# Assessment Report for Airborne Magnetic VLF-EM Survey of the Coppermine River Project for Claimholder Tundra Copper Corp. Coppermine River, West Kitikmeot Region, Nunavut

Strike 1, Strike 2, Home Run, Mac Claims

Claim Numbers 101380, 101381, 101382, and 101383

Parts of NTS 086N and NTS 0860

Bound by 116° 11' W, and 67° 33' N

# Fieldwork Completed February 1 - 9, 2024

#### Report Date:

February 20, 2024

#### Report By:

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#### For Permit Holder:

**Tundra Copper Corp** 









#### **SUMMARY**

Expansive mineralization discovered along the Coppermine River spawned a staking rush in the 1960's- the largest by that time in Canadian history. Lacking accessibility prevented development of the area; recent climate change and improving conditions of the shipping lanes during summer have renewed the project's potential for development.

The Coppermine River Project is located within a Proterozoic-age extensional belt of rocks and is predominantly underlain by basalts and minor associated clastic rocks overlain by sandstones intruded by later gneiss dykes and sills.

The Coppermine River area is host to many high-grade copper lodes occurring as chalcocite, bornite, and chalcopyrite lenses concentrated along shear zones, faults, and stratigraphic horizons. Historic workers delineated widespread copper and silver mineralization with drill-tested copper grades up to 70% and 8.0 oz/t silver in lodes, and averaging up to 0.57% Cu over 20m in sedimentary horizons with isolated 1.0m intervals assaying up to 3% Cu.

Tundra Copper's Coppermine River Project comprises 144 Mineral Claims located 580 km northwest of Yellowknife, centered at approximately 116° 11′ W, 67° 33′ N. Kaizen Discovery acquired control of Tundra Copper Corp (and the claims holdings) in November 2014. Withdrawals from mineral exploration and COVID delayed work until late 2023. Control of the claims and Tundra Copper Corp were subsequently obtained by Durango Gold in November 2023, who contracted Ethos Geological to orchestrate the fieldwork and reporting.

This Assessment Report describes a helicopter-based geophysical mag vlf-em survey performed during February 2024 by Precision Geosurveys of Vancouver, BC, on four of the mineral claims contained within Tundra's greater Coppermine River Project (the Strike 1, Strike 2, Home Run, and Mac [Hope Lake] claims) and an interpretation of the results.



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Appendix C Precision Geosurveys Geophysics Reports (Blocks A and B)

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#### **TERMS USED**

Ag	Silver	В	Billion
Cu	Copper	Ga	Billion Years Ago
Fe	Iron	cm	Centimeter
Hem	Hematite	km	Kilometer
Ksp	K-Feldspar	lbs	Pounds
0	Oxygen	m	Meter
Pb	Lead	M	Million
Qtz	Quartz	Ma	Million Years Ago
S	Sulphur	Mst	Million Short Tons
Zn	Zinc	Mt	Million Metric Tonnes
Bn	Bornite	g	Gram
Сс	Chalcocite	OZ	Troy Ounce
Ср	Chalcopyrite	st	Short Ton
_		t	Metric Tonne
На	Hectare		
Km	Kilometer		

m

Meter



#### 1 Introduction

This report documents airborne geophysical survey works conducted on February 6th and 7th, 2024 over two blocks of interest. Precision GeoSurveys Inc. ("Precision") completed a 58 line-kilometer(Block A) and a 171 line-kilometer(Block B) high-resolution helicopter-borne very low frequency electromagnetic (VLF-EM) survey covering the Strike 1, Strike 2, Home Run and Mac mineral claims ("the Coppermine River Project").

Precision GeoSurveys Inc. mobilized helicopter-borne geophysical survey equipment to the Project area in early February 2024. Flight operations for surveying were launched from the Kugluktuk airport (CYCO), using an Airbus AS350 helicopter, registration C-GSVY.

The data acquired provided high resolution information to support interpretation of the structural and lithology of the claims. Details are now visible beyond the formerly-available government magnetic data that greatly aid in the interpretation of the Project geology, including the underlying basement and structural activity that may have impacted the formation of mineralization.

Future programs for research are encouraged to focus on collecting field-based mapping to confirm the lithological and structural anomalies defined by the survey to clarify and create a more comprehensive understanding of the geology across the Coppermine River Project.

#### 2 Property Description and Location

The Coppermine Project is centered north of the Arctic Circle approximately 70 km southwest of Kugluktuk, a small town sitting on the coastline of the Coronation Gulf, in the Kitikmeot region of Nunavut, Canada (Title Page, Figure 1). The Project sits 580 km northwest of the city of Yellowknife, NWT, which has daily scheduled air service from Edmonton, AB.

The Hope Lake airstrip (Mac Claim, this Report, UTM NAD83 Zone 11N 525570E, 7479280N, striking  $^{\sim}$  300° azimuth), was constructed in the 1960's and is available for winged transport of supplies closer to the Coppermine River Project area. The airstrip is 800m long and was in good condition as of September 2016.

Several fuel tank farms at Kugluktuk were completed in 2001 and a new breakwater, deeper berth, larger laydown area and apron at the Kugluktuk port were completed shortly thereafter. A barge makes several trips to Kugluktuk each year down the Mackenzie River from Hay River, NWT.



In 2007, eight companies formed a consortium to construct a deep-water port in the Bathurst Inlet (220 km east of the Coppermine River Project): BHP Billiton, De Beers, Dundee Precious Metals, Miramar Mining, Rio Tinto, Sabina Gold, and Silver Corp., GlencoreXstrata, and Zinifex.

By May 2013, several companies dropped out of the joint venture project; Glencore and Sabina are the sole constituents of the Bathurst Inlet Port and Road joint venture company ("BIPR"), with Glencore as the operator.

Also in 2013 the governments of Canada and Nunavut proposed joint investments in infrastructure that would permanently connect this area of Nunavut with the network of road and power already in place further south in the territory. The village of Kugluktuk and the Kitikmeot Inuit Association (KIA), holders of large tracts of Inuit-owned mineral rights in the area, actively supported opportunities to service the mineral exploration industry throughout Nunavut. However, the cost of this infrastructure is high and has yet to sustain long lasting support.

Approximately 220 km (136 mi) east of the Coppermine River Project sit several advanced mineral resources and near-term producing mines, including MMG's High Lake and Izok Lake Zn-Cu deposits, Elgin's Lupin and Ulu Au deposits, and TMAC Resources' Hope Bay Au project. Each year a winter road is constructed from Yellowknife north to service the mines south and east of the area, transporting large amounts of material required for production-scale mining.

