
**WATER RESOURCES MONITORING
2014 FOURTH QUARTER REPORT
BLACK BUTTE COPPER PROJECT**

Prepared for:

Tintina Alaska Exploration Inc.
Suite 2560-200 Granville Street
Vancouver, BC, Canada V6C1S4

Prepared by:

Hydrometrics, Inc.
3020 Bozeman Avenue
Helena, MT 59601

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WATER RESOURCES MONITORING

2014 FOURTH QUARTER REPORT

BLACK BUTTE COPPER PROJECT

1.0 INTRODUCTION

Hydrometrics conducted the 2014 Fourth Quarter Water Resources Monitoring Event for the Black Butte Copper Project on November 12-13 and November 24-25. The quarterly monitoring schedule includes sample collection and/or field measurements at eleven surface water sites (five sites for flow and field parameters and six sites for water quality, flow and field parameters) as well as twelve groundwater sites, to establish baseline pre-mining conditions for surface water and ground water in the vicinity of the proposed mine. Surface water monitoring sites are listed in Table 1 and groundwater sites are listed in Table 2. Static water levels were also collected at thirteen additional wells/piezometers (Table 2). Surface water and groundwater site locations are shown on Figure 1.

Water quality samples were submitted to Energy Laboratories in Helena, MT for analysis of physical parameters, common constituents, nutrients, and a comprehensive suite of trace constituents as listed in Tables 3 and 4. With the exception of aluminum, trace constituents were analyzed for the total recoverable fraction for surface water samples; aluminum was analyzed for the dissolved fraction. All trace constituents for groundwater samples were analyzed for the dissolved fraction.

TABLE 1. SURFACE WATER MONITORING SITES

Site	Location	Northing	Easting	Field Parameters and Flow	Laboratory Analyses
		UTM - WGS 1984 Zone 12 N (meters)			
SW-1	Sheep Creek - Downgradient site; at bridge on county road 119	5182710	507148	X	X
SW-2	Sheep Creek - Upgradient site; Highway 89 right of way approximately 0.6 miles east of county road intersection	5179844	511040	X	X
SW-3	Unnamed Trib. to Sheep Creek - at intersection of county road 119 and forest service road.	5180581	506996	X	X
SW-4	Unnamed Trib. to Sheep Creek - approximately 0.6 miles southwest of Co. Rd/USFS Rd intersection	5180114	506308	X	
SW-5	Unnamed Trib. To Butte Creek - West of Moose Pass, where jeep trail crosses drainage.	5181465	503914	X	X
SW-6	Unnamed Trib to Little Sheep Creek - approximately 0.25 miles south of county road.	5179536	507919	X	X
SW-7	Unnamed Trib to Little Sheep Creek - Upgradient site, approximately 1-mile upgradient of SW-6.	5179000	506420	X	
SW-8	Little Sheep Creek - Approximately 0.5 miles from Highway 89.	5179476	509575	X	
SW-9	Butte Creek - at USFS road crossing.	5179271	503944	X	
SW-10	Butte Creek - approximately 0.7 miles upstream of SW-9.	5178322	504665	X	
SW-11	Butte Creek - Downgradient of confluence with Unnamed Trib to Butte Creek (west of Moose Pass).	5181021	501951	X	X

TABLE 2. GROUNDWATER MONITORING SITE COMPLETION DATA

Well Name	Easting (meters)	Northing (meters)	G.S. Elev. (feet amsl)	M.P. Elev. (feet amsl)	Total Depth (feet, bgs)	Perforated/ Screen Interval (feet, bgs)	Filter Pack Interval (feet, bgs)
	UTM-WGS 1984 Zone 12 North						
Monitoring Wells							
MW-1A	506935.22	5180841.55	5635.81	5637.73	38	25 - 34	25 - 34
MW-1B	506934.19	5180845.46	5636.14	5637.90	98	88 - 98	88 - 98
MW-2A	506598.18	5180331.93	5743.72	5745.31	62	52 - 62	47 - 62
MW-2B	506596.96	5180328.73	5743.44	5745.53	80	70 - 80	65 - 80
MW-3	506484.07	5180740.22	5760.06	5762.17	305	285 - 305	278 - 305
MW-4A	507201.47	5180855.43	5610.12	5612.12	23	14-23	11-59
MW-4B	507200.12	5180858.49	5610.07	5612.07	59	39-59	37-59
MW-6A	507809.18	5179492.9	5680.08	5681.87	15	5-15	3-15
MW-6B	507792.76	5179490.7	5683.41	5685.31	50	40-50	37-50
MW-7	507451.7	5179500.7	5747.48	5749.46	50	40-50	37-50
MW-8	507036.00	5179398.3	5809.10	5810.93	80	70-80	67-80
MW-9	506592.96	5180725.46	5743.59	5745.80	130	108-128	98-144
Test Wells (water level only)							
PW-1	506301.42	5180698.4	5912.07	5913.74	213	140-211	108-213
PW-2	506443.15	5180865.03	5793.08	5794.88	215	132 - 212	121 - 212
PW-3	506846.43	5180479.42	5655.21	5657.42	131	90-127	80-130
PW-4	506901.79	5180688.26	5678.13	5680.01	242	200-239	191-242
Piezometers (water level only)							
PZ-01	507650.01	5180255.63	5628.69	5630.34	5.3	2.3-5.3	NA
PZ-02	507400.72	5180778.79	5611.81	5613.51	5.3	2.3-5.3	NA
PZ-03	507249.21	5180618.91	5616.08	5617.74	9.3	6.3-9.3	NA
PZ-04	506991.74	5181110.82	5599.34	5602.7	7.7	4.7-7.7	NA
PZ-05	507080.04	5181214.68	5598.16	5599.79	5.4	2.4-5.4	NA
PZ-07A	506258.39	5180074.65	5776.57	5777.50	5.4	2.4-5.4	NA
PZ-07B	506258.47	5180075.00	5776.57	5777.59	5.4	2.4-5.4	NA
PZ-08	507090.31	5180573.81	5618.90	5621.29	5.4	2.4-5.4	NA
PZ-09	507883.78	5180178.58	5634.73	5637.27	5.4	2.4-5.4	NA

V:\11048\GIS\WRM Reports\Fig1_WRM Sites.mxd

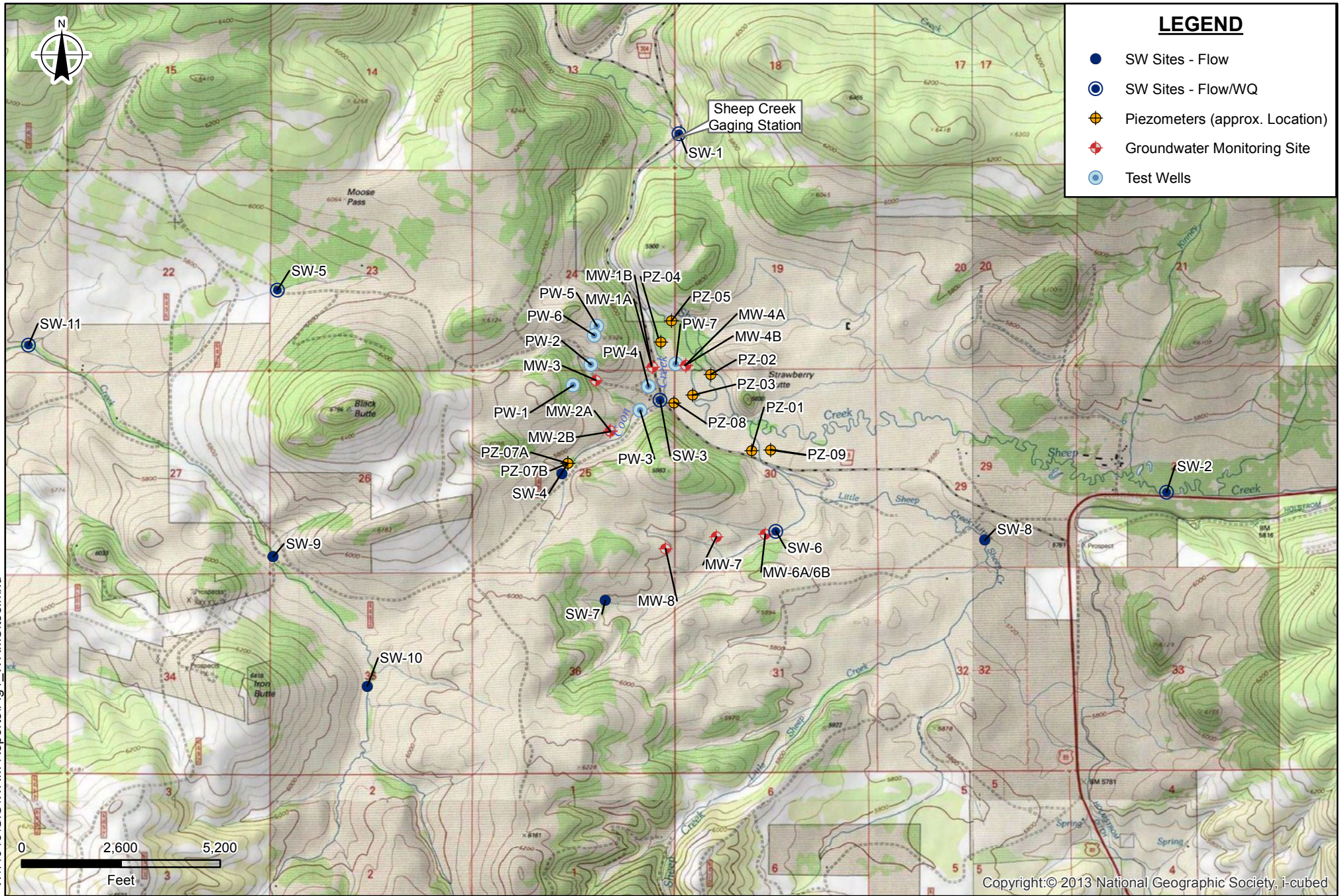


Figure 1
Baseline Monitoring Sites
Black Butte Copper Project
Meagher County, Montana

TABLE 3. ANALYTICAL METHODS AND DETECTION LIMITS FOR SURFACE WATER

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
Total Kjeldahl as N	A 4500 N org	0.5
Total Nitrogen	Calculated	0.5
Total Phosphorus	E365.1	0.01
Trace Constituents (SW - Total Recoverable except Aluminum [Diss], GW - 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	0.02
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.

TABLE 4. ANALYTICAL METHODS AND DETECTION LIMITS FOR GROUNDWATER SAMPLES

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 (SW - Total Recoverable except Aluminum [Dissolved], GW - Dissolved)⁽²⁾		
Aluminum (Al)	200.7/200.8	0.009
Antimony (Sb)	200.7/200.8	0.0005
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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	0.02
Strontium (Sr)	200.7/200.8	0.0002
Thallium (Tl)	200.7/200.8	0.0002
Uranium	200.7/200.8	0.008
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Field Parameters		
Stream Flow	HF-SOP-37/-44/-46	NA
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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 SURFACE WATER MONITORING PROTOCOL

Quarterly surface water monitoring included collection of field parameter measurements and water quality samples for laboratory analysis at four of the six monitoring sites designated for water quality monitoring. Discharge measurements were not collected at any of the surface water sites as all of the sites were frozen over. Water quality monitoring was not conducted at sites SW-5 as the stream was dry and SW-3 due to frozen conditions. Field parameters were not taken at several of the sites due to frozen conditions. Below is a summary of the methodologies used for the surface water monitoring, which consisted of the following steps:

1. Measurement of stream flow and stage (at sites instrumented with staff gages);
2. Collection of field parameters; and
3. Water quality sample collection.

2.1 FLOW MEASUREMENT

Surface water flow measurements were collected using a Marsh-McBirney current meter and wading rod (area-velocity method) or 90° v-notch cutthroat flume. Stage measurements were measured at staff gages at selected sites.

The Marsh-McBirney current meter is used to measure stream flow at larger, wadeable stream sites. Measurement of stream flow was performed in accordance with the area-velocity method developed by the USGS (USGS, 2010). In general, the entire stream width is divided into subsections and the stream velocity is measured at the midpoint of each subsection at a depth equivalent to six-tenths of the total subsection depth. The velocity in each subsection is then multiplied by the cross-sectional area to obtain the flow through each subsection. The subsection flows are then summed to obtain the total stream flow rate. Stream flow measurements are typically collected in a stream reach as straight and free of obstructions as possible to minimize potential measurement error introduced by converging or turbulent flow paths.

Stream flow measurements on smaller streams were obtained by using a portable 90° v-notch cutthroat flume. To measure stream flow, the flume was placed and leveled in the streambed, and the full stream flow directed through the flume throat. Water depth or head measurements were then collected at specified locations in the converging and (if applicable) diverging sections of the flume. The head measurements were used to verify proper functioning of the flume and to calculate stream flow based on the water depth.

2.2 FIELD PARAMETERS

Surface water monitoring included measurement of the field parameters that consisted of pH, specific conductance (SC), dissolved oxygen (DO) and water temperature. Field parameters were collected before stream flow measurements, or upstream of the location where stream flows were measured to ensure the measurements were not affected by streambed disturbance.

Field meters were calibrated daily according to factory instructions, with calibration results recorded in the field notebook and/or on calibration forms. Field parameter measurements were obtained directly in the stream; however, in high velocity areas pH was measured in a clean container filled with sample water to limit possible errors due to streaming potentials. Results were recorded in the field notebook and on standard sample forms.

2.3 WATER QUALITY SAMPLING

Water quality grab samples were collected from each surface water-monitoring site by passing an uncapped sample container across the area of flow. Sample containers were rinsed three times with sample water prior to sample collection. Water quality samples were collected in containers and preserved as summarized in Table 5.

TABLE 5. SAMPLE CONTAINER AND PRESERVATION REQUIREMENTS

Parameters	Sample Containers	Preservative
Field Parameters	None	None
Common Constituents	500 mL HDPE	Cool to 4°C
Nutrients (Nitrate+Nitrite)	250 mL HDPE	H ₂ SO ₄ to pH <2 Cool to 4°C
Trace Constituents (total recoverable, except dissolved for aluminum)	250 mL HDPE	Filter dissolved samples (0.45 µm) HNO ₃ to pH <2 Cool to 4°C

Following preservation, samples were stored on ice in coolers at approximately 4±2°C for transport. Dissolved trace constituents were filtered by passing unpreserved sample water through a 0.45 µm filter using a peristaltic pump. All raw sample containers (used for filtration), tubing and filters were discarded after one use to eliminate any cross-contamination between samples.

All water quality sampling information, including sample sites, sample numbers, date and time of sample collection, field parameter measurements, flow measurements, and other notes and observations, were documented in waterproof ink in a dedicated project field notebook, and on standard field forms. Photos were taken at each site to document conditions at the time of sampling and to provide reference for future monitoring events.

2.4 FIELD QUALITY CONTROL

Two field duplicates were collected to evaluate the reproducibility (precision) of the field sampling protocols. Field duplicate samples are replicate samples from a single sampling location submitted to a laboratory for the same set of analyses. For the purposes of this project, field duplicates were collected by filling two sample containers consecutively from the sampling location. Duplicates were submitted to the same laboratory, and were identified with different sample numbers.

3.0 GROUNDWATER MONITORING PROTOCOL

Groundwater monitoring included collection of field parameters and water quality samples from eleven monitoring wells. The collection of groundwater samples from site monitoring wells will generally consist of three steps:

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

3.1 STATIC WATER LEVEL MEASUREMENT

Prior to collection of samples or removal/introduction of any equipment into the well, the static water level was measured at each well using an electric water level probe to determine the depth of groundwater below a specified measuring point (top of PVC well casing). Water level measurements will be combined with surveyed measuring point elevations to compute groundwater elevations at each monitoring point.

3.2 FIELD PARAMETERS AND WATER QUALITY SAMPLE COLLECTION

Dedicated HDPE tubing is installed in all twelve monitoring wells, and a 12-volt or a Grundfos submersible pump was used to purge and sample all monitoring wells. Purging consisted of removing three well volumes while routinely monitoring field parameters (pH, dissolved oxygen, temperature, specific conductance) during removal of each well volume. Field meters were calibrated daily according to factory instructions, with calibration results recorded on calibration forms.

Samples for laboratory analysis were collected after one of the following purge conditions was met:

- A minimum of three well volumes have been removed and successive field parameter measurements agree to within the stability criteria given below; or

- At least five well volumes have been removed although field parameter stabilization criteria are not yet met; or
- The well has been pumped dry and allowed to recover sufficiently such that adequate sample volumes for rinsing equipment and collecting samples can be removed.

Criteria for field parameter stabilization are as follows:

Parameter (Units)	Stability Criteria
pH (standard units)	± 0.1 s.u.
Water temperature (°C)	± 0.2 °C
Specific conductance ($\mu\text{mhos/cm}$)	$\pm 5\%$ ($\text{SC} \leq 100 \mu\text{mhos/cm}$) $\pm 3\%$ ($\text{SC} > 100 \mu\text{mhos/cm}$)
Dissolved oxygen (mg/L)	± 0.3 mg/L

NOTE: Stability criteria obtained from USGS *National Field Manual for the Collection of Water Quality Data: Chapter A4, Collection of Water Samples* (September 1999).

Following well purging, final field parameter measurements were collected and recorded, and groundwater quality samples were obtained. Samples for trace constituents were filtered through a $0.45\mu\text{m}$ filter prior to preservation, to allow analysis for the dissolved fraction. Sample containers were rinsed three times with sample water prior to sample collection, then preserved as appropriate for the intended analysis (e.g., nitric acid preservation to pH <2 for metals analysis), and stored on ice in coolers at approximately $4\pm 2^\circ\text{C}$ during transport.

Groundwater sampling equipment reused between monitoring locations (12-volt or Grundfos sampling pump and short piece of discharge line) were thoroughly decontaminated between uses. Equipment decontamination consisted of the following steps:

- Rinse with about two gallons of soapy water (Alconox or other non-phosphate detergent); and
- Rinse with about two gallons of fresh water; and
- Rinse with about 2 gallons of distilled water.

4.0 RESULTS

The field parameters and analytical results for the 2014 Fourth Quarter Monitoring are presented in Table 6 (surface water) and Table 7 (groundwater). Below is a brief summary of the monitoring results. The Laboratory Analytical Data Report for this monitoring event is located in Appendix A.

4.1 STREAM DISCHARGE

Stream discharge was not measured at any of the surface water sites during the November 2014 monitoring event due to cold temperatures and all locations being frozen. Dry conditions were observed at site SW-5.

4.2 GROUNDWATER LEVELS

Depth to water in the wells and piezometers ranged from 2.55 to 49.68 feet below the measuring point (typically top of casing). Table 8 summarizes the depth to water levels and calculated water level elevations for each groundwater level monitoring point. The shallowest water was found in wells and piezometers completed in the Sheep Creek Alluvium (MW-4A and PZ-01 through PZ-05) and in the shallow bedrock wells near the contact of or beneath the Sheep Creek Alluvium (MW-1A, MW-4B). As expected, the deepest groundwater levels were in wells completed in higher elevation areas (PW-1 and SC12-116).

Groundwater elevations were calculated for each well from the depth to water level measurements and measuring point elevations. The groundwater elevations for bedrock wells were used to construct a bedrock potentiometric surface (Figure 2). Groundwater flow in the bedrock is generally to the northeast towards the Sheep Creek alluvium with gradients ranging from 0.07 to 0.04. The steepest gradient within the bedrock aquifer is located in the northern portion of the study area near wells PW-1 and MW-3. The lower gradient is in the area near the portal of the proposed decline.

