
2018 FOURTH QUARTER REPORT
WATER RESOURCES MONITORING
BLACK BUTTE COPPER

Prepared for:

Tintina Montana, Inc.
17 East Main Street
White Sulphur Springs, Montana, USA 59645

Prepared by:

Hydrometrics, Inc.
3020 Bozeman Avenue
Helena, Montana 59601

June 2019

TABLE OF CONTENTS

LIST OF TABLES	ii
LIST OF FIGURES	iii
LIST OF APPENDICES.....	iii
1.0 INTRODUCTION	1-1
2.0 WATER RESOURCES MONITORING	2-1
2.1 SURFACE WATER	2-1
2.2 SPRINGS	2-2
2.3 GROUNDWATER	2-2
3.0 RESULTS	3-1
3.1 STREAM FLOW	3-1
3.2 SPRING FLOW	3-2
3.3 GROUNDWATER LEVELS	3-4
3.4 WATER QUALITY DATA	3-6
3.5 QUALITY CONTROL.....	3-16
4.0 REFERENCES	4-1

LIST OF TABLES

TABLE 1.	BASELINE MONITORING SITE DESCRIPTION AND SAMPLING SUMMARY	1-3
TABLE 2.	PARAMETERS, METHODS, AND DETECTION LIMITS FOR SURFACE WATER MONITORING	1-11
TABLE 3.	PARAMETERS, METHODS, AND DETECTION LIMITS FOR GROUNDWATER MONITORING	1-12
TABLE 4.	NOVEMBER 2018 WATER LEVEL DATA SUMMARY	3-3
TABLE 5.	SUMMARY OF VERTICAL HYDRAULIC GRADIENTS	3-4
TABLE 6.	FOURTH QUARTER 2018 SURFACE WATER QUALITY SUMMARY	3-7

TABLE 7.	FOURTH QUARTER 2018 SPRING WATER QUALITY SUMMARY	3-12
TABLE 8.	FOURTH QUARTER 2018 GROUNDWATER QUALITY SUMMARY	3-14

LIST OF FIGURES

FIGURE 1.	LOCATION MAP	1-2
FIGURE 2.	SURFACE WATER AND SPRING MONITORING SITES	1-8
FIGURE 3.	GROUNDWATER MONITORING SITES	1-10
FIGURE 4.	2018 NOVEMBER POTENTIOMETRIC SURFACE MAP	3-5

LIST OF APPENDICES

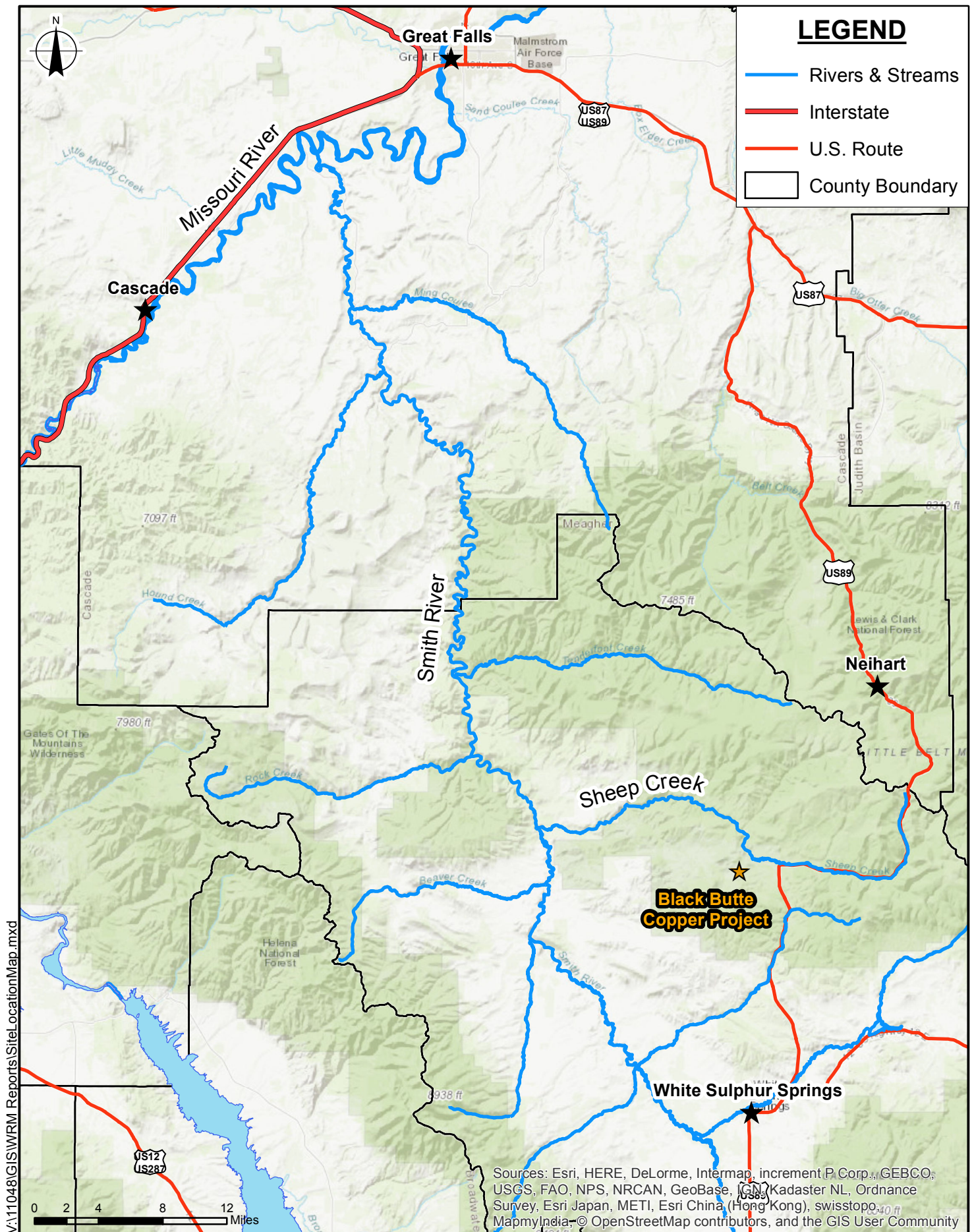
APPENDIX A	LABORATORY ANALYTICAL REPORT
APPENDIX B	QA/QC REPORTS

2018 FOURTH 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 fourth quarter of 2018. 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). Monthly monitoring consists of collecting flow and stage measurements, field parameters, and water quality samples at seven surface water monitoring sites and 12 spring monitoring sites. The quarterly monitoring program consists of collecting flow and stage measurements, field parameters, and water quality samples at 14 surface water sites and water level measurements at 52 groundwater sites, and water quality field parameters and water quality samples at 32 groundwater sites (27 monitoring wells, 7 test wells). The annual monitoring program consists of collecting field parameters at 19 spring sites and 10 seep sites, flow measurements at 19 spring sites and water quality samples from 11 spring sites. The location, sampling schedule, and description of each water resources monitoring site are summarized in Table 1. The locations of the surface water, spring, and seep monitoring sites are shown on Figure 2 and the groundwater monitoring



V:\11048\GIS\WRM Reports\Site\LocationMap.mxd

0 2 4 8 12 Miles

Hydrometrics, Inc.
Consulting Scientists and Engineers

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

TABLE 1. BASELINE MONITORING SITE DESCRIPTION AND SAMPLING 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						
Surface Water Sites							
SW-1	507148	5182710	M, Q	X	X	X	Sheep Creek - Downgradient site; at bridge on County Road 119.
SW-2	511040	5179844	M, Q	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, Q	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 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	--	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	Butte Creek - Downgradient of confluence with Unnamed tributary to Butte Creek (west of Moose Pass).
SW-14	507876	5180008	M, Q	X	X	X	Little Sheep Creek - Downstream of SW-8, approximately 1.0 miles from Highway 89.
SW-17	506919	5181218	M, Q	X	X	X	Coon Creek - approximately 150 feet upstream of the confluence with Sheep Creek.
SW-18	507876	5180008	M, Q	X	X	X	Coon Creek - head of drainage, upgradient of wetlands, south of USFS Road 6492.
USGS-SC1	514509	5179419	M, Q	X	X	X	Approximately 2.4 miles upstream of SW-2 on Sheep Creek.

TABLE 1. BASELINE MONITORING SITE DESCRIPTION AND SAMPLING 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						
Springs							
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, A	X	X	X	Spring in small unnamed tributary to Sheep Creek in NWNE Section 24 T12N R06E.
SP-4	506425.17	5180468.94	M, A	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, A	X	X	X	Spring in upper Brush Creek drainage (formally known as surface water SW-7 location).
SP-6	506219.58	5181027.89	M, A	X	X	X	Unnamed tributary drainage near mine site, located in SESW Section 24 T12N R06E.
SP-7	507693.69	5181137.92	M, A	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, A	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, A	X	X	X	Hill slope east of Sheep Creek, in the SWNE Section 24 T12N R06E.
SP-12*	507098	5180685	M, A	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 SAMPLING 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						
Developed Springs							
DS-1	506507.08	5178870.81	M, A	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, A	X	X	--	Developed seep/spring, southeast side of Black Butte upgradient of SP-1.
DS-3	505037.62	5181520.61	M, A	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, A	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.
Seeps							
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).

TABLE 1. BASELINE MONITORING SITE DESCRIPTION AND SAMPLING 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								
Seep-10	507270.05	5179164.8	A	--	X	--	Spring in upper Brush Creek, upstream of Seep 1, in NWNW Section 31 T12N R07E.		
Monitoring Wells							Total Depth	Perforated/Screen Interval	Gravel/Sand Pack Interval
							feet, below ground surface		
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	011-59
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
SC15-184*	507047.34	5178972.53	Q	X	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

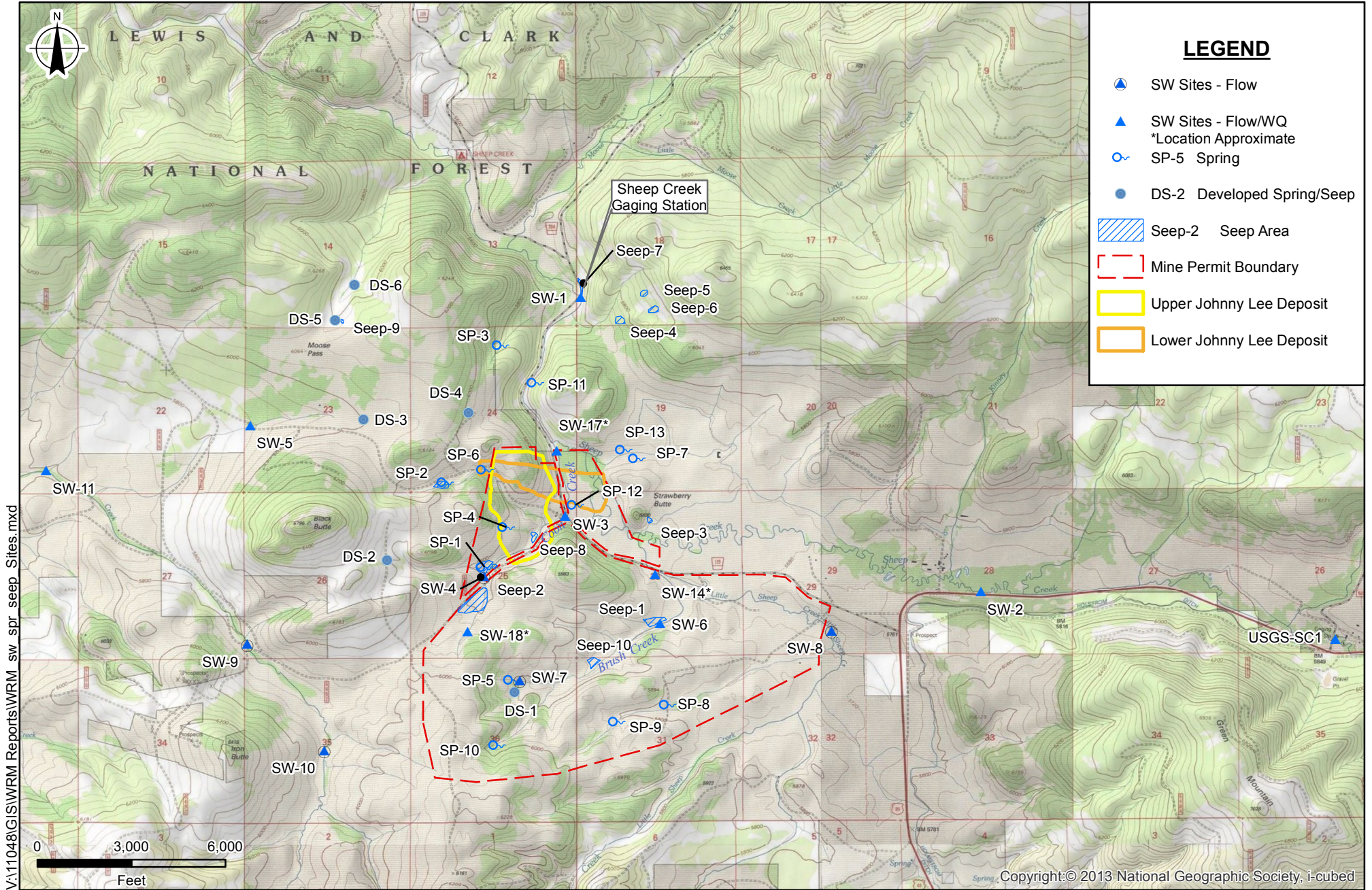
TABLE 1. BASELINE MONITORING SITE DESCRIPTION AND SAMPLING SUMMARY (CONTINUED)

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
Test Wells							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	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
Piezometers									
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, Easting, and elevations are approximate.

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

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



V:\11048\GIS\WORM Reports\WORM sw_spr_seep_Sites.mxd

Figure 2
Surface Water and Spring Monitoring Sites
Black Butte Copper Project
Meagher County, Montana

sites are shown on Figure 3. This report summarizes the results of the water resource monitoring programs conducted during the fourth quarter of 2018, including:

- Monthly monitoring in October 2018;
- Quarterly monitoring in November 2018; and
- Monthly monitoring in December 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.

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

Parameter	Analytical Method ⁽¹⁾	Project-Required Detection Limit (mg/L)
Physical Parameters		
TDS	SM 2540C	4
TSS	SM 2540C	4
Common Ions		
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
Nutrients		
Nitrate+Nitrite as N	353.2	0.003
Total Persulfate Nitrogen	A 4500-N-C	0.04
Total Phosphorus	E365.1	0.003
Trace Constituents (Total Recoverable except Aluminum [Diss])⁽²⁾		
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
Field Parameters		
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 3. PARAMETERS, METHODS, AND DETECTION LIMITS
FOR GROUNDWATER MONITORING**

Parameter	Analytical Method ⁽¹⁾	Project-Required Detection Limit (mg/L)
Physical Parameters		
TDS	SM 2540C	10
TSS	SM 2540C	10
Common Ions		
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
Nutrients		
Nitrate+Nitrite as N	353.2	0.01
Trace Constituents (Dissolved)⁽²⁾		
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
Field Parameters		
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.

2.0 WATER RESOURCES MONITORING

2.1 SURFACE WATER

Surface water monitoring was conducted in accordance to 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 to the schedule described in Section 1.0. The monthly surface water monitoring, conducted in the fourth quarter of 2018, included the collection of field parameters, water quality samples, and flow measurements from six sites in October. During the December event, frozen conditions precluded the collection of flow measurements at all sites, however water quality samples and field parameters were collected at five sites. Surface water monitoring site SW-18 was dry during all fourth quarter monitoring events. Duplicate samples were collected at surface water sites SW-17 in October and SW-2 in December.

The quarterly surface water monitoring (which includes the monthly monitoring sites) was conducted in November of 2018 in accordance with the schedule described in Section 1.0. The quarterly monitoring included the collection of field parameter measurements and water quality samples at seven sites. Flow was measured at one site in November due to frozen conditions precluding measurements at other sites. Surface water monitoring sites SW-5 and SW-18 were dry during the quarterly monitoring event and therefore measurements and samples were not collected. A duplicate sample was collected at surface water site SW-14 in November.

2.2 SPRINGS

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

- Collection of field parameters;
- Water quality sample collection; and
- Collection of flow measurements (where feasible).

In the fourth quarter of 2018, the October and December monthly spring monitoring included the collection of field parameters, water quality samples, and flow measurements at 7 sites; flow measurements and field parameters at one site; and field parameters and water quality samples at two sites. Monthly spring and seep monitoring was also conducted during the November quarterly monitoring event, which included the collection of field parameters, water quality samples, and flow measurements at five sites; flow measurements and field parameters at one site; and field parameters and water quality samples at three sites. Flow measurements were not collected at SP-11 and SP-12 during the fourth quarter due to the flow not being within a discernable channel and unsafe access, respectively. Duplicate samples were collected from SP-7 in October, SP-7 in November, and SP-4 in December.

2.3 GROUNDWATER

The groundwater monitoring conducted in the fourth quarter of 2018 consisted of the measurement of static water levels (SWL) and collection of field water quality parameters and water quality samples during the quarterly monitoring event in November. Supplemental water level monitoring is conducted at core hole SC12-116 for purposes 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 to methodologies described in the FSAP, which consist of the following steps:

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

Water quality monitoring was conducted at test well PW-7 in October after the dedicated pump system was repaired.

In November of 2018, SWL measurements were collected from 26 monitoring wells (SWL at MW-15 was not measured due to equipment malfunction), 9 test wells, core hole SC12-116, and 14 piezometers (PZ-4 was frozen in November). Field parameter measurements and water quality samples were collected from 25 monitoring 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 UIG tracer study. Water quality monitoring was not conducted at the test wells during the fourth quarter monitoring event due to frozen ground conditions. A duplicate sample was collected from MW-16 in November.

3.0 RESULTS

The water level data collected during the fourth quarter of 2018 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 fourth quarter of 2018 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 fourth quarter of 2018 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 11.62 cfs to 18.7 cfs in October. Flow measurements were not collected during the November and December monitoring events due to frozen conditions precluding accurate and representative measurements.

Little Sheep Creek

Flow measurements at Little Sheep Creek surface water monitoring sites (SW-8 and SW-14) ranged from 0.66 cfs in October to 0.88 cfs in November. Flow measurements were not collected during the December monthly monitoring event due to frozen conditions precluding accurate and representative measurements.

Coon Creek

Flow measurements at Coon Creek surface water monitoring sites (SW-3, SW-4, SW-17, and SW-18) ranged from 0.09 cfs to 0.19 cfs during the fourth quarter. Flow measurements at SW-18 were not collected due dry conditions.

Brush Creek

Flow was not measured at the Brush Creek surface water monitoring site (SW-6) during the fourth quarter due to frozen conditions.

Black Butte Creek

Flow was not measured at the Black Butte Creek surface water monitoring sites (SW-9, SW-10, and SW-11) during the fourth quarter due to frozen conditions. Flow measurements were not collected at the unnamed tributary to Black Butte Creek (SW-5) due to dry conditions.

3.2 SPRING FLOW

During the fourth quarter of 2018, the flows measured at springs were within the previously observed ranges for all sites. 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.

The flow rates measured from springs during the October monthly monitoring event ranged from approximately 0.13 gpm to 28 gpm. The flow rate was not measured at DS-3 and DS-4 due to dry conditions. A duplication sample was collected from SP-7.

The flow rates measured from springs during the November monthly monitoring event ranged from approximately 0.53 gpm to 20 gpm. The flow rate was not measured at DS-2, DS-3 and DS-4 due to dry and frozen (DS-2) conditions. A duplicate sample was collected from SP-7.

During the December monthly monitoring event, flow rates were only measured from springs SP-4 (0.58 gpm) and SP-7 (15.3 gpm) due to dry or frozen conditions at other sites. A duplicate sample was collected from SP-4.

TABLE 4. NOVEMBER 2018 WATER LEVEL DATA SUMMARY

Well Name	Eastings	Northing	Ground Surface Elev.	Measuring Point Elev.	Depth to Water Level	Depth to Water Level	Water Level Elev.
	WGS 1984 UTM Zone 12 North		NGVD 29				
	meters		(feet, amsl ¹)		(feet, bmp ¹)	(feet, bgs ¹)	(feet, amsl)
Monitoring Wells							
MW-1A	506935.22	5180841.55	5635.81	5637.73	8.03	6.11	5629.70
MW-1B	506934.19	5180845.46	5636.14	5637.90	23.80	22.04	5614.10
MW-2A	506598.18	5180331.93	5743.72	5745.31	42.21	40.62	5703.10
MW-2B	506596.96	5180328.73	5743.44	5745.53	42.09	40.00	5703.44
MW-3	506484.07	5180740.22	5760.06	5762.17	40.90	38.79	5721.27
MW-4A	507201.47	5180855.43	5610.12	5612.12	4.59	2.59	5607.53
MW-4B	507200.12	5180858.49	5610.07	5612.07	4.08	2.08	5607.99
MW-6A	507809.18	5179492.90	5680.08	5681.87	8.34	6.55	5673.53
MW-6B	507792.76	5179490.70	5683.41	5685.31	11.53	9.63	5673.78
MW-7	507451.70	5179500.70	5747.48	5749.46	31.13	29.15	5718.33
MW-8	507036.00	5179398.30	5809.10	5810.93	31.30	29.47	5779.63
MW-9	506592.96	5180725.46	5744.35	5745.80	51.19	49.73	5694.61
MW-10	506578.57	5179215.05	5882.78	5886.11	77.18	73.85	5808.93
MW-11	506464.72	5179117.47	5854.74	5857.86	33.58	30.46	5824.28
MW-12	506412.82	5179010.38	5841.51	5844.75	27.46	24.22	5817.29
MW-13	506477.79	5178855.81	5819.07	5822.48	21.30	17.89	5801.18
MW-14	508255.63	5179376.77	5761.16	5763.87	40.07	37.36	5723.80
MW-15	508290.89	5179071.07	5795.26	5797.34	NM	--	--
MW-16	507036.301	5180586.210	5623.73	5625.59	6.78	4.92	5618.81
MW-17	506654.57	5180130.74	5793.51	5796.06	52.11	49.56	5743.95
MW-18	506257.38	5179707.93	5819.62	5821.97	16.77	14.42	5805.20
MW-19	506878.42	5178925.74	5758.95	5761.07	14.09	11.97	5746.98
MW-20	507426.69	5179631.58	5748.75	5750.62	22.70	20.83	5727.92
SC15-184	507045.34	5178972.53	5743.83	5745.56	Artesian	--	--
SC15-185	506355.46	5179094.24	5879.64	5881.72	31.08	29.00	5850.64
SC15-194	506014.14	5179854.92	5817.96	5819.82	19.77	17.91	5800.05
SC15-198	506621.36	5179854.92	5865.75	5867.60	41.88	40.03	5825.72
Test Wells							
PW-1	506301.42	5180698.40	5912.07	5913.74	101.28	99.61	5812.46
PW-2	506443.15	5180865.03	5793.08	5794.88	54.15	52.35	5740.73
PW-3	506846.43	5180479.42	5655.21	5657.42	13.52	11.31	5643.90
PW-4	506849.44	5180701.75	5678.13	5680.01	53.83	51.95	5626.18
PW-5	506490.68	5181172.77	5913.22	5915.49	335.60	333.33	5579.89
PW-6N	506477.44	5181085.67	5895.43	5897.40	307.47	305.50	5589.93
PW-7	507122.89	5180867.59	5609.11	5611.15	Artesian	--	--
PW-8	506846.19	5180695.53	5679.12	5680.60	45.86	44.38	5634.74
PW-9	506598.38	5180721.88	5743.59	5745.05	47.43	45.97	5697.62
PW-10	506593.55	5180721.88	5743.57	5744.84	45.43	44.15	5699.41
Piezometers							
PZ-01	507650.01	5180255.63	5628.69	5630.34	2.99	1.34	5627.35
PZ-02	507400.72	5180778.79	5611.81	5613.51	3.04	1.34	5610.47
PZ-03	507249.21	5180618.91	5616.08	5617.74	4.98	3.32	5612.76
PZ-04	506991.74	5181110.82	5599.34	5602.7	Frozen	--	--
PZ-05	507080.04	5181214.68	5598.16	5599.79	3.2	1.57	5596.59
PZ-07A	506258.39	5180074.65	5776.57	5777.5	1.97	1.04	5775.53
PZ-07B	506258.47	5180075.00	5776.57	5777.59	3.29	2.27	5774.3
PZ-08	507090.31	5180573.81	5618.9	5621.29	4.48	2.09	5616.81
PZ-09	507883.78	5180178.58	5634.73	5637.27	5.42	2.88	5631.85
PZ-10	506590.91	5180679.01	5723.51	5727.42	9.22	5.31	5718.2
PZ-11R	507031.15	5180654.89	5618.31	5622.24	6.8	2.87	5615.44
PZ-12	506839.49	5180509.42	5644.56	5646.55	5.61	3.62	5640.94
PZ-13	507793.88	5180289.38	5633.16	5637.27	8.55	4.43	5628.72
PZ-14	507492.91	5180412.13	5622.66	5625.68	6.02	3.00	5619.66
PZ-15	507193.65	5180762.85	5611.60	5614.45	4.84	1.99	5609.61

¹amsl: above mean sea level; bmp: below measuring point; bgs: below ground surface

3.3 GROUNDWATER LEVELS

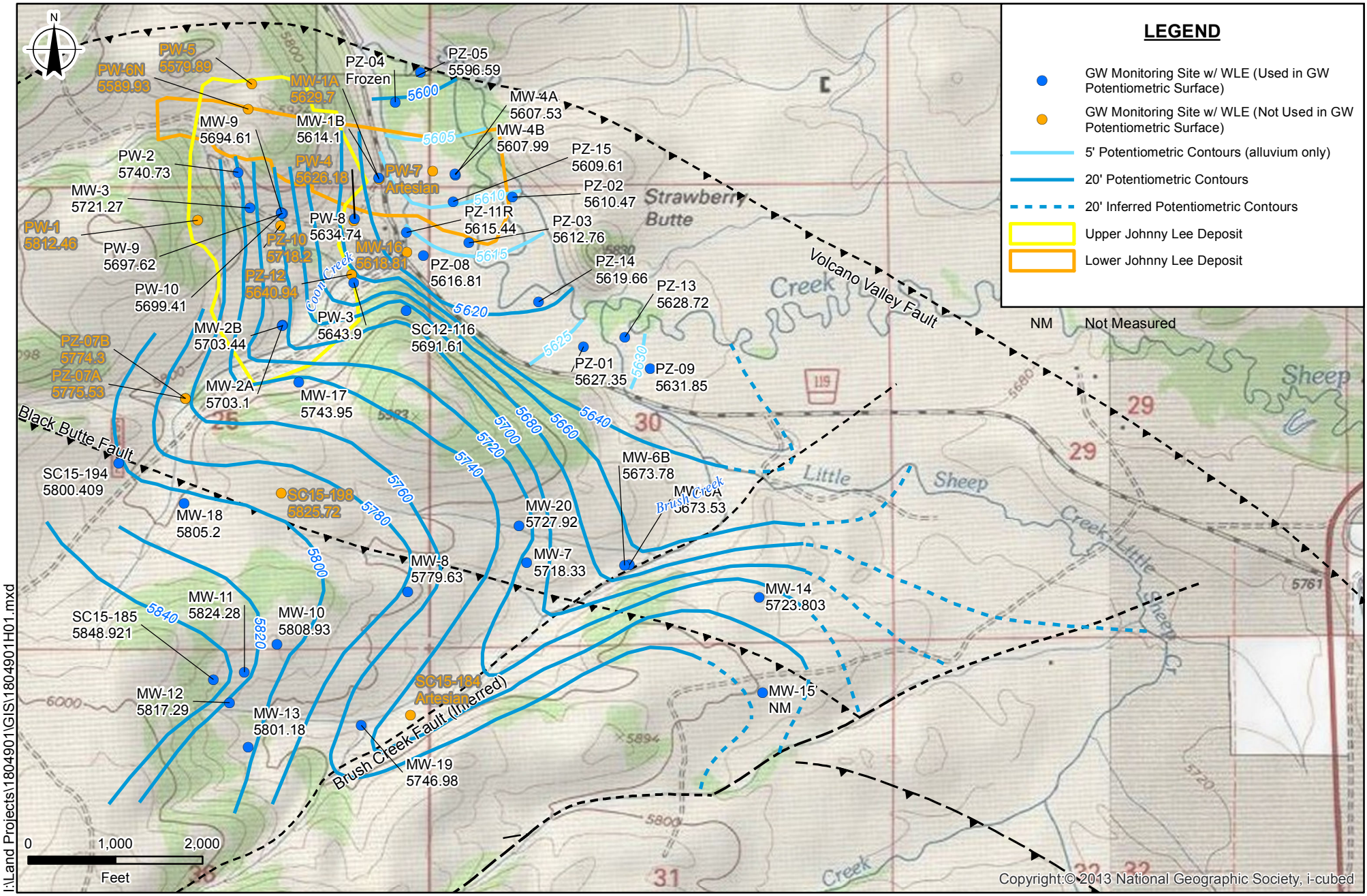
Groundwater levels measured in November of 2018 were consistent with previous data collected. The groundwater elevations were calculated for each well and piezometer from the depth to water level measurements and measuring point elevations and are listed in Table 4. The groundwater elevations were used to construct a potentiometric surface shown on 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). Consistent with previous results, the hydraulic gradients ranged from 0.04 to 0.07; 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 0.009 (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 fourth quarter of 2018 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	15.6	-0.246	Down
MW-2A	MW-2B	Southern portion of the Upper Johnny Lee Deposit	0.34	0.019	Up
MW-4A	MW-4B	Sheep Creek alluvial valley	0.46	0.015	Up
MW-6A	MW-6B	Near Brush Creek	0.25	<0.01	ND ¹
PW-8	PW-4	Eastern edge of the Upper Johnny Lee Deposit	8.56	-0.141	Down
MW-9	PW-9	Central area of the Upper Johnny Lee Deposit	3.01	0.025	Up
PW-9	PW-10	Central area of the Upper Johnny Lee Deposit	1.79	0.017	Up

¹ ND – vertical gradient is not discernable



LEGEND

- GW Monitoring Site w/ WLE (Used in GW Potentiometric Surface)
- GW Monitoring Site w/ WLE (Not Used in GW Potentiometric Surface)
- 5' Potentiometric Contours (alluvium only)
- 20' Potentiometric Contours
- 20' Inferred Potentiometric Contours
- Upper Johnny Lee Deposit
- Lower Johnny Lee Deposit

NM Not Measured

I:\Land Projects\1804901\GIS\1804901H01.mxd

Figure 4
2018 November Potentiometric Surface Map
Black Butte Copper Project
Meagher County, Montana

3.4 WATER QUALITY DATA

Surface Water

The surface water quality for the fourth quarter of 2018 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;
- Near neutral to alkaline pH (6.62 to 8.51 s.u.);
- Low total dissolved solids (169 to 254 mg/L); and
- Low level detection of metals at one or more sites, including: barium, iron, manganese, strontium, uranium, and zinc (Table 6).

Springs and Seeps

The water quality for the fourth quarter of 2018 was relatively similar at monitoring sites, which are characterized by the following:

- Calcium bicarbonate type water;
- Moderately hard to hard water;
- Slightly acidic to alkaline pH (6.21 to 8.09 s.u);
- Low to moderate total dissolved solids (104 to 254 mg/L); and
- Low level detection of metals, including: dissolved aluminum, arsenic, barium, iron, manganese, selenium, strontium, thallium, uranium, and zinc (Table 7).

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.

TABLE 6. FOURTH QUARTER 2018 SURFACE WATER QUALITY SUMMARY

Station Name			SW-1	SW-1	SW-1	SW-2	SW-2	SW-2	SW-2	SW-3	SW-3	SW-3	SW-4	SW-5	SW-6	SW-8	SW-9	SW-10	SW-11
Sample Date/Time			10/23/18 11:30	11/12/18 12:00	12/14/18 08:40	10/23/18 12:15	11/12/18 12:45	12/14/18 09:45	12/14/18 10:00	10/23/18 14:10	11/12/18 14:30	12/14/18 09:10	11/12/18 14:40	11/12/18 15:45	11/14/18 13:00	11/12/18 16:00	11/12/18 15:30	11/15/18 14:00	11/12/18 15:15
Field Sample ID			BBC-1810-100	BBC-1811-100	BBC-1812-100	BBC-1810-101	BBC-1811-101	BBC-1812-104	BBC-1812-105	BBC-1810-105	BBC-1811-107	BBC-1812-102	BBC-1811-108	BBC-1811-112	BBC-1811-115	BBC-1811-113	BBC-1811-111	BBC-1811-116	BBC-1811-110
Laboratory		Aquatic Life Standard Chronic*	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	HYDRO	HYDRO	HYDRO	Energy Labs	HYDRO	HYDRO	HYDRO	Energy Labs
Remarks										Duplicate		No Sample	No Sample	No Sample	Energy Labs	No Sample	No Sample	No Sample	Energy Labs
Lab Sample ID			H18100607-001	H18110265-001	H18120294-001	H18100607-002	H18110265-002	H18120294-004	H18120294-005	H18100607-006	H18110265-007	--	--	--	H18110401-001	--	--	--	H18110265-008
Field Parameters																			
Dissolved Oxygen	mg/L		12.13	11.7	10.9	11.72	11.56	10.23		10.62	10.9				10.8	9.9	10.76	11.39	11.26
Field pH	s.u.		6.62	7.9	7.35	7.79	8.16	7.66		7.92	8.32				8.35	7.84	8.41	8.51	8.38
Field Specific Conductivity	umhos/cm		331	334	343	320	326	335		415	398				388	443	437	421	432
Flow	Cubic Ft Sec		18.70	NM-ICE	NM-ICE	15.68	NM-ICE	NM-ICE		0.09	NM-ICE	NF-DRY	NM-ICE	NM-DRY	NM-ICE	NM-ICE	NM-ICE	NM-ICE	NM-ICE
Staff Gauge	Feet		0.83			0.41				0.21									
Water Temperature	Deg C		1.4	0.25	0.15	2.3	0.14	0.13		3.8	0.62				2.2	0.03	0.62	1.3	0.35
Physical Parameters																			
Total Dissolved Solids	mg/L		193 D	193 D	173 D	184 D	184 D	171 D	169 D	230 D	223 D				225 D				245 D
Total Suspended Solids	mg/L		<4	<4	<4	<4	<4	<4	<4	<4	<4				6 J				<4
Major Constituents - Commons Ions																			
Alkalinity as CaCO3	mg/L		170	180	170	170	170	170	170	200	200				210				210
Calcium (DIS)	mg/L		48	49	50	50	48	47	50	49	47				52				52
Chloride	mg/L		2	2	2	1	2	1	1	2	3				<1				1
Fluoride	mg/L	4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.2	0.1				0.2				0.2
Hardness as CaCO3	mg/L		173	179	178	177	172	167	177	221	219				224				229
Magnesium (DIS)	mg/L		13	14	13	13	13	12	12	24	25				23				24
Potassium (DIS)	mg/L		1	1	1	1	1	1	1	1	1				1				1
Sodium (DIS)	mg/L		2	3	2	2	2	2	2	2	2				3				3
Sulfate	mg/L		7	8	7	7	7	7	7	26	26				16				28
Nutrients																			
Nitrate + Nitrite as N	mg/L		10	<0.01	0.04	0.11	0.01	0.03	0.1	0.1	0.04	0.08			0.08				0.19
Phosphorus (TOT)	mg/L		0.006	0.007	0.01	<0.003	0.005	0.007	0.009	0.008	0.009				0.015				0.009
Total Persulfate Nitrogen	mg/L		0.07	0.1	0.18	0.06	0.09	0.14	0.14	0.11	0.13				0.16				0.27
Metals - Trace Constituents																			
Aluminum (DIS)	mg/L	0.087	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009			<0.009				<0.009
Antimony (TRC)	mg/L		0.0056	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005				<0.0005
Arsenic (TRC)	mg/L	0.15	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001				<0.001
Barium (TRC)	mg/L		1	0.101	0.11	0.116	0.088	0.096	0.095	0.098	0.156	0.148			0.134				0.097
Beryllium (TRC)	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 (TRC)	mg/L	0.00026	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 (TRC)	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 (TRC)	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 (TRC)	mg/L	0.0029	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 (TRC)	mg/L	1		0.12	0.15	0.17	0.1	0.12	0.11	0.12	0.05	0.06			0.24				0.07
Lead (TRC)	mg/L	0.00054	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 (TRC)	mg/L		0.012	0.014	0.017	0.006	0.007	0.008	0.008	0.008	<0.005	<0.005			0.019				<0.005
Mercury (TRC)	mg/L	0.00091	0.00005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005			<0.000005				<0.000005
Molybdenum (TRC)	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 (TRC)	mg/L	0.016	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 (TRC)	mg/L	0.005	0.05	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002			<0.0002				<0.0002
Silver (TRC)	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 (TRC)	mg/L		4	0.131 D	0.136 D	0.137 D	0.131 D	0.132 D	0.131 D	0.128 D	0.123 D	0.12 D			0.174 D				0.176 D
Thallium (TRC)	mg/L		0.00024	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002			<0.0002				<0.0002
Uranium (TRC)	mg/L		0.03	<0.008	<0.008	0.0004	<0.008	<0.008	0.0003	0.0003	<0.008	<0.008			0.0007				<0.008
Zinc (TRC)	mg/L	0.037	2	<0.002	<0.002	0.002	<0.002	<0.002	0.002	0.003	0.003	<0.002			<0.002				<0.002

DIS = Dissolved
TOT = Total
TRC = Total Recoverable
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
Calculated @ 25mg/L Hardness - detected result; Aquatic Life Standard Chronic

Source: Montana DEQ-7 May 2017

TABLE 6. FOURTH QUARTER 2018 SURFACE WATER QUALITY SUMMARY (CONTINUED)

Station Name			SW-14	SW-14	SW-14	SW-14	SW-17	SW-17	SW-17	SW-17	SW-18	SW-18	SW-18	USGS-SC1	USGS-SC1	USGS-SC1		
Sample Date/Time			10/23/18 14:40	11/12/18 13:30	11/12/18 13:45	12/14/18 09:30	10/23/18 13:40	10/23/18 14:00	11/12/18 14:00	12/14/18 09:10	10/23/18 16:40	11/12/18 14:50	12/14/18 15:30	10/23/18 12:40	11/12/18 13:00	12/14/18 10:15		
Field Sample ID			BBC-1810-107	BBC-1811-104	BBC-1811-105	BBC-1812-103	BBC-1810-103	BBC-1810-104	BBC-1811-106	BBC-1812-101	BBC-1810-111	BBC-1811-109	BBC-1812-122	BBC-1810-102	BBC-1811-102	BBC-1812-106		
Laboratory		Aquatic Life Standard Chronic*	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	HYDRO	HYDRO	HYDRO	Energy Labs	Energy Labs	Energy Labs
Remarks					Duplicate			Duplicate			No Sample	No Sample	No Sample					
Lab Sample ID			H18100607-008	H18110265-004	H18110265-005	H18120294-003	H18100607-004	H18100607-005	H18110265-006	H18120294-002	--	--	--	H18100607-003	H18110265-003	H18120294-006		
Field Parameters																		
Dissolved Oxygen	mg/L		12.19	12.9		8.94	10.99	10.99	10.78	10.56				11.37	11.32	10.58		
Field pH	s.u.		8.22	8.34		7.6	7.87	7.87	8.21	7.47				7.78	8.19	7.91		
Field Specific Conductivity	umhos/cm		406	416		431	441	441	442	471				358	366	373		
Flow	Cubic Ft Sec		0.66	0.88		NM-ICE	0.19	0.19	NM-ICE	NM-ICE	NF-DRY	NF-DRY	NF-DRY	11.62	NM-ICE	NM-ICE		
Staff Gauge	Feet		0.44	0.45														
Water Temperature	Deg C		7.7	3.7		1.3	5.3	5.3	0.51	0.39				2.8	0.1	0.07		
Physical Parameters																		
Total Dissolved Solids	mg/L		227 D	230 D	239 D	226 D	254 D	254 D	253 D	253 D				196 D	196 D	190 D		
Total Suspended Solids	mg/L		<4	<4	<4	<4	<4	<4	<4	<4				<4	6 J	<4		
Major Constituents - Commons Ions																		
Alkalinity as CaCO3	mg/L		220	220	220	220	210	210	210	210				190	190	190		
Calcium (DIS)	mg/L		55	53	52	56	57	58	53	56				54	53	56		
Chloride	mg/L		2	2	2	3	4	4	5	5				2	2	2		
Fluoride	mg/L		4	0.2	0.1	0.2	0.2	0.2	0.2	0.2				<0.1	<0.1	<0.1		
Hardness as CaCO3	mg/L		223	220	217	218	246	251	236	240				192	190	196		
Magnesium (DIS)	mg/L		21	21	21	19	25	26	25	25				14	14	14		
Potassium (DIS)	mg/L		1	1	1	1	1	1	1	1				1	1	1		
Sodium (DIS)	mg/L		2	3	3	3	2	2	2	2				2	2	2		
Sulfate	mg/L		12	16	16	9	33	33	34	34				8	8	7		
Nutrients																		
Nitrate + Nitrite as N	mg/L		10	0.03	0.06	0.06	0.19	0.06	0.06	0.11	0.19			0.03	0.06	0.11		
Phosphorus (TOT)	mg/L		<0.003	0.004	0.003	0.006	0.004	0.005	0.015	0.007				<0.003	0.008	0.005		
Total Persulfate Nitrogen	mg/L		0.12	0.14	0.14	0.27	0.14	0.14	0.18	0.27				0.07	0.1	0.14		
Metals - Trace Constituents																		
Aluminum (DIS)	mg/L	0.087	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009			<0.009	<0.009	<0.009		
Antimony (TRC)	mg/L		0.0056	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005			<0.0005	<0.0005	<0.0005		
Arsenic (TRC)	mg/L	0.15	0.01	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001			<0.001	<0.001	<0.001		
Barium (TRC)	mg/L		1	0.119	0.117	0.114	0.13	0.16	0.154	0.157	0.168			0.066	0.073	0.071		
Beryllium (TRC)	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 (TRC)	mg/L	0.00026	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 (TRC)	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 (TRC)	mg/L		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01			<0.01	<0.01	<0.01		
Copper (TRC)	mg/L	0.0029	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 (TRC)	mg/L	1		0.04	0.03	0.04	0.03	0.1	0.1	0.13	0.09			0.08	0.23	0.1		
Lead (TRC)	mg/L	0.00054	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 (TRC)	mg/L		<0.005	<0.005	<0.005	<0.005	<0.005	0.013	0.013	0.024	0.03			0.005	0.01	0.007		
Mercury (TRC)	mg/L	0.00091	0.00005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005			<0.000005	<0.000005	<0.000005		
Molybdenum (TRC)	mg/L		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002			<0.002	<0.002	<0.002		
Nickel (TRC)	mg/L	0.016	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 (TRC)	mg/L	0.005	0.05	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002			<0.0002	<0.0002	<0.0002		
Silver (TRC)	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 (TRC)	mg/L		4	0.132 D	0.128 D	0.127 D	0.132 D	0.147 D	0.143 D	0.146 D	0.161 D			0.147 D	0.154 D	0.152 D		
Thallium (TRC)	mg/L		0.00024	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002			<0.0002	<0.0002	<0.0002		
Uranium (TRC)	mg/L		0.03	<0.008	<0.008	<0.008	0.0006	<0.008	<0.008	<0.008	0.0007			<0.008	<0.008	0.0004		
Zinc (TRC)	mg/L	0.037	2	0.002	<0.002	<0.002	0.002	0.002	0.002	<0.002	0.003			<0.002	<0.002	0.002		

DIS = Dissolved

TOT = Total

TRC = Total Recoverable

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

Calculated @ 25mg/L Hardness - detected result; Aquatic Life Standard Chronic

Source: Montana DEQ-7 May 2017

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 (7.33 to 7.64 s.u.);
- Low sulfate concentration (13 to 21 mg/L);
- Moderate total dissolved solids concentrations (193 to 296 mg/L); and
- Low concentrations of many dissolved metals, including: barium, strontium, and uranium at all wells; copper, lead, selenium, and thallium at MW-1A; selenium and thallium at MW-2A; iron and manganese at MW-4A; and selenium at MW-6A (Table 8).

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, and MW-20. The water quality at these wells is characterized by the following:

- Calcium-magnesium bicarbonate type water;
- Near neutral to slightly alkaline pH (7.28 to 8.05 s.u.);
- Low to moderate sulfate concentrations (8 to 104 mg/L);
- Moderate total dissolved solids concentrations (162 to 384 mg/L); and
- Low concentrations of numerous dissolved metals, including: barium, strontium and uranium at all wells; arsenic, iron, manganese, selenium, and thallium at MW-2B; manganese at MW-6B; arsenic, iron, manganese, and molybdenum at MW-7; arsenic, iron, and manganese at MW-8; selenium at MW-13; aluminum, arsenic, iron, manganese, and zinc at MW-16; selenium and zinc at MW-17; aluminum and selenium at MW-18; aluminum, at MW-19; and nickel and selenium at MW-20 (Table 8).

The monitoring wells MW-1B, MW-3, and MW-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 7.17 s.u.);
- Elevated sulfate concentrations (200 to 221 mg/L);
- Elevated total dissolved solids concentrations (430 to 543 mg/L); and
- Low concentrations of numerous dissolved metals, including: arsenic, barium, iron, manganese, strontium, and thallium at all wells; antimony, cobalt, nickel, and zinc at MW-1B; uranium at MW-3; and lead, uranium, and zinc at MW-9. Similar to previous results, the concentration of iron at MW-1B (20.4 mg/L) was elevated in comparison to the concentration at MW-3 and MW-9 (1.04 mg/L and 0.90 mg/L, respectively).

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 (7.6 to 8.04 s.u.);
- Low sulfate concentrations (4 to 13 mg/L);
- Moderate total dissolved solids concentrations (186 to 227 mg/L); and
- Low concentrations of numerous dissolved metals, including: barium, strontium, and uranium at all wells; aluminum, manganese, molybdenum, and nickel at MW-10 (Table 8).

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

- Calcium-magnesium bicarbonate type water;
- Near neutral to slightly alkaline pH (7.68 to 7.96 s.u.);
- Low sulfate concentrations (7 mg/L to 33 mg/L);

- Moderate total dissolved solids concentrations (197 mg/L to 225 mg/L); and
- Low concentrations of dissolved metals, including: barium, strontium, and uranium at all wells; selenium at SC15-184; molybdenum at SC15-185; iron at SC15-194; and selenium at SC15-198 (Table 8).

PW-7 was the only test well monitored for water quality during the fourth quarter of 2018. This well was not sampled during the third quarter monitoring event due to malfunctions with the dedicated pump system, however was sampled in October 2018 soon after repairs were conducted. As noted above, the test wells were not monitored for water quality during the fourth quarter event due to frozen ground conditions which prohibited the disposal of purge water by land application methods described in the FSAP (Hydrometrics, 2016). PW-7 is completed in the lower copper zone and the water quality from October 2018 is characterized by the following:

- Sodium bicarbonate type water;
- Alkaline pH (9.16 s.u.);
- low sulfate concentrations (11 mg/L);
- Elevated total dissolved solids concentrations (312 mg/L); and
- Low concentrations of dissolved metals, including: barium, iron, lead, manganese, molybdenum, strontium, and zinc.

The constituents that exceeded DEQ-7 Human Health Standards for groundwater in the fourth quarter of 2018 include: arsenic at MW-1B, MW-3, and MW-9; strontium at MW-3; and thallium at MW-1B, MW-2B, and MW-9 (Table 8). There were no exceedances of applicable Aquatic Life or Human Health Standards for surface water during the fourth quarter of 2018.

TABLE 7. FOURTH QUARTER 2018 SPRING WATER QUALITY SUMMARY

Station Name		Human Health Standard Groundwater	DS-1	DS-1	DS-1	DS-2	DS-2	DS-2	DS-3	DS-3	DS-3	DS-4	DS-4	DS-4	SP-3	SP-3	SP-3	SP-4	SP-4	SP-4	SP-4	SP-5
Sample Date/Time			10/24/18 11:30	11/15/18 11:50	12/14/18 13:20	10/23/18 17:00	11/15/18 14:20	12/14/18 12:50	10/24/18 09:00	11/15/18 15:40	12/14/18 10:40	10/24/18 09:20	11/15/18 15:50	12/14/18 11:10	10/24/18 09:45	11/16/18 13:00	12/14/18 11:30	10/24/18 10:50	11/15/18 14:45	12/14/18 12:00	12/14/18 12:15	10/23/18 17:55
Field Sample ID			BBC-1810-113	BBC-1811-118	BBC-1812-117	BBC-1810-112	BBC-1811-120	BBC-1812-115	BBC-1810-115	BBC-1811-123	BBC-1812-109	BBC-1810-116	BBC-1811-124	BBC-1812-110	BBC-1810-117	BBC-1811-129	BBC-1812-111	BBC-1810-119	BBC-1811-121	BBC-1812-113	BBC-1812-114	BBC-1810-114
Laboratory			Energy Labs	Energy Labs	HYDRO	HYDRO	HYDRO	HYDRO	HYDRO	HYDRO	HYDRO	HYDRO	HYDRO	HYDRO	Energy Labs	Energy Labs	HYDRO	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
Remarks					No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample	No Sample			No Sample					Duplicate
Lab Sample ID			H18100608-004	H18110402-019	--	--	--	--	--	--	--	--	--	--	H18100608-006	H18110402-027	--	H18100608-008	H18110402-021	H18120295-003	H18120295-004	H18100608-005
Field Parameters																						
Dissolved Oxygen	mg/L		8.15	9.74		6.5									19.38	10.2		8.25	9.38	9.47		7.4
Field pH	s.u.		7.45	7.96		7									6.21	7.85		7.84	7.86	7.63		7.28
Field Specific Conductivity	umhos/cm		415	409		388									211	202		428	453	440		389
Flow	Gallons Per Min		2.6	0.94	NF-DRY	0.22	NM-ICE	NM-ICE	NF-DRY	NM-DRY	NF-DRY	NF-DRY	NM-DRY	NF-DRY	0.13	0.13	NF-DRY	5.39	5.39	0.58		0.94
Water Temperature	Deg C		6	5		3.9									3.4	1.7		7	6.7	6		5.2
Physical Parameters																						
Total Dissolved Solids	mg/L		226	221											132	129		237	254	222	219	224
Total Suspended Solids	mg/L		158	40J											44	<10		34	130J	23J	54J	28
Major Constituents - Commons Ions																						
Alkalinity as CaCO3	mg/L		220	210											100	98		200	210	200	200	220
Calcium (DIS)	mg/L		60	57											30	29		51	49	53	54	60
Chloride	mg/L		<1	<1											<1	<1		<1	<1	<1	<1	<1
Fluoride	mg/L	4	0.1	0.1											0.1	0.1		0.2	0.2	0.2	0.2	<0.1
Hardness as CaCO3	mg/L		238	231											103	102		234	238	246	247	225
Magnesium (DIS)	mg/L		22	21											7	7		26	28	27	27	19
Potassium (DIS)	mg/L		<1	<1											1	1		2	2	2	2	<1
Sodium (DIS)	mg/L		2	2											3	3		2	2	2	2	2
Sulfate	mg/L		18	17											7	6		39	41	37	37	11
Nutrients																						
Nitrate + Nitrite as N	mg/L	10	0.13	0.15											0.24	0.32		0.25	0.27	0.28	0.28	0.02
Metals - Trace Constituents																						
Aluminum (DIS)	mg/L		<0.009	<0.009											0.033	0.074		<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	<0.0005
Arsenic (DIS)	mg/L	0.01	<0.001	<0.001											0.001	0.002		<0.001	<0.001	<0.001	<0.001	<0.001
Barium (DIS)	mg/L	1	0.056	0.054											0.306	0.304		0.114	0.112	0.115	0.115	0.059
Beryllium (DIS)	mg/L	0.004	<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
Chromium (DIS)	mg/L	0.1	<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
Copper (DIS)	mg/L	1.3	<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	<0.02	<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
Manganese (DIS)	mg/L		<0.005	<0.005											<0.005	<0.005		0.006	<0.005	0.006	<0.005	0.017
Mercury (DIS)	mg/L	0.002	<0.000005	<0.000005											<0.000005	<0.000005		<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
Molybdenum (DIS)	mg/L		<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
Selenium (DIS)	mg/L	0.05	0.0002	<0.0002											<0.0002	<0.0002		0.0004	0.0004	0.0005	0.0004	<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
Strontium (DIS)	mg/L	4	0.119	0.116											0.0878	0.0887		0.0743	0.074	0.0717	0.0735	0.141
Thallium (DIS)	mg/L	0.002	<0.0002	<0.0002											<0.0002	<0.0002		0.0003	0.0004	0.0003	0.0003	<0.0002
Uranium (DIS)	mg/L	0.03	<0.008	0.0007											<0.008	0.0003		<0.008	0.0004	0.0005	0.0005	<0.008
Zinc (DIS)	mg/L	2	<0.002	<0.002											<0.002	0.007		<0.002	<0.002	<0.002	<0.002	<0.002

DIS = Dissolved
 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 DEQ-7 May 2017

TABLE 7. FOURTH QUARTER 2018 SPRING WATER QUALITY SUMMARY (CONTINUED)

Station Name		Human Health Standard Groundwater	SP-6	SP-6	SP-6	SP-7	SP-7	SP-7	SP-7	SP-7	SP-10	SP-10	SP-10	SP-11	SP-11	SP-11	SP-12	SP-12	SP-12	SP-5 (SW-7)	SP-5 (SW-7)	
Sample Date/Time			10/24/18 10:15	11/15/18 15:10	12/14/18 11:40	10/24/18 11:50	10/24/18 12:10	11/16/18 12:00	11/16/18 12:15	12/14/18 14:00	10/23/18 16:30	11/15/18 13:30	12/14/18 13:10	10/23/18 15:30	11/12/18 12:30	12/14/18 10:35	10/23/18 16:00	11/16/18 11:05	12/14/18 14:30	11/15/18 11:30	12/14/18 13:35	
Field Sample ID			BBC-1810-118	BBC-1811-122	BBC-1812-112	BBC-1810-120	BBC-1810-121	BBC-1811-127	BBC-1811-128	BBC-1812-119	BBC-1810-110	BBC-1811-119	BBC-1812-116	BBC-1810-108	BBC-1811-200	BBC-1812-108	BBC-1810-109	BBC-1811-126	BBC-1812-120	BBC-1811-117	BBC-1812-118	
Laboratory			Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
Remarks							Duplicate			Duplicate												No Sample
Lab Sample ID			H18100608-007	H18110402-022	H18120295-002	H18100608-009	H18100608-010	H18110402-025	H18110402-026	H18120295-006	H18100608-003	H18110402-020	H18120295-005	H18100608-001	H18110266-001	H18120295-001	H18100608-002	H18110402-024	H18120295-007	H18110402-018	--	
Field Parameters																						
Dissolved Oxygen	mg/L		8	9.75	9.89	3.9	3.9	2.3	2.3	2.51	8	7.59	8.12	7.63	6.98	7.03	4.57	3.32	8.03	8.61		
Field pH	s.u.		7.8	7.82	7.66	6.86	6.86	7.21	7.21	7.53	7.59	7.55	8.09	7.09	7.71	7.75	7.31	7.53	7.7	7.77		
Field Specific Conductivity	umhos/cm		276	283	287	325	325	337	337	338	422	428	434	193	195	194	436	453	459	404		
Flow	Gallons Per Min		0.86	0.53	NM	27.83	27.83	19.75	19.75	15.3	0.94	0.58	NM	NM	NM	NM	NM	NM	NM	NM	NF-DRY	
Water Temperature	Deg C		7.1	6.6	4.6	7.3	7.3	7.1	7.1	6.9	8.1	6.2	4.6	6.7	6.13	5.9	7.1	6.2	6	3.4		
Physical Parameters																						
Total Dissolved Solids	mg/L		163	160	146	185	186	183	183	179	234	232	229	115	116	104	249	247	253	222		
Total Suspended Solids	mg/L		<10	<10	<10	<10	<10	<10	<10	<10	51	<10	27 J	<10	<10	<10	47	22 J	<10	<10		
Major Constituents - Commons Ions																						
Alkalinity as CaCO3	mg/L		140	140	140	170	170	170	170	170	220	220	220	93	95	94	210	210	220	210		
Calcium (DIS)	mg/L		37	37	38	43	43	44	44	46	60	60	61	23	23	22	56	56	61	58		
Chloride	mg/L		<1	<1	<1	2	2	2	2	2	<1	<1	<1	<1	<1	<1	6	6	8	<1		
Fluoride	mg/L	4	0.1	0.1	0.2	0.3	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	<0.1		
Hardness as CaCO3	mg/L		145	147	151	170	168	170	176	176	236	241	245	94	91	89	239	243	258	222		
Magnesium (DIS)	mg/L		13	13	14	15	15	15	16	15	21	22	22	9	8	8	24	25	26	19		
Potassium (DIS)	mg/L		1	<1	<1	3	3	3	3	3	1	1	1	1	1	1	1	1	1	<1		
Sodium (DIS)	mg/L		2	2	2	5	4	5	5	5	2	2	2	4	4	4	2	2	2	2		
Sulfate	mg/L		12	12	11	12	11	11	11	10	17	17	16	8	8	7	27	26	24	10		
Nutrients																						
Nitrate + Nitrite as N	mg/L	10	0.34	0.38	0.37	0.3	0.3	0.32	0.33	0.34	0.24	0.27	0.28	0.23	0.24	0.24	0.33	0.33	0.41	0.04		
Metals - Trace Constituents																						
Aluminum (DIS)	mg/L		0.032	0.014	<0.009	<0.009	0.017	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	0.018	0.022	0.02	<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	<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	0.004	0.004	0.004	0.004	0.004	<0.001	<0.001	<0.001	0.005	0.005	0.005	<0.001	<0.001	<0.001	<0.001		
Barium (DIS)	mg/L	1	0.21	0.201	0.195	0.116	0.114	0.116	0.128	0.116	0.056	0.053	0.053	0.29	0.287	0.284	0.185	0.192	0.19	0.058		
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	<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	<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	<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	<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	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002		
Iron (DIS)	mg/L		0.19	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<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	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003		
Manganese (DIS)	mg/L		0.073	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.012	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007		
Mercury (DIS)	mg/L	0.002	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005		
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	<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	<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	0.0003	0.0003	0.0003	0.0003	0.0004	0.0003	0.0003	0.0003	<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	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002		
Strontium (DIS)	mg/L	4	0.0757	0.0761	0.0737	0.172	0.171	0.172	0.188	0.169	0.122	0.12	0.113	0.104	0.103	0.101	0.114	0.114	0.113	0.137		
Thallium (DIS)	mg/L	0.002	0.0004	0.0005	0.0005	0.001	0.001	0.001	0.0011	0.001	<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	<0.008	0.0004	0.0004	<0.008	<0.008	0.0009	0.001	0.0009	<0.008	0.0008	0.0008	<0.008	<0.008	0.0003	<0.008	0.0006	0.0007	0.0007		
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	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002		

DIS = Dissolved
 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 DEQ-7 May 2017

TABLE 8. FOURTH QUARTER 2018 GROUNDWATER QUALITY SUMMARY

Station Name		Groundwater Human Health Standard	MW-1A	MW-1B	MW-2A	MW-2B	MW-3	MW-4A	MW-4B	MW-6A	MW-6B	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
Sample Date/Time			11/13/18 16:05	11/13/18 16:40	11/13/18 14:25	11/13/18 14:50	11/13/18 11:10	11/14/18 09:40	11/14/18 09:15	11/14/18 12:35	11/14/18 13:25	11/14/18 14:25	11/14/18 15:50	11/13/18 12:55	11/15/18 12:20	11/15/18 10:15	11/15/18 09:15
Field Sample ID			BBC-1811-205	BBC-1811-206	BBC-1811-203	BBC-1811-204	BBC-1811-201	BBC-1811-210	BBC-1811-209	BBC-1811-213	BBC-1811-214	BBC-1811-216	BBC-1811-218	BBC-1811-202	BBC-1811-225	BBC-1811-223	BBC-1811-222
Laboratory			Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
Remarks																	
Lab Sample ID		H18110350-005	H18110350-006	H18110350-003	H18110350-004	H18110350-001	H18110350-010	H18110350-009	H18110402-002	H18110402-003	H18110402-005	H18110402-007	H18110350-002	H18110402-014	H18110402-012	H18110402-011	
Field Parameters																	
Depth To Water	Feet		8.04	23.73	42.16	42.05	40.88	4.6	4.06	8.39	11.59	32.05	31.43	51.18	77.27	33.63	27.45
Dissolved Oxygen	mg/L		9.34	0.13	7.9	10.26	0.55	0.11	0.2	5.43	3.15	0.49	0.21	0.04	7.99	8.79	8.08
EH	Millivolts		280.7	207.6	256.0	246.9	173.3	230.3	233.4	240.5	246.0	211.0	117.1	192.7	253.7	255.6	265.0
Field pH	s.u.		7.40	6.40	7.37	7.30	7.17	7.33	7.55	7.64	7.75	7.57	8.05	7.06	8.04	7.71	7.60
Field Specific Conductivity	umhos/cm		350	614	387	192	788	524	447	454	466	555	308	800	346	323	418
Water Temperature	Deg C		6.5	7.7	7.36	7.23	8.9	7	6.2	7.9	6.9	8.2	7.3	8.4	7.88	8	6.4
Physical Parameters																	
Total Dissolved Solids	mg/L		193	430	205	242	543	296	247	254	266	328	162	531	187	186	227
Total Suspended Solids	mg/L		10 J	<10	13 J	<10	<10	<10	<10	109 J	63 J	380 J	<10	<10	27 J	21 J	<10
Major Constituents - Commons Ions																	
Alkalinity as CaCO3	mg/L		170	100	190	200	210	270	230	230	230	260	150	250	180	170	210
Calcium (DIS)	mg/L		43	62	43	49	72	80	58	57	49	62	26	87	45	46	57
Chloride	mg/L		1	1	1	1	1	3	2	<1	<1	4	<1	1	<1	<1	<1
Fluoride	mg/L	4	0.2	0.2	0.3	0.3	0.8	0.1	0.1	0.2	0.8	0.3	0.2	0.5	0.2	<0.1	0.1
Hardness as CaCO3	mg/L		183	288	204	234	365	287	222	249	223	311	164	389	179	161	221
Magnesium (DIS)	mg/L		18	32	23	27	50	21	18	26	25	38	24	46	16	11	19
Potassium (DIS)	mg/L		<1	3	1	1	3	1	1	<1	1	1	<1	4	2	2	<1
Sodium (DIS)	mg/L		2	3	2	3	14	3	3	3	17	3	3	5	6	5	2
Sulfate	mg/L		14	221	21	38	221	13	14	18	29	76	16	200	4	5	13
Nutrients																	
Nitrate + Nitrite as N	mg/L	10	0.42	0.04	0.21	<0.01	<0.01	<0.01	0.06	0.12	0.08	<0.01	<0.01	<0.01	0.53	0.43	0.16
Metals - Trace Constituents																	
Aluminum (DIS)	mg/L		<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	0.013	<0.009	<0.009
Antimony (DIS)	mg/L	0.006	<0.0005	0.0007	<0.0005	<0.0005	<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	0.071	<0.001	0.003	0.074	<0.001	<0.001	<0.001	<0.001	0.002	0.002	0.013	<0.001	<0.001	<0.001
Barium (DIS)	mg/L	1	0.173	0.011	0.082	0.043	0.011	0.188	0.129	0.194	0.107	0.04	0.08	0.015	0.194	0.163	0.053
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	<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	<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	<0.01	<0.01	<0.01	<0.01
Cobalt (DIS)	mg/L		<0.01	0.03	<0.01	<0.01	<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	0.008	<0.002	<0.002	<0.002	<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	20.4	<0.02	0.03	1.04	0.02	<0.02	<0.02	<0.02	0.07	0.1	0.9	<0.02	<0.02	<0.02
Lead (DIS)	mg/L	0.015	0.0004	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0063	<0.0003	<0.0003	<0.0003
Manganese (DIS)	mg/L		<0.005	0.084	<0.005	0.009	0.017	0.288	<0.005	<0.005	0.006	0.016	0.013	0.088	0.005	<0.005	<0.005
Mercury (DIS)	mg/L	0.002	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
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	<0.002	0.005	<0.002	<0.002
Nickel (DIS)	mg/L	0.1	<0.001	0.012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.002	<0.001	<0.001
Selenium (DIS)	mg/L	0.05	0.0002	<0.0002	0.0011	0.0046	<0.0002	<0.0002	<0.0002	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	<0.0002	<0.0002	<0.0002	<0.0002
Strontium (DIS)	mg/L	4	0.1	1.72	0.0906	0.0931	12.6	0.174	0.172	0.17	0.246	0.17	0.0884	1.08	0.969	0.351	0.143
Thallium (DIS)	mg/L	0.002	0.001	0.0125	0.0002	0.0036	0.0004	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0036	<0.0002	<0.0002	<0.0002
Uranium (DIS)	mg/L	0.03	0.0009	<0.0002	0.0005	0.0022	0.0011	0.0004	0.0006	0.0007	0.0007	0.0022	0.0007	0.0009	0.006	0.0016	0.0008
Zinc (DIS)	mg/L	2	<0.002	0.013	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<0.002	<0.002	<0.002

DIS = Dissolved
 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 DEQ-7 May 2017

TABLE 8. FOURTH QUARTER 2018 GROUNDWATER QUALITY SUMMARY (CONTINUED)

Station Name		Groundwater Human Health Standard	MW-13	MW-16	MW-16	MW-17	MW-18	MW-19	MW-20	PW-7	SC15-184	SC15-185	SC15-194	SC15-198
Sample Date/Time			11/15/18 08:45	11/13/18 17:20	11/13/18 17:40	11/14/18 10:50	11/14/18 11:55	11/14/18 16:45	11/14/18 15:10	10/03/18 14:30	11/14/18 17:20	11/15/18 16:45	11/16/18 10:20	11/16/18 09:05
Field Sample ID			BBC-1811-221	BBC-1811-207	BBC-1811-208	BBC-1811-211	BBC-1811-212	BBC-1811-219	BBC-1811-217	BBC-1810-200	BBC-1811-220	BBC-1811-226	BBC-1811-228	BBC-1811-227
Laboratory			Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs	Energy Labs
Remarks					Duplicate									
Lab Sample ID		H18110402-010	H18110350-007	H18110350-008	H18110350-011	H18110402-001	H18110402-008	H18110402-006	H18100162-001	H18110402-009	H18110402-015	H18110402-017	H18110402-016	
Field Parameters														
Depth To Water	Feet		21.34	7.77	7.77	51.98	16.87	14.12	22.69	NM	NM	30.94	19.86	41.7
Dissolved Oxygen	mg/L		7.9	0.32	0.4	6.23	8.37	7.38	8.96	0.01	6.35	5.13	0.7	9.22
EH	Millivolts		272.9	161.9	163.3	241.7	249.1	251.8	244.5	-323.0	247.8	250.5	173.6	276.9
Field pH	s.u.		7.58	7.29	7.28	7.73	7.76	7.54	7.74	9.16	7.96	7.92	7.77	7.68
Field Specific Conductivity	umhos/cm		431	624	634	386	375	402	401	530	365	398	385	430
Water Temperature	Deg C		6.6	6.6	6.7	6.2	7.4	7.7	7.8	11.7	5.8	4.8	5.1	3.4
Physical Parameters														
Total Dissolved Solids	mg/L		233	384	378	212	220	227	215	312	197	215	213	225
Total Suspended Solids	mg/L		24 J	82 J	57 J	<10	38 J	27 J	603 J	<10	<10	<10	<10	<10
Major Constituents - Commons Ions														
Alkalinity as CaCO3	mg/L		220	250	250	200	200	210	290	280	190	210	180	230
Calcium (DIS)	mg/L		57	71	70	45	48	56	49	7	38	46	42	50
Chloride	mg/L		<1	1	1	2	<1	<1	<1	4	<1	<1	<1	2
Fluoride	mg/L	4	<0.1	0.5	0.5	0.3	<0.1	0.1	<0.1	1.6	0.2	0.1	0.3	0.1
Hardness as CaCO3	mg/L		226	333	325	212	199	228	221	77	203	209	207	234
Magnesium (DIS)	mg/L		21	38	37	25	19	21	24	14	26	23	25	27
Potassium (DIS)	mg/L		<1	3	3	<1	<1	<1	1	8	<1	2	<1	<1
Sodium (DIS)	mg/L		1	4	4	2	2	2	1	99	2	4	2	4
Sulfate	mg/L		17	104	102	9	8	15	10	11	16	12	33	7
Nutrients														
Nitrate + Nitrite as N	mg/L	10	0.17	<0.01	<0.01	0.44	0.18	0.2	0.31	<0.01	0.24	0.28	<0.01	0.72
Metals - Trace Constituents														
Aluminum (DIS)	mg/L		<0.009	0.014	0.018	<0.009	0.014	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	<0.0005	<0.0005	<0.0005	<0.0005
Arsenic (DIS)	mg/L	0.01	<0.001	0.006	0.006	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Barium (DIS)	mg/L	1	0.057	0.02	0.02	0.262	0.104	0.095	0.201	0.153	0.091	0.07	0.034	0.404
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	<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	<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	<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	<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	<0.002
Iron (DIS)	mg/L		<0.02	1.23	1.25	<0.02	<0.02	<0.02	<0.02	0.46	<0.02	<0.02	0.04	<0.02
Lead (DIS)	mg/L	0.015	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0007	<0.0003	<0.0003	<0.0003	<0.0003
Manganese (DIS)	mg/L		<0.005	0.046	0.046	<0.005	<0.005	<0.005	<0.005	0.045	<0.005	<0.005	<0.005	<0.005
Mercury (DIS)	mg/L	0.002	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
Molybdenum (DIS)	mg/L		<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	0.003	<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	<0.001	<0.001	<0.001	<0.001
Selenium (DIS)	mg/L	0.05	0.0002	<0.0002	<0.0002	0.0011	0.0003	<0.0002	0.0002	<0.0002	0.0013	<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	<0.0002
Strontium (DIS)	mg/L	4	0.104	0.285	0.3	0.11	0.109	0.157	0.0738	0.227	0.121	0.24	0.0703	0.101
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	<0.0002
Uranium (DIS)	mg/L	0.03	0.0005	0.0019	0.0019	0.0008	0.0005	0.0007	0.0005	<0.008	0.001	0.003	0.0009	0.0007
Zinc (DIS)	mg/L	2	<0.002	0.007	0.007	0.006	<0.002	<0.002	<0.002	0.077	<0.002	<0.002	<0.002	<0.002

DIS = Dissolved
 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 DEQ-7 May 2017

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 fourth quarter of 2018 was evaluated using standard laboratory QC samples and field duplicates, blanks, and rinsate blanks. Field duplicates were collected at SW-17 and SP-7 in October, SW-14, SP-7, and MW-16 in November, and SW-2 and SP-4 in December 2018. 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 fourth quarter of 2018.

October monitoring event:

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

November monitoring event:

- The field duplicate sample collected at MW-16 exceeded the control limits for total suspended solids. (Appendix B).
- Field blank control limits were not exceeded in November.

December monitoring event:

- The field duplicate sample collected at SP-4 exceeded the control limits for total suspended solids (Appendix B).
- Field blank control limits were not exceeded in December.

4.0 REFERENCES

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.

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

October 21, 2018

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

Work Order: H18100162 Quote ID: H1216 - Surface and Groundwater Sampling
Project Name: 11048 Black Butte Copper Project (GW)

Energy Laboratories Inc Helena MT received the following 1 sample for Tintina Resources Inc on 10/4/2018 for analysis.

