	0.0050	103	70	130			Run: HGCV203-H_190828A
<b>Lab ID:</b> H19080621-001CMSD		Sample Matrix Spike Duplicate								08/28/19 10:56
Mercury		0.0514	ug/L	0.0050	95	70	130	7.2	20	Run: HGCV203-H_190828A
<b>Lab ID:</b> H19080622-007BMS		Sample Matrix Spike								08/28/19 12:01
Mercury		0.0530	ug/L	0.0050	104	70	130			Run: HGCV203-H_190828A
<b>Lab ID:</b> H19080622-007BMSD		Sample Matrix Spike Duplicate								08/28/19 12:04
Mercury		0.0534	ug/L	0.0050	104	70	130	0.7	20	Run: HGCV203-H_190828A

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080621

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E300.0</b>										Analytical Run: IC METROHM_190822A	
<b>Lab ID: ICV</b>	2	Initial Calibration Verification Standard								08/22/19 14:12	
Chloride		103	mg/L	1.0	103	90	110				
Sulfate		409	mg/L	1.0	102	90	110				
<b>Lab ID: CCV</b>	2	Continuing Calibration Verification Standard								08/23/19 01:48	
Chloride		52.9	mg/L	1.0	106	90	110				
Sulfate		216	mg/L	1.0	108	90	110				
<b>Method: E300.0</b>										Batch: R147189	
<b>Lab ID: ICB</b>	2	Method Blank								Run: IC METROHM_190822A	08/22/19 13:57
Chloride		ND	mg/L	0.02							
Sulfate		ND	mg/L	0.08							
<b>Lab ID: LFB</b>	2	Laboratory Fortified Blank								Run: IC METROHM_190822A	08/22/19 14:26
Chloride		25.2	mg/L	1.0	101	90	110				
Sulfate		105	mg/L	1.0	105	90	110				
<b>Lab ID: H19080618-021AMS</b>	2	Sample Matrix Spike								Run: IC METROHM_190822A	08/23/19 01:19
Chloride		27.4	mg/L	1.0	101	90	110				
Sulfate		232	mg/L	1.0	100	90	110				
<b>Lab ID: H19080618-021AMSD</b>	2	Sample Matrix Spike Duplicate								Run: IC METROHM_190822A	08/23/19 01:34
Chloride		27.3	mg/L	1.0	101	90	110	0.3	20		
Sulfate		233	mg/L	1.0	100	90	110	0.1	20		
<b>Lab ID: H19080621-009AMS</b>	2	Sample Matrix Spike								Run: IC METROHM_190822A	08/23/19 04:56
Chloride		25.1	mg/L	1.0	100	90	110				
Sulfate		103	mg/L	1.0	103	90	110				
<b>Lab ID: H19080621-009AMSD</b>	2	Sample Matrix Spike Duplicate								Run: IC METROHM_190822A	08/23/19 05:11
Chloride		24.8	mg/L	1.0	99	90	110	1.2	20		
Sulfate		102	mg/L	1.0	102	90	110	0.7	20		

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080621

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E353.2</b>										Analytical Run: FIA203-HE_190823A
<b>Lab ID: ICV</b>		Initial Calibration Verification Standard								08/23/19 10:40
Nitrogen, Nitrate+Nitrite as N		0.937	mg/L	0.010	94	90	110			
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								08/23/19 12:22
Nitrogen, Nitrate+Nitrite as N		0.535	mg/L	0.010	107	90	110			
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								08/23/19 12:38
Nitrogen, Nitrate+Nitrite as N		0.539	mg/L	0.010	108	90	110			
<b>Method: E353.2</b>										Batch: R147158
<b>Lab ID: MBLK</b>		Method Blank								08/23/19 10:41
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009						Run: FIA203-HE_190823A
<b>Lab ID: LFB</b>		Laboratory Fortified Blank								08/23/19 10:43
Nitrogen, Nitrate+Nitrite as N		1.01	mg/L	0.011	101	90	110			Run: FIA203-HE_190823A
<b>Lab ID: H19080619-001DMS</b>		Sample Matrix Spike								08/23/19 12:25
Nitrogen, Nitrate+Nitrite as N		1.08	mg/L	0.011	108	90	110			Run: FIA203-HE_190823A
<b>Lab ID: H19080619-001DMSD</b>		Sample Matrix Spike Duplicate								08/23/19 12:26
Nitrogen, Nitrate+Nitrite as N		1.10	mg/L	0.011	110	90	110	1.9	10	Run: FIA203-HE_190823A
<b>Lab ID: H19080621-009DMS</b>		Sample Matrix Spike								08/23/19 12:42
Nitrogen, Nitrate+Nitrite as N		1.07	mg/L	0.011	107	90	110			Run: FIA203-HE_190823A
<b>Lab ID: H19080621-009DMSD</b>		Sample Matrix Spike Duplicate								08/23/19 12:43
Nitrogen, Nitrate+Nitrite as N		1.10	mg/L	0.011	110	90	110	2.6	10	Run: FIA203-HE_190823A

**Qualifiers:**

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# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080621

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E365.1</b> Analytical Run: FIA202-HE_190826C											
<b>Lab ID: ICV</b>		Initial Calibration Verification Standard									08/26/19 15:42
Phosphorus, Total as P		0.238	mg/L	0.010	95	90	110				
<b>Lab ID: ICB</b>		Initial Calibration Blank, Instrument Blank									08/26/19 15:43
Phosphorus, Total as P		0.000590	mg/L	0.010		0	0				
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard									08/26/19 16:08
Phosphorus, Total as P		0.102	mg/L	0.010	102	90	110				
<b>Method: E365.1</b> Batch: 47440											
<b>Lab ID: MB-47440</b>		Method Blank									Run: FIA202-HE_190826C 08/26/19 15:44
Phosphorus, Total as P		ND	mg/L	0.002							
<b>Lab ID: LCS-47440</b>		Laboratory Control Sample									Run: FIA202-HE_190826C 08/26/19 15:45
Phosphorus, Total as P		0.400	mg/L	0.010	100	90	110				
<b>Lab ID: H19080610-004EMS</b>		Sample Matrix Spike									Run: FIA202-HE_190826C 08/26/19 16:10
Phosphorus, Total as P		0.236	mg/L	0.010	110	90	110				
<b>Lab ID: H19080610-004EMSD</b>		Sample Matrix Spike Duplicate									Run: FIA202-HE_190826C 08/26/19 16:11
Phosphorus, Total as P		0.235	mg/L	0.010	109	90	110	0.8	20		
<b>Method: E365.1</b> Batch: 47441											
<b>Lab ID: MB-47441</b>		Method Blank									Run: FIA202-HE_190826C 08/26/19 15:47
Phosphorus, Total as P		ND	mg/L	0.002							
<b>Lab ID: LCS-47441</b>		Laboratory Control Sample									Run: FIA202-HE_190826C 08/26/19 15:48
Phosphorus, Total as P		0.404	mg/L	0.010	101	90	110				
<b>Method: E365.1</b> Analytical Run: FIA202-HE_190827A											
<b>Lab ID: ICV</b>		Initial Calibration Verification Standard									08/27/19 08:46
Phosphorus, Total as P		0.243	mg/L	0.010	97	90	110				
<b>Lab ID: ICB</b>		Initial Calibration Blank, Instrument Blank									08/27/19 08:47
Phosphorus, Total as P		0.000350	mg/L	0.010		0	0				
<b>Method: E365.1</b> Batch: 47441											
<b>Lab ID: H19080621-008DMS</b>		Sample Matrix Spike									Run: FIA202-HE_190827A 08/27/19 08:50
Phosphorus, Total as P		0.207	mg/L	0.010	102	90	110				
<b>Lab ID: H19080621-008DMSD</b>		Sample Matrix Spike Duplicate									Run: FIA202-HE_190827A 08/27/19 08:51
Phosphorus, Total as P		0.210	mg/L	0.010	103	90	110	1.3	20		

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# Work Order Receipt Checklist

Tintina Resources Inc

H19080621

Login completed by: Jessica C. Smith

Date Received: 8/22/2019

Reviewed by: BL2000\rtooke

Received by: JCS

Reviewed Date: 8/30/2019

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	0.4°C On Ice		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

---

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

---

## Contact and Corrective Action Comments:

None

**CHAIN OF CUSTODY RECORD**



**Hydrometrics, Inc.**

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

PROJ. NO. 18049

PROJECT NAME

Tintina Black Bl. the  
Avg Monthly (5w)

SAMPLERS: (Signature)

*[Signature]*

DATE

TIME

COMP

GRAB

SAMPLE NUMBER

TAINERS

NO. OF CON-

Commons UF / RAW

Nutrients UF / H<sub>2</sub>SO<sub>4</sub>

Diss. Metal F / HNO<sub>3</sub>

CN UF / NaOH

Total Metals UF / HNO<sub>3</sub>

Total Recoverable Metals UF / HNO<sub>3</sub>

BTEX

TPH

Table #6

REMARKS

H19080621

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	TAINERS	NO. OF CON-	Commons UF / RAW	Nutrients UF / H <sub>2</sub> SO <sub>4</sub>	Diss. Metal F / HNO <sub>3</sub>	CN UF / NaOH	Total Metals UF / HNO <sub>3</sub>	Total Recoverable Metals UF / HNO <sub>3</sub>	BTEX	TPH	Table #6	REMARKS	
8/20/19	1550		X	B3C-1908-107	4		X	X	X		X						
8/20/19	1500																
	1100																
	1120																
	1150																
	1215																
	1235																
	1315																

Relinquished (Signature)

*[Signature]*

Date / Time

8/20/19 0805

Received by (Signature)

*[Signature]*

Lab

Energy Lab

P.O.#

B311 Tintina

Shipped via: Bus FedEx UPS

Other Hand Delivered

Air Bill #

Relinquished (Signature)

Date / Time

Received for Laboratory by (Signature)

*[Signature]*

Date / Time

8/20/19 0805

Remarks  
0.4°C ON ICE TB  
HAND DEL

Enclosed:  Parameter sheet w/detection limits

QA / AC standard mixing instructions  Cover letter

Other

Split Samples:

Accepted  Declined

Signature

Return results & electronic copy to:  
QA / QC Dept. at address at top of page

**TABLE 6. PARAMETERS, METHODS, AND DETECTION LIMITS  
FOR SURFACE WATER MONITORING**

Parameter	Analytical Method <sup>(1)</sup>	Project-Required Detection Limit (mg/L)
<b>Physical Parameters</b>		
TDS	SM 2540C	4
TSS	SM 2540C	4
<b>Common Ions</b>		
Alkalinity	SM 2320B	4
Sulfate	300.0	1
Chloride	300.0/SM 4500CL-B	1
Fluoride	A4500-F C	0.1
Calcium	215.1/200.7	1
Magnesium	242.1/200.7	1
Sodium	273.1/200.7	1
Potassium	258.1/200.7	1
<b>Nutrients</b>		
Nitrate+Nitrite as N	353.2	0.003
Total Persulfate Nitrogen	A 4500-N-C	0.04
Total Phosphorus	E365.1	0.003
<b>Trace Constituents (SW - Total Recoverable except Aluminium [Diss])<sup>(2)</sup></b>		
Aluminum (Al)	200.7/200.8	0.009
Antimony (Sb)	200.7/200.8	0.0005
Arsenic (As)	200.8/SM 3114B	0.001
Barium (Ba)	200.7/200.8	0.003
Beryllium (Be)	200.7/200.8	0.0008
Cadmium (Cd)	200.7/200.8	0.00003
Chromium (Cr)	200.7/200.8	0.01
Cobalt (Co)	200.7/200.8	0.01
Copper (Cu)	200.7/200.8	0.002
Iron (Fe)	200.7/200.8	0.02
Lead (Pb)	200.7/200.8	0.0003
Manganese (Mn)	200.7/200.8	0.005
Mercury (Hg)	245.2/245.1/200.8/SM 3112B	0.000005
Molybdenum (Mo)	200.7/200.8	0.002
Nickel (Ni)	200.7/200.8	0.001
Selenium (Se)	200.7/200.8/SM 3114B	0.0002
Silver (Ag)	200.7/200.8	0.0002
Strontium (Sr)	200.7/200.8	0.0002
Thallium (Tl)	200.7/200.8	0.0002
Uranium	200.7/200.8	0.008
Zinc (Zn)	200.7/200.8	0.002
<b>Field Parameters</b>		
Stream Flow	HF-SOP-37/-44/-46	NA
Water Temperature	HF-SOP-20	0.1 °C
Dissolved Oxygen (DO)	HF-SOP-22	0.1 mg/L
pH	HF-SOP-20	0.1 s.u.
Specific Conductance (SC)	HF-SOP-79	1 µmhos/cm

(1) Analytical methods are from *Standard Methods for the Examination of Water and Wastewater* (SM) or EPA's *Methods for Chemical Analysis of Water and Waste* (1983).

(2) Samples to be analyzed for dissolved constituents will be field-filtered through a 0.45 µm filter.





# ANALYTICAL SUMMARY REPORT

September 07, 2019

Tintina Resources Inc  
PO Box 431  
White Sulphur Springs, MT 59645-0431

Work Order: H19080622      Quote ID: H1216  
Project Name: 18049 Black Butte Copper Aug. Monthly (Springs)

Energy Laboratories Inc Helena MT received the following 12 samples for Tintina Resources Inc on 8/22/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H19080622-001	BBC-1908-106	08/20/19 13:20	08/22/19	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Mercury, Dissolved Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Mercury Digestion by E245.1 Solids, Total Dissolved Solids, Total Suspended
H19080622-002	BBC-1908-108	08/20/19 14:15	08/22/19	Groundwater	Same As Above
H19080622-003	BBC-1908-109	08/20/19 14:35	08/22/19	Groundwater	Same As Above
H19080622-004	BBC-1908-111	08/20/19 15:35	08/22/19	Groundwater	Same As Above
H19080622-005	BBC-1908-113	08/20/19 16:15	08/22/19	Groundwater	Same As Above
H19080622-006	BBC-1908-115	08/20/19 17:00	08/22/19	Groundwater	Same As Above
H19080622-007	BBC-1908-117	08/21/19 8:30	08/22/19	Groundwater	Same As Above
H19080622-008	BBC-1908-118	08/21/19 9:00	08/22/19	Groundwater	Same As Above
H19080622-009	BBC-1908-119	08/21/19 9:30	08/22/19	Groundwater	Same As Above
H19080622-010	BBC-1908-120	08/21/19 10:00	08/22/19	Groundwater	Same As Above
H19080622-011	BBC-1908-121	08/21/19 10:20	08/22/19	Groundwater	Same As Above
H19080622-012	BBC-1908-129	08/21/19 14:00	08/22/19	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper Aug. Monthly (Springs)  
**Lab ID:** H19080622-001  
**Client Sample ID:** BBC-1908-106

**Report Date:** 09/07/19  
**Collection Date:** 08/20/19 13:20  
**Date Received:** 08/22/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/22/19 13:14 / RAT
Solids, Total Dissolved TDS @ 180 C	235	mg/L		10		A2540 C	08/22/19 13:53 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	08/22/19 15:47 / SRW
Chloride	ND	mg/L		1		E300.0	08/23/19 06:09 / SRW
Sulfate	15	mg/L		1		E300.0	08/23/19 06:09 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	08/22/19 14:00 / SRW
Hardness as CaCO3	217	mg/L		1		A2340 B	08/27/19 07:29 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.22	mg/L		0.01		E353.2	08/23/19 12:44 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/29/19 18:29 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 18:29 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 18:29 / dck
Barium	0.052	mg/L		0.003		E200.8	08/29/19 18:29 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 18:29 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 18:29 / dck
Calcium	54	mg/L		1		E200.7	08/27/19 07:29 / sld
Chromium	ND	mg/L		0.01		E200.8	08/29/19 18:29 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 18:29 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 18:29 / dck
Iron	ND	mg/L		0.02		E200.8	08/29/19 18:29 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 18:29 / dck
Magnesium	20	mg/L		1		E200.7	08/27/19 07:29 / sld
Manganese	ND	mg/L		0.005		E200.8	08/29/19 18:29 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 11:31 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 18:29 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 18:29 / dck
Potassium	1	mg/L		1		E200.7	08/27/19 07:29 / sld
Selenium	0.0003	mg/L		0.0002		E200.8	08/30/19 12:35 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 18:29 / dck
Sodium	2	mg/L		1		E200.7	08/27/19 07:29 / sld
Strontium	0.113	mg/L		0.0002		E200.8	08/29/19 18:29 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 18:29 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	08/29/19 18:29 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 18:29 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper Aug. Monthly (Springs)  
**Lab ID:** H19080622-002  
**Client Sample ID:** BBC-1908-108

**Report Date:** 09/07/19  
**Collection Date:** 08/20/19 14:15  
**Date Received:** 08/22/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/22/19 13:14 / RAT
Solids, Total Dissolved TDS @ 180 C	232	mg/L		10		A2540 C	08/22/19 13:53 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	08/22/19 15:53 / SRW
Chloride	ND	mg/L		1		E300.0	08/23/19 06:23 / SRW
Sulfate	16	mg/L		1		E300.0	08/23/19 06:23 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	08/22/19 14:04 / SRW
Hardness as CaCO3	219	mg/L		1		A2340 B	08/27/19 07:33 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.22	mg/L		0.01		E353.2	08/23/19 12:46 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/29/19 18:32 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 18:32 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 18:32 / dck
Barium	0.051	mg/L		0.003		E200.8	08/29/19 18:32 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 18:32 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 18:32 / dck
Calcium	54	mg/L		1		E200.7	08/27/19 07:33 / sld
Chromium	ND	mg/L		0.01		E200.8	08/29/19 18:32 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 18:32 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 18:32 / dck
Iron	ND	mg/L		0.02		E200.8	08/29/19 18:32 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 18:32 / dck
Magnesium	20	mg/L		1		E200.7	08/27/19 07:33 / sld
Manganese	ND	mg/L		0.005		E200.8	08/29/19 18:32 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 11:35 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 18:32 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 18:32 / dck
Potassium	ND	mg/L		1		E200.7	08/27/19 07:33 / sld
Selenium	0.0002	mg/L		0.0002		E200.8	08/30/19 12:37 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 18:32 / dck
Sodium	2	mg/L		1		E200.7	08/27/19 07:33 / sld
Strontium	0.108	mg/L		0.0002		E200.8	08/29/19 18:32 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 18:32 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	08/29/19 18:32 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 18:32 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper Aug. Monthly (Springs)  
**Lab ID:** H19080622-003  
**Client Sample ID:** BBC-1908-109

**Report Date:** 09/07/19  
**Collection Date:** 08/20/19 14:35  
**Date Received:** 08/22/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	89	mg/L		10		A2540 D	08/22/19 13:14 / RAT
Solids, Total Dissolved TDS @ 180 C	233	mg/L		10		A2540 C	08/22/19 13:53 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	08/22/19 16:00 / SRW
Chloride	ND	mg/L		1		E300.0	08/23/19 06:38 / SRW
Sulfate	10	mg/L		1		E300.0	08/23/19 06:38 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	08/22/19 14:08 / SRW
Hardness as CaCO3	216	mg/L		1		A2340 B	08/27/19 07:49 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.02	mg/L		0.01		E353.2	08/23/19 12:47 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	0.029	mg/L		0.009		E200.8	08/29/19 18:34 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 18:34 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 18:34 / dck
Barium	0.058	mg/L		0.003		E200.8	08/29/19 18:34 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 18:34 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 18:34 / dck
Calcium	57	mg/L		1		E200.7	08/27/19 07:49 / sld
Chromium	ND	mg/L		0.01		E200.8	08/29/19 18:34 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 18:34 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 18:34 / dck
Iron	ND	mg/L		0.02		E200.8	08/29/19 18:34 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 18:34 / dck
Magnesium	18	mg/L		1		E200.7	08/27/19 07:49 / sld
Manganese	0.017	mg/L		0.005		E200.8	08/29/19 18:34 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 11:38 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 18:34 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 18:34 / dck
Potassium	ND	mg/L		1		E200.7	08/27/19 07:49 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/29/19 18:34 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 18:34 / dck
Sodium	2	mg/L		1		E200.7	08/27/19 07:49 / sld
Strontium	0.136	mg/L		0.0002		E200.8	08/29/19 18:34 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 18:34 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	08/29/19 18:34 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 18:34 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper Aug. Monthly (Springs)  
**Lab ID:** H19080622-004  
**Client Sample ID:** BBC-1908-111

**Report Date:** 09/07/19  
**Collection Date:** 08/20/19 15:35  
**Date Received:** 08/22/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/22/19 13:14 / RAT
Solids, Total Dissolved TDS @ 180 C	58	mg/L		10		A2540 C	08/22/19 13:53 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	23	mg/L		4		A2320 B	08/22/19 16:06 / SRW
Chloride	ND	mg/L		1		E300.0	08/23/19 06:52 / SRW
Sulfate	2	mg/L		1		E300.0	08/23/19 06:52 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	08/22/19 14:12 / SRW
Hardness as CaCO3	21	mg/L		1		A2340 B	08/27/19 07:53 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.30	mg/L		0.01		E353.2	08/23/19 12:48 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	0.892	mg/L		0.009		E200.8	08/29/19 18:36 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 18:36 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 18:36 / dck
Barium	0.267	mg/L		0.003		E200.8	08/29/19 18:36 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 18:36 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 18:36 / dck
Calcium	6	mg/L		1		E200.7	08/27/19 07:53 / sld
Chromium	ND	mg/L		0.01		E200.8	08/29/19 18:36 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 18:36 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 18:36 / dck
Iron	0.41	mg/L		0.02		E200.8	08/29/19 18:36 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 18:36 / dck
Magnesium	2	mg/L		1		E200.7	08/27/19 07:53 / sld
Manganese	ND	mg/L		0.005		E200.8	08/29/19 18:36 / dck
Mercury	0.006	ug/L		0.005		E245.1	08/28/19 11:41 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 18:36 / dck
Nickel	0.003	mg/L		0.001		E200.8	08/29/19 18:36 / dck
Potassium	1	mg/L		1		E200.7	08/27/19 07:53 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/29/19 18:36 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 18:36 / dck
Sodium	1	mg/L		1		E200.7	08/27/19 07:53 / sld
Strontium	0.0292	mg/L		0.0002		E200.8	08/29/19 18:36 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 18:36 / dck
Uranium	ND	mg/L		0.0002		E200.8	08/29/19 18:36 / dck
Zinc	0.004	mg/L		0.002		E200.8	08/29/19 18:36 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper Aug. Monthly (Springs)  
**Lab ID:** H19080622-005  
**Client Sample ID:** BBC-1908-113

**Report Date:** 09/07/19  
**Collection Date:** 08/20/19 16:15  
**Date Received:** 08/22/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	61	mg/L		10		A2540 D	08/22/19 13:15 / RAT
Solids, Total Dissolved TDS @ 180 C	123	mg/L		10		A2540 C	08/22/19 13:54 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	83	mg/L		4		A2320 B	08/22/19 16:13 / SRW
Chloride	1	mg/L		1		E300.0	08/23/19 07:07 / SRW
Sulfate	7	mg/L		1		E300.0	08/23/19 07:07 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	08/22/19 14:17 / SRW
Hardness as CaCO3	83	mg/L		1		A2340 B	08/27/19 07:57 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.22	mg/L		0.01		E353.2	08/23/19 12:49 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	0.156	mg/L		0.009		E200.8	08/29/19 18:39 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 18:39 / dck
Arsenic	0.002	mg/L		0.001		E200.8	08/29/19 18:39 / dck
Barium	0.290	mg/L		0.003		E200.8	08/29/19 18:39 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 18:39 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 18:39 / dck
Calcium	25	mg/L		1		E200.7	08/27/19 07:57 / sld
Chromium	ND	mg/L		0.01		E200.8	08/29/19 18:39 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 18:39 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 18:39 / dck
Iron	0.10	mg/L		0.02		E200.8	08/29/19 18:39 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 18:39 / dck
Magnesium	5	mg/L		1		E200.7	08/27/19 07:57 / sld
Manganese	0.011	mg/L		0.005		E200.8	08/29/19 18:39 / dck
Mercury	0.005	ug/L		0.005		E245.1	08/28/19 11:44 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 18:39 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 18:39 / dck
Potassium	1	mg/L		1		E200.7	08/27/19 07:57 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/29/19 18:39 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 18:39 / dck
Sodium	3	mg/L		1		E200.7	08/27/19 07:57 / sld
Strontium	0.0724	mg/L		0.0002		E200.8	08/29/19 18:39 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 18:39 / dck
Uranium	ND	mg/L		0.0002		E200.8	08/29/19 18:39 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 18:39 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper Aug. Monthly (Springs)  
**Lab ID:** H19080622-006  
**Client Sample ID:** BBC-1908-115

**Report Date:** 09/07/19  
**Collection Date:** 08/20/19 17:00  
**Date Received:** 08/22/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	73	mg/L		10		A2540 D	08/22/19 13:15 / RAT
Solids, Total Dissolved TDS @ 180 C	169	mg/L		10		A2540 C	08/22/19 13:54 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	150	mg/L		4		A2320 B	08/22/19 16:19 / SRW
Chloride	1	mg/L		1		E300.0	08/23/19 07:21 / SRW
Sulfate	10	mg/L		1		E300.0	08/23/19 07:21 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	08/22/19 14:21 / SRW
Hardness as CaCO3	146	mg/L		1		A2340 B	08/27/19 08:01 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.46	mg/L		0.01		E353.2	08/23/19 12:50 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/29/19 18:41 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 18:41 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 18:41 / dck
Barium	0.212	mg/L		0.003		E200.8	08/29/19 18:41 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 18:41 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 18:41 / dck
Calcium	36	mg/L		1		E200.7	08/27/19 08:01 / sld
Chromium	ND	mg/L		0.01		E200.8	08/29/19 18:41 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 18:41 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 18:41 / dck
Iron	ND	mg/L		0.02		E200.8	08/29/19 18:41 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 18:41 / dck
Magnesium	14	mg/L		1		E200.7	08/27/19 08:01 / sld
Manganese	ND	mg/L		0.005		E200.8	08/29/19 18:41 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 11:48 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 18:41 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 18:41 / dck
Potassium	1	mg/L		1		E200.7	08/27/19 08:01 / sld
Selenium	0.0002	mg/L		0.0002		E200.8	08/30/19 12:39 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 18:41 / dck
Sodium	2	mg/L		1		E200.7	08/27/19 08:01 / sld
Strontium	0.0787	mg/L		0.0002		E200.8	08/29/19 18:41 / dck
Thallium	0.0005	mg/L		0.0002		E200.8	08/29/19 18:41 / dck
Uranium	0.0004	mg/L		0.0002		E200.8	08/29/19 18:41 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 18:41 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper Aug. Monthly (Springs)  
**Lab ID:** H19080622-007  
**Client Sample ID:** BBC-1908-117

**Report Date:** 09/07/19  
**Collection Date:** 08/21/19 08:30  
**Date Received:** 08/22/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/22/19 13:15 / RAT
Solids, Total Dissolved TDS @ 180 C	229	mg/L		10		A2540 C	08/22/19 13:54 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	08/22/19 16:25 / SRW
Chloride	ND	mg/L		1		E300.0	08/23/19 07:36 / SRW
Sulfate	32	mg/L		1		E300.0	08/23/19 07:36 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	08/22/19 14:25 / SRW
Hardness as CaCO3	217	mg/L		1		A2340 B	08/27/19 08:05 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.32	mg/L		0.01		E353.2	08/23/19 12:52 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/29/19 18:43 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 18:43 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 18:43 / dck
Barium	0.112	mg/L		0.003		E200.8	08/29/19 18:43 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 18:43 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 18:43 / dck
Calcium	47	mg/L		1		E200.7	08/27/19 08:05 / sld
Chromium	ND	mg/L		0.01		E200.8	08/29/19 18:43 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 18:43 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 18:43 / dck
Iron	ND	mg/L		0.02		E200.8	08/29/19 18:43 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 18:43 / dck
Magnesium	24	mg/L		1		E200.7	08/27/19 08:05 / sld
Manganese	0.008	mg/L		0.005		E200.8	08/29/19 18:43 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 11:51 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 18:43 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 18:43 / dck
Potassium	2	mg/L		1		E200.7	08/27/19 08:05 / sld
Selenium	0.0004	mg/L		0.0002		E200.8	08/30/19 12:40 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 18:43 / dck
Sodium	2	mg/L		1		E200.7	08/27/19 08:05 / sld
Strontium	0.0706	mg/L		0.0002		E200.8	08/29/19 18:43 / dck
Thallium	0.0002	mg/L		0.0002		E200.8	08/29/19 18:43 / dck
Uranium	0.0004	mg/L		0.0002		E200.8	08/29/19 18:43 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 18:43 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.





### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper Aug. Monthly (Springs)  
**Lab ID:** H19080622-008  
**Client Sample ID:** BBC-1908-118

**Report Date:** 09/07/19  
**Collection Date:** 08/21/19 09:00  
**Date Received:** 08/22/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/22/19 13:15 / RAT
Solids, Total Dissolved TDS @ 180 C	239	mg/L		10		A2540 C	08/22/19 13:54 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	08/22/19 16:31 / SRW
Chloride	10	mg/L		1		E300.0	08/23/19 07:50 / SRW
Sulfate	21	mg/L		1		E300.0	08/23/19 07:50 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	08/22/19 14:30 / SRW
Hardness as CaCO3	222	mg/L		1		A2340 B	08/27/19 08:18 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.26	mg/L		0.01		E353.2	08/23/19 12:53 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/29/19 18:45 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 18:45 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 18:45 / dck
Barium	0.172	mg/L		0.003		E200.8	08/29/19 18:45 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 18:45 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 18:45 / dck
Calcium	52	mg/L		1		E200.7	08/27/19 08:18 / sld
Chromium	ND	mg/L		0.01		E200.8	08/29/19 18:45 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 18:45 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 18:45 / dck
Iron	ND	mg/L		0.02		E200.8	08/29/19 18:45 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 18:45 / dck
Magnesium	23	mg/L		1		E200.7	08/27/19 08:18 / sld
Manganese	ND	mg/L		0.005		E200.8	08/29/19 18:45 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 12:14 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 18:45 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 18:45 / dck
Potassium	1	mg/L		1		E200.7	08/27/19 08:18 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/29/19 18:45 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 18:45 / dck
Sodium	2	mg/L		1		E200.7	08/27/19 08:18 / sld
Strontium	0.104	mg/L		0.0002		E200.8	08/29/19 18:45 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 18:45 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	08/29/19 18:45 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 18:45 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper Aug. Monthly (Springs)  
**Lab ID:** H19080622-009  
**Client Sample ID:** BBC-1908-119

**Report Date:** 09/07/19  
**Collection Date:** 08/21/19 09:30  
**Date Received:** 08/22/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/22/19 13:16 / RAT
Solids, Total Dissolved TDS @ 180 C	190	mg/L		10		A2540 C	08/22/19 13:55 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	08/22/19 17:01 / SRW
Chloride	2	mg/L		1		E300.0	08/23/19 08:05 / SRW
Sulfate	11	mg/L		1		E300.0	08/23/19 08:05 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	08/22/19 14:42 / SRW
Hardness as CaCO3	159	mg/L		1		A2340 B	08/27/19 08:22 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.37	mg/L		0.01		E353.2	08/23/19 12:54 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/29/19 18:48 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 18:48 / dck
Arsenic	0.004	mg/L		0.001		E200.8	08/29/19 18:48 / dck
Barium	0.118	mg/L		0.003		E200.8	08/29/19 18:48 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 18:48 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 18:48 / dck
Calcium	41	mg/L		1		E200.7	08/27/19 08:22 / sld
Chromium	ND	mg/L		0.01		E200.8	08/29/19 18:48 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 18:48 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 18:48 / dck
Iron	ND	mg/L		0.02		E200.8	08/29/19 18:48 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 18:48 / dck
Magnesium	14	mg/L		1		E200.7	08/27/19 08:22 / sld
Manganese	ND	mg/L		0.005		E200.8	08/29/19 18:48 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 12:17 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 18:48 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 18:48 / dck
Potassium	3	mg/L		1		E200.7	08/27/19 08:22 / sld
Selenium	0.0003	mg/L		0.0002		E200.8	08/30/19 12:43 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 18:48 / dck
Sodium	5	mg/L		1		E200.7	08/27/19 08:22 / sld
Strontium	0.169	mg/L		0.0002		E200.8	08/29/19 18:48 / dck
Thallium	0.0010	mg/L		0.0002		E200.8	08/29/19 18:48 / dck
Uranium	0.0008	mg/L		0.0002		E200.8	08/29/19 18:48 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 18:48 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper Aug. Monthly (Springs)  
**Lab ID:** H19080622-010  
**Client Sample ID:** BBC-1908-120

**Report Date:** 09/07/19  
**Collection Date:** 08/21/19 10:00  
**Date Received:** 08/22/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/22/19 13:16 / RAT
Solids, Total Dissolved TDS @ 180 C	117	mg/L		10		A2540 C	08/22/19 13:55 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	94	mg/L		4		A2320 B	08/22/19 17:17 / SRW
Chloride	ND	mg/L		1		E300.0	08/23/19 08:19 / SRW
Sulfate	7	mg/L		1		E300.0	08/23/19 08:19 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	08/22/19 14:50 / SRW
Hardness as CaCO3	92	mg/L		1		A2340 B	08/27/19 08:26 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.26	mg/L		0.01		E353.2	08/23/19 12:58 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	0.023	mg/L		0.009		E200.8	08/29/19 18:50 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 18:50 / dck
Arsenic	0.006	mg/L		0.001		E200.8	08/29/19 18:50 / dck
Barium	0.304	mg/L		0.003		E200.8	08/29/19 18:50 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 18:50 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 18:50 / dck
Calcium	23	mg/L		1		E200.7	08/27/19 08:26 / sld
Chromium	ND	mg/L		0.01		E200.8	08/29/19 18:50 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 18:50 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 18:50 / dck
Iron	ND	mg/L		0.02		E200.8	08/29/19 18:50 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 18:50 / dck
Magnesium	8	mg/L		1		E200.7	08/27/19 08:26 / sld
Manganese	ND	mg/L		0.005		E200.8	08/29/19 18:50 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 12:20 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 18:50 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 18:50 / dck
Potassium	1	mg/L		1		E200.7	08/27/19 08:26 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/29/19 18:50 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 18:50 / dck
Sodium	3	mg/L		1		E200.7	08/27/19 08:26 / sld
Strontium	0.102	mg/L		0.0002		E200.8	08/29/19 18:50 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 18:50 / dck
Uranium	0.0003	mg/L		0.0002		E200.8	08/29/19 18:50 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 18:50 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper Aug. Monthly (Springs)  
**Lab ID:** H19080622-011  
**Client Sample ID:** BBC-1908-121

**Report Date:** 09/07/19  
**Collection Date:** 08/21/19 10:20  
**Date Received:** 08/22/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/22/19 13:16 / RAT
Solids, Total Dissolved TDS @ 180 C	116	mg/L		10		A2540 C	08/22/19 13:55 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	94	mg/L		4		A2320 B	08/22/19 17:24 / SRW
Chloride	ND	mg/L		1		E300.0	08/23/19 09:46 / SRW
Sulfate	7	mg/L		1		E300.0	08/23/19 09:46 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	08/22/19 14:58 / SRW
Hardness as CaCO3	92	mg/L		1		A2340 B	08/27/19 08:30 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.26	mg/L		0.01		E353.2	08/23/19 13:01 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	0.027	mg/L		0.009		E200.8	08/29/19 19:04 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 19:04 / dck
Arsenic	0.006	mg/L		0.001		E200.8	08/29/19 19:04 / dck
Barium	0.301	mg/L		0.003		E200.8	08/29/19 19:04 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 19:04 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 19:04 / dck
Calcium	23	mg/L		1		E200.7	08/27/19 08:30 / sld
Chromium	ND	mg/L		0.01		E200.8	08/29/19 19:04 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 19:04 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 19:04 / dck
Iron	ND	mg/L		0.02		E200.8	08/29/19 19:04 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 19:04 / dck
Magnesium	8	mg/L		1		E200.7	08/27/19 08:30 / sld
Manganese	ND	mg/L		0.005		E200.8	08/29/19 19:04 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 12:23 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 19:04 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 19:04 / dck
Potassium	1	mg/L		1		E200.7	08/27/19 08:30 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/29/19 19:04 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 19:04 / dck
Sodium	3	mg/L		1		E200.7	08/27/19 08:30 / sld
Strontium	0.102	mg/L		0.0002		E200.8	08/29/19 19:04 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 19:04 / dck
Uranium	0.0003	mg/L		0.0002		E200.8	08/29/19 19:04 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 19:04 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper Aug. Monthly (Springs)  
**Lab ID:** H19080622-012  
**Client Sample ID:** BBC-1908-129

**Report Date:** 09/07/19  
**Collection Date:** 08/21/19 14:00  
**Date Received:** 08/22/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	08/22/19 13:17 / RAT
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	08/22/19 13:58 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	08/22/19 17:31 / SRW
Chloride	ND	mg/L		1		E300.0	08/23/19 10:01 / SRW
Sulfate	ND	mg/L		1		E300.0	08/23/19 10:01 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	08/22/19 15:02 / SRW
Hardness as CaCO3	ND	mg/L		1		A2340 B	08/30/19 10:31 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	08/23/19 13:02 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	08/29/19 19:06 / dck
Antimony	ND	mg/L		0.0005		E200.8	08/29/19 19:06 / dck
Arsenic	ND	mg/L		0.001		E200.8	08/29/19 19:06 / dck
Barium	ND	mg/L		0.003		E200.8	08/29/19 19:06 / dck
Beryllium	ND	mg/L		0.0008		E200.8	08/29/19 19:06 / dck
Cadmium	ND	mg/L		0.00003		E200.8	08/29/19 19:06 / dck
Calcium	ND	mg/L		1		E200.7	08/27/19 08:34 / sld
Chromium	ND	mg/L		0.01		E200.8	08/29/19 19:06 / dck
Cobalt	ND	mg/L		0.01		E200.8	08/29/19 19:06 / dck
Copper	ND	mg/L		0.002		E200.8	08/29/19 19:06 / dck
Iron	ND	mg/L		0.02		E200.8	08/29/19 19:06 / dck
Lead	ND	mg/L		0.0003		E200.8	08/29/19 19:06 / dck
Magnesium	ND	mg/L		1		E200.7	08/27/19 08:34 / sld
Manganese	ND	mg/L		0.005		E200.8	08/29/19 19:06 / dck
Mercury	ND	ug/L		0.005		E245.1	08/28/19 12:27 / ber
Molybdenum	ND	mg/L		0.002		E200.8	08/29/19 19:06 / dck
Nickel	ND	mg/L		0.001		E200.8	08/29/19 19:06 / dck
Potassium	ND	mg/L		1		E200.7	08/27/19 08:34 / sld
Selenium	ND	mg/L		0.0002		E200.8	08/29/19 19:06 / dck
Silver	ND	mg/L		0.0002		E200.8	08/29/19 19:06 / dck
Sodium	ND	mg/L		1		E200.7	08/27/19 08:34 / sld
Strontium	ND	mg/L		0.0002		E200.8	08/29/19 19:06 / dck
Thallium	ND	mg/L		0.0002		E200.8	08/29/19 19:06 / dck
Uranium	ND	mg/L		0.0002		E200.8	08/29/19 19:06 / dck
Zinc	ND	mg/L		0.002		E200.8	08/29/19 19:06 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080622

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A2320 B										Batch: R147096
<b>Lab ID:</b> MBLK		Method Blank								Run: PHSC_101-H_190822A 08/22/19 14:07
Alkalinity, Total as CaCO3		ND	mg/L	2						
<b>Lab ID:</b> LCS		Laboratory Control Sample								Run: PHSC_101-H_190822A 08/22/19 14:11
Alkalinity, Total as CaCO3		600	mg/L	4.0	100	90	110			
<b>Lab ID:</b> H19080618-021ADUP		Sample Duplicate								Run: PHSC_101-H_190822A 08/22/19 14:30
Alkalinity, Total as CaCO3		120	mg/L	4.0				0.6	10	
<b>Lab ID:</b> H19080622-008ADUP		Sample Duplicate								Run: PHSC_101-H_190822A 08/22/19 16:37
Alkalinity, Total as CaCO3		200	mg/L	4.0				1.8	10	
<b>Lab ID:</b> MBLK		Method Blank								Run: PHSC_101-H_190822A 08/22/19 16:44
Alkalinity, Total as CaCO3		ND	mg/L	2						
<b>Lab ID:</b> LCS		Laboratory Control Sample								Run: PHSC_101-H_190822A 08/22/19 16:50
Alkalinity, Total as CaCO3		600	mg/L	4.0	99	90	110			
<b>Lab ID:</b> H19080622-009ADUP		Sample Duplicate								Run: PHSC_101-H_190822A 08/22/19 17:09
Alkalinity, Total as CaCO3		170	mg/L	4.0				0.5	10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19080622

**Report Date:** 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>								Batch: TDS190822A		
<b>Lab ID: MB-25_190822A</b>		Method Blank						Run: ACCU-124 (14410200)_19082	08/22/19 13:47	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Lab ID: LCS-26_190822A</b>		Laboratory Control Sample						Run: ACCU-124 (14410200)_19082	08/22/19 13:48	
Solids, Total Dissolved TDS @ 180 C		2000	mg/L	20	100	90	110			
<b>Lab ID: H19080621-001A DUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19082	08/22/19 13:48	
Solids, Total Dissolved TDS @ 180 C		208	mg/L	10				0.5	5	
<b>Lab ID: H19080622-002A DUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19082	08/22/19 13:53	
Solids, Total Dissolved TDS @ 180 C		233	mg/L	10				0.4	5	
<b>Lab ID: MB-49_190822A</b>		Method Blank						Run: ACCU-124 (14410200)_19082	08/22/19 13:55	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Lab ID: LCS-50_190822A</b>		Laboratory Control Sample						Run: ACCU-124 (14410200)_19082	08/22/19 13:55	
Solids, Total Dissolved TDS @ 180 C		1990	mg/L	20	100	90	110			
<b>Lab ID: H19080622-012A DUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19082	08/22/19 13:59	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10					5	
- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.										
<b>Lab ID: H19080641-007A DUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19082	08/22/19 15:53	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10					5	
- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.										

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19080622

**Report Date:** 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 D</b> <span style="float: right;">Batch: TSS190822A</span>										
<b>Lab ID: MB-1_190822A</b>		Method Blank						Run: ACCU-124 (14410200)_19082	08/22/19 13:11	
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
<b>Lab ID: LCS-2_190822A</b>		Laboratory Control Sample						Run: ACCU-124 (14410200)_19082	08/22/19 13:11	
Solids, Total Suspended TSS @ 105 C		93.0	mg/L	10	93	80	120			
<b>Lab ID: H19080621-001ADUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19082	08/22/19 13:12	
Solids, Total Suspended TSS @ 105 C		5.20	mg/L	10					5	
<b>Lab ID: H19080622-002ADUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19082	08/22/19 13:14	
Solids, Total Suspended TSS @ 105 C		2.00	mg/L	10					5	
- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.										
<b>Lab ID: MB-25_190822A</b>		Method Blank						Run: ACCU-124 (14410200)_19082	08/22/19 13:16	
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
<b>Lab ID: LCS-26_190822A</b>		Laboratory Control Sample						Run: ACCU-124 (14410200)_19082	08/22/19 13:16	
Solids, Total Suspended TSS @ 105 C		100.0	mg/L	10	100	80	120			
<b>Lab ID: H19080622-012ADUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19082	08/22/19 13:17	
Solids, Total Suspended TSS @ 105 C		ND	mg/L	10					5	
<b>Lab ID: H19080627-001DDUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19082	08/22/19 13:19	
Solids, Total Suspended TSS @ 105 C		3.20	mg/L	10					5	
- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.										

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.





## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19080622

**Report Date:** 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A4500-F C										Analytical Run: MANTECH 2_190822A
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								08/22/19 10:52
Fluoride		0.7	mg/L	0.1	97	90	110			
<b>Lab ID:</b> CCV 1		Continuing Calibration Verification Standard								08/22/19 13:40
Fluoride		1.0	mg/L	0.1	97	90	110			
<b>Lab ID:</b> CCV 1		Continuing Calibration Verification Standard								08/22/19 14:34
Fluoride		1.0	mg/L	0.1	97	90	110			
<b>Method:</b> A4500-F C										Batch: R147145
<b>Lab ID:</b> MBLK		Method Blank								08/22/19 10:56
Fluoride		ND	mg/L	0.03						Run: MANTECH 2_190822A
<b>Lab ID:</b> H19080621-008ADUP		Sample Duplicate								08/22/19 13:52
Fluoride		0.1	mg/L	0.1						Run: MANTECH 2_190822A
<b>Lab ID:</b> H19080622-009AMS		Sample Matrix Spike								08/22/19 14:46
Fluoride		1.2	mg/L	0.1	96	85	115			Run: MANTECH 2_190822A
<b>Lab ID:</b> H19080622-010ADUP		Sample Duplicate								08/22/19 14:54
Fluoride		0.1	mg/L	0.1				7.4	10	Run: MANTECH 2_190822A

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080622

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b> <span style="float: right;">Analytical Run: ICP2-HE_190826C</span>										
<b>Lab ID: ICV</b>	4	Initial Calibration Verification Standard								08/26/19 16:03
Calcium		40.1	mg/L	1.0	100	95	105			
Magnesium		39.7	mg/L	1.0	99	95	105			
Potassium		40.7	mg/L	1.0	102	95	105			
Sodium		40.8	mg/L	1.0	102	95	105			
<b>Lab ID: CCV-1</b>	4	Continuing Calibration Verification Standard								08/26/19 16:11
Calcium		25.6	mg/L	1.0	103	95	105			
Magnesium		24.8	mg/L	1.0	99	95	105			
Potassium		25.2	mg/L	1.0	101	95	105			
Sodium		25.1	mg/L	1.0	101	95	105			
<b>Lab ID: ICSA</b>	4	Interference Check Sample A								08/26/19 16:24
Calcium		519	mg/L	1.0	104	80	120			
Magnesium		562	mg/L	1.0	112	80	120			
Potassium		0.00544	mg/L	1.0		0	0			
Sodium		-0.00119	mg/L	1.0		0	0			
<b>Lab ID: ICSAB</b>	4	Interference Check Sample AB								08/26/19 16:28
Calcium		516	mg/L	1.0	103	80	120			
Magnesium		559	mg/L	1.0	112	80	120			
Potassium		19.7	mg/L	1.0	99	80	120			
Sodium		19.2	mg/L	1.0	96	80	120			
<b>Lab ID: CCV</b>	4	Continuing Calibration Verification Standard								08/27/19 07:21
Calcium		24.2	mg/L	1.0	97	90	110			
Magnesium		24.0	mg/L	1.0	96	90	110			
Potassium		26.0	mg/L	1.0	104	90	110			
Sodium		26.4	mg/L	1.0	106	90	110			
<b>Lab ID: CCV</b>	4	Continuing Calibration Verification Standard								08/27/19 08:10
Calcium		24.8	mg/L	1.0	99	90	110			
Magnesium		24.5	mg/L	1.0	98	90	110			
Potassium		25.7	mg/L	1.0	103	90	110			
Sodium		25.9	mg/L	1.0	103	90	110			
<b>Method: E200.7</b> <span style="float: right;">Batch: R147244</span>										
<b>Lab ID: MB</b>	4	Method Blank								Run: ICP2-HE_190826C 08/26/19 16:36
Calcium		ND	mg/L	0.07						
Magnesium		ND	mg/L	0.01						
Potassium		ND	mg/L	0.06						
Sodium		ND	mg/L	0.02						
<b>Lab ID: LFB</b>	4	Laboratory Fortified Blank								Run: ICP2-HE_190826C 08/26/19 16:40
Calcium		54.8	mg/L	1.0	110	85	115			
Magnesium		53.6	mg/L	1.0	107	85	115			
Potassium		51.6	mg/L	1.0	103	85	115			
Sodium		50.9	mg/L	1.0	102	85	115			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080622

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Batch: R147244										
<b>Lab ID: H19080622-002BMS2</b>	4	Sample Matrix Spike								
										Run: ICP2-HE_190826C 08/27/19 07:41
Calcium		102	mg/L	1.0	96	70	130			
Magnesium		70.6	mg/L	1.0	100	70	130			
Potassium		54.8	mg/L	1.0	108	70	130			
Sodium		56.9	mg/L	1.0	111	70	130			
<b>Lab ID: H19080622-002BMSD</b>	4	Sample Matrix Spike Duplicate								
										Run: ICP2-HE_190826C 08/27/19 07:45
Calcium		103	mg/L	1.0	99	70	130	1.3	20	
Magnesium		71.1	mg/L	1.0	101	70	130	0.7	20	
Potassium		55.0	mg/L	1.0	108	70	130	0.4	20	
Sodium		56.7	mg/L	1.0	110	70	130	0.4	20	
<b>Lab ID: H19080622-012BMS2</b>	4	Sample Matrix Spike								
										Run: ICP2-HE_190826C 08/27/19 08:42
Calcium		49.1	mg/L	1.0	98	70	130			
Magnesium		49.3	mg/L	1.0	99	70	130			
Potassium		50.2	mg/L	1.0	100	70	130			
Sodium		50.7	mg/L	1.0	101	70	130			
<b>Lab ID: H19080622-012BMSD</b>	4	Sample Matrix Spike Duplicate								
										Run: ICP2-HE_190826C 08/27/19 08:46
Calcium		50.0	mg/L	1.0	100	70	130	1.9	20	
Magnesium		50.6	mg/L	1.0	101	70	130	2.6	20	
Potassium		53.3	mg/L	1.0	107	70	130	6.0	20	
Sodium		54.0	mg/L	1.0	108	70	130	6.3	20	

**Qualifiers:**

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ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080622

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>		Analytical Run: ICPMS205-H_190829B								
<b>Lab ID: ICV</b>	20 Initial Calibration Verification Standard									08/29/19 13:18
Aluminum		0.319	mg/L	0.10	106	90	110			
Antimony		0.0613	mg/L	0.050	102	90	110			
Arsenic		0.0616	mg/L	0.0050	103	90	110			
Barium		0.0620	mg/L	0.10	103	90	110			
Beryllium		0.0294	mg/L	0.0010	98	90	110			
Cadmium		0.0308	mg/L	0.0010	103	90	110			
Chromium		0.0623	mg/L	0.010	104	90	110			
Cobalt		0.0622	mg/L	0.010	104	90	110			
Copper		0.0622	mg/L	0.010	104	90	110			
Iron		0.321	mg/L	0.020	107	90	110			
Lead		0.0591	mg/L	0.010	98	90	110			
Manganese		0.318	mg/L	0.010	106	90	110			
Molybdenum		0.0609	mg/L	0.0050	102	90	110			
Nickel		0.0623	mg/L	0.010	104	90	110			
Selenium		0.0612	mg/L	0.0050	102	90	110			
Silver		0.0307	mg/L	0.0050	102	90	110			
Strontium		0.0621	mg/L	0.10	104	90	110			
Thallium		0.0594	mg/L	0.10	99	90	110			
Uranium		0.0579	mg/L	0.00030	96	90	110			
Zinc		0.0635	mg/L	0.010	106	90	110			
<b>Lab ID: ICSA</b>	20 Interference Check Sample A									08/29/19 13:20
Aluminum		42.9	mg/L	0.10	107	70	130			
Antimony		0.000191	mg/L	0.050						
Arsenic		8.39E-06	mg/L	0.0050						
Barium		0.000162	mg/L	0.10						
Beryllium		-4.84E-05	mg/L	0.0010						
Cadmium		7.91E-05	mg/L	0.0010						
Chromium		0.000162	mg/L	0.010						
Cobalt		0.000271	mg/L	0.010						
Copper		4.47E-05	mg/L	0.010						
Iron		102	mg/L	0.020	102	70	130			
Lead		8.65E-05	mg/L	0.010						
Manganese		0.000298	mg/L	0.010						
Molybdenum		0.888	mg/L	0.0050	111	70	130			
Nickel		9.66E-05	mg/L	0.010						
Selenium		0.000146	mg/L	0.0050						
Silver		1.98E-05	mg/L	0.0050						
Strontium		0.00104	mg/L	0.10						
Thallium		2.55E-05	mg/L	0.10						
Uranium		6.85E-06	mg/L	0.00030						
Zinc		0.000201	mg/L	0.010						
<b>Lab ID: ICSAB</b>	20 Interference Check Sample AB									08/29/19 13:22
Aluminum		43.0	mg/L	0.10	107	70	130			
Antimony		0.000167	mg/L	0.050		0	0			

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# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080622

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>		Analytical Run: ICPMS205-H_190829B									
<b>Lab ID: ICSAB</b>	20	Interference Check Sample AB							08/29/19 13:22		
Arsenic		0.0102	mg/L	0.0050	102	70	130				
Barium		0.000209	mg/L	0.10		0	0				
Beryllium		-3.48E-05	mg/L	0.0010		0	0				
Cadmium		0.0108	mg/L	0.0010	107	70	130				
Chromium		0.0217	mg/L	0.010	108	70	130				
Cobalt		0.0214	mg/L	0.010	107	70	130				
Copper		0.0207	mg/L	0.010	104	70	130				
Iron		104	mg/L	0.020	104	70	130				
Lead		8.33E-05	mg/L	0.010		0	0				
Manganese		0.0220	mg/L	0.010	110	70	130				
Molybdenum		0.897	mg/L	0.0050	112	70	130				
Nickel		0.0211	mg/L	0.010	105	70	130				
Selenium		0.0101	mg/L	0.0050	101	70	130				
Silver		0.00524	mg/L	0.0050	105	70	130				
Strontium		0.00107	mg/L	0.10		0	0				
Thallium		1.66E-05	mg/L	0.10		0	0				
Uranium		2.33E-06	mg/L	0.00030		0	0				
Zinc		0.0117	mg/L	0.010	117	70	130				

<b>Method: E200.8</b>		Batch: R147366									
<b>Lab ID: LRB</b>	20	Method Blank							Run: ICPMS205-H_190829B		08/29/19 14:01
Aluminum		ND	mg/L	0.003							
Antimony		ND	mg/L	9E-05							
Arsenic		ND	mg/L	4E-05							
Barium		ND	mg/L	2E-05							
Beryllium		ND	mg/L	0.0001							
Cadmium		ND	mg/L	3E-05							
Chromium		ND	mg/L	0.0002							
Cobalt		ND	mg/L	9E-05							
Copper		ND	mg/L	0.0001							
Iron		0.007	mg/L	0.002							
Lead		ND	mg/L	3E-05							
Manganese		ND	mg/L	0.0003							
Molybdenum		0.0001	mg/L	2E-05							
Nickel		ND	mg/L	0.0002							
Selenium		ND	mg/L	2E-05							
Silver		ND	mg/L	2E-05							
Strontium		ND	mg/L	0.0001							
Thallium		ND	mg/L	1E-05							
Uranium		ND	mg/L	1E-05							
Zinc		ND	mg/L	0.0003							

<b>Lab ID: LFB</b>	20	Laboratory Fortified Blank							Run: ICPMS205-H_190829B		08/29/19 14:42
Aluminum		0.0478	mg/L	0.10	96	85	115				
Antimony		0.0493	mg/L	0.050	99	85	115				
Arsenic		0.0489	mg/L	0.0050	98	85	115				

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# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080622

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: R147366										
<b>Lab ID: LFB</b>	20	Laboratory Fortified Blank			Run: ICPMS205-H_190829B			08/29/19 14:42		
Barium		0.0482	mg/L	0.10	96	85	115			
Beryllium		0.0471	mg/L	0.0010	94	85	115			
Cadmium		0.0482	mg/L	0.0010	96	85	115			
Chromium		0.0488	mg/L	0.010	98	85	115			
Cobalt		0.0481	mg/L	0.010	96	85	115			
Copper		0.0484	mg/L	0.010	97	85	115			
Iron		0.149	mg/L	0.020	99	85	115			
Lead		0.0457	mg/L	0.010	91	85	115			
Manganese		0.0492	mg/L	0.010	99	85	115			
Molybdenum		0.0472	mg/L	0.0050	94	85	115			
Nickel		0.0489	mg/L	0.010	98	85	115			
Selenium		0.0480	mg/L	0.0050	96	85	115			
Silver		0.0191	mg/L	0.0050	95	85	115			
Strontium		0.0482	mg/L	0.10	96	85	115			
Thallium		0.0459	mg/L	0.10	92	85	115			
Uranium		0.0442	mg/L	0.00030	88	85	115			
Zinc		0.0488	mg/L	0.010	98	85	115			
<b>Lab ID: H19080622-007BMS</b>	20	Sample Matrix Spike			Run: ICPMS205-H_190829B			08/29/19 18:52		
Aluminum		0.0512	mg/L	0.030	102	70	130			
Antimony		0.0505	mg/L	0.0010	101	70	130			
Arsenic		0.0496	mg/L	0.0010	99	70	130			
Barium		0.161	mg/L	0.050	99	70	130			
Beryllium		0.0472	mg/L	0.0010	94	70	130			
Cadmium		0.0489	mg/L	0.0010	98	70	130			
Chromium		0.0474	mg/L	0.0050	95	70	130			
Cobalt		0.0465	mg/L	0.0050	93	70	130			
Copper		0.0459	mg/L	0.0050	92	70	130			
Iron		0.159	mg/L	0.020	95	70	130			
Lead		0.0461	mg/L	0.0010	92	70	130			
Manganese		0.0555	mg/L	0.0010	96	70	130			
Molybdenum		0.0468	mg/L	0.0010	93	70	130			
Nickel		0.0462	mg/L	0.0050	92	70	130			
Selenium		0.0521	mg/L	0.0010	103	70	130			
Silver		0.0191	mg/L	0.0010	96	70	130			
Strontium		0.118	mg/L	0.010	94	70	130			
Thallium		0.0472	mg/L	0.00050	94	70	130			
Uranium		0.0454	mg/L	0.00030	90	70	130			
Zinc		0.0490	mg/L	0.010	96	70	130			
<b>Lab ID: H19080622-007BMSD</b>	20	Sample Matrix Spike Duplicate			Run: ICPMS205-H_190829B			08/29/19 18:55		
Aluminum		0.0476	mg/L	0.030	95	70	130	7.2	20	
Antimony		0.0514	mg/L	0.0010	103	70	130	1.7	20	
Arsenic		0.0504	mg/L	0.0010	101	70	130	1.6	20	
Barium		0.162	mg/L	0.050	100	70	130	0.3	20	
Beryllium		0.0473	mg/L	0.0010	95	70	130	0.0	20	

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# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080622

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: R147366										
<b>Lab ID:</b>	<b>H19080622-007BMSD</b>	20 Sample Matrix Spike Duplicate								
										Run: ICPMS205-H_190829B 08/29/19 18:55
Cadmium		0.0494	mg/L	0.0010	99	70	130	1.0	20	
Chromium		0.0483	mg/L	0.0050	97	70	130	1.8	20	
Cobalt		0.0473	mg/L	0.0050	95	70	130	1.7	20	
Copper		0.0469	mg/L	0.0050	94	70	130	2.2	20	
Iron		0.161	mg/L	0.020	97	70	130	1.4	20	
Lead		0.0467	mg/L	0.0010	93	70	130	1.3	20	
Manganese		0.0565	mg/L	0.0010	98	70	130	1.7	20	
Molybdenum		0.0474	mg/L	0.0010	94	70	130	1.3	20	
Nickel		0.0468	mg/L	0.0050	94	70	130	1.4	20	
Selenium		0.0527	mg/L	0.0010	105	70	130	1.2	20	
Silver		0.0194	mg/L	0.0010	97	70	130	1.5	20	
Strontium		0.118	mg/L	0.010	96	70	130	0.8	20	
Thallium		0.0475	mg/L	0.00050	94	70	130	0.7	20	
Uranium		0.0459	mg/L	0.00030	91	70	130	1.0	20	
Zinc		0.0503	mg/L	0.010	98	70	130	2.7	20	
<b>Method: E200.8</b>										
Analytical Run: ICPMS205-H_190830B										
<b>Lab ID:</b>	<b>ICV</b>	Initial Calibration Verification Standard								08/30/19 10:54
Selenium		0.0604	mg/L	0.0050	101	90	110			
<b>Lab ID:</b>	<b>ICSA</b>	Interference Check Sample A								08/30/19 10:57
Selenium		0.000137	mg/L	0.0050						
<b>Lab ID:</b>	<b>ICSAB</b>	Interference Check Sample AB								08/30/19 10:59
Selenium		0.0103	mg/L	0.0050	103	70	130			
<b>Method: E200.8</b>										
Batch: R147404										
<b>Lab ID:</b>	<b>LRB</b>	Method Blank								Run: ICPMS205-H_190830B 08/30/19 11:10
Selenium		ND	mg/L	2E-05						
<b>Lab ID:</b>	<b>LFB</b>	Laboratory Fortified Blank								Run: ICPMS205-H_190830B 08/30/19 11:13
Selenium		0.0501	mg/L	0.0050	100	85	115			
<b>Lab ID:</b>	<b>H19080622-007BMS</b>	Sample Matrix Spike								Run: ICPMS205-H_190830B 08/30/19 12:50
Selenium		0.0495	mg/L	0.0010	98	70	130			
<b>Lab ID:</b>	<b>H19080622-007BMSD</b>	Sample Matrix Spike Duplicate								Run: ICPMS205-H_190830B 08/30/19 12:52
Selenium		0.0513	mg/L	0.0010	102	70	130	3.5	20	

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080622

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E245.1</b>										Analytical Run: HGCV203-H_190828A
<b>Lab ID: ICV</b>		Initial Calibration Verification Standard								08/28/19 10:25
Mercury		0.103	ug/L	0.0050	103	90	110			
<b>Lab ID: CCV1</b>		Continuing Calibration Verification Standard								08/28/19 10:29
Mercury		0.103	ug/L	0.0050	103	95	105			
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								08/28/19 11:54
Mercury		0.107	ug/L	0.0050	107	90	110			
<b>Method: E245.1</b>										Batch: 47457
<b>Lab ID: MB-47257</b>		Method Blank								08/28/19 10:36
Mercury		ND	ug/L	0.001						Run: HGCV203-H_190828A
<b>Lab ID: LCS-47257</b>		Laboratory Control Sample								08/28/19 10:39
Mercury		0.0508	ug/L	0.0050	102	90	110			Run: HGCV203-H_190828A
<b>Lab ID: H19080622-007BMS</b>		Sample Matrix Spike								08/28/19 12:01
Mercury		0.0530	ug/L	0.0050	104	70	130			Run: HGCV203-H_190828A
<b>Lab ID: H19080622-007BMSD</b>		Sample Matrix Spike Duplicate								08/28/19 12:04
Mercury		0.0534	ug/L	0.0050	104	70	130	0.7	20	Run: HGCV203-H_190828A
<b>Method: E245.1</b>										Batch: 47459
<b>Lab ID: MB-47459</b>		Method Blank								08/28/19 12:07
Mercury		ND	ug/L	0.001						Run: HGCV203-H_190828A
<b>Lab ID: LCS-47459</b>		Laboratory Control Sample								08/28/19 12:10
Mercury		0.0535	ug/L	0.0050	107	90	110			Run: HGCV203-H_190828A
<b>Lab ID: H19080622-012BMS</b>		Sample Matrix Spike								08/28/19 12:30
Mercury		0.0529	ug/L	0.0050	106	70	130			Run: HGCV203-H_190828A
<b>Lab ID: H19080622-012BMSD</b>		Sample Matrix Spike Duplicate								08/28/19 12:33
Mercury		0.0528	ug/L	0.0050	106	70	130	0.3	20	Run: HGCV203-H_190828A

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080622

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E300.0</b> Analytical Run: IC METROHM_190822A											
<b>Lab ID: ICV</b>	2	Initial Calibration Verification Standard								08/22/19 14:12	
Chloride		103	mg/L	1.0	103	90	110				
Sulfate		409	mg/L	1.0	102	90	110				
<b>Lab ID: CCV</b>	2	Continuing Calibration Verification Standard								08/23/19 05:25	
Chloride		53.2	mg/L	1.0	106	90	110				
Sulfate		212	mg/L	1.0	106	90	110				
<b>Lab ID: CCV</b>	2	Continuing Calibration Verification Standard								08/23/19 09:03	
Chloride		54.1	mg/L	1.0	108	90	110				
Sulfate		215	mg/L	1.0	108	90	110				
<b>Method: E300.0</b> Batch: R147189											
<b>Lab ID: ICB</b>	2	Method Blank								Run: IC METROHM_190822A	08/22/19 13:57
Chloride		ND	mg/L	0.02							
Sulfate		ND	mg/L	0.08							
<b>Lab ID: LFB</b>	2	Laboratory Fortified Blank								Run: IC METROHM_190822A	08/22/19 14:26
Chloride		25.2	mg/L	1.0	101	90	110				
Sulfate		105	mg/L	1.0	105	90	110				
<b>Lab ID: H19080621-009AMS</b>	2	Sample Matrix Spike								Run: IC METROHM_190822A	08/23/19 04:56
Chloride		25.1	mg/L	1.0	100	90	110				
Sulfate		103	mg/L	1.0	103	90	110				
<b>Lab ID: H19080621-009AMSD</b>	2	Sample Matrix Spike Duplicate								Run: IC METROHM_190822A	08/23/19 05:11
Chloride		24.8	mg/L	1.0	99	90	110	1.2	20		
Sulfate		102	mg/L	1.0	102	90	110	0.7	20		
<b>Lab ID: H19080622-010AMS</b>	2	Sample Matrix Spike								Run: IC METROHM_190822A	08/23/19 08:34
Chloride		26.0	mg/L	1.0	102	90	110				
Sulfate		109	mg/L	1.0	102	90	110				
<b>Lab ID: H19080622-010AMSD</b>	2	Sample Matrix Spike Duplicate								Run: IC METROHM_190822A	08/23/19 08:48
Chloride		25.7	mg/L	1.0	100	90	110	1.2	20		
Sulfate		109	mg/L	1.0	102	90	110	0.0	20		
<b>Lab ID: H19080622-012AMS</b>	2	Sample Matrix Spike								Run: IC METROHM_190822A	08/23/19 10:15
Chloride		25.2	mg/L	1.0	101	90	110				
Sulfate		103	mg/L	1.0	103	90	110				
<b>Lab ID: H19080622-012AMSD</b>	2	Sample Matrix Spike Duplicate								Run: IC METROHM_190822A	08/23/19 10:30
Chloride		25.0	mg/L	1.0	100	90	110	0.7	20		
Sulfate		103	mg/L	1.0	103	90	110	0.3	20		

**Qualifiers:**

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## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19080622

Report Date: 09/07/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E353.2										Analytical Run: FIA203-HE_190823A
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								08/23/19 10:40
Nitrogen, Nitrate+Nitrite as N		0.937	mg/L	0.010	94	90	110			
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								08/23/19 12:38
Nitrogen, Nitrate+Nitrite as N		0.539	mg/L	0.010	108	90	110			
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								08/23/19 12:55
Nitrogen, Nitrate+Nitrite as N		0.537	mg/L	0.010	107	90	110			
<b>Method:</b> E353.2										Batch: R147158
<b>Lab ID:</b> MBLK		Method Blank								08/23/19 10:41
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009						Run: FIA203-HE_190823A
<b>Lab ID:</b> LFB		Laboratory Fortified Blank								08/23/19 10:43
Nitrogen, Nitrate+Nitrite as N		1.01	mg/L	0.011	101	90	110			Run: FIA203-HE_190823A
<b>Lab ID:</b> H19080621-009DMS		Sample Matrix Spike								08/23/19 12:42
Nitrogen, Nitrate+Nitrite as N		1.07	mg/L	0.011	107	90	110			Run: FIA203-HE_190823A
<b>Lab ID:</b> H19080621-009DMSD		Sample Matrix Spike Duplicate								08/23/19 12:43
Nitrogen, Nitrate+Nitrite as N		1.10	mg/L	0.011	110	90	110	2.6	10	Run: FIA203-HE_190823A
<b>Lab ID:</b> H19080622-010CMS		Sample Matrix Spike								08/23/19 12:59
Nitrogen, Nitrate+Nitrite as N		1.39	mg/L	0.011	112	90	110			S
<b>Lab ID:</b> H19080622-010CMSD		Sample Matrix Spike Duplicate								08/23/19 13:00
Nitrogen, Nitrate+Nitrite as N		1.36	mg/L	0.011	110	90	110	1.6	10	Run: FIA203-HE_190823A

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



# Work Order Receipt Checklist

Tintina Resources Inc

H19080622

Login completed by: Jessica C. Smith

Date Received: 8/22/2019

Reviewed by: BL2000\rtooke

Received by: JCS

Reviewed Date: 8/23/2019

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	°C See Comments		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

## Contact and Corrective Action Comments:

Cooler 1 was received at 0.1 °C, Cooler 2 at 0.0 °C. On Ice. Metals bottle in sample set BBC-1908-117 was marked not filtered but was preserved. Emailed client to find out if this was in fact filtered. JCS 08/22/19

# Hydrometrics, Inc.

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

## CHAIN OF CUSTODY RECORD

PROJ. NO. 18049	PROJECT NAME Tintina Black Butte Aug Monthly (Springs)		DATE TIME	SAMPLE NUMBER	NO. OF CON-TAINERS	COMMONS UF / RAW	NUTRIENTS UF / H <sub>2</sub> SO <sub>4</sub>	DISS. METAL F / NaOH	CN UF / NaOH	TOTAL METALS UF / HNO <sub>3</sub>	TOTAL RECOVERABLE METALS UF / HNO <sub>3</sub>	BTEX	TPH	P.O. #	SHIPPED VIA: Bus FedEx UPS Other Air Bill #	REMARKS
	COMP	GRAB														
8/21/19	1320	X	1336-1908-106	3	X	X	X							1311		H19080622
	1415		108													
	1435		109													
	1535		111													
	1615		113													
	1700		115													
8/21/19	0830		117													
	0900		118													
	0930		119													
	1000		120													
	1020		121													
	1400		129													
Relinquished (Signature)			Date / Time		Received by (Signature)		Lab		P.O. #		Shipped via: Bus FedEx UPS Other Air Bill #					
[Signature]			8/21/19 0805		[Signature]		Enigma Lab		1311 Tintina							
Relinquished (Signature)			Date / Time		Received by (Signature)		Remarks									
[Signature]					[Signature]		C1 = 0.1% HAND DEL C2 = 0.0% TB									
Relinquished (Signature)			Date / Time		Received for Laboratory by (Signature)		Date / Time									
[Signature]					[Signature]		8/21/19 0805									

Return results & electronic copy to:  
QA / QC Dept. at address at top of page

Enclosed:  Parameter sheet w/detection limits  
 QA / AC standard mixing instructions  Cover letter  
 Other

Split Samples:  
 Accepted  Declined

Signature

**TABLE 5. PARAMETERS, METHODS, AND DETECTION LIMITS  
FOR GROUNDWATER MONITORING**

Parameter	Analytical Method <sup>(1)</sup>	Project-Required Detection Limit (mg/L)
<b>Physical Parameters</b>		
TDS	SM 2540C	10
TSS	SM 2540C	10
<b>Common Ions</b>		
Alkalinity	SM 2320B	4
Sulfate	300.0	1
Chloride	300.0/SM 4500CL-B	1
Fluoride	A4500-F C	0.1
Calcium	215.1/200.7	1
Magnesium	242.1/200.7	1
Sodium	273.1/200.7	1
Potassium	258.1/200.7	1
<b>Nutrients</b>		
Nitrate+Nitrite as N	353.2	0.01
<b>Trace Constituents (Dissolved)<sup>(2)</sup></b>		
Aluminum (Al)	200.7/200.8	0.009
Antimony (Sb)	200.7/200.8	0.0005
Arsenic (As)	200.8/SM 3114B	0.001
Barium (Ba)	200.7/200.8	0.003
Beryllium (Be)	200.7/200.8	0.0008
Cadmium (Cd)	200.7/200.8	0.00003
Chromium (Cr)	200.7/200.8	0.01
Cobalt (Co)	200.7/200.8	0.01
Copper (Cu)	200.7/200.8	0.002
Iron (Fe)	200.7/200.8	0.02
Lead (Pb)	200.7/200.8	0.0003
Manganese (Mn)	200.7/200.8	0.005
Mercury (Hg)	245.2/245.1/200.8/SM 3112B	0.000005
Molybdenum (Mo)	200.7/200.8	0.002
Nickel (Ni)	200.7/200.8	0.001
Selenium (Se)	200.7/200.8/SM 3114B	0.0002
Silver (Ag)	200.7/200.8	0.0002
Strontium (Sr)	200.7/200.8	0.0002
Thallium (Tl)	200.7/200.8	0.0002
Uranium	200.7/200.8	0.008
Zinc (Zn)	200.7/200.8	0.002
<b>Field Parameters</b>		
Stream Flow	HF-SOP-37/-44/-46	NA
Water Temperature	HF-SOP-20	0.1 °C
Dissolved Oxygen (DO)	HF-SOP-22	0.1 mg/L
pH	HF-SOP-20	0.1 s.u.
Specific Conductance (SC)	HF-SOP-79	1 µmhos/cm

(1) Analytical methods are from *Standard Methods for the Examination of Water and Wastewater* (SM) or EPA's *Methods for Chemical Analysis of Water and Waste* (1983).

(2) Samples to be analyzed for dissolved constituents will be field-filtered through a 0.45 µm filter.



# ANALYTICAL SUMMARY REPORT

September 30, 2019

Tintina Resources Inc  
PO Box 431  
White Sulphur Springs, MT 59645-0431

Work Order: H19090441                      Quote ID: H1216

Project Name: 18049 Black Butte Copper (GW)

Energy Laboratories Inc Helena MT received the following 4 samples for Tintina Resources Inc on 9/18/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H19090441-001	BBC-1909-200	09/16/19 16:40	09/18/19	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Mercury, Dissolved Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Mercury Digestion by E245.1 Solids, Total Dissolved Solids, Total Suspended
H19090441-002	BBC-1909-201	09/17/19 12:05	09/18/19	Groundwater	Same As Above
H19090441-003	BBC-1909-202	09/17/19 16:05	09/18/19	Groundwater	Same As Above
H19090441-004	BBC-1909-203	09/17/19 17:55	09/18/19	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (GW)  
**Lab ID:** H19090441-001  
**Client Sample ID:** BBC-1909-200

**Report Date:** 09/30/19  
**Collection Date:** 09/16/19 16:40  
**Date Received:** 09/18/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/19/19 13:18 / RAT
Solids, Total Dissolved TDS @ 180 C	315	mg/L		10		A2540 C	09/19/19 13:04 / RAT
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	250	mg/L		4		A2320 B	09/20/19 10:02 / SRW
Chloride	1	mg/L		1		E300.0	09/20/19 15:57 / SRW
Sulfate	51	mg/L		1		E300.0	09/20/19 15:57 / SRW
Fluoride	0.8	mg/L		0.1	4	A4500-F C	09/20/19 11:25 / SRW
Hardness as CaCO3	291	mg/L		1		A2340 B	09/20/19 12:20 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.01	mg/L		0.01		E353.2	09/19/19 10:44 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/25/19 20:20 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/25/19 20:20 / dck
Arsenic	0.005	mg/L		0.001		E200.8	09/25/19 20:20 / dck
Barium	0.034	mg/L		0.003		E200.8	09/25/19 20:20 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/25/19 20:20 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/25/19 20:20 / dck
Calcium	58	mg/L		1		E200.7	09/20/19 12:20 / sld
Chromium	ND	mg/L		0.01		E200.8	09/25/19 20:20 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/25/19 20:20 / dck
Copper	ND	mg/L		0.002		E200.8	09/25/19 20:20 / dck
Iron	3.36	mg/L		0.02		E200.7	09/20/19 12:20 / sld
Lead	ND	mg/L		0.0003		E200.8	09/25/19 20:20 / dck
Magnesium	36	mg/L		1		E200.7	09/20/19 12:20 / sld
Manganese	0.061	mg/L		0.005		E200.8	09/25/19 20:20 / dck
Mercury	ND	ug/L		0.005		E245.1	09/20/19 17:11 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/25/19 20:20 / dck
Nickel	ND	mg/L		0.001		E200.8	09/25/19 20:20 / dck
Potassium	5	mg/L		1		E200.7	09/20/19 12:20 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/25/19 20:20 / dck
Silver	ND	mg/L		0.0002		E200.8	09/25/19 20:20 / dck
Sodium	3	mg/L		1		E200.7	09/20/19 12:20 / sld
Strontium	0.0865	mg/L		0.0002		E200.8	09/25/19 20:20 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/25/19 20:20 / dck
Uranium	0.0003	mg/L		0.0002		E200.8	09/25/19 20:20 / dck
Zinc	ND	mg/L		0.002		E200.8	09/25/19 20:20 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (GW)  
**Lab ID:** H19090441-002  
**Client Sample ID:** BBC-1909-201

**Report Date:** 09/30/19  
**Collection Date:** 09/17/19 12:05  
**Date Received:** 09/18/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/19/19 13:18 / RAT
Solids, Total Dissolved TDS @ 180 C	522	mg/L		10		A2540 C	09/19/19 13:05 / RAT
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	09/20/19 10:18 / SRW
Chloride	ND	mg/L		1		E300.0	09/20/19 16:11 / SRW
Sulfate	190	mg/L		1		E300.0	09/20/19 16:11 / SRW
Fluoride	0.8	mg/L		0.1	4	A4500-F C	09/20/19 11:33 / SRW
Hardness as CaCO3	386	mg/L		1		A2340 B	09/20/19 12:24 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/19/19 10:48 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/25/19 20:23 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/25/19 20:23 / dck
Arsenic	0.063	mg/L		0.001		E200.8	09/25/19 20:23 / dck
Barium	0.033	mg/L		0.003		E200.8	09/25/19 20:23 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/25/19 20:23 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/25/19 20:23 / dck
Calcium	75	mg/L		1		E200.7	09/20/19 12:24 / sld
Chromium	ND	mg/L		0.01		E200.8	09/25/19 20:23 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/25/19 20:23 / dck
Copper	ND	mg/L		0.002		E200.8	09/25/19 20:23 / dck
Iron	0.41	mg/L		0.02		E200.7	09/20/19 12:24 / sld
Lead	ND	mg/L		0.0003		E200.8	09/25/19 20:23 / dck
Magnesium	48	mg/L		1		E200.7	09/20/19 12:24 / sld
Manganese	0.109	mg/L		0.005		E200.8	09/25/19 20:23 / dck
Mercury	ND	ug/L		0.005		E245.1	09/20/19 17:21 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/25/19 20:23 / dck
Nickel	ND	mg/L		0.001		E200.8	09/25/19 20:23 / dck
Potassium	5	mg/L		1		E200.7	09/20/19 12:24 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/25/19 20:23 / dck
Silver	ND	mg/L		0.0002		E200.8	09/25/19 20:23 / dck
Sodium	11	mg/L		1		E200.7	09/20/19 12:24 / sld
Strontium	12.6	mg/L	L	0.0005		E200.7	09/20/19 12:24 / sld
Thallium	ND	mg/L		0.0002		E200.8	09/25/19 20:23 / dck
Uranium	0.0008	mg/L		0.0002		E200.8	09/25/19 20:23 / dck
Zinc	0.003	mg/L		0.002		E200.8	09/25/19 20:23 / dck

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 L - Lowest available reporting limit for the analytical method used.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.





### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (GW)  
**Lab ID:** H19090441-003  
**Client Sample ID:** BBC-1909-202

**Report Date:** 09/30/19  
**Collection Date:** 09/17/19 16:05  
**Date Received:** 09/18/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/19/19 13:18 / RAT
Solids, Total Dissolved TDS @ 180 C	584	mg/L		10		A2540 C	09/19/19 13:05 / RAT
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	09/20/19 10:25 / SRW
Chloride	1	mg/L		1		E300.0	09/20/19 16:26 / SRW
Sulfate	227	mg/L		1		E300.0	09/20/19 16:26 / SRW
Fluoride	0.6	mg/L		0.1	4	A4500-F C	09/20/19 11:42 / SRW
Hardness as CaCO3	428	mg/L		1		A2340 B	09/20/19 12:27 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/19/19 10:49 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/25/19 20:25 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/25/19 20:25 / dck
Arsenic	0.085	mg/L		0.001		E200.8	09/25/19 20:25 / dck
Barium	0.012	mg/L		0.003		E200.8	09/25/19 20:25 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/25/19 20:25 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/25/19 20:25 / dck
Calcium	82	mg/L		1		E200.7	09/20/19 12:27 / sld
Chromium	ND	mg/L		0.01		E200.8	09/25/19 20:25 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/25/19 20:25 / dck
Copper	ND	mg/L		0.002		E200.8	09/25/19 20:25 / dck
Iron	2.13	mg/L		0.02		E200.7	09/20/19 12:27 / sld
Lead	ND	mg/L		0.0003		E200.8	09/25/19 20:25 / dck
Magnesium	54	mg/L		1		E200.7	09/20/19 12:27 / sld
Manganese	0.032	mg/L		0.005		E200.8	09/25/19 20:25 / dck
Mercury	ND	ug/L		0.005		E245.1	09/20/19 17:24 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/25/19 20:25 / dck
Nickel	ND	mg/L		0.001		E200.8	09/25/19 20:25 / dck
Potassium	3	mg/L		1		E200.7	09/20/19 12:27 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/25/19 20:25 / dck
Silver	ND	mg/L		0.0002		E200.8	09/25/19 20:25 / dck
Sodium	13	mg/L		1		E200.7	09/20/19 12:27 / sld
Strontium	9.08	mg/L	L	0.0005		E200.7	09/20/19 12:27 / sld
Thallium	0.0008	mg/L		0.0002		E200.8	09/25/19 20:25 / dck
Uranium	0.0014	mg/L		0.0002		E200.8	09/25/19 20:25 / dck
Zinc	ND	mg/L		0.002		E200.8	09/25/19 20:25 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
L - Lowest available reporting limit for the analytical method used.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (GW)  
**Lab ID:** H19090441-004  
**Client Sample ID:** BBC-1909-203

**Report Date:** 09/30/19  
**Collection Date:** 09/17/19 17:55  
**Date Received:** 09/18/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/19/19 13:18 / RAT
Solids, Total Dissolved TDS @ 180 C	336	mg/L		10		A2540 C	09/19/19 13:05 / RAT
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	09/20/19 10:33 / SRW
Chloride	ND	mg/L		1		E300.0	09/20/19 16:40 / SRW
Sulfate	91	mg/L		1		E300.0	09/20/19 16:40 / SRW
Fluoride	0.4	mg/L		0.1	4	A4500-F C	09/20/19 11:46 / SRW
Hardness as CaCO3	282	mg/L		1		A2340 B	09/20/19 12:31 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/19/19 10:50 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/25/19 20:27 / dck
Antimony	0.0008	mg/L		0.0005		E200.8	09/25/19 20:27 / dck
Arsenic	0.012	mg/L		0.001		E200.8	09/25/19 20:27 / dck
Barium	0.037	mg/L		0.003		E200.8	09/25/19 20:27 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/25/19 20:27 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/25/19 20:27 / dck
Calcium	62	mg/L		1		E200.7	09/20/19 12:31 / sld
Chromium	ND	mg/L		0.01		E200.8	09/25/19 20:27 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/25/19 20:27 / dck
Copper	ND	mg/L		0.002		E200.8	09/25/19 20:27 / dck
Iron	0.88	mg/L		0.02		E200.7	09/20/19 12:31 / sld
Lead	0.0079	mg/L		0.0003		E200.8	09/25/19 20:27 / dck
Magnesium	31	mg/L		1		E200.7	09/20/19 12:31 / sld
Manganese	0.096	mg/L		0.005		E200.8	09/25/19 20:27 / dck
Mercury	ND	ug/L		0.005		E245.1	09/20/19 17:27 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/25/19 20:27 / dck
Nickel	ND	mg/L		0.001		E200.8	09/25/19 20:27 / dck
Potassium	2	mg/L		1		E200.7	09/20/19 12:31 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/25/19 20:27 / dck
Silver	ND	mg/L		0.0002		E200.8	09/25/19 20:27 / dck
Sodium	3	mg/L		1		E200.7	09/20/19 12:31 / sld
Strontium	0.699	mg/L	L	0.0005		E200.7	09/20/19 12:31 / sld
Thallium	0.0025	mg/L		0.0002		E200.8	09/25/19 20:27 / dck
Uranium	0.0010	mg/L		0.0002		E200.8	09/25/19 20:27 / dck
Zinc	0.003	mg/L		0.002		E200.8	09/25/19 20:27 / dck

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 L - Lowest available reporting limit for the analytical method used.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090441

**Report Date:** 09/30/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A2320 B										Batch: R147954
<b>Lab ID:</b> MBLK		Method Blank								Run: PHSC_101-H_190920A 09/20/19 09:37
Alkalinity, Total as CaCO3		ND	mg/L	2						
<b>Lab ID:</b> LCS		Laboratory Control Sample								Run: PHSC_101-H_190920A 09/20/19 09:43
Alkalinity, Total as CaCO3		590	mg/L	4.0	98	90	110			
<b>Lab ID:</b> H19090441-001ADUP		Sample Duplicate								Run: PHSC_101-H_190920A 09/20/19 10:10
Alkalinity, Total as CaCO3		250	mg/L	4.0				3.0	10	
<b>Lab ID:</b> H19090458-003ADUP		Sample Duplicate								Run: PHSC_101-H_190920A 09/20/19 13:35
Alkalinity, Total as CaCO3		940	mg/L	4.0				1.9	10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090441

**Report Date:** 09/30/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>										
Batch: TDS190919A										
<b>Lab ID: MB-1_190919A</b>		Method Blank								
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
							Run: ACCU-124 (14410200)_19091			09/19/19 13:04
<b>Lab ID: LCS-2_190919A</b>		Laboratory Control Sample								
Solids, Total Dissolved TDS @ 180 C		1970	mg/L	20	98	90	110			
							Run: ACCU-124 (14410200)_19091			09/19/19 13:04
<b>Lab ID: H19090441-001A DUP</b>		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		310	mg/L	10				1.6	5	
							Run: ACCU-124 (14410200)_19091			09/19/19 13:05
<b>Lab ID: H19090443-007A DUP</b>		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		304	mg/L	10				0.3	5	
							Run: ACCU-124 (14410200)_19091			09/19/19 13:07

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090441

**Report Date:** 09/30/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 D</b>										
Batch: TSS190919A										
<b>Lab ID: MB-1_190919A</b>		Method Blank								
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
								Run: ACCU-124 (14410200)_19091	09/19/19 13:17	
<b>Lab ID: LCS-2_190919A</b>		Laboratory Control Sample								
Solids, Total Suspended TSS @ 105 C		90.0	mg/L	10	90	80	120			
								Run: ACCU-124 (14410200)_19091	09/19/19 13:17	
<b>Lab ID: H19090439-001BDUP</b>		Sample Duplicate								
Solids, Total Suspended TSS @ 105 C		4.00	mg/L	10						5
								Run: ACCU-124 (14410200)_19091	09/19/19 13:17	
<b>Lab ID: H19090453-001ADUP</b>		Sample Duplicate								
Solids, Total Suspended TSS @ 105 C		15.0	mg/L	10						5
								Run: ACCU-124 (14410200)_19091	09/19/19 13:19	

- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090441

**Report Date:** 09/30/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> A4500-F C										Analytical Run: MANTECH 2_190920A	
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								09/20/19 11:17	
Fluoride		0.8	mg/L	0.1	100	90	110				
<b>Method:</b> A4500-F C										Batch: R147976	
<b>Lab ID:</b> MBLK		Method Blank								Run: MANTECH 2_190920A	09/20/19 11:21
Fluoride		ND	mg/L	0.03							
<b>Lab ID:</b> H19090441-001ADUP		Sample Duplicate								Run: MANTECH 2_190920A	09/20/19 11:29
Fluoride		0.8	mg/L	0.1				0.0	10		
<b>Lab ID:</b> H19090441-002AMS		Sample Matrix Spike								Run: MANTECH 2_190920A	09/20/19 11:37
Fluoride		1.8	mg/L	0.1	97	85	115				

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090441

Report Date: 09/30/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>		Analytical Run: ICP2-HE_190920A								
<b>Lab ID: ICV</b>	6	Initial Calibration Verification Standard								09/20/19 08:38
Calcium		39.4	mg/L	1.0	98	95	105			
Iron		3.95	mg/L	0.020	99	95	105			
Magnesium		38.7	mg/L	1.0	97	95	105			
Potassium		39.8	mg/L	1.0	100	95	105			
Sodium		39.8	mg/L	1.0	100	95	105			
Strontium		0.792	mg/L	0.10	99	95	105			
<b>Lab ID: CCV-1</b>	6	Continuing Calibration Verification Standard								09/20/19 08:41
Calcium		25.4	mg/L	1.0	102	95	105			
Iron		2.54	mg/L	0.020	102	95	105			
Magnesium		24.7	mg/L	1.0	99	95	105			
Potassium		25.7	mg/L	1.0	103	95	105			
Sodium		25.6	mg/L	1.0	102	95	105			
Strontium		2.49	mg/L	0.10	100	95	105			
<b>Lab ID: ICSA</b>	6	Interference Check Sample A								09/20/19 09:14
Calcium		518	mg/L	1.0	104	80	120			
Iron		197	mg/L	0.020	98	80	120			
Magnesium		563	mg/L	1.0	113	80	120			
Potassium		0.0324	mg/L	1.0		0	0			
Sodium		0.0135	mg/L	1.0		0	0			
Strontium		-0.0309	mg/L	0.10		0	0			
<b>Lab ID: ICSAB</b>	6	Interference Check Sample AB								09/20/19 09:18
Calcium		500	mg/L	1.0	100	80	120			
Iron		192	mg/L	0.020	96	80	120			
Magnesium		542	mg/L	1.0	108	80	120			
Potassium		20.9	mg/L	1.0	104	80	120			
Sodium		21.0	mg/L	1.0	105	80	120			
Strontium		1.01	mg/L	0.10	101	80	120			
<b>Lab ID: CCV</b>	6	Continuing Calibration Verification Standard								09/20/19 12:04
Calcium		25.0	mg/L	1.0	100	90	110			
Iron		2.52	mg/L	0.020	101	90	110			
Magnesium		25.0	mg/L	1.0	100	90	110			
Potassium		25.3	mg/L	1.0	101	90	110			
Sodium		25.0	mg/L	1.0	100	90	110			
Strontium		2.47	mg/L	0.10	99	90	110			
<b>Method: E200.7</b>		Batch: R147960								
<b>Lab ID: MB</b>	6	Method Blank								Run: ICP2-HE_190920A 09/20/19 09:26
Calcium		ND	mg/L	0.1						
Iron		ND	mg/L	0.006						
Magnesium		ND	mg/L	0.01						
Potassium		ND	mg/L	0.05						
Sodium		ND	mg/L	0.02						
Strontium		ND	mg/L	0.0005						

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090441

Report Date: 09/30/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E200.7										Batch: R147960
<b>Lab ID:</b> MB	6	Method Blank								Run: ICP2-HE_190920A 09/20/19 09:26
<b>Lab ID:</b> LFB	6	Laboratory Fortified Blank								Run: ICP2-HE_190920A 09/20/19 09:30
Calcium		53.8	mg/L	1.0	108	85	115			
Iron		5.33	mg/L	0.020	107	85	115			
Magnesium		52.4	mg/L	1.0	105	85	115			
Potassium		51.4	mg/L	1.0	103	85	115			
Sodium		51.8	mg/L	1.0	104	85	115			
Strontium		1.05	mg/L	0.10	105	85	115			
<b>Lab ID:</b> H19090429-001CMS2	6	Sample Matrix Spike								Run: ICP2-HE_190920A 09/20/19 11:57
Calcium		223	mg/L	1.0	103	70	130			
Iron		5.06	mg/L	0.020	101	70	130			
Magnesium		252	mg/L	1.0	114	70	130			
Potassium		57.6	mg/L	1.0	107	70	130			
Sodium		312	mg/L	1.0		70	130			A
Strontium		3.72	mg/L	0.010	102	70	130			
<b>Lab ID:</b> H19090429-001CMSD	6	Sample Matrix Spike Duplicate								Run: ICP2-HE_190920A 09/20/19 12:01
Calcium		222	mg/L	1.0	101	70	130	0.3	20	
Iron		5.02	mg/L	0.020	100	70	130	0.9	20	
Magnesium		252	mg/L	1.0	113	70	130	0.1	20	
Potassium		55.7	mg/L	1.0	104	70	130	3.4	20	
Sodium		308	mg/L	1.0		70	130	1.3	20	A
Strontium		3.71	mg/L	0.010	101	70	130	0.3	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.





# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090441

Report Date: 09/30/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>		Analytical Run: ICPMS205-H_190925B								
<b>Lab ID: ICV</b>	19 Initial Calibration Verification Standard									09/25/19 15:22
Aluminum		0.306	mg/L	0.10	102	90	110			
Antimony		0.0605	mg/L	0.050	101	90	110			
Arsenic		0.0608	mg/L	0.0050	101	90	110			
Barium		0.0603	mg/L	0.10	101	90	110			
Beryllium		0.0305	mg/L	0.0010	102	90	110			
Cadmium		0.0304	mg/L	0.0010	101	90	110			
Chromium		0.0618	mg/L	0.010	103	90	110			
Cobalt		0.0614	mg/L	0.010	102	90	110			
Copper		0.0611	mg/L	0.010	102	90	110			
Lead		0.0607	mg/L	0.010	101	90	110			
Manganese		0.305	mg/L	0.010	102	90	110			
Molybdenum		0.0605	mg/L	0.0050	101	90	110			
Nickel		0.0610	mg/L	0.010	102	90	110			
Selenium		0.0616	mg/L	0.0050	103	90	110			
Silver		0.0313	mg/L	0.0050	104	90	110			
Strontium		0.0610	mg/L	0.10	102	90	110			
Thallium		0.0606	mg/L	0.10	101	90	110			
Uranium		0.0595	mg/L	0.00030	99	90	110			
Zinc		0.0621	mg/L	0.010	103	90	110			
<b>Lab ID: ICSA</b>	19 Interference Check Sample A									09/25/19 15:24
Aluminum		39.2	mg/L	0.10	98	70	130			
Antimony		0.000230	mg/L	0.050						
Arsenic		3.39E-05	mg/L	0.0050						
Barium		0.000174	mg/L	0.10						
Beryllium		-2.93E-06	mg/L	0.0010						
Cadmium		7.11E-05	mg/L	0.0010						
Chromium		0.000204	mg/L	0.010						
Cobalt		0.000293	mg/L	0.010						
Copper		-8.24E-05	mg/L	0.010						
Lead		9.09E-05	mg/L	0.010						
Manganese		0.000218	mg/L	0.010						
Molybdenum		0.832	mg/L	0.0050	104	70	130			
Nickel		5.85E-06	mg/L	0.010						
Selenium		0.000238	mg/L	0.0050						
Silver		6.28E-05	mg/L	0.0050						
Strontium		0.00101	mg/L	0.10						
Thallium		4.27E-05	mg/L	0.10						
Uranium		1.52E-05	mg/L	0.00030						
Zinc		0.000357	mg/L	0.010						
<b>Lab ID: ICSAB</b>	19 Interference Check Sample AB									09/25/19 15:26
Aluminum		39.3	mg/L	0.10	98	70	130			
Antimony		0.000181	mg/L	0.050		0	0			
Arsenic		0.0101	mg/L	0.0050	101	70	130			
Barium		0.000203	mg/L	0.10		0	0			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090441

Report Date: 09/30/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>		Analytical Run: ICPMS205-H_190925B								
<b>Lab ID: ICSAB</b>	19 Interference Check Sample AB									09/25/19 15:26
Beryllium		-2.98E-06	mg/L	0.0010		0	0			
Cadmium		0.00991	mg/L	0.0010	99	70	130			
Chromium		0.0196	mg/L	0.010	98	70	130			
Cobalt		0.0198	mg/L	0.010	99	70	130			
Copper		0.0195	mg/L	0.010	98	70	130			
Lead		8.95E-05	mg/L	0.010		0	0			
Manganese		0.0201	mg/L	0.010	101	70	130			
Molybdenum		0.839	mg/L	0.0050	105	70	130			
Nickel		0.0201	mg/L	0.010	101	70	130			
Selenium		0.00994	mg/L	0.0050	99	70	130			
Silver		0.00511	mg/L	0.0050	102	70	130			
Strontium		0.000965	mg/L	0.10		0	0			
Thallium		2.08E-05	mg/L	0.10		0	0			
Uranium		4.93E-06	mg/L	0.00030		0	0			
Zinc		0.0102	mg/L	0.010	102	70	130			
<b>Lab ID: ICV</b>	19 Initial Calibration Verification Standard									09/25/19 19:56
Aluminum		0.313	mg/L	0.10	104	90	110			
Antimony		0.0611	mg/L	0.050	102	90	110			
Arsenic		0.0614	mg/L	0.0050	102	90	110			
Barium		0.0604	mg/L	0.10	101	90	110			
Beryllium		0.0304	mg/L	0.0010	101	90	110			
Cadmium		0.0313	mg/L	0.0010	104	90	110			
Chromium		0.0627	mg/L	0.010	105	90	110			
Cobalt		0.0619	mg/L	0.010	103	90	110			
Copper		0.0623	mg/L	0.010	104	90	110			
Lead		0.0608	mg/L	0.010	101	90	110			
Manganese		0.305	mg/L	0.010	102	90	110			
Molybdenum		0.0610	mg/L	0.0050	102	90	110			
Nickel		0.0617	mg/L	0.010	103	90	110			
Selenium		0.0618	mg/L	0.0050	103	90	110			
Silver		0.0316	mg/L	0.0050	105	90	110			
Strontium		0.0606	mg/L	0.10	101	90	110			
Thallium		0.0602	mg/L	0.10	100	90	110			
Uranium		0.0595	mg/L	0.00030	99	90	110			
Zinc		0.0635	mg/L	0.010	106	90	110			
<b>Lab ID: ICSA</b>	19 Interference Check Sample A									09/25/19 19:59
Aluminum		39.1	mg/L	0.10	98	70	130			
Antimony		0.000226	mg/L	0.050						
Arsenic		4.15E-05	mg/L	0.0050						
Barium		0.000189	mg/L	0.10						
Beryllium		1.27E-05	mg/L	0.0010						
Cadmium		7.08E-05	mg/L	0.0010						
Chromium		0.000246	mg/L	0.010						
Cobalt		0.000278	mg/L	0.010						

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090441

Report Date: 09/30/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
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Method: E200.8

Analytical Run: ICPMS205-H\_190925B

Lab ID: ICSA 19 Interference Check Sample A 09/25/19 19:59

Copper		3.47E-05	mg/L	0.010						
Lead		0.000103	mg/L	0.010						
Manganese		0.000317	mg/L	0.010						
Molybdenum		0.815	mg/L	0.0050	102	70	130			
Nickel		0.000102	mg/L	0.010						
Selenium		0.000189	mg/L	0.0050						
Silver		6.46E-05	mg/L	0.0050						
Strontium		0.00102	mg/L	0.10						
Thallium		4.67E-05	mg/L	0.10						
Uranium		1.28E-05	mg/L	0.00030						
Zinc		0.00106	mg/L	0.010						

Lab ID: ICSAB 19 Interference Check Sample AB 09/25/19 20:01

Aluminum		38.8	mg/L	0.10	97	70	130			
Antimony		0.000178	mg/L	0.050		0	0			
Arsenic		0.00972	mg/L	0.0050	97	70	130			
Barium		0.000174	mg/L	0.10		0	0			
Beryllium		-5.30E-05	mg/L	0.0010		0	0			
Cadmium		0.00992	mg/L	0.0010	99	70	130			
Chromium		0.0201	mg/L	0.010	101	70	130			
Cobalt		0.0202	mg/L	0.010	101	70	130			
Copper		0.0196	mg/L	0.010	98	70	130			
Lead		0.000103	mg/L	0.010		0	0			
Manganese		0.0206	mg/L	0.010	103	70	130			
Molybdenum		0.824	mg/L	0.0050	103	70	130			
Nickel		0.0198	mg/L	0.010	99	70	130			
Selenium		0.00978	mg/L	0.0050	98	70	130			
Silver		0.00509	mg/L	0.0050	102	70	130			
Strontium		0.00105	mg/L	0.10		0	0			
Thallium		2.57E-05	mg/L	0.10		0	0			
Uranium		7.23E-06	mg/L	0.00030		0	0			
Zinc		0.0114	mg/L	0.010	115	70	130			

Method: E200.8

Batch: R148125

Lab ID: LRB 19 Method Blank Run: ICPMS205-H\_190925B 09/25/19 20:13

Aluminum		ND	mg/L	0.003						
Antimony		ND	mg/L	9E-05						
Arsenic		ND	mg/L	4E-05						
Barium		ND	mg/L	2E-05						
Beryllium		ND	mg/L	0.0001						
Cadmium		ND	mg/L	3E-05						
Chromium		ND	mg/L	0.0002						
Cobalt		ND	mg/L	9E-05						
Copper		ND	mg/L	0.0001						
Lead		ND	mg/L	3E-05						
Manganese		ND	mg/L	0.0003						

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090441

Report Date: 09/30/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: R148125										
<b>Lab ID: LRB</b>	19	Method Blank								
Run: ICPMS205-H_190925B 09/25/19 20:13										
Molybdenum		3E-05	mg/L	2E-05						
Nickel		ND	mg/L	0.0002						
Selenium		ND	mg/L	2E-05						
Silver		ND	mg/L	2E-05						
Strontium		ND	mg/L	0.0001						
Thallium		ND	mg/L	1E-05						
Uranium		ND	mg/L	1E-05						
Zinc		0.0009	mg/L	0.0003						
<b>Lab ID: LFB</b>										
19 Laboratory Fortified Blank										
Run: ICPMS205-H_190925B 09/25/19 20:15										
Aluminum		0.0524	mg/L	0.10	105	85	115			
Antimony		0.0481	mg/L	0.050	96	85	115			
Arsenic		0.0476	mg/L	0.0050	95	85	115			
Barium		0.0483	mg/L	0.10	97	85	115			
Beryllium		0.0467	mg/L	0.0010	93	85	115			
Cadmium		0.0487	mg/L	0.0010	97	85	115			
Chromium		0.0480	mg/L	0.010	96	85	115			
Cobalt		0.0486	mg/L	0.010	97	85	115			
Copper		0.0493	mg/L	0.010	99	85	115			
Lead		0.0470	mg/L	0.010	94	85	115			
Manganese		0.0483	mg/L	0.010	97	85	115			
Molybdenum		0.0463	mg/L	0.0050	93	85	115			
Nickel		0.0489	mg/L	0.010	98	85	115			
Selenium		0.0474	mg/L	0.0050	95	85	115			
Silver		0.0194	mg/L	0.0050	97	85	115			
Strontium		0.0481	mg/L	0.10	96	85	115			
Thallium		0.0459	mg/L	0.10	92	85	115			
Uranium		0.0451	mg/L	0.00030	90	85	115			
Zinc		0.0516	mg/L	0.010	103	85	115			
<b>Lab ID: H19090441-004BMS</b>										
19 Sample Matrix Spike										
Run: ICPMS205-H_190925B 09/25/19 20:30										
Aluminum		0.0504	mg/L	0.030	101	70	130			
Antimony		0.0498	mg/L	0.0010	98	70	130			
Arsenic		0.0618	mg/L	0.0010	100	70	130			
Barium		0.0858	mg/L	0.050	98	70	130			
Beryllium		0.0505	mg/L	0.0010	101	70	130			
Cadmium		0.0501	mg/L	0.0010	100	70	130			
Chromium		0.0492	mg/L	0.0050	98	70	130			
Cobalt		0.0496	mg/L	0.0050	98	70	130			
Copper		0.0491	mg/L	0.0050	98	70	130			
Lead		0.0570	mg/L	0.0010	98	70	130			
Manganese		0.143	mg/L	0.0010	94	70	130			
Molybdenum		0.0481	mg/L	0.0010	96	70	130			
Nickel		0.0500	mg/L	0.0050	99	70	130			
Selenium		0.0525	mg/L	0.0010	105	70	130			
Silver		0.0196	mg/L	0.0010	98	70	130			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090441

Report Date: 09/30/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: R148125										
<b>Lab ID: H19090441-004BMS</b>	19	Sample Matrix Spike								
Strontium		0.740	mg/L	0.010		70	130			A
Thallium		0.0517	mg/L	0.00050	98	70	130			
Uranium		0.0494	mg/L	0.00030	97	70	130			
Zinc		0.0533	mg/L	0.010	101	70	130			
<b>Lab ID: H19090441-004BMSD</b>										
Batch: R148125										
	19	Sample Matrix Spike Duplicate								
Aluminum		0.0494	mg/L	0.030	99	70	130	2.0	20	
Antimony		0.0496	mg/L	0.0010	98	70	130	0.3	20	
Arsenic		0.0609	mg/L	0.0010	98	70	130	1.6	20	
Barium		0.0845	mg/L	0.050	95	70	130	1.5	20	
Beryllium		0.0488	mg/L	0.0010	98	70	130	3.5	20	
Cadmium		0.0485	mg/L	0.0010	97	70	130	3.3	20	
Chromium		0.0477	mg/L	0.0050	95	70	130	3.0	20	
Cobalt		0.0478	mg/L	0.0050	95	70	130	3.7	20	
Copper		0.0475	mg/L	0.0050	95	70	130	3.2	20	
Lead		0.0559	mg/L	0.0010	96	70	130	1.9	20	
Manganese		0.143	mg/L	0.0010	93	70	130	0.4	20	
Molybdenum		0.0479	mg/L	0.0010	95	70	130	0.4	20	
Nickel		0.0476	mg/L	0.0050	94	70	130	4.8	20	
Selenium		0.0503	mg/L	0.0010	101	70	130	4.2	20	
Silver		0.0186	mg/L	0.0010	93	70	130	5.8	20	
Strontium		0.742	mg/L	0.010		70	130	0.2	20	A
Thallium		0.0505	mg/L	0.00050	96	70	130	2.3	20	
Uranium		0.0484	mg/L	0.00030	95	70	130	2.1	20	
Zinc		0.0523	mg/L	0.010	99	70	130	1.9	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090441

**Report Date:** 09/30/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> E245.1										Analytical Run: HGCV203-H_190920A	
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								09/20/19 15:41	
Mercury		0.0919	ug/L	0.0050	92	90	110				
<b>Lab ID:</b> CCV1		Continuing Calibration Verification Standard								09/20/19 15:44	
Mercury		0.101	ug/L	0.0050	101	95	105				
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								09/20/19 16:48	
Mercury		0.102	ug/L	0.0050	102	90	110				
<b>Method:</b> E245.1										Batch: 47892	
<b>Lab ID:</b> MB-47892		Method Blank								Run: HGCV203-H_190920A	09/20/19 17:05
Mercury		ND	ug/L	0.001							
<b>Lab ID:</b> LCS-47892		Laboratory Control Sample								Run: HGCV203-H_190920A	09/20/19 17:08
Mercury		0.0523	ug/L	0.0050	105	90	110				
<b>Lab ID:</b> H19090441-001BMS		Sample Matrix Spike								Run: HGCV203-H_190920A	09/20/19 17:15
Mercury		0.0526	ug/L	0.0050	105	70	130				
<b>Lab ID:</b> H19090441-001BMSD		Sample Matrix Spike Duplicate								Run: HGCV203-H_190920A	09/20/19 17:18
Mercury		0.0529	ug/L	0.0050	106	70	130	0.6	20		

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090441

**Report Date:** 09/30/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E300.0										Analytical Run: IC METROHM_190920A
<b>Lab ID:</b> ICV	2	Initial Calibration Verification Standard								09/20/19 09:55
Chloride		96.4	mg/L	1.0	96	90	110			
Sulfate		376	mg/L	1.0	94	90	110			
<b>Lab ID:</b> CCV	2	Continuing Calibration Verification Standard								09/20/19 14:15
Chloride		48.6	mg/L	1.0	97	90	110			
Sulfate		193	mg/L	1.0	96	90	110			
<b>Method:</b> E300.0										Batch: R148004
<b>Lab ID:</b> ICB	2	Method Blank								09/20/19 09:40
Chloride		ND	mg/L	0.02						Run: IC METROHM_190920A
Sulfate		ND	mg/L	0.08						
<b>Lab ID:</b> LFB	2	Laboratory Fortified Blank								09/20/19 10:09
Chloride		23.6	mg/L	1.0	95	90	110			Run: IC METROHM_190920A
Sulfate		96.5	mg/L	1.0	96	90	110			
<b>Lab ID:</b> H19090443-002AMS	2	Sample Matrix Spike								09/20/19 17:24
Chloride		25.1	mg/L	1.0	93	90	110			Run: IC METROHM_190920A
Sulfate		211	mg/L	1.0	93	90	110			
<b>Lab ID:</b> H19090443-002AMSD	2	Sample Matrix Spike Duplicate								09/20/19 17:39
Chloride		25.1	mg/L	1.0	93	90	110	0.3	20	Run: IC METROHM_190920A
Sulfate		211	mg/L	1.0	93	90	110	0.1	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090441

**Report Date:** 09/30/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E353.2										Analytical Run: FIA203-HE_190919A
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								09/19/19 08:55
Nitrogen, Nitrate+Nitrite as N		1.02	mg/L	0.010	102	90	110			
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								09/19/19 10:36
Nitrogen, Nitrate+Nitrite as N		0.499	mg/L	0.010	100	90	110			
<b>Method:</b> E353.2										Batch: R147918
<b>Lab ID:</b> MBLK		Method Blank								09/19/19 08:56
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009						Run: FIA203-HE_190919A
<b>Lab ID:</b> LFB		Laboratory Fortified Blank								09/19/19 08:57
Nitrogen, Nitrate+Nitrite as N		1.02	mg/L	0.011	102	90	110			Run: FIA203-HE_190919A
<b>Lab ID:</b> H19090441-001Cms		Sample Matrix Spike								09/19/19 10:46
Nitrogen, Nitrate+Nitrite as N		0.981	mg/L	0.011	97	90	110			Run: FIA203-HE_190919A
<b>Lab ID:</b> H19090441-001Cmsd		Sample Matrix Spike Duplicate								09/19/19 10:47
Nitrogen, Nitrate+Nitrite as N		1.01	mg/L	0.011	100	90	110	2.8	10	Run: FIA203-HE_190919A

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.





# Work Order Receipt Checklist

Tintina Resources Inc

H19090441

Login completed by: Jessica C. Smith

Date Received: 9/18/2019

Reviewed by: BL2000\rtooke

Received by: abc

Reviewed Date: 9/24/2019

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	0.7°C On Ice		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

## Contact and Corrective Action Comments:

1L and 500mL bottles in sample sets BBC-1909-201 and BBC-1909-202 were received partially frozen. JCS 09/18/19

**CHAIN OF CUSTODY RECORD**



**Hydrometrics, Inc.**

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

PROJ. NO.	PROJECT NAME	NO. OF CONTAINERS	COMMONS UF / RAW	NUTRIENTS UF / H <sub>2</sub> SO <sub>4</sub>	DISS. METAL F / NaOH	CN UF / HNO <sub>3</sub>	TOTAL METALS UF / HNO <sub>3</sub>	TOTAL RECOVERABLE METALS UF / HNO <sub>3</sub>	BTEX	TPH	REMARKS
DATE	TIME	SAMPLE NUMBER	COMP	GRAB							
9/16/19	1640	BBC-1909-200	X	X	X	X	X	X	X	X	H19090441
9/17/19	1205	201	X	X	X	X	X	X	X	X	
	1605	202	X	X	X	X	X	X	X	X	
	1755	203	X	X	X	X	X	X	X	X	

Relinquished (Signature) \_\_\_\_\_ Date / Time 9/16/19 1335  
 Received by (Signature) \_\_\_\_\_  
 Relinquished (Signature) \_\_\_\_\_ Date / Time 9/18/19 1335  
 Received by (Signature) \_\_\_\_\_  
 Relinquished (Signature) \_\_\_\_\_ Date / Time 9/18/19 1335  
 Received for Laboratory by (Signature) *Aranda Carlson*

Lab *Enviro 2 Lab*  
 P.O. # *1311*  
 Shipped via:  Bus  FedEx  UPS  
 Other  Air Bill # *1311*

Remarks *found del. 07 on 10/18/19*  
 Date / Time 9/18/19 1335  
 Enclosed:  Parameter sheet w/detection limits  
 QA / AC standard mixing instructions  Cover letter  
 Other  
 Split Samples:  Accepted  Declined  
 Signature \_\_\_\_\_

Return results & electronic copy to:  
 QA / QC Dept. at address at top of page

**TABLE 5. PARAMETERS, METHODS, AND DETECTION LIMITS  
FOR GROUNDWATER MONITORING**

Parameter	Analytical Method <sup>(1)</sup>	Project-Required Detection Limit (mg/L)
<b>Physical Parameters</b>		
TDS	SM 2540C	10
TSS	SM 2540C	10
<b>Common Ions</b>		
Alkalinity	SM 2320B	4
Sulfate	300.0	1
Chloride	300.0/SM 4500CL-B	1
Fluoride	A4500-F C	0.1
Calcium	215.1/200.7	1
Magnesium	242.1/200.7	1
Sodium	273.1/200.7	1
Potassium	258.1/200.7	1
<b>Nutrients</b>		
Nitrate+Nitrite as N	353.2	0.01
<b>Trace Constituents (Dissolved)<sup>(2)</sup></b>		
Aluminum (Al)	200.7/200.8	0.009
Antimony (Sb)	200.7/200.8	0.0005
Arsenic (As)	200.8/SM 3114B	0.001
Barium (Ba)	200.7/200.8	0.003
Beryllium (Be)	200.7/200.8	0.0008
Cadmium (Cd)	200.7/200.8	0.00003
Chromium (Cr)	200.7/200.8	0.01
Cobalt (Co)	200.7/200.8	0.01
Copper (Cu)	200.7/200.8	0.002
Iron (Fe)	200.7/200.8	0.02
Lead (Pb)	200.7/200.8	0.0003
Manganese (Mn)	200.7/200.8	0.005
Mercury (Hg)	245.2/245.1/200.8/SM 3112B	0.000005
Molybdenum (Mo)	200.7/200.8	0.002
Nickel (Ni)	200.7/200.8	0.001
Selenium (Se)	200.7/200.8/SM 3114B	0.0002
Silver (Ag)	200.7/200.8	0.0002
Strontium (Sr)	200.7/200.8	0.0002
Thallium (Tl)	200.7/200.8	0.0002
Uranium	200.7/200.8	0.008
Zinc (Zn)	200.7/200.8	0.002
<b>Field Parameters</b>		
Stream Flow	HF-SOP-37/-44/-46	NA
Water Temperature	HF-SOP-20	0.1 °C
Dissolved Oxygen (DO)	HF-SOP-22	0.1 mg/L
pH	HF-SOP-20	0.1 s.u.
Specific Conductance (SC)	HF-SOP-79	1 µmhos/cm

(1) Analytical methods are from *Standard Methods for the Examination of Water and Wastewater* (SM) or EPA's *Methods for Chemical Analysis of Water and Waste* (1983).

(2) Samples to be analyzed for dissolved constituents will be field-filtered through a 0.45 µm filter.



# ANALYTICAL SUMMARY REPORT

October 04, 2019

Tintina Resources Inc  
PO Box 431  
White Sulphur Springs, MT 59645-0431

Work Order: H19090556      Quote ID: H1216

Project Name: 18049 Black Butte

Energy Laboratories Inc Helena MT received the following 27 samples for Tintina Resources Inc on 9/23/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H19090556-001	BBC-1909-204	09/18/19 13:10	09/23/19	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Mercury, Dissolved Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Mercury Digestion by E245.1 Solids, Total Dissolved Solids, Total Suspended
H19090556-002	BBC-1909-205	09/18/19 12:20	09/23/19	Groundwater	Same As Above
H19090556-003	BBC-1909-206	09/18/19 13:35	09/23/19	Groundwater	Same As Above
H19090556-004	BBC-1909-207	09/18/19 16:25	09/23/19	Groundwater	Same As Above
H19090556-005	BBC-1909-208	09/18/19 18:00	09/23/19	Groundwater	Same As Above
H19090556-006	BBC-1909-209	09/18/19 18:30	09/23/19	Groundwater	Same As Above
H19090556-007	BBC-1909-210	09/19/19 11:30	09/23/19	Groundwater	Same As Above
H19090556-008	BBC-1909-211	09/19/19 9:25	09/23/19	Groundwater	Same As Above
H19090556-009	BBC-1909-212	09/19/19 9:55	09/23/19	Groundwater	Same As Above
H19090556-010	BBC-1909-213	09/19/19 10:25	09/23/19	Groundwater	Same As Above
H19090556-011	BBC-1909-214	09/19/19 11:00	09/23/19	Groundwater	Same As Above
H19090556-012	BBC-1909-215	09/19/19 12:15	09/23/19	Groundwater	Same As Above
H19090556-013	BBC-1909-216	09/19/19 12:55	09/23/19	Groundwater	Same As Above
H19090556-014	BBC-1909-217	09/19/19 13:30	09/23/19	Groundwater	Same As Above
H19090556-015	BBC-1909-218	09/19/19 15:20	09/23/19	Groundwater	Same As Above
H19090556-016	BBC-1909-219	09/19/19 15:00	09/23/19	Groundwater	Same As Above
H19090556-017	BBC-1909-220	09/19/19 15:55	09/23/19	Groundwater	Same As Above
H19090556-018	BBC-1909-221	09/19/19 16:50	09/23/19	Groundwater	Same As Above
H19090556-019	BBC-1909-222	09/19/19 18:25	09/23/19	Groundwater	Same As Above
H19090556-020	BBC-1909-223	09/19/19 19:00	09/23/19	Groundwater	Same As Above
H19090556-021	BBC-1909-224	09/20/19 9:10	09/23/19	Groundwater	Same As Above
H19090556-022	BBC-1909-225	09/20/19 9:55	09/23/19	Groundwater	Same As Above



## ANALYTICAL SUMMARY REPORT

H19090556-023	BBC-1909-226	09/20/19 10:25	09/23/19	Groundwater	Same As Above
H19090556-024	BBC-1909-227	09/20/19 12:40	09/23/19	Groundwater	Same As Above
H19090556-025	BBC-1909-228	09/20/19 11:20	09/23/19	Groundwater	Same As Above
H19090556-026	BBC-1909-229	09/20/19 14:25	09/23/19	Groundwater	Same As Above
H19090556-027	BBC-1909-230	09/20/19 15:15	09/23/19	Groundwater	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-001  
**Client Sample ID:** BBC-1909-204

**Report Date:** 10/04/19  
**Collection Date:** 09/18/19 13:10  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	25	mg/L		10		A2540 D	09/24/19 14:52 / SRW
Solids, Total Dissolved TDS @ 180 C	436	mg/L		10		A2540 C	09/24/19 14:41 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	09/24/19 11:49 / SRW
Chloride	1	mg/L		1		E300.0	09/24/19 17:41 / SRW
Sulfate	176	mg/L		1		E300.0	09/24/19 17:41 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	09/24/19 10:44 / SRW
Hardness as CaCO3	320	mg/L		1		A2340 B	09/25/19 16:32 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.01		E353.2	09/24/19 13:17 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 17:05 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:05 / dck
Arsenic	0.063	mg/L		0.001		E200.8	09/29/19 17:05 / dck
Barium	0.048	mg/L		0.003		E200.8	09/29/19 17:05 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:05 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:05 / dck
Calcium	70	mg/L		1		E200.7	09/25/19 16:32 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:05 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:05 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:05 / dck
Iron	10.5	mg/L		0.02		E200.7	09/25/19 16:32 / sld
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:05 / dck
Magnesium	35	mg/L		1		E200.7	09/25/19 16:32 / sld
Manganese	0.137	mg/L		0.005		E200.8	09/29/19 17:05 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 12:05 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:05 / dck
Nickel	0.005	mg/L		0.001		E200.8	09/29/19 17:05 / dck
Potassium	2	mg/L		1		E200.7	09/25/19 16:32 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 17:05 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:05 / dck
Sodium	4	mg/L		1		E200.7	09/25/19 16:32 / sld
Strontium	9.88	mg/L	L	0.0005		E200.7	09/25/19 16:32 / sld
Thallium	0.0005	mg/L		0.0002		E200.8	09/29/19 17:05 / dck
Uranium	0.0011	mg/L		0.0002		E200.8	09/29/19 17:05 / dck
Zinc	0.007	mg/L		0.002		E200.8	09/29/19 17:05 / dck

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 L - Lowest available reporting limit for the analytical method used.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-002  
**Client Sample ID:** BBC-1909-205

**Report Date:** 10/04/19  
**Collection Date:** 09/18/19 12:20  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:52 / SRW
Solids, Total Dissolved TDS @ 180 C	429	mg/L		10		A2540 C	09/24/19 14:41 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	110	mg/L		4		A2320 B	09/24/19 11:56 / SRW
Chloride	3	mg/L		1		E300.0	09/24/19 17:55 / SRW
Sulfate	219	mg/L		1		E300.0	09/24/19 17:55 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	09/24/19 10:48 / SRW
Hardness as CaCO3	282	mg/L		1		A2340 B	09/25/19 17:25 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.01		E353.2	09/24/19 13:21 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 17:07 / dck
Antimony	0.0009	mg/L		0.0005		E200.8	09/29/19 17:07 / dck
Arsenic	0.066	mg/L		0.001		E200.8	09/29/19 17:07 / dck
Barium	0.011	mg/L		0.003		E200.8	09/29/19 17:07 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:07 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:07 / dck
Calcium	61	mg/L		1		E200.7	09/25/19 17:25 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:07 / dck
Cobalt	0.02	mg/L		0.01		E200.8	09/29/19 17:07 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:07 / dck
Iron	19.0	mg/L		0.02		E200.7	09/25/19 17:25 / sld
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:07 / dck
Magnesium	32	mg/L		1		E200.7	09/25/19 17:25 / sld
Manganese	0.076	mg/L		0.005		E200.8	09/29/19 17:07 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 12:08 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:07 / dck
Nickel	0.010	mg/L		0.001		E200.8	09/29/19 17:07 / dck
Potassium	3	mg/L		1		E200.7	09/25/19 17:25 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 17:07 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:07 / dck
Sodium	3	mg/L		1		E200.7	09/25/19 17:25 / sld
Strontium	1.77	mg/L	L	0.0005		E200.7	09/25/19 17:25 / sld
Thallium	0.0117	mg/L		0.0002		E200.8	09/29/19 17:07 / dck
Uranium	ND	mg/L		0.0002		E200.8	09/29/19 17:07 / dck
Zinc	0.012	mg/L		0.002		E200.8	10/01/19 11:28 / dck

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 L - Lowest available reporting limit for the analytical method used.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-003  
**Client Sample ID:** BBC-1909-206

**Report Date:** 10/04/19  
**Collection Date:** 09/18/19 13:35  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	108	mg/L		10		A2540 D	09/24/19 14:53 / SRW
Solids, Total Dissolved TDS @ 180 C	205	mg/L		10		A2540 C	09/24/19 14:41 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	09/24/19 12:11 / SRW
Chloride	1	mg/L		1		E300.0	09/24/19 18:10 / SRW
Sulfate	15	mg/L		1		E300.0	09/24/19 18:10 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	09/24/19 10:52 / SRW
Hardness as CaCO3	177	mg/L		1		A2340 B	09/25/19 17:28 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.44	mg/L		0.01		E353.2	09/24/19 13:22 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	0.018	mg/L		0.009		E200.8	09/29/19 17:10 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:10 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 17:10 / dck
Barium	0.169	mg/L		0.003		E200.8	09/29/19 17:10 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:10 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:10 / dck
Calcium	42	mg/L		1		E200.7	09/25/19 17:28 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:10 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:10 / dck
Copper	0.006	mg/L		0.002		E200.8	09/29/19 17:10 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 17:10 / dck
Lead	0.0004	mg/L		0.0003		E200.8	09/29/19 17:10 / dck
Magnesium	17	mg/L		1		E200.7	09/25/19 17:28 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 17:10 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 12:12 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:10 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 17:10 / dck
Potassium	1	mg/L		1		E200.7	09/25/19 17:28 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 17:10 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:10 / dck
Sodium	2	mg/L		1		E200.7	09/25/19 17:28 / sld
Strontium	0.0944	mg/L		0.0002		E200.8	09/29/19 17:10 / dck
Thallium	0.0009	mg/L		0.0002		E200.8	09/29/19 17:10 / dck
Uranium	0.0009	mg/L		0.0002		E200.8	09/29/19 17:10 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 17:10 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.





### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-004  
**Client Sample ID:** BBC-1909-207

**Report Date:** 10/04/19  
**Collection Date:** 09/18/19 16:25  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	10	mg/L		10		A2540 D	09/24/19 14:53 / SRW
Solids, Total Dissolved TDS @ 180 C	480	mg/L		10		A2540 C	09/24/19 14:41 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	270	mg/L		4		A2320 B	09/24/19 12:19 / SRW
Chloride	1	mg/L		1		E300.0	09/24/19 18:24 / SRW
Sulfate	151	mg/L		1		E300.0	09/24/19 18:24 / SRW
Fluoride	0.4	mg/L		0.1	4	A4500-F C	09/24/19 10:56 / SRW
Hardness as CaCO3	398	mg/L		1		A2340 B	09/25/19 17:32 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	09/24/19 13:23 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 17:12 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:12 / dck
Arsenic	0.006	mg/L		0.001		E200.8	09/29/19 17:12 / dck
Barium	0.011	mg/L		0.003		E200.8	09/29/19 17:12 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:12 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:12 / dck
Calcium	84	mg/L		1		E200.7	09/25/19 17:32 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:12 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:12 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:12 / dck
Iron	5.46	mg/L		0.02		E200.7	09/25/19 17:32 / sld
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:12 / dck
Magnesium	46	mg/L		1		E200.7	09/25/19 17:32 / sld
Manganese	0.045	mg/L		0.005		E200.8	09/29/19 17:12 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 12:15 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:12 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 17:12 / dck
Potassium	4	mg/L		1		E200.7	09/25/19 17:32 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 17:12 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:12 / dck
Sodium	5	mg/L		1		E200.7	09/25/19 17:32 / sld
Strontium	0.313	mg/L		0.0002		E200.8	09/29/19 17:12 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 17:12 / dck
Uranium	0.0011	mg/L		0.0002		E200.8	09/29/19 17:12 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 17:12 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-005  
**Client Sample ID:** BBC-1909-208

**Report Date:** 10/04/19  
**Collection Date:** 09/18/19 18:00  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:53 / SRW
Solids, Total Dissolved TDS @ 180 C	210	mg/L		10		A2540 C	09/24/19 14:42 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	09/24/19 12:28 / SRW
Chloride	1	mg/L		1		E300.0	09/24/19 18:39 / SRW
Sulfate	20	mg/L		1		E300.0	09/24/19 18:39 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	09/24/19 11:00 / SRW
Hardness as CaCO3	198	mg/L		1		A2340 B	09/25/19 17:36 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.23	mg/L		0.01		E353.2	09/24/19 13:24 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 17:14 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:14 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 17:14 / dck
Barium	0.083	mg/L		0.003		E200.8	09/29/19 17:14 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:14 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:14 / dck
Calcium	42	mg/L		1		E200.7	09/25/19 17:36 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:14 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:14 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:14 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 17:14 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:14 / dck
Magnesium	22	mg/L		1		E200.7	09/25/19 17:36 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 17:14 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 12:18 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:14 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 17:14 / dck
Potassium	1	mg/L		1		E200.7	09/25/19 17:36 / sld
Selenium	0.0008	mg/L		0.0002		E200.8	09/29/19 17:14 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:14 / dck
Sodium	2	mg/L		1		E200.7	09/25/19 17:36 / sld
Strontium	0.0884	mg/L		0.0002		E200.8	09/29/19 17:14 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 17:14 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	09/29/19 17:14 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 17:14 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-006  
**Client Sample ID:** BBC-1909-209

**Report Date:** 10/04/19  
**Collection Date:** 09/18/19 18:30  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:53 / SRW
Solids, Total Dissolved TDS @ 180 C	232	mg/L		10		A2540 C	09/24/19 14:42 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	09/24/19 12:36 / SRW
Chloride	1	mg/L		1		E300.0	09/24/19 18:54 / SRW
Sulfate	34	mg/L		1		E300.0	09/24/19 18:54 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	09/24/19 11:05 / SRW
Hardness as CaCO3	222	mg/L		1		A2340 B	09/25/19 17:40 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/24/19 13:26 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 17:17 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:17 / dck
Arsenic	0.003	mg/L		0.001		E200.8	09/29/19 17:17 / dck
Barium	0.041	mg/L		0.003		E200.8	09/29/19 17:17 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:17 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:17 / dck
Calcium	47	mg/L		1		E200.7	09/25/19 17:40 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:17 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:17 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:17 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 17:17 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:17 / dck
Magnesium	25	mg/L		1		E200.7	09/25/19 17:40 / sld
Manganese	0.005	mg/L		0.005		E200.8	09/29/19 17:17 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 12:28 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:17 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 17:17 / dck
Potassium	1	mg/L		1		E200.7	09/25/19 17:40 / sld
Selenium	0.0050	mg/L		0.0002		E200.8	09/29/19 17:17 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:17 / dck
Sodium	3	mg/L		1		E200.7	09/25/19 17:40 / sld
Strontium	0.0862	mg/L		0.0002		E200.8	09/29/19 17:17 / dck
Thallium	0.0034	mg/L		0.0002		E200.8	09/29/19 17:17 / dck
Uranium	0.0021	mg/L		0.0002		E200.8	09/29/19 17:17 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 17:17 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-007  
**Client Sample ID:** BBC-1909-210

**Report Date:** 10/04/19  
**Collection Date:** 09/19/19 11:30  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:54 / SRW
Solids, Total Dissolved TDS @ 180 C	197	mg/L		10		A2540 C	09/24/19 14:42 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	09/24/19 12:44 / SRW
Chloride	ND	mg/L		1		E300.0	09/24/19 19:08 / SRW
Sulfate	4	mg/L		1		E300.0	09/24/19 19:08 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	09/24/19 11:09 / SRW
Hardness as CaCO3	174	mg/L		1		A2340 B	09/25/19 17:44 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.57	mg/L		0.01		E353.2	09/24/19 13:27 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 17:19 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:19 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 17:19 / dck
Barium	0.204	mg/L		0.003		E200.8	09/29/19 17:19 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:19 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:19 / dck
Calcium	42	mg/L		1		E200.7	09/25/19 17:44 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:19 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:19 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:19 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 17:19 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:19 / dck
Magnesium	17	mg/L		1		E200.7	09/25/19 17:44 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 17:19 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 12:31 / dck
Molybdenum	0.004	mg/L		0.002		E200.8	09/29/19 17:19 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 17:19 / dck
Potassium	2	mg/L		1		E200.7	09/25/19 17:44 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 17:19 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:19 / dck
Sodium	6	mg/L		1		E200.7	09/25/19 17:44 / sld
Strontium	0.886	mg/L		0.0002		E200.8	09/29/19 17:19 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 17:19 / dck
Uranium	0.0051	mg/L		0.0002		E200.8	09/29/19 17:19 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 17:19 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-008  
**Client Sample ID:** BBC-1909-211

**Report Date:** 10/04/19  
**Collection Date:** 09/19/19 09:25  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	12	mg/L		10		A2540 D	09/24/19 14:54 / SRW
Solids, Total Dissolved TDS @ 180 C	217	mg/L		10		A2540 C	09/24/19 14:42 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	09/24/19 12:50 / SRW
Chloride	ND	mg/L		1		E300.0	09/24/19 20:50 / SRW
Sulfate	14	mg/L		1		E300.0	09/24/19 20:50 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/24/19 11:21 / SRW
Hardness as CaCO3	208	mg/L		1		A2340 B	09/25/19 17:47 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.23	mg/L		0.01		E353.2	09/24/19 13:28 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 20:41 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:33 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 17:33 / dck
Barium	0.086	mg/L		0.003		E200.8	09/29/19 17:33 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:33 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:33 / dck
Calcium	51	mg/L		1		E200.7	09/25/19 17:47 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:33 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:33 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:33 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 17:33 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:33 / dck
Magnesium	19	mg/L		1		E200.7	09/25/19 17:47 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 17:33 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 12:34 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:33 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 17:33 / dck
Potassium	ND	mg/L		1		E200.7	09/25/19 17:47 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 17:33 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:33 / dck
Sodium	2	mg/L		1		E200.7	09/25/19 17:47 / sld
Strontium	0.148	mg/L		0.0002		E200.8	09/29/19 17:33 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 17:33 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	09/29/19 17:33 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 17:33 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-009  
**Client Sample ID:** BBC-1909-212

**Report Date:** 10/04/19  
**Collection Date:** 09/19/19 09:55  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	52	mg/L		10		A2540 D	09/24/19 14:54 / SRW
Solids, Total Dissolved TDS @ 180 C	231	mg/L		10		A2540 C	09/24/19 14:42 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	09/24/19 12:58 / SRW
Chloride	ND	mg/L		1		E300.0	09/24/19 21:04 / SRW
Sulfate	15	mg/L		1		E300.0	09/24/19 21:04 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/24/19 11:29 / SRW
Hardness as CaCO3	225	mg/L		1		A2340 B	09/25/19 17:51 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.16	mg/L		0.01		E353.2	09/24/19 13:29 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 20:44 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:36 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 17:36 / dck
Barium	0.054	mg/L		0.003		E200.8	09/29/19 17:36 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:36 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:36 / dck
Calcium	58	mg/L		1		E200.7	09/25/19 17:51 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:36 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:36 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:36 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 17:36 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:36 / dck
Magnesium	20	mg/L		1		E200.7	09/25/19 17:51 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 17:36 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 12:38 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:36 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 17:36 / dck
Potassium	ND	mg/L		1		E200.7	09/25/19 17:51 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 17:36 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:36 / dck
Sodium	1	mg/L		1		E200.7	09/25/19 17:51 / sld
Strontium	0.0963	mg/L		0.0002		E200.8	09/29/19 17:36 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 17:36 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	09/29/19 17:36 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 17:36 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-010  
**Client Sample ID:** BBC-1909-213

**Report Date:** 10/04/19  
**Collection Date:** 09/19/19 10:25  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:54 / SRW
Solids, Total Dissolved TDS @ 180 C	220	mg/L		10		A2540 C	09/24/19 14:43 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	09/24/19 13:06 / SRW
Chloride	ND	mg/L		1		E300.0	09/24/19 19:23 / SRW
Sulfate	12	mg/L		1		E300.0	09/24/19 19:23 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/24/19 11:33 / SRW
Hardness as CaCO3	217	mg/L		1		A2340 B	09/25/19 18:02 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.15	mg/L		0.01		E353.2	09/24/19 13:33 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 20:46 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:38 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 17:38 / dck
Barium	0.051	mg/L		0.003		E200.8	09/29/19 17:38 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:38 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:38 / dck
Calcium	56	mg/L		1		E200.7	09/25/19 18:02 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:38 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:38 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:38 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 17:38 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:38 / dck
Magnesium	19	mg/L		1		E200.7	09/25/19 18:02 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 17:38 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 12:41 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:38 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 17:38 / dck
Potassium	ND	mg/L		1		E200.7	09/25/19 18:02 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 17:38 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:38 / dck
Sodium	2	mg/L		1		E200.7	09/25/19 18:02 / sld
Strontium	0.135	mg/L		0.0002		E200.8	09/29/19 17:38 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 17:38 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	09/29/19 17:38 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 17:38 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-011  
**Client Sample ID:** BBC-1909-214

**Report Date:** 10/04/19  
**Collection Date:** 09/19/19 11:00  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	12	mg/L		10		A2540 D	09/24/19 14:54 / SRW
Solids, Total Dissolved TDS @ 180 C	177	mg/L		10		A2540 C	09/24/19 14:43 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	09/24/19 13:14 / SRW
Chloride	ND	mg/L		1		E300.0	09/24/19 21:19 / SRW
Sulfate	5	mg/L		1		E300.0	09/24/19 21:19 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	09/24/19 11:37 / SRW
Hardness as CaCO3	153	mg/L		1		A2340 B	09/25/19 18:06 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.40	mg/L		0.01		E353.2	09/24/19 13:36 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 20:49 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:41 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 17:41 / dck
Barium	0.155	mg/L		0.003		E200.8	09/29/19 17:41 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:41 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:41 / dck
Calcium	43	mg/L		1		E200.7	09/25/19 18:06 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:41 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:41 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:41 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 17:41 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:41 / dck
Magnesium	11	mg/L		1		E200.7	09/25/19 18:06 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 17:41 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 12:57 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:41 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 17:41 / dck
Potassium	2	mg/L		1		E200.7	09/25/19 18:06 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 17:41 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:41 / dck
Sodium	4	mg/L		1		E200.7	09/25/19 18:06 / sld
Strontium	0.322	mg/L		0.0002		E200.8	09/29/19 17:41 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 17:41 / dck
Uranium	0.0015	mg/L		0.0002		E200.8	09/29/19 17:41 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 17:41 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-012  
**Client Sample ID:** BBC-1909-215

**Report Date:** 10/04/19  
**Collection Date:** 09/19/19 12:15  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	77	mg/L		10		A2540 D	09/24/19 14:55 / SRW
Solids, Total Dissolved TDS @ 180 C	216	mg/L		10		A2540 C	09/24/19 14:43 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	09/24/19 13:20 / SRW
Chloride	ND	mg/L		1		E300.0	09/24/19 21:33 / SRW
Sulfate	8	mg/L		1		E300.0	09/24/19 21:33 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	09/24/19 11:41 / SRW
Hardness as CaCO3	207	mg/L		1		A2340 B	09/25/19 18:21 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.33	mg/L		0.01		E353.2	09/24/19 13:37 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	10/01/19 11:35 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:43 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 17:43 / dck
Barium	0.188	mg/L		0.003		E200.8	09/29/19 17:43 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:43 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:43 / dck
Calcium	46	mg/L		1		E200.7	09/25/19 18:21 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:43 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:43 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:43 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 17:43 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:43 / dck
Magnesium	22	mg/L		1		E200.7	09/25/19 18:21 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 17:43 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 13:07 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:43 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 17:43 / dck
Potassium	1	mg/L		1		E200.7	09/25/19 18:21 / sld
Selenium	0.0002	mg/L		0.0002		E200.8	09/29/19 17:43 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:43 / dck
Sodium	1	mg/L		1		E200.7	09/25/19 18:21 / sld
Strontium	0.0677	mg/L		0.0002		E200.8	09/29/19 17:43 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 17:43 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	09/29/19 17:43 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 17:43 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-013  
**Client Sample ID:** BBC-1909-216

**Report Date:** 10/04/19  
**Collection Date:** 09/19/19 12:55  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	28	mg/L		10		A2540 D	09/24/19 14:55 / SRW
Solids, Total Dissolved TDS @ 180 C	244	mg/L		10		A2540 C	09/24/19 14:43 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	09/24/19 13:27 / SRW
Chloride	1	mg/L		1		E300.0	09/24/19 21:47 / SRW
Sulfate	15	mg/L		1		E300.0	09/24/19 21:47 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	09/24/19 11:45 / SRW
Hardness as CaCO3	229	mg/L		1		A2340 B	09/25/19 18:25 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.14	mg/L		0.01		E353.2	09/24/19 13:39 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 20:55 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:45 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 17:45 / dck
Barium	0.175	mg/L		0.003		E200.8	09/29/19 17:45 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:45 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:45 / dck
Calcium	53	mg/L		1		E200.7	09/25/19 18:25 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:45 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:45 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:45 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 17:45 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:45 / dck
Magnesium	23	mg/L		1		E200.7	09/25/19 18:25 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 17:45 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 13:10 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:45 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 17:45 / dck
Potassium	ND	mg/L		1		E200.7	09/25/19 18:25 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 17:45 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:45 / dck
Sodium	3	mg/L		1		E200.7	09/25/19 18:25 / sld
Strontium	0.155	mg/L		0.0002		E200.8	09/29/19 17:45 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 17:45 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	09/29/19 17:45 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 17:45 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-014  
**Client Sample ID:** BBC-1909-217

**Report Date:** 10/04/19  
**Collection Date:** 09/19/19 13:30  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:55 / SRW
Solids, Total Dissolved TDS @ 180 C	252	mg/L		10		A2540 C	09/24/19 14:43 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	09/24/19 13:35 / SRW
Chloride	ND	mg/L		1		E300.0	09/24/19 22:02 / SRW
Sulfate	23	mg/L		1		E300.0	09/24/19 22:02 / SRW
Fluoride	0.5	mg/L		0.1	4	A4500-F C	09/24/19 11:49 / SRW
Hardness as CaCO3	210	mg/L		1		A2340 B	09/25/19 18:28 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.09	mg/L		0.01		E353.2	09/24/19 13:40 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 21:03 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:48 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 17:48 / dck
Barium	0.104	mg/L		0.003		E200.8	09/29/19 17:48 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:48 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:48 / dck
Calcium	47	mg/L		1		E200.7	09/25/19 18:28 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:48 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:48 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:48 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 17:48 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:48 / dck
Magnesium	23	mg/L		1		E200.7	09/25/19 18:28 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 17:48 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 13:13 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:48 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 17:48 / dck
Potassium	1	mg/L		1		E200.7	09/25/19 18:28 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 17:48 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:48 / dck
Sodium	15	mg/L		1		E200.7	09/25/19 18:28 / sld
Strontium	0.225	mg/L		0.0002		E200.8	09/29/19 17:48 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 17:48 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	09/29/19 17:48 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 17:48 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-015  
**Client Sample ID:** BBC-1909-218

**Report Date:** 10/04/19  
**Collection Date:** 09/19/19 15:20  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	100	mg/L		10		A2540 D	09/24/19 14:55 / SRW
Solids, Total Dissolved TDS @ 180 C	327	mg/L		10		A2540 C	09/24/19 14:44 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	09/24/19 13:42 / SRW
Chloride	4	mg/L		1		E300.0	09/24/19 22:16 / SRW
Sulfate	70	mg/L		1		E300.0	09/24/19 22:16 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	09/24/19 11:54 / SRW
Hardness as CaCO3	291	mg/L		1		A2340 B	09/25/19 18:32 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/24/19 13:41 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	0.037	mg/L		0.009		E200.8	09/29/19 21:05 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:50 / dck
Arsenic	0.001	mg/L		0.001		E200.8	09/29/19 17:50 / dck
Barium	0.040	mg/L		0.003		E200.8	09/29/19 17:50 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:50 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:50 / dck
Calcium	57	mg/L		1		E200.7	09/25/19 18:32 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:50 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:50 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:50 / dck
Iron	0.10	mg/L		0.02		E200.8	09/29/19 17:50 / dck
Lead	0.0014	mg/L		0.0003		E200.8	09/29/19 17:50 / dck
Magnesium	36	mg/L		1		E200.7	09/25/19 18:32 / sld
Manganese	0.015	mg/L		0.005		E200.8	09/29/19 17:50 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 13:17 / dck
Molybdenum	0.003	mg/L		0.002		E200.8	09/29/19 17:50 / dck
Nickel	0.001	mg/L		0.001		E200.8	09/29/19 17:50 / dck
Potassium	1	mg/L		1		E200.7	09/25/19 18:32 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 17:50 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:50 / dck
Sodium	3	mg/L		1		E200.7	09/25/19 18:32 / sld
Strontium	0.158	mg/L		0.0002		E200.8	09/29/19 17:50 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 17:50 / dck
Uranium	0.0020	mg/L		0.0002		E200.8	09/29/19 17:50 / dck
Zinc	ND	mg/L		0.002		E200.8	10/01/19 11:38 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-016  
**Client Sample ID:** BBC-1909-219

**Report Date:** 10/04/19  
**Collection Date:** 09/19/19 15:00  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:56 / SRW
Solids, Total Dissolved TDS @ 180 C	162	mg/L		10		A2540 C	09/24/19 14:44 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	150	mg/L		4		A2320 B	09/24/19 13:50 / SRW
Chloride	ND	mg/L		1		E300.0	09/24/19 22:31 / SRW
Sulfate	15	mg/L		1		E300.0	09/24/19 22:31 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	09/24/19 11:58 / SRW
Hardness as CaCO3	156	mg/L		1		A2340 B	09/25/19 18:36 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/24/19 13:42 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 21:08 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:52 / dck
Arsenic	0.002	mg/L		0.001		E200.8	09/29/19 17:52 / dck
Barium	0.076	mg/L		0.003		E200.8	09/29/19 17:52 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:52 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:52 / dck
Calcium	25	mg/L		1		E200.7	09/25/19 18:36 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:52 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:52 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:52 / dck
Iron	0.09	mg/L		0.02		E200.8	09/29/19 17:52 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:52 / dck
Magnesium	23	mg/L		1		E200.7	09/25/19 18:36 / sld
Manganese	0.009	mg/L		0.005		E200.8	09/29/19 17:52 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 13:20 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:52 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 17:52 / dck
Potassium	ND	mg/L		1		E200.7	09/25/19 18:36 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 17:52 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:52 / dck
Sodium	3	mg/L		1		E200.7	09/25/19 18:36 / sld
Strontium	0.0832	mg/L		0.0002		E200.8	09/29/19 17:52 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 17:52 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	09/29/19 17:52 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 17:52 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-017  
**Client Sample ID:** BBC-1909-220

**Report Date:** 10/04/19  
**Collection Date:** 09/19/19 15:55  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	18	mg/L		10		A2540 D	09/24/19 14:56 / SRW
Solids, Total Dissolved TDS @ 180 C	200	mg/L		10		A2540 C	09/24/19 14:44 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	09/24/19 13:56 / SRW
Chloride	ND	mg/L		1		E300.0	09/24/19 22:45 / SRW
Sulfate	7	mg/L		1		E300.0	09/24/19 22:45 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	09/24/19 12:02 / SRW
Hardness as CaCO3	191	mg/L		1		A2340 B	09/25/19 18:47 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.17	mg/L		0.01		E353.2	09/24/19 13:43 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 21:10 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 17:55 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 17:55 / dck
Barium	0.098	mg/L		0.003		E200.8	09/29/19 17:55 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 17:55 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 17:55 / dck
Calcium	47	mg/L		1		E200.7	09/25/19 18:47 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 17:55 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 17:55 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 17:55 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 17:55 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 17:55 / dck
Magnesium	18	mg/L		1		E200.7	09/25/19 18:47 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 17:55 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 13:23 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 17:55 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 17:55 / dck
Potassium	ND	mg/L		1		E200.7	09/25/19 18:47 / sld
Selenium	0.0002	mg/L		0.0002		E200.8	09/29/19 17:55 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 17:55 / dck
Sodium	2	mg/L		1		E200.7	09/25/19 18:47 / sld
Strontium	0.100	mg/L		0.0002		E200.8	09/29/19 17:55 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 17:55 / dck
Uranium	0.0004	mg/L		0.0002		E200.8	09/29/19 17:55 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 17:55 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-018  
**Client Sample ID:** BBC-1909-221

**Report Date:** 10/04/19  
**Collection Date:** 09/19/19 16:50  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	15	mg/L		10		A2540 D	09/24/19 14:56 / SRW
Solids, Total Dissolved TDS @ 180 C	213	mg/L		10		A2540 C	09/24/19 14:44 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	09/24/19 14:03 / SRW
Chloride	1	mg/L		1		E300.0	09/25/19 00:27 / SRW
Sulfate	8	mg/L		1		E300.0	09/25/19 00:27 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	09/24/19 12:14 / SRW
Hardness as CaCO3	202	mg/L		1		A2340 B	09/25/19 18:51 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.41	mg/L		0.01		E353.2	09/24/19 13:45 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 21:31 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 18:09 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 18:09 / dck
Barium	0.267	mg/L		0.003		E200.8	09/29/19 18:09 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 18:09 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 18:09 / dck
Calcium	42	mg/L		1		E200.7	09/25/19 18:51 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 18:09 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 18:09 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 18:09 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 18:09 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 18:09 / dck
Magnesium	24	mg/L		1		E200.7	09/25/19 18:51 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 18:09 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 13:26 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 18:09 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 18:09 / dck
Potassium	ND	mg/L		1		E200.7	09/25/19 18:51 / sld
Selenium	0.0008	mg/L		0.0002		E200.8	09/29/19 18:09 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 18:09 / dck
Sodium	2	mg/L		1		E200.7	09/25/19 18:51 / sld
Strontium	0.103	mg/L		0.0002		E200.8	09/29/19 18:09 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 18:09 / dck
Uranium	0.0008	mg/L		0.0002		E200.8	09/29/19 18:09 / dck
Zinc	0.005	mg/L		0.002		E200.8	10/01/19 11:40 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-019  
**Client Sample ID:** BBC-1909-222

**Report Date:** 10/04/19  
**Collection Date:** 09/19/19 18:25  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:56 / SRW
Solids, Total Dissolved TDS @ 180 C	548	mg/L		10		A2540 C	09/24/19 14:44 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	09/24/19 14:10 / SRW
Chloride	1	mg/L		1		E300.0	09/25/19 00:41 / SRW
Sulfate	218	mg/L		1		E300.0	09/25/19 00:41 / SRW
Fluoride	0.7	mg/L		0.1	4	A4500-F C	09/24/19 12:22 / SRW
Hardness as CaCO3	379	mg/L		1		A2340 B	09/25/19 18:55 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/24/19 13:46 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 21:34 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 18:11 / dck
Arsenic	0.064	mg/L		0.001		E200.8	09/29/19 18:11 / dck
Barium	0.011	mg/L		0.003		E200.8	09/29/19 18:11 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 18:11 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 18:11 / dck
Calcium	72	mg/L		1		E200.7	09/25/19 18:55 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 18:11 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 18:11 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 18:11 / dck
Iron	0.99	mg/L		0.02		E200.7	09/25/19 18:55 / sld
Lead	ND	mg/L		0.0003		E200.8	09/29/19 18:11 / dck
Magnesium	48	mg/L		1		E200.7	09/25/19 18:55 / sld
Manganese	0.014	mg/L		0.005		E200.8	09/29/19 18:11 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 13:30 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 18:11 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 18:11 / dck
Potassium	3	mg/L		1		E200.7	09/25/19 18:55 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 18:11 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 18:11 / dck
Sodium	15	mg/L		1		E200.7	09/25/19 18:55 / sld
Strontium	13.3	mg/L	L	0.0005		E200.7	09/25/19 18:55 / sld
Thallium	0.0003	mg/L		0.0002		E200.8	09/29/19 18:11 / dck
Uranium	0.0010	mg/L		0.0002		E200.8	09/29/19 18:11 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 18:11 / dck

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 L - Lowest available reporting limit for the analytical method used.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-020  
**Client Sample ID:** BBC-1909-223

**Report Date:** 10/04/19  
**Collection Date:** 09/19/19 19:00  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:57 / SRW
Solids, Total Dissolved TDS @ 180 C	549	mg/L		10		A2540 C	09/24/19 14:45 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	09/24/19 14:18 / SRW
Chloride	1	mg/L		1		E300.0	09/24/19 23:00 / SRW
Sulfate	218	mg/L		1		E300.0	09/24/19 23:00 / SRW
Fluoride	0.7	mg/L		0.1	4	A4500-F C	09/24/19 12:30 / SRW
Hardness as CaCO3	381	mg/L		1		A2340 B	09/25/19 18:59 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/24/19 13:49 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 21:36 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 18:14 / dck
Arsenic	0.065	mg/L		0.001		E200.8	09/29/19 18:14 / dck
Barium	0.011	mg/L		0.003		E200.8	09/29/19 18:14 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 18:14 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 18:14 / dck
Calcium	72	mg/L		1		E200.7	09/25/19 18:59 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 18:14 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 18:14 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 18:14 / dck
Iron	1.00	mg/L		0.02		E200.7	09/25/19 18:59 / sld
Lead	ND	mg/L		0.0003		E200.8	09/29/19 18:14 / dck
Magnesium	49	mg/L		1		E200.7	09/25/19 18:59 / sld
Manganese	0.014	mg/L		0.005		E200.8	09/29/19 18:14 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 13:39 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 18:14 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 18:14 / dck
Potassium	3	mg/L		1		E200.7	09/25/19 18:59 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 18:14 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 18:14 / dck
Sodium	15	mg/L		1		E200.7	09/25/19 18:59 / sld
Strontium	13.3	mg/L	L	0.0005		E200.7	09/25/19 18:59 / sld
Thallium	0.0003	mg/L		0.0002		E200.8	09/29/19 18:14 / dck
Uranium	0.0010	mg/L		0.0002		E200.8	09/29/19 18:14 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 18:14 / dck

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 L - Lowest available reporting limit for the analytical method used.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-021  
**Client Sample ID:** BBC-1909-224

**Report Date:** 10/04/19  
**Collection Date:** 09/20/19 09:10  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	10	mg/L		10		A2540 D	09/24/19 14:57 / SRW
Solids, Total Dissolved TDS @ 180 C	372	mg/L		10		A2540 C	09/24/19 14:45 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	250	mg/L		4		A2320 B	09/24/19 14:50 / SRW
Chloride	2	mg/L		1		E300.0	09/25/19 00:56 / SRW
Sulfate	95	mg/L		1		E300.0	09/25/19 00:56 / SRW
Fluoride	0.5	mg/L		0.1	4	A4500-F C	09/24/19 12:35 / SRW
Hardness as CaCO3	326	mg/L		1		A2340 B	09/25/19 19:02 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/24/19 13:53 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 21:38 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 18:16 / dck
Arsenic	0.005	mg/L		0.001		E200.8	09/29/19 18:16 / dck
Barium	0.017	mg/L		0.003		E200.8	09/29/19 18:16 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 18:16 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 18:16 / dck
Calcium	70	mg/L		1		E200.7	09/25/19 19:02 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 18:16 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 18:16 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 18:16 / dck
Iron	1.26	mg/L		0.02		E200.7	09/25/19 19:02 / sld
Lead	ND	mg/L		0.0003		E200.8	09/29/19 18:16 / dck
Magnesium	37	mg/L		1		E200.7	09/25/19 19:02 / sld
Manganese	0.039	mg/L		0.005		E200.8	09/29/19 18:16 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 13:43 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 18:16 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 18:16 / dck
Potassium	3	mg/L		1		E200.7	09/25/19 19:02 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 18:16 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 18:16 / dck
Sodium	4	mg/L		1		E200.7	09/25/19 19:02 / sld
Strontium	0.287	mg/L		0.0002		E200.8	09/29/19 18:16 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 18:16 / dck
Uranium	0.0017	mg/L		0.0002		E200.8	09/29/19 18:16 / dck
Zinc	0.005	mg/L		0.002		E200.8	10/01/19 11:43 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-022  
**Client Sample ID:** BBC-1909-225

**Report Date:** 10/04/19  
**Collection Date:** 09/20/19 09:55  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:58 / SRW
Solids, Total Dissolved TDS @ 180 C	328	mg/L		10		A2540 C	09/24/19 14:45 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	300	mg/L		4		A2320 B	09/24/19 14:59 / SRW
Chloride	5	mg/L		1		E300.0	09/25/19 01:10 / SRW
Sulfate	15	mg/L		1		E300.0	09/25/19 01:10 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/24/19 12:39 / SRW
Hardness as CaCO3	301	mg/L		1		A2340 B	09/25/19 19:17 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/24/19 13:54 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 21:41 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 18:19 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 18:19 / dck
Barium	0.210	mg/L		0.003		E200.8	09/29/19 18:19 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 18:19 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 18:19 / dck
Calcium	84	mg/L		1		E200.7	09/25/19 19:17 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 18:19 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 18:19 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 18:19 / dck
Iron	0.08	mg/L		0.02		E200.8	09/29/19 18:19 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 18:19 / dck
Magnesium	22	mg/L		1		E200.7	09/25/19 19:17 / sld
Manganese	0.386	mg/L		0.005		E200.8	09/29/19 18:19 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 13:53 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 18:19 / dck
Nickel	0.001	mg/L		0.001		E200.8	09/29/19 18:19 / dck
Potassium	2	mg/L		1		E200.7	09/25/19 19:17 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 18:19 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 18:19 / dck
Sodium	3	mg/L		1		E200.7	09/25/19 19:17 / sld
Strontium	0.187	mg/L		0.0002		E200.8	09/29/19 18:19 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 18:19 / dck
Uranium	0.0004	mg/L		0.0002		E200.8	09/29/19 18:19 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 18:19 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-023  
**Client Sample ID:** BBC-1909-226

**Report Date:** 10/04/19  
**Collection Date:** 09/20/19 10:25  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:58 / SRW
Solids, Total Dissolved TDS @ 180 C	250	mg/L		10		A2540 C	09/24/19 14:46 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	09/24/19 15:16 / SRW
Chloride	2	mg/L		1		E300.0	09/25/19 01:25 / SRW
Sulfate	15	mg/L		1		E300.0	09/25/19 01:25 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/24/19 12:43 / SRW
Hardness as CaCO3	232	mg/L		1		A2340 B	09/25/19 19:21 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.01		E353.2	09/24/19 13:55 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 21:43 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 18:21 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 18:21 / dck
Barium	0.125	mg/L		0.003		E200.8	09/29/19 18:21 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 18:21 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 18:21 / dck
Calcium	61	mg/L		1		E200.7	09/25/19 19:21 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 18:21 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 18:21 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 18:21 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 18:21 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 18:21 / dck
Magnesium	19	mg/L		1		E200.7	09/25/19 19:21 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 18:21 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 13:56 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 18:21 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 18:21 / dck
Potassium	1	mg/L		1		E200.7	09/25/19 19:21 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 18:21 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 18:21 / dck
Sodium	2	mg/L		1		E200.7	09/25/19 19:21 / sld
Strontium	0.164	mg/L		0.0002		E200.8	09/29/19 18:21 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 18:21 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	09/29/19 18:21 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 18:21 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-024  
**Client Sample ID:** BBC-1909-227

**Report Date:** 10/04/19  
**Collection Date:** 09/20/19 12:40  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:58 / SRW
Solids, Total Dissolved TDS @ 180 C	529	mg/L		10		A2540 C	09/24/19 14:46 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	250	mg/L		4		A2320 B	09/24/19 15:24 / SRW
Chloride	1	mg/L		1		E300.0	09/25/19 01:39 / SRW
Sulfate	195	mg/L		1		E300.0	09/25/19 01:39 / SRW
Fluoride	0.5	mg/L		0.1	4	A4500-F C	09/24/19 12:47 / SRW
Hardness as CaCO3	405	mg/L		1		A2340 B	09/25/19 19:32 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/24/19 13:57 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 21:46 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 18:23 / dck
Arsenic	0.012	mg/L		0.001		E200.8	09/29/19 18:23 / dck
Barium	0.014	mg/L		0.003		E200.8	09/29/19 18:23 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 18:23 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 18:23 / dck
Calcium	82	mg/L		1		E200.7	09/25/19 19:32 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 18:23 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 18:23 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 18:23 / dck
Iron	0.85	mg/L		0.02		E200.8	09/29/19 18:23 / dck
Lead	0.0008	mg/L		0.0003		E200.8	09/29/19 18:23 / dck
Magnesium	49	mg/L		1		E200.7	09/25/19 19:32 / sld
Manganese	0.083	mg/L		0.005		E200.8	09/29/19 18:23 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 13:59 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 18:23 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 18:23 / dck
Potassium	4	mg/L		1		E200.7	09/25/19 19:32 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 18:23 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 18:23 / dck
Sodium	5	mg/L		1		E200.7	09/25/19 19:32 / sld
Strontium	1.22	mg/L	L	0.0005		E200.7	09/25/19 19:32 / sld
Thallium	0.0032	mg/L		0.0002		E200.8	09/29/19 18:23 / dck
Uranium	0.0009	mg/L		0.0002		E200.8	09/29/19 18:23 / dck
Zinc	ND	mg/L		0.002		E200.8	10/01/19 11:45 / dck

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 L - Lowest available reporting limit for the analytical method used.

MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-025  
**Client Sample ID:** BBC-1909-228

**Report Date:** 10/04/19  
**Collection Date:** 09/20/19 11:20  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:59 / SRW
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	09/24/19 14:46 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	09/24/19 15:33 / SRW
Chloride	ND	mg/L		1		E300.0	09/25/19 01:54 / SRW
Sulfate	ND	mg/L		1		E300.0	09/25/19 01:54 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	09/24/19 12:51 / SRW
Hardness as CaCO3	ND	mg/L		1		A2340 B	10/01/19 11:10 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/24/19 13:58 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 21:48 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 18:26 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 18:26 / dck
Barium	ND	mg/L		0.003		E200.8	09/29/19 18:26 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 18:26 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 18:26 / dck
Calcium	ND	mg/L		1		E200.7	09/25/19 19:36 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 18:26 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 18:26 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 18:26 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 18:26 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 18:26 / dck
Magnesium	ND	mg/L		1		E200.7	09/25/19 19:36 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 18:26 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 14:02 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 18:26 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 18:26 / dck
Potassium	ND	mg/L		1		E200.7	09/25/19 19:36 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 18:26 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 18:26 / dck
Sodium	ND	mg/L		1		E200.7	09/25/19 19:36 / sld
Strontium	0.0003	mg/L		0.0002		E200.8	09/29/19 18:26 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 18:26 / dck
Uranium	ND	mg/L		0.0002		E200.8	09/29/19 18:26 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 18:26 / dck

-Strontium was confirmed by duplicate analysis.

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-026  
**Client Sample ID:** BBC-1909-229

**Report Date:** 10/04/19  
**Collection Date:** 09/20/19 14:25  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:59 / SRW
Solids, Total Dissolved TDS @ 180 C	195	mg/L		10		A2540 C	09/24/19 14:46 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	09/24/19 15:39 / SRW
Chloride	ND	mg/L		1		E300.0	09/25/19 02:08 / SRW
Sulfate	16	mg/L		1		E300.0	09/25/19 02:08 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	09/24/19 12:55 / SRW
Hardness as CaCO3	190	mg/L		1		A2340 B	09/25/19 19:40 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.28	mg/L		0.01		E353.2	09/24/19 13:59 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 21:50 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 18:28 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 18:28 / dck
Barium	0.087	mg/L		0.003		E200.8	09/29/19 18:28 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 18:28 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 18:28 / dck
Calcium	36	mg/L		1		E200.7	09/25/19 19:40 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 18:28 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 18:28 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 18:28 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 18:28 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 18:28 / dck
Magnesium	25	mg/L		1		E200.7	09/25/19 19:40 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 18:28 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 14:06 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 18:28 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 18:28 / dck
Potassium	ND	mg/L		1		E200.7	09/25/19 19:40 / sld
Selenium	0.0011	mg/L		0.0002		E200.8	09/29/19 18:28 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 18:28 / dck
Sodium	2	mg/L		1		E200.7	09/25/19 19:40 / sld
Strontium	0.115	mg/L		0.0002		E200.8	09/29/19 18:28 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 18:28 / dck
Uranium	0.0010	mg/L		0.0002		E200.8	09/29/19 18:28 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 18:28 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte  
**Lab ID:** H19090556-027  
**Client Sample ID:** BBC-1909-230

**Report Date:** 10/04/19  
**Collection Date:** 09/20/19 15:15  
**Date Received:** 09/23/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/24/19 14:59 / SRW
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	09/24/19 14:46 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	09/24/19 15:45 / SRW
Chloride	ND	mg/L		1		E300.0	09/25/19 02:23 / SRW
Sulfate	ND	mg/L		1		E300.0	09/25/19 02:23 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	09/24/19 12:59 / SRW
Hardness as CaCO3	ND	mg/L		1		A2340 B	10/01/19 11:10 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/24/19 14:00 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 21:53 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 18:30 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 18:30 / dck
Barium	ND	mg/L		0.003		E200.8	09/29/19 18:30 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 18:30 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 18:30 / dck
Calcium	ND	mg/L		1		E200.7	09/25/19 19:44 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 18:30 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 18:30 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 18:30 / dck
Iron	ND	mg/L		0.02		E200.8	09/29/19 18:30 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 18:30 / dck
Magnesium	ND	mg/L		1		E200.7	09/25/19 19:44 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 18:30 / dck
Mercury	ND	ug/L		0.005		E245.1	10/03/19 14:09 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 18:30 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 18:30 / dck
Potassium	ND	mg/L		1		E200.7	09/25/19 19:44 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 18:30 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 18:30 / dck
Sodium	ND	mg/L		1		E200.7	09/25/19 19:44 / sld
Strontium	ND	mg/L		0.0002		E200.8	09/29/19 18:30 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 18:30 / dck
Uranium	ND	mg/L		0.0002		E200.8	09/29/19 18:30 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 18:30 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.





# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090556

Report Date: 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A2320 B										Batch: R148050
<b>Lab ID:</b> MBLK		Method Blank								Run: PHSC_101-H_190924A 09/24/19 11:34
Alkalinity, Total as CaCO3		ND	mg/L	2						
<b>Lab ID:</b> LCS		Laboratory Control Sample								Run: PHSC_101-H_190924A 09/24/19 11:40
Alkalinity, Total as CaCO3		610	mg/L	4.0	101	90	110			
<b>Lab ID:</b> H19090556-002ADUP		Sample Duplicate								Run: PHSC_101-H_190924A 09/24/19 12:04
Alkalinity, Total as CaCO3		110	mg/L	4.0				0.2	10	
<b>Lab ID:</b> H19090556-020ADUP		Sample Duplicate								Run: PHSC_101-H_190924A 09/24/19 14:26
Alkalinity, Total as CaCO3		220	mg/L	4.0				0.9	10	
<b>Lab ID:</b> MBLK		Method Blank								Run: PHSC_101-H_190924A 09/24/19 14:34
Alkalinity, Total as CaCO3		ND	mg/L	2						
<b>Lab ID:</b> LCS		Laboratory Control Sample								Run: PHSC_101-H_190924A 09/24/19 14:40
Alkalinity, Total as CaCO3		610	mg/L	4.0	102	90	110			
<b>Lab ID:</b> H19090556-022ADUP		Sample Duplicate								Run: PHSC_101-H_190924A 09/24/19 15:07
Alkalinity, Total as CaCO3		300	mg/L	4.0				0.9	10	
<b>Lab ID:</b> H19090556-001ADUP		Sample Duplicate								Run: PHSC_101-H_190924A 09/24/19 16:28
Alkalinity, Total as CaCO3		280	mg/L	4.0				1.4	10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090556

**Report Date:** 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>								Batch: TDS190924A		
<b>Lab ID: MB-1_190924A</b>		Method Blank						Run: ACCU-124 (14410200)_19092	09/24/19 14:40	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Lab ID: LCS-2_190924A</b>		Laboratory Control Sample						Run: ACCU-124 (14410200)_19092	09/24/19 14:41	
Solids, Total Dissolved TDS @ 180 C		1970	mg/L	20	99	90	110			
<b>Lab ID: H19090556-001A DUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19092	09/24/19 14:41	
Solids, Total Dissolved TDS @ 180 C		439	mg/L	10				0.7	5	
<b>Lab ID: H19090556-011A DUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19092	09/24/19 14:43	
Solids, Total Dissolved TDS @ 180 C		175	mg/L	10				1.1	5	
<b>Lab ID: MB-25_190924A</b>		Method Blank						Run: ACCU-124 (14410200)_19092	09/24/19 14:45	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
<b>Lab ID: LCS-26_190924A</b>		Laboratory Control Sample						Run: ACCU-124 (14410200)_19092	09/24/19 14:45	
Solids, Total Dissolved TDS @ 180 C		1980	mg/L	20	99	90	110			
<b>Lab ID: H19090556-021A DUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19092	09/24/19 14:45	
Solids, Total Dissolved TDS @ 180 C		374	mg/L	10				0.5	5	
<b>Lab ID: H19090558-004A DUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19092	09/24/19 14:47	
Solids, Total Dissolved TDS @ 180 C		514	mg/L	20				0.8	5	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090556

Report Date: 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 D</b>								Batch: TSS190924A		
<b>Lab ID: MB-1_190924A</b>		Method Blank						Run: ACCU-124 (14410200)_19092	09/24/19 14:52	
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
<b>Lab ID: LCS-2_190924A</b>		Laboratory Control Sample						Run: ACCU-124 (14410200)_19092	09/24/19 14:52	
Solids, Total Suspended TSS @ 105 C		93.0	mg/L	10	93	80	120			
<b>Lab ID: H19090556-001ADUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19092	09/24/19 14:52	
Solids, Total Suspended TSS @ 105 C		25.0	mg/L	10				0.0	5	
<b>Lab ID: H19090556-011ADUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19092	09/24/19 14:55	
Solids, Total Suspended TSS @ 105 C		12.0	mg/L	10				0.0	5	
<b>Lab ID: MB-25_190924A</b>		Method Blank						Run: ACCU-124 (14410200)_19092	09/24/19 14:57	
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
<b>Lab ID: LCS-26_190924A</b>		Laboratory Control Sample						Run: ACCU-124 (14410200)_19092	09/24/19 14:57	
Solids, Total Suspended TSS @ 105 C		96.0	mg/L	10	96	80	120			
<b>Lab ID: H19090556-021ADUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19092	09/24/19 14:58	
Solids, Total Suspended TSS @ 105 C		11.0	mg/L	10				9.5	5	R
- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.										
<b>Lab ID: H19090567-002ADUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19092	09/24/19 15:00	
Solids, Total Suspended TSS @ 105 C		21.0	mg/L	10				10	5	R
- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.										

### Qualifiers:

RL - Analyte reporting limit.

R - RPD exceeds advisory limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090556

Report Date: 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A4500-F C										Analytical Run: MANTECH 2_190924A
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								09/24/19 10:16
Fluoride		0.7	mg/L	0.1	99	90	110			
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								09/24/19 11:13
Fluoride		1.0	mg/L	0.1	97	90	110			
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								09/24/19 12:06
Fluoride		1.0	mg/L	0.1	96	90	110			
<b>Method:</b> A4500-F C										Batch: R148066
<b>Lab ID:</b> MBLK		Method Blank								09/24/19 10:20
Fluoride		ND	mg/L	0.03						Run: MANTECH 2_190924A
<b>Lab ID:</b> H19090541-021AMS		Sample Matrix Spike								09/24/19 10:40
Fluoride		1.1	mg/L	0.1	96	85	115			Run: MANTECH 2_190924A
<b>Lab ID:</b> H19090556-008ADUP		Sample Duplicate								09/24/19 11:25
Fluoride		0.1	mg/L	0.1				0.0	10	Run: MANTECH 2_190924A
<b>Lab ID:</b> H19090556-018AMS		Sample Matrix Spike								09/24/19 12:18
Fluoride		1.2	mg/L	0.1	94	85	115			Run: MANTECH 2_190924A
<b>Lab ID:</b> H19090556-019ADUP		Sample Duplicate								09/24/19 12:26
Fluoride		0.7	mg/L	0.1				1.4	10	Run: MANTECH 2_190924A

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090556

**Report Date:** 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E200.7		Analytical Run: ICP2-HE_190925A								
<b>Lab ID:</b> ICV	6	Initial Calibration Verification Standard							09/25/19 08:29	
Calcium		40.3	mg/L	1.0	101	95	105			
Iron		3.98	mg/L	0.020	99	95	105			
Magnesium		39.1	mg/L	1.0	98	95	105			
Potassium		39.8	mg/L	1.0	100	95	105			
Sodium		39.8	mg/L	1.0	99	95	105			
Strontium		0.810	mg/L	0.10	101	95	105			
<b>Lab ID:</b> CCV-1	6	Continuing Calibration Verification Standard							09/25/19 08:33	
Calcium		25.6	mg/L	1.0	103	95	105			
Iron		2.50	mg/L	0.020	100	95	105			
Magnesium		24.5	mg/L	1.0	98	95	105			
Potassium		24.4	mg/L	1.0	98	95	105			
Sodium		24.5	mg/L	1.0	98	95	105			
Strontium		2.51	mg/L	0.10	101	95	105			
<b>Lab ID:</b> ICSA	6	Interference Check Sample A							09/25/19 08:48	
Calcium		491	mg/L	1.0	98	80	120			
Iron		187	mg/L	0.020	94	80	120			
Magnesium		528	mg/L	1.0	106	80	120			
Potassium		0.0568	mg/L	1.0		0	0			
Sodium		0.0225	mg/L	1.0		0	0			
Strontium		-0.0290	mg/L	0.10		0	0			
<b>Lab ID:</b> ICSAB	6	Interference Check Sample AB							09/25/19 08:52	
Calcium		496	mg/L	1.0	99	80	120			
Iron		188	mg/L	0.020	94	80	120			
Magnesium		529	mg/L	1.0	106	80	120			
Potassium		20.4	mg/L	1.0	102	80	120			
Sodium		20.5	mg/L	1.0	103	80	120			
Strontium		1.00	mg/L	0.10	100	80	120			
<b>Lab ID:</b> CCV	6	Continuing Calibration Verification Standard							09/25/19 15:57	
Calcium		25.0	mg/L	1.0	100	90	110			
Iron		2.46	mg/L	0.020	99	90	110			
Magnesium		24.1	mg/L	1.0	96	90	110			
Potassium		25.3	mg/L	1.0	101	90	110			
Sodium		25.3	mg/L	1.0	101	90	110			
Strontium		2.49	mg/L	0.10	100	90	110			
<b>Lab ID:</b> CCV	6	Continuing Calibration Verification Standard							09/25/19 17:10	
Calcium		24.6	mg/L	1.0	98	90	110			
Iron		2.44	mg/L	0.020	98	90	110			
Magnesium		24.0	mg/L	1.0	96	90	110			
Potassium		24.1	mg/L	1.0	96	90	110			
Sodium		24.2	mg/L	1.0	97	90	110			
Strontium		2.48	mg/L	0.10	99	90	110			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090556

**Report Date:** 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.7</b>		Analytical Run: ICP2-HE_190925A									
<b>Lab ID: CCV</b>	6	Continuing Calibration Verification Standard							09/25/19 17:55		
Calcium		24.4	mg/L	1.0	98	90	110				
Iron		2.42	mg/L	0.020	97	90	110				
Magnesium		23.8	mg/L	1.0	95	90	110				
Potassium		23.9	mg/L	1.0	95	90	110				
Sodium		23.9	mg/L	1.0	96	90	110				
Strontium		2.48	mg/L	0.10	99	90	110				
<b>Lab ID: CCV</b>	6	Continuing Calibration Verification Standard							09/25/19 18:40		
Calcium		24.3	mg/L	1.0	97	90	110				
Iron		2.41	mg/L	0.020	96	90	110				
Magnesium		23.8	mg/L	1.0	95	90	110				
Potassium		25.1	mg/L	1.0	100	90	110				
Sodium		25.1	mg/L	1.0	101	90	110				
Strontium		2.49	mg/L	0.10	100	90	110				
<b>Lab ID: CCV</b>	6	Continuing Calibration Verification Standard							09/25/19 19:25		
Calcium		24.2	mg/L	1.0	97	90	110				
Iron		2.41	mg/L	0.020	96	90	110				
Magnesium		23.8	mg/L	1.0	95	90	110				
Potassium		25.0	mg/L	1.0	100	90	110				
Sodium		25.0	mg/L	1.0	100	90	110				
Strontium		2.48	mg/L	0.10	99	90	110				
<b>Method: E200.7</b>		Batch: R148105									
<b>Lab ID: MB</b>	6	Method Blank							Run: ICP2-HE_190925A		09/25/19 09:00
Calcium		ND	mg/L	0.1							
Iron		ND	mg/L	0.006							
Magnesium		ND	mg/L	0.01							
Potassium		ND	mg/L	0.05							
Sodium		ND	mg/L	0.02							
Strontium		ND	mg/L	0.0005							
<b>Lab ID: LFB</b>	6	Laboratory Fortified Blank							Run: ICP2-HE_190925A		09/25/19 09:04
Calcium		57.3	mg/L	1.0	115	85	115				
Iron		5.60	mg/L	0.020	112	85	115				
Magnesium		55.1	mg/L	1.0	110	85	115				
Potassium		54.8	mg/L	1.0	110	85	115				
Sodium		55.3	mg/L	1.0	111	85	115				
Strontium		1.14	mg/L	0.10	114	85	115				
<b>Lab ID: H19090556-001BMS2</b>	6	Sample Matrix Spike							Run: ICP2-HE_190925A		09/25/19 16:40
Calcium		124	mg/L	1.0	109	70	130				
Iron		15.7	mg/L	0.020	106	70	130				
Magnesium		90.8	mg/L	1.0	111	70	130				
Potassium		55.2	mg/L	1.0	106	70	130				
Sodium		57.1	mg/L	1.0	106	70	130				
Strontium		10.8	mg/L	0.010		70	130			A	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090556

**Report Date:** 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E200.7										
Batch: R148105										
<b>Lab ID:</b> H19090556-001BMS2	6	Sample Matrix Spike								
										Run: ICP2-HE_190925A 09/25/19 16:40
<b>Lab ID:</b> H19090556-001BMSD	6	Sample Matrix Spike Duplicate								Run: ICP2-HE_190925A 09/25/19 17:21
Calcium		121	mg/L	1.0	103	70	130	2.4	20	
Iron		15.5	mg/L	0.020	101	70	130	1.5	20	
Magnesium		89.4	mg/L	1.0	108	70	130	1.6	20	
Potassium		57.1	mg/L	1.0	110	70	130	3.4	20	
Sodium		59.2	mg/L	1.0	110	70	130	3.6	20	
Strontium		10.8	mg/L	0.010		70	130	0.0	20	A
<b>Lab ID:</b> H19090556-011BMS2	6	Sample Matrix Spike								Run: ICP2-HE_190925A 09/25/19 18:14
Calcium		97.3	mg/L	1.0	108	70	130			
Iron		5.31	mg/L	0.020	106	70	130			
Magnesium		64.9	mg/L	1.0	108	70	130			
Potassium		56.5	mg/L	1.0	109	70	130			
Sodium		59.2	mg/L	1.0	110	70	130			
Strontium		1.43	mg/L	0.010	111	70	130			
<b>Lab ID:</b> H19090556-011BMSD	6	Sample Matrix Spike Duplicate								Run: ICP2-HE_190925A 09/25/19 18:17
Calcium		96.4	mg/L	1.0	106	70	130	1.0	20	
Iron		5.30	mg/L	0.020	106	70	130	0.2	20	
Magnesium		64.4	mg/L	1.0	107	70	130	0.8	20	
Potassium		56.9	mg/L	1.0	110	70	130	0.6	20	
Sodium		59.7	mg/L	1.0	110	70	130	0.8	20	
Strontium		1.43	mg/L	0.010	110	70	130	0.2	20	
<b>Lab ID:</b> H19090556-021BMS2	6	Sample Matrix Spike								Run: ICP2-HE_190925A 09/25/19 19:10
Calcium		120	mg/L	1.0	100	70	130			
Iron		6.47	mg/L	0.020	104	70	130			
Magnesium		89.2	mg/L	1.0	105	70	130			
Potassium		56.4	mg/L	1.0	108	70	130			
Sodium		57.7	mg/L	1.0	108	70	130			
Strontium		1.37	mg/L	0.010	108	70	130			
<b>Lab ID:</b> H19090556-021BMSD	6	Sample Matrix Spike Duplicate								Run: ICP2-HE_190925A 09/25/19 19:14
Calcium		121	mg/L	1.0	102	70	130	0.8	20	
Iron		6.51	mg/L	0.020	105	70	130	0.6	20	
Magnesium		90.0	mg/L	1.0	107	70	130	0.9	20	
Potassium		56.1	mg/L	1.0	107	70	130	0.5	20	
Sodium		57.4	mg/L	1.0	108	70	130	0.6	20	
Strontium		1.39	mg/L	0.010	109	70	130	1.2	20	

**Qualifiers:**

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ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090556

**Report Date:** 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> E200.8		Analytical Run: ICPMS205-H_190929C									
<b>Lab ID:</b> ICV	20	Initial Calibration Verification Standard							09/29/19 16:41		
Aluminum		0.285	mg/L	0.10	95	90	110				
Antimony		0.0584	mg/L	0.050	97	90	110				
Arsenic		0.0581	mg/L	0.0050	97	90	110				
Barium		0.0587	mg/L	0.10	98	90	110				
Beryllium		0.0308	mg/L	0.0010	103	90	110				
Cadmium		0.0300	mg/L	0.0010	100	90	110				
Chromium		0.0582	mg/L	0.010	97	90	110				
Cobalt		0.0591	mg/L	0.010	99	90	110				
Copper		0.0587	mg/L	0.010	98	90	110				
Iron		0.294	mg/L	0.020	98	90	110				
Lead		0.0586	mg/L	0.010	98	90	110				
Manganese		0.289	mg/L	0.010	96	90	110				
Molybdenum		0.0582	mg/L	0.0050	97	90	110				
Nickel		0.0586	mg/L	0.010	98	90	110				
Selenium		0.0597	mg/L	0.0050	99	90	110				
Silver		0.0306	mg/L	0.0050	102	90	110				
Strontium		0.0584	mg/L	0.10	97	90	110				
Thallium		0.0581	mg/L	0.10	97	90	110				
Uranium		0.0575	mg/L	0.00030	96	90	110				
Zinc		0.0602	mg/L	0.010	100	90	110				
<b>Lab ID:</b> ICSA	20	Interference Check Sample A							09/29/19 16:44		
Aluminum		39.0	mg/L	0.10	97	70	130				
Antimony		0.000228	mg/L	0.050							
Arsenic		3.66E-05	mg/L	0.0050							
Barium		0.000212	mg/L	0.10							
Beryllium		-4.29E-06	mg/L	0.0010							
Cadmium		8.59E-05	mg/L	0.0010							
Chromium		0.000252	mg/L	0.010							
Cobalt		0.000280	mg/L	0.010							
Copper		0.000183	mg/L	0.010							
Iron		102	mg/L	0.020	102	70	130				
Lead		0.000103	mg/L	0.010							
Manganese		0.000415	mg/L	0.010							
Molybdenum		0.869	mg/L	0.0050	109	70	130				
Nickel		0.000145	mg/L	0.010							
Selenium		4.93E-05	mg/L	0.0050							
Silver		9.57E-05	mg/L	0.0050							
Strontium		0.000976	mg/L	0.10							
Thallium		3.32E-05	mg/L	0.10							
Uranium		1.67E-05	mg/L	0.00030							
Zinc		0.000523	mg/L	0.010							
<b>Lab ID:</b> ICSAB	20	Interference Check Sample AB							09/29/19 16:46		
Aluminum		39.5	mg/L	0.10	99	70	130				
Antimony		0.000189	mg/L	0.050		0	0				

**Qualifiers:**

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# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090556

**Report Date:** 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> E200.8		Analytical Run: ICPMS205-H_190929C									
<b>Lab ID:</b> ICSAB	20	Interference Check Sample AB							09/29/19 16:46		
Arsenic		0.0101	mg/L	0.0050	101	70	130				
Barium		0.000248	mg/L	0.10		0	0				
Beryllium		1.71E-06	mg/L	0.0010		0	0				
Cadmium		0.0101	mg/L	0.0010	101	70	130				
Chromium		0.0200	mg/L	0.010	100	70	130				
Cobalt		0.0197	mg/L	0.010	99	70	130				
Copper		0.0198	mg/L	0.010	99	70	130				
Iron		101	mg/L	0.020	101	70	130				
Lead		9.38E-05	mg/L	0.010		0	0				
Manganese		0.0201	mg/L	0.010	100	70	130				
Molybdenum		0.877	mg/L	0.0050	110	70	130				
Nickel		0.0195	mg/L	0.010	98	70	130				
Selenium		0.0100	mg/L	0.0050	100	70	130				
Silver		0.00525	mg/L	0.0050	105	70	130				
Strontium		0.00100	mg/L	0.10		0	0				
Thallium		2.66E-05	mg/L	0.10		0	0				
Uranium		7.58E-06	mg/L	0.00030		0	0				
Zinc		0.0106	mg/L	0.010	106	70	130				
<b>Lab ID:</b> ICV	20	Initial Calibration Verification Standard							09/29/19 20:10		
Aluminum		0.315	mg/L	0.10	105	90	110				
Antimony		0.0602	mg/L	0.050	100	90	110				
Arsenic		0.0608	mg/L	0.0050	101	90	110				
Barium		0.0609	mg/L	0.10	102	90	110				
Beryllium		0.0304	mg/L	0.0010	101	90	110				
Cadmium		0.0310	mg/L	0.0010	103	90	110				
Chromium		0.0612	mg/L	0.010	102	90	110				
Cobalt		0.0613	mg/L	0.010	102	90	110				
Copper		0.0610	mg/L	0.010	102	90	110				
Iron		0.308	mg/L	0.020	103	90	110				
Lead		0.0606	mg/L	0.010	101	90	110				
Manganese		0.308	mg/L	0.010	103	90	110				
Molybdenum		0.0604	mg/L	0.0050	101	90	110				
Nickel		0.0617	mg/L	0.010	103	90	110				
Selenium		0.0603	mg/L	0.0050	101	90	110				
Silver		0.0313	mg/L	0.0050	104	90	110				
Strontium		0.0606	mg/L	0.10	101	90	110				
Thallium		0.0600	mg/L	0.10	100	90	110				
Uranium		0.0591	mg/L	0.00030	99	90	110				
Zinc		0.0620	mg/L	0.010	103	90	110				
<b>Lab ID:</b> ICSA	20	Interference Check Sample A							09/29/19 20:12		
Aluminum		39.4	mg/L	0.10	99	70	130				
Antimony		0.000213	mg/L	0.050							
Arsenic		2.00E-05	mg/L	0.0050							
Barium		0.000167	mg/L	0.10							

**Qualifiers:**

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ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090556

**Report Date:** 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>		Analytical Run: ICPMS205-H_190929C									
<b>Lab ID: ICSA</b>	20	Interference Check Sample A								09/29/19 20:12	
Beryllium		9.35E-07	mg/L	0.0010							
Cadmium		7.11E-05	mg/L	0.0010							
Chromium		0.000179	mg/L	0.010							
Cobalt		0.000253	mg/L	0.010							
Copper		-1.49E-05	mg/L	0.010							
Iron		97.8	mg/L	0.020	98	70	130				
Lead		0.000104	mg/L	0.010							
Manganese		0.000201	mg/L	0.010							
Molybdenum		0.829	mg/L	0.0050	104	70	130				
Nickel		2.83E-05	mg/L	0.010							
Selenium		0.000170	mg/L	0.0050							
Silver		7.06E-05	mg/L	0.0050							
Strontium		0.000962	mg/L	0.10							
Thallium		4.21E-05	mg/L	0.10							
Uranium		1.32E-05	mg/L	0.00030							
Zinc		0.000106	mg/L	0.010							
<b>Lab ID: ICSAB</b>	20	Interference Check Sample AB								09/29/19 20:14	
Aluminum		39.8	mg/L	0.10	99	70	130				
Antimony		0.000156	mg/L	0.050		0	0				
Arsenic		0.00986	mg/L	0.0050	99	70	130				
Barium		0.000192	mg/L	0.10		0	0				
Beryllium		1.60E-05	mg/L	0.0010		0	0				
Cadmium		0.00985	mg/L	0.0010	99	70	130				
Chromium		0.0197	mg/L	0.010	99	70	130				
Cobalt		0.0197	mg/L	0.010	98	70	130				
Copper		0.0193	mg/L	0.010	96	70	130				
Iron		99.4	mg/L	0.020	99	70	130				
Lead		9.92E-05	mg/L	0.010		0	0				
Manganese		0.0200	mg/L	0.010	100	70	130				
Molybdenum		0.833	mg/L	0.0050	104	70	130				
Nickel		0.0198	mg/L	0.010	99	70	130				
Selenium		0.00977	mg/L	0.0050	98	70	130				
Silver		0.00513	mg/L	0.0050	103	70	130				
Strontium		0.000937	mg/L	0.10		0	0				
Thallium		2.51E-05	mg/L	0.10		0	0				
Uranium		4.32E-06	mg/L	0.00030		0	0				
Zinc		0.0101	mg/L	0.010	101	70	130				
<b>Method: E200.8</b>		Batch: R148258									
<b>Lab ID: LRB</b>	20	Method Blank								Run: ICPMS205-H_190929C	09/29/19 16:58
Aluminum		ND	mg/L	0.003							
Antimony		ND	mg/L	9E-05							
Arsenic		ND	mg/L	4E-05							
Barium		ND	mg/L	2E-05							
Beryllium		ND	mg/L	0.0001							

**Qualifiers:**

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# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090556

**Report Date:** 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: R148258										
<b>Lab ID:</b>	<b>LRB</b>	20 Method Blank			Run: ICPMS205-H_190929C			09/29/19 16:58		
Cadmium		ND	mg/L	3E-05						
Chromium		ND	mg/L	0.0002						
Cobalt		ND	mg/L	9E-05						
Copper		ND	mg/L	0.0001						
Iron		0.005	mg/L	0.002						
Lead		ND	mg/L	3E-05						
Manganese		ND	mg/L	0.0003						
Molybdenum		3E-05	mg/L	2E-05						
Nickel		ND	mg/L	0.0002						
Selenium		ND	mg/L	2E-05						
Silver		ND	mg/L	2E-05						
Strontium		ND	mg/L	0.0001						
Thallium		ND	mg/L	1E-05						
Uranium		ND	mg/L	1E-05						
Zinc		0.002	mg/L	0.0003						
<b>Lab ID:</b>	<b>LFB</b>	20 Laboratory Fortified Blank			Run: ICPMS205-H_190929C			09/29/19 17:00		
Aluminum		0.0465	mg/L	0.10	93	85	115			
Antimony		0.0475	mg/L	0.050	95	85	115			
Arsenic		0.0468	mg/L	0.0050	94	85	115			
Barium		0.0464	mg/L	0.10	93	85	115			
Beryllium		0.0477	mg/L	0.0010	95	85	115			
Cadmium		0.0475	mg/L	0.0010	95	85	115			
Chromium		0.0467	mg/L	0.010	93	85	115			
Cobalt		0.0466	mg/L	0.010	93	85	115			
Copper		0.0473	mg/L	0.010	95	85	115			
Iron		0.145	mg/L	0.020	97	85	115			
Lead		0.0464	mg/L	0.010	93	85	115			
Manganese		0.0466	mg/L	0.010	93	85	115			
Molybdenum		0.0464	mg/L	0.0050	93	85	115			
Nickel		0.0471	mg/L	0.010	94	85	115			
Selenium		0.0467	mg/L	0.0050	93	85	115			
Silver		0.0195	mg/L	0.0050	98	85	115			
Strontium		0.0467	mg/L	0.10	93	85	115			
Thallium		0.0458	mg/L	0.10	92	85	115			
Uranium		0.0456	mg/L	0.00030	91	85	115			
Zinc		0.0488	mg/L	0.010	98	85	115			
<b>Lab ID:</b>	<b>H19090556-007BMS</b>	20 Sample Matrix Spike			Run: ICPMS205-H_190929C			09/29/19 17:22		
Aluminum		0.0537	mg/L	0.030	100	70	130			
Antimony		0.0494	mg/L	0.0010	99	70	130			
Arsenic		0.0498	mg/L	0.0010	99	70	130			
Barium		0.249	mg/L	0.050		70	130			A
Beryllium		0.0503	mg/L	0.0010	101	70	130			
Cadmium		0.0499	mg/L	0.0010	100	70	130			
Chromium		0.0491	mg/L	0.0050	97	70	130			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090556

Report Date: 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: R148258										
<b>Lab ID:</b>	<b>H19090556-007BMS</b>	20	Sample Matrix Spike							
							Run: ICPMS205-H_190929C	09/29/19 17:22		
Cobalt		0.0482	mg/L	0.0050	96	70	130			
Copper		0.0489	mg/L	0.0050	97	70	130			
Iron		0.153	mg/L	0.020	97	70	130			
Lead		0.0482	mg/L	0.0010	96	70	130			
Manganese		0.0490	mg/L	0.0010	96	70	130			
Molybdenum		0.0526	mg/L	0.0010	96	70	130			
Nickel		0.0493	mg/L	0.0050	97	70	130			
Selenium		0.0522	mg/L	0.0010	104	70	130			
Silver		0.0203	mg/L	0.0010	102	70	130			
Strontium		0.918	mg/L	0.010		70	130			A
Thallium		0.0480	mg/L	0.00050	96	70	130			
Uranium		0.0527	mg/L	0.00030	95	70	130			
Zinc		0.0524	mg/L	0.010	101	70	130			
<b>Lab ID:</b>	<b>H19090556-007BMSD</b>	20	Sample Matrix Spike Duplicate							
							Run: ICPMS205-H_190929C	09/29/19 17:24		
Aluminum		0.0509	mg/L	0.030	94	70	130	5.3	20	
Antimony		0.0493	mg/L	0.0010	99	70	130	0.1	20	
Arsenic		0.0485	mg/L	0.0010	97	70	130	2.5	20	
Barium		0.247	mg/L	0.050		70	130	1.0	20	A
Beryllium		0.0470	mg/L	0.0010	94	70	130	6.7	20	
Cadmium		0.0495	mg/L	0.0010	99	70	130	0.8	20	
Chromium		0.0482	mg/L	0.0050	95	70	130	1.9	20	
Cobalt		0.0473	mg/L	0.0050	94	70	130	1.9	20	
Copper		0.0481	mg/L	0.0050	95	70	130	1.6	20	
Iron		0.150	mg/L	0.020	95	70	130	2.4	20	
Lead		0.0474	mg/L	0.0010	95	70	130	1.7	20	
Manganese		0.0477	mg/L	0.0010	94	70	130	2.6	20	
Molybdenum		0.0522	mg/L	0.0010	96	70	130	0.7	20	
Nickel		0.0478	mg/L	0.0050	94	70	130	3.1	20	
Selenium		0.0512	mg/L	0.0010	102	70	130	2.1	20	
Silver		0.0199	mg/L	0.0010	99	70	130	2.1	20	
Strontium		0.920	mg/L	0.010		70	130	0.2	20	A
Thallium		0.0471	mg/L	0.00050	94	70	130	1.7	20	
Uranium		0.0523	mg/L	0.00030	94	70	130	0.9	20	
Zinc		0.0509	mg/L	0.010	98	70	130	2.9	20	
<b>Lab ID:</b>	<b>H19090556-017BMS</b>	20	Sample Matrix Spike							
							Run: ICPMS205-H_190929C	09/29/19 17:57		
Aluminum		0.0501	mg/L	0.030	100	70	130			
Antimony		0.0487	mg/L	0.0010	97	70	130			
Arsenic		0.0477	mg/L	0.0010	95	70	130			
Barium		0.144	mg/L	0.050	93	70	130			
Beryllium		0.0468	mg/L	0.0010	94	70	130			
Cadmium		0.0481	mg/L	0.0010	96	70	130			
Chromium		0.0463	mg/L	0.0050	93	70	130			
Cobalt		0.0463	mg/L	0.0050	93	70	130			
Copper		0.0465	mg/L	0.0050	93	70	130			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090556

Report Date: 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: R148258										
<b>Lab ID:</b>	<b>H19090556-017BMS</b>	20	Sample Matrix Spike							
										Run: ICPMS205-H_190929C 09/29/19 17:57
Iron		0.144	mg/L	0.020	94	70	130			
Lead		0.0466	mg/L	0.0010	93	70	130			
Manganese		0.0471	mg/L	0.0010	94	70	130			
Molybdenum		0.0469	mg/L	0.0010	93	70	130			
Nickel		0.0466	mg/L	0.0050	93	70	130			
Selenium		0.0492	mg/L	0.0010	98	70	130			
Silver		0.0197	mg/L	0.0010	98	70	130			
Strontium		0.148	mg/L	0.010	96	70	130			
Thallium		0.0462	mg/L	0.00050	92	70	130			
Uranium		0.0464	mg/L	0.00030	92	70	130			
Zinc		0.0495	mg/L	0.010	97	70	130			
<b>Lab ID:</b>	<b>H19090556-017BMSD</b>	20	Sample Matrix Spike Duplicate							
										Run: ICPMS205-H_190929C 09/29/19 18:00
Aluminum		0.0495	mg/L	0.030	99	70	130	1.3	20	
Antimony		0.0483	mg/L	0.0010	97	70	130	0.7	20	
Arsenic		0.0470	mg/L	0.0010	94	70	130	1.3	20	
Barium		0.145	mg/L	0.050	95	70	130	0.8	20	
Beryllium		0.0470	mg/L	0.0010	94	70	130	0.4	20	
Cadmium		0.0477	mg/L	0.0010	95	70	130	0.9	20	
Chromium		0.0457	mg/L	0.0050	91	70	130	1.3	20	
Cobalt		0.0457	mg/L	0.0050	91	70	130	1.3	20	
Copper		0.0462	mg/L	0.0050	92	70	130	0.8	20	
Iron		0.141	mg/L	0.020	92	70	130	1.7	20	
Lead		0.0465	mg/L	0.0010	93	70	130	0.2	20	
Manganese		0.0462	mg/L	0.0010	92	70	130	1.9	20	
Molybdenum		0.0470	mg/L	0.0010	93	70	130	0.3	20	
Nickel		0.0461	mg/L	0.0050	92	70	130	1.0	20	
Selenium		0.0496	mg/L	0.0010	99	70	130	0.9	20	
Silver		0.0195	mg/L	0.0010	97	70	130	0.9	20	
Strontium		0.145	mg/L	0.010	91	70	130	1.8	20	
Thallium		0.0463	mg/L	0.00050	93	70	130	0.3	20	
Uranium		0.0465	mg/L	0.00030	92	70	130	0.1	20	
Zinc		0.0492	mg/L	0.010	96	70	130	0.7	20	
<b>Lab ID:</b>	<b>H19090556-027BMS</b>	20	Sample Matrix Spike							
										Run: ICPMS205-H_190929C 09/29/19 18:33
Aluminum		0.0455	mg/L	0.030	91	70	130			
Antimony		0.0478	mg/L	0.0010	96	70	130			
Arsenic		0.0460	mg/L	0.0010	92	70	130			
Barium		0.0472	mg/L	0.050	95	70	130			
Beryllium		0.0473	mg/L	0.0010	95	70	130			
Cadmium		0.0481	mg/L	0.0010	96	70	130			
Chromium		0.0464	mg/L	0.0050	93	70	130			
Cobalt		0.0468	mg/L	0.0050	94	70	130			
Copper		0.0473	mg/L	0.0050	95	70	130			
Iron		0.141	mg/L	0.020	94	70	130			
Lead		0.0458	mg/L	0.0010	92	70	130			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090556

**Report Date:** 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: R148258										
<b>Lab ID:</b>	<b>H19090556-027BMS</b>	20	Sample Matrix Spike							
										Run: ICPMS205-H_190929C 09/29/19 18:33
Manganese		0.0461	mg/L	0.0010	92	70	130			
Molybdenum		0.0458	mg/L	0.0010	92	70	130			
Nickel		0.0468	mg/L	0.0050	94	70	130			
Selenium		0.0475	mg/L	0.0010	95	70	130			
Silver		0.0195	mg/L	0.0010	98	70	130			
Strontium		0.0465	mg/L	0.010	93	70	130			
Thallium		0.0453	mg/L	0.00050	91	70	130			
Uranium		0.0450	mg/L	0.00030	90	70	130			
Zinc		0.0502	mg/L	0.010	98	70	130			
<b>Lab ID:</b>	<b>H19090556-027BMSD</b>	20	Sample Matrix Spike Duplicate							
										Run: ICPMS205-H_190929C 09/29/19 18:35
Aluminum		0.0450	mg/L	0.030	90	70	130	1.1	20	
Antimony		0.0468	mg/L	0.0010	94	70	130	2.2	20	
Arsenic		0.0452	mg/L	0.0010	90	70	130	1.8	20	
Barium		0.0456	mg/L	0.050	91	70	130		20	
Beryllium		0.0455	mg/L	0.0010	91	70	130	3.9	20	
Cadmium		0.0467	mg/L	0.0010	93	70	130	3.1	20	
Chromium		0.0457	mg/L	0.0050	91	70	130	1.6	20	
Cobalt		0.0460	mg/L	0.0050	92	70	130	1.8	20	
Copper		0.0466	mg/L	0.0050	93	70	130	1.5	20	
Iron		0.138	mg/L	0.020	92	70	130	2.3	20	
Lead		0.0450	mg/L	0.0010	90	70	130	1.7	20	
Manganese		0.0461	mg/L	0.0010	92	70	130	0.2	20	
Molybdenum		0.0453	mg/L	0.0010	91	70	130	1.1	20	
Nickel		0.0460	mg/L	0.0050	92	70	130	1.8	20	
Selenium		0.0462	mg/L	0.0010	92	70	130	2.6	20	
Silver		0.0192	mg/L	0.0010	96	70	130	1.4	20	
Strontium		0.0461	mg/L	0.010	92	70	130	0.7	20	
Thallium		0.0445	mg/L	0.00050	89	70	130	1.7	20	
Uranium		0.0440	mg/L	0.00030	88	70	130	2.0	20	
Zinc		0.0494	mg/L	0.010	97	70	130	1.6	20	
<b>Lab ID:</b>	<b>LRB</b>	20	Method Blank							
										Run: ICPMS205-H_190929C 09/29/19 20:38
Aluminum		ND	mg/L	0.003						
Antimony		ND	mg/L	9E-05						
Arsenic		ND	mg/L	4E-05						
Barium		ND	mg/L	2E-05						
Beryllium		ND	mg/L	0.0001						
Cadmium		ND	mg/L	3E-05						
Chromium		ND	mg/L	0.0002						
Cobalt		ND	mg/L	9E-05						
Copper		ND	mg/L	0.0001						
Iron		0.05	mg/L	0.002						
Lead		ND	mg/L	3E-05						
Manganese		ND	mg/L	0.0003						
Molybdenum		0.00010	mg/L	2E-05						

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090556

Report Date: 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: R148258										
<b>Lab ID: LRB</b>	20	Method Blank		Run: ICPMS205-H_190929C				09/29/19 20:38		
Nickel		ND	mg/L	0.0002						
Selenium		ND	mg/L	2E-05						
Silver		ND	mg/L	2E-05						
Strontium		ND	mg/L	0.0001						
Thallium		ND	mg/L	1E-05						
Uranium		ND	mg/L	1E-05						
Zinc		0.002	mg/L	0.0003						
<b>Lab ID: H19090556-017BMS</b>	20	Sample Matrix Spike		Run: ICPMS205-H_190929C				09/29/19 21:12		
Aluminum		0.0536	mg/L	0.030	107	70	130			
Antimony		0.0500	mg/L	0.0010	100	70	130			
Arsenic		0.0504	mg/L	0.0010	101	70	130			
Barium		0.148	mg/L	0.050	95	70	130			
Beryllium		0.0487	mg/L	0.0010	97	70	130			
Cadmium		0.0500	mg/L	0.0010	100	70	130			
Chromium		0.0492	mg/L	0.0050	98	70	130			
Cobalt		0.0485	mg/L	0.0050	97	70	130			
Copper		0.0490	mg/L	0.0050	98	70	130			
Iron		0.152	mg/L	0.020	99	70	130			
Lead		0.0487	mg/L	0.0010	97	70	130			
Manganese		0.0497	mg/L	0.0010	99	70	130			
Molybdenum		0.0490	mg/L	0.0010	97	70	130			
Nickel		0.0492	mg/L	0.0050	98	70	130			
Selenium		0.0513	mg/L	0.0010	102	70	130			
Silver		0.0202	mg/L	0.0010	101	70	130			
Strontium		0.153	mg/L	0.010	92	70	130			
Thallium		0.0485	mg/L	0.00050	97	70	130			
Uranium		0.0483	mg/L	0.00030	96	70	130			
Zinc		0.0517	mg/L	0.010	100	70	130			
<b>Lab ID: H19090556-017BMSD</b>	20	Sample Matrix Spike Duplicate		Run: ICPMS205-H_190929C				09/29/19 21:15		
Aluminum		0.0529	mg/L	0.030	106	70	130	1.4	20	
Antimony		0.0500	mg/L	0.0010	100	70	130	0.1	20	
Arsenic		0.0497	mg/L	0.0010	99	70	130	1.4	20	
Barium		0.150	mg/L	0.050	98	70	130	1.2	20	
Beryllium		0.0491	mg/L	0.0010	98	70	130	0.8	20	
Cadmium		0.0498	mg/L	0.0010	100	70	130	0.4	20	
Chromium		0.0485	mg/L	0.0050	97	70	130	1.6	20	
Cobalt		0.0484	mg/L	0.0050	97	70	130	0.2	20	
Copper		0.0483	mg/L	0.0050	96	70	130	1.4	20	
Iron		0.151	mg/L	0.020	98	70	130	0.8	20	
Lead		0.0492	mg/L	0.0010	98	70	130	1.0	20	
Manganese		0.0492	mg/L	0.0010	98	70	130	1.0	20	
Molybdenum		0.0488	mg/L	0.0010	97	70	130	0.4	20	
Nickel		0.0493	mg/L	0.0050	99	70	130	0.4	20	
Selenium		0.0519	mg/L	0.0010	103	70	130	1.2	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090556

Report Date: 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: R148258										
<b>Lab ID:</b>	<b>H19090556-017BMSD</b>	20	Sample Matrix Spike Duplicate							
										Run: ICPMS205-H_190929C 09/29/19 21:15
Silver		0.0204	mg/L	0.0010	102	70	130	1.1	20	
Strontium		0.152	mg/L	0.010	91	70	130	0.6	20	
Thallium		0.0489	mg/L	0.00050	98	70	130	0.9	20	
Uranium		0.0488	mg/L	0.00030	97	70	130	1.0	20	
Zinc		0.0520	mg/L	0.010	101	70	130	0.6	20	
<b>Lab ID:</b>	<b>H19090556-027BMS</b>	20	Sample Matrix Spike							
										Run: ICPMS205-H_190929C 09/29/19 21:55
Aluminum		0.0512	mg/L	0.030	102	70	130			
Antimony		0.0508	mg/L	0.0010	102	70	130			
Arsenic		0.0507	mg/L	0.0010	101	70	130			
Barium		0.0504	mg/L	0.050	101	70	130			
Beryllium		0.0493	mg/L	0.0010	99	70	130			
Cadmium		0.0512	mg/L	0.0010	102	70	130			
Chromium		0.0504	mg/L	0.0050	101	70	130			
Cobalt		0.0503	mg/L	0.0050	101	70	130			
Copper		0.0508	mg/L	0.0050	102	70	130			
Iron		0.152	mg/L	0.020	102	70	130			
Lead		0.0494	mg/L	0.0010	99	70	130			
Manganese		0.0510	mg/L	0.0010	102	70	130			
Molybdenum		0.0489	mg/L	0.0010	98	70	130			
Nickel		0.0508	mg/L	0.0050	102	70	130			
Selenium		0.0506	mg/L	0.0010	101	70	130			
Silver		0.0208	mg/L	0.0010	104	70	130			
Strontium		0.0507	mg/L	0.010	101	70	130			
Thallium		0.0489	mg/L	0.00050	98	70	130			
Uranium		0.0476	mg/L	0.00030	95	70	130			
Zinc		0.0534	mg/L	0.010	104	70	130			
<b>Lab ID:</b>	<b>H19090556-027BMSD</b>	20	Sample Matrix Spike Duplicate							
										Run: ICPMS205-H_190929C 09/29/19 21:58
Aluminum		0.0522	mg/L	0.030	104	70	130	2.0	20	
Antimony		0.0508	mg/L	0.0010	102	70	130	0.0	20	
Arsenic		0.0504	mg/L	0.0010	101	70	130	0.6	20	
Barium		0.0495	mg/L	0.050	99	70	130		20	
Beryllium		0.0508	mg/L	0.0010	101	70	130	2.8	20	
Cadmium		0.0507	mg/L	0.0010	101	70	130	1.0	20	
Chromium		0.0496	mg/L	0.0050	99	70	130	1.5	20	
Cobalt		0.0499	mg/L	0.0050	100	70	130	0.9	20	
Copper		0.0501	mg/L	0.0050	100	70	130	1.4	20	
Iron		0.150	mg/L	0.020	100	70	130	1.6	20	
Lead		0.0488	mg/L	0.0010	98	70	130	1.3	20	
Manganese		0.0499	mg/L	0.0010	100	70	130	2.3	20	
Molybdenum		0.0483	mg/L	0.0010	97	70	130	1.1	20	
Nickel		0.0505	mg/L	0.0050	101	70	130	0.6	20	
Selenium		0.0511	mg/L	0.0010	102	70	130	1.0	20	
Silver		0.0205	mg/L	0.0010	102	70	130	1.5	20	
Strontium		0.0496	mg/L	0.010	99	70	130	2.0	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.





## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090556

Report Date: 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b> <span style="float: right;">Batch: R148258</span>										
<b>Lab ID: H19090556-027BMSD</b>	20	Sample Matrix Spike Duplicate					Run: ICPMS205-H_190929C	09/29/19 21:58		
Thallium		0.0480	mg/L	0.00050	96	70	130	1.7	20	
Uranium		0.0471	mg/L	0.00030	94	70	130	1.1	20	
Zinc		0.0528	mg/L	0.010	103	70	130	1.2	20	
<b>Method: E200.8</b> <span style="float: right;">Analytical Run: ICPMS205-H_191001A</span>										
<b>Lab ID: ICV</b>	2	Initial Calibration Verification Standard						10/01/19 09:56		
Aluminum		0.307	mg/L	0.10	102	90	110			
Zinc		0.0633	mg/L	0.010	106	90	110			
<b>Lab ID: ICSA</b>	2	Interference Check Sample A						10/01/19 09:58		
Aluminum		39.8	mg/L	0.10	99	70	130			
Zinc		0.000189	mg/L	0.010						
<b>Lab ID: ICSAB</b>	2	Interference Check Sample AB						10/01/19 10:01		
Aluminum		39.0	mg/L	0.10	97	70	130			
Zinc		0.0100	mg/L	0.010	100	70	130			
<b>Method: E200.8</b> <span style="float: right;">Batch: R148287</span>										
<b>Lab ID: LRB</b>	2	Method Blank					Run: ICPMS205-H_191001A	10/01/19 11:21		
Aluminum		ND	mg/L	0.003						
Zinc		ND	mg/L	0.0006						
<b>Lab ID: LFB</b>	2	Laboratory Fortified Blank					Run: ICPMS205-H_191001A	10/01/19 11:24		
Aluminum		0.0511	mg/L	0.10	102	85	115			
Zinc		0.0514	mg/L	0.010	103	85	115			
<b>Lab ID: H19090556-002BMS</b>	2	Sample Matrix Spike					Run: ICPMS205-H_191001A	10/01/19 11:31		
Aluminum		0.0511	mg/L	0.030	102	70	130			
Zinc		0.0623	mg/L	0.010	100	70	130			
<b>Lab ID: H19090556-002BMSD</b>	2	Sample Matrix Spike Duplicate					Run: ICPMS205-H_191001A	10/01/19 11:33		
Aluminum		0.0557	mg/L	0.030	111	70	130	8.6	20	
Zinc		0.0647	mg/L	0.010	105	70	130	3.7	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090556

**Report Date:** 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E245.1										Batch: 48100
<b>Lab ID:</b> LCS-48100		Laboratory Control Sample								Run: HGCV203-H_191002A 10/02/19 16:10
Mercury		0.0539	ug/L	0.0050	108	90	110			
<b>Method:</b> E245.1										Analytical Run: HGCV203-H_191003A
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								10/03/19 11:42
Mercury		0.0912	ug/L	0.0050	91	90	110			
<b>Lab ID:</b> CCV1		Continuing Calibration Verification Standard								10/03/19 11:45
Mercury		0.101	ug/L	0.0050	101	95	105			
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								10/03/19 12:44
Mercury		0.104	ug/L	0.0050	104	90	110			
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								10/03/19 13:33
Mercury		0.103	ug/L	0.0050	103	90	110			
<b>Method:</b> E245.1										Batch: 48100
<b>Lab ID:</b> MB-48100		Method Blank								Run: HGCV203-H_191003A 10/03/19 12:02
Mercury		ND	ug/L	0.001						
<b>Lab ID:</b> H19090556-005BMS		Sample Matrix Spike								Run: HGCV203-H_191003A 10/03/19 12:21
Mercury		0.0528	ug/L	0.0050	103	70	130			
<b>Lab ID:</b> H19090556-005BMSD		Sample Matrix Spike Duplicate								Run: HGCV203-H_191003A 10/03/19 12:25
Mercury		0.0540	ug/L	0.0050	106	70	130	2.3	20	
<b>Method:</b> E245.1										Batch: 48106
<b>Lab ID:</b> MB-48106		Method Blank								Run: HGCV203-H_191003A 10/03/19 12:51
Mercury		ND	ug/L	0.001						
<b>Lab ID:</b> LCS-48106		Laboratory Control Sample								Run: HGCV203-H_191003A 10/03/19 12:54
Mercury		0.0518	ug/L	0.0050	104	90	110			
<b>Lab ID:</b> H19090556-011BMS		Sample Matrix Spike								Run: HGCV203-H_191003A 10/03/19 13:00
Mercury		0.0532	ug/L	0.0050	104	70	130			
<b>Lab ID:</b> H19090556-011BMSD		Sample Matrix Spike Duplicate								Run: HGCV203-H_191003A 10/03/19 13:04
Mercury		0.0534	ug/L	0.0050	105	70	130	0.3	20	
<b>Lab ID:</b> H19090556-021BMS		Sample Matrix Spike								Run: HGCV203-H_191003A 10/03/19 13:46
Mercury		0.0528	ug/L	0.0050	106	70	130			
<b>Lab ID:</b> H19090556-021BMSD		Sample Matrix Spike Duplicate								Run: HGCV203-H_191003A 10/03/19 13:49
Mercury		0.0530	ug/L	0.0050	106	70	130	0.5	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090556

**Report Date:** 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E300.0								Analytical Run: IC METROHM_190924A		
<b>Lab ID:</b> ICV	2	Initial Calibration Verification Standard								09/24/19 12:07
Chloride		101	mg/L	1.0	101	90	110			
Sulfate		402	mg/L	1.0	100	90	110			
<b>Lab ID:</b> CCV	2	Continuing Calibration Verification Standard								09/24/19 16:28
Chloride		53.0	mg/L	1.0	106	90	110			
Sulfate		214	mg/L	1.0	107	90	110			
<b>Lab ID:</b> CCV	2	Continuing Calibration Verification Standard								09/24/19 20:06
Chloride		52.1	mg/L	1.0	104	90	110			
Sulfate		208	mg/L	1.0	104	90	110			
<b>Lab ID:</b> CCV	2	Continuing Calibration Verification Standard								09/24/19 23:43
Chloride		52.4	mg/L	1.0	105	90	110			
Sulfate		212	mg/L	1.0	106	90	110			
<b>Method:</b> E300.0								Batch: R148102		
<b>Lab ID:</b> ICB	2	Method Blank						Run: IC METROHM_190924A		09/24/19 11:52
Chloride		ND	mg/L	0.02						
Sulfate		ND	mg/L	0.08						
<b>Lab ID:</b> LFB	2	Laboratory Fortified Blank						Run: IC METROHM_190924A		09/24/19 12:21
Chloride		25.4	mg/L	1.0	101	90	110			
Sulfate		105	mg/L	1.0	105	90	110			
<b>Lab ID:</b> H19090551-001AMS	2	Sample Matrix Spike						Run: IC METROHM_190924A		09/24/19 15:59
Chloride		37.3	mg/L	1.0	104	90	110			
Sulfate		152	mg/L	1.0	104	90	110			
<b>Lab ID:</b> H19090551-001AMSD	2	Sample Matrix Spike Duplicate						Run: IC METROHM_190924A		09/24/19 16:14
Chloride		37.4	mg/L	1.0	105	90	110	0.3	20	
Sulfate		153	mg/L	1.0	104	90	110	0.6	20	
<b>Lab ID:</b> H19090556-010AMS	2	Sample Matrix Spike						Run: IC METROHM_190924A		09/24/19 19:37
Chloride		25.8	mg/L	1.0	101	90	110			
Sulfate		114	mg/L	1.0	102	90	110			
<b>Lab ID:</b> H19090556-010AMSD	2	Sample Matrix Spike Duplicate						Run: IC METROHM_190924A		09/24/19 19:52
Chloride		25.7	mg/L	1.0	101	90	110	0.4	20	
Sulfate		114	mg/L	1.0	102	90	110	0.1	20	
<b>Lab ID:</b> H19090556-020AMS	2	Sample Matrix Spike						Run: IC METROHM_190924A		09/24/19 23:14
Chloride		26.3	mg/L	1.0	101	90	110			
Sulfate		318	mg/L	1.0	100	90	110			
<b>Lab ID:</b> H19090556-020AMSD	2	Sample Matrix Spike Duplicate						Run: IC METROHM_190924A		09/24/19 23:29
Chloride		26.3	mg/L	1.0	101	90	110	0.0	20	
Sulfate		322	mg/L	1.0	104	90	110	1.4	20	
<b>Lab ID:</b> H19090558-003AMS	2	Sample Matrix Spike						Run: IC METROHM_190924A		09/25/19 02:52
Chloride		102	mg/L	1.0	98	90	110			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090556

**Report Date:** 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E300.0										Batch: R148102
<b>Lab ID:</b> H19090558-003AMS	2	Sample Matrix Spike								Run: IC METROHM_190924A 09/25/19 02:52
Sulfate		205	mg/L	1.0	99	90	110			
<b>Lab ID:</b> H19090558-003AMSD	2	Sample Matrix Spike Duplicate								Run: IC METROHM_190924A 09/25/19 03:06
Chloride		102	mg/L	1.0	100	90	110	0.5	20	
Sulfate		207	mg/L	1.0	101	90	110	0.9	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090556

Report Date: 10/04/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E353.2										Analytical Run: FIA203-HE_190924C
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								09/24/19 12:56
Nitrogen, Nitrate+Nitrite as N		1.00	mg/L	0.010	100	90	110			
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								09/24/19 13:14
Nitrogen, Nitrate+Nitrite as N		0.502	mg/L	0.010	100	90	110			
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								09/24/19 13:30
Nitrogen, Nitrate+Nitrite as N		0.501	mg/L	0.010	100	90	110			
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								09/24/19 13:47
Nitrogen, Nitrate+Nitrite as N		0.495	mg/L	0.010	99	90	110			
<b>Method:</b> E353.2										Batch: R148069
<b>Lab ID:</b> MBLK		Method Blank								09/24/19 12:57
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009						Run: FIA203-HE_190924C
<b>Lab ID:</b> LFB		Laboratory Fortified Blank								09/24/19 12:58
Nitrogen, Nitrate+Nitrite as N		1.01	mg/L	0.011	101	90	110			Run: FIA203-HE_190924C
<b>Lab ID:</b> H19090556-001CMS		Sample Matrix Spike								09/24/19 13:18
Nitrogen, Nitrate+Nitrite as N		0.937	mg/L	0.011	89	90	110			S
<b>Lab ID:</b> H19090556-001CMSD		Sample Matrix Spike Duplicate								09/24/19 13:20
Nitrogen, Nitrate+Nitrite as N		0.927	mg/L	0.011	88	90	110	1.1	10	S
<b>Lab ID:</b> H19090556-010CMS		Sample Matrix Spike								09/24/19 13:34
Nitrogen, Nitrate+Nitrite as N		1.14	mg/L	0.011	99	90	110			Run: FIA203-HE_190924C
<b>Lab ID:</b> H19090556-010CMSD		Sample Matrix Spike Duplicate								09/24/19 13:35
Nitrogen, Nitrate+Nitrite as N		1.11	mg/L	0.011	96	90	110	2.9	10	Run: FIA203-HE_190924C
<b>Lab ID:</b> H19090556-020CMS		Sample Matrix Spike								09/24/19 13:51
Nitrogen, Nitrate+Nitrite as N		0.964	mg/L	0.011	96	90	110			Run: FIA203-HE_190924C
<b>Lab ID:</b> H19090556-020CMSD		Sample Matrix Spike Duplicate								09/24/19 13:52
Nitrogen, Nitrate+Nitrite as N		0.956	mg/L	0.011	96	90	110	0.8	10	Run: FIA203-HE_190924C

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



# Work Order Receipt Checklist

Tintina Resources Inc

H19090556

Login completed by: Jessica C. Smith

Date Received: 9/23/2019

Reviewed by: BL2000\acarlson

Received by: wjj

Reviewed Date: 10/4/2019

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	°C See Comments		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

---

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

---

## Contact and Corrective Action Comments:

Cooler 1 was received at 3.4 °C, Cooler 2 at 0.8 °C, and Cooler 3 at 1.3 °C. On Ice. JCS 09/24/19


# Hydrometrics, Inc.

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

## CHAIN OF CUSTODY RECORD

PROJ. NO. 18049

PROJECT NAME Black Butte

SAMPLERS: (Signature) 

DATE	TIME	COMP	GRAB	SAMPLE NUMBER
9/18/19	13:10		X	BBCL-1909-204
	12:20			-205
	13:35			-206
	16:25			-207
	18:00			-208
	18:30			-209
9/19/19	11:30			-210
	09:25			-211
	09:55			-212
	10:25		X	-213

NO. OF CONTAINERS  
3

REMARKS  
H190910556

Commons UF / RAW  
Nutrients UF / H<sub>2</sub>SO<sub>4</sub>  
Diss. Metal F / HNO<sub>3</sub>  
CN UF / NaOH  
Total Metals UF / HNO<sub>3</sub>  
Total Recoverable Metals UF / HNO<sub>3</sub>  
BTEX  
TPH

Lab Energy lab  
P.O. # Bill  
Tintina

Shipped via: Bus FedEx UPS  
Other Hand delivered  
Air Bill #


Remarks  
C1-3.4  
C2-0.8

Date / Time  
9/23/19 15:55

Enclosed:  
 Parameter sheet w/detection limits  
 QA / AC standard mixing instructions  
 Cover letter  
 Other

Split Samples:  
 Accepted  
 Declined

Signature

Received by (Signature)  
Received by (Signature)  
Received for Laboratory by (Signature) 

Date / Time  
9/23/19 15:55

Return results & electronic copy to:  
QA / QC Dept. at address at top of page

**CHAIN OF CUSTODY RECORD**

PROJ. NO.	PROJECT NAME		DATE	TIME	SAMPLE NUMBER	NO. OF CON-TAINERS	Commons UF / RAW	Nutrients UF / H <sub>2</sub> SO <sub>4</sub>	Diss. Metal F / HNO <sub>3</sub>	CN UF / NaOH	Total Metals UF / HNO <sub>3</sub>	Total Recoverable Metals UF / HNO <sub>3</sub>	BTEX	TPH	REMARKS
	18049	Black Butte													
	SAMPLERS: (Signature)														
			9/19/19	11:00	BBC-1909-214	3	X	X	X						H19090556
				12:15	-215										
				12:55	-216										
				13:30	-217										
				15:20	-218										
				15:00	-219										
				15:55	-220										
				16:50	-221										
				18:25	-222										
				19:00	-223										

Lab **Energy Lab** P.O. # **B-1**  
 Shipped via: Bus FedEx UPS  
 Other **Hand delivered**  
 Air Bill #

Remarks **C134 C3-1.3**  
**C20.8**  
**all on Ice, TB, hand del.**

Date / Time **9-23-19 15:55**

Received by (Signature) **W. [Signature]**

Date / Time **9/23/19 15:55**

Received for Laboratory by (Signature)

Enclosed:  Parameter sheet w/detection limits  
 QA / AC standard mixing instructions  Cover letter  
 Other

Split Samples:  
 Accepted  Declined

Return results & electronic copy to:  
 QA / QC Dept. at address at top of page



# Hydrometrics, Inc.

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150



## CHAIN OF CUSTODY RECORD

PROJ. NO. 18049

PROJECT NAME  
Black Butte

SAMPLERS: (Signature)

DATE	TIME	COMP	GRAB	SAMPLE NUMBER
9/20/19	0910	X	X	BBC-1909-224
C3	0955			-225
C3	1025			-226
C3	1240			-227
C3	1120			-228
C3	1425			-229
C3	1515			-230

NO. OF CON-TAINERS  
3

Commons UF / RAW  
Nutrients UF / H<sub>2</sub>SO<sub>4</sub>  
Diss. Metal F / HNO<sub>3</sub>  
CN UF / NaOH  
Total Metals UF / HNO<sub>3</sub>  
Total Recoverable Metals UF / HNO<sub>3</sub>  
BTEX  
TPH

REMARKS  
H19090556

Relinquished (Signature)	Date / Time	Received by (Signature)	Lab Energy Lab	P.O. # Bill Tina	Shipped via: Bus FedEx UPS Other <u>Hand delivered.</u> Air Bill #
Relinquished (Signature)	Date / Time	Received by (Signature)	Remarks: C1-3.4 C3-1.3 C2-0.8	allon Ice, TB, BOB model	
Relinquished (Signature)	Date / Time 9/23/19 15:55	Received for Laboratory by (Signature) WLD/192	Date / Time 9/23/19 15:55	Enclosed: <input type="checkbox"/> Parameter sheet w/detection limits <input type="checkbox"/> QA / AC standard mixing instructions <input type="checkbox"/> Cover letter <input type="checkbox"/> Other	Split Samples: <input type="checkbox"/> Accepted <input type="checkbox"/> Declined
Return results & electronic copy to: QA / QC Dept. at address at top of page			Signature		

**TABLE 5. PARAMETERS, METHODS, AND DETECTION LIMITS  
FOR GROUNDWATER MONITORING**

<b>Parameter</b>	<b>Analytical Method<sup>(1)</sup></b>	<b>Project-Required Detection Limit (mg/L)</b>
<b>Physical Parameters</b>		
TDS	SM 2540C	10
TSS	SM 2540C	10
<b>Common Ions</b>		
Alkalinity	SM 2320B	4
Sulfate	300.0	1
Chloride	300.0/SM 4500CL-B	1
Fluoride	A4500-F C	0.1
Calcium	215.1/200.7	1
Magnesium	242.1/200.7	1
Sodium	273.1/200.7	1
Potassium	258.1/200.7	1
<b>Nutrients</b>		
Nitrate+Nitrite as N	353.2	0.01
<b>Trace Constituents (Dissolved)<sup>(2)</sup></b>		
Aluminum (Al)	200.7/200.8	0.009
Antimony (Sb)	200.7/200.8	0.0005
Arsenic (As)	200.8/SM 3114B	0.001
Barium (Ba)	200.7/200.8	0.003
Beryllium (Be)	200.7/200.8	0.0008
Cadmium (Cd)	200.7/200.8	0.00003
Chromium (Cr)	200.7/200.8	0.01
Cobalt (Co)	200.7/200.8	0.01
Copper (Cu)	200.7/200.8	0.002
Iron (Fe)	200.7/200.8	0.02
Lead (Pb)	200.7/200.8	0.0003
Manganese (Mn)	200.7/200.8	0.005
Mercury (Hg)	245.2/245.1/200.8/SM 3112B	0.000005
Molybdenum (Mo)	200.7/200.8	0.002
Nickel (Ni)	200.7/200.8	0.001
Selenium (Se)	200.7/200.8/SM 3114B	0.0002
Silver (Ag)	200.7/200.8	0.0002
Strontium (Sr)	200.7/200.8	0.0002
Thallium (Tl)	200.7/200.8	0.0002
Uranium	200.7/200.8	0.008
Zinc (Zn)	200.7/200.8	0.002
<b>Field Parameters</b>		
Stream Flow	HF-SOP-37/-44/-46	NA
Water Temperature	HF-SOP-20	0.1 °C
Dissolved Oxygen (DO)	HF-SOP-22	0.1 mg/L
pH	HF-SOP-20	0.1 s.u.
Specific Conductance (SC)	HF-SOP-79	1 µmhos/cm

(1) Analytical methods are from *Standard Methods for the Examination of Water and Wastewater* (SM) or EPA's *Methods for Chemical Analysis of Water and Waste* (1983).

(2) Samples to be analyzed for dissolved constituents will be field-filtered through a 0.45 µm filter.



## ANALYTICAL SUMMARY REPORT

October 08, 2019

Tintina Resources Inc  
PO Box 431  
White Sulphur Springs, MT 59645-0431

Work Order: H19090608                      Quote ID: H1216  
Project Name: 18049 Tintina Black Butte Sep Sampling (SW)(GW)

Energy Laboratories Inc Helena MT received the following 12 samples for Tintina Resources Inc on 9/25/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H19090608-001	BBC-1909-100	09/23/19 14:00	09/25/19	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Mercury, Total Recoverable Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 Mercury Digestion by E245.1 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Dissolved Solids, Total Suspended
H19090608-002	BBC-1909-101	09/23/19 15:00	09/25/19	Surface Water	Same As Above
H19090608-003	BBC-1909-102	09/23/19 15:40	09/25/19	Surface Water	Same As Above
H19090608-004	BBC-1909-103	09/23/19 16:15	09/25/19	Surface Water	Same As Above
H19090608-005	BBC-1909-104	09/23/19 16:45	09/25/19	Surface Water	Same As Above
H19090608-006	BBC-1909-105	09/23/19 17:00	09/25/19	Surface Water	Same As Above
H19090608-007	BBC-1909-106	09/23/19 17:15	09/25/19	Surface Water	Same As Above
H19090608-008	BBC-1909-108	09/23/19 17:30	09/25/19	Surface Water	Same As Above
H19090608-009	BBC-1909-109	09/23/19 17:45	09/25/19	Surface Water	Same As Above
H19090608-010	BBC-1909-231	09/23/19 11:50	09/25/19	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Mercury, Dissolved Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Mercury Digestion by E245.1 Solids, Total Dissolved Solids, Total Suspended
H19090608-011	BBC-1909-232	09/23/19 12:50	09/25/19	Groundwater	Same As Above
H19090608-012	BBC-1909-233	09/23/19 13:40	09/25/19	Groundwater	Same As Above



## ANALYTICAL SUMMARY REPORT

The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Tintina Black Butte Sep Sampling (SW)(GW)  
**Lab ID:** H19090608-001  
**Client Sample ID:** BBC-1909-100

**Report Date:** 10/08/19  
**Collection Date:** 09/23/19 14:00  
**Date Received:** 09/25/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	23	mg/L		4		A2540 D	09/25/19 14:21 / SRW
Solids, Total Dissolved TDS @ 180 C	238	mg/L	D	10		A2540 C	09/25/19 14:13 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	09/25/19 15:18 / SRW
Chloride	ND	mg/L		1		E300.0	09/26/19 02:34 / SRW
Sulfate	11	mg/L		1		E300.0	09/26/19 02:34 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	09/26/19 11:35 / SRW
Hardness as CaCO3	208	mg/L		1		A2340 B	09/30/19 19:45 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.02	mg/L		0.01		E353.2	09/26/19 10:04 / cmm
Nitrogen, Total	0.16	mg/L		0.04		A4500 N-C	09/27/19 08:50 / cmm
Phosphorus, Total as P	0.016	mg/L		0.003		E365.1	09/26/19 13:11 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	10/01/19 12:27 / dck
Calcium	48	mg/L		1		E200.7	09/30/19 19:45 / sld
Magnesium	21	mg/L		1		E200.7	09/30/19 19:45 / sld
Potassium	1	mg/L		1		E200.7	09/30/19 19:45 / sld
Sodium	3	mg/L		1		E200.7	09/30/19 19:45 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	10/01/19 12:30 / dck
Arsenic	ND	mg/L		0.001		E200.8	10/01/19 12:30 / dck
Barium	0.134	mg/L		0.003		E200.8	10/01/19 12:30 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/01/19 12:30 / dck
Cadmium	ND	mg/L		0.00003		E200.8	10/01/19 12:30 / dck
Chromium	ND	mg/L		0.01		E200.8	10/01/19 12:30 / dck
Cobalt	ND	mg/L		0.01		E200.8	10/01/19 12:30 / dck
Copper	ND	mg/L		0.002		E200.8	10/01/19 12:30 / dck
Iron	0.35	mg/L		0.02		E200.8	10/01/19 12:30 / dck
Lead	ND	mg/L		0.0003		E200.8	10/01/19 12:30 / dck
Manganese	0.017	mg/L		0.005		E200.8	10/01/19 12:30 / dck
Mercury	0.007	ug/L		0.005		E245.1	10/07/19 14:10 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/01/19 12:30 / dck
Nickel	ND	mg/L		0.001		E200.8	10/01/19 12:30 / dck
Selenium	ND	mg/L		0.0002		E200.8	10/01/19 12:30 / dck
Silver	ND	mg/L		0.0002		E200.8	10/03/19 18:30 / dck
Strontium	0.175	mg/L		0.0002		E200.8	10/01/19 12:30 / dck
Thallium	ND	mg/L		0.0002		E200.8	10/01/19 12:30 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	10/01/19 12:30 / dck
Zinc	ND	mg/L	L	0.004		E200.8	10/03/19 18:30 / dck

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 D - RL increased due to sample matrix.  
 MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 L - Lowest available reporting limit for the analytical method used.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Tintina Black Butte Sep Sampling (SW)(GW)  
**Lab ID:** H19090608-002  
**Client Sample ID:** BBC-1909-101

**Report Date:** 10/08/19  
**Collection Date:** 09/23/19 15:00  
**Date Received:** 09/25/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	5	mg/L		4		A2540 D	09/25/19 14:21 / SRW
Solids, Total Dissolved TDS @ 180 C	191	mg/L	D	10		A2540 C	09/25/19 14:13 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	09/25/19 15:24 / SRW
Chloride	1	mg/L		1		E300.0	09/26/19 02:49 / SRW
Sulfate	6	mg/L		1		E300.0	09/26/19 02:49 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/26/19 11:43 / SRW
Hardness as CaCO3	160	mg/L		1		A2340 B	09/30/19 20:00 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/26/19 10:07 / cmm
Nitrogen, Total	0.12	mg/L		0.04		A4500 N-C	09/27/19 08:54 / cmm
Phosphorus, Total as P	0.014	mg/L		0.003		E365.1	09/26/19 13:12 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	10/01/19 12:32 / dck
Calcium	44	mg/L		1		E200.7	09/30/19 20:00 / sld
Magnesium	12	mg/L		1		E200.7	09/30/19 20:00 / sld
Potassium	2	mg/L		1		E200.7	09/30/19 20:00 / sld
Sodium	2	mg/L		1		E200.7	09/30/19 20:00 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	10/01/19 12:35 / dck
Arsenic	ND	mg/L		0.001		E200.8	10/01/19 12:35 / dck
Barium	0.116	mg/L		0.003		E200.8	10/01/19 12:35 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/01/19 12:35 / dck
Cadmium	ND	mg/L		0.00003		E200.8	10/01/19 12:35 / dck
Chromium	ND	mg/L		0.01		E200.8	10/01/19 12:35 / dck
Cobalt	ND	mg/L		0.01		E200.8	10/01/19 12:35 / dck
Copper	ND	mg/L		0.002		E200.8	10/01/19 12:35 / dck
Iron	0.22	mg/L		0.02		E200.8	10/01/19 12:35 / dck
Lead	ND	mg/L		0.0003		E200.8	10/01/19 12:35 / dck
Manganese	0.021	mg/L		0.005		E200.8	10/01/19 12:35 / dck
Mercury	0.008	ug/L		0.005		E245.1	10/07/19 14:13 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/01/19 12:35 / dck
Nickel	ND	mg/L		0.001		E200.8	10/01/19 12:35 / dck
Selenium	ND	mg/L		0.0002		E200.8	10/01/19 12:35 / dck
Silver	ND	mg/L		0.0002		E200.8	10/03/19 18:32 / dck
Strontium	0.125	mg/L		0.0002		E200.8	10/01/19 12:35 / dck
Thallium	ND	mg/L		0.0002		E200.8	10/01/19 12:35 / dck
Uranium	0.0004	mg/L		0.0002		E200.8	10/01/19 12:35 / dck
Zinc	ND	mg/L	L	0.004		E200.8	10/03/19 18:32 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
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D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Tintina Black Butte Sep Sampling (SW)(GW)  
**Lab ID:** H19090608-003  
**Client Sample ID:** BBC-1909-102

**Report Date:** 10/08/19  
**Collection Date:** 09/23/19 15:40  
**Date Received:** 09/25/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	09/25/19 14:22 / SRW
Solids, Total Dissolved TDS @ 180 C	187	mg/L	D	10		A2540 C	09/25/19 14:13 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	09/25/19 15:37 / SRW
Chloride	1	mg/L		1		E300.0	09/26/19 03:03 / SRW
Sulfate	5	mg/L		1		E300.0	09/26/19 03:03 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	09/26/19 11:51 / SRW
Hardness as CaCO3	158	mg/L		1		A2340 B	09/30/19 20:04 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/26/19 10:08 / cmm
Nitrogen, Total	0.07	mg/L		0.04		A4500 N-C	09/27/19 08:55 / cmm
Phosphorus, Total as P	0.006	mg/L		0.003		E365.1	09/26/19 13:13 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	10/01/19 12:37 / dck
Calcium	44	mg/L		1		E200.7	09/30/19 20:04 / sld
Magnesium	11	mg/L		1		E200.7	09/30/19 20:04 / sld
Potassium	1	mg/L		1		E200.7	09/30/19 20:04 / sld
Sodium	2	mg/L		1		E200.7	09/30/19 20:04 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	10/01/19 12:39 / dck
Arsenic	ND	mg/L		0.001		E200.8	10/01/19 12:39 / dck
Barium	0.102	mg/L		0.003		E200.8	10/01/19 12:39 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/01/19 12:39 / dck
Cadmium	ND	mg/L		0.00003		E200.8	10/01/19 12:39 / dck
Chromium	ND	mg/L		0.01		E200.8	10/01/19 12:39 / dck
Cobalt	ND	mg/L		0.01		E200.8	10/01/19 12:39 / dck
Copper	ND	mg/L		0.002		E200.8	10/01/19 12:39 / dck
Iron	0.12	mg/L		0.02		E200.8	10/01/19 12:39 / dck
Lead	ND	mg/L		0.0003		E200.8	10/01/19 12:39 / dck
Manganese	0.008	mg/L		0.005		E200.8	10/01/19 12:39 / dck
Mercury	ND	ug/L		0.005		E245.1	10/07/19 14:16 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/01/19 12:39 / dck
Nickel	ND	mg/L		0.001		E200.8	10/01/19 12:39 / dck
Selenium	ND	mg/L		0.0002		E200.8	10/01/19 12:39 / dck
Silver	ND	mg/L		0.0002		E200.8	10/03/19 18:35 / dck
Strontium	0.132	mg/L		0.0002		E200.8	10/01/19 12:39 / dck
Thallium	ND	mg/L		0.0002		E200.8	10/01/19 12:39 / dck
Uranium	0.0003	mg/L		0.0002		E200.8	10/01/19 12:39 / dck
Zinc	ND	mg/L	L	0.004		E200.8	10/03/19 18:35 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
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D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Tintina Black Butte Sep Sampling (SW)(GW)  
**Lab ID:** H19090608-004  
**Client Sample ID:** BBC-1909-103

**Report Date:** 10/08/19  
**Collection Date:** 09/23/19 16:15  
**Date Received:** 09/25/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	09/25/19 14:22 / SRW
Solids, Total Dissolved TDS @ 180 C	206	mg/L	D	10		A2540 C	09/25/19 14:13 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	09/25/19 15:43 / SRW
Chloride	1	mg/L		1		E300.0	09/26/19 03:18 / SRW
Sulfate	5	mg/L		1		E300.0	09/26/19 03:18 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	09/26/19 11:55 / SRW
Hardness as CaCO3	178	mg/L		1		A2340 B	09/30/19 20:08 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/26/19 10:10 / cmm
Nitrogen, Total	0.05	mg/L		0.04		A4500 N-C	09/27/19 08:56 / cmm
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	09/26/19 13:15 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	10/01/19 12:42 / dck
Calcium	50	mg/L		1		E200.7	09/30/19 20:08 / sld
Magnesium	13	mg/L		1		E200.7	09/30/19 20:08 / sld
Potassium	1	mg/L		1		E200.7	09/30/19 20:08 / sld
Sodium	2	mg/L		1		E200.7	09/30/19 20:08 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	10/01/19 12:44 / dck
Arsenic	ND	mg/L		0.001		E200.8	10/01/19 12:44 / dck
Barium	0.074	mg/L		0.003		E200.8	10/01/19 12:44 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/01/19 12:44 / dck
Cadmium	ND	mg/L		0.00003		E200.8	10/01/19 12:44 / dck
Chromium	ND	mg/L		0.01		E200.8	10/01/19 12:44 / dck
Cobalt	ND	mg/L		0.01		E200.8	10/01/19 12:44 / dck
Copper	ND	mg/L		0.002		E200.8	10/01/19 12:44 / dck
Iron	0.11	mg/L		0.02		E200.8	10/01/19 12:44 / dck
Lead	ND	mg/L		0.0003		E200.8	10/01/19 12:44 / dck
Manganese	0.007	mg/L		0.005		E200.8	10/01/19 12:44 / dck
Mercury	ND	ug/L		0.005		E245.1	10/07/19 15:06 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/01/19 12:44 / dck
Nickel	ND	mg/L		0.001		E200.8	10/01/19 12:44 / dck
Selenium	ND	mg/L		0.0002		E200.8	10/01/19 12:44 / dck
Silver	ND	mg/L		0.0002		E200.8	10/03/19 18:37 / dck
Strontium	0.154	mg/L		0.0002		E200.8	10/01/19 12:44 / dck
Thallium	ND	mg/L		0.0002		E200.8	10/01/19 12:44 / dck
Uranium	0.0004	mg/L		0.0002		E200.8	10/01/19 12:44 / dck
Zinc	ND	mg/L	L	0.004		E200.8	10/03/19 18:37 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.





### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Tintina Black Butte Sep Sampling (SW)(GW)  
**Lab ID:** H19090608-005  
**Client Sample ID:** BBC-1909-104

**Report Date:** 10/08/19  
**Collection Date:** 09/23/19 16:45  
**Date Received:** 09/25/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	5	mg/L		4		A2540 D	09/25/19 14:22 / SRW
Solids, Total Dissolved TDS @ 180 C	239	mg/L	D	10		A2540 C	09/25/19 14:14 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	09/25/19 15:50 / SRW
Chloride	2	mg/L		1		E300.0	09/26/19 04:45 / SRW
Sulfate	7	mg/L		1		E300.0	09/26/19 04:45 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	09/26/19 11:59 / SRW
Hardness as CaCO3	207	mg/L		1		A2340 B	09/30/19 20:12 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.01	mg/L		0.01		E353.2	09/26/19 10:11 / cmm
Nitrogen, Total	0.13	mg/L		0.04		A4500 N-C	09/27/19 08:58 / cmm
Phosphorus, Total as P	0.009	mg/L		0.003		E365.1	09/26/19 13:16 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	10/01/19 12:46 / dck
Calcium	52	mg/L		1		E200.7	09/30/19 20:12 / sld
Magnesium	19	mg/L		1		E200.7	09/30/19 20:12 / sld
Potassium	1	mg/L		1		E200.7	09/30/19 20:12 / sld
Sodium	2	mg/L		1		E200.7	09/30/19 20:12 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	10/01/19 12:49 / dck
Arsenic	ND	mg/L		0.001		E200.8	10/01/19 12:49 / dck
Barium	0.121	mg/L		0.003		E200.8	10/01/19 12:49 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/01/19 12:49 / dck
Cadmium	ND	mg/L		0.00003		E200.8	10/01/19 12:49 / dck
Chromium	ND	mg/L		0.01		E200.8	10/01/19 12:49 / dck
Cobalt	ND	mg/L		0.01		E200.8	10/01/19 12:49 / dck
Copper	ND	mg/L		0.002		E200.8	10/01/19 12:49 / dck
Iron	0.11	mg/L		0.02		E200.8	10/01/19 12:49 / dck
Lead	ND	mg/L		0.0003		E200.8	10/01/19 12:49 / dck
Manganese	0.006	mg/L		0.005		E200.8	10/01/19 12:49 / dck
Mercury	0.006	ug/L		0.005		E245.1	10/07/19 15:09 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/01/19 12:49 / dck
Nickel	0.001	mg/L		0.001		E200.8	10/01/19 12:49 / dck
Selenium	ND	mg/L		0.0002		E200.8	10/01/19 12:49 / dck
Silver	ND	mg/L		0.0002		E200.8	10/03/19 18:40 / dck
Strontium	0.127	mg/L		0.0002		E200.8	10/01/19 12:49 / dck
Thallium	ND	mg/L		0.0002		E200.8	10/01/19 12:49 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	10/01/19 12:49 / dck
Zinc	ND	mg/L	L	0.004		E200.8	10/03/19 18:40 / dck

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 D - RL increased due to sample matrix.  
 MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 L - Lowest available reporting limit for the analytical method used.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Tintina Black Butte Sep Sampling (SW)(GW)  
**Lab ID:** H19090608-006  
**Client Sample ID:** BBC-1909-105

**Report Date:** 10/08/19  
**Collection Date:** 09/23/19 17:00  
**Date Received:** 09/25/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	09/25/19 14:22 / SRW
Solids, Total Dissolved TDS @ 180 C	218	mg/L	D	10		A2540 C	09/25/19 14:14 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	09/25/19 15:56 / SRW
Chloride	ND	mg/L		1		E300.0	09/26/19 05:29 / SRW
Sulfate	8	mg/L		1		E300.0	09/26/19 05:29 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/26/19 12:03 / SRW
Hardness as CaCO3	189	mg/L		1		A2340 B	09/30/19 20:16 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.02	mg/L		0.01		E353.2	09/26/19 10:12 / cmm
Nitrogen, Total	0.10	mg/L		0.04		A4500 N-C	09/27/19 09:01 / cmm
Phosphorus, Total as P	0.006	mg/L		0.003		E365.1	09/26/19 13:19 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	10/01/19 13:08 / dck
Calcium	44	mg/L		1		E200.7	09/30/19 20:16 / sld
Magnesium	19	mg/L		1		E200.7	09/30/19 20:16 / sld
Potassium	2	mg/L		1		E200.7	09/30/19 20:16 / sld
Sodium	3	mg/L		1		E200.7	09/30/19 20:16 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	10/01/19 13:10 / dck
Arsenic	ND	mg/L		0.001		E200.8	10/01/19 13:10 / dck
Barium	0.151	mg/L		0.003		E200.8	10/01/19 13:10 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/01/19 13:10 / dck
Cadmium	ND	mg/L		0.00003		E200.8	10/01/19 13:10 / dck
Chromium	ND	mg/L		0.01		E200.8	10/01/19 13:10 / dck
Cobalt	ND	mg/L		0.01		E200.8	10/01/19 13:10 / dck
Copper	ND	mg/L		0.002		E200.8	10/01/19 13:10 / dck
Iron	0.09	mg/L		0.02		E200.8	10/01/19 13:10 / dck
Lead	ND	mg/L		0.0003		E200.8	10/01/19 13:10 / dck
Manganese	0.010	mg/L		0.005		E200.8	10/01/19 13:10 / dck
Mercury	0.006	ug/L		0.005		E245.1	10/07/19 15:12 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/01/19 13:10 / dck
Nickel	ND	mg/L		0.001		E200.8	10/01/19 13:10 / dck
Selenium	ND	mg/L		0.0002		E200.8	10/01/19 13:10 / dck
Silver	ND	mg/L		0.0002		E200.8	10/03/19 18:42 / dck
Strontium	0.186	mg/L		0.0002		E200.8	10/01/19 13:10 / dck
Thallium	ND	mg/L		0.0002		E200.8	10/01/19 13:10 / dck
Uranium	0.0008	mg/L		0.0002		E200.8	10/01/19 13:10 / dck
Zinc	ND	mg/L	L	0.004		E200.8	10/03/19 18:42 / dck

**Report Definitions:**  
 RL - Analyte reporting limit.  
 QCL - Quality control limit.  
 D - RL increased due to sample matrix.  
 MCL - Maximum contaminant level.  
 ND - Not detected at the reporting limit.  
 L - Lowest available reporting limit for the analytical method used.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Tintina Black Butte Sep Sampling (SW)(GW)  
**Lab ID:** H19090608-007  
**Client Sample ID:** BBC-1909-106

**Report Date:** 10/08/19  
**Collection Date:** 09/23/19 17:15  
**Date Received:** 09/25/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	09/25/19 14:23 / SRW
Solids, Total Dissolved TDS @ 180 C	222	mg/L	D	10		A2540 C	09/25/19 14:14 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	09/25/19 16:02 / SRW
Chloride	ND	mg/L		1		E300.0	09/26/19 05:43 / SRW
Sulfate	8	mg/L		1		E300.0	09/26/19 05:43 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/26/19 12:07 / SRW
Hardness as CaCO3	192	mg/L		1		A2340 B	09/30/19 20:27 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.02	mg/L		0.01		E353.2	09/26/19 10:13 / cmm
Nitrogen, Total	0.12	mg/L		0.04		A4500 N-C	09/27/19 09:05 / cmm
Phosphorus, Total as P	0.008	mg/L		0.003		E365.1	09/26/19 13:22 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	10/01/19 13:12 / dck
Calcium	45	mg/L		1		E200.7	09/30/19 20:27 / sld
Magnesium	19	mg/L		1		E200.7	09/30/19 20:27 / sld
Potassium	2	mg/L		1		E200.7	09/30/19 20:27 / sld
Sodium	2	mg/L		1		E200.7	09/30/19 20:27 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	10/01/19 13:15 / dck
Arsenic	ND	mg/L		0.001		E200.8	10/01/19 13:15 / dck
Barium	0.157	mg/L		0.003		E200.8	10/01/19 13:15 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/01/19 13:15 / dck
Cadmium	ND	mg/L		0.00003		E200.8	10/01/19 13:15 / dck
Chromium	ND	mg/L		0.01		E200.8	10/01/19 13:15 / dck
Cobalt	ND	mg/L		0.01		E200.8	10/01/19 13:15 / dck
Copper	ND	mg/L		0.002		E200.8	10/01/19 13:15 / dck
Iron	0.10	mg/L		0.02		E200.8	10/01/19 13:15 / dck
Lead	ND	mg/L		0.0003		E200.8	10/01/19 13:15 / dck
Manganese	0.011	mg/L		0.005		E200.8	10/01/19 13:15 / dck
Mercury	0.006	ug/L		0.005		E245.1	10/07/19 15:16 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/01/19 13:15 / dck
Nickel	ND	mg/L		0.001		E200.8	10/01/19 13:15 / dck
Selenium	ND	mg/L		0.0002		E200.8	10/01/19 13:15 / dck
Silver	ND	mg/L		0.0002		E200.8	10/03/19 18:44 / dck
Strontium	0.191	mg/L		0.0002		E200.8	10/01/19 13:15 / dck
Thallium	ND	mg/L		0.0002		E200.8	10/01/19 13:15 / dck
Uranium	0.0008	mg/L		0.0002		E200.8	10/01/19 13:15 / dck
Zinc	ND	mg/L	D	0.005		E200.8	10/03/19 18:44 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Tintina Black Butte Sep Sampling (SW)(GW)  
**Lab ID:** H19090608-008  
**Client Sample ID:** BBC-1909-108

**Report Date:** 10/08/19  
**Collection Date:** 09/23/19 17:30  
**Date Received:** 09/25/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	09/25/19 14:23 / SRW
Solids, Total Dissolved TDS @ 180 C	255	mg/L	D	10		A2540 C	09/25/19 14:14 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	09/25/19 16:08 / SRW
Chloride	4	mg/L		1		E300.0	09/26/19 05:58 / SRW
Sulfate	19	mg/L		1		E300.0	09/26/19 05:58 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	09/26/19 12:11 / SRW
Hardness as CaCO3	224	mg/L		1		A2340 B	09/30/19 20:31 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	09/26/19 10:14 / cmm
Nitrogen, Total	0.09	mg/L		0.04		A4500 N-C	09/27/19 09:06 / cmm
Phosphorus, Total as P	0.007	mg/L		0.003		E365.1	09/26/19 13:24 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	10/01/19 13:17 / dck
Calcium	49	mg/L		1		E200.7	09/30/19 20:31 / sld
Magnesium	24	mg/L		1		E200.7	09/30/19 20:31 / sld
Potassium	1	mg/L		1		E200.7	09/30/19 20:31 / sld
Sodium	2	mg/L		1		E200.7	09/30/19 20:31 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	10/01/19 13:19 / dck
Arsenic	ND	mg/L		0.001		E200.8	10/01/19 13:19 / dck
Barium	0.171	mg/L		0.003		E200.8	10/01/19 13:19 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/01/19 13:19 / dck
Cadmium	ND	mg/L		0.00003		E200.8	10/01/19 13:19 / dck
Chromium	ND	mg/L		0.01		E200.8	10/01/19 13:19 / dck
Cobalt	ND	mg/L		0.01		E200.8	10/01/19 13:19 / dck
Copper	ND	mg/L		0.002		E200.8	10/01/19 13:19 / dck
Iron	0.05	mg/L		0.02		E200.8	10/01/19 13:19 / dck
Lead	ND	mg/L		0.0003		E200.8	10/01/19 13:19 / dck
Manganese	ND	mg/L		0.005		E200.8	10/01/19 13:19 / dck
Mercury	ND	ug/L		0.005		E245.1	10/07/19 15:19 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/01/19 13:19 / dck
Nickel	ND	mg/L		0.001		E200.8	10/01/19 13:19 / dck
Selenium	ND	mg/L		0.0002		E200.8	10/01/19 13:19 / dck
Silver	ND	mg/L		0.0002		E200.8	10/03/19 18:47 / dck
Strontium	0.126	mg/L		0.0002		E200.8	10/01/19 13:19 / dck
Thallium	ND	mg/L		0.0002		E200.8	10/01/19 13:19 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	10/01/19 13:19 / dck
Zinc	ND	mg/L	L	0.004		E200.8	10/03/19 18:47 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Tintina Black Butte Sep Sampling (SW)(GW)  
**Lab ID:** H19090608-009  
**Client Sample ID:** BBC-1909-109

**Report Date:** 10/08/19  
**Collection Date:** 09/23/19 17:45  
**Date Received:** 09/25/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	09/25/19 14:23 / SRW
Solids, Total Dissolved TDS @ 180 C	274	mg/L	D	10		A2540 C	09/25/19 14:14 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	09/25/19 16:14 / SRW
Chloride	6	mg/L		1		E300.0	09/26/19 06:12 / SRW
Sulfate	23	mg/L		1		E300.0	09/26/19 06:12 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	09/26/19 12:15 / SRW
Hardness as CaCO3	226	mg/L		1		A2340 B	09/30/19 20:35 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.01		E353.2	09/26/19 10:18 / cmm
Nitrogen, Total	0.14	mg/L		0.04		A4500 N-C	09/27/19 09:07 / cmm
Phosphorus, Total as P	0.007	mg/L		0.003		E365.1	09/26/19 13:25 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	10/01/19 13:22 / dck
Calcium	52	mg/L		1		E200.7	09/30/19 20:35 / sld
Magnesium	23	mg/L		1		E200.7	09/30/19 20:35 / sld
Potassium	1	mg/L		1		E200.7	09/30/19 20:35 / sld
Sodium	3	mg/L		1		E200.7	09/30/19 20:35 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	10/01/19 13:24 / dck
Arsenic	ND	mg/L		0.001		E200.8	10/01/19 13:24 / dck
Barium	0.174	mg/L		0.003		E200.8	10/01/19 13:24 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/01/19 13:24 / dck
Cadmium	ND	mg/L		0.00003		E200.8	10/01/19 13:24 / dck
Chromium	ND	mg/L		0.01		E200.8	10/01/19 13:24 / dck
Cobalt	ND	mg/L		0.01		E200.8	10/01/19 13:24 / dck
Copper	ND	mg/L		0.002		E200.8	10/01/19 13:24 / dck
Iron	0.17	mg/L		0.02		E200.8	10/01/19 13:24 / dck
Lead	ND	mg/L		0.0003		E200.8	10/01/19 13:24 / dck
Manganese	0.016	mg/L		0.005		E200.8	10/01/19 13:24 / dck
Mercury	0.006	ug/L		0.005		E245.1	10/07/19 15:22 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/01/19 13:24 / dck
Nickel	ND	mg/L		0.001		E200.8	10/01/19 13:24 / dck
Selenium	ND	mg/L		0.0002		E200.8	10/01/19 13:24 / dck
Silver	ND	mg/L		0.0002		E200.8	10/03/19 18:49 / dck
Strontium	0.154	mg/L		0.0002		E200.8	10/01/19 13:24 / dck
Thallium	ND	mg/L		0.0002		E200.8	10/01/19 13:24 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	10/01/19 13:24 / dck
Zinc	ND	mg/L	L	0.004		E200.8	10/03/19 18:49 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Tintina Black Butte Sep Sampling (SW)(GW)  
**Lab ID:** H19090608-010  
**Client Sample ID:** BBC-1909-231

**Report Date:** 10/08/19  
**Collection Date:** 09/23/19 11:50  
**Date Received:** 09/25/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/25/19 14:23 / SRW
Solids, Total Dissolved TDS @ 180 C	225	mg/L		10		A2540 C	09/25/19 14:15 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	180	mg/L		4		A2320 B	09/25/19 16:20 / SRW
Chloride	ND	mg/L		1		E300.0	09/26/19 06:27 / SRW
Sulfate	29	mg/L		1		E300.0	09/26/19 06:27 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	09/26/19 12:20 / SRW
Hardness as CaCO3	193	mg/L		1		A2340 B	09/30/19 20:39 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/26/19 10:21 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	10/01/19 13:27 / dck
Antimony	ND	mg/L		0.0005		E200.8	10/01/19 13:27 / dck
Arsenic	0.001	mg/L		0.001		E200.8	10/01/19 13:27 / dck
Barium	0.035	mg/L		0.003		E200.8	10/01/19 13:27 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/01/19 13:27 / dck
Cadmium	ND	mg/L		0.00003		E200.8	10/01/19 13:27 / dck
Calcium	40	mg/L		1		E200.7	09/30/19 20:39 / sld
Chromium	ND	mg/L		0.01		E200.8	10/01/19 13:27 / dck
Cobalt	ND	mg/L		0.01		E200.8	10/01/19 13:27 / dck
Copper	ND	mg/L		0.002		E200.8	10/01/19 13:27 / dck
Iron	0.03	mg/L		0.02		E200.8	10/01/19 13:27 / dck
Lead	ND	mg/L		0.0003		E200.8	10/01/19 13:27 / dck
Magnesium	23	mg/L		1		E200.7	09/30/19 20:39 / sld
Manganese	ND	mg/L		0.005		E200.8	10/01/19 13:27 / dck
Mercury	ND	ug/L		0.005		E245.1	10/07/19 15:25 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/01/19 13:27 / dck
Nickel	ND	mg/L		0.001		E200.8	10/01/19 13:27 / dck
Potassium	ND	mg/L		1		E200.7	09/30/19 20:39 / sld
Selenium	ND	mg/L		0.0002		E200.8	10/01/19 13:27 / dck
Silver	ND	mg/L		0.0002		E200.8	10/01/19 13:27 / dck
Sodium	2	mg/L		1		E200.7	09/30/19 20:39 / sld
Strontium	0.0702	mg/L		0.0002		E200.8	10/01/19 13:27 / dck
Thallium	ND	mg/L		0.0002		E200.8	10/01/19 13:27 / dck
Uranium	0.0008	mg/L		0.0002		E200.8	10/01/19 13:27 / dck
Zinc	ND	mg/L		0.002		E200.8	10/01/19 13:27 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Tintina Black Butte Sep Sampling (SW)(GW)  
**Lab ID:** H19090608-011  
**Client Sample ID:** BBC-1909-232

**Report Date:** 10/08/19  
**Collection Date:** 09/23/19 12:50  
**Date Received:** 09/25/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/25/19 14:24 / SRW
Solids, Total Dissolved TDS @ 180 C	227	mg/L		10		A2540 C	09/25/19 14:15 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	09/25/19 16:26 / SRW
Chloride	ND	mg/L		1		E300.0	09/26/19 06:41 / SRW
Sulfate	10	mg/L		1		E300.0	09/26/19 06:41 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/26/19 12:32 / SRW
Hardness as CaCO3	197	mg/L		1		A2340 B	09/30/19 20:43 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.24	mg/L		0.01		E353.2	09/26/19 10:23 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	0.011	mg/L		0.009		E200.8	10/01/19 13:29 / dck
Antimony	ND	mg/L		0.0005		E200.8	10/01/19 13:29 / dck
Arsenic	ND	mg/L		0.001		E200.8	10/01/19 13:29 / dck
Barium	0.069	mg/L		0.003		E200.8	10/01/19 13:29 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/01/19 13:29 / dck
Cadmium	ND	mg/L		0.00003		E200.8	10/01/19 13:29 / dck
Calcium	44	mg/L		1		E200.7	09/30/19 20:43 / sld
Chromium	ND	mg/L		0.01		E200.8	10/01/19 13:29 / dck
Cobalt	ND	mg/L		0.01		E200.8	10/01/19 13:29 / dck
Copper	ND	mg/L		0.002		E200.8	10/01/19 13:29 / dck
Iron	ND	mg/L		0.02		E200.8	10/01/19 13:29 / dck
Lead	ND	mg/L		0.0003		E200.8	10/01/19 13:29 / dck
Magnesium	21	mg/L		1		E200.7	09/30/19 20:43 / sld
Manganese	ND	mg/L		0.005		E200.8	10/01/19 13:29 / dck
Mercury	ND	ug/L		0.005		E245.1	10/07/19 15:29 / dck
Molybdenum	0.004	mg/L		0.002		E200.8	10/01/19 13:29 / dck
Nickel	ND	mg/L		0.001		E200.8	10/01/19 13:29 / dck
Potassium	2	mg/L		1		E200.7	09/30/19 20:43 / sld
Selenium	ND	mg/L		0.0002		E200.8	10/01/19 13:29 / dck
Silver	ND	mg/L		0.0002		E200.8	10/01/19 13:29 / dck
Sodium	4	mg/L		1		E200.7	09/30/19 20:43 / sld
Strontium	0.244	mg/L		0.0002		E200.8	10/01/19 13:29 / dck
Thallium	ND	mg/L		0.0002		E200.8	10/01/19 13:29 / dck
Uranium	0.0031	mg/L		0.0002		E200.8	10/01/19 13:29 / dck
Zinc	ND	mg/L		0.002		E200.8	10/01/19 13:29 / dck

**Report** RL - Analyte reporting limit.  
**Definitions:** QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Tintina Black Butte Sep Sampling (SW)(GW)  
**Lab ID:** H19090608-012  
**Client Sample ID:** BBC-1909-233

**Report Date:** 10/08/19  
**Collection Date:** 09/23/19 13:40  
**Date Received:** 09/25/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/25/19 14:24 / SRW
Solids, Total Dissolved TDS @ 180 C	236	mg/L		10		A2540 C	09/25/19 14:15 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	09/25/19 16:32 / SRW
Chloride	2	mg/L		1		E300.0	09/26/19 06:56 / SRW
Sulfate	6	mg/L		1		E300.0	09/26/19 06:56 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/26/19 12:40 / SRW
Hardness as CaCO3	216	mg/L		1		A2340 B	09/30/19 20:58 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.60	mg/L		0.01		E353.2	09/26/19 10:24 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	10/01/19 13:31 / dck
Antimony	ND	mg/L		0.0005		E200.8	10/01/19 13:31 / dck
Arsenic	ND	mg/L		0.001		E200.8	10/01/19 13:31 / dck
Barium	0.365	mg/L		0.003		E200.8	10/01/19 13:31 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/01/19 13:31 / dck
Cadmium	ND	mg/L		0.00003		E200.8	10/01/19 13:31 / dck
Calcium	46	mg/L		1		E200.7	09/30/19 20:58 / sld
Chromium	ND	mg/L		0.01		E200.8	10/01/19 13:31 / dck
Cobalt	ND	mg/L		0.01		E200.8	10/01/19 13:31 / dck
Copper	ND	mg/L		0.002		E200.8	10/01/19 13:31 / dck
Iron	ND	mg/L		0.02		E200.8	10/01/19 13:31 / dck
Lead	ND	mg/L		0.0003		E200.8	10/01/19 13:31 / dck
Magnesium	25	mg/L		1		E200.7	09/30/19 20:58 / sld
Manganese	ND	mg/L		0.005		E200.8	10/01/19 13:31 / dck
Mercury	0.005	ug/L		0.005		E245.1	10/07/19 15:32 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/01/19 13:31 / dck
Nickel	ND	mg/L		0.001		E200.8	10/01/19 13:31 / dck
Potassium	ND	mg/L		1		E200.7	09/30/19 20:58 / sld
Selenium	0.0002	mg/L		0.0002		E200.8	10/01/19 13:31 / dck
Silver	ND	mg/L		0.0002		E200.8	10/01/19 13:31 / dck
Sodium	3	mg/L		1		E200.7	09/30/19 20:58 / sld
Strontium	0.101	mg/L		0.0002		E200.8	10/01/19 13:31 / dck
Thallium	ND	mg/L		0.0002		E200.8	10/01/19 13:31 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	10/01/19 13:31 / dck
Zinc	ND	mg/L		0.002		E200.8	10/01/19 13:31 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.





# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090608

**Report Date:** 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A2320 B										Batch: R148091
<b>Lab ID:</b> MBLK		Method Blank								Run: PHSC_101-H_190925A 09/25/19 15:05
Alkalinity, Total as CaCO3		ND	mg/L	2						
<b>Lab ID:</b> LCS		Laboratory Control Sample								Run: PHSC_101-H_190925A 09/25/19 15:10
Alkalinity, Total as CaCO3		590	mg/L	4.0	99	90	110			
<b>Lab ID:</b> H19090608-002ADUP		Sample Duplicate								Run: PHSC_101-H_190925A 09/25/19 15:30
Alkalinity, Total as CaCO3		170	mg/L	4.0				1.3	10	
<b>Lab ID:</b> H19090608-012ADUP		Sample Duplicate								Run: PHSC_101-H_190925A 09/25/19 16:39
Alkalinity, Total as CaCO3		220	mg/L	4.0				0.0	10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090608

**Report Date:** 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>										
Batch: TDS190925A										
<b>Lab ID: MB-1_190925A</b>		Method Blank								
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
						Run: ACCU-124 (14410200)_19092			09/25/19 14:12	
<b>Lab ID: LCS-2_190925A</b>		Laboratory Control Sample								
Solids, Total Dissolved TDS @ 180 C		2000	mg/L	20	100	90	110			09/25/19 14:12
						Run: ACCU-124 (14410200)_19092			09/25/19 14:13	
<b>Lab ID: H19090608-001A DUP</b>		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		237	mg/L	10				0.4	5	
						Run: ACCU-124 (14410200)_19092			09/25/19 14:15	
<b>Lab ID: H19090608-011A DUP</b>		Sample Duplicate								
Solids, Total Dissolved TDS @ 180 C		226	mg/L	10				0.4	5	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090608

**Report Date:** 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 D</b>								Batch: TSS190925A		
<b>Lab ID: MB-1_190925A</b>		Method Blank						Run: ACCU-124 (14410200)_19092	09/25/19 14:20	
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
<b>Lab ID: LCS-2_190925A</b>		Laboratory Control Sample						Run: ACCU-124 (14410200)_19092	09/25/19 14:21	
Solids, Total Suspended TSS @ 105 C		86.0	mg/L	10	86	80	120			
<b>Lab ID: H19090608-001ADUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19092	09/25/19 14:21	
Solids, Total Suspended TSS @ 105 C		23.2	mg/L	10				0.0	5	
<b>Lab ID: H19090608-011ADUP</b>		Sample Duplicate						Run: ACCU-124 (14410200)_19092	09/25/19 14:24	
Solids, Total Suspended TSS @ 105 C		2.00	mg/L	10					5	

- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090608

Report Date: 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500 N-C</b>								Analytical Run: FIA203-HE_190927A		
<b>Lab ID: ICB</b>		Initial Calibration Blank, Instrument Blank								09/27/19 08:36
Nitrogen, Total		0.00823	mg/L	0.10		0	0			
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								09/27/19 08:37
Nitrogen, Total		0.476	mg/L	0.10	95	90	110			
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								09/27/19 08:59
Nitrogen, Total		0.473	mg/L	0.10	95	90	110			
<b>Method: A4500 N-C</b>								Batch: 48048		
<b>Lab ID: LFB</b>		Laboratory Fortified Blank								09/27/19 08:38
Nitrogen, Total		0.969	mg/L	0.10	97	90	110			
<b>Lab ID: MB-48048</b>		Method Blank								09/27/19 08:40
Nitrogen, Total		ND	mg/L	0.03						
<b>Lab ID: LCS-48048</b>		Laboratory Control Sample								09/27/19 08:41
Nitrogen, Total		7.62	mg/L	0.30	102	90	110			
<b>Lab ID: H19090608-001Ams</b>		Sample Matrix Spike								09/27/19 08:52
Nitrogen, Total		1.15	mg/L	0.10	99	90	110			
<b>Lab ID: H19090608-001Amsd</b>		Sample Matrix Spike Duplicate								09/27/19 08:53
Nitrogen, Total		1.10	mg/L	0.10	94	90	110	4.4	20	
<b>Lab ID: H19090608-006Ams</b>		Sample Matrix Spike								09/27/19 09:02
Nitrogen, Total		1.04	mg/L	0.10	94	90	110			
<b>Lab ID: H19090608-006Amsd</b>		Sample Matrix Spike Duplicate								09/27/19 09:04
Nitrogen, Total		1.03	mg/L	0.10	93	90	110	1.0	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090608

Report Date: 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> A4500-F C										Analytical Run: MANTECH 2_190926A	
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								09/26/19 11:27	
Fluoride		0.7	mg/L	0.1	99	90	110				
<b>Lab ID:</b> CCV		Continuing Calibration Verification Standard								09/26/19 12:24	
Fluoride		1.0	mg/L	0.1	101	90	110				
<b>Method:</b> A4500-F C										Batch: R148153	
<b>Lab ID:</b> MBLK		Method Blank								Run: MANTECH 2_190926A	09/26/19 11:31
Fluoride		ND	mg/L	0.03							
<b>Lab ID:</b> H19090608-001ADUP		Sample Duplicate								Run: MANTECH 2_190926A	09/26/19 11:39
Fluoride		0.2	mg/L	0.1				0.0	10		
<b>Lab ID:</b> H19090608-002AMS		Sample Matrix Spike								Run: MANTECH 2_190926A	09/26/19 11:47
Fluoride		1.1	mg/L	0.1	99	85	115				
<b>Lab ID:</b> H19090608-011ADUP		Sample Duplicate								Run: MANTECH 2_190926A	09/26/19 12:36
Fluoride		0.1	mg/L	0.1				0.0	10		
<b>Lab ID:</b> H19090658-006AMS		Sample Matrix Spike								Run: MANTECH 2_190926A	09/26/19 13:32
Fluoride		1.1	mg/L	0.1	96	85	115				

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090608

**Report Date:** 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>		Analytical Run: ICP2-HE_190930B								
<b>Lab ID: ICV</b>	4	Initial Calibration Verification Standard							09/30/19 09:24	
Calcium		40.1	mg/L	1.0	100	95	105			
Magnesium		40.5	mg/L	1.0	101	95	105			
Potassium		40.1	mg/L	1.0	100	95	105			
Sodium		39.6	mg/L	1.0	99	95	105			
<b>Lab ID: CCV-1</b>	4	Continuing Calibration Verification Standard							09/30/19 09:28	
Calcium		25.1	mg/L	1.0	100	95	105			
Magnesium		25.0	mg/L	1.0	100	95	105			
Potassium		25.4	mg/L	1.0	101	95	105			
Sodium		25.1	mg/L	1.0	100	95	105			
<b>Lab ID: ICSA</b>	4	Interference Check Sample A							09/30/19 09:39	
Calcium		468	mg/L	1.0	94	80	120			
Magnesium		529	mg/L	1.0	106	80	120			
Potassium		-0.00398	mg/L	1.0		0	0			
Sodium		0.0268	mg/L	1.0		0	0			
<b>Lab ID: ICSAB</b>	4	Interference Check Sample AB							09/30/19 09:43	
Calcium		468	mg/L	1.0	94	80	120			
Magnesium		528	mg/L	1.0	106	80	120			
Potassium		20.2	mg/L	1.0	101	80	120			
Sodium		20.2	mg/L	1.0	101	80	120			
<b>Lab ID: CCV</b>	4	Continuing Calibration Verification Standard							09/30/19 19:33	
Calcium		23.8	mg/L	1.0	95	90	110			
Magnesium		23.6	mg/L	1.0	95	90	110			
Potassium		24.8	mg/L	1.0	99	90	110			
Sodium		24.6	mg/L	1.0	99	90	110			
<b>Lab ID: CCV</b>	4	Continuing Calibration Verification Standard							09/30/19 20:19	
Calcium		23.8	mg/L	1.0	95	90	110			
Magnesium		23.6	mg/L	1.0	94	90	110			
Potassium		25.1	mg/L	1.0	101	90	110			
Sodium		25.1	mg/L	1.0	100	90	110			
<b>Method: E200.7</b>		Batch: R148256								
<b>Lab ID: MB</b>	4	Method Blank							Run: ICP2-HE_190930B 09/30/19 09:51	
Calcium		ND	mg/L		0.1					
Magnesium		ND	mg/L		0.01					
Potassium		ND	mg/L		0.05					
Sodium		ND	mg/L		0.02					
<b>Lab ID: LFB</b>	4	Laboratory Fortified Blank							Run: ICP2-HE_190930B 09/30/19 09:55	
Calcium		51.4	mg/L	1.0	103	85	115			
Magnesium		51.8	mg/L	1.0	104	85	115			
Potassium		50.7	mg/L	1.0	101	85	115			
Sodium		50.4	mg/L	1.0	101	85	115			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090608

Report Date: 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>										
Batch: R148256										
<b>Lab ID:</b>	<b>H19090608-001BMS2</b>	4	Sample Matrix Spike							
										Run: ICP2-HE_190930B 09/30/19 19:53
Calcium		94.1	mg/L	1.0	92	70	130			
Magnesium		69.9	mg/L	1.0	97	70	130			
Potassium		51.7	mg/L	1.0	101	70	130			
Sodium		53.6	mg/L	1.0	102	70	130			
<b>Lab ID:</b>	<b>H19090608-001BMSD</b>	4	Sample Matrix Spike Duplicate							
										Run: ICP2-HE_190930B 09/30/19 19:56
Calcium		94.1	mg/L	1.0	92	70	130	0.0	20	
Magnesium		69.4	mg/L	1.0	96	70	130	0.8	20	
Potassium		52.3	mg/L	1.0	102	70	130	1.1	20	
Sodium		54.5	mg/L	1.0	103	70	130	1.6	20	
<b>Lab ID:</b>	<b>H19090608-011BMS2</b>	4	Sample Matrix Spike							
										Run: ICP2-HE_190930B 09/30/19 20:50
Calcium		91.8	mg/L	1.0	96	70	130			
Magnesium		70.8	mg/L	1.0	99	70	130			
Potassium		53.3	mg/L	1.0	103	70	130			
Sodium		56.2	mg/L	1.0	104	70	130			
<b>Lab ID:</b>	<b>H19090608-011BMSD</b>	4	Sample Matrix Spike Duplicate							
										Run: ICP2-HE_190930B 09/30/19 20:54
Calcium		90.9	mg/L	1.0	94	70	130	1.0	20	
Magnesium		70.2	mg/L	1.0	98	70	130	0.9	20	
Potassium		53.0	mg/L	1.0	103	70	130	0.5	20	
Sodium		55.8	mg/L	1.0	104	70	130	0.6	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090608

**Report Date:** 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E200.8		Analytical Run: ICPMS205-H_191001A								
<b>Lab ID:</b> ICV	20 Initial Calibration Verification Standard									10/01/19 09:56
Aluminum		0.307	mg/L	0.10	102	90	110			
Antimony		0.0605	mg/L	0.050	101	90	110			
Arsenic		0.0600	mg/L	0.0050	100	90	110			
Barium		0.0608	mg/L	0.10	101	90	110			
Beryllium		0.0310	mg/L	0.0010	103	90	110			
Cadmium		0.0313	mg/L	0.0010	104	90	110			
Chromium		0.0617	mg/L	0.010	103	90	110			
Cobalt		0.0626	mg/L	0.010	104	90	110			
Copper		0.0621	mg/L	0.010	103	90	110			
Iron		0.312	mg/L	0.020	104	90	110			
Lead		0.0611	mg/L	0.010	102	90	110			
Manganese		0.308	mg/L	0.010	103	90	110			
Molybdenum		0.0611	mg/L	0.0050	102	90	110			
Nickel		0.0611	mg/L	0.010	102	90	110			
Selenium		0.0616	mg/L	0.0050	103	90	110			
Silver		0.0321	mg/L	0.0050	107	90	110			
Strontium		0.0604	mg/L	0.10	101	90	110			
Thallium		0.0607	mg/L	0.10	101	90	110			
Uranium		0.0596	mg/L	0.00030	99	90	110			
Zinc		0.0633	mg/L	0.010	106	90	110			
<b>Lab ID:</b> ICSA	20 Interference Check Sample A									10/01/19 09:58
Aluminum		39.8	mg/L	0.10	99	70	130			
Antimony		0.000248	mg/L	0.050						
Arsenic		4.28E-05	mg/L	0.0050						
Barium		0.000202	mg/L	0.10						
Beryllium		-1.53E-05	mg/L	0.0010						
Cadmium		7.84E-05	mg/L	0.0010						
Chromium		0.000232	mg/L	0.010						
Cobalt		0.000307	mg/L	0.010						
Copper		1.47E-05	mg/L	0.010						
Iron		102	mg/L	0.020	102	70	130			
Lead		6.18E-05	mg/L	0.010						
Manganese		0.000294	mg/L	0.010						
Molybdenum		0.840	mg/L	0.0050	105	70	130			
Nickel		1.30E-05	mg/L	0.010						
Selenium		7.58E-05	mg/L	0.0050						
Silver		7.48E-05	mg/L	0.0050						
Strontium		0.00105	mg/L	0.10						
Thallium		3.16E-05	mg/L	0.10						
Uranium		1.26E-05	mg/L	0.00030						
Zinc		0.000189	mg/L	0.010						
<b>Lab ID:</b> ICSAB	20 Interference Check Sample AB									10/01/19 10:01
Aluminum		39.0	mg/L	0.10	97	70	130			
Antimony		0.000140	mg/L	0.050		0	0			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.





# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090608

**Report Date:** 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E200.8		Analytical Run: ICPMS205-H_191001A								
<b>Lab ID:</b> ICSAB	20 Interference Check Sample AB									10/01/19 10:01
Arsenic		0.00996	mg/L	0.0050	100	70	130			
Barium		0.000180	mg/L	0.10		0	0			
Beryllium		5.86E-05	mg/L	0.0010		0	0			
Cadmium		0.0101	mg/L	0.0010	101	70	130			
Chromium		0.0199	mg/L	0.010	100	70	130			
Cobalt		0.0201	mg/L	0.010	100	70	130			
Copper		0.0195	mg/L	0.010	98	70	130			
Iron		101	mg/L	0.020	101	70	130			
Lead		8.97E-05	mg/L	0.010		0	0			
Manganese		0.0200	mg/L	0.010	100	70	130			
Molybdenum		0.834	mg/L	0.0050	104	70	130			
Nickel		0.0194	mg/L	0.010	97	70	130			
Selenium		0.00984	mg/L	0.0050	98	70	130			
Silver		0.00514	mg/L	0.0050	103	70	130			
Strontium		0.00108	mg/L	0.10		0	0			
Thallium		1.62E-05	mg/L	0.10		0	0			
Uranium		4.00E-06	mg/L	0.00030		0	0			
Zinc		0.0100	mg/L	0.010	100	70	130			
<b>Lab ID:</b> ICV	20 Initial Calibration Verification Standard									10/01/19 18:17
Aluminum		0.310	mg/L	0.10	103	90	110			
Antimony		0.0602	mg/L	0.050	100	90	110			
Arsenic		0.0603	mg/L	0.0050	101	90	110			
Barium		0.0614	mg/L	0.10	102	90	110			
Beryllium		0.0302	mg/L	0.0010	101	90	110			
Cadmium		0.0308	mg/L	0.0010	103	90	110			
Chromium		0.0607	mg/L	0.010	101	90	110			
Cobalt		0.0617	mg/L	0.010	103	90	110			
Copper		0.0613	mg/L	0.010	102	90	110			
Iron		0.310	mg/L	0.020	103	90	110			
Lead		0.0616	mg/L	0.010	103	90	110			
Manganese		0.309	mg/L	0.010	103	90	110			
Molybdenum		0.0609	mg/L	0.0050	102	90	110			
Nickel		0.0614	mg/L	0.010	102	90	110			
Selenium		0.0611	mg/L	0.0050	102	90	110			
Silver		0.0315	mg/L	0.0050	105	90	110			
Strontium		0.0593	mg/L	0.10	99	90	110			
Thallium		0.0612	mg/L	0.10	102	90	110			
Uranium		0.0600	mg/L	0.00030	100	90	110			
Zinc		0.0609	mg/L	0.010	102	90	110			
<b>Lab ID:</b> ICSA	20 Interference Check Sample A									10/01/19 18:19
Aluminum		39.2	mg/L	0.10	98	70	130			
Antimony		0.000208	mg/L	0.050						
Arsenic		3.09E-05	mg/L	0.0050						
Barium		0.000219	mg/L	0.10						

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090608

**Report Date:** 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>		Analytical Run: ICPMS205-H_191001A								
<b>Lab ID: ICSA</b>	20 Interference Check Sample A									10/01/19 18:19
Beryllium		2.74E-05	mg/L	0.0010						
Cadmium		7.62E-05	mg/L	0.0010						
Chromium		0.000233	mg/L	0.010						
Cobalt		0.000255	mg/L	0.010						
Copper		-1.68E-05	mg/L	0.010						
Iron		99.2	mg/L	0.020	99	70	130			
Lead		9.16E-05	mg/L	0.010						
Manganese		0.000244	mg/L	0.010						
Molybdenum		0.838	mg/L	0.0050	105	70	130			
Nickel		4.57E-05	mg/L	0.010						
Selenium		0.000164	mg/L	0.0050						
Silver		7.16E-05	mg/L	0.0050						
Strontium		0.00102	mg/L	0.10						
Thallium		5.35E-05	mg/L	0.10						
Uranium		1.51E-05	mg/L	0.00030						
Zinc		0.000205	mg/L	0.010						
<b>Lab ID: ICSAB</b>	20 Interference Check Sample AB									10/01/19 18:22
Aluminum		38.2	mg/L	0.10	96	70	130			
Antimony		0.000159	mg/L	0.050		0	0			
Arsenic		0.0102	mg/L	0.0050	102	70	130			
Barium		0.000138	mg/L	0.10		0	0			
Beryllium		4.96E-06	mg/L	0.0010		0	0			
Cadmium		0.00984	mg/L	0.0010	98	70	130			
Chromium		0.0196	mg/L	0.010	98	70	130			
Cobalt		0.0197	mg/L	0.010	99	70	130			
Copper		0.0189	mg/L	0.010	95	70	130			
Iron		97.5	mg/L	0.020	98	70	130			
Lead		8.37E-05	mg/L	0.010		0	0			
Manganese		0.0199	mg/L	0.010	99	70	130			
Molybdenum		0.818	mg/L	0.0050	102	70	130			
Nickel		0.0193	mg/L	0.010	96	70	130			
Selenium		0.00969	mg/L	0.0050	97	70	130			
Silver		0.00510	mg/L	0.0050	102	70	130			
Strontium		0.000954	mg/L	0.10		0	0			
Thallium		2.80E-05	mg/L	0.10		0	0			
Uranium		2.45E-06	mg/L	0.00030		0	0			
Zinc		0.00981	mg/L	0.010	98	70	130			
<b>Method: E200.8</b>	Batch: 48034									
<b>Lab ID: MB-48034</b>	17 Method Blank									Run: ICPMS205-H_191001A
										10/01/19 12:25
Antimony		ND	mg/L	0.0001						
Arsenic		ND	mg/L	0.0001						
Barium		ND	mg/L	0.0002						
Beryllium		ND	mg/L	0.0003						
Cadmium		ND	mg/L	3E-05						

**Qualifiers:**

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ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090608

**Report Date:** 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>											
Batch: 48034											
<b>Lab ID: MB-48034</b>	17 Method Blank			Run: ICPMS205-H_191001A				10/01/19 12:25			
Chromium		ND	mg/L	0.0002							
Cobalt		ND	mg/L	0.0007							
Copper		ND	mg/L	0.0003							
Iron		ND	mg/L	0.005							
Lead		ND	mg/L	4E-05							
Manganese		ND	mg/L	0.0001							
Molybdenum		ND	mg/L	0.0001							
Nickel		ND	mg/L	0.0001							
Selenium		ND	mg/L	0.0001							
Strontium		ND	mg/L	0.0002							
Thallium		ND	mg/L	3E-05							
Uranium		ND	mg/L	1E-05							
<b>Lab ID: LCS-48034</b>	17 Laboratory Control Sample			Run: ICPMS205-H_191001A				10/01/19 12:51			
Antimony		0.508	mg/L	0.0010	102	85	115				
Arsenic		0.477	mg/L	0.0010	95	85	115				
Barium		0.496	mg/L	0.050	99	85	115				
Beryllium		0.249	mg/L	0.0010	99	85	115				
Cadmium		0.250	mg/L	0.0010	100	85	115				
Chromium		0.483	mg/L	0.0050	97	85	115				
Cobalt		0.480	mg/L	0.0050	96	85	115				
Copper		0.478	mg/L	0.0050	96	85	115				
Iron		2.46	mg/L	0.020	99	85	115				
Lead		0.505	mg/L	0.0010	101	85	115				
Manganese		2.42	mg/L	0.0010	97	85	115				
Molybdenum		0.487	mg/L	0.0010	97	85	115				
Nickel		0.478	mg/L	0.0050	96	85	115				
Selenium		0.480	mg/L	0.0010	96	85	115				
Strontium		0.488	mg/L	0.010	98	85	115				
Thallium		0.496	mg/L	0.00050	99	85	115				
Uranium		0.501	mg/L	0.00030	100	85	115				
<b>Lab ID: H19090608-001CMS3</b>	17 Sample Matrix Spike			Run: ICPMS205-H_191001A				10/01/19 12:53			
Antimony		0.528	mg/L	0.0010	106	70	130				
Arsenic		0.485	mg/L	0.0010	97	70	130				
Barium		0.638	mg/L	0.050	101	70	130				
Beryllium		0.244	mg/L	0.0010	98	70	130				
Cadmium		0.247	mg/L	0.0010	99	70	130				
Chromium		0.490	mg/L	0.0050	98	70	130				
Cobalt		0.480	mg/L	0.0050	96	70	130				
Copper		0.478	mg/L	0.0050	96	70	130				
Iron		2.84	mg/L	0.020	100	70	130				
Lead		0.508	mg/L	0.0010	102	70	130				
Manganese		2.46	mg/L	0.0010	98	70	130				
Molybdenum		0.503	mg/L	0.0010	100	70	130				
Nickel		0.477	mg/L	0.0050	95	70	130				

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090608

**Report Date:** 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b> <span style="float: right;">Batch: 48034</span>											
<b>Lab ID:</b>	<b>H19090608-001CMS3</b>	17 Sample Matrix Spike			Run: ICPMS205-H_191001A			10/01/19 12:53			
Selenium		0.480	mg/L	0.0010	96	70	130				
Strontium		0.673	mg/L	0.010	100	70	130				
Thallium		0.500	mg/L	0.00050	100	70	130				
Uranium		0.519	mg/L	0.00030	104	70	130				
<b>Lab ID: H19090608-001CMSD</b> 17 Sample Matrix Spike Duplicate <span style="float: right;">Run: ICPMS205-H_191001A 10/01/19 12:56</span>											
Antimony		0.532	mg/L	0.0010	106	70	130	0.9	20		
Arsenic		0.493	mg/L	0.0010	98	70	130	1.5	20		
Barium		0.654	mg/L	0.050	104	70	130	2.4	20		
Beryllium		0.257	mg/L	0.0010	103	70	130	5.3	20		
Cadmium		0.255	mg/L	0.0010	102	70	130	3.4	20		
Chromium		0.496	mg/L	0.0050	99	70	130	1.3	20		
Cobalt		0.487	mg/L	0.0050	97	70	130	1.4	20		
Copper		0.489	mg/L	0.0050	98	70	130	2.2	20		
Iron		2.86	mg/L	0.020	100	70	130	0.7	20		
Lead		0.529	mg/L	0.0010	106	70	130	4.0	20		
Manganese		2.49	mg/L	0.0010	99	70	130	1.1	20		
Molybdenum		0.508	mg/L	0.0010	102	70	130	1.1	20		
Nickel		0.484	mg/L	0.0050	97	70	130	1.5	20		
Selenium		0.499	mg/L	0.0010	100	70	130	3.8	20		
Strontium		0.673	mg/L	0.010	100	70	130	0.0	20		
Thallium		0.518	mg/L	0.00050	104	70	130	3.5	20		
Uranium		0.523	mg/L	0.00030	104	70	130	0.6	20		
<b>Method: E200.8</b> <span style="float: right;">Batch: R148287</span>											
<b>Lab ID:</b>	<b>LRB</b>	20 Method Blank			Run: ICPMS205-H_191001A			10/01/19 11:21			
Aluminum		ND	mg/L	0.003							
Antimony		ND	mg/L	0.0002							
Arsenic		ND	mg/L	0.0002							
Barium		ND	mg/L	0.0003							
Beryllium		ND	mg/L	0.0001							
Cadmium		ND	mg/L	3E-05							
Chromium		ND	mg/L	0.0001							
Cobalt		ND	mg/L	9E-05							
Copper		ND	mg/L	0.0001							
Iron		ND	mg/L	0.006							
Lead		ND	mg/L	3E-05							
Manganese		ND	mg/L	0.0003							
Molybdenum		ND	mg/L	0.0001							
Nickel		ND	mg/L	0.0002							
Selenium		ND	mg/L	0.0001							
Silver		ND	mg/L	1E-05							
Strontium		ND	mg/L	0.0002							
Thallium		ND	mg/L	6E-05							
Uranium		ND	mg/L	1E-05							
Zinc		ND	mg/L	0.0006							

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090608

Report Date: 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: R148287										
<b>Lab ID: LRB</b>	20	Method Blank								
										Run: ICPMS205-H_191001A 10/01/19 11:21
<b>Lab ID: LFB</b>	20	Laboratory Fortified Blank								
										Run: ICPMS205-H_191001A 10/01/19 11:24
Aluminum		0.0511	mg/L	0.10	102	85	115			
Antimony		0.0502	mg/L	0.050	100	85	115			
Arsenic		0.0506	mg/L	0.0050	101	85	115			
Barium		0.0497	mg/L	0.10	99	85	115			
Beryllium		0.0496	mg/L	0.0010	99	85	115			
Cadmium		0.0506	mg/L	0.0010	101	85	115			
Chromium		0.0495	mg/L	0.010	99	85	115			
Cobalt		0.0501	mg/L	0.010	100	85	115			
Copper		0.0500	mg/L	0.010	100	85	115			
Iron		0.150	mg/L	0.020	100	85	115			
Lead		0.0487	mg/L	0.010	97	85	115			
Manganese		0.0489	mg/L	0.010	98	85	115			
Molybdenum		0.0490	mg/L	0.0050	98	85	115			
Nickel		0.0502	mg/L	0.010	100	85	115			
Selenium		0.0493	mg/L	0.0050	99	85	115			
Silver		0.0208	mg/L	0.0050	104	85	115			
Strontium		0.0488	mg/L	0.10	98	85	115			
Thallium		0.0486	mg/L	0.10	97	85	115			
Uranium		0.0478	mg/L	0.00030	96	85	115			
Zinc		0.0514	mg/L	0.010	103	85	115			
<b>Lab ID: H19090556-002BMS</b>	20	Sample Matrix Spike								
										Run: ICPMS205-H_191001A 10/01/19 11:31
Aluminum		0.0511	mg/L	0.030	102	70	130			
Antimony		0.0527	mg/L	0.0010	104	70	130			
Arsenic		0.120	mg/L	0.0010	103	70	130			
Barium		0.0622	mg/L	0.050	101	70	130			
Beryllium		0.0502	mg/L	0.0010	100	70	130			
Cadmium		0.0510	mg/L	0.0010	102	70	130			
Chromium		0.0501	mg/L	0.0050	100	70	130			
Cobalt		0.0736	mg/L	0.0050	99	70	130			
Copper		0.0498	mg/L	0.0050	100	70	130			
Iron		19.5	mg/L	0.020		70	130			A
Lead		0.0501	mg/L	0.0010	100	70	130			
Manganese		0.126	mg/L	0.0010	95	70	130			
Molybdenum		0.0506	mg/L	0.0010	101	70	130			
Nickel		0.0603	mg/L	0.0050	99	70	130			
Selenium		0.0542	mg/L	0.0010	108	70	130			
Silver		0.0208	mg/L	0.0010	104	70	130			
Strontium		1.78	mg/L	0.010		70	130			A
Thallium		0.0628	mg/L	0.00050	101	70	130			
Uranium		0.0495	mg/L	0.00030	99	70	130			
Zinc		0.0623	mg/L	0.010	100	70	130			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090608

Report Date: 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b> <span style="float: right;">Batch: R148287</span>										
<b>Lab ID: H19090556-002BMSD</b>	20	Sample Matrix Spike Duplicate			Run: ICPMS205-H_191001A				10/01/19 11:33	
Aluminum		0.0557	mg/L	0.030	111	70	130	8.6	20	
Antimony		0.0546	mg/L	0.0010	107	70	130	3.5	20	
Arsenic		0.122	mg/L	0.0010	106	70	130	1.5	20	
Barium		0.0647	mg/L	0.050	106	70	130	3.9	20	
Beryllium		0.0524	mg/L	0.0010	105	70	130	4.4	20	
Cadmium		0.0532	mg/L	0.0010	106	70	130	4.4	20	
Chromium		0.0514	mg/L	0.0050	102	70	130	2.5	20	
Cobalt		0.0755	mg/L	0.0050	102	70	130	2.5	20	
Copper		0.0517	mg/L	0.0050	103	70	130	3.6	20	
Iron		19.5	mg/L	0.020		70	130	0.3	20	A
Lead		0.0519	mg/L	0.0010	104	70	130	3.6	20	
Manganese		0.128	mg/L	0.0010	97	70	130	1.1	20	
Molybdenum		0.0527	mg/L	0.0010	105	70	130	3.9	20	
Nickel		0.0613	mg/L	0.0050	101	70	130	1.7	20	
Selenium		0.0557	mg/L	0.0010	111	70	130	2.8	20	
Silver		0.0218	mg/L	0.0010	109	70	130	4.7	20	
Strontium		1.79	mg/L	0.010		70	130	0.5	20	A
Thallium		0.0645	mg/L	0.00050	105	70	130	2.6	20	
Uranium		0.0514	mg/L	0.00030	103	70	130	3.8	20	
Zinc		0.0647	mg/L	0.010	105	70	130	3.7	20	
<b>Lab ID: H19090608-010BMS</b>	20	Sample Matrix Spike			Run: ICPMS205-H_191001A				10/01/19 13:34	
Aluminum		0.0551	mg/L	0.030	110	70	130			
Antimony		0.0530	mg/L	0.0010	106	70	130			
Arsenic		0.0530	mg/L	0.0010	104	70	130			
Barium		0.0882	mg/L	0.050	106	70	130			
Beryllium		0.0528	mg/L	0.0010	106	70	130			
Cadmium		0.0521	mg/L	0.0010	104	70	130			
Chromium		0.0500	mg/L	0.0050	100	70	130			
Cobalt		0.0495	mg/L	0.0050	99	70	130			
Copper		0.0494	mg/L	0.0050	99	70	130			
Iron		0.182	mg/L	0.020	101	70	130			
Lead		0.0497	mg/L	0.0010	99	70	130			
Manganese		0.0518	mg/L	0.0010	101	70	130			
Molybdenum		0.0517	mg/L	0.0010	100	70	130			
Nickel		0.0485	mg/L	0.0050	97	70	130			
Selenium		0.0539	mg/L	0.0010	108	70	130			
Silver		0.0211	mg/L	0.0010	106	70	130			
Strontium		0.120	mg/L	0.010	99	70	130			
Thallium		0.0499	mg/L	0.00050	100	70	130			
Uranium		0.0500	mg/L	0.00030	98	70	130			
Zinc		0.0535	mg/L	0.010	105	70	130			
<b>Lab ID: H19090608-010BMSD</b>	20	Sample Matrix Spike Duplicate			Run: ICPMS205-H_191001A				10/01/19 13:36	
Aluminum		0.0552	mg/L	0.030	110	70	130	0.2	20	
Antimony		0.0522	mg/L	0.0010	104	70	130	1.5	20	

### Qualifiers:

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ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090608

Report Date: 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E200.8										Batch: R148287
<b>Lab ID:</b> H19090608-010BMSD	20	Sample Matrix Spike Duplicate			Run: ICPMS205-H_191001A				10/01/19 13:36	
Arsenic		0.0529	mg/L	0.0010	104	70	130	0.2	20	
Barium		0.0862	mg/L	0.050	102	70	130	2.3	20	
Beryllium		0.0518	mg/L	0.0010	104	70	130	1.9	20	
Cadmium		0.0516	mg/L	0.0010	103	70	130	1.0	20	
Chromium		0.0498	mg/L	0.0050	100	70	130	0.3	20	
Cobalt		0.0498	mg/L	0.0050	100	70	130	0.5	20	
Copper		0.0494	mg/L	0.0050	99	70	130	0.1	20	
Iron		0.183	mg/L	0.020	103	70	130	0.9	20	
Lead		0.0495	mg/L	0.0010	99	70	130	0.5	20	
Manganese		0.0523	mg/L	0.0010	102	70	130	0.8	20	
Molybdenum		0.0512	mg/L	0.0010	99	70	130	1.0	20	
Nickel		0.0493	mg/L	0.0050	99	70	130	1.6	20	
Selenium		0.0544	mg/L	0.0010	109	70	130	1.0	20	
Silver		0.0207	mg/L	0.0010	104	70	130	2.1	20	
Strontium		0.122	mg/L	0.010	103	70	130	2.0	20	
Thallium		0.0497	mg/L	0.00050	99	70	130	0.4	20	
Uranium		0.0498	mg/L	0.00030	98	70	130	0.5	20	
Zinc		0.0536	mg/L	0.010	106	70	130	0.2	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090608

**Report Date:** 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>		Analytical Run: ICPMS205-H_191003C									
<b>Lab ID: ICV</b>	2	Initial Calibration Verification Standard								10/03/19 17:57	
Silver		0.0311	mg/L	0.0050	104	90	110				
Zinc		0.0611	mg/L	0.010	102	90	110				
<b>Lab ID: ICSA</b>	2	Interference Check Sample A								10/03/19 18:00	
Silver		7.62E-05	mg/L	0.0050							
Zinc		0.000264	mg/L	0.010							
<b>Lab ID: ICSAB</b>	2	Interference Check Sample AB								10/03/19 18:02	
Silver		0.00520	mg/L	0.0050	104	70	130				
Zinc		0.0104	mg/L	0.010	104	70	130				
<b>Method: E200.8</b>		Batch: 48134									
<b>Lab ID: MB-48134</b>	19	Method Blank								Run: ICPMS205-H_191003C	10/03/19 18:28
Antimony		ND	mg/L	0.0001							
Arsenic		ND	mg/L	0.0001							
Barium		ND	mg/L	0.0002							
Beryllium		ND	mg/L	0.0003							
Cadmium		ND	mg/L	3E-05							
Chromium		ND	mg/L	0.0002							
Cobalt		ND	mg/L	0.0007							
Copper		ND	mg/L	0.0003							
Iron		ND	mg/L	0.005							
Lead		ND	mg/L	4E-05							
Manganese		ND	mg/L	0.0001							
Molybdenum		ND	mg/L	0.0001							
Nickel		ND	mg/L	0.0001							
Selenium		ND	mg/L	0.0001							
Silver		ND	mg/L	4E-05							
Strontium		ND	mg/L	0.0002							
Thallium		ND	mg/L	3E-05							
Uranium		ND	mg/L	1E-05							
Zinc		ND	mg/L	0.004							
<b>Lab ID: LCS-48134</b>	19	Laboratory Control Sample								Run: ICPMS205-H_191003C	10/03/19 18:51
Antimony		0.501	mg/L	0.0010	100	85	115				
Arsenic		0.477	mg/L	0.0010	95	85	115				
Barium		0.498	mg/L	0.050	100	85	115				
Beryllium		0.237	mg/L	0.0010	95	85	115				
Cadmium		0.246	mg/L	0.0010	98	85	115				
Chromium		0.478	mg/L	0.0050	96	85	115				
Cobalt		0.475	mg/L	0.0050	95	85	115				
Copper		0.476	mg/L	0.0050	95	85	115				
Iron		2.42	mg/L	0.020	97	85	115				
Lead		0.508	mg/L	0.0010	102	85	115				
Manganese		2.41	mg/L	0.0010	96	85	115				
Molybdenum		0.485	mg/L	0.0010	97	85	115				
Nickel		0.475	mg/L	0.0050	95	85	115				

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.





# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090608

**Report Date:** 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>										
Batch: 48134										
<b>Lab ID:</b> LCS-48134	19	Laboratory Control Sample			Run: ICPMS205-H_191003C			10/03/19 18:51		
Selenium		0.485	mg/L	0.0010	97	85	115			
Silver		0.0507	mg/L	0.0010	101	85	115			
Strontium		0.490	mg/L	0.010	98	85	115			
Thallium		0.502	mg/L	0.00050	100	85	115			
Uranium		0.489	mg/L	0.00030	98	85	115			
Zinc		0.473	mg/L	0.010	95	85	115			
<b>Lab ID:</b> H19090608-002CMS3	19	Sample Matrix Spike			Run: ICPMS205-H_191003C			10/03/19 18:54		
Antimony		0.498	mg/L	0.0010	100	70	130			
Arsenic		0.491	mg/L	0.0010	98	70	130			
Barium		0.616	mg/L	0.050	100	70	130			
Beryllium		0.233	mg/L	0.0010	93	70	130			
Cadmium		0.247	mg/L	0.0010	99	70	130			
Chromium		0.487	mg/L	0.0050	97	70	130			
Cobalt		0.482	mg/L	0.0050	96	70	130			
Copper		0.481	mg/L	0.0050	96	70	130			
Iron		2.70	mg/L	0.020	98	70	130			
Lead		0.516	mg/L	0.0010	103	70	130			
Manganese		2.48	mg/L	0.0010	98	70	130			
Molybdenum		0.482	mg/L	0.0010	96	70	130			
Nickel		0.479	mg/L	0.0050	96	70	130			
Selenium		0.487	mg/L	0.0010	97	70	130			
Silver		0.0505	mg/L	0.0010	101	70	130			
Strontium		0.626	mg/L	0.010	100	70	130			
Thallium		0.511	mg/L	0.00050	102	70	130			
Uranium		0.489	mg/L	0.00030	98	70	130			
Zinc		0.486	mg/L	0.010	96	70	130			
<b>Lab ID:</b> H19090608-002CMSD	19	Sample Matrix Spike Duplicate			Run: ICPMS205-H_191003C			10/03/19 18:56		
Antimony		0.500	mg/L	0.0010	100	70	130	0.5	20	
Arsenic		0.488	mg/L	0.0010	98	70	130	0.5	20	
Barium		0.618	mg/L	0.050	101	70	130	0.3	20	
Beryllium		0.234	mg/L	0.0010	94	70	130	0.3	20	
Cadmium		0.247	mg/L	0.0010	99	70	130	0.1	20	
Chromium		0.488	mg/L	0.0050	97	70	130	0.0	20	
Cobalt		0.481	mg/L	0.0050	96	70	130	0.2	20	
Copper		0.480	mg/L	0.0050	96	70	130	0.1	20	
Iron		2.70	mg/L	0.020	98	70	130	0.0	20	
Lead		0.516	mg/L	0.0010	103	70	130	0.0	20	
Manganese		2.47	mg/L	0.0010	98	70	130	0.3	20	
Molybdenum		0.485	mg/L	0.0010	97	70	130	0.6	20	
Nickel		0.483	mg/L	0.0050	97	70	130	0.7	20	
Selenium		0.481	mg/L	0.0010	96	70	130	1.1	20	
Silver		0.0506	mg/L	0.0010	101	70	130	0.2	20	
Strontium		0.626	mg/L	0.010	100	70	130	0.0	20	
Thallium		0.511	mg/L	0.00050	102	70	130	0.0	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090608

**Report Date:** 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E200.8										Batch: 48134
<b>Lab ID:</b> H19090608-002CMSD	19	Sample Matrix Spike Duplicate								Run: ICPMS205-H_191003C
Uranium		0.498	mg/L	0.00030	100	70	130	1.9	20	10/03/19 18:56
Zinc		0.479	mg/L	0.010	95	70	130	1.3	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090608

**Report Date:** 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> E245.1										Analytical Run: HGCV203-H_191007A	
<b>Lab ID:</b> ICV		Initial Calibration Verification Standard								10/07/19 13:50	
Mercury		0.0917	ug/L	0.0050	92	90	110				
<b>Lab ID:</b> CCV1		Continuing Calibration Verification Standard								10/07/19 13:53	
Mercury		0.102	ug/L	0.0050	102	95	105				
<b>Method:</b> E245.1										Batch: 48150	
<b>Lab ID:</b> MB-48150		Method Blank								Run: HGCV203-H_191007A	10/07/19 14:03
Mercury		ND	ug/L	0.001							
<b>Lab ID:</b> LCS-48150		Laboratory Control Sample								Run: HGCV203-H_191007A	10/07/19 14:06
Mercury		0.0520	ug/L	0.0050	104	90	110				
<b>Lab ID:</b> H19090608-003CMS		Sample Matrix Spike								Run: HGCV203-H_191007A	10/07/19 14:19
Mercury		0.0564	ug/L	0.0050	103	70	130				
<b>Lab ID:</b> H19090608-003CMSD		Sample Matrix Spike Duplicate								Run: HGCV203-H_191007A	10/07/19 14:23
Mercury		0.0564	ug/L	0.0050	103	70	130	0.0	20		
<b>Lab ID:</b> H19090678-002BMS		Sample Matrix Spike								Run: HGCV203-H_191007A	10/07/19 15:48
Mercury		0.0552	ug/L	0.0050	102	70	130				
<b>Lab ID:</b> H19090678-002BMSD		Sample Matrix Spike Duplicate								Run: HGCV203-H_191007A	10/07/19 15:51
Mercury		0.0606	ug/L	0.0050	113	70	130	9.3	20		

**Qualifiers:**

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ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090608

Report Date: 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> E300.0										Analytical Run: IC METROHM_190924A	
<b>Lab ID:</b> ICV	2	Initial Calibration Verification Standard								09/24/19 12:07	
Chloride		101	mg/L	1.0	101	90	110				
Sulfate		402	mg/L	1.0	100	90	110				
<b>Lab ID:</b> CCV	2	Continuing Calibration Verification Standard								09/26/19 00:23	
Chloride		48.4	mg/L	1.0	97	90	110				
Sulfate		192	mg/L	1.0	96	90	110				
<b>Lab ID:</b> CCV	2	Continuing Calibration Verification Standard								09/26/19 04:01	
Chloride		48.3	mg/L	1.0	97	90	110				
Sulfate		192	mg/L	1.0	96	90	110				
<b>Method:</b> E300.0										Batch: R148102	
<b>Lab ID:</b> ICB	2	Method Blank								Run: IC METROHM_190924A	09/24/19 11:52
Chloride		ND	mg/L	0.02							
Sulfate		ND	mg/L	0.08							
<b>Lab ID:</b> LFB	2	Laboratory Fortified Blank								Run: IC METROHM_190924A	09/24/19 12:21
Chloride		25.4	mg/L	1.0	101	90	110				
Sulfate		105	mg/L	1.0	105	90	110				
<b>Lab ID:</b> H19090608-004AMS	2	Sample Matrix Spike								Run: IC METROHM_190924A	09/26/19 03:32
Chloride		24.2	mg/L	1.0	92	90	110				
Sulfate		101	mg/L	1.0	96	90	110				
<b>Lab ID:</b> H19090608-004AMSD	2	Sample Matrix Spike Duplicate								Run: IC METROHM_190924A	09/26/19 03:47
Chloride		24.7	mg/L	1.0	93	90	110	1.9	20		
Sulfate		99.7	mg/L	1.0	94	90	110	1.6	20		
<b>Lab ID:</b> H19090608-005AMS	2	Sample Matrix Spike								Run: IC METROHM_190924A	09/26/19 04:59
Chloride		24.8	mg/L	1.0	92	90	110				
Sulfate		100	mg/L	1.0	93	90	110				
<b>Lab ID:</b> H19090608-005AMSD	2	Sample Matrix Spike Duplicate								Run: IC METROHM_190924A	09/26/19 05:14
Chloride		24.7	mg/L	1.0	92	90	110	0.6	20		
Sulfate		100	mg/L	1.0	93	90	110	0.3	20		

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090608

Report Date: 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E353.2</b>										Analytical Run: FIA203-HE_190926A
<b>Lab ID: ICV</b>		Initial Calibration Verification Standard								09/26/19 09:41
Nitrogen, Nitrate+Nitrite as N		0.995	mg/L	0.010	100	90	110			
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								09/26/19 09:59
Nitrogen, Nitrate+Nitrite as N		0.507	mg/L	0.010	101	90	110			
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								09/26/19 10:15
Nitrogen, Nitrate+Nitrite as N		0.503	mg/L	0.010	101	90	110			
<b>Method: E353.2</b>										Batch: R148134
<b>Lab ID: MBLK</b>		Method Blank								09/26/19 09:42
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009						Run: FIA203-HE_190926A
<b>Lab ID: LFB</b>		Laboratory Fortified Blank								09/26/19 09:43
Nitrogen, Nitrate+Nitrite as N		0.984	mg/L	0.011	98	90	110			Run: FIA203-HE_190926A
<b>Lab ID: H19090608-001DMS</b>		Sample Matrix Spike								09/26/19 10:05
Nitrogen, Nitrate+Nitrite as N		1.01	mg/L	0.011	99	90	110			Run: FIA203-HE_190926A
<b>Lab ID: H19090608-001DMSD</b>		Sample Matrix Spike Duplicate								09/26/19 10:06
Nitrogen, Nitrate+Nitrite as N		1.01	mg/L	0.011	99	90	110	0.1	10	Run: FIA203-HE_190926A
<b>Lab ID: H19090608-009DMS</b>		Sample Matrix Spike								09/26/19 10:19
Nitrogen, Nitrate+Nitrite as N		1.02	mg/L	0.011	98	90	110			Run: FIA203-HE_190926A
<b>Lab ID: H19090608-009DMSD</b>		Sample Matrix Spike Duplicate								09/26/19 10:20
Nitrogen, Nitrate+Nitrite as N		1.02	mg/L	0.011	98	90	110	0.3	10	Run: FIA203-HE_190926A

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090608

Report Date: 10/08/19

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E365.1</b>								Analytical Run: FIA202-HE_190926B			
<b>Lab ID: ICV</b>		Initial Calibration Verification Standard								09/26/19 12:24	
Phosphorus, Total as P		0.256	mg/L	0.010	102	90	110				
<b>Lab ID: ICB</b>		Initial Calibration Blank, Instrument Blank								09/26/19 12:25	
Phosphorus, Total as P		0.000530	mg/L	0.010		0	0				
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								09/26/19 13:02	
Phosphorus, Total as P		0.100	mg/L	0.010	100	90	110				
<b>Lab ID: CCV</b>		Continuing Calibration Verification Standard								09/26/19 13:18	
Phosphorus, Total as P		0.0987	mg/L	0.010	99	90	110				
<b>Method: E365.1</b>								Batch: 48039			
<b>Lab ID: MB-48039</b>		Method Blank								09/26/19 12:28	
Phosphorus, Total as P		ND	mg/L	0.002							
<b>Lab ID: LCS-48039</b>		Laboratory Control Sample								09/26/19 12:30	
Phosphorus, Total as P		0.437	mg/L	0.010	109	90	110				
<b>Lab ID: H19090580-001AMS</b>		Sample Matrix Spike								09/26/19 13:06	
Phosphorus, Total as P		0.217	mg/L	0.010	106	90	110				
<b>Lab ID: H19090580-001AMSD</b>		Sample Matrix Spike Duplicate								09/26/19 13:07	
Phosphorus, Total as P		0.221	mg/L	0.010	109	90	110	2.0	20		
<b>Lab ID: H19090608-006DMS</b>		Sample Matrix Spike								09/26/19 13:20	
Phosphorus, Total as P		0.222	mg/L	0.010	108	90	110				
<b>Lab ID: H19090608-006DMSD</b>		Sample Matrix Spike Duplicate								09/26/19 13:21	
Phosphorus, Total as P		0.215	mg/L	0.010	104	90	110	3.2	20		

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# Work Order Receipt Checklist

Tintina Resources Inc

H19090608

Login completed by: Jessica C. Smith

Date Received: 9/25/2019

Reviewed by: BL2000\rtooke

Received by: JCS

Reviewed Date: 10/7/2019

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	°C See Comments		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

## Contact and Corrective Action Comments:

Cooler 1 was received at -1.1 °C, Cooler 2 at 0.2 °C. On Ice. Relinquished time from client does not match received time by laboratory. JCS 09/25/19

# Hydrometrics, Inc.

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

## CHAIN OF CUSTODY RECORD

PROJ. NO. 18049	PROJECT NAME Tintina Black Butte Sep Sampling (SW)	
SAMPLERS: (Signature)		
DATE	TIME	SAMPLE NUMBER
9/23/19	1400	B36-1909-100
	1500	101
	1540	102
	1615	103
	1645	104
	1700	105
	1715	106
	1720	
	1730	108
	1745	109

NO. OF CONTAINERS	4
Commons UF / RAW	X
Nutrients UF / H <sub>2</sub> SO <sub>4</sub>	X
Diss. Metal F / NaOH	X
CN UF / HNO <sub>3</sub>	X
Total Metals UF / HNO <sub>3</sub>	X
Total Recoverable Metals UF / HNO <sub>3</sub>	X
BTEX	X
TPH	X
REMARKS	H9090608

Lab	Energy Lab
Remarks	C1 - 1.12 ON TD C2 0.20C ICE HAND DEL
Date / Time	9/25/19 0715
Received by (Signature)	[Signature]
Received by (Signature)	[Signature]
Received for Laboratory by (Signature)	[Signature]
Date / Time	9/25/19 0715

Relinquished (Signature)	Date / Time
[Signature]	9/24/19 11:00
Relinquished (Signature)	Date / Time
[Signature]	
Relinquished (Signature)	Date / Time
[Signature]	9/25/19 0715

Shipped via: Bus FedEx UPS  
 Other: Hand delivered.  
 Air Bill #

P.O. # 1311 Tintina

Enclosed:  Parameter sheet w/detection limits Table 6  
 QA / AC standard mixing instructions  Cover letter  
 Other

Split Samples:  Accepted  Declined

Signature

Return results & electronic copy to:  
 QA / QC Dept. at address at top of page



**TABLE 6. PARAMETERS, METHODS, AND DETECTION LIMITS  
FOR SURFACE WATER MONITORING**

Parameter	Analytical Method <sup>(1)</sup>	Project-Required Detection Limit (mg/L)
<b>Physical Parameters</b>		
TDS	SM 2540C	4
TSS	SM 2540C	4
<b>Common Ions</b>		
Alkalinity	SM 2320B	4
Sulfate	300.0	1
Chloride	300.0/SM 4500CL-B	1
Fluoride	A4500-F C	0.1
Calcium	215.1/200.7	1
Magnesium	242.1/200.7	1
Sodium	273.1/200.7	1
Potassium	258.1/200.7	1
<b>Nutrients</b>		
Nitrate+Nitrite as N	353.2	0.003
Total Persulfate Nitrogen	A 4500-N-C	0.04
Total Phosphorus	E365.1	0.003
<b>Trace Constituents (SW - Total Recoverable except Aluminum [Diss])<sup>(2)</sup></b>		
Aluminum (Al)	200.7/200.8	0.009
Antimony (Sb)	200.7/200.8	0.0005
Arsenic (As)	200.8/SM 3114B	0.001
Barium (Ba)	200.7/200.8	0.003
Beryllium (Be)	200.7/200.8	0.0008
Cadmium (Cd)	200.7/200.8	0.00003
Chromium (Cr)	200.7/200.8	0.01
Cobalt (Co)	200.7/200.8	0.01
Copper (Cu)	200.7/200.8	0.002
Iron (Fe)	200.7/200.8	0.02
Lead (Pb)	200.7/200.8	0.0003
Manganese (Mn)	200.7/200.8	0.005
Mercury (Hg)	245.2/245.1/200.8/SM 3112B	0.000005
Molybdenum (Mo)	200.7/200.8	0.002
Nickel (Ni)	200.7/200.8	0.001
Selenium (Se)	200.7/200.8/SM 3114B	0.0002
Silver (Ag)	200.7/200.8	0.0002
Strontium (Sr)	200.7/200.8	0.0002
Thallium (Tl)	200.7/200.8	0.0002
Uranium	200.7/200.8	0.008
Zinc (Zn)	200.7/200.8	0.002
<b>Field Parameters</b>		
Stream Flow	HF-SOP-37/-44/-46	NA
Water Temperature	HF-SOP-20	0.1 °C
Dissolved Oxygen (DO)	HF-SOP-22	0.1 mg/L
pH	HF-SOP-20	0.1 s.u.
Specific Conductance (SC)	HF-SOP-79	1 µmhos/cm

(1) Analytical methods are from *Standard Methods for the Examination of Water and Wastewater* (SM) or EPA's *Methods for Chemical Analysis of Water and Waste* (1983).

(2) Samples to be analyzed for dissolved constituents will be field-filtered through a 0.45 µm filter.



**TABLE 5. PARAMETERS, METHODS, AND DETECTION LIMITS  
FOR GROUNDWATER MONITORING**

Parameter	Analytical Method <sup>(1)</sup>	Project-Required Detection Limit (mg/L)
<b>Physical Parameters</b>		
TDS	SM 2540C	10
TSS	SM 2540C	10
<b>Common Ions</b>		
Alkalinity	SM 2320B	4
Sulfate	300.0	1
Chloride	300.0/SM 4500CL-B	1
Fluoride	A4500-F C	0.1
Calcium	215.1/200.7	1
Magnesium	242.1/200.7	1
Sodium	273.1/200.7	1
Potassium	258.1/200.7	1
<b>Nutrients</b>		
Nitrate+Nitrite as N	353.2	0.01
<b>Trace Constituents (Dissolved)<sup>(2)</sup></b>		
Aluminum (Al)	200.7/200.8	0.009
Antimony (Sb)	200.7/200.8	0.0005
Arsenic (As)	200.8/SM 3114B	0.001
Barium (Ba)	200.7/200.8	0.003
Beryllium (Be)	200.7/200.8	0.0008
Cadmium (Cd)	200.7/200.8	0.00003
Chromium (Cr)	200.7/200.8	0.01
Cobalt (Co)	200.7/200.8	0.01
Copper (Cu)	200.7/200.8	0.002
Iron (Fe)	200.7/200.8	0.02
Lead (Pb)	200.7/200.8	0.0003
Manganese (Mn)	200.7/200.8	0.005
Mercury (Hg)	245.2/245.1/200.8/SM 3112B	0.000005
Molybdenum (Mo)	200.7/200.8	0.002
Nickel (Ni)	200.7/200.8	0.001
Selenium (Se)	200.7/200.8/SM 3114B	0.0002
Silver (Ag)	200.7/200.8	0.0002
Strontium (Sr)	200.7/200.8	0.0002
Thallium (Tl)	200.7/200.8	0.0002
Uranium	200.7/200.8	0.008
Zinc (Zn)	200.7/200.8	0.002
<b>Field Parameters</b>		
Stream Flow	HF-SOP-37/-44/-46	NA
Water Temperature	HF-SOP-20	0.1 °C
Dissolved Oxygen (DO)	HF-SOP-22	0.1 mg/L
pH	HF-SOP-20	0.1 s.u.
Specific Conductance (SC)	HF-SOP-79	1 µmhos/cm

(1) Analytical methods are from *Standard Methods for the Examination of Water and Wastewater* (SM) or EPA's *Methods for Chemical Analysis of Water and Waste* (1983).

(2) Samples to be analyzed for dissolved constituents will be field-filtered through a 0.45 µm filter.



# ANALYTICAL SUMMARY REPORT

October 10, 2019

Tintina Resources Inc  
PO Box 431  
White Sulphur Springs, MT 59645-0431

Work Order: H19090658      Quote ID: H1216  
Project Name: 18049 Black Butte Copper (Springs) (SW) Sep.

Energy Laboratories Inc Helena MT received the following 14 samples for Tintina Resources Inc on 9/26/2019 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H19090658-001	BBC-1909-120	09/24/19 13:00	09/26/19	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Mercury, Dissolved Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Mercury Digestion by E245.1 Solids, Total Dissolved Solids, Total Suspended
H19090658-002	BBC-1909-123	09/24/19 13:35	09/26/19	Groundwater	Same As Above
H19090658-003	BBC-1909-125	09/24/19 14:15	09/26/19	Groundwater	Same As Above
H19090658-004	BBC-1909-127	09/24/19 14:40	09/26/19	Groundwater	Same As Above
H19090658-005	BBC-1909-132	09/24/19 16:45	09/26/19	Groundwater	Same As Above
H19090658-006	BBC-1909-140	09/25/19 10:30	09/26/19	Groundwater	Same As Above
H19090658-007	BBC-1909-141	09/25/19 10:45	09/26/19	Groundwater	Same As Above
H19090658-008	BBC-1909-146	09/25/19 13:00	09/26/19	Groundwater	Same As Above
H19090658-009	BBC-1909-147	09/25/19 13:20	09/26/19	Groundwater	Same As Above
H19090658-010	BBC-1909-148	09/25/19 13:40	09/26/19	Groundwater	Same As Above
H19090658-011	BBC-1909-149	09/25/19 14:00	09/26/19	Groundwater	Same As Above
H19090658-012	BBC-1909-152	09/25/19 15:00	09/26/19	Groundwater	Same As Above
H19090658-013	BBC-1909-111	09/24/19 8:15	09/26/19	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Mercury, Total Recoverable Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Persulfate Metals Digestion by E200.2 Mercury Digestion by E245.1 E365.1 Digestion, Total P Nitrogen, Total Persulfate A4500 N-C Phosphorus, Total Solids, Total Dissolved Solids, Total Suspended



## ANALYTICAL SUMMARY REPORT

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H19090658-014    BBC-1909-115                      09/24/19 10:35 09/26/19    Surface Water    Same As Above

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The analyses presented in this report were performed by Energy Laboratories, Inc., 3161 E. Lyndale Ave., Helena, MT 59604, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs) (SW) Sep.  
**Lab ID:** H19090658-001  
**Client Sample ID:** BBC-1909-120

**Report Date:** 10/10/19  
**Collection Date:** 09/24/19 13:00  
**Date Received:** 09/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/19 14:45 / SRW
Solids, Total Dissolved TDS @ 180 C	56	mg/L		10		A2540 C	09/26/19 15:40 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	24	mg/L		4		A2320 B	09/26/19 18:22 / SRW
Chloride	ND	mg/L		1		E300.0	09/27/19 00:16 / SRW
Sulfate	2	mg/L		1		E300.0	09/27/19 00:16 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	09/26/19 12:59 / SRW
Hardness as CaCO3	21	mg/L		1		A2340 B	10/01/19 09:08 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.36	mg/L		0.01		E353.2	09/30/19 12:52 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	0.177	mg/L		0.009		E200.8	09/29/19 22:07 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 22:07 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 22:07 / dck
Barium	0.274	mg/L		0.003		E200.8	09/29/19 22:07 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 22:07 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 22:07 / dck
Calcium	6	mg/L		1		E200.7	09/30/19 21:21 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 22:07 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 22:07 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 22:07 / dck
Iron	0.21	mg/L		0.02		E200.8	10/04/19 14:52 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 22:07 / dck
Magnesium	2	mg/L		1		E200.7	09/30/19 21:21 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 22:07 / dck
Mercury	0.006	ug/L		0.005		E245.1	10/08/19 17:13 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 22:07 / dck
Nickel	0.002	mg/L		0.001		E200.8	09/29/19 22:07 / dck
Potassium	1	mg/L		1		E200.7	09/30/19 21:21 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 22:07 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 22:07 / dck
Sodium	1	mg/L		1		E200.7	09/30/19 21:21 / sld
Strontium	0.0306	mg/L		0.0002		E200.8	09/29/19 22:07 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 22:07 / dck
Uranium	ND	mg/L		0.0002		E200.8	09/29/19 22:07 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 22:07 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs) (SW) Sep.  
**Lab ID:** H19090658-002  
**Client Sample ID:** BBC-1909-123

**Report Date:** 10/10/19  
**Collection Date:** 09/24/19 13:35  
**Date Received:** 09/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/19 14:45 / SRW
Solids, Total Dissolved TDS @ 180 C	134	mg/L		10		A2540 C	09/26/19 15:40 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	93	mg/L		4		A2320 B	09/26/19 18:28 / SRW
Chloride	ND	mg/L		1		E300.0	09/27/19 00:30 / SRW
Sulfate	6	mg/L		1		E300.0	09/27/19 00:30 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/26/19 13:03 / SRW
Hardness as CaCO3	90	mg/L		1		A2340 B	10/01/19 09:08 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.22	mg/L		0.01		E353.2	09/30/19 12:56 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	0.065	mg/L		0.009		E200.8	09/29/19 22:09 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 22:09 / dck
Arsenic	0.001	mg/L		0.001		E200.8	09/29/19 22:09 / dck
Barium	0.315	mg/L		0.003		E200.8	09/29/19 22:09 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 22:09 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 22:09 / dck
Calcium	27	mg/L		1		E200.7	09/30/19 21:25 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 22:09 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 22:09 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 22:09 / dck
Iron	0.03	mg/L		0.02		E200.8	10/03/19 21:15 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 22:09 / dck
Magnesium	6	mg/L		1		E200.7	09/30/19 21:25 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 22:09 / dck
Mercury	ND	ug/L		0.005		E245.1	10/08/19 17:22 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 22:09 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 22:09 / dck
Potassium	1	mg/L		1		E200.7	09/30/19 21:25 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 22:09 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 22:09 / dck
Sodium	3	mg/L		1		E200.7	09/30/19 21:25 / sld
Strontium	0.0851	mg/L		0.0002		E200.8	09/29/19 22:09 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 22:09 / dck
Uranium	ND	mg/L		0.0002		E200.8	09/29/19 22:09 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 22:09 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs) (SW) Sep.  
**Lab ID:** H19090658-003  
**Client Sample ID:** BBC-1909-125

**Report Date:** 10/10/19  
**Collection Date:** 09/24/19 14:15  
**Date Received:** 09/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/19 14:45 / SRW
Solids, Total Dissolved TDS @ 180 C	176	mg/L		10		A2540 C	09/26/19 15:40 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	150	mg/L		4		A2320 B	09/26/19 18:39 / SRW
Chloride	1	mg/L		1		E300.0	09/27/19 00:45 / SRW
Sulfate	10	mg/L		1		E300.0	09/27/19 00:45 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/26/19 13:08 / SRW
Hardness as CaCO3	144	mg/L		1		A2340 B	10/01/19 09:08 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.43	mg/L		0.01		E353.2	09/30/19 12:57 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 22:12 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 22:12 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 22:12 / dck
Barium	0.214	mg/L		0.003		E200.8	09/29/19 22:12 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 22:12 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 22:12 / dck
Calcium	36	mg/L		1		E200.7	09/30/19 21:29 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 22:12 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 22:12 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 22:12 / dck
Iron	ND	mg/L		0.02		E200.8	10/03/19 21:18 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 22:12 / dck
Magnesium	13	mg/L		1		E200.7	09/30/19 21:29 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 22:12 / dck
Mercury	ND	ug/L		0.005		E245.1	10/08/19 17:26 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 22:12 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 22:12 / dck
Potassium	ND	mg/L		1		E200.7	09/30/19 21:29 / sld
Selenium	0.0002	mg/L		0.0002		E200.8	09/29/19 22:12 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 22:12 / dck
Sodium	2	mg/L		1		E200.7	09/30/19 21:29 / sld
Strontium	0.0818	mg/L		0.0002		E200.8	09/29/19 22:12 / dck
Thallium	0.0006	mg/L		0.0002		E200.8	09/29/19 22:12 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	09/29/19 22:12 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 22:12 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.





### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs) (SW) Sep.  
**Lab ID:** H19090658-004  
**Client Sample ID:** BBC-1909-127

**Report Date:** 10/10/19  
**Collection Date:** 09/24/19 14:40  
**Date Received:** 09/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	14	mg/L		10		A2540 D	09/26/19 14:45 / SRW
Solids, Total Dissolved TDS @ 180 C	238	mg/L		10		A2540 C	09/26/19 15:40 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	09/26/19 18:45 / SRW
Chloride	ND	mg/L		1		E300.0	09/27/19 00:59 / SRW
Sulfate	31	mg/L		1		E300.0	09/27/19 00:59 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	09/26/19 13:12 / SRW
Hardness as CaCO3	216	mg/L		1		A2340 B	09/30/19 21:33 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.29	mg/L		0.01		E353.2	09/30/19 12:58 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 22:14 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 22:14 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 22:14 / dck
Barium	0.115	mg/L		0.003		E200.8	09/29/19 22:14 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 22:14 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 22:14 / dck
Calcium	47	mg/L		1		E200.7	09/30/19 21:33 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 22:14 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 22:14 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 22:14 / dck
Iron	ND	mg/L		0.02		E200.8	10/03/19 21:20 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 22:14 / dck
Magnesium	24	mg/L		1		E200.7	09/30/19 21:33 / sld
Manganese	0.006	mg/L		0.005		E200.8	09/29/19 22:14 / dck
Mercury	ND	ug/L		0.005		E245.1	10/08/19 17:29 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 22:14 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 22:14 / dck
Potassium	2	mg/L		1		E200.7	09/30/19 21:33 / sld
Selenium	0.0004	mg/L		0.0002		E200.8	09/29/19 22:14 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 22:14 / dck
Sodium	2	mg/L		1		E200.7	09/30/19 21:33 / sld
Strontium	0.0738	mg/L		0.0002		E200.8	09/29/19 22:14 / dck
Thallium	0.0003	mg/L		0.0002		E200.8	09/29/19 22:14 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	09/29/19 22:14 / dck
Zinc	ND	mg/L		0.002		E200.8	10/03/19 21:20 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs) (SW) Sep.  
**Lab ID:** H19090658-005  
**Client Sample ID:** BBC-1909-132

**Report Date:** 10/10/19  
**Collection Date:** 09/24/19 16:45  
**Date Received:** 09/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	12	mg/L		10		A2540 D	09/26/19 14:46 / SRW
Solids, Total Dissolved TDS @ 180 C	235	mg/L		10		A2540 C	09/26/19 15:41 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	09/26/19 18:51 / SRW
Chloride	ND	mg/L		1		E300.0	09/27/19 01:13 / SRW
Sulfate	15	mg/L		1		E300.0	09/27/19 01:13 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/26/19 13:16 / SRW
Hardness as CaCO3	217	mg/L		1		A2340 B	10/01/19 09:08 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.24	mg/L		0.01		E353.2	09/30/19 12:59 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 22:17 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 22:17 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 22:17 / dck
Barium	0.055	mg/L		0.003		E200.8	09/29/19 22:17 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 22:17 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 22:17 / dck
Calcium	55	mg/L		1		E200.7	09/30/19 21:37 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 22:17 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 22:17 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 22:17 / dck
Iron	ND	mg/L		0.02		E200.8	10/03/19 21:37 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 22:17 / dck
Magnesium	20	mg/L		1		E200.7	09/30/19 21:37 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 22:17 / dck
Mercury	ND	ug/L		0.005		E245.1	10/08/19 17:32 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 22:17 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 22:17 / dck
Potassium	1	mg/L		1		E200.7	09/30/19 21:37 / sld
Selenium	0.0003	mg/L		0.0002		E200.8	09/29/19 22:17 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 22:17 / dck
Sodium	2	mg/L		1		E200.7	09/30/19 21:37 / sld
Strontium	0.120	mg/L		0.0002		E200.8	09/29/19 22:17 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 22:17 / dck
Uranium	0.0008	mg/L		0.0002		E200.8	09/29/19 22:17 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 22:17 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs) (SW) Sep.  
**Lab ID:** H19090658-006  
**Client Sample ID:** BBC-1909-140

**Report Date:** 10/10/19  
**Collection Date:** 09/25/19 10:30  
**Date Received:** 09/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/19 14:46 / SRW
Solids, Total Dissolved TDS @ 180 C	228	mg/L		10		A2540 C	09/26/19 15:41 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	09/26/19 18:59 / SRW
Chloride	ND	mg/L		1		E300.0	09/27/19 01:28 / SRW
Sulfate	14	mg/L		1		E300.0	09/27/19 01:28 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/26/19 13:28 / SRW
Hardness as CaCO3	215	mg/L		1		A2340 B	10/01/19 09:08 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.08	mg/L		0.01		E353.2	09/30/19 13:01 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 22:19 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 22:19 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 22:19 / dck
Barium	0.071	mg/L		0.003		E200.8	09/29/19 22:19 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 22:19 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 22:19 / dck
Calcium	53	mg/L		1		E200.7	09/30/19 21:41 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 22:19 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 22:19 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 22:19 / dck
Iron	ND	mg/L		0.02		E200.8	10/03/19 21:39 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 22:19 / dck
Magnesium	20	mg/L		1		E200.7	09/30/19 21:41 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 22:19 / dck
Mercury	ND	ug/L		0.005		E245.1	10/08/19 17:35 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 22:19 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 22:19 / dck
Potassium	ND	mg/L		1		E200.7	09/30/19 21:41 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 22:19 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 22:19 / dck
Sodium	2	mg/L		1		E200.7	09/30/19 21:41 / sld
Strontium	0.119	mg/L		0.0002		E200.8	09/29/19 22:19 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 22:19 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	09/29/19 22:19 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 22:19 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs) (SW) Sep.  
**Lab ID:** H19090658-007  
**Client Sample ID:** BBC-1909-141

**Report Date:** 10/10/19  
**Collection Date:** 09/25/19 10:45  
**Date Received:** 09/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	21	mg/L		10		A2540 D	09/26/19 14:46 / SRW
Solids, Total Dissolved TDS @ 180 C	239	mg/L		10		A2540 C	09/26/19 15:41 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	09/26/19 19:05 / SRW
Chloride	ND	mg/L		1		E300.0	09/27/19 02:55 / SRW
Sulfate	8	mg/L		1		E300.0	09/27/19 02:55 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	09/26/19 13:36 / SRW
Hardness as CaCO3	231	mg/L		1		A2340 B	10/01/19 09:08 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/30/19 13:02 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 22:21 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 22:21 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 22:21 / dck
Barium	0.068	mg/L		0.003		E200.8	09/29/19 22:21 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 22:21 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 22:21 / dck
Calcium	61	mg/L		1		E200.7	09/30/19 22:34 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 22:21 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 22:21 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 22:21 / dck
Iron	ND	mg/L		0.02		E200.8	10/03/19 21:41 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 22:21 / dck
Magnesium	19	mg/L		1		E200.7	09/30/19 22:34 / sld
Manganese	0.013	mg/L		0.005		E200.8	09/29/19 22:21 / dck
Mercury	ND	ug/L		0.005		E245.1	10/08/19 17:39 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 22:21 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 22:21 / dck
Potassium	ND	mg/L		1		E200.7	09/30/19 22:34 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 22:21 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 22:21 / dck
Sodium	2	mg/L		1		E200.7	09/30/19 22:34 / sld
Strontium	0.147	mg/L		0.0002		E200.8	09/29/19 22:21 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 22:21 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	09/29/19 22:21 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 22:21 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs) (SW) Sep.  
**Lab ID:** H19090658-008  
**Client Sample ID:** BBC-1909-146

**Report Date:** 10/10/19  
**Collection Date:** 09/25/19 13:00  
**Date Received:** 09/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/19 14:46 / SRW
Solids, Total Dissolved TDS @ 180 C	120	mg/L		10		A2540 C	09/26/19 15:41 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	96	mg/L		4		A2320 B	09/26/19 19:11 / SRW
Chloride	ND	mg/L		1		E300.0	09/27/19 03:09 / SRW
Sulfate	7	mg/L		1		E300.0	09/27/19 03:09 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	09/26/19 13:44 / SRW
Hardness as CaCO3	94	mg/L		1		A2340 B	10/01/19 09:08 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.24	mg/L		0.01		E353.2	09/30/19 13:03 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	0.045	mg/L		0.009		E200.8	09/29/19 22:24 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 22:24 / dck
Arsenic	0.006	mg/L		0.001		E200.8	09/29/19 22:24 / dck
Barium	0.307	mg/L		0.003		E200.8	09/29/19 22:24 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 22:24 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 22:24 / dck
Calcium	23	mg/L		1		E200.7	09/30/19 22:38 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 22:24 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 22:24 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 22:24 / dck
Iron	ND	mg/L		0.02		E200.8	10/03/19 21:44 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 22:24 / dck
Magnesium	9	mg/L		1		E200.7	09/30/19 22:38 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 22:24 / dck
Mercury	ND	ug/L		0.005		E245.1	10/08/19 17:42 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 22:24 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 22:24 / dck
Potassium	1	mg/L		1		E200.7	09/30/19 22:38 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 22:24 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 22:24 / dck
Sodium	4	mg/L		1		E200.7	09/30/19 22:38 / sld
Strontium	0.109	mg/L		0.0002		E200.8	09/29/19 22:24 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 22:24 / dck
Uranium	0.0004	mg/L		0.0002		E200.8	09/29/19 22:24 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 22:24 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs) (SW) Sep.  
**Lab ID:** H19090658-009  
**Client Sample ID:** BBC-1909-147

**Report Date:** 10/10/19  
**Collection Date:** 09/25/19 13:20  
**Date Received:** 09/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/19 14:47 / SRW
Solids, Total Dissolved TDS @ 180 C	255	mg/L		10		A2540 C	09/26/19 15:41 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	09/26/19 19:18 / SRW
Chloride	9	mg/L		1		E300.0	09/27/19 03:24 / SRW
Sulfate	20	mg/L		1		E300.0	09/27/19 03:24 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	09/26/19 13:48 / SRW
Hardness as CaCO3	238	mg/L		1		A2340 B	09/30/19 22:42 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.24	mg/L		0.01		E353.2	09/30/19 13:04 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 22:38 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 22:38 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 22:38 / dck
Barium	0.184	mg/L		0.003		E200.8	09/29/19 22:38 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 22:38 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 22:38 / dck
Calcium	55	mg/L		1		E200.7	09/30/19 22:42 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 22:38 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 22:38 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 22:38 / dck
Iron	0.02	mg/L		0.02		E200.8	10/03/19 21:46 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 22:38 / dck
Magnesium	24	mg/L		1		E200.7	09/30/19 22:42 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 22:38 / dck
Mercury	ND	ug/L		0.005		E245.1	10/08/19 17:52 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 22:38 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 22:38 / dck
Potassium	1	mg/L		1		E200.7	09/30/19 22:42 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 22:38 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 22:38 / dck
Sodium	2	mg/L		1		E200.7	09/30/19 22:42 / sld
Strontium	0.116	mg/L		0.0002		E200.8	09/29/19 22:38 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 22:38 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	09/29/19 22:38 / dck
Zinc	ND	mg/L		0.002		E200.8	10/03/19 21:46 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs) (SW) Sep.  
**Lab ID:** H19090658-010  
**Client Sample ID:** BBC-1909-148

**Report Date:** 10/10/19  
**Collection Date:** 09/25/19 13:40  
**Date Received:** 09/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/19 14:47 / SRW
Solids, Total Dissolved TDS @ 180 C	255	mg/L		10		A2540 C	09/26/19 15:41 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	09/26/19 19:25 / SRW
Chloride	9	mg/L		1		E300.0	09/27/19 03:38 / SRW
Sulfate	20	mg/L		1		E300.0	09/27/19 03:38 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	09/26/19 13:53 / SRW
Hardness as CaCO3	234	mg/L		1		A2340 B	09/30/19 22:46 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.24	mg/L		0.01		E353.2	09/30/19 13:05 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 22:40 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 22:40 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 22:40 / dck
Barium	0.184	mg/L		0.003		E200.8	09/29/19 22:40 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 22:40 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 22:40 / dck
Calcium	54	mg/L		1		E200.7	09/30/19 22:46 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 22:40 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 22:40 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 22:40 / dck
Iron	0.02	mg/L		0.02		E200.8	10/03/19 21:48 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 22:40 / dck
Magnesium	24	mg/L		1		E200.7	09/30/19 22:46 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 22:40 / dck
Mercury	ND	ug/L		0.005		E245.1	10/08/19 17:55 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 22:40 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 22:40 / dck
Potassium	1	mg/L		1		E200.7	09/30/19 22:46 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 22:40 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 22:40 / dck
Sodium	2	mg/L		1		E200.7	09/30/19 22:46 / sld
Strontium	0.115	mg/L		0.0002		E200.8	09/29/19 22:40 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 22:40 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	09/29/19 22:40 / dck
Zinc	ND	mg/L		0.002		E200.8	10/03/19 21:48 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs) (SW) Sep.  
**Lab ID:** H19090658-011  
**Client Sample ID:** BBC-1909-149

**Report Date:** 10/10/19  
**Collection Date:** 09/25/19 14:00  
**Date Received:** 09/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/19 14:47 / SRW
Solids, Total Dissolved TDS @ 180 C	192	mg/L		10		A2540 C	09/26/19 15:42 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	09/26/19 19:32 / SRW
Chloride	2	mg/L		1		E300.0	09/27/19 03:53 / SRW
Sulfate	10	mg/L		1		E300.0	09/27/19 03:53 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	09/26/19 13:57 / SRW
Hardness as CaCO3	168	mg/L		1		A2340 B	09/30/19 22:50 / SRW
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.34	mg/L		0.01		E353.2	09/30/19 13:09 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 22:43 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 22:43 / dck
Arsenic	0.004	mg/L		0.001		E200.8	09/29/19 22:43 / dck
Barium	0.116	mg/L		0.003		E200.8	09/29/19 22:43 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 22:43 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 22:43 / dck
Calcium	43	mg/L		1		E200.7	09/30/19 22:50 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 22:43 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 22:43 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 22:43 / dck
Iron	ND	mg/L		0.02		E200.8	10/03/19 21:51 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 22:43 / dck
Magnesium	15	mg/L		1		E200.7	09/30/19 22:50 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 22:43 / dck
Mercury	ND	ug/L		0.005		E245.1	10/08/19 17:58 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 22:43 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 22:43 / dck
Potassium	3	mg/L		1		E200.7	09/30/19 22:50 / sld
Selenium	0.0003	mg/L		0.0002		E200.8	10/03/19 21:51 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 22:43 / dck
Sodium	5	mg/L		1		E200.7	09/30/19 22:50 / sld
Strontium	0.174	mg/L		0.0002		E200.8	09/29/19 22:43 / dck
Thallium	0.0011	mg/L		0.0002		E200.8	09/29/19 22:43 / dck
Uranium	0.0009	mg/L		0.0002		E200.8	09/29/19 22:43 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 22:43 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.





## LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs) (SW) Sep.  
**Lab ID:** H19090658-012  
**Client Sample ID:** BBC-1909-152

**Report Date:** 10/10/19  
**Collection Date:** 09/25/19 15:00  
**Date Received:** 09/26/19  
**Matrix:** Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	09/26/19 14:47 / SRW
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	09/26/19 15:42 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	09/26/19 19:40 / SRW
Chloride	ND	mg/L		1		E300.0	09/27/19 04:07 / SRW
Sulfate	ND	mg/L		1		E300.0	09/27/19 04:07 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	09/26/19 14:01 / SRW
Hardness as CaCO3	ND	mg/L		1		A2340 B	10/01/19 09:08 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/30/19 13:13 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 22:45 / dck
Antimony	ND	mg/L		0.0005		E200.8	09/29/19 22:45 / dck
Arsenic	ND	mg/L		0.001		E200.8	09/29/19 22:45 / dck
Barium	ND	mg/L		0.003		E200.8	09/29/19 22:45 / dck
Beryllium	ND	mg/L		0.0008		E200.8	09/29/19 22:45 / dck
Cadmium	ND	mg/L		0.00003		E200.8	09/29/19 22:45 / dck
Calcium	ND	mg/L		1		E200.7	09/30/19 22:54 / sld
Chromium	ND	mg/L		0.01		E200.8	09/29/19 22:45 / dck
Cobalt	ND	mg/L		0.01		E200.8	09/29/19 22:45 / dck
Copper	ND	mg/L		0.002		E200.8	09/29/19 22:45 / dck
Iron	ND	mg/L		0.02		E200.8	10/03/19 21:53 / dck
Lead	ND	mg/L		0.0003		E200.8	09/29/19 22:45 / dck
Magnesium	ND	mg/L		1		E200.7	09/30/19 22:54 / sld
Manganese	ND	mg/L		0.005		E200.8	09/29/19 22:45 / dck
Mercury	ND	ug/L		0.005		E245.1	10/08/19 18:01 / dck
Molybdenum	ND	mg/L		0.002		E200.8	09/29/19 22:45 / dck
Nickel	ND	mg/L		0.001		E200.8	09/29/19 22:45 / dck
Potassium	ND	mg/L		1		E200.7	09/30/19 22:54 / sld
Selenium	ND	mg/L		0.0002		E200.8	09/29/19 22:45 / dck
Silver	ND	mg/L		0.0002		E200.8	09/29/19 22:45 / dck
Sodium	ND	mg/L		1		E200.7	09/30/19 22:54 / sld
Strontium	ND	mg/L		0.0002		E200.8	09/29/19 22:45 / dck
Thallium	ND	mg/L		0.0002		E200.8	09/29/19 22:45 / dck
Uranium	ND	mg/L		0.0002		E200.8	09/29/19 22:45 / dck
Zinc	ND	mg/L		0.002		E200.8	09/29/19 22:45 / dck

**Report Definitions:** RL - Analyte reporting limit.  
QCL - Quality control limit.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs) (SW) Sep.  
**Lab ID:** H19090658-013  
**Client Sample ID:** BBC-1909-111

**Report Date:** 10/10/19  
**Collection Date:** 09/24/19 08:15  
**Date Received:** 09/26/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	7	mg/L		4		A2540 D	09/26/19 14:48 / SRW
Solids, Total Dissolved TDS @ 180 C	243	mg/L	D	10		A2540 C	09/26/19 15:42 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	09/26/19 19:46 / SRW
Chloride	1	mg/L		1		E300.0	09/27/19 04:22 / SRW
Sulfate	22	mg/L		1		E300.0	09/27/19 04:22 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	09/26/19 14:05 / SRW
Hardness as CaCO3	228	mg/L		1		A2340 B	10/01/19 09:08 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	0.08	mg/L		0.01		E353.2	09/30/19 13:14 / cmm
Nitrogen, Total	0.16	mg/L		0.04		A4500 N-C	09/27/19 09:27 / cmm
Phosphorus, Total as P	0.012	mg/L		0.003		E365.1	09/30/19 14:14 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 22:48 / dck
Calcium	53	mg/L		1		E200.7	09/30/19 22:58 / sld
Magnesium	23	mg/L		1		E200.7	09/30/19 22:58 / sld
Potassium	1	mg/L		1		E200.7	09/30/19 22:58 / sld
Sodium	3	mg/L		1		E200.7	09/30/19 22:58 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	10/03/19 22:10 / dck
Arsenic	ND	mg/L		0.001		E200.8	10/03/19 22:10 / dck
Barium	0.110	mg/L		0.003		E200.8	10/03/19 22:10 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/03/19 22:10 / dck
Cadmium	ND	mg/L		0.00003		E200.8	10/03/19 22:10 / dck
Chromium	ND	mg/L		0.01		E200.8	10/03/19 22:10 / dck
Cobalt	ND	mg/L		0.01		E200.8	10/03/19 22:10 / dck
Copper	ND	mg/L		0.002		E200.8	10/03/19 22:10 / dck
Iron	0.16	mg/L		0.02		E200.8	10/03/19 22:10 / dck
Lead	ND	mg/L		0.0003		E200.8	10/03/19 22:10 / dck
Manganese	0.010	mg/L		0.005		E200.8	10/03/19 22:10 / dck
Mercury	ND	ug/L		0.005		E245.1	10/08/19 18:04 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/03/19 22:10 / dck
Nickel	ND	mg/L		0.001		E200.8	10/03/19 22:10 / dck
Selenium	ND	mg/L		0.0002		E200.8	10/03/19 22:10 / dck
Silver	ND	mg/L		0.0002		E200.8	10/03/19 22:10 / dck
Strontium	0.186	mg/L		0.0002		E200.8	10/03/19 22:10 / dck
Thallium	ND	mg/L		0.0002		E200.8	10/03/19 22:10 / dck
Uranium	0.0009	mg/L		0.0002		E200.8	10/03/19 22:10 / dck
Zinc	ND	mg/L	D	0.005		E200.8	10/03/19 22:10 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.



### LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc  
**Project:** 18049 Black Butte Copper (Springs) (SW) Sep.  
**Lab ID:** H19090658-014  
**Client Sample ID:** BBC-1909-115

**Report Date:** 10/10/19  
**Collection Date:** 09/24/19 10:35  
**Date Received:** 09/26/19  
**Matrix:** Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
<b>PHYSICAL PROPERTIES</b>							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	09/26/19 14:48 / SRW
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	D	10		A2540 C	09/26/19 15:43 / SRW
<b>INORGANICS</b>							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	09/26/19 20:00 / SRW
Chloride	ND	mg/L		1		E300.0	09/27/19 04:36 / SRW
Sulfate	ND	mg/L		1		E300.0	09/27/19 04:36 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	09/26/19 14:09 / SRW
Hardness as CaCO3	ND	mg/L		1		A2340 B	10/01/19 09:08 / sld
<b>NUTRIENTS</b>							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	09/30/19 13:15 / cmm
Nitrogen, Total	ND	mg/L		0.04		A4500 N-C	09/27/19 09:29 / cmm
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	09/30/19 14:15 / cmm
<b>METALS, DISSOLVED</b>							
Aluminum	ND	mg/L		0.009		E200.8	09/29/19 22:50 / dck
Calcium	ND	mg/L		1		E200.7	09/30/19 23:02 / sld
Magnesium	ND	mg/L		1		E200.7	09/30/19 23:02 / sld
Potassium	ND	mg/L		1		E200.7	09/30/19 23:02 / sld
Sodium	ND	mg/L		1		E200.7	09/30/19 23:02 / sld
<b>METALS, TOTAL RECOVERABLE</b>							
Antimony	ND	mg/L		0.0005		E200.8	10/03/19 22:12 / dck
Arsenic	ND	mg/L		0.001		E200.8	10/03/19 22:12 / dck
Barium	ND	mg/L		0.003		E200.8	10/03/19 22:12 / dck
Beryllium	ND	mg/L		0.0008		E200.8	10/03/19 22:12 / dck
Cadmium	ND	mg/L		0.00003		E200.8	10/03/19 22:12 / dck
Chromium	ND	mg/L		0.01		E200.8	10/03/19 22:12 / dck
Cobalt	ND	mg/L		0.01		E200.8	10/03/19 22:12 / dck
Copper	ND	mg/L		0.002		E200.8	10/03/19 22:12 / dck
Iron	ND	mg/L		0.02		E200.8	10/03/19 22:12 / dck
Lead	ND	mg/L		0.0003		E200.8	10/03/19 22:12 / dck
Manganese	ND	mg/L		0.005		E200.8	10/03/19 22:12 / dck
Mercury	ND	ug/L		0.005		E245.1	10/08/19 18:14 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/03/19 22:12 / dck
Nickel	ND	mg/L		0.001		E200.8	10/03/19 22:12 / dck
Selenium	ND	mg/L		0.0002		E200.8	10/03/19 22:12 / dck
Silver	ND	mg/L		0.0002		E200.8	10/03/19 22:12 / dck
Strontium	ND	mg/L		0.0002		E200.8	10/03/19 22:12 / dck
Thallium	ND	mg/L		0.0002		E200.8	10/03/19 22:12 / dck
Uranium	ND	mg/L		0.0002		E200.8	10/03/19 22:12 / dck
Zinc	ND	mg/L	L	0.004		E200.8	10/03/19 22:12 / dck

**Report Definitions:**  
RL - Analyte reporting limit.  
QCL - Quality control limit.  
D - RL increased due to sample matrix.

MCL - Maximum contaminant level.  
ND - Not detected at the reporting limit.  
L - Lowest available reporting limit for the analytical method used.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> A2320 B									Batch: R148128
<b>Lab ID:</b> MBLK Alkalinity, Total as CaCO3	Method Blank ND	mg/L							Run: PHSC_101-H_190926A 09/26/19 10:22
<b>Lab ID:</b> LCS Alkalinity, Total as CaCO3	Laboratory Control Sample 590	mg/L	4.0	99	90	110			Run: PHSC_101-H_190926A 09/26/19 10:28
<b>Lab ID:</b> H19090658-002ADUP Alkalinity, Total as CaCO3	Sample Duplicate 95	mg/L	4.0				1.4	10	Run: PHSC_101-H_190926A 09/26/19 18:34
<b>Lab ID:</b> H19090658-013ADUP Alkalinity, Total as CaCO3	Sample Duplicate 220	mg/L	4.0				0.3	10	Run: PHSC_101-H_190926A 09/26/19 19:53

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 C</b>							Batch: TDS190926A		
<b>Lab ID: MB-1_190926A</b> Solids, Total Dissolved TDS @ 180 C	Method Blank ND	mg/L	10				Run: ACCU-124 (14410200)_19092	09/26/19 15:39	
<b>Lab ID: LCS-2_190926A</b> Solids, Total Dissolved TDS @ 180 C	Laboratory Control Sample 1990	mg/L	20	99	90	110	Run: ACCU-124 (14410200)_19092	09/26/19 15:40	
<b>Lab ID: H19090658-001A DUP</b> Solids, Total Dissolved TDS @ 180 C	Sample Duplicate 57.0	mg/L	10				Run: ACCU-124 (14410200)_19092	09/26/19 15:40	1.8 5
<b>Lab ID: H19090658-011A DUP</b> Solids, Total Dissolved TDS @ 180 C	Sample Duplicate 192	mg/L	10				Run: ACCU-124 (14410200)_19092	09/26/19 15:42	0.0 5

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A2540 D</b>							Batch: TSS190926A		
<b>Lab ID: MB-1_190926A</b>	Method Blank						Run: ACCU-124 (14410200)_19092		09/26/19 14:44
Solids, Total Suspended TSS @ 105 C	ND	mg/L	0.3						
<b>Lab ID: LCS-2_190926A</b>	Laboratory Control Sample						Run: ACCU-124 (14410200)_19092		09/26/19 14:44
Solids, Total Suspended TSS @ 105 C	92.0	mg/L	10	92	80	120			
<b>Lab ID: H19090658-001ADUP</b>	Sample Duplicate						Run: ACCU-124 (14410200)_19092		09/26/19 14:45
Solids, Total Suspended TSS @ 105 C	1.00	mg/L	10					5	
- Since the difference between the analytical result for the sample and its duplicate is less than the reporting limit, the RPD variance is not considered significant.									
<b>Lab ID: H19090658-011ADUP</b>	Sample Duplicate						Run: ACCU-124 (14410200)_19092		09/26/19 14:47
Solids, Total Suspended TSS @ 105 C	4.00	mg/L	10					5	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: A4500 N-C</b>							Analytical Run: FIA203-HE_190927A		
<b>Lab ID: ICB</b>	Initial Calibration Blank, Instrument Blank								
Nitrogen, Total	0.00823	mg/L	0.10		0	0			09/27/19 08:36
<b>Lab ID: CCV</b>							Continuing Calibration Verification Standard		
Nitrogen, Total	0.471	mg/L	0.10	94	90	110			09/27/19 09:15
<b>Method: A4500 N-C</b>							Batch: 48049		
<b>Lab ID: MB-48049</b>	Method Blank								
Nitrogen, Total	ND	mg/L	0.03						09/27/19 08:42
<b>Lab ID: LCS-48049</b>	Laboratory Control Sample								
Nitrogen, Total	7.58	mg/L	0.30	102	90	110			09/27/19 08:43
<b>Lab ID: H19090654-003Bms</b>	Sample Matrix Spike								
Nitrogen, Total	1.27	mg/L	0.10	89	90	110			09/27/19 09:19 S
<b>Lab ID: H19090654-003Bmsd</b>	Sample Matrix Spike Duplicate								
Nitrogen, Total	1.25	mg/L	0.10	87	90	110	1.6	20	09/27/19 09:20 S

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> A4500-F C							Analytical Run: MANTECH 2_190926A			
<b>Lab ID:</b> ICV	Initial Calibration Verification Standard									
Fluoride	0.7	mg/L	0.1	99	90	110			09/26/19 11:27	
<b>Lab ID:</b> CCV	Continuing Calibration Verification Standard									
Fluoride	1.0	mg/L	0.1	101	90	110			09/26/19 12:24	
<b>Lab ID:</b> CCV	Continuing Calibration Verification Standard									
Fluoride	0.9	mg/L	0.1	94	90	110			09/26/19 13:20	
<b>Method:</b> A4500-F C							Batch: R148153			
<b>Lab ID:</b> MBLK	Method Blank									
Fluoride	ND	mg/L	0.03						Run: MANTECH 2_190926A 09/26/19 11:31	
<b>Lab ID:</b> H19090658-006AMS	Sample Matrix Spike									
Fluoride	1.1	mg/L	0.1	96	85	115			Run: MANTECH 2_190926A 09/26/19 13:32	
<b>Lab ID:</b> H19090658-007ADUP	Sample Duplicate									
Fluoride	0.1	mg/L	0.1						Run: MANTECH 2_190926A 09/26/19 13:40 10	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.





# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>							Analytical Run: ICP2-HE_190930B		
<b>Lab ID: ICV</b>	Initial Calibration Verification Standard						09/30/19 09:24		
Calcium	40.1	mg/L	1.0	100	95	105			
Magnesium	40.5	mg/L	1.0	101	95	105			
Potassium	40.1	mg/L	1.0	100	95	105			
Sodium	39.6	mg/L	1.0	99	95	105			
<b>Lab ID: CCV-1</b>	Continuing Calibration Verification Standard						09/30/19 09:28		
Calcium	25.1	mg/L	1.0	100	95	105			
Magnesium	25.0	mg/L	1.0	100	95	105			
Potassium	25.4	mg/L	1.0	101	95	105			
Sodium	25.1	mg/L	1.0	100	95	105			
<b>Lab ID: ICSA</b>	Interference Check Sample A						09/30/19 09:39		
Calcium	468	mg/L	1.0	94	80	120			
Magnesium	529	mg/L	1.0	106	80	120			
Potassium	-0.00398	mg/L	1.0		0	0			
Sodium	0.0268	mg/L	1.0		0	0			
<b>Lab ID: ICSAB</b>	Interference Check Sample AB						09/30/19 09:43		
Calcium	468	mg/L	1.0	94	80	120			
Magnesium	528	mg/L	1.0	106	80	120			
Potassium	20.2	mg/L	1.0	101	80	120			
Sodium	20.2	mg/L	1.0	101	80	120			
<b>Lab ID: CCV</b>	Continuing Calibration Verification Standard						09/30/19 21:06		
Calcium	23.4	mg/L	1.0	94	90	110			
Magnesium	23.1	mg/L	1.0	92	90	110			
Potassium	23.8	mg/L	1.0	95	90	110			
Sodium	24.0	mg/L	1.0	96	90	110			
<b>Lab ID: CCV</b>	Continuing Calibration Verification Standard						09/30/19 22:19		
Calcium	24.9	mg/L	1.0	100	90	110			
Magnesium	24.7	mg/L	1.0	99	90	110			
Potassium	25.3	mg/L	1.0	101	90	110			
Sodium	25.1	mg/L	1.0	100	90	110			
<b>Method: E200.7</b>							Batch: R148256		
<b>Lab ID: MB</b>	Method Blank						Run: ICP2-HE_190930B		09/30/19 09:51
Calcium	ND	mg/L		0.1					
Magnesium	ND	mg/L		0.01					
Potassium	ND	mg/L		0.05					
Sodium	ND	mg/L		0.02					
<b>Lab ID: LFB</b>	Laboratory Fortified Blank						Run: ICP2-HE_190930B		09/30/19 09:55
Calcium	51.4	mg/L	1.0	103	85	115			
Magnesium	51.8	mg/L	1.0	104	85	115			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090658

Report Date: 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.7</b>							Batch: R148256		
<b>Lab ID: LFB</b>	Laboratory Fortified Blank			Run: ICP2-HE_190930B			09/30/19 09:55		
Potassium	50.7	mg/L	1.0	101	85	115			
Sodium	50.4	mg/L	1.0	101	85	115			
<b>Lab ID: H19090658-006BMS2</b>	Sample Matrix Spike			Run: ICP2-HE_190930B			09/30/19 21:49		
Calcium	101	mg/L	1.0	96	70	130			
Magnesium	68.8	mg/L	1.0	98	70	130			
Potassium	51.8	mg/L	1.0	102	70	130			
Sodium	53.4	mg/L	1.0	103	70	130			
<b>Lab ID: H19090658-006BMSD2</b>	Sample Matrix Spike Duplicate			Run: ICP2-HE_190930B			09/30/19 22:31		
Calcium	108	mg/L	1.0	109	70	130	6.4	20	
Magnesium	74.8	mg/L	1.0	110	70	130	8.4	20	
Potassium	52.6	mg/L	1.0	103	70	130	1.5	20	
Sodium	53.4	mg/L	1.0	103	70	130	0.0	20	
<b>Lab ID: H19090659-002BMS2</b>	Sample Matrix Spike			Run: ICP2-HE_190930B			09/30/19 23:25		
Calcium	81.3	mg/L	1.0	99	70	130			
Magnesium	85.0	mg/L	1.0	103	70	130			
Potassium	58.6	mg/L	1.0	103	70	130			
Sodium	123	mg/L	1.0	103	70	130			
<b>Lab ID: H19090659-002BMSD2</b>	Sample Matrix Spike Duplicate			Run: ICP2-HE_190930B			09/30/19 23:28		
Calcium	81.7	mg/L	1.0	100	70	130	0.5	20	
Magnesium	85.8	mg/L	1.0	105	70	130	0.9	20	
Potassium	58.1	mg/L	1.0	102	70	130	0.8	20	
Sodium	122	mg/L	1.0	100	70	130	1.2	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method: E200.8</b>									Analytical Run: ICPMS205-H_190929C	
<b>Lab ID: ICV</b>	Initial Calibration Verification Standard							09/29/19 16:41		
Aluminum	0.285	mg/L	0.10	95	90	110				
Antimony	0.0584	mg/L	0.050	97	90	110				
Arsenic	0.0581	mg/L	0.0050	97	90	110				
Barium	0.0587	mg/L	0.10	98	90	110				
Beryllium	0.0308	mg/L	0.0010	103	90	110				
Cadmium	0.0300	mg/L	0.0010	100	90	110				
Chromium	0.0582	mg/L	0.010	97	90	110				
Cobalt	0.0591	mg/L	0.010	99	90	110				
Copper	0.0587	mg/L	0.010	98	90	110				
Lead	0.0586	mg/L	0.010	98	90	110				
Manganese	0.289	mg/L	0.010	96	90	110				
Molybdenum	0.0582	mg/L	0.0050	97	90	110				
Nickel	0.0586	mg/L	0.010	98	90	110				
Selenium	0.0597	mg/L	0.0050	99	90	110				
Silver	0.0306	mg/L	0.0050	102	90	110				
Strontium	0.0584	mg/L	0.10	97	90	110				
Thallium	0.0581	mg/L	0.10	97	90	110				
Uranium	0.0575	mg/L	0.00030	96	90	110				
Zinc	0.0602	mg/L	0.010	100	90	110				
<b>Lab ID: ICSA</b>	Interference Check Sample A							09/29/19 16:44		
Aluminum	39.0	mg/L	0.10	97	70	130				
Antimony	0.000228	mg/L	0.050							
Arsenic	3.66E-05	mg/L	0.0050							
Barium	0.000212	mg/L	0.10							
Beryllium	-4.29E-06	mg/L	0.0010							
Cadmium	8.59E-05	mg/L	0.0010							
Chromium	0.000252	mg/L	0.010							
Cobalt	0.000280	mg/L	0.010							
Copper	0.000183	mg/L	0.010							
Lead	0.000103	mg/L	0.010							
Manganese	0.000415	mg/L	0.010							
Molybdenum	0.869	mg/L	0.0050	109	70	130				
Nickel	0.000145	mg/L	0.010							
Selenium	4.93E-05	mg/L	0.0050							
Silver	9.57E-05	mg/L	0.0050							
Strontium	0.000976	mg/L	0.10							
Thallium	3.32E-05	mg/L	0.10							
Uranium	1.67E-05	mg/L	0.00030							
Zinc	0.000523	mg/L	0.010							
<b>Lab ID: ICSAB</b>	Interference Check Sample AB							09/29/19 16:46		
Aluminum	39.5	mg/L	0.10	99	70	130				
Antimony	0.000189	mg/L	0.050		0	0				
Arsenic	0.0101	mg/L	0.0050	101	70	130				

**Qualifiers:**

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ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>							Analytical Run: ICPMS205-H_190929C		
<b>Lab ID: ICSAB</b>	Interference Check Sample AB							09/29/19 16:46	
Barium	0.000248	mg/L	0.10		0	0			
Beryllium	1.71E-06	mg/L	0.0010		0	0			
Cadmium	0.0101	mg/L	0.0010	101	70	130			
Chromium	0.0200	mg/L	0.010	100	70	130			
Cobalt	0.0197	mg/L	0.010	99	70	130			
Copper	0.0198	mg/L	0.010	99	70	130			
Lead	9.38E-05	mg/L	0.010		0	0			
Manganese	0.0201	mg/L	0.010	100	70	130			
Molybdenum	0.877	mg/L	0.0050	110	70	130			
Nickel	0.0195	mg/L	0.010	98	70	130			
Selenium	0.0100	mg/L	0.0050	100	70	130			
Silver	0.00525	mg/L	0.0050	105	70	130			
Strontium	0.00100	mg/L	0.10		0	0			
Thallium	2.66E-05	mg/L	0.10		0	0			
Uranium	7.58E-06	mg/L	0.00030		0	0			
Zinc	0.0106	mg/L	0.010	106	70	130			
<b>Lab ID: ICV</b>	Initial Calibration Verification Standard							09/29/19 20:10	
Aluminum	0.315	mg/L	0.10	105	90	110			
Antimony	0.0602	mg/L	0.050	100	90	110			
Arsenic	0.0608	mg/L	0.0050	101	90	110			
Barium	0.0609	mg/L	0.10	102	90	110			
Beryllium	0.0304	mg/L	0.0010	101	90	110			
Cadmium	0.0310	mg/L	0.0010	103	90	110			
Chromium	0.0612	mg/L	0.010	102	90	110			
Cobalt	0.0613	mg/L	0.010	102	90	110			
Copper	0.0610	mg/L	0.010	102	90	110			
Lead	0.0606	mg/L	0.010	101	90	110			
Manganese	0.308	mg/L	0.010	103	90	110			
Molybdenum	0.0604	mg/L	0.0050	101	90	110			
Nickel	0.0617	mg/L	0.010	103	90	110			
Selenium	0.0603	mg/L	0.0050	101	90	110			
Silver	0.0313	mg/L	0.0050	104	90	110			
Strontium	0.0606	mg/L	0.10	101	90	110			
Thallium	0.0600	mg/L	0.10	100	90	110			
Uranium	0.0591	mg/L	0.00030	99	90	110			
Zinc	0.0620	mg/L	0.010	103	90	110			
<b>Lab ID: ICSA</b>	Interference Check Sample A							09/29/19 20:12	
Aluminum	39.4	mg/L	0.10	99	70	130			
Antimony	0.000213	mg/L	0.050						
Arsenic	2.00E-05	mg/L	0.0050						
Barium	0.000167	mg/L	0.10						
Beryllium	9.35E-07	mg/L	0.0010						
Cadmium	7.11E-05	mg/L	0.0010						

**Qualifiers:**

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ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090658

Report Date: 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
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Method: E200.8

Analytical Run: ICPMS205-H\_190929C

Lab ID:	ICSA	Interference Check Sample A							09/29/19 20:12
Chromium	0.000179	mg/L	0.010						
Cobalt	0.000253	mg/L	0.010						
Copper	-1.49E-05	mg/L	0.010						
Lead	0.000104	mg/L	0.010						
Manganese	0.000201	mg/L	0.010						
Molybdenum	0.829	mg/L	0.0050	104	70	130			
Nickel	2.83E-05	mg/L	0.010						
Selenium	0.000170	mg/L	0.0050						
Silver	7.06E-05	mg/L	0.0050						
Strontium	0.000962	mg/L	0.10						
Thallium	4.21E-05	mg/L	0.10						
Uranium	1.32E-05	mg/L	0.00030						
Zinc	0.000106	mg/L	0.010						

Lab ID:	ICSAB	Interference Check Sample AB							09/29/19 20:14
Aluminum	39.8	mg/L	0.10	99	70	130			
Antimony	0.000156	mg/L	0.050		0	0			
Arsenic	0.00986	mg/L	0.0050	99	70	130			
Barium	0.000192	mg/L	0.10		0	0			
Beryllium	1.60E-05	mg/L	0.0010		0	0			
Cadmium	0.00985	mg/L	0.0010	99	70	130			
Chromium	0.0197	mg/L	0.010	99	70	130			
Cobalt	0.0197	mg/L	0.010	98	70	130			
Copper	0.0193	mg/L	0.010	96	70	130			
Lead	9.92E-05	mg/L	0.010		0	0			
Manganese	0.0200	mg/L	0.010	100	70	130			
Molybdenum	0.833	mg/L	0.0050	104	70	130			
Nickel	0.0198	mg/L	0.010	99	70	130			
Selenium	0.00977	mg/L	0.0050	98	70	130			
Silver	0.00513	mg/L	0.0050	103	70	130			
Strontium	0.000937	mg/L	0.10		0	0			
Thallium	2.51E-05	mg/L	0.10		0	0			
Uranium	4.32E-06	mg/L	0.00030		0	0			
Zinc	0.0101	mg/L	0.010	101	70	130			

Method: E200.8

Batch: R148258

Lab ID:	LRB	Method Blank			Run: ICPMS205-H_190929C	09/29/19 16:58
Aluminum	ND	mg/L	0.003			
Antimony	ND	mg/L	9E-05			
Arsenic	ND	mg/L	4E-05			
Barium	ND	mg/L	2E-05			
Beryllium	ND	mg/L	0.0001			
Cadmium	ND	mg/L	3E-05			
Chromium	ND	mg/L	0.0002			

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>							Batch: R148258		
<b>Lab ID: LRB</b>	Method Blank			Run: ICPMS205-H_190929C			09/29/19 16:58		
Cobalt	ND	mg/L	9E-05						
Copper	ND	mg/L	0.0001						
Lead	ND	mg/L	3E-05						
Manganese	ND	mg/L	0.0003						
Molybdenum	3E-05	mg/L	2E-05						
Nickel	ND	mg/L	0.0002						
Selenium	ND	mg/L	2E-05						
Silver	ND	mg/L	2E-05						
Strontium	ND	mg/L	0.0001						
Thallium	ND	mg/L	1E-05						
Uranium	ND	mg/L	1E-05						
Zinc	0.002	mg/L	0.0003						
<b>Lab ID: LFB</b>	Laboratory Fortified Blank			Run: ICPMS205-H_190929C			09/29/19 17:00		
Aluminum	0.0465	mg/L	0.10	93	85	115			
Antimony	0.0475	mg/L	0.050	95	85	115			
Arsenic	0.0468	mg/L	0.0050	94	85	115			
Barium	0.0464	mg/L	0.10	93	85	115			
Beryllium	0.0477	mg/L	0.0010	95	85	115			
Cadmium	0.0475	mg/L	0.0010	95	85	115			
Chromium	0.0467	mg/L	0.010	93	85	115			
Cobalt	0.0466	mg/L	0.010	93	85	115			
Copper	0.0473	mg/L	0.010	95	85	115			
Lead	0.0464	mg/L	0.010	93	85	115			
Manganese	0.0466	mg/L	0.010	93	85	115			
Molybdenum	0.0464	mg/L	0.0050	93	85	115			
Nickel	0.0471	mg/L	0.010	94	85	115			
Selenium	0.0467	mg/L	0.0050	93	85	115			
Silver	0.0195	mg/L	0.0050	98	85	115			
Strontium	0.0467	mg/L	0.10	93	85	115			
Thallium	0.0458	mg/L	0.10	92	85	115			
Uranium	0.0456	mg/L	0.00030	91	85	115			
Zinc	0.0488	mg/L	0.010	98	85	115			
<b>Lab ID: H19090556-027BMS</b>	Sample Matrix Spike			Run: ICPMS205-H_190929C			09/29/19 21:55		
Aluminum	0.0512	mg/L	0.030	102	70	130			
Antimony	0.0508	mg/L	0.0010	102	70	130			
Arsenic	0.0507	mg/L	0.0010	101	70	130			
Barium	0.0504	mg/L	0.050	101	70	130			
Beryllium	0.0493	mg/L	0.0010	99	70	130			
Cadmium	0.0512	mg/L	0.0010	102	70	130			
Chromium	0.0504	mg/L	0.0050	101	70	130			
Cobalt	0.0503	mg/L	0.0050	101	70	130			
Copper	0.0508	mg/L	0.0050	102	70	130			
Lead	0.0494	mg/L	0.0010	99	70	130			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090658

Report Date: 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>							Batch: R148258		
<b>Lab ID: H19090556-027BMS</b>	Sample Matrix Spike			Run: ICPMS205-H_190929C			09/29/19 21:55		
Manganese	0.0510	mg/L	0.0010	102	70	130			
Molybdenum	0.0489	mg/L	0.0010	98	70	130			
Nickel	0.0508	mg/L	0.0050	102	70	130			
Selenium	0.0506	mg/L	0.0010	101	70	130			
Silver	0.0208	mg/L	0.0010	104	70	130			
Strontium	0.0507	mg/L	0.010	101	70	130			
Thallium	0.0489	mg/L	0.00050	98	70	130			
Uranium	0.0476	mg/L	0.00030	95	70	130			
Zinc	0.0534	mg/L	0.010	104	70	130			
<b>Lab ID: H19090556-027BMSD</b>	Sample Matrix Spike Duplicate			Run: ICPMS205-H_190929C			09/29/19 21:58		
Aluminum	0.0522	mg/L	0.030	104	70	130	2.0	20	
Antimony	0.0508	mg/L	0.0010	102	70	130	0.0	20	
Arsenic	0.0504	mg/L	0.0010	101	70	130	0.6	20	
Barium	0.0495	mg/L	0.050	99	70	130		20	
Beryllium	0.0508	mg/L	0.0010	101	70	130	2.8	20	
Cadmium	0.0507	mg/L	0.0010	101	70	130	1.0	20	
Chromium	0.0496	mg/L	0.0050	99	70	130	1.5	20	
Cobalt	0.0499	mg/L	0.0050	100	70	130	0.9	20	
Copper	0.0501	mg/L	0.0050	100	70	130	1.4	20	
Lead	0.0488	mg/L	0.0010	98	70	130	1.3	20	
Manganese	0.0499	mg/L	0.0010	100	70	130	2.3	20	
Molybdenum	0.0483	mg/L	0.0010	97	70	130	1.1	20	
Nickel	0.0505	mg/L	0.0050	101	70	130	0.6	20	
Selenium	0.0511	mg/L	0.0010	102	70	130	1.0	20	
Silver	0.0205	mg/L	0.0010	102	70	130	1.5	20	
Strontium	0.0496	mg/L	0.010	99	70	130	2.0	20	
Thallium	0.0480	mg/L	0.00050	96	70	130	1.7	20	
Uranium	0.0471	mg/L	0.00030	94	70	130	1.1	20	
Zinc	0.0528	mg/L	0.010	103	70	130	1.2	20	
<b>Lab ID: H19090658-004BMS</b>	Sample Matrix Spike			Run: ICPMS205-H_190929C			09/29/19 22:26		
Aluminum	0.0542	mg/L	0.030	108	70	130			
Antimony	0.0512	mg/L	0.0010	102	70	130			
Arsenic	0.0515	mg/L	0.0010	103	70	130			
Barium	0.165	mg/L	0.050	101	70	130			
Beryllium	0.0500	mg/L	0.0010	100	70	130			
Cadmium	0.0515	mg/L	0.0010	103	70	130			
Chromium	0.0496	mg/L	0.0050	99	70	130			
Cobalt	0.0494	mg/L	0.0050	99	70	130			
Copper	0.0493	mg/L	0.0050	99	70	130			
Lead	0.0506	mg/L	0.0010	101	70	130			
Manganese	0.0563	mg/L	0.0010	100	70	130			
Molybdenum	0.0500	mg/L	0.0010	99	70	130			
Nickel	0.0496	mg/L	0.0050	99	70	130			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090658

Report Date: 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>							Batch: R148258		
<b>Lab ID: H19090658-004BMS</b>	Sample Matrix Spike			Run: ICPMS205-H_190929C			09/29/19 22:26		
Selenium	0.0555	mg/L	0.0010	110	70	130			
Silver	0.0199	mg/L	0.0010	99	70	130			
Strontium	0.122	mg/L	0.010	97	70	130			
Thallium	0.0508	mg/L	0.00050	101	70	130			
Uranium	0.0501	mg/L	0.00030	99	70	130			
Zinc	0.0539	mg/L	0.010	103	70	130			
<b>Lab ID: H19090658-004BMSD</b>	Sample Matrix Spike Duplicate			Run: ICPMS205-H_190929C			09/29/19 22:29		
Aluminum	0.0546	mg/L	0.030	109	70	130	0.8	20	
Antimony	0.0509	mg/L	0.0010	102	70	130	0.7	20	
Arsenic	0.0509	mg/L	0.0010	101	70	130	1.3	20	
Barium	0.163	mg/L	0.050	96	70	130	1.3	20	
Beryllium	0.0498	mg/L	0.0010	100	70	130	0.4	20	
Cadmium	0.0506	mg/L	0.0010	101	70	130	1.9	20	
Chromium	0.0489	mg/L	0.0050	98	70	130	1.3	20	
Cobalt	0.0485	mg/L	0.0050	97	70	130	1.8	20	
Copper	0.0492	mg/L	0.0050	98	70	130	0.2	20	
Lead	0.0492	mg/L	0.0010	98	70	130	2.8	20	
Manganese	0.0562	mg/L	0.0010	100	70	130	0.2	20	
Molybdenum	0.0494	mg/L	0.0010	98	70	130	1.1	20	
Nickel	0.0489	mg/L	0.0050	98	70	130	1.5	20	
Selenium	0.0560	mg/L	0.0010	111	70	130	0.8	20	
Silver	0.0206	mg/L	0.0010	103	70	130	3.4	20	
Strontium	0.122	mg/L	0.010	97	70	130	0.3	20	
Thallium	0.0494	mg/L	0.00050	98	70	130	2.8	20	
Uranium	0.0491	mg/L	0.00030	97	70	130	2.1	20	
Zinc	0.0526	mg/L	0.010	101	70	130	2.3	20	
<b>Lab ID: H19090658-014BMS</b>	Sample Matrix Spike			Run: ICPMS205-H_190929C			09/29/19 23:00		
Aluminum	0.0511	mg/L	0.030	102	70	130			
Antimony	0.0500	mg/L	0.0010	100	70	130			
Arsenic	0.0500	mg/L	0.0010	100	70	130			
Barium	0.0494	mg/L	0.050	99	70	130			
Beryllium	0.0507	mg/L	0.0010	101	70	130			
Cadmium	0.0506	mg/L	0.0010	101	70	130			
Chromium	0.0501	mg/L	0.0050	100	70	130			
Cobalt	0.0500	mg/L	0.0050	100	70	130			
Copper	0.0504	mg/L	0.0050	101	70	130			
Lead	0.0489	mg/L	0.0010	98	70	130			
Manganese	0.0510	mg/L	0.0010	102	70	130			
Molybdenum	0.0485	mg/L	0.0010	97	70	130			
Nickel	0.0505	mg/L	0.0050	101	70	130			
Selenium	0.0508	mg/L	0.0010	102	70	130			
Silver	0.0194	mg/L	0.0010	97	70	130			
Strontium	0.0505	mg/L	0.010	101	70	130			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.





# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>							Batch: R148258		
<b>Lab ID: H19090658-014BMS</b>	Sample Matrix Spike			Run: ICPMS205-H_190929C			09/29/19 23:00		
Thallium	0.0487	mg/L	0.00050	97	70	130			
Uranium	0.0470	mg/L	0.00030	94	70	130			
Zinc	0.0527	mg/L	0.010	104	70	130			
<b>Lab ID: H19090658-014BMSD</b>	Sample Matrix Spike Duplicate			Run: ICPMS205-H_190929C			09/29/19 23:02		
Aluminum	0.0514	mg/L	0.030	103	70	130	0.6	20	
Antimony	0.0508	mg/L	0.0010	102	70	130	1.6	20	
Arsenic	0.0494	mg/L	0.0010	99	70	130	1.2	20	
Barium	0.0497	mg/L	0.050	99	70	130		20	
Beryllium	0.0508	mg/L	0.0010	102	70	130	0.2	20	
Cadmium	0.0510	mg/L	0.0010	102	70	130	0.9	20	
Chromium	0.0495	mg/L	0.0050	99	70	130	1.3	20	
Cobalt	0.0498	mg/L	0.0050	100	70	130	0.4	20	
Copper	0.0503	mg/L	0.0050	101	70	130	0.1	20	
Lead	0.0489	mg/L	0.0010	98	70	130	0.0	20	
Manganese	0.0498	mg/L	0.0010	100	70	130	2.4	20	
Molybdenum	0.0491	mg/L	0.0010	98	70	130	1.2	20	
Nickel	0.0504	mg/L	0.0050	101	70	130	0.1	20	
Selenium	0.0508	mg/L	0.0010	102	70	130	0.1	20	
Silver	0.0204	mg/L	0.0010	102	70	130	5.0	20	
Strontium	0.0500	mg/L	0.010	100	70	130	1.0	20	
Thallium	0.0483	mg/L	0.00050	97	70	130	0.8	20	
Uranium	0.0472	mg/L	0.00030	94	70	130	0.4	20	
Zinc	0.0534	mg/L	0.010	105	70	130	1.5	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090658

Report Date: 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
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Method: E200.8

Analytical Run: ICPMS205-H\_191003C

Lab ID:	ICV	Initial Calibration Verification Standard							10/03/19 17:57
Antimony	0.0593	mg/L	0.050	99	90	110			
Arsenic	0.0595	mg/L	0.0050	99	90	110			
Barium	0.0597	mg/L	0.10	100	90	110			
Beryllium	0.0298	mg/L	0.0010	99	90	110			
Cadmium	0.0305	mg/L	0.0010	102	90	110			
Chromium	0.0601	mg/L	0.010	100	90	110			
Cobalt	0.0610	mg/L	0.010	102	90	110			
Copper	0.0605	mg/L	0.010	101	90	110			
Iron	0.305	mg/L	0.020	102	90	110			
Lead	0.0607	mg/L	0.010	101	90	110			
Manganese	0.302	mg/L	0.010	101	90	110			
Molybdenum	0.0607	mg/L	0.0050	101	90	110			
Nickel	0.0600	mg/L	0.010	100	90	110			
Selenium	0.0612	mg/L	0.0050	102	90	110			
Silver	0.0311	mg/L	0.0050	104	90	110			
Strontium	0.0598	mg/L	0.10	100	90	110			
Thallium	0.0607	mg/L	0.10	101	90	110			
Uranium	0.0596	mg/L	0.00030	99	90	110			
Zinc	0.0611	mg/L	0.010	102	90	110			

Lab ID:	ICSA	Interference Check Sample A							10/03/19 18:00
Antimony	0.000222	mg/L	0.050						
Arsenic	3.61E-05	mg/L	0.0050						
Barium	0.000219	mg/L	0.10						
Beryllium	-2.87E-06	mg/L	0.0010						
Cadmium	9.81E-05	mg/L	0.0010						
Chromium	0.000207	mg/L	0.010						
Cobalt	0.000275	mg/L	0.010						
Copper	4.42E-05	mg/L	0.010						
Iron	102	mg/L	0.020	102	70	130			
Lead	0.000112	mg/L	0.010						
Manganese	0.000342	mg/L	0.010						
Molybdenum	0.835	mg/L	0.0050	104	70	130			
Nickel	4.36E-06	mg/L	0.010						
Selenium	0.000236	mg/L	0.0050						
Silver	7.62E-05	mg/L	0.0050						
Strontium	0.00100	mg/L	0.10						
Thallium	5.11E-05	mg/L	0.10						
Uranium	1.32E-05	mg/L	0.00030						
Zinc	0.000264	mg/L	0.010						

Lab ID:	ICSAB	Interference Check Sample AB							10/03/19 18:02
Antimony	0.000190	mg/L	0.050		0	0			
Arsenic	0.00988	mg/L	0.0050	99	70	130			
Barium	0.000211	mg/L	0.10		0	0			

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090658

Report Date: 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>							Analytical Run: ICPMS205-H_191003C		
<b>Lab ID: ICSAB</b>	Interference Check Sample AB							10/03/19 18:02	
Beryllium	-2.12E-05	mg/L	0.0010		0	0			
Cadmium	0.0102	mg/L	0.0010	102	70	130			
Chromium	0.0203	mg/L	0.010	101	70	130			
Cobalt	0.0206	mg/L	0.010	103	70	130			
Copper	0.0197	mg/L	0.010	99	70	130			
Iron	101	mg/L	0.020	101	70	130			
Lead	9.83E-05	mg/L	0.010		0	0			
Manganese	0.0209	mg/L	0.010	105	70	130			
Molybdenum	0.837	mg/L	0.0050	105	70	130			
Nickel	0.0202	mg/L	0.010	101	70	130			
Selenium	0.00976	mg/L	0.0050	98	70	130			
Silver	0.00520	mg/L	0.0050	104	70	130			
Strontium	0.00110	mg/L	0.10		0	0			
Thallium	2.84E-05	mg/L	0.10		0	0			
Uranium	5.81E-06	mg/L	0.00030		0	0			
Zinc	0.0104	mg/L	0.010	104	70	130			

<b>Method: E200.8</b>							Batch: 48056			
<b>Lab ID: MB-48056</b>	Method Blank							Run: ICPMS205-H_191003C		10/03/19 22:07
Antimony	ND	mg/L	0.0001							
Arsenic	ND	mg/L	0.0001							
Barium	ND	mg/L	0.0002							
Beryllium	ND	mg/L	0.0003							
Cadmium	ND	mg/L	3E-05							
Chromium	0.0009	mg/L	0.0002							
Cobalt	ND	mg/L	0.0007							
Copper	ND	mg/L	0.0003							
Iron	0.008	mg/L	0.005							
Lead	ND	mg/L	4E-05							
Manganese	ND	mg/L	0.0001							
Molybdenum	ND	mg/L	0.0001							
Nickel	0.0003	mg/L	0.0001							
Selenium	ND	mg/L	0.0001							
Silver	ND	mg/L	4E-05							
Strontium	ND	mg/L	0.0002							
Thallium	ND	mg/L	3E-05							
Uranium	ND	mg/L	1E-05							
Zinc	ND	mg/L	0.004							

<b>Lab ID: LCS-48056</b>	Laboratory Control Sample							Run: ICPMS205-H_191003C		10/03/19 22:19
Antimony	0.496	mg/L	0.0010	99	85	115				
Arsenic	0.484	mg/L	0.0010	97	85	115				
Barium	0.499	mg/L	0.050	100	85	115				
Beryllium	0.238	mg/L	0.0010	95	85	115				

### Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>							Batch: 48056		
<b>Lab ID:</b> LCS-48056	Laboratory Control Sample			Run: ICPMS205-H_191003C			10/03/19 22:19		
Cadmium	0.246	mg/L	0.0010	98	85	115			
Chromium	0.486	mg/L	0.0050	97	85	115			
Cobalt	0.479	mg/L	0.0050	96	85	115			
Copper	0.477	mg/L	0.0050	95	85	115			
Iron	2.44	mg/L	0.020	98	85	115			
Lead	0.512	mg/L	0.0010	102	85	115			
Manganese	2.46	mg/L	0.0010	98	85	115			
Molybdenum	0.478	mg/L	0.0010	96	85	115			
Nickel	0.478	mg/L	0.0050	96	85	115			
Selenium	0.482	mg/L	0.0010	96	85	115			
Silver	0.0503	mg/L	0.0010	101	85	115			
Strontium	0.503	mg/L	0.010	101	85	115			
Thallium	0.505	mg/L	0.00050	101	85	115			
Uranium	0.486	mg/L	0.00030	97	85	115			
Zinc	0.484	mg/L	0.010	97	85	115			
<b>Lab ID:</b> H19090658-014CMS3	Sample Matrix Spike			Run: ICPMS205-H_191003C			10/03/19 22:21		
Antimony	0.499	mg/L	0.0010	100	70	130			
Arsenic	0.496	mg/L	0.0010	99	70	130			
Barium	0.506	mg/L	0.050	101	70	130			
Beryllium	0.243	mg/L	0.0010	97	70	130			
Cadmium	0.253	mg/L	0.0010	101	70	130			
Chromium	0.499	mg/L	0.0050	100	70	130			
Cobalt	0.491	mg/L	0.0050	98	70	130			
Copper	0.490	mg/L	0.0050	98	70	130			
Iron	2.52	mg/L	0.020	100	70	130			
Lead	0.522	mg/L	0.0010	104	70	130			
Manganese	2.52	mg/L	0.0010	101	70	130			
Molybdenum	0.482	mg/L	0.0010	96	70	130			
Nickel	0.488	mg/L	0.0050	98	70	130			
Selenium	0.492	mg/L	0.0010	98	70	130			
Silver	0.0515	mg/L	0.0010	103	70	130			
Strontium	0.516	mg/L	0.010	103	70	130			
Thallium	0.513	mg/L	0.00050	103	70	130			
Uranium	0.491	mg/L	0.00030	98	70	130			
Zinc	0.498	mg/L	0.010	100	70	130			
<b>Lab ID:</b> H19090658-014CMSD3	Sample Matrix Spike Duplicate			Run: ICPMS205-H_191003C			10/03/19 22:24		
Antimony	0.495	mg/L	0.0010	99	70	130	0.9	20	
Arsenic	0.489	mg/L	0.0010	98	70	130	1.4	20	
Barium	0.498	mg/L	0.050	100	70	130	1.7	20	
Beryllium	0.240	mg/L	0.0010	96	70	130	1.2	20	
Cadmium	0.249	mg/L	0.0010	99	70	130	1.8	20	
Chromium	0.495	mg/L	0.0050	99	70	130	0.9	20	
Cobalt	0.486	mg/L	0.0050	97	70	130	1.0	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Work Order: H19090658

Report Date: 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E200.8</b>							Batch: 48056		
<b>Lab ID:</b>	<b>H19090658-014CMSD3</b>	Sample Matrix Spike Duplicate			Run: ICPMS205-H_191003C			10/03/19 22:24	
Copper	0.489	mg/L	0.0050	98	70	130	0.3	20	
Iron	2.49	mg/L	0.020	99	70	130	1.0	20	
Lead	0.513	mg/L	0.0010	103	70	130	1.6	20	
Manganese	2.50	mg/L	0.0010	100	70	130	0.8	20	
Molybdenum	0.477	mg/L	0.0010	95	70	130	1.0	20	
Nickel	0.487	mg/L	0.0050	97	70	130	0.2	20	
Selenium	0.486	mg/L	0.0010	97	70	130	1.2	20	
Silver	0.0507	mg/L	0.0010	101	70	130	1.5	20	
Strontium	0.511	mg/L	0.010	102	70	130	1.0	20	
Thallium	0.507	mg/L	0.00050	101	70	130	1.3	20	
Uranium	0.487	mg/L	0.00030	97	70	130	0.8	20	
Zinc	0.494	mg/L	0.010	99	70	130	0.9	20	
<b>Method: E200.8</b>							Batch: R148376		
<b>Lab ID:</b>	<b>LRB</b>	Method Blank			Run: ICPMS205-H_191003C			10/03/19 18:21	
Iron	0.01	mg/L	0.006						
Selenium	ND	mg/L	0.0001						
Zinc	ND	mg/L	0.0006						
<b>Lab ID:</b>	<b>LFB</b>	Laboratory Fortified Blank			Run: ICPMS205-H_191003C			10/03/19 18:23	
Iron	0.152	mg/L	0.020	101	85	115			
Selenium	0.0492	mg/L	0.0050	98	85	115			
Zinc	0.0488	mg/L	0.010	98	85	115			
<b>Lab ID:</b>	<b>H19090658-009BMS</b>	Sample Matrix Spike			Run: ICPMS205-H_191003C			10/03/19 21:55	
Iron	0.166	mg/L	0.020	96	70	130			
Selenium	0.0526	mg/L	0.0010	105	70	130			
Zinc	0.0493	mg/L	0.010	97	70	130			
<b>Lab ID:</b>	<b>H19090658-009BMSD</b>	Sample Matrix Spike Duplicate			Run: ICPMS205-H_191003C			10/03/19 21:58	
Iron	0.168	mg/L	0.020	98	70	130	1.5	20	
Selenium	0.0526	mg/L	0.0010	105	70	130	0.0	20	
Zinc	0.0490	mg/L	0.010	96	70	130	0.8	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> E200.8								Analytical Run: ICPMS205-H_191004A		
<b>Lab ID:</b> ICV	Initial Calibration Verification Standard									
Iron	0.308	mg/L	0.020	103	90	110			10/04/19 14:05	
<b>Lab ID:</b> ICSA	Interference Check Sample A									
Iron	102	mg/L	0.020	102	70	130			10/04/19 14:07	
<b>Lab ID:</b> ICSAB	Interference Check Sample AB									
Iron	105	mg/L	0.020	105	70	130			10/04/19 14:10	
<b>Method:</b> E200.8								Batch: R148430		
<b>Lab ID:</b> LRB	Method Blank									
Iron	ND	mg/L	0.006						Run: ICPMS205-H_191004A 10/04/19 14:22	
<b>Lab ID:</b> LFB	Laboratory Fortified Blank									
Iron	0.156	mg/L	0.020	104	85	115			Run: ICPMS205-H_191004A 10/04/19 14:24	
<b>Lab ID:</b> H19090658-001BMS	Sample Matrix Spike									
Iron	0.503	mg/L	0.020	197	70	130			Run: ICPMS205-H_191004A 10/04/19 14:45 S	
<b>Lab ID:</b> H19090658-001BMSD	Sample Matrix Spike Duplicate									
Iron	0.438	mg/L	0.020	153	70	130	14	20	Run: ICPMS205-H_191004A 10/04/19 14:48 S	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method:</b> E245.1									Analytical Run: HGCV203-H_191008A
<b>Lab ID:</b> ICV	Initial Calibration Verification Standard								10/08/19 14:25
Mercury	0.0909	ug/L	0.0050	91	90	110			
<b>Lab ID:</b> CCV1	Continuing Calibration Verification Standard								10/08/19 14:28
Mercury	0.101	ug/L	0.0050	101	95	105			
<b>Lab ID:</b> CCV	Continuing Calibration Verification Standard								10/08/19 16:59
Mercury	0.101	ug/L	0.0050	101	90	110			
<b>Lab ID:</b> CCV	Continuing Calibration Verification Standard								10/08/19 17:45
Mercury	0.100	ug/L	0.0050	100	90	110			
<b>Method:</b> E245.1									Batch: 48254
<b>Lab ID:</b> MB-48254	Method Blank								Run: HGCV203-H_191008A
Mercury	ND	ug/L	0.001						10/08/19 17:06
<b>Lab ID:</b> LCS-48254	Laboratory Control Sample								Run: HGCV203-H_191008A
Mercury	0.0501	ug/L	0.0050	100	90	110			10/08/19 17:10
<b>Lab ID:</b> H19090658-001BMS	Sample Matrix Spike								Run: HGCV203-H_191008A
Mercury	0.0563	ug/L	0.0050	101	70	130			10/08/19 17:16
<b>Lab ID:</b> H19090658-001BMSD	Sample Matrix Spike Duplicate								Run: HGCV203-H_191008A
Mercury	0.0560	ug/L	0.0050	100	70	130	0.5		10/08/19 17:19 20
<b>Lab ID:</b> H19090658-013CMS	Sample Matrix Spike								Run: HGCV203-H_191008A
Mercury	0.0531	ug/L	0.0050	102	70	130			10/08/19 18:08
<b>Lab ID:</b> H19090658-013CMSD	Sample Matrix Spike Duplicate								Run: HGCV203-H_191008A
Mercury	0.0535	ug/L	0.0050	103	70	130	0.6		10/08/19 18:11 20

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
<b>Method: E300.0</b>							Analytical Run: IC METROHM_190926A		
<b>Lab ID: ICV</b>	Initial Calibration Verification Standard								09/26/19 14:14
Chloride	100	mg/L	1.0	100	90	110			
Sulfate	411	mg/L	1.0	103	90	110			
<b>Lab ID: CCV</b>	Continuing Calibration Verification Standard								09/26/19 22:34
Chloride	50.2	mg/L	1.0	100	90	110			
Sulfate	201	mg/L	1.0	101	90	110			
<b>Lab ID: CCV</b>	Continuing Calibration Verification Standard								09/27/19 02:11
Chloride	50.1	mg/L	1.0	100	90	110			
Sulfate	198	mg/L	1.0	99	90	110			
<b>Method: E300.0</b>							Batch: R148185		
<b>Lab ID: ICB</b>	Method Blank								Run: IC METROHM_190926A 09/26/19 14:50
Chloride	ND	mg/L	0.02						
Sulfate	ND	mg/L	0.08						
<b>Lab ID: LFB</b>	Laboratory Fortified Blank								Run: IC METROHM_190926A 09/26/19 15:04
Chloride	26.1	mg/L	1.0	104	90	110			
Sulfate	106	mg/L	1.0	106	90	110			
<b>Lab ID: H19090658-006AMS</b>	Sample Matrix Spike								Run: IC METROHM_190926A 09/27/19 01:42
Chloride	25.4	mg/L	1.0	100	90	110			
Sulfate	113	mg/L	1.0	99	90	110			
<b>Lab ID: H19090658-006AMSD</b>	Sample Matrix Spike Duplicate								Run: IC METROHM_190926A 09/27/19 01:57
Chloride	25.4	mg/L	1.0	99	90	110	0.0	20	
Sulfate	114	mg/L	1.0	100	90	110	0.4	20	
<b>Lab ID: H19090659-002AMS</b>	Sample Matrix Spike								Run: IC METROHM_190926A 09/27/19 05:20
Chloride	69.1	mg/L	1.0	97	90	110			
Sulfate	112	mg/L	1.0	97	90	110			
<b>Lab ID: H19090659-002AMSD</b>	Sample Matrix Spike Duplicate								Run: IC METROHM_190926A 09/27/19 05:34
Chloride	69.4	mg/L	1.0	98	90	110	0.4	20	
Sulfate	113	mg/L	1.0	98	90	110	1.0	20	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.





# QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> E353.2								Analytical Run: FIA203-HE_190930C		
<b>Lab ID:</b> ICV	Initial Calibration Verification Standard									
Nitrogen, Nitrate+Nitrite as N	1.01	mg/L	0.010	101	90	110			09/30/19 11:59	
<b>Lab ID:</b> CCV	Continuing Calibration Verification Standard									
Nitrogen, Nitrate+Nitrite as N	0.518	mg/L	0.010	104	90	110			09/30/19 12:50	
<b>Lab ID:</b> CCV	Continuing Calibration Verification Standard									
Nitrogen, Nitrate+Nitrite as N	0.516	mg/L	0.010	103	90	110			09/30/19 13:07	
<b>Method:</b> E353.2								Batch: R148248		
<b>Lab ID:</b> MBLK	Method Blank									
Nitrogen, Nitrate+Nitrite as N	ND	mg/L	0.009						Run: FIA203-HE_190930C 09/30/19 12:00	
<b>Lab ID:</b> LFB	Laboratory Fortified Blank									
Nitrogen, Nitrate+Nitrite as N	0.994	mg/L	0.011	99	90	110			Run: FIA203-HE_190930C 09/30/19 12:01	
<b>Lab ID:</b> H19090658-001CMS	Sample Matrix Spike									
Nitrogen, Nitrate+Nitrite as N	1.40	mg/L	0.011	103	90	110			Run: FIA203-HE_190930C 09/30/19 12:53	
<b>Lab ID:</b> H19090658-001CMSD	Sample Matrix Spike Duplicate									
Nitrogen, Nitrate+Nitrite as N	1.44	mg/L	0.011	108	90	110	3.1	10	Run: FIA203-HE_190930C 09/30/19 12:55	
<b>Lab ID:</b> H19090658-011CMS	Sample Matrix Spike									
Nitrogen, Nitrate+Nitrite as N	1.32	mg/L	0.011	98	90	110			Run: FIA203-HE_190930C 09/30/19 13:10	
<b>Lab ID:</b> H19090658-011CMSD	Sample Matrix Spike Duplicate									
Nitrogen, Nitrate+Nitrite as N	1.35	mg/L	0.011	102	90	110	2.5	10	Run: FIA203-HE_190930C 09/30/19 13:11	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



## QA/QC Summary Report

Prepared by Helena, MT Branch

**Client:** Tintina Resources Inc

**Work Order:** H19090658

**Report Date:** 10/10/19

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
<b>Method:</b> E365.1								Analytical Run: FIA202-HE_190930A		
<b>Lab ID:</b> ICV Phosphorus, Total as P	Initial Calibration Verification Standard									09/30/19 13:39
	0.261	mg/L	0.010	104	90	110				
<b>Lab ID:</b> ICB Phosphorus, Total as P	Initial Calibration Blank, Instrument Blank									09/30/19 13:40
	0.00100	mg/L	0.010		0	0				
<b>Lab ID:</b> CCV Phosphorus, Total as P	Continuing Calibration Verification Standard									09/30/19 14:13
	0.106	mg/L	0.010	106	90	110				
<b>Method:</b> E365.1								Batch: 48075		
<b>Lab ID:</b> MB-48075 Phosphorus, Total as P	Method Blank						Run: FIA202-HE_190930A		09/30/19 13:42	
	ND	mg/L	0.002							
<b>Lab ID:</b> LCS-48075 Phosphorus, Total as P	Laboratory Control Sample						Run: FIA202-HE_190930A		09/30/19 13:43	
	0.385	mg/L	0.010	96	90	110				
<b>Lab ID:</b> H19090654-001CMS Phosphorus, Total as P	Sample Matrix Spike						Run: FIA202-HE_190930A		09/30/19 13:53	
	0.237	mg/L	0.010	119	90	110	S			
<b>Lab ID:</b> H19090654-001CMSD Phosphorus, Total as P	Sample Matrix Spike Duplicate						Run: FIA202-HE_190930A		09/30/19 13:54	
	0.230	mg/L	0.010	115	90	110	3.2	20	S	

**Qualifiers:**

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

S - Spike recovery outside of advisory limits.



# Work Order Receipt Checklist

Tintina Resources Inc

H19090658

Login completed by: Jessica C. Smith

Date Received: 9/26/2019

Reviewed by: BL2000\rtooke

Received by: RAT

Reviewed Date: 10/3/2019

Carrier name: Hand Del

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on all shipping container(s)/cooler(s)?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on all sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>
Container/Temp Blank temperature:	°C See Comments		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Applicable <input type="checkbox"/>

## Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

## Contact and Corrective Action Comments:

Cooler 1 was received at 3.4 °C, Cooler 2 at 4.4 °C, and Cooler 3 at 0.9 °C. On Ice. Metals sample BBC-1909-152 was preserved to pH <2 in laboratory upon receipt. Nutrients sample BBC-1909-152 was preserved to pH <2 with 2 mL of sulfuric acid per 250 mL in the laboratory upon receipt. JCS 09/26/19

## CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CONTAINERS	Commons UF / RAW	Nutrients UF / H <sub>2</sub> SO <sub>4</sub>	Diss. Metal F / HNO <sub>3</sub>	CN UF / NaOH	Total Metals UF / HNO <sub>3</sub>	Total Recoverable Metals UF / HNO <sub>3</sub>	BTEX	TPH	REMARKS		
18049		Tintina Black Butte (Springs)	Sip																	
		SAMPLERS: (Signature)																		
9/26/19	1300		X	13BC-1909-120				3		X	X	X							X	H19090658 No Sample
9/26/19	1320		X	122						X	X	X							X	
9/26/19	1335		X	123						X	X	X							X	
9/26/19	1415		X	125						X	X	X							X	
9/26/19	1440		X	127						X	X	X							X	
9/26/19	1645		X	132						X	X	X							X	
9/26/19	1030		X	140						X	X	X							X	
9/26/19	1045		X	141						X	X	X							X	
9/26/19	1300		X	146						X	X	X							X	
9/26/19	1320		X	147						X	X	X							X	
9/26/19	1340		X	148						X	X	X							X	
9/26/19	1400		X	149						X	X	X							X	
9/26/19	1500		X	152						X	X	X							X	
Relinquished (Signature)		Received by (Signature)		Date / Time		Date / Time		Date / Time		Lab		P.O. #		Shipped via: Bus FedEx UPS Other <u>Hand Delivered</u> Air Bill #						
				9/26/19 1000		9/26/19 1000		Energy Lab		Bill Tintina		Bus FedEx UPS		Hand Delivered						
Relinquished (Signature)		Received by (Signature)		Date / Time		Date / Time		Remarks		C13.4 C24.4 C30.9		TB onie hand del								

HFORM-1 07/11  
Action Print 406-442-7595

Return results & electronic copy to:  
QA / QC Dept. at address at top of page

Enclosed:  Parameter sheet w/detection limits  
 QA / AC standard mixing instructions  
 Cover letter  
 Other

Split Samples:  
 Accepted  
 Declined

Signature

**TABLE 5. PARAMETERS, METHODS, AND DETECTION LIMITS  
FOR GROUNDWATER MONITORING**

Parameter	Analytical Method <sup>(1)</sup>	Project-Required Detection Limit (mg/L)
<b>Physical Parameters</b>		
TDS	SM 2540C	10
TSS	SM 2540C	10
<b>Common Ions</b>		
Alkalinity	SM 2320B	4
Sulfate	300.0	1
Chloride	300.0/SM 4500CL-B	1
Fluoride	A4500-F C	0.1
Calcium	215.1/200.7	1
Magnesium	242.1/200.7	1
Sodium	273.1/200.7	1
Potassium	258.1/200.7	1
<b>Nutrients</b>		
Nitrate+Nitrite as N	353.2	0.01
<b>Trace Constituents (Dissolved)<sup>(2)</sup></b>		
Aluminum (Al)	200.7/200.8	0.009
Antimony (Sb)	200.7/200.8	0.0005
Arsenic (As)	200.8/SM 3114B	0.001
Barium (Ba)	200.7/200.8	0.003
Beryllium (Be)	200.7/200.8	0.0008
Cadmium (Cd)	200.7/200.8	0.00003
Chromium (Cr)	200.7/200.8	0.01
Cobalt (Co)	200.7/200.8	0.01
Copper (Cu)	200.7/200.8	0.002
Iron (Fe)	200.7/200.8	0.02
Lead (Pb)	200.7/200.8	0.0003
Manganese (Mn)	200.7/200.8	0.005
Mercury (Hg)	245.2/245.1/200.8/SM 3112B	0.000005
Molybdenum (Mo)	200.7/200.8	0.002
Nickel (Ni)	200.7/200.8	0.001
Selenium (Se)	200.7/200.8/SM 3114B	0.0002
Silver (Ag)	200.7/200.8	0.0002
Strontium (Sr)	200.7/200.8	0.0002
Thallium (Tl)	200.7/200.8	0.0002
Uranium	200.7/200.8	0.008
Zinc (Zn)	200.7/200.8	0.002
<b>Field Parameters</b>		
Stream Flow	HF-SOP-37/-44/-46	NA
Water Temperature	HF-SOP-20	0.1 °C
Dissolved Oxygen (DO)	HF-SOP-22	0.1 mg/L
pH	HF-SOP-20	0.1 s.u.
Specific Conductance (SC)	HF-SOP-79	1 µmhos/cm

(1) Analytical methods are from *Standard Methods for the Examination of Water and Wastewater* (SM) or EPA's *Methods for Chemical Analysis of Water and Waste* (1983).

(2) Samples to be analyzed for dissolved constituents will be field-filtered through a 0.45 µm filter.

CHAIN OF CUSTODY RECORD



**Hydrometrics, Inc.**

3020 Bozeman Ave. • Helena, MT 59601 • (406) 443-4150

PROJ. NO. 18049 PROJECT NAME *Trinitina Black Butte (SW) Srp*

SAMPLERS: (Signature) *[Signature]*

DATE	TIME	COMP	GRAB	SAMPLE NUMBER
9/24/19	0815		X	13BC-1909-111
	1035		X	115

NO. OF CON-TAINERS

NO. OF CON-TAINERS	Commons UF / RAW	Nutrients UF / H <sub>2</sub> SO <sub>4</sub>	Diss. Metal F / HNO <sub>3</sub>	CN UF / NaOH	Total Metals UF / HNO <sub>3</sub>	Total Recoverable Metals UF / HNO <sub>3</sub>	BTEX	TPH
4	X	X	X	X	X	X		

*Table 5*

REMARKS  
*H19090658*

Relinquished (Signature)	Date / Time	Received by (Signature)	Lab	Remarks	PO #	Shipped via: Bus FedEX UPS Other <i>Hand delivered</i>
<i>[Signature]</i>	9/24/19 1000		<i>Energy Lab</i>	<i>FB on ice hand del.</i>	<i>B: 11</i>	
Relinquished (Signature)	Date / Time	Received by (Signature)	Lab	Remarks	PO #	Shipped via: Bus FedEX UPS Other <i>Hand delivered</i>
<i>[Signature]</i>	9/24/19 1000					

Relinquished (Signature) \_\_\_\_\_ Date / Time \_\_\_\_\_ Received for Laboratory by (Signature) *[Signature]*

Enclosed:  Parameter sheet w/detection limits  
 QA / AC standard mixing instructions  Cover letter  
 Other \_\_\_\_\_

Split Samples:  Accepted  Declined

Signature \_\_\_\_\_

Return results & electronic copy to:  
QA / QC Dept. at address at top of page

**TABLE 6. PARAMETERS, METHODS, AND DETECTION LIMITS FOR SURFACE WATER MONITORING**

Parameter	Analytical Method <sup>(1)</sup>	Project-Required Detection Limit (mg/L)
<b>Physical Parameters</b>		
TDS	SM 2540C	4
TSS	SM 2540C	4
<b>Common Ions</b>		
Alkalinity	SM 2320B	4
Sulfate	300.0	1
Chloride	300.0/SM 4500CL-B	1
Fluoride	A4500-F C	0.1
Calcium	215.1/200.7	1
Magnesium	242.1/200.7	1
Sodium	273.1/200.7	1
Potassium	258.1/200.7	1
<b>Nutrients</b>		
Nitrate+Nitrite as N	353.2	0.003
Total Persulfate Nitrogen	A 4500-N-C	0.04
Total Phosphorus	E365.1	0.003
<b>Trace Constituents (SW - Total Recoverable except Aluminum [Diss])<sup>(2)</sup></b>		
Aluminum (Al)	200.7/200.8	0.009
Antimony (Sb)	200.7/200.8	0.0005
Arsenic (As)	200.8/SM 3114B	0.001
Barium (Ba)	200.7/200.8	0.003
Beryllium (Be)	200.7/200.8	0.0008
Cadmium (Cd)	200.7/200.8	0.00003
Chromium (Cr)	200.7/200.8	0.01
Cobalt (Co)	200.7/200.8	0.01
Copper (Cu)	200.7/200.8	0.002
Iron (Fe)	200.7/200.8	0.02
Lead (Pb)	200.7/200.8	0.0003
Manganese (Mn)	200.7/200.8	0.005
Mercury (Hg)	245.2/245.1/200.8/SM 3112B	0.000005
Molybdenum (Mo)	200.7/200.8	0.002
Nickel (Ni)	200.7/200.8	0.001
Selenium (Se)	200.7/200.8/SM 3114B	0.0002
Silver (Ag)	200.7/200.8	0.0002
Strontium (Sr)	200.7/200.8	0.0002
Thallium (Tl)	200.7/200.8	0.0002
Uranium	200.7/200.8	0.008
Zinc (Zn)	200.7/200.8	0.002
<b>Field Parameters</b>		
Stream Flow	HF-SOP-37/-44/-46	NA
Water Temperature	HF-SOP-20	0.1 °C
Dissolved Oxygen (DO)	HF-SOP-22	0.1 mg/L
pH	HF-SOP-20	0.1 s.u.
Specific Conductance (SC)	HF-SOP-79	1 µmhos/cm

(1) Analytical methods are from *Standard Methods for the Examination of Water and Wastewater* (SM) or EPA's *Methods for Chemical Analysis of Water and Waste* (1983).

(2) Samples to be analyzed for dissolved constituents will be field-filtered through a 0.45 µm filter.

**APPENDIX B**

**QA/QC REPORTS**



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**QUALITY CONTROL / QUALITY ASSURANCE  
DATA VERIFICATION REPORT**

**BLACK BUTTE COPPER  
WATER RESOURCE MONITORING**

**JULY 2019**

Prepared by  
**Hydrometrics, Inc.**  
3020 Bozeman Avenue  
Helena, MT 59601

SEPTEMBER 2019

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- Table 1. Data Validation Codes and Definitions**
- Table 2. Summary of Flagged Data**
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### APPENDIX 2: DATABASE SUMMARY REPORT

## GLOSSARY OF TERMS

CCB .....	Continuing Calibration Blank
CCV .....	Continuing Calibration Verification
CLP .....	Contract Laboratory Program
CRDL.....	Contract Required Detection Limit
DI í í í í	Deionized Water
FAA .....	Flame Atomic Absorption
GFAA.....	Graphite Furnace Atomic Absorption
HGAA.....	Hydride Generation Atomic Absorption
ICB.....	Initial Calibration Blank
ICP .....	Inductively Coupled Plasma
ICV .....	Initial Calibration Verification
IDL.....	Instrument Detection Limit
LCS .....	Laboratory Control Sample
MSA.....	Method of Standard Additions
PB .....	Preparation Blank
PRDL .....	Project Required Detection Limit
QAPP .....	Quality Assurance Project Plan
QC.....	Quality Control
RPD.....	Relative Percent Difference
RSD.....	Relative Standard Deviation
SOW.....	Statement of Work
TDS.....	Total Dissolved Solids

## DATA VALIDATION REPORT

### 1. INTRODUCTION

This validation applies to 30 samples collected for the Black Butte Tintina surface water and groundwater monitoring program. All sampling occurred in July 2019. All samples were submitted to Energy Laboratories in Helena, Montana and were assigned Laboratory IDs: H19070585 and H19070583. The total number of samples included: 18 groundwater and surface water samples including 2 field duplicates, and 2 field deionized (DI and Rinsate) blanks and 8 field site observations.