TABLE 6. NOVEMBER 2014 SURFACE WATER QUALITY DATA

Site Code	SW-1	SW-2	SW-2 DUP	SW-3	SW-4	SW-5	SW-6	SW-7	SW-8	SW-9	SW-10	SW-11	Surface Water Human Health Standard	Surface Water Aquatic Standard (Chronic)
Field Sample ID (BBC-1411-)	-100	-101	-102	-106	-105	-110	-108	-107	-112	-104	-109	-111		
FIELD PARAMETERS														
Flow (CFS)	ICED	ICED	--	ICED	ICED	DRY	ICED	ICED	ICED	ICED	ICED	ICED	--	--
pH (s.u.)	7.44	6.88	--	--	--	--	6.67	--	--	--	--	8.09	--	--
Specific Conductance (µmhos/cm)	360	388	--	--	--	--	433	--	--	--	--	487	--	--
Temperature (C)	0.01	-0.02	--	--	--	--	0	--	--	--	--	-0.02	--	--
Dissolved Oxygen (mg/L)	12.6	12.73	--	--	--	--	14.18	--	--	--	--	15.4	--	--
GENERAL PARAMETERS (mg/L)														
Total Suspended Solids	<10	<10	<10	--	--	--	12	--	--	--	--	<10	--	--
Total Dissolved Solids	227	223	225	--	--	--	247	--	--	--	--	280	--	--
COMMON IONS (mg/L)														
Alkalinity as CaCO3	200	200	200	--	--	--	230	--	--	--	--	250	--	--
Sulfate	6	6	6	--	--	--	10	--	--	--	--	18	--	--
Chloride	2	2	2	--	--	--	<1	--	--	--	--	2	--	--
Fluoride	0.1	<0.1	<0.1	--	--	--	0.2	--	--	--	--	0.2	4	--
Calcium	55	58	57	--	--	--	53	--	--	--	--	60	--	--
Magnesium	14	14	14	--	--	--	23	--	--	--	--	26	--	--
Sodium	3	3	3	--	--	--	3	--	--	--	--	3	--	--
Potassium	2	1	1	--	--	--	1	--	--	--	--	1	--	--
NUTRIENTS (mg/L)														
Nitrate and Nitrite as N	0.03	0.05	0.05	--	--	--	0.11	--	--	--	--	0.16	10	--
Nitrogen, Kjeldahl, Total as N	<0.5	<0.5	<0.5	--	--	--	<0.5	--	--	--	--	<0.5	--	--
Total Nitrogen	<0.5	<0.5	<0.5	--	--	--	<0.5	--	--	--	--	<0.5	--	--
Total Phosphorus	0.01	<0.01	<0.01	--	--	--	0.02	--	--	--	--	0.03	--	--
DISSOLVED TRACE CONSTITUENTS (mg/L)														
Aluminum	<0.009	<0.009	<0.009	--	--	--	<0.009	--	--	--	--	<0.009	--	0.087
TOTAL RECOVERABLE TRACE CONSTITUENTS (mg/L)														
Antimony	<0.0005	<0.0005	<0.0005	--	--	--	<0.0005	--	--	--	--	<0.0005	0.0056	--
Arsenic	<0.001	<0.001	<0.001	--	--	--	<0.001	--	--	--	--	<0.001	0.01	0.15
Barium	0.126	0.103	0.104	--	--	--	0.14	--	--	--	--	0.13	1	--
Beryllium	<0.0008	<0.0008	<0.0008	--	--	--	<0.0008	--	--	--	--	<0.0008	0.004	--
Cadmium	<0.00003	<0.00003	<0.00003	--	--	--	<0.00003	--	--	--	--	<0.00003	0.005	0.00022+
Chromium	<0.005	<0.005	<0.005	--	--	--	<0.005	--	--	--	--	<0.005	0.1	--
Cobalt	<0.005	<0.005	<0.005	--	--	--	<0.005	--	--	--	--	<0.005	--	--
Copper	<0.002	<0.002	<0.002	--	--	--	<0.002	--	--	--	--	<0.002	1.3	0.0073+
Iron	0.23	0.17	0.18	--	--	--	0.48	--	--	--	--	0.13	--	1
Lead	<0.0003	<0.0003	<0.0003	--	--	--	0.0006	--	--	--	--	<0.0003	0.015	0.0022+
Manganese	0.02	0.012	0.012	--	--	--	0.023	--	--	--	--	0.006	--	--
Mercury	<0.000005	<0.000005	<0.000005	--	--	--	<0.000005	--	--	--	--	<0.000005	0.00005	0.00091
Molybdenum	<0.001	<0.001	<0.001	--	--	--	<0.001	--	--	--	--	<0.001	--	--
Nickel	<0.001	<0.001	<0.001	--	--	--	<0.001	--	--	--	--	<0.001	0.1	0.041+
Selenium	<0.0002	<0.0002	<0.0002	--	--	--	0.0002	--	--	--	--	<0.0002	0.05	0.005
Silver	<0.001	<0.001	<0.001	--	--	--	<0.001	--	--	--	--	<0.001	0.1	--
Strontium	0.147	0.15	0.152	--	--	--	0.173	--	--	--	--	0.19	4	--
Thallium	<0.0002	<0.0002	<0.0002	--	--	--	<0.0002	--	--	--	--	<0.0002	0.00024	--
Uranium	<0.008	<0.008	<0.008	--	--	--	<0.008	--	--	--	--	<0.008	0.03	--
Zinc	0.002	0.002	0.002	--	--	--	0.003	--	--	--	--	0.002	2	0.094+

NOTES: concentrations that are in bold exceed DEQ 7 standards for Human Health and/or Aquatic (chronic)
+ = hardness dependent parameter values shown for a hardness of 75 mg/L; which is approximately the lowest hardness recorded in the baseline data.
Concentrations that are in bold are based on hardness of individual samples.
All information summarized from MDEQ Circular DEQ-7 (October 2012 Printing).
Surface water standards for metals and metalloids are based on total recoverable concentrations, except for aluminum is dissolved.

TABLE 7. NOVEMBER 2014 GROUNDWATER QUALITY DATA

Site Code	MW-1A	MW-1B	MW-2A	MW-2B	MW-3	MW-4A	MW-4B	MW-6A	MW-6B	MW-7	MW-8	MW-8 DUP	MW-9	DI BLANK	RINS BLANK	Groundwater Human Health Standard
Field Sample ID (BBC-1411-)	-214	-212	-207	-208	-200	-209	-211	-202	-203	-204	-205	-206	-201	-210	-213	
FIELD PARAMETERS																
Static Water Level	7.12	22.76	42.2	41.98	46.13	5.04	4.62	8.86	12.08	32.1	30.6	--	49.95	--	--	--
pH (s.u.)	7.39	6.25	7.22	7.19	6.97	7.08	7.42	7.47	7.53	7.4	7.88	--	6.88	--	--	--
Specific Conductance (µmhos/cm)	331	586	353	431	803	486	434	415	423	499	288	--	470	--	--	--
Temperature (C)	7.3	7.9	7.3	7.4	9.5	7.3	6.5	7.5	6.7	7.9	7.2	--	8.8	--	--	--
Dissolved Oxygen (mg/L)	17.56	2.81	7.82	1.33	1.42	3.57	3.39	5.53	3.78	1.36	1.3	--	1.25	--	--	--
ORP (mV)	45.7	-24.1	65.2	30.9	-39.7	51.9	6.1	23.5	27.4	-0.7	-101		-39.2			
GENERAL PARAMETERS																
Total Dissolved Solids	194	411	207	260	591	290	250	248	253	308	162	163	528	<10	<10	--
COMMON IONS (mg/L)																
Alkalinity as CaCO3	170	60	190	210	220	260	230	230	230	240	160	160	240	<4	<4	--
Sulfate	9	220	15	37	270	12	13	11	18	54	12	12	210	<1	<1	--
Chloride	1	1	1	1	1	2	1	1	1	3	<1	<1	1	<1	<1	--
Fluoride	0.2	0.2	0.4	0.4	0.8	0.2	0.1	0.2	0.5	0.3	0.2	0.2	0.6	<0.1	<0.1	4
Calcium	42	57	43	53	82	72	62	55	47	54	26	26	88	<1	<1	--
Magnesium	18	30	23	30	55	20	20	25	22	35	23	24	51	<1	<1	--
Sodium	2	4	3	3	16	3	2	3	15	3	3	3	5	<1	<1	--
Potassium	1	3	1	2	3	2	1.5	<1	1	1	<1	<1	4	<1	<1	--
NUTRIENTS (mg/L)																
Nitrate and Nitrite as N	0.44	0.06	0.21	<0.01	<0.01	<0.01	0.03	0.14	0.1	0.03	<0.01	<0.01	<0.01	<0.01	<0.01	10
DISSOLVED TRACE CONSTITUENTS (mg/L)																
Aluminum	0.025	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	<0.009	0.015	<0.009	<0.009	0.022	<0.009	<0.009	--
Antimony	<0.0005	0.0007	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	0.0005	<0.0005	<0.0005	<0.0005	0.006
Arsenic	<0.001	0.057	<0.001	0.003	0.068	<0.001	<0.001	<0.001	<0.001	0.002	0.002	0.002	0.012	<0.001	<0.001	0.01
Barium	0.162	0.014	0.082	0.04	0.01	0.182	0.121	0.178	0.113	0.05	0.072	0.072	0.021	<0.003	<0.003	1
Beryllium	<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	0.004
Cadmium	<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	0.005
Chromium	<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	0.1
Cobalt	<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	0.005	<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	1.3
Iron	<0.02	20.2	<0.02	0.05	1.16	0.04	<0.02	<0.02	<0.02	0.03	0.07	0.07	0.81	<0.02	<0.02	--
Lead	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0004	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.015
Manganese	<0.005	0.085	<0.005	0.011	0.02	0.196	<0.005	<0.005	0.018	0.097	0.049	0.061	0.129	<0.005	<0.005	--
Mercury	<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	0.002
Molybdenum	<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	<0.002	<0.002	--
Nickel	<0.001	0.012	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	0.1
Selenium	<0.0002	<0.0002	0.001	0.0005	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.05
Silver	<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	0.1
Strontium	0.0993	1.58	0.0926	0.1	14.6	0.169	0.171	0.164	0.212	0.167	0.0873	0.0872	1.13	<0.0002	<0.0002	4
Thallium	0.0007	0.0123	0.0002	0.0034	0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0.0036	<0.0002	<0.0002	0.002
Uranium	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	<0.008	0.03
Zinc	0.002	0.031	<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	2

NOTES: concentrations that are in bold exceed DEQ 7 standards for Human Health
All information summarized from MDEQ Circular DEQ-7 (October 2012 Printing).

TABLE 8. NOVEMBER 2014 WATER LEVEL DATA

Well Name	Easting (meters)	Northing (meters)	Ground Surface Elev.	Measuring Point Elev.	Depth to Water Level	Water Level Elev.
	UTM- WGS 1984 Zone 12 North		(feet, amsl)	(feet, amsl)	(feet, bmp)	(feet, amsl)
Monitoring Wells						
MW-1A	506935.22	5180841.55	5635.81	5637.73	7.02	5630.71
MW-1B	506934.19	5180845.46	5636.14	5637.90	22.67	5615.23
MW-2A	506598.18	5180331.93	5743.72	5745.31	42.12	5703.19
MW-2B	506596.96	5180328.73	5743.44	5745.53	41.94	5703.59
MW-3	506484.07	5180740.22	5760.06	5762.17	45.96	5716.21
MW-4A	507201.47	5180855.43	5610.12	5612.12	4.9	5607.22
MW-4B	507200.12	5180858.49	5610.07	5612.07	4.49	5607.58
MW-6A	507809.18	5179492.90	5680.08	5681.87	9.28	5672.59
MW-6B	507792.76	5179490.70	5683.41	5685.31	11.96	5673.35
MW-7	507451.70	5179500.70	5747.48	5749.46	31.91	5717.55
MW-8	507036.00	5179398.30	5809.10	5810.93	30.45	5780.48
MW-9	506592.96	5180725.46	5743.59	5745.80	49.68	5696.12
Test Wells						
PW-1	506301.42	5180698.40	5912.07	5913.74	102.66	5811.08
PW-2	506443.15	5180865.00	5793.08	5794.88	60.37	5734.51
PW-3	506846.43	5180479.42	5655.21	5657.42	14.09	5643.33
PW-4	506849.44	5180701.75	5678.13	5680.01	52.78	5627.23
PW-5	506490.68	5181172.77	5913.22	5915.49	471.49	5444.00
PW-6	506477.44	5181085.67	5895.43	5897.40	312.98	5584.42
PW-7	507122.89	5180867.59	5609.11	5611.15	ICED	NA
PW-8	506846.19	5180695.53	5679.12	5680.60	45.52	5635.08
PW-9	506598.38	5180721.88	5743.59	5745.05	41.66	5703.39
PW-10	506593.55	5180721.88	5743.57	5744.84	45.14	5699.70
Piezometers						
PZ-01	507650.00	5180256.00	5628.69	5630.34	3.06	5627.28
PZ-02	507400.70	5180779.00	5611.81	5613.51	2.96	5610.55
PZ-03	507249.20	5180619.00	5616.08	5617.74	5.16	5612.58
PZ-04	506991.70	5181111.00	5599.34	5602.70	NA	
PZ-05	507080.00	5181215.00	5598.16	5599.79	3.16	5596.63
PZ-07A	506258.39	5180074.65	5776.57	5777.50	2.55	5774.95
PZ-07B	506258.47	5180075.00	5776.57	5777.59	3.42	5774.17
PZ-08	507090.31	5180573.81	5618.90	5621.29	6.03	5615.26
PZ-09	507883.78	5180178.58	5634.73	5637.27	5.34	5631.93
PZ-10	506590.91	5180679.01	5723.51	5727.42	9.38	5718.04
PZ-11	507031.15	5180654.89	5618.77	5622.24	6.37	5615.87
PZ-12	506839.49	5180509.42	5644.56	5646.55	5.47	5641.08
Core Holes						
SC12-116	507030.00	5180380.00	NA	5793.89	112.52	5681.37

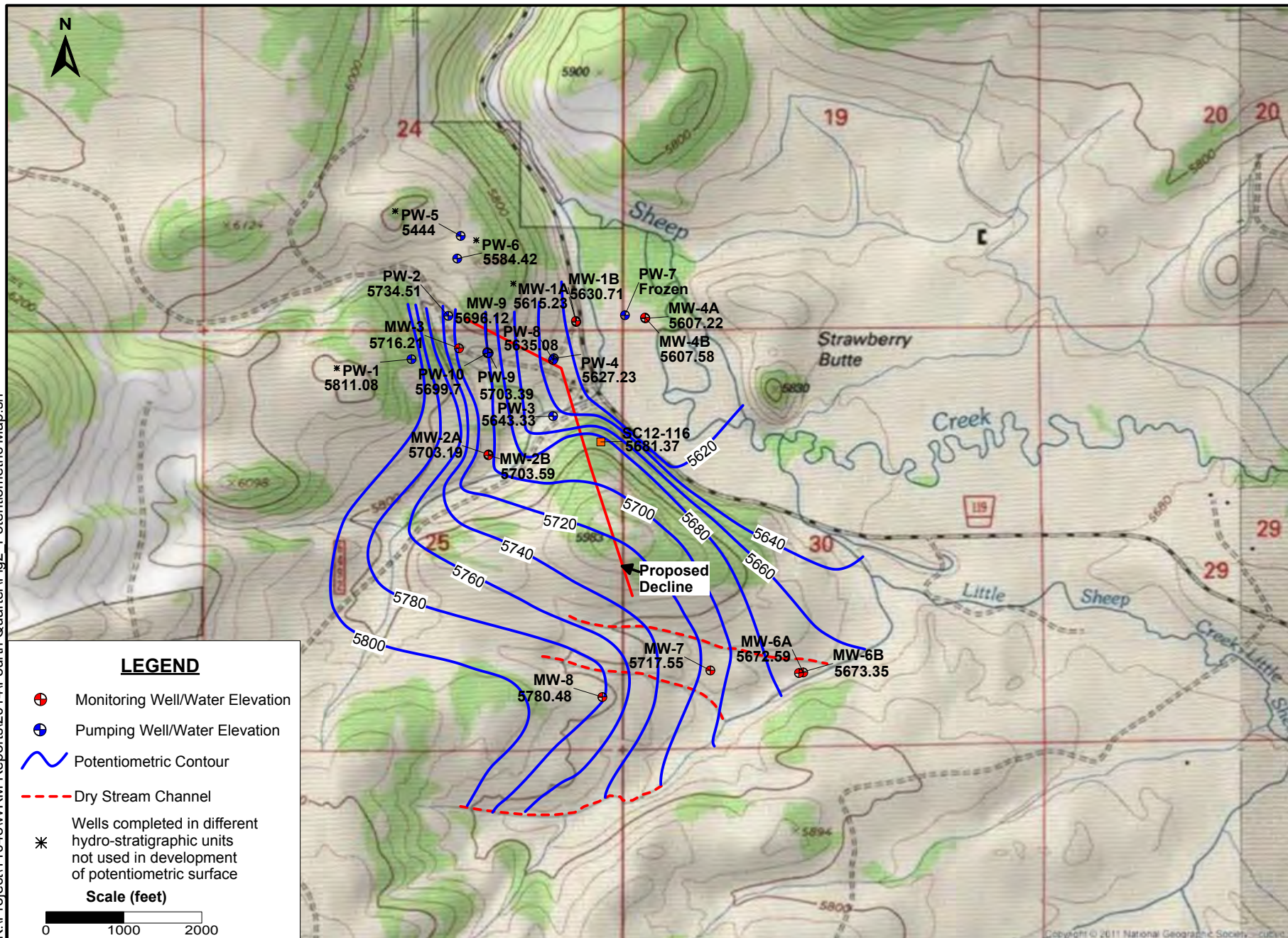


Figure 2
November 2014 Potentiometric Map
Black Butte Copper Project
Meagher County, Montana

4.3 WATER QUALITY DATA

Surface water quality was relatively similar at all of the monitoring sites. Water samples showed near neutral to slightly basic pH (6.67 – 8.09 s.u.), relatively low total dissolved solids (223 mg/L to 280 mg/L), and were calcium bicarbonate type water. Numerous trace constituents were detected at low levels at one or more sites, including: total recoverable barium, iron, manganese, strontium, selenium and zinc (Table 6).

Groundwater quality showed some differences related to well depths and completion zones. Wells MW-1A, MW-2A and MW-4A are located in the shallow unconsolidated overburden deposits and exhibited a neutral pH (7.08-7.39 s.u.), low sulfate concentration (9 to 15 mg/L) and low or non-detectable concentrations of most dissolved trace constituent (Table 7). Well MW-1B has historically had similar water quality as wells completed in the sulfide ore zone (MW-3). MW-9 was sampled for the first time during this event and showed very similar results to MW-3 and MW-1B. These wells had a slightly lower pH (6.25 to 6.97 s.u.) and higher concentrations of dissolved solids (411 to 591 mg/L) and sulfate (210 to 270 mg/L) compared to the other wells. Dissolved trace constituents that are present at detectable concentrations in MW-1B, MW-3, and MW-9 include aluminum, antimony, arsenic, barium, cobalt, iron, manganese, nickel, strontium, thallium and zinc (Table 5). Wells located in the shallow bedrock above the sulfide ore zones include MW-2B, MW-4B, MW-6A, MW-6B, MW-7 and MW-8. These wells had near neutral to slightly basic pH (7.19-7.88 s.u.), sulfate concentrations of 11 to 54 mg/L, and low concentrations of dissolved trace constituents including aluminum, antimony, arsenic, barium, iron, lead, manganese, molybdenum, selenium, strontium and thallium.

November 2014 water quality results were compared to human health and aquatic life (chronic) standards per MDEQ Circular DEQ-7 (MDEQ, 2012). No surface water concentrations exceeded DEQ-7 surface water human health standards or chronic aquatic life standards in November 2014 (Table 6). Groundwater constituents exceeding DEQ-7 human health standards in November 2014 include strontium at MW-3, thallium at MW-1B, MW-9 and MW-2B, and arsenic at wells MW-1B, MW-3 and MW-9.

4.4 FIELD QUALITY CONTROL

Quality control and quality assurance for the November 2014 monitoring event were evaluated using results of two field duplicate sample (collected at surface water site SW-2 and groundwater site MW-8), a field DI blank, a field rinsate blank and standard laboratory QC samples. For the field duplicate samples, all parameters were within control limits. For laboratory QC samples, one matrix spike were outside the recovery control limits of 90-110% for total kjeldahl nitrogen. One of the laboratory duplicates was outside the relative percent difference for mercury and two were outside the limits for total kjeldahl nitrogen. The QC data did not indicate any systematic data quality issues for the November 2014 data set. A summary of the November 2014 QA/QC Review is included in Appendix B.

5.0 REFERENCES

- EPA, 1983. Methods for Chemical Analysis of Water and Wastes. EPA-600/14-79-020. Revised March 1983.
- MDEQ, 2012. Circular DEQ-7, Montana Numeric Water Quality Standards, October 2012.
- USGS, 2010. Discharge measurements at gaging stations: U.S. Geological Survey Techniques and Methods book 3, chap A8, 87 p. By D.P. Turnipseed and V.B. Sauer.

APPENDIX A

LABORATORY ANALYTICAL REPORT

ANALYTICAL SUMMARY REPORT

December 01, 2014

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

Work Order: H14110240

Project Name: 11048 Black Butte Copper Project

Energy Laboratories Inc Helena MT received the following 6 samples for Tintina Resources Inc on 11/14/2014 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H14110240-001	BBC-1411-100	11/12/14 15:10	11/14/14	Aqueous	Metals by ICP/ICPMS, Dissolved Metals by ICP/ICPMS, Tot. Rec. Alkalinity Conductivity Mercury, Total Recoverable Fluoride Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Nitrogen, Total Kjeldahl Nitrogen, Total (TKN+NO3+NO2) Metals Digestion by EPA 200.2 Digestion, Mercury by CVAA Digestion, Total P Water TKN Prep Phosphorus, Total Solids, Total Dissolved Solids, Total Suspended
H14110240-002	BBC-1411-101	11/12/14 16:10	11/14/14	Aqueous	Same As Above
H14110240-003	BBC-1411-102	11/12/14 16:25	11/14/14	Aqueous	Same As Above
H14110240-004	BBC-1411-103	11/12/14 17:00	11/14/14	Aqueous	Same As Above
H14110240-005	BBC-1411-108	11/13/14 9:00	11/14/14	Aqueous	Same As Above
H14110240-006	BBC-1411-111	11/13/14 14:20	11/14/14	Aqueous	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:



CLIENT: Tintina Resources Inc
Project: 11048 Black Butte Copper Project
Work Order: H14110240

Report Date: 12/01/14

CASE NARRATIVE

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

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 11048 Black Butte Copper Project
Lab ID: H14110240-001
Client Sample ID: BBC-1411-100

Report Date: 12/01/14
Collection Date: 11/12/14 15:10
Date Received: 11/14/14
Matrix: Aqueous

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	11/17/14 11:55 / SRW
Solids, Total Dissolved TDS @ 180 C	227	mg/L		10		A2540 C	11/17/14 12:00 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	200	mg/L		4		A2320 B	11/17/14 12:41 / SRW
Chloride	2	mg/L		1		E300.0	11/17/14 16:38 / SRW
Sulfate	6	mg/L		1		E300.0	11/17/14 16:38 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	11/18/14 09:38 / SRW
NUTRIENTS							
Nitrogen, Kjeldahl, Total as N	ND	mg/L		0.5		E351.2	11/20/14 09:06 / eli-b38
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	11/17/14 10:44 / cmm
Nitrogen, Total	ND	mg/L		0.5		Calculation	12/01/14 11:26 / abb
Phosphorus, Total as P	0.01	mg/L		0.01		E365.1	11/18/14 12:53 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/18/14 17:54 / dck
Calcium	55	mg/L		1		E200.7	11/17/14 11:22 / sld
Magnesium	14	mg/L		1		E200.7	11/17/14 11:22 / sld
Potassium	2	mg/L		1		E200.8	11/18/14 17:54 / dck
Sodium	3	mg/L		1		E200.7	11/17/14 11:22 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/18/14 17:58 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/18/14 17:58 / dck
Barium	0.126	mg/L		0.003		E200.8	11/18/14 17:58 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/18/14 17:58 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/18/14 17:58 / dck
Chromium	ND	mg/L		0.005		E200.8	11/18/14 17:58 / dck
Cobalt	ND	mg/L		0.005		E200.8	11/18/14 17:58 / dck
Copper	ND	mg/L		0.002		E200.8	11/18/14 17:58 / dck
Iron	0.23	mg/L		0.02		E200.8	11/18/14 17:58 / dck
Lead	ND	mg/L		0.0003		E200.8	11/18/14 17:58 / dck
Manganese	0.020	mg/L		0.001		E200.8	11/18/14 17:58 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/19/14 11:49 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	11/18/14 17:58 / dck
Nickel	ND	mg/L		0.001		E200.8	11/18/14 17:58 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/18/14 17:58 / dck
Silver	ND	mg/L		0.001		E200.8	11/18/14 17:58 / dck
Strontium	0.147	mg/L		0.0002		E200.8	11/18/14 17:58 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/18/14 17:58 / dck
Uranium	ND	mg/L		0.008		E200.8	11/18/14 17:58 / dck
Zinc	0.002	mg/L		0.002		E200.8	11/19/14 20:55 / 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
Lab ID: H14110240-002
Client Sample ID: BBC-1411-101

Report Date: 12/01/14
Collection Date: 11/12/14 16:10
Date Received: 11/14/14
Matrix: Aqueous

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	11/17/14 11:55 / SRW
Solids, Total Dissolved TDS @ 180 C	223	mg/L		10		A2540 C	11/17/14 12:00 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	200	mg/L		4		A2320 B	11/17/14 13:08 / SRW
Chloride	2	mg/L		1		E300.0	11/17/14 16:49 / SRW
Sulfate	6	mg/L		1		E300.0	11/17/14 16:49 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/18/14 09:39 / SRW
NUTRIENTS							
Nitrogen, Kjeldahl, Total as N	ND	mg/L		0.5		E351.2	11/20/14 09:07 / eli-b38
Nitrogen, Nitrate+Nitrite as N	0.05	mg/L		0.01		E353.2	11/17/14 10:45 / cmm
Nitrogen, Total	ND	mg/L		0.5		Calculation	12/01/14 11:26 / abb
Phosphorus, Total as P	ND	mg/L		0.01		E365.1	11/18/14 12:56 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/18/14 18:02 / dck
Calcium	58	mg/L		1		E200.7	11/17/14 11:26 / sld
Magnesium	14	mg/L		1		E200.7	11/17/14 11:26 / sld
Potassium	1	mg/L		1		E200.8	11/18/14 18:02 / dck
Sodium	3	mg/L		1		E200.7	11/17/14 11:26 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/18/14 18:07 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/18/14 18:07 / dck
Barium	0.103	mg/L		0.003		E200.8	11/18/14 18:07 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/18/14 18:07 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/18/14 18:07 / dck
Chromium	ND	mg/L		0.005		E200.8	11/18/14 18:07 / dck
Cobalt	ND	mg/L		0.005		E200.8	11/18/14 18:07 / dck
Copper	ND	mg/L		0.002		E200.8	11/18/14 18:07 / dck
Iron	0.17	mg/L		0.02		E200.8	11/18/14 18:07 / dck
Lead	ND	mg/L		0.0003		E200.8	11/18/14 18:07 / dck
Manganese	0.012	mg/L		0.001		E200.8	11/18/14 18:07 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/19/14 11:57 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	11/18/14 18:07 / dck
Nickel	ND	mg/L		0.001		E200.8	11/18/14 18:07 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/18/14 18:07 / dck
Silver	ND	mg/L		0.001		E200.8	11/18/14 18:07 / dck
Strontium	0.150	mg/L		0.0002		E200.8	11/18/14 18:07 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/18/14 18:07 / dck
Uranium	ND	mg/L		0.008		E200.8	11/18/14 18:07 / dck
Zinc	0.002	mg/L		0.002		E200.8	11/19/14 20:59 / 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
Lab ID: H14110240-003
Client Sample ID: BBC-1411-102

Report Date: 12/01/14
Collection Date: 11/12/14 16:25
Date Received: 11/14/14
Matrix: Aqueous

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	11/17/14 11:56 / SRW
Solids, Total Dissolved TDS @ 180 C	225	mg/L		10		A2540 C	11/17/14 12:01 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	200	mg/L		4		A2320 B	11/17/14 13:15 / SRW
Chloride	2	mg/L		1		E300.0	11/17/14 17:01 / SRW
Sulfate	6	mg/L		1		E300.0	11/17/14 17:01 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/18/14 09:40 / SRW
NUTRIENTS							
Nitrogen, Kjeldahl, Total as N	ND	mg/L		0.5		E351.2	11/20/14 09:08 / eli-b38
Nitrogen, Nitrate+Nitrite as N	0.05	mg/L		0.01		E353.2	11/17/14 10:46 / cmm
Nitrogen, Total	ND	mg/L		0.5		Calculation	12/01/14 11:26 / abb
Phosphorus, Total as P	ND	mg/L		0.01		E365.1	11/18/14 12:59 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/18/14 18:11 / dck
Calcium	57	mg/L		1		E200.7	11/17/14 11:29 / sld
Magnesium	14	mg/L		1		E200.7	11/17/14 11:29 / sld
Potassium	1	mg/L		1		E200.8	11/18/14 18:11 / dck
Sodium	3	mg/L		1		E200.7	11/17/14 11:29 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/18/14 18:29 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/18/14 18:29 / dck
Barium	0.104	mg/L		0.003		E200.8	11/18/14 18:29 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/18/14 18:29 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/18/14 18:29 / dck
Chromium	ND	mg/L		0.005		E200.8	11/18/14 18:29 / dck
Cobalt	ND	mg/L		0.005		E200.8	11/18/14 18:29 / dck
Copper	ND	mg/L		0.002		E200.8	11/18/14 18:29 / dck
Iron	0.18	mg/L		0.02		E200.8	11/18/14 18:29 / dck
Lead	ND	mg/L		0.0003		E200.8	11/18/14 18:29 / dck
Manganese	0.012	mg/L		0.001		E200.8	11/18/14 18:29 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/19/14 12:14 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	11/18/14 18:29 / dck
Nickel	ND	mg/L		0.001		E200.8	11/18/14 18:29 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/18/14 18:29 / dck
Silver	ND	mg/L		0.001		E200.8	11/18/14 18:29 / dck
Strontium	0.152	mg/L		0.0002		E200.8	11/18/14 18:29 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/18/14 18:29 / dck
Uranium	ND	mg/L		0.008		E200.8	11/18/14 18:29 / dck
Zinc	0.002	mg/L		0.002		E200.8	11/19/14 21:08 / 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
Lab ID: H14110240-004
Client Sample ID: BBC-1411-103

Report Date: 12/01/14
Collection Date: 11/12/14 17:00
Date Received: 11/14/14
Matrix: Aqueous

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	11/17/14 11:56 / SRW
Solids, Total Dissolved TDS @ 180 C	230	mg/L		10		A2540 C	11/17/14 12:01 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	220	mg/L		4		A2320 B	11/17/14 13:21 / SRW
Chloride	2	mg/L		1		E300.0	11/17/14 17:12 / SRW
Sulfate	6	mg/L		1		E300.0	11/17/14 17:12 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	11/18/14 09:45 / SRW
NUTRIENTS							
Nitrogen, Kjeldahl, Total as N	ND	mg/L		0.5		E351.2	11/20/14 09:12 / eli-b38
Nitrogen, Nitrate+Nitrite as N	0.09	mg/L		0.01		E353.2	11/17/14 10:47 / cmm
Nitrogen, Total	ND	mg/L		0.5		Calculation	12/01/14 11:26 / abb
Phosphorus, Total as P	ND	mg/L		0.01		E365.1	11/18/14 13:00 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/18/14 18:45 / dck
Calcium	61	mg/L		1		E200.7	11/17/14 11:33 / sld
Magnesium	15	mg/L		1		E200.7	11/17/14 11:33 / sld
Potassium	1	mg/L		1		E200.8	11/18/14 18:45 / dck
Sodium	2	mg/L		1		E200.7	11/17/14 11:33 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/18/14 18:50 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/18/14 18:50 / dck
Barium	0.077	mg/L		0.003		E200.8	11/18/14 18:50 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/18/14 18:50 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/18/14 18:50 / dck
Chromium	ND	mg/L		0.005		E200.8	11/18/14 18:50 / dck
Cobalt	ND	mg/L		0.005		E200.8	11/18/14 18:50 / dck
Copper	ND	mg/L		0.002		E200.8	11/18/14 18:50 / dck
Iron	0.12	mg/L		0.02		E200.8	11/18/14 18:50 / dck
Lead	ND	mg/L		0.0003		E200.8	11/18/14 18:50 / dck
Manganese	0.010	mg/L		0.001		E200.8	11/18/14 18:50 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/19/14 12:22 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	11/18/14 18:50 / dck
Nickel	ND	mg/L		0.001		E200.8	11/18/14 18:50 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/18/14 18:50 / dck
Silver	ND	mg/L		0.001		E200.8	11/18/14 18:50 / dck
Strontium	0.159	mg/L		0.0002		E200.8	11/18/14 18:50 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/18/14 18:50 / dck
Uranium	ND	mg/L		0.008		E200.8	11/18/14 18:50 / dck
Zinc	ND	mg/L		0.002		E200.8	11/19/14 21:12 / 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
Lab ID: H14110240-005
Client Sample ID: BBC-1411-108

Report Date: 12/01/14
Collection Date: 11/13/14 09:00
Date Received: 11/14/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Suspended TSS @ 105 C	12	mg/L		10		A2540 D	11/17/14 11:57 / SRW
Solids, Total Dissolved TDS @ 180 C	247	mg/L		10		A2540 C	11/17/14 12:01 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	230	mg/L		4		A2320 B	11/17/14 13:28 / SRW
Chloride	ND	mg/L		1		E300.0	11/17/14 17:23 / SRW
Sulfate	10	mg/L		1		E300.0	11/17/14 17:23 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	11/18/14 09:47 / SRW
NUTRIENTS							
Nitrogen, Kjeldahl, Total as N	ND	mg/L		0.5		E351.2	11/20/14 09:13 / eli-b38
Nitrogen, Nitrate+Nitrite as N	0.11	mg/L		0.01		E353.2	11/17/14 10:48 / cmm
Nitrogen, Total	ND	mg/L		0.5		Calculation	12/01/14 11:26 / abb
Phosphorus, Total as P	0.02	mg/L		0.01		E365.1	11/18/14 13:01 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/18/14 18:54 / dck
Calcium	53	mg/L		1		E200.7	11/17/14 11:37 / sld
Magnesium	23	mg/L		1		E200.7	11/17/14 11:37 / sld
Potassium	1	mg/L		1		E200.8	11/18/14 18:54 / dck
Sodium	3	mg/L		1		E200.7	11/17/14 11:37 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/18/14 18:58 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/18/14 18:58 / dck
Barium	0.140	mg/L		0.003		E200.8	11/18/14 18:58 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/18/14 18:58 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/18/14 18:58 / dck
Chromium	ND	mg/L		0.005		E200.8	11/18/14 18:58 / dck
Cobalt	ND	mg/L		0.005		E200.8	11/18/14 18:58 / dck
Copper	ND	mg/L		0.002		E200.8	11/18/14 18:58 / dck
Iron	0.48	mg/L		0.02		E200.8	11/18/14 18:58 / dck
Lead	0.0006	mg/L		0.0003		E200.8	11/18/14 18:58 / dck
Manganese	0.023	mg/L		0.001		E200.8	11/18/14 18:58 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/19/14 12:31 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	11/18/14 18:58 / dck
Nickel	ND	mg/L		0.001		E200.8	11/18/14 18:58 / dck
Selenium	0.0002	mg/L		0.0002		E200.8	11/18/14 18:58 / dck
Silver	ND	mg/L		0.001		E200.8	11/18/14 18:58 / dck
Strontium	0.173	mg/L		0.0002		E200.8	11/18/14 18:58 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/18/14 18:58 / dck
Uranium	ND	mg/L		0.008		E200.8	11/18/14 18:58 / dck
Zinc	0.003	mg/L		0.002		E200.8	11/19/14 21:16 / 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
Lab ID: H14110240-006
Client Sample ID: BBC-1411-111

Report Date: 12/01/14
Collection Date: 11/13/14 14:20
Date Received: 11/14/14
Matrix: Aqueous

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	11/17/14 11:57 / SRW
Solids, Total Dissolved TDS @ 180 C	280	mg/L		10		A2540 C	11/17/14 12:01 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	250	mg/L		4		A2320 B	11/17/14 13:34 / SRW
Chloride	2	mg/L		1		E300.0	11/17/14 17:34 / SRW
Sulfate	18	mg/L		1		E300.0	11/17/14 17:34 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	11/18/14 09:47 / SRW
NUTRIENTS							
Nitrogen, Kjeldahl, Total as N	ND	mg/L		0.5		E351.2	11/20/14 09:14 / eli-b38
Nitrogen, Nitrate+Nitrite as N	0.16	mg/L		0.01		E353.2	11/17/14 10:50 / cmm
Nitrogen, Total	ND	mg/L		0.5		Calculation	12/01/14 11:26 / abb
Phosphorus, Total as P	0.03	mg/L		0.01		E365.1	11/18/14 13:02 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.009		E200.8	11/18/14 19:03 / dck
Calcium	60	mg/L		1		E200.7	11/17/14 11:41 / sld
Magnesium	26	mg/L		1		E200.7	11/17/14 11:41 / sld
Potassium	1	mg/L		1		E200.8	11/18/14 19:03 / dck
Sodium	3	mg/L		1		E200.7	11/17/14 11:41 / sld
METALS, TOTAL RECOVERABLE							
Antimony	ND	mg/L		0.0005		E200.8	11/18/14 19:07 / dck
Arsenic	ND	mg/L		0.001		E200.8	11/18/14 19:07 / dck
Barium	0.130	mg/L		0.003		E200.8	11/18/14 19:07 / dck
Beryllium	ND	mg/L		0.0008		E200.8	11/18/14 19:07 / dck
Cadmium	ND	mg/L		0.00003		E200.8	11/18/14 19:07 / dck
Chromium	ND	mg/L		0.005		E200.8	11/18/14 19:07 / dck
Cobalt	ND	mg/L		0.005		E200.8	11/18/14 19:07 / dck
Copper	ND	mg/L		0.002		E200.8	11/18/14 19:07 / dck
Iron	0.13	mg/L		0.02		E200.8	11/18/14 19:07 / dck
Lead	ND	mg/L		0.0003		E200.8	11/18/14 19:07 / dck
Manganese	0.006	mg/L		0.001		E200.8	11/18/14 19:07 / dck
Mercury	ND	mg/L		5E-06		E245.1	11/19/14 12:48 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	11/18/14 19:07 / dck
Nickel	ND	mg/L		0.001		E200.8	11/18/14 19:07 / dck
Selenium	ND	mg/L		0.0002		E200.8	11/18/14 19:07 / dck
Silver	ND	mg/L		0.001		E200.8	11/18/14 19:07 / dck
Strontium	0.190	mg/L		0.0002		E200.8	11/18/14 19:07 / dck
Thallium	ND	mg/L		0.0002		E200.8	11/18/14 19:07 / dck
Uranium	ND	mg/L		0.008		E200.8	11/18/14 19:07 / dck
Zinc	0.002	mg/L		0.002		E200.8	11/19/14 21:21 / 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: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R102214
Lab ID: MB		Method Blank					Run: PHSC_101-H_141117A			11/17/14 11:15
Alkalinity, Total as CaCO ₃	2	mg/L		2						
Lab ID: LCS		Laboratory Control Sample					Run: PHSC_101-H_141117A			11/17/14 11:21
Alkalinity, Total as CaCO ₃	620	mg/L		4.0	102	90	110			
Lab ID: H14110223-001ADUP		Sample Duplicate					Run: PHSC_101-H_141117A			11/17/14 11:44
Alkalinity, Total as CaCO ₃	320	mg/L		4.0				1.6	10	
Lab ID: H14110240-001AMS		Sample Matrix Spike					Run: PHSC_101-H_141117A			11/17/14 12:48
Alkalinity, Total as CaCO ₃	710	mg/L		4.0	85	80	120			
Lab ID: H14110240-006ADUP		Sample Duplicate					Run: PHSC_101-H_141117A			11/17/14 13:41
Alkalinity, Total as CaCO ₃	250	mg/L		4.0				0.4	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: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C									Batch: TDS141117A	
Lab ID: MB-1_141117A	Method Blank					Run: ACCU-124 (14410200)_14111			11/17/14 11:59	
Solids, Total Dissolved TDS @ 180 C		5	mg/L	1						
Lab ID: LCS-2_141117A	Laboratory Control Sample					Run: ACCU-124 (14410200)_14111			11/17/14 11:59	
Solids, Total Dissolved TDS @ 180 C		2020	mg/L	20	101	90	110			
Lab ID: H14110240-001A DUP	Sample Duplicate					Run: ACCU-124 (14410200)_14111			11/17/14 12:00	
Solids, Total Dissolved TDS @ 180 C		227	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: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 D									Batch: TSS141117A	
Lab ID: MB-1_141117A		Method Blank				Run: ACCU-124 (14410200)_14111			11/17/14 11:54	
Solids, Total Suspended TSS @ 105 C		ND	mg/L	1						
Lab ID: LCS-2_141117A		Laboratory Control Sample				Run: ACCU-124 (14410200)_14111			11/17/14 11:54	
Solids, Total Suspended TSS @ 105 C		94.0	mg/L	10	94	80	120			
Lab ID: H14110240-001A DUP		Sample Duplicate				Run: ACCU-124 (14410200)_14111			11/17/14 11:55	
Solids, Total Suspended TSS @ 105 C		5.00	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: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	A4500-F C							Analytical Run: PH_141118A		
Lab ID:	ICV1_141118A	Initial Calibration Verification Standard							11/18/14 09:23	
Fluoride		0.8	mg/L	0.1	101	90	110			
Lab ID:	CCV6_141118A	Continuing Calibration Verification Standard							11/18/14 09:41	
Fluoride		0.2	mg/L	0.1	95	90	110			
Method:	A4500-F C							Batch: 141118A-F-ISE-W		
Lab ID:	MBLK1_141118A	Method Blank				Run: PH_141118A			11/18/14 09:27	
Fluoride		0.009	mg/L	0.005						
Lab ID:	H14110223-001AMS	Sample Matrix Spike				Run: PH_141118A			11/18/14 09:33	
Fluoride		1.5	mg/L	0.2	96	85	115			
Lab ID:	H14110240-004ADUP	Sample Duplicate				Run: PH_141118A			11/18/14 09:46	
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: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: ICP2-HE_141117A		
Lab ID: ICV	3	Initial Calibration Verification Standard							11/17/14 09:36	
Calcium		40.3	mg/L	1.0	101	95	105			
Magnesium		40.0	mg/L	1.0	100	95	105			
Sodium		40.0	mg/L	1.0	100	95	105			
Lab ID: CCV-1	3	Continuing Calibration Verification Standard							11/17/14 09:40	
Calcium		25.3	mg/L	1.0	101	95	105			
Magnesium		25.0	mg/L	1.0	100	95	105			
Sodium		25.2	mg/L	1.0	101	95	105			
Lab ID: ICSA	3	Interference Check Sample A							11/17/14 09:51	
Calcium		468	mg/L	1.0	94	80	120			
Magnesium		503	mg/L	1.0	101	80	120			
Sodium		0.0445	mg/L	1.0		0	0			
Lab ID: ICSAB	3	Interference Check Sample AB							11/17/14 09:55	
Calcium		466	mg/L	1.0	93	80	120			
Magnesium		496	mg/L	1.0	99	80	120			
Sodium		19.9	mg/L	1.0	100	80	120			
Lab ID: CCV	3	Continuing Calibration Verification Standard							11/17/14 11:11	
Calcium		24.2	mg/L	1.0	97	90	110			
Magnesium		23.6	mg/L	1.0	95	90	110			
Sodium		24.2	mg/L	1.0	97	90	110			
Method: E200.7								Batch: R102235		
Lab ID: ICB	3	Method Blank				Run: ICP2-HE_141117A			11/17/14 10:03	
Calcium		0.04	mg/L	0.03						
Magnesium		ND	mg/L	0.04						
Sodium		0.03	mg/L	0.02						
Lab ID: LFB	3	Laboratory Fortified Blank				Run: ICP2-HE_141117A			11/17/14 10:07	
Calcium		47.3	mg/L	1.0	95	85	115			
Magnesium		46.8	mg/L	1.0	94	85	115			
Sodium		48.3	mg/L	1.0	96	85	115			
Lab ID: H14110240-006BMS2	3	Sample Matrix Spike				Run: ICP2-HE_141117A			11/17/14 11:48	
Calcium		108	mg/L	1.0	97	70	130			
Magnesium		73.9	mg/L	1.0	96	70	130			
Sodium		52.1	mg/L	1.0	98	70	130			
Lab ID: H14110240-006BMSD	3	Sample Matrix Spike Duplicate				Run: ICP2-HE_141117A			11/17/14 11:52	
Calcium		111	mg/L	1.0	102	70	130	2.0	20	
Magnesium		75.6	mg/L	1.0	100	70	130	2.3	20	
Sodium		53.3	mg/L	1.0	100	70	130	2.4	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: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8							Analytical Run: ICPMS204-B_141118A			
Lab ID: ICV STD	20	Initial Calibration Verification Standard							11/18/14 12:16	
Aluminum		0.289	mg/L	0.10	96	90	110			
Antimony		0.0598	mg/L	0.050	100	90	110			
Arsenic		0.0597	mg/L	0.0050	100	90	110			
Barium		0.0594	mg/L	0.10	99	90	110			
Beryllium		0.0297	mg/L	0.0010	99	90	110			
Cadmium		0.0310	mg/L	0.0010	103	90	110			
Chromium		0.0606	mg/L	0.010	101	90	110			
Cobalt		0.0596	mg/L	0.010	99	90	110			
Copper		0.0615	mg/L	0.010	103	90	110			
Iron		0.304	mg/L	0.020	101	90	110			
Lead		0.0588	mg/L	0.010	98	90	110			
Manganese		0.290	mg/L	0.010	97	90	110			
Molybdenum		0.0595	mg/L	0.0050	99	90	110			
Nickel		0.0611	mg/L	0.010	102	90	110			
Potassium		2.99	mg/L	0.50	100	90	110			
Selenium		0.0594	mg/L	0.0050	99	90	110			
Silver		0.0299	mg/L	0.0050	100	90	110			
Strontium		0.0606	mg/L	0.10	101	90	110			
Thallium		0.0575	mg/L	0.10	96	90	110			
Uranium		0.0589	mg/L	0.0010	98	90	110			
Lab ID: ICSA	20	Interference Check Sample A							11/18/14 12:20	
Aluminum		36.6	mg/L	0.10	92	70	130			
Antimony		0.000104	mg/L	0.050						
Arsenic		0.000145	mg/L	0.0050						
Barium		0.000146	mg/L	0.10						
Beryllium		-4.00E-06	mg/L	0.0010						
Cadmium		0.000495	mg/L	0.0010						
Chromium		0.00108	mg/L	0.010						
Cobalt		0.000249	mg/L	0.010						
Copper		0.000408	mg/L	0.010						
Iron		93.9	mg/L	0.020	94	70	130			
Lead		0.000236	mg/L	0.010						
Manganese		7.30E-05	mg/L	0.010						
Molybdenum		0.817	mg/L	0.0050	102	70	130			
Nickel		0.000619	mg/L	0.010						
Potassium		38.9	mg/L	0.50	97	70	130			
Selenium		0.000353	mg/L	0.0050						
Silver		8.50E-05	mg/L	0.0050						
Strontium		0.000734	mg/L	0.10						
Thallium		0.000125	mg/L	0.10						
Uranium		5.10E-05	mg/L	0.0010						
Lab ID: ICSAB	20	Interference Check Sample AB							11/18/14 12:25	
Aluminum		36.6	mg/L	0.10	92	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS204-B_141118A		
Lab ID: ICSAB	20	Interference Check Sample AB								11/18/14 12:25
Antimony		0.000188	mg/L	0.050		0	0			
Arsenic		0.0104	mg/L	0.0050	104	70	130			
Barium		0.000174	mg/L	0.10		0	0			
Beryllium		-9.00E-06	mg/L	0.0010		0	0			
Cadmium		0.00947	mg/L	0.0010	95	70	130			
Chromium		0.0216	mg/L	0.010	108	70	130			
Cobalt		0.0192	mg/L	0.010	96	70	130			
Copper		0.0204	mg/L	0.010	102	70	130			
Iron		94.7	mg/L	0.020	95	70	130			
Lead		0.000232	mg/L	0.010		0	0			
Manganese		0.0191	mg/L	0.010	96	70	130			
Molybdenum		0.815	mg/L	0.0050	102	70	130			
Nickel		0.0206	mg/L	0.010	103	70	130			
Potassium		40.3	mg/L	0.50	101	70	130			
Selenium		0.00988	mg/L	0.0050	99	70	130			
Silver		0.0176	mg/L	0.0050	88	70	130			
Strontium		0.000748	mg/L	0.10		0	0			
Thallium		4.80E-05	mg/L	0.10		0	0			
Uranium		1.10E-05	mg/L	0.0010		0	0			
Method: E200.8								Batch: 27036		
Lab ID: MB-27036	19	Method Blank								Run: ICPMS204-B_141118A 11/18/14 13:02
Antimony		3E-05	mg/L	3E-05						
Arsenic		ND	mg/L	6E-05						
Barium		ND	mg/L	0.0002						
Beryllium		ND	mg/L	5E-05						
Cadmium		ND	mg/L	3E-05						
Chromium		ND	mg/L	5E-05						
Cobalt		ND	mg/L	2E-05						
Copper		ND	mg/L	0.0003						
Iron		0.003	mg/L	0.002						
Lead		ND	mg/L	3E-05						
Manganese		ND	mg/L	0.00010						
Molybdenum		ND	mg/L	3E-05						
Nickel		ND	mg/L	0.0003						
Selenium		ND	mg/L	0.0002						
Silver		ND	mg/L	7E-05						
Strontium		2E-05	mg/L	2E-05						
Thallium		3E-05	mg/L	2E-05						
Uranium		ND	mg/L	3E-05						
Zinc		ND	mg/L	0.001						
Lab ID: LCS-27036	19	Laboratory Control Sample								Run: ICPMS204-B_141118A 11/18/14 13:06
Antimony		0.500	mg/L	0.0010	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: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 27036
Lab ID: LCS-27036	19	Laboratory Control Sample				Run: ICPMS204-B_141118A				11/18/14 13:06
Arsenic		0.502	mg/L	0.0010	100	85	115			
Barium		0.506	mg/L	0.050	101	85	115			
Beryllium		0.240	mg/L	0.0010	96	85	115			
Cadmium		0.252	mg/L	0.0010	101	85	115			
Chromium		0.514	mg/L	0.0050	103	85	115			
Cobalt		0.476	mg/L	0.0050	95	85	115			
Copper		0.494	mg/L	0.0050	99	85	115			
Iron		2.45	mg/L	0.020	98	85	115			
Lead		0.503	mg/L	0.0010	101	85	115			
Manganese		2.40	mg/L	0.0010	96	85	115			
Molybdenum		0.511	mg/L	0.0010	102	85	115			
Nickel		0.499	mg/L	0.0050	100	85	115			
Selenium		0.501	mg/L	0.0010	100	85	115			
Silver		0.0482	mg/L	0.0010	96	85	115			
Strontium		0.488	mg/L	0.010	98	85	115			
Thallium		0.486	mg/L	0.00050	97	85	115			
Uranium		0.497	mg/L	0.00030	99	85	115			
Zinc		0.499	mg/L	0.010	100	85	115			
Lab ID: H14110240-003CMS3	19	Sample Matrix Spike				Run: ICPMS204-B_141118A				11/18/14 18:33
Antimony		0.501	mg/L	0.0010	100	70	130			
Arsenic		0.498	mg/L	0.0010	99	70	130			
Barium		0.604	mg/L	0.050	100	70	130			
Beryllium		0.245	mg/L	0.0010	98	70	130			
Cadmium		0.256	mg/L	0.0010	103	70	130			
Chromium		0.512	mg/L	0.0050	102	70	130			
Cobalt		0.475	mg/L	0.0050	95	70	130			
Copper		0.479	mg/L	0.0050	96	70	130			
Iron		2.59	mg/L	0.020	97	70	130			
Lead		0.496	mg/L	0.0010	99	70	130			
Manganese		2.40	mg/L	0.0010	96	70	130			
Molybdenum		0.497	mg/L	0.0010	99	70	130			
Nickel		0.486	mg/L	0.0050	97	70	130			
Selenium		0.481	mg/L	0.0010	96	70	130			
Silver		0.0466	mg/L	0.0010	93	70	130			
Strontium		0.641	mg/L	0.010	98	70	130			
Thallium		0.476	mg/L	0.00050	95	70	130			
Uranium		0.519	mg/L	0.00030	104	70	130			
Zinc		0.482	mg/L	0.010	96	70	130			
Lab ID: H14110240-003CMSD	19	Sample Matrix Spike Duplicate				Run: ICPMS204-B_141118A				11/18/14 18:37
Antimony		0.504	mg/L	0.0010	101	70	130	0.6	20	
Arsenic		0.500	mg/L	0.0010	100	70	130	0.5	20	
Barium		0.603	mg/L	0.050	100	70	130	0.2	20	
Beryllium		0.247	mg/L	0.0010	99	70	130	0.7	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

Report Date: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: 27036
Lab ID: H14110240-003CMSD	19	Sample Matrix Spike Duplicate				Run: ICPMS204-B_141118A			11/18/14 18:37	
Cadmium		0.257	mg/L	0.0010	103	70	130	0.3	20	
Chromium		0.514	mg/L	0.0050	103	70	130	0.4	20	
Cobalt		0.475	mg/L	0.0050	95	70	130	0.1	20	
Copper		0.489	mg/L	0.0050	98	70	130	2.0	20	
Iron		2.59	mg/L	0.020	97	70	130	0.0	20	
Lead		0.494	mg/L	0.0010	99	70	130	0.4	20	
Manganese		2.41	mg/L	0.0010	96	70	130	0.5	20	
Molybdenum		0.500	mg/L	0.0010	100	70	130	0.5	20	
Nickel		0.487	mg/L	0.0050	97	70	130	0.2	20	
Selenium		0.484	mg/L	0.0010	97	70	130	0.6	20	
Silver		0.0465	mg/L	0.0010	93	70	130	0.1	20	
Strontium		0.630	mg/L	0.010	96	70	130	1.8	20	
Thallium		0.473	mg/L	0.00050	95	70	130	0.7	20	
Uranium		0.520	mg/L	0.00030	104	70	130	0.2	20	
Zinc		0.482	mg/L	0.010	96	70	130	0.0	20	
Method: E200.8										Batch: R102311
Lab ID: ICB	2	Method Blank				Run: ICPMS204-B_141118A			11/18/14 12:48	
Aluminum		ND	mg/L	0.0002						
Potassium		ND	mg/L	0.05						
Lab ID: LFB	2	Laboratory Fortified Blank				Run: ICPMS204-B_141118A			11/18/14 12:53	
Aluminum		0.0509	mg/L	0.10	102	85	115			
Potassium		0.941	mg/L	0.50	94	85	115			
Lab ID: H14110223-004BMS	2	Sample Matrix Spike				Run: ICPMS204-B_141118A			11/18/14 17:19	
Aluminum		0.0806	mg/L	0.030	99	70	130			
Potassium		5.07	mg/L	1.0		70	130			A
Lab ID: H14110223-004BMSD	2	Sample Matrix Spike Duplicate				Run: ICPMS204-B_141118A			11/18/14 17:23	
Aluminum		0.0800	mg/L	0.030	98	70	130	0.7	20	
Potassium		5.02	mg/L	1.0		70	130	0.9	20	A

Qualifiers:

RL - Analyte reporting limit.

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

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS204-B_141119B		
Lab ID: ICV STD		Initial Calibration Verification Standard								11/19/14 10:21
Zinc		0.0616	mg/L	0.010	103	90	110			
Lab ID: ICSA		Interference Check Sample A								11/19/14 10:25
Zinc		0.00143	mg/L	0.010						
Lab ID: ICSAB		Interference Check Sample AB								11/19/14 10:29
Zinc		0.0117	mg/L	0.010	117	70	130			
Lab ID: ICV STD		Initial Calibration Verification Standard								11/19/14 16:41
Zinc		0.0606	mg/L	0.010	101	90	110			
Lab ID: ICSA		Interference Check Sample A								11/19/14 16:46
Zinc		0.00163	mg/L	0.010						
Lab ID: ICSAB		Interference Check Sample AB								11/19/14 16:50
Zinc		0.0111	mg/L	0.010	111	70	130			
Method: E200.8								Batch: 27036		
Lab ID: MB-27036	19	Method Blank								Run: ICPMS204-B_141119B 11/19/14 20:50
Antimony		ND	mg/L	3E-05						
Arsenic		9E-05	mg/L	6E-05						
Barium		ND	mg/L	0.0002						
Beryllium		ND	mg/L	5E-05						
Cadmium		ND	mg/L	3E-05						
Chromium		6E-05	mg/L	5E-05						
Cobalt		ND	mg/L	2E-05						
Copper		ND	mg/L	0.0003						
Iron		0.002	mg/L	0.002						
Lead		ND	mg/L	3E-05						
Manganese		ND	mg/L	0.00010						
Molybdenum		ND	mg/L	3E-05						
Nickel		ND	mg/L	0.0003						
Selenium		ND	mg/L	0.0002						
Silver		0.0004	mg/L	7E-05						
Strontium		5E-05	mg/L	2E-05						
Thallium		4E-05	mg/L	2E-05						
Uranium		ND	mg/L	3E-05						
Zinc		ND	mg/L	0.001						

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: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E245.1								Analytical Run: HGCV202-H_141119A		
Lab ID: ICV		Initial Calibration Verification Standard								11/19/14 10:49
Mercury		0.00021	mg/L	0.00010	104	90	110			
Lab ID: CCV1		Continuing Calibration Verification Standard								11/19/14 10:53
Mercury		0.00019	mg/L	0.00010	96	95	105			
Lab ID: CCV		Continuing Calibration Verification Standard								11/19/14 12:01
Mercury		0.00019	mg/L	0.00010	96	90	110			
Method: E245.1										Batch: 27029
Lab ID: MB-27029		Method Blank				Run: HGCV202-H_141119A				11/19/14 11:19
Mercury		ND	mg/L	7E-07						
Lab ID: LCS-27029		Laboratory Control Sample				Run: HGCV202-H_141119A				11/19/14 11:23
Mercury		0.00016	mg/L	0.00010	107	90	110			
Lab ID: H14110171-001CMS		Sample Matrix Spike				Run: HGCV202-H_141119A				11/19/14 11:32
Mercury		0.00014	mg/L	0.00010	91	70	130			
Lab ID: H14110171-001CMSD		Sample Matrix Spike Duplicate				Run: HGCV202-H_141119A				11/19/14 11:36
Mercury		0.00014	mg/L	0.00010	88	70	130	2.6	20	
Lab ID: H14110240-005CMS		Sample Matrix Spike				Run: HGCV202-H_141119A				11/19/14 12:35
Mercury		0.00015	mg/L	0.00010	101	70	130			
Lab ID: H14110240-005CMSD		Sample Matrix Spike Duplicate				Run: HGCV202-H_141119A				11/19/14 12:39
Mercury		0.00016	mg/L	0.00010	107	70	130	5.1	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: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0								Analytical Run: IC102-H_141117A		
Lab ID: ICV	2	Initial Calibration Verification Standard								11/17/14 09:36
Chloride		100	mg/L	1.0	104	90	110			
Sulfate		410	mg/L	1.0	101	90	110			
Lab ID: CCV111714-3	2	Continuing Calibration Verification Standard								11/17/14 15:32
Chloride		100	mg/L	1.0	103	90	110			
Sulfate		410	mg/L	1.0	103	90	110			
Method: E300.0								Batch: R102257		
Lab ID: ICB	2	Method Blank								Run: IC102-H_141117A 11/17/14 09:47
Chloride		0.04	mg/L	0.008						
Sulfate		ND	mg/L	0.08						
Lab ID: LFB	2	Laboratory Fortified Blank								Run: IC102-H_141117A 11/17/14 09:58
Chloride		48	mg/L	1.0	96	90	110			
Sulfate		190	mg/L	1.0	97	90	110			
Lab ID: H14110238-001AMS	2	Sample Matrix Spike								Run: IC102-H_141117A 11/17/14 16:05
Chloride		300	mg/L	1.0	101	90	110			
Sulfate		1900	mg/L	1.0	105	90	110			
Lab ID: H14110238-001AMSD	2	Sample Matrix Spike Duplicate								Run: IC102-H_141117A 11/17/14 16:16
Chloride		300	mg/L	1.0	101	90	110	0.2	20	
Sulfate		1900	mg/L	1.0	105	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: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E351.2								Analytical Run: SUB-B234226		
Lab ID: ICV		Initial Calibration Verification Standard							11/20/14 08:53	
Nitrogen, Kjeldahl, Total as N		9.89	mg/L	0.50	99	90	110			
Method: E351.2										Batch: B_84843
Lab ID: MB-84843		Method Blank				Run: SUB-B234226			11/20/14 08:54	
Nitrogen, Kjeldahl, Total as N		ND	mg/L	0.2						
Lab ID: LCS-84843		Laboratory Control Sample				Run: SUB-B234226			11/20/14 08:55	
Nitrogen, Kjeldahl, Total as N		9.40	mg/L	0.50	94	90	110			
Lab ID: B14111168-001CMS		Sample Matrix Spike				Run: SUB-B234226			11/20/14 08:57	
Nitrogen, Kjeldahl, Total as N		9.56	mg/L	0.50	96	90	110			
Lab ID: B14111168-001CMSD		Sample Matrix Spike Duplicate				Run: SUB-B234226			11/20/14 08:58	
Nitrogen, Kjeldahl, Total as N		13.8	mg/L	0.50	138	90	110	36	10	SR
Lab ID: B14111223-001DMS		Sample Matrix Spike				Run: SUB-B234226			11/20/14 09:18	
Nitrogen, Kjeldahl, Total as N		11.2	mg/L	0.50	82	90	110			S
Lab ID: B14111223-001DMSD		Sample Matrix Spike Duplicate				Run: SUB-B234226			11/20/14 09:19	
Nitrogen, Kjeldahl, Total as N		13.3	mg/L	0.50	103	90	110	17	10	R

Qualifiers:

RL - Analyte reporting limit.

R - RPD exceeds advisory 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: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-HE_141117C		
Lab ID: ICV		Initial Calibration Verification Standard								11/17/14 09:57
Nitrogen, Nitrate+Nitrite as N		1.02	mg/L	0.010	102	90	110			
Lab ID: ICB		Initial Calibration Blank, Instrument Blank								11/17/14 10:01
Nitrogen, Nitrate+Nitrite as N		0.00541	mg/L	0.010		0	0			
Lab ID: CCV		Continuing Calibration Verification Standard								11/17/14 10:39
Nitrogen, Nitrate+Nitrite as N		0.509	mg/L	0.010	102	90	110			
Method: E353.2										Batch: R102234
Lab ID: LFB		Laboratory Fortified Blank					Run: FIA203-HE_141117C			11/17/14 09:58
Nitrogen, Nitrate+Nitrite as N		0.960	mg/L	0.011	96	90	110			
Lab ID: MBLK		Method Blank					Run: FIA203-HE_141117C			11/17/14 10:03
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.001						
Lab ID: H14110238-002CMS		Sample Matrix Spike					Run: FIA203-HE_141117C			11/17/14 10:41
Nitrogen, Nitrate+Nitrite as N		0.987	mg/L	0.011	99	90	110			
Lab ID: H14110238-002CMSD		Sample Matrix Spike Duplicate					Run: FIA203-HE_141117C			11/17/14 10:42
Nitrogen, Nitrate+Nitrite as N		0.978	mg/L	0.011	98	90	110	0.9	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/01/14

Project: 11048 Black Butte Copper Project

Work Order: H14110240

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E365.1		Analytical Run: FIA202-HE_141118B								
Lab ID: ICV		Initial Calibration Verification Standard								11/18/14 12:36
Phosphorus, Total as P		0.252	mg/L	0.010	101	90	110			
Lab ID: CCV		Continuing Calibration Verification Standard								11/18/14 12:37
Phosphorus, Total as P		0.106	mg/L	0.010	106	90	110			
Lab ID: ICB		Initial Calibration Blank, Instrument Blank								11/18/14 12:38
Phosphorus, Total as P		0.000660	mg/L	0.010		0	0			
Lab ID: CCV		Continuing Calibration Verification Standard								11/18/14 12:55
Phosphorus, Total as P		0.107	mg/L	0.010	107	90	110			
Method: E365.1										Batch: 27059
Lab ID: LCS-27059		Laboratory Control Sample				Run: FIA202-HE_141118B		11/18/14 12:39		
Phosphorus, Total as P		0.394	mg/L	0.010	99	90	110			
Lab ID: MB-27059		Method Blank				Run: FIA202-HE_141118B		11/18/14 12:40		
Phosphorus, Total as P		ND	mg/L	0.001						
Lab ID: H14110240-002Dms		Sample Matrix Spike				Run: FIA202-HE_141118B		11/18/14 12:57		
Phosphorus, Total as P		0.201	mg/L	0.010	97	90	110			
Lab ID: H14110240-002Dmsd		Sample Matrix Spike Duplicate				Run: FIA202-HE_141118B		11/18/14 12:58		
Phosphorus, Total as P		0.201	mg/L	0.010	97	90	110	0.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Workorder Receipt Checklist

Tintina Resources Inc

H14110240

Login completed by: Tracy L. Lorash

Date Received: 11/14/2014

Reviewed by: BL2000\williams

Received by: TLL

Reviewed Date: 11/20/2014

Carrier Hand Del
name:

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☒	No ☐	Not Applicable ☐
Container/Temp Blank temperature:	1.8°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	Not Applicable ☐

Standard Reporting Procedures:

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

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

Contact and Corrective Action Comments:

None

Hydrometrics, Inc.

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

CHAIN OF CUSTODY RECORD

PROJ. NO.	PROJECT NAME	NO. OF CONTAINERS		ANALYSIS							REMARKS	
DATE	TIME	COMP	GRAB	SAMPLE NUMBER	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
11048	Black Butte Tintina											
SAMPLERS: (Signature) <i>[Signature]</i>												
11/2/14	1510	X	X	13BC-1411-100	X	X	X	X	X	X		
	1610			101								
	1625			102								
	1700			103								
11/3/14	0900			108								
	1420			111								
RECEIVED BY (Signature) _____												
LAB: Energy Lab												
P.O. # 1311 Tintina												
Shipped via: Bus FedEx UPS												
Other Hand del. Jenced.												
Air Bill # _____												
REMARKS: 1.8° TB On ice hand del.												
Enclosed: ☒ Parameter sheet w/detection limits												
☐ QA / AC standard mixing instructions ☐ Cover letter												
☐ Other _____												
Split Samples: ☐ Accepted ☐ Declined												
Signature _____												

TABLE 1. ANALYTICAL METHODS AND DETECTION LIMITS FOR SURFACE WATER AND GROUNDWATER SAMPLES

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
Total Kjeldahl as N	A 4500 N org	0.5
Total Nitrogen	Calculated	0.5
Total Phosphorus	E365.1	0.01
Trace Constituents (SW - Total Recoverable except Aluminum [Diss], GW - 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	0.02
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 15, 2014

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

Work Order: H14110436

Project Name: 11048 Black Butte Copper Project

Energy Laboratories Inc Helena MT received the following 15 samples for Tintina Resources Inc on 11/25/2014 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
H14110436-001	BBC-1411-200	11/24/14 12:15	11/25/14	Aqueous	Metals by ICP/ICPMS, Dissolved Alkalinity Conductivity Mercury, Dissolved Fluoride Anions by Ion Chromatography Nitrogen, Nitrate + Nitrite Digestion, Mercury by CVAA Solids, Total Dissolved
H14110436-002	BBC-1411-201	11/24/14 13:45	11/25/14	Aqueous	Same As Above
H14110436-003	BBC-1411-202	11/24/14 14:30	11/25/14	Aqueous	Same As Above
H14110436-004	BBC-1411-203	11/24/14 15:00	11/25/14	Aqueous	Same As Above
H14110436-005	BBC-1411-204	11/24/14 15:30	11/25/14	Aqueous	Same As Above
H14110436-006	BBC-1411-205	11/24/14 16:05	11/25/14	Aqueous	Same As Above
H14110436-007	BBC-1411-206	11/24/14 16:20	11/25/14	Aqueous	Same As Above
H14110436-008	BBC-1411-207	11/24/14 17:00	11/25/14	Aqueous	Same As Above
H14110436-009	BBC-1411-208	11/24/14 17:25	11/25/14	Aqueous	Same As Above
H14110436-010	BBC-1411-209	11/25/14 8:50	11/25/14	Aqueous	Same As Above
H14110436-011	BBC-1411-210	11/25/14 8:30	11/25/14	Aqueous	Same As Above
H14110436-012	BBC-1411-211	11/25/14 9:15	11/25/14	Aqueous	Same As Above
H14110436-013	BBC-1411-212	11/25/14 10:00	11/25/14	Aqueous	Same As Above
H14110436-014	BBC-1411-213	11/25/14 10:15	11/25/14	Aqueous	Same As Above
H14110436-015	BBC-1411-214	11/25/14 10:45	11/25/14	Aqueous	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:

LABORATORY ANALYTICAL REPORT

Prepared by Helena, MT Branch

Client: Tintina Resources Inc
Project: 11048 Black Butte Copper Project
Lab ID: H14110436-001
Client Sample ID: BBC-1411-200

Report Date: 12/15/14
Collection Date: 11/24/14 12:15
Date Received: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	591	mg/L		10		A2540 C	11/26/14 14:04 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	220	mg/L		4		A2320 B	12/02/14 08:55 / SRW
Chloride	1	mg/L		1		E300.0	11/26/14 22:20 / SRW
Sulfate	270	mg/L		1		E300.0	11/26/14 22:20 / SRW
Fluoride	0.8	mg/L		0.1	4	A4500-F C	12/02/14 16:06 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/26/14 11:37 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 04:51 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 04:51 / dck
Arsenic	0.068	mg/L		0.001		E200.8	12/06/14 04:51 / dck
Barium	0.010	mg/L		0.005		E200.8	12/06/14 04:51 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 04:51 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 04:51 / dck
Calcium	82	mg/L		1		E200.7	11/26/14 11:58 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 04:51 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/06/14 04:51 / dck
Copper	ND	mg/L		0.001		E200.8	12/06/14 04:51 / dck
Iron	1.16	mg/L		0.02		E200.7	11/26/14 11:58 / sld
Lead	ND	mg/L		0.0005		E200.8	12/06/14 04:51 / dck
Magnesium	55	mg/L		1		E200.7	11/26/14 11:58 / sld
Manganese	0.020	mg/L		0.001		E200.8	12/06/14 04:51 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 13:23 / rgk
Molybdenum	0.001	mg/L		0.001		E200.8	12/06/14 04:51 / dck
Nickel	ND	mg/L		0.005		E200.8	12/06/14 04:51 / dck
Potassium	3	mg/L		1		E200.7	11/26/14 11:58 / sld
Selenium	ND	mg/L		0.001		E200.8	12/06/14 04:51 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 04:51 / dck
Sodium	16	mg/L		1		E200.7	11/26/14 11:58 / sld
Strontium	14.6	mg/L		0.01		E200.7	11/26/14 11:58 / sld
Thallium	0.0003	mg/L		0.0002		E200.8	12/06/14 04:51 / dck
Uranium	0.0012	mg/L		0.0003		E200.8	12/06/14 04:51 / dck
Zinc	ND	mg/L		0.01		E200.8	12/06/14 04:51 / 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
Lab ID: H14110436-002
Client Sample ID: BBC-1411-201

Report Date: 12/15/14
Collection Date: 11/24/14 13:45
DateReceived: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	528	mg/L		10		A2540 C	11/26/14 14:05 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	240	mg/L		4		A2320 B	12/02/14 09:10 / SRW
Chloride	1	mg/L		1		E300.0	11/26/14 22:31 / SRW
Sulfate	210	mg/L		1		E300.0	11/26/14 22:31 / SRW
Fluoride	0.6	mg/L		0.1	4	A4500-F C	12/02/14 16:07 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/26/14 11:38 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 04:55 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 04:55 / dck
Arsenic	0.012	mg/L		0.001		E200.8	12/06/14 04:55 / dck
Barium	0.021	mg/L		0.005		E200.8	12/06/14 04:55 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 04:55 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 04:55 / dck
Calcium	88	mg/L		1		E200.7	11/26/14 12:02 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 04:55 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/06/14 04:55 / dck
Copper	ND	mg/L		0.001		E200.8	12/06/14 04:55 / dck
Iron	0.81	mg/L		0.02		E200.7	11/26/14 12:02 / sld
Lead	ND	mg/L		0.0005		E200.8	12/06/14 04:55 / dck
Magnesium	51	mg/L		1		E200.7	11/26/14 12:02 / sld
Manganese	0.129	mg/L		0.001		E200.8	12/06/14 04:55 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 13:35 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	12/06/14 04:55 / dck
Nickel	ND	mg/L		0.005		E200.8	12/06/14 04:55 / dck
Potassium	4	mg/L		1		E200.7	11/26/14 12:02 / sld
Selenium	ND	mg/L		0.001		E200.8	12/06/14 04:55 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 04:55 / dck
Sodium	5	mg/L		1		E200.7	11/26/14 12:02 / sld
Strontium	1.13	mg/L		0.01		E200.7	11/26/14 12:02 / sld
Thallium	0.0036	mg/L		0.0002		E200.8	12/06/14 04:55 / dck
Uranium	0.0009	mg/L		0.0003		E200.8	12/06/14 04:55 / dck
Zinc	ND	mg/L		0.01		E200.8	12/06/14 04:55 / 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
Lab ID: H14110436-003
Client Sample ID: BBC-1411-202

Report Date: 12/15/14
Collection Date: 11/24/14 14:30
DateReceived: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	248	mg/L		10		A2540 C	11/26/14 14:05 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	12/02/14 09:16 / SRW
Chloride	1	mg/L		1		E300.0	11/26/14 22:42 / SRW
Sulfate	11	mg/L		1		E300.0	11/26/14 22:42 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	12/02/14 16:07 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.14	mg/L		0.01		E353.2	11/26/14 11:39 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 04:59 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 04:59 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/06/14 04:59 / dck
Barium	0.178	mg/L		0.005		E200.8	12/06/14 04:59 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 04:59 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 04:59 / dck
Calcium	55	mg/L		1		E200.7	11/26/14 12:06 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 04:59 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/06/14 04:59 / dck
Copper	ND	mg/L		0.001		E200.8	12/06/14 04:59 / dck
Iron	ND	mg/L		0.02		E200.8	12/06/14 04:59 / dck
Lead	ND	mg/L		0.0005		E200.8	12/06/14 04:59 / dck
Magnesium	25	mg/L		1		E200.7	11/26/14 12:06 / sld
Manganese	ND	mg/L		0.001		E200.8	12/06/14 04:59 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 13:39 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	12/06/14 04:59 / dck
Nickel	ND	mg/L		0.005		E200.8	12/06/14 04:59 / dck
Potassium	ND	mg/L		1		E200.8	12/06/14 04:59 / dck
Selenium	ND	mg/L		0.001		E200.8	12/06/14 04:59 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 04:59 / dck
Sodium	3	mg/L		1		E200.7	11/26/14 12:06 / sld
Strontium	0.16	mg/L		0.01		E200.7	11/26/14 12:06 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/06/14 04:59 / dck
Uranium	0.0007	mg/L		0.0003		E200.8	12/06/14 04:59 / dck
Zinc	ND	mg/L		0.01		E200.8	12/06/14 04:59 / 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
Lab ID: H14110436-004
Client Sample ID: BBC-1411-203

Report Date: 12/15/14
Collection Date: 11/24/14 15:00
Date Received: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	253	mg/L		10		A2540 C	11/26/14 14:05 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	230	mg/L		4		A2320 B	12/02/14 09:23 / SRW
Chloride	1	mg/L		1		E300.0	11/26/14 22:53 / SRW
Sulfate	18	mg/L		1		E300.0	11/26/14 22:53 / SRW
Fluoride	0.5	mg/L		0.1	4	A4500-F C	12/02/14 16:08 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.10	mg/L		0.01		E353.2	11/26/14 11:40 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 05:04 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 05:04 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/06/14 05:04 / dck
Barium	0.113	mg/L		0.005		E200.8	12/06/14 05:04 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 05:04 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 05:04 / dck
Calcium	47	mg/L		1		E200.7	11/26/14 12:10 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 05:04 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/06/14 05:04 / dck
Copper	ND	mg/L		0.001		E200.8	12/06/14 05:04 / dck
Iron	ND	mg/L		0.02		E200.8	12/06/14 05:04 / dck
Lead	ND	mg/L		0.0005		E200.8	12/06/14 05:04 / dck
Magnesium	22	mg/L		1		E200.7	11/26/14 12:10 / sld
Manganese	0.018	mg/L		0.001		E200.8	12/06/14 05:04 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 13:44 / rgk
Molybdenum	0.001	mg/L		0.001		E200.8	12/06/14 05:04 / dck
Nickel	ND	mg/L		0.005		E200.8	12/06/14 05:04 / dck
Potassium	1	mg/L		1		E200.8	12/06/14 05:04 / dck
Selenium	ND	mg/L		0.001		E200.8	12/06/14 05:04 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 05:04 / dck
Sodium	15	mg/L		1		E200.7	11/26/14 12:10 / sld
Strontium	0.21	mg/L		0.01		E200.7	11/26/14 12:10 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/06/14 05:04 / dck
Uranium	0.0007	mg/L		0.0003		E200.8	12/06/14 05:04 / dck
Zinc	ND	mg/L		0.01		E200.8	12/06/14 05:04 / 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
Lab ID: H14110436-005
Client Sample ID: BBC-1411-204

Report Date: 12/15/14
Collection Date: 11/24/14 15:30
Date Received: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	308	mg/L		10		A2540 C	11/26/14 14:05 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	240	mg/L		4		A2320 B	12/02/14 09:31 / SRW
Chloride	3	mg/L		1		E300.0	11/26/14 23:04 / SRW
Sulfate	54	mg/L		1		E300.0	11/26/14 23:04 / SRW
Fluoride	0.3	mg/L		0.1	4	A4500-F C	12/02/14 16:09 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	11/26/14 11:42 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 05:22 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 05:22 / dck
Arsenic	0.002	mg/L		0.001		E200.8	12/06/14 05:22 / dck
Barium	0.050	mg/L		0.005		E200.8	12/06/14 05:22 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 05:22 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 05:22 / dck
Calcium	54	mg/L		1		E200.7	11/26/14 12:14 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 05:22 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/06/14 05:22 / dck
Copper	ND	mg/L		0.001		E200.8	12/06/14 05:22 / dck
Iron	0.03	mg/L		0.02		E200.8	12/06/14 05:22 / dck
Lead	ND	mg/L		0.0005		E200.8	12/06/14 05:22 / dck
Magnesium	35	mg/L		1		E200.7	11/26/14 12:14 / sld
Manganese	0.097	mg/L		0.001		E200.8	12/06/14 05:22 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 13:48 / rgk
Molybdenum	0.003	mg/L		0.001		E200.8	12/06/14 05:22 / dck
Nickel	ND	mg/L		0.005		E200.8	12/06/14 05:22 / dck
Potassium	1	mg/L		1		E200.7	11/26/14 12:14 / sld
Selenium	ND	mg/L		0.001		E200.8	12/06/14 05:22 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 05:22 / dck
Sodium	3	mg/L		1		E200.7	11/26/14 12:14 / sld
Strontium	0.17	mg/L		0.01		E200.7	11/26/14 12:14 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/06/14 05:22 / dck
Uranium	0.0029	mg/L		0.0003		E200.8	12/06/14 05:22 / dck
Zinc	ND	mg/L		0.01		E200.8	12/06/14 05:22 / 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
Lab ID: H14110436-006
Client Sample ID: BBC-1411-205

Report Date: 12/15/14
Collection Date: 11/24/14 16:05
DateReceived: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	162	mg/L		10		A2540 C	11/26/14 14:06 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	160	mg/L		4		A2320 B	12/02/14 09:39 / SRW
Chloride	ND	mg/L		1		E300.0	11/26/14 23:16 / SRW
Sulfate	12	mg/L		1		E300.0	11/26/14 23:16 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	12/02/14 16:09 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/26/14 11:43 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 05:26 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 05:26 / dck
Arsenic	0.002	mg/L		0.001		E200.8	12/06/14 05:26 / dck
Barium	0.072	mg/L		0.005		E200.8	12/06/14 05:26 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 05:26 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 05:26 / dck
Calcium	26	mg/L		1		E200.7	11/26/14 12:25 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 05:26 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/06/14 05:26 / dck
Copper	ND	mg/L		0.001		E200.8	12/06/14 05:26 / dck
Iron	0.07	mg/L		0.02		E200.8	12/06/14 05:26 / dck
Lead	ND	mg/L		0.0005		E200.8	12/06/14 05:26 / dck
Magnesium	23	mg/L		1		E200.7	11/26/14 12:25 / sld
Manganese	0.049	mg/L		0.001		E200.8	12/06/14 05:26 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 13:52 / rgk
Molybdenum	0.002	mg/L		0.001		E200.8	12/06/14 05:26 / dck
Nickel	ND	mg/L		0.005		E200.8	12/06/14 05:26 / dck
Potassium	ND	mg/L		1		E200.8	12/06/14 05:26 / dck
Selenium	ND	mg/L		0.001		E200.8	12/06/14 05:26 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 05:26 / dck
Sodium	3	mg/L		1		E200.7	11/26/14 12:25 / sld
Strontium	0.09	mg/L		0.01		E200.7	11/26/14 12:25 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/06/14 05:26 / dck
Uranium	0.0008	mg/L		0.0003		E200.8	12/06/14 05:26 / dck
Zinc	ND	mg/L		0.01		E200.8	12/06/14 05:26 / 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
Lab ID: H14110436-007
Client Sample ID: BBC-1411-206

Report Date: 12/15/14
Collection Date: 11/24/14 16:20
Date Received: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	163	mg/L		10		A2540 C	11/26/14 14:06 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	160	mg/L		4		A2320 B	12/02/14 10:02 / SRW
Chloride	ND	mg/L		1		E300.0	11/26/14 23:27 / SRW
Sulfate	12	mg/L		1		E300.0	11/26/14 23:27 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	12/02/14 16:13 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/26/14 11:46 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 05:44 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 05:44 / dck
Arsenic	0.002	mg/L		0.001		E200.8	12/06/14 05:44 / dck
Barium	0.072	mg/L		0.005		E200.8	12/06/14 05:44 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 05:44 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 05:44 / dck
Calcium	26	mg/L		1		E200.7	11/26/14 12:40 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 05:44 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/06/14 05:44 / dck
Copper	ND	mg/L		0.001		E200.8	12/06/14 05:44 / dck
Iron	0.07	mg/L		0.02		E200.8	12/06/14 05:44 / dck
Lead	ND	mg/L		0.0005		E200.8	12/06/14 05:44 / dck
Magnesium	24	mg/L		1		E200.7	11/26/14 12:40 / sld
Manganese	0.061	mg/L		0.001		E200.8	12/06/14 05:44 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 13:56 / rgk
Molybdenum	0.002	mg/L		0.001		E200.8	12/06/14 05:44 / dck
Nickel	ND	mg/L		0.005		E200.8	12/06/14 05:44 / dck
Potassium	ND	mg/L		1		E200.8	12/06/14 05:44 / dck
Selenium	ND	mg/L		0.001		E200.8	12/06/14 05:44 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 05:44 / dck
Sodium	3	mg/L		1		E200.7	11/26/14 12:40 / sld
Strontium	0.09	mg/L		0.01		E200.7	11/26/14 12:40 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/06/14 05:44 / dck
Uranium	0.0008	mg/L		0.0003		E200.8	12/06/14 05:44 / dck
Zinc	ND	mg/L		0.01		E200.8	12/06/14 05:44 / 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
Lab ID: H14110436-008
Client Sample ID: BBC-1411-207

Report Date: 12/15/14
Collection Date: 11/24/14 17:00
Date Received: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	207	mg/L		10		A2540 C	11/26/14 14:06 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	190	mg/L		4		A2320 B	12/02/14 10:08 / SRW
Chloride	1	mg/L		1		E300.0	11/26/14 23:38 / SRW
Sulfate	15	mg/L		1		E300.0	11/26/14 23:38 / SRW
Fluoride	0.4	mg/L		0.1	4	A4500-F C	12/02/14 16:14 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.21	mg/L		0.01		E353.2	11/26/14 11:50 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 05:49 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 05:49 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/06/14 05:49 / dck
Barium	0.082	mg/L		0.005		E200.8	12/06/14 05:49 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 05:49 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 05:49 / dck
Calcium	43	mg/L		1		E200.7	11/26/14 12:43 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 05:49 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/06/14 05:49 / dck
Copper	ND	mg/L		0.001		E200.8	12/06/14 05:49 / dck
Iron	ND	mg/L		0.02		E200.8	12/06/14 05:49 / dck
Lead	ND	mg/L		0.0005		E200.8	12/06/14 05:49 / dck
Magnesium	23	mg/L		1		E200.7	11/26/14 12:43 / sld
Manganese	ND	mg/L		0.001		E200.8	12/06/14 05:49 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 14:01 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	12/06/14 05:49 / dck
Nickel	ND	mg/L		0.005		E200.8	12/06/14 05:49 / dck
Potassium	1	mg/L		1		E200.8	12/06/14 05:49 / dck
Selenium	ND	mg/L		0.001		E200.8	12/06/14 05:49 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 05:49 / dck
Sodium	3	mg/L		1		E200.7	11/26/14 12:43 / sld
Strontium	0.09	mg/L		0.01		E200.7	11/26/14 12:43 / sld
Thallium	0.0002	mg/L		0.0002		E200.8	12/06/14 05:49 / dck
Uranium	0.0004	mg/L		0.0003		E200.8	12/06/14 05:49 / dck
Zinc	ND	mg/L		0.01		E200.8	12/06/14 05:49 / 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
Lab ID: H14110436-009
Client Sample ID: BBC-1411-208

Report Date: 12/15/14
Collection Date: 11/24/14 17:25
DateReceived: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	260	mg/L		10		A2540 C	11/26/14 14:07 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	210	mg/L		4		A2320 B	12/02/14 10:16 / SRW
Chloride	1	mg/L		1		E300.0	11/27/14 00:11 / SRW
Sulfate	37	mg/L		1		E300.0	11/27/14 00:11 / SRW
Fluoride	0.4	mg/L		0.1	4	A4500-F C	12/02/14 16:15 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/26/14 11:51 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 05:53 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 05:53 / dck
Arsenic	0.003	mg/L		0.001		E200.8	12/06/14 05:53 / dck
Barium	0.040	mg/L		0.005		E200.8	12/06/14 05:53 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 05:53 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 05:53 / dck
Calcium	53	mg/L		1		E200.7	11/26/14 12:47 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 05:53 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/06/14 05:53 / dck
Copper	ND	mg/L		0.001		E200.8	12/06/14 05:53 / dck
Iron	0.05	mg/L		0.02		E200.8	12/06/14 05:53 / dck
Lead	ND	mg/L		0.0005		E200.8	12/06/14 05:53 / dck
Magnesium	30	mg/L		1		E200.7	11/26/14 12:47 / sld
Manganese	0.011	mg/L		0.001		E200.8	12/06/14 05:53 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 14:05 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	12/06/14 05:53 / dck
Nickel	ND	mg/L		0.005		E200.8	12/06/14 05:53 / dck
Potassium	2	mg/L		1		E200.8	12/06/14 05:53 / dck
Selenium	ND	mg/L		0.001		E200.8	12/06/14 05:53 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 05:53 / dck
Sodium	3	mg/L		1		E200.7	11/26/14 12:47 / sld
Strontium	0.10	mg/L		0.01		E200.7	11/26/14 12:47 / sld
Thallium	0.0034	mg/L		0.0002		E200.8	12/06/14 05:53 / dck
Uranium	0.0020	mg/L		0.0003		E200.8	12/06/14 05:53 / dck
Zinc	ND	mg/L		0.01		E200.8	12/06/14 05:53 / 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
Lab ID: H14110436-010
Client Sample ID: BBC-1411-209

Report Date: 12/15/14
Collection Date: 11/25/14 08:50
DateReceived: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	290	mg/L		10		A2540 C	11/26/14 14:07 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	260	mg/L		4		A2320 B	12/02/14 10:23 / SRW
Chloride	2	mg/L		1		E300.0	11/27/14 00:44 / SRW
Sulfate	12	mg/L		1		E300.0	11/27/14 00:44 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	12/02/14 16:16 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/26/14 11:52 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 05:57 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 05:57 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/06/14 05:57 / dck
Barium	0.182	mg/L		0.005		E200.8	12/06/14 05:57 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 05:57 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 05:57 / dck
Calcium	72	mg/L		1		E200.7	11/26/14 12:51 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 05:57 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/06/14 05:57 / dck
Copper	ND	mg/L		0.001		E200.8	12/06/14 05:57 / dck
Iron	0.04	mg/L		0.02		E200.8	12/06/14 05:57 / dck
Lead	ND	mg/L		0.0005		E200.8	12/06/14 05:57 / dck
Magnesium	20	mg/L		1		E200.7	11/26/14 12:51 / sld
Manganese	0.196	mg/L		0.001		E200.8	12/06/14 05:57 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 14:23 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	12/06/14 05:57 / dck
Nickel	ND	mg/L		0.005		E200.8	12/06/14 05:57 / dck
Potassium	2	mg/L		1		E200.8	12/06/14 05:57 / dck
Selenium	ND	mg/L		0.001		E200.8	12/06/14 05:57 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 05:57 / dck
Sodium	3	mg/L		1		E200.7	11/26/14 12:51 / sld
Strontium	0.17	mg/L		0.01		E200.7	11/26/14 12:51 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/06/14 05:57 / dck
Uranium	0.0004	mg/L		0.0003		E200.8	12/06/14 05:57 / dck
Zinc	ND	mg/L		0.01		E200.8	12/06/14 05:57 / 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
Lab ID: H14110436-011
Client Sample ID: BBC-1411-210

Report Date: 12/15/14
Collection Date: 11/25/14 08:30
DateReceived: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	11/26/14 14:07 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	ND	mg/L		4		A2320 B	12/02/14 10:32 / SRW
Chloride	ND	mg/L		1		E300.0	11/27/14 00:56 / SRW
Sulfate	ND	mg/L		1		E300.0	11/27/14 00:56 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	12/02/14 16:18 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/26/14 11:54 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 06:02 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 06:02 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/06/14 06:02 / dck
Barium	ND	mg/L		0.005		E200.8	12/06/14 06:02 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 06:02 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 06:02 / dck
Calcium	ND	mg/L		1		E200.7	11/26/14 12:55 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 06:02 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/06/14 06:02 / dck
Copper	ND	mg/L		0.001		E200.8	12/06/14 06:02 / dck
Iron	ND	mg/L		0.02		E200.8	12/06/14 06:02 / dck
Lead	ND	mg/L		0.0005		E200.8	12/06/14 06:02 / dck
Magnesium	ND	mg/L		1		E200.7	11/26/14 12:55 / sld
Manganese	ND	mg/L		0.001		E200.8	12/06/14 06:02 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 14:27 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	12/06/14 06:02 / dck
Nickel	ND	mg/L		0.005		E200.8	12/06/14 06:02 / dck
Potassium	ND	mg/L		1		E200.7	11/26/14 12:55 / sld
Selenium	ND	mg/L		0.001		E200.8	12/06/14 06:02 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 06:02 / dck
Sodium	ND	mg/L		1		E200.7	11/26/14 12:55 / sld
Strontium	ND	mg/L		0.01		E200.7	11/26/14 12:55 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/06/14 06:02 / dck
Uranium	ND	mg/L		0.0003		E200.8	12/06/14 06:02 / dck
Zinc	ND	mg/L		0.01		E200.8	12/06/14 06:02 / 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
Lab ID: H14110436-012
Client Sample ID: BBC-1411-211

Report Date: 12/15/14
Collection Date: 11/25/14 09:15
DateReceived: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	250	mg/L		10		A2540 C	11/26/14 14:07 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	230	mg/L		4		A2320 B	12/02/14 10:37 / SRW
Chloride	1	mg/L		1		E300.0	11/27/14 01:07 / SRW
Sulfate	13	mg/L		1		E300.0	11/27/14 01:07 / SRW
Fluoride	0.1	mg/L		0.1	4	A4500-F C	12/02/14 16:19 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.03	mg/L		0.01		E353.2	11/26/14 11:55 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 06:06 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 06:06 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/06/14 06:06 / dck
Barium	0.121	mg/L		0.005		E200.8	12/06/14 06:06 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 06:06 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 06:06 / dck
Calcium	62	mg/L		1		E200.7	11/26/14 12:58 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 06:06 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/06/14 06:06 / dck
Copper	ND	mg/L		0.001		E200.8	12/06/14 06:06 / dck
Iron	ND	mg/L		0.02		E200.8	12/06/14 06:06 / dck
Lead	ND	mg/L		0.0005		E200.8	12/06/14 06:06 / dck
Magnesium	20	mg/L		1		E200.7	11/26/14 12:58 / sld
Manganese	0.002	mg/L		0.001		E200.8	12/06/14 06:06 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 14:40 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	12/06/14 06:06 / dck
Nickel	ND	mg/L		0.005		E200.8	12/06/14 06:06 / dck
Potassium	1	mg/L		1		E200.8	12/06/14 06:06 / dck
Selenium	ND	mg/L		0.001		E200.8	12/06/14 06:06 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 06:06 / dck
Sodium	2	mg/L		1		E200.7	11/26/14 12:58 / sld
Strontium	0.17	mg/L		0.01		E200.7	11/26/14 12:58 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/08/14 15:05 / dck
Uranium	0.0006	mg/L		0.0003		E200.8	12/06/14 06:06 / dck
Zinc	ND	mg/L		0.01		E200.8	12/06/14 06:06 / 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
Lab ID: H14110436-013
Client Sample ID: BBC-1411-212

Report Date: 12/15/14
Collection Date: 11/25/14 10:00
DateReceived: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	411	mg/L		10		A2540 C	11/26/14 14:08 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	60	mg/L		4		A2320 B	12/02/14 10:45 / SRW
Chloride	1	mg/L		1		E300.0	11/27/14 01:18 / SRW
Sulfate	220	mg/L		1		E300.0	11/27/14 01:18 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	12/02/14 16:19 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.06	mg/L		0.01		E353.2	11/26/14 11:56 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 06:11 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 06:11 / dck
Arsenic	0.057	mg/L		0.001		E200.8	12/06/14 06:11 / dck
Barium	0.014	mg/L		0.005		E200.8	12/06/14 06:11 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 06:11 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 06:11 / dck
Calcium	57	mg/L		1		E200.7	11/26/14 13:10 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 06:11 / dck
Cobalt	0.025	mg/L		0.005		E200.8	12/06/14 06:11 / dck
Copper	ND	mg/L		0.001		E200.8	12/06/14 06:11 / dck
Iron	20.2	mg/L		0.02		E200.7	11/26/14 13:10 / sld
Lead	ND	mg/L		0.0005		E200.8	12/06/14 06:11 / dck
Magnesium	30	mg/L		1		E200.7	11/26/14 13:10 / sld
Manganese	0.085	mg/L		0.001		E200.8	12/06/14 06:11 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 14:48 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	12/06/14 06:11 / dck
Nickel	0.012	mg/L		0.005		E200.8	12/06/14 06:11 / dck
Potassium	3	mg/L		1		E200.7	11/26/14 13:10 / sld
Selenium	ND	mg/L		0.001		E200.8	12/06/14 06:11 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 06:11 / dck
Sodium	4	mg/L		1		E200.7	11/26/14 13:10 / sld
Strontium	1.58	mg/L		0.01		E200.7	11/26/14 13:10 / sld
Thallium	0.0123	mg/L		0.0002		E200.8	12/06/14 06:11 / dck
Uranium	ND	mg/L		0.0003		E200.8	12/06/14 06:11 / dck
Zinc	0.03	mg/L		0.01		E200.8	12/06/14 06:11 / 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
Lab ID: H14110436-014
Client Sample ID: BBC-1411-213

Report Date: 12/15/14
Collection Date: 11/25/14 10:15
DateReceived: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	ND	mg/L		10		A2540 C	11/26/14 14:08 / SRW
INORGANICS							
Alkalinity, Total as CaCO3	ND	mg/L		4		A2320 B	12/02/14 10:52 / SRW
Chloride	ND	mg/L		1		E300.0	11/27/14 01:29 / SRW
Sulfate	ND	mg/L		1		E300.0	11/27/14 01:29 / SRW
Fluoride	ND	mg/L		0.1	4	A4500-F C	12/02/14 16:20 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	ND	mg/L		0.01		E353.2	11/26/14 11:57 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 06:15 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 06:15 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/06/14 06:15 / dck
Barium	ND	mg/L		0.005		E200.8	12/06/14 06:15 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 06:15 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 06:15 / dck
Calcium	ND	mg/L		1		E200.7	11/26/14 13:13 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 06:15 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/06/14 06:15 / dck
Copper	ND	mg/L		0.001		E200.8	12/06/14 06:15 / dck
Iron	ND	mg/L		0.02		E200.8	12/08/14 15:24 / dck
Lead	ND	mg/L		0.0005		E200.8	12/06/14 06:15 / dck
Magnesium	ND	mg/L		1		E200.7	11/26/14 13:13 / sld
Manganese	ND	mg/L		0.001		E200.8	12/06/14 06:15 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 14:52 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	12/06/14 06:15 / dck
Nickel	ND	mg/L		0.005		E200.8	12/06/14 06:15 / dck
Potassium	ND	mg/L		1		E200.8	12/06/14 06:15 / dck
Selenium	ND	mg/L		0.001		E200.8	12/06/14 06:15 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 06:15 / dck
Sodium	ND	mg/L		1		E200.7	11/26/14 13:13 / sld
Strontium	ND	mg/L		0.01		E200.7	11/26/14 13:13 / sld
Thallium	ND	mg/L		0.0002		E200.8	12/06/14 06:15 / dck
Uranium	ND	mg/L		0.0003		E200.8	12/06/14 06:15 / dck
Zinc	ND	mg/L		0.01		E200.8	12/06/14 06:15 / 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
Lab ID: H14110436-015
Client Sample ID: BBC-1411-214

Report Date: 12/15/14
Collection Date: 11/25/14 10:45
DateReceived: 11/25/14
Matrix: Aqueous

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL PROPERTIES							
Solids, Total Dissolved TDS @ 180 C	194	mg/L		10		A2540 C	11/26/14 14:08 / SRW
INORGANICS							
Alkalinity, Total as CaCO ₃	170	mg/L		4		A2320 B	12/02/14 10:58 / SRW
Chloride	1	mg/L		1		E300.0	11/27/14 01:40 / SRW
Sulfate	9	mg/L		1		E300.0	11/27/14 01:40 / SRW
Fluoride	0.2	mg/L		0.1	4	A4500-F C	12/02/14 16:21 / SRW
NUTRIENTS							
Nitrogen, Nitrate+Nitrite as N	0.44	mg/L		0.01		E353.2	11/26/14 11:58 / cmm
METALS, DISSOLVED							
Aluminum	ND	mg/L		0.03		E200.8	12/06/14 06:42 / dck
Antimony	ND	mg/L		0.001		E200.8	12/06/14 06:42 / dck
Arsenic	ND	mg/L		0.001		E200.8	12/06/14 06:42 / dck
Barium	0.162	mg/L		0.005		E200.8	12/06/14 06:42 / dck
Beryllium	ND	mg/L		0.001		E200.8	12/06/14 06:42 / dck
Cadmium	ND	mg/L		0.00008		E200.8	12/06/14 06:42 / dck
Calcium	42	mg/L		1		E200.7	11/26/14 13:17 / sld
Chromium	ND	mg/L		0.001		E200.8	12/06/14 06:42 / dck
Cobalt	ND	mg/L		0.005		E200.8	12/06/14 06:42 / dck
Copper	0.005	mg/L		0.001		E200.8	12/06/14 06:42 / dck
Iron	ND	mg/L		0.02		E200.8	12/06/14 06:42 / dck
Lead	ND	mg/L		0.0005		E200.8	12/06/14 06:42 / dck
Magnesium	18	mg/L		1		E200.7	11/26/14 13:17 / sld
Manganese	ND	mg/L		0.001		E200.8	12/06/14 06:42 / dck
Mercury	ND	mg/L		0.0001		E245.1	12/10/14 14:56 / rgk
Molybdenum	ND	mg/L		0.001		E200.8	12/06/14 06:42 / dck
Nickel	ND	mg/L		0.005		E200.8	12/06/14 06:42 / dck
Potassium	1	mg/L		1		E200.8	12/06/14 06:42 / dck
Selenium	ND	mg/L		0.001		E200.8	12/06/14 06:42 / dck
Silver	ND	mg/L		0.0005		E200.8	12/06/14 06:42 / dck
Sodium	2	mg/L		1		E200.7	11/26/14 13:17 / sld
Strontium	0.10	mg/L		0.01		E200.7	11/26/14 13:17 / sld
Thallium	0.0007	mg/L		0.0002		E200.8	12/06/14 06:42 / dck
Uranium	0.0009	mg/L		0.0003		E200.8	12/06/14 06:42 / dck
Zinc	ND	mg/L		0.01		E200.8	12/06/14 06:42 / 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: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2320 B										Batch: R102526
Lab ID: MB		Method Blank					Run: PHSC_101-H_141202A			12/02/14 08:34
Alkalinity, Total as CaCO ₃	2		mg/L	2						
Lab ID: LCS		Laboratory Control Sample					Run: PHSC_101-H_141202A			12/02/14 08:39
Alkalinity, Total as CaCO ₃	620		mg/L	4.0	103	90	110			
Lab ID: H14110436-001ADUP		Sample Duplicate					Run: PHSC_101-H_141202A			12/02/14 09:02
Alkalinity, Total as CaCO ₃	220		mg/L	4.0				1.1	10	
Lab ID: H14110436-006AMS		Sample Matrix Spike					Run: PHSC_101-H_141202A			12/02/14 09:46
Alkalinity, Total as CaCO ₃	700		mg/L	4.0	91	80	120			
Lab ID: H14120002-005ADUP		Sample Duplicate					Run: PHSC_101-H_141202A			12/02/14 11:48
Alkalinity, Total as CaCO ₃	250		mg/L	4.0				2.7	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: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: A2540 C								Batch: TDS141126A		
Lab ID: MB-1_141126A	Method Blank					Run: ACCU-124 (14410200)_14112		11/26/14 14:03		
Solids, Total Dissolved TDS @ 180 C		ND	mg/L	1						
Lab ID: LCS-2_141126A	Laboratory Control Sample					Run: ACCU-124 (14410200)_14112		11/26/14 14:03		
Solids, Total Dissolved TDS @ 180 C		2020	mg/L	20	101	90	110			
Lab ID: H14110428-001B DUP	Sample Duplicate					Run: ACCU-124 (14410200)_14112		11/26/14 14:04		
Solids, Total Dissolved TDS @ 180 C		577	mg/L	10				0.5	5	
Lab ID: H14110436-008A DUP	Sample Duplicate					Run: ACCU-124 (14410200)_14112		11/26/14 14:06		
Solids, Total Dissolved TDS @ 180 C		206	mg/L	10				0.5	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: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	A4500-F C							Analytical Run: PH_141202A		
Lab ID:	ICV1_141202A		Initial Calibration Verification Standard						12/02/14 15:55	
Fluoride		0.8	mg/L	0.1	103	90	110			
Lab ID:	CCV6_141202A		Continuing Calibration Verification Standard						12/02/14 16:10	
Fluoride		0.2	mg/L	0.1	97	90	110			
Method:	A4500-F C							Batch: 141202A-F-ISE-W		
Lab ID:	MBLK1_141202A		Method Blank			Run: PH_141202A		12/02/14 15:58		
Fluoride		0.008	mg/L	0.005						
Lab ID:	H14110390-008ADUP		Sample Duplicate			Run: PH_141202A		12/02/14 16:01		
Fluoride		0.1	mg/L	0.1					10	
Lab ID:	H14110390-009AMS		Sample Matrix Spike			Run: PH_141202A		12/02/14 16:03		
Fluoride		0.6	mg/L	0.1	98	85	115			
Lab ID:	H14110436-007ADUP		Sample Duplicate			Run: PH_141202A		12/02/14 16:14		
Fluoride		0.2	mg/L	0.1				0.8	10	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: ICP2-HE_141126B		
Lab ID: ICV	6	Initial Calibration Verification Standard							11/26/14 09:57	
Calcium		39.3	mg/L	1.0	98	95	105			
Iron		3.93	mg/L	0.020	98	95	105			
Magnesium		39.5	mg/L	1.0	99	95	105			
Potassium		38.7	mg/L	1.0	97	95	105			
Sodium		38.9	mg/L	1.0	97	95	105			
Strontium		0.794	mg/L	0.10	99	95	105			
Lab ID: CCV-1	6	Continuing Calibration Verification Standard							11/26/14 10:01	
Calcium		25.2	mg/L	1.0	101	95	105			
Iron		2.50	mg/L	0.020	100	95	105			
Magnesium		25.4	mg/L	1.0	102	95	105			
Potassium		24.3	mg/L	1.0	97	95	105			
Sodium		24.4	mg/L	1.0	98	95	105			
Strontium		2.49	mg/L	0.10	99	95	105			
Lab ID: ICSA	6	Interference Check Sample A							11/26/14 10:12	
Calcium		480	mg/L	1.0	96	80	120			
Iron		188	mg/L	0.020	94	80	120			
Magnesium		532	mg/L	1.0	106	80	120			
Potassium		-0.166	mg/L	1.0		0	0			
Sodium		0.0165	mg/L	1.0		0	0			
Strontium		0.00461	mg/L	0.10		0	0			
Lab ID: ICSAB	6	Interference Check Sample AB							11/26/14 10:16	
Calcium		476	mg/L	1.0	95	80	120			
Iron		186	mg/L	0.020	93	80	120			
Magnesium		523	mg/L	1.0	105	80	120			
Potassium		19.6	mg/L	1.0	98	80	120			
Sodium		19.9	mg/L	1.0	99	80	120			
Strontium		0.999	mg/L	0.10	100	80	120			
Lab ID: CCV	6	Continuing Calibration Verification Standard							11/26/14 11:32	
Calcium		24.3	mg/L	1.0	97	90	110			
Iron		2.47	mg/L	0.020	99	90	110			
Magnesium		24.1	mg/L	1.0	97	90	110			
Potassium		24.5	mg/L	1.0	98	90	110			
Sodium		24.9	mg/L	1.0	100	90	110			
Strontium		2.54	mg/L	0.10	102	90	110			
Lab ID: CCV	6	Continuing Calibration Verification Standard							11/26/14 12:17	
Calcium		24.1	mg/L	1.0	96	90	110			
Iron		2.46	mg/L	0.020	98	90	110			
Magnesium		24.1	mg/L	1.0	96	90	110			
Potassium		24.5	mg/L	1.0	98	90	110			
Sodium		24.9	mg/L	1.0	100	90	110			
Strontium		2.53	mg/L	0.10	101	90	110			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7								Analytical Run: ICP2-HE_141126B		
Lab ID: CCV	6	Continuing Calibration Verification Standard							11/26/14 12:17	
Lab ID: CCV	6	Continuing Calibration Verification Standard							11/26/14 13:02	
Calcium		24.6	mg/L	1.0	98	90	110			
Iron		2.49	mg/L	0.020	100	90	110			
Magnesium		25.0	mg/L	1.0	100	90	110			
Potassium		24.2	mg/L	1.0	97	90	110			
Sodium		24.5	mg/L	1.0	98	90	110			
Strontium		2.51	mg/L	0.10	100	90	110			
Method: E200.7								Batch: R102521		
Lab ID: ICB	6	Method Blank							Run: ICP2-HE_141126B 11/26/14 10:24	
Calcium		0.04	mg/L	0.03						
Iron		0.006	mg/L	0.003						
Magnesium		ND	mg/L	0.02						
Potassium		ND	mg/L	0.04						
Sodium		ND	mg/L	0.02						
Strontium		ND	mg/L	0.0003						
Lab ID: LFB	6	Laboratory Fortified Blank							Run: ICP2-HE_141126B 11/26/14 10:28	
Calcium		47.7	mg/L	1.0	95	85	115			
Iron		4.79	mg/L	0.020	96	85	115			
Magnesium		48.8	mg/L	1.0	98	85	115			
Potassium		47.2	mg/L	1.0	94	85	115			
Sodium		47.6	mg/L	1.0	95	85	115			
Strontium		0.960	mg/L	0.10	96	85	115			
Lab ID: H14110408-010BMS2	6	Sample Matrix Spike							Run: ICP2-HE_141126B 11/26/14 11:43	
Calcium		931	mg/L	1.0		70	130			A
Iron		9.83	mg/L	0.020	98	70	130			
Magnesium		290	mg/L	1.0	102	70	130			
Potassium		115	mg/L	1.0	97	70	130			
Sodium		221	mg/L	1.0	94	70	130			
Strontium		7.02	mg/L	0.010	98	70	130			
Lab ID: H14110408-010BMSD	6	Sample Matrix Spike Duplicate							Run: ICP2-HE_141126B 11/26/14 11:47	
Calcium		929	mg/L	1.0		70	130	0.3	20	A
Iron		9.85	mg/L	0.020	99	70	130	0.2	20	
Magnesium		291	mg/L	1.0	103	70	130	0.5	20	
Potassium		116	mg/L	1.0	98	70	130	1.0	20	
Sodium		224	mg/L	1.0	97	70	130	1.1	20	
Strontium		7.01	mg/L	0.010	98	70	130	0.1	20	
Lab ID: H14110436-006BMS2	6	Sample Matrix Spike							Run: ICP2-HE_141126B 11/26/14 12:32	
Calcium		73.8	mg/L	1.0	96	70	130			
Iron		4.92	mg/L	0.020	97	70	130			
Magnesium		72.7	mg/L	1.0	98	70	130			

Qualifiers:

RL - Analyte reporting limit.

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

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.7										Batch: R102521
Lab ID: H14110436-006BMS2	6	Sample Matrix Spike				Run: ICP2-HE_141126B				11/26/14 12:32
Potassium		50.0	mg/L	1.0	99	70	130			
Sodium		52.6	mg/L	1.0	100	70	130			
Strontium		1.09	mg/L	0.010	101	70	130			
Lab ID: H14110436-006BMSD	6	Sample Matrix Spike Duplicate				Run: ICP2-HE_141126B				11/26/14 12:36
Calcium		74.5	mg/L	1.0	98	70	130	1.0	20	
Iron		4.98	mg/L	0.020	98	70	130	1.2	20	
Magnesium		73.8	mg/L	1.0	101	70	130	1.6	20	
Potassium		50.4	mg/L	1.0	99	70	130	0.7	20	
Sodium		53.0	mg/L	1.0	100	70	130	0.7	20	
Strontium		1.10	mg/L	0.010	101	70	130	0.4	20	
Lab ID: H14110436-015BMS2	6	Sample Matrix Spike				Run: ICP2-HE_141126B				11/26/14 13:25
Calcium		90.1	mg/L	1.0	97	70	130			
Iron		4.87	mg/L	0.020	97	70	130			
Magnesium		67.7	mg/L	1.0	100	70	130			
Potassium		49.7	mg/L	1.0	98	70	130			
Sodium		51.5	mg/L	1.0	99	70	130			
Strontium		1.10	mg/L	0.010	100	70	130			
Lab ID: H14110436-015BMSD	6	Sample Matrix Spike Duplicate				Run: ICP2-HE_141126B				11/26/14 13:28
Calcium		90.4	mg/L	1.0	98	70	130	0.4	20	
Iron		4.88	mg/L	0.020	97	70	130	0.3	20	
Magnesium		67.9	mg/L	1.0	100	70	130	0.3	20	
Potassium		49.1	mg/L	1.0	96	70	130	1.2	20	
Sodium		50.8	mg/L	1.0	97	70	130	1.4	20	
Strontium		1.09	mg/L	0.010	99	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

Report Date: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8							Analytical Run: ICPMS204-B_141205C			
Lab ID: ICV STD	20	Initial Calibration Verification Standard							12/06/14 00:41	
Aluminum		0.293	mg/L	0.10	98	90	110			
Antimony		0.0582	mg/L	0.050	97	90	110			
Arsenic		0.0593	mg/L	0.0050	99	90	110			
Barium		0.0582	mg/L	0.10	97	90	110			
Beryllium		0.0297	mg/L	0.0010	99	90	110			
Cadmium		0.0313	mg/L	0.0010	104	90	110			
Chromium		0.0607	mg/L	0.010	101	90	110			
Cobalt		0.0589	mg/L	0.010	98	90	110			
Copper		0.0611	mg/L	0.010	102	90	110			
Iron		0.311	mg/L	0.020	104	90	110			
Lead		0.0584	mg/L	0.010	97	90	110			
Manganese		0.294	mg/L	0.010	98	90	110			
Molybdenum		0.0576	mg/L	0.0050	96	90	110			
Nickel		0.0616	mg/L	0.010	103	90	110			
Potassium		3.15	mg/L	0.50	105	90	110			
Selenium		0.0601	mg/L	0.0050	100	90	110			
Silver		0.0291	mg/L	0.0050	97	90	110			
Thallium		0.0592	mg/L	0.10	99	90	110			
Uranium		0.0593	mg/L	0.0010	99	90	110			
Zinc		0.0609	mg/L	0.010	101	90	110			
Lab ID: ICSA	20	Interference Check Sample A							12/06/14 00:45	
Aluminum		36.7	mg/L	0.10	92	70	130			
Antimony		0.000105	mg/L	0.050						
Arsenic		4.40E-05	mg/L	0.0050						
Barium		0.000117	mg/L	0.10						
Beryllium		2.00E-05	mg/L	0.0010						
Cadmium		0.000382	mg/L	0.0010						
Chromium		0.00104	mg/L	0.010						
Cobalt		0.000166	mg/L	0.010						
Copper		0.000335	mg/L	0.010						
Iron		93.4	mg/L	0.020	93	70	130			
Lead		0.000215	mg/L	0.010						
Manganese		0.000118	mg/L	0.010						
Molybdenum		0.802	mg/L	0.0050	100	70	130			
Nickel		0.000578	mg/L	0.010						
Potassium		39.3	mg/L	0.50	98	70	130			
Selenium		0.000118	mg/L	0.0050						
Silver		0.000282	mg/L	0.0050						
Thallium		0.000137	mg/L	0.10						
Uranium		6.80E-05	mg/L	0.0010						
Zinc		0.00104	mg/L	0.010						
Lab ID: ICSAB	20	Interference Check Sample AB							12/06/14 00:50	
Aluminum		36.0	mg/L	0.10	90	70	130			

Qualifiers:

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QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8								Analytical Run: ICPMS204-B_141205C		
Lab ID: ICSAB	20	Interference Check Sample AB								12/06/14 00:50
Antimony		0.000181	mg/L	0.050		0	0			
Arsenic		0.0104	mg/L	0.0050	104	70	130			
Barium		0.000171	mg/L	0.10		0	0			
Beryllium		1.30E-05	mg/L	0.0010		0	0			
Cadmium		0.00968	mg/L	0.0010	97	70	130			
Chromium		0.0212	mg/L	0.010	106	70	130			
Cobalt		0.0191	mg/L	0.010	96	70	130			
Copper		0.0204	mg/L	0.010	102	70	130			
Iron		92.6	mg/L	0.020	93	70	130			
Lead		0.000209	mg/L	0.010		0	0			
Manganese		0.0192	mg/L	0.010	96	70	130			
Molybdenum		0.786	mg/L	0.0050	98	70	130			
Nickel		0.0206	mg/L	0.010	103	70	130			
Potassium		38.6	mg/L	0.50	96	70	130			
Selenium		0.0100	mg/L	0.0050	100	70	130			
Silver		0.0173	mg/L	0.0050	86	70	130			
Thallium		7.10E-05	mg/L	0.10		0	0			
Uranium		1.70E-05	mg/L	0.0010		0	0			
Zinc		0.0107	mg/L	0.010	107	70	130			
Method: E200.8								Batch: R102684		
Lab ID: ICB	20	Method Blank								12/06/14 03:21
Aluminum		ND	mg/L	0.0002						
Antimony		ND	mg/L	1E-05						
Arsenic		ND	mg/L	3E-05						
Barium		ND	mg/L	3E-05						
Beryllium		ND	mg/L	2E-05						
Cadmium		ND	mg/L	6E-06						
Chromium		ND	mg/L	3E-05						
Cobalt		ND	mg/L	2E-05						
Copper		ND	mg/L	3E-05						
Iron		0.0004	mg/L	0.0002						
Lead		ND	mg/L	8E-06						
Manganese		ND	mg/L	2E-05						
Molybdenum		ND	mg/L	3E-05						
Nickel		ND	mg/L	6E-05						
Potassium		ND	mg/L	0.05						
Selenium		ND	mg/L	7E-05						
Silver		0.0005	mg/L	3E-05						
Thallium		ND	mg/L	1E-05						
Uranium		ND	mg/L	6E-06						
Zinc		0.0004	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: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R102684
Lab ID: LFB	20	Laboratory Fortified Blank				Run: ICPMS204-B_141205C				12/06/14 03:26
Aluminum		0.0475	mg/L	0.10	95	85	115			
Antimony		0.0467	mg/L	0.050	93	85	115			
Arsenic		0.0494	mg/L	0.0050	99	85	115			
Barium		0.0483	mg/L	0.10	97	85	115			
Beryllium		0.0477	mg/L	0.0010	95	85	115			
Cadmium		0.0505	mg/L	0.0010	101	85	115			
Chromium		0.0498	mg/L	0.010	100	85	115			
Cobalt		0.0486	mg/L	0.010	97	85	115			
Copper		0.0506	mg/L	0.010	101	85	115			
Iron		0.153	mg/L	0.020	102	85	115			
Lead		0.0487	mg/L	0.010	97	85	115			
Manganese		0.0497	mg/L	0.010	99	85	115			
Molybdenum		0.0478	mg/L	0.0050	96	85	115			
Nickel		0.0501	mg/L	0.010	100	85	115			
Potassium		1.06	mg/L	0.50	106	85	115			
Selenium		0.0506	mg/L	0.0050	101	85	115			
Silver		0.0196	mg/L	0.0050	95	85	115			
Thallium		0.0485	mg/L	0.10	97	85	115			
Uranium		0.0485	mg/L	0.0010	97	85	115			
Zinc		0.0523	mg/L	0.010	104	85	115			
Lab ID: H14110436-004BMS	20	Sample Matrix Spike				Run: ICPMS204-B_141205C				12/06/14 05:08
Aluminum		0.0547	mg/L	0.030	95	70	130			
Antimony		0.0469	mg/L	0.0010	94	70	130			
Arsenic		0.0514	mg/L	0.0010	102	70	130			
Barium		0.164	mg/L	0.050	102	70	130			
Beryllium		0.0496	mg/L	0.0010	99	70	130			
Cadmium		0.0506	mg/L	0.0010	101	70	130			
Chromium		0.0500	mg/L	0.0050	100	70	130			
Cobalt		0.0484	mg/L	0.0050	97	70	130			
Copper		0.0494	mg/L	0.0050	99	70	130			
Iron		0.150	mg/L	0.020	95	70	130			
Lead		0.0495	mg/L	0.0010	99	70	130			
Manganese		0.0690	mg/L	0.0010	102	70	130			
Molybdenum		0.0502	mg/L	0.0010	98	70	130			
Nickel		0.0495	mg/L	0.0050	98	70	130			
Potassium		2.22	mg/L	1.0	101	70	130			
Selenium		0.0519	mg/L	0.0010	104	70	130			
Silver		0.0195	mg/L	0.0010	97	70	130			
Thallium		0.0506	mg/L	0.00050	101	70	130			
Uranium		0.0503	mg/L	0.00030	99	70	130			
Zinc		0.0516	mg/L	0.010	100	70	130			
Lab ID: H14110436-004BMSD	20	Sample Matrix Spike Duplicate				Run: ICPMS204-B_141205C				12/06/14 05:13
Aluminum		0.0545	mg/L	0.030	94	70	130	0.4	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R102684
Lab ID: H14110436-004BMSD	20	Sample Matrix Spike Duplicate				Run: ICPMS204-B_141205C				12/06/14 05:13
Antimony		0.0472	mg/L	0.0010	94	70	130	0.7	20	
Arsenic		0.0510	mg/L	0.0010	101	70	130	0.8	20	
Barium		0.162	mg/L	0.050	98	70	130	1.2	20	
Beryllium		0.0496	mg/L	0.0010	99	70	130	0.0	20	
Cadmium		0.0498	mg/L	0.0010	100	70	130	1.5	20	
Chromium		0.0496	mg/L	0.0050	99	70	130	0.7	20	
Cobalt		0.0482	mg/L	0.0050	96	70	130	0.4	20	
Copper		0.0491	mg/L	0.0050	98	70	130	0.6	20	
Iron		0.155	mg/L	0.020	98	70	130	3.8	20	
Lead		0.0489	mg/L	0.0010	98	70	130	1.2	20	
Manganese		0.0683	mg/L	0.0010	101	70	130	1.0	20	
Molybdenum		0.0496	mg/L	0.0010	97	70	130	1.2	20	
Nickel		0.0493	mg/L	0.0050	98	70	130	0.4	20	
Potassium		2.22	mg/L	1.0	100	70	130	0.2	20	
Selenium		0.0526	mg/L	0.0010	105	70	130	1.3	20	
Silver		0.0195	mg/L	0.0010	98	70	130	0.3	20	
Thallium		0.0495	mg/L	0.00050	99	70	130	2.0	20	
Uranium		0.0504	mg/L	0.00030	99	70	130	0.2	20	
Zinc		0.0511	mg/L	0.010	99	70	130	1.0	20	
Lab ID: H14110436-014BMS	20	Sample Matrix Spike				Run: ICPMS204-B_141205C				12/06/14 06:20
Aluminum		0.0479	mg/L	0.030	95	70	130			
Antimony		0.0451	mg/L	0.0010	90	70	130			
Arsenic		0.0494	mg/L	0.0010	99	70	130			
Barium		0.0488	mg/L	0.050	98	70	130			
Beryllium		0.0489	mg/L	0.0010	98	70	130			
Cadmium		0.0506	mg/L	0.0010	101	70	130			
Chromium		0.0492	mg/L	0.0050	98	70	130			
Cobalt		0.0485	mg/L	0.0050	97	70	130			
Copper		0.0498	mg/L	0.0050	100	70	130			
Iron		0.151	mg/L	0.020	74	70	130			
Lead		0.0485	mg/L	0.0010	97	70	130			
Manganese		0.0485	mg/L	0.0010	97	70	130			
Molybdenum		0.0469	mg/L	0.0010	94	70	130			
Nickel		0.0499	mg/L	0.0050	100	70	130			
Potassium		1.01	mg/L	1.0	101	70	130			
Selenium		0.0498	mg/L	0.0010	100	70	130			
Silver		0.0197	mg/L	0.0010	99	70	130			
Thallium		0.0481	mg/L	0.00050	96	70	130			
Uranium		0.0477	mg/L	0.00030	95	70	130			
Zinc		0.0526	mg/L	0.010	102	70	130			
Lab ID: H14110436-014BMSD	20	Sample Matrix Spike Duplicate				Run: ICPMS204-B_141205C				12/06/14 06:24
Aluminum		0.0483	mg/L	0.030	96	70	130	0.7	20	
Antimony		0.0454	mg/L	0.0010	91	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: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8										Batch: R102684
Lab ID: H14110436-014BMSD 20 Sample Matrix Spike Duplicate										Run: ICPMS204-B_141205C 12/06/14 06:24
Arsenic		0.0492	mg/L	0.0010	98	70	130	0.4	20	
Barium		0.0484	mg/L	0.050	97	70	130		20	
Beryllium		0.0486	mg/L	0.0010	97	70	130	0.5	20	
Cadmium		0.0505	mg/L	0.0010	101	70	130	0.1	20	
Chromium		0.0495	mg/L	0.0050	99	70	130	0.6	20	
Cobalt		0.0486	mg/L	0.0050	97	70	130	0.3	20	
Copper		0.0501	mg/L	0.0050	100	70	130	0.6	20	
Iron		0.155	mg/L	0.020	76	70	130	2.8	20	
Lead		0.0485	mg/L	0.0010	97	70	130	0.0	20	
Manganese		0.0490	mg/L	0.0010	98	70	130	0.8	20	
Molybdenum		0.0466	mg/L	0.0010	93	70	130	0.6	20	
Nickel		0.0505	mg/L	0.0050	101	70	130	1.3	20	
Potassium		1.01	mg/L	1.0	101	70	130	0.3	20	
Selenium		0.0517	mg/L	0.0010	103	70	130	3.8	20	
Silver		0.0194	mg/L	0.0010	97	70	130	1.5	20	
Thallium		0.0487	mg/L	0.00050	97	70	130	1.2	20	
Uranium		0.0479	mg/L	0.00030	96	70	130	0.4	20	
Zinc		0.0519	mg/L	0.010	101	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: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E200.8							Analytical Run: ICPMS204-B_141208A			
Lab ID: ICV STD	2	Initial Calibration Verification Standard								12/08/14 12:24
Iron		0.310	mg/L	0.020	103	90	110			
Thallium		0.0576	mg/L	0.10	96	90	110			
Lab ID: ICSA	2	Interference Check Sample A								12/08/14 12:29
Iron		95.7	mg/L	0.020	96	70	130			
Thallium		5.10E-05	mg/L	0.10						
Lab ID: ICSAB	2	Interference Check Sample AB								12/08/14 12:34
Iron		96.5	mg/L	0.020	97	70	130			
Thallium		9.00E-06	mg/L	0.10		0	0			
Method: E200.8							Batch: R102698			
Lab ID: ICB	2	Method Blank								12/08/14 14:01
Iron		ND	mg/L	0.0002						
Thallium		2E-05	mg/L	1E-05						
Lab ID: LFB	2	Laboratory Fortified Blank								12/08/14 14:06
Iron		0.151	mg/L	0.020	101	85	115			
Thallium		0.0478	mg/L	0.10	96	85	115			
Lab ID: H14110436-012BMS	2	Sample Matrix Spike								12/08/14 15:10
Iron		0.146	mg/L	0.020	97	70	130			
Thallium		0.0506	mg/L	0.00050	101	70	130			
Lab ID: H14110436-012BMSD	2	Sample Matrix Spike Duplicate								12/08/14 15:15
Iron		0.149	mg/L	0.020	99	70	130	2.0	20	
Thallium		0.0508	mg/L	0.00050	101	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: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E245.1										Analytical Run: HGCV202-H_141210A
Lab ID: ICV		Initial Calibration Verification Standard								12/10/14 12:49
Mercury		0.00019	mg/L	0.00010	96	90	110			
Lab ID: CCV1		Continuing Calibration Verification Standard								12/10/14 12:53
Mercury		0.00020	mg/L	0.00010	99	95	105			
Lab ID: CCV		Continuing Calibration Verification Standard								12/10/14 14:14
Mercury		0.00020	mg/L	0.00010	102	90	110			
Method: E245.1										Batch: 27308
Lab ID: MB-27308		Method Blank					Run: HGCV202-H_141210A			12/10/14 13:10
Mercury		ND	mg/L	1E-06						
Lab ID: LCS-27308		Laboratory Control Sample					Run: HGCV202-H_141210A			12/10/14 13:14
Mercury		0.00015	mg/L	0.00010	97	90	110			
Lab ID: H14110436-001BMS		Sample Matrix Spike					Run: HGCV202-H_141210A			12/10/14 13:27
Mercury		0.00017	mg/L	0.00010	113	70	130			
Lab ID: H14110436-001BMSD		Sample Matrix Spike Duplicate					Run: HGCV202-H_141210A			12/10/14 13:31
Mercury		0.00016	mg/L	0.00010	108	70	130	5.0	20	
Lab ID: H14110436-011BMS		Sample Matrix Spike					Run: HGCV202-H_141210A			12/10/14 14:31
Mercury		0.00017	mg/L	0.00010	113	70	130			
Lab ID: H14110436-011BMSD		Sample Matrix Spike Duplicate					Run: HGCV202-H_141210A			12/10/14 14:35
Mercury		0.00014	mg/L	0.00010	92	70	130	20	20	R

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

R - RPD exceeds advisory limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E300.0								Analytical Run: IC102-H_141126A		
Lab ID: ICV	2	Initial Calibration Verification Standard								11/26/14 10:18
Chloride		100	mg/L	1.0	101	90	110			
Sulfate		400	mg/L	1.0	100	90	110			
Lab ID: CCV112614-5	2	Continuing Calibration Verification Standard								11/26/14 21:13
Chloride		100	mg/L	1.0	101	90	110			
Sulfate		410	mg/L	1.0	102	90	110			
Lab ID: CCV112614-6	2	Continuing Calibration Verification Standard								11/26/14 23:49
Chloride		100	mg/L	1.0	101	90	110			
Sulfate		410	mg/L	1.0	102	90	110			
Method: E300.0								Batch: R102533		
Lab ID: ICB	2	Method Blank								Run: IC102-H_141126A 11/26/14 10:29
Chloride		0.04	mg/L	0.008						
Sulfate		ND	mg/L	0.08						
Lab ID: LFB	2	Laboratory Fortified Blank								Run: IC102-H_141126A 11/26/14 10:40
Chloride		48	mg/L	1.0	95	90	110			
Sulfate		200	mg/L	1.0	98	90	110			
Lab ID: H14110424-005AMS	2	Sample Matrix Spike								Run: IC102-H_141126A 11/26/14 21:47
Chloride		48	mg/L	1.0	96	90	110			
Sulfate		200	mg/L	1.0	99	90	110			
Lab ID: H14110424-005AMSD	2	Sample Matrix Spike Duplicate								Run: IC102-H_141126A 11/26/14 21:58
Chloride		48	mg/L	1.0	97	90	110	0.4	20	
Sulfate		200	mg/L	1.0	101	90	110	1.6	20	
Lab ID: H14110436-009AMS	2	Sample Matrix Spike								Run: IC102-H_141126A 11/27/14 00:22
Chloride		50	mg/L	1.0	98	90	110			
Sulfate		240	mg/L	1.0	104	90	110			
Lab ID: H14110436-009AMSD	2	Sample Matrix Spike Duplicate								Run: IC102-H_141126A 11/27/14 00:33
Chloride		51	mg/L	1.0	101	90	110	2.4	20	
Sulfate		250	mg/L	1.0	104	90	110	0.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Helena, MT Branch

Client: Tintina Resources Inc

Report Date: 12/15/14

Project: 11048 Black Butte Copper Project

Work Order: H14110436

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: E353.2								Analytical Run: FIA203-HE_141126C		
Lab ID: ICV	Initial Calibration Verification Standard								11/26/14 10:12	
Nitrogen, Nitrate+Nitrite as N		1.05	mg/L	0.010	105	90	110			
Lab ID: ICB	Initial Calibration Blank, Instrument Blank								11/26/14 10:16	
Nitrogen, Nitrate+Nitrite as N		-0.00113	mg/L	0.010		0	0			
Lab ID: CCV	Continuing Calibration Verification Standard								11/26/14 11:29	
Nitrogen, Nitrate+Nitrite as N		0.484	mg/L	0.010	97	90	110			
Lab ID: CCV	Continuing Calibration Verification Standard								11/26/14 11:45	
Nitrogen, Nitrate+Nitrite as N		0.479	mg/L	0.010	96	90	110			
Method: E353.2									Batch: R102489	
Lab ID: LFB	Laboratory Fortified Blank			Run: FIA203-HE_141126C					11/26/14 10:13	
Nitrogen, Nitrate+Nitrite as N		0.955	mg/L	0.011	96	90	110			
Lab ID: MBLK	Method Blank			Run: FIA203-HE_141126C					11/26/14 10:18	
Nitrogen, Nitrate+Nitrite as N		ND	mg/L	0.001						
Lab ID: H14110434-001AMS	Sample Matrix Spike			Run: FIA203-HE_141126C					11/26/14 11:33	
Nitrogen, Nitrate+Nitrite as N		1.04	mg/L	0.011	95	90	110			
Lab ID: H14110434-001AMSD	Sample Matrix Spike Duplicate			Run: FIA203-HE_141126C					11/26/14 11:35	
Nitrogen, Nitrate+Nitrite as N		1.04	mg/L	0.011	95	90	110	0.4	20	
Lab ID: H14110436-007CMS	Sample Matrix Spike			Run: FIA203-HE_141126C					11/26/14 11:48	
Nitrogen, Nitrate+Nitrite as N		0.931	mg/L	0.011	93	90	110			
Lab ID: H14110436-007CMSD	Sample Matrix Spike Duplicate			Run: FIA203-HE_141126C					11/26/14 11:49	
Nitrogen, Nitrate+Nitrite as N		0.929	mg/L	0.011	93	90	110	0.3	20	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Workorder Receipt Checklist

Tintina Resources Inc

H14110436

Login completed by: Tracy L. Lorash

Date Received: 11/25/2014

Reviewed by: BL2000\williams

Received by: AHN

Reviewed Date: 12/3/2014

Carrier Hand Del
name:

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☒	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☒	Not Applicable ☐
Container/Temp Blank temperature:	0.6°C On Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☒	No ☐	Not Applicable ☐

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:

Collection date on COC for BBC-1411-204 is 11/24/14 - date on bottles is 11/14/14. Logged in with date from COC. TI 11/25/14

Hydrometrics, Inc.

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

CHAIN OF CUSTODY RECORD

PROJ. NO.		PROJECT NAME		NO. OF CONTAINERS	ANALYSIS							REMARKS
11048		Black Butte Tintine			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	
DATE	TIME	COMP	GRAB	SAMPLE NUMBER								
11/24/14	1215		X	133C-1411-200	X	X	X					44110436
	1345			201								
	1430			202								
	1500			203								
	1530			204								
	1605			205								
	1620			206								
	1700			207								
	1725			208								
11/24/14	0830			209								
	0830			210								
	0915			211								
	1000			212								
	1015			213								
Relinquished (Signature)		Received by (Signature)		Date / Time		Lab		P.O. #		Shipped via: Bus FedEx UPS		
[Signature]		[Signature]		11/25/14 1410		Energy Lab		Bill Tintine		Other		
Relinquished (Signature)		Received by (Signature)		Date / Time		Remarks		0.6 DTB		0.10		
Relinquished (Signature)		Received for Laboratory by (Signature)		Date / Time		Enclosed:		☐ Parameter sheet w/detection limits ☐ QA / AC standard mixing instructions ☐ Cover letter ☐ Other				
[Signature]		[Signature]				11/25/14 14:10						

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

[illegible]

**TABLE 3. ANALYTICAL METHODS AND DETECTION
LIMITS FOR GROUNDWATER SAMPLES
TINTIAN GOLD – SHEEP CREEK PROJECT**

Parameter	Analytical Method ⁽¹⁾	Project-Required Detection Limit (mg/L)
Physical Parameters		
TDS	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	0.03
Antimony (Sb)	200.7/200.8	0.003
Arsenic (As)	200.8/SM 3114B	0.003
Barium (Ba)	200.7/200.8	0.005
Beryllium (Be)	200.7/200.8	0.001
Cadmium (Cd)	200.7/200.8	0.00008
Chromium (Cr)	200.7/200.8	0.001
Cobalt (Co)	200.7/200.8	0.01
Copper (Cu)	200.7/200.8	0.001
Iron (Fe)	200.7/200.8	0.03
Lead (Pb)	200.7/200.8	0.0005
Manganese (Mn)	200.7/200.8	0.005
Mercury (Hg)	245.2/245.1/200.8/SM 3112B	0.00001
Molybdenum (Mo)	200.7/200.8	0.005
Nickel (Ni)	200.7/200.8	0.01
Selenium (Se)	200.7/200.8/SM 3114B	0.001
Silver (Ag)	200.7/200.8	0.0005
Strontium (Sr)	200.7/200.8	0.1
Thallium (Tl)	200.7/200.8	0.0002
Uranium	200.7/200.8	0.0003
Zinc (Zn)	200.7/200.8	0.01
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

LABORATORY QA/QC REVIEW

BLACK BUTTE QA/QC REVIEW
NOVEMBER 2014
WORK ORDER #: H14110240 & H14110436

1. INTRODUCTION

This validation applies to inorganic analyses from 28 water samples collected for the Black Butte Tintina groundwater and surface water-monitoring program in November 2014. The total number of samples included 28 water samples, 7 site observations, 2 field duplicate and 2 field blanks.

- 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

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

Project specified methods were used.

☒ Yes
☐ No

5. **DETECTION LIMITS**

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

☒ Yes
☐ No

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.

X 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).

X 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.

X Yes

No

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

▪ Yes

▪ X No – see following table

QC Sample Id	Parameter	% REC	Lab Flag	Lab Advisory Limits (% REC)
B14111123-001DMS	TKN	82	S	90 - 110

S – Spike recovery outside of recovery limits

8. LABORATORY DUPLICATES

- Laboratory duplicate samples were analyzed at the proper frequency.

X Yes

No

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

Yes

X No – see following table

QC Sample Id	Parameter	% RPD	Lab Flag	Lab Advisory Limits (% RPD)
H14110436-011BMDS	MERCURY	20	R	20
B14111168-001CMSD	TKN	36	R	10
B1411123-001DMSD	TKN	17	R	10

R – RPD exceeds advisory limits

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

Yes

X No – see following table

QC Sample Id	Parameter	% REC	Lab Flag	Lab Advisory Limits (% REC)
B14111168-001CMSD	TKN	138	S	90 – 110

S – Spike recovery outside of recovery 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