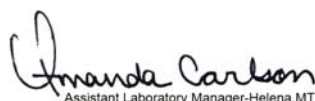
Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18100162-001	BBC-1810-200	10/03/18 14:30	10/04/18	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Mercury, Dissolved Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Mercury Digestion by E245.1 Solids, Total Dissolved Solids, Total Suspended

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.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:


Assistant Laboratory Manager-Helena, MT

Digitally signed by
Amanda B. Carlson
Date: 2018.10.21 13:03:15 -06:00



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 11048 Black Butte Copper Project (GW)
Lab ID: H18100162-001
Client Sample ID: BBC-1810-200

Report Date: 10/21/18
Collection Date: 10/03/18 14:30
Date Received: 10/04/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/04/18 13:31 / cmm
Solids, Total Dissolved TDS @ 180 C	312	mg/L		10		A2540 C	10/04/18 13:33 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	280	mg/L		4		A2320 B	10/05/18 11:08 / SRW
Chloride	4	mg/L		1		E300.0	10/07/18 10:17 / SRW
Sulfate	11	mg/L		1		E300.0	10/07/18 10:17 / SRW
Fluoride	1.6	mg/L		0.1	4	A4500-F C	10/11/18 10:11 / SRW
Hardness as CaCO3	77	mg/L		1		A2340 B	10/09/18 09:36 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	10/09/18 10:17 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/05/18 13:19 / sld
Antimony	ND	mg/L		0.0005		E200.8	10/05/18 13:19 / sld
Arsenic	ND	mg/L		0.001		E200.8	10/05/18 13:19 / sld
Barium	0.153	mg/L		0.003		E200.8	10/05/18 13:19 / sld
Beryllium	ND	mg/L		0.0008		E200.8	10/05/18 13:19 / sld
Cadmium	ND	mg/L		0.00003		E200.8	10/05/18 13:19 / sld
Calcium	7	mg/L		1		E200.7	10/08/18 13:55 / sld
Chromium	ND	mg/L		0.01		E200.8	10/05/18 13:19 / sld
Cobalt	ND	mg/L		0.01		E200.8	10/05/18 13:19 / sld
Copper	ND	mg/L		0.002		E200.8	10/05/18 13:19 / sld
Iron	0.46	mg/L		0.02		E200.8	10/05/18 13:19 / sld
Lead	0.0007	mg/L		0.0003		E200.8	10/05/18 13:19 / sld
Magnesium	14	mg/L		1		E200.7	10/08/18 13:55 / sld
Manganese	0.045	mg/L		0.005		E200.8	10/05/18 13:19 / sld
Mercury	ND	mg/L		5E-06		E245.1	10/18/18 13:27 / dck
Molybdenum	0.003	mg/L		0.002		E200.8	10/05/18 13:19 / sld
Nickel	ND	mg/L		0.001		E200.8	10/05/18 13:19 / sld
Potassium	8	mg/L		1		E200.7	10/08/18 13:55 / sld
Selenium	ND	mg/L		0.0002		E200.8	10/05/18 13:19 / sld
Silver	ND	mg/L		0.0002		E200.8	10/05/18 13:19 / sld
Sodium	99	mg/L		1		E200.7	10/08/18 13:55 / sld
Strontium	0.227	mg/L		0.0002		E200.8	10/05/18 13:19 / sld
Thallium	ND	mg/L		0.0002		E200.8	10/05/18 13:19 / sld
Uranium	ND	mg/L		0.008		E200.8	10/05/18 13:19 / sld
Zinc	0.077	mg/L		0.002		E200.8	10/05/18 13:19 / sld

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

Report Date: 10/21/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R138770
Lab ID: MBLK		Method Blank								Run: PHSC_101-H_181005A 10/05/18 09:45
Alkalinity, Total as CaCO3	2	mg/L		2						
Lab ID: LCS		Laboratory Control Sample								Run: PHSC_101-H_181005A 10/05/18 09:51
Alkalinity, Total as CaCO3	600	mg/L		4.0	100	90	110			
Lab ID: H18100162-001ADUP		Sample Duplicate								Run: PHSC_101-H_181005A 10/05/18 11:16
Alkalinity, Total as CaCO3	290	mg/L		4.0				0.6	10	
Lab ID: H18100182-011BDUP		Sample Duplicate								Run: PHSC_101-H_181005A 10/05/18 14:03
Alkalinity, Total as CaCO3	600	mg/L		4.0				0.9	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

Report Date: 10/21/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C Batch: TDS181004A										
Lab ID: MB-1_181004A		Method Blank						Run: ACCU-124 (14410200)_18100		10/04/18 13:33
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-2_181004A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18100		10/04/18 13:33
Solids, Total Dissolved TDS @ 180 C		1880	mg/L	20	94	90	110			
Lab ID: H18100162-001A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18100		10/04/18 13:34
Solids, Total Dissolved TDS @ 180 C		307	mg/L	10				1.6	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 10/21/18
Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D								Batch: TSS181004A		
Lab ID: MB-1_181004A		Method Blank						Run: ACCU-124 (14410200)_18100		10/04/18 13:30
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
Lab ID: LCS-2_181004A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18100		10/04/18 13:31
Solids, Total Suspended TSS @ 105 C		107	mg/L	10	107	80	120			
Lab ID: H18100162-001ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18100		10/04/18 13:31
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.										
Lab ID: H18100183-010ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18100		10/04/18 16:46
Solids, Total Suspended TSS @ 105 C		0.400	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

Report Date: 10/21/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-F C Analytical Run: MANTECH 2_181011A										
Lab ID: ICV	Initial Calibration Verification Standard									
Fluoride		0.8	mg/L	0.1	104	90	110			10/11/18 09:49
Method: A4500-F C Batch: R138945										
Lab ID: MBLK	Method Blank									
Fluoride		0.04	mg/L	0.003						Run: MANTECH 2_181011A 10/11/18 09:55
Lab ID: H18100162-001AMS	Sample Matrix Spike									
Fluoride		2.6	mg/L	0.1	102	85	115			Run: MANTECH 2_181011A 10/11/18 10:17
Lab ID: H18100312-001ADUP	Sample Duplicate									
Fluoride		0.1	mg/L	0.1				0.0		Run: MANTECH 2_181011A 10/11/18 10:28
Lab ID: H18100312-008ADUP	Sample Duplicate									
Fluoride		0.1	mg/L	0.1						Run: MANTECH 2_181011A 10/11/18 11:25

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

Report Date: 10/21/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7 Analytical Run: ICP2-HE_181008B										
Lab ID: ICV	4	Initial Calibration Verification Standard								10/08/18 09:21
Calcium		40.1	mg/L	1.0	100	95	105			
Magnesium		40.5	mg/L	1.0	101	95	105			
Potassium		40.3	mg/L	1.0	101	95	105			
Sodium		40.2	mg/L	1.0	101	95	105			
Lab ID: CCV-1	4	Continuing Calibration Verification Standard								10/08/18 09:25
Calcium		25.0	mg/L	1.0	100	95	105			
Magnesium		24.6	mg/L	1.0	98	95	105			
Potassium		25.6	mg/L	1.0	102	95	105			
Sodium		25.8	mg/L	1.0	103	95	105			
Lab ID: ICSA	4	Interference Check Sample A								10/08/18 09:40
Calcium		474	mg/L	1.0	95	80	120			
Magnesium		530	mg/L	1.0	106	80	120			
Potassium		-0.0151	mg/L	1.0		0	0			
Sodium		0.0274	mg/L	1.0		0	0			
Lab ID: ICSAB	4	Interference Check Sample AB								10/08/18 09:44
Calcium		462	mg/L	1.0	92	80	120			
Magnesium		520	mg/L	1.0	104	80	120			
Potassium		20.2	mg/L	1.0	101	80	120			
Sodium		20.2	mg/L	1.0	101	80	120			
Lab ID: CCV	4	Continuing Calibration Verification Standard								10/08/18 13:44
Calcium		24.8	mg/L	1.0	99	90	110			
Magnesium		24.4	mg/L	1.0	98	90	110			
Potassium		25.8	mg/L	1.0	103	90	110			
Sodium		25.8	mg/L	1.0	103	90	110			
Method: E200.7 Batch: R138838										
Lab ID: MB	4	Method Blank								Run: ICP2-HE_181008B 10/08/18 09:55
Calcium		ND	mg/L	0.07						
Magnesium		ND	mg/L	0.01						
Potassium		ND	mg/L	0.06						
Sodium		ND	mg/L	0.02						
Lab ID: LFB	4	Laboratory Fortified Blank								Run: ICP2-HE_181008B 10/08/18 09:59
Calcium		51.3	mg/L	1.0	103	85	115			
Magnesium		53.3	mg/L	1.0	107	85	115			
Potassium		52.5	mg/L	1.0	105	85	115			
Sodium		52.6	mg/L	1.0	105	85	115			
Lab ID: H18100162-001BMS2	4	Sample Matrix Spike								Run: ICP2-HE_181008B 10/08/18 14:03
Calcium		56.2	mg/L	1.0	98	70	130			
Magnesium		64.2	mg/L	1.0	100	70	130			
Potassium		61.6	mg/L	1.0	106	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

Report Date: 10/21/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7 Batch: R138838										
Lab ID: H18100162-001BMS2	4	Sample Matrix Spike								
Sodium		152	mg/L	1.0	105	70	130			10/08/18 14:03
Run: ICP2-HE_181008B										
Lab ID: H18100162-001BMSD	4	Sample Matrix Spike Duplicate								
Calcium		56.6	mg/L	1.0	98	70	130	0.8	20	10/08/18 14:06
Magnesium		64.6	mg/L	1.0	101	70	130	0.7	20	
Potassium		62.0	mg/L	1.0	107	70	130	0.7	20	
Sodium		152	mg/L	1.0	106	70	130	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 10/21/18
Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8		Analytical Run: ICPMS205-H_181005A									
Lab ID: ICV	20	Initial Calibration Verification Standard							10/05/18 11:28		
Aluminum		0.308	mg/L	0.10	103	90	110				
Antimony		0.0620	mg/L	0.050	103	90	110				
Arsenic		0.0604	mg/L	0.0050	101	90	110				
Barium		0.0607	mg/L	0.10	101	90	110				
Beryllium		0.0306	mg/L	0.0010	102	90	110				
Cadmium		0.0305	mg/L	0.0010	102	90	110				
Chromium		0.0612	mg/L	0.010	102	90	110				
Cobalt		0.0618	mg/L	0.010	103	90	110				
Copper		0.0622	mg/L	0.010	104	90	110				
Iron		0.311	mg/L	0.020	104	90	110				
Lead		0.0612	mg/L	0.010	102	90	110				
Manganese		0.311	mg/L	0.010	104	90	110				
Molybdenum		0.0600	mg/L	0.0050	100	90	110				
Nickel		0.0624	mg/L	0.010	104	90	110				
Selenium		0.0622	mg/L	0.0050	104	90	110				
Silver		0.0303	mg/L	0.0050	101	90	110				
Strontium		0.0608	mg/L	0.10	101	90	110				
Thallium		0.0596	mg/L	0.10	99	90	110				
Uranium		0.0600	mg/L	0.00030	100	90	110				
Zinc		0.0628	mg/L	0.010	105	90	110				
Lab ID: ICSA	20	Interference Check Sample A							10/05/18 11:30		
Aluminum		44.3	mg/L	0.10	111	70	130				
Antimony		0.000187	mg/L	0.050							
Arsenic		7.95E-05	mg/L	0.0050							
Barium		0.000219	mg/L	0.10							
Beryllium		7.34E-05	mg/L	0.0010							
Cadmium		0.000204	mg/L	0.0010							
Chromium		0.00131	mg/L	0.010							
Cobalt		1.71E-05	mg/L	0.010							
Copper		0.000216	mg/L	0.010							
Iron		107	mg/L	0.020	107	70	130				
Lead		0.000129	mg/L	0.010							
Manganese		0.000200	mg/L	0.010							
Molybdenum		0.880	mg/L	0.0050	110	70	130				
Nickel		0.000136	mg/L	0.010							
Selenium		9.85E-05	mg/L	0.0050							
Silver		9.13E-05	mg/L	0.0050							
Strontium		0.00122	mg/L	0.10							
Thallium		6.96E-05	mg/L	0.10							
Uranium		2.14E-05	mg/L	0.00030							
Zinc		0.000577	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 10/21/18
Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8		Analytical Run: ICPMS205-H_181005A									
Lab ID: ICSAB	20	Interference Check Sample AB							10/05/18 11:32		
Aluminum		43.9	mg/L	0.10	110	70	130				
Antimony		9.02E-05	mg/L	0.050		0	0				
Arsenic		0.0108	mg/L	0.0050	108	70	130				
Barium		4.36E-05	mg/L	0.10		0	0				
Beryllium		4.23E-05	mg/L	0.0010		0	0				
Cadmium		0.0109	mg/L	0.0010	109	70	130				
Chromium		0.0225	mg/L	0.010	113	70	130				
Cobalt		0.0214	mg/L	0.010	107	70	130				
Copper		0.0212	mg/L	0.010	106	70	130				
Iron		108	mg/L	0.020	108	70	130				
Lead		8.28E-05	mg/L	0.010		0	0				
Manganese		0.0215	mg/L	0.010	107	70	130				
Molybdenum		0.912	mg/L	0.0050	114	70	130				
Nickel		0.0213	mg/L	0.010	106	70	130				
Selenium		0.0105	mg/L	0.0050	105	70	130				
Silver		0.0212	mg/L	0.0050	106	70	130				
Strontium		0.00119	mg/L	0.10		0	0				
Thallium		4.93E-05	mg/L	0.10		0	0				
Uranium		5.17E-06	mg/L	0.00030		0	0				
Zinc		0.0108	mg/L	0.010	108	70	130				
Lab ID: ICV	20	Initial Calibration Verification Standard							10/05/18 12:07		
Aluminum		0.306	mg/L	0.10	102	90	110				
Antimony		0.0629	mg/L	0.050	105	90	110				
Arsenic		0.0611	mg/L	0.0050	102	90	110				
Barium		0.0607	mg/L	0.10	101	90	110				
Beryllium		0.0306	mg/L	0.0010	102	90	110				
Cadmium		0.0306	mg/L	0.0010	102	90	110				
Chromium		0.0606	mg/L	0.010	101	90	110				
Cobalt		0.0608	mg/L	0.010	101	90	110				
Copper		0.0614	mg/L	0.010	102	90	110				
Iron		0.309	mg/L	0.020	103	90	110				
Lead		0.0607	mg/L	0.010	101	90	110				
Manganese		0.307	mg/L	0.010	102	90	110				
Molybdenum		0.0610	mg/L	0.0050	102	90	110				
Nickel		0.0615	mg/L	0.010	103	90	110				
Selenium		0.0621	mg/L	0.0050	103	90	110				
Silver		0.0304	mg/L	0.0050	101	90	110				
Strontium		0.0601	mg/L	0.10	100	90	110				
Thallium		0.0595	mg/L	0.10	99	90	110				
Uranium		0.0579	mg/L	0.00030	96	90	110				
Zinc		0.0620	mg/L	0.010	103	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 10/21/18
Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_181005A		
Lab ID: ICSA	20 Interference Check Sample A								10/05/18 12:09	
Aluminum		44.1	mg/L	0.10	110	70	130			
Antimony		0.000258	mg/L	0.050						
Arsenic		8.76E-05	mg/L	0.0050						
Barium		0.000249	mg/L	0.10						
Beryllium		3.25E-05	mg/L	0.0010						
Cadmium		0.000208	mg/L	0.0010						
Chromium		0.00132	mg/L	0.010						
Cobalt		1.10E-05	mg/L	0.010						
Copper		0.000207	mg/L	0.010						
Iron		107	mg/L	0.020	107	70	130			
Lead		8.93E-05	mg/L	0.010						
Manganese		0.000220	mg/L	0.010						
Molybdenum		0.891	mg/L	0.0050	111	70	130			
Nickel		0.000115	mg/L	0.010						
Selenium		0.000107	mg/L	0.0050						
Silver		9.26E-05	mg/L	0.0050						
Strontium		0.00118	mg/L	0.10						
Thallium		7.26E-05	mg/L	0.10						
Uranium		2.04E-05	mg/L	0.00030						
Zinc		0.000537	mg/L	0.010						
Lab ID: ICSAB	20 Interference Check Sample AB								10/05/18 12:11	
Aluminum		43.5	mg/L	0.10	109	70	130			
Antimony		0.000111	mg/L	0.050		0	0			
Arsenic		0.0110	mg/L	0.0050	110	70	130			
Barium		4.70E-05	mg/L	0.10		0	0			
Beryllium		-5.56E-05	mg/L	0.0010		0	0			
Cadmium		0.0110	mg/L	0.0010	110	70	130			
Chromium		0.0228	mg/L	0.010	114	70	130			
Cobalt		0.0213	mg/L	0.010	106	70	130			
Copper		0.0211	mg/L	0.010	105	70	130			
Iron		108	mg/L	0.020	108	70	130			
Lead		7.53E-05	mg/L	0.010		0	0			
Manganese		0.0215	mg/L	0.010	107	70	130			
Molybdenum		0.923	mg/L	0.0050	115	70	130			
Nickel		0.0213	mg/L	0.010	107	70	130			
Selenium		0.0103	mg/L	0.0050	103	70	130			
Silver		0.0218	mg/L	0.0050	109	70	130			
Strontium		0.00114	mg/L	0.10		0	0			
Thallium		5.04E-05	mg/L	0.10		0	0			
Uranium		6.60E-06	mg/L	0.00030		0	0			
Zinc		0.0106	mg/L	0.010	106	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

Report Date: 10/21/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8		Analytical Run: ICPMS205-H_181005A									
Lab ID: ICV	20	Initial Calibration Verification Standard							10/05/18 16:45		
Aluminum		0.306	mg/L	0.10	102	90	110				
Antimony		0.0643	mg/L	0.050	107	90	110				
Arsenic		0.0619	mg/L	0.0050	103	90	110				
Barium		0.0624	mg/L	0.10	104	90	110				
Beryllium		0.0298	mg/L	0.0010	99	90	110				
Cadmium		0.0314	mg/L	0.0010	105	90	110				
Chromium		0.0618	mg/L	0.010	103	90	110				
Cobalt		0.0625	mg/L	0.010	104	90	110				
Copper		0.0624	mg/L	0.010	104	90	110				
Iron		0.322	mg/L	0.020	107	90	110				
Lead		0.0604	mg/L	0.010	101	90	110				
Manganese		0.319	mg/L	0.010	106	90	110				
Molybdenum		0.0624	mg/L	0.0050	104	90	110				
Nickel		0.0624	mg/L	0.010	104	90	110				
Selenium		0.0621	mg/L	0.0050	103	90	110				
Silver		0.0313	mg/L	0.0050	104	90	110				
Strontium		0.0615	mg/L	0.10	102	90	110				
Thallium		0.0608	mg/L	0.10	101	90	110				
Uranium		0.0600	mg/L	0.00030	100	90	110				
Zinc		0.0629	mg/L	0.010	105	90	110				
Lab ID: ICSA	20	Interference Check Sample A							10/05/18 16:47		
Aluminum		44.5	mg/L	0.10	111	70	130				
Antimony		0.000238	mg/L	0.050							
Arsenic		9.56E-05	mg/L	0.0050							
Barium		0.000248	mg/L	0.10							
Beryllium		1.80E-05	mg/L	0.0010							
Cadmium		0.000228	mg/L	0.0010							
Chromium		0.00132	mg/L	0.010							
Cobalt		2.37E-05	mg/L	0.010							
Copper		0.000200	mg/L	0.010							
Iron		109	mg/L	0.020	109	70	130				
Lead		6.69E-05	mg/L	0.010							
Manganese		0.000204	mg/L	0.010							
Molybdenum		0.917	mg/L	0.0050	115	70	130				
Nickel		0.000308	mg/L	0.010							
Selenium		0.000116	mg/L	0.0050							
Silver		9.78E-05	mg/L	0.0050							
Strontium		0.00122	mg/L	0.10							
Thallium		6.52E-05	mg/L	0.10							
Uranium		2.19E-05	mg/L	0.00030							
Zinc		0.000532	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

Report Date: 10/21/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_181005A		
Lab ID: ICSAB	20 Interference Check Sample AB							10/05/18 16:49		
Aluminum		44.5	mg/L	0.10	111	70	130			
Antimony		0.000113	mg/L	0.050		0	0			
Arsenic		0.0111	mg/L	0.0050	111	70	130			
Barium		5.04E-05	mg/L	0.10		0	0			
Beryllium		2.45E-05	mg/L	0.0010		0	0			
Cadmium		0.0111	mg/L	0.0010	111	70	130			
Chromium		0.0227	mg/L	0.010	114	70	130			
Cobalt		0.0216	mg/L	0.010	108	70	130			
Copper		0.0213	mg/L	0.010	106	70	130			
Iron		110	mg/L	0.020	110	70	130			
Lead		5.65E-05	mg/L	0.010		0	0			
Manganese		0.0218	mg/L	0.010	109	70	130			
Molybdenum		0.924	mg/L	0.0050	115	70	130			
Nickel		0.0217	mg/L	0.010	108	70	130			
Selenium		0.0105	mg/L	0.0050	105	70	130			
Silver		0.0217	mg/L	0.0050	109	70	130			
Strontium		0.00120	mg/L	0.10		0	0			
Thallium		4.64E-05	mg/L	0.10		0	0			
Uranium		6.18E-06	mg/L	0.00030		0	0			
Zinc		0.0106	mg/L	0.010	106	70	130			

Method: E200.8								Batch: R138782		
Lab ID: LRB	20 Method Blank							Run: ICPMS205-H_181005A 10/05/18 12:21		
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		ND	mg/L	0.002						
Lead		ND	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						

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

Report Date: 10/21/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8										Batch: R138782	
Lab ID:	LFB	20 Laboratory Fortified Blank			Run: ICPMS205-H_181005A			10/05/18 12:23			
Aluminum		0.0504	mg/L	0.10	101	85	115				
Antimony		0.0527	mg/L	0.050	105	85	115				
Arsenic		0.0506	mg/L	0.0050	101	85	115				
Barium		0.0504	mg/L	0.10	101	85	115				
Beryllium		0.0487	mg/L	0.0010	97	85	115				
Cadmium		0.0514	mg/L	0.0010	103	85	115				
Chromium		0.0501	mg/L	0.010	100	85	115				
Cobalt		0.0509	mg/L	0.010	102	85	115				
Copper		0.0513	mg/L	0.010	103	85	115				
Iron		0.156	mg/L	0.020	104	85	115				
Lead		0.0505	mg/L	0.010	101	85	115				
Manganese		0.0504	mg/L	0.010	101	85	115				
Molybdenum		0.0496	mg/L	0.0050	99	85	115				
Nickel		0.0511	mg/L	0.010	102	85	115				
Selenium		0.0509	mg/L	0.0050	102	85	115				
Silver		0.0207	mg/L	0.0050	103	85	115				
Strontium		0.0501	mg/L	0.10	100	85	115				
Thallium		0.0493	mg/L	0.10	99	85	115				
Uranium		0.0503	mg/L	0.00030	101	85	115				
Zinc		0.0518	mg/L	0.010	104	85	115				
Lab ID:	H18100127-001AMS	20 Sample Matrix Spike			Run: ICPMS205-H_181005A			10/05/18 13:05			
Aluminum		0.0515	mg/L	0.030	103	70	130				
Antimony		0.0529	mg/L	0.0010	106	70	130				
Arsenic		0.0507	mg/L	0.0010	100	70	130				
Barium		0.0970	mg/L	0.050	104	70	130				
Beryllium		0.0472	mg/L	0.0010	94	70	130				
Cadmium		0.0505	mg/L	0.0010	101	70	130				
Chromium		0.0482	mg/L	0.0050	96	70	130				
Cobalt		0.0488	mg/L	0.0050	98	70	130				
Copper		0.0529	mg/L	0.0050	99	70	130				
Iron		0.152	mg/L	0.020	100	70	130				
Lead		0.0496	mg/L	0.0010	99	70	130				
Manganese		0.0534	mg/L	0.0010	97	70	130				
Molybdenum		0.0508	mg/L	0.0010	100	70	130				
Nickel		0.0488	mg/L	0.0050	98	70	130				
Selenium		0.0492	mg/L	0.0010	98	70	130				
Silver		0.0203	mg/L	0.0010	102	70	130				
Strontium		0.560	mg/L	0.010		70	130			A	
Thallium		0.0486	mg/L	0.00050	97	70	130				
Uranium		0.0503	mg/L	0.00030	100	70	130				
Zinc		0.0516	mg/L	0.010	99	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

Report Date: 10/21/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8										Batch: R138782	
Lab ID:	H18100127-001AMSD	20 Sample Matrix Spike Duplicate			Run: ICPMS205-H_181005A				10/05/18 13:07		
Aluminum		0.0516	mg/L	0.030	103	70	130	0.2	20		
Antimony		0.0530	mg/L	0.0010	106	70	130	0.1	20		
Arsenic		0.0508	mg/L	0.0010	100	70	130	0.2	20		
Barium		0.0968	mg/L	0.050	103	70	130	0.2	20		
Beryllium		0.0492	mg/L	0.0010	98	70	130	4.1	20		
Cadmium		0.0506	mg/L	0.0010	101	70	130	0.3	20		
Chromium		0.0484	mg/L	0.0050	97	70	130	0.4	20		
Cobalt		0.0489	mg/L	0.0050	98	70	130	0.2	20		
Copper		0.0533	mg/L	0.0050	99	70	130	0.7	20		
Iron		0.150	mg/L	0.020	99	70	130	0.9	20		
Lead		0.0500	mg/L	0.0010	100	70	130	0.8	20		
Manganese		0.0535	mg/L	0.0010	97	70	130	0.2	20		
Molybdenum		0.0510	mg/L	0.0010	100	70	130	0.2	20		
Nickel		0.0489	mg/L	0.0050	98	70	130	0.2	20		
Selenium		0.0495	mg/L	0.0010	99	70	130	0.5	20		
Silver		0.0204	mg/L	0.0010	102	70	130	0.2	20		
Strontium		0.562	mg/L	0.010		70	130	0.4	20	A	
Thallium		0.0489	mg/L	0.00050	98	70	130	0.6	20		
Uranium		0.0508	mg/L	0.00030	101	70	130	1.1	20		
Zinc		0.0516	mg/L	0.010	99	70	130	0.0	20		
Lab ID:	H18100001-007AMS	20 Sample Matrix Spike			Run: ICPMS205-H_181005A				10/05/18 13:33		
Aluminum		0.0608	mg/L	0.030	99	70	130				
Antimony		0.0528	mg/L	0.0010	105	70	130				
Arsenic		0.0526	mg/L	0.0010	101	70	130				
Barium		0.0614	mg/L	0.050	102	70	130				
Beryllium		0.0450	mg/L	0.0010	90	70	130				
Cadmium		0.0481	mg/L	0.0010	96	70	130				
Chromium		0.0488	mg/L	0.0050	98	70	130				
Cobalt		0.0490	mg/L	0.0050	97	70	130				
Copper		0.0495	mg/L	0.0050	96	70	130				
Iron		0.166	mg/L	0.020	99	70	130				
Lead		0.0501	mg/L	0.0010	100	70	130				
Manganese		0.0744	mg/L	0.0010	97	70	130				
Molybdenum		0.0545	mg/L	0.0010	100	70	130				
Nickel		0.0529	mg/L	0.0050	96	70	130				
Selenium		0.0491	mg/L	0.0010	97	70	130				
Silver		0.0192	mg/L	0.0010	96	70	130				
Strontium		1.10	mg/L	0.010		70	130			AE	
Thallium		0.0489	mg/L	0.00050	98	70	130				
Uranium		0.0649	mg/L	0.00030	105	70	130				
Zinc		0.0474	mg/L	0.010	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.

E - Estimated value. Result exceeds the instrument upper quantitation limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 11048 Black Butte Copper Project (GW)

Report Date: 10/21/18
Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8										Batch: R138782	
Lab ID: H18100001-007AMSD	20	Sample Matrix Spike Duplicate			Run: ICPMS205-H_181005A				10/05/18 13:34		
Aluminum		0.0621	mg/L	0.030	101	70	130	2.1	20		
Antimony		0.0527	mg/L	0.0010	104	70	130	0.2	20		
Arsenic		0.0530	mg/L	0.0010	102	70	130	0.7	20		
Barium		0.0609	mg/L	0.050	101	70	130	0.9	20		
Beryllium		0.0466	mg/L	0.0010	93	70	130	3.5	20		
Cadmium		0.0480	mg/L	0.0010	96	70	130	0.1	20		
Chromium		0.0494	mg/L	0.0050	99	70	130	1.3	20		
Cobalt		0.0501	mg/L	0.0050	99	70	130	2.2	20		
Copper		0.0500	mg/L	0.0050	97	70	130	1.0	20		
Iron		0.169	mg/L	0.020	101	70	130	1.4	20		
Lead		0.0508	mg/L	0.0010	102	70	130	1.4	20		
Manganese		0.0751	mg/L	0.0010	99	70	130	0.9	20		
Molybdenum		0.0550	mg/L	0.0010	101	70	130	1.0	20		
Nickel		0.0536	mg/L	0.0050	97	70	130	1.3	20		
Selenium		0.0501	mg/L	0.0010	99	70	130	2.2	20		
Silver		0.0192	mg/L	0.0010	96	70	130	0.4	20		
Strontium		1.09	mg/L	0.010		70	130	1.1	20	AE	
Thallium		0.0496	mg/L	0.00050	99	70	130	1.3	20		
Uranium		0.0658	mg/L	0.00030	107	70	130	1.4	20		
Zinc		0.0479	mg/L	0.010	94	70	130	1.1	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.

E - Estimated value. Result exceeds the instrument upper quantitation limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 10/21/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E245.1										Analytical Run: HGCV202-H_181018A	
Lab ID: ICV		Initial Calibration Verification Standard								10/18/18 12:50	
Mercury		9.98E-05	mg/L	0.00010	100	90	110				
Lab ID: CCV1		Continuing Calibration Verification Standard								10/18/18 12:53	
Mercury		0.000103	mg/L	0.00010	103	95	105				
Lab ID: ICV		Initial Calibration Verification Standard								10/18/18 17:41	
Mercury		9.79E-05	mg/L	0.00010	98	90	110				
Method: E245.1										Batch: 43483	
Lab ID: MB-43483		Method Blank								Run: HGCV202-H_181018A	10/18/18 13:07
Mercury		ND	mg/L	1E-06							
Lab ID: LCS-43483		Laboratory Control Sample								Run: HGCV202-H_181018A	10/18/18 13:10
Mercury		7.66E-05	mg/L	0.00010	102	90	110				
Lab ID: H18100162-001BMS		Sample Matrix Spike								Run: HGCV202-H_181018A	10/18/18 13:30
Mercury		7.81E-05	mg/L	5.0E-06	102	70	130				
Lab ID: H18100162-001BMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181018A	10/18/18 13:34
Mercury		7.63E-05	mg/L	5.0E-06	100	70	130	2.3	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 10/21/18
Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0 Analytical Run: IC METROHM_181001A										
Lab ID: ICV	2	Initial Calibration Verification Standard								10/01/18 10:00
Chloride		95.1	mg/L	1.0	95	90	110			
Sulfate		370	mg/L	1.0	93	90	110			
Lab ID: CCV	2	Continuing Calibration Verification Standard								10/07/18 07:41
Chloride		51.7	mg/L	1.0	103	90	110			
Sulfate		203	mg/L	1.0	102	90	110			
Method: E300.0 Batch: R138640										
Lab ID: ICB	2	Method Blank								Run: IC METROHM_181001A 10/01/18 09:46
Chloride		ND	mg/L	0.009						
Sulfate		ND	mg/L	0.01						
Lab ID: LFB	2	Laboratory Fortified Blank								Run: IC METROHM_181001A 10/01/18 11:53
Chloride		23.4	mg/L	1.0	94	90	110			
Sulfate		92.6	mg/L	1.0	93	90	110			
Lab ID: H18100169-001BMS	2	Sample Matrix Spike								Run: IC METROHM_181001A 10/07/18 10:45
Chloride		46.8	mg/L	1.0	96	90	110			
Sulfate		204	mg/L	1.0	94	90	110			
Lab ID: H18100169-001BMSD	2	Sample Matrix Spike Duplicate								Run: IC METROHM_181001A 10/07/18 10:59
Chloride		47.3	mg/L	1.0	98	90	110	1.1	20	
Sulfate		207	mg/L	1.0	97	90	110	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 10/21/18
Work Order: H18100162

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-HE_181009A		
Lab ID: ICV	Initial Calibration Verification Standard									
Nitrogen, Nitrate+Nitrite as N		1.04	mg/L	0.010	104	90	110			10/09/18 10:12
Method: E353.2								Batch: R138863		
Lab ID: MBLK	Method Blank									
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009				Run: FIA203-HE_181009A		10/09/18 10:14
Lab ID: LFB	Laboratory Fortified Blank									
Nitrogen, Nitrate+Nitrite as N		0.979	mg/L	0.011	98	90	110	Run: FIA203-HE_181009A		10/09/18 10:16
Lab ID: H18100182-002Dms	Sample Matrix Spike									
Nitrogen, Nitrate+Nitrite as N		0.906	mg/L	0.011	88	90	110	Run: FIA203-HE_181009A		10/09/18 10:22 S
Lab ID: H18100182-002DMSD	Sample Matrix Spike Duplicate									
Nitrogen, Nitrate+Nitrite as N		0.900	mg/L	0.011	87	90	110	0.6	10	10/09/18 10:23 S

Qualifiers:

RL - Analyte reporting limit.

S - Spike recovery outside of advisory limits.

ND - Not detected at the reporting limit.



Work Order Receipt Checklist

Tintina Resources Inc

H18100162

Login completed by: Jessica C. Smith

Date Received: 10/4/2018

Reviewed by: BL2000\rtooke

Received by: RAT

Reviewed Date: 10/9/2018

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:	0.5°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

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

Parameter	Analytical Method ⁽¹⁾	Project-Required Detection Limit (mg/L)
Physical Parameters		
TDS	SM 2540C	10
TSS	SM 2540C	10
Common Ions		
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
Nutrients		
Nitrate+Nitrite as N	353.2	0.01
Trace Constituents (Dissolved)⁽²⁾		
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
Field Parameters		
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

November 11, 2018

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

Work Order: H18100607 Quote ID: H1216 - Surface and Groundwater Sampling
Project Name: 11048 Black Butte Copper Surface Water

Energy Laboratories Inc Helena MT received the following 8 samples for Tintina Resources Inc on 10/25/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18100607-001	BBC-1810-100	10/23/18 11:30	10/25/18	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
H18100607-002	BBC-1810-101	10/23/18 12:15	10/25/18	Surface Water	Same As Above
H18100607-003	BBC-1810-102	10/23/18 12:40	10/25/18	Surface Water	Same As Above
H18100607-004	BBC-1810-103	10/23/18 13:40	10/25/18	Surface Water	Same As Above
H18100607-005	BBC-1810-104	10/23/18 14:00	10/25/18	Surface Water	Same As Above
H18100607-006	BBC-1810-105	10/23/18 14:10	10/25/18	Surface Water	Same As Above
H18100607-007	BBC-1810-106	10/23/18 14:20	10/25/18	Surface Water	Same As Above
H18100607-008	BBC-1810-107	10/23/18 14:40	10/25/18	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.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

Digitally signed by
Amanda B. Carlson
Date: 2018.11.11 14:23:22 -07:00



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 11048 Black Butte Copper Surface Water
Lab ID: H18100607-001
Client Sample ID: BBC-1810-100

Report Date: 11/11/18
Collection Date: 10/23/18 11:30
Date Received: 10/25/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	10/26/18 13:21 / cmm
Solids, Total Dissolved TDS @ 180 C	193	mg/L	D	10		A2540 C	10/26/18 13:52 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	10/29/18 11:36 / SRW
Chloride	2	mg/L		1		E300.0	10/26/18 13:07 / SRW
Sulfate	7	mg/L		1		E300.0	10/26/18 13:07 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	10/26/18 14:45 / SRW
Hardness as CaCO3	173	mg/L		1		A2340 B	10/30/18 13:58 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	10/30/18 14:57 / kmd
Nitrogen, Total	0.07	mg/L		0.04		A4500 N-C	10/29/18 13:13 / kmd
Phosphorus, Total as P	0.006	mg/L		0.003		E365.1	11/01/18 15:08 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 13:17 / sld
Calcium	48	mg/L		1		E200.7	10/26/18 18:02 / sld
Magnesium	13	mg/L		1		E200.7	10/26/18 18:02 / sld
Potassium	1	mg/L		1		E200.7	10/26/18 18:02 / sld
Sodium	2	mg/L		1		E200.7	10/26/18 18:02 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/01/18 14:36 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/01/18 14:36 / sld
Barium	0.101	mg/L		0.003		E200.8	11/01/18 14:36 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/01/18 14:36 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/01/18 14:36 / sld
Chromium	ND	mg/L		0.01		E200.8	11/01/18 14:36 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/01/18 14:36 / sld
Copper	ND	mg/L		0.002		E200.8	11/01/18 14:36 / sld
Iron	0.12	mg/L		0.02		E200.8	11/01/18 14:36 / sld
Lead	ND	mg/L		0.0003		E200.8	11/01/18 14:36 / sld
Manganese	0.012	mg/L		0.005		E200.8	11/01/18 14:36 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 18:08 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/01/18 14:36 / sld
Nickel	ND	mg/L		0.001		E200.8	11/01/18 14:36 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/01/18 14:36 / sld
Silver	ND	mg/L		0.0002		E200.8	11/01/18 14:36 / sld
Strontium	0.131	mg/L	D	0.0003		E200.8	11/01/18 14:36 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/01/18 14:36 / sld
Uranium	ND	mg/L		0.008		E200.8	11/01/18 14:36 / sld
Zinc	ND	mg/L		0.002		E200.8	11/01/18 14:36 / sld

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: 11048 Black Butte Copper Surface Water
Lab ID: H18100607-002
Client Sample ID: BBC-1810-101

Report Date: 11/11/18
Collection Date: 10/23/18 12:15
Date Received: 10/25/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	10/26/18 13:22 / cmm
Solids, Total Dissolved TDS @ 180 C	184	mg/L	D	10		A2540 C	10/26/18 13:52 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	10/29/18 11:42 / SRW
Chloride	1	mg/L		1		E300.0	10/26/18 13:21 / SRW
Sulfate	7	mg/L		1		E300.0	10/26/18 13:21 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	10/26/18 14:57 / SRW
Hardness as CaCO3	177	mg/L		1		A2340 B	10/30/18 13:58 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.01	mg/L		0.01		E353.2	10/30/18 15:01 / kmd
Nitrogen, Total	0.06	mg/L		0.04		A4500 N-C	10/29/18 13:18 / kmd
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	11/01/18 15:09 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 13:19 / sld
Calcium	50	mg/L		1		E200.7	10/26/18 18:06 / sld
Magnesium	13	mg/L		1		E200.7	10/26/18 18:06 / sld
Potassium	1	mg/L		1		E200.7	10/26/18 18:06 / sld
Sodium	2	mg/L		1		E200.7	10/26/18 18:06 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/01/18 14:38 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/01/18 14:38 / sld
Barium	0.088	mg/L		0.003		E200.8	11/01/18 14:38 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/01/18 14:38 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/01/18 14:38 / sld
Chromium	ND	mg/L		0.01		E200.8	11/01/18 14:38 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/01/18 14:38 / sld
Copper	ND	mg/L		0.002		E200.8	11/01/18 14:38 / sld
Iron	0.10	mg/L		0.02		E200.8	11/01/18 14:38 / sld
Lead	ND	mg/L		0.0003		E200.8	11/01/18 14:38 / sld
Manganese	0.006	mg/L		0.005		E200.8	11/01/18 14:38 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 18:11 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/01/18 14:38 / sld
Nickel	ND	mg/L		0.001		E200.8	11/01/18 14:38 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/01/18 14:38 / sld
Silver	ND	mg/L		0.0002		E200.8	11/01/18 14:38 / sld
Strontium	0.131	mg/L	D	0.0003		E200.8	11/01/18 14:38 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/01/18 14:38 / sld
Uranium	ND	mg/L		0.008		E200.8	11/01/18 14:38 / sld
Zinc	ND	mg/L		0.002		E200.8	11/01/18 14:38 / sld

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: 11048 Black Butte Copper Surface Water
Lab ID: H18100607-003
Client Sample ID: BBC-1810-102

Report Date: 11/11/18
Collection Date: 10/23/18 12:40
Date Received: 10/25/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	10/26/18 13:22 / cmm
Solids, Total Dissolved TDS @ 180 C	196	mg/L	D	10		A2540 C	10/26/18 13:52 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	10/29/18 11:56 / SRW
Chloride	2	mg/L		1		E300.0	10/26/18 13:35 / SRW
Sulfate	8	mg/L		1		E300.0	10/26/18 13:35 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	10/26/18 15:02 / SRW
Hardness as CaCO3	192	mg/L		1		A2340 B	10/30/18 14:39 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	10/30/18 15:07 / kmd
Nitrogen, Total	0.07	mg/L		0.04		A4500 N-C	10/29/18 13:19 / kmd
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	11/01/18 15:21 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 13:28 / sld
Calcium	54	mg/L		1		E200.7	10/26/18 18:10 / sld
Magnesium	14	mg/L		1		E200.7	10/26/18 18:10 / sld
Potassium	1	mg/L		1		E200.7	10/26/18 18:10 / sld
Sodium	2	mg/L		1		E200.7	10/26/18 18:10 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/01/18 14:40 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/01/18 14:40 / sld
Barium	0.066	mg/L		0.003		E200.8	11/01/18 14:40 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/01/18 14:40 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/01/18 14:40 / sld
Chromium	ND	mg/L		0.01		E200.8	11/01/18 14:40 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/01/18 14:40 / sld
Copper	ND	mg/L		0.002		E200.8	11/01/18 14:40 / sld
Iron	0.08	mg/L		0.02		E200.8	11/01/18 14:40 / sld
Lead	ND	mg/L		0.0003		E200.8	11/01/18 14:40 / sld
Manganese	0.005	mg/L		0.005		E200.8	11/01/18 14:40 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 18:20 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/01/18 14:40 / sld
Nickel	ND	mg/L		0.001		E200.8	11/01/18 14:40 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/01/18 14:40 / sld
Silver	ND	mg/L		0.0002		E200.8	11/01/18 14:40 / sld
Strontium	0.147	mg/L	D	0.0003		E200.8	11/01/18 14:40 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/01/18 14:40 / sld
Uranium	ND	mg/L		0.008		E200.8	11/01/18 14:40 / sld
Zinc	ND	mg/L		0.002		E200.8	11/01/18 14:40 / sld

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: 11048 Black Butte Copper Surface Water
Lab ID: H18100607-004
Client Sample ID: BBC-1810-103

Report Date: 11/11/18
Collection Date: 10/23/18 13:40
Date Received: 10/25/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	10/26/18 13:22 / cmm
Solids, Total Dissolved TDS @ 180 C	254	mg/L	D	10		A2540 C	10/26/18 13:52 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	10/29/18 12:03 / SRW
Chloride	4	mg/L		1		E300.0	10/26/18 13:49 / SRW
Sulfate	33	mg/L		1		E300.0	10/26/18 13:49 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	10/26/18 15:08 / SRW
Hardness as CaCO3	246	mg/L		1		A2340 B	10/30/18 14:39 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.01		E353.2	10/30/18 15:04 / kmd
Nitrogen, Total	0.14	mg/L		0.04		A4500 N-C	10/29/18 13:20 / kmd
Phosphorus, Total as P	0.004	mg/L		0.003		E365.1	11/01/18 15:17 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 13:30 / sld
Calcium	57	mg/L		1		E200.7	10/26/18 18:14 / sld
Magnesium	25	mg/L		1		E200.7	10/26/18 18:14 / sld
Potassium	1	mg/L		1		E200.7	10/26/18 18:14 / sld
Sodium	2	mg/L		1		E200.7	10/26/18 18:14 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/01/18 14:42 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/01/18 14:42 / sld
Barium	0.160	mg/L		0.003		E200.8	11/01/18 14:42 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/01/18 14:42 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/01/18 14:42 / sld
Chromium	ND	mg/L		0.01		E200.8	11/01/18 14:42 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/01/18 14:42 / sld
Copper	ND	mg/L		0.002		E200.8	11/01/18 14:42 / sld
Iron	0.10	mg/L		0.02		E200.8	11/01/18 14:42 / sld
Lead	ND	mg/L		0.0003		E200.8	11/01/18 14:42 / sld
Manganese	0.013	mg/L		0.005		E200.8	11/01/18 14:42 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 18:24 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/01/18 14:42 / sld
Nickel	ND	mg/L		0.001		E200.8	11/01/18 14:42 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/01/18 14:42 / sld
Silver	ND	mg/L		0.0002		E200.8	11/01/18 14:42 / sld
Strontium	0.147	mg/L	D	0.0003		E200.8	11/01/18 14:42 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/01/18 14:42 / sld
Uranium	ND	mg/L		0.008		E200.8	11/01/18 14:42 / sld
Zinc	0.002	mg/L		0.002		E200.8	11/01/18 14:42 / sld

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 11048 Black Butte Copper Surface Water
Lab ID: H18100607-005
Client Sample ID: BBC-1810-104

Report Date: 11/11/18
Collection Date: 10/23/18 14:00
Date Received: 10/25/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	10/26/18 13:23 / cmm
Solids, Total Dissolved TDS @ 180 C	254	mg/L	D	10		A2540 C	10/26/18 13:52 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	10/29/18 12:09 / SRW
Chloride	4	mg/L		1		E300.0	10/26/18 14:03 / SRW
Sulfate	33	mg/L		1		E300.0	10/26/18 14:03 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	10/26/18 15:14 / SRW
Hardness as CaCO3	251	mg/L		1		A2340 B	10/30/18 14:39 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.01		E353.2	10/30/18 15:05 / kmd
Nitrogen, Total	0.14	mg/L		0.04		A4500 N-C	10/29/18 13:21 / kmd
Phosphorus, Total as P	0.005	mg/L		0.003		E365.1	11/01/18 15:18 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 13:32 / sld
Calcium	58	mg/L		1		E200.7	10/26/18 18:18 / sld
Magnesium	26	mg/L		1		E200.7	10/26/18 18:18 / sld
Potassium	1	mg/L		1		E200.7	10/26/18 18:18 / sld
Sodium	2	mg/L		1		E200.7	10/26/18 18:18 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/01/18 14:44 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/01/18 14:44 / sld
Barium	0.154	mg/L		0.003		E200.8	11/01/18 14:44 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/01/18 14:44 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/01/18 14:44 / sld
Chromium	ND	mg/L		0.01		E200.8	11/01/18 14:44 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/01/18 14:44 / sld
Copper	ND	mg/L		0.002		E200.8	11/01/18 14:44 / sld
Iron	0.10	mg/L		0.02		E200.8	11/01/18 14:44 / sld
Lead	ND	mg/L		0.0003		E200.8	11/01/18 14:44 / sld
Manganese	0.013	mg/L		0.005		E200.8	11/01/18 14:44 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 18:27 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/01/18 14:44 / sld
Nickel	ND	mg/L		0.001		E200.8	11/01/18 14:44 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/01/18 14:44 / sld
Silver	ND	mg/L		0.0002		E200.8	11/01/18 14:44 / sld
Strontium	0.143	mg/L	D	0.0003		E200.8	11/01/18 14:44 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/01/18 14:44 / sld
Uranium	ND	mg/L		0.008		E200.8	11/01/18 14:44 / sld
Zinc	0.002	mg/L		0.002		E200.8	11/01/18 14:44 / sld

Report Definitions: RL - Analyte reporting limit. MCL - Maximum contaminant level.
QCL - Quality control limit. ND - Not detected at the reporting limit.
D - RL increased due to sample matrix.



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 11048 Black Butte Copper Surface Water
Lab ID: H18100607-006
Client Sample ID: BBC-1810-105

Report Date: 11/11/18
Collection Date: 10/23/18 14:10
Date Received: 10/25/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	10/26/18 13:23 / cmm
Solids, Total Dissolved TDS @ 180 C	230	mg/L	D	10		A2540 C	10/26/18 13:53 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	10/29/18 12:16 / SRW
Chloride	2	mg/L		1		E300.0	10/26/18 14:17 / SRW
Sulfate	26	mg/L		1		E300.0	10/26/18 14:17 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	10/26/18 15:20 / SRW
Hardness as CaCO3	221	mg/L		1		A2340 B	10/30/18 14:39 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.01		E353.2	10/30/18 15:11 / kmd
Nitrogen, Total	0.11	mg/L		0.04		A4500 N-C	10/29/18 13:23 / kmd
Phosphorus, Total as P	0.008	mg/L		0.003		E365.1	11/01/18 15:19 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 13:34 / sld
Calcium	49	mg/L		1		E200.7	10/26/18 18:22 / sld
Magnesium	24	mg/L		1		E200.7	10/26/18 18:22 / sld
Potassium	1	mg/L		1		E200.7	10/26/18 18:22 / sld
Sodium	2	mg/L		1		E200.7	10/26/18 18:22 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/01/18 14:46 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/01/18 14:46 / sld
Barium	0.156	mg/L		0.003		E200.8	11/01/18 14:46 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/01/18 14:46 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/01/18 14:46 / sld
Chromium	ND	mg/L		0.01		E200.8	11/01/18 14:46 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/01/18 14:46 / sld
Copper	ND	mg/L		0.002		E200.8	11/01/18 14:46 / sld
Iron	0.05	mg/L		0.02		E200.8	11/01/18 14:46 / sld
Lead	ND	mg/L		0.0003		E200.8	11/01/18 14:46 / sld
Manganese	ND	mg/L		0.005		E200.8	11/01/18 14:46 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 18:30 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/01/18 14:46 / sld
Nickel	ND	mg/L		0.001		E200.8	11/01/18 14:46 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/01/18 14:46 / sld
Silver	ND	mg/L		0.0002		E200.8	11/01/18 14:46 / sld
Strontium	0.123	mg/L	D	0.0003		E200.8	11/01/18 14:46 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/01/18 14:46 / sld
Uranium	ND	mg/L		0.008		E200.8	11/01/18 14:46 / sld
Zinc	0.003	mg/L		0.002		E200.8	11/01/18 14:46 / sld

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: 11048 Black Butte Copper Surface Water
Lab ID: H18100607-007
Client Sample ID: BBC-1810-106

Report Date: 11/11/18
Collection Date: 10/23/18 14:20
Date Received: 10/25/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	10/26/18 13:23 / cmm
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	D	10		A2540 C	10/26/18 13:53 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	10/29/18 12:23 / SRW
Chloride	ND	mg/L		1		E300.0	10/26/18 14:31 / SRW
Sulfate	ND	mg/L		1		E300.0	10/26/18 14:31 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	10/26/18 15:26 / SRW
Hardness as CaCO3	ND	mg/L		1		A2340 B	10/30/18 14:39 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	10/30/18 15:12 / kmd
Nitrogen, Total	ND	mg/L		0.04		A4500 N-C	10/29/18 13:24 / kmd
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	11/01/18 15:20 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 13:36 / sld
Calcium	ND	mg/L		1		E200.7	10/26/18 18:26 / sld
Magnesium	ND	mg/L		1		E200.7	10/26/18 18:26 / sld
Potassium	ND	mg/L		1		E200.7	10/26/18 18:26 / sld
Sodium	ND	mg/L		1		E200.7	10/26/18 18:26 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/01/18 15:02 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/01/18 15:02 / sld
Barium	ND	mg/L		0.003		E200.8	11/01/18 15:02 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/01/18 15:02 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/01/18 15:02 / sld
Chromium	ND	mg/L		0.01		E200.8	11/01/18 15:02 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/01/18 15:02 / sld
Copper	ND	mg/L		0.002		E200.8	11/01/18 15:02 / sld
Iron	ND	mg/L		0.02		E200.8	11/01/18 15:02 / sld
Lead	ND	mg/L		0.0003		E200.8	11/01/18 15:02 / sld
Manganese	ND	mg/L		0.005		E200.8	11/01/18 15:02 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 18:33 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/01/18 15:02 / sld
Nickel	ND	mg/L		0.001		E200.8	11/01/18 15:02 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/01/18 15:02 / sld
Silver	ND	mg/L		0.0002		E200.8	11/01/18 15:02 / sld
Strontium	ND	mg/L		0.0002		E200.7	11/03/18 02:52 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/01/18 15:02 / sld
Uranium	ND	mg/L		0.008		E200.8	11/01/18 15:02 / sld
Zinc	ND	mg/L		0.002		E200.8	11/01/18 15:02 / sld

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: 11048 Black Butte Copper Surface Water
Lab ID: H18100607-008
Client Sample ID: BBC-1810-107

Report Date: 11/11/18
Collection Date: 10/23/18 14:40
Date Received: 10/25/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	10/26/18 13:23 / cmm
Solids, Total Dissolved TDS @ 180 C	227	mg/L	D	10		A2540 C	10/26/18 13:53 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	10/29/18 12:29 / SRW
Chloride	2	mg/L		1		E300.0	10/26/18 14:45 / SRW
Sulfate	12	mg/L		1		E300.0	10/26/18 14:45 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	10/26/18 15:32 / SRW
Hardness as CaCO3	223	mg/L		1		A2340 B	10/30/18 14:39 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	10/30/18 15:13 / kmd
Nitrogen, Total	0.12	mg/L		0.04		A4500 N-C	10/29/18 13:25 / kmd
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	11/01/18 15:27 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 13:38 / sld
Calcium	55	mg/L		1		E200.7	10/26/18 18:30 / sld
Magnesium	21	mg/L		1		E200.7	10/26/18 18:30 / sld
Potassium	1	mg/L		1		E200.7	10/26/18 18:30 / sld
Sodium	2	mg/L		1		E200.7	10/26/18 18:30 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/01/18 15:04 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/01/18 15:04 / sld
Barium	0.119	mg/L		0.003		E200.8	11/01/18 15:04 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/01/18 15:04 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/01/18 15:04 / sld
Chromium	ND	mg/L		0.01		E200.8	11/01/18 15:04 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/01/18 15:04 / sld
Copper	ND	mg/L		0.002		E200.8	11/01/18 15:04 / sld
Iron	0.04	mg/L		0.02		E200.8	11/01/18 15:04 / sld
Lead	ND	mg/L		0.0003		E200.8	11/01/18 15:04 / sld
Manganese	ND	mg/L		0.005		E200.8	11/01/18 15:04 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 18:37 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/01/18 15:04 / sld
Nickel	ND	mg/L		0.001		E200.8	11/01/18 15:04 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/01/18 15:04 / sld
Silver	ND	mg/L		0.0002		E200.8	11/01/18 15:04 / sld
Strontium	0.132	mg/L	D	0.0003		E200.8	11/01/18 15:04 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/01/18 15:04 / sld
Uranium	ND	mg/L		0.008		E200.8	11/01/18 15:04 / sld
Zinc	0.002	mg/L		0.002		E200.8	11/01/18 15:04 / sld

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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R139414
Lab ID: MBLK		Method Blank								Run: PHSC_101-H_181029A
Alkalinity, Total as CaCO3		ND	mg/L	2						10/29/18 11:15
Lab ID: LCS		Laboratory Control Sample								Run: PHSC_101-H_181029A
Alkalinity, Total as CaCO3		580	mg/L	4.0	97	90	110			10/29/18 11:21
Lab ID: H18100607-002ADUP		Sample Duplicate								Run: PHSC_101-H_181029A
Alkalinity, Total as CaCO3		170	mg/L	4.0				1.0	10	10/29/18 11:49
Lab ID: H18100608-010ADUP		Sample Duplicate								Run: PHSC_101-H_181029A
Alkalinity, Total as CaCO3		170	mg/L	4.0				0.0	10	10/29/18 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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C								Batch: TDS181026A		
Lab ID: MB-1_181026A		Method Blank						Run: ACCU-124 (14410200)_18102	10/26/18 13:51	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-2_181026A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18102	10/26/18 13:51	
Solids, Total Dissolved TDS @ 180 C		1910	mg/L	20	95	90	110			
Lab ID: H18100607-001A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18102	10/26/18 13:52	
Solids, Total Dissolved TDS @ 180 C		187	mg/L	10				3.2	5	
Lab ID: H18100608-003A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18102	10/26/18 13:55	
Solids, Total Dissolved TDS @ 180 C		226	mg/L	10				3.5	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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D Batch: TSS181026A										
Lab ID: MB-1_181026A		Method Blank						Run: ACCU-124 (14410200)_18102	10/26/18 13:21	
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
Lab ID: LCS-2_181026A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18102	10/26/18 13:21	
Solids, Total Suspended TSS @ 105 C		97.0	mg/L	10	97	80	120			
Lab ID: H18100607-001ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18102	10/26/18 13:22	
Solids, Total Suspended TSS @ 105 C		0.800	mg/L	10					5	
Lab ID: H18100608-003ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18102	10/26/18 13:24	
Solids, Total Suspended TSS @ 105 C		50.0	mg/L	10				2.0	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
Project: 11048 Black Butte Copper Surface Water

Report Date: 11/11/18
Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: A4500 N-C								Analytical Run: FIA203-HE_181029A			
Lab ID: ICB	Initial Calibration Blank, Instrument Blank										
Nitrogen, Total		-0.00199	mg/L	0.10		0	0			10/29/18 12:24	
Lab ID: CCV								Continuing Calibration Verification Standard			
Nitrogen, Total		0.483	mg/L	0.10	97	90	110			10/29/18 13:08	
Method: A4500 N-C								Batch: 43608			
Lab ID: LCS-43608	Laboratory Control Sample										
Nitrogen, Total		7.54	mg/L	0.30	101	90	110			Run: FIA203-HE_181029A 10/29/18 13:12	
Lab ID: H18100607-001AMS	Sample Matrix Spike										
Nitrogen, Total		1.02	mg/L	0.10	95	90	110			Run: FIA203-HE_181029A 10/29/18 13:14	
Lab ID: MB-43608	Method Blank										
Nitrogen, Total		ND	mg/L	0.03						Run: FIA203-HE_181029A 10/29/18 13:15	
Lab ID: H18100607-001AMSD	Sample Matrix Spike Duplicate										
Nitrogen, Total		1.01	mg/L	0.10	95	90	110	0.5	20	Run: FIA203-HE_181029A 10/29/18 13:17	

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
Project: 11048 Black Butte Copper Surface Water

Report Date: 11/11/18
Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: A4500-F C										Analytical Run: MANTECH 2_181026A	
Lab ID: ICV		Initial Calibration Verification Standard								10/26/18 09:13	
Fluoride		0.8	mg/L	0.1	104	90	110				
Lab ID: CCV 1		Continuing Calibration Verification Standard								10/26/18 14:22	
Fluoride		1.0	mg/L	0.1	104	90	110				
Method: A4500-F C										Batch: R139396	
Lab ID: MBLK		Method Blank								Run: MANTECH 2_181026A	10/26/18 09:19
Fluoride		0.03	mg/L	0.003							
Lab ID: H18100608-001ADUP		Sample Duplicate								Run: MANTECH 2_181026A	10/26/18 13:26
Fluoride		0.1	mg/L	0.1				0.0	10		
Lab ID: H18100608-011AMS		Sample Matrix Spike								Run: MANTECH 2_181026A	10/26/18 14:39
Fluoride		1.1	mg/L	0.1	108	85	115				
Lab ID: H18100607-001ADUP		Sample Duplicate								Run: MANTECH 2_181026A	10/26/18 14:51
Fluoride		0.1	mg/L	0.1					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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: ICP2-HE_181026A		
Lab ID: ICV	4	Initial Calibration Verification Standard								10/26/18 11:32
Calcium		38.3	mg/L	1.0	96	95	105			
Magnesium		38.5	mg/L	1.0	96	95	105			
Potassium		40.4	mg/L	1.0	101	95	105			
Sodium		40.3	mg/L	1.0	101	95	105			
Lab ID: ICV	4	Initial Calibration Verification Standard								10/26/18 11:37
Calcium		40.0	mg/L	1.0	100	95	105			
Magnesium		40.2	mg/L	1.0	101	95	105			
Potassium		40.5	mg/L	1.0	101	95	105			
Sodium		40.4	mg/L	1.0	101	95	105			
Lab ID: CCV-1	4	Continuing Calibration Verification Standard								10/26/18 11:41
Calcium		25.7	mg/L	1.0	103	95	105			
Magnesium		25.5	mg/L	1.0	102	95	105			
Potassium		25.4	mg/L	1.0	102	95	105			
Sodium		25.3	mg/L	1.0	101	95	105			
Lab ID: ICSA	4	Interference Check Sample A								10/26/18 11:54
Calcium		480	mg/L	1.0	96	80	120			
Magnesium		527	mg/L	1.0	105	80	120			
Potassium		0.00762	mg/L	1.0		0	0			
Sodium		0.0501	mg/L	1.0		0	0			
Lab ID: ICSAB	4	Interference Check Sample AB								10/26/18 11:58
Calcium		480	mg/L	1.0	96	80	120			
Magnesium		527	mg/L	1.0	105	80	120			
Potassium		20.6	mg/L	1.0	103	80	120			
Sodium		20.7	mg/L	1.0	103	80	120			
Lab ID: CCV	4	Continuing Calibration Verification Standard								10/26/18 17:46
Calcium		26.2	mg/L	1.0	105	90	110			
Magnesium		26.1	mg/L	1.0	104	90	110			
Potassium		25.4	mg/L	1.0	102	90	110			
Sodium		25.3	mg/L	1.0	101	90	110			
Method: E200.7								Batch: R139391		
Lab ID: MB	4	Method Blank								Run: ICP2-HE_181026A 10/26/18 12:10
Calcium		ND	mg/L		0.07					
Magnesium		ND	mg/L		0.01					
Potassium		ND	mg/L		0.06					
Sodium		0.03	mg/L		0.02					
Lab ID: LFB	4	Laboratory Fortified Blank								Run: ICP2-HE_181026A 10/26/18 12:14
Calcium		52.3	mg/L	1.0	105	85	115			
Magnesium		53.1	mg/L	1.0	106	85	115			
Potassium		51.3	mg/L	1.0	103	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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7 Batch: R139391										
Lab ID: LFB	4	Laboratory Fortified Blank								
Sodium		51.1	mg/L	1.0	102	85	115			Run: ICP2-HE_181026A 10/26/18 12:14
Lab ID: H18100602-030CMS2	4	Sample Matrix Spike								Run: ICP2-HE_181026A 10/26/18 17:54
Calcium		51.1	mg/L	1.0	102	70	130			
Magnesium		51.5	mg/L	1.0	103	70	130			
Potassium		52.6	mg/L	1.0	105	70	130			
Sodium		52.7	mg/L	1.0	105	70	130			
Lab ID: H18100602-030CMSD	4	Sample Matrix Spike Duplicate								Run: ICP2-HE_181026A 10/26/18 17:58
Calcium		53.4	mg/L	1.0	107	70	130	4.4	20	
Magnesium		54.5	mg/L	1.0	109	70	130	5.6	20	
Potassium		52.8	mg/L	1.0	106	70	130	0.4	20	
Sodium		52.4	mg/L	1.0	105	70	130	0.5	20	
Lab ID: H18100608-002BMS2	4	Sample Matrix Spike								Run: ICP2-HE_181026A 10/26/18 18:54
Calcium		111	mg/L	1.0	108	70	130			
Magnesium		74.9	mg/L	1.0	102	70	130			
Potassium		55.1	mg/L	1.0	107	70	130			
Sodium		55.5	mg/L	1.0	106	70	130			
Lab ID: H18100608-002BMSD	4	Sample Matrix Spike Duplicate								Run: ICP2-HE_181026A 10/26/18 18:58
Calcium		108	mg/L	1.0	103	70	130	2.2	20	
Magnesium		74.4	mg/L	1.0	101	70	130	0.7	20	
Potassium		56.7	mg/L	1.0	111	70	130	2.9	20	
Sodium		57.4	mg/L	1.0	110	70	130	3.3	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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.7								Analytical Run: ICP2-HE_181102B			
Lab ID: ICV		Initial Calibration Verification Standard									
Strontium		0.789	mg/L	0.10	99	95	105			11/02/18 09:17	
Lab ID: CCV-1		Continuing Calibration Verification Standard									
Strontium		2.50	mg/L	0.10	100	95	105			11/02/18 09:21	
Lab ID: ICSA		Interference Check Sample A									
Strontium		-0.0289	mg/L	0.10		0	0			11/02/18 09:36	
Lab ID: ICSAB		Interference Check Sample AB									
Strontium		0.951	mg/L	0.10	95	80	120			11/02/18 09:40	
Lab ID: CCV		Continuing Calibration Verification Standard									
Strontium		2.45	mg/L	0.10	98	90	110			11/03/18 02:19	
Method: E200.7								Batch: 43640			
Lab ID: MB-43640		Method Blank									
Strontium		ND	mg/L	0.0002						Run: ICP2-HE_181102B 11/03/18 02:15	
Lab ID: LCS-43640		Laboratory Control Sample									
Strontium		0.493	mg/L	0.010	99	85	115			Run: ICP2-HE_181102B 11/03/18 02:27	
Lab ID: H18100607-001CDIL		Serial Dilution									
Strontium		0.100	mg/L	0.010		0	0	23	10	Run: ICP2-HE_181102B 11/03/18 02:35 R	
Lab ID: H18100607-001CMS3		Sample Matrix Spike									
Strontium		0.625	mg/L	0.010	100	70	130			Run: ICP2-HE_181102B 11/03/18 02:43	
Lab ID: H18100607-001CMSD		Sample Matrix Spike Duplicate									
Strontium		0.616	mg/L	0.010	98	70	130	1.4	20	Run: ICP2-HE_181102B 11/03/18 02:47	

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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8							Analytical Run: ICPMS205-H_181030A				
Lab ID: ICV		Initial Calibration Verification Standard									10/30/18 09:32
Aluminum		0.302	mg/L	0.10	101	90	110				
Lab ID: ICSA		Interference Check Sample A									10/30/18 09:34
Aluminum		42.3	mg/L	0.10	106	70	130				
Lab ID: ICSAB		Interference Check Sample AB									10/30/18 09:36
Aluminum		42.2	mg/L	0.10	105	70	130				
Lab ID: ICV		Initial Calibration Verification Standard									10/30/18 10:07
Aluminum		0.305	mg/L	0.10	102	90	110				
Lab ID: ICSA		Interference Check Sample A									10/30/18 10:09
Aluminum		42.0	mg/L	0.10	105	70	130				
Lab ID: ICSAB		Interference Check Sample AB									10/30/18 10:11
Aluminum		42.2	mg/L	0.10	106	70	130				
Method: E200.8							Batch: R139472				
Lab ID: LRB		Method Blank					Run: ICPMS205-H_181030A		10/30/18 10:23		
Aluminum		ND	mg/L	0.003							
Lab ID: LFB		Laboratory Fortified Blank					Run: ICPMS205-H_181030A		10/30/18 10:25		
Aluminum		0.0489	mg/L	0.10	98	85	115				
Lab ID: H18100602-023CMS		Sample Matrix Spike					Run: ICPMS205-H_181030A		10/30/18 12:53		
Aluminum		0.0528	mg/L	0.030	106	70	130				
Lab ID: H18100602-023CMSD		Sample Matrix Spike Duplicate					Run: ICPMS205-H_181030A		10/30/18 12:55		
Aluminum		0.0534	mg/L	0.030	107	70	130	1.3	20		
Lab ID: H18100607-003BMS		Sample Matrix Spike					Run: ICPMS205-H_181030A		10/30/18 13:44		
Aluminum		0.0519	mg/L	0.030	104	70	130				
Lab ID: H18100607-003BMSD		Sample Matrix Spike Duplicate					Run: ICPMS205-H_181030A		10/30/18 13:46		
Aluminum		0.0504	mg/L	0.030	101	70	130	3.0	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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_181101A		
Lab ID: ICV	19 Initial Calibration Verification Standard								11/01/18 12:56	
Antimony		0.0631	mg/L	0.050	105	90	110			
Arsenic		0.0608	mg/L	0.0050	101	90	110			
Barium		0.0609	mg/L	0.10	102	90	110			
Beryllium		0.0298	mg/L	0.0010	99	90	110			
Cadmium		0.0306	mg/L	0.0010	102	90	110			
Chromium		0.0607	mg/L	0.010	101	90	110			
Cobalt		0.0618	mg/L	0.010	103	90	110			
Copper		0.0618	mg/L	0.010	103	90	110			
Iron		0.306	mg/L	0.020	102	90	110			
Lead		0.0598	mg/L	0.010	100	90	110			
Manganese		0.309	mg/L	0.010	103	90	110			
Molybdenum		0.0606	mg/L	0.0050	101	90	110			
Nickel		0.0618	mg/L	0.010	103	90	110			
Selenium		0.0615	mg/L	0.0050	102	90	110			
Silver		0.0306	mg/L	0.0050	102	90	110			
Strontium		0.0608	mg/L	0.10	101	90	110			
Thallium		0.0595	mg/L	0.10	99	90	110			
Uranium		0.0591	mg/L	0.00030	99	90	110			
Zinc		0.0623	mg/L	0.010	104	90	110			
Lab ID: ICSA	19 Interference Check Sample A								11/01/18 12:58	
Antimony		0.000226	mg/L	0.050						
Arsenic		5.26E-05	mg/L	0.0050						
Barium		6.92E-05	mg/L	0.10						
Beryllium		-1.30E-05	mg/L	0.0010						
Cadmium		0.000162	mg/L	0.0010						
Chromium		0.00120	mg/L	0.010						
Cobalt		2.40E-06	mg/L	0.010						
Copper		5.86E-05	mg/L	0.010						
Iron		101	mg/L	0.020	101	70	130			
Lead		-9.72E-05	mg/L	0.010						
Manganese		0.000109	mg/L	0.010						
Molybdenum		0.855	mg/L	0.0050	107	70	130			
Nickel		9.03E-05	mg/L	0.010						
Selenium		5.33E-05	mg/L	0.0050						
Silver		0.000117	mg/L	0.0050						
Strontium		0.00112	mg/L	0.10						
Thallium		6.35E-05	mg/L	0.10						
Uranium		2.01E-05	mg/L	0.00030						
Zinc		0.000316	mg/L	0.010						
Lab ID: ICSAB	19 Interference Check Sample AB								11/01/18 13:00	
Antimony		0.000102	mg/L	0.050		0	0			
Arsenic		0.0106	mg/L	0.0050	106	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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_181101A		
Lab ID: ICSAB	19 Interference Check Sample AB								11/01/18 13:00	
Barium		3.04E-05	mg/L	0.10			0	0		
Beryllium		2.36E-05	mg/L	0.0010			0	0		
Cadmium		0.0105	mg/L	0.0010	105	70	130			
Chromium		0.0216	mg/L	0.010	108	70	130			
Cobalt		0.0206	mg/L	0.010	103	70	130			
Copper		0.0206	mg/L	0.010	103	70	130			
Iron		102	mg/L	0.020	102	70	130			
Lead		-0.000110	mg/L	0.010		0	0			
Manganese		0.0208	mg/L	0.010	104	70	130			
Molybdenum		0.868	mg/L	0.0050	109	70	130			
Nickel		0.0205	mg/L	0.010	103	70	130			
Selenium		0.0101	mg/L	0.0050	101	70	130			
Silver		0.0207	mg/L	0.0050	103	70	130			
Strontium		0.00115	mg/L	0.10		0	0			
Thallium		4.39E-05	mg/L	0.10		0	0			
Uranium		6.50E-06	mg/L	0.00030		0	0			
Zinc		0.0103	mg/L	0.010	103	70	130			
Lab ID: ICV	19 Initial Calibration Verification Standard								11/01/18 17:59	
Antimony		0.0653	mg/L	0.050	109	90	110			
Arsenic		0.0614	mg/L	0.0050	102	90	110			
Barium		0.0622	mg/L	0.10	104	90	110			
Beryllium		0.0303	mg/L	0.0010	101	90	110			
Cadmium		0.0316	mg/L	0.0010	105	90	110			
Chromium		0.0615	mg/L	0.010	103	90	110			
Cobalt		0.0621	mg/L	0.010	104	90	110			
Copper		0.0621	mg/L	0.010	104	90	110			
Iron		0.311	mg/L	0.020	104	90	110			
Lead		0.0605	mg/L	0.010	101	90	110			
Manganese		0.312	mg/L	0.010	104	90	110			
Molybdenum		0.0621	mg/L	0.0050	103	90	110			
Nickel		0.0620	mg/L	0.010	103	90	110			
Selenium		0.0607	mg/L	0.0050	101	90	110			
Silver		0.0312	mg/L	0.0050	104	90	110			
Strontium		0.0616	mg/L	0.10	103	90	110			
Thallium		0.0597	mg/L	0.10	99	90	110			
Uranium		0.0580	mg/L	0.00030	97	90	110			
Zinc		0.0630	mg/L	0.010	105	90	110			
Lab ID: ICSA	19 Interference Check Sample A								11/01/18 18:01	
Antimony		0.000228	mg/L	0.050						
Arsenic		5.92E-05	mg/L	0.0050						
Barium		7.25E-05	mg/L	0.10						
Beryllium		5.28E-05	mg/L	0.0010						

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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8										Analytical Run: ICPMS205-H_181101A	
Lab ID: ICSA	19	Interference Check Sample A								11/01/18 18:01	
Cadmium		0.000157	mg/L	0.0010							
Chromium		0.00125	mg/L	0.010							
Cobalt		1.59E-05	mg/L	0.010							
Copper		0.000123	mg/L	0.010							
Iron		104	mg/L	0.020	104	70	130				
Lead		-1.30E-06	mg/L	0.010							
Manganese		0.000136	mg/L	0.010							
Molybdenum		0.898	mg/L	0.0050	112	70	130				
Nickel		9.27E-05	mg/L	0.010							
Selenium		5.26E-05	mg/L	0.0050							
Silver		8.39E-05	mg/L	0.0050							
Strontium		0.00119	mg/L	0.10							
Thallium		7.05E-05	mg/L	0.10							
Uranium		2.21E-05	mg/L	0.00030							
Zinc		0.000145	mg/L	0.010							
Lab ID: ICSAB	19	Interference Check Sample AB								11/01/18 18:03	
Antimony		0.000104	mg/L	0.050		0	0				
Arsenic		0.0107	mg/L	0.0050	107	70	130				
Barium		3.99E-05	mg/L	0.10		0	0				
Beryllium		3.20E-05	mg/L	0.0010		0	0				
Cadmium		0.0103	mg/L	0.0010	103	70	130				
Chromium		0.0217	mg/L	0.010	108	70	130				
Cobalt		0.0206	mg/L	0.010	103	70	130				
Copper		0.0203	mg/L	0.010	102	70	130				
Iron		102	mg/L	0.020	102	70	130				
Lead		-1.60E-05	mg/L	0.010		0	0				
Manganese		0.0209	mg/L	0.010	104	70	130				
Molybdenum		0.885	mg/L	0.0050	111	70	130				
Nickel		0.0203	mg/L	0.010	101	70	130				
Selenium		0.0100	mg/L	0.0050	100	70	130				
Silver		0.0204	mg/L	0.0050	102	70	130				
Strontium		0.00115	mg/L	0.10		0	0				
Thallium		4.82E-05	mg/L	0.10		0	0				
Uranium		5.82E-06	mg/L	0.00030		0	0				
Zinc		0.0105	mg/L	0.010	105	70	130				

Method: E200.8										Batch: 43640	
Lab ID: MB-43640	19	Method Blank								Run: ICPMS205-H_181101A 11/01/18 14:34	
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							

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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: 43640										
Lab ID: MB-43640	19	Method Blank								
										Run: ICPMS205-H_181101A 11/01/18 14:34
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						
Zinc		0.001	mg/L	0.001						
Lab ID: LCS-43640	19	Laboratory Control Sample								
										Run: ICPMS205-H_181101A 11/01/18 14:48
Antimony		0.576	mg/L	0.0010	115	85	115			
Arsenic		0.514	mg/L	0.0010	103	85	115			
Barium		0.534	mg/L	0.050	107	85	115			
Beryllium		0.249	mg/L	0.0010	100	85	115			
Cadmium		0.262	mg/L	0.0010	105	85	115			
Chromium		0.521	mg/L	0.0050	104	85	115			
Cobalt		0.517	mg/L	0.0050	103	85	115			
Copper		0.530	mg/L	0.0050	106	85	115			
Iron		2.54	mg/L	0.020	102	85	115			
Lead		0.535	mg/L	0.0010	107	85	115			
Manganese		2.58	mg/L	0.0010	103	85	115			
Molybdenum		0.551	mg/L	0.0010	110	85	115			
Nickel		0.515	mg/L	0.0050	103	85	115			
Selenium		0.510	mg/L	0.0010	102	85	115			
Silver		0.0535	mg/L	0.0010	107	85	115			
Strontium		0.533	mg/L	0.010	107	85	115			
Thallium		0.512	mg/L	0.00050	102	85	115			
Uranium		0.528	mg/L	0.00030	106	85	115			
Zinc		0.511	mg/L	0.010	102	85	115			
Lab ID: H18100607-001CMS3	19	Sample Matrix Spike								
										Run: ICPMS205-H_181101A 11/01/18 14:50
Antimony		0.596	mg/L	0.0010	119	70	130			
Arsenic		0.526	mg/L	0.0010	105	70	130			
Barium		0.637	mg/L	0.050	107	70	130			
Beryllium		0.252	mg/L	0.0010	101	70	130			
Cadmium		0.264	mg/L	0.0010	106	70	130			
Chromium		0.531	mg/L	0.0050	106	70	130			
Cobalt		0.536	mg/L	0.0050	107	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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: 43640										
Lab ID:	H18100607-001CMS3	19 Sample Matrix Spike			Run: ICPMS205-H_181101A				11/01/18 14:50	
Copper		0.539	mg/L	0.0050	108	70	130			
Iron		2.66	mg/L	0.020	102	70	130			
Lead		0.538	mg/L	0.0010	108	70	130			
Manganese		2.61	mg/L	0.0010	104	70	130			
Molybdenum		0.565	mg/L	0.0010	113	70	130			
Nickel		0.518	mg/L	0.0050	103	70	130			
Selenium		0.517	mg/L	0.0010	103	70	130			
Silver		0.0538	mg/L	0.0010	108	70	130			
Strontium		0.682	mg/L	0.010	110	70	130			
Thallium		0.521	mg/L	0.00050	104	70	130			
Uranium		0.530	mg/L	0.00030	106	70	130			
Zinc		0.514	mg/L	0.010	102	70	130			
Lab ID:	H18100607-001CMSD	19 Sample Matrix Spike Duplicate			Run: ICPMS205-H_181101A				11/01/18 14:52	
Antimony		0.579	mg/L	0.0010	116	70	130	2.9	20	
Arsenic		0.522	mg/L	0.0010	104	70	130	0.9	20	
Barium		0.636	mg/L	0.050	107	70	130	0.2	20	
Beryllium		0.247	mg/L	0.0010	99	70	130	2.0	20	
Cadmium		0.262	mg/L	0.0010	105	70	130	0.9	20	
Chromium		0.536	mg/L	0.0050	107	70	130	0.9	20	
Cobalt		0.524	mg/L	0.0050	105	70	130	2.2	20	
Copper		0.523	mg/L	0.0050	104	70	130	3.1	20	
Iron		2.65	mg/L	0.020	101	70	130	0.5	20	
Lead		0.535	mg/L	0.0010	107	70	130	0.7	20	
Manganese		2.58	mg/L	0.0010	103	70	130	1.3	20	
Molybdenum		0.572	mg/L	0.0010	114	70	130	1.3	20	
Nickel		0.513	mg/L	0.0050	103	70	130	0.9	20	
Selenium		0.516	mg/L	0.0010	103	70	130	0.1	20	
Silver		0.0534	mg/L	0.0010	107	70	130	0.8	20	
Strontium		0.673	mg/L	0.010	109	70	130	1.3	20	
Thallium		0.520	mg/L	0.00050	104	70	130	0.2	20	
Uranium		0.524	mg/L	0.00030	105	70	130	1.2	20	
Zinc		0.512	mg/L	0.010	102	70	130	0.4	20	
Lab ID:	H18100631-001CMS3	19 Sample Matrix Spike			Run: ICPMS205-H_181101A				11/01/18 15:17	
Antimony		0.579	mg/L	0.0010	116	70	130			
Arsenic		0.543	mg/L	0.0010	104	70	130			
Barium		0.542	mg/L	0.050	106	70	130			
Beryllium		0.244	mg/L	0.0010	98	70	130			
Cadmium		0.263	mg/L	0.0010	105	70	130			
Chromium		0.524	mg/L	0.0050	105	70	130			
Cobalt		0.511	mg/L	0.0050	102	70	130			
Copper		0.531	mg/L	0.0050	106	70	130			
Iron		2.62	mg/L	0.020	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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: 43640										
Lab ID: H18100631-001CMS3	19	Sample Matrix Spike			Run: ICPMS205-H_181101A				11/01/18 15:17	
Lead		0.528	mg/L	0.0010	106	70	130			
Manganese		2.63	mg/L	0.0010	104	70	130			
Molybdenum		0.568	mg/L	0.0010	113	70	130			
Nickel		0.515	mg/L	0.0050	103	70	130			
Selenium		0.509	mg/L	0.0010	102	70	130			
Silver		0.0532	mg/L	0.0010	106	70	130			
Strontium		0.689	mg/L	0.010	109	70	130			
Thallium		0.510	mg/L	0.00050	102	70	130			
Uranium		0.516	mg/L	0.00030	102	70	130			
Zinc		0.763	mg/L	0.010	101	70	130			
Lab ID: H18100631-001CMSD	19	Sample Matrix Spike Duplicate			Run: ICPMS205-H_181101A				11/01/18 15:19	
Antimony		0.565	mg/L	0.0010	113	70	130	2.4	20	
Arsenic		0.538	mg/L	0.0010	104	70	130	0.8	20	
Barium		0.538	mg/L	0.050	105	70	130	0.8	20	
Beryllium		0.245	mg/L	0.0010	98	70	130	0.5	20	
Cadmium		0.263	mg/L	0.0010	105	70	130	0.1	20	
Chromium		0.527	mg/L	0.0050	105	70	130	0.7	20	
Cobalt		0.515	mg/L	0.0050	103	70	130	0.8	20	
Copper		0.524	mg/L	0.0050	104	70	130	1.4	20	
Iron		2.62	mg/L	0.020	99	70	130	0.0	20	
Lead		0.525	mg/L	0.0010	105	70	130	0.6	20	
Manganese		2.60	mg/L	0.0010	103	70	130	0.8	20	
Molybdenum		0.555	mg/L	0.0010	111	70	130	2.3	20	
Nickel		0.512	mg/L	0.0050	102	70	130	0.5	20	
Selenium		0.508	mg/L	0.0010	102	70	130	0.2	20	
Silver		0.0534	mg/L	0.0010	107	70	130	0.3	20	
Strontium		0.681	mg/L	0.010	107	70	130	1.2	20	
Thallium		0.507	mg/L	0.00050	101	70	130	0.7	20	
Uranium		0.516	mg/L	0.00030	102	70	130	0.1	20	
Zinc		0.757	mg/L	0.010	100	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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E245.1										Analytical Run: HGCV202-H_181102A	
Lab ID: ICV		Initial Calibration Verification Standard								11/02/18 11:56	
Mercury		0.000101	mg/L	0.00010	101	90	110				
Lab ID: ICV		Initial Calibration Verification Standard								11/02/18 15:30	
Mercury		9.91E-05	mg/L	0.00010	99	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard								11/02/18 17:43	
Mercury		0.000101	mg/L	0.00010	101	90	110				
Method: E245.1										Batch: 43646	
Lab ID: MB-43646		Method Blank								Run: HGCV202-H_181102A	11/02/18 18:01
Mercury		1E-06	mg/L	1E-06							
Lab ID: LCS-43646		Laboratory Control Sample								Run: HGCV202-H_181102A	11/02/18 18:04
Mercury		7.31E-05	mg/L	0.00010	96	90	110				
Lab ID: H18100607-002CMS		Sample Matrix Spike								Run: HGCV202-H_181102A	11/02/18 18:14
Mercury		7.45E-05	mg/L	5.0E-06	97	70	130				
Lab ID: H18100607-002CMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181102A	11/02/18 18:17
Mercury		7.38E-05	mg/L	5.0E-06	96	70	130	0.9	20		
Lab ID: H18100608-003BMS		Sample Matrix Spike								Run: HGCV202-H_181102A	11/02/18 18:56
Mercury		7.42E-05	mg/L	5.0E-06	97	70	130				
Lab ID: H18100608-003BMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181102A	11/02/18 18:59
Mercury		7.46E-05	mg/L	5.0E-06	98	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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0										
Analytical Run: IC METROHM_181026A										
Lab ID: ICV	2	Initial Calibration Verification Standard								10/26/18 11:42
Chloride		105	mg/L	1.0	105	90	110			
Sulfate		424	mg/L	1.0	106	90	110			
Lab ID: CCV	2	Continuing Calibration Verification Standard								10/26/18 12:24
Chloride		52.7	mg/L	1.0	105	90	110			
Sulfate		219	mg/L	1.0	110	90	110			
Method: E300.0										
Batch: R139406										
Lab ID: ICB	2	Method Blank								Run: IC METROHM_181026A 10/26/18 11:28
Chloride		ND	mg/L	0.009						
Sulfate		ND	mg/L	0.01						
Lab ID: LFB	2	Laboratory Fortified Blank								Run: IC METROHM_181026A 10/26/18 11:56
Chloride		25.9	mg/L	1.0	103	90	110			
Sulfate		110	mg/L	1.0	110	90	110			
Lab ID: H18100608-002AMS	2	Sample Matrix Spike								Run: IC METROHM_181026A 10/26/18 15:27
Chloride		31.7	mg/L	1.0	103	90	110			
Sulfate		132	mg/L	1.0	106	90	110			
Lab ID: H18100608-002AMSD	2	Sample Matrix Spike Duplicate								Run: IC METROHM_181026A 10/26/18 15:41
Chloride		31.8	mg/L	1.0	103	90	110	0.2	20	
Sulfate		133	mg/L	1.0	106	90	110	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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E353.2								Analytical Run: FIA203-HE_181030D			
Lab ID: ICV	Initial Calibration Verification Standard										
Nitrogen, Nitrate+Nitrite as N		0.934	mg/L	0.010	93	90	110			10/30/18 13:25	
Lab ID: CCV	Continuing Calibration Verification Standard										
Nitrogen, Nitrate+Nitrite as N		0.467	mg/L	0.010	93	90	110			10/30/18 14:52	
Lab ID: CCV	Continuing Calibration Verification Standard										
Nitrogen, Nitrate+Nitrite as N		0.454	mg/L	0.010	91	90	110			10/30/18 15:09	
Method: E353.2								Batch: R139484			
Lab ID: MBLK	Method Blank										
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009						Run: FIA203-HE_181030D 10/30/18 13:27	
Lab ID: LFB	Laboratory Fortified Blank										
Nitrogen, Nitrate+Nitrite as N		0.941	mg/L	0.011	94	90	110			Run: FIA203-HE_181030D 10/30/18 13:28	
Lab ID: H18100607-001DMS	Sample Matrix Spike										
Nitrogen, Nitrate+Nitrite as N		0.967	mg/L	0.011	96	90	110			Run: FIA203-HE_181030D 10/30/18 14:58	
Lab ID: H18100607-001DMSD	Sample Matrix Spike Duplicate										
Nitrogen, Nitrate+Nitrite as N		0.972	mg/L	0.011	96	90	110	0.5	10	Run: FIA203-HE_181030D 10/30/18 14:59	
Lab ID: H18100608-003CMS	Sample Matrix Spike										
Nitrogen, Nitrate+Nitrite as N		1.17	mg/L	0.011	93	90	110			Run: FIA203-HE_181030D 10/30/18 15:18	
Lab ID: H18100608-003CMSD	Sample Matrix Spike Duplicate										
Nitrogen, Nitrate+Nitrite as N		1.16	mg/L	0.011	92	90	110	0.5	10	Run: FIA203-HE_181030D 10/30/18 15:19	

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

Report Date: 11/11/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18100607

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E365.1 Analytical Run: FIA202-HE_181101A											
Lab ID: ICV		Initial Calibration Verification Standard									11/01/18 14:22
Phosphorus, Total as P		0.258	mg/L	0.010	103	90	110				
Lab ID: ICB		Initial Calibration Blank, Instrument Blank									11/01/18 14:24
Phosphorus, Total as P		0.000660	mg/L	0.010		0	0				
Lab ID: CCV		Continuing Calibration Verification Standard									11/01/18 15:07
Phosphorus, Total as P		0.0987	mg/L	0.010	99	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard									11/01/18 15:26
Phosphorus, Total as P		0.0962	mg/L	0.010	96	90	110				
Method: E365.1 Batch: 43659											
Lab ID: LCS-43659		Laboratory Control Sample									Run: FIA202-HE_181101A 11/01/18 14:28
Phosphorus, Total as P		0.408	mg/L	0.010	102	90	110				
Lab ID: MB-43659		Method Blank									Run: FIA202-HE_181101A 11/01/18 14:32
Phosphorus, Total as P		ND	mg/L	0.002							
Lab ID: H18100602-013BMS		Sample Matrix Spike									Run: FIA202-HE_181101A 11/01/18 14:35
Phosphorus, Total as P		0.404	mg/L	0.010	102	90	110				
Lab ID: H18100602-013BMSD		Sample Matrix Spike Duplicate									Run: FIA202-HE_181101A 11/01/18 14:36
Phosphorus, Total as P		0.410	mg/L	0.010	105	90	110	1.4	20		
Method: E365.1 Batch: 43660											
Lab ID: LCS-43660		Laboratory Control Sample									Run: FIA202-HE_181101A 11/01/18 15:11
Phosphorus, Total as P		0.398	mg/L	0.010	99	90	110				
Lab ID: MB-43660		Method Blank									Run: FIA202-HE_181101A 11/01/18 15:14
Phosphorus, Total as P		ND	mg/L	0.002							
Lab ID: H18100607-003DMS		Sample Matrix Spike									Run: FIA202-HE_181101A 11/01/18 15:15
Phosphorus, Total as P		0.218	mg/L	0.010	107	90	110				
Lab ID: H18100607-003DMSD		Sample Matrix Spike Duplicate									Run: FIA202-HE_181101A 11/01/18 15:16
Phosphorus, Total as P		0.205	mg/L	0.010	101	90	110	6.1	20		

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



Work Order Receipt Checklist

Tintina Resources Inc

H18100607

Login completed by: Jessica C. Smith

Date Received: 10/25/2018

Reviewed by: BL2000\rtooke

Received by: abc

Reviewed Date: 10/31/2018

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:	1.7°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.