- Validation procedures used are generally consistent with:

(Check all that apply)

EPA CLP National Functional Guidelines for Inorganics Data Review

EPA CLP National Functional Guidelines for Organic Data Review

Montana Department of Environmental Quality, Data Validation Guidelines for Evaluating Analytical Data, Hydrometrics, September 2010

### 2. DELIVERABLES

- All laboratory document deliverables were present as specified in the CLP-Statement of Work and/or the project contract

Yes

No

- All documentation of field procedures was provided as required

Yes

No

### 3. FIELD QUALITY CONTROL SAMPLES

- Field blanks

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

DI, trip, rinsate, or any other field blanks have been carried out at the proper frequency

Yes

No

Reported results on the field blanks are less than the contract required detection limits (CRDL) or the project required detection limits (PRDL) if project detection limits have been specified

Yes

No

Field duplicates have been collected at the proper frequency

Yes

No

Field duplicate relative percent differences (RPDs) were within the required control limits (25 percent or less for water matrix and 50 percent or less for soil matrix)

Yes

No ó see following table

Date	Site Code	Parameter	Sample Result (mg/L)	Duplicate Result (mg/L)	Number of Flags
7/25/2019	SW-17	Total Suspended Solids	19	12	20
		Aluminum	0.021	<0.009	20

J óDuplicate exceeded QA/QC comparison control limits.

- **NOTES:** It should be noted that the above listed analysis results exceeded the reporting limits and results were confirmed by duplicate analysis from the laboratory.

#### 4. LABORATORY PROCEDURES

- Laboratory Case Narrative Notes any non conformance issues with the analytical data  
 Yes  
 No  
 NA
- Samples were received by the laboratory at the proper temperature  
 Yes  
 No
- Holding times met  
 Yes  
 No
- Consistency with project requirements  
 Yes  
 No
- Sample Conditions met at Check-in  
 Yesó see following notes  
 No  
**NOTES:** In the Energy Laboratory sample check-in receipt the following was noted:  
**H19070585-** Sample time on metals bottle in sample set BBC-1907-108 is missing. The Sample time from the chain of custody was used.
- Reporting units appropriate for the associated sample matrix and methods of analysis  
 Yes  
 No
- Project specified methods were used  
 Yesó see following list of methods used  
 No  
**NOTES:** It should be noted that parameters were analyzed using different methods than requested; however, all methods used by the laboratory are comparable. The following methods were used during analyses: A2540D, A2540C, A2320B, E300.0, A4500-F C, A2340B, E353.2, A4500-N C, E365.1, E200.8, and E200.7.
- Detection Limits met project required detection limits (PRDL)  
 Yesó see following notes  
 No  
**NOTES:** It should be noted that total dissolved solids and zinc had a reporting limit increases due to sample matrix interference (D). TDS had a limit of 10 mg/l used not the requested 4 mg/l. Strontium had the 0.0003 mg/l reporting limit was used in place of the requested 0.0002 mg/l; and zinc had a varying reporting limit as high as 0.02 mg/L not the requested 0.002 mg/L. However, values were flagged with an L to indicate that the lowest available reporting limit was used per method used for analysis. In addition, a reporting limit of 0.01 mg/l was used for nitrate + nitrite as n as replacement of the 0.003 mg/l requested.

**5. INITIAL OR CONTINUING CALIBRATION VERIFICATION RESULTS**

- Initial or Continuing Calibration Verification samples were within acceptable limits  
 Yes  
 No

**6. LABORATORY BLANKS**

- **PREPARATION/METHOD BLANKS**

Preparation/Method blanks were prepared and analyzed at the required frequency

Yes  
 No

All analytes in the preparation blank were less than the CRDL (or PRDL if a project detection limit has been specified)

Yes  
 No

**7. MATRIX SPIKE /MATRIX SPIKE DUPLICATES (MS/MSD)**

- Matrix spike samples were analyzed at the proper frequency  
 Yes  
 No
- Matrix spike recoveries were within control limits  
 Yes  
 No
- Matrix spike RPDs were within control limits  
 Yes  
 No
- Matrix spike duplicate samples were analyzed at the proper frequency  
 Yes  
 No
- Matrix spike duplicate RPDs were within control limits  
 Yes  
 No
- Matrix spike duplicate recoveries were within the laboratory specified control limits.  
 Yes  
 No

**8. LABORATORY CONTROL SAMPLES**

- LCS Samples

Laboratory Control Samples used the correct matrix and concentrations

Yes  
 No  
 NA

Laboratory Control Samples were prepared and analyzed at the required frequency

Yes

No

NA

All analytes in the laboratory control samples were less than the control limits specified

Yes

No

## 9. DATA QUALITY OBJECTIVES

- Project data quality objectives (DQOs) met

Yes

No

### Accuracy

Accuracy for this project is the degree of agreement between an analytical measurement and a reference accepted as a true value. The accuracy of a measurement system can be affected by errors introduced by field contamination, sample preservation, sample handling, sample preparation and analytical techniques. Analysis of MS/MSD samples, laboratory control spikes (LCS) or blank spikes, surrogate standards and method blanks are typically used to calculate the percent recovery for evaluating accuracy. Accuracy for this sampling event was 100 percent.

### Precision

Precision for this project is the degree of mutual agreement between individual measurements of the same property under similar conditions. Combined field and laboratory precision is evaluated by collecting and analyzing field duplicate and then calculating the variance between the samples, typically as a relative percent difference (RPD). Laboratory analytical precision is evaluated by analyzing matrix spike/matrix spike duplicate samples and using the results to calculate an RPD. The combined precision was 98 percent for this sampling event for both laboratory and field.

### Representativeness

Representativeness for this project is the degree to which sample data accurately and precisely represent the characteristics of a population, and variations in a parameter at a sampling point or an environmental condition that they are intended to represent. Typically representative data will be obtained through careful selection of sampling locations and analytical parameters; proper collection and handling of samples and through use and consistent application of established field and laboratory procedures. Evaluation of field and laboratory blank samples for presence of contaminants can be useful in evaluating representativeness of sample results. Both laboratory and field representativeness for this sampling event was 100 percent.

### Completeness

The target completeness for this project is the percent of the measurements valid (not rejected). Valid data are obtained when samples are collected and analyzed in accordance with quality control procedures outlined in the SAP, and when none of the QC criteria that affect data usability are exceeded. Once data validation is complete the number of useable sample results is divided by the total number of sample results planned for the investigation to determine the percent completeness. Completeness for this sampling event was 100 percent.

Comparability

Comparability is the expression of the confidence with which one data set can be compared with another. Comparability of data is achieved by consistently following standard field and laboratory procedures and by using standard measurement units in reporting analytical data. This criterion was met.



## REFERENCES

- Montana Department of Environmental Quality, Data Validation Guidelines for Evaluating Analytical Data (Updated August 5, 2010)
- EPA, 2017a. National Functional Guidelines for Organic Superfund Methods Data Review. EPA-540-R-2017-002. Office of Superfund Remediation and Technology Innovation. January 2017.
- EPA, 2017b. National Functional Guidelines for Inorganic Superfund Methods Data Review. EPA-540-R-2017-001. Office of Superfund Remediation and Technology Innovation. January 2017.
- Hem, J.D., 1992. Study and Interpretation of the Chemical Characteristics of Natural Water, 3rd edition. US Geological Survey Water Supply Paper 2254.

## **APPENDIX 1**

### **TABLES**

**TABLE 1.**

**DATA VALIDATION CODES AND DEFINITIONS**

<u>CODE</u>	<u>DEFINITION</u>
J	-The associated numerical value is an estimated quantity because quality control criteria were not met.
B	- Blank contamination. Indicates possible high bias and / or false positive. The associated value is an estimate.
R	- Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis is necessary for verification.
A	- Anomalous data. No apparent explanation for discrepancy in data. (Not an EPA code.)

**Table 2. Summary of Flagged Data**

StationName	Sample Date	Field Sample Id	Lab Name	Lab Sample Id	Parameter Name	Sample Result	Reporting Units	Validation Flag	Exceedance Type
SP-10	7/24/2019	BBC-1907-106	Energy Labs	H19070585-001	Aluminum (DIS)	<0.009 mg/L		J	Duplicate Exceedance
SP-10	7/24/2019	BBC-1907-106	Energy Labs	H19070585-001	Total Suspended Solids	<10 mg/L		J	Duplicate Exceedance
SW-4	7/24/2019	BBC-1907-107	Energy Labs	H19070583-001	Aluminum (DIS)	<0.009 mg/L		J	Duplicate Exceedance
SW-4	7/24/2019	BBC-1907-107	Energy Labs	H19070583-001	Total Suspended Solids	8 mg/L		J	Duplicate Exceedance
DS-1	7/24/2019	BBC-1907-108	Energy Labs	H19070585-002	Aluminum (DIS)	<0.009 mg/L		J	Duplicate Exceedance
DS-1	7/24/2019	BBC-1907-108	Energy Labs	H19070585-002	Total Suspended Solids	<10 mg/L		J	Duplicate Exceedance
SP-5	7/24/2019	BBC-1907-109	Energy Labs	H19070585-003	Aluminum (DIS)	<0.009 mg/L		J	Duplicate Exceedance
SP-5	7/24/2019	BBC-1907-109	Energy Labs	H19070585-003	Total Suspended Solids	52 mg/L		J	Duplicate Exceedance
SW-3	7/24/2019	BBC-1907-110	Energy Labs	H19070583-002	Aluminum (DIS)	0.018 mg/L		J	Duplicate Exceedance
SW-3	7/24/2019	BBC-1907-110	Energy Labs	H19070583-002	Total Suspended Solids	6 mg/L		J	Duplicate Exceedance
DS-3	7/24/2019	BBC-1907-112	Energy Labs	H19070585-004	Aluminum (DIS)	1.41 mg/L		J	Duplicate Exceedance
DS-3	7/24/2019	BBC-1907-112	Energy Labs	H19070585-004	Total Suspended Solids	<10 mg/L		J	Duplicate Exceedance
DS-3	7/24/2019	BBC-1907-113	Energy Labs	H19070585-005	Aluminum (DIS)	1.44 mg/L		J	Duplicate Exceedance
DS-3	7/24/2019	BBC-1907-113	Energy Labs	H19070585-005	Total Suspended Solids	<10 mg/L		J	Duplicate Exceedance
SP-3	7/24/2019	BBC-1907-114	Energy Labs	H19070585-006	Aluminum (DIS)	0.396 mg/L		J	Duplicate Exceedance
SP-3	7/24/2019	BBC-1907-114	Energy Labs	H19070585-006	Total Suspended Solids	20 mg/L		J	Duplicate Exceedance
DS-4	7/24/2019	BBC-1907-115	Energy Labs	H19070585-007	Aluminum (DIS)	0.71 mg/L		J	Duplicate Exceedance
DS-4	7/24/2019	BBC-1907-115	Energy Labs	H19070585-007	Total Suspended Solids	<10 mg/L		J	Duplicate Exceedance
SP-6	7/25/2019	BBC-1907-117	Energy Labs	H19070585-008	Aluminum (DIS)	<0.009 mg/L		J	Duplicate Exceedance
SP-6	7/25/2019	BBC-1907-117	Energy Labs	H19070585-008	Total Suspended Solids	<10 mg/L		J	Duplicate Exceedance
SP-4	7/25/2019	BBC-1907-118	Energy Labs	H19070585-009	Aluminum (DIS)	<0.009 mg/L		J	Duplicate Exceedance
SP-4	7/25/2019	BBC-1907-118	Energy Labs	H19070585-009	Total Suspended Solids	10 mg/L		J	Duplicate Exceedance
SP-7	7/25/2019	BBC-1907-119	Energy Labs	H19070585-010	Aluminum (DIS)	<0.009 mg/L		J	Duplicate Exceedance
SP-7	7/25/2019	BBC-1907-119	Energy Labs	H19070585-010	Total Suspended Solids	<10 mg/L		J	Duplicate Exceedance
SP-12	7/25/2019	BBC-1907-120	Energy Labs	H19070585-011	Aluminum (DIS)	<0.009 mg/L		J	Duplicate Exceedance
SP-12	7/25/2019	BBC-1907-120	Energy Labs	H19070585-011	Total Suspended Solids	10 mg/L		J	Duplicate Exceedance
SP-11	7/25/2019	BBC-1907-121	Energy Labs	H19070585-012	Aluminum (DIS)	0.065 mg/L		J	Duplicate Exceedance
SP-11	7/25/2019	BBC-1907-121	Energy Labs	H19070585-012	Total Suspended Solids	<10 mg/L		J	Duplicate Exceedance
SW-1	7/25/2019	BBC-1907-122	Energy Labs	H19070583-003	Aluminum (DIS)	<0.009 mg/L		J	Duplicate Exceedance
SW-1	7/25/2019	BBC-1907-122	Energy Labs	H19070583-003	Total Suspended Solids	4 mg/L		J	Duplicate Exceedance
SW-17	7/25/2019	BBC-1907-123	Energy Labs	H19070583-004	Aluminum (DIS)	0.021 mg/L		J	Duplicate Exceedance
SW-17	7/25/2019	BBC-1907-123	Energy Labs	H19070583-004	Total Suspended Solids	19 mg/L		J	Duplicate Exceedance
SW-17	7/25/2019	BBC-1907-124	Energy Labs	H19070583-005	Aluminum (DIS)	<0.009 mg/L		J	Duplicate Exceedance
SW-17	7/25/2019	BBC-1907-124	Energy Labs	H19070583-005	Total Suspended Solids	12 mg/L		J	Duplicate Exceedance
SW-14	7/25/2019	BBC-1907-125	Energy Labs	H19070583-006	Aluminum (DIS)	0.021 mg/L		J	Duplicate Exceedance
SW-14	7/25/2019	BBC-1907-125	Energy Labs	H19070583-006	Total Suspended Solids	<4 mg/L		J	Duplicate Exceedance
SW-2	7/25/2019	BBC-1907-126	Energy Labs	H19070583-007	Aluminum (DIS)	<0.009 mg/L		J	Duplicate Exceedance
SW-2	7/25/2019	BBC-1907-126	Energy Labs	H19070583-007	Total Suspended Solids	<4 mg/L		J	Duplicate Exceedance
USGS-SC1	7/25/2019	BBC-1907-127	Energy Labs	H19070583-008	Aluminum (DIS)	<0.009 mg/L		J	Duplicate Exceedance
USGS-SC1	7/25/2019	BBC-1907-127	Energy Labs	H19070583-008	Total Suspended Solids	<4 mg/L		J	Duplicate Exceedance

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-129

LAB NO: H19070585-013

STATION: DI-Blank

TDS (mg/L)	mg/L	<10	N/A	FB	0	0.002	0.005	0
TDS (mg/L)	mg/L	<10	N/A	FB	0	0.002	0.005	0
TSS (mg/L)	mg/L	<10	N/A	FB	0	0.002	0.005	0
TSS (mg/L)	mg/L	<4	N/A	FB	0	0.002	0.005	0
Alkalinity (mg/L)	mg/L	<4	N/A	FB	0	0.002	0.005	0
Alkalinity (mg/L)	mg/L	<4	N/A	FB	0	0.002	0.005	0
Calcium (mg/L)	mg/L	<1	N/A	FB	0	0.002	0.005	1
Calcium (mg/L)	mg/L	<1	N/A	FB	0	0.002	0.005	1
Chloride (mg/L)	mg/L	<1	N/A	FB	0	0.002	0.005	0
Chloride (mg/L)	mg/L	<1	N/A	FB	0	0.002	0.005	0
Fluoride (mg/L)	mg/L	<0.1	N/A	FB	0	0.002	0.005	4
Fluoride (mg/L)	mg/L	<0.1	N/A	FB	0	0.002	0.005	4
Hardness (mg/L)	mg/L	<1	N/A	FB	0	0.002	0.005	0
Hardness (mg/L)	mg/L	<1	N/A	FB	0	0.002	0.005	0
Magnesium (mg/L)	mg/L	<1	N/A	FB	0	0.002	0.005	1
Magnesium (mg/L)	mg/L	<1	N/A	FB	0	0.002	0.005	1
Potassium (mg/L)	mg/L	<1	N/A	FB	0	0.002	0.005	1
Potassium (mg/L)	mg/L	<1	N/A	FB	0	0.002	0.005	1
Sodium (mg/L)	mg/L	<1	N/A	FB	0	0.002	0.005	1
Sodium (mg/L)	mg/L	<1	N/A	FB	0	0.002	0.005	1
Sulfate (mg/L)	mg/L	<1	N/A	FB	0	0.002	0.005	0
Sulfate (mg/L)	mg/L	<1	N/A	FB	0	0.002	0.005	0
N+N (mg/L)	mg/L	<0.01	N/A	FB	0	0.002	0.005	10
N+N (mg/L)	mg/L	<0.01	N/A	FB	0	0.002	0.005	10
Phosphorus (mg/L)	mg/L	<0.003	N/A	FB	0	0.002	0.005	0.007
Total N Pers (mg/L)	mg/L	<0.04	N/A	FB	0	0.002	0.005	0
Aluminum (DIS) (mg/L)	mg/L	<0.009	N/A	FB	0	0.002	0.005	0.009
Aluminum (DIS) (mg/L)	mg/L	<0.009	N/A	FB	0	0.002	0.005	0.009
Antimony (DIS) (mg/L)	mg/L	<0.0005	N/A	FB	0	0.002	0.005	0.0005
Antimony (TRC) (mg/L)	mg/L	<0.0005	N/A	FB	0	0.002	0.005	0.0005
Arsenic (DIS) (mg/L)	mg/L	<0.001	N/A	FB	0	0.002	0.005	0.001
Arsenic (TRC) (mg/L)	mg/L	<0.001	N/A	FB	0	0.002	0.005	0.001
Barium (TRC) (mg/L)	mg/L	<0.003	N/A	FB	0	0.002	0.005	0.003
Barium (DIS) (mg/L)	mg/L	<0.003	N/A	FB	0	0.002	0.005	0.003
Beryllium (TRC) (mg/L)	mg/L	<0.0008	N/A	FB	0	0.002	0.005	0.0008
Beryllium (DIS) (mg/L)	mg/L	<0.0008	N/A	FB	0	0.002	0.005	0.0008
Cadmium (TRC) (mg/L)	mg/L	<0.00003	N/A	FB	0	0.002	0.005	0
Cadmium (DIS) (mg/L)	mg/L	<0.00003	N/A	FB	0	0.002	0.005	0
Chromium (DIS) (mg/L)	mg/L	<0.01	N/A	FB	0	0.002	0.005	0.01
Chromium (TRC) (mg/L)	mg/L	<0.01	N/A	FB	0	0.002	0.005	0.01
Cobalt (TRC) (mg/L)	mg/L	<0.01	N/A	FB	0	0.002	0.005	0.01
Cobalt (DIS) (mg/L)	mg/L	<0.01	N/A	FB	0	0.002	0.005	0.01
Copper (DIS) (mg/L)	mg/L	<0.002	N/A	FB	0	0.002	0.005	0.002
Copper (TRC) (mg/L)	mg/L	<0.002	N/A	FB	0	0.002	0.005	0.002
Iron (TRC) (mg/L)	mg/L	<0.02	N/A	FB	0	0.002	0.005	0
Iron (DIS) (mg/L)	mg/L	<0.02	N/A	FB	0	0.002	0.005	0
Lead (DIS) (mg/L)	mg/L	<0.0003	N/A	FB	0	0.002	0.005	0.0003

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

Lead (TRC) (mg/L)	mg/L	<0.0003	N/A	FB	0	0.002	0.005	0.0003
Manganese (DIS) (mg/L)	mg/L	<0.005	N/A	FB	0	0.002	0.005	0.005
Manganese (TRC) (mg/L)	mg/L	<0.005	N/A	FB	0	0.002	0.005	0.005
Mercury (TRC) (ug/L)	ug/L	<0.005	N/A	FB	0	0.002	0.005	0.005
Mercury (DIS) (ug/L)	ug/L	<0.005	N/A	FB	0	0.002	0.005	0.005
Molybdenum (DIS) (mg/L)	mg/L	<0.002	N/A	FB	0	0.002	0.005	0.002
Molybdenum (TRC) (mg/L)	mg/L	<0.002	N/A	FB	0	0.002	0.005	0.002
Nickel (DIS) (mg/L)	mg/L	<0.001	N/A	FB	0	0.002	0.005	0.001
Nickel (TRC) (mg/L)	mg/L	<0.001	N/A	FB	0	0.002	0.005	0.001
Selenium (DIS) (mg/L)	mg/L	<0.0002	N/A	FB	0	0.002	0.005	0.0002
Selenium (TRC) (mg/L)	mg/L	<0.0002	N/A	FB	0	0.002	0.005	0.0002
Silver (DIS) (mg/L)	mg/L	<0.0002	N/A	FB	0	0.002	0.005	0.0002
Silver (TRC) (mg/L)	mg/L	<0.0002	N/A	FB	0	0.002	0.005	0.0002
Strontium (DIS) (mg/L)	mg/L	<0.0002	N/A	FB	0	0.002	0.005	0.0002
Strontium (TRC) (mg/L)	mg/L	<0.0003	N/A	FB	0	0.002	0.005	0.0002
Thallium (DIS) (mg/L)	mg/L	<0.0002	N/A	FB	0	0.002	0.005	0.0002
Thallium (TRC) (mg/L)	mg/L	<0.0002	N/A	FB	0	0.002	0.005	0.0002
Uranium (TRC) (mg/L)	mg/L	<0.0002	N/A	FB	0	0.002	0.005	0.008
Uranium (DIS) (mg/L)	mg/L	<0.0002	N/A	FB	0	0.002	0.005	0.008
Zinc (TRC) (mg/L)	mg/L	<0.008	N/A	FB	0	0.002	0.005	0.002
Zinc (DIS) (mg/L)	mg/L	<0.002	N/A	FB	0	0.002	0.005	0.002

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-108	LAB NO: H19070585-002	STATION: DS-1
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DO (mg/L)	mg/L	11.17	03/25/15-07/24/19	O	33	33	8.15	916.0	11.11	9.5	145.14	301.39	0
Field pH (s.u.)	s.u.	7.95	03/25/15-07/24/19	O	32	32	7.36	8.56	7.78	7.78	0.28	8.34	0
Field SC (umhos/cm)	umhos/cm	416	03/25/15-07/24/19	O	33	33	337.0	698.7	420.3	418	50.1	520.5	0
Flow (Gallons Per Min)	illons Per Min	11.1	03/25/15-07/24/19	O	29	29	0.1	62.3	5.9	9	13.4	32.7	0
Water Temp (Deg C)	Deg C	11.4	03/25/15-07/24/19	O	33	33	0.5	18.3	5.6	7.1	3.6	12.8	0
TDS (mg/L)	mg/L	222	03/25/15-07/24/19	O	33	33	203.0	245.0	230.2	231	9.5	249.2	0
TSS (mg/L)	mg/L	<10	03/25/15-07/24/19	O	33	10	< 10	1130.0					0
Alkalinity (mg/L)	mg/L	210	03/25/15-07/24/19	O	33	33	180.0	220.0	214.7	220	8	230.7	0
Calcium (mg/L)	mg/L	60	05/29/19-07/24/19	O	3	3	55.0	60.0	57.3	57	2.1	61.5	60
Chloride (mg/L)	mg/L	<1	03/25/15-07/24/19	O	33	0	< 1	< 1					0
Fluoride (mg/L)	mg/L	0.1	03/25/15-07/24/19	O	33	30	0.1	0.1	0.1	0.1	0	0.1	4
Hardness (mg/L)	mg/L	238	03/25/15-07/24/19	O	33	33	185.0	249.0	228.6	229	11.3	251.2	0
Magnesium (mg/L)	mg/L	22	05/29/19-07/24/19	O	3	3	20.0	22.0	21.0	21	1	23.0	23
Potassium (mg/L)	mg/L	<1	05/29/19-07/24/19	O	3	0	< 1	< 1					1
Sodium (mg/L)	mg/L	2	05/29/19-07/24/19	O	3	3	2.0	2.0	2.0	2	0	2.0	2
Sulfate (mg/L)	mg/L	14	03/25/15-07/24/19	O	33	33	11.0	18.0	14.7	15	1.6	17.9	0
N+N (mg/L)	mg/L	0.18	03/25/15-07/24/19	O	33	33	0.03	0.26	0.17	0.19	0.05	0.27	10
Aluminum (DIS) (mg/L)	mg/L	<0.009	05/29/19-07/24/19	O	3	0	< 0.009	< 0.009					0.009
Antimony (DIS) (mg/L)	mg/L	<0.0005	05/29/19-07/24/19	O	3	0	< 0.0005	< 0.0005					0.0005
Arsenic (DIS) (mg/L)	mg/L	<0.001	05/29/19-07/24/19	O	3	0	< 0.001	< 0.001					0.001
Barium (DIS) (mg/L)	mg/L	0.05	05/29/19-07/24/19	O	3	3	0.05	0.05	0.05	0.05	0	0.05	0.057
Beryllium (DIS) (mg/L)	mg/L	<0.0008	05/29/19-07/24/19	O	3	0	< 0.0008	< 0.0008					0.0008
Cadmium (DIS) (mg/L)	mg/L	<0.00003	05/29/19-07/24/19	O	3	0	< 0	< .00003					0
Chromium (DIS) (mg/L)	mg/L	<0.01	05/29/19-07/24/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (DIS) (mg/L)	mg/L	<0.01	05/29/19-07/24/19	O	3	0	< 0.01	< 0.01					0.01
Copper (DIS) (mg/L)	mg/L	<0.002	05/29/19-07/24/19	O	3	0	< 0.002	< 0.002					0.002
Iron (DIS) (mg/L)	mg/L	<0.02	05/29/19-07/24/19	O	3	0	< 0.02	< 0.02					0.02
Lead (DIS) (mg/L)	mg/L	<0.0003	05/29/19-07/24/19	O	3	0	< 0.0003	< 0.0003					0.0003
Manganese (DIS) (mg/L)	mg/L	<0.005	05/29/19-07/24/19	O	3	0	< 0.005	< 0.005					0.005
Mercury (DIS) (ug/L)	ug/L	<0.005	05/29/19-07/24/19	O	3	0	< 0.005	< 0.005					0.005
Molybdenum (DIS) (mg/L)	mg/L	<0.002	05/29/19-07/24/19	O	3	0	< 0.002	< 0.002					0.002
Nickel (DIS) (mg/L)	mg/L	<0.001	05/29/19-07/24/19	O	3	0	< 0.001	< 0.001					0.001
Selenium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0002
Silver (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0002
Strontium (DIS) (mg/L)	mg/L	0.1	05/29/19-07/24/19	O	3	3	0.1	0.1	0.1	0.1	0	0.1	0.116
Thallium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0002
Uranium (DIS) (mg/L)	mg/L	0.0006	05/29/19-07/24/19	O	3	3	0.0006	0.0006	0.0006	0.0006	0	0.0006	0.008
Zinc (DIS) (mg/L)	mg/L	<0.002	05/29/19-07/24/19	O	3	2	< 0.002	0.009	0.005	0.007	0.003	0.011	0.02

SAMPLE NO BBC-1907-102	LAB NO: z	STATION: DS-10
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DO (mg/L)	mg/L	8.55	N/A	OBS	0				0.007		0.011	0
Field pH (s.u.)	s.u.	7.68	N/A	OBS	0				0.007		0.011	0
Field SC (umhos/cm)	umhos/cm	338	N/A	OBS	0				0.007		0.011	0
Flow (Gallons Per Min)	illons Per Min	3.97	N/A	OBS	0				0.007		0.011	0
Water Temp (Deg C)	Deg C	9.7	N/A	OBS	0				0.007		0.011	0

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-101	LAB NO: z	STATION: DS-11
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DO (mg/L)	mg/L	10.09	N/A	OBS	0	0.007	0.011	0
Field pH (s.u.)	s.u.	7.74	N/A	OBS	0	0.007	0.011	0
Field SC (umhos/cm)	umhos/cm	427	N/A	OBS	0	0.007	0.011	0
Flow (Gallons Per Min)	gallons Per Min	7.38	N/A	OBS	0	0.007	0.011	0
Water Temp (Deg C)	Deg C	7.5	N/A	OBS	0	0.007	0.011	0

SAMPLE NO BBC-1907-100	LAB NO: z	STATION: DS-2
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DO (mg/L)	mg/L	5.19	10/12/11-08/19/14	OBS	2	2	4.27	9.51	6.37	6.89	2.31	10.99	0
Field pH (s.u.)	s.u.	7.17	10/12/11-08/19/14	OBS	2	2	6.45	7.9	7.14	7.18	0.53	8.2	0
Field SC (umhos/cm)	umhos/cm	333	10/12/11-08/19/14	OBS	2	2	331.0	354.0	342.3	342.5	74.1	490.5	0
Flow (Gallons Per Min)	gallons Per Min	0.91	10/12/11-08/19/14	OBS	2	2	0.26	0.76	0.45	0.51	2.15	4.75	0
Water Temp (Deg C)	Deg C	13.5	10/12/11-08/19/14	OBS	2	2	5.7	13.3	8.7	9.5	4.2	17.1	0

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.



# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-112	LAB NO: H19070585-004	STATION: DS-3
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DO (mg/L)	mg/L	5.14	08/06/14-07/24/19	O	31	31	3.72	10.8	6.62	6.97	2.23	11.08	0
Field pH (s.u.)	s.u.	8.23	08/06/14-07/24/19	O	31	31	5.56	8.7	7.02	7.16	0.96	8.94	0
Field SC (umhos/cm)	umhos/cm	49	08/06/14-07/24/19	O	31	31	40.0	132.0	56.6	55.7	19	94.6	0
Flow (Gallons Per Min)	llons Per Min	13.08	08/06/14-07/24/19	O	27	27	0.47	159.0	4.58	6.6	21.62	47.82	0
Water Temp (Deg C)	Deg C	9.5	08/06/14-07/24/19	O	31	31	3.8	15.1	8.2	9.2	2.9	14.0	0
TDS (mg/L)	mg/L	54	08/06/14-07/24/19	O	31	31	47.0	128.0	69.7	66	22.2	114.1	0
TDS (mg/L)	mg/L	60	08/06/14-07/24/19	DUP	31	31	47.0	128.0	69.7	66	22.2	114.1	0
TSS (mg/L)	mg/L	<10	08/06/14-07/24/19	DUP	31	4	< 4	95.0					0
TSS (mg/L)	mg/L	<10	08/06/14-07/24/19	O	31	4	< 4	95.0					0
Alkalinity (mg/L)	mg/L	22	08/06/14-07/24/19	O	31	31	17.0	29.0	22.1	23	2.7	27.5	0
Alkalinity (mg/L)	mg/L	22	08/06/14-07/24/19	DUP	31	31	17.0	29.0	22.1	23	2.7	27.5	0
Calcium (mg/L)	mg/L	5	05/29/19-07/24/19	O	3	3	5.0	5.0	5.0	5	0	5.0	7
Calcium (mg/L)	mg/L	5	05/29/19-07/24/19	DUP	3	3	5.0	5.0	5.0	5	0	5.0	7
Chloride (mg/L)	mg/L	<1	08/06/14-07/24/19	O	31	3	< 1	< 1					0
Chloride (mg/L)	mg/L	<1	08/06/14-07/24/19	DUP	31	3	< 1	< 1					0
Fluoride (mg/L)	mg/L	<0.1	08/06/14-07/24/19	DUP	31	2	0.0	< .1					4
Fluoride (mg/L)	mg/L	<0.1	08/06/14-07/24/19	O	31	2	0.0	< .1					4
Hardness (mg/L)	mg/L	23	08/06/14-07/24/19	DUP	31	31	19.0	26.0	22.7	23	1.7	26.1	0
Hardness (mg/L)	mg/L	22	08/06/14-07/24/19	O	31	31	19.0	26.0	22.7	23	1.7	26.1	0
Magnesium (mg/L)	mg/L	2	05/29/19-07/24/19	DUP	3	3	1.0	2.0	1.6	2	0.5	2.6	2
Magnesium (mg/L)	mg/L	2	05/29/19-07/24/19	O	3	3	1.0	2.0	1.6	2	0.5	2.6	2
Potassium (mg/L)	mg/L	1	05/29/19-07/24/19	DUP	3	2	1.0	1.0	1.0	1	0	1.0	1
Potassium (mg/L)	mg/L	1	05/29/19-07/24/19	O	3	2	1.0	1.0	1.0	1	0	1.0	1
Sodium (mg/L)	mg/L	1	05/29/19-07/24/19	DUP	3	3	1.0	1.0	1.0	1	0	1.0	2
Sodium (mg/L)	mg/L	1	05/29/19-07/24/19	O	3	3	1.0	1.0	1.0	1	0	1.0	2
Sulfate (mg/L)	mg/L	1	08/06/14-07/24/19	DUP	31	31	1.0	2.0	1.3	1	0.4	2.1	0
Sulfate (mg/L)	mg/L	1	08/06/14-07/24/19	O	31	31	1.0	2.0	1.3	1	0.4	2.1	0
N+N (mg/L)	mg/L	0.18	08/06/14-07/24/19	DUP	31	31	0.11	0.48	0.26	0.28	0.09	0.44	10
N+N (mg/L)	mg/L	0.19	08/06/14-07/24/19	O	31	31	0.11	0.48	0.26	0.28	0.09	0.44	10
Aluminum (DIS) (mg/L)	mg/L	1.44 J	05/29/19-07/24/19	DUP	3	3	1.41	2.0	1.77	1.95	0.32	2.41	4.88
Aluminum (DIS) (mg/L)	mg/L	1.41 J	05/29/19-07/24/19	O	3	3	1.41	2.0	1.77	1.95	0.32	2.41	4.88
Antimony (DIS) (mg/L)	mg/L	<0.0005	05/29/19-07/24/19	O	3	0	< 0.0005	< 0.0005					0.0005
Antimony (DIS) (mg/L)	mg/L	<0.0005	05/29/19-07/24/19	DUP	3	0	< 0.0005	< 0.0005					0.0005
Arsenic (DIS) (mg/L)	mg/L	<0.001	05/29/19-07/24/19	DUP	3	0	< 0.001	< 0.001					0.002
Arsenic (DIS) (mg/L)	mg/L	<0.001	05/29/19-07/24/19	O	3	0	< 0.001	< 0.001					0.002
Barium (DIS) (mg/L)	mg/L	0.255	05/29/19-07/24/19	DUP	3	3	0.229	0.25	0.241	0.245	0.011	0.263	0.311
Barium (DIS) (mg/L)	mg/L	0.25	05/29/19-07/24/19	O	3	3	0.23	0.25	0.24	0.25	0.01	0.26	0.311
Beryllium (DIS) (mg/L)	mg/L	<0.0008	05/29/19-07/24/19	DUP	3	0	< 0.0008	< 0.0008					0.0008
Beryllium (DIS) (mg/L)	mg/L	<0.0008	05/29/19-07/24/19	O	3	0	< 0.0008	< 0.0008					0.0008
Cadmium (DIS) (mg/L)	mg/L	<0.00003	05/29/19-07/24/19	O	3	0	< 0	< .00003					0
Cadmium (DIS) (mg/L)	mg/L	<0.00003	05/29/19-07/24/19	DUP	3	0	< 0	< .00003					0
Chromium (DIS) (mg/L)	mg/L	<0.01	05/29/19-07/24/19	DUP	3	0	< 0.01	< 0.01					0.01
Chromium (DIS) (mg/L)	mg/L	<0.01	05/29/19-07/24/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (DIS) (mg/L)	mg/L	<0.01	05/29/19-07/24/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (DIS) (mg/L)	mg/L	<0.01	05/29/19-07/24/19	DUP	3	0	< 0.01	< 0.01					0.01
Copper (DIS) (mg/L)	mg/L	0.002	05/29/19-07/24/19	O	3	3	0.002	0.004	0.003	0.003	0.001	0.005	0.005
Copper (DIS) (mg/L)	mg/L	0.002	05/29/19-07/24/19	DUP	3	3	0.002	0.004	0.003	0.003	0.001	0.005	0.005

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

Iron (DIS) (mg/L)	mg/L	0.8	05/29/19-07/24/19	DUP	3	3	0.8	1.2	1.1	1.2	0.2	1.5	2.87
Iron (DIS) (mg/L)	mg/L	0.78	05/29/19-07/24/19	O	3	3	0.78	1.24	1.05	1.2	0.25	1.55	2.87
Lead (DIS) (mg/L)	mg/L	<0.0003	05/29/19-07/24/19	DUP	3	2	< 0.0003	< 0.0003	0.0003	0.0003	0	0.0003	0.0009
Lead (DIS) (mg/L)	mg/L	<0.0003	05/29/19-07/24/19	O	3	2	< 0.0003	< 0.0003	0.0003	0.0003	0	0.0003	0.0009
Manganese (DIS) (mg/L)	mg/L	<0.005	05/29/19-07/24/19	O	3	2	< 0.005	0.008	0.006	0.006	0.001	0.008	0.018
Manganese (DIS) (mg/L)	mg/L	<0.005	05/29/19-07/24/19	DUP	3	2	< 0.005	0.008	0.006	0.006	0.001	0.008	0.018
Mercury (DIS) (ug/L)	ug/L	0.006	05/29/19-07/24/19	O	3	3	0.006	0.02	0.011	0.01	0.007	0.025	0.01
Mercury (DIS) (ug/L)	ug/L	0.006	05/29/19-07/24/19	DUP	3	3	0.006	0.02	0.011	0.01	0.007	0.025	0.01
Molybdenum (DIS) (mg/L)	mg/L	<0.002	05/29/19-07/24/19	O	3	0	< 0.002	< 0.002					0.002
Molybdenum (DIS) (mg/L)	mg/L	<0.002	05/29/19-07/24/19	DUP	3	0	< 0.002	< 0.002					0.002
Nickel (DIS) (mg/L)	mg/L	0.003	05/29/19-07/24/19	O	3	3	0.003	0.004	0.004	0.004	0.001	0.006	0.006
Nickel (DIS) (mg/L)	mg/L	0.003	05/29/19-07/24/19	DUP	3	3	0.003	0.004	0.004	0.004	0.001	0.006	0.006
Selenium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0002
Selenium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	DUP	3	0	< 0.0002	< 0.0002					0.0002
Silver (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0002
Silver (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	DUP	3	0	< 0.0002	< 0.0002					0.0002
Strontium (DIS) (mg/L)	mg/L	0.0297 L	05/29/19-07/24/19	O	3	3	0.0231	0.0297	0.0256	0.0244	0.0035	0.0326	0.0313
Strontium (DIS) (mg/L)	mg/L	0.0299 L	05/29/19-07/24/19	DUP	3	3	0.0231	0.0297	0.0256	0.0244	0.0035	0.0326	0.0313
Thallium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0002
Thallium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	DUP	3	0	< 0.0002	< 0.0002					0.0002
Uranium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	DUP	3	0	< 0.0002	< 0.0002					0.008
Uranium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.008
Zinc (DIS) (mg/L)	mg/L	0.007 L	05/29/19-07/24/19	O	3	3	0.006	0.007	0.006	0.006	0.001	0.008	0.012
Zinc (DIS) (mg/L)	mg/L	0.007 L	05/29/19-07/24/19	DUP	3	3	0.006	0.007	0.006	0.006	0.001	0.008	0.012

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-115	LAB NO: H19070585-007	STATION: DS-4
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DO (mg/L)	mg/L	7.26	10/13/11-07/24/19	O	28	28	2.45	11.98	7.27	7.68	1.99	11.25	0
Field pH (s.u.)	s.u.	7.7	10/13/11-07/24/19	O	27	27	5.9	8.8	7.2	7.3	0.7	8.6	0
Field SC (umhos/cm)	umhos/cm	98	10/13/11-07/24/19	O	28	28	73.0	203.0	101.4	98.5	26.7	154.8	0
Water Temp (Deg C)	Deg C	12.3	10/13/11-07/24/19	O	28	28	0.2	20.2	7.5	8.5	4.2	15.9	0
TDS (mg/L)	mg/L	69	10/13/11-07/24/19	O	28	28	60.0	143.0	92.1	90	19.1	130.3	0
TSS (mg/L)	mg/L	<10	08/06/14-07/24/19	O	27	14	< 10	868.0	32.2	24	180.4	393.0	0
Alkalinity (mg/L)	mg/L	42	10/13/11-07/24/19	O	28	28	36.0	84.0	46.0	44	10.1	66.2	0
Calcium (mg/L)	mg/L	12	05/29/19-07/24/19	O	3	3	12.0	13.0	12.7	13	0.6	13.9	16.3
Chloride (mg/L)	mg/L	<1	10/13/11-07/24/19	O	28	4	< 1	2.0					0
Fluoride (mg/L)	mg/L	<0.1	10/13/11-07/24/19	O	28	10	0.1	0.1					4
Hardness (mg/L)	mg/L	45	10/13/11-07/24/19	O	28	28	38.0	71.0	47.0	47	6.8	60.6	0
Magnesium (mg/L)	mg/L	3	05/29/19-07/24/19	O	3	3	3.0	3.0	3.0	3	0	3.0	3.1
Potassium (mg/L)	mg/L	<1	05/29/19-07/24/19	O	3	0	< 1	< 1					2
Sodium (mg/L)	mg/L	1	05/29/19-07/24/19	O	3	3	1.0	1.0	1.0	1	0	1.0	2
Sulfate (mg/L)	mg/L	2	10/13/11-07/24/19	O	28	27	1.0	4.0	2.2	2	0.7	3.6	0
N+N (mg/L)	mg/L	0.31	10/13/11-07/24/19	O	28	23	0.01	0.47	0.12	0.26	0.15	0.42	10
Aluminum (DIS) (mg/L)	mg/L	0.71 J	05/29/19-07/24/19	O	3	3	0.71	1.35	1.07	1.28	0.35	1.77	3.66
Antimony (DIS) (mg/L)	mg/L	<0.0005	05/29/19-07/24/19	O	3	0	< 0.0005	< 0.0005					0.001
Arsenic (DIS) (mg/L)	mg/L	0.001	05/29/19-07/24/19	O	3	3	0.001	0.001	0.001	0.001	0	0.001	0.003
Barium (DIS) (mg/L)	mg/L	0.315	05/29/19-07/24/19	O	3	3	0.309	0.327	0.317	0.315	0.009	0.335	0.36
Beryllium (DIS) (mg/L)	mg/L	<0.0008	05/29/19-07/24/19	O	3	0	< 0.0008	< 0.0008					0.001
Cadmium (DIS) (mg/L)	mg/L	<0.00003	05/29/19-07/24/19	O	3	0	< 0	< .00003					0
Chromium (DIS) (mg/L)	mg/L	<0.01	05/29/19-07/24/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (DIS) (mg/L)	mg/L	<0.01	05/29/19-07/24/19	O	3	0	< 0.01	< 0.01					0.01
Copper (DIS) (mg/L)	mg/L	<0.002	05/29/19-07/24/19	O	3	1	< 0.002	< 0.002					0.004
Iron (DIS) (mg/L)	mg/L	0.38	05/29/19-07/24/19	O	3	3	0.38	0.82	0.62	0.77	0.24	1.1	2.19
Lead (DIS) (mg/L)	mg/L	<0.0003	05/29/19-07/24/19	O	3	0	< 0.0003	< 0.0003					0.0009
Manganese (DIS) (mg/L)	mg/L	<0.005	05/29/19-07/24/19	O	3	2	< 0.005	0.006	0.005	0.005	0.001	0.007	0.16
Mercury (DIS) (ug/L)	ug/L	<0.005	05/29/19-07/24/19	O	3	2	< 0.005	0.008	0.006	0.006	0.002	0.01	0.005
Molybdenum (DIS) (mg/L)	mg/L	<0.002	05/29/19-07/24/19	O	3	0	< 0.002	< 0.002					0.002
Nickel (DIS) (mg/L)	mg/L	0.002	05/29/19-07/24/19	O	3	3	0.002	0.002	0.002	0.002	0	0.002	0
Selenium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0
Silver (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0002
Strontium (DIS) (mg/L)	mg/L	0.0456 L	05/29/19-07/24/19	O	3	3	0.0396	0.0456	0.0425	0.0425	0.003	0.0485	0.1
Thallium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0002
Uranium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.008
Zinc (DIS) (mg/L)	mg/L	<0.005	05/29/19-07/24/19	O	3	2	0.004	0.006	0.005	0.005	0.001	0.007	0.012

SAMPLE NO BBC-1907-116	LAB NO: z	STATION: DS-7
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DO (mg/L)	mg/L	8.81	N/A	OBS	0				0.005		0.007	0
Field pH (s.u.)	s.u.	6.81	N/A	OBS	0				0.005		0.007	0
Field SC (umhos/cm)	umhos/cm	260	N/A	OBS	0				0.005		0.007	0
Flow (Gallons Per Min)	illons Per Min	10.51	N/A	OBS	0				0.005		0.007	0
Water Temp (Deg C)	Deg C	8.5	N/A	OBS	0				0.005		0.007	0

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-104

LAB NO: z

STATION: DS-8

DO (mg/L)	mg/L	9.19	N/A	OBS	0	0.005	0.007	0
Field pH (s.u.)	s.u.	7.73	N/A	OBS	0	0.005	0.007	0
Field SC (umhos/cm)	umhos/cm	439	N/A	OBS	0	0.005	0.007	0
Flow (Gallons Per Min)	Gallons Per Min	5.44	N/A	OBS	0	0.005	0.007	0
Water Temp (Deg C)	Deg C	6.83	N/A	OBS	0	0.005	0.007	0

SAMPLE NO BBC-1907-103

LAB NO: z

STATION: DS-9

DO (mg/L)	mg/L	8.1	N/A	OBS	0	0.005	0.007	0
Field pH (s.u.)	s.u.	7.84	N/A	OBS	0	0.005	0.007	0
Field SC (umhos/cm)	umhos/cm	355	N/A	OBS	0	0.005	0.007	0
Flow (Gallons Per Min)	Gallons Per Min	10.88	N/A	OBS	0	0.005	0.007	0
Water Temp (Deg C)	Deg C	10.9	N/A	OBS	0	0.005	0.007	0

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-106	LAB NO: H19070585-001	STATION: SP-10
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DO (mg/L)	mg/L	7.83	05/23/18-07/24/19	O	11	11	6.76	8.93	7.99	8	1.05	10.09	0
Field pH (s.u.)	s.u.	7.8	05/23/18-07/24/19	O	11	11	6.9	8.1	7.6	7.6	0.3	8.2	0
Field SC (umhos/cm)	umhos/cm	394	05/23/18-07/24/19	O	11	11	305.0	434.0	393.9	395	32.4	458.7	0
Flow (Gallons Per Min)	Gallons Per Min	6.73	05/23/18-07/24/19	O	10	10	0.58	59.69	6.99	8.98	17.99	42.97	0
Water Temp (Deg C)	Deg C	9.6	05/23/18-07/24/19	O	11	11	4.6	10.1	7.2	7.4	2.2	11.6	0
TDS (mg/L)	mg/L	208	05/23/18-07/24/19	O	11	11	196.0	234.0	219.5	225	13.6	246.7	0
TSS (mg/L)	mg/L	<10	05/23/18-07/24/19	O	11	3	< 10	68.0					0
Alkalinity (mg/L)	mg/L	210	05/23/18-07/24/19	O	11	11	180.0	220.0	208.7	210	12.7	234.1	0
Calcium (mg/L)	mg/L	58	05/29/19-07/24/19	O	3	3	51.0	58.0	53.6	52	3.8	61.2	60
Chloride (mg/L)	mg/L	<1	05/23/18-07/24/19	O	11	0	< 1	< 1					0
Fluoride (mg/L)	mg/L	0.1	05/23/18-07/24/19	O	11	11	0.1	0.1	0.1	0.1	0	0.1	4
Hardness (mg/L)	mg/L	228	05/23/18-07/24/19	O	11	11	193.0	245.0	220.8	220	16.2	253.2	0
Magnesium (mg/L)	mg/L	20	05/29/19-07/24/19	O	3	3	18.0	20.0	18.6	18	1.2	21.0	21.8
Potassium (mg/L)	mg/L	1	05/29/19-07/24/19	O	3	1	1.0	1.0					1
Sodium (mg/L)	mg/L	2	05/29/19-07/24/19	O	3	3	1.0	2.0	1.6	2	0.6	2.8	2
Sulfate (mg/L)	mg/L	12	05/23/18-07/24/19	O	11	11	8.0	17.0	12.8	13	2.9	18.6	0
N+N (mg/L)	mg/L	0.18	05/23/18-07/24/19	O	11	11	0.06	0.28	0.19	0.19	0.06	0.31	10
Aluminum (DIS) (mg/L)	mg/L	<0.009	05/29/19-07/24/19	O	3	0	< 0.009	< 0.009					0.009
Antimony (DIS) (mg/L)	mg/L	<0.0005	05/29/19-07/24/19	O	3	0	< 0.0005	< 0.0005					0.0005
Arsenic (DIS) (mg/L)	mg/L	<0.001	05/29/19-07/24/19	O	3	0	< 0.001	< 0.001					0.001
Barium (DIS) (mg/L)	mg/L	0.052	05/29/19-07/24/19	O	3	3	0.046	0.052	0.049	0.05	0.003	0.055	0.055
Beryllium (DIS) (mg/L)	mg/L	<0.0008	05/29/19-07/24/19	O	3	0	< 0.0008	< 0.0008					0.0008
Cadmium (DIS) (mg/L)	mg/L	<0.00003	05/29/19-07/24/19	O	3	0	< 0	< .00003					0
Chromium (DIS) (mg/L)	mg/L	<0.01	05/29/19-07/24/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (DIS) (mg/L)	mg/L	<0.01	05/29/19-07/24/19	O	3	0	< 0.01	< 0.01					0.01
Copper (DIS) (mg/L)	mg/L	<0.002	05/29/19-07/24/19	O	3	0	< 0.002	< 0.002					0.002
Iron (DIS) (mg/L)	mg/L	<0.02	05/29/19-07/24/19	O	3	0	< 0.02	< 0.02					0.02
Lead (DIS) (mg/L)	mg/L	<0.0003	05/29/19-07/24/19	O	3	0	< 0.0003	< 0.0003					0.0003
Manganese (DIS) (mg/L)	mg/L	<0.005	05/29/19-07/24/19	O	3	0	< 0.005	< 0.005					0.011
Mercury (DIS) (ug/L)	ug/L	<0.005	05/29/19-07/24/19	O	3	0	< 0.005	< 0.005					0.005
Molybdenum (DIS) (mg/L)	mg/L	<0.002	05/29/19-07/24/19	O	3	0	< 0.002	< 0.002					0.002
Nickel (DIS) (mg/L)	mg/L	<0.001	05/29/19-07/24/19	O	3	0	< 0.001	< 0.001					0.001
Selenium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0003
Silver (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0002
Strontium (DIS) (mg/L)	mg/L	0.104	05/29/19-07/24/19	O	3	3	0.102	0.109	0.105	0.104	0.004	0.113	0.119
Thallium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0002
Uranium (DIS) (mg/L)	mg/L	0.0007	05/29/19-07/24/19	O	3	3	0.0007	0.0007	0.0007	0.0007	0	0.0007	0.008
Zinc (DIS) (mg/L)	mg/L	<0.002	05/29/19-07/24/19	O	3	0	< 0.002	< 0.002					0.002

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-121	LAB NO: H19070585-012	STATION: SP-11
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DO (mg/L)	mg/L	6.61	04/18/18-07/25/19	O	12	12	6.09	8.36	7.12	7.01	0.65	8.42	0
Field pH (s.u.)	s.u.	7.65	04/18/18-07/25/19	O	12	12	6.28	7.98	7.43	7.62	0.51	8.45	0
Field SC (umhos/cm)	umhos/cm	196	04/18/18-07/25/19	O	12	12	171.0	196.0	186.2	187.5	8.4	203.0	0
Flow (Gallons Per Min)	illons Per Min	NM	07/25/19	O	1	1	-9999.0	-9999.0	0.0	0	0	0.0	0
Water Temp (Deg C)	Deg C	6.8	04/18/18-07/25/19	O	12	12	5.6	7.4	6.4	6.4	0.5	7.4	0
TDS (mg/L)	mg/L	122	04/18/18-07/25/19	O	12	12	99.0	133.0	117.3	116	10.7	138.7	0
TSS (mg/L)	mg/L	<10	04/18/18-07/25/19	O	12	1	< 10	< 10					0
Alkalinity (mg/L)	mg/L	92	04/18/18-07/25/19	O	12	12	82.0	95.0	91.4	92	3.4	98.2	0
Calcium (mg/L)	mg/L	23	06/19/19-07/25/19	O	2	2	23.0	23.0	23.0	23	0	23.0	23.8
Chloride (mg/L)	mg/L	<1	04/18/18-07/25/19	O	12	0	< 1	< 1					0
Fluoride (mg/L)	mg/L	0.1	04/18/18-07/25/19	O	12	12	0.1	0.2	0.2	0.2	0	0.2	4
Hardness (mg/L)	mg/L	91	04/18/18-07/25/19	O	12	12	81.0	95.0	90.8	91.5	3.8	98.4	0
Magnesium (mg/L)	mg/L	8	06/19/19-07/25/19	O	2	2	8.0	8.0	8.0	8	0	8.0	9
Potassium (mg/L)	mg/L	1	06/19/19-07/25/19	O	2	2	1.0	1.0	1.0	1	0	1.0	1
Sodium (mg/L)	mg/L	3	06/19/19-07/25/19	O	2	2	3.0	3.0	3.0	3	0	3.0	4
Sulfate (mg/L)	mg/L	6	04/18/18-07/25/19	O	12	12	5.0	8.0	6.7	7	0.9	8.5	0
N+N (mg/L)	mg/L	0.22	04/18/18-07/25/19	O	12	12	0.22	0.31	0.25	0.25	0.03	0.31	10
Aluminum (DIS) (mg/L)	mg/L	0.065 J	06/19/19-07/25/19	O	2	2	0.065	0.079	0.072	0.072	0.01	0.092	0.167
Antimony (DIS) (mg/L)	mg/L	<0.0005	06/19/19-07/25/19	O	2	0	< 0.0005	< 0.0005					0.0005
Arsenic (DIS) (mg/L)	mg/L	0.006	06/19/19-07/25/19	O	2	2	0.006	0.007	0.006	0.007	0.001	0.008	0.008
Barium (DIS) (mg/L)	mg/L	0.309	06/19/19-07/25/19	O	2	2	0.303	0.309	0.306	0.306	0.004	0.314	0.308
Beryllium (DIS) (mg/L)	mg/L	<0.0008	06/19/19-07/25/19	O	2	0	< 0.0008	< 0.0008					0.0008
Cadmium (DIS) (mg/L)	mg/L	<0.00003	06/19/19-07/25/19	O	2	0	< 0	< .00003					0
Chromium (DIS) (mg/L)	mg/L	<0.01	06/19/19-07/25/19	O	2	0	< 0.01	< 0.01					0.01
Cobalt (DIS) (mg/L)	mg/L	<0.01	06/19/19-07/25/19	O	2	0	< 0.01	< 0.01					0.01
Copper (DIS) (mg/L)	mg/L	<0.002	06/19/19-07/25/19	O	2	0	< 0.002	< 0.002					0.002
Iron (DIS) (mg/L)	mg/L	0.03	06/19/19-07/25/19	O	2	2	0.03	0.04	0.03	0.04	0.01	0.05	0.08
Lead (DIS) (mg/L)	mg/L	<0.0003	06/19/19-07/25/19	O	2	0	< 0.0003	< 0.0003					0.0003
Manganese (DIS) (mg/L)	mg/L	<0.005	06/19/19-07/25/19	O	2	0	< 0.005	< 0.005					0.005
Mercury (DIS) (ug/L)	ug/L	<0.005	06/19/19-07/25/19	O	2	0	< 0.005	< 0.005					0.005
Molybdenum (DIS) (mg/L)	mg/L	<0.002	06/19/19-07/25/19	O	2	0	< 0.002	< 0.002					0.002
Nickel (DIS) (mg/L)	mg/L	<0.001	06/19/19-07/25/19	O	2	0	< 0.001	< 0.001					0.001
Selenium (DIS) (mg/L)	mg/L	<0.0002	06/19/19-07/25/19	O	2	0	< 0.0002	< 0.0002					0.0002
Silver (DIS) (mg/L)	mg/L	<0.0002	06/19/19-07/25/19	O	2	0	< 0.0002	< 0.0002					0.0002
Strontium (DIS) (mg/L)	mg/L	0.0951	06/19/19-07/25/19	O	2	2	0.0951	0.104	0.0995	0.0996	0.0063	0.1121	0.104
Thallium (DIS) (mg/L)	mg/L	<0.0002	06/19/19-07/25/19	O	2	0	< 0.0002	< 0.0002					0.0002
Uranium (DIS) (mg/L)	mg/L	0.0004	06/19/19-07/25/19	O	2	2	0.0004	0.0005	0.0004	0.0005	0.0001	0.0006	0.008
Zinc (DIS) (mg/L)	mg/L	<0.002	06/19/19-07/25/19	O	2	0	< 0.002	< 0.002					0.002

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-120

LAB NO: H19070585-011

STATION: SP-12

DO (mg/L)	mg/L	4.6	04/18/18-07/25/19	O	12	12	3.3	10.4	6.3	6.6	2.1	10.5	0
Field pH (s.u.)	s.u.	7.76	04/18/18-07/25/19	O	12	12	6.76	7.95	7.58	7.71	0.33	8.24	0
Field SC (umhos/cm)	umhos/cm	415	04/18/18-07/25/19	O	12	12	400.0	473.0	436.7	436.5	20.6	477.9	0
Flow (Gallons Per Min)	illons Per Min	NM	07/25/19	O	1	1	-9999.0	-9999.0	0.0	0	0	0.0	0
Water Temp (Deg C)	Deg C	8.4	04/18/18-07/25/19	O	12	12	5.1	8.4	6.4	6.2	0.9	8.2	0
TDS (mg/L)	mg/L	244	04/18/18-07/25/19	O	13	13	230.0	262.0	245.5	247	9.8	265.1	0
TSS (mg/L)	mg/L	10 J	04/18/18-07/25/19	O	13	8	10.0	187.0	24.8	22	53.7	132.2	0
Alkalinity (mg/L)	mg/L	190	04/18/18-07/25/19	O	13	13	180.0	220.0	202.0	210	11.7	225.4	0
Calcium (mg/L)	mg/L	52	05/30/19-07/25/19	O	3	3	47.0	52.0	49.6	50	2.5	54.6	57.7
Chloride (mg/L)	mg/L	8	04/18/18-07/25/19	O	13	13	5.0	10.0	7.6	8	1.5	10.6	0
Fluoride (mg/L)	mg/L	0.2	04/18/18-07/25/19	O	13	13	0.2	0.2	0.2	0.2	0	0.2	4
Hardness (mg/L)	mg/L	224	04/18/18-07/25/19	O	13	13	200.0	258.0	231.5	233	15.2	261.9	0
Magnesium (mg/L)	mg/L	23	05/30/19-07/25/19	O	3	3	20.0	23.0	21.3	21	1.5	24.3	25.7
Potassium (mg/L)	mg/L	2	05/30/19-07/25/19	O	3	3	1.0	2.0	1.3	1	0.6	2.5	2
Sodium (mg/L)	mg/L	2	05/30/19-07/25/19	O	3	3	2.0	2.0	2.0	2	0	2.0	2.7
Sulfate (mg/L)	mg/L	19	04/18/18-07/25/19	O	13	13	13.0	28.0	22.4	24	4.1	30.6	0
N+N (mg/L)	mg/L	0.42	04/18/18-07/25/19	O	13	13	0.12	0.69	0.36	0.33	0.15	0.66	10
Aluminum (DIS) (mg/L)	mg/L	<0.009	05/30/19-07/25/19	O	3	0	< 0.009	< 0.009					0.009
Antimony (DIS) (mg/L)	mg/L	<0.0005	05/30/19-07/25/19	O	3	0	< 0.0005	< 0.0005					0.0005
Arsenic (DIS) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	0	< 0.001	< 0.001					0.001
Barium (DIS) (mg/L)	mg/L	0.173	05/30/19-07/25/19	O	3	3	0.157	0.173	0.163	0.16	0.009	0.181	0.189
Beryllium (DIS) (mg/L)	mg/L	<0.0008	05/30/19-07/25/19	O	3	0	< 0.0008	< 0.0008					0.0008
Cadmium (DIS) (mg/L)	mg/L	<0.00003	05/30/19-07/25/19	O	3	0	< 0	< .00003					0
Chromium (DIS) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (DIS) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Copper (DIS) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002
Iron (DIS) (mg/L)	mg/L	0.29	05/30/19-07/25/19	O	3	2	< 0.02	0.29	0.07	0.07	0.14	0.35	0.07
Lead (DIS) (mg/L)	mg/L	<0.0003	05/30/19-07/25/19	O	3	0	< 0.0003	< 0.0003					0.0003
Manganese (DIS) (mg/L)	mg/L	0.02	05/30/19-07/25/19	O	3	2	< 0.01	0.02	0.01	0.02	0.01	0.03	0.01
Mercury (DIS) (ug/L)	ug/L	<0.005	05/30/19-07/25/19	O	3	1	< 0.005	< 0.005					0.005
Molybdenum (DIS) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002
Nickel (DIS) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	0	< 0.001	< 0.001					0.001
Selenium (DIS) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	1	< 0.0002	< 0.0002					0.0002
Silver (DIS) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0002
Strontium (DIS) (mg/L)	mg/L	0.101	05/30/19-07/25/19	O	3	3	0.097	0.103	0.1	0.101	0.003	0.106	0.114
Thallium (DIS) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0002
Uranium (DIS) (mg/L)	mg/L	0.0006	05/30/19-07/25/19	O	3	3	0.0006	0.0006	0.0006	0.0006	0	0.0006	0.008
Zinc (DIS) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.003

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-114	LAB NO: H19070585-006	STATION: SP-3
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DO (mg/L)	mg/L	8.66	07/20/11-07/24/19	O	30	30	5.41	19.38	9.48	9.46	2.17	13.82	0
Field pH (s.u.)	s.u.	7.79	07/20/11-07/24/19	O	29	29	6.2	8.66	7.36	7.42	0.56	8.48	0
Field SC (umhos/cm)	umhos/cm	155	07/20/11-07/24/19	O	30	30	103.0	223.0	161.2	167	38.1	237.4	0
Flow (Gallons Per Min)	illons Per Min	1.93	07/20/11-07/24/19	O	28	27	< 0.01	8.1	0.71	0.77	1.87	4.45	0
Water Temp (Deg C)	Deg C	9.9	07/20/11-07/24/19	O	30	30	1.7	15.8	6.8	7.6	3.7	14.2	0
TDS (mg/L)	mg/L	113	07/20/11-07/24/19	O	30	30	113.0	214.0	139.3	134	22	183.3	0
TSS (mg/L)	mg/L	20 J	08/28/13-07/24/19	O	28	16	< 10	191.0	23.7	14	115.4	254.5	0
Alkalinity (mg/L)	mg/L	69	07/20/11-07/24/19	O	30	30	44.0	100.0	74.2	75.5	20.3	114.8	0
Calcium (mg/L)	mg/L	22	05/29/19-07/24/19	O	3	3	17.0	22.0	18.5	17	2.9	24.3	30.8
Chloride (mg/L)	mg/L	<1	07/20/11-07/24/19	O	30	4	< 1	2.0					0
Fluoride (mg/L)	mg/L	0.1	07/20/11-07/24/19	O	30	30	0.1	0.1	0.1	0.1	0	0.1	4
Hardness (mg/L)	mg/L	75	07/20/11-07/24/19	O	30	30	48.0	109.0	78.5	80	18.4	115.3	0
Magnesium (mg/L)	mg/L	5	05/29/19-07/24/19	O	3	3	4.0	5.0	4.3	4	0.6	5.5	7
Potassium (mg/L)	mg/L	1	05/29/19-07/24/19	O	3	3	1.0	2.0	1.3	1	0.6	2.5	2.8
Sodium (mg/L)	mg/L	2	05/29/19-07/24/19	O	3	3	2.0	2.0	2.0	2	0	2.0	3
Sulfate (mg/L)	mg/L	6	07/20/11-07/24/19	O	30	30	3.0	7.0	5.1	5.4	1.2	7.5	0
N+N (mg/L)	mg/L	0.19	07/20/11-07/24/19	O	30	30	0.1	0.43	0.27	0.29	0.07	0.41	10
Aluminum (DIS) (mg/L)	mg/L	0.396 J	05/29/19-07/24/19	O	3	3	0.198	1.2	0.455	0.396	0.531	1.517	3.7
Antimony (DIS) (mg/L)	mg/L	<0.0005	05/29/19-07/24/19	O	3	0	< 0.0005	< 0.0005					0.001
Arsenic (DIS) (mg/L)	mg/L	0.002	05/29/19-07/24/19	O	3	3	0.002	0.002	0.002	0.002	0	0.002	0.003
Barium (DIS) (mg/L)	mg/L	0.262	05/29/19-07/24/19	O	3	3	0.214	0.262	0.234	0.229	0.025	0.284	0.32
Beryllium (DIS) (mg/L)	mg/L	<0.0008	05/29/19-07/24/19	O	3	0	< 0.0008	< 0.0008					0.001
Cadmium (DIS) (mg/L)	mg/L	<0.00003	05/29/19-07/24/19	O	3	1	< 0	< .00003					0.0001
Chromium (DIS) (mg/L)	mg/L	<0.01	05/29/19-07/24/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (DIS) (mg/L)	mg/L	<0.01	05/29/19-07/24/19	O	3	0	< 0.01	< 0.01					0.01
Copper (DIS) (mg/L)	mg/L	<0.002	05/29/19-07/24/19	O	3	2	< 0.002	0.004	0.003	0.003	0.001	0.005	0.007
Iron (DIS) (mg/L)	mg/L	0.06	05/29/19-07/24/19	O	3	3	0.06	0.81	0.28	0.45	0.38	1.04	2.39
Lead (DIS) (mg/L)	mg/L	<0.0003	05/29/19-07/24/19	O	3	1	< 0.0003	< 0.0003					0.0008
Manganese (DIS) (mg/L)	mg/L	<0.005	05/29/19-07/24/19	O	3	1	< 0.005	< 0.005					0.016
Mercury (DIS) (ug/L)	ug/L	0.006	05/29/19-07/24/19	O	3	3	0.006	0.02	0.01	0.009	0.007	0.024	0
Molybdenum (DIS) (mg/L)	mg/L	<0.002	05/29/19-07/24/19	O	3	0	< 0.002	< 0.002					0.002
Nickel (DIS) (mg/L)	mg/L	0.001	05/29/19-07/24/19	O	3	3	0.001	0.003	0.002	0.002	0.001	0.004	0.009
Selenium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0
Silver (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0003
Strontium (DIS) (mg/L)	mg/L	0.0602	05/29/19-07/24/19	O	3	3	0.0473	0.0602	0.0538	0.0546	0.0065	0.0668	0.1
Thallium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0002
Uranium (DIS) (mg/L)	mg/L	<0.0002	05/29/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.008
Zinc (DIS) (mg/L)	mg/L	<0.002	05/29/19-07/24/19	O	3	1	< 0.002	0.004					0.01

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.



# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-118	LAB NO: H19070585-009	STATION: SP-4
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DO (mg/L)	mg/L	9.13	07/21/11-07/25/19	O	52	52	6.7	13.95	9.82	9.7	1.36	12.54	0
Field pH (s.u.)	s.u.	7.59	07/21/11-07/25/19	O	51	51	6.95	8.63	7.69	7.71	0.28	8.25	0
Field SC (umhos/cm)	umhos/cm	428	07/21/11-07/25/19	O	52	52	162.0	481.0	420.5	431.5	46	512.5	0
Flow (Gallons Per Min)	illons Per Min	15.26	07/21/11-07/25/19	O	44	44	0.0	50.27	3.29	5.4	10.24	23.77	0
Water Temp (Deg C)	Deg C	6.7	07/21/11-07/25/19	O	51	51	0.1	12.2	5.6	6.5	2.1	9.8	0
TDS (mg/L)	mg/L	236	07/21/11-07/25/19	O	53	53	202.0	272.0	246.8	249	13.8	274.4	0
TSS (mg/L)	mg/L	10 J	08/28/13-07/25/19	O	50	31	5.0	890.0	20.6	11.5	123.6	267.8	0
Alkalinity (mg/L)	mg/L	190	07/21/11-07/25/19	O	53	53	190.0	210.0	200.7	200	4.9	210.5	0
Calcium (mg/L)	mg/L	47	05/30/19-07/25/19	O	3	3	46.0	47.0	46.7	47	0.6	47.9	54
Chloride (mg/L)	mg/L	<1	07/21/11-07/25/19	O	53	14	< 1	< 1					0
Fluoride (mg/L)	mg/L	0.2	07/21/11-07/25/19	O	53	53	0.2	0.3	0.2	0.2	0	0.2	4
Hardness (mg/L)	mg/L	219	07/21/11-07/25/19	O	52	52	208.0	255.0	235.4	237.5	11.7	258.8	0
Magnesium (mg/L)	mg/L	25	05/30/19-07/25/19	O	3	3	24.0	25.0	24.3	24	0.6	25.5	28
Potassium (mg/L)	mg/L	2	05/30/19-07/25/19	O	3	3	2.0	2.0	2.0	2	0	2.0	2
Sodium (mg/L)	mg/L	2	05/30/19-07/25/19	O	3	3	2.0	2.0	2.0	2	0	2.0	2
Sulfate (mg/L)	mg/L	26	07/21/11-07/25/19	O	53	53	10.0	45.0	35.0	38	6.6	48.2	0
N+N (mg/L)	mg/L	0.28	07/21/11-07/25/19	O	53	53	0.18	0.35	0.25	0.25	0.03	0.31	10
Aluminum (DIS) (mg/L)	mg/L	<0.009	05/30/19-07/25/19	O	3	1	< 0.009	0.01					0.025
Antimony (DIS) (mg/L)	mg/L	<0.0005	05/30/19-07/25/19	O	3	0	< 0.0005	< 0.0005					0.001
Arsenic (DIS) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	0	< 0.001	< 0.001					0.001
Barium (DIS) (mg/L)	mg/L	0.113	05/30/19-07/25/19	O	3	3	0.108	0.113	0.11	0.109	0.003	0.116	0.119
Beryllium (DIS) (mg/L)	mg/L	<0.0008	05/30/19-07/25/19	O	3	0	< 0.0008	< 0.0008					0.001
Cadmium (DIS) (mg/L)	mg/L	<0.00003	05/30/19-07/25/19	O	3	0	< 0	< .00003					0
Chromium (DIS) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (DIS) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Copper (DIS) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002
Iron (DIS) (mg/L)	mg/L	0.08	05/30/19-07/25/19	O	3	2	< 0.02	0.08	0.04	0.03	0.03	0.1	0.04
Lead (DIS) (mg/L)	mg/L	<0.0003	05/30/19-07/25/19	O	3	0	< 0.0003	< 0.0003					0.0003
Manganese (DIS) (mg/L)	mg/L	0.018	05/30/19-07/25/19	O	3	2	< 0.005	0.018	0.009	0.007	0.007	0.023	0.014
Mercury (DIS) (ug/L)	ug/L	<0.005	05/30/19-07/25/19	O	3	0	< 0.005	< 0.005					0.005
Molybdenum (DIS) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002
Nickel (DIS) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	0	< 0.001	< 0.001					0
Selenium (DIS) (mg/L)	mg/L	0.0003	05/30/19-07/25/19	O	3	3	0.0003	0.0003	0.0003	0.0003	0	0.0003	0.001
Silver (DIS) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0002
Strontium (DIS) (mg/L)	mg/L	0.0641	05/30/19-07/25/19	O	3	3	0.0641	0.0704	0.068	0.0698	0.0035	0.075	0.1
Thallium (DIS) (mg/L)	mg/L	0.0002	05/30/19-07/25/19	O	3	3	0.0002	0.0003	0.0003	0.0003	0.0001	0.0005	0.0004
Uranium (DIS) (mg/L)	mg/L	0.0005	05/30/19-07/25/19	O	3	3	0.0004	0.0005	0.0005	0.0005	0.0001	0.0007	0.008
Zinc (DIS) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-109	LAB NO: H19070585-003	STATION: SP-5
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DO (mg/L)	mg/L	6.5	08/28/18-07/24/19	O	3	3	6.2	7.4	6.7	6.5	0.6	7.9	0
Field pH (s.u.)	s.u.	8.09	08/28/18-07/24/19	O	3	3	7.28	8.09	7.67	7.67	0.41	8.49	0
Field SC (umhos/cm)	umhos/cm	391	08/28/18-07/24/19	O	3	3	389.0	414.0	397.8	391	13.9	425.6	0
Flow (Gallons Per Min)	illons Per Min	2.6	08/28/18-07/24/19	O	3	3	0.6	2.6	1.1	0.9	1.1	3.3	0
Water Temp (Deg C)	Deg C	16.6	08/28/18-07/24/19	O	3	3	5.2	16.6	9.0	8.5	5.9	20.8	0
TDS (mg/L)	mg/L	223	08/28/18-07/24/19	O	3	3	223.0	228.0	225.0	224	2.6	230.2	0
TSS (mg/L)	mg/L	52 J	08/28/18-07/24/19	O	3	3	28.0	137.0	58.4	52	57.3	173.0	0
Alkalinity (mg/L)	mg/L	220	08/28/18-07/24/19	O	3	3	220.0	220.0	220.0	220	0	220.0	0
Calcium (mg/L)	mg/L	63	07/24/19	O	1	1	63.0	63.0	63.0	63	0	63.0	62.1
Chloride (mg/L)	mg/L	<1	08/28/18-07/24/19	O	3	0	< 1	< 1					0
Fluoride (mg/L)	mg/L	0.1	08/28/18-07/24/19	O	3	2	0.1	0.1	0.1	0.1	0	0.1	4
Hardness (mg/L)	mg/L	237	08/28/18-07/24/19	O	3	3	221.0	237.0	227.6	225	8.3	244.2	0
Magnesium (mg/L)	mg/L	19	07/24/19	O	1	1	19.0	19.0	19.0	19	0	19.0	19
Potassium (mg/L)	mg/L	<1	07/24/19	O	1	0	< 1	< 1					1
Sodium (mg/L)	mg/L	2	07/24/19	O	1	1	2.0	2.0	2.0	2	0	2.0	2
Sulfate (mg/L)	mg/L	9	08/28/18-07/24/19	O	3	3	9.0	11.0	10.0	10	1	12.0	0
N+N (mg/L)	mg/L	0.03	08/28/18-07/24/19	O	3	3	0.02	0.04	0.03	0.03	0.01	0.05	10
Aluminum (DIS) (mg/L)	mg/L	<0.009	07/24/19	O	1	0	< 0.009	< 0.009					0.009
Antimony (DIS) (mg/L)	mg/L	<0.0005	07/24/19	O	1	0	< 0.0005	< 0.0005					0.0005
Arsenic (DIS) (mg/L)	mg/L	<0.001	07/24/19	O	1	0	< 0.001	< 0.001					0.001
Barium (DIS) (mg/L)	mg/L	0.057	07/24/19	O	1	1	0.057	0.057	0.057	0.057	0	0.057	0.058
Beryllium (DIS) (mg/L)	mg/L	<0.0008	07/24/19	O	1	0	< 0.0008	< 0.0008					0.0008
Cadmium (DIS) (mg/L)	mg/L	<0.00003	07/24/19	O	1	0	< 0	< .00003					0
Chromium (DIS) (mg/L)	mg/L	<0.01	07/24/19	O	1	0	< 0.01	< 0.01					0.01
Cobalt (DIS) (mg/L)	mg/L	<0.01	07/24/19	O	1	0	< 0.01	< 0.01					0.01
Copper (DIS) (mg/L)	mg/L	<0.002	07/24/19	O	1	0	< 0.002	< 0.002					0.002
Iron (DIS) (mg/L)	mg/L	<0.02	07/24/19	O	1	0	< 0.02	< 0.02					0.02
Lead (DIS) (mg/L)	mg/L	<0.0003	07/24/19	O	1	0	< 0.0003	< 0.0003					0.0003
Manganese (DIS) (mg/L)	mg/L	<0.005	07/24/19	O	1	0	< 0.005	< 0.005					0.013
Mercury (DIS) (ug/L)	ug/L	<0.005	07/24/19	O	1	0	< 0.005	< 0.005					0.004
Molybdenum (DIS) (mg/L)	mg/L	<0.002	07/24/19	O	1	0	< 0.002	< 0.002					0.002
Nickel (DIS) (mg/L)	mg/L	<0.001	07/24/19	O	1	0	< 0.001	< 0.001					0.001
Selenium (DIS) (mg/L)	mg/L	<0.0002	07/24/19	O	1	0	< 0.0002	< 0.0002					0.0002
Silver (DIS) (mg/L)	mg/L	<0.0002	07/24/19	O	1	0	< 0.0002	< 0.0002					0.0002
Strontium (DIS) (mg/L)	mg/L	0.126	07/24/19	O	1	1	0.126	0.126	0.126	0.126	0	0.126	0.138
Thallium (DIS) (mg/L)	mg/L	<0.0002	07/24/19	O	1	0	< 0.0002	< 0.0002					0.0002
Uranium (DIS) (mg/L)	mg/L	0.0006	07/24/19	O	1	1	0.0006	0.0006	0.0006	0.0006	0	0.0006	0.008
Zinc (DIS) (mg/L)	mg/L	<0.002	07/24/19	O	1	0	< 0.002	< 0.002					0.002

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-117	LAB NO: H19070585-008	STATION: SP-6
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DO (mg/L)	mg/L	8.75	10/12/11-07/25/19	O	45	45	6.7	282.0	10.52	9.57	39.73	89.98	0
Field pH (s.u.)	s.u.	7.1	10/12/11-07/25/19	O	44	44	5.8	8.7	7.3	7.4	0.6	8.5	0
Field SC (umhos/cm)	umhos/cm	279	10/12/11-07/25/19	O	45	45	188.0	327.0	266.7	269	18.8	304.3	0
Flow (Gallons Per Min)	illons Per Min	2.46	10/12/11-07/25/19	O	43	35	0.27	3.5	1.08	1	0.94	2.96	0
Water Temp (Deg C)	Deg C	8	10/12/11-07/25/19	O	44	44	4.4	10.3	7.2	7.6	1.3	9.8	0
TDS (mg/L)	mg/L	160	10/12/11-07/25/19	O	45	45	145.0	188.0	160.9	160	8	176.9	0
TSS (mg/L)	mg/L	<10	08/28/13-07/25/19	O	43	13	< 4	216.0					0
Alkalinity (mg/L)	mg/L	130	10/12/11-07/25/19	O	45	45	120.0	160.0	134.3	130	6.9	148.1	0
Calcium (mg/L)	mg/L	36	05/30/19-07/25/19	O	3	3	32.0	36.0	33.6	33	2.1	37.8	37
Chloride (mg/L)	mg/L	<1	10/12/11-07/25/19	O	45	10	1.0	2.0					0
Fluoride (mg/L)	mg/L	0.2	10/12/11-07/25/19	O	45	45	0.1	0.2	0.2	0.2	0	0.2	4
Hardness (mg/L)	mg/L	146	10/12/11-07/25/19	O	45	45	129.0	160.0	140.4	141	6.7	153.8	0
Magnesium (mg/L)	mg/L	13	05/30/19-07/25/19	O	3	3	12.0	13.0	12.3	12	0.6	13.5	14
Potassium (mg/L)	mg/L	<1	05/30/19-07/25/19	O	3	0	< 1	< 1					1
Sodium (mg/L)	mg/L	2	05/30/19-07/25/19	O	3	3	2.0	2.0	2.0	2	0	2.0	2
Sulfate (mg/L)	mg/L	9	10/12/11-07/25/19	O	45	45	7.0	12.0	9.0	9.3	1.5	12.0	0
N+N (mg/L)	mg/L	0.36	10/12/11-07/25/19	O	45	45	0.31	0.68	0.38	0.37	0.07	0.52	10
Aluminum (DIS) (mg/L)	mg/L	<0.009	05/30/19-07/25/19	O	3	0	< 0.009	< 0.009					0.03
Antimony (DIS) (mg/L)	mg/L	<0.0005	05/30/19-07/25/19	O	3	0	< 0.0005	< 0.0005					0.001
Arsenic (DIS) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	0	< 0.001	< 0.001					0.001
Barium (DIS) (mg/L)	mg/L	0.208	05/30/19-07/25/19	O	3	3	0.185	0.208	0.195	0.192	0.012	0.219	0.202
Beryllium (DIS) (mg/L)	mg/L	<0.0008	05/30/19-07/25/19	O	3	0	< 0.0008	< 0.0008					0.001
Cadmium (DIS) (mg/L)	mg/L	<0.00003	05/30/19-07/25/19	O	3	0	< 0	< .00003					0
Chromium (DIS) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (DIS) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Copper (DIS) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002
Iron (DIS) (mg/L)	mg/L	<0.02	05/30/19-07/25/19	O	3	0	< 0.02	< 0.02					0.08
Lead (DIS) (mg/L)	mg/L	<0.0003	05/30/19-07/25/19	O	3	0	< 0.0003	< 0.0003					0.0003
Manganese (DIS) (mg/L)	mg/L	<0.005	05/30/19-07/25/19	O	3	0	< 0.005	< 0.005					0.015
Mercury (DIS) (ug/L)	ug/L	<0.005	05/30/19-07/25/19	O	3	0	< 0.005	< 0.005					0.001
Molybdenum (DIS) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002
Nickel (DIS) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	0	< 0.001	< 0.001					0
Selenium (DIS) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0
Silver (DIS) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0002
Strontium (DIS) (mg/L)	mg/L	0.0696	05/30/19-07/25/19	O	3	3	0.0696	0.0722	0.0705	0.0697	0.0015	0.0735	0.1
Thallium (DIS) (mg/L)	mg/L	0.0005	05/30/19-07/25/19	O	3	3	0.0004	0.0005	0.0005	0.0005	0.0001	0.0007	0.0006
Uranium (DIS) (mg/L)	mg/L	0.0004	05/30/19-07/25/19	O	3	3	0.0004	0.0004	0.0004	0.0004	0	0.0004	0.008
Zinc (DIS) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-119	LAB NO: H19070585-010	STATION: SP-7
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DO (mg/L)	mg/L	2	03/26/15-07/25/19	O	49	49	2.0	11.0	3.7	3.5	1.6	6.9	0
Field pH (s.u.)	s.u.	7.43	03/26/15-07/25/19	O	48	48	6.17	8.18	7.38	7.38	0.32	8.02	0
Field SC (umhos/cm)	umhos/cm	336	03/26/15-07/25/19	O	49	49	196.0	354.0	321.0	330	28.2	377.4	0
Flow (Gallons Per Min)	illons Per Min	99.64	03/26/15-07/25/19	O	42	42	6.7	136.0	19.29	16.2	27.21	73.71	0
Water Temp (Deg C)	Deg C	7.3	03/26/15-07/25/19	O	48	48	5.1	7.4	6.5	6.7	0.6	7.7	0
TDS (mg/L)	mg/L	188	03/26/15-07/25/19	O	49	49	173.0	200.0	187.1	187	6.8	200.7	0
TSS (mg/L)	mg/L	<10	03/26/15-07/25/19	O	49	7	< 4	146.0					0
Alkalinity (mg/L)	mg/L	160	03/26/15-07/25/19	O	49	49	160.0	170.0	166.1	170	4.8	175.7	0
Calcium (mg/L)	mg/L	42	05/30/19-07/25/19	O	3	3	40.0	42.0	41.0	41	1	43.0	45
Chloride (mg/L)	mg/L	2	03/26/15-07/25/19	O	49	49	1.0	2.0	1.8	2	0.3	2.4	0
Fluoride (mg/L)	mg/L	0.3	03/26/15-07/25/19	O	49	49	0.3	0.4	0.3	0.3	0	0.3	4
Hardness (mg/L)	mg/L	162	03/26/15-07/25/19	O	49	49	153.0	178.0	167.4	167	5.6	178.6	0
Magnesium (mg/L)	mg/L	14	05/30/19-07/25/19	O	3	3	13.0	14.0	13.7	14	0.6	14.9	16
Potassium (mg/L)	mg/L	3	05/30/19-07/25/19	O	3	3	3.0	3.0	3.0	3	0	3.0	3
Sodium (mg/L)	mg/L	5	05/30/19-07/25/19	O	3	3	5.0	5.0	5.0	5	0	5.0	5
Sulfate (mg/L)	mg/L	10	03/26/15-07/25/19	O	49	49	7.0	12.0	9.7	10	1.2	12.1	0
N+N (mg/L)	mg/L	0.3	03/26/15-07/25/19	O	49	49	0.3	0.4	0.3	0.3	0	0.3	10
Aluminum (DIS) (mg/L)	mg/L	<0.009	05/30/19-07/25/19	O	3	0	< 0.009	< 0.009					0.009
Antimony (DIS) (mg/L)	mg/L	<0.0005	05/30/19-07/25/19	O	3	0	< 0.0005	< 0.0005					0.0005
Arsenic (DIS) (mg/L)	mg/L	0.003	05/30/19-07/25/19	O	3	3	0.003	0.004	0.004	0.004	0.001	0.006	0.004
Barium (DIS) (mg/L)	mg/L	0.116	05/30/19-07/25/19	O	3	3	0.113	0.118	0.116	0.116	0.003	0.122	0.118
Beryllium (DIS) (mg/L)	mg/L	<0.0008	05/30/19-07/25/19	O	3	0	< 0.0008	< 0.0008					0.0008
Cadmium (DIS) (mg/L)	mg/L	<0.00003	05/30/19-07/25/19	O	3	0	< 0	< .00003					0
Chromium (DIS) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (DIS) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Copper (DIS) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002
Iron (DIS) (mg/L)	mg/L	<0.02	05/30/19-07/25/19	O	3	0	< 0.02	< 0.02					0.02
Lead (DIS) (mg/L)	mg/L	<0.0003	05/30/19-07/25/19	O	3	0	< 0.0003	< 0.0003					0.0003
Manganese (DIS) (mg/L)	mg/L	<0.005	05/30/19-07/25/19	O	3	0	< 0.005	< 0.005					0.005
Mercury (DIS) (ug/L)	ug/L	<0.005	05/30/19-07/25/19	O	3	0	< 0.005	< 0.005					0.005
Molybdenum (DIS) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002
Nickel (DIS) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	0	< 0.001	< 0.001					0.001
Selenium (DIS) (mg/L)	mg/L	0.0003	05/30/19-07/25/19	O	3	3	0.0003	0.0003	0.0003	0.0003	0	0.0003	0.0003
Silver (DIS) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0002
Strontium (DIS) (mg/L)	mg/L	0.154	05/30/19-07/25/19	O	3	3	0.154	0.171	0.163	0.165	0.009	0.181	0.176
Thallium (DIS) (mg/L)	mg/L	0.001	05/30/19-07/25/19	O	3	3	0.001	0.001	0.001	0.001	0	0.001	0.001
Uranium (DIS) (mg/L)	mg/L	0.0009	05/30/19-07/25/19	O	3	3	0.0009	0.0009	0.0009	0.0009	0	0.0009	0.008
Zinc (DIS) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-122	LAB NO: H19070583-003	STATION: SW-1
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DO (mg/L)	mg/L	9.16	05/24/11-07/25/19	O	81	81	3.91	15.0	10.87	10.83	1.96	14.79	0
Field pH (s.u.)	s.u.	8.38	05/24/11-07/25/19	O	80	80	5.3	8.71	7.86	8.09	0.65	9.16	0
Field SC (umhos/cm)	umhos/cm	322	05/24/11-07/25/19	O	81	81	176.0	363.0	283.0	310	52.9	388.8	0
Flow (Cubic Ft Sec)	Cubic Ft Sec	51.24	05/24/11-07/25/19	O	61	61	0.0	613.0	18.19	30.24	90.04	198.27	0
Staff Gauge (Feet)	Feet	1.2	05/24/11-07/25/19	O	47	47	0.5	13.3	1.1	1	1.7	4.5	0
Water Temp (Deg C)	Deg C	10.9	05/24/11-07/25/19	O	81	81	-1.0	15.5	0.6	4.2	4.7	10.0	0
TDS (mg/L)	mg/L	185 D	05/24/11-07/25/19	O	73	73	107.0	227.0	169.1	182	27.4	223.9	0
TSS (mg/L)	mg/L	4 J	05/30/12-07/25/19	O	69	27	< 4	43.0					0
Alkalinity (mg/L)	mg/L	170	05/24/11-07/25/19	O	73	73	87.0	200.0	152.8	170	30.5	213.8	0
Calcium (mg/L)	mg/L	48	05/30/19-07/25/19	O	3	3	28.0	48.0	38.4	42	10.3	59.0	50
Chloride (mg/L)	mg/L	1	05/24/11-07/25/19	O	73	72	< 1	5.0	1.3	1	0.7	2.7	0
Fluoride (mg/L)	mg/L	0.1	05/24/11-07/25/19	O	73	23	0.1	0.2					4
Hardness (mg/L)	mg/L	167	05/24/11-07/25/19	O	72	71	< 7	199.0	144.8	164	35	214.8	0
Magnesium (mg/L)	mg/L	12	05/30/19-07/25/19	O	3	3	7.0	12.0	9.4	10	2.5	14.4	13
Potassium (mg/L)	mg/L	1	05/30/19-07/25/19	O	3	2	1.0	1.0	1.0	1	0	1.0	2
Sodium (mg/L)	mg/L	2	05/30/19-07/25/19	O	3	3	1.0	2.0	1.6	2	0.6	2.8	3
Sulfate (mg/L)	mg/L	5	05/24/11-07/25/19	O	73	73	2.0	18.0	5.1	5	2.1	9.3	0
N+N (mg/L)	mg/L	<0.01	05/24/11-07/25/19	O	73	34	< 0.01	0.15					10
Phosphorus (mg/L)	mg/L	0.01	05/30/19-07/25/19	O	3	3	0.01	0.02	0.02	0.02	0.01	0.04	0.03
Total N Pers (mg/L)	mg/L	0.12	04/29/15-07/25/19	O	47	43	< 0	1.12	0.13	0.15	0.16	0.45	0
Aluminum (DIS) (mg/L)	mg/L	<0.009	05/30/19-07/25/19	O	3	2	< 0.009	0.062	0.02	0.015	0.029	0.078	0.22
Antimony (TRC) (mg/L)	mg/L	<0.0005	05/30/19-07/25/19	O	3	0	< 0.0005	< 0.0005					0.003
Arsenic (TRC) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	0	< 0.001	< 0.001					0.003
Barium (TRC) (mg/L)	mg/L	0.102	05/30/19-07/25/19	O	3	3	0.081	0.102	0.092	0.095	0.011	0.114	0.118
Beryllium (TRC) (mg/L)	mg/L	<0.0008	05/30/19-07/25/19	O	3	0	< 0.0008	< 0.0008					0.001
Cadmium (TRC) (mg/L)	mg/L	<0.00003	05/30/19-07/25/19	O	3	0	< 0	< .00003					0.0001
Chromium (TRC) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (TRC) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Copper (TRC) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002
Iron (TRC) (mg/L)	mg/L	0.13	05/30/19-07/25/19	O	3	3	0.13	0.6	0.27	0.26	0.24	0.75	0.86
Lead (TRC) (mg/L)	mg/L	<0.0003	05/30/19-07/25/19	O	3	1	< 0.0003	< 0.0003					0.0005
Manganese (TRC) (mg/L)	mg/L	0.015	05/30/19-07/25/19	O	3	3	0.015	0.017	0.016	0.015	0.001	0.018	0.03
Mercury (TRC) (ug/L)	ug/L	<0.005	05/30/19-07/25/19	O	3	1	< 0.005	0.011					0
Molybdenum (TRC) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.005
Nickel (TRC) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	1	< 0.001	< 0.001					0.01
Selenium (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.001
Silver (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0005
Strontium (TRC) (mg/L)	mg/L	0.136 L	05/30/19-07/25/19	O	3	3	0.09	0.136	0.115	0.124	0.024	0.163	0.131
Thallium (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0002
Uranium (TRC) (mg/L)	mg/L	0.0003	05/30/19-07/25/19	O	3	3	0.0002	0.0003	0.0003	0.0003	0.0001	0.0005	0.008
Zinc (TRC) (mg/L)	mg/L	<0.004	05/30/19-07/25/19	O	3	2	0.002	< .004	0.003	0.003	0.001	0.005	0.01

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-125	LAB NO: H19070583-006	STATION: SW-14
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Flow (Cubic Ft Sec)	Cubic Ft Se	4.03	02/25/16-07/25/19	O	34	34	0.0	11.75	0.54	1.1	3.12	6.78	0
Staff Gauge (Feet)	Feet	0.7	04/13/16-07/25/19	O	20	20	0.3	0.8	0.5	0.5	0.2	0.9	0
TDS (mg/L)	mg/L	217 D	04/13/16-07/25/19	O	34	34	175.0	266.0	224.5	226.5	15.9	256.3	0
TSS (mg/L)	mg/L	<4	04/13/16-07/25/19	O	34	5	< 4	15.0					0
Alkalinity (mg/L)	mg/L	200	04/13/16-07/25/19	O	34	34	160.0	220.0	204.8	210	17.1	239.0	0
Calcium (mg/L)	mg/L	55	05/30/19-07/25/19	O	3	3	53.0	55.0	53.7	53	2.5	58.7	59
Chloride (mg/L)	mg/L	2	04/13/16-07/25/19	O	34	34	1.0	4.0	2.0	2	0.6	3.2	0
Fluoride (mg/L)	mg/L	0.2	04/13/16-07/25/19	O	34	34	0.1	0.2	0.2	0.2	0	0.2	4
Hardness (mg/L)	mg/L	206	04/13/16-07/25/19	O	34	34	153.0	239.0	211.2	213.5	17.7	246.6	0
Magnesium (mg/L)	mg/L	17	05/30/19-07/25/19	O	3	3	17.0	19.0	17.6	17	1	19.6	21
Potassium (mg/L)	mg/L	1	05/30/19-07/25/19	O	3	3	1.0	1.0	1.0	1	0	1.0	1
Sodium (mg/L)	mg/L	2	05/30/19-07/25/19	O	3	3	2.0	2.0	2.0	2	0	2.0	3
Sulfate (mg/L)	mg/L	6	04/13/16-07/25/19	O	34	34	6.0	19.0	9.0	8.9	2.8	14.6	0
N+N (mg/L)	mg/L	<0.01	04/13/16-07/25/19	O	34	32	0.01	0.27	0.06	0.08	0.08	0.22	10
Phosphorus (mg/L)	mg/L	0.005	05/30/19-07/25/19	O	3	3	0.005	0.011	0.008	0.008	0.002	0.012	0.012
Total N Pers (mg/L)	mg/L	0.11	04/13/16-07/25/19	O	31	30	< 0	1.25	0.18	0.2	0.22	0.62	0
Aluminum (DIS) (mg/L)	mg/L	0.021 J	05/30/19-07/25/19	O	3	1	< 0.009	0.021					0.015
Antimony (TRC) (mg/L)	mg/L	<0.0005	05/30/19-07/25/19	O	3	0	< 0.0005	< 0.0005					0.0005
Arsenic (TRC) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	0	< 0.001	< 0.001					0.001
Barium (TRC) (mg/L)	mg/L	0.109	05/30/19-07/25/19	O	3	3	0.103	0.112	0.108	0.109	0.004	0.116	0.12
Beryllium (TRC) (mg/L)	mg/L	<0.0008	05/30/19-07/25/19	O	3	0	< 0.0008	< 0.0008					0.0008
Cadmium (TRC) (mg/L)	mg/L	<0.00003	05/30/19-07/25/19	O	3	0	< 0	< .00003					0
Chromium (TRC) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (TRC) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Copper (TRC) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002
Iron (TRC) (mg/L)	mg/L	0.07	05/30/19-07/25/19	O	3	3	0.06	0.11	0.08	0.07	0.02	0.12	0.15
Lead (TRC) (mg/L)	mg/L	<0.0003	05/30/19-07/25/19	O	3	0	< 0.0003	< 0.0003					0.0003
Manganese (TRC) (mg/L)	mg/L	0.007	05/30/19-07/25/19	O	3	3	0.005	0.007	0.006	0.007	0.001	0.008	0.007
Mercury (TRC) (ug/L)	ug/L	<0.005	05/30/19-07/25/19	O	3	1	< 0.005	< 0.005					0.005
Molybdenum (TRC) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002
Nickel (TRC) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	0	< 0.001	< 0.001					0.002
Selenium (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0002
Silver (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0002
Strontium (TRC) (mg/L)	mg/L	0.125 L	05/30/19-07/25/19	O	3	3	0.115	0.127	0.122	0.125	0.006	0.134	0.133
Thallium (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0002
Uranium (TRC) (mg/L)	mg/L	0.0004	05/30/19-07/25/19	O	3	3	0.0004	0.0005	0.0005	0.0005	0.0001	0.0007	0.008
Zinc (TRC) (mg/L)	mg/L	<0.04	05/30/19-07/25/19	O	3	0	< 0	< .04					0

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-123	LAB NO: H19070583-004	STATION: SW-17
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DO (mg/L)	mg/L	8.71	01/17/18-07/25/19	O	15	15	8.46	12.9	10.33	10.56	1.11	12.55	0
Field pH (s.u.)	s.u.	8.09	01/17/18-07/25/19	O	15	15	7.47	8.41	8.07	8.09	0.23	8.53	0
Field SC (umhos/cm)	umhos/cm	462	01/17/18-07/25/19	O	15	15	319.0	487.0	428.0	437	41.5	511.0	0
Flow (Cubic Ft Sec)	Cubic Ft Sec	0.15	01/17/18-07/25/19	O	11	11	0.0	1.8	0.08	0.19	0.56	1.2	0
Water Temp (Deg C)	Deg C	11.6	01/17/18-07/25/19	O	15	15	0.0	13.9	2.2	7	5	12.2	0
TDS (mg/L)	mg/L	266 D	01/17/18-07/25/19	O	16	16	197.0	314.0	253.5	257	27.8	309.1	0
TDS (mg/L)	mg/L	266 D	01/17/18-07/25/19	DUP	16	16	197.0	314.0	253.5	257	27.8	309.1	0
TSS (mg/L)	mg/L	19 J	01/17/18-07/25/19	O	16	7	< 4	19.0					0
TSS (mg/L)	mg/L	12 J	01/17/18-07/25/19	DUP	16	7	< 4	19.0					0
Alkalinity (mg/L)	mg/L	230	01/17/18-07/25/19	O	16	16	150.0	230.0	201.6	210	17.9	237.4	0
Alkalinity (mg/L)	mg/L	230	01/17/18-07/25/19	DUP	16	16	150.0	230.0	201.6	210	17.9	237.4	0
Calcium (mg/L)	mg/L	61	05/30/19-07/25/19	DUP	3	3	45.0	60.0	53.3	56	7.3	67.9	60.9
Calcium (mg/L)	mg/L	60	05/30/19-07/25/19	O	3	3	45.0	60.0	53.3	56	7.3	67.9	60.9
Chloride (mg/L)	mg/L	4	01/17/18-07/25/19	O	16	16	3.0	14.0	4.4	4	2.4	9.2	0
Chloride (mg/L)	mg/L	4	01/17/18-07/25/19	DUP	16	16	3.0	14.0	4.4	4	2.4	9.2	0
Fluoride (mg/L)	mg/L	0.2	01/17/18-07/25/19	O	16	16	0.1	0.2	0.2	0.2	0	0.2	4
Fluoride (mg/L)	mg/L	0.2	01/17/18-07/25/19	DUP	16	16	0.1	0.2	0.2	0.2	0	0.2	4
Hardness (mg/L)	mg/L	250	01/17/18-07/25/19	DUP	16	16	167.0	262.0	231.8	240.5	21.9	275.6	0
Hardness (mg/L)	mg/L	247	01/17/18-07/25/19	O	16	16	167.0	262.0	231.8	240.5	21.9	275.6	0
Magnesium (mg/L)	mg/L	24	05/30/19-07/25/19	DUP	3	3	20.0	23.0	22.0	23	1.7	25.4	25
Magnesium (mg/L)	mg/L	23	05/30/19-07/25/19	O	3	3	20.0	23.0	22.0	23	1.7	25.4	25
Potassium (mg/L)	mg/L	<1	05/30/19-07/25/19	DUP	3	2	1.0	1.0	1.0	1	0	1.0	1
Potassium (mg/L)	mg/L	1	05/30/19-07/25/19	O	3	2	1.0	1.0	1.0	1	0	1.0	1
Sodium (mg/L)	mg/L	3	05/30/19-07/25/19	DUP	3	3	2.0	3.0	2.6	3	0.5	3.6	3
Sodium (mg/L)	mg/L	3	05/30/19-07/25/19	O	3	3	2.0	3.0	2.6	3	0.5	3.6	3
Sulfate (mg/L)	mg/L	20	01/17/18-07/25/19	O	16	16	12.0	44.0	26.9	29.5	7.9	42.7	0
Sulfate (mg/L)	mg/L	20	01/17/18-07/25/19	DUP	16	16	12.0	44.0	26.9	29.5	7.9	42.7	0
N+N (mg/L)	mg/L	0.11	01/17/18-07/25/19	DUP	16	15	< 0.01	0.19	0.07	0.09	0.06	0.19	10
N+N (mg/L)	mg/L	0.11	01/17/18-07/25/19	O	16	15	< 0.01	0.19	0.07	0.09	0.06	0.19	10
Phosphorus (mg/L)	mg/L	0.013	05/30/19-07/25/19	DUP	3	3	0.01	0.025	0.014	0.011	0.007	0.028	0.024
Phosphorus (mg/L)	mg/L	0.011	05/30/19-07/25/19	O	3	3	0.01	0.025	0.014	0.011	0.007	0.028	0.024
Total N Pers (mg/L)	mg/L	0.35	04/12/18-07/25/19	DUP	13	13	0.12	0.49	0.24	0.24	0.11	0.46	0
Total N Pers (mg/L)	mg/L	0.37	04/12/18-07/25/19	O	13	13	0.12	0.49	0.24	0.24	0.11	0.46	0
Aluminum (DIS) (mg/L)	mg/L	0.021 J	05/30/19-07/25/19	O	3	1	< 0.009	0.021					0.015
Aluminum (DIS) (mg/L)	mg/L	<0.009	05/30/19-07/25/19	DUP	3	1	< 0.009	0.021					0.015
Antimony (TRC) (mg/L)	mg/L	<0.0005	05/30/19-07/25/19	DUP	3	0	< 0.0005	< 0.0005					0.0005
Antimony (TRC) (mg/L)	mg/L	<0.0005	05/30/19-07/25/19	O	3	0	< 0.0005	< 0.0005					0.0005
Arsenic (TRC) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	DUP	3	0	< 0.001	< 0.001					0.001
Arsenic (TRC) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	0	< 0.001	< 0.001					0.001
Barium (TRC) (mg/L)	mg/L	0.157	05/30/19-07/25/19	DUP	3	3	0.122	0.157	0.143	0.152	0.017	0.177	0.16
Barium (TRC) (mg/L)	mg/L	0.157	05/30/19-07/25/19	O	3	3	0.122	0.157	0.143	0.152	0.017	0.177	0.16
Beryllium (TRC) (mg/L)	mg/L	<0.0008	05/30/19-07/25/19	DUP	3	0	< 0.0008	< 0.0008					0.0008
Beryllium (TRC) (mg/L)	mg/L	<0.0008	05/30/19-07/25/19	O	3	0	< 0.0008	< 0.0008					0.0008
Cadmium (TRC) (mg/L)	mg/L	<0.00003	05/30/19-07/25/19	DUP	3	0	< 0	< .00003					0
Cadmium (TRC) (mg/L)	mg/L	<0.00003	05/30/19-07/25/19	O	3	0	< 0	< .00003					0
Chromium (TRC) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Chromium (TRC) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	DUP	3	0	< 0.01	< 0.01					0.01

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

Cobalt (TRC) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	DUP	3	0	< 0.01	< 0.01						0.01
Cobalt (TRC) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01						0.01
Copper (TRC) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002						0.002
Copper (TRC) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	DUP	3	0	< 0.002	< 0.002						0.002
Iron (TRC) (mg/L)	mg/L	0.37	05/30/19-07/25/19	O	3	3	0.16	0.37	0.26	0.31	0.1	0.46	0.36	
Iron (TRC) (mg/L)	mg/L	0.36	05/30/19-07/25/19	DUP	3	3	0.16	0.37	0.26	0.31	0.1	0.46	0.36	
Lead (TRC) (mg/L)	mg/L	<0.0003	05/30/19-07/25/19	O	3	0	< 0.0003	< 0.0003						0.0003
Lead (TRC) (mg/L)	mg/L	<0.0003	05/30/19-07/25/19	DUP	3	0	< 0.0003	< 0.0003						0.0003
Manganese (TRC) (mg/L)	mg/L	0.041	05/30/19-07/25/19	O	3	3	0.016	0.041	0.028	0.032	0.012	0.052	0.041	
Manganese (TRC) (mg/L)	mg/L	0.041	05/30/19-07/25/19	DUP	3	3	0.016	0.041	0.028	0.032	0.012	0.052	0.041	
Mercury (TRC) (ug/L)	ug/L	0.007	05/30/19-07/25/19	DUP	3	3	0.007	0.007	0.007	0.007	0	0.007	0.007	
Mercury (TRC) (ug/L)	ug/L	0.007	05/30/19-07/25/19	O	3	3	0.007	0.007	0.007	0.007	0	0.007	0.007	
Molybdenum (TRC) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002						0.002
Molybdenum (TRC) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	DUP	3	0	< 0.002	< 0.002						0.002
Nickel (TRC) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	DUP	3	0	< 0.001	< 0.001						0.002
Nickel (TRC) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	0	< 0.001	< 0.001						0.002
Selenium (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002						0.0002
Selenium (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	DUP	3	0	< 0.0002	< 0.0002						0.0002
Silver (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002						0.0002
Silver (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	DUP	3	0	< 0.0002	< 0.0002						0.0002
Strontium (TRC) (mg/L)	mg/L	0.169 L	05/30/19-07/25/19	DUP	3	3	0.111	0.172	0.14	0.145	0.028	0.196	0.169	
Strontium (TRC) (mg/L)	mg/L	0.172 L	05/30/19-07/25/19	O	3	3	0.111	0.172	0.14	0.145	0.028	0.196	0.169	
Thallium (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002						0.0002
Thallium (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	DUP	3	0	< 0.0002	< 0.0002						0.0002
Uranium (TRC) (mg/L)	mg/L	0.0005	05/30/19-07/25/19	O	3	3	0.0005	0.0008	0.0006	0.0005	0.0001	0.0008	0.008	
Uranium (TRC) (mg/L)	mg/L	0.0005	05/30/19-07/25/19	DUP	3	3	0.0005	0.0008	0.0006	0.0005	0.0001	0.0008	0.008	
Zinc (TRC) (mg/L)	mg/L	0.005 L	05/30/19-07/25/19	DUP	3	2	< 0.002	0.005	0.003	0.004	0.001	0.005	0.006	
Zinc (TRC) (mg/L)	mg/L	0.005 L	05/30/19-07/25/19	O	3	2	< 0.002	0.005	0.003	0.004	0.001	0.005	0.006	

SAMPLE NO BBC-1907-111

LAB NO: z

STATION: SW-18

Flow (Cubic Ft Sec)	Cubic Ft Sec	Dry	N/A	OBS	0				0.004	0.005	0
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SAMPLE NO BBC-1907-105

LAB NO: z

STATION: SW-19

DO (mg/L)	mg/L	8.48	N/A	OBS	0				0.004	0.005	0
Field pH (s.u.)	s.u.	8.29	N/A	OBS	0				0.004	0.005	0
Field SC (umhos/cm)	umhos/cm	392	N/A	OBS	0				0.004	0.005	0
Flow (Cubic Ft Sec)	Cubic Ft Sec	0.26	N/A	OBS	0				0.004	0.005	0
Water Temp (Deg C)	Deg C	13.5	N/A	OBS	0				0.004	0.005	0

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.



# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-126	LAB NO: H19070583-007	STATION: SW-2
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Flow (Cubic Ft Sec)	Cubic Ft Se	43.96	05/24/11-07/25/19	O	52	52	0.0	250.0	11.25	20.49	49.67	110.59	0
Staff Gauge (Feet)	Feet	0.75	05/24/11-07/25/19	O	42	42	0.21	1.75	0.66	0.68	0.44	1.54	0
TDS (mg/L)	mg/L	179 D	05/24/11-07/25/19	O	73	73	112.0	223.0	164.9	173	25.6	216.1	0
TSS (mg/L)	mg/L	<4	05/30/12-07/25/19	O	69	20	< 4	105.0					0
Alkalinity (mg/L)	mg/L	170	05/24/11-07/25/19	O	73	73	80.0	200.0	150.1	160	27.7	205.5	0
Calcium (mg/L)	mg/L	48	05/30/19-07/25/19	O	3	3	28.0	48.0	38.1	41	10.1	58.3	51
Chloride (mg/L)	mg/L	1	05/24/11-07/25/19	O	73	71	1.0	5.0	1.3	1	0.7	2.7	0
Fluoride (mg/L)	mg/L	<0.1	05/24/11-07/25/19	O	73	1	< 0.1	0.4					4
Hardness (mg/L)	mg/L	166	05/24/11-07/25/19	O	73	72	< 7	202.0	143.7	164	33	209.7	0
Magnesium (mg/L)	mg/L	11	05/30/19-07/25/19	O	3	3	7.0	11.0	9.2	10	2.1	13.4	13
Potassium (mg/L)	mg/L	1	05/30/19-07/25/19	O	3	2	1.0	1.0	1.0	1	0	1.0	1
Sodium (mg/L)	mg/L	2	05/30/19-07/25/19	O	3	3	2.0	2.0	2.0	2	0	2.0	2
Sulfate (mg/L)	mg/L	5	05/24/11-07/25/19	O	73	73	2.0	9.0	4.9	5	1.5	7.9	0
N+N (mg/L)	mg/L	<0.01	05/24/11-07/25/19	O	73	34	< 0.01	0.12					10
Phosphorus (mg/L)	mg/L	0.004	05/30/19-07/25/19	O	3	3	0.004	0.017	0.01	0.013	0.007	0.024	0.021
Total N Pers (mg/L)	mg/L	0.06	04/29/15-07/25/19	O	47	41	< 0	1.39	0.1	0.1	0.24	0.58	0
Aluminum (DIS) (mg/L)	mg/L	<0.009	05/30/19-07/25/19	O	3	2	< 0.009	0.051	0.018	0.012	0.023	0.064	0.14
Antimony (TRC) (mg/L)	mg/L	<0.0005	05/30/19-07/25/19	O	3	0	< 0.0005	< 0.0005					0.003
Arsenic (TRC) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	0	< 0.001	< 0.001					0.003
Barium (TRC) (mg/L)	mg/L	0.086	05/30/19-07/25/19	O	3	3	0.073	0.086	0.079	0.078	0.007	0.093	0.107
Beryllium (TRC) (mg/L)	mg/L	<0.0008	05/30/19-07/25/19	O	3	0	< 0.0008	< 0.0008					0.001
Cadmium (TRC) (mg/L)	mg/L	<0.00003	05/30/19-07/25/19	O	3	0	< 0	< .00003					0.0001
Chromium (TRC) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (TRC) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Copper (TRC) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002
Iron (TRC) (mg/L)	mg/L	0.09	05/30/19-07/25/19	O	3	3	0.09	0.55	0.22	0.23	0.24	0.7	0.6
Lead (TRC) (mg/L)	mg/L	<0.0003	05/30/19-07/25/19	O	3	0	< 0.0003	< 0.0003					0.0005
Manganese (TRC) (mg/L)	mg/L	0.008	05/30/19-07/25/19	O	3	3	0.008	0.012	0.01	0.011	0.002	0.014	0.019
Mercury (TRC) (ug/L)	ug/L	<0.005	05/30/19-07/25/19	O	3	1	< 0.005	0.01					0
Molybdenum (TRC) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.005
Nickel (TRC) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	1	< 0.001	< 0.001					0.01
Selenium (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.001
Silver (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0005
Strontium (TRC) (mg/L)	mg/L	0.139 L	05/30/19-07/25/19	O	3	3	0.095	0.139	0.118	0.126	0.023	0.164	0.138
Thallium (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0002
Uranium (TRC) (mg/L)	mg/L	0.0003	05/30/19-07/25/19	O	3	3	0.0002	0.0003	0.0003	0.0003	0.0001	0.0005	0.008
Zinc (TRC) (mg/L)	mg/L	<0.004	05/30/19-07/25/19	O	3	2	0.002	< .004	0.003	0.004	0.001	0.005	0.01

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-110	LAB NO: H19070583-002	STATION: SW-3
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DO (mg/L)	mg/L	8.09	05/24/11-07/24/19	O	34	34	5.95	12.87	9.82	9.85	1.56	12.94	0
Field pH (s.u.)	s.u.	8.34	05/24/11-07/24/19	O	34	34	7.92	8.7	8.28	8.32	0.16	8.6	0
Field SC (umhos/cm)	umhos/cm	414	05/24/11-07/24/19	O	34	34	269.0	423.0	375.3	385	36	447.3	0
Flow (Cubic Ft Sec)	Cubic Ft Sec	0.122	05/24/11-07/24/19	O	30	30	0.034	4.9	0.166	0.137	0.826	1.818	0
Staff Gauge (Feet)	Feet	0.12	08/25/11-07/24/19	O	18	18	0.11	0.96	0.34	0.44	0.22	0.78	0
Water Temp (Deg C)	Deg C	14.4	05/24/11-07/24/19	O	34	34	0.0	14.5	3.5	9.4	4.8	13.1	0
TDS (mg/L)	mg/L	236 D	05/24/11-07/24/19	O	32	32	152.0	255.0	217.7	222	17.7	253.1	0
TSS (mg/L)	mg/L	6 J	05/30/12-07/24/19	O	29	12	< 4	14.0					0
Alkalinity (mg/L)	mg/L	210	05/24/11-07/24/19	O	32	32	150.0	210.0	196.1	200	13.1	222.3	0
Calcium (mg/L)	mg/L	52	05/30/19-07/24/19	O	3	3	44.0	52.0	46.5	44	4.6	55.7	50
Chloride (mg/L)	mg/L	3	05/24/11-07/24/19	O	32	30	1.0	3.0	1.5	2	0.6	2.7	0
Fluoride (mg/L)	mg/L	0.2	05/24/11-07/24/19	O	32	32	0.1	0.2	0.2	0.2	0	0.2	4
Hardness (mg/L)	mg/L	228	05/24/11-07/24/19	O	32	32	139.0	234.0	206.7	214	18.7	244.1	0
Magnesium (mg/L)	mg/L	24	05/30/19-07/24/19	O	3	3	21.0	24.0	22.0	21	1.7	25.4	25
Potassium (mg/L)	mg/L	1	05/30/19-07/24/19	O	3	1	1.0	1.0					1
Sodium (mg/L)	mg/L	2	05/30/19-07/24/19	O	3	3	2.0	2.0	2.0	2	0	2.0	2
Sulfate (mg/L)	mg/L	18	05/24/11-07/24/19	O	32	32	5.0	26.0	15.7	17	5	25.7	0
N+N (mg/L)	mg/L	0.02	05/24/11-07/24/19	O	32	26	< 0.01	0.12	0.04	0.05	0.03	0.1	10
Phosphorus (mg/L)	mg/L	0.015	05/30/19-07/24/19	O	3	3	0.006	0.015	0.009	0.009	0.005	0.019	0.02
Total N Pers (mg/L)	mg/L	0.12	06/24/15-07/24/19	O	19	18	< 0.04	0.6	0.13	0.12	0.11	0.35	0
Aluminum (DIS) (mg/L)	mg/L	0.018 J	05/30/19-07/24/19	O	3	1	< 0.009	0.018					0.09
Antimony (TRC) (mg/L)	mg/L	<0.0005	05/30/19-07/24/19	O	3	0	< 0.0005	< 0.0005					0.003
Arsenic (TRC) (mg/L)	mg/L	<0.001	05/30/19-07/24/19	O	3	0	< 0.001	< 0.001					0.003
Barium (TRC) (mg/L)	mg/L	0.169	05/30/19-07/24/19	O	3	3	0.133	0.169	0.149	0.146	0.018	0.185	0.168
Beryllium (TRC) (mg/L)	mg/L	<0.0008	05/30/19-07/24/19	O	3	0	< 0.0008	< 0.0008					0.001
Cadmium (TRC) (mg/L)	mg/L	<0.00003	05/30/19-07/24/19	O	3	0	< 0	< .00003					0.0001
Chromium (TRC) (mg/L)	mg/L	<0.01	05/30/19-07/24/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (TRC) (mg/L)	mg/L	<0.01	05/30/19-07/24/19	O	3	0	< 0.01	< 0.01					0.01
Copper (TRC) (mg/L)	mg/L	<0.002	05/30/19-07/24/19	O	3	0	< 0.002	< 0.002					0.002
Iron (TRC) (mg/L)	mg/L	0.19	05/30/19-07/24/19	O	3	3	0.03	0.19	0.07	0.07	0.08	0.23	0.35
Lead (TRC) (mg/L)	mg/L	<0.0003	05/30/19-07/24/19	O	3	0	< 0.0003	< 0.0003					0.0009
Manganese (TRC) (mg/L)	mg/L	<0.005	05/30/19-07/24/19	O	3	0	< 0.005	< 0.005					0
Mercury (TRC) (ug/L)	ug/L	<0.005	05/30/19-07/24/19	O	3	0	< 0.005	< 0.005					0
Molybdenum (TRC) (mg/L)	mg/L	<0.002	05/30/19-07/24/19	O	3	0	< 0.002	< 0.002					0.005
Nickel (TRC) (mg/L)	mg/L	<0.001	05/30/19-07/24/19	O	3	0	< 0.001	< 0.001					0.01
Selenium (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.001
Silver (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0005
Strontium (TRC) (mg/L)	mg/L	0.122 L	05/30/19-07/24/19	O	3	3	0.1	0.122	0.11	0.11	0.011	0.132	0.12
Thallium (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/24/19	O	3	0	< 0.0002	< 0.0002					0.0002
Uranium (TRC) (mg/L)	mg/L	0.0006	05/30/19-07/24/19	O	3	3	0.0006	0.0006	0.0006	0.0006	0	0.0006	0.008
Zinc (TRC) (mg/L)	mg/L	0.009 L	05/30/19-07/24/19	O	3	2	0.002	0.009	0.003	0.002	0.004	0.011	0.01

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-107	LAB NO: H19070583-001	STATION: SW-4
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DO (mg/L)	mg/L	7.2	05/25/11-07/24/19	O	5	5	7.2	10.1	9.0	9.6	1.9	12.8	0
Field pH (s.u.)	s.u.	8	05/25/11-07/24/19	O	5	5	7.8	8.2	8.0	8	0.2	8.4	0
Field SC (umhos/cm)	umhos/cm	367	05/25/11-07/24/19	O	5	5	296.0	386.0	352.9	361.6	31.5	415.9	0
Flow (Cubic Ft Sec)	Cubic Ft Sec	0.012	05/25/11-07/24/19	O	5	5	0.012	2.0	0.098	0.04	0.373	0.844	0
Water Temp (Deg C)	Deg C	14.1	05/25/11-07/24/19	O	5	5	1.0	14.1	7.0	10.4	5.2	17.4	0
TDS (mg/L)	mg/L	211 D	07/24/19	O	1	1	211.0	211.0	211.0	211	0	211.0	0
TSS (mg/L)	mg/L	8 J	07/24/19	O	1	1	8.0	8.0	8.0	8	0	8.0	0
Alkalinity (mg/L)	mg/L	190	07/24/19	O	1	1	190.0	190.0	190.0	190	0	190.0	0
Calcium (mg/L)	mg/L	47	07/24/19	O	1	1	47.0	47.0	47.0	47	0	47.0	-1
Chloride (mg/L)	mg/L	<1	07/24/19	O	1	0	< 1	< 1					0
Fluoride (mg/L)	mg/L	0.1	07/24/19	O	1	1	0.1	0.1	0.1	0.1	0	0.1	4
Hardness (mg/L)	mg/L	197	07/24/19	O	1	1	197.0	197.0	197.0	197	0	197.0	0
Magnesium (mg/L)	mg/L	19	07/24/19	O	1	1	19.0	19.0	19.0	19	0	19.0	-1
Potassium (mg/L)	mg/L	1	07/24/19	O	1	1	1.0	1.0	1.0	1	0	1.0	-1
Sodium (mg/L)	mg/L	3	07/24/19	O	1	1	3.0	3.0	3.0	3	0	3.0	-1
Sulfate (mg/L)	mg/L	9	07/24/19	O	1	1	9.0	9.0	9.0	9	0	9.0	0
N+N (mg/L)	mg/L	0.08	07/24/19	O	1	1	0.08	0.08	0.08	0.08	0	0.08	10
Phosphorus (mg/L)	mg/L	0.045	07/24/19	O	1	1	0.045	0.045	0.045	0.045	0	0.045	-1
Total N Pers (mg/L)	mg/L	0.22	07/24/19	O	1	1	0.22	0.22	0.22	0.22	0	0.22	0
Aluminum (DIS) (mg/L)	mg/L	<0.009	07/24/19	O	1	0	< 0.009	< 0.009					-1
Antimony (TRC) (mg/L)	mg/L	<0.0005	07/24/19	O	1	0	< 0.0005	< 0.0005					-1
Arsenic (TRC) (mg/L)	mg/L	<0.001	07/24/19	O	1	0	< 0.001	< 0.001					-1
Barium (TRC) (mg/L)	mg/L	0.148	07/24/19	O	1	1	0.148	0.148	0.148	0.148	0	0.148	-1
Beryllium (TRC) (mg/L)	mg/L	<0.0008	07/24/19	O	1	0	< 0.0008	< 0.0008					-1
Cadmium (TRC) (mg/L)	mg/L	<0.00003	07/24/19	O	1	0	< 0	< .00003					-1
Chromium (TRC) (mg/L)	mg/L	<0.01	07/24/19	O	1	0	< 0.01	< 0.01					-1
Cobalt (TRC) (mg/L)	mg/L	<0.01	07/24/19	O	1	0	< 0.01	< 0.01					-1
Copper (TRC) (mg/L)	mg/L	<0.002	07/24/19	O	1	0	< 0.002	< 0.002					-1
Iron (TRC) (mg/L)	mg/L	0.39	07/24/19	O	1	1	0.39	0.39	0.39	0.39	0	0.39	-1
Lead (TRC) (mg/L)	mg/L	<0.0003	07/24/19	O	1	0	< 0.0003	< 0.0003					-1
Manganese (TRC) (mg/L)	mg/L	0.027	07/24/19	O	1	1	0.027	0.027	0.027	0.027	0	0.027	-1
Mercury (TRC) (ug/L)	ug/L	<0.005	07/24/19	O	1	0	< 0.005	< 0.005					-1
Molybdenum (TRC) (mg/L)	mg/L	<0.002	07/24/19	O	1	0	< 0.002	< 0.002					-1
Nickel (TRC) (mg/L)	mg/L	<0.001	07/24/19	O	1	0	< 0.001	< 0.001					-1
Selenium (TRC) (mg/L)	mg/L	<0.0002	07/24/19	O	1	0	< 0.0002	< 0.0002					-1
Silver (TRC) (mg/L)	mg/L	<0.0002	07/24/19	O	1	0	< 0.0002	< 0.0002					-1
Strontium (TRC) (mg/L)	mg/L	0.186 L	07/24/19	O	1	1	0.186	0.186	0.186	0.186	0	0.186	-1
Thallium (TRC) (mg/L)	mg/L	<0.0002	07/24/19	O	1	0	< 0.0002	< 0.0002					-1
Uranium (TRC) (mg/L)	mg/L	0.0007	07/24/19	O	1	1	0.0007	0.0007	0.0007	0.0007	0	0.0007	-1
Zinc (TRC) (mg/L)	mg/L	<0.02	07/24/19	O	1	0	< 0.02	< 0.02					-1

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Black Butte Mine Data Comparison Summary

Report Date: September 13, 2019

SAMPLE NO BBC-1907-127	LAB NO: H19070583-008	STATION: USGS-SC1
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Flow (Cubic Ft Sec)	Cubic Ft Se	39.73	05/05/14-07/25/19	O	41	41	0.0	111.32	8.2	18.8	36.73	81.66	0
TDS (mg/L)	mg/L	188 D	03/24/14-07/25/19	O	61	61	132.0	230.0	187.9	195	19.9	227.7	0
TSS (mg/L)	mg/L	<4	03/24/14-07/25/19	O	61	17	< 4	38.0					0
Alkalinity (mg/L)	mg/L	180	03/24/14-07/25/19	O	61	61	120.0	220.0	175.0	180	21.4	217.8	0
Calcium (mg/L)	mg/L	50	05/30/19-07/25/19	O	3	3	37.0	50.0	43.7	45	6.6	56.9	56
Chloride (mg/L)	mg/L	1	03/24/14-07/25/19	O	61	61	1.0	5.0	1.4	1	0.9	3.2	0
Fluoride (mg/L)	mg/L	<0.1	03/24/14-07/25/19	O	61	1	< 0.1	< 0.1					4
Hardness (mg/L)	mg/L	175	03/24/14-07/25/19	O	61	60	< 7	214.0	167.0	185	29.1	225.2	0
Magnesium (mg/L)	mg/L	12	05/30/19-07/25/19	O	3	3	9.0	12.0	10.6	11	1.5	13.6	14
Potassium (mg/L)	mg/L	1	05/30/19-07/25/19	O	3	3	1.0	1.0	1.0	1	0	1.0	1
Sodium (mg/L)	mg/L	2	05/30/19-07/25/19	O	3	3	2.0	2.0	2.0	2	0	2.0	2
Sulfate (mg/L)	mg/L	5	03/24/14-07/25/19	O	61	61	3.0	8.0	5.7	6	1.4	8.5	0
N+N (mg/L)	mg/L	0.01	03/24/14-07/25/19	O	61	42	< 0.01	0.13	0.03	0.02	0.04	0.11	10
Phosphorus (mg/L)	mg/L	0.004	05/30/19-07/25/19	O	3	3	0.004	0.018	0.009	0.009	0.007	0.023	0.02
Total N Pers (mg/L)	mg/L	0.05	04/29/15-07/25/19	O	47	37	< 0	1.1	0.08	0.09	0.16	0.4	0
Aluminum (DIS) (mg/L)	mg/L	<0.009	05/30/19-07/25/19	O	3	1	< 0.009	0.023					0.032
Antimony (TRC) (mg/L)	mg/L	<0.0005	05/30/19-07/25/19	O	3	0	< 0.0005	< 0.0005					0.0005
Arsenic (TRC) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	0	< 0.001	< 0.001					0.001
Barium (TRC) (mg/L)	mg/L	0.08	05/30/19-07/25/19	O	3	3	0.06	0.08	0.07	0.07	0.01	0.09	0.078
Beryllium (TRC) (mg/L)	mg/L	<0.0008	05/30/19-07/25/19	O	3	0	< 0.0008	< 0.0008					0.0008
Cadmium (TRC) (mg/L)	mg/L	<0.00003	05/30/19-07/25/19	O	3	0	< 0	< .00003					0
Chromium (TRC) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Cobalt (TRC) (mg/L)	mg/L	<0.01	05/30/19-07/25/19	O	3	0	< 0.01	< 0.01					0.01
Copper (TRC) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002
Iron (TRC) (mg/L)	mg/L	0.07	05/30/19-07/25/19	O	3	3	0.07	0.67	0.2	0.16	0.32	0.84	0.56
Lead (TRC) (mg/L)	mg/L	<0.0003	05/30/19-07/25/19	O	3	1	< 0.0003	< 0.0003					0.0003
Manganese (TRC) (mg/L)	mg/L	0.006	05/30/19-07/25/19	O	3	3	0.006	0.013	0.009	0.008	0.004	0.017	0.015
Mercury (TRC) (ug/L)	ug/L	<0.005	05/30/19-07/25/19	O	3	1	< 0.005	0.01					0
Molybdenum (TRC) (mg/L)	mg/L	<0.002	05/30/19-07/25/19	O	3	0	< 0.002	< 0.002					0.002
Nickel (TRC) (mg/L)	mg/L	<0.001	05/30/19-07/25/19	O	3	1	< 0.001	0.002					0.002
Selenium (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0002
Silver (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0002
Strontium (TRC) (mg/L)	mg/L	0.15 L	05/30/19-07/25/19	O	3	3	0.12	0.15	0.14	0.14	0.02	0.18	0.154
Thallium (TRC) (mg/L)	mg/L	<0.0002	05/30/19-07/25/19	O	3	0	< 0.0002	< 0.0002					0.0002
Uranium (TRC) (mg/L)	mg/L	0.0003	05/30/19-07/25/19	O	3	3	0.0003	0.0003	0.0003	0.0003	0	0.0003	0.008
Zinc (TRC) (mg/L)	mg/L	<0.004	05/30/19-07/25/19	O	3	2	0.002	< .004	0.003	0.002	0.001	0.005	0.005

NOTES: All results are in mg/L unless otherwise noted. All results laboratory unless field (FLD) or calculated (CALC). N: Number of samples in comparison data set; 50% of data set must be above lab detection limit before mean, median, SD and 95th percentile are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

**APPENDIX 2**  
**DATABASE**

# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

Sample Type:	Station (Site)	DI-Blank	DI-Blank	DS-1	DS-10	DS-11	DS-2
Water	Sample Date	7/25/2019	7/25/2019	7/24/2019	7/24/2019	7/24/2019	7/24/2019
	Sample Time	1:45:00 PM	2:30:00 PM	2:00:00 PM	11:15:00 AM	10:45:00 AM	10:05:00 AM
	Lab	Energy Labs	Energy Labs	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	H19070583-009	H19070585-013	H19070585-002	z	z	z
	Sample Number	BBC-1907-128	BBC-1907-129	BBC-1907-108	BBC-1907-102	BBC-1907-101	BBC-1907-100
	Remarks						

Field Parameters	Multiple Units
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Dissolved Oxygen	11.17	8.55	10.09	5.19
Field pH	7.95	7.68	7.74	7.17
Field Specific Conductivity	416	338	427	333
Flow				
Flow	11.1	3.97	7.38	0.91
Staff Gauge				
Water Temperature	11.4	9.7	7.5	13.5

Physical Parameters	mg/L
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Total Dissolved Solids	<10	<10	222
Total Suspended Solids	<4	<10	<10

Major Constituents - Commons Ions	mg/L
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Alkalinity as CaCO3	<4	<4	210
Calcium (DIS)	<1	<1	60
Chloride	<1	<1	<1
Fluoride	<0.1	<0.1	0.1
Hardness as CaCO3	<1	<1	238
Magnesium (DIS)	<1	<1	22
Potassium (DIS)	<1	<1	<1
Sodium (DIS)	<1	<1	2
Sulfate	<1	<1	14

Nutrients	mg/L
-----------	------

Nitrate + Nitrite as N	<0.01	<0.01	0.18
Phosphorus (TOT)	<0.003		
Total Nitrogen as N (Persulfate)	<0.04		

Metals - Trace Constituents	Multiple Units
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Aluminum (DIS)	<0.009	<0.009	<0.009
Antimony (DIS)		<0.0005	<0.0005
Antimony (TRC)	<0.0005		
Arsenic (DIS)		<0.001	<0.001
Arsenic (TRC)	<0.001		
Barium (DIS)		<0.003	0.05
Barium (TRC)	<0.003		



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.

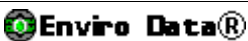
# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

Sample Type:	Station (Site)	DI-Blank	DI-Blank	DS-1	DS-10	DS-11	DS-2
Water	Sample Date	7/25/2019	7/25/2019	7/24/2019	7/24/2019	7/24/2019	7/24/2019
	Sample Time	1:45:00 PM	2:30:00 PM	2:00:00 PM	11:15:00 AM	10:45:00 AM	10:05:00 AM
	Lab	Energy Labs	Energy Labs	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	H19070583-009	H19070585-013	H19070585-002	z	z	z
	Sample Number	BBC-1907-128	BBC-1907-129	BBC-1907-108	BBC-1907-102	BBC-1907-101	BBC-1907-100
	Remarks						

Metals - Trace Constituents	Multiple Units		
Beryllium (DIS)		<0.0008	<0.0008
Beryllium (TRC)	<0.0008		
Cadmium (DIS)		<0.00003	<0.00003
Cadmium (TRC)	<0.00003		
Chromium (DIS)		<0.01	<0.01
Chromium (TRC)	<0.01		
Cobalt (DIS)		<0.01	<0.01
Cobalt (TRC)	<0.01		
Copper (DIS)		<0.002	<0.002
Copper (TRC)	<0.002		
Iron (DIS)		<0.02	<0.02
Iron (TRC)	<0.02		
Lead (DIS)		<0.0003	<0.0003
Lead (TRC)	<0.0003		
Manganese (DIS)		<0.005	<0.005
Manganese (TRC)	<0.005		
Mercury (DIS)		<0.005	<0.005
Mercury (TRC)	<0.005		
Molybdenum (DIS)		<0.002	<0.002
Molybdenum (TRC)	<0.002		
Nickel (DIS)		<0.001	<0.001
Nickel (TRC)	<0.001		
Selenium (DIS)		<0.0002	<0.0002
Selenium (TRC)	<0.0002		
Silver (DIS)		<0.0002	<0.0002
Silver (TRC)	<0.0002		
Strontium (DIS)		<0.0002	0.1
Strontium (TRC)	<0.0003		
Thallium (DIS)		<0.0002	<0.0002
Thallium (TRC)	<0.0002		
Uranium (DIS)		<0.0002	0.0006
Uranium (TRC)	<0.0002		
Zinc (DIS)		<0.002	<0.002



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.