## **3 MINERAL TENURES**

This Report is centered at UTM Nad83 Zone 11N, 541000 East and 7468000 North (166°11′ W, 67°33′ N). The mineral tenures described in this Report comprise four (4) Crown Land Mineral Claims totalling 5177 hectares (Table 1).

Table 1. Tundra Copper's select Coppermine River Project mineral tenures, February 2024.

Claim Number	Claim Name	NTS Grid	Date Recorded	Anniversary Date	Claim Ha	Units
101380	STRIKE 1	O86N	10/27/2021	10/27/2023	1003.00	81
101381	STRIKE 2	O86N	10/27/2021	10/27/2023	1003.00	81
101382	HOME RUN	O86N	10/27/2021	10/27/2023	1003.00	88
101383	MAC (Hope Lake)	O86N	10/27/2021	10/27/2023	1036.23	84





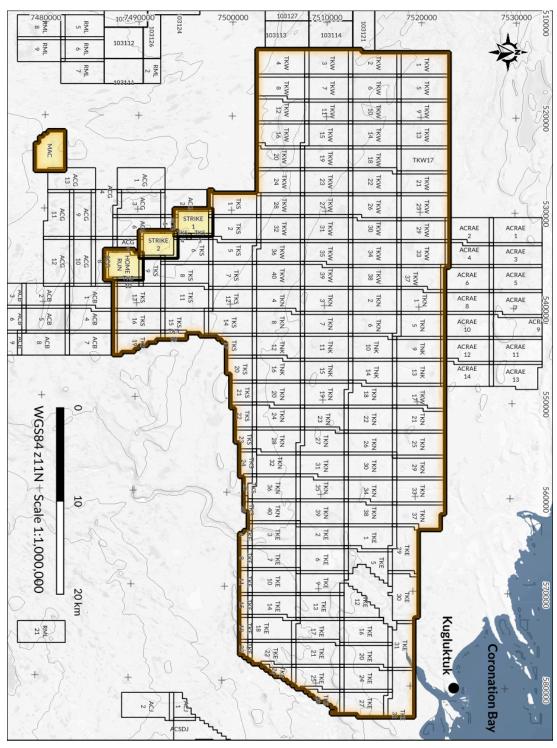


Figure 1. Map showing Tundra Copper's Coppermine Project claims and Project outline (in bold) as of February 2024, highlighting those described within this report.



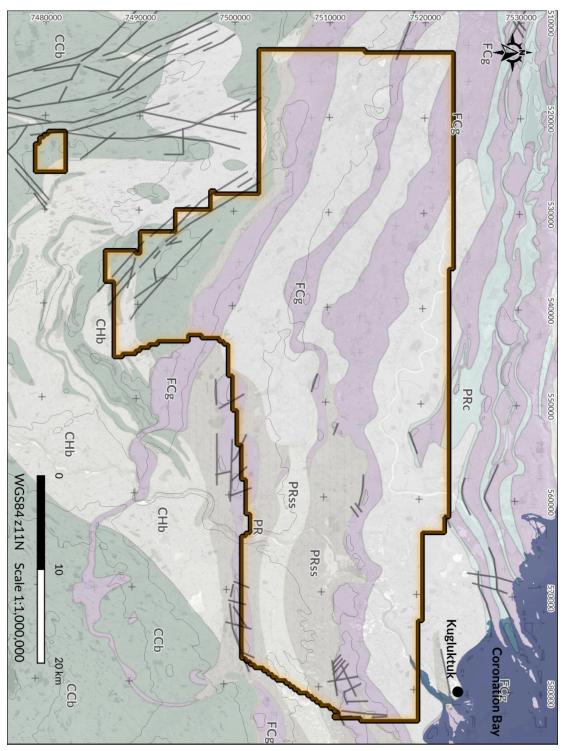


Figure 2. Map showing Tundra Copper's Coppermine Project outline (in bold) and Regional Geology as of February 2024, highlighting those described within this report.



#### **4 LOCAL INFRASTRUCTURE**

The town of Kugluktuk is the closest permanent settlement to the Coppermine Project (~70 km northeast), situated on the coast of the Arctic mainland with the Coronation Gulf at the mouth of the Coppermine River (Lat. 67°49′N, Long. 115°06′W). Kugluktuk has a population of 1,450 (2011 census), basic services including a mechanic shop, hotel, grocery store, and a commercial airport with daily scheduled flights from Yellowknife, NWT.

#### 4.1 Climate and Physiography

#### 4.1.1 Climate and Air Quality

The Project experiences a maritime Arctic climate characterized by short cool summers and long cold winters. The mean annual air temperature is -12°C. Monthly averages range from -31°C in February with zero hours of sunlight, to 10°C in July with 24 hours of sunlight. Kugluktuk receives about 202 mm of precipitation per year, of which 100 mm falls as rain, mainly in the months of June through to September. Spring thaw snow melt and break-up of the inland lakes and rivers is usually completed by mid-July, while freeze-up commences in mid-September. Periods of fog and low visibility tend to occur through September-October.

#### 4.1.2 Permafrost

The entire Project area is underlain by continuous permafrost. This has been measured to depths of ~160 m in glacial sediments, with ground temperatures just below the surface (~5 m) ranging from 5°C in July to -15°C in February. Landforms related to the seasonal surface freezing and thawing of permafrost include 'rock jumbles', frost heaved piles of rock, and 'thaw ponds', small surficial pools of water.

#### 4.1.3 Vegetation

The Project area is predominantly treeless and categorized as southern arctic tundra, also known as the 'Barren Grounds'. Vegetation consists mainly of grasses, lichens, low shrubs, mosses and various arctic flowering plants. A few spruce, willows, alders and ground birch can be found in sheltered niches along the Coppermine River as far north as Bloody Falls but in limited abundance. On upland terrain, the open taiga woodland (treeline) begins approximately 150 km south of the Project area.



#### 4.1.4 Terrain and Bedrock Geology

The Project covers an undulating landscape that ascends south from the Coronation Gulf coastal lowlands to 550 m elevation in the highlands of the Coppermine Mountains. The lowland area is composed of sedimentary rocks, which are cut by a series of east-west trending intrusive igneous sills that form prominent ridges with cliff-like southern faces. The Coppermine Mountains are composed of volcanic rocks that form plateau like highlands.

The Coppermine River flows through the Project area, where it has cut a steep sided gorge that widens into a broad plain as it nears Kugluktuk and the Coronation Gulf.