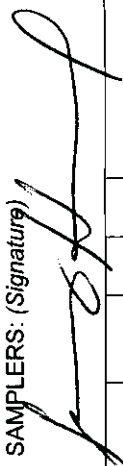

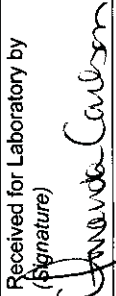
Contact and Corrective Action Comments:

Time on raw bottle in sample set BBC-1810-105 is 14:00 -Time on COC is 14:10. Used time from COC. JCS 10/26/18

Hydrometrics, Inc.

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

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	SAMPLE NUMBER		NO. OF CONTAINERS	Commons UF / RAW	Nutrients UF / H ₂ SO ₄	Diss. Metal F / HNO ₃	CN UF / NaOH	Total Metals UF / HNO ₃	Total Recoverable Metals UF / HNO ₃	BTEX	TPH	REMARKS	
		COMP	GRAB											
11048	Tintina - Black Bottle (SW)			4	X	X	X		X					
SAMPLES: (Signature) 														
12/25/18	11:30	X	BBC-1810-100		X	X	X		X				H181001007	
	12:15		-101											
	12:40		-102											
	13:40		-103											
	14:00		-104											
	14:10		-105											
	14:20		-106											
	14:40	X	-107											
Relinquished (Signature) _____ Date / Time _____ Received by (Signature) _____					Lab Energy - Helena				P.O.# Bill Tintina		Shipped via: Bus FedEx UPS Other <u>Hand delivered</u> Air Bill # _____			
Relinquished (Signature) _____ Date / Time _____ Received by (Signature) _____					Remarks Bottle Order # 28780				1.7 TB on ice hand del.					
Relinquished (Signature)  Date / Time 12/25/18 11:02					Received for Laboratory by (Signature) 				Date / Time 12/25/18 11:02		Enclosed: <input checked="" type="checkbox"/> Parameter sheet w/detection limits Table 6 <input type="checkbox"/> QA / AC standard mixing instructions <input type="checkbox"/> Cover letter <input type="checkbox"/> Other			

Split Samples: Accepted Declined

Signature _____

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

HF0RM-1 07/11
Action Print 406-442-7595

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

Parameter	Analytical Method ⁽¹⁾	Project-Required Detection Limit (mg/L)
Physical Parameters		
TDS	SM 2540C	4
TSS	SM 2540C	4
Common Ions		
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
Nutrients		
Nitrate+Nitrite as N	353.2	0.003
Total Persulfate Nitrogen	A 4500-N-C	0.04
Total Phosphorus	E365.1	0.003
Trace Constituents (SW - Total Recoverable except Aluminum [Diss])⁽²⁾		
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
Field Parameters		
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

November 14, 2018

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

Work Order: H18100608 Quote ID: H1216 - Surface and Groundwater Sampling
Project Name: 11048 Black Butte Copper Project (GW)

Energy Laboratories Inc Helena MT received the following 11 samples for Tintina Resources Inc on 10/25/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18100608-001	BBC-1810-108	10/23/18 15:30	10/25/18	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
H18100608-002	BBC-1810-109	10/23/18 16:00	10/25/18	Groundwater	Same As Above
H18100608-003	BBC-1810-110	10/23/18 16:30	10/25/18	Groundwater	Same As Above
H18100608-004	BBC-1810-113	10/24/18 11:30	10/25/18	Groundwater	Same As Above
H18100608-005	BBC-1810-114	10/23/18 17:55	10/25/18	Groundwater	Same As Above
H18100608-006	BBC-1810-117	10/24/18 9:45	10/25/18	Groundwater	Same As Above
H18100608-007	BBC-1810-118	10/24/18 10:15	10/25/18	Groundwater	Same As Above
H18100608-008	BBC-1810-119	10/24/18 10:50	10/25/18	Groundwater	Same As Above
H18100608-009	BBC-1810-120	10/24/18 11:50	10/25/18	Groundwater	Same As Above
H18100608-010	BBC-1810-121	10/24/18 12:10	10/25/18	Groundwater	Same As Above
H18100608-011	BBC-1810-122	10/24/18 14:00	10/25/18	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.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

Project Manager - Helena, MT

Digitally signed by
Wanda Johnson
Date: 2018.11.14 08:17:39 -07:00



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 11048 Black Butte Copper Project (GW)
Lab ID: H18100608-001
Client Sample ID: BBC-1810-108

Report Date: 11/14/18
Collection Date: 10/23/18 15:30
Date Received: 10/25/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/26/18 13:24 / cmm
Solids, Total Dissolved TDS @ 180 C	115	mg/L		10		A2540 C	10/26/18 13:53 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	93	mg/L		4		A2320 B	10/29/18 12:36 / SRW
Chloride	ND	mg/L		1		E300.0	10/26/18 14:59 / SRW
Sulfate	8	mg/L		1		E300.0	10/26/18 14:59 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	10/26/18 13:21 / SRW
Hardness as CaCO3	94	mg/L		1		A2340 B	10/26/18 18:42 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.23	mg/L		0.01		E353.2	10/30/18 15:14 / kmd
METALS, DISSOLVED							
Aluminum	0.018	mg/L		0.009		E200.8	10/30/18 13:40 / sld
Antimony	ND	mg/L		0.0005		E200.8	10/30/18 13:40 / sld
Arsenic	0.005	mg/L		0.001		E200.8	10/30/18 13:40 / sld
Barium	0.290	mg/L		0.003		E200.8	10/30/18 13:40 / sld
Beryllium	ND	mg/L		0.0008		E200.8	10/30/18 13:40 / sld
Cadmium	ND	mg/L		0.00003		E200.8	10/30/18 13:40 / sld
Calcium	23	mg/L		1		E200.7	10/26/18 18:42 / sld
Chromium	ND	mg/L		0.01		E200.8	10/30/18 13:40 / sld
Cobalt	ND	mg/L		0.01		E200.8	10/30/18 13:40 / sld
Copper	ND	mg/L		0.002		E200.8	10/30/18 13:40 / sld
Iron	ND	mg/L		0.02		E200.8	10/30/18 13:40 / sld
Lead	ND	mg/L		0.0003		E200.8	10/30/18 13:40 / sld
Magnesium	9	mg/L		1		E200.7	10/26/18 18:42 / sld
Manganese	ND	mg/L		0.005		E200.8	10/30/18 13:40 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 18:46 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/30/18 13:40 / sld
Nickel	ND	mg/L		0.001		E200.8	10/30/18 13:40 / sld
Potassium	1	mg/L		1		E200.7	10/26/18 18:42 / sld
Selenium	ND	mg/L		0.0002		E200.8	10/30/18 13:40 / sld
Silver	ND	mg/L		0.0002		E200.8	11/02/18 12:42 / sld
Sodium	4	mg/L		1		E200.7	10/26/18 18:42 / sld
Strontium	0.104	mg/L		0.0002		E200.8	10/30/18 13:40 / sld
Thallium	ND	mg/L		0.0002		E200.8	10/30/18 13:40 / sld
Uranium	ND	mg/L		0.008		E200.8	10/30/18 13:40 / sld
Zinc	ND	mg/L		0.002		E200.8	10/30/18 13:40 / sld

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: 11048 Black Butte Copper Project (GW)
Lab ID: H18100608-002
Client Sample ID: BBC-1810-109

Report Date: 11/14/18
Collection Date: 10/23/18 16:00
Date Received: 10/25/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	47	mg/L		10		A2540 D	10/26/18 13:24 / cmm
Solids, Total Dissolved TDS @ 180 C	249	mg/L		10		A2540 C	10/26/18 13:53 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	10/29/18 12:44 / SRW
Chloride	6	mg/L		1		E300.0	10/26/18 15:13 / SRW
Sulfate	27	mg/L		1		E300.0	10/26/18 15:13 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	10/26/18 13:32 / SRW
Hardness as CaCO3	239	mg/L		1		A2340 B	10/26/18 18:46 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.33	mg/L		0.01		E353.2	10/30/18 15:16 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 13:42 / sld
Antimony	ND	mg/L		0.0005		E200.8	10/30/18 13:42 / sld
Arsenic	ND	mg/L		0.001		E200.8	10/30/18 13:42 / sld
Barium	0.185	mg/L		0.003		E200.8	10/30/18 13:42 / sld
Beryllium	ND	mg/L		0.0008		E200.8	10/30/18 13:42 / sld
Cadmium	ND	mg/L		0.00003		E200.8	10/30/18 13:42 / sld
Calcium	56	mg/L		1		E200.7	10/26/18 18:46 / sld
Chromium	ND	mg/L		0.01		E200.8	10/30/18 13:42 / sld
Cobalt	ND	mg/L		0.01		E200.8	10/30/18 13:42 / sld
Copper	ND	mg/L		0.002		E200.8	10/30/18 13:42 / sld
Iron	ND	mg/L		0.02		E200.8	10/30/18 13:42 / sld
Lead	ND	mg/L		0.0003		E200.8	10/30/18 13:42 / sld
Magnesium	24	mg/L		1		E200.7	10/26/18 18:46 / sld
Manganese	ND	mg/L		0.005		E200.8	10/30/18 13:42 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 18:49 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/30/18 13:42 / sld
Nickel	ND	mg/L		0.001		E200.8	10/30/18 13:42 / sld
Potassium	1	mg/L		1		E200.7	10/26/18 18:46 / sld
Selenium	0.0002	mg/L		0.0002		E200.8	11/02/18 12:44 / sld
Silver	ND	mg/L		0.0002		E200.8	11/02/18 12:44 / sld
Sodium	2	mg/L		1		E200.7	10/26/18 18:46 / sld
Strontium	0.114	mg/L		0.0002		E200.8	10/30/18 13:42 / sld
Thallium	ND	mg/L		0.0002		E200.8	10/30/18 13:42 / sld
Uranium	ND	mg/L		0.008		E200.8	10/30/18 13:42 / sld
Zinc	0.003	mg/L		0.002		E200.8	10/30/18 13:42 / sld

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: 11048 Black Butte Copper Project (GW)
Lab ID: H18100608-003
Client Sample ID: BBC-1810-110

Report Date: 11/14/18
Collection Date: 10/23/18 16:30
Date Received: 10/25/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	51	mg/L		10		A2540 D	10/26/18 13:24 / cmm
Solids, Total Dissolved TDS @ 180 C	234	mg/L		10		A2540 C	10/26/18 13:54 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	10/29/18 12:53 / SRW
Chloride	ND	mg/L		1		E300.0	10/26/18 16:38 / SRW
Sulfate	17	mg/L		1		E300.0	10/26/18 16:38 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	10/26/18 13:38 / SRW
Hardness as CaCO3	236	mg/L		1		A2340 B	10/26/18 19:01 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.24	mg/L		0.01		E353.2	10/30/18 15:17 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 13:55 / sld
Antimony	ND	mg/L		0.0005		E200.8	10/30/18 13:55 / sld
Arsenic	ND	mg/L		0.001		E200.8	10/30/18 13:55 / sld
Barium	0.056	mg/L		0.003		E200.8	10/30/18 13:55 / sld
Beryllium	ND	mg/L		0.0008		E200.8	10/30/18 13:55 / sld
Cadmium	ND	mg/L		0.00003		E200.8	10/30/18 13:55 / sld
Calcium	60	mg/L		1		E200.7	10/26/18 19:01 / sld
Chromium	ND	mg/L		0.01		E200.8	10/30/18 13:55 / sld
Cobalt	ND	mg/L		0.01		E200.8	10/30/18 13:55 / sld
Copper	ND	mg/L		0.002		E200.8	10/30/18 13:55 / sld
Iron	ND	mg/L		0.02		E200.8	10/30/18 13:55 / sld
Lead	ND	mg/L		0.0003		E200.8	10/30/18 13:55 / sld
Magnesium	21	mg/L		1		E200.7	10/26/18 19:01 / sld
Manganese	ND	mg/L		0.005		E200.8	10/30/18 13:55 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 18:53 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/30/18 13:55 / sld
Nickel	ND	mg/L		0.001		E200.8	10/30/18 13:55 / sld
Potassium	1	mg/L		1		E200.7	10/26/18 19:01 / sld
Selenium	0.0003	mg/L		0.0002		E200.8	10/30/18 13:55 / sld
Silver	ND	mg/L		0.0002		E200.8	11/02/18 12:46 / sld
Sodium	2	mg/L		1		E200.7	10/26/18 19:01 / sld
Strontium	0.122	mg/L		0.0002		E200.8	10/30/18 13:55 / sld
Thallium	ND	mg/L		0.0002		E200.8	10/30/18 13:55 / sld
Uranium	ND	mg/L		0.008		E200.8	10/30/18 13:55 / sld
Zinc	ND	mg/L		0.002		E200.8	10/30/18 13:55 / sld

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: 11048 Black Butte Copper Project (GW)
Lab ID: H18100608-004
Client Sample ID: BBC-1810-113

Report Date: 11/14/18
Collection Date: 10/24/18 11:30
Date Received: 10/25/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	158	mg/L		10		A2540 D	10/26/18 13:25 / cmm
Solids, Total Dissolved TDS @ 180 C	226	mg/L		10		A2540 C	10/26/18 13:56 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	10/29/18 13:01 / SRW
Chloride	ND	mg/L		1		E300.0	10/26/18 16:52 / SRW
Sulfate	18	mg/L		1		E300.0	10/26/18 16:52 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	10/26/18 13:43 / SRW
Hardness as CaCO3	238	mg/L		1		A2340 B	10/26/18 19:06 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.13	mg/L		0.01		E353.2	10/30/18 15:20 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 13:57 / sld
Antimony	ND	mg/L		0.0005		E200.8	10/30/18 13:57 / sld
Arsenic	ND	mg/L		0.001		E200.8	10/30/18 13:57 / sld
Barium	0.056	mg/L		0.003		E200.8	10/30/18 13:57 / sld
Beryllium	ND	mg/L		0.0008		E200.8	10/30/18 13:57 / sld
Cadmium	ND	mg/L		0.00003		E200.8	10/30/18 13:57 / sld
Calcium	60	mg/L		1		E200.7	10/26/18 19:06 / sld
Chromium	ND	mg/L		0.01		E200.8	10/30/18 13:57 / sld
Cobalt	ND	mg/L		0.01		E200.8	10/30/18 13:57 / sld
Copper	ND	mg/L		0.002		E200.8	10/30/18 13:57 / sld
Iron	ND	mg/L		0.02		E200.8	10/30/18 13:57 / sld
Lead	ND	mg/L		0.0003		E200.8	10/30/18 13:57 / sld
Magnesium	22	mg/L		1		E200.7	10/26/18 19:06 / sld
Manganese	ND	mg/L		0.005		E200.8	10/30/18 13:57 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 19:02 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/30/18 13:57 / sld
Nickel	ND	mg/L		0.001		E200.8	10/30/18 13:57 / sld
Potassium	ND	mg/L		1		E200.7	10/26/18 19:06 / sld
Selenium	0.0002	mg/L		0.0002		E200.8	10/30/18 13:57 / sld
Silver	ND	mg/L		0.0002		E200.8	11/02/18 12:48 / sld
Sodium	2	mg/L		1		E200.7	10/26/18 19:06 / sld
Strontium	0.119	mg/L		0.0002		E200.8	10/30/18 13:57 / sld
Thallium	ND	mg/L		0.0002		E200.8	10/30/18 13:57 / sld
Uranium	ND	mg/L		0.008		E200.8	10/30/18 13:57 / sld
Zinc	ND	mg/L		0.002		E200.8	10/30/18 13:57 / sld

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: 11048 Black Butte Copper Project (GW)
Lab ID: H18100608-005
Client Sample ID: BBC-1810-114

Report Date: 11/14/18
Collection Date: 10/23/18 17:55
Date Received: 10/25/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	28	mg/L		10		A2540 D	10/26/18 13:25 / cmm
Solids, Total Dissolved TDS @ 180 C	224	mg/L		10		A2540 C	10/26/18 13:56 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	10/29/18 13:08 / SRW
Chloride	ND	mg/L		1		E300.0	10/26/18 17:06 / SRW
Sulfate	11	mg/L		1		E300.0	10/26/18 17:06 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	10/26/18 13:49 / SRW
Hardness as CaCO3	225	mg/L		1		A2340 B	10/26/18 19:10 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.02	mg/L		0.01		E353.2	10/30/18 15:22 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 13:59 / sld
Antimony	ND	mg/L		0.0005		E200.8	10/30/18 13:59 / sld
Arsenic	ND	mg/L		0.001		E200.8	10/30/18 13:59 / sld
Barium	0.059	mg/L		0.003		E200.8	10/30/18 13:59 / sld
Beryllium	ND	mg/L		0.0008		E200.8	10/30/18 13:59 / sld
Cadmium	ND	mg/L		0.00003		E200.8	10/30/18 13:59 / sld
Calcium	60	mg/L		1		E200.7	10/26/18 19:10 / sld
Chromium	ND	mg/L		0.01		E200.8	10/30/18 13:59 / sld
Cobalt	ND	mg/L		0.01		E200.8	10/30/18 13:59 / sld
Copper	ND	mg/L		0.002		E200.8	10/30/18 13:59 / sld
Iron	ND	mg/L		0.02		E200.8	10/30/18 13:59 / sld
Lead	ND	mg/L		0.0003		E200.8	10/30/18 13:59 / sld
Magnesium	19	mg/L		1		E200.7	10/26/18 19:10 / sld
Manganese	0.017	mg/L		0.005		E200.8	10/30/18 13:59 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 19:05 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/30/18 13:59 / sld
Nickel	ND	mg/L		0.001		E200.8	10/30/18 13:59 / sld
Potassium	ND	mg/L		1		E200.7	10/26/18 19:10 / sld
Selenium	ND	mg/L		0.0002		E200.8	10/30/18 13:59 / sld
Silver	ND	mg/L		0.0002		E200.8	11/02/18 12:50 / sld
Sodium	2	mg/L		1		E200.7	10/26/18 19:10 / sld
Strontium	0.141	mg/L		0.0002		E200.8	10/30/18 13:59 / sld
Thallium	ND	mg/L		0.0002		E200.8	10/30/18 13:59 / sld
Uranium	ND	mg/L		0.008		E200.8	10/30/18 13:59 / sld
Zinc	ND	mg/L		0.002		E200.8	10/30/18 13:59 / sld

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: 11048 Black Butte Copper Project (GW)
Lab ID: H18100608-006
Client Sample ID: BBC-1810-117

Report Date: 11/14/18
Collection Date: 10/24/18 09:45
Date Received: 10/25/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	44	mg/L		10		A2540 D	10/26/18 13:25 / cmm
Solids, Total Dissolved TDS @ 180 C	132	mg/L		10		A2540 C	10/26/18 13:56 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	10/29/18 13:17 / SRW
Chloride	ND	mg/L		1		E300.0	10/26/18 17:20 / SRW
Sulfate	7	mg/L		1		E300.0	10/26/18 17:20 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	10/26/18 13:55 / SRW
Hardness as CaCO3	103	mg/L		1		A2340 B	10/26/18 19:14 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.24	mg/L		0.01		E353.2	10/30/18 15:23 / kmd
METALS, DISSOLVED							
Aluminum	0.033	mg/L		0.009		E200.8	10/30/18 14:01 / sld
Antimony	ND	mg/L		0.0005		E200.8	10/30/18 14:01 / sld
Arsenic	0.001	mg/L		0.001		E200.8	10/30/18 14:01 / sld
Barium	0.306	mg/L		0.003		E200.8	10/30/18 14:01 / sld
Beryllium	ND	mg/L		0.0008		E200.8	10/30/18 14:01 / sld
Cadmium	ND	mg/L		0.00003		E200.8	10/30/18 14:01 / sld
Calcium	30	mg/L		1		E200.7	10/26/18 19:14 / sld
Chromium	ND	mg/L		0.01		E200.8	10/30/18 14:01 / sld
Cobalt	ND	mg/L		0.01		E200.8	10/30/18 14:01 / sld
Copper	ND	mg/L		0.002		E200.8	10/30/18 14:01 / sld
Iron	0.02	mg/L		0.02		E200.8	10/30/18 14:01 / sld
Lead	ND	mg/L		0.0003		E200.8	10/30/18 14:01 / sld
Magnesium	7	mg/L		1		E200.7	10/26/18 19:14 / sld
Manganese	ND	mg/L		0.005		E200.8	10/30/18 14:01 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 19:09 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/30/18 14:01 / sld
Nickel	ND	mg/L		0.001		E200.8	10/30/18 14:01 / sld
Potassium	1	mg/L		1		E200.7	10/26/18 19:14 / sld
Selenium	ND	mg/L		0.0002		E200.8	10/30/18 14:01 / sld
Silver	ND	mg/L		0.0002		E200.8	11/02/18 12:52 / sld
Sodium	3	mg/L		1		E200.7	10/26/18 19:14 / sld
Strontium	0.0878	mg/L		0.0002		E200.8	10/30/18 14:01 / sld
Thallium	ND	mg/L		0.0002		E200.8	10/30/18 14:01 / sld
Uranium	ND	mg/L		0.008		E200.8	10/30/18 14:01 / sld
Zinc	ND	mg/L		0.002		E200.8	10/30/18 14:01 / sld

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: 11048 Black Butte Copper Project (GW)
Lab ID: H18100608-007
Client Sample ID: BBC-1810-118

Report Date: 11/14/18
Collection Date: 10/24/18 10:15
Date Received: 10/25/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/26/18 13:25 / cmm
Solids, Total Dissolved TDS @ 180 C	163	mg/L		10		A2540 C	10/26/18 13:56 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	140	mg/L		4		A2320 B	10/29/18 13:23 / SRW
Chloride	ND	mg/L		1		E300.0	10/26/18 17:34 / SRW
Sulfate	12	mg/L		1		E300.0	10/26/18 17:34 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	10/26/18 14:01 / SRW
Hardness as CaCO3	145	mg/L		1		A2340 B	10/26/18 19:18 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.34	mg/L		0.01		E353.2	10/30/18 15:24 / kmd
METALS, DISSOLVED							
Aluminum	0.032	mg/L		0.009		E200.8	10/30/18 14:03 / sld
Antimony	ND	mg/L		0.0005		E200.8	10/30/18 14:03 / sld
Arsenic	ND	mg/L		0.001		E200.8	10/30/18 14:03 / sld
Barium	0.210	mg/L		0.003		E200.8	10/30/18 14:03 / sld
Beryllium	ND	mg/L		0.0008		E200.8	10/30/18 14:03 / sld
Cadmium	ND	mg/L		0.00003		E200.8	10/30/18 14:03 / sld
Calcium	37	mg/L		1		E200.7	10/26/18 19:18 / sld
Chromium	ND	mg/L		0.01		E200.8	10/30/18 14:03 / sld
Cobalt	ND	mg/L		0.01		E200.8	10/30/18 14:03 / sld
Copper	ND	mg/L		0.002		E200.8	10/30/18 14:03 / sld
Iron	0.19	mg/L		0.02		E200.8	10/30/18 14:03 / sld
Lead	ND	mg/L		0.0003		E200.8	10/30/18 14:03 / sld
Magnesium	13	mg/L		1		E200.7	10/26/18 19:18 / sld
Manganese	0.073	mg/L		0.005		E200.8	10/30/18 14:03 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 19:12 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/30/18 14:03 / sld
Nickel	ND	mg/L		0.001		E200.8	10/30/18 14:03 / sld
Potassium	1	mg/L		1		E200.7	10/26/18 19:18 / sld
Selenium	0.0002	mg/L		0.0002		E200.8	10/30/18 14:03 / sld
Silver	ND	mg/L		0.0002		E200.8	11/02/18 12:54 / sld
Sodium	2	mg/L		1		E200.7	10/26/18 19:18 / sld
Strontium	0.0757	mg/L		0.0002		E200.8	10/30/18 14:03 / sld
Thallium	0.0004	mg/L		0.0002		E200.8	10/30/18 14:03 / sld
Uranium	ND	mg/L		0.008		E200.8	10/30/18 14:03 / sld
Zinc	ND	mg/L		0.002		E200.8	10/30/18 14:03 / sld

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: 11048 Black Butte Copper Project (GW)
Lab ID: H18100608-008
Client Sample ID: BBC-1810-119

Report Date: 11/14/18
Collection Date: 10/24/18 10:50
Date Received: 10/25/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	34	mg/L		10		A2540 D	10/26/18 13:25 / cmm
Solids, Total Dissolved TDS @ 180 C	237	mg/L		10		A2540 C	10/26/18 13:56 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	10/29/18 13:30 / SRW
Chloride	ND	mg/L		1		E300.0	10/26/18 17:48 / SRW
Sulfate	39	mg/L		1		E300.0	10/26/18 17:48 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	10/26/18 14:06 / SRW
Hardness as CaCO3	234	mg/L		1		A2340 B	10/29/18 11:56 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.25	mg/L		0.01		E353.2	10/30/18 15:28 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 14:05 / sld
Antimony	ND	mg/L		0.0005		E200.8	10/30/18 14:05 / sld
Arsenic	ND	mg/L		0.001		E200.8	10/30/18 14:05 / sld
Barium	0.114	mg/L		0.003		E200.8	10/30/18 14:05 / sld
Beryllium	ND	mg/L		0.0008		E200.8	10/30/18 14:05 / sld
Cadmium	ND	mg/L		0.00003		E200.8	10/30/18 14:05 / sld
Calcium	51	mg/L		1		E200.7	10/29/18 11:56 / sld
Chromium	ND	mg/L		0.01		E200.8	10/30/18 14:05 / sld
Cobalt	ND	mg/L		0.01		E200.8	10/30/18 14:05 / sld
Copper	ND	mg/L		0.002		E200.8	10/30/18 14:05 / sld
Iron	ND	mg/L		0.02		E200.8	10/30/18 14:05 / sld
Lead	ND	mg/L		0.0003		E200.8	10/30/18 14:05 / sld
Magnesium	26	mg/L		1		E200.7	10/26/18 19:30 / sld
Manganese	0.006	mg/L		0.005		E200.8	11/02/18 12:56 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 19:15 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/30/18 14:05 / sld
Nickel	ND	mg/L		0.001		E200.8	10/30/18 14:05 / sld
Potassium	2	mg/L		1		E200.7	10/26/18 19:30 / sld
Selenium	0.0004	mg/L		0.0002		E200.8	10/30/18 14:05 / sld
Silver	ND	mg/L		0.0002		E200.8	11/02/18 12:56 / sld
Sodium	2	mg/L		1		E200.7	10/26/18 19:30 / sld
Strontium	0.0743	mg/L		0.0002		E200.8	10/30/18 14:05 / sld
Thallium	0.0003	mg/L		0.0002		E200.8	10/30/18 14:05 / sld
Uranium	ND	mg/L		0.008		E200.8	10/30/18 14:05 / sld
Zinc	ND	mg/L		0.002		E200.8	10/30/18 14:05 / sld

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: 11048 Black Butte Copper Project (GW)
Lab ID: H18100608-009
Client Sample ID: BBC-1810-120

Report Date: 11/14/18
Collection Date: 10/24/18 11:50
Date Received: 10/25/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/26/18 13:27 / cmm
Solids, Total Dissolved TDS @ 180 C	185	mg/L		10		A2540 C	10/26/18 13:57 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	10/29/18 13:37 / SRW
Chloride	2	mg/L		1		E300.0	10/26/18 18:03 / SRW
Sulfate	12	mg/L		1		E300.0	10/26/18 18:03 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	10/26/18 14:11 / SRW
Hardness as CaCO3	170	mg/L		1		A2340 B	10/29/18 12:20 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.30	mg/L		0.01		E353.2	10/30/18 15:29 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 14:07 / sld
Antimony	ND	mg/L		0.0005		E200.8	10/30/18 14:07 / sld
Arsenic	0.004	mg/L		0.001		E200.8	10/30/18 14:07 / sld
Barium	0.116	mg/L		0.003		E200.8	10/30/18 14:07 / sld
Beryllium	ND	mg/L		0.0008		E200.8	10/30/18 14:07 / sld
Cadmium	ND	mg/L		0.00003		E200.8	10/30/18 14:07 / sld
Calcium	43	mg/L		1		E200.7	10/29/18 12:20 / sld
Chromium	ND	mg/L		0.01		E200.8	10/30/18 14:07 / sld
Cobalt	ND	mg/L		0.01		E200.8	10/30/18 14:07 / sld
Copper	ND	mg/L		0.002		E200.8	10/30/18 14:07 / sld
Iron	ND	mg/L		0.02		E200.8	10/30/18 14:07 / sld
Lead	ND	mg/L		0.0003		E200.8	10/30/18 14:07 / sld
Magnesium	15	mg/L		1		E200.7	10/26/18 19:34 / sld
Manganese	ND	mg/L		0.005		E200.8	10/30/18 14:07 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 19:18 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/30/18 14:07 / sld
Nickel	ND	mg/L		0.001		E200.8	10/30/18 14:07 / sld
Potassium	3	mg/L		1		E200.7	10/26/18 19:34 / sld
Selenium	0.0003	mg/L		0.0002		E200.8	10/30/18 14:07 / sld
Silver	ND	mg/L		0.0002		E200.8	11/02/18 13:10 / sld
Sodium	5	mg/L		1		E200.7	10/26/18 19:34 / sld
Strontium	0.172	mg/L		0.0002		E200.8	10/30/18 14:07 / sld
Thallium	0.0010	mg/L		0.0002		E200.8	10/30/18 14:07 / sld
Uranium	ND	mg/L		0.008		E200.8	10/30/18 14:07 / sld
Zinc	ND	mg/L		0.002		E200.8	10/30/18 14:07 / sld

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: 11048 Black Butte Copper Project (GW)
Lab ID: H18100608-010
Client Sample ID: BBC-1810-121

Report Date: 11/14/18
Collection Date: 10/24/18 12:10
Date Received: 10/25/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/26/18 13:27 / cmm
Solids, Total Dissolved TDS @ 180 C	186	mg/L		10		A2540 C	10/26/18 13:57 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	10/29/18 13:45 / SRW
Chloride	2	mg/L		1		E300.0	10/26/18 18:17 / SRW
Sulfate	11	mg/L		1		E300.0	10/26/18 18:17 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	10/26/18 14:17 / SRW
Hardness as CaCO3	168	mg/L		1		A2340 B	10/29/18 12:24 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.30	mg/L		0.01		E353.2	10/30/18 15:30 / kmd
METALS, DISSOLVED							
Aluminum	0.017	mg/L		0.009		E200.8	10/30/18 14:09 / sld
Antimony	ND	mg/L		0.0005		E200.8	10/30/18 14:09 / sld
Arsenic	0.004	mg/L		0.001		E200.8	10/30/18 14:09 / sld
Barium	0.114	mg/L		0.003		E200.8	10/30/18 14:09 / sld
Beryllium	ND	mg/L		0.0008		E200.8	10/30/18 14:09 / sld
Cadmium	ND	mg/L		0.00003		E200.8	10/30/18 14:09 / sld
Calcium	43	mg/L		1		E200.7	10/29/18 12:24 / sld
Chromium	ND	mg/L		0.01		E200.8	10/30/18 14:09 / sld
Cobalt	ND	mg/L		0.01		E200.8	10/30/18 14:09 / sld
Copper	ND	mg/L		0.002		E200.8	10/30/18 14:09 / sld
Iron	ND	mg/L		0.02		E200.8	10/30/18 14:09 / sld
Lead	ND	mg/L		0.0003		E200.8	10/30/18 14:09 / sld
Magnesium	15	mg/L		1		E200.7	10/26/18 19:38 / sld
Manganese	ND	mg/L		0.005		E200.8	10/30/18 14:09 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 19:22 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/30/18 14:09 / sld
Nickel	ND	mg/L		0.001		E200.8	10/30/18 14:09 / sld
Potassium	3	mg/L		1		E200.7	10/26/18 19:38 / sld
Selenium	0.0003	mg/L		0.0002		E200.8	10/30/18 14:09 / sld
Silver	ND	mg/L		0.0002		E200.8	11/02/18 13:12 / sld
Sodium	4	mg/L		1		E200.7	10/26/18 19:38 / sld
Strontium	0.171	mg/L		0.0002		E200.8	10/30/18 14:09 / sld
Thallium	0.0010	mg/L		0.0002		E200.8	10/30/18 14:09 / sld
Uranium	ND	mg/L		0.008		E200.8	10/30/18 14:09 / sld
Zinc	ND	mg/L		0.002		E200.8	10/30/18 14:09 / sld

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: 11048 Black Butte Copper Project (GW)
Lab ID: H18100608-011
Client Sample ID: BBC-1810-122

Report Date: 11/14/18
Collection Date: 10/24/18 14:00
Date Received: 10/25/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	10/26/18 13:27 / cmm
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	10/26/18 13:57 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	10/29/18 14:01 / SRW
Chloride	ND	mg/L		1		E300.0	10/26/18 18:31 / SRW
Sulfate	ND	mg/L		1		E300.0	10/26/18 18:31 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	10/26/18 14:34 / SRW
Hardness as CaCO3	ND	mg/L		1		A2340 B	11/02/18 16:09 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	10/30/18 15:31 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	10/30/18 14:23 / sld
Antimony	ND	mg/L		0.0005		E200.8	10/30/18 14:23 / sld
Arsenic	ND	mg/L		0.001		E200.8	10/30/18 14:23 / sld
Barium	ND	mg/L		0.003		E200.8	10/30/18 14:23 / sld
Beryllium	ND	mg/L		0.0008		E200.8	10/30/18 14:23 / sld
Cadmium	ND	mg/L		0.00003		E200.8	10/30/18 14:23 / sld
Calcium	ND	mg/L		1		E200.7	10/29/18 12:28 / sld
Chromium	ND	mg/L		0.01		E200.8	10/30/18 14:23 / sld
Cobalt	ND	mg/L		0.01		E200.8	10/30/18 14:23 / sld
Copper	ND	mg/L		0.002		E200.8	10/30/18 14:23 / sld
Iron	ND	mg/L		0.02		E200.8	10/30/18 14:23 / sld
Lead	ND	mg/L		0.0003		E200.8	10/30/18 14:23 / sld
Magnesium	ND	mg/L		1		E200.7	10/26/18 19:42 / sld
Manganese	ND	mg/L		0.005		E200.8	10/30/18 14:23 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/02/18 19:25 / dck
Molybdenum	ND	mg/L		0.002		E200.8	10/30/18 14:23 / sld
Nickel	ND	mg/L		0.001		E200.8	10/30/18 14:23 / sld
Potassium	ND	mg/L		1		E200.7	10/26/18 19:42 / sld
Selenium	ND	mg/L		0.0002		E200.8	10/30/18 14:23 / sld
Silver	ND	mg/L		0.0002		E200.8	11/02/18 13:13 / sld
Sodium	ND	mg/L		1		E200.7	10/26/18 19:42 / sld
Strontium	ND	mg/L		0.0002		E200.8	10/30/18 14:23 / sld
Thallium	ND	mg/L		0.0002		E200.8	10/30/18 14:23 / sld
Uranium	ND	mg/L		0.008		E200.8	10/30/18 14:23 / sld
Zinc	ND	mg/L		0.002		E200.8	10/30/18 14:23 / sld

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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B									Batch: R139414
Lab ID: MBLK Alkalinity, Total as CaCO3	Method Blank ND	mg/L	2						Run: PHSC_101-H_181029A 10/29/18 11:15
Lab ID: LCS Alkalinity, Total as CaCO3	Laboratory Control Sample 580	mg/L	4.0	97	90	110			Run: PHSC_101-H_181029A 10/29/18 11:21
Lab ID: H18100607-002ADUP Alkalinity, Total as CaCO3	Sample Duplicate 170	mg/L	4.0				1.0	10	Run: PHSC_101-H_181029A 10/29/18 11:49
Lab ID: H18100608-010ADUP Alkalinity, Total as CaCO3	Sample Duplicate 170	mg/L	4.0				0.0	10	Run: PHSC_101-H_181029A 10/29/18 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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C							Batch: TDS181026A		
Lab ID: MB-1_181026A Solids, Total Dissolved TDS @ 180 C	Method Blank ND	mg/L	10				Run: ACCU-124 (14410200)_18102	10/26/18 13:51	
Lab ID: LCS-2_181026A Solids, Total Dissolved TDS @ 180 C	Laboratory Control Sample 1910	mg/L	20	95	90	110	Run: ACCU-124 (14410200)_18102	10/26/18 13:51	
Lab ID: H18100607-001A DUP Solids, Total Dissolved TDS @ 180 C	Sample Duplicate 187	mg/L	10				Run: ACCU-124 (14410200)_18102	10/26/18 13:52	3.2 5
Lab ID: H18100608-003A DUP Solids, Total Dissolved TDS @ 180 C	Sample Duplicate 226	mg/L	10				Run: ACCU-124 (14410200)_18102	10/26/18 13:55	3.5 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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D							Batch: TSS181026A		
Lab ID: MB-1_181026A	Method Blank				Run: ACCU-124 (14410200)_18102		10/26/18 13:21		
Solids, Total Suspended TSS @ 105 C	ND	mg/L	0.3						
Lab ID: LCS-2_181026A	Laboratory Control Sample				Run: ACCU-124 (14410200)_18102		10/26/18 13:21		
Solids, Total Suspended TSS @ 105 C	97.0	mg/L	10	97	80	120			
Lab ID: H18100607-001ADUP	Sample Duplicate				Run: ACCU-124 (14410200)_18102		10/26/18 13:22		
Solids, Total Suspended TSS @ 105 C	0.800	mg/L	10					5	
Lab ID: H18100608-003ADUP	Sample Duplicate				Run: ACCU-124 (14410200)_18102		10/26/18 13:24		
Solids, Total Suspended TSS @ 105 C	50.0	mg/L	10				2.0	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-F C									Analytical Run: MANTECH 2_181026A
Lab ID: ICV	Initial Calibration Verification Standard								
Fluoride	0.8	mg/L	0.1	104	90	110	10/26/18 09:13		
Lab ID: CCV	Continuing Calibration Verification Standard								
Fluoride	1.0	mg/L	0.1	102	90	110	10/26/18 13:09		
Lab ID: CCV 1	Continuing Calibration Verification Standard								
Fluoride	1.0	mg/L	0.1	104	90	110	10/26/18 14:22		
Method: A4500-F C									Batch: R139396
Lab ID: MBLK	Method Blank								
Fluoride	0.03	mg/L	0.003	Run: MANTECH 2_181026A		10/26/18 09:19			
Lab ID: H18100602-021AMS	Sample Matrix Spike								
Fluoride	1.2	mg/L	0.1	107	85	115	Run: MANTECH 2_181026A 10/26/18 12:06		
Lab ID: H18100608-001ADUP	Sample Duplicate								
Fluoride	0.1	mg/L	0.1	Run: MANTECH 2_181026A		0.0	10/26/18 13:26 10		
Lab ID: H18100608-011AMS	Sample Matrix Spike								
Fluoride	1.1	mg/L	0.1	108	85	115	Run: MANTECH 2_181026A 10/26/18 14:39		

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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7							Analytical Run: ICP2-HE_181026A		
Lab ID: ICV	Initial Calibration Verification Standard							10/26/18 11:32	
Calcium	38.3	mg/L	1.0	96	95	105			
Magnesium	38.5	mg/L	1.0	96	95	105			
Potassium	40.4	mg/L	1.0	101	95	105			
Sodium	40.3	mg/L	1.0	101	95	105			
Lab ID: ICV	Initial Calibration Verification Standard							10/26/18 11:37	
Calcium	40.0	mg/L	1.0	100	95	105			
Magnesium	40.2	mg/L	1.0	101	95	105			
Potassium	40.5	mg/L	1.0	101	95	105			
Sodium	40.4	mg/L	1.0	101	95	105			
Lab ID: CCV-1	Continuing Calibration Verification Standard							10/26/18 11:41	
Calcium	25.7	mg/L	1.0	103	95	105			
Magnesium	25.5	mg/L	1.0	102	95	105			
Potassium	25.4	mg/L	1.0	102	95	105			
Sodium	25.3	mg/L	1.0	101	95	105			
Lab ID: ICSA	Interference Check Sample A							10/26/18 11:54	
Calcium	480	mg/L	1.0	96	80	120			
Magnesium	527	mg/L	1.0	105	80	120			
Potassium	0.00762	mg/L	1.0		0	0			
Sodium	0.0501	mg/L	1.0		0	0			
Lab ID: ICSAB	Interference Check Sample AB							10/26/18 11:58	
Calcium	480	mg/L	1.0	96	80	120			
Magnesium	527	mg/L	1.0	105	80	120			
Potassium	20.6	mg/L	1.0	103	80	120			
Sodium	20.7	mg/L	1.0	103	80	120			
Lab ID: CCV	Continuing Calibration Verification Standard							10/26/18 18:34	
Calcium	25.8	mg/L	1.0	103	90	110			
Magnesium	25.9	mg/L	1.0	104	90	110			
Potassium	25.8	mg/L	1.0	103	90	110			
Sodium	25.7	mg/L	1.0	103	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard							10/26/18 19:22	
Calcium	27.2	mg/L	1.0	109	90	110			
Magnesium	25.4	mg/L	1.0	102	90	110			
Potassium	25.7	mg/L	1.0	103	90	110			
Sodium	25.4	mg/L	1.0	102	90	110			
Method: E200.7							Batch: R139391		
Lab ID: MB	Method Blank							Run: ICP2-HE_181026A	
Calcium	ND	mg/L	0.07						10/26/18 12:10

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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7 Batch: R139391									
Lab ID: MB	Method Blank								
					Run: ICP2-HE_181026A				10/26/18 12:10
Magnesium	ND	mg/L	0.01						
Potassium	ND	mg/L	0.06						
Sodium	0.03	mg/L	0.02						
Lab ID: LFB	Laboratory Fortified Blank								
					Run: ICP2-HE_181026A				10/26/18 12:14
Calcium	52.3	mg/L	1.0	105	85	115			
Magnesium	53.1	mg/L	1.0	106	85	115			
Potassium	51.3	mg/L	1.0	103	85	115			
Sodium	51.1	mg/L	1.0	102	85	115			
Lab ID: H18100608-002BMS2	Sample Matrix Spike								
					Run: ICP2-HE_181026A				10/26/18 18:54
Calcium	111	mg/L	1.0	108	70	130			
Magnesium	74.9	mg/L	1.0	102	70	130			
Potassium	55.1	mg/L	1.0	107	70	130			
Sodium	55.5	mg/L	1.0	106	70	130			
Lab ID: H18100608-002BMSD2	Sample Matrix Spike Duplicate								
					Run: ICP2-HE_181026A				10/26/18 18:58
Calcium	108	mg/L	1.0	103	70	130	2.2	20	
Magnesium	74.4	mg/L	1.0	101	70	130	0.7	20	
Potassium	56.7	mg/L	1.0	111	70	130	2.9	20	
Sodium	57.4	mg/L	1.0	110	70	130	3.3	20	
Lab ID: H18100610-001DMS2	Sample Matrix Spike								
					Run: ICP2-HE_181026A				10/26/18 19:54
Calcium	390	mg/L	1.0		70	130			A
Magnesium	274	mg/L	1.0		70	130			A
Potassium	75.0	mg/L	1.0	109	70	130			
Sodium	595	mg/L	1.0		70	130			A
Lab ID: H18100610-001DMSD2	Sample Matrix Spike Duplicate								
					Run: ICP2-HE_181026A				10/26/18 19:58
Calcium	390	mg/L	1.0		70	130	0.2	20	A
Magnesium	274	mg/L	1.0		70	130	0.1	20	A
Potassium	74.5	mg/L	1.0	108	70	130	0.6	20	
Sodium	579	mg/L	1.0		70	130	2.8	20	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7									Analytical Run: ICP2-HE_181029A
Lab ID: ICV	Initial Calibration Verification Standard								
Calcium	38.5	mg/L	1.0	96	95	105			10/29/18 11:14
Lab ID: CCV-1	Continuing Calibration Verification Standard								
Calcium	24.5	mg/L	1.0	98	95	105			10/29/18 11:18
Lab ID: ICSA	Interference Check Sample A								
Calcium	486	mg/L	1.0	97	80	120			10/29/18 11:32
Lab ID: ICSAB	Interference Check Sample AB								
Calcium	477	mg/L	1.0	95	80	120			10/29/18 11:36
Lab ID: CCV	Continuing Calibration Verification Standard								
Calcium	25.9	mg/L	1.0	104	90	110			10/29/18 12:08
Method: E200.7									Batch: R139448
Lab ID: MB	Method Blank								
Calcium	ND	mg/L	0.07			Run: ICP2-HE_181029A		10/29/18 11:48	
Lab ID: LFB	Laboratory Fortified Blank								
Calcium	51.5	mg/L	1.0	103	85	115	Run: ICP2-HE_181029A		10/29/18 11:52
Lab ID: H18100608-008BMS2	Sample Matrix Spike								
Calcium	100	mg/L	1.0	98	70	130	Run: ICP2-HE_181029A		10/29/18 12:04
Lab ID: H18100608-008BMSD2	Sample Matrix Spike Duplicate								
Calcium	101	mg/L	1.0	100	70	130	1.0	20	10/29/18 12:16

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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8							Analytical Run: ICPMS205-H_181030A		
Lab ID: ICV	Initial Calibration Verification Standard							10/30/18 09:32	
Aluminum	0.302	mg/L	0.10	101	90	110			
Antimony	0.0626	mg/L	0.050	104	90	110			
Arsenic	0.0612	mg/L	0.0050	102	90	110			
Barium	0.0602	mg/L	0.10	100	90	110			
Beryllium	0.0294	mg/L	0.0010	98	90	110			
Cadmium	0.0304	mg/L	0.0010	101	90	110			
Chromium	0.0610	mg/L	0.010	102	90	110			
Cobalt	0.0615	mg/L	0.010	102	90	110			
Copper	0.0620	mg/L	0.010	103	90	110			
Iron	0.307	mg/L	0.020	102	90	110			
Lead	0.0620	mg/L	0.010	103	90	110			
Manganese	0.310	mg/L	0.010	103	90	110			
Molybdenum	0.0602	mg/L	0.0050	100	90	110			
Nickel	0.0618	mg/L	0.010	103	90	110			
Selenium	0.0617	mg/L	0.0050	103	90	110			
Strontium	0.0606	mg/L	0.10	101	90	110			
Thallium	0.0624	mg/L	0.10	104	90	110			
Uranium	0.0611	mg/L	0.00030	102	90	110			
Zinc	0.0627	mg/L	0.010	105	90	110			
Lab ID: ICSA	Interference Check Sample A							10/30/18 09:34	
Aluminum	42.3	mg/L	0.10	106	70	130			
Antimony	0.000243	mg/L	0.050						
Arsenic	5.89E-05	mg/L	0.0050						
Barium	7.27E-05	mg/L	0.10						
Beryllium	-5.46E-05	mg/L	0.0010						
Cadmium	0.000162	mg/L	0.0010						
Chromium	0.00125	mg/L	0.010						
Cobalt	-2.30E-06	mg/L	0.010						
Copper	0.000231	mg/L	0.010						
Iron	101	mg/L	0.020	101	70	130			
Lead	8.15E-05	mg/L	0.010						
Manganese	-9.25E-05	mg/L	0.010						
Molybdenum	0.888	mg/L	0.0050	111	70	130			
Nickel	0.000111	mg/L	0.010						
Selenium	5.44E-05	mg/L	0.0050						
Strontium	0.00113	mg/L	0.10						
Thallium	0.000180	mg/L	0.10						
Uranium	2.08E-05	mg/L	0.00030						
Zinc	0.000274	mg/L	0.010						
Lab ID: ICSAB	Interference Check Sample AB							10/30/18 09:36	
Aluminum	42.2	mg/L	0.10	105	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8							Analytical Run: ICPMS205-H_181030A		
Lab ID: ICSAB	Interference Check Sample AB							10/30/18 09:36	
Antimony	0.000114	mg/L	0.050		0	0			
Arsenic	0.0108	mg/L	0.0050	108	70	130			
Barium	6.10E-05	mg/L	0.10		0	0			
Beryllium	-3.71E-05	mg/L	0.0010		0	0			
Cadmium	0.0105	mg/L	0.0010	105	70	130			
Chromium	0.0221	mg/L	0.010	111	70	130			
Cobalt	0.0209	mg/L	0.010	104	70	130			
Copper	0.0205	mg/L	0.010	103	70	130			
Iron	104	mg/L	0.020	104	70	130			
Lead	5.90E-05	mg/L	0.010		0	0			
Manganese	0.0206	mg/L	0.010	103	70	130			
Molybdenum	0.877	mg/L	0.0050	110	70	130			
Nickel	0.0208	mg/L	0.010	104	70	130			
Selenium	0.0102	mg/L	0.0050	102	70	130			
Strontium	0.00113	mg/L	0.10		0	0			
Thallium	0.000151	mg/L	0.10		0	0			
Uranium	6.21E-06	mg/L	0.00030		0	0			
Zinc	0.0108	mg/L	0.010	108	70	130			
Lab ID: ICV	Initial Calibration Verification Standard							10/30/18 10:07	
Aluminum	0.305	mg/L	0.10	102	90	110			
Antimony	0.0627	mg/L	0.050	104	90	110			
Arsenic	0.0601	mg/L	0.0050	100	90	110			
Barium	0.0603	mg/L	0.10	100	90	110			
Beryllium	0.0300	mg/L	0.0010	100	90	110			
Cadmium	0.0308	mg/L	0.0010	103	90	110			
Chromium	0.0602	mg/L	0.010	100	90	110			
Cobalt	0.0609	mg/L	0.010	102	90	110			
Copper	0.0610	mg/L	0.010	102	90	110			
Iron	0.304	mg/L	0.020	101	90	110			
Lead	0.0594	mg/L	0.010	99	90	110			
Manganese	0.307	mg/L	0.010	102	90	110			
Molybdenum	0.0606	mg/L	0.0050	101	90	110			
Nickel	0.0607	mg/L	0.010	101	90	110			
Selenium	0.0614	mg/L	0.0050	102	90	110			
Strontium	0.0599	mg/L	0.10	100	90	110			
Thallium	0.0573	mg/L	0.10	95	90	110			
Uranium	0.0591	mg/L	0.00030	98	90	110			
Zinc	0.0614	mg/L	0.010	102	90	110			
Lab ID: ICSA	Interference Check Sample A							10/30/18 10:09	
Aluminum	42.0	mg/L	0.10	105	70	130			
Antimony	0.000207	mg/L	0.050						

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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
---------	--------	-------	----	------	-----------	------------	-----	----------	------

Method: E200.8

Analytical Run: ICPMS205-H_181030A

Lab ID: ICSA Interference Check Sample A 10/30/18 10:09

Arsenic	6.04E-05	mg/L	0.0050						
Barium	9.38E-05	mg/L	0.10						
Beryllium	1.03E-05	mg/L	0.0010						
Cadmium	0.000182	mg/L	0.0010						
Chromium	0.00125	mg/L	0.010						
Cobalt	-2.11E-07	mg/L	0.010						
Copper	0.000212	mg/L	0.010						
Iron	102	mg/L	0.020	102	70	130			
Lead	8.06E-05	mg/L	0.010						
Manganese	-2.27E-05	mg/L	0.010						
Molybdenum	0.883	mg/L	0.0050	110	70	130			
Nickel	6.16E-05	mg/L	0.010						
Selenium	6.27E-05	mg/L	0.0050						
Strontium	0.00114	mg/L	0.10						
Thallium	0.000160	mg/L	0.10						
Uranium	1.88E-05	mg/L	0.00030						
Zinc	0.000285	mg/L	0.010						

Lab ID: ICSAB Interference Check Sample AB 10/30/18 10:11

Aluminum	42.2	mg/L	0.10	106	70	130			
Antimony	0.000110	mg/L	0.050		0	0			
Arsenic	0.0106	mg/L	0.0050	106	70	130			
Barium	7.90E-05	mg/L	0.10		0	0			
Beryllium	-1.97E-05	mg/L	0.0010		0	0			
Cadmium	0.0105	mg/L	0.0010	105	70	130			
Chromium	0.0216	mg/L	0.010	108	70	130			
Cobalt	0.0204	mg/L	0.010	102	70	130			
Copper	0.0203	mg/L	0.010	101	70	130			
Iron	103	mg/L	0.020	103	70	130			
Lead	7.01E-05	mg/L	0.010		0	0			
Manganese	0.0203	mg/L	0.010	102	70	130			
Molybdenum	0.884	mg/L	0.0050	111	70	130			
Nickel	0.0203	mg/L	0.010	102	70	130			
Selenium	0.0101	mg/L	0.0050	101	70	130			
Strontium	0.00110	mg/L	0.10		0	0			
Thallium	0.000142	mg/L	0.10		0	0			
Uranium	5.15E-06	mg/L	0.00030		0	0			
Zinc	0.0104	mg/L	0.010	104	70	130			

Method: E200.8

Batch: R139472

Lab ID: LRB Method Blank Run: ICPMS205-H_181030A 10/30/18 10:23

Aluminum	ND	mg/L	0.003						
Antimony	ND	mg/L	9E-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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8							Batch: R139472		
Lab ID: LRB	Method Blank			Run: ICPMS205-H_181030A			10/30/18 10:23		
Arsenic	6E-05	mg/L	4E-05						
Barium	5E-05	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	ND	mg/L	0.002						
Lead	ND	mg/L	3E-05						
Manganese	0.0010	mg/L	0.0003						
Molybdenum	ND	mg/L	2E-05						
Nickel	ND	mg/L	0.0002						
Selenium	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						
Lab ID: LFB	Laboratory Fortified Blank			Run: ICPMS205-H_181030A			10/30/18 10:25		
Aluminum	0.0489	mg/L	0.10	98	85	115			
Antimony	0.0498	mg/L	0.050	100	85	115			
Arsenic	0.0495	mg/L	0.0050	99	85	115			
Barium	0.0494	mg/L	0.10	99	85	115			
Beryllium	0.0490	mg/L	0.0010	98	85	115			
Cadmium	0.0501	mg/L	0.0010	100	85	115			
Chromium	0.0490	mg/L	0.010	98	85	115			
Cobalt	0.0498	mg/L	0.010	100	85	115			
Copper	0.0497	mg/L	0.010	99	85	115			
Iron	0.148	mg/L	0.020	99	85	115			
Lead	0.0488	mg/L	0.010	98	85	115			
Manganese	0.0500	mg/L	0.010	98	85	115			
Molybdenum	0.0494	mg/L	0.0050	99	85	115			
Nickel	0.0497	mg/L	0.010	99	85	115			
Selenium	0.0498	mg/L	0.0050	100	85	115			
Strontium	0.0490	mg/L	0.10	98	85	115			
Thallium	0.0469	mg/L	0.10	94	85	115			
Uranium	0.0490	mg/L	0.00030	98	85	115			
Zinc	0.0508	mg/L	0.010	102	85	115			
Lab ID: H18100607-003BMS	Sample Matrix Spike			Run: ICPMS205-H_181030A			10/30/18 13:44		
Aluminum	0.0519	mg/L	0.030	104	70	130			
Antimony	0.0506	mg/L	0.0010	101	70	130			
Arsenic	0.0532	mg/L	0.0010	106	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									
Batch: R139472									
Lab ID:	H18100607-003BMS	Sample Matrix Spike			Run: ICPMS205-H_181030A			10/30/18 13:44	
Barium	0.118	mg/L	0.050	100	70	130			
Beryllium	0.0523	mg/L	0.0010	105	70	130			
Cadmium	0.0515	mg/L	0.0010	103	70	130			
Chromium	0.0506	mg/L	0.0050	101	70	130			
Cobalt	0.0504	mg/L	0.0050	101	70	130			
Copper	0.0507	mg/L	0.0050	101	70	130			
Iron	0.159	mg/L	0.020	101	70	130			
Lead	0.0491	mg/L	0.0010	98	70	130			
Manganese	0.0558	mg/L	0.0010	102	70	130			
Molybdenum	0.0506	mg/L	0.0010	101	70	130			
Nickel	0.0504	mg/L	0.0050	101	70	130			
Selenium	0.0574	mg/L	0.0010	115	70	130			
Strontium	0.202	mg/L	0.010	100	70	130			
Thallium	0.0477	mg/L	0.00050	95	70	130			
Uranium	0.0502	mg/L	0.00030	100	70	130			
Zinc	0.0518	mg/L	0.010	103	70	130			
Lab ID:	H18100607-003BMSD	Sample Matrix Spike Duplicate			Run: ICPMS205-H_181030A			10/30/18 13:46	
Aluminum	0.0504	mg/L	0.030	101	70	130	3.0	20	
Antimony	0.0507	mg/L	0.0010	101	70	130	0.2	20	
Arsenic	0.0532	mg/L	0.0010	106	70	130	0.2	20	
Barium	0.118	mg/L	0.050	100	70	130	0.4	20	
Beryllium	0.0519	mg/L	0.0010	104	70	130	0.8	20	
Cadmium	0.0513	mg/L	0.0010	103	70	130	0.5	20	
Chromium	0.0501	mg/L	0.0050	100	70	130	1.1	20	
Cobalt	0.0500	mg/L	0.0050	100	70	130	0.8	20	
Copper	0.0503	mg/L	0.0050	100	70	130	0.7	20	
Iron	0.158	mg/L	0.020	100	70	130	0.8	20	
Lead	0.0488	mg/L	0.0010	98	70	130	0.6	20	
Manganese	0.0553	mg/L	0.0010	101	70	130	0.8	20	
Molybdenum	0.0504	mg/L	0.0010	100	70	130	0.5	20	
Nickel	0.0500	mg/L	0.0050	100	70	130	0.7	20	
Selenium	0.0575	mg/L	0.0010	115	70	130	0.1	20	
Strontium	0.202	mg/L	0.010	101	70	130	0.2	20	
Thallium	0.0479	mg/L	0.00050	96	70	130	0.4	20	
Uranium	0.0502	mg/L	0.00030	100	70	130	0.0	20	
Zinc	0.0510	mg/L	0.010	101	70	130	1.7	20	
Lab ID:	H18100608-005BMS	Sample Matrix Spike			Run: ICPMS205-H_181030A			10/30/18 14:11	
Aluminum	0.0509	mg/L	0.030	102	70	130			
Antimony	0.0511	mg/L	0.0010	102	70	130			
Arsenic	0.0531	mg/L	0.0010	106	70	130			
Barium	0.111	mg/L	0.050	103	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8									
Batch: R139472									
Lab ID:	H18100608-005BMS	Sample Matrix Spike							
					Run: ICPMS205-H_181030A				10/30/18 14:11
Beryllium	0.0507	mg/L	0.0010	101	70	130			
Cadmium	0.0516	mg/L	0.0010	103	70	130			
Chromium	0.0495	mg/L	0.0050	99	70	130			
Cobalt	0.0495	mg/L	0.0050	99	70	130			
Copper	0.0497	mg/L	0.0050	99	70	130			
Iron	0.158	mg/L	0.020	99	70	130			
Lead	0.0495	mg/L	0.0010	99	70	130			
Manganese	0.0667	mg/L	0.0010	99	70	130			
Molybdenum	0.0504	mg/L	0.0010	100	70	130			
Nickel	0.0495	mg/L	0.0050	99	70	130			
Selenium	0.0579	mg/L	0.0010	116	70	130			
Strontium	0.189	mg/L	0.010	96	70	130			
Thallium	0.0482	mg/L	0.00050	96	70	130			
Uranium	0.0519	mg/L	0.00030	102	70	130			
Zinc	0.0514	mg/L	0.010	101	70	130			
Lab ID:	H18100608-005BMSD	Sample Matrix Spike Duplicate							
					Run: ICPMS205-H_181030A				10/30/18 14:13
Aluminum	0.0523	mg/L	0.030	105	70	130	2.7	20	
Antimony	0.0525	mg/L	0.0010	105	70	130	2.7	20	
Arsenic	0.0537	mg/L	0.0010	107	70	130	1.1	20	
Barium	0.114	mg/L	0.050	109	70	130	2.3	20	
Beryllium	0.0503	mg/L	0.0010	101	70	130	0.7	20	
Cadmium	0.0531	mg/L	0.0010	106	70	130	2.8	20	
Chromium	0.0500	mg/L	0.0050	100	70	130	1.1	20	
Cobalt	0.0502	mg/L	0.0050	100	70	130	1.5	20	
Copper	0.0503	mg/L	0.0050	100	70	130	1.3	20	
Iron	0.160	mg/L	0.020	101	70	130	1.8	20	
Lead	0.0500	mg/L	0.0010	100	70	130	0.9	20	
Manganese	0.0678	mg/L	0.0010	102	70	130	1.6	20	
Molybdenum	0.0518	mg/L	0.0010	103	70	130	2.7	20	
Nickel	0.0503	mg/L	0.0050	101	70	130	1.4	20	
Selenium	0.0582	mg/L	0.0010	116	70	130	0.5	20	
Strontium	0.194	mg/L	0.010	105	70	130	2.3	20	
Thallium	0.0487	mg/L	0.00050	97	70	130	0.9	20	
Uranium	0.0531	mg/L	0.00030	105	70	130	2.3	20	
Zinc	0.0520	mg/L	0.010	102	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8							Analytical Run: ICPMS205-H_181102B		
Lab ID: ICV	Initial Calibration Verification Standard								11/02/18 10:49
Manganese	0.308	mg/L	0.010	103	90	110			
Selenium	0.0616	mg/L	0.0050	103	90	110			
Silver	0.0303	mg/L	0.0050	101	90	110			
Lab ID: ICSA	Interference Check Sample A								11/02/18 10:51
Manganese	0.000197	mg/L	0.010						
Selenium	7.47E-05	mg/L	0.0050						
Silver	9.65E-05	mg/L	0.0050						
Lab ID: ICSAB	Interference Check Sample AB								11/02/18 10:53
Manganese	0.0210	mg/L	0.010	105	70	130			
Selenium	0.0102	mg/L	0.0050	102	70	130			
Silver	0.0208	mg/L	0.0050	104	70	130			
Lab ID: ICV	Initial Calibration Verification Standard								11/02/18 18:58
Manganese	0.302	mg/L	0.010	101	90	110			
Selenium	0.0616	mg/L	0.0050	103	90	110			
Silver	0.0292	mg/L	0.0050	98	90	110			
Lab ID: ICSA	Interference Check Sample A								11/02/18 19:00
Manganese	0.000118	mg/L	0.010						
Selenium	4.36E-05	mg/L	0.0050						
Silver	0.000235	mg/L	0.0050						
Lab ID: ICSAB	Interference Check Sample AB								11/02/18 19:02
Manganese	0.0210	mg/L	0.010	105	70	130			
Selenium	0.0102	mg/L	0.0050	102	70	130			
Silver	0.0201	mg/L	0.0050	101	70	130			
Method: E200.8							Batch: R139604		
Lab ID: LRB	Method Blank								Run: ICPMS205-H_181102B 11/02/18 11:03
Manganese	ND	mg/L	0.0003						
Selenium	ND	mg/L	2E-05						
Silver	ND	mg/L	2E-05						
Lab ID: LFB	Laboratory Fortified Blank								Run: ICPMS205-H_181102B 11/02/18 11:05
Manganese	0.0498	mg/L	0.010	100	85	115			
Selenium	0.0506	mg/L	0.0050	101	85	115			
Silver	0.0202	mg/L	0.0050	101	85	115			
Lab ID: H18100608-001BMS	Sample Matrix Spike								Run: ICPMS205-H_181102B 11/02/18 12:58
Manganese	0.0488	mg/L	0.0010	98	70	130			
Selenium	0.0527	mg/L	0.0010	105	70	130			
Silver	0.0202	mg/L	0.0010	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8							Batch: R139604		
Lab ID: H18100608-001BMSD	Sample Matrix Spike Duplicate			Run: ICPMS205-H_181102B			11/02/18 13:00		
Manganese	0.0490	mg/L	0.0010	98	70	130	0.4	20	
Selenium	0.0533	mg/L	0.0010	106	70	130	1.0	20	
Silver	0.0201	mg/L	0.0010	101	70	130	0.0	20	
Lab ID: H18100608-011BMS	Sample Matrix Spike			Run: ICPMS205-H_181102B			11/02/18 13:15		
Manganese	0.0499	mg/L	0.0010	100	70	130			
Selenium	0.0523	mg/L	0.0010	105	70	130			
Silver	0.0204	mg/L	0.0010	102	70	130			
Lab ID: H18100608-011BMSD	Sample Matrix Spike Duplicate			Run: ICPMS205-H_181102B			11/02/18 13:17		
Manganese	0.0500	mg/L	0.0010	100	70	130	0.3	20	
Selenium	0.0514	mg/L	0.0010	103	70	130	1.7	20	
Silver	0.0207	mg/L	0.0010	103	70	130	1.7	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E245.1									Analytical Run: HGCV202-H_181102A
Lab ID: ICV	Initial Calibration Verification Standard								
Mercury	0.000101	mg/L	0.00010	101	90	110			11/02/18 11:56
Lab ID: ICV	Initial Calibration Verification Standard								
Mercury	9.91E-05	mg/L	0.00010	99	90	110			11/02/18 15:30
Method: E245.1									Batch: 43646
Lab ID: MB-43646	Method Blank								
Mercury	1E-06	mg/L	1E-06				Run: HGCV202-H_181102A		11/02/18 18:01
Lab ID: LCS-43646	Laboratory Control Sample								
Mercury	7.31E-05	mg/L	0.00010	96	90	110	Run: HGCV202-H_181102A		11/02/18 18:04
Lab ID: H18100608-003BMS	Sample Matrix Spike								
Mercury	7.42E-05	mg/L	5.0E-06	97	70	130	Run: HGCV202-H_181102A		11/02/18 18:56
Lab ID: H18100608-003BMSD	Sample Matrix Spike Duplicate								
Mercury	7.46E-05	mg/L	5.0E-06	98	70	130	0.6	20	Run: HGCV202-H_181102A 11/02/18 18:59

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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0									Analytical Run: IC METROHM_181026A
Lab ID: ICV	Initial Calibration Verification Standard								10/26/18 11:42
Chloride	105	mg/L	1.0	105	90	110			
Sulfate	424	mg/L	1.0	106	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard								10/26/18 12:24
Chloride	52.7	mg/L	1.0	105	90	110			
Sulfate	219	mg/L	1.0	110	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard								10/26/18 15:56
Chloride	52.9	mg/L	1.0	106	90	110			
Sulfate	217	mg/L	1.0	108	90	110			
Method: E300.0									Batch: R139406
Lab ID: ICB	Method Blank								Run: IC METROHM_181026A 10/26/18 11:28
Chloride	ND	mg/L	0.009						
Sulfate	ND	mg/L	0.01						
Lab ID: LFB	Laboratory Fortified Blank								Run: IC METROHM_181026A 10/26/18 11:56
Chloride	25.9	mg/L	1.0	103	90	110			
Sulfate	110	mg/L	1.0	110	90	110			
Lab ID: H18100608-002AMS	Sample Matrix Spike								Run: IC METROHM_181026A 10/26/18 15:27
Chloride	31.7	mg/L	1.0	103	90	110			
Sulfate	132	mg/L	1.0	106	90	110			
Lab ID: H18100608-002AMSD	Sample Matrix Spike Duplicate								Run: IC METROHM_181026A 10/26/18 15:41
Chloride	31.8	mg/L	1.0	103	90	110	0.2	20	
Sulfate	133	mg/L	1.0	106	90	110	0.6	20	
Lab ID: H18100608-011AMS	Sample Matrix Spike								Run: IC METROHM_181026A 10/26/18 18:45
Chloride	25.1	mg/L	1.0	100	90	110			
Sulfate	106	mg/L	1.0	106	90	110			
Lab ID: H18100608-011AMSD	Sample Matrix Spike Duplicate								Run: IC METROHM_181026A 10/26/18 18:59
Chloride	25.3	mg/L	1.0	101	90	110	0.9	20	
Sulfate	107	mg/L	1.0	107	90	110	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 11/14/18
Work Order: H18100608

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2									Analytical Run: FIA203-HE_181030D
Lab ID: ICV	Initial Calibration Verification Standard								
Nitrogen, Nitrate+Nitrite as N	0.934	mg/L	0.010	93	90	110			10/30/18 13:25
Lab ID: CCV	Continuing Calibration Verification Standard								
Nitrogen, Nitrate+Nitrite as N	0.454	mg/L	0.010	91	90	110			10/30/18 15:09
Lab ID: CCV	Continuing Calibration Verification Standard								
Nitrogen, Nitrate+Nitrite as N	0.463	mg/L	0.010	93	90	110			10/30/18 15:26
Method: E353.2									Batch: R139484
Lab ID: MBLK	Method Blank								
Nitrogen, Nitrate+Nitrite as N	ND	mg/L	0.009						Run: FIA203-HE_181030D 10/30/18 13:27
Lab ID: LFB	Laboratory Fortified Blank								
Nitrogen, Nitrate+Nitrite as N	0.941	mg/L	0.011	94	90	110			Run: FIA203-HE_181030D 10/30/18 13:28
Lab ID: H18100608-003CMS	Sample Matrix Spike								
Nitrogen, Nitrate+Nitrite as N	1.17	mg/L	0.011	93	90	110			Run: FIA203-HE_181030D 10/30/18 15:18
Lab ID: H18100608-003CMSD	Sample Matrix Spike Duplicate								
Nitrogen, Nitrate+Nitrite as N	1.16	mg/L	0.011	92	90	110	0.5	10	Run: FIA203-HE_181030D 10/30/18 15:19
Lab ID: H18100610-002EMS	Sample Matrix Spike								
Nitrogen, Nitrate+Nitrite as N	151	mg/L	1.1	98	90	110			Run: FIA203-HE_181030D 10/30/18 15:35
Lab ID: H18100610-002EMSD	Sample Matrix Spike Duplicate								
Nitrogen, Nitrate+Nitrite as N	148	mg/L	1.1	95	90	110	1.8	10	Run: FIA203-HE_181030D 10/30/18 15:36

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



Work Order Receipt Checklist

Tintina Resources Inc

H18100608

Login completed by: Jessica C. Smith

Date Received: 10/25/2018

Reviewed by: BL2000\rtooke

Received by: abc

Reviewed Date: 10/31/2018

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:	-1.3°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

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

Parameter	Analytical Method ⁽¹⁾	Project-Required Detection Limit (mg/L)
Physical Parameters		
TDS	SM 2540C	10
TSS	SM 2540C	10
Common Ions		
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
Nutrients		
Nitrate+Nitrite as N	353.2	0.01
Trace Constituents (Dissolved)⁽²⁾		
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
Field Parameters		
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

November 27, 2018

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

Work Order: H18110265 Quote ID: H1216 - Surface and Groundwater Sampling
Project Name: 11048 Black Butte Copper Project

Energy Laboratories Inc Helena MT received the following 9 samples for Tintina Resources Inc on 11/13/2018 for analysis.