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# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

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Sample Type:	Station (Site)	DI-Blank	DI-Blank	DS-1	DS-10	DS-11	DS-2
Water	Sample Date	7/25/2019	7/25/2019	7/24/2019	7/24/2019	7/24/2019	7/24/2019
	Sample Time	1:45:00 PM	2:30:00 PM	2:00:00 PM	11:15:00 AM	10:45:00 AM	10:05:00 AM
	Lab	Energy Labs	Energy Labs	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	H19070583-009	H19070585-013	H19070585-002	z	z	z
	Sample Number	BBC-1907-128	BBC-1907-129	BBC-1907-108	BBC-1907-102	BBC-1907-101	BBC-1907-100
	Remarks						

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<b>Metals - Trace Constituents</b>	<b>Multiple Units</b>
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Zinc (TRC)	<0.008
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# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

Sample Type:	Station (Site)	DS-3	DS-3	DS-4	DS-7	DS-8	DS-9
Water	Sample Date	7/24/2019	7/24/2019	7/24/2019	7/25/2019	7/24/2019	7/24/2019
	Sample Time	3:35:00 PM	3:45:00 PM	4:45:00 PM	8:40:00 AM	11:50:00 AM	11:30:00 AM
	Lab	Energy Labs	Energy Labs	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	H19070585-004	H19070585-005	H19070585-007	z	z	z
	Sample Number	BBC-1907-112	BBC-1907-113	BBC-1907-115	BBC-1907-116	BBC-1907-104	BBC-1907-103
	Remarks	DUPLICATE					

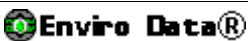
Field Parameters	Multiple Units					
Dissolved Oxygen	5.14		7.26	8.81	9.19	8.1
Field pH	8.23		7.7	6.81	7.73	7.84
Field Specific Conductivity	49		98	260	439	355
Flow						
Flow	13.08			10.51	5.44	10.88
Staff Gauge						
Water Temperature	9.5		12.3	8.5	6.83	10.9

Physical Parameters	mg/L		
Total Dissolved Solids	54	60	69
Total Suspended Solids	<10	<10	<10

Major Constituents - Commons Ions	mg/L		
Alkalinity as CaCO3	22	22	42
Calcium (DIS)	5	5	12
Chloride	<1	<1	<1
Fluoride	<0.1	<0.1	<0.1
Hardness as CaCO3	22	23	45
Magnesium (DIS)	2	2	3
Potassium (DIS)	1	1	<1
Sodium (DIS)	1	1	1
Sulfate	1	1	2

Nutrients	mg/L		
Nitrate + Nitrite as N	0.19	0.18	0.31
Phosphorus (TOT)			
Total Nitrogen as N (Persulfate)			

Metals - Trace Constituents	Multiple Units		
Aluminum (DIS)	1.41 J	1.44 J	0.71 J
Antimony (DIS)	<0.0005	<0.0005	<0.0005
Antimony (TRC)			
Arsenic (DIS)	<0.001	<0.001	0.001
Arsenic (TRC)			
Barium (DIS)	0.25	0.255	0.315
Barium (TRC)			



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

Sample Type:	Station (Site)	DS-3	DS-3	DS-4	DS-7	DS-8	DS-9
Water	Sample Date	7/24/2019	7/24/2019	7/24/2019	7/25/2019	7/24/2019	7/24/2019
	Sample Time	3:35:00 PM	3:45:00 PM	4:45:00 PM	8:40:00 AM	11:50:00 AM	11:30:00 AM
	Lab	Energy Labs	Energy Labs	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	H19070585-004	H19070585-005	H19070585-007	z	z	z
	Sample Number	BBC-1907-112	BBC-1907-113	BBC-1907-115	BBC-1907-116	BBC-1907-104	BBC-1907-103
	Remarks	DUPLICATE					

Metals - Trace Constituents	Multiple Units		
Beryllium (DIS)	<0.0008	<0.0008	<0.0008
Beryllium (TRC)			
Cadmium (DIS)	<0.00003	<0.00003	<0.00003
Cadmium (TRC)			
Chromium (DIS)	<0.01	<0.01	<0.01
Chromium (TRC)			
Cobalt (DIS)	<0.01	<0.01	<0.01
Cobalt (TRC)			
Copper (DIS)	0.002	0.002	<0.002
Copper (TRC)			
Iron (DIS)	0.78	0.8	0.38
Iron (TRC)			
Lead (DIS)	<0.0003	<0.0003	<0.0003
Lead (TRC)			
Manganese (DIS)	<0.005	<0.005	<0.005
Manganese (TRC)			
Mercury (DIS)	0.006	0.006	<0.005
Mercury (TRC)			
Molybdenum (DIS)	<0.002	<0.002	<0.002
Molybdenum (TRC)			
Nickel (DIS)	0.003	0.003	0.002
Nickel (TRC)			
Selenium (DIS)	<0.0002	<0.0002	<0.0002
Selenium (TRC)			
Silver (DIS)	<0.0002	<0.0002	<0.0002
Silver (TRC)			
Strontium (DIS)	0.0297 L	0.0299 L	0.0456 L
Strontium (TRC)			
Thallium (DIS)	<0.0002	<0.0002	<0.0002
Thallium (TRC)			
Uranium (DIS)	<0.0002	<0.0002	<0.0002
Uranium (TRC)			
Zinc (DIS)	0.007 L	0.007 L	<0.005

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# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

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Sample Type:	Station (Site)	DS-3	DS-3	DS-4	DS-7	DS-8	DS-9
Water	Sample Date	7/24/2019	7/24/2019	7/24/2019	7/25/2019	7/24/2019	7/24/2019
	Sample Time	3:35:00 PM	3:45:00 PM	4:45:00 PM	8:40:00 AM	11:50:00 AM	11:30:00 AM
	Lab	Energy Labs	Energy Labs	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	H19070585-004	H19070585-005	H19070585-007	z	z	z
	Sample Number	BBC-1907-112	BBC-1907-113	BBC-1907-115	BBC-1907-116	BBC-1907-104	BBC-1907-103
	Remarks		DUPLICATE				

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## Metals - Trace Constituents Multiple Units

Zinc (TRC)

# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

Sample Type:	Station (Site)	SP-10	SP-11	SP-12	SP-3	SP-4	SP-5
Water	Sample Date	7/24/2019	7/25/2019	7/25/2019	7/24/2019	7/25/2019	7/24/2019
	Sample Time	1:10:00 PM	10:15:00 AM	10:00:00 AM	4:20:00 PM	9:15:00 AM	2:20:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	H19070585-001	H19070585-012	H19070585-011	H19070585-006	H19070585-009	H19070585-003
	Sample Number	BBC-1907-106	BBC-1907-121	BBC-1907-120	BBC-1907-114	BBC-1907-118	BBC-1907-109
	Remarks						

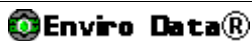
Field Parameters	Multiple Units						
Dissolved Oxygen	7.83	6.61	4.6	8.66	9.13	6.5	
Field pH	7.8	7.65	7.76	7.79	7.59	8.09	
Field Specific Conductivity	394	196	415	155	428	391	
Flow							
Flow	6.73	NM	NM	1.93	15.26	2.6	
Staff Gauge							
Water Temperature	9.6	6.8	8.4	9.9	6.7	16.6	

Physical Parameters	mg/L						
Total Dissolved Solids	208	122	244	113	236	223	
Total Suspended Solids	<10	<10	10 J	20 J	10 J	52 J	

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3	210	92	190	69	190	220	
Calcium (DIS)	58	23	52	22	47	63	
Chloride	<1	<1	8	<1	<1	<1	
Fluoride	0.1	0.1	0.2	0.1	0.2	0.1	
Hardness as CaCO3	228	91	224	75	219	237	
Magnesium (DIS)	20	8	23	5	25	19	
Potassium (DIS)	1	1	2	1	2	<1	
Sodium (DIS)	2	3	2	2	2	2	
Sulfate	12	6	19	6	26	9	

Nutrients	mg/L						
Nitrate + Nitrite as N	0.18	0.22	0.42	0.19	0.28	0.03	
Phosphorus (TOT)							
Total Nitrogen as N (Persulfate)							

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)	<0.009	0.065 J	<0.009	0.396 J	<0.009	<0.009	
Antimony (DIS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	
Antimony (TRC)							
Arsenic (DIS)	<0.001	0.006	<0.001	0.002	<0.001	<0.001	
Arsenic (TRC)							
Barium (DIS)	0.052	0.309	0.173	0.262	0.113	0.057	
Barium (TRC)							



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

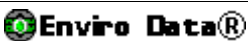
# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

Sample Type:	Station (Site)	SP-10	SP-11	SP-12	SP-3	SP-4	SP-5
Water	Sample Date	7/24/2019	7/25/2019	7/25/2019	7/24/2019	7/25/2019	7/24/2019
	Sample Time	1:10:00 PM	10:15:00 AM	10:00:00 AM	4:20:00 PM	9:15:00 AM	2:20:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	H19070585-001	H19070585-012	H19070585-011	H19070585-006	H19070585-009	H19070585-003
	Sample Number	BBC-1907-106	BBC-1907-121	BBC-1907-120	BBC-1907-114	BBC-1907-118	BBC-1907-109
	Remarks						

Metals - Trace Constituents	Multiple Units						
Beryllium (DIS)	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
Beryllium (TRC)							
Cadmium (DIS)	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Cadmium (TRC)							
Chromium (DIS)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (TRC)							
Cobalt (DIS)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt (TRC)							
Copper (DIS)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Copper (TRC)							
Iron (DIS)	<0.02	0.03	0.29	0.06	0.08		<0.02
Iron (TRC)							
Lead (DIS)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Lead (TRC)							
Manganese (DIS)	<0.005	<0.005	0.02	<0.005	0.018		<0.005
Manganese (TRC)							
Mercury (DIS)	<0.005	<0.005	<0.005	0.006	<0.005		<0.005
Mercury (TRC)							
Molybdenum (DIS)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Molybdenum (TRC)							
Nickel (DIS)	<0.001	<0.001	<0.001	0.001	<0.001		<0.001
Nickel (TRC)							
Selenium (DIS)	<0.0002	<0.0002	<0.0002	<0.0002	0.0003		<0.0002
Selenium (TRC)							
Silver (DIS)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Silver (TRC)							
Strontium (DIS)	0.104	0.0951	0.101	0.0602	0.0641		0.126
Strontium (TRC)							
Thallium (DIS)	<0.0002	<0.0002	<0.0002	<0.0002	0.0002		<0.0002
Thallium (TRC)							
Uranium (DIS)	0.0007	0.0004	0.0006	<0.0002	0.0005		0.0006
Uranium (TRC)							
Zinc (DIS)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

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# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

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Sample Type:	Station (Site)	SP-10	SP-11	SP-12	SP-3	SP-4	SP-5
Water	Sample Date	7/24/2019	7/25/2019	7/25/2019	7/24/2019	7/25/2019	7/24/2019
	Sample Time	1:10:00 PM	10:15:00 AM	10:00:00 AM	4:20:00 PM	9:15:00 AM	2:20:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	H19070585-001	H19070585-012	H19070585-011	H19070585-006	H19070585-009	H19070585-003
	Sample Number	BBC-1907-106	BBC-1907-121	BBC-1907-120	BBC-1907-114	BBC-1907-118	BBC-1907-109
	Remarks						

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**Metals - Trace Constituents** Multiple Units

Zinc (TRC)

# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

Sample Type:	Station (Site)	SP-6	SP-7	SW-1	SW-14	SW-17	SW-17
Water	Sample Date	7/25/2019	7/25/2019	7/25/2019	7/25/2019	7/25/2019	7/25/2019
	Sample Time	8:55:00 AM	9:35:00 AM	11:00:00 AM	12:10:00 PM	11:45:00 AM	12:00:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	H19070585-008	H19070585-010	H19070583-003	H19070583-006	H19070583-004	H19070583-005
	Sample Number	BBC-1907-117	BBC-1907-119	BBC-1907-122	BBC-1907-125	BBC-1907-123	BBC-1907-124
	Remarks						DUPLICATE

Field Parameters	Multiple Units					
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Dissolved Oxygen	8.75	2	9.16		8.71	
Field pH	7.1	7.43	8.38		8.09	
Field Specific Conductivity	279	336	322		462	
Flow			51.24	4.03	0.15	
Flow	2.46	99.64				
Staff Gauge			1.2	0.7		
Water Temperature	8	7.3	10.9		11.6	

Physical Parameters	mg/L					
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Total Dissolved Solids	160	188	185 D	217 D	266 D	266 D
Total Suspended Solids	<10	<10	4 J	<4	19 J	12 J

Major Constituents - Commons Ions	mg/L					
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Alkalinity as CaCO3	130	160	170	200	230	230
Calcium (DIS)	36	42	48	55	60	61
Chloride	<1	2	1	2	4	4
Fluoride	0.2	0.3	0.1	0.2	0.2	0.2
Hardness as CaCO3	146	162	167	206	247	250
Magnesium (DIS)	13	14	12	17	23	24
Potassium (DIS)	<1	3	1	1	1	<1
Sodium (DIS)	2	5	2	2	3	3
Sulfate	9	10	5	6	20	20

Nutrients	mg/L					
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Nitrate + Nitrite as N	0.36	0.3	<0.01	<0.01	0.11	0.11
Phosphorus (TOT)			0.01	0.005	0.011	0.013
Total Nitrogen as N (Persulfate)			0.12	0.11	0.37	0.35

Metals - Trace Constituents	Multiple Units					
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Aluminum (DIS)	<0.009	<0.009	<0.009	0.021 J	0.021 J	<0.009
Antimony (DIS)	<0.0005	<0.0005				
Antimony (TRC)			<0.0005	<0.0005	<0.0005	<0.0005
Arsenic (DIS)	<0.001	0.003				
Arsenic (TRC)			<0.001	<0.001	<0.001	<0.001
Barium (DIS)	0.208	0.116				
Barium (TRC)			0.102	0.109	0.157	0.157

# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

Sample Type:	Station (Site)	SP-6	SP-7	SW-1	SW-14	SW-17	SW-17
Water	Sample Date	7/25/2019	7/25/2019	7/25/2019	7/25/2019	7/25/2019	7/25/2019
	Sample Time	8:55:00 AM	9:35:00 AM	11:00:00 AM	12:10:00 PM	11:45:00 AM	12:00:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	H19070585-008	H19070585-010	H19070583-003	H19070583-006	H19070583-004	H19070583-005
	Sample Number	BBC-1907-117	BBC-1907-119	BBC-1907-122	BBC-1907-125	BBC-1907-123	BBC-1907-124
	Remarks						DUPLICATE

Metals - Trace Constituents	Multiple Units						
Beryllium (DIS)	<0.0008	<0.0008					
Beryllium (TRC)			<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
Cadmium (DIS)	<0.00003	<0.00003					
Cadmium (TRC)			<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Chromium (DIS)	<0.01	<0.01					
Chromium (TRC)			<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt (DIS)	<0.01	<0.01					
Cobalt (TRC)			<0.01	<0.01	<0.01	<0.01	<0.01
Copper (DIS)	<0.002	<0.002					
Copper (TRC)			<0.002	<0.002	<0.002	<0.002	<0.002
Iron (DIS)	<0.02	<0.02					
Iron (TRC)			0.13	0.07	0.37	0.36	0.36
Lead (DIS)	<0.0003	<0.0003					
Lead (TRC)			<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Manganese (DIS)	<0.005	<0.005					
Manganese (TRC)			0.015	0.007	0.041	0.041	0.041
Mercury (DIS)	<0.005	<0.005					
Mercury (TRC)			<0.005	<0.005	0.007	0.007	0.007
Molybdenum (DIS)	<0.002	<0.002					
Molybdenum (TRC)			<0.002	<0.002	<0.002	<0.002	<0.002
Nickel (DIS)	<0.001	<0.001					
Nickel (TRC)			<0.001	<0.001	<0.001	<0.001	<0.001
Selenium (DIS)	<0.0002	0.0003					
Selenium (TRC)			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Silver (DIS)	<0.0002	<0.0002					
Silver (TRC)			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Strontium (DIS)	0.0696	0.154					
Strontium (TRC)			0.136 L	0.125 L	0.172 L	0.169 L	0.169 L
Thallium (DIS)	0.0005	0.001					
Thallium (TRC)			<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Uranium (DIS)	0.0004	0.0009					
Uranium (TRC)			0.0003	0.0004	0.0005	0.0005	0.0005
Zinc (DIS)	<0.002	<0.002					

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.



# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

Sample Type:	Station (Site)	SP-6	SP-7	SW-1	SW-14	SW-17	SW-17
Water	Sample Date	7/25/2019	7/25/2019	7/25/2019	7/25/2019	7/25/2019	7/25/2019
	Sample Time	8:55:00 AM	9:35:00 AM	11:00:00 AM	12:10:00 PM	11:45:00 AM	12:00:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	H19070585-008	H19070585-010	H19070583-003	H19070583-006	H19070583-004	H19070583-005
	Sample Number	BBC-1907-117	BBC-1907-119	BBC-1907-122	BBC-1907-125	BBC-1907-123	BBC-1907-124
	Remarks						DUPLICATE

## Metals - Trace Constituents Multiple Units

Zinc (TRC)	<0.004	<0.04	0.005 L	0.005 L
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# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

Sample Type:	Station (Site)	SW-18	SW-19	SW-2	SW-3	SW-4	USGS-SC1
Water	Sample Date	7/24/2019	7/24/2019	7/25/2019	7/24/2019	7/24/2019	7/25/2019
	Sample Time	2:55:00 PM	12:40:00 PM	12:45:00 PM	2:45:00 PM	1:40:00 PM	1:15:00 PM
	Lab	Hydro	Hydro	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	z	z	H19070583-007	H19070583-002	H19070583-001	H19070583-008
	Sample Number	BBC-1907-111	BBC-1907-105	BBC-1907-126	BBC-1907-110	BBC-1907-107	BBC-1907-127
	Remarks						

## Field Parameters Multiple Units

Dissolved Oxygen		8.48		8.09		7.2
Field pH		8.29		8.34		8
Field Specific Conductivity		392		414		367
Flow	Dry	0.26		43.96		0.122
Flow						0.012
Staff Gauge				0.75		0.12
Water Temperature		13.5		14.4		14.1

## Physical Parameters mg/L

Total Dissolved Solids		179 D		236 D		211 D	188 D
Total Suspended Solids		<4		6 J		8 J	<4

## Major Constituents - Commons Ions mg/L

Alkalinity as CaCO3		170		210		190	180
Calcium (DIS)		48		52		47	50
Chloride		1		3		<1	1
Fluoride		<0.1		0.2		0.1	<0.1
Hardness as CaCO3		166		228		197	175
Magnesium (DIS)		11		24		19	12
Potassium (DIS)		1		1		1	1
Sodium (DIS)		2		2		3	2
Sulfate		5		18		9	5

## Nutrients mg/L

Nitrate + Nitrite as N		<0.01		0.02		0.08	0.01
Phosphorus (TOT)		0.004		0.015		0.045	0.004
Total Nitrogen as N (Persulfate)		0.06		0.12		0.22	0.05

## Metals - Trace Constituents Multiple Units

Aluminum (DIS)		<0.009		0.018 J		<0.009	<0.009
Antimony (DIS)							
Antimony (TRC)		<0.0005		<0.0005		<0.0005	<0.0005
Arsenic (DIS)							
Arsenic (TRC)		<0.001		<0.001		<0.001	<0.001
Barium (DIS)							
Barium (TRC)		0.086		0.169		0.148	0.08

# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

Sample Type:	Station (Site)	SW-18	SW-19	SW-2	SW-3	SW-4	USGS-SC1
Water	Sample Date	7/24/2019	7/24/2019	7/25/2019	7/24/2019	7/24/2019	7/25/2019
	Sample Time	2:55:00 PM	12:40:00 PM	12:45:00 PM	2:45:00 PM	1:40:00 PM	1:15:00 PM
	Lab	Hydro	Hydro	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	z	z	H19070583-007	H19070583-002	H19070583-001	H19070583-008
	Sample Number	BBC-1907-111	BBC-1907-105	BBC-1907-126	BBC-1907-110	BBC-1907-107	BBC-1907-127
	Remarks						

## Metals - Trace Constituents Multiple Units

Beryllium (DIS)				
Beryllium (TRC)	<0.0008	<0.0008	<0.0008	<0.0008
Cadmium (DIS)				
Cadmium (TRC)	<0.00003	<0.00003	<0.00003	<0.00003
Chromium (DIS)				
Chromium (TRC)	<0.01	<0.01	<0.01	<0.01
Cobalt (DIS)				
Cobalt (TRC)	<0.01	<0.01	<0.01	<0.01
Copper (DIS)				
Copper (TRC)	<0.002	<0.002	<0.002	<0.002
Iron (DIS)				
Iron (TRC)	0.09	0.19	0.39	0.07
Lead (DIS)				
Lead (TRC)	<0.0003	<0.0003	<0.0003	<0.0003
Manganese (DIS)				
Manganese (TRC)	0.008	<0.005	0.027	0.006
Mercury (DIS)				
Mercury (TRC)	<0.005	<0.005	<0.005	<0.005
Molybdenum (DIS)				
Molybdenum (TRC)	<0.002	<0.002	<0.002	<0.002
Nickel (DIS)				
Nickel (TRC)	<0.001	<0.001	<0.001	<0.001
Selenium (DIS)				
Selenium (TRC)	<0.0002	<0.0002	<0.0002	<0.0002
Silver (DIS)				
Silver (TRC)	<0.0002	<0.0002	<0.0002	<0.0002
Strontium (DIS)				
Strontium (TRC)	0.139 L	0.122 L	0.186 L	0.15 L
Thallium (DIS)				
Thallium (TRC)	<0.0002	<0.0002	<0.0002	<0.0002
Uranium (DIS)				
Uranium (TRC)	0.0003	0.0006	0.0007	0.0003
Zinc (DIS)				

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# Analyses Summary Report

Site Name: Black Butte Mine

9/13/2019 1:55:42 PM

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Sample Type:	Station (Site)	SW-18	SW-19	SW-2	SW-3	SW-4	USGS-SC1
Water	Sample Date	7/24/2019	7/24/2019	7/25/2019	7/24/2019	7/24/2019	7/25/2019
	Sample Time	2:55:00 PM	12:40:00 PM	12:45:00 PM	2:45:00 PM	1:40:00 PM	1:15:00 PM
	Lab	Hydro	Hydro	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	z	z	H19070583-007	H19070583-002	H19070583-001	H19070583-008
	Sample Number	BBC-1907-111	BBC-1907-105	BBC-1907-126	BBC-1907-110	BBC-1907-107	BBC-1907-127
	Remarks						

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<b>Metals - Trace Constituents</b>	Multiple Units
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Zinc (TRC)	<0.004	0.009 L	<0.02	<0.004
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**QUALITY CONTROL / QUALITY ASSURANCE  
DATA VERIFICATION REPORT**

**BLACK BUTTE COPPER  
WATER RESOURCE MONITORING**

**AUGUST 2019**

Prepared by  
**Hydrometrics, Inc.**  
3020 Bozeman Avenue  
Helena, MT 59601

SEPTEMBER 2019

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- Table 1. Data Validation Codes and Definitions**
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### APPENDIX 2: DATABASE SUMMARY REPORT

## GLOSSARY OF TERMS

CCB .....	Continuing Calibration Blank
CCV .....	Continuing Calibration Verification
CLP .....	Contract Laboratory Program
CRDL.....	Contract Required Detection Limit
DI í í í í	Deionized Water
FAA .....	Flame Atomic Absorption
GFAA.....	Graphite Furnace Atomic Absorption
HGAA.....	Hydride Generation Atomic Absorption
ICB.....	Initial Calibration Blank
ICP .....	Inductively Coupled Plasma
ICV .....	Initial Calibration Verification
IDL.....	Instrument Detection Limit
LCS .....	Laboratory Control Sample
MSA.....	Method of Standard Additions
PB .....	Preparation Blank
PRDL .....	Project Required Detection Limit
QAPP .....	Quality Assurance Project Plan
QC.....	Quality Control
RPD.....	Relative Percent Difference
RSD.....	Relative Standard Deviation
SOW.....	Statement of Work
TDS.....	Total Dissolved Solids

# DATA VALIDATION REPORT

## 1. INTRODUCTION

This validation applies to 30 samples collected for the Black Butte Tintina surface water and groundwater monitoring program. All sampling occurred in August 2019. All samples were submitted to Energy Laboratories in Helena, Montana and were assigned Laboratory IDs: H19080621 and H19080622. The total number of samples included: 17 groundwater and surface water samples including 2 field duplicates, and 2 field deionized (DI and Rinsate) blanks and 9 field site observations.

- Validation procedures used are generally consistent with:

(Check all that apply)

EPA CLP National Functional Guidelines for Inorganics Data Review

EPA CLP National Functional Guidelines for Organic Data Review

Montana Department of Environmental Quality, Data Validation Guidelines for Evaluating Analytical Data, Hydrometrics, September 2010

## 2. DELIVERABLES

- All laboratory document deliverables were present as specified in the CLP-Statement of Work and/or the project contract

Yes

No

- All documentation of field procedures was provided as required

Yes

No

## 3. FIELD QUALITY CONTROL SAMPLES

- Field blanks

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

DI, trip, rinsate, or any other field blanks have been carried out at the proper frequency

Yes

No

Reported results on the field blanks are less than the contract required detection limits (CRDL) or the project required detection limits (PRDL) if project detection limits have been specified

Yes

No

Field duplicates have been collected at the proper frequency

Yes

No

Field duplicate relative percent differences (RPDs) were within the required control limits (25 percent or less for water matrix and 50 percent or less for soil matrix)

Yes

No

## 4. LABORATORY PROCEDURES

- Laboratory Case Narrative Notes any non conformance issues with the analytical data

Yes

No



NA

- Samples were received by the laboratory at the proper temperature

Yes  
 No

- Holding times met

Yes  
 No

- Consistency with project requirements

Yes  
 No

- Sample Conditions met at Check-in

Yes see following notes  
 No

**NOTES:** In the Energy Laboratory sample check-in receipt the following was noted:

**H19070585-** Sample time on metals bottle in sample set BBC-1908-1117 was marked as non-filtered analysis but was preserved in field. Laboratory emailed to confirm filtered sample analyses was needed.

- Reporting units appropriate for the associated sample matrix and methods of analysis

Yes  
 No

- Project specified methods were used

Yes see following list of methods used  
 No

**NOTES:** It should be noted that parameters were analyzed using different methods than requested; however, all methods used by the laboratory are comparable. The following methods were used during analyses: A2540D, A2540C, A2320B, E300.0, A4500-F C, A2340B, E353.2, A4500-N C, E365.1, E200.8, and E200.7.

- Detection Limits met project required detection limits (PRDL)

Yes see following notes  
 No

**NOTES:** It should be noted that total dissolved solids and zinc had a reporting limit increases due to sample matrix interference (D). TDS had a limit of 10 mg/l used not the requested 4 mg/l. Strontium had the 0.0003 mg/l reporting limit was used in place of the requested 0.0002 mg/l; and zinc had a varying reporting limit as high as 0.02 mg/L not the requested 0.002 mg/L. However, values were flagged with an L to indicate that the lowest available reporting limit was used per method used for analysis. In addition, a reporting limit of 0.01 mg/l was used for nitrate + nitrite as n as replacement of the 0.003 mg/l requested.

## 5. INITIAL OR CONTINUING CALIBRATION VERIFICATION RESULTS

- Initial or Continuing Calibration Verification samples were within acceptable limits

Yes  
 No

## 6. LABORATORY BLANKS

- PREPARATION/METHOD BLANKS

O:\EnviroData\_Projects\BlackButte\CurrentWork\2019\3rdQtr19\August\BlackButte\_August2019\_ValidationSummaryReport.doc

Preparation/Method blanks were prepared and analyzed at the required frequency

Yes  
 No

All analytes in the preparation blank were less than the CRDL (or PRDL if a project detection limit has been specified)

Yes  
 No

**7. MATRIX SPIKE /MATRIX SPIKE DUPLICATES (MS/MSD)**

- Matrix spike samples were analyzed at the proper frequency

Yes  
 No

- Matrix spike recoveries were within control limits

Yes  
 No ó see following table

QC Sample ID	Parameter	% REC	Lab Flag	Lab Advisory Limits (% REC)
H19080622-010CMS	Nitrate + Nitrite as N	112	S	90-110

S ó Spike recovery outside of recovery limits

- Matrix spike RPDø were within control limits

Yes  
 No

- Matrix spike duplicate samples were analyzed at the proper frequency

Yes  
 No

- Matrix spike duplicate RPDø were within control limits

Yes  
 No

- Matrix spike duplicate recoveries were within the laboratory specified control limits.

Yes  
 No

**8. LABORATORY CONTROL SAMPLES**

- LCS Samples

Laboratory Control Samples used the correct matrix and concentrations

Yes  
 No  
 NA

Laboratory Control Samples were prepared and analyzed at the required frequency

Yes  
 No  
 NA

All analytes in the laboratory control samples were less than the control limits specified

Yes  
 No

## 9. DATA QUALITY OBJECTIVES

- Project data quality objectives (DQOs) met

Yes  
 No

### Accuracy

Accuracy for this project is the degree of agreement between an analytical measurement and a reference accepted as a true value. The accuracy of a measurement system can be affected by errors introduced by field contamination, sample preservation, sample handling, sample preparation and analytical techniques. Analysis of MS/MSD samples, laboratory control spikes (LCS) or blank spikes, surrogate standards and method blanks are typically used to calculate the percent recovery for evaluating accuracy. Accuracy for this sampling event was 99 percent.

### Precision

Precision for this project is the degree of mutual agreement between individual measurements of the same property under similar conditions. Combined field and laboratory precision is evaluated by collecting and analyzing field duplicate and then calculating the variance between the samples, typically as a relative percent difference (RPD). Laboratory analytical precision is evaluated by analyzing matrix spike/matrix spike duplicate samples and using the results to calculate an RPD. The combined precision was 99 percent for this sampling event for both laboratory and field.

### Representativeness

Representativeness for this project is the degree to which sample data accurately and precisely represent the characteristics of a population, and variations in a parameter at a sampling point or an environmental condition that they are intended to represent. Typically representative data will be obtained through careful selection of sampling locations and analytical parameters; proper collection and handling of samples and through use and consistent application of established field and laboratory procedures. Evaluation of field and laboratory blank samples for presence of contaminants can be useful in evaluating representativeness of sample results. Both laboratory and field representativeness for this sampling event was 100 percent.

### Completeness

The target completeness for this project is the percent of the measurements valid (not rejected). Valid data are obtained when samples are collected and analyzed in accordance with quality control procedures outlined in the SAP, and when none of the QC criteria that affect data usability are exceeded. Once data validation is complete the number of useable sample results is divided by the total number of sample results planned for the investigation to determine the percent completeness. Completeness for this sampling event was 100 percent.

### Comparability

Comparability is the expression of the confidence with which one data set can be compared with another. Comparability of data is achieved by consistently following standard field and laboratory procedures and by using standard measurement units in reporting analytical data. This criterion was met.

## REFERENCES

- Montana Department of Environmental Quality, Data Validation Guidelines for Evaluating Analytical Data (Updated August 5, 2010)
- EPA, 2017a. National Functional Guidelines for Organic Superfund Methods Data Review. EPA-540-R-2017-002. Office of Superfund Remediation and Technology Innovation. January 2017.
- EPA, 2017b. National Functional Guidelines for Inorganic Superfund Methods Data Review. EPA-540-R-2017-001. Office of Superfund Remediation and Technology Innovation. January 2017.
- Hem, J.D., 1992. Study and Interpretation of the Chemical Characteristics of Natural Water, 3rd edition. US Geological Survey Water Supply Paper 2254.

## **APPENDIX 1**

### **TABLES**

**TABLE 1.**

**DATA VALIDATION CODES AND DEFINITIONS**

<u>CODE</u>	<u>DEFINITION</u>
J	-The associated numerical value is an estimated quantity because quality control criteria were not met.
B	- Blank contamination. Indicates possible high bias and / or false positive. The associated value is an estimate.
R	- Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis is necessary for verification.
A	- Anomalous data. No apparent explanation for discrepancy in data. (Not an EPA code.)

**Table 2. Summary of Flagged Data**

StationName	Sample Date	Field Sample Id	Lab Name	Lab Sample Id	Parameter Name	Sample Result	Reporting Units	Validation Flag	Exceedance Type
-------------	-------------	-----------------	----------	---------------	----------------	---------------	-----------------	-----------------	-----------------

# Data Comparison Summary

Report Date: September 23, 2019

STATION	SAMPLE DATE	Quarterly Monitoring		QC Code	COMPARISON PERIOD	N	# OF DET	MIN mg/L	MEAN: mg/L	MAX mg/L	STDDARD DEVIATION	STD DEVS FROM MEAN	RELATION TO DATABASE PERIOD
		RESULT mg/L	PARAMETER										
DS-1	08/20/19	<0.000	Antimony (DIS)	O	03/25/15-08/20/19	33	0	<0.0005	0.0005	<0.0005	0		HIGHEST
DS-1	08/20/19	<0.000	Beryllium (DIS)	O	03/25/15-08/20/19	33	0	<0.0008	0.0008	<0.0008	0		HIGHEST
DS-1	08/20/19	<0.000	Cadmium (DIS)	O	03/25/15-08/20/19	33	0	<0.00003	0.00003	<0.00003	0		HIGHEST
DS-1	08/20/19	<0.01	Chromium (DIS)	O	03/25/15-08/20/19	33	0	<0.01	0.01	<0.01	0		HIGHEST
DS-1	08/20/19	<0.002	Copper (DIS)	O	03/25/15-08/20/19	33	1	<0.002	0.002	0.007	0.001	0.00	LOWEST
DS-1	08/20/19	<0.005	Mercury (DIS)	ug/L O	03/25/15-08/20/19	32	0	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
DS-1	08/20/19	<0.002	Molybdenum (DIS)	O	03/25/15-08/20/19	33	0	<0.002	0.002	<0.002	0		HIGHEST
DS-1	08/20/19	<0.001	Nickel (DIS)	O	03/25/15-08/20/19	33	0	<0.001	0.001	<0.001	0		HIGHEST
DS-1	08/20/19	0.0002	Selenium (DIS)	O	03/25/15-08/20/19	33	9	0.0002	0.0002	0.0002	0		HIGHEST
DS-1	08/20/19	<0.000	Silver (DIS)	O	03/25/15-08/20/19	33	0	<0.0002	0.0002	<0.0002	0		HIGHEST
DS-1	08/20/19	<0.000	Thallium (DIS)	O	03/25/15-08/20/19	33	0	<0.0002	0.0002	<0.0002	0		HIGHEST
DS-1	08/20/19	<0.002	Zinc (DIS)	O	03/25/15-08/20/19	33	25	<0.002	0.008	0.03	0.007	0.86	LOWEST
DS-1	08/20/19	<0.001	Arsenic (DIS)	O	03/25/15-08/20/19	33	0	<0.001	0.001	<0.001	0		HIGHEST
DS-1	08/20/19	<0.000	Lead (DIS)	O	03/25/15-08/20/19	33	0	<0.0003	0.0003	<0.0003	0		HIGHEST
DS-1	08/20/19	0.0006	Uranium (DIS)	O	03/25/15-08/20/19	33	5	0.0006	0.0069	<0.008	0.0027	2.33	LOWEST
DS-1	08/20/19	<0.009	Aluminum (DIS)	O	03/25/15-08/20/19	34	1	<0.009	0.009	0.024	0.003	0.00	LOWEST
DS-1	08/20/19	<0.01	Cobalt (DIS)	O	03/25/15-08/20/19	33	0	<0.01	0.01	<0.01	0		HIGHEST
DS-1	08/20/19	54	Calcium	O	03/25/15-08/20/19	34	34	46	57	62	3	1.00	
DS-1	08/20/19	0.051	Barium (DIS)	O	03/25/15-08/20/19	33	33	0.041	0.051	0.074	0.007	0.00	
DS-1	08/20/19	<0.02	Iron (DIS)	O	03/25/15-08/20/19	33	2	<0.02	0.02	0.06	0.01	0.00	LOWEST
DS-1	08/20/19	20	Magnesium	O	03/25/15-08/20/19	34	34	17	21	23	1	1.00	
DS-1	08/20/19	<0.005	Manganese (DIS)	O	03/25/15-08/20/19	33	0	<0.005	0.005	<0.005	0		HIGHEST
DS-1	08/20/19	<1	Potassium	O	03/25/15-08/20/19	34	0	<1	1	<1	0		HIGHEST
DS-1	08/20/19	2	Sodium	O	03/25/15-08/20/19	34	34	1	2	2	0		HIGHEST
DS-1	08/20/19	0.108	Strontium (DIS)	O	03/25/15-08/20/19	33	33	0.0847	0.107	0.119	0.007	0.14	
DS-1	08/20/19	<1	Chloride	O	03/25/15-08/20/19	34	0	<1	1	<1	0		HIGHEST
DS-1	08/20/19	5.94	Flow	Gallo O	03/25/15-08/20/19	30	30	0.05800	12.8	62.27	15.02	0.46	
DS-1	08/20/19	0.1	Fluoride	O	03/25/15-08/20/19	34	31	0.1	0.1	0.1	0		HIGHEST
DS-1	08/20/19	0.22	N+N	O	03/25/15-08/20/19	34	34	0.03	0.19	0.26	0.05	0.60	
DS-1	08/20/19	8.08	Field pH	s.u. O	03/25/15-08/20/19	33	33	7.36	7.79	8.56	0.29	1.00	
DS-1	08/20/19	402	Field SC	umh O	03/25/15-08/20/19	34	34	337	422	698.7	54	0.37	

NOTES: Summary of the comparison of Validation data to the Database Period Data, showing Parameters that are Three or more Standard Deviations from the Mean of the Database Period and the Relationship to these Data.

All results in mg/L unless otherwise noted. All results laboratory unless field (FLD) or Calculated (CALC). N: Number of samples in comparison data set; 50% of data must be above lab detection limit before mean, median and SD are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.



# Data Comparison Summary

Report Date: September 23, 2019

STATION	SAMPLE DATE	Quarterly Monitoring		QC Code	COMPARISON PERIOD	N	# OF DET	MIN mg/L	MEAN: mg/L	MAX mg/L	STDDARD DEVIATION	STD DEVS FROM MEAN	RELATION TO DATABASE PERIOD
		RESULT mg/L	PARAMETER										
DS-1	08/20/19	232	TDS	O	03/25/15-08/20/19	34	34	203	230	245	10	0.20	
DS-1	08/20/19	220	Alkalinity	O	03/25/15-08/20/19	34	34	180	215	220	8	0.62	HIGHEST
DS-1	08/20/19	219	Hardness	O	03/25/15-08/20/19	34	34	185	229	249	12	0.83	
DS-1	08/20/19	<10	TSS	O	03/25/15-08/20/19	34	10	<10	64	1130	201	0.27	LOWEST
DS-1	08/20/19	11	Water Temp	Deg O	03/25/15-08/20/19	34	34	0.5	7	18.25	3	1.33	
DS-1	08/20/19	9.41	DO	O	03/25/15-08/20/19	34	34	8.15	36.39	916	155.43	0.17	
DS-1	08/20/19	16	Sulfate	O	03/25/15-08/20/19	34	34	11	15	18	2	0.50	
DS-3	08/20/19	<0.000	Antimony (DIS)	O	08/06/14-08/20/19	31	0	<0.0005	0.0005	<0.0005	0		HIGHEST
DS-3	08/20/19	<0.000	Beryllium (DIS)	O	08/06/14-08/20/19	31	0	<0.0008	0.0008	<0.0008	0		HIGHEST
DS-3	08/20/19	<0.000	Cadmium (DIS)	O	08/06/14-08/20/19	31	2	<0.00003	0.00003	<0.00003	0		HIGHEST
DS-3	08/20/19	<0.01	Chromium (DIS)	O	08/06/14-08/20/19	31	0	<0.005	0.01	<0.01	0		HIGHEST
DS-3	08/20/19	<0.002	Copper (DIS)	O	08/06/14-08/20/19	31	20	<0.002	0.003	0.005	0.001	1.00	LOWEST
DS-3	08/20/19	0.006	Mercury (DIS)	ug/L O	08/06/14-08/20/19	31	20	0.000002	0.001	0.02 D	0.004	1.25	
DS-3	08/20/19	<0.002	Molybdenum (DIS)	O	08/06/14-08/20/19	31	0	<0.001	0.002	<0.002	0		HIGHEST
DS-3	08/20/19	0.003	Nickel (DIS)	O	08/06/14-08/20/19	31	30	<0.001	0.004	0.006	0.001	1.00	
DS-3	08/20/19	<0.000	Selenium (DIS)	O	08/06/14-08/20/19	31	5	0.0001	0.0002	<0.0002	0		HIGHEST
DS-3	08/20/19	<0.000	Silver (DIS)	O	08/06/14-08/20/19	31	0	<0.0002	0.0002	<0.0002	0		HIGHEST
DS-3	08/20/19	<0.000	Thallium (DIS)	O	08/06/14-08/20/19	31	0	<0.0002	0.0002	<0.0002	0		HIGHEST
DS-3	08/20/19	0.004	Zinc (DIS)	O	08/06/14-08/20/19	31	25	0.002	0.005	0.015 J	0.004	0.25	
DS-3	08/20/19	<0.001	Arsenic (DIS)	O	08/06/14-08/20/19	31	7	<0.001	0.001	0.002	0		LOWEST
DS-3	08/20/19	<0.000	Lead (DIS)	O	08/06/14-08/20/19	31	13	0.0001	0.0004	0.0011	0.0002	0.50	
DS-3	08/20/19	<0.000	Uranium (DIS)	O	08/06/14-08/20/19	31	0	<0.0002	0.006	<0.008	0.0034	1.71	LOWEST
DS-3	08/20/19	0.892	Aluminum (DIS)	O	08/06/14-08/20/19	32	32	0.114	2.043	8.17 D	1.715	0.67	
DS-3	08/20/19	<0.01	Cobalt (DIS)	O	08/06/14-08/20/19	31	0	<0.005	0.01	<0.01	0		HIGHEST
DS-3	08/20/19	6	Calcium	O	08/06/14-08/20/19	32	32	5	6	7	1	0.00	
DS-3	08/20/19	0.267	Barium (DIS)	O	08/06/14-08/20/19	31	31	0.229	0.278	0.345	0.025	0.44	
DS-3	08/20/19	0.41	Iron (DIS)	O	08/06/14-08/20/19	31	31	0.08	1.06	3.69	0.89	0.73	
DS-3	08/20/19	2	Magnesium	O	08/06/14-08/20/19	32	32	1	2	2	0		HIGHEST
DS-3	08/20/19	<0.005	Manganese (DIS)	O	08/06/14-08/20/19	31	22	<0.001	0.007	0.024	0.006	0.33	
DS-3	08/20/19	1	Potassium	O	08/06/14-08/20/19	32	28	<1	1	2	0		LOWEST
DS-3	08/20/19	1	Sodium	O	08/06/14-08/20/19	32	32	1	1	2	0		LOWEST

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		RESULT mg/L	PARAMETER										
DS-3	08/20/19	0.0292	Strontium (DIS)	O	08/06/14-08/20/19	31	31	0.0231	0.0291	0.0324	0.0022	0.05	
DS-3	08/20/19	<1	Chloride	O	08/06/14-08/20/19	32	3	<1	1	<1	0		HIGHEST
DS-3	08/20/19	7.69	Flow	Gallo O	08/06/14-08/20/19	28	28	0.47	12.89	159	29.32	0.18	
DS-3	08/20/19	<0.1	Fluoride	O	08/06/14-08/20/19	32	2	0.04	0.1	<0.1	0		HIGHEST
DS-3	08/20/19	0.3	N+N	O	08/06/14-08/20/19	32	32	0.11	0.3	0.48	0.1	0.00	
DS-3	08/20/19	8.07	Field pH	s.u. O	08/06/14-08/20/19	32	32	5.56	7.11	8.7	0.95	1.01	
DS-3	08/20/19	55.2	Field SC	umh O	08/06/14-08/20/19	32	32	40	58.8	132	20.3	0.18	
DS-3	08/20/19	58	TDS	O	08/06/14-08/20/19	32	32	47	72	128	21	0.67	
DS-3	08/20/19	23	Alkalinity	O	08/06/14-08/20/19	32	32	17	22	29	3	0.33	
DS-3	08/20/19	21	Hardness	O	08/06/14-08/20/19	32	32	19	23	26	2	1.00	
DS-3	08/20/19	<10	TSS	O	08/06/14-08/20/19	32	4	<4	15	95	18	0.28	
DS-3	08/20/19	12.3	Water Temp	Deg O	08/06/14-08/20/19	32	32	3.8	8.8	15.1	3	1.17	
DS-3	08/20/19	5.86	DO	O	08/06/14-08/20/19	32	32	3.72	6.9	10.8	2.1	0.50	
DS-3	08/20/19	2	Sulfate	O	08/06/14-08/20/19	32	32	1	1	2	0		HIGHEST
SP-10	08/20/19	<0.000	Antimony (DIS)	O	05/23/18-08/20/19	12	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SP-10	08/20/19	<0.000	Beryllium (DIS)	O	05/23/18-08/20/19	12	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SP-10	08/20/19	<0.000	Cadmium (DIS)	O	05/23/18-08/20/19	12	0	<0.00003	0.00003	<0.00003	0		HIGHEST
SP-10	08/20/19	<0.01	Chromium (DIS)	O	05/23/18-08/20/19	12	0	<0.01	0.01	<0.01	0		HIGHEST
SP-10	08/20/19	<0.002	Copper (DIS)	O	05/23/18-08/20/19	12	0	<0.002	0.002	<0.002	0		HIGHEST
SP-10	08/20/19	<0.005	Mercury (DIS)	ug/L O	05/23/18-08/20/19	12	0	<0.000005	0.002	<0.005	0.003	1.00	HIGHEST
SP-10	08/20/19	<0.002	Molybdenum (DIS)	O	05/23/18-08/20/19	12	0	<0.002	0.002	<0.002	0		HIGHEST
SP-10	08/20/19	<0.001	Nickel (DIS)	O	05/23/18-08/20/19	12	0	<0.001	0.001	<0.001	0		HIGHEST
SP-10	08/20/19	0.0003	Selenium (DIS)	O	05/23/18-08/20/19	12	7	<0.0002	0.0003	0.0003	0.0001	0.00	HIGHEST
SP-10	08/20/19	<0.000	Silver (DIS)	O	05/23/18-08/20/19	12	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-10	08/20/19	<0.000	Thallium (DIS)	O	05/23/18-08/20/19	12	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-10	08/20/19	<0.002	Zinc (DIS)	O	05/23/18-08/20/19	12	0	<0.002	0.002	<0.002	0		HIGHEST
SP-10	08/20/19	<0.001	Arsenic (DIS)	O	05/23/18-08/20/19	12	0	<0.001	0.001	<0.001	0		HIGHEST
SP-10	08/20/19	<0.000	Lead (DIS)	O	05/23/18-08/20/19	12	0	<0.0003	0.0003	<0.0003	0		HIGHEST
SP-10	08/20/19	0.0007	Uranium (DIS)	O	05/23/18-08/20/19	12	6	0.0007	0.0044	<0.008	0.0038	0.97	LOWEST
SP-10	08/20/19	<0.009	Aluminum (DIS)	O	05/23/18-08/20/19	12	0	<0.009	0.009	<0.009	0		HIGHEST
SP-10	08/20/19	<0.01	Cobalt (DIS)	O	05/23/18-08/20/19	12	0	<0.01	0.01	<0.01	0		HIGHEST

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		RESULT mg/L	PARAMETER										
SP-10	08/20/19	54	Calcium	O	05/23/18-08/20/19	12	12	49	56	61	4	0.50	
SP-10	08/20/19	0.052	Barium (DIS)	O	05/23/18-08/20/19	12	12	0.04	0.051	0.056	0.004	0.25	
SP-10	08/20/19	<0.02	Iron (DIS)	O	05/23/18-08/20/19	12	0	<0.02	0.02	<0.02	0		HIGHEST
SP-10	08/20/19	20	Magnesium	O	05/23/18-08/20/19	12	12	17	20	22	2	0.00	
SP-10	08/20/19	<0.005	Manganese (DIS)	O	05/23/18-08/20/19	12	3	<0.005	0.007	0.024	0.006	0.33	LOWEST
SP-10	08/20/19	1	Potassium	O	05/23/18-08/20/19	12	7	<1	1	<1	0		HIGHEST
SP-10	08/20/19	2	Sodium	O	05/23/18-08/20/19	12	12	1	2	2	0		HIGHEST
SP-10	08/20/19	0.113	Strontium (DIS)	O	05/23/18-08/20/19	12	12	0.095	0.11	0.122	0.008	0.37	
SP-10	08/20/19	<1	Chloride	O	05/23/18-08/20/19	12	0	<1	1	<1	0		HIGHEST
SP-10	08/20/19	2.6	Flow	Gallo O	05/23/18-08/20/19	11	11	0.58	17.1	59.69	21.6	0.67	
SP-10	08/20/19	0.1	Fluoride	O	05/23/18-08/20/19	12	12	0.1	0.1	0.1	0		HIGHEST
SP-10	08/20/19	0.22	N+N	O	05/23/18-08/20/19	12	12	0.06	0.2	0.28	0.06	0.33	
SP-10	08/20/19	8.1	Field pH	s.u. O	05/23/18-08/20/19	12	12	6.92	7.6	8.1	0.3	1.67	HIGHEST
SP-10	08/20/19	402	Field SC	umh O	05/23/18-08/20/19	12	12	305	396	434	37	0.16	
SP-10	08/20/19	235	TDS	O	05/23/18-08/20/19	12	12	196	221	235	14	1.00	HIGHEST
SP-10	08/20/19	220	Alkalinity	O	05/23/18-08/20/19	12	12	180	210	220	13	0.77	HIGHEST
SP-10	08/20/19	217	Hardness	O	05/23/18-08/20/19	12	12	193	221	245	16	0.25	
SP-10	08/20/19	<10	TSS	O	05/23/18-08/20/19	12	3	<10	20	68 J	20	0.50	LOWEST
SP-10	08/20/19	12.2	Water Temp	Deg O	05/23/18-08/20/19	12	12	4.6	7.8	12.2	2.1	2.10	HIGHEST
SP-10	08/20/19	7.95	DO	O	05/23/18-08/20/19	12	12	6.76	8.01	8.93	0.58	0.10	
SP-10	08/20/19	15	Sulfate	O	05/23/18-08/20/19	12	12	8	13	17	3	0.67	
SP-11	08/21/19	<0.000	Antimony (DIS)	O	04/18/18-08/21/19	13	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SP-11	08/21/19	<0.000	Beryllium (DIS)	O	04/18/18-08/21/19	13	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SP-11	08/21/19	<0.000	Cadmium (DIS)	O	04/18/18-08/21/19	13	0	<0.00003	0.00003	<0.00003	0		HIGHEST
SP-11	08/21/19	<0.01	Chromium (DIS)	O	04/18/18-08/21/19	13	0	<0.01	0.01	<0.01	0		HIGHEST
SP-11	08/21/19	<0.002	Copper (DIS)	O	04/18/18-08/21/19	13	1	<0.002	0.002	0.003	0		LOWEST
SP-11	08/21/19	<0.005	Mercury (DIS)	ug/L O	04/18/18-08/21/19	13	0	<0.000005	0.002	<0.005	0.003	1.00	HIGHEST
SP-11	08/21/19	<0.002	Molybdenum (DIS)	O	04/18/18-08/21/19	13	0	<0.002	0.002	<0.002	0		HIGHEST
SP-11	08/21/19	<0.001	Nickel (DIS)	O	04/18/18-08/21/19	13	0	<0.001	0.001	<0.001	0		HIGHEST
SP-11	08/21/19	<0.000	Selenium (DIS)	O	04/18/18-08/21/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-11	08/21/19	<0.000	Silver (DIS)	O	04/18/18-08/21/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST

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		RESULT mg/L	PARAMETER											
SP-11	08/21/19	<0.000	Thallium (DIS)	O	04/18/18-08/21/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST	
SP-11	08/21/19	<0.002	Zinc (DIS)	O	04/18/18-08/21/19	13	3	<0.002	0.002	0.004	0.001	0.00	LOWEST	
SP-11	08/21/19	0.006	Arsenic (DIS)	O	04/18/18-08/21/19	13	13	0.005	0.006	0.008	0.001	0.00		
SP-11	08/21/19	<0.000	Lead (DIS)	O	04/18/18-08/21/19	13	0	<0.0003	0.0003	<0.0003	0		HIGHEST	
SP-11	08/21/19	0.0003	Uranium (DIS)	O	04/18/18-08/21/19	13	6	0.0003	0.0045	<0.008	0.004	1.05	LOWEST	
SP-11	08/21/19	0.023	Aluminum (DIS)	O	04/18/18-08/21/19	13	13	0.017	0.082	0.479	0.129	0.46		
SP-11	08/21/19	<0.01	Cobalt (DIS)	O	04/18/18-08/21/19	13	0	<0.01	0.01	<0.01	0		HIGHEST	
SP-11	08/21/19	23	Calcium	O	04/18/18-08/21/19	13	13	21	23	24	1	0.00		
SP-11	08/21/19	0.304	Barium (DIS)	O	04/18/18-08/21/19	13	13	0.265	0.29	0.313	0.014	1.00		
SP-11	08/21/19	<0.02	Iron (DIS)	O	04/18/18-08/21/19	13	6	<0.02	0.04	0.17	0.04	0.50	LOWEST	
SP-11	08/21/19	8	Magnesium	O	04/18/18-08/21/19	13	13	7	8	9	1	0.00		
SP-11	08/21/19	<0.005	Manganese (DIS)	O	04/18/18-08/21/19	13	0	<0.005	0.005	<0.005	0		HIGHEST	
SP-11	08/21/19	1	Potassium	O	04/18/18-08/21/19	13	13	1	1	2	0		LOWEST	
SP-11	08/21/19	3	Sodium	O	04/18/18-08/21/19	13	13	3	3	4	1	0.00	LOWEST	
SP-11	08/21/19	0.102	Strontium (DIS)	O	04/18/18-08/21/19	13	12	0.0856	0.1	0.104	0.005	0.40		
SP-11	08/21/19	<1	Chloride	O	04/18/18-08/21/19	13	0	<1	1	<1	0		HIGHEST	
SP-11	08/21/19	0.1	Fluoride	O	04/18/18-08/21/19	13	13	0.1	0.2	0.2	0.1	1.00	LOWEST	
SP-11	08/21/19	0.26	N+N	O	04/18/18-08/21/19	13	13	0.22	0.25	0.31	0.03	0.33		
SP-11	08/21/19	7.59	Field pH	s.u.	O	04/18/18-08/21/19	13	13	6.28	7.46	7.98	0.49	0.27	
SP-11	08/21/19	192	Field SC	umh	O	04/18/18-08/21/19	13	13	171	187	196	8	0.62	
SP-11	08/21/19	117	TDS	O	04/18/18-08/21/19	13	13	99	118	133	10	0.10		
SP-11	08/21/19	94	Alkalinity	O	04/18/18-08/21/19	13	13	82	92	95	3	0.67		
SP-11	08/21/19	92	Hardness	O	04/18/18-08/21/19	13	13	81	91	95	4	0.25		
SP-11	08/21/19	<10	TSS	O	04/18/18-08/21/19	13	1	<10	10	<10	0		HIGHEST	
SP-11	08/21/19	6.8	Water Temp	Deg	O	04/18/18-08/21/19	13	13	5.6	6.4	7.4	0.5	0.80	
SP-11	08/21/19	6.93	DO	O	04/18/18-08/21/19	13	13	6.09	7.13	8.36	0.63	0.32		
SP-11	08/21/19	7	Sulfate	O	04/18/18-08/21/19	13	13	5	7	8	1	0.00		
SP-12	08/21/19	<0.000	Antimony (DIS)	O	04/18/18-08/21/19	14	0	<0.0005	0.0005	<0.0005	0		HIGHEST	
SP-12	08/21/19	<0.000	Beryllium (DIS)	O	04/18/18-08/21/19	14	0	<0.0008	0.0008	<0.0008	0		HIGHEST	
SP-12	08/21/19	<0.000	Cadmium (DIS)	O	04/18/18-08/21/19	14	0	<0.00003	0.00003	<0.00003	0		HIGHEST	
SP-12	08/21/19	<0.01	Chromium (DIS)	O	04/18/18-08/21/19	14	0	<0.01	0.01	<0.01	0		HIGHEST	

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		RESULT mg/L	PARAMETER										
SP-12	08/21/19	<0.002	Copper (DIS)	O	04/18/18-08/21/19	14	0	<0.002	0.002	<0.002	0		HIGHEST
SP-12	08/21/19	<0.005	Mercury (DIS)	ug/L O	04/18/18-08/21/19	14	1	<0.000005	0.003	<0.005	0.003	0.67	HIGHEST
SP-12	08/21/19	<0.002	Molybdenum (DIS)	O	04/18/18-08/21/19	14	0	<0.002	0.002	<0.002	0		HIGHEST
SP-12	08/21/19	<0.001	Nickel (DIS)	O	04/18/18-08/21/19	14	0	<0.001	0.001	<0.001	0		HIGHEST
SP-12	08/21/19	<0.000	Selenium (DIS)	O	04/18/18-08/21/19	14	10	0.0002	0.0002	0.0003	0		LOWEST
SP-12	08/21/19	<0.000	Silver (DIS)	O	04/18/18-08/21/19	14	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-12	08/21/19	<0.000	Thallium (DIS)	O	04/18/18-08/21/19	14	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-12	08/21/19	<0.002	Zinc (DIS)	O	04/18/18-08/21/19	14	3	<0.002	0.002	0.004	0.001	0.00	LOWEST
SP-12	08/21/19	<0.001	Arsenic (DIS)	O	04/18/18-08/21/19	14	0	<0.001	0.001	<0.001	0		HIGHEST
SP-12	08/21/19	<0.000	Lead (DIS)	O	04/18/18-08/21/19	14	0	<0.0003	0.0003	<0.0003	0		HIGHEST
SP-12	08/21/19	0.0005	Uranium (DIS)	O	04/18/18-08/21/19	14	8	0.0005	0.0038	<0.008	0.0038	0.87	LOWEST
SP-12	08/21/19	<0.009	Aluminum (DIS)	O	04/18/18-08/21/19	14	1	<0.009	0.009	0.014	0.001	0.00	LOWEST
SP-12	08/21/19	<0.01	Cobalt (DIS)	O	04/18/18-08/21/19	14	0	<0.01	0.01	<0.01	0		HIGHEST
SP-12	08/21/19	52	Calcium	O	04/18/18-08/21/19	14	14	47	54	61	4	0.50	
SP-12	08/21/19	0.172	Barium (DIS)	O	04/18/18-08/21/19	14	14	0.157	0.176	0.192	0.01	0.40	
SP-12	08/21/19	<0.02	Iron (DIS)	O	04/18/18-08/21/19	14	5	<0.02	0.05	0.29	0.07	0.43	LOWEST
SP-12	08/21/19	23	Magnesium	O	04/18/18-08/21/19	14	14	20	23	26	2	0.00	
SP-12	08/21/19	<0.005	Manganese (DIS)	O	04/18/18-08/21/19	14	2	<0.005	0.007	0.02	0.005	0.40	LOWEST
SP-12	08/21/19	1	Potassium	O	04/18/18-08/21/19	14	14	1	1	2	0		LOWEST
SP-12	08/21/19	2	Sodium	O	04/18/18-08/21/19	14	14	2	2	3	0		LOWEST
SP-12	08/21/19	0.104	Strontium (DIS)	O	04/18/18-08/21/19	14	13	0.0968	0.107	0.115	0.006	0.50	
SP-12	08/21/19	10	Chloride	O	04/18/18-08/21/19	14	14	5	8	10	2	1.00	HIGHEST
SP-12	08/21/19	0.2	Fluoride	O	04/18/18-08/21/19	14	14	0.2	0.2	0.2	0		HIGHEST
SP-12	08/21/19	0.26	N+N	O	04/18/18-08/21/19	14	14	0.12	0.38	0.69	0.15	0.80	
SP-12	08/21/19	8.1	Field pH	s.u. O	04/18/18-08/21/19	13	13	6.76	7.6	8.1	0.3	1.67	HIGHEST
SP-12	08/21/19	419	Field SC	umh O	04/18/18-08/21/19	13	13	400	436	473	20	0.85	
SP-12	08/21/19	239	TDS	O	04/18/18-08/21/19	14	14	230	245	262	10	0.60	
SP-12	08/21/19	200	Alkalinity	O	04/18/18-08/21/19	14	14	180	202	220	11	0.18	
SP-12	08/21/19	222	Hardness	O	04/18/18-08/21/19	14	14	200	231	258	15	0.60	
SP-12	08/21/19	<10	TSS	O	04/18/18-08/21/19	14	8	<10	41	187	52	0.60	LOWEST
SP-12	08/21/19	8.7	Water Temp	Deg O	04/18/18-08/21/19	13	13	5.1	6.6	8.7	1.1	1.91	HIGHEST

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# Data Comparison Summary

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		RESULT mg/L	PARAMETER										
SP-12	08/21/19	5.64	DO	O	04/18/18-08/21/19	13	13	3.32	6.52	10.38	2.07	0.43	
SP-12	08/21/19	21	Sulfate	O	04/18/18-08/21/19	14	14	13	23	28	4	0.50	
SP-3	08/20/19	<0.000	Antimony (DIS)	O	07/20/11-08/20/19	30	0	<0.0005	0.0007	<0.003	0.0006	0.33	LOWEST
SP-3	08/20/19	<0.000	Beryllium (DIS)	O	07/20/11-08/20/19	30	1	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
SP-3	08/20/19	<0.000	Cadmium (DIS)	O	07/20/11-08/20/19	30	2	<0.00003	0.00004	0.00015	0.00002	0.50	LOWEST
SP-3	08/20/19	<0.01	Chromium (DIS)	O	07/20/11-08/20/19	30	2	0.001	0.01	0.02	0		
SP-3	08/20/19	<0.002	Copper (DIS)	O	07/20/11-08/20/19	30	13	<0.001	0.004	0.026	0.005	0.40	
SP-3	08/20/19	0.005	Mercury (DIS)	ug/L O	07/20/11-08/20/19	29	13	<0.000005	0.001	0.02	0.004	1.00	
SP-3	08/20/19	<0.002	Molybdenum (DIS)	O	07/20/11-08/20/19	30	0	<0.001	0.002	<0.005	0.001	0.00	
SP-3	08/20/19	<0.001	Nickel (DIS)	O	07/20/11-08/20/19	30	14	<0.001	0.003	0.015	0.003	0.67	LOWEST
SP-3	08/20/19	<0.000	Selenium (DIS)	O	07/20/11-08/20/19	30	6	<0.0002	0.0003	<0.001	0.0002	0.50	LOWEST
SP-3	08/20/19	<0.000	Silver (DIS)	O	07/20/11-08/20/19	30	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
SP-3	08/20/19	<0.000	Thallium (DIS)	O	07/20/11-08/20/19	30	1	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-3	08/20/19	<0.002	Zinc (DIS)	O	07/20/11-08/20/19	30	11	<0.002	0.005	0.029	0.005	0.60	LOWEST
SP-3	08/20/19	0.002	Arsenic (DIS)	O	07/20/11-08/20/19	30	28	0.001	0.002	0.005	0.001	0.00	
SP-3	08/20/19	<0.000	Lead (DIS)	O	07/20/11-08/20/19	30	8	<0.0003	0.0005	0.0036	0.0006	0.33	LOWEST
SP-3	08/20/19	<0.000	Uranium (DIS)	O	07/20/11-08/20/19	30	1	<0.0002	0.0059	<0.008	0.0035	1.63	LOWEST
SP-3	08/20/19	0.156	Aluminum (DIS)	O	07/20/11-08/20/19	31	31	0.033	1.261	10.8 D	2.283	0.48	
SP-3	08/20/19	<0.01	Cobalt (DIS)	O	07/20/11-08/20/19	30	0	<0.005	0.01	<0.01	0		HIGHEST
SP-3	08/20/19	25	Calcium	O	07/20/11-08/20/19	31	31	14	24	32	5	0.20	
SP-3	08/20/19	0.29	Barium (DIS)	O	07/20/11-08/20/19	30	30	0.205	0.29	0.53	0.06	0.00	
SP-3	08/20/19	0.1	Iron (DIS)	O	07/20/11-08/20/19	30	30	0.02	0.7	6.89	1.4	0.43	
SP-3	08/20/19	5	Magnesium	O	07/20/11-08/20/19	31	31	3	5	7	1	0.00	
SP-3	08/20/19	0.011	Manganese (DIS)	O	07/20/11-08/20/19	30	10	0.001	0.009	0.068	0.012	0.17	
SP-3	08/20/19	1	Potassium	O	07/20/11-08/20/19	31	31	1	1	3	1	0.00	LOWEST
SP-3	08/20/19	3	Sodium	O	07/20/11-08/20/19	31	31	2	2	3	1	1.00	HIGHEST
SP-3	08/20/19	0.0724	Strontium (DIS)	O	07/20/11-08/20/19	30	28	0.0439	0.0725	<0.1	0.0161	0.01	
SP-3	08/20/19	1	Chloride	O	07/20/11-08/20/19	31	5	1	1	2	0		LOWEST
SP-3	08/20/19	0.94	Flow	Gallo O	07/20/11-08/20/19	29	28	0.009	1.59	8.1	1.93	0.34	
SP-3	08/20/19	0.1	Fluoride	O	07/20/11-08/20/19	31	31	0.1	0.1	0.1	0		HIGHEST
SP-3	08/20/19	0.22	N+N	O	07/20/11-08/20/19	31	31	0.1	0.28	0.43	0.07	0.86	

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		RESULT s.u.	PARAMETER										
SP-3	08/20/19	7.73	Field pH	s.u.	O 07/20/11-08/20/19	30	30	6.2	7.4	8.66	0.57	0.58	
SP-3	08/20/19	168	Field SC	umh	O 07/20/11-08/20/19	31	31	103	166	223	38	0.05	
SP-3	08/20/19	123	TDS		O 07/20/11-08/20/19	31	31	113	140	214	22	0.77	
SP-3	08/20/19	83	Alkalinity		O 07/20/11-08/20/19	31	31	44	77	100	20	0.30	
SP-3	08/20/19	83	Hardness		O 07/20/11-08/20/19	31	31	48	81	109	18	0.11	
SP-3	08/20/19	61	TSS		O 08/28/13-08/20/19	29	17	<10	43	191	50	0.36	
SP-3	08/20/19	17	Water Temp	Deg	O 07/20/11-08/20/19	31	31	1.7	8	17	4	2.25	HIGHEST
SP-3	08/20/19	5.02	DO		O 07/20/11-08/20/19	31	31	5.02	9.56	19.38	2.45	1.85	LOWEST
SP-3	08/20/19	7	Sulfate		O 07/20/11-08/20/19	31	31	3	5	7	1	2.00	HIGHEST
SP-4	08/21/19	<0.000	Antimony (DIS)		O 07/21/11-08/21/19	52	0	<0.0005	0.0006	<0.003	0.0006	0.17	LOWEST
SP-4	08/21/19	<0.000	Beryllium (DIS)		O 07/21/11-08/21/19	52	0	<0.0008	0.0008	<0.001	0		LOWEST
SP-4	08/21/19	<0.000	Cadmium (DIS)		O 07/21/11-08/21/19	52	0	<0.00003	0.00003	<0.00008	0.00001	0.00	LOWEST
SP-4	08/21/19	<0.01	Chromium (DIS)		O 07/21/11-08/21/19	52	0	<0.001	0.01	<0.01	0		HIGHEST
SP-4	08/21/19	<0.002	Copper (DIS)		O 07/21/11-08/21/19	52	1	<0.001	0.002	0.017	0.002	0.00	
SP-4	08/21/19	<0.005	Mercury (DIS)	ug/L	O 07/21/11-08/21/19	51	1	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
SP-4	08/21/19	<0.002	Molybdenum (DIS)		O 07/21/11-08/21/19	52	0	<0.001	0.002	<0.005	0.001	0.00	
SP-4	08/21/19	<0.001	Nickel (DIS)		O 07/21/11-08/21/19	52	0	<0.001	0.002	<0.01	0.002	0.50	LOWEST
SP-4	08/21/19	0.0004	Selenium (DIS)		O 07/21/11-08/21/19	52	48	<0.0002	0.0004	<0.001	0.0002	0.00	
SP-4	08/21/19	<0.000	Silver (DIS)		O 07/21/11-08/21/19	52	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
SP-4	08/21/19	0.0002	Thallium (DIS)		O 07/21/11-08/21/19	52	52	0.0002	0.0003	0.0004	0.0001	1.00	LOWEST
SP-4	08/21/19	<0.002	Zinc (DIS)		O 07/21/11-08/21/19	52	14	0.002	0.003	<0.01	0.002	0.50	LOWEST
SP-4	08/21/19	<0.001	Arsenic (DIS)		O 07/21/11-08/21/19	52	0	<0.001	0.001	<0.003	0		LOWEST
SP-4	08/21/19	<0.000	Lead (DIS)		O 07/21/11-08/21/19	52	0	<0.0003	0.0003	<0.0005	0		LOWEST
SP-4	08/21/19	0.0004	Uranium (DIS)		O 07/21/11-08/21/19	52	12	0.0004	0.0063	<0.008	0.0032	1.84	LOWEST
SP-4	08/21/19	<0.009	Aluminum (DIS)		O 07/21/11-08/21/19	53	5	<0.009	0.011	0.031	0.006	0.33	LOWEST
SP-4	08/21/19	<0.01	Cobalt (DIS)		O 07/21/11-08/21/19	52	0	<0.005	0.01	<0.01	0		HIGHEST
SP-4	08/21/19	47	Calcium		O 07/21/11-08/21/19	53	53	42	51	56	3	1.33	
SP-4	08/21/19	0.112	Barium (DIS)		O 07/21/11-08/21/19	52	52	0.101	0.112	0.121	0.005	0.00	
SP-4	08/21/19	<0.02	Iron (DIS)		O 07/21/11-08/21/19	52	13	<0.02	0.03	0.14	0.02	0.50	LOWEST
SP-4	08/21/19	24	Magnesium		O 07/21/11-08/21/19	53	53	24	26	29	1	2.00	LOWEST
SP-4	08/21/19	0.008	Manganese (DIS)		O 07/21/11-08/21/19	52	26	0.004	0.007	0.038	0.005	0.20	

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		RESULT mg/L	PARAMETER										
SP-4	08/21/19	2	Potassium	O	07/21/11-08/21/19	53	53	1	2	2	0		HIGHEST
SP-4	08/21/19	2	Sodium	O	07/21/11-08/21/19	53	53	2	2	2	0		HIGHEST
SP-4	08/21/19	0.0706	Strontium (DIS)	O	07/21/11-08/21/19	52	48	0.0641	0.0739	<0.1	0.0072	0.46	
SP-4	08/21/19	<1	Chloride	O	07/21/11-08/21/19	53	14	1	1	1	0		HIGHEST
SP-4	08/21/19	11.2	Flow	Gallo O	07/21/11-08/21/19	45	45	NF-ICE	8.9	50.27	10.4	0.22	
SP-4	08/21/19	0.2	Fluoride	O	07/21/11-08/21/19	53	53	0.2	0.2	0.3	0		LOWEST
SP-4	08/21/19	0.32	N+N	O	07/21/11-08/21/19	53	53	0.18	0.25	0.35	0.03	2.33	
SP-4	08/21/19	7.85	Field pH	s.u. O	07/21/11-08/21/19	52	52	6.95	7.7	8.63	0.29	0.52	
SP-4	08/21/19	415	Field SC	umh O	07/21/11-08/21/19	53	53	162	424	481	47	0.19	
SP-4	08/21/19	229	TDS	O	07/21/11-08/21/19	53	53	202	247	272	14	1.29	
SP-4	08/21/19	200	Alkalinity	O	07/21/11-08/21/19	53	53	190	201	210	5	0.20	
SP-4	08/21/19	217	Hardness	O	07/21/11-08/21/19	53	53	208	235	255	12	1.50	
SP-4	08/21/19	<10	TSS	O	08/28/13-08/21/19	50	30	5	50	890 D	129	0.31	
SP-4	08/21/19	7.1	Water Temp	Deg O	07/21/11-08/21/19	52	52	0.11	6.3	12.2	2.1	0.38	
SP-4	08/21/19	9.84	DO	O	07/21/11-08/21/19	53	53	6.7	9.91	13.95	1.36	0.05	
SP-4	08/21/19	32	Sulfate	O	07/21/11-08/21/19	53	53	10	36	45	7	0.57	
SP-5	08/20/19	<0.000	Antimony (DIS)	O	08/28/18-08/20/19	4	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SP-5	08/20/19	<0.000	Beryllium (DIS)	O	08/28/18-08/20/19	4	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SP-5	08/20/19	<0.000	Cadmium (DIS)	O	08/28/18-08/20/19	4	0	<0.00003	0.00003	<0.00003	0		HIGHEST
SP-5	08/20/19	<0.01	Chromium (DIS)	O	08/28/18-08/20/19	4	0	<0.01	0.01	<0.01	0		HIGHEST
SP-5	08/20/19	<0.002	Copper (DIS)	O	08/28/18-08/20/19	4	0	<0.002	0.002	<0.002	0		HIGHEST
SP-5	08/20/19	<0.005	Mercury (DIS)	ug/L O	08/28/18-08/20/19	4	0	<0.000005	0.003	<0.005	0.003	0.67	HIGHEST
SP-5	08/20/19	<0.002	Molybdenum (DIS)	O	08/28/18-08/20/19	4	0	<0.002	0.002	<0.002	0		HIGHEST
SP-5	08/20/19	<0.001	Nickel (DIS)	O	08/28/18-08/20/19	4	0	<0.001	0.001	<0.001	0		HIGHEST
SP-5	08/20/19	<0.000	Selenium (DIS)	O	08/28/18-08/20/19	4	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-5	08/20/19	<0.000	Silver (DIS)	O	08/28/18-08/20/19	4	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-5	08/20/19	<0.000	Thallium (DIS)	O	08/28/18-08/20/19	4	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-5	08/20/19	<0.002	Zinc (DIS)	O	08/28/18-08/20/19	4	0	<0.002	0.002	<0.002	0		HIGHEST
SP-5	08/20/19	<0.001	Arsenic (DIS)	O	08/28/18-08/20/19	4	0	<0.001	0.001	<0.001	0		HIGHEST
SP-5	08/20/19	<0.000	Lead (DIS)	O	08/28/18-08/20/19	4	0	<0.0003	0.0003	<0.0003	0		HIGHEST
SP-5	08/20/19	0.0005	Uranium (DIS)	O	08/28/18-08/20/19	4	2	0.0005	0.0043	<0.008	0.0043	0.88	LOWEST

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		RESULT mg/L	PARAMETER										
SP-5	08/20/19	0.029	Aluminum (DIS)	O	08/28/18-08/20/19	4	1	<0.009	0.014	0.029	0.01	1.50	HIGHEST
SP-5	08/20/19	<0.01	Cobalt (DIS)	O	08/28/18-08/20/19	4	0	<0.01	0.01	<0.01	0		HIGHEST
SP-5	08/20/19	57	Calcium	O	08/28/18-08/20/19	4	4	57	60	63	2	1.50	LOWEST
SP-5	08/20/19	0.058	Barium (DIS)	O	08/28/18-08/20/19	4	4	0.053	0.057	0.059	0.003	0.33	
SP-5	08/20/19	<0.02	Iron (DIS)	O	08/28/18-08/20/19	4	0	<0.02	0.02	<0.02	0		HIGHEST
SP-5	08/20/19	18	Magnesium	O	08/28/18-08/20/19	4	4	18	18	19	1	0.00	LOWEST
SP-5	08/20/19	0.017	Manganese (DIS)	O	08/28/18-08/20/19	4	2	<0.005	0.011	0.017	0.007	0.86	HIGHEST
SP-5	08/20/19	<1	Potassium	O	08/28/18-08/20/19	4	0	<1	1	<1	0		HIGHEST
SP-5	08/20/19	2	Sodium	O	08/28/18-08/20/19	4	4	2	2	2	0		HIGHEST
SP-5	08/20/19	0.136	Strontium (DIS)	O	08/28/18-08/20/19	4	4	0.126	0.134	0.141	0.006	0.33	
SP-5	08/20/19	<1	Chloride	O	08/28/18-08/20/19	4	0	<1	1	<1	0		HIGHEST
SP-5	08/20/19	1.93	Flow	Gallo O	08/28/18-08/20/19	4	4	0.6	1.52	2.6	0.92	0.45	
SP-5	08/20/19	<0.1	Fluoride	O	08/28/18-08/20/19	4	2	0.1	0.1	0.1	0		HIGHEST
SP-5	08/20/19	0.02	N+N	O	08/28/18-08/20/19	4	4	0.02	0.03	0.04	0.01	1.00	LOWEST
SP-5	08/20/19	7.99	Field pH	s.u. O	08/28/18-08/20/19	4	4	7.28	7.76	8.09	0.37	0.62	
SP-5	08/20/19	412	Field SC	umh O	08/28/18-08/20/19	4	4	389	402	414	13	0.77	
SP-5	08/20/19	233	TDS	O	08/28/18-08/20/19	4	4	223	227	233	5	1.20	HIGHEST
SP-5	08/20/19	230	Alkalinity	O	08/28/18-08/20/19	4	4	220	222	230	5	1.60	HIGHEST
SP-5	08/20/19	216	Hardness	O	08/28/18-08/20/19	4	4	216	225	237	9	1.00	LOWEST
SP-5	08/20/19	89	TSS	O	08/28/18-08/20/19	4	4	28	76	137 J	48	0.27	
SP-5	08/20/19	16.8	Water Temp	Deg O	08/28/18-08/20/19	4	4	5.2	11.8	16.8	5.8	0.86	HIGHEST
SP-5	08/20/19	6.29	DO	O	08/28/18-08/20/19	4	4	6.18	6.59	7.4	0.55	0.55	
SP-5	08/20/19	10	Sulfate	O	08/28/18-08/20/19	4	4	9	10	11	1	0.00	
SP-6	08/20/19	<0.000	Antimony (DIS)	O	10/12/11-08/20/19	45	0	<0.0005	0.0006	<0.003	0.0005	0.20	LOWEST
SP-6	08/20/19	<0.000	Beryllium (DIS)	O	10/12/11-08/20/19	45	0	<0.0008	0.0008	<0.001	0		LOWEST
SP-6	08/20/19	<0.000	Cadmium (DIS)	O	10/12/11-08/20/19	45	0	<0.00003	0.00003	<0.00008	0.00001	0.00	LOWEST
SP-6	08/20/19	<0.01	Chromium (DIS)	O	10/12/11-08/20/19	45	0	<0.001	0.01	<0.01	0		HIGHEST
SP-6	08/20/19	<0.002	Copper (DIS)	O	10/12/11-08/20/19	45	0	<0.001	0.002	<0.002	0		HIGHEST
SP-6	08/20/19	<0.005	Mercury (DIS)	ug/L O	10/12/11-08/20/19	44	1	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
SP-6	08/20/19	<0.002	Molybdenum (DIS)	O	10/12/11-08/20/19	45	0	<0.001	0.002	<0.005	0.001	0.00	
SP-6	08/20/19	<0.001	Nickel (DIS)	O	10/12/11-08/20/19	45	1	<0.001	0.001	<0.01	0.002	0.00	LOWEST

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		RESULT mg/L	PARAMETER										
SP-6	08/20/19	0.0002	Selenium (DIS)	O	10/12/11-08/20/19	45	13	<0.0002	0.0002	<0.001	0.0002	0.00	LOWEST
SP-6	08/20/19	<0.000	Silver (DIS)	O	10/12/11-08/20/19	45	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
SP-6	08/20/19	0.0005	Thallium (DIS)	O	10/12/11-08/20/19	45	45	0.0004	0.0005	0.0007	0.0001	0.00	
SP-6	08/20/19	<0.002	Zinc (DIS)	O	10/12/11-08/20/19	45	7	0.001	0.002	<0.01	0.002	0.00	
SP-6	08/20/19	<0.001	Arsenic (DIS)	O	10/12/11-08/20/19	45	0	<0.001	0.001	<0.003	0		LOWEST
SP-6	08/20/19	<0.000	Lead (DIS)	O	10/12/11-08/20/19	45	1	<0.0003	0.0003	<0.0005	0		LOWEST
SP-6	08/20/19	0.0004	Uranium (DIS)	O	10/12/11-08/20/19	45	15	<0.0003	0.0053	<0.008	0.0037	1.32	
SP-6	08/20/19	<0.009	Aluminum (DIS)	O	10/12/11-08/20/19	46	19	0.004	0.02	0.16	0.03	0.37	
SP-6	08/20/19	<0.01	Cobalt (DIS)	O	10/12/11-08/20/19	45	0	<0.005	0.01	<0.01	0		HIGHEST
SP-6	08/20/19	36	Calcium	O	10/12/11-08/20/19	46	46	32	35	38	2	0.50	
SP-6	08/20/19	0.212	Barium (DIS)	O	10/12/11-08/20/19	45	45	0.168	0.192	0.217	0.01	2.00	
SP-6	08/20/19	<0.02	Iron (DIS)	O	10/12/11-08/20/19	45	14	<0.02	0.03	0.19	0.03	0.33	LOWEST
SP-6	08/20/19	14	Magnesium	O	10/12/11-08/20/19	46	46	12	13	16	1	1.00	
SP-6	08/20/19	<0.005	Manganese (DIS)	O	10/12/11-08/20/19	45	7	<0.001	0.009	0.102	0.018	0.22	
SP-6	08/20/19	1	Potassium	O	10/12/11-08/20/19	46	9	1	1	1	0		HIGHEST
SP-6	08/20/19	2	Sodium	O	10/12/11-08/20/19	46	46	2	2	2	0		HIGHEST
SP-6	08/20/19	0.0787	Strontium (DIS)	O	10/12/11-08/20/19	45	43	0.0654	0.0734	<0.1	0.0064	0.83	
SP-6	08/20/19	1	Chloride	O	10/12/11-08/20/19	46	11	1	1	2	0		LOWEST
SP-6	08/20/19	0.98	Flow	Gallo O	10/12/11-08/20/19	44	36	0.273	1.3	3.5	0.82	0.39	
SP-6	08/20/19	0.1	Fluoride	O	10/12/11-08/20/19	46	46	0.1	0.2	0.2	0		LOWEST
SP-6	08/20/19	0.46	N+N	O	10/12/11-08/20/19	46	46	0.31	0.39	0.68	0.07	1.00	
SP-6	08/20/19	7.75	Field pH	s.u. O	10/12/11-08/20/19	45	45	5.81	7.35	8.72	0.65	0.62	
SP-6	08/20/19	284	Field SC	umh O	10/12/11-08/20/19	46	46	188	268	327	19	0.84	
SP-6	08/20/19	169	TDS	O	10/12/11-08/20/19	46	46	145	161	188	8	1.00	
SP-6	08/20/19	150	Alkalinity	O	10/12/11-08/20/19	46	46	120	135	160	7	2.14	
SP-6	08/20/19	146	Hardness	O	10/12/11-08/20/19	46	46	129	141	160	7	0.71	
SP-6	08/20/19	73	TSS	O	08/28/13-08/20/19	44	14	<4	34	216 H	49	0.80	
SP-6	08/20/19	9.1	Water Temp	Deg O	10/12/11-08/20/19	45	45	4.4	7.4	10.29	1.4	1.21	
SP-6	08/20/19	8.73	DO	O	10/12/11-08/20/19	46	46	6.7	15.79	282	40.16	0.18	
SP-6	08/20/19	10	Sulfate	O	10/12/11-08/20/19	46	46	7	9	12	2	0.50	
SP-7	08/21/19	<0.000	Antimony (DIS)	O	03/26/15-08/21/19	49	0	<0.0005	0.0005	<0.0005	0		HIGHEST

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SP-7	08/21/19	<0.000	Beryllium (DIS)	O	03/26/15-08/21/19	49	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SP-7	08/21/19	<0.000	Cadmium (DIS)	O	03/26/15-08/21/19	49	0	<0.00003	0.00003	<0.00003	0		HIGHEST
SP-7	08/21/19	<0.01	Chromium (DIS)	O	03/26/15-08/21/19	49	0	<0.01	0.01	<0.01	0		HIGHEST
SP-7	08/21/19	<0.002	Copper (DIS)	O	03/26/15-08/21/19	49	2	<0.002	0.002	0.015	0.002	0.00	LOWEST
SP-7	08/21/19	<0.005	Mercury (DIS)	ug/L O	03/26/15-08/21/19	49	1	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
SP-7	08/21/19	<0.002	Molybdenum (DIS)	O	03/26/15-08/21/19	49	0	<0.002	0.002	<0.002	0		HIGHEST
SP-7	08/21/19	<0.001	Nickel (DIS)	O	03/26/15-08/21/19	49	0	<0.001	0.001	<0.001	0		HIGHEST
SP-7	08/21/19	0.0003	Selenium (DIS)	O	03/26/15-08/21/19	49	45	<0.0002	0.0003	0.0004	0.0001	0.00	
SP-7	08/21/19	<0.000	Silver (DIS)	O	03/26/15-08/21/19	49	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-7	08/21/19	0.001	Thallium (DIS)	O	03/26/15-08/21/19	49	49	0.0007	0.001	0.0011	0		
SP-7	08/21/19	<0.002	Zinc (DIS)	O	03/26/15-08/21/19	49	2	<0.002	0.002	0.003	0		LOWEST
SP-7	08/21/19	0.004	Arsenic (DIS)	O	03/26/15-08/21/19	49	49	0.003	0.004	0.004	0		HIGHEST
SP-7	08/21/19	<0.000	Lead (DIS)	O	03/26/15-08/21/19	49	1	<0.0003	0.0003	0.0006	0		LOWEST
SP-7	08/21/19	0.0008	Uranium (DIS)	O	03/26/15-08/21/19	49	8	0.0008	0.0068	<0.008	0.0027	2.22	LOWEST
SP-7	08/21/19	<0.009	Aluminum (DIS)	O	03/26/15-08/21/19	50	2	<0.009	0.016	0.311	0.043	0.16	LOWEST
SP-7	08/21/19	<0.01	Cobalt (DIS)	O	03/26/15-08/21/19	49	0	<0.01	0.01	<0.01	0		HIGHEST
SP-7	08/21/19	41	Calcium	O	03/26/15-08/21/19	50	50	40	43	46	2	1.00	
SP-7	08/21/19	0.118	Barium (DIS)	O	03/26/15-08/21/19	49	49	0.1	0.112	0.122	0.004	1.50	
SP-7	08/21/19	<0.02	Iron (DIS)	O	03/26/15-08/21/19	49	4	<0.02	0.03	0.36	0.05	0.20	LOWEST
SP-7	08/21/19	14	Magnesium	O	03/26/15-08/21/19	50	50	13	15	16	1	1.00	
SP-7	08/21/19	<0.005	Manganese (DIS)	O	03/26/15-08/21/19	49	1	<0.005	0.005	<0.005	0		HIGHEST
SP-7	08/21/19	3	Potassium	O	03/26/15-08/21/19	50	50	2	3	3	0		HIGHEST
SP-7	08/21/19	5	Sodium	O	03/26/15-08/21/19	50	50	4	5	5	0		HIGHEST
SP-7	08/21/19	0.169	Strontium (DIS)	O	03/26/15-08/21/19	49	48	0.15	0.166	0.181	0.006	0.50	
SP-7	08/21/19	2	Chloride	O	03/26/15-08/21/19	50	50	1	2	2	0		HIGHEST
SP-7	08/21/19	17.1	Flow	Gallo O	03/26/15-08/21/19	43	43	6.7	25.4	136	25.4	0.33	
SP-7	08/21/19	0.3	Fluoride	O	03/26/15-08/21/19	50	50	0.3	0.3	0.4	0		LOWEST
SP-7	08/21/19	0.37	N+N	O	03/26/15-08/21/19	50	50	0.27 J	0.31	0.41	0.03	2.00	
SP-7	08/21/19	7.79	Field pH	s.u. O	03/26/15-08/21/19	49	49	6.17	7.4	8.18	0.33	1.18	
SP-7	08/21/19	325	Field SC	umh O	03/26/15-08/21/19	50	50	196	323	354	29	0.07	
SP-7	08/21/19	190	TDS	O	03/26/15-08/21/19	50	50	173	187	200	7	0.43	

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SP-7	08/21/19	170	Alkalinity	O	03/26/15-08/21/19	50	50	160	166	170	5	0.80	HIGHEST
SP-7	08/21/19	159	Hardness	O	03/26/15-08/21/19	50	50	153	167	178	6	1.33	
SP-7	08/21/19	<10	TSS	O	03/26/15-08/21/19	50	7	<4	14	146	20	0.20	
SP-7	08/21/19	7.9	Water Temp	Deg O	03/26/15-08/21/19	49	49	5.07	6.6	7.9	0.7	1.86	HIGHEST
SP-7	08/21/19	2.87	DO	O	03/26/15-08/21/19	50	50	2	3.92	10.98	1.65	0.64	
SP-7	08/21/19	11	Sulfate	O	03/26/15-08/21/19	50	50	7	10	12	1	1.00	
SW-1	08/21/19	<0.000	Antimony (TRC)	O	05/24/11-08/21/19	74	0	<0.0005	0.0008	<0.005	0.0008	0.37	LOWEST
SW-1	08/21/19	<0.000	Beryllium (TRC)	O	05/24/11-08/21/19	74	0	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
SW-1	08/21/19	<0.000	Cadmium (TRC)	O	05/24/11-08/21/19	74	4	<0.00003	0.00004	0.0002	0.00002	0.50	LOWEST
SW-1	08/21/19	<0.01	Chromium (TRC)	O	05/24/11-08/21/19	74	2	<0.001	0.01	<0.01	0		HIGHEST
SW-1	08/21/19	<0.002	Copper (TRC)	O	05/24/11-08/21/19	74	5	<0.001	0.002	0.003	0		
SW-1	08/21/19	<0.005	Mercury (TRC)	ug/L O	05/24/11-08/21/19	74	11	<0.000005	0.001	0.011	0.002	2.00	
SW-1	08/21/19	<0.002	Molybdenum (TRC)	O	05/24/11-08/21/19	74	0	<0.001	0.002	<0.005	0.001	0.00	
SW-1	08/21/19	<0.001	Nickel (TRC)	O	05/24/11-08/21/19	74	11	<0.001	0.002	<0.01	0.002	0.50	LOWEST
SW-1	08/21/19	<0.000	Selenium (TRC)	O	05/24/11-08/21/19	74	0	<0.0002	0.0003	<0.001	0.0002	0.50	LOWEST
SW-1	08/21/19	<0.000	Silver (TRC)	O	05/24/11-08/21/19	74	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
SW-1	08/21/19	<0.000	Thallium (TRC)	O	05/24/11-08/21/19	74	0	<0.002	0.0002	<0.0002	0		HIGHEST
SW-1	08/21/19	<0.002	Zinc (TRC)	O	05/24/11-08/21/19	74	26	<0.002	0.003	<0.01	0.002	0.50	LOWEST
SW-1	08/21/19	<0.001	Arsenic (TRC)	O	05/24/11-08/21/19	74	12	<0.001	0.001	<0.003	0.001	0.00	LOWEST
SW-1	08/21/19	<0.000	Lead (TRC)	O	05/24/11-08/21/19	74	14	<0.0003	0.0004	0.0015	0.0002	0.50	LOWEST
SW-1	08/21/19	0.0003	Uranium (TRC)	O	05/24/11-08/21/19	74	15	0.0002	0.0061	<0.008	0.0033	1.76	
SW-1	08/21/19	<0.009	Aluminum (DIS)	O	05/24/11-08/21/19	74	27	<0.009	0.041	0.333	0.073	0.44	LOWEST
SW-1	08/21/19	<0.01	Cobalt (TRC)	O	05/24/11-08/21/19	74	0	<0.005	0.01	<0.01	0		HIGHEST
SW-1	08/21/19	42	Calcium	O	05/24/11-08/21/19	74	74	23	43	55	8	0.12	
SW-1	08/21/19	0.108	Barium (TRC)	O	05/24/11-08/21/19	74	74	0.081	0.104	0.127	0.01	0.40	
SW-1	08/21/19	0.13	Iron (TRC)	O	05/24/11-08/21/19	74	74	0.11	0.3	1.86	0.3	0.57	
SW-1	08/21/19	11	Magnesium	O	05/24/11-08/21/19	74	74	6	11	15	2	0.00	
SW-1	08/21/19	0.014	Manganese (TRC)	O	05/24/11-08/21/19	74	74	0.009	0.018	0.053 J	0.008	0.50	
SW-1	08/21/19	0.009	Phosphorus	O	05/16/14-08/21/19	60	55	<0.003	0.015	0.09	0.013	0.46	
SW-1	08/21/19	1	Potassium	O	05/24/11-08/21/19	74	70	1	1	3	0		LOWEST
SW-1	08/21/19	2	Sodium	O	05/24/11-08/21/19	74	74	1	2	3	0		

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		RESULT mg/L	PARAMETER										
SW-1	08/21/19	0.123	Strontium (TRC)	O	05/24/11-08/21/19	74	71	0.0779	0.117	0.147	0.015	0.40	
SW-1	08/21/19	1	Chloride	O	05/24/11-08/21/19	74	73	1	1	5	1	0.00	LOWEST
SW-1	08/21/19	33.11	Flow	Cubi O	05/24/11-08/21/19	57	57	NF-ICE	64.8	613 E	96.02	0.33	
SW-1	08/21/19	<0.1	Fluoride	O	05/24/11-08/21/19	74	23	<0.1	0.1	0.2	0		LOWEST
SW-1	08/21/19	<0.01	N+N	O	05/24/11-08/21/19	74	34	<0.01	0.04	0.15	0.04	0.75	LOWEST
SW-1	08/21/19	8.46	Field pH	s.u. O	05/24/11-08/21/19	76	76	5.3	7.88	8.71	0.67	0.87	
SW-1	08/21/19	304	Field SC	umh O	05/24/11-08/21/19	77	77	176	291	363	53	0.25	
SW-1	08/21/19	178 D	TDS	O	05/24/11-08/21/19	74	74	107	171	227	26	0.27	
SW-1	08/21/19	160	Alkalinity	O	05/24/11-08/21/19	74	74	87	156	200	28	0.14	
SW-1	08/21/19	150	Hardness	O	05/24/11-08/21/19	74	73	<7	152	199	34	0.06	
SW-1	08/21/19	5	TSS	O	05/30/12-08/21/19	70	28	<4	9	43	7	0.57	
SW-1	08/21/19	11.8	Water Temp	Deg O	05/24/11-08/21/19	77	77	-0.97	4.8	14.5	4.8	1.46	
SW-1	08/21/19	9.6	DO	O	05/24/11-08/21/19	77	77	3.91	11.1	15	2	0.75	
SW-1	08/21/19	6	Sulfate	O	05/24/11-08/21/19	74	74	2	5	18 J	2	0.50	
SW-1	08/21/19	0.1	Total N Pers	O	04/29/15-08/21/19	48	44	<0.003	0.2	1.12 J	0.2	0.50	
SW-1	08/21/19	1.01	Staff Gauge	Feet O	05/24/11-08/21/19	48	48	0.49	1.41	13.3	1.81	0.22	
SW-14	08/21/19	<0.000	Antimony (TRC)	O	04/13/16-08/21/19	35	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SW-14	08/21/19	<0.000	Beryllium (TRC)	O	04/13/16-08/21/19	35	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SW-14	08/21/19	<0.000	Cadmium (TRC)	O	04/13/16-08/21/19	35	2	<0.00003	0.00003	<0.00003	0		HIGHEST
SW-14	08/21/19	<0.01	Chromium (TRC)	O	04/13/16-08/21/19	35	0	<0.01	0.01	<0.01	0		HIGHEST
SW-14	08/21/19	<0.002	Copper (TRC)	O	04/13/16-08/21/19	35	0	<0.002	0.002	<0.002	0		HIGHEST
SW-14	08/21/19	<0.005	Mercury (TRC)	ug/L O	04/13/16-08/21/19	35	1	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
SW-14	08/21/19	<0.002	Molybdenum (TRC)	O	04/13/16-08/21/19	35	0	<0.002	0.002	<0.002	0		HIGHEST
SW-14	08/21/19	<0.001	Nickel (TRC)	O	04/13/16-08/21/19	35	1	<0.001	0.001	0.002	0		LOWEST
SW-14	08/21/19	<0.000	Selenium (TRC)	O	04/13/16-08/21/19	35	1	<0.0002	0.0002	<0.0004	0		LOWEST
SW-14	08/21/19	<0.000	Silver (TRC)	O	04/13/16-08/21/19	35	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-14	08/21/19	<0.000	Thallium (TRC)	O	04/13/16-08/21/19	35	0	<0.002	0.0002	<0.0002	0		HIGHEST
SW-14	08/21/19	<0.002	Zinc (TRC)	O	04/13/16-08/21/19	35	5	<0.002	0.003	<0.04	0.006	0.17	LOWEST
SW-14	08/21/19	<0.001	Arsenic (TRC)	O	04/13/16-08/21/19	35	0	<0.001	0.001	<0.001	0		HIGHEST
SW-14	08/21/19	<0.000	Lead (TRC)	O	04/13/16-08/21/19	35	1	<0.0003	0.0003	0.0005	0		LOWEST
SW-14	08/21/19	0.0005	Uranium (TRC)	O	04/13/16-08/21/19	35	7	0.0004	0.0065	<0.008	0.003	2.00	

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# Data Comparison Summary

Report Date: September 23, 2019

STATION	SAMPLE DATE	Quarterly Monitoring		QC Code	COMPARISON PERIOD	N	# OF DET	MIN mg/L	MEAN: mg/L	MAX mg/L	STDDARD DEVIATION	STD DEVS FROM MEAN	RELATION TO DATABASE PERIOD
		RESULT mg/L	PARAMETER										
SW-14	08/21/19	<0.009	Aluminum (DIS)	O	04/13/16-08/21/19	35	3	<0.009	0.011	0.047	0.007	0.29	LOWEST
SW-14	08/21/19	<0.01	Cobalt (TRC)	O	04/13/16-08/21/19	35	0	<0.01	0.01	<0.01	0		HIGHEST
SW-14	08/21/19	51	Calcium	O	04/13/16-08/21/19	35	35	38	54	61	5	0.60	
SW-14	08/21/19	0.12	Barium (TRC)	O	04/13/16-08/21/19	35	35	0.081	0.11	0.13	0.01	1.00	
SW-14	08/21/19	0.06	Iron (TRC)	O	04/13/16-08/21/19	35	32	0.02	0.08	0.43	0.08	0.25	
SW-14	08/21/19	18	Magnesium	O	04/13/16-08/21/19	35	35	12	19	23	2	0.50	
SW-14	08/21/19	0.008	Manganese (TRC)	O	04/13/16-08/21/19	35	9	<0.005	0.005	0.009	0.001	3.00	
SW-14	08/21/19	0.009	Phosphorus	O	04/13/16-08/21/19	35	29	<0.003	0.013	0.180	0.03	0.13	
SW-14	08/21/19	1	Potassium	O	04/13/16-08/21/19	35	34	1	1	2	0		LOWEST
SW-14	08/21/19	3	Sodium	O	04/13/16-08/21/19	35	35	2	3	3	1	0.00	HIGHEST
SW-14	08/21/19	0.122	Strontium (TRC)	O	04/13/16-08/21/19	35	35	0.0807	0.121	0.136	0.012	0.08	
SW-14	08/21/19	2	Chloride	O	04/13/16-08/21/19	35	35	1	2	4	1	0.00	
SW-14	08/21/19	1.33	Flow	Cubi O	04/13/16-08/21/19	29	29	NF-ICE	2.37	11.75	2.97	0.35	
SW-14	08/21/19	0.2	Fluoride	O	04/13/16-08/21/19	35	35	0.1	0.2	0.2	0		HIGHEST
SW-14	08/21/19	0.02	N+N	O	04/13/16-08/21/19	35	33	0.01	0.1	0.27	0.08	1.00	
SW-14	08/21/19	8.08	Field pH	s.u. O	04/13/16-08/21/19	33	33	6.07	7.93	8.48	0.47	0.32	
SW-14	08/21/19	399	Field SC	umh O	04/13/16-08/21/19	34	34	263	384	439	42	0.36	
SW-14	08/21/19	229 D	TDS	O	04/13/16-08/21/19	35	35	175	225	266 D	16	0.25	
SW-14	08/21/19	220	Alkalinity	O	04/13/16-08/21/19	35	35	160	206	220	18	0.78	HIGHEST
SW-14	08/21/19	202	Hardness	O	04/13/16-08/21/19	35	35	153	212	239	18	0.56	
SW-14	08/21/19	<4	TSS	O	04/13/16-08/21/19	35	5	4	5	15	2	0.50	LOWEST
SW-14	08/21/19	14	Water Temp	Deg O	04/13/16-08/21/19	34	34	-0.91	7	14.7	5	1.40	
SW-14	08/21/19	8.94	DO	O	04/13/16-08/21/19	34	34	8.22	10.73	15.01	1.64	1.09	
SW-14	08/21/19	7	Sulfate	O	04/13/16-08/21/19	35	35	6	9	19	3	0.67	
SW-14	08/21/19	0.12	Total N Pers	O	04/13/16-08/21/19	32	31	<0.003	0.23	1.25 J	0.21	0.52	
SW-14	08/21/19	0.47	Staff Gauge	Feet O	04/13/16-08/21/19	21	21	0.3	0.5	0.8	0.14	0.21	
SW-17	08/21/19	<0.000	Antimony (TRC)	O	01/17/18-08/21/19	17	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SW-17	08/21/19	<0.000	Beryllium (TRC)	O	01/17/18-08/21/19	17	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SW-17	08/21/19	<0.000	Cadmium (TRC)	O	01/17/18-08/21/19	17	1	<0.00003	0.00004	0.00017	0.00003	0.33	LOWEST
SW-17	08/21/19	<0.01	Chromium (TRC)	O	01/17/18-08/21/19	17	0	<0.01	0.01	<0.01	0		HIGHEST
SW-17	08/21/19	<0.002	Copper (TRC)	O	01/17/18-08/21/19	17	0	<0.002	0.002	<0.002	0		HIGHEST

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		RESULT ug/L	PARAMETER										
SW-17	08/21/19	<0.005	Mercury (TRC)	ug/L	O 01/17/18-08/21/19	17	3	<0.000005	0.002	0.007	0.003	1.00	
SW-17	08/21/19	<0.002	Molybdenum (TRC)		O 01/17/18-08/21/19	17	0	<0.002	0.002	<0.002	0		HIGHEST
SW-17	08/21/19	<0.001	Nickel (TRC)		O 01/17/18-08/21/19	17	0	<0.001	0.001	<0.002	0		LOWEST
SW-17	08/21/19	<0.000	Selenium (TRC)		O 01/17/18-08/21/19	17	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-17	08/21/19	<0.000	Silver (TRC)		O 01/17/18-08/21/19	17	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-17	08/21/19	<0.000	Thallium (TRC)		O 01/17/18-08/21/19	17	3	0.000	0.0002	<0.0002	0		HIGHEST
SW-17	08/21/19	<0.002	Zinc (TRC)		O 01/17/18-08/21/19	17	9	<0.002	0.003	0.008	0.002	0.50	LOWEST
SW-17	08/21/19	<0.001	Arsenic (TRC)		O 01/17/18-08/21/19	17	0	<0.001	0.001	<0.001	0		HIGHEST
SW-17	08/21/19	<0.000	Lead (TRC)		O 01/17/18-08/21/19	17	1	<0.0003	0.0003	<0.0003	0		HIGHEST
SW-17	08/21/19	0.0006	Uranium (TRC)		O 01/17/18-08/21/19	17	6	0.0005	0.0054	<0.008	0.0036	1.33	
SW-17	08/21/19	<0.009	Aluminum (DIS)		O 01/17/18-08/21/19	17	2	<0.009	0.01	0.021 J	0.003	0.33	LOWEST
SW-17	08/21/19	<0.01	Cobalt (TRC)		O 01/17/18-08/21/19	17	0	<0.01	0.01	<0.01	0		HIGHEST
SW-17	08/21/19	50	Calcium		O 01/17/18-08/21/19	17	17	44	55	63	5	1.00	
SW-17	08/21/19	0.159	Barium (TRC)		O 01/17/18-08/21/19	17	17	0.108	0.149	0.168	0.015	0.67	
SW-17	08/21/19	0.21	Iron (TRC)		O 01/17/18-08/21/19	17	17	0.07	0.18	0.37	0.1	0.30	
SW-17	08/21/19	23	Magnesium		O 01/17/18-08/21/19	17	17	14	23	25	3	0.00	
SW-17	08/21/19	0.024	Manganese (TRC)		O 01/17/18-08/21/19	17	17	0.008	0.024	0.051	0.012	0.00	
SW-17	08/21/19	0.01	Phosphorus		O 01/17/18-08/21/19	17	17	0.004	0.02	0.088 J	0.02	0.50	
SW-17	08/21/19	1	Potassium		O 01/17/18-08/21/19	17	14	1	1	1	0		HIGHEST
SW-17	08/21/19	3	Sodium		O 01/17/18-08/21/19	17	17	2	2	3	1	1.00	HIGHEST
SW-17	08/21/19	0.138	Strontium (TRC)		O 01/17/18-08/21/19	17	17	0.111 L	0.146	0.172 L	0.017	0.47	
SW-17	08/21/19	5	Chloride		O 01/17/18-08/21/19	17	17	3	5	14	3	0.00	
SW-17	08/21/19	0.25	Flow	Cubi	O 01/17/18-08/21/19	12	12	NF-ICE	0.45	1.8	0.57	0.35	
SW-17	08/21/19	0.2	Fluoride		O 01/17/18-08/21/19	17	17	0.1	0.2	0.2	0		HIGHEST
SW-17	08/21/19	0.11	N+N		O 01/17/18-08/21/19	17	16	<0.01	0.09	0.19	0.06	0.33	
SW-17	08/21/19	8.2	Field pH	s.u.	O 01/17/18-08/21/19	16	16	7.47	8.1	8.41	0.2	0.50	
SW-17	08/21/19	431	Field SC	umh	O 01/17/18-08/21/19	16	16	319	430	487	41	0.02	
SW-17	08/21/19	256 D	TDS		O 01/17/18-08/21/19	17	17	197 D	255	314 D	30	0.03	
SW-17	08/21/19	210	Alkalinity		O 01/17/18-08/21/19	17	17	150	203	230	18	0.39	
SW-17	08/21/19	219	Hardness		O 01/17/18-08/21/19	17	17	167	232	262	23	0.57	
SW-17	08/21/19	5	TSS		O 01/17/18-08/21/19	17	8	4	6	19 J	5	0.20	

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		RESULT Deg C	PARAMETER										
SW-17	08/21/19	9.9	Water Temp	Deg	O 01/17/18-08/21/19	16	16	0.02	6.5	13.9	5.1	0.67	
SW-17	08/21/19	9.7	DO		O 01/17/18-08/21/19	16	16	8.46	10.3	12.9	1.1	0.55	
SW-17	08/21/19	25	Sulfate		O 01/17/18-08/21/19	17	17	12	28	44	8	0.38	
SW-17	08/21/19	0.23	Total N Pers		O 04/12/18-08/21/19	14	14	0.12	0.25	0.49	0.1	0.20	
SW-2	08/21/19	<0.000	Antimony (TRC)		O 05/24/11-08/21/19	74	0	<0.0005	0.0008	<0.005	0.0008	0.37	LOWEST
SW-2	08/21/19	<0.000	Beryllium (TRC)		O 05/24/11-08/21/19	74	0	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
SW-2	08/21/19	<0.000	Cadmium (TRC)		O 05/24/11-08/21/19	74	3	<0.00003	0.00003	<0.00008	0.00001	0.00	LOWEST
SW-2	08/21/19	<0.01	Chromium (TRC)		O 05/24/11-08/21/19	74	1	<0.001	0.01	<0.01	0		HIGHEST
SW-2	08/21/19	<0.002	Copper (TRC)		O 05/24/11-08/21/19	74	5	<0.001	0.002	0.004	0		
SW-2	08/21/19	<0.005	Mercury (TRC)	ug/L	O 05/24/11-08/21/19	74	12	<0.000005	0.001	0.01	0.002	2.00	
SW-2	08/21/19	<0.002	Molybdenum (TRC)		O 05/24/11-08/21/19	74	0	<0.001	0.002	<0.005	0.001	0.00	
SW-2	08/21/19	<0.001	Nickel (TRC)		O 05/24/11-08/21/19	74	12	<0.001	0.002	<0.01	0.002	0.50	LOWEST
SW-2	08/21/19	<0.000	Selenium (TRC)		O 05/24/11-08/21/19	74	0	<0.0002	0.0003	<0.001	0.0002	0.50	LOWEST
SW-2	08/21/19	<0.000	Silver (TRC)		O 05/24/11-08/21/19	74	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
SW-2	08/21/19	<0.000	Thallium (TRC)		O 05/24/11-08/21/19	74	0	<0.002	0.0002	<0.0002	0		HIGHEST
SW-2	08/21/19	<0.002	Zinc (TRC)		O 05/24/11-08/21/19	74	22	<0.002	0.004	0.014	0.003	0.67	LOWEST
SW-2	08/21/19	<0.001	Arsenic (TRC)		O 05/24/11-08/21/19	74	1	<0.001	0.001	<0.003	0.001	0.00	LOWEST
SW-2	08/21/19	<0.000	Lead (TRC)		O 05/24/11-08/21/19	74	14	<0.0003	0.0004	0.0017	0.0002	0.50	LOWEST
SW-2	08/21/19	0.0003	Uranium (TRC)		O 05/24/11-08/21/19	74	13	0.0002	0.0061	<0.008	0.0033	1.76	
SW-2	08/21/19	<0.009	Aluminum (DIS)		O 05/24/11-08/21/19	74	32	<0.009	0.041	0.39	0.071	0.45	LOWEST
SW-2	08/21/19	<0.01	Cobalt (TRC)		O 05/24/11-08/21/19	74	0	<0.005	0.01	<0.01	0		HIGHEST
SW-2	08/21/19	43	Calcium		O 05/24/11-08/21/19	74	74	21	43	58	8	0.00	
SW-2	08/21/19	0.102	Barium (TRC)		O 05/24/11-08/21/19	74	74	0.07	0.094	0.128	0.012	0.67	
SW-2	08/21/19	0.11	Iron (TRC)		O 05/24/11-08/21/19	74	74	0.09	0.29	2.49	0.36	0.50	
SW-2	08/21/19	11	Magnesium		O 05/24/11-08/21/19	74	74	5	11	15	2	0.00	
SW-2	08/21/19	0.008	Manganese (TRC)		O 05/24/11-08/21/19	74	74	0.006	0.013	0.116	0.014	0.36	
SW-2	08/21/19	0.006	Phosphorus		O 05/16/14-08/21/19	60	51	0.003	0.015	0.182 J	0.025	0.36	
SW-2	08/21/19	1	Potassium		O 05/24/11-08/21/19	74	68	1	1	2	0		LOWEST
SW-2	08/21/19	2	Sodium		O 05/24/11-08/21/19	74	74	1	2	3	0		
SW-2	08/21/19	0.124	Strontium (TRC)		O 05/24/11-08/21/19	74	72	0.0818	0.12	0.15	0.015	0.27	
SW-2	08/21/19	1	Chloride		O 05/24/11-08/21/19	74	72	1	1	5	1	0.00	LOWEST

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STATION	SAMPLE DATE	Quarterly Monitoring		QC Code	COMPARISON PERIOD	N	# OF DET	MIN Cubic Ft Sec	MEAN: Cubic Ft Sec	MAX Cubic Ft Sec	STDDARD DEVIATION	STD DEVS FROM MEAN	RELATION TO DATABASE PERIOD
		RESULT Cubic Ft Sec	PARAMETER										
SW-2	08/21/19	30.89	Flow	Cubi	O 05/24/11-08/21/19	49	49	NF-ICE	43.16	250 E	50.16	0.24	
SW-2	08/21/19	<0.1	Fluoride	O	O 05/24/11-08/21/19	74	1	<0.1	0.1	0.4	0		LOWEST
SW-2	08/21/19	<0.01	N+N	O	O 05/24/11-08/21/19	74	34	<0.01	0.04	0.12	0.04	0.75	LOWEST
SW-2	08/21/19	8.5	Field pH	s.u.	O 05/24/11-08/21/19	75	75	NM	7.8	8.73	1.1	0.64	
SW-2	08/21/19	299	Field SC	umh	O 05/24/11-08/21/19	76	76	156	283	388	54	0.30	
SW-2	08/21/19	173 D	TDS	O	O 05/24/11-08/21/19	74	74	112	167	223	25	0.24	
SW-2	08/21/19	160	Alkalinity	O	O 05/24/11-08/21/19	74	74	80	153	200	28	0.25	
SW-2	08/21/19	152	Hardness	O	O 05/24/11-08/21/19	74	73	<7	151	202	34	0.03	
SW-2	08/21/19	<4	TSS	O	O 05/30/12-08/21/19	70	20	<4	10	105	13	0.46	LOWEST
SW-2	08/21/19	12.7	Water Temp	Deg	O 05/24/11-08/21/19	76	76	-1	4.6	15.8	5	1.62	
SW-2	08/21/19	9.6	DO	O	O 05/24/11-08/21/19	76	76	6.35	11.2	16.18	1.7	0.94	
SW-2	08/21/19	5	Sulfate	O	O 05/24/11-08/21/19	74	74	2	5	9	2	0.00	
SW-2	08/21/19	0.08	Total N Pers	O	O 04/29/15-08/21/19	48	42	<0.003	0.17	1.39 J	0.26	0.35	
SW-2	08/21/19	0.55	Staff Gauge	Feet	O 05/24/11-08/21/19	43	43	0.21	0.78	1.75	0.45	0.51	
SW-3	08/20/19	<0.000	Antimony (TRC)	O	O 05/24/11-08/20/19	32	0	<0.0005	0.001	<0.005	0.0012	0.42	LOWEST
SW-3	08/20/19	<0.000	Beryllium (TRC)	O	O 05/24/11-08/20/19	32	0	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
SW-3	08/20/19	<0.000	Cadmium (TRC)	O	O 05/24/11-08/20/19	32	0	<0.00003	0.00004	<0.00008	0.00002	0.50	LOWEST
SW-3	08/20/19	<0.01	Chromium (TRC)	O	O 05/24/11-08/20/19	32	0	<0.001	0.01	<0.01	0		HIGHEST
SW-3	08/20/19	<0.002	Copper (TRC)	O	O 05/24/11-08/20/19	32	4	0.001	0.002	0.003	0		
SW-3	08/20/19	<0.005	Mercury (TRC)	ug/L	O 05/24/11-08/20/19	32	2	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
SW-3	08/20/19	<0.002	Molybdenum (TRC)	O	O 05/24/11-08/20/19	32	0	<0.001	0.003	<0.005	0.001	1.00	
SW-3	08/20/19	<0.001	Nickel (TRC)	O	O 05/24/11-08/20/19	32	0	<0.001	0.002	<0.01	0.003	0.33	LOWEST
SW-3	08/20/19	<0.000	Selenium (TRC)	O	O 05/24/11-08/20/19	32	3	<0.0002	0.0004	<0.001	0.0003	0.67	LOWEST
SW-3	08/20/19	<0.000	Silver (TRC)	O	O 05/24/11-08/20/19	32	0	<0.0002	0.0003	<0.0005	0.0001	1.00	LOWEST
SW-3	08/20/19	<0.000	Thallium (TRC)	O	O 05/24/11-08/20/19	32	3	<0.0002	0.0002	0.0004	0		LOWEST
SW-3	08/20/19	<0.002	Zinc (TRC)	O	O 05/24/11-08/20/19	32	18	<0.002	0.005	0.033 J	0.006	0.50	LOWEST
SW-3	08/20/19	<0.001	Arsenic (TRC)	O	O 05/24/11-08/20/19	32	0	<0.001	0.001	<0.003	0.001	0.00	LOWEST
SW-3	08/20/19	<0.000	Lead (TRC)	O	O 05/24/11-08/20/19	32	15	<0.0003	0.0006	0.0031	0.0007	0.43	LOWEST
SW-3	08/20/19	0.0006	Uranium (TRC)	O	O 05/24/11-08/20/19	32	12	0.0005	0.0052	<0.008	0.0036	1.28	
SW-3	08/20/19	<0.009	Aluminum (DIS)	O	O 05/24/11-08/20/19	32	5	<0.009	0.014	0.07	0.012	0.42	LOWEST
SW-3	08/20/19	<0.01	Cobalt (TRC)	O	O 05/24/11-08/20/19	32	0	<0.005	0.01	<0.01	0		HIGHEST

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# Data Comparison Summary

Report Date: September 23, 2019

STATION	SAMPLE DATE	Quarterly Monitoring		QC Code	COMPARISON PERIOD	N	# OF DET	MIN mg/L	MEAN: mg/L	MAX mg/L	STDDARD DEVIATION	STD DEVS FROM MEAN	RELATION TO DATABASE PERIOD
		RESULT mg/L	PARAMETER										
SW-3	08/20/19	47	Calcium	O	05/24/11-08/20/19	32	32	31	46	52	4	0.25	
SW-3	08/20/19	0.172	Barium (TRC)	O	05/24/11-08/20/19	32	32	0.122	0.15	0.176	0.014	1.57	
SW-3	08/20/19	0.05	Iron (TRC)	O	05/24/11-08/20/19	32	32	0.03 B	0.21	1.08	0.23	0.70	
SW-3	08/20/19	24	Magnesium	O	05/24/11-08/20/19	32	32	15	23	25	2	0.50	
SW-3	08/20/19	<0.005	Manganese (TRC)	O	05/24/11-08/20/19	32	11	<0.005	0.014	0.2	0.035	0.26	LOWEST
SW-3	08/20/19	0.018	Phosphorus	O	06/10/14-08/20/19	23	22	0.004	0.013	0.035	0.006	0.83	
SW-3	08/20/19	1	Potassium	O	05/24/11-08/20/19	32	25	1	1	2	0		LOWEST
SW-3	08/20/19	2	Sodium	O	05/24/11-08/20/19	32	32	2	2	2	0		HIGHEST
SW-3	08/20/19	0.123	Strontium (TRC)	O	05/24/11-08/20/19	32	29	0.0838	0.108	0.123 D	0.011	1.36	HIGHEST
SW-3	08/20/19	4	Chloride	O	05/24/11-08/20/19	32	30	<1	2	4	1	2.00	HIGHEST
SW-3	08/20/19	0.056	Flow	Cubi O	05/24/11-08/20/19	29	29	0.034	0.353	4.9	0.888	0.33	
SW-3	08/20/19	0.2	Fluoride	O	05/24/11-08/20/19	32	32	0.1	0.2	0.2	0		HIGHEST
SW-3	08/20/19	0.08	N+N	O	05/24/11-08/20/19	32	26	0.01	0.05	0.12	0.03	1.00	
SW-3	08/20/19	8.41	Field pH	s.u. O	05/24/11-08/20/19	33	33	7.92	8.29	8.7	0.16	0.75	
SW-3	08/20/19	407	Field SC	umh O	05/24/11-08/20/19	33	33	269	379	423	37	0.76	
SW-3	08/20/19	244 D	TDS	O	05/24/11-08/20/19	32	32	152	220	255 D	20	1.20	
SW-3	08/20/19	210	Alkalinity	O	05/24/11-08/20/19	32	32	150	197	210	14	0.93	HIGHEST
SW-3	08/20/19	216	Hardness	O	05/24/11-08/20/19	32	32	139	208	234	19	0.42	
SW-3	08/20/19	4	TSS	O	05/30/12-08/20/19	29	13	<4	7	14	3	1.00	LOWEST
SW-3	08/20/19	13.8	Water Temp	Deg O	05/24/11-08/20/19	33	33	NM	8	14.5	4.8	1.21	
SW-3	08/20/19	8.33	DO	O	05/24/11-08/20/19	33	33	5.95	9.96	12.87	1.45	1.12	
SW-3	08/20/19	21	Sulfate	O	05/24/11-08/20/19	32	32	5	17	26	5	0.80	
SW-3	08/20/19	0.17	Total N Pers	O	06/24/15-08/20/19	20	19	<0.04	0.16	0.6	0.11	0.09	
SW-4	08/20/19	<0.000	Antimony (TRC)	O	07/24/19-08/20/19	2	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SW-4	08/20/19	<0.000	Beryllium (TRC)	O	07/24/19-08/20/19	2	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SW-4	08/20/19	<0.000	Cadmium (TRC)	O	07/24/19-08/20/19	2	0	<0.00003	0.00003	<0.00003	0		HIGHEST
SW-4	08/20/19	<0.01	Chromium (TRC)	O	07/24/19-08/20/19	2	0	<0.01	0.01	<0.01	0		HIGHEST
SW-4	08/20/19	<0.002	Copper (TRC)	O	07/24/19-08/20/19	2	0	<0.002	0.002	<0.002	0		HIGHEST
SW-4	08/20/19	<0.005	Mercury (TRC)	ug/L O	07/24/19-08/20/19	2	0	<0.005	0.005	<0.005	0		HIGHEST
SW-4	08/20/19	<0.002	Molybdenum (TRC)	O	07/24/19-08/20/19	2	0	<0.002	0.002	<0.002	0		HIGHEST
SW-4	08/20/19	<0.001	Nickel (TRC)	O	07/24/19-08/20/19	2	0	<0.001	0.001	<0.001	0		HIGHEST

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		RESULT mg/L	PARAMETER										
SW-4	08/20/19	<0.000	Selenium (TRC)	O	07/24/19-08/20/19	2	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-4	08/20/19	<0.000	Silver (TRC)	O	07/24/19-08/20/19	2	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-4	08/20/19	<0.000	Thallium (TRC)	O	07/24/19-08/20/19	2	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-4	08/20/19	<0.002	Zinc (TRC)	O	07/24/19-08/20/19	2	0	<0.002	0.011	<0.02	0.013	0.69	LOWEST
SW-4	08/20/19	<0.001	Arsenic (TRC)	O	07/24/19-08/20/19	2	0	<0.001	0.001	<0.001	0		HIGHEST
SW-4	08/20/19	<0.000	Lead (TRC)	O	07/24/19-08/20/19	2	0	<0.0003	0.0003	<0.0003	0		HIGHEST
SW-4	08/20/19	0.0008	Uranium (TRC)	O	07/24/19-08/20/19	2	2	0.0007	0.0007	0.0008	0.0001	1.00	HIGHEST
SW-4	08/20/19	<0.009	Aluminum (DIS)	O	07/24/19-08/20/19	2	0	<0.009	0.009	<0.009	0		HIGHEST
SW-4	08/20/19	<0.01	Cobalt (TRC)	O	07/24/19-08/20/19	2	0	<0.01	0.01	<0.01	0		HIGHEST
SW-4	08/20/19	49	Calcium	O	07/24/19-08/20/19	2	2	47	48	49	1	1.00	HIGHEST
SW-4	08/20/19	0.15	Barium (TRC)	O	07/24/19-08/20/19	2	2	0.148	0.15	0.15	0		HIGHEST
SW-4	08/20/19	0.19	Iron (TRC)	O	07/24/19-08/20/19	2	2	0.19	0.29	0.39	0.14	0.71	LOWEST
SW-4	08/20/19	20	Magnesium	O	07/24/19-08/20/19	2	2	19	20	20	1	0.00	HIGHEST
SW-4	08/20/19	0.012	Manganese (TRC)	O	07/24/19-08/20/19	2	2	0.012	0.02	0.027	0.011	0.73	LOWEST
SW-4	08/20/19	0.011	Phosphorus	O	07/24/19-08/20/19	2	2	0.011	0.028	0.045	0.024	0.71	LOWEST
SW-4	08/20/19	1	Potassium	O	07/24/19-08/20/19	2	2	1	1	1	0		HIGHEST
SW-4	08/20/19	3	Sodium	O	07/24/19-08/20/19	2	2	3	3	3	0		HIGHEST
SW-4	08/20/19	0.183	Strontium (TRC)	O	07/24/19-08/20/19	2	2	0.183	0.185	0.186 L	0.002	1.00	LOWEST
SW-4	08/20/19	<1	Chloride	O	07/24/19-08/20/19	2	0	<1	1	<1	0		HIGHEST
SW-4	08/20/19	0.008	Flow	Cubi O	05/30/14-08/20/19	3	3	0.008	0.113	0.32	0.179	0.59	LOWEST
SW-4	08/20/19	0.1	Fluoride	O	07/24/19-08/20/19	2	2	0.1	0.1	0.1	0		HIGHEST
SW-4	08/20/19	0.09	N+N	O	07/24/19-08/20/19	2	2	0.08	0.09	0.09	0.01	0.00	HIGHEST
SW-4	08/20/19	8.17	Field pH	s.u. O	05/30/14-08/20/19	3	3	7.82	8	8.17	0.18	0.94	HIGHEST
SW-4	08/20/19	366	Field SC	umh O	05/30/14-08/20/19	3	3	361.6	365	367	3	0.33	
SW-4	08/20/19	207 D	TDS	O	07/24/19-08/20/19	2	2	207 D	209	211 D	3	0.67	LOWEST
SW-4	08/20/19	200	Alkalinity	O	07/24/19-08/20/19	2	2	190	195	200	7	0.71	HIGHEST
SW-4	08/20/19	206	Hardness	O	07/24/19-08/20/19	2	2	197	202	206	6	0.67	HIGHEST
SW-4	08/20/19	5	TSS	O	07/24/19-08/20/19	2	2	5	6	8 J	2	0.50	LOWEST
SW-4	08/20/19	13.7	Water Temp	Deg O	05/30/14-08/20/19	3	3	8.9	12.2	14.1	2.9	0.52	
SW-4	08/20/19	7.89	DO	O	05/30/14-08/20/19	3	3	7.2	7.93	8.69	0.75	0.05	
SW-4	08/20/19	10	Sulfate	O	07/24/19-08/20/19	2	2	9	10	10	1	0.00	HIGHEST

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		RESULT mg/L	PARAMETER										
SW-4	08/20/19	0.2	Total N Pers	O	07/24/19-08/20/19	2	2	0.2	0.2	0.22	0		LOWEST
USGS-SC1	08/21/19	<0.000	Antimony (TRC)	O	03/24/14-08/21/19	62	0	<0.0005	0.0005	<0.0005	0		HIGHEST
USGS-SC1	08/21/19	<0.000	Beryllium (TRC)	O	03/24/14-08/21/19	62	0	<0.0008	0.0008	<0.0008	0		HIGHEST
USGS-SC1	08/21/19	<0.000	Cadmium (TRC)	O	03/24/14-08/21/19	62	2	<0.00003	0.00003	0.00009	0.00001	0.00	LOWEST
USGS-SC1	08/21/19	<0.01	Chromium (TRC)	O	03/24/14-08/21/19	62	0	<0.005	0.01	<0.01	0		HIGHEST
USGS-SC1	08/21/19	<0.002	Copper (TRC)	O	03/24/14-08/21/19	62	1	<0.002	0.002	<0.002	0		HIGHEST
USGS-SC1	08/21/19	<0.005	Mercury (TRC)	ug/L O	03/24/14-08/21/19	62	3	<0.000005	0.001	0.01 D	0.002	2.00	
USGS-SC1	08/21/19	<0.002	Molybdenum (TRC)	O	03/24/14-08/21/19	62	0	<0.001	0.002	<0.002	0		HIGHEST
USGS-SC1	08/21/19	<0.001	Nickel (TRC)	O	03/24/14-08/21/19	62	8	<0.001	0.001	0.003	0		LOWEST
USGS-SC1	08/21/19	<0.000	Selenium (TRC)	O	03/24/14-08/21/19	62	0	<0.0002	0.0002	<0.0004	0		LOWEST
USGS-SC1	08/21/19	<0.000	Silver (TRC)	O	03/24/14-08/21/19	62	1	<0.0002	0.0002	<0.0004	0		LOWEST
USGS-SC1	08/21/19	<0.000	Thallium (TRC)	O	03/24/14-08/21/19	62	0	<0.002	0.0002	<0.0002	0		HIGHEST
USGS-SC1	08/21/19	<0.002	Zinc (TRC)	O	03/24/14-08/21/19	62	19	<0.002	0.003	0.009	0.002	0.50	LOWEST
USGS-SC1	08/21/19	<0.001	Arsenic (TRC)	O	03/24/14-08/21/19	62	1	<0.001	0.001	<0.001	0		HIGHEST
USGS-SC1	08/21/19	<0.000	Lead (TRC)	O	03/24/14-08/21/19	62	8	<0.0003	0.0003	0.0011	0.0001	0.00	LOWEST
USGS-SC1	08/21/19	0.0004	Uranium (TRC)	O	03/24/14-08/21/19	62	9	0.0003	0.0069	<0.008	0.0027	2.41	
USGS-SC1	08/21/19	<0.009	Aluminum (DIS)	O	03/24/14-08/21/19	62	18	<0.009	0.018	0.189	0.029	0.31	LOWEST
USGS-SC1	08/21/19	<0.01	Cobalt (TRC)	O	03/24/14-08/21/19	62	0	<0.005	0.01	<0.01	0		HIGHEST
USGS-SC1	08/21/19	51	Calcium	O	03/24/14-08/21/19	62	62	35	51	61	6	0.00	
USGS-SC1	08/21/19	0.076	Barium (TRC)	O	03/24/14-08/21/19	62	62	0.06	0.069	0.088	0.006	1.17	
USGS-SC1	08/21/19	0.08	Iron (TRC)	O	03/24/14-08/21/19	62	62	0.07	0.25	1.71	0.3	0.57	
USGS-SC1	08/21/19	13	Magnesium	O	03/24/14-08/21/19	62	62	8	13	15	2	0.00	
USGS-SC1	08/21/19	0.007	Manganese (TRC)	O	03/24/14-08/21/19	62	62	0.005	0.011	0.079	0.01	0.40	
USGS-SC1	08/21/19	0.003	Phosphorus	O	05/16/14-08/21/19	59	43	<0.003	0.009	0.050	0.009	0.67	LOWEST
USGS-SC1	08/21/19	1	Potassium	O	03/24/14-08/21/19	62	62	1	1	1	0		HIGHEST
USGS-SC1	08/21/19	2	Sodium	O	03/24/14-08/21/19	62	62	2	2	3	0		LOWEST
USGS-SC1	08/21/19	0.15	Strontium (TRC)	O	03/24/14-08/21/19	62	62	0.119 L	0.14	0.16	0.01	1.00	
USGS-SC1	08/21/19	1	Chloride	O	03/24/14-08/21/19	62	62	1	2	5	1	1.00	LOWEST
USGS-SC1	08/21/19	24.42	Flow	Cubi O	05/05/14-08/21/19	41	41	NF-ICE	32.15	111.32	28.06	0.28	
USGS-SC1	08/21/19	<0.1	Fluoride	O	03/24/14-08/21/19	62	1	<0.1	0.1	<0.1	0		HIGHEST
USGS-SC1	08/21/19	0.01	N+N	O	03/24/14-08/21/19	62	43	0.01	0.04	0.13	0.04	0.75	LOWEST

NOTES: Summary of the comparison of Validation data to the Database Period Data, showing Parameters that are Three or more Standard Deviations from the Mean of the Database Period and the Relationship to these Data.

All results in mg/L unless otherwise noted. All results laboratory unless field (FLD) or Calculated (CALC). N: Number of samples in comparison data set; 50% of data must be above lab detection limit before mean, median and SD are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

# Data Comparison Summary

Report Date: September 23, 2019

Quarterly Monitoring													
STATION	SAMPLE DATE	RESULT s.u.	PARAMETER	QC Code	COMPARISON PERIOD	N	# OF DET	MIN s.u.	MEAN: s.u.	MAX s.u.	STDDARD DEVIATION	STD DEVS FROM MEAN	RELATION TO DATABASE PERIOD
USGS-SC1	08/21/19	8.45	Field pH	s.u.	O 03/24/14-08/21/19	62	62	6.67 A	8	8.67	0.45	1.00	
USGS-SC1	08/21/19	347	Field SC	umh	O 03/24/14-08/21/19	63	63	137	328	408	49	0.39	
USGS-SC1	08/21/19	203 D	TDS	O	O 03/24/14-08/21/19	62	62	132 D	189	230	21	0.67	
USGS-SC1	08/21/19	190	Alkalinity	O	O 03/24/14-08/21/19	62	62	120	177	220	22	0.59	
USGS-SC1	08/21/19	179	Hardness	O	O 03/24/14-08/21/19	62	61	<7	175	214	31	0.13	
USGS-SC1	08/21/19	<4	TSS	O	O 03/24/14-08/21/19	62	17	<4	8	38	6	0.67	LOWEST
USGS-SC1	08/21/19	12.5	Water Temp	Deg	O 03/24/14-08/21/19	63	63	-0.98	4	13.1	4.3	1.98	
USGS-SC1	08/21/19	9.48	DO	O	O 03/24/14-08/21/19	63	63	7.12	11.24	16.55	1.64	1.07	
USGS-SC1	08/21/19	6	Sulfate	O	O 03/24/14-08/21/19	62	62	3	6	8	1	0.00	
USGS-SC1	08/21/19	0.07	Total N Pers	O	O 04/29/15-08/21/19	48	38	<0.003	0.12	1.1 J	0.16	0.31	

NOTES: Summary of the comparison of Validation data to the Database Period Data, showing Parameters that are Three or more Standard Deviations from the Mean of the Database Period and the Relationship to these Data.

All results in mg/L unless otherwise noted. All results laboratory unless field (FLD) or Calculated (CALC). N: Number of samples in comparison data set; 50% of data must be above lab detection limit before mean, median and SD are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

**APPENDIX 2**  
**DATABASE**

# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

Sample Type:	Station (Site)	DI-Blank	DI-Blank	DS-1	DS-10	DS-11	DS-2
Water	Sample Date	8/21/2019	8/21/2019	8/20/2019	8/20/2019	8/20/2019	8/20/2019
	Sample Time	1:15:00 PM	2:00:00 PM	2:15:00 PM	11:35:00 AM	12:00:00 PM	10:40:00 AM
	Lab	Energy Labs	Energy Labs	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	H19080621-009	H19080622-012	H19080622-002	z	z	z
	Sample Number	BBC-1908-128	BBC-1908-129	BBC-1908-108	BBC-1908-103	BBC-1908-104	BBC-1908-100
	Remarks						

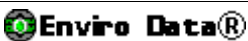
Field Parameters		Multiple Units					
Dissolved Oxygen				9.41	8.85	9.29	7.38
Field pH				8.08	7.63	7.85	7.33
Field Specific Conductivity				402	384	418	351
Flow							
Flow				5.94	3.71	3.75	0.43
Staff Gauge							
Water Temperature				11	7.9	10.2	13.8

Physical Parameters		mg/L					
Total Dissolved Solids	<10	<10	232				
Total Suspended Solids	<4	<10	<10				

Major Constituents - Commons Ions		mg/L					
Alkalinity as CaCO3	<4	<4	220				
Calcium (DIS)	<1	<1	54				
Chloride	<1	<1	<1				
Fluoride	<0.1	<0.1	0.1				
Hardness as CaCO3	<1	<1	219				
Magnesium (DIS)	<1	<1	20				
Potassium (DIS)	<1	<1	<1				
Sodium (DIS)	<1	<1	2				
Sulfate	<1	<1	16				

Nutrients		mg/L					
Nitrate + Nitrite as N	<0.01	<0.01	0.22				
Phosphorus (TOT)	<0.003						
Total Nitrogen as N (Persulfate)	<0.04						

Metals - Trace Constituents		Multiple Units					
Aluminum (DIS)	<0.009	<0.009	<0.009				
Antimony (DIS)		<0.0005	<0.0005				
Antimony (TRC)	<0.0005						
Arsenic (DIS)		<0.001	<0.001				
Arsenic (TRC)	<0.001						
Barium (DIS)		<0.003	0.051				
Barium (TRC)	<0.003						



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.

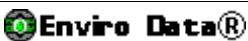
# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

Sample Type:	Station (Site)	DI-Blank	DI-Blank	DS-1	DS-10	DS-11	DS-2
Water	Sample Date	8/21/2019	8/21/2019	8/20/2019	8/20/2019	8/20/2019	8/20/2019
	Sample Time	1:15:00 PM	2:00:00 PM	2:15:00 PM	11:35:00 AM	12:00:00 PM	10:40:00 AM
	Lab	Energy Labs	Energy Labs	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	H19080621-009	H19080622-012	H19080622-002	z	z	z
	Sample Number	BBC-1908-128	BBC-1908-129	BBC-1908-108	BBC-1908-103	BBC-1908-104	BBC-1908-100
	Remarks						

Metals - Trace Constituents	Multiple Units		
Beryllium (DIS)		<0.0008	<0.0008
Beryllium (TRC)	<0.0008		
Cadmium (DIS)		<0.00003	<0.00003
Cadmium (TRC)	<0.00003		
Chromium (DIS)		<0.01	<0.01
Chromium (TRC)	<0.01		
Cobalt (DIS)		<0.01	<0.01
Cobalt (TRC)	<0.01		
Copper (DIS)		<0.002	<0.002
Copper (TRC)	<0.002		
Iron (DIS)		<0.02	<0.02
Iron (TRC)	<0.02		
Lead (DIS)		<0.0003	<0.0003
Lead (TRC)	<0.0003		
Manganese (DIS)		<0.005	<0.005
Manganese (TRC)	<0.005		
Mercury (DIS)		<0.005	<0.005
Mercury (TRC)	<0.005		
Molybdenum (DIS)		<0.002	<0.002
Molybdenum (TRC)	<0.002		
Nickel (DIS)		<0.001	<0.001
Nickel (TRC)	<0.001		
Selenium (DIS)		<0.0002	0.0002
Selenium (TRC)	<0.0002		
Silver (DIS)		<0.0002	<0.0002
Silver (TRC)	<0.0002		
Strontium (DIS)		<0.0002	0.108
Strontium (TRC)	<0.0002		
Thallium (DIS)		<0.0002	<0.0002
Thallium (TRC)	<0.0002		
Uranium (DIS)		<0.0002	0.0006
Uranium (TRC)	<0.0002		
Zinc (DIS)		<0.002	<0.002



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.



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# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

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Sample Type:	Station (Site)	DI-Blank	DI-Blank	DS-1	DS-10	DS-11	DS-2
Water	Sample Date	8/21/2019	8/21/2019	8/20/2019	8/20/2019	8/20/2019	8/20/2019
	Sample Time	1:15:00 PM	2:00:00 PM	2:15:00 PM	11:35:00 AM	12:00:00 PM	10:40:00 AM
	Lab	Energy Labs	Energy Labs	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	H19080621-009	H19080622-012	H19080622-002	z	z	z
	Sample Number	BBC-1908-128	BBC-1908-129	BBC-1908-108	BBC-1908-103	BBC-1908-104	BBC-1908-100
	Remarks						

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<b>Metals - Trace Constituents</b>	<b>Multiple Units</b>
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Zinc (TRC)	<0.002
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**NOTES:** All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

**DATA VALIDATION FLAGS---** **J:** The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S:** The associated numerical value is an estimated quantity because split quality control criteria were not met. **U:** Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R:** Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A:** Anomalous data. No apparent explanation for discrepancy in data. **D:** Reporting Limit increased due to sample matrix. **L:** Lowest available reporting limit for the analytical method used. **H:** Analysis performed past recommended holding time. **Z:** No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

Sample Type:	Station (Site)	DS-3	DS-4	DS-7	DS-8	DS-9	SP-10
Water	Sample Date	8/20/2019	8/20/2019	8/20/2019	8/20/2019	8/20/2019	8/20/2019
	Sample Time	3:35:00 PM	4:00:00 PM	4:15:00 PM	11:00:00 AM	11:20:00 AM	1:20:00 PM
	Lab	Energy Labs	Hydro	Hydro	Hydro	Hydro	Energy Labs
	Lab Number	H19080622-004	z	z	z	z	H19080622-001
	Sample Number	BBC-1908-111	BBC-1908-112	BBC-1908-114	BBC-1908-101	BBC-1908-102	BBC-1908-106
	Remarks						

Field Parameters	Multiple Units					
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Dissolved Oxygen	5.86		9.07	8.93	8.03	7.95
Field pH	8.07		7.72	7.75	7.85	8.1
Field Specific Conductivity	55.2		256	429	367	402
Flow						
Flow	7.69	NM	6.24	3.12	7.26	2.6
Staff Gauge						
Water Temperature	12.3		10	9	9.4	12.2

Physical Parameters	mg/L					
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Total Dissolved Solids	58					235
Total Suspended Solids	<10					<10

Major Constituents - Commons Ions	mg/L					
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Alkalinity as CaCO3	23					220
Calcium (DIS)	6					54
Chloride	<1					<1
Fluoride	<0.1					0.1
Hardness as CaCO3	21					217
Magnesium (DIS)	2					20
Potassium (DIS)	1					1
Sodium (DIS)	1					2
Sulfate	2					15

Nutrients	mg/L					
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Nitrate + Nitrite as N	0.3					0.22
Phosphorus (TOT)						
Total Nitrogen as N (Persulfate)						

Metals - Trace Constituents	Multiple Units					
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Aluminum (DIS)	0.892					<0.009
Antimony (DIS)	<0.0005					<0.0005
Antimony (TRC)						
Arsenic (DIS)	<0.001					<0.001
Arsenic (TRC)						
Barium (DIS)	0.267					0.052
Barium (TRC)						



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS-- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.

