REPORT ON THE

2002 DRILLING PROGRAM

YUKON OLYMPIC PROPERTY
(HEM-HEG-HM CLAIMS)

Heg 1 - 12	YC21595 – YC21606
Heg 13 - 20	YC21607 – YC21614
~~Hem 1 - 6~~	~~YC19966 – YC19997~~
Hem 89 – 100	YC21442 – YC21453
Hem 101 – 112	YC21532 – YC21543
Hem 113 – 122	YC21454 – YC21463
Hem 123 – 317	YC21615 – YC21809
Hem 317 – 328	YC22062 – YC22073
Hem 318 – 328	YC21810 – YC21820
Hem 329 – 333	YC21821 – YC21825
Hem 334 – 335	YC21826 – YC21827

Registered claim owner: Shawn Ryan

NTS 116-G-01

DAWSON MINING DISTRICT, YUKON TERRITORY

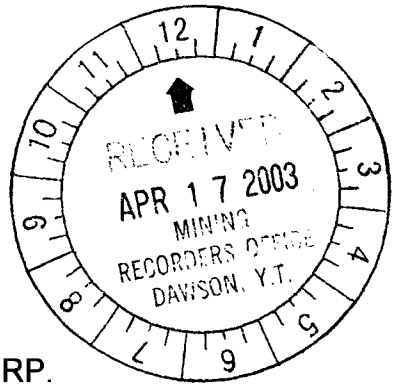
LAT. 138° 00' to 138° 25' N. LONG. 65° 02' to 65° 05' W.

Work on the Property Began Oct. ~~15~~ 30TH and Terminated Nov. 25TH, 2002

by

Brian G. Thurston, BSc. Geology

Vancouver, British Columbia



for

CANADIAN EMPIRE EXPLORATION CORP.

January 20, 2003

094409

This report has been examined by the ... Unit under ... (1) ... Quartz Mining ... and is represented ... amount of $ 27,900

for Regional Manager, Exploration and Geological Services for Commissioner of Yukon Territory.

Costs associated with this report have been approved in the amount of $ 27,900 for assessment credit under Certificate of Work No. 2000461

K. Perry

Mining Recorder
Dawson City Mining District

TABLE A: List of Claims being renewed by claim name and grant number.
Name of the holder of the claims and the name of the Company for whome the work was done.

Claim Name & Number	Grant Number	No. of Claims	Current Expiry Date	Requested Expiry Date	Registered Owner	% Owned	Company Work done for	NTS #'s
Heg 1 - 12	YC21595 – YC21606	12	02-Aug-03	02-Aug-04	R.Allan Doherty	100	Canadian Empire Expl. Corp.	116-G-01
Heg 13 - 20	YC21607 – YC21614	8	08-Aug-03	08-Aug-04	Shawn Ryan	100	Canadian Empire Expl. Corp.	116-G-01
Hem 1 - 6	YC19966 – YC19971	6	02-May-03	02-May-04	Shawn Ryan	100	Canadian Empire Expl. Corp.	116-G-01
Hem 89 – 100	YC21442 – YC21453	12	10-Jun-03	10-Jun-04	Shawn Ryan	100	Canadian Empire Expl. Corp.	116-G-01
Hem 101 – 112	YC21532 – YC21543	12	11-Jun-03	11-Jun-04	Shawn Ryan	100	Canadian Empire Expl. Corp.	116-G-01
Hem 113 – 122	YC21454 – YC21463	10	10-Jun-03	10-Jun-04	Shawn Ryan	100	Canadian Empire Expl. Corp.	116-G-01
Hem 123 – 317	YC21615 – YC21809	195	08-Aug-03	08-Aug-04	Shawn Ryan	100	Canadian Empire Expl. Corp.	116-G-01
Hem 317 – 328	YC22062 – YC22073	12	22-Oct-03	22-Oct-04	Shawn Ryan	100	Canadian Empire Expl. Corp.	116-G-01
Hem 318 – 328	YC21810 – YC21820	11	04-Aug-03	04-Aug-04	Shawn Ryan	100	Canadian Empire Expl. Corp.	116-G-01
Hem 329 – 333	YC21821 – YC21825	5	04-Aug-03	04-Aug-04	Shawn Ryan	100	Canadian Empire Expl. Corp.	116-G-01
Hem 334 – 335	YC21826 – YC21827	2	08-Aug-03	08-Aug-04	Shawn Ryan	100	Canadian Empire Expl. Corp.	116-G-01
The total # of claims listed above to have their expiery dates extended by one (1) year is 285.								

YUKON ENERGY
& RESOURCES
P.O. Box 2703
Whitehorse, Yukon Y1A 2C6

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1.0 SUMMARY

The Yukon Olympic property (formerly HEM property) covers an iron oxide copper-gold (IOCG) target similar to Olympic Dam in Australia which contains a resource of the order of 2 billion tonnes of 1.6% Cu, 0.06% U_3O_8, 0.6 g/t Au and 3.5 g/t Ag (Scott, 1987). The Yukon Olympic property is located in the Ogilvie Mountains in north central Yukon. Recent studies have suggested that the Stuart Shelf area of Australia, a crustal segment that hosts the Olympic Dam Cu-Au-Ag-U deposit, and the Ogilvie-Wernecke trend in the Yukon were a part of the same landmass 1.6 billion years ago. This work also suggests that the breccias and mineralization in both areas formed in response to extensional tectonics and related intrusive activity that affected the entire belt.

Mineralization at Yukon Olympic is associated with hematite-rich breccia as well as intrusive rocks of intermediate to mafic compositions intruding Proterozoic argillite, shale and siltstone. The breccias are known to occur intermittently over a distance of 6 kilometers. Copper mineralization occurs as disseminations and blebs of chalcopyrite within intrusive rocks and with specular hematite in the breccias. Malachite staining is also commonly observed on many talus and outcrop exposures. Limited rock and soil geochemical sampling has indicated a distinctive association with rare earth elements, fluorine, barium and zinc. Further sampling is warranted to more accurately assess the chemistry of this intrusive breccia.

The Yukon Olympic property occurs at a flexure point along an east-west trending regional structure indicated by regional aeromagnetics. The known breccia exposures are related to aeromagnetic and gravity highs that are elongated parallel to this trend, in the central part of the property. The 2002 geophysical field programs defined a +2.0 mGal gravity anomaly approximately 8 kilometers in length and 1 kilometer wide adjacent to a large magnetic anomaly measuring 2.5 by 1.5 kilometers. The gravity highs are believed to reflect hematitic breccia below the Paleozoic cover while the magnetic anomaly may be caused by magnetite-bearing intrusive rocks at depth. This interpretation is strengthened by the fact that the easternmost portion of the gravity anomaly trends into the Spectacular Creek breccia occurrence that contains copper mineralization. The pattern observed at the Yukon Olympic property, with the gravity anomaly being displaced from the magnetic anomaly, is a direct analogue to the Olympic Dam model.

Two diamond drill holes were completed on the Yukon Olympic property during the fall of 2002 during the period October 30th to November 21st. The field party included one geologist and four diamond drill personnel. The first drillhole targeted the smaller westernmost gravity anomaly but did not penetrate the Paleozoic cover and did not explain the gravity anomaly. The second drillhole targeted hematite-bearing breccias located along the Dempster highway. Due to set-up and permitting limitations this drillhole was set up approximately 200 meters from mineralized hematitic breccias observed on surface. This drillhole intersected breccia within the uppermost portion of the hole but did not reach the projected depth extension of the breccia exposed on surface.

A total of $182,339.74 was expended on the 2002 drilling program. Ongoing exploration is warranted and a two-phase targeting and drilling program is proposed with an estimated expenditure of $577,360. In review, Canadian Empire attempted two drill holes during late 2002

into the peripheral area of the target without success, this huge target remains intact for discovery of an Olympic Dam type deposit. During 2003 Canadian Empire plans initial detailed geophysical-geochemical surveys to refine targets prior to initiation of drilling. Canadian Empire has the option to earn a 51% interest in the project from Copper Ridge subject to future back-in rights of Teck Cominco Limited.

2.0 INTRODUCTION

2.1 Property Description and Location

The Yukon Olympic property consists of 389 claims (approximately 8,300 hectares) located in the Ogilvie Mountains approximately 134 kilometers north-northeast of Dawson City in north central Yukon (Figure 1). The claims are centered at 138° 12' north latitude and 65° 03' west longitude covering Cambrian to Devonian age sedimentary rocks as well as several copper bearing hematite breccias of Proterozoic age. The claims straddle the Dempster Highway, from the northwest corner of the claim block north of Engineer Creek at kilometer 161, to the southeast corner east of the Blackstone River at kilometer 142 (Figures 1 and 2).

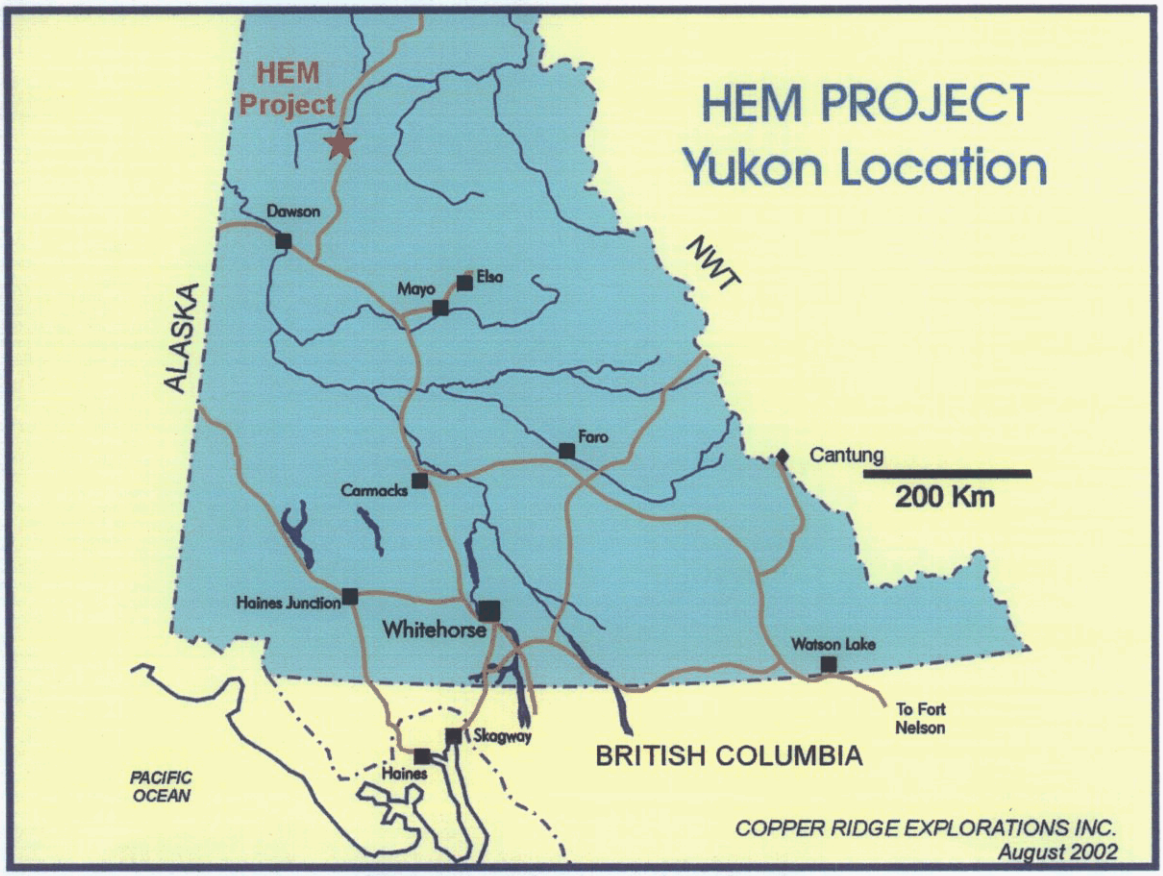


Figure 1. Yukon Location Sketch.

2.2 Accessibility, Infrastructure, Climate, Physiography, and Local Resources

Dawson City is the closest community to the Yukon Olympic property and can adequately support exploration programs in the area. The property is easily accessed by road or helicopter from Dawson City. The average driving time from Dawson City to the property is 2 to 2.5 hours. The Dempster Highway runs through the center of the property along the west of the Blackstone River. The claim area east of the Blackstone River is accessible by boat or by helicopter. Most of the property can be accessed by foot. Federal law restricts motorized-wheeled vehicles from leaving the highway right-of-way.

Elevations range from approximately 850 meters in the Blackstone River valley to approximately 1600 meters on the ridge south of the central part of the property. The property area is covered by permafrost-tundra to sparse treed areas to rocky talus slopes. The majority of the claim group is above treeline. Climate is typical for northern Yukon, with long cold winters, and warm, typically dry summers. Snow accumulation within the property area is normally minimal due to high winds through the pass along the Dempster Highway. By April most of the snow has disappeared.

The exploration field season usually runs from early June until mid-September however geophysical surveys and drill programs can extend the field season from March to October. The migration of the Dempster-Porcupine caribou herd has been known to pass by or through the claim area.

2.3 List of Claims

Yukon Olympic property consists of a total of 389 claims and are listed below:

Claim Name & No.	Grant No.	Expiry Date	Registered Owner	% Owned	NTS #'s
Heg 1 - 12	YC21595 – YC21606	2003/08/02	R.Allan Doherty	100.00	116-G-01
Heg 13 - 20	YC21607 – YC21614	2003/08/08	Shawn Ryan	100.00	116-G-01
Hem 1 - 6	YC19966 – YC19971	2003/05/02	Shawn Ryan	100.00	116-G-01
Hem 1 – 5	YC20973 – YC20977	2007/09/07	Shawn Ryan	100.00	116-G-01
Hem 6 – 78	YC20978 – YC21050	2007/09/07	Shawn Ryan	100.00	116-G-01
Hem 79 – 88	YC21135 – YC21144	2007/11/29	Shawn Ryan	100.00	116-G-01
Hem 89 – 100	YC21442 – YC21453	2003/06/10	Shawn Ryan	100.00	116-G-01
Hem 101 – 112	YC21532 – YC21543	2003/06/11	Shawn Ryan	100.00	116-G-01
Hem 113 – 122	YC21454 – YC21463	2003/06/10	Shawn Ryan	100.00	116-G-01
Hem 123 – 317	YC21615 – YC21809	2003/08/08	Shawn Ryan	100.00	116-G-01
Hem 317 – 328	YC22062 – YC22073	2003/10/22	Shawn Ryan	100.00	116-G-01
Hem 318 – 328	YC21810 – YC21820	2003/08/04	Shawn Ryan	100.00	116-G-01
Hem 329 – 333	YC21821 – YC21825	2003/08/04	Shawn Ryan	100.00	116-G-01
Hem 334 – 335	YC21826 – YC21827	2003/08/08	Shawn Ryan	100.00	116-G-01
HM 1 – 4	YC21189 – YC21192	2003/04/22	Shawn Ryan	100.00	116-G-01
HM 5 – 8	YC21464 – YC21467	2003/06/10	Shawn Ryan	100.00	116-G-01
HM 9 – 12	YC21544 – YC21547	2003/06/11	Shawn Ryan	100.00	116-G-01
HM 13 – 16	YC21468 – YC21471	2003/06/10	Shawn Ryan	100.00	116-G-01

Table 1. List of claims.

2.4 Previous Work (History)

Although the area has been prospected over the years, no previous work on the property is reported prior to 1993. Recent exploration activity is listed below:

1993 - Pamicon Developments Ltd. and Equity Engineering Ltd. jointly conducted a small work program consisting of limited geological mapping, prospecting and soil geochemical sampling. This work was carried out on the Devil claims (now known as HEM 1-6 claims) located on the west side of the Dempster highway at approximately kilometer 134. A total of 21 rock samples and 32 soil samples were collected and assayed.

2002 – Between June and July of 2002, Copper Ridge Explorations Inc. contracted Al Doherty for regional scale mapping in the area east of Blackstone River in the Spectacular Creek valley.

2002 – Between July 13 and August 6, 2002, Copper Ridge Explorations Inc. contracted Shawn Ryan to construct a grid and conduct a magnetic survey on the Yukon Olympic property. A total of 110 kilometers of grid were laid out. A total of 95 kilometers of magnetic survey covered an area of approximately 20km (E-W) by 10km (N-S). The survey identified a large magnetic anomaly measuring 2.5 kilometers by 1.5 kilometers.

2002 – Between July 15 and August 3, Copper Ridge Explorations Inc. contracted Aurora Geosciences Ltd. to conduct a gravity survey on the Yukon Olympic property. A total of 261 points were surveyed in an area of approximately 20 kilometers (E-W) by 10 kilometers (N-S). The survey identified a large Bouguer gravity anomaly measuring 8 by 1 kilometers.

2002- SJ Geophysics Ltd. was contracted in the fall of 2002, to assess the gravity data collected by Aurora Geosciences Ltd. A 4-kilometer by 10-kilometer block was extracted from the raw bouguer gravity data to create an Inversion Model to determine the causative source of the gravity feature. Elevations and gravity readings were processed for input to the gravity inversion program. An inversion mesh comprised of 100 meter by 100 meter by 50-meter cells (north by east by depth) below topography was created. A block model showing the distribution of densities within the inversion mesh defined three high-density targets.

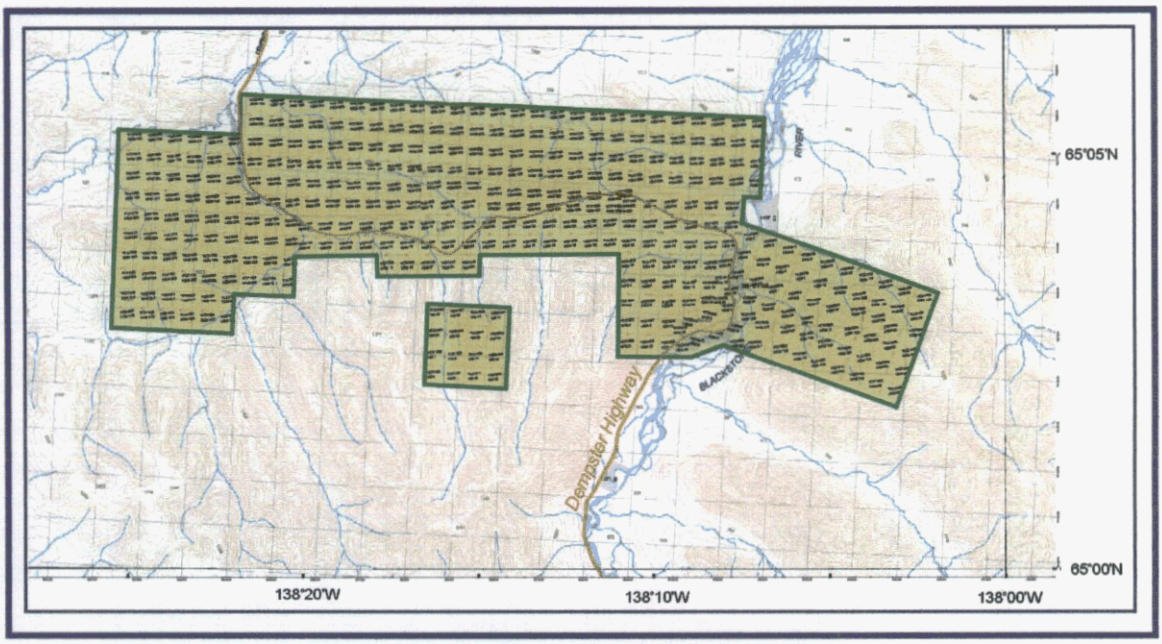


Figure 2. Yukon Olympic claim group.
(**Note:** An additional 12 claims have been staked to fill in the northwest corner of the claim group)

3.0 GEOLOGY

3.1 Regional Geology

Reconnaissance mapping of the Ogilvie River 1:250,000 map sheet (116G & 116F) was conducted by the Geological Survey of Canada (Norris, 1979). The majority of the map sheet consists of strongly deformed marine and lesser non-marine, arkosic sedimentary rocks from Cretaceous to Cambrian in age that unconformably overlie the oldest rocks exposed in the map sheet, consisting of Proterozoic Quartet Group argillite, shale and siltstone. The Proterozoic rocks have been intruded by gabbro and hematite breccia bodies.

The property lies along a regional structure as indicated by regional aeromagnetics. The westerly trend includes the Monster and Olympic IOCG properties, in the Ogilvie Mountains. It can be seen that the Yukon Olympic property occurs at a flexure point along the structure coincident with a large magnetic high, possibly reflecting a buried intrusive center.

Recent studies have suggested that the Stuart Shelf area of Australia, a crustal segment that hosts the Olympic Dam Cu-Au-Ag-U deposit, and the Ogilvie-Wernecke trend in the Yukon were a part of the same land mass 1.6 billion years ago, at the time of breccia formation (Figure 3). This work also suggests that the breccias and mineralization in both areas formed in response to extensional tectonics and related intrusive activity that affected the entire belt.

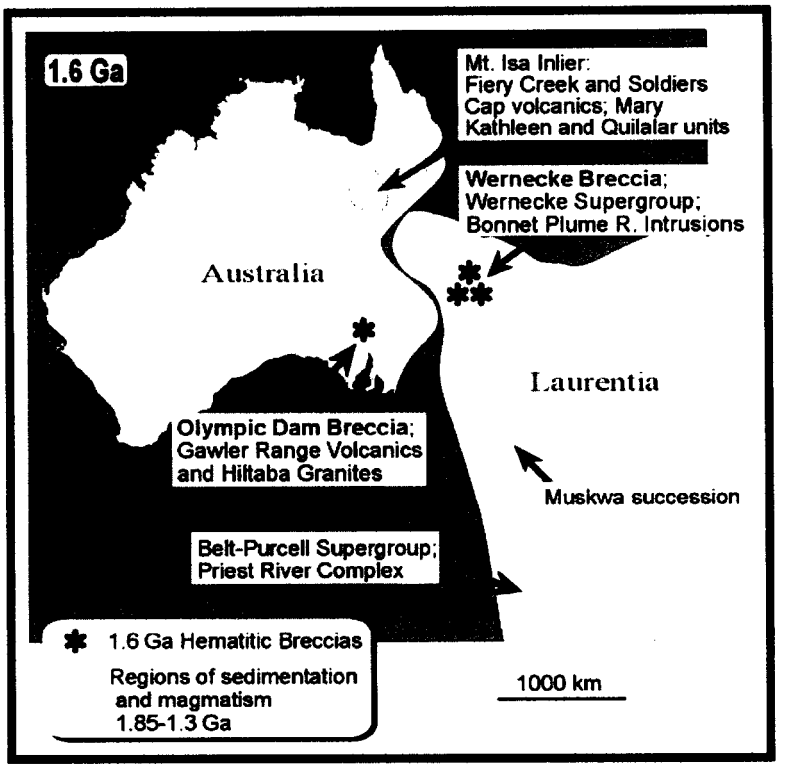


FIGURE 3. Hypothesized land configuration 1.6 billion years ago.

3.2 Property Geology

The Yukon Olympic property is located on the northern limb of the Chapman Anticline, which is bisected by east-west trending thrust faults. The property is underlain by Proterozoic age rocks consisting of argillite, shale and siltstone. These rocks have been intruded by a variety of gabbroic intrusives and related hematitic breccia bodies. The main breccia mass, east of the Blackstone River along Spectacular Creek, covers an area of approximately 1 by 1.5 kilometers, with additional occurrences noted intermittently up to 6 kilometers to the west (see Figure 4). The breccias are of Proterozoic age and correlate with many known hematitic breccias elsewhere in the Ogilvie Mountains as well as in the Wernecke Mountains further to the east.

The Proterozoic rocks are in turn overlain unconformably by Paleozoic sedimentary rocks, consisting of predominantly massive to bedded Cambrian limestone and dolostone overlain by basinal shale to siltstone sequences. The major Proterozoic to Paleozoic unconformity is gently north dipping with an estimated average dip of 8 degrees (Figure 4).

Recent mapping over an area measuring 400 by 900 meters west of the Blackstone River encountered Proterozoic age Quartet Group shale and siltstone intruded by gabbro dykes and hematite breccia bodies with associated IOCG style mineralization (Awmack, 1994). The author sampled this area in 2002. Reconnaissance mapping along Spectacular Creek, east of Blackstone River, delineated similar hematite breccia bodies with associated IOCG mineralization (Al Doherty pers. comm., 2002). Specular hematite is the main iron oxide mineral observed. Chalcopyrite along with malachite staining occurs as a minor constituent within the breccias.

3.3 Deposit Type

The geological setting the Yukon Olympic property is thought to be favorable for hosting Olympic Dam style copper-uranium-gold-silver breccia type deposits. The Olymipc Dam deposit contains a resource of the order of 2000Mt containing 1.6% Cu, 0.06% U_3O_8, 0.6 g/t Au and 3.5 g/t Ag (Scott, 1987). The deposit occurs within a 5 kilometer by 7 kilometer zone of apparently fault controlled brecciation and alteration cored by a diatreme complex and developed entirely within granite dated at 1588±4Ma (Johnson and Cross, 1995). The diatreme is intruded by many ultramafic, mafic and felsic dykes which are temporally related to the diatreme. Economic IOCG deposits in Australian Proterozoic terrains are extremely variable in character ranging from very large (Olympic dam) to small, high grade deposits such as those near Tennant Creek and Eloise in the Cloncurry district. The iron-oxide association varies from magnetite-dominated (e.g. Ernest Henry) to hematite-dominated (e.g. Olympic Dam). Iron sulfides present vary from pyrite (e.g. Olympic Dam, Starra), to pyrrhotite (e.g. Eloise) or both (e.g. Mt. Elliott). Chalcopyrite is commonly the only significant copper mineral but some deposits, such as Olympic Dam and Starra, have hypogene bornite and chalcocite. Copper to gold ratios (Cu:Au) vary substantially among deposits and there is no single consistent minor element association. However, there is a distinctive association with fluorine, barium, rare earth elements and uranium. Cobalt and molybdenum are commonly present at near economic levels while bismuth shows a specific and extreme enrichment in certain deposits. Some deposits also contain amounts of arsenic that become a concern in smelting (Oreskes and Hitzman, 1993).

3.4 Mineralization

Mineralization within the Yukon Olympic property is associated with hematitic breccias exposed at several locations within the property. The largest exposure is an area measuring approximately 1.5 by 1 kilometers within the Spectacular Creek valley, east of the Blackstone River (Figure 4). The breccias occur within the Proterozoic shale and siltstones just below an unconformity with overlying Paleozoic carbonate rocks. Although detailed study of the breccia bodies has not been carried out, there appear to be two distinct varieties. One type is a pink to pale colored multilithic breccia with disseminated hematite common in a fine-grained matrix, while the other is darker green, chloritic variety and often has more massive hematite. The latter breccia variety is associated with mafic intrusive rocks and has slightly elevated magnetic susceptibility. Copper mineralization observed to date is most often associated with the chloritic breccia as well as with the mafic intrusive rocks.

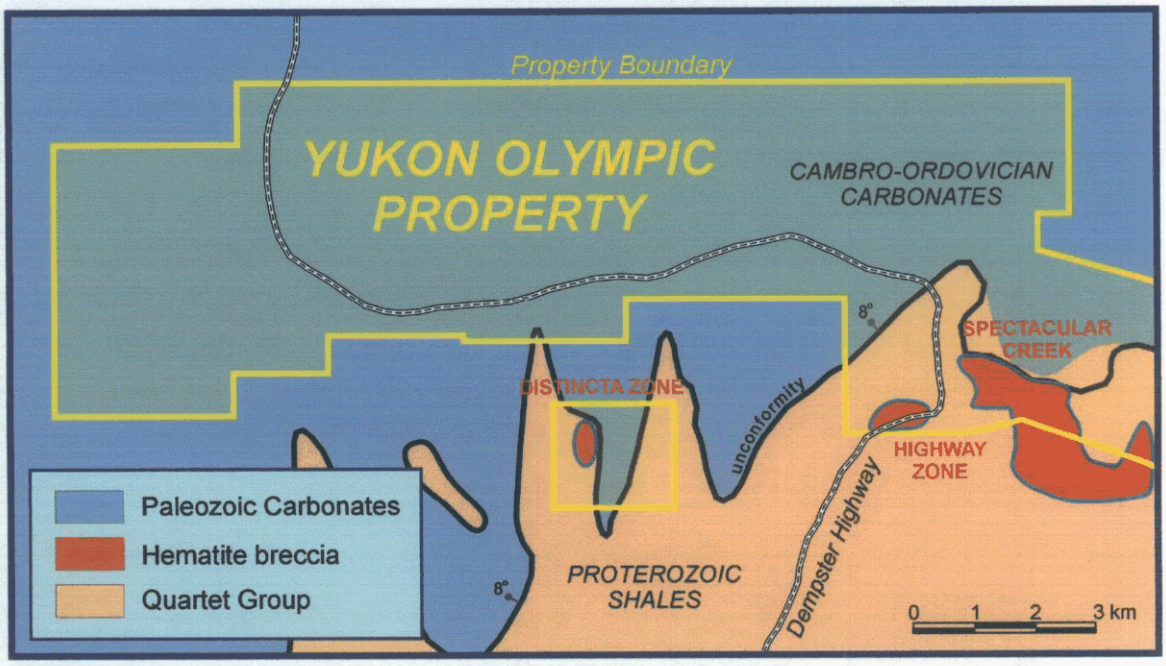


Figure 4. Yukon Olympic property general geology and Breccia distribution map. (From GSC digital geology).

Although none of the breccia bodies have been systematically or adequately sampled on surface, grab rock samples from the property have shown that the breccias are locally enriched in copper, cobalt, fluorine, rare earth elements and barium, with local minor gold and uranium enrichment. Chalcopyrite, malachite and locally bornite mineralization have been observed within the breccias and related intrusive rocks throughout the property. Analysis of grab samples have returned values up to 0.9% Cu. Minor cobalt mineralization has also been observed (Carlson, 2003).

During late 2002 a single short hole was drilled off the Dempster highway into the highway breccia occurrence. A breccia was intersected from the collar to a depth of 32 meters and contained anomalous copper values. Secondary copper oxide mineralization occurring along fractures within the overlying Paleozoic limestone in drill hole YO 02-001 suggests possible copper remobilization from a nearby source. A detailed account of the mineralization encountered during the 2002 drilling program may be noted in section 4.0 of this report.

3.5 Soil Geochemistry

In 1993 a total of 32 soil samples were taken over a small area measuring approximately 400 meters by 900 meters west of the Blackstone River along the Dempster Highway. The samples were taken from "B" horizon material at depths ranging from 10 to 40cm. The samples were assayed for gold and lanthanum as well as 24 elements by ICP geochemistry (see Appendix IX - 1993 Geological Report on the Devil 1-24 Claims). No reported prior soil sampling programs have ever been conducted over the gravity target or spectacular Creek breccias.

3.6 Geophysics

Prior gravity and magnetic surveys conducted by Aurora Geosciences Ltd. and Shawn Ryan, respectively, over Yukon Olympic property have defined an 8 kilometer by 1 kilometer, 2 milligal bouguer gravity anomaly adjacent to a circular 2.5 by 1.5 kilometer magnetic anomaly (Figure 5).

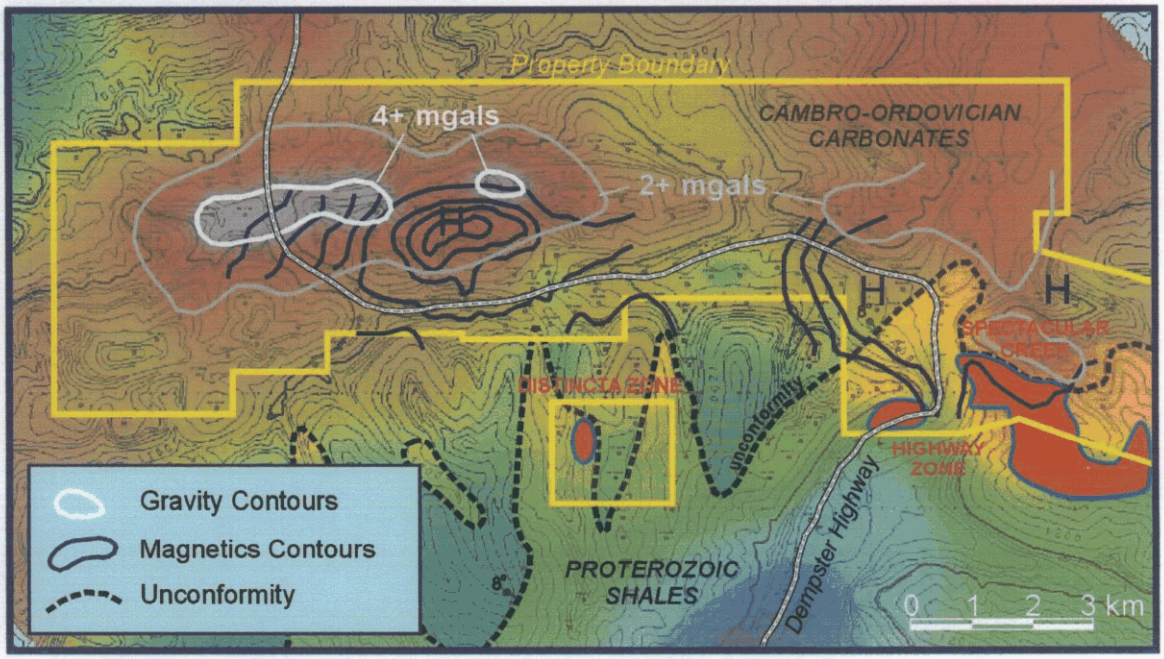


Figure 5. Yukon Olympic property gravity and magnetic summary results.

In the fall of 2002, Canadian Empire Exploration Corp. contracted SJ Geophysics Ltd. to assess the gravity data collected by Aurora Geosciences Ltd. and determine using computer modeling techniques, the possible causative sources of the high gravity response. A block of data was extracted from the raw bouguer gravity data that measured 4 by 10 kilometers. Elevations and gravity readings were processed for input to the gravity inversion program. Three high-density targets emerged as outlined in the Gravity Inversion Report, (Figure 6, Appendix VII). The gravity anomaly has a large western peak and an even larger subsidiary eastern high. The anomaly is adjacent to, but not coincident with, the magnetic anomaly. A preliminary review of the data suggests that the gravity anomaly may reflect hematite-rich breccias, while magnetite-bearing intrusive rocks at depth may cause the magnetic anomaly. This interpretation is strengthened by the fact that the easternmost portion of the gravity anomaly trends into the Spectacular Creek breccia occurrence that locally contains copper mineralization. The Yukon Olympic geophysical signature, with the large gravity anomaly being displaced from the magnetic anomaly is similar to the geophysical response over the Olympic Dam mineralizing system (Figure 7).

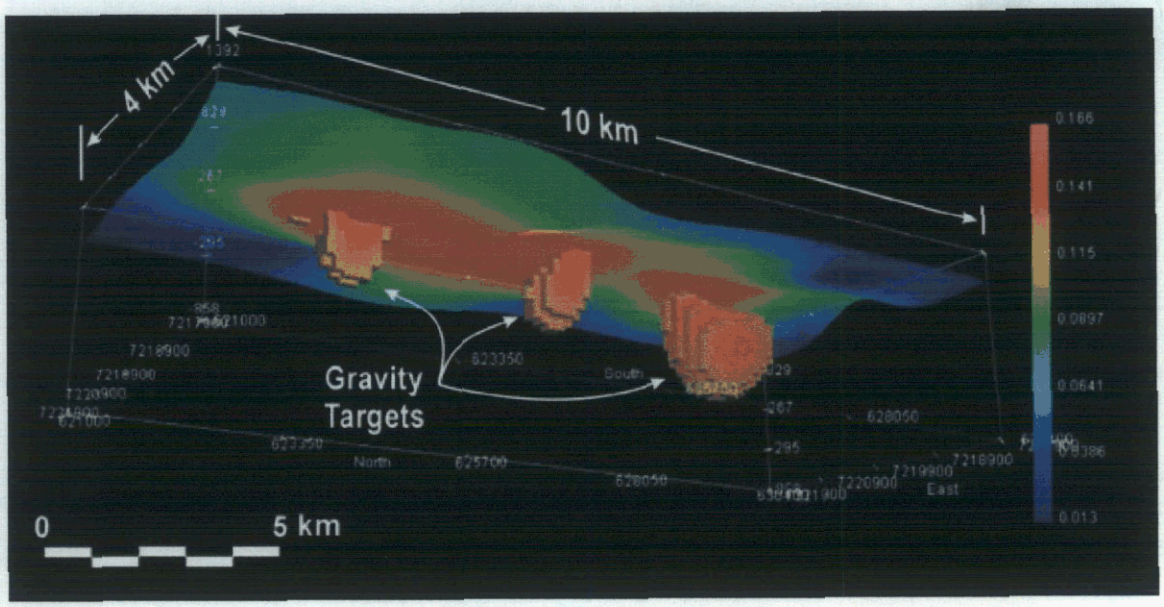


FIGURE 6. High-density targets outlined in the Gravity Inversion Report (Looking northeast)

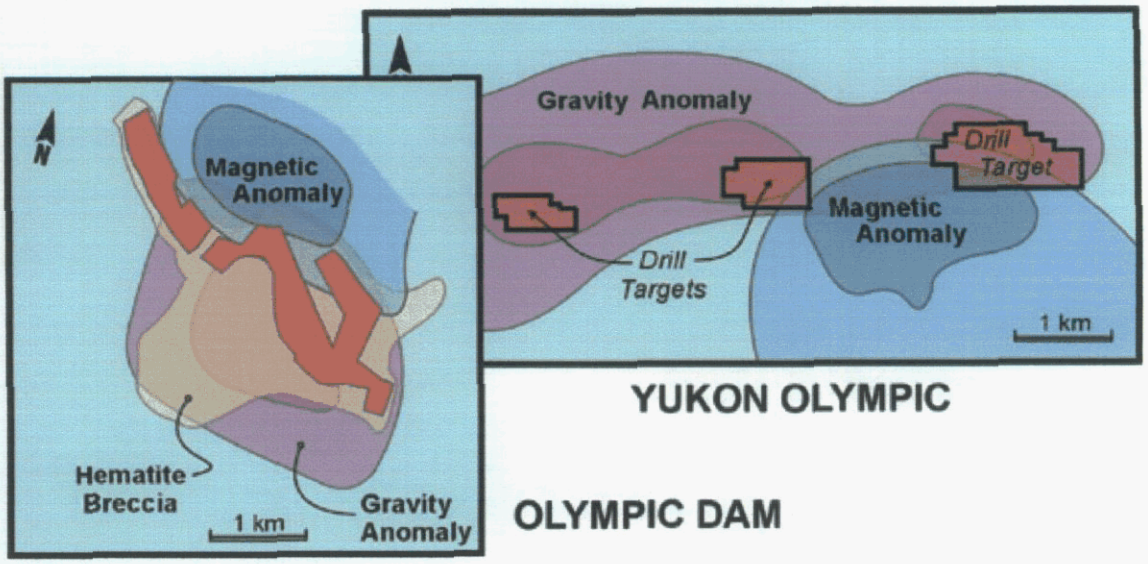


FIGURE 7. Olympic Dam vs. Yukon Olympic Geophysical Signatures.
(Pink area of the Olympic Dam Anomaly hosts 2,000 M tonnes @ 1.6% Cu and 0.6g/t Au)

A single drill-hole (YO 02-001) was completed in late 2002 to test the western most of the three geophysical targets delineated by gravity and magnetic techniques. This anomaly, which is the smallest of the three geophysical targets, was modeled as a near vertical, higher density, plate-like body that strikes east west and plunges steeply to the east (Figure 8). The hole intersected over 500 meters of the overlying carbonate sequence with minor interbedded basinal sediments but did not reach the unconformity and the potential host for the hematite breccias.

Specific gravity measurements were taken from drill core every 15 to 20 meters. Detailed logs of those measurements can be observed in Appendix IV. The carbonate rocks had an average specific gravity of 2.79, while the argillite averaged 2.73 and the small shale interbeds averaged 2.66. The specific gravity difference between the carbonate and sediment units is not sufficient to generate the observed large, intense gravity feature. The causative source of the gravity anomaly has not yet been determined. Further definition for the source area of the high-density causative source is warranted prior to initiation of continued drilling.

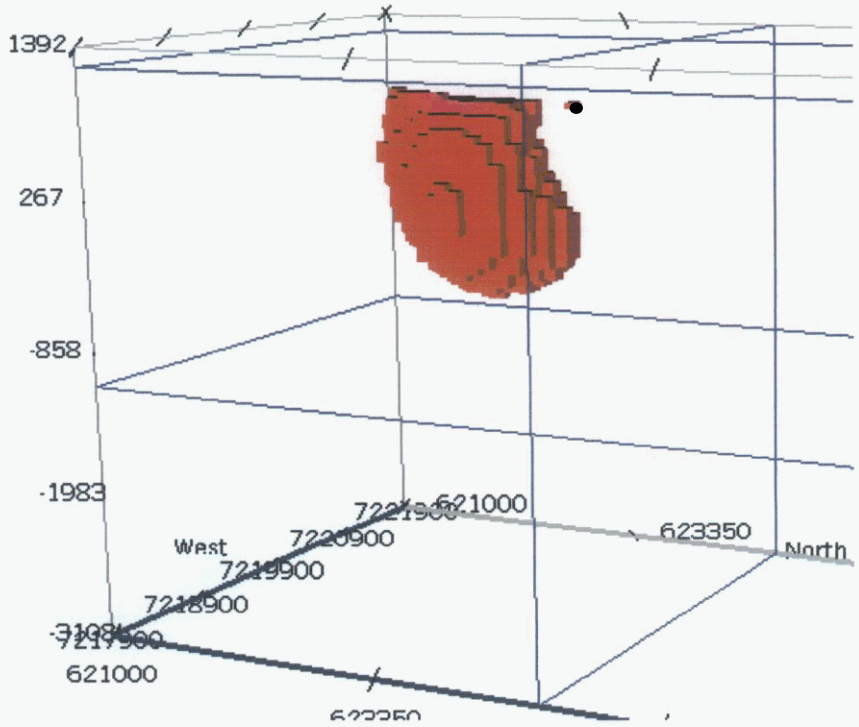


Figure 8. Western Gravity Inversion Anomaly - View from south-southeast.

4.0 Drilling

During the fall of 2002, a diamond drill program was conducted on the Yukon Olympic property. E. Caron Diamond Drilling Ltd. from Whitehorse, Yukon was awarded the drilling contract. Drilling commenced October 30, 2002 and was completed on November 22, 2002. A total of 773.43 meters were drilled in two holes (see Appendices I, II and III for all attached technical data). Both holes were collared with HQ equipment that was reduced to NQ at depth. At the end of the drill program the drill core was transported and stored in Dawson City at the home of the registered owner of the mineral claims. Although the central and eastern high-density anomalies present more attractive drill targets, the western body was drilled due to limitations of permitting. The second drillhole intersected breccia but was also hindered by limitations of permitting.

4.1 *Drill-hole YO 02-001*

Drill-hole YO 02-001 which was collared near the center of the geophysical anomaly (Figure 9) intersected Cambrian to Devonian age limestone and dolomite with intervals of black, graptolitic shale of the Road River Formation. It was drilled at an azimuth of 180° at a dip of -75°. Bedrock was intersected at 27.74 meters. From 27.74 meters to 56.60 meters the hole continued through 25.86 meters of limestone followed by 3 meters of siliceous, healed thrust fault material. From 56.60 meters to 109.65 meters the hole intersected predominantly graphitic to calcareous,

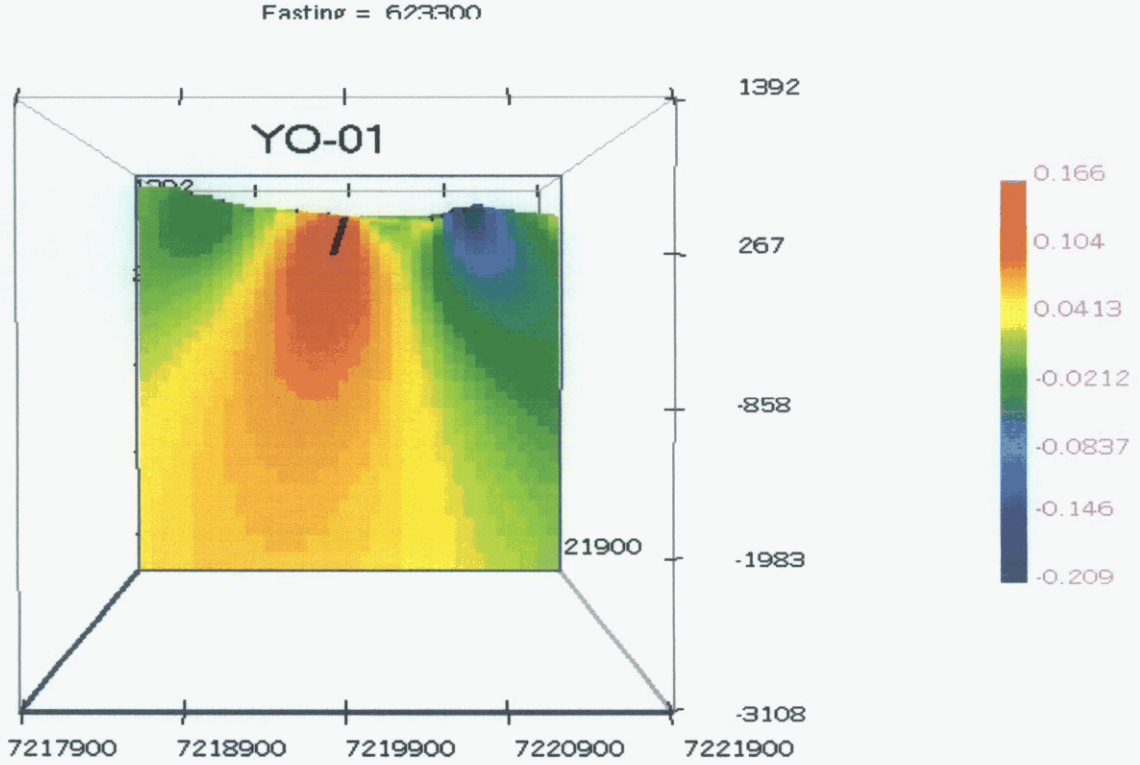


Figure 9. Gravity Inversion block – cross sectional view from east in plane of DDH YO 02-001.

graptolitic, black shale with limestone interbeds. The shale contained on average 1% pyrite as disseminations and blebs with trace amounts of chalcopyrite. From 109.65 meters to the end of the hole at 562.97 meters the hole intersected predominantly dolomite with several large fault zones. The dolomite is crystalline to aphanitic, light to medium gray in color and often fetted with black laminations parallel to bedding. Bedding is commonly 80° to core axis. The dolostone has a weak reaction to 10% diluted HCl acid when powdered. Locally trace amounts of pyrite were observed as disseminations. Of particular interest with regards to the exploration for an IOCG deposit was a fracture that cut the drill core at 11° to core axis between 123.80 and 124.40 meters. This fracture was coated with an orange-brown Fe-oxide material along with the copper oxide minerals, chalcocite and malachite.

4.2 Drill-hole YO 02-002

Drillhole YO 02-002 was drilled to undercut mineralized Proterozoic hematite breccias that are exposed in surface outcrop along the Dempster Highway. Due to inaccessibility and drill set up limitations, the hole was collared 200 meters from the mineralized outcrop. The hole was drilled an azimuth of 338° at a dip of -45° angle. Bedrock was encountered at 8.23 meters where breccia was intersected to a depth of 32.35 meters. Trace amounts of pyrite and chalcopyrite were observed in this breccia. Argillite was intersected from 32.35 meters to the end of the hole at 210.46 meters. The argillite is gray to black with only moderate variations in hardness and alteration.

Of particular note with regards to the exploration for an IOCG deposit is an altered zone from 50.00 to 65.70 meters of medium gray aphanitic rock (argillite) within the gray to black argillite unit. This rock unit has small millimeter-scale fractures filled with bright red hematite, as well as veins of magnetite-hematite-quartz-pyrite and chalcopyrite that generally cut the core at 5° to 25° to core-axis. Irregular dark red hematite envelopes pervasive into the host rock along these fractures and veins can be greater than 1cm wide for a millimeter wide fracture. Also within this section are veins of quartz-chlorite-carbonate-chalcopyrite. These veins are up to 20 centimeters true thickness, often associated with a light green (sericite-chlorite) mud-like material within the vein and at vein boundaries. The quartz-chlorite-carbonate-chalcopyrite veins generally cut the core at approximately 60° to core axis and are observed cutting the magnetite-quartz-hematite-pyrite-chalcopyrite veins.

4.3 Sampling Method and Chain of Custody

The drill core was taken from the drill site directly to base camp. The author logged the core and selected several 1 to 3 meter intervals for assaying. The core was split with half core returned to the core box and the other half placed into labeled sample bags then sealed. The samples were then packed into rice sacks, sealed by the author and shipped via ground transportation from the property to the city of Whitehorse, Yukon. The samples were then shipped via air cargo to ACME Analytical Laboratories in Vancouver, BC. At the laboratory the samples were dried, pulped and analyzed for 30 element ICP as well as gold by fire assay.

4.4 Sample Preparation, Analysis and Security

ACME Analytical Laboratories in Vancouver, BC is an ISO 9002 registered and accredited laboratory. All work is guaranteed to ISO 9002 standards.

5.0 Adjacent Properties

The property lies along a regional structure as indicated by regional aeromagnetics. The westerly trend includes the Monster and Olympic IOCG properties, in the Ogilvie Mountains located 100 and 70 kilometers southwest of the Yukon Olympic property, respectively. It is noted that the Yukon Olympic property occurs at a flexure point along the linear magnetic signatures coincident with a large sub-rounded magnetic high, possibly reflecting a buried intrusive center.

6.0 2002 Exploration Expenditures

Expenditures for the 2002 drill campaign are summarized in Table 2, below:

TABLE 2. Statement of 2002 Expenditures

Exploration Function	2002 Expenditure
Analysis – Assays	551.30
Accommodation	20,989.92
Consulting – Geological	1,292.00
Consulting – Legal	2,035.30
Drafting Maps – Prints	1,037.46
Expediting - Telephone	1,463.92
Drilling	88,182.98
Equipment – Consumables	237.97
Fuel	9,964.97
Permitting	100.00
Property Maintenance & Permits	200.00
Exploration Management	12,775.00
Salary & Wages	20,353.97
Surveys – Geophysical	1,275.00
Transportation - Airlines	3,070.23
Transportation - Vehicle	2,202.32
Transportation - Freight	399.02
Project Management Fees	16,208.38
TOTAL EXPENDITURES:	**$ 182,339.74**

7.0 Conclusions and Recommendations

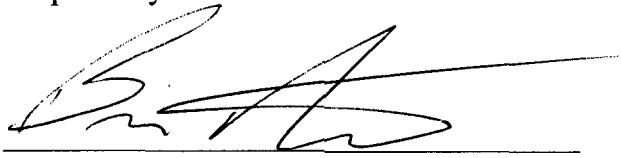
The exploration target at Yukon Olympic is similar to the world class Olympic Dam deposit in Australia that hosts 2 billion tonnes grading 1.6% Cu, 0.06% U_3O_8, 0.6 gpt Au and 3.5 gpt Ag. A comparable Olympic Dam geologic setting is present at Yukon Olympic where host rocks are of the same age and copper bearing hematitic breccia and rock alteration is of similar character. Prior work had delineated a strong 2-milligal gravity anomaly over a length of 8 km and a width of 1 km. The gravity anomaly is proximal to a magnetic anomaly. A 6-km length of intermittently exposed copper-bearing hematitic breccia was discovered in Spectacular Creek near the eastern end of the geophysical anomalies. In keeping with the Olympic Dam model, the gravity anomaly may directly reflect a large system of iron oxide, copper and precious metals mineralization ("I.O.C.G."), while the magnetic anomaly may be caused by magnetite-bearing intrusive rocks related to the mineralizing system at depth. Although Canadian Empire attempted two drill holes during late 2002 into the peripheral area of the target without success, this huge target remains intact for discovery of an Olympic Dam type deposit.

Additional detailed geotechnical target evaluation is required to refine drill targets to improve opportunity for discovery in the planned 2003-drilling program. Due to poor exposure of the hematite breccias and presence of overlying carbonate rocks within the area of the large gravity anomaly, grid controlled detailed gravity, Induced Polarization and magnetometer surveys as well as an MMI soil sampling program are required to define drill targets.

Limited soil and rock geochemical sampling has been undertaken over only a very small area within the claim group. The spectacular Creek breccias, the largest exposure of hematitic breccia within the claim group, have not been adequately sampled on surface nor have they been drill tested. Systematic mapping and sampling of all exposed areas with hematitic breccia is required to define drill targets.

Canadian Empire's 2002 exploration expenditures total $182,339.74. During 2003 Canadian Empire plans an initial detailed geophysical-geochemical survey to refine targets prior to initiation of drilling. A two-phased 2003 exploration program is proposed. The proposed 2003 phase I program of focused geophysical-geochemical surveys has a budget of $69,000 followed by a phase II program of 3000 metres of drilling with a budget of $508,500 for a total planned expenditure in 2003 of $577.500. Canadian Empire has the option to earn a 51% interest in the project from Copper Ridge subject to future back-in rights of Teck Cominco Limited.

Respectfully Submitted:



Brian G. Thurston, H.BSc. Geology

8.0 Proposed 2003 Work Plan

Staged work programs of geophysics, geochemical sampling, interpretation and drilling are proposed for the Yukon Olympic Property in 2003.

8.1 Proposed Phase I Program

- A one-month program of grid controlled geophysical and geochemical surveys is proposed along 8 north-south lines of lengths varying from 2 to 4 kilometers and spacing of approximately 1 kilometer. Stations will be established every 100 meters along the grid lines (see Figure 10). Proposed geophysical targeting should include gravity, induced polarization and magnetometer surveys. These surveys should be undertaken in the spring while the ground is still frozen to minimize support costs.

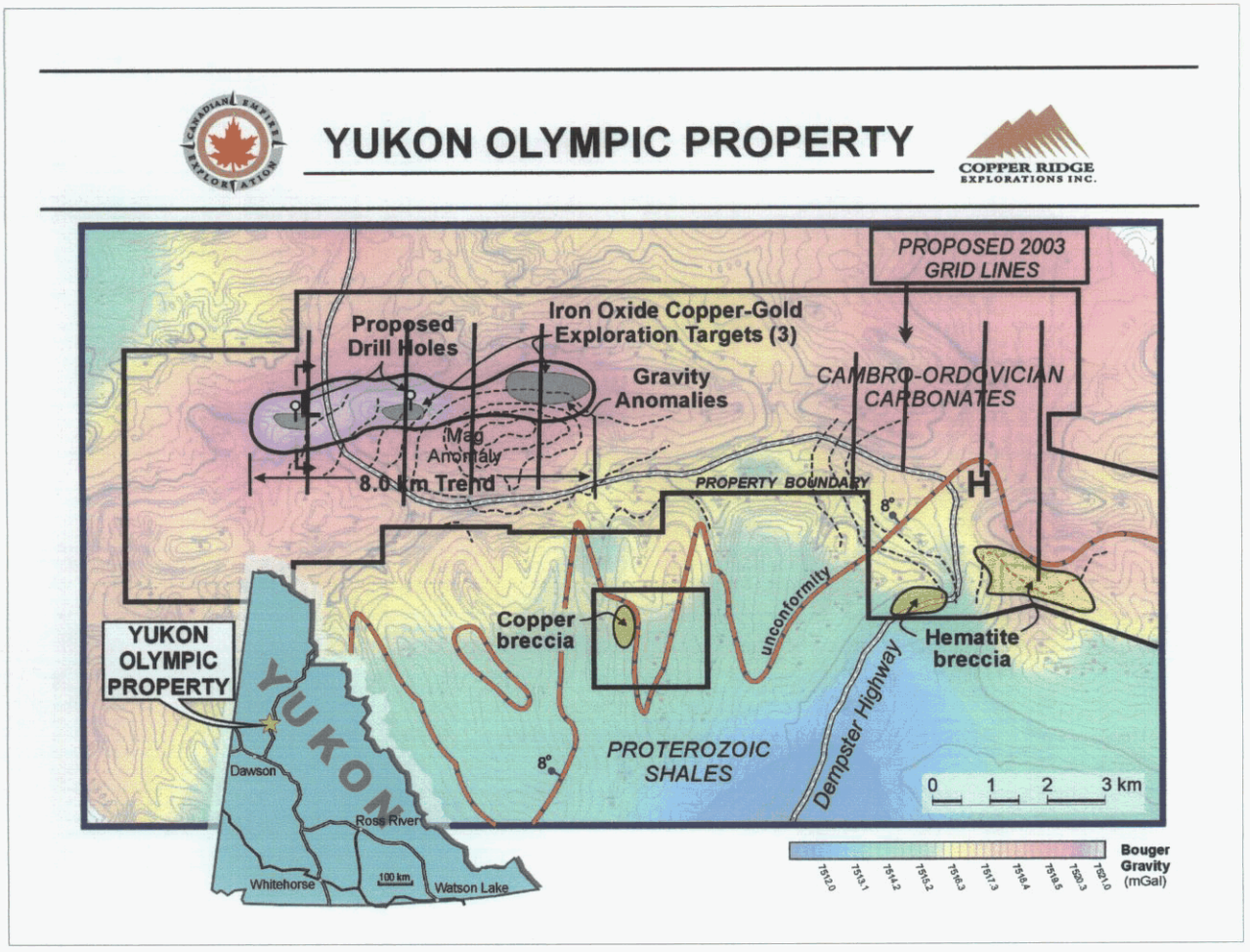


FIGURE 10. Proposed 2003 Grid Lines

- A systematic soil-sampling program is recommended that would follow the geophysical surveys. Soil samples should be taken at all grid stations and analyzed utilizing MMI techniques for detection of deeply buried deposits. This type of soil sampling is also

recommended over an area covering and adjacent to the hematitic breccias up Spectacular Creek.

- New refined drill targets should be developed using the new geophysical information and the results of the soil sampling.

8.2 *Proposed Phase II Program*

- A drill program is recommended to test geophysical-geochemical targets defined by the Phase I program in the general area of Spectacular Creek and the 8-kilometer long gravity anomaly. In order to penetrate the Paleozoic cover the target depth of the gravity anomalies may be at a depth varying from 200 to 600 meters (Figure 11). A proposed program of 6 holes totaling 3000 meters is recommended. Hole positions will be determined on the basis of targets defined by the Phase I surveys.

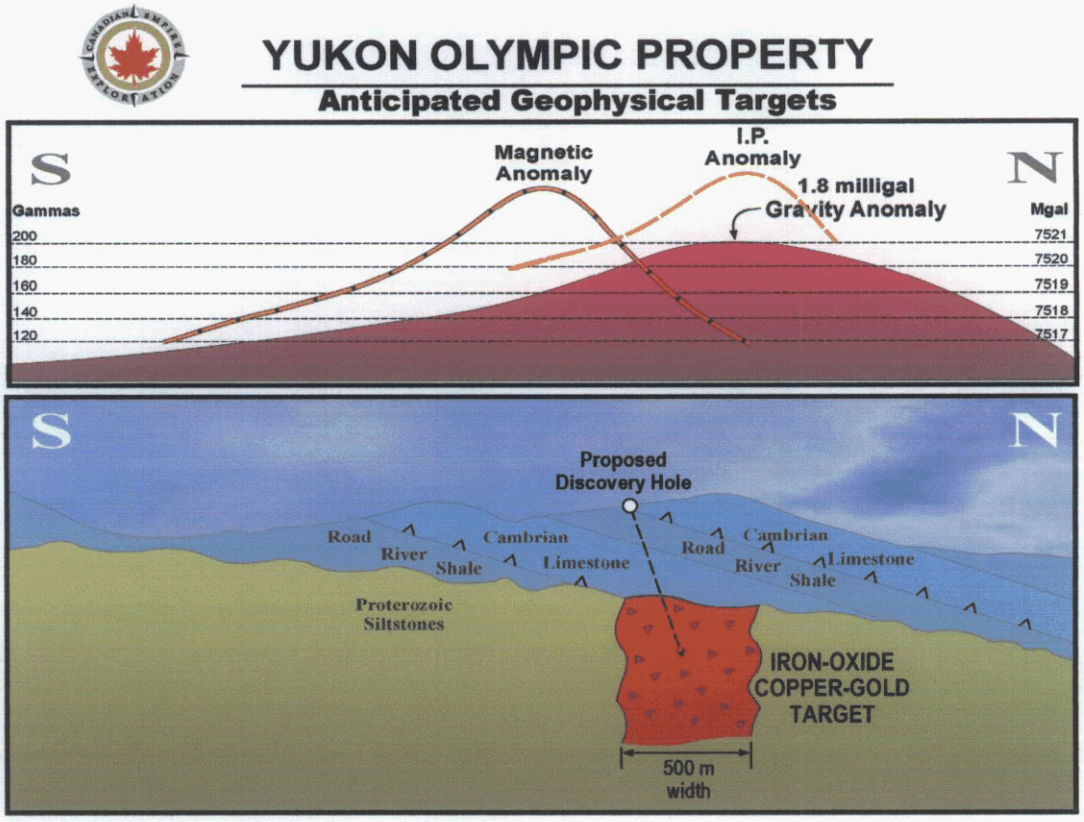


FIGURE 11. Schematic Drill Section Targeting Geophysical Anomalies.

9.0 Proposed 2003 Phase I and II Budgets

The budget for the proposed Phase I and Phase II programs is presented in Table 3. Detailed explanations of costs are presented in Appendix X.

TABLE 3

Phase I Program – Proposed 2003 Exploration Budget

Exploration Function	Proposed Expenditure
Accommodation (90 days @ $35/day)	$ 3,150
Travel (approx. 4500 km @ $0.485/km)	$ 2,200
Equipment Rentals (Boat)	$ 500
Line cutting contractor (Coureur des Bois)	$ 6,000
MMI test survey (20 km @ 200/km)	$ 4,000
Gravity / I.P. / Mag ($2200/km x 20 km)	$ 44,000
Report Preparation	$ 3,000
Project Management Fee	$ 6,150
TOTAL TARGET EVALUATION PROGRAM	**$ 69,000**

Proposed 2003 Phase II Exploration Budget

Exploration Function	Proposed Expenditure
Drilling	$ 278,045
Helicopter	$ 50,000
Accommodation (camp, food, phone)	$ 49,500
Geologist	$ 34,350
Geochemical Analysis	$ 21,500
Water for Drilling	$ 11,125
Truck Rental	$ 10,350
Heavy equipment	$ 5,475
Permitting Costs	$ 3,000
Fuel Haulage	$ 1,800
Project Management Fee	$ 46,215
TOTAL EXPENDITURES:	**$ 508,360**

Total Proposed 2003 Exploration Budget

Exploration Function	Proposed Expenditure
Phase I Program – 2003 Proposed Exploration Budget	$ 69,000
Phase II Program – 2003 Proposed Exploration Budget	$ 508,360
TOTAL EXPENDITURES:	**$ 577,360**

10.0 References

Awmack, Henry J. (1993): 1993 Report On The Devil 1-24 Claims, located in the Ogilvie Mountains, Dawson Mining District, NTS 116G/1, Monster Joint Venture, Equity Engineering Ltd.

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Johnson, J.P. and Cross, K.C. (1991): Geochronological and Sm-Nd constraints on the genesis of the Olympic Dam Cu-U-Au-Ag deposit, South Australia, *in* Pagel, M. and Leroy, J.L., eds., Source, Transport and Deposition of Metals: Proceedings, 25 Years' SGA Anniversary Meeting, Nancy, Aug. 30-Sept. 3, 1991, A.A. Balkema, Rotterdam, The Netherlands, p. 395-400.

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Scott, I.R. (1987): The development of an ore reserve methodology for the Olympic Dam copper-uranium-gold deposit: Resources and Reserves Symposium, Australian Institute of Mining and Metallurgy, p. 99-103.

11. CERTIFICATE OF QUALIFICATIONS

CERTIFICATE OF QUALIFICATIONS
Brian G. Thurston, B.Sc. (Honours) Geology

I, Brian G. Thurston, of #303-118 East 2nd Street in the city of North Vancouver, in the Province of British Columbia and of business address 1205-675 West Hastings Street in the city of Vancouver, in the Province of British Columbia, certify that:

1. I am an independent consulting geologist providing exploration services to the mining community.

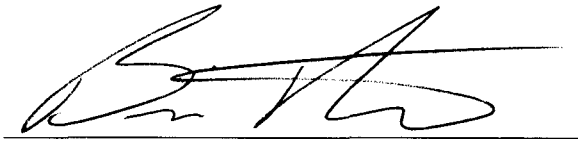
2. I am a graduate of the University of Western Ontario with a Bachelor of Science (Honors) degree in Geology (1992).

3. I have practiced my profession continuously since 1992 and have been involved in projects and evaluations conducting exploration for precious and base metal deposits in Canada and South and Central America.

4. I have visited and performed work on the Yukon Olympic Project over a six-week period in October and November of 2002.

5. I am responsible for the collection of data and its presentation in the report entitled "Report on the 2002 Drilling Program".

Dated at Vancouver, BC, this 20th day of January, 2003



Brian G. Thurston, B.Sc, Geologist

APPENDIX I

DRILL LOGS
2002

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

Yukon territory
Canada

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Drilled By: VIC/GERRY (CARON DRILLING) **Logged By:** B. THURSTON
Date: NOV 01/02

UTM Northing (m):	7 219 779
UTM Easting (m):	623 267
Elevation (m):	
Total Length (m):	562.97m
Collar Core Size:	HQ
Reduction Depth:	91.44m - NQ
Proposed Hole No.:	—

Area:	YO1
Date Started:	Oct 30/02
Date Completed:	NOV 10/02
Data Entry:	
Checked By:	
Casing Depth (m):	27.74 22.86
Casing (In/Out):	Out

Survey:	Depth	Azimuth Rd.	Azimuth Cor.	Dip Rd.	Dip Cor.
COMPASS	0 m	180°		-75°	
"	400m	180°		-76	
ACID	562.97m	—		-76	

Sample Series: 13451 → 13458 **Assay Certificate No('s):**

(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
1		OVBR			0	1	OVBR	OVBR																			
2					1	2				From 0 - 27.74 m Overburden was encountered Coring of Bedrock Started @ 27.74 m W ~ 30cm of rubble collected from Core tube prior to bedrock.																
3					2	3																					
4					3	4			→	① 10cm Black - Dark grey Calcareous Sed? (Strong reaction to HCl) W 3% White Calcite replaced shells. These look similar to amygdaules 4mm to 1cm dia but often have the concentric growth pattern of shells preserved @ C * Trace Py diss.																
5					4	5																					
6					5	6			→	② 10cm light grey strongly Silicified Limestone. V. weak reaction to HCl. Mottled cream — light grey - med grey colour W Beige alt'n halo's along fractures																
7					6	7																					
8					7	8																					
9					8	9																					
10					9	10																					

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. THURSTON
Date: NOV. 1/02

(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
10					10	11																					
11																											
					11	12																					
12																											
					12	13																					
13																											
					13	14																					
14																											
					14	15																					
15																											
					15	16																					
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					21	22																					
22																											
					22	23																					
23																											
					23	24																					
24																											
					24	25																					
25																											

OVBR

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. THURSTON
Date: NOV. 01/02

Graphic Log (m)	Z	L	S	M
26		CV3R		
27				
28				
29				
30				
31				
32				
33				
34				
35				
36				
37				
38				
39				
40				

Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
25	26																					
26	27.74																					
27.74	28	EDb	LMST	—																		
28	29				Limestone (Octostone) 27.74 → 53.60m																	
29	30				- Brownish Grey Limestone fairly homogeneous throughout Section w/ strong shearing & Brecciation throughout & mostly Healed competent rock. The breccia is generally restricted to areas of shearing and consists of small <1cm rounded fragments of itself w/ some asymilated milky white Carb frags or fracture fillings.														
30	31				- Some areas w/ strong fracturing/shearing/bxn is healed by a soft med brown calcareous (strong reaction to HCl) material. * Fe Carb *														
31	32				- Most of the core has a mod to strong rxn to HCl.																	
32	33				* Facies Equivalent to Road River formation.																	
33	34																					
34	35																					
35	36				27.74	28.25			BLK													
36	37				28.50	29.10			Bx				auto	Breccia	Strongest 15cm by 29.10.							
37	38				29.10	29.11	15°		GGE	3mm												
38	39				29.11	29.31			Fct	Healed.												
39	40				30.40	30.60	15°		very irregular contact				20% white carb.									
					31.10	31.50			Fract				Strong Brown Dark colour pervasive.									
					33.50	33.51	30		SS?	0°			<1cm									
					34.00	34.50	50		Bx				Bx assoc w/ 2cm. Sh @ 50°. & Second Sh @ 35°									
					35.15	35.30	5/25°		Bx				Bx assoc w/ shearing Healed									
					35.85	36.07	? 10°						Partially healed Sh strong BROWN Heal/Fracts.									

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 1/02

(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
					40	41				36.15	36.50	15/20		Bx				Healed Bx		assoc. w SH	5%		White Carb.				
41										37.10	37.40			CSH				Poss Gouge?		SH related?			Fracture & Wthring				
					41	42				38.25	38.35			BKY													
42										38.40	38.70	?		FOL?	40°	*	Strong	lineation		grey-brown-white layers // bed?							
					42	43				39.06	39.11			GGE	?	*	3.5 cm	core missing		/ gritty Not clay							Ne
43										40.35	40.36	30															
					43	44				40.41	40.42	45					SH & GGE	Zone core goes from Brown								Grey	
44										40.44	40.45	55						~~Grey~~ to Darker Brown to ~42 m.									
					44	45				40.45	41.85			Bx	St	*	Strong	Bx Brown Healing material									
45										41.85	42.10			GGE	60°	*	Strong	Gouge Grit → Clay?		L.C. 60° (Black)							
					45	46				42.25	42.35			GGE	?	*	Strong	Grit → Clay? (Brown)									
46										42.37	42.50			FR/Bx		*	Carb (White)	Fract/Bx // to C.A.									
					46	47				44.00	44.50			Fr	5°	*	Fracture	undulating // to C.A → 5°									
47										47.25	48.00			Bx	25/35	*	Strong	Bx Brown Healing, u.c. 25°/L.C. 58°									
					47	48				48.40	48.46			Vn		*	Carb Vein	1.5cm White cut by White Carb Vn 2mm									
48										48.65	48.75			Bx	60	*	Very Brown	Healed L.C. 60°									
					48	49				48.95	48.96	65															
49										49.89	50.03	50/60		Vn	50/60	*	Dark	Grey LMST & White Carb Bx'd Vein		u.c. 50°/L.C. 60							
					49	50				51.80	51.90			Vn	40	*	Pure white	Carb u.c. 0° → 40°/L.C. 40° sharp									
50										52.05	52.23			Vn	40	*	Pure white	Carb u.c. 40° sharp L.C. ? 80° irreg									
					50	51				52.30	52.36			Bx													
51										52.36	52.46			Vn	85/40	*	White - Grey	Carb Vein u.c. irreg 85°/L.C. 40°									
					51	52				53.25	53.27			Ctc	35	*	Sharp Contact	9° LMST & Beige Bx LMST (irregular ctc)									
52										53.27	53.60			Bx													
					52	53.6																					
53																											
					53.6	54				Siliceous LMST TRANSITION) Bx (HEALED THRUST FAULT?) 53.60 → 56.60m																	
54							TRN	FLT	—								Si	s-I									
					54	55				Grey Qtz Flooded w LMST & Carb Fragments, mod-St Bx'n, u.c? Vn 020																	
55										fract/sh in middle of zone @ 40°, Strong Healed Fracturing in middle zone @ 0°-5°, L.C. ground up but appears to be ~90° to C.A.																	

Page 4 of 38

Tr. tourquoise color needles @ 55.25 on Fract. may be Brochantite? * Probably Transition Thrust to Road River Formation.

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: BRIANT HURSTON
Date: Nov 02/02

Graphic Log (m) Z L S M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
55	56.6					53.6	56.6			Bx													
						53.8	54.1			FR	5°		* Healed Fract		11 to core axis								
56.6	57					54.4	54.43	40					* Partially Healed Sil										
57			EDR	SIAL	DSX					Bed	75°					diss	≤1.5	Tr					
57	58					Shale (Road River Formation) 56.60 → 86.40 m																		
58																							
58	59					Black Calcareous Shale w Limey interbeds. Core is Platey for																		
59						~3m near upper contact & becomes more competent down section																		
59	60					* mm-scale white carb stringers cut the core/cleavage at																		
60						sharp angles & make up ≤1% of Rock. Py is observed as blebs																		
60	61					± carb Rims ± Carb Fract fillings in Blebs. * Also py observed																		
61						paralleling cleavage / bedding planes & often w intermittent Py-Carb																		
61	62					banding * Soft sed. deformation is noted in some of																		
62						thes Py ± Carb bands. ≤1% of Rock. (Py diss along bedding)																		
62	63					*** ** bedding/cleavage is consistent @ 75-80° (sometimes 65°) to C.A.																		
63						*** Mostly Strong reaction to HCL (Locally mod - No visible difference)																		
63	64					→ ** cPy @ 68.5cm				Py	is ~1-2% 68m →												
64						56.6	56.63			Vn	75°		* White carb veins @ contact										
64	65					56.6	59.6			BKY			* Platey - fracturing along bedding planes										
65						58.75	58.75			Vn	90°		* mm-scale white Carb vns (Stringers)										
65	66					62.33	62.63			Vn	10-15°		* multiple mm-scale white Carb ± several generation										
66						62.75	62.80			GGE	75		* Carb + Gouge material // to C.A.										
66	67					63.15	63.16	?		Vn	?		* Carb Vn + Sh ? // to C.A.?										
67						64.70	64.75			Vn	15		* 4 // carb veins @ 15° 2mm → 5mm										
67	68					66.70	67.00	*		GGE	?		* Carb Vein + Gouge + deformation in carb Vns										
68						71.50	71.51					Py/Carb	* Soft sed. deformation mm-scale folding (4mm										
68	69					72.95	72.96					Py	* 0.5cm folding in Py bed. (5mm)										
69						72.10	72.11						* White Carb +/- Py mm-scale deformation (4mm)										
69	70					78.00	78.05						* Limey bed Soft Sediment deformation 25°										
70						79.65	79.66			S/S	85/0°		* ~1cm Carb Vn w Slicks										
						79.70	79.71			S/S	65/90°		* ~1cm carb Vn w Slicks opposite to										
						79.83	79.84			S/S	80/+45°		* 1cm Carb Vn w Slicks.										

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 2/02

Graphic Log (m) Z L S M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
70	70	71				81.46	81.47			Vn	80		* Carb Vn w Sil // to bedding										
71						82.30	82.30				83		* Grey Limey Bed w fol? texture cutting bedding 83										
	71	72				84.10	84.70	? 80		GGE			* 5cm Gouge in centre of Sil / w 50% White Carb to Zo										
72						85.14	85.15			Vn	80		* Py Vn 1cm Bed w Py nodules growth onto of Bed										
	72	73				84.70	85.14			BKY														
73							86.40		*	Gradational Lower Contact Zone from Shale to more														
	73	74								Limestone Rock w Shale interbeds.														
74																								
	74	75				* @ 83.75				small graptolites are observed averaging 1mm x 0.1mm														
75										w rare saw tooth preserved. They are replaced by ?														
	75	76								Shiny Black-Grey (graphite?) almost like specular Hem														
76										looking but not hem!														
	76	77				* after the Fault @ 84.10 → 84.70m fossil graptolites? become																		
77						abundant. the larger ones measuring > 1cm long x 2mm wide																			
	77	78				* The saw-tooth outline of graptolites is not preserved																		
78						but these fossils are long tubular shaped. These could																		
	78	79				be some sort of Plant rather than graptolites?																		
79																								
	79	80																						
80																								
	80	81																						
81																								
	81	82																						
82																								
	82	83																						
83																								
	83	84																						
84																								
	84	85																						
85																								

YUKON ENERGY MINES & RESOURCES LIBRARY
P.O. Box 2703
Whitehorse, Yukon Y1A 2C6

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 2/02

(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
					85	86.4																					
86										86.40 → 88.30m						(Solid competent Core)				(No Vugs)				(Not x-cut in)			
					86.4	87	EDR	LMST	—	Grey Limestone calcareous						w ~10% rock as				shells replaced by Carb. (No Py)							
87										87.12	87.14			Vn	70°	* Carb Vn.				→ Poss Corral, Bivalves & snail shells @							
					87	88.3					88.3			L.C		* Lower Contact is gradational to shale unit											
88																w bedding @ ~75° 80°											
					88.3	89	EDR	SHALE	DSX	88.30 → 98.00m										D.ss <1							
89										Black Calcareous Shale (as 56.60 → 86.40m)										Bedding 75°-80°.							
					89	90				* Py is less than previous unit but still										along Bedding & diss & blebs							
90										** slightly greyer limey beds 2mm → 2cm in thickness w squiggly																	
					90	91				<0.3mm Carb (white) filled worm trails? ~~fractures~~ ? pretty much																	
91										restricted to the specific beds & not extending more than 1mm																	
					91	92				into the Shale beds. ** 22 discrete beds b/w 88.35 → 92m.																	
92										* These shales contain abundant tabular shaped fossils max 4cm x 2mm																	
					92	93				averaging 1cm x 2mm (2mm width is common) Poss plant ? ~~Ass~~ Sm tooth																	
93										shape of graptolites, but double sided like spruce needles rather than Rare graptolites																	
					93	94				* ~~less common~~ ½ bivalves observed 2mm in dia. * Mostly NO Strato-like shape																	
94										* Graptolites have blush mineral (oxide) replacing fossil. healed. along w grey shiny material.																	
					94	95				93.4	93.42	70				* White carb. Vn + Bx frags of Black shale (angular)											
95										93.42	94.50			Vn	1-2%	* increased white carb stockwork 30% // to C.A											70% to bx
					95	96				96.45	96.47			FLT	75?	* Crush/Gouge 2cm Blk // to bedding											
96										97.0	97.01			S/S	25/45	* Slicks along Fault Dull bedding surface, striations @ 75											
					96	97																					
97																											
					97	98																					
98																											
					98	99	EDR	LMST	—	Limestone 98.00 → 103.25m																	
99										Grey fossiliferous limestone (strong rxn to HCL) Solid competent																	
					99	100				core. U.C & L.C. gradational transition b/w Shale & LMST Both																	
100										w interbeds of other * many shells & shell fragments.																	

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 4/02

Graphic Log (m)	Z	L	S	M
100–115				

Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
100	101				98.00	98.02			Vn	75	*	Carb	bx vein ~	2cm	@ 75°							
					101.30	101.35	50/30				*	2 shears	w/in	5cm	healed partially	@ 30° & 50°						
101	102				101.60	101.63			GGE	77?	*	Muddy calcareous clay			Brown gouge?	w/ >1cm. Calc.						
												Low. Contact	77°		M.C.	irregular.						
102	103.25																					
103																						
103.25	104	EDR	SHALE	bleb	Shale 103.25 → 109.65m										Bleb	<1%						
104					Black calcareous, fossiliferous (graptolites?) shale w/ grey limestone, fossiliferous																	
	105				interbeds generally <2cm but sometimes more & increasing down section																	
105					*Less Py than above units & commonly as spheroicle blebs & growths																	
	106				Less along Bedding. ** Bedding consistent ~ 80°																	
106					L.C. Shrp w/ poss. turbidite structures & brecciation (Local Auto) but continuous bedding																	
	107				@ ~ 80° this contact could be ~ 10cm. * graphitic on bedding surfaces (weak)																	
107																						
	108				103.25	107.65		BED	80°														
108					105.50	105.51		GGE	?		* Blocky ~ 35cm area.											
	109.25																					
109											Fe	vw						Tr	Tr			
109.25	110	EOh	DLST		109.65 →	128	00m				Dolostone w/ minor Limestone.											
110					Mainly light grey Dolostone (weak reaction to HCL) w/ 3% white carb																	
	111				Stockwork w/ all angles generally >3mm (up to 1cm). Brecciation																	
111					is localized to 1-3cm carb healed Sh's? & fractures. Commonly @ 75° to C.A.																	
	112				123.80 → 124.40 a fracture cuts the core ~ 11 to C.A. The core																	
112					is Oxidized (Fe-Stain) & chalcocite is covering fracture surface.																	
	113				* Cu-stained nail w/ HCL test. & Malachite is observed in fract @ 124.52m																	
113				Fetted →	* Other Black material is observed throughout the section healing fractures																	
	114				& forming stylolitic type features squiggly black mm-scale																	
114					laminations parallel to bedding / fracture accentuations. * Below																	
	115				Fracture @ 124.40m Increased Black - Graphite like but Hard - Smears when Scr																	
115					also increased @ Local Auto Breccia & large irregular Calcite filled																	

Fractures & Breccia w/ 1mm Black selvages
* Freshly broken smells like rotten eggs!

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 3/02 / Nov 5/02

(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
					115	116				113.50	113.53	60				*	Carb	filled - healed		Bx		Vn or Stk.					
116										117.70	117.71			Bed	80												
					116	117				119.60	119.61			Bed	75												
117										119.74	119.76			Bed	70												
					117	118				121.16	121.18	75				*	Carb	Bx	as above								
118										122.20	122.25			Bed	75												
					118	119				123.80	124.40			Fract	15°	*	Cc + Mc	on fract.	+ Fe Staining.								
119																											
					119	120																					
120																											
					120	121																					
121																											
					121	122																					
122																											
					122	123																					
123																											
					123	124																					
124																											
					124	125																					
125																											
					125	126																					
126																											
					126	127																					
127																											
					127	128																					
128																											
					128	129	EDb	FLT?		128.80	134.45						Si	S→I									
129																											
					129	130																					
130																											

Silicified Dolostone ± Bx'n ~ partially assymilated contacts irregular.
* Dark-med grey ~ Black sections. Sections of Dolostone as above ~ 5% Vuggs + 128.80→129.95m & 130.40→130.70m → Contacts may be sharp as @ 128.80m 25° straight contact or as at 129.95m irregular assymilated? 75°. @ 130.90 contact is Bx'd & irregular over ~ 30-40cm @ 15° / @ 130.40m contact is partially assymilated but @ 23°

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 5/02

(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
130					130	131				Silicification is strong to Intense w Bxn observed on small scale. Locally																	
131										primary bedding seems to be preserved & stromatolitic features as well.																	
132					131	132				u.c. ? sheared @ L.C. or fragmented contact @ 128.80 - 25°, 129.95 irregular																	
										~75°, 130-40cm (irregular slightly) @ 23° 130.90 - 131.30 ~ 15° w Bxn																	
133					132	133.[illegible]				L.C. @ 134.45m ~70°.																	
134					133.[illegible]	134.45																					
135					134.45	135	EDb	DIST		134.45 → 143.30m Fetted																	
										Dolostone w increased Bxn & increased Black infilling of bx zones. Xtl'n Dolostone																	
136					135	136				Overall colour is light-med grey w Black infill ~ 20% of Rock.																	
										* individual Bt zones can be up to 1m but all look like (collapse?) local																	
137					136	137				in place Brecciation. * Core has weak rxn to HCl. * 3% vugs up section																	
138					137	138				135.00	135.01			Bed	80												
										135.30	135.31			Bed	70												
139					138	139				135.90	135.91			Bx	68												
										136.70	136.71			Bx	70												
140					139	140				140.92	140.93			Bx	75												
141					140	141				***** Black stuff infilling Bx & Fractures smells like rotten eggs when																	
										core is freshly broken - sulpher smell. (Bitchumen?) Some patches are																	
142					141	142				sooty like graphite & smears - most is hard & on Fractures - Fetted.																	
143					142	143.3																					
144					143.3	144	EDb	DIST		143.30 → 249.83m										Disstnt Tr							
										Same unit as above w less bxn & assoc. Black mineral infill. Generally Solid																	
145					144	145				competent core w Vuggs varying from <1% to 3-4% locally. Also areas of																	
										Qtz fragments as beds? or rhinl? Same grey Qtz as fault zones usually																	
										@ 70 - 85° to C.A.																	
										* mm-scale Xtl'n Dolostone.																	

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YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 5/02

(m)	Graphic Log Z L S M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
145		145	146				147.50	147.51			Bed?	73												
146							149.00	149.01			Bed?	75												
		146	147				156.22	156.25			Qtz	75°												
147							156.37	156.41			Qtz	68°												
		147	148				156.96	156.97			Qtz	85°												
148							158.20	158.21			Qtz	80°												
		148	149																	Fe tted?				
149						XXX	158.14	163.60	→		Black component to core as in fill & ~~stringers~~ fracture filling - has increased from ~ 5% of above rock to 25% in this section.													
		149	150																					
150																								
		150	151																					
151							* 157.80-158m				Py dissem Frags. - dodecahedron shape - Some leached out w 5 sided vugs. No Cu. assoc w this mineralization.													
		151	152																					
152																								
		152	153				*164.29	124.37			Vn?	85°	* Qtz - White - Grey @ 85° closest thing to vein but? Proto Stage as bx Qtz at												
153																								
		153	154				164.80	164.90			Qtz	80°	3 - bx Qtz beds? horizons as 156 - 15												
154																								
		154	155	→	→	XX	166.6	166.85			Ctc	80°	Si	I			bed	Tr						
155							* Black horizon w bedding & sediment deformation features - intensely silicified																	
		155	156				w 1.5cm white carb Vn in center of unit irregular u.c. @ 80° l.c. along bedding plane but irregular @ 80°																	
156																								
		156	157	→	→	XX	166.5	166.63			Bed	80												
157							166.85	167.03			Fine grained bedded sediment (No Vuggs) med grey l.c. @ 80° w Vuggy Dolostone ktl'n rock.													
		157	158																					
158																								
		158	159																					
159																								
		159	160																					
160																								

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(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
					160	161				* Xtl'n	Dolostone continues - Light to med grey w Local areas																
161											fine grain & w bedding features +/- ~~Sparmatolites~~ , <1% Vuggs buff																
					161	162					locally up to 5% over 50cm.								Stylolites								
162																											
					162	163																					
163																											
					163	164																					
164																											
					164	165																					
165																											
					165	166																					
166																											
					166	167																					
167																											
					167	168																					
168																											
					168	169																					
169																											
					169	170																					
170																											
					170	171																					
171																											
					171	172																					
172																											
					172	173																					
173																											
					173	174				173.63	173.69			Bed?	80°	* Grey Silica Band		uc.	25°	c.c.	85°						
174										174.40	174.50			Bed	83												
					174	175				174.50	174.63			Vn	Carb	- White	carb	Vein	w	Dolostone	Frags.						
175																											

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(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
					175	176				175.73	175.77		Bed+	Bx	85°												
176																											
					176	177																					
177																											
					177	178																					
178																											
					178	179				178	178.2		Bed	Bal	85												
179																											
					179	180				179.57	179.60		B	Bed	80	* Light to med grey - v. f. grain											
180																											
					180	181																					
181																											
					181	182				181	181.65			Qc.	58	* Carb healed Zone Poss SH?, Poss Original Sed.											
182														L.C	68	feature Carb ~ 30-40%											
					182	183																					
183																											
					183	184																					
184																											
					184	185				184.8	184.9			Bed	85												
185																											
					185	186																					
186																											
					186	187																					
187																											
					187	188				187	187.5			Vuggy - 5%													
188																											
					188	189				188	188.2			Bed	80												
189																											
					189	190																					
190																											

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(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%	
190					190	191				cont'd. - Dolostone - xtl'n observed. * Weak						- light to med grey w/ reaction to HCl.				bedding				* vuggs locally			
191					191	192																						
192					192	193				192.6	193.55			Bed	80°		* Stromatolites!											
193					193	194																						
194					194	195																						
195					195	196				195.4	195.6			Bed	80°		* Stromatolites											
196					196	197																						
197					197	198																						
198					198	199				198.4	199.0			Bed	80													
199														Bx			* Healed Auto Bx w/ white carb. more like carb Fracture Filling											
200					199	200																						
201					200	201				200.0	200.3			Bed	80		v.g. light grey Bedding.											
202					201	202																						
203					202	203				202.2	202.11			Bed	75													
204					203	204																						
205					204	205																						

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DRILL HOLE NO. 02 YO1 - 001

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(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
					205	206				* Dolostone cont'd																	
206																											
					206	207																					
207										206.6	206.75			Vug	5%												
					207	208				207	207.5			Vug	4%												
208																											
					208	209				207.9	208.4			Bed	85		* ~~Stromatolites~~ Stylolites?							Fe Hed?		
209																											
					209	210																					
210																											
					210	211																					
211																											
					211	212				211.5	212			Bx			Carb Healed			Bx							
212																											
					212	213																					
213																											
					213	214																					
214																											
					214	215				214.4	214.46			Bed	75		* 25% Black material										
215										214.65	214.90			Vug	5%		* 20% white carb.										
					215	216				215.05	215.5			Bed	75		* Top ½ Carb+grey Bed, Bottom ½ Grey ½ Dark grey b.										
216																											
					216	217																					
217																											
					217	218																					
218																											
					218	219																					
219																											
					219	220																					
220																											

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 5/02

(m)	Graphic Log Z L S M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
		220	221				Cont'd XTL'n Dolomite - Stromatolitic beds White-grey - Black (Bedding) Beds																	
221							Locally w/ variable						Vuggs - Open spaces w/ Carb xtl - Drusy interiors)											
		221	222				from 2% or less to						10% locally, Light to med grey colour.											
222																								
		222	223				222.7	223.35			Bed	85	* Stromatolites ? Color variations in beds											
223							223.35	223.75			Bed	80	Stylolites?											
		223	224																					
224																								
		224	225																					
225																								
		225	226				225.25	225.5			Bed	85												
226																								
		226	227																					
227																								
		227	228																					
228																								
		228	229				228.9	229.4			Bed	70	* Bed	varies 70° - 75°					Stylolites (Stromat's + Color variation)					
229																								
		229	230																					
230																								
		230	231				230.9	231.4			Vug	5%												
231																								
		231	232				231.9	232.3			Bed	75-80	* 3% Vuggs											
232																			1.5cm xtl.					
		232	233				232.3	235.3			Vug	10%	* ~10% Vuggs		w > 1cm		Carb xtl's in							
233																								
		233	234																					
234																			Stylolites					
		234	235				235.5	236			Bed	75	* Grey - Black - White		Beds - Stromat's + Colour					Beds 75				
235																								

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GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 5/02

Graphic Log (m)	Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
235					235	236	EDb	DLST						Vug	1-2%												
236					236	237				236	236.9			Bed	83	*											
										236.9	237.2					*	50% White Carb.										
237					237	238																					
238										237.4	241.3			Vug	6%												
					238	239																					
239										238.2	238.3			Bed	65	*	Stromatolites										
					239	240				238.9	239.2			Bed	60	*	Colour + Stromatolites										
240										239.2	239.5			Bed	55	*	as above.										
					240	241				[illegible]																	
241										241.3	241.6			Bed	60	*	Colour Variation + Stromatolites										
					241	242																					
242																											
					242	243				242.6	242.61			Ctc	85	*	Sharp contact of whitecarb w v.f.g. grey sed.										
243										244.5	244.51			Ctc	80	*	as above.										
					243	244																					
244										* Many generations of structures (ie. @ 236.6 - 236.9 Bedding is cut by v.f.g. grey unit @ ~ 45° with ** fractured & healed w white carb shifting																
					244	245				every thin < 1cm. ** locally many areas are mottled & have a brecciated																	
245										appearance that has been healed by carb. (White)																	
					245	246																					
246																											
					246	247				246	246.1			Bed	65°	*	Color variation + Stromatolites										
247										246.63	247.08			Carb	70%	*	70% white carb w grey fragments enclosed										
					247	248																					
248																											
					248	249																					
249							EDH	DLST	—	249.83 → 269.15 m				Dolostone.														
					249	250				light (-med) grey fine grained calcareous (dolomitized) sediment. This is similar unit as above but vuggs are < 2% Locally generally																	
250										< 0.5% for unit. Also carb material has decreased to ~ 3% of fract or Bx infilling & one pure bed? Vn 20cm in length.																	

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GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 9/02

Graphic Log (m)	Z	L	S	M
250				
251				
252				
253				
254				
255				
256				
257				
258				
259				
260				
261				
262				
263				
264				
265				

Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%	
250	251				the Seds are v.f.g & xtl'n - the core is solid & competent w/ bedding features normally observed as Bx beds, colour																		
251	252				changes in beds or increased Carb content in beds. * No																		
252	253				Fe-ltd (Black) material observed.																		
253	254				251.10	251.20			Bed	80	*	Bed in Carb bands & colour change.											
254	255																						
255	256				255.65	255.85			Vn	85/68	*	Pure Carb Vn w/ assym Frags of Dolostone C.C.											
256	257				is assym & irregular @ ~ 85° C.C. Sharp @ 68°																		
257	258				257.4	257.5			Bed	80	*	Bx of DOST Frags & Carb infilling - Frags											
258	259				oriented @ 80° & C.C. 80° w/ colour change																		
259	260				258.8	259.8			Bx	85	*	Carb Healed Bx. No sharp edges to Frags											
260	261				C.C. @ ~ 85°																		
261	262				260.3	260.4			Bed	70-80	*	Carb + Color changes											
262	263				261.3	261.4			Bed	65	*	Bedding											
263	264				262	265					*	Fe-staining on fractures (very minor) in											
264	265				some areas ? Fe? Alteration selvages																		
265					~ 1-1.5cm. No Cu mins. or Py observed.																		

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 9/02

Graphic Log (m)	Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
265					265	266																					
266					266	267																					
267					267	268																					
268					268	269.15	~~EOH~~	~~LMST~~		269.14	269.15		Bed.	L.C	80°												
269					269.15	270.65	EOH	LMST		269.15 → 270.65m			Bed		60-90	Si	m	Limestone → Dolostone		(Mod → good reaction to HCl							
270								DLST		Black → Dark grey well bedded locally Sil'f. f.g. bedded Calcareous Beds																		
270.65	271									Bedding is 90° @ top section → Beds ↘ 85 → 80 → 70 → 60° down section																	
271										Carb. material as beds? Vns? Some fract. fill ~5%, L.C is gradational																	
272					271	272				back to more grey Dolostone before encountering a breccia zone.																	
273					272	273	EOH	DLST		270.65 → 300.40m						Si	Tr										
274					273	274				Light-Med grey Dolostone w> mod rxn to HCl No Fatted (Black) material. Mostly rock remains fine grain xtlin more solid &																	
275					274	275				Competent looking w only 3-5% white carb material as fracture & Breccia filling. Locally small areas w Silicification																	
276					275	276				Bx is generally local and well healed except @ u.c.																	
277					276	277				270.65 – 270.23	?			Bx	Vuggy		* large Vuggs +1cm x 3cm mostly Carb										
278					277	278				272.45 272.85	3			Carb			filled & healed Bx										
279					278	279				273.05	273.25			Bed	80-85												
280					279	280				275.3	275.6			Sil	80-85		* med-dark grey Sil. section contacts ~80-85° other poss bug or plant structures?										
										278.15	278.25			Bed	80		* Colour & Carb. beds? parallel blebs?										
										279.4	279.41			Bed	85		* Colour										
										280.7	280.71		u.c.	Bed	85		* gradational 20cm u.c.										

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DRILL HOLE NO. 02 YO1 - 001

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Date: Nov 9/02

(m)	Graphic Log Z L S M	Interval (m) From	Interval (m) To	Zone Code	Rock Code	Sulph Code	Structure From	Structure To	Structure Shr	Structure Stk	Structure Opn	Structure Ang	Alteration Type	Alteration Ints	Alteration Type	Alteration Ints	Mineralization Type	Mineralization Py	Mineralization Cp	Mineralization Cc	Mineralization Mc	Mineralization Cv	Mineralization Opn	Mineralization %
280		280	281				280.9	281.02			Bx		Si	m		*	parallel carb Healed Fracts @ 68°							
																*LC @ 80°								
281		281	282																					
282		282	283																					
283		283	284				283.5	283.51			Bed	70												
284		284	285																					
285		285	286				285.2	285.3			Bed	85												
286		286	287																					
287		287	288				287.	287.25			Bed	85												
288		288	289				287.5	289.5					* mottled look to core like Carb Healed Bx ? assym leaving a ghost Bx?											
289		289	290				289.7	289.85			Bed	85	* UC + LC @ 85 color change + diff bed.											
290		290	291																					
291		291	292				291.2	291.5			Bed	85												
292		292	293				292.2	292.3			Bed	85												
293							292.8	292.9			Bed	85												
		293	294				293.8	294			Bed	85	* grey w white carb beds? limation.											
294		294	295				293.3	293.31			Bed	85	* color change.											
295																								

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DRILL HOLE NO. 02 YO1 - 001

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(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
					295	296																					
296																											
					296	297																					
297																											
					297	298				297.75	298.5			Bx		* Carb Healed + diff colour Frags				Semi rounded semi angular.							
298																											
					298	299																					
299																											
					299	300																					
300																											
					300	301	EDH	DLST		300 → 352.65 m						Fe	vw										
301										Dolostone cont'd from above w an increase in carb material,																	
					301	302				white - pure (mod-strong rxn to HCl) as veins & fracture / Bx																		
302										Filling / healing. Core is only Unegy locally usually <15cm																	
					302	303				lengths at areas of Carb Healing of Brecciated areas.																		
303										Fetted areas are very rare but a couple single stylolites are																	
					303	304				observed & 1 or 2 sections <10cm w increased Black																	
304										material. Overall core has weak to mod. rxn to HCl.																	
					304	305				* Several areas show weak Fe oxide on Fractures & Pervasive																	
305										in core pass as an Fe-Carb. locally this Brown Orange colour																	
					305	306				is observed as selvages to fractures or Veins & resembles (in																	
306										the dark where I am logging) Potassic alt'n??																	
					306	307																					
307										300.7	300.75			Bx	85												
					307	308				302.98	303			Vn	70	* Carb Vn 1cm sharp.											
308										303.3	303.4			Bx?	80	** Fetted weak											
					308	309				303.55	303.6			Vn	75	* Carb Vn 5cm sharp.											
309										304.95	305.2			Vn		* Carb Vn irregular crosscutting Contact ~80°											
					309	310				305.2	306.7			Bx		** Angular DLST Frags in White Carb.											
310									**	307.9	309.15			CARB		** >80% White Carb pure w crosscutting Frags of Host.											

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GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 10/02

(m)	Graphic Log Z L S M	Interval (m) From	Interval (m) To	Zone Code	Rock Code	Sulph Code	Structure From	Structure To	Structure Shr	Structure Stk	Structure Opn	Structure Ang	Alteration Type	Alteration Ints	Alteration Type	Alteration Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
310		310	311				309.15	310.35			Bx		* carb veins @ 75°											
311																								
		311	312				311.3	312			Bx													
							312	312.15					* Dark Grey ~~Black~~ angular - ass'yn. - sharp boundary Fragmental material											
312		312	313																					
313							312.6	312.61			Bed	80												
		313	314				312.61	313			Bx				A carb Fract Fill.									
314																								
		314	315				313	316					Fe	vw										
315								↳	core is		bleached - w very light orangy - brown locally pervasive													
		315	316						& @ Broken areas															
316																								
		316	317				316.65				* 1 stylolite @ 80° (Fetted)													
317																								
		317	318				317.5	318.1			Vn		* 75% white carbonate to ass. bx Frags.											
318																								
		318	319																					
		319	320																					
320																								
		320	321				320.8	321			Bx													
321							321.15	321.2			Bed	80	* Bed? w.n Color diff. units or Bx?											
		321	322																					
322																								
		322	323																					
323																								
		323	324																					
324																								
		324	325				324.3	324.5			Bed	85			* Appears to be real bedding?		Bx = L.C.							
325																								

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(m)	Graphic Log Z L S M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
		325	326																					
326		326	327																					
		327	328																					
328		328	329				328.1	328.3			Vug	4%	*	Solid-competent core w vuggs										
329		329	330																					
330		330	331				330.1	330.35			Vug	6%	*	Bx w Carb Healing Vuggy & Broken core										
331		331	332				331.83	333.4					Fe	W											
332								↳ Bleached - light orange-Brown pervasive colour * L.C. 1cm 70° Orange																
		332	333					Fe-Carb. Vein																
333																								
		333	334																					
		334	335																					
335		335	336				335	345					Fe	W										
336								↳ Strongest @ 335-335.4 & 344-345m																	
		336	337					↳ Bleached areas w Pervasive O-B colour. * Fe Stain on Fractures																
337								* also Many Oxide dendritic Dark-brown-black on Fractures No Cu																
		337	338					w Neil test.																
338																								
		338	339																					
339																								
		339	340																					
340																								

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DRILL HOLE NO. 02 YO1 - 001

Logged By: B Thurston
Date: Nov 10/02

(m)	Graphic Log Z L S M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
		340	341																					
341																								
		341	342																					
		342	343																					
343																								
		343	344																					
344																								
		344	345				345.35	346.15			Vug	4%												
345																								
		345	346																					
346																								
		346	347																					
347																								
		347	348																					
348																								
		348	349				348.9	349.4			Bx		* w	Vuggy <2%	- Carb Healed.									
		349	350				349.4	349.8		Bal	80		* Parallel white carb blebs - Flattened & Coherent											
350																								
		350	351																					
351																								
		351	352.65				351.6	352.		Bal	80													
352							352.65			Ctc	80		* Sharp contact w Bx. But gradational into Bx											
		352.65	353				Dolostone	FAULT 352.65 - 393.05							Bx to ~ 353.80m										
353				CDb	DLBx	Dssx											Diss	<0.2						
		353	354				This is a healed Fault Zone within the Dolostone. Multiphase																		
354							Brecciation. w varying assimilation of Dolo-fragments First healed																		
		354	355				w Black-graphitic-Fetted (Columnar shale locally) material & then																		
355							By White carb Bx-fracture filling more locally.																		

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GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov. 16/02

Graphic Log (m) Z L S M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
	355	356				assymilation of Dolo - frags has left a mottled appearance																	
356						to core locally; other areas have angular Bx Frags.																	
	356	357				* Some areas of Black material - fracture filling have Polished																	
						glass surfaces w/ in graphite. ** Py is observed patchy in																	
	357	358				Black matrix to Bx. *** Locally Vuggs with white calcite																	
358						up to 1% for 20-30 cm. **** Some Core appears not to be Brecciated																	
	358	359				& has Bedding ~ 80° to C.A. (75-85°). ***** Gouge & Groom at																	
359						missing core @ 380.30m. ****** Black material - Felted - Rotten & sme																	
	359	360						**	~	10% of	Core in this section is Black Material ~ 1-2% Pervasive												
360					**	352.6	352.9			Bx	80°												
	360	361			Py →	353.8	357.8			Bx		* Diss Py		* Graphite		30cm Black Solid.							
361						357.3	364.4			Bx		mottled appearance											
	361	362																					
362					Py →	362	362.03			S/S	40°	* Polished graphite (movement)				Angular Bx.							
	362	363																					
363																							
	363	364																					
	364	365																					
365																							
	365	366				365	365.3			Bed	80												
366																							
	366	367				366.05	366.09			Bed	80°	* graphitic Black Bed											
367																							
	367	368				366.7	368.5			Frct		* Carb filled Fracts / ~~Stockwork~~		Bx infill 3%.									
368																							
	368	369																					
369																							
	369	370																					
370																							

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(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
370					370	371																					
371					371	372				371.65	372			Bed	85												
372					372	373																					
373					373	374				373.65	373.85		Black	infill		Bx. - graphite.											
374					374	375				375.5	376			Bky		* graphite - Black infill											
375					375	376																					
376					376	377																					
377					377	378				377.6	378			Bky													
378					378	379				378.7	378.9					* Fc Carb. Brown Stain ferroan. in Carb. assoc. w/ 2cm irregular Black Bx infill											
379					379	380																					
380										381				GGE	?	* 60cm core missing											
					380	381				380.2	382			Bky													
381					381	382																					
382					382	383				382.5	383.5			Vug	1%	* White carb filled Fract's in vugs											
383					383	384																					
384					384	385																					
385																											

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DRILL HOLE NO. 02 YO1 - 001

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(m)	Graphic Log Z L S M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
386		385	386				385.65	386.8			Bx		* increase in Black as Fract/Bx matrix.											
		386	387				386.8	390			Bx		* Strong Healed Bx. (Felted?) Black matrix > white carb. ** Mottled appearance to assymilated fragments.											
388		387	388																					
389		388	389																					
390		389	390				390.8	391.2			Bx		Strong Black Matrix.											
391		390	391																					
392		391	392				393.05	Lower contact of Healed Fault zone is gradually more a color change. @ a gradational contact. Rock is still Bx'ed after this point but appears to be more as white carb infilling fractures w/ local Bx + angular frag's - acute Bx. Not Fault																
393		392	393.05																					
		393.05	394	EOh	DLBX		393.05 → 470.93m																	
395		394	395				pretty much same w/ as above: w/ Light grey to Dark grey color to core Bx ranges from Auto Bx to assymilated Bx w/ Mottled textures																	
		395	396				** One change is the lack of Black material → graphite or Shale or Felted Black matrix to Bx. From 10% above to < 2% in this section. ** Carb Fracture/Bx infill increases downsection to 4%																
397		396	397				overall ~ 3% for section. * Core is Solid & competent.																	
398		397	398				397.50	397.81			Bed	80	* More of a contact irregular Sharp contrasting Colour + Rock.											
399		398	399				398.6	397.5			Bx		* White Carb Matrix - Angular > Rounded - assymilated.											
		399	400				399.8	400.1			Bed	80	* Bed? or Bx? But Parallel like Bedding											
400																								

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 17/02

(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
					400	401																					
401					401	402				401	402			Bed	85°	* colour changes to		heels.									
					402	403				402	407			Bx	ST	Healed Bx w rounded light grey frags in											
403																a dark grey matrix w white carb											
					403	404										fracture Filling for first meter											
404																											
					404	405																					
405																											
					405	406																					
406																											
					406	407																					
407																											
					407	408				407.8	408			Bed	75												
408																											
					408	409																					
					409	410				409.20	410			Bed	85												
410																											
					410	411				410	411.4			Bx		* Light grey w Black matrix - re brx'd w carb in f.11											
411																											
					411	412				411.4	412.8			Bed	80												
412																											
					412	413				412.8	417.8			Bx		* mostly assym. lated Frag muds - Mottled											
413																texture. Lighter Grey w Dark Grey											
					413	414										matrix & Later Carb. fracture Fillings											
414																~ 416.5 core is very Blocky to 417.8 m											
					414	415										this is due to Poorly healed Fractures in											
415																this section that have broken ~ 35°											

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 17/02

(m)	Graphic Log Z L S M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
416		415	416				417.9	420.15			Bx		* Dark Grey colour to core - mottled appearance to Bx. - Rounded Assim lated Fragments w Later carb - healed Fractures.											
		416	417																					
		417	418										Lic. <5cm w 1-2cm White carb & sharp angular dark & Light grey Dolostone fragments											
418		418	419										fining down sections to laminated Beds.											
419		419	420																					
420		420	421				420.15	423.6			Bed	80	* light grey Dolostone w Bed 80-85°											
421		421	422										* white carb Fractures are mostly Parallel or close to // to Bedding angles.											
422		422	423										* gradational Darkening of core over last meter.											
423		423	424				423.6	430.1			Bx		* mix of Dark grey & light grey sections.											
		424	425										* mostly mottled appearance to core as Bx											
425		425	426										* Some areas w/dk frag's have bedding? or lineations.											
426		426	427										* 1-2% White carb fracture filling increasing in last meter.											
427		427	428																					
428		428	429																					
429		429	430				430.1	431.8					med grey - white carb frac fillings											
430																								

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YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B Thurston
Date: Nov 17/02

(m)	Graphic Log Z L S M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
431		430	431				430.8	435			Bx		* Med Grey mottled Bx ~ 2% whispy fine fractures w carb. fill.											
		431	432																					
433		432	433																					
434		433	434																					
435		434	435				435	442			Bx		* Dark grey core w 72cm irregular shaped carb infilling what would be Vugs. mostly assym frags to 435.5m											
											Bed	85°	Then Bedding @ ~85° for 1m. (75°-85°)											
436		435	436										followed by ~2.5m of Dark Bx re-brecciated w											
		436	437										white carb matrix. ½ angular Dark grey frags											
437													of mottled Bx.											
		437	438										* Carb ~3-4% in this section.											
438																								
		438	439				442	451.7			Bx		* Light to med grey Rolston w mottled Bx healed w Dark grey & this is re-brecciated											
		439	440										w Sharp contacts & angular Fragments w											
440													white Carb Matrix → Auto Bx Fract-Filling											
		440	441																					
441																								
		441	442																					
442																								
		442	443																					
443																								
		443	444																					
444																								
		444	445																					
445																								

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YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 17/02.

(m)	Graphic Log Z L S M	Interval (m) From	Interval (m) To	Zone Code	Rock Code	Sulph Code	Structure From	Structure To	Shr	Stk	Opn	Ang	Alteration Type	Alteration Ints	Alteration Type	Alteration Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%	
446		445	446																						
		446	447																						
448		447	448																						
		448	449																						
449		449	450																						
450		450	451																						
451		451	452				451.7	452			Bed	65°													
452		452	453				452	454.1			Bx		* Med-Dark grey mottled Bx w Acute Bx's Carb infill - Carb ~ 8-10% of Rock.												
453		453	454				454.1	454.5			Bed	85	* Contact w Bx @ 70° Bed Bed avg 80-85°												
455		454	455				454.5	456.			Bx		* med grey mottled Bx * Last 25cm Re-Bx'd. Carb Fill - angular Frags - irregular L.C. blw 60-80°												
		455	456																						
456		456	457				456	460.35					* DARK Grey Mottled Bx w Carb Re-Bx * * Carb Fract Fill / Bx @ 5-10° Strong & Stockwork L.C. Sharp w Light grey Fine grain Calc. Sed Rock												
457		457	458																						
458		458	459																						
459		459	460.4				460.35	460.40			Clc	45°													
460																									

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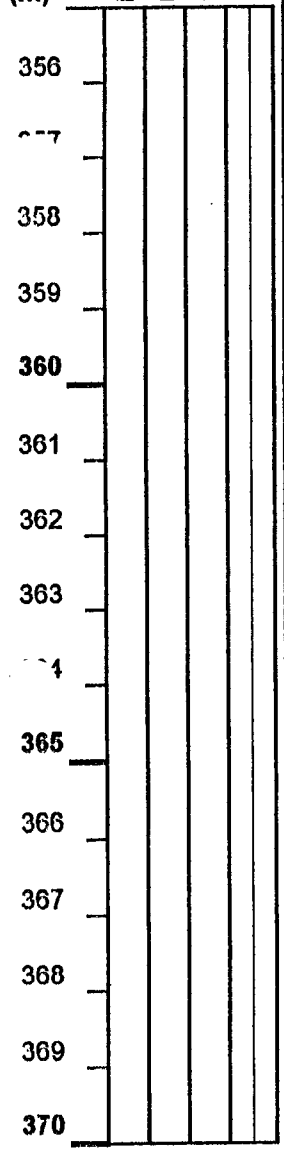
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 17/02



Interval (m) From	Interval (m) To	Zone Code	Rock Code	Sulph Code	Structure From	Structure To	Shr	Stk	Opn	Ang	Alteration Type	Alteration Ints	Alteration Type	Alteration Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%	Description
355	356																						
356	357																						
357	358																						
358	359																						
359	360																						
360	361																						Cont'd From 460m Page 31.
4361	4362				460.4	469.6			Bx														* Light Grey Dolostone Bx w mix of assymetric irregular fragments, Bx'd areas w apparent Bedding @ 65° & Re-Bx'd - White Carb healed auto Bx / fracture filling. L.C. Sharp @ 70° w Black Carb. Seal. * Carb material in 4-5% - Fracture Fill up to 5cm Stockwork generally >1cm
362	363																						
363	364																						
364	365																						
365	366																						
366	367																						
367	368																						
368	369				469.6	469.61			Ctc	70°													* Sharp - Dark gray to Black over ~ 3cm Bedd.
					469.61	470.05																	* Dark Grey - Black carb. Seal L.C. w 25cm carb
4369	4370								Ctc	80°													healed Bx @ 80°, Last 2cm down section of carb
					470.05	470.3			Bx	85													graded finer down section.

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GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 01

Logged By: B. Thurston
Date: Nov 17/02

(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
371					370	371	CDb	DLBX		470.3	494.			Bx		* Bx continues. Lesser light grey fewer than in previous sections but and still observed ? Several phases of Bx'n are still observed. ** Difference w other Bx's is the increase in white carb material as Bx Matrix & fracture Filling. ~ 6% of core. many veins >2cm up to 5 or 6cm but also alot of stockwork as fracture Fill in the mm scale				Mix of dark to med grey w areas. * Mottled areas are							
372					371	372																					
373					372	373																					
374					373	374																					
375					374	375																					
376					375	376																					
377					376	377																					
378					377	378																					
379					378	379																					
380					379	380																					
381					380	381																					
382					381	382																					
383					382	383																					
384					383	384																					
385					384	385																					

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YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 17/02

(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
386					385	386																					
					386	387																					
387																											
					387	388																					
388																											
					388	389																					
389																											
					389	390																					
390																											
					390	391																					
391																											
					391	392																					
392																											
					392	393																					
393																											
					393	394	EDb	DLBx		494.00 → 523.60m Dolostone. Breccia.																	
394										This section Differs from the other DLBx units above for its Dark Grey to Black colour. Still An early Bx stage is notted ivt the mottled appearance to the core as Bx Fragments are assymilated into matrix.																
					394	395				* The Sharp Contrast of the White Carb. as another Phase of Bx'n occures as matrix to Sharp angular Black-Dark Grey fragments as well as fracture filling. ~ 5% white calcite																
395										w/ some Vcins > 10cm ± Bx frags.																	
					395	396				* Core has weak rxn to HCL acid. * Carb - white also weak rx																	
396																											
					396	397				* Some small intervals of core w poss. bedding																	
397																											
					397	398																					
398																											
					398	399																					
399																											
					399	400																					
400																											

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 17/02

(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
400					400	401				498.3	498.7			Bed	85°												
401																											
					401	402				502.8	502.81			Ctc	65°	*	L.C. Contact of	Grey	Rock w	Carb Healed							Bx.
402																											
					402	403																					
403																											
					403	404																					
404																											
					404	405																					
405																											
					405	406																					
406																											
					406	407																					
407																											
					407	408				507	507.5			Bed	70												
408																											
					408	409																					
409																											
					409	410																					
410																											
					410	411				511	511.01			Ctc	85°	*	contact	Bx carb	Healed	L.C. w	Black Grey						
411																											
					411	412				511.5	512			Bed	80°	*	Poss Bedding?										
412																											
					412	413																					
413																											
					413	414				514.2	514.21			Bx Bed	65	*	Prob. Bx contact but Poss. Bedding										
414																											
					414	415				515.5	519			Bx		*	increase in small-scale fracture fill & Bx matrix of white carb Stockwork ± open space filling. ~7% carb.										
415																											

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GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 17/02

(m)	Graphic Log Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
415					415	416																					
416					416	417																					
417					417	418																					
418					418	419																					
419					419	420																					
420					420	421				521.6	521.8					Fe	VW			* Fe-Stain on Fractures							
421					421	422				522.7	523.05					Fe	VW			* Fe-Stain on Fractures							
422					422	423.6					523.6			Ctc	?					* Lower contact is unsure as colour changes to light grey-Analogous as Bx continues.								
423					423.6	424				523.6 →	532.50			m		Dolostone Breccia / Healed Fault / Crush Zones.											
424							EDb	FLT																			
425					424	425				* Light - Med Grey Dolostone - Solid competent but many fractures to ~ 527.8m. Poss Healed Gauge ? @ 525.35 → 525.80 m.																
426					425	426				* Very Blocky, Fractured, Crush Zones, missing core from 527.8 - 530m. But no Gauge. * remainder of Section is Fractured to Blocky w minor Fe stain on Fracts. * L.C. ~ 20cm of Pure Carb. material; Angle? Bkn.																
427					426	427																					
428					427	428				527.8	530			Bkn	?												
429					428	429																					
430					429	430																					

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YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 18/02

Interval (m) From	Interval (m) To	Zone Code	Rock Code	Sulph Code	Structure From	Structure To	Shr	Stk	Opn	Ang	Alteration Type	Alteration Ints	Alteration Type	Alteration Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
430	431																					
431	432.5	EDb	FLT		532.5	541.5					Fe	vw			Fr	Tr						
432.5	433				Dolostone Breccia						med-Dark gray mostly angular Fragments to Subrounded. Frag's of light-med & dark gray Dolostone w Carb healed matrix > Black matrix												
433	434										* Fe-Stain is beginning to appear on Fract's down section & core is becoming more Blocky.												
434	435										* First 2-3m look like the section ⇒ 494 - 523.6m Dark grey w/ large white carb veins - healed Auto Bx. But w/ Sections of mottled Bx.												
435	436										* ~4% white carb throughout.												
436	437										* No Structures to Pull out.												
437	438										* L.C. is beginning of Crush Zones.												
438	439																					
439	440	EDb	FLT		541.5	544.7									Diss	Tr						
440	441				Healed Bx/FLT/Gouge Zones w Crush Zones & lots of missing core. No c-lay as Gouge but Crush Zones down to sand size particles ~ 80cm Solid core in section Showing assym Light grey frags in a med-Dark matrix. * No Fe on Fractures * Gouge Zone Prob washed away.																
441	442																					
442	443																					
443	444.7										* This is just a ~~the~~ crush zone of unit above * Black Fetted material often assoc w/ fract's ± Py. * True Py disc in core												
444.7	445																					

Graphic Log (m) 431 433 434 435 436 437 438 439 440 441 442 443 444 445 — Z L S M

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YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 19/02

Interval (m) From	Interval (m) To	Zone Code	Rock Code	Sulph Code	Structure From	Structure To	Shr	Stk	Opn	Ang	Alteration Type	Alteration Ints	Alteration Type	Alteration Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
445	446	EDb	FLBX		544.7	553.0									Diss	~0.2						
446	447																					
447	448																					
448	449																					
449	450																					
450	451																					
451	452																					
452	453	EDb	DLST		553	462.97			Bed	80-85	Fe	vw			Fract	0.5					Grey	? Tr
453	454																					
454	455																					
455	456																					
456	457																					
457	458																					
458	459				554.6	555			Bed	80												
459	460				556.8	557.5			Bed	85												
					558.65	560.4			Bx L.C.	80												
					562.1	562.3			Bed	80-85												
460	462.97																					

E.O.H.

Page ~~01~~ 38 of 38

Graphic Log (m) — Z L S M

Structure: Shr = Shear; Stk = Strike; Opn = Opening; Ang = Angle

Alteration: Ints = Intensity

Mineralization: Py = Pyrite; Cp = Chalcopyrite; Cc = Chalcocite; Mc = Malachite; Cv = Covellite; Opn = Opening; % = Percent

From 445 To 446 — EDb — FL BX

544.7 To 553.0 — Diss ~0.2

FAULT Bx - Dark > med grey colour. Matrix is Dark w almost no carb. matrix / veins / Fracture fill. * Fragments are irregular shapes & Partially assimilated in matrix. * Looks like a healed Contact Zone. * Py is diss throughout core, most easily seen on fractures but Not Fracture assoc'd.

* L.C. - Missing ~ 1m of core b/w 552.5 → 553.5m. Grainy - Sandy material coating fractured core w minor Fe-Stain Gouge Fault - ~~Fault~~ material washed away.

From 452 To 453 — EDb — DLST

553 To 462.97 — Bed 80-85 Fe vw — Fract 0.5 — Grey ? Tr

Dolostone w minor Bx. Core is light grey - very fine grain - Solid & Competent. * Not silicified but seems harder prob. because of the fine grain nature. Carb - white as mm-scale irregular to sub rounded shapes & as void space fill & fracture Fill - Fractures generally < 2mm * Brittle fracture to Core - w weak Fe-Stain on Fractures. ↓ oxidized Py diss's * Fresh Py also observed on Fract's almost exclusively. → * Grey metallic ? assoc. w Py in veins of carb. fract Fill.

554.6 To 555 — Bed 80

556.8 To 557.5 — Bed 85

558.65 To 560.4 — Bx L.C. 80 — * mottled Bx Very dark grey w grey-black matrix * L.C. Bx Sharp @ 80° w/ grad. transition over 2cm into Bx

562.1 To 562.3 — Bed 80-85 — * Lineations in core ~ 80-85° Pyss Bedding

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT
Yukon Territory
Canada

GEOTECHNICAL LOG

DRILL HOLE NO. 02 YO1 - 001

H = Dacited to Hanson Brokers Ltd. Whitehorse

Logged By: Brian Thurston
Date: Nov 1/02

Box No.	Interval (m) From	To	Lgth	Recovery (m)	%	RQD (m)	%	J.C.S Hard	Wthr Altn.	F.F. Xjoint	J.R.C. Shape	Rough	Struc Type	Dip To CA	Comments
1	0.00	27.74	27.74	OVBR	—	—									OVERBURDEN
	27.74	30.18	2.44	2.25	92	0.67	30	4	3-4	28	3	3	SH	25°	0.3cm SH 1/4 Gouge @ 25° to BX
1-2	30.18	31.70	1.52	1.40	92	0.75	54			10	1	3	SH	10°	Healed SH in Carb 10's-10°
2	31.70	34.75	3.05	2.60	85	1.40	54			23	1	3	SH	15°	Healed SH+Bx @ 15°
2-3	31.75	36.27	1.52	1.40	92	0.57	41			9	4	3	SH	15°	↓ ↓ @ 5-20°
3	36.27	37.80	1.52	1.32	87	0.41	32		2	+30	4	4	CSH		Sections of crushed core/gouge SH?
3-4	37.80	40.84	3.04	2.70	89	1.60	59			24	1	2	SH	30°	6cm Gouge SH Carbonate Healed
4	40.84	42.37	1.53	1.40	92	0.95	68		2	13	—	—	GGE		2-10cm Sections of Gouge @ 60° & ??°
4	42.37	43.89	1.52	1.15	76	0.23	20			10	4	4	SH	10°	Healed Carb Bx SH ~ 5-10°
5	43.89	45.42	1.53	1.40	92	0.83	59			14	3	3	SH	5°	Fract 0-5° / SH 10° in Sst
5	45.42	46.94	1.52	1.40	92	1.00	71			10	4	3			
5-6	46.89	48.46	1.52	1.52	100	1.00	66			7	3	3	Bx/Br	5°	Breccia Healed 75cm
6	48.46	49.99	1.53	1.40	92	1.07	76			8	3	3	SH	60	SH win Bx (Healed SH) @ 60° 2cm
6	49.99	51.51	1.52	1.57	103	1.33	86			7	3	3	SH	55°	Calc Vein/SH @ 55° (grey ± white to clear)
6-7	51.51	53.04	1.53	1.44	94	0.85	59	↓		9	4	4	Vn	40°	White Calc Vein @ 40° 15cm / @ 0-40° Bx
7	53.04	55.32	2.28	1.90	83	1.10	58	6		18	3	4	Br/Bx	0-5°	Breccia/SH // to C.A/Siliceous/Carb
7	55.32	56.08	0.74	0.74	100	0.37	50	↓		5	4	4			Healed Bx'd SH Carb/Siliceous Zone
7-8	56.08	57.61	1.53	1.38		0.55		3	5	7 too many	—		GGE	75°?	2 Joints in Lust / Crush Zone + Gouge in Shale
8	57.61	59.13	1.52	1.40		0				Too many	1	2	CSH	Bky	(bedding @ 75°-80°)
8	59.13	60.20	1.07	0.85		0				20+	1	1	S/S	35°-55	
9	60.20	61.57	1.37	1.37		0				20+	1	2			
9	61.57	63.09	1.52	1.52		0.78				12	1	2	GGE	75	62.75-6280 GGE+Carb 75°?
9-10	63.09	65.23	2.14	1.85		0.15				25	1	2			
10-11	65.23	68.28	3.05	2.85		1.28				25	1	2	GGE	?	66.70-67. GGE+Carb ?°
11	68.28	69.80	1.52	1.60		1.03				10	1	2			
11	69.80	71.32	1.52	1.52		1.37		↓	↓	6	1	2			↓

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

Yukon Territory
Canada

GEOTECHNICAL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 2/02

Box No.	Interval (m) From	To	Lgth	Recovery (m)	%	RQD (m)	%	J.C.S Hard	Wthr Altn.	F.F. Xjoint	J.R.C. Shape	Rough	Struc Type	Dip To CA	Comments
12	71.32	72.85	1.53	1.60		1.18		3	5	5	1	2			Sed-deformation on mm-scale Carb & Py beds
12	72.85	74.07	1.22	1.55		1.30				6	1	2			(Bedding 75-80°)
12-13	74.07	75.59	1.52	1.60		1.27				9	3	3			
13	75.59	77.27	1.68	1.50		1.30				7	3	2			
13	77.27	78.79	1.52	1.52		0.85				8	1	2			5cm Grey Limey Bed.
13-14	78.79	80.47	1.98	1.55		1.22				7	3	2			* I think Drillers making up for Extra Footage @ 78
14	80.47	81.99	1.52	1.52		1.30				7	2	2			
14-15	81.99	83.52	1.53	1.53		1.18				11	3	3			20cm Grey Limey bed L.C. 83°
15	83.52	83.82	0.30	0.20		0				2	1	2			
15	83.82	85.34	1.52	1.30		0.21				+25	1	2	GGE	75°?	84.1 - 84.7 5cm GGE + 750% White Carb SH Zone Carb fills 25mm
15	85.34	86.56	1.22	1.22		0.53				+20	1	2			
15-16	86.56	88.09	1.53	1.53		0.31		4	4/5	16	3	3			2cm Carb Vn @ 70° / Carb replaced Shells
16	88.09	89.15	1.06	0.93		0		3	5	+20	1	2	BKY		(Bedding 75°-80°)
16-17	89.15	90.68	1.53	1.53		0.70				15	1	2			
17	90.68	91.44	0.76	1.18		0.40				12	1	2			
17	91.44	94.18	2.64	1.90		0.20				+25	1	2	Vn	70	* Reduced @ 91.44m / 3cm Carb + Shale Bx Vn @ ?
17-18	94.18	95.40	1.22	0.80		0.35				17	1	2	Bky		
18	95.40	96.93	1.53	1.25		0.44				15	1	2	GGE		Fault Gouge
18	96.93	99.97	3.04	2.85		1.37				30	1	2	S/S	25/45	2-3cm Carb + bx @ 75°
19	99.97	102.72	2.75	2.95		0.95				30	1	2	GGE	77?	Sh 50° & 30° 3cm Clay GGE @ 77° & L.C.
19-20	102.72	105.92	3.20	2.95		0.45				+30	1	2			Breaking along bedding. 105.5 Irregular Fge.
19-20	105.92	108.97	3.05	2.75		1.67				+20	1	2	Bed	80°	
20-21	108.97	112.01	3.04	3.10		2.70		4		9	1	3			
21	112.01	115.06	3.05	3.05		3.05				3	3	3	Vn	60°	3cm Carb bx Vn. @ 60°
21-22	115.06	118.11	3.05	3.10		3.10				3	4	4			
22	118.11	121.16	3.05	3.80		2.20				14	3	3	Bed	70°	Fract ~ // to C.A.

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

Yukon Territory
Canada

GEOTECHNICAL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 3/02

Box No.	Interval (m) From	To	Lgth	Recovery (m)	%	RQD (m)	%	J.C.S Hard	Wthr Altn.	F.F. Xjoint	J.R.C. Shape	Rough	Struc Type	Dip To CA	Comments
22-23	121.16	124.36	3.20	3.00		2.50		4	5	16	3	2	Fr	0/15°	carb · slt & bx 75°/ Fr ~11 to c.A.
23	124.36	127.41	3.05	3.00		1.77		5	95	15	3	2			
23-24	127.41	130.00	2.59	2.59		2.59		6	96	18	3	4	c+c	25°	Silicified c+c 75°
24	130.00	133.05	3.05	2.70		2.25		6	96	19	3	3	c+c	23°	↓
24-25	133.05	133.81	0.76	0.97		0.70		5	5	7	3	3	c+c	70°	↓
25	133.81	136.86	3.05	3.05		2.415		4	5	22	1	2			Silicified to 134.45m
25-26	136.86	139.90	3.04	3.04		3.04		↓	↓	10	4	4			Breccia
26	139.90	142.95	3.05	3.05		3.05				5	4	4			Breccia.
26-27	142.95	146.00	3.05	2.80		2.80				4	3	3			
27	146.00	149.05	3.05	3.05		2.85				12	3	4	Bed?	73	Bed? 75°
27-28	149.05	152.10	3.05	3.05		2.80				11	3	3			
28	152.10	155.14	3.04	3.04		3.00				8	3	2			← Qtz Bx in section 68° → 85°
28-29	155.14	158.19	3.05	3.05		2.10				17	3	3	Fract	15°	weak Fe stain on Fract + Py Fr. + 10°-15°
29	158.19	161.24	3.05	3.05		2.90				8	3	3			
29-30	161.24	164.29	3.05	3.05		2.80				7	3	3			
30	164.29	166.73	2.44	2.70		2.50				6	1	3			Qtz Bx veins 80-85°
30-31	116.73	169.77	3.04	2.70		1.90				15	3	2			
31	169.77	172.21	2.44	2.47		1.25				22	3	3			
31-32	172.21	175.26	3.05	3.05		2.16				16	1	3	Bed	75-85	Carb Vn 174.5 - 174.63 Pure White & frag
32	175.26	178.31	3.05	2.80		2.73				17	1	3	Bed	85	Bed @ 176.77, 178.2
32-33	178.31	181.36	3.05	3.10		2.50				12	4	4	Bed	80	Carb Zone w Vuggy Carb Heal Slt Loss
33	181.36	184.41	3.04	2.70		2.85				6	2	3	SH?	63	@ 181.00 - 181.70 U.C. 58 L.C. 68
33-34	184.41	187.45	3.05	2.80		2.80				7	1	3	Bed	85	Vuggy down section to 5%
34	187.45	190.50	3.05	3.08		2.87				10	4	4			
34-35	190.50	193.55	3.05	3.07		3.07				4	2	3	Bed	80	192.65 - 193.55 Bed @ 80°
35	193.55	196.60	3.05	3.09		2.70		↓	↓	12	1	2	Bed	80	195.4 - 196.50 Bed @ 80°

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

Yukon Territory
Canada

GEOTECHNICAL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 5/02

Box No.	Interval (m) From	To	Lgth	Recovery (m)	%	RQD (m)	%	J.C.S Hard	Wthr Altn.	F.F. Xjoint	J.R.C. Shape	Rough	Struc Type	Dip To CA	Comments
36	196.60	199.64	3.04	2.90		2.90		4	5	6	3	3	Bed	80	195.4-196 - Bed 80° w Healed Bx
36-37	199.64	202.69	3.05	3.13		3.13				7	3	4	Bed	80	200-200.3 Bed 80.
37	202.69	205.74	3.05	3.12		3.02				6	3	3	Bed	75	202.2 - 202.69
37	205.74	206.81	1.07	1.20		0.95				9	3	2			
37-38	206.81	209.85	3.04	3.10		3.10				7	3	3	Bed	85	206.81-207.5 - Vuggy 5% 208-208.5
38	209.85	213.06	3.21	3.10		3.10				7	3	4	Bed	80	Bx carb-Healed
38-39	213.06	216.10	3.04	3.04		3.04				9	1	3	Bed	75	214.4-215.5 Bed 75°/214.7-214.9- Vuggy 5%
39	216.10	219.15	3.05	3.05		2.90				10	3	3			Vuggy ~2%
39-40	219.15	222.20	3.05	3.05		2.75				8	3	2			
40	222.20	225.25	3.05	3.05		3.05				10	4	4	Bed	85	Bed - 85°, 85°, 80° 2% Vuggs
41	225.25	228.30	3.05	3.05		2.90				10	3	4	Bed	85	1% Vuggs
41-42	228.30	231.34	3.04	3.04		2.90				10	3	2	Bed	70	Bed 70°, 75°, 70°/3-2% Vuggs
42	231.34	234.39	3.05	3.05		2.70				16	4	4	Bed	75-80	Vuggs 232.3 - 235.3 ~10% Vuggs
42-43	234.39	237.44	3.05	3.05		2.85				12	3	2	Bed	75	Bed 75° strong, 83 in fine sed's.
43	237.44	240.49	3.05	3.05		2.25				23	3	4	Bed	60°	Stromatolite Beds 65°-60°-55° Vuggs 3%
43-44	240.49	243.54	3.05	3.05		3.05				13	3	2	Bed	60°	Stranat Beds 60°, Contact Vuggs 3%
44	243.54	246.58	3.04	3.04		2.82				14	3	3	Bed	65°	Contact Bed 80°, Stromal Bed 85° Beds Vuggs 3%
44-45	246.58	249.63	3.05	3.05		2.63				12	4	4			246.63-247.08 White Carb 70% → Mon Dark Grey
45	249.63	252.68	3.05	3.05		2.90				12	1	2	Bed	80	Less <10% White carb.
45-46	252.68	255.12	2.44	1.80		1.55				7	3	4			
46	255.12	258.17	3.05	3.10		2.88				8	1	3	Vn	85/68	20cm Pure Carb Vn w <5% assym Qz Fm
46	258.17	258.78	0.61	0.75		0.62				3	2	3			
47	258.78	261.82	3.04	2.90		2.60				16	3	4	Bed	65	
47-48	261.82	264.87	3.05	2.45		1.75				+20					
48	264.87	267.72	3.05	2.90		2.60				7	4	4			Weak Fe stain on Fracts 2cm Bleach Selvage on 11 fract
48-49	267.72	270.76	3.04	3.04		3.04		4/5	5	11	3	3	Bed	70-90	Colour Chang s.l. Layers

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

Yukon Territory
Canada

GEOTECHNICAL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 6/02

Box No.	Interval (m) From	To	Lgth	Recovery (m)	%	RQD (m)	%	J.C.S Hard	Wthr Altn.	F.F. XJoint	J.R.C. Shape	Rough	Struc Type	Dip To CA	Comments
49	270.96	274.01	3.05	2.95		2.50		4	5	12	3	4	Bal	80-85	Large Vuggs 1cm x 3cm.
49-50	274.01	277.06	3.05	3.05		3.05		5		5	3	4			Parts Siliceous
50	277.06	280.11	3.05	3.10		3.10		4		0	—	—	Bal	80-85	
50-51	280.11	283.16	3.05	2.90		2.90		5		8	3	2	Bal	68/85	Pasts Sil. w Bx
51	283.16	286.21	3.05	3.00		2.75		4		7	1	2	Bal	70/85	
51-52	286.21	289.26	3.05	3.11		3.11				0	—	—	Bal	85	mottled look to core
52	289.26	292.00	2.74	2.55		2.50				4	4	4	Bed	85	
52-53	292.00	293.98	1.98	2.00		1.80				0	3	3	Bal	85	
53	293.98	297.03	3.05	3.15		3.10				7	1	3	Bed	85	
53-54	297.03	299.92	2.81	2.75		2.50				11	3	3			
54	299.92	302.97	3.05	3.11		3.05				8	3	3	Bed	85	
54-55	302.97	306.02	3.05	2.95		2.90				8	3	3	Bal	80	Carb Vn @ 70° & 75° sharp & 20° assym irreg.
55	306.02	308.46	2.44	2.50		2.20				8	1	2	Bx		Carb Vn 307.9 - 309.15 m w grey Frags
55-56	308.46	311.51	3.05	2.90		2.70				14	3	4	Carb	?	
56	311.51	313.94	2.43	2.35		2.21				6	3	3	Bx		
56	313.94	316.38	2.44	2.36		2.30				8	3	3			Fe-stain weak
56-57	316.38	319.43	3.05	3.05		3.05				4	3	2			317.5 - 318.1 80% Carb Vn + assym Bx
57-58	319.43	322.48	3.05	3.08		3.00				2	1	3	Bed?	80	Bx
58	322.48	325.53	3.05	3.07		3.07				4	3	2	Bed	85	
58-59	325.53	328.88	3.35	3.07		3.00				6	4	4			10cm Vuggy 4%
59	328.88	331.93	3.05	3.12		2.93				9	1	3			25cm Carb filled Bx w Vuggs 4%
59-60	331.93	334.98	3.05	3.05		2.85				14	4	4			Fe-Stain Fe-Carb.
60	334.98	338.02	3.04	3.05		2.75				11	1	3	Vn?	70	Fe-Stain
60 61	338.02	341.07	3.05	3.15		2.70				16	1	2			
61	341.07	344.12	3.05	3.05		2.25				25	1	2	Bx		
61-62	344.12	345.34	1.22	1.10		0.45				+25	1	2	BKY		Fe-Stain Mg-an Fracts

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

Yukon Territory
Canada

GEOTECHNICAL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 10/02

Box No.	Interval (m) From	To	Lgth	Recovery (m)	%	RQD (m)	%	J.C.S Hard	Wthr Altn.	F.F. XJoint	J.R.C. Shape	Rough	Struc Type	Dip To CA	Comments
62	345.34	347.17	1.43	1.83	1	1.53		4	5	11	1	2			Vuggy 2-3%, 10cm? Fe-stain Pervasive
62	347.17	350.22	3.05	3.05		2.50				17	3	2	Bed	80	Bx + Vuggs Locally <2%
62-63	350.22	353.26	3.04	3.04		2.05				21	3	4	Bed	80	
63-64	353.26	356.31	3.05	3.05		2.73				16	1	2	c+c	80	@ 352.65 @ 88° start of Healed Fault Bx.
64	356.31	359.36	3.05	3.05		2.90				6	1	2			Bx
64-65	359.36	362.41	3.05	3.05		3.05				7	3	1			Polished Graphite as Black healed Fault
65	362.41	365.46	3.05	3.05		3.05				0	—	—	Bed	80	
65-66	365.46	368.50	3.04	3.04		2.85				6	4	4	Bed	80	Bx ends @ 364.4 ~ 85° gradational, cal fract F
66	368.50	371.55	3.05	3.05		2.98				5	4	4	Bx		Bx - continues
66-67	371.55	374.60	3.05	3.05		2.75				12	3	2	Bed	85	
67	374.60	377.04	2.44	2.35		1.50				+20	3	1	Bky		Bed 75
67	377.04	377.95	0.91	0.91		0.19				+20	1	3	Bky		Fe-Carb - beige
67-68	377.95	380.09	2.14	2.14		0.70			↓	+20	2	3	Bky		Fe-Carb - beige
68	380.09	381.91	1.82	1.25		0			4	+30	4	3	GGE	?	Gouge 60cm missing
68-69	381.91	384.66	2.75	2.55		2.10			5	14	3	2	Bx		Dark grey Vuggy - Carb. healed
69	384.66	387.40	2.74	2.70		2.15				10	4	3	Bx		Strong Bx 385.65 - 390m.
69-70	387.40	390.45	3.05	3.05		2.70				12	3	3	Bx		
70	390.45	392.89	2.44	2.75		2.25				10	3	3			
70-71	392.89	395.94	3.05	3.05		2.85				11	1	2			To 393.05m Carb Frac. Fill
71	395.94	398.98	3.04	3.04		2.90				16	1	2	Bed	80	
71-72	398.98	402.03	3.05	3.05		3.05				7	3	2	Bed	80	40cm Carb Bx infill white 50%
72	402.03	405.08	3.05	3.05		3.05				7	3	3			graphite or slick surface. Bx
72-73	405.08	408.13	3.05	3.05		3.05				4	3	4	Bed	75	Bed 75°
73	408.13	411.18	3.05	3.05		2.95				6	2	3			
73-74	411.18	414.22	3.04	3.04		3.04				3	1	2	Bed	80	80-85° Bed
74	414.22	417.12	2.90	2.90		1.55		↓	↓	+20	1	2	Bky		Very Blocky Fract'd core ?

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

Yukon Territory
Canada

GEOTECHNICAL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 16/02

Box No.	Interval (m)			Recovery		RQD		J.C.S	Wthr	F.F.	J.R.C.		Struc Type	Dip To CA	Comments
	From	To	Lgth	(m)	%	(m)	%	Hard	Altn.	Xjoint	Shape	Rough			
74-75	417.12	420.01	2.89	3.00		2.10		4	5	+20	3	3	BKY		Healed Bx
75-76	420.01	423.21	3.20	3.05		2.65				9	3	3	Bed	85	
7-6	423.21	426.11	2.90	2.90		2.40				3	3	4	Bed	80	Bx - mottled.
6-77	426.11	429.16	3.05	3.05		3.05				2	3	4			
77	429.16	432.21	3.05	3.05		2.45				21	3	3			
77-78	432.21	435.25	3.04	3.04		3.04				7	3	2	Bed	80°	
78	435.25	438.30	3.05	3.05		2.95				8	2	2			
78-79	438.30	441.35	3.05	3.05		2.90				5	3	3	Bed	85	80-85° Bedding
79	441.35	444.40	3.05	3.05		2.95				8	1	2	Bed	85	Multiple Phases Bx'n
79-80	444.40	447.45	3.05	3.05		2.80				8	1	3			
80	447.45	450.49	3.04	3.04		2.58				20	3	3			
80 81	450.49	453.54	3.05	3.05		2.86				9	3	3	Bed	65	
81-82	453.54	456.59	3.05	3.05		2.90				10	1	2	Bed	70/85	
82	456.59	459.64	3.05	3.05		3.05				0	—	—			
82-83	459.64	462.84	3.20	3.15		3.15				2	3	4			
83	462.84	465.89	3.05	3.10		3.10				8	4	4			
83-84	465.89	469.09	3.20	3.10		3.10				3	1	2			
84	469.09	472.14	3.05	3.15		3.15				4	4	4	Bed	65	Increase Carb Fracture Fill/Stockwork ~6%
84-85	472.14	475.18	3.04	3.04		3.04				5	3	3	Bed	80-85	
85	475.18	478.23	3.05	3.05		3.05				3	4	3			
85-86	478.23	481.28	3.05	3.10		3.10				4	3	2			
86	481.28	484.33	3.05	3.00		3.00				6	3	4			
86-87	484.33	487.38	3.05	3.05		3.05				5	4	3			
87	487.38	490.42	3.04	3.04		2.90				10	3	2			
87-88	490.42	493.17	2.75	2.75		2.20				18	3	2	Fr	15	Strong Fract @ 20 -15°
88	493.17	496.21	3.04	3.04		2.70		↓	↓	9	3	3	Fr	15	multiple Fractures 15-20°

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

Yukon Territory
Canada

GEOTECHNICAL LOG

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 17/02

Box No.	Interval (m) From	To	Lgth	Recovery (m)	%	RQD (m)	%	J.C.S Hard	Wthr Altn.	F.F. Xjoint	J.R.C. Shape	Rough	Struc Type	Dip To CA	Comments
88-89	496.21	499.26	3.05	3.05		3.05		4	5	0	—	—	Bed	85°	Brecciated
89	499.26	502.31	3.05	3.05		3.05				3	3	4			
89-90	502.31	505.36	3.05	3.05		2.95				5	3	3			
90	505.36	508.41	3.05	3.05		3.05				5	3	3	Bed	75°	
91	508.41	511.45	3.04	3.04		2.94				11	4	4			
91-92	511.45	514.50	3.05	3.05		3.05				6	3	2			
92	514.50	517.55	3.05	3.05		3.05				4	1	2			
92-93	517.55	521.82	4.27	4.27		3.87				12	3	2			missed Block!
93	521.82	523.04	1.22	1.22		0.82				12	3	4	Frac		Fractured - Fe-stain on surfaces
93	523.04	525.48	2.44	1.80		1.50				11	1	2			Fe-Stain
93-94	525.48	528.22	2.74	2.95		1.80				20/+25	3	3			@ 527.9m Really Blocky.
94	528.22	528.83	0.61	0.35		0				+25	1	2	BKy		Blocky to crushed.
94	528.83	530.81	1.98	1.35		0				+50	1	2	CSH		multiple Fractures // to C.A + Block & Crush zo
94-95	530.81	531.88	1.07	0.98		0.25				+25	1	2	BKY		Blocky decreasing down section
95	531.88	532.49	0.61	0.61		0				+25	3	3			Blocky (large ~30% Carb Veins)
95	532.49	535.23	2.74	2.55		2.08				10	1	2			
95-96	535.23	537.97	2.74	2.65		1.35			5	80	2	3			
96	537.97	540.72	2.75	2.27		0.71			4	+30	1	2	BKY		extremely Fractured Zones / Fe-stain weak
96-97	540.72	544.07	3.35	2.48		1.03			4	+30	1	3	CSH		Crush Zones Fault
97-98	544.07	548.34	4.27	4.05		2.54			5	+30	1	3	CSH		70cm Crush → Solid rest of Run
98-99	548.34	551.38	3.04	2.65		1.65			5	+30	3	2			
99	551.38	554.43	3.05	2.03		1.55			4	28	3	2			missing 1m? Washed away
99	554.43	556.26	1.83	1.75		1.43			5	5	1	2	Bed	80	solid core. (Hard)
99-100	556.26	558.07	1.83	2.20		1.70		4/5	5	9	1	2	Frac	5°/35°	Bed ↓ 85° ↓
100	558.07	560.53	2.44	1.85		1.59		4	5	10	1	2			Fe-stain. - Solid core
100-101	560.53	562.97	2.44	2.10		0.45		4/5	5/4	+30	3	2	BKY		Fe-stain

E.O.H.

CORE BOX RECORD SHEET

CANADIAN EMPIRE EXPLORATIONS LTD. **DRILL HOLE NO. 02 YO1 - 001**

YUKON OLYMPIC PROJECT

Yukon Territory

Canada

Logged By: BRIAN THURSTON

Date: NOV 1/02

Box Number	Interval (m) From	To
1	27.74	31.30
2	31.30	35.22
3	35.22	39.06
4	39.06	43.87
5	43.87	48.28
6	48.28	52.46
7	52.46	56.65
8	56.65	60.20
9	60.20	63.57
10	63.57	67.54
11	67.54	71.32
12	71.32	75.21
13	75.21	79.41
14	79.41	83.37
15	83.37	86.75
16	86.75	90.38
17	90.38	94.46
18	94.46	99.97
19	99.97	105.40
20	105.40	111.00
21	111.00	116.95
22	116.95	122.56
23	122.56	127.93
24	127.93	133.65
25	133.65	139.25
26	139.25	145.35
27	145.35	151.18
28	151.18	156.80
29	156.80	162.45
30	162.45	167.90
31	167.90	173.25
32	173.25	178.85
33	178.85	184.85

Box Number	Interval (m) From	To
34	184.85	190.80
35	190.80	196.60
36	196.60	202.45
37	202.45	207.95
38	207.95	213.81
39	213.81	219.48
40	219.48	225.25
41	225.25	230.92
42	230.92	236.44
43	236.44	241.87
44	241.87	247.36
45	[illegible]	253.06
46	253.06	258.78
47	258.78	[illegible]
48	264.87	270.56
49	270.56	275.93
50	275.93	281.52
51	281.52	287.43
52	287.43	293.32
53	293.32	299.12
54	299.12	305.[illegible]
55	305.[illegible]	310.80
56	310.80	316.51
57	316.51	322.38
58	322.38	328.50
59	328.50	334.15
60	334.15	339.75
61	339.75	345.18
62	345.18	350.43
63	350.43	356.05
64	356.05	361.70
65	361.70	367.25
66	367.25	373.08

Box Number	Interval (m) From	To
67	373.08	378.43
68	378.43	384.30
69	384.30	390.20
70	390.20	395.50
71	395.50	401.22
72	401.22	407.10
73	407.10	412.80
74	412.80	417.50
75	417.50	422.88
76	422.88	428.58
77	428.58	434.06
78	434.06	439.80
79	439.80	445.55
80	445.55	450.93
81	450.93	456.46
82	456.46	462.27
83	462.27	468.15
84	468.15	476.10
85	476.10	479.80
86	479.80	485.79
87	485.79	491.45
88	491.45	497.15
89	497.15	502.85
90	502.85	508.41
91	508.41	513.98
92	513.98	519.60
93	519.60	526.00
94	526.00	531.05
95	531.05	536.18
96	536.18	541.33
97	541.33	546.00
98	546.00	551.25
99	551.25	556.80

CORE BOX RECORD SHEET

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT
Yukon Territory
Canada

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 15/02

Box Number	Interval (m) From	To
100	556.80	562.05
101	562.05	562.97
102		562.97
103		E.O.H.
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Box Number	Interval (m) From	To
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Box Number	Interval (m) From	To
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CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

Yukon territory
Canada

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 002

Drilled By: CARON DRILLING (Vic / Gerry)
Logged By: B. Thurston
Date: Nov 18/02

UTM Northing (m):	UTM 7216616	**Area:**	Hwy Showing
UTM Easting (m):	07W 634798	**Date Started:**	Nov 16/02
Elevation (m):		**Date Completed:**	Nov 21/02
Total Length (m):	210.46m	**Data Entry:**	
Collar Core Size:	HQ	**Checked By:**	
Reduction Depth:	51.82m NQ	**Casing Depth (m):**	8.23
Proposed Hole No.:		**Casing (In/Out):**	Out.

Survey:	Depth	Azimuth Rd.	Azimuth Cor.	Dip Rd.	Dip Cor.
Compass	0	338		-45	
ACID	210 m	—			

Sample Series: 13459 - 13476
Assay Certificate No('s):

Graphic Log (m)	Interval (m) From	Interval (m) To	Zone Code	Rock Code	Sulph Code	Structure From	Structure To	Shr	Stk	Opn	Ang	Alteration Type	Alteration Ints	Alteration Type	Alteration Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
	0	1	OVB	OVBR		0.00	8.23					He	S			Diss (Grey)	Tr					Mxy	Tr
1						Overburden - rounded Fist size granite, 10cm																He	Red	Pg
	1	2								Pervasive w		Tr	fragular He; Sil diabase?			Pg	Nil					mxy	w
2										Qtz Stockwork		± diss Py → Fe-orange.											
	2	3																					
3																							
	3	4																					
	4	5																					
5																							
	5	6																					
6																							
	6	7																					
7																							
	7	8.23		BX		8.23	22.00			Bx		Fe	W				20.5	Tr				Gn Sph	?
8						Breccia - Hederolithic Bx w bedded-laminated Fragments of very																	
	8.23	9				weakly carbonaceous siltstone? Pebbles. Fragments are mostly																	
9						angular w sharp, clear edges → range from mm-size to 10cm.																	
	9	10				*Clast supported w ≥75% Frags in a Black to Green-Grey v.f.g.																	
10						matrix ± Py secondary. *Fragments are grey to Black ± have																	

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B. Thurston
Date: Nov 18/02

(m)	Graphic Log Z L S M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
		10	11				bedding on a mm-scale. * Overall a med→ Dark Grey Color to Core.																	
11							** Strong Fe-oxide ± Orange mud on Fractures (Surface weathering)																	
		11	12				** Py diss in matrix & Py v.f.g. Blebs & Poss. Sphalerite but could																	
?							be Oxidized v.f.g. Py Blebs. Mixed w Qtz or Carb. material & all minz in																	
		12	13				matrix normally Green-Grey muddy matrix. as opposed to the more Black																	
13							(argillic?) matrix.																	
		13	14				** mm-scale irregular to rounded Qtz±Carb material pervasive through																	
14							matrix as open-space filling.																	
		14	15				* Core & esp. fragments v. weak Rxn to HCl when powdered.																	
15							* Fe oxide pervasive in matrix at site of large fractures w Fe-Oxide present																	
		15	16				* Poss K-spar in 2mm wide ~~Carb~~ Qtz ±Carb + Py + GA ± Cpy @ 15m																	
16																								
		16	17				* Py is <0.5% but can be found throughout the section as v.f.g.																	
17							Blebs usually <1mm & Py stks <0.5mm usually later overgrowths																	
		17	18																					
18																								
		18	19				15.00	15.002			Vn	45°					Dis/Vn	Tr	Tr?				GA	Tr
9																								
		19	20				16.15	16.20									Diss	Tr					Sp?	Tr
20																								
		20	21				21.50	21.502			Vn	45					Dis/Vn	Tr	Tr				He	
21																								
		21	22	TRN	BX		22.00	22.66																
22							Bx Contact/Transition Zone																	
		22	23				Breccia Transition to Bx described below * This Zone has several																	
23							angles preserved that may be a shear from emplacement.																	
		23	24				* Also Fragment size decreases & There is a mix of Frag Type																	
24							& the Matrix increases 80 → muddy looking Green Grey v.v.f.g.																	
		24	25				22.00	22.01	40															
25							22.25	22.27	40				* Looks like Jade at this contact + v.v.f.g. Pink mud?											
							22.64	22.66	55															

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B. Thurston
Date: Nov 18/02

Interval (m) From	Interval (m) To	Zone Code	Rock Code	Sulph Code	Structure From	Structure To	Shr	Stk	Opn	Ang	Alteration Type	Alteration Ints	Alteration Type	Alteration Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
25	26		Bx		22.66	32.35					Ksp	W	Si	M		∠0.5	Tr					
											Fe	v.w.										
26	27				Breccia																	
					Matrix Supported Breccia w/ Predominantly Pinkish-Cream colour, Sub-angular to Sub-rounded, Siliceous fragments generally less than 1cm dia but up to 5cm. They ar v.v.f.g.-aphanitic																	
27	28				w/ Pre & Post Bx Fractures of Qtz ± carb white but most commonly																	
					Black pinegrain oxide? on fractures ± Py as blebs & disc.																	
28	29				* Matrix is Black v.f.g. ± Py, Locally Grey Matrix.																	
					* Downsection the fragments are more grey but w/ same characteristics																	
29	30				and are prob. the same. ** Near L.C. Fragments are grey?																	
					Py increases as fracture filling in partially healed fractures																	
30	31				* b/w 23-25m ~ 4→1-2mm Qtz±Carb veins w/ Orange K-envelopes up to 3cm																	
					Py + Cpy occure in Vein core @ 70°, 30°, 50°																	
31	32.35				* V.f.g. Dark grey Dykes? Fragments 15cm & 20cm @ ~26m & 27.5m																	
					have increase frac. w/ Py infilling + Qtz fract healing																	
32.35	33				↳ f.g. Py healed w/ Secondary Py xtl growths																	
					at fracture margins.																	
33	34				* Fe-Stain on fractures → increasing downsection.																	
					* No angles to mention - L.C. missing Core & quite fractured.																	
34	35				Some Potassic Stain to fragments & Rimmed by ** bright bright Orange																	
				→	mineral? Not K-spar - Not cu - ?																	
35	36																					
36	37																					
37	38		ARGL		32.35						Fe	vw			Fr	<1						
38	39				ARGILLITE Grey when dry - Dark Grey to Black when wet., Brittle																	
					fracturing, Powdered core Not reactive to HCL - Homogeneous Core w/																	
39	40				Little Structure. L.C. has Banding @ 35° 60cm missing so Contact																	
					is uncertain. - Bedding (Colour laminations) @ 12°, 15°, 25°.																	
40					Core is Soft to Scratch, Broken Surfaces are very irregular but show Bedding/(Slaty cleavage?) on a ∠ mm-scale b/w 15-25°.																	

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B. Thurston
Date: Nov 18/02

Graphic Log (m) Z L S M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
	40	41				* Py is common as irregular flat patches on Fractures ~1% total.																	
41						* Tr white carb fracture Fill is very rare ẅ assoc Py ± wk. rxn to HCl																	
	41	42				* Fe stain on Fractures is observed every 3-5m - very weak.																	
?						UC.	32.35			Ctc	35												
	42	43				34.0	34.5			Bed	12		* colour laminations										
43						35.1	35.2			Bed	15												
	43	44				38.8	39.0			Bed	25												
44						* Core Fractures @ 25°-35° ± a plateyness is observed almost shaley																	
	44	45				Core also fractures @ 60°-80° against Bedding Planes.																	
45						43.9	44.30			Bed	15°												
	45	46																					
46																							
	46	47																					
47																							
	47	48				47.0	47.3			Bed	10°												
48																							
	48	49																					
9																							
	49	50		TRNS		50.0	51.00			*	MAG	+ Qtz + He + Py + Cpy Vein Fragments in SH Transition to											
50						50.80	51.00			Bd/Sh	10-15°												
	50	51		ARG		51.00	65.7					He	m	Chl	w		<0.5	Tr				MAG	<0.5
51						ARGILLITE continued but ẅ Qtz + He + Py ± Cpy + Mag veinlets (to																	
						rare veins) ẅ irregular He envelopes to veins ± microfractures.																	
52						* Fractures <0.1mm have He envelopes up to 5mm + larger fract's																	
	51	52				have envelopes up to 2cm red grey colour. He in veins is																	
						Bright Red. * Core is still as above only ẅ minz ± Qtz + Chl + Cpy																	
53	52	53				Veins 10-25cm Ave down to 1cm less common.																	No Py
54																							
	53	54																					
55	54	55			*	51.00	51.20			CTC?	35°	* Green Grey aphanitic mud? marking SH? ẅ											
						51.60	51.61			CTC	25°	Bending (Flow?) @ 35°. * He-Envelopes start											

after this point. @ ** 51.60 Very sharp 25° contact of green ẅ parallel fracts with He envelopes against unaltered Argillite.

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 00R

Logged By: B. Thurston
Date: Nov 20/02.

Interval (m) From	Interval (m) To	Zone Code	Rock Code	Sulph Code	Structure From	Structure To	Shr	Stk	Opn	Ang	Alteration Type	Alteration Ints	Alteration Type	Alteration Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
55	56				* Actually the He - envelopes on fracts w/ & Fracts is in another Rock that is intruded within the Argillite.										Mag + Qtz + He	± Py in Veins						
56	57				* Sharp contacts usually sheared mark the Zones & often the Zones run almost parallel to C.A. @ 5-20°. The Host Rock is slightly more																	
57	58			med	grey than the dark grey argillite & has 0.1mm whitish specs?																	
58	59				in the aphanitic host. * Often the argillite will show a whitish envelope to fractures Near contacts to ~ 1m.																	
59	60				51.00	51.62			U.C.	~35°	* He envelopes + Mg+He+Py+Qtz veinlets/fracts											
60	61								L.C.	25°	sharp											
					52.3	52.85			Fr	20°	* Fract's in Argillite @ ~20° w Green-Grey envelopes											
61	62				52.85	52.86	22°		U.C.	22°	* Sharp U.C. Shear w He Veinlets/Fractures <1mm -											
					52.99	53.00	40°				* 1cm shear - Sharp @ 40° Hem continues											
62	63				53.00	54.35			He	5°	* He + Mag envelopes ~5° to C.A.											
					54.35	54.40	25-30		CTL	25°												
63	64				54.40	55.55					* Argillite Sluty - dark grey to black.											
					55.55	55.85		*	LC	60°	* Qtz (80%) + Chl (20%) ± Cpy Tr											
4					56.10	56.20		*	Vn	45°	* Qtz + Chl + Cp (Tr) + Black? 10cm // white black Banding @ 45											
64	65				56.2	59.0					* Argillite - Sluty - dark grey to black Homogenous											
65					59.0	60.9			Fr	20°	* He on Fracts @ 20° strong No Envelops. white specs of Fe											
	65	66			60.9	60.95			Vn	55°	* Qtz + Chl. + Cpy + Carb. L.C 55° w Shatter Fracts @ 55° fo											
66					60.95	61.35			Fr	20°	* Core Altd green-grey w He+Mag. * ? Envelope of Qtz Carb.											
	66	67			62.00	62.45			L.C.	70°	* Qtz + Chl + Carb + Cpy + Aphanitic Green Mud											
67					62.45	63.40					Altered Light green aphanitic w He veins.											
	67	68			63.40	64.55			U.C.	5°	* He Envelopes pervasive 1-2cm w white specks to Host-Ro											
68									L.C.	10°												
	68	69		*	64.25	64.27			Vn	50°	only true He + Mag + Spec He + Qtz + Py + carb Vn. sharp @ 5											
69					65.25	65.38			Vn	60°	* Qtz + carb + Chl + Cpy Vuggy. L.C. assoc w Sh.											
	69	70			65.36	65.65	? 60°		L.C.	65°	* Qtz + Carb + Chl + Cpy Vn & as Frag's in Sh? Shear is											
70											fractured & No Angle. He Ends Here.											
					66.40	66.41			Vn	60°	* 1cm Qtz + Chl + Cpy Vn cutting a Py + He Vn.											

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B. Thurston
Date: Nov 20/02

Graphic Log (m)	Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
					70	71		ARGL		65.7	70.0°											Tr				GA	? Tr
71																											
					71	72				Argillite Slate, dark gray to black, w Injections? Intrusions																	
?										of a med grey, aphanitic Rock often as small 1cm																	
					72	73				veins? but at times parallel to core Axis. This grey																	
73										rock is not Sil. but is much harder than the Argillite.																	
					73	74																					
74										73.7	73.71			Int	25°	* Intrusive? Irregular fold like.											
					74	75				73.8	73.82			Vn	60°	* 3→1-2mm Veinlets of Qtz w Tr Cpy											
75										73.9	75.4			Int	5°	*Intrusive? ∥ to C.A.											
					75	76				74.8	74.81			Vn	60°	* 4mm Veinlets of Qtz.											
76										80.40	80.41			Vn	50	* 5mm & 1mm Qtz Veins w Tr Cpy											
					76	77				75.75	75.76			Int	25°	* Intrusive? *1cm irregular Band.											
77										80.3	80.301			Fr	15°	+ Cpy in Qtz Fract @ ~ 15°.											
					77	78				82.50	90.0			Int	5°	* Mining the Hole down Intrusive. in & out of Arg											
78																											
					78	79				* Note in some instances ie. 93.-94m looks like bedding not																	
9										intrusion. other contacts are definately structural either																	
					79	80				sheur - fault most intrusive. Sharp but irregular boundries																	
80										generally 5 - 15° & 25-35° to C.A.																	
					80	81																					
81																											
					81	82				79.35				Fr	50°	* 1mm veinlets ~ ¼ of time 45-50°											
82										83.				GA?		* grey metallic w Cpy blebs on Fract 2mm ±											
					82	83				85.05	85.08			Fr	50°	* Qtz											
83										88.6				Fr	60°	* Qtz											
					83	84				89.2	89.22			Vn	50°	* 2cm Intrusion?											
84										90.				Fr	20°												
					84	85																					
85																											

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B. Thurston
Date: Nov 21/02

Graphic Log (m)	Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
85					85	86																					
86					86	87																					
87					87	88																					
88					88	89																					
89					89	90		ARG +greyS/I.		90.0	133.25									Fr	Tr	Tr				@	
90					90	91				Argillite & med grey Bedded Sed? or Intrusion? Hole is Parallel. w contact b/w Slaty, dark grey to black, Sed argillite & harder CWeakly S.																	
91					91	92				Med grey banded (bedded?) to massive Intrusive., Commonly angles are 0°-10° b/w units & contact is sharp and undulating.																	
92					92	93				at time it appears as fragments of one or the other is observed in the other w no contact.																	
93					93	94																					
94					94	95				* Small usually Hairline fractures up to 2mm are filled w Qtz (± Carb ▬) and often contain Cpy in Trace amounts.																	
95					95	96				** Cpy is also most commonly observed @ the contact b/w the argillite & the intruded/injected rock.																	
96					96	97				*** the small Qtz filled fractures account for ~ 0.1% of core																	
97					97	98				91.8				Fr	25°	* Qtz + Carb											
98					98	99				92.				Fr	12°	* Qtz											
99					99	100				92.7				Fr	5°												
100										92.75	98.89			CTC	5°	* Pss Bedding? Injection * SAMPLE In & out for several metres L.C. sharp @ 5°											
										97.89	98.05			L.C	35°	* Argillite to 98.05m Sharp 35°											

Then Faulted/Sheared L.C. ~ 35°.

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B. Thurston
Date: Nov 21 '02

(m)	Graphic Log Z L S M	Interval (m) From	Interval (m) To	Zone Code	Rock Code	Sulph Code	Structure From	Structure To	Structure Shr	Structure Stk	Structure Opn	Structure Ang	Alteration Type	Alteration Ints	Alteration Type	Alteration Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
		100	101				99.4			1	Fr	45°	*	Qtz										
101							99.65				Fr	5°	*	Qtz + Carb										
		101	102				99.75				Fr	25°	*	Qtz + Carb.										
?							100.7				Fr	10°												
		102	103				100.9				Fr	20°												
103							101.2				Fr	30°	*	multiple Hairline Fracts										
		103	104				101.25				Fr	80°		30° ⅄ 80°.										
104																								
		104	105				* Qtz fract's are in Bothia rock types but seem to favor																	
105							the harder mafgrey Rock. (Brittle Fracture?)																	
		105	106																					
106							102.5				L.C	30°	* Injection.											
		106	107				104.2	104.25				3°	* Piece of intrusion? @ ± 3°											
107							104.5	104.7			L.C	12°	* c.c. of Injection/Intrusion ± 10-15° ← Just touching unit.											
		107	108																					
108							105.45	105.5			Fr	60°	* Qtz + 3 veinlets up to 3mm wide											
		108	109				105.92			CTC?	Fr	35°	* carb + Qtz											
9							105.92	106.5			CTC's	10°	* Multiple ~~injections~~ contacts					10° ⅄ 15°						
		109	110																					
110							109.4				L.C		* irregular but ± 10° - 5° Banded. Cg											
		110	111				109.65	109.7			Fr	25°	* carb											
111											Fr	65°	* Qtz											
		111	112				110.1	110.2			Fr	68°	3 * multiple ~10 Fracts b/w 70-80°											
112											Fr	80°	3 Hairline to 4mm.											
		112	113																					
113							110.35	110.4			Fr	30	* 2 - Qtz											
		113	114				110.6	110.7			Fr	30	* 3 - Qtz - Carb.											
114																								
		114	115				113.1	115.			L.C	5°	* Intrusive?				5°	Parallel dip core to 115m						
115																								

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B. Thurston
Date: Nov 21/02

(m)	Graphic Log Z L S M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
		115	116				115.5	116.7			U.C	35°	* Intrusive?		Parallel to									
116											M.C	30°												
		116	117								m.c.	5°												
7											L.C.	45°												
		117	118				116.1				Fr	45°	*	3-4	Qtz. + Cpy									
118																								
		118	119				117.45	118.6			U.C.	5°	* Intrusive.											
119							118.6				CC	5°												
		119	120				119.3				BKY													
120																								
		120	121			*	120.5	120.6			Fr	45	*	2mm Cpy in Qtz + Carb Vein									
121											Fr	60	3	multiple Fracts.									
		121	122																					
122							120.85				Fr	45	* Qtz ± Carb.											
		122	123				121.3	121.45	*		Fr	40	* Qtz + Carb.											
123							122.4				Fr	25	* Carb.											
		123	124				123.1				Fr	40	* Carb + Qtz											
4							123.5				Fr	65°	* SH?	1cm Carb ± Qtz.										
		124	125																					
125							126.5	128			U.C	10°	Intrusive?											
		125	126					128			L.C	10°	* 20cm Strong Banding											
126							128	132.8			U.C	10°	In + out along contact											
		126	127					132.8			L.C.	10°												
127							129.1				Fr	30°	* Carb ± Qtz.											
		127	128																					
128							132.9	133.25			Fr	25	* Qtz ± Carb 2-3		0.1mm.									
		128	129																					
129																								
		129	130																					
130																								

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B Thurston
Date: Nov 21/02

(m)	Graphic Log Z L S M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
		130	131				ARgillite & Rock often Contacts (Flow Banding?)	Black - Slaty - soft, w 10-20° or					Med Grey Paralling C.A.		Hard to Sil, aphanitic Often Banded or (Bedded?) @ 11° the angle ~~to~~ of contact.									
131		131	132																					
?							142.7	147.85 m																
		132	133				* @ 142.70 m Parallel then L.C. is irregular & intrusive against L.C. Sharp @ 20° w to 144.07m L.C. Sharp Dyke like w of grey material u.c. sharp & undulating & Back into Sil. grey w Banding Arg. & a couple rounded Grey Frags in Argillite Arg to 145.95m Bx-Sh-contact w Grey Sil. at contact. to 146.40m for ~50cm w contacts of 146.8m to 147.4m Argillite Boundarys f.g. Pebble bed or sharp contact w Sil. Grey Rock @ 20° u.c. to 147.85. L.C. Obscure w Argillite.	Pebble Dyke or Cong Bed to 143.m @ 0-15° u.c. a 35cm Sil. Dyke / Sil Argillite, 35cm Arg 20° L.C. move Sil grey Dykelike w Arg w Rounded Fragments ≈ 35° u.c. sharp @ 45° 10° Banding to 145.35 L.C. ~ 20° w Black Arg. & a couple rounded Grey Frags in Argillite. Arg to where mixing of Arg & Grey occure 10-35° Sharp but undulating. to 146.8m Then a 5cm undulating but sharp Boundarys f.g. Pebble bed or dyke? Then Argillite to 147.6m in Rock @ 20° u.c. to 147.85. L.C. Obscure												
133		133	134																					
134																								
135		134	135																					
136		135	136																					
137		136	137																					
138		137	138																					
9		138	139																					
140		139	140				133.25 → 142.7m																	
141		140	141				133.25 - 135.80	- In & out Arg. & Sil. Grey							10-15°									
							135.8 136.40	- Sil. Grey							15° u.c.									
142		141	142				136.4 - 137m	- Argillite w Some Sil Grey																
							137 - 137.30 m	- Sil. Grey w Banding - Bedding							Strong w u.c. & L.C. @ 1.									
143		142	143				137.3 - 139.8	- Grey Argillite.																
							139.8 - 140.4	- Sil. Grey u.c. 12°					Banding		12° L.C. ~ 12° getting less									
144		143	144				140.4 - 142.7	- Mostly Arg., w Less Sil. Grey @ 10°																
145		144	145				* 20.1%	Carb + Qtz	Hair Fractures				75% in Sil. Grey		25% in Arg.		±Cp,							

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 007

Logged By: B. Thurston
Date: Nov 21/02

Graphic Log (m)	Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
145					145	146				147.85																	
146																											
					146	147				147.85 - 151.6			-	Argillite		Bleak Homogeneous											
147										151.6 - 152			-	Healed Shear? Arg + Grey Sil. ~ 15° Frags & Grey irregular Contacts ~ 10-15°.													
					147	148																					
148										152.	153.2		-	Argillite													
					148	149				153.2	153.86		-	Beds? Bands of Arg + Sil Grey ~ 20cm / Bal @ ~20°													
149										153.86	154.3		-	Healed SH ers (151.6-152) @ 20° irregular grey Sil. Pieces - Py + Carb Fract/Space Fillings w Tr Cpy													
					149	150																					
150										154.3	154.5		-	Argillite													
					150	151				154.5 - 156.06			-	L.C. 10° - Sheared ~ 20cm in & out Arg / Sil. Grey Carb + Py Healed at 154.7m Contact in center of unit @ 0° // to C.A. L.C. Sheared ~ 10°													
151																											
					151	152																					
152										156.06	157.95		-	Argillite													
					152	153				157.95	158.75		-	Sil. Grey Sharp u.C. @ 25° Weak Banding in center @ ~ 25°. L.C. Sharp but Fractured.													
153																											
					153	154																					
4										158.75	161.09		-	in & out of Argillite & Sil Grey. Core becoming more ~~Blocky~~ Blocky													
					154	155																					
155																											
					155	156																					
156																											
					156	157																					
157																											
					157	158																					
158																											
					158	159																					
159																											
					159	160																					
160																											

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B. Thurston
Date: Nov 21/02

Graphic Log (m)	Z	L	S	M
161				
162				
163				
164				
165				
166				
167				
168				
169				
170				
171				
172				
173				
174				
175				

Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
160	161				161.0	163.8					- Sil. Grey		- multiple Fracts w/ Carb+Qtz									
161	162				163.8	164.2					- Cong. Bed ~ 16° to C.A.											
162	163										the bed is only ½ core at the thickest part.											
163	164										Pebbles are rounded & Sil. some Elongate 1cm x 3cm max. - Contact undulating Parallel to C.A.											
164	165				164.2	170m					- Paralleling Beds of Argillite & Sil. Grey Contacts 0-20° Banding - Bedding? in ½ Sil. Grey Rock. L.C. at crush zone of Fault Last solid core @ ~16°											
165	166										- White Carb+Qtz or Qtz+Carb veins mostly in Grey Sil. but also in some Arg.											
166	167																					
167	168				170	178.					- Fault Zone. Blocky to Crush Zones 25% Solid Pieces of core of Arg & Sil. Grey. Rare Angles are observed but 5°-15° are seen @ 176-176.4m											
168	169																					
169	170																					
170	171				178	182.3					- Healed Fault Zone or Edge of Fault zone. W increase in Grey Qtz & White Qtz irreg. vein. Section in core - Not veins but part of Healing of Shear/Fault Zone. Irregular boundaries & inconsistent 2cm wide pinching to Widening. ** Some Siliceous areas w/ irregular Qtz Stock work w/ fuzzy boundaries											
171	172																					
172	173																					
173	174				181.93	181.95					Un 30° *Qtz+Carb+Chl vein Sharp boundaries											
174	175																					
175																						

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B. Thurston
Date: Nov 22/02 I. Am

Graphic Log (m) Z L S M

Interval (m) From	Interval (m) To	Zone Code	Rock Code	Sulph Code	Structure From	Structure To	Shr	Stk	Opn	Ang	Alteration Type	Alteration Ints	Alteration Type	Alteration Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%	Description
175	176				182.3	185.42				*	Argillite ± Grey weakly Sil. material / 50/50												Low Angle contacts and sheared contacts.
176	177																			?			
					185.42	186.5		-	Arg w 70% Sil-Qtz-grey grey. w chl ± Grey Vein Qtz														
177	178								Or Pebbles (obscure). These are Structural														
178									contacts w irregular contacts usually sharp.														
178	179								w undulating angles. L.C. w banded Sil.														
179									material.														
179	180				186.5	188.75		-	Sil. Grey Banded / Bedded unit.														
180									U.C 55° Banding.														
180	181								M.C 45° Banding.														
181									~~Bits ± Pie~~ irregular Arg. sections look														
181	182								injected in core or Structural Not Bed.														
182									unless injected before solidification.														
182	183																						
183					188.75	197		-	Mix Argillite Black ± Sil. Dark-med grey Rock.														
183	184								25° angles ± // to C.A. 196-197m Fr ⊥ to C.A														
4									Core is split.														
184	185								* irreg Qtz fract Filling in Sil. Rock. Not as veins														
185									but partial irregular veins 0.01% of section.														
185	186								Mostly Solid core.														
186																							
186	187				197	204		-	Mix Argillite ± grey Sil. w the same irregular														
187									very Sil. Qtz (Grey) Sections - Intrusion w white														
187	188								Qtz Stock work / Fracture fill Fuzzy Boundaries														
188					198.7	198.73			Vn	25°	↗	} intruded in Argillite.												
188	189				198.3	198.7			Vn	0°	—												
189					200.75	201.05			Vn?	20°	—	intruded in Sil. Grey											
189	190																						
190																							

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B. Thurston
Date: Nov 22/02

Graphic Log (m)	Z	L	S	M	Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
190					190	191																					
191					191	192																					
192					192	193																					
193					193	194																					
194					194	195																					
195					195	196																					
196					196	197																					
197					197	198																					
198					198	199																					
199					199	200																					
200					200	201																					
201					201	202																					
202					202	203																					
203					203	204				204 - 208.46	-																
204					204	205																					
205																											

- Solid, mostly Argillite to 206.7m
- Blocky 206.7-207.50 ~ 15° to C.A in Fault related surfaces 0-15° crush.
- Solid 207.5-208.46m - Fractured mod

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

GEOLOGIC DRILL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B Thurston
Date: Nov 22/02

Graphic Log (m)	Z	L	S	M
206				
208				
209				
210				
211	E	O	H	
212				
213				
4				
215				
216				
217				
218				
219				
220				

Interval (m) From	To	Zone Code	Rock Code	Sulph Code	Structure From	To	Shr	Stk	Opn	Ang	Alteration Type	Ints	Type	Ints	Mineralization Type	Py	Cp	Cc	Mc	Cv	Opn	%
205	206				208.46	210.46			-		Argillite to 209.70m W Intrusive Structural											
						E.O.H					Sil. grey w White Carb Fract/shatter Filling.											
206	207										Pieces & Fragments - Bx'd., 15cm Entire Core											
											Sil. material w Qtz Stockwork/Fract Fill. Back											
207	208										into Faulted Argillite. to 209.7m.											
208	209										209.7 - 210m - Solid Argillite.											
209	210										210 - 210.46m - Qtz Flooded 15cm, Sil. Grey w											
											Qtz flood & Qtz Stockwork Fracture fill											
210	~~211~~										Small Argillite areas showing Shear											
	210.46										Surfaces.											
211	212										* minor Banding in Sil Grey last 5cm											
											@ Increase Qtz Veins/Stockworks											
212	213																					
213	214																					
214	215																					
215	216																					
216	217																					
217	218																					
218	219																					
219	220																					

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

Yukon Territory
Canada

GEOTECHNICAL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B. Thurston
Date: Nov 18/02.

Box No.	Interval (m) From	To	Lgth	Recovery (m)	%	RQD (m)	%	J.C.S Hard	Wthr Altn.	F.F. Xjoint	J.R.C. Shape	Rough	Struc Type	Dip To CA	Comments
1.	7.01	8.23	1.22	OVBR				Bed	Rock	@ 8.23m.					
1	8.23	9.75	1.52	1.33		0.15		4	4	13	4	4			Weathered fractures + Fe Stain Bx
1	9.75	10.36	0.61	0.90		0.20			4	+15	4	4			Bx
2	10.36	11.43	1.07	0.78		0.15			3	+25	4	4			Bx
2	11.43	14.17	2.74	2.60		1.63			4	13	1	3			Bx
3	14.17	17.22	3.05	3.05		2.28			4	15	1	2			Bx
3-4	17.22	19.51	2.29	2.22		2.22			5	5	3	4			Bx
4	19.51	22.56	3.05	3.05		2.40				8	1	2			Weathered Fract's Fe. Bx
5	22.56	25.60	3.04	3.04		2.84		5		11	1	2			Bx (more s.l. Bx frags
5-6	25.60	28.65	3.05	3.05		2.85				9	3	3			Bx
6-7	28.65	31.39	2.74	2.74		0.95			4	+25	1	3			Bx
7	31.39	33.83	2.44	1.75		0.85				+20	1	2			Bx to ~32m - Lithology change sharp ctct
7-8	33.83	34.75	0.92	1.15		0.92		4	5	5	3	4			Fract 25-45° & 60-80°.
8	34.75	37.80	3.05	3.05		1.70				16	3	3			
9	37.80	40.84	3.04	3.04		1.12				30	1	2			
9-10	40.84	43.89	3.05	2.95		2.25				12	3	2			
10-11	43.89	46.94	3.05	3.05		2.85				8	4	4	Bed	15	
11-12	46.94	49.68	2.74	2.74		2.60				7	1	2	Bed	10	(Platy Breaks)
HQ 12	49.68	51.82	2.14	2.14		1.64				10	1	2	SH?	20-35°	Reduced to NQ @ 51.82m He-Mag Qtz+/-
NQ 13	51.82	54.25	2.43	2.20		1.12				23	3	3	Fr	25°	He-envelopes + Mag.
13-14	54.25	57.30	3.05	2.40		0.56				+30	1	2	Bky		
14	57.30	60.66	3.36	3.15		1.61				+30	1	2	Bky		Broken 20° Fract 65-80°
14-15	60.66	63.70	3.04	3.04		2.48				13	1	2	Bed	20°	Vein 75° Qtz+Carb.
15	63.70	66.75	3.05	3.05		1.80				23	1	2	S/S		Shear lush/slicks b/w Qtz Carb veins @ End 14.
15-16	66.75	69.80	3.05	2.95		2.45				13	1	2			
16-17	69.80	72.85	3.05	3.15		2.25				17	1	2	Fr	5-10°	Fr @ 60-80°

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

Yukon Territory
Canada

GEOTECHNICAL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B. Thurston
Date: Nov 19/02

Box No.	Interval (m) From	To	Lgth	Recovery (m)	%	RQD (m)	%	J.C.S Hard	Wthr Altn.	F.F. Xjoint	J.R.C. Shape	Rough	Struc Type	Dip To CA	Comments
17	72.85	75.90	3.05	3.05		2.90		4	5	8	3	2			Brittle Fracture avg. 15° to CA. & 70° to CA.
17-18	75.90	78.94	3.04	3.04		2.74		4/5		11	1	2			
18	78.94	81.99	3.05	3.05		2.90		4		7	1	2			
18-19	81.99	85.04	3.05	3.05		2.90		5		11	1	2			
19	85.04	88.09	3.05	3.05		3.05		5		5	1	2			
19-20	88.09	91.14	3.05	2.90		2.65		5		15	1	2			
20	91.14	94.18	3.04	3.04		2.74		4/5		12	3	2			
20-21	94.18	96.93	2.75	2.95		1.40		4/5		24	1	2			
21	96.93	99.97	3.04	3.04		1.95				14	3	2	Fr	0°	Fracture // to C.A. (90cm)
21-22	99.97	102.87	2.90	2.75		2.60				10	1	2			
22	102.87	105.92	3.05	3.05		2.55				22	1	2			
22-23	105.92	108.97	3.05	3.05		2.75		4/5		16	1	2			
23	108.97	112.01	3.04	3.04		3.00		5		13	1	3			
23-24	112.01	115.52	3.51	3.51		3.07		5		21	1	2	Fr	0°	Fracture // to C.A. (80cm)
24-25	115.52	118.57	3.05	3.05		2.55		5		14	1	2			
25	118.57	121.62	3.05	3.05		2.40		5		26	1	2			
25-26	121.62	124.66	3.04	3.04		2.44		4/5		20	1	2			
26	124.66	127.71	3.05	3.05		2.75		4/5		18	1	2			
26-27	127.71	130.15	2.44	2.50		1.20		4		27	3	3			
27	130.15	132.89	2.74	2.75		2.10		4/5		15	1	2			
27-28	132.89	135.94	3.05	3.05		2.75		4		16	2	2			
28-29	135.94	138.84	2.90	2.95		1.29		4/5		33	1	2	Fr	25°	
29	138.84	142.34	3.50	3.35		2.90		5		26	1	2	Fr	20°	
29-30	142.34	145.39	3.05	3.15		1.70		4/5		29	1	2		20°	40cm Pyke Soil w/ Cong.
30	145.39	148.13	2.74	2.85		2.30		4		15	1	2			
31	148.13	151.18	3.05	3.05		3.05		4		9	1	2			

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT

Yukon Territory
Canada

GEOTECHNICAL LOG

DRILL HOLE NO. 02 YO1 - 002

Logged By: B. Thurston
Date: Nov 21/02

Box No.	Interval (m) From	To	Lgth	Recovery (m)	%	RQD (m)	%	J.C.S Hard	Wthr Altn.	F.F. Xjoint	J.R.C. Shape	Rough	Struc Type	Dip To CA	Comments
31	151.18	153.01	1.83	1.83		1.56		4	5	12	1	2			
31-32	153.01	156.06	3.05	3.10		2.05		4/5	4	19	1	2	Fr	0°	50cm Fract // to c.A.
32	156.06	158.65	2.59	2.40		1.55		4/5	5	20	1	2	Fr	25°	
32-33	158.65	161.09	2.44	2.35		0.77		4	5	+25	3	2	Bky		
33	161.09	163.07	1.98	1.90		0.72		4/5	4	+20	1	2	Fr	0-15°	
33-34	163.07	165.81	2.74	2.55		1.75		4/5	5	18	1	2			
34	165.81	168.86	3.05	2.85		1.00		4/5	5	36	1	2			
35	168.86	171.75	2.89	2.55		0.50		4	3/4	+50	3	2	Bky/crsh		Fault. ~170m to 177.09.
35-36	171.75	174.96	3.21	2.70		0.22		4	3/4	+50	1	2	CsH.		↓
36	174.96	177.09	2.13	2.00		0.10		4	3/4	+50	1	2	CsH		↓
37	177.09	178.31	1.22	0.85		—		4	3	+20	3	3	Fr/csh		Fract+Csh Fault to 177.50m
37	178.31	181.36	3.05	2.65		0.83		4	4	+25	3	3	Fr		Strong Fract Edge of Fault
37-38	181.36	182.58	1.22	1.22		0.83		4	3/4	6/+15	1	3			25cm crush
38	182.58	185.62	3.04	2.95		2.50		4	4	15	1	3			
38-39	185.62	188.67	3.05	3.00		1.95		4	4	25	1	2			
39	188.67	191.57	2.90	2.50		0.25		4	4	+40	1	2	Fr		Fractured → Blocky
39-40	191.57	194.77	3.20	3.20		2.10		4/5	4/5	26	1	2			
40-41	194.77	197.82	3.05	3.10		1.10		4	4	30	3	3	Fr	0°	Fract // to c.A. >2m w Csh on Fr.
41	197.82	200.86	3.04	2.90		1.37		4/5	4	25	3	2	Fr	0°	Fract // to c.A. 72m w Csh on Fr.
41-42	200.86	203.91	3.05	2.90		1.28		4	3	+30	3	2	Fr	10°	Healed SH 0-15°
42-43	203.91	206.96	3.05	3.00		1.57		4	3/4	+30	3	3	Fr	10°	1.5m Solid competent Core Fault Both sides
43	206.96	209.70	2.74	3.05		0.77		4	3/4	+30	3	3	Fr	0°	Fr // to C.A. Crush along Fr
43	209.70	210.46	0.76	0.80		0.40		4	4	11	3	3			Solid core to last 6".
	E.O.H. - 210.46m.														

CORE BOX RECORD SHEET

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROJECT
Yukon Territory
Canada

DRILL HOLE NO. 02 YO1 - 002

Logged By: B. Thurston
Date: Nov 18/02

Box Number	Interval (m) From	To
1	7.01	10.36
2	10.36	14.17
3	14.17	18.35
4	18.35	22.56
5	22.56	26.85
6	26.85	30.65
7	30.65	34.00
8	34.00	37.80
9	37.80	41.28
10	41.28	45.25
11	45.25	49.23
12	49.23	51.82
13	51.82	56.98
14	56.98	62.00
15	62.00	67.52
16	67.52	72.50
17	72.50	78.25
18	78.25	83.80
19	83.80	89.45
20	89.45	95.30
21	95.30	100.65
22	100.65	106.32
23	106.32	112.20
24	112.20	117.55
25	117.55	123.00
26	123.00	128.40
27	128.40	133.25
28	133.25	137.77
29	137.77	142.95
30	142.95	148.13
31	148.13	153.86
32	153.86	159.10
33	159.10	164.15

Box Number	Interval (m) From	To
34	164.15	168.86
35	168.86	173.20
36	173.20	177.09
37	177.09	181.93
38	181.93	187.00
39	187.00	191.75
40	191.75	196.80
41	196.80	201.90
42	201.90	206.70
43	206.70	210.46
44		E.O.H
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APPENDIX II

DRILL HOLE ASSAY LEDGERS
2002

SAMPLE DATA SHEET

CANADIAN EMPIRE EXPLORATIONS LTD.
YUKON OLYMPIC PROPERTY
Yukon Territory
Canada

DRILL HOLE NO. 02 YO1 - 001

Logged By: B. Thurston
Date: Nov 18/02

Interval From	Interval To	Sample Number	QC Type	STD Type	Splitter	Whole Rock	Thin Section	Polish Section	Nitro Purged Core Whole	Nitro Purged Core 1/4	Nitro Purged Core Reject	Comments
68.00	70.00	13451			BT							Py + Cpy - Shale
123.50	124.50	13452			BT							Ca + Mc + Fe stain
128.95	129.95	13453			BT							LMST - Vug - Near Flt
132.00	133.50	13454			BT							Sil Fault
354.00	356.00	13455			BT							Fault.
541.50	543.50	13456			BT							Crush - Fault + Py
551.38	554.43	13457			BT							Im missing - Fault. Bx
566.53	562.97	13458			BT							Py on Fracts + Grey?
	E.O.H.											
			BLK									
			STD									
			DUP									

Page 1 of 1

Whole Core for Nitro Purge: From _____ To _____
1/4 Core for Nitro Purge: From _____ To _____
From _____ To _____
From _____ To _____

SAMPLE DATA SHEET

CANADIAN EMPIRE EXPLORATIONS LTD. DRILL HOLE NO. 02 YO1 - 002

YUKON OLYMPIC PROPERTY

Yukon Territory
Canada

Logged By: B. Thurston

Date: Nov 13/02

Interval From	Interval To	Sample Number	QC Type	STD Type	Splitter	Whole Rock	Thin Section	Polish Section	Nitro Purged Core Whole	Nitro Purged Core 1/4	Nitro Purged Core Reject	Comments
15.70	17.22	13459			BT							Mud chip Bx Py - Sph
23.50	25.00	13460			BT							Sil. chip Bx Cpy ~~~
35.45	35.75	13461			BT							Beige Pervasive in Arg
50.00	51.82	13462			BT							He Stain
51.82	54.35	13463			BT							He Stain
54.35	62.20	13464			BT							Qtz+Chl+Tr Cpy
60.66	63.40	13465			BT							Qtz+Chl + He Fr.
63.40	64.55	13466			BT							He Stain.
64.55	66.45	13467			BT							Qtz+Chl+Carb+Cpy
78.00	81.00	13468			BT							ARG w Cpy on ~~Fr~~ Qtz
109.20	111.00	13469			BT							Sil w Qtz+Carb Fracs
3m 118.50	121.50	13470			BT							Sil w Qtz+Carb Fracs
138.75	141.75	13471			BT							Cpy Mo - Sil + Arg.
161.00	163.00	13472			BT							Sil. Py
173.5	176.5	13473			BT							Fault
185	187	13474	BLK		BT							Qtz material along Fault
196.8	199.8	13475			BT							Sil Qtz material along Fa w Qtz s
208.46	210.46	13476			BT							ARG + Qtz mat + Fault.
		E.O.H.										
HEM Bx (GRAB)		13477	~~STD~~		BT		Hematite Breccia w Green Matrix - Sil! Pink FRAGS					
HEM Bx (GRAB)		13478			BT		Totally Hematized Breccia - Maroon colour					
MAF VOLC (GRAB)		13479			BT		Mafic Volc (Dark Green) w Spec Hem & Cpy diss					
			DUP									

HW 4 ZONE TALUS GRAB -

Page 1 of 1

Whole Core for Nitro Purge: From _____ To _____

1/4 Core for Nitro Purge: From _____ To _____

From _____ To _____

From _____ To _____

APPENDIX III

CERTIFICATE OF ASSAYING
2002

ACME ANALYTICAL LABORATORIES LTD. (ISO 9002 Accredited Co.) 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Canadian Empire Exploration Ltd. File # A205265

1205 - 675 W. Hastings St, Vancouver BC V6B 1N2

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ag ppm	Ni ppm	Co ppm	Mn ppm	Fe %	As ppm	U ppm	Au ppm	Th ppm	Sr ppm	Cd ppm	Sb ppm	Bi ppm	V ppm	Ca %	P %	La ppm	Cr ppm	Mg %	Ba ppm	Ti %	B ppm	Al %	Na %	K %	W ppm	Au* ppb
SI	<1	2	<3	1	.3	<1	<1	<2	.05	3	<8	<2	<2	3	<.5	<3	<3	<1	.13	.001	<1	1	<.01	4	<.01	<3	.02	.70	<.01	<2	<.2
013451	26	100	41	950	4.2	91	8	162	1.30	24	<8	<2	4	372	7.3	4	<3	1194	13.90	.830	34	82	.32	70	.01	23	1.50	.01	.62	<2	<.2
013452	3	187	11	59	<.3	24	2	733	.19	15	<8	<2	2	110	.5	8	<3	15	20.91	.171	2	2	9.65	125	<.01	<3	.03	.02	.01	<2	<.2
013453	<1	2	<3	24	.3	2	<1	664	.08	2	<8	<2	<2	86	<.5	3	<3	15	18.42	.073	2	2	9.70	153	<.01	<3	.03	.02	.01	<2	.3
013454	1	3	<3	1	.4	6	<1	320	.12	<2	<8	<2	<2	27	<.5	<3	<3	1	7.10	.005	<1	4	3.87	108	<.01	<3	.01	.01	<.01	<2	<.2
013455	26	10	12	100	.4	22	2	253	.24	12	<8	<2	2	99	<.5	4	<3	48	18.60	.053	1	3	9.45	96	.01	<3	.09	.01	.05	<2	.7
013456	3	4	7	45	.3	16	2	186	.29	7	<8	<2	<2	124	<.5	4	<3	3	18.49	.009	1	6	9.02	68	<.01	<3	.06	.01	.03	<2	.2
013457	6	2	10	51	<.3	5	1	120	.20	7	<8	<2	<2	124	<.5	4	<3	2	19.29	.006	<1	4	8.97	269	<.01	<3	.05	.02	.03	<2	<.2
013458	1	<1	14	32	<.3	3	1	134	.07	4	<8	<2	<2	118	<.5	5	<3	3	19.41	.005	<1	1	9.72	48	<.01	<3	.01	.02	<.01	<2	<.2
013459	<1	2	3	17	<.3	16	11	7113	3.00	14	<8	<2	2	38	<.5	<3	<3	8	9.37	.046	10	11	4.53	140	<.01	5	.75	.01	.28	<2	.6
013460	<1	31	7	8	<.3	4	5	4673	2.10	9	<8	<2	4	44	<.5	<3	<3	17	6.82	.053	3	11	3.12	170	<.01	<3	.11	.01	.11	<2	3.0
013461	<1	12	<3	30	<.3	14	6	8392	9.40	3	<8	<2	6	4	.8	<3	<3	8	.13	.019	29	9	.89	107	<.01	5	.62	.01	.32	<2	.3
013462	<1	13	14	39	<.3	9	6	170	1.63	9	<8	<2	10	5	<.5	<3	<3	7	.07	.017	32	10	.20	186	.01	5	.81	.01	.49	<2	.8
013463	<1	13	5	14	<.3	9	5	138	2.23	6	<8	<2	12	5	<.5	<3	<3	7	.06	.016	29	11	.17	170	.01	5	.71	.01	.42	2	.6
013464	<1	36	<3	17	<.3	9	6	61	1.28	7	<8	<2	12	5	<.5	<3	<3	5	.04	.019	34	7	.18	115	<.01	4	.75	.01	.34	<2	.4
013465	<1	4	5	19	<.3	10	5	252	1.66	5	<8	<2	12	12	<.5	<3	<3	6	.27	.020	39	10	.24	170	.02	8	.92	.01	.51	<2	.5
013466	<1	22	11	30	<.3	10	5	523	5.88	5	<8	<2	10	6	<.5	<3	<3	7	.08	.020	32	9	.33	131	.02	5	.73	.01	.40	<2	.3
013467	<1	45	12	26	<.3	9	10	101	1.29	8	<8	<2	11	7	<.5	<3	<3	5	.11	.019	27	6	.15	113	<.01	4	.67	.01	.36	<2	.5
013468	<1	37	33	83	<.3	12	13	18	.58	14	<8	<2	13	5	<.5	<3	<3	3	.03	.018	30	6	.10	111	<.01	5	.54	.01	.37	<2	.3
RE 013468	<1	38	32	86	<.3	13	14	22	.60	13	<8	<2	13	6	<.5	<3	<3	5	.04	.018	30	7	.11	119	<.01	5	.57	<.01	.39	<2	.4
RRE 013468	<1	41	34	86	<.3	14	14	24	.61	15	<8	<2	14	6	<.5	<3	<3	5	.04	.019	32	7	.11	124	<.01	6	.60	.01	.40	<2	.2
013469	<1	78	341	185	<.3	8	19	239	.67	14	<8	<2	7	7	.5	<3	<3	3	.27	.013	19	8	.16	74	<.01	4	.44	<.01	.29	<2	.2
013470	<1	169	35	394	<.3	10	11	120	.61	7	<8	<2	8	4	.9	<3	<3	6	.11	.015	23	8	.12	92	.01	5	.55	.01	.37	<2	1.4
013471	<1	22	36	39	<.3	7	8	171	.61	13	<8	<2	10	5	<.5	<3	<3	3	.19	.013	30	9	.15	68	<.01	4	.46	.01	.30	<2	.5
013472	<1	7	19	38	<.3	8	15	585	1.64	11	<8	<2	6	6	<.5	<3	<3	5	.24	.010	23	10	.28	54	<.01	3	.68	.01	.26	<2	<.2
013473	<1	22	23	36	.3	14	13	117	1.32	9	<8	<2	12	6	<.5	<3	<3	6	.10	.015	34	8	.31	67	<.01	5	.90	.01	.39	<2	.4
013474	<1	8	21	40	<.3	13	20	194	1.62	24	<8	<2	9	7	<.5	<3	<3	5	.23	.015	19	12	.49	40	<.01	4	.89	.01	.25	<2	.7
013475	<1	6	11	43	<.3	15	14	128	2.84	11	<8	<2	9	6	<.5	<3	<3	8	.08	.014	26	14	.81	46	<.01	5	1.53	.01	.28	<2	.2
013476	<1	23	27	34	<.3	12	11	347	1.56	10	<8	<2	7	9	<.5	<3	<3	7	.41	.016	27	15	.55	53	<.01	5	.96	.01	.33	<2	.3
STANDARD DS4/AU-R	6	125	34	158	<.3	35	12	790	3.21	23	<8	<2	2	28	5.6	5	6	75	.55	.093	17	170	.57	145	.09	<3	1.76	.03	.15	3	453.0

GROUP 1D - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY ICP-ES.
UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.
ASSAY RECOMMENDED FOR ROCK AND CORE SAMPLES IF CU PB ZN AS > 1%, AG > 30 PPM & AU > 1000 PPB
- SAMPLE TYPE: CORE R150 60C AU* IGNITED, ACID LEACHED, ANALYZED BY ICP-MS. (10 gm)
Samples beginning 'RE' are Reruns and 'RRE' are Reject Reruns.

DATE RECEIVED: NOV 29 2002 DATE REPORT MAILED: Dec 11/02 SIGNED BY C.L D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

Data ___ FA ___

ACME ANALYTICAL LABORATORIES LTD. (ISO 9002 Accredited Co.) 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Canadian Empire Exploration Ltd. PROJECT Yukon Olympic File # A300545 (b)

1205 - 675 W. Hastings St, Vancouver BC V6B 1N2 Submitted by: Brian Thurston

SAMPLE#	Mo ppm	Cu ppm	Pb ppm	Zn ppm	Ni ppm	As ppm	Cd ppm	Sb ppm	Bi ppm	Ag ppm	Au ppb	Hg ppm	Tl ppm	Au* ppb	F ppm
SI	.1	1.7	<.1	2	.5	<.5	<.1	<.1	<.1	<.1	.9	<.01	<.1	.2	<10
13477	.3	16.9	1.2	27	17.7	3.1	.1	.3	.1	<.1	2.1	.02	<.1	1.5	870
13478	1.1	6.2	3.2	27	22.9	4.3	.1	1.5	.3	<.1	1.9	.01	<.1	.8	980
13479	.4	663.2	1.0	45	54.6	4.4	<.1	.3	.1	.2	2.0	.03	<.1	5.1	1050
STANDARD DS4/AU-R/C3	6.5	125.5	29.1	157	34.4	22.6	5.1	4.5	4.9	.2	26.4	.26	1.0	469.8	430

GROUP 1DX - 0.50 GM SAMPLE LEACHED WITH 3 ML 2-2-2 HCL-HNO3-H2O AT 95 DEG. C FOR ONE HOUR, DILUTED TO 10 ML, ANALYSED BY ICP-MS.
UPPER LIMITS - AG, AU, HG, W = 100 PPM; MO, CO, CD, SB, BI, TH, U & B = 2,000 PPM; CU, PB, ZN, NI, MN, AS, V, LA, CR = 10,000 PPM.
- SAMPLE TYPE: ROCK R150 AU* IGNITED, ACID LEACHED, ANALYSED BY ICP-MS. (15 gm)
F GROUP 2A - NaOH FUSION - SPECIFIC ION ELECTRODE ANALYSIS.

DATE RECEIVED: FEB 27 2003 DATE REPORT MAILED: March 13/03 SIGNED BY ..... D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

Data ✓ FA ___

ACME ANALYTICAL LABORATORIES LTD. (ISO 9002 Accredited Co.) 852 E. HASTINGS ST. VANCOUVER BC V6A 1R6 PHONE(604)253-3158 FAX(604)253-1716

GEOCHEMICAL ANALYSIS CERTIFICATE

Canadian Empire Exploration Ltd. PROJECT Yukon Olympic File # A300545 (a)

1205 - 675 W. Hastings St, Vancouver BC V6B 1N2 Submitted by: Brian Thurston

SAMPLE#	Ba ppm	Co ppm	Cs ppm	Ga ppm	Hf ppm	Nb ppm	Rb ppm	Sn ppm	Sr ppm	Ta ppm	Th ppm	U ppm	V ppm	W ppm	Zr ppm	Y ppm	La ppm	Ce ppm	Pr ppm	Nd ppm	Sm ppm	Eu ppm	Gd ppm	Tb ppm	Dy ppm	Ho ppm	Er ppm	Tm ppm	Yb ppm	Lu ppm
SI	154.6	.9	<.1	2.7	3.0	.8	2.9	3	181.8	.1	.4	.4	<5	.3	108.5	3.3	1.9	3.1	.49	1.7	.4	.29	.40	.09	.44	.11	.25	<.05	.27	.06
13477	3626.7	20.9	1.0	12.5	4.3	7.8	102.9	3	71.0	.7	11.2	3.2	59	3.7	148.8	22.4	36.9	73.8	8.51	33.5	5.8	1.20	4.49	.72	4.05	.70	1.82	.25	1.65	.25
13478	924.4	12.6	1.9	15.9	3.5	8.3	161.6	2	30.9	.6	11.3	3.6	73	3.4	122.8	21.5	48.0	91.0	10.00	37.0	6.0	1.59	4.51	.66	3.46	.67	1.81	.27	1.86	.28
13479	149.7	85.9	.6	24.9	4.0	11.8	90.5	2	3.6	.8	3.8	1.6	450	2.2	139.8	32.9	12.1	23.2	2.89	12.8	2.7	.91	3.67	.66	5.20	1.22	3.36	.52	3.52	.51
STANDARD SO-17	393.6	17.9	3.6	19.2	11.6	25.0	22.9	10	308.5	4.1	11.2	10.7	128	10.2	356.8	27.4	10.6	23.2	2.98	13.4	3.0	1.02	3.77	.64	4.25	.96	2.74	.41	2.89	.43

GROUP 4B - REE - LiBO2 FUSION, ICP/MS FINISHED,
- SAMPLE TYPE: ROCK R150

DATE RECEIVED: FEB 27 2003 DATE REPORT MAILED: March 13/03 SIGNED BY ..... D. TOYE, C.LEONG, J. WANG; CERTIFIED B.C. ASSAYERS

All results are considered the confidential property of the client. Acme assumes the liabilities for actual cost of the analysis only.

Data ✓ FA ___

APPENDIX IV

SPECIFIC GRAVITY MEASURMENTS
2002

YUKON OLYMPIC SPECIFIC GRAVITY CALCULATIONS

Hole YO 02-001

DEPTH (m)	WEIGHT (g)			S.G.	S.G. (avg)	Rock Type
	DRY	WET	DIFFERENCE			
37.60	730.00	467.20	262.80	2.78		limestone
46.50	915.20	584.80	330.40	2.77	2.71	limestone
55.40	875.40	544.90	330.50	2.65		silicified limestone
71.50	822.70	500.50	322.20	2.55		shale
89.20	716.60	445.10	271.50	2.64		limestone
86.60	983.90	616.20	367.70	2.68	2.66	shale
107.10	417.70	265.50	152.20	2.74		shale
124.85	481.80	307.80	174.00	2.77		dolostone
128.90	554.25	351.00	203.25	2.73		dolostone
139.80	515.40	330.30	185.10	2.78		dolostone
166.20	502.40	318.70	183.70	2.73		vuggy dolostone
195.60	516.50	332.00	184.50	2.80		dolostone
216.20	505.55	325.20	180.35	2.80		dolostone
232.70	379.20	238.90	140.30	2.70		vuggy dolostone
242.70	671.80	433.35	238.45	2.82		dolostone
257.00	491.25	316.00	175.25	2.80		dolostone
269.90	411.50	261.30	150.20	2.74		dolostone
299.05	492.80	317.25	175.55	2.81		dolostone
320.20	506.70	327.40	179.30	2.83		dolostone
335.25	477.50	305.70	171.80	2.78	2.79	dolostone
362.00	561.40	360.20	201.20	2.79		dolostone
371.80	548.00	354.60	193.40	2.83		dolostone
388.20	501.30	324.00	177.30	2.83		dolostone
403.15	527.80	340.90	186.90	2.82		dolostone
419.45	563.40	363.10	200.30	2.81		dolostone
436.45	459.70	292.90	166.80	2.76		dolostone
446.25	529.40	341.30	188.10	2.81		dolostone
465.70	534.40	344.50	189.90	2.81		dolostone
489.75	622.40	400.10	222.30	2.80		dolostone
503.75	513.70	331.60	182.10	2.82		dolostone
514.20	457.80	296.20	161.60	2.83		dolostone
543.70	426.30	274.10	152.20	2.80		dolostone
557.30	429.90	275.20	154.70	2.78		dolostone

YUKON OLYMPIC SPECIFIC GRAVITY CALCULATIONS

Hole YO02-002

DEPTH (m)	WEIGHT (g)			S.G.	S.G. (avg)	Rock Type
	DRY	WET	DIFFERENCE			
11.80	893.10	578.80	314.30	2.84	**2.77**	breccia
25.80	755.80	476.10	279.70	2.70		breccia
34.00	560.30	358.90	201.40	2.78		argillite
63.75	455.40	295.40	160.00	**2.85**		argillite & hematite stain
73.00	517.60	328.50	189.10	2.74		argillite & dolostone
93.30	406.20	258.60	147.60	2.75		argillite & dolostone
97.25	572.20	361.80	210.40	2.72		argillite & dolostone
98.05	571.90	362.10	209.80	2.73	**2.73**	argillite & dolostone
109.35	647.80	410.00	237.80	2.72		argillite & dolostone
121.00	446.90	279.25	167.65	**2.67**		dolostone
144.10	422.85	265.35	157.50	2.68		argillite & dolostone
149.20	502.85	319.90	182.95	2.75		argillite
157.45	512.45	323.20	189.25	2.71		dolostone
187.10	516.00	323.95	192.05	2.69		dolostone
204.70	401.30	254.85	146.45	2.74		argillite
208.75	360.10	227.90	132.20	2.72		dolostone
ROCK	567.60	379.10	188.50	3.01		breccia-specular hematite-chlorite-quartz-cpy
ROCK	571.90	370.20	201.70	2.84		volcanic-vein:hematite-specular hematite-carb-qtz
ROCK	1499.10	1008.80	490.30	3.06	**2.96**	volcanic (breccia?):specular hematite-chlorite-qtz-cpy(py)
ROCK	1804.10	1201.50	602.60	2.99		volcanic:specular hematite-chlorite-cpy-Mc with veinlets of carb-qtz-cpy
ROCK	1338.60	878.10	460.50	2.91		breccia---all hematized brown-red

***The rock samples are from the Proterozoic breccia zone located along the highway. Specular hematite (<10%) was observed in the samples with higher specific gravity.

APPENDIX V

GRAVITY SURVEY
AURORA GEOSCIENCES LTD.
2002

COPPER RIDGE EXPLORATIONS INC.

GRAVITY SURVEY OF THE HEM PROPERTY, NORTHERN YUKON TERRITORY

Mike Power M.Sc. P. Geoph.

Location: 65° 04' N 138° 12' W
NTS: 116 G/1
Mining District: Dawson, YT
Date: November 25, 2002

SUMMARY

A gravity survey were conducted on the HEM Property for Copper Ridge Explorations Inc. between July 15 and August 3, 2002. The survey was conducted to locate iron oxide copper gold mineralization similar to that found in breccias outcropping near the Dempster Highway on the Property. A total of 261 points were surveyed in an area of approximately 20 km (E-W) by 10 km (N-S). Topographic elevations and station locations were surveyed with differential GPS receivers working from a central base station. Elevations are considered accurate to ± 61 cm and overall Bouguer anomaly measurements are considered accurate to ± 0.220 mGal. The data has been corrected for drift, latitude, Free Air, Bouguer Slab, Bullard B and terrain effects. Terrain effects were removed using direct elevation measurements within 200 m of the survey station and through the use of a 1 km digital terrain model to a distance of 60 km from the centre of the grid. The survey identified a large Bouguer anomaly adjacent to a magnetic field anomaly which merits additional investigation.

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1.0 INTRODUCTION

This report describes a gravity survey conducted on the HEM Property in the Dawson Mining District, Yukon Territory. The HEM Property hosts hematite-sulphide bearing breccias similar in style to those hosting economic mineralization at the Olympic Dam Deposit. The purpose of the surveys was to locate a large scale target hosting similar mineralization. The surveys were conducted by a two-man party from July 16, 2002 to August 3, 2002.

2.0 LOCATION AND ACCESS

The HEM Property is centred at 65° 04' N 138° 12' W in the northern Yukon Territory (Figure 1). The property is 130 km NNE of Dawson City. The property straddles the Dempster Highway and is 190 km from Dawson City by road. There is a fixed wing airstrip adjacent to the highway in the northwestern corner of the survey area.

3.0 PROPERTY DESCRIPTION

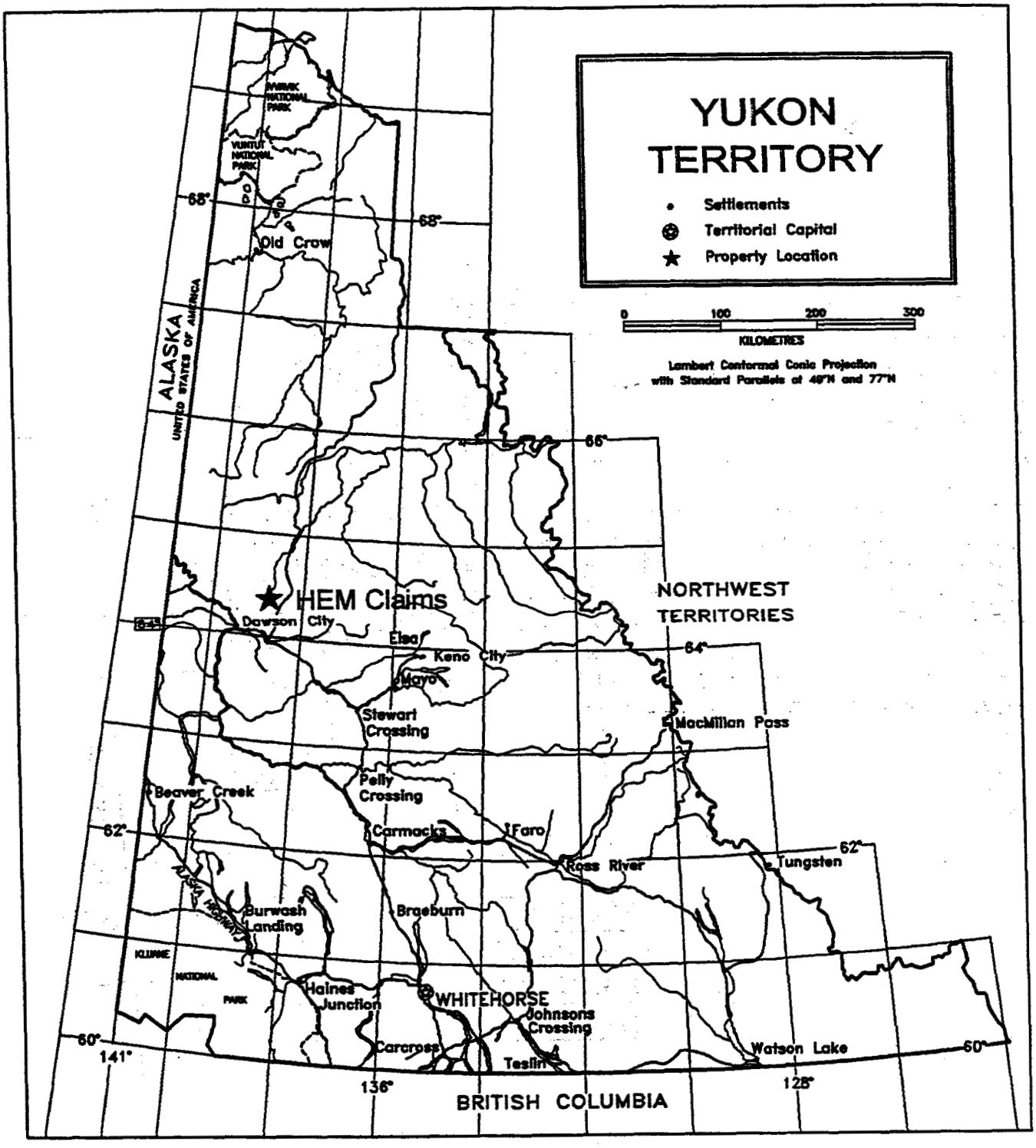
The HEM Property consists of 352 Claims (HEM 1-335 / with duplicates) staked under the Yukon Quartz Mining Act in the Dawson Mining District. Figure 2 shows the location of the claims and of the area in which the gravity survey was conducted.

4.0 PHYSIOGRAPHY

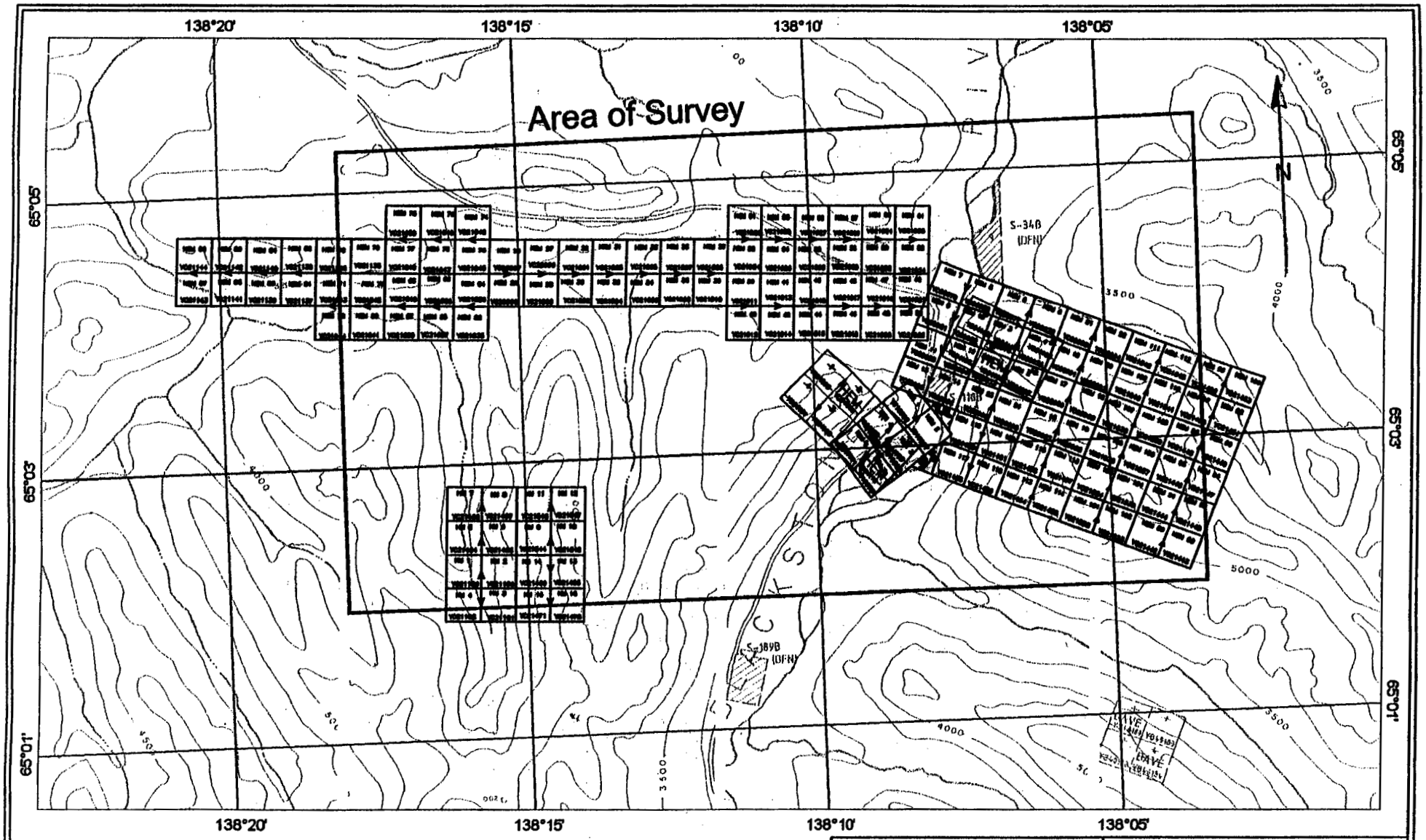
The HEM Property is located in the Ogilvie Mountains on the height of land between the Blackstone and Ogilvie Rivers. Elevations on the property range from 900 to 1600 m. The property covers a steep walled plateau dissected by steep and narrow ravines. The climate in the area is subarctic with long cold winters from October through May and a short, cool summer. Precipitation in the area is reportedly light to moderate.

5.0 REGIONAL AND PROPERTY GEOLOGY

The following discussion is based on Gordey and Makepiece (1999). The HEM Property is located in the northern Ogilvie Mountains and is underlain by the following geological formations (*ibid.*):



COPPER RIDGE EXPLORATIONS INC.	HEM PROPERTY	
	NTS: 116 G/1	Datum: N/A
HEM CLAIMS	Mining District: DAWSON	
PROPERTY LOCATION MAP	Job: KRX-02-001-YT	Date: 25 Nov 02
FIGURE 1.	AURORA GEOSCIENCES LTD.	



COPPER RIDGE EXPLORATIONS INC.	HEM PROPERTY	
	NTS: 116 G/1	Datum: N/A
HEM CLAIMS CLAIM LOCATION MAP FIGURE 2.	Mining District: DAWSON	
	Job: KRX-02-001-YT	Date: 25 Nov 02
	AURORA GEOSCIENCES LTD.	

Formation	Description
Ford Lake (U. Devonian - Permian)	generally fine to coarse grained clastic succession equivalent to Canol, Imperial and(?) Tuttle assemblages
Bouvette (U. Cambrian - L. Devonian)	grey-and buff-weathering dolomite and limestone, medium to thick bedded; white to light grey weathering, massive dolomite; minor platy black argillaceous limestone, limestone conglomerate, and black shale; massive bluish-grey weathering dolostone
Road River Group (Cambrian - Devonian)	black graptolitic shale, limestone and minor chert with mappable subdivisions
Quartet (L. Proterozoic)	black weathering shale, finely laminated dark grey weathering siltstone, and thin to thickly interbedded planar to cross laminated light grey weathering siltstone and fine grained sandstone; minor interbeds of orange weathering dolostone in upper part.

Economic mineralization on the property consists of hematite - chalcopyrite bearing breccias which outcrop near the Dempster Highway in the eastern portion of the property. This style of mineralization is similar to that found in the Olympic Dam deposity in Australia, the type model for iron oxide copper gold deposits.

Olympic dam style iron oxide copper gold mineralization is often associated with positive Bouguer gravity anomalies adjacent to positive magnetic field anomalies. The recent Minotaur Resources (2002) discovery in Australia serves as an example of this deposit type. The Prominent Hill Prospect consists of a 2000 long by 800 m wide Bouguer gravity high adjacent to a linear aeromagnetic high. The total magnetic field high has a strike length in excess of 4 km. The gravity and magnetic anomalies have similar strike directions but are offset by approximately 300 m.

6.0 GEOPHYSICAL SURVEY GRID

Gravity surveys were conducted in the area shown in Figure 2. Stations were sited roughly 500 m apart along traverse lines in accessible topography. Stations were marked with flagging in the field.

7.0 PERSONNEL AND EQUIPMENT

The gravity survey was conducted by the following personnel:

Person	Position
Felix Gagne	Technician

He was assisted by helpers provided by Copper Ridge Explorations Inc. Addresses and periods of work are summarized in Appendix B. The crew was equipped with the following instruments and equipment:

Gravimeter:	1 -	Scintrex CG-3 automated gravimeter S/N 711413
GPS receivers:	1 -	Trimble 4700 series dual frequency GPS receiver (base station) S/N 220146652
	1 -	Trimble Pro-XRS dual frequency GPS receiver (rover) S/N 224005367
Other survey equipment:	1 -	Impulse laser rangefinder
	1 -	P866 laptop computer
	1 -	colour printer

Other equipment:	1 -	Repair tools (electrical / light mechanical)
	1 -	SAT phone
	1 -	camp gear

Instrument specifications are included in Appendix D.

8.0 GRAVITY SURVEY THEORY

Gravity survey theory is well summarized in Telford *et. al.* (1990). This section describes aspects of gravity survey theory pertinent to the project described in this report.

Gravity surveys measure gravitational acceleration. The force of gravity on between two objects is:

$$F = \frac{GM_1M_2}{r^2}$$

where **F** is the force, G is the universal gravitational constant, M_1 and M_2 are the masses of the two objects and **r** is the distance between them. When the force is normalized against a test mass, the result is the gravitational acceleration (a) due to the second mass:

$$a = \frac{F}{M_1} = \frac{GM_2}{r^2}$$

The acceleration of the test mass is then due to the distribution of the second mass. In the case of a gravity survey, the second mass is the earth and the distribution of mass therein. Explicitly:

$$a = G\int \frac{d \bullet r}{r^3} dv$$

where d is the density, **r** is the radial vector to the mass element and **a** is the acceleration. Gravitational acceleration is measured in Galileos (Gals) where 1 Gal is an acceleration of 1.0 cm/s^2. Average overall gravitational acceleration is 980 Gals and the gravitational acceleration due to targets of interest in the earth's crust are in the order of 10^{-3} (1 milliGal (mGal)) to 10^{-6} (1 microGal (μGal)). Thus a high precision gravity survey measures gravitational acceleration to approximately 1 part in 1 billion.

8.1 Gravity meter function

Specifications for instruments used in this survey are contained in Appendix C. The Scintrex CG-3 Autograv gravimeter contains a small test mass suspended by a zero-length fused quartz spring. An electrostatic system is used to maintain a test mass in a constant position where the spring response is linear. Charges are placed on a pair of plates to maintain the test mass in a constant location and the size of this charge (voltage on the plates) will vary with the gravitational force on the test mass. The voltage is converted into a measure of the gravitational acceleration by normalizing the force by the mass of the test mass.

The spring response is a function of force, temperature, air pressure, the inclination of the spring relative to the earth's gravitational field and a slow change in spring constant (instrument drift). Since the force of gravity on the test mass is the quantity to be measured, the remaining influences must be mitigated. The temperature in the spring housing is maintained at a constant value in excess of 45^0 C by a thermostatically controlled heating element. This avoids drift due to changes in temperature. The effect of air pressure is minimal provided the instrument is not operated over a wide range of elevations and changes due to weather are not significant. Instrument inclination varies because the instrument tripod slowly settles during a measurement. As the housing moves off true vertical, the component of the earth's gravitation field action on the test mass is reduced. At angles near the vertical, this effect is small and linear, and electronic compensation using a sensitive tilt sensor is used to correct the gravity data for this effect. Instrument drift cannot be totally removed through instrument design but the CG-3 eliminates much of the instrument drift by using a correction algorithm. Repeated measurements over a minimum 24 hour period are used to determine an average linear daily drift and this value is extrapolated to determine the drift at any measurement time within 90 days of the last calibration. This drift value may change over time and the remnant instrument drift is removed by a procedure discussed in a following section.

The gravitational acceleration measured by the gravimeter is not a direct measure of true local gravitational acceleration but is relative to an instrument constant and to the range of acceleration in which the measurement was taken. Gravitational acceleration measured by the gravimeter can be converted to true gravitational acceleration by the addition or subtraction of an instrument specific constant. This constant can be determined in the field by taking a gravity reading at a GSC control point and computing a static shift required to correct the observed data to agree with the GSC control point value. This procedure was followed in this survey.

8.2 Factors affecting gravity readings

The gravitational acceleration at any point is a function of the earth's mass distribution relative to the gravimeter, the distribution of other solar masses and the earth's

centrifugal force. The sun and moon exert gravitational forces on the earth evident in the tides and the acceleration due to these sources must be removed to yield the gravitational acceleration due to the earth alone. The elevation of the instrument above the ground surface exerts a strong control on the gravitational acceleration. The closer the gravimeter is to masses within the earth, the greater the gravitational acceleration. If mass lies above the gravimeter, however, this will tend to reduce the gravitational acceleration by exerting a slight upwards force on the test mass. Both effects must be considered. Finally, the centrifugal force of the earth's rotation exerts an upwards force on the test mass in a gravimeter, thereby reducing the earth's gravitational acceleration. This effect varies with latitude and must be removed from gravitational acceleration data. A number of standard corrections are performed to eliminate external sources of acceleration, thereby producing measurements of gravitational acceleration due solely to sources within the earth's crust. The following corrections were applied to the raw measurements of gravitational acceleration (gravity data) measured in this survey:

1. Drift correction
2. Latitude correction
3. Elevation correction
4. Terrain corrections

These are discussed in turn.

8.3 Drift correction

Solar and lunar gravity (tides), instrument drift and atmospheric pressure variations shift the base level of the gravimeter throughout the survey day. Tidal variations are in the order of 30 to 300 μGal per day. In addition, gravimeters occasionally suffer *tares* or large shifts in base level due to mechanical shock. These are normally identified by sudden and large changes in base station readings between tie-ins. The CG-3 calculates tidal drift using the input station latitude by applying Longman's (1959) formula for calculating gravitational effects of earth tides at various latitudes. Instrument drift is calculated internally by the gravimeter using drift constants determined by repeated measurements over a minimum 24 hour period. Despite this, some remnant drift must be removed. This is performed by taking measurements at control stations with known reference values prior to, during and after the survey period on each survey day. Remnant drift is calculated by linear interpolation, using the field record times, and the drifts and record times measured at the control stations. A minimum of three reference measurements are required during a long survey day but a

reference reading before and after the field readings will suffice on a short day.

8.4 Latitude correction

Variation in gravitational acceleration due to latitude arises from flattening of the geoid (ie. an increase in distance from the centre of the earth moving towards the equator) and from the effect of centrifugal force when approaching the equator. Both tend to reduce the gravitational acceleration when moving from the poles to the equator. The latitude effect in mGal per km is given by:

$$\Delta G_{Lat} = 0.813 \sin 2\theta - 1.78x10^{-3} \sin 4\theta$$

The latitude effect is greatest at mid-latitudes and least at both the poles and the equator. On small grids, latitude effect is removed by calculating the latitude effect at the centre of the grid and correcting the gravity readings by a variable amount based on their north-south distance from the central station.

8.5 Elevation correction

Three elevation corrections are required. The Free Air effect compensates for the decrease in gravitational attraction resulting from an increase in elevation or, equivalently, an increase in distance from the centre of the earth. Gravity data are normally reduced to an elevation datum below that of the survey. In this case, the Free Air corrected gravity (ΔG_{FA}) is given by:

$$\Delta G_{FA} = 0.3086 * z$$

where z is the elevation of the gravity station above the survey datum. The Bouguer slab correction is next applied to compensate for the upward correction of the material above the gravity survey elevation datum. Were the gravity readings taken on this datum, the material above it would attract the test mass and reduce the measured gravity. The correction is applied by calculating the gravitational effect of an infinite horizontal slab with a thickness equal to the elevation of the gravity station above the datum. Explicitly, this correction (ΔG_B) is:

$$\Delta G_B = -0.0419 \rho z$$

where ρ is the Bouguer density and z is the station elevation. The average crustal density of 2.67 g/cm^3 is normally used in the Bouguer corrected. Finally, an additional correction is necessary to account for the finite nature of the crustal slab used in the Bouguer correction. Obviously a correction based on an infinite horizontal slab valid only for small elevations above the survey datum and in cases where there is a large variation in topography, the Bouguer correction must itself be corrected for the effect of a finite, curved slab. This correction, the Bullard B correction, is well described by

Whitman (1991) and LaFehr(1991b). It is applied to correct the gradient in the Bouguer gravity for the effect of the earth's curvature. The method is applied by using look up tables and applying Bullard-B corrections appropriate to the elevation of the gravity station above mean sea level (LaFehr 1991b). The combined Free Air, Bouguer and Bullard B corrections are combined in a single elevation correction during data processing.

Some controversy exists concerning the selection of Bouguer density values for the elevation corrections. It has been common practice to adjust the density value away from the average crustal density value in order to minimize effects apparently caused by topography. If an incorrect density were used, the gravity profiles should either follow topography (in the case where the density is too low) or show a negative correlation with topography where the density selected were too high. LaFehr (1991a) recommends the use of the average crustal density (2.67 g/cm^3) in all reductions and the examination of the gravity data to determine the significance of anomalies which are associated with topographic anomalies. This procedure has been followed in performing the elevation corrections described in this report.

8.6 Terrain corrections

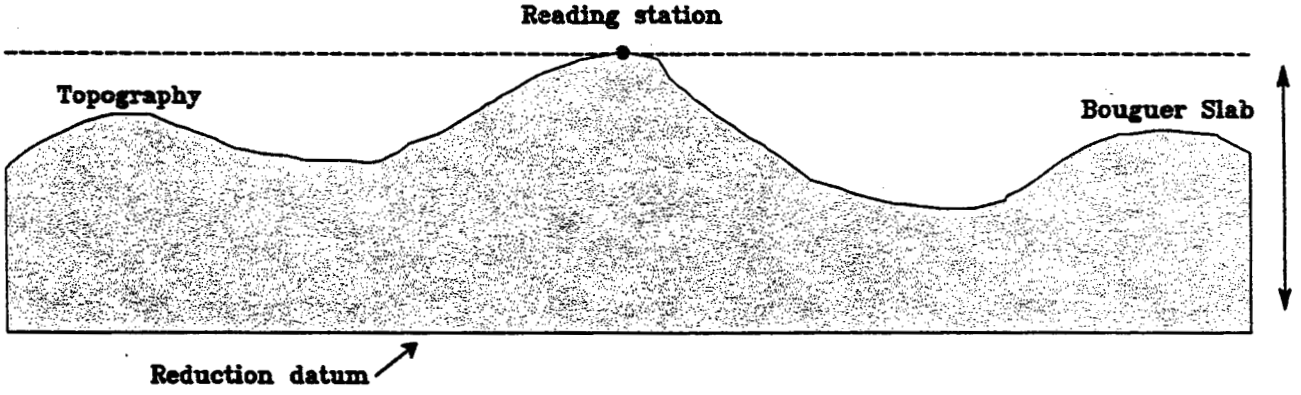
Terrain corrections are applied to correct the Bouguer gravity for the upwards gravitational attraction of masses above the station elevation and for the reduction in gravitational acceleration due to an absence of mass in a depression or valley extending below the station elevation. Both of these corrections reduce the elevation corrected gravity. Terrain corrections are applied by calculating the effect of a pie shaped slice of topography defined by inner and outer radii (r_i and r_o) and the angle subtended by the slice θ. If ρ is the density, the gravitational effect of that slice $\mathbf{g}_i$ is given by:

$$g_i = \gamma\rho\theta\left\{\left(r_o - r_i\right) + \left(\Delta z^2 + r_i^2\right)^{0.5} - \left(\Delta z^2 + r_o^2\right)^{0.5}\right\}$$

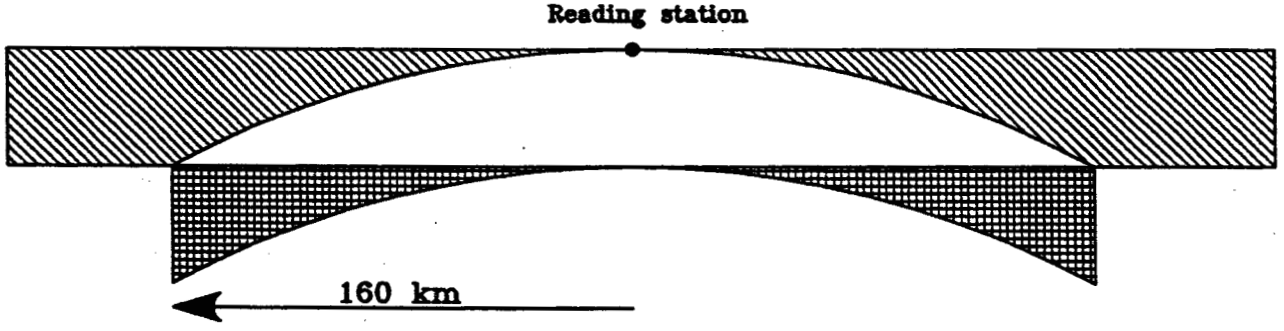
where γ is the universal gravitational constant and Δz is the difference in elevation between that of the sector and that of the station. The terrain effect is the sum of individual terrain corrections. Terrain corrections are always added to the gravity data.

Two corrections are made. In this survey, the near station correction uses elevation difference directly measured by the operator in six 60° sectors surrounding the station. Each sector was further divided into three range limits: 2 to 20 m, 20 to 50 m and 50 to 200 m. The cumulative near-station terrain effect is the summation of the individual sector contributions. The terrain effect at distances beyond 200 m from the station are calculated using a digital terrain model (DTM). It is customary to use a DTM with a small (200 m) node size in the area of the grid and then use a second DTM with a

(a) Bouguer slab and Free Air corrections.



(b) Bullard B Correction. Finite slab dimensions and curvature are accounted for by this correction. Additional attraction from region below Bouguer slab and reduced attraction from absent region beyond 160 km.



(c) Terrain corrections. Nearby hills above Bouguer datum pull up test mass in gravimeter. Nearby valleys lack a gravity contribution added during the Bouguer correction. Terrain corrections are added to the gravity reading to remove the effect of nearby topography.

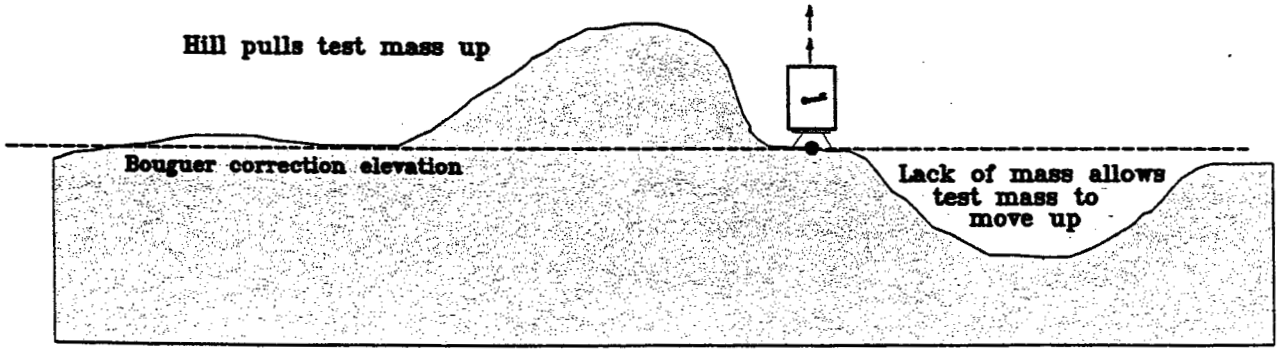


Figure GR-1. Gravity reductions and corrections.

coarser node size to cover the area at greater distances from the grid. The elevation difference between the gravity station and the elevation of the grid node is used as input to the sector equation. The raw gravity data corrected for instrument height, drift, latitude, elevation and terrain effects is commonly referred to as the Bouguer anomaly data or Bouguer data.

9.0 GPS THEORY

Gravity station elevations must be surveyed in to at least $\pm$ 10 cm in order to produce gravity data accurate to $\pm$ 20 μGal. This can be achieved through spirit level, total station or global position system (GPS) surveys. GPS survey methods were used to determine the elevation of the survey stations in the survey described in this report and this section summarizes the measurement method.

The Navstar Global Positioning System consists of 26 low altitude satellites, a master controlling station in Colorado Springs, CO and three uplink stations in Hawaii, Ascension Island, Diego Garcia and Kwajalein in the western Pacific Ocean. The satellites circle the earth at an altitude of 20,200 km with 4 satellites (space vehicles of Svs) in each of 6 planes inclined at 55° to the equator. Two SV's are spares. Each SV contains an atomic clock and transceiver.

The GPS signal quite complicated and occupies a wide bandwidth in order to nullify attempts at jamming. The system fundamental frequency (f_o)is 10.23 MHz. Satellites transmit messages on two carrier frequencies:

L1 carrier - 1575.42 MHz (154 f_o) with a wavelength of 19 cm
L2 carrier - 1227.60 MHz (120 f_o) with a wavelength of 24 cm

Several signals are impressed on the carrier frequencies by amplitude modulation:

Name	Carrier (freq)	Description
Navigation message	L1 & L2 (1500 Hz)	Satellite status, ephemeris and clock corrections
P-Code	L1 (10.23 MHz)	Precision Code: Encrypted pseudorandom noise signal containing clock time signal (time of transmission). The encryption is unclassified and available for civilian use. Pseudorange accuracies with this code are in the order of 30 m.

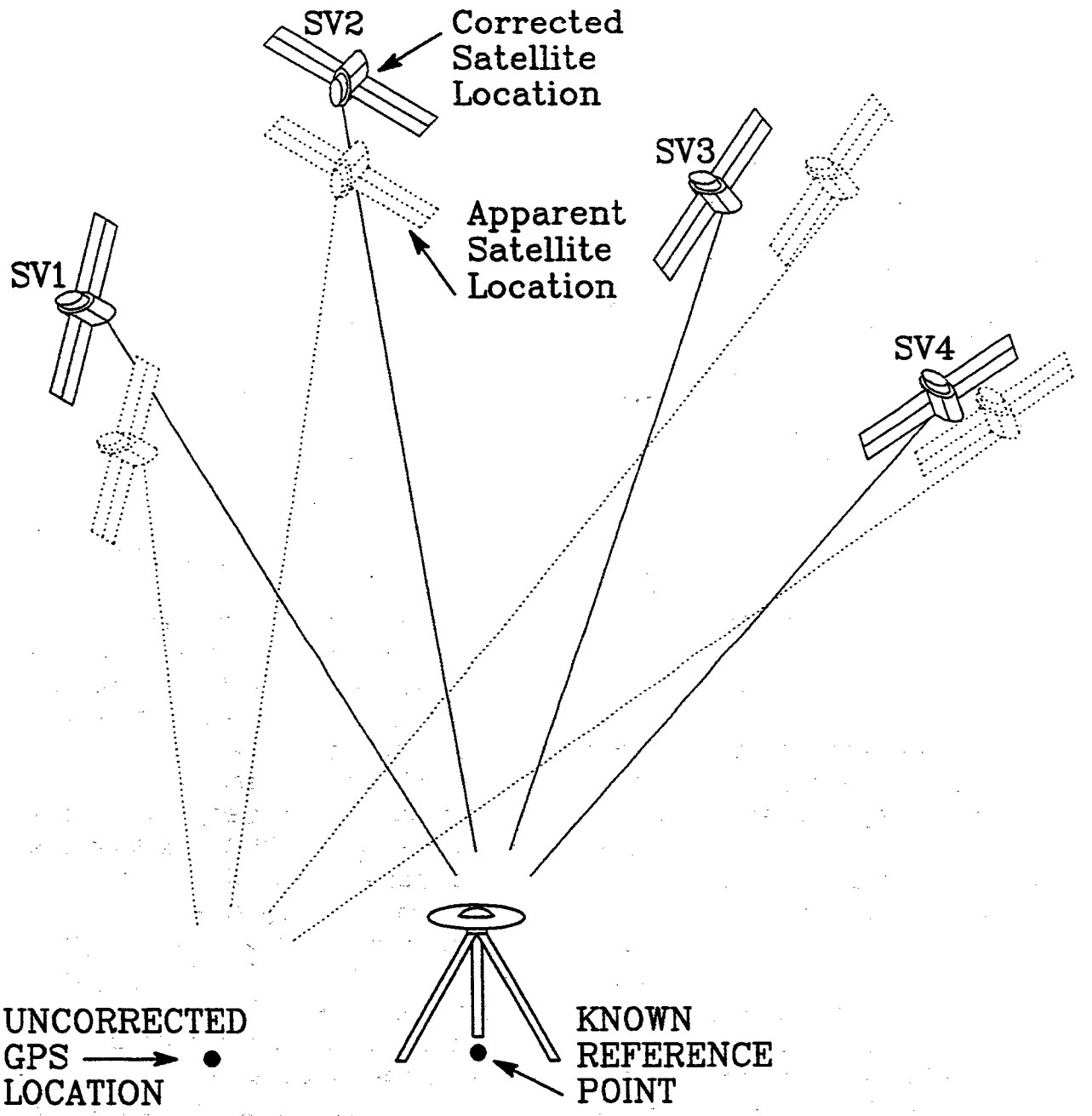


Figure GPSD–1. Principles of differential GPS corrections. The base station GPS is located over a known point. The difference between the known satellite locations calculated from the satellite ephemerides and the base station location, and the apparent locations calculated from the ephemerides and the satellite clock is used to calculate individual pseudorange corrections for each satellite.

Y-Code	L1 (10.23 MHz)	Encrypted P or Anti-spoofing (AS) Code: Encrypted pseudorandom noise signal containing clock time signal (time of transmission). The encryption is classified and this signal is for military use. Accuracy of the GPS system with this code is degraded to 100 m but military users can achieve psuedorange accuracies of better than 30 m by removing the encryption.
C/A-code	L1 and L2 (1.023 MHz)	Clear acquisition code: Non-encrypted clock time signal with pseudoranges accurate to ±100 m.

9.1 Positioning

GPS receivers contain an internal clock (oscillator) which is synchronized to GPS time. GPS time is the absolute time standard used for the entire GPS system and is expressed in coordinated universal time (UTC). Each SV has a clock synchronized to GPS time and transmitted clock errors contained in the navigation message. The C/A and P or Y code transmissions contain the time of transmission from the satellite. Once the GPS receiver has 4 satellites in view, it can come up with a unique solution for the four variables in the position equation: x,y,z and t (time). The receiver generates a best-fit solution to GPS time and synchronizes the receiver clock to GPS time. The phase shift in time between the code signal picked up by the receiver and the internal receiver clock yields the transit time (time of receipt less time of transmission). This time, together with the known propagation velocity of the radio wave yields a pseudorange. The satellite navigation message transmits the satellite ephemeris - a precise description of the satellite's orbit and thus, its position. Using the ephemeris and pseudoranges, the location of the receiver can be calculated to an accuracy limited by the psuedorange accuracy and the relative geometry of the satellites. GPS positions are accurate to ± 30 m with P-Code and to ± 100 m with C/A Code.

9.2 Differential corrections

The accuracy of GPS positions can be improved by differential processing. A base station GPS is placed on a point whose geographic coordinates are accurately known. The base receiver then tracks the same satellites that are used by a nearby receiver (rover) which is being used to determine an unknown position. The base receiver computes the error in pseudoranges by comparing the apparent pseudorange from the SV's P or C/A code with the known pseudorange from the satellite message. The errors in satellite pseudoranges are then used in either real-time (via radio link) or post-

acquisition processing of the rover's position. Differential correction yields positions accurate to 0.5 m in x, y and z. Errors of this magnitude are acceptable for regional surveys for high amplitude anomalies but are not suitable for targets with responses less than about 1.0 mGal.

9.3 Carrier phase processing

GPS positions can be refined further by GPS survey techniques. These aim to measure the distance between two points (base lines or vectors) using both the positioning signal (P or C/A code) and the carrier phase of the GPS signal (L1 and L2). In simplified terms, the method is as follows. A base receiver is set up at a known point and a rover is set up at the point whose position is to be determined. The two receivers then record data from at least 5 SV's in common view for periods of time which depend upon the method being used. Three techniques are in common use:

Static survey	Receivers record each base line for at least 45 minutes. Post processing uses the C/A code and the carrier phase shift to calculate base lines.
Fast static survey	Receivers record each base line for at least 5 minutes and use the P-Code and carrier phase shift to calculate base lines.
Kinematic survey	Both the base station and the rover are set up over a known point and, after a short initialization period, the rover is moved from point to point and base lines are measured for period of 30 to 60 seconds. Both receivers must maintain a lock on the same receivers.

Static surveys can achieve accuracies of 5 mm $\pm$ 5 ppm while Fast Static and kinematic surveys can achieve accuracies of 5 mm $\pm$ 10 ppm. Carrier phase processing requires that the receiver be capable of recording at least 1 carrier phase (single frequency receiver) but better results under a wider variety of operating conditions are possible using receivers capable of receiving both L1 and L2 carriers (dual frequency receivers).

Carrier phase processing uses several techniques to measure base lines. Differentially corrected GPS positions are used to narrow down a range within which possible solutions to the base line equation may be found. Under optimum conditions this

would involve a preliminary determination of distance to within 4 to 10 m. To improve the accuracy of the determination, the carrier phase difference between the two receivers is considered. The fraction of a wavelength phase difference between the two receivers can be determined very rapidly but the integer number of full wavelengths phase difference between the receiver cannot be readily determined with a single phase difference. In addition, the method has to be able to correct itself if one of the receivers loses contact with one of the satellites and "loses its place" in the signal (cycle-slip). Finally, the processing must account for propagation error caused by unknown velocity variations within the ionosphere. Several methods are used together to remove external sources of error, resolve the integer ambiguity and correct for cycle-slip:

Single difference	Difference in phase between 2 receivers measuring the same satellite over the same interval (epoch). This removes the effect of satellite clock, orbital and atmospheric delays.
Double difference	Difference between 2 single differences. This removes the effect of receiver and satellite clock drift.
Triple difference	Difference over time between 2 double differences. This removes integer ambiguity and resolves cycle-slips.

Combinations of the differences for a large number of readings are solved for a best-fit solution using least-squares methods. Carrier phase processing generates one of several possible types of solutions depending upon the data available:

Float solution	Poor solution as the processor is unable to resolve the integer ambiguity. Errors in the order of 1 wavelength are possible.
Fixed solution	Good solution; one solution yields integer values significantly better than others. Errors less than 1 wavelength are possible.

Fixed solutions for dual frequency receivers fall into one of three types:

Wide Lane Fixed	Uses L1 and L2 differences, generating a base line solution using a wavelength of 86.2 cm. This is used in long base line surveys.
Narrow Lane Fixed	Uses combinations of L1 and L2 solutions generating a base line solution using a wavelength of 10.2 cm. This solution effectively removes ionospheric effects.
Ionospheric free solution	Best possible solution generated using L1 and L2 to achieve maximum possible accuracy.

9.4 Factors affecting GPS survey accuracy

The relative satellite geometry, signal status and elevation of the satellites above the horizon control the accuracy of a base line determination or of a position fix. Selective Availability (SA) is the military term for the deliberate dithering of the clock signals from the GPS satellites to degrade positional accuracy. A slow variation in position is caused by the introduction of error into the satellite ephemeris in the navigation message and a smaller and much more rapid position error is introduced into the code transmission. This latter effect causes significant errors in velocity determinations. The encryption of P-Code to Y-Code can affect Fast Static surveys since these use the P-Code to determine the starting position for a base line solution. The user range accuracy (URA) is a measure of the accuracy of a pseudorange. If this number is greater than 30 m, selective availability is probably in effect.

The signal to noise ratio (SNR) is a measure of the strength of the signal relative to background noise. An SNR of at least 6 is required for a decent positional fix or base line solution, common ranges are from 12 to 20.

A minimum of 5 visible (ie. detectable) satellites are required for carrier phase processing and for an accurate differential GPS position. A minimum of 4 SV's is required for routine positioning. A solution with more than 4 satellites is referred to as an over-determined 3D (OD3D) solution.

The relative geometry of the satellites exerts a strong influence on the accuracy of a solution. If all SV's are directly overhead, the generated position solution is relatively insensitive to horizontal error whereas a much tighter solution is possible if the satellites are spread across the sky. The point dilution of precision (PDOP) is a measure of the error in location caused by geometry. Values of 4 or less are good, 5 to 7 are acceptable and greater than 7 is considered very poor.

Multi-path errors are caused by SV signals reflecting off surfaces near the receiving

antenna. Multipath errors are a major concern in both differential and carrier phase surveys where reflections near a base station receiver can significantly degrade the quality of the positions and base line solutions. Fortunately they are largely avoidable through care and attention in the field.

10.0 GRAVITY SURVEY SPECIFICATIONS AND FIELD PROCEDURE

The following survey specifications and field procedures were employed for the gravity survey:

Station locations:	Gravity stations were spaced 300 to 500 m apart along traverse lines sited along ridges, drainages and other favourable access routes. Some stations were reached by helicopter. Stations were located in the field with a non-differential GPS. Stations were sited in locations where the topography was flat for at least 2.0 m surrounding the stations.
Station marking:	Gravity stations were flagged by the crew in the field. Station names in the digital data include a Line (survey day (1 to 17)) and Station (station number from 1 to n for each survey day).
GPS base station location:	The GPS base station was installed near camp and moved twice (July 18 and 19) to a final fixed location on July 19 from whence all subsequent surveying was conducted. The GPS base station was not located over a fixed geodetic survey marker as no readily accessible and secure marker could be found in the survey area.
GPS base station settings:	Default elevation mask of 17^0. Antenna heights recorded and checked daily. A 10s reading epoch was used throughout.

GPS rover settings:	10 s reading epoch, elevation mask of 20^0, signal to noise ratio threshold - 6.0, PDOP threshold - 6.0. Each position measurement consisted of 10 readings. Three position measurements were take at each station. Antenna height was fixed throughout the survey and was incorporated into the data processing.
Survey datum:	NAD1927 (Canada / Yukon). All coordinates in UTM Zone 7N. All elevations were processed as geoid elevations (above mean sea level).
Drift calibration:	The gravimeter was warmed up for a period of 48 hours prior to drift calibration. Thereafter, the instrument was cycled for a 24 hour period, taking 120 s readings every 10 minutes in cycling mode. The data was analysed to determine the apparent remnant linear instrument drift and the gravimeter drift constant was reset to compensate for this drift.
Gravity drift control:	Daily check-in was performed at a single fixed point near camp (Station 99 in records) prior to and after each day's survey. Readings were repeated 3 times at the control station and averaged to calculate the check-in value.
Gravity measurements:	Gravity readings were made with the seismic filter, tidal effect and auto tilt corrections engaged. The latitude and longitude of the centre of the survey area (65.07 N 138.02 W) were set for the tidal correction. Readings were stacked for 60 seconds and repeated if standard deviations exceeded 50 μGal.

Near station terrain correction:	Topography surrounding the station was measured in 6 - 60^0 sectors in each of three zones surrounding the station. Zone limits were 2-20 m, 20-50 m, and 50-200 m. Terrain was measured by taking an average terrain elevation reading with the laser range finder. All readings were subsequently corrected for operator height. Where terrain was not visible, the operator measured the estimated slope and calculated the elevation using the distance to the zone centre radius and the estimated terrain slope.

The survey log is attached in Appendix B.

11.0 DATA PROCESSING

This section describes data processing and quality assurance and quality control (QA/QC) measures. All data was processed in the field and was subsequently checked by the author in Whitehorse. GPS data processing was performed with Trimble Pathfinder Office (Ver. 2.70). Gravity data processing was performed with GRAVRED, a proprietary program developed by Amerok Geosciences Ltd. This software automates the standard gravity reduction procedures described below:

1. Drift correction: Drift corrections were calculated by linear interpolation of the instrument drift determined from the check-in measurements.

2. Latitude correction: The latitude correction was calculated by determining the gravity gradient with latitude at the centre of the survey area and by calculating the latitude effect at each point from the north-south distance from the measurement station to the centre of the grid. The following parameters were used in the correction:

Grid centre: 629500E 7218500N
Latitude: 65.07^0 N
Azimuth of UTM to Celestial North: 2.5^0 E

3. GPS differential corrections: Differential GPS corrections were performed with Smart Code and carrier phase processing using the masks and thresholds described in the previous section.

4. Elevation corrections: The Free Air, Bouguer and Bullard B corrections were made in a single step. A density of 2.67 g/cm^3 was used in the elevation corrections. All input elevations were in metres above mean sea level (geoid elevations). The Bullard B correction was made using a lookup table incorporating the correction coefficients compiled by Whitman (1991)[1].

5. Near station terrain corrections: The topography near each station to a distance of 200 m was surveyed by the operator according to the specifications described in the previous section. The near station terrain correction (NSTC) was calculated using the analytical relation for the gravity of a segment of a cylindrical terrain slice defined by inner and outer radii (r_i and r_o) and the angle subtended by the slice θ. If ρ is the density, the gravitational effect of that slice g_i is given by:

$$g_i = \gamma\rho\theta\left\{\left(r_o - r_i\right) + \left(\Delta z^2 + r_i^2\right)^{0.5} - \left(\Delta z^2 + r_o^2\right)^{0.5}\right\}$$

where γ is the universal gravitational constant and Δz is the difference in elevation between that of the sector and that of the station. The terrain effect is the sum of individual terrain corrections for each slice (ie. each sector within each zone).

6. Far station terrain corrections: Far station terrain corrections were made by applying the above relation for the gravitational effect of a terrain element to each node in two digital terrain models (DTMs). An inner DTM covered the area of the survey and extended to the N, S and W by an additional 3 km. An outer DTM extended to a radius of 80 km from the center of the survey area and excluded the area of the inner DTM. The inner DTM was constructed from digital topographic maps (ie. NTS topographic maps in AutoCADD format). The coordinates of the end points of each contour segment (UTME, UTMN, elevation) were extracted from DXF files. The coordinates of these points were initially registered to the NAD83 (Canada) datum and were reregistered to the NAD27 (Canada / Yukon) datum using Geocalc (MADTRANS algorithm). These extracted points were then assembled in a data base and gridded using minimum curvature to generate a digital terrain model with a 30 m cell size. This grid was then exported as the inner DTM. The inner DTM covered the entire survey area with lower left corner at 614000E 7209000N and the upper right corner at 641000E 7227000N. The outer DTM was extracted from a 1.0 arc-second digital elevation model for northern Canada. The outer DTM cell size is

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[1] Whitman, W.W. (1991) A microgal approximation for the Bullard B - earth's curvature - gravity correction. Geophysics Vol.56 No. 12 pp 1980-1985.

1.0 km.

The terrain correction treats each node in the DTM as the centre of a terrain slice with dimensions defined by the node size (ie. 30 m for the inner DTM and 1000 m for the outer DTM). The radial distances and subtended angles are calculated from the distance to the node centre and the node size. The gravitational contribution of each node is summed to calculate the terrain correction for the station. Nodes within 200 m of the station are excluded.

12.0 ERROR ESTIMATE

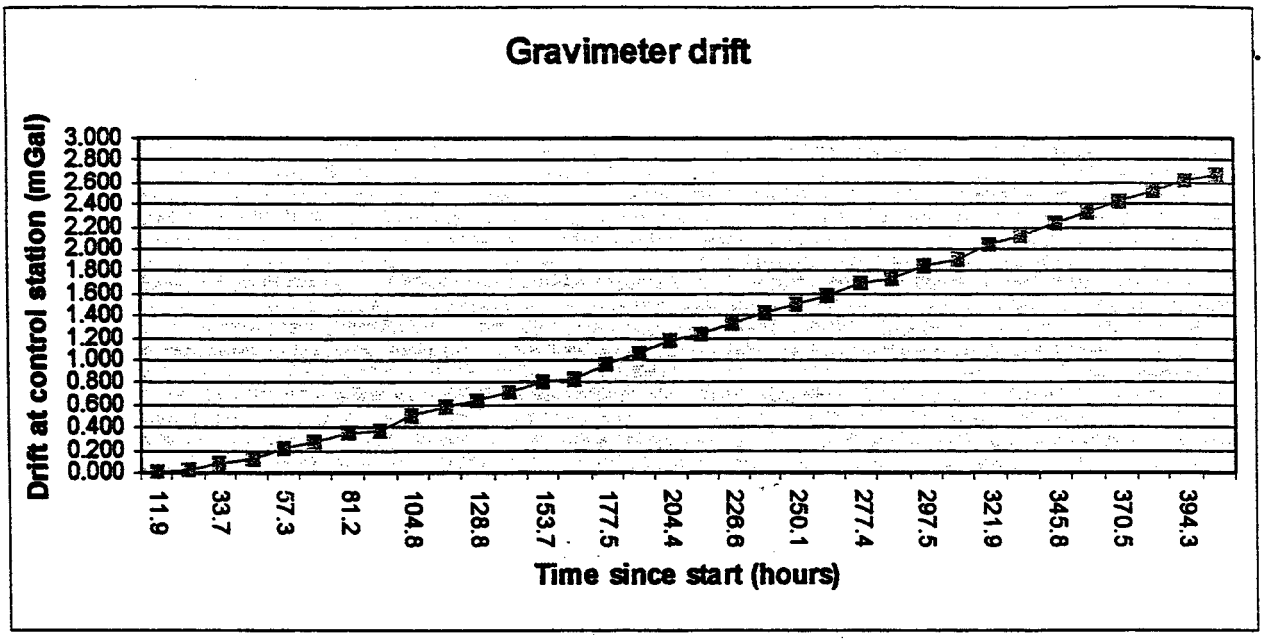
The following is an estimate of the total measurement error.

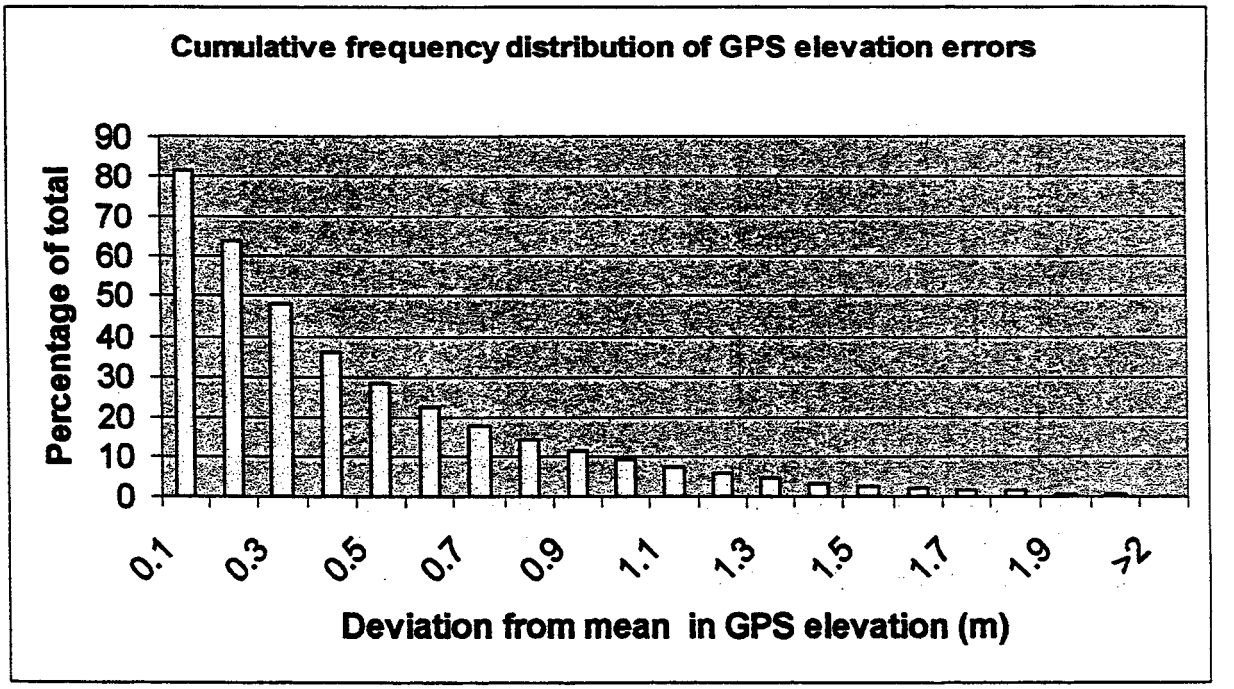
1. Gravimeter drift. The graph below shows the daily gravimeter drift over the duration of the project. Over the duration of the project, the average drift rate was 6.64 μGal per hour and the drift rate was essentially linear with no significant tares. A liberal estimate of measurement error due to drift would be ±5 μGal.

2. Gravity measurement error. Most of the gravity readings were taken on soft ground where stability of the gravimeter was occasionally a problem. An indication of the severity of the problem is apparent when examining the measurement tilts. The effect of the tilt on the measurement is compensated by the instrument as it is linear for small deviations. The soft ground also contributed to measurement error by introducing high standard deviations - occasionally in the order of 500 μGal. Despite this, the measurements generally repeated quite well - typically within 10 μGal. A generous assessment of measurement error would be ±30 μGal.

3. Variation in hub to height elevation. The height of the gravimeter base above the ground varied from reading to reading by up to 5 cm. This would introduce a maximum error of ± 15 μGal into the gravity measurements.

4. GPS elevation errors. Each GPS station location measurement was repeated 3 times and the deviation of each of these measurements from the mean is an indication of the likely error in elevation. The cumulative frequency distribution of 769 GPS elevation errors is shown below. The average deviation from the mean for the entire data set was 0.417 m and 77% of all errors were less than 0.600 m. If the latter is taken as an estimate of the average real error in GPS elevations, this would translate into an average gravity measurement error of ±120 μGal.





5. Near station terrain correction error. The near station terrain correction is prone to errors by incorrectly averaging the terrain elevation in a sector and by incorrectly estimating the slope for portions of the topography not visible to the operator at the station. If errors in the order of ± 2 m are assumed for the two inner zones and errors of ± 5 m are assumed for the outer zone (50-200 m), the terrain correction error would

be about ±50 μGal.

6. Far station terrain correction error. The error introduced by the far station terrain correction is created by errors in the base topographic maps, by errors introduced by gridding and by errors in station location. Error in station location should introduce minimal error because the near station terrain correction covers the 200 m surrounding the station and error in station location is in the order of 1 - 2 m at a maximum. The influence of the other factors cannot be reliably estimated.

7. Summary. The overall gravity measurement error is the sum of the errors:

Source of error	Error (μGal)
Gravimeter drift	±5
Gravity measurement error	±30
Hub elevation error	±15
GPS elevation error	±120
Near station terrain correction error	±50
Estimate of overall gravity measurement error	***±220***

13.0 RESULTS

Appendix E contains a listing of the gravity and topographic survey data showing all corrections in sequential order. The gravity data is posted and colour contoured in Figure 3 (back pocket). This plot shows the data overlain on topography (black line contours). A CD-ROM is appended to this report with the following digital data products:

Summary spreadsheet	**HEM Gravity.xls** (Excel 2000). Summary showing the DGPS corrected locations, raw gravity with SD's, and all corrections applied to the gravity. Separate worksheets contain summaries of repeat gravity and GPS readings and of correction parameters.

GPS data	**HEM GPS.zip** (WinZip). Base and rover SSF files as collected and unedited. Base files are in GPS day/hour (Trimble) name format. Rover file names are LRS.ssf (L-line, R-repeat (one of A,B,C), S-station number).
Raw gravity	**HEM raw grav.zip** (WinZip). Unedited dump files. The Line in each file is the survey day numbered from day 1 (July 17). Stations are numbered from the beginning of the day.
Digital terrain models	**DTMs.zip** Outer and Inner digital terrain models in NAD27 UTM coordinates. DTM models are in ASCII XYZ format.
Near station terrain measurements	**HEM near terrain.xls** - spread sheet containing the relative terrain elevations in the following format: Line Station Zone 1 (2-20m) (6 readings - Δz in metres) Zone 2 (20-50m) (6 readings - Δz in metres) Zone 3 (50-200m) (6 readings - Δz in metres)

The Bouguer gravity consists of a broad regional arcuate high which trends east-west across the length of the survey area and has an amplitude of 2.5 mGal above background. Superimposed on the axis of this regional feature is a local Bouguer high with a maximum amplitude of 6.0 mGal above background, a strike length of 8.2 km and a half-amplitude width of 2.4 km. The local high consists of a large western peak and a subsidiary eastern high. Ground magnetic data currently extends across only the eastern gravity high. In this area, the magnetic response consists of a broad 160 nT high, trending east-west along an axis centred approximately 500 m south of the gravity anomaly.

14.0 CONCLUSIONS

The gravity and magnetic field responses at the HEM Property are broadly similar to those at the Minotaur Resources discovery and to the Olympic Dam deposit. The total magnetic field anomaly is 500 m south of the Bouguer gravity high and both the gravity and total magnetic field anomalies are parallel, following the same regional trend. The gravity and magnetic field surveys have thus identified a target with a geophysical setting similar to that expected from an iron oxide copper gold deposit.

Both the gravity and total magnetic field data set in the target area are incomplete. The gravity data set requires supplemental measurements on the axis of the anomaly and along the flanks of the peak gravitational response. In addition, it would be useful to collect a few more data points in the surrounding area to better define the regional trend and the survey should be tied into the GSC regional gravity network. The total magnetic field survey grid should be expanded to cover the entire strike length of the Bouguer anomaly.

15.0 RECOMMENDATIONS

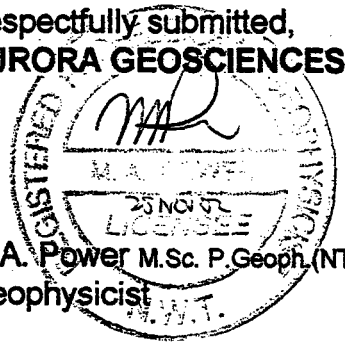
The conclusions lead to the following recommendations:

a. The total magnetic field and Bouguer gravity coverage should be extended and the density of gravity station coverage should be increased to better define the extent of the geophysical anomalies.

b. A complete data set would merit comprehensive three dimensional modeling in order to define an optimum drill target. This is particularly necessary in view of the fact that testing may occur in an area where the target is covered by Paleozoic limestone.

c. The gravity anomaly defined by the survey should be tested by drilling at a location where the combined total magnetic field and gravity survey results indicate the most likely location for shallow iron oxide copper gold mineralization.

Respectfully submitted,
AURORA GEOSCIENCES LTD.



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Geophysicist

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APPENDIX A. CERTIFICATE

I, Michael Allan Power, M.Sc. P.Geo., P.Geoph., with business and residence addresses in Whitehorse, Yukon Territory do hereby certify that:

1. I am a member of the Association of Professional Engineers and Geoscientists of British Columbia (registration number 21131) and a professional geophysicist registered by the Northwest Territories Association of Professional Engineers, Geologists and Geophysicists (licensee L942).

2. I am a graduate of the University of Alberta with a B.Sc. (Honours) degree in Geology obtained in 1986 and a M.Sc. in Geophysics obtained in 1988.

3. I have been actively involved in mineral exploration the Northern Cordillera since 1988.

4. I have no interest, direct or indirect, nor do I hope to receive any interest, direct or indirect, in Copper Ridge Explorations Ltd. or any of its properties.

Dated this 25th of November, 2002 in Whitehorse, Yukon.

Respectfully submitted,

REGISTERED PROFESSIONAL GEOPHYSICIST
M. A. POWER
LICENSEE

Michael A. Power M.Sc. P. Geoph.

APPENDIX B. SURVEY LOG

AURORA GEOSCIENCES LTD.

GRAVITY SURVEY LOG
JOB KRX-02-001-YT
COPPER RIDGE EXPLORATIONS INC.

Period: July 16th, 2002 - August 3rd, 2002

Personnel: Felix Gagne

Tue 16 Jul 02 Mobe
Drove from Whitehorse to Dawson. Arrived in camp late in the evening.

Wed 17 Jul 02 Survey
Late start and slow going because terrain is really soft in the valleys and gravimeter hard to level.
Production : 9 stations.

Thur 18 Jul 02 Survey
Production : 17 stations.

Fri 19 Jul 02 Survey
Problems with the GPS, 5 consecutive points not corrected. Tomorrow, elevation mask on rover at 20° rather than 15° as before.
Production : 18 stations.

Sat 20 Jul 02 Survey
Helper had to leave at noon for Dawson.
Production : 6 stations.

Sun 21 Jul 02 Survey
Production : 15 stations.

Mon 22 Jul 02	Survey Production : 26 stations.
Tue 23 Jul 02	Survey Production : 16 stations.
Wed 24 Jul 02	Survey DTM registered to NAD83; will be changed tomorrow. Production : 16 stations.
Thur 25 Jul 02	Survey DTM transformed to NAD27; data re-corrected. Production : 17 stations.
Fri 26 Jul 02	Survey Production : 13 stations.
Sat 27 Jul 02	Survey Problems with the GPS base station again, last 3 points not corrected. Tested GPS during the evening; works fine. Production : 18 stations.
Sun 28 Jul 02	Survey Production : 5 stations.
Mon 29 Jul 02	Survey Production : 17 stations.
Tue 30 Jul 02	Survey Production : 26 stations.
Wed 31 Jul 02	Survey Production : 18 stations.
Thur 01 Aug 02	Survey Production : 14 stations.
Fri 02 Aug 02	Survey GPS resurvey of stations 11-16, 11-17 & 11-18. Production : 11 stations.

Sat 03 Aug 02 Demobe
Drive from Dawson to Whitehorse

Summary:

Survey Days	17
Gravity Stations	261

APPENDIX C. INSTRUMENT SPECIFICATIONS

GPS Pathfinder Systems

GPS systems for better data management and decision-making

Key features and benefits

- **Fast map display**
- **Easy to use graphical interface**
- **High-performance DGPS receivers**
- **Better accuracy with postprocessing**
- **Rugged and field proven**

Trimble's GPS Pathfinder® Systems are effective tools for data collection, update, and processing. This versatile family offers a variety of software, data collector, and GPS receiver options that are powerful, easy to use, and integrate seamlessly with industry-standard GIS databases. With a GPS Pathfinder System, you'll have the most accurate, current, and reliable data you need to make the best decisions.

Productive field software

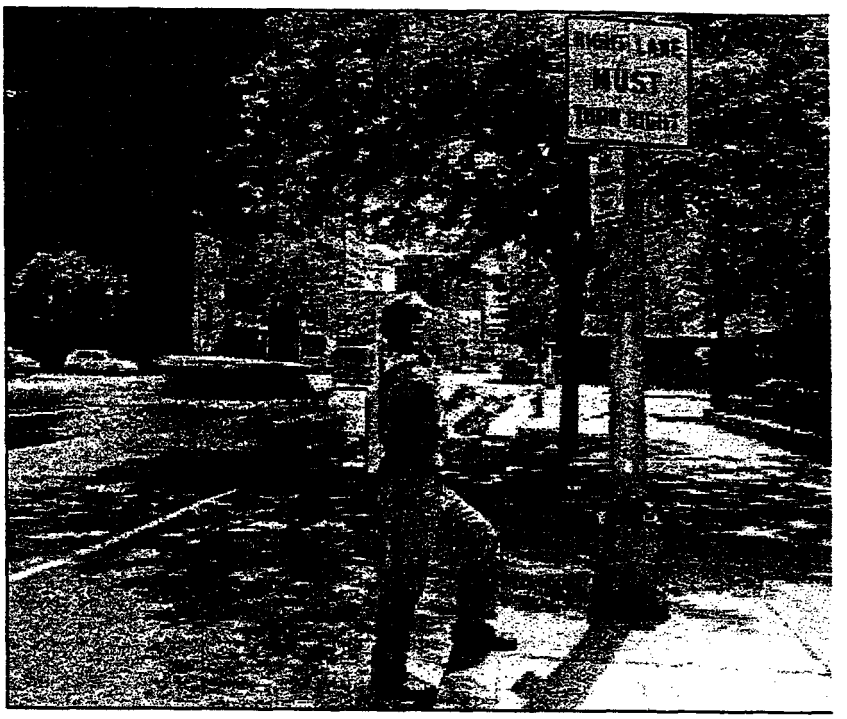
Timesaving field software is essential for productive GIS data collection and data maintenance.

With Trimble's field software options, you can quickly and easily collect point, line, and area features, along with customized attribute information. Our field software makes it easy to take existing data from your GIS into the field for verification and update. In the field, your productivity will be enhanced by better graphics. A fast map display allows you to display background data and imagery, to ensure you're working in the right location, with the right data. And flexible map symbology enables you to tailor your data display to match your GIS.

Trimble offers two field software solutions for collecting and maintaining quality data:

TerraSync™ software operates on Trimble's rugged GIS TSCe™ field device, or any Windows field computer.

Asset Surveyor® software runs on Trimble's rugged, field-proven TSC1™ data collector.



Trimble GPS Pathfinder Systems are rugged and field-proven

Accurate and reliable data

Trimble's GPS Pathfinder System receivers offer real-time differential GPS (DGPS) and postprocessing options. Real-time DGPS provides you with immediate results in the field—great for navigation, and relocation of existing assets. Postprocessing enables you to improve the reliability and accuracy of your data when you're back in the office.

The GPS Pathfinder Power receiver integrates GPS, real-time satellite differential, and Wide Area Augmentation System (WAAS) capabilities into a single, lightweight unit.

The GPS Pathfinder Pro XR system integrates GPS, real-time beacon, and WAAS capabilities.

The GPS Pathfinder Pro XRS system integrates GPS, real-time beacon, satellite differential, and WAAS capabilities.

The best data for your GIS

The GPS Pathfinder Office software gives you the tools to manage your GPS projects from start to finish. With it, you can define your field data collection requirements and control the quality of your data. The result is more consistent, reliable, and accurate data for your GIS.

The GPS Pathfinder Systems family offers you a variety of software, data collector, and GPS receiver options. Choose the solution that meets your requirements, and realize the benefits of better decisions based on better data.

GPS Pathfinder Systems

Versatile GIS data collection and maintenance

FEATURES AND OPTIONS

GPS Pathfinder Systems Standard Features

- GPS Pathfinder Office software
- Choice of GPS receiver
- Choice of field software
- Ergonomic backpack carrying system
- Rechargeable system batteries (provide 8 hours of field use)
- Battery charger and AC power supply

Optional Receiver Accessories

- Vehicle kit: includes cigarette lighter power adapter, quick release, 2 quick-release adapters, and magnetic mount
- GPS Pathfinder Centimeter Processing option

Available Receivers and Standard Features

- GPS Pathfinder Pro XRS receiver
- GPS Pathfinder Pro XR receiver
- GPS Pathfinder Power receiver

- 12-channel GPS receiver
- EVEREST™ multipath rejection technology
- WAAS differential correction capabilities

Available Field Software

- Asset Surveyor software for Trimble TSC1 data collector
- TerraSync software for Trimble GIS TSCe field device, and Windows field computers

GPS PATHFINDER POWER RECEIVER ANTENNA SPECIFICATIONS

- Integrated GPS/Satellite Differential receiver and antenna
- RTCM input

General:	12 channel, L1/CA code tracking with carrier phase filtered measurements.
Update rate:	1 Hz
Power:	3.1 Watts, 9 to 32 VDC
Accuracy (RMS) (Note A):	
MCORR400 differential correction:	Submeter + 1 ppm on a second-by-second basis (horizontal)
	Submeter + 2 ppm on a second-by-second basis (vertical)
Carrier phase processing:	30 cm + 5 ppm with 5 minutes tracking satellites
	20 cm + 5 ppm with 10 minutes tracking satellites
	10 cm + 5 ppm with 20 minutes tracking satellites
	1 cm + 5 ppm with 45 minutes tracking satellites (with Centimeter Processing option)
RTCM satellite differential correction:	Better than 1 meter (Note B)
Time to first fix:	30 seconds (typical)
Size:	15.2 cm diameter x 12.7 cm high (6" x 5")
Weight:	0.625 kg (1.38 lbs)
Temperature:	–30°C to +60°C (–22°F to +140°F) (operating)
	–40°C to +80°C (–40°F to +176°F) (storage)
Humidity:	100% fully sealed
Casing:	Fully sealed, dustproof, waterproof, shock resistant

GPS PATHFINDER PRO XR AND PRO XRS RECEIVER & ANTENNA SPECIFICATIONS

GPS Pathfinder Pro XR

- Integrated GPS/Beacon receiver
- Integrated GPS/Beacon antenna
- RTCM input/output
- 3 meter antenna cable
- Base datalogging mode

GPS Pathfinder Pro XRS

- Integrated GPS/Beacon/Satellite Differential receiver
- Integrated GPS/Beacon/Satellite Differential antenna
- RTCM input/output
- 3 meter antenna cable
- Base datalogging mode

TRIMBLE TSC1 DATA COLLECTOR SPECIFICATIONS

Screen:	240 x 200 extended temperature graphics STN LCD monochrome display
Size:	26.7 cm x 11.7 cm x 4.2 cm (10.5" x 4.6" x 1.65")
Weight:	0.85 kg including internal battery
Temperature:	–30°C to +65°C (–22°F to +149°F) (operating) –30°C to +80°C (–22°F to +176°F) (storage)
Environmental:	100% fully sealed against sand, dust and moisture, buoyant, waterproof against accidental immersion
COM ports:	Two RS232 7-pin lemo ports
Memory:	2 MB (storage), memory extension through user accessible Type II ATA PC card slot (Note E)
Batteries:	The internal Li-ion battery will last for at least 10 hours. In the field the TSC1 will draw power from the GPS receiver's power source when possible.

(footnotes)

Note A: At least 5 satellites, PDOP ≤6, signal to noise ratio ≥6, satellite elevation mask at 15 degrees.

Note B: RTCM SC-104 standard format broadcast from a Trimble reference station.

Note C: Frontlight has an operation temperature of >0°C.

Note D: 30 hours of operation is achievable without using the frontlight.

Note E: Memory extension through user-accessible Type II PC card slot. 16 MB PCMCIA Data Cards are available (33050-16).

Trimble follows a policy of continuous product improvement. Specifications are therefore subject to change without prior notice.

For further information, contact your nearest Trimble Authorized Distributor or Trimble Office. Please visit our web site at www.trimble.com

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011-44-1-256-760-148 Fax

Trimble Navigation Singapore
PTE Limited
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Singapore 449269
Singapore
011-65-348-2212
011-65-348-2232 Fax

TRIMBLE AUTHORIZED DEALER

GPS Pathfinder Pro XR receiver

General:	12 channel, L1/CA code tracking with carrier phase filtered measurements and multibit digitizer
Update rate:	1 Hz
Power:	6 Watts (maximum), 10 to 32 VDC
Accuracy (RMS) (Note A):	
MCCR8400 differential correction:	50 cm + 1 ppm on a second-by-second basis (horizontal) Submeter + 2 ppm on a second-by-second basis (vertical)
Carrier phase processing:	30 cm + 5 ppm with 5 minutes tracking satellites 20 cm + 5 ppm with 10 minutes tracking satellites 10 cm + 5 ppm with 20 minutes tracking satellites 1 cm + 5 ppm with 45 minutes tracking satellites (with Centimeter Processing option)
RTCM beacon radio transmissions:	Better than 1 meter (Note B)
Time to first fix:	30 seconds (typical)
Size:	11.1 cm × 5.1 cm × 19.5 cm (4.4" × 2.0" × 7.7")
Weight:	0.76 kg (1.68 lbs)
Temperature:	–30°C to +65°C (–22°F to +149°F) (operating) –40°C to +85°C (–40°F to +185°F) (storage)
Humidity:	100% fully sealed
Casing:	Dustproof, splashproof, shock resistant; sealed to 5 psi

GPS Pathfinder Pro XRS receiver

Specifications for the Pro XRS receiver are the same as for the Pro XR receiver with the following exceptions:

Power:	7 Watts (maximum), 10 to 32 VDC
Accuracy (RMS) (Note A):	
RTCM satellite differential correction:	Better than 1 meter (Note B)

GPS Pathfinder Pro XR antenna

General:	Right-hand, circular polarized; omnidirectional; hemispherical coverage
Size:	15.5 cm diameter × 10.8 cm high (6.1" × 4.2")
Weight:	0.49 kg (1.08 lbs)
Temperature:	–30°C to +65°C (–22°F to +149°F) (operating) –40°C to +85°C (–40°F to +185°F) (storage)
Humidity:	100% fully sealed
Casing:	Dustproof, waterproof, shock resistant

GPS Pathfinder Pro XRS antenna

Specifications for the Pro XRS antenna are the same as for the Pro XR antenna with the following exceptions:

Size:	15.5 cm diameter × 14 cm high (6.1" × 5.5")
Weight:	0.55 kg (1.2 lbs)

TRIMBLE GIS TSCe FIELD DEVICE SPECIFICATIONS

Screen:	320 x 240 color touch screen: 1/4 VGA reflective color TFT
Size:	25.8 cm x 13 cm x 5.2 cm (10.2" x 5.1" x 2.1")
Weight:	0.99 kg including internal battery
Temperature:	–20°C to +60°C (+14°F to +140°F) (operating) (Note C) –30°C to +60°C (–22°F to +140°F) (storage)
Environmental:	Meets IEC 68, EN61000, MIL-STD-810E standards for temperature, moisture and immersion, dust and sand, drop test, shock, vibration and altitude. IP 67 sealed against temporary immersion.
COM ports:	9-Pin serial port: RS232 (COM 1) 26-Pin MultiPort: (COM 2, Ethernet, USB client, power in/out, and audio in/out) Infrared: IrDA Type 1 (COM 3)
Memory:	128 MB (storage) 64 MB (RAM)
Batteries:	NiMH rechargeable pack, 3800 mAh gives continuous operation for over 30 hours recharges to 90% of capacity in 1 hour (Note D)

REFERENCE INFORMATION

AUTOGRAV SPECIFICATIONS

Reading Resolution:	CG-3: 0.005 milligal CG-3M: 0.001 milligal
Minimum Operating Range:	7000 milligals, without resetting.
Residual Long-term Drift:	Less than 0.02 milligal/day.
Typical Repeatability in field use:	CG-3: less than 0.01 mGal standard deviation. CG-3M: less than 0.05 mGal standard deviation
Range of Automatic Tilt correction:	±200 arc sec.
Dimensions:	240mm x 310mm x 320mm.
Weight:	11 kg, including standard battery.
Power Consumption:	5 W at +25°C.
Operating Temperature Range:	-40°C to +45°C. Optionally high temp. to +55°C.
Interval Between Readings in CYCLING Mode:	Adjustable from 6 to 99999 seconds
Standard Memory:	48K RAM internal solid-state memory records up to 1290 gravity observations. .

Carrying Bag:	
Communications:	RS-232 cable, adaptor and IDUMP software
RS-232C Cable and Adaptor:	Includes a special RS-232C data transfer cable and adaptor. Used for communicating with peripheral devices.
Display Heater:	Required for cold weather operation. Powered by main batteries, thermostatically controlled to turn off above -20°C
Minor Spare Parts Kit:	
Operations Manual:	

OPTIONAL ACCESSORIES

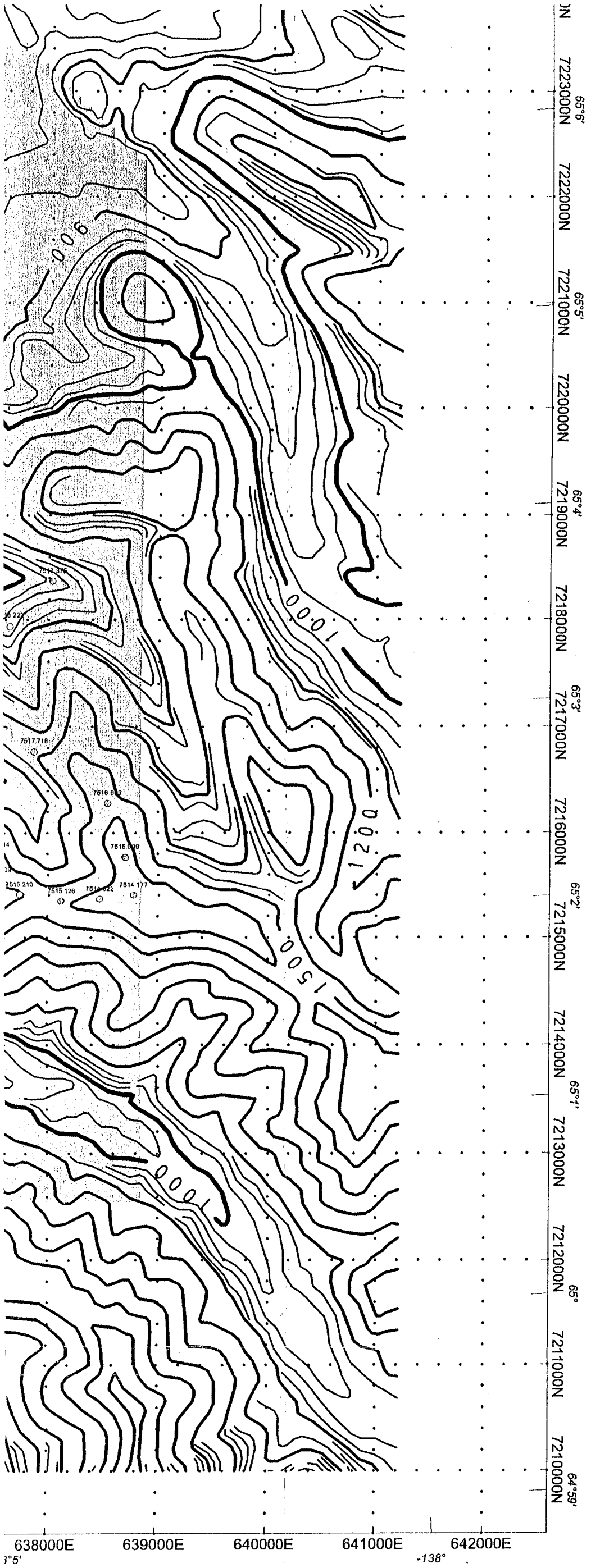
Belt Battery Pack:	The operator wears the Belt Battery Pack inside their coat during cold weather to keep rechargeable batteries warm. This extends the lifetime of the batteries.
Chart Recorder Cable:	This cable interfaces with any standard chart recorder
External Power Cable:	Required for operation of the instrument from an external 12V DC power supply or battery
Backpack:	For transporting the CG-3 over long distances or in difficult terrain.
High Temperature Option:	Fo operating up to +55°C
Elevation Options:	Scintrex can provide a variety of devices for elevation and positional control.
Peripheral Devices:	Scintrex can recommend and supply suitable digital printers, microcomputers, modems and other peripherals.

Noise Rejection:	Samples of more than 4 standard deviations from the average are rejected, if this feature is selected upon initialization of the instrument.
Displayed and Recorded Data:	Corrected Gravity, Standard Deviation, Tilt about the X-axis, Tilt about the Y-axis, Gravity Sensor Temperature, Tidal Correction, Duration of Measurement, Time at start of measurement and Header Information (including date and initialization constants).
Digital Display:	80 character, 4 line LCD display.
Keypad Input:	14 keys for entering all commands, co-ordinates, header and ancillary information
Real Time Clock:	Day, month, year, hour, minute and second. One second resolution, one second stability over 24 hours over the operating temperature range.
Digital Data Output:	RS-232C serial interface. Data outputs in 7 or 8 bit ASCII, one start, two stop bits, no parity format. Baud rate is selectable at 110, 300, 600, 1200 and 2400 baud. Carriage return delay is keyboard selectable in increments of one from 0 to 999. X-ON/X-OFF handshaking protocol.

STANDARD ACCESSORIES

Tripod:	Gravity meter tripod with built-in bubble level — 1.0 kg. 0.5 m leg extensions —1.0 kg.
Battery:	Two 7.2 Ah; 2.2 kg.
Battery Charger:	115/230V AC; 50/60 Hz

APPENDIX D. GRAVITY SURVEY DATA COMPILATION



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7518.100
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7515.700
7515.500
7515.200
7514.900
7514.700
7514.400
7514.200
7513.900
7513.600
7513.400
7513.100
7512.800
7512.600
7512.300
7512.000
7511.800
7511.500
7511.200

Bouguer Anomaly
(mGal)

Gravity survey

Gridding: Minimum curvature
Cell size: 100 m
Colour contour interval: 0.100 mGal
Illumination: N0E / -45
Postings: Final Bouguer gravity
Measurement station at circle centre

Topographic data

Digital terrain model
NAD1927 / Yukon
Elevations in metres ASL
Contour intervals: 20, 100, 1000 m

Scale 1:40000

500 0 500 1000 1500 2000 2500 3000

metres

NAD27 / UTM zone 7N

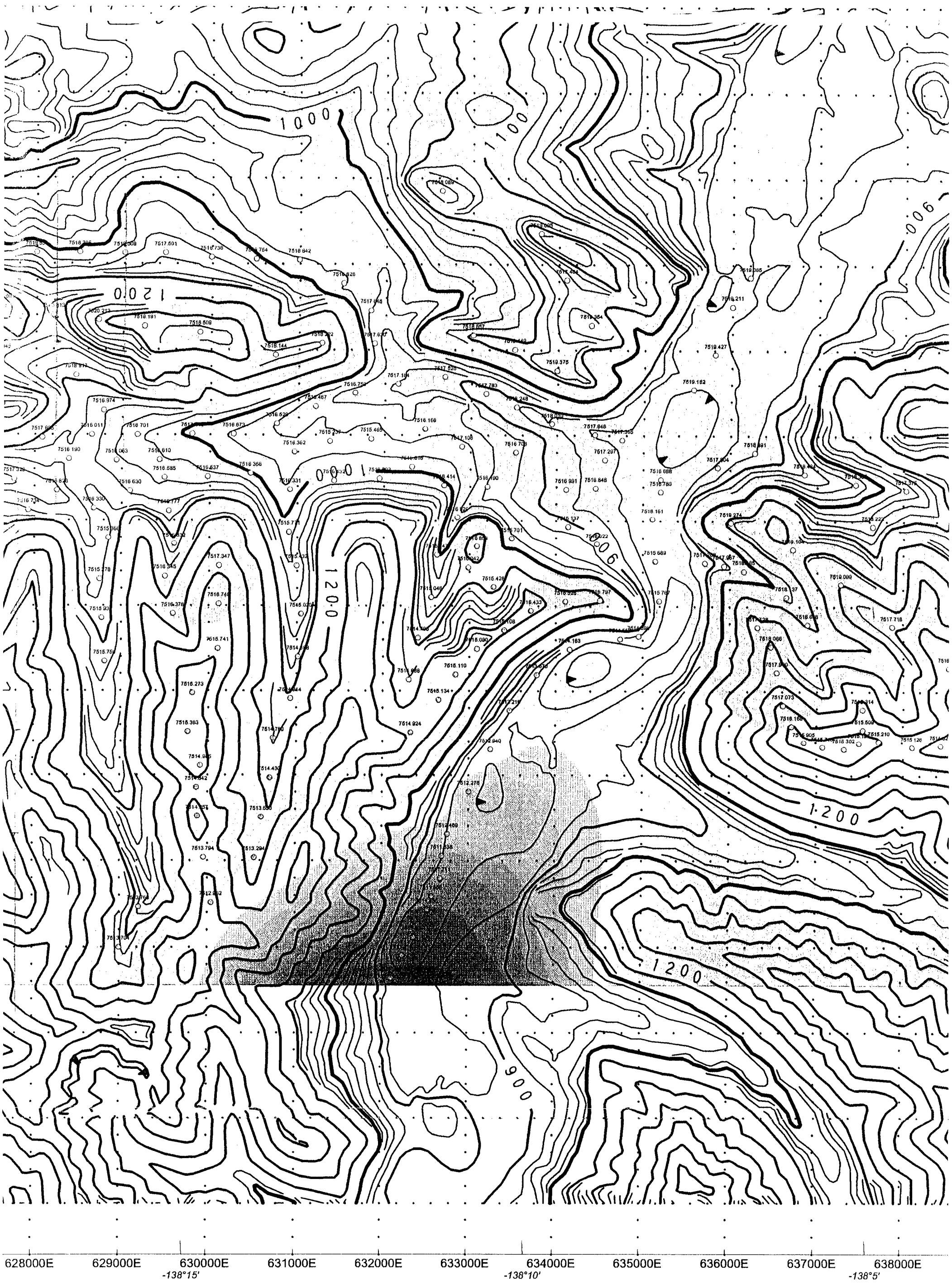
COPPER RIDGE EXPLORATIONS INC.

Bouguer Anomaly Map
Figure 3.

NTS: 116G 1/2
Mining District: Dawson

Datum: NAD27 (Yukon)
Date: 25 Nov 02

AURORA GEOSCIENCES LTD.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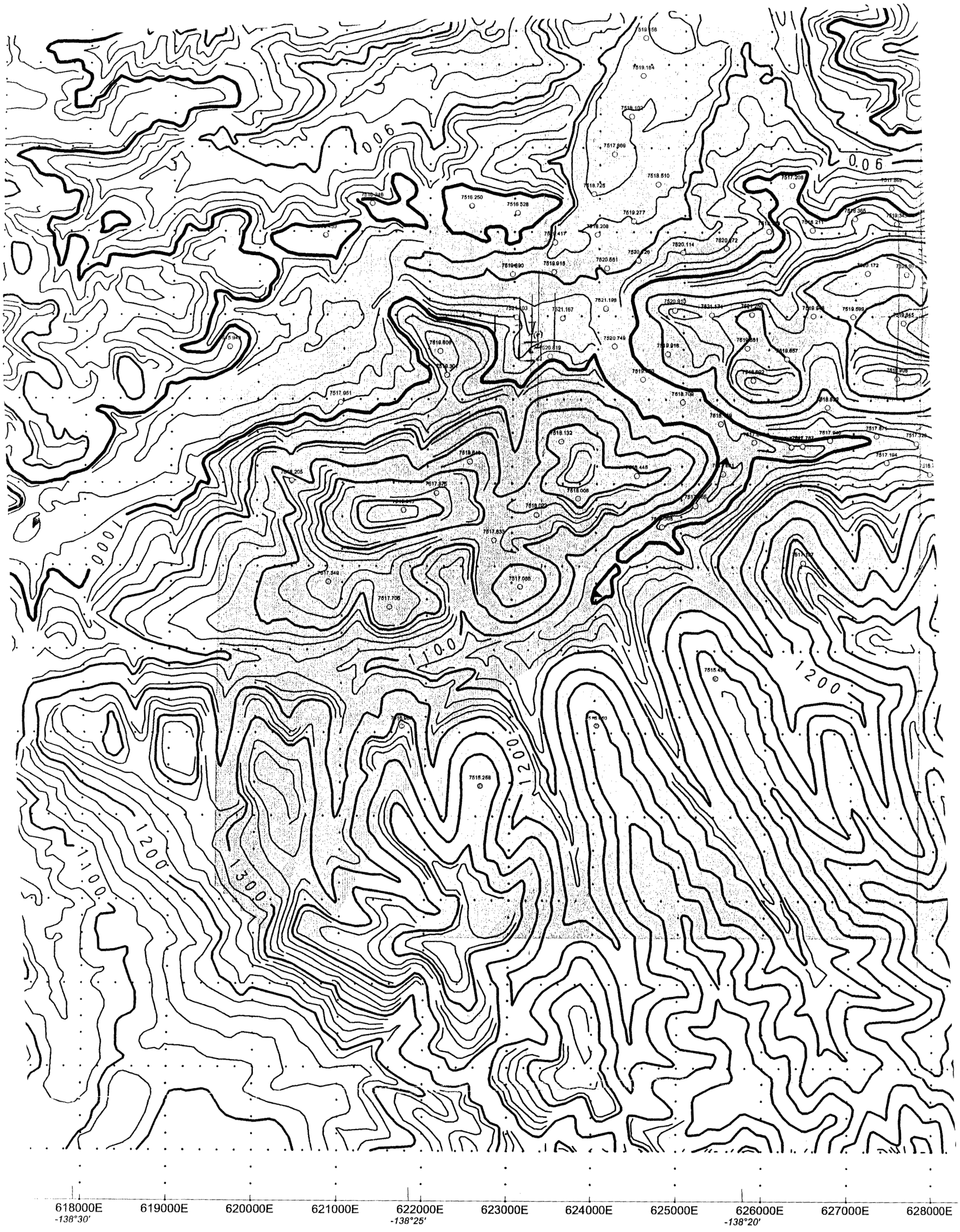
-138°10'
-138°5'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625000E
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-138°20'
627000E
628000E

APPENDIX VI

MAGNETIC SURVEY
SHAWN RYAN
2002

SUMMARY

A grid and magnetic survey was conducted on the Hem Property between July 13 and August 6, 2002. The survey was conducted to locate iron oxide copper gold mineralization similar to the Olympic Dam Model located in Australia. In total there was 110 kilometers of grid laid out and 95 kilometers of magnetic survey covering the entire claim package. The magnetic survey was run in conjunction with a Gravity survey performed by Aurora Geosciencies Ltd. The idea of the program was to use both survey to define a magnetic target that coincide with a gravity anomaly. Both surveys where successful in outlining a large gravity anomaly in the western part of the grid that measure 8 kilometer by 2.5 kilometers with an associated magnetic anomaly 2.5 kilometer by 1.5 kilometer. The magnetic signature is off set from the gravity anomaly and this is exactly what the Olympic Dam Model signature is. So the geophysical data raise allot of attention and help option the property off to two junior mining companies, Copper Ridge Exploration and Canadian Umpire which is back by Teck \ Cominco. The Property was drilled this fall with 2500 feet with result to follow. The companies are planning to drill the main gravity and magnetic anomaly next summer. So a very successful program with lots of potential in 2003.

1.0 INTRODUCTION

This report describes the grid work and magnetic survey conducted on the Hem claims in the Dawson Mining District, Yukon Territory. The Hem Property host hematite-chalcopyrite breccias similar in style to those hosting economic mineralization at the Olympic Dam Deposit in Australia. The purpose of the survey was to locate a large magnetic anomaly that coincides with a large gravity high anomaly similar to Olympic Dam. The grid was laid out with a three-man crew and the magnetic survey was run by myself. One Aurora Geoscience employees performed the gravity work and a helper provide by Copper Ridge Exploration. All work was performed between July 13 and August 6, 2002.

2.0 LOCATION AND ACCESS

The Hem Property is centered at 65'04'N, 138'12W in central Yukon. The property is 130 Km NNE of Dawson City. The property can be reached via the Dempster Highway. The property cross and follows the Highway from around kilometer mark 146 to 159.

3.0 PROPERTY DESCRIPTION

The Hem Property consists of 352 Claims (HEM 1-335 / with duplicates) staked under the Yukon Quartz Mining Act in the Dawson Mining District. Figure 2 shows the location of the Claims.

4.0 PHYSIOGRAPHY

The Hem property is located in the Olgilvie Mountains on the height of land between the Blackstone and Olgilvie Rivers. Elevation on the property range from 900 to 1600 m. The property covers a steep walled plateau dissected by steep and narrow ravines. The climate in the area is subarctic with long cold winters from October through May and a short, cool summer. Precipitation in the area is reportedly light to moderate.

5.0 REGIONAL AND PROPERTY GEOLOGY

5.1 REGIONAL GEOLOGY

The regional geology base on the GSC Map 1526A of the Ogilvie River by D.K. Norris the Hem claims lie in three different rock units. The oldest to youngest begins with Proterozoic, Aphebian Quartet Group: argillite, red, green and grey, slaty; quartzite, fine grained, light grey; marine? The next unit is Upper Cambrian to lower Devonian (CDb) Limestone and dolomite, grey and brown; shale, dark grey to black; marine; may include equivalents of Gossage and Ogilvie Formation. The third Unit is Upper Cambrian to lower Devonian (CDr) Road River Formation: shale, black, graptolitic; limestone, medium crystalline, dark grey; marine; includes lateral equivalents of the Michelle Formation.

5.2 PROPERTY GEOLOGY

The Hem Property economic mineralization consists of hematite - chalcopyrite-bearing breccias which outcrop along the Dempster Highway along the Blackstone River. There is also a large 2 KL by 1 KL hematite - chalcopyrite bearing breccia that outcrop east of the Blackstone River along a small creek draw.

6.0 WORK PROGRAM / METHODS

6.1 GRID WORK

The grid was established with a three-man crew. There were two individual grids put in. One grid covered west of the Blackstone River and a second smaller one covered east of the Blackstone River. We started with the large grid by putting in the Base Line from line 000 to 9750 east. With a Garmin Etrex GPS. The Base Line went exactly east - west and line where established every 250 meters. The start of each line was established using lathes with four orange flagging tapes running down to the ground creating a very visible target site that could be seen for over a kilometer away. The line ran north and south of base line. Station spacing on the lines where every 25 meters and where marked with either pickets or orange flagging with grid location marked with permanent black marker. The main large grid was extended to the west and to the north. A new base line was established with the GPS at 1200 N and the grid was extended to Line 2000 west.

A second grid was established east of the Blackstone River. This grid was established by running a base line put in again with GPS. Line where put in every 250 meter with station every 25 meters. All station where marked with orange flagging and wrote out with black permanent marker.

In total there was 110 kilometers of grid put in with 4,400 station established.

6.2 MAGNETIC SURVEY

A magnetic survey was conducted across the whole grid area. Two Scintrex Proton magnetometers where used during the survey. One operator ran the whole survey during July 13 and August 6, 2002. A base station was established close to camp and a magnetometer was set up at this location every day. This base mag would take reading every 30 seconds a map out the daily magnetic drift. This data was used for to correct the field mag for the daily drift.

The magnetic survey was run on the grid lines on station separation of 25 meters with some detail section of 12.5 meters. The survey ran fairly smooth with only one day lost due to base mag failure.

7.0 INTERPRETATION

The magnetic survey revealed two major anomalies, Anomaly A and Anomaly B.

Area A is located on the east part of the grid. This anomaly covers an area of 5 kilometer by 3 kilometer and is center on line 9750 E and station 300-500 N. This anomaly covers known Hematite Breccia with minor copper mineralization outcropping on the eastern grid.

Anomaly B is located in the western part of the grid. The anomaly covers an area of 2 kilometer by 1.5 kilometer. The center of the anomaly is located on line 2000 E around station 1200 N. This anomaly is covering CDb limestone unit. It should not be magnetic. This anomaly is what got everybody excited because it is associated with a large gravity anomaly. The magnetic signature parallels the gravity anomaly with the magnetic peak being 500 meter south of the gravity high. This signature is exactly the same geophysical signature as the Olympic Dam Deposit and the new Minotaur Resources Ltd showing found in Australia. Both are Proterozoic Hematite - Breccia hosting copper - gold mineralization.

8.0 RECOMMENDATION

I would recommend more detail gravity work to better define the eastern gravity and magnetic anomaly. I would also recommended more geology work to get a better idea on the geological structure. This would help with better understanding the nature of this large gravity anomaly. I would follow all this up with a 5000-foot drill program. The first drill target area should be just north of eastern magnetic anomaly and south of the gravity anomaly. The second drill area would be east of the Blackstone River. This area is lower priority because the magnetic anomaly covers the gravity anomaly. Neverless this target area has known copper mineralization and may turn up something interesting.

9.0 REFERENCES CITED

Norris, D.K. Geological Survey of Canada geology map number 1526A. Title " Ogilvie River " from 1979.

Minotaur Resources Ltd. Annual report (2001) and web site www.minotaurresources.com.au

Roberts, D.E. and Hudson, R.T. The Olympic Dam Copper-Uranium-Gold Deposit, Roxby Downs, South Australia.

10.0 QUALIFICATION

I Shawn Ryan located in Dawson City, Yukon work as a professional prospector. I run a small exploration company located in Dawson city.

I have worked in the exploration business for the last 20 years. I worked the first 12 years as a contractor working on numerous projects in the NWT, Ontario, Quebec and the Yukon. I have worked for the last 8 years as a local prospector for myself.

I have being trained to run various geophysical instruments and surveys such as magnetic surveys, max-min surveys, induce polarity surveys and Vlf surveys.

I have overseen the whole Hem Project and was the party chief in charge.

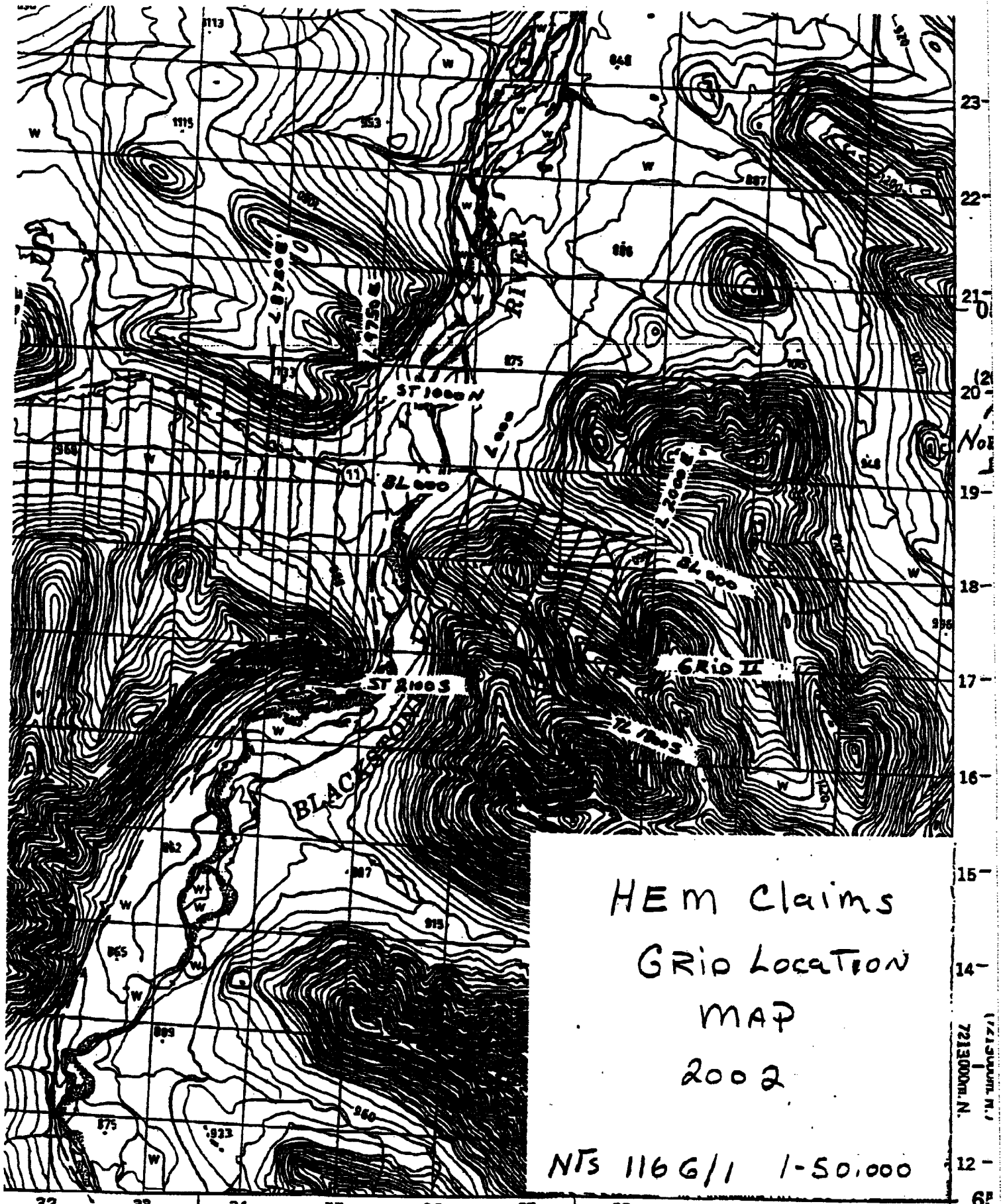
I own 100 % of the Hem claims and have now option the claims to Copper Ridge exploration.

Dated this 25 of January 2003 in Dawson City, Yukon.

Respectfully submitted

Shawn Ryan

ENGINEER CREEK


HEM Claims
GRID LOCATION
MAP
2002
NTS 116 G/1 1-50,000
GRID II
ST 2100 S
ST 1800 N
BLACKSTONE
RIVER
DAWSON
140 Km
(50)
10'
05'
138°00'
(357000m. E.)
641000m. E.
7213000m. N.

APPENDIX VII

GRAVITY INVERSION REPORT
SJ GEOPHYSICS LTD.
2002

SJ Geophysics Ltd.
S.J.V. Consultants Ltd.

11762-94th Avenue, Delta BC V4C 3R7 CANADA
Bus: (604) 582-1100 Fax: (604) 589-7466
E-mail: trent@sjgeophysics.com www.sjgeophysics.com

Memorandum

To: **Wayne Roberts**

From: E.Trent Pezzot

Date: **Sept 27, 2002**

Re: **HEM Gravity Inversions**

This word document contains several tiff images showing the results of the gravity inversion.

A ~4 km x 10 km block of data was extracted from the bouguer gravity data provided. Elevation and gravity readings were processed for input to the gravity inversion program.

An inversion mesh comprised of 100x100x50m cells (north x east x depth) below the topography was solved for by the inversion program.

The following images are generated from various views of the resulting block model showing the distribution of densities within the inversion mesh. They should give you a clearer impression than Syds' or my words. As I mentioned on the phone yesterday, if you'd like, we can give you a copy of the viewer and the data files so you can manipulate the images yourself. This will give you a much clearer understanding of the shapes of the high density sources.

Figure 1 shows a view from above, looking down on a transparent view of the plan bouguer map. The three bright objects beneath the gravity highs (reds) are shadows of the interpreted source bodies.

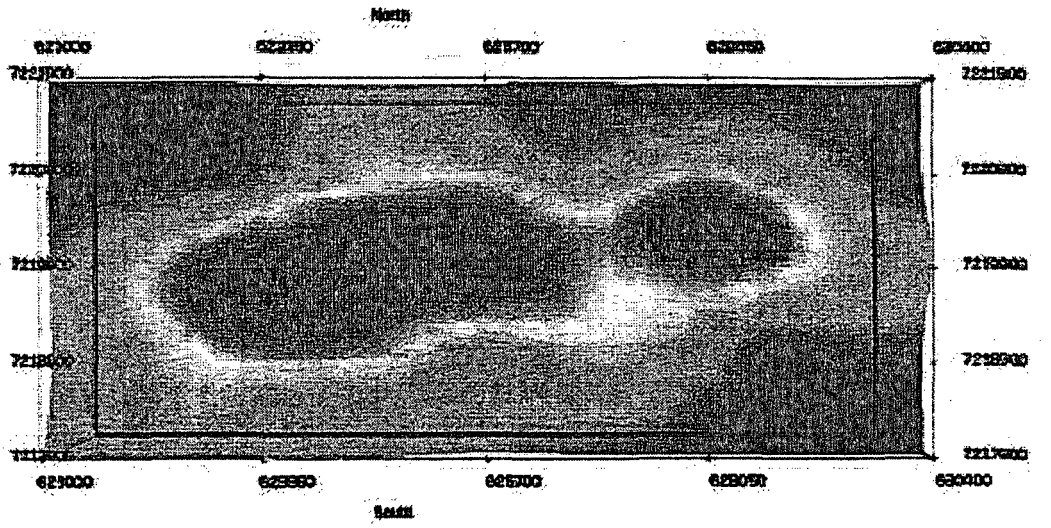


Figure 1

Figure 2 shows the block model when viewed from the South and a slight elevation. You can see the plan bouguer map as it drapes over the topographic surface. The orange coloured bodies beneath the surface are the interpreted high density sources.

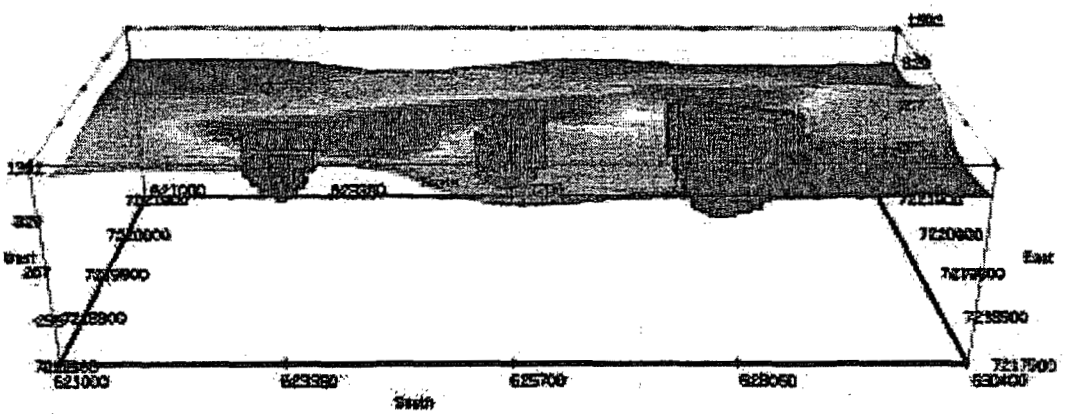


Figure 2

Figure 3 shows the block model when viewed the south and an angle from just below the horizon. From this perspective, you can start to see that the two western bodies appear to come very close to surface. The eastern body appears to be deeper. If the cutoff density is increased, we get the impression that the source of the eastern body may be upwards of 350 metres below the ground surface.

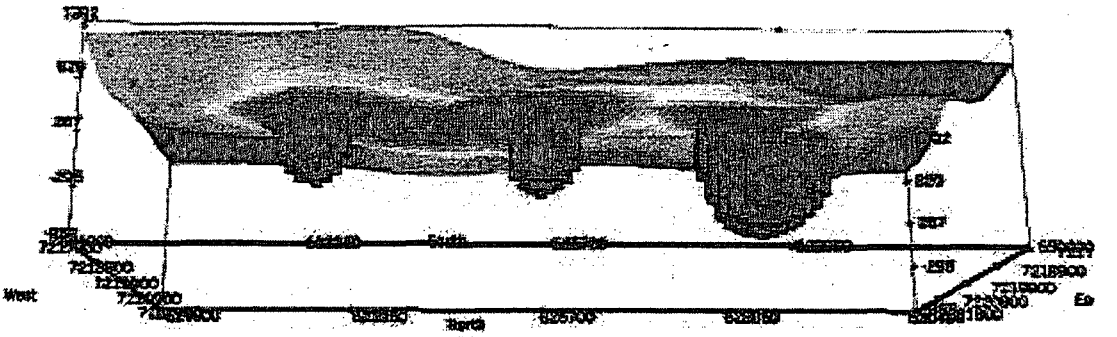


Figure 3

In figure 4 we have rotated the block so our view is now from the NorthEast, once again from slightly below the horizon. We have also increased the cutoff of the block model so that we are looking at the cores of the high density bodies. From this perspective you can get a better impression of the depth to the eastern body. Also, it appears that the central body may form some type of steep, northwesterly dipping pipe. One can also get the impression of the relative size of the respective sources.

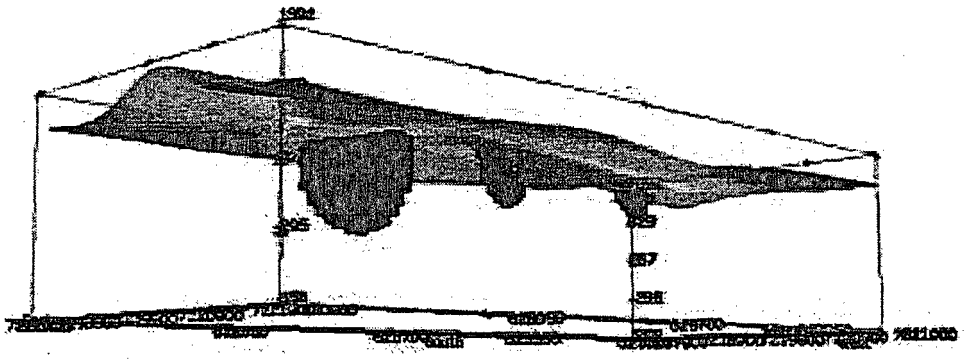


Figure 4

Figure 5 shows a view from the east. From this angle you can see separation between the surface and the top of the eastern body (about 350 metres).

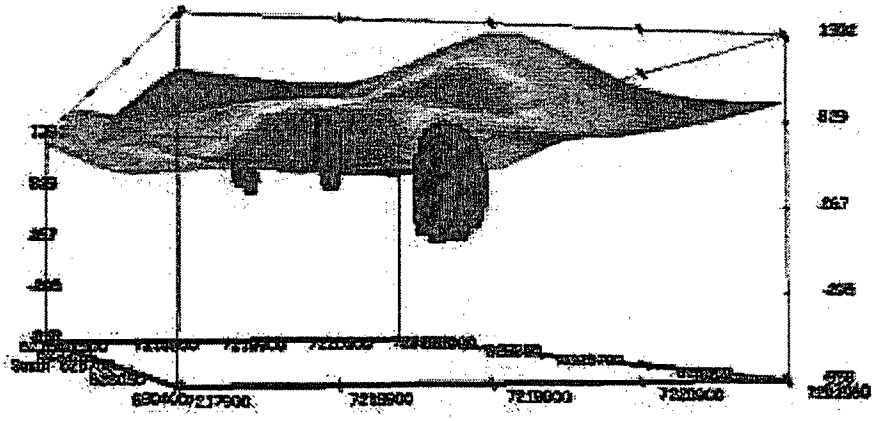


Figure 5

As Syd probably mentioned, these inversions are based on the Bouguer gravity data. We are currently reprocessing the data to produce a more suitable input to the inversion routine. I also understand that you would like the magnetic data analyzed by the same techniques. I hope to get these processes completed today and with any luck, the inversion should run over the weekend.

E. Trent Pezzot

APPENDIX VIII

ASSESSMENT REPORT
COPPER RIDGE EXPLORATION LTD.
2003

ASSESSMENT REPORT

YUKON OLYMPIC PROJECT

HEM 1-78 and HEM 79-88 Claims

Dawson Mining District, Yukon
NTS 116 G/1
65° 04' N; 138° 12' W

2002 Field Program

For
Copper Ridge Explorations Inc.
500-625 Howe Street
Vancouver, B.C. V6C 2T6

By

Gerald G. Carlson, Ph.D., P.Eng.
Copper Ridge Explorations Inc.
February 20, 2003

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APPENDIX A - Yukon Olympic Property Claim List

APPENDIX B - Statement of Costs

APPENDIX C – Magnetometer Survey Report

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Introduction

The target at Yukon Olympic (formerly HEM) is an iron oxide copper-gold ("IOCG") deposit, similar to Olympic Dam in Australia (2,000 million tonnes of 1.6% Cu, 0.06% U_3O_8, 0.6 gpt Au, 3.5 gpt Ag). Mineralization at Yukon Olympic consists of an extensive area of hematite-rich breccia, associated intrusive rocks of intermediate to mafic composition and a variety of feldspar, silica and carbonate alteration. Copper mineralization occurs as disseminated blebs of chalcopyrite within intrusive rocks and with specular hematite in the breccias. Many exposures are stained with secondary copper minerals. Breccias and associated copper mineralization have now been shown to occur intermittently over at least six kilometers. Very limited sampling has shown that the breccia is also enriched in rare earth elements, barium, fluorine and zinc. Further sampling is required to more accurately assess the chemistry of this intrusive-breccia complex.

The Yukon Olympic breccia occurs at a flexure along a regional, east-west trending structure as defined by aeromagnetics. The breccia itself is related to aeromagnetic and gravity highs that are elongated parallel to this trend, in the central part of the property. The 2002 field program defined a +4.5 mGal gravity anomaly that is in excess of 8 km in length and over 1 km wide, believed to reflect hematitic breccia below a thin cover of Paleozoic sediments. The gravity anomaly has a large western peak and a subsidiary eastern high. The anomaly is related to, but not coincident with, the regional magnetic anomaly. A preliminary review of the data suggests that the gravity anomaly may reflect hematite-rich breccias, while the magnetic anomaly may be caused by magnetite-bearing intrusive rocks at depth. This interpretation is strengthened by the fact that the easternmost portion of the gravity anomaly trends into the Spectacular Creek breccia occurrence that locally contains copper mineralization. The pattern at Yukon Olympic with the gravity anomaly being displaced from the magnetic anomaly also conforms to the Olympic Dam model. Within the area of the main gravity anomaly, a thin veneer of younger limestone covers the target rocks.

Accessibility and Physiography

The Yukon Olympic property is located 130 km north-northeast of Dawson in the north central Yukon in the Dawson Mining District (see Figure 1).

Access to the property is by the Dempster Highway or by helicopter from Dawson. By road, the Dempster Highway turn-off is 50 km from Dawson and the property an additional 105 km north along the highway.

The Yukon Olympic claim group is transected by the Blackstone River and the Dempster Highway. Elevations range from 850 m at river level to 1600 m on the highest ridges. The majority of the claim area is above tree line.

Most of the property can be accessed by foot. Helicopter and a small tracked personnel carrier have been used for more remote access within the property and canoe has been used for crossing the Blackstone River to access the eastern part of the claim group.

Climate is typical for northern Yukon, with long cold winters, but minimal snow cover. Summers

are warm and typically dry. The field season usually runs from early June until mid-September, although for drilling and for geophysical surveys, this season can be extended significantly, from March to October.

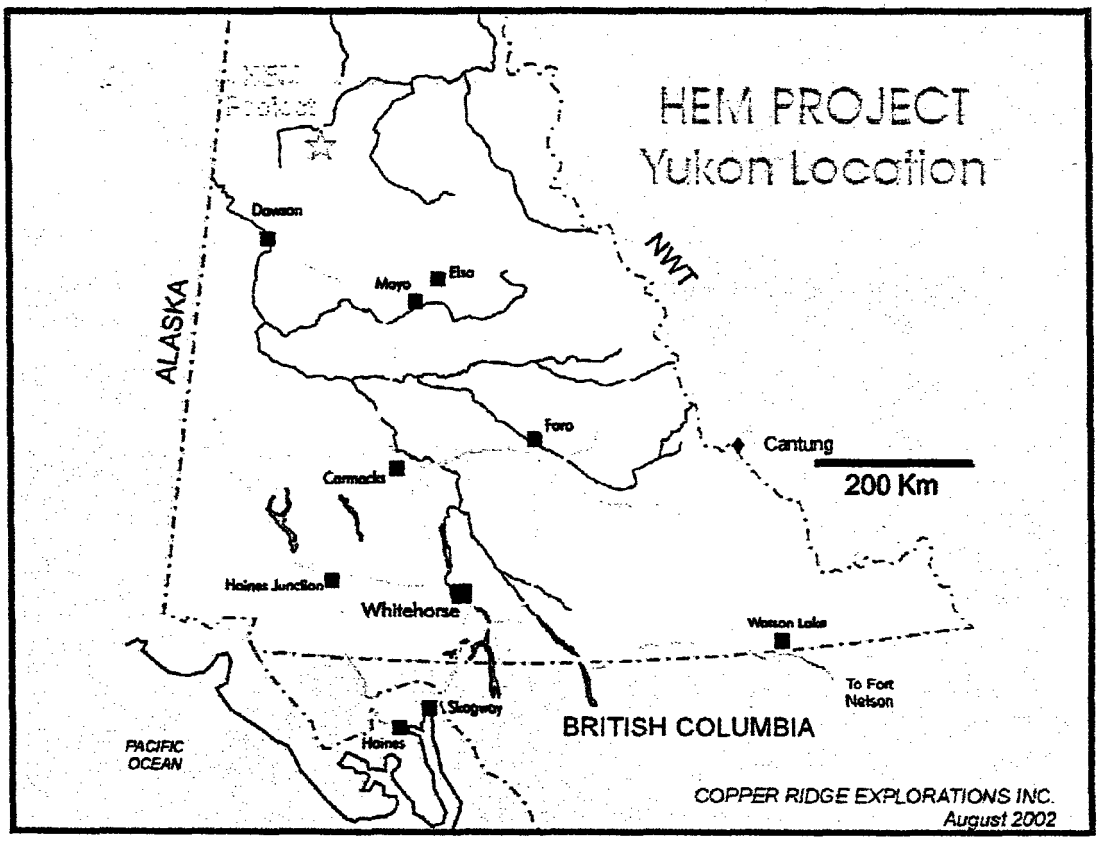


Figure 1. Yukon Location Sketch.

Property Description and Location

The Yukon Olympic property consists of 377 claims (see Appendix A) with a total area of approximately 8,300 hectares located along the Dempster Highway, north of Dawson City, Yukon (see Figure 2).

Pursuant to an arm's length agreement between Copper Ridge and the vendor, Copper Ridge has the right to acquire a 100% interest in the 98 unpatented quartz claims, plus 279 additional claims staked subsequently, comprising the Yukon Olympic property. The Company must spend $600,000 over five years and make cash payments of $105,000 over three years. In addition, Copper Ridge must issue 800,000 additional shares to the vendor upon reaching certain advanced exploration and development benchmarks on the property. The vendor retains a 1.5% net smelter return royalty, of which 0.75% can be purchased for $2,000,000.

On September 25, 2002, the Company announced that it had reached agreement with Canadian Empire Exploration Corp. whereby Canadian Empire can earn a 51% interest in the Yukon Olympic property by making staged exploration expenditures totaling $1.5 million and staged

share payments totaling 900,000 shares to Copper Ridge by December 31, 2005. Upon earn-in, a joint venture will be formed with Canadian Empire contributing to 51% and Copper Ridge contributing to 49% through completion of a preliminary feasibility study after which Teck Cominco will have the right to earn a 51% interest in the project by incurring 200% of prior exploration expenditures and completing a final feasibility on the project. Should Teck Cominco earn 51%, Canadian Empire would hold 25% and Copper Ridge 24% assuming that each party had maintained their interests through preliminary feasibility. Western Prospector facilitated the acquisition of the Yukon Olympic property by completing initial due diligence and securing the property in consideration of 100,000 shares to be paid to Copper Ridge. In consideration for assignment of the agreement to Canadian Empire, Western Prospector will be paid 200,000 units of Canadian Empire and will have the future right to purchase 50% of an NSR royalty held by an underlying vendor. Copper Ridge has agreed to pay a 100,000 share finder's fee for the introduction to Western Prospector. Copper Ridge has the right to earn a 100% interest in the property subject to a 1.5% NSR. The agreements will be subject to regulatory approval.

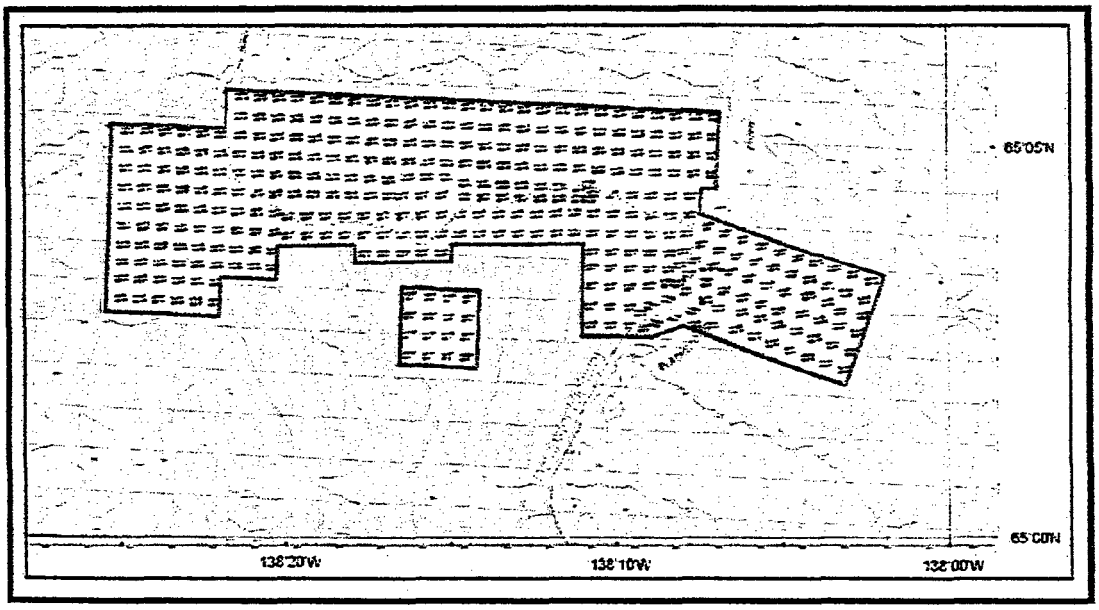


Figure 2 Yukon Olympic claim group.

History

A small part of what is now the Yukon Olympic property was staked and briefly evaluated by a junior exploration company in 1993 and was allowed to lapse the following year. The current Yukon Olympic property was staked by prospector Shawn Ryan in 2000 and 2001. Ryan carried out prospecting and rock sampling during 2001 and early 2002 and located several new copper occurrences.

Geological Setting

Recent studies have suggested that the Stuart Shelf area of Australia that hosts Olympic Dam and the Ogilvie-Wernecke trend in the Yukon were a part of the same land mass, 1.6 billion years ago

at the time of breccia formation. This work also suggests that the breccias and mineralization in both areas formed in response to extensional tectonics and related intrusive activity that affected the entire belt.

The property lies along a regional structure as indicated by regional aeromagnetics. The Yukon Olympic property occurs at a large magnetic high on this trend, possibly reflecting a buried intrusive centre, and it also occurs at a flexure point along the structure.

The property (Figure 3) is underlain by Proterozoic Quartet Group shale and siltstone. These rocks have been intruded by a variety of gabbroic intrusives and related hematitic breccia bodies. The main breccia mass, east of the Blackstone River, covers an area of approximately 1.5 km by 1 km, with an additional occurrence noted six km to the west. The breccias are of Proterozoic age and correlate with many known hematitic breccias elsewhere in the Ogilvie Mountains and in the Wernecke Mountains further to the east.

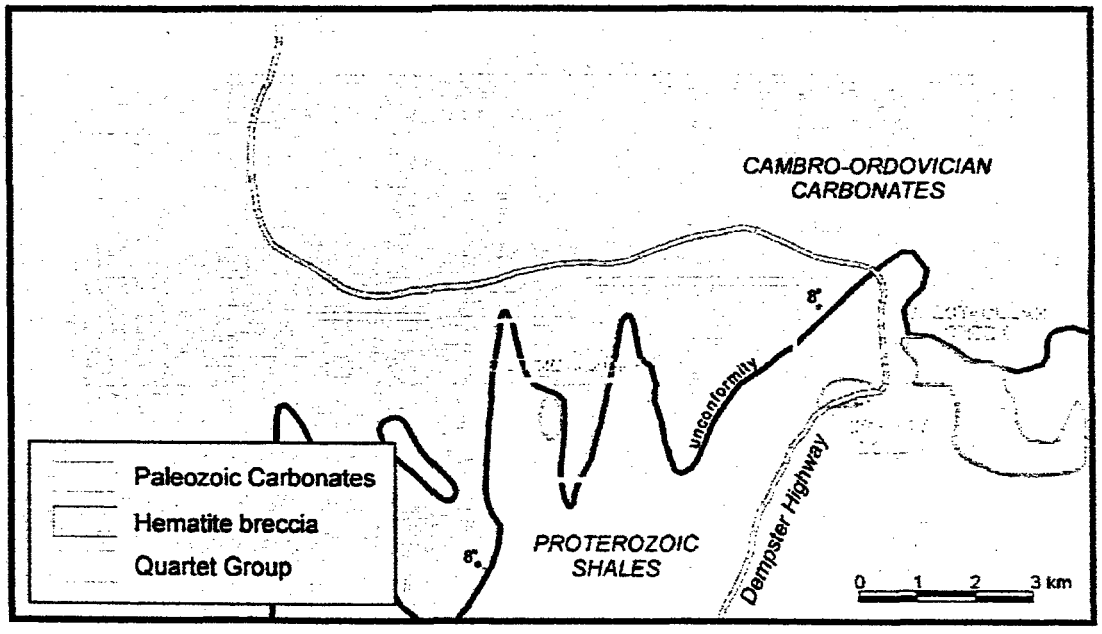


Figure 3. Yukon Olympic property general geology (from GSC digital geology).

The Proterozoic rocks are in turn overlain unconformably by Paleozoic sedimentary rocks, predominantly massive to bedded Cambrian limestone, in turn overlain by basinal shale to siltstone sequences. The Proterozoic to Cambrian unconformity is flat to gently north dipping (see Figure 4).

Exploration

During the summer of 2002, Copper Ridge completed ground geophysical surveys including 90 line km of magnetics plus 261 gravity stations covering an area of approximately 140 square km. The results of this work are summarized in Figure 4.

The magnetometer survey confirmed the magnetic patterns identified in the earlier, high level

government airborne survey. A broad magnetic anomaly occurs on the eastern side of the property, east of the Blackstone River and trends in a linear fashion, with decreasing size and intensity, to the west. This linear trend increases again to a smaller magnetic high in the western portion of the property. The magnetic anomaly is believed to reflect the presence of a magnetite-bearing intrusive, or intrusives, at depth. The area covered by the ground survey was not sufficiently large to completely define these airborne magnetic high anomalies. A copy of the magnetometer survey report is included as Appendix xx to this report.

The gravity survey appears to have defined two separate features. On a property-wide scale, it shows increasing gravity to the north. This may reflect increasing thickness of limestone above the regional unconformity. The limestone is expected to have a slightly higher density than the basement siltstones and shales of the Quartet group. Superimposed on this is a linear gravity high, with a contrast ranging from 2 to 4.5 mGals, that extends from the area of known breccia outcrop at Spectacular Creek, east of the Blackstone River, in an arcuate trend to the northwest and west. The strongest part of this anomaly is over 8 km long, 1.5 km wide and lies on the northern flank of the western magnetic lobe. Its intensity is over 6 mGals, or 4.5 mGals above the more regional high. It is believed to be caused by a hematite-rich breccia mass just below the Paleozoic unconformity. The depth to the top of this feature has not been estimated. Figure 6 shows a computer generated model that presents one possible interpretation for the gravity data, showing three discrete bodies, ranging in size from 0.6 to over 5 billion tonnes with a density of approximately 4.5 gm/cc.

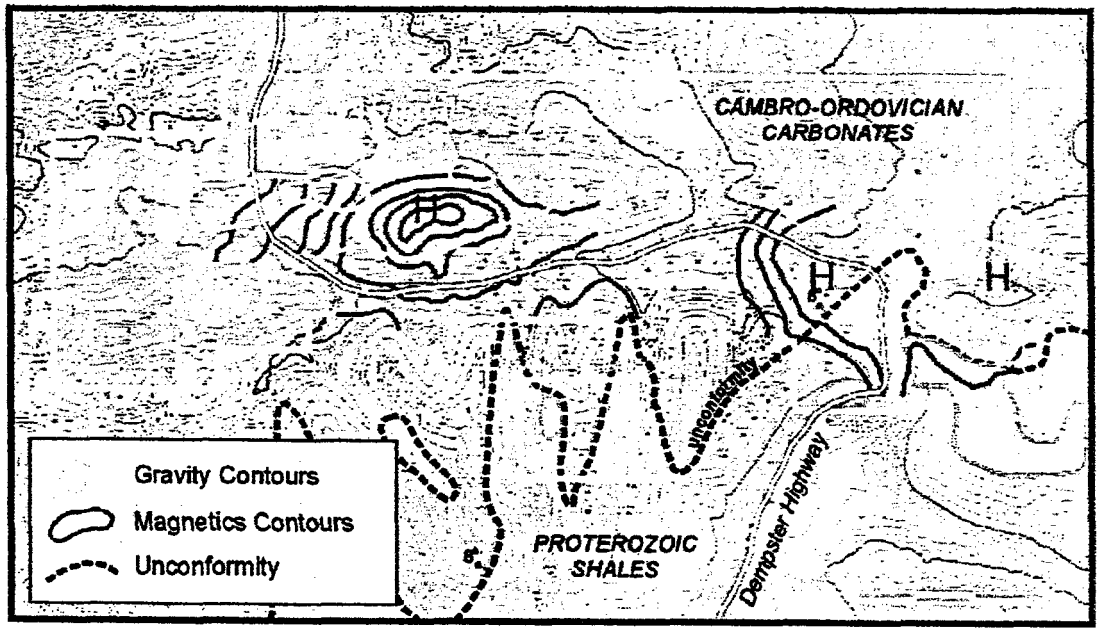


Figure 4. Yukon Olympic property gravity and magnetics summary results

The gravity survey was carried out by Aurora Geosciences Ltd. of Whitehorse while the magnetic survey was carried out by Klondike Exploration of Dawson City. A copy of the gravity survey report is included as Appendix xx to this report.

Mineralization

The hematitic breccias of the Ogilvie and Wernecke Mountains have been recognized for their potential to host Olympic Dam or iron oxide copper-gold style mineralization since the early 1980's, shortly after the discovery of the Olympic Dam deposit in Australia (*2,000 million tonnes of 1.6% Cu, 0.06% U_3O_8, 0.6 gpt Au, 3.5 gpt Ag*). Similarities are in the style of mineralization, the character of the breccias and related alteration, geochemical signature, age of mineralization and evidence to suggest that this part of Yukon and Australia were once part of a single landmass and that the breccia bodies were formed during a major rift event. At the time these deposits were formed, plate reconstructions suggest that the Stuart Shelf area of Australia, the host of Olympic Dam, was actually connected to the Yukon as part of the ancient continent Rodinia.

Hematitic breccias are exposed over an area approximately 1 km by 1.5 km along Spectacular Creek, east of the Blackstone River. Although detailed study of the breccia has not been carried out, there are two distinct varieties. The first is pink to pale coloured, with disseminated hematite common in a fine-grained matrix, while the other is darker, chloritic, often has more massive hematite and is associated with the mafic intrusive rocks. This latter breccia variety has slightly elevated magnetic susceptibility and the copper mineralization is most often associated with this breccia variety and with the mafic intrusive rocks.

Grab rock samples from the Yukon Olympic property have shown that the breccias are locally enriched in copper, cobalt, fluorine, rare earth elements and barium, with local minor gold and uranium enrichment. Chalcopyrite and locally bornite mineralization have been observed within the breccias and related intrusive rocks throughout the property. Analysis of grab samples has returned up to 0.9% Cu. Minor cobalt mineralization has also been observed. The exposed areas of hematitic breccia mineralization have not yet been systematically sampled.

The breccia zones are underlain by a large, east-west trending magnetic anomaly that may reflect a magnetite-bearing intrusive mass at depth.

Subsequent Exploration

Canadian Empire completed two drill holes in November, 2002. A report describing the results of this drill program and proposed ongoing exploration is in progress.

Conclusions

The Yukon Olympic breccia occurs at a flexure along a regional, east-west trending structure as defined by aeromagnetics. The breccia appears to be related to aeromagnetic and gravity highs that are elongated parallel to this trend, in the central part of the property. The 2002 field program defined a +4.5 mGal gravity anomaly that is in excess of 8 km in length and over 1 km wide, believed to reflect hematitic breccia below a thin cover of Paleozoic sediments. The gravity anomaly has a large western peak and a subsidiary eastern high. The anomaly is related to, but not coincident with, the regional magnetic anomaly. A preliminary review of the data suggests that the gravity anomaly may reflect hematite-rich breccias, while the magnetic anomaly may be caused by magnetite-bearing intrusive rocks at depth. This interpretation is strengthened by the fact that the easternmost portion of the gravity anomaly trends into the Spectacular Creek breccia

occurrence that locally contains copper mineralization. The pattern at Yukon Olympic with the gravity anomaly being displaced from the magnetic anomaly also conforms to the Olympic Dam model. Within the area of the main gravity anomaly, a thin veneer of younger limestone covers the target rocks.

The property is under option to Canadian Empire Exploration Corp. Canadian Empire drilled two core holes late in the season. The results of this drill program are being evaluated by Canadian Empire, along with the geophysical data collected during the program described by this report, to plan an exploration program for the coming field season.

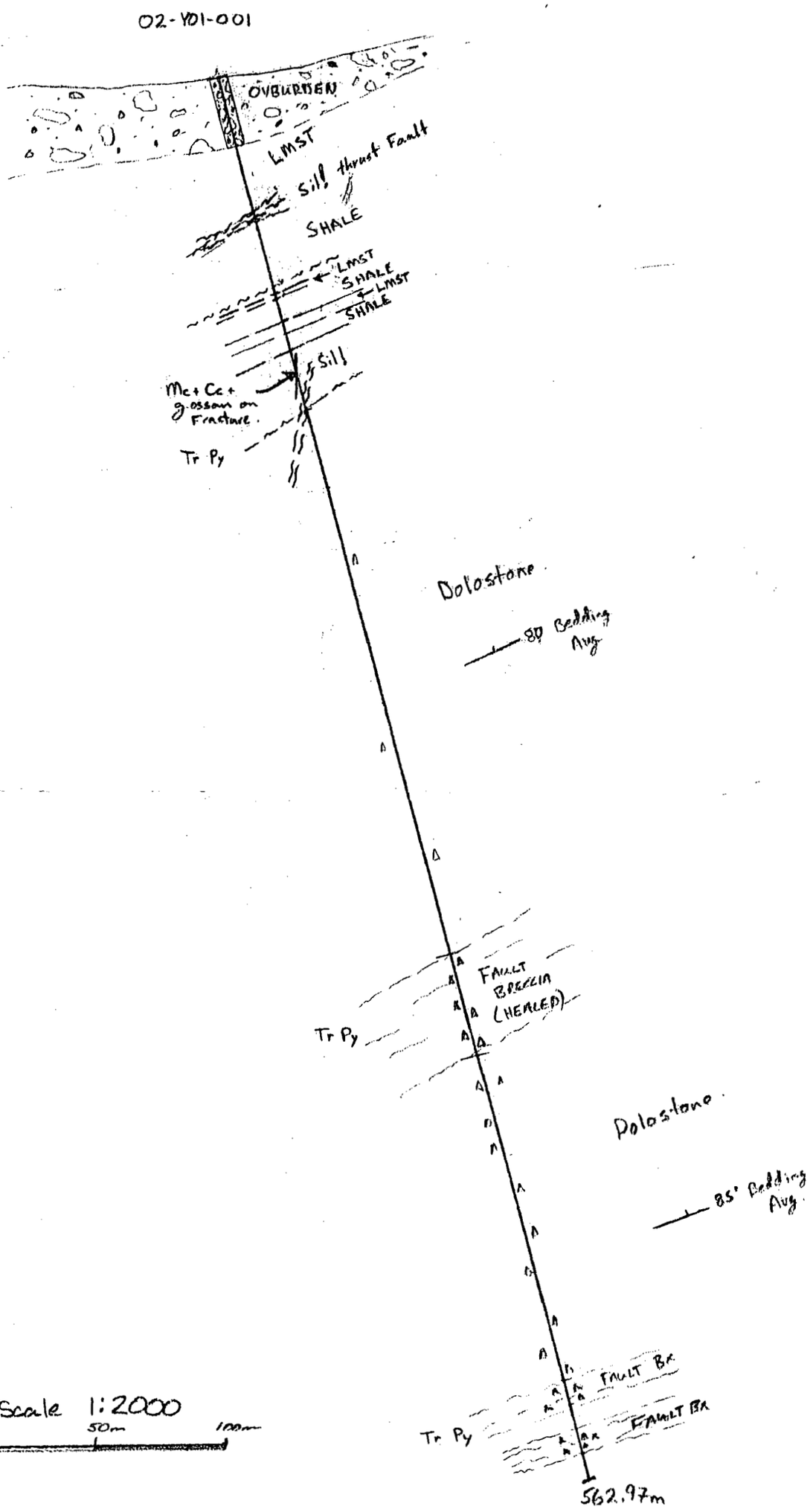
APPENDIX IX

1993 REPORT ON THE DEVIL 1-24 CLAIMS
EQUITY ENGINEERING LTD.

CROSS-SECTION - 02-Y01-001

NORTH

SOUTH



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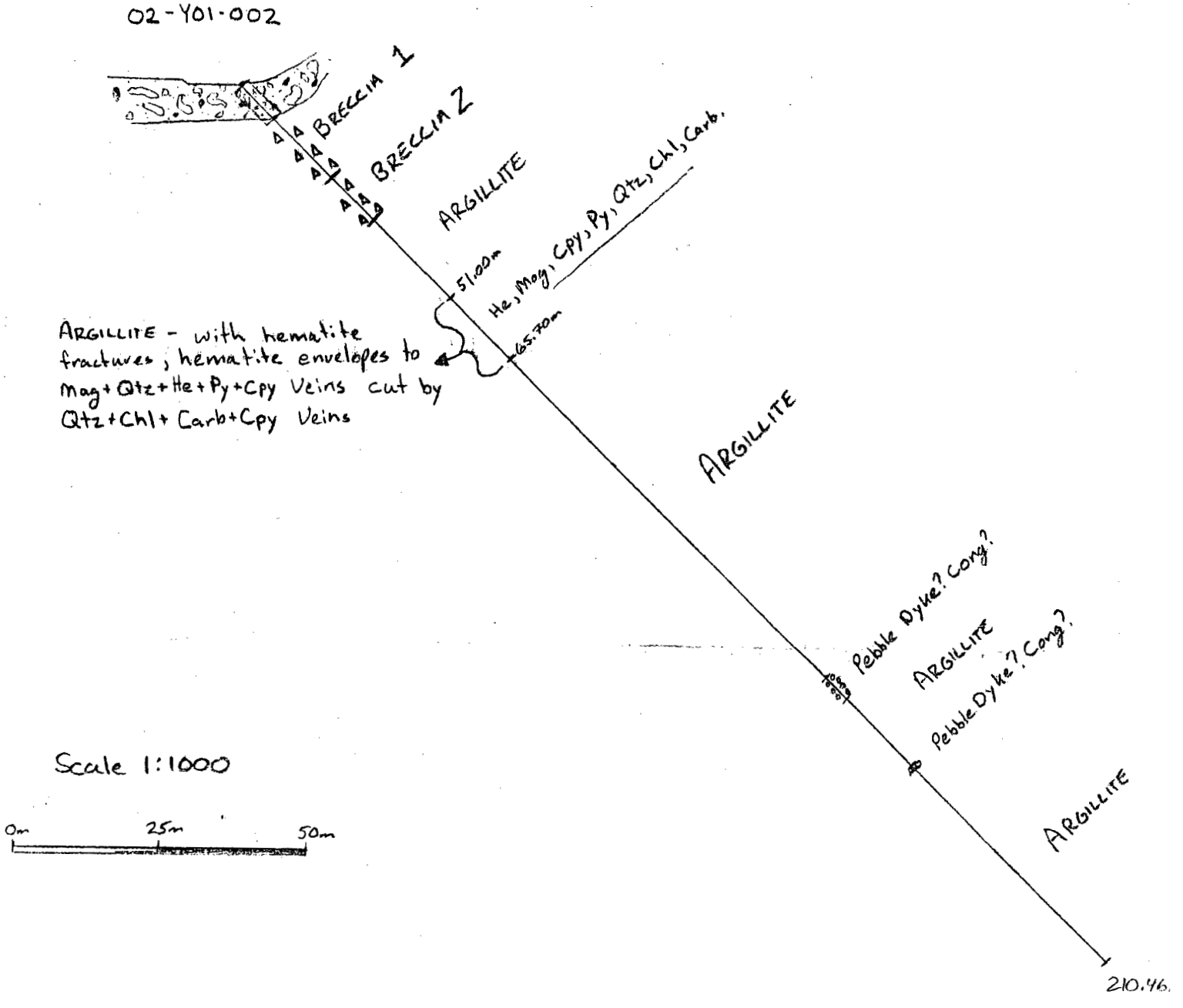

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DEMPSTER HIGHWAY

ENGINEER CREEK

BLACKSTONE RIVER

LOT 0

LOT 1

65°5'0"N

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138°30'0"W 138°25'0"W 138°20'0"W 138°15'0"W 138°10'0"W 138°5'0"W 138°0'0"W

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116 B/15	116 B/16	116 A/13

27°49' E

2002

DAWSON MINING DISTRICT

116 G/01

Canadian Empire Exploration Corp.

YUKON OLYMPIC PROJECT

116 G/01, WINDY PASS AREA, YUKON TERRITORY

2002 DRILL-HOLE LOCATION MAP & CLAIM MAP

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