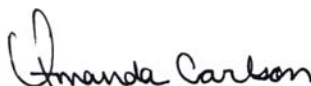
Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18110265-001	BBC-1811-100	11/12/18 12:00	11/13/18	Surface Water	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Mercury, Total Recoverable Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + 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
H18110265-002	BBC-1811-101	11/12/18 12:45	11/13/18	Surface Water	Same As Above
H18110265-003	BBC-1811-102	11/12/18 13:00	11/13/18	Surface Water	Same As Above
H18110265-004	BBC-1811-104	11/12/18 13:30	11/13/18	Surface Water	Same As Above
H18110265-005	BBC-1811-105	11/12/18 13:45	11/13/18	Surface Water	Same As Above
H18110265-006	BBC-1811-106	11/12/18 14:00	11/13/18	Surface Water	Same As Above
H18110265-007	BBC-1811-107	11/12/18 14:30	11/13/18	Surface Water	Same As Above
H18110265-008	BBC-1811-110	11/12/18 15:15	11/13/18	Surface Water	Same As Above
H18110265-009	BBC-1811-114	11/12/18 16:15	11/13/18	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.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:


Assistant Laboratory Manager-Helena, MT

Digitally signed by
Amanda B. Carlson
Date: 2018.11.27 17:53:44 -07:00



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 11048 Black Butte Copper Project
Lab ID: H18110265-001
Client Sample ID: BBC-1811-100

Report Date: 11/27/18
Collection Date: 11/12/18 12:00
Date Received: 11/13/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	11/14/18 13:05 / cmm
Solids, Total Dissolved TDS @ 180 C	193	mg/L	D	10		A2540 C	11/13/18 12:08 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	180	mg/L		4		A2320 B	11/13/18 16:33 / SRW
Chloride	2	mg/L		1		E300.0	11/13/18 15:26 / SRW
Sulfate	8	mg/L		1		E300.0	11/13/18 15:26 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/14/18 12:59 / SRW
Hardness as CaCO3	179	mg/L		1		A2340 B	11/13/18 15:42 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.01		E353.2	11/13/18 14:07 / kmd
Nitrogen, Total	0.10	mg/L		0.04		A4500 N-C	11/15/18 11:02 / kmd
Phosphorus, Total as P	0.007	mg/L		0.003		E365.1	11/16/18 12:54 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/13/18 14:47 / sld
Calcium	49	mg/L		1		E200.7	11/13/18 12:30 / sld
Magnesium	14	mg/L		1		E200.7	11/13/18 12:30 / sld
Potassium	1	mg/L		1		E200.7	11/13/18 12:30 / sld
Sodium	3	mg/L		1		E200.7	11/13/18 12:30 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/15/18 13:31 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/15/18 13:31 / sld
Barium	0.110	mg/L		0.003		E200.8	11/15/18 13:31 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/15/18 13:31 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/15/18 13:31 / sld
Chromium	ND	mg/L		0.01		E200.8	11/15/18 13:31 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/15/18 13:31 / sld
Copper	ND	mg/L		0.002		E200.8	11/15/18 13:31 / sld
Iron	0.15	mg/L		0.02		E200.8	11/15/18 13:31 / sld
Lead	ND	mg/L		0.0003		E200.8	11/15/18 13:31 / sld
Manganese	0.014	mg/L		0.005		E200.8	11/15/18 13:31 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/16/18 15:16 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/15/18 13:31 / sld
Nickel	ND	mg/L		0.001		E200.8	11/15/18 13:31 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/15/18 13:31 / sld
Silver	ND	mg/L		0.0002		E200.8	11/15/18 13:31 / sld
Strontium	0.136	mg/L	D	0.0003		E200.8	11/15/18 13:31 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/15/18 13:31 / sld
Uranium	ND	mg/L		0.008		E200.8	11/15/18 13:31 / sld
Zinc	ND	mg/L		0.002		E200.8	11/15/18 13:31 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110265-002
Client Sample ID: BBC-1811-101

Report Date: 11/27/18
Collection Date: 11/12/18 12:45
Date Received: 11/13/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	11/14/18 13:05 / cmm
Solids, Total Dissolved TDS @ 180 C	184	mg/L	D	10		A2540 C	11/13/18 12:08 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	11/13/18 16:39 / SRW
Chloride	2	mg/L		1		E300.0	11/13/18 15:40 / SRW
Sulfate	7	mg/L		1		E300.0	11/13/18 15:40 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/14/18 13:04 / SRW
Hardness as CaCO3	172	mg/L		1		A2340 B	11/13/18 15:42 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	11/13/18 14:08 / kmd
Nitrogen, Total	0.09	mg/L		0.04		A4500 N-C	11/15/18 11:03 / kmd
Phosphorus, Total as P	0.005	mg/L		0.003		E365.1	11/16/18 13:31 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/13/18 14:49 / sld
Calcium	48	mg/L		1		E200.7	11/13/18 12:35 / sld
Magnesium	13	mg/L		1		E200.7	11/13/18 12:35 / sld
Potassium	1	mg/L		1		E200.7	11/13/18 12:35 / sld
Sodium	2	mg/L		1		E200.7	11/13/18 12:35 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/15/18 13:33 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/15/18 13:33 / sld
Barium	0.096	mg/L		0.003		E200.8	11/15/18 13:33 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/15/18 13:33 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/15/18 13:33 / sld
Chromium	ND	mg/L		0.01		E200.8	11/15/18 13:33 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/15/18 13:33 / sld
Copper	ND	mg/L		0.002		E200.8	11/15/18 13:33 / sld
Iron	0.12	mg/L		0.02		E200.8	11/15/18 13:33 / sld
Lead	ND	mg/L		0.0003		E200.8	11/15/18 13:33 / sld
Manganese	0.007	mg/L		0.005		E200.8	11/15/18 13:33 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/16/18 15:19 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/15/18 13:33 / sld
Nickel	ND	mg/L		0.001		E200.8	11/15/18 13:33 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/15/18 13:33 / sld
Silver	ND	mg/L		0.0002		E200.8	11/15/18 13:33 / sld
Strontium	0.132	mg/L	D	0.0003		E200.8	11/15/18 13:33 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/15/18 13:33 / sld
Uranium	ND	mg/L		0.008		E200.8	11/15/18 13:33 / sld
Zinc	ND	mg/L		0.002		E200.8	11/15/18 13:33 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110265-003
Client Sample ID: BBC-1811-102

Report Date: 11/27/18
Collection Date: 11/12/18 13:00
Date Received: 11/13/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	6	mg/L		4		A2540 D	11/14/18 13:05 / cmm
Solids, Total Dissolved TDS @ 180 C	196	mg/L	D	10		A2540 C	11/13/18 12:08 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	11/13/18 16:50 / SRW
Chloride	2	mg/L		1		E300.0	11/13/18 16:08 / SRW
Sulfate	8	mg/L		1		E300.0	11/13/18 16:08 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/14/18 13:15 / SRW
Hardness as CaCO3	190	mg/L		1		A2340 B	11/13/18 15:42 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.01		E353.2	11/13/18 14:09 / kmd
Nitrogen, Total	0.10	mg/L		0.04		A4500 N-C	11/15/18 11:07 / kmd
Phosphorus, Total as P	0.008	mg/L		0.003		E365.1	11/16/18 12:58 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/13/18 14:51 / sld
Calcium	53	mg/L		1		E200.7	11/13/18 12:47 / sld
Magnesium	14	mg/L		1		E200.7	11/13/18 12:47 / sld
Potassium	1	mg/L		1		E200.7	11/13/18 12:47 / sld
Sodium	2	mg/L		1		E200.7	11/13/18 12:47 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/15/18 13:35 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/15/18 13:35 / sld
Barium	0.073	mg/L		0.003		E200.8	11/15/18 13:35 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/15/18 13:35 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/15/18 13:35 / sld
Chromium	ND	mg/L		0.01		E200.8	11/15/18 13:35 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/15/18 13:35 / sld
Copper	ND	mg/L		0.002		E200.8	11/15/18 13:35 / sld
Iron	0.23	mg/L		0.02		E200.8	11/15/18 13:35 / sld
Lead	ND	mg/L		0.0003		E200.8	11/15/18 13:35 / sld
Manganese	0.010	mg/L		0.005		E200.8	11/15/18 13:35 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/16/18 15:22 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/15/18 13:35 / sld
Nickel	ND	mg/L		0.001		E200.8	11/15/18 13:35 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/15/18 13:35 / sld
Silver	ND	mg/L		0.0002		E200.8	11/15/18 13:35 / sld
Strontium	0.154	mg/L	D	0.0003		E200.8	11/15/18 13:35 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/15/18 13:35 / sld
Uranium	ND	mg/L		0.008		E200.8	11/15/18 13:35 / sld
Zinc	ND	mg/L		0.002		E200.8	11/15/18 13:35 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110265-004
Client Sample ID: BBC-1811-104

Report Date: 11/27/18
Collection Date: 11/12/18 13:30
Date Received: 11/13/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	11/14/18 13:05 / cmm
Solids, Total Dissolved TDS @ 180 C	230	mg/L	D	10		A2540 C	11/13/18 12:09 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	11/13/18 16:56 / SRW
Chloride	2	mg/L		1		E300.0	11/13/18 16:22 / SRW
Sulfate	16	mg/L		1		E300.0	11/13/18 16:22 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/14/18 13:27 / SRW
Hardness as CaCO3	220	mg/L		1		A2340 B	11/13/18 15:42 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.01		E353.2	11/13/18 14:10 / kmd
Nitrogen, Total	0.14	mg/L		0.04		A4500 N-C	11/15/18 11:10 / kmd
Phosphorus, Total as P	0.004	mg/L		0.003		E365.1	11/16/18 12:59 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/13/18 14:53 / sld
Calcium	53	mg/L		1		E200.7	11/13/18 13:04 / sld
Magnesium	21	mg/L		1		E200.7	11/13/18 13:04 / sld
Potassium	1	mg/L		1		E200.7	11/13/18 13:04 / sld
Sodium	3	mg/L		1		E200.7	11/13/18 13:04 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/15/18 13:37 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/15/18 13:37 / sld
Barium	0.117	mg/L		0.003		E200.8	11/15/18 13:37 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/15/18 13:37 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/15/18 13:37 / sld
Chromium	ND	mg/L		0.01		E200.8	11/15/18 13:37 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/15/18 13:37 / sld
Copper	ND	mg/L		0.002		E200.8	11/15/18 13:37 / sld
Iron	0.03	mg/L		0.02		E200.8	11/15/18 13:37 / sld
Lead	ND	mg/L		0.0003		E200.8	11/15/18 13:37 / sld
Manganese	ND	mg/L		0.005		E200.8	11/15/18 13:37 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/16/18 15:25 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/15/18 13:37 / sld
Nickel	ND	mg/L		0.001		E200.8	11/15/18 13:37 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/15/18 13:37 / sld
Silver	ND	mg/L		0.0002		E200.8	11/15/18 13:37 / sld
Strontium	0.128	mg/L	D	0.0003		E200.8	11/15/18 13:37 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/15/18 13:37 / sld
Uranium	ND	mg/L		0.008		E200.8	11/15/18 13:37 / sld
Zinc	ND	mg/L		0.002		E200.8	11/15/18 13:37 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110265-005
Client Sample ID: BBC-1811-105

Report Date: 11/27/18
Collection Date: 11/12/18 13:45
Date Received: 11/13/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	11/14/18 13:05 / cmm
Solids, Total Dissolved TDS @ 180 C	239	mg/L	D	10		A2540 C	11/13/18 12:09 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	11/13/18 17:01 / SRW
Chloride	2	mg/L		1		E300.0	11/13/18 16:36 / SRW
Sulfate	16	mg/L		1		E300.0	11/13/18 16:36 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/14/18 13:33 / SRW
Hardness as CaCO3	217	mg/L		1		A2340 B	11/13/18 15:42 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.01		E353.2	11/13/18 14:12 / kmd
Nitrogen, Total	0.14	mg/L		0.04		A4500 N-C	11/15/18 11:11 / kmd
Phosphorus, Total as P	0.003	mg/L		0.003		E365.1	11/16/18 13:00 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/13/18 14:55 / sld
Calcium	52	mg/L		1		E200.7	11/13/18 13:08 / sld
Magnesium	21	mg/L		1		E200.7	11/13/18 13:08 / sld
Potassium	1	mg/L		1		E200.7	11/13/18 13:08 / sld
Sodium	3	mg/L		1		E200.7	11/13/18 13:08 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/15/18 13:39 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/15/18 13:39 / sld
Barium	0.114	mg/L		0.003		E200.8	11/15/18 13:39 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/15/18 13:39 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/15/18 13:39 / sld
Chromium	ND	mg/L		0.01		E200.8	11/15/18 13:39 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/15/18 13:39 / sld
Copper	ND	mg/L		0.002		E200.8	11/15/18 13:39 / sld
Iron	0.04	mg/L		0.02		E200.8	11/15/18 13:39 / sld
Lead	ND	mg/L		0.0003		E200.8	11/15/18 13:39 / sld
Manganese	ND	mg/L		0.005		E200.8	11/15/18 13:39 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/16/18 15:28 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/15/18 13:39 / sld
Nickel	ND	mg/L		0.001		E200.8	11/15/18 13:39 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/15/18 13:39 / sld
Silver	ND	mg/L		0.0002		E200.8	11/15/18 13:39 / sld
Strontium	0.127	mg/L	D	0.0003		E200.8	11/15/18 13:39 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/15/18 13:39 / sld
Uranium	ND	mg/L		0.008		E200.8	11/15/18 13:39 / sld
Zinc	ND	mg/L		0.002		E200.8	11/15/18 13:39 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110265-006
Client Sample ID: BBC-1811-106

Report Date: 11/27/18
Collection Date: 11/12/18 14:00
Date Received: 11/13/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	11/14/18 13:05 / cmm
Solids, Total Dissolved TDS @ 180 C	253	mg/L	D	10		A2540 C	11/13/18 12:09 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	11/13/18 17:07 / SRW
Chloride	5	mg/L		1		E300.0	11/13/18 16:50 / SRW
Sulfate	34	mg/L		1		E300.0	11/13/18 16:50 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	11/14/18 13:39 / SRW
Hardness as CaCO3	236	mg/L		1		A2340 B	11/13/18 15:42 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.11	mg/L		0.01		E353.2	11/13/18 14:13 / kmd
Nitrogen, Total	0.18	mg/L		0.04		A4500 N-C	11/15/18 11:13 / kmd
Phosphorus, Total as P	0.015	mg/L		0.003		E365.1	11/16/18 13:01 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/13/18 15:08 / sld
Calcium	53	mg/L		1		E200.7	11/13/18 13:12 / sld
Magnesium	25	mg/L		1		E200.7	11/13/18 13:12 / sld
Potassium	1	mg/L		1		E200.7	11/13/18 13:12 / sld
Sodium	2	mg/L		1		E200.7	11/13/18 13:12 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/15/18 13:59 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/15/18 13:59 / sld
Barium	0.157	mg/L		0.003		E200.8	11/15/18 13:59 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/15/18 13:59 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/15/18 13:59 / sld
Chromium	ND	mg/L		0.01		E200.8	11/15/18 13:59 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/15/18 13:59 / sld
Copper	ND	mg/L		0.002		E200.8	11/15/18 13:59 / sld
Iron	0.13	mg/L		0.02		E200.8	11/15/18 13:59 / sld
Lead	ND	mg/L		0.0003		E200.8	11/15/18 13:59 / sld
Manganese	0.024	mg/L		0.005		E200.8	11/15/18 13:59 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/16/18 15:32 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/15/18 13:59 / sld
Nickel	ND	mg/L		0.001		E200.8	11/15/18 13:59 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/15/18 13:59 / sld
Silver	ND	mg/L		0.0002		E200.8	11/15/18 13:59 / sld
Strontium	0.146	mg/L	D	0.0003		E200.8	11/15/18 13:59 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/15/18 13:59 / sld
Uranium	ND	mg/L		0.008		E200.8	11/15/18 13:59 / sld
Zinc	ND	mg/L		0.002		E200.8	11/15/18 13:59 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110265-007
Client Sample ID: BBC-1811-107

Report Date: 11/27/18
Collection Date: 11/12/18 14:30
Date Received: 11/13/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	11/14/18 13:05 / cmm
Solids, Total Dissolved TDS @ 180 C	223	mg/L	D	10		A2540 C	11/13/18 12:09 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	11/13/18 17:13 / SRW
Chloride	3	mg/L		1		E300.0	11/13/18 17:04 / SRW
Sulfate	26	mg/L		1		E300.0	11/13/18 17:04 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/14/18 13:44 / SRW
Hardness as CaCO3	219	mg/L		1		A2340 B	11/13/18 15:42 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.08	mg/L		0.01		E353.2	11/13/18 14:16 / kmd
Nitrogen, Total	0.13	mg/L		0.04		A4500 N-C	11/15/18 11:14 / kmd
Phosphorus, Total as P	0.009	mg/L		0.003		E365.1	11/16/18 13:03 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/13/18 15:10 / sld
Calcium	47	mg/L		1		E200.7	11/13/18 13:16 / sld
Magnesium	25	mg/L		1		E200.7	11/13/18 13:16 / sld
Potassium	1	mg/L		1		E200.7	11/13/18 13:16 / sld
Sodium	2	mg/L		1		E200.7	11/13/18 13:16 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/15/18 14:01 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/15/18 14:01 / sld
Barium	0.148	mg/L		0.003		E200.8	11/15/18 14:01 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/15/18 14:01 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/15/18 14:01 / sld
Chromium	ND	mg/L		0.01		E200.8	11/15/18 14:01 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/15/18 14:01 / sld
Copper	ND	mg/L		0.002		E200.8	11/15/18 14:01 / sld
Iron	0.06	mg/L		0.02		E200.8	11/15/18 14:01 / sld
Lead	ND	mg/L		0.0003		E200.8	11/15/18 14:01 / sld
Manganese	ND	mg/L		0.005		E200.8	11/15/18 14:01 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/16/18 15:35 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/15/18 14:01 / sld
Nickel	ND	mg/L		0.001		E200.8	11/15/18 14:01 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/15/18 14:01 / sld
Silver	ND	mg/L		0.0002		E200.8	11/15/18 14:01 / sld
Strontium	0.120	mg/L	D	0.0003		E200.8	11/15/18 14:01 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/15/18 14:01 / sld
Uranium	ND	mg/L		0.008		E200.8	11/15/18 14:01 / sld
Zinc	ND	mg/L		0.002		E200.8	11/15/18 14:01 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110265-008
Client Sample ID: BBC-1811-110

Report Date: 11/27/18
Collection Date: 11/12/18 15:15
Date Received: 11/13/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	11/14/18 13:05 / cmm
Solids, Total Dissolved TDS @ 180 C	245	mg/L	D	10		A2540 C	11/13/18 12:10 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	11/13/18 17:19 / SRW
Chloride	1	mg/L		1		E300.0	11/13/18 17:18 / SRW
Sulfate	28	mg/L		1		E300.0	11/13/18 17:18 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	11/14/18 13:50 / SRW
Hardness as CaCO3	229	mg/L		1		A2340 B	11/13/18 15:42 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.19	mg/L		0.01		E353.2	11/13/18 14:18 / kmd
Nitrogen, Total	0.27	mg/L		0.04		A4500 N-C	11/15/18 11:15 / kmd
Phosphorus, Total as P	0.009	mg/L		0.003		E365.1	11/16/18 13:04 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/13/18 15:12 / sld
Calcium	52	mg/L		1		E200.7	11/13/18 13:21 / sld
Magnesium	24	mg/L		1		E200.7	11/13/18 13:21 / sld
Potassium	1	mg/L		1		E200.7	11/13/18 13:21 / sld
Sodium	3	mg/L		1		E200.7	11/13/18 13:21 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/15/18 14:03 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/15/18 14:03 / sld
Barium	0.097	mg/L		0.003		E200.8	11/15/18 14:03 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/15/18 14:03 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/15/18 14:03 / sld
Chromium	ND	mg/L		0.01		E200.8	11/15/18 14:03 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/15/18 14:03 / sld
Copper	ND	mg/L		0.002		E200.8	11/15/18 14:03 / sld
Iron	0.07	mg/L		0.02		E200.8	11/15/18 14:03 / sld
Lead	ND	mg/L		0.0003		E200.8	11/15/18 14:03 / sld
Manganese	ND	mg/L		0.005		E200.8	11/15/18 14:03 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/16/18 15:38 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/15/18 14:03 / sld
Nickel	ND	mg/L		0.001		E200.8	11/15/18 14:03 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/15/18 14:03 / sld
Silver	ND	mg/L		0.0002		E200.8	11/15/18 14:03 / sld
Strontium	0.176	mg/L	D	0.0003		E200.8	11/15/18 14:03 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/15/18 14:03 / sld
Uranium	ND	mg/L		0.008		E200.8	11/15/18 14:03 / sld
Zinc	ND	mg/L		0.002		E200.8	11/15/18 14:03 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110265-009
Client Sample ID: BBC-1811-114

Report Date: 11/27/18
Collection Date: 11/12/18 16:15
Date Received: 11/13/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	11/14/18 13:05 / cmm
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	D	10		A2540 C	11/13/18 12:10 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	11/13/18 17:25 / SRW
Chloride	ND	mg/L		1		E300.0	11/13/18 17:32 / SRW
Sulfate	ND	mg/L		1		E300.0	11/13/18 17:32 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/14/18 13:56 / SRW
Hardness as CaCO3	ND	mg/L		1		A2340 B	11/13/18 15:42 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/13/18 14:19 / kmd
Nitrogen, Total	ND	mg/L		0.04		A4500 N-C	11/15/18 11:16 / kmd
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	11/16/18 13:32 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/13/18 15:14 / sld
Calcium	ND	mg/L		1		E200.7	11/13/18 13:25 / sld
Magnesium	ND	mg/L		1		E200.7	11/13/18 13:25 / sld
Potassium	ND	mg/L		1		E200.7	11/13/18 13:25 / sld
Sodium	ND	mg/L		1		E200.7	11/13/18 13:25 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/15/18 14:04 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/15/18 14:04 / sld
Barium	ND	mg/L		0.003		E200.8	11/15/18 14:04 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/15/18 14:04 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/15/18 14:04 / sld
Chromium	ND	mg/L		0.01		E200.8	11/15/18 14:04 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/15/18 14:04 / sld
Copper	ND	mg/L		0.002		E200.8	11/15/18 14:04 / sld
Iron	ND	mg/L		0.02		E200.8	11/15/18 14:04 / sld
Lead	ND	mg/L		0.0003		E200.8	11/15/18 14:04 / sld
Manganese	ND	mg/L		0.005		E200.8	11/15/18 14:04 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/16/18 15:54 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/15/18 14:04 / sld
Nickel	ND	mg/L		0.001		E200.8	11/15/18 14:04 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/15/18 14:04 / sld
Silver	ND	mg/L		0.0002		E200.8	11/15/18 14:04 / sld
Strontium	ND	mg/L		0.0002		E200.7	11/16/18 18:35 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/15/18 14:04 / sld
Uranium	ND	mg/L		0.008		E200.8	11/15/18 14:04 / sld
Zinc	ND	mg/L		0.002		E200.8	11/15/18 14:04 / sld

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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R139848
Lab ID: MBLK		Method Blank								Run: PHSC_101-H_181113A 11/13/18 16:18
Alkalinity, Total as CaCO3		ND	mg/L	2						
Lab ID: LCS		Laboratory Control Sample								Run: PHSC_101-H_181113A 11/13/18 16:23
Alkalinity, Total as CaCO3		600	mg/L	4.0	100	90	110			
Lab ID: H18110265-002ADUP		Sample Duplicate								Run: PHSC_101-H_181113A 11/13/18 16:44
Alkalinity, Total as CaCO3		170	mg/L	4.0				1.5	10	
Lab ID: H18110266-001ADUP		Sample Duplicate								Run: PHSC_101-H_181113A 11/13/18 17:37
Alkalinity, Total as CaCO3		97	mg/L	4.0				2.0	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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C								Batch: TDS181113A		
Lab ID: MB-1_181113A		Method Blank						Run: ACCU-124 (14410200)_18111	11/13/18 12:07	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-2_181113A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18111	11/13/18 12:07	
Solids, Total Dissolved TDS @ 180 C		1910	mg/L	20	95	90	110			
Lab ID: H18110265-001A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18111	11/13/18 12:08	
Solids, Total Dissolved TDS @ 180 C		190	mg/L	10				1.6	5	
Lab ID: H18110264-001A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18111	11/13/18 12:10	
Solids, Total Dissolved TDS @ 180 C		406	mg/L	10				2.9	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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D								Batch: TSS181113A		
Lab ID: MB-1_181113A		Method Blank						Run: ACCU-124 (14410200)_18111		11/14/18 13:04
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
Lab ID: LCS-2_181113A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18111		11/14/18 13:04
Solids, Total Suspended TSS @ 105 C		113	mg/L	10	113	80	120			
Lab ID: H18110265-001ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18111		11/14/18 13:05
Solids, Total Suspended TSS @ 105 C		2.00	mg/L	10						5
Lab ID: H18110267-001ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18111		11/14/18 13:05
Solids, Total Suspended TSS @ 105 C		30.0	mg/L	10				3.4		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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: A4500 N-C								Analytical Run: FIA203-HE_181115A			
Lab ID: ICB	Initial Calibration Blank, Instrument Blank										
Nitrogen, Total		-0.00690	mg/L	0.10		0	0			11/15/18 10:25	
Lab ID: CCV	Continuing Calibration Verification Standard										
Nitrogen, Total		0.494	mg/L	0.10	99	90	110			11/15/18 10:45	
Lab ID: CCV	Continuing Calibration Verification Standard										
Nitrogen, Total		0.466	mg/L	0.10	93	90	110			11/15/18 11:04	
Method: A4500 N-C								Batch: 43806			
Lab ID: MB-43806	Method Blank										
Nitrogen, Total		ND	mg/L	0.03						Run: FIA203-HE_181115A 11/15/18 10:48	
Lab ID: LCS-43806	Laboratory Control Sample										
Nitrogen, Total		7.64	mg/L	0.30	103	90	110			Run: FIA203-HE_181115A 11/15/18 10:49	
Lab ID: H18110265-003AMS	Sample Matrix Spike										
Nitrogen, Total		1.11	mg/L	0.10	101	90	110			Run: FIA203-HE_181115A 11/15/18 11:08	
Lab ID: H18110265-003AMSD	Sample Matrix Spike Duplicate										
Nitrogen, Total		1.08	mg/L	0.10	98	90	110	2.6	20	Run: FIA203-HE_181115A 11/15/18 11:09	

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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-F C								Analytical Run: MANTECH 2_181114A		
Lab ID: ICV	Initial Calibration Verification Standard									
Fluoride		0.7	mg/L	0.1	97	90	110			11/14/18 12:47
Method: A4500-F C								Batch: R139909		
Lab ID: MBLK	Method Blank									
Fluoride		0.02	mg/L	0.003				Run: MANTECH 2_181114A		11/14/18 12:53
Lab ID: H18110265-002AMS	Sample Matrix Spike									
Fluoride		1.0	mg/L	0.1	99	85	115	Run: MANTECH 2_181114A		11/14/18 13:09
Lab ID: H18110265-003ADUP	Sample Duplicate									
Fluoride		0.0	mg/L	0.1				Run: MANTECH 2_181114A		11/14/18 13:21 10
Lab ID: H18110287-001ADUP	Sample Duplicate									
Fluoride		2.0	mg/L	0.1				Run: MANTECH 2_181114A	0.5	11/14/18 14:28 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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.7								Analytical Run: ICP2-HE_181113A			
Lab ID: ICV	4	Initial Calibration Verification Standard									11/13/18 10:50
Calcium		38.5	mg/L	1.0	96	95	105				
Magnesium		41.0	mg/L	1.0	103	95	105				
Potassium		41.2	mg/L	1.0	103	95	105				
Sodium		41.1	mg/L	1.0	103	95	105				
Lab ID: CCV-1	4	Continuing Calibration Verification Standard									11/13/18 10:55
Calcium		24.7	mg/L	1.0	99	95	105				
Magnesium		25.9	mg/L	1.0	103	95	105				
Potassium		25.3	mg/L	1.0	101	95	105				
Sodium		25.2	mg/L	1.0	101	95	105				
Lab ID: ICSA	4	Interference Check Sample A									11/13/18 11:08
Calcium		464	mg/L	1.0	93	80	120				
Magnesium		538	mg/L	1.0	108	80	120				
Potassium		-0.0185	mg/L	1.0		0	0				
Sodium		0.0159	mg/L	1.0		0	0				
Lab ID: ICSAB	4	Interference Check Sample AB									11/13/18 11:13
Calcium		475	mg/L	1.0	95	80	120				
Magnesium		549	mg/L	1.0	110	80	120				
Potassium		19.9	mg/L	1.0	99	80	120				
Sodium		19.8	mg/L	1.0	99	80	120				
Lab ID: CCV	4	Continuing Calibration Verification Standard									11/13/18 11:47
Calcium		24.8	mg/L	1.0	99	90	110				
Magnesium		25.5	mg/L	1.0	102	90	110				
Potassium		25.9	mg/L	1.0	104	90	110				
Sodium		25.8	mg/L	1.0	103	90	110				
Lab ID: CCV	4	Continuing Calibration Verification Standard									11/13/18 12:39
Calcium		25.3	mg/L	1.0	101	90	110				
Magnesium		26.6	mg/L	1.0	106	90	110				
Potassium		25.5	mg/L	1.0	102	90	110				
Sodium		25.2	mg/L	1.0	101	90	110				
Method: E200.7								Batch: R139870			
Lab ID: MB	4	Method Blank									Run: ICP2-HE_181113A 11/13/18 11:25
Calcium		ND	mg/L		0.07						
Magnesium		0.01	mg/L		0.01						
Potassium		ND	mg/L		0.06						
Sodium		ND	mg/L		0.02						
Lab ID: LFB	4	Laboratory Fortified Blank									Run: ICP2-HE_181113A 11/13/18 11:30
Calcium		50.5	mg/L	1.0	101	85	115				
Magnesium		53.4	mg/L	1.0	107	85	115				
Potassium		53.6	mg/L	1.0	107	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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7 Batch: R139870										
Lab ID: LFB	4	Laboratory Fortified Blank								
Sodium		53.5	mg/L	1.0	107	85	115			Run: ICP2-HE_181113A 11/13/18 11:30
Lab ID: H18110265-003BMS2	4	Sample Matrix Spike								Run: ICP2-HE_181113A 11/13/18 12:56
Calcium		101	mg/L	1.0	97	70	130			
Magnesium		67.2	mg/L	1.0	106	70	130			
Potassium		53.7	mg/L	1.0	105	70	130			
Sodium		54.7	mg/L	1.0	105	70	130			
Lab ID: H18110265-003BMSD	4	Sample Matrix Spike Duplicate								Run: ICP2-HE_181113A 11/13/18 13:00
Calcium		104	mg/L	1.0	101	70	130	2.1	20	
Magnesium		68.7	mg/L	1.0	110	70	130	2.3	20	
Potassium		54.1	mg/L	1.0	106	70	130	0.8	20	
Sodium		54.9	mg/L	1.0	105	70	130	0.3	20	
Method: E200.7 Batch: 43807										
Lab ID: LCS-43807		Laboratory Control Sample								Run: ICP2-HE_181115A 11/15/18 11:19
Strontium		0.523	mg/L	0.010	105	85	115			
Lab ID: H18110265-001CMS3		Sample Matrix Spike								Run: ICP2-HE_181115A 11/15/18 12:05
Strontium		0.669	mg/L	0.010	105	70	130			
Lab ID: H18110265-001CMSD		Sample Matrix Spike Duplicate								Run: ICP2-HE_181115A 11/15/18 12:09
Strontium		0.696	mg/L	0.010	110	70	130	3.9	20	
Method: E200.7 Analytical Run: ICP2-HE_181116A										
Lab ID: ICV		Initial Calibration Verification Standard								11/16/18 13:16
Strontium		0.781	mg/L	0.10	98	95	105			
Lab ID: CCV-1		Continuing Calibration Verification Standard								11/16/18 13:25
Strontium		2.42	mg/L	0.10	97	95	105			
Lab ID: ICSA		Interference Check Sample A								11/16/18 13:39
Strontium		-0.0272	mg/L	0.10		0	0			
Lab ID: ICSAB		Interference Check Sample AB								11/16/18 13:43
Strontium		0.977	mg/L	0.10	98	80	120			
Lab ID: CCV		Continuing Calibration Verification Standard								11/16/18 18:20
Strontium		2.53	mg/L	0.10	101	90	110			
Method: E200.7 Batch: 43807										
Lab ID: MB-43807		Method Blank								Run: ICP2-HE_181116A 11/16/18 18:31
Strontium		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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_181113A		
Lab ID: ICV		Initial Calibration Verification Standard								11/13/18 13:18
Aluminum		0.305	mg/L	0.10	102	90	110			
Lab ID: ICSA		Interference Check Sample A								11/13/18 13:20
Aluminum		44.7	mg/L	0.10	112	70	130			
Lab ID: ICSAB		Interference Check Sample AB								11/13/18 13:21
Aluminum		44.4	mg/L	0.10	111	70	130			
Method: E200.8								Batch: R139876		
Lab ID: LRB		Method Blank					Run: ICPMS205-H_181113A			11/13/18 13:31
Aluminum		ND	mg/L	0.003						
Lab ID: LFB		Laboratory Fortified Blank					Run: ICPMS205-H_181113A			11/13/18 13:33
Aluminum		0.0499	mg/L	0.10	100	85	115			
Lab ID: H18110265-001BMS		Sample Matrix Spike					Run: ICPMS205-H_181113A			11/13/18 14:57
Aluminum		0.0524	mg/L	0.030	105	70	130			
Lab ID: H18110265-001BMSD		Sample Matrix Spike Duplicate					Run: ICPMS205-H_181113A			11/13/18 14:59
Aluminum		0.0522	mg/L	0.030	104	70	130	0.2	20	
Lab ID: H18110271-001DMS		Sample Matrix Spike					Run: ICPMS205-H_181113A			11/13/18 15:20
Aluminum		0.0545	mg/L	0.030	100	70	130			
Lab ID: H18110271-001DMSD		Sample Matrix Spike Duplicate					Run: ICPMS205-H_181113A			11/13/18 15:22
Aluminum		0.0559	mg/L	0.030	103	70	130	2.5	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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8							Analytical Run: ICPMS205-H_181115A				
Lab ID: ICV	19 Initial Calibration Verification Standard									11/15/18 11:45	
Antimony		0.0624	mg/L	0.050	104	90	110				
Arsenic		0.0614	mg/L	0.0050	102	90	110				
Barium		0.0602	mg/L	0.10	100	90	110				
Beryllium		0.0297	mg/L	0.0010	99	90	110				
Cadmium		0.0302	mg/L	0.0010	101	90	110				
Chromium		0.0620	mg/L	0.010	103	90	110				
Cobalt		0.0618	mg/L	0.010	103	90	110				
Copper		0.0623	mg/L	0.010	104	90	110				
Iron		0.307	mg/L	0.020	102	90	110				
Lead		0.0584	mg/L	0.010	97	90	110				
Manganese		0.310	mg/L	0.010	103	90	110				
Molybdenum		0.0605	mg/L	0.0050	101	90	110				
Nickel		0.0625	mg/L	0.010	104	90	110				
Selenium		0.0601	mg/L	0.0050	100	90	110				
Silver		0.0303	mg/L	0.0050	101	90	110				
Strontium		0.0609	mg/L	0.10	102	90	110				
Thallium		0.0558	mg/L	0.10	93	90	110				
Uranium		0.0568	mg/L	0.00030	95	90	110				
Zinc		0.0626	mg/L	0.010	104	90	110				
Lab ID: ICSA	19 Interference Check Sample A									11/15/18 11:45	
Antimony		0.000204	mg/L	0.050							
Arsenic		5.60E-05	mg/L	0.0050							
Barium		0.000118	mg/L	0.10							
Beryllium		8.03E-05	mg/L	0.0010							
Cadmium		0.000184	mg/L	0.0010							
Chromium		0.00145	mg/L	0.010							
Cobalt		6.15E-06	mg/L	0.010							
Copper		0.000145	mg/L	0.010							
Iron		116	mg/L	0.020	116	70	130				
Lead		-0.000237	mg/L	0.010							
Manganese		0.000217	mg/L	0.010							
Molybdenum		0.956	mg/L	0.0050	120	70	130				
Nickel		0.000107	mg/L	0.010							
Selenium		6.45E-05	mg/L	0.0050							
Silver		8.06E-05	mg/L	0.0050							
Strontium		0.00129	mg/L	0.10							
Thallium		3.18E-05	mg/L	0.10							
Uranium		1.52E-05	mg/L	0.00030							
Zinc		0.000360	mg/L	0.010							
Lab ID: ICSAB	19 Interference Check Sample AB									11/15/18 11:49	
Antimony		6.69E-05	mg/L	0.050		0	0				
Arsenic		0.0119	mg/L	0.0050	119	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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_181115A		
Lab ID: ICSAB	19 Interference Check Sample AB							11/15/18 11:49		
Barium		6.88E-05	mg/L	0.10		0	0			
Beryllium		-2.93E-05	mg/L	0.0010		0	0			
Cadmium		0.0117	mg/L	0.0010	117	70	130			
Chromium		0.0244	mg/L	0.010	122	70	130			
Cobalt		0.0229	mg/L	0.010	115	70	130			
Copper		0.0224	mg/L	0.010	112	70	130			
Iron		113	mg/L	0.020	113	70	130			
Lead		-0.000270	mg/L	0.010		0	0			
Manganese		0.0236	mg/L	0.010	118	70	130			
Molybdenum		1.02	mg/L	0.0050	128	70	130			
Nickel		0.0234	mg/L	0.010	117	70	130			
Selenium		0.0113	mg/L	0.0050	113	70	130			
Silver		0.0231	mg/L	0.0050	116	70	130			
Strontium		0.00126	mg/L	0.10		0	0			
Thallium		1.31E-05	mg/L	0.10		0	0			
Uranium		6.17E-06	mg/L	0.00030		0	0			
Zinc		0.0116	mg/L	0.010	116	70	130			

Method: E200.8								Batch: 43807		
Lab ID: MB-43807	19 Method Blank							Run: ICPMS205-H_181115A		11/15/18 13:29
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						
Zinc		ND	mg/L	0.001						

Lab ID: LCS-43807	19 Laboratory Control Sample							Run: ICPMS205-H_181115A		11/15/18 13:41
Antimony		0.561	mg/L	0.0010	112	85	115			
Arsenic		0.512	mg/L	0.0010	102	85	115			
Barium		0.512	mg/L	0.050	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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: 43807										
Lab ID: LCS-43807	19 Laboratory Control Sample				Run: ICPMS205-H_181115A				11/15/18 13:41	
Beryllium		0.241	mg/L	0.0010	97	85	115			
Cadmium		0.255	mg/L	0.0010	102	85	115			
Chromium		0.543	mg/L	0.0050	109	85	115			
Cobalt		0.533	mg/L	0.0050	107	85	115			
Copper		0.539	mg/L	0.0050	108	85	115			
Iron		2.52	mg/L	0.020	101	85	115			
Lead		0.514	mg/L	0.0010	103	85	115			
Manganese		2.64	mg/L	0.0010	105	85	115			
Molybdenum		0.554	mg/L	0.0010	111	85	115			
Nickel		0.520	mg/L	0.0050	104	85	115			
Selenium		0.504	mg/L	0.0010	101	85	115			
Silver		0.0525	mg/L	0.0010	105	85	115			
Strontium		0.530	mg/L	0.010	106	85	115			
Thallium		0.483	mg/L	0.00050	97	85	115			
Uranium		0.491	mg/L	0.00030	98	85	115			
Zinc		0.508	mg/L	0.010	102	85	115			
Lab ID: H18110265-005CMS3	19 Sample Matrix Spike				Run: ICPMS205-H_181115A				11/15/18 13:43	
Antimony		0.570	mg/L	0.0010	114	70	130			
Arsenic		0.518	mg/L	0.0010	104	70	130			
Barium		0.637	mg/L	0.050	105	70	130			
Beryllium		0.244	mg/L	0.0010	98	70	130			
Cadmium		0.257	mg/L	0.0010	103	70	130			
Chromium		0.549	mg/L	0.0050	110	70	130			
Cobalt		0.532	mg/L	0.0050	106	70	130			
Copper		0.539	mg/L	0.0050	108	70	130			
Iron		2.58	mg/L	0.020	102	70	130			
Lead		0.521	mg/L	0.0010	104	70	130			
Manganese		2.65	mg/L	0.0010	106	70	130			
Molybdenum		0.560	mg/L	0.0010	112	70	130			
Nickel		0.515	mg/L	0.0050	103	70	130			
Selenium		0.507	mg/L	0.0010	101	70	130			
Silver		0.0530	mg/L	0.0010	106	70	130			
Strontium		0.664	mg/L	0.010	108	70	130			
Thallium		0.482	mg/L	0.00050	96	70	130			
Uranium		0.499	mg/L	0.00030	100	70	130			
Zinc		0.509	mg/L	0.010	102	70	130			
Lab ID: H18110265-005CMSD	19 Sample Matrix Spike Duplicate				Run: ICPMS205-H_181115A				11/15/18 13:45	
Antimony		0.579	mg/L	0.0010	116	70	130	1.6	20	
Arsenic		0.518	mg/L	0.0010	104	70	130	0.1	20	
Barium		0.647	mg/L	0.050	107	70	130	1.5	20	
Beryllium		0.248	mg/L	0.0010	99	70	130	1.9	20	
Cadmium		0.262	mg/L	0.0010	105	70	130	1.9	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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 43807
Lab ID:	H18110265-005CMSD	19 Sample Matrix Spike Duplicate			Run: ICPMS205-H_181115A				11/15/18 13:45	
Chromium		0.543	mg/L	0.0050	109	70	130	1.0	20	
Cobalt		0.529	mg/L	0.0050	106	70	130	0.6	20	
Copper		0.537	mg/L	0.0050	107	70	130	0.4	20	
Iron		2.59	mg/L	0.020	102	70	130	0.3	20	
Lead		0.532	mg/L	0.0010	106	70	130	2.2	20	
Manganese		2.59	mg/L	0.0010	104	70	130	2.2	20	
Molybdenum		0.565	mg/L	0.0010	113	70	130	1.0	20	
Nickel		0.513	mg/L	0.0050	103	70	130	0.4	20	
Selenium		0.508	mg/L	0.0010	101	70	130	0.1	20	
Silver		0.0536	mg/L	0.0010	107	70	130	1.2	20	
Strontium		0.691	mg/L	0.010	113	70	130	4.0	20	
Thallium		0.491	mg/L	0.00050	98	70	130	1.9	20	
Uranium		0.512	mg/L	0.00030	102	70	130	2.6	20	
Zinc		0.512	mg/L	0.010	102	70	130	0.4	20	
Lab ID:	H18110265-001CMS3	19 Sample Matrix Spike			Run: ICPMS205-H_181115A				11/15/18 13:47	
Antimony		0.570	mg/L	0.0010	114	70	130			
Arsenic		0.523	mg/L	0.0010	105	70	130			
Barium		0.640	mg/L	0.050	106	70	130			
Beryllium		0.241	mg/L	0.0010	97	70	130			
Cadmium		0.260	mg/L	0.0010	104	70	130			
Chromium		0.554	mg/L	0.0050	111	70	130			
Cobalt		0.527	mg/L	0.0050	105	70	130			
Copper		0.530	mg/L	0.0050	106	70	130			
Iron		2.76	mg/L	0.020	105	70	130			
Lead		0.524	mg/L	0.0010	105	70	130			
Manganese		2.68	mg/L	0.0010	107	70	130			
Molybdenum		0.558	mg/L	0.0010	112	70	130			
Nickel		0.519	mg/L	0.0050	104	70	130			
Selenium		0.518	mg/L	0.0010	104	70	130			
Silver		0.0533	mg/L	0.0010	107	70	130			
Strontium		0.691	mg/L	0.010	111	70	130			
Thallium		0.485	mg/L	0.00050	97	70	130			
Uranium		0.496	mg/L	0.00030	99	70	130			
Zinc		0.515	mg/L	0.010	103	70	130			
Lab ID:	H18110265-001CMSD	19 Sample Matrix Spike Duplicate			Run: ICPMS205-H_181115A				11/15/18 13:49	
Antimony		0.578	mg/L	0.0010	116	70	130	1.4	20	
Arsenic		0.514	mg/L	0.0010	103	70	130	1.8	20	
Barium		0.635	mg/L	0.050	105	70	130	0.7	20	
Beryllium		0.248	mg/L	0.0010	99	70	130	2.9	20	
Cadmium		0.262	mg/L	0.0010	105	70	130	0.6	20	
Chromium		0.542	mg/L	0.0050	108	70	130	2.2	20	
Cobalt		0.521	mg/L	0.0050	104	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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 43807
Lab ID:	H18110265-001CMSD 19 Sample Matrix Spike Duplicate				Run: ICPMS205-H_181115A				11/15/18 13:49	
Copper		0.549	mg/L	0.0050	110	70	130	3.6	20	
Iron		2.69	mg/L	0.020	102	70	130	2.6	20	
Lead		0.533	mg/L	0.0010	107	70	130	1.6	20	
Manganese		2.61	mg/L	0.0010	104	70	130	2.8	20	
Molybdenum		0.551	mg/L	0.0010	110	70	130	1.4	20	
Nickel		0.514	mg/L	0.0050	103	70	130	0.9	20	
Selenium		0.518	mg/L	0.0010	104	70	130	0.0	20	
Silver		0.0537	mg/L	0.0010	107	70	130	0.7	20	
Strontium		0.693	mg/L	0.010	111	70	130	0.3	20	
Thallium		0.496	mg/L	0.00050	99	70	130	2.1	20	
Uranium		0.514	mg/L	0.00030	103	70	130	3.5	20	
Zinc		0.509	mg/L	0.010	102	70	130	1.1	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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E245.1										Analytical Run: HGCV202-H_181116A	
Lab ID: ICV		Initial Calibration Verification Standard								11/16/18 11:03	
Mercury		9.69E-05	mg/L	5.0E-06	97	90	110				
Lab ID: ICV		Initial Calibration Verification Standard								11/16/18 14:12	
Mercury		9.89E-05	mg/L	5.0E-06	99	90	110				
Method: E245.1										Batch: 43832	
Lab ID: MB-43832		Method Blank								Run: HGCV202-H_181116A	11/16/18 14:47
Mercury		ND	mg/L	1E-06							
Lab ID: LCS-43832		Laboratory Control Sample								Run: HGCV202-H_181116A	11/16/18 14:50
Mercury		7.28E-05	mg/L	5.0E-06	97	90	110				
Lab ID: H18110252-001BMS		Sample Matrix Spike								Run: HGCV202-H_181116A	11/16/18 14:56
Mercury		7.37E-05	mg/L	5.0E-06	98	70	130				
Lab ID: H18110252-001BMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181116A	11/16/18 14:59
Mercury		7.30E-05	mg/L	5.0E-06	97	70	130	0.9	20		
Lab ID: H18110265-008CMS		Sample Matrix Spike								Run: HGCV202-H_181116A	11/16/18 15:41
Mercury		7.41E-05	mg/L	5.0E-06	99	70	130				
Lab ID: H18110265-008CMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181116A	11/16/18 15:45
Mercury		7.20E-05	mg/L	5.0E-06	96	70	130	2.9	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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0 Analytical Run: IC METROHM_181113A										
Lab ID: ICV	2	Initial Calibration Verification Standard								11/13/18 14:16
Chloride		105	mg/L	1.0	105	90	110			
Sulfate		423	mg/L	1.0	106	90	110			
Lab ID: CCV	2	Continuing Calibration Verification Standard								11/13/18 14:44
Chloride		52.0	mg/L	1.0	104	90	110			
Sulfate		212	mg/L	1.0	106	90	110			
Method: E300.0 Batch: R139898										
Lab ID: ICB	2	Method Blank								Run: IC METROHM_181113A 11/13/18 14:01
Chloride		ND	mg/L	0.009						
Sulfate		ND	mg/L	0.01						
Lab ID: LFB	2	Laboratory Fortified Blank								Run: IC METROHM_181113A 11/13/18 14:30
Chloride		25.1	mg/L	1.0	100	90	110			
Sulfate		106	mg/L	1.0	106	90	110			
Lab ID: H18110266-001AMS	2	Sample Matrix Spike								Run: IC METROHM_181113A 11/13/18 18:01
Chloride		25.9	mg/L	1.0	101	90	110			
Sulfate		110	mg/L	1.0	103	90	110			
Lab ID: H18110266-001AMSD	2	Sample Matrix Spike Duplicate								Run: IC METROHM_181113A 11/13/18 18:15
Chloride		26.2	mg/L	1.0	102	90	110	0.9	20	
Sulfate		112	mg/L	1.0	104	90	110	1.6	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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-HE_181113B		
Lab ID: ICV		Initial Calibration Verification Standard								11/13/18 12:42
Nitrogen, Nitrate+Nitrite as N		0.971	mg/L	0.010	97	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								11/13/18 13:57
Nitrogen, Nitrate+Nitrite as N		0.489	mg/L	0.010	98	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								11/13/18 14:14
Nitrogen, Nitrate+Nitrite as N		0.484	mg/L	0.010	97	90	110			
Method: E353.2								Batch: R139869		
Lab ID: MBLK		Method Blank								11/13/18 12:44
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009						
Lab ID: LFB		Laboratory Fortified Blank								11/13/18 12:45
Nitrogen, Nitrate+Nitrite as N		0.947	mg/L	0.011	95	90	110			
Lab ID: H18110264-001CMS		Sample Matrix Spike								11/13/18 14:03
Nitrogen, Nitrate+Nitrite as N		1.45	mg/L	0.011	91	90	110			
Lab ID: H18110264-001CMSD		Sample Matrix Spike Duplicate								11/13/18 14:05
Nitrogen, Nitrate+Nitrite as N		1.43	mg/L	0.011	89	90	110	1.4	10	S
Lab ID: H18110265-009DMS		Sample Matrix Spike								11/13/18 14:20
Nitrogen, Nitrate+Nitrite as N		0.951	mg/L	0.011	95	90	110			
Lab ID: H18110265-009DMSD		Sample Matrix Spike Duplicate								11/13/18 14:21
Nitrogen, Nitrate+Nitrite as N		0.942	mg/L	0.011	94	90	110	0.9	10	

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

Report Date: 11/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18110265

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E365.1								Analytical Run: FIA202-HE_181116A		
Lab ID: ICB		Initial Calibration Blank, Instrument Blank								11/16/18 12:48
Phosphorus, Total as P		0.00143	mg/L	0.010		0	0			
Lab ID: ICV		Initial Calibration Verification Standard								11/16/18 12:49
Phosphorus, Total as P		0.257	mg/L	0.010	103	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								11/16/18 13:28
Phosphorus, Total as P		0.0997	mg/L	0.010	100	90	110			
Method: E365.1								Batch: 43833		
Lab ID: MB-43833		Method Blank								11/16/18 12:50
Phosphorus, Total as P		ND	mg/L	0.002						Run: FIA202-HE_181116A
Lab ID: LCS-43833		Laboratory Control Sample								11/16/18 12:51
Phosphorus, Total as P		0.415	mg/L	0.010	104	90	110			Run: FIA202-HE_181116A
Lab ID: H18110265-001DMS		Sample Matrix Spike								11/16/18 12:55
Phosphorus, Total as P		0.218	mg/L	0.010	106	90	110			Run: FIA202-HE_181116A
Lab ID: H18110265-001DMSD		Sample Matrix Spike Duplicate								11/16/18 12:56
Phosphorus, Total as P		0.219	mg/L	0.010	106	90	110	0.3	20	Run: FIA202-HE_181116A
Lab ID: H18110307-001EMS		Sample Matrix Spike								11/16/18 13:14
Phosphorus, Total as P		0.258	mg/L	0.010	119	90	110			S
Lab ID: H18110307-001EMSD		Sample Matrix Spike Duplicate								11/16/18 13:20
Phosphorus, Total as P		0.263	mg/L	0.010	121	90	110	1.9	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

H18110265

Login completed by: Jessica C. Smith

Date Received: 11/13/2018

Reviewed by: BL2000\rtooke

Received by: RAT

Reviewed Date: 11/13/2018

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

CHAIN OF CUSTODY RECORD



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

PROJ. NO.	PROJECT NAME	NO. OF TAINERS	COMMONS UF / RAW	NUTRIENTS UF / H ₂ SO ₄	DISS. METAL F / HNO ₃	CN UF / NaOH	TOTAL METALS UF / HNO ₃	TOTAL RECOVERABLE METALS UF / HNO ₃	BTEX	TPH	REMARKS
11048	Tintina Blk Blk										
SAMPLERS: (Signature) <i>[Signature]</i>											
DATE	TIME	COMP	GRAB	SAMPLE NUMBER		NO. OF TAINERS		COMMONS UF / RAW		NUTRIENTS UF / H ₂ SO ₄	
11/21/18	1200		X	BBL-1811-100		4		X		X	
	1245			101		X		X		X	
	1300			102		X		X		X	
	1330			104		X		X		X	
	1345			105		X		X		X	
	1400			106		X		X		X	
	1430			107		X		X		X	
	1515			110		X		X		X	
	1615			114		X		X		X	
Relinquished (Signature) _____											
Date / Time _____											
Received by (Signature) _____											
Relinquished (Signature) _____											
Date / Time _____											
Received by (Signature) _____											
Relinquished (Signature) _____											
Date / Time _____											
Received for Laboratory by (Signature) _____											
Date / Time _____											
Lab _____											
P.O. # _____											
Shipped via: Bus FedEx UPS											
Other _____											
Air Bill # _____											
REMARKS: HB110265											

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

Parameter	Analytical Method ⁽¹⁾	Project-Required Detection Limit (mg/L)
Physical Parameters		
TDS	SM 2540C	4
TSS	SM 2540C	4
Common Ions		
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
Nutrients		
Nitrate+Nitrite as N	353.2	0.003
Total Persulfate Nitrogen	A 4500-N-C	0.04
Total Phosphorus	E365.1	0.003
Trace Constituents (SW - Total Recoverable except Aluminum [Diss])⁽²⁾		
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	0.008
Uranium	200.7/200.8	0.002
Zinc (Zn)	200.7/200.8	0.002
Field Parameters		
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

November 28, 2018

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

Work Order: H18110266 Quote ID: H1216 - Surface and Groundwater Sampling
Project Name: 11048 Black Butte Copper Project

Energy Laboratories Inc Helena MT received the following 1 sample for Tintina Resources Inc on 11/13/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18110266-001	BBC-1811-200	11/12/18 12:30	11/13/18	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

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.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

Assistant Laboratory Manager-Helena, MT

Digitally signed by
Amanda B. Carlson
Date: 2018.11.28 12:50:30 -07:00



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 11048 Black Butte Copper Project
Lab ID: H18110266-001
Client Sample ID: BBC-1811-200

Report Date: 11/28/18
Collection Date: 11/12/18 12:30
Date Received: 11/13/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/14/18 13:05 / cmm
Solids, Total Dissolved TDS @ 180 C	116	mg/L		10		A2540 C	11/13/18 12:10 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	95	mg/L		4		A2320 B	11/13/18 17:30 / SRW
Chloride	ND	mg/L		1		E300.0	11/13/18 17:47 / SRW
Sulfate	8	mg/L		1		E300.0	11/13/18 17:47 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/14/18 14:02 / SRW
Hardness as CaCO3	91	mg/L		1		A2340 B	11/18/18 10:40 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.24	mg/L		0.01		E353.2	11/13/18 14:22 / kmd
METALS, DISSOLVED							
Aluminum	0.022	mg/L		0.009		E200.8	11/13/18 15:16 / sld
Antimony	ND	mg/L		0.0005		E200.8	11/13/18 15:16 / sld
Arsenic	0.005	mg/L		0.001		E200.8	11/13/18 15:16 / sld
Barium	0.287	mg/L		0.003		E200.8	11/13/18 15:16 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/13/18 15:16 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/13/18 15:16 / sld
Calcium	23	mg/L		1		E200.7	11/16/18 21:13 / sld
Chromium	ND	mg/L		0.01		E200.8	11/13/18 15:16 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/13/18 15:16 / sld
Copper	ND	mg/L		0.002		E200.8	11/13/18 15:16 / sld
Iron	ND	mg/L		0.02		E200.8	11/13/18 15:16 / sld
Lead	ND	mg/L		0.0003		E200.8	11/13/18 15:16 / sld
Magnesium	8	mg/L		1		E200.7	11/16/18 21:13 / sld
Manganese	ND	mg/L		0.005		E200.8	11/13/18 15:16 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/16/18 15:57 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/13/18 15:16 / sld
Nickel	ND	mg/L		0.001		E200.8	11/13/18 15:16 / sld
Potassium	1	mg/L		1		E200.7	11/16/18 21:13 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/13/18 15:16 / sld
Silver	ND	mg/L		0.0002		E200.8	11/13/18 15:16 / sld
Sodium	4	mg/L		1		E200.7	11/16/18 21:13 / sld
Strontium	0.103	mg/L		0.0002		E200.8	11/13/18 15:16 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/13/18 15:16 / sld
Uranium	ND	mg/L		0.008		E200.8	11/13/18 15:16 / sld
Zinc	ND	mg/L		0.002		E200.8	11/13/18 15:16 / sld

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

Report Date: 11/28/18

Project: 11048 Black Butte Copper Project

Work Order: H18110266

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R139848
Lab ID: MBLK		Method Blank								Run: PHSC_101-H_181113A
Alkalinity, Total as CaCO3		ND	mg/L	2						11/13/18 16:18
Lab ID: LCS		Laboratory Control Sample								Run: PHSC_101-H_181113A
Alkalinity, Total as CaCO3		600	mg/L	4.0	100	90	110			11/13/18 16:23
Lab ID: H18110265-002ADUP		Sample Duplicate								Run: PHSC_101-H_181113A
Alkalinity, Total as CaCO3		170	mg/L	4.0				1.5	10	11/13/18 16:44
Lab ID: H18110266-001ADUP		Sample Duplicate								Run: PHSC_101-H_181113A
Alkalinity, Total as CaCO3		97	mg/L	4.0				2.0	10	11/13/18 17:37

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

Report Date: 11/28/18

Project: 11048 Black Butte Copper Project

Work Order: H18110266

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C								Batch: TDS181113A		
Lab ID: MB-1_181113A		Method Blank						Run: ACCU-124 (14410200)_18111	11/13/18 12:07	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-2_181113A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18111	11/13/18 12:07	
Solids, Total Dissolved TDS @ 180 C		1910	mg/L	20	95	90	110			
Lab ID: H18110265-001A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18111	11/13/18 12:08	
Solids, Total Dissolved TDS @ 180 C		190	mg/L	10				1.6	5	
Lab ID: H18110264-001A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18111	11/13/18 12:10	
Solids, Total Dissolved TDS @ 180 C		406	mg/L	10				2.9	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

Report Date: 11/28/18

Project: 11048 Black Butte Copper Project

Work Order: H18110266

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D								Batch: TSS181113A		
Lab ID: MB-1_181113A		Method Blank						Run: ACCU-124 (14410200)_18111		11/14/18 13:04
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
Lab ID: LCS-2_181113A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18111		11/14/18 13:04
Solids, Total Suspended TSS @ 105 C		113	mg/L	10	113	80	120			
Lab ID: H18110265-001ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18111		11/14/18 13:05
Solids, Total Suspended TSS @ 105 C		2.00	mg/L	10						5
Lab ID: H18110267-001ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18111		11/14/18 13:05
Solids, Total Suspended TSS @ 105 C		30.0	mg/L	10				3.4		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

Report Date: 11/28/18

Project: 11048 Black Butte Copper Project

Work Order: H18110266

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-F C Analytical Run: MANTECH 2_181114A										
Lab ID: ICV	Initial Calibration Verification Standard									
Fluoride		0.7	mg/L	0.1	97	90	110			11/14/18 12:47
Method: A4500-F C Batch: R139909										
Lab ID: MBLK	Method Blank									
Fluoride		0.02	mg/L	0.003				Run: MANTECH 2_181114A		11/14/18 12:53
Lab ID: H18110265-002AMS	Sample Matrix Spike									
Fluoride		1.0	mg/L	0.1	99	85	115	Run: MANTECH 2_181114A		11/14/18 13:09
Lab ID: H18110265-003ADUP	Sample Duplicate									
Fluoride		0.0	mg/L	0.1				Run: MANTECH 2_181114A		11/14/18 13:21 10
Lab ID: H18110287-001ADUP	Sample Duplicate									
Fluoride		2.0	mg/L	0.1				Run: MANTECH 2_181114A	0.5	11/14/18 14:28 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

Report Date: 11/28/18

Project: 11048 Black Butte Copper Project

Work Order: H18110266

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: ICP2-HE_181116A		
Lab ID: ICV	4	Initial Calibration Verification Standard								11/16/18 13:16
Calcium		38.7	mg/L	1.0	97	95	105			
Magnesium		38.9	mg/L	1.0	97	95	105			
Potassium		41.3	mg/L	1.0	103	95	105			
Sodium		41.9	mg/L	1.0	105	95	105			
Lab ID: CCV-1	4	Continuing Calibration Verification Standard								11/16/18 13:25
Calcium		25.6	mg/L	1.0	102	95	105			
Magnesium		25.3	mg/L	1.0	101	95	105			
Potassium		25.0	mg/L	1.0	100	95	105			
Sodium		24.7	mg/L	1.0	99	95	105			
Lab ID: ICSA	4	Interference Check Sample A								11/16/18 13:39
Calcium		461	mg/L	1.0	92	80	120			
Magnesium		513	mg/L	1.0	103	80	120			
Potassium		-0.00526	mg/L	1.0		0	0			
Sodium		0.0234	mg/L	1.0		0	0			
Lab ID: ICSAB	4	Interference Check Sample AB								11/16/18 13:43
Calcium		476	mg/L	1.0	95	80	120			
Magnesium		528	mg/L	1.0	106	80	120			
Potassium		20.5	mg/L	1.0	103	80	120			
Sodium		20.7	mg/L	1.0	103	80	120			
Lab ID: CCV	4	Continuing Calibration Verification Standard								11/16/18 20:35
Calcium		26.4	mg/L	1.0	106	90	110			
Magnesium		25.6	mg/L	1.0	103	90	110			
Potassium		26.0	mg/L	1.0	104	90	110			
Sodium		26.0	mg/L	1.0	104	90	110			
Method: E200.7								Batch: R139988		
Lab ID: MB	4	Method Blank						Run: ICP2-HE_181116A		11/16/18 13:55
Calcium		0.07	mg/L		0.07					
Magnesium		0.02	mg/L		0.01					
Potassium		ND	mg/L		0.06					
Sodium		ND	mg/L		0.02					
Lab ID: LFB	4	Laboratory Fortified Blank						Run: ICP2-HE_181116A		11/16/18 13:59
Calcium		49.5	mg/L	1.0	99	85	115			
Magnesium		49.7	mg/L	1.0	99	85	115			
Potassium		52.8	mg/L	1.0	106	85	115			
Sodium		53.7	mg/L	1.0	107	85	115			
Lab ID: H18110266-001BMS2	4	Sample Matrix Spike						Run: ICP2-HE_181116A		11/16/18 21:58
Calcium		70.4	mg/L	1.0	95	70	130			
Magnesium		57.4	mg/L	1.0	98	70	130			
Potassium		51.0	mg/L	1.0	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

Report Date: 11/28/18

Project: 11048 Black Butte Copper Project

Work Order: H18110266

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7 Batch: R139988										
Lab ID: H18110266-001BMS2	4	Sample Matrix Spike				Run: ICP2-HE_181116A		11/16/18 21:58		
Sodium		53.6	mg/L	1.0	99	70	130			
Lab ID: H18110266-001BMSD	4	Sample Matrix Spike Duplicate				Run: ICP2-HE_181116A		11/16/18 22:02		
Calcium		68.9	mg/L	1.0	92	70	130	2.1	20	
Magnesium		56.4	mg/L	1.0	96	70	130	1.6	20	
Potassium		53.1	mg/L	1.0	104	70	130	4.1	20	
Sodium		56.0	mg/L	1.0	104	70	130	4.4	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

Report Date: 11/28/18

Project: 11048 Black Butte Copper Project

Work Order: H18110266

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_181113A		
Lab ID: ICV	20	Initial Calibration Verification Standard								11/13/18 13:18
Aluminum		0.305	mg/L	0.10	102	90	110			
Antimony		0.0628	mg/L	0.050	105	90	110			
Arsenic		0.0604	mg/L	0.0050	101	90	110			
Barium		0.0605	mg/L	0.10	101	90	110			
Beryllium		0.0298	mg/L	0.0010	99	90	110			
Cadmium		0.0307	mg/L	0.0010	102	90	110			
Chromium		0.0605	mg/L	0.010	101	90	110			
Cobalt		0.0612	mg/L	0.010	102	90	110			
Copper		0.0611	mg/L	0.010	102	90	110			
Iron		0.306	mg/L	0.020	102	90	110			
Lead		0.0606	mg/L	0.010	101	90	110			
Manganese		0.306	mg/L	0.010	102	90	110			
Molybdenum		0.0610	mg/L	0.0050	102	90	110			
Nickel		0.0601	mg/L	0.010	100	90	110			
Selenium		0.0606	mg/L	0.0050	101	90	110			
Silver		0.0302	mg/L	0.0050	101	90	110			
Strontium		0.0604	mg/L	0.10	101	90	110			
Thallium		0.0595	mg/L	0.10	99	90	110			
Uranium		0.0586	mg/L	0.00030	98	90	110			
Zinc		0.0609	mg/L	0.010	102	90	110			
Lab ID: ICSA	20	Interference Check Sample A								11/13/18 13:20
Aluminum		44.7	mg/L	0.10	112	70	130			
Antimony		0.000237	mg/L	0.050						
Arsenic		8.54E-05	mg/L	0.0050						
Barium		0.000102	mg/L	0.10						
Beryllium		1.21E-05	mg/L	0.0010						
Cadmium		0.000187	mg/L	0.0010						
Chromium		0.00133	mg/L	0.010						
Cobalt		8.09E-06	mg/L	0.010						
Copper		0.000151	mg/L	0.010						
Iron		104	mg/L	0.020	104	70	130			
Lead		0.00176	mg/L	0.010						
Manganese		0.000216	mg/L	0.010						
Molybdenum		0.898	mg/L	0.0050	112	70	130			
Nickel		9.88E-05	mg/L	0.010						
Selenium		0.000102	mg/L	0.0050						
Silver		6.89E-05	mg/L	0.0050						
Strontium		0.00116	mg/L	0.10						
Thallium		0.000452	mg/L	0.10						
Uranium		1.73E-05	mg/L	0.00030						
Zinc		0.000401	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

Report Date: 11/28/18

Project: 11048 Black Butte Copper Project

Work Order: H18110266

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8								Analytical Run: ICPMS205-H_181113A			
Lab ID:	ICSAB	20 Interference Check Sample AB						11/13/18 13:21			
Aluminum		44.4	mg/L	0.10	111	70	130				
Antimony		0.000120	mg/L	0.050		0	0				
Arsenic		0.0109	mg/L	0.0050	109	70	130				
Barium		5.58E-05	mg/L	0.10		0	0				
Beryllium		1.17E-06	mg/L	0.0010		0	0				
Cadmium		0.0108	mg/L	0.0010	108	70	130				
Chromium		0.0224	mg/L	0.010	112	70	130				
Cobalt		0.0212	mg/L	0.010	106	70	130				
Copper		0.0212	mg/L	0.010	106	70	130				
Iron		107	mg/L	0.020	107	70	130				
Lead		0.00112	mg/L	0.010		0	0				
Manganese		0.0217	mg/L	0.010	109	70	130				
Molybdenum		0.907	mg/L	0.0050	113	70	130				
Nickel		0.0210	mg/L	0.010	105	70	130				
Selenium		0.0104	mg/L	0.0050	104	70	130				
Silver		0.0213	mg/L	0.0050	106	70	130				
Strontium		0.00115	mg/L	0.10		0	0				
Thallium		0.000302	mg/L	0.10		0	0				
Uranium		5.64E-06	mg/L	0.00030		0	0				
Zinc		0.0109	mg/L	0.010	109	70	130				

Method: E200.8								Batch: R139876		
Lab ID:	LRB	20 Method Blank						Run: ICPMS205-H_181113A		11/13/18 13:31
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		ND	mg/L	0.002						
Lead		ND	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						

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

Report Date: 11/28/18

Project: 11048 Black Butte Copper Project

Work Order: H18110266

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										
Batch: R139876										
Lab ID:	LFB	20 Laboratory Fortified Blank				Run: ICPMS205-H_181113A			11/13/18 13:33	
Aluminum		0.0499	mg/L	0.10	100	85	115			
Antimony		0.0519	mg/L	0.050	104	85	115			
Arsenic		0.0501	mg/L	0.0050	100	85	115			
Barium		0.0500	mg/L	0.10	100	85	115			
Beryllium		0.0494	mg/L	0.0010	99	85	115			
Cadmium		0.0509	mg/L	0.0010	102	85	115			
Chromium		0.0502	mg/L	0.010	100	85	115			
Cobalt		0.0503	mg/L	0.010	101	85	115			
Copper		0.0506	mg/L	0.010	101	85	115			
Iron		0.151	mg/L	0.020	100	85	115			
Lead		0.0499	mg/L	0.010	100	85	115			
Manganese		0.0497	mg/L	0.010	99	85	115			
Molybdenum		0.0502	mg/L	0.0050	100	85	115			
Nickel		0.0506	mg/L	0.010	101	85	115			
Selenium		0.0505	mg/L	0.0050	101	85	115			
Silver		0.0203	mg/L	0.0050	101	85	115			
Strontium		0.0498	mg/L	0.10	100	85	115			
Thallium		0.0489	mg/L	0.10	98	85	115			
Uranium		0.0479	mg/L	0.00030	96	85	115			
Zinc		0.0505	mg/L	0.010	101	85	115			
Lab ID:	H18110271-001DMS	20 Sample Matrix Spike				Run: ICPMS205-H_181113A			11/13/18 15:20	
Aluminum		0.0545	mg/L	0.030	100	70	130			
Antimony		0.0524	mg/L	0.0010	105	70	130			
Arsenic		0.219	mg/L	0.0010	96	70	130			
Barium		1.16	mg/L	0.050		70	130			AE
Beryllium		0.0509	mg/L	0.0010	102	70	130			
Cadmium		0.0515	mg/L	0.0010	103	70	130			
Chromium		0.0500	mg/L	0.0050	100	70	130			
Cobalt		0.0507	mg/L	0.0050	100	70	130			
Copper		0.0506	mg/L	0.0050	100	70	130			
Iron		14.0	mg/L	0.020		70	130			AE
Lead		0.0511	mg/L	0.0010	102	70	130			
Manganese		7.47	mg/L	0.0010		70	130			AE
Molybdenum		0.0576	mg/L	0.0010	102	70	130			
Nickel		0.0534	mg/L	0.0050	99	70	130			
Selenium		0.0571	mg/L	0.0010	114	70	130			
Silver		0.0181	mg/L	0.0010	91	70	130			
Strontium		0.260	mg/L	0.010		70	130			A
Thallium		0.0506	mg/L	0.00050	101	70	130			
Uranium		0.0517	mg/L	0.00030	103	70	130			
Zinc		0.0815	mg/L	0.010	95	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.

E - Estimated value. Result exceeds the instrument upper quantitation limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 11/28/18

Project: 11048 Black Butte Copper Project

Work Order: H18110266

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R139876
Lab ID: H18110271-001DMSD	20	Sample Matrix Spike Duplicate			Run: ICPMS205-H_181113A				11/13/18 15:22	
Aluminum		0.0559	mg/L	0.030	103	70	130	2.5	20	
Antimony		0.0537	mg/L	0.0010	107	70	130	2.4	20	
Arsenic		0.223	mg/L	0.0010	103	70	130	1.5	20	
Barium		1.15	mg/L	0.050		70	130	1.6	20	AE
Beryllium		0.0510	mg/L	0.0010	102	70	130	0.2	20	
Cadmium		0.0519	mg/L	0.0010	104	70	130	0.9	20	
Chromium		0.0506	mg/L	0.0050	101	70	130	1.4	20	
Cobalt		0.0506	mg/L	0.0050	100	70	130	0.2	20	
Copper		0.0502	mg/L	0.0050	100	70	130	0.8	20	
Iron		13.9	mg/L	0.020		70	130	0.6	20	AE
Lead		0.0512	mg/L	0.0010	102	70	130	0.2	20	
Manganese		7.42	mg/L	0.0010		70	130	0.7	20	AE
Molybdenum		0.0583	mg/L	0.0010	103	70	130	1.2	20	
Nickel		0.0542	mg/L	0.0050	100	70	130	1.5	20	
Selenium		0.0568	mg/L	0.0010	113	70	130	0.5	20	
Silver		0.0186	mg/L	0.0010	93	70	130	2.8	20	
Strontium		0.264	mg/L	0.010		70	130	1.6	20	A
Thallium		0.0503	mg/L	0.00050	101	70	130	0.6	20	
Uranium		0.0500	mg/L	0.00030	100	70	130	3.3	20	
Zinc		0.0815	mg/L	0.010	95	70	130	0.1	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.

