GM 62444

2004 EXPLORATION PROGRAM ON THE TWINS PROPERTY

2004 Exploration Program

on the

Twins Property

(Licences 0022954-0022993, 0023612-651,
0023825-0023864, and 107502-107542)

Lac Peribonca Map Area
(NTS 22L),

North-Central Quebec

Latitude 49° 25' 30", Longitude 118° 56' 24"

for

Bitterroot Resources Ltd.

by C.J. Greig (B.Sc., M.Sc. P.Geo), S.T. Flasha (B.Sc.), & N.W. Thomas (B.Sc.)

January 28, 2006

BREAKAWAY
EXPLORATION MANAGEMENT INC.

September 13, 2006

Marcel Tremblay ing.
Chef de division des titres d'exploration
Direction des titres miniers
Direction générale du développement minéral
880 chemin Sainte-Foy, local 4
Québec (Québec) G1S 4X4

Via Fax : (418) 643 2816

RE : Statutory work report - Twins Property, Bitteroot Resources Ltd.

Dear Mr. Tremblay

Please accept this letter by fax. I will deposit the original with the Val d'Or office with instuctions to forward it to you by internal mail. With respect to the subject matter referenced above please note:

1. I am the President of Breakaway Exploration Management Inc. with a principal business address in Val d'Or, Quebec as indicated below.

2. I am a Member in good standing of the Order of Geologists of Quebec (#553) and I fulfill the requirements of a "Qualified professional" as defined under the *Mining Act* (R.S.Q., c. M.13-1)

3. I have read and agree with the findings and conclusions of the report entitled "2004 Exploration Program on the Twins Property (Licences 0022954-0022993, 0023612-651, 0023825-0023864, and 107502-107542), Lac Peribonca Map Area (NTS 22L), North-Central Quebec, Latitude 49° 25' 30", Longitude 118° 56' 24" for Bitterroot Resources Ltd." by C.J. Greig (B.Sc., M.Sc. P.Geo), S.T. Flasha (B.Sc.), & N.W. Thomas (B.Sc.) on January 28, 2006.

4. I hereby give consent to Bitteroot Resources Ltd. and its agents to file the report noted above under my signature only for the purpose of filing statutory work in the Province of Quebec.

Yours truly,
Breakaway Expl. Mgmt. Inc.

GEOLOGUE MARK FEKETE #553 QUEBEC

Mark Fekete géo.
President

cc Michael Carr, Charlie Greig

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Frontispiece. View west across northern Lac Manouane.

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1.0 Summary

In July and August of 2004, a total of 1714 metres in eight diamond drill holes were drilled on Ni-Cu-(PGE) geophysical targets on the Twins property, on the north side of Lac Manouane, in central Quebec. The drilling program, which was helicopter-supported and based from a camp south of Lac Manouane, targeted coincident magnetic and electromagnetic anomalies outlined in late spring-early summer ground geophysical follow-up to an airborne geophysical survey flown in the early part of the year. The Twins property is in an area of thick glacifluvial drift, and has minimal bedrock exposure. The initial targets for Bitterroot's airborne survey were airborne magnetic highs identified on government regional magnetic maps, and which occur in an area in which common, locally-derived mafic and ultramafic boulders were encountered during Bitterroot's 2002 reconnaissance diamond exploration program. The ultramafic rocks are most likely part of an Archaean terrane, and are largely cospatial with the Mistassini dyke swarm, which appears to radiate outward from Lac Manouane area. A recently-proposed tectonic hypothesis intriguingly suggests that the area corresponds with the head of an Archeaen mantle plume, which further suggests a setting favourable for the emplacement of ultramafic rocks capable of hosting a world-class Ni-Cu-Co-PGE deposit. Although no significant intersections of Ni, Cu, or PGE's were intersected in the drilling, abundant massive and semi-massive sulphides, predominantly pyrrhotite, with subordinate pyrite and trace chalcopyrite, were intersected. Near-ubiquitous disseminated sulphides accompany the massive sulphides, and both occur primarily within magnetite-bearing garnetiferous biotite quartzofeldspathic gneiss (paragneiss, or sulphide-, oxide-, and silicate-facies iron formation). Sulphides are also hosted locally by amphibolitic rocks and by younger granitoid orthogneiss bodies. The amphibolitic rocks include rocks of very high colour index that are composed almost entirely of high-Mg amphiboles, probably of the tremolite-cummingtonite group. They likely represent metamorphosed mafic and ultramafic intrusive rocks which intruded the paragneisses prior to emplacement of the granitoid orthogneiss bodies. All lithologies, paragneiss, amphibolite, and orthogneiss, have been strongly overprinted by Grenville-age deformation and metamorphism.

While the results of drilling were disappointing, the work highlights the fact that high-MgO ultramafic rocks are indeed present in the area, that they are hosted in a sulphide-rich sequence of metamorphosed sedimentary rocks (quartzofeldspathic paragneiss), and therefore that their geologic setting is similar to that of other Ni-Cu-Co producing belts, such as the Thompson Nickel belt in northern Manitoba. The paragneisses appear to represent an extremely fertile host, which could provide a ready source of sulphur and silica for a high-MgO, Ni- and Cu-rich magma that was undersaturated in these elements. As a consequence, the geologic setting suggests that untested parts of the property have the potential for hosting Ni-Cu-Co±PGE-bearing sulphide deposits.

Further work is recommended for the Twins property. Initially that work should consist of a series of wide-spaced reconnaissance soil geochemical and prospecting traverses over the topographically-higher parts of the property, primarily to help outline the distribution of ultramafic rocks. If the results warrant, grid-based ground geophysics (EM, magnetics, gravity), soil geochemistry, and diamond drilling should then be undertaken.

2.0 Location, Access and Physiography, Climate, and Vegetation

The Twins property is located on the northern shore of Lac Manouane, in the Mistassini-Peribonca-Manicouagan area of central Quebec, approximately 265 kilometres north of Chicoutimi (figs. 1-3). The central and eastern parts of the Mistassini-Peribonca-Manicouagan area are underlain, in part, by reservoirs from which power is generated by Hydro-Quebec, and the southern reaches of some of the reservoirs, of which Lac Manouane is one, are accessible by roads servicing Hydro-Quebec facilities, or by logging roads. While the Twins property is accessible by boat from the western shores of Lac Manouane, the distance is considerable and access by that means was not practical during the 2004 field season. Instead, daily access in the 2004 drilling program was by helicopter, from a camp established in a logging road borrow-pit, approximately 39 kilometres away by air, near the south side of the Lac Manouane (figs. 2 and 4). The drill camp itself was accessed using well-maintained 2-wheel-drive logging roads, which are approximately 2.5 hour drive north of the paved highways of the Lac St. Jean region. Travel time to the major centre of Chicoutimi, where most supplies and equipment were sourced, was approximately 4 hours.

Topography on the Twins property is flat to gently rolling and generally very workable, with a maximum relief of 120 metres near the northern part of the property (fig. 5). The Lac Manouane area is in general heavily drift-covered, particularly in the lower-lying areas, and outcrop in those parts of the property is essentially non-existent (e.g., fig. 6). Even on the higher parts of the property, there is much less than 1% outcrop, and none of the few outcrops examined were extensive.

Snow can be found on the Twins property from October through June, but the property can be readily worked for 7 or even 8 months of the year. Spring commonly brings moderate amounts of rainfall, while summers are cool with occasional showers. Much of the property is covered by

Figure 1. Location of the Twins property, central Quebec.

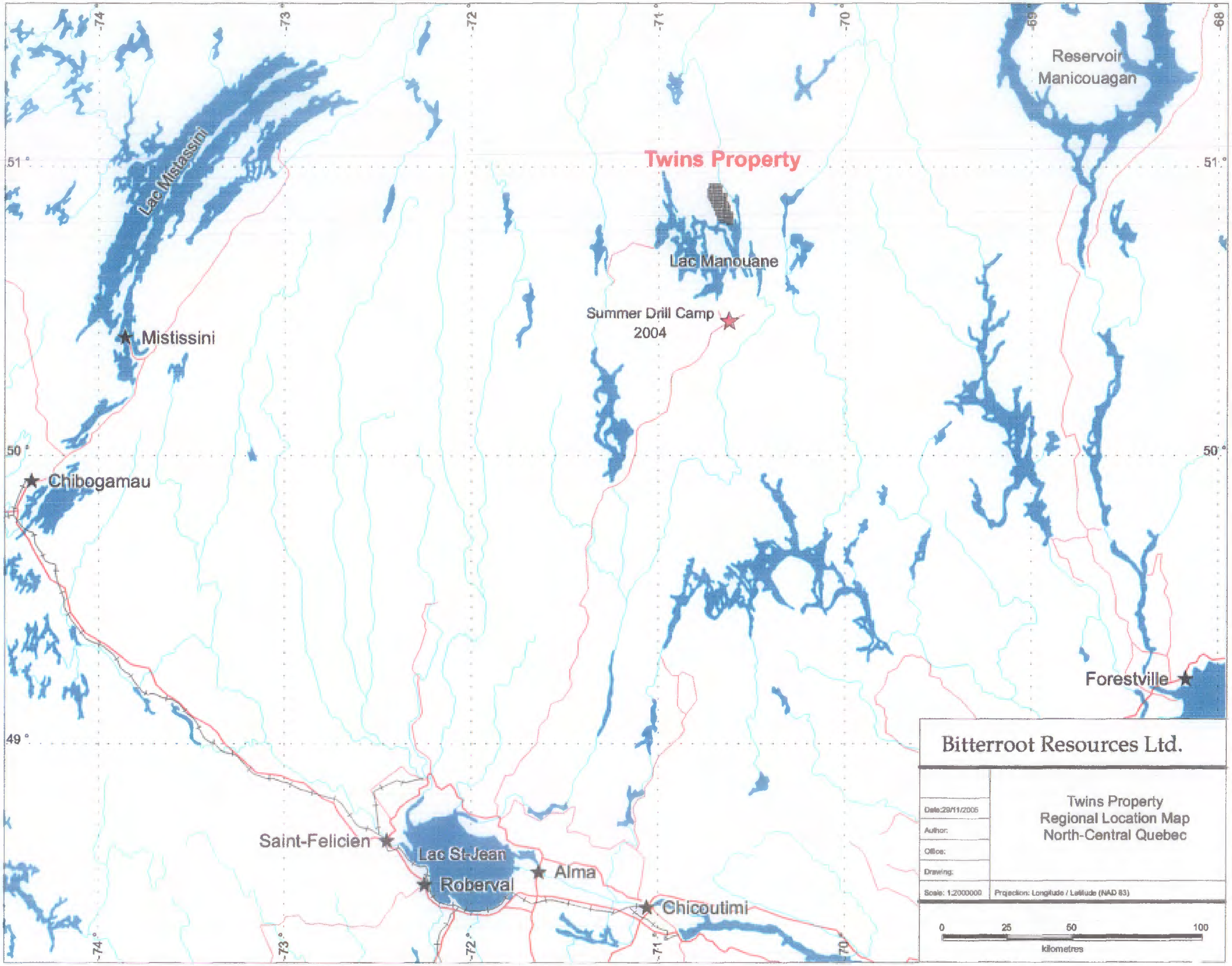

Figure 2. Location of the Twins property, showing logging road access from the Lac St. Jean area, and the location of the drill camp south of Lac Manouane.

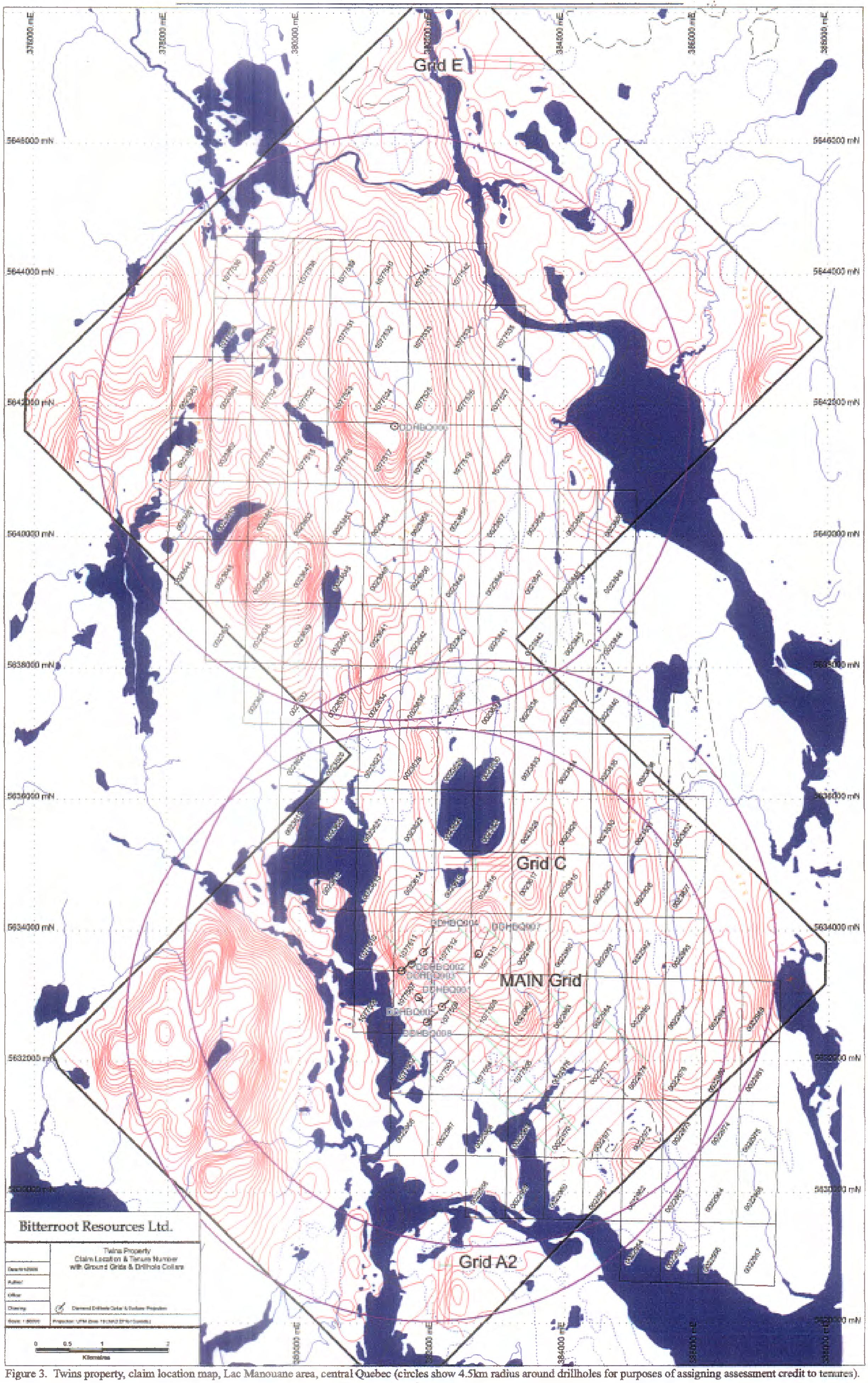

Figure 3. Twins property, claim location map, Lac Manouane area, central Quebec (circles show 4.5km radius around drillholes for purposes of assigning assessment credit to tenures).

Figure 4. Aerial of Bitterroot drill camp for the Mistassini/Twins project, south of Lac Manouane.

Figure 5. Aerial view over southwest corner of the Twins property, where the bulk of the diamond drilling was undertaken, south across the northwestern arms of Lac Manouane.

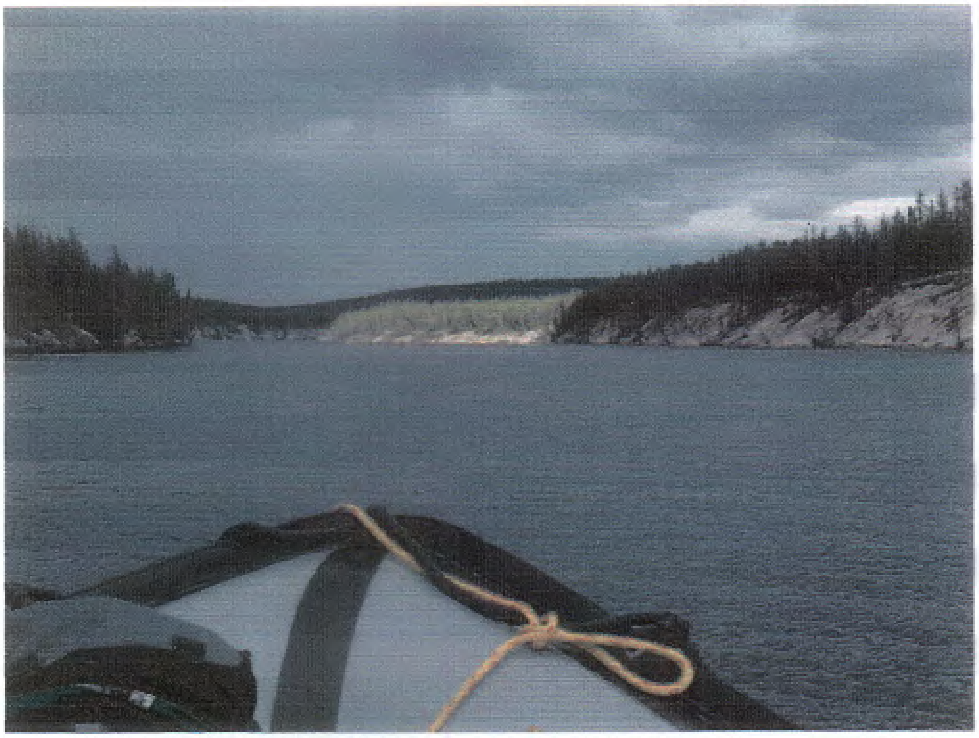

Figure 6. View of thick glacifluvial sands along the banks of Riviere des Montagnes Blanches, which runs into northern Lac Manouane, along the northeastern boundary of the Twins property.

northern boreal forest, with abundant spruce and local glades of deciduous trees. Underbrush, mainly willow and alder, is really only thick in swampier areas.

3.0 Claims

The Twins property consists of 161 contiguous licences claim units covering approximately 75 square kilometres (Table 1; fig. 3). The original forty-one licences were staked in March 2002 by Michael Carr, on behalf of Bitterroot Resources Ltd., and in June of 2004, 120 more licences were staked following the positive results of the airborne geophysical program run in early 2004.

4.0 Acknowledgements

The authors and Bitterroot Resources Ltd. would like to thank everyone involved in the exploration program on the Twins property for their hard work. In particular, we would like to thank Ron "Rondeau" Dennett for his smooth handling of everything logistical, Nick "Poisson de Poubelle" Thomas for his good humour, hard work logging core, and fishing expertise, and to Candace, the

Table 1. Twins property licences.

Claim Number	Date Staked	Expiry Date
1077502	20-Mar-02	19-Mar-06
1077503	20-Mar-02	19-Mar-06
1077504	20-Mar-02	19-Mar-06
1077505	20-Mar-02	19-Mar-06
1077506	20-Mar-02	19-Mar-06
1077507	20-Mar-02	19-Mar-06
1077508	20-Mar-02	19-Mar-06
1077509	20-Mar-02	19-Mar-06
1077510	20-Mar-02	19-Mar-06
1077511	20-Mar-02	19-Mar-06
1077512	20-Mar-02	19-Mar-06
1077513	20-Mar-02	19-Mar-06
1077514	20-Mar-02	19-Mar-06
1077515	20-Mar-02	19-Mar-06
1077516	20-Mar-02	19-Mar-06
1077517	20-Mar-02	19-Mar-06
1077518	20-Mar-02	19-Mar-06
1077519	20-Mar-02	19-Mar-06
1077520	20-Mar-02	19-Mar-06
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22991	14-Jun-04	13-Jun-06
22992	14-Jun-04	13-Jun-06
22993	14-Jun-04	13-Jun-06
Total Number of Licences		161

cook for Chibougamou Diamond Drilling who provided us with an excellent introduction to northern Quebec drill-camp cuisine, to Jean Lavoie, for polite and timely expediting from the Lac St. Jean area. Jan Klein provided sound and timely interpretations of the geophysical data acquired by Fugro Airborne Suveys and GEOSIG. Finally, we would like to thank the drillers of Chibougamau Diamond Drilling, for their good-natured hard work in setting up the drill camp and in successfully completing the diamond drilling.

5.0 Regional Tectonic, Geologic, and Metallogenic Setting

The Mistassini-Peribonca-Manicouagan area straddles the Grenville Front Tectonic Zone (figs. 7 and 8). The Grenville Front represents the northern, leading edge of a broad, northeast-trending, ductilely deformed belt of Archaean and Early Proterozoic rocks, and is perhaps the most prominent tectonic feature in eastern North America. Davidson (1988) describes the Grenville as..."a deeply exhumed collisional orogen, formed during a protracted history involving ocean closure and continent-continent collision at ca. 1.2 Ga, with attendant crustal shortening and thickening, terminating with relatively

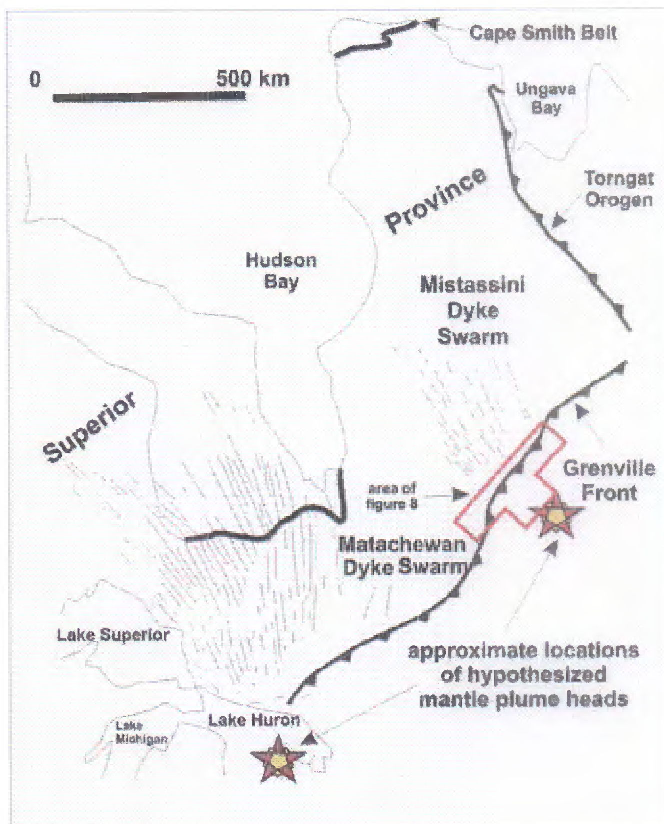


Figure 7. Schematic map of northeastern North America showing selected tectonic elements and relationship of giant radiating Matachewan and Mistassini dyke swarms to hypothesized mantle plume heads; location of East Bull Lake suite intrusions are approximated by easterly-trending lines just north of Lake Huron; see text for more detailed discussion (after Ernst and Buchan 2001).

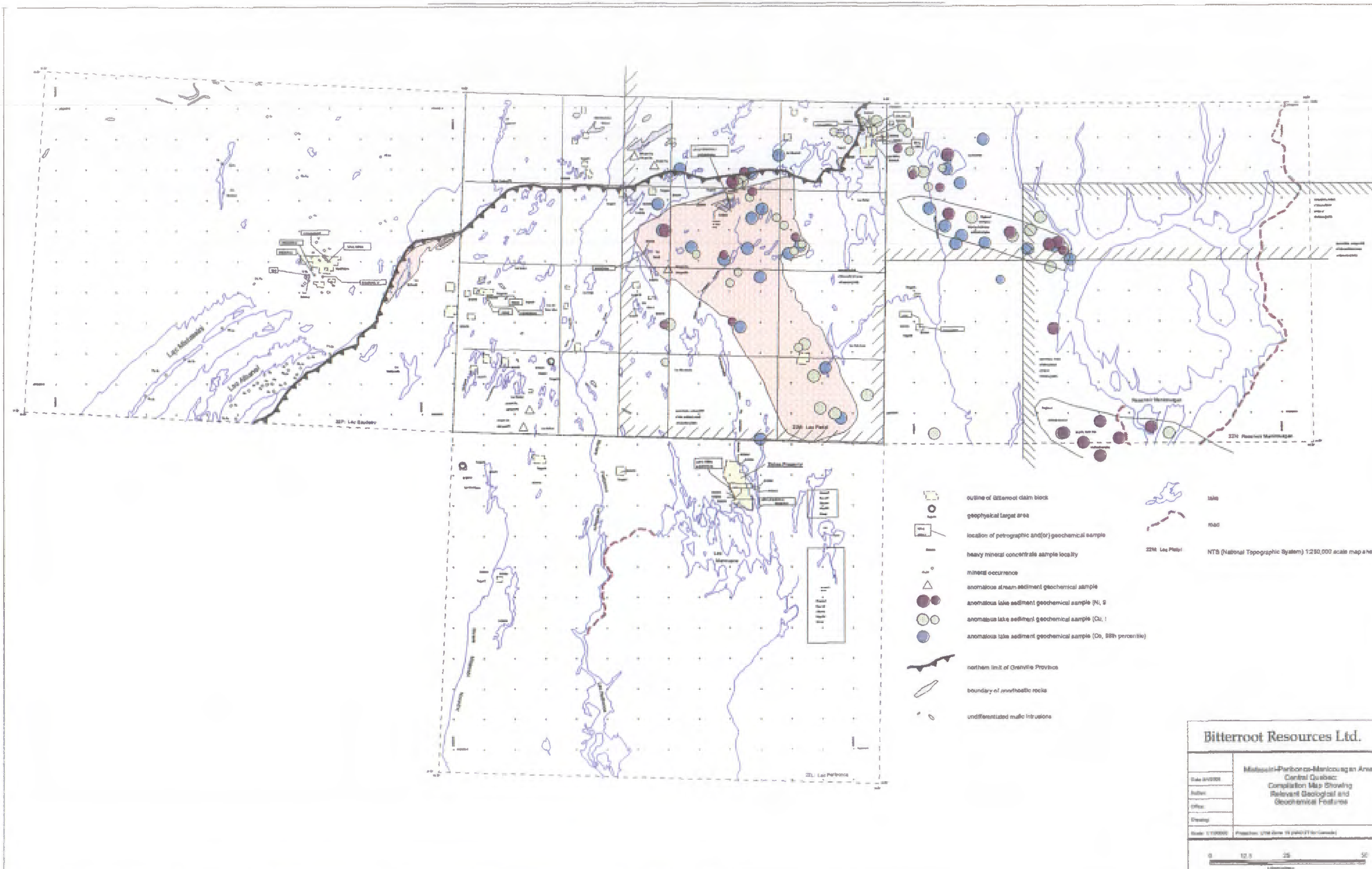


Figure 8. Mistassini-Peribonca-Manicouagan Area, Central Quebec: Compilation Map Showing Relevant Geological and Geochemical Features.

rapid exhumation at approximately 1.0 Ga." Essentially, the Grenville Province rocks were thrust onto the southeast margin of the Archaean Superior province. In central Quebec, immediately northwest of the Grenville Front, relatively weakly deformed Proterozoic sedimentary rocks of the Otish and Papaskwasati basins unconformably overlie Archaean granite, paragneiss, and gneissic tonalite. The rocks immediately southeast of the Grenville Front are part of the "Parautochthonous Zone." They consist mainly of metamorphosed Superior Province rocks, and are differentiated from rocks of the Superior Province, sensu stricto, by their structural fabrics (mainly east-northeasterly trending) and metamorphic overprint, which mirror those of the Grenville Province. Rocks of the parautochthonous zone were presumably overthrust by, and metamorphosed beneath, the Grenville-aged continental crust, and have since been exhumed.

While the Grenville Front Tectonic Zone is not in itself known for the localization of major Ni-Cu-Co (PGE) deposits, it is a major collisional suture along which subcontinents were amalgamated. Similar suture zones, such as the Torngat Orogen in Labrador, and the Cape Smith Belt in northern Quebec (fig. 7), localize mineralized mafic-ultramafic complexes, and host world-class Ni-Cu-Co (+/-PGE) deposits, such as the Voisey's Bay and Raglan deposits. Within the Grenville Province itself, there are common and extensive gabbro-pyroxenite-troctolite bodies along and across trend from the Mistassini-Peribonca-Manicouagan area. These include rocks immediately east of Lac Manicouagan, in the Haut Plateau de la Manicouagan, which are known to host Middle Proterozoic magmatic Ni-Cu-Co occurrences (Clark 2001), and gabbro-pyroxenite-troctolite bodies still farther east, near the Labrador border southwest and southeast of Fermont. Similar rocks also occur south of the Mistassini-Peribonca-Manicouagan area, in particular downstream along Riviere Peribonca, between the Chute des Passes region and Lac St. Jean, and in the Lac Perdu area, east of Lac Manouane (fig. 8). In many places, mafic-ultramafic rocks in the

Grenville bear a close spatial and genetic association with anorthosite and gabbronorite like that comprising the Pambrun "allocthon," between Lac Manouane on the south and Lac Pambrun on the north (fig. 8). In addition, Chown (1971) has noted that metamorphosed 'ultrabasic' rocks are widespread throughout both the Superior and Grenville Provinces in the area (e.g., near the confluence of Rivieres Peribonca and Savane). Chown (1971) also noted that the ultramafic rocks commonly contain asbestos and that they commonly, but not always, displayed a strong magnetic signature on the regional aeromagnetic maps. Unfortunately, few, if any, of the mafic-ultramafic rocks in the area have been age-dated, and it is therefore difficult to constrain their temporal relationship to tectonism along the Grenville Front.

A further and more intriguing tectonic and metallogenic scenario relates to the possibility that the Mistassini-Peribonca-Manicouagan area coincides with the head of an Archeaen mantle plume. Such globally-significant features commonly bear close spatial and genetic relations to world-class ore deposits (e.g., Schissel and Smail 2001), and as a consequence, the mantle plume scenario forms an intriguing tectonic framework for exploration in the Mistassini-Peribonca-Manicouagan region. The mantle plume hypothesis stems from the observation that the 2.47 Ga Mistassini dyke swarm appears to radiate outward from near Lac Manouane (Ernst and Buchan 2001). The dykes have been traced by their aeromagnetic signature in a pattern which traverses the parautochthonous zone and crosses the Grenville Front (figs. 7 and 8). The Mistassini dykes are coeval with, and similar to, the 2.44-2.49 Ga Matachewan dykes, which occur throughout much of western Ontario (fig. 7), and which are considered to be cospatial and cogenetic with the coeval East Bull Lake intrusive suite (Ernst and Buchan 2001). This is, in part, what makes the mantle plume hypothesis most intriguing for the Mistassini-Peribonca-Manicouagan area, because mafic-ultramafic intrusions of the East Bull Lake suite intrude both Archaean rocks of the Superior Province north of the Grenville Front, and those of the parautochthonous zone immediately south, and they include high-potential, Ni-Cu-Co-PGE-bearing layered rocks (c.f., James et al., 2002). Together, the East Bull Lake intrusive suite and the Matachewan dyke swarm have been interpreted to represent the remnants of a late Archeaen large igneous province (LIP), related perhaps to the presence of the head of a mantle plume in the vicinity of what is now Lake Huron (Heaman 1997, Ernst and Buchan 2001). Given the exploration potential of the East Bull Lake suite intrusions, and the fact that they may extend eastward into Quebec (e.g., Clark 2001), the inferred presence of a late Archaean mantle plume head in the Mistassini-Peribonca-Manicouagan region clearly raises exciting exploration possibilities for the area. If some of the mafic-ultramafic rocks encountered by Bitterroot in the Mistassini-Peribonca-Manicouagan region are coeval with the Mistassini dykes, then their regional tectonic setting is almost directly analogous to that of the East Bull Lake intrusive suite and its contained Cu-Ni-PGE deposits. Furthermore, since the late Archeaen Matachewan dykes and East Bull Lake intrusions have been interpreted to have counterparts in Finland, Sweden, and Russia, they may represent a link between the Superior Province and the Baltic (Fennoscanidan) Shield (Heaman 1997). This is of particular economic significance because it suggests that potential exists in central Quebec for the occurrence of layered mafic intrusions similar to those in the Fennoscandian Shield, which contain globally-significant Cu-Ni-PGE-Cr deposits.

Data collected and compiled by Bitterroot support the mantle plume hypothesis. Magnetic lineaments compiled from reprocessed government aeromagnetic surveys (see fig. 8) follow the radiating pattern illustrated by Ernst and Buchan (2001). Bitterroot in the Mistassini-Peribonca-

Manicouagan region appear to be adjacent to Mistassini dykes, and others are adjacent to the Pambrun allocthon. This intrusive anorthosite body (Chown 1971) is elongate along the same trend as the dykes emanating from the inferred mantle plume head (fig. 8). The Perdu anorthosites, crudely outlined on Figure 8 by boxes showing the location of detailed airborne geophysical surveys flown in a previous exploration program, also have a similar trend (Fekete 1997). To our knowledge, neither these nor the Pambrun anorthosite have been dated, and it is interesting to speculate about possible similarities in their age to the Mistassini dykes. Of further interest is that among the most geochemically and petrographically interesting mafic and ultramafic intrusive rock samples collected by Bitterroot in 2002 (e.g., high MgO or cumulate textures) came from areas in the vicinity of the dyke swarm and its hypothesized plume head.

6.0 Previous Exploration in the Region

Although there are a considerable number of Fe, Cu, and Pb-Zn occurrences and several U or U-Th occurrences recorded within Proterozoic cover rocks (in the western part of the project area, near the shores of Lac Albanel and Lac Mistassini; fig. 8; Avramtchev 1982a), there are few other recorded mineral occurrences in the area. Only a single small Fe-Ti occurrence is noted by Avramtchev (1982b) from near the north end of the Pambrun anorthosite complex near Lac Pambrun, even though Chown and Hashimoto (1965) and Chown (1971) note magnetite-ilmenite pods in pyroxenite and peridotite layers within the anorthosite massif north and east of Lac Benoit, near its northwest margin. Chown (1971) also noted that magnetite and ilmenite occurred as disseminations in zones of the gabbroic anorthosite and that the zones had been staked and examined by mining exploration companies; he also noted that the companies concluded that the grain size was too fine for the deposits to be economic.

The Lac Perdu area, immediately south of the Pambrun anorthosite, appears to have been the focus for a significant amount of relatively recent exploration, including airborne EM and magnetometer surveys, as well as for work dating back at least as far as the early 1950's (St. Hilaire 1996, Fekete 1997). The target in these programs was Ni-Cu-Co mineralization within a series of anorthosites intrusive into gneisses. Mineralization occurs as disseminations and local semi-massive to massive pods of pyrrhotite, pyrite, and chalcopyrite. The mineralization was initially traced back to outcrop from float found in a 1989 prospecting program (Fekete 1997). Showings located in the prospecting program returned values up to 2.33% Ni, 0.87% Cu, and 0.17% Co ("U" showing), and although other showings returned only anomalous precious metals and PGE, as well as low grade Cu, Ni, and Co (<1%), further work was recommended (Fekete 1997).

7.0 Previous Work on the Twins Property

To our knowledge, no previous exploration work was undertaken directly on the Twins property prior to the heavy mineral sampling and prospecting work conducted in 2002 by Bitterroot Resources Ltd. The heavy mineral sampling yielded no diamond indicator minerals, and although some of the samples of relatively locally-derived ultramafic boulders that were found in a few places along the shores of Lac Manouane in the diamond program carried sulphides, none of those sampled yielded significant base or precious metals values.

8.0 Present Program

The exploration potential of the Mistassini-Peribonca-Manicouagan region for Ni-Cu-Co (PGE) deposits first became evident to Bitterroot Resources Ltd. during the summer of 2002, during the heavy mineral sampling program for diamond exploration. The presence in the area of common mafic-ultramafic rocks in float and locally in outcrop, and the preservation of cumulate textures in some of these rocks, as well as the common presence of sulphides, gave rise to the thought that this generally very poorly exposed region may have untested exploration potential. Recognition of that potential led to a small-scale research program funded by Bitterroot and documented by Greig (2003). The research showed that the tectonic setting was highly prospective from a metallogenic and tectonic standpoint, being coincident with the area from which the Mistassini dyke swarm radiates, and with the Grenville front tectonic zone. The research also pointed out that the available lake sediment geochemical data was favourable, with a considerable number of >94th percentile Ni, Cu, and Co anomalies occurring in the parts of the Mistassini-Peribonca-Manicouagan region that had been surveyed (fig. 8). Furthermore, Bitterroot's preliminary petrographic and geochemical work indicated that the area is underlain, at least locally, by olivine- and orthopyroxene-bearing rocks that were previously unmapped, and which must have crystallized from high Mg, high temperature, mafic-ultramafic magmas. In addition, the magmas at least locally crystallized as layered cumulates and contained magmatic sulphides. While in several places, such as the Twins Property, the sulphide-bearing ultramafic rocks yielded highly anomalous Cu and Ni values.

On the basis of the research, Greig (2003) recommended that an exploration program be undertaken in the Mistassini-Peribonca-Manicouagan region in 2003. No field program was run in 2003, a decision was taken late in the year to fly an airborne magnetic and electromagnetic survey of the Twins area in early 2004. The survey, flown by Fugro Airborne Surveys, was completed in January-February, 2004, and the data was presented and interpreted in April of 2004 (Appendices I-III). On the recommendations of Bitterroot's consulting geophysicist, Jan Klein, a follow-up ground geophysical program (magnetometer and EM surveys, as well as a more limited gravity survey; Appendices IV and V) was undertaken on the Twins property during June, 2004. Control for the surveys was provided by four GPS-surveyed cut grids put in immediately prior to running the geophysical program (figs. 9 and 10), with the line-cutters and geophysical technicians staying in a fly-camp on the shores of Lac Manouane. The camp was mobilized and serviced from the Air Saguenay float-plane base on Lac Margane. During the ground geophysical program, the authors, C.J. Greig and S. Flasha, also established a brief, reconnaissance geological fly-camp at Lac Manoune. During that program, most of the grid was walked to map in what outcrop exists, and a single soil geochemical line of 24 samples was run along a line on the topographically-higher northern part of the main grid; several other soil samples were also collected from elsewhere on the grid.

Immediately following the receipt of the ground geophysical data and interpretations, the drill was mobilized to the camp Mistassini drilling program. The targets for drilling were entirely determined from the geophysical data, and mainly the ground geophysical data (Appendices IV and V), although the sixth hole, on the North Twin anomaly, had no ground geophysical control.

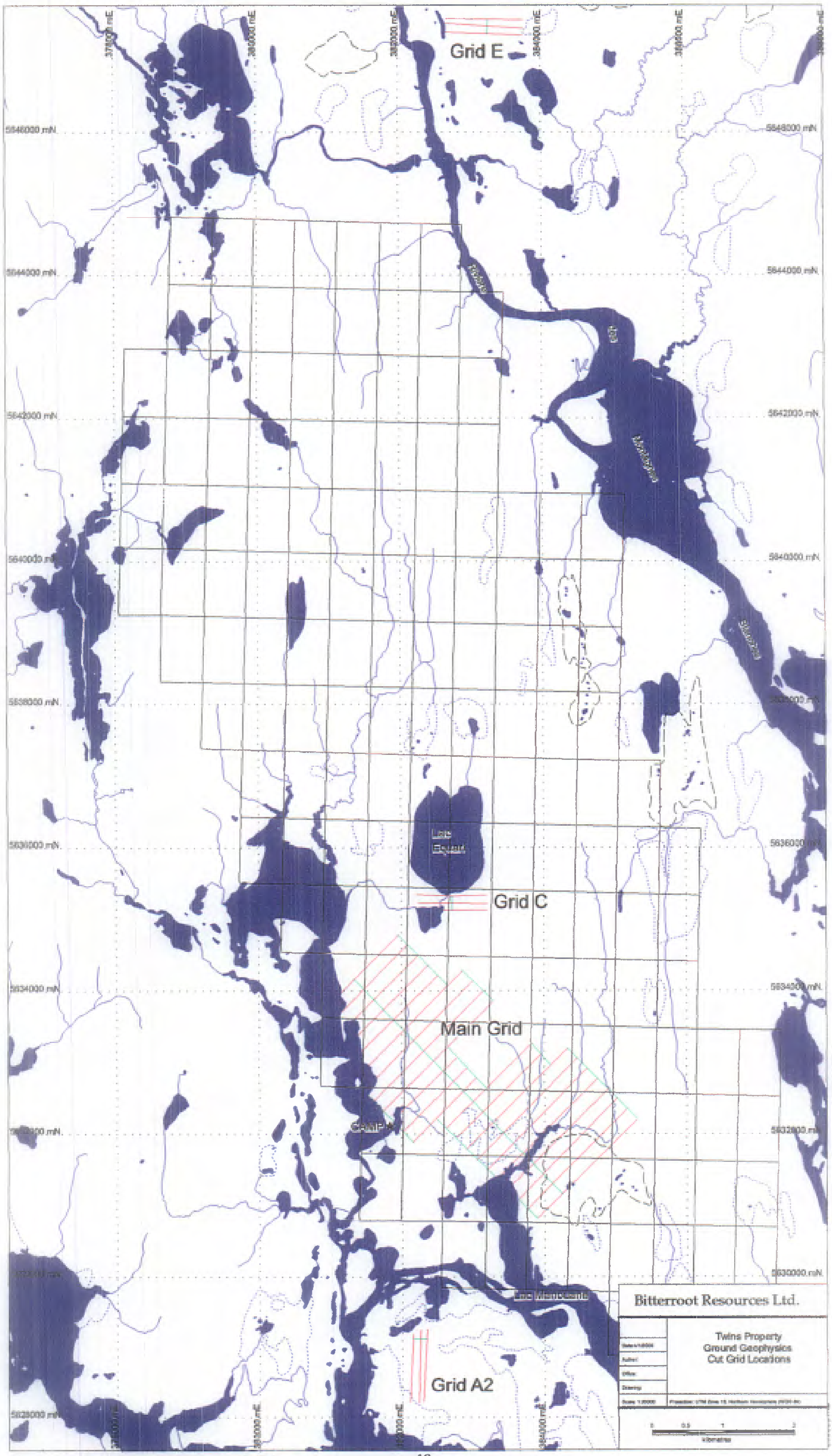


Figure 9. Location of ground geophysical cut grids, Twins property.

Figure 10. Typical picketed, blazed, and flagged cutline, Main Grid, Twins Property, with Lac Manouane visible to the west down cutline.

The geological crew mobilized to Quebec on July 6th, the first hole was collared on July 10th, and the final hole was completed on July 29th. The geological crew demobilized following the completion of the drilling program on August 2nd, 2004, and the camp was completely demobilized shortly thereafter. The drilling program consisted of a total of eight holes and 1714 total metres. The drilling took only 20 days to complete, with two 2-man crews working 12 hour shifts. The diamond drilling was contracted out to Chibougamau Diamond Drilling Ltd., a Chibougamau-based drill contractor who utilized an heliportable drill (400m capacity; BQ) mounted on skids and mobilized with the aid of a Twin Star Aerospatiale helicopter, contracted from Velocity Helicopters Inc. Drillcore was logged mainly by geologist Nick Thomas, with assistance from Charles Greig and Susan Flasha. Four hundred and thirty-one samples of drill core were collected, cut, and analyzed, for a total of almost 350 metres of core. Core recovery for each hole was not systematically recorded, although the core was generally very competent and core recovery was excellent. Core boxes were labelled with metal dymotape and upon completion of the program, the boxes were stacked on pallets, banded, and transported to Chicoutimi, Quebec, where they remain stored at a secure site.

9.0 Geophysical Surveys - Summary of Results

The targets for the diamond drilling program on the Twins Block were largely outlined in ground geophysical follow-up to an Airborne Geotem® and Magnetic Survey flown in early 2004 (figs. 11-13; Appendices I-V). Bitterroot's airborne survey targeted what were a pair of twin "bullseye" anomalies for which the property is named, and that were apparent in reprocessing of a government airborne magnetic dataset. Ground geophysical work on the grids covering some of the anomalies identified in Bitterroot's airborne survey consisted mainly of Magnetic and Horizontal Loop Electromagnetic surveys, with a limited Gravity survey undertaken over part of the Main Grid. The ground geophysics outlined many areas of interest, particularly on the Main grid, where EM conductors coincident with magnetic and gravity highs were recommended for drill-testing; the targets are fully described and interpreted in Appendix III.

Initially, the northern of the two Twins magnetic anomalies, the North Twin, which did not have associated airborne EM conductors, and which is surrounded by a prominent magnetic low, was interpreted as a barren dioritic intrusion or a folded iron formation lacking associated interconnected sulphides (fig. 11; Klein 2004, Appendix II). Klein also noted that the southern of the two airborne magnetic anomalies (the South Twin) showed a significantly different geophysical signature, with several magnetic zones or bodies making up the airborne anomaly, and with numerous associated highly conductive zones which showed a strong correlation with the magnetic

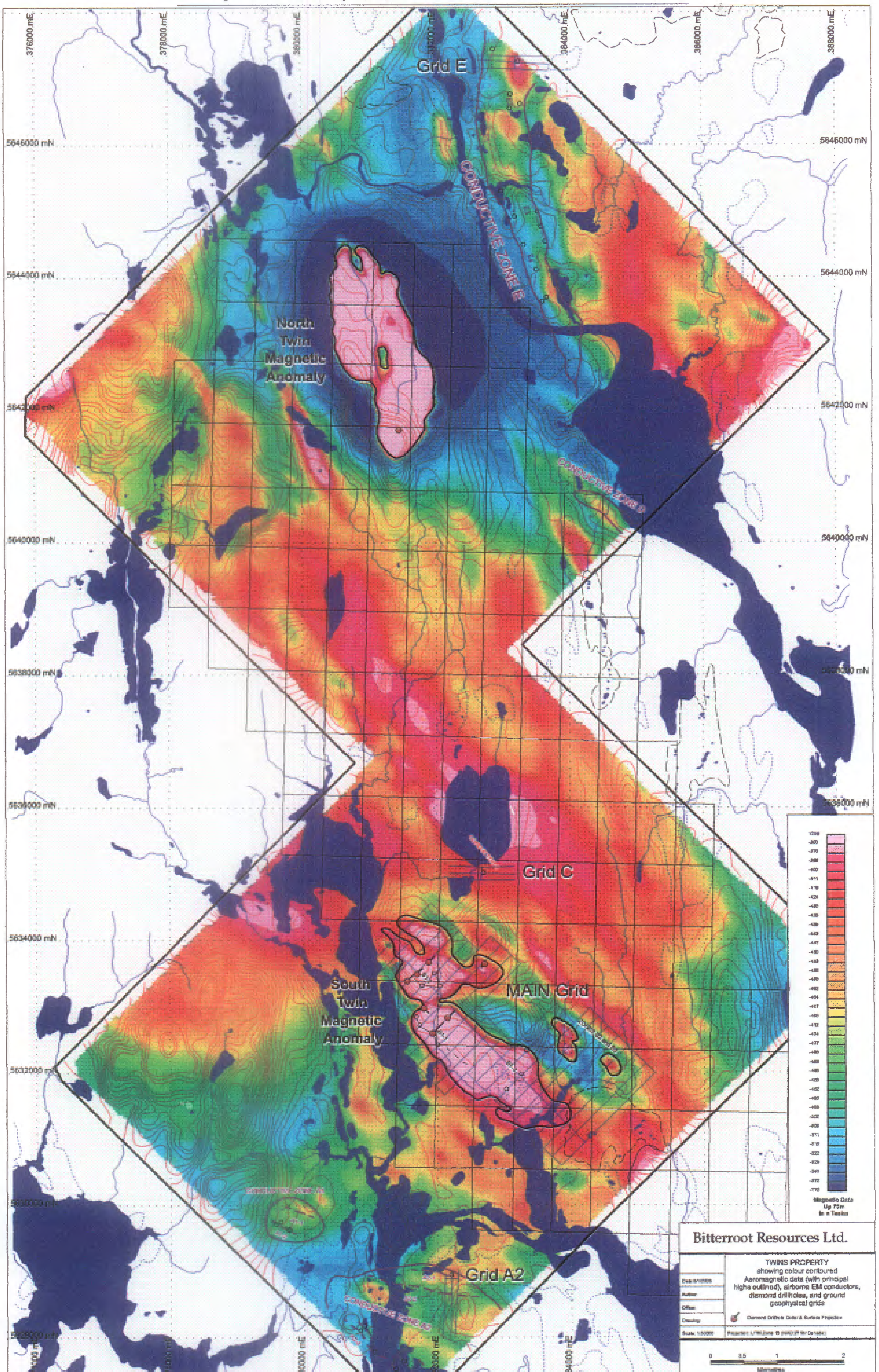


Figure 11. Twins property, summary of airborne geophysical targets (magnetic highs and EM conductors), showing locations of cut grids, claims, and diamond drillholes.

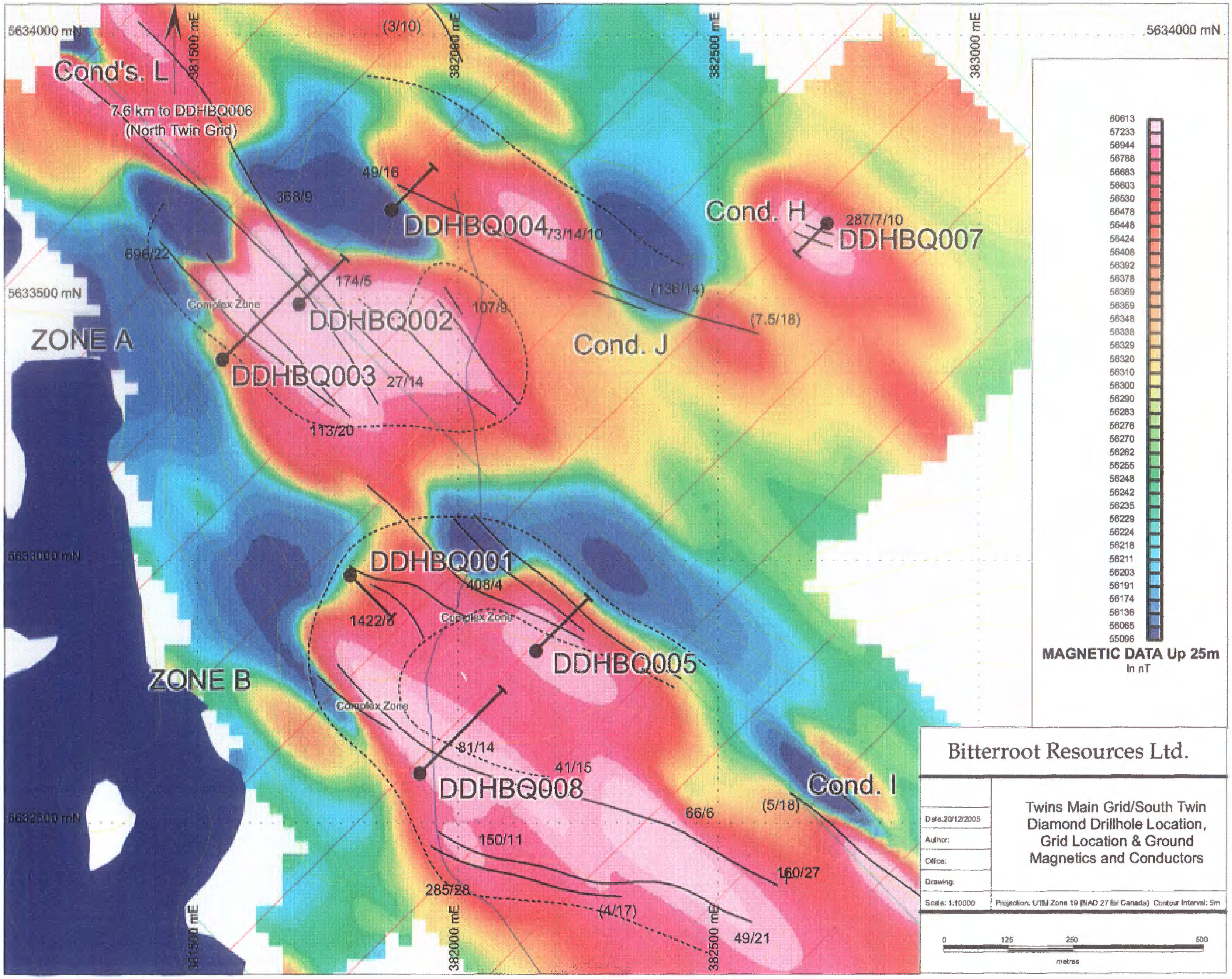


Figure 12. Twins property, South Twin/Main grid area, showing diamond drillholes, targeted ground HLEM conductive zones, and colour-contoured ground magnetic anomalies.

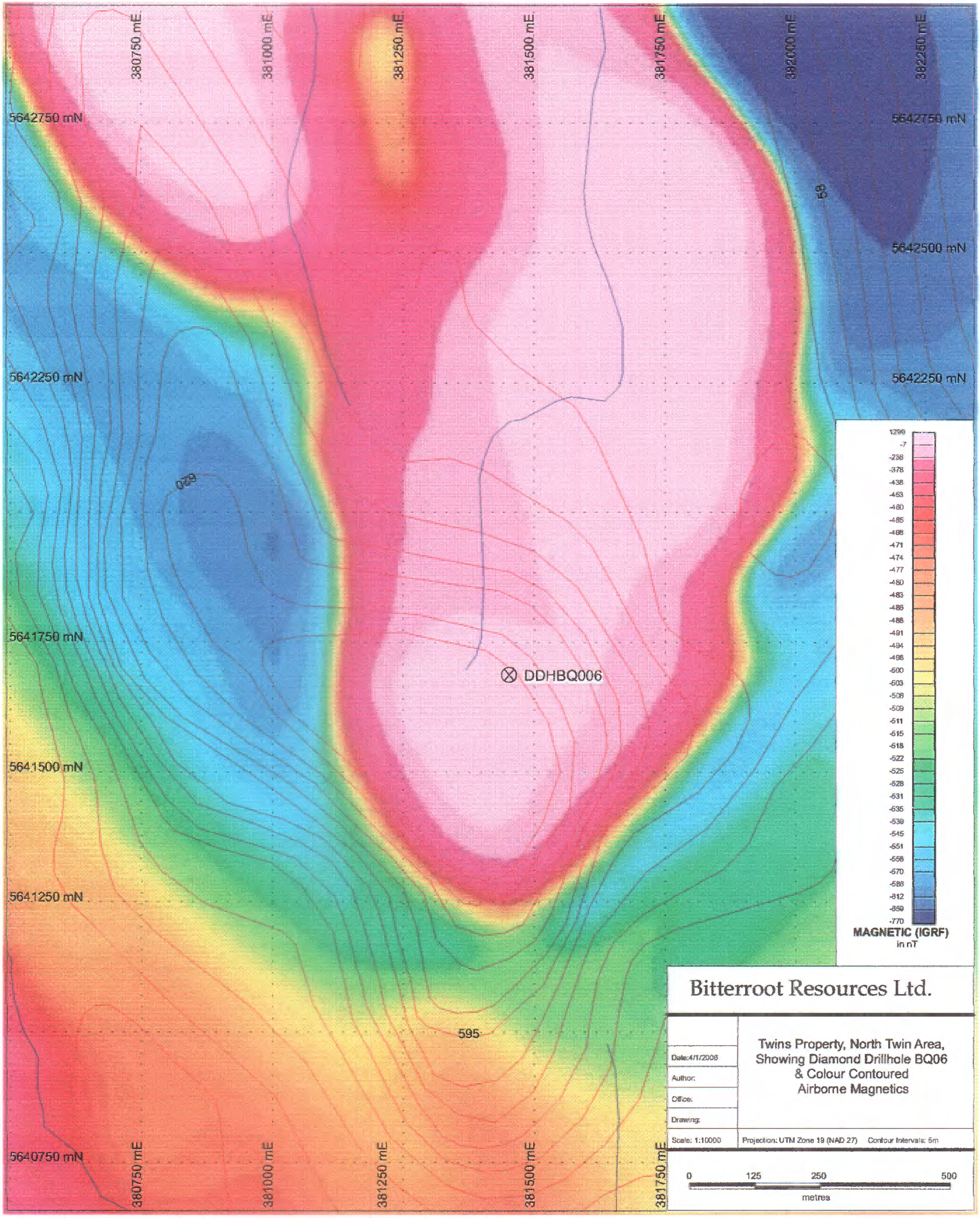


Figure 13. Twins property, North Twin area, showing location of diamond drillhole BQ06 relative to colour-contoured airborne magnetic anomalies.

highs (fig. 11). Klein (2004) suggested that the South Twin magnetic anomaly and its associated complex conductors (also known as conductive and magnetic zone B1, Klein 2004a) could reflect an ultramafic or mafic intrusive body or highly folded gneisses with considerable amounts of associated sulphide, and noted that the airborne vertical gradient map suggested that most of the conductors occurred along the edges of the larger magnetic bodies. Data from the much smaller grids (2A and E, respectively) laid out over conductive zones A2 and E were suggestive to Klein (2004 b) of formational conductors of either limited width (E) or strike extent (A2). The coincident magnetic anomaly and conductor at conductive zone C, was interpreted as a relatively shallow, gently-dipping oval shaped body of relatively limited extent, possibly representing a weathered mafic plug or a kimberlite pipe (Klein 2004 b).

10.0 Property Geology

The Twins property has very little outcrop, and what does exist occurs only in isolated outcrops on the higher parts of the property and places few constraints on the geology, although the lithologies do correspond to those encountered in the drilling. As a consequence, the outcrop maps in Figures 14 and 15 do not show map units or geologic contacts, but only short notes beside the outcrops describing the lithologies present. Only parts of the Main grid in the South Twin area had outcrop (fig. 14), as did the hill in the North Twin area, where DDHBQ06 was drilled (fig. 15). Because the lithologies on the property are constrained almost entirely by observations from drill core, the summary of the Twins property geology is given below in the section describing the drilling program (section 12.0).

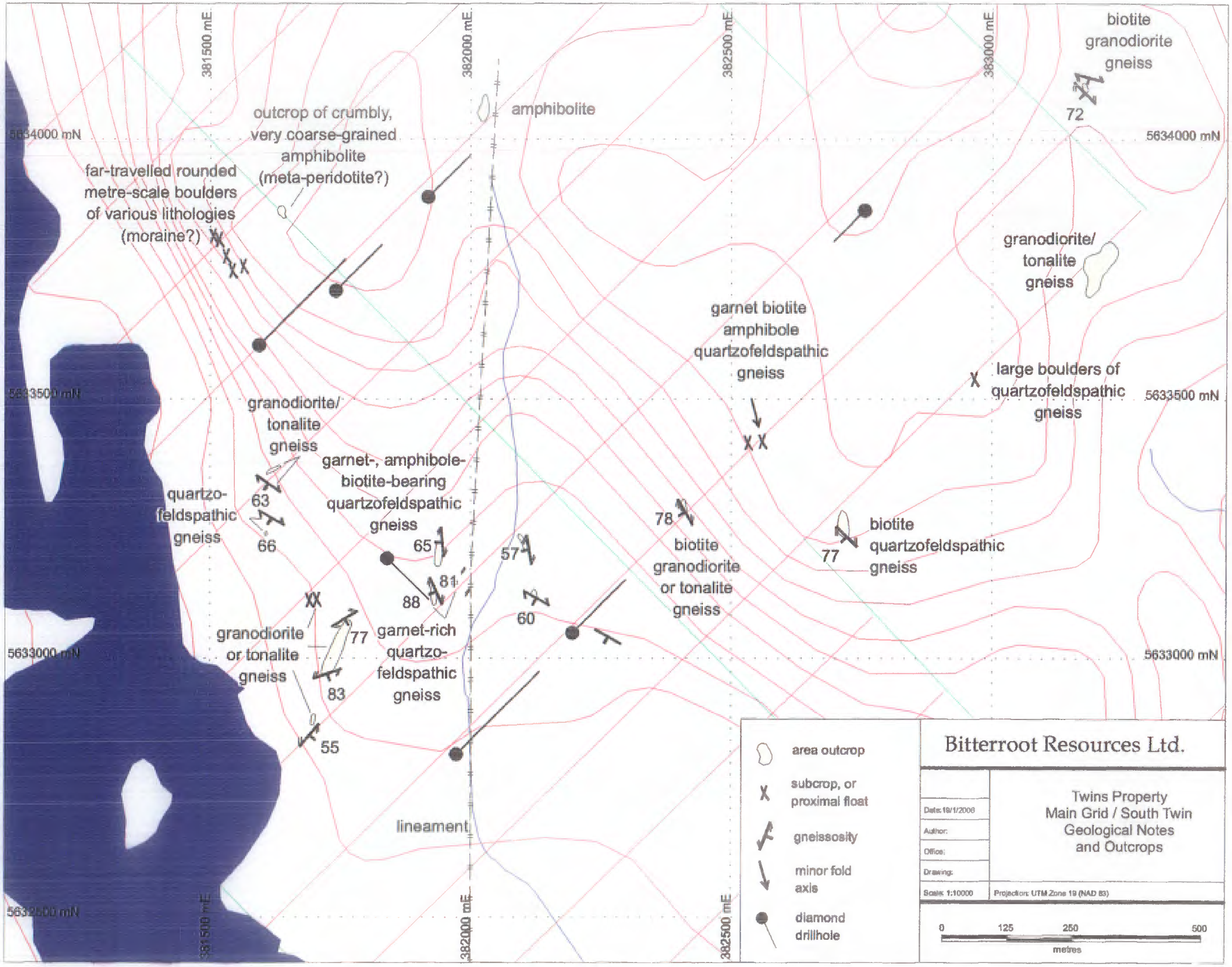


Figure. 14. Outcrops, geological notes, and structural measurements, South Twin anomaly/Main grid, Twins property.

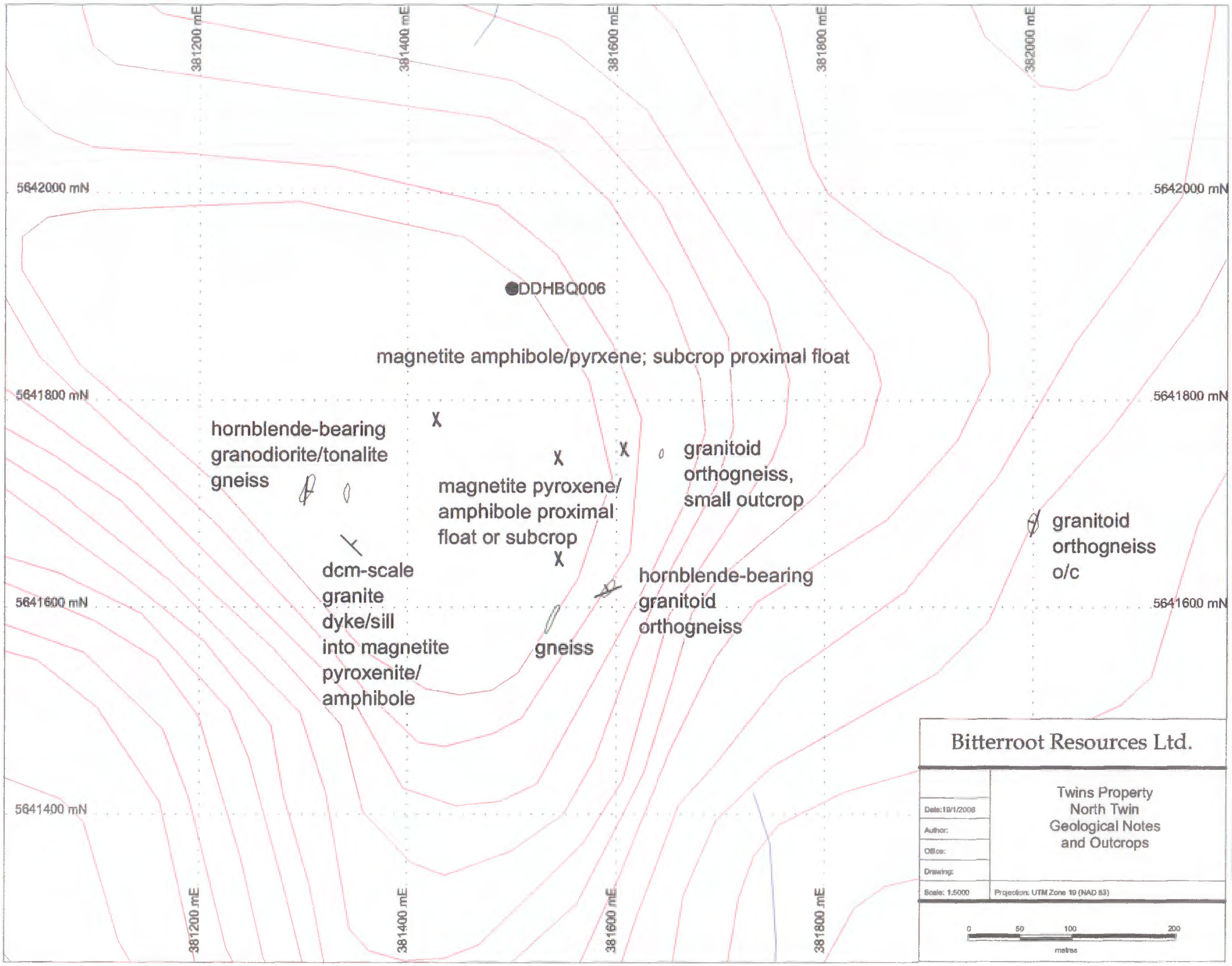


Figure 15. Outcrops, geological notes, and structural measurements, North Twin anomaly, Twins property.

10.1 Staining

Staining for potassium feldspar was undertaken on a number of specimens of drill core, principally orthogneisses, mainly in order to determine, if there were a number of suites of intrusives present. In general, the results of the staining program (Appendix VI) suggest that this is not the case, and that there are essentially only two suites of intrusive rocks, an older suite of foliated to gneissic tonalite or granodiorite, and a somewhat younger suite of biotite granite and related granite to tonalite pegmatite dykes.

11.0 Soil Geochemistry

A total of 27 soil samples were collected from the area of the Main Grid, all during the reconnaissance work performed in June, 2004 (figs. 16-19; Appendix VII). Soil samples were collected from the B horizon, at an average depth of approximately 10 to 15 centimetres. A mattock was used to dig the holes, and the soil was placed in standard Kraft paper soil sample bags that were labelled with sample numbers (fig. 20). All samples collected in the program were analyzed at ALS Chemex Laboratories in Vancouver, British Columbia. The samples were collected from the Main Grid by C. Greig and S. Flasha, and all but three samples were collected in a traverse across the topographically-higher part of the grid, along line 4800.

The soil sample traverse yielded a number of samples in the vicinity of the ground magnetic and gravity anomalies which were clearly anomalous in Ni, Cu, and Co, amongst other elements, and it is no coincidence that several of these samples are on not far from the diamond drillholes which intersected metamorphosed mafic to ultramafic rocks at depth (DDHBQ02-04). Clearly, this suggests that at least in the topographically-higher parts of the property, and in the Lac Manouane area in general, that at least in the higher areas, the soil geochemistry can reflect, in part, the

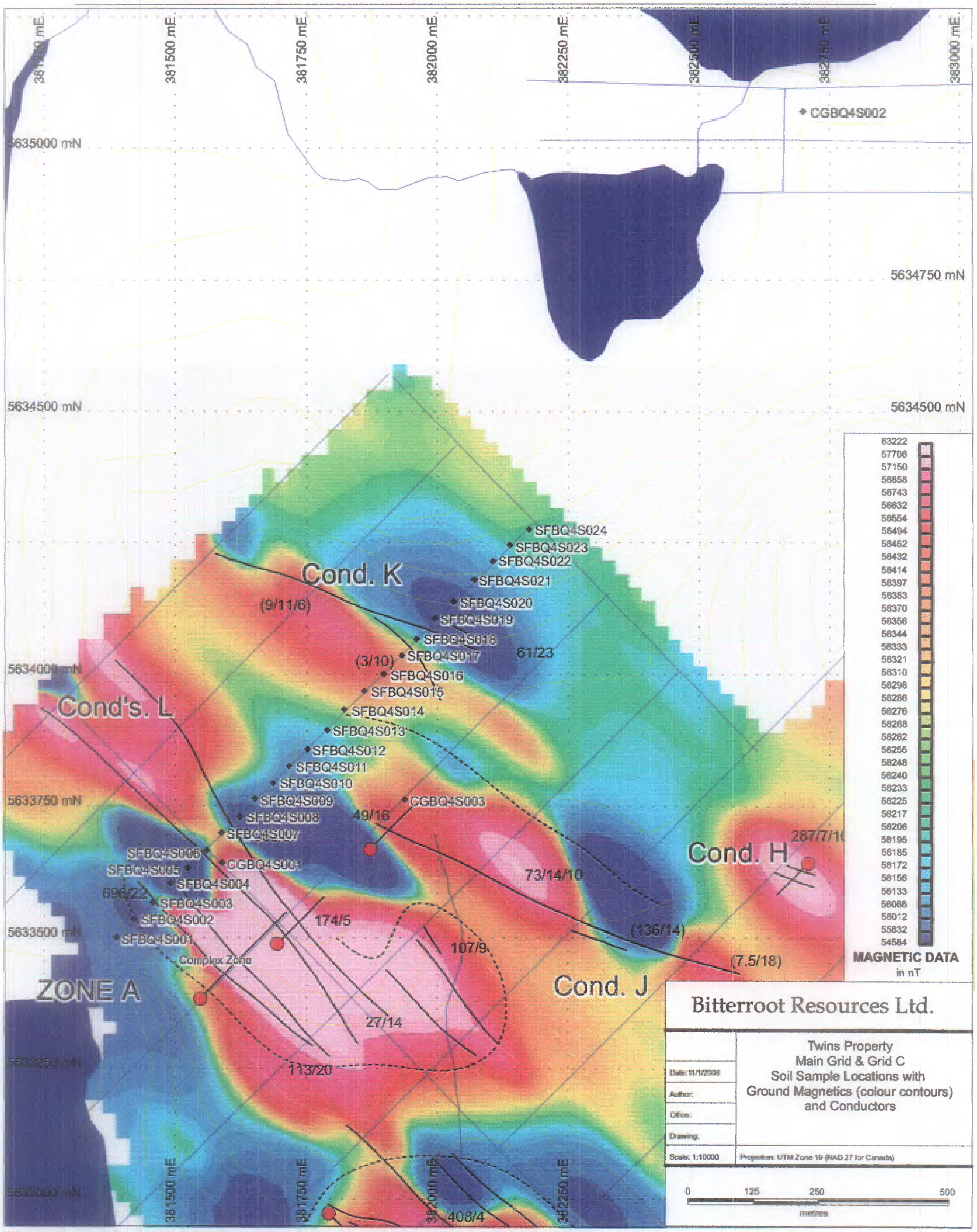


Figure 16. Soil sample locations, northern part of the Main grid, Twins property.

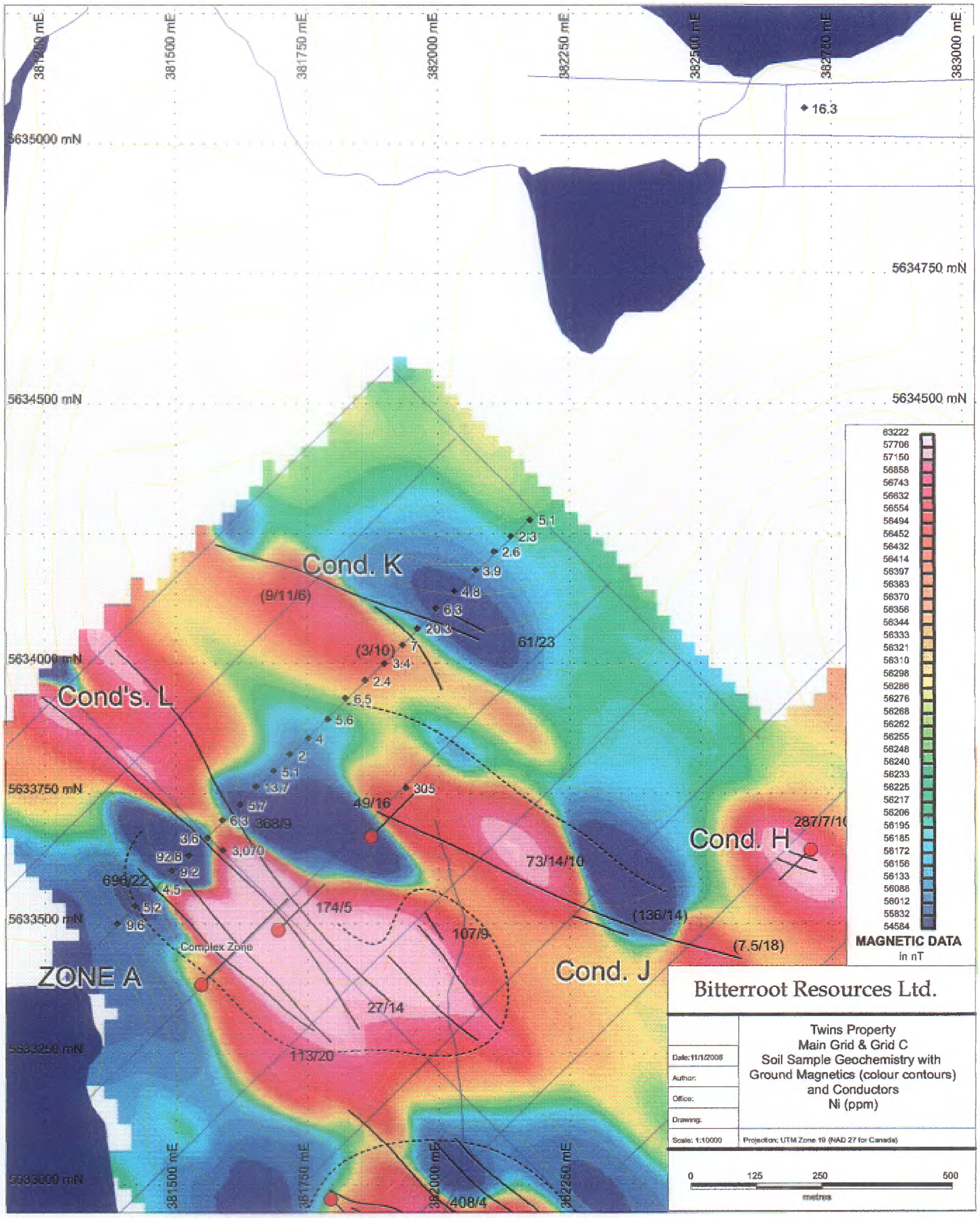


Figure 17. Ni geochemistry in soils, northern part of the Main grid, Twins property.

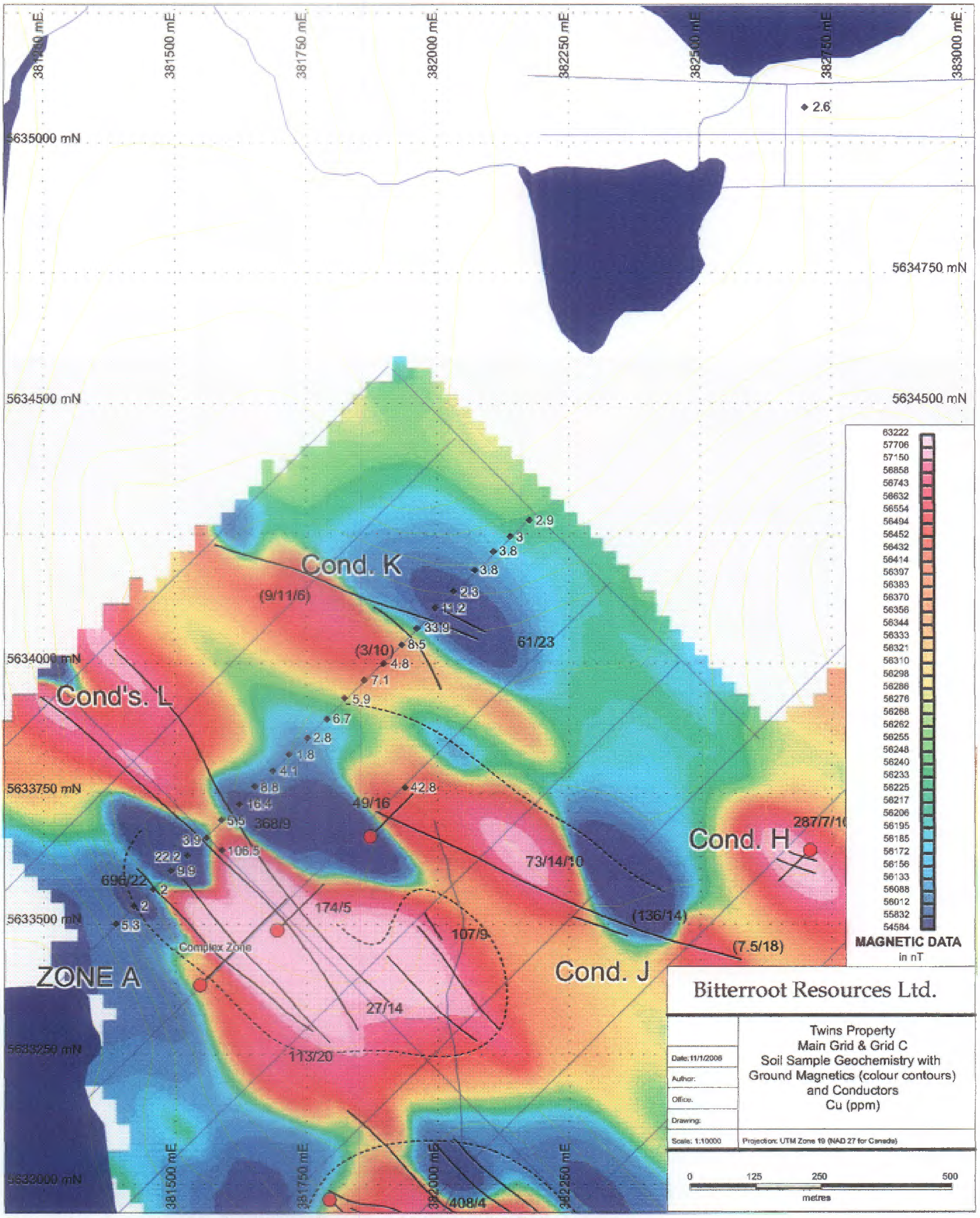


Figure 18. Cu geochemistry in soils, northern part of the Main grid, Twins property.

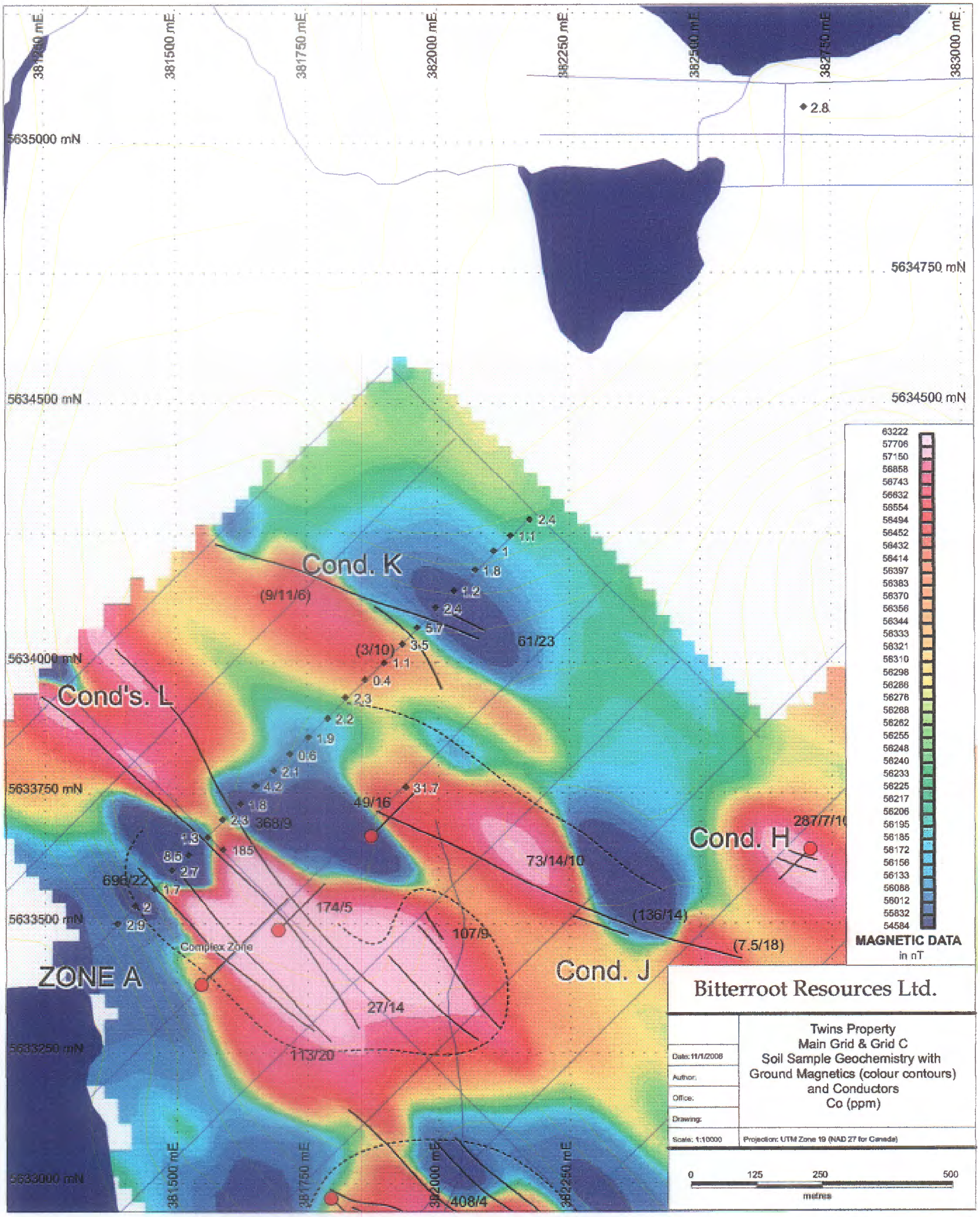


Figure 19. Co geochemistry in soils, northern part of the Main grid, Twins property.

Figure 20. Soil sample site from Main grid, Line 46W, 1+50N, Twins property.

bedrock beneath the cover. This raises the intriguing possibility that systematic soil sampling may be useful for following-up geophysical anomalies, as well as helping to track out geology.

One of the three soil samples collected "off-line", sample CGBQ4S001, was collected from atop a mound of what was initially interpreted to be either a very crumbly outcrop or a very crumbly, very large boulder of very magnetic, very coarse-grained amphibolite (figs. 21 and 22), which in hindsight is very similar in appearance to some of the very coarse-grained amphibolitized ultramafic rocks encountered in DDHBQ03 (see below). The soil sample returned the highest Ni value of any rock or soil sample collected during the program, 3040 ppm, and also returned highly anomalous values of Cr, Co, Cu, as well as other elements.

Another "off-line" soil sample, sample CGBQ4S002, was collected from a rusty frost heave very close to the location of "Conductor C," near the lakes northeast of the Main grid (figs. 16-19). Although only an isolated sample, it is intriguing to note that it was anomalous in Ni, at least relative to the very much limited population of soil samples collected on the property to date. The

Figure 21. Crumbly, weathered outcrop or boulder of very coarse-grained amphibolite (meta-peridotite?), from which an adjacent soil sample (CGBQ4S001) yielded over 3000 ppm Ni.

Figure 22. Detail of crumbly, weathered outcrop or boulder of very coarse-grained amphibolite (meta-peridotite?), from which an adjacent soil sample (CGBQ4S001) yielded over 3000 ppm Ni.

final "off-line" soil sample, sample CGBQ4S003, was collected adjacent to an outcrop north of station 3+50N, on Line 46W, the line along which holes BQ02, 03, and 04 were drilled. The southerly two outcrops consisted of foliated or gneissic granodiorite, and the northerly outcrop, near which the sample was collected, consisted of amphibolitized mafic rocks (amphibolite?). Although not as anomalous as sample CGBQ4S001, this sample also returned highly anomalous Ni, Cr, Co, Cu, and Zn, among other elements.

12.0 Diamond Drilling

12.1 Introduction

Eight diamond drillholes were drilled on the Twins property, for a total of 1714 metres of NQ core (diameter = 47 millimetres; Table 2; fig. 23). The longest hole was 363 metres and the shortest hole was 99 metres in length. The shortest hole, DDHBQ06, was the only hole to target the North Twin; the remaining seven holes, for a total of 1613 metres, targeted the South Twin, and were drilled from various places on the Main grid. As mentioned earlier, the drillholes were primarily targeted using geophysical data, and, in particular, most targets represented coincident magnetic highs and electromagnetic conductors (figs. 12 and 13). After it became evident that the first hole on the South Twin was drilled more or less parallel to the regional structural fabric, the remaining holes on the South Twin were drilled perpendicular to the principal stratigraphic and/or structural grain of the host rocks, which in general appears to trend to the northwest and is steep. All holes were logged in detail, and core logs are shown in Appendix VIII. Four hundred and thirty-one samples were collected from drillcore, for a total of almost 350 metres or core. They were tagged, sawn, bagged, and shipped for analysis to ALS Chemex Laboratories in North Vancouver, B.C. All samples were analyzed for Au, Pt, Pd, and a 34 element ICP package, the analytical data for which

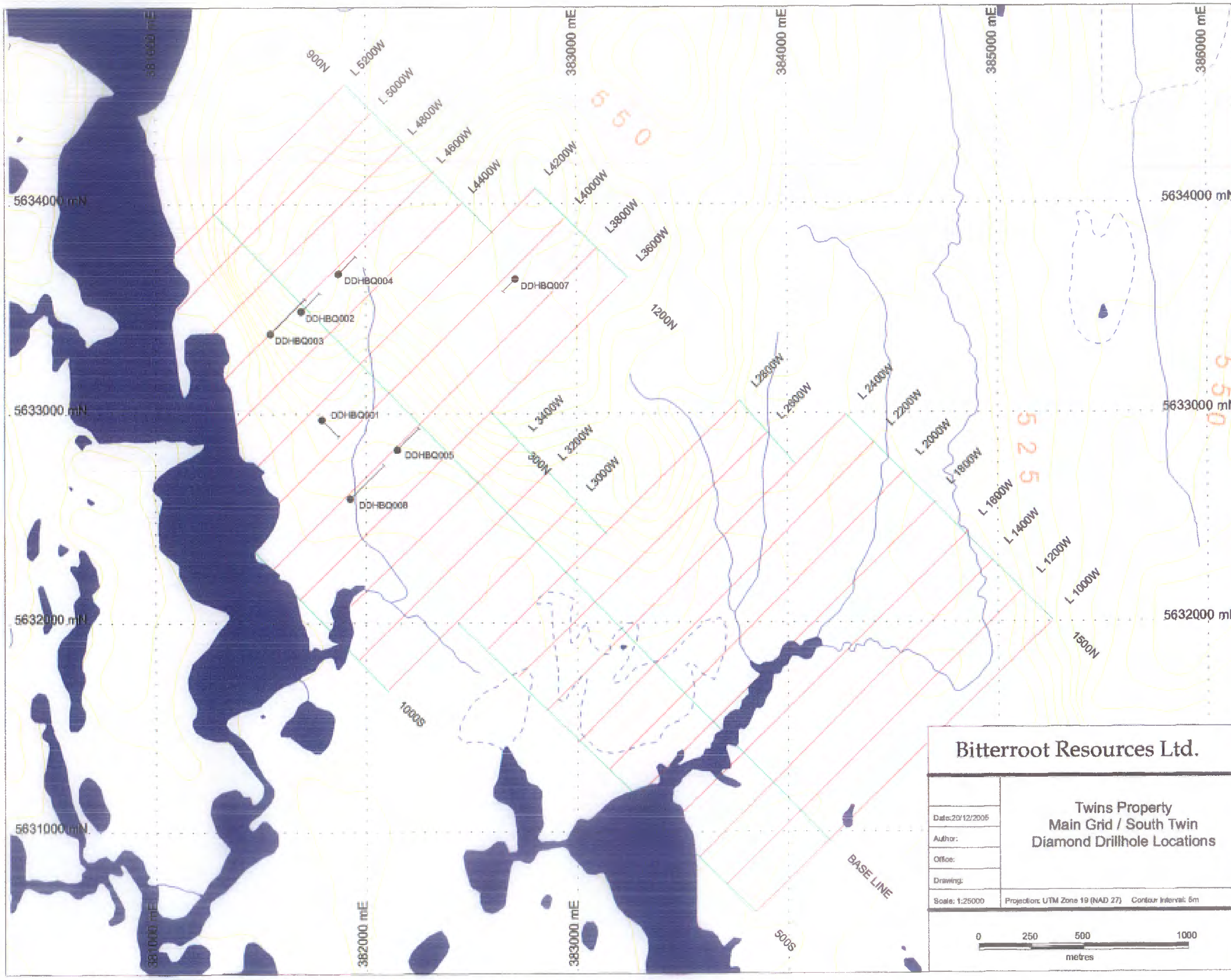


Figure 23. Diamond drillhole locations, Main Grid Area/South Twin Anomaly, Twins property.

is shown in Appendix IX. The samples from drillcore included thirty-seven blank samples that were collected for quality control from "spotted" granodiorite/tonalite gneiss which was intersected in DDHBQ01 (Appendix X); that data is discussed in the section on quality control below.

Table 2. Diamond drillhole collar information, Twins property.

Hole Number	UTM Easting	UTM Northing	Azimuth (degrees)	Dip (degrees)	Elevation (m)	Length (m)
DDHBQ01	381793	5632972	135	-50	525	175
DDHBQ02	381694	5633488	45	-50	555	195
DDHBQ03	381547	5633383	45	-50	535	363
DDHBQ04	381871	5633668	45	-50	556	179
DDHBQ05	382149	5632828	45	-50	520	223
DDHBQ06	381453	5641687	0	-90	625	99
DDHBQ07	382709	5633642	225	-50	565	129
DDHBQ08	381926	5632594	45	-50	515	351
					Total	1714

12.2 Geological Summary

12.2.1 Rock Units–Twins Property

Core-logging of the Twins drillholes (Appendix VIII) suggests that there are five main rock types on the property. From oldest to youngest these are: garnet biotite amphibole (±pyrrhotite ±magnetite) quartzofeldspathic gneiss (also referred to in the following sections as paragneiss = metamorphosed sedimentary rocks), amphibolitized ultramafic rocks (meta-ultramafic rocks), amphibolite (metamorphosed mafic to ultramafic intrusive rocks, or perhaps metamorphosed volcanic rocks), granodiorite to tonalite gneiss (also referred to in the following sections as orthogneiss = metamorphosed granodiorite to tonalite intrusive rocks), and gneissic to foliated granite and associated(?) pegmatite.

12.2.1.1 Quartzofeldspathic Gneiss

The most common rock type encountered in the diamond drillholes, and the most common host to mineralizatiion, are high-grade metasedimentary rocks, which were logged as a quartzofeldspathic gneiss or paragneiss (e.g., figs. 24 and 25). The paragneisses are typically medium-grained, and generally leucocratic (CI typically <30), although where mineralized, the colour index is typically somewhat higher. The quartzofeldspathic rocks carry variable quantities of biotite, garnet, amphibole, pyrrhotite, magnetite, and pyrite, as well as the predominant plagioclase feldspar and quartz. Garnet, magnetite, and even pyrrhotite may locally be coarse-grained, and the quartzofeldspathic gneissic rocks commonly host decimetre- and even metre-scale bodies of semi-massive to massive sulphide (±magnetite). The rocks range from weakly to moderately well-foliated and are locally moderately well-layered. They are interpreted to represent metamorphosed sedimentary rocks, possibly including oxide-, silicate-oxide-, or silicate-, oxide-, sulphide-facies iron formation, although there is little or no textural evidence of protoliths preserved.

12.2.1.2 Amphibolite

Amphibolitic rocks on the property, consisting predominantly of amphibole (mainly hornblende?) and plagioclase, range in colour index (CI, roughly equals mafic content) from 30 to 100, although rocks in the range of 30 to 60 are perhaps most common. Commonly accessory minerals include biotite and garnet, plus local sulphides, principally pyrrhotite and pyrite. The rocks are interpreted to represent metamorphosed mafic intrusions and(or?) volcanic rocks, with the former alternative considered the most likely, particularly given the close association of the amphibolitic rocks of lower colour index with those of higher colour index (lower CI amphibolites marginal to higher CI amphibolites), and because the higher CI amphibolites, are commonly rich in pale-coloured Mg-

Figure 24. Outcrop of rusty-weathering sulphide-bearing garnetiferous quartzofeldspathic gneiss, near collar of DDHBQ01, Twins property.

Figure 25. Detail of outcrop shown in fig. 24, of rusty-weathering sulphide- and amphibole-bearing garnetiferous quartzofeldspathic gneiss, near collar of DDHBQ01, Twins property.

rich(?) amphiboles (anthophyllite and/or cummingtonite?), and because they locally preserve relict igneous textures, such as coarse-grained poikilitic overgrowths, and clear phaneritic textures.

12.2.1.2.1 Amphibolitized Ultramafic Rocks

Pale to dark green, medium- and locally coarse-grained amphibolitized ultramafic rocks, probably derived from clino- and orthopyroxenites(?), feldspathic pyroxenites, and perhaps peridotites and/or dunites, were mainly encountered in DDHBQ03, but were also intersected in holes BQ02 and 04. They consist almost entirely of amphibole, but the composition of the constiuent amphibole, which is reflected in their highly variable colour (very pale green to dark green), suggests that the rocks vary from more Mg-rich (anthophyllite or cummingtonite?) to more Fe-rich (hornblende). The amphibolitic rocks may also carry local disseminated sulphides, and in some cases, the rocks appear to be devoid of sulphide. Amphibolitic ultramafic rocks of high colour index were also intersected in DDHBQ06, on the North Twin, and they occur locally in outcrop in that area (fig. 26). They have a considerably different mineralogy than the amphibolites in the

Figure 26. Rusty-weathering magnetite amphibolite, from near collar of DDHBQ06, on the North Twin magnetic anomaly, Twins property.

South Twin holes, however. At the North Twin, they consist largely of dark green to black amphibole (hornblende), but also contain common magnetite (up to 30% by volume), as well as up to 5% of a distinctive vivid green mineral, possibly spinel, or perhaps chrome diopside(?).

The overall orientation and extent of the amphibolitic ultramafic bodies is difficult to ascertain, mainly because of the paucity of outcrop and the lack of drilling. That the intersections of such rocks at the South Twin all occurred on the same section, and that holes to the east (DDHBQ07) and south (DDHBQ01, 05, and 08) did not intersected similar rocks, suggests that the continuation of the amphibolitized ultramafic rocks, if it exists, lies to west or northwest. While much of the immediate area in that direction lies beneath an arm of Lac Manouane, the airborne geophysics (fig. 11) shows several well-developed and continuous magnetic anomalies in that area, and the anomalies are open to the west. In addition, the airborne geophysics also shows an extensive northwest-trending airborne magnetic anomaly to the immediate north, and that anomaly has an associated conductor, conductor "C," which remains untested. In the vicinity of DDHBQ06, the airborne magnetic signature, together with limited structural data from outcrop (fig. 15), suggests that the magnetite-bearing amphibolitic rocks have been folded along with the interlayered granodioritic to tonalite gneiss, and that they may outline a north-plunging synformal structure.

12.2.1.3 Granodiorite or Tonalite Gneiss

Granodiorite to tonalite gneiss is common in all holes on the property, where it is found interlayered on a decimetre- to metre-scale with quartzofeldspathic gneiss and/or amphibolite. It is weakly to more generally moderately-well foliated, and typically displays a weak gneissic layering. The rocks are typically fine- to medium-grained, invariably contain biotite. Subordinate quantities of hornblende are also common, and the rocks are not uncommonly mineralized with up to 1% disseminated pyrrhotite and subordinate pyrite. In several places in core the granodioritic gneiss clearly appears to have intruded amphibolitic rocks or quartzofeldspathic gneiss, although a strong metamorphic and structural overprint across most contacts makes the primary contact relations difficult to discern.

12.2.1.4 Granite

Biotite granite to tonalite bodies and even more common pegmatite dykes and sills of similar composition were intersected in all holes. The pegmatitic rocks clearly intrude all other lithologies, including the granodiorite or tonalite gneiss, and they locally grade into and are otherwise spatially associated with less common pink granite dykes, such those occurring in DDHBQ01 (see below). The granite bodies occur at the decimetre- to metre-scale. They are commonly only weakly foliated, but locally are well foliated or even display protomylonitic fabrics, suggesting that they underwent at least the latter stages of the principal deformation event.

12.2.2 Mineralization

Medium- to coarse-grained pyrrhotite-pyrite (±chalcopyrite) mineralization, most commonly disseminated, but also including semi-massive and massive varieties, occurs within all the metamorphic rocks on the property, including the amphibolitic rocks of probable mafic to ultramafic origin that were intersected in drillholes BQ02, 03, and 04. It is most common within biotite amphibolite quartzofeldspathic paragneiss, but mineralogically-similar disseminated-style mineralization also occurs locally within orthogneiss and within amphibolitic rocks, while semi-massive to massive pyrrhotite, subordinate pyrite, and rare chalcopyrite may occur within orthogneiss, near its contacts with paragneiss.

The pyrrhotite-pyrite mineralization unfortunately carries no economically-significant base or precious metals values. The highest base metals values occur within biotite amphibolite intersected in DDHBQ03 between 294 and 305 metres downhole. The amphibolites contain disseminated sulphides, and returned values between 350 and 800 ppm Cu, and 600 and 1000 ppm Ni, which are over an order of magnitude higher than those returned by similarly sulphide-rich (or magnetite-rich) quartzofeldspathic gneisses (typically averaging <50 ppm for both Cu and Ni). In addition, samples of disseminated sulphides within amphibolite and semi-massive to massive sulphides at the contact between amphibolite and granodiorite gneiss, at a downhole depth of between 94 and 100 metres in DDHBQ03, returned Cu values of 550, 900, and 1300 ppm, as well as Ni values of 200, 350, and 700 ppm. In comparison, samples of massive sulphides averaged 322 ppm Cu and 227 ppm Ni, and samples of semi-massive sulphides averaged 140 ppm Cu and 85 ppm Ni. Magnetite-rich amphibolite from DDHBQ06 also yielded somewhat elevated levels of Cu and Ni relative to quartzofeldspathic gneisses containing disseminated sulphides, but the average levels (231 ppm Cu, 74 ppm Ni) are still considerably lower than the Cu and Ni contents of amphibolitic rocks or semi-massive to massive sulphides.

The most highly-elevated Au value obtained in the drilling was only 443 ppb Au, which occurred along with the highest Cu value (3890 ppm) and which was associated with late, brittle, post-metamorphic calcite vein- and vein-breccia style mineralization intersected near the top of DDHBQ03. The highest PGE values, which were only 28 ppb Pd and 12 ppb Pt, were associated with magnetite-rich amphibolite from DDHBQ06.

While in most drillholes there is clearly a general association of sulphide- (and magnetite)-bearing quartzofeldspathic rocks with the contacts of granodioritic or tonalitic orthogneiss,a substantial increase in sulphide content at the immediate contacts was not noted. Sulphides appear to be in equilibrium with magnetite and silicate minerals, and definitely appear to be "pre-metamorphic" and pre-tectonic, whereas at least some of the orthogneissic rocks are arguably post-tectonic or at least late-tectonic (in particular this appears to be the case for the granite). Because sulphides locally occur interstitial to silicates in amphibolite, one may argue the case for magmatic sulphides, and in a few instances sulphides appear to more or less surround amphibole which appears to pseudomorph pyroxene. In such a case, the granitic rocks would simply be dilating an already mineralized sequence consisting of quartzofeldspathic rocks (including common sulphide-, oxide-, and silicate-facies iron formation) that had been intruded previously by mafic rocks. The general association of sulphides with orthogneiss contacts would in this view represent remobilization of sulphides, although the common presence of sulphides within, and particularly near the margins of, the granitic rocks, might also be used as an argument in favour of a skarn or replacement origin for the sulphides. This might occur within a sequence of limey host rocks, although their presumed Archaean to early Proterozoic age suggests that carbonate should be scarce

12.2.2 Metamorphic grade

Although no detailed mineralogic or petrographic work has been undertaken on rocks on the Twins property, the mineralogy and textures suggest that the metamorphic grade is probably in the upper amphibolite facies. The mafic rocks consist almost entirely of amphibole and subordinate plagioclase feldspar, and paragneisses bear the common assemblage: garnet (mainly almandine), biotite, amphibole, plagioclase feldspar, and quartz, with common magnetite and sulphides. The local presence of kyanite in the quartzofeldspathic gneisses suggests that they represent relative high-pressure assemblages, as may the total(?) absence of muscovite. Most of the rocks bear well-developed planar fabrics (commonly well foliated to gnessic), and the metamorphic minerals, which are generally medium- to coarse-grained and which appear to be in equilibrium with one another, display well-developed idioblastic to granoblastic textures. Only locally, such as in the metamoprhosed pyroxenites and feldspathic pyroxenites in DDHBQ03, do primary textures appear to be preserved.

12.2.3 Structural geology

Rocks on the Twins property are characterized by a well-developed foliation that is typically expressed as a gneissic layering. The layering is perhaps best developed in the quartzofeldspathic gneisses, and is generally less pronounced in the orthogneisses. The lack of fine-grain sizes and the general presence of strongly recrystallized mineral grains with subhedral grain shapes and minerals in apparent equilibrium with one another, and, with the exception of biotite, with more or less granoblastic textures, suggests that metamorphism at least in part post-dated deformation, and it is probable that deformation was more or coincident with metamorphism. Although structural measurements from surface at the South Twin are relatively scarce (figs. 14 and 15), and although the core was not oriented, the moderate to high angles between the foliation and core axis observed in most of the holes, all but one of which were drilled at moderate angles to the northeast or southwest, suggests strongly that the regional fabric in that area trends to the northwest and dips steeply. This is supported by common northwest trends which are apparent in the airborne and ground magnetic data, and, to a lesser extent, in the electromagnetic data.

12.2 Geological Summaries for Individual Drillholes

As mentioned above, seven of the eight drillholes on the Twins property were drilled on the Main grid and targeted the South Twin magnetic anomaly. The remaining hole, DDHBQ06, targeted the North Twin.

12.2.1 DDHBQ01

Diamond drillhole DDHBQ01 was drilled northwest to southeast (135°) at -50 degrees for 175.00 metres (fig. 27). The hole targeted what was interpreted as folded magnetic and conductive horizon(s) interpreted to cross L4000W obliquely. It intersected mainly biotite-bearing quartzofeldspathic gneiss, with minor textural and mineralogical differences, and a numbero cross-cutting granite pegmatite dykes. In general, the gneissic foliation was at a low angle to the core axis, indicating that the hole was drilled more or less parallel to the generally steeply westerly dipping to steeply easterly dipping structural fabric on the property. Only local sulphides were encountered, and these were associated with pegmatite dykes. Mineralization encountered in the hole consisted mainly of disseminated pyrite with subordinate pyrrhotite; pyrite-pyrrhotite veinlets occur locally, and sulphides locally replace hornblende. Unfortunately, the samples returned no significant gold, arsenic, copper, or silver values. The magnetic high was explained by the broad intersection of moderately to strongly magnetic pyrrhotite- and magnetite-bearing quartzofeldspathic gneisses, while the conductors may have been accounted for by foliaform, locally interconnected pyrrhotite and pyrite, which range in abundance up to a total of 10 or 15% across 3 metres.

In very general terms, the rocks in the hole consist of fine- to medium-grained gneissic biotite granodiorite (fig. 28 (H1-1)); also referred to in logs as "spotted"gneiss, due to the tendency

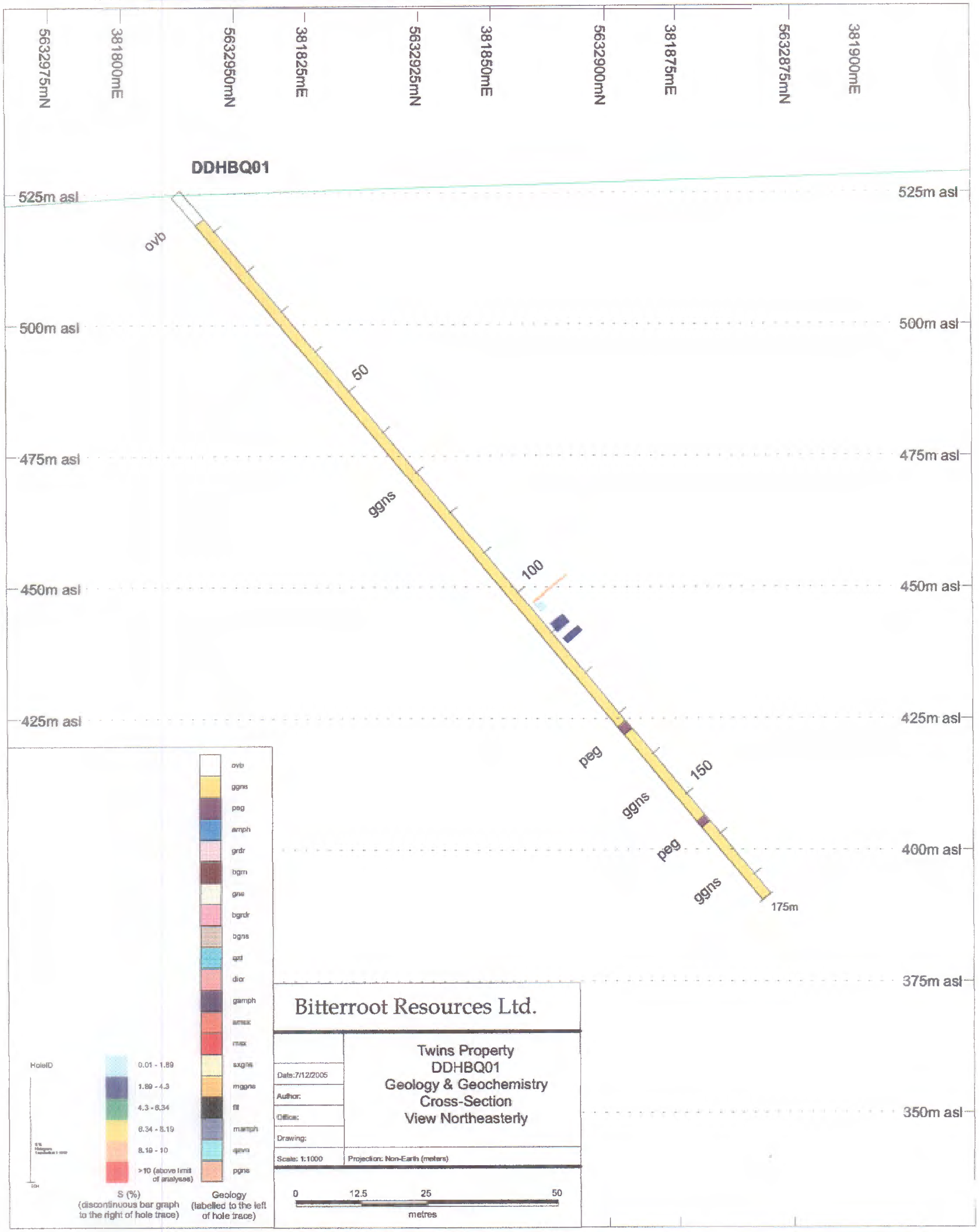


Figure 27. Cross section, diamond drillhole DDHBQ01, Twins property, South Twin anomaly.

Figure 28. (H1-1). Gneissic granodiorite and biotite granite pegmatite (with minor pyrite) from the upper part of DDHBQ01; view is into foliation plane of gneissic granodiorite.

Figure 29 (H1-2). Garnet biotite quartzofeldspathic gneiss hosting local layer-parallel granitic rocks, DDHBQ01.

of biotite to occur in aggregates which gave the rocks a spotted appearance) interlayered with fine- to medium-grained garnet biotite (plus minor hornblende?) quartzofeldspathic gneiss (fig. 29 (H1-2)). Quartzofeldspathic rocks predominate at the top of the hole (beneath 7 metres of overburden), and are found down to approximately 12 metres depth, as well as in a broad interval between 33 and approximately 119 metres. Granodioritic (to tonalitic, see Appendix VI) gneiss predominates in the intervals between 12 and 33 metres, and from 119 metres downhole and the end of the hole, at 175 metres.

The rocks in this hole are generally well-foliated, although the compositional layering is not overly well-developed in any of the lithologies; most of the gneissic granodioritic/tonalitic rocks contain only trace (<<1%) pyrite and(or) pyrrhotite, and they are generally not strongly magnetic in hand sample (i.e., they will not draw a pencil magnet); the quartzofeldspathic gneiss on the other hand, contains marginally greater quantities of sulphide and is somewhat more magnetic; garnet is near ubiquitous in the quartzofeldspathic gneiss, but occurs in only trace quantities in the interval 33 and 55 metres downhole. Elsewhere, garnet typically comprises between 1-3% (up to 5%) of the mode in the quartzofeldspathic rocks. Mafic minerals, consisting almost exclusively of biotite, are in general more abundant in the quartzofeldspathic gneiss than they are in the granodioritic/tonalitic gneiss, commonly giving it a somewhat higher colour index (but still typically <25). Both lithologies, but in the intrusive rocks in particular, include local cm- to dcm-scale biotite granite pegmatite layers/segregations/injections, which themselves can contain locally abundant pyrrhotite and pyrite.

Five samples collected from sulphide-bearing garnetiferous quartzofeldspathic gneiss in this hole, and one from a sulphide-bearing pegmatite (fig. 30 (H1-3)); no significant results were obtained. Sample blanks used for quality control in this program were collected from 20-30

Figure 30 (H1-3). Pegmatite-hosted pyrite mineralization, DDHBQ01.

Figure 31 (H1-4). "Spotted" gneissic granodiorite of interval from which blank samples were collected, approximately 143-152 metres, DDHBQ01.

centimetre long pieces of sawn core of granodioritic/tonalitic gneiss between 145 and 152 metres in this hole (fig. 31 (H1-4)); a total of 37 sample blanks were analyzed.

12.2.2 DDHBQ02

Diamond drillhole DDHBQ02, drilled northeasterly at -50 degrees to a total depth of 195 metres, intersected roughly equal proportions of quartzofeldspathic gneiss, amphibolite, and granodiorite/tonalite gneiss (fig. 32). The hole targeted conductors along the northwestern side of the South Twin magnetic anomaly, along with drillholes DDHBQ03 (to the southwest) and DDHBQ04 (to the northeast), which were drilled in either direction along section from this hole (fig. 33). A gravity traverse along line 4600W, not far to the northwest, shows a rather flat topped anomaly of ~1 mgal coinciding with the zone of conductors and magnetic.

From the top of the drillhole, at approximately 3 metres, down to nearly 10 metres, the rocks consisted of roughly equal proportions of sparsely mineralized granodioritic rocks and amphibolite (fig. 34 (H2-1)). From 10 metres downhole to approximately 28 metres, garnet hornblende(?) biotite quartzofeldspathic gneiss predominates, with subordinate (garnet biotite) amphibolite. The rocks are well-layered with foliation/gneissosity to core axis (=CA)) angles ranging between 35 and 55 degrees, and therefore at a more appropriate angle than in DDH-BQ01. The amphibolite layers are typically centimetres and locally several decimetres thick, ranging in thickness up to 60 cm. They vary in mineralogy, with proportions of mafic minerals (amphibole > biotite) ranging from 30 to 70 or more. Both amphibolites and quartzofeldspathic rocks carry sulphides, but amphibolites typically carry greater abundances, with several percent or more on average, and ranging up to approximately 20%.

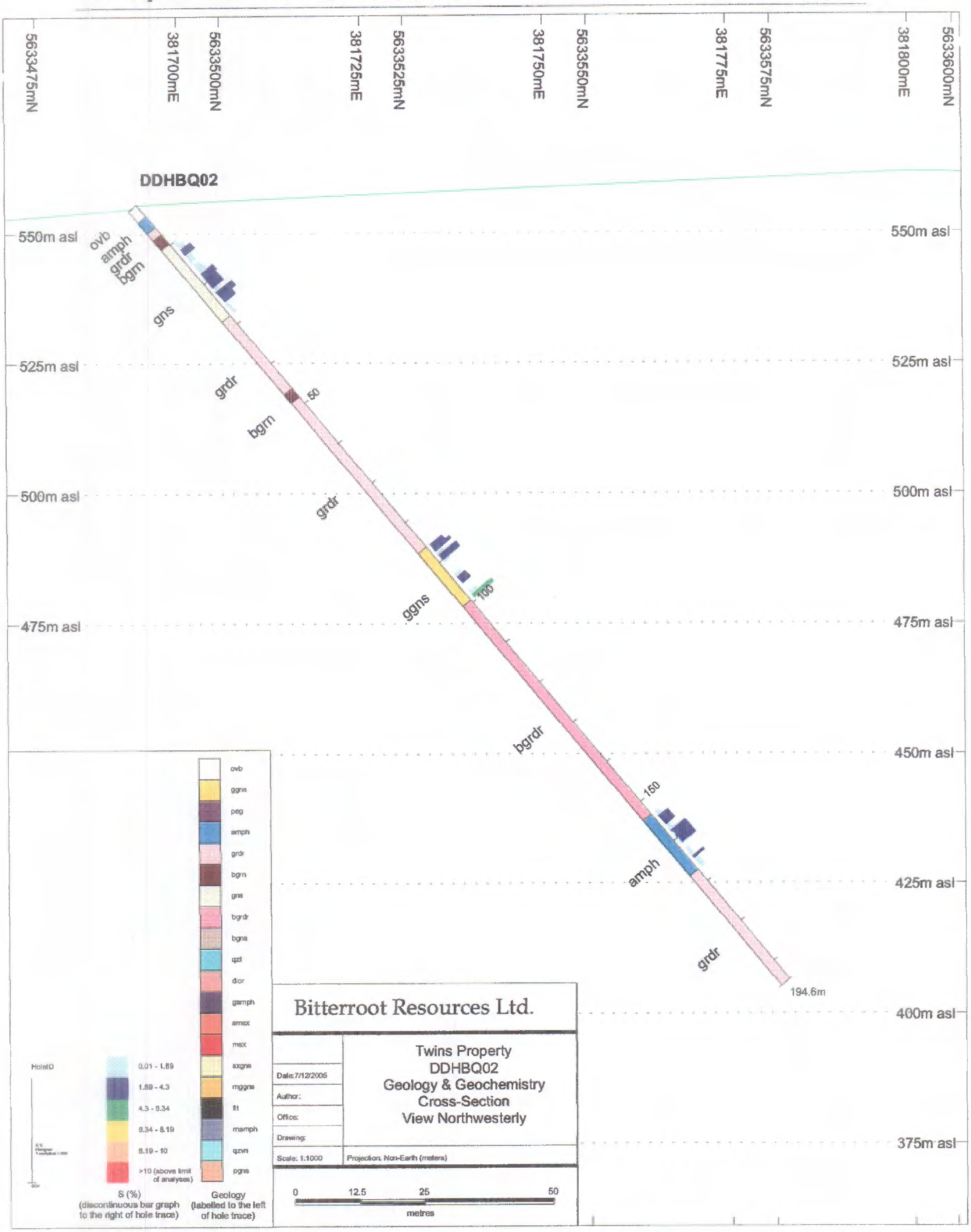


Figure 32. Cross section, diamond drillhole DDHBQ02, Twins property, South Twin anomaly.

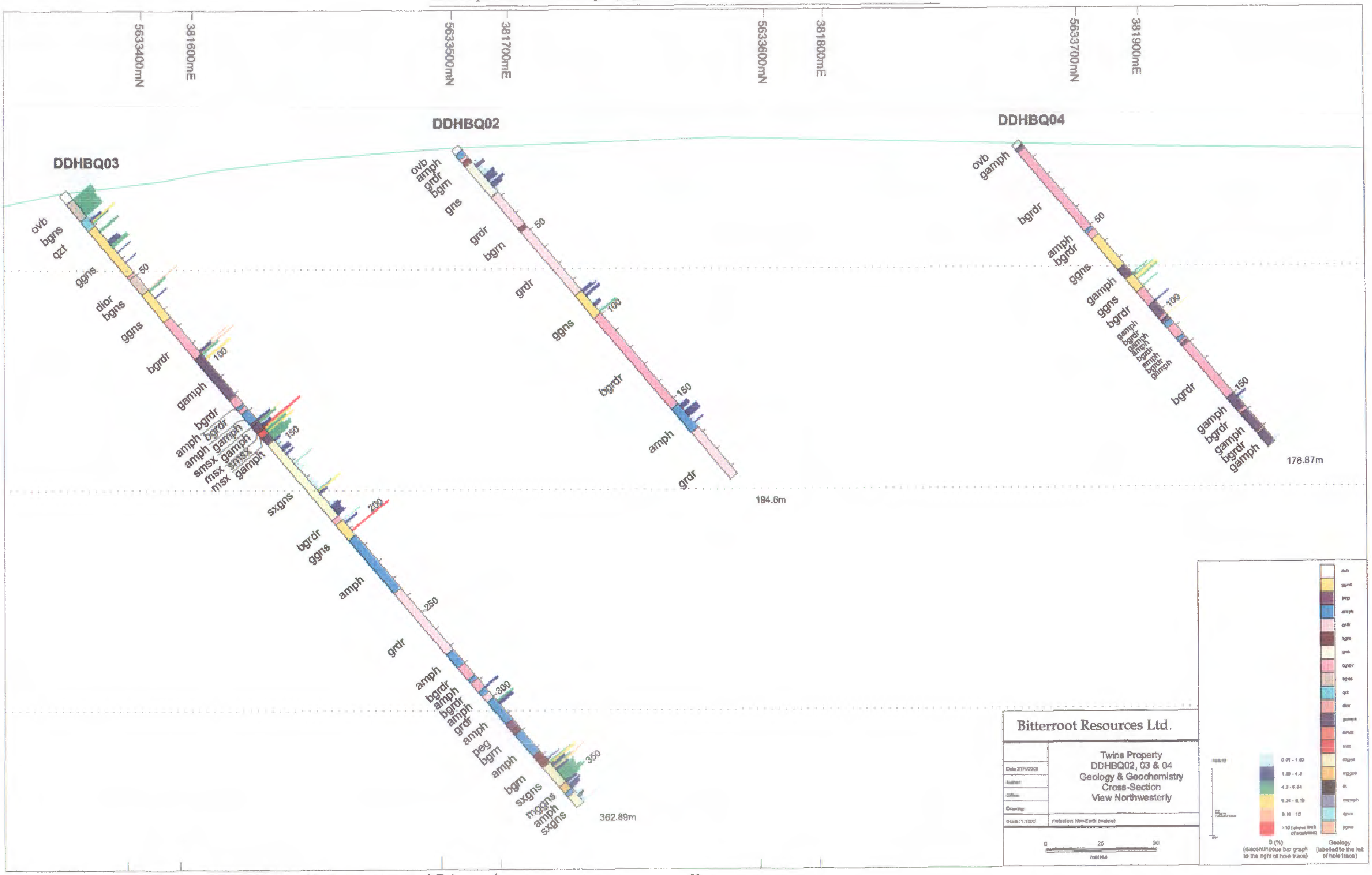


Figure 33. Cross section, diamond drillholes DDHBQ02, 03, and 04, Twins property, South Twin anomaly.

Figure 34.(H2-1). Core from the uppermost 10 metres of DDHBQ02, showing predominant biotite granodiorite gneiss and subordinate medium to dark green biotite amphibolite (top), and white to pink granite.

Granitoid rocks comprise the bulk of the interval between 28 and 86 metres, with the predominant lithology being weakly to moderately foliated fine- to medium-grained hornblende biotite granodiorite or tonalite (Appendix VIII), which occurs along with subordinate distinctive, pale pink coloured, typically less well foliated medium- to coarse-grained (hornblende?) biotite granite (fig. 35 (H2-2)). Contact relationships between the two are somewhat ambiguous, and although they may appear gradational, in places the granite clearly intrudes and bears small inclusions of the granodioritic/tonalitic rocks (e.g., fig. 34 (H2-1)). The pink granite is typically only weakly foliated at best, and contact relationships with the common pegmatitic rocks found throughout the drillholes on the Twins property suggest that they are genetically related.

From 86 to 99 metres, fine-grained, moderately well foliated, generally weakly layered quartzofeldspathic gneissic rocks again predominate. They contain varying amounts of amphibole (up to 60%; fig. 36 (H2-3)) and garnet (typically 1-3%). Again, the more amphibole-rich sections typically host the greater abundances of sulphide, which range up to 20%; magnetite is commonly present in trace amounts, but may range up to 2% in abundance.

Figure 35. (H2-2). Pink granite and white granite pegmatite intruding predominant gneissic granodiorite; approximately 48 metres, DDHBQ02.

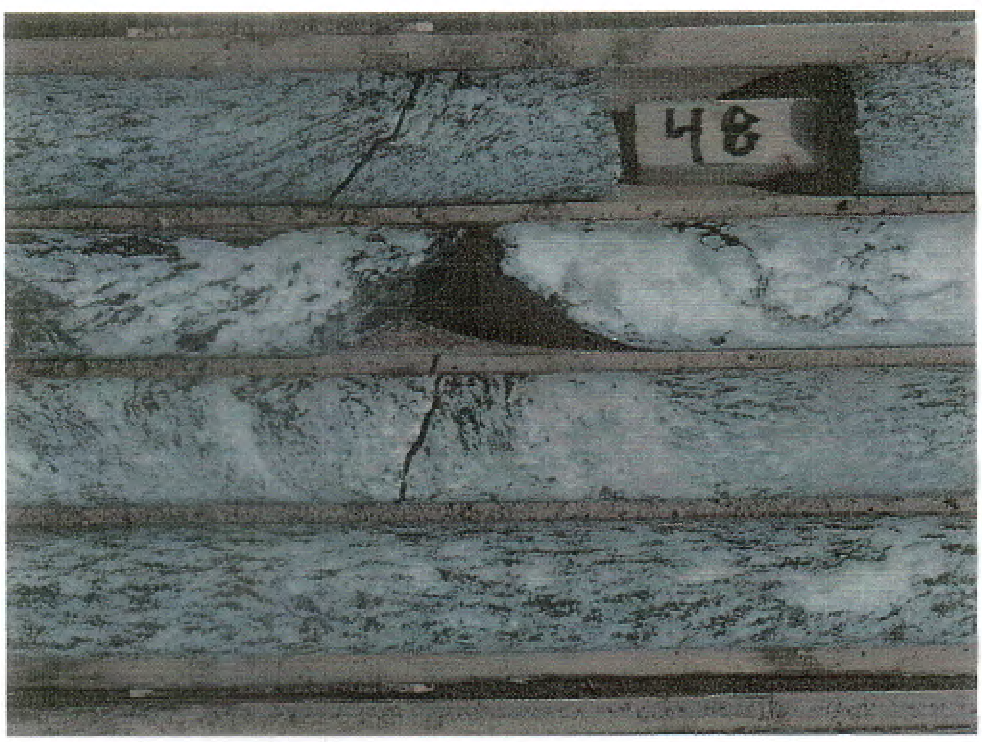


Figure 36. (H2-3). Fine-grained, well foliated and moderately well layered quartzofeldspathic gneiss, with abundant pyrrhotite and subordinate pyrite in close association with dark green amphibole and rare garnet and magnetite; 86 to 99 metres, hole DDHBQ02.

The interval between 99 and 153 metres consists of weakly to moderately well-foliated, nonmagnetic biotite granodiorite or tonalite, with local cm- to dcm-scale layer-parallel granite or granite (to tonalite(?), see Appendix VIII) pegmatite injections. The interval from 153 to 167 metres consists of "mixed gneiss," with dcm- to metre-scale layers of biotite garnet amphibolite (amphibole greater than or equal to 20%, garnet ranging from 10 to 35%, and biotite typically in the 5-10% range) and garnet- and amphibole-bearing biotite quartzofeldspathic gneiss that contains essentially the same mineralogy, but typically with a lower total abundance of garnet and amphibole than the amphibolitic rocks. Both lithologies typically contain sulphide mineralization, principally as disseminations, but locally as discontinuous layers and amounting to 1-3% in total. Magnetite is also commonly present as patches or blebs and disseminations, and ranges in abundance from trace up to as much as 8%.

From 167 metres, to the end of the hole at 195 metres, consists of (hornblende) biotite tonalite/granodiorite. It is weakly to moderately well-foliated and fine- to medium-grained, with 5-10% total mafic minerals. It is intruded by several dcm- to metre-scale granite pegmatites and contains local dcm-scale amphibolitic layers; the granitoid rocks are not highly mineralized.

12.2.3 DDHBQ03

Diamond drillhole DDHBQ03 was drilled northeasterly at -50 degrees for a total length of 363 metres (figs. 33 and 37). Like drillholes DDHBQ02 (to the southwest) and DDHBQ04 (to the northeast), it targeted the northern part of the South Twin magnetic anomaly. The total depth of the hole was 362.89 metres, making it both the deepest, and, from an exploration standpoint, the most intriguing, on the property. This hole contained both abundant disseminated, semi-massive, and local massive sulphide within paragneiss and locally within orthogneiss, but also common

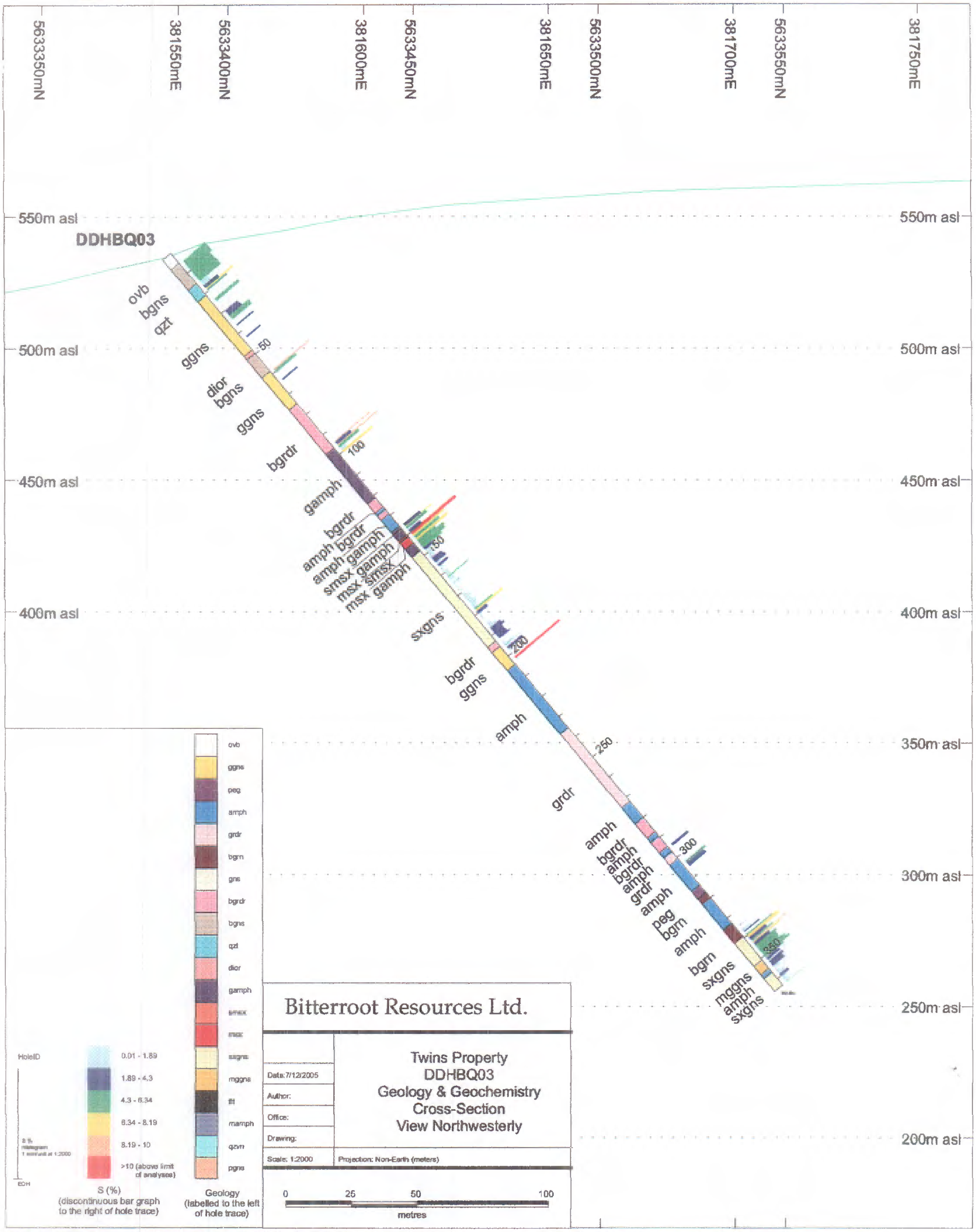


Figure 37. Cross section, diamond drillhole DDHBQ03, Twins property, South Twin anomaly.

amphibolitized ultramafic as well as mafic rocks, including amphibolitic rocks of probable high-Mg ultramafic protolith. The latter rocks are characterized by an abundance of pale-coloured amphibole and very high colour indices. Like most of the holes drilled to the northeast or southwest, the foliation to core axis angles in this hole generally suggest that the holes were drilled at more or less at high angles to the foliation.

The uppermost part of hole BQ03 penetrated approximately 5 metres of overburden and was collared in garnet amphibole biotite quartzofeldspathic gneiss, which near the surface is cut and hydrothermally-altered by post-metamorphic calcite-quartz-pyrite (pyrrhotite) veins and vein-breccias, locally carrying up to 10% pyrite. Unfortunately the veins carry little in the way of precious metals. Paragneissic rocks are more or less continuous downhole to approximately 75 metres; they generally contain finely disseminated pre-metamorphic pyrrhotite and pyrite mineralization, which averages approximately 1%. The quartzofeldspathic gneiss in this upper part of the hole includes one three metre interval of amphibolite with a low colour index.

Medium-grained, moderately foliated biotite granodiorite orthogneiss occurs from approximately 75 to 97 metres downhole. Like the paragneiss uphole, the orthogneiss is commonly mineralized with disseminated pyrrhotite and pyrite, and heavy disseminations and local semi-massive pyrrhotite and subordinate pyrite (plus rare chalcopyrite) also occur; in one place, semi-massive sulphides occur across a core length of approximately 35 cm.

Granodioritic orthogneiss is followed downhole by amphibolite, from approximately 97 to 147 metres. The amphibolite also contains local heavily disseminated to semi-massive pyrrhotite and subordinate pyrite, and is punctuated by several 1-5 metre thick layers or bodies of granodioritic orthogneiss. The amphibolite is characterized by the presence of garnet and biotite, and in general the colour index and percentage of contained mafic minerals is higher than in the amphibolite layer encountered near the top of the hole (>50, up to 80, vs. <50), and it increases downhole toward what appears to be a gradational contact with more paragneisses (garnet magnetic biotite amphibole quartzofeldspathic gneiss). The amphibolite contains common pyrrhotite, subordinate pyrite, and rare chalcopyrite, chiefly as disseminations, but also as semi-massive and locally massive sulphides, including one impressive interval of nearly three metres thickness. The sulphides here and elsewhere in this hole clearly explain the good conductors and coincident magnetic high outlined by the airborne and ground geophysical surveys.

Paragneiss once again predominates between 147 and 204 metres. Although generally more leucocratic than the amphibolites, it is commonly interlayered with decimetre- to metre-scale amphibolite layers, as well as with layers of granodioritic and granitic orthogneiss (e.g., fig. 38 (H3-1)). The paragneiss is fine- to medium-grained and consistently mineralized–it contains common disseminations of pyrrhotite and subordinate pyrite, as well as disseminations and blebs of magnetite, locally to as much as 15-20%. In general, sulphides appear to show a preference for centimetre-scale layers enriched in amphibole and garnet (figs. 39-40 (H3-2 and H3-3)). Even the granitic layers within this section contain disseminations and blebs of sulphides and magnetite.

Downhole of the second broad interval of paragneiss are amphibolites that are characterized by common coarse-grained pale to very pale coloured amphibole (Mg-amphibole?), at least locally forming pseudomorphs after pyroxene (fig. 41 (H3-4)). The high Mg content suggests that the amphibole may be replacing Mg-rich orthopyroxene and perhaps olivine. The lowermost 15-16 metres of this interval includes, on average, 15% feldspar, although the feldspar content ranges from 0 to 50% (figs. 42-43 (H3-5 and H3-6)). This suggests that the rocks may represent amphibolitized feldspathic pyroxenites, or locally, gabbros. These rocks show some evidence for

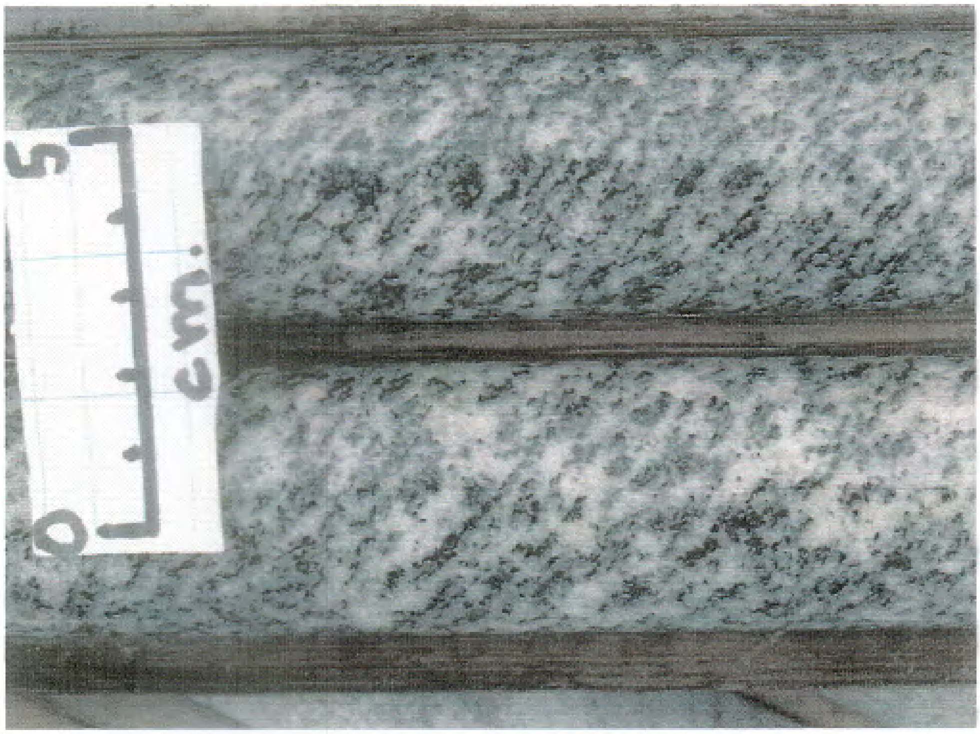


Figure 38 (H3-1). Biotite granodiorite gneiss; 193-194 metres, DDHBQ03.

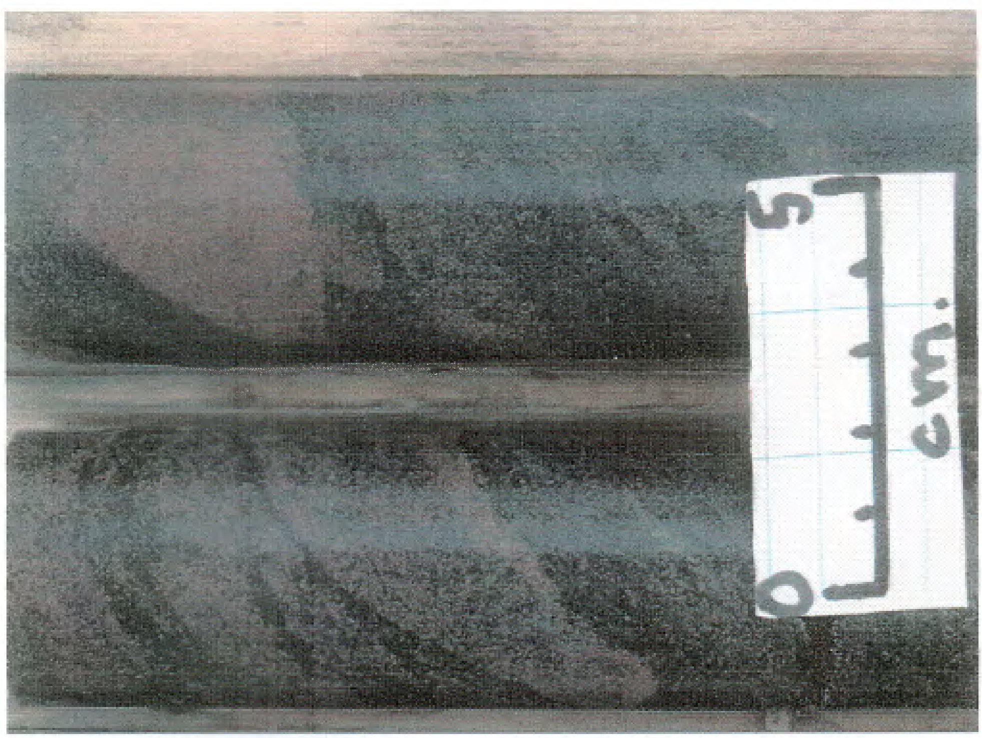


Figure 39 (H3-2). Relatively garnet- and amphibole-rich rocks, which also bear fine-grained disseminated pyrrhotite, pyrite, and magnetite; from within interval of garnet biotite amphibole quartzofeldspathic gneiss: approximately 195 metres, DDHBQ03.

Figure 40 (H3-3). Pyrrhotite-, pyrite-, and amphibole-rich magnetite garnet biotite amphibole quatzofeldspathic gneiss; approximately 194-195 metres, DDHBQ03.

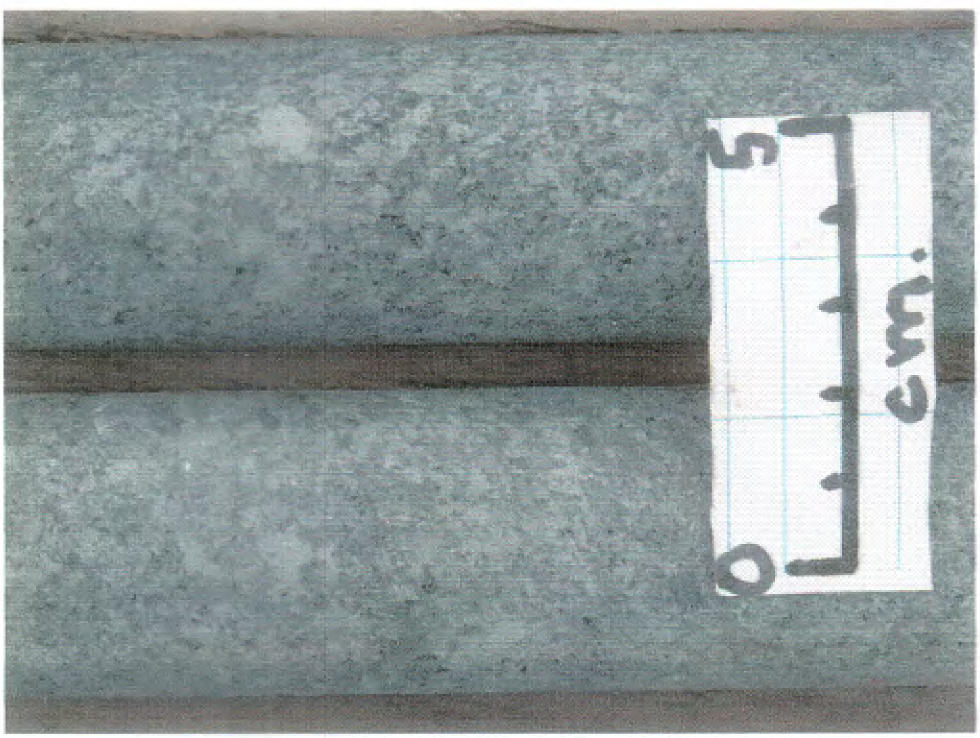


Figure 41 (H3-4). Weakly foliated pale green coloured (biotite) amphibolite; equant habit of amphibole suggests that it pseudomorps in what was most likely originally a pyroxenite; 203-204 metres, DDHBQ03.

Figure 42 (H3-5). Variably foliated (biotite) amphibolites, 222-224 metres, DDHBQ03; amphibole pseudomorphs pyroxene in what were most likely feldpsathic pyroxenites (bottom), pyroxenites, and more well-foliated peridotites (top).

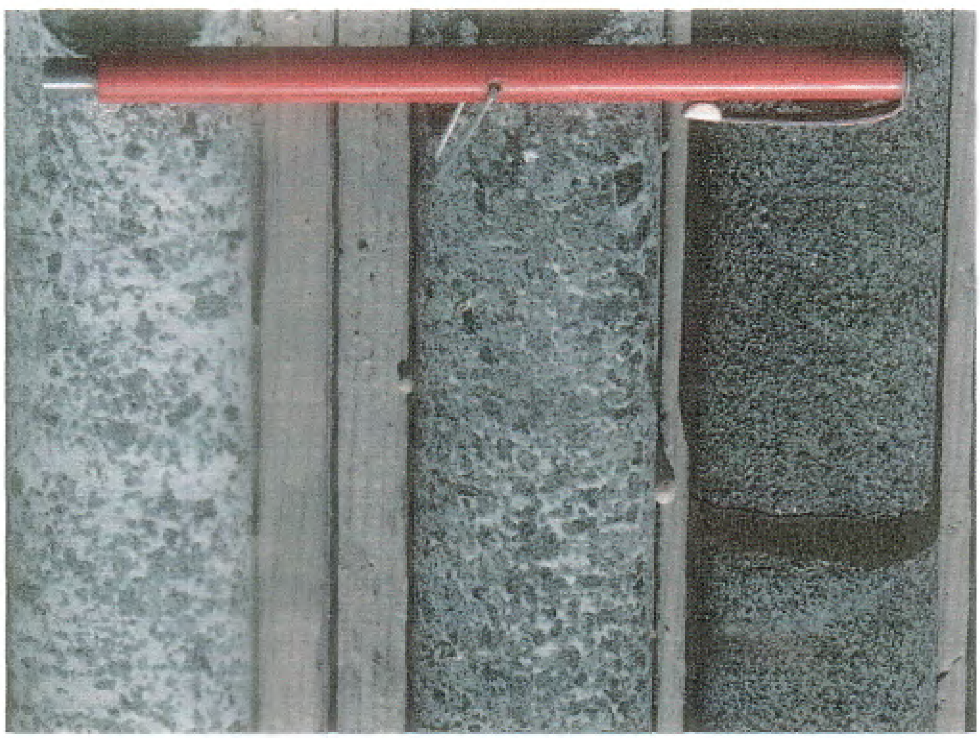


Figure 43 (H3-6). Detail of variably foliated (biotite) amphibolites, 222-224 metres, DDHBQ03; amphibole pseudomorphs pyroxene in what were most likely feldpsathic pyroxenites (bottom) and pyroxenites (top).

relict layering. Unfortunately, the meta-ultramafic rocks do not contain appreciable amounts of sulphides.

From 235 to 272 metres, the hole intersected more fine- to medium-grained, moderately well foliated granodiorite gneiss, and from 272 to 280 metres, biotite amphibolite or amphibolite gneiss, which grades down-hole from relatively mafic-rich (80% ferromagnesian minerals) to relatively mafic-poor, was intersected. Contact relations suggest that the granodiorite intrudes the amphibolitic rocks.

From 280 to 300 metres biotite amphibolite and granodiorite, both well foliated, are interlayered on the metre-scale; amphibolitic rocks generally have low colour indices relative to amphibolitic rocks both uphole (204-235 metres), and downhole (300-313 and 319-332 metres). The biotite amphibolite between 300 and 313 metres is similar to that encountered between 204 and 235 metres, although the rocks are distinguished by their relatively abundant heavily disseminated sulphides, which unfortunately do not yield any significant base or precious metals values. The amphibolites again are characterized by the local presence of pale coloured amphibole (Mg-amphibole?), which at least locally forms pseudomorphs after pyroxene.

Between 313 and 319 metres, biotite granite and subordinate amphibolite (as decimetre-scale septa) was intersected. The pegmatite is clearly discordant to the amphibolitic rocks, although it is also locally well foliated, and in places bears a protomylonitic fabric, which suggests that it, like the majority of the rocks on the property, was ductilely strained during the regional deformational event.

Like the preceding interval of amphibolite, biotite amphibolite encountered between 319 and 332 metres is relatively rich in mafic minerals, but in this instance, almost the entire interval has a colour index approaching 100. The rocks are also characterized by the presence of very coarse-grained, poikiloblastic/poikilitic grains of locally serpentinized(?) pale coloured amphibole, perhaps of the cummingtonite/anthophyllite series (figs. 44-45 (H3-7 and H3-8)). The rocks are strongly magnetic, with magnetite possibly generated during serpentinization. The succeeding interval, between 332 and 339 metres, consists of granite or granodiorite gneiss. The orthogneiss is fine- to medium-grained, with common and locally abundant (up to 15% over 0.4 m) disseminated pyrrhotite, subordinate pyrite, and rare chalcopyrite; the mineralization occurs within both the orthogneiss and within local pegmatite bodies intruding it (e.g., figs. 46-47 (H3-9 and H3-10)).

From 339 metres to the end of the hole at 363 metres, and with the exception of one several metre thick intersection of amphibolite (fig. 48 (H3-11)), more quartzofeldspathic gneiss was intersected. The gneiss is texturally and mineralogically quite variable (figs. 49-53 (H3-12 to H3-16)), and includes one particularly sulphide- and magnetite-rich section, between 348 and 351 metres (figs. 54-59 (H3-17 to H3-22)).

12.2.4 DDHBQ04

Diamond drillhole BQ04 was drilled northeasterly at minus 50 degrees, to a total depth of 179 metres (fig. 60). It targeted the northern part of the South Twin magnetic anomaly, along with drillholes DDHBQ02 and DDHBQ03, which are along section to the southwest (fig. 33).

Overburden at the collar of this hole reached a depth of approximately 2.5 metres, followed by approximately 2 metres of amphibolite with a colour index of approximately 40-50. This is followed by a section of granitoid rocks consisting largely of granodiorite or tonalite intruded by ubiquitous apophyses of pink granite, commonly with indistinct contacts (fig. 61 (H4-1)), down to a downhole depth of 39 metres. The interval from 39 to approximately 45 metres consists of fine- to medium-grained, dark green coloured (CI 50-60) biotite amphibolite with a weakly developed

Figure 44 (H3-7). Nonfoliated coarse-grained amphibolite, 330-331 metres, DDHBQ03; very coarse-grained, crystallographically continuous amphiboles may be pseudomorphs after poikilitic pyroxene.

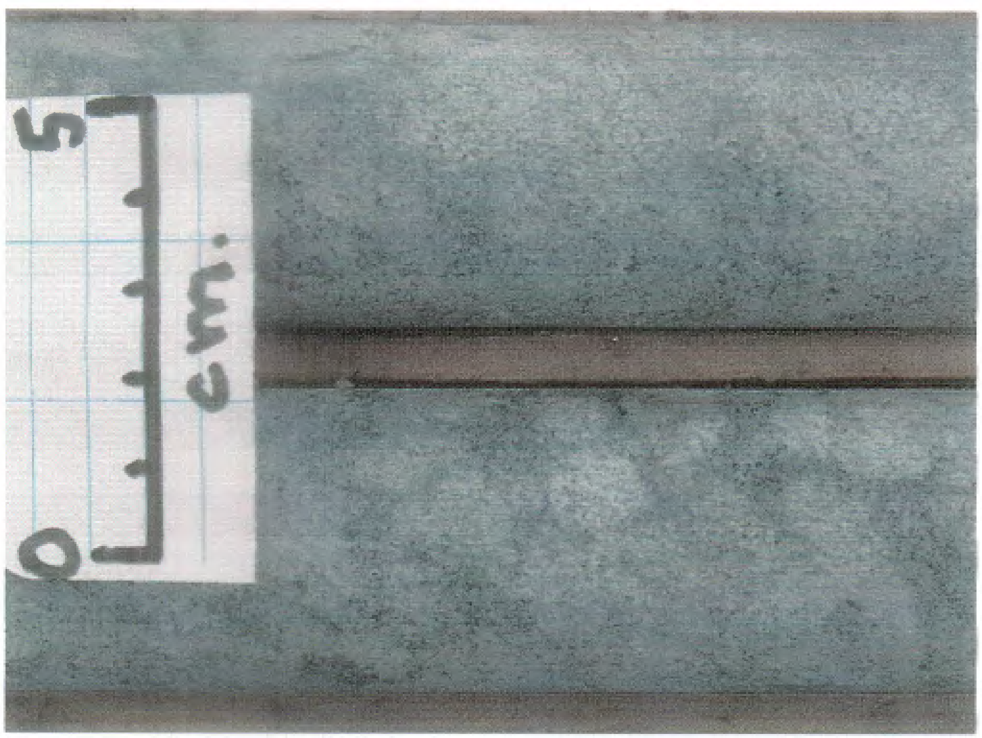


Figure 45 (H3-8). Nonfoliated amphibolite, 330-331 metres, DDHBQ03; pale coloured parts of mottled pale- to medium-green rocks represent crystallographically continuous amphibole which may be pseudomorphing poikilitic pyroxene.

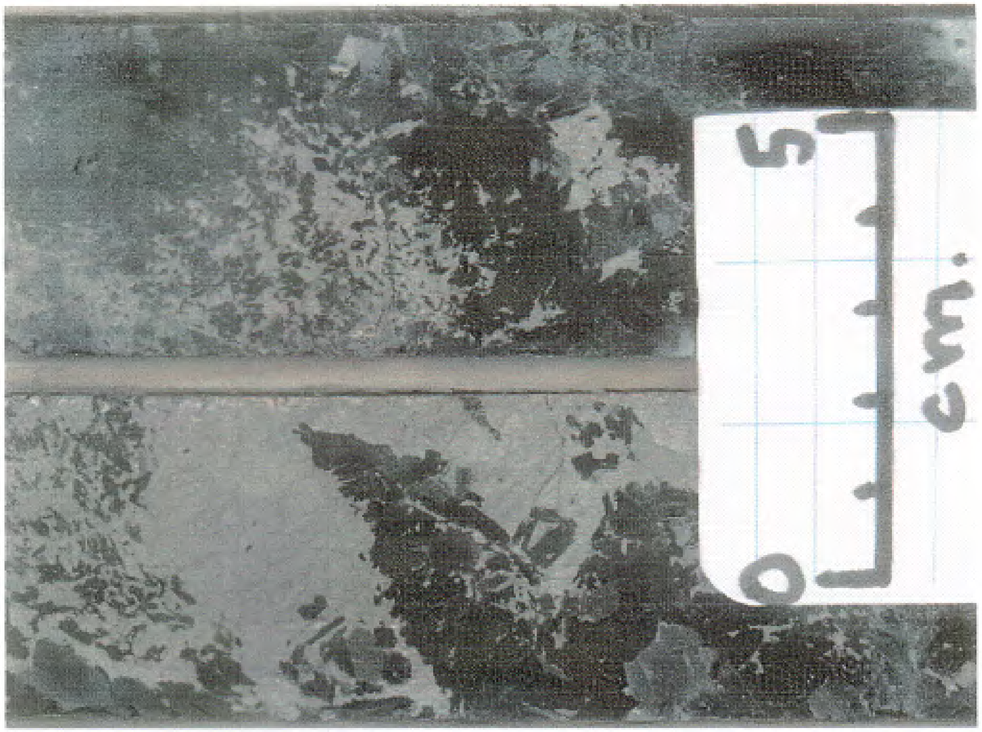


Figure 46 (H3-9). Biotite-pyrrhotite part of biotite granite pegmatite; approximately 337 metres, DDHBQ03.

Figure 47 (H3-10). Biotite-rich part of pyrrhotite (pyrite) biotite granite pegmatite; approximately 337 metres, DDHBQ03; note specks of chalcopyrite in upper part of slabbed core; core is 4 cm across in short direction.

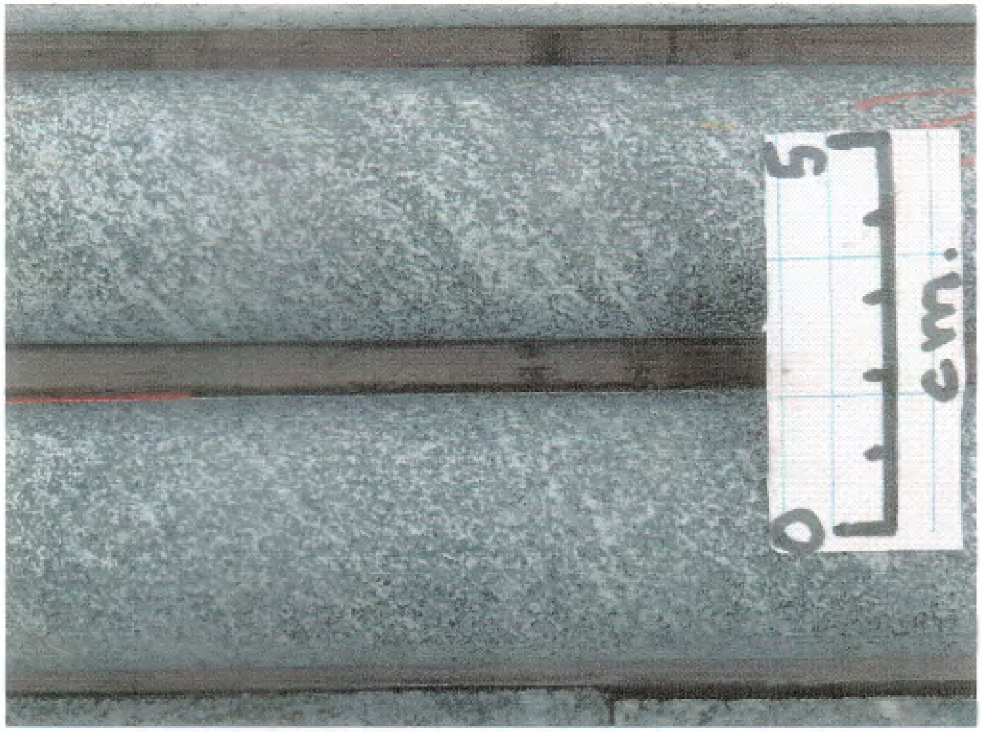


Figure 48 (H3-11). Medium-grained equigranular amphibolite; 356 metres, DDHBQ03.

Figure 49 (H3-12). Biotite magnetite garnet quartzofeldspathic gneiss, 359-360 metres, DDHBQ03; core is 4 cm across in short direction.

Figure 52 (H3-15). Slabbed pyrite garnet magnetite biotite quartzofeldspathic gneiss, 359-360 metres, DDHBQ03.

Figure 53 (H3-16). Slabbed pyrite garnet magnetite biotite quartzofeldspathic gneiss, 359-360 metres, DDHBQ03.

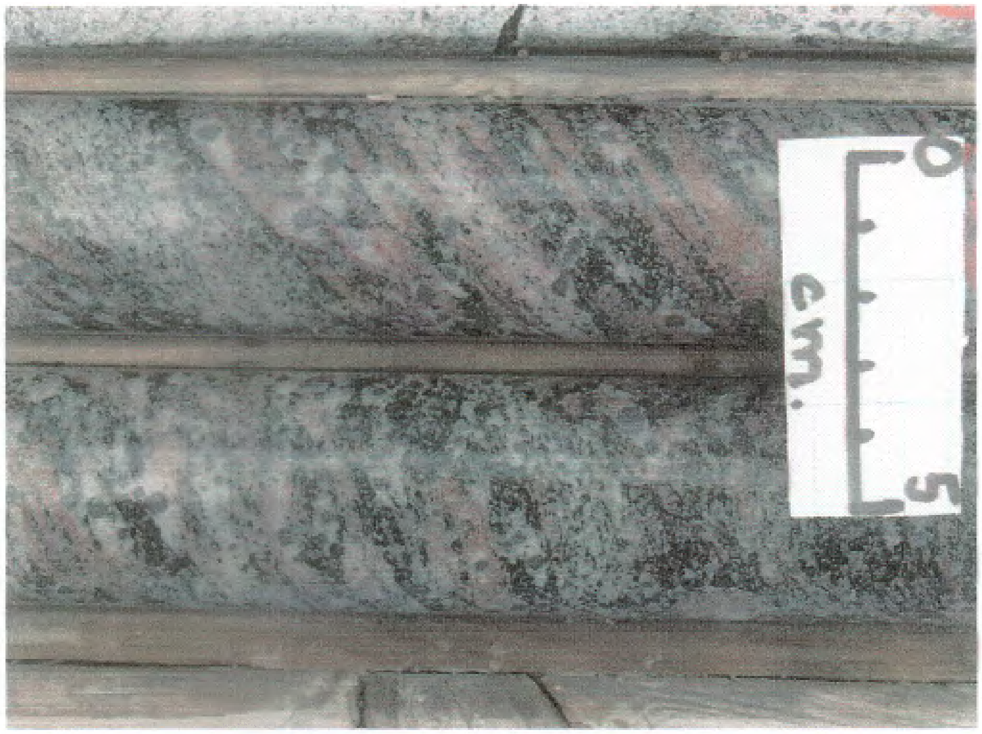


Figure 50 (H3-13). Biotite magnetite garnet quartzofeldspathic gneiss, 359-360 metres, DDHBQ03 (same as fig. H3-19, except wet; core is 4 cm across in short direction).

Figure 51 (H3-14). Pyritic magnetite biotite garnet biotite quartzofeldspathic gneiss, 359-360 metres, DDHBQ03.

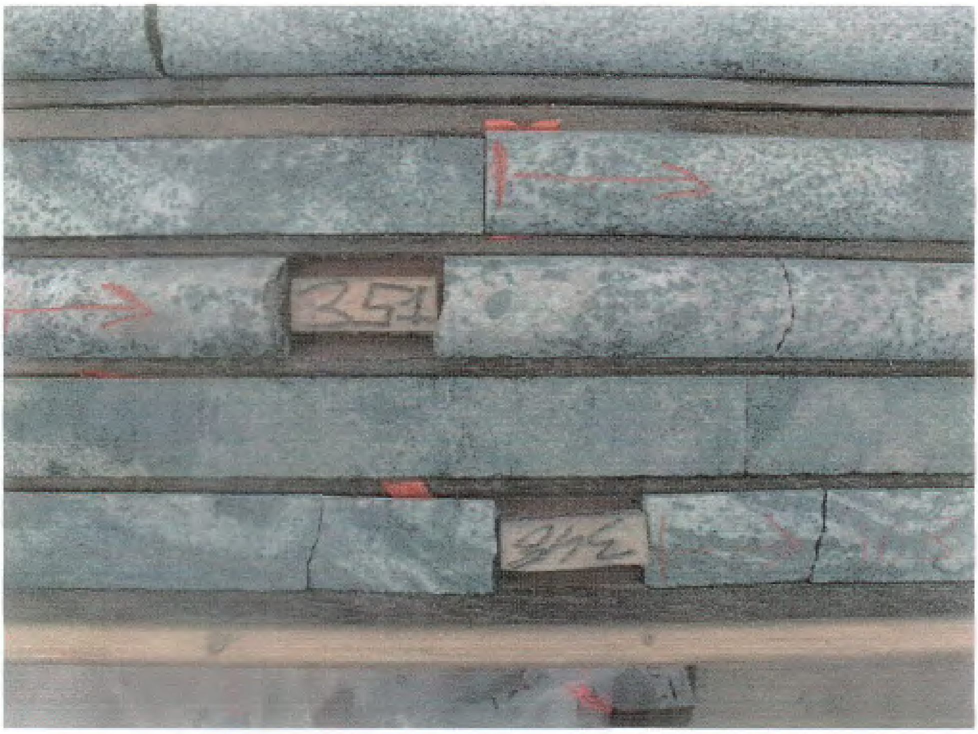


Figure 54 (H3-17). Mineralogically and texturally variable, relatively sulphide-rich section section within quartzofeldspathic gneiss, 348-351 metres, DDHBQ03.

Figure 55 (H3-18). Well-layered pyrite- and garnet-rich quartzofeldspathic gneiss, 348-351 metres, DDHBQ03; core is 4 cm across in short direction.

Figure 56 (H3-19). Non-foliated magnetite- and pyrite-rich part of relatively sulphide-rich section of quartzofeldspathic gneiss, 348-351 metres, DDHBQ03; core is 4 cm across in short direction.

Figure 57 (H3-20). Well-layered pyrite-rich (plus magnetite) part of relatively sulphide-rich section of quartzofeldspathic gneiss, 348-351 metres, DDHBQ03; core is 4 cm across in short direction.

Figure 58 (H3-21). Amphibole- and pyrrhotite-rich part of relatively sulphide-rich section of quartzofeldspathic gneiss, 348-351 metres, DDHBQ03; wet, note scattered garnet and blebs of magnetite; core is 4 cm across in short direction.

Figure 59 (H3-22). Amphibole- and pyrrhotite-rich part of relatively sulphide-rich section of quartzofeldspathic gneiss, 348-351 metres, DDHBQ03; dry; core is 4 cm across in short direction.

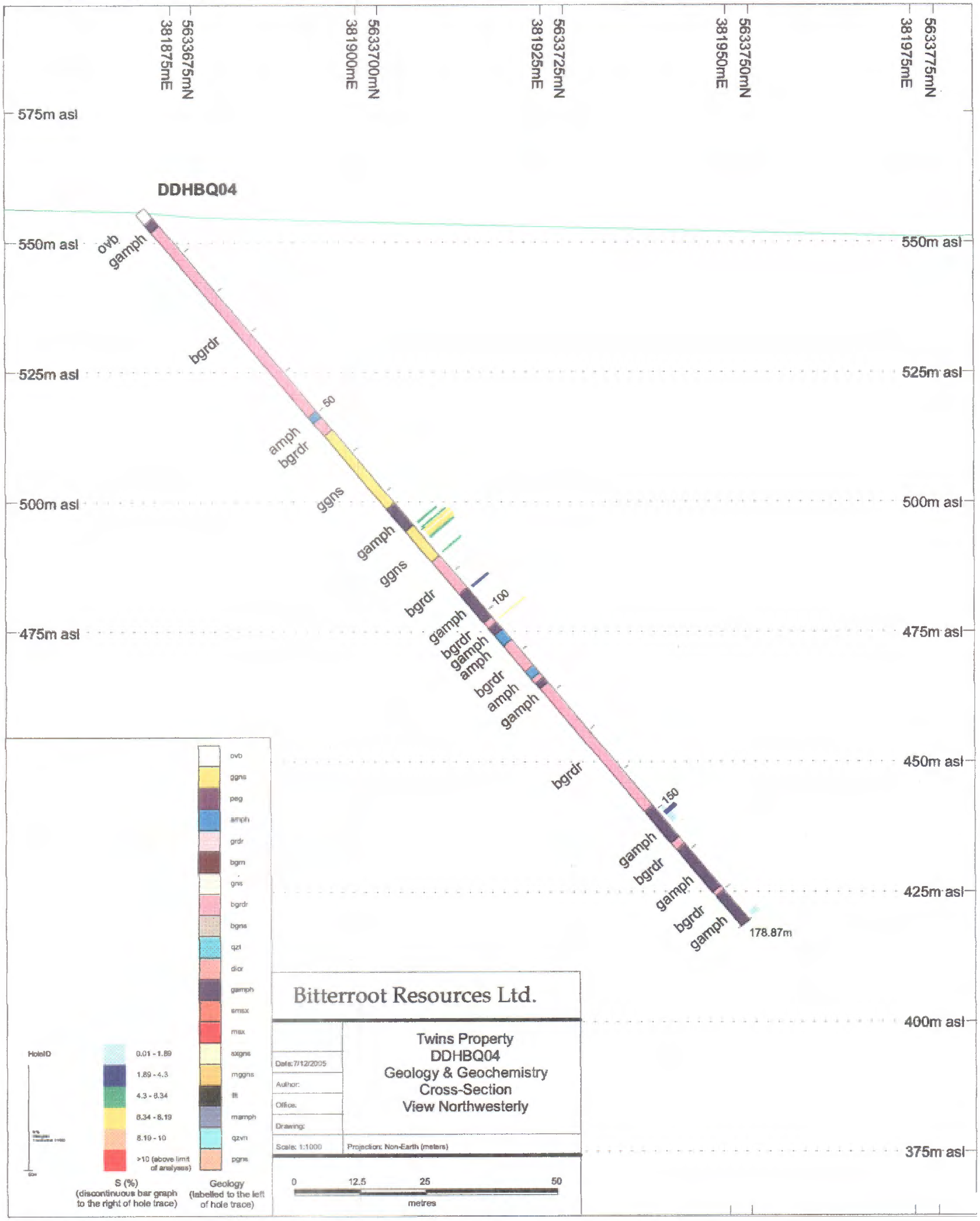


Figure 60. Cross section, diamond drillhole DDHBQ04, Twins property, South Twin anomaly.

Figure 61 (H4-1). Fractured granodiorite gneiss intruded by apophyses of pink granite; upper part of DDHBQ04.

Figure 62 (H4-2). Fine- to medium-grained, dark green biotite amphibolite with a weakly developed foliation and weak magnetic character; 45-50 metres, DDHBQ04.

foliation and weak magnetic character (fig. 62 (H4-2)). Following a 5 metre interval of biotite granodiorite gneiss, a 1-2 metre interval of light- to medium-green amphibolite is encountered which locally has a relatively high colour index (CI 70-80; fig. 63 (H4-3)). It consists largely of medium- to coarse-grained amphibole (cummingtonite-anthopyllite-tremolite group?) which appears in several places to be pseudomorphing pyroxene. Following another several metre thick interval of granitoid rocks, a broad interval of garnet biotite quartzofeldspathic gneiss is intersected between 55 and 74 metres. Another amphibolite was intersected between 74 and 79 metres before a relatively sulphide-rich interval of quartzofeldspathic gneiss was intersected between 79 and 87 metres. Several decimetre-thick layers of semi-massive sulphide 20-30% pyrrhotite, subordinate pyrite, and rare chalcopyrite) were encountered in this interval.

The part of the hole between 87 and 119 metres is characterized by alternating metre-scale (1 to 8 metre thick) layers of biotite granodiorite/tonalite and (garnet) biotite amphibolite, with local semi-massive sulphides hosted by the amphibolites, which may reach colour indices as high as 90. Between 119 and 150 metres is an intersection of foliated to gneissic tonalite or granodiorite, and downhole of that, to the end of the hole at 179 metres, several 1-5 metre thick bodies of biotite granodiorite/tonalite gneiss are found within biotite amphibolite, which generally bears disseminated sulphides totalling between 1 and 4% of the rock. The high colour index (50-80) and local evidence for pseudomorphing of medium- to coarse-grained pyroxene by amphibole suggest that the protolith was phaneritic and mafic to ultramafic--perhaps a gabbro or feldspathic pyroxenite (fig. 64 (H4-4)).

Figure 63 (H4-3). Well-layered amphibolite intruded by local (upper row) leucocratic granitoid rocks; 50-52 metres, DDHBQ04.

Figure 64 (H4-4). Detail of intrusive contact between dark green amphibolite of probable ultramafic origin and white gneissic granodiorite; from near the bottom of DDHBQ04.

12.2.5 DDHBQ05

Diamond drillhole DDHBQ05 was drilled to the northeast at minus 50 degrees, for a total depth of 223.63 metres (fig. 65). It targeted the coincident conductors and a magnetic high in the central part of the South Twin magnetic anomaly, along with drillhole DDHBQ08 (fig. 66). These two holes were drilled 600 metres along strructural trend to the southeast of the section on which holes BQ02, 03, and 04 were drilled.

The depth to bedrock in this hole was nearly 8 metres. The upper 88 metres of bedrock consisted of biotite quartzofeldspathic gneiss which, while generally mineralized, typically carries less than 5% sulphides. The gneisses also generally contain green amphibole, red garnet, as well as magnetite, the latter in amounts ranging up to 3%. Garnet typically makes up 3-5% and amphibole 5-10% of the rock, although both may range up to 30 or 40%. Biotite commonly comprises 5-10% of the mode and is typically more regularly distributed than garnet or amphibole. Sulphides, which are also a common constituent, include pyrrhotite, subordinate pyrite, rare chalcopyrite, and they occur principally as disseminations and local discontinuous layers. In one intersection, they comprise as much as 10-15% of the rock across a core length of just over a metre.

Amphibolitic rocks were intersected in the interval between 88 and 92 metres downhole. The amphibolites have a colour index of approximately 40-50, are fine-grained and moderately foliated, and possess a weakly developed compostional layering. Garnet, which comprises approximately 10% of the mode, occurs as sub-rounded, mm-scale clusters throughout the amphibolite interval. Biotite also makes up approximately 10% of the mode. Sulphides, predominantly pyrrhotite with subordinate pyrite, make up between 7 and 15% of the mode in this interval, and magnetite ranges from trace to 3%. The amphibolitic rocks are succeeded downhole by another broad intersection of biotite quartzofeldspathic gneiss, from 92 to 128 metres. These

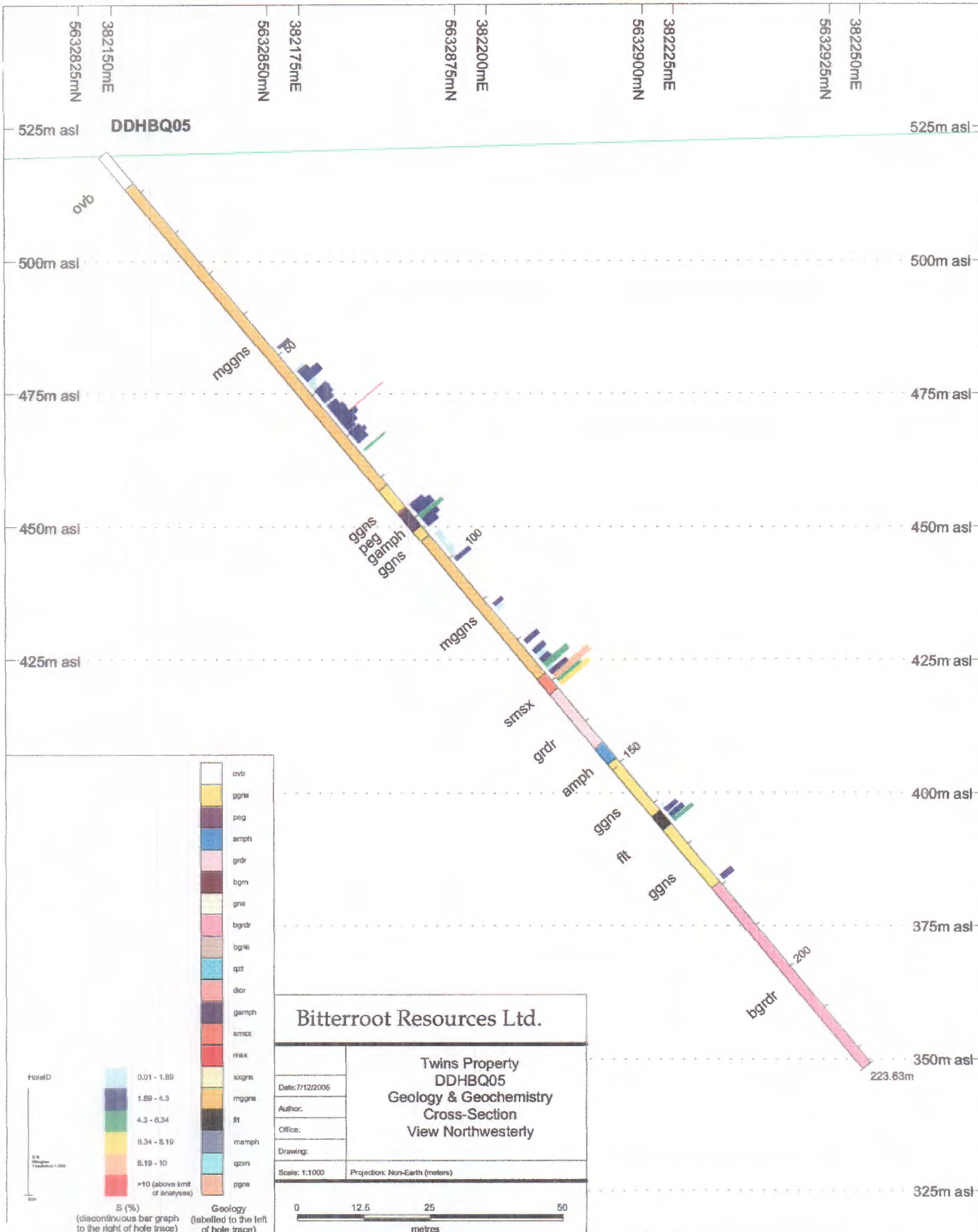


Figure 65. Cross section, diamond drillhole DDHBQ05, Twins property, South Twin anomaly.

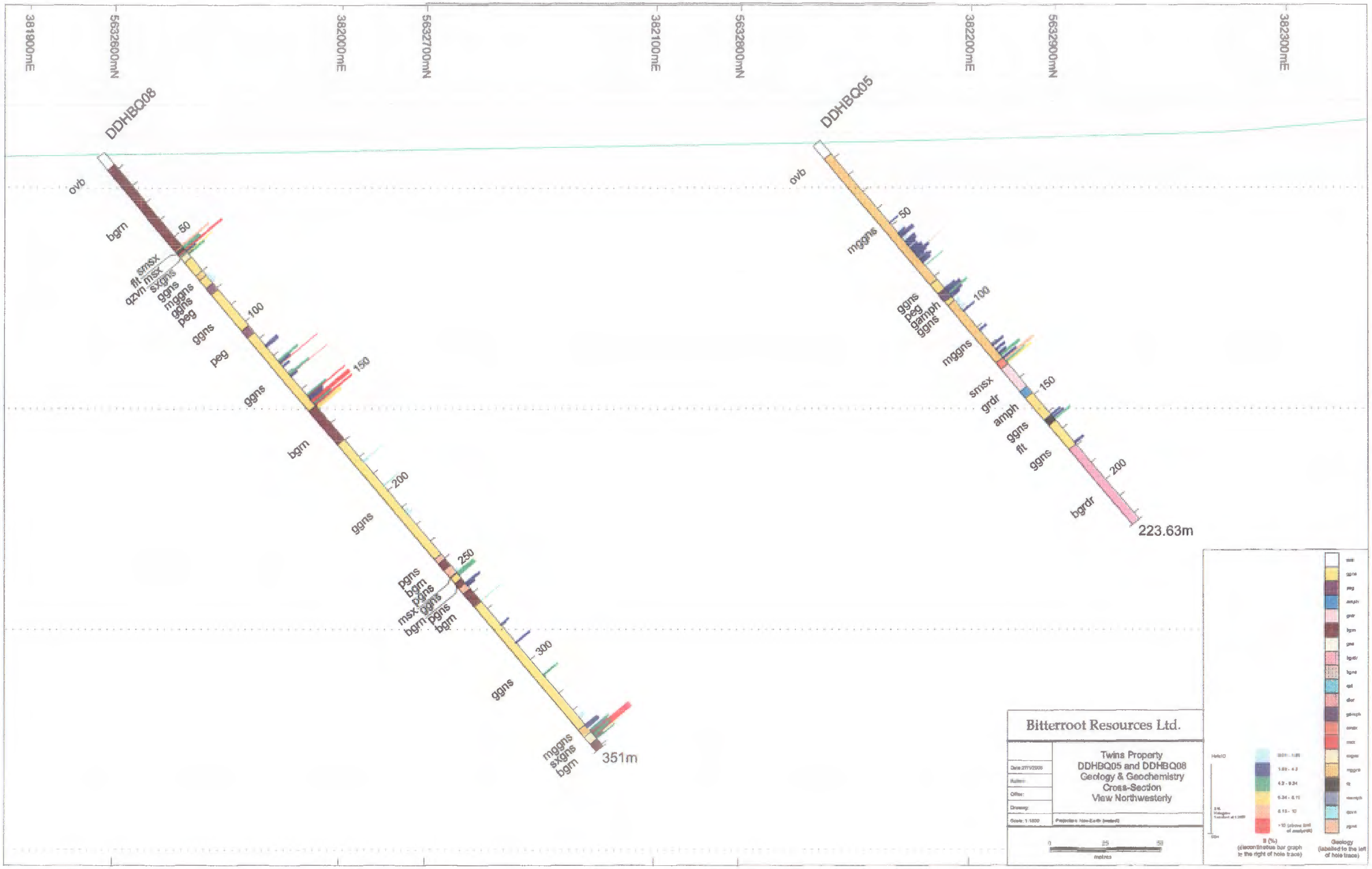


Figure 66. Cross section, diamond drillholes DDHBQ05 and DDHBQ08, Twins property, South Twin anomaly.

rocks are typically fine-grained, but contain common medium- to coarse-grained blebs of magnetite (up to 4%) and aggregates of garnet. Sulphides, which are typically disseminated and comprise 1-3% of the mode, are most common in more amphibole- and garnet- rich intervals and may comprise as much as 20% of the mode (e.g., fig. 67 (H5-1)).

Figure 67. Heavily disseminated pyrrhotite and pyrite within garnet amphibole biotite quartzofeldspathic gneiss; approximately 127 metres, DDHBQ05.

The interval between 128 and 132 metres downhole consists mainly of semi-massive to massive sulphides, hosted by garnet amphibole biotite quartzofeldspathic gneiss (fig. 68 (H5-2)). The paragneiss averages approximately 50% sulphides by volume, and is in contact with a 13 metre interval of fine- to medium-grained well foliated tonalitic or granodioritic gneiss downhole. Amphibolitic rocks are again present on the other side of the granodiorite gneiss. They occur between 145 and 149 metres, are very well foliated, and contain approximately 30% biotite and 20% amphibole. The amphibolitic rocks are followed downhole by another interval of garnet biotite quartzofeldspathic rocks, this time somewhat richer in biotite (typically 20-30%), although both biotite and garnet contents decrease downhole (fig. 69 (H5-3)). Interestingly, the interval between 156.79-156.88 metres in this section contains a minor amount of kyanite (fig. 70 (H5-4)), which suggests that pressures very very high during the regional

Figure 68 (H5-2). Semi-massive to massive sulphides in a host of garnet amphibole biotite quartzofeldspathic gneiss; 128-132 metres, DDHBQ05.

Figure 69 (H5-3). Well-layered, relatively biotite-rich garnet biotite quartzofeldspathic gneiss; 159-162 metres, DDHBQ05.

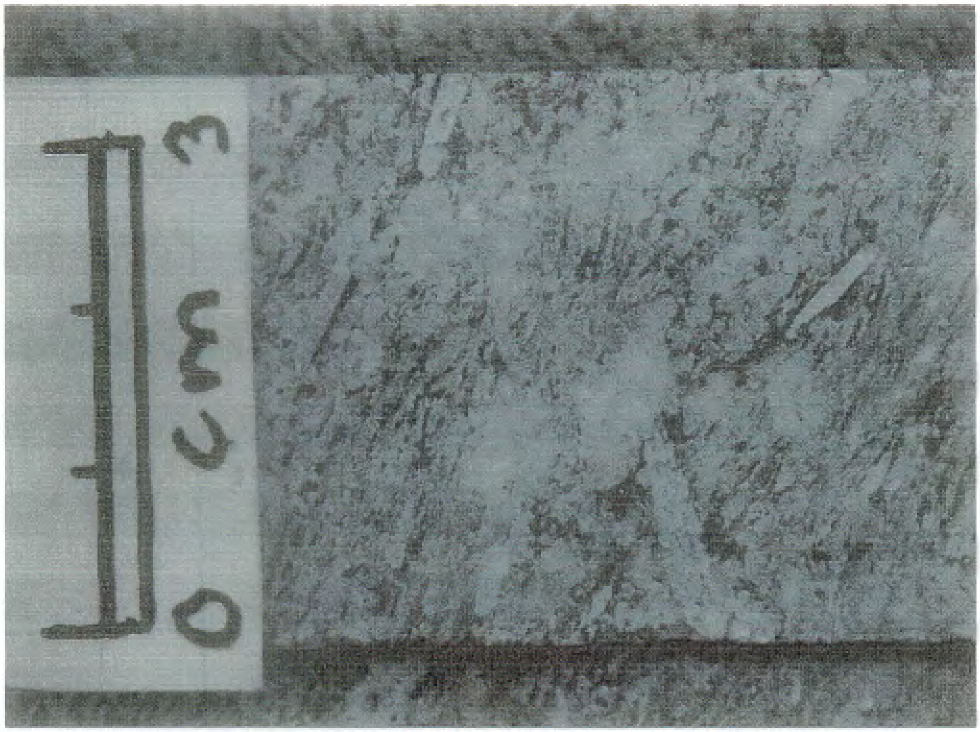


Figure 70 (H5-4). Kyanite-bearing biotite quartzofeldspathic gneiss; 156-157 metres, DDH

Figure 71 (H5-5). Well foliated biotite granodiorite, with local granite and grantie pegmatite; approximately 190 metres, DDHBQ05.

metamorphic event affecting these rocks. Also in this interval of quartzofeldspathic rocks, between 160 and 165 metres downhole, is a sub-interval of broken, veined, and altered rocks, with some gouge, which probably represents a late, brittle fault. The last part of the hole, between 179 and 234 metres, consists of biotite tonalite gneiss that includes local centimetre- to decimetre-scale intervals of granite and, less commonly, granite pegmatite (fig. 71 (H5-5)), as well as local fractures along which the tonalite is coloured pink (potassic alteration?).

12.2.6 DDHBQ06

Diamond drillhole DDHBQ06 was drilled vertically (-90 degrees) for 99 metres on the North Twin anomaly (figs. 13 and 72), which in part underlies a prominent hill west of the Riviere des Montagnes Blanches (fig. 73 (H6-1)). The hole targeted the broad magnetic anomaly that was interpreted to be funnel-shaped mafic intrusion or complexly folded iron formation. No conductors were associated with the anomaly, but ground-truthing found that the anomaly was associated with dark green to black fine- to medium-grained magnetite-bearing ultramafic rocks. A number of exposures on the hill suggested that the ultramafic were intruded by, and interlayered with, granitoid gneisses, and that the magnetic rocks and their hosts may have been folded across a gently north-plunging, open synform.

The North Twin magnetic anomaly is readily explained by the rocks intersected in DDHBQ06. From the bottom of the casing just above 3 metres depth down to 24 metres, strongly magnetic (magnetite) biotite amphibolite was intersected (figs. 74 and 75 (H6-2 and H6-3)). The rocks have a colour index approaching 100, are fine-grained, and consist primarily of biotite (up to 30%), a very vivid green mineral (possibly Cr-diopside?), amphibole (Mg-rich(?), locally as porphyroblasts up to 0.5 cm in diameter), and perhaps a little plagioclase feldspar. Magnetite

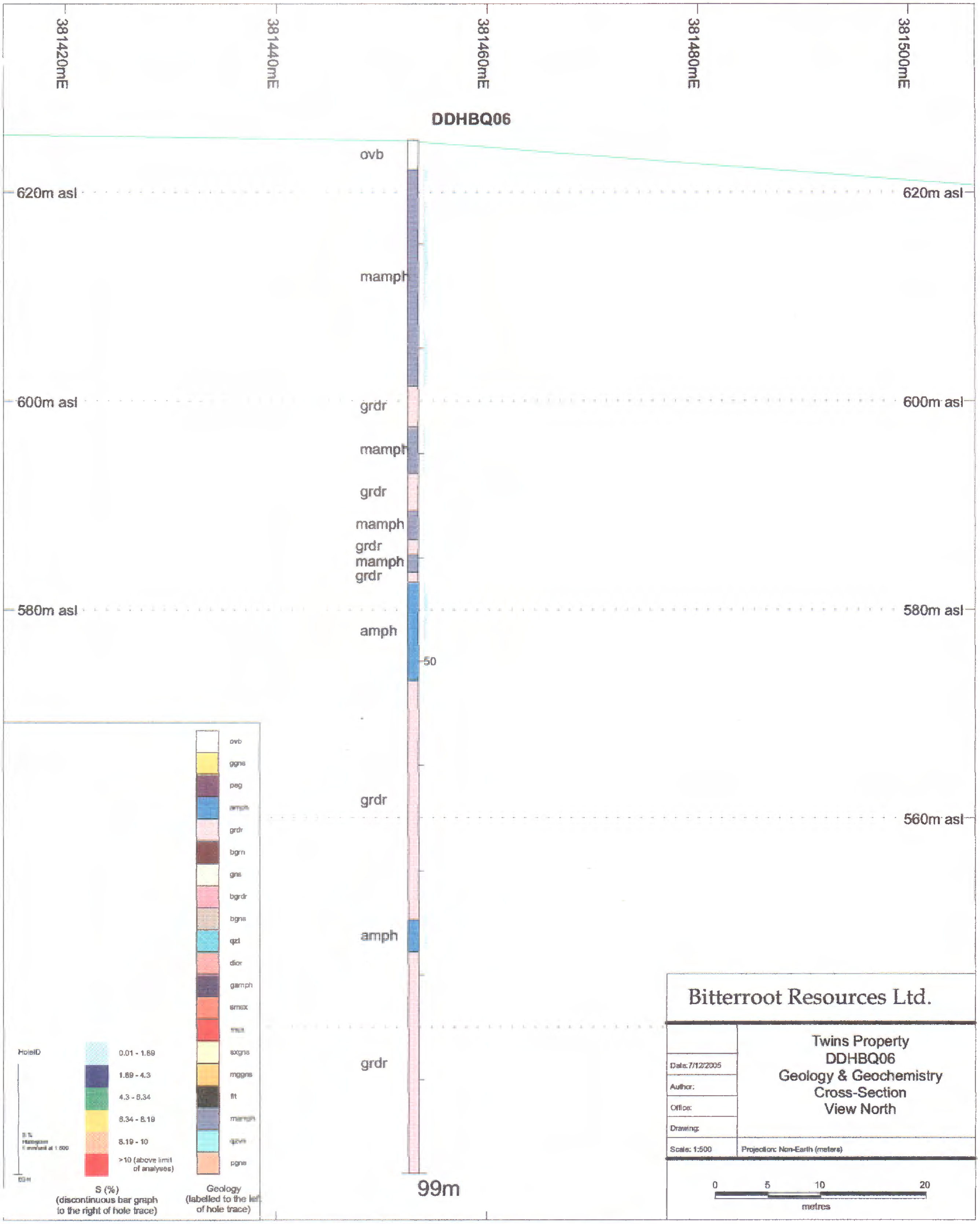


Figure 72. Cross section, diamond drillhole DDHBQ06, Twins property, North Twin anomaly.

Figure 73 (H6-1). View southeast across Riviere des Montagnes Blanches from drill set-up for DDHBQ06.

Figure 74 (H6-2). Magnetite biotite amphibolite typical of upper part of DDHBQ06.

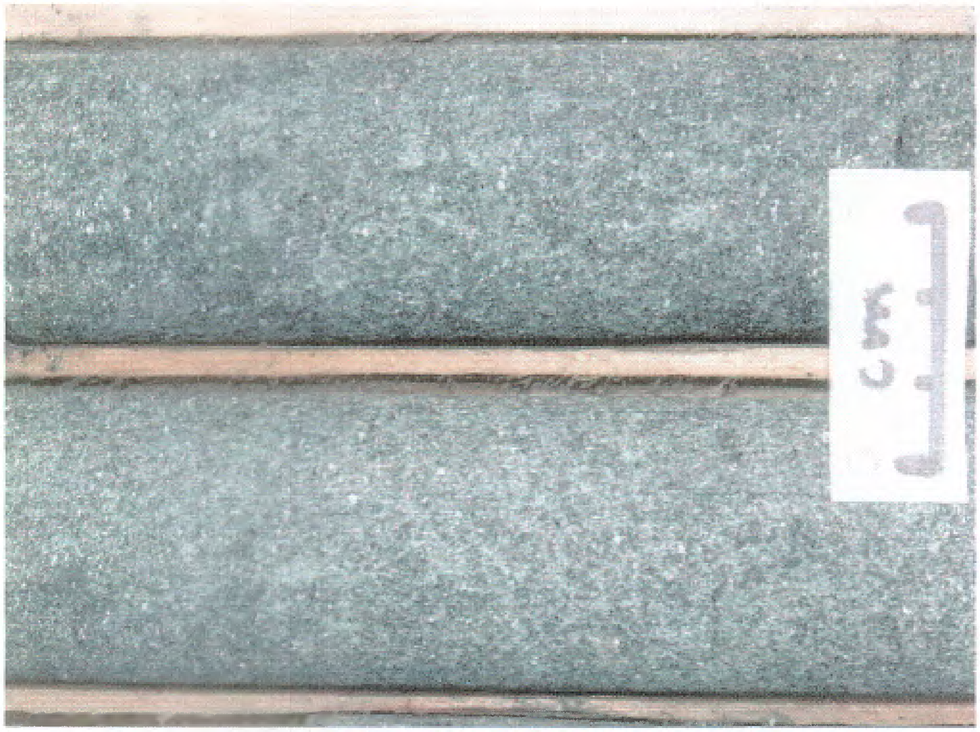


Figure 75 (H6-3). Detail of magnetite biotite amphibolite typical of upper part of DDHBQ06.

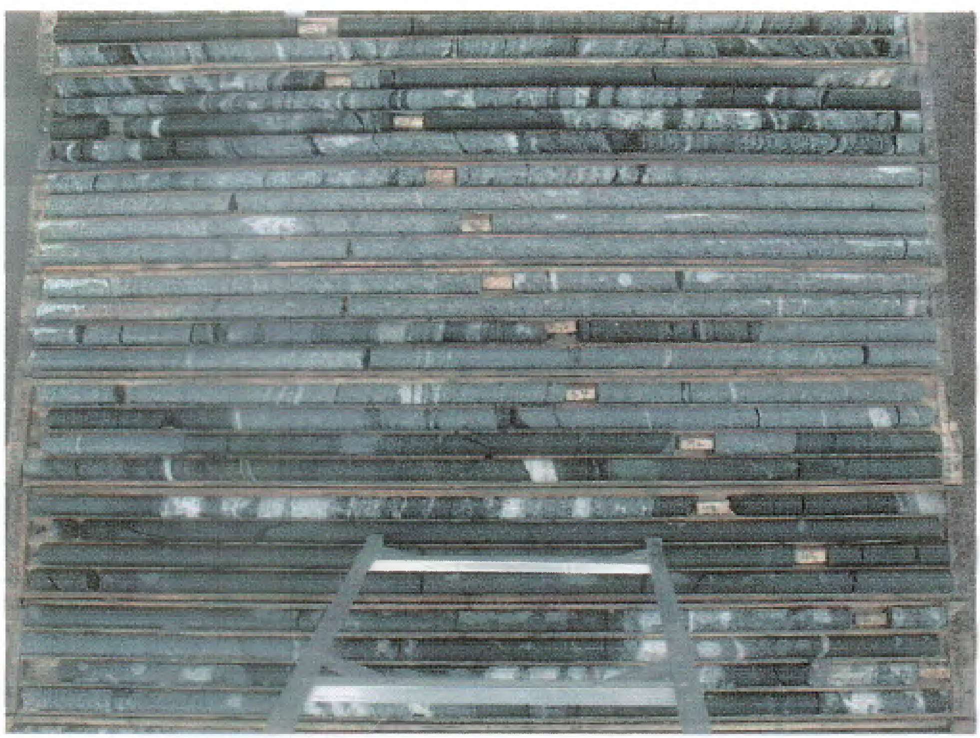


Figure 76 (H6-4). Interlayered magnetite biotite amphibolite and biotite granodiorite gneiss between 39 and 75 metres, DDHBQ06.

content was difficult to determine precisely, but in most of the amphibolites in the upper part of the hole it was approximately 20%. The compositional variations which yield a weakly-expressed layering (50 to 60 degrees to core axis) are related principally to variations in the proportions of biotite and magnetite and the layering is parallel to the moderately well-developed foliation. The rocks locally contain sparsely disseminated pyrite (<<1%) and are interrupted by several centimetre- to decimetre-scale leucocratic layers.

From approximately 24 metres downhole to the end of the hole, amphibolitic rocks, typically with somewhat lower colour indices (i.e., a feldspathic component) and lower abundances of magnetite than in the uppermost part of the hole, are interlayered on the metre- and decimetre-scale with a variety of more leucocratic rocks of probable metaplutonic origin (fig. 76 (H6-4); Appendix VI). All the rocks are generally well foliated, and even the leucocratic rocks typically show evidence of magnetism in hand specimen. Lithologies include biotite amphibole quartz diorite, (biotite) hornblende tonalite or granodiorite, and pegmatite. In several instances, the leucocratic rocks contained inclusions of ultramafic rock. The only mineralization of note other than the magnetite in the hole were a number of intervals with trace disseminated pyrite and one discontinuous, mm-scale, pyrite (+/- chalcopyrite) layer, associated with weakly disseminated pyrite and rare chalcopyrite, between 37 and 38 metres downhole. No significant assays were obtained.

12.2.7 DDHBQ07

Diamond drillhole BQ07 targeted a coincident magnetic and HLEM conductor in the South Twin area, northeast of the main magnetic anomaly and its cluster of conductors. The hole was drilled to the southwest at minus 50 degress for 129 metres (fig. 77).

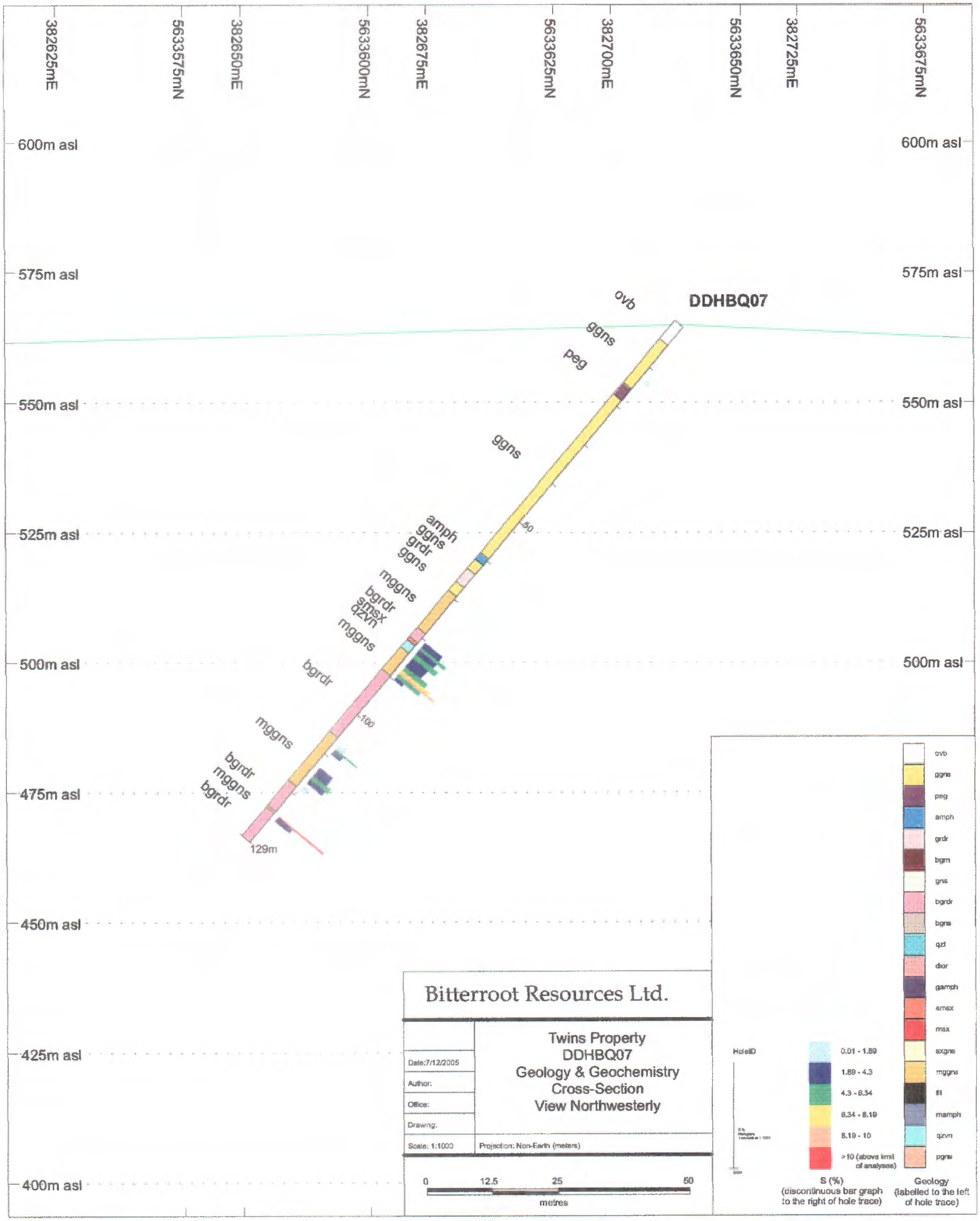


Figure 77. Cross section, diamond drillhole DDHBQ07, Twins property, South Twin anomaly.

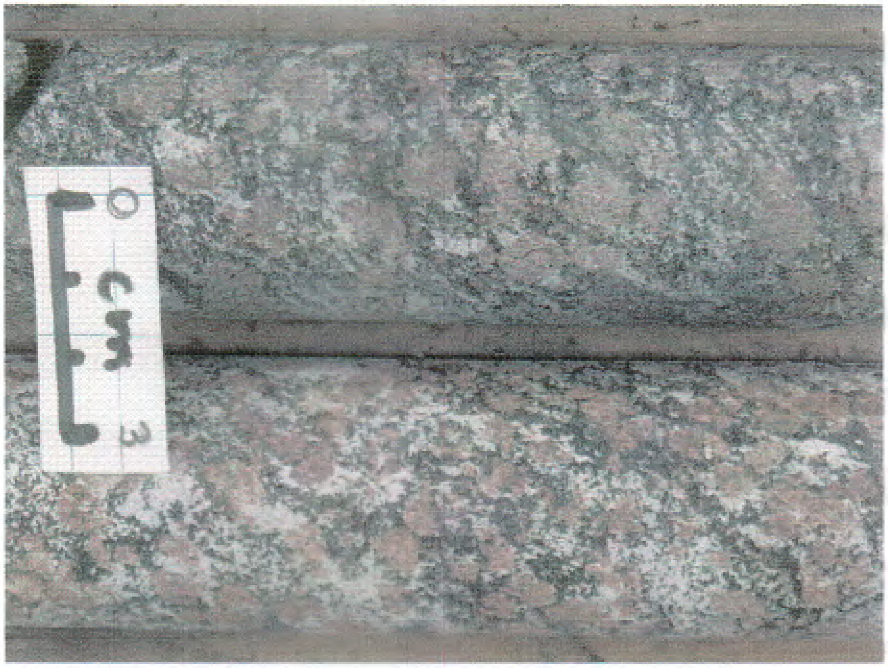


Figure 78 (H7-1). Relatively abundant garnet within (biotite) amphibole quartzofeldspathic gneiss; 75-80 metres, DDHBQ07.

This rocks in this hole consist largely of biotite magnetite amphibole garnet quartzofeldspathic gneiss. The quartzofeldspathic gneiss is typically fine- to medium-grained, and generally displays well developed mm-scale layering. Garnet occurs as mm-scale, subrounded clusters which make up between 5 and 10% of the mode, although it is locally higher (e.g., fig. 78 (H7-1)). Amphibole typically comprises between 20 and 40% of the mode, and biotite between 3 and 10% of the mode. In the first 60 metres of this hole, the gneiss is interrupted by four or five 0.5 to 3 metre thick and many cm-scale granite pegmatites, within which are trace amounts of pyrrhotite and rare chalcopyrite.

From 62 to 65 metres, and again between 66 and 67 metres, the quartzofeldspathic gneiss is intruded by fine- to medium-grained weakly foliated biotite hornblende granodiorite or tonalite containing 15% hornblende and 10% medium- to coarse-grained biotite. The contacts of these bodies are marked by the presence of trace amounts of pyrrhotite, and from these bodies downhole to the end of the hole at 129 metres, where quartzofeldspathic gneiss is layered with biotite granodiorite or granite bodies on the scale of 0.5 to 15 metres, sulphides in both lithologies become more abundant. Hosted within the quartzofeldspathic gneiss are a number of decimetre-scale

Figure 79 (H7-2). Typical mineralogical variation within interval of relatively sulphide-rich quartzofeldspathic paragneiss–note massive pyrrhotite in right-hand piece of core; 80-85 metres, DDHBQ07.

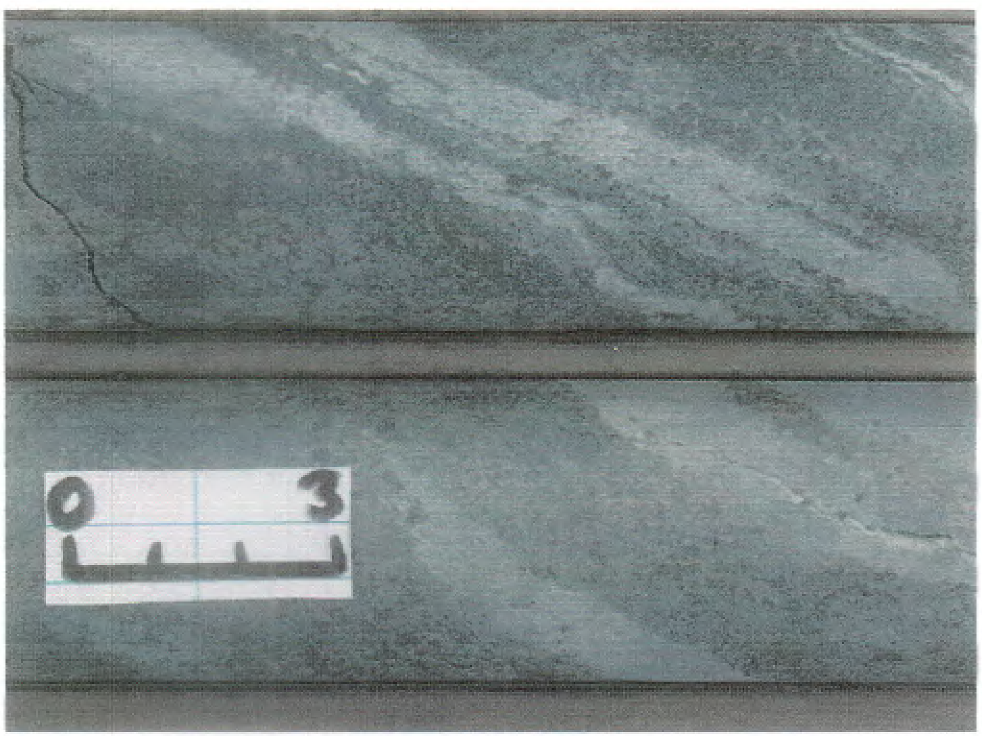


Figure 80 (H7-3). Relatively amphibole- and sulphide-rich paragneiss interlayered with leucocratic quartzofeldspathic layers; DDHBQ07.

intervals of semi-massive sulphides (e.g., 79.15 to 79.80, 85.12 to 85.96, 104.63 to 105.04, and 121.55 to 121.88 metres) and together with immediately surrounding rocks containing heavily disseminated sulphides and magnetite, they can yield intersections such as between 81.70 to 86.72 metres, where relatively sulphide-rich biotite magnetite amphibole garnet quartzofeldspathic gneiss probably averages 15% or more pyrrhotite and subordinate pyrite, as well as approximately 5% magnetite (fig. 79 (H7-2)). In such intervals, the sulphides occur mainly in discontinuous mm-scale, foliation parallel layers that are interlayered with layers richer in silicates, mainly amphibole, garnet, quartz, and feldspar (fig. 80 (H7-3)).

12.2.8 DDHBQ08

Drillhole DDHBQ08, like drillholes DDHBQ02-05, was drilled to the northeast at minus 50 degrees, for a total depth of 351 metres (fig. 81). It targeted the coincident conductors and a magnetic high in the central part of the South Twin magnetic anomaly, along with drillhole DDHBQ05 (fig. 66). These two holes were drilled 600 metres along strructural trend to the southeast of the section on which holes BQ02, 03, and 04 were drilled.

Like drillhole BQ05, the hole consists primarily of fine- to medium-grained, moderately well foliated and layered quartzofeldspathic gneiss that bears variable quantities of biotite, amphibole, garnet, magnetite, and sulphides. The paragneisses have been intruded by several granitoid bodies of mainly tonalitic to granodioritic composition (with local true granite or monzogranite; Appendix VI), which have been ductilely deformed and metamorphosed along with the host paragneiss. There is a suggestion, because of the spatial but very general association between the most abundant sulphides and the contacts of granitoid bodies, that the granitoid rocks were the causative agents in the introduction and/or remobilization(?) of the sulphides.

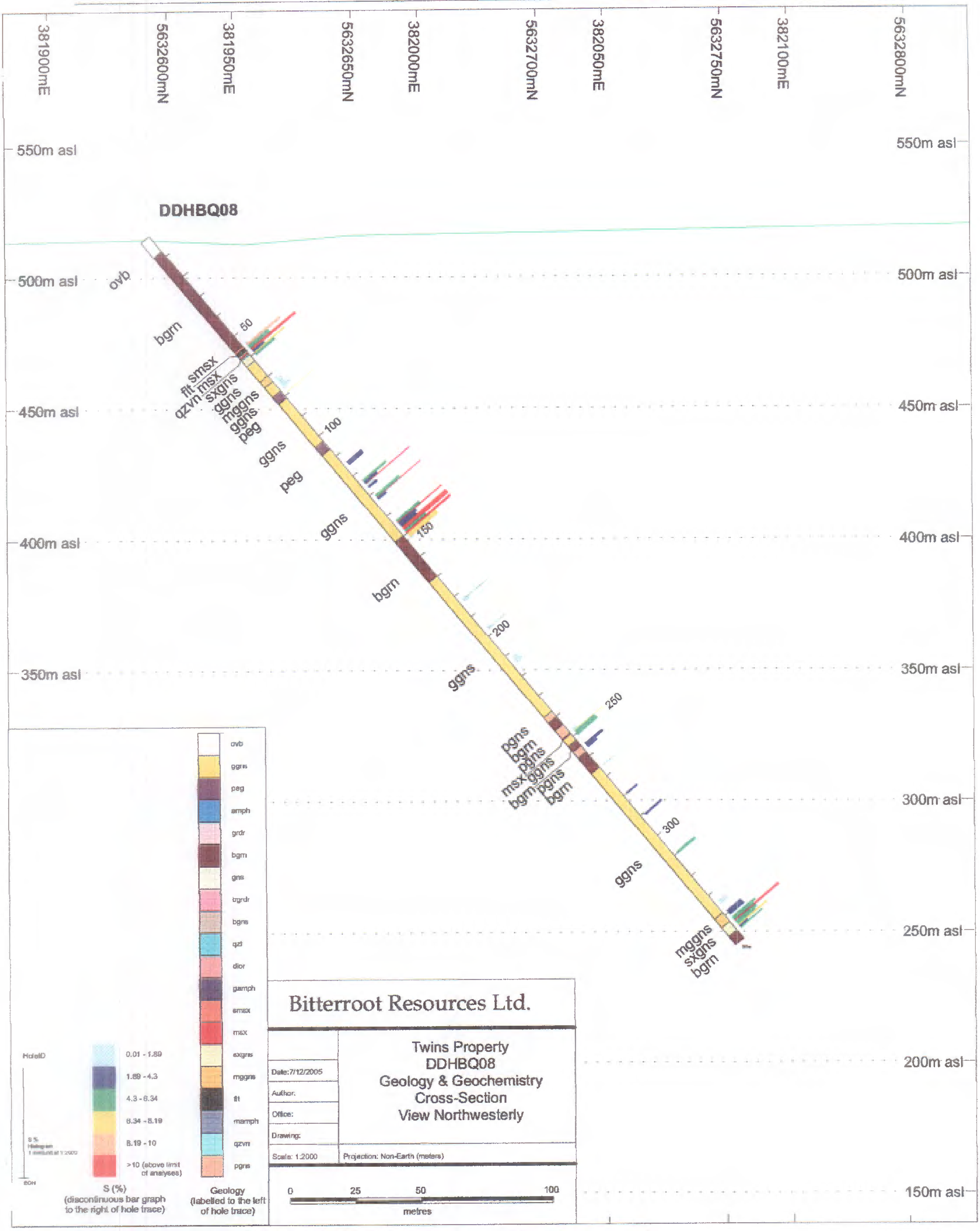


Figure 81. Cross section, diamond drillhole DDHBQ08, Twins property, South Twin anomaly.

From the base of the overburden at approximately 7.5 metres, down to approximately 55 metres, the rocks consist of weakly to moderately well-foliated, medium-grained leucocratic biotite tonalite. The tonalite is cut locally by cm-scale, medium- to coarse-grained pink granite dykelets and is generally nonmagnetic and not mineralized, except for in the lowermost 5-10 cm, at its contact, where there is a relative abundance (1% or more) of disseminated pyrrhotite. Quartzofeldspathic gneiss downhole from the tonalite continues down to approximately 150 metres downhole, and is interrupted only by several metre-scale and smaller variably foliated granite pegmatite bodies. At the contact, the gneissic rocks contain approximately 30% pyrrhotite and subordinate pyrite across one metre, and there is a metre of massive sulphides a further metre-and-a-half downhole (fig. 82 (H8-1)). For a further 20 metres downhole, the paragneissic rocks contain disseminated sulphides, averaging approximately 5% in the vicinity of the semi-massive to massive sulphide layers, and trace to 1% farther downhole (fig. 83 (H8-2)). From 77 to 80 metres, a granite pegmatite contains patchy sulphides and less abundant magnetite, which are locally semi-massive in character, but that on average total only about 1%.

At approximately 105 metres downhole, the sulphide content again picks up, this time toward a fine-grained biotite granodiorite between 150 and 170 metres downhole. In the immediate vicinity of the contact, between 144 and 152 metres downhole, the sulphide content averages between 15 and 30% (very heavily disseminated to semi-massive), and there are at least two other decimetre- to metre-scale intervals of semi-massive sulphides hosted by the disseminated sulphide-bearing paragneisses in the interval between 105 and 150 metres. Following a broad intersection of paragneiss, three biotite tonalite to granodiorite orthogneiss bodies of between 3 and 8 metres thick and containing trace red garnet were intersected between 240 to 265 metres downhole, along with a number of narrower granite pegmatites. As there was uphole, there is a general association

Figure 82 (H8-1). Heavily disseminated, semi-massive, and massive pyrrhotite and pyrite within amphibole-rich paragneiss; 57-58 metres, DDHBQ08.

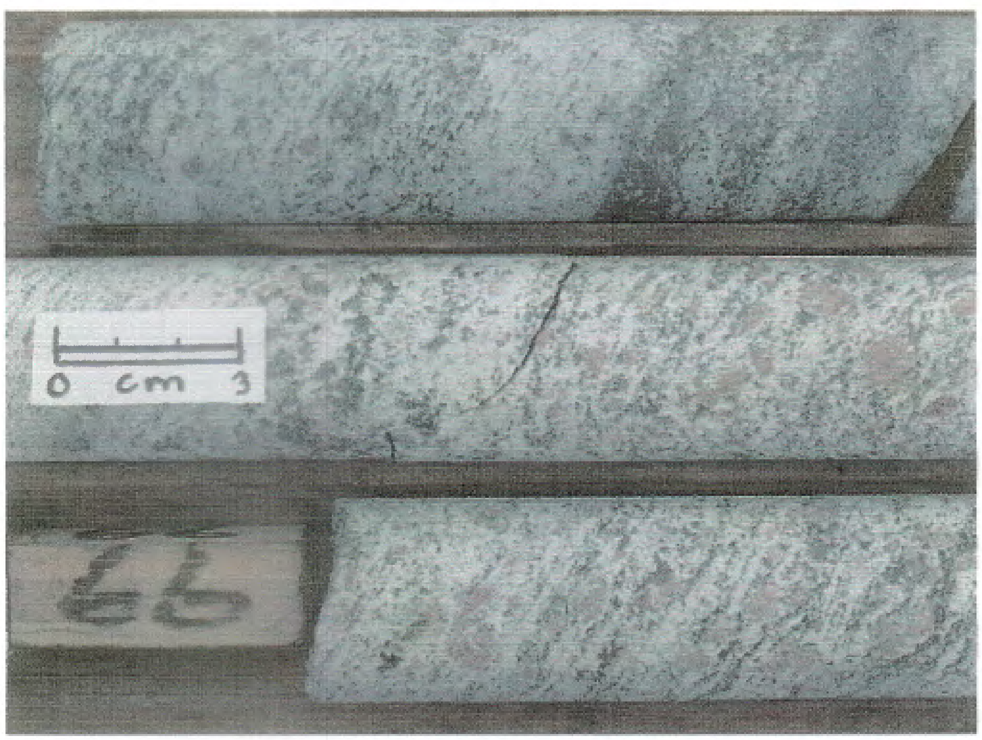


Figure 83 (H8-2)). Garnetiferous biotite amphibole quartzofeldspathic rocks containing local heavy disseminations of pyrrhotite (e.g., upper right hand side); 66 metres, DDHBQ08.

between the granitoid rocks and sulphides in the host paragneiss (fig. 84 (H8-3)), and there are local decimetre-thick semi-massive sulphide layers. In at least one instance, the semi-massive sulphides occur at the contact itself. Toward the end of the hole, from approximately 286 metres to the end of the hole at 351 metres, the quartzofeldspathic gneisses become richer in biotite, amphibole, magnetite, and sulphides, and the hole bottoms in approximately 4 metres of biotite granite. Immediately uphole of the contact is a particularly sulphide-rich section, between 343 and 347 metres, in which the sulphides average 50% or more by volume (figs. 85-87 (H8-4 to H8-6)). In this interval, as in the other mineralized zones within paragneiss, most of the mineralization occurs within mm-to centimetre-scale somewhat carbonate-rich (approximately 3-10%?) layers, and even within the semi-massive sulphides there is an association with patchy carbonate. This association, along with the above-noted association of sulphide mineralization with increased abundances of amphibole and garnet, may be taken as evidence for the sulphides originating as either sulphides in the paragneiss remobilized by the granitoid rocks or as a replacement or skarn deposit, although the lack of base metals values may be taken as an argument against this latter hypothesis.

13.0 Quality Assurance and Quality Control

Two boxes of core from a broad intersection of "spotted" biotite granodiorite or tonalite gneiss in drillhole DDHBQ01 were utilized in Bitterroot's quality control program. In all, 37 blank samples were analyzed. Samples averaged 30 centimetres in length, and were sawn lengthwise before being sampled. As a consequence, the quality control program allowed for comparison between halves of individual core intervals, as well as among the general population of blank samples. The data, which is illustrated in Figure 88 and is tabulated in Appendix X, clearly shows that the analytical

Figure 84 (H8-3). Disseminated to massive pyrrhotite and pyrite within garnetiferous biotite amphibole quartzofeldspathic rocks; 246-249 metres, DDHBQ08.

Figure 85 (H8-4). Section of relatively sulphide-rich paragneiss toward contact of gneissic granodiorite (leucocratic rocks in upper part of photo); from near bottom of DDHBQ08, 342-345 metres.

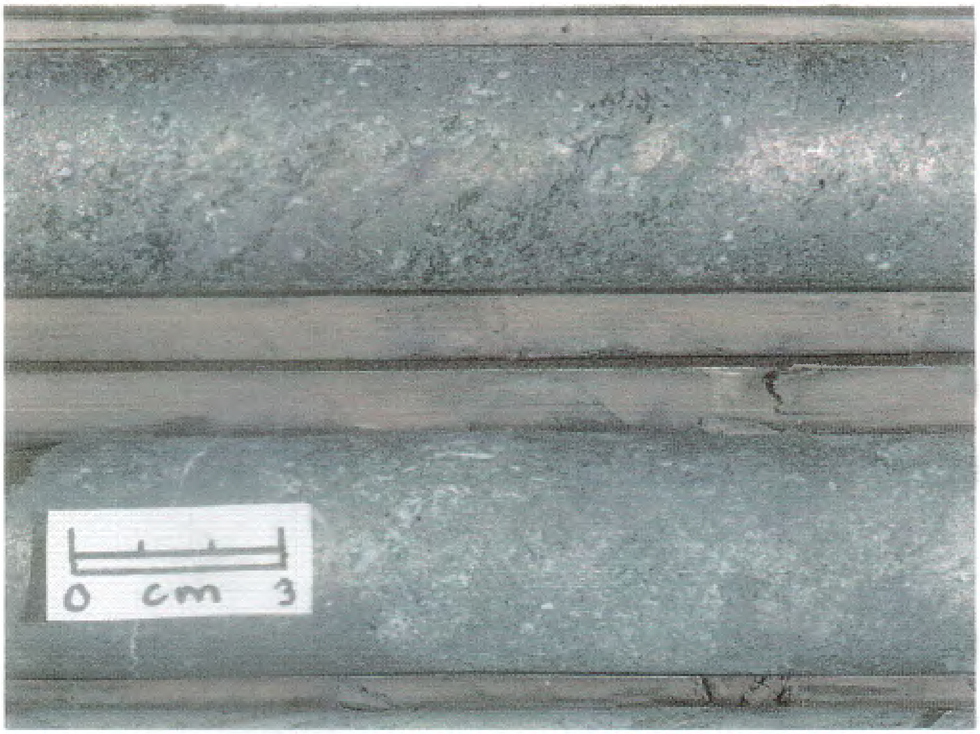
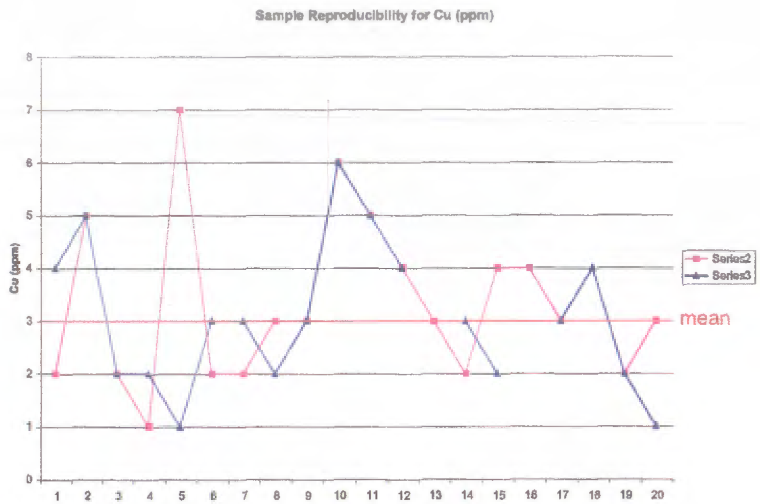
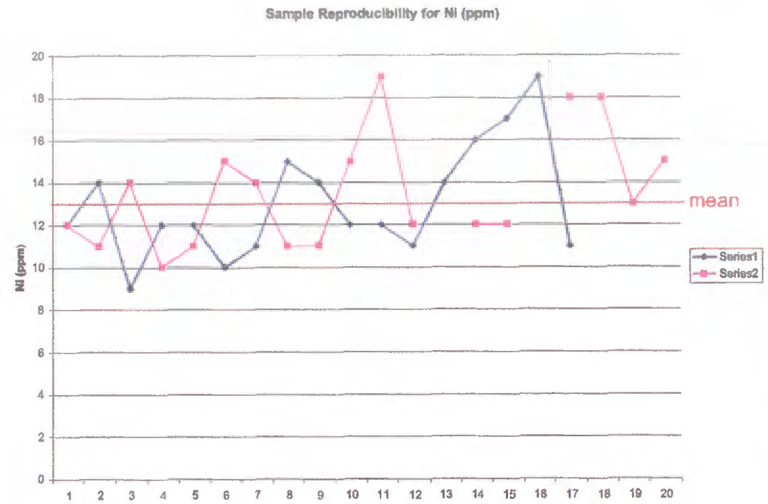
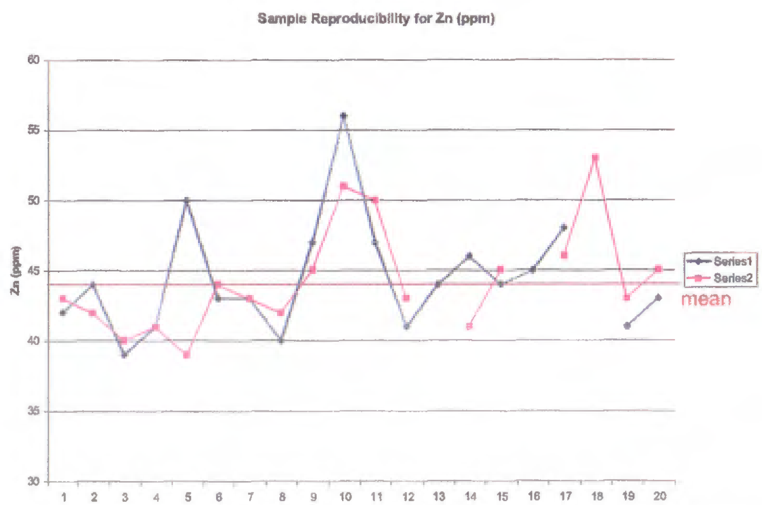


Figure 86 (H8-5). Close-up view of contact shown in fig. H8-4, showing massive sulphides in contact with gneissic granodiorite; from near bottom of DDHBQ08, 342-345 metres.

Figure 87 (H8-6). Detail of massive sulphides; from near bottom of DDHBQ08, 345-346 metres.







	Cu (ppm)	Ni (ppm)	Zn (ppm)
Mean	3.18918919	13.2973	44.32432
Standard Error	0.24148514	0.424237	0.633231
Median	3	12	43
Mode	2	12	43
Standard Deviation	1.46889675	2.580535	3.851797
Sample Variance	2.15765766	6.659159	14.83634
Kurtosis	0.06203662	-0.17662	1.450074
Skewness	0.71030462	0.718081	1.184471
Range	6	10	17
Minimum	1	9	39
Maximum	7	19	56
Sum	118	492	1640
Count	37	37	37

Figure 88. Analytical reproducibility for selected elements from sample blanks, DDHBQ01, Twins Property.

results are reproducible, with little variation seen between halves of the same core interval, or among the sampled interval as a whole.

14.0 Discussion and Recommendations

The primary aim of the work on the Mistassini project was to test the geophysical anomalies on the Twins property for their Ni-Cu-Co±PGE massive sulphide potential. While it is clear that the anomalies were explained by the presence of essentially barren lenses and layers of massive, semi-massive, and heavily disseminated pyrrhotite and pyrite, it is also clear that ultramafic rocks are present, and that the ultramafic rocks are hosted by quartzofeldspathic metasedimentary rocks which are locally rich in sulphides. As a consequence, even though the targets on the property that were tested yielded disappointing results, the geologic setting, at both the property certainly has much remaining potential. Although the high-potential mafic-ultramafic rocks are commonly intensely deformed, and have been metamorphosed to upper amphibolite facies, the amphiboles which comprise them in part appear to be high in MgO, which suggests that they have good potential for hosting Ni-Cu-Co±PGE-bearing sulphides. Furthermore, they are hosted by an extremely fertile, sulphide-rich and siliceous belt of metasedimentary rocks, which could provide ready sources of sulphur and silica for a high-MgO, Ni- and Cu-rich magma that was sulphur- and silica-undersaturated. As a consequence, the potential for the discovery of a Ni-Cu-Co±PGE massive sulphide deposit is still considered to be significant on the Twins property. It is important to note, however, that because the mafic-ultramafic and host metasedimentary rocks are so strongly metamorphosed and deformed, and because magmatic massive sulphide deposits occurring in similarly high grade, intensely deformed settings (e.g., the Thompson Ni belt in Manitoba), the ore bodies may well be detached from the mafic-ultramafic rocks from which they formed. Therefore, the potential for hosting ore bodies, particularly buried (blind) ore bodies, lies not just within the bounds of mafic-ultramafic bodies, but within their sulphide-rich siliceous metasedimentary host rocks (i.e., a sulphide deposit may only have a very general spatial association with the mafic-ultramafic rocks).

How to focus in on that potential on the Twins Property is perhaps the main exploration question at this stage, and it is felt that the key to realizing that potential will be geochemistry. For at least the topographically-higher parts of the Twins Property, a series of wide-spaced reconnaissance soil geochemical traverses is the suggested means of exploration.

Some of the more intriguing exploration questions pertaining to the property which remain unanswered include:

-1) the orientation and extent of the meta-ultramafic rocks intersected in DDHBQ02-04; they are absent in DDHBQ07, which is a little over 600 metres to the east, and in DDHBQ05 and 08, which are approximately 800 metres to the southeast; however, the coincident gravity and geochemical anomalies on the line 200 metres to the northwest are suggest of the presence of ultramafic rocks, as is the outcrop of probable ultramafic rocks on that line (c.f. figs. 21 and 22); it should be noted that there is a strong airborne magnetic anomaly continuous with this area that appears centered west of the arm of Lac Manouane (fig. 11).

-2) the underlying cause for both the broad northwest trending magnetic high north of the main grid, and marginal to Grid C, and for the "conductive zone "D" and "E" anomalies, near the river east of the north Twin, which are also at least partially coincident with magnetic anomalies.

Because most of the areas referred to are low-lying, providing answers to some of the specific questions will likely require establishing or expanding the present ground geophysical grids, and perhaps a more sensitive soil geochemical tool, such as MMI, may have to be employed. This work should be supplemented by a small program of petrographic and whole rock geochemical work. The petrographic work, perhaps comprising fifteen or twenty samples, should focus on the mineralogy of the amphibolitized ultramafic rocks, to more closely constrain probable protoliths, and to a lesser degree on the quartzofeldspathic rocks, to more precisely determine the metamorphic grade. The whole rock geochemical work, again comprising fifteen or twenty samples, should also be focused on the ultramafic and mafic rocks, also to help constrain probable protoliths, but more for evaluating their suitability for generating Ni-Cu-Co±PGE massive sulphides.

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Appendix I. Logistics and Processing Report, Airborne Magnetic and Geotem. Survey, Pambrun and Twins Properties, Quebec, Canada. (by Fugro Airborne Surveys).

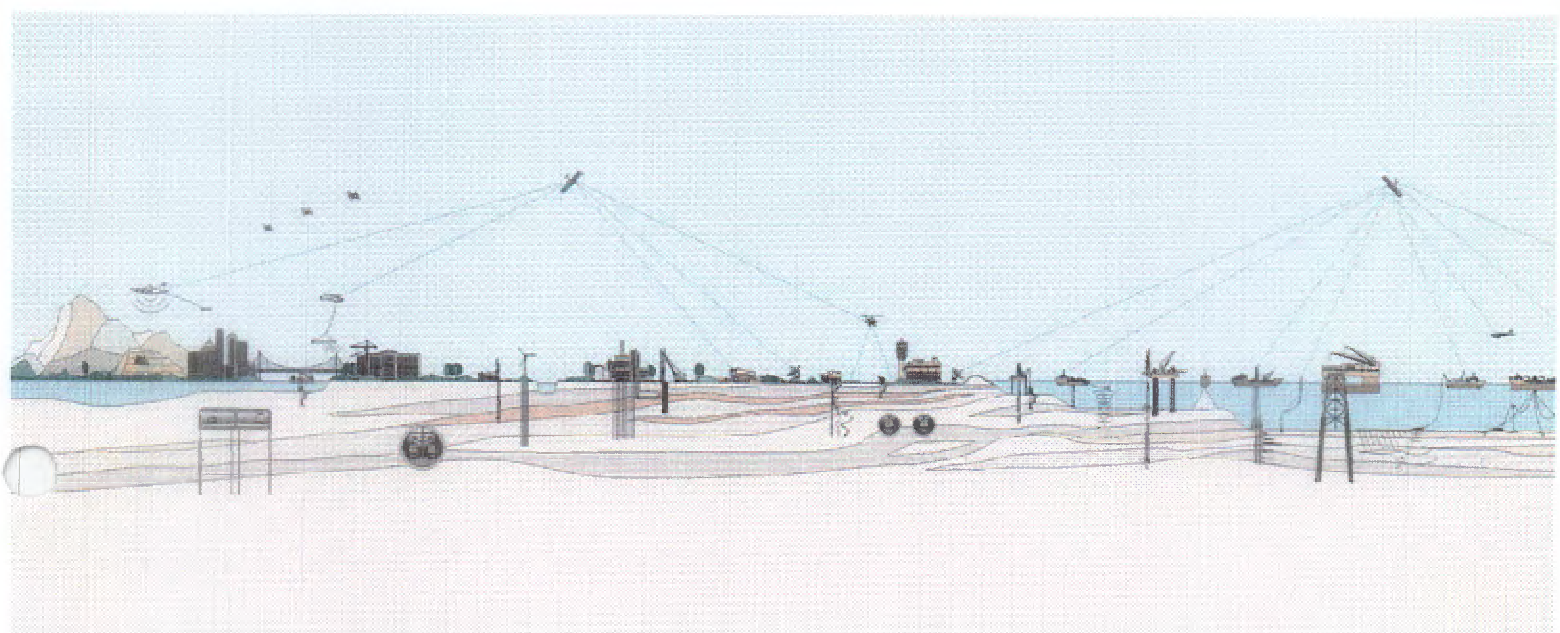
Fugro Airborne Surveys

LOGISTICS AND PROCESSING REPORT
Airborne Magnetic and GEOTEM® Survey

PAMBRUN AND TWINS PROPERTIES
QUEBEC, CANADA

Job No. 04-402

Bitterroot Resources Ltd.



Fugro Airborne Surveys

LOGISTICS AND PROCESSING REPORT
AIRBORNE MAGNETIC AND GEOTEM® SURVEY
PAMBRUN AND TWINS PROPERTIES
QUEBEC, CANADA

JOB NO. 04-402

Client : Bitterroot Resources Ltd.
1080 Gordon Avenue Unit
West Vancouver, BC
V7T 1P6
Canada

Date of Report : April, 2004

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I

Introduction

Between January 30th and February 14th, 2004, Fugro Airborne Surveys conducted a GEOTEM® electromagnetic and magnetic survey of the Pambrun and Twins blocks on behalf of Bitterroot Resources Ltd.. Using Chibougamau, Quebec as the base of operations, a total of 879 line kilometres and 71 tie line kilometres of data were collected using a Casa 212 modified aircraft (Figure 1).

Figure 1: Specially modified Casa 212 aircraft used by Fugro Airborne Surveys.

The survey data were processed and compiled in the Fugro Airborne Surveys Ottawa office. The collected and processed data are presented on colour and black and white maps, and multi-parameter profiles. The following maps were produced: Basemap (Topo base only), Residual Magnetic contours with EM anomalies, Calculated Vertical Gradient of Magnetic with EM anomalies, Apparent Conductance from dB/dt X coil with EM anomalies, Decay Constant of B-Field X Coil Channels 10-20 with EM anomalies, Total Energy Envelope of dB/dt X and Z Coil Channel 10 with EM anomalies . In addition, digital archives of the processed survey data, and gridded EM data were delivered.

II

Survey Operations

Location of the Survey Area

The Pambrun and Twins Blocks (Figure 2) were flown with Chibougamau, Quebec as the base of operations. A total of 36 traverse lines were flown for the Pambrun block and a total of 73 traverse lines were flown for the Twins block with a line spacing of 200m. A total of 4 tie lines were flown for the Pambrun block with a line spacing of 2675m and a total of 5 tie lines were flown for the Twins block with a line spacing of 3625m totalling 950 kms for the complete survey.

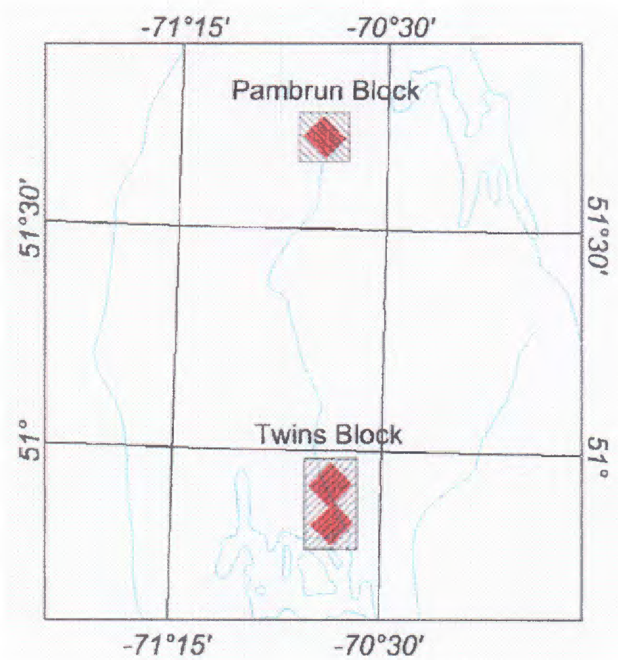


Figure 2: Survey location.

Aircraft and Geophysical On-Board Equipment

Figure 3: Mag and GEOTEM® Receivers

Aircraft	Casa 212 (Twin Turbo Propeller)
Operator	FUGRO AIRBORNE SURVEYS
Registration	C-GDPP
Survey Speed	125 knots / 145 mph / 65 m/s
Magnetometer	Scintrex Cs-2 single cell cesium vapour, towed-bird installation, sensitivity = 0.01 nT[1], sampling rate = 0.1 s, ambient range 20,000 to 100,000 nT. The general noise envelope was kept below 0.5 nT. The nominal sensor height was ~73 m above ground.
Electromagnetic system	GEOTEM 20 channel Multicoil System
Transmitter:	Vertical axis loop mounted on aircraft of 231 m^2
	Number of turns: 6
	Nominal height above ground of 120 m
Receiver :	Multicoil system (x, y and z) with a final recording rate of 4 samples/second, for the recording of 20 channels of x, y and z-coil data. The nominal height above ground is ~70 m, placed ~130 m behind the centre of the transmitter loop.
Base frequency:	90 Hz
Pulse width:	2083 µs
Pulse delay:	100 µs
Off-time period:	3385 µs
Point value:	43.4 µs
Transmitter Current:	500 A
Dipole moment:	$0.695 \times 10^6 Am^2$

Figure 4: Modified Casa 212 in flight.

1 One nanotesla (nT) is the S.I. equivalent of one gamma.

Table 1: Electromagnetic Data Windows.

Channel	Start (p)	End (p)	Width (p)	Start (ms)	End (ms)	Width (ms)	Mid (ms)
1	4	9	6	0.13	0.391	0.26	0.26
2	10	22	13	0.391	0.955	0.564	0.673
3	23	35	13	0.955	1.519	0.564	1.237
4	36	48	13	1.519	2.083	0.564	1.801
5	49	53	5	2.083	2.3	0.217	2.192
6	54	55	2	2.3	2.387	0.087	2.344
7	56	57	2	2.387	2.474	0.087	2.431
8	58	59	2	2.474	2.561	0.087	2.517
9	60	62	3	2.561	2.691	0.13	2.626
10	63	65	3	2.691	2.821	0.13	2.756
11	66	69	4	2.821	2.995	0.174	2.908
12	70	73	4	2.995	3.168	0.174	3.082
13	74	77	4	3.168	3.342	0.174	3.255
14	78	83	6	3.342	3.602	0.26	3.472
15	84	90	7	3.602	3.906	0.304	3.754
16	91	97	7	3.906	4.21	0.304	4.058
17	98	104	7	4.21	4.514	0.304	4.362
18	105	112	8	4.514	4.861	0.347	4.688
19	113	120	8	4.861	5.208	0.347	5.035
20	121	128	8	5.208	5.556	0.347	5.382

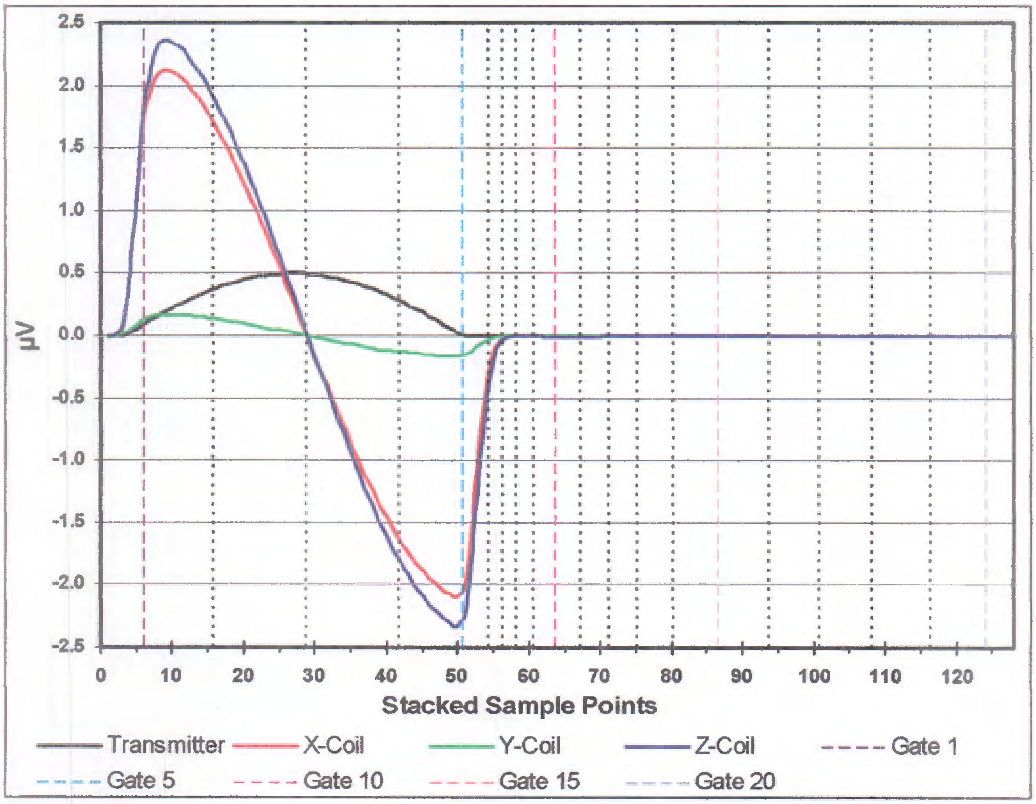


Figure 5:GEOTEM Waveform and response with gate centres showing positions in sample points.

Digital Acquisition — FUGRO AIRBORNE SURVEYS GEODAS SYSTEM.

Analogue Recorder — RMS GR-33, see below for analogue display and setup.

Barometric Altimeter — Rosemount 1241M, sensitivity 1 ft, 1 s recording interval.

Radar Altimeter — King, accuracy 2%, sensitivity 1 ft, range 0 to 2500 ft, 1 sec recording interval.

Camera — Panasonic colour video, super VHS, model WV-CL302.

Electronic Navigation — NovAtel Propak 4E-3151-R, 1 sec recording interval, with a resolution of 0.00001 degree and an accuracy of ±10m.

Analogue Recorder Display Setup:

Name	Description	Scale	Unit
ZF09	dB/dt Z coil Time Filtered Channel 09	10000	pV/cm
ZF14	dB/dt Z coil Time Filtered Channel 14	10000	pV/cm
ZF20	dB/dt Z coil Time Filtered Channel 20	10000	pV/cm
BZ09	B Field Z coil Time Filtered Channel 09	10000	fT/cm
BZ14	B Field Z coil Time Filtered Channel 14	10000	fT/cm
BZ20	B Field Z coil Time Filtered Channel 20	10000	fT/cm
XF09	dB/dt X coil Time Filtered Channel 09	10000	pV/cm
XF14	dB/dt X coil Time Filtered Channel 14	10000	pV/cm
XF20	dB/dt X coil Time Filtered Channel 20	10000	pV/cm
BX09	B Field X coil Time Filtered Channel 09	10000	fT/cm
BX14	B Field X coil Time Filtered Channel 14	10000	fT/cm
BX20	B Field X coil Time Filtered Channel 20	10000	fT/cm
BZ20	B-Field Z coil Raw channel 20	20000	fT/cm
BX20	B-Field X coil Raw channel 20	20000	fT/cm
X20	dB/dt X coil Raw channel 20	20000	pV/cm
Y20	dB/dt Y coil Raw channel 20	20000	pV/cm
Z20	dB/dt Z coil Raw channel 20	20000	pV/cm
X01	dB/dt X coil Raw channel 01	50000	pV/cm
Z01	dB/dt Z coil Raw channel 01	50000	pV/cm
XPL	Powerline Monitor	0.2	V/cm
XEFM	Earth Field Monitor	1	V/cm
ZEFM	Earth Field Monitor	1	V/cm
XPRM	X Primary Field	0.4	V/cm
YPRM	Y Primary Field	13.3	V/cm
TPRM	Transmitter Primary Field	0.02	V/cm
CMAG	Coarse Total Field Magnetic Intensity	300	nT/cm
FMAG	Fine Total Field Magnetic Intensity	100	nT/cm
4DIF	Magnetic 4th Difference Filtered	1	nT/cm
RADR	Radar Altimeter	50	ft/cm
BARO	Barometric Altimeter	100	ft/cm

Base Station Equipment

Magnetometer:	Scintrex CS-2 single cell cesium vapour, mounted in a magnetically quiet area, measuring the total intensity of the earth's magnetic field in units of 0.01 nT at intervals of 1 s, within a noise envelope of 0.20 nT.
GPS Receiver:	NovAtel, measuring all GPS channels, for up to 10 satellites.
Computer:	Toshiba laptop, model T4600, 33 MHz, 486.
Converter:	Picodas, model MEP710 3/10901 GTS 780008

Field Office Equipment

Computers:	Dell Inspiron 8000 Pentium III laptop with 30 GB hard drive.
Printer:	Canon bubblejet printer BJC-85.
DVD writer Drive:	Ricoh 5.125 DVD+RW format.
Hard Drive:	8 GB Removable hard drive

Survey Specifications

Traverse Line Direction:	135° - 315° (Pambrun Block)
	045° - 225° (Twins Properties Block)
Traverse Line Spacing:	200 m
Tie Line direction:	045° - 225° (Pambrun Block)
	135° - 315° (Twins Properties Block)
Tie Line spacing:	2675 m (Pambrun Block)
	3625 m (Twins Properties Block)
Navigation:	Differential GPS. Traverse and tie line spacing was not to exceed the nominal by > 35% for more than 3 km.
Altitude:	The survey was flown at a mean terrain clearance of 120 m. Altitude was not to exceed 140 m from nominal over 3 km.
Magnetic Noise Levels:	The noise envelope on the magnetic data was not to exceed ± 0.25 nT over 3 km.
EM Noise Levels:	The noise envelope on the raw electromagnetic dB/dt X- and Z-coil channel 20 was not to exceed ± 3500 pT/s over a distance greater than 3 km as displayed on the raw analogue traces.

Field Crew

Geophysicist:	D.Jamieson
Pilots:	E.Picaud and N.Fieldsend
Electronics Operator:	J.Wojcicki
Engineer:	J.Robb

Production Statistics

Flying dates:	January 30th – February 14th, 2004
Total production:	950 line kilometres
Number of production flights:	7
Days lost weather:	7

III

Quality Control and Compilation Procedures

In the field after each flight, all analogue records were examined as a preliminary assessment of the noise level of the recorded data. Altimeter deviations from the prescribed flying altitudes were also closely examined as well as the diurnal activity, as recorded on the base station.

All digital data were verified for validity and continuity. The data from the aircraft and base station was transferred to the PC's hard disk. Basic statistics were generated for each parameter recorded, these included: the minimum, maximum, and mean values; the standard deviation; and any null values located. All recorded parameters were edited for spikes or datum shifts, followed by final data verification via an interactive graphics screen with on-screen editing and interpolation routines.

The quality of the GPS navigation was controlled on a daily basis by recovering the flight path of the aircraft. The C3NavG2 correction procedure employs the raw ranges from the base station to create improved models of clock error, atmospheric error, satellite orbit, and selective availability. These models are used to improve the conversion of aircraft raw ranges to aircraft position.

Checking all data for adherence to specifications was carried out in the field by the FUGRO AIRBORNE SURVEYS field geophysicist.

IV

Data Processing

Flight Path Recovery

GPS Recovery:	GPS positions recalculated from the recorded raw range data, and differentially corrected.
Projection:	Universal Transverse Mercator (UTM Zone 19N)
Datum:	NAD 27
Central meridian:	69° West
False Easting:	500000 metres
False Northing:	0 metres
Scale factor:	0.99960

Altitude Data

Noise editing:	Alfatrim median filter used to eliminate the highest and lowest values from the statistical distribution of a 5 point sample window for the radar altimeter.

Base Station Diurnal Magnetics

Noise editing:	Alfatrim median filter used to eliminate the two highest and two lowest values from the statistical distribution of a 9 point sample window.
Culture editing:	Polynomial interpolation via a graphic screen editor.
Noise filtering:	Running average filter set to remove wavelengths less than 8 seconds.

Extraction of long wavelength component:

Running average filter set to retain only wavelengths greater than 42 seconds.

Airborne Magnetics

Lag correction:	3.4 s
Noise editing:	4th difference editing routine set to remove spikes greater than 0.5 nT.
Noise filtering:	Triangular filter set to remove noise events having a wavelength less than 0.9 seconds and an amplitude less than 0.5 nT.
Diurnal subtraction:	The long wavelength component of the diurnal (greater than 42 seconds) was removed from the data with a base value of 57089 nT added back.
IGRF removal date:	2004.15
Gridding:	The data was gridded using an akima routine with a grid cell size of 40 m.

Residual Magnetic Intensity

The residual magnetic intensity (RMI) is calculated from the total magnetic intensity (TMI), the diurnal, and the regional magnetic field. The TMI is measured in the aircraft, the diurnal is measured from the ground station and the regional magnetic field is calculated from the international geo-referenced magnetic field (IGRF). The low frequency component of the diurnal is extracted from the filtered ground station data and removed from the TMI. The average of the diurnal is then added back in to obtain the resultant TMI. The regional magnetic field, calculated for the specific survey location and the time of the survey, is removed from the resultant TMI to obtain the RMI. The final step is to Tie line level and microlevel the RMI data.

Magnetic First Vertical Derivative

The first vertical derivative was calculated in the frequency domain from the final grid values to enhance subtleties related to geological structures. This was done by the transfer function of the 1st vertical derivative. Subsequent filtering was not necessary.

Electromagnetics

dB/dt data

Lag correction: 4.0 s

Data correction: The x, y and z-coil data were processed from the 20 raw channels recorded at 4 samples per second.

The following processing steps were applied to the dB/dt data from all coil sets:

a) The data from channels 1 to 5 (on-time) and 6 to 20 (off-time) were corrected for drift in flight form (prior to cutting the recorded data back to the correct line limits) by passing a low order polynomial function through the baseline minima along each channel, via a graphic screen display;

b) The data were edited for residual spheric spikes by examining the decay pattern of each individual EM transient. Bad decays (i.e. not fitting a normal exponential function) were deleted and replaced by interpolation;

c) Corrections were made in the x- and z-coil data for low frequency, incoherent noise elements (that do not correlate from channel to channel) in the data, by analysing the decay patterns of channels 08 to 20 (OMEGA process).

d) Noise filtering was done using an adaptive filter technique based on time domain triangular operators. Using a 2nd difference value to identify changes in gradient along each channel, minimal filtering (3 point convolution) is applied over the peaks of the anomalies, ranging in set increments up to a maximum amount of filtering in the resistive background areas (29 points for both the x-coil and the z-coil data).

e) The filtered data from the x, y and z-coils were then re-sampled to a rate of 5 samples/s and combined into a common file for archiving.

B-field data

Processing steps: The processing of the B-Field data stream is very similar to the processing for the regular dB/dt data. The lag adjustment used was the same, followed by:

1) Drift adjustments;
2) Spike editing for spheric events;
3) Correction for low frequency, incoherent and non-decaying noise events, by analysing the decay patterns of channels 15 to 20 (OMEGA process);
4) Correction for coherent noise. By nature, the B-Field data will contain a higher degree of coherency of the noise that automatically gets eliminated (or considerably attenuated) in the regular dB/dt, since this is the time derivative of the signal.
5) Final noise filtering with an adaptive filter.

Note: The introduction of the B-Field data stream, as part of the GEOTEM® system, provides the explorationist with a more effective tool for exploration in a broader range of geological environments and for a larger class of target priorities.

The advantage of the B-Field data compared with the normal voltage data (dB/dt) are as follows:

1. A broader range of target conductance that the system is sensitive to. (The B-Field is sensitive to bodies with conductance as great as 100,000 Siemens);
2. Enhancement of the slowly decaying response of good conductors;
3. Suppression of rapidly decaying response of less conductive overburden;
4. Reduction in the effect of spherics on the data;
5. An enhanced ability to interpret anomalies due to conductors below thick conductive overburden;
6. Reduced dynamic range of the measured response (easier data processing and display).

Figure 6 displays the calculated vertical plate response for the GEOTEM® signal for the dB/dt and B-Field. For the dB/dt response, you will note that the amplitude of the early channel peaks at about 25 Siemens, and the late channels at about 250 Siemens. As the conductance exceeds 1000 Siemens the response curves quickly roll back into the noise level. For the B-Field response, the early channel amplitude peaks at about 80 Siemens and the late channel at about 550 Siemens. The projected extension of the graph in the direction of increasing conductance, where the response would roll back into the noise level, would be close to 100,000 Siemens. Thus, a strong conductor, having a conductance of several thousand Siemens, would be difficult to interpret on the dB/dt data, since the response would be mixed in with the background noise. However, this strong conductor would stand out clearly on the B-Field data, although it would have an unusual character, being a moderate to high amplitude response, exhibiting almost no decay.

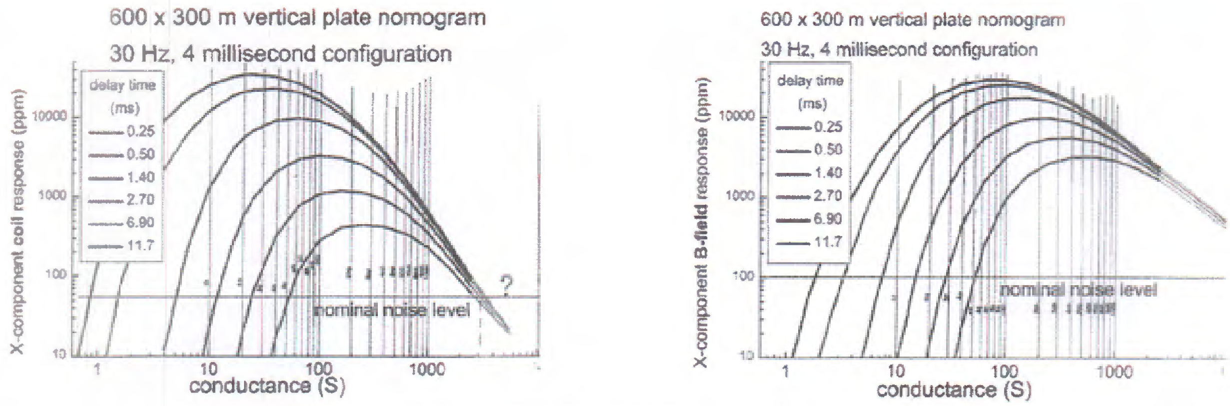


Figure 6: dB-dt vertical plate nomogram (left), B-field vertical plate nomogram (right).

In theory, the response from a super conductor (50,000 to 100,000 Siemens) would be seen on the B-Field data as a low amplitude, non-decaying anomaly, not visible in the off-time channels of the dB/dt stream. Caution must be exercised here, as this signature can also reflect a residual noise event in the B-Field data. In this situation, careful examination of the dB/dt on-time (in-pulse) data is required to resolve the ambiguity. If the feature were strictly a noise event, it would not be present in the dB/dt off-time data stream. This would locate the response at the resistive limit, and the mid in-pulse channel (normally identified as channel 3) would reflect little but background noise, or at best a weak negative peak. If, on the other hand, the feature does indeed reflect a superconductor, then this would locate the response at the inductive limit. In this situation, channel 3 of the dB/dt stream will be a mirror image of the transmitted pulse, i.e. a large negative.

Coil Oscillation Correction

The electromagnetic receiver sensor is housed in a bird that is towed behind the aircraft using a cable. Any changes in airspeed of the aircraft, variable crosswinds, or other turbulence will result in the bird swinging from side to side. This can result in the induction sensors inside the bird rotating about their mean orientation. The rotation is most marked when the air is particularly turbulent. The orientation changes result in variable coupling of the induction coils to the primary and secondary fields. For example, if the sensor that is normally aligned to measure the x-axis response pitches upward, it will be measuring a response that will include a mixture of the X and Z component responses. The effect of coil oscillation on the data increases as the signal from the ground (conductivity) increases and may not be noticeable when flying over areas that are generally resistive. This becomes more of a concern when flying over highly conductive ground.

Using the changes in the coupling of the primary field, it is possible to estimate the pitch, roll and yaw of the receiver sensors. In the estimation process, it is assumed that a smoothed version of the primary field represents the primary field that would be measured when the sensors are in the mean orientation. The orientations are estimated using a non-linear inversion procedure, so erroneous orientations are sometimes obtained. These are reviewed and edited to insure smoothly varying values of orientations. These orientations can then be used to unmix the measured data to generate a response that would be measured if the sensors were in the correct orientation. (For more information on this procedure, see:
http:/www.fugroairborne.com/TechnicalPapers/r_atem.shtml).

For the present dataset, the data from all 20 channels of dB/dt and B-Field parameters have been corrected for coil oscillation.

Total Energy Envelope

To combine the benefits of the measurement from both the X and Z coil data and reduce the asymmetry in the signature of the anomalies, the channel data from both the X and Z coils can be used to compute the Total Energy Envelope of the response. This is done through a Hilbert Transform and essentially reflects the square root of the sum of the squares of each component.

For the present dataset, channel 10 of the dB/dt component (mid-time position of 608 µsec after turn-off) was selected as the optimum window along the transient to map the response over features of interest. This channel is sufficiently late in time to avoid minor variations in the signal due to overburden conductivity and altitude effects and yet, not so late in time that the possible weak response over features of interest would get lost in the background.

Decay Constant (TAU)

The decay constant values are obtained by fitting the channel data from either the complete off-time signal of the decay transient or only a selected portion of it (as defined by specific channels) to a single exponential of the form

$$Y = A\,e^{-t/\tau}$$

where **A** is amplitude at time zero, **t** is time in microseconds and τ is the decay constant, expressed in microseconds. A semi-log plot of this exponential function will be displayed as a straight line, the slope of which will reflect the rate of decay and therefore the strength of the conductivity. A slow rate of decay, reflecting a high conductivity, will be represented by a high decay constant.

As a single parameter, the decay constant provides more useful information than the amplitude data of any given single channel, as it indicates not only the peak position of the response but also the relative strength of the conductor. It also allows better discrimination of conductive axes within a broad formational group of conductors.

For the present dataset, the decay constant was calculated by fitting the X coil response from channels 10 to 20 (mean delay times of 608 to 3233 µsec after turn-off) of the B-Field component to the exponential function.

Apparent Conductance

The apparent conductance was calculated by fitting all 20 channels of the X coil response of the dB/dt component to the thin sheet model. Prior to the fitting, the data is deconvolved to the step response in order to provide a linear relationship as the conductance of the ground increases from the resistive limit to the inductive limit.

The apparent conductance provides the maximum information on the near-surface conductance of the ground which, when combined with the magnetic signature, provides good geological mapping.

EM Anomaly selection

EM anomalies were selected by fitting the data from the standard dB/dt X-coil channels 9 to 20 to a vertical plate model, in order to extract conductance and depth information. Comparisons of the response from the X and Z coil data were made during the anomaly review for the final selection of the anomalies.

Refer to the Anomaly Listing Report for a full listing of the anomaly selections. This provides the particulars of each selected anomaly, including the conductivity-thickness-product (CTP) and the estimated depth of the conductor below surface. It is important to note that the derived values of CTP and depth associated with the anomaly selections are only valid if the geometry of the conductive source can be well approximated by a vertical plate of 300 by 600 m. A note is also included to guide the correct evaluation of the anomaly information.

V

Final Products

Digital Archives

Line data in Geosoft ASCII text format (*.xyz) and Geosoft grids (*.grd) have been written to CD-ROM. The formats and layouts of these archives are further described in Appendix E (Data Archive Description). Hardcopies of all maps have been created as outlined below.

Maps

Black & White

Scale:	1:20,000
Parameter:	Basemap (Topo base only) EM Anomalies with flight path Residual Magnetic contours with EM anomalies Calculated Vertical Gradient of Magnetics with EM anomalies Apparent Conductance from dB/dt X Coil with EM anomalies Decay Constant of B-Field X Coil Channels 10-20 with EM anomalies Total Energy Envelope of dB/dt X and Z Coil Channel 10 with EM anomalies
Media/Copies:	1 Mylar & 2 Paper

Colour

Scale:	1:20,000
Parameters:	Residual Magnetic contours with EM anomalies Calculated Vertical Gradient of Magnetics with EM anomalies Apparent Conductance from dB/dt X Coil with EM anomalies Decay Constant of B-Field X Coil Channels 10-20 with EM anomalies Total Energy Envelope of dB/dt X and Z Coil Channel 10 with EM anomalies
Media/Copies:	2 Paper

Profile Plots

Scale:	1:20,000
Parameters:	Multi-channel presentation with 12 channels of both dB/dt and B-field X and Z-coil, Residual Magnetic Intensity, Calculated Magnetic Vertical Gradient, Radar Altimeter, EM Primary Field and Hz Monitor.
Media/Copies:	1 Paper of Each Line

Report

Media/Copies:	2 Paper & 1 digital (PDF format)

Appendix A

GEOTEM® ELECTROMAGNETIC SYSTEM

GEOTEM® ELECTROMAGNETIC SYSTEM

General

The operation of a towed-bird time-domain electromagnetic system (EM) involves the measurement of decaying secondary electromagnetic fields induced in the ground by a series of short current pulses generated from an aircraft-mounted transmitter. Variations in the decay characteristics of the secondary field (sampled and displayed as windows) are analyzed and interpreted to provide information about the subsurface geology. The response of such a system utilizing a vertical-axis transmitter dipole and a multicomponent receiver coil has been documented by various authors including Smith and Keating (1991, Geophysics v.61, p. 74-81).

The principle of sampling the induced secondary field in the absence of the primary field (during the "off-time") and the large separation of the receiver coils from the transmitter combine with the large dipole moment and power available from the fixed wing platform to provide excellent signal-to-noise ratio and depth of penetration. Such a system is also relatively free of noise due to air turbulence. However, also sampling in the "on-time" (Annan et al., 1991, Geophysics v.61, p. 93-99) can result in excellent sensitivity for mapping very resistive features and very conductive features, and thus mapping geology.

Through free-air model studies using the University of Toronto's Plate and Layered Earth programs it may be shown that the "depth of investigation" depends upon the geometry of the target. Typical depth limits would be 400 m below surface for a homogeneous half-space, 550 m for a flat-lying inductively thin sheet or 350 m for a large vertical plate conductor. These depth estimates are based on the assumptions that the overlying or surrounding material is resistive.

The method also offers very good discrimination of conductor geometry. This ability to distinguish between flat-lying and vertical conductors combined with excellent depth penetration results in good differentiation of bedrock conductors from surficial conductors.

Methodology

GEOTEM® (GEOterrex Transient ElectroMagnetic system) is a time-domain towed-bird electromagnetic system incorporating a high-speed digital EM receiver. The primary electromagnetic pulses are created by a series of discontinuous sinusoidal current pulses fed into a three- or six-turn transmitting loop surrounding the aircraft and fixed to the nose, tail and wing tips. The base frequency rate is selectable: 25, 30, 75, 90, 125, 150, 225 and 270 Hz. The length of the pulse can be tailored to suit the targets. Standard pulse widths available are 0.6, 1.0, 2.0 and 4.0 ms. The available off-time can be selected to be as great as 16 ms. The current depends on the pulse width but the dipole moment can be as great as 6.7×10^5 Am ^{2}.

The receiver is a three-axis (x,y,z) induction coil which is towed by the aircraft on a 135-metre or 125-metre cable. The tow cable is non-magnetic, to reduce noise levels. The usual mean terrain clearance for the aircraft is 120 m with the EM bird being situated nominally 50 m below and 125 m behind the aircraft (see figure 1).

For each primary pulse a secondary magnetic field is produced by decaying eddy currents in the ground. These in turn induce a voltage in the receiver coils, which is the electromagnetic response.

The measured signals pass through anti-aliasing filters and are then digitized with an A/D converter at sampling rates of up to 80 kHz. The digital data flows from the A/D converter into an industrial-grade computer where the data are processed to reduce the noise.

Operations, which are carried out in the receiver, are:

1. *Primary-field removal:*
   In addition to measuring the secondary response from the ground, the receiver sensor coils also measure the primary response from the transmitter. During flight, the bird position and orientation changes slightly, and this has a very strong effect on the magnitude of the total response (primary plus secondary) measured at the receiver coils. The variable primary field response is distracting because it is unrelated to the ground response. The primary field can be measured by flying at an altitude such that no ground response is measurable. These calibration signals are used to define the shape of the primary waveform. By definition this primary field includes the response of the current in the transmitter loop plus the response of any slowly decaying eddy currents induced in the aircraft. We assume that the shape of the primary will be unchanged as the bird position changes, but that the amplitude will vary. The primary field removal procedure involves solving for the amplitude of the primary field in the measured response and removing this from the total response to leave a secondary response. Note that this procedure removes any ("in-phase") response from the ground which has the same shape as the primary field. For more details on the primary-field removal procedure, see http://www.fugroairborne.com/TechnicalPapers/inphasequad.shtml

1. *Transient Analysis:* Transient analysis permits the separation of specific types of noise from the signal in real time.

2. *Digital Stacking:* Stacking is carried out to reduce the effect of broadband noise on the data.

3. *Windowing of data:* The GEOTEM® digital receiver samples the secondary and primary electromagnetic field at 64, 128 or 384 points per EM pulse and windows the signal in up to 20 time gates whose centres and widths are software selectable and which may be placed anywhere within or outside the transmitter pulse. This flexibility offers the advantage of arranging the gates to suit the goals of a particular survey, ensuring that the signal is appropriately sampled through its entire dynamic range.

4. *Power Line Filtering:* Digital comb filters are applied to the data during real-time processing to remove power line interference while leaving the EM signal undisturbed. The RMS power line voltage (at all harmonics in the receiver passband) are computed, displayed and recorded for each data stack.

5. *Primary Field:* The primary field at the towed sensor is measured for each stack and recorded as a separate data channel to assess the variation in coupling between the aircraft and the towed sensor induced by changes in system geometry.

6. *Earth Field Monitor:* A monitor of sensor coil motion noise induced by coil motion in the Earth's magnetic field is also extracted in the course of the real-time digital processing. This information is also displayed on the real-time chart as well as being recorded for post-survey diagnostic processes.

7. *Noise/Performance:* A monitor computes the RMS signal level on an early off-time channel over a

running 10-second window. This monitor provides a measure of noise levels in areas of low ground response. This information is printed at regular intervals on the side of the flight record and is recorded for every data stack.

One of the major roles of the GEOTEM® digital receiver is to provide diagnostic information on system functions and to allow for identification of noise events, such as sferics, which may be selectively removed from the EM signal.

GEOTEM®'s high digital sampling rate yields maximum resolution of the secondary field. The absence of an analog system time-constant filter results in minimal signal distortion and, therefore, superior representation of the anomaly amplitudes and shapes.

System Hardware

The GEOTEM® system is an integrated whole, consisting of the CASA 212 aircraft, the on-board hardware, and the software packages controlling the hardware.
The software packages in the GEODAS data acquisition system and in the GEOTEM® receiver were developed in-house. Likewise, certain elements of the hardware (GEOTEM® transmitter, system timing clock, towed-bird receiver system) were developed in-house.

Transmitter System

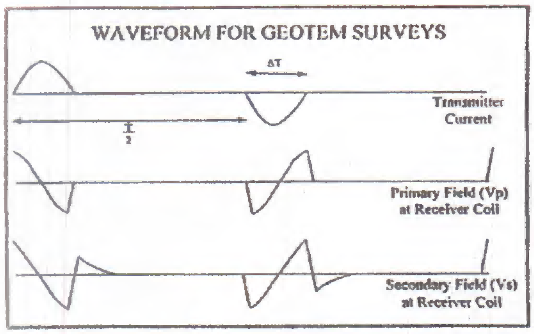
The transmitter system drives high-current pulses of an appropriate shape and duration through the coils mounted on the CASA aircraft.

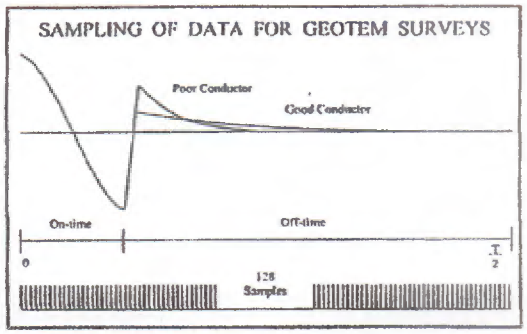
System Timing Clock

This subsystem provides appropriate timing signals to the transmitter, and also to the analog-to-digital converter, in order to produce output pulses and capture the ground response.

Towed-Bird Receiver System

A three-axis induction coil is mounted inside a towed bird, which is typically 50 metres below and 125 metres behind the aircraft. (A second bird, housing the magnetometer sensor, is typically 45 metres below and 80 metres behind the aircraft.)

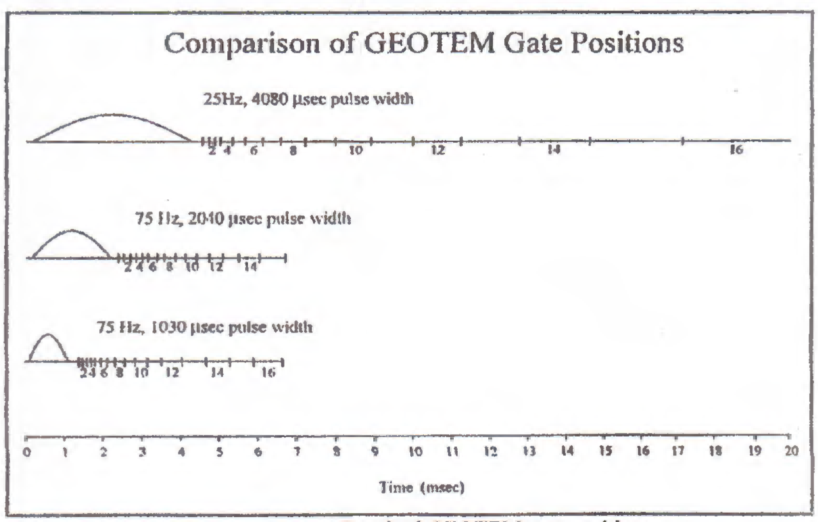




The GEOTEM system waveform (left frame) and sampling (right frame)

Timing of GEOTEM™ data acquisition for typical configurations

Base Frequency [Hz]	**150**	**90**	**30**	**125**	**75**	**25**
Pulse Width [ms]	**1.02**	**2.04**	**4.14**	**1.02**	**2.04**	**4.14**
Total Halfcycle [ms]	3.33	5.56	16.67	4.00	6.67	20.00
Off-Time [ms]	2.31	3.52	12.53	2.98	4.63	15.86
TX pulses / second	240	144	48	200	120	40
Eff.Digitising Rate [samples/sec]	38,400	23,040	7,680	32,000	19,200	6,400
Pulses per Reading	60	36	12	50	30	10
Stored readings / second	4	4	4	4	4	4
Samples per transient	128	128	128	128	128	128
Number of Channels	20	20	20	20	20	20
- off-time	16	15	15	16	15	16
- in-pulse	4	5	5	4	5	4



Standard GEOTEM gate positions

Appendix B

GEOTEM® Interpretation

GEOTEM® Interpretation

Introduction

The basis of the transient electromagnetic (EM) geophysical surveying technique relies on the premise that changes in the primary EM field produced in the transmitting loop will result in eddy currents being generated in any conductors in the ground. The eddy currents then decay to produce a secondary EM field which may be sensed as a voltage in the receiver coil.

GEOTEM1 (GEOterrex Transient ElectroMagnetic system) is an airborne transient (or time-domain) towed-bird EM system incorporating a high-speed digital receiver which records the secondary field response with a high degree of accuracy. Most often the total magnetic field is recorded concurrently.

Although the approach to GEOTEM interpretation varies from one survey to another depending on the type of data presentation, objectives and local conditions, the following generalizations may provide the reader with some helpful background information.

The main purpose of the interpretation is to determine the probable origin of the conductors detected during the survey and to suggest recommendations for further exploration. This is possible through an objective analysis of all characteristics of the different types of conductors and associated magnetic anomalies, if any. If possible the airborne results are compared to other available data. A certitude is seldom reached, but a high probability is achieved in identifying the conductive causes in most cases. One of the most difficult problems is usually the differentiation between surface conductors and bedrock conductors.

Types Of Conductors

Bedrock Conductors

The different types of bedrock conductors normally encountered are the following:

1. *Graphites*. Graphitic horizons (including a large variety of carbonaceous rocks) occur in sedimentary formations of the Precambrian as well as in volcanic tuffs, often concentrated in shear zones. They correspond generally to long, multiple conductors lying in parallel bands. They have no magnetic expression unless associated with pyrrhotite or magnetite. Their conductivity is variable but generally high.

2. *Massive sulphides*. Massive sulphide deposits usually manifest themselves as short conductors of high conductivity, often with a coincident magnetic anomaly. Some massive sulphides, however, are not magnetic, others are not very conductive (discontinuous mineralization), and some may be located among formational conductors so that one must not be too rigid in applying the selection criteria.

   In addition, there are syngenetic sulphides whose conductive pattern may be similar to that of graphitic horizons but these are generally not as prevalent as graphites.

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1 GEOTEM®: Registered Trade Mark of Fugro Airborne Surveys Corporation.

3. *Magnetite and some* serpentinized ultrabasics. These rocks are conductive and very magnetic.

4. *Manganese oxides*. This mineralization may give rise to a weak EM response.

Surficial Conductors

1. Beds of clay and alluvium, some swamps, and brackish ground water are usually poorly conductive to moderately conductive.

2. Lateritic formations, residual soils and the weathered layer of the bedrock may cause surface anomalous zones, the conductivity of which is generally low to medium but can occasionally be high. Their presence is often related to the underlying bedrock.

Cultural Conductors (Man-Made)

1. *Power lines*. These frequently, but not always, produce a conductive type of response on the GEOTEM record. In the case of direct radiation of its field, a power line is easily recognized by a GEOTEM anomaly which exhibits phase changes between different channels. In the case of a grounded wire, or steel pylon, the anomaly may look very much like a bedrock conductor.

2. *Grounded fences or pipelines*. These will invariably produce responses much like a bedrock conductor. Whenever they cannot be identified positively, a ground check is recommended.

3. *General culture*. Other localized sources such as certain buildings, bridges, irrigation systems, tailings ponds etc., may produce GEOTEM anomalies. Their instances, however, are rare and often they can be identified on the visual path recovery system.

Analysis Of The Conductors

The apparent conductivity alone is not generally a decisive criterion in the analysis of a conductor. In particular, one should note:

its shape and size,
all local variations of characteristics within a conductive zone,
any associated geophysical parameter (e.g. magnetics),
the geological environment,
the structural context, and
the pattern of surrounding conductors.

The first objective of the interpretation is to classify each conductive zone according to one of the three categories which best defines its probable origin. The categories are cultural, surficial and bedrock. A second objective is to assign to each zone a priority rating as to its potential as an economic prospect.

Bedrock Conductors

This category comprises those anomalies which cannot be classified according to the criteria established for cultural and surficial responses. It is difficult to assign a universal set of values which typify bedrock conductivity because any individual zone or anomaly might exhibit some, but not all, of these values and still be a bedrock conductor. The following criteria are considered indicative of a bedrock conductor:

An intermediate to high conductivity identified by a response with slow decay, with deflections most often present in the later channels.

The anomaly should be narrow, relatively symmetrical, with a well-defined peak.

There should be no serious displacement of anomaly position or change in anomaly shape (other than mirror image) with respect to flight direction, except in the case of non-vertical dipping bodies. The alternating character of the response as a result of line direction can be diagnostic of conductor geometry. Figures 2 to 6 illustrate anomalies associated with different target models.

A small to intermediate amplitude. Large amplitudes are normally associated with surficial conductors. The amplitude varies according to the depth of the source.

A degree of continuity of the EM characteristics across several lines.

An associated magnetic response of similar dimensions. One should note, however, that those rocks which weather to produce a conductive upper layer will possess this magnetic association. In the absence of one or more of the characteristics defined in 1, 2, 3 and 4, the related magnetic response cannot be considered significant.

Most obvious bedrock conductors occur in long, relatively monotonous, sometimes multiple zones following formational strike. Graphitic material is usually the most probable source. Massive syngenetic sulphides extending for many kilometres are known in nature but, in general, they are not common. Long formational structures associated with a strong magnetic expression may be indicative of banded iron formations.

A bedrock conductor reflecting the presence of a massive sulphide would normally exhibit the following characteristics:

a high conductivity,
a good anomaly shape (narrow and well-defined peak),
a small to intermediate amplitude,
an isolated setting,
a short strike length (in general, not exceeding one kilometre), and
preferably, with a localized magnetic anomaly of matching dimensions.

Surficial Conductors

This term is used for geological conductors in the overburden, either glacial or residual in origin, and in the weathered layer of the bedrock. Most surficial conductors are probably caused by clay minerals. In some environments the presence of salts will contribute to the conductivity. Other possible electrolytic conductors are residual soils, swamps, brackish ground water and alluvium such as lake or river-bottom deposits, flood plains and estuaries.

Normally, most surficial materials have low to intermediate conductivity so they are not easily mistaken for highly conductive bedrock features. Also, many of them are wide and their anomaly shapes are typical of broad horizontal sheets.

When surficial conductivity is high it is usually still possible to distinguish between a horizontal plate (more likely to be surficial material) and a vertical body (more likely to be a bedrock source) thanks to the asymmetry of the GEOTEM responses observed at the edges of a broad conductor when flying adjacent lines in opposite directions. The configuration of the system is such that the response recorded at the leading edge is more pronounced than that registered at the trailing edge. Figure 1 illustrates the "edge effect" and the resulting conductive pattern in plan view. In practice there are many variations on this very diagnostic phenomenon.

One of the more ambiguous situations as to the true source of the response is when surface conductivity is related to bedrock lithology as for example, surface alteration of an underlying bedrock unit. At times, it is also difficult to distinguish between a weak conductor within the bedrock (e.g. near-massive sulphides) and a surficial source.

In the search for massive sulphides or other bedrock targets, surficial conductivity is generally considered as interference but there are situations where the interpretation of surficial-type conductors is the primary goal. When soils, weathered or altered products are conductive, and in-situ, the GEOTEM responses are a very useful aid to geologic mapping. Shears and faults are often identified by weak, usually narrow, anomalies.

Analysis of surficial conductivity can be used in the exploration for such features as lignite deposits, kimberlites, paleochannels and ground water. In coastal or arid areas, surficial responses may serve to define the limits of fresh, brackish and salty water.

Cultural Conductors

The majority of cultural anomalies occur along roads and are accompanied by a response on the power line monitor. (This monitor is set to 50 or 60 Hz, depending on the local power grid.) Power lines are the most common source of the anomalies and many are recognized immediately by virtue of phase reversals or an abnormal rate of decay. A certain number yield normal GEOTEM anomalies which could be mistaken for bedrock responses. There are also some power lines which have no GEOTEM response whatsoever.

The power line monitor, of course, is of great assistance in identifying cultural anomalies of this type. It is important to note, however, that geological conductors in the vicinity of power lines may exhibit a weak response on the monitor because of current induction via the earth.

Fences, pipelines, communication lines, railways and other man-made conductors can give rise to GEOTEM responses, the strength of which will depend on the grounding of these objects.

Another facet of this analysis is the line-to-line comparison of anomaly character along suspected man-made conductors. In general, the amplitude, the rate of decay, and the anomaly width should not vary a great deal along any one conductor, except for the change in amplitude related to terrain clearance variation. A marked departure from the average response character along any given feature gives rise to the possibility of a second conductor.

In most cases a visual examination of the site will suffice to verify the presence of a man-made conductor. If a second conductor is suspected the ground check is more difficult to accomplish. The object would be to determine if there is (i) a change in the man-made construction, (ii) a difference in the grounding conditions, (iii) a second cultural source, or (iv) if there is, indeed, a geological conductor in addition to the known man-made source.

The selection of targets from within extensive (formational) belts is much more difficult than in the case of isolated conductors. Local variations in the EM characteristics, such as in the amplitude, decay, shape etc., can be used as evidence for a relatively localized occurrence. Changes in the character of the EM responses, however, may be simply reflecting differences in the conductive formations themselves rather than indicating the presence of massive sulphides and, for this reason, the degree of confidence is reduced.

Another useful guide for identifying localized variations within formational conductors is to examine the magnetic data compiled as isomagnetic contours. Further study of the magnetic data can reveal the presence of faults, contacts, and other features which, in turn, help define areas of potential economic interest.

Finally, once ground investigations begin, it must be remembered that the continual comparison of ground knowledge to the airborne information is an essential step in maximizing the usefulness of the GEOTEM data.

EDGE EFFECT

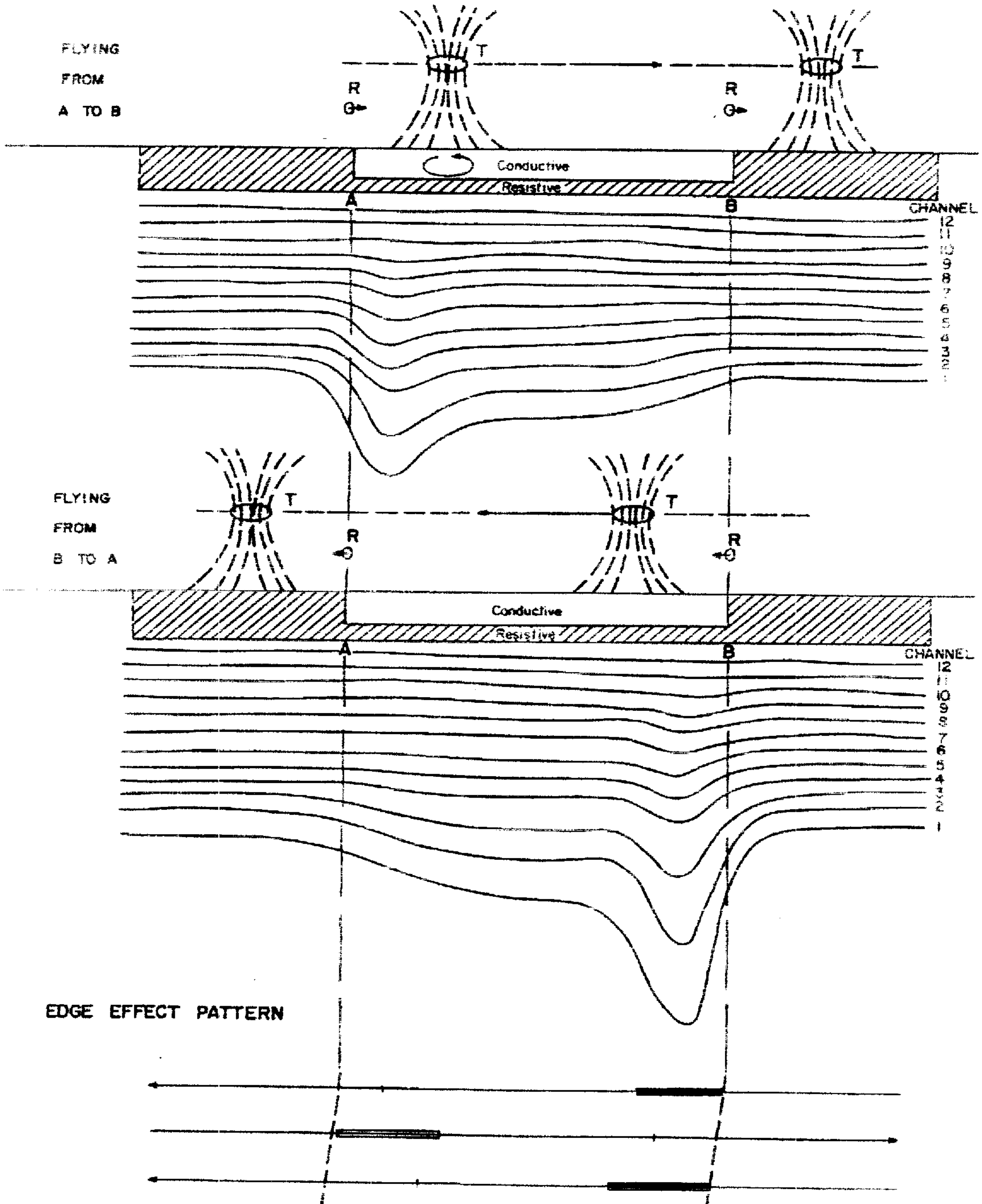


FIGURE 1

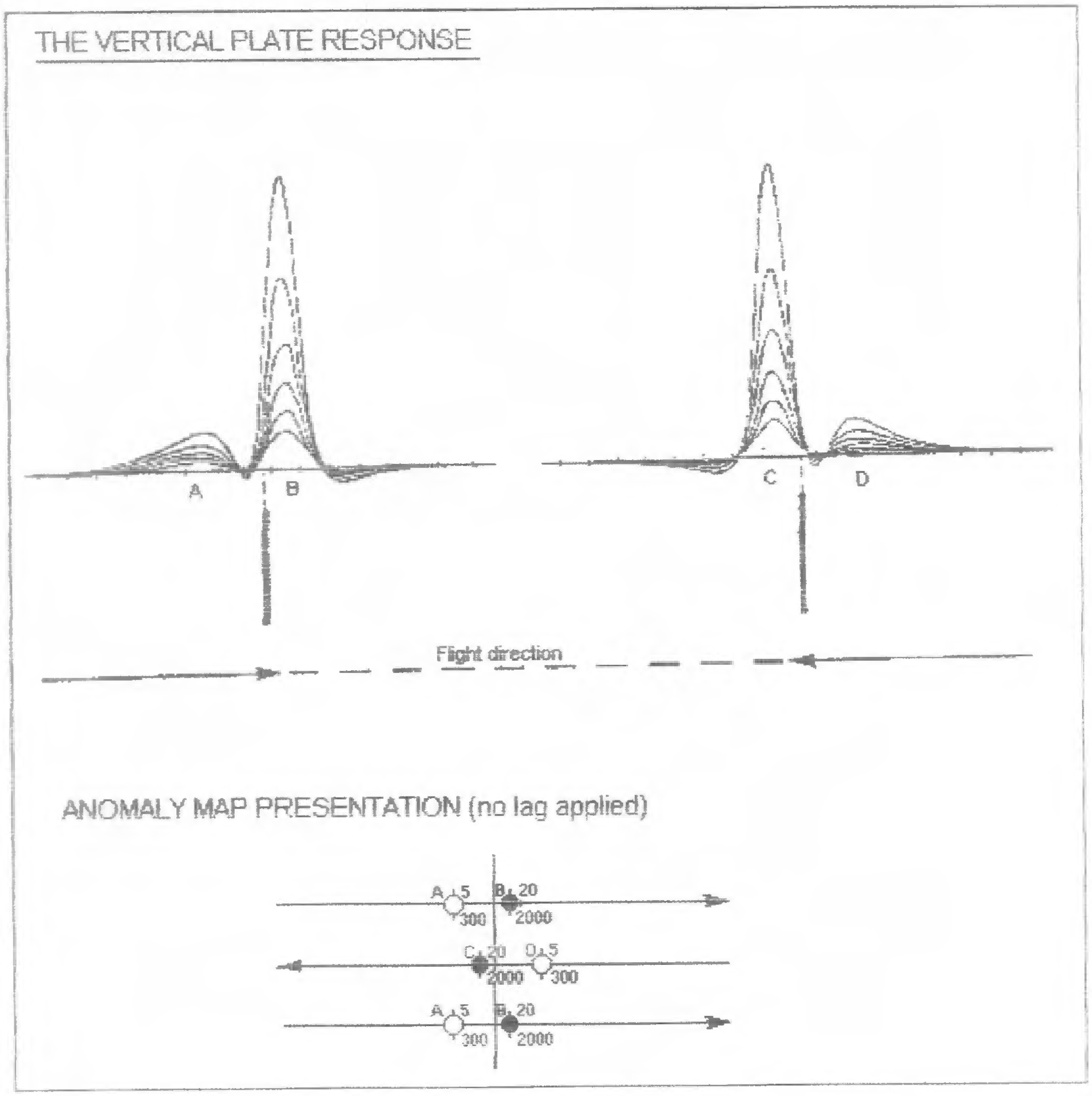

THE VERTICAL PLATE RESPONSE
A
B
C
D
Flight direction
ANOMALY MAP PRESENTATION (no lag applied)
A 5
300
B 20
2000
C 20
2000
D 5
300
A 5
300
B 20
2000

Figure 2

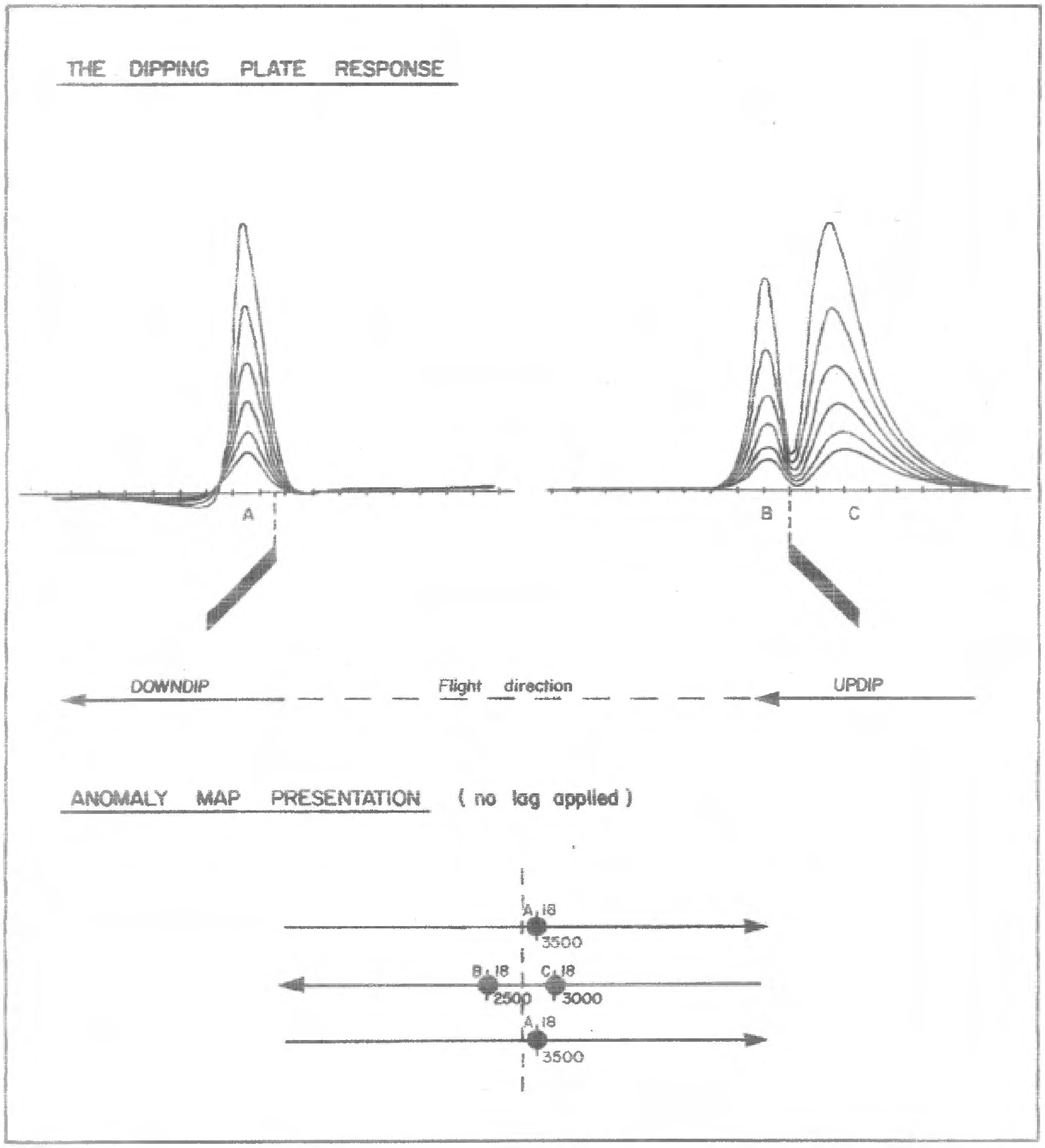

THE DIPPING PLATE RESPONSE
A
B
C
DOWNDIP
Flight direction
UPDIP
ANOMALY MAP PRESENTATION (no lag applied)
A 18
3500
B 18
C 18
2500
3000
A 18
3500

Figure 3

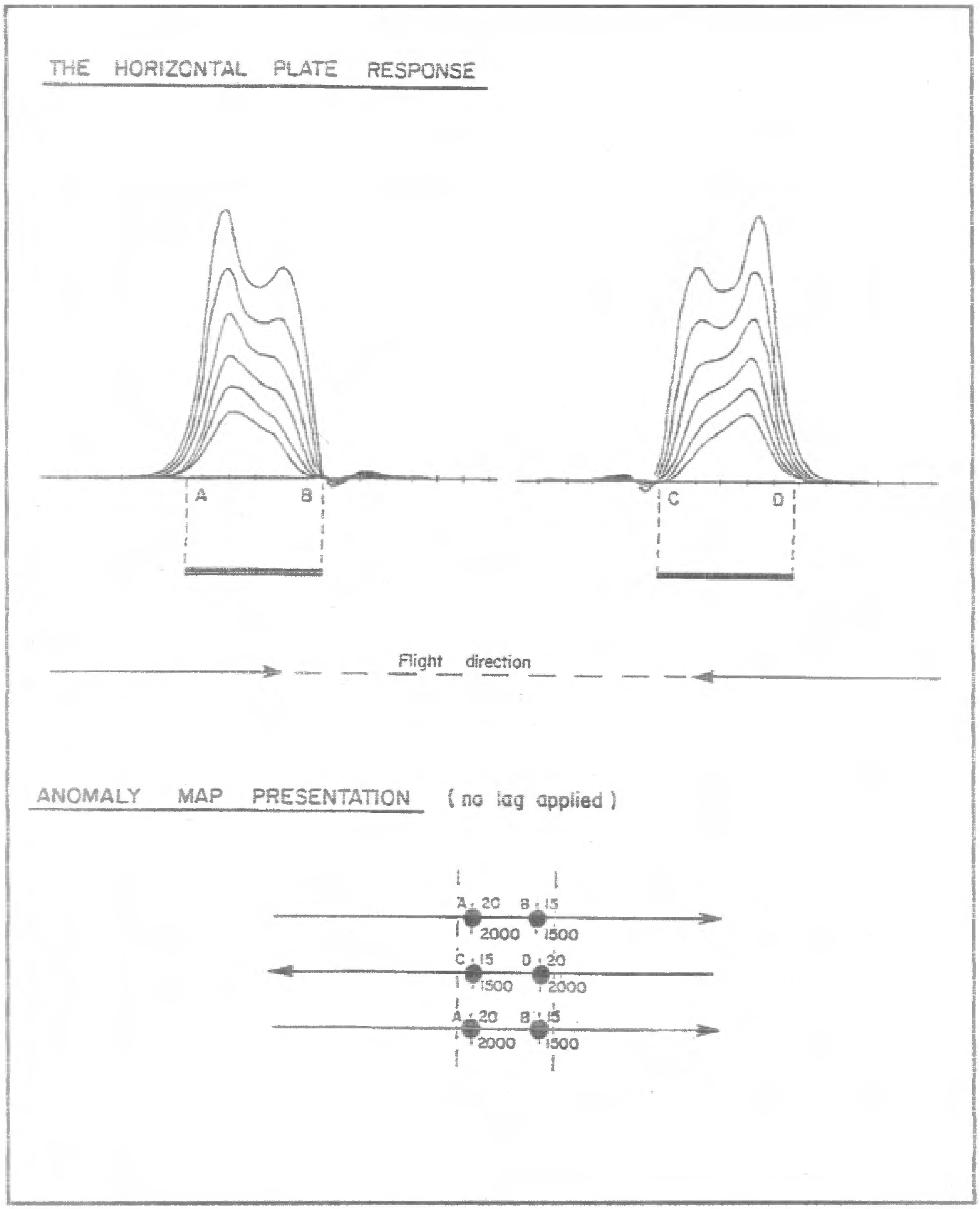

THE HORIZONTAL PLATE RESPONSE
A
B
C
D
Flight direction
ANOMALY MAP PRESENTATION (no lag applied)
A 20
B 15
2000
1500
C 15
D 20
1500
2000
A 20
B 15
2000
1500

Figure 4

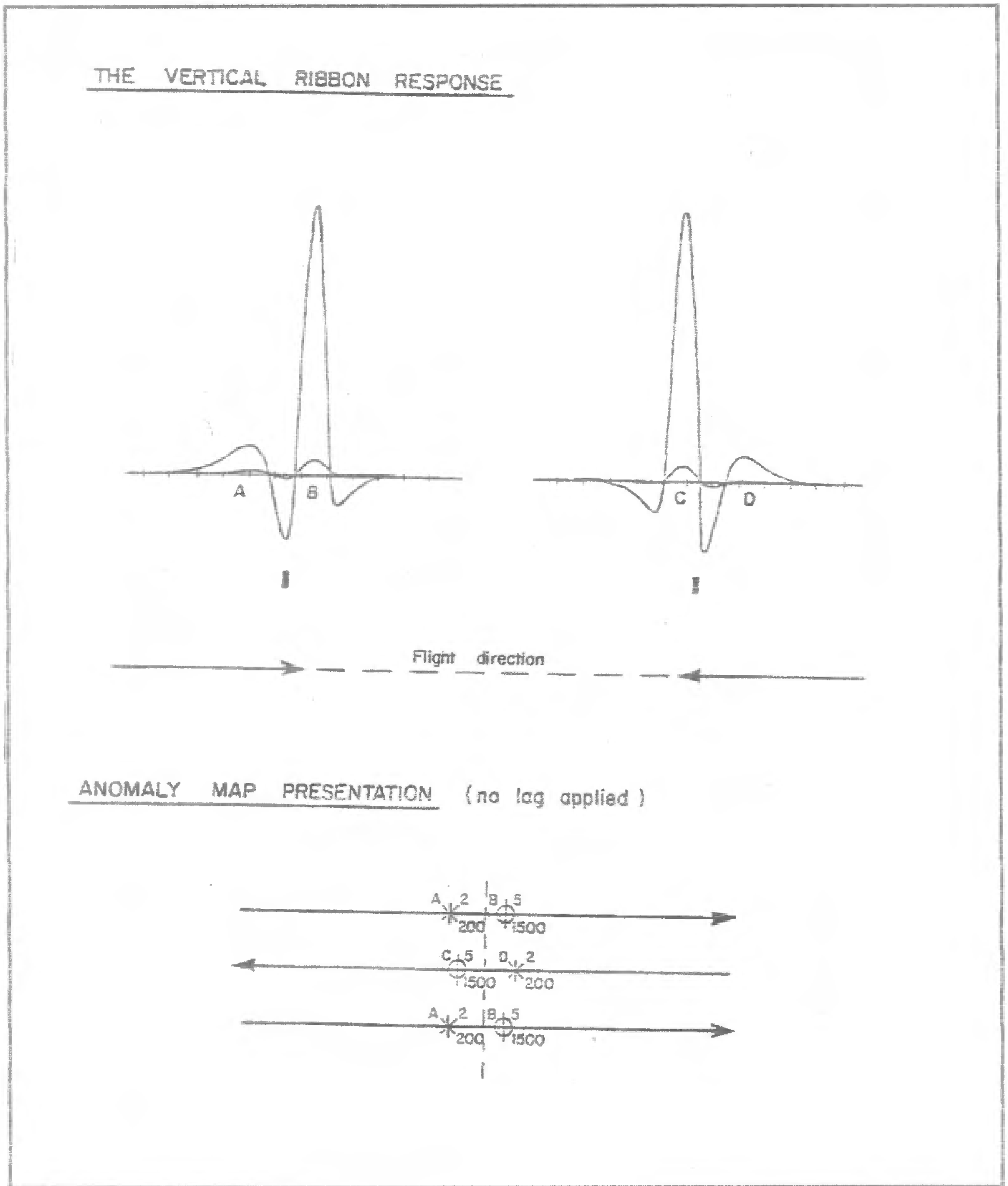

THE VERTICAL RIBBON RESPONSE
A
B
C
D
Flight direction
ANOMALY MAP PRESENTATION (no lag applied)
A 2
B 5
200
1500
C 5
D 2
1500
200
A 2
B 5
200
1500

Figure 5

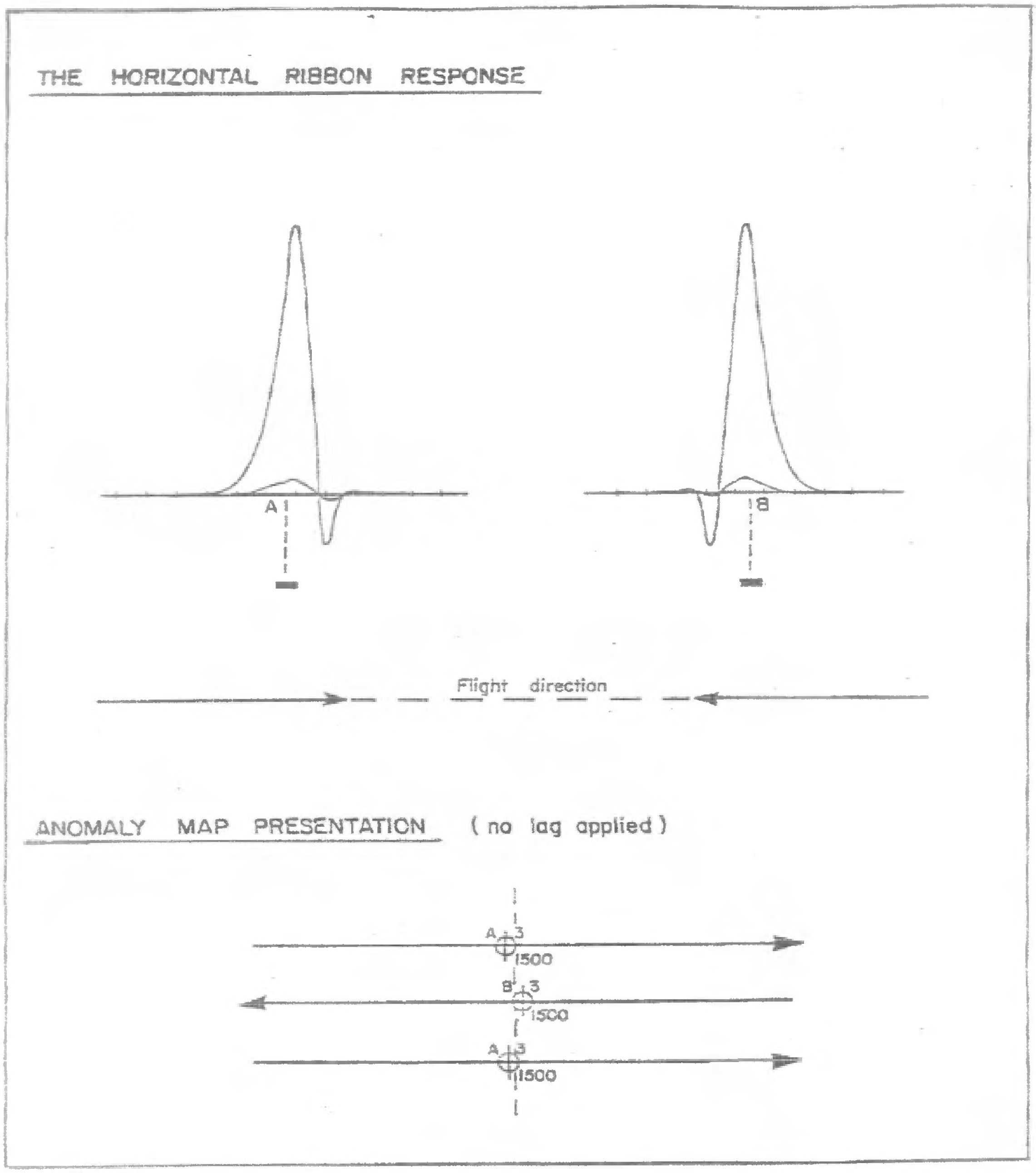

THE HORIZONTAL RIBBON RESPONSE
A
B
Flight direction
ANOMALY MAP PRESENTATION (no lag applied)
A 3
1500
B 3
1500
A 3
1500

Figure 6

Appendix C

Multicomponent GEOTEM® modelling

Multicomponent GEOTEM® modelling

Introduction

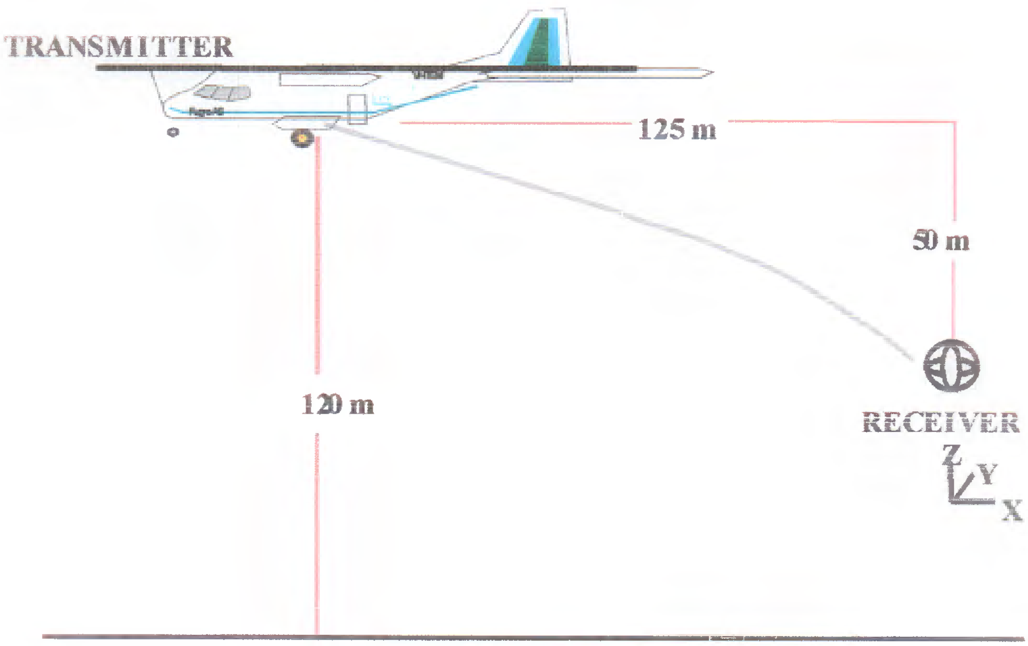
The PLATE program has been used to generate synthetic responses over a number of plate models with varying depth of burial (0, 150 and 300m) and dips (0, 45, 90 and 135 degrees). The geometry assumed for the GEOTEM system is shown on the following page, and the transmitter waveform on the subsequent page. For simplicity, only six receiver gates have been calculated and plotted.

In all cases the plate has a strike length of 600 m with a strike direction into the page. The width of the plate is 300 m. As the flight path traverses the centre of the plate, the y component is zero and has not been plotted.

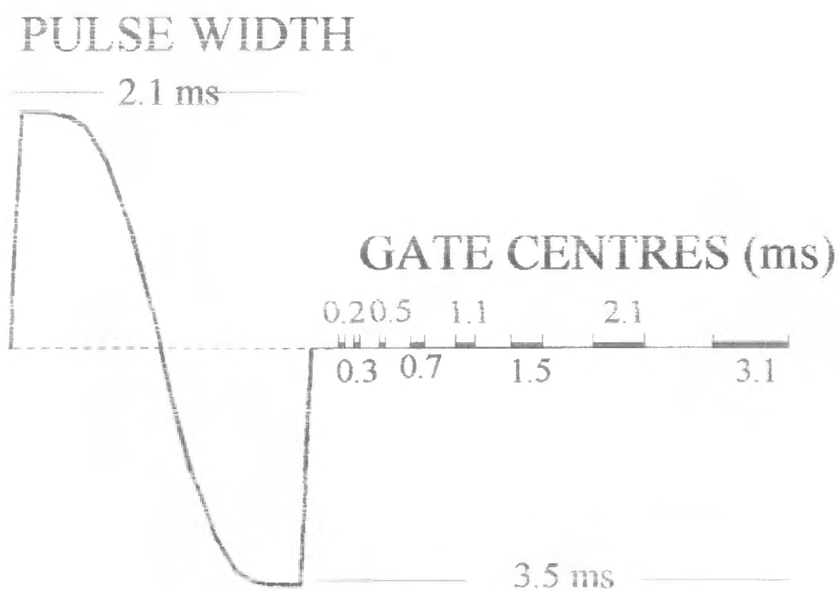
The conductance of the plate is 20 S. In cases when the conductance is different, an indication of how the amplitudes may vary can be obtained from the nomogram included.

In the following plots all components are normalized to the total primary field.

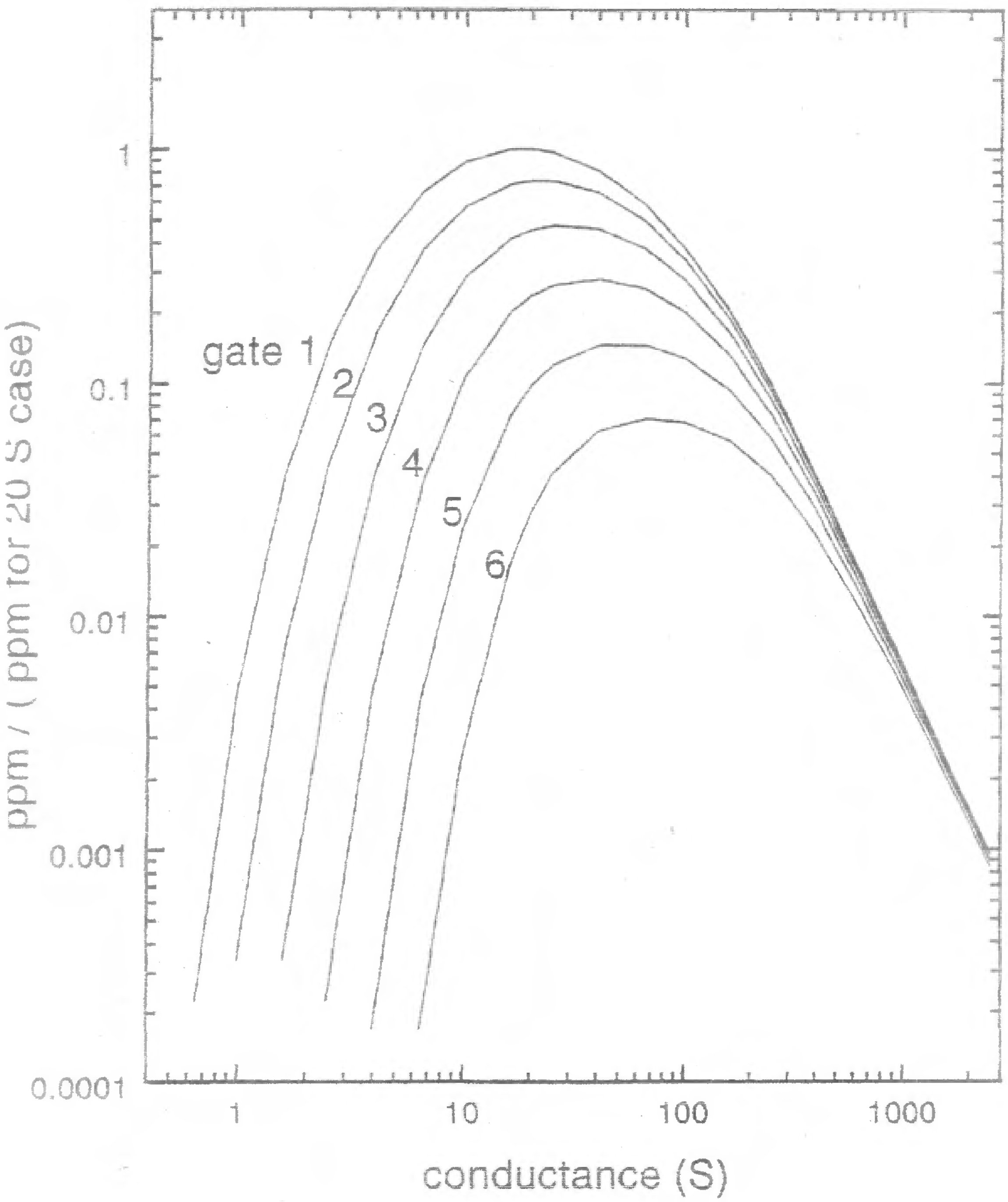
Nominal GEOTEM geometry



Transmitter waveform and receiver sampling (90 Hz)



Nomogram



1
0.1
0.01
0.001
0.0001
ppm / (ppm for 20 S case)
gate 1
2
3
4
5
6
1
10
100
1000
conductance (S)

Plate: depth =0; dip =0

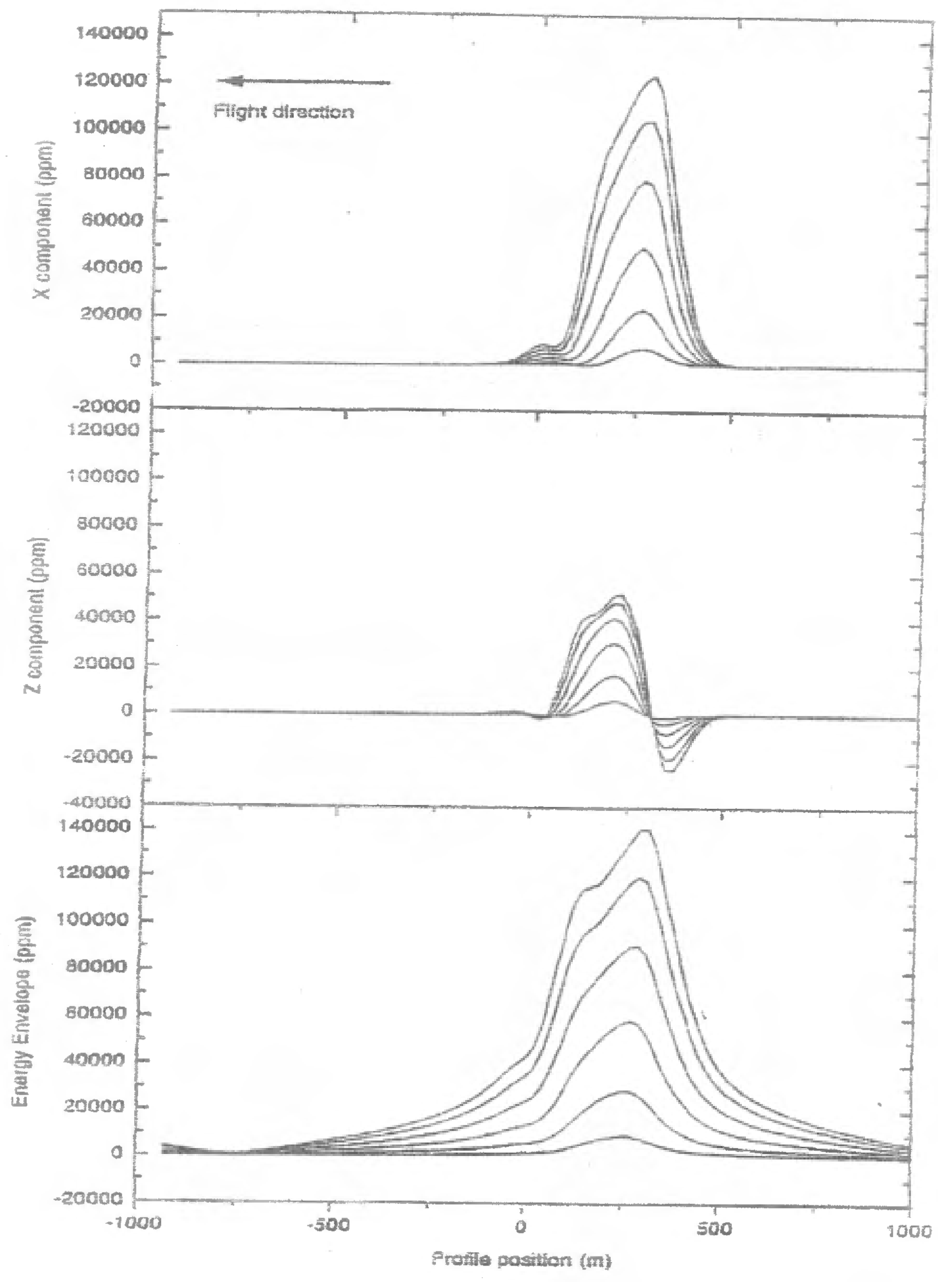
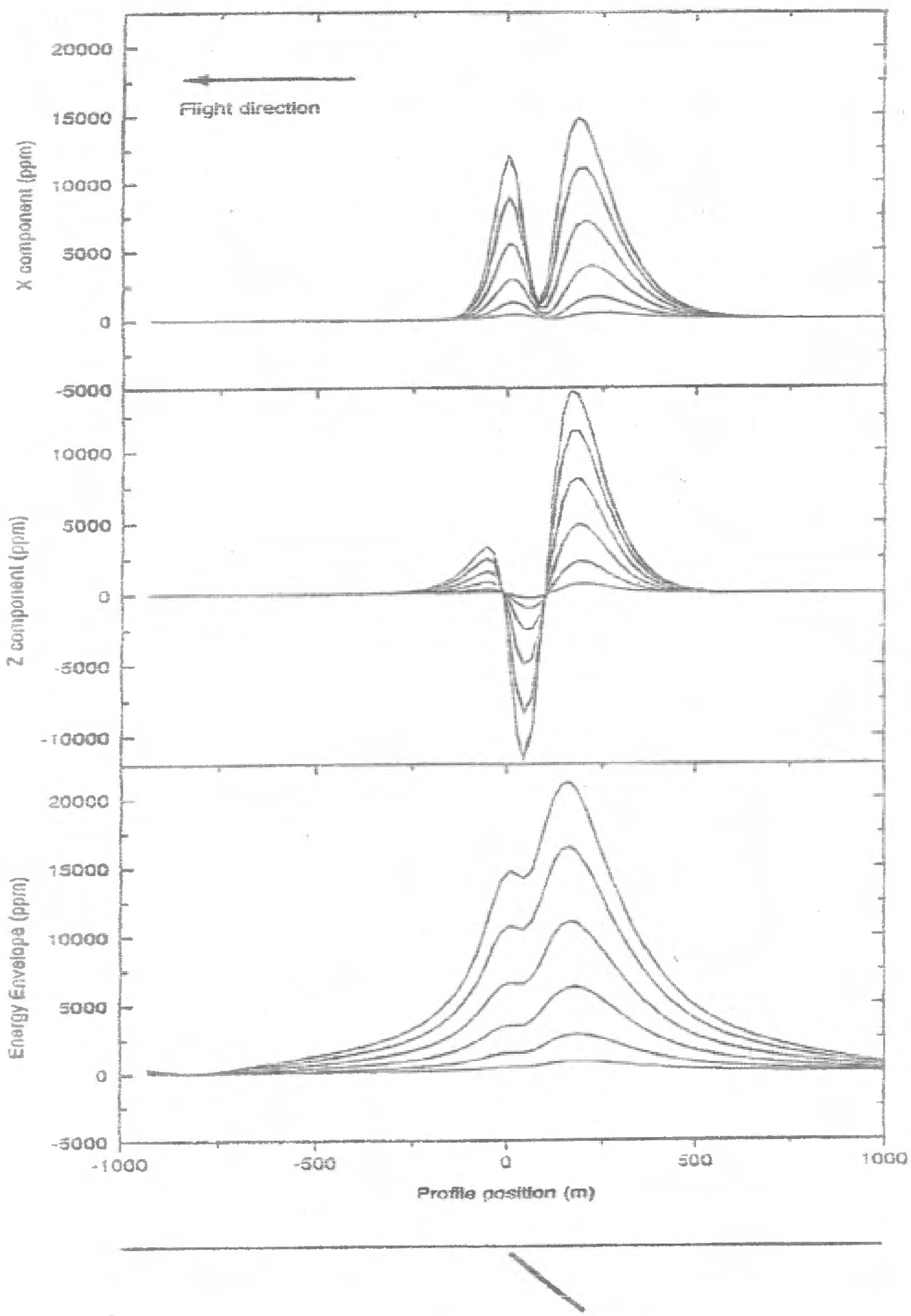
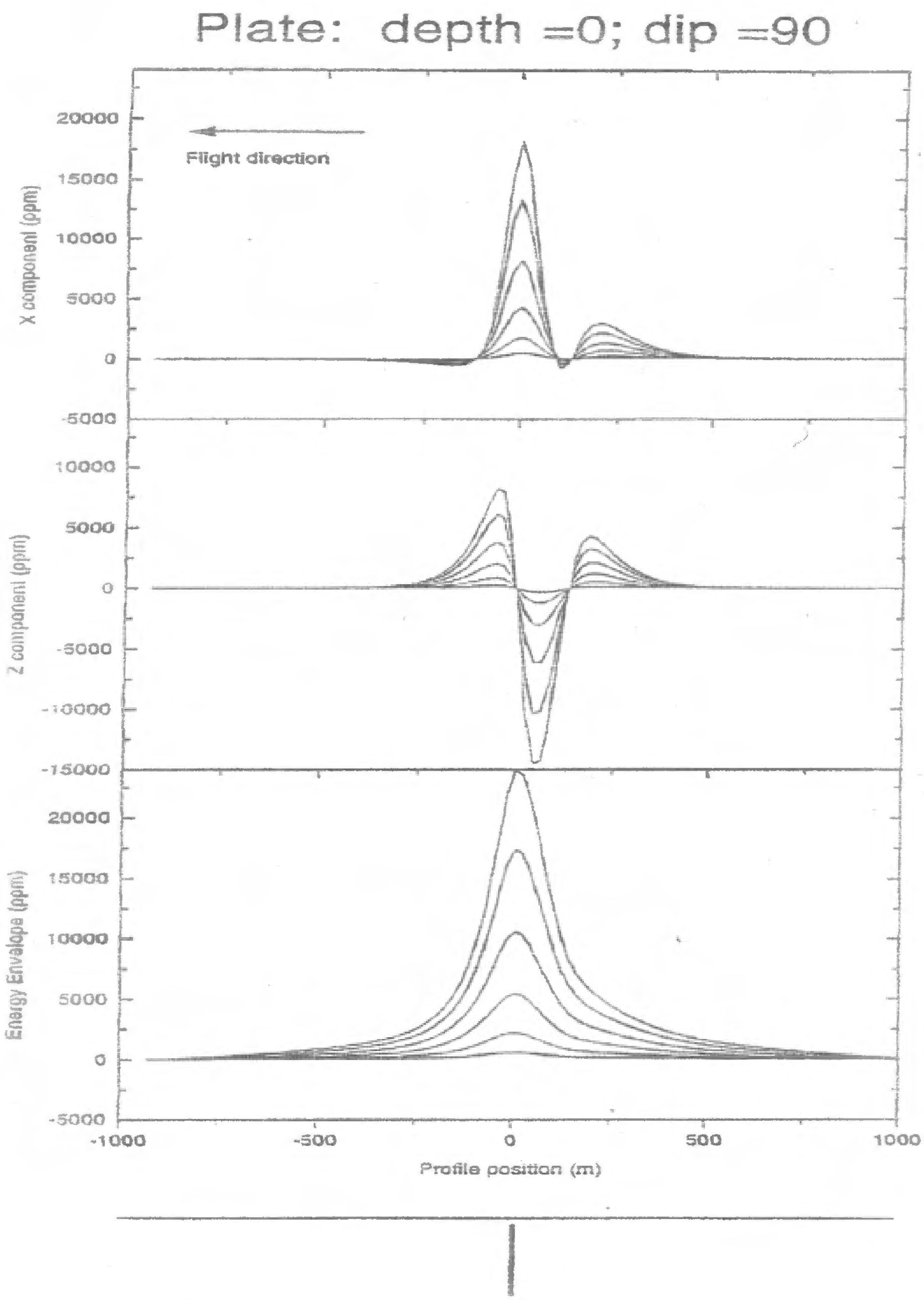


Plate: depth =0; dip =45





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Flight direction
X component (ppm)
Z component (ppm)
Energy Envelope (ppm)
Profile position (m)
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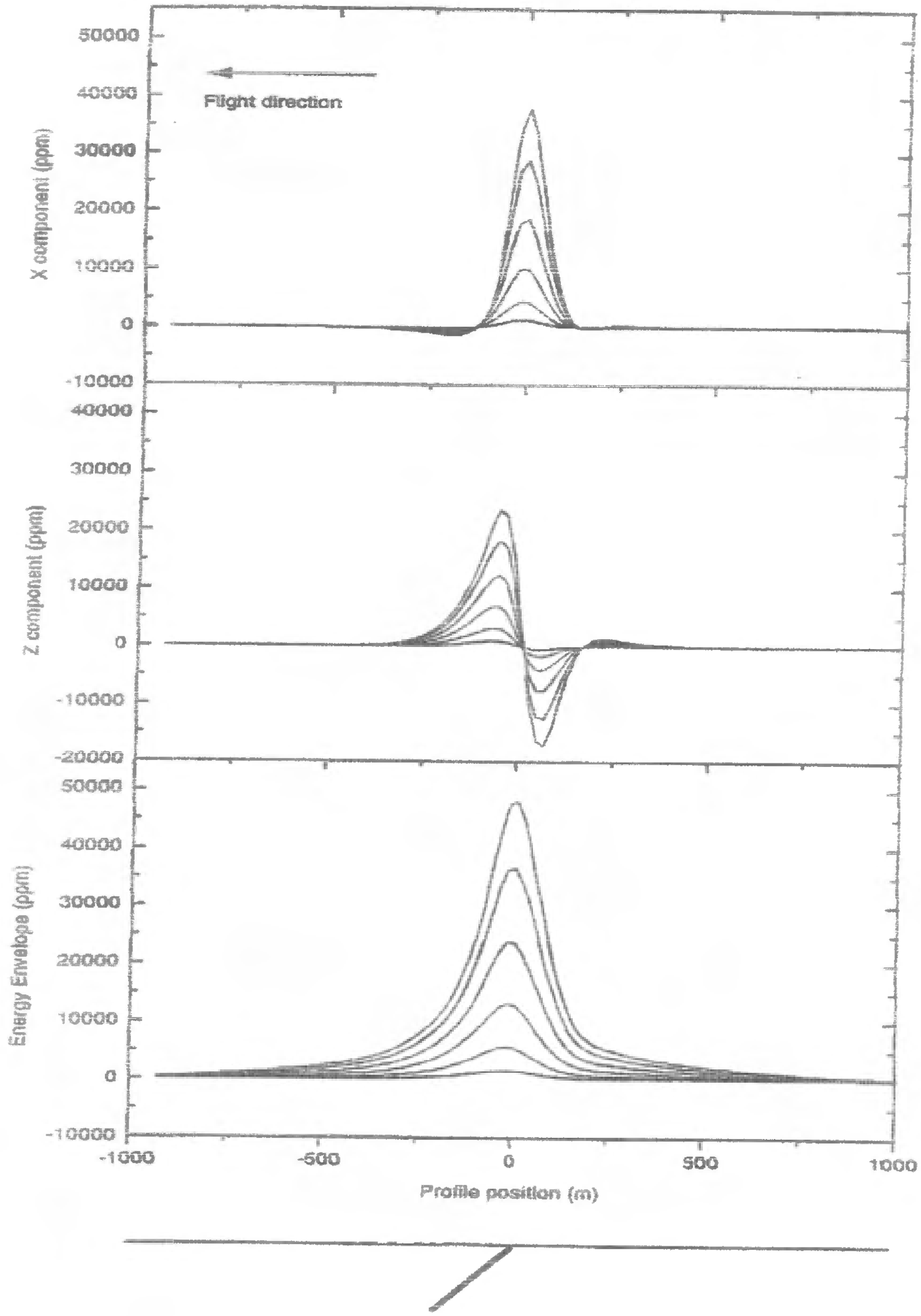
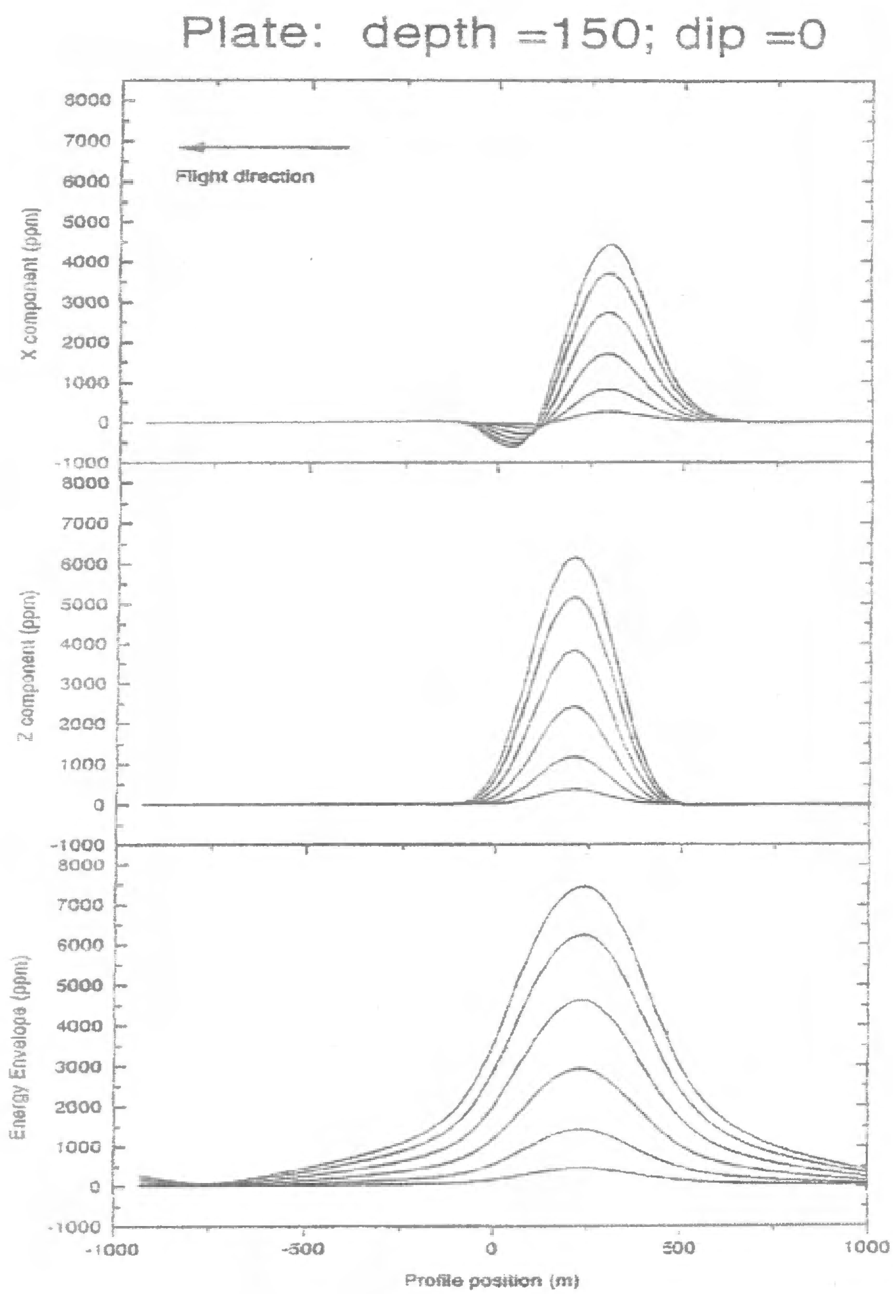
15000
10000
5000
0
-5000
-10000
-15000
-1000
-500
500
1000

Plate: depth =0; dip =135

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Z component (ppm)
Energy Envelope (ppm)
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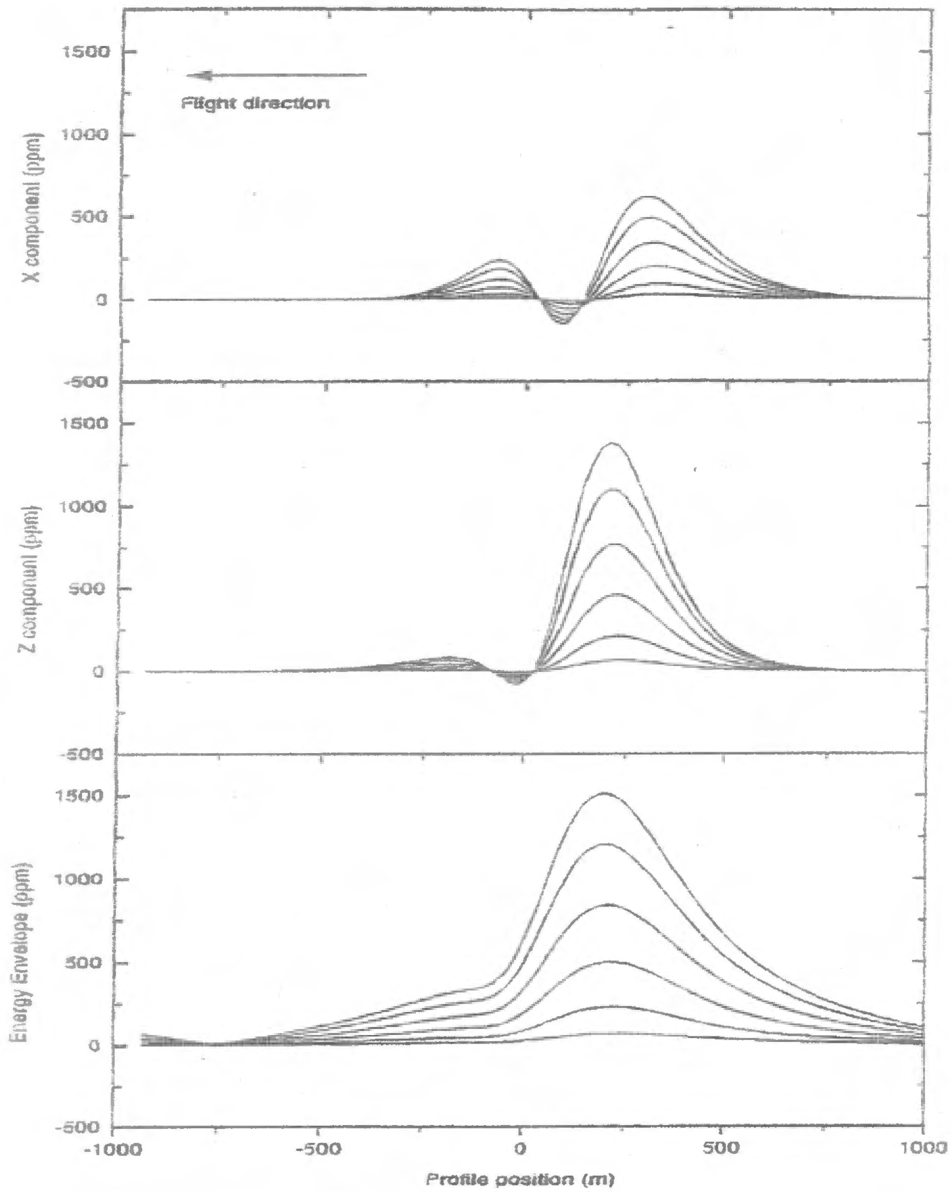