Glaciation has excavated the topography of both the highlands and lowlands, and has deposited extensive glacial sediments ('till') that cover the majority of underlying bedrock. Landforms produced by glacial deposition include glaciolacustrine and glaciofluvial features including 'eskers', sinuous ridges of sand and gravel that occur in the lowland areas, and 'till plains' composed of silt and glacial rock debris.

#### 4.1.5 Hydrology and Water Quality

Water bodies that occur within the Project area include the Coppermine River along with small streams and multiple small to large lakes. The Coppermine River holds a flow-regime with influence from lake storage; the river experiences limited winter base flow with the highest flows of the year in spring following rapid snow melt (AANDC - Moïse Coulombe-Pontbriand et al, 1998). The river channel has eroded through both bedrock and glacial sediments, depositing extensive fluvial sediments in portions of the greater Project area. Landforms associated with the incision by the river include steep sided gorges/gullies and braided river patterns.



#### **5** Exploration History

Explored for copper in the Coppermine River has persisted for over three centuries. The Inuit had used and traded the native copper before the area came to the attention of the European and English settlers, and the Hudson Bay Company in the early 1700's. Samuel Hearne reached the Coppermine River in 1771 and reported finding a four-pound copper nugget (Hearne, 1792).

Members of the Geological Survey of Canada performed reconnaissance scale mapping of the Coppermine River area in 1916. From the late 1920's to 1950, NAME (Northern Aerial Minerals Exploration company) and others carried out limited prospecting and staking. The Bornite Lake (Copper Lamb) occurrence was the first documented drill location, followed by drilling of the Dick mineralized breccia in 1944 by the American Metals Company.

From 1951 to 1960, the Coppermine area was sporadically explored by Pickle Crow Mines and other exploration companies. In 1959 the Geological Survey of Canada mapped the Coppermine River basalt belt at a scale of 1:250,000, as part of a larger regional project (Fraser, 1964).

The largest staking to this point in Canada's history started in 1966 and spread to the east into the Bathurst Inlet area, sparked by drill results from the Bornite Lake (Copper Lamb) and Area 47 (Dot 47) mineral showings. Coppermine River Limited, Hearne Coppermine Explorations Limited, and Teshierpi Mines Limited were the largest landholders in the area. Coppermine Rive Limited reported an estimated 4,106,000 tons grading 3.07% copper in a vertical, tabular body 1,500 feet long and 35 feet wide at the Area 47 site situated along one of the faults of the Teshierpi fault zone (Kindle, 1972).

In 1967, a consortium of mineral claimants in the area commissioned an airborne electromagnetic and magnetic survey covering the extent of the Coppermine River basalts (Huntec, 1968). For five years following the rush, companies performed trenching, geophysical surveys, and drilling at many of the mineral showings throughout the entire district; principally those hosted along small veins, fractures and in quartz lodes.

During and following the 1966-68 period, the magnetism of the Coppermine River basalts and the Muskox Intrusion were investigated (Robertson, 1969); Baragar (1966 and 1969) undertook a detailed study of the petrology and geochemistry of the Coppermine River basalts; Baragar and Donaldson reported updated maps of the area in 1973; Thorpe (1970) compiled the results of submitted assessment files, and Kindle (1972) compiled the information on the copper occurrences, showings and deposits to arrive at a regional Coppermine River District mineral





digest and genetic classification scheme. The Bornite Lake, Area 47, and Muskox sites were converted from claims to mineral leases.

Mineral exploration ceased by 1970 coinciding with falling copper prices shortly prior to the OPEC oil embargo against Canada and the US in 1973.

The area remained dormant for nearly 20 years until Baragar and Hildebrand revisited and published a structural study of the Coppermine River basalts in 1991, and the Noranda Exploration Company and Cominco Mines Limited revisited the area's potential for stratiform copper mineralization within the overlying Rae Group sediments in 1991 and 1992, respectively (Rees, 1991, and Wagner, 1993).

Barager et al (1996) illustrated that the Mackenzie River Dyke Swarm and the Coppermine River Basalts could be consanguineous, laying the groundwork for a deeper lithogeochemical study that links the Coppermine River basalts with Muskox intrusion by Grislen et al (1997).

By 2000, the government of Canada formed an agreement with regional Inuit organizations that assigned surface and/or subsurface rights to numerous tracks of land across the northern territories to the Inuit people. The coalition of regional Inuit associations became known as Nunavut Tunngavik Incorporated; the Kitikmeot Inuit Association is the regional Inuit association for the Coppermine River area. Until 2008, Coronation Metals, its subsidiaries, and several other claimants held mineral claims and several leases in the region.

In 2013 Tundra Copper Corporation was formed as a small private company to explore the mineral assets of the Coppermine area. Withdrawals from mineral exploration and COVID delayed work and control of the claims and Tundra Copper Corp were subsequently granted to Durango Gold in November 2023.

Expansive mineralization discovered along the Coppermine River spawned a staking rush in the 1960's- the largest by that time in Canadian history. Lacking accessibility prevented development of the area; recent climate change and improving conditions of the shipping lanes during summer have renewed the project's potential for development.

General exploration efforts in 2013 comprised collecting samples for geochemical assay. After staking several blocks of claims over highly prospective targets, Tundra conducted several field reconnaissance missions in the area, the data from which are presented in an earlier Assessment Report.

In 2015 Tundra Copper Corporation performed a small diamond-drill campaign utilizing a helicopter-portable ETR-2000 fly-rig from mid-July to August. Seven (7) drill-holes totaling 2063



cumulative meters were completed. Detailed mapping, prospecting and rock-grab sampling were conducted over a further ~20 volcanic-hosted copper prospects. Work was carried out by Kaizen Discovery geologists Sarah Clay, Nicholas Kerr, John Prince and Zach Flood.

Diamond drilling in the greater area intersected narrow zones of high grade copper in quartz lodes and wide zones of sediment hosted copper along the lower contact of the Rae group sediments with the Coppermine River Group basalts. Unfortunately, results from the exploration program in 2015 were not reported and are considered as historical reference only.

#### 6 GEOLOGY

The regional stratigraphy of the western Nunavut region is Meso-Neoproterozoic in age, unconformably overlying early Proterozoic rocks of the Wopmay Orogen within the Bear Magmatic Province (Baragar et al., 1996).

The Project overlies a north dipping syncline within a broader, gently north-dipping homocline that extends for over 400 km from west to east (Kerans et al., 1981). Numerous volcanic and sedimentary-rock hosted copper showings sit within the Neoproterozoic age flood basalts and red bed sandstones of the Coppermine River Group and in the overlying Rae Group siliciclastic sedimentary rocks (Figure 2 and Figure 3).

The Coppermine River basalts likely formed during the Mackenzie igneous event, centered over and in response to an evolving magmatic plume at the focus of the radial Mackenzie Dyke swarm dated 1267+/-2 Ma (Griselin et al., 1997, Ernst and Baragar, 1992), and the Rae sediments in a subsequent basin-forming extensional event.

## **6.1 CCb: Copper Creek Basalts**

The Copper Creek Formation is 2,500-3,500 m thick, and is composed of over 100 stacked basalt flows characterized by massive bases with amygdaloidal flow top breccias. The stacked flood basalts are well exposed in topographic highs where they form prominent ridges with gently dipping northern slopes and steeply terraced southern slopes.

The southern slopes are composed of a series of massive basalt cliffs topped by flat terraces formed from the erosion of the amygdule and flow top breccia units. The basalt flows dip between 3° - 10° to the north and generally have an east-west strike. Barager (1969) identified geochemically distinct lower, middle, and upper units in the basalts: the upper basalt unit is geochemically enriched in copper relative to the two lower units.





#### 6.2 CHb: Husky Creek Red Beds- Sandstones, Siltstones and Basalts

The Copper Creek Formation is overlain by the approximately 1,200 m thick Husky Creek Formation, which consists of oxidized red bed sandstones and siltstones with minor interbedded basalt flows. The red beds contain abundant specular hematite and locally veins of magnetite. The interbedded basaltic flows frequently contain native copper as disseminations, thin veinlets, and as a filling in amygdales. The basalts and red bed sandstones and mudstones near the top of the Husky Creek Formation contain pervasive epidote alteration.

## 6.3 PR: Rae Group Sediments (PR, PRss, PRc)

The Copper Creek volcanics and the Husky Creek red beds are unconformably overlain by Rae Group siliciclastic rocks (PR). At the base, a one-three meter thick unit of coarse-grained immature sandstones, gravels, and lesser conglomerates overlie the unconformity and frequently contain minor disseminated copper sulfide.

The lower Rae Group sedimentary rocks fine upward into cross bedded sandstones and silty-mudstones (PRss). Intraformational coarse-sandstone and pebble conglomerate units are common within the more hummocky sandstone intervals. The uppermost intervals of the Rae Group are characterized by carbonate-rich matrix and material within the sediments (PRc).

#### 6.4 Fcg: Coronation Gabbro & Diabase Sills

The Rae Group sequence is intruded by the Coronation diabase dikes and sills, which are related to the Franklin Igneous Event and have been dated at 723±4 Ma (Haemane et al., 1992). Both the Husky Creek and Rae Group sediments are recessive and only form outcrops where they are overlain by the resistive Coronation Sills. The Rae Group sediments and Coronation sills gently dip to the north and the best outcrop exposures are located on the south facing escarpments.





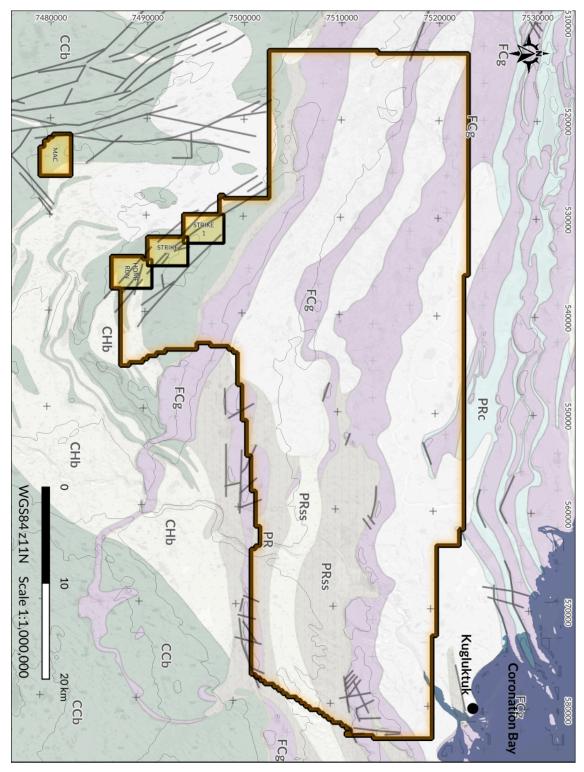


Figure 2. Regional geology of the Coppermine River area. See text for unit descriptions.



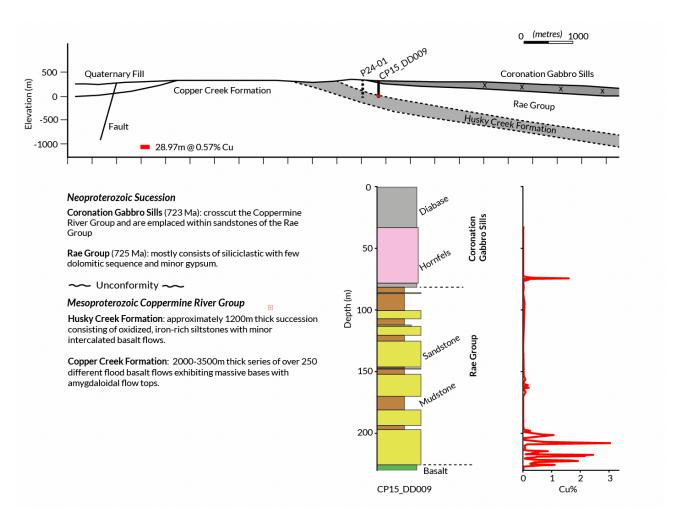


Figure 3. Stratigraphic section and schematic cross section from south to north through the Coppermine Project.

#### 6.5 Structure

Many of the faults in the greater area can be inferred from regional magnetics (Figure 4, Bankey 2002). One of the most prominent older structures is an apparent north-dipping syncline in the Coppermine River Group (Figure 2); this syncline, herein referred to as the Copper Leaf syncline, is a broad, open fold located in the center of the district that exposes the Husky Creek sedimentary rocks in its core, and the structure is not as apparent in the overlying Rae Group sediments.

Major faults in the region are oriented at approximately 340° and 60° azimuths. These faults sit within orientations both parallel to the trend of fold compression and axial planar to the syncline. The Teshierpi fault. for example, exhibits apparent left-lateral motion in tandem with its orientation as 'S' folds on the western edge of the syncline.



The major faults interpreted and inferred from the magnetics and regional mapping are: the Strike Lake, Long Lake, and Teshierpi Fault Zones. These lineaments have lengths traceable over 10's of kilometers. Mineralized lodes occupy many of these primary structures and mineralized quartz veins occupy second-order dilational zones along these structures where exposed in the Copper Creek basalts. These faults isolate the magnetics and geology into several distinct blocks that may form the foundation for future modeling and interpretation, but are used herein as reference terms only.

Steeply dipping faults crosscut all stratigraphic levels of rocks that pre-date the Rae Group sediments, and appear to have played a significant role in concentrating copper mineralizing fluids. The faults are easily recognized in outcrops as they form glacially scoured recessed valleys and notches.

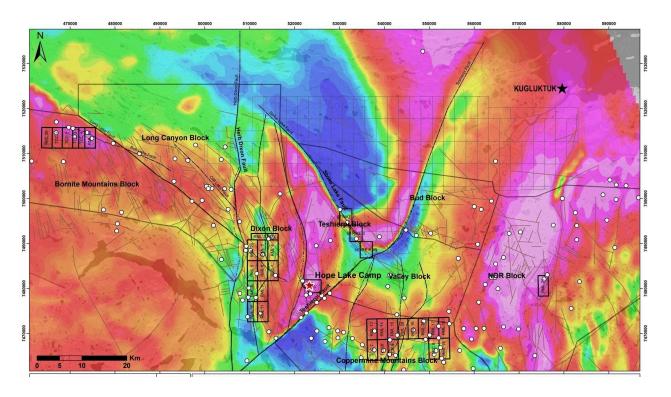


Figure 4. Coppermine structural and stratigraphic blocks displayed over 200m line spaced aeromagnetic data.



#### **6.6 Mineralization Styles**

The Coppermine area displays several styles of copper mineralization which can be divided into two broad groups:

- volcanic-hosted structurally controlled mineralization, and
- sedimentary-rock hosted copper mineralization.

Chalcocite is the dominant copper sulfide followed by bornite and chalcopyrite. Copper sulfides grade outward to galena-sphalerite ± pyrite and pyrrhotite. The Rae Group sedimentary rocks contain abundant nodules and disseminated pyrite and pyrrhotite in dark argillaceous intervals.

Copper mineralization in the volcanic rocks and to a lesser degree in Rae Group sedimentary rocks is associated with an alteration assemblage of quartz, calcite, buff colored carbonate, red feldspar (hematite stained K-feldspar?), magnetite and actinolite.

Hematite (as specularite) and infrequently magnetite veins are observed distal to copper mineralized rock and are most common in oxidized Husky Creek red beds. Pervasive epidote alteration of Husky Creek red beds and basalts is observed below the Rae Group unconformity. Epidote is also observed in thin veins and as an amygdule filling in the Copper Creek basalts. Zones of epidote alteration in the Keweenaw Peninsula are recognized as being formed from dehydration during prehnite-pumpellyite facies metamorphism which also resulted in the mobilization of copper and zinc (Jolly, 1974).

Rae Group sediments adjacent to the Coronation sills and dikes are hornfelsed and are silicified and altered to biotite, epidote, and magnetite. Additionally, the hornfelsed sediments adjacent to the intrusions develop a very strong slatey cleavage. The diabase sills pinch and swell along strike and range in thickness from several tens to over 100+ meters. The sills are not confined to specific stratigraphic intervals and in places dip along strike through stratigraphy.

Quartz-carbonate-copper sulfide veins are common along fault zones in the Copper Creek basalts. The veins do not usually extend into the overlying Rae Group sediments, but sediments proximal to structures often contain disseminated copper sulfide.





## 7 AIRBORNE SURVEY EQUIPMENT AND PARAMETERS

#### 7.1 Precision GeoSurveys (Magnetic VLF-EM)

#### 7.1.1 Instruments and parameter setup

The instrumentation utilized for the 2024 survey comprises both magnetic and VLF receivers.

A Scintrex CS-3 split-beam vapor magnetometer and a Billingsley TFM100G2 Ultra Miniature Triaxial Fluxgate Magnetometer to record magnetics data were mounted on the front of the helicopter in a non-magnetic and non-conductive "stinger" configuration to measure total magnetic intensity. The Scintrex CS-3 magnetometer sensor was oriented at 45° to couple with the local magnetic field at the Coppermine River survey areas.

The magnetometers utilized two GEM GSM-19T base station magnetometers during surveying to monitor and record temporal variations of Earth's magnetic field. The base stations were located in an area with low magnetic gradient for optimum survey data.

The very low frequency electromagnetic (VLF-EM) receiver air-cored coils including a GEM Systems GSM-90AV receiver system to record the survey. The Nuvia Dynamics Integrated Multi-Parameter Acquisition Console (IMPAC) Data Recorder System was the main computer used in the integrated data recording, data synchronizing, and navigation information for the pilot, and operator display systems.

A laser altimeter (Opti-Logic RS800 Rangefinder) to record terrain clearance. This antenna was attached to the aft end of the magnetometer boom.

A GPS navigation system was used to direct the helicopter during the flight. Equipment included a Hemisphere R330 GPS receiver, Nuvia Dynamics IMPAC Data Recorder System, operator display, and a Novatel GPS antenna attached to the helicopter tail.



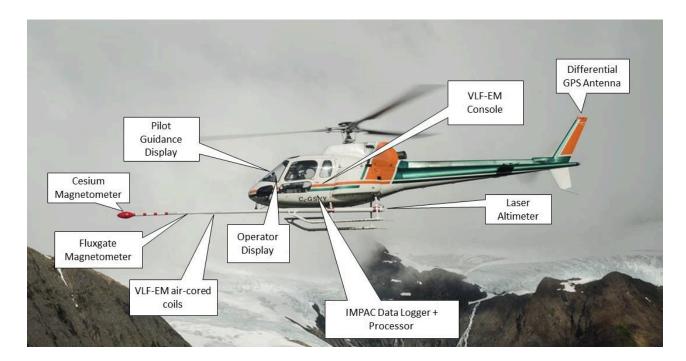


Figure 5. Survey helicopter equipped with a magnetic sensor and VLF-EM receiver.

#### 7.1.2 Calibration of the Laser Altimeter and Magnetometer

The Opti-Logic RS800 laser altimeter used on the survey was tested and calibrated using a series of fixed ground measurements prior to starting the survey. This ensured that heights reported by the laser were accurate within the normal survey operating range.

The magnetometer was tested and calibrated with a series of dedicated flights to correct instrument offset errors and effects of aircraft movement, speed, and heading direction. To reduce noise influenced by aircraft attitude and permanent magnetization of ferrous aircraft components, the aircraft was degaussed using proprietary technology prior to the survey and the remaining magnetic noise was removed by an 18-term polynomial process called magnetic compensation.

#### 7.1.3 Lag test of the VLF-EM system

A lag test was performed to determine the time difference between recording the digital readings from the magnetometer, laser altimeter, VLF-EM, and readings obtained by the GPS system. The test was flown in reciprocal headings over visually and physically identifiable features at survey speed and height to isolate position changes.



#### 7.1.4 Data Acquisition

The Coppermine River Block A survey block was flown at 250 m line spacing at a heading of 000°/180°; tie lines were flown at 2500 m spacing at a heading of 090°/270°. The survey height was 30 m constant above ground level.

Survey data were transferred from the aircraft's data acquisition system onto a USB memory stick and copied onto a field data processing laptop on a flight-by-flight basis. The raw data files in Nuvia PEI binary data formats were converted into Geosoft GDB database format. Data was inspected using Geosoft Oasis Montaj 2021.2.1.11 to ensure compliance with contract specifications.

#### 7.2 Flight Line Specification

The survey area flight line direction with respect to the WGS84 UTM Zone 11N projection covered a total area of 13 km<sup>2</sup> for Block A and 38.2 km<sup>2</sup> for Block B.

Table 2. Survey flight line specifications for Coppermine River survey Block A survey.

Coppermine River Survey Block	Area (km²)	Line Type	Line Orientation (UTM grid)	Line Spacing (m)	No. of Lines Planned	No. of Lines Completed	Total Planned Line km	Total Actual km Flown
		Survey	000°/180°	250	17	17	51	51
Block A	13.0	Tie	090°/270°	2500	2	2	7	7
		Total:			19	19	58	58

Table 3. Polygon coordinates for the Coppermine River Block A survey, WGS 84 UTM Zone 11N.

Latitude (deg N)	Longitude (deg W0	Easting (m)	Northing (m)
67.45452	116.49386	521656	7482138
67.45456	116.39228	526002	7482182
67.42539	116.39228	526034	7478930
67.42537	116.46259	523022	7478900
67.42953	116.46259	523018	7479364
67.42953	116.47823	522348	7479358
67.43369	116.47824	522344	7479822
67.43369	116.48604	522010	7479819
67.43785	116.48604	522006	7480283
67.43785	116.49386	521671	7480280



Table 4. Survey flight line specifications for Coppermine River survey Block B.

Coppermine River Survey Block	Area (km²)	Line Type	Line Orientation (UTM grid)	Line Spacing (m)	No. of Lines Planned	No. of Lines Completed	Total Planned Line km	Total Actual km Flown
		Survey	000°/180°	250	31	31	151	155
Block B	38.2	Tie	090°/270°	2500	5	5	16	16
		Total:			36	36	167	167

Table 5. Polygon coordinates for the Coppermine River Block B, WGS 84 UTM Zone 11N.

Latitude (deg N)	Longitude (deg W0	Easting (m)	Northing (m)
67.59622	116.29854	529834	7498016
67.59620	116.22822	532825	7498050
67.56287	116.22822	532871	7494334
67.56290	116.17354	535200	7494367
67.52956	116.17353	535250	7490651
67.52956	116.11885	537582	7490683
67.49206	116.11883	537642	7486503
67.49205	116.19698	534304	7486456
67.52121	116.19697	534262	7489707
67.52543	116.19683	534262	7490177
67.52536	116.24384	532257	7490144
67.55869	116.24385	532211	7493860



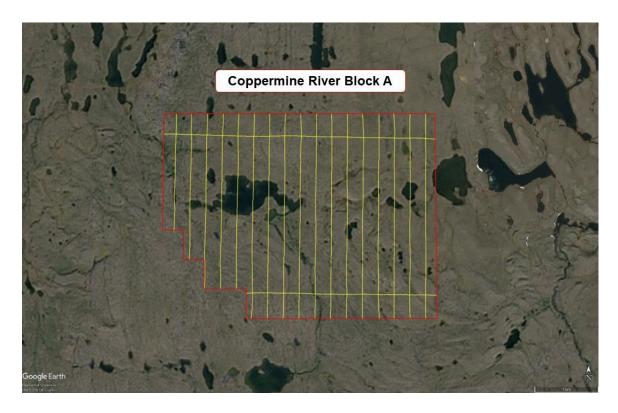


Figure 6. Coppermine RIver survey Block A with actual flight lines in yellow and survey block boundary in red. Dimensions are approximately 3.5 km wide by 3.3 km high.



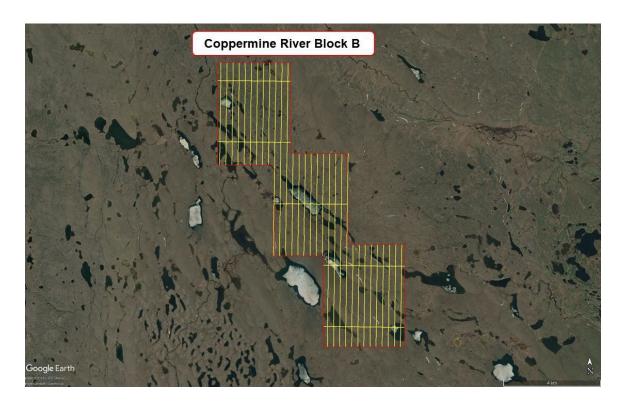


Figure 7. Coppermine River survey Block B with actual flight lines in yellow and block boundary in red. Dimensions of each block are approximately 3.3km wide by 3.5km high.



## 8 RESULTS

#### 8.0.1 Precision GeoSurveys Survey

The reports for the surveys described produced by Precision GeoSurveys can be found in Appendix C, and a complete compilation of all the maps and data provided by Precision GeoSurveys can be found in Appendices D. The reports and data are separated into two survey blocks: Block A (Mac Claim) and Block B (Strike 1, Strike 2, and Home Run Claims).

Precision Geosurveys provided the following data and map products for each of the survey blocks:

- Magnetics
  - o AS (Total Signal)
  - TMI (Total Magnetic Intensity)
  - CVG (Calculated Vertical Gradient)
  - CHG (Calculated Horizontal Gradient)
  - RTP (Reduced-to-Pole)
  - o RMI (Residual Magnetic Intensity Mean)
- VLF
  - Channel 1 IP (In Phase VLF)
  - Channel 1 OP (Out of Phase VLF)
  - Channel 2 IP
  - o Channel 2 OP
- Elevation
  - DTM (Digital Terrain Model)

Anomalies and lineaments within the magnetics data are strongly coincident with predicted and projected geologic features including faults, contacts and other boundaries of bedrock significance. Furthermore, features having sharp boundaries grading into diffuse boundaries implicate dips within the bedrock.

Preliminary observations of the magnetics results are that this is a highly effective method for delineation of lithology, alteration, contacts, and structures.

The VLF method is limited to shallow investigation, reaching up to a maximum of 10 - 15m depth only, and is further restricted by any highly conductive anomalies present in the surface or bedrock. This far north, however, the VLF signals were very weak due to distance to/from source transmitters in Alaska and North Dakota, and the VLF data and maps are difficult to interpret.



Preliminary observation of the VLF results from this data indicate that faults, contacts and other significant boundaries only rarely and weakly coincide with strings of anomalies, or not at all; the Author(s) do not encourage the VLF method for use this far north; and the results will not be described in this Report.

#### 8.1 Block A: Mac Claim

The total magnetic intensity results from the Mac Claim (Figure 8) align very well with the interpreted geologic folding and strike of the host rocks (Figure 9). There is a strong alignment of a lineament exhibiting moderate magnetic lows (blue-green, Figure 9) along contact of the Copper Creek basalts (CCb) with the Husky Creek redbeds (CHb), which indicates that the contact between the two was oxidized or otherwise magnetically destructive, and that the TMI investigations can be used to map out contacts among these two units.

Additionally, very strong magnetic lows (blue, Figure 9) align with an inferred basement-scale fault (black line, Figure 9) and a sliver of Rae Group sediments mapped by Kindle (1972) striking north-south along the western edge of the Mac claim. Another strong low striking east-northeast sits along the south eastern edge of the Mac claims as well, implying the presence of another significant fault not yet mapped at surface.

Figure 9 also shows the location of the DOT 13 & 20 mineral occurrence from the Nunavut Geosciences NUMIN database, also known as the Circle Lake No. 2 and No. 3 occurrences or the Kindle #61 site (Kindle, 1972), who reports "frost-heaved blocks over 60' wide x 250' long; grayish-white amygdaloidal basalt up to 90% calcite, 1-4% Cc, py and pink feldspar, quartz veinlets; N20E; flow top rocks up to 2% Cc. Circle Lake No. 2: likely connects with No. 3 under lake; oval-shaped outcrops of 20' wide by 50' long, Cc avg to 3%."

#### 8.2 Block B: Strike 1, Strike 2 & Home Run Claims

TMI magnetics and the accompanying deliverables from Block B, the Strike 1, Strike 2, and Home Run claims, clearly identify a significant northwest-striking anomaly interpreted as a right-lateral fault due to the offset and arc-like shape of the magnetic features (Figure 10).

The CAM, WIL and PENNY occurrences all describe chalcocite mineralization located within the matrix and amygdules of basalt flow tops within the CHb/CCb basalts and sediments adjacent to the Strike Lake fault (Figure 11).



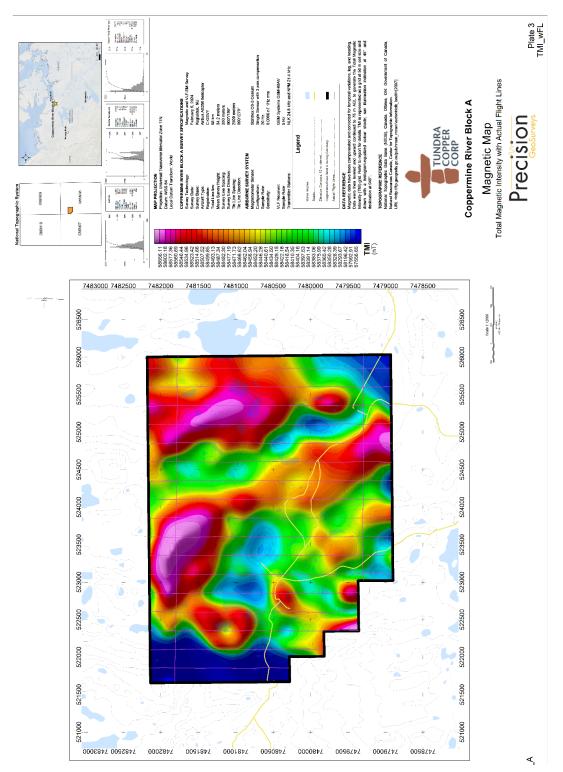


Figure 8. Heatmap of the total magnetic intensity (TMI) geophysics results from the Mac claim (Block A).



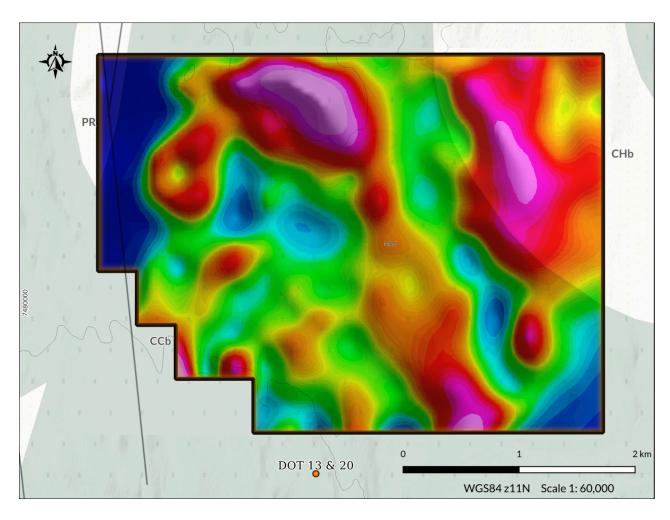


Figure 9. Heatmap of the TMI geophysics and geology from the Mac Claim (Block A). Black lines indicate inferred faults; the approximate location of the Dot 13 & 30 mineral occurrence shown as a dot.



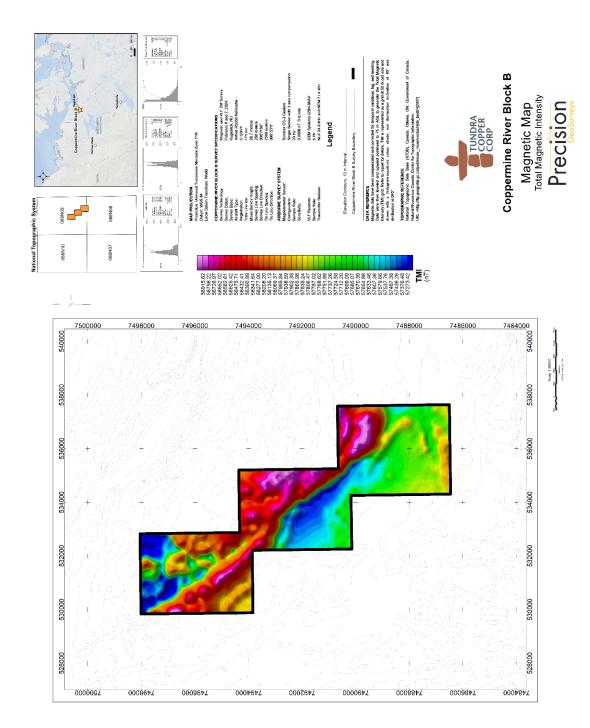


Figure 10. Heatmap of the total magnetic intensity (TMI) geophysics results from the Strike 1, Strike 2, and Home Run claims (Block B).



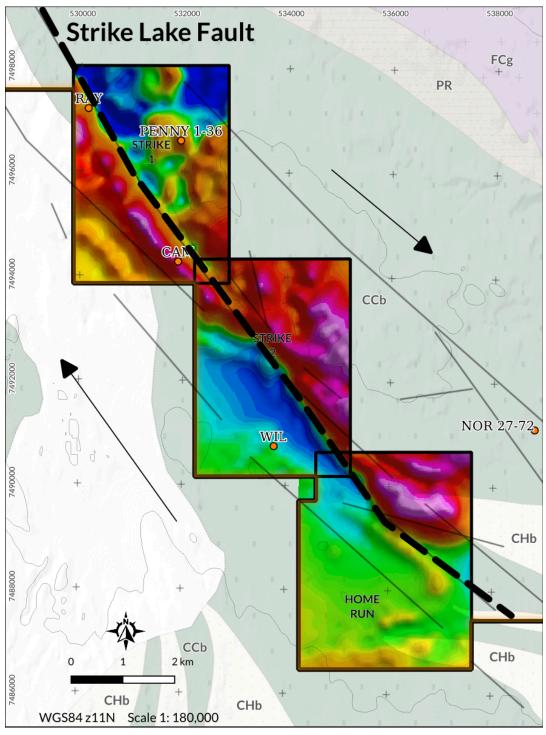


Figure 11. Heatmap of the TMI geophysics results and geology of the Mac claim. Black lines indicate inferred faults and the approximate locations of the mineral occurrences (dots).



#### 9 Conclusions and Recommendations

This report presents the results of a helicopter-borne geophysical survey conducted over the Coppermine River Project for Ethos Geological between February 1<sup>st</sup> and 9<sup>th</sup>, 2024. Precision GeoSurveys mobilized equipment from the Kugluktuk airport, set-up, calibrated, and completed a 58 line km for the Block A VLF-EM survey, and a 171 line km for the Block B VLF-EM survey.

The Rae Group sediments (PR) and their intercalated mafic sills (FCg) are poorly magnetic. The Copper Creek basalts (CCb) and the Husky Creek red beds (CHb) are strongly and moderately magnetic, respectively. Therefore, magnetic features and anomalies in areas overlain by the Rae Group sediments likely represent fragments of the basement comprising basalt (CCb, CHb) underlying the Rae Group sediments.

Modeling of these basalts and their bounding faults will support clearer interpretation of the geology and structures influencing mineralizing fluids.

Future fieldwork and research researchers are encouraged to focus upon geologic mapping to confirm the lithological anomalies and structural relationships defined by this survey to refine and create a more comprehensive understanding of the geology across the Coppermine River Project.

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## APPENDIX A: STATEMENT OF QUALIFICATIONS

Scott Close, M.Sc., P.Geo Ethos Geological 7 Annette Park Drive Bozeman, MT 59715, USA

I, Scott Close, do hereby certify:

THAT I am principal and the President of Ethos Geological, Inc., since 2010.

THAT I am a Geoscientist contracted by Tundra Copper Corp., with an office at 654-999 Canada Place, Vancouver, BC, Canada, V6C 3E1.

THAT I am a graduate of Montana State University (2004) with a Bachelor of Science degree in Earth Science, and a graduate of Simon Fraser University in Burnaby, British Columbia (2006) with a Master of Science degree in Earth Science.

AND I have practiced my profession continuously since 2004.

THAT I am a registered Professional Geologist and a member in good standing with the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC, #158157) and have been so since 2012.

THAT I am a licensed Professional Geologist with the Northwest Territories and Nunavut Association of Professional Engineers and Geoscientists (NAPEG, License # L3132) for the years 2015, 2016, and reinstated in 2023.

THAT I am an author of this report, the report is based on publicly available reports, maps, and on original interpretation and data acquired under my supervision.

Dated this 20<sup>th</sup> day of February, 2024.

Scott J. Close, M.Sc., P.Geo





# APPENDIX B: STATEMENT OF EXPENDITURES AND PERSONNEL

Exploration Expense type	Comment		Days	USD	CAD	CAD	Totals (CAD)
Office Studies			Total days	Daily Rate	Daily Rate	Subtotal	
Literature search/Historical data compilation	Geologist		1	\$540.00	\$729.73	\$729.73	
Database compilation	Geologist		2	\$470.00	\$635.14	\$,1270.28	
General research	Geologist		5	\$540.00	\$729.73	\$3,648.65	
Report preparation	Geologist		4	\$540.00	\$729.73	\$2,918.92	
						\$8,5467.58	\$8,567.58
Geophysical Surveys	Method	Provider	Number of line km	Cost per line km	Cost per line km	Subtotal	
Helicopter Magnetics	Mag, VLF-EM	Precision Geosurveys	225	\$55.46	\$75	\$16,875.00	
						\$16,875.00	\$16,875.00
TOTAL Expenditures							\$25,442.58
Claim Number	\$/claim						
101380	\$6,360.64						
101381	\$6,360.64						
101382	\$6,360.64						
101383	\$6,360.64						



# APPENDIX C: GEOPHYSICAL REPORTS FROM PRECISION GEOSURVEYS

<SEE DIGITAL FILES>

## APPENDIX D: GEOPHYSICAL DATA FROM PRECISION GEOSURVEYS

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