E - Estimated value. Result exceeds the instrument upper quantitation limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 11/28/18

Project: 11048 Black Butte Copper Project

Work Order: H18110266

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E245.1										Analytical Run: HGCV202-H_181116A	
Lab ID: ICV		Initial Calibration Verification Standard								11/16/18 11:03	
Mercury		9.69E-05	mg/L	5.0E-06	97	90	110				
Lab ID: ICV		Initial Calibration Verification Standard								11/16/18 14:12	
Mercury		9.89E-05	mg/L	5.0E-06	99	90	110				
Method: E245.1										Batch: 43832	
Lab ID: MB-43832		Method Blank								Run: HGCV202-H_181116A	11/16/18 14:47
Mercury		ND	mg/L	1E-06							
Lab ID: LCS-43832		Laboratory Control Sample								Run: HGCV202-H_181116A	11/16/18 14:50
Mercury		7.28E-05	mg/L	5.0E-06	97	90	110				
Lab ID: H18110265-008CMS		Sample Matrix Spike								Run: HGCV202-H_181116A	11/16/18 15:41
Mercury		7.41E-05	mg/L	5.0E-06	99	70	130				
Lab ID: H18110265-008CMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181116A	11/16/18 15:45
Mercury		7.20E-05	mg/L	5.0E-06	96	70	130	2.9	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

Report Date: 11/28/18

Project: 11048 Black Butte Copper Project

Work Order: H18110266

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0 Analytical Run: IC METROHM_181113A										
Lab ID: ICV	2	Initial Calibration Verification Standard								11/13/18 14:16
Chloride		105	mg/L	1.0	105	90	110			
Sulfate		423	mg/L	1.0	106	90	110			
Lab ID: CCV	2	Continuing Calibration Verification Standard								11/13/18 14:44
Chloride		52.0	mg/L	1.0	104	90	110			
Sulfate		212	mg/L	1.0	106	90	110			
Method: E300.0 Batch: R139898										
Lab ID: ICB	2	Method Blank								Run: IC METROHM_181113A 11/13/18 14:01
Chloride		ND	mg/L	0.009						
Sulfate		ND	mg/L	0.01						
Lab ID: LFB	2	Laboratory Fortified Blank								Run: IC METROHM_181113A 11/13/18 14:30
Chloride		25.1	mg/L	1.0	100	90	110			
Sulfate		106	mg/L	1.0	106	90	110			
Lab ID: H18110266-001AMS	2	Sample Matrix Spike								Run: IC METROHM_181113A 11/13/18 18:01
Chloride		25.9	mg/L	1.0	101	90	110			
Sulfate		110	mg/L	1.0	103	90	110			
Lab ID: H18110266-001AMSD	2	Sample Matrix Spike Duplicate								Run: IC METROHM_181113A 11/13/18 18:15
Chloride		26.2	mg/L	1.0	102	90	110	0.9	20	
Sulfate		112	mg/L	1.0	104	90	110	1.6	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

Report Date: 11/28/18

Project: 11048 Black Butte Copper Project

Work Order: H18110266

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-HE_181113B		
Lab ID: ICV		Initial Calibration Verification Standard								11/13/18 12:42
Nitrogen, Nitrate+Nitrite as N		0.971	mg/L	0.010	97	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								11/13/18 14:14
Nitrogen, Nitrate+Nitrite as N		0.484	mg/L	0.010	97	90	110			
Method: E353.2								Batch: R139869		
Lab ID: MBLK		Method Blank						Run: FIA203-HE_181113B		11/13/18 12:44
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009						
Lab ID: LFB		Laboratory Fortified Blank						Run: FIA203-HE_181113B		11/13/18 12:45
Nitrogen, Nitrate+Nitrite as N		0.947	mg/L	0.011	95	90	110			
Lab ID: H18110265-009DMS		Sample Matrix Spike						Run: FIA203-HE_181113B		11/13/18 14:20
Nitrogen, Nitrate+Nitrite as N		0.951	mg/L	0.011	95	90	110			
Lab ID: H18110265-009DMSD		Sample Matrix Spike Duplicate						Run: FIA203-HE_181113B		11/13/18 14:21
Nitrogen, Nitrate+Nitrite as N		0.942	mg/L	0.011	94	90	110	0.9	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



Work Order Receipt Checklist

Tintina Resources Inc

H18110266

Login completed by: Jessica C. Smith

Date Received: 11/13/2018

Reviewed by: BL2000\rtooke

Received by: RAT

Reviewed Date: 11/13/2018

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

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

Parameter	Analytical Method ⁽¹⁾	Project-Required Detection Limit (mg/L)
Physical Parameters		
TDS	SM 2540C	10
TSS	SM 2540C	10
Common Ions		
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
Nutrients		
Nitrate+Nitrite as N	353.2	0.01
Trace Constituents (Dissolved)⁽²⁾		
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
Field Parameters		
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

December 05, 2018

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

Work Order: H18110350 Quote ID: H1216 - Surface and Groundwater Sampling
Project Name: 11048 Black Butte Copper Project

Energy Laboratories Inc Helena MT received the following 11 samples for Tintina Resources Inc on 11/15/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18110350-001	BBC-1811-201	11/13/18 11:10	11/15/18	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
H18110350-002	BBC-1811-202	11/13/18 12:55	11/15/18	Groundwater	Same As Above
H18110350-003	BBC-1811-203	11/13/18 14:25	11/15/18	Groundwater	Same As Above
H18110350-004	BBC-1811-204	11/13/18 14:50	11/15/18	Groundwater	Same As Above
H18110350-005	BBC-1811-205	11/13/18 16:05	11/15/18	Groundwater	Same As Above
H18110350-006	BBC-1811-206	11/13/18 16:40	11/15/18	Groundwater	Same As Above
H18110350-007	BBC-1811-207	11/13/18 17:20	11/15/18	Groundwater	Same As Above
H18110350-008	BBC-1811-208	11/13/18 17:40	11/15/18	Groundwater	Same As Above
H18110350-009	BBC-1811-209	11/14/18 9:15	11/15/18	Groundwater	Same As Above
H18110350-010	BBC-1811-210	11/14/18 9:40	11/15/18	Groundwater	Same As Above
H18110350-011	BBC-1811-211	11/14/18 10:50	11/15/18	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.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:


Assistant Laboratory Manager-Helena, MT

Digitally signed by
Amanda B. Carlson
Date: 2018.12.05 15:18:32 -07:00



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 11048 Black Butte Copper Project
Lab ID: H18110350-001
Client Sample ID: BBC-1811-201

Report Date: 12/05/18
Collection Date: 11/13/18 11:10
Date Received: 11/15/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/15/18 13:58 / SRW
Solids, Total Dissolved TDS @ 180 C	543	mg/L		10		A2540 C	11/15/18 13:05 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	11/16/18 10:36 / SRW
Chloride	1	mg/L		1		E300.0	11/19/18 20:33 / SRW
Sulfate	221	mg/L		1		E300.0	11/19/18 20:33 / SRW
Fluoride	0.8	mg/L		0.1	4	A4500-F C	11/16/18 10:23 / SRW
Hardness as CaCO3	365	mg/L		1		A2340 B	11/19/18 07:36 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/19/18 14:54 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/16/18 17:07 / sld
Antimony	ND	mg/L		0.0005		E200.8	11/16/18 17:07 / sld
Arsenic	0.074	mg/L		0.001		E200.8	11/16/18 17:07 / sld
Barium	0.011	mg/L		0.003		E200.8	11/16/18 17:07 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/16/18 17:07 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/16/18 17:07 / sld
Calcium	72	mg/L		1		E200.7	11/18/18 20:22 / sld
Chromium	ND	mg/L		0.01		E200.8	11/16/18 17:07 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/16/18 17:07 / sld
Copper	ND	mg/L		0.002		E200.8	11/16/18 17:07 / sld
Iron	1.04	mg/L		0.02		E200.8	11/16/18 17:07 / sld
Lead	ND	mg/L		0.0003		E200.8	11/16/18 17:07 / sld
Magnesium	50	mg/L		1		E200.8	11/16/18 17:07 / sld
Manganese	0.017	mg/L		0.005		E200.8	11/16/18 17:07 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/21/18 15:50 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/16/18 17:07 / sld
Nickel	ND	mg/L		0.001		E200.8	11/16/18 17:07 / sld
Potassium	3	mg/L		1		E200.7	11/18/18 20:22 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/16/18 17:07 / sld
Silver	ND	mg/L		0.0002		E200.8	11/16/18 17:07 / sld
Sodium	14	mg/L		1		E200.7	11/18/18 20:22 / sld
Strontium	12.6	mg/L		0.0002		E200.7	11/18/18 20:22 / sld
Thallium	0.0004	mg/L		0.0002		E200.8	11/16/18 17:07 / sld
Uranium	0.0011	mg/L		0.0002		E200.8	11/16/18 17:07 / sld
Zinc	ND	mg/L		0.002		E200.8	11/16/18 17:07 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110350-002
Client Sample ID: BBC-1811-202

Report Date: 12/05/18
Collection Date: 11/13/18 12:55
Date Received: 11/15/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/15/18 13:58 / SRW
Solids, Total Dissolved TDS @ 180 C	531	mg/L		10		A2540 C	11/15/18 13:05 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	250	mg/L		4		A2320 B	11/16/18 10:44 / SRW
Chloride	1	mg/L		1		E300.0	11/19/18 21:44 / SRW
Sulfate	200	mg/L		1		E300.0	11/19/18 21:44 / SRW
Fluoride	0.5	mg/L		0.1	4	A4500-F C	11/16/18 10:28 / SRW
Hardness as CaCO3	389	mg/L		1		A2340 B	11/19/18 07:36 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/19/18 14:56 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/16/18 17:08 / sld
Antimony	ND	mg/L		0.0005		E200.8	11/16/18 17:08 / sld
Arsenic	0.013	mg/L		0.001		E200.8	11/16/18 17:08 / sld
Barium	0.015	mg/L		0.003		E200.8	11/16/18 17:08 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/16/18 17:08 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/16/18 17:08 / sld
Calcium	87	mg/L		1		E200.7	11/26/18 10:44 / sld
Chromium	ND	mg/L		0.01		E200.8	11/16/18 17:08 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/16/18 17:08 / sld
Copper	ND	mg/L		0.002		E200.8	11/16/18 17:08 / sld
Iron	0.90	mg/L		0.02		E200.8	11/16/18 17:08 / sld
Lead	0.0063	mg/L		0.0003		E200.8	11/16/18 17:08 / sld
Magnesium	46	mg/L		1		E200.7	11/18/18 20:37 / sld
Manganese	0.088	mg/L		0.005		E200.8	11/16/18 17:08 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/21/18 15:53 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/16/18 17:08 / sld
Nickel	ND	mg/L		0.001		E200.8	11/16/18 17:08 / sld
Potassium	4	mg/L		1		E200.7	11/18/18 20:37 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/16/18 17:08 / sld
Silver	ND	mg/L		0.0002		E200.8	11/16/18 17:08 / sld
Sodium	5	mg/L		1		E200.7	11/18/18 20:37 / sld
Strontium	1.08	mg/L		0.0002		E200.7	11/18/18 20:37 / sld
Thallium	0.0036	mg/L		0.0002		E200.8	11/16/18 17:08 / sld
Uranium	0.0009	mg/L		0.0002		E200.8	11/16/18 17:08 / sld
Zinc	0.003	mg/L		0.002		E200.8	11/16/18 17:08 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110350-003
Client Sample ID: BBC-1811-203

Report Date: 12/05/18
Collection Date: 11/13/18 14:25
Date Received: 11/15/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	13	mg/L		10		A2540 D	11/15/18 13:58 / SRW
Solids, Total Dissolved TDS @ 180 C	205	mg/L		10		A2540 C	11/15/18 13:06 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	11/16/18 10:53 / SRW
Chloride	1	mg/L		1		E300.0	11/19/18 20:48 / SRW
Sulfate	21	mg/L		1		E300.0	11/19/18 20:48 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	11/16/18 10:34 / SRW
Hardness as CaCO3	204	mg/L		1		A2340 B	11/18/18 10:40 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.21	mg/L		0.01		E353.2	11/19/18 14:59 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/16/18 17:18 / sld
Antimony	ND	mg/L		0.0005		E200.8	11/16/18 17:18 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/16/18 17:18 / sld
Barium	0.082	mg/L		0.003		E200.8	11/16/18 17:18 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/16/18 17:18 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/16/18 17:18 / sld
Calcium	43	mg/L		1		E200.7	11/17/18 01:09 / sld
Chromium	ND	mg/L		0.01		E200.8	11/16/18 17:18 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/16/18 17:18 / sld
Copper	ND	mg/L		0.002		E200.8	11/16/18 17:18 / sld
Iron	ND	mg/L		0.02		E200.8	11/16/18 17:18 / sld
Lead	ND	mg/L		0.0003		E200.8	11/16/18 17:18 / sld
Magnesium	23	mg/L		1		E200.7	11/17/18 01:09 / sld
Manganese	ND	mg/L		0.005		E200.8	11/16/18 17:18 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/21/18 15:57 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/16/18 17:18 / sld
Nickel	ND	mg/L		0.001		E200.8	11/16/18 17:18 / sld
Potassium	1	mg/L		1		E200.7	11/17/18 01:09 / sld
Selenium	0.0011	mg/L		0.0002		E200.8	11/16/18 17:18 / sld
Silver	ND	mg/L		0.0002		E200.8	11/16/18 17:18 / sld
Sodium	2	mg/L		1		E200.7	11/17/18 01:09 / sld
Strontium	0.0906	mg/L		0.0002		E200.8	11/16/18 17:18 / sld
Thallium	0.0002	mg/L		0.0002		E200.8	11/16/18 17:18 / sld
Uranium	0.0005	mg/L		0.0002		E200.8	11/16/18 17:18 / sld
Zinc	ND	mg/L		0.002		E200.8	11/16/18 17:18 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110350-004
Client Sample ID: BBC-1811-204

Report Date: 12/05/18
Collection Date: 11/13/18 14:50
Date Received: 11/15/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/15/18 13:59 / SRW
Solids, Total Dissolved TDS @ 180 C	242	mg/L		10		A2540 C	11/15/18 13:06 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	11/16/18 11:00 / SRW
Chloride	1	mg/L		1		E300.0	11/19/18 21:02 / SRW
Sulfate	38	mg/L		1		E300.0	11/19/18 21:02 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	11/16/18 10:40 / SRW
Hardness as CaCO3	234	mg/L		1		A2340 B	11/18/18 10:40 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/19/18 15:04 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/16/18 17:20 / sld
Antimony	ND	mg/L		0.0005		E200.8	11/16/18 17:20 / sld
Arsenic	0.003	mg/L		0.001		E200.8	11/16/18 17:20 / sld
Barium	0.043	mg/L		0.003		E200.8	11/16/18 17:20 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/16/18 17:20 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/16/18 17:20 / sld
Calcium	49	mg/L		1		E200.7	11/17/18 01:13 / sld
Chromium	ND	mg/L		0.01		E200.8	11/16/18 17:20 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/16/18 17:20 / sld
Copper	ND	mg/L		0.002		E200.8	11/16/18 17:20 / sld
Iron	0.03	mg/L		0.02		E200.8	11/16/18 17:20 / sld
Lead	ND	mg/L		0.0003		E200.8	11/16/18 17:20 / sld
Magnesium	27	mg/L		1		E200.7	11/17/18 01:13 / sld
Manganese	0.009	mg/L		0.005		E200.8	11/16/18 17:20 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/21/18 16:00 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/16/18 17:20 / sld
Nickel	ND	mg/L		0.001		E200.8	11/16/18 17:20 / sld
Potassium	1	mg/L		1		E200.7	11/17/18 01:13 / sld
Selenium	0.0046	mg/L		0.0002		E200.8	11/16/18 17:20 / sld
Silver	ND	mg/L		0.0002		E200.8	11/16/18 17:20 / sld
Sodium	3	mg/L		1		E200.7	11/17/18 01:13 / sld
Strontium	0.0931	mg/L		0.0002		E200.8	11/16/18 17:20 / sld
Thallium	0.0036	mg/L		0.0002		E200.8	11/16/18 17:20 / sld
Uranium	0.0022	mg/L		0.0002		E200.8	11/16/18 17:20 / sld
Zinc	ND	mg/L		0.002		E200.8	11/16/18 17:20 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110350-005
Client Sample ID: BBC-1811-205

Report Date: 12/05/18
Collection Date: 11/13/18 16:05
Date Received: 11/15/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	10	mg/L		10		A2540 D	11/15/18 13:59 / SRW
Solids, Total Dissolved TDS @ 180 C	193	mg/L		10		A2540 C	11/15/18 13:06 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	11/16/18 11:09 / SRW
Chloride	1	mg/L		1		E300.0	11/19/18 11:44 / SRW
Sulfate	14	mg/L		1		E300.0	11/19/18 11:44 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	11/16/18 10:46 / SRW
Hardness as CaCO3	183	mg/L		1		A2340 B	11/18/18 10:40 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.42	mg/L		0.01		E353.2	11/19/18 15:05 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/16/18 17:22 / sld
Antimony	ND	mg/L		0.0005		E200.8	11/16/18 17:22 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/16/18 17:22 / sld
Barium	0.173	mg/L		0.003		E200.8	11/16/18 17:22 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/16/18 17:22 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/16/18 17:22 / sld
Calcium	43	mg/L		1		E200.7	11/17/18 01:16 / sld
Chromium	ND	mg/L		0.01		E200.8	11/16/18 17:22 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/16/18 17:22 / sld
Copper	0.008	mg/L		0.002		E200.8	11/16/18 17:22 / sld
Iron	ND	mg/L		0.02		E200.8	11/16/18 17:22 / sld
Lead	0.0004	mg/L		0.0003		E200.8	11/16/18 17:22 / sld
Magnesium	18	mg/L		1		E200.7	11/17/18 01:16 / sld
Manganese	ND	mg/L		0.005		E200.8	11/16/18 17:22 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/21/18 16:03 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/16/18 17:22 / sld
Nickel	ND	mg/L		0.001		E200.8	11/16/18 17:22 / sld
Potassium	ND	mg/L		1		E200.7	11/17/18 01:16 / sld
Selenium	0.0002	mg/L		0.0002		E200.8	11/16/18 17:22 / sld
Silver	ND	mg/L		0.0002		E200.8	11/16/18 17:22 / sld
Sodium	2	mg/L		1		E200.7	11/17/18 01:16 / sld
Strontium	0.100	mg/L		0.0002		E200.8	11/16/18 17:22 / sld
Thallium	0.0010	mg/L		0.0002		E200.8	11/16/18 17:22 / sld
Uranium	0.0009	mg/L		0.0002		E200.8	11/16/18 17:22 / sld
Zinc	ND	mg/L		0.002		E200.8	11/16/18 17:22 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110350-006
Client Sample ID: BBC-1811-206

Report Date: 12/05/18
Collection Date: 11/13/18 16:40
Date Received: 11/15/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/15/18 13:59 / SRW
Solids, Total Dissolved TDS @ 180 C	430	mg/L		10		A2540 C	11/15/18 13:06 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	100	mg/L		4		A2320 B	11/16/18 11:17 / SRW
Chloride	1	mg/L		1		E300.0	11/19/18 11:58 / SRW
Sulfate	221	mg/L		1		E300.0	11/19/18 11:58 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	11/16/18 10:51 / SRW
Hardness as CaCO3	288	mg/L		1		A2340 B	11/18/18 10:40 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.01		E353.2	11/19/18 15:06 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/16/18 17:24 / sld
Antimony	0.0007	mg/L		0.0005		E200.8	11/16/18 17:24 / sld
Arsenic	0.071	mg/L		0.001		E200.8	11/16/18 17:24 / sld
Barium	0.011	mg/L		0.003		E200.8	11/16/18 17:24 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/16/18 17:24 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/16/18 17:24 / sld
Calcium	62	mg/L		1		E200.7	11/17/18 01:20 / sld
Chromium	ND	mg/L		0.01		E200.8	11/16/18 17:24 / sld
Cobalt	0.03	mg/L		0.01		E200.8	11/16/18 17:24 / sld
Copper	ND	mg/L		0.002		E200.8	11/16/18 17:24 / sld
Iron	20.4	mg/L		0.02		E200.7	11/17/18 01:20 / sld
Lead	ND	mg/L		0.0003		E200.8	11/16/18 17:24 / sld
Magnesium	32	mg/L		1		E200.7	11/17/18 01:20 / sld
Manganese	0.084	mg/L		0.005		E200.8	11/16/18 17:24 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/21/18 16:06 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/16/18 17:24 / sld
Nickel	0.012	mg/L		0.001		E200.8	11/16/18 17:24 / sld
Potassium	3	mg/L		1		E200.7	11/17/18 01:20 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/16/18 17:24 / sld
Silver	ND	mg/L		0.0002		E200.8	11/16/18 17:24 / sld
Sodium	3	mg/L		1		E200.7	11/17/18 01:20 / sld
Strontium	1.72	mg/L		0.0002		E200.7	11/17/18 01:20 / sld
Thallium	0.0125	mg/L		0.0002		E200.8	11/16/18 17:24 / sld
Uranium	ND	mg/L		0.0002		E200.8	11/16/18 17:24 / sld
Zinc	0.013	mg/L		0.002		E200.8	11/16/18 17:24 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110350-007
Client Sample ID: BBC-1811-207

Report Date: 12/05/18
Collection Date: 11/13/18 17:20
Date Received: 11/15/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	82	mg/L		10		A2540 D	11/15/18 13:59 / SRW
Solids, Total Dissolved TDS @ 180 C	384	mg/L		10		A2540 C	11/15/18 13:06 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	250	mg/L		4		A2320 B	11/16/18 11:24 / SRW
Chloride	1	mg/L		1		E300.0	11/19/18 12:12 / SRW
Sulfate	104	mg/L		1		E300.0	11/19/18 12:12 / SRW
Fluoride	0.5	mg/L		0.1	4	A4500-F C	11/16/18 11:08 / SRW
Hardness as CaCO3	333	mg/L		1		A2340 B	11/18/18 10:40 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/19/18 15:08 / kmd
METALS, DISSOLVED							
Aluminum	0.014	mg/L		0.009		E200.8	11/16/18 17:26 / sld
Antimony	ND	mg/L		0.0005		E200.8	11/16/18 17:26 / sld
Arsenic	0.006	mg/L		0.001		E200.8	11/16/18 17:26 / sld
Barium	0.020	mg/L		0.003		E200.8	11/16/18 17:26 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/16/18 17:26 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/16/18 17:26 / sld
Calcium	71	mg/L		1		E200.7	11/17/18 01:24 / sld
Chromium	ND	mg/L		0.01		E200.8	11/16/18 17:26 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/16/18 17:26 / sld
Copper	ND	mg/L		0.002		E200.8	11/16/18 17:26 / sld
Iron	1.23	mg/L		0.02		E200.7	11/17/18 01:24 / sld
Lead	ND	mg/L		0.0003		E200.8	11/16/18 17:26 / sld
Magnesium	38	mg/L		1		E200.7	11/17/18 01:24 / sld
Manganese	0.046	mg/L		0.005		E200.8	11/16/18 17:26 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/21/18 16:09 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/16/18 17:26 / sld
Nickel	ND	mg/L		0.001		E200.8	11/16/18 17:26 / sld
Potassium	3	mg/L		1		E200.7	11/17/18 01:24 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/16/18 17:26 / sld
Silver	ND	mg/L		0.0002		E200.8	11/16/18 17:26 / sld
Sodium	4	mg/L		1		E200.7	11/17/18 01:24 / sld
Strontium	0.285	mg/L		0.0002		E200.7	11/17/18 01:24 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/16/18 17:26 / sld
Uranium	0.0019	mg/L		0.0002		E200.8	11/16/18 17:26 / sld
Zinc	0.007	mg/L		0.002		E200.8	11/16/18 17:26 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110350-008
Client Sample ID: BBC-1811-208

Report Date: 12/05/18
Collection Date: 11/13/18 17:40
Date Received: 11/15/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	57	mg/L		10		A2540 D	11/15/18 14:00 / SRW
Solids, Total Dissolved TDS @ 180 C	378	mg/L		10		A2540 C	11/15/18 13:07 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	250	mg/L		4		A2320 B	11/16/18 11:33 / SRW
Chloride	1	mg/L		1		E300.0	11/19/18 12:26 / SRW
Sulfate	102	mg/L		1		E300.0	11/19/18 12:26 / SRW
Fluoride	0.5	mg/L		0.1	4	A4500-F C	11/16/18 11:18 / SRW
Hardness as CaCO3	325	mg/L		1		A2340 B	11/18/18 10:40 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/19/18 15:09 / kmd
METALS, DISSOLVED							
Aluminum	0.018	mg/L		0.009		E200.8	11/16/18 17:28 / sld
Antimony	ND	mg/L		0.0005		E200.8	11/16/18 17:28 / sld
Arsenic	0.006	mg/L		0.001		E200.8	11/16/18 17:28 / sld
Barium	0.020	mg/L		0.003		E200.8	11/16/18 17:28 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/16/18 17:28 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/16/18 17:28 / sld
Calcium	70	mg/L		1		E200.7	11/17/18 01:28 / sld
Chromium	ND	mg/L		0.01		E200.8	11/16/18 17:28 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/16/18 17:28 / sld
Copper	ND	mg/L		0.002		E200.8	11/16/18 17:28 / sld
Iron	1.25	mg/L		0.02		E200.8	11/16/18 17:28 / sld
Lead	ND	mg/L		0.0003		E200.8	11/16/18 17:28 / sld
Magnesium	37	mg/L		1		E200.7	11/17/18 01:28 / sld
Manganese	0.046	mg/L		0.005		E200.8	11/16/18 17:28 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/21/18 16:13 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/16/18 17:28 / sld
Nickel	ND	mg/L		0.001		E200.8	11/16/18 17:28 / sld
Potassium	3	mg/L		1		E200.7	11/17/18 01:28 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/16/18 17:28 / sld
Silver	ND	mg/L		0.0002		E200.8	11/16/18 17:28 / sld
Sodium	4	mg/L		1		E200.7	11/17/18 01:28 / sld
Strontium	0.300	mg/L		0.0002		E200.8	11/16/18 17:28 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/16/18 17:28 / sld
Uranium	0.0019	mg/L		0.0002		E200.8	11/16/18 17:28 / sld
Zinc	0.007	mg/L		0.002		E200.8	11/16/18 17:28 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110350-009
Client Sample ID: BBC-1811-209

Report Date: 12/05/18
Collection Date: 11/14/18 09:15
Date Received: 11/15/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/15/18 14:00 / SRW
Solids, Total Dissolved TDS @ 180 C	247	mg/L		10		A2540 C	11/15/18 13:07 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	11/16/18 11:41 / SRW
Chloride	2	mg/L		1		E300.0	11/19/18 12:40 / SRW
Sulfate	14	mg/L		1		E300.0	11/19/18 12:40 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/16/18 11:24 / SRW
Hardness as CaCO3	222	mg/L		1		A2340 B	11/18/18 10:40 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.01		E353.2	11/19/18 15:10 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/16/18 17:30 / sld
Antimony	ND	mg/L		0.0005		E200.8	11/16/18 17:30 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/16/18 17:30 / sld
Barium	0.129	mg/L		0.003		E200.8	11/16/18 17:30 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/16/18 17:30 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/16/18 17:30 / sld
Calcium	58	mg/L		1		E200.7	11/17/18 01:31 / sld
Chromium	ND	mg/L		0.01		E200.8	11/16/18 17:30 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/16/18 17:30 / sld
Copper	ND	mg/L		0.002		E200.8	11/16/18 17:30 / sld
Iron	ND	mg/L		0.02		E200.8	11/16/18 17:30 / sld
Lead	ND	mg/L		0.0003		E200.8	11/16/18 17:30 / sld
Magnesium	18	mg/L		1		E200.7	11/17/18 01:31 / sld
Manganese	ND	mg/L		0.005		E200.8	11/16/18 17:30 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/21/18 16:16 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/16/18 17:30 / sld
Nickel	ND	mg/L		0.001		E200.8	11/16/18 17:30 / sld
Potassium	1	mg/L		1		E200.7	11/17/18 01:31 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/16/18 17:30 / sld
Silver	ND	mg/L		0.0002		E200.8	11/16/18 17:30 / sld
Sodium	3	mg/L		1		E200.7	11/17/18 01:31 / sld
Strontium	0.172	mg/L		0.0002		E200.8	11/16/18 17:30 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/16/18 17:30 / sld
Uranium	0.0006	mg/L		0.0002		E200.8	11/16/18 17:30 / sld
Zinc	ND	mg/L		0.002		E200.8	11/16/18 17:30 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110350-010
Client Sample ID: BBC-1811-210

Report Date: 12/05/18
Collection Date: 11/14/18 09:40
Date Received: 11/15/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/15/18 14:00 / SRW
Solids, Total Dissolved TDS @ 180 C	296	mg/L		10		A2540 C	11/15/18 13:07 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	270	mg/L		4		A2320 B	11/16/18 11:48 / SRW
Chloride	3	mg/L		1		E300.0	11/19/18 12:54 / SRW
Sulfate	13	mg/L		1		E300.0	11/19/18 12:54 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/16/18 11:30 / SRW
Hardness as CaCO3	287	mg/L		1		A2340 B	11/18/18 10:40 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/19/18 15:11 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/16/18 17:32 / sld
Antimony	ND	mg/L		0.0005		E200.8	11/16/18 17:32 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/16/18 17:32 / sld
Barium	0.188	mg/L		0.003		E200.8	11/16/18 17:32 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/16/18 17:32 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/16/18 17:32 / sld
Calcium	80	mg/L		1		E200.7	11/17/18 02:13 / sld
Chromium	ND	mg/L		0.01		E200.8	11/16/18 17:32 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/16/18 17:32 / sld
Copper	ND	mg/L		0.002		E200.8	11/16/18 17:32 / sld
Iron	0.02	mg/L		0.02		E200.8	11/16/18 17:32 / sld
Lead	ND	mg/L		0.0003		E200.8	11/16/18 17:32 / sld
Magnesium	21	mg/L		1		E200.7	11/17/18 02:13 / sld
Manganese	0.288	mg/L		0.005		E200.8	11/16/18 17:32 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/21/18 16:19 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/16/18 17:32 / sld
Nickel	ND	mg/L		0.001		E200.8	11/16/18 17:32 / sld
Potassium	1	mg/L		1		E200.7	11/17/18 02:13 / sld
Selenium	ND	mg/L		0.0002		E200.8	11/16/18 17:32 / sld
Silver	ND	mg/L		0.0002		E200.8	11/16/18 17:32 / sld
Sodium	3	mg/L		1		E200.7	11/17/18 02:13 / sld
Strontium	0.174	mg/L		0.0002		E200.8	11/16/18 17:32 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/16/18 17:32 / sld
Uranium	0.0004	mg/L		0.0002		E200.8	11/16/18 17:32 / sld
Zinc	ND	mg/L		0.002		E200.8	11/16/18 17:32 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18110350-011
Client Sample ID: BBC-1811-211

Report Date: 12/05/18
Collection Date: 11/14/18 10:50
Date Received: 11/15/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/15/18 14:00 / SRW
Solids, Total Dissolved TDS @ 180 C	212	mg/L		10		A2540 C	11/15/18 13:07 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	11/16/18 11:57 / SRW
Chloride	2	mg/L		1		E300.0	11/19/18 21:16 / SRW
Sulfate	9	mg/L		1		E300.0	11/19/18 21:16 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	11/16/18 11:35 / SRW
Hardness as CaCO3	212	mg/L		1		A2340 B	11/18/18 10:40 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.44	mg/L		0.01		E353.2	11/19/18 15:12 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/16/18 17:45 / sld
Antimony	ND	mg/L		0.0005		E200.8	11/16/18 17:45 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/16/18 17:45 / sld
Barium	0.262	mg/L		0.003		E200.8	11/16/18 17:45 / sld
Beryllium	ND	mg/L		0.0008		E200.8	11/16/18 17:45 / sld
Cadmium	ND	mg/L		0.00003		E200.8	11/16/18 17:45 / sld
Calcium	45	mg/L		1		E200.7	11/17/18 02:17 / sld
Chromium	ND	mg/L		0.01		E200.8	11/16/18 17:45 / sld
Cobalt	ND	mg/L		0.01		E200.8	11/16/18 17:45 / sld
Copper	ND	mg/L		0.002		E200.8	11/16/18 17:45 / sld
Iron	ND	mg/L		0.02		E200.8	11/16/18 17:45 / sld
Lead	ND	mg/L		0.0003		E200.8	11/16/18 17:45 / sld
Magnesium	25	mg/L		1		E200.7	11/17/18 02:17 / sld
Manganese	ND	mg/L		0.005		E200.8	11/16/18 17:45 / sld
Mercury	ND	mg/L		5E-06		E245.1	11/21/18 16:29 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/16/18 17:45 / sld
Nickel	ND	mg/L		0.001		E200.8	11/16/18 17:45 / sld
Potassium	ND	mg/L		1		E200.7	11/17/18 02:17 / sld
Selenium	0.0011	mg/L		0.0002		E200.8	11/16/18 17:45 / sld
Silver	ND	mg/L		0.0002		E200.8	11/16/18 17:45 / sld
Sodium	2	mg/L		1		E200.7	11/17/18 02:17 / sld
Strontium	0.110	mg/L		0.0002		E200.8	11/16/18 17:45 / sld
Thallium	ND	mg/L		0.0002		E200.8	11/16/18 17:45 / sld
Uranium	0.0008	mg/L		0.0002		E200.8	11/16/18 17:45 / sld
Zinc	0.006	mg/L		0.002		E200.8	11/16/18 17:45 / sld

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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R139956
Lab ID: MBLK		Method Blank								Run: PHSC_101-H_181116A 11/16/18 09:01
Alkalinity, Total as CaCO3		ND	mg/L	2						
Lab ID: LCS		Laboratory Control Sample								Run: PHSC_101-H_181116A 11/16/18 09:07
Alkalinity, Total as CaCO3		600	mg/L	4.0	100	90	110			
Lab ID: H18110343-002ADUP		Sample Duplicate								Run: PHSC_101-H_181116A 11/16/18 10:29
Alkalinity, Total as CaCO3		290	mg/L	4.0				0.3	10	
Lab ID: H18110357-003ADUP		Sample Duplicate								Run: PHSC_101-H_181116A 11/16/18 12:24
Alkalinity, Total as CaCO3		260	mg/L	4.0				0.7	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C								Batch: TDS181115A		
Lab ID: MB-1_181115A		Method Blank						Run: ACCU-124 (14410200)_18111	11/15/18 11:27	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-2_181115A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18111	11/15/18 11:27	
Solids, Total Dissolved TDS @ 180 C		2010	mg/L	20	101	90	110			
Lab ID: H18110342-001A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18111	11/15/18 11:27	
Solids, Total Dissolved TDS @ 180 C		1350	mg/L	10				0.0	5	
Lab ID: H18110350-011A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18111	11/15/18 13:07	
Solids, Total Dissolved TDS @ 180 C		212	mg/L	10				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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D								Batch: TSS181115A		
Lab ID: MB-1_181115A		Method Blank						Run: ACCU-124 (14410200)_18111		11/15/18 11:31
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
Lab ID: LCS-2_181115A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18111		11/15/18 11:32
Solids, Total Suspended TSS @ 105 C		88.0	mg/L	10	88	80	120			
Lab ID: H18110339-001ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18111		11/15/18 11:32
Solids, Total Suspended TSS @ 105 C		3.60	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.										
Lab ID: H18110350-011ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18111		11/15/18 14:01
Solids, Total Suspended TSS @ 105 C		1.00	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: A4500-F C										Analytical Run: MANTECH 2_181116A	
Lab ID: ICV		Initial Calibration Verification Standard								11/16/18 09:39	
Fluoride		0.8	mg/L	0.1	100	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard								11/16/18 10:57	
Fluoride		1.0	mg/L	0.1	104	90	110				
Method: A4500-F C										Batch: R139977	
Lab ID: MBLK		Method Blank								Run: MANTECH 2_181116A	11/16/18 09:45
Fluoride		0.03	mg/L	0.003							
Lab ID: H18110342-001AMS		Sample Matrix Spike								Run: MANTECH 2_181116A	11/16/18 09:56
Fluoride		1.4	mg/L	0.1	101	85	115				
Lab ID: H18110342-002ADUP		Sample Duplicate								Run: MANTECH 2_181116A	11/16/18 10:07
Fluoride		0.4	mg/L	0.1				0.0	10		
Lab ID: H18110350-007ADUP		Sample Duplicate								Run: MANTECH 2_181116A	11/16/18 11:13
Fluoride		0.5	mg/L	0.1				0.0	10		
Lab ID: H18110357-006AMS		Sample Matrix Spike								Run: MANTECH 2_181116A	11/16/18 12:25
Fluoride		1.4	mg/L	0.1	107	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: ICP2-HE_181116A		
Lab ID: ICV	6	Initial Calibration Verification Standard								11/16/18 13:16
Calcium		38.7	mg/L	1.0	97	95	105			
Iron		3.92	mg/L	0.020	98	95	105			
Magnesium		38.9	mg/L	1.0	97	95	105			
Potassium		41.3	mg/L	1.0	103	95	105			
Sodium		41.9	mg/L	1.0	105	95	105			
Strontium		0.781	mg/L	0.10	98	95	105			
Lab ID: CCV-1	6	Continuing Calibration Verification Standard								11/16/18 13:25
Calcium		25.6	mg/L	1.0	102	95	105			
Iron		2.50	mg/L	0.020	100	95	105			
Magnesium		25.3	mg/L	1.0	101	95	105			
Potassium		25.0	mg/L	1.0	100	95	105			
Sodium		24.7	mg/L	1.0	99	95	105			
Strontium		2.42	mg/L	0.10	97	95	105			
Lab ID: ICSA	6	Interference Check Sample A								11/16/18 13:39
Calcium		461	mg/L	1.0	92	80	120			
Iron		181	mg/L	0.020	90	80	120			
Magnesium		513	mg/L	1.0	103	80	120			
Potassium		-0.00526	mg/L	1.0		0	0			
Sodium		0.0234	mg/L	1.0		0	0			
Strontium		-0.0272	mg/L	0.10		0	0			
Lab ID: ICSAB	6	Interference Check Sample AB								11/16/18 13:43
Calcium		476	mg/L	1.0	95	80	120			
Iron		184	mg/L	0.020	92	80	120			
Magnesium		528	mg/L	1.0	106	80	120			
Potassium		20.5	mg/L	1.0	103	80	120			
Sodium		20.7	mg/L	1.0	103	80	120			
Strontium		0.977	mg/L	0.10	98	80	120			
Lab ID: CCV	6	Continuing Calibration Verification Standard								11/17/18 00:50
Calcium		26.3	mg/L	1.0	105	90	110			
Iron		2.57	mg/L	0.020	103	90	110			
Magnesium		26.2	mg/L	1.0	105	90	110			
Potassium		25.8	mg/L	1.0	103	90	110			
Sodium		25.5	mg/L	1.0	102	90	110			
Strontium		2.46	mg/L	0.10	99	90	110			
Lab ID: CCV	6	Continuing Calibration Verification Standard								11/17/18 02:02
Calcium		25.9	mg/L	1.0	104	90	110			
Iron		2.55	mg/L	0.020	102	90	110			
Magnesium		25.2	mg/L	1.0	101	90	110			
Potassium		25.1	mg/L	1.0	100	90	110			
Sodium		24.8	mg/L	1.0	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.7 Analytical Run: ICP2-HE_181116A											
Lab ID: CCV	6	Continuing Calibration Verification Standard									11/17/18 02:02
Strontium		2.51	mg/L	0.10	101	90	110				
Method: E200.7 Batch: R139988											
Lab ID: MB	6	Method Blank									11/16/18 13:55
Calcium		0.07	mg/L	0.07							
Iron		ND	mg/L	0.01							
Magnesium		0.02	mg/L	0.01							
Potassium		ND	mg/L	0.06							
Sodium		ND	mg/L	0.02							
Strontium		ND	mg/L	0.0002							
Lab ID: LFB	6	Laboratory Fortified Blank									11/16/18 13:59
Calcium		49.5	mg/L	1.0	99	85	115				
Iron		5.02	mg/L	0.020	100	85	115				
Magnesium		49.7	mg/L	1.0	99	85	115				
Potassium		52.8	mg/L	1.0	106	85	115				
Sodium		53.7	mg/L	1.0	107	85	115				
Strontium		1.01	mg/L	0.10	101	85	115				
Lab ID: H18110343-002BMS2	6	Sample Matrix Spike									11/17/18 01:01
Calcium		223	mg/L	1.0	144	70	130			S	
Iron		5.12	mg/L	0.020	102	70	130				
Magnesium		151	mg/L	1.0	132	70	130			S	
Potassium		53.2	mg/L	1.0	102	70	130				
Sodium		118	mg/L	1.0	112	70	130				
Strontium		2.11	mg/L	0.010	111	70	130				
Lab ID: H18110343-002BMSD	6	Sample Matrix Spike Duplicate									11/17/18 01:05
Calcium		235	mg/L	1.0	168	70	130	5.3	20	S	
Iron		5.09	mg/L	0.020	102	70	130	0.4	20		
Magnesium		156	mg/L	1.0	143	70	130	3.6	20	S	
Potassium		54.9	mg/L	1.0	105	70	130	3.1	20		
Sodium		127	mg/L	1.0	131	70	130	7.6	20	S	
Strontium		2.23	mg/L	0.010	123	70	130	5.4	20		
Lab ID: H18110350-011BMS2	6	Sample Matrix Spike									11/17/18 02:25
Calcium		96.2	mg/L	1.0	103	70	130				
Iron		5.13	mg/L	0.020	103	70	130				
Magnesium		77.3	mg/L	1.0	106	70	130				
Potassium		50.1	mg/L	1.0	99	70	130				
Sodium		50.5	mg/L	1.0	98	70	130				
Strontium		1.09	mg/L	0.010	99	70	130				
Lab ID: H18110350-011BMSD	6	Sample Matrix Spike Duplicate									11/17/18 02:28
Calcium		94.3	mg/L	1.0	100	70	130	2.0	20		
Iron		5.07	mg/L	0.020	101	70	130	1.1	20		

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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.7										Batch: R139988	
Lab ID: H18110350-011BMSD	6	Sample Matrix Spike Duplicate			Run: ICP2-HE_181116A				11/17/18 02:28		
Magnesium		76.2	mg/L	1.0	103	70	130	1.5	20		
Potassium		49.8	mg/L	1.0	98	70	130	0.6	20		
Sodium		50.4	mg/L	1.0	98	70	130	0.2	20		
Strontium		1.09	mg/L	0.010	98	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: ICP2-HE_181118C		
Lab ID: ICV	5	Initial Calibration Verification Standard								11/18/18 17:45
Calcium		38.1	mg/L	1.0	95	95	105			
Magnesium		38.3	mg/L	1.0	96	95	105			
Potassium		40.7	mg/L	1.0	102	95	105			
Sodium		41.1	mg/L	1.0	103	95	105			
Strontium		0.793	mg/L	0.10	99	95	105			
Lab ID: CCV-1	5	Continuing Calibration Verification Standard								11/18/18 17:49
Calcium		24.3	mg/L	1.0	97	95	105			
Magnesium		24.0	mg/L	1.0	96	95	105			
Potassium		24.5	mg/L	1.0	98	95	105			
Sodium		24.6	mg/L	1.0	98	95	105			
Strontium		2.48	mg/L	0.10	99	95	105			
Lab ID: ICSA	5	Interference Check Sample A								11/18/18 18:01
Calcium		448	mg/L	1.0	90	80	120			
Magnesium		499	mg/L	1.0	100	80	120			
Potassium		-0.00592	mg/L	1.0		0	0			
Sodium		0.0305	mg/L	1.0		0	0			
Strontium		-0.0263	mg/L	0.10		0	0			
Lab ID: ICSAB	5	Interference Check Sample AB								11/18/18 18:04
Calcium		462	mg/L	1.0	92	80	120			
Magnesium		510	mg/L	1.0	102	80	120			
Potassium		19.6	mg/L	1.0	98	80	120			
Sodium		19.6	mg/L	1.0	98	80	120			
Strontium		0.971	mg/L	0.10	97	80	120			
Lab ID: CCV	5	Continuing Calibration Verification Standard								11/18/18 20:06
Calcium		23.3	mg/L	1.0	93	90	110			
Magnesium		22.5	mg/L	1.0	90	90	110			
Potassium		23.9	mg/L	1.0	96	90	110			
Sodium		24.2	mg/L	1.0	97	90	110			
Strontium		2.39	mg/L	0.10	95	90	110			
Method: E200.7								Batch: R139995		
Lab ID: MB	5	Method Blank						Run: ICP2-HE_181118C		11/18/18 18:16
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					
Strontium		ND	mg/L		0.0002					
Lab ID: LFB	5	Laboratory Fortified Blank						Run: ICP2-HE_181118C		11/18/18 18:20
Calcium		48.1	mg/L	1.0	96	85	115			
Magnesium		48.4	mg/L	1.0	97	85	115			
Potassium		50.1	mg/L	1.0	100	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7 Batch: R139995										
Lab ID: LFB	5	Laboratory Fortified Blank								
										Run: ICP2-HE_181118C 11/18/18 18:20
Sodium		50.5	mg/L	1.0	101	85	115			
Strontium		0.992	mg/L	0.10	99	85	115			
Lab ID: H18110350-001BMS2	5	Sample Matrix Spike								
										Run: ICP2-HE_181118C 11/18/18 20:29
Calcium		118	mg/L	1.0	92	70	130			
Magnesium		90.1	mg/L	1.0	90	70	130			
Potassium		49.8	mg/L	1.0	93	70	130			
Sodium		60.5	mg/L	1.0	93	70	130			
Strontium		13.2	mg/L	0.010		70	130			A
Lab ID: H18110350-001BMSD	5	Sample Matrix Spike Duplicate								
										Run: ICP2-HE_181118C 11/18/18 20:33
Calcium		115	mg/L	1.0	88	70	130	1.8	20	
Magnesium		90.9	mg/L	1.0	91	70	130	0.9	20	
Potassium		51.5	mg/L	1.0	97	70	130	3.3	20	
Sodium		62.9	mg/L	1.0	98	70	130	4.0	20	
Strontium		13.2	mg/L	0.010		70	130	0.2	20	A
Method: E200.7 Analytical Run: ICP2-HE_181126A										
Lab ID: ICV		Initial Calibration Verification Standard								11/26/18 09:12
Calcium		41.2	mg/L	1.0	103	95	105			
Lab ID: CCV-1		Continuing Calibration Verification Standard								11/26/18 09:15
Calcium		26.3	mg/L	1.0	105	95	105			
Lab ID: ICSA		Interference Check Sample A								11/26/18 09:32
Calcium		472	mg/L	1.0	94	80	120			
Lab ID: ICSAB		Interference Check Sample AB								11/26/18 09:36
Calcium		472	mg/L	1.0	94	80	120			
Lab ID: CCV		Continuing Calibration Verification Standard								11/26/18 10:03
Calcium		24.1	mg/L	1.0	97	90	110			
Method: E200.7 Batch: R140115										
Lab ID: MB		Method Blank								Run: ICP2-HE_181126A 11/26/18 10:22
Calcium		0.1	mg/L	0.07						
Lab ID: LFB		Laboratory Fortified Blank								Run: ICP2-HE_181126A 11/26/18 10:26
Calcium		53.0	mg/L	1.0	106	85	115			
Lab ID: H18110443-001AMS2		Sample Matrix Spike								Run: ICP2-HE_181126A 11/26/18 10:37
Calcium		64.3	mg/L	1.0	101	70	130			
Lab ID: H18110443-001AMSD		Sample Matrix Spike Duplicate								Run: ICP2-HE_181126A 11/26/18 10:41
Calcium		65.8	mg/L	1.0	104	70	130	2.4	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8								Analytical Run: ICPMS205-H_181116D			
Lab ID: ICV	21	Initial Calibration Verification Standard						11/16/18 16:11			
Aluminum		0.305	mg/L	0.10	102	90	110				
Antimony		0.0635	mg/L	0.050	106	90	110				
Arsenic		0.0616	mg/L	0.0050	103	90	110				
Barium		0.0615	mg/L	0.10	103	90	110				
Beryllium		0.0308	mg/L	0.0010	103	90	110				
Cadmium		0.0315	mg/L	0.0010	105	90	110				
Chromium		0.0617	mg/L	0.010	103	90	110				
Cobalt		0.0620	mg/L	0.010	103	90	110				
Copper		0.0630	mg/L	0.010	105	90	110				
Iron		0.324	mg/L	0.020	108	90	110				
Lead		0.0614	mg/L	0.010	102	90	110				
Magnesium		3.16	mg/L	0.50	105	90	110				
Manganese		0.318	mg/L	0.010	106	90	110				
Molybdenum		0.0612	mg/L	0.0050	102	90	110				
Nickel		0.0630	mg/L	0.010	105	90	110				
Selenium		0.0616	mg/L	0.0050	103	90	110				
Silver		0.0315	mg/L	0.0050	105	90	110				
Strontium		0.0603	mg/L	0.10	101	90	110				
Thallium		0.0631	mg/L	0.10	105	90	110				
Uranium		0.0606	mg/L	0.00030	101	90	110				
Zinc		0.0640	mg/L	0.010	107	90	110				
Lab ID: ICSA	21	Interference Check Sample A						11/16/18 16:13			
Aluminum		42.0	mg/L	0.10	105	70	130				
Antimony		0.000206	mg/L	0.050							
Arsenic		6.89E-05	mg/L	0.0050							
Barium		6.86E-05	mg/L	0.10							
Beryllium		1.66E-05	mg/L	0.0010							
Cadmium		0.000165	mg/L	0.0010							
Chromium		0.00122	mg/L	0.010							
Cobalt		1.56E-05	mg/L	0.010							
Copper		0.000152	mg/L	0.010							
Iron		100	mg/L	0.020	100	70	130				
Lead		9.94E-05	mg/L	0.010							
Magnesium		40.6	mg/L	0.50	102	70	130				
Manganese		0.000182	mg/L	0.010							
Molybdenum		0.846	mg/L	0.0050	106	70	130				
Nickel		0.000111	mg/L	0.010							
Selenium		7.06E-05	mg/L	0.0050							
Silver		7.85E-05	mg/L	0.0050							
Strontium		0.00111	mg/L	0.10							
Thallium		7.98E-05	mg/L	0.10							
Uranium		1.56E-05	mg/L	0.00030							
Zinc		0.000343	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8								Analytical Run: ICPMS205-H_181116D			
Lab ID: ICSA	21	Interference Check Sample A									11/16/18 16:13
Lab ID: ICSAB	21	Interference Check Sample AB									11/16/18 16:15
Aluminum		41.9	mg/L	0.10	105	70	130				
Antimony		0.000106	mg/L	0.050		0	0				
Arsenic		0.0104	mg/L	0.0050	104	70	130				
Barium		4.87E-05	mg/L	0.10		0	0				
Beryllium		1.86E-05	mg/L	0.0010		0	0				
Cadmium		0.0103	mg/L	0.0010	103	70	130				
Chromium		0.0213	mg/L	0.010	106	70	130				
Cobalt		0.0200	mg/L	0.010	100	70	130				
Copper		0.0199	mg/L	0.010	100	70	130				
Iron		99.6	mg/L	0.020	100	70	130				
Lead		8.26E-05	mg/L	0.010		0	0				
Magnesium		41.4	mg/L	0.50	103	70	130				
Manganese		0.0208	mg/L	0.010	104	70	130				
Molybdenum		0.870	mg/L	0.0050	109	70	130				
Nickel		0.0201	mg/L	0.010	100	70	130				
Selenium		0.00938	mg/L	0.0050	94	70	130				
Silver		0.0206	mg/L	0.0050	103	70	130				
Strontium		0.00110	mg/L	0.10		0	0				
Thallium		6.54E-05	mg/L	0.10		0	0				
Uranium		6.01E-06	mg/L	0.00030		0	0				
Zinc		0.0103	mg/L	0.010	103	70	130				

Method: E200.8								Batch: R139987			
Lab ID: LRB	21	Method Blank						Run: ICPMS205-H_181116D			11/16/18 16:26
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		ND	mg/L	0.002							
Lead		ND	mg/L	3E-05							
Magnesium		ND	mg/L	0.004							
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							

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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										
Batch: R139987										
Lab ID: LRB	21	Method Blank						Run: ICPMS205-H_181116D		11/16/18 16:26
Thallium		ND	mg/L	1E-05						
Uranium		ND	mg/L	1E-05						
Zinc		ND	mg/L	0.0003						
Lab ID: LFB	21	Laboratory Fortified Blank						Run: ICPMS205-H_181116D		11/16/18 16:28
Aluminum		0.0510	mg/L	0.10	102	85	115			
Antimony		0.0532	mg/L	0.050	106	85	115			
Arsenic		0.0520	mg/L	0.0050	104	85	115			
Barium		0.0516	mg/L	0.10	103	85	115			
Beryllium		0.0481	mg/L	0.0010	96	85	115			
Cadmium		0.0523	mg/L	0.0010	105	85	115			
Chromium		0.0510	mg/L	0.010	102	85	115			
Cobalt		0.0506	mg/L	0.010	101	85	115			
Copper		0.0518	mg/L	0.010	104	85	115			
Iron		0.154	mg/L	0.020	102	85	115			
Lead		0.0505	mg/L	0.010	101	85	115			
Magnesium		1.01	mg/L	0.50	101	85	115			
Manganese		0.0519	mg/L	0.010	104	85	115			
Molybdenum		0.0504	mg/L	0.0050	101	85	115			
Nickel		0.0525	mg/L	0.010	105	85	115			
Selenium		0.0498	mg/L	0.0050	100	85	115			
Silver		0.0213	mg/L	0.0050	106	85	115			
Strontium		0.0512	mg/L	0.10	102	85	115			
Thallium		0.0517	mg/L	0.10	103	85	115			
Uranium		0.0509	mg/L	0.00030	102	85	115			
Zinc		0.0529	mg/L	0.010	106	85	115			
Lab ID: H18110289-001DMS	21	Sample Matrix Spike						Run: ICPMS205-H_181116D		11/16/18 16:41
Aluminum		0.0515	mg/L	0.030	103	70	130			
Antimony		0.0561	mg/L	0.0010	112	70	130			
Arsenic		0.0535	mg/L	0.0010	106	70	130			
Barium		0.118	mg/L	0.050	113	70	130			
Beryllium		0.0492	mg/L	0.0010	98	70	130			
Cadmium		0.0541	mg/L	0.0010	108	70	130			
Chromium		0.0518	mg/L	0.0050	104	70	130			
Cobalt		0.0509	mg/L	0.0050	102	70	130			
Copper		0.0715	mg/L	0.0050	104	70	130			
Iron		0.177	mg/L	0.020	103	70	130			
Lead		0.0502	mg/L	0.0010	100	70	130			
Magnesium		13.7	mg/L	1.0		70	130			A
Manganese		0.0565	mg/L	0.0010	105	70	130			
Molybdenum		0.0584	mg/L	0.0010	107	70	130			
Nickel		0.0519	mg/L	0.0050	103	70	130			
Selenium		0.0507	mg/L	0.0010	101	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: R139987										
Lab ID:	H18110289-001DMS	21	Sample Matrix Spike							
						Run: ICPMS205-H_181116D				11/16/18 16:41
Silver		0.0216	mg/L	0.0010	108	70	130			
Strontium		0.498	mg/L	0.010		70	130			A
Thallium		0.0514	mg/L	0.00050	103	70	130			
Uranium		0.0654	mg/L	0.00030	103	70	130			
Zinc		0.0594	mg/L	0.010	106	70	130			
Lab ID:	H18110289-001DMSD	21	Sample Matrix Spike Duplicate							
						Run: ICPMS205-H_181116D				11/16/18 16:43
Aluminum		0.0508	mg/L	0.030	102	70	130	1.4	20	
Antimony		0.0537	mg/L	0.0010	107	70	130	4.4	20	
Arsenic		0.0515	mg/L	0.0010	102	70	130	3.8	20	
Barium		0.113	mg/L	0.050	104	70	130	3.6	20	
Beryllium		0.0484	mg/L	0.0010	97	70	130	1.6	20	
Cadmium		0.0522	mg/L	0.0010	104	70	130	3.4	20	
Chromium		0.0498	mg/L	0.0050	100	70	130	4.0	20	
Cobalt		0.0496	mg/L	0.0050	99	70	130	2.7	20	
Copper		0.0688	mg/L	0.0050	99	70	130	3.7	20	
Iron		0.171	mg/L	0.020	99	70	130	3.3	20	
Lead		0.0502	mg/L	0.0010	100	70	130	0.1	20	
Magnesium		13.4	mg/L	1.0		70	130	2.3	20	A
Manganese		0.0548	mg/L	0.0010	102	70	130	3.1	20	
Molybdenum		0.0559	mg/L	0.0010	102	70	130	4.5	20	
Nickel		0.0505	mg/L	0.0050	100	70	130	2.9	20	
Selenium		0.0508	mg/L	0.0010	101	70	130	0.3	20	
Silver		0.0210	mg/L	0.0010	105	70	130	3.0	20	
Strontium		0.472	mg/L	0.010		70	130	5.5	20	A
Thallium		0.0517	mg/L	0.00050	103	70	130	0.6	20	
Uranium		0.0660	mg/L	0.00030	104	70	130	0.9	20	
Zinc		0.0568	mg/L	0.010	100	70	130	4.5	20	
Lab ID:	H18110350-003BMS	21	Sample Matrix Spike							
						Run: ICPMS205-H_181116D				11/16/18 17:34
Aluminum		0.0518	mg/L	0.030	104	70	130			
Antimony		0.0517	mg/L	0.0010	103	70	130			
Arsenic		0.0537	mg/L	0.0010	107	70	130			
Barium		0.132	mg/L	0.050	101	70	130			
Beryllium		0.0485	mg/L	0.0010	97	70	130			
Cadmium		0.0506	mg/L	0.0010	101	70	130			
Chromium		0.0507	mg/L	0.0050	101	70	130			
Cobalt		0.0497	mg/L	0.0050	99	70	130			
Copper		0.0500	mg/L	0.0050	100	70	130			
Iron		0.156	mg/L	0.020	99	70	130			
Lead		0.0513	mg/L	0.0010	102	70	130			
Magnesium		24.3	mg/L	1.0		70	130			A
Manganese		0.0523	mg/L	0.0010	103	70	130			
Molybdenum		0.0496	mg/L	0.0010	99	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										
Batch: R139987										
Lab ID:	H18110350-003BMS	21	Sample Matrix Spike							
										Run: ICPMS205-H_181116D 11/16/18 17:34
Nickel		0.0506	mg/L	0.0050	100	70	130			
Selenium		0.0573	mg/L	0.0010	112	70	130			
Silver		0.0203	mg/L	0.0010	102	70	130			
Strontium		0.141	mg/L	0.010	102	70	130			
Thallium		0.0529	mg/L	0.00050	105	70	130			
Uranium		0.0526	mg/L	0.00030	104	70	130			
Zinc		0.0516	mg/L	0.010	102	70	130			
Lab ID:	H18110350-003BMSD	21	Sample Matrix Spike Duplicate							
										Run: ICPMS205-H_181116D 11/16/18 17:36
Aluminum		0.0521	mg/L	0.030	104	70	130	0.6	20	
Antimony		0.0524	mg/L	0.0010	105	70	130	1.5	20	
Arsenic		0.0538	mg/L	0.0010	107	70	130	0.1	20	
Barium		0.133	mg/L	0.050	103	70	130	0.8	20	
Beryllium		0.0479	mg/L	0.0010	96	70	130	1.2	20	
Cadmium		0.0512	mg/L	0.0010	102	70	130	1.2	20	
Chromium		0.0505	mg/L	0.0050	100	70	130	0.4	20	
Cobalt		0.0494	mg/L	0.0050	99	70	130	0.7	20	
Copper		0.0500	mg/L	0.0050	100	70	130	0.0	20	
Iron		0.157	mg/L	0.020	100	70	130	0.5	20	
Lead		0.0502	mg/L	0.0010	100	70	130	2.3	20	
Magnesium		24.5	mg/L	1.0		70	130	0.7	20	A
Manganese		0.0523	mg/L	0.0010	103	70	130	0.0	20	
Molybdenum		0.0502	mg/L	0.0010	100	70	130	1.1	20	
Nickel		0.0507	mg/L	0.0050	100	70	130	0.2	20	
Selenium		0.0580	mg/L	0.0010	114	70	130	1.2	20	
Silver		0.0205	mg/L	0.0010	103	70	130	1.1	20	
Strontium		0.140	mg/L	0.010	98	70	130	1.2	20	
Thallium		0.0518	mg/L	0.00050	103	70	130	2.2	20	
Uranium		0.0505	mg/L	0.00030	100	70	130	4.1	20	
Zinc		0.0518	mg/L	0.010	102	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E245.1										Analytical Run: HGCV202-H_181121A	
Lab ID: ICV		Initial Calibration Verification Standard								11/21/18 14:32	
Mercury		9.75E-05	mg/L	5.0E-06	98	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard								11/21/18 16:22	
Mercury		0.000103	mg/L	5.0E-06	103	90	110				
Method: E245.1										Batch: 43871	
Lab ID: MB-43871		Method Blank								Run: HGCV202-H_181121A	11/21/18 14:56
Mercury		ND	mg/L	1E-06							
Lab ID: LCS-43871		Laboratory Control Sample								Run: HGCV202-H_181121A	11/21/18 14:59
Mercury		5.00E-05	mg/L	5.0E-06	100	90	110				
Lab ID: H18110343-002CMS		Sample Matrix Spike								Run: HGCV202-H_181121A	11/21/18 15:37
Mercury		5.91E-05	mg/L	5.0E-06	104	70	130				
Lab ID: H18110343-002CMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181121A	11/21/18 15:40
Mercury		5.94E-05	mg/L	5.0E-06	105	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E300.0		Analytical Run: IC METROHM_181119A									
Lab ID: ICV	2	Initial Calibration Verification Standard								11/19/18 09:37	
Chloride		104	mg/L	1.0	104	90	110				
Sulfate		400	mg/L	1.0	100	90	110				
Lab ID: CCV	2	Continuing Calibration Verification Standard								11/19/18 10:19	
Chloride		54.2	mg/L	1.0	108	90	110				
Sulfate		213	mg/L	1.0	107	90	110				
Lab ID: CCV	2	Continuing Calibration Verification Standard								11/19/18 18:55	
Chloride		50.3	mg/L	1.0	101	90	110				
Sulfate		202	mg/L	1.0	101	90	110				
Method: E300.0		Batch: R140032									
Lab ID: ICB	2	Method Blank								Run: IC METROHM_181119A	11/19/18 09:23
Chloride		ND	mg/L	0.009							
Sulfate		ND	mg/L	0.01							
Lab ID: LFB	2	Laboratory Fortified Blank								Run: IC METROHM_181119A	11/19/18 09:51
Chloride		25.6	mg/L	1.0	103	90	110				
Sulfate		104	mg/L	1.0	104	90	110				
Lab ID: H18110357-001AMS	2	Sample Matrix Spike								Run: IC METROHM_181119A	11/19/18 13:22
Chloride		31.4	mg/L	1.0	98	90	110				
Sulfate		147	mg/L	1.0	94	90	110				
Lab ID: H18110357-001AMSD	2	Sample Matrix Spike Duplicate								Run: IC METROHM_181119A	11/19/18 13:36
Chloride		30.1	mg/L	1.0	93	90	110	4.2	20		
Sulfate		141	mg/L	1.0	89	90	110	3.7	20	S	
Lab ID: H18110350-002AMS	2	Sample Matrix Spike								Run: IC METROHM_181119A	11/19/18 21:58
Chloride		26.8	mg/L	1.0	102	90	110				
Sulfate		300	mg/L	1.0	100	90	110				
Lab ID: H18110350-002AMSD	2	Sample Matrix Spike Duplicate								Run: IC METROHM_181119A	11/19/18 22:12
Chloride		26.7	mg/L	1.0	102	90	110	0.3	20		
Sulfate		302	mg/L	1.0	102	90	110	0.5	20		

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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Project

Work Order: H18110350

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-HE_181119B		
Lab ID: ICV		Initial Calibration Verification Standard								11/19/18 13:14
Nitrogen, Nitrate+Nitrite as N		0.976	mg/L	0.010	98	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								11/19/18 14:40
Nitrogen, Nitrate+Nitrite as N		0.479	mg/L	0.010	96	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								11/19/18 14:57
Nitrogen, Nitrate+Nitrite as N		0.474	mg/L	0.010	95	90	110			
Method: E353.2								Batch: R140025		
Lab ID: MBLK		Method Blank								Run: FIA203-HE_181119B 11/19/18 13:15
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009						
Lab ID: LFB		Laboratory Fortified Blank								Run: FIA203-HE_181119B 11/19/18 13:16
Nitrogen, Nitrate+Nitrite as N		0.938	mg/L	0.011	94	90	110			
Lab ID: H18110350-003CMS		Sample Matrix Spike								Run: FIA203-HE_181119B 11/19/18 15:00
Nitrogen, Nitrate+Nitrite as N		1.16	mg/L	0.011	95	90	110			
Lab ID: H18110350-003CMSD		Sample Matrix Spike Duplicate								Run: FIA203-HE_181119B 11/19/18 15:02
Nitrogen, Nitrate+Nitrite as N		1.15	mg/L	0.011	94	90	110	1.0	10	
Lab ID: H18110358-002EMS		Sample Matrix Spike								Run: FIA203-HE_181119B 11/19/18 15:18
Nitrogen, Nitrate+Nitrite as N		1.19	mg/L	0.011	97	90	110			
Lab ID: H18110358-002EMSD		Sample Matrix Spike Duplicate								Run: FIA203-HE_181119B 11/19/18 15:20
Nitrogen, Nitrate+Nitrite as N		1.20	mg/L	0.011	97	90	110	0.6	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



Work Order Receipt Checklist

Tintina Resources Inc

H18110350

Login completed by: Jessica C. Smith

Date Received: 11/15/2018

Reviewed by: BL2000\rtooke

Received by: RAT

Reviewed Date: 11/16/2018

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:	-0.8°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

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

Parameter	Analytical Method⁽¹⁾	Project-Required Detection Limit (mg/L)
Physical Parameters		
TDS	SM 2540C	10
TSS	SM 2540C	10
Common Ions		
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
Nutrients		
Nitrate+Nitrite as N	353.2	0.01
Trace Constituents (Dissolved)⁽²⁾		
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
Field Parameters		
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. PROJECT NAME

10418 Tintina Black B.H.

SAMPLERS: (Signature)

[Signature]

DATE	TIME	COMP	GRAB	SAMPLE NUMBER
------	------	------	------	---------------

11/3/18	11:10		X	1336-1811-201
	1255			202
	1425			203
	1430			204
	1605			205
	1640			206
	1720			207
	1740			208
11/4/18	0915			209
	0940			210
	1050			211

NO. OF CON-TAINERS

3

- Commons UF / RAW
- Nutrients UF / H₂SO₄
- Diss. Metal F / HNO₃
- CN UF / NaOH
- Total Metals UF / HNO₃
- Total Recoverable Metals UF / HNO₃
- BTEX
- TPH

Table #5

REMARKS
H1810350

Relinquished (Signature)

[Signature]

Date / Time

11/5/18 10:15

Received by (Signature)

[Signature]

Lab

Energy Lab

P.O. #

13.11

Shipped via: Bus Fedex UPS

Other Air Bill #

Relinquished (Signature)

[Signature]

Date / Time

11/15/18

Received for Laboratory by (Signature)

[Signature]

Date / Time

11/15/18 10:15

Remarks: -0.8 TB on ice hand

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 _____



ANALYTICAL SUMMARY REPORT

December 05, 2018

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

Work Order: H18110401 Quote ID: H1216 - Surface and Groundwater Sampling

Project Name: 11048 Black Butte Copper Surface Water

Energy Laboratories Inc Helena MT received the following 1 sample for Tintina Resources Inc on 11/19/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18110401-001	BBC-1811-115	11/14/18 13:00	11/19/18	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

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.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:


Assistant Laboratory Manager-Helena, MT

Digitally signed by
Amanda B. Carlson
Date: 2018.12.05 16:30:10 -07:00



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 11048 Black Butte Copper Surface Water
Lab ID: H18110401-001
Client Sample ID: BBC-1811-115

Report Date: 12/05/18
Collection Date: 11/14/18 13:00
Date Received: 11/19/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	6	mg/L		4		A2540 D	11/20/18 09:58 / cmm
Solids, Total Dissolved TDS @ 180 C	225	mg/L	D	10		A2540 C	11/20/18 10:10 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	11/20/18 12:11 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 03:50 / SRW
Sulfate	16	mg/L		1		E300.0	11/20/18 03:50 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	11/20/18 11:12 / SRW
Hardness as CaCO3	224	mg/L		1		A2340 B	11/26/18 11:50 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.08	mg/L		0.01		E353.2	11/19/18 16:33 / kmd
Nitrogen, Total	0.16	mg/L		0.04		A4500 N-C	11/27/18 15:59 / kmd
Phosphorus, Total as P	0.015	mg/L		0.003		E365.1	11/29/18 14:44 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 19:09 / dck
Calcium	52	mg/L		1		E200.8	11/21/18 19:02 / dck
Magnesium	23	mg/L		1		E200.8	11/20/18 19:09 / dck
Potassium	1	mg/L		1		E200.8	11/20/18 19:09 / dck
Sodium	3	mg/L		1		E200.8	11/20/18 19:09 / dck
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/26/18 12:07 / sld
Arsenic	ND	mg/L		0.001		E200.8	11/21/18 18:04 / dck
Barium	0.134	mg/L		0.003		E200.8	11/21/18 18:04 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/21/18 18:04 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/21/18 18:04 / dck
Chromium	ND	mg/L		0.01		E200.8	11/21/18 18:04 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/21/18 18:04 / dck
Copper	ND	mg/L		0.002		E200.8	11/21/18 18:04 / dck
Iron	0.24	mg/L		0.02		E200.8	11/21/18 18:04 / dck
Lead	ND	mg/L		0.0003		E200.8	11/21/18 18:04 / dck
Manganese	0.019	mg/L		0.005		E200.8	11/21/18 18:04 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/26/18 16:52 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/21/18 18:04 / dck
Nickel	ND	mg/L		0.001		E200.8	11/21/18 18:04 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/26/18 12:07 / sld
Silver	ND	mg/L		0.0002		E200.8	11/21/18 18:04 / dck
Strontium	0.174	mg/L	D	0.0003		E200.8	11/21/18 18:04 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/21/18 18:04 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	11/21/18 18:04 / dck
Zinc	ND	mg/L		0.002		E200.8	11/26/18 12:07 / sld

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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R140028
Lab ID: MBLK		Method Blank								Run: PHSC_101-H_181120A
Alkalinity, Total as CaCO3		ND	mg/L	2						11/20/18 11:13
Lab ID: LCS		Laboratory Control Sample								Run: PHSC_101-H_181120A
Alkalinity, Total as CaCO3		590	mg/L	4.0	99	90	110			11/20/18 11:19
Lab ID: H18110350-002ADUP		Sample Duplicate								Run: PHSC_101-H_181120A
Alkalinity, Total as CaCO3		250	mg/L	4.0				1.3	10	11/20/18 12:03
Lab ID: H18110402-018ADUP		Sample Duplicate								Run: PHSC_101-H_181120A
Alkalinity, Total as CaCO3		220	mg/L	4.0				1.1	10	11/20/18 14:56

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
Project: 11048 Black Butte Copper Surface Water

Report Date: 12/05/18
Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C								Batch: TDS181120A		
Lab ID: MB-1_181120A		Method Blank						Run: ACCU-124 (14410200)_18112	11/20/18 10:02	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-2_181120A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18112	11/20/18 10:02	
Solids, Total Dissolved TDS @ 180 C		1920	mg/L	20	96	90	110			
Lab ID: H18110402-001A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18112	11/20/18 10:02	
Solids, Total Dissolved TDS @ 180 C		212	mg/L	10				3.7	5	
Lab ID: H18110402-011A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18112	11/20/18 10:04	
Solids, Total Dissolved TDS @ 180 C		223	mg/L	10				1.8	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D Batch: TSS181120A										
Lab ID: MB-1_181120A		Method Blank								
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						Run: ACCU-124 (14410200)_18112 11/20/18 09:50
Lab ID: LCS-2_181120A		Laboratory Control Sample								
Solids, Total Suspended TSS @ 105 C		89.0	mg/L	10	89	80	120			Run: ACCU-124 (14410200)_18112 11/20/18 09:50
Lab ID: H18110402-001ADUP		Sample Duplicate								
Solids, Total Suspended TSS @ 105 C		38.0	mg/L	10				0.0	5	Run: ACCU-124 (14410200)_18112 11/20/18 09:50
Lab ID: H18110402-011ADUP		Sample Duplicate								
Solids, Total Suspended TSS @ 105 C		1.000	mg/L	10					5	Run: ACCU-124 (14410200)_18112 11/20/18 09:53

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
Project: 11048 Black Butte Copper Surface Water

Report Date: 12/05/18
Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500 N-C								Analytical Run: FIA203-HE_181127B		
Lab ID: ICB	Initial Calibration Blank, Instrument Blank									
Nitrogen, Total		-0.00438	mg/L	0.10		0	0			11/27/18 15:53
Lab ID: CCV								Continuing Calibration Verification Standard		
Nitrogen, Total		0.484	mg/L	0.10	97	90	110			11/27/18 15:54
Method: A4500 N-C								Batch: 43929		
Lab ID: LFB	Laboratory Fortified Blank									
Nitrogen, Total		0.993	mg/L	0.10	99	90	110			11/27/18 15:55
Lab ID: MB-43929	Method Blank									
Nitrogen, Total		ND	mg/L	0.03						11/27/18 15:56
Lab ID: H18110401-001AMS	Sample Matrix Spike									
Nitrogen, Total		1.15	mg/L	0.10	99	90	110			11/27/18 16:00
Lab ID: LCS-43929	Laboratory Control Sample									
Nitrogen, Total		7.57	mg/L	0.30	102	90	110			11/27/18 16:01
Lab ID: H18110401-001AMSD	Sample Matrix Spike Duplicate									
Nitrogen, Total		1.12	mg/L	0.10	96	90	110	2.9	20	11/27/18 16:02

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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: A4500-F C								Analytical Run: MANTECH 2_181120A			
Lab ID: ICV	Initial Calibration Verification Standard										
Fluoride		0.8	mg/L	0.1	101	90	110			11/20/18 09:44	
Lab ID: CCV								Continuing Calibration Verification Standard			
Fluoride		1.0	mg/L	0.1	105	90	110			11/20/18 11:01	
Method: A4500-F C								Batch: R140044			
Lab ID: MBLK	Method Blank										
Fluoride		0.03	mg/L	0.003						Run: MANTECH 2_181120A 11/20/18 09:50	
Lab ID: H18110387-002BMS	Sample Matrix Spike										
Fluoride		1.4	mg/L	0.1	105	85	115			Run: MANTECH 2_181120A 11/20/18 10:00	
Lab ID: H18110387-004BDUP	Sample Duplicate										
Fluoride		0.4	mg/L	0.1				0.0	10	Run: MANTECH 2_181120A 11/20/18 10:17	
Lab ID: H18110401-001ADUP	Sample Duplicate										
Fluoride		0.1	mg/L	0.1				6.9	10	Run: MANTECH 2_181120A 11/20/18 11:18	

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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8								Analytical Run: ICPMS205-H_181120B			
Lab ID: ICV	4	Initial Calibration Verification Standard								11/20/18 17:30	
Aluminum		0.307	mg/L	0.10	102	90	110				
Magnesium		3.04	mg/L	0.50	101	90	110				
Potassium		2.98	mg/L	0.50	99	90	110				
Sodium		3.01	mg/L	0.50	100	90	110				
Lab ID: ICSA	4	Interference Check Sample A								11/20/18 17:32	
Aluminum		46.0	mg/L	0.10	115	70	130				
Magnesium		43.8	mg/L	0.50	109	70	130				
Potassium		44.1	mg/L	0.50	110	70	130				
Sodium		110	mg/L	0.50	110	70	130				
Lab ID: ICSAB	4	Interference Check Sample AB								11/20/18 17:34	
Aluminum		44.8	mg/L	0.10	112	70	130				
Magnesium		43.2	mg/L	0.50	108	70	130				
Potassium		44.4	mg/L	0.50	111	70	130				
Sodium		108	mg/L	0.50	108	70	130				
Method: E200.8								Batch: R140054			
Lab ID: LRB	4	Method Blank						Run: ICPMS205-H_181120B		11/20/18 17:43	
Aluminum		ND	mg/L	0.003							
Magnesium		ND	mg/L	0.004							
Potassium		ND	mg/L	0.010							
Sodium		ND	mg/L	0.01							
Lab ID: LFB	4	Laboratory Fortified Blank						Run: ICPMS205-H_181120B		11/20/18 17:45	
Aluminum		0.0507	mg/L	0.10	101	85	115				
Magnesium		0.968	mg/L	0.50	97	85	115				
Potassium		0.967	mg/L	0.50	97	85	115				
Sodium		0.976	mg/L	0.50	98	85	115				
Lab ID: H18110401-001BMS	4	Sample Matrix Spike						Run: ICPMS205-H_181120B		11/20/18 19:20	
Aluminum		0.0518	mg/L	0.030	104	70	130				
Magnesium		23.7	mg/L	1.0		70	130			A	
Potassium		1.96	mg/L	1.0	96	70	130				
Sodium		3.90	mg/L	1.0	93	70	130				
Lab ID: H18110401-001BMSD	4	Sample Matrix Spike Duplicate						Run: ICPMS205-H_181120B		11/20/18 19:22	
Aluminum		0.0533	mg/L	0.030	107	70	130	2.9	20		
Magnesium		24.6	mg/L	1.0		70	130	4.0	20	A	
Potassium		2.06	mg/L	1.0	106	70	130	5.2	20		
Sodium		3.98	mg/L	1.0	101	70	130	2.0	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_181121B		
Lab ID: ICV	17 Initial Calibration Verification Standard								11/21/18 11:58	
Arsenic		0.0623	mg/L	0.0050	104	90	110			
Barium		0.0615	mg/L	0.10	103	90	110			
Beryllium		0.0315	mg/L	0.0010	105	90	110			
Cadmium		0.0308	mg/L	0.0010	103	90	110			
Calcium		2.99	mg/L	0.50	100	90	110			
Chromium		0.0623	mg/L	0.010	104	90	110			
Cobalt		0.0622	mg/L	0.010	104	90	110			
Copper		0.0621	mg/L	0.010	104	90	110			
Iron		0.303	mg/L	0.020	101	90	110			
Lead		0.0621	mg/L	0.010	103	90	110			
Manganese		0.316	mg/L	0.010	106	90	110			
Molybdenum		0.0592	mg/L	0.0050	99	90	110			
Nickel		0.0638	mg/L	0.010	106	90	110			
Silver		0.0308	mg/L	0.0050	103	90	110			
Strontium		0.0618	mg/L	0.10	103	90	110			
Thallium		0.0631	mg/L	0.10	105	90	110			
Uranium		0.0624	mg/L	0.00030	104	90	110			
Lab ID: ICSA	17 Interference Check Sample A								11/21/18 12:00	
Arsenic		3.88E-05	mg/L	0.0050						
Barium		0.000342	mg/L	0.10						
Beryllium		-3.46E-07	mg/L	0.0010						
Cadmium		0.000189	mg/L	0.0010						
Calcium		127	mg/L	0.50	106	70	130			
Chromium		0.00131	mg/L	0.010						
Cobalt		1.34E-05	mg/L	0.010						
Copper		0.000248	mg/L	0.010						
Iron		108	mg/L	0.020	108	70	130			
Lead		1.64E-05	mg/L	0.010						
Manganese		0.000272	mg/L	0.010						
Molybdenum		0.885	mg/L	0.0050	111	70	130			
Nickel		0.000159	mg/L	0.010						
Silver		9.90E-05	mg/L	0.0050						
Strontium		0.00123	mg/L	0.10						
Thallium		5.41E-05	mg/L	0.10						
Uranium		1.48E-05	mg/L	0.00030						
Lab ID: ICSAB	17 Interference Check Sample AB								11/21/18 12:02	
Arsenic		0.0116	mg/L	0.0050	116	70	130			
Barium		5.79E-05	mg/L	0.10		0	0			
Beryllium		-3.17E-05	mg/L	0.0010		0	0			
Cadmium		0.0110	mg/L	0.0010	110	70	130			
Calcium		128	mg/L	0.50	107	70	130			
Chromium		0.0239	mg/L	0.010	120	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_181121B		
Lab ID: ICSAB	17 Interference Check Sample AB								11/21/18 12:02	
Cobalt		0.0222	mg/L	0.010	111	70	130			
Copper		0.0217	mg/L	0.010	108	70	130			
Iron		109	mg/L	0.020	109	70	130			
Lead		-7.44E-06	mg/L	0.010		0	0			
Manganese		0.0228	mg/L	0.010	114	70	130			
Molybdenum		0.902	mg/L	0.0050	113	70	130			
Nickel		0.0223	mg/L	0.010	112	70	130			
Silver		0.0219	mg/L	0.0050	109	70	130			
Strontium		0.00122	mg/L	0.10		0	0			
Thallium		4.08E-05	mg/L	0.10		0	0			
Uranium		3.12E-06	mg/L	0.00030		0	0			
Lab ID: ICV	17 Initial Calibration Verification Standard								11/21/18 16:40	
Arsenic		0.0618	mg/L	0.0050	103	90	110			
Barium		0.0625	mg/L	0.10	104	90	110			
Beryllium		0.0315	mg/L	0.0010	105	90	110			
Cadmium		0.0316	mg/L	0.0010	105	90	110			
Calcium		3.10	mg/L	0.50	103	90	110			
Chromium		0.0624	mg/L	0.010	104	90	110			
Cobalt		0.0625	mg/L	0.010	104	90	110			
Copper		0.0633	mg/L	0.010	105	90	110			
Iron		0.309	mg/L	0.020	103	90	110			
Lead		0.0620	mg/L	0.010	103	90	110			
Manganese		0.317	mg/L	0.010	106	90	110			
Molybdenum		0.0609	mg/L	0.0050	102	90	110			
Nickel		0.0627	mg/L	0.010	104	90	110			
Silver		0.0313	mg/L	0.0050	104	90	110			
Strontium		0.0617	mg/L	0.10	103	90	110			
Thallium		0.0624	mg/L	0.10	104	90	110			
Uranium		0.0612	mg/L	0.00030	102	90	110			
Lab ID: ICSA	17 Interference Check Sample A								11/21/18 16:42	
Arsenic		0.000128	mg/L	0.0050						
Barium		0.000348	mg/L	0.10						
Beryllium		2.63E-05	mg/L	0.0010						
Cadmium		0.000179	mg/L	0.0010						
Calcium		131	mg/L	0.50	109	70	130			
Chromium		0.00139	mg/L	0.010						
Cobalt		2.17E-05	mg/L	0.010						
Copper		0.000284	mg/L	0.010						
Iron		111	mg/L	0.020	111	70	130			
Lead		-1.97E-05	mg/L	0.010						
Manganese		0.000263	mg/L	0.010						
Molybdenum		0.934	mg/L	0.0050	117	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8										Analytical Run: ICPMS205-H_181121B	
Lab ID: ICSA	17	Interference Check Sample A							11/21/18 16:42		
Nickel		0.000165	mg/L	0.010							
Silver		0.000100	mg/L	0.0050							
Strontium		0.00125	mg/L	0.10							
Thallium		6.15E-05	mg/L	0.10							
Uranium		1.79E-05	mg/L	0.00030							
Lab ID: ICSAB	17	Interference Check Sample AB							11/21/18 16:44		
Arsenic		0.0115	mg/L	0.0050	115	70	130				
Barium		6.39E-05	mg/L	0.10		0	0				
Beryllium		1.35E-05	mg/L	0.0010		0	0				
Cadmium		0.0114	mg/L	0.0010	114	70	130				
Calcium		131	mg/L	0.50	109	70	130				
Chromium		0.0239	mg/L	0.010	120	70	130				
Cobalt		0.0226	mg/L	0.010	113	70	130				
Copper		0.0223	mg/L	0.010	111	70	130				
Iron		109	mg/L	0.020	109	70	130				
Lead		-4.29E-05	mg/L	0.010		0	0				
Manganese		0.0232	mg/L	0.010	116	70	130				
Molybdenum		0.951	mg/L	0.0050	119	70	130				
Nickel		0.0228	mg/L	0.010	114	70	130				
Silver		0.0226	mg/L	0.0050	113	70	130				
Strontium		0.00123	mg/L	0.10		0	0				
Thallium		5.07E-05	mg/L	0.10		0	0				
Uranium		4.71E-06	mg/L	0.00030		0	0				
Method: E200.8										Batch: 43868	
Lab ID: MB-43868	19	Method Blank							Run: ICPMS205-H_181121B		11/21/18 17:46
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		3E-05	mg/L	9E-06							
Strontium		ND	mg/L	0.0003							
Thallium		ND	mg/L	4E-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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: 43868										
Lab ID: MB-43868	19	Method Blank								
Uranium		ND	mg/L	9E-06						
Zinc		ND	mg/L	0.001						
Run: ICPMS205-H_181121B 11/21/18 17:46										
Lab ID: H18110399-001BMS3	19	Sample Matrix Spike								
Antimony		0.584	mg/L	0.0010	117	70	130			
Arsenic		0.514	mg/L	0.0010	103	70	130			
Barium		0.535	mg/L	0.050	107	70	130			
Beryllium		0.247	mg/L	0.0010	99	70	130			
Cadmium		0.251	mg/L	0.0010	101	70	130			
Chromium		0.527	mg/L	0.0050	105	70	130			
Cobalt		0.512	mg/L	0.0050	102	70	130			
Copper		0.511	mg/L	0.0050	102	70	130			
Iron		2.54	mg/L	0.020	101	70	130			
Lead		0.556	mg/L	0.0010	111	70	130			
Manganese		2.66	mg/L	0.0010	106	70	130			
Molybdenum		0.553	mg/L	0.0010	111	70	130			
Nickel		0.506	mg/L	0.0050	101	70	130			
Selenium		0.489	mg/L	0.0010	98	70	130			
Silver		0.0513	mg/L	0.0010	103	70	130			
Strontium		1.22	mg/L	0.010	96	70	130			
Thallium		0.543	mg/L	0.00050	109	70	130			
Uranium		0.537	mg/L	0.00030	107	70	130			
Zinc		0.498	mg/L	0.010	92	70	130			
Run: ICPMS205-H_181121B 11/21/18 18:07										
Lab ID: H18110399-001BMSD	19	Sample Matrix Spike Duplicate								
Antimony		0.584	mg/L	0.0010	117	70	130	0.1	20	
Arsenic		0.535	mg/L	0.0010	107	70	130	4.1	20	
Barium		0.544	mg/L	0.050	109	70	130	1.6	20	
Beryllium		0.251	mg/L	0.0010	100	70	130	1.8	20	
Cadmium		0.262	mg/L	0.0010	105	70	130	4.1	20	
Chromium		0.544	mg/L	0.0050	109	70	130	3.0	20	
Cobalt		0.527	mg/L	0.0050	105	70	130	2.8	20	
Copper		0.511	mg/L	0.0050	102	70	130	0.1	20	
Iron		2.58	mg/L	0.020	103	70	130	1.7	20	
Lead		0.563	mg/L	0.0010	113	70	130	1.2	20	
Manganese		2.73	mg/L	0.0010	109	70	130	2.6	20	
Molybdenum		0.550	mg/L	0.0010	110	70	130	0.6	20	
Nickel		0.510	mg/L	0.0050	102	70	130	0.7	20	
Selenium		0.499	mg/L	0.0010	100	70	130	2.0	20	
Silver		0.0519	mg/L	0.0010	104	70	130	1.2	20	
Strontium		1.23	mg/L	0.010	98	70	130	0.8	20	
Thallium		0.549	mg/L	0.00050	110	70	130	1.1	20	
Uranium		0.545	mg/L	0.00030	109	70	130	1.3	20	
Zinc		0.532	mg/L	0.010	99	70	130	6.7	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
Project: 11048 Black Butte Copper Surface Water

Report Date: 12/05/18
Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R140077
Lab ID: LRB		Method Blank								Run: ICPMS205-H_181121B 11/21/18 17:38
Calcium		ND	mg/L	0.1						
Lab ID: LFB		Laboratory Fortified Blank								Run: ICPMS205-H_181121B 11/21/18 17:40
Calcium		1.02	mg/L	0.50	102	85	115			
Lab ID: H18110402-018BMS		Sample Matrix Spike								Run: ICPMS205-H_181121B 11/21/18 18:38
Calcium		57.4	mg/L	1.0		70	130			A
Lab ID: H18110402-018BMSD		Sample Matrix Spike Duplicate								Run: ICPMS205-H_181121B 11/21/18 18:40
Calcium		57.6	mg/L	1.0		70	130	0.2	20	A
Lab ID: H18110387-002CMS		Sample Matrix Spike								Run: ICPMS205-H_181121B 11/21/18 19:07
Calcium		38.1	mg/L	1.0		70	130			A
Lab ID: H18110387-002CMSD		Sample Matrix Spike Duplicate								Run: ICPMS205-H_181121B 11/21/18 19:09
Calcium		39.3	mg/L	1.0		70	130	2.9	20	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8								Analytical Run: ICPMS205-H_181126A			
Lab ID: ICV	3	Initial Calibration Verification Standard								11/26/18 11:06	
Antimony		0.0632	mg/L	0.050	105	90	110				
Selenium		0.0623	mg/L	0.0050	104	90	110				
Zinc		0.0649	mg/L	0.010	108	90	110				
Lab ID: ICSA	3	Interference Check Sample A								11/26/18 11:08	
Antimony		0.000303	mg/L	0.050							
Selenium		9.32E-05	mg/L	0.0050							
Zinc		0.000328	mg/L	0.010							
Lab ID: ICSAB	3	Interference Check Sample AB								11/26/18 11:10	
Antimony		0.000105	mg/L	0.050		0	0				
Selenium		0.00985	mg/L	0.0050	98	70	130				
Zinc		0.0101	mg/L	0.010	101	70	130				
Lab ID: ICV	3	Initial Calibration Verification Standard								11/26/18 13:12	
Antimony		0.0628	mg/L	0.050	105	90	110				
Selenium		0.0630	mg/L	0.0050	105	90	110				
Zinc		0.0643	mg/L	0.010	107	90	110				
Lab ID: ICSA	3	Interference Check Sample A								11/26/18 13:14	
Antimony		0.000298	mg/L	0.050							
Selenium		0.000110	mg/L	0.0050							
Zinc		0.000464	mg/L	0.010							
Lab ID: ICSAB	3	Interference Check Sample AB								11/26/18 13:15	
Antimony		0.000115	mg/L	0.050		0	0				
Selenium		0.00998	mg/L	0.0050	100	70	130				
Zinc		0.0102	mg/L	0.010	102	70	130				
Method: E200.8								Batch: 43868			
Lab ID: MB-43868	19	Method Blank								Run: ICPMS205-H_181126A 11/26/18 12:05	
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		2E-05	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: 43868										
Lab ID: MB-43868	19	Method Blank						Run: ICPMS205-H_181126A		11/26/18 12:05
Strontium		ND	mg/L	0.0003						
Thallium		ND	mg/L	4E-05						
Uranium		ND	mg/L	9E-06						
Zinc		ND	mg/L	0.001						
Lab ID: LCS-43868	19	Laboratory Control Sample						Run: ICPMS205-H_181126A		11/26/18 12:21
Antimony		0.577	mg/L	0.0010	115	85	115			
Arsenic		0.525	mg/L	0.0010	105	85	115			
Barium		0.532	mg/L	0.050	106	85	115			
Beryllium		0.261	mg/L	0.0010	104	85	115			
Cadmium		0.265	mg/L	0.0010	106	85	115			
Chromium		0.556	mg/L	0.0050	111	85	115			
Cobalt		0.544	mg/L	0.0050	109	85	115			
Copper		0.543	mg/L	0.0050	109	85	115			
Iron		2.59	mg/L	0.020	104	85	115			
Lead		0.552	mg/L	0.0010	110	85	115			
Manganese		2.68	mg/L	0.0010	107	85	115			
Molybdenum		0.535	mg/L	0.0010	107	85	115			
Nickel		0.531	mg/L	0.0050	106	85	115			
Selenium		0.514	mg/L	0.0010	103	85	115			
Silver		0.0534	mg/L	0.0010	107	85	115			
Strontium		0.549	mg/L	0.010	110	85	115			
Thallium		0.519	mg/L	0.00050	104	85	115			
Uranium		0.517	mg/L	0.00030	103	85	115			
Zinc		0.519	mg/L	0.010	104	85	115			
Lab ID: H18110399-001BMS3	19	Sample Matrix Spike						Run: ICPMS205-H_181126A		11/26/18 12:26
Antimony		0.618	mg/L	0.0010	124	70	130			
Arsenic		0.558	mg/L	0.0010	112	70	130			
Barium		0.567	mg/L	0.050	113	70	130			
Beryllium		0.253	mg/L	0.0010	101	70	130			
Cadmium		0.275	mg/L	0.0010	110	70	130			
Chromium		0.582	mg/L	0.0050	116	70	130			
Cobalt		0.561	mg/L	0.0050	112	70	130			
Copper		0.580	mg/L	0.0050	116	70	130			
Iron		2.72	mg/L	0.020	108	70	130			
Lead		0.569	mg/L	0.0010	114	70	130			
Manganese		2.82	mg/L	0.0010	113	70	130			
Molybdenum		0.590	mg/L	0.0010	118	70	130			
Nickel		0.556	mg/L	0.0050	111	70	130			
Selenium		0.512	mg/L	0.0010	102	70	130			
Silver		0.0551	mg/L	0.0010	110	70	130			
Strontium		1.34	mg/L	0.010	114	70	130			
Thallium		0.546	mg/L	0.00050	109	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: 43868										
Lab ID: H18110399-001BMS3	19	Sample Matrix Spike					Run: ICPMS205-H_181126A		11/26/18 12:26	
Uranium		0.558	mg/L	0.00030	112	70	130			
Zinc		0.565	mg/L	0.010	105	70	130			
Lab ID: H18110399-001BMSD	19	Sample Matrix Spike Duplicate					Run: ICPMS205-H_181126A		11/26/18 12:28	
Antimony		0.573	mg/L	0.0010	115	70	130	7.4	20	
Arsenic		0.542	mg/L	0.0010	108	70	130	3.0	20	
Barium		0.541	mg/L	0.050	108	70	130	4.7	20	
Beryllium		0.252	mg/L	0.0010	101	70	130	0.5	20	
Cadmium		0.262	mg/L	0.0010	105	70	130	4.6	20	
Chromium		0.571	mg/L	0.0050	114	70	130	2.0	20	
Cobalt		0.548	mg/L	0.0050	110	70	130	2.3	20	
Copper		0.553	mg/L	0.0050	111	70	130	4.8	20	
Iron		2.66	mg/L	0.020	105	70	130	2.3	20	
Lead		0.568	mg/L	0.0010	114	70	130	0.1	20	
Manganese		2.74	mg/L	0.0010	109	70	130	3.1	20	
Molybdenum		0.576	mg/L	0.0010	115	70	130	2.2	20	
Nickel		0.536	mg/L	0.0050	107	70	130	3.6	20	
Selenium		0.519	mg/L	0.0010	104	70	130	1.3	20	
Silver		0.0531	mg/L	0.0010	106	70	130	3.8	20	
Strontium		1.31	mg/L	0.010	109	70	130	2.1	20	
Thallium		0.538	mg/L	0.00050	108	70	130	1.5	20	
Uranium		0.550	mg/L	0.00030	110	70	130	1.5	20	
Zinc		0.545	mg/L	0.010	101	70	130	3.5	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E245.1										Analytical Run: HGCV202-H_181126A	
Lab ID: ICV		Initial Calibration Verification Standard								11/26/18 13:41	
Mercury		0.000100	mg/L	5.0E-06	100	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard								11/26/18 16:32	
Mercury		9.47E-05	mg/L	5.0E-06	95	90	110				
Method: E245.1										Batch: 43899	
Lab ID: MB-43899		Method Blank								Run: HGCV202-H_181126A	11/26/18 13:54
Mercury		1E-06	mg/L	1E-06							
Lab ID: LCS-43899		Laboratory Control Sample								Run: HGCV202-H_181126A	11/26/18 13:58
Mercury		4.77E-05	mg/L	5.0E-06	93	90	110				
Lab ID: H18110403-002BMS		Sample Matrix Spike								Run: HGCV202-H_181126A	11/26/18 17:05
Mercury		4.60E-05	mg/L	5.0E-06	88	70	130				
Lab ID: H18110403-002BMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181126A	11/26/18 17:08
Mercury		4.60E-05	mg/L	5.0E-06	88	70	130	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0 Analytical Run: IC METROHM_181119A										
Lab ID: ICV	2	Initial Calibration Verification Standard								11/19/18 09:37
Chloride		104	mg/L	1.0	104	90	110			
Sulfate		400	mg/L	1.0	100	90	110			
Lab ID: CCV	2	Continuing Calibration Verification Standard								11/20/18 01:57
Chloride		51.6	mg/L	1.0	103	90	110			
Sulfate		203	mg/L	1.0	102	90	110			
Method: E300.0 Batch: R140032										
Lab ID: ICB	2	Method Blank								Run: IC METROHM_181119A 11/19/18 09:23
Chloride		ND	mg/L	0.009						
Sulfate		ND	mg/L	0.01						
Lab ID: LFB	2	Laboratory Fortified Blank								Run: IC METROHM_181119A 11/19/18 09:51
Chloride		25.6	mg/L	1.0	103	90	110			
Sulfate		104	mg/L	1.0	104	90	110			
Lab ID: H18110401-001AMS	2	Sample Matrix Spike								Run: IC METROHM_181119A 11/20/18 04:04
Chloride		26.3	mg/L	1.0	103	90	110			
Sulfate		118	mg/L	1.0	102	90	110			
Lab ID: H18110401-001AMSD	2	Sample Matrix Spike Duplicate								Run: IC METROHM_181119A 11/20/18 04:18
Chloride		26.4	mg/L	1.0	103	90	110	0.1	20	
Sulfate		118	mg/L	1.0	103	90	110	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E353.2										Analytical Run: FIA203-HE_181119B	
Lab ID: ICV		Initial Calibration Verification Standard								11/19/18 13:14	
Nitrogen, Nitrate+Nitrite as N		0.976	mg/L	0.010	98	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard								11/19/18 16:20	
Nitrogen, Nitrate+Nitrite as N		0.475	mg/L	0.010	95	90	110				
Method: E353.2										Batch: R140025	
Lab ID: MBLK		Method Blank								Run: FIA203-HE_181119B	11/19/18 13:15
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009							
Lab ID: LFB		Laboratory Fortified Blank								Run: FIA203-HE_181119B	11/19/18 13:16
Nitrogen, Nitrate+Nitrite as N		0.938	mg/L	0.011	94	90	110				
Lab ID: H18110387-010DMS		Sample Matrix Spike								Run: FIA203-HE_181119B	11/19/18 16:24
Nitrogen, Nitrate+Nitrite as N		0.991	mg/L	0.011	99	90	110				
Lab ID: H18110387-010DMSD		Sample Matrix Spike Duplicate								Run: FIA203-HE_181119B	11/19/18 16:25
Nitrogen, Nitrate+Nitrite as N		0.972	mg/L	0.011	97	90	110	2.0	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

Report Date: 12/05/18

Project: 11048 Black Butte Copper Surface Water

Work Order: H18110401

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E365.1								Analytical Run: FIA202-HE_181129B		
Lab ID: ICB	Initial Calibration Blank, Instrument Blank									
Phosphorus, Total as P		0.000850	mg/L	0.010		0	0			11/29/18 14:25
Lab ID: ICV	Initial Calibration Verification Standard									
Phosphorus, Total as P		0.247	mg/L	0.010	99	90	110			11/29/18 14:27
Method: E365.1								Batch: 43955		
Lab ID: MB-43955	Method Blank									
Phosphorus, Total as P		ND	mg/L	0.002						Run: FIA202-HE_181129B 11/29/18 14:32
Lab ID: LCS-43955	Laboratory Control Sample									
Phosphorus, Total as P		0.422	mg/L	0.010	105	90	110			Run: FIA202-HE_181129B 11/29/18 14:37
Lab ID: H18110388-004CMS	Sample Matrix Spike									
Phosphorus, Total as P		0.242	mg/L	0.010	109	90	110			Run: FIA202-HE_181129B 11/29/18 14:40
Lab ID: H18110388-004CMSD	Sample Matrix Spike Duplicate									
Phosphorus, Total as P		0.240	mg/L	0.010	108	90	110	0.8	20	Run: FIA202-HE_181129B 11/29/18 14:42

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



Work Order Receipt Checklist

Tintina Resources Inc

H18110401

Login completed by: Jessica C. Smith

Date Received: 11/19/2018

Reviewed by: BL2000\rtooke

Received by: TLL

Reviewed Date: 11/20/2018

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:	2.2°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

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

Parameter	Analytical Method ⁽¹⁾	Project-Required Detection Limit (mg/L)
Physical Parameters		
TDS	SM 2540C	4
TSS	SM 2540C	4
Common Ions		
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
Nutrients		
Nitrate+Nitrite as N	353.2	0.003
Total Persulfate Nitrogen	A 4500-N-C	0.04
Total Phosphorus	E365.1	0.003
Trace Constituents (SW - Total Recoverable except Aluminum [Diss])⁽²⁾		
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
Field Parameters		
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

December 06, 2018

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

Work Order: H18110402 Quote ID: H1216 - Surface and Groundwater Sampling

Project Name: 11048 Black Butte Copper Project (GW)

Energy Laboratories Inc Helena MT received the following 27 samples for Tintina Resources Inc on 11/19/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18110402-001	BBC-1811-212	11/14/18 11:55	11/19/18	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
H18110402-002	BBC-1811-213	11/14/18 12:35	11/19/18	Groundwater	Same As Above
H18110402-003	BBC-1811-214	11/14/18 13:25	11/19/18	Groundwater	Same As Above
H18110402-004	BBC-1811-215	11/14/18 13:30	11/19/18	Groundwater	Same As Above
H18110402-005	BBC-1811-216	11/14/18 14:25	11/19/18	Groundwater	Same As Above
H18110402-006	BBC-1811-217	11/14/18 15:10	11/19/18	Groundwater	Same As Above
H18110402-007	BBC-1811-218	11/14/18 15:50	11/19/18	Groundwater	Same As Above
H18110402-008	BBC-1811-219	11/14/18 16:45	11/19/18	Groundwater	Same As Above
H18110402-009	BBC-1811-220	11/14/18 17:20	11/19/18	Groundwater	Same As Above
H18110402-010	BBC-1811-221	11/15/18 8:45	11/19/18	Groundwater	Same As Above
H18110402-011	BBC-1811-222	11/15/18 9:15	11/19/18	Groundwater	Same As Above
H18110402-012	BBC-1811-223	11/15/18 10:15	11/19/18	Groundwater	Same As Above
H18110402-013	BBC-1811-224	11/15/18 10:40	11/19/18	Groundwater	Same As Above
H18110402-014	BBC-1811-225	11/15/18 12:20	11/19/18	Groundwater	Same As Above
H18110402-015	BBC-1811-226	11/15/18 16:45	11/19/18	Groundwater	Same As Above
H18110402-016	BBC-1811-227	11/16/18 9:05	11/19/18	Groundwater	Same As Above
H18110402-017	BBC-1811-228	11/16/18 10:20	11/19/18	Groundwater	Same As Above
H18110402-018	BBC-1811-117	11/15/18 11:30	11/19/18	Groundwater	Same As Above
H18110402-019	BBC-1811-118	11/15/18 11:50	11/19/18	Groundwater	Same As Above
H18110402-020	BBC-1811-119	11/15/18 13:30	11/19/18	Groundwater	Same As Above
H18110402-021	BBC-1811-121	11/15/18 14:45	11/19/18	Groundwater	Same As Above
H18110402-022	BBC-1811-122	11/15/18 15:10	11/19/18	Groundwater	Same As Above



ANALYTICAL SUMMARY REPORT

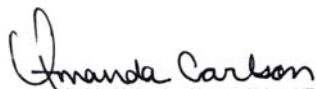
H18110402-023	BBC-1811-125	11/15/18 17:00	11/19/18	Groundwater	Same As Above
H18110402-024	BBC-1811-126	11/16/18 11:05	11/19/18	Groundwater	Same As Above
H18110402-025	BBC-1811-127	11/16/18 12:00	11/19/18	Groundwater	Same As Above
H18110402-026	BBC-1811-128	11/16/18 12:15	11/19/18	Groundwater	Same As Above
H18110402-027	BBC-1811-129	11/16/18 13:00	11/19/18	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.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:


Assistant Laboratory Manager-Helena, MT

Digitally signed by
Amanda B. Carlson
Date: 2018.12.06 10:30:10 -07:00



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-001
Client Sample ID: BBC-1811-212

Report Date: 12/06/18
Collection Date: 11/14/18 11:55
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	38	mg/L		10		A2540 D	11/20/18 09:50 / cmm
Solids, Total Dissolved TDS @ 180 C	220	mg/L		10		A2540 C	11/20/18 10:02 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	11/20/18 12:18 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 14:44 / SRW
Sulfate	8	mg/L		1		E300.0	11/20/18 14:44 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/20/18 11:23 / SRW
Hardness as CaCO3	199	mg/L		1		A2340 B	11/26/18 07:53 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.18	mg/L		0.01		E353.2	11/19/18 16:34 / kmd
METALS, DISSOLVED							
Aluminum	0.014	mg/L		0.009		E200.8	11/20/18 19:11 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:11 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 19:11 / dck
Barium	0.104	mg/L		0.003		E200.8	11/20/18 19:11 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:11 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:11 / dck
Calcium	48	mg/L		1		E200.8	11/20/18 19:11 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:11 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:11 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:11 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 19:11 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:11 / dck
Magnesium	19	mg/L		1		E200.8	11/20/18 19:11 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 19:11 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 14:02 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 19:11 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 19:11 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 19:11 / dck
Selenium	0.0003	mg/L		0.0002		E200.8	11/20/18 19:11 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:11 / dck
Sodium	2	mg/L		1		E200.8	11/20/18 19:11 / dck
Strontium	0.109	mg/L		0.0002		E200.8	11/20/18 19:11 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:11 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	11/20/18 19:11 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:11 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-002
Client Sample ID: BBC-1811-213

Report Date: 12/06/18
Collection Date: 11/14/18 12:35
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	109	mg/L		10		A2540 D	11/20/18 09:51 / cmm
Solids, Total Dissolved TDS @ 180 C	254	mg/L		10		A2540 C	11/20/18 10:02 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	11/20/18 12:25 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 14:58 / SRW
Sulfate	18	mg/L		1		E300.0	11/20/18 14:58 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	11/20/18 11:28 / SRW
Hardness as CaCO3	249	mg/L		1		A2340 B	11/26/18 11:50 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.12	mg/L		0.01		E353.2	11/19/18 16:36 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 19:12 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:12 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 19:12 / dck
Barium	0.194	mg/L		0.003		E200.8	11/20/18 19:12 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:12 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:12 / dck
Calcium	57	mg/L		1		E200.8	11/21/18 19:04 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:12 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:12 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:12 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 19:12 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:12 / dck
Magnesium	26	mg/L		1		E200.8	11/20/18 19:12 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 19:12 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 14:05 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 19:12 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 19:12 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 19:12 / dck
Selenium	0.0002	mg/L		0.0002		E200.8	11/20/18 19:12 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:12 / dck
Sodium	3	mg/L		1		E200.8	11/20/18 19:12 / dck
Strontium	0.170	mg/L		0.0002		E200.8	11/20/18 19:12 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:12 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	11/20/18 19:12 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:12 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-003
Client Sample ID: BBC-1811-214

Report Date: 12/06/18
Collection Date: 11/14/18 13:25
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	63	mg/L		10		A2540 D	11/20/18 09:51 / cmm
Solids, Total Dissolved TDS @ 180 C	266	mg/L		10		A2540 C	11/20/18 10:03 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	11/20/18 12:33 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 15:12 / SRW
Sulfate	29	mg/L		1		E300.0	11/20/18 15:12 / SRW
Fluoride	0.8	mg/L		0.1	4	A4500-F C	11/20/18 11:34 / SRW
Hardness as CaCO3	223	mg/L		1		A2340 B	11/26/18 07:53 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.08	mg/L		0.01		E353.2	11/20/18 15:45 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 19:14 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:14 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 19:14 / dck
Barium	0.107	mg/L		0.003		E200.8	11/20/18 19:14 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:14 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:14 / dck
Calcium	49	mg/L		1		E200.8	11/20/18 19:14 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:14 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:14 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:14 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 19:14 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:14 / dck
Magnesium	25	mg/L		1		E200.8	11/20/18 19:14 / dck
Manganese	0.006	mg/L		0.005		E200.8	11/20/18 19:14 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 14:08 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 19:14 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 19:14 / dck
Potassium	1	mg/L		1		E200.8	11/20/18 19:14 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 19:14 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:14 / dck
Sodium	17	mg/L		1		E200.8	11/20/18 19:14 / dck
Strontium	0.246	mg/L		0.0002		E200.8	11/20/18 19:14 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:14 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	11/20/18 19:14 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:14 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-004
Client Sample ID: BBC-1811-215

Report Date: 12/06/18
Collection Date: 11/14/18 13:30
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:51 / cmm
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	11/20/18 10:03 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	11/20/18 12:41 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 15:27 / SRW
Sulfate	ND	mg/L		1		E300.0	11/20/18 15:27 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/20/18 11:39 / SRW
Hardness as CaCO3	ND	mg/L		1		A2340 B	11/26/18 07:53 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/20/18 15:48 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 19:16 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:16 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 19:16 / dck
Barium	ND	mg/L		0.003		E200.8	11/20/18 19:16 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:16 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:16 / dck
Calcium	ND	mg/L		1		E200.8	11/20/18 19:16 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:16 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:16 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:16 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 19:16 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:16 / dck
Magnesium	ND	mg/L		1		E200.8	11/20/18 19:16 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 19:16 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 14:11 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 19:16 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 19:16 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 19:16 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 19:16 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:16 / dck
Sodium	ND	mg/L		1		E200.8	11/20/18 19:16 / dck
Strontium	ND	mg/L		0.0002		E200.8	11/20/18 19:16 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:16 / dck
Uranium	ND	mg/L		0.0002		E200.8	11/20/18 19:16 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:16 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-005
Client Sample ID: BBC-1811-216

Report Date: 12/06/18
Collection Date: 11/14/18 14:25
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	380	mg/L		10		A2540 D	11/20/18 09:52 / cmm
Solids, Total Dissolved TDS @ 180 C	328	mg/L		10		A2540 C	11/20/18 10:03 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	260	mg/L		4		A2320 B	11/28/18 11:01 / SRW
Chloride	4	mg/L		1		E300.0	11/20/18 15:41 / SRW
Sulfate	76	mg/L		1		E300.0	11/20/18 15:41 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	11/20/18 11:45 / SRW
Hardness as CaCO3	311	mg/L		1		A2340 B	11/26/18 11:50 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/20/18 15:50 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 19:18 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:18 / dck
Arsenic	0.002	mg/L		0.001		E200.8	11/20/18 19:18 / dck
Barium	0.040	mg/L		0.003		E200.8	11/20/18 19:18 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:18 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:18 / dck
Calcium	62	mg/L		1		E200.8	11/21/18 19:05 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:18 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:18 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:18 / dck
Iron	0.07	mg/L		0.02		E200.8	11/20/18 19:18 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:18 / dck
Magnesium	38	mg/L		1		E200.8	11/20/18 19:18 / dck
Manganese	0.016	mg/L		0.005		E200.8	11/20/18 19:18 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 14:21 / dck
Molybdenum	0.002	mg/L		0.002		E200.8	11/20/18 19:18 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 19:18 / dck
Potassium	1	mg/L		1		E200.8	11/20/18 19:18 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 19:18 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:18 / dck
Sodium	3	mg/L		1		E200.8	11/20/18 19:18 / dck
Strontium	0.170	mg/L		0.0002		E200.8	11/20/18 19:18 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:18 / dck
Uranium	0.0022	mg/L		0.0002		E200.8	11/20/18 19:18 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:18 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-006
Client Sample ID: BBC-1811-217

Report Date: 12/06/18
Collection Date: 11/14/18 15:10
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	603	mg/L		10		A2540 D	11/20/18 09:52 / cmm
Solids, Total Dissolved TDS @ 180 C	215	mg/L		10		A2540 C	11/20/18 10:03 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	290	mg/L		4		A2320 B	11/20/18 13:04 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 15:55 / SRW
Sulfate	10	mg/L		1		E300.0	11/20/18 15:55 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/20/18 11:51 / SRW
Hardness as CaCO3	221	mg/L		1		A2340 B	11/26/18 07:53 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.31	mg/L		0.01		E353.2	11/20/18 15:51 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 19:30 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:30 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 19:30 / dck
Barium	0.201	mg/L		0.003		E200.8	11/20/18 19:30 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:30 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:30 / dck
Calcium	49	mg/L		1		E200.8	11/20/18 19:30 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:30 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:30 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:30 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 19:30 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:30 / dck
Magnesium	24	mg/L		1		E200.8	11/20/18 19:30 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 19:30 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 14:24 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 19:30 / dck
Nickel	0.001	mg/L		0.001		E200.8	11/20/18 19:30 / dck
Potassium	1	mg/L		1		E200.8	11/20/18 19:30 / dck
Selenium	0.0002	mg/L		0.0002		E200.8	11/20/18 19:30 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:30 / dck
Sodium	1	mg/L		1		E200.8	11/20/18 19:30 / dck
Strontium	0.0738	mg/L		0.0002		E200.8	11/20/18 19:30 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:30 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	11/20/18 19:30 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:30 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-007
Client Sample ID: BBC-1811-218

Report Date: 12/06/18
Collection Date: 11/14/18 15:50
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:52 / cmm
Solids, Total Dissolved TDS @ 180 C	162	mg/L		10		A2540 C	11/20/18 10:03 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	150	mg/L		4		A2320 B	11/20/18 13:38 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 16:09 / SRW
Sulfate	16	mg/L		1		E300.0	11/20/18 16:09 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	11/20/18 11:56 / SRW
Hardness as CaCO3	164	mg/L		1		A2340 B	11/26/18 07:53 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/20/18 15:52 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 19:32 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:32 / dck
Arsenic	0.002	mg/L		0.001		E200.8	11/20/18 19:32 / dck
Barium	0.080	mg/L		0.003		E200.8	11/20/18 19:32 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:32 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:32 / dck
Calcium	26	mg/L		1		E200.8	11/20/18 19:32 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:32 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:32 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:32 / dck
Iron	0.10	mg/L		0.02		E200.8	11/20/18 19:32 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:32 / dck
Magnesium	24	mg/L		1		E200.8	11/20/18 19:32 / dck
Manganese	0.013	mg/L		0.005		E200.8	11/20/18 19:32 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 14:28 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 19:32 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 19:32 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 19:32 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 19:32 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:32 / dck
Sodium	3	mg/L		1		E200.8	11/20/18 19:32 / dck
Strontium	0.0884	mg/L		0.0002		E200.8	11/20/18 19:32 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:32 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	11/20/18 19:32 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:32 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-008
Client Sample ID: BBC-1811-219

Report Date: 12/06/18
Collection Date: 11/14/18 16:45
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	27	mg/L		10		A2540 D	11/20/18 09:52 / cmm
Solids, Total Dissolved TDS @ 180 C	227	mg/L		10		A2540 C	11/20/18 10:03 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	11/20/18 13:44 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 16:23 / SRW
Sulfate	15	mg/L		1		E300.0	11/20/18 16:23 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/20/18 12:01 / SRW
Hardness as CaCO3	228	mg/L		1		A2340 B	11/26/18 11:50 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.20	mg/L		0.01		E353.2	11/20/18 15:53 / cmm
METALS, DISSOLVED							
Aluminum	0.009	mg/L		0.009		E200.8	11/20/18 19:34 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:34 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 19:34 / dck
Barium	0.095	mg/L		0.003		E200.8	11/20/18 19:34 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:34 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:34 / dck
Calcium	56	mg/L		1		E200.8	11/21/18 19:17 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:34 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:34 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:34 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 19:34 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:34 / dck
Magnesium	21	mg/L		1		E200.8	11/20/18 19:34 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 19:34 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 14:37 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 19:34 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 19:34 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 19:34 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 19:34 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:34 / dck
Sodium	2	mg/L		1		E200.8	11/20/18 19:34 / dck
Strontium	0.157	mg/L		0.0002		E200.8	11/20/18 19:34 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:34 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	11/20/18 19:34 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:34 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-009
Client Sample ID: BBC-1811-220

Report Date: 12/06/18
Collection Date: 11/14/18 17:20
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:53 / cmm
Solids, Total Dissolved TDS @ 180 C	197	mg/L		10		A2540 C	11/20/18 10:04 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	11/20/18 13:52 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 16:37 / SRW
Sulfate	16	mg/L		1		E300.0	11/20/18 16:37 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	11/20/18 12:07 / SRW
Hardness as CaCO3	203	mg/L		1		A2340 B	11/26/18 07:53 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.24	mg/L		0.01		E353.2	11/20/18 15:54 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 19:36 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:36 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 19:36 / dck
Barium	0.091	mg/L		0.003		E200.8	11/20/18 19:36 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:36 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:36 / dck
Calcium	38	mg/L		1		E200.8	11/20/18 19:36 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:36 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:36 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:36 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 19:36 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:36 / dck
Magnesium	26	mg/L		1		E200.8	11/20/18 19:36 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 19:36 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 14:40 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 19:36 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 19:36 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 19:36 / dck
Selenium	0.0013	mg/L		0.0002		E200.8	11/20/18 19:36 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:36 / dck
Sodium	2	mg/L		1		E200.8	11/20/18 19:36 / dck
Strontium	0.121	mg/L		0.0002		E200.8	11/20/18 19:36 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:36 / dck
Uranium	0.0010	mg/L		0.0002		E200.8	11/20/18 19:36 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:36 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-010
Client Sample ID: BBC-1811-221

Report Date: 12/06/18
Collection Date: 11/15/18 08:45
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	24	mg/L		10		A2540 D	11/20/18 09:53 / cmm
Solids, Total Dissolved TDS @ 180 C	233	mg/L		10		A2540 C	11/20/18 10:04 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	11/20/18 13:58 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 18:01 / SRW
Sulfate	17	mg/L		1		E300.0	11/20/18 18:01 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/20/18 12:23 / SRW
Hardness as CaCO3	226	mg/L		1		A2340 B	11/26/18 11:50 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.17	mg/L		0.01		E353.2	11/20/18 15:55 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 19:38 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:38 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 19:38 / dck
Barium	0.057	mg/L		0.003		E200.8	11/20/18 19:38 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:38 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:38 / dck
Calcium	57	mg/L		1		E200.8	11/21/18 19:19 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:38 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:38 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:38 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 19:38 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:38 / dck
Magnesium	21	mg/L		1		E200.8	11/20/18 19:38 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 19:38 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 14:44 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 19:38 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 19:38 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 19:38 / dck
Selenium	0.0002	mg/L		0.0002		E200.8	11/20/18 19:38 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:38 / dck
Sodium	1	mg/L		1		E200.8	11/20/18 19:38 / dck
Strontium	0.104	mg/L		0.0002		E200.8	11/20/18 19:38 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:38 / dck
Uranium	0.0005	mg/L		0.0002		E200.8	11/20/18 19:38 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:38 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-011
Client Sample ID: BBC-1811-222

Report Date: 12/06/18
Collection Date: 11/15/18 09:15
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:53 / cmm
Solids, Total Dissolved TDS @ 180 C	227	mg/L		10		A2540 C	11/20/18 10:04 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	11/20/18 14:05 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 18:16 / SRW
Sulfate	13	mg/L		1		E300.0	11/20/18 18:16 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/20/18 12:33 / SRW
Hardness as CaCO3	221	mg/L		1		A2340 B	11/26/18 11:50 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.16	mg/L		0.01		E353.2	11/20/18 15:57 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 19:40 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:40 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 19:40 / dck
Barium	0.053	mg/L		0.003		E200.8	11/20/18 19:40 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:40 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:40 / dck
Calcium	57	mg/L		1		E200.8	11/21/18 19:21 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:40 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:40 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:40 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 19:40 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:40 / dck
Magnesium	19	mg/L		1		E200.8	11/20/18 19:40 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 19:40 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 14:47 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 19:40 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 19:40 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 19:40 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 19:40 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:40 / dck
Sodium	2	mg/L		1		E200.8	11/20/18 19:40 / dck
Strontium	0.143	mg/L		0.0002		E200.8	11/20/18 19:40 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:40 / dck
Uranium	0.0008	mg/L		0.0002		E200.8	11/20/18 19:40 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:40 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-012
Client Sample ID: BBC-1811-223

Report Date: 12/06/18
Collection Date: 11/15/18 10:15
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	21	mg/L		10		A2540 D	11/20/18 09:54 / cmm
Solids, Total Dissolved TDS @ 180 C	186	mg/L		10		A2540 C	11/20/18 10:04 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	11/20/18 14:12 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 18:30 / SRW
Sulfate	5	mg/L		1		E300.0	11/20/18 18:30 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/20/18 12:44 / SRW
Hardness as CaCO3	161	mg/L		1		A2340 B	11/26/18 07:53 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.43	mg/L		0.01		E353.2	11/20/18 15:58 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 19:41 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:41 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 19:41 / dck
Barium	0.163	mg/L		0.003		E200.8	11/20/18 19:41 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:41 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:41 / dck
Calcium	46	mg/L		1		E200.8	11/20/18 19:41 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:41 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:41 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:41 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 19:41 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:41 / dck
Magnesium	11	mg/L		1		E200.8	11/20/18 19:41 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 19:41 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 14:50 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 19:41 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 19:41 / dck
Potassium	2	mg/L		1		E200.8	11/20/18 19:41 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 19:41 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:41 / dck
Sodium	5	mg/L		1		E200.8	11/20/18 19:41 / dck
Strontium	0.351	mg/L		0.0002		E200.8	11/20/18 19:41 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:41 / dck
Uranium	0.0016	mg/L		0.0002		E200.8	11/20/18 19:41 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:41 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-013
Client Sample ID: BBC-1811-224

Report Date: 12/06/18
Collection Date: 11/15/18 10:40
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:54 / cmm
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	11/20/18 10:05 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	11/20/18 14:18 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 18:44 / SRW
Sulfate	ND	mg/L		1		E300.0	11/20/18 18:44 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/20/18 12:48 / SRW
Hardness as CaCO3	ND	mg/L		1		A2340 B	11/26/18 07:53 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/28/18 15:06 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 19:43 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:43 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 19:43 / dck
Barium	ND	mg/L		0.003		E200.8	11/20/18 19:43 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:43 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:43 / dck
Calcium	ND	mg/L		1		E200.8	11/20/18 19:43 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:43 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:43 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:43 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 19:43 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:43 / dck
Magnesium	ND	mg/L		1		E200.8	11/20/18 19:43 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 19:43 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 15:00 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 19:43 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 19:43 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 19:43 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 19:43 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:43 / dck
Sodium	ND	mg/L		1		E200.8	11/20/18 19:43 / dck
Strontium	ND	mg/L		0.0002		E200.8	11/20/18 19:43 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:43 / dck
Uranium	ND	mg/L		0.0002		E200.8	11/20/18 19:43 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:43 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-014
Client Sample ID: BBC-1811-225

Report Date: 12/06/18
Collection Date: 11/15/18 12:20
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	27	mg/L		10		A2540 D	11/20/18 09:54 / cmm
Solids, Total Dissolved TDS @ 180 C	187	mg/L		10		A2540 C	11/20/18 10:05 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	180	mg/L		4		A2320 B	11/20/18 14:24 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 18:58 / SRW
Sulfate	4	mg/L		1		E300.0	11/20/18 18:58 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	11/20/18 12:53 / SRW
Hardness as CaCO3	179	mg/L		1		A2340 B	11/26/18 07:53 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.53	mg/L		0.01		E353.2	11/28/18 15:07 / kmd
METALS, DISSOLVED							
Aluminum	0.013	mg/L		0.009		E200.8	11/20/18 19:55 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:55 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 19:55 / dck
Barium	0.194	mg/L		0.003		E200.8	11/20/18 19:55 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:55 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:55 / dck
Calcium	45	mg/L		1		E200.8	11/20/18 19:55 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:55 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:55 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:55 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 19:55 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:55 / dck
Magnesium	16	mg/L		1		E200.8	11/20/18 19:55 / dck
Manganese	0.005	mg/L		0.005		E200.8	11/20/18 19:55 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 15:03 / dck
Molybdenum	0.005	mg/L		0.002		E200.8	11/20/18 19:55 / dck
Nickel	0.002	mg/L		0.001		E200.8	11/20/18 19:55 / dck
Potassium	2	mg/L		1		E200.8	11/20/18 19:55 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 19:55 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:55 / dck
Sodium	6	mg/L		1		E200.8	11/20/18 19:55 / dck
Strontium	0.969	mg/L		0.0002		E200.8	11/20/18 19:55 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:55 / dck
Uranium	0.0060	mg/L		0.0002		E200.8	11/20/18 19:55 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:55 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-015
Client Sample ID: BBC-1811-226

Report Date: 12/06/18
Collection Date: 11/15/18 16:45
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:54 / cmm
Solids, Total Dissolved TDS @ 180 C	215	mg/L		10		A2540 C	11/20/18 10:05 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	11/20/18 14:31 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 19:12 / SRW
Sulfate	12	mg/L		1		E300.0	11/20/18 19:12 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/20/18 12:59 / SRW
Hardness as CaCO3	209	mg/L		1		A2340 B	11/26/18 07:53 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.28	mg/L		0.01		E353.2	11/28/18 15:08 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 19:57 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:57 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 19:57 / dck
Barium	0.070	mg/L		0.003		E200.8	11/20/18 19:57 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:57 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:57 / dck
Calcium	46	mg/L		1		E200.8	11/20/18 19:57 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:57 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:57 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:57 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 19:57 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:57 / dck
Magnesium	23	mg/L		1		E200.8	11/20/18 19:57 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 19:57 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 15:06 / dck
Molybdenum	0.004	mg/L		0.002		E200.8	11/20/18 19:57 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 19:57 / dck
Potassium	2	mg/L		1		E200.8	11/20/18 19:57 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 19:57 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:57 / dck
Sodium	4	mg/L		1		E200.8	11/20/18 19:57 / dck
Strontium	0.240	mg/L		0.0002		E200.8	11/20/18 19:57 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:57 / dck
Uranium	0.0030	mg/L		0.0002		E200.8	11/20/18 19:57 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:57 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-016
Client Sample ID: BBC-1811-227

Report Date: 12/06/18
Collection Date: 11/16/18 09:05
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:54 / cmm
Solids, Total Dissolved TDS @ 180 C	225	mg/L		10		A2540 C	11/20/18 10:05 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	11/20/18 14:37 / SRW
Chloride	2	mg/L		1		E300.0	11/20/18 19:26 / SRW
Sulfate	7	mg/L		1		E300.0	11/20/18 19:26 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/20/18 13:05 / SRW
Hardness as CaCO3	234	mg/L		1		A2340 B	11/26/18 07:53 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.72	mg/L		0.01		E353.2	11/28/18 15:09 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 19:59 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 19:59 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 19:59 / dck
Barium	0.404	mg/L		0.003		E200.8	11/20/18 19:59 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 19:59 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 19:59 / dck
Calcium	50	mg/L		1		E200.8	11/20/18 19:59 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 19:59 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 19:59 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 19:59 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 19:59 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 19:59 / dck
Magnesium	27	mg/L		1		E200.8	11/20/18 19:59 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 19:59 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 15:09 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 19:59 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 19:59 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 19:59 / dck
Selenium	0.0002	mg/L		0.0002		E200.8	11/20/18 19:59 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 19:59 / dck
Sodium	4	mg/L		1		E200.8	11/20/18 19:59 / dck
Strontium	0.101	mg/L		0.0002		E200.8	11/20/18 19:59 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 19:59 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	11/20/18 19:59 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 19:59 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-017
Client Sample ID: BBC-1811-228

Report Date: 12/06/18
Collection Date: 11/16/18 10:20
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:55 / cmm
Solids, Total Dissolved TDS @ 180 C	213	mg/L		10		A2540 C	11/20/18 10:05 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	180	mg/L		4		A2320 B	11/20/18 14:44 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 19:40 / SRW
Sulfate	33	mg/L		1		E300.0	11/20/18 19:40 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	11/20/18 13:10 / SRW
Hardness as CaCO3	207	mg/L		1		A2340 B	11/26/18 07:53 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/28/18 15:11 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 20:01 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 20:01 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 20:01 / dck
Barium	0.034	mg/L		0.003		E200.8	11/20/18 20:01 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 20:01 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 20:01 / dck
Calcium	42	mg/L		1		E200.8	11/20/18 20:01 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 20:01 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 20:01 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 20:01 / dck
Iron	0.04	mg/L		0.02		E200.8	11/20/18 20:01 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 20:01 / dck
Magnesium	25	mg/L		1		E200.8	11/20/18 20:01 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 20:01 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 15:27 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 20:01 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 20:01 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 20:01 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 20:01 / dck
Silver	ND	mg/L		0.0002		E200.8	11/20/18 20:01 / dck
Sodium	2	mg/L		1		E200.8	11/20/18 20:01 / dck
Strontium	0.0703	mg/L		0.0002		E200.8	11/20/18 20:01 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 20:01 / dck
Uranium	0.0009	mg/L		0.0002		E200.8	11/20/18 20:01 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 20:01 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-018
Client Sample ID: BBC-1811-117

Report Date: 12/06/18
Collection Date: 11/15/18 11:30
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:55 / cmm
Solids, Total Dissolved TDS @ 180 C	222	mg/L		10		A2540 C	11/20/18 10:06 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	11/20/18 14:50 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 19:55 / SRW
Sulfate	10	mg/L		1		E300.0	11/20/18 19:55 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/20/18 13:14 / SRW
Hardness as CaCO3	222	mg/L		1		A2340 B	11/26/18 11:50 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.04	mg/L		0.01		E353.2	11/28/18 15:12 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 20:03 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 20:03 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 20:03 / dck
Barium	0.058	mg/L		0.003		E200.8	11/20/18 20:03 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 20:03 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 20:03 / dck
Calcium	58	mg/L		1		E200.8	11/21/18 19:23 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 20:03 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 20:03 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 20:03 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 20:03 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 20:03 / dck
Magnesium	19	mg/L		1		E200.8	11/20/18 20:03 / dck
Manganese	0.007	mg/L		0.005		E200.8	11/20/18 20:03 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 15:37 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 20:03 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 20:03 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 20:03 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 20:03 / dck
Silver	ND	mg/L		0.0002		E200.8	11/21/18 19:23 / dck
Sodium	2	mg/L		1		E200.8	11/20/18 20:03 / dck
Strontium	0.137	mg/L		0.0002		E200.8	11/20/18 20:03 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 20:03 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	11/20/18 20:03 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 20:03 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-019
Client Sample ID: BBC-1811-118

Report Date: 12/06/18
Collection Date: 11/15/18 11:50
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	40	mg/L		10		A2540 D	11/20/18 09:55 / cmm
Solids, Total Dissolved TDS @ 180 C	221	mg/L		10		A2540 C	11/20/18 10:06 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	11/20/18 15:18 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 20:09 / SRW
Sulfate	17	mg/L		1		E300.0	11/20/18 20:09 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/20/18 13:20 / SRW
Hardness as CaCO3	231	mg/L		1		A2340 B	11/26/18 11:50 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.15	mg/L		0.01		E353.2	11/28/18 15:13 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 20:05 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 20:05 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 20:05 / dck
Barium	0.054	mg/L		0.003		E200.8	11/20/18 20:05 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 20:05 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 20:05 / dck
Calcium	57	mg/L		1		E200.8	11/21/18 19:25 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 20:05 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 20:05 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 20:05 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 20:05 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 20:05 / dck
Magnesium	21	mg/L		1		E200.8	11/20/18 20:05 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 20:05 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 15:40 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 20:05 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 20:05 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 20:05 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 20:05 / dck
Silver	ND	mg/L		0.0002		E200.8	11/21/18 19:25 / dck
Sodium	2	mg/L		1		E200.8	11/20/18 20:05 / dck
Strontium	0.116	mg/L		0.0002		E200.8	11/20/18 20:05 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 20:05 / dck
Uranium	0.0007	mg/L		0.0002		E200.8	11/20/18 20:05 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 20:05 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-020
Client Sample ID: BBC-1811-119

Report Date: 12/06/18
Collection Date: 11/15/18 13:30
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:56 / cmm
Solids, Total Dissolved TDS @ 180 C	232	mg/L		10		A2540 C	11/20/18 10:06 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	11/20/18 15:31 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 21:33 / SRW
Sulfate	17	mg/L		1		E300.0	11/20/18 21:33 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/20/18 13:34 / SRW
Hardness as CaCO3	241	mg/L		1		A2340 B	11/26/18 11:50 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.27	mg/L		0.01		E353.2	11/28/18 15:14 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 20:07 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 20:07 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 20:07 / dck
Barium	0.053	mg/L		0.003		E200.8	11/20/18 20:07 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 20:07 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 20:07 / dck
Calcium	60	mg/L		1		E200.8	11/21/18 19:27 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 20:07 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 20:07 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 20:07 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 20:07 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 20:07 / dck
Magnesium	22	mg/L		1		E200.8	11/20/18 20:07 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 20:07 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 15:50 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 20:07 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 20:07 / dck
Potassium	1	mg/L		1		E200.8	11/20/18 20:07 / dck
Selenium	0.0003	mg/L		0.0002		E200.8	11/20/18 20:07 / dck
Silver	ND	mg/L		0.0002		E200.8	11/21/18 19:27 / dck
Sodium	2	mg/L		1		E200.8	11/20/18 20:07 / dck
Strontium	0.120	mg/L		0.0002		E200.8	11/20/18 20:07 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 20:07 / dck
Uranium	0.0008	mg/L		0.0002		E200.8	11/20/18 20:07 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 20:07 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-021
Client Sample ID: BBC-1811-121

Report Date: 12/06/18
Collection Date: 11/15/18 14:45
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	130	mg/L		10		A2540 D	11/20/18 09:56 / cmm
Solids, Total Dissolved TDS @ 180 C	254	mg/L		10		A2540 C	11/20/18 10:09 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	11/20/18 15:39 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 21:48 / SRW
Sulfate	41	mg/L		1		E300.0	11/20/18 21:48 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	11/20/18 13:44 / SRW
Hardness as CaCO3	238	mg/L		1		A2340 B	11/26/18 14:56 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.27	mg/L		0.01		E353.2	11/28/18 15:20 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 20:09 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 20:09 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 20:09 / dck
Barium	0.112	mg/L		0.003		E200.8	11/20/18 20:09 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 20:09 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 20:09 / dck
Calcium	49	mg/L		1		E200.8	11/20/18 20:09 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 20:09 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 20:09 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 20:09 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 20:09 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 20:09 / dck
Magnesium	28	mg/L		1		E200.8	11/20/18 20:09 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 20:09 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 15:53 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 20:09 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 20:09 / dck
Potassium	2	mg/L		1		E200.8	11/20/18 20:09 / dck
Selenium	0.0004	mg/L		0.0002		E200.8	11/20/18 20:09 / dck
Silver	ND	mg/L		0.0002		E200.8	11/26/18 14:08 / sld
Sodium	2	mg/L		1		E200.8	11/20/18 20:09 / dck
Strontium	0.0740	mg/L		0.0002		E200.8	11/20/18 20:09 / dck
Thallium	0.0004	mg/L		0.0002		E200.8	11/20/18 20:09 / dck
Uranium	0.0004	mg/L		0.0002		E200.8	11/20/18 20:09 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 20:09 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-022
Client Sample ID: BBC-1811-122

Report Date: 12/06/18
Collection Date: 11/15/18 15:10
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:57 / cmm
Solids, Total Dissolved TDS @ 180 C	160	mg/L		10		A2540 C	11/20/18 10:09 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	140	mg/L		4		A2320 B	11/20/18 15:45 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 22:02 / SRW
Sulfate	12	mg/L		1		E300.0	11/20/18 22:02 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/20/18 13:49 / SRW
Hardness as CaCO3	147	mg/L		1		A2340 B	11/26/18 14:56 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.38	mg/L		0.01		E353.2	11/28/18 15:23 / kmd
METALS, DISSOLVED							
Aluminum	0.014	mg/L		0.009		E200.8	11/20/18 20:22 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 20:22 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 20:22 / dck
Barium	0.201	mg/L		0.003		E200.8	11/20/18 20:22 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 20:22 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 20:22 / dck
Calcium	37	mg/L		1		E200.8	11/20/18 20:22 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 20:22 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 20:22 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 20:22 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 20:22 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 20:22 / dck
Magnesium	13	mg/L		1		E200.8	11/20/18 20:22 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 20:22 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 15:56 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 20:22 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 20:22 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 20:22 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 20:22 / dck
Silver	ND	mg/L		0.0002		E200.8	11/26/18 14:10 / sld
Sodium	2	mg/L		1		E200.8	11/20/18 20:22 / dck
Strontium	0.0761	mg/L		0.0002		E200.8	11/20/18 20:22 / dck
Thallium	0.0005	mg/L		0.0002		E200.8	11/20/18 20:22 / dck
Uranium	0.0004	mg/L		0.0002		E200.8	11/20/18 20:22 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 20:22 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-023
Client Sample ID: BBC-1811-125

Report Date: 12/06/18
Collection Date: 11/15/18 17:00
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:57 / cmm
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	11/20/18 10:09 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	11/20/18 15:51 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 22:16 / SRW
Sulfate	ND	mg/L		1		E300.0	11/20/18 22:16 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/20/18 13:55 / SRW
Hardness as CaCO3	ND	mg/L		1		A2340 B	11/26/18 14:56 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/28/18 15:24 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 20:24 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 20:24 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 20:24 / dck
Barium	ND	mg/L		0.003		E200.8	11/20/18 20:24 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 20:24 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 20:24 / dck
Calcium	ND	mg/L		1		E200.8	11/20/18 20:24 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 20:24 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 20:24 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 20:24 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 20:24 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 20:24 / dck
Magnesium	ND	mg/L		1		E200.8	11/20/18 20:24 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 20:24 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 16:00 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 20:24 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 20:24 / dck
Potassium	ND	mg/L		1		E200.8	11/20/18 20:24 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 20:24 / dck
Silver	ND	mg/L		0.0002		E200.8	11/26/18 14:12 / sld
Sodium	ND	mg/L		1		E200.8	11/20/18 20:24 / dck
Strontium	ND	mg/L		0.0002		E200.8	11/20/18 20:24 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 20:24 / dck
Uranium	ND	mg/L		0.0002		E200.8	11/20/18 20:24 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 20:24 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-024
Client Sample ID: BBC-1811-126

Report Date: 12/06/18
Collection Date: 11/16/18 11:05
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	22	mg/L		10		A2540 D	11/20/18 09:57 / cmm
Solids, Total Dissolved TDS @ 180 C	247	mg/L		10		A2540 C	11/20/18 10:09 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	11/20/18 15:57 / SRW
Chloride	6	mg/L		1		E300.0	11/20/18 22:30 / SRW
Sulfate	26	mg/L		1		E300.0	11/20/18 22:30 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	11/20/18 14:00 / SRW
Hardness as CaCO3	243	mg/L		1		A2340 B	11/26/18 11:50 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.33	mg/L		0.01		E353.2	11/28/18 15:25 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 20:26 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 20:26 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/20/18 20:26 / dck
Barium	0.192	mg/L		0.003		E200.8	11/20/18 20:26 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 20:26 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 20:26 / dck
Calcium	56	mg/L		1		E200.8	11/21/18 19:29 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 20:26 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 20:26 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 20:26 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 20:26 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 20:26 / dck
Magnesium	25	mg/L		1		E200.8	11/20/18 20:26 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 20:26 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 16:03 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 20:26 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 20:26 / dck
Potassium	1	mg/L		1		E200.8	11/20/18 20:26 / dck
Selenium	0.0002	mg/L		0.0002		E200.8	11/20/18 20:26 / dck
Silver	ND	mg/L		0.0002		E200.8	11/21/18 19:29 / dck
Sodium	2	mg/L		1		E200.8	11/20/18 20:26 / dck
Strontium	0.114	mg/L		0.0002		E200.8	11/20/18 20:26 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 20:26 / dck
Uranium	0.0006	mg/L		0.0002		E200.8	11/20/18 20:26 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 20:26 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-025
Client Sample ID: BBC-1811-127

Report Date: 12/06/18
Collection Date: 11/16/18 12:00
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:58 / cmm
Solids, Total Dissolved TDS @ 180 C	183	mg/L		10		A2540 C	11/20/18 10:10 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	11/20/18 16:05 / SRW
Chloride	2	mg/L		1		E300.0	11/20/18 22:44 / SRW
Sulfate	11	mg/L		1		E300.0	11/20/18 22:44 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	11/20/18 14:05 / SRW
Hardness as CaCO3	170	mg/L		1		A2340 B	11/26/18 14:56 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.32	mg/L		0.01		E353.2	11/28/18 15:27 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 20:28 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 20:28 / dck
Arsenic	0.004	mg/L		0.001		E200.8	11/20/18 20:28 / dck
Barium	0.116	mg/L		0.003		E200.8	11/20/18 20:28 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 20:28 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 20:28 / dck
Calcium	44	mg/L		1		E200.8	11/20/18 20:28 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 20:28 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 20:28 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 20:28 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 20:28 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 20:28 / dck
Magnesium	15	mg/L		1		E200.8	11/20/18 20:28 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 20:28 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 16:06 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 20:28 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 20:28 / dck
Potassium	3	mg/L		1		E200.8	11/20/18 20:28 / dck
Selenium	0.0003	mg/L		0.0002		E200.8	11/20/18 20:28 / dck
Silver	ND	mg/L		0.0002		E200.8	11/26/18 14:14 / sld
Sodium	5	mg/L		1		E200.8	11/20/18 20:28 / dck
Strontium	0.172	mg/L		0.0002		E200.8	11/20/18 20:28 / dck
Thallium	0.0010	mg/L		0.0002		E200.8	11/20/18 20:28 / dck
Uranium	0.0009	mg/L		0.0002		E200.8	11/20/18 20:28 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 20:28 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-026
Client Sample ID: BBC-1811-128

Report Date: 12/06/18
Collection Date: 11/16/18 12:15
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:58 / cmm
Solids, Total Dissolved TDS @ 180 C	183	mg/L		10		A2540 C	11/20/18 10:10 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	11/20/18 16:13 / SRW
Chloride	2	mg/L		1		E300.0	11/20/18 22:58 / SRW
Sulfate	11	mg/L		1		E300.0	11/20/18 22:58 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	11/20/18 14:10 / SRW
Hardness as CaCO3	176	mg/L		1		A2340 B	11/26/18 14:56 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.33	mg/L		0.01		E353.2	11/28/18 15:28 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/20/18 20:30 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 20:30 / dck
Arsenic	0.004	mg/L		0.001		E200.8	11/20/18 20:30 / dck
Barium	0.128	mg/L		0.003		E200.8	11/20/18 20:30 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 20:30 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 20:30 / dck
Calcium	44	mg/L		1		E200.8	11/20/18 20:30 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 20:30 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 20:30 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 20:30 / dck
Iron	ND	mg/L		0.02		E200.8	11/20/18 20:30 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 20:30 / dck
Magnesium	16	mg/L		1		E200.8	11/20/18 20:30 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 20:30 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 16:09 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 20:30 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 20:30 / dck
Potassium	3	mg/L		1		E200.8	11/20/18 20:30 / dck
Selenium	0.0003	mg/L		0.0002		E200.8	11/20/18 20:30 / dck
Silver	ND	mg/L		0.0002		E200.8	11/26/18 14:16 / sld
Sodium	5	mg/L		1		E200.8	11/20/18 20:30 / dck
Strontium	0.188	mg/L		0.0002		E200.8	11/20/18 20:30 / dck
Thallium	0.0011	mg/L		0.0002		E200.8	11/20/18 20:30 / dck
Uranium	0.0010	mg/L		0.0002		E200.8	11/20/18 20:30 / dck
Zinc	ND	mg/L		0.002		E200.8	11/20/18 20:30 / 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: 11048 Black Butte Copper Project (GW)
Lab ID: H18110402-027
Client Sample ID: BBC-1811-129

Report Date: 12/06/18
Collection Date: 11/16/18 13:00
Date Received: 11/19/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	11/20/18 09:58 / cmm
Solids, Total Dissolved TDS @ 180 C	129	mg/L		10		A2540 C	11/20/18 10:10 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	98	mg/L		4		A2320 B	11/20/18 16:20 / SRW
Chloride	ND	mg/L		1		E300.0	11/20/18 23:12 / SRW
Sulfate	6	mg/L		1		E300.0	11/20/18 23:12 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/20/18 14:15 / SRW
Hardness as CaCO3	102	mg/L		1		A2340 B	11/26/18 14:56 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.32	mg/L		0.01		E353.2	11/28/18 15:29 / kmd
METALS, DISSOLVED							
Aluminum	0.074	mg/L		0.009		E200.8	11/20/18 20:32 / dck
Antimony	ND	mg/L		0.0005		E200.8	11/20/18 20:32 / dck
Arsenic	0.002	mg/L		0.001		E200.8	11/20/18 20:32 / dck
Barium	0.304	mg/L		0.003		E200.8	11/20/18 20:32 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/20/18 20:32 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/20/18 20:32 / dck
Calcium	29	mg/L		1		E200.8	11/20/18 20:32 / dck
Chromium	ND	mg/L		0.01		E200.8	11/20/18 20:32 / dck
Cobalt	ND	mg/L		0.01		E200.8	11/20/18 20:32 / dck
Copper	ND	mg/L		0.002		E200.8	11/20/18 20:32 / dck
Iron	0.03	mg/L		0.02		E200.8	11/20/18 20:32 / dck
Lead	ND	mg/L		0.0003		E200.8	11/20/18 20:32 / dck
Magnesium	7	mg/L		1		E200.8	11/20/18 20:32 / dck
Manganese	ND	mg/L		0.005		E200.8	11/20/18 20:32 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/29/18 16:12 / dck
Molybdenum	ND	mg/L		0.002		E200.8	11/20/18 20:32 / dck
Nickel	ND	mg/L		0.001		E200.8	11/20/18 20:32 / dck
Potassium	1	mg/L		1		E200.8	11/20/18 20:32 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/20/18 20:32 / dck
Silver	ND	mg/L		0.0002		E200.8	11/26/18 14:18 / sld
Sodium	3	mg/L		1		E200.8	11/20/18 20:32 / dck
Strontium	0.0887	mg/L		0.0002		E200.8	11/20/18 20:32 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/20/18 20:32 / dck
Uranium	0.0003	mg/L		0.0002		E200.8	11/20/18 20:32 / dck
Zinc	0.007	mg/L		0.002		E200.8	11/20/18 20:32 / dck

Report RL - Analyte reporting limit.
Definitions: 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

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B Batch: R140028										
Lab ID: MBLK		Method Blank								
Alkalinity, Total as CaCO3		ND	mg/L	2						Run: PHSC_101-H_181120A 11/20/18 11:13
Lab ID: LCS		Laboratory Control Sample								
Alkalinity, Total as CaCO3		590	mg/L	4.0	99	90	110			Run: PHSC_101-H_181120A 11/20/18 11:19
Lab ID: H18110350-002ADUP		Sample Duplicate								
Alkalinity, Total as CaCO3		250	mg/L	4.0				1.3	10	Run: PHSC_101-H_181120A 11/20/18 12:03
Lab ID: H18110402-018ADUP		Sample Duplicate								
Alkalinity, Total as CaCO3		220	mg/L	4.0				1.1	10	Run: PHSC_101-H_181120A 11/20/18 14:56
Lab ID: MBLK		Method Blank								
Alkalinity, Total as CaCO3		ND	mg/L	2						Run: PHSC_101-H_181120A 11/20/18 15:02
Lab ID: LCS		Laboratory Control Sample								
Alkalinity, Total as CaCO3		600	mg/L	4.0	100	90	110			Run: PHSC_101-H_181120A 11/20/18 15:08
Lab ID: H18110402-019ADUP		Sample Duplicate								
Alkalinity, Total as CaCO3		220	mg/L	4.0				0.9	10	Run: PHSC_101-H_181120A 11/20/18 15:25
Method: A2320 B Batch: R140191										
Lab ID: MBLK		Method Blank								
Alkalinity, Total as CaCO3		ND	mg/L	2						Run: PHSC_101-H_181128A 11/28/18 09:59
Lab ID: LCS		Laboratory Control Sample								
Alkalinity, Total as CaCO3		600	mg/L	4.0	100	90	110			Run: PHSC_101-H_181128A 11/28/18 10:05
Lab ID: H18110387-003BDUP		Sample Duplicate								
Alkalinity, Total as CaCO3		240	mg/L	4.0				0.1	10	Run: PHSC_101-H_181128A 11/28/18 10:20
Lab ID: H18110515-003ADUP		Sample Duplicate								
Alkalinity, Total as CaCO3		160	mg/L	4.0				0.3	10	Run: PHSC_101-H_181128A 11/28/18 12:06

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

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C								Batch: TDS181120A		
Lab ID: MB-1_181120A		Method Blank						Run: ACCU-124 (14410200)_18112	11/20/18 10:02	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-2_181120A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18112	11/20/18 10:02	
Solids, Total Dissolved TDS @ 180 C		1920	mg/L	20	96	90	110			
Lab ID: H18110402-001A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18112	11/20/18 10:02	
Solids, Total Dissolved TDS @ 180 C		212	mg/L	10				3.7	5	
Lab ID: H18110402-011A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18112	11/20/18 10:04	
Solids, Total Dissolved TDS @ 180 C		223	mg/L	10				1.8	5	
Lab ID: MB-25_181120A		Method Blank						Run: ACCU-124 (14410200)_18112	11/20/18 10:08	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-26_181120A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18112	11/20/18 10:08	
Solids, Total Dissolved TDS @ 180 C		1890	mg/L	20	95	90	110			
Lab ID: H18110402-021A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18112	11/20/18 10:09	
Solids, Total Dissolved TDS @ 180 C		250	mg/L	10				1.6	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
Project: 11048 Black Butte Copper Project (GW)

Report Date: 12/06/18
Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D								Batch: TSS181120A		
Lab ID: MB-1_181120A		Method Blank						Run: ACCU-124 (14410200)_18112	11/20/18 09:50	
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
Lab ID: LCS-2_181120A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18112	11/20/18 09:50	
Solids, Total Suspended TSS @ 105 C		89.0	mg/L	10	89	80	120			
Lab ID: H18110402-001ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18112	11/20/18 09:50	
Solids, Total Suspended TSS @ 105 C		38.0	mg/L	10				0.0	5	
Lab ID: H18110402-011ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18112	11/20/18 09:53	
Solids, Total Suspended TSS @ 105 C		1.000	mg/L	10					5	
Lab ID: MB-25_181120A		Method Blank						Run: ACCU-124 (14410200)_18112	11/20/18 09:56	
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
Lab ID: LCS-26_181120A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18112	11/20/18 09:56	
Solids, Total Suspended TSS @ 105 C		93.0	mg/L	10	93	80	120			
Lab ID: H18110402-021ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18112	11/20/18 09:57	
Solids, Total Suspended TSS @ 105 C		124	mg/L	10				4.7	5	
Lab ID: H18110409-001ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18112	11/20/18 11:33	
Solids, Total Suspended TSS @ 105 C		1.00	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

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-F C								Analytical Run: MANTECH 2_181120A		
Lab ID: ICV		Initial Calibration Verification Standard								11/20/18 09:44
Fluoride		0.8	mg/L	0.1	101	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								11/20/18 11:01
Fluoride		1.0	mg/L	0.1	105	90	110			
Lab ID: CCV 1		Continuing Calibration Verification Standard								11/20/18 12:12
Fluoride		1.0	mg/L	0.1	105	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								11/20/18 13:25
Fluoride		1.1	mg/L	0.1	107	90	110			
Method: A4500-F C								Batch: R140044		
Lab ID: MBLK		Method Blank								Run: MANTECH 2_181120A 11/20/18 09:50
Fluoride		0.03	mg/L	0.003						
Lab ID: H18110402-010AMS		Sample Matrix Spike								Run: MANTECH 2_181120A 11/20/18 12:28
Fluoride		1.2	mg/L	0.1	107	85	115			
Lab ID: H18110402-011ADUP		Sample Duplicate								Run: MANTECH 2_181120A 11/20/18 12:38
Fluoride		0.1	mg/L	0.1				0.0	10	
Lab ID: H18110402-020ADUP		Sample Duplicate								Run: MANTECH 2_181120A 11/20/18 13:39
Fluoride		0.1	mg/L	0.1				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

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_181120B		
Lab ID: ICV	24 Initial Calibration Verification Standard								11/20/18 17:30	
Aluminum		0.307	mg/L	0.10	102	90	110			
Antimony		0.0618	mg/L	0.050	103	90	110			
Arsenic		0.0614	mg/L	0.0050	102	90	110			
Barium		0.0615	mg/L	0.10	103	90	110			
Beryllium		0.0295	mg/L	0.0010	98	90	110			
Cadmium		0.0310	mg/L	0.0010	103	90	110			
Calcium		3.03	mg/L	0.50	101	90	110			
Chromium		0.0617	mg/L	0.010	103	90	110			
Cobalt		0.0614	mg/L	0.010	102	90	110			
Copper		0.0619	mg/L	0.010	103	90	110			
Iron		0.294	mg/L	0.020	98	90	110			
Lead		0.0616	mg/L	0.010	103	90	110			
Magnesium		3.04	mg/L	0.50	101	90	110			
Manganese		0.307	mg/L	0.010	102	90	110			
Molybdenum		0.0597	mg/L	0.0050	100	90	110			
Nickel		0.0619	mg/L	0.010	103	90	110			
Potassium		2.98	mg/L	0.50	99	90	110			
Selenium		0.0623	mg/L	0.0050	104	90	110			
Silver		0.0309	mg/L	0.0050	103	90	110			
Sodium		3.01	mg/L	0.50	100	90	110			
Strontium		0.0611	mg/L	0.10	102	90	110			
Thallium		0.0610	mg/L	0.10	102	90	110			
Uranium		0.0612	mg/L	0.00030	102	90	110			
Zinc		0.0630	mg/L	0.010	105	90	110			
Lab ID: ICSA	24 Interference Check Sample A								11/20/18 17:32	
Aluminum		46.0	mg/L	0.10	115	70	130			
Antimony		0.000212	mg/L	0.050						
Arsenic		5.19E-05	mg/L	0.0050						
Barium		0.000403	mg/L	0.10						
Beryllium		4.78E-06	mg/L	0.0010						
Cadmium		0.000187	mg/L	0.0010						
Calcium		120	mg/L	0.50	100	70	130			
Chromium		0.00139	mg/L	0.010						
Cobalt		7.72E-06	mg/L	0.010						
Copper		0.000326	mg/L	0.010						
Iron		107	mg/L	0.020	107	70	130			
Lead		1.19E-05	mg/L	0.010						
Magnesium		43.8	mg/L	0.50	109	70	130			
Manganese		0.000267	mg/L	0.010						
Molybdenum		0.900	mg/L	0.0050	112	70	130			
Nickel		0.000149	mg/L	0.010						
Potassium		44.1	mg/L	0.50	110	70	130			
Selenium		4.22E-05	mg/L	0.0050						

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

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8										Analytical Run: ICPMS205-H_181120B	
Lab ID: ICSA	24	Interference Check Sample A							11/20/18 17:32		
Silver		9.80E-05	mg/L	0.0050							
Sodium		110	mg/L	0.50	110	70	130				
Strontium		0.00129	mg/L	0.10							
Thallium		5.85E-05	mg/L	0.10							
Uranium		2.05E-05	mg/L	0.00030							
Zinc		0.00119	mg/L	0.010							
Lab ID: ICSAB	24	Interference Check Sample AB							11/20/18 17:34		
Aluminum		44.8	mg/L	0.10	112	70	130				
Antimony		5.75E-05	mg/L	0.050		0	0				
Arsenic		0.0115	mg/L	0.0050	115	70	130				
Barium		6.16E-05	mg/L	0.10		0	0				
Beryllium		8.00E-06	mg/L	0.0010		0	0				
Cadmium		0.0109	mg/L	0.0010	109	70	130				
Calcium		128	mg/L	0.50	107	70	130				
Chromium		0.0240	mg/L	0.010	120	70	130				
Cobalt		0.0223	mg/L	0.010	112	70	130				
Copper		0.0222	mg/L	0.010	111	70	130				
Iron		108	mg/L	0.020	108	70	130				
Lead		-1.86E-05	mg/L	0.010		0	0				
Magnesium		43.2	mg/L	0.50	108	70	130				
Manganese		0.0224	mg/L	0.010	112	70	130				
Molybdenum		0.896	mg/L	0.0050	112	70	130				
Nickel		0.0222	mg/L	0.010	111	70	130				
Potassium		44.4	mg/L	0.50	111	70	130				
Selenium		0.0104	mg/L	0.0050	104	70	130				
Silver		0.0216	mg/L	0.0050	108	70	130				
Sodium		108	mg/L	0.50	108	70	130				
Strontium		0.00120	mg/L	0.10		0	0				
Thallium		3.95E-05	mg/L	0.10		0	0				
Uranium		5.16E-06	mg/L	0.00030		0	0				
Zinc		0.0109	mg/L	0.010	109	70	130				
Method: E200.8										Batch: R140054	
Lab ID: LRB	24	Method Blank							Run: ICPMS205-H_181120B 11/20/18 17:43		
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							
Calcium		ND	mg/L	0.1							
Chromium		ND	mg/L	0.0002							
Cobalt		ND	mg/L	9E-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

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: R140054										
Lab ID: LRB	24	Method Blank				Run: ICPMS205-H_181120B			11/20/18 17:43	
Copper		ND	mg/L	0.0001						
Iron		ND	mg/L	0.002						
Lead		ND	mg/L	3E-05						
Magnesium		ND	mg/L	0.004						
Manganese		ND	mg/L	0.0003						
Molybdenum		ND	mg/L	2E-05						
Nickel		ND	mg/L	0.0002						
Potassium		ND	mg/L	0.010						
Selenium		ND	mg/L	2E-05						
Silver		ND	mg/L	2E-05						
Sodium		ND	mg/L	0.01						
Strontium		ND	mg/L	0.0001						
Thallium		ND	mg/L	1E-05						
Uranium		ND	mg/L	1E-05						
Zinc		ND	mg/L	0.0003						
Lab ID: LFB	24	Laboratory Fortified Blank				Run: ICPMS205-H_181120B			11/20/18 17:43	
Aluminum		0.0507	mg/L	0.10	101	85	115			
Antimony		0.0499	mg/L	0.050	100	85	115			
Arsenic		0.0500	mg/L	0.0050	100	85	115			
Barium		0.0495	mg/L	0.10	99	85	115			
Beryllium		0.0475	mg/L	0.0010	95	85	115			
Cadmium		0.0501	mg/L	0.0010	100	85	115			
Calcium		0.986	mg/L	0.50	99	85	115			
Chromium		0.0495	mg/L	0.010	99	85	115			
Cobalt		0.0499	mg/L	0.010	100	85	115			
Copper		0.0501	mg/L	0.010	100	85	115			
Iron		0.144	mg/L	0.020	96	85	115			
Lead		0.0500	mg/L	0.010	100	85	115			
Magnesium		0.968	mg/L	0.50	97	85	115			
Manganese		0.0496	mg/L	0.010	99	85	115			
Molybdenum		0.0479	mg/L	0.0050	96	85	115			
Nickel		0.0506	mg/L	0.010	101	85	115			
Potassium		0.967	mg/L	0.50	97	85	115			
Selenium		0.0505	mg/L	0.0050	101	85	115			
Silver		0.0200	mg/L	0.0050	100	85	115			
Sodium		0.976	mg/L	0.50	98	85	115			
Strontium		0.0498	mg/L	0.10	100	85	115			
Thallium		0.0490	mg/L	0.10	98	85	115			
Uranium		0.0505	mg/L	0.00030	101	85	115			
Zinc		0.0506	mg/L	0.010	101	85	115			
Lab ID: H18110401-001BMS	24	Sample Matrix Spike				Run: ICPMS205-H_181120B			11/20/18 19:20	
Aluminum		0.0518	mg/L	0.030	104	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

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R140054
Lab ID:	H18110401-001BMS	24 Sample Matrix Spike			Run: ICPMS205-H_181120B				11/20/18 19:20	
Antimony		0.0516	mg/L	0.0010	103	70	130			
Arsenic		0.0537	mg/L	0.0010	107	70	130			
Barium		0.180	mg/L	0.050	105	70	130			
Beryllium		0.0500	mg/L	0.0010	100	70	130			
Cadmium		0.0513	mg/L	0.0010	103	70	130			
Calcium		52.3	mg/L	1.0		70	130			AE
Chromium		0.0504	mg/L	0.0050	101	70	130			
Cobalt		0.0496	mg/L	0.0050	99	70	130			
Copper		0.0496	mg/L	0.0050	99	70	130			
Iron		0.155	mg/L	0.020	96	70	130			
Lead		0.0507	mg/L	0.0010	101	70	130			
Magnesium		23.7	mg/L	1.0		70	130			A
Manganese		0.0559	mg/L	0.0010	99	70	130			
Molybdenum		0.0496	mg/L	0.0010	98	70	130			
Nickel		0.0494	mg/L	0.0050	99	70	130			
Potassium		1.96	mg/L	1.0	96	70	130			
Selenium		0.0573	mg/L	0.0010	114	70	130			
Silver		0.0202	mg/L	0.0010	101	70	130			
Sodium		3.90	mg/L	1.0	93	70	130			
Strontium		0.221	mg/L	0.010	97	70	130			
Thallium		0.0508	mg/L	0.00050	102	70	130			
Uranium		0.0531	mg/L	0.00030	105	70	130			
Zinc		0.0506	mg/L	0.010	101	70	130			
Lab ID:	H18110401-001BMSD	24 Sample Matrix Spike Duplicate			Run: ICPMS205-H_181120B				11/20/18 19:22	
Aluminum		0.0533	mg/L	0.030	107	70	130	2.9	20	
Antimony		0.0519	mg/L	0.0010	104	70	130	0.7	20	
Arsenic		0.0559	mg/L	0.0010	111	70	130	3.9	20	
Barium		0.185	mg/L	0.050	114	70	130	2.5	20	
Beryllium		0.0499	mg/L	0.0010	100	70	130	0.3	20	
Cadmium		0.0517	mg/L	0.0010	103	70	130	0.7	20	
Calcium		52.4	mg/L	1.0		70	130	0.3	20	AE
Chromium		0.0516	mg/L	0.0050	103	70	130	2.3	20	
Cobalt		0.0516	mg/L	0.0050	103	70	130	3.8	20	
Copper		0.0514	mg/L	0.0050	103	70	130	3.5	20	
Iron		0.159	mg/L	0.020	99	70	130	2.9	20	
Lead		0.0522	mg/L	0.0010	104	70	130	3.0	20	
Magnesium		24.6	mg/L	1.0		70	130	4.0	20	A
Manganese		0.0586	mg/L	0.0010	105	70	130	4.7	20	
Molybdenum		0.0500	mg/L	0.0010	99	70	130	0.7	20	
Nickel		0.0515	mg/L	0.0050	103	70	130	4.2	20	
Potassium		2.06	mg/L	1.0	106	70	130	5.2	20	
Selenium		0.0574	mg/L	0.0010	114	70	130	0.1	20	
Silver		0.0205	mg/L	0.0010	103	70	130	1.4	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.

E - Estimated value. Result exceeds the instrument upper quantitation limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: R140054										
Lab ID: H18110401-001BMSD	24	Sample Matrix Spike Duplicate					Run: ICPMS205-H_181120B			11/20/18 19:22
Sodium		3.98	mg/L	1.0	101	70	130	2.0	20	
Strontium		0.231	mg/L	0.010	116	70	130	4.4	20	
Thallium		0.0512	mg/L	0.00050	102	70	130	0.9	20	
Uranium		0.0546	mg/L	0.00030	108	70	130	2.9	20	
Zinc		0.0517	mg/L	0.010	103	70	130	2.0	20	
Lab ID: H18110402-010BMS	24	Sample Matrix Spike					Run: ICPMS205-H_181120B			11/20/18 19:45
Aluminum		0.0592	mg/L	0.030	102	70	130			
Antimony		0.0515	mg/L	0.0010	103	70	130			
Arsenic		0.0548	mg/L	0.0010	109	70	130			
Barium		0.108	mg/L	0.050	103	70	130			
Beryllium		0.0479	mg/L	0.0010	96	70	130			
Cadmium		0.0510	mg/L	0.0010	102	70	130			
Calcium		60.3	mg/L	1.0		70	130			AE
Chromium		0.0506	mg/L	0.0050	101	70	130			
Cobalt		0.0496	mg/L	0.0050	99	70	130			
Copper		0.0498	mg/L	0.0050	100	70	130			
Iron		0.149	mg/L	0.020	97	70	130			
Lead		0.0497	mg/L	0.0010	99	70	130			
Magnesium		21.1	mg/L	1.0		70	130			A
Manganese		0.0508	mg/L	0.0010	100	70	130			
Molybdenum		0.0497	mg/L	0.0010	99	70	130			
Nickel		0.0501	mg/L	0.0050	100	70	130			
Potassium		1.64	mg/L	1.0	98	70	130			
Selenium		0.0578	mg/L	0.0010	115	70	130			
Silver		0.0202	mg/L	0.0010	101	70	130			
Sodium		2.47	mg/L	1.0	103	70	130			
Strontium		0.152	mg/L	0.010	96	70	130			
Thallium		0.0512	mg/L	0.00050	102	70	130			
Uranium		0.0509	mg/L	0.00030	101	70	130			
Zinc		0.0506	mg/L	0.010	101	70	130			
Lab ID: H18110402-010BMSD	24	Sample Matrix Spike Duplicate					Run: ICPMS205-H_181120B			11/20/18 19:47
Aluminum		0.0580	mg/L	0.030	100	70	130	2.1	20	
Antimony		0.0511	mg/L	0.0010	102	70	130	0.7	20	
Arsenic		0.0556	mg/L	0.0010	111	70	130	1.5	20	
Barium		0.107	mg/L	0.050	100	70	130	1.3	20	
Beryllium		0.0480	mg/L	0.0010	96	70	130	0.1	20	
Cadmium		0.0505	mg/L	0.0010	101	70	130	1.0	20	
Calcium		59.7	mg/L	1.0		70	130	1.0	20	AE
Chromium		0.0508	mg/L	0.0050	102	70	130	0.5	20	
Cobalt		0.0500	mg/L	0.0050	100	70	130	0.8	20	
Copper		0.0505	mg/L	0.0050	101	70	130	1.5	20	
Iron		0.149	mg/L	0.020	97	70	130	0.0	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.

E - Estimated value. Result exceeds the instrument upper quantitation limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Batch: R140054		
Lab ID:	H18110402-010BMSD	24 Sample Matrix Spike Duplicate			Run: ICPMS205-H_181120B				11/20/18 19:47	
Lead		0.0510	mg/L	0.0010	102	70	130	2.7	20	
Magnesium		21.1	mg/L	1.0		70	130	0.1	20	A
Manganese		0.0513	mg/L	0.0010	101	70	130	0.9	20	
Molybdenum		0.0485	mg/L	0.0010	96	70	130	2.5	20	
Nickel		0.0509	mg/L	0.0050	101	70	130	1.5	20	
Potassium		1.63	mg/L	1.0	97	70	130	0.6	20	
Selenium		0.0597	mg/L	0.0010	119	70	130	3.2	20	
Silver		0.0199	mg/L	0.0010	100	70	130	1.4	20	
Sodium		2.48	mg/L	1.0	104	70	130	0.7	20	
Strontium		0.153	mg/L	0.010	97	70	130	0.3	20	
Thallium		0.0508	mg/L	0.00050	101	70	130	0.9	20	
Uranium		0.0529	mg/L	0.00030	105	70	130	4.0	20	
Zinc		0.0512	mg/L	0.010	102	70	130	1.2	20	
Lab ID:	H18110402-020BMS	24 Sample Matrix Spike			Run: ICPMS205-H_181120B				11/20/18 20:10	
Aluminum		0.0514	mg/L	0.030	103	70	130			
Antimony		0.0510	mg/L	0.0010	102	70	130			
Arsenic		0.0553	mg/L	0.0010	110	70	130			
Barium		0.103	mg/L	0.050	100	70	130			
Beryllium		0.0477	mg/L	0.0010	95	70	130			
Cadmium		0.0502	mg/L	0.0010	100	70	130			
Calcium		61.5	mg/L	1.0		70	130			AE
Chromium		0.0507	mg/L	0.0050	101	70	130			
Cobalt		0.0496	mg/L	0.0050	99	70	130			
Copper		0.0498	mg/L	0.0050	100	70	130			
Iron		0.148	mg/L	0.020	97	70	130			
Lead		0.0488	mg/L	0.0010	98	70	130			
Magnesium		22.2	mg/L	1.0		70	130			A
Manganese		0.0543	mg/L	0.0010	100	70	130			
Molybdenum		0.0485	mg/L	0.0010	96	70	130			
Nickel		0.0501	mg/L	0.0050	100	70	130			
Potassium		2.01	mg/L	1.0	99	70	130			
Selenium		0.0592	mg/L	0.0010	118	70	130			
Silver		0.0171	mg/L	0.0010	85	70	130			
Sodium		2.67	mg/L	1.0	96	70	130			
Strontium		0.168	mg/L	0.010	96	70	130			
Thallium		0.0491	mg/L	0.00050	98	70	130			
Uranium		0.0515	mg/L	0.00030	101	70	130			
Zinc		0.0510	mg/L	0.010	102	70	130			
Lab ID:	H18110402-020BMSD	24 Sample Matrix Spike Duplicate			Run: ICPMS205-H_181120B				11/20/18 20:12	
Aluminum		0.0533	mg/L	0.030	107	70	130	3.6	20	
Antimony		0.0522	mg/L	0.0010	104	70	130	2.2	20	
Arsenic		0.0565	mg/L	0.0010	113	70	130	2.2	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.

E - Estimated value. Result exceeds the instrument upper quantitation limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R140054
Lab ID:	H18110402-020BMSD	24 Sample Matrix Spike Duplicate			Run: ICPMS205-H_181120B				11/20/18 20:12	
Barium		0.107	mg/L	0.050	108	70	130	3.7	20	
Beryllium		0.0486	mg/L	0.0010	97	70	130	1.8	20	
Cadmium		0.0520	mg/L	0.0010	104	70	130	3.6	20	
Calcium		59.2	mg/L	1.0		70	130	3.7	20	AE
Chromium		0.0520	mg/L	0.0050	104	70	130	2.6	20	
Cobalt		0.0507	mg/L	0.0050	101	70	130	2.1	20	
Copper		0.0512	mg/L	0.0050	102	70	130	2.7	20	
Iron		0.152	mg/L	0.020	99	70	130	2.3	20	
Lead		0.0507	mg/L	0.0010	101	70	130	4.0	20	
Magnesium		22.7	mg/L	1.0		70	130	2.2	20	A
Manganese		0.0560	mg/L	0.0010	103	70	130	3.0	20	
Molybdenum		0.0499	mg/L	0.0010	99	70	130	2.8	20	
Nickel		0.0514	mg/L	0.0050	103	70	130	2.5	20	
Potassium		2.04	mg/L	1.0	102	70	130	1.7	20	
Selenium		0.0594	mg/L	0.0010	118	70	130	0.4	20	
Silver		0.0227	mg/L	0.0010	114	70	130	28	20	R
Sodium		2.79	mg/L	1.0	109	70	130	4.5	20	
Strontium		0.171	mg/L	0.010	103	70	130	2.1	20	
Thallium		0.0515	mg/L	0.00050	103	70	130	4.8	20	
Uranium		0.0531	mg/L	0.00030	105	70	130	3.1	20	
Zinc		0.0523	mg/L	0.010	105	70	130	2.5	20	
Lab ID:	H18110413-001BMS	24 Sample Matrix Spike			Run: ICPMS205-H_181120B				11/20/18 20:39	
Aluminum		0.361	mg/L	0.030		70	130			A
Antimony		0.0527	mg/L	0.0010	105	70	130			
Arsenic		0.0686	mg/L	0.0010	114	70	130			
Barium		0.0661	mg/L	0.050	99	70	130			
Beryllium		0.0481	mg/L	0.0010	96	70	130			
Cadmium		0.0508	mg/L	0.0010	101	70	130			
Calcium		90.6	mg/L	1.0		70	130			AE
Chromium		0.0518	mg/L	0.0050	103	70	130			
Cobalt		0.0525	mg/L	0.0050	99	70	130			
Copper		0.0652	mg/L	0.0050	101	70	130			
Iron		1.74	mg/L	0.020		70	130			A
Lead		0.0506	mg/L	0.0010	101	70	130			
Magnesium		35.0	mg/L	1.0		70	130			A
Manganese		0.107	mg/L	0.0010	108	70	130			
Molybdenum		0.0498	mg/L	0.0010	99	70	130			
Nickel		0.0541	mg/L	0.0050	104	70	130			
Potassium		2.87	mg/L	1.0	102	70	130			
Selenium		0.0581	mg/L	0.0010	116	70	130			
Silver		0.0190	mg/L	0.0010	95	70	130			
Sodium		5.90	mg/L	1.0		70	130			A
Strontium		0.962	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.

E - Estimated value. Result exceeds the instrument upper quantitation limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: R140054										
Lab ID: H18110413-001BMS	24	Sample Matrix Spike					Run: ICPMS205-H_181120B		11/20/18 20:39	
Thallium		0.0504	mg/L	0.00050	100	70	130			
Uranium		0.0542	mg/L	0.00030	106	70	130			
Zinc		0.0665	mg/L	0.010	105	70	130			
Lab ID: H18110413-001BMSD	24	Sample Matrix Spike Duplicate					Run: ICPMS205-H_181120B		11/20/18 20:41	
Aluminum		0.316	mg/L	0.030		70	130	13	20	A
Antimony		0.0511	mg/L	0.0010	102	70	130	2.9	20	
Arsenic		0.0661	mg/L	0.0010	109	70	130	3.8	20	
Barium		0.0680	mg/L	0.050	103	70	130	2.7	20	
Beryllium		0.0508	mg/L	0.0010	102	70	130	5.4	20	
Cadmium		0.0506	mg/L	0.0010	101	70	130	0.4	20	
Calcium		91.1	mg/L	1.0		70	130	0.5	20	AE
Chromium		0.0516	mg/L	0.0050	102	70	130	0.6	20	
Cobalt		0.0532	mg/L	0.0050	101	70	130	1.3	20	
Copper		0.0641	mg/L	0.0050	99	70	130	1.7	20	
Iron		2.00	mg/L	0.020		70	130	14	20	A
Lead		0.0518	mg/L	0.0010	103	70	130	2.4	20	
Magnesium		32.5	mg/L	1.0		70	130	7.3	20	A
Manganese		0.0980	mg/L	0.0010	91	70	130	8.4	20	
Molybdenum		0.0483	mg/L	0.0010	96	70	130	3.1	20	
Nickel		0.0501	mg/L	0.0050	96	70	130	7.6	20	
Potassium		2.77	mg/L	1.0	92	70	130	3.5	20	
Selenium		0.0607	mg/L	0.0010	121	70	130	4.3	20	
Silver		0.0200	mg/L	0.0010	100	70	130	5.3	20	
Sodium		5.54	mg/L	1.0		70	130	6.3	20	A
Strontium		0.974	mg/L	0.010		70	130	1.2	20	A
Thallium		0.0522	mg/L	0.00050	104	70	130	3.5	20	
Uranium		0.0561	mg/L	0.00030	109	70	130	3.4	20	
Zinc		0.0615	mg/L	0.010	95	70	130	7.8	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.

E - Estimated value. Result exceeds the instrument upper quantitation limit.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8 Analytical Run: ICPMS205-H_181121B											
Lab ID: ICV	2	Initial Calibration Verification Standard									11/21/18 11:58
Calcium		2.99	mg/L	0.50	100	90	110				
Silver		0.0308	mg/L	0.0050	103	90	110				
Lab ID: ICSA	2	Interference Check Sample A									11/21/18 12:00
Calcium		127	mg/L	0.50	106	70	130				
Silver		9.90E-05	mg/L	0.0050							
Lab ID: ICSAB	2	Interference Check Sample AB									11/21/18 12:02
Calcium		128	mg/L	0.50	107	70	130				
Silver		0.0219	mg/L	0.0050	109	70	130				
Lab ID: ICV	2	Initial Calibration Verification Standard									11/21/18 16:40
Calcium		3.10	mg/L	0.50	103	90	110				
Silver		0.0313	mg/L	0.0050	104	90	110				
Lab ID: ICSA	2	Interference Check Sample A									11/21/18 16:42
Calcium		131	mg/L	0.50	109	70	130				
Silver		0.000100	mg/L	0.0050							
Lab ID: ICSAB	2	Interference Check Sample AB									11/21/18 16:44
Calcium		131	mg/L	0.50	109	70	130				
Silver		0.0226	mg/L	0.0050	113	70	130				
Method: E200.8 Batch: R140077											
Lab ID: LRB	2	Method Blank									Run: ICPMS205-H_181121B 11/21/18 17:38
Calcium		ND	mg/L	0.1							
Silver		ND	mg/L	2E-05							
Lab ID: LFB	2	Laboratory Fortified Blank									Run: ICPMS205-H_181121B 11/21/18 17:40
Calcium		1.02	mg/L	0.50	102	85	115				
Silver		0.0217	mg/L	0.0050	108	85	115				
Lab ID: H18110402-018BMS	2	Sample Matrix Spike									Run: ICPMS205-H_181121B 11/21/18 18:38
Calcium		57.4	mg/L	1.0		70	130			A	
Silver		0.0210	mg/L	0.0010	105	70	130				
Lab ID: H18110402-018BMSD	2	Sample Matrix Spike Duplicate									Run: ICPMS205-H_181121B 11/21/18 18:40
Calcium		57.6	mg/L	1.0		70	130	0.2	20	A	
Silver		0.0210	mg/L	0.0010	105	70	130	0.1	20		
Lab ID: H18110387-002CMS	2	Sample Matrix Spike									Run: ICPMS205-H_181121B 11/21/18 19:07
Calcium		38.1	mg/L	1.0		70	130			A	
Silver		0.101	mg/L	0.0010	101	70	130				
Lab ID: H18110387-002CMSD	2	Sample Matrix Spike Duplicate									Run: ICPMS205-H_181121B 11/21/18 19:09
Calcium		39.3	mg/L	1.0		70	130	2.9	20	A	
Silver		0.105	mg/L	0.0010	105	70	130	3.6	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

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: R140077										
Lab ID:	H18110402-010BMS	2	Sample Matrix Spike							
Calcium		65.6	mg/L	1.0		70	130			A
Silver		0.104	mg/L	0.0010	104	70	130			
Run: ICPMS205-H_181121B 11/21/18 19:33										
Lab ID:	H18110402-010BMSD	2	Sample Matrix Spike Duplicate							
Calcium		66.4	mg/L	1.0		70	130	1.1	20	A
Silver		0.102	mg/L	0.0010	102	70	130	1.6	20	
Run: ICPMS205-H_181121B 11/21/18 19:34										
Method: E200.8 Analytical Run: ICPMS205-H_181126A										
Lab ID:	ICV		Initial Calibration Verification Standard							11/26/18 11:06
Silver		0.0308	mg/L	0.0050	103	90	110			
Lab ID:	ICSA		Interference Check Sample A							11/26/18 11:08
Silver		9.28E-05	mg/L	0.0050						
Lab ID:	ICSAB		Interference Check Sample AB							11/26/18 11:10
Silver		0.0202	mg/L	0.0050	101	70	130			
Lab ID:	ICV		Initial Calibration Verification Standard							11/26/18 13:12
Silver		0.0308	mg/L	0.0050	103	90	110			
Lab ID:	ICSA		Interference Check Sample A							11/26/18 13:14
Silver		8.37E-05	mg/L	0.0050						
Lab ID:	ICSAB		Interference Check Sample AB							11/26/18 13:15
Silver		0.0200	mg/L	0.0050	100	70	130			
Method: E200.8 Batch: R140127										
Lab ID:	LRB		Method Blank							11/26/18 13:25
Silver		ND	mg/L	2E-05						
Lab ID:	LFB		Laboratory Fortified Blank							11/26/18 13:27
Silver		0.0201	mg/L	0.0050	101	85	115			
Lab ID:	H18110402-021BMS		Sample Matrix Spike							11/26/18 14:24
Silver		0.0203	mg/L	0.0010	101	70	130			
Lab ID:	H18110402-021BMSD		Sample Matrix Spike Duplicate							11/26/18 14:26
Silver		0.0204	mg/L	0.0010	102	70	130	0.7	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

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E245.1										Analytical Run: HGCV202-H_181129A	
Lab ID: ICV		Initial Calibration Verification Standard								11/29/18 13:24	
Mercury		0.0971	ug/L	0.0050	97	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard								11/29/18 14:15	
Mercury		0.103	ug/L	0.0050	103	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard								11/29/18 14:53	
Mercury		0.103	ug/L	0.0050	103	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard								11/29/18 15:43	
Mercury		0.104	ug/L	0.0050	104	90	110				
Method: E245.1										Batch: 43947	
Lab ID: MB-43947		Method Blank								Run: HGCV202-H_181129A	11/29/18 13:36
Mercury		ND	ug/L	0.001							
Lab ID: LCS-43947		Laboratory Control Sample								Run: HGCV202-H_181129A	11/29/18 13:39
Mercury		0.0493	ug/L	0.0050	99	90	110				
Lab ID: H18110388-001BMS		Sample Matrix Spike								Run: HGCV202-H_181129A	11/29/18 13:46
Mercury		0.0518	ug/L	0.0050	100	70	130				
Lab ID: H18110388-001BMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181129A	11/29/18 13:49
Mercury		0.0519	ug/L	0.0050	100	70	130	0.1	20		
Lab ID: H18110402-007BMS		Sample Matrix Spike								Run: HGCV202-H_181129A	11/29/18 14:31
Mercury		0.0525	ug/L	0.0050	105	70	130				
Lab ID: H18110402-007BMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181129A	11/29/18 14:34
Mercury		0.0510	ug/L	0.0050	102	70	130	3.1	20		
Method: E245.1										Batch: 43948	
Lab ID: MB-43948		Method Blank								Run: HGCV202-H_181129A	11/29/18 15:21
Mercury		ND	ug/L	0.001							
Lab ID: LCS-43948		Laboratory Control Sample								Run: HGCV202-H_181129A	11/29/18 15:24
Mercury		0.0513	ug/L	0.0050	103	90	110				
Lab ID: H18110402-017BMS		Sample Matrix Spike								Run: HGCV202-H_181129A	11/29/18 15:30
Mercury		0.0519	ug/L	0.0050	104	70	130				
Lab ID: H18110402-017BMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181129A	11/29/18 15:34
Mercury		0.0524	ug/L	0.0050	105	70	130	0.9	20		
Lab ID: H18110515-002CMS		Sample Matrix Spike								Run: HGCV202-H_181129A	11/29/18 16:25
Mercury		0.0523	ug/L	0.0050	105	70	130				
Lab ID: H18110515-002CMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181129A	11/29/18 16:29
Mercury		0.0513	ug/L	0.0050	103	70	130	1.8	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

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E300.0 Analytical Run: IC METROHM_181120A											
Lab ID: ICV	2	Initial Calibration Verification Standard									11/20/18 13:06
Chloride		104	mg/L	1.0	104	90	110				
Sulfate		406	mg/L	1.0	101	90	110				
Lab ID: CCV	2	Continuing Calibration Verification Standard									11/20/18 13:48
Chloride		50.6	mg/L	1.0	101	90	110				
Sulfate		200	mg/L	1.0	100	90	110				
Lab ID: CCV	2	Continuing Calibration Verification Standard									11/20/18 17:19
Chloride		51.1	mg/L	1.0	102	90	110				
Sulfate		201	mg/L	1.0	101	90	110				
Lab ID: CCV	2	Continuing Calibration Verification Standard									11/20/18 20:51
Chloride		51.3	mg/L	1.0	103	90	110				
Sulfate		202	mg/L	1.0	101	90	110				
Method: E300.0 Batch: R140055											
Lab ID: ICB	2	Method Blank									Run: IC METROHM_181120A 11/20/18 12:52
Chloride		ND	mg/L	0.009							
Sulfate		ND	mg/L	0.01							
Lab ID: LFB	2	Laboratory Fortified Blank									Run: IC METROHM_181120A 11/20/18 13:20
Chloride		24.0	mg/L	1.0	96	90	110				
Sulfate		97.7	mg/L	1.0	98	90	110				
Lab ID: H18110402-009AMS	2	Sample Matrix Spike									Run: IC METROHM_181120A 11/20/18 16:51
Chloride		25.6	mg/L	1.0	99	90	110				
Sulfate		115	mg/L	1.0	99	90	110				
Lab ID: H18110402-009AMSD	2	Sample Matrix Spike Duplicate									Run: IC METROHM_181120A 11/20/18 17:05
Chloride		25.5	mg/L	1.0	99	90	110	0.2	20		
Sulfate		115	mg/L	1.0	99	90	110	0.2	20		
Lab ID: H18110402-019AMS	2	Sample Matrix Spike									Run: IC METROHM_181120A 11/20/18 20:23
Chloride		25.3	mg/L	1.0	99	90	110				
Sulfate		115	mg/L	1.0	98	90	110				
Lab ID: H18110402-019AMSD	2	Sample Matrix Spike Duplicate									Run: IC METROHM_181120A 11/20/18 20:37
Chloride		25.4	mg/L	1.0	99	90	110	0.2	20		
Sulfate		116	mg/L	1.0	99	90	110	0.6	20		
Lab ID: H18110403-002AMS	2	Sample Matrix Spike									Run: IC METROHM_181120A 11/20/18 23:55
Chloride		37.2	mg/L	1.0	98	90	110				
Sulfate		144	mg/L	1.0	97	90	110				
Lab ID: H18110403-002AMSD	2	Sample Matrix Spike Duplicate									Run: IC METROHM_181120A 11/21/18 00:09
Chloride		37.2	mg/L	1.0	98	90	110	0.1	20		
Sulfate		145	mg/L	1.0	97	90	110	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

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E353.2 Analytical Run: FIA203-HE_181119B											
Lab ID: ICV		Initial Calibration Verification Standard									11/19/18 13:14
Nitrogen, Nitrate+Nitrite as N		0.976	mg/L	0.010	98	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard									11/19/18 16:20
Nitrogen, Nitrate+Nitrite as N		0.475	mg/L	0.010	95	90	110				
Method: E353.2 Batch: R140025											
Lab ID: MBLK		Method Blank									Run: FIA203-HE_181119B 11/19/18 13:15
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009							
Lab ID: LFB		Laboratory Fortified Blank									Run: FIA203-HE_181119B 11/19/18 13:16
Nitrogen, Nitrate+Nitrite as N		0.938	mg/L	0.011	94	90	110				
Lab ID: H18110387-010DMS		Sample Matrix Spike									Run: FIA203-HE_181119B 11/19/18 16:24
Nitrogen, Nitrate+Nitrite as N		0.991	mg/L	0.011	99	90	110				
Lab ID: H18110387-010DMSD		Sample Matrix Spike Duplicate									Run: FIA203-HE_181119B 11/19/18 16:25
Nitrogen, Nitrate+Nitrite as N		0.972	mg/L	0.011	97	90	110	2.0	10		
Method: E353.2 Analytical Run: FIA203-HE_181120C											
Lab ID: ICV		Initial Calibration Verification Standard									11/20/18 15:41
Nitrogen, Nitrate+Nitrite as N		0.969	mg/L	0.010	97	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard									11/20/18 16:00
Nitrogen, Nitrate+Nitrite as N		0.454	mg/L	0.010	91	90	110				
Method: E353.2 Batch: R140045											
Lab ID: MBLK		Method Blank									Run: FIA203-HE_181120C 11/20/18 15:42
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009							
Lab ID: LFB		Laboratory Fortified Blank									Run: FIA203-HE_181120C 11/20/18 15:44
Nitrogen, Nitrate+Nitrite as N		0.938	mg/L	0.011	94	90	110				
Lab ID: H18110402-003CMS		Sample Matrix Spike									Run: FIA203-HE_181120C 11/20/18 15:46
Nitrogen, Nitrate+Nitrite as N		0.976	mg/L	0.011	89	90	110			S	
Lab ID: H18110402-003CMSD		Sample Matrix Spike Duplicate									Run: FIA203-HE_181120C 11/20/18 15:47
Nitrogen, Nitrate+Nitrite as N		0.995	mg/L	0.011	91	90	110	1.9	10		

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

Report Date: 12/06/18

Project: 11048 Black Butte Copper Project (GW)

Work Order: H18110402

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2										Analytical Run: FIA203-HE_181128A
Lab ID: ICV		Initial Calibration Verification Standard								11/28/18 14:56
Nitrogen, Nitrate+Nitrite as N		0.986	mg/L	0.010	99	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								11/28/18 15:15
Nitrogen, Nitrate+Nitrite as N		0.496	mg/L	0.010	99	90	110			
Method: E353.2										Batch: R140217
Lab ID: MBLK		Method Blank								11/28/18 14:59
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009						Run: FIA203-HE_181128A
Lab ID: LFB		Laboratory Fortified Blank								11/28/18 15:00
Nitrogen, Nitrate+Nitrite as N		1.03	mg/L	0.011	103	90	110			Run: FIA203-HE_181128A
Lab ID: H18110484-001AMS		Sample Matrix Spike								11/28/18 15:02
Nitrogen, Nitrate+Nitrite as N		1.02	mg/L	0.011	100	90	110			Run: FIA203-HE_181128A
Lab ID: H18110484-001AMSD		Sample Matrix Spike Duplicate								11/28/18 15:04
Nitrogen, Nitrate+Nitrite as N		1.02	mg/L	0.011	100	90	110	0.0	10	Run: FIA203-HE_181128A
Lab ID: H18110402-021CMS		Sample Matrix Spike								11/28/18 15:21
Nitrogen, Nitrate+Nitrite as N		1.27	mg/L	0.011	101	90	110			Run: FIA203-HE_181128A
Lab ID: H18110402-021CMSD		Sample Matrix Spike Duplicate								11/28/18 15:22
Nitrogen, Nitrate+Nitrite as N		1.26	mg/L	0.011	99	90	110	1.3	10	Run: FIA203-HE_181128A

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



Work Order Receipt Checklist

Tintina Resources Inc

H18110402

Login completed by: Jessica C. Smith

Date Received: 11/19/2018

Reviewed by: BL2000\rtooke

Received by: TLL

Reviewed Date: 11/20/2018

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 2.4 °C, Cooler 2 at 3.8 °C and Cooler 3 at 0.7 °C. On Ice. Metals bottle in sample set BBC-1811-121 has a time of 14:25 -Time on COC is 14:45. Used time from COC. JCS 11/19/18

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

Parameter	Analytical Method ⁽¹⁾	Project-Required Detection Limit (mg/L)
Physical Parameters		
TDS	SM 2540C	10
TSS ✓	SM 2540C	10
Common Ions		
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
Nutrients		
Nitrate+Nitrite as N	353.2	0.01
Trace Constituents (Dissolved)⁽²⁾		
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
Field Parameters		
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

December 27, 2018

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

Work Order: H18120295 Quote ID: H1216 - Surface and Groundwater Sampling
Project Name: 11048 Black Butte Copper Project

Energy Laboratories Inc Helena MT received the following 8 samples for Tintina Resources Inc on 12/17/2018 for analysis.

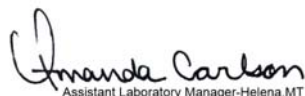
Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18120295-001	BBC-1812-108	12/14/18 10:35	12/17/18	Groundwater	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Mercury, Dissolved Fluoride Hardness Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Mercury Digestion by E245.1 Solids, Total Dissolved Solids, Total Suspended
H18120295-002	BBC-1812-112	12/14/18 11:40	12/17/18	Groundwater	Same As Above
H18120295-003	BBC-1812-113	12/14/18 12:00	12/17/18	Groundwater	Same As Above
H18120295-004	BBC-1812-114	12/14/18 12:15	12/17/18	Groundwater	Same As Above
H18120295-005	BBC-1812-116	12/14/18 13:10	12/17/18	Groundwater	Same As Above
H18120295-006	BBC-1812-119	12/14/18 14:00	12/17/18	Groundwater	Same As Above
H18120295-007	BBC-1812-120	12/14/18 14:30	12/17/18	Groundwater	Same As Above
H18120295-008	BBC-1812-121	12/14/18 15:00	12/17/18	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.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:


Assistant Laboratory Manager-Helena, MT

Digitally signed by
Amanda B. Carlson
Date: 2018.12.27 11:24:15 -07:00



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 11048 Black Butte Copper Project
Lab ID: H18120295-001
Client Sample ID: BBC-1812-108

Report Date: 12/27/18
Collection Date: 12/14/18 10:35
Date Received: 12/17/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/18 15:08 / cmm
Solids, Total Dissolved TDS @ 180 C	104	mg/L		10		A2540 C	12/17/18 15:15 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	94	mg/L		4		A2320 B	12/17/18 12:58 / cmm
Chloride	ND	mg/L		1		E300.0	12/17/18 19:12 / SRW
Sulfate	7	mg/L		1		E300.0	12/17/18 19:12 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	12/18/18 11:10 / SRW
Hardness as CaCO3	89	mg/L		1		A2340 B	12/17/18 16:22 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.24	mg/L		0.01		E353.2	12/18/18 15:26 / kmd
METALS, DISSOLVED							
Aluminum	0.020	mg/L		0.009		E200.8	12/18/18 16:29 / sld
Antimony	ND	mg/L		0.0005		E200.8	12/17/18 17:18 / sld
Arsenic	0.005	mg/L		0.001		E200.8	12/17/18 17:18 / sld
Barium	0.284	mg/L		0.003		E200.8	12/17/18 17:18 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/17/18 17:18 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/17/18 17:18 / sld
Calcium	22	mg/L		1		E200.7	12/17/18 16:22 / sld
Chromium	ND	mg/L		0.01		E200.8	12/17/18 17:18 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/17/18 17:18 / sld
Copper	ND	mg/L		0.002		E200.8	12/17/18 17:18 / sld
Iron	ND	mg/L		0.02		E200.8	12/17/18 17:18 / sld
Lead	ND	mg/L		0.0003		E200.8	12/17/18 17:18 / sld
Magnesium	8	mg/L		1		E200.7	12/17/18 16:22 / sld
Manganese	ND	mg/L		0.005		E200.8	12/17/18 17:18 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 16:25 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/17/18 17:18 / sld
Nickel	ND	mg/L		0.001		E200.8	12/17/18 17:18 / sld
Potassium	1	mg/L		1		E200.7	12/17/18 16:22 / sld
Selenium	ND	mg/L		0.0002		E200.8	12/17/18 17:18 / sld
Silver	ND	mg/L		0.0002		E200.8	12/17/18 17:18 / sld
Sodium	4	mg/L		1		E200.7	12/17/18 16:22 / sld
Strontium	0.101	mg/L		0.0002		E200.8	12/17/18 17:18 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/17/18 17:18 / sld
Uranium	0.0003	mg/L		0.0002		E200.8	12/17/18 17:18 / sld
Zinc	ND	mg/L		0.002		E200.8	12/17/18 17:18 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18120295-002
Client Sample ID: BBC-1812-112

Report Date: 12/27/18
Collection Date: 12/14/18 11:40
Date Received: 12/17/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/18 15:08 / cmm
Solids, Total Dissolved TDS @ 180 C	146	mg/L		10		A2540 C	12/17/18 15:15 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	140	mg/L		4		A2320 B	12/17/18 13:04 / cmm
Chloride	ND	mg/L		1		E300.0	12/17/18 19:27 / SRW
Sulfate	11	mg/L		1		E300.0	12/17/18 19:27 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	12/18/18 11:13 / SRW
Hardness as CaCO3	151	mg/L		1		A2340 B	12/17/18 16:26 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.37	mg/L		0.01		E353.2	12/18/18 15:27 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	12/18/18 16:31 / sld
Antimony	ND	mg/L		0.0005		E200.8	12/17/18 17:20 / sld
Arsenic	ND	mg/L		0.001		E200.8	12/17/18 17:20 / sld
Barium	0.195	mg/L		0.003		E200.8	12/17/18 17:20 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/17/18 17:20 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/17/18 17:20 / sld
Calcium	38	mg/L		1		E200.7	12/17/18 16:26 / sld
Chromium	ND	mg/L		0.01		E200.8	12/17/18 17:20 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/17/18 17:20 / sld
Copper	ND	mg/L		0.002		E200.8	12/17/18 17:20 / sld
Iron	ND	mg/L		0.02		E200.8	12/17/18 17:20 / sld
Lead	ND	mg/L		0.0003		E200.8	12/17/18 17:20 / sld
Magnesium	14	mg/L		1		E200.7	12/17/18 16:26 / sld
Manganese	ND	mg/L		0.005		E200.8	12/17/18 17:20 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 16:28 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/17/18 17:20 / sld
Nickel	ND	mg/L		0.001		E200.8	12/17/18 17:20 / sld
Potassium	ND	mg/L		1		E200.7	12/17/18 16:26 / sld
Selenium	ND	mg/L		0.0002		E200.8	12/19/18 16:04 / sld
Silver	ND	mg/L		0.0002		E200.8	12/17/18 17:20 / sld
Sodium	2	mg/L		1		E200.7	12/17/18 16:26 / sld
Strontium	0.0737	mg/L		0.0002		E200.8	12/17/18 17:20 / sld
Thallium	0.0005	mg/L		0.0002		E200.8	12/17/18 17:20 / sld
Uranium	0.0004	mg/L		0.0002		E200.8	12/17/18 17:20 / sld
Zinc	ND	mg/L		0.002		E200.8	12/17/18 17:20 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18120295-003
Client Sample ID: BBC-1812-113

Report Date: 12/27/18
Collection Date: 12/14/18 12:00
Date Received: 12/17/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	23	mg/L		10		A2540 D	12/17/18 15:09 / cmm
Solids, Total Dissolved TDS @ 180 C	222	mg/L		10		A2540 C	12/17/18 15:15 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	12/17/18 13:10 / cmm
Chloride	ND	mg/L		1		E300.0	12/17/18 19:41 / SRW
Sulfate	37	mg/L		1		E300.0	12/17/18 19:41 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	12/18/18 11:15 / SRW
Hardness as CaCO3	246	mg/L		1		A2340 B	12/17/18 16:30 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.28	mg/L		0.01		E353.2	12/18/18 15:28 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	12/18/18 16:32 / sld
Antimony	ND	mg/L		0.0005		E200.8	12/17/18 17:22 / sld
Arsenic	ND	mg/L		0.001		E200.8	12/17/18 17:22 / sld
Barium	0.115	mg/L		0.003		E200.8	12/17/18 17:22 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/17/18 17:22 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/17/18 17:22 / sld
Calcium	53	mg/L		1		E200.7	12/17/18 16:30 / sld
Chromium	ND	mg/L		0.01		E200.8	12/17/18 17:22 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/17/18 17:22 / sld
Copper	ND	mg/L		0.002		E200.8	12/17/18 17:22 / sld
Iron	ND	mg/L		0.02		E200.8	12/17/18 17:22 / sld
Lead	ND	mg/L		0.0003		E200.8	12/17/18 17:22 / sld
Magnesium	27	mg/L		1		E200.7	12/17/18 16:30 / sld
Manganese	0.006	mg/L		0.005		E200.8	12/18/18 16:32 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 16:31 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/17/18 17:22 / sld
Nickel	ND	mg/L		0.001		E200.8	12/17/18 17:22 / sld
Potassium	2	mg/L		1		E200.7	12/17/18 16:30 / sld
Selenium	0.0005	mg/L		0.0002		E200.8	12/17/18 17:22 / sld
Silver	ND	mg/L		0.0002		E200.8	12/17/18 17:22 / sld
Sodium	2	mg/L		1		E200.7	12/17/18 16:30 / sld
Strontium	0.0717	mg/L		0.0002		E200.8	12/17/18 17:22 / sld
Thallium	0.0003	mg/L		0.0002		E200.8	12/17/18 17:22 / sld
Uranium	0.0005	mg/L		0.0002		E200.8	12/17/18 17:22 / sld
Zinc	ND	mg/L		0.002		E200.8	12/17/18 17:22 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18120295-004
Client Sample ID: BBC-1812-114

Report Date: 12/27/18
Collection Date: 12/14/18 12:15
Date Received: 12/17/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	54	mg/L		10		A2540 D	12/17/18 15:09 / cmm
Solids, Total Dissolved TDS @ 180 C	219	mg/L		10		A2540 C	12/17/18 15:15 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	200	mg/L		4		A2320 B	12/17/18 13:17 / cmm
Chloride	ND	mg/L		1		E300.0	12/17/18 19:55 / SRW
Sulfate	37	mg/L		1		E300.0	12/17/18 19:55 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	12/18/18 11:24 / SRW
Hardness as CaCO3	247	mg/L		1		A2340 B	12/17/18 16:34 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.28	mg/L		0.01		E353.2	12/18/18 15:32 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	12/18/18 16:34 / sld
Antimony	ND	mg/L		0.0005		E200.8	12/17/18 17:24 / sld
Arsenic	ND	mg/L		0.001		E200.8	12/17/18 17:24 / sld
Barium	0.115	mg/L		0.003		E200.8	12/17/18 17:24 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/17/18 17:24 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/17/18 17:24 / sld
Calcium	54	mg/L		1		E200.7	12/17/18 16:34 / sld
Chromium	ND	mg/L		0.01		E200.8	12/17/18 17:24 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/17/18 17:24 / sld
Copper	ND	mg/L		0.002		E200.8	12/17/18 17:24 / sld
Iron	ND	mg/L		0.02		E200.8	12/17/18 17:24 / sld
Lead	ND	mg/L		0.0003		E200.8	12/17/18 17:24 / sld
Magnesium	27	mg/L		1		E200.7	12/17/18 16:34 / sld
Manganese	ND	mg/L		0.005		E200.8	12/18/18 16:34 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 16:34 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/17/18 17:24 / sld
Nickel	ND	mg/L		0.001		E200.8	12/17/18 17:24 / sld
Potassium	2	mg/L		1		E200.7	12/17/18 16:34 / sld
Selenium	0.0004	mg/L		0.0002		E200.8	12/17/18 17:24 / sld
Silver	ND	mg/L		0.0002		E200.8	12/17/18 17:24 / sld
Sodium	2	mg/L		1		E200.7	12/17/18 16:34 / sld
Strontium	0.0735	mg/L		0.0002		E200.8	12/17/18 17:24 / sld
Thallium	0.0003	mg/L		0.0002		E200.8	12/17/18 17:24 / sld
Uranium	0.0005	mg/L		0.0002		E200.8	12/17/18 17:24 / sld
Zinc	ND	mg/L		0.002		E200.8	12/19/18 16:06 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18120295-005
Client Sample ID: BBC-1812-116

Report Date: 12/27/18
Collection Date: 12/14/18 13:10
Date Received: 12/17/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	27	mg/L		10		A2540 D	12/17/18 15:09 / cmm
Solids, Total Dissolved TDS @ 180 C	229	mg/L		10		A2540 C	12/17/18 15:16 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	12/17/18 13:24 / cmm
Chloride	ND	mg/L		1		E300.0	12/17/18 20:09 / SRW
Sulfate	16	mg/L		1		E300.0	12/17/18 20:09 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	12/18/18 11:30 / SRW
Hardness as CaCO3	245	mg/L		1		A2340 B	12/17/18 16:37 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.28	mg/L		0.01		E353.2	12/18/18 15:33 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	12/18/18 16:36 / sld
Antimony	ND	mg/L		0.0005		E200.8	12/17/18 17:26 / sld
Arsenic	ND	mg/L		0.001		E200.8	12/17/18 17:26 / sld
Barium	0.053	mg/L		0.003		E200.8	12/17/18 17:26 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/17/18 17:26 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/17/18 17:26 / sld
Calcium	61	mg/L		1		E200.7	12/17/18 16:37 / sld
Chromium	ND	mg/L		0.01		E200.8	12/17/18 17:26 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/17/18 17:26 / sld
Copper	ND	mg/L		0.002		E200.8	12/17/18 17:26 / sld
Iron	ND	mg/L		0.02		E200.8	12/17/18 17:26 / sld
Lead	ND	mg/L		0.0003		E200.8	12/17/18 17:26 / sld
Magnesium	22	mg/L		1		E200.7	12/17/18 16:37 / sld
Manganese	0.012	mg/L		0.005		E200.8	12/18/18 16:36 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 16:44 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/17/18 17:26 / sld
Nickel	ND	mg/L		0.001		E200.8	12/17/18 17:26 / sld
Potassium	1	mg/L		1		E200.7	12/17/18 16:37 / sld
Selenium	0.0003	mg/L		0.0002		E200.8	12/17/18 17:26 / sld
Silver	ND	mg/L		0.0002		E200.8	12/17/18 17:26 / sld
Sodium	2	mg/L		1		E200.7	12/17/18 16:37 / sld
Strontium	0.113	mg/L		0.0002		E200.8	12/17/18 17:26 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/17/18 17:26 / sld
Uranium	0.0008	mg/L		0.0002		E200.8	12/17/18 17:26 / sld
Zinc	ND	mg/L		0.002		E200.8	12/17/18 17:26 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18120295-006
Client Sample ID: BBC-1812-119

Report Date: 12/27/18
Collection Date: 12/14/18 14:00
Date Received: 12/17/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/18 15:10 / cmm
Solids, Total Dissolved TDS @ 180 C	179	mg/L		10		A2540 C	12/17/18 15:16 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	12/17/18 13:31 / cmm
Chloride	2	mg/L		1		E300.0	12/17/18 20:23 / SRW
Sulfate	10	mg/L		1		E300.0	12/17/18 20:23 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	12/18/18 11:32 / SRW
Hardness as CaCO3	176	mg/L		1		A2340 B	12/17/18 16:41 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.34	mg/L		0.01		E353.2	12/18/18 15:34 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	12/18/18 16:38 / sld
Antimony	ND	mg/L		0.0005		E200.8	12/17/18 17:40 / sld
Arsenic	0.004	mg/L		0.001		E200.8	12/17/18 17:40 / sld
Barium	0.116	mg/L		0.003		E200.8	12/17/18 17:40 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/17/18 17:40 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/17/18 17:40 / sld
Calcium	46	mg/L		1		E200.7	12/17/18 16:41 / sld
Chromium	ND	mg/L		0.01		E200.8	12/17/18 17:40 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/17/18 17:40 / sld
Copper	ND	mg/L		0.002		E200.8	12/17/18 17:40 / sld
Iron	ND	mg/L		0.02		E200.8	12/17/18 17:40 / sld
Lead	ND	mg/L		0.0003		E200.8	12/17/18 17:40 / sld
Magnesium	15	mg/L		1		E200.7	12/17/18 16:41 / sld
Manganese	ND	mg/L		0.005		E200.8	12/17/18 17:40 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 16:47 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/17/18 17:40 / sld
Nickel	ND	mg/L		0.001		E200.8	12/17/18 17:40 / sld
Potassium	3	mg/L		1		E200.7	12/17/18 16:41 / sld
Selenium	0.0004	mg/L		0.0002		E200.8	12/17/18 17:40 / sld
Silver	ND	mg/L		0.0002		E200.8	12/17/18 17:40 / sld
Sodium	5	mg/L		1		E200.7	12/17/18 16:41 / sld
Strontium	0.169	mg/L		0.0002		E200.8	12/17/18 17:40 / sld
Thallium	0.0010	mg/L		0.0002		E200.8	12/17/18 17:40 / sld
Uranium	0.0009	mg/L		0.0002		E200.8	12/17/18 17:40 / sld
Zinc	ND	mg/L		0.002		E200.8	12/17/18 17:40 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18120295-007
Client Sample ID: BBC-1812-120

Report Date: 12/27/18
Collection Date: 12/14/18 14:30
Date Received: 12/17/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/18 15:10 / cmm
Solids, Total Dissolved TDS @ 180 C	253	mg/L		10		A2540 C	12/17/18 15:16 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	12/17/18 13:39 / cmm
Chloride	8	mg/L		1		E300.0	12/17/18 20:37 / SRW
Sulfate	24	mg/L		1		E300.0	12/17/18 20:37 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	12/18/18 11:35 / SRW
Hardness as CaCO3	258	mg/L		1		A2340 B	12/17/18 16:45 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.41	mg/L		0.01		E353.2	12/18/18 15:35 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	12/18/18 16:52 / sld
Antimony	ND	mg/L		0.0005		E200.8	12/17/18 17:41 / sld
Arsenic	ND	mg/L		0.001		E200.8	12/17/18 17:41 / sld
Barium	0.190	mg/L		0.003		E200.8	12/17/18 17:41 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/17/18 17:41 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/17/18 17:41 / sld
Calcium	61	mg/L		1		E200.7	12/17/18 16:45 / sld
Chromium	ND	mg/L		0.01		E200.8	12/17/18 17:41 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/17/18 17:41 / sld
Copper	ND	mg/L		0.002		E200.8	12/17/18 17:41 / sld
Iron	ND	mg/L		0.02		E200.8	12/17/18 17:41 / sld
Lead	ND	mg/L		0.0003		E200.8	12/17/18 17:41 / sld
Magnesium	26	mg/L		1		E200.7	12/17/18 16:45 / sld
Manganese	ND	mg/L		0.005		E200.8	12/17/18 17:41 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 16:51 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/17/18 17:41 / sld
Nickel	ND	mg/L		0.001		E200.8	12/17/18 17:41 / sld
Potassium	1	mg/L		1		E200.7	12/17/18 16:45 / sld
Selenium	0.0002	mg/L		0.0002		E200.8	12/21/18 14:11 / sld
Silver	ND	mg/L		0.0002		E200.8	12/17/18 17:41 / sld
Sodium	2	mg/L		1		E200.7	12/17/18 16:45 / sld
Strontium	0.113	mg/L		0.0002		E200.8	12/17/18 17:41 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/17/18 17:41 / sld
Uranium	0.0007	mg/L		0.0002		E200.8	12/17/18 17:41 / sld
Zinc	ND	mg/L		0.002		E200.8	12/18/18 16:52 / sld

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: 11048 Black Butte Copper Project
Lab ID: H18120295-008
Client Sample ID: BBC-1812-121

Report Date: 12/27/18
Collection Date: 12/14/18 15:00
Date Received: 12/17/18
Matrix: Groundwater

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		10		A2540 D	12/17/18 15:10 / cmm
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	12/17/18 15:17 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	12/17/18 13:53 / cmm
Chloride	ND	mg/L		1		E300.0	12/17/18 20:51 / SRW
Sulfate	ND	mg/L		1		E300.0	12/17/18 20:51 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	12/18/18 11:38 / SRW
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/19/18 11:37 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	12/18/18 15:39 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	12/18/18 16:54 / sld
Antimony	ND	mg/L		0.0005		E200.8	12/17/18 17:43 / sld
Arsenic	ND	mg/L		0.001		E200.8	12/17/18 17:43 / sld
Barium	ND	mg/L		0.003		E200.8	12/17/18 17:43 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/17/18 17:43 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/17/18 17:43 / sld
Calcium	ND	mg/L		1		E200.7	12/17/18 17:38 / sld
Chromium	ND	mg/L		0.01		E200.8	12/17/18 17:43 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/17/18 17:43 / sld
Copper	ND	mg/L		0.002		E200.8	12/17/18 17:43 / sld
Iron	ND	mg/L		0.02		E200.8	12/17/18 17:43 / sld
Lead	ND	mg/L		0.0003		E200.8	12/17/18 17:43 / sld
Magnesium	ND	mg/L		1		E200.7	12/17/18 17:38 / sld
Manganese	ND	mg/L		0.005		E200.8	12/17/18 17:43 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 16:54 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/17/18 17:43 / sld
Nickel	ND	mg/L		0.001		E200.8	12/17/18 17:43 / sld
Potassium	ND	mg/L		1		E200.7	12/17/18 17:38 / sld
Selenium	ND	mg/L		0.0002		E200.8	12/17/18 17:43 / sld
Silver	ND	mg/L		0.0002		E200.8	12/17/18 17:43 / sld
Sodium	ND	mg/L		1		E200.7	12/17/18 17:38 / sld
Strontium	ND	mg/L		0.0002		E200.8	12/17/18 17:43 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/17/18 17:43 / sld
Uranium	ND	mg/L		0.0002		E200.8	12/17/18 17:43 / sld
Zinc	ND	mg/L		0.002		E200.8	12/17/18 17:43 / sld

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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R140679
Lab ID: MBLK		Method Blank								Run: PHSC_101-H_181217A 12/17/18 11:48
Alkalinity, Total as CaCO3	2		mg/L	2						
Lab ID: LCS		Laboratory Control Sample								Run: PHSC_101-H_181217A 12/17/18 11:54
Alkalinity, Total as CaCO3	600		mg/L	4.0	99	90	110			
Lab ID: H18120294-002ADUP		Sample Duplicate								Run: PHSC_101-H_181217A 12/17/18 12:22
Alkalinity, Total as CaCO3	210		mg/L	4.0				1.4	10	
Lab ID: H18120295-007ADUP		Sample Duplicate								Run: PHSC_101-H_181217A 12/17/18 13:45
Alkalinity, Total as CaCO3	220		mg/L	4.0				0.6	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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C								Batch: TDS181217A		
Lab ID: MB-1_181217A		Method Blank						Run: ACCU-124 (14410200)_18121	12/17/18 15:13	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-2_181217A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18121	12/17/18 15:13	
Solids, Total Dissolved TDS @ 180 C		1850	mg/L	20	93	90	110			
Lab ID: H18120294-001A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18121	12/17/18 15:13	
Solids, Total Dissolved TDS @ 180 C		176	mg/L	10				1.7	5	
Lab ID: H18120295-004A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18121	12/17/18 15:16	
Solids, Total Dissolved TDS @ 180 C		222	mg/L	10				1.4	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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D								Batch: TSS181217A		
Lab ID: MB-1_181217A		Method Blank						Run: ACCU-124 (14410200)_18121		12/17/18 15:06
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
Lab ID: LCS-2_181217A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18121		12/17/18 15:06
Solids, Total Suspended TSS @ 105 C		92.0	mg/L	10	92	80	120			
Lab ID: H18120294-001ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18121		12/17/18 15:07
Solids, Total Suspended TSS @ 105 C		3.60	mg/L	10						5
Lab ID: H18120295-004ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18121		12/17/18 15:09
Solids, Total Suspended TSS @ 105 C		56.0	mg/L	10				3.6		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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: A4500-F C										Analytical Run: MANTECH 2_181218A	
Lab ID: ICV		Initial Calibration Verification Standard								12/18/18 10:41	
Fluoride		0.8	mg/L	0.1	100	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard								12/18/18 11:18	
Fluoride		1.0	mg/L	0.1	102	90	110				
Method: A4500-F C										Batch: R140715	
Lab ID: MBLK		Method Blank								Run: MANTECH 2_181218A	12/18/18 10:45
Fluoride		0.04	mg/L	0.003							
Lab ID: H18120294-001AMS		Sample Matrix Spike								Run: MANTECH 2_181218A	12/18/18 10:50
Fluoride		1.1	mg/L	0.1	100	85	115				
Lab ID: H18120294-002ADUP		Sample Duplicate								Run: MANTECH 2_181218A	12/18/18 10:55
Fluoride		0.2	mg/L	0.1				4.9	10		
Lab ID: H18120295-004ADUP		Sample Duplicate								Run: MANTECH 2_181218A	12/18/18 11:27
Fluoride		0.2	mg/L	0.1				4.4	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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.7								Analytical Run: ICP2-HE_181217A			
Lab ID: ICV	4	Initial Calibration Verification Standard								12/17/18 12:50	
Calcium		40.2	mg/L	1.0	100	95	105				
Magnesium		40.0	mg/L	1.0	100	95	105				
Potassium		39.2	mg/L	1.0	98	95	105				
Sodium		39.0	mg/L	1.0	97	95	105				
Lab ID: CCV-1	4	Continuing Calibration Verification Standard								12/17/18 12:59	
Calcium		25.6	mg/L	1.0	102	95	105				
Magnesium		24.8	mg/L	1.0	99	95	105				
Potassium		25.6	mg/L	1.0	103	95	105				
Sodium		25.5	mg/L	1.0	102	95	105				
Lab ID: ICSA	4	Interference Check Sample A								12/17/18 13:10	
Calcium		497	mg/L	1.0	99	80	120				
Magnesium		548	mg/L	1.0	110	80	120				
Potassium		-0.0283	mg/L	1.0		0	0				
Sodium		0.00869	mg/L	1.0		0	0				
Lab ID: ICSAB	4	Interference Check Sample AB								12/17/18 13:14	
Calcium		492	mg/L	1.0	98	80	120				
Magnesium		543	mg/L	1.0	109	80	120				
Potassium		20.0	mg/L	1.0	100	80	120				
Sodium		19.8	mg/L	1.0	99	80	120				
Lab ID: CCV	4	Continuing Calibration Verification Standard								12/17/18 16:03	
Calcium		24.1	mg/L	1.0	96	90	110				
Magnesium		23.7	mg/L	1.0	95	90	110				
Potassium		24.5	mg/L	1.0	98	90	110				
Sodium		24.7	mg/L	1.0	99	90	110				
Lab ID: CCV	4	Continuing Calibration Verification Standard								12/17/18 17:15	
Calcium		25.2	mg/L	1.0	101	90	110				
Magnesium		24.6	mg/L	1.0	98	90	110				
Potassium		23.9	mg/L	1.0	96	90	110				
Sodium		23.9	mg/L	1.0	96	90	110				
Method: E200.7								Batch: R140696			
Lab ID: MB	4	Method Blank								Run: ICP2-HE_181217A	12/17/18 13:25
Calcium		ND	mg/L		0.07						
Magnesium		ND	mg/L		0.01						
Potassium		ND	mg/L		0.06						
Sodium		ND	mg/L		0.02						
Lab ID: LFB	4	Laboratory Fortified Blank								Run: ICP2-HE_181217A	12/17/18 13:29
Calcium		52.8	mg/L	1.0	106	85	115				
Magnesium		52.7	mg/L	1.0	105	85	115				
Potassium		50.8	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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7 Batch: R140696										
Lab ID: LFB	4	Laboratory Fortified Blank								12/17/18 13:29
Sodium		50.3	mg/L	1.0	101	85	115			
Run: ICP2-HE_181217A										
Lab ID: H18120294-004BMS2	4	Sample Matrix Spike								12/17/18 15:56
Calcium		96.5	mg/L	1.0	98	70	130			
Magnesium		62.5	mg/L	1.0	101	70	130			
Potassium		51.1	mg/L	1.0	100	70	130			
Sodium		52.1	mg/L	1.0	100	70	130			
Run: ICP2-HE_181217A										
Lab ID: H18120294-004BMSD	4	Sample Matrix Spike Duplicate								12/17/18 16:00
Calcium		96.2	mg/L	1.0	98	70	130	0.3	20	
Magnesium		62.2	mg/L	1.0	100	70	130	0.6	20	
Potassium		54.1	mg/L	1.0	106	70	130	5.8	20	
Sodium		55.5	mg/L	1.0	107	70	130	6.4	20	
Run: ICP2-HE_181217A										
Lab ID: H18120295-007BMS2	4	Sample Matrix Spike								12/17/18 17:31
Calcium		98.5	mg/L	1.0	76	70	130			
Magnesium		70.9	mg/L	1.0	90	70	130			
Potassium		56.7	mg/L	1.0	111	70	130			
Sodium		59.0	mg/L	1.0	113	70	130			
Run: ICP2-HE_181217A										
Lab ID: H18120295-007BMSD	4	Sample Matrix Spike Duplicate								12/17/18 17:34
Calcium		99.3	mg/L	1.0	77	70	130	0.8	20	
Magnesium		71.8	mg/L	1.0	92	70	130	1.2	20	
Potassium		56.1	mg/L	1.0	109	70	130	1.1	20	
Sodium		58.2	mg/L	1.0	112	70	130	1.4	20	
Run: ICP2-HE_181217A										

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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8		Analytical Run: ICPMS205-H_181217A									
Lab ID: ICV	19	Initial Calibration Verification Standard							12/17/18 15:38		
Antimony		0.0604	mg/L	0.050	101	90	110				
Arsenic		0.0610	mg/L	0.0050	102	90	110				
Barium		0.0616	mg/L	0.10	103	90	110				
Beryllium		0.0297	mg/L	0.0010	99	90	110				
Cadmium		0.0309	mg/L	0.0010	103	90	110				
Chromium		0.0621	mg/L	0.010	104	90	110				
Cobalt		0.0627	mg/L	0.010	105	90	110				
Copper		0.0627	mg/L	0.010	104	90	110				
Iron		0.303	mg/L	0.020	101	90	110				
Lead		0.0637	mg/L	0.010	106	90	110				
Manganese		0.314	mg/L	0.010	105	90	110				
Molybdenum		0.0598	mg/L	0.0050	100	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		0.0610	mg/L	0.10	102	90	110				
Thallium		0.0636	mg/L	0.10	106	90	110				
Uranium		0.0611	mg/L	0.00030	102	90	110				
Zinc		0.0626	mg/L	0.010	104	90	110				
Lab ID: ICSA	19	Interference Check Sample A							12/17/18 15:40		
Antimony		0.000491	mg/L	0.050							
Arsenic		0.000102	mg/L	0.0050							
Barium		4.72E-05	mg/L	0.10							
Beryllium		5.95E-05	mg/L	0.0010							
Cadmium		0.000149	mg/L	0.0010							
Chromium		0.00127	mg/L	0.010							
Cobalt		3.05E-05	mg/L	0.010							
Copper		0.000177	mg/L	0.010							
Iron		103	mg/L	0.020	103	70	130				
Lead		8.35E-05	mg/L	0.010							
Manganese		0.000174	mg/L	0.010							
Molybdenum		0.817	mg/L	0.0050	102	70	130				
Nickel		9.93E-05	mg/L	0.010							
Selenium		7.02E-05	mg/L	0.0050							
Silver		0.000126	mg/L	0.0050							
Strontium		0.00112	mg/L	0.10							
Thallium		0.000105	mg/L	0.10							
Uranium		2.41E-05	mg/L	0.00030							
Zinc		0.000109	mg/L	0.010							
Lab ID: ICSAB	19	Interference Check Sample AB							12/17/18 15:42		
Antimony		0.000141	mg/L	0.050		0	0				
Arsenic		0.0105	mg/L	0.0050	105	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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8								Analytical Run: ICPMS205-H_181217A			
Lab ID: ICSAB	19 Interference Check Sample AB							12/17/18 15:42			
Barium		5.66E-05	mg/L	0.10		0	0				
Beryllium		4.14E-05	mg/L	0.0010		0	0				
Cadmium		0.0103	mg/L	0.0010	103	70	130				
Chromium		0.0219	mg/L	0.010	109	70	130				
Cobalt		0.0208	mg/L	0.010	104	70	130				
Copper		0.0202	mg/L	0.010	101	70	130				
Iron		99.7	mg/L	0.020	100	70	130				
Lead		7.97E-05	mg/L	0.010		0	0				
Manganese		0.0207	mg/L	0.010	103	70	130				
Molybdenum		0.837	mg/L	0.0050	105	70	130				
Nickel		0.0209	mg/L	0.010	105	70	130				
Selenium		0.0100	mg/L	0.0050	100	70	130				
Silver		0.0200	mg/L	0.0050	100	70	130				
Strontium		0.00112	mg/L	0.10		0	0				
Thallium		8.79E-05	mg/L	0.10		0	0				
Uranium		8.84E-06	mg/L	0.00030		0	0				
Zinc		0.00996	mg/L	0.010	100	70	130				

Method: E200.8								Batch: R140693		
Lab ID: LRB	19 Method Blank							Run: ICPMS205-H_181217A		12/17/18 15:53
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		ND	mg/L	0.002						
Lead		3E-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						

Lab ID: LFB	19 Laboratory Fortified Blank							Run: ICPMS205-H_181217A		12/17/18 15:55
Antimony		0.0513	mg/L	0.050	103	85	115			
Arsenic		0.0507	mg/L	0.0050	101	85	115			
Barium		0.0503	mg/L	0.10	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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										
Batch: R140693										
Lab ID:	LFB	19 Laboratory Fortified Blank			Run: ICPMS205-H_181217A			12/17/18 15:55		
Beryllium		0.0481	mg/L	0.0010	96	85	115			
Cadmium		0.0508	mg/L	0.0010	102	85	115			
Chromium		0.0507	mg/L	0.010	101	85	115			
Cobalt		0.0513	mg/L	0.010	103	85	115			
Copper		0.0515	mg/L	0.010	103	85	115			
Iron		0.150	mg/L	0.020	100	85	115			
Lead		0.0513	mg/L	0.010	103	85	115			
Manganese		0.0510	mg/L	0.010	102	85	115			
Molybdenum		0.0484	mg/L	0.0050	97	85	115			
Nickel		0.0522	mg/L	0.010	104	85	115			
Selenium		0.0500	mg/L	0.0050	100	85	115			
Silver		0.0200	mg/L	0.0050	100	85	115			
Strontium		0.0503	mg/L	0.10	101	85	115			
Thallium		0.0507	mg/L	0.10	101	85	115			
Uranium		0.0503	mg/L	0.00030	101	85	115			
Zinc		0.0518	mg/L	0.010	104	85	115			
Lab ID:	H18120294-005BMS	19 Sample Matrix Spike			Run: ICPMS205-H_181217A			12/17/18 17:28		
Antimony		0.0522	mg/L	0.0010	104	70	130			
Arsenic		0.0523	mg/L	0.0010	104	70	130			
Barium		0.147	mg/L	0.050	98	70	130			
Beryllium		0.0546	mg/L	0.0010	109	70	130			
Cadmium		0.0522	mg/L	0.0010	104	70	130			
Chromium		0.0515	mg/L	0.0050	103	70	130			
Cobalt		0.0515	mg/L	0.0050	103	70	130			
Copper		0.0526	mg/L	0.0050	104	70	130			
Iron		0.174	mg/L	0.020	100	70	130			
Lead		0.0521	mg/L	0.0010	104	70	130			
Manganese		0.0580	mg/L	0.0010	101	70	130			
Molybdenum		0.0500	mg/L	0.0010	100	70	130			
Nickel		0.0522	mg/L	0.0050	104	70	130			
Selenium		0.0562	mg/L	0.0010	112	70	130			
Silver		0.0205	mg/L	0.0010	103	70	130			
Strontium		0.180	mg/L	0.010	102	70	130			
Thallium		0.0517	mg/L	0.00050	103	70	130			
Uranium		0.0518	mg/L	0.00030	103	70	130			
Zinc		0.0537	mg/L	0.010	103	70	130			
Lab ID:	H18120294-005BMSD	19 Sample Matrix Spike Duplicate			Run: ICPMS205-H_181217A			12/17/18 17:30		
Antimony		0.0522	mg/L	0.0010	104	70	130	0.0	20	
Arsenic		0.0519	mg/L	0.0010	103	70	130	0.8	20	
Barium		0.145	mg/L	0.050	95	70	130	1.0	20	
Beryllium		0.0542	mg/L	0.0010	108	70	130	0.6	20	
Cadmium		0.0521	mg/L	0.0010	104	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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: R140693										
Lab ID:	H18120294-005BMSD	19	Sample Matrix Spike Duplicate							
										Run: ICPMS205-H_181217A 12/17/18 17:30
Chromium		0.0512	mg/L	0.0050	102	70	130	0.6	20	
Cobalt		0.0513	mg/L	0.0050	103	70	130	0.3	20	
Copper		0.0527	mg/L	0.0050	104	70	130	0.1	20	
Iron		0.172	mg/L	0.020	99	70	130	0.8	20	
Lead		0.0523	mg/L	0.0010	105	70	130	0.4	20	
Manganese		0.0572	mg/L	0.0010	100	70	130	1.3	20	
Molybdenum		0.0509	mg/L	0.0010	102	70	130	1.8	20	
Nickel		0.0518	mg/L	0.0050	104	70	130	0.7	20	
Selenium		0.0567	mg/L	0.0010	113	70	130	1.0	20	
Silver		0.0208	mg/L	0.0010	104	70	130	1.1	20	
Strontium		0.178	mg/L	0.010	98	70	130	1.0	20	
Thallium		0.0522	mg/L	0.00050	104	70	130	0.8	20	
Uranium		0.0522	mg/L	0.00030	104	70	130	0.8	20	
Zinc		0.0539	mg/L	0.010	103	70	130	0.3	20	
Lab ID:	H18120295-008BMS	19	Sample Matrix Spike							
										Run: ICPMS205-H_181217A 12/17/18 17:45
Antimony		0.0532	mg/L	0.0010	106	70	130			
Arsenic		0.0509	mg/L	0.0010	102	70	130			
Barium		0.0521	mg/L	0.050	104	70	130			
Beryllium		0.0538	mg/L	0.0010	108	70	130			
Cadmium		0.0535	mg/L	0.0010	107	70	130			
Chromium		0.0515	mg/L	0.0050	103	70	130			
Cobalt		0.0522	mg/L	0.0050	104	70	130			
Copper		0.0531	mg/L	0.0050	106	70	130			
Iron		0.149	mg/L	0.020	99	70	130			
Lead		0.0518	mg/L	0.0010	104	70	130			
Manganese		0.0519	mg/L	0.0010	102	70	130			
Molybdenum		0.0510	mg/L	0.0010	102	70	130			
Nickel		0.0526	mg/L	0.0050	105	70	130			
Selenium		0.0529	mg/L	0.0010	106	70	130			
Silver		0.0210	mg/L	0.0010	105	70	130			
Strontium		0.0505	mg/L	0.010	101	70	130			
Thallium		0.0513	mg/L	0.00050	103	70	130			
Uranium		0.0507	mg/L	0.00030	101	70	130			
Zinc		0.0539	mg/L	0.010	107	70	130			
Lab ID:	H18120295-008BMSD	19	Sample Matrix Spike Duplicate							
										Run: ICPMS205-H_181217A 12/17/18 17:47
Antimony		0.0530	mg/L	0.0010	106	70	130	0.5	20	
Arsenic		0.0503	mg/L	0.0010	101	70	130	1.2	20	
Barium		0.0510	mg/L	0.050	102	70	130	2.1	20	
Beryllium		0.0531	mg/L	0.0010	106	70	130	1.3	20	
Cadmium		0.0525	mg/L	0.0010	105	70	130	2.0	20	
Chromium		0.0509	mg/L	0.0050	102	70	130	1.1	20	
Cobalt		0.0515	mg/L	0.0050	103	70	130	1.4	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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R140693
Lab ID: H18120295-008BMSD	19	Sample Matrix Spike Duplicate			Run: ICPMS205-H_181217A				12/17/18 17:47	
Copper		0.0523	mg/L	0.0050	104	70	130	1.4	20	
Iron		0.147	mg/L	0.020	98	70	130	1.4	20	
Lead		0.0521	mg/L	0.0010	104	70	130	0.6	20	
Manganese		0.0517	mg/L	0.0010	102	70	130	0.4	20	
Molybdenum		0.0506	mg/L	0.0010	101	70	130	0.7	20	
Nickel		0.0516	mg/L	0.0050	103	70	130	1.8	20	
Selenium		0.0520	mg/L	0.0010	104	70	130	1.8	20	
Silver		0.0209	mg/L	0.0010	105	70	130	0.5	20	
Strontium		0.0501	mg/L	0.010	100	70	130	0.8	20	
Thallium		0.0518	mg/L	0.00050	104	70	130	1.0	20	
Uranium		0.0508	mg/L	0.00030	102	70	130	0.2	20	
Zinc		0.0524	mg/L	0.010	104	70	130	2.8	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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_181218B		
Lab ID: ICV	3	Initial Calibration Verification Standard								12/18/18 14:24
Aluminum		0.305	mg/L	0.10	102	90	110			
Manganese		0.311	mg/L	0.010	104	90	110			
Zinc		0.0615	mg/L	0.010	103	90	110			
Lab ID: ICSA	3	Interference Check Sample A								12/18/18 14:26
Aluminum		42.0	mg/L	0.10	105	70	130			
Manganese		6.38E-05	mg/L	0.010						
Zinc		0.000340	mg/L	0.010						
Lab ID: ICSAB	3	Interference Check Sample AB								12/18/18 14:28
Aluminum		41.9	mg/L	0.10	105	70	130			
Manganese		0.0206	mg/L	0.010	103	70	130			
Zinc		0.0103	mg/L	0.010	103	70	130			
Method: E200.8								Batch: R140739		
Lab ID: LRB	3	Method Blank								Run: ICPMS205-H_181218B 12/18/18 14:37
Aluminum		ND	mg/L	0.003						
Manganese		ND	mg/L	0.0003						
Zinc		ND	mg/L	0.0003						
Lab ID: LFB	3	Laboratory Fortified Blank								Run: ICPMS205-H_181218B 12/18/18 14:39
Aluminum		0.0512	mg/L	0.10	102	85	115			
Manganese		0.0491	mg/L	0.010	98	85	115			
Zinc		0.0556	mg/L	0.010	111	85	115			
Lab ID: H18120295-001BMS	3	Sample Matrix Spike								Run: ICPMS205-H_181218B 12/18/18 16:40
Aluminum		0.0684	mg/L	0.030	97	70	130			
Manganese		0.0492	mg/L	0.0010	98	70	130			
Zinc		0.0509	mg/L	0.010	99	70	130			
Lab ID: H18120295-001BMSD	3	Sample Matrix Spike Duplicate								Run: ICPMS205-H_181218B 12/18/18 16:42
Aluminum		0.0692	mg/L	0.030	99	70	130	1.2	20	
Manganese		0.0499	mg/L	0.0010	100	70	130	1.6	20	
Zinc		0.0520	mg/L	0.010	101	70	130	2.2	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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8		Analytical Run: ICPMS205-H_181219A									
Lab ID: ICV	2	Initial Calibration Verification Standard									12/19/18 15:35
Selenium		0.0622	mg/L	0.0050	104	90	110				
Zinc		0.0624	mg/L	0.010	104	90	110				
Lab ID: ICSA	2	Interference Check Sample A									12/19/18 15:36
Selenium		9.64E-05	mg/L	0.0050							
Zinc		0.000291	mg/L	0.010							
Lab ID: ICSAB	2	Interference Check Sample AB									12/19/18 15:38
Selenium		0.0108	mg/L	0.0050	108	70	130				
Zinc		0.0113	mg/L	0.010	113	70	130				
Method: E200.8		Batch: R140750									
Lab ID: LRB	2	Method Blank									Run: ICPMS205-H_181219A 12/19/18 15:56
Selenium		ND	mg/L	2E-05							
Zinc		ND	mg/L	0.0003							
Lab ID: LFB	2	Laboratory Fortified Blank									Run: ICPMS205-H_181219A 12/19/18 15:58
Selenium		0.0498	mg/L	0.0050	100	85	115				
Zinc		0.0512	mg/L	0.010	102	85	115				
Lab ID: H18120295-002BMS	2	Sample Matrix Spike									Run: ICPMS205-H_181219A 12/19/18 16:16
Selenium		0.0532	mg/L	0.0010	106	70	130				
Zinc		0.0509	mg/L	0.010	101	70	130				
Lab ID: H18120295-002BMSD	2	Sample Matrix Spike Duplicate									Run: ICPMS205-H_181219A 12/19/18 16:17
Selenium		0.0536	mg/L	0.0010	107	70	130	0.7	20		
Zinc		0.0528	mg/L	0.010	105	70	130	3.6	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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8								Analytical Run: ICPMS205-H_181221A			
Lab ID: ICV	Initial Calibration Verification Standard										
Selenium		0.0605	mg/L	0.0050	101	90	110			12/21/18 13:38	
Lab ID: ICSA	Interference Check Sample A										
Selenium		0.000142	mg/L	0.0050						12/21/18 13:40	
Lab ID: ICSAB	Interference Check Sample AB										
Selenium		0.0106	mg/L	0.0050	106	70	130			12/21/18 13:42	
Method: E200.8								Batch: R140832			
Lab ID: LRB	Method Blank										
Selenium		ND	mg/L	2E-05						Run: ICPMS205-H_181221A 12/21/18 14:04	
Lab ID: LFB	Laboratory Fortified Blank										
Selenium		0.0486	mg/L	0.0050	97	85	115			Run: ICPMS205-H_181221A 12/21/18 14:06	
Lab ID: H18120295-007BMS	Sample Matrix Spike										
Selenium		0.0529	mg/L	0.0010	105	70	130			Run: ICPMS205-H_181221A 12/21/18 14:17	
Lab ID: H18120295-007BMSD	Sample Matrix Spike Duplicate										
Selenium		0.0522	mg/L	0.0010	104	70	130	1.2	20	Run: ICPMS205-H_181221A 12/21/18 14:19	

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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E245.1										Analytical Run: HGCV202-H_181220A	
Lab ID: ICV		Initial Calibration Verification Standard								12/19/18 15:23	
Mercury		0.0938	ug/L	0.0050	94	90	110				
Lab ID: CCV1		Continuing Calibration Verification Standard								12/19/18 15:26	
Mercury		0.101	ug/L	0.0050	101	95	105				
Method: E245.1										Batch: 44182	
Lab ID: MB-44182		Method Blank								Run: HGCV202-H_181220A	12/19/18 15:43
Mercury		ND	ug/L	0.0009							
Lab ID: LCS-44182		Laboratory Control Sample								Run: HGCV202-H_181220A	12/19/18 15:46
Mercury		0.0493	ug/L	0.0050	99	90	110				
Lab ID: H18120295-004BMS		Sample Matrix Spike								Run: HGCV202-H_181220A	12/19/18 16:38
Mercury		0.0511	ug/L	0.0050	102	70	130				
Lab ID: H18120295-004BMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181220A	12/19/18 16:41
Mercury		0.0499	ug/L	0.0050	100	70	130	2.3	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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E300.0										Analytical Run: IC METROHM_181217A	
Lab ID: ICV	2	Initial Calibration Verification Standard								12/17/18 10:45	
Chloride		97.6	mg/L	1.0	98	90	110				
Sulfate		377	mg/L	1.0	94	90	110				
Lab ID: CCV	2	Continuing Calibration Verification Standard								12/17/18 18:30	
Chloride		49.6	mg/L	1.0	99	90	110				
Sulfate		193	mg/L	1.0	96	90	110				
Method: E300.0										Batch: R140699	
Lab ID: ICB	2	Method Blank								Run: IC METROHM_181217A 12/17/18 09:07	
Chloride		ND	mg/L	0.009							
Sulfate		ND	mg/L	0.01							
Lab ID: LFB	2	Laboratory Fortified Blank								Run: IC METROHM_181217A 12/17/18 10:59	
Chloride		23.7	mg/L	1.0	95	90	110				
Sulfate		95.4	mg/L	1.0	95	90	110				
Lab ID: H18120295-008AMS	2	Sample Matrix Spike								Run: IC METROHM_181217A 12/17/18 21:05	
Chloride		23.8	mg/L	1.0	95	90	110				
Sulfate		93.8	mg/L	1.0	94	90	110				
Lab ID: H18120295-008AMSD	2	Sample Matrix Spike Duplicate								Run: IC METROHM_181217A 12/17/18 21:20	
Chloride		23.8	mg/L	1.0	95	90	110	0.2	20		
Sulfate		94.0	mg/L	1.0	94	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

Report Date: 12/27/18

Project: 11048 Black Butte Copper Project

Work Order: H18120295

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-HE_181218C		
Lab ID: ICV		Initial Calibration Verification Standard								12/18/18 14:19
Nitrogen, Nitrate+Nitrite as N		1.02	mg/L	0.010	102	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								12/18/18 15:13
Nitrogen, Nitrate+Nitrite as N		0.506	mg/L	0.010	101	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								12/18/18 15:29
Nitrogen, Nitrate+Nitrite as N		0.506	mg/L	0.010	101	90	110			
Method: E353.2								Batch: R140724		
Lab ID: MBLK		Method Blank								12/18/18 14:21
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009						
Lab ID: LFB		Laboratory Fortified Blank								12/18/18 14:22
Nitrogen, Nitrate+Nitrite as N		0.986	mg/L	0.011	99	90	110			
Lab ID: H18120311-001AMS		Sample Matrix Spike								12/18/18 15:21
Nitrogen, Nitrate+Nitrite as N		1.32	mg/L	0.011	99	90	110			
Lab ID: H18120311-001AMSD		Sample Matrix Spike Duplicate								12/18/18 15:22
Nitrogen, Nitrate+Nitrite as N		1.34	mg/L	0.011	101	90	110	1.3	10	
Lab ID: H18120295-007CMS		Sample Matrix Spike								12/18/18 15:36
Nitrogen, Nitrate+Nitrite as N		1.46	mg/L	0.011	104	90	110			
Lab ID: H18120295-007CMSD		Sample Matrix Spike Duplicate								12/18/18 15:38
Nitrogen, Nitrate+Nitrite as N		1.46	mg/L	0.011	104	90	110	0.0	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.



Work Order Receipt Checklist

Tintina Resources Inc

H18120295

Login completed by: Jessica C. Smith

Date Received: 12/17/2018

Reviewed by: BL2000\rtooke

Received by: wjj

Reviewed Date: 12/19/2018

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:	0.3°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

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

Parameter	Analytical Method ⁽¹⁾	Project-Required Detection Limit (mg/L)
Physical Parameters		
TDS	SM 2540C	10
TSS	SM 2540C	10
Common Ions		
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
Nutrients		
Nitrate+Nitrite as N	353.2	0.01
Trace Constituents (Dissolved)⁽²⁾		
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
Field Parameters		
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

January 17, 2019

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

Work Order: H18120294 Quote ID: H1216 - Surface and Groundwater Sampling
Project Name: 18049 Black Butte December (SW)

Energy Laboratories Inc Helena MT received the following 7 samples for Tintina Resources Inc on 12/17/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H18120294-001	BBC-1812-100	12/14/18 8:40	12/17/18	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
H18120294-002	BBC-1812-101	12/14/18 9:10	12/17/18	Surface Water	Same As Above
H18120294-003	BBC-1812-103	12/14/18 9:30	12/17/18	Surface Water	Same As Above
H18120294-004	BBC-1812-104	12/14/18 9:45	12/17/18	Surface Water	Same As Above
H18120294-005	BBC-1812-105	12/14/18 10:00	12/17/18	Surface Water	Same As Above
H18120294-006	BBC-1812-106	12/14/18 10:15	12/17/18	Surface Water	Same As Above
H18120294-007	BBC-1812-107	12/14/18 10:25	12/17/18	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.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:


Project Manager - Helena, MT

Digitally signed by
Wanda Johnson
Date: 2019.01.17 12:52:36 -07:00



CLIENT: Tintina Resources Inc
Project: 18049 Black Butte December (SW)
Work Order: H18120294

Revised Date: 01/17/19

Report Date: 12/28/18

CASE NARRATIVE

Revised report due to Thallium originally reported at 0.002 not 0.0002 mg/L. wj 1/17/19



LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 18049 Black Butte December (SW)
Lab ID: H18120294-001
Client Sample ID: BBC-1812-100

Revised Date: 01/17/19
Report Date: 12/28/18
Collection Date: 12/14/18 08:40
Date Received: 12/17/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	12/17/18 15:06 / cmm
Solids, Total Dissolved TDS @ 180 C	173	mg/L	D	10		A2540 C	12/17/18 15:13 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	12/17/18 12:11 / cmm
Chloride	2	mg/L		1		E300.0	12/17/18 16:23 / SRW
Sulfate	7	mg/L		1		E300.0	12/17/18 16:23 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	12/18/18 10:47 / SRW
Hardness as CaCO3	178	mg/L		1		A2340 B	12/17/18 15:37 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.11	mg/L		0.01		E353.2	12/18/18 15:07 / kmd
Nitrogen, Total	0.18	mg/L		0.04		A4500 N-C	12/19/18 15:39 / kmd
Phosphorus, Total as P	0.010	mg/L		0.003		E365.1	12/20/18 15:53 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	12/18/18 16:03 / sld
Calcium	50	mg/L		1		E200.7	12/17/18 15:37 / sld
Magnesium	13	mg/L		1		E200.7	12/17/18 15:37 / sld
Potassium	1	mg/L		1		E200.7	12/17/18 15:37 / sld
Sodium	2	mg/L		1		E200.7	12/17/18 15:37 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	12/18/18 15:05 / sld
Arsenic	ND	mg/L		0.001		E200.8	12/18/18 15:05 / sld
Barium	0.116	mg/L		0.003		E200.8	12/18/18 15:05 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/18/18 15:05 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/18/18 15:05 / sld
Chromium	ND	mg/L		0.01		E200.8	12/18/18 15:05 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/18/18 15:05 / sld
Copper	ND	mg/L		0.002		E200.8	12/18/18 15:05 / sld
Iron	0.17	mg/L		0.02		E200.8	12/18/18 15:05 / sld
Lead	ND	mg/L		0.0003		E200.8	12/18/18 15:05 / sld
Manganese	0.017	mg/L		0.005		E200.8	12/18/18 15:05 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 15:49 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/18/18 15:05 / sld
Nickel	ND	mg/L		0.001		E200.8	12/18/18 15:05 / sld
Selenium	ND	mg/L		0.0002		E200.8	12/18/18 15:05 / sld
Silver	ND	mg/L		0.0002		E200.8	12/18/18 15:05 / sld
Strontium	0.137	mg/L	D	0.0003		E200.8	12/18/18 15:05 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/18/18 15:05 / sld
Uranium	0.0004	mg/L		0.0002		E200.8	12/18/18 15:05 / sld
Zinc	0.002	mg/L		0.002		E200.8	12/18/18 15:05 / sld

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 December (SW)
Lab ID: H18120294-002
Client Sample ID: BBC-1812-101

Revised Date: 01/17/19
Report Date: 12/28/18
Collection Date: 12/14/18 09:10
Date Received: 12/17/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	12/17/18 15:07 / cmm
Solids, Total Dissolved TDS @ 180 C	253	mg/L	D	10		A2540 C	12/17/18 15:13 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	210	mg/L		4		A2320 B	12/17/18 12:16 / cmm
Chloride	5	mg/L		1		E300.0	12/17/18 17:05 / SRW
Sulfate	34	mg/L		1		E300.0	12/17/18 17:05 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	12/18/18 10:52 / SRW
Hardness as CaCO3	240	mg/L		1		A2340 B	12/17/18 15:41 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.19	mg/L		0.01		E353.2	12/18/18 15:08 / kmd
Nitrogen, Total	0.27	mg/L		0.04		A4500 N-C	12/19/18 15:49 / kmd
Phosphorus, Total as P	0.007	mg/L		0.003		E365.1	12/20/18 16:41 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	12/18/18 16:05 / sld
Calcium	56	mg/L		1		E200.7	12/17/18 15:41 / sld
Magnesium	25	mg/L		1		E200.7	12/17/18 15:41 / sld
Potassium	1	mg/L		1		E200.7	12/17/18 15:41 / sld
Sodium	2	mg/L		1		E200.7	12/17/18 15:41 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	12/18/18 15:07 / sld
Arsenic	ND	mg/L		0.001		E200.8	12/18/18 15:07 / sld
Barium	0.168	mg/L		0.003		E200.8	12/18/18 15:07 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/18/18 15:07 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/18/18 15:07 / sld
Chromium	ND	mg/L		0.01		E200.8	12/18/18 15:07 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/18/18 15:07 / sld
Copper	ND	mg/L		0.002		E200.8	12/18/18 15:07 / sld
Iron	0.09	mg/L		0.02		E200.8	12/18/18 15:07 / sld
Lead	ND	mg/L		0.0003		E200.8	12/18/18 15:07 / sld
Manganese	0.030	mg/L		0.005		E200.8	12/18/18 15:07 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 15:59 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/18/18 15:07 / sld
Nickel	ND	mg/L		0.001		E200.8	12/18/18 15:07 / sld
Selenium	ND	mg/L		0.0002		E200.8	12/18/18 15:07 / sld
Silver	ND	mg/L		0.0002		E200.8	12/18/18 15:07 / sld
Strontium	0.161	mg/L	D	0.0003		E200.8	12/18/18 15:07 / sld
Thallium	0.0002	mg/L		0.0002		E200.8	12/18/18 15:07 / sld
Uranium	0.0007	mg/L		0.0002		E200.8	12/18/18 15:07 / sld
Zinc	0.003	mg/L		0.002		E200.8	12/18/18 15:07 / sld

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 December (SW)
Lab ID: H18120294-003
Client Sample ID: BBC-1812-103

Revised Date: 01/17/19
Report Date: 12/28/18
Collection Date: 12/14/18 09:30
Date Received: 12/17/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	12/17/18 15:07 / cmm
Solids, Total Dissolved TDS @ 180 C	226	mg/L	D	10		A2540 C	12/17/18 15:14 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	220	mg/L		4		A2320 B	12/17/18 12:28 / cmm
Chloride	3	mg/L		1		E300.0	12/17/18 17:19 / SRW
Sulfate	9	mg/L		1		E300.0	12/17/18 17:19 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	12/18/18 10:57 / SRW
Hardness as CaCO3	218	mg/L		1		A2340 B	12/17/18 15:44 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.19	mg/L		0.01		E353.2	12/18/18 15:11 / kmd
Nitrogen, Total	0.27	mg/L		0.04		A4500 N-C	12/19/18 15:50 / kmd
Phosphorus, Total as P	0.006	mg/L		0.003		E365.1	12/20/18 15:55 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	12/18/18 16:07 / sld
Calcium	56	mg/L		1		E200.7	12/17/18 15:44 / sld
Magnesium	19	mg/L		1		E200.7	12/17/18 15:44 / sld
Potassium	1	mg/L		1		E200.7	12/17/18 15:44 / sld
Sodium	3	mg/L		1		E200.7	12/17/18 15:44 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	12/18/18 15:09 / sld
Arsenic	ND	mg/L		0.001		E200.8	12/18/18 15:09 / sld
Barium	0.130	mg/L		0.003		E200.8	12/18/18 15:09 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/18/18 15:09 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/18/18 15:09 / sld
Chromium	ND	mg/L		0.01		E200.8	12/18/18 15:09 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/18/18 15:09 / sld
Copper	ND	mg/L		0.002		E200.8	12/18/18 15:09 / sld
Iron	0.03	mg/L		0.02		E200.8	12/18/18 15:09 / sld
Lead	ND	mg/L		0.0003		E200.8	12/18/18 15:09 / sld
Manganese	ND	mg/L		0.005		E200.8	12/18/18 15:09 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 16:02 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/18/18 15:09 / sld
Nickel	ND	mg/L		0.001		E200.8	12/18/18 15:09 / sld
Selenium	ND	mg/L		0.0002		E200.8	12/18/18 15:09 / sld
Silver	ND	mg/L		0.0002		E200.8	12/18/18 15:09 / sld
Strontium	0.132	mg/L	D	0.0003		E200.8	12/18/18 15:09 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/18/18 15:09 / sld
Uranium	0.0006	mg/L		0.0002		E200.8	12/18/18 15:09 / sld
Zinc	0.002	mg/L		0.002		E200.8	12/18/18 15:09 / sld

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 December (SW)
Lab ID: H18120294-004
Client Sample ID: BBC-1812-104

Revised Date: 01/17/19
Report Date: 12/28/18
Collection Date: 12/14/18 09:45
Date Received: 12/17/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	12/17/18 15:07 / cmm
Solids, Total Dissolved TDS @ 180 C	171	mg/L	D	10		A2540 C	12/17/18 15:14 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	12/17/18 12:35 / cmm
Chloride	1	mg/L		1		E300.0	12/17/18 17:34 / SRW
Sulfate	7	mg/L		1		E300.0	12/17/18 17:34 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	12/18/18 11:00 / SRW
Hardness as CaCO3	167	mg/L		1		A2340 B	12/17/18 15:48 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.10	mg/L		0.01		E353.2	12/18/18 15:15 / kmd
Nitrogen, Total	0.14	mg/L		0.04		A4500 N-C	12/19/18 15:51 / kmd
Phosphorus, Total as P	0.007	mg/L		0.003		E365.1	12/20/18 15:56 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	12/18/18 16:09 / sld
Calcium	47	mg/L		1		E200.7	12/17/18 15:48 / sld
Magnesium	12	mg/L		1		E200.7	12/17/18 15:48 / sld
Potassium	1	mg/L		1		E200.7	12/17/18 15:48 / sld
Sodium	2	mg/L		1		E200.7	12/17/18 15:48 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	12/18/18 15:11 / sld
Arsenic	ND	mg/L		0.001		E200.8	12/18/18 15:11 / sld
Barium	0.095	mg/L		0.003		E200.8	12/18/18 15:11 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/18/18 15:11 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/18/18 15:11 / sld
Chromium	ND	mg/L		0.01		E200.8	12/18/18 15:11 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/18/18 15:11 / sld
Copper	ND	mg/L		0.002		E200.8	12/18/18 15:11 / sld
Iron	0.11	mg/L		0.02		E200.8	12/18/18 15:11 / sld
Lead	ND	mg/L		0.0003		E200.8	12/18/18 15:11 / sld
Manganese	0.008	mg/L		0.005		E200.8	12/18/18 15:11 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 16:06 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/18/18 15:11 / sld
Nickel	ND	mg/L		0.001		E200.8	12/18/18 15:11 / sld
Selenium	ND	mg/L		0.0002		E200.8	12/18/18 15:11 / sld
Silver	ND	mg/L		0.0002		E200.8	12/18/18 15:11 / sld
Strontium	0.128	mg/L	D	0.0003		E200.8	12/18/18 15:11 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/18/18 15:11 / sld
Uranium	0.0003	mg/L		0.0002		E200.8	12/18/18 15:11 / sld
Zinc	0.002	mg/L		0.002		E200.8	12/18/18 15:11 / sld

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 December (SW)
Lab ID: H18120294-005
Client Sample ID: BBC-1812-105

Revised Date: 01/17/19
Report Date: 12/28/18
Collection Date: 12/14/18 10:00
Date Received: 12/17/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	12/17/18 15:08 / cmm
Solids, Total Dissolved TDS @ 180 C	169	mg/L	D	10		A2540 C	12/17/18 15:14 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	170	mg/L		4		A2320 B	12/17/18 12:40 / cmm
Chloride	1	mg/L		1		E300.0	12/17/18 17:48 / SRW
Sulfate	7	mg/L		1		E300.0	12/17/18 17:48 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	12/18/18 11:03 / SRW
Hardness as CaCO3	177	mg/L		1		A2340 B	12/17/18 16:11 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.10	mg/L		0.01		E353.2	12/18/18 15:16 / kmd
Nitrogen, Total	0.14	mg/L		0.04		A4500 N-C	12/19/18 15:52 / kmd
Phosphorus, Total as P	0.009	mg/L		0.003		E365.1	12/20/18 15:58 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	12/18/18 16:11 / sld
Calcium	50	mg/L		1		E200.7	12/17/18 16:11 / sld
Magnesium	12	mg/L		1		E200.7	12/17/18 16:11 / sld
Potassium	1	mg/L		1		E200.7	12/17/18 16:11 / sld
Sodium	2	mg/L		1		E200.7	12/17/18 16:11 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	12/18/18 15:13 / sld
Arsenic	ND	mg/L		0.001		E200.8	12/18/18 15:13 / sld
Barium	0.098	mg/L		0.003		E200.8	12/18/18 15:13 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/18/18 15:13 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/18/18 15:13 / sld
Chromium	ND	mg/L		0.01		E200.8	12/18/18 15:13 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/18/18 15:13 / sld
Copper	ND	mg/L		0.002		E200.8	12/18/18 15:13 / sld
Iron	0.12	mg/L		0.02		E200.8	12/18/18 15:13 / sld
Lead	ND	mg/L		0.0003		E200.8	12/18/18 15:13 / sld
Manganese	0.008	mg/L		0.005		E200.8	12/18/18 15:13 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 16:09 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/18/18 15:13 / sld
Nickel	ND	mg/L		0.001		E200.8	12/18/18 15:13 / sld
Selenium	ND	mg/L		0.0002		E200.8	12/18/18 15:13 / sld
Silver	ND	mg/L		0.0002		E200.8	12/18/18 15:13 / sld
Strontium	0.131	mg/L	D	0.0003		E200.8	12/18/18 15:13 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/18/18 15:13 / sld
Uranium	0.0003	mg/L		0.0002		E200.8	12/18/18 15:13 / sld
Zinc	0.003	mg/L		0.002		E200.8	12/18/18 15:13 / sld

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 December (SW)
Lab ID: H18120294-006
Client Sample ID: BBC-1812-106

Revised Date: 01/17/19
Report Date: 12/28/18
Collection Date: 12/14/18 10:15
Date Received: 12/17/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	12/17/18 15:08 / cmm
Solids, Total Dissolved TDS @ 180 C	190	mg/L	D	10		A2540 C	12/17/18 15:14 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	190	mg/L		4		A2320 B	12/17/18 12:46 / cmm
Chloride	2	mg/L		1		E300.0	12/17/18 18:02 / SRW
Sulfate	7	mg/L		1		E300.0	12/17/18 18:02 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	12/18/18 11:05 / SRW
Hardness as CaCO3	196	mg/L		1		A2340 B	12/17/18 16:15 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.11	mg/L		0.01		E353.2	12/18/18 15:17 / kmd
Nitrogen, Total	0.14	mg/L		0.04		A4500 N-C	12/19/18 15:53 / kmd
Phosphorus, Total as P	0.005	mg/L		0.003		E365.1	12/20/18 15:59 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	12/18/18 16:25 / sld
Calcium	56	mg/L		1		E200.7	12/17/18 16:15 / sld
Magnesium	14	mg/L		1		E200.7	12/17/18 16:15 / sld
Potassium	1	mg/L		1		E200.7	12/17/18 16:15 / sld
Sodium	2	mg/L		1		E200.7	12/17/18 16:15 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	12/18/18 15:15 / sld
Arsenic	ND	mg/L		0.001		E200.8	12/18/18 15:15 / sld
Barium	0.071	mg/L		0.003		E200.8	12/18/18 15:15 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/18/18 15:15 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/18/18 15:15 / sld
Chromium	ND	mg/L		0.01		E200.8	12/18/18 15:15 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/18/18 15:15 / sld
Copper	ND	mg/L		0.002		E200.8	12/18/18 15:15 / sld
Iron	0.10	mg/L		0.02		E200.8	12/18/18 15:15 / sld
Lead	ND	mg/L		0.0003		E200.8	12/18/18 15:15 / sld
Manganese	0.007	mg/L		0.005		E200.8	12/18/18 15:15 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 16:12 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/18/18 15:15 / sld
Nickel	ND	mg/L		0.001		E200.8	12/18/18 15:15 / sld
Selenium	ND	mg/L		0.0002		E200.8	12/18/18 15:15 / sld
Silver	ND	mg/L		0.0002		E200.8	12/18/18 15:15 / sld
Strontium	0.152	mg/L	D	0.0003		E200.8	12/18/18 15:15 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/18/18 15:15 / sld
Uranium	0.0004	mg/L		0.0002		E200.8	12/18/18 15:15 / sld
Zinc	0.002	mg/L		0.002		E200.8	12/18/18 15:15 / sld

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 December (SW)
Lab ID: H18120294-007
Client Sample ID: BBC-1812-107

Revised Date: 01/17/19
Report Date: 12/28/18
Collection Date: 12/14/18 10:25
Date Received: 12/17/18
Matrix: Surface Water

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	ND	mg/L		4		A2540 D	12/17/18 15:08 / cmm
Solids, Total Dissolved TDS @ 180 C	ND	mg/L	D	10		A2540 C	12/17/18 15:15 / cmm
INORGANICS							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	12/17/18 12:52 / cmm
Chloride	ND	mg/L		1		E300.0	12/17/18 18:16 / SRW
Sulfate	ND	mg/L		1		E300.0	12/17/18 18:16 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	12/18/18 11:07 / SRW
Hardness as CaCO3	ND	mg/L		1		A2340 B	12/19/18 11:37 / sld
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	12/18/18 15:19 / kmd
Nitrogen, Total	ND	mg/L		0.04		A4500 N-C	12/19/18 15:55 / kmd
Phosphorus, Total as P	ND	mg/L		0.003		E365.1	12/20/18 16:00 / kmd
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	12/18/18 16:27 / sld
Calcium	ND	mg/L		1		E200.7	12/17/18 16:18 / sld
Magnesium	ND	mg/L		1		E200.7	12/17/18 16:18 / sld
Potassium	ND	mg/L		1		E200.7	12/17/18 16:18 / sld
Sodium	ND	mg/L		1		E200.7	12/17/18 16:18 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	12/18/18 15:17 / sld
Arsenic	ND	mg/L		0.001		E200.8	12/18/18 15:17 / sld
Barium	ND	mg/L		0.003		E200.8	12/18/18 15:17 / sld
Beryllium	ND	mg/L		0.0008		E200.8	12/18/18 15:17 / sld
Cadmium	ND	mg/L		0.00003		E200.8	12/18/18 15:17 / sld
Chromium	ND	mg/L		0.01		E200.8	12/18/18 15:17 / sld
Cobalt	ND	mg/L		0.01		E200.8	12/18/18 15:17 / sld
Copper	ND	mg/L		0.002		E200.8	12/18/18 15:17 / sld
Iron	ND	mg/L		0.02		E200.8	12/18/18 15:17 / sld
Lead	ND	mg/L		0.0003		E200.8	12/18/18 15:17 / sld
Manganese	ND	mg/L		0.005		E200.8	12/18/18 15:17 / sld
Mercury	ND	ug/L		0.005		E245.1	12/19/18 16:15 / dck
Molybdenum	ND	mg/L		0.002		E200.8	12/18/18 15:17 / sld
Nickel	ND	mg/L		0.001		E200.8	12/18/18 15:17 / sld
Selenium	ND	mg/L		0.0002		E200.8	12/18/18 15:17 / sld
Silver	ND	mg/L		0.0002		E200.8	12/18/18 15:17 / sld
Strontium	ND	mg/L		0.0002		E200.7	12/26/18 15:43 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/18/18 15:17 / sld
Uranium	ND	mg/L		0.0002		E200.8	12/18/18 15:17 / sld
Zinc	ND	mg/L		0.002		E200.8	12/18/18 15:17 / sld

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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R140679
Lab ID: MBLK		Method Blank								Run: PHSC_101-H_181217A 12/17/18 11:48
Alkalinity, Total as CaCO3	2	mg/L		2						
Lab ID: LCS		Laboratory Control Sample								Run: PHSC_101-H_181217A 12/17/18 11:54
Alkalinity, Total as CaCO3	600	mg/L		4.0	99	90	110			
Lab ID: H18120294-002ADUP		Sample Duplicate								Run: PHSC_101-H_181217A 12/17/18 12:22
Alkalinity, Total as CaCO3	210	mg/L		4.0				1.4	10	
Lab ID: H18120295-007ADUP		Sample Duplicate								Run: PHSC_101-H_181217A 12/17/18 13:45
Alkalinity, Total as CaCO3	220	mg/L		4.0				0.6	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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C								Batch: TDS181217A		
Lab ID: MB-1_181217A		Method Blank						Run: ACCU-124 (14410200)_18121	12/17/18 15:13	
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	10						
Lab ID: LCS-2_181217A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18121	12/17/18 15:13	
Solids, Total Dissolved TDS @ 180 C		1850	mg/L	20	93	90	110			
Lab ID: H18120294-001A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18121	12/17/18 15:13	
Solids, Total Dissolved TDS @ 180 C		176	mg/L	10				1.7	5	
Lab ID: H18120295-004A DUP		Sample Duplicate						Run: ACCU-124 (14410200)_18121	12/17/18 15:16	
Solids, Total Dissolved TDS @ 180 C		222	mg/L	10				1.4	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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D								Batch: TSS181217A		
Lab ID: MB-1_181217A		Method Blank						Run: ACCU-124 (14410200)_18121	12/17/18 15:06	
Solids, Total Suspended TSS @ 105 C		ND	mg/L	0.3						
Lab ID: LCS-2_181217A		Laboratory Control Sample						Run: ACCU-124 (14410200)_18121	12/17/18 15:06	
Solids, Total Suspended TSS @ 105 C		92.0	mg/L	10	92	80	120			
Lab ID: H18120294-001ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18121	12/17/18 15:07	
Solids, Total Suspended TSS @ 105 C		3.60	mg/L	10					5	
Lab ID: H18120295-004ADUP		Sample Duplicate						Run: ACCU-124 (14410200)_18121	12/17/18 15:09	
Solids, Total Suspended TSS @ 105 C		56.0	mg/L	10				3.6	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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: A4500 N-C								Analytical Run: FIA203-HE_181219D			
Lab ID: ICB		Initial Calibration Blank, Instrument Blank									12/19/18 15:33
Nitrogen, Total		0.00666	mg/L	0.10		0	0				
Lab ID: CCV		Continuing Calibration Verification Standard									12/19/18 15:35
Nitrogen, Total		0.508	mg/L	0.10	102	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard									12/19/18 15:46
Nitrogen, Total		0.504	mg/L	0.10	101	90	110				
Method: A4500 N-C								Batch: 44211			
Lab ID: LFB		Laboratory Fortified Blank									12/19/18 15:36
Nitrogen, Total		1.03	mg/L	0.10	103	90	110			Run: FIA203-HE_181219D	
Lab ID: MB-44211		Method Blank									12/19/18 15:37
Nitrogen, Total		ND	mg/L	0.03						Run: FIA203-HE_181219D	
Lab ID: LCS-44211		Laboratory Control Sample									12/19/18 15:38
Nitrogen, Total		8.04	mg/L	0.30	108	90	110			Run: FIA203-HE_181219D	
Lab ID: H18120294-001AMS		Sample Matrix Spike									12/19/18 15:40
Nitrogen, Total		1.16	mg/L	0.10	98	90	110			Run: FIA203-HE_181219D	
Lab ID: H18120294-001AMSD		Sample Matrix Spike Duplicate									12/19/18 15:42
Nitrogen, Total		1.17	mg/L	0.10	99	90	110	1.0	20	Run: FIA203-HE_181219D	
Lab ID: H18120328-001BMS		Sample Matrix Spike									12/19/18 16:05
Nitrogen, Total		0.967	mg/L	0.10	97	90	110			Run: FIA203-HE_181219D	
Lab ID: H18120328-001BMSD		Sample Matrix Spike Duplicate									12/19/18 16:07
Nitrogen, Total		0.974	mg/L	0.10	97	90	110	0.8	20	Run: FIA203-HE_181219D	

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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A4500-F C								Analytical Run: MANTECH 2_181218A		
Lab ID: ICV	Initial Calibration Verification Standard									
Fluoride		0.8	mg/L	0.1	100	90	110			12/18/18 10:41
Method: A4500-F C								Batch: R140715		
Lab ID: MBLK	Method Blank									
Fluoride		0.04	mg/L	0.003						Run: MANTECH 2_181218A 12/18/18 10:45
Lab ID: H18120294-001AMS	Sample Matrix Spike									
Fluoride		1.1	mg/L	0.1	100	85	115			Run: MANTECH 2_181218A 12/18/18 10:50
Lab ID: H18120294-002ADUP	Sample Duplicate									
Fluoride		0.2	mg/L	0.1				4.9	10	Run: MANTECH 2_181218A 12/18/18 10:55
Lab ID: H18120295-004ADUP	Sample Duplicate									
Fluoride		0.2	mg/L	0.1				4.4	10	Run: MANTECH 2_181218A 12/18/18 11:27

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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.7								Analytical Run: ICP2-HE_181217A			
Lab ID: ICV	4	Initial Calibration Verification Standard								12/17/18 12:50	
Calcium		40.2	mg/L	1.0	100	95	105				
Magnesium		40.0	mg/L	1.0	100	95	105				
Potassium		39.2	mg/L	1.0	98	95	105				
Sodium		39.0	mg/L	1.0	97	95	105				
Lab ID: CCV-1	4	Continuing Calibration Verification Standard								12/17/18 12:59	
Calcium		25.6	mg/L	1.0	102	95	105				
Magnesium		24.8	mg/L	1.0	99	95	105				
Potassium		25.6	mg/L	1.0	103	95	105				
Sodium		25.5	mg/L	1.0	102	95	105				
Lab ID: ICSA	4	Interference Check Sample A								12/17/18 13:10	
Calcium		497	mg/L	1.0	99	80	120				
Magnesium		548	mg/L	1.0	110	80	120				
Potassium		-0.0283	mg/L	1.0		0	0				
Sodium		0.00869	mg/L	1.0		0	0				
Lab ID: ICSAB	4	Interference Check Sample AB								12/17/18 13:14	
Calcium		492	mg/L	1.0	98	80	120				
Magnesium		543	mg/L	1.0	109	80	120				
Potassium		20.0	mg/L	1.0	100	80	120				
Sodium		19.8	mg/L	1.0	99	80	120				
Lab ID: CCV	4	Continuing Calibration Verification Standard								12/17/18 15:17	
Calcium		24.4	mg/L	1.0	98	90	110				
Magnesium		24.6	mg/L	1.0	98	90	110				
Potassium		24.6	mg/L	1.0	98	90	110				
Sodium		24.8	mg/L	1.0	99	90	110				
Lab ID: CCV	4	Continuing Calibration Verification Standard								12/17/18 16:03	
Calcium		24.1	mg/L	1.0	96	90	110				
Magnesium		23.7	mg/L	1.0	95	90	110				
Potassium		24.5	mg/L	1.0	98	90	110				
Sodium		24.7	mg/L	1.0	99	90	110				
Method: E200.7								Batch: R140696			
Lab ID: MB	4	Method Blank								Run: ICP2-HE_181217A	12/17/18 13:25
Calcium		ND	mg/L		0.07						
Magnesium		ND	mg/L		0.01						
Potassium		ND	mg/L		0.06						
Sodium		ND	mg/L		0.02						
Lab ID: LFB	4	Laboratory Fortified Blank								Run: ICP2-HE_181217A	12/17/18 13:29
Calcium		52.8	mg/L	1.0	106	85	115				
Magnesium		52.7	mg/L	1.0	105	85	115				
Potassium		50.8	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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7 Batch: R140696										
Lab ID: LFB	4	Laboratory Fortified Blank								Run: ICP2-HE_181217A 12/17/18 13:29
Sodium		50.3	mg/L	1.0	101	85	115			
Lab ID: H18120294-004BMS2	4	Sample Matrix Spike								Run: ICP2-HE_181217A 12/17/18 15:56
Calcium		96.5	mg/L	1.0	98	70	130			
Magnesium		62.5	mg/L	1.0	101	70	130			
Potassium		51.1	mg/L	1.0	100	70	130			
Sodium		52.1	mg/L	1.0	100	70	130			
Lab ID: H18120294-004BMDS	4	Sample Matrix Spike Duplicate								Run: ICP2-HE_181217A 12/17/18 16:00
Calcium		96.2	mg/L	1.0	98	70	130	0.3	20	
Magnesium		62.2	mg/L	1.0	100	70	130	0.6	20	
Potassium		54.1	mg/L	1.0	106	70	130	5.8	20	
Sodium		55.5	mg/L	1.0	107	70	130	6.4	20	
Method: E200.7 Batch: 44168										
Lab ID: LCS-44168		Laboratory Control Sample								Run: ICP2-HE_181218A 12/18/18 12:23
Strontium		0.542	mg/L	0.010	108	85	115			
Lab ID: H18120292-001CPDS		Post Digestion/Distillation Spike								Run: ICP2-HE_181218A 12/18/18 13:47
Strontium		6.18	mg/L	0.010	96	70	130			
Lab ID: H18120292-001CMS3		Sample Matrix Spike								Run: ICP2-HE_181218A 12/18/18 13:51
Strontium		1.74	mg/L	0.010	98	70	130			
Lab ID: H18120292-001CMSD		Sample Matrix Spike Duplicate								Run: ICP2-HE_181218A 12/18/18 13:54
Strontium		1.70	mg/L	0.010	90	70	130	2.5	20	
Method: E200.7 Analytical Run: ICP2-HE_181226B										
Lab ID: ICV		Initial Calibration Verification Standard								12/26/18 10:03
Strontium		0.799	mg/L	0.10	100	95	105			
Lab ID: CCV-1		Continuing Calibration Verification Standard								12/26/18 10:07
Strontium		2.51	mg/L	0.10	100	95	105			
Lab ID: ICSA		Interference Check Sample A								12/26/18 10:20
Strontium		-0.0305	mg/L	0.10		0	0			
Lab ID: ICSAB		Interference Check Sample AB								12/26/18 10:24
Strontium		0.996	mg/L	0.10	100	80	120			
Lab ID: CCV		Continuing Calibration Verification Standard								12/26/18 15:09
Strontium		2.54	mg/L	0.10	101	90	110			
Method: E200.7 Batch: 44168										
Lab ID: MB-44168		Method Blank								Run: ICP2-HE_181226B 12/26/18 15:39
Strontium		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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_181218B		
Lab ID: ICV	20 Initial Calibration Verification Standard								12/18/18 14:24	
Aluminum		0.305	mg/L	0.10	102	90	110			
Antimony		0.0599	mg/L	0.050	100	90	110			
Arsenic		0.0612	mg/L	0.0050	102	90	110			
Barium		0.0604	mg/L	0.10	101	90	110			
Beryllium		0.0310	mg/L	0.0010	103	90	110			
Cadmium		0.0308	mg/L	0.0010	103	90	110			
Chromium		0.0614	mg/L	0.010	102	90	110			
Cobalt		0.0619	mg/L	0.010	103	90	110			
Copper		0.0624	mg/L	0.010	104	90	110			
Iron		0.301	mg/L	0.020	100	90	110			
Lead		0.0612	mg/L	0.010	102	90	110			
Manganese		0.311	mg/L	0.010	104	90	110			
Molybdenum		0.0596	mg/L	0.0050	99	90	110			
Nickel		0.0613	mg/L	0.010	102	90	110			
Selenium		0.0623	mg/L	0.0050	104	90	110			
Silver		0.0305	mg/L	0.0050	102	90	110			
Strontium		0.0614	mg/L	0.10	102	90	110			
Thallium		0.0607	mg/L	0.10	101	90	110			
Uranium		0.0568	mg/L	0.00030	95	90	110			
Zinc		0.0615	mg/L	0.010	103	90	110			
Lab ID: ICSA	20 Interference Check Sample A								12/18/18 14:26	
Aluminum		42.0	mg/L	0.10	105	70	130			
Antimony		0.000562	mg/L	0.050						
Arsenic		7.36E-05	mg/L	0.0050						
Barium		7.64E-05	mg/L	0.10						
Beryllium		3.40E-05	mg/L	0.0010						
Cadmium		0.000170	mg/L	0.0010						
Chromium		0.00129	mg/L	0.010						
Cobalt		-1.98E-06	mg/L	0.010						
Copper		0.000161	mg/L	0.010						
Iron		94.9	mg/L	0.020	95	70	130			
Lead		6.93E-05	mg/L	0.010						
Manganese		6.38E-05	mg/L	0.010						
Molybdenum		0.933	mg/L	0.0050	117	70	130			
Nickel		0.000109	mg/L	0.010						
Selenium		9.29E-05	mg/L	0.0050						
Silver		0.000137	mg/L	0.0050						
Strontium		0.00111	mg/L	0.10						
Thallium		0.000103	mg/L	0.10						
Uranium		2.88E-05	mg/L	0.00030						
Zinc		0.000340	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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_181218B		
Lab ID: ICSAB	20 Interference Check Sample AB								12/18/18 14:28	
Aluminum		41.9	mg/L	0.10	105	70	130			
Antimony		0.000165	mg/L	0.050		0	0			
Arsenic		0.0108	mg/L	0.0050	108	70	130			
Barium		3.18E-05	mg/L	0.10		0	0			
Beryllium		6.14E-06	mg/L	0.0010		0	0			
Cadmium		0.0107	mg/L	0.0010	107	70	130			
Chromium		0.0219	mg/L	0.010	110	70	130			
Cobalt		0.0209	mg/L	0.010	105	70	130			
Copper		0.0205	mg/L	0.010	103	70	130			
Iron		100	mg/L	0.020	100	70	130			
Lead		5.12E-05	mg/L	0.010		0	0			
Manganese		0.0206	mg/L	0.010	103	70	130			
Molybdenum		0.891	mg/L	0.0050	111	70	130			
Nickel		0.0206	mg/L	0.010	103	70	130			
Selenium		0.0104	mg/L	0.0050	104	70	130			
Silver		0.0207	mg/L	0.0050	103	70	130			
Strontium		0.00115	mg/L	0.10		0	0			
Thallium		7.63E-05	mg/L	0.10		0	0			
Uranium		8.18E-06	mg/L	0.00030		0	0			
Zinc		0.0103	mg/L	0.010	103	70	130			
Lab ID: ICV	20 Initial Calibration Verification Standard								12/18/18 17:33	
Aluminum		0.313	mg/L	0.10	104	90	110			
Antimony		0.0596	mg/L	0.050	99	90	110			
Arsenic		0.0619	mg/L	0.0050	103	90	110			
Barium		0.0612	mg/L	0.10	102	90	110			
Beryllium		0.0312	mg/L	0.0010	104	90	110			
Cadmium		0.0308	mg/L	0.0010	103	90	110			
Chromium		0.0621	mg/L	0.010	103	90	110			
Cobalt		0.0625	mg/L	0.010	104	90	110			
Copper		0.0627	mg/L	0.010	105	90	110			
Iron		0.305	mg/L	0.020	102	90	110			
Lead		0.0635	mg/L	0.010	106	90	110			
Manganese		0.316	mg/L	0.010	105	90	110			
Molybdenum		0.0593	mg/L	0.0050	99	90	110			
Nickel		0.0619	mg/L	0.010	103	90	110			
Selenium		0.0621	mg/L	0.0050	103	90	110			
Silver		0.0309	mg/L	0.0050	103	90	110			
Strontium		0.0612	mg/L	0.10	102	90	110			
Thallium		0.0609	mg/L	0.10	101	90	110			
Uranium		0.0593	mg/L	0.00030	99	90	110			
Zinc		0.0627	mg/L	0.010	105	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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS205-H_181218B		
Lab ID: ICSA	20 Interference Check Sample A								12/18/18 17:35	
Aluminum		42.7	mg/L	0.10	107	70	130			
Antimony		0.000544	mg/L	0.050						
Arsenic		8.86E-05	mg/L	0.0050						
Barium		8.59E-05	mg/L	0.10						
Beryllium		0.000100	mg/L	0.0010						
Cadmium		0.000157	mg/L	0.0010						
Chromium		0.00131	mg/L	0.010						
Cobalt		2.39E-05	mg/L	0.010						
Copper		0.000214	mg/L	0.010						
Iron		103	mg/L	0.020	103	70	130			
Lead		8.59E-05	mg/L	0.010						
Manganese		9.73E-05	mg/L	0.010						
Molybdenum		0.877	mg/L	0.0050	110	70	130			
Nickel		0.000114	mg/L	0.010						
Selenium		0.000113	mg/L	0.0050						
Silver		0.000438	mg/L	0.0050						
Strontium		0.00117	mg/L	0.10						
Thallium		0.000105	mg/L	0.10						
Uranium		3.21E-05	mg/L	0.00030						
Zinc		0.000627	mg/L	0.010						
Lab ID: ICSAB	20 Interference Check Sample AB								12/18/18 17:37	
Aluminum		42.9	mg/L	0.10	107	70	130			
Antimony		0.000179	mg/L	0.050		0	0			
Arsenic		0.0110	mg/L	0.0050	110	70	130			
Barium		5.47E-05	mg/L	0.10		0	0			
Beryllium		4.74E-05	mg/L	0.0010		0	0			
Cadmium		0.0108	mg/L	0.0010	108	70	130			
Chromium		0.0225	mg/L	0.010	113	70	130			
Cobalt		0.0213	mg/L	0.010	106	70	130			
Copper		0.0211	mg/L	0.010	105	70	130			
Iron		103	mg/L	0.020	103	70	130			
Lead		6.53E-05	mg/L	0.010		0	0			
Manganese		0.0211	mg/L	0.010	105	70	130			
Molybdenum		0.893	mg/L	0.0050	112	70	130			
Nickel		0.0212	mg/L	0.010	106	70	130			
Selenium		0.0106	mg/L	0.0050	106	70	130			
Silver		0.0210	mg/L	0.0050	105	70	130			
Strontium		0.00116	mg/L	0.10		0	0			
Thallium		7.89E-05	mg/L	0.10		0	0			
Uranium		8.69E-06	mg/L	0.00030		0	0			
Zinc		0.0106	mg/L	0.010	106	70	130			

Method: E200.8

Batch: 44168

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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8 Batch: 44168										
Lab ID: MB-44168	19	Method Blank								
										Run: ICPMS205-H_181218B 12/18/18 15:03
Antimony		ND	mg/L	0.0001						
Arsenic		5E-05	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		2E-05	mg/L	9E-06						
Strontium		ND	mg/L	0.0003						
Thallium		ND	mg/L	4E-05						
Uranium		ND	mg/L	9E-06						
Zinc		ND	mg/L	0.001						
Lab ID: LCS-44168	19	Laboratory Control Sample								
										Run: ICPMS205-H_181218B 12/18/18 15:18
Antimony		0.551	mg/L	0.0010	110	85	115			
Arsenic		0.505	mg/L	0.0010	101	85	115			
Barium		0.520	mg/L	0.050	104	85	115			
Beryllium		0.246	mg/L	0.0010	98	85	115			
Cadmium		0.262	mg/L	0.0010	105	85	115			
Chromium		0.540	mg/L	0.0050	108	85	115			
Cobalt		0.535	mg/L	0.0050	107	85	115			
Copper		0.514	mg/L	0.0050	103	85	115			
Iron		2.51	mg/L	0.020	100	85	115			
Lead		0.546	mg/L	0.0010	109	85	115			
Manganese		2.58	mg/L	0.0010	103	85	115			
Molybdenum		0.538	mg/L	0.0010	108	85	115			
Nickel		0.503	mg/L	0.0050	101	85	115			
Selenium		0.516	mg/L	0.0010	103	85	115			
Silver		0.0527	mg/L	0.0010	105	85	115			
Strontium		0.522	mg/L	0.010	104	85	115			
Thallium		0.524	mg/L	0.00050	105	85	115			
Uranium		0.501	mg/L	0.00030	100	85	115			
Zinc		0.494	mg/L	0.010	99	85	115			
Lab ID: H18120292-001CMS3	19	Sample Matrix Spike								
										Run: ICPMS205-H_181218B 12/18/18 15:40
Antimony		0.576	mg/L	0.0010	115	70	130			
Arsenic		0.480	mg/L	0.0010	93	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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E200.8 Batch: 44168											
Lab ID: H18120292-001CMS3	19	Sample Matrix Spike		Run: ICPMS205-H_181218B				12/18/18 15:40			
Barium		0.538	mg/L	0.050	105	70	130				
Beryllium		0.214	mg/L	0.0010	62	70	130			S	
Cadmium		2.60	mg/L	0.0010		70	130			A	
Chromium		0.480	mg/L	0.0050	95	70	130				
Cobalt		2.22	mg/L	0.0050	100	70	130				
Copper		56.6	mg/L	0.0050		70	130			A	
Iron		4.48	mg/L	0.020	89	70	130				
Lead		0.576	mg/L	0.0010	112	70	130				
Manganese		266	mg/L	0.0010		70	130			A	
Molybdenum		0.575	mg/L	0.0010	115	70	130				
Nickel		1.79	mg/L	0.0050	106	70	130				
Selenium		0.521	mg/L	0.0010	103	70	130				
Silver		0.0503	mg/L	0.0010	100	70	130				
Strontium		1.65	mg/L	0.010	92	70	130				
Thallium		0.542	mg/L	0.00050	108	70	130				
Uranium		1.28	mg/L	0.00030	110	70	130				
Zinc		560	mg/L	0.010		70	130			A	
Lab ID: H18120292-001CMSD	19	Sample Matrix Spike Duplicate		Run: ICPMS205-H_181218B				12/18/18 15:46			
Antimony		0.528	mg/L	0.0010	106	70	130	8.7	20		
Arsenic		0.465	mg/L	0.0010	90	70	130	3.2	20		
Barium		0.520	mg/L	0.050	102	70	130	3.3	20		
Beryllium		0.212	mg/L	0.0010	61	70	130	0.8	20	S	
Cadmium		2.57	mg/L	0.0010		70	130	1.2	20	A	
Chromium		0.460	mg/L	0.0050	91	70	130	4.3	20		
Cobalt		2.17	mg/L	0.0050	91	70	130	2.1	20		
Copper		56.0	mg/L	0.0050		70	130	1.2	20	A	
Iron		4.44	mg/L	0.020	87	70	130	0.9	20		
Lead		0.554	mg/L	0.0010	108	70	130	4.0	20		
Manganese		263	mg/L	0.0010		70	130	1.0	20	A	
Molybdenum		0.548	mg/L	0.0010	110	70	130	4.8	20		
Nickel		1.80	mg/L	0.0050	107	70	130	0.2	20		
Selenium		0.505	mg/L	0.0010	100	70	130	3.1	20		
Silver		0.0493	mg/L	0.0010	99	70	130	1.9	20		
Strontium		1.65	mg/L	0.010	92	70	130	0.1	20		
Thallium		0.515	mg/L	0.00050	103	70	130	5.2	20		
Uranium		1.23	mg/L	0.00030	100	70	130	4.2	20		
Zinc		554	mg/L	0.010		70	130	1.1	20	A	
Method: E200.8 Batch: R140739											
Lab ID: LRB		Method Blank		Run: ICPMS205-H_181218B				12/18/18 14:37			
Aluminum		ND	mg/L	0.003							
Lab ID: LFB		Laboratory Fortified Blank		Run: ICPMS205-H_181218B				12/18/18 14:39			
Aluminum		0.0512	mg/L	0.10	102	85	115				

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.

S - Spike recovery outside of advisory limits.



QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R140739
Lab ID: LFB		Laboratory Fortified Blank								Run: ICPMS205-H_181218B 12/18/18 14:39
Lab ID: H18120282-001EMS		Sample Matrix Spike								Run: ICPMS205-H_181218B 12/18/18 16:13
Aluminum		0.0606	mg/L	0.030	95	70	130			
Lab ID: H18120282-001EMSD		Sample Matrix Spike Duplicate								Run: ICPMS205-H_181218B 12/18/18 16:15
Aluminum		0.0604	mg/L	0.030	95	70	130	0.3	20	
Lab ID: H18120295-001BMS		Sample Matrix Spike								Run: ICPMS205-H_181218B 12/18/18 16:40
Aluminum		0.0684	mg/L	0.030	97	70	130			
Lab ID: H18120295-001BMSD		Sample Matrix Spike Duplicate								Run: ICPMS205-H_181218B 12/18/18 16:42
Aluminum		0.0692	mg/L	0.030	99	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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E245.1										Analytical Run: HGCV202-H_181220A	
Lab ID: ICV		Initial Calibration Verification Standard								12/19/18 15:23	
Mercury		0.0938	ug/L	0.0050	94	90	110				
Method: E245.1										Batch: 44182	
Lab ID: MB-44182		Method Blank								Run: HGCV202-H_181220A	12/19/18 15:43
Mercury		ND	ug/L	0.0009							
Lab ID: LCS-44182		Laboratory Control Sample								Run: HGCV202-H_181220A	12/19/18 15:46
Mercury		0.0493	ug/L	0.0050	99	90	110				
Lab ID: H18120294-001CMS		Sample Matrix Spike								Run: HGCV202-H_181220A	12/19/18 15:53
Mercury		0.0505	ug/L	0.0050	98	70	130				
Lab ID: H18120294-001CMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181220A	12/19/18 15:56
Mercury		0.0502	ug/L	0.0050	97	70	130	0.6	20		
Lab ID: H18120295-004BMS		Sample Matrix Spike								Run: HGCV202-H_181220A	12/19/18 16:38
Mercury		0.0511	ug/L	0.0050	102	70	130				
Lab ID: H18120295-004BMSD		Sample Matrix Spike Duplicate								Run: HGCV202-H_181220A	12/19/18 16:41
Mercury		0.0499	ug/L	0.0050	100	70	130	2.3	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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0										
Analytical Run: IC METROHM_181217A										
Lab ID: ICV	2	Initial Calibration Verification Standard								12/17/18 10:45
Chloride		97.6	mg/L	1.0	98	90	110			
Sulfate		377	mg/L	1.0	94	90	110			
Lab ID: CCV	2	Continuing Calibration Verification Standard								12/17/18 14:58
Chloride		49.8	mg/L	1.0	100	90	110			
Sulfate		195	mg/L	1.0	97	90	110			
Method: E300.0										
Batch: R140699										
Lab ID: ICB	2	Method Blank								Run: IC METROHM_181217A 12/17/18 09:07
Chloride		ND	mg/L	0.009						
Sulfate		ND	mg/L	0.01						
Lab ID: LFB	2	Laboratory Fortified Blank								Run: IC METROHM_181217A 12/17/18 10:59
Chloride		23.7	mg/L	1.0	95	90	110			
Sulfate		95.4	mg/L	1.0	95	90	110			
Lab ID: H18120294-001AMS	2	Sample Matrix Spike								Run: IC METROHM_181217A 12/17/18 16:37
Chloride		25.9	mg/L	1.0	98	90	110			
Sulfate		103	mg/L	1.0	96	90	110			
Lab ID: H18120294-001AMSD	2	Sample Matrix Spike Duplicate								Run: IC METROHM_181217A 12/17/18 16:51
Chloride		26.1	mg/L	1.0	98	90	110	0.6	20	
Sulfate		105	mg/L	1.0	97	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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E353.2								Analytical Run: FIA203-HE_181218C			
Lab ID: ICV		Initial Calibration Verification Standard									12/18/18 14:19
Nitrogen, Nitrate+Nitrite as N		1.02	mg/L	0.010	102	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard									12/18/18 14:56
Nitrogen, Nitrate+Nitrite as N		0.506	mg/L	0.010	101	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard									12/18/18 15:13
Nitrogen, Nitrate+Nitrite as N		0.506	mg/L	0.010	101	90	110				
Method: E353.2								Batch: R140724			
Lab ID: MBLK		Method Blank									12/18/18 14:21
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.009							
Lab ID: LFB		Laboratory Fortified Blank									12/18/18 14:22
Nitrogen, Nitrate+Nitrite as N		0.986	mg/L	0.011	99	90	110				
Lab ID: H18120294-002DMS		Sample Matrix Spike									12/18/18 15:09
Nitrogen, Nitrate+Nitrite as N		1.20	mg/L	0.011	100	90	110				
Lab ID: H18120294-002DMSD		Sample Matrix Spike Duplicate									12/18/18 15:10
Nitrogen, Nitrate+Nitrite as N		1.18	mg/L	0.011	98	90	110	1.7	10		
Lab ID: H18120311-001AMS		Sample Matrix Spike									12/18/18 15:21
Nitrogen, Nitrate+Nitrite as N		1.32	mg/L	0.011	99	90	110				
Lab ID: H18120311-001AMSD		Sample Matrix Spike Duplicate									12/18/18 15:22
Nitrogen, Nitrate+Nitrite as N		1.34	mg/L	0.011	101	90	110	1.3	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

Report Date: 12/27/18

Project: 18049 Black Butte December (SW)

Work Order: H18120294

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual	
Method: E365.1								Analytical Run: FIA202-HE_181220B			
Lab ID: ICB		Initial Calibration Blank, Instrument Blank								12/20/18 15:38	
Phosphorus, Total as P		0.000550	mg/L	0.010		0	0				
Lab ID: ICV		Initial Calibration Verification Standard								12/20/18 15:40	
Phosphorus, Total as P		0.244	mg/L	0.010	98	90	110				
Lab ID: CCV		Continuing Calibration Verification Standard								12/20/18 16:24	
Phosphorus, Total as P		0.0962	mg/L	0.010	96	90	110				
Method: E365.1								Batch: 44223			
Lab ID: MB-44223		Method Blank								12/20/18 15:42	
Phosphorus, Total as P		ND	mg/L	0.002						Run: FIA202-HE_181220B	
Lab ID: LCS-44223		Laboratory Control Sample								12/20/18 15:45	
Phosphorus, Total as P		0.406	mg/L	0.010	101	90	110			Run: FIA202-HE_181220B	
Lab ID: H18120294-001DMS		Sample Matrix Spike								12/20/18 15:50	
Phosphorus, Total as P		0.216	mg/L	0.010	103	90	110			Run: FIA202-HE_181220B	
Lab ID: H18120294-001DMSD		Sample Matrix Spike Duplicate								12/20/18 15:54	
Phosphorus, Total as P		0.210	mg/L	0.010	100	90	110	3.0	20	Run: FIA202-HE_181220B	
Lab ID: H18120343-001CMSD		Sample Matrix Spike Duplicate								12/20/18 16:31	
Phosphorus, Total as P		5.92	mg/L	0.040	84	90	110	0.1	20	S	
Lab ID: H18120343-001CMS		Sample Matrix Spike								12/20/18 16:35	
Phosphorus, Total as P		5.93	mg/L	0.040	86	90	110			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

H18120294

Login completed by: Wanda Johnson

Date Received: 12/17/2018

Reviewed by: BL2000\rtooke

Received by: wjj

Reviewed Date: 12/18/2018

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:	1.0°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

DATE	TIME	COMP	GRAB	SAMPLE NUMBER	NO. OF CON-TAINERS	Commons UF / RAW	Nutrients UF / H ₂ SO ₄	Diss. Metal F / HNO ₃	CN UF / NaOH	Total Metals UF / HNO ₃	Total Recoverable Metals UF / HNO ₃	BTEX	TPH	REMARKS	
12/14/18	0840		X	B3C-1912-100	4	X	X	X		X				1418100294	
	0910			101		X	X	X							
	0920			102		X	X	X							
	0930			103		X	X	X							
	0945			104		X	X	X							
	1000			105		X	X	X							
	1015			106		X	X	X							
	1025		X	107		X	X	X							
Relinquished (Signature)				Date / Time	Received by (Signature)	Lab								P.O. #	Shipped via:
<i>[Signature]</i>				12/11/18 0825		Energy Lab								B311	Bus
Relinquished (Signature)				Date / Time	Received for Laboratory by (Signature)	Remarks								Air Bill #	FedEx
<i>[Signature]</i>					<i>[Signature]</i>	1.0 TB OICE									UPS
Relinquished (Signature)				Date / Time	Received for Laboratory by (Signature)	Date / Time								Split Samples:	
<i>[Signature]</i>					<i>[Signature]</i>	12-17-18 825								<input type="checkbox"/> Accepted <input type="checkbox"/> Declined <input type="checkbox"/> Other	

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

Signature _____

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

Parameter	Analytical Method ⁽¹⁾	Project-Required Detection Limit (mg/L)
Physical Parameters		
TDS	SM 2540C	4
TSS	SM 2540C	4
Common Ions		
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
Nutrients		
Nitrate+Nitrite as N	353.2	0.003
Total Persulfate Nitrogen	A 4500-N-C	0.04
Total Phosphorus	E365.1	0.003
Trace Constituents (SW - Total Recoverable except Aluminum [Diss])⁽²⁾		
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
Field Parameters		
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

**BLACK BUTTE COPPER WRM QA/QC REVIEW
OCTOBER 2018
WORK ORDER #: H18100607 and H18100608**

1. INTRODUCTION

This validation applies to inorganic analyses from 23 water samples collected for the Black Butte Tintina surface water and groundwater monitoring program in October 2018. The total number of samples included 23 water samples, 4 site observations, 2 field blanks and 2 field duplicates.

- Validation procedures used are generally consistent with:
(Check all that apply)
 - EPA CLP National Functional Guidelines for Inorganics Data Review
 - Guidance on Environmental Data Verification and Data Validation EPA QA/G-8

- Overall level of validation:
 - Contract Laboratory Program (CLP)
 - Standard
 - Visual

2. DELIVERABLES

- All laboratory document deliverables were present as specified in the CLP-Statement of Work (CLP-SOW) and/or the project contract.
 - Yes
 - No

- All documentation of field procedures was provided as required.
 - Yes
 - No

3. FIELD QUALITY CONTROL SAMPLES

- **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**

Field duplicates were collected at the proper frequency.

 - Yes
 - No

Field duplicate relative percent differences (RPD's) were within the required control limits (RPD of 20 percent or less for water matrix, 35 percent or less for soil matrix). If the sample or duplicate result is less than 5 times the PRDL, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate result must be within \pm the PRDL for water matrix, within ± 2 times the PRDL for soil matrix.

Yes
 No

4. LABORATORY PROCEDURES

- **Laboratory procedures followed**

CLP-SOW
 SW-846
 Methods for Chemical Analysis of Water and Wastes
 XRF Standard Operating Procedures

- **Holding times met**

Yes
 No

- **Consistency with project requirements**

Analyses were carried out as requested.

Yes
 No

Sample Conditions met at Check-in

Yes – see following notes
 No

NOTES: It should be noted that during sample check-in the time on the raw bottle in sample set BBC-1810-105 is 14:00; time on the chain of custody is 14:1; for corrective action the laboratory used the time from the chain for sampling check-in.

Project specified methods were used.

Yes – see following notes
 No

NOTES: It should be noted that parameters were analyzed using different methods than requested; however, all methods used by the laboratory are comparable.

5. DETECTION LIMITS

Reporting detection limits met project required detection limits (PRDL).

Yes – see following notes
 No

NOTES: It should be noted that total dissolved solids and strontium 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. Thallium had the 0.0003 mg/l reporting limit was used in place of the requested 0.0002 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.

6. LABORATORY BLANKS

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

- **Preparation blanks**

Preparation blanks were prepared and analyzed at the required frequency.

Yes
 No

All the analytes in the preparation blank were less than the CRDL (or the PRDL if a project detection limit has been specified).

Yes
 No

7. LABORATORY MATRIX SPIKES

- A matrix spike sample (pre-digestion) was analyzed for each digestion batch and/or matrix, or as required in the CLP-SOW.

Yes
 No

- Matrix spike recoveries were within the lab specified control limits.

Yes
 No

8. LABORATORY DUPLICATES

- Laboratory duplicate samples were analyzed at the proper frequency.

Yes
 No

- The laboratory duplicate relative percent differences (RPD's) were within the required control limits.

Yes
 No – see following table

QC Sample Id	Parameter	% RPD	Lab Flag	Lab Advisory Limits (% RPD)
H18100607-001CDIL	Strontium	23	R	10

R –Relative Percent Difference outside of advisory limits

- Matrix spike duplicate recoveries were within the lab specified control limits.

Yes
 No

9. LABORATORY CONTROL STANDARDS

- LCSs were prepared and analyzed at the proper frequency.

Yes
 No

- LCS recoveries were within the required control limits (80-120 percent for water, within the certified range for soils).

Yes
 No

**BLACK BUTTE COPPER WRM QA/QC REVIEW
NOVEMBER 2018**

**WORK ORDER #: H18110265, H18110401, H18110266, H18110350, and
H18110402**

1. INTRODUCTION

This validation applies to inorganic analyses from 111 water samples collected for the Black Butte Tintina surface water and groundwater monitoring program in November 2018. The total number of samples included 42 water samples, 62 site observations, 4 field blanks and 3 field duplicates.

- Validation procedures used are generally consistent with:
(Check all that apply)
 - EPA CLP National Functional Guidelines for Inorganics Data Review
 - Guidance on Environmental Data Verification and Data Validation EPA QA/G-8

- Overall level of validation:
 - Contract Laboratory Program (CLP)
 - Standard
 - Visual

2. DELIVERABLES

- All laboratory document deliverables were present as specified in the CLP-Statement of Work (CLP-SOW) and/or the project contract.
 - Yes
 - No

- All documentation of field procedures was provided as required.
 - Yes
 - No

3. FIELD QUALITY CONTROL SAMPLES

- **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**

Field duplicates were collected at the proper frequency.

 - Yes
 - No

Field duplicate relative percent differences (RPD's) were within the required control limits (RPD of 20 percent or less for water matrix, 35 percent or less for soil matrix). If the sample or duplicate result is less than 5 times the PRDL, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate result must be within \pm the PRDL for water matrix, within ± 2 times the PRDL for soil matrix.

Yes
 No – see following table

Date	Site Code	Parameter	Sample Result (mg/L)	Duplicate Result (mg/L)	Number of Flags
11/13/18	MW-16	Total Suspended Solids	82	57	45

J – Duplicate sample exceeded QA/QC comparison control limits.

4. LABORATORY PROCEDURES

- Laboratory procedures followed**

CLP-SOW
 SW-846
 Methods for Chemical Analysis of Water and Wastes
 XRF Standard Operating Procedures

- Holding times met**

Yes
 No

- Consistency with project requirements**

Analyses were carried out as requested.

Yes
 No

Sample Conditions met at Check-in

Yes – see following notes
 No

NOTES: It should be noted that during sample check-in the time on the raw bottle in sample set BBC-1811-121 is 14:25; time on the chain of custody is 14:45; for corrective action the laboratory used the time from the chain of custody for sampling check-in.

Project specified methods were used.

Yes – see following notes
 No

NOTES: It should be noted that parameters were analyzed using different methods than requested; however, all methods used by the laboratory are comparable.

5. DETECTION LIMITS

Reporting detection limits met project required detection limits (PRDL).

Yes – see following notes
 No

NOTES: It should be noted that total dissolved solids and strontium 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. 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.

6. LABORATORY BLANKS

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

- **Preparation blanks**

Preparation blanks were prepared and analyzed at the required frequency.

Yes
 No

All the analytes in the preparation blank were less than the CRDL (or the PRDL if a project detection limit has been specified).

Yes
 No

7. LABORATORY MATRIX SPIKES

- A matrix spike sample (pre-digestion) was analyzed for each digestion batch and/or matrix, or as required in the CLP-SOW.

Yes
 No

- Matrix spike recoveries were within the lab specified control limits.

Yes
 No – see following table

QC Sample Id	Parameter	% REC	Lab Flag	Lab Advisory Limits (% REC)
H18110307-001EMS	Total Phosphorus	119		90-110
H18110343-002BMS2	Calcium	144	S	70-130
	Magnesium	132	S	70-130
H18110402-003CMS	Nitrite + Nitrate as N	89	S	90-110

S –Percent recoveries outside of advisory limits

8. LABORATORY DUPLICATES

- Laboratory duplicate samples were analyzed at the proper frequency.

Yes
 No

- The laboratory duplicate relative percent differences (RPD's) were within the required control limits.

Yes
 No – see following table

QC Sample Id	Parameter	% RPD	Lab Flag	Lab Advisory Limits (% RPD)
H18110402-020BMSD	Silver	28	R	20

R –Relative Percent Difference outside of advisory limits

- Matrix spike duplicate recoveries were within the lab specified control limits.

Yes
 No – see following table

QC Sample Id	Parameter	% REC	Lab Flag	Lab Advisory Limits (% REC)
H18110307-001EMSD	Total Phosphorus	121	S	90-110
H18110357-001AMSD	Sulfate	89	S	90-110
H18110343-002BMS2D	Calcium	168	S	70-130
	Magnesium	143	S	70-130
	Sodium	131	S	70-130
H18110264-001CMSD	Nitrate + Nitrite as N	89	S	90-110

S –Percent recoveries outside of advisory limits

9. LABORATORY CONTROL STANDARDS

- LCSs were prepared and analyzed at the proper frequency.
 Yes
 No
- LCS recoveries were within the required control limits (80-120 percent for water, within the certified range for soils).
 Yes
 No

**BLACK BUTTE COPPER WRM QA/QC REVIEW
DECEMBER 2018
WORK ORDER #: H18120295 and H18120294**

1. INTRODUCTION

This validation applies to inorganic analyses from 23 water samples collected for the Black Butte Tintina surface water and groundwater monitoring program in December 2018. The total number of samples included 11 water samples, 8 site observations, 2 field blanks and 2 field duplicates.

- Validation procedures used are generally consistent with:
(Check all that apply)
 - EPA CLP National Functional Guidelines for Inorganics Data Review
 - Guidance on Environmental Data Verification and Data Validation EPA QA/G-8

- Overall level of validation:
 - Contract Laboratory Program (CLP)
 - Standard
 - Visual

2. DELIVERABLES

- All laboratory document deliverables were present as specified in the CLP-Statement of Work (CLP-SOW) and/or the project contract.
 - Yes
 - No

- All documentation of field procedures was provided as required.
 - Yes
 - No

3. FIELD QUALITY CONTROL SAMPLES

- **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**

Field duplicates were collected at the proper frequency.

 - Yes
 - No

Field duplicate relative percent differences (RPD's) were within the required control limits (RPD of 20 percent or less for water matrix, 35 percent or less for soil matrix). If the sample or duplicate result is less than 5 times the PRDL, the RPD criteria are not used. In these cases, the difference between the sample and the duplicate result must be within \pm the PRDL for water matrix, within \pm 2 times the PRDL for soil matrix.

Yes
 No – see following table

Date	Site Code	Parameter	Sample Result (mg/L)	Duplicate Result (mg/L)	Number of Flags
12/14/18	SP-4	Total Suspended Solids	23	54	13

J – Duplicate sample exceeded QA/QC comparison control limits.

4. LABORATORY PROCEDURES

- **Laboratory procedures followed**

CLP-SOW
 SW-846
 Methods for Chemical Analysis of Water and Wastes
 XRF Standard Operating Procedures

- **Holding times met**

Yes
 No

- **Consistency with project requirements**

Analyses were carried out as requested.

Yes
 No

Sample Conditions met at Check-in

Yes
 No

Project specified methods were used.

Yes – see following notes
 No

NOTES: It should be noted that parameters were analyzed using different methods than requested; however, all methods used by the laboratory are comparable.

5. DETECTION LIMITS

Reporting detection limits met project required detection limits (PRDL).

Yes – see following notes
 No

NOTES: It should be noted that total dissolved solids and strontium 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. In addition, a reporting limit of 0.01 mg/l was used for nitrate + nitrite as a replacement of the 0.003 mg/l requested.

6. LABORATORY BLANKS

Please note that the highest blank value associated with any particular analyte is the blank value used for the flagging process.

- **Preparation blanks**

Preparation blanks were prepared and analyzed at the required frequency.

Yes
 No

All the analytes in the preparation blank were less than the CRDL (or the PRDL if a project detection limit has been specified).

Yes
 No

7. LABORATORY MATRIX SPIKES

- A matrix spike sample (pre-digestion) was analyzed for each digestion batch and/or matrix, or as required in the CLP-SOW.

Yes
 No

- Matrix spike recoveries were within the lab specified control limits.

Yes
 No – see following table

QC Sample Id	Parameter	% REC	Lab Flag	Lab Advisory Limits (% REC)
H18120292-001CMS3	Beryllium	62	S	70-130
H18120343-001CMS	Total Phosphorus	86	S	90-110

S –Percent recoveries outside of advisory limits

8. LABORATORY DUPLICATES

- Laboratory duplicate samples were analyzed at the proper frequency.

Yes
 No

- The laboratory duplicate relative percent differences (RPD's) were within the required control limits.

Yes
 No

- Matrix spike duplicate recoveries were within the lab specified control limits.

Yes
 No – see following table

QC Sample Id	Parameter	% REC	Lab Flag	Lab Advisory Limits (% REC)
H18120292-001CMS3D	Beryllium	61	S	70-130
H18120343-001CMSD	Total Phosphorus	84	S	90-110

S –Percent recoveries outside of advisory limits

9. LABORATORY CONTROL STANDARDS

- LCSs were prepared and analyzed at the proper frequency.

Yes
 No

- LCS recoveries were within the required control limits (80-120 percent for water, within the certified range for soils).

Yes
 No