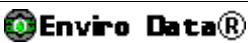
# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

Sample Type:	Station (Site)	DS-3	DS-4	DS-7	DS-8	DS-9	SP-10
Water	Sample Date	8/20/2019	8/20/2019	8/20/2019	8/20/2019	8/20/2019	8/20/2019
	Sample Time	3:35:00 PM	4:00:00 PM	4:15:00 PM	11:00:00 AM	11:20:00 AM	1:20:00 PM
	Lab	Energy Labs	Hydro	Hydro	Hydro	Hydro	Energy Labs
	Lab Number	H19080622-004	z	z	z	z	H19080622-001
	Sample Number	BBC-1908-111	BBC-1908-112	BBC-1908-114	BBC-1908-101	BBC-1908-102	BBC-1908-106
	Remarks						

Metals - Trace Constituents	Multiple Units	
Beryllium (DIS)	<0.0008	<0.0008
Beryllium (TRC)		
Cadmium (DIS)	<0.00003	<0.00003
Cadmium (TRC)		
Chromium (DIS)	<0.01	<0.01
Chromium (TRC)		
Cobalt (DIS)	<0.01	<0.01
Cobalt (TRC)		
Copper (DIS)	<0.002	<0.002
Copper (TRC)		
Iron (DIS)	0.41	<0.02
Iron (TRC)		
Lead (DIS)	<0.0003	<0.0003
Lead (TRC)		
Manganese (DIS)	<0.005	<0.005
Manganese (TRC)		
Mercury (DIS)	0.006	<0.005
Mercury (TRC)		
Molybdenum (DIS)	<0.002	<0.002
Molybdenum (TRC)		
Nickel (DIS)	0.003	<0.001
Nickel (TRC)		
Selenium (DIS)	<0.0002	0.0003
Selenium (TRC)		
Silver (DIS)	<0.0002	<0.0002
Silver (TRC)		
Strontium (DIS)	0.0292	0.113
Strontium (TRC)		
Thallium (DIS)	<0.0002	<0.0002
Thallium (TRC)		
Uranium (DIS)	<0.0002	0.0007
Uranium (TRC)		
Zinc (DIS)	0.004	<0.002



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

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# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

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Sample Type:	Station (Site)	DS-3	DS-4	DS-7	DS-8	DS-9	SP-10
Water	Sample Date	8/20/2019	8/20/2019	8/20/2019	8/20/2019	8/20/2019	8/20/2019
	Sample Time	3:35:00 PM	4:00:00 PM	4:15:00 PM	11:00:00 AM	11:20:00 AM	1:20:00 PM
	Lab	Energy Labs	Hydro	Hydro	Hydro	Hydro	Energy Labs
	Lab Number	H19080622-004	z	z	z	z	H19080622-001
	Sample Number	BBC-1908-111	BBC-1908-112	BBC-1908-114	BBC-1908-101	BBC-1908-102	BBC-1908-106
	Remarks						

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## Metals - Trace Constituents Multiple Units

Zinc (TRC)

# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

Sample Type:	Station (Site)	SP-11	SP-11	SP-12	SP-3	SP-4	SP-5
Water	Sample Date	8/21/2019	8/21/2019	8/21/2019	8/20/2019	8/21/2019	8/20/2019
	Sample Time	10:00:00 AM	10:20:00 AM	9:00:00 AM	4:15:00 PM	8:30:00 AM	2:35:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	H19080622-010	H19080622-011	H19080622-008	H19080622-005	H19080622-007	H19080622-003
	Sample Number	BBC-1908-120	BBC-1908-121	BBC-1908-118	BBC-1908-113	BBC-1908-117	BBC-1908-109
	Remarks	DUPLICATE					

Field Parameters	Multiple Units					
Dissolved Oxygen	6.93		5.64	5.02	9.84	6.29
Field pH	7.59		8.1	7.73	7.85	7.99
Field Specific Conductivity	192		419	168	415	412
Flow						
Flow				0.94	11.2	1.93
Staff Gauge						
Water Temperature	6.8		8.7	17	7.1	16.8

Physical Parameters	mg/L					
Total Dissolved Solids	117	116	239	123	229	233
Total Suspended Solids	<10	<10	<10	61	<10	89

Major Constituents - Commons Ions	mg/L					
Alkalinity as CaCO3	94	94	200	83	200	230
Calcium (DIS)	23	23	52	25	47	57
Chloride	<1	<1	10	1	<1	<1
Fluoride	0.1	0.1	0.2	0.1	0.2	<0.1
Hardness as CaCO3	92	92	222	83	217	216
Magnesium (DIS)	8	8	23	5	24	18
Potassium (DIS)	1	1	1	1	2	<1
Sodium (DIS)	3	3	2	3	2	2
Sulfate	7	7	21	7	32	10

Nutrients	mg/L					
Nitrate + Nitrite as N	0.26	0.26	0.26	0.22	0.32	0.02
Phosphorus (TOT)						
Total Nitrogen as N (Persulfate)						

Metals - Trace Constituents	Multiple Units					
Aluminum (DIS)	0.023	0.027	<0.009	0.156	<0.009	0.029
Antimony (DIS)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Antimony (TRC)						
Arsenic (DIS)	0.006	0.006	<0.001	0.002	<0.001	<0.001
Arsenic (TRC)						
Barium (DIS)	0.304	0.301	0.172	0.29	0.112	0.058
Barium (TRC)						

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS-- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.

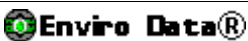
# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

Sample Type:	Station (Site)	SP-11	SP-11	SP-12	SP-3	SP-4	SP-5
Water	Sample Date	8/21/2019	8/21/2019	8/21/2019	8/20/2019	8/21/2019	8/20/2019
	Sample Time	10:00:00 AM	10:20:00 AM	9:00:00 AM	4:15:00 PM	8:30:00 AM	2:35:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	H19080622-010	H19080622-011	H19080622-008	H19080622-005	H19080622-007	H19080622-003
	Sample Number	BBC-1908-120	BBC-1908-121	BBC-1908-118	BBC-1908-113	BBC-1908-117	BBC-1908-109
	Remarks	DUPLICATE					

Metals - Trace Constituents	Multiple Units						
Beryllium (DIS)	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
Beryllium (TRC)							
Cadmium (DIS)	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Cadmium (TRC)							
Chromium (DIS)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Chromium (TRC)							
Cobalt (DIS)	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt (TRC)							
Copper (DIS)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Copper (TRC)							
Iron (DIS)	<0.02	<0.02	<0.02	0.1	<0.02	<0.02	<0.02
Iron (TRC)							
Lead (DIS)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Lead (TRC)							
Manganese (DIS)	<0.005	<0.005	<0.005	0.011	0.008	0.017	
Manganese (TRC)							
Mercury (DIS)	<0.005	<0.005	<0.005	0.005	<0.005	<0.005	
Mercury (TRC)							
Molybdenum (DIS)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Molybdenum (TRC)							
Nickel (DIS)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Nickel (TRC)							
Selenium (DIS)	<0.0002	<0.0002	<0.0002	<0.0002	0.0004	<0.0002	
Selenium (TRC)							
Silver (DIS)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Silver (TRC)							
Strontium (DIS)	0.102	0.102	0.104	0.0724	0.0706	0.136	
Strontium (TRC)							
Thallium (DIS)	<0.0002	<0.0002	<0.0002	<0.0002	0.0002	<0.0002	
Thallium (TRC)							
Uranium (DIS)	0.0003	0.0003	0.0005	<0.0002	0.0004	0.0005	
Uranium (TRC)							
Zinc (DIS)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

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# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

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Sample Type:	Station (Site)	SP-11	SP-11	SP-12	SP-3	SP-4	SP-5
Water	Sample Date	8/21/2019	8/21/2019	8/21/2019	8/20/2019	8/21/2019	8/20/2019
	Sample Time	10:00:00 AM	10:20:00 AM	9:00:00 AM	4:15:00 PM	8:30:00 AM	2:35:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	H19080622-010	H19080622-011	H19080622-008	H19080622-005	H19080622-007	H19080622-003
	Sample Number	BBC-1908-120	BBC-1908-121	BBC-1908-118	BBC-1908-113	BBC-1908-117	BBC-1908-109
	Remarks		DUPLICATE				

---

**Metals - Trace Constituents** Multiple Units

Zinc (TRC)

# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

Sample Type:	Station (Site)	SP-6	SP-7	SW-1	SW-14	SW-17	SW-18
Water	Sample Date	8/20/2019	8/21/2019	8/21/2019	8/21/2019	8/21/2019	8/20/2019
	Sample Time	5:00:00 PM	9:30:00 AM	10:40:00 AM	11:20:00 AM	11:00:00 AM	5:30:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Hydro
	Lab Number	H19080622-006	H19080622-009	H19080621-003	H19080621-005	H19080621-004	z
	Sample Number	BBC-1908-115	BBC-1908-119	BBC-1908-122	BBC-1908-124	BBC-1908-123	BBC-1908-116
	Remarks						

Field Parameters	Multiple Units					
Dissolved Oxygen	8.73	2.87	9.6	8.94	9.7	
Field pH	7.75	7.79	8.46	8.08	8.2	
Field Specific Conductivity	284	325	304	399	431	
Flow			33.11	1.33	0.25	NM-DRY
Flow	0.98	17.1				
Staff Gauge			1.01	0.47		
Water Temperature	9.1	7.9	11.8	14	9.9	

Physical Parameters	mg/L				
Total Dissolved Solids	169	190	178 D	229 D	256 D
Total Suspended Solids	73	<10	5	<4	5

Major Constituents - Commons Ions	mg/L				
Alkalinity as CaCO3	150	170	160	220	210
Calcium (DIS)	36	41	42	51	50
Chloride	1	2	1	2	5
Fluoride	0.1	0.3	<0.1	0.2	0.2
Hardness as CaCO3	146	159	150	202	219
Magnesium (DIS)	14	14	11	18	23
Potassium (DIS)	1	3	1	1	1
Sodium (DIS)	2	5	2	3	3
Sulfate	10	11	6	7	25

Nutrients	mg/L				
Nitrate + Nitrite as N	0.46	0.37	<0.01	0.02	0.11
Phosphorus (TOT)			0.009	0.009	0.01
Total Nitrogen as N (Persulfate)			0.1	0.12	0.23

Metals - Trace Constituents	Multiple Units				
Aluminum (DIS)	<0.009	<0.009	<0.009	<0.009	<0.009
Antimony (DIS)	<0.0005	<0.0005			
Antimony (TRC)			<0.0005	<0.0005	<0.0005
Arsenic (DIS)	<0.001	0.004			
Arsenic (TRC)			<0.001	<0.001	<0.001
Barium (DIS)	0.212	0.118			
Barium (TRC)			0.108	0.12	0.159

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS-- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.



# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

Sample Type:	Station (Site)	SP-6	SP-7	SW-1	SW-14	SW-17	SW-18
Water	Sample Date	8/20/2019	8/21/2019	8/21/2019	8/21/2019	8/21/2019	8/20/2019
	Sample Time	5:00:00 PM	9:30:00 AM	10:40:00 AM	11:20:00 AM	11:00:00 AM	5:30:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Hydro
	Lab Number	H19080622-006	H19080622-009	H19080621-003	H19080621-005	H19080621-004	z
	Sample Number	BBC-1908-115	BBC-1908-119	BBC-1908-122	BBC-1908-124	BBC-1908-123	BBC-1908-116
	Remarks						

Metals - Trace Constituents	Multiple Units					
Beryllium (DIS)	<0.0008	<0.0008				
Beryllium (TRC)			<0.0008	<0.0008	<0.0008	
Cadmium (DIS)	<0.00003	<0.00003				
Cadmium (TRC)			<0.00003	<0.00003	<0.00003	
Chromium (DIS)	<0.01	<0.01				
Chromium (TRC)			<0.01	<0.01	<0.01	
Cobalt (DIS)	<0.01	<0.01				
Cobalt (TRC)			<0.01	<0.01	<0.01	
Copper (DIS)	<0.002	<0.002				
Copper (TRC)			<0.002	<0.002	<0.002	
Iron (DIS)	<0.02	<0.02				
Iron (TRC)			0.13	0.06	0.21	
Lead (DIS)	<0.0003	<0.0003				
Lead (TRC)			<0.0003	<0.0003	<0.0003	
Manganese (DIS)	<0.005	<0.005				
Manganese (TRC)			0.014	0.008	0.024	
Mercury (DIS)	<0.005	<0.005				
Mercury (TRC)			<0.005	<0.005	<0.005	
Molybdenum (DIS)	<0.002	<0.002				
Molybdenum (TRC)			<0.002	<0.002	<0.002	
Nickel (DIS)	<0.001	<0.001				
Nickel (TRC)			<0.001	<0.001	<0.001	
Selenium (DIS)	0.0002	0.0003				
Selenium (TRC)			<0.0002	<0.0002	<0.0002	
Silver (DIS)	<0.0002	<0.0002				
Silver (TRC)			<0.0002	<0.0002	<0.0002	
Strontium (DIS)	0.0787	0.169				
Strontium (TRC)			0.123	0.122	0.138	
Thallium (DIS)	0.0005	0.001				
Thallium (TRC)			<0.0002	<0.0002	<0.0002	
Uranium (DIS)	0.0004	0.0008				
Uranium (TRC)			0.0003	0.0005	0.0006	
Zinc (DIS)	<0.002	<0.002				

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

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# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

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Sample Type:	Station (Site)	SP-6	SP-7	SW-1	SW-14	SW-17	SW-18
Water	Sample Date	8/20/2019	8/21/2019	8/21/2019	8/21/2019	8/21/2019	8/20/2019
	Sample Time	5:00:00 PM	9:30:00 AM	10:40:00 AM	11:20:00 AM	11:00:00 AM	5:30:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Hydro
	Lab Number	H19080622-006	H19080622-009	H19080621-003	H19080621-005	H19080621-004	z
	Sample Number	BBC-1908-115	BBC-1908-119	BBC-1908-122	BBC-1908-124	BBC-1908-123	BBC-1908-116
	Remarks						

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<b>Metals - Trace Constituents</b>	Multiple Units
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Zinc (TRC)	<0.002	<0.002	<0.002
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# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

Sample Type:	Station (Site)	SW-19	SW-2	SW-2	SW-3	SW-4	USGS-SC1
Water	Sample Date	8/20/2019	8/21/2019	8/21/2019	8/20/2019	8/20/2019	8/21/2019
	Sample Time	12:55:00 PM	11:50:00 AM	12:15:00 PM	3:00:00 PM	1:50:00 PM	12:35:00 PM
	Lab	Hydro	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	z	H19080621-006	H19080621-007	H19080621-002	H19080621-001	H19080621-008
	Sample Number	BBC-1908-105	BBC-1908-125	BBC-1908-126	BBC-1908-110	BBC-1908-107	BBC-1908-127
	Remarks						

Field Parameters	Multiple Units					
Dissolved Oxygen	8.72	9.6		8.33	7.89	9.48
Field pH	8.36	8.5		8.41	8.17	8.45
Field Specific Conductivity	396	299		407	366	347
Flow	0.14	30.89		0.056	0.008	24.42
Flow						
Staff Gauge		0.55				
Water Temperature	14.2	12.7		13.8	13.7	12.5

Physical Parameters	mg/L					
Total Dissolved Solids		173 D	175 D	244 D	207 D	203 D
Total Suspended Solids		<4	<4	4	5	<4

Major Constituents - Commons Ions	mg/L					
Alkalinity as CaCO3		160	160	210	200	190
Calcium (DIS)		43	43	47	49	51
Chloride		1	1	4	<1	1
Fluoride		<0.1	<0.1	0.2	0.1	<0.1
Hardness as CaCO3		152	153	216	206	179
Magnesium (DIS)		11	11	24	20	13
Potassium (DIS)		1	1	1	1	1
Sodium (DIS)		2	2	2	3	2
Sulfate		5	6	21	10	6

Nutrients	mg/L					
Nitrate + Nitrite as N		<0.01	<0.01	0.08	0.09	0.01
Phosphorus (TOT)		0.006	0.007	0.018	0.011	0.003
Total Nitrogen as N (Persulfate)		0.08	0.08	0.17	0.2	0.07

Metals - Trace Constituents	Multiple Units					
Aluminum (DIS)		<0.009	<0.009	<0.009	<0.009	<0.009
Antimony (DIS)						
Antimony (TRC)		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic (DIS)						
Arsenic (TRC)		<0.001	<0.001	<0.001	<0.001	<0.001
Barium (DIS)						
Barium (TRC)		0.102	0.102	0.172	0.15	0.076

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

Sample Type:	Station (Site)	SW-19	SW-2	SW-2	SW-3	SW-4	USGS-SC1
Water	Sample Date	8/20/2019	8/21/2019	8/21/2019	8/20/2019	8/20/2019	8/21/2019
	Sample Time	12:55:00 PM	11:50:00 AM	12:15:00 PM	3:00:00 PM	1:50:00 PM	12:35:00 PM
	Lab	Hydro	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	z	H19080621-006	H19080621-007	H19080621-002	H19080621-001	H19080621-008
	Sample Number	BBC-1908-105	BBC-1908-125	BBC-1908-126	BBC-1908-110	BBC-1908-107	BBC-1908-127
	Remarks						

## Metals - Trace Constituents Multiple Units

Beryllium (DIS)					
Beryllium (TRC)	<0.0008	<0.0008	<0.0008	<0.0008	<0.0008
Cadmium (DIS)					
Cadmium (TRC)	<0.00003	<0.00003	<0.00003	<0.00003	<0.00003
Chromium (DIS)					
Chromium (TRC)	<0.01	<0.01	<0.01	<0.01	<0.01
Cobalt (DIS)					
Cobalt (TRC)	<0.01	<0.01	<0.01	<0.01	<0.01
Copper (DIS)					
Copper (TRC)	<0.002	<0.002	<0.002	<0.002	<0.002
Iron (DIS)					
Iron (TRC)	0.11	0.11	0.05	0.19	0.08
Lead (DIS)					
Lead (TRC)	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Manganese (DIS)					
Manganese (TRC)	0.008	0.009	<0.005	0.012	0.007
Mercury (DIS)					
Mercury (TRC)	<0.005	<0.005	<0.005	<0.005	<0.005
Molybdenum (DIS)					
Molybdenum (TRC)	<0.002	<0.002	<0.002	<0.002	<0.002
Nickel (DIS)					
Nickel (TRC)	<0.001	<0.001	<0.001	<0.001	<0.001
Selenium (DIS)					
Selenium (TRC)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Silver (DIS)					
Silver (TRC)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Strontium (DIS)					
Strontium (TRC)	0.124	0.129	0.123	0.183	0.15
Thallium (DIS)					
Thallium (TRC)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Uranium (DIS)					
Uranium (TRC)	0.0003	0.0003	0.0006	0.0008	0.0004
Zinc (DIS)					

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

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# Analyses Summary Report

Site Name: Black Butte Mine

9/23/2019 10:43:12 AM

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Sample Type:	Station (Site)	SW-19	SW-2	SW-2	SW-3	SW-4	USGS-SC1
Water	Sample Date	8/20/2019	8/21/2019	8/21/2019	8/20/2019	8/20/2019	8/21/2019
	Sample Time	12:55:00 PM	11:50:00 AM	12:15:00 PM	3:00:00 PM	1:50:00 PM	12:35:00 PM
	Lab	Hydro	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
	Lab Number	z H19080621-006	H19080621-007	H19080621-002	H19080621-001	H19080621-008	
	Sample Number	BBC-1908-105	BBC-1908-125	BBC-1908-126	BBC-1908-110	BBC-1908-107	BBC-1908-127
	Remarks						

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Metals - Trace Constituents	Multiple Units						
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Zinc (TRC)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
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**QUALITY CONTROL / QUALITY ASSURANCE  
DATA VERIFICATION REPORT**

**BLACK BUTTE COPPER  
WATER RESOURCE MONITORING**

**SEPTEMBER 2019**

Prepared by  
**Hydrometrics, Inc.**  
3020 Bozeman Avenue  
Helena, MT 59601

NOVEMBER 2019

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### APPENDIX 1: TABLES

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- Table 2. Summary of Flagged Data
- Table 3. Statistical Summary

### APPENDIX 2: DATABASE SUMMARY REPORT

## GLOSSARY OF TERMS

CCB .....	Continuing Calibration Blank
CCV .....	Continuing Calibration Verification
CLP .....	Contract Laboratory Program
CRDL.....	Contract Required Detection Limit
DI í í í í	Deionized Water
FAA .....	Flame Atomic Absorption
GFAA.....	Graphite Furnace Atomic Absorption
HGAA.....	Hydride Generation Atomic Absorption
ICB.....	Initial Calibration Blank
ICP .....	Inductively Coupled Plasma
ICV .....	Initial Calibration Verification
IDL.....	Instrument Detection Limit
LCS .....	Laboratory Control Sample
MSA.....	Method of Standard Additions
PB .....	Preparation Blank
PRDL .....	Project Required Detection Limit
QAPP .....	Quality Assurance Project Plan
QC.....	Quality Control
RPD.....	Relative Percent Difference
RSD.....	Relative Standard Deviation
SOW.....	Statement of Work
TDS.....	Total Dissolved Solids



## DATA VALIDATION REPORT

### 1. INTRODUCTION

This validation applies to 157 samples collected for the Black Butte Tintina surface water and groundwater monitoring program. All sampling occurred in September 2019. All samples were submitted to Energy Laboratories in Helena, Montana and were assigned Laboratory IDs: H19090608, H19090658, H19090441, and H19090556. The total number of samples included: 50 groundwater and surface water samples including 3 field duplicates, and 4 field deionized (DI and Rinsate) blanks and 100 field site observations.

- Validation procedures used are generally consistent with:

(Check all that apply)

EPA CLP National Functional Guidelines for Inorganics Data Review

EPA CLP National Functional Guidelines for Organic Data Review

Montana Department of Environmental Quality, Data Validation Guidelines for Evaluating Analytical Data, Hydrometrics, September 2010

### 2. DELIVERABLES

- All laboratory document deliverables were present as specified in the CLP-Statement of Work and/or the project contract

Yes

No

- All documentation of field procedures was provided as required

Yes

No

### 3. FIELD QUALITY CONTROL SAMPLES

- Field blanks

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

DI, trip, rinsate, or any other field blanks have been carried out at the proper frequency

Yes

No

Reported results on the field blanks are less than the contract required detection limits (CRDL) or the project required detection limits (PRDL) if project detection limits have been specified

Yes

No ó see following table

Date	Parameter	Sample Result (mg/L)	Reporting Limit (mg/L)	Number of Flags
9/20/19	Strontium (DIS)	0.0003	<0.0002	0

B óField Blank exceeded QA/QC comparison control limits.

Field duplicates have been collected at the proper frequency

Yes

No

Field duplicate relative percent differences (RPDs) were within the required control limits (25 percent or less for water matrix and 50 percent or less for soil matrix)

Yes

No

4. LABORATORY PROCEDURES

- Laboratory Case Narrative Notes any non conformance issues with the analytical data  
 Yes  
 No  
 NA

- Samples were received by the laboratory at the proper temperature  
 Yesó see following notes  
 No

**NOTES:** In the Energy Laboratory sample check-in receipt the following was noted that the 1L and 500mL bottles in sample sets BBC-1909-201 and BBC-1909-202 were received partially frozen.

- Holding times met  
 Yes  
 No

- Consistency with project requirements  
 Yes  
 No

- Sample Conditions met at Check-in  
 Yesó see following notes  
 No

**NOTES:** In the Energy Laboratory sample check-in receipt the following was noted:

**H19090658-** Metals sample BBC-1909-152 was preserved to pH <2 in laboratory upon receipt. Nutrients sample BBC-1909-152 was preserved to pH <2 with 2 mL of sulfuric acid per 250 mL in the laboratory upon receipt.

**H19090441-** 1L and 500mL bottles in sample sets BBC-1909-201 and BBC-1909-202 were received partially frozen.

- Reporting units appropriate for the associated sample matrix and methods of analysis  
 Yes  
 No

- Project specified methods were used  
 Yesó see following list of methods used  
 No

**NOTES:** It should be noted that parameters were analyzed using different methods than requested; however, all methods used by the laboratory are comparable. The following methods were used during analyses: A2540D, A2540C, A2320B, E300.0, A4500-F C, A2340B, E353.2, A4500-N C, E365.1, E200.8, and E200.7.

- Detection Limits met project required detection limits (PRDL)  
 Yesó see following notes  
 No

**NOTES:** It should be noted that total dissolved solids and zinc had a reporting limit increases due to sample matrix interference (D). TDS had a limit of 10 mg/l used not the requested 4 mg/l. Strontium had the 0.0003 mg/l reporting limit was used in place of the requested 0.0002 mg/l; and zinc had a varying reporting limit as high as 0.02 mg/L not the requested 0.002 mg/L. In addition, a reporting limit of 0.01 mg/l was used for nitrate + nitrite as n as replacement of the 0.003 mg/l requested. Finally, Zinc and Strontium values were flagged

with an L to indicate that the lowest available reporting limit was used per method used for analysis.

**5. INITIAL OR CONTINUING CALIBRATION VERIFICATION RESULTS**

- Initial or Continuing Calibration Verification samples were within acceptable limits  
 Yes  
 No

**6. LABORATORY BLANKS**

- PREPARATION/METHOD BLANKS**

Preparation/Method blanks were prepared and analyzed at the required frequency

- Yes  
 No

All analytes in the preparation blank were less than the CRDL (or PRDL if a project detection limit has been specified)

- Yes  
 No

**7. MATRIX SPIKE /MATRIX SPIKE DUPLICATES (MS/MSD)**

- Matrix spike samples were analyzed at the proper frequency  
 Yes  
 No

- Matrix spike recoveries were within control limits  
 Yes  
 No ó see following table

QC Sample ID	Parameter	% REC	Lab Flag	Lab Advisory Limits (% REC)
H19090654-003BMS	Total Persulfate Nitrogen	89	S	90-110
H19090658-001BMS	Iron	197	S	70-130
H19090654-001CMS	Total Persulfate Nitrogen	119	S	90-110
H19090556-001MCS	Nitrate+Nitrite as N	89	S	90-110

S ó Spike recovery outside of recovery limits

- Matrix spike RPDø were within control limits  
 Yes  
 No
- Matrix spike duplicate samples were analyzed at the proper frequency  
 Yes  
 No
- Matrix spike duplicate RPDø were within control limits  
 Yes  
 No ó see following table

QC Sample ID	Parameter	% RPD	Lab Flag	Lab Advisory Limits (% RPD)
H19090556-021ADUP	Total Suspended Solids	9.5	R	5
H19090567-002ADUP	Total Suspended Solids	10	R	5

R ó Relative Percent Difference outside of recovery limits

- Matrix spike duplicate recoveries were within the laboratory specified control limits.

Yes

No ó see following table

QC Sample ID	Parameter	% REC	Lab Flag	Lab Advisory Limits (% REC)
H19090654-003BMSD	Total Persulfate Nitrogen	87	S	90-110
H19090658-001BMSD	Iron	153	S	70-130
H19090654-001CMSD	Total Persulfate Nitrogen	115	S	90-110
H19090556-001MCSD	Nitrate+Nitrite as N	88	S	90-110

S ó Spike recovery outside of recovery limits

## 8. LABORATORY CONTROL SAMPLES

- LCS Samples

Laboratory Control Samples used the correct matrix and concentrations

Yes

No

NA

Laboratory Control Samples were prepared and analyzed at the required frequency

Yes

No

NA

All analytes in the laboratory control samples were less than the control limits specified

Yes

No

## 9. DATA QUALITY OBJECTIVES

- Project data quality objectives (DQOs) met

Yes

No

### Accuracy

Accuracy for this project is the degree of agreement between an analytical measurement and a reference accepted as a true value. The accuracy of a measurement system can be affected by errors introduced by field contamination, sample preservation, sample handling, sample preparation and analytical techniques. Analysis of MS/MSD samples, laboratory control spikes (LCS) or blank spikes, surrogate standards and method blanks are typically used to calculate the percent recovery for evaluating accuracy. Accuracy for this sampling event was 98 percent.

### Precision

Precision for this project is the degree of mutual agreement between individual measurements of the same property under similar conditions. Combined field and laboratory precision is

evaluated by collecting and analyzing field duplicate and then calculating the variance between the samples, typically as a relative percent difference (RPD). Laboratory analytical precision is evaluated by analyzing matrix spike/matrix spike duplicate samples and using the results to calculate an RPD. The combined precision was 99 percent for this sampling event for both laboratory and field.

#### Representativeness

Representativeness for this project is the degree to which sample data accurately and precisely represent the characteristics of a population, and variations in a parameter at a sampling point or an environmental condition that they are intended to represent. Typically representative data will be obtained through careful selection of sampling locations and analytical parameters; proper collection and handling of samples and through use and consistent application of established field and laboratory procedures. Evaluation of field and laboratory blank samples for presence of contaminants can be useful in evaluating representativeness of sample results. Both laboratory and field representativeness for this sampling event was 100 percent.

#### Completeness

The target completeness for this project is the percent of the measurements valid (not rejected). Valid data are obtained when samples are collected and analyzed in accordance with quality control procedures outlined in the SAP, and when none of the QC criteria that affect data usability are exceeded. Once data validation is complete the number of useable sample results is divided by the total number of sample results planned for the investigation to determine the percent completeness. Completeness for this sampling event was 100 percent.

#### Comparability

Comparability is the expression of the confidence with which one data set can be compared with another. Comparability of data is achieved by consistently following standard field and laboratory procedures and by using standard measurement units in reporting analytical data. This criterion was met.

## REFERENCES

- Montana Department of Environmental Quality, Data Validation Guidelines for Evaluating Analytical Data (Updated August 5, 2010)
- EPA, 2017a. National Functional Guidelines for Organic Superfund Methods Data Review. EPA-540-R-2017-002. Office of Superfund Remediation and Technology Innovation. January 2017.
- EPA, 2017b. National Functional Guidelines for Inorganic Superfund Methods Data Review. EPA-540-R-2017-001. Office of Superfund Remediation and Technology Innovation. January 2017.
- Hem, J.D., 1992. Study and Interpretation of the Chemical Characteristics of Natural Water, 3rd edition. US Geological Survey Water Supply Paper 2254.

## **APPENDIX 1**

### **TABLES**

**TABLE 1.**

**DATA VALIDATION CODES AND DEFINITIONS**

<u>CODE</u>	<u>DEFINITION</u>
J	-The associated numerical value is an estimated quantity because quality control criteria were not met.
B	- Blank contamination. Indicates possible high bias and / or false positive. The associated value is an estimate.
R	- Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis is necessary for verification.
A	- Anomalous data. No apparent explanation for discrepancy in data. (Not an EPA code.)



**Table 2. Summary of Flagged Data**

StationName	Sample Date	Field Sample Id	Lab Name	Lab Sample Id	Parameter Name	Sample Result	Reporting Units	Validation Flag	Exceedance Type
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# Data Comparison Summary

Report Date: November 7, 2019

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		RESULT mg/L	PARAMETER										
DS-1	09/25/19	<0.000	Antimony (DIS)	O	03/25/15-08/20/19	33	0	<0.0005	0.0005	<0.0005	0		HIGHEST
DS-1	09/25/19	<0.000	Beryllium (DIS)	O	03/25/15-08/20/19	33	0	<0.0008	0.0008	<0.0008	0		HIGHEST
DS-1	09/25/19	<0.000	Cadmium (DIS)	O	03/25/15-08/20/19	33	0	<0.00003	0.00003	<0.00003	0		HIGHEST
DS-1	09/25/19	<0.01	Chromium (DIS)	O	03/25/15-08/20/19	33	0	<0.01	0.01	<0.01	0		HIGHEST
DS-1	09/25/19	<0.002	Copper (DIS)	O	03/25/15-08/20/19	33	1	<0.002	0.002	0.007	0.001	0.00	LOWEST
DS-1	09/25/19	<0.005	Mercury (DIS)	ug/L O	03/25/15-08/20/19	32	0	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
DS-1	09/25/19	<0.002	Molybdenum (DIS)	O	03/25/15-08/20/19	33	0	<0.002	0.002	<0.002	0		HIGHEST
DS-1	09/25/19	<0.001	Nickel (DIS)	O	03/25/15-08/20/19	33	0	<0.001	0.001	<0.001	0		HIGHEST
DS-1	09/25/19	<0.000	Selenium (DIS)	O	03/25/15-08/20/19	33	9	0.0002	0.0002	0.0002	0		HIGHEST
DS-1	09/25/19	<0.000	Silver (DIS)	O	03/25/15-08/20/19	33	0	<0.0002	0.0002	<0.0002	0		HIGHEST
DS-1	09/25/19	<0.000	Thallium (DIS)	O	03/25/15-08/20/19	33	0	<0.0002	0.0002	<0.0002	0		HIGHEST
DS-1	09/25/19	<0.002	Zinc (DIS)	O	03/25/15-08/20/19	33	25	<0.002	0.008	0.03	0.007	0.86	LOWEST
DS-1	09/25/19	<0.001	Arsenic (DIS)	O	03/25/15-08/20/19	33	0	<0.001	0.001	<0.001	0		HIGHEST
DS-1	09/25/19	<0.000	Lead (DIS)	O	03/25/15-08/20/19	33	0	<0.0003	0.0003	<0.0003	0		HIGHEST
DS-1	09/25/19	0.0007	Uranium (DIS)	O	03/25/15-08/20/19	33	5	0.0006	0.0069	<0.008	0.0027	2.30	
DS-1	09/25/19	<0.009	Aluminum (DIS)	O	03/25/15-08/20/19	34	1	<0.009	0.009	0.024	0.003	0.00	LOWEST
DS-1	09/25/19	<0.01	Cobalt (DIS)	O	03/25/15-08/20/19	33	0	<0.01	0.01	<0.01	0		HIGHEST
DS-1	09/25/19	53	Calcium	O	03/25/15-08/20/19	34	34	46	57	62	3	1.33	
DS-1	09/25/19	0.071	Barium (DIS)	O	03/25/15-08/20/19	33	33	0.041	0.051	0.074	0.007	2.86	
DS-1	09/25/19	<0.02	Iron (DIS)	O	03/25/15-08/20/19	33	2	<0.02	0.02	0.06	0.01	0.00	LOWEST
DS-1	09/25/19	20	Magnesium	O	03/25/15-08/20/19	34	34	17	21	23	1	1.00	
DS-1	09/25/19	<0.005	Manganese (DIS)	O	03/25/15-08/20/19	33	0	<0.005	0.005	<0.005	0		HIGHEST
DS-1	09/25/19	<1	Potassium	O	03/25/15-08/20/19	34	0	<1	1	<1	0		HIGHEST
DS-1	09/25/19	2	Sodium	O	03/25/15-08/20/19	34	34	1	2	2	0		HIGHEST
DS-1	09/25/19	0.119	Strontium (DIS)	O	03/25/15-08/20/19	33	33	0.0847	0.107	0.119	0.007	1.71	HIGHEST
DS-1	09/25/19	<1	Chloride	O	03/25/15-08/20/19	34	0	<1	1	<1	0		HIGHEST
DS-1	09/25/19	4.35	Flow	Gallo O	03/25/15-08/20/19	30	30	0.05800	12.8	62.27	15.02	0.56	
DS-1	09/25/19	0.1	Fluoride	O	03/25/15-08/20/19	34	31	0.1	0.1	0.1	0		HIGHEST
DS-1	09/25/19	0.08	N+N	O	03/25/15-08/20/19	34	34	0.03	0.19	0.26	0.05	2.20	
DS-1	09/25/19	8.11	Field pH	s.u. O	03/25/15-08/20/19	33	33	7.36	7.79	8.56	0.29	1.10	
DS-1	09/25/19	411	Field SC	umh O	03/25/15-08/20/19	34	34	337	422	698.7	54	0.20	

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		RESULT mg/L	PARAMETER										
DS-1	09/25/19	228	TDS	O	03/25/15-08/20/19	34	34	203	230	245	10	0.20	
DS-1	09/25/19	220	Alkalinity	O	03/25/15-08/20/19	34	34	180	215	220	8	0.62	HIGHEST
DS-1	09/25/19	215	Hardness	O	03/25/15-08/20/19	34	34	185	229	249	12	1.17	
DS-1	09/25/19	<10	TSS	O	03/25/15-08/20/19	34	10	<10	64	1130	201	0.27	LOWEST
DS-1	09/25/19	8.1	Water Temp	Deg O	03/25/15-08/20/19	34	34	0.5	6.8	18.25	3.4	0.38	
DS-1	09/25/19	9.67	DO	O	03/25/15-08/20/19	34	34	8.15	36.39	916	155.43	0.17	
DS-1	09/25/19	14	Sulfate	O	03/25/15-08/20/19	34	34	11	15	18	2	0.50	
DS-3	09/24/19	<0.000	Antimony (DIS)	O	08/06/14-08/20/19	31	0	<0.0005	0.0005	<0.0005	0		HIGHEST
DS-3	09/24/19	<0.000	Beryllium (DIS)	O	08/06/14-08/20/19	31	0	<0.0008	0.0008	<0.0008	0		HIGHEST
DS-3	09/24/19	<0.000	Cadmium (DIS)	O	08/06/14-08/20/19	31	2	<0.00003	0.00003	<0.00003	0		HIGHEST
DS-3	09/24/19	<0.01	Chromium (DIS)	O	08/06/14-08/20/19	31	0	<0.005	0.01	<0.01	0		HIGHEST
DS-3	09/24/19	<0.002	Copper (DIS)	O	08/06/14-08/20/19	31	20	<0.002	0.003	0.005	0.001	1.00	LOWEST
DS-3	09/24/19	0.006	Mercury (DIS)	ug/L O	08/06/14-08/20/19	31	20	0.000002	0.001	0.02 D	0.004	1.25	
DS-3	09/24/19	<0.002	Molybdenum (DIS)	O	08/06/14-08/20/19	31	0	<0.001	0.002	<0.002	0		HIGHEST
DS-3	09/24/19	0.002	Nickel (DIS)	O	08/06/14-08/20/19	31	30	<0.001	0.004	0.006	0.001	2.00	
DS-3	09/24/19	<0.000	Selenium (DIS)	O	08/06/14-08/20/19	31	5	0.0001	0.0002	<0.0002	0		HIGHEST
DS-3	09/24/19	<0.000	Silver (DIS)	O	08/06/14-08/20/19	31	0	<0.0002	0.0002	<0.0002	0		HIGHEST
DS-3	09/24/19	<0.000	Thallium (DIS)	O	08/06/14-08/20/19	31	0	<0.0002	0.0002	<0.0002	0		HIGHEST
DS-3	09/24/19	<0.002	Zinc (DIS)	O	08/06/14-08/20/19	31	25	0.002	0.005	0.015 J	0.004	0.75	LOWEST
DS-3	09/24/19	<0.001	Arsenic (DIS)	O	08/06/14-08/20/19	31	7	<0.001	0.001	0.002	0		LOWEST
DS-3	09/24/19	<0.000	Lead (DIS)	O	08/06/14-08/20/19	31	13	0.0001	0.0004	0.0011	0.0002	0.50	
DS-3	09/24/19	<0.000	Uranium (DIS)	O	08/06/14-08/20/19	31	0	<0.0002	0.006	<0.008	0.0034	1.71	LOWEST
DS-3	09/24/19	0.177	Aluminum (DIS)	O	08/06/14-08/20/19	32	32	0.114	2.043	8.17 D	1.715	1.09	
DS-3	09/24/19	<0.01	Cobalt (DIS)	O	08/06/14-08/20/19	31	0	<0.005	0.01	<0.01	0		HIGHEST
DS-3	09/24/19	6	Calcium	O	08/06/14-08/20/19	32	32	5	6	7	1	0.00	
DS-3	09/24/19	0.274	Barium (DIS)	O	08/06/14-08/20/19	31	31	0.229	0.278	0.345	0.025	0.16	
DS-3	09/24/19	0.21	Iron (DIS)	O	08/06/14-08/20/19	31	31	0.08	1.06	3.69	0.89	0.96	
DS-3	09/24/19	2	Magnesium	O	08/06/14-08/20/19	32	32	1	2	2	0		HIGHEST
DS-3	09/24/19	<0.005	Manganese (DIS)	O	08/06/14-08/20/19	31	22	<0.001	0.007	0.024	0.006	0.33	
DS-3	09/24/19	1	Potassium	O	08/06/14-08/20/19	32	28	<1	1	2	0		LOWEST
DS-3	09/24/19	1	Sodium	O	08/06/14-08/20/19	32	32	1	1	2	0		LOWEST

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		RESULT mg/L	PARAMETER										
DS-3	09/24/19	0.0306	Strontium (DIS)	O	08/06/14-08/20/19	31	31	0.0231	0.0291	0.0324	0.0022	0.68	
DS-3	09/24/19	<1	Chloride	O	08/06/14-08/20/19	32	3	<1	1	<1	0		HIGHEST
DS-3	09/24/19	1	Flow	Gallo O	08/06/14-08/20/19	28	28	0.47	13	159	29	0.41	
DS-3	09/24/19	<0.1	Fluoride	O	08/06/14-08/20/19	32	2	0.04	0.1	<0.1	0		HIGHEST
DS-3	09/24/19	0.36	N+N	O	08/06/14-08/20/19	32	32	0.11	0.28	0.48	0.09	0.89	
DS-3	09/24/19	7.03	Field pH	s.u. O	08/06/14-08/20/19	32	32	5.56	7.11	8.7	0.95	0.08	
DS-3	09/24/19	54	Field SC	umh O	08/06/14-08/20/19	32	32	40	59	132	20	0.25	
DS-3	09/24/19	56	TDS	O	08/06/14-08/20/19	32	32	47	72	128	21	0.76	
DS-3	09/24/19	24	Alkalinity	O	08/06/14-08/20/19	32	32	17	22	29	3	0.67	
DS-3	09/24/19	21	Hardness	O	08/06/14-08/20/19	32	32	19	23	26	2	1.00	
DS-3	09/24/19	<10	TSS	O	08/06/14-08/20/19	32	4	<4	15	95	18	0.28	
DS-3	09/24/19	10.3	Water Temp	Deg O	08/06/14-08/20/19	32	32	3.8	8.8	15.1	3	0.50	
DS-3	09/24/19	8.05	DO	O	08/06/14-08/20/19	32	32	3.72	6.9	10.8	2.1	0.55	
DS-3	09/24/19	2	Sulfate	O	08/06/14-08/20/19	32	32	1	1	2	0		HIGHEST
MW-10	09/19/19	<0.000	Antimony (DIS)	O	03/29/16-06/20/19	13	1	<0.0005	0.0015	0.0132	0.0035	0.29	LOWEST
MW-10	09/19/19	<0.000	Beryllium (DIS)	O	03/29/16-06/20/19	13	0	<0.0008	0.0008	<0.0008	0		HIGHEST
MW-10	09/19/19	<0.000	Cadmium (DIS)	O	03/29/16-06/20/19	13	1	<0.00003	0.00003	0.00008	0.00001	0.00	LOWEST
MW-10	09/19/19	<0.01	Chromium (DIS)	O	03/29/16-06/20/19	13	1	0.01	0.01	0.01	0		HIGHEST
MW-10	09/19/19	<0.002	Copper (DIS)	O	03/29/16-06/20/19	13	2	<0.002	0.003	0.01	0.002	0.50	LOWEST
MW-10	09/19/19	<0.005	Mercury (DIS)	ug/L O	03/29/16-06/20/19	13	1	<0.000005	0.0004	<0.005	0.001	4.60	HIGHEST
MW-10	09/19/19	0.004	Molybdenum (DIS)	O	03/29/16-06/20/19	13	13	0.004	0.007	0.012	0.002	1.50	LOWEST
MW-10	09/19/19	<0.001	Nickel (DIS)	O	03/29/16-06/20/19	13	11	0.001	0.003	0.009	0.002	1.00	LOWEST
MW-10	09/19/19	<0.000	Selenium (DIS)	O	03/29/16-06/20/19	13	5	0.0002	0.0002	0.0004	0.0001	0.00	LOWEST
MW-10	09/19/19	<0.000	Silver (DIS)	O	03/29/16-06/20/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-10	09/19/19	<0.000	Thallium (DIS)	O	03/29/16-06/20/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-10	09/19/19	<0.002	Zinc (DIS)	O	03/29/16-06/20/19	13	5	<0.002	0.004	0.015	0.004	0.50	LOWEST
MW-10	09/19/19	<0.001	Arsenic (DIS)	O	03/29/16-06/20/19	13	1	<0.001	0.001	<0.001	0		HIGHEST
MW-10	09/19/19	<0.000	Lead (DIS)	O	03/29/16-06/20/19	13	4	<0.0003	0.0006	0.0021	0.0006	0.50	LOWEST
MW-10	09/19/19	0.0051	Uranium (DIS)	O	03/29/16-06/20/19	13	11	0.0051	0.0125	0.02	0.005	1.48	LOWEST
MW-10	09/19/19	<0.009	Aluminum (DIS)	O	03/29/16-06/20/19	13	13	0.009	0.584	3.66	1.107	0.52	LOWEST
MW-10	09/19/19	<0.01	Cobalt (DIS)	O	03/29/16-06/20/19	13	0	<0.01	0.01	<0.01	0		HIGHEST

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		RESULT mg/L	PARAMETER										
MW-10	09/19/19	42	Calcium	O	03/29/16-06/20/19	13	13	35	40	46	4	0.50	
MW-10	09/19/19	0.204	Barium (DIS)	O	03/29/16-06/20/19	13	13	0.135	0.182	0.211	0.026	0.85	
MW-10	09/19/19	<0.02	Iron (DIS)	O	03/29/16-06/20/19	13	8	<0.02	0.55	3.58	1.07	0.50	LOWEST
MW-10	09/19/19	17	Magnesium	O	03/29/16-06/20/19	13	13	16	17	18	1	0.00	
MW-10	09/19/19	<0.005	Manganese (DIS)	O	03/29/16-06/20/19	13	8	0.005	0.035	0.168	0.049	0.61	LOWEST
MW-10	09/19/19	2	Potassium	O	03/29/16-06/20/19	13	13	2	3	7	1	1.00	LOWEST
MW-10	09/19/19	6	Sodium	O	03/29/16-06/20/19	13	13	6	7	11	2	0.50	LOWEST
MW-10	09/19/19	0.886	Strontium (DIS)	O	03/29/16-06/20/19	13	13	0.796	1.089	1.35	0.18	1.13	
MW-10	09/19/19	74.79	SWL	Feet O	03/29/16-06/20/19	13	13	64.92	74.59	82.88	5.97	0.03	
MW-10	09/19/19	<1	Chloride	O	03/29/16-06/20/19	13	3	<1	2	4	1	1.00	LOWEST
MW-10	09/19/19	0.2	Fluoride	O	03/29/16-06/20/19	13	13	0.2	0.3	0.5	0.1	1.00	LOWEST
MW-10	09/19/19	0.57	N+N	O	03/29/16-06/20/19	13	13	0.46	0.54	0.62	0.04	0.75	
MW-10	09/19/19	7.75	Field pH	s.u. O	03/29/16-06/20/19	13	13	7.56	7.85	8.04	0.17	0.59	
MW-10	09/19/19	356	Field SC	umh O	03/29/16-06/20/19	13	13	314	336	364	14	1.43	
MW-10	09/19/19	197	TDS	O	03/29/16-06/20/19	13	13	174 D	195	244	17	0.12	
MW-10	09/19/19	190	Alkalinity	O	03/29/16-06/20/19	13	13	170	180	210	10	1.00	
MW-10	09/19/19	174	Hardness	O	03/29/16-06/20/19	13	13	156	170	185	11	0.36	
MW-10	09/19/19	<10	TSS	O	03/29/16-06/20/19	13	11	<10	339	2830 D	760	0.43	LOWEST
MW-10	09/19/19	9.1	Water Temp	Deg O	03/29/16-06/20/19	13	13	5.9	7.7	9.7	1.1	1.27	
MW-10	09/19/19	7.71	DO	O	03/29/16-06/20/19	13	13	4.96	7.35	9.77	1.5	0.24	
MW-10	09/19/19	4	Sulfate	O	03/29/16-06/20/19	13	13	3	5	8	2	0.50	
MW-10	09/19/19	261.15	EH	Milliv O	03/21/18-06/20/19	5	5	253.6804	278.606	297.43	17.69	0.99	
MW-11	09/19/19	<0.000	Antimony (DIS)	O	03/29/16-06/21/19	13	0	<0.0005	0.0005	<0.0005	0		HIGHEST
MW-11	09/19/19	<0.000	Beryllium (DIS)	O	03/29/16-06/21/19	13	0	<0.0008	0.0008	<0.0008	0		HIGHEST
MW-11	09/19/19	<0.000	Cadmium (DIS)	O	03/29/16-06/21/19	13	0	<0.00003	0.00003	<0.00003	0		HIGHEST
MW-11	09/19/19	<0.01	Chromium (DIS)	O	03/29/16-06/21/19	13	0	<0.01	0.01	<0.01	0		HIGHEST
MW-11	09/19/19	<0.002	Copper (DIS)	O	03/29/16-06/21/19	13	0	<0.002	0.002	<0.002	0		HIGHEST
MW-11	09/19/19	<0.005	Mercury (DIS)	ug/L O	03/29/16-06/21/19	13	0	<0.000005	0.0004	<0.005	0.001	4.60	HIGHEST
MW-11	09/19/19	<0.002	Molybdenum (DIS)	O	03/29/16-06/21/19	13	0	<0.002	0.002	<0.002	0		HIGHEST
MW-11	09/19/19	<0.001	Nickel (DIS)	O	03/29/16-06/21/19	13	5	<0.001	0.001	0.003	0.001	0.00	LOWEST
MW-11	09/19/19	<0.000	Selenium (DIS)	O	03/29/16-06/21/19	13	0	<0.0002	0.0002	<0.0004	0.0001	0.00	LOWEST

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		RESULT mg/L	PARAMETER										
MW-11	09/19/19	<0.000	Silver (DIS)	O	03/29/16-06/21/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-11	09/19/19	<0.000	Thallium (DIS)	O	03/29/16-06/21/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-11	09/19/19	<0.002	Zinc (DIS)	O	03/29/16-06/21/19	13	1	<0.002	0.002	0.004	0.001	0.00	LOWEST
MW-11	09/19/19	<0.001	Arsenic (DIS)	O	03/29/16-06/21/19	13	0	<0.001	0.001	<0.001	0		HIGHEST
MW-11	09/19/19	<0.000	Lead (DIS)	O	03/29/16-06/21/19	13	2	<0.0003	0.0004	0.0013	0.0003	0.33	LOWEST
MW-11	09/19/19	0.0015	Uranium (DIS)	O	03/29/16-06/21/19	13	2	0.0015	0.007	<0.008	0.0024	2.29	LOWEST
MW-11	09/19/19	<0.009	Aluminum (DIS)	O	03/29/16-06/21/19	13	9	<0.009	0.206	1.5	0.429	0.46	LOWEST
MW-11	09/19/19	<0.01	Cobalt (DIS)	O	03/29/16-06/21/19	13	0	<0.01	0.01	<0.01	0		HIGHEST
MW-11	09/19/19	43	Calcium	O	03/29/16-06/21/19	13	13	40	43	46	2	0.00	
MW-11	09/19/19	0.155	Barium (DIS)	O	03/29/16-06/21/19	13	13	0.126	0.153	0.183	0.013	0.15	
MW-11	09/19/19	<0.02	Iron (DIS)	O	03/29/16-06/21/19	13	5	<0.02	0.16	1.6	0.44	0.32	LOWEST
MW-11	09/19/19	11	Magnesium	O	03/29/16-06/21/19	13	13	11	12	15	1	1.00	LOWEST
MW-11	09/19/19	<0.005	Manganese (DIS)	O	03/29/16-06/21/19	13	3	0.005	0.011	0.063	0.016	0.38	LOWEST
MW-11	09/19/19	2	Potassium	O	03/29/16-06/21/19	13	13	2	2	2	0		HIGHEST
MW-11	09/19/19	4	Sodium	O	03/29/16-06/21/19	13	13	4	7	21	4	0.75	LOWEST
MW-11	09/19/19	0.322	Strontium (DIS)	O	03/29/16-06/21/19	13	13	0.261	0.654	1.37	0.384	0.86	
MW-11	09/19/19	32.55	SWL	Feet O	03/29/16-06/21/19	13	13	23.38	31.72	37.08	4.23	0.20	
MW-11	09/19/19	<1	Chloride	O	03/29/16-06/21/19	13	1	<1	1	2	0		LOWEST
MW-11	09/19/19	<0.1	Fluoride	O	03/29/16-06/21/19	13	8	0.1	0.1	0.1	0		HIGHEST
MW-11	09/19/19	0.4	N+N	O	03/29/16-06/21/19	13	13	0.37	0.4	0.53	0.1	0.00	
MW-11	09/19/19	7.7	Field pH	s.u. O	03/29/16-06/21/19	13	13	7.4	7.6	7.73	0.1	1.00	
MW-11	09/19/19	315	Field SC	umh O	03/29/16-06/21/19	13	13	295	321	393	27	0.22	
MW-11	09/19/19	177	TDS	O	03/29/16-06/21/19	13	13	160	184	238	18	0.39	
MW-11	09/19/19	170	Alkalinity	O	03/29/16-06/21/19	13	13	150	165	180	9	0.56	
MW-11	09/19/19	153	Hardness	O	03/29/16-06/21/19	13	13	148	157	163	5	0.80	
MW-11	09/19/19	12	TSS	O	03/29/16-06/21/19	13	12	<10	135	501	166	0.74	
MW-11	09/19/19	8.7	Water Temp	Deg O	03/29/16-06/21/19	13	13	6.7	7.6	8.1	0.5	2.20	HIGHEST
MW-11	09/19/19	9.31	DO	O	03/29/16-06/21/19	13	13	5.09	7.51	9.57	1.32	1.36	
MW-11	09/19/19	5	Sulfate	O	03/29/16-06/21/19	13	13	4	8	31	7	0.43	
MW-11	09/19/19	259.02	EH	Milliv O	03/20/18-06/21/19	5	5	255.64	275.01	293.82	15.129	1.06	
MW-12	09/19/19	<0.000	Antimony (DIS)	O	03/29/16-06/21/19	13	0	<0.0005	0.0005	<0.0005	0		HIGHEST

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		RESULT mg/L	PARAMETER										
MW-12	09/19/19	<0.000	Beryllium (DIS)	O	03/29/16-06/21/19	13	0	<0.0008	0.0008	<0.0008	0		HIGHEST
MW-12	09/19/19	<0.000	Cadmium (DIS)	O	03/29/16-06/21/19	13	0	<0.00003	0.00003	<0.00003	0		HIGHEST
MW-12	09/19/19	<0.01	Chromium (DIS)	O	03/29/16-06/21/19	13	0	<0.01	0.01	<0.01	0		HIGHEST
MW-12	09/19/19	<0.002	Copper (DIS)	O	03/29/16-06/21/19	13	0	<0.002	0.002	<0.002	0		HIGHEST
MW-12	09/19/19	<0.005	Mercury (DIS)	ug/L O	03/29/16-06/21/19	13	0	<0.000005	0.0004	<0.005	0.001	4.60	HIGHEST
MW-12	09/19/19	<0.002	Molybdenum (DIS)	O	03/29/16-06/21/19	13	0	<0.002	0.002	<0.002	0		HIGHEST
MW-12	09/19/19	<0.001	Nickel (DIS)	O	03/29/16-06/21/19	13	0	<0.001	0.001	<0.001	0		HIGHEST
MW-12	09/19/19	<0.000	Selenium (DIS)	O	03/29/16-06/21/19	13	1	0.0002	0.0002	<0.0004	0.0001	0.00	LOWEST
MW-12	09/19/19	<0.000	Silver (DIS)	O	03/29/16-06/21/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-12	09/19/19	<0.000	Thallium (DIS)	O	03/29/16-06/21/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-12	09/19/19	<0.002	Zinc (DIS)	O	03/29/16-06/21/19	13	0	<0.002	0.002	<0.002	0		HIGHEST
MW-12	09/19/19	<0.001	Arsenic (DIS)	O	03/29/16-06/21/19	13	0	<0.001	0.001	<0.001	0		HIGHEST
MW-12	09/19/19	<0.000	Lead (DIS)	O	03/29/16-06/21/19	13	0	<0.0003	0.0003	<0.0003	0		HIGHEST
MW-12	09/19/19	0.0007	Uranium (DIS)	O	03/29/16-06/21/19	13	2	0.0007	0.0069	<0.008	0.0027	2.30	LOWEST
MW-12	09/19/19	<0.009	Aluminum (DIS)	O	03/29/16-06/21/19	13	1	<0.009	0.009	0.014	0.001	0.00	LOWEST
MW-12	09/19/19	<0.01	Cobalt (DIS)	O	03/29/16-06/21/19	13	0	<0.01	0.01	<0.01	0		HIGHEST
MW-12	09/19/19	56	Calcium	O	03/29/16-06/21/19	13	13	55	58	62	2	1.00	
MW-12	09/19/19	0.051	Barium (DIS)	O	03/29/16-06/21/19	13	13	0.048	0.052	0.055	0.002	0.50	
MW-12	09/19/19	<0.02	Iron (DIS)	O	03/29/16-06/21/19	13	0	<0.02	0.02	<0.02	0		HIGHEST
MW-12	09/19/19	19	Magnesium	O	03/29/16-06/21/19	13	13	18	19	20	1	0.00	
MW-12	09/19/19	<0.005	Manganese (DIS)	O	03/29/16-06/21/19	13	0	<0.005	0.005	<0.005	0		HIGHEST
MW-12	09/19/19	<1	Potassium	O	03/29/16-06/21/19	13	0	<1	1	<1	0		HIGHEST
MW-12	09/19/19	2	Sodium	O	03/29/16-06/21/19	13	13	2	2	2	0		HIGHEST
MW-12	09/19/19	0.135	Strontium (DIS)	O	03/29/16-06/21/19	13	13	0.136	0.142	0.149	0.003	2.33	LOWEST
MW-12	09/19/19	26.82	SWL	Feet O	03/29/16-06/21/19	13	13	21.19	26.56	31.17	3.2	0.08	
MW-12	09/19/19	<1	Chloride	O	03/29/16-06/21/19	13	0	<1	1	<1	0		HIGHEST
MW-12	09/19/19	0.1	Fluoride	O	03/29/16-06/21/19	13	13	0.1	0.1	0.1	0		HIGHEST
MW-12	09/19/19	0.15	N+N	O	03/29/16-06/21/19	13	13	0.13	0.16	0.19	0.02	0.50	
MW-12	09/19/19	7.6	Field pH	s.u. O	03/29/16-06/21/19	13	13	7.17	7.5	7.62	0.1	1.00	
MW-12	09/19/19	412	Field SC	umh O	03/29/16-06/21/19	13	13	342	405	437	25	0.28	
MW-12	09/19/19	220	TDS	O	03/29/16-06/21/19	13	13	210	222	233	6	0.33	

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		RESULT mg/L	PARAMETER										
MW-12	09/19/19	220	Alkalinity	O	03/29/16-06/21/19	13	13	200	212	220	7	1.14	HIGHEST
MW-12	09/19/19	217	Hardness	O	03/29/16-06/21/19	13	13	212	225	239	7	1.14	
MW-12	09/19/19	<10	TSS	O	03/29/16-06/21/19	13	2	<4	11	26	5	0.20	
MW-12	09/19/19	6.5	Water Temp	Deg O	03/29/16-06/21/19	13	13	5.4	6.3	7	0.4	0.50	
MW-12	09/19/19	8.38	DO	O	03/29/16-06/21/19	13	13	6.27	8.44	9.88	1.19	0.05	
MW-12	09/19/19	12	Sulfate	O	03/29/16-06/21/19	13	13	10	12	13	1	0.00	
MW-12	09/19/19	269.29	EH	Milliv O	03/20/18-06/21/19	5	5	265.012	288.968	304.80	16.172	1.22	
MW-13	09/19/19	<0.000	Antimony (DIS)	O	03/29/16-06/21/19	13	0	<0.0005	0.0005	<0.0005	0		HIGHEST
MW-13	09/19/19	<0.000	Beryllium (DIS)	O	03/29/16-06/21/19	13	0	<0.0008	0.0008	<0.0008	0		HIGHEST
MW-13	09/19/19	<0.000	Cadmium (DIS)	O	03/29/16-06/21/19	13	0	<0.00003	0.00003	<0.00003	0		HIGHEST
MW-13	09/19/19	<0.01	Chromium (DIS)	O	03/29/16-06/21/19	13	0	<0.01	0.01	<0.01	0		HIGHEST
MW-13	09/19/19	<0.002	Copper (DIS)	O	03/29/16-06/21/19	13	0	<0.002	0.002	<0.002	0		HIGHEST
MW-13	09/19/19	<0.005	Mercury (DIS)	ug/L O	03/29/16-06/21/19	13	0	<0.000005	0.0004	<0.005	0.001	4.60	HIGHEST
MW-13	09/19/19	<0.002	Molybdenum (DIS)	O	03/29/16-06/21/19	13	0	<0.002	0.002	<0.002	0		HIGHEST
MW-13	09/19/19	<0.001	Nickel (DIS)	O	03/29/16-06/21/19	13	1	<0.001	0.001	<0.001	0		HIGHEST
MW-13	09/19/19	<0.000	Selenium (DIS)	O	03/29/16-06/21/19	13	5	0.0002	0.0002	<0.0004	0.0001	0.00	LOWEST
MW-13	09/19/19	<0.000	Silver (DIS)	O	03/29/16-06/21/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-13	09/19/19	<0.000	Thallium (DIS)	O	03/29/16-06/21/19	13	1	<0.0002	0.0002	0.0003	0		LOWEST
MW-13	09/19/19	<0.002	Zinc (DIS)	O	03/29/16-06/21/19	13	1	<0.002	0.002	<0.002	0		HIGHEST
MW-13	09/19/19	<0.001	Arsenic (DIS)	O	03/29/16-06/21/19	13	0	<0.001	0.001	<0.001	0		HIGHEST
MW-13	09/19/19	<0.000	Lead (DIS)	O	03/29/16-06/21/19	13	1	<0.0003	0.0003	0.0004	0		LOWEST
MW-13	09/19/19	0.0005	Uranium (DIS)	O	03/29/16-06/21/19	13	2	0.0005	0.0068	<0.008	0.0028	2.25	LOWEST
MW-13	09/19/19	<0.009	Aluminum (DIS)	O	03/29/16-06/21/19	13	6	0.009	0.023	0.158	0.041	0.34	LOWEST
MW-13	09/19/19	<0.01	Cobalt (DIS)	O	03/29/16-06/21/19	13	0	<0.01	0.01	<0.01	0		HIGHEST
MW-13	09/19/19	58	Calcium	O	03/29/16-06/21/19	13	13	57	60	63	2	1.00	
MW-13	09/19/19	0.054	Barium (DIS)	O	03/29/16-06/21/19	13	13	0.054	0.056	0.059	0.001	2.00	LOWEST
MW-13	09/19/19	<0.02	Iron (DIS)	O	03/29/16-06/21/19	13	2	0.02	0.03	0.15	0.04	0.25	LOWEST
MW-13	09/19/19	20	Magnesium	O	03/29/16-06/21/19	13	13	20	21	22	1	1.00	LOWEST
MW-13	09/19/19	<0.005	Manganese (DIS)	O	03/29/16-06/21/19	13	2	<0.005	0.006	0.01	0.002	0.50	LOWEST
MW-13	09/19/19	<1	Potassium	O	03/29/16-06/21/19	13	0	<1	1	<1	0		HIGHEST
MW-13	09/19/19	1	Sodium	O	03/29/16-06/21/19	13	13	1	1	2	1	0.00	LOWEST

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		RESULT mg/L	PARAMETER										
MW-13	09/19/19	0.0963	Strontium (DIS)	O	03/29/16-06/21/19	13	13	0.0976	0.1022	0.109	0.0028	2.11	LOWEST
MW-13	09/19/19	27.6	SWL	Feet O	03/29/16-06/21/19	13	13	16.68	20.4	22.5	1.9	3.79	HIGHEST
MW-13	09/19/19	<1	Chloride	O	03/29/16-06/21/19	13	1	1	1	1	0		HIGHEST
MW-13	09/19/19	0.1	Fluoride	O	03/29/16-06/21/19	13	12	0.1	0.1	0.1	0		HIGHEST
MW-13	09/19/19	0.16	N+N	O	03/29/16-06/21/19	13	13	0.15	0.2	0.27	0.03	1.33	
MW-13	09/19/19	7.57	Field pH	s.u. O	03/29/16-06/21/19	13	13	6.26	7.38	7.68	0.42	0.45	
MW-13	09/19/19	425	Field SC	umh O	03/29/16-06/21/19	13	13	388	424	458.7	22	0.05	
MW-13	09/19/19	231	TDS	O	03/29/16-06/21/19	13	13	221	233	248	7	0.29	
MW-13	09/19/19	220	Alkalinity	O	03/29/16-06/21/19	13	13	210	216	220	5	0.80	HIGHEST
MW-13	09/19/19	225	Hardness	O	03/29/16-06/21/19	13	13	222	235	245	7	1.43	
MW-13	09/19/19	52	TSS	O	03/29/16-06/21/19	13	9	<10	50	319 J	89	0.02	
MW-13	09/19/19	6.4	Water Temp	Deg O	03/29/16-06/21/19	13	13	5.8	6.4	7	0.4	0.00	
MW-13	09/19/19	8.09	DO	O	03/29/16-06/21/19	13	13	6.32	7.63	9.05	0.93	0.49	
MW-13	09/19/19	15	Sulfate	O	03/29/16-06/21/19	13	13	12	15	18	2	0.00	
MW-13	09/19/19	267.81	EH	Milliv O	03/20/18-06/21/19	5	5	272.878	288.898	302.18	12.316	1.71	LOWEST
MW-16	09/20/19	<0.000	Antimony (DIS)	O	01/24/18-06/20/19	6	0	<0.0005	0.0005	<0.0005	0		HIGHEST
MW-16	09/20/19	<0.000	Beryllium (DIS)	O	01/24/18-06/20/19	6	0	<0.0008	0.0008	<0.0008	0		HIGHEST
MW-16	09/20/19	<0.000	Cadmium (DIS)	O	01/24/18-06/20/19	6	0	<0.00003	0.00003	<0.00003	0		HIGHEST
MW-16	09/20/19	<0.01	Chromium (DIS)	O	01/24/18-06/20/19	6	0	<0.01	0.01	<0.01	0		HIGHEST
MW-16	09/20/19	<0.002	Copper (DIS)	O	01/24/18-06/20/19	6	0	<0.002	0.002	<0.002	0		HIGHEST
MW-16	09/20/19	<0.005	Mercury (DIS)	ug/L O	01/24/18-06/20/19	6	0	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
MW-16	09/20/19	<0.002	Molybdenum (DIS)	O	01/24/18-06/20/19	6	0	<0.002	0.002	<0.002	0		HIGHEST
MW-16	09/20/19	<0.001	Nickel (DIS)	O	01/24/18-06/20/19	6	0	<0.001	0.001	<0.001	0		HIGHEST
MW-16	09/20/19	<0.000	Selenium (DIS)	O	01/24/18-06/20/19	6	1	0.0002	0.0002	0.0002	0		HIGHEST
MW-16	09/20/19	<0.000	Silver (DIS)	O	01/24/18-06/20/19	6	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-16	09/20/19	<0.000	Thallium (DIS)	O	01/24/18-06/20/19	6	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-16	09/20/19	0.005	Zinc (DIS)	O	01/24/18-06/20/19	6	6	0.004	0.01	0.022	0.007	0.71	
MW-16	09/20/19	0.005	Arsenic (DIS)	O	01/24/18-06/20/19	6	6	0.005	0.006	0.006	0.001	1.00	LOWEST
MW-16	09/20/19	<0.000	Lead (DIS)	O	01/24/18-06/20/19	6	2	<0.0003	0.0003	0.0004	0.0001	0.00	LOWEST
MW-16	09/20/19	0.0017	Uranium (DIS)	O	01/24/18-06/20/19	6	2	0.0017	0.0059	<0.008	0.0032	1.31	LOWEST
MW-16	09/20/19	<0.009	Aluminum (DIS)	O	01/24/18-06/20/19	6	4	<0.009	0.052	0.208 J	0.079	0.54	LOWEST

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		RESULT mg/L	PARAMETER										
MW-16	09/20/19	<0.01	Cobalt (DIS)	O	01/24/18-06/20/19	6	0	<0.01	0.01	<0.01	0		HIGHEST
MW-16	09/20/19	70	Calcium	O	01/24/18-06/20/19	6	6	67	73	78	4	0.75	
MW-16	09/20/19	0.017	Barium (DIS)	O	01/24/18-06/20/19	6	6	0.018	0.021	0.026	0.003	1.33	LOWEST
MW-16	09/20/19	1.26	Iron (DIS)	O	01/24/18-06/20/19	6	6	0.91	1.31	1.57	0.23	0.22	
MW-16	09/20/19	37	Magnesium	O	01/24/18-06/20/19	6	6	36	39	42	2	1.00	
MW-16	09/20/19	0.039	Manganese (DIS)	O	01/24/18-06/20/19	6	6	0.041	0.049	0.058 J	0.007	1.43	LOWEST
MW-16	09/20/19	3	Potassium	O	01/24/18-06/20/19	6	6	3	3	3	0		HIGHEST
MW-16	09/20/19	4	Sodium	O	01/24/18-06/20/19	6	6	4	4	4	0		HIGHEST
MW-16	09/20/19	0.287	Strontium (DIS)	O	01/24/18-06/20/19	6	6	0.276	0.303	0.331	0.023	0.70	
MW-16	09/20/19	7.35	SWL	Feet O	01/24/18-06/20/19	6	6	5.4	7.33	8.75	1.52	0.01	
MW-16	09/20/19	2	Chloride	O	01/24/18-06/20/19	6	6	1	1	2	1	1.00	HIGHEST
MW-16	09/20/19	0.5	Fluoride	O	01/24/18-06/20/19	6	6	0.5	0.5	0.5	0		HIGHEST
MW-16	09/20/19	<0.01	N+N	O	01/24/18-06/20/19	6	1	<0.01	0.01	<0.01	0		HIGHEST
MW-16	09/20/19	7.25	Field pH	s.u. O	01/24/18-06/20/19	6	6	7.14	7.28	7.33	0.07	0.43	
MW-16	09/20/19	615	Field SC	umh O	01/24/18-06/20/19	6	6	568	615	653	34	0.00	
MW-16	09/20/19	372	TDS	O	01/24/18-06/20/19	6	6	329	370	395	28	0.07	
MW-16	09/20/19	250	Alkalinity	O	01/24/18-06/20/19	6	6	220	240	250	13	0.77	HIGHEST
MW-16	09/20/19	326	Hardness	O	01/24/18-06/20/19	6	6	326	344	368	18	1.00	LOWEST
MW-16	09/20/19	10	TSS	O	01/24/18-06/20/19	6	4	<10	28	82 J	27	0.67	LOWEST
MW-16	09/20/19	6.8	Water Temp	Deg O	01/24/18-06/20/19	6	6	6.4	6.6	6.9	0.2	1.00	
MW-16	09/20/19	0.08	DO	O	01/24/18-06/20/19	6	6	0.01	0.18	0.32	0.12	0.83	
MW-16	09/20/19	95	Sulfate	O	01/24/18-06/20/19	6	6	72	97	107	14	0.14	
MW-16	09/20/19	143.84	EH	Milliv O	03/21/18-06/20/19	5	5	155.61	171.976	187.23	13.411	2.10	LOWEST
MW-17	09/19/19	<0.000	Antimony (DIS)	O	06/14/18-06/21/19	4	0	<0.0005	0.0005	<0.0005	0		HIGHEST
MW-17	09/19/19	<0.000	Beryllium (DIS)	O	06/14/18-06/21/19	4	0	<0.0008	0.0008	<0.0008	0		HIGHEST
MW-17	09/19/19	<0.000	Cadmium (DIS)	O	06/14/18-06/21/19	4	0	<0.00003	0.00003	<0.00003	0		HIGHEST
MW-17	09/19/19	<0.01	Chromium (DIS)	O	06/14/18-06/21/19	4	0	<0.01	0.01	<0.01	0		HIGHEST
MW-17	09/19/19	<0.002	Copper (DIS)	O	06/14/18-06/21/19	4	0	<0.002	0.002	<0.002	0		HIGHEST
MW-17	09/19/19	<0.005	Mercury (DIS)	ug/L O	06/14/18-06/21/19	4	0	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
MW-17	09/19/19	<0.002	Molybdenum (DIS)	O	06/14/18-06/21/19	4	0	<0.002	0.002	<0.002	0		HIGHEST
MW-17	09/19/19	<0.001	Nickel (DIS)	O	06/14/18-06/21/19	4	1	<0.001	0.001	0.002	0.001	0.00	LOWEST

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		RESULT mg/L	PARAMETER										
MW-17	09/19/19	0.0008	Selenium (DIS)	O	06/14/18-06/21/19	4	4	0.001	0.0011	0.0014	0.0002	1.50	LOWEST
MW-17	09/19/19	<0.000	Silver (DIS)	O	06/14/18-06/21/19	4	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-17	09/19/19	<0.000	Thallium (DIS)	O	06/14/18-06/21/19	4	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-17	09/19/19	0.005	Zinc (DIS)	O	06/14/18-06/21/19	4	4	0.006	0.008	0.011	0.002	1.50	LOWEST
MW-17	09/19/19	<0.001	Arsenic (DIS)	O	06/14/18-06/21/19	4	0	<0.001	0.001	<0.001	0		HIGHEST
MW-17	09/19/19	<0.000	Lead (DIS)	O	06/14/18-06/21/19	4	1	<0.0003	0.0005	0.001	0.0004	0.50	LOWEST
MW-17	09/19/19	0.0008	Uranium (DIS)	O	06/14/18-06/21/19	4	2	0.0008	0.0044	<0.008	0.0041	0.88	LOWEST
MW-17	09/19/19	<0.009	Aluminum (DIS)	O	06/14/18-06/21/19	4	1	<0.009	0.016	0.039	0.015	0.47	LOWEST
MW-17	09/19/19	<0.01	Cobalt (DIS)	O	06/14/18-06/21/19	4	0	<0.01	0.01	<0.01	0		HIGHEST
MW-17	09/19/19	42	Calcium	O	06/14/18-06/21/19	4	4	43	44	45	1	2.00	LOWEST
MW-17	09/19/19	0.267	Barium (DIS)	O	06/14/18-06/21/19	4	4	0.253	0.299	0.423	0.083	0.39	
MW-17	09/19/19	<0.02	Iron (DIS)	O	06/14/18-06/21/19	4	1	<0.02	0.03	0.07	0.03	0.33	LOWEST
MW-17	09/19/19	24	Magnesium	O	06/14/18-06/21/19	4	4	24	24	25	1	0.00	LOWEST
MW-17	09/19/19	<0.005	Manganese (DIS)	O	06/14/18-06/21/19	4	1	<0.005	0.009	0.021	0.008	0.50	LOWEST
MW-17	09/19/19	<1	Potassium	O	06/14/18-06/21/19	4	0	<1	1	<1	0		HIGHEST
MW-17	09/19/19	2	Sodium	O	06/14/18-06/21/19	4	4	2	2	2	0		HIGHEST
MW-17	09/19/19	0.103	Strontium (DIS)	O	06/14/18-06/21/19	4	4	0.105	0.118	0.143	0.017	0.88	LOWEST
MW-17	09/19/19	50.5	SWL	Feet O	06/14/18-06/21/19	4	4	44.91	48.5	51.98	3.3	0.61	
MW-17	09/19/19	1	Chloride	O	06/14/18-06/21/19	4	4	1	2	2	0		LOWEST
MW-17	09/19/19	0.3	Fluoride	O	06/14/18-06/21/19	4	4	0.2	0.3	0.3	0		HIGHEST
MW-17	09/19/19	0.41	N+N	O	06/14/18-06/21/19	4	4	0.41	0.46	0.5	0.04	1.25	LOWEST
MW-17	09/19/19	7.75	Field pH	s.u. O	06/14/18-06/21/19	4	4	7.65	7.72	7.75	0.05	0.60	HIGHEST
MW-17	09/19/19	385	Field SC	umh O	06/14/18-06/21/19	4	4	358	377	386	13	0.62	
MW-17	09/19/19	213	TDS	O	06/14/18-06/21/19	4	4	198	206	213	7	1.00	HIGHEST
MW-17	09/19/19	200	Alkalinity	O	06/14/18-06/21/19	4	4	190	198	200	5	0.40	HIGHEST
MW-17	09/19/19	202	Hardness	O	06/14/18-06/21/19	4	4	206	211	214	4	2.25	LOWEST
MW-17	09/19/19	15	TSS	O	06/14/18-06/21/19	4	0	<10	10	<10	0		HIGHEST
MW-17	09/19/19	7.4	Water Temp	Deg O	06/14/18-06/21/19	4	4	6.2	6.9	7.4	0.5	1.00	HIGHEST
MW-17	09/19/19	6.83	DO	O	06/14/18-06/21/19	4	4	5.82	6.32	6.62	0.38	1.34	HIGHEST
MW-17	09/19/19	8	Sulfate	O	06/14/18-06/21/19	4	4	8	8	9	1	0.00	LOWEST
MW-17	09/19/19	232.94	EH	Milliv O	06/14/18-06/21/19	4	4	241.746	266.434	285.01	19.468	1.72	LOWEST

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		RESULT mg/L	PARAMETER										
MW-18	09/19/19	<0.000	Antimony (DIS)	O	01/24/18-11/14/18	5	0	<0.0005	0.0005	<0.0005	0		HIGHEST
MW-18	09/19/19	<0.000	Beryllium (DIS)	O	01/24/18-11/14/18	5	0	<0.0008	0.0008	<0.0008	0		HIGHEST
MW-18	09/19/19	<0.000	Cadmium (DIS)	O	01/24/18-11/14/18	5	1	<0.00003	0.00003	<0.00003	0		HIGHEST
MW-18	09/19/19	<0.01	Chromium (DIS)	O	01/24/18-11/14/18	5	0	<0.01	0.01	<0.01	0		HIGHEST
MW-18	09/19/19	<0.002	Copper (DIS)	O	01/24/18-11/14/18	5	0	<0.002	0.002	<0.002	0		HIGHEST
MW-18	09/19/19	<0.005	Mercury (DIS)	ug/L O	01/24/18-11/14/18	5	0	<0.000005	0	<0.000005	0		HIGHEST
MW-18	09/19/19	<0.002	Molybdenum (DIS)	O	01/24/18-11/14/18	5	0	<0.002	0.002	<0.002	0		HIGHEST
MW-18	09/19/19	<0.001	Nickel (DIS)	O	01/24/18-11/14/18	5	0	<0.001	0.001	<0.001	0		HIGHEST
MW-18	09/19/19	0.0002	Selenium (DIS)	O	01/24/18-11/14/18	5	5	0.0002	0.0003	0.0004	0.0001	1.00	LOWEST
MW-18	09/19/19	<0.000	Silver (DIS)	O	01/24/18-11/14/18	5	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-18	09/19/19	<0.000	Thallium (DIS)	O	01/24/18-11/14/18	5	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-18	09/19/19	<0.002	Zinc (DIS)	O	01/24/18-11/14/18	5	1	<0.002	0.002	<0.002	0		HIGHEST
MW-18	09/19/19	<0.001	Arsenic (DIS)	O	01/24/18-11/14/18	5	0	<0.001	0.001	<0.001	0		HIGHEST
MW-18	09/19/19	<0.000	Lead (DIS)	O	01/24/18-11/14/18	5	2	0.0003	0.0004	0.0006	0.0001	1.00	LOWEST
MW-18	09/19/19	0.0004	Uranium (DIS)	O	01/24/18-11/14/18	5	1	0.0005	0.0065	<0.008	0.0034	1.79	LOWEST
MW-18	09/19/19	<0.009	Aluminum (DIS)	O	01/24/18-11/14/18	5	3	<0.009	0.024	0.061 J	0.022	0.68	LOWEST
MW-18	09/19/19	<0.01	Cobalt (DIS)	O	01/24/18-11/14/18	5	0	<0.01	0.01	<0.01	0		HIGHEST
MW-18	09/19/19	47	Calcium	O	01/24/18-11/14/18	5	5	45	49	51	2	1.00	
MW-18	09/19/19	0.098	Barium (DIS)	O	01/24/18-11/14/18	5	5	0.094	0.098	0.104	0.005	0.00	
MW-18	09/19/19	<0.02	Iron (DIS)	O	01/24/18-11/14/18	5	2	<0.02	0.04	0.08	0.03	0.67	LOWEST
MW-18	09/19/19	18	Magnesium	O	01/24/18-11/14/18	5	5	19	19	20	1	1.00	LOWEST
MW-18	09/19/19	<0.005	Manganese (DIS)	O	01/24/18-11/14/18	5	2	<0.005	0.006	0.009	0.002	0.50	LOWEST
MW-18	09/19/19	<1	Potassium	O	01/24/18-11/14/18	5	0	<1	1	<1	0		HIGHEST
MW-18	09/19/19	2	Sodium	O	01/24/18-11/14/18	5	5	2	2	2	0		HIGHEST
MW-18	09/19/19	0.1	Strontium (DIS)	O	01/24/18-11/14/18	5	5	0.0996	0.1	0.109	0		
MW-18	09/19/19	16.34	SWL	Feet O	01/24/18-11/14/18	5	5	10.13	16.34	19.47	3.74	0.00	
MW-18	09/19/19	<1	Chloride	O	01/24/18-11/14/18	5	0	<1	1	<1	0		HIGHEST
MW-18	09/19/19	<0.1	Fluoride	O	01/24/18-11/14/18	5	1	<0.1	0.1	<0.1	0		HIGHEST
MW-18	09/19/19	0.17	N+N	O	01/24/18-11/14/18	5	5	0.17	0.19	0.22	0.02	1.00	LOWEST
MW-18	09/19/19	7.76	Field pH	s.u. O	01/24/18-11/14/18	5	5	7.16	7.65	7.82	0.28	0.39	
MW-18	09/19/19	368	Field SC	umh O	01/24/18-11/14/18	5	5	355	368	375	8	0.00	

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		RESULT mg/L	PARAMETER										
MW-18	09/19/19	200	TDS	O	01/24/18-11/14/18	5	5	200	208	220	8	1.00	LOWEST
MW-18	09/19/19	200	Alkalinity	O	01/24/18-11/14/18	5	5	190	194	200	5	1.20	HIGHEST
MW-18	09/19/19	191	Hardness	O	01/24/18-11/14/18	5	5	190	201	210	8	1.25	
MW-18	09/19/19	18	TSS	O	01/24/18-11/14/18	5	3	<10	35	71	26	0.65	
MW-18	09/19/19	6.7	Water Temp	Deg O	01/24/18-11/14/18	5	5	4.9	6.6	7.4	1	0.10	
MW-18	09/19/19	8.63	DO	O	01/24/18-11/14/18	5	5	7.79	8.34	8.58	0.32	0.91	HIGHEST
MW-18	09/19/19	7	Sulfate	O	01/24/18-11/14/18	5	5	5	7	8	1	0.00	
MW-18	09/19/19	252.36	EH	Milliv O	03/21/18-11/14/18	4	4	249.142	272.683	282.39	15.762	1.29	
MW-19	09/19/19	<0.000	Antimony (DIS)	O	01/24/18-06/21/19	6	0	<0.0005	0.0005	<0.0005	0		HIGHEST
MW-19	09/19/19	<0.000	Beryllium (DIS)	O	01/24/18-06/21/19	6	0	<0.0008	0.0008	<0.0008	0		HIGHEST
MW-19	09/19/19	<0.000	Cadmium (DIS)	O	01/24/18-06/21/19	6	0	<0.00003	0.00003	<0.00003	0		HIGHEST
MW-19	09/19/19	<0.01	Chromium (DIS)	O	01/24/18-06/21/19	6	0	<0.01	0.01	<0.01	0		HIGHEST
MW-19	09/19/19	<0.002	Copper (DIS)	O	01/24/18-06/21/19	6	0	<0.002	0.002	<0.002	0		HIGHEST
MW-19	09/19/19	<0.005	Mercury (DIS)	ug/L O	01/24/18-06/21/19	6	0	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
MW-19	09/19/19	<0.002	Molybdenum (DIS)	O	01/24/18-06/21/19	6	0	<0.002	0.002	<0.002	0		HIGHEST
MW-19	09/19/19	<0.001	Nickel (DIS)	O	01/24/18-06/21/19	6	0	<0.001	0.001	<0.001	0		HIGHEST
MW-19	09/19/19	<0.000	Selenium (DIS)	O	01/24/18-06/21/19	6	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-19	09/19/19	<0.000	Silver (DIS)	O	01/24/18-06/21/19	6	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-19	09/19/19	<0.000	Thallium (DIS)	O	01/24/18-06/21/19	6	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-19	09/19/19	<0.002	Zinc (DIS)	O	01/24/18-06/21/19	6	0	<0.002	0.002	<0.002	0		HIGHEST
MW-19	09/19/19	<0.001	Arsenic (DIS)	O	01/24/18-06/21/19	6	0	<0.001	0.001	<0.001	0		HIGHEST
MW-19	09/19/19	<0.000	Lead (DIS)	O	01/24/18-06/21/19	6	0	<0.0003	0.0003	<0.0003	0		HIGHEST
MW-19	09/19/19	0.0007	Uranium (DIS)	O	01/24/18-06/21/19	6	2	0.0007	0.0056	<0.008	0.0038	1.29	LOWEST
MW-19	09/19/19	<0.009	Aluminum (DIS)	O	01/24/18-06/21/19	6	5	<0.009	0.021	0.054	0.017	0.71	LOWEST
MW-19	09/19/19	<0.01	Cobalt (DIS)	O	01/24/18-06/21/19	6	0	<0.01	0.01	<0.01	0		HIGHEST
MW-19	09/19/19	51	Calcium	O	01/24/18-06/21/19	6	6	48	54	57	4	0.75	
MW-19	09/19/19	0.086	Barium (DIS)	O	01/24/18-06/21/19	6	6	0.077	0.088	0.095	0.008	0.25	
MW-19	09/19/19	<0.02	Iron (DIS)	O	01/24/18-06/21/19	6	3	0.02	0.03	0.06	0.02	0.50	LOWEST
MW-19	09/19/19	19	Magnesium	O	01/24/18-06/21/19	6	6	19	20	22	1	1.00	LOWEST
MW-19	09/19/19	<0.005	Manganese (DIS)	O	01/24/18-06/21/19	6	1	<0.005	0.005	0.008	0.001	0.00	LOWEST
MW-19	09/19/19	<1	Potassium	O	01/24/18-06/21/19	6	0	<1	1	<1	0		HIGHEST

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		RESULT mg/L	PARAMETER										
MW-19	09/19/19	2	Sodium	O	01/24/18-06/21/19	6	6	2	2	3	1	0.00	LOWEST
MW-19	09/19/19	0.148	Strontium (DIS)	O	01/24/18-06/21/19	6	6	0.143 U	0.151	0.157	0.005	0.60	
MW-19	09/19/19	13.51	SWL	Feet O	01/24/18-06/21/19	6	6	8.51	12.66	15.54	3.13	0.27	
MW-19	09/19/19	<1	Chloride	O	01/24/18-06/21/19	6	1	<1	1	<1	0		HIGHEST
MW-19	09/19/19	0.1	Fluoride	O	01/24/18-06/21/19	6	6	0.1	0.1	0.1	0		HIGHEST
MW-19	09/19/19	0.23	N+N	O	01/24/18-06/21/19	6	6	0.18	0.27	0.48	0.11	0.36	
MW-19	09/19/19	7.52	Field pH	s.u. O	01/24/18-06/21/19	6	6	7.47	7.57	7.79	0.11	0.45	
MW-19	09/19/19	400	Field SC	umh O	01/24/18-06/21/19	6	6	329	382	417	35	0.51	
MW-19	09/19/19	217	TDS	O	01/24/18-06/21/19	6	6	202	219	234	11	0.18	
MW-19	09/19/19	210	Alkalinity	O	01/24/18-06/21/19	6	6	180	200	210	13	0.77	HIGHEST
MW-19	09/19/19	208	Hardness	O	01/24/18-06/21/19	6	6	196	219	230	13	0.85	
MW-19	09/19/19	12	TSS	O	01/24/18-06/21/19	6	4	<10	20	37	11	0.73	
MW-19	09/19/19	7.7	Water Temp	Deg O	01/24/18-06/21/19	6	6	6	7	8.1	0.8	0.87	
MW-19	09/19/19	7.47	DO	O	01/24/18-06/21/19	6	6	6.69	7.15	7.67	0.35	0.91	
MW-19	09/19/19	14	Sulfate	O	01/24/18-06/21/19	6	6	11	14	16	2	0.00	
MW-19	09/19/19	273.29	EH	Milliv O	03/20/18-06/21/19	5	5	251.791	288.788	340.72	32.767	0.47	
MW-1A	09/18/19	<0.000	Antimony (DIS)	O	08/26/11-06/19/19	31	1	<0.0005	0.0009	<0.003	0.0009	0.44	LOWEST
MW-1A	09/18/19	<0.000	Beryllium (DIS)	O	08/26/11-06/19/19	31	1	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
MW-1A	09/18/19	<0.000	Cadmium (DIS)	O	08/26/11-06/19/19	31	4	<0.00003	0.00004	0.00013	0.00003	0.33	LOWEST
MW-1A	09/18/19	<0.01	Chromium (DIS)	O	08/26/11-06/19/19	31	2	<0.001	0.01	0.01	0		HIGHEST
MW-1A	09/18/19	0.006	Copper (DIS)	O	08/26/11-06/19/19	31	31	0.002	0.015	0.129 D	0.028	0.32	
MW-1A	09/18/19	<0.005	Mercury (DIS)	ug/L O	08/26/11-06/19/19	31	3	<0.000005	0.0002	<0.005	0.001	4.80	HIGHEST
MW-1A	09/18/19	<0.002	Molybdenum (DIS)	O	08/26/11-06/19/19	31	0	<0.001	0.003	<0.005	0.001	1.00	
MW-1A	09/18/19	<0.001	Nickel (DIS)	O	08/26/11-06/19/19	31	2	<0.001	0.003	<0.01	0.003	0.67	LOWEST
MW-1A	09/18/19	<0.000	Selenium (DIS)	O	08/26/11-06/19/19	31	9	<0.0002	0.0004	<0.001	0.0003	0.67	LOWEST
MW-1A	09/18/19	<0.000	Silver (DIS)	O	08/26/11-06/19/19	31	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
MW-1A	09/18/19	0.0009	Thallium (DIS)	O	08/26/11-06/19/19	31	31	0.0003	0.001	0.0048	0.0008	0.13	
MW-1A	09/18/19	<0.002	Zinc (DIS)	O	08/26/11-06/19/19	31	10	0.002	0.006	0.04	0.009	0.44	LOWEST
MW-1A	09/18/19	<0.001	Arsenic (DIS)	O	08/26/11-06/19/19	31	1	<0.001	0.002	0.015	0.003	0.33	LOWEST
MW-1A	09/18/19	0.0004	Lead (DIS)	O	08/26/11-06/19/19	31	23	<0.0003	0.0083	0.157	0.0297	0.27	
MW-1A	09/18/19	0.0009	Uranium (DIS)	O	08/26/11-06/19/19	31	9	0.0009	0.0061	<0.008	0.0031	1.68	LOWEST

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		RESULT mg/L	PARAMETER										
MW-1A	09/18/19	0.018	Aluminum (DIS)	O	08/26/11-06/19/19	31	29	0.009	1.389	33.8	6.037	0.23	
MW-1A	09/18/19	<0.01	Cobalt (DIS)	O	08/26/11-06/19/19	31	0	<0.01	0.01	<0.01	0		HIGHEST
MW-1A	09/18/19	42	Calcium	O	08/26/11-06/19/19	31	31	38	42	45	2	0.00	
MW-1A	09/18/19	0.169	Barium (DIS)	O	08/26/11-06/19/19	31	31	0.125	0.221	1.12	0.209	0.25	
MW-1A	09/18/19	<0.02	Iron (DIS)	O	08/26/11-06/19/19	31	22	<0.02	1.02	26.5	4.74	0.21	LOWEST
MW-1A	09/18/19	17	Magnesium	O	08/26/11-06/19/19	31	31	15	18	21	1	1.00	
MW-1A	09/18/19	<0.005	Manganese (DIS)	O	08/26/11-06/19/19	31	6	<0.001	0.01	0.096	0.018	0.28	
MW-1A	09/18/19	1	Potassium	O	08/26/11-06/19/19	31	24	1	1	6	1	0.00	LOWEST
MW-1A	09/18/19	2	Sodium	O	08/26/11-06/19/19	31	31	2	3	11	3	0.33	LOWEST
MW-1A	09/18/19	0.0944	Strontium (DIS)	O	08/26/11-06/19/19	31	31	0.0949	0.1022	0.12	0.0062	1.26	LOWEST
MW-1A	09/18/19	6.94	SWL	Feet O	08/26/11-06/19/19	31	31	2.29	6.62	9.82	2.11	0.15	
MW-1A	09/18/19	1	Chloride	O	08/26/11-06/19/19	31	29	1	1	2	0		LOWEST
MW-1A	09/18/19	0.2	Fluoride	O	08/26/11-06/19/19	31	31	0.2	0.2	0.3	0		LOWEST
MW-1A	09/18/19	0.44	N+N	O	08/26/11-06/19/19	31	31	0.18	0.43	0.53	0.06	0.17	
MW-1A	09/18/19	7.34	Field pH	s.u. O	08/26/11-06/19/19	31	31	6.62	7.25	7.66	0.23	0.39	
MW-1A	09/18/19	342	Field SC	umh O	08/26/11-06/19/19	31	31	311	341	356	10	0.10	
MW-1A	09/18/19	205	TDS	O	08/26/11-06/19/19	31	31	176	192	209	8	1.62	
MW-1A	09/18/19	170	Alkalinity	O	08/26/11-06/19/19	31	31	160	173	190	6	0.50	
MW-1A	09/18/19	177	Hardness	O	08/26/11-06/19/19	31	31	157	179	191	8	0.25	
MW-1A	09/18/19	108	TSS	O	03/21/13-06/19/19	24	23	<10	192	1380	341	0.25	
MW-1A	09/18/19	9.4	Water Temp	Deg O	08/26/11-06/19/19	31	31	5.9	7	8	0.5	4.80	HIGHEST
MW-1A	09/18/19	8.86	DO	O	08/26/11-06/19/19	30	30	5.35	10.09	17.56	2.35	0.52	
MW-1A	09/18/19	15	Sulfate	O	08/26/11-06/19/19	31	31	8	11	15	2	2.00	HIGHEST
MW-1A	09/18/19	240.20	EH	Milliv O	03/21/18-06/19/19	5	5	191.44	266.313	305.70	45.014	0.58	
MW-1B	09/18/19	0.0009	Antimony (DIS)	O	08/26/11-06/21/19	32	22	<0.0005	0.0011	<0.003	0.0009	0.22	
MW-1B	09/18/19	<0.000	Beryllium (DIS)	O	08/26/11-06/21/19	32	0	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
MW-1B	09/18/19	<0.000	Cadmium (DIS)	O	08/26/11-06/21/19	32	0	<0.00003	0.00004	<0.00008	0.00002	0.50	LOWEST
MW-1B	09/18/19	<0.01	Chromium (DIS)	O	08/26/11-06/21/19	32	0	<0.001	0.01	<0.01	0		HIGHEST
MW-1B	09/18/19	<0.002	Copper (DIS)	O	08/26/11-06/21/19	32	1	<0.001	0.002	0.005	0.001	0.00	
MW-1B	09/18/19	<0.005	Mercury (DIS)	ug/L O	08/26/11-06/21/19	32	2	<0.000005	0.0003	<0.005	0.001	4.70	HIGHEST
MW-1B	09/18/19	<0.002	Molybdenum (DIS)	O	08/26/11-06/21/19	32	0	<0.001	0.003	<0.005	0.001	1.00	

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		RESULT mg/L	PARAMETER											
MW-1B	09/18/19	0.01	Nickel (DIS)	O	08/26/11-06/21/19	32	31	<0.001	0.01	0.012	0			
MW-1B	09/18/19	<0.000	Selenium (DIS)	O	08/26/11-06/21/19	32	0	<0.0002	0.0004	<0.001	0.0003	0.67	LOWEST	
MW-1B	09/18/19	<0.000	Silver (DIS)	O	08/26/11-06/21/19	32	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST	
MW-1B	09/18/19	0.0117	Thallium (DIS)	O	08/26/11-06/21/19	32	31	<0.0002	0.0122	0.0154	0.0024	0.21		
MW-1B	09/18/19	0.012	Zinc (DIS)	O	08/26/11-06/21/19	32	31	<0.002	0.016	0.033	0.005	0.80		
MW-1B	09/18/19	0.066	Arsenic (DIS)	O	08/26/11-06/21/19	32	31	<0.001	0.06	0.071	0.012	0.50		
MW-1B	09/18/19	<0.000	Lead (DIS)	O	08/26/11-06/21/19	32	8	<0.0003	0.0004	0.0026	0.0004	0.25	LOWEST	
MW-1B	09/18/19	<0.000	Uranium (DIS)	O	08/26/11-06/21/19	32	1	<0.0002	0.0055	<0.008	0.0037	1.43	LOWEST	
MW-1B	09/18/19	<0.009	Aluminum (DIS)	O	08/26/11-06/21/19	32	10	<0.009	0.016	0.059	0.012	0.58	LOWEST	
MW-1B	09/18/19	0.02	Cobalt (DIS)	O	08/26/11-06/21/19	32	31	<0.01	0.03	0.03	0.01	1.00		
MW-1B	09/18/19	61	Calcium	O	08/26/11-06/21/19	32	32	43	58	62	4	0.75		
MW-1B	09/18/19	0.011	Barium (DIS)	O	08/26/11-06/21/19	32	32	0.011	0.016	0.092	0.014	0.36	LOWEST	
MW-1B	09/18/19	19	Iron (DIS)	O	08/26/11-06/21/19	32	31	<0.02	21	27.1	5	0.40		
MW-1B	09/18/19	32	Magnesium	O	08/26/11-06/21/19	32	32	17	30	33	3	0.67		
MW-1B	09/18/19	0.076	Manganese (DIS)	O	08/26/11-06/21/19	32	31	<0.005	0.083	0.122	0.018	0.39		
MW-1B	09/18/19	3	Potassium	O	08/26/11-06/21/19	32	31	<1	3	3	0		HIGHEST	
MW-1B	09/18/19	3	Sodium	O	08/26/11-06/21/19	32	32	2	4	7	1	1.00		
MW-1B	09/18/19	1.77 L	Strontium (DIS)	O	08/26/11-06/21/19	32	32	0.0894	1.57	1.87	0.29	0.69		
MW-1B	09/18/19	23.56	SWL	Feet	O	08/26/11-06/21/19	31	31	11.95	22.45	24.85	2.21	0.50	
MW-1B	09/18/19	3	Chloride	O	08/26/11-06/21/19	32	27	1	1	3	0		HIGHEST	
MW-1B	09/18/19	0.2	Fluoride	O	08/26/11-06/21/19	32	31	<0.1	0.2	0.3 D	0			
MW-1B	09/18/19	0.06	N+N	O	08/26/11-06/21/19	32	19	<0.01	0.06	0.6 D	0.11	0.00		
MW-1B	09/18/19	6.4	Field pH	s.u.	O	08/26/11-06/21/19	32	32	6.02	6.3	7.78	0.3	0.33	
MW-1B	09/18/19	611	Field SC	umh	O	08/26/11-06/21/19	32	32	337	592	661	53	0.36	
MW-1B	09/18/19	429	TDS	O	08/26/11-06/21/19	32	32	187	403	436	45	0.58		
MW-1B	09/18/19	110	Alkalinity	O	08/26/11-06/21/19	32	32	49	86	190 H	23	1.04		
MW-1B	09/18/19	282	Hardness	O	08/26/11-06/21/19	32	32	176	268	291	22	0.64		
MW-1B	09/18/19	<10	TSS	O	03/21/13-06/21/19	25	13	<10	41	402 J	81	0.38	LOWEST	
MW-1B	09/18/19	8.6	Water Temp	Deg	O	08/26/11-06/21/19	32	32	4.4	7.5	8.8	0.8	1.38	
MW-1B	09/18/19	0.09	DO	O	08/26/11-06/21/19	31	31	0.01	0.7	7.72	1.43	0.43		
MW-1B	09/18/19	219	Sulfate	O	08/26/11-06/21/19	32	32	6	215	247	40	0.10		

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		RESULT Millivolts	PARAMETER										
MW-1B	09/18/19	196.13	EH	Milliv	O 03/21/18-06/21/19	6	6	182.84	221.097	271.05	30.222	0.83	
MW-20	09/19/19	<0.000	Antimony (DIS)	O	01/24/18-06/20/19	6	0	<0.0005	0.0005	<0.0005	0		HIGHEST
MW-20	09/19/19	<0.000	Beryllium (DIS)	O	01/24/18-06/20/19	6	0	<0.0008	0.0008	<0.0008	0		HIGHEST
MW-20	09/19/19	<0.000	Cadmium (DIS)	O	01/24/18-06/20/19	6	0	<0.00003	0.00003	<0.00003	0		HIGHEST
MW-20	09/19/19	<0.01	Chromium (DIS)	O	01/24/18-06/20/19	6	0	<0.01	0.01	<0.01	0		HIGHEST
MW-20	09/19/19	<0.002	Copper (DIS)	O	01/24/18-06/20/19	6	0	<0.002	0.002	<0.002	0		HIGHEST
MW-20	09/19/19	<0.005	Mercury (DIS)	ug/L O	01/24/18-06/20/19	6	0	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
MW-20	09/19/19	<0.002	Molybdenum (DIS)	O	01/24/18-06/20/19	6	0	<0.002	0.002	<0.002	0		HIGHEST
MW-20	09/19/19	<0.001	Nickel (DIS)	O	01/24/18-06/20/19	6	3	<0.001	0.001	<0.001	0		HIGHEST
MW-20	09/19/19	0.0002	Selenium (DIS)	O	01/24/18-06/20/19	6	5	0.0002	0.0002	0.0003	0.0001	0.00	LOWEST
MW-20	09/19/19	<0.000	Silver (DIS)	O	01/24/18-06/20/19	6	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-20	09/19/19	<0.000	Thallium (DIS)	O	01/24/18-06/20/19	6	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-20	09/19/19	<0.002	Zinc (DIS)	O	01/24/18-06/20/19	6	1	<0.002	0.002	0.004	0.001	0.00	LOWEST
MW-20	09/19/19	<0.001	Arsenic (DIS)	O	01/24/18-06/20/19	6	0	<0.001	0.001	<0.001	0		HIGHEST
MW-20	09/19/19	<0.000	Lead (DIS)	O	01/24/18-06/20/19	6	0	<0.0003	0.0003	<0.0003	0		HIGHEST
MW-20	09/19/19	0.0005	Uranium (DIS)	O	01/24/18-06/20/19	6	2	0.0005	0.0055	<0.008	0.0039	1.28	LOWEST
MW-20	09/19/19	<0.009	Aluminum (DIS)	O	01/24/18-06/20/19	6	3	<0.009	0.016	0.045	0.014	0.50	LOWEST
MW-20	09/19/19	<0.01	Cobalt (DIS)	O	01/24/18-06/20/19	6	0	<0.01	0.01	<0.01	0		HIGHEST
MW-20	09/19/19	46	Calcium	O	01/24/18-06/20/19	6	6	43	47	51	3	0.33	
MW-20	09/19/19	0.188	Barium (DIS)	O	01/24/18-06/20/19	6	6	0.175	0.192	0.207	0.014	0.29	
MW-20	09/19/19	<0.02	Iron (DIS)	O	01/24/18-06/20/19	6	2	<0.02	0.02	0.04	0.01	0.00	LOWEST
MW-20	09/19/19	22	Magnesium	O	01/24/18-06/20/19	6	6	21	23	25	1	1.00	
MW-20	09/19/19	<0.005	Manganese (DIS)	O	01/24/18-06/20/19	6	0	<0.005	0.005	<0.005	0		HIGHEST
MW-20	09/19/19	1	Potassium	O	01/24/18-06/20/19	6	3	1	1	1	0		HIGHEST
MW-20	09/19/19	1	Sodium	O	01/24/18-06/20/19	6	6	1	1	2	0		LOWEST
MW-20	09/19/19	0.0677	Strontium (DIS)	O	01/24/18-06/20/19	6	6	0.0591	0.0703	0.078	0.0065	0.40	
MW-20	09/19/19	21.5	SWL	Feet O	01/24/18-06/20/19	6	6	18.12	22.6	25.93	2.9	0.38	
MW-20	09/19/19	<1	Chloride	O	01/24/18-06/20/19	6	0	<1	1	<1	0		HIGHEST
MW-20	09/19/19	<0.1	Fluoride	O	01/24/18-06/20/19	6	3	<0.1	0.1	<0.1	0		HIGHEST
MW-20	09/19/19	0.33	N+N	O	01/24/18-06/20/19	6	6	0.28	0.33	0.4	0.05	0.00	
MW-20	09/19/19	7.74	Field pH	s.u. O	01/24/18-06/20/19	6	6	7.4	7.69	7.81	0.15	0.33	

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# Data Comparison Summary

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		RESULT mhos/cr	PARAMETER										
MW-20	09/19/19	392	Field SC	umh	O 01/24/18-06/20/19	6	6	364	390	410	17	0.12	
MW-20	09/19/19	216	TDS		O 01/24/18-06/20/19	6	6	198 D	213	225	10	0.30	
MW-20	09/19/19	210	Alkalinity		O 01/24/18-06/20/19	6	6	190	228	290	41	0.44	
MW-20	09/19/19	207	Hardness		O 01/24/18-06/20/19	6	6	194	213	229	14	0.43	
MW-20	09/19/19	77	TSS		O 01/24/18-06/20/19	6	6	19	255	603 J	232	0.77	
MW-20	09/19/19	8	Water Temp	Deg	O 01/24/18-06/20/19	6	6	6.7	8	8.1	1	0.00	
MW-20	09/19/19	9.12	DO		O 01/24/18-06/20/19	6	6	7.06	8.61	9.51	1.1	0.46	
MW-20	09/19/19	8	Sulfate		O 01/24/18-06/20/19	6	6	7	9	10	1	1.00	
MW-20	09/19/19	255.44	EH	Milliv	O 03/20/18-06/20/19	5	5	244.474	262.82	278.77	14.41	0.51	
MW-2A	09/18/19	<0.000	Antimony (DIS)		O 11/30/11-06/17/19	29	0	<0.0005	0.0008	<0.003	0.0009	0.33	LOWEST
MW-2A	09/18/19	<0.000	Beryllium (DIS)		O 11/30/11-06/17/19	29	0	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
MW-2A	09/18/19	<0.000	Cadmium (DIS)		O 11/30/11-06/17/19	29	0	<0.00003	0.00004	<0.00008	0.00002	0.50	LOWEST
MW-2A	09/18/19	<0.01	Chromium (DIS)		O 11/30/11-06/17/19	29	0	<0.001	0.01	<0.01	0		HIGHEST
MW-2A	09/18/19	<0.002	Copper (DIS)		O 11/30/11-06/17/19	29	1	<0.001	0.002	<0.002	0		HIGHEST
MW-2A	09/18/19	<0.005	Mercury (DIS)	ug/L	O 11/30/11-06/17/19	29	2	<0.000005	0.0002	<0.005	0.001	4.80	HIGHEST
MW-2A	09/18/19	<0.002	Molybdenum (DIS)		O 11/30/11-06/17/19	29	0	<0.002	0.003	<0.005	0.001	1.00	LOWEST
MW-2A	09/18/19	<0.001	Nickel (DIS)		O 11/30/11-06/17/19	29	0	<0.001	0.002	<0.01	0.003	0.33	LOWEST
MW-2A	09/18/19	0.0008	Selenium (DIS)		O 11/30/11-06/17/19	29	23	<0.0002	0.0011	0.0065	0.0011	0.27	
MW-2A	09/18/19	<0.000	Silver (DIS)		O 11/30/11-06/17/19	29	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
MW-2A	09/18/19	<0.000	Thallium (DIS)		O 11/30/11-06/17/19	29	26	0.0002	0.0004	0.0037	0.0007	0.29	LOWEST
MW-2A	09/18/19	<0.002	Zinc (DIS)		O 11/30/11-06/17/19	29	0	<0.002	0.003	<0.01	0.003	0.33	LOWEST
MW-2A	09/18/19	<0.001	Arsenic (DIS)		O 11/30/11-06/17/19	29	2	<0.001	0.001	<0.003	0.001	0.00	LOWEST
MW-2A	09/18/19	<0.000	Lead (DIS)		O 11/30/11-06/17/19	29	2	<0.0003	0.0003	0.0009	0.0001	0.00	LOWEST
MW-2A	09/18/19	0.0005	Uranium (DIS)		O 11/30/11-06/17/19	29	7	0.0004	0.0062	<0.008	0.0033	1.73	
MW-2A	09/18/19	<0.009	Aluminum (DIS)		O 11/30/11-06/17/19	29	1	<0.009	0.013	0.05	0.01	0.40	LOWEST
MW-2A	09/18/19	<0.01	Cobalt (DIS)		O 11/30/11-06/17/19	29	0	<0.01	0.01	<0.01	0		HIGHEST
MW-2A	09/18/19	42	Calcium		O 11/30/11-06/17/19	29	29	40	43	56	3	0.33	
MW-2A	09/18/19	0.083	Barium (DIS)		O 11/30/11-06/17/19	29	29	0.040	0.082	0.097	0.009	0.11	
MW-2A	09/18/19	<0.02	Iron (DIS)		O 11/30/11-06/17/19	29	4	<0.02	0.03	0.18	0.03	0.33	LOWEST
MW-2A	09/18/19	22	Magnesium		O 11/30/11-06/17/19	29	29	22	23	31	2	0.50	LOWEST
MW-2A	09/18/19	<0.005	Manganese (DIS)		O 11/30/11-06/17/19	29	5	<0.005	0.015	0.235	0.043	0.23	LOWEST

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		RESULT mg/L	PARAMETER										
MW-2A	09/18/19	1	Potassium	O	11/30/11-06/17/19	29	29	1	1	2	0		LOWEST
MW-2A	09/18/19	2	Sodium	O	11/30/11-06/17/19	29	29	2	3	3	0		LOWEST
MW-2A	09/18/19	0.0884	Strontium (DIS)	O	11/30/11-06/17/19	29	25	0.0836	0.0929	0.108	0.0052	0.87	
MW-2A	09/18/19	41.85	SWL	Feet O	11/30/11-06/17/19	29	29	40.81	42.18	43.18	0.42	0.79	
MW-2A	09/18/19	1	Chloride	O	11/30/11-06/17/19	29	28	1	1	2	0		LOWEST
MW-2A	09/18/19	0.3	Fluoride	O	11/30/11-06/17/19	29	29	0.3	0.3	0.4	0.1	0.00	LOWEST
MW-2A	09/18/19	0.23	N+N	O	11/30/11-06/17/19	29	28	<0.01	0.2	0.24	0.04	0.75	
MW-2A	09/18/19	7.47	Field pH	s.u. O	11/30/11-06/17/19	29	29	7.07	7.3	7.52	0.13	1.31	
MW-2A	09/18/19	385	Field SC	umh O	11/30/11-06/17/19	29	29	353	381	412.3	13	0.31	
MW-2A	09/18/19	210	TDS	O	11/30/11-06/17/19	29	29	191	210	279	15	0.00	
MW-2A	09/18/19	190	Alkalinity	O	11/30/11-06/17/19	29	29	180	191	220	9	0.11	
MW-2A	09/18/19	198	Hardness	O	11/30/11-06/17/19	29	29	190	204	268	13	0.46	
MW-2A	09/18/19	<10	TSS	O	03/21/13-06/17/19	23	6	5	10	14 J	2	0.00	
MW-2A	09/18/19	7.9	Water Temp	Deg O	11/30/11-06/17/19	29	29	6.3	7.1	8.07	0.5	1.60	
MW-2A	09/18/19	7.74	DO	O	11/30/11-06/17/19	29	29	4.3	7.39	12.96	1.75	0.20	
MW-2A	09/18/19	20	Sulfate	O	11/30/11-06/17/19	29	29	15	20	51	6	0.00	
MW-2A	09/18/19	241.75	EH	Milliv O	03/20/18-06/17/19	5	5	255.9888	274.054	289.19	14.119	2.29	LOWEST
MW-2B	09/18/19	<0.000	Antimony (DIS)	O	11/30/11-06/17/19	29	0	<0.0005	0.0008	<0.003	0.0009	0.33	LOWEST
MW-2B	09/18/19	<0.000	Beryllium (DIS)	O	11/30/11-06/17/19	29	0	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
MW-2B	09/18/19	<0.000	Cadmium (DIS)	O	11/30/11-06/17/19	29	0	<0.00003	0.00004	<0.00008	0.00002	0.50	LOWEST
MW-2B	09/18/19	<0.01	Chromium (DIS)	O	11/30/11-06/17/19	29	0	<0.001	0.01	<0.01	0		HIGHEST
MW-2B	09/18/19	<0.002	Copper (DIS)	O	11/30/11-06/17/19	29	0	<0.001	0.002	<0.002	0		HIGHEST
MW-2B	09/18/19	<0.005	Mercury (DIS)	ug/L O	11/30/11-06/17/19	29	1	<0.000005	0.0002	<0.005	0.001	4.80	HIGHEST
MW-2B	09/18/19	<0.002	Molybdenum (DIS)	O	11/30/11-06/17/19	29	0	<0.002	0.003	<0.005	0.001	1.00	LOWEST
MW-2B	09/18/19	<0.001	Nickel (DIS)	O	11/30/11-06/17/19	29	0	<0.001	0.002	<0.01	0.003	0.33	LOWEST
MW-2B	09/18/19	0.005	Selenium (DIS)	O	11/30/11-06/17/19	29	24	0.0002	0.002	0.0051	0.002	1.50	
MW-2B	09/18/19	<0.000	Silver (DIS)	O	11/30/11-06/17/19	29	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
MW-2B	09/18/19	0.0034	Thallium (DIS)	O	11/30/11-06/17/19	29	29	0.0003	0.0034	0.004	0.0007	0.00	
MW-2B	09/18/19	<0.002	Zinc (DIS)	O	11/30/11-06/17/19	29	0	<0.002	0.003	<0.01	0.003	0.33	LOWEST
MW-2B	09/18/19	0.003	Arsenic (DIS)	O	11/30/11-06/17/19	29	27	<0.001	0.004	0.018	0.003	0.33	
MW-2B	09/18/19	<0.000	Lead (DIS)	O	11/30/11-06/17/19	29	0	<0.0003	0.0003	<0.0005	0.0001	0.00	LOWEST

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		RESULT mg/L	PARAMETER										
MW-2B	09/18/19	0.0021	Uranium (DIS)	O	11/30/11-06/17/19	29	7	0.002	0.0066	<0.008	0.0025	1.80	
MW-2B	09/18/19	<0.009	Aluminum (DIS)	O	11/30/11-06/17/19	29	1	<0.009	0.012	<0.03	0.007	0.43	LOWEST
MW-2B	09/18/19	<0.01	Cobalt (DIS)	O	11/30/11-06/17/19	29	0	<0.01	0.01	<0.01	0		HIGHEST
MW-2B	09/18/19	47	Calcium	O	11/30/11-06/17/19	29	29	43	53	58	3	2.00	
MW-2B	09/18/19	0.041	Barium (DIS)	O	11/30/11-06/17/19	29	29	0.028	0.043	0.082	0.008	0.25	
MW-2B	09/18/19	<0.02	Iron (DIS)	O	11/30/11-06/17/19	29	29	0.02	0.11	1.08	0.2	0.45	LOWEST
MW-2B	09/18/19	25	Magnesium	O	11/30/11-06/17/19	29	29	23	29	33	2	2.00	
MW-2B	09/18/19	0.005	Manganese (DIS)	O	11/30/11-06/17/19	29	28	<0.005	0.012	0.026	0.005	1.40	LOWEST
MW-2B	09/18/19	1	Potassium	O	11/30/11-06/17/19	29	29	1	2	2	0		LOWEST
MW-2B	09/18/19	3	Sodium	O	11/30/11-06/17/19	29	29	2	3	3	0		HIGHEST
MW-2B	09/18/19	0.0862	Strontium (DIS)	O	11/30/11-06/17/19	29	28	0.0903	0.0983	0.106	0.0041	2.95	LOWEST
MW-2B	09/18/19	41.82	SWL	Feet O	11/30/11-06/17/19	29	29	40.77	42.01	43.14	0.45	0.42	
MW-2B	09/18/19	1	Chloride	O	11/30/11-06/17/19	29	22	1	1	2	0		LOWEST
MW-2B	09/18/19	0.3	Fluoride	O	11/30/11-06/17/19	29	29	0.3	0.4	0.4	0		LOWEST
MW-2B	09/18/19	<0.01	N+N	O	11/30/11-06/17/19	29	1	<0.01	0.03	<0.5	0.09	0.22	LOWEST
MW-2B	09/18/19	7.31	Field pH	s.u. O	11/30/11-06/17/19	29	29	6.98	7.26	7.51	0.11	0.45	
MW-2B	09/18/19	419	Field SC	umh O	11/30/11-06/17/19	29	29	192	450	525	57	0.54	
MW-2B	09/18/19	232	TDS	O	11/30/11-06/17/19	29	29	208	256	292	17	1.41	
MW-2B	09/18/19	200	Alkalinity	O	11/30/11-06/17/19	29	29	180	216	260	15	1.07	
MW-2B	09/18/19	222	Hardness	O	11/30/11-06/17/19	29	29	202	251	280	16	1.81	
MW-2B	09/18/19	<10	TSS	O	03/21/13-06/17/19	23	1	<4	10	17 J	2	0.00	
MW-2B	09/18/19	8	Water Temp	Deg O	11/30/11-06/17/19	29	29	3	7	7.9	1	1.00	HIGHEST
MW-2B	09/18/19	0.38	DO	O	11/30/11-06/17/19	29	29	0.08	0.81	10.26	1.85	0.23	
MW-2B	09/18/19	34	Sulfate	O	11/30/11-06/17/19	29	29	23	40	51	5	1.20	
MW-2B	09/18/19	238.14	EH	Milliv O	03/20/18-06/17/19	5	5	230.66	262.89	299.79	26.11	0.95	
MW-3	09/19/19	<0.000	Antimony (DIS)	O	11/30/11-06/17/19	29	0	<0.0005	0.0008	<0.003	0.0009	0.33	LOWEST
MW-3	09/19/19	<0.000	Beryllium (DIS)	O	11/30/11-06/17/19	29	0	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
MW-3	09/19/19	<0.000	Cadmium (DIS)	O	11/30/11-06/17/19	29	0	<0.00003	0.00004	<0.00008	0.00002	0.50	LOWEST
MW-3	09/19/19	<0.01	Chromium (DIS)	O	11/30/11-06/17/19	29	0	<0.001	0.01	<0.01	0		HIGHEST
MW-3	09/19/19	<0.002	Copper (DIS)	O	11/30/11-06/17/19	29	0	<0.001	0.002	<0.002	0		HIGHEST
MW-3	09/19/19	<0.005	Mercury (DIS)	ug/L O	11/30/11-06/17/19	29	1	<0.000005	0.0002	<0.005	0.001	4.80	HIGHEST

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		RESULT mg/L	PARAMETER										
MW-3	09/19/19	<0.002	Molybdenum (DIS)	O	11/30/11-06/17/19	29	1	0.001	0.002	<0.005	0.001	0.00	
MW-3	09/19/19	<0.001	Nickel (DIS)	O	11/30/11-06/17/19	29	8	0.001	0.002	<0.01	0.003	0.33	LOWEST
MW-3	09/19/19	<0.000	Selenium (DIS)	O	11/30/11-06/17/19	29	0	<0.0002	0.0003	<0.001	0.0003	0.33	LOWEST
MW-3	09/19/19	<0.000	Silver (DIS)	O	11/30/11-06/17/19	29	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
MW-3	09/19/19	0.0003	Thallium (DIS)	O	11/30/11-06/17/19	29	29	0.0003	0.0004	0.0006	0.0001	1.00	LOWEST
MW-3	09/19/19	<0.002	Zinc (DIS)	O	11/30/11-06/17/19	29	2	<0.002	0.004	<0.01	0.003	0.67	LOWEST
MW-3	09/19/19	0.064	Arsenic (DIS)	O	11/30/11-06/17/19	29	29	0.062	0.068	0.08	0.004	1.00	
MW-3	09/19/19	<0.000	Lead (DIS)	O	11/30/11-06/17/19	29	0	<0.0003	0.0003	<0.0005	0.0001	0.00	LOWEST
MW-3	09/19/19	0.001	Uranium (DIS)	O	11/30/11-06/17/19	29	8	0.001	0.006	<0.008	0.003	1.67	LOWEST
MW-3	09/19/19	<0.009	Aluminum (DIS)	O	11/30/11-06/17/19	29	0	<0.009	0.012	<0.03	0.007	0.43	LOWEST
MW-3	09/19/19	<0.01	Cobalt (DIS)	O	11/30/11-06/17/19	29	0	<0.01	0.01	<0.01	0		HIGHEST
MW-3	09/19/19	72	Calcium	O	11/30/11-06/17/19	29	29	67	81	124	10	0.90	
MW-3	09/19/19	0.011	Barium (DIS)	O	11/30/11-06/17/19	29	29	0.01	0.011	0.014	0.001	0.00	
MW-3	09/19/19	0.99	Iron (DIS)	O	11/30/11-06/17/19	29	29	1	1.1	1.23	0.08	1.38	LOWEST
MW-3	09/19/19	48	Magnesium	O	11/30/11-06/17/19	29	29	47	53	58	3	1.67	
MW-3	09/19/19	0.014	Manganese (DIS)	O	11/30/11-06/17/19	29	29	0.015	0.023	0.035	0.005	1.80	LOWEST
MW-3	09/19/19	3	Potassium	O	11/30/11-06/17/19	29	29	3	3	4	0		LOWEST
MW-3	09/19/19	15	Sodium	O	11/30/11-06/17/19	29	29	14	16	18	1	1.00	
MW-3	09/19/19	13.3 L	Strontium (DIS)	O	11/30/11-06/17/19	29	29	12.6	14.1	16.2	0.9	0.89	
MW-3	09/19/19	39.5	SWL	Feet O	11/30/11-06/17/19	29	29	26.23	38.8	46.13	5.7	0.12	
MW-3	09/19/19	1	Chloride	O	11/30/11-06/17/19	29	29	1	1	2	0		LOWEST
MW-3	09/19/19	0.7	Fluoride	O	11/30/11-06/17/19	29	29	0.6	0.8	0.8	0.1	1.00	
MW-3	09/19/19	<0.01	N+N	O	11/30/11-06/17/19	29	3	<0.01	0.01	0.02	0		LOWEST
MW-3	09/19/19	7.15	Field pH	s.u. O	11/30/11-06/17/19	29	29	6.77	7.08	7.31	0.11	0.64	
MW-3	09/19/19	788	Field SC	umh O	11/30/11-06/17/19	29	29	727	823	883	41	0.85	
MW-3	09/19/19	548	TDS	O	11/30/11-06/17/19	29	29	508	568	607	27	0.74	
MW-3	09/19/19	220	Alkalinity	O	11/30/11-06/17/19	29	29	210	217	230	6	0.50	
MW-3	09/19/19	379	Hardness	O	11/30/11-06/17/19	29	29	361	419	523	33	1.21	
MW-3	09/19/19	<10	TSS	O	06/03/13-06/17/19	23	0	<4	10	<10	1	0.00	HIGHEST
MW-3	09/19/19	9.8	Water Temp	Deg O	11/30/11-06/17/19	29	29	8.1	9.3	10.3	0.6	0.83	
MW-3	09/19/19	0.07	DO	O	11/30/11-06/17/19	29	29	0	0.32	2.09	0.43	0.58	

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# Data Comparison Summary

Report Date: November 7, 2019

STATION	SAMPLE DATE	Quarterly Monitoring		QC Code	COMPARISON PERIOD	N	# OF DET	MIN mg/L	MEAN: mg/L	MAX mg/L	STDDARD DEVIATION	STD DEVS FROM MEAN	RELATION TO DATABASE PERIOD
		RESULT mg/L	PARAMETER										
MW-3	09/19/19	218	Sulfate	O	11/30/11-06/17/19	29	29	213	250	280	23	1.39	
MW-3	09/19/19	159.23	EH	Milliv O	03/19/18-06/17/19	5	5	152.22	181.309	222.03	26.996	0.82	
MW-4A	09/20/19	<0.000	Antimony (DIS)	O	05/31/12-06/20/19	27	0	<0.0005	0.0007	<0.003	0.0007	0.29	LOWEST
MW-4A	09/20/19	<0.000	Beryllium (DIS)	O	05/31/12-06/20/19	27	0	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
MW-4A	09/20/19	<0.000	Cadmium (DIS)	O	05/31/12-06/20/19	27	0	<0.00003	0.00003	<0.00008	0.00001	0.00	LOWEST
MW-4A	09/20/19	<0.01	Chromium (DIS)	O	05/31/12-06/20/19	27	0	<0.001	0.01	<0.01	0		HIGHEST
MW-4A	09/20/19	<0.002	Copper (DIS)	O	05/31/12-06/20/19	27	0	<0.001	0.002	<0.002	0		HIGHEST
MW-4A	09/20/19	<0.005	Mercury (DIS)	ug/L O	05/31/12-06/20/19	27	1	<0.000005	0.0002	<0.005	0.001	4.80	HIGHEST
MW-4A	09/20/19	<0.002	Molybdenum (DIS)	O	05/31/12-06/20/19	27	0	<0.001	0.002	<0.005	0.001	0.00	
MW-4A	09/20/19	0.001	Nickel (DIS)	O	05/31/12-06/20/19	27	0	<0.001	0.002	<0.01	0.002	0.50	LOWEST
MW-4A	09/20/19	<0.000	Selenium (DIS)	O	05/31/12-06/20/19	27	0	<0.0002	0.0003	<0.001	0.0003	0.33	LOWEST
MW-4A	09/20/19	<0.000	Silver (DIS)	O	05/31/12-06/20/19	27	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
MW-4A	09/20/19	<0.000	Thallium (DIS)	O	05/31/12-06/20/19	27	1	<0.0002	0.0002	0.0003	0		LOWEST
MW-4A	09/20/19	<0.002	Zinc (DIS)	O	05/31/12-06/20/19	27	1	<0.002	0.003	<0.01	0.003	0.33	LOWEST
MW-4A	09/20/19	<0.001	Arsenic (DIS)	O	05/31/12-06/20/19	27	0	<0.001	0.001	<0.003	0.001	0.00	LOWEST
MW-4A	09/20/19	<0.000	Lead (DIS)	O	05/31/12-06/20/19	27	1	<0.0003	0.0003	<0.0005	0.0001	0.00	LOWEST
MW-4A	09/20/19	0.0004	Uranium (DIS)	O	05/31/12-06/20/19	27	6	0.0004	0.0063	<0.008	0.0032	1.84	LOWEST
MW-4A	09/20/19	<0.009	Aluminum (DIS)	O	05/31/12-06/20/19	27	3	<0.009	0.014	0.087	0.016	0.31	LOWEST
MW-4A	09/20/19	<0.01	Cobalt (DIS)	O	05/31/12-06/20/19	27	0	<0.01	0.01	<0.01	0		HIGHEST
MW-4A	09/20/19	84	Calcium	O	05/31/12-06/20/19	27	27	70	76	80	3	2.67	HIGHEST
MW-4A	09/20/19	0.21	Barium (DIS)	O	05/31/12-06/20/19	27	27	0.170	0.18	0.203	0.01	3.00	HIGHEST
MW-4A	09/20/19	0.08	Iron (DIS)	O	05/31/12-06/20/19	27	20	<0.02	0.04	0.16	0.03	1.33	
MW-4A	09/20/19	22	Magnesium	O	05/31/12-06/20/19	27	27	19	21	23	1	1.00	
MW-4A	09/20/19	0.386	Manganese (DIS)	O	05/31/12-06/20/19	27	27	0.057	0.207	0.329	0.06	2.98	HIGHEST
MW-4A	09/20/19	2	Potassium	O	05/31/12-06/20/19	27	27	1	1	2	0		HIGHEST
MW-4A	09/20/19	3	Sodium	O	05/31/12-06/20/19	27	27	2	3	3	0		HIGHEST
MW-4A	09/20/19	0.187	Strontium (DIS)	O	05/31/12-06/20/19	27	27	0.163	0.172	0.2	0.009	1.67	
MW-4A	09/20/19	4.43	SWL	Feet O	05/31/12-06/20/19	27	27	3.36	4.84	6.02	0.68	0.60	
MW-4A	09/20/19	5	Chloride	O	05/31/12-06/20/19	27	27	2	3	4	1	2.00	HIGHEST
MW-4A	09/20/19	0.1	Fluoride	O	05/31/12-06/20/19	27	27	0.1	0.1	0.2	0.1	0.00	LOWEST
MW-4A	09/20/19	<0.01	N+N	O	05/31/12-06/20/19	27	2	<0.01	0.01	0.02	0		LOWEST

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STATION	SAMPLE DATE	Quarterly Monitoring		QC Code	COMPARISON PERIOD	N	# OF DET	MIN s.u.	MEAN: s.u.	MAX s.u.	STDDARD DEVIATION	STD DEVS FROM MEAN	RELATION TO DATABASE PERIOD
		RESULT s.u.	PARAMETER										
MW-4A	09/20/19	7.19	Field pH	s.u.	O 05/31/12-06/20/19	27	27	6.24	7.23	7.53	0.26	0.15	
MW-4A	09/20/19	569	Field SC	umh	O 05/31/12-06/20/19	27	27	481	510	551	19	3.11	HIGHEST
MW-4A	09/20/19	328	TDS		O 05/31/12-06/20/19	27	27	270	287	311	11	3.73	HIGHEST
MW-4A	09/20/19	300	Alkalinity		O 05/31/12-06/20/19	27	27	240	267	290	12	2.75	HIGHEST
MW-4A	09/20/19	301	Hardness		O 05/31/12-06/20/19	27	27	253	277	292	10	2.40	HIGHEST
MW-4A	09/20/19	<10	TSS		O 03/21/13-06/20/19	23	1	<4	10	23	3	0.00	
MW-4A	09/20/19	9.2	Water Temp	Deg	O 05/31/12-06/20/19	27	27	4.3	6.3	8.8	1.5	1.93	HIGHEST
MW-4A	09/20/19	0.17	DO		O 05/31/12-06/20/19	27	26	0.01	0.88	3.57	0.87	0.82	
MW-4A	09/20/19	15	Sulfate		O 05/31/12-06/20/19	27	27	8	14	21	3	0.33	
MW-4A	09/20/19	213.43	EH	Milliv	O 03/21/18-06/20/19	5	5	-380.47	117.824	287.43	280.105	0.34	
MW-4B	09/20/19	<0.000	Antimony (DIS)		O 05/31/12-06/20/19	27	0	<0.0005	0.0007	<0.003	0.0007	0.29	LOWEST
MW-4B	09/20/19	<0.000	Beryllium (DIS)		O 05/31/12-06/20/19	27	0	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
MW-4B	09/20/19	<0.000	Cadmium (DIS)		O 05/31/12-06/20/19	27	0	<0.00003	0.00003	<0.00008	0.00001	0.00	LOWEST
MW-4B	09/20/19	<0.01	Chromium (DIS)		O 05/31/12-06/20/19	27	0	<0.001	0.01	<0.01	0		HIGHEST
MW-4B	09/20/19	<0.002	Copper (DIS)		O 05/31/12-06/20/19	27	0	<0.001	0.002	<0.002	0		HIGHEST
MW-4B	09/20/19	<0.005	Mercury (DIS)	ug/L	O 05/31/12-06/20/19	27	1	<0.000005	0.0002	<0.005	0.001	4.80	HIGHEST
MW-4B	09/20/19	<0.002	Molybdenum (DIS)		O 05/31/12-06/20/19	27	0	<0.001	0.002	<0.005	0.001	0.00	
MW-4B	09/20/19	<0.001	Nickel (DIS)		O 05/31/12-06/20/19	27	0	<0.001	0.002	<0.01	0.002	0.50	LOWEST
MW-4B	09/20/19	<0.000	Selenium (DIS)		O 05/31/12-06/20/19	27	0	<0.0002	0.001	<0.02	0.0038	0.21	LOWEST
MW-4B	09/20/19	<0.000	Silver (DIS)		O 05/31/12-06/20/19	27	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
MW-4B	09/20/19	<0.000	Thallium (DIS)		O 05/31/12-06/20/19	27	3	<0.0002	0.0002	0.0004	0		LOWEST
MW-4B	09/20/19	<0.002	Zinc (DIS)		O 05/31/12-06/20/19	27	0	<0.002	0.003	<0.01	0.002	0.50	LOWEST
MW-4B	09/20/19	<0.001	Arsenic (DIS)		O 05/31/12-06/20/19	27	0	<0.001	0.001	<0.003	0.001	0.00	LOWEST
MW-4B	09/20/19	<0.000	Lead (DIS)		O 05/31/12-06/20/19	27	0	<0.0003	0.0003	<0.0005	0.0001	0.00	LOWEST
MW-4B	09/20/19	0.0006	Uranium (DIS)		O 05/31/12-06/20/19	27	6	0.0006	0.0064	<0.008	0.0031	1.87	LOWEST
MW-4B	09/20/19	<0.009	Aluminum (DIS)		O 05/31/12-06/20/19	27	1	<0.009	0.011	<0.03	0.006	0.33	LOWEST
MW-4B	09/20/19	<0.01	Cobalt (DIS)		O 05/31/12-06/20/19	27	0	<0.01	0.01	<0.01	0		HIGHEST
MW-4B	09/20/19	61	Calcium		O 05/31/12-06/20/19	27	27	58	65	70	3	1.33	
MW-4B	09/20/19	0.125	Barium (DIS)		O 05/31/12-06/20/19	27	27	0.117	0.128	0.147	0.007	0.43	
MW-4B	09/20/19	<0.02	Iron (DIS)		O 05/31/12-06/20/19	27	0	<0.02	0.02	<0.03	0		LOWEST
MW-4B	09/20/19	19	Magnesium		O 05/31/12-06/20/19	27	27	18	21	23	1	2.00	

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		RESULT mg/L	PARAMETER										
MW-4B	09/20/19	<0.005	Manganese (DIS)	O	05/31/12-06/20/19	27	2	0.002	0.005	0.006	0.001	0.00	
MW-4B	09/20/19	1	Potassium	O	05/31/12-06/20/19	27	27	1	1	2	0		LOWEST
MW-4B	09/20/19	2	Sodium	O	05/31/12-06/20/19	27	27	2	2	3	0		LOWEST
MW-4B	09/20/19	0.164	Strontium (DIS)	O	05/31/12-06/20/19	27	27	0.161	0.175	0.2	0.01	1.10	
MW-4B	09/20/19	4.05	SWL	Feet O	05/31/12-06/20/19	27	27	3.02	4.45	7.26	0.85	0.47	
MW-4B	09/20/19	2	Chloride	O	05/31/12-06/20/19	27	27	1	2	2	0		HIGHEST
MW-4B	09/20/19	0.1	Fluoride	O	05/31/12-06/20/19	27	27	0.1	0.1	0.2	0		LOWEST
MW-4B	09/20/19	0.04	N+N	O	05/31/12-06/20/19	27	21	<0.01	0.04	0.07	0.02	0.00	
MW-4B	09/20/19	7.56	Field pH	s.u. O	05/31/12-06/20/19	27	27	6.84	7.46	7.76	0.21	0.48	
MW-4B	09/20/19	449	Field SC	umh O	05/31/12-06/20/19	27	27	419	457	510	22	0.36	
MW-4B	09/20/19	250	TDS	O	05/31/12-06/20/19	27	27	231	251	275	11	0.09	
MW-4B	09/20/19	230	Alkalinity	O	05/31/12-06/20/19	27	27	220	239	270	14	0.64	
MW-4B	09/20/19	232	Hardness	O	05/31/12-06/20/19	27	27	167	243	265	19	0.58	
MW-4B	09/20/19	<10	TSS	O	03/21/13-06/20/19	23	0	<4	10	<10	1	0.00	HIGHEST
MW-4B	09/20/19	6.7	Water Temp	Deg O	05/31/12-06/20/19	27	27	5.3	6.2	7	0.4	1.25	
MW-4B	09/20/19	0.08	DO	O	05/31/12-06/20/19	27	27	0.03	0.51	3.39	0.71	0.61	
MW-4B	09/20/19	15	Sulfate	O	05/31/12-06/20/19	27	27	11	15	26	3	0.00	
MW-4B	09/20/19	198.96	EH	Milliv O	03/21/18-06/20/19	5	5	161.51	226.753	347.68	74.903	0.37	
MW-6A	09/19/19	<0.000	Antimony (DIS)	O	11/06/13-06/20/19	21	0	<0.0005	0.0005	<0.0005	0		HIGHEST
MW-6A	09/19/19	<0.000	Beryllium (DIS)	O	11/06/13-06/20/19	21	0	<0.0008	0.0008	<0.0008	0		HIGHEST
MW-6A	09/19/19	<0.000	Cadmium (DIS)	O	11/06/13-06/20/19	21	1	<0.00003	0.00003	0.00005	0		LOWEST
MW-6A	09/19/19	<0.01	Chromium (DIS)	O	11/06/13-06/20/19	21	0	<0.01	0.01	<0.01	0		HIGHEST
MW-6A	09/19/19	<0.002	Copper (DIS)	O	11/06/13-06/20/19	21	0	<0.002	0.002	<0.002	0		HIGHEST
MW-6A	09/19/19	<0.005	Mercury (DIS)	ug/L O	11/06/13-06/20/19	21	0	<0.000005	0.0002	<0.005	0.001	4.80	HIGHEST
MW-6A	09/19/19	<0.002	Molybdenum (DIS)	O	11/06/13-06/20/19	21	0	<0.001	0.002	<0.002	0		HIGHEST
MW-6A	09/19/19	<0.001	Nickel (DIS)	O	11/06/13-06/20/19	21	2	0.001	0.001	0.002	0		LOWEST
MW-6A	09/19/19	<0.000	Selenium (DIS)	O	11/06/13-06/20/19	21	8	0.0002	0.0002	<0.0004	0.0001	0.00	LOWEST
MW-6A	09/19/19	<0.000	Silver (DIS)	O	11/06/13-06/20/19	21	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-6A	09/19/19	<0.000	Thallium (DIS)	O	11/06/13-06/20/19	21	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-6A	09/19/19	<0.002	Zinc (DIS)	O	11/06/13-06/20/19	21	2	<0.002	0.002	0.005	0.001	0.00	LOWEST
MW-6A	09/19/19	<0.001	Arsenic (DIS)	O	11/06/13-06/20/19	21	0	<0.001	0.001	<0.001	0		HIGHEST

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		RESULT mg/L	PARAMETER										
MW-6A	09/19/19	<0.000	Lead (DIS)	O	11/06/13-06/20/19	21	1	<0.0003	0.0003	0.0009	0.0001	0.00	LOWEST
MW-6A	09/19/19	0.0007	Uranium (DIS)	O	11/06/13-06/20/19	21	3	0.0006	0.0069	<0.008	0.0026	2.38	
MW-6A	09/19/19	<0.009	Aluminum (DIS)	O	11/06/13-06/20/19	21	5	<0.009	0.083	1.55	0.336	0.22	LOWEST
MW-6A	09/19/19	<0.01	Cobalt (DIS)	O	11/06/13-06/20/19	21	0	<0.01	0.01	<0.01	0		HIGHEST
MW-6A	09/19/19	53	Calcium	O	11/06/13-06/20/19	21	21	47	56	61	4	0.75	
MW-6A	09/19/19	0.175	Barium (DIS)	O	11/06/13-06/20/19	21	21	0.16	0.178	0.194	0.011	0.27	
MW-6A	09/19/19	<0.02	Iron (DIS)	O	11/06/13-06/20/19	21	2	<0.02	0.05	0.7	0.15	0.20	LOWEST
MW-6A	09/19/19	23	Magnesium	O	11/06/13-06/20/19	21	21	22	25	27	2	1.00	
MW-6A	09/19/19	<0.005	Manganese (DIS)	O	11/06/13-06/20/19	21	1	<0.001	0.005	0.007	0.001	0.00	
MW-6A	09/19/19	<1	Potassium	O	11/06/13-06/20/19	21	1	1	1	1	0		HIGHEST
MW-6A	09/19/19	3	Sodium	O	11/06/13-06/20/19	21	21	3	3	3	0		HIGHEST
MW-6A	09/19/19	0.155	Strontium (DIS)	O	11/06/13-06/20/19	21	21	0.14	0.162	0.175	0.009	0.78	
MW-6A	09/19/19	8.45	SWL	Feet O	11/06/13-06/20/19	21	21	6.34	8.34	9.73	1.04	0.11	
MW-6A	09/19/19	1	Chloride	O	11/06/13-06/20/19	21	11	1	1	1	0		HIGHEST
MW-6A	09/19/19	0.2	Fluoride	O	11/06/13-06/20/19	21	21	0.2	0.2	0.2	0		HIGHEST
MW-6A	09/19/19	0.14	N+N	O	11/06/13-06/20/19	21	21	0.07	0.12	0.21	0.04	0.50	
MW-6A	09/19/19	7.66	Field pH	s.u. O	11/06/13-06/20/19	21	21	6.61	7.45	7.73	0.26	0.81	
MW-6A	09/19/19	437	Field SC	umh O	11/06/13-06/20/19	21	21	397	436	489	24	0.04	
MW-6A	09/19/19	244	TDS	O	11/06/13-06/20/19	21	21	223	244	266	10	0.00	
MW-6A	09/19/19	230	Alkalinity	O	11/06/13-06/20/19	21	21	210	230	250	14	0.00	
MW-6A	09/19/19	229	Hardness	O	11/06/13-06/20/19	21	21	207	241	264	15	0.80	
MW-6A	09/19/19	28	TSS	O	03/25/14-06/20/19	19	13	<10	51	193	59	0.39	
MW-6A	09/19/19	9.6	Water Temp	Deg O	11/06/13-06/20/19	21	21	4.9	6.6	8.1	0.9	3.33	HIGHEST
MW-6A	09/19/19	7.13	DO	O	11/06/13-06/20/19	21	21	3.07	5.62	8.09	1.34	1.13	
MW-6A	09/19/19	15	Sulfate	O	11/06/13-06/20/19	21	20	<1	14	18	4	0.25	
MW-6A	09/19/19	267.76	EH	Milliv O	03/20/18-06/20/19	5	5	240.457	309.819	416.95	72.755	0.58	
MW-6B	09/19/19	<0.000	Antimony (DIS)	O	11/06/13-06/20/19	21	0	<0.0005	0.0005	<0.0005	0		HIGHEST
MW-6B	09/19/19	<0.000	Beryllium (DIS)	O	11/06/13-06/20/19	21	0	<0.0008	0.0008	<0.0008	0		HIGHEST
MW-6B	09/19/19	<0.000	Cadmium (DIS)	O	11/06/13-06/20/19	21	0	<0.00003	0.00003	<0.00003	0		HIGHEST
MW-6B	09/19/19	<0.01	Chromium (DIS)	O	11/06/13-06/20/19	21	0	<0.01	0.01	<0.01	0		HIGHEST
MW-6B	09/19/19	<0.002	Copper (DIS)	O	11/06/13-06/20/19	21	0	<0.002	0.002	<0.002	0		HIGHEST

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		RESULT ug/L	PARAMETER										
MW-6B	09/19/19	<0.005	Mercury (DIS)	ug/L	O 11/06/13-06/20/19	21	0	<0.000005	0.0002	<0.005	0.001	4.80	HIGHEST
MW-6B	09/19/19	<0.002	Molybdenum (DIS)		O 11/06/13-06/20/19	21	2	0.001	0.002	0.002	0		HIGHEST
MW-6B	09/19/19	<0.001	Nickel (DIS)		O 11/06/13-06/20/19	21	0	<0.001	0.001	<0.001	0		HIGHEST
MW-6B	09/19/19	<0.000	Selenium (DIS)		O 11/06/13-06/20/19	21	3	<0.0002	0.0002	<0.0004	0		LOWEST
MW-6B	09/19/19	<0.000	Silver (DIS)		O 11/06/13-06/20/19	21	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-6B	09/19/19	<0.000	Thallium (DIS)		O 11/06/13-06/20/19	21	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-6B	09/19/19	<0.002	Zinc (DIS)		O 11/06/13-06/20/19	21	1	<0.002	0.002	<0.002	0		HIGHEST
MW-6B	09/19/19	<0.001	Arsenic (DIS)		O 11/06/13-06/20/19	21	0	<0.001	0.001	<0.001	0		HIGHEST
MW-6B	09/19/19	<0.000	Lead (DIS)		O 11/06/13-06/20/19	21	1	0.0003	0.0003	0.0003	0		HIGHEST
MW-6B	09/19/19	0.0006	Uranium (DIS)		O 11/06/13-06/20/19	21	3	0.0006	0.007	<0.008	0.0026	2.46	LOWEST
MW-6B	09/19/19	<0.009	Aluminum (DIS)		O 11/06/13-06/20/19	21	8	<0.009	0.026	0.275	0.058	0.29	LOWEST
MW-6B	09/19/19	<0.01	Cobalt (DIS)		O 11/06/13-06/20/19	21	0	<0.01	0.01	<0.01	0		HIGHEST
MW-6B	09/19/19	47	Calcium		O 11/06/13-06/20/19	21	21	41	48	51	2	0.50	
MW-6B	09/19/19	0.104	Barium (DIS)		O 11/06/13-06/20/19	21	21	0.084	0.101	0.12	0.008	0.37	
MW-6B	09/19/19	<0.02	Iron (DIS)		O 11/06/13-06/20/19	21	3	<0.02	0.03	0.15	0.03	0.33	LOWEST
MW-6B	09/19/19	23	Magnesium		O 11/06/13-06/20/19	21	21	21	24	26	1	1.00	
MW-6B	09/19/19	<0.005	Manganese (DIS)		O 11/06/13-06/20/19	21	19	<0.005	0.016	0.064	0.014	0.79	LOWEST
MW-6B	09/19/19	1	Potassium		O 11/06/13-06/20/19	21	21	1	1	2	0		LOWEST
MW-6B	09/19/19	15	Sodium		O 11/06/13-06/20/19	21	21	9	17	21	2	1.00	
MW-6B	09/19/19	0.225	Strontium (DIS)		O 11/06/13-06/20/19	21	21	0.181	0.231	0.258	0.02	0.30	
MW-6B	09/19/19	11.7	SWL	Feet	O 11/06/13-06/20/19	21	21	10	11.7	12.95	1	0.00	
MW-6B	09/19/19	<1	Chloride		O 11/06/13-06/20/19	21	10	1	1	2	0		LOWEST
MW-6B	09/19/19	0.5	Fluoride		O 11/06/13-06/20/19	21	21	0.5	0.6	0.8	0.1	1.00	LOWEST
MW-6B	09/19/19	0.09	N+N		O 11/06/13-06/20/19	21	21	0.06	0.09	0.14	0.03	0.00	
MW-6B	09/19/19	7.7	Field pH	s.u.	O 11/06/13-06/20/19	21	21	7.16	7.6	7.75	0.2	0.50	
MW-6B	09/19/19	454	Field SC	umh	O 11/06/13-06/20/19	21	21	422	456	508	22	0.09	
MW-6B	09/19/19	252	TDS		O 11/06/13-06/20/19	21	21	236	254	272	9	0.22	
MW-6B	09/19/19	230	Alkalinity		O 11/06/13-06/20/19	21	21	210	229	240	8	0.12	
MW-6B	09/19/19	210	Hardness		O 11/06/13-06/20/19	21	21	190	217	230	11	0.64	
MW-6B	09/19/19	<10	TSS		O 03/25/14-06/20/19	19	15	<10	98	1260	285	0.31	LOWEST
MW-6B	09/19/19	7.1	Water Temp	Deg	O 11/06/13-06/20/19	21	21	5.4	6.4	6.9	0.3	2.33	HIGHEST

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MW-6B	09/19/19	3.66	DO	O	11/06/13-06/20/19	21	21	1.83	3.19	4.6	0.82	0.57	
MW-6B	09/19/19	23	Sulfate	O	11/06/13-06/20/19	21	21	16	22	29	3	0.33	
MW-6B	09/19/19	256.49	EH	Milliv O	03/20/18-06/20/19	5	5	244.4	293.469	413.78	71.947	0.51	
MW-7	09/19/19	<0.000	Antimony (DIS)	O	11/06/13-06/20/19	21	2	<0.0005	0.001	0.0094	0.0019	0.26	LOWEST
MW-7	09/19/19	<0.000	Beryllium (DIS)	O	11/06/13-06/20/19	21	0	<0.0008	0.0008	<0.0008	0		HIGHEST
MW-7	09/19/19	<0.000	Cadmium (DIS)	O	11/06/13-06/20/19	21	1	<0.00003	0.00003	0.00004	0		LOWEST
MW-7	09/19/19	<0.01	Chromium (DIS)	O	11/06/13-06/20/19	21	0	<0.01	0.01	<0.01	0		HIGHEST
MW-7	09/19/19	<0.002	Copper (DIS)	O	11/06/13-06/20/19	21	0	<0.002	0.002	<0.002	0		HIGHEST
MW-7	09/19/19	<0.005	Mercury (DIS)	ug/L O	11/06/13-06/20/19	21	1	<0.000005	0.0002	<0.005	0.001	4.80	HIGHEST
MW-7	09/19/19	0.003	Molybdenum (DIS)	O	11/06/13-06/20/19	21	17	0.002	0.003	0.012	0.002	0.00	
MW-7	09/19/19	0.001	Nickel (DIS)	O	11/06/13-06/20/19	21	1	<0.001	0.001	<0.001	0		HIGHEST
MW-7	09/19/19	<0.000	Selenium (DIS)	O	11/06/13-06/20/19	21	1	<0.0002	0.0002	0.0005	0.0001	0.00	LOWEST
MW-7	09/19/19	<0.000	Silver (DIS)	O	11/06/13-06/20/19	21	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-7	09/19/19	<0.000	Thallium (DIS)	O	11/06/13-06/20/19	21	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-7	09/19/19	<0.002	Zinc (DIS)	O	11/06/13-06/20/19	21	2	<0.002	0.002	0.005	0.001	0.00	LOWEST
MW-7	09/19/19	0.001	Arsenic (DIS)	O	11/06/13-06/20/19	21	21	0.001	0.002	0.003	0		LOWEST
MW-7	09/19/19	0.0014	Lead (DIS)	O	11/06/13-06/20/19	21	10	<0.0003	0.0006	0.0037	0.0008	1.00	
MW-7	09/19/19	0.002	Uranium (DIS)	O	11/06/13-06/20/19	21	3	0.0019	0.007	<0.008	0.002	2.50	
MW-7	09/19/19	0.037	Aluminum (DIS)	O	11/06/13-06/20/19	21	14	<0.009	0.027	0.097	0.028	0.36	
MW-7	09/19/19	<0.01	Cobalt (DIS)	O	11/06/13-06/20/19	21	0	<0.01	0.01	<0.01	0		HIGHEST
MW-7	09/19/19	57	Calcium	O	11/06/13-06/20/19	21	21	50	58	63	3	0.33	
MW-7	09/19/19	0.04	Barium (DIS)	O	11/06/13-06/20/19	21	21	0.04	0.05	0.066	0.01	1.00	LOWEST
MW-7	09/19/19	0.1	Iron (DIS)	O	11/06/13-06/20/19	21	20	0.02	0.1	0.22	0		
MW-7	09/19/19	36	Magnesium	O	11/06/13-06/20/19	21	21	34	37	40	2	0.50	
MW-7	09/19/19	0.015	Manganese (DIS)	O	11/06/13-06/20/19	21	21	0.007	0.061	0.369	0.078	0.59	
MW-7	09/19/19	1	Potassium	O	11/06/13-06/20/19	21	21	1	1	3	0		LOWEST
MW-7	09/19/19	3	Sodium	O	11/06/13-06/20/19	21	21	2	3	4	0		
MW-7	09/19/19	0.158	Strontium (DIS)	O	11/06/13-06/20/19	21	21	0.148	0.168	0.205	0.012	0.83	
MW-7	09/19/19	32.06	SWL	Feet O	11/06/13-06/20/19	21	21	30.92	31.99	33.49	0.75	0.09	
MW-7	09/19/19	4	Chloride	O	11/06/13-06/20/19	21	21	3	4	5	1	0.00	
MW-7	09/19/19	0.3	Fluoride	O	11/06/13-06/20/19	21	21	0.3	0.3	0.7	0.1	0.00	LOWEST

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		RESULT mg/L	PARAMETER										
MW-7	09/19/19	<0.01	N+N	O	11/06/13-06/20/19	21	3	<0.01	0.02	<0.05	0.01	1.00	LOWEST
MW-7	09/19/19	7.75	Field pH	s.u.	O	11/06/13-06/20/19	21	6.83	7.46	7.61	0.18	1.61	HIGHEST
MW-7	09/19/19	526	Field SC	umh	O	11/06/13-06/20/19	21	490	537	582	25	0.44	
MW-7	09/19/19	327	TDS	O	11/06/13-06/20/19	21	21	304	319	348 D	12	0.67	
MW-7	09/19/19	230	Alkalinity	O	11/06/13-06/20/19	21	21	220	237	280	16	0.44	
MW-7	09/19/19	291	Hardness	O	11/06/13-06/20/19	21	21	266	298	322	14	0.50	
MW-7	09/19/19	100	TSS	O	03/25/14-06/20/19	19	16	<10	213	1440	338	0.33	
MW-7	09/19/19	9.9	Water Temp	Deg	O	11/06/13-06/20/19	21	6.3	7.6	8.8	0.6	3.83	HIGHEST
MW-7	09/19/19	4	DO	O	11/06/13-06/20/19	21	21	0.07	1	2.4	1	3.00	HIGHEST
MW-7	09/19/19	70	Sulfate	O	11/06/13-06/20/19	21	21	54	67	84	8	0.38	
MW-7	09/19/19	190.41	EH	Milliv	O	03/20/18-06/20/19	5	193.20	208.889	244.51	21.146	0.87	LOWEST
MW-8	09/19/19	<0.000	Antimony (DIS)	O	11/06/13-06/20/19	21	6	0.0005	0.0015	0.0179	0.0038	0.26	LOWEST
MW-8	09/19/19	<0.000	Beryllium (DIS)	O	11/06/13-06/20/19	21	0	<0.0008	0.0008	<0.0008	0		HIGHEST
MW-8	09/19/19	<0.000	Cadmium (DIS)	O	11/06/13-06/20/19	21	0	<0.00003	0.00003	<0.00003	0		HIGHEST
MW-8	09/19/19	<0.01	Chromium (DIS)	O	11/06/13-06/20/19	21	0	<0.01	0.01	<0.01	0		HIGHEST
MW-8	09/19/19	<0.002	Copper (DIS)	O	11/06/13-06/20/19	21	0	<0.002	0.002	<0.002	0		HIGHEST
MW-8	09/19/19	<0.005	Mercury (DIS)	ug/L	O	11/06/13-06/20/19	21	<0.000005	0.0002	<0.005	0.001	4.80	HIGHEST
MW-8	09/19/19	<0.002	Molybdenum (DIS)	O	11/06/13-06/20/19	21	13	<0.002	0.003	0.015	0.003	0.33	LOWEST
MW-8	09/19/19	<0.001	Nickel (DIS)	O	11/06/13-06/20/19	21	1	0.001	0.001	0.001	0		HIGHEST
MW-8	09/19/19	<0.000	Selenium (DIS)	O	11/06/13-06/20/19	21	2	<0.0002	0.0018	0.0328	0.0071	0.23	LOWEST
MW-8	09/19/19	<0.000	Silver (DIS)	O	11/06/13-06/20/19	21	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-8	09/19/19	<0.000	Thallium (DIS)	O	11/06/13-06/20/19	21	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-8	09/19/19	<0.002	Zinc (DIS)	O	11/06/13-06/20/19	21	2	<0.002	0.002	0.003	0		LOWEST
MW-8	09/19/19	0.002	Arsenic (DIS)	O	11/06/13-06/20/19	21	21	0.002	0.002	0.004	0.001	0.00	LOWEST
MW-8	09/19/19	<0.000	Lead (DIS)	O	11/06/13-06/20/19	21	0	<0.0003	0.0003	<0.0003	0		HIGHEST
MW-8	09/19/19	0.0007	Uranium (DIS)	O	11/06/13-06/20/19	21	3	0.0007	0.007	<0.008	0.0026	2.42	LOWEST
MW-8	09/19/19	<0.009	Aluminum (DIS)	O	11/06/13-06/20/19	21	5	<0.009	0.011	0.036	0.006	0.33	LOWEST
MW-8	09/19/19	<0.01	Cobalt (DIS)	O	11/06/13-06/20/19	21	0	<0.01	0.01	<0.01	0		HIGHEST
MW-8	09/19/19	25	Calcium	O	11/06/13-06/20/19	21	21	23	26	29	1	1.00	
MW-8	09/19/19	0.076	Barium (DIS)	O	11/06/13-06/20/19	21	21	0.066	0.075	0.08	0.003	0.33	
MW-8	09/19/19	0.09	Iron (DIS)	O	11/06/13-06/20/19	21	21	0.02	0.08	0.11	0.02	0.50	

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# Data Comparison Summary

Report Date: November 7, 2019

STATION	SAMPLE DATE	Quarterly Monitoring		QC Code	COMPARISON PERIOD	N	# OF DET	MIN mg/L	MEAN: mg/L	MAX mg/L	STDDARD DEVIATION	STD DEVS FROM MEAN	RELATION TO DATABASE PERIOD
		RESULT mg/L	PARAMETER										
MW-8	09/19/19	23	Magnesium	O	11/06/13-06/20/19	21	21	22	24	25	1	1.00	
MW-8	09/19/19	0.009	Manganese (DIS)	O	11/06/13-06/20/19	21	21	0.013	0.048	0.255	0.053	0.74	LOWEST
MW-8	09/19/19	<1	Potassium	O	11/06/13-06/20/19	21	2	1	1	1	0		HIGHEST
MW-8	09/19/19	3	Sodium	O	11/06/13-06/20/19	21	21	3	3	6	1	0.00	LOWEST
MW-8	09/19/19	0.0832	Strontium (DIS)	O	11/06/13-06/20/19	21	21	0.0751	0.0866	0.0984	0.0046	0.74	
MW-8	09/19/19	30.21	SWL	Feet O	11/06/13-06/20/19	21	21	27.55	30.34	32.74	1.48	0.09	
MW-8	09/19/19	<1	Chloride	O	11/06/13-06/20/19	21	0	<1	1	<1	0		HIGHEST
MW-8	09/19/19	0.2	Fluoride	O	11/06/13-06/20/19	21	21	0.2	0.2	0.3	0		LOWEST
MW-8	09/19/19	<0.01	N+N	O	11/06/13-06/20/19	21	1	0.01	0.01	0.01	0		HIGHEST
MW-8	09/19/19	7.98	Field pH	s.u. O	11/06/13-06/20/19	21	21	7.46	7.9	8.08	0.18	0.44	
MW-8	09/19/19	308	Field SC	umh O	11/06/13-06/20/19	21	21	280	307	330	13	0.08	
MW-8	09/19/19	162	TDS	O	11/06/13-06/20/19	21	21	151	163	171	5	0.20	
MW-8	09/19/19	150	Alkalinity	O	11/06/13-06/20/19	21	21	140	154	170	7	0.57	
MW-8	09/19/19	156	Hardness	O	11/06/13-06/20/19	21	21	146	163	173	6	1.17	
MW-8	09/19/19	<10	TSS	O	03/25/14-06/20/19	19	7	<4	16	65	15	0.40	
MW-8	09/19/19	7.6	Water Temp	Deg O	11/06/13-06/20/19	21	21	6	7	7.34	0.4	1.50	HIGHEST
MW-8	09/19/19	0.08	DO	O	11/06/13-06/20/19	21	21	0.01	0.3	1.3	0.34	0.65	
MW-8	09/19/19	15	Sulfate	O	11/06/13-06/20/19	21	21	11	14	16	2	0.50	
MW-8	09/19/19	102.60	EH	Milliv O	03/20/18-06/20/19	5	5	83.66	115.884	134.86	19.286	0.69	
MW-9	09/20/19	<0.000	Antimony (DIS)	O	11/24/14-06/19/19	18	0	<0.0005	0.0005	<0.0005	0		HIGHEST
MW-9	09/20/19	<0.000	Beryllium (DIS)	O	11/24/14-06/19/19	18	0	<0.0008	0.0008	<0.0008	0		HIGHEST
MW-9	09/20/19	<0.000	Cadmium (DIS)	O	11/24/14-06/19/19	18	0	<0.00003	0.00003	<0.00003	0		HIGHEST
MW-9	09/20/19	<0.01	Chromium (DIS)	O	11/24/14-06/19/19	18	0	<0.01	0.01	<0.01	0		HIGHEST
MW-9	09/20/19	<0.002	Copper (DIS)	O	11/24/14-06/19/19	18	0	<0.002	0.002	<0.002	0		HIGHEST
MW-9	09/20/19	<0.005	Mercury (DIS)	ug/L O	11/24/14-06/19/19	18	0	<0.000005	0.0003	<0.005	0.001	4.70	HIGHEST
MW-9	09/20/19	<0.002	Molybdenum (DIS)	O	11/24/14-06/19/19	18	0	<0.002	0.002	<0.002	0		HIGHEST
MW-9	09/20/19	<0.001	Nickel (DIS)	O	11/24/14-06/19/19	18	8	0.001	0.001	0.001	0		HIGHEST
MW-9	09/20/19	<0.000	Selenium (DIS)	O	11/24/14-06/19/19	18	0	<0.0002	0.0002	<0.0004	0		LOWEST
MW-9	09/20/19	<0.000	Silver (DIS)	O	11/24/14-06/19/19	18	0	<0.0002	0.0002	<0.0002	0		HIGHEST
MW-9	09/20/19	0.0032	Thallium (DIS)	O	11/24/14-06/19/19	18	18	0.0027	0.0037	0.0045	0.0004	1.25	
MW-9	09/20/19	<0.002	Zinc (DIS)	O	11/24/14-06/19/19	18	9	<0.002	0.002	0.004	0.001	0.00	LOWEST

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		RESULT mg/L	PARAMETER										
MW-9	09/20/19	0.012	Arsenic (DIS)	O	11/24/14-06/19/19	18	18	0.012	0.013	0.015	0.001	1.00	LOWEST
MW-9	09/20/19	0.0008	Lead (DIS)	O	11/24/14-06/19/19	18	15	<0.0003	0.0031	0.012	0.0031	0.74	
MW-9	09/20/19	0.0009	Uranium (DIS)	O	11/24/14-06/19/19	18	2	0.0009	0.0072	<0.008	0.0023	2.74	LOWEST
MW-9	09/20/19	<0.009	Aluminum (DIS)	O	11/24/14-06/19/19	18	3	<0.009	0.012	0.042	0.008	0.38	LOWEST
MW-9	09/20/19	<0.01	Cobalt (DIS)	O	11/24/14-06/19/19	18	0	<0.01	0.01	<0.01	0		HIGHEST
MW-9	09/20/19	82	Calcium	O	11/24/14-06/19/19	18	18	79	88	92	3	2.00	
MW-9	09/20/19	0.014	Barium (DIS)	O	11/24/14-06/19/19	18	18	0.012	0.015	0.021	0.002	0.50	
MW-9	09/20/19	0.85	Iron (DIS)	O	11/24/14-06/19/19	18	18	0.78 J	0.84	0.9	0.03	0.33	
MW-9	09/20/19	49	Magnesium	O	11/24/14-06/19/19	18	18	46	51	55	2	1.00	
MW-9	09/20/19	0.083	Manganese (DIS)	O	11/24/14-06/19/19	18	18	0.083	0.096	0.129	0.011	1.18	LOWEST
MW-9	09/20/19	4	Potassium	O	11/24/14-06/19/19	18	18	4	4	5	0		LOWEST
MW-9	09/20/19	5	Sodium	O	11/24/14-06/19/19	18	18	5	5	6	0		LOWEST
MW-9	09/20/19	1.22 L	Strontium (DIS)	O	11/24/14-06/19/19	18	18	1.08	1.24	1.53	0.12	0.17	
MW-9	09/20/19	51.26	SWL	Feet O	11/24/14-06/19/19	18	18	46.89	50.43	52.22	1.3	0.64	
MW-9	09/20/19	1	Chloride	O	11/24/14-06/19/19	18	18	1	1	2	0		LOWEST
MW-9	09/20/19	0.5	Fluoride	O	11/24/14-06/19/19	18	18	0.5	0.6	0.6	0		LOWEST
MW-9	09/20/19	<0.01	N+N	O	11/24/14-06/19/19	18	2	<0.01	0.01	0.02	0		LOWEST
MW-9	09/20/19	7.03	Field pH	s.u. O	11/24/14-06/19/19	18	18	6.72	7.02	7.15	0.1	0.10	
MW-9	09/20/19	791	Field SC	umh O	11/24/14-06/19/19	18	18	470	758	826	78	0.42	
MW-9	09/20/19	529	TDS	O	11/24/14-06/19/19	18	18	501	525	548	11	0.36	
MW-9	09/20/19	250	Alkalinity	O	11/24/14-06/19/19	18	18	230	242	250	6	1.33	HIGHEST
MW-9	09/20/19	405	Hardness	O	11/24/14-06/19/19	18	18	389	430	454	18	1.39	
MW-9	09/20/19	<10	TSS	O	03/24/15-06/19/19	17	1	<4	12	51 J	10	0.20	
MW-9	09/20/19	9.2	Water Temp	Deg O	11/24/14-06/19/19	18	18	6.8	8.5	9.4	0.7	1.00	
MW-9	09/20/19	0.06	DO	O	11/24/14-06/19/19	18	18	0.02	0.32	1.25	0.41	0.63	
MW-9	09/20/19	195	Sulfate	O	11/24/14-06/19/19	18	18	190	203	216	8	1.00	
MW-9	09/20/19	173.53	EH	Milliv O	03/19/18-06/19/19	5	5	153.84	188.372	227.53	27.527	0.54	
SC15-184	09/20/19	<0.000	Antimony (DIS)	O	08/04/15-06/17/19	9	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SC15-184	09/20/19	<0.000	Beryllium (DIS)	O	08/04/15-06/17/19	9	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SC15-184	09/20/19	<0.000	Cadmium (DIS)	O	08/04/15-06/17/19	9	0	<0.00003	0.00003	<0.00003	0		HIGHEST
SC15-184	09/20/19	<0.01	Chromium (DIS)	O	08/04/15-06/17/19	9	0	<0.01	0.01	<0.01	0		HIGHEST

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		RESULT mg/L	PARAMETER										
SC15-184	09/20/19	<0.002	Copper (DIS)	O	08/04/15-06/17/19	9	0	<0.002	0.002	<0.002	0		HIGHEST
SC15-184	09/20/19	<0.005	Mercury (DIS)	ug/L O	08/04/15-06/17/19	9	0	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
SC15-184	09/20/19	<0.002	Molybdenum (DIS)	O	08/04/15-06/17/19	9	0	<0.002	0.002	<0.002	0		HIGHEST
SC15-184	09/20/19	<0.001	Nickel (DIS)	O	08/04/15-06/17/19	9	0	<0.001	0.001	<0.001	0		HIGHEST
SC15-184	09/20/19	0.0011	Selenium (DIS)	O	08/04/15-06/17/19	9	9	0.0006	0.0011	0.0014 L	0.0002	0.00	
SC15-184	09/20/19	<0.000	Silver (DIS)	O	08/04/15-06/17/19	9	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SC15-184	09/20/19	<0.000	Thallium (DIS)	O	08/04/15-06/17/19	9	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SC15-184	09/20/19	<0.002	Zinc (DIS)	O	08/04/15-06/17/19	9	6	<0.002	0.005	0.013	0.004	0.75	LOWEST
SC15-184	09/20/19	<0.001	Arsenic (DIS)	O	08/04/15-06/17/19	9	0	<0.001	0.001	<0.001	0		HIGHEST
SC15-184	09/20/19	<0.000	Lead (DIS)	O	08/04/15-06/17/19	9	0	<0.0003	0.0003	<0.0003	0		HIGHEST
SC15-184	09/20/19	0.001	Uranium (DIS)	O	08/04/15-06/17/19	9	2	0.001	0.006	<0.008	0.003	1.67	LOWEST
SC15-184	09/20/19	<0.009	Aluminum (DIS)	O	08/04/15-06/17/19	9	3	<0.009	0.018	0.059	0.017	0.53	LOWEST
SC15-184	09/20/19	<0.01	Cobalt (DIS)	O	08/04/15-06/17/19	9	0	<0.01	0.01	<0.01	0		HIGHEST
SC15-184	09/20/19	36	Calcium	O	08/04/15-06/17/19	9	9	36	38	41	2	1.00	LOWEST
SC15-184	09/20/19	0.087	Barium (DIS)	O	08/04/15-06/17/19	9	9	0.083	0.087	0.092	0.003	0.00	
SC15-184	09/20/19	<0.02	Iron (DIS)	O	08/04/15-06/17/19	9	3	<0.02	0.03	0.05	0.01	1.00	LOWEST
SC15-184	09/20/19	25	Magnesium	O	08/04/15-06/17/19	9	9	25	26	28	1	1.00	LOWEST
SC15-184	09/20/19	<0.005	Manganese (DIS)	O	08/04/15-06/17/19	9	0	<0.005	0.005	<0.005	0		HIGHEST
SC15-184	09/20/19	<1	Potassium	O	08/04/15-06/17/19	9	0	<1	1	<1	0		HIGHEST
SC15-184	09/20/19	2	Sodium	O	08/04/15-06/17/19	9	9	2	2	2	0		HIGHEST
SC15-184	09/20/19	0.115	Strontium (DIS)	O	08/04/15-06/17/19	9	9	0.105	0.116	0.123	0.006	0.17	
SC15-184	09/20/19	0	SWL	Feet O	N/A				0		0		LOWEST
SC15-184	09/20/19	<1	Chloride	O	08/04/15-06/17/19	9	0	<1	1	<1	0		HIGHEST
SC15-184	09/20/19	0.2	Fluoride	O	08/04/15-06/17/19	9	9	0.2	0.2	0.2	0		HIGHEST
SC15-184	09/20/19	0.28	N+N	O	08/04/15-06/17/19	9	9	0.24	0.26	0.3	0.02	1.00	
SC15-184	09/20/19	8	Field pH	s.u. O	08/04/15-06/17/19	9	9	7.32	8	8.01	0		
SC15-184	09/20/19	368	Field SC	umh O	08/04/15-06/17/19	9	9	333	363	380	14	0.36	
SC15-184	09/20/19	195	TDS	O	08/04/15-06/17/19	9	9	194	199	214	7	0.57	
SC15-184	09/20/19	190	Alkalinity	O	08/04/15-06/17/19	9	9	180	187	190	5	0.60	HIGHEST
SC15-184	09/20/19	190	Hardness	O	08/04/15-06/17/19	9	9	192	203	215	8	1.62	LOWEST
SC15-184	09/20/19	<10	TSS	O	08/04/15-06/17/19	9	1	<10	21	110	33	0.33	LOWEST

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		RESULT Deg C	PARAMETER										
SC15-184	09/20/19	6.7	Water Temp	Deg	O 08/04/15-06/17/19	9	9	5.8	6.4	6.8	0.4	0.75	
SC15-184	09/20/19	7.26	DO		O 08/04/15-06/17/19	9	9	4.58	6.37	8.34	1.2	0.74	
SC15-184	09/20/19	16	Sulfate		O 08/04/15-06/17/19	9	9	11	14	16	2	1.00	HIGHEST
SC15-184	09/20/19	241.46	EH	Milliv	O 06/13/18-06/17/19	4	4	247.814	364.826	507.88	110.891	1.11	LOWEST
SC15-185	09/23/19	<0.000	Antimony (DIS)		O 08/04/15-06/18/19	14	4	<0.0005	0.0006	0.0008	0.0001	1.00	LOWEST
SC15-185	09/23/19	<0.000	Beryllium (DIS)		O 08/04/15-06/18/19	14	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SC15-185	09/23/19	<0.000	Cadmium (DIS)		O 08/04/15-06/18/19	14	0	<0.00003	0.00003	<0.00003	0		HIGHEST
SC15-185	09/23/19	<0.01	Chromium (DIS)		O 08/04/15-06/18/19	14	0	<0.01	0.01	<0.01	0		HIGHEST
SC15-185	09/23/19	<0.002	Copper (DIS)		O 08/04/15-06/18/19	14	1	<0.002	0.002	<0.002	0		HIGHEST
SC15-185	09/23/19	<0.005	Mercury (DIS)	ug/L	O 08/04/15-06/18/19	14	0	<0.000005	0.0004	<0.005	0.001	4.60	HIGHEST
SC15-185	09/23/19	0.004	Molybdenum (DIS)		O 08/04/15-06/18/19	14	14	0.003	0.005	0.011	0.002	0.50	
SC15-185	09/23/19	<0.001	Nickel (DIS)		O 08/04/15-06/18/19	14	0	<0.001	0.001	<0.001	0		HIGHEST
SC15-185	09/23/19	<0.000	Selenium (DIS)		O 08/04/15-06/18/19	14	2	<0.0002	0.0002	<0.0004	0.0001	0.00	LOWEST
SC15-185	09/23/19	<0.000	Silver (DIS)		O 08/04/15-06/18/19	14	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SC15-185	09/23/19	<0.000	Thallium (DIS)		O 08/04/15-06/18/19	14	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SC15-185	09/23/19	<0.002	Zinc (DIS)		O 08/04/15-06/18/19	14	6	<0.002	0.002	0.004	0.001	0.00	LOWEST
SC15-185	09/23/19	<0.001	Arsenic (DIS)		O 08/04/15-06/18/19	14	0	<0.001	0.001	<0.001	0		HIGHEST
SC15-185	09/23/19	<0.000	Lead (DIS)		O 08/04/15-06/18/19	14	0	<0.0003	0.0003	<0.0003	0		HIGHEST
SC15-185	09/23/19	0.0031	Uranium (DIS)		O 08/04/15-06/18/19	14	2	0.003	0.0073	<0.008	0.0018	2.33	
SC15-185	09/23/19	0.011	Aluminum (DIS)		O 08/04/15-06/18/19	14	5	<0.009	0.012	0.041	0.008	0.12	
SC15-185	09/23/19	<0.01	Cobalt (DIS)		O 08/04/15-06/18/19	14	0	<0.01	0.01	<0.01	0		HIGHEST
SC15-185	09/23/19	44	Calcium		O 08/04/15-06/18/19	14	14	42	46	49	2	1.00	
SC15-185	09/23/19	0.069	Barium (DIS)		O 08/04/15-06/18/19	14	14	0.058	0.068	0.078	0.006	0.17	
SC15-185	09/23/19	<0.02	Iron (DIS)		O 08/04/15-06/18/19	14	0	<0.02	0.02	<0.02	0		HIGHEST
SC15-185	09/23/19	21	Magnesium		O 08/04/15-06/18/19	14	14	21	22	23	1	1.00	LOWEST
SC15-185	09/23/19	<0.005	Manganese (DIS)		O 08/04/15-06/18/19	14	6	<0.005	0.032	0.127	0.04	0.68	LOWEST
SC15-185	09/23/19	2	Potassium		O 08/04/15-06/18/19	14	14	2	2	3	1	0.00	LOWEST
SC15-185	09/23/19	4	Sodium		O 08/04/15-06/18/19	14	14	4	5	9	2	0.50	LOWEST
SC15-185	09/23/19	0.244	Strontium (DIS)		O 08/04/15-06/18/19	14	14	0.228	0.241	0.262	0.01	0.30	
SC15-185	09/23/19	29.59	SWL	Feet	O 08/04/15-06/18/19	14	14	23.4	30.79	37.21	4.07	0.29	
SC15-185	09/23/19	<1	Chloride		O 08/04/15-06/18/19	14	1	1	1	1	0		HIGHEST

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STATION	SAMPLE DATE	Quarterly Monitoring		QC Code	COMPARISON PERIOD	N	# OF DET	MIN mg/L	MEAN: mg/L	MAX mg/L	STDDARD DEVIATION	STD DEVS FROM MEAN	RELATION TO DATABASE PERIOD	
		RESULT mg/L	PARAMETER											
SC15-185	09/23/19	0.1	Fluoride	O	08/04/15-06/18/19	14	14	0.1	0.1	0.2	0.1	0.00	LOWEST	
SC15-185	09/23/19	0.24	N+N	O	08/04/15-06/18/19	14	14	0.21	0.29	0.38	0.05	1.00		
SC15-185	09/23/19	7.94	Field pH	s.u.	O	08/04/15-06/18/19	14	14	6.1	7.77	8.27	0.53	0.32	
SC15-185	09/23/19	395	Field SC	umh	O	08/04/15-06/18/19	14	14	3.92	376	474.3	109	0.17	
SC15-185	09/23/19	227	TDS	O	08/04/15-06/18/19	14	14	208	218	227	5	1.80	HIGHEST	
SC15-185	09/23/19	210	Alkalinity	O	08/04/15-06/18/19	14	14	200	204	210	5	1.20	HIGHEST	
SC15-185	09/23/19	197	Hardness	O	08/04/15-06/18/19	14	14	191	206	219	8	1.12		
SC15-185	09/23/19	<10	TSS	O	08/04/15-06/18/19	14	2	<4	11	29	5	0.20		
SC15-185	09/23/19	6.6	Water Temp	Deg	O	08/04/15-06/18/19	14	14	1.6	5.7	11.1	2.1	0.43	
SC15-185	09/23/19	4.64	DO	O	08/04/15-06/18/19	14	14	1.12	4.41	6.17	1.29	0.18		
SC15-185	09/23/19	10	Sulfate	O	08/04/15-06/18/19	14	14	8.9	11	15	2	0.50		
SC15-185	09/23/19	253.37	EH	Milliv	O	03/22/18-06/18/19	5	5	250.484	363.141	479.88	88.85	1.24	
SC15-194	09/23/19	<0.000	Antimony (DIS)	O	08/04/15-06/18/19	14	1	<0.0005	0.0005	0.0007	0.0001	0.00	LOWEST	
SC15-194	09/23/19	<0.000	Beryllium (DIS)	O	08/04/15-06/18/19	14	0	<0.0008	0.0008	<0.0008	0		HIGHEST	
SC15-194	09/23/19	<0.000	Cadmium (DIS)	O	08/04/15-06/18/19	14	0	<0.00003	0.00003	<0.00003	0		HIGHEST	
SC15-194	09/23/19	<0.01	Chromium (DIS)	O	08/04/15-06/18/19	14	0	<0.01	0.01	<0.01	0		HIGHEST	
SC15-194	09/23/19	<0.002	Copper (DIS)	O	08/04/15-06/18/19	14	0	<0.002	0.002	<0.002	0		HIGHEST	
SC15-194	09/23/19	<0.005	Mercury (DIS)	ug/L	O	08/04/15-06/18/19	14	0	<0.000005	0.0004	<0.005	0.001	4.60	HIGHEST
SC15-194	09/23/19	<0.002	Molybdenum (DIS)	O	08/04/15-06/18/19	14	0	<0.002	0.002	<0.002	0		HIGHEST	
SC15-194	09/23/19	<0.001	Nickel (DIS)	O	08/04/15-06/18/19	14	0	<0.001	0.001	<0.001	0		HIGHEST	
SC15-194	09/23/19	<0.000	Selenium (DIS)	O	08/04/15-06/18/19	14	1	<0.0002	0.0002	0.0006	0.0001	0.00	LOWEST	
SC15-194	09/23/19	<0.000	Silver (DIS)	O	08/04/15-06/18/19	14	0	<0.0002	0.0002	<0.0002	0		HIGHEST	
SC15-194	09/23/19	<0.000	Thallium (DIS)	O	08/04/15-06/18/19	14	1	<0.0002	0.0002	0.0008	0.0002	0.00	LOWEST	
SC15-194	09/23/19	<0.002	Zinc (DIS)	O	08/04/15-06/18/19	14	4	0.002	0.002	0.004	0.001	0.00	LOWEST	
SC15-194	09/23/19	0.001	Arsenic (DIS)	O	08/04/15-06/18/19	14	4	<0.001	0.001	0.003	0.001	0.00	LOWEST	
SC15-194	09/23/19	<0.000	Lead (DIS)	O	08/04/15-06/18/19	14	0	<0.0003	0.0003	<0.0003	0		HIGHEST	
SC15-194	09/23/19	0.0008	Uranium (DIS)	O	08/04/15-06/18/19	14	2	0.0008	0.007	<0.008	0.0026	2.38	LOWEST	
SC15-194	09/23/19	<0.009	Aluminum (DIS)	O	08/04/15-06/18/19	14	2	<0.009	0.01	0.02	0.003	0.33	LOWEST	
SC15-194	09/23/19	<0.01	Cobalt (DIS)	O	08/04/15-06/18/19	14	0	<0.01	0.01	<0.01	0		HIGHEST	
SC15-194	09/23/19	40	Calcium	O	08/04/15-06/18/19	14	14	37	43	45	2	1.50		
SC15-194	09/23/19	0.035	Barium (DIS)	O	08/04/15-06/18/19	14	14	0.032	0.035	0.039	0.002	0.00		

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		RESULT mg/L	PARAMETER										
SC15-194	09/23/19	0.03	Iron (DIS)	O	08/04/15-06/18/19	14	13	<0.02	0.07	0.17	0.04	1.00	
SC15-194	09/23/19	23	Magnesium	O	08/04/15-06/18/19	14	14	24	25	26	1	2.00	LOWEST
SC15-194	09/23/19	<0.005	Manganese (DIS)	O	08/04/15-06/18/19	14	6	<0.005	0.008	0.027	0.006	0.50	LOWEST
SC15-194	09/23/19	<1	Potassium	O	08/04/15-06/18/19	14	1	<1	1	<1	0		HIGHEST
SC15-194	09/23/19	2	Sodium	O	08/04/15-06/18/19	14	14	2	2	3	0		LOWEST
SC15-194	09/23/19	0.0702	Strontium (DIS)	O	08/04/15-06/18/19	14	14	0.0664	0.0698	0.0759	0.0023	0.17	
SC15-194	09/23/19	19.57	SWL	Feet O	08/04/15-06/18/19	13	13	17.69	20.08	21.82	1.33	0.38	
SC15-194	09/23/19	<1	Chloride	O	08/04/15-06/18/19	14	0	<1	1	<1	0		HIGHEST
SC15-194	09/23/19	0.3	Fluoride	O	08/04/15-06/18/19	14	14	0.3	0.3	0.4	0		LOWEST
SC15-194	09/23/19	<0.01	N+N	O	08/04/15-06/18/19	14	0	<0.01	0.01	<0.01	0		HIGHEST
SC15-194	09/23/19	7.84	Field pH	s.u. O	08/04/15-06/18/19	14	14	6.49	7.69	8.1	0.39	0.38	
SC15-194	09/23/19	382	Field SC	umh O	08/04/15-06/18/19	14	14	358	397	467.2	26	0.58	
SC15-194	09/23/19	225	TDS	O	08/04/15-06/18/19	14	14	207	216	227	6	1.50	
SC15-194	09/23/19	180	Alkalinity	O	08/04/15-06/18/19	14	14	160	177	180	6	0.50	HIGHEST
SC15-194	09/23/19	193	Hardness	O	08/04/15-06/18/19	14	14	193	208	218	6	2.50	LOWEST
SC15-194	09/23/19	<10	TSS	O	08/04/15-06/18/19	14	4	4	11	20	3	0.33	
SC15-194	09/23/19	7.9	Water Temp	Deg O	08/04/15-06/18/19	14	14	4.5	7.6	17.9	3.4	0.09	
SC15-194	09/23/19	0.46	DO	O	08/04/15-06/18/19	14	14	0.34	3.01	10.1	2.84	0.90	
SC15-194	09/23/19	29	Sulfate	O	08/04/15-06/18/19	14	14	28	32	36	2	1.50	
SC15-194	09/23/19	168.05	EH	Milliv O	03/22/18-06/18/19	5	5	106.14	189.549	240.79	53.292	0.40	
SC15-198	09/23/19	<0.000	Antimony (DIS)	O	09/16/15-06/18/19	13	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SC15-198	09/23/19	<0.000	Beryllium (DIS)	O	09/16/15-06/18/19	13	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SC15-198	09/23/19	<0.000	Cadmium (DIS)	O	09/16/15-06/18/19	13	0	<0.00003	0.00003	<0.00003	0		HIGHEST
SC15-198	09/23/19	<0.01	Chromium (DIS)	O	09/16/15-06/18/19	13	0	<0.01	0.01	<0.01	0		HIGHEST
SC15-198	09/23/19	<0.002	Copper (DIS)	O	09/16/15-06/18/19	13	0	<0.002	0.002	<0.002	0		HIGHEST
SC15-198	09/23/19	0.005	Mercury (DIS)	ug/L O	09/16/15-06/18/19	13	5	<0.000005	0.0004	<0.005	0.001	4.60	HIGHEST
SC15-198	09/23/19	<0.002	Molybdenum (DIS)	O	09/16/15-06/18/19	13	0	<0.002	0.002	<0.002	0		HIGHEST
SC15-198	09/23/19	<0.001	Nickel (DIS)	O	09/16/15-06/18/19	13	0	<0.001	0.001	<0.001	0		HIGHEST
SC15-198	09/23/19	0.0002	Selenium (DIS)	O	09/16/15-06/18/19	13	11	0.0002	0.0003	0.0005	0.0001	1.00	LOWEST
SC15-198	09/23/19	<0.000	Silver (DIS)	O	09/16/15-06/18/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SC15-198	09/23/19	<0.000	Thallium (DIS)	O	09/16/15-06/18/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST

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SC15-198	09/23/19	<0.002	Zinc (DIS)	O	09/16/15-06/18/19	13	7	<0.002	0.003	0.006	0.001	1.00	LOWEST
SC15-198	09/23/19	<0.001	Arsenic (DIS)	O	09/16/15-06/18/19	13	1	0.001	0.001	0.001	0		HIGHEST
SC15-198	09/23/19	<0.000	Lead (DIS)	O	09/16/15-06/18/19	13	0	<0.0003	0.0003	<0.0003	0		HIGHEST
SC15-198	09/23/19	0.0007	Uranium (DIS)	O	09/16/15-06/18/19	13	2	0.0007	0.0069	<0.008	0.0027	2.30	LOWEST
SC15-198	09/23/19	<0.009	Aluminum (DIS)	O	09/16/15-06/18/19	13	0	<0.009	0.009	<0.009	0		HIGHEST
SC15-198	09/23/19	<0.01	Cobalt (DIS)	O	09/16/15-06/18/19	13	0	<0.01	0.01	<0.01	0		HIGHEST
SC15-198	09/23/19	46	Calcium	O	09/16/15-06/18/19	13	13	47	49	52	1	3.00	LOWEST
SC15-198	09/23/19	0.365	Barium (DIS)	O	09/16/15-06/18/19	13	13	0.27	0.37	0.421	0.041	0.12	
SC15-198	09/23/19	<0.02	Iron (DIS)	O	09/16/15-06/18/19	13	0	<0.02	0.02	<0.02	0		HIGHEST
SC15-198	09/23/19	25	Magnesium	O	09/16/15-06/18/19	13	13	25	26	29	1	1.00	LOWEST
SC15-198	09/23/19	<0.005	Manganese (DIS)	O	09/16/15-06/18/19	13	0	<0.005	0.005	<0.005	0		HIGHEST
SC15-198	09/23/19	<1	Potassium	O	09/16/15-06/18/19	13	0	<1	1	<1	0		HIGHEST
SC15-198	09/23/19	3	Sodium	O	09/16/15-06/18/19	13	13	3	4	9	2	0.50	LOWEST
SC15-198	09/23/19	0.101	Strontium (DIS)	O	09/16/15-06/18/19	13	13	0.0869	0.096	0.103	0.005	1.00	
SC15-198	09/23/19	40.9	SWL	Feet O	09/16/15-06/18/19	13	13	31.69	40.4	46.45	4.8	0.10	
SC15-198	09/23/19	2	Chloride	O	09/16/15-06/18/19	13	13	1.6	2	4	1	0.00	
SC15-198	09/23/19	0.1	Fluoride	O	09/16/15-06/18/19	13	13	0.1	0.1	0.2	0		LOWEST
SC15-198	09/23/19	0.6	N+N	O	09/16/15-06/18/19	13	13	0.52	0.6	0.72	0.1	0.00	
SC15-198	09/23/19	7.83	Field pH	s.u. O	09/16/15-06/18/19	13	13	7.39	7.68	7.93	0.16	0.94	
SC15-198	09/23/19	420	Field SC	umh O	09/16/15-06/18/19	13	13	416	435	508.7	25	0.60	
SC15-198	09/23/19	236	TDS	O	09/16/15-06/18/19	13	13	223	233	251	8	0.38	
SC15-198	09/23/19	230	Alkalinity	O	09/16/15-06/18/19	13	13	210	222	230	7	1.14	HIGHEST
SC15-198	09/23/19	216	Hardness	O	09/16/15-06/18/19	13	13	222	231	248	8	1.88	LOWEST
SC15-198	09/23/19	<10	TSS	O	09/16/15-06/18/19	13	1	<4	10	10	2	0.00	HIGHEST
SC15-198	09/23/19	7.2	Water Temp	Deg O	09/16/15-06/18/19	13	13	3.4	7.5	17.5	4.6	0.07	
SC15-198	09/23/19	7.97	DO	O	09/16/15-06/18/19	13	13	4.76	7.76	9.63	1.37	0.15	
SC15-198	09/23/19	6	Sulfate	O	09/16/15-06/18/19	13	13	6	7	9	1	1.00	LOWEST
SC15-198	09/23/19	255.97	EH	Milliv O	03/22/18-06/18/19	5	5	276.922	354.438	464.96	78.565	1.25	LOWEST
SP-10	09/24/19	<0.000	Antimony (DIS)	O	05/23/18-08/20/19	12	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SP-10	09/24/19	<0.000	Beryllium (DIS)	O	05/23/18-08/20/19	12	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SP-10	09/24/19	<0.000	Cadmium (DIS)	O	05/23/18-08/20/19	12	0	<0.00003	0.00003	<0.00003	0		HIGHEST

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SP-10	09/24/19	<0.01	Chromium (DIS)	O	05/23/18-08/20/19	12	0	<0.01	0.01	<0.01	0		HIGHEST
SP-10	09/24/19	<0.002	Copper (DIS)	O	05/23/18-08/20/19	12	0	<0.002	0.002	<0.002	0		HIGHEST
SP-10	09/24/19	<0.005	Mercury (DIS)	ug/L O	05/23/18-08/20/19	12	0	<0.000005	0.002	<0.005	0.003	1.00	HIGHEST
SP-10	09/24/19	<0.002	Molybdenum (DIS)	O	05/23/18-08/20/19	12	0	<0.002	0.002	<0.002	0		HIGHEST
SP-10	09/24/19	<0.001	Nickel (DIS)	O	05/23/18-08/20/19	12	0	<0.001	0.001	<0.001	0		HIGHEST
SP-10	09/24/19	0.0003	Selenium (DIS)	O	05/23/18-08/20/19	12	7	<0.0002	0.0003	0.0003	0.0001	0.00	HIGHEST
SP-10	09/24/19	<0.000	Silver (DIS)	O	05/23/18-08/20/19	12	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-10	09/24/19	<0.000	Thallium (DIS)	O	05/23/18-08/20/19	12	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-10	09/24/19	<0.002	Zinc (DIS)	O	05/23/18-08/20/19	12	0	<0.002	0.002	<0.002	0		HIGHEST
SP-10	09/24/19	<0.001	Arsenic (DIS)	O	05/23/18-08/20/19	12	0	<0.001	0.001	<0.001	0		HIGHEST
SP-10	09/24/19	<0.000	Lead (DIS)	O	05/23/18-08/20/19	12	0	<0.0003	0.0003	<0.0003	0		HIGHEST
SP-10	09/24/19	0.0008	Uranium (DIS)	O	05/23/18-08/20/19	12	6	0.0007	0.0044	<0.008	0.0038	0.95	
SP-10	09/24/19	<0.009	Aluminum (DIS)	O	05/23/18-08/20/19	12	0	<0.009	0.009	<0.009	0		HIGHEST
SP-10	09/24/19	<0.01	Cobalt (DIS)	O	05/23/18-08/20/19	12	0	<0.01	0.01	<0.01	0		HIGHEST
SP-10	09/24/19	55	Calcium	O	05/23/18-08/20/19	12	12	49	56	61	4	0.25	
SP-10	09/24/19	0.055	Barium (DIS)	O	05/23/18-08/20/19	12	12	0.04	0.051	0.056	0.004	1.00	
SP-10	09/24/19	<0.02	Iron (DIS)	O	05/23/18-08/20/19	12	0	<0.02	0.02	<0.02	0		HIGHEST
SP-10	09/24/19	20	Magnesium	O	05/23/18-08/20/19	12	12	17	20	22	2	0.00	
SP-10	09/24/19	<0.005	Manganese (DIS)	O	05/23/18-08/20/19	12	3	<0.005	0.007	0.024	0.006	0.33	LOWEST
SP-10	09/24/19	1	Potassium	O	05/23/18-08/20/19	12	7	<1	1	<1	0		HIGHEST
SP-10	09/24/19	2	Sodium	O	05/23/18-08/20/19	12	12	1	2	2	0		HIGHEST
SP-10	09/24/19	0.12	Strontium (DIS)	O	05/23/18-08/20/19	12	12	0.095	0.11	0.122	0.01	1.00	
SP-10	09/24/19	<1	Chloride	O	05/23/18-08/20/19	12	0	<1	1	<1	0		HIGHEST
SP-10	09/24/19	1.93	Flow	Gallo O	05/23/18-08/20/19	11	11	0.58	17.09	59.69	21.62	0.70	
SP-10	09/24/19	0.1	Fluoride	O	05/23/18-08/20/19	12	12	0.1	0.1	0.1	0		HIGHEST
SP-10	09/24/19	0.24	N+N	O	05/23/18-08/20/19	12	12	0.06	0.2	0.28	0.06	0.67	
SP-10	09/24/19	8.13	Field pH	s.u. O	05/23/18-08/20/19	12	12	6.92	7.64	8.1	0.34	1.44	HIGHEST
SP-10	09/24/19	418	Field SC	umh O	05/23/18-08/20/19	12	12	305	396	434	37	0.59	
SP-10	09/24/19	235	TDS	O	05/23/18-08/20/19	12	12	196	221	235	14	1.00	HIGHEST
SP-10	09/24/19	220	Alkalinity	O	05/23/18-08/20/19	12	12	180	210	220	13	0.77	HIGHEST
SP-10	09/24/19	217	Hardness	O	05/23/18-08/20/19	12	12	193	221	245	16	0.25	

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		RESULT mg/L	PARAMETER										
SP-10	09/24/19	12	TSS	O	05/23/18-08/20/19	12	3	<10	20	68 J	20	0.40	
SP-10	09/24/19	8.6	Water Temp	Deg	05/23/18-08/20/19	12	12	4.6	7.8	12.2	2.1	0.38	
SP-10	09/24/19	7.98	DO	O	05/23/18-08/20/19	12	12	6.76	8.01	8.93	0.58	0.05	
SP-10	09/24/19	15	Sulfate	O	05/23/18-08/20/19	12	12	8	13	17	3	0.67	
SP-11	09/25/19	<0.000	Antimony (DIS)	O	04/18/18-08/21/19	13	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SP-11	09/25/19	<0.000	Beryllium (DIS)	O	04/18/18-08/21/19	13	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SP-11	09/25/19	<0.000	Cadmium (DIS)	O	04/18/18-08/21/19	13	0	<0.00003	0.00003	<0.00003	0		HIGHEST
SP-11	09/25/19	<0.01	Chromium (DIS)	O	04/18/18-08/21/19	13	0	<0.01	0.01	<0.01	0		HIGHEST
SP-11	09/25/19	<0.002	Copper (DIS)	O	04/18/18-08/21/19	13	1	<0.002	0.002	0.003	0		LOWEST
SP-11	09/25/19	<0.005	Mercury (DIS)	ug/L	04/18/18-08/21/19	13	0	<0.000005	0.002	<0.005	0.003	1.00	HIGHEST
SP-11	09/25/19	<0.002	Molybdenum (DIS)	O	04/18/18-08/21/19	13	0	<0.002	0.002	<0.002	0		HIGHEST
SP-11	09/25/19	<0.001	Nickel (DIS)	O	04/18/18-08/21/19	13	0	<0.001	0.001	<0.001	0		HIGHEST
SP-11	09/25/19	<0.000	Selenium (DIS)	O	04/18/18-08/21/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-11	09/25/19	<0.000	Silver (DIS)	O	04/18/18-08/21/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-11	09/25/19	<0.000	Thallium (DIS)	O	04/18/18-08/21/19	13	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-11	09/25/19	<0.002	Zinc (DIS)	O	04/18/18-08/21/19	13	3	<0.002	0.002	0.004	0.001	0.00	LOWEST
SP-11	09/25/19	0.006	Arsenic (DIS)	O	04/18/18-08/21/19	13	13	0.005	0.006	0.008	0.001	0.00	
SP-11	09/25/19	<0.000	Lead (DIS)	O	04/18/18-08/21/19	13	0	<0.0003	0.0003	<0.0003	0		HIGHEST
SP-11	09/25/19	0.0004	Uranium (DIS)	O	04/18/18-08/21/19	13	6	0.0003	0.0045	<0.008	0.004	1.02	
SP-11	09/25/19	0.045	Aluminum (DIS)	O	04/18/18-08/21/19	13	13	0.017	0.082	0.479	0.129	0.29	
SP-11	09/25/19	<0.01	Cobalt (DIS)	O	04/18/18-08/21/19	13	0	<0.01	0.01	<0.01	0		HIGHEST
SP-11	09/25/19	23	Calcium	O	04/18/18-08/21/19	13	13	21	23	24	1	0.00	
SP-11	09/25/19	0.307	Barium (DIS)	O	04/18/18-08/21/19	13	13	0.265	0.29	0.313	0.014	1.21	
SP-11	09/25/19	<0.02	Iron (DIS)	O	04/18/18-08/21/19	13	6	<0.02	0.04	0.17	0.04	0.50	LOWEST
SP-11	09/25/19	9	Magnesium	O	04/18/18-08/21/19	13	13	7	8	9	1	1.00	HIGHEST
SP-11	09/25/19	<0.005	Manganese (DIS)	O	04/18/18-08/21/19	13	0	<0.005	0.005	<0.005	0		HIGHEST
SP-11	09/25/19	1	Potassium	O	04/18/18-08/21/19	13	13	1	1	2	0		LOWEST
SP-11	09/25/19	4	Sodium	O	04/18/18-08/21/19	13	13	3	3	4	1	1.00	HIGHEST
SP-11	09/25/19	0.109	Strontium (DIS)	O	04/18/18-08/21/19	13	12	0.0856	0.1	0.104	0.005	1.80	HIGHEST
SP-11	09/25/19	<1	Chloride	O	04/18/18-08/21/19	13	0	<1	1	<1	0		HIGHEST
SP-11	09/25/19	0.1	Fluoride	O	04/18/18-08/21/19	13	13	0.1	0.2	0.2	0.1	1.00	LOWEST

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		RESULT mg/L	PARAMETER											
SP-11	09/25/19	0.24	N+N	O	04/18/18-08/21/19	13	13	0.22	0.25	0.31	0.03	0.33		
SP-11	09/25/19	7.23	Field pH	s.u.	O	04/18/18-08/21/19	13	6.28	7.46	7.98	0.49	0.47		
SP-11	09/25/19	194	Field SC	umh	O	04/18/18-08/21/19	13	171	187	196	8	0.88		
SP-11	09/25/19	120	TDS	O	04/18/18-08/21/19	13	13	99	118	133	10	0.20		
SP-11	09/25/19	96	Alkalinity	O	04/18/18-08/21/19	13	13	82	92	95	3	1.33	HIGHEST	
SP-11	09/25/19	94	Hardness	O	04/18/18-08/21/19	13	13	81	91	95	4	0.75		
SP-11	09/25/19	<10	TSS	O	04/18/18-08/21/19	13	1	<10	10	<10	0		HIGHEST	
SP-11	09/25/19	7.7	Water Temp	Deg	O	04/18/18-08/21/19	13	5.6	6.4	7.4	0.5	2.60	HIGHEST	
SP-11	09/25/19	7.3	DO	O	04/18/18-08/21/19	13	13	6.09	7.1	8.36	0.6	0.33		
SP-11	09/25/19	7	Sulfate	O	04/18/18-08/21/19	13	13	5	7	8	1	0.00		
SP-12	09/25/19	<0.000	Antimony (DIS)	O	04/18/18-08/21/19	14	0	<0.0005	0.0005	<0.0005	0		HIGHEST	
SP-12	09/25/19	<0.000	Beryllium (DIS)	O	04/18/18-08/21/19	14	0	<0.0008	0.0008	<0.0008	0		HIGHEST	
SP-12	09/25/19	<0.000	Cadmium (DIS)	O	04/18/18-08/21/19	14	0	<0.00003	0.00003	<0.00003	0		HIGHEST	
SP-12	09/25/19	<0.01	Chromium (DIS)	O	04/18/18-08/21/19	14	0	<0.01	0.01	<0.01	0		HIGHEST	
SP-12	09/25/19	<0.002	Copper (DIS)	O	04/18/18-08/21/19	14	0	<0.002	0.002	<0.002	0		HIGHEST	
SP-12	09/25/19	<0.005	Mercury (DIS)	ug/L	O	04/18/18-08/21/19	14	1	<0.000005	0.003	<0.005	0.003	0.67	HIGHEST
SP-12	09/25/19	<0.002	Molybdenum (DIS)	O	04/18/18-08/21/19	14	0	<0.002	0.002	<0.002	0		HIGHEST	
SP-12	09/25/19	<0.001	Nickel (DIS)	O	04/18/18-08/21/19	14	0	<0.001	0.001	<0.001	0		HIGHEST	
SP-12	09/25/19	<0.000	Selenium (DIS)	O	04/18/18-08/21/19	14	10	0.0002	0.0002	0.0003	0		LOWEST	
SP-12	09/25/19	<0.000	Silver (DIS)	O	04/18/18-08/21/19	14	0	<0.0002	0.0002	<0.0002	0		HIGHEST	
SP-12	09/25/19	<0.000	Thallium (DIS)	O	04/18/18-08/21/19	14	0	<0.0002	0.0002	<0.0002	0		HIGHEST	
SP-12	09/25/19	<0.002	Zinc (DIS)	O	04/18/18-08/21/19	14	3	<0.002	0.002	0.004	0.001	0.00	LOWEST	
SP-12	09/25/19	<0.001	Arsenic (DIS)	O	04/18/18-08/21/19	14	0	<0.001	0.001	<0.001	0		HIGHEST	
SP-12	09/25/19	<0.000	Lead (DIS)	O	04/18/18-08/21/19	14	0	<0.0003	0.0003	<0.0003	0		HIGHEST	
SP-12	09/25/19	0.0006	Uranium (DIS)	O	04/18/18-08/21/19	14	8	0.0005	0.0038	<0.008	0.0038	0.84		
SP-12	09/25/19	<0.009	Aluminum (DIS)	O	04/18/18-08/21/19	14	1	<0.009	0.009	0.014	0.001	0.00	LOWEST	
SP-12	09/25/19	<0.01	Cobalt (DIS)	O	04/18/18-08/21/19	14	0	<0.01	0.01	<0.01	0		HIGHEST	
SP-12	09/25/19	55	Calcium	O	04/18/18-08/21/19	14	14	47	54	61	4	0.25		
SP-12	09/25/19	0.184	Barium (DIS)	O	04/18/18-08/21/19	14	14	0.157	0.176	0.192	0.01	0.80		
SP-12	09/25/19	0.02	Iron (DIS)	O	04/18/18-08/21/19	14	5	<0.02	0.05	0.29	0.07	0.43	LOWEST	
SP-12	09/25/19	24	Magnesium	O	04/18/18-08/21/19	14	14	20	23	26	2	0.50		

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SP-12	09/25/19	<0.005	Manganese (DIS)	O	04/18/18-08/21/19	14	2	<0.005	0.007	0.02	0.005	0.40	LOWEST
SP-12	09/25/19	1	Potassium	O	04/18/18-08/21/19	14	14	1	1	2	0		LOWEST
SP-12	09/25/19	2	Sodium	O	04/18/18-08/21/19	14	14	2	2	3	0		LOWEST
SP-12	09/25/19	0.116	Strontium (DIS)	O	04/18/18-08/21/19	14	13	0.0968	0.107	0.115	0.006	1.50	HIGHEST
SP-12	09/25/19	9	Chloride	O	04/18/18-08/21/19	14	14	5	8	10	2	0.50	
SP-12	09/25/19	0.2	Fluoride	O	04/18/18-08/21/19	14	14	0.2	0.2	0.2	0		HIGHEST
SP-12	09/25/19	0.24	N+N	O	04/18/18-08/21/19	14	14	0.12	0.38	0.69	0.15	0.93	
SP-12	09/25/19	7.17	Field pH	s.u. O	04/18/18-08/21/19	13	13	6.76	7.63	8.1	0.35	1.31	
SP-12	09/25/19	433	Field SC	umh O	04/18/18-08/21/19	13	13	400	436	473	20	0.15	
SP-12	09/25/19	255	TDS	O	04/18/18-08/21/19	14	14	230	245	262	10	1.00	
SP-12	09/25/19	210	Alkalinity	O	04/18/18-08/21/19	14	14	180	202	220	11	0.73	
SP-12	09/25/19	238	Hardness	O	04/18/18-08/21/19	14	14	200	231	258	15	0.47	
SP-12	09/25/19	<10	TSS	O	04/18/18-08/21/19	14	8	<10	41	187	52	0.60	LOWEST
SP-12	09/25/19	7.8	Water Temp	Deg O	04/18/18-08/21/19	13	13	5.1	6.6	8.7	1.1	1.09	
SP-12	09/25/19	7.29	DO	O	04/18/18-08/21/19	13	13	3.32	6.52	10.38	2.07	0.37	
SP-12	09/25/19	20	Sulfate	O	04/18/18-08/21/19	14	14	13	23	28	4	0.75	
SP-3	09/24/19	<0.000	Antimony (DIS)	O	07/20/11-08/20/19	30	0	<0.0005	0.0007	<0.003	0.0006	0.33	LOWEST
SP-3	09/24/19	<0.000	Beryllium (DIS)	O	07/20/11-08/20/19	30	1	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
SP-3	09/24/19	<0.000	Cadmium (DIS)	O	07/20/11-08/20/19	30	2	<0.00003	0.00004	0.00015	0.00002	0.50	LOWEST
SP-3	09/24/19	<0.01	Chromium (DIS)	O	07/20/11-08/20/19	30	2	0.001	0.01	0.02	0		
SP-3	09/24/19	<0.002	Copper (DIS)	O	07/20/11-08/20/19	30	13	<0.001	0.004	0.026	0.005	0.40	
SP-3	09/24/19	<0.005	Mercury (DIS)	ug/L O	07/20/11-08/20/19	29	13	<0.000005	0.001	0.02	0.004	1.00	
SP-3	09/24/19	<0.002	Molybdenum (DIS)	O	07/20/11-08/20/19	30	0	<0.001	0.002	<0.005	0.001	0.00	
SP-3	09/24/19	<0.001	Nickel (DIS)	O	07/20/11-08/20/19	30	14	<0.001	0.003	0.015	0.003	0.67	LOWEST
SP-3	09/24/19	<0.000	Selenium (DIS)	O	07/20/11-08/20/19	30	6	<0.0002	0.0003	<0.001	0.0002	0.50	LOWEST
SP-3	09/24/19	<0.000	Silver (DIS)	O	07/20/11-08/20/19	30	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
SP-3	09/24/19	<0.000	Thallium (DIS)	O	07/20/11-08/20/19	30	1	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-3	09/24/19	<0.002	Zinc (DIS)	O	07/20/11-08/20/19	30	11	<0.002	0.005	0.029	0.005	0.60	LOWEST
SP-3	09/24/19	0.001	Arsenic (DIS)	O	07/20/11-08/20/19	30	28	0.001	0.002	0.005	0.001	1.00	LOWEST
SP-3	09/24/19	<0.000	Lead (DIS)	O	07/20/11-08/20/19	30	8	<0.0003	0.0005	0.0036	0.0006	0.33	LOWEST
SP-3	09/24/19	<0.000	Uranium (DIS)	O	07/20/11-08/20/19	30	1	<0.0002	0.0059	<0.008	0.0035	1.63	LOWEST

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		RESULT mg/L	PARAMETER											
SP-3	09/24/19	0.065	Aluminum (DIS)	O	07/20/11-08/20/19	31	31	0.033	1.261	10.8 D	2.283	0.52		
SP-3	09/24/19	<0.01	Cobalt (DIS)	O	07/20/11-08/20/19	30	0	<0.005	0.01	<0.01	0		HIGHEST	
SP-3	09/24/19	27	Calcium	O	07/20/11-08/20/19	31	31	14	24	32	5	0.60		
SP-3	09/24/19	0.315	Barium (DIS)	O	07/20/11-08/20/19	30	30	0.205	0.287	0.53	0.057	0.49		
SP-3	09/24/19	0.03	Iron (DIS)	O	07/20/11-08/20/19	30	30	0.02	0.72	6.89	1.39	0.50		
SP-3	09/24/19	6	Magnesium	O	07/20/11-08/20/19	31	31	3	5	7	1	1.00		
SP-3	09/24/19	<0.005	Manganese (DIS)	O	07/20/11-08/20/19	30	10	0.001	0.009	0.068	0.012	0.33		
SP-3	09/24/19	1	Potassium	O	07/20/11-08/20/19	31	31	1	1	3	1	0.00	LOWEST	
SP-3	09/24/19	3	Sodium	O	07/20/11-08/20/19	31	31	2	2	3	1	1.00	HIGHEST	
SP-3	09/24/19	0.0851	Strontium (DIS)	O	07/20/11-08/20/19	30	28	0.0439	0.0725	<0.1	0.0161	0.78		
SP-3	09/24/19	<1	Chloride	O	07/20/11-08/20/19	31	5	1	1	2	0		LOWEST	
SP-3	09/24/19	0.31	Flow	Gallo	O	07/20/11-08/20/19	29	28	0.009	1.59	8.1	1.93	0.66	
SP-3	09/24/19	0.1	Fluoride	O	07/20/11-08/20/19	31	31	0.1	0.1	0.1	0		HIGHEST	
SP-3	09/24/19	0.22	N+N	O	07/20/11-08/20/19	31	31	0.1	0.28	0.43	0.07	0.86		
SP-3	09/24/19	7.2	Field pH	s.u.	O	07/20/11-08/20/19	30	30	6.2	7.4	8.66	0.6	0.33	
SP-3	09/24/19	195	Field SC	umh	O	07/20/11-08/20/19	31	31	103	166	223	38	0.76	
SP-3	09/24/19	134	TDS	O	07/20/11-08/20/19	31	31	113	140	214	22	0.27		
SP-3	09/24/19	93	Alkalinity	O	07/20/11-08/20/19	31	31	44	77	100	20	0.80		
SP-3	09/24/19	90	Hardness	O	07/20/11-08/20/19	31	31	48	81	109	18	0.50		
SP-3	09/24/19	<10	TSS	O	08/28/13-08/20/19	29	17	<10	43	191	50	0.66	LOWEST	
SP-3	09/24/19	9.4	Water Temp	Deg	O	07/20/11-08/20/19	31	31	1.7	8	17	3.9	0.36	
SP-3	09/24/19	8.87	DO	O	07/20/11-08/20/19	31	31	5.02	9.56	19.38	2.45	0.28		
SP-3	09/24/19	6	Sulfate	O	07/20/11-08/20/19	31	31	3	5	7	1	1.00		
SP-4	09/24/19	<0.000	Antimony (DIS)	O	07/21/11-08/21/19	52	0	<0.0005	0.0006	<0.003	0.0006	0.17	LOWEST	
SP-4	09/24/19	<0.000	Beryllium (DIS)	O	07/21/11-08/21/19	52	0	<0.0008	0.0008	<0.001	0		LOWEST	
SP-4	09/24/19	<0.000	Cadmium (DIS)	O	07/21/11-08/21/19	52	0	<0.00003	0.00003	<0.00008	0.00001	0.00	LOWEST	
SP-4	09/24/19	<0.01	Chromium (DIS)	O	07/21/11-08/21/19	52	0	<0.001	0.01	<0.01	0		HIGHEST	
SP-4	09/24/19	<0.002	Copper (DIS)	O	07/21/11-08/21/19	52	1	<0.001	0.002	0.017	0.002	0.00		
SP-4	09/24/19	<0.005	Mercury (DIS)	ug/L	O	07/21/11-08/21/19	51	1	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
SP-4	09/24/19	<0.002	Molybdenum (DIS)	O	07/21/11-08/21/19	52	0	<0.001	0.002	<0.005	0.001	0.00		
SP-4	09/24/19	<0.001	Nickel (DIS)	O	07/21/11-08/21/19	52	0	<0.001	0.002	<0.01	0.002	0.50	LOWEST	

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		RESULT mg/L	PARAMETER											
SP-4	09/24/19	0.0004	Selenium (DIS)	O	07/21/11-08/21/19	52	48	<0.0002	0.0004	<0.001	0.0002	0.00		
SP-4	09/24/19	<0.000	Silver (DIS)	O	07/21/11-08/21/19	52	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST	
SP-4	09/24/19	0.0003	Thallium (DIS)	O	07/21/11-08/21/19	52	52	0.0002	0.0003	0.0004	0.0001	0.00		
SP-4	09/24/19	<0.002	Zinc (DIS)	O	07/21/11-08/21/19	52	14	0.002	0.003	<0.01	0.002	0.50	LOWEST	
SP-4	09/24/19	<0.001	Arsenic (DIS)	O	07/21/11-08/21/19	52	0	<0.001	0.001	<0.003	0		LOWEST	
SP-4	09/24/19	<0.000	Lead (DIS)	O	07/21/11-08/21/19	52	0	<0.0003	0.0003	<0.0005	0		LOWEST	
SP-4	09/24/19	0.0005	Uranium (DIS)	O	07/21/11-08/21/19	52	12	0.0004	0.0063	<0.008	0.0032	1.81		
SP-4	09/24/19	<0.009	Aluminum (DIS)	O	07/21/11-08/21/19	53	5	<0.009	0.011	0.031	0.006	0.33	LOWEST	
SP-4	09/24/19	<0.01	Cobalt (DIS)	O	07/21/11-08/21/19	52	0	<0.005	0.01	<0.01	0		HIGHEST	
SP-4	09/24/19	47	Calcium	O	07/21/11-08/21/19	53	53	42	51	56	3	1.33		
SP-4	09/24/19	0.115	Barium (DIS)	O	07/21/11-08/21/19	52	52	0.101	0.112	0.121	0.005	0.60		
SP-4	09/24/19	<0.02	Iron (DIS)	O	07/21/11-08/21/19	52	13	<0.02	0.03	0.14	0.02	0.50	LOWEST	
SP-4	09/24/19	24	Magnesium	O	07/21/11-08/21/19	53	53	24	26	29	1	2.00	LOWEST	
SP-4	09/24/19	0.006	Manganese (DIS)	O	07/21/11-08/21/19	52	26	0.004	0.007	0.038	0.005	0.20		
SP-4	09/24/19	2	Potassium	O	07/21/11-08/21/19	53	53	1	2	2	0		HIGHEST	
SP-4	09/24/19	2	Sodium	O	07/21/11-08/21/19	53	53	2	2	2	0		HIGHEST	
SP-4	09/24/19	0.0738	Strontium (DIS)	O	07/21/11-08/21/19	52	48	0.0641	0.0739	<0.1	0.0072	0.01		
SP-4	09/24/19	<1	Chloride	O	07/21/11-08/21/19	53	14	1	1	1	0		HIGHEST	
SP-4	09/24/19	6.73	Flow	Gallo	O	07/21/11-08/21/19	45	45	NF-ICE	8.92	50.27	10.41	0.21	
SP-4	09/24/19	0.2	Fluoride	O	07/21/11-08/21/19	53	53	0.2	0.2	0.3	0		LOWEST	
SP-4	09/24/19	0.29	N+N	O	07/21/11-08/21/19	53	53	0.18	0.25	0.35	0.03	1.33		
SP-4	09/24/19	7.72	Field pH	s.u.	O	07/21/11-08/21/19	52	52	6.95	7.7	8.63	0.29	0.07	
SP-4	09/24/19	416	Field SC	umh	O	07/21/11-08/21/19	53	53	162	424	481	47	0.17	
SP-4	09/24/19	238	TDS	O	07/21/11-08/21/19	53	53	202	247	272	14	0.64		
SP-4	09/24/19	200	Alkalinity	O	07/21/11-08/21/19	53	53	190	201	210	5	0.20		
SP-4	09/24/19	216	Hardness	O	07/21/11-08/21/19	53	53	208	235	255	12	1.58		
SP-4	09/24/19	14	TSS	O	08/28/13-08/21/19	50	30	5	50	890 D	129	0.28		
SP-4	09/24/19	7.3	Water Temp	Deg	O	07/21/11-08/21/19	52	52	0.11	6.3	12.2	2.1	0.48	
SP-4	09/24/19	9.48	DO	O	07/21/11-08/21/19	53	53	6.7	9.91	13.95	1.36	0.32		
SP-4	09/24/19	31	Sulfate	O	07/21/11-08/21/19	53	53	10	36	45	7	0.71		
SP-6	09/24/19	<0.000	Antimony (DIS)	O	10/12/11-08/20/19	45	0	<0.0005	0.0006	<0.003	0.0005	0.20	LOWEST	

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		RESULT mg/L	PARAMETER										
SP-6	09/24/19	<0.000	Beryllium (DIS)	O	10/12/11-08/20/19	45	0	<0.0008	0.0008	<0.001	0		LOWEST
SP-6	09/24/19	<0.000	Cadmium (DIS)	O	10/12/11-08/20/19	45	0	<0.00003	0.00003	<0.00008	0.00001	0.00	LOWEST
SP-6	09/24/19	<0.01	Chromium (DIS)	O	10/12/11-08/20/19	45	0	<0.001	0.01	<0.01	0		HIGHEST
SP-6	09/24/19	<0.002	Copper (DIS)	O	10/12/11-08/20/19	45	0	<0.001	0.002	<0.002	0		HIGHEST
SP-6	09/24/19	<0.005	Mercury (DIS)	ug/L O	10/12/11-08/20/19	44	1	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
SP-6	09/24/19	<0.002	Molybdenum (DIS)	O	10/12/11-08/20/19	45	0	<0.001	0.002	<0.005	0.001	0.00	
SP-6	09/24/19	<0.001	Nickel (DIS)	O	10/12/11-08/20/19	45	1	<0.001	0.001	<0.01	0.002	0.00	LOWEST
SP-6	09/24/19	0.0002	Selenium (DIS)	O	10/12/11-08/20/19	45	13	<0.0002	0.0002	<0.001	0.0002	0.00	LOWEST
SP-6	09/24/19	<0.000	Silver (DIS)	O	10/12/11-08/20/19	45	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
SP-6	09/24/19	0.0006	Thallium (DIS)	O	10/12/11-08/20/19	45	45	0.0004	0.0005	0.0007	0.0001	1.00	
SP-6	09/24/19	<0.002	Zinc (DIS)	O	10/12/11-08/20/19	45	7	0.001	0.002	<0.01	0.002	0.00	
SP-6	09/24/19	<0.001	Arsenic (DIS)	O	10/12/11-08/20/19	45	0	<0.001	0.001	<0.003	0		LOWEST
SP-6	09/24/19	<0.000	Lead (DIS)	O	10/12/11-08/20/19	45	1	<0.0003	0.0003	<0.0005	0		LOWEST
SP-6	09/24/19	0.0005	Uranium (DIS)	O	10/12/11-08/20/19	45	15	<0.0003	0.0053	<0.008	0.0037	1.30	
SP-6	09/24/19	<0.009	Aluminum (DIS)	O	10/12/11-08/20/19	46	19	0.004	0.02	0.16	0.03	0.37	
SP-6	09/24/19	<0.01	Cobalt (DIS)	O	10/12/11-08/20/19	45	0	<0.005	0.01	<0.01	0		HIGHEST
SP-6	09/24/19	36	Calcium	O	10/12/11-08/20/19	46	46	32	35	38	2	0.50	
SP-6	09/24/19	0.214	Barium (DIS)	O	10/12/11-08/20/19	45	45	0.168	0.192	0.217	0.01	2.20	
SP-6	09/24/19	<0.02	Iron (DIS)	O	10/12/11-08/20/19	45	14	<0.02	0.03	0.19	0.03	0.33	LOWEST
SP-6	09/24/19	13	Magnesium	O	10/12/11-08/20/19	46	46	12	13	16	1	0.00	
SP-6	09/24/19	<0.005	Manganese (DIS)	O	10/12/11-08/20/19	45	7	<0.001	0.009	0.102	0.018	0.22	
SP-6	09/24/19	<1	Potassium	O	10/12/11-08/20/19	46	9	1	1	1	0		HIGHEST
SP-6	09/24/19	2	Sodium	O	10/12/11-08/20/19	46	46	2	2	2	0		HIGHEST
SP-6	09/24/19	0.0818	Strontium (DIS)	O	10/12/11-08/20/19	45	43	0.0654	0.0734	<0.1	0.0064	1.31	
SP-6	09/24/19	1	Chloride	O	10/12/11-08/20/19	46	11	1	1	2	0		LOWEST
SP-6	09/24/19	0.1	Fluoride	O	10/12/11-08/20/19	46	46	0.1	0.2	0.2	0		LOWEST
SP-6	09/24/19	0.43	N+N	O	10/12/11-08/20/19	46	46	0.31	0.39	0.68	0.07	0.57	
SP-6	09/24/19	7.6	Field pH	s.u. O	10/12/11-08/20/19	45	45	5.81	7.4	8.72	0.7	0.29	
SP-6	09/24/19	292	Field SC	umh O	10/12/11-08/20/19	46	46	188	268	327	19	1.26	
SP-6	09/24/19	176	TDS	O	10/12/11-08/20/19	46	46	145	161	188	8	1.88	
SP-6	09/24/19	150	Alkalinity	O	10/12/11-08/20/19	46	46	120	135	160	7	2.14	

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		RESULT mg/L	PARAMETER										
SP-6	09/24/19	144	Hardness	O	10/12/11-08/20/19	46	46	129	141	160	7	0.43	
SP-6	09/24/19	<10	TSS	O	08/28/13-08/20/19	44	14	<4	34	216 H	49	0.49	
SP-6	09/24/19	8.2	Water Temp	Deg O	10/12/11-08/20/19	45	45	4.4	7.4	10.29	1.4	0.57	
SP-6	09/24/19	9.08	DO	O	10/12/11-08/20/19	46	46	6.7	15.79	282	40.16	0.17	
SP-6	09/24/19	10	Sulfate	O	10/12/11-08/20/19	46	46	7	9	12	2	0.50	
SP-7	09/25/19	<0.000	Antimony (DIS)	O	03/26/15-08/21/19	49	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SP-7	09/25/19	<0.000	Beryllium (DIS)	O	03/26/15-08/21/19	49	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SP-7	09/25/19	<0.000	Cadmium (DIS)	O	03/26/15-08/21/19	49	0	<0.00003	0.00003	<0.00003	0		HIGHEST
SP-7	09/25/19	<0.01	Chromium (DIS)	O	03/26/15-08/21/19	49	0	<0.01	0.01	<0.01	0		HIGHEST
SP-7	09/25/19	<0.002	Copper (DIS)	O	03/26/15-08/21/19	49	2	<0.002	0.002	0.015	0.002	0.00	LOWEST
SP-7	09/25/19	<0.005	Mercury (DIS)	ug/L O	03/26/15-08/21/19	49	1	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
SP-7	09/25/19	<0.002	Molybdenum (DIS)	O	03/26/15-08/21/19	49	0	<0.002	0.002	<0.002	0		HIGHEST
SP-7	09/25/19	<0.001	Nickel (DIS)	O	03/26/15-08/21/19	49	0	<0.001	0.001	<0.001	0		HIGHEST
SP-7	09/25/19	0.0003	Selenium (DIS)	O	03/26/15-08/21/19	49	45	<0.0002	0.0003	0.0004	0.0001	0.00	
SP-7	09/25/19	<0.000	Silver (DIS)	O	03/26/15-08/21/19	49	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SP-7	09/25/19	0.0011	Thallium (DIS)	O	03/26/15-08/21/19	49	49	0.0007	0.001	0.0011	0.0001	1.00	HIGHEST
SP-7	09/25/19	<0.002	Zinc (DIS)	O	03/26/15-08/21/19	49	2	<0.002	0.002	0.003	0		LOWEST
SP-7	09/25/19	0.004	Arsenic (DIS)	O	03/26/15-08/21/19	49	49	0.003	0.004	0.004	0		HIGHEST
SP-7	09/25/19	<0.000	Lead (DIS)	O	03/26/15-08/21/19	49	1	<0.0003	0.0003	0.0006	0		LOWEST
SP-7	09/25/19	0.0009	Uranium (DIS)	O	03/26/15-08/21/19	49	8	0.0008	0.0068	<0.008	0.0027	2.19	
SP-7	09/25/19	<0.009	Aluminum (DIS)	O	03/26/15-08/21/19	50	2	<0.009	0.016	0.311	0.043	0.16	LOWEST
SP-7	09/25/19	<0.01	Cobalt (DIS)	O	03/26/15-08/21/19	49	0	<0.01	0.01	<0.01	0		HIGHEST
SP-7	09/25/19	43	Calcium	O	03/26/15-08/21/19	50	50	40	43	46	2	0.00	
SP-7	09/25/19	0.116	Barium (DIS)	O	03/26/15-08/21/19	49	49	0.1	0.112	0.122	0.004	1.00	
SP-7	09/25/19	<0.02	Iron (DIS)	O	03/26/15-08/21/19	49	4	<0.02	0.03	0.36	0.05	0.20	LOWEST
SP-7	09/25/19	15	Magnesium	O	03/26/15-08/21/19	50	50	13	15	16	1	0.00	
SP-7	09/25/19	<0.005	Manganese (DIS)	O	03/26/15-08/21/19	49	1	<0.005	0.005	<0.005	0		HIGHEST
SP-7	09/25/19	3	Potassium	O	03/26/15-08/21/19	50	50	2	3	3	0		HIGHEST
SP-7	09/25/19	5	Sodium	O	03/26/15-08/21/19	50	50	4	5	5	0		HIGHEST
SP-7	09/25/19	0.174	Strontium (DIS)	O	03/26/15-08/21/19	49	48	0.15	0.166	0.181	0.006	1.33	
SP-7	09/25/19	2	Chloride	O	03/26/15-08/21/19	50	50	1	2	2	0		HIGHEST

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		RESULT ons Per l	PARAMETER										
SP-7	09/25/19	15.26	Flow	Gallo O	03/26/15-08/21/19	44	44	6.7	24.99	136	25.28	0.38	
SP-7	09/25/19	0.3	Fluoride	O	03/26/15-08/21/19	50	50	0.3	0.3	0.4	0		LOWEST
SP-7	09/25/19	0.34	N+N	O	03/26/15-08/21/19	50	50	0.27 J	0.31	0.41	0.03	1.00	
SP-7	09/25/19	7.26	Field pH	s.u. O	03/26/15-08/21/19	49	49	6.17	7.4	8.18	0.33	0.42	
SP-7	09/25/19	336	Field SC	umh O	03/26/15-08/21/19	50	50	196	323	354	29	0.45	
SP-7	09/25/19	192	TDS	O	03/26/15-08/21/19	50	50	173	187	200	7	0.71	
SP-7	09/25/19	170	Alkalinity	O	03/26/15-08/21/19	50	50	160	166	170	5	0.80	HIGHEST
SP-7	09/25/19	168	Hardness	O	03/26/15-08/21/19	50	50	153	167	178	6	0.17	
SP-7	09/25/19	<10	TSS	O	03/26/15-08/21/19	50	7	<4	14	146	20	0.20	
SP-7	09/25/19	7.4	Water Temp	Deg O	03/26/15-08/21/19	49	49	5.07	6.6	7.9	0.7	1.14	
SP-7	09/25/19	2.92	DO	O	03/26/15-08/21/19	50	50	2	3.92	10.98	1.65	0.61	
SP-7	09/25/19	10	Sulfate	O	03/26/15-08/21/19	50	50	7	10	12	1	0.00	
SW-1	09/23/19	<0.000	Antimony (TRC)	O	05/24/11-08/21/19	74	0	<0.0005	0.0008	<0.005	0.0008	0.37	LOWEST
SW-1	09/23/19	<0.000	Beryllium (TRC)	O	05/24/11-08/21/19	74	0	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
SW-1	09/23/19	<0.000	Cadmium (TRC)	O	05/24/11-08/21/19	74	4	<0.00003	0.00004	0.0002	0.00002	0.50	LOWEST
SW-1	09/23/19	<0.01	Chromium (TRC)	O	05/24/11-08/21/19	74	2	<0.001	0.01	<0.01	0		HIGHEST
SW-1	09/23/19	<0.002	Copper (TRC)	O	05/24/11-08/21/19	74	5	<0.001	0.002	0.003	0		
SW-1	09/23/19	0.008	Mercury (TRC)	ug/L O	05/24/11-08/21/19	74	11	<0.000005	0.001	0.011	0.002	3.50	
SW-1	09/23/19	<0.002	Molybdenum (TRC)	O	05/24/11-08/21/19	74	0	<0.001	0.002	<0.005	0.001	0.00	
SW-1	09/23/19	<0.001	Nickel (TRC)	O	05/24/11-08/21/19	74	11	<0.001	0.002	<0.01	0.002	0.50	LOWEST
SW-1	09/23/19	<0.000	Selenium (TRC)	O	05/24/11-08/21/19	74	0	<0.0002	0.0003	<0.001	0.0002	0.50	LOWEST
SW-1	09/23/19	<0.000	Silver (TRC)	O	05/24/11-08/21/19	74	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
SW-1	09/23/19	<0.000	Thallium (TRC)	O	05/24/11-08/21/19	74	0	<0.002	0.0002	<0.0002	0		HIGHEST
SW-1	09/23/19	<0.004	Zinc (TRC)	O	05/24/11-08/21/19	74	26	<0.002	0.003	<0.01	0.002	0.50	
SW-1	09/23/19	<0.001	Arsenic (TRC)	O	05/24/11-08/21/19	74	12	<0.001	0.001	<0.003	0.001	0.00	LOWEST
SW-1	09/23/19	<0.000	Lead (TRC)	O	05/24/11-08/21/19	74	14	<0.0003	0.0004	0.0015	0.0002	0.50	LOWEST
SW-1	09/23/19	0.0004	Uranium (TRC)	O	05/24/11-08/21/19	74	15	0.0002	0.0061	<0.008	0.0033	1.73	
SW-1	09/23/19	<0.009	Aluminum (DIS)	O	05/24/11-08/21/19	74	27	<0.009	0.041	0.333	0.073	0.44	LOWEST
SW-1	09/23/19	<0.01	Cobalt (TRC)	O	05/24/11-08/21/19	74	0	<0.005	0.01	<0.01	0		HIGHEST
SW-1	09/23/19	44	Calcium	O	05/24/11-08/21/19	74	74	23	43	55	8	0.12	
SW-1	09/23/19	0.116	Barium (TRC)	O	05/24/11-08/21/19	74	74	0.081	0.104	0.127	0.01	1.20	

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# Data Comparison Summary

Report Date: November 7, 2019

STATION	SAMPLE DATE	Quarterly Monitoring		QC Code	COMPARISON PERIOD	N	# OF DET	MIN mg/L	MEAN: mg/L	MAX mg/L	STDDARD DEVIATION	STD DEVS FROM MEAN	RELATION TO DATABASE PERIOD
		RESULT mg/L	PARAMETER										
SW-1	09/23/19	0.22	Iron (TRC)	O	05/24/11-08/21/19	74	74	0.11	0.3	1.86	0.3	0.27	
SW-1	09/23/19	12	Magnesium	O	05/24/11-08/21/19	74	74	6	11	15	2	0.50	
SW-1	09/23/19	0.021	Manganese (TRC)	O	05/24/11-08/21/19	74	74	0.009	0.018	0.053 J	0.008	0.38	
SW-1	09/23/19	0.014	Phosphorus	O	05/16/14-08/21/19	60	55	<0.003	0.015	0.09	0.013	0.08	
SW-1	09/23/19	2	Potassium	O	05/24/11-08/21/19	74	70	1	1	3	0		
SW-1	09/23/19	2	Sodium	O	05/24/11-08/21/19	74	74	1	2	3	0		
SW-1	09/23/19	0.125	Strontium (TRC)	O	05/24/11-08/21/19	74	71	0.0779	0.117	0.147	0.015	0.53	
SW-1	09/23/19	1	Chloride	O	05/24/11-08/21/19	74	73	1	1	5	1	0.00	LOWEST
SW-1	09/23/19	30.28	Flow	Cubi O	05/24/11-08/21/19	57	57	NF-ICE	64.8	613 E	96.02	0.36	
SW-1	09/23/19	0.1	Fluoride	O	05/24/11-08/21/19	74	23	<0.1	0.1	0.2	0		LOWEST
SW-1	09/23/19	<0.01	N+N	O	05/24/11-08/21/19	74	34	<0.01	0.04	0.15	0.04	0.75	LOWEST
SW-1	09/23/19	8.64	Field pH	s.u. O	05/24/11-08/21/19	76	76	5.3	7.88	8.71	0.67	1.13	
SW-1	09/23/19	309	Field SC	umh O	05/24/11-08/21/19	77	77	176	291	363	53	0.34	
SW-1	09/23/19	191 D	TDS	O	05/24/11-08/21/19	74	74	107	171	227	26	0.77	
SW-1	09/23/19	170	Alkalinity	O	05/24/11-08/21/19	74	74	87	156	200	28	0.50	
SW-1	09/23/19	160	Hardness	O	05/24/11-08/21/19	74	73	<7	152	199	34	0.24	
SW-1	09/23/19	5	TSS	O	05/30/12-08/21/19	70	28	<4	9	43	7	0.57	
SW-1	09/23/19	11.8	Water Temp	Deg O	05/24/11-08/21/19	77	77	-0.97	4.8	14.5	4.8	1.46	
SW-1	09/23/19	9.59	DO	O	05/24/11-08/21/19	77	77	3.91	11.14	15	1.99	0.78	
SW-1	09/23/19	6	Sulfate	O	05/24/11-08/21/19	74	74	2	5	18 J	2	0.50	
SW-1	09/23/19	0.12	Total N Pers	O	04/29/15-08/21/19	48	44	<0.003	0.16	1.12 J	0.16	0.25	
SW-1	09/23/19	0.98	Staff Gauge	Feet O	05/24/11-08/21/19	48	48	0.49	1.41	13.3	1.81	0.24	
SW-11	09/24/19	<0.000	Antimony (TRC)	O	05/25/11-06/18/19	31	0	<0.0005	0.0011	<0.005	0.0012	0.50	LOWEST
SW-11	09/24/19	<0.000	Beryllium (TRC)	O	05/25/11-06/18/19	31	0	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
SW-11	09/24/19	<0.000	Cadmium (TRC)	O	05/25/11-06/18/19	31	3	<0.00003	0.00004	<0.00008	0.00002	0.50	LOWEST
SW-11	09/24/19	<0.01	Chromium (TRC)	O	05/25/11-06/18/19	31	0	<0.001	0.01	<0.01	0		HIGHEST
SW-11	09/24/19	<0.002	Copper (TRC)	O	05/25/11-06/18/19	31	5	0.001	0.002	0.003	0		
SW-11	09/24/19	<0.005	Mercury (TRC)	ug/L O	05/25/11-06/18/19	31	4	<0.000005	0.0002	<0.005	0.001	4.80	HIGHEST
SW-11	09/24/19	<0.002	Molybdenum (TRC)	O	05/25/11-06/18/19	31	0	<0.001	0.003	<0.005	0.001	1.00	
SW-11	09/24/19	<0.001	Nickel (TRC)	O	05/25/11-06/18/19	31	3	<0.001	0.003	<0.01	0.004	0.50	LOWEST
SW-11	09/24/19	<0.000	Selenium (TRC)	O	05/25/11-06/18/19	31	4	<0.0002	0.0004	<0.001	0.0003	0.67	LOWEST

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STATION	SAMPLE DATE	Quarterly Monitoring		QC Code	COMPARISON PERIOD	N	# OF DET	MIN mg/L	MEAN: mg/L	MAX mg/L	STDDARD DEVIATION	STD DEVS FROM MEAN	RELATION TO DATABASE PERIOD
		RESULT mg/L	PARAMETER										
SW-11	09/24/19	<0.000	Silver (TRC)	O	05/25/11-06/18/19	31	0	<0.0002	0.0003	<0.0005	0.0001	1.00	LOWEST
SW-11	09/24/19	<0.000	Thallium (TRC)	O	05/25/11-06/18/19	31	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-11	09/24/19	<0.005	Zinc (TRC)	O	05/25/11-06/18/19	31	18	<0.002	0.005	0.016	0.004	0.00	
SW-11	09/24/19	<0.001	Arsenic (TRC)	O	05/25/11-06/18/19	31	2	<0.001	0.001	<0.003	0.001	0.00	LOWEST
SW-11	09/24/19	<0.000	Lead (TRC)	O	05/25/11-06/18/19	31	10	<0.0003	0.0005	0.0031	0.0006	0.33	LOWEST
SW-11	09/24/19	0.0009	Uranium (TRC)	O	05/25/11-06/18/19	31	10	0.0007	0.0057	<0.008	0.0034	1.41	
SW-11	09/24/19	<0.009	Aluminum (DIS)	O	05/25/11-06/18/19	32	6	<0.009	0.08	1.36 D	0.246	0.29	LOWEST
SW-11	09/24/19	<0.01	Cobalt (TRC)	O	05/25/11-06/18/19	31	0	<0.005	0.01	<0.01	0		HIGHEST
SW-11	09/24/19	53	Calcium	O	05/25/11-06/18/19	32	32	36	50	60	6	0.50	
SW-11	09/24/19	0.11	Barium (TRC)	O	05/25/11-06/18/19	31	31	0.09	0.1	0.13	0.01	1.00	
SW-11	09/24/19	0.16	Iron (TRC)	O	05/25/11-06/18/19	31	31	0.04	0.36	2.1	0.43	0.47	
SW-11	09/24/19	23	Magnesium	O	05/25/11-06/18/19	32	32	16	23	29	3	0.00	
SW-11	09/24/19	0.01	Manganese (TRC)	O	05/25/11-06/18/19	31	20	<0.005	0.01	0.076	0.02	0.00	
SW-11	09/24/19	0.012	Phosphorus	O	06/10/14-06/18/19	21	21	0.009	0.026	0.06	0.014	1.00	
SW-11	09/24/19	1	Potassium	O	05/25/11-06/18/19	32	30	1	1	2	0		LOWEST
SW-11	09/24/19	3	Sodium	O	05/25/11-06/18/19	32	32	2	3	3	0		HIGHEST
SW-11	09/24/19	0.186	Strontium (TRC)	O	05/25/11-06/18/19	31	31	0.1	0.17	0.2	0.023	0.70	
SW-11	09/24/19	1	Chloride	O	05/25/11-06/18/19	32	24	1	1	2	0		LOWEST
SW-11	09/24/19	0.93	Flow	Cubi O	05/25/11-06/18/19	24	24	NF-ICE	2.25	21.4	4.26	0.31	
SW-11	09/24/19	0.2	Fluoride	O	05/25/11-06/18/19	32	32	0.1	0.2	0.2	0		HIGHEST
SW-11	09/24/19	0.08	N+N	O	05/25/11-06/18/19	32	29	<0.01	0.08	0.24	0.07	0.00	
SW-11	09/24/19	8.42	Field pH	s.u. O	05/25/11-06/18/19	32	32	7.45	8.21	8.69	0.29	0.72	
SW-11	09/24/19	424	Field SC	umh O	05/25/11-06/18/19	32	32	312	404	497	41	0.49	
SW-11	09/24/19	243 D	TDS	O	05/25/11-06/18/19	32	32	166	231	282 D	24	0.50	
SW-11	09/24/19	220	Alkalinity	O	05/25/11-06/18/19	32	32	160	204	250	20	0.80	
SW-11	09/24/19	228	Hardness	O	05/25/11-06/18/19	32	32	156	218	267	27	0.37	
SW-11	09/24/19	7	TSS	O	05/29/12-06/18/19	28	12	<4	14	68 D	18	0.39	
SW-11	09/24/19	8.1	Water Temp	Deg O	05/25/11-06/18/19	32	32	-0.4	5.9	16.3	5.6	0.39	
SW-11	09/24/19	9.41	DO	O	05/25/11-06/18/19	32	32	7.03	10.98	15.4	1.94	0.81	
SW-11	09/24/19	22	Sulfate	O	05/25/11-06/18/19	32	32	9	21	46	8	0.12	
SW-11	09/24/19	0.16	Total N Pers	O	06/24/15-06/18/19	16	16	0.09	0.22	0.51	0.11	0.55	

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# Data Comparison Summary

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		RESULT Feet	PARAMETER										
SW-11	09/24/19	0.35	Staff Gauge	Feet	O 08/25/11-06/18/19	22	22	0.2	0.52	0.91	0.18	0.94	
SW-14	09/23/19	<0.000	Antimony (TRC)		O 04/13/16-08/21/19	35	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SW-14	09/23/19	<0.000	Beryllium (TRC)		O 04/13/16-08/21/19	35	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SW-14	09/23/19	<0.000	Cadmium (TRC)		O 04/13/16-08/21/19	35	2	<0.00003	0.00003	<0.00003	0		HIGHEST
SW-14	09/23/19	<0.01	Chromium (TRC)		O 04/13/16-08/21/19	35	0	<0.01	0.01	<0.01	0		HIGHEST
SW-14	09/23/19	<0.002	Copper (TRC)		O 04/13/16-08/21/19	35	0	<0.002	0.002	<0.002	0		HIGHEST
SW-14	09/23/19	0.006	Mercury (TRC)	ug/L	O 04/13/16-08/21/19	35	1	<0.000005	0.001	<0.005	0.002	2.50	HIGHEST
SW-14	09/23/19	<0.002	Molybdenum (TRC)		O 04/13/16-08/21/19	35	0	<0.002	0.002	<0.002	0		HIGHEST
SW-14	09/23/19	0.001	Nickel (TRC)		O 04/13/16-08/21/19	35	1	<0.001	0.001	0.002	0		LOWEST
SW-14	09/23/19	<0.000	Selenium (TRC)		O 04/13/16-08/21/19	35	1	<0.0002	0.0002	<0.0004	0		LOWEST
SW-14	09/23/19	<0.000	Silver (TRC)		O 04/13/16-08/21/19	35	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-14	09/23/19	<0.000	Thallium (TRC)		O 04/13/16-08/21/19	35	0	<0.002	0.0002	<0.0002	0		HIGHEST
SW-14	09/23/19	<0.004	Zinc (TRC)		O 04/13/16-08/21/19	35	5	<0.002	0.003	<0.04	0.006	0.17	
SW-14	09/23/19	<0.001	Arsenic (TRC)		O 04/13/16-08/21/19	35	0	<0.001	0.001	<0.001	0		HIGHEST
SW-14	09/23/19	<0.000	Lead (TRC)		O 04/13/16-08/21/19	35	1	<0.0003	0.0003	0.0005	0		LOWEST
SW-14	09/23/19	0.0005	Uranium (TRC)		O 04/13/16-08/21/19	35	7	0.0004	0.0065	<0.008	0.003	2.00	
SW-14	09/23/19	<0.009	Aluminum (DIS)		O 04/13/16-08/21/19	35	3	<0.009	0.011	0.047	0.007	0.29	LOWEST
SW-14	09/23/19	<0.01	Cobalt (TRC)		O 04/13/16-08/21/19	35	0	<0.01	0.01	<0.01	0		HIGHEST
SW-14	09/23/19	52	Calcium		O 04/13/16-08/21/19	35	35	38	54	61	5	0.40	
SW-14	09/23/19	0.121	Barium (TRC)		O 04/13/16-08/21/19	35	35	0.081	0.112	0.13	0.011	0.82	
SW-14	09/23/19	0.11	Iron (TRC)		O 04/13/16-08/21/19	35	32	0.02	0.08	0.43	0.08	0.38	
SW-14	09/23/19	19	Magnesium		O 04/13/16-08/21/19	35	35	12	19	23	2	0.00	
SW-14	09/23/19	0.006	Manganese (TRC)		O 04/13/16-08/21/19	35	9	<0.005	0.005	0.009	0.001	1.00	
SW-14	09/23/19	0.009	Phosphorus		O 04/13/16-08/21/19	35	29	<0.003	0.013	0.180	0.03	0.13	
SW-14	09/23/19	1	Potassium		O 04/13/16-08/21/19	35	34	1	1	2	0		LOWEST
SW-14	09/23/19	2	Sodium		O 04/13/16-08/21/19	35	35	2	3	3	1	1.00	LOWEST
SW-14	09/23/19	0.127	Strontium (TRC)		O 04/13/16-08/21/19	35	35	0.0807	0.121	0.136	0.012	0.50	
SW-14	09/23/19	2	Chloride		O 04/13/16-08/21/19	35	35	1	2	4	1	0.00	
SW-14	09/23/19	1.17	Flow	Cubi	O 04/13/16-08/21/19	29	29	NF-ICE	2.37	11.75	2.97	0.40	
SW-14	09/23/19	0.2	Fluoride		O 04/13/16-08/21/19	35	35	0.1	0.2	0.2	0		HIGHEST
SW-14	09/23/19	0.01	N+N		O 04/13/16-08/21/19	35	33	0.01	0.1	0.27	0.08	1.12	LOWEST

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		RESULT s.u.	PARAMETER										
SW-14	09/23/19	8.38	Field pH	s.u.	O 04/13/16-08/21/19	33	33	6.07	7.93	8.48	0.47	0.96	
SW-14	09/23/19	402	Field SC	umh	O 04/13/16-08/21/19	34	34	263	384	439	42	0.43	
SW-14	09/23/19	239 D	TDS		O 04/13/16-08/21/19	35	35	175	225	266 D	16	0.88	
SW-14	09/23/19	220	Alkalinity		O 04/13/16-08/21/19	35	35	160	206	220	18	0.78	HIGHEST
SW-14	09/23/19	207	Hardness		O 04/13/16-08/21/19	35	35	153	212	239	18	0.28	
SW-14	09/23/19	5	TSS		O 04/13/16-08/21/19	35	5	4	5	15	2	0.00	
SW-14	09/23/19	13.3	Water Temp	Deg	O 04/13/16-08/21/19	34	34	-0.91	6.7	14.7	5	1.32	
SW-14	09/23/19	10.15	DO		O 04/13/16-08/21/19	34	34	8.22	10.73	15.01	1.64	0.35	
SW-14	09/23/19	7	Sulfate		O 04/13/16-08/21/19	35	35	6	9	19	3	0.67	
SW-14	09/23/19	0.13	Total N Pers		O 04/13/16-08/21/19	32	31	<0.003	0.23	1.25 J	0.21	0.48	
SW-14	09/23/19	0.59	Staff Gauge	Feet	O 04/13/16-08/21/19	21	21	0.3	0.5	0.8	0.14	0.64	
SW-17	09/23/19	<0.000	Antimony (TRC)		O 01/17/18-08/21/19	17	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SW-17	09/23/19	<0.000	Beryllium (TRC)		O 01/17/18-08/21/19	17	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SW-17	09/23/19	<0.000	Cadmium (TRC)		O 01/17/18-08/21/19	17	1	<0.00003	0.00004	0.00017	0.00003	0.33	LOWEST
SW-17	09/23/19	<0.01	Chromium (TRC)		O 01/17/18-08/21/19	17	0	<0.01	0.01	<0.01	0		HIGHEST
SW-17	09/23/19	<0.002	Copper (TRC)		O 01/17/18-08/21/19	17	0	<0.002	0.002	<0.002	0		HIGHEST
SW-17	09/23/19	0.006	Mercury (TRC)	ug/L	O 01/17/18-08/21/19	17	3	<0.000005	0.002	0.007	0.003	1.33	
SW-17	09/23/19	<0.002	Molybdenum (TRC)		O 01/17/18-08/21/19	17	0	<0.002	0.002	<0.002	0		HIGHEST
SW-17	09/23/19	<0.001	Nickel (TRC)		O 01/17/18-08/21/19	17	0	<0.001	0.001	<0.002	0		LOWEST
SW-17	09/23/19	<0.000	Selenium (TRC)		O 01/17/18-08/21/19	17	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-17	09/23/19	<0.000	Silver (TRC)		O 01/17/18-08/21/19	17	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-17	09/23/19	<0.000	Thallium (TRC)		O 01/17/18-08/21/19	17	3	0.000	0.0002	<0.0002	0		HIGHEST
SW-17	09/23/19	<0.004	Zinc (TRC)		O 01/17/18-08/21/19	17	9	<0.002	0.003	0.008	0.002	0.50	
SW-17	09/23/19	<0.001	Arsenic (TRC)		O 01/17/18-08/21/19	17	0	<0.001	0.001	<0.001	0		HIGHEST
SW-17	09/23/19	<0.000	Lead (TRC)		O 01/17/18-08/21/19	17	1	<0.0003	0.0003	<0.0003	0		HIGHEST
SW-17	09/23/19	0.0006	Uranium (TRC)		O 01/17/18-08/21/19	17	6	0.0005	0.0054	<0.008	0.0036	1.33	
SW-17	09/23/19	<0.009	Aluminum (DIS)		O 01/17/18-08/21/19	17	2	<0.009	0.01	0.021 J	0.003	0.33	LOWEST
SW-17	09/23/19	<0.01	Cobalt (TRC)		O 01/17/18-08/21/19	17	0	<0.01	0.01	<0.01	0		HIGHEST
SW-17	09/23/19	52	Calcium		O 01/17/18-08/21/19	17	17	44	55	63	5	0.60	
SW-17	09/23/19	0.174	Barium (TRC)		O 01/17/18-08/21/19	17	17	0.108	0.149	0.168	0.015	1.67	HIGHEST
SW-17	09/23/19	0.17	Iron (TRC)		O 01/17/18-08/21/19	17	17	0.07	0.18	0.37	0.1	0.10	

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SW-17	09/23/19	23	Magnesium	O	01/17/18-08/21/19	17	17	14	23	25	3	0.00	
SW-17	09/23/19	0.016	Manganese (TRC)	O	01/17/18-08/21/19	17	17	0.008	0.024	0.051	0.012	0.67	
SW-17	09/23/19	0.007	Phosphorus	O	01/17/18-08/21/19	17	17	0.004	0.016	0.088 J	0.019	0.47	
SW-17	09/23/19	1	Potassium	O	01/17/18-08/21/19	17	14	1	1	1	0		HIGHEST
SW-17	09/23/19	3	Sodium	O	01/17/18-08/21/19	17	17	2	2	3	1	1.00	HIGHEST
SW-17	09/23/19	0.154	Strontium (TRC)	O	01/17/18-08/21/19	17	17	0.111 L	0.146	0.172 L	0.017	0.47	
SW-17	09/23/19	6	Chloride	O	01/17/18-08/21/19	17	17	3	5	14	3	0.33	
SW-17	09/23/19	0.24	Flow	Cubi O	01/17/18-08/21/19	12	12	NF-ICE	0.45	1.8	0.57	0.37	
SW-17	09/23/19	0.2	Fluoride	O	01/17/18-08/21/19	17	17	0.1	0.2	0.2	0		HIGHEST
SW-17	09/23/19	0.04	N+N	O	01/17/18-08/21/19	17	16	<0.01	0.09	0.19	0.06	0.83	
SW-17	09/23/19	8.35	Field pH	s.u. O	01/17/18-08/21/19	16	16	7.47	8.08	8.41	0.23	1.17	
SW-17	09/23/19	450	Field SC	umh O	01/17/18-08/21/19	16	16	319	430	487	41	0.49	
SW-17	09/23/19	274 D	TDS	O	01/17/18-08/21/19	17	17	197 D	255	314 D	30	0.63	
SW-17	09/23/19	220	Alkalinity	O	01/17/18-08/21/19	17	17	150	203	230	18	0.94	
SW-17	09/23/19	226	Hardness	O	01/17/18-08/21/19	17	17	167	232	262	23	0.26	
SW-17	09/23/19	<4	TSS	O	01/17/18-08/21/19	17	8	4	6	19 J	5	0.40	LOWEST
SW-17	09/23/19	10.5	Water Temp	Deg O	01/17/18-08/21/19	16	16	0.02	6.5	13.9	5.1	0.78	
SW-17	09/23/19	9.4	DO	O	01/17/18-08/21/19	16	16	8.46	10.3	12.9	1.1	0.82	
SW-17	09/23/19	23	Sulfate	O	01/17/18-08/21/19	17	17	12	28	44	8	0.62	
SW-17	09/23/19	0.14	Total N Pers	O	04/12/18-08/21/19	14	14	0.12	0.25	0.49	0.1	1.10	
SW-2	09/23/19	<0.000	Antimony (TRC)	O	05/24/11-08/21/19	74	0	<0.0005	0.0008	<0.005	0.0008	0.37	LOWEST
SW-2	09/23/19	<0.000	Beryllium (TRC)	O	05/24/11-08/21/19	74	0	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
SW-2	09/23/19	<0.000	Cadmium (TRC)	O	05/24/11-08/21/19	74	3	<0.00003	0.00003	<0.00008	0.00001	0.00	LOWEST
SW-2	09/23/19	<0.01	Chromium (TRC)	O	05/24/11-08/21/19	74	1	<0.001	0.01	<0.01	0		HIGHEST
SW-2	09/23/19	<0.002	Copper (TRC)	O	05/24/11-08/21/19	74	5	<0.001	0.002	0.004	0		
SW-2	09/23/19	<0.005	Mercury (TRC)	ug/L O	05/24/11-08/21/19	74	12	<0.000005	0.001	0.01	0.002	2.00	
SW-2	09/23/19	<0.002	Molybdenum (TRC)	O	05/24/11-08/21/19	74	0	<0.001	0.002	<0.005	0.001	0.00	
SW-2	09/23/19	<0.001	Nickel (TRC)	O	05/24/11-08/21/19	74	12	<0.001	0.002	<0.01	0.002	0.50	LOWEST
SW-2	09/23/19	<0.000	Selenium (TRC)	O	05/24/11-08/21/19	74	0	<0.0002	0.0003	<0.001	0.0002	0.50	LOWEST
SW-2	09/23/19	<0.000	Silver (TRC)	O	05/24/11-08/21/19	74	0	<0.0002	0.0002	<0.0005	0.0001	0.00	LOWEST
SW-2	09/23/19	<0.000	Thallium (TRC)	O	05/24/11-08/21/19	74	0	<0.002	0.0002	<0.0002	0		HIGHEST

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		RESULT mg/L	PARAMETER										
SW-2	09/23/19	<0.004	Zinc (TRC)	O	05/24/11-08/21/19	74	22	<0.002	0.004	0.014	0.003	0.00	
SW-2	09/23/19	<0.001	Arsenic (TRC)	O	05/24/11-08/21/19	74	1	<0.001	0.001	<0.003	0.001	0.00	LOWEST
SW-2	09/23/19	<0.000	Lead (TRC)	O	05/24/11-08/21/19	74	14	<0.0003	0.0004	0.0017	0.0002	0.50	LOWEST
SW-2	09/23/19	0.0003	Uranium (TRC)	O	05/24/11-08/21/19	74	13	0.0002	0.0061	<0.008	0.0033	1.76	
SW-2	09/23/19	<0.009	Aluminum (DIS)	O	05/24/11-08/21/19	74	32	<0.009	0.041	0.39	0.071	0.45	LOWEST
SW-2	09/23/19	<0.01	Cobalt (TRC)	O	05/24/11-08/21/19	74	0	<0.005	0.01	<0.01	0		HIGHEST
SW-2	09/23/19	44	Calcium	O	05/24/11-08/21/19	74	74	21	43	58	8	0.12	
SW-2	09/23/19	0.102	Barium (TRC)	O	05/24/11-08/21/19	74	74	0.07	0.094	0.128	0.012	0.67	
SW-2	09/23/19	0.12	Iron (TRC)	O	05/24/11-08/21/19	74	74	0.09	0.29	2.49	0.36	0.47	
SW-2	09/23/19	11	Magnesium	O	05/24/11-08/21/19	74	74	5	11	15	2	0.00	
SW-2	09/23/19	0.008	Manganese (TRC)	O	05/24/11-08/21/19	74	74	0.006	0.013	0.116	0.014	0.36	
SW-2	09/23/19	0.006	Phosphorus	O	05/16/14-08/21/19	60	51	0.003	0.015	0.182 J	0.025	0.36	
SW-2	09/23/19	1	Potassium	O	05/24/11-08/21/19	74	68	1	1	2	0		LOWEST
SW-2	09/23/19	2	Sodium	O	05/24/11-08/21/19	74	74	1	2	3	0		
SW-2	09/23/19	0.132	Strontium (TRC)	O	05/24/11-08/21/19	74	72	0.0818	0.12	0.15	0.015	0.80	
SW-2	09/23/19	1	Chloride	O	05/24/11-08/21/19	74	72	1	1	5	1	0.00	LOWEST
SW-2	09/23/19	24.32	Flow	Cubi O	05/24/11-08/21/19	49	49	NF-ICE	43.16	250 E	50.16	0.38	
SW-2	09/23/19	<0.1	Fluoride	O	05/24/11-08/21/19	74	1	<0.1	0.1	0.4	0		LOWEST
SW-2	09/23/19	<0.01	N+N	O	05/24/11-08/21/19	74	34	<0.01	0.04	0.12	0.04	0.75	LOWEST
SW-2	09/23/19	8.62	Field pH	s.u. O	05/24/11-08/21/19	75	75	NM	7.82	8.73	1.05	0.76	
SW-2	09/23/19	309	Field SC	umh O	05/24/11-08/21/19	76	76	156	283	388	54	0.48	
SW-2	09/23/19	187 D	TDS	O	05/24/11-08/21/19	74	74	112	167	223	25	0.80	
SW-2	09/23/19	170	Alkalinity	O	05/24/11-08/21/19	74	74	80	153	200	28	0.61	
SW-2	09/23/19	158	Hardness	O	05/24/11-08/21/19	74	73	<7	151	202	34	0.21	
SW-2	09/23/19	<4	TSS	O	05/30/12-08/21/19	70	20	<4	10	105	13	0.46	LOWEST
SW-2	09/23/19	9.9	Water Temp	Deg O	05/24/11-08/21/19	76	76	-1	4.6	15.8	5	1.06	
SW-2	09/23/19	9.86	DO	O	05/24/11-08/21/19	76	76	6.35	11.15	16.18	1.73	0.75	
SW-2	09/23/19	5	Sulfate	O	05/24/11-08/21/19	74	74	2	5	9	2	0.00	
SW-2	09/23/19	0.07	Total N Pers	O	04/29/15-08/21/19	48	42	<0.003	0.17	1.39 J	0.26	0.38	
SW-2	09/23/19	0.4	Staff Gauge	Feet O	05/24/11-08/21/19	43	43	0.21	0.8	1.75	0.4	1.00	
SW-3	09/23/19	<0.000	Antimony (TRC)	O	05/24/11-08/20/19	32	0	<0.0005	0.001	<0.005	0.0012	0.42	LOWEST

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		RESULT mg/L	PARAMETER										
SW-3	09/23/19	<0.000	Beryllium (TRC)	O	05/24/11-08/20/19	32	0	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
SW-3	09/23/19	<0.000	Cadmium (TRC)	O	05/24/11-08/20/19	32	0	<0.00003	0.00004	<0.00008	0.00002	0.50	LOWEST
SW-3	09/23/19	<0.01	Chromium (TRC)	O	05/24/11-08/20/19	32	0	<0.001	0.01	<0.01	0		HIGHEST
SW-3	09/23/19	<0.002	Copper (TRC)	O	05/24/11-08/20/19	32	4	0.001	0.002	0.003	0		
SW-3	09/23/19	<0.005	Mercury (TRC)	ug/L O	05/24/11-08/20/19	32	2	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
SW-3	09/23/19	<0.002	Molybdenum (TRC)	O	05/24/11-08/20/19	32	0	<0.001	0.003	<0.005	0.001	1.00	
SW-3	09/23/19	<0.001	Nickel (TRC)	O	05/24/11-08/20/19	32	0	<0.001	0.002	<0.01	0.003	0.33	LOWEST
SW-3	09/23/19	<0.000	Selenium (TRC)	O	05/24/11-08/20/19	32	3	<0.0002	0.0004	<0.001	0.0003	0.67	LOWEST
SW-3	09/23/19	<0.000	Silver (TRC)	O	05/24/11-08/20/19	32	0	<0.0002	0.0003	<0.0005	0.0001	1.00	LOWEST
SW-3	09/23/19	<0.000	Thallium (TRC)	O	05/24/11-08/20/19	32	3	<0.0002	0.0002	0.0004	0		LOWEST
SW-3	09/23/19	<0.004	Zinc (TRC)	O	05/24/11-08/20/19	32	18	<0.002	0.005	0.033 J	0.006	0.17	
SW-3	09/23/19	<0.001	Arsenic (TRC)	O	05/24/11-08/20/19	32	0	<0.001	0.001	<0.003	0.001	0.00	LOWEST
SW-3	09/23/19	<0.000	Lead (TRC)	O	05/24/11-08/20/19	32	15	<0.0003	0.0006	0.0031	0.0007	0.43	LOWEST
SW-3	09/23/19	0.0006	Uranium (TRC)	O	05/24/11-08/20/19	32	12	0.0005	0.0052	<0.008	0.0036	1.28	
SW-3	09/23/19	<0.009	Aluminum (DIS)	O	05/24/11-08/20/19	32	5	<0.009	0.014	0.07	0.012	0.42	LOWEST
SW-3	09/23/19	<0.01	Cobalt (TRC)	O	05/24/11-08/20/19	32	0	<0.005	0.01	<0.01	0		HIGHEST
SW-3	09/23/19	49	Calcium	O	05/24/11-08/20/19	32	32	31	46	52	4	0.75	
SW-3	09/23/19	0.171	Barium (TRC)	O	05/24/11-08/20/19	32	32	0.122	0.15	0.176	0.014	1.50	
SW-3	09/23/19	0.05	Iron (TRC)	O	05/24/11-08/20/19	32	32	0.03 B	0.21	1.08	0.23	0.70	
SW-3	09/23/19	24	Magnesium	O	05/24/11-08/20/19	32	32	15	23	25	2	0.50	
SW-3	09/23/19	<0.005	Manganese (TRC)	O	05/24/11-08/20/19	32	11	<0.005	0.014	0.2	0.035	0.26	LOWEST
SW-3	09/23/19	0.007	Phosphorus	O	06/10/14-08/20/19	23	22	0.004	0.013	0.035	0.006	1.00	
SW-3	09/23/19	1	Potassium	O	05/24/11-08/20/19	32	25	1	1	2	0		LOWEST
SW-3	09/23/19	2	Sodium	O	05/24/11-08/20/19	32	32	2	2	2	0		HIGHEST
SW-3	09/23/19	0.126	Strontium (TRC)	O	05/24/11-08/20/19	32	29	0.0838	0.108	0.123 D	0.011	1.64	HIGHEST
SW-3	09/23/19	4	Chloride	O	05/24/11-08/20/19	32	30	<1	2	4	1	2.00	HIGHEST
SW-3	09/23/19	0.069	Flow	Cubi O	05/24/11-08/20/19	29	29	0.034	0.353	4.9	0.888	0.32	
SW-3	09/23/19	0.2	Fluoride	O	05/24/11-08/20/19	32	32	0.1	0.2	0.2	0		HIGHEST
SW-3	09/23/19	0.03	N+N	O	05/24/11-08/20/19	32	26	0.01	0.05	0.12	0.03	0.67	
SW-3	09/23/19	8.43	Field pH	s.u. O	05/24/11-08/20/19	33	33	7.92	8.29	8.7	0.16	0.88	
SW-3	09/23/19	417	Field SC	umh O	05/24/11-08/20/19	33	33	269	379	423	37	1.03	

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SW-3	09/23/19	255 D	TDS	O	05/24/11-08/20/19	32	32	152	220	255 D	20	1.75	HIGHEST
SW-3	09/23/19	210	Alkalinity	O	05/24/11-08/20/19	32	32	150	197	210	14	0.93	HIGHEST
SW-3	09/23/19	224	Hardness	O	05/24/11-08/20/19	32	32	139	208	234	19	0.84	
SW-3	09/23/19	<4	TSS	O	05/30/12-08/20/19	29	13	<4	7	14	3	1.00	LOWEST
SW-3	09/23/19	9.6	Water Temp	Deg O	05/24/11-08/20/19	33	33	NM	8	14.5	4.8	0.33	
SW-3	09/23/19	9.09	DO	O	05/24/11-08/20/19	33	33	5.95	9.96	12.87	1.45	0.60	
SW-3	09/23/19	19	Sulfate	O	05/24/11-08/20/19	32	32	5	17	26	5	0.40	
SW-3	09/23/19	0.09	Total N Pers	O	06/24/15-08/20/19	20	19	<0.04	0.16	0.6	0.11	0.64	
SW-3	09/23/19	0.17	Staff Gauge	Feet O	08/25/11-07/24/19	18	18	0.11	0.4	0.96	0.23	1.00	
SW-4	09/23/19	<0.000	Antimony (TRC)	O	07/24/19-08/20/19	2	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SW-4	09/23/19	<0.000	Beryllium (TRC)	O	07/24/19-08/20/19	2	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SW-4	09/23/19	<0.000	Cadmium (TRC)	O	07/24/19-08/20/19	2	0	<0.00003	0.00003	<0.00003	0		HIGHEST
SW-4	09/23/19	<0.01	Chromium (TRC)	O	07/24/19-08/20/19	2	0	<0.01	0.01	<0.01	0		HIGHEST
SW-4	09/23/19	<0.002	Copper (TRC)	O	07/24/19-08/20/19	2	0	<0.002	0.002	<0.002	0		HIGHEST
SW-4	09/23/19	0.006	Mercury (TRC)	ug/L O	07/24/19-08/20/19	2	0	<0.005	0.005	<0.005	0		HIGHEST
SW-4	09/23/19	<0.002	Molybdenum (TRC)	O	07/24/19-08/20/19	2	0	<0.002	0.002	<0.002	0		HIGHEST
SW-4	09/23/19	<0.001	Nickel (TRC)	O	07/24/19-08/20/19	2	0	<0.001	0.001	<0.001	0		HIGHEST
SW-4	09/23/19	<0.000	Selenium (TRC)	O	07/24/19-08/20/19	2	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-4	09/23/19	<0.000	Silver (TRC)	O	07/24/19-08/20/19	2	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-4	09/23/19	<0.000	Thallium (TRC)	O	07/24/19-08/20/19	2	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-4	09/23/19	<0.004	Zinc (TRC)	O	07/24/19-08/20/19	2	0	<0.002	0.011	<0.02	0.013	0.54	
SW-4	09/23/19	<0.001	Arsenic (TRC)	O	07/24/19-08/20/19	2	0	<0.001	0.001	<0.001	0		HIGHEST
SW-4	09/23/19	<0.000	Lead (TRC)	O	07/24/19-08/20/19	2	0	<0.0003	0.0003	<0.0003	0		HIGHEST
SW-4	09/23/19	0.0008	Uranium (TRC)	O	07/24/19-08/20/19	2	2	0.0007	0.0007	0.0008	0.0001	1.00	HIGHEST
SW-4	09/23/19	<0.009	Aluminum (DIS)	O	07/24/19-08/20/19	2	0	<0.009	0.009	<0.009	0		HIGHEST
SW-4	09/23/19	<0.01	Cobalt (TRC)	O	07/24/19-08/20/19	2	0	<0.01	0.01	<0.01	0		HIGHEST
SW-4	09/23/19	44	Calcium	O	07/24/19-08/20/19	2	2	47	48	49	1	4.00	LOWEST
SW-4	09/23/19	0.151	Barium (TRC)	O	07/24/19-08/20/19	2	2	0.148	0.149	0.15	0.001	2.00	HIGHEST
SW-4	09/23/19	0.09	Iron (TRC)	O	07/24/19-08/20/19	2	2	0.19	0.29	0.39	0.14	1.43	LOWEST
SW-4	09/23/19	19	Magnesium	O	07/24/19-08/20/19	2	2	19	20	20	1	1.00	LOWEST
SW-4	09/23/19	0.01	Manganese (TRC)	O	07/24/19-08/20/19	2	2	0.012	0.02	0.027	0.01	1.00	LOWEST

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# Data Comparison Summary

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		RESULT mg/L	PARAMETER										
SW-4	09/23/19	0.006	Phosphorus	O	07/24/19-08/20/19	2	2	0.011	0.028	0.045	0.024	0.92	LOWEST
SW-4	09/23/19	2	Potassium	O	07/24/19-08/20/19	2	2	1	1	1	0		HIGHEST
SW-4	09/23/19	3	Sodium	O	07/24/19-08/20/19	2	2	3	3	3	0		HIGHEST
SW-4	09/23/19	0.186	Strontium (TRC)	O	07/24/19-08/20/19	2	2	0.183	0.185	0.186 L	0.002	0.50	HIGHEST
SW-4	09/23/19	<1	Chloride	O	07/24/19-08/20/19	2	0	<1	1	<1	0		HIGHEST
SW-4	09/23/19	0.009	Flow	Cubi O	05/30/14-08/20/19	3	3	0.008	0.113	0.32	0.179	0.58	
SW-4	09/23/19	0.1	Fluoride	O	07/24/19-08/20/19	2	2	0.1	0.1	0.1	0		HIGHEST
SW-4	09/23/19	0.02	N+N	O	07/24/19-08/20/19	2	2	0.08	0.09	0.09	0.01	7.00	LOWEST
SW-4	09/23/19	8.23	Field pH	s.u. O	05/30/14-08/20/19	3	3	7.82	8	8.17	0.18	1.28	HIGHEST
SW-4	09/23/19	375	Field SC	umh O	05/30/14-08/20/19	3	3	361.6	365	367	3	3.33	HIGHEST
SW-4	09/23/19	218 D	TDS	O	07/24/19-08/20/19	2	2	207 D	209	211 D	3	3.00	HIGHEST
SW-4	09/23/19	200	Alkalinity	O	07/24/19-08/20/19	2	2	190	195	200	7	0.71	HIGHEST
SW-4	09/23/19	189	Hardness	O	07/24/19-08/20/19	2	2	197	202	206	6	2.17	LOWEST
SW-4	09/23/19	<4	TSS	O	07/24/19-08/20/19	2	2	5	6	8 J	2	1.00	LOWEST
SW-4	09/23/19	10.5	Water Temp	Deg O	05/30/14-08/20/19	3	3	8.9	12.2	14.1	2.9	0.59	
SW-4	09/23/19	8.62	DO	O	05/30/14-08/20/19	3	3	7.2	7.93	8.69	0.75	0.92	
SW-4	09/23/19	8	Sulfate	O	07/24/19-08/20/19	2	2	9	10	10	1	2.00	LOWEST
SW-4	09/23/19	0.1	Total N Pers	O	07/24/19-08/20/19	2	2	0.2	0.2	0.22	0		LOWEST
SW-6	09/23/19	<0.000	Antimony (TRC)	O	05/25/11-06/20/19	30	0	<0.0005	0.0012	<0.005	0.0012	0.58	LOWEST
SW-6	09/23/19	<0.000	Beryllium (TRC)	O	05/25/11-06/20/19	30	0	<0.0008	0.0008	<0.001	0.0001	0.00	LOWEST
SW-6	09/23/19	<0.000	Cadmium (TRC)	O	05/25/11-06/20/19	30	3	<0.00003	0.00004	0.0001	0.00002	0.50	LOWEST
SW-6	09/23/19	<0.01	Chromium (TRC)	O	05/25/11-06/20/19	30	0	<0.001	0.01	<0.01	0		HIGHEST
SW-6	09/23/19	<0.002	Copper (TRC)	O	05/25/11-06/20/19	30	2	<0.001	0.002	0.003	0		
SW-6	09/23/19	0.007	Mercury (TRC)	ug/L O	05/25/11-06/20/19	30	3	<0.000005	0.0002	<0.005	0.001	6.80	HIGHEST
SW-6	09/23/19	<0.002	Molybdenum (TRC)	O	05/25/11-06/20/19	30	0	<0.001	0.003	<0.005	0.001	1.00	
SW-6	09/23/19	<0.001	Nickel (TRC)	O	05/25/11-06/20/19	30	3	0.001	0.003	<0.01	0.004	0.50	LOWEST
SW-6	09/23/19	<0.000	Selenium (TRC)	O	05/25/11-06/20/19	30	8	<0.0002	0.0004	<0.001	0.0003	0.67	LOWEST
SW-6	09/23/19	<0.000	Silver (TRC)	O	05/25/11-06/20/19	30	0	<0.0002	0.0003	<0.0005	0.0001	1.00	LOWEST
SW-6	09/23/19	<0.000	Thallium (TRC)	O	05/25/11-06/20/19	30	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-6	09/23/19	<0.004	Zinc (TRC)	O	05/25/11-06/20/19	30	14	<0.002	0.006	0.03 J	0.006	0.33	
SW-6	09/23/19	<0.001	Arsenic (TRC)	O	05/25/11-06/20/19	30	1	<0.001	0.001	<0.003	0.001	0.00	LOWEST

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		RESULT mg/L	PARAMETER										
SW-6	09/23/19	<0.000	Lead (TRC)	O	05/25/11-06/20/19	30	12	<0.0003	0.0006	0.003	0.0006	0.50	LOWEST
SW-6	09/23/19	0.0006	Uranium (TRC)	O	05/25/11-06/20/19	30	11	0.0005	0.0053	<0.008	0.0036	1.31	
SW-6	09/23/19	<0.009	Aluminum (DIS)	O	05/25/11-06/20/19	30	1	<0.009	0.013	<0.03	0.009	0.44	LOWEST
SW-6	09/23/19	<0.01	Cobalt (TRC)	O	05/25/11-06/20/19	30	0	<0.005	0.01	<0.01	0		HIGHEST
SW-6	09/23/19	48	Calcium	O	05/25/11-06/20/19	30	30	28	49	54	5	0.20	
SW-6	09/23/19	0.134	Barium (TRC)	O	05/25/11-06/20/19	30	30	0.091	0.132	0.247	0.026	0.08	
SW-6	09/23/19	0.35	Iron (TRC)	O	05/25/11-06/20/19	30	30	0.05	0.51	3.04	0.59	0.27	
SW-6	09/23/19	21	Magnesium	O	05/25/11-06/20/19	30	30	12	22	26	3	0.33	
SW-6	09/23/19	0.017	Manganese (TRC)	O	05/25/11-06/20/19	30	28	<0.005	0.023	0.098	0.019	0.32	
SW-6	09/23/19	0.016	Phosphorus	O	06/11/14-06/20/19	19	19	0.01	0.023	0.051	0.012	0.58	
SW-6	09/23/19	1	Potassium	O	05/25/11-06/20/19	30	16	<1	1	3	0		LOWEST
SW-6	09/23/19	3	Sodium	O	05/25/11-06/20/19	30	30	2	3	3	0		HIGHEST
SW-6	09/23/19	0.175	Strontium (TRC)	O	05/25/11-06/20/19	30	30	0.1	0.168	0.329	0.04	0.18	
SW-6	09/23/19	<1	Chloride	O	05/25/11-06/20/19	30	7	<1	1	2	0		LOWEST
SW-6	09/23/19	0.14	Flow	Cubi O	05/25/11-06/20/19	24	24	0.04	0.41	4.1	0.82	0.33	
SW-6	09/23/19	0.2	Fluoride	O	05/25/11-06/20/19	30	28	0.1	0.2	0.2	0		HIGHEST
SW-6	09/23/19	0.02	N+N	O	05/25/11-06/20/19	30	27	<0.01	0.05	0.11	0.03	1.00	
SW-6	09/23/19	8.35	Field pH	s.u. O	05/25/11-06/20/19	30	30	6.67	8.01	8.68	0.45	0.76	
SW-6	09/23/19	406	Field SC	umh O	05/25/11-06/20/19	30	30	249	390	433	35	0.46	
SW-6	09/23/19	238 D	TDS	O	05/25/11-06/20/19	30	30	162	224	254	19	0.74	
SW-6	09/23/19	220	Alkalinity	O	05/25/11-06/20/19	30	30	140	211	240	19	0.47	
SW-6	09/23/19	208	Hardness	O	05/25/11-06/20/19	30	30	119	212	239	24	0.17	
SW-6	09/23/19	23	TSS	O	05/30/12-06/20/19	26	20	4	21	107 D	28	0.07	
SW-6	09/23/19	10.4	Water Temp	Deg O	05/25/11-06/20/19	30	30	-0.03	7	18.3	5.8	0.59	
SW-6	09/23/19	8.94	DO	O	05/25/11-06/20/19	30	30	5.82	9.87	14.18	1.81	0.51	
SW-6	09/23/19	11	Sulfate	O	05/25/11-06/20/19	30	30	6	12	34	5	0.20	
SW-6	09/23/19	0.16	Total N Pers	O	06/24/15-06/20/19	14	14	0.1	0.2	0.39	0.09	0.44	
SW-7	09/25/19	<0.000	Antimony (DIS)	O	04/27/16-06/20/19	17	0	<0.0005	0.0005	<0.0005	0		HIGHEST
SW-7	09/25/19	<0.000	Beryllium (DIS)	O	04/27/16-06/20/19	17	0	<0.0008	0.0008	<0.0008	0		HIGHEST
SW-7	09/25/19	<0.000	Cadmium (DIS)	O	04/27/16-06/20/19	17	0	<0.00003	0.00003	<0.00003	0		HIGHEST
SW-7	09/25/19	<0.01	Chromium (DIS)	O	04/27/16-06/20/19	17	0	<0.01	0.01	<0.01	0		HIGHEST

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		RESULT mg/L	PARAMETER										
SW-7	09/25/19	<0.002	Copper (DIS)	O	04/27/16-06/20/19	17	0	<0.002	0.002	<0.002	0		HIGHEST
SW-7	09/25/19	<0.005	Mercury (DIS)	ug/L O	04/27/16-06/20/19	17	0	<0.000005	0.001	<0.005	0.002	2.00	HIGHEST
SW-7	09/25/19	<0.002	Molybdenum (DIS)	O	04/27/16-06/20/19	17	0	<0.002	0.002	<0.002	0		HIGHEST
SW-7	09/25/19	<0.001	Nickel (DIS)	O	04/27/16-06/20/19	17	0	<0.001	0.001	<0.001	0		HIGHEST
SW-7	09/25/19	<0.000	Selenium (DIS)	O	04/27/16-06/20/19	17	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-7	09/25/19	<0.000	Silver (DIS)	O	04/27/16-06/20/19	17	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-7	09/25/19	<0.000	Thallium (DIS)	O	04/27/16-06/20/19	17	0	<0.0002	0.0002	<0.0002	0		HIGHEST
SW-7	09/25/19	<0.002	Zinc (DIS)	O	04/27/16-06/20/19	17	1	<0.002	0.002	0.003	0		LOWEST
SW-7	09/25/19	<0.001	Arsenic (DIS)	O	04/27/16-06/20/19	17	0	<0.001	0.001	<0.001	0		HIGHEST
SW-7	09/25/19	<0.000	Lead (DIS)	O	04/27/16-06/20/19	17	0	<0.0003	0.0003	<0.0003	0		HIGHEST
SW-7	09/25/19	0.0006	Uranium (DIS)	O	04/27/16-06/20/19	17	3	0.0006	0.0067	<0.008	0.0029	2.10	LOWEST
SW-7	09/25/19	<0.009	Aluminum (DIS)	O	11/26/12-06/20/19	21	0	<0.009	0.009	<0.009	0		HIGHEST
SW-7	09/25/19	<0.01	Cobalt (DIS)	O	04/27/16-06/20/19	17	0	<0.01	0.01	<0.01	0		HIGHEST
SW-7	09/25/19	61	Calcium	O	11/26/12-06/20/19	21	21	51	58	64	3	1.00	
SW-7	09/25/19	0.068	Barium (DIS)	O	04/27/16-06/20/19	17	17	0.043	0.053	0.065	0.007	2.14	HIGHEST
SW-7	09/25/19	<0.02	Iron (DIS)	O	04/27/16-06/20/19	17	0	<0.02	0.02	<0.02	0		HIGHEST
SW-7	09/25/19	19	Magnesium	O	11/26/12-06/20/19	21	21	16	19	21	1	0.00	
SW-7	09/25/19	0.013	Manganese (DIS)	O	04/27/16-06/20/19	17	6	<0.005	0.006	0.017	0.003	2.33	
SW-7	09/25/19	<1	Potassium	O	11/26/12-06/20/19	21	1	<1	1	<1	0		HIGHEST
SW-7	09/25/19	2	Sodium	O	11/26/12-06/20/19	21	21	2	2	2	0		HIGHEST
SW-7	09/25/19	0.147	Strontium (DIS)	O	04/27/16-06/20/19	17	17	0.117	0.133	0.146	0.008	1.75	HIGHEST
SW-7	09/25/19	<1	Chloride	O	11/26/12-06/20/19	21	1	<1	1	2	0		LOWEST
SW-7	09/25/19	0.18	Flow	Gallo O	11/26/12-06/20/19	19	19	0.0400	10.41	54.76	12.8	0.80	
SW-7	09/25/19	<0.1	Fluoride	O	11/26/12-06/20/19	21	16	<0.1	0.1	<0.1	0		HIGHEST
SW-7	09/25/19	<0.01	N+N	O	11/26/12-06/20/19	21	18	<0.01	0.04	0.13	0.03	1.00	LOWEST
SW-7	09/25/19	7.82	Field pH	s.u. O	11/26/12-06/20/19	21	21	6.22	7.65	7.99	0.37	0.46	
SW-7	09/25/19	377	Field SC	umh O	11/26/12-06/20/19	21	21	378	407	426.3	11	2.73	LOWEST
SW-7	09/25/19	239	TDS	O	11/26/12-06/20/19	21	21	201	224	241	11	1.36	
SW-7	09/25/19	230	Alkalinity	O	11/26/12-06/20/19	21	21	200	216	230	7	2.00	HIGHEST
SW-7	09/25/19	231	Hardness	O	11/26/12-06/20/19	21	21	193	222	242	12	0.75	
SW-7	09/25/19	21	TSS	O	11/26/12-06/20/19	21	6	<10	30	219	54	0.17	

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		RESULT Deg C	PARAMETER										
SW-7	09/25/19	10.2	Water Temp	Deg	O 11/26/12-06/20/19	21	21	0.6	8.2	13.1	3.2	0.62	
SW-7	09/25/19	7.85	DO		O 11/26/12-06/20/19	21	21	2.82	8.23	11.31	1.63	0.23	
SW-7	09/25/19	8	Sulfate		O 11/26/12-06/20/19	21	21	6	9	11	1	1.00	
USGS-SC1	09/23/19	<0.000	Antimony (TRC)		O 03/24/14-08/21/19	62	0	<0.0005	0.0005	<0.0005	0		HIGHEST
USGS-SC1	09/23/19	<0.000	Beryllium (TRC)		O 03/24/14-08/21/19	62	0	<0.0008	0.0008	<0.0008	0		HIGHEST
USGS-SC1	09/23/19	<0.000	Cadmium (TRC)		O 03/24/14-08/21/19	62	2	<0.00003	0.00003	0.00009	0.00001	0.00	LOWEST
USGS-SC1	09/23/19	<0.01	Chromium (TRC)		O 03/24/14-08/21/19	62	0	<0.005	0.01	<0.01	0		HIGHEST
USGS-SC1	09/23/19	<0.002	Copper (TRC)		O 03/24/14-08/21/19	62	1	<0.002	0.002	<0.002	0		HIGHEST
USGS-SC1	09/23/19	<0.005	Mercury (TRC)	ug/L	O 03/24/14-08/21/19	62	3	<0.000005	0.001	0.01 D	0.002	2.00	
USGS-SC1	09/23/19	<0.002	Molybdenum (TRC)		O 03/24/14-08/21/19	62	0	<0.001	0.002	<0.002	0		HIGHEST
USGS-SC1	09/23/19	<0.001	Nickel (TRC)		O 03/24/14-08/21/19	62	8	<0.001	0.001	0.003	0		LOWEST
USGS-SC1	09/23/19	<0.000	Selenium (TRC)		O 03/24/14-08/21/19	62	0	<0.0002	0.0002	<0.0004	0		LOWEST
USGS-SC1	09/23/19	<0.000	Silver (TRC)		O 03/24/14-08/21/19	62	1	<0.0002	0.0002	<0.0004	0		LOWEST
USGS-SC1	09/23/19	<0.000	Thallium (TRC)		O 03/24/14-08/21/19	62	0	<0.002	0.0002	<0.0002	0		HIGHEST
USGS-SC1	09/23/19	<0.004	Zinc (TRC)		O 03/24/14-08/21/19	62	19	<0.002	0.003	0.009	0.002	0.50	
USGS-SC1	09/23/19	<0.001	Arsenic (TRC)		O 03/24/14-08/21/19	62	1	<0.001	0.001	<0.001	0		HIGHEST
USGS-SC1	09/23/19	<0.000	Lead (TRC)		O 03/24/14-08/21/19	62	8	<0.0003	0.0003	0.0011	0.0001	0.00	LOWEST
USGS-SC1	09/23/19	0.0004	Uranium (TRC)		O 03/24/14-08/21/19	62	9	0.0003	0.0069	<0.008	0.0027	2.41	
USGS-SC1	09/23/19	<0.009	Aluminum (DIS)		O 03/24/14-08/21/19	62	18	<0.009	0.018	0.189	0.029	0.31	LOWEST
USGS-SC1	09/23/19	<0.01	Cobalt (TRC)		O 03/24/14-08/21/19	62	0	<0.005	0.01	<0.01	0		HIGHEST
USGS-SC1	09/23/19	50	Calcium		O 03/24/14-08/21/19	62	62	35	51	61	6	0.17	
USGS-SC1	09/23/19	0.074	Barium (TRC)		O 03/24/14-08/21/19	62	62	0.06	0.069	0.088	0.006	0.83	
USGS-SC1	09/23/19	0.11	Iron (TRC)		O 03/24/14-08/21/19	62	62	0.07	0.25	1.71	0.3	0.47	
USGS-SC1	09/23/19	13	Magnesium		O 03/24/14-08/21/19	62	62	8	13	15	2	0.00	
USGS-SC1	09/23/19	0.007	Manganese (TRC)		O 03/24/14-08/21/19	62	62	0.005	0.011	0.079	0.01	0.40	
USGS-SC1	09/23/19	<0.003	Phosphorus		O 05/16/14-08/21/19	59	43	<0.003	0.009	0.050	0.009	0.67	LOWEST
USGS-SC1	09/23/19	1	Potassium		O 03/24/14-08/21/19	62	62	1	1	1	0		HIGHEST
USGS-SC1	09/23/19	2	Sodium		O 03/24/14-08/21/19	62	62	2	2	3	0		LOWEST
USGS-SC1	09/23/19	0.154	Strontium (TRC)		O 03/24/14-08/21/19	62	62	0.119 L	0.142	0.16	0.009	1.33	
USGS-SC1	09/23/19	1	Chloride		O 03/24/14-08/21/19	62	62	1	2	5	1	1.00	LOWEST
USGS-SC1	09/23/19	18.16	Flow	Cubi	O 05/05/14-08/21/19	41	41	NF-ICE	32.15	111.32	28.06	0.50	

NOTES: Summary of the comparison of Validation data to the Database Period Data, showing Parameters that are Three or more Standard Deviations from the Mean of the Database Period and the Relationship to these Data.

All results in mg/L unless otherwise noted. All results laboratory unless field (FLD) or Calculated (CALC). N: Number of samples in comparison data set; 50% of data must be above lab detection limit before mean, median and SD are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.



# Data Comparison Summary

Report Date: November 7, 2019

Quarterly Monitoring													
STATION	SAMPLE DATE	RESULT mg/L	PARAMETER	QC Code	COMPARISON PERIOD	N	# OF DET	MIN mg/L	MEAN: mg/L	MAX mg/L	STDDARD DEVIATION	STD DEVS FROM MEAN	RELATION TO DATABASE PERIOD
USGS-SC1	09/23/19	<0.1	Fluoride	O	03/24/14-08/21/19	62	1	<0.1	0.1	<0.1	0		HIGHEST
USGS-SC1	09/23/19	<0.01	N+N	O	03/24/14-08/21/19	62	43	0.01	0.04	0.13	0.04	0.75	LOWEST
USGS-SC1	09/23/19	8.55	Field pH	s.u. O	03/24/14-08/21/19	62	62	6.67 A	8	8.67	0.45	1.22	
USGS-SC1	09/23/19	350	Field SC	umh O	03/24/14-08/21/19	63	63	137	328	408	49	0.45	
USGS-SC1	09/23/19	206 D	TDS	O	03/24/14-08/21/19	62	62	132 D	189	230	21	0.81	
USGS-SC1	09/23/19	190	Alkalinity	O	03/24/14-08/21/19	62	62	120	177	220	22	0.59	
USGS-SC1	09/23/19	178	Hardness	O	03/24/14-08/21/19	62	61	<7	175	214	31	0.10	
USGS-SC1	09/23/19	<4	TSS	O	03/24/14-08/21/19	62	17	<4	8	38	6	0.67	LOWEST
USGS-SC1	09/23/19	8.9	Water Temp	Deg O	03/24/14-08/21/19	63	63	-0.98	4	13.1	4.3	1.14	
USGS-SC1	09/23/19	9.8	DO	O	03/24/14-08/21/19	63	63	7.12	11.2	16.55	1.6	0.87	
USGS-SC1	09/23/19	5	Sulfate	O	03/24/14-08/21/19	62	62	3	6	8	1	1.00	
USGS-SC1	09/23/19	0.05	Total N Pers	O	04/29/15-08/21/19	48	38	<0.003	0.12	1.1 J	0.16	0.44	

NOTES: Summary of the comparison of Validation data to the Database Period Data, showing Parameters that are Three or more Standard Deviations from the Mean of the Database Period and the Relationship to these Data.

All results in mg/L unless otherwise noted. All results laboratory unless field (FLD) or Calculated (CALC). N: Number of samples in comparison data set; 50% of data must be above lab detection limit before mean, median and SD are calculated.

All QC data were included in statistics. Flagged data were included in statistics. The detection limit was used in calculations.

**APPENDIX 2**  
**DATABASE**

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	DI-Blank	DI-Blank	DI-Blank	DS-1	DS-10	DS-11
Water	Sample Date	9/20/2019	9/24/2019	9/25/2019	9/25/2019	9/24/2019	9/24/2019
	Sample Time	3:15:00 PM	10:35:00 AM	3:00:00 PM	10:30:00 AM	3:40:00 PM	4:00:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Hydro	Hydro
	Lab Number	H19090556-027	H19090658-014	H19090658-012	H19090658-006	z	z
	Sample Number	BBC-1909-230	BBC-1909-115	BBC-1909-152	BBC-1909-140	BBC-1909-130	BBC-1909-131
	Remarks						

## Field Parameters Multiple Units

Depth To Water					
Dissolved Oxygen			9.67	9	10.25
EH					
Field pH			8.11	7.8	7.92
Field Specific Conductivity			411	391	445
Flow					
Flow			4.35	2.89	2.09
Staff Gauge					
Water Temperature			8.1	7.6	7.3

## Physical Parameters mg/L

Total Dissolved Solids	<10	<10	<10	228
Total Suspended Solids	<10	<4	<10	<10

## Major Constituents - Commons Ions mg/L

Alkalinity as CaCO3	<4	<4	<4	220
Calcium (DIS)	<1	<1	<1	53
Chloride	<1	<1	<1	<1
Fluoride	<0.1	<0.1	<0.1	0.1
Hardness as CaCO3	<1	<1	<1	215
Magnesium (DIS)	<1	<1	<1	20
Potassium (DIS)	<1	<1	<1	<1
Sodium (DIS)	<1	<1	<1	2
Sulfate	<1	<1	<1	14

## Nutrients mg/L

Nitrate + Nitrite as N	<0.01	<0.01	<0.01	0.08
Phosphorus (TOT)		<0.003		
Total Nitrogen as N (Persulfate)		<0.04		

## Metals - Trace Constituents Multiple Units

Aluminum (DIS)	<0.009	<0.009	<0.009	<0.009
Antimony (DIS)	<0.0005		<0.0005	<0.0005
Antimony (TRC)		<0.0005		
Arsenic (DIS)	<0.001		<0.001	<0.001
Arsenic (TRC)		<0.001		

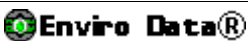
# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	DI-Blank	DI-Blank	DI-Blank	DS-1	DS-10	DS-11
Water	Sample Date	9/20/2019	9/24/2019	9/25/2019	9/25/2019	9/24/2019	9/24/2019
	Sample Time	3:15:00 PM	10:35:00 AM	3:00:00 PM	10:30:00 AM	3:40:00 PM	4:00:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Hydro	Hydro
	Lab Number	H19090556-027	H19090658-014	H19090658-012	H19090658-006	z	z
	Sample Number	BBC-1909-230	BBC-1909-115	BBC-1909-152	BBC-1909-140	BBC-1909-130	BBC-1909-131
	Remarks						

Metals - Trace Constituents	Multiple Units			
Barium (DIS)	<0.003		<0.003	0.071
Barium (TRC)		<0.003		
Beryllium (DIS)	<0.0008		<0.0008	<0.0008
Beryllium (TRC)		<0.0008		
Cadmium (DIS)	<0.00003		<0.00003	<0.00003
Cadmium (TRC)		<0.00003		
Chromium (DIS)	<0.01		<0.01	<0.01
Chromium (TRC)		<0.01		
Cobalt (DIS)	<0.01		<0.01	<0.01
Cobalt (TRC)		<0.01		
Copper (DIS)	<0.002		<0.002	<0.002
Copper (TRC)		<0.002		
Iron (DIS)	<0.02		<0.02	<0.02
Iron (TRC)		<0.02		
Lead (DIS)	<0.0003		<0.0003	<0.0003
Lead (TRC)		<0.0003		
Manganese (DIS)	<0.005		<0.005	<0.005
Manganese (TRC)		<0.005		
Mercury (DIS)	<0.005		<0.005	<0.005
Mercury (TRC)		<0.005		
Molybdenum (DIS)	<0.002		<0.002	<0.002
Molybdenum (TRC)		<0.002		
Nickel (DIS)	<0.001		<0.001	<0.001
Nickel (TRC)		<0.001		
Selenium (DIS)	<0.0002		<0.0002	<0.0002
Selenium (TRC)		<0.0002		
Silver (DIS)	<0.0002		<0.0002	<0.0002
Silver (TRC)		<0.0002		
Strontium (DIS)	<0.0002		<0.0002	0.119
Strontium (TRC)		<0.0002		
Thallium (DIS)	<0.0002		<0.0002	<0.0002
Thallium (TRC)		<0.0002		
Uranium (DIS)	<0.0002		<0.0002	0.0007



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	DI-Blank	DI-Blank	DI-Blank	DS-1	DS-10	DS-11
Water	Sample Date	9/20/2019	9/24/2019	9/25/2019	9/25/2019	9/24/2019	9/24/2019
	Sample Time	3:15:00 PM	10:35:00 AM	3:00:00 PM	10:30:00 AM	3:40:00 PM	4:00:00 PM
	Lab	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Hydro	Hydro
	Lab Number	H19090556-027	H19090658-014	H19090658-012	H19090658-006	z	z
	Sample Number	BBC-1909-230	BBC-1909-115	BBC-1909-152	BBC-1909-140	BBC-1909-130	BBC-1909-131
	Remarks						

## Metals - Trace Constituents Multiple Units

Uranium (TRC)		<0.0002		
Zinc (DIS)	<0.002		<0.002	<0.002
Zinc (TRC)		<0.004		

**NOTES:** All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	DS-2	DS-3	DS-4	DS-5	DS-6	DS-7
Water	Sample Date	9/25/2019	9/24/2019	9/24/2019	9/24/2019	9/24/2019	9/24/2019
	Sample Time	9:35:00 AM	1:00:00 PM	1:20:00 PM	11:50:00 AM	12:05:00 PM	2:05:00 PM
	Lab	Hydro	Energy Labs	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	H19090658-001	z	z	z	z
	Sample Number	BBC-1909-138	BBC-1909-120	BBC-1909-122	BBC-1909-117	BBC-1909-119	BBC-1909-124
	Remarks						

Field Parameters	Multiple Units						
Depth To Water							
Dissolved Oxygen	8.8	8.05			8.66	9.34	
EH							
Field pH	7.94	7.03			7.26	7.49	
Field Specific Conductivity	369	54			127	264	
Flow							
Flow	0.35	1	NF-DRY	NF-DRY	NM	6.78	
Staff Gauge							
Water Temperature	6.3	10.3			10.3	8.4	

Physical Parameters	mg/L						
Total Dissolved Solids		56					
Total Suspended Solids		<10					

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3		24					
Calcium (DIS)		6					
Chloride		<1					
Fluoride		<0.1					
Hardness as CaCO3		21					
Magnesium (DIS)		2					
Potassium (DIS)		1					
Sodium (DIS)		1					
Sulfate		2					

Nutrients	mg/L						
Nitrate + Nitrite as N		0.36					
Phosphorus (TOT)							
Total Nitrogen as N (Persulfate)							

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)		0.177					
Antimony (DIS)		<0.0005					
Antimony (TRC)							
Arsenic (DIS)		<0.001					
Arsenic (TRC)							

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

# Analyses Summary Report

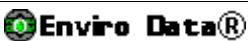
Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	DS-2	DS-3	DS-4	DS-5	DS-6	DS-7
Water	Sample Date	9/25/2019	9/24/2019	9/24/2019	9/24/2019	9/24/2019	9/24/2019
	Sample Time	9:35:00 AM	1:00:00 PM	1:20:00 PM	11:50:00 AM	12:05:00 PM	2:05:00 PM
	Lab	Hydro	Energy Labs	Hydro	Hydro	Hydro	Hydro
	Lab Number	z H19090658-001		z	z	z	z
	Sample Number	BBC-1909-138	BBC-1909-120	BBC-1909-122	BBC-1909-117	BBC-1909-119	BBC-1909-124
	Remarks						

## Metals - Trace Constituents Multiple Units

Barium (DIS)	0.274
Barium (TRC)	
Beryllium (DIS)	<0.0008
Beryllium (TRC)	
Cadmium (DIS)	<0.00003
Cadmium (TRC)	
Chromium (DIS)	<0.01
Chromium (TRC)	
Cobalt (DIS)	<0.01
Cobalt (TRC)	
Copper (DIS)	<0.002
Copper (TRC)	
Iron (DIS)	0.21
Iron (TRC)	
Lead (DIS)	<0.0003
Lead (TRC)	
Manganese (DIS)	<0.005
Manganese (TRC)	
Mercury (DIS)	0.006
Mercury (TRC)	
Molybdenum (DIS)	<0.002
Molybdenum (TRC)	
Nickel (DIS)	0.002
Nickel (TRC)	
Selenium (DIS)	<0.0002
Selenium (TRC)	
Silver (DIS)	<0.0002
Silver (TRC)	
Strontium (DIS)	0.0306
Strontium (TRC)	
Thallium (DIS)	<0.0002
Thallium (TRC)	
Uranium (DIS)	<0.0002



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

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Sample Type:	Station (Site)	DS-2	DS-3	DS-4	DS-5	DS-6	DS-7
Water	Sample Date	9/25/2019	9/24/2019	9/24/2019	9/24/2019	9/24/2019	9/24/2019
	Sample Time	9:35:00 AM	1:00:00 PM	1:20:00 PM	11:50:00 AM	12:05:00 PM	2:05:00 PM
	Lab	Hydro	Energy Labs	Hydro	Hydro	Hydro	Hydro
	Lab Number	z H19090658-001	z	z	z	z	z
	Sample Number	BBC-1909-138	BBC-1909-120	BBC-1909-122	BBC-1909-117	BBC-1909-119	BBC-1909-124
	Remarks						

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## Metals - Trace Constituents Multiple Units

Uranium (TRC)	
Zinc (DIS)	<0.002
Zinc (TRC)	



# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	DS-8	DS-9	MW-10	MW-10	MW-11	MW-11
Water	Sample Date	9/24/2019	9/24/2019	9/16/2019	9/19/2019	9/16/2019	9/19/2019
	Sample Time	3:00:00 PM	3:24:00 PM	4:18:00 PM	11:30:00 AM	4:22:00 PM	11:00:00 AM
	Lab	Hydro	Hydro	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z	z	z	H19090556-007	z	H19090556-011
	Sample Number	BBC-1909-128	BBC-1909-129	BBC-1909-13	BBC-1909-210	BBC-1909-14	BBC-1909-214
	Remarks						

Field Parameters	Multiple Units						
Depth To Water				74.56	74.79	32.36	32.55
Dissolved Oxygen	10.15	8.94			7.71		9.31
EH					261.153		259.021
Field pH	7.89	7.98			7.75		7.7
Field Specific Conductivity	456	375			356		315
Flow							
Flow	3.77	4.75					
Staff Gauge							
Water Temperature	8.3	7.9			9.1		8.7

Physical Parameters	mg/L						
Total Dissolved Solids					197		177
Total Suspended Solids					<10		12

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3					190		170
Calcium (DIS)					42		43
Chloride					<1		<1
Fluoride					0.2		<0.1
Hardness as CaCO3					174		153
Magnesium (DIS)					17		11
Potassium (DIS)					2		2
Sodium (DIS)					6		4
Sulfate					4		5

Nutrients	mg/L						
Nitrate + Nitrite as N					0.57		0.4
Phosphorus (TOT)							
Total Nitrogen as N (Persulfate)							

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)					<0.009		<0.009
Antimony (DIS)					<0.0005		<0.0005
Antimony (TRC)							
Arsenic (DIS)					<0.001		<0.001
Arsenic (TRC)							



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.

# Analyses Summary Report

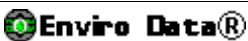
Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	DS-8	DS-9	MW-10	MW-10	MW-11	MW-11
Water	Sample Date	9/24/2019	9/24/2019	9/16/2019	9/19/2019	9/16/2019	9/19/2019
	Sample Time	3:00:00 PM	3:24:00 PM	4:18:00 PM	11:30:00 AM	4:22:00 PM	11:00:00 AM
	Lab	Hydro	Hydro	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z	z	z	H19090556-007	z	H19090556-011
	Sample Number	BBC-1909-128	BBC-1909-129	BBC-1909-13	BBC-1909-210	BBC-1909-14	BBC-1909-214
	Remarks						

## Metals - Trace Constituents Multiple Units

Barium (DIS)	0.204	0.155
Barium (TRC)		
Beryllium (DIS)	<0.0008	<0.0008
Beryllium (TRC)		
Cadmium (DIS)	<0.00003	<0.00003
Cadmium (TRC)		
Chromium (DIS)	<0.01	<0.01
Chromium (TRC)		
Cobalt (DIS)	<0.01	<0.01
Cobalt (TRC)		
Copper (DIS)	<0.002	<0.002
Copper (TRC)		
Iron (DIS)	<0.02	<0.02
Iron (TRC)		
Lead (DIS)	<0.0003	<0.0003
Lead (TRC)		
Manganese (DIS)	<0.005	<0.005
Manganese (TRC)		
Mercury (DIS)	<0.005	<0.005
Mercury (TRC)		
Molybdenum (DIS)	0.004	<0.002
Molybdenum (TRC)		
Nickel (DIS)	<0.001	<0.001
Nickel (TRC)		
Selenium (DIS)	<0.0002	<0.0002
Selenium (TRC)		
Silver (DIS)	<0.0002	<0.0002
Silver (TRC)		
Strontium (DIS)	0.886	0.322
Strontium (TRC)		
Thallium (DIS)	<0.0002	<0.0002
Thallium (TRC)		
Uranium (DIS)	0.0051	0.0015



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	DS-8	DS-9	MW-10	MW-10	MW-11	MW-11
Water	Sample Date	9/24/2019	9/24/2019	9/16/2019	9/19/2019	9/16/2019	9/19/2019
	Sample Time	3:00:00 PM	3:24:00 PM	4:18:00 PM	11:30:00 AM	4:22:00 PM	11:00:00 AM
	Lab	Hydro	Hydro	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z	z	z	H19090556-007	z	H19090556-011
	Sample Number	BBC-1909-128	BBC-1909-129	BBC-1909-13	BBC-1909-210	BBC-1909-14	BBC-1909-214
	Remarks						

## Metals - Trace Constituents Multiple Units

Uranium (TRC)		
Zinc (DIS)	<0.002	<0.002
Zinc (TRC)		

**NOTES:** All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

**DATA VALIDATION FLAGS---** **J:** The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S:** The associated numerical value is an estimated quantity because split quality control criteria were not met. **U:** Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R:** Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A:** Anomalous data. No apparent explanation for discrepancy in data. **D:** Reporting Limit increased due to sample matrix. **L:** Lowest available reporting limit for the analytical method used. **H:** Analysis performed past recommended holding time. **Z:** No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	MW-12	MW-12	MW-13	MW-13	MW-14	MW-15
Water	Sample Date	9/16/2019	9/19/2019	9/16/2019	9/19/2019	9/16/2019	9/16/2019
	Sample Time	4:28:00 PM	10:25:00 AM	4:30:00 PM	9:55:00 AM	6:20:00 PM	6:17:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Hydro
	Lab Number	z H19090556-010		z H19090556-009		z	z
	Sample Number	BBC-1909-15	BBC-1909-213	BBC-1909-16	BBC-1909-212	BBC-1909-17	BBC-1909-18
	Remarks						

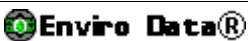
Field Parameters	Multiple Units						
Depth To Water	26.72	26.82	20.7	27.6	39.77	39.52	
Dissolved Oxygen		8.38		8.09			
EH		269.295		267.812			
Field pH		7.6		7.57			
Field Specific Conductivity		412		425			
Flow							
Flow							
Staff Gauge							
Water Temperature		6.5		6.4			

Physical Parameters	mg/L	
Total Dissolved Solids	220	231
Total Suspended Solids	<10	52

Major Constituents - Commons Ions	mg/L	
Alkalinity as CaCO3	220	220
Calcium (DIS)	56	58
Chloride	<1	<1
Fluoride	0.1	0.1
Hardness as CaCO3	217	225
Magnesium (DIS)	19	20
Potassium (DIS)	<1	<1
Sodium (DIS)	2	1
Sulfate	12	15

Nutrients	mg/L	
Nitrate + Nitrite as N	0.15	0.16
Phosphorus (TOT)		
Total Nitrogen as N (Persulfate)		

Metals - Trace Constituents	Multiple Units	
Aluminum (DIS)	<0.009	<0.009
Antimony (DIS)	<0.0005	<0.0005
Antimony (TRC)		
Arsenic (DIS)	<0.001	<0.001
Arsenic (TRC)		



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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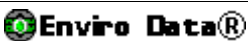
# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	MW-12	MW-12	MW-13	MW-13	MW-14	MW-15
Water	Sample Date	9/16/2019	9/19/2019	9/16/2019	9/19/2019	9/16/2019	9/16/2019
	Sample Time	4:28:00 PM	10:25:00 AM	4:30:00 PM	9:55:00 AM	6:20:00 PM	6:17:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Hydro
	Lab Number	z H19090556-010		z H19090556-009		z	z
	Sample Number	BBC-1909-15	BBC-1909-213	BBC-1909-16	BBC-1909-212	BBC-1909-17	BBC-1909-18
	Remarks						

Metals - Trace Constituents	Multiple Units	
Barium (DIS)	0.051	0.054
Barium (TRC)		
Beryllium (DIS)	<0.0008	<0.0008
Beryllium (TRC)		
Cadmium (DIS)	<0.00003	<0.00003
Cadmium (TRC)		
Chromium (DIS)	<0.01	<0.01
Chromium (TRC)		
Cobalt (DIS)	<0.01	<0.01
Cobalt (TRC)		
Copper (DIS)	<0.002	<0.002
Copper (TRC)		
Iron (DIS)	<0.02	<0.02
Iron (TRC)		
Lead (DIS)	<0.0003	<0.0003
Lead (TRC)		
Manganese (DIS)	<0.005	<0.005
Manganese (TRC)		
Mercury (DIS)	<0.005	<0.005
Mercury (TRC)		
Molybdenum (DIS)	<0.002	<0.002
Molybdenum (TRC)		
Nickel (DIS)	<0.001	<0.001
Nickel (TRC)		
Selenium (DIS)	<0.0002	<0.0002
Selenium (TRC)		
Silver (DIS)	<0.0002	<0.0002
Silver (TRC)		
Strontium (DIS)	0.135	0.0963
Strontium (TRC)		
Thallium (DIS)	<0.0002	<0.0002
Thallium (TRC)		
Uranium (DIS)	0.0007	0.0005



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	MW-12	MW-12	MW-13	MW-13	MW-14	MW-15
Water	Sample Date	9/16/2019	9/19/2019	9/16/2019	9/19/2019	9/16/2019	9/16/2019
	Sample Time	4:28:00 PM	10:25:00 AM	4:30:00 PM	9:55:00 AM	6:20:00 PM	6:17:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Hydro
	Lab Number	z H19090556-010		z H19090556-009		z	z
	Sample Number	BBC-1909-15	BBC-1909-213	BBC-1909-16	BBC-1909-212	BBC-1909-17	BBC-1909-18
	Remarks						

## Metals - Trace Constituents Multiple Units

Uranium (TRC)		
Zinc (DIS)	<0.002	<0.002
Zinc (TRC)		

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	MW-16	MW-16	MW-17	MW-17	MW-18	MW-18
Water	Sample Date	9/16/2019	9/20/2019	9/16/2019	9/19/2019	9/16/2019	9/19/2019
	Sample Time	2:42:00 PM	9:10:00 AM	5:37:00 PM	4:50:00 PM	4:10:00 PM	3:55:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z H19090556-021		z H19090556-018		z H19090556-017	
	Sample Number	BBC-1909-19	BBC-1909-224	BBC-1909-20	BBC-1909-221	BBC-1909-21	BBC-1909-220
	Remarks						

Field Parameters	Multiple Units						
Depth To Water	7.15	7.35	50.25	50.5	16.21	16.34	
Dissolved Oxygen		0.08		6.83		8.63	
EH		143.844		232.942		252.361	
Field pH		7.25		7.75		7.76	
Field Specific Conductivity		615		385		368	
Flow							
Flow							
Staff Gauge							
Water Temperature		6.8		7.4		6.7	

Physical Parameters	mg/L						
Total Dissolved Solids		372		213		200	
Total Suspended Solids		10		15		18	

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3		250		200		200	
Calcium (DIS)		70		42		47	
Chloride		2		1		<1	
Fluoride		0.5		0.3		<0.1	
Hardness as CaCO3		326		202		191	
Magnesium (DIS)		37		24		18	
Potassium (DIS)		3		<1		<1	
Sodium (DIS)		4		2		2	
Sulfate		95		8		7	

Nutrients	mg/L						
Nitrate + Nitrite as N		<0.01		0.41		0.17	
Phosphorus (TOT)							
Total Nitrogen as N (Persulfate)							

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)		<0.009		<0.009		<0.009	
Antimony (DIS)		<0.0005		<0.0005		<0.0005	
Antimony (TRC)							
Arsenic (DIS)		0.005		<0.001		<0.001	
Arsenic (TRC)							

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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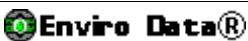
# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	MW-16	MW-16	MW-17	MW-17	MW-18	MW-18
Water	Sample Date	9/16/2019	9/20/2019	9/16/2019	9/19/2019	9/16/2019	9/19/2019
	Sample Time	2:42:00 PM	9:10:00 AM	5:37:00 PM	4:50:00 PM	4:10:00 PM	3:55:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z H19090556-021		z H19090556-018		z H19090556-017	
	Sample Number	BBC-1909-19	BBC-1909-224	BBC-1909-20	BBC-1909-221	BBC-1909-21	BBC-1909-220
	Remarks						

Metals - Trace Constituents	Multiple Units			
Barium (DIS)		0.017	0.267	0.098
Barium (TRC)				
Beryllium (DIS)		<0.0008	<0.0008	<0.0008
Beryllium (TRC)				
Cadmium (DIS)		<0.00003	<0.00003	<0.00003
Cadmium (TRC)				
Chromium (DIS)		<0.01	<0.01	<0.01
Chromium (TRC)				
Cobalt (DIS)		<0.01	<0.01	<0.01
Cobalt (TRC)				
Copper (DIS)		<0.002	<0.002	<0.002
Copper (TRC)				
Iron (DIS)		1.26	<0.02	<0.02
Iron (TRC)				
Lead (DIS)		<0.0003	<0.0003	<0.0003
Lead (TRC)				
Manganese (DIS)		0.039	<0.005	<0.005
Manganese (TRC)				
Mercury (DIS)		<0.005	<0.005	<0.005
Mercury (TRC)				
Molybdenum (DIS)		<0.002	<0.002	<0.002
Molybdenum (TRC)				
Nickel (DIS)		<0.001	<0.001	<0.001
Nickel (TRC)				
Selenium (DIS)		<0.0002	0.0008	0.0002
Selenium (TRC)				
Silver (DIS)		<0.0002	<0.0002	<0.0002
Silver (TRC)				
Strontium (DIS)		0.287	0.103	0.1
Strontium (TRC)				
Thallium (DIS)		<0.0002	<0.0002	<0.0002
Thallium (TRC)				
Uranium (DIS)		0.0017	0.0008	0.0004



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	MW-16	MW-16	MW-17	MW-17	MW-18	MW-18
Water	Sample Date	9/16/2019	9/20/2019	9/16/2019	9/19/2019	9/16/2019	9/19/2019
	Sample Time	2:42:00 PM	9:10:00 AM	5:37:00 PM	4:50:00 PM	4:10:00 PM	3:55:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z H19090556-021		z H19090556-018		z H19090556-017	
	Sample Number	BBC-1909-19	BBC-1909-224	BBC-1909-20	BBC-1909-221	BBC-1909-21	BBC-1909-220
	Remarks						

## Metals - Trace Constituents Multiple Units

Uranium (TRC)			
Zinc (DIS)	0.005	0.005	<0.002
Zinc (TRC)			

**NOTES:** All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:28 AM

Sample Type:	Station (Site)	MW-19	MW-19	MW-1A	MW-1A	MW-1B	MW-1B
Water	Sample Date	9/16/2019	9/19/2019	9/16/2019	9/18/2019	9/16/2019	9/18/2019
	Sample Time	4:34:00 PM	9:25:00 AM	12:38:00 PM	1:35:00 PM	12:38:00 PM	12:20:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z H19090556-008		z H19090556-003		z H19090556-002	
	Sample Number	BBC-1909-22	BBC-1909-211	BBC-1909-1	BBC-1909-206	BBC-1909-2	BBC-1909-205
	Remarks						

Field Parameters	Multiple Units						
Depth To Water	13.45	13.51	6.84	6.94	23.44	23.56	
Dissolved Oxygen		7.47		8.86		0.09	
EH		273.291		240.202		196.138	
Field pH		7.52		7.34		6.4	
Field Specific Conductivity		400		342		611	
Flow							
Flow							
Staff Gauge							
Water Temperature		7.7		9.4		8.6	

Physical Parameters	mg/L						
Total Dissolved Solids		217		205		429	
Total Suspended Solids		12		108		<10	

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3		210		170		110	
Calcium (DIS)		51		42		61	
Chloride		<1		1		3	
Fluoride		0.1		0.2		0.2	
Hardness as CaCO3		208		177		282	
Magnesium (DIS)		19		17		32	
Potassium (DIS)		<1		1		3	
Sodium (DIS)		2		2		3	
Sulfate		14		15		219	

Nutrients	mg/L						
Nitrate + Nitrite as N		0.23		0.44		0.06	
Phosphorus (TOT)							
Total Nitrogen as N (Persulfate)							

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)		<0.009		0.018		<0.009	
Antimony (DIS)		<0.0005		<0.0005		0.0009	
Antimony (TRC)							
Arsenic (DIS)		<0.001		<0.001		0.066	
Arsenic (TRC)							

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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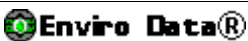
# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	MW-19	MW-19	MW-1A	MW-1A	MW-1B	MW-1B
Water	Sample Date	9/16/2019	9/19/2019	9/16/2019	9/18/2019	9/16/2019	9/18/2019
	Sample Time	4:34:00 PM	9:25:00 AM	12:38:00 PM	1:35:00 PM	12:38:00 PM	12:20:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z H19090556-008		z H19090556-003		z H19090556-002	
	Sample Number	BBC-1909-22	BBC-1909-211	BBC-1909-1	BBC-1909-206	BBC-1909-2	BBC-1909-205
	Remarks						

Metals - Trace Constituents	Multiple Units			
Barium (DIS)		0.086	0.169	0.011
Barium (TRC)				
Beryllium (DIS)		<0.0008	<0.0008	<0.0008
Beryllium (TRC)				
Cadmium (DIS)		<0.00003	<0.00003	<0.00003
Cadmium (TRC)				
Chromium (DIS)		<0.01	<0.01	<0.01
Chromium (TRC)				
Cobalt (DIS)		<0.01	<0.01	0.02
Cobalt (TRC)				
Copper (DIS)		<0.002	0.006	<0.002
Copper (TRC)				
Iron (DIS)		<0.02	<0.02	19
Iron (TRC)				
Lead (DIS)		<0.0003	0.0004	<0.0003
Lead (TRC)				
Manganese (DIS)		<0.005	<0.005	0.076
Manganese (TRC)				
Mercury (DIS)		<0.005	<0.005	<0.005
Mercury (TRC)				
Molybdenum (DIS)		<0.002	<0.002	<0.002
Molybdenum (TRC)				
Nickel (DIS)		<0.001	<0.001	0.01
Nickel (TRC)				
Selenium (DIS)		<0.0002	<0.0002	<0.0002
Selenium (TRC)				
Silver (DIS)		<0.0002	<0.0002	<0.0002
Silver (TRC)				
Strontium (DIS)		0.148	0.0944	1.77 L
Strontium (TRC)				
Thallium (DIS)		<0.0002	0.0009	0.0117
Thallium (TRC)				
Uranium (DIS)		0.0007	0.0009	<0.0002



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

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Sample Type:	Station (Site)	MW-19	MW-19	MW-1A	MW-1A	MW-1B	MW-1B
Water	Sample Date	9/16/2019	9/19/2019	9/16/2019	9/18/2019	9/16/2019	9/18/2019
	Sample Time	4:34:00 PM	9:25:00 AM	12:38:00 PM	1:35:00 PM	12:38:00 PM	12:20:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z H19090556-008		z H19090556-003		z H19090556-002	
	Sample Number	BBC-1909-22	BBC-1909-211	BBC-1909-1	BBC-1909-206	BBC-1909-2	BBC-1909-205
	Remarks						

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## Metals - Trace Constituents Multiple Units

Uranium (TRC)			
Zinc (DIS)	<0.002	<0.002	0.012
Zinc (TRC)			

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	MW-20	MW-20	MW-2A	MW-2A	MW-2B	MW-2B
Water	Sample Date	9/16/2019	9/19/2019	9/16/2019	9/18/2019	9/16/2019	9/18/2019
	Sample Time	5:42:00 PM	12:15:00 PM	12:40:00 PM	6:00:00 PM	12:40:00 PM	6:30:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z H19090556-012		z H19090556-005		z H19090556-006	
	Sample Number	BBC-1909-23	BBC-1909-215	BBC-1909-3	BBC-1909-208	BBC-1909-4	BBC-1909-209
	Remarks						

Field Parameters	Multiple Units						
Depth To Water	21.49	21.5	41.85	41.85	41.82	41.82	
Dissolved Oxygen		9.12		7.74		0.38	
EH		255.44		241.757		238.14	
Field pH		7.74		7.47		7.31	
Field Specific Conductivity		392		385		419	
Flow							
Flow							
Staff Gauge							
Water Temperature		8		7.9		8	

Physical Parameters	mg/L						
Total Dissolved Solids		216		210		232	
Total Suspended Solids		77		<10		<10	

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3		210		190		200	
Calcium (DIS)		46		42		47	
Chloride		<1		1		1	
Fluoride		<0.1		0.3		0.3	
Hardness as CaCO3		207		198		222	
Magnesium (DIS)		22		22		25	
Potassium (DIS)		1		1		1	
Sodium (DIS)		1		2		3	
Sulfate		8		20		34	

Nutrients	mg/L						
Nitrate + Nitrite as N		0.33		0.23		<0.01	
Phosphorus (TOT)							
Total Nitrogen as N (Persulfate)							

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)		<0.009		<0.009		<0.009	
Antimony (DIS)		<0.0005		<0.0005		<0.0005	
Antimony (TRC)							
Arsenic (DIS)		<0.001		<0.001		0.003	
Arsenic (TRC)							

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS-- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	MW-20	MW-20	MW-2A	MW-2A	MW-2B	MW-2B
Water	Sample Date	9/16/2019	9/19/2019	9/16/2019	9/18/2019	9/16/2019	9/18/2019
	Sample Time	5:42:00 PM	12:15:00 PM	12:40:00 PM	6:00:00 PM	12:40:00 PM	6:30:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z H19090556-012		z H19090556-005		z H19090556-006	
	Sample Number	BBC-1909-23	BBC-1909-215	BBC-1909-3	BBC-1909-208	BBC-1909-4	BBC-1909-209
	Remarks						

Metals - Trace Constituents	Multiple Units			
Barium (DIS)		0.188	0.083	0.041
Barium (TRC)				
Beryllium (DIS)		<0.0008	<0.0008	<0.0008
Beryllium (TRC)				
Cadmium (DIS)		<0.00003	<0.00003	<0.00003
Cadmium (TRC)				
Chromium (DIS)		<0.01	<0.01	<0.01
Chromium (TRC)				
Cobalt (DIS)		<0.01	<0.01	<0.01
Cobalt (TRC)				
Copper (DIS)		<0.002	<0.002	<0.002
Copper (TRC)				
Iron (DIS)		<0.02	<0.02	<0.02
Iron (TRC)				
Lead (DIS)		<0.0003	<0.0003	<0.0003
Lead (TRC)				
Manganese (DIS)		<0.005	<0.005	0.005
Manganese (TRC)				
Mercury (DIS)		<0.005	<0.005	<0.005
Mercury (TRC)				
Molybdenum (DIS)		<0.002	<0.002	<0.002
Molybdenum (TRC)				
Nickel (DIS)		<0.001	<0.001	<0.001
Nickel (TRC)				
Selenium (DIS)		0.0002	0.0008	0.005
Selenium (TRC)				
Silver (DIS)		<0.0002	<0.0002	<0.0002
Silver (TRC)				
Strontium (DIS)		0.0677	0.0884	0.0862
Strontium (TRC)				
Thallium (DIS)		<0.0002	<0.0002	0.0034
Thallium (TRC)				
Uranium (DIS)		0.0005	0.0005	0.0021

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	MW-20	MW-20	MW-2A	MW-2A	MW-2B	MW-2B
Water	Sample Date	9/16/2019	9/19/2019	9/16/2019	9/18/2019	9/16/2019	9/18/2019
	Sample Time	5:42:00 PM	12:15:00 PM	12:40:00 PM	6:00:00 PM	12:40:00 PM	6:30:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z H19090556-012		z H19090556-005		z H19090556-006	
	Sample Number	BBC-1909-23	BBC-1909-215	BBC-1909-3	BBC-1909-208	BBC-1909-4	BBC-1909-209
	Remarks						

## Metals - Trace Constituents Multiple Units

Uranium (TRC)			
Zinc (DIS)	<0.002	<0.002	<0.002
Zinc (TRC)			

**NOTES:** All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

**DATA VALIDATION FLAGS---** **J:** The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S:** The associated numerical value is an estimated quantity because split quality control criteria were not met. **U:** Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R:** Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A:** Anomalous data. No apparent explanation for discrepancy in data. **D:** Reporting Limit increased due to sample matrix. **L:** Lowest available reporting limit for the analytical method used. **H:** Analysis performed past recommended holding time. **Z:** No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	MW-3	MW-3	MW-3	MW-4A	MW-4A	MW-4B
Water	Sample Date	9/16/2019	9/19/2019	9/19/2019	9/16/2019	9/20/2019	9/16/2019
	Sample Time	12:50:00 PM	6:25:00 PM	7:00:00 PM	2:58:00 PM	9:55:00 AM	2:58:00 PM
	Lab	Hydro	Energy Labs	Energy Labs	Hydro	Energy Labs	Hydro
	Lab Number	z H19090556-019	H19090556-020		z H19090556-022		z
	Sample Number	BBC-1909-5	BBC-1909-222	BBC-1909-223	BBC-1909-6	BBC-1909-225	BBC-1909-7
	Remarks						

Field Parameters	Multiple Units						
Depth To Water	38.99	39.5	39.5	3.61	4.43	3.62	
Dissolved Oxygen		0.07	0.07		0.17		
EH		159.234	159.234		213.436		
Field pH		7.15	7.15		7.19		
Field Specific Conductivity		788	788		569		
Flow							
Flow							
Staff Gauge							
Water Temperature		9.8	9.8		9.2		

Physical Parameters	mg/L						
Total Dissolved Solids		548	549		328		
Total Suspended Solids		<10	<10		<10		

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3		220	220		300		
Calcium (DIS)		72	72		84		
Chloride		1	1		5		
Fluoride		0.7	0.7		0.1		
Hardness as CaCO3		379	381		301		
Magnesium (DIS)		48	49		22		
Potassium (DIS)		3	3		2		
Sodium (DIS)		15	15		3		
Sulfate		218	218		15		

Nutrients	mg/L						
Nitrate + Nitrite as N		<0.01	<0.01		<0.01		
Phosphorus (TOT)							
Total Nitrogen as N (Persulfate)							

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)		<0.009	<0.009		<0.009		
Antimony (DIS)		<0.0005	<0.0005		<0.0005		
Antimony (TRC)							
Arsenic (DIS)		0.064	0.065		<0.001		
Arsenic (TRC)							

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.



# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	MW-3	MW-3	MW-3	MW-4A	MW-4A	MW-4B
Water	Sample Date	9/16/2019	9/19/2019	9/19/2019	9/16/2019	9/20/2019	9/16/2019
	Sample Time	12:50:00 PM	6:25:00 PM	7:00:00 PM	2:58:00 PM	9:55:00 AM	2:58:00 PM
	Lab	Hydro	Energy Labs	Energy Labs	Hydro	Energy Labs	Hydro
	Lab Number	z H19090556-019	H19090556-020		z H19090556-022		z
	Sample Number	BBC-1909-5	BBC-1909-222	BBC-1909-223	BBC-1909-6	BBC-1909-225	BBC-1909-7
	Remarks						

Metals - Trace Constituents	Multiple Units		
Barium (DIS)	0.011	0.011	0.21
Barium (TRC)			
Beryllium (DIS)	<0.0008	<0.0008	<0.0008
Beryllium (TRC)			
Cadmium (DIS)	<0.00003	<0.00003	<0.00003
Cadmium (TRC)			
Chromium (DIS)	<0.01	<0.01	<0.01
Chromium (TRC)			
Cobalt (DIS)	<0.01	<0.01	<0.01
Cobalt (TRC)			
Copper (DIS)	<0.002	<0.002	<0.002
Copper (TRC)			
Iron (DIS)	0.99	1	0.08
Iron (TRC)			
Lead (DIS)	<0.0003	<0.0003	<0.0003
Lead (TRC)			
Manganese (DIS)	0.014	0.014	0.386
Manganese (TRC)			
Mercury (DIS)	<0.005	<0.005	<0.005
Mercury (TRC)			
Molybdenum (DIS)	<0.002	<0.002	<0.002
Molybdenum (TRC)			
Nickel (DIS)	<0.001	<0.001	0.001
Nickel (TRC)			
Selenium (DIS)	<0.0002	<0.0002	<0.0002
Selenium (TRC)			
Silver (DIS)	<0.0002	<0.0002	<0.0002
Silver (TRC)			
Strontium (DIS)	13.3 L	13.3 L	0.187
Strontium (TRC)			
Thallium (DIS)	0.0003	0.0003	<0.0002
Thallium (TRC)			
Uranium (DIS)	0.001	0.001	0.0004

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	MW-3	MW-3	MW-3	MW-4A	MW-4A	MW-4B
Water	Sample Date	9/16/2019	9/19/2019	9/19/2019	9/16/2019	9/20/2019	9/16/2019
	Sample Time	12:50:00 PM	6:25:00 PM	7:00:00 PM	2:58:00 PM	9:55:00 AM	2:58:00 PM
	Lab	Hydro	Energy Labs	Energy Labs	Hydro	Energy Labs	Hydro
	Lab Number	z H19090556-019	H19090556-020		z H19090556-022		z
	Sample Number	BBC-1909-5	BBC-1909-222	BBC-1909-223	BBC-1909-6	BBC-1909-225	BBC-1909-7
	Remarks						

## Metals - Trace Constituents Multiple Units

Uranium (TRC)			
Zinc (DIS)	<0.002	<0.002	<0.002
Zinc (TRC)			

**NOTES:** All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

**DATA VALIDATION FLAGS---** **J:** The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S:** The associated numerical value is an estimated quantity because split quality control criteria were not met. **U:** Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R:** Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A:** Anomalous data. No apparent explanation for discrepancy in data. **D:** Reporting Limit increased due to sample matrix. **L:** Lowest available reporting limit for the analytical method used. **H:** Analysis performed past recommended holding time. **Z:** No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	MW-4B	MW-6A	MW-6A	MW-6B	MW-6B	MW-7
Water	Sample Date	9/20/2019	9/16/2019	9/19/2019	9/16/2019	9/19/2019	9/16/2019
	Sample Time	10:25:00 AM	5:49:00 PM	12:55:00 PM	5:48:00 PM	1:30:00 PM	5:46:00 PM
	Lab	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro
	Lab Number	H19090556-023	z	H19090556-013	z	H19090556-014	z
	Sample Number	BBC-1909-226	BBC-1909-8	BBC-1909-216	BBC-1909-9	BBC-1909-217	BBC-1909-10
	Remarks						

Field Parameters	Multiple Units						
Depth To Water	4.05	8.44	8.45	11.6	11.7	32.03	
Dissolved Oxygen	0.08		7.13		3.66		
EH	198.961		267.768		256.493		
Field pH	7.56		7.66		7.7		
Field Specific Conductivity	449		437		454		
Flow							
Flow							
Staff Gauge							
Water Temperature	6.7		9.6		7.1		

Physical Parameters	mg/L						
Total Dissolved Solids	250		244		252		
Total Suspended Solids	<10		28		<10		

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3	230		230		230		
Calcium (DIS)	61		53		47		
Chloride	2		1		<1		
Fluoride	0.1		0.2		0.5		
Hardness as CaCO3	232		229		210		
Magnesium (DIS)	19		23		23		
Potassium (DIS)	1		<1		1		
Sodium (DIS)	2		3		15		
Sulfate	15		15		23		

Nutrients	mg/L						
Nitrate + Nitrite as N	0.04		0.14		0.09		
Phosphorus (TOT)							
Total Nitrogen as N (Persulfate)							

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)	<0.009		<0.009		<0.009		
Antimony (DIS)	<0.0005		<0.0005		<0.0005		
Antimony (TRC)							
Arsenic (DIS)	<0.001		<0.001		<0.001		
Arsenic (TRC)							

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	MW-4B	MW-6A	MW-6A	MW-6B	MW-6B	MW-7
Water	Sample Date	9/20/2019	9/16/2019	9/19/2019	9/16/2019	9/19/2019	9/16/2019
	Sample Time	10:25:00 AM	5:49:00 PM	12:55:00 PM	5:48:00 PM	1:30:00 PM	5:46:00 PM
	Lab	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro
	Lab Number	H19090556-023	z	H19090556-013	z	H19090556-014	z
	Sample Number	BBC-1909-226	BBC-1909-8	BBC-1909-216	BBC-1909-9	BBC-1909-217	BBC-1909-10
	Remarks						

Metals - Trace Constituents	Multiple Units		
Barium (DIS)	0.125	0.175	0.104
Barium (TRC)			
Beryllium (DIS)	<0.0008	<0.0008	<0.0008
Beryllium (TRC)			
Cadmium (DIS)	<0.00003	<0.00003	<0.00003
Cadmium (TRC)			
Chromium (DIS)	<0.01	<0.01	<0.01
Chromium (TRC)			
Cobalt (DIS)	<0.01	<0.01	<0.01
Cobalt (TRC)			
Copper (DIS)	<0.002	<0.002	<0.002
Copper (TRC)			
Iron (DIS)	<0.02	<0.02	<0.02
Iron (TRC)			
Lead (DIS)	<0.0003	<0.0003	<0.0003
Lead (TRC)			
Manganese (DIS)	<0.005	<0.005	<0.005
Manganese (TRC)			
Mercury (DIS)	<0.005	<0.005	<0.005
Mercury (TRC)			
Molybdenum (DIS)	<0.002	<0.002	<0.002
Molybdenum (TRC)			
Nickel (DIS)	<0.001	<0.001	<0.001
Nickel (TRC)			
Selenium (DIS)	<0.0002	<0.0002	<0.0002
Selenium (TRC)			
Silver (DIS)	<0.0002	<0.0002	<0.0002
Silver (TRC)			
Strontium (DIS)	0.164	0.155	0.225
Strontium (TRC)			
Thallium (DIS)	<0.0002	<0.0002	<0.0002
Thallium (TRC)			
Uranium (DIS)	0.0006	0.0007	0.0006

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	MW-4B	MW-6A	MW-6A	MW-6B	MW-6B	MW-7
Water	Sample Date	9/20/2019	9/16/2019	9/19/2019	9/16/2019	9/19/2019	9/16/2019
	Sample Time	10:25:00 AM	5:49:00 PM	12:55:00 PM	5:48:00 PM	1:30:00 PM	5:46:00 PM
	Lab	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro
	Lab Number	H19090556-023	z	H19090556-013	z	H19090556-014	z
	Sample Number	BBC-1909-226	BBC-1909-8	BBC-1909-216	BBC-1909-9	BBC-1909-217	BBC-1909-10
	Remarks						

## Metals - Trace Constituents Multiple Units

Uranium (TRC)			
Zinc (DIS)	<0.002	<0.002	<0.002
Zinc (TRC)			

**NOTES:** All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

**DATA VALIDATION FLAGS---** **J:** The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S:** The associated numerical value is an estimated quantity because split quality control criteria were not met. **U:** Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R:** Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A:** Anomalous data. No apparent explanation for discrepancy in data. **D:** Reporting Limit increased due to sample matrix. **L:** Lowest available reporting limit for the analytical method used. **H:** Analysis performed past recommended holding time. **Z:** No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	MW-7	MW-8	MW-8	MW-9	MW-9	PW-1
Water	Sample Date	9/19/2019	9/16/2019	9/19/2019	9/16/2019	9/20/2019	9/16/2019
	Sample Time	3:20:00 PM	5:55:00 PM	3:00:00 PM	12:20:00 PM	12:40:00 PM	12:25:00 PM
	Lab	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro
	Lab Number	H19090556-015	z	H19090556-016	z	H19090556-024	z
	Sample Number	BBC-1909-218	BBC-1909-11	BBC-1909-219	BBC-1909-12	BBC-1909-227	BBC-1909-29
	Remarks						

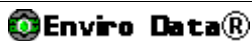
Field Parameters	Multiple Units						
Depth To Water	32.06	30.14	30.21	51.08	51.26	100.53	
Dissolved Oxygen	4		0.08		0.06		
EH	190.417		102.608		173.536		
Field pH	7.75		7.98		7.03		
Field Specific Conductivity	526		308		791		
Flow							
Flow							
Staff Gauge							
Water Temperature	9.9		7.6		9.2		

Physical Parameters	mg/L						
Total Dissolved Solids	327		162		529		
Total Suspended Solids	100		<10		<10		

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3	230		150		250		
Calcium (DIS)	57		25		82		
Chloride	4		<1		1		
Fluoride	0.3		0.2		0.5		
Hardness as CaCO3	291		156		405		
Magnesium (DIS)	36		23		49		
Potassium (DIS)	1		<1		4		
Sodium (DIS)	3		3		5		
Sulfate	70		15		195		

Nutrients	mg/L						
Nitrate + Nitrite as N	<0.01		<0.01		<0.01		
Phosphorus (TOT)							
Total Nitrogen as N (Persulfate)							

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)	0.037		<0.009		<0.009		
Antimony (DIS)	<0.0005		<0.0005		<0.0005		
Antimony (TRC)							
Arsenic (DIS)	0.001		0.002		0.012		
Arsenic (TRC)							



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	MW-7	MW-8	MW-8	MW-9	MW-9	PW-1
Water	Sample Date	9/19/2019	9/16/2019	9/19/2019	9/16/2019	9/20/2019	9/16/2019
	Sample Time	3:20:00 PM	5:55:00 PM	3:00:00 PM	12:20:00 PM	12:40:00 PM	12:25:00 PM
	Lab	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro
	Lab Number	H19090556-015	z	H19090556-016	z	H19090556-024	z
	Sample Number	BBC-1909-218	BBC-1909-11	BBC-1909-219	BBC-1909-12	BBC-1909-227	BBC-1909-29
	Remarks						

Metals - Trace Constituents	Multiple Units		
Barium (DIS)	0.04	0.076	0.014
Barium (TRC)			
Beryllium (DIS)	<0.0008	<0.0008	<0.0008
Beryllium (TRC)			
Cadmium (DIS)	<0.00003	<0.00003	<0.00003
Cadmium (TRC)			
Chromium (DIS)	<0.01	<0.01	<0.01
Chromium (TRC)			
Cobalt (DIS)	<0.01	<0.01	<0.01
Cobalt (TRC)			
Copper (DIS)	<0.002	<0.002	<0.002
Copper (TRC)			
Iron (DIS)	0.1	0.09	0.85
Iron (TRC)			
Lead (DIS)	0.0014	<0.0003	0.0008
Lead (TRC)			
Manganese (DIS)	0.015	0.009	0.083
Manganese (TRC)			
Mercury (DIS)	<0.005	<0.005	<0.005
Mercury (TRC)			
Molybdenum (DIS)	0.003	<0.002	<0.002
Molybdenum (TRC)			
Nickel (DIS)	0.001	<0.001	<0.001
Nickel (TRC)			
Selenium (DIS)	<0.0002	<0.0002	<0.0002
Selenium (TRC)			
Silver (DIS)	<0.0002	<0.0002	<0.0002
Silver (TRC)			
Strontium (DIS)	0.158	0.0832	1.22 L
Strontium (TRC)			
Thallium (DIS)	<0.0002	<0.0002	0.0032
Thallium (TRC)			
Uranium (DIS)	0.002	0.0007	0.0009

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	MW-7	MW-8	MW-8	MW-9	MW-9	PW-1
Water	Sample Date	9/19/2019	9/16/2019	9/19/2019	9/16/2019	9/20/2019	9/16/2019
	Sample Time	3:20:00 PM	5:55:00 PM	3:00:00 PM	12:20:00 PM	12:40:00 PM	12:25:00 PM
	Lab	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs	Hydro
	Lab Number	H19090556-015	z	H19090556-016	z	H19090556-024	z
	Sample Number	BBC-1909-218	BBC-1909-11	BBC-1909-219	BBC-1909-12	BBC-1909-227	BBC-1909-29
	Remarks						

## Metals - Trace Constituents Multiple Units

Uranium (TRC)			
Zinc (DIS)	<0.002	<0.002	<0.002
Zinc (TRC)			

**NOTES:** All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

**DATA VALIDATION FLAGS---** **J:** The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S:** The associated numerical value is an estimated quantity because split quality control criteria were not met. **U:** Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R:** Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A:** Anomalous data. No apparent explanation for discrepancy in data. **D:** Reporting Limit increased due to sample matrix. **L:** Lowest available reporting limit for the analytical method used. **H:** Analysis performed past recommended holding time. **Z:** No validation Flag.



# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	PW-10	PW-10	PW-2	PW-2	PW-3	PW-3
Water	Sample Date	9/16/2019	9/17/2019	9/16/2019	9/16/2019	9/16/2019	9/18/2019
	Sample Time	12:51:00 PM	12:05:00 PM	1:04:00 PM	4:40:00 PM	12:30:00 PM	4:25:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z H19090441-002		z H19090441-001		z H19090556-004	
	Sample Number	BBC-1909-38	BBC-1909-201	BBC-1909-30	BBC-1909-200	BBC-1909-31	BBC-1909-207
	Remarks						

Field Parameters	Multiple Units						
Depth To Water	44.84	44.86	51	51	11.15	11.2	
Dissolved Oxygen		2.36		0.05		0.03	
EH		172.736		94.553		91.276	
Field pH		7.45		7.4		7.29	
Field Specific Conductivity		759		538		754	
Flow							
Flow							
Staff Gauge							
Water Temperature		9.2		9.1		7.2	

Physical Parameters	mg/L						
Total Dissolved Solids		522		315		480	
Total Suspended Solids		<10		<10		10	

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3		220		250		270	
Calcium (DIS)		75		58		84	
Chloride		<1		1		1	
Fluoride		0.8		0.8		0.4	
Hardness as CaCO3		386		291		398	
Magnesium (DIS)		48		36		46	
Potassium (DIS)		5		5		4	
Sodium (DIS)		11		3		5	
Sulfate		190		51		151	

Nutrients	mg/L						
Nitrate + Nitrite as N		<0.01		0.01		0.03	
Phosphorus (TOT)							
Total Nitrogen as N (Persulfate)							

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)		<0.009		<0.009		<0.009	
Antimony (DIS)		<0.0005		<0.0005		<0.0005	
Antimony (TRC)							
Arsenic (DIS)		0.063		0.005		0.006	
Arsenic (TRC)							

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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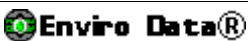
# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	PW-10	PW-10	PW-2	PW-2	PW-3	PW-3
Water	Sample Date	9/16/2019	9/17/2019	9/16/2019	9/16/2019	9/16/2019	9/18/2019
	Sample Time	12:51:00 PM	12:05:00 PM	1:04:00 PM	4:40:00 PM	12:30:00 PM	4:25:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z H19090441-002		z H19090441-001		z H19090556-004	
	Sample Number	BBC-1909-38	BBC-1909-201	BBC-1909-30	BBC-1909-200	BBC-1909-31	BBC-1909-207
	Remarks						

Metals - Trace Constituents	Multiple Units		
Barium (DIS)	0.033	0.034	0.011
Barium (TRC)			
Beryllium (DIS)	<0.0008	<0.0008	<0.0008
Beryllium (TRC)			
Cadmium (DIS)	<0.00003	<0.00003	<0.00003
Cadmium (TRC)			
Chromium (DIS)	<0.01	<0.01	<0.01
Chromium (TRC)			
Cobalt (DIS)	<0.01	<0.01	<0.01
Cobalt (TRC)			
Copper (DIS)	<0.002	<0.002	<0.002
Copper (TRC)			
Iron (DIS)	0.41	3.36	5.46
Iron (TRC)			
Lead (DIS)	<0.0003	<0.0003	<0.0003
Lead (TRC)			
Manganese (DIS)	0.109	0.061	0.045
Manganese (TRC)			
Mercury (DIS)	<0.005	<0.005	<0.005
Mercury (TRC)			
Molybdenum (DIS)	<0.002	<0.002	<0.002
Molybdenum (TRC)			
Nickel (DIS)	<0.001	<0.001	<0.001
Nickel (TRC)			
Selenium (DIS)	<0.0002	<0.0002	<0.0002
Selenium (TRC)			
Silver (DIS)	<0.0002	<0.0002	<0.0002
Silver (TRC)			
Strontium (DIS)	12.6 L	0.0865	0.313
Strontium (TRC)			
Thallium (DIS)	<0.0002	<0.0002	<0.0002
Thallium (TRC)			
Uranium (DIS)	0.0008	0.0003	0.0011



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	PW-10	PW-10	PW-2	PW-2	PW-3	PW-3
Water	Sample Date	9/16/2019	9/17/2019	9/16/2019	9/16/2019	9/16/2019	9/18/2019
	Sample Time	12:51:00 PM	12:05:00 PM	1:04:00 PM	4:40:00 PM	12:30:00 PM	4:25:00 PM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	z H19090441-002		z H19090441-001		z H19090556-004	
	Sample Number	BBC-1909-38	BBC-1909-201	BBC-1909-30	BBC-1909-200	BBC-1909-31	BBC-1909-207
	Remarks						

## Metals - Trace Constituents Multiple Units

Uranium (TRC)			
Zinc (DIS)	0.003	<0.002	<0.002
Zinc (TRC)			

**NOTES:** All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

**DATA VALIDATION FLAGS---** **J:** The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S:** The associated numerical value is an estimated quantity because split quality control criteria were not met. **U:** Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R:** Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A:** Anomalous data. No apparent explanation for discrepancy in data. **D:** Reporting Limit increased due to sample matrix. **L:** Lowest available reporting limit for the analytical method used. **H:** Analysis performed past recommended holding time. **Z:** No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	PW-4	PW-4	PW-5	PW-6N	PW-7	PW-8
Water	Sample Date	9/16/2019	9/18/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019
	Sample Time	12:42:00 PM	1:10:00 PM	1:05:00 PM	12:55:00 PM	3:00:00 PM	12:43:00 PM
	Lab	Hydro	Energy Labs	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	H19090556-001	z	z	z	z
	Sample Number	BBC-1909-32	BBC-1909-204	BBC-1909-33	BBC-1909-34	BBC-1909-35	BBC-1909-36
	Remarks						

Field Parameters	Multiple Units						
Depth To Water	52.4	52.48	315.35	305.79	Shut in	43.54	
Dissolved Oxygen		1.66					
EH		125.97					
Field pH		6.95					
Field Specific Conductivity		654					
Flow							
Flow							
Staff Gauge							
Water Temperature		9					

Physical Parameters	mg/L						
Total Dissolved Solids		436					
Total Suspended Solids		25					

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3		170					
Calcium (DIS)		70					
Chloride		1					
Fluoride		0.3					
Hardness as CaCO3		320					
Magnesium (DIS)		35					
Potassium (DIS)		2					
Sodium (DIS)		4					
Sulfate		176					

Nutrients	mg/L						
Nitrate + Nitrite as N		0.04					
Phosphorus (TOT)							
Total Nitrogen as N (Persulfate)							

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)		<0.009					
Antimony (DIS)		<0.0005					
Antimony (TRC)							
Arsenic (DIS)		0.063					
Arsenic (TRC)							

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	PW-4	PW-4	PW-5	PW-6N	PW-7	PW-8
Water	Sample Date	9/16/2019	9/18/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019
	Sample Time	12:42:00 PM	1:10:00 PM	1:05:00 PM	12:55:00 PM	3:00:00 PM	12:43:00 PM
	Lab	Hydro	Energy Labs	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	H19090556-001	z	z	z	z
	Sample Number	BBC-1909-32	BBC-1909-204	BBC-1909-33	BBC-1909-34	BBC-1909-35	BBC-1909-36
	Remarks						

## Metals - Trace Constituents Multiple Units

Barium (DIS)	0.048
Barium (TRC)	
Beryllium (DIS)	<0.0008
Beryllium (TRC)	
Cadmium (DIS)	<0.00003
Cadmium (TRC)	
Chromium (DIS)	<0.01
Chromium (TRC)	
Cobalt (DIS)	<0.01
Cobalt (TRC)	
Copper (DIS)	<0.002
Copper (TRC)	
Iron (DIS)	10.5
Iron (TRC)	
Lead (DIS)	<0.0003
Lead (TRC)	
Manganese (DIS)	0.137
Manganese (TRC)	
Mercury (DIS)	<0.005
Mercury (TRC)	
Molybdenum (DIS)	<0.002
Molybdenum (TRC)	
Nickel (DIS)	0.005
Nickel (TRC)	
Selenium (DIS)	<0.0002
Selenium (TRC)	
Silver (DIS)	<0.0002
Silver (TRC)	
Strontium (DIS)	9.88 L
Strontium (TRC)	
Thallium (DIS)	0.0005
Thallium (TRC)	
Uranium (DIS)	0.0011

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	PW-4	PW-4	PW-5	PW-6N	PW-7	PW-8
Water	Sample Date	9/16/2019	9/18/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019
	Sample Time	12:42:00 PM	1:10:00 PM	1:05:00 PM	12:55:00 PM	3:00:00 PM	12:43:00 PM
	Lab	Hydro	Energy Labs	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	H19090556-001	z	z	z	z
	Sample Number	BBC-1909-32	BBC-1909-204	BBC-1909-33	BBC-1909-34	BBC-1909-35	BBC-1909-36
	Remarks						

## Metals - Trace Constituents Multiple Units

Uranium (TRC)	
Zinc (DIS)	0.007
Zinc (TRC)	

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	PW-8	PW-9	PW-9	PZ-01	PZ-02	PZ-03
Water	Sample Date	9/17/2019	9/16/2019	9/17/2019	9/16/2019	9/16/2019	9/16/2019
	Sample Time	5:55:00 PM	12:52:00 PM	4:05:00 PM	3:30:00 PM	3:26:00 PM	3:15:00 PM
	Lab	Energy Labs	Hydro	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	H19090441-004	z	H19090441-003	z	z	z
	Sample Number	BBC-1909-203	BBC-1909-37	BBC-1909-202	BBC-1909-39	BBC-1909-40	BBC-1909-41
	Remarks						

Field Parameters	Multiple Units						
Depth To Water	43.62	46.88	47.02	2.91	3.13	4.2	
Dissolved Oxygen	0.02		0.03				
EH	170.857		166.755				
Field pH	7.21		7.05				
Field Specific Conductivity	530		824				
Flow							
Flow							
Staff Gauge							
Water Temperature	7.9		8.5				

Physical Parameters	mg/L	
Total Dissolved Solids	336	584
Total Suspended Solids	<10	<10

Major Constituents - Commons Ions	mg/L	
Alkalinity as CaCO3	190	210
Calcium (DIS)	62	82
Chloride	<1	1
Fluoride	0.4	0.6
Hardness as CaCO3	282	428
Magnesium (DIS)	31	54
Potassium (DIS)	2	3
Sodium (DIS)	3	13
Sulfate	91	227

Nutrients	mg/L	
Nitrate + Nitrite as N	<0.01	<0.01
Phosphorus (TOT)		
Total Nitrogen as N (Persulfate)		

Metals - Trace Constituents	Multiple Units	
Aluminum (DIS)	<0.009	<0.009
Antimony (DIS)	0.0008	<0.0005
Antimony (TRC)		
Arsenic (DIS)	0.012	0.085
Arsenic (TRC)		

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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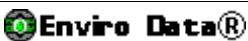
# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	PW-8	PW-9	PW-9	PZ-01	PZ-02	PZ-03
Water	Sample Date	9/17/2019	9/16/2019	9/17/2019	9/16/2019	9/16/2019	9/16/2019
	Sample Time	5:55:00 PM	12:52:00 PM	4:05:00 PM	3:30:00 PM	3:26:00 PM	3:15:00 PM
	Lab	Energy Labs	Hydro	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	H19090441-004	z	H19090441-003	z	z	z
	Sample Number	BBC-1909-203	BBC-1909-37	BBC-1909-202	BBC-1909-39	BBC-1909-40	BBC-1909-41
	Remarks						

Metals - Trace Constituents	Multiple Units	
Barium (DIS)	0.037	0.012
Barium (TRC)		
Beryllium (DIS)	<0.0008	<0.0008
Beryllium (TRC)		
Cadmium (DIS)	<0.00003	<0.00003
Cadmium (TRC)		
Chromium (DIS)	<0.01	<0.01
Chromium (TRC)		
Cobalt (DIS)	<0.01	<0.01
Cobalt (TRC)		
Copper (DIS)	<0.002	<0.002
Copper (TRC)		
Iron (DIS)	0.88	2.13
Iron (TRC)		
Lead (DIS)	0.0079	<0.0003
Lead (TRC)		
Manganese (DIS)	0.096	0.032
Manganese (TRC)		
Mercury (DIS)	<0.005	<0.005
Mercury (TRC)		
Molybdenum (DIS)	<0.002	<0.002
Molybdenum (TRC)		
Nickel (DIS)	<0.001	<0.001
Nickel (TRC)		
Selenium (DIS)	<0.0002	<0.0002
Selenium (TRC)		
Silver (DIS)	<0.0002	<0.0002
Silver (TRC)		
Strontium (DIS)	0.699 L	9.08 L
Strontium (TRC)		
Thallium (DIS)	0.0025	0.0008
Thallium (TRC)		
Uranium (DIS)	0.001	0.0014



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.



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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

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Sample Type:	Station (Site)	PW-8	PW-9	PW-9	PZ-01	PZ-02	PZ-03
Water	Sample Date	9/17/2019	9/16/2019	9/17/2019	9/16/2019	9/16/2019	9/16/2019
	Sample Time	5:55:00 PM	12:52:00 PM	4:05:00 PM	3:30:00 PM	3:26:00 PM	3:15:00 PM
	Lab	Energy Labs	Hydro	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	H19090441-004	z	H19090441-003	z	z	z
	Sample Number	BBC-1909-203	BBC-1909-37	BBC-1909-202	BBC-1909-39	BBC-1909-40	BBC-1909-41
	Remarks						

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Metals - Trace Constituents	Multiple Units
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Uranium (TRC)	
Zinc (DIS)	0.003
Zinc (TRC)	<0.002

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	PZ-04	PZ-05	PZ-07A	PZ-07B	PZ-08	PZ-09
Water	Sample Date	9/16/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019
	Sample Time	3:02:00 PM	3:06:00 PM	6:37:00 PM	6:38:00 PM	2:45:00 PM	3:34:00 PM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-42	BBC-1909-43	BBC-1909-44	BBC-1909-45	BBC-1909-46	BBC-1909-47
	Remarks						

## Field Parameters Multiple Units

Depth To Water	1.71	3.31	1.81	3.07	3.91	5.05
Dissolved Oxygen						
EH						
Field pH						
Field Specific Conductivity						
Flow						
Flow						
Staff Gauge						
Water Temperature						

## Physical Parameters mg/L

Total Dissolved Solids  
Total Suspended Solids

## Major Constituents - Commons Ions mg/L

Alkalinity as CaCO3  
Calcium (DIS)  
Chloride  
Fluoride  
Hardness as CaCO3  
Magnesium (DIS)  
Potassium (DIS)  
Sodium (DIS)  
Sulfate

## Nutrients mg/L

Nitrate + Nitrite as N  
Phosphorus (TOT)  
Total Nitrogen as N (Persulfate)

## Metals - Trace Constituents Multiple Units

Aluminum (DIS)  
Antimony (DIS)  
Antimony (TRC)  
Arsenic (DIS)  
Arsenic (TRC)

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	PZ-04	PZ-05	PZ-07A	PZ-07B	PZ-08	PZ-09
Water	Sample Date	9/16/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019
	Sample Time	3:02:00 PM	3:06:00 PM	6:37:00 PM	6:38:00 PM	2:45:00 PM	3:34:00 PM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-42	BBC-1909-43	BBC-1909-44	BBC-1909-45	BBC-1909-46	BBC-1909-47
	Remarks						

## Metals - Trace Constituents Multiple Units

Barium (DIS)  
Barium (TRC)  
Beryllium (DIS)  
Beryllium (TRC)  
Cadmium (DIS)  
Cadmium (TRC)  
Chromium (DIS)  
Chromium (TRC)  
Cobalt (DIS)  
Cobalt (TRC)  
Copper (DIS)  
Copper (TRC)  
Iron (DIS)  
Iron (TRC)  
Lead (DIS)  
Lead (TRC)  
Manganese (DIS)  
Manganese (TRC)  
Mercury (DIS)  
Mercury (TRC)  
Molybdenum (DIS)  
Molybdenum (TRC)  
Nickel (DIS)  
Nickel (TRC)  
Selenium (DIS)  
Selenium (TRC)  
Silver (DIS)  
Silver (TRC)  
Strontium (DIS)  
Strontium (TRC)  
Thallium (DIS)  
Thallium (TRC)  
Uranium (DIS)

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

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Sample Type:	Station (Site)	PZ-04	PZ-05	PZ-07A	PZ-07B	PZ-08	PZ-09
Water	Sample Date	9/16/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019
	Sample Time	3:02:00 PM	3:06:00 PM	6:37:00 PM	6:38:00 PM	2:45:00 PM	3:34:00 PM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-42	BBC-1909-43	BBC-1909-44	BBC-1909-45	BBC-1909-46	BBC-1909-47
	Remarks						

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## Metals - Trace Constituents Multiple Units

Uranium (TRC)  
Zinc (DIS)  
Zinc (TRC)

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	PZ-10	PZ-11R	PZ-12	PZ-13	PZ-14	PZ-15
Water	Sample Date	9/16/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019
	Sample Time	12:35:00 PM	2:48:00 PM	12:32:00 PM	3:38:00 PM	3:20:00 PM	2:53:00 PM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-48	BBC-1909-49	BBC-1909-50	BBC-1909-51	BBC-1909-52	BBC-1909-53
	Remarks						

## Field Parameters Multiple Units

Depth To Water	8.57	5.87	5.37	8.48	5.3	3.08
Dissolved Oxygen						
EH						
Field pH						
Field Specific Conductivity						
Flow						
Flow						
Staff Gauge						
Water Temperature						

## Physical Parameters mg/L

Total Dissolved Solids  
Total Suspended Solids

## Major Constituents - Commons Ions mg/L

Alkalinity as CaCO3  
Calcium (DIS)  
Chloride  
Fluoride  
Hardness as CaCO3  
Magnesium (DIS)  
Potassium (DIS)  
Sodium (DIS)  
Sulfate

## Nutrients mg/L

Nitrate + Nitrite as N  
Phosphorus (TOT)  
Total Nitrogen as N (Persulfate)

## Metals - Trace Constituents Multiple Units

Aluminum (DIS)  
Antimony (DIS)  
Antimony (TRC)  
Arsenic (DIS)  
Arsenic (TRC)

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	PZ-10	PZ-11R	PZ-12	PZ-13	PZ-14	PZ-15
Water	Sample Date	9/16/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019
	Sample Time	12:35:00 PM	2:48:00 PM	12:32:00 PM	3:38:00 PM	3:20:00 PM	2:53:00 PM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-48	BBC-1909-49	BBC-1909-50	BBC-1909-51	BBC-1909-52	BBC-1909-53
	Remarks						

## Metals - Trace Constituents Multiple Units

Barium (DIS)  
Barium (TRC)  
Beryllium (DIS)  
Beryllium (TRC)  
Cadmium (DIS)  
Cadmium (TRC)  
Chromium (DIS)  
Chromium (TRC)  
Cobalt (DIS)  
Cobalt (TRC)  
Copper (DIS)  
Copper (TRC)  
Iron (DIS)  
Iron (TRC)  
Lead (DIS)  
Lead (TRC)  
Manganese (DIS)  
Manganese (TRC)  
Mercury (DIS)  
Mercury (TRC)  
Molybdenum (DIS)  
Molybdenum (TRC)  
Nickel (DIS)  
Nickel (TRC)  
Selenium (DIS)  
Selenium (TRC)  
Silver (DIS)  
Silver (TRC)  
Strontium (DIS)  
Strontium (TRC)  
Thallium (DIS)  
Thallium (TRC)  
Uranium (DIS)

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

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Sample Type:	Station (Site)	PZ-10	PZ-11R	PZ-12	PZ-13	PZ-14	PZ-15
Water	Sample Date	9/16/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019	9/16/2019
	Sample Time	12:35:00 PM	2:48:00 PM	12:32:00 PM	3:38:00 PM	3:20:00 PM	2:53:00 PM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-48	BBC-1909-49	BBC-1909-50	BBC-1909-51	BBC-1909-52	BBC-1909-53
	Remarks						

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## Metals - Trace Constituents Multiple Units

Uranium (TRC)  
Zinc (DIS)  
Zinc (TRC)

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	RINSATE BLANK	SC12-116	SC15-184	SC15-184	SC15-185	SC15-185
Water	Sample Date	9/20/2019	9/16/2019	9/16/2019	9/20/2019	9/16/2019	9/23/2019
	Sample Time	11:20:00 AM	5:33:00 PM	4:36:00 PM	2:25:00 PM	4:25:00 PM	12:50:00 PM
	Lab	Energy Labs	Hydro	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	H19090556-025	z	z	H19090556-026	z	H19090608-011
	Sample Number	BBC-1909-228	BBC-1909-24	BBC-1909-25	BBC-1909-229	BBC-1909-26	BBC-1909-232
	Remarks						

Field Parameters	Multiple Units				
Depth To Water		96.33	Shut in	0	29.3
Dissolved Oxygen				7.26	4.64
EH				241.461	253.378
Field pH				8	7.94
Field Specific Conductivity				368	395
Flow					
Flow					
Staff Gauge					
Water Temperature				6.7	6.6

Physical Parameters	mg/L		
Total Dissolved Solids	<10	195	227
Total Suspended Solids	<10	<10	<10

Major Constituents - Commons Ions	mg/L		
Alkalinity as CaCO3	<4	190	210
Calcium (DIS)	<1	36	44
Chloride	<1	<1	<1
Fluoride	<0.1	0.2	0.1
Hardness as CaCO3	<1	190	197
Magnesium (DIS)	<1	25	21
Potassium (DIS)	<1	<1	2
Sodium (DIS)	<1	2	4
Sulfate	<1	16	10

Nutrients	mg/L		
Nitrate + Nitrite as N	<0.01	0.28	0.24
Phosphorus (TOT)			
Total Nitrogen as N (Persulfate)			

Metals - Trace Constituents	Multiple Units		
Aluminum (DIS)	<0.009	<0.009	0.011
Antimony (DIS)	<0.0005	<0.0005	<0.0005
Antimony (TRC)			
Arsenic (DIS)	<0.001	<0.001	<0.001
Arsenic (TRC)			



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.



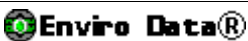
# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	RINSATE BLANK	SC12-116	SC15-184	SC15-184	SC15-185	SC15-185
Water	Sample Date	9/20/2019	9/16/2019	9/16/2019	9/20/2019	9/16/2019	9/23/2019
	Sample Time	11:20:00 AM	5:33:00 PM	4:36:00 PM	2:25:00 PM	4:25:00 PM	12:50:00 PM
	Lab	Energy Labs	Hydro	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	H19090556-025	z	z	H19090556-026	z	H19090608-011
	Sample Number	BBC-1909-228	BBC-1909-24	BBC-1909-25	BBC-1909-229	BBC-1909-26	BBC-1909-232
	Remarks						

Metals - Trace Constituents	Multiple Units		
Barium (DIS)	<0.003	0.087	0.069
Barium (TRC)			
Beryllium (DIS)	<0.0008	<0.0008	<0.0008
Beryllium (TRC)			
Cadmium (DIS)	<0.00003	<0.00003	<0.00003
Cadmium (TRC)			
Chromium (DIS)	<0.01	<0.01	<0.01
Chromium (TRC)			
Cobalt (DIS)	<0.01	<0.01	<0.01
Cobalt (TRC)			
Copper (DIS)	<0.002	<0.002	<0.002
Copper (TRC)			
Iron (DIS)	<0.02	<0.02	<0.02
Iron (TRC)			
Lead (DIS)	<0.0003	<0.0003	<0.0003
Lead (TRC)			
Manganese (DIS)	<0.005	<0.005	<0.005
Manganese (TRC)			
Mercury (DIS)	<0.005	<0.005	<0.005
Mercury (TRC)			
Molybdenum (DIS)	<0.002	<0.002	0.004
Molybdenum (TRC)			
Nickel (DIS)	<0.001	<0.001	<0.001
Nickel (TRC)			
Selenium (DIS)	<0.0002	0.0011	<0.0002
Selenium (TRC)			
Silver (DIS)	<0.0002	<0.0002	<0.0002
Silver (TRC)			
Strontium (DIS)	0.0003	0.115	0.244
Strontium (TRC)			
Thallium (DIS)	<0.0002	<0.0002	<0.0002
Thallium (TRC)			
Uranium (DIS)	<0.0002	0.001	0.0031



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	RINSATE BLANK	SC12-116	SC15-184	SC15-184	SC15-185	SC15-185
Water	Sample Date	9/20/2019	9/16/2019	9/16/2019	9/20/2019	9/16/2019	9/23/2019
	Sample Time	11:20:00 AM	5:33:00 PM	4:36:00 PM	2:25:00 PM	4:25:00 PM	12:50:00 PM
	Lab	Energy Labs	Hydro	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	H19090556-025	z	z	H19090556-026	z	H19090608-011
	Sample Number	BBC-1909-228	BBC-1909-24	BBC-1909-25	BBC-1909-229	BBC-1909-26	BBC-1909-232
	Remarks						

## Metals - Trace Constituents Multiple Units

Uranium (TRC)			
Zinc (DIS)	<0.002	<0.002	<0.002
Zinc (TRC)			

**NOTES:** All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

**DATA VALIDATION FLAGS---** **J:** The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S:** The associated numerical value is an estimated quantity because split quality control criteria were not met. **U:** Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R:** Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A:** Anomalous data. No apparent explanation for discrepancy in data. **D:** Reporting Limit increased due to sample matrix. **L:** Lowest available reporting limit for the analytical method used. **H:** Analysis performed past recommended holding time. **Z:** No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	SC15-194	SC15-194	SC15-198	SC15-198	SEEP-1	SEEP-10
Water	Sample Date	9/16/2019	9/23/2019	9/16/2019	9/23/2019	9/24/2019	9/25/2019
	Sample Time	6:32:00 PM	11:50:00 AM	4:14:00 PM	1:40:00 PM	1:55:00 PM	10:05:00 AM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Hydro
	Lab Number	z H19090608-010		z H19090608-012		z	z
	Sample Number	BBC-1909-27	BBC-1909-231	BBC-1909-28	BBC-1909-233	BBC-1909-121	BBC-1909-139
	Remarks						

Field Parameters	Multiple Units						
Depth To Water	19.53	19.57	40.42	40.9			
Dissolved Oxygen		0.46		7.97			7.29
EH		168.057		255.976			
Field pH		7.84		7.83			7.72
Field Specific Conductivity		382		420			376
Flow							
Flow					NF-DRY		2.6
Staff Gauge							
Water Temperature		7.9		7.2			7.8

Physical Parameters	mg/L						
Total Dissolved Solids		225		236			
Total Suspended Solids		<10		<10			

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3		180		230			
Calcium (DIS)		40		46			
Chloride		<1		2			
Fluoride		0.3		0.1			
Hardness as CaCO3		193		216			
Magnesium (DIS)		23		25			
Potassium (DIS)		<1		<1			
Sodium (DIS)		2		3			
Sulfate		29		6			

Nutrients	mg/L						
Nitrate + Nitrite as N		<0.01		0.6			
Phosphorus (TOT)							
Total Nitrogen as N (Persulfate)							

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)		<0.009		<0.009			
Antimony (DIS)		<0.0005		<0.0005			
Antimony (TRC)							
Arsenic (DIS)		0.001		<0.001			
Arsenic (TRC)							

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

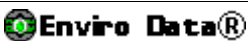
# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	SC15-194	SC15-194	SC15-198	SC15-198	SEEP-1	SEEP-10
Water	Sample Date	9/16/2019	9/23/2019	9/16/2019	9/23/2019	9/24/2019	9/25/2019
	Sample Time	6:32:00 PM	11:50:00 AM	4:14:00 PM	1:40:00 PM	1:55:00 PM	10:05:00 AM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Hydro
	Lab Number	z H19090608-010		z H19090608-012		z	z
	Sample Number	BBC-1909-27	BBC-1909-231	BBC-1909-28	BBC-1909-233	BBC-1909-121	BBC-1909-139
	Remarks						

Metals - Trace Constituents	Multiple Units		
Barium (DIS)		0.035	0.365
Barium (TRC)			
Beryllium (DIS)		<0.0008	<0.0008
Beryllium (TRC)			
Cadmium (DIS)		<0.00003	<0.00003
Cadmium (TRC)			
Chromium (DIS)		<0.01	<0.01
Chromium (TRC)			
Cobalt (DIS)		<0.01	<0.01
Cobalt (TRC)			
Copper (DIS)		<0.002	<0.002
Copper (TRC)			
Iron (DIS)		0.03	<0.02
Iron (TRC)			
Lead (DIS)		<0.0003	<0.0003
Lead (TRC)			
Manganese (DIS)		<0.005	<0.005
Manganese (TRC)			
Mercury (DIS)		<0.005	0.005
Mercury (TRC)			
Molybdenum (DIS)		<0.002	<0.002
Molybdenum (TRC)			
Nickel (DIS)		<0.001	<0.001
Nickel (TRC)			
Selenium (DIS)		<0.0002	0.0002
Selenium (TRC)			
Silver (DIS)		<0.0002	<0.0002
Silver (TRC)			
Strontium (DIS)		0.0702	0.101
Strontium (TRC)			
Thallium (DIS)		<0.0002	<0.0002
Thallium (TRC)			
Uranium (DIS)		0.0008	0.0007



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

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Sample Type:	Station (Site)	SC15-194	SC15-194	SC15-198	SC15-198	SEEP-1	SEEP-10
Water	Sample Date	9/16/2019	9/23/2019	9/16/2019	9/23/2019	9/24/2019	9/25/2019
	Sample Time	6:32:00 PM	11:50:00 AM	4:14:00 PM	1:40:00 PM	1:55:00 PM	10:05:00 AM
	Lab	Hydro	Energy Labs	Hydro	Energy Labs	Hydro	Hydro
	Lab Number	z H19090608-010		z H19090608-012		z	z
	Sample Number	BBC-1909-27	BBC-1909-231	BBC-1909-28	BBC-1909-233	BBC-1909-121	BBC-1909-139
	Remarks						

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## Metals - Trace Constituents Multiple Units

Uranium (TRC)		
Zinc (DIS)	<0.002	<0.002
Zinc (TRC)		

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	SEEP-2	SEEP-3	SEEP-4	SEEP-5	SEEP-6	SEEP-7
Water	Sample Date	9/24/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019
	Sample Time	5:15:00 PM	2:55:00 PM	11:40:00 AM	12:05:00 PM	11:55:00 AM	12:30:00 PM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-133	BBC-1909-151	BBC-1909-142	BBC-1909-144	BBC-1909-143	BBC-1909-145
	Remarks						

## Field Parameters Multiple Units

Depth To Water							
Dissolved Oxygen	0.78		7.84	9.92	3.35		
EH							
Field pH	7.86		7.96	6.59	7.04		
Field Specific Conductivity	411		67	76	84		
Flow							
Flow	NF	NF-DRY	NF	NM	NF	NF	NF
Staff Gauge							
Water Temperature	8.9		10.7	10.1	9.1		

## Physical Parameters mg/L

Total Dissolved Solids  
Total Suspended Solids

## Major Constituents - Commons Ions mg/L

Alkalinity as CaCO3  
Calcium (DIS)  
Chloride  
Fluoride  
Hardness as CaCO3  
Magnesium (DIS)  
Potassium (DIS)  
Sodium (DIS)  
Sulfate

## Nutrients mg/L

Nitrate + Nitrite as N  
Phosphorus (TOT)  
Total Nitrogen as N (Persulfate)

## Metals - Trace Constituents Multiple Units

Aluminum (DIS)  
Antimony (DIS)  
Antimony (TRC)  
Arsenic (DIS)  
Arsenic (TRC)

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

Sample Type:	Station (Site)	SEEP-2	SEEP-3	SEEP-4	SEEP-5	SEEP-6	SEEP-7
Water	Sample Date	9/24/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019
	Sample Time	5:15:00 PM	2:55:00 PM	11:40:00 AM	12:05:00 PM	11:55:00 AM	12:30:00 PM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-133	BBC-1909-151	BBC-1909-142	BBC-1909-144	BBC-1909-143	BBC-1909-145
	Remarks						

## Metals - Trace Constituents Multiple Units

Barium (DIS)  
Barium (TRC)  
Beryllium (DIS)  
Beryllium (TRC)  
Cadmium (DIS)  
Cadmium (TRC)  
Chromium (DIS)  
Chromium (TRC)  
Cobalt (DIS)  
Cobalt (TRC)  
Copper (DIS)  
Copper (TRC)  
Iron (DIS)  
Iron (TRC)  
Lead (DIS)  
Lead (TRC)  
Manganese (DIS)  
Manganese (TRC)  
Mercury (DIS)  
Mercury (TRC)  
Molybdenum (DIS)  
Molybdenum (TRC)  
Nickel (DIS)  
Nickel (TRC)  
Selenium (DIS)  
Selenium (TRC)  
Silver (DIS)  
Silver (TRC)  
Strontium (DIS)  
Strontium (TRC)  
Thallium (DIS)  
Thallium (TRC)  
Uranium (DIS)

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:29 AM

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Sample Type:	Station (Site)	SEEP-2	SEEP-3	SEEP-4	SEEP-5	SEEP-6	SEEP-7
Water	Sample Date	9/24/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019	9/25/2019
	Sample Time	5:15:00 PM	2:55:00 PM	11:40:00 AM	12:05:00 PM	11:55:00 AM	12:30:00 PM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-133	BBC-1909-151	BBC-1909-142	BBC-1909-144	BBC-1909-143	BBC-1909-145
	Remarks						

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## Metals - Trace Constituents Multiple Units

Uranium (TRC)  
Zinc (DIS)  
Zinc (TRC)



# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SEEP-8	SEEP-9	SP-1	SP-10	SP-11	SP-12
Water	Sample Date	9/24/2019	9/24/2019	9/24/2019	9/24/2019	9/25/2019	9/25/2019
	Sample Time	6:00:00 PM	11:55:00 AM	5:35:00 PM	4:45:00 PM	1:00:00 PM	1:20:00 PM
	Lab	Hydro	Hydro	Hydro	Energy Labs	Energy Labs	Energy Labs
	Lab Number	z	z	z	H19090658-005	H19090658-008	H19090658-009
	Sample Number	BBC-1909-135	BBC-1909-118	BBC-1909-134	BBC-1909-132	BBC-1909-146	BBC-1909-147
	Remarks						

## Field Parameters Multiple Units

Depth To Water						
Dissolved Oxygen		6.28	2.63	7.98	7.3	7.29
EH						
Field pH		7.53	7.66	8.13	7.23	7.17
Field Specific Conductivity		148	441	418	194	433
Flow						
Flow	NF-DRY	NM	NM	1.93	NM	NM
Staff Gauge						
Water Temperature		9.6	8.4	8.6	7.7	7.8

## Physical Parameters mg/L

Total Dissolved Solids		235	120	255
Total Suspended Solids		12	<10	<10

## Major Constituents - Commons Ions mg/L

Alkalinity as CaCO3		220	96	210
Calcium (DIS)		55	23	55
Chloride		<1	<1	9
Fluoride		0.1	0.1	0.2
Hardness as CaCO3		217	94	238
Magnesium (DIS)		20	9	24
Potassium (DIS)		1	1	1
Sodium (DIS)		2	4	2
Sulfate		15	7	20

## Nutrients mg/L

Nitrate + Nitrite as N		0.24	0.24	0.24
Phosphorus (TOT)				
Total Nitrogen as N (Persulfate)				

## Metals - Trace Constituents Multiple Units

Aluminum (DIS)		<0.009	0.045	<0.009
Antimony (DIS)		<0.0005	<0.0005	<0.0005
Antimony (TRC)				
Arsenic (DIS)		<0.001	0.006	<0.001
Arsenic (TRC)				

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SEEP-8	SEEP-9	SP-1	SP-10	SP-11	SP-12
Water	Sample Date	9/24/2019	9/24/2019	9/24/2019	9/24/2019	9/25/2019	9/25/2019
	Sample Time	6:00:00 PM	11:55:00 AM	5:35:00 PM	4:45:00 PM	1:00:00 PM	1:20:00 PM
	Lab	Hydro	Hydro	Hydro	Energy Labs	Energy Labs	Energy Labs
	Lab Number	z	z	z	H19090658-005	H19090658-008	H19090658-009
	Sample Number	BBC-1909-135	BBC-1909-118	BBC-1909-134	BBC-1909-132	BBC-1909-146	BBC-1909-147
	Remarks						

Metals - Trace Constituents	Multiple Units				
Barium (DIS)			0.055	0.307	0.184
Barium (TRC)					
Beryllium (DIS)			<0.0008	<0.0008	<0.0008
Beryllium (TRC)					
Cadmium (DIS)			<0.00003	<0.00003	<0.00003
Cadmium (TRC)					
Chromium (DIS)			<0.01	<0.01	<0.01
Chromium (TRC)					
Cobalt (DIS)			<0.01	<0.01	<0.01
Cobalt (TRC)					
Copper (DIS)			<0.002	<0.002	<0.002
Copper (TRC)					
Iron (DIS)			<0.02	<0.02	0.02
Iron (TRC)					
Lead (DIS)			<0.0003	<0.0003	<0.0003
Lead (TRC)					
Manganese (DIS)			<0.005	<0.005	<0.005
Manganese (TRC)					
Mercury (DIS)			<0.005	<0.005	<0.005
Mercury (TRC)					
Molybdenum (DIS)			<0.002	<0.002	<0.002
Molybdenum (TRC)					
Nickel (DIS)			<0.001	<0.001	<0.001
Nickel (TRC)					
Selenium (DIS)			0.0003	<0.0002	<0.0002
Selenium (TRC)					
Silver (DIS)			<0.0002	<0.0002	<0.0002
Silver (TRC)					
Strontium (DIS)			0.12	0.109	0.116
Strontium (TRC)					
Thallium (DIS)			<0.0002	<0.0002	<0.0002
Thallium (TRC)					
Uranium (DIS)			0.0008	0.0004	0.0006

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SEEP-8	SEEP-9	SP-1	SP-10	SP-11	SP-12
Water	Sample Date	9/24/2019	9/24/2019	9/24/2019	9/24/2019	9/25/2019	9/25/2019
	Sample Time	6:00:00 PM	11:55:00 AM	5:35:00 PM	4:45:00 PM	1:00:00 PM	1:20:00 PM
	Lab	Hydro	Hydro	Hydro	Energy Labs	Energy Labs	Energy Labs
	Lab Number	z	z	z	H19090658-005	H19090658-008	H19090658-009
	Sample Number	BBC-1909-135	BBC-1909-118	BBC-1909-134	BBC-1909-132	BBC-1909-146	BBC-1909-147
	Remarks						

## Metals - Trace Constituents Multiple Units

Uranium (TRC)			
Zinc (DIS)	<0.002	<0.002	<0.002
Zinc (TRC)			

**NOTES:** All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

**DATA VALIDATION FLAGS---** **J:** The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S:** The associated numerical value is an estimated quantity because split quality control criteria were not met. **U:** Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R:** Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A:** Anomalous data. No apparent explanation for discrepancy in data. **D:** Reporting Limit increased due to sample matrix. **L:** Lowest available reporting limit for the analytical method used. **H:** Analysis performed past recommended holding time. **Z:** No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SP-12	SP-13	SP-2	SP-3	SP-4	SP-6
Water	Sample Date	9/25/2019	9/25/2019	9/24/2019	9/24/2019	9/24/2019	9/24/2019
	Sample Time	1:40:00 PM	2:15:00 PM	2:30:00 PM	1:35:00 PM	2:40:00 PM	2:15:00 PM
	Lab	Energy Labs	Hydro	Hydro	Energy Labs	Energy Labs	Energy Labs
	Lab Number	H19090658-010	z	z	H19090658-002	H19090658-004	H19090658-003
	Sample Number	BBC-1909-148	BBC-1909-150	BBC-1909-126	BBC-1909-123	BBC-1909-127	BBC-1909-125
	Remarks	DUPLICATE		DUPLICATE			

Field Parameters		Multiple Units					
Depth To Water							
Dissolved Oxygen		7.29	6.62		8.87	9.48	9.08
EH							
Field pH		7.17	7.33		7.2	7.72	7.6
Field Specific Conductivity		433	321		195	416	292
Flow							
Flow		NM	NM	NF-DRY	0.31	6.73	NM
Staff Gauge							
Water Temperature		7.8	7.4		9.4	7.3	8.2

Physical Parameters		mg/L					
Total Dissolved Solids		255			134	238	176
Total Suspended Solids		<10			<10	14	<10

Major Constituents - Commons Ions		mg/L					
Alkalinity as CaCO3		210			93	200	150
Calcium (DIS)		54			27	47	36
Chloride		9			<1	<1	1
Fluoride		0.2			0.1	0.2	0.1
Hardness as CaCO3		234			90	216	144
Magnesium (DIS)		24			6	24	13
Potassium (DIS)		1			1	2	<1
Sodium (DIS)		2			3	2	2
Sulfate		20			6	31	10

Nutrients		mg/L					
Nitrate + Nitrite as N		0.24			0.22	0.29	0.43
Phosphorus (TOT)							
Total Nitrogen as N (Persulfate)							

Metals - Trace Constituents		Multiple Units					
Aluminum (DIS)		<0.009			0.065	<0.009	<0.009
Antimony (DIS)		<0.0005			<0.0005	<0.0005	<0.0005
Antimony (TRC)							
Arsenic (DIS)		<0.001			0.001	<0.001	<0.001
Arsenic (TRC)							

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SP-12	SP-13	SP-2	SP-3	SP-4	SP-6
Water	Sample Date	9/25/2019	9/25/2019	9/24/2019	9/24/2019	9/24/2019	9/24/2019
	Sample Time	1:40:00 PM	2:15:00 PM	2:30:00 PM	1:35:00 PM	2:40:00 PM	2:15:00 PM
	Lab	Energy Labs	Hydro	Hydro	Energy Labs	Energy Labs	Energy Labs
	Lab Number	H19090658-010	z	z	H19090658-002	H19090658-004	H19090658-003
	Sample Number	BBC-1909-148	BBC-1909-150	BBC-1909-126	BBC-1909-123	BBC-1909-127	BBC-1909-125
	Remarks	DUPLICATE		DUPLICATE			

Metals - Trace Constituents	Multiple Units			
Barium (DIS)	0.184		0.315	0.115
Barium (TRC)				
Beryllium (DIS)	<0.0008		<0.0008	<0.0008
Beryllium (TRC)				
Cadmium (DIS)	<0.00003		<0.00003	<0.00003
Cadmium (TRC)				
Chromium (DIS)	<0.01		<0.01	<0.01
Chromium (TRC)				
Cobalt (DIS)	<0.01		<0.01	<0.01
Cobalt (TRC)				
Copper (DIS)	<0.002		<0.002	<0.002
Copper (TRC)				
Iron (DIS)	0.02		0.03	<0.02
Iron (TRC)				
Lead (DIS)	<0.0003		<0.0003	<0.0003
Lead (TRC)				
Manganese (DIS)	<0.005		<0.005	0.006
Manganese (TRC)				
Mercury (DIS)	<0.005		<0.005	<0.005
Mercury (TRC)				
Molybdenum (DIS)	<0.002		<0.002	<0.002
Molybdenum (TRC)				
Nickel (DIS)	<0.001		<0.001	<0.001
Nickel (TRC)				
Selenium (DIS)	<0.0002		<0.0002	0.0004
Selenium (TRC)				
Silver (DIS)	<0.0002		<0.0002	<0.0002
Silver (TRC)				
Strontium (DIS)	0.115		0.0851	0.0738
Strontium (TRC)				
Thallium (DIS)	<0.0002		<0.0002	0.0003
Thallium (TRC)				
Uranium (DIS)	0.0006		<0.0002	0.0005

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SP-12	SP-13	SP-2	SP-3	SP-4	SP-6
Water	Sample Date	9/25/2019	9/25/2019	9/24/2019	9/24/2019	9/24/2019	9/24/2019
	Sample Time	1:40:00 PM	2:15:00 PM	2:30:00 PM	1:35:00 PM	2:40:00 PM	2:15:00 PM
	Lab	Energy Labs	Hydro	Hydro	Energy Labs	Energy Labs	Energy Labs
	Lab Number	H19090658-010	z	z	H19090658-002	H19090658-004	H19090658-003
	Sample Number	BBC-1909-148	BBC-1909-150	BBC-1909-126	BBC-1909-123	BBC-1909-127	BBC-1909-125
	Remarks	DUPLICATE		DUPLICATE			

## Metals - Trace Constituents Multiple Units

Uranium (TRC)				
Zinc (DIS)	<0.002		<0.002	<0.002
Zinc (TRC)				

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SP-7	SP-8	SP-9	SW-1	SW-10	SW-11
Water	Sample Date	9/25/2019	9/25/2019	9/25/2019	9/23/2019	9/24/2019	9/24/2019
	Sample Time	2:00:00 PM	8:20:00 AM	8:35:00 AM	3:00:00 PM	9:55:00 AM	8:15:00 AM
	Lab	Energy Labs	Hydro	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	H19090658-011	z	z	H19090608-002	z	H19090658-013
	Sample Number	BBC-1909-149	BBC-1909-136	BBC-1909-137	BBC-1909-101	BBC-1909-113	BBC-1909-111
	Remarks						

Field Parameters	Multiple Units						
Depth To Water							
Dissolved Oxygen	2.92	6.21	7.12	9.59	9.34	9.41	
EH							
Field pH	7.26	7.04	7.61	8.64	8.32	8.42	
Field Specific Conductivity	336	386	371	309	425	424	
Flow				30.28	0.4	0.93	
Flow	15.26	6.73	5.39				
Staff Gauge				0.98	0.87	0.35	
Water Temperature	7.4	7.4	6.1	11.8	7.1	8.1	

Physical Parameters	mg/L						
Total Dissolved Solids	192			191 D		243 D	
Total Suspended Solids	<10			5		7	

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3	170			170		220	
Calcium (DIS)	43			44		53	
Chloride	2			1		1	
Fluoride	0.3			0.1		0.2	
Hardness as CaCO3	168			160		228	
Magnesium (DIS)	15			12		23	
Potassium (DIS)	3			2		1	
Sodium (DIS)	5			2		3	
Sulfate	10			6		22	

Nutrients	mg/L						
Nitrate + Nitrite as N	0.34			<0.01		0.08	
Phosphorus (TOT)				0.014		0.012	
Total Nitrogen as N (Persulfate)				0.12		0.16	

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)	<0.009			<0.009		<0.009	
Antimony (DIS)	<0.0005						
Antimony (TRC)				<0.0005		<0.0005	
Arsenic (DIS)	0.004						
Arsenic (TRC)				<0.001		<0.001	

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- J: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. S: The associated numerical value is an estimated quantity because split quality control criteria were not met. U: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. R: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. A: Anomalous data. No apparent explanation for discrepancy in data. D: Reporting Limit increased due to sample matrix. L: Lowest available reporting limit for the analytical method used. H: Analysis performed past recommended holding time. Z: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SP-7	SP-8	SP-9	SW-1	SW-10	SW-11
Water	Sample Date	9/25/2019	9/25/2019	9/25/2019	9/23/2019	9/24/2019	9/24/2019
	Sample Time	2:00:00 PM	8:20:00 AM	8:35:00 AM	3:00:00 PM	9:55:00 AM	8:15:00 AM
	Lab	Energy Labs	Hydro	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	H19090658-011	z	z	H19090608-002	z	H19090658-013
	Sample Number	BBC-1909-149	BBC-1909-136	BBC-1909-137	BBC-1909-101	BBC-1909-113	BBC-1909-111
	Remarks						

Metals - Trace Constituents	Multiple Units		
Barium (DIS)	0.116		
Barium (TRC)		0.116	0.11
Beryllium (DIS)	<0.0008		
Beryllium (TRC)		<0.0008	<0.0008
Cadmium (DIS)	<0.00003		
Cadmium (TRC)		<0.00003	<0.00003
Chromium (DIS)	<0.01		
Chromium (TRC)		<0.01	<0.01
Cobalt (DIS)	<0.01		
Cobalt (TRC)		<0.01	<0.01
Copper (DIS)	<0.002		
Copper (TRC)		<0.002	<0.002
Iron (DIS)	<0.02		
Iron (TRC)		0.22	0.16
Lead (DIS)	<0.0003		
Lead (TRC)		<0.0003	<0.0003
Manganese (DIS)	<0.005		
Manganese (TRC)		0.021	0.01
Mercury (DIS)	<0.005		
Mercury (TRC)		0.008	<0.005
Molybdenum (DIS)	<0.002		
Molybdenum (TRC)		<0.002	<0.002
Nickel (DIS)	<0.001		
Nickel (TRC)		<0.001	<0.001
Selenium (DIS)	0.0003		
Selenium (TRC)		<0.0002	<0.0002
Silver (DIS)	<0.0002		
Silver (TRC)		<0.0002	<0.0002
Strontium (DIS)	0.174		
Strontium (TRC)		0.125	0.186
Thallium (DIS)	0.0011		
Thallium (TRC)		<0.0002	<0.0002
Uranium (DIS)	0.0009		

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.



# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SP-7	SP-8	SP-9	SW-1	SW-10	SW-11
Water	Sample Date	9/25/2019	9/25/2019	9/25/2019	9/23/2019	9/24/2019	9/24/2019
	Sample Time	2:00:00 PM	8:20:00 AM	8:35:00 AM	3:00:00 PM	9:55:00 AM	8:15:00 AM
	Lab	Energy Labs	Hydro	Hydro	Energy Labs	Hydro	Energy Labs
	Lab Number	H19090658-011	z	z	H19090608-002	z	H19090658-013
	Sample Number	BBC-1909-149	BBC-1909-136	BBC-1909-137	BBC-1909-101	BBC-1909-113	BBC-1909-111
	Remarks						

## Metals - Trace Constituents Multiple Units

Uranium (TRC)		0.0004	0.0009
Zinc (DIS)	<0.002		
Zinc (TRC)		<0.004	<0.005

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SW-14	SW-17	SW-18	SW-19	SW-2	SW-3
Water	Sample Date	9/23/2019	9/23/2019	9/23/2019	9/24/2019	9/23/2019	9/23/2019
	Sample Time	4:45:00 PM	5:45:00 PM	5:20:00 PM	10:10:00 AM	3:40:00 PM	5:30:00 PM
	Lab	Energy Labs	Energy Labs	Hydro	Hydro	Energy Labs	Energy Labs
	Lab Number	H19090608-005	H19090608-009	z	z	H19090608-003	H19090608-008
	Sample Number	BBC-1909-104	BBC-1909-109	BBC-1909-107	BBC-1909-114	BBC-1909-102	BBC-1909-108
	Remarks						

Field Parameters	Multiple Units						
Depth To Water							
Dissolved Oxygen	10.15	9.4		9.55	9.86	9.09	
EH							
Field pH	8.38	8.35		8.32	8.62	8.43	
Field Specific Conductivity	402	450		404	309	417	
Flow	1.17	0.24	NF-DRY	0.14	24.32	0.069	
Flow							
Staff Gauge	0.59			0.14	0.4	0.17	
Water Temperature	13.3	10.5		7.1	9.9	9.6	

Physical Parameters	mg/L						
Total Dissolved Solids	239 D	274 D			187 D	255 D	
Total Suspended Solids	5	<4			<4	<4	

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3	220	220			170	210	
Calcium (DIS)	52	52			44	49	
Chloride	2	6			1	4	
Fluoride	0.2	0.2			<0.1	0.2	
Hardness as CaCO3	207	226			158	224	
Magnesium (DIS)	19	23			11	24	
Potassium (DIS)	1	1			1	1	
Sodium (DIS)	2	3			2	2	
Sulfate	7	23			5	19	

Nutrients	mg/L						
Nitrate + Nitrite as N	0.01	0.04			<0.01	0.03	
Phosphorus (TOT)	0.009	0.007			0.006	0.007	
Total Nitrogen as N (Persulfate)	0.13	0.14			0.07	0.09	

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)	<0.009	<0.009			<0.009	<0.009	
Antimony (DIS)							
Antimony (TRC)	<0.0005	<0.0005			<0.0005	<0.0005	
Arsenic (DIS)							
Arsenic (TRC)	<0.001	<0.001			<0.001	<0.001	

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SW-14	SW-17	SW-18	SW-19	SW-2	SW-3
Water	Sample Date	9/23/2019	9/23/2019	9/23/2019	9/24/2019	9/23/2019	9/23/2019
	Sample Time	4:45:00 PM	5:45:00 PM	5:20:00 PM	10:10:00 AM	3:40:00 PM	5:30:00 PM
	Lab	Energy Labs	Energy Labs	Hydro	Hydro	Energy Labs	Energy Labs
	Lab Number	H19090608-005	H19090608-009	z	z	H19090608-003	H19090608-008
	Sample Number	BBC-1909-104	BBC-1909-109	BBC-1909-107	BBC-1909-114	BBC-1909-102	BBC-1909-108
	Remarks						

Metals - Trace Constituents	Multiple Units			
Barium (DIS)				
Barium (TRC)	0.121	0.174	0.102	0.171
Beryllium (DIS)				
Beryllium (TRC)	<0.0008	<0.0008	<0.0008	<0.0008
Cadmium (DIS)				
Cadmium (TRC)	<0.00003	<0.00003	<0.00003	<0.00003
Chromium (DIS)				
Chromium (TRC)	<0.01	<0.01	<0.01	<0.01
Cobalt (DIS)				
Cobalt (TRC)	<0.01	<0.01	<0.01	<0.01
Copper (DIS)				
Copper (TRC)	<0.002	<0.002	<0.002	<0.002
Iron (DIS)				
Iron (TRC)	0.11	0.17	0.12	0.05
Lead (DIS)				
Lead (TRC)	<0.0003	<0.0003	<0.0003	<0.0003
Manganese (DIS)				
Manganese (TRC)	0.006	0.016	0.008	<0.005
Mercury (DIS)				
Mercury (TRC)	0.006	0.006	<0.005	<0.005
Molybdenum (DIS)				
Molybdenum (TRC)	<0.002	<0.002	<0.002	<0.002
Nickel (DIS)				
Nickel (TRC)	0.001	<0.001	<0.001	<0.001
Selenium (DIS)				
Selenium (TRC)	<0.0002	<0.0002	<0.0002	<0.0002
Silver (DIS)				
Silver (TRC)	<0.0002	<0.0002	<0.0002	<0.0002
Strontium (DIS)				
Strontium (TRC)	0.127	0.154	0.132	0.126
Thallium (DIS)				
Thallium (TRC)	<0.0002	<0.0002	<0.0002	<0.0002
Uranium (DIS)				

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SW-14	SW-17	SW-18	SW-19	SW-2	SW-3
Water	Sample Date	9/23/2019	9/23/2019	9/23/2019	9/24/2019	9/23/2019	9/23/2019
	Sample Time	4:45:00 PM	5:45:00 PM	5:20:00 PM	10:10:00 AM	3:40:00 PM	5:30:00 PM
	Lab	Energy Labs	Energy Labs	Hydro	Hydro	Energy Labs	Energy Labs
	Lab Number	H19090608-005	H19090608-009	z	z	H19090608-003	H19090608-008
	Sample Number	BBC-1909-104	BBC-1909-109	BBC-1909-107	BBC-1909-114	BBC-1909-102	BBC-1909-108
	Remarks						

Metals - Trace Constituents	Multiple Units			
Uranium (TRC)	0.0005	0.0006	0.0003	0.0006
Zinc (DIS)				
Zinc (TRC)	<0.004	<0.004	<0.004	<0.004

**NOTES:** All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

**DATA VALIDATION FLAGS---** **J:** The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S:** The associated numerical value is an estimated quantity because split quality control criteria were not met. **U:** Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R:** Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A:** Anomalous data. No apparent explanation for discrepancy in data. **D:** Reporting Limit increased due to sample matrix. **L:** Lowest available reporting limit for the analytical method used. **H:** Analysis performed past recommended holding time. **Z:** No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SW-4	SW-4	SW-5	SW-6	SW-7	SW-8
Water	Sample Date	9/23/2019	9/23/2019	9/24/2019	9/23/2019	9/25/2019	9/24/2019
	Sample Time	5:00:00 PM	5:15:00 PM	11:15:00 AM	2:00:00 PM	10:45:00 AM	7:45:00 AM
	Lab	Energy Labs	Energy Labs	Hydro	Energy Labs	Energy Labs	Hydro
	Lab Number	H19090608-006	H19090608-007	z	H19090608-001	H19090658-007	z
	Sample Number	BBC-1909-105	BBC-1909-106	BBC-1909-116	BBC-1909-100	BBC-1909-141	BBC-1909-110
	Remarks		DUPLICATE				

## Field Parameters Multiple Units

Depth To Water						
Dissolved Oxygen	8.62			8.94	7.85	9.09
EH						
Field pH	8.23			8.35	7.82	8.22
Field Specific Conductivity	375			406	377	418
Flow	0.009		NF-DRY	0.14		0.68
Flow					0.18	
Staff Gauge						0.03
Water Temperature	10.5			10.4	10.2	7.1

## Physical Parameters mg/L

Total Dissolved Solids	218 D	222 D		238 D	239
Total Suspended Solids	<4	<4		23	21

## Major Constituents - Commons Ions mg/L

Alkalinity as CaCO3	200	200		220	230
Calcium (DIS)	44	45		48	61
Chloride	<1	<1		<1	<1
Fluoride	0.1	0.1		0.2	<0.1
Hardness as CaCO3	189	192		208	231
Magnesium (DIS)	19	19		21	19
Potassium (DIS)	2	2		1	<1
Sodium (DIS)	3	2		3	2
Sulfate	8	8		11	8

## Nutrients mg/L

Nitrate + Nitrite as N	0.02	0.02		0.02	<0.01
Phosphorus (TOT)	0.006	0.008		0.016	
Total Nitrogen as N (Persulfate)	0.1	0.12		0.16	

## Metals - Trace Constituents Multiple Units

Aluminum (DIS)	<0.009	<0.009		<0.009	<0.009
Antimony (DIS)					<0.0005
Antimony (TRC)	<0.0005	<0.0005		<0.0005	
Arsenic (DIS)					<0.001
Arsenic (TRC)	<0.001	<0.001		<0.001	

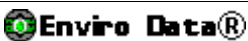
# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SW-4	SW-4	SW-5	SW-6	SW-7	SW-8
Water	Sample Date	9/23/2019	9/23/2019	9/24/2019	9/23/2019	9/25/2019	9/24/2019
	Sample Time	5:00:00 PM	5:15:00 PM	11:15:00 AM	2:00:00 PM	10:45:00 AM	7:45:00 AM
	Lab	Energy Labs	Energy Labs	Hydro	Energy Labs	Energy Labs	Hydro
	Lab Number	H19090608-006	H19090608-007	z	H19090608-001	H19090658-007	z
	Sample Number	BBC-1909-105	BBC-1909-106	BBC-1909-116	BBC-1909-100	BBC-1909-141	BBC-1909-110
	Remarks		DUPLICATE				

Metals - Trace Constituents	Multiple Units			
Barium (DIS)				0.068
Barium (TRC)	0.151	0.157	0.134	
Beryllium (DIS)				<0.0008
Beryllium (TRC)	<0.0008	<0.0008	<0.0008	
Cadmium (DIS)				<0.00003
Cadmium (TRC)	<0.00003	<0.00003	<0.00003	
Chromium (DIS)				<0.01
Chromium (TRC)	<0.01	<0.01	<0.01	
Cobalt (DIS)				<0.01
Cobalt (TRC)	<0.01	<0.01	<0.01	
Copper (DIS)				<0.002
Copper (TRC)	<0.002	<0.002	<0.002	
Iron (DIS)				<0.02
Iron (TRC)	0.09	0.1	0.35	
Lead (DIS)				<0.0003
Lead (TRC)	<0.0003	<0.0003	<0.0003	
Manganese (DIS)				0.013
Manganese (TRC)	0.01	0.011	0.017	
Mercury (DIS)				<0.005
Mercury (TRC)	0.006	0.006	0.007	
Molybdenum (DIS)				<0.002
Molybdenum (TRC)	<0.002	<0.002	<0.002	
Nickel (DIS)				<0.001
Nickel (TRC)	<0.001	<0.001	<0.001	
Selenium (DIS)				<0.0002
Selenium (TRC)	<0.0002	<0.0002	<0.0002	
Silver (DIS)				<0.0002
Silver (TRC)	<0.0002	<0.0002	<0.0002	
Strontium (DIS)				0.147
Strontium (TRC)	0.186	0.191	0.175	
Thallium (DIS)				<0.0002
Thallium (TRC)	<0.0002	<0.0002	<0.0002	
Uranium (DIS)				0.0006



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SW-4	SW-4	SW-5	SW-6	SW-7	SW-8
Water	Sample Date	9/23/2019	9/23/2019	9/24/2019	9/23/2019	9/25/2019	9/24/2019
	Sample Time	5:00:00 PM	5:15:00 PM	11:15:00 AM	2:00:00 PM	10:45:00 AM	7:45:00 AM
	Lab	Energy Labs	Energy Labs	Hydro	Energy Labs	Energy Labs	Hydro
	Lab Number	H19090608-006	H19090608-007	z	H19090608-001	H19090658-007	z
	Sample Number	BBC-1909-105	BBC-1909-106	BBC-1909-116	BBC-1909-100	BBC-1909-141	BBC-1909-110
	Remarks		DUPLICATE				

Metals - Trace Constituents	Multiple Units			
Uranium (TRC)	0.0008	0.0008	0.0006	
Zinc (DIS)				<0.002
Zinc (TRC)	<0.004	<0.005	<0.004	

**NOTES:** All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SW-9	USGS-SC1	USGS-SC1	WM1	WM2	WM3
Water	Sample Date	9/24/2019	9/23/2019	9/23/2019	9/18/2019	9/18/2019	9/18/2019
	Sample Time	9:30:00 AM	4:15:00 PM	4:15:00 PM	3:10:00 PM	3:18:00 PM	3:48:00 PM
	Lab	Hydro	Energy Labs	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	z	H19090608-004	H19090608-004	z	z	z
	Sample Number	BBC-1909-112	BBC-1909-103	BBC-1909-103	BBC-1909-62	BBC-1909-63	BBC-1909-64
	Remarks						

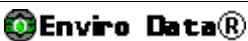
Field Parameters		Multiple Units	
Depth To Water			
		4.38	4.09
Dissolved Oxygen	9.26	9.8	
EH			
Field pH	8.3	8.55	
Field Specific Conductivity	434	350	
Flow	0.59	18.16	
Flow			
Staff Gauge			
Water Temperature	7.2	8.9	

Physical Parameters		mg/L
Total Dissolved Solids		206 D
Total Suspended Solids		<4

Major Constituents - Commons Ions		mg/L
Alkalinity as CaCO3		190
Calcium (DIS)		50
Chloride		1
Fluoride		<0.1
Hardness as CaCO3		178
Magnesium (DIS)		13
Potassium (DIS)		1
Sodium (DIS)		2
Sulfate		5

Nutrients		mg/L
Nitrate + Nitrite as N		<0.01
Phosphorus (TOT)		<0.003
Total Nitrogen as N (Persulfate)		0.05

Metals - Trace Constituents		Multiple Units
Aluminum (DIS)		<0.009
Antimony (DIS)		
Antimony (TRC)		<0.0005
Arsenic (DIS)		
Arsenic (TRC)		<0.001



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	SW-9	USGS-SC1	USGS-SC1	WM1	WM2	WM3
Water	Sample Date	9/24/2019	9/23/2019	9/23/2019	9/18/2019	9/18/2019	9/18/2019
	Sample Time	9:30:00 AM	4:15:00 PM	4:15:00 PM	3:10:00 PM	3:18:00 PM	3:48:00 PM
	Lab	Hydro	Energy Labs	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	z	H19090608-004	H19090608-004	z	z	z
	Sample Number	BBC-1909-112	BBC-1909-103	BBC-1909-103	BBC-1909-62	BBC-1909-63	BBC-1909-64
	Remarks						

## Metals - Trace Constituents Multiple Units

Barium (DIS)	
Barium (TRC)	0.074
Beryllium (DIS)	
Beryllium (TRC)	<0.0008
Cadmium (DIS)	
Cadmium (TRC)	<0.00003
Chromium (DIS)	
Chromium (TRC)	<0.01
Cobalt (DIS)	
Cobalt (TRC)	<0.01
Copper (DIS)	
Copper (TRC)	<0.002
Iron (DIS)	
Iron (TRC)	0.11
Lead (DIS)	
Lead (TRC)	<0.0003
Manganese (DIS)	
Manganese (TRC)	0.007
Mercury (DIS)	
Mercury (TRC)	<0.005
Molybdenum (DIS)	
Molybdenum (TRC)	<0.002
Nickel (DIS)	
Nickel (TRC)	<0.001
Selenium (DIS)	
Selenium (TRC)	<0.0002
Silver (DIS)	
Silver (TRC)	<0.0002
Strontium (DIS)	
Strontium (TRC)	0.154
Thallium (DIS)	
Thallium (TRC)	<0.0002
Uranium (DIS)	

NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

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Sample Type:	Station (Site)	SW-9	USGS-SC1	USGS-SC1	WM1	WM2	WM3
Water	Sample Date	9/24/2019	9/23/2019	9/23/2019	9/18/2019	9/18/2019	9/18/2019
	Sample Time	9:30:00 AM	4:15:00 PM	4:15:00 PM	3:10:00 PM	3:18:00 PM	3:48:00 PM
	Lab	Hydro	Energy Labs	Energy Labs	Hydro	Hydro	Hydro
	Lab Number	z H19090608-004	H19090608-004		z	z	z
	Sample Number	BBC-1909-112	BBC-1909-103	BBC-1909-103	BBC-1909-62	BBC-1909-63	BBC-1909-64
	Remarks						

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Metals - Trace Constituents	Multiple Units
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Uranium (TRC)	0.0004
Zinc (DIS)	
Zinc (TRC)	<0.004

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	WM4	WM5	WM6	WM7	WM8	WMR1
Water	Sample Date	9/18/2019	9/17/2019	9/17/2019	9/17/2019	9/17/2019	9/17/2019
	Sample Time	3:55:00 PM	2:45:00 PM	2:53:00 PM	5:28:00 PM	3:05:00 PM	10:12:00 AM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-65	BBC-1909-66	BBC-1909-67	BBC-1909-68	BBC-1909-69	BBC-1909-54
	Remarks						

Field Parameters	Multiple Units						
Depth To Water	3.72	8.53	5.87	4.32	4.76	2.49	
Dissolved Oxygen							
EH							
Field pH							
Field Specific Conductivity							
Flow							
Flow							
Staff Gauge							
Water Temperature							

Physical Parameters	mg/L						
Total Dissolved Solids							
Total Suspended Solids							

Major Constituents - Commons Ions	mg/L						
Alkalinity as CaCO3							
Calcium (DIS)							
Chloride							
Fluoride							
Hardness as CaCO3							
Magnesium (DIS)							
Potassium (DIS)							
Sodium (DIS)							
Sulfate							

Nutrients	mg/L						
Nitrate + Nitrite as N							
Phosphorus (TOT)							
Total Nitrogen as N (Persulfate)							

Metals - Trace Constituents	Multiple Units						
Aluminum (DIS)							
Antimony (DIS)							
Antimony (TRC)							
Arsenic (DIS)							
Arsenic (TRC)							



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	WM4	WM5	WM6	WM7	WM8	WMR1
Water	Sample Date	9/18/2019	9/17/2019	9/17/2019	9/17/2019	9/17/2019	9/17/2019
	Sample Time	3:55:00 PM	2:45:00 PM	2:53:00 PM	5:28:00 PM	3:05:00 PM	10:12:00 AM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-65	BBC-1909-66	BBC-1909-67	BBC-1909-68	BBC-1909-69	BBC-1909-54
	Remarks						

## Metals - Trace Constituents Multiple Units

Barium (DIS)  
Barium (TRC)  
Beryllium (DIS)  
Beryllium (TRC)  
Cadmium (DIS)  
Cadmium (TRC)  
Chromium (DIS)  
Chromium (TRC)  
Cobalt (DIS)  
Cobalt (TRC)  
Copper (DIS)  
Copper (TRC)  
Iron (DIS)  
Iron (TRC)  
Lead (DIS)  
Lead (TRC)  
Manganese (DIS)  
Manganese (TRC)  
Mercury (DIS)  
Mercury (TRC)  
Molybdenum (DIS)  
Molybdenum (TRC)  
Nickel (DIS)  
Nickel (TRC)  
Selenium (DIS)  
Selenium (TRC)  
Silver (DIS)  
Silver (TRC)  
Strontium (DIS)  
Strontium (TRC)  
Thallium (DIS)  
Thallium (TRC)  
Uranium (DIS)

**NOTES:** All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

**DATA VALIDATION FLAGS---** **J:** The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S:** The associated numerical value is an estimated quantity because split quality control criteria were not met. **U:** Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R:** Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A:** Anomalous data. No apparent explanation for discrepancy in data. **D:** Reporting Limit increased due to sample matrix. **L:** Lowest available reporting limit for the analytical method used. **H:** Analysis performed past recommended holding time. **Z:** No validation Flag.

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

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Sample Type:	Station (Site)	WM4	WM5	WM6	WM7	WM8	WMR1
Water	Sample Date	9/18/2019	9/17/2019	9/17/2019	9/17/2019	9/17/2019	9/17/2019
	Sample Time	3:55:00 PM	2:45:00 PM	2:53:00 PM	5:28:00 PM	3:05:00 PM	10:12:00 AM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-65	BBC-1909-66	BBC-1909-67	BBC-1909-68	BBC-1909-69	BBC-1909-54
	Remarks						

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## Metals - Trace Constituents Multiple Units

Uranium (TRC)  
Zinc (DIS)  
Zinc (TRC)

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	WMR2	WMR3	WMR4	WMR5	WMR6	WMR7
Water	Sample Date	9/17/2019	9/17/2019	9/17/2019	9/17/2019	9/17/2019	9/17/2019
	Sample Time	10:05:00 AM	10:35:00 AM	10:27:00 AM	11:38:00 AM	11:46:00 AM	11:24:00 AM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-55	BBC-1909-56	BBC-1909-57	BBC-1909-58	BBC-1909-59	BBC-1909-60
	Remarks						

## Field Parameters Multiple Units

Depth To Water	4.98	4.81	5.95	9.57	3.4	0.89
Dissolved Oxygen						
EH						
Field pH						
Field Specific Conductivity						
Flow						
Flow						
Staff Gauge						
Water Temperature						

## Physical Parameters mg/L

Total Dissolved Solids  
Total Suspended Solids

## Major Constituents - Commons Ions mg/L

Alkalinity as CaCO3  
Calcium (DIS)  
Chloride  
Fluoride  
Hardness as CaCO3  
Magnesium (DIS)  
Potassium (DIS)  
Sodium (DIS)  
Sulfate

## Nutrients mg/L

Nitrate + Nitrite as N  
Phosphorus (TOT)  
Total Nitrogen as N (Persulfate)

## Metals - Trace Constituents Multiple Units

Aluminum (DIS)  
Antimony (DIS)  
Antimony (TRC)  
Arsenic (DIS)  
Arsenic (TRC)



NOTES: All quantities in mg/L (Water) or mg/kg (Soil) unless noted. All results laboratory unless field (FLD) or calculated (CALC).

DATA VALIDATION FLAGS--- **J**: The associated numerical value is an estimated quantity because duplicate quality control criteria were not met. **S**: The associated numerical value is an estimated quantity because split quality control criteria were not met. **U**: Blank contamination; Indicates possible high bias and / or false positive. The associated value is an estimate. **R**: Quality control indicates that the data are unusable (compound may or may not be present). Resampling and/or reanalysis are necessary for verification. **A**: Anomalous data. No apparent explanation for discrepancy in data. **D**: Reporting Limit increased due to sample matrix. **L**: Lowest available reporting limit for the analytical method used. **H**: Analysis performed past recommended holding time. **Z**: No validation Flag.

# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type:	Station (Site)	WMR2	WMR3	WMR4	WMR5	WMR6	WMR7
Water	Sample Date	9/17/2019	9/17/2019	9/17/2019	9/17/2019	9/17/2019	9/17/2019
	Sample Time	10:05:00 AM	10:35:00 AM	10:27:00 AM	11:38:00 AM	11:46:00 AM	11:24:00 AM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-55	BBC-1909-56	BBC-1909-57	BBC-1909-58	BBC-1909-59	BBC-1909-60
	Remarks						

## Metals - Trace Constituents Multiple Units

Barium (DIS)  
Barium (TRC)  
Beryllium (DIS)  
Beryllium (TRC)  
Cadmium (DIS)  
Cadmium (TRC)  
Chromium (DIS)  
Chromium (TRC)  
Cobalt (DIS)  
Cobalt (TRC)  
Copper (DIS)  
Copper (TRC)  
Iron (DIS)  
Iron (TRC)  
Lead (DIS)  
Lead (TRC)  
Manganese (DIS)  
Manganese (TRC)  
Mercury (DIS)  
Mercury (TRC)  
Molybdenum (DIS)  
Molybdenum (TRC)  
Nickel (DIS)  
Nickel (TRC)  
Selenium (DIS)  
Selenium (TRC)  
Silver (DIS)  
Silver (TRC)  
Strontium (DIS)  
Strontium (TRC)  
Thallium (DIS)  
Thallium (TRC)  
Uranium (DIS)

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

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Sample Type:	Station (Site)	WMR2	WMR3	WMR4	WMR5	WMR6	WMR7
Water	Sample Date	9/17/2019	9/17/2019	9/17/2019	9/17/2019	9/17/2019	9/17/2019
	Sample Time	10:05:00 AM	10:35:00 AM	10:27:00 AM	11:38:00 AM	11:46:00 AM	11:24:00 AM
	Lab	Hydro	Hydro	Hydro	Hydro	Hydro	Hydro
	Lab Number	z	z	z	z	z	z
	Sample Number	BBC-1909-55	BBC-1909-56	BBC-1909-57	BBC-1909-58	BBC-1909-59	BBC-1909-60
	Remarks						

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## Metals - Trace Constituents Multiple Units

Uranium (TRC)  
Zinc (DIS)  
Zinc (TRC)



# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

Sample Type: Water  
Station (Site): WMR8  
Sample Date: 9/17/2019  
Sample Time: 11:19:00 AM  
Lab: Hydro  
Lab Number: z  
Sample Number: BBC-1909-61  
Remarks:

## Field Parameters Multiple Units

Depth To Water 3.34  
Dissolved Oxygen  
EH  
Field pH  
Field Specific Conductivity  
Flow  
Flow  
Staff Gauge  
Water Temperature

## Physical Parameters mg/L

Total Dissolved Solids  
Total Suspended Solids

## Major Constituents - Commons Ions mg/L

Alkalinity as CaCO3  
Calcium (DIS)  
Chloride  
Fluoride  
Hardness as CaCO3  
Magnesium (DIS)  
Potassium (DIS)  
Sodium (DIS)  
Sulfate

## Nutrients mg/L

Nitrate + Nitrite as N  
Phosphorus (TOT)  
Total Nitrogen as N (Persulfate)

## Metals - Trace Constituents Multiple Units

Aluminum (DIS)  
Antimony (DIS)  
Antimony (TRC)  
Arsenic (DIS)  
Arsenic (TRC)

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

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Sample Type: Station (Site) WMR8  
Water Sample Date 9/17/2019  
Sample Time 11:19:00 AM  
Lab Hydro  
Lab Number z  
Sample Number BBC-1909-61  
Remarks

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## Metals - Trace Constituents Multiple Units

Barium (DIS)  
Barium (TRC)  
Beryllium (DIS)  
Beryllium (TRC)  
Cadmium (DIS)  
Cadmium (TRC)  
Chromium (DIS)  
Chromium (TRC)  
Cobalt (DIS)  
Cobalt (TRC)  
Copper (DIS)  
Copper (TRC)  
Iron (DIS)  
Iron (TRC)  
Lead (DIS)  
Lead (TRC)  
Manganese (DIS)  
Manganese (TRC)  
Mercury (DIS)  
Mercury (TRC)  
Molybdenum (DIS)  
Molybdenum (TRC)  
Nickel (DIS)  
Nickel (TRC)  
Selenium (DIS)  
Selenium (TRC)  
Silver (DIS)  
Silver (TRC)  
Strontium (DIS)  
Strontium (TRC)  
Thallium (DIS)  
Thallium (TRC)  
Uranium (DIS)

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# Analyses Summary Report

Site Name: Black Butte Mine

11/6/2019 11:12:30 AM

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Sample Type:	Station (Site)	WMR8
Water	Sample Date	9/17/2019
	Sample Time	11:19:00 AM
	Lab	Hydro
	Lab Number	z
	Sample Number	BBC-1909-61
	Remarks	

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## Metals - Trace Constituents Multiple Units

Uranium (TRC)  
Zinc (DIS)  
Zinc (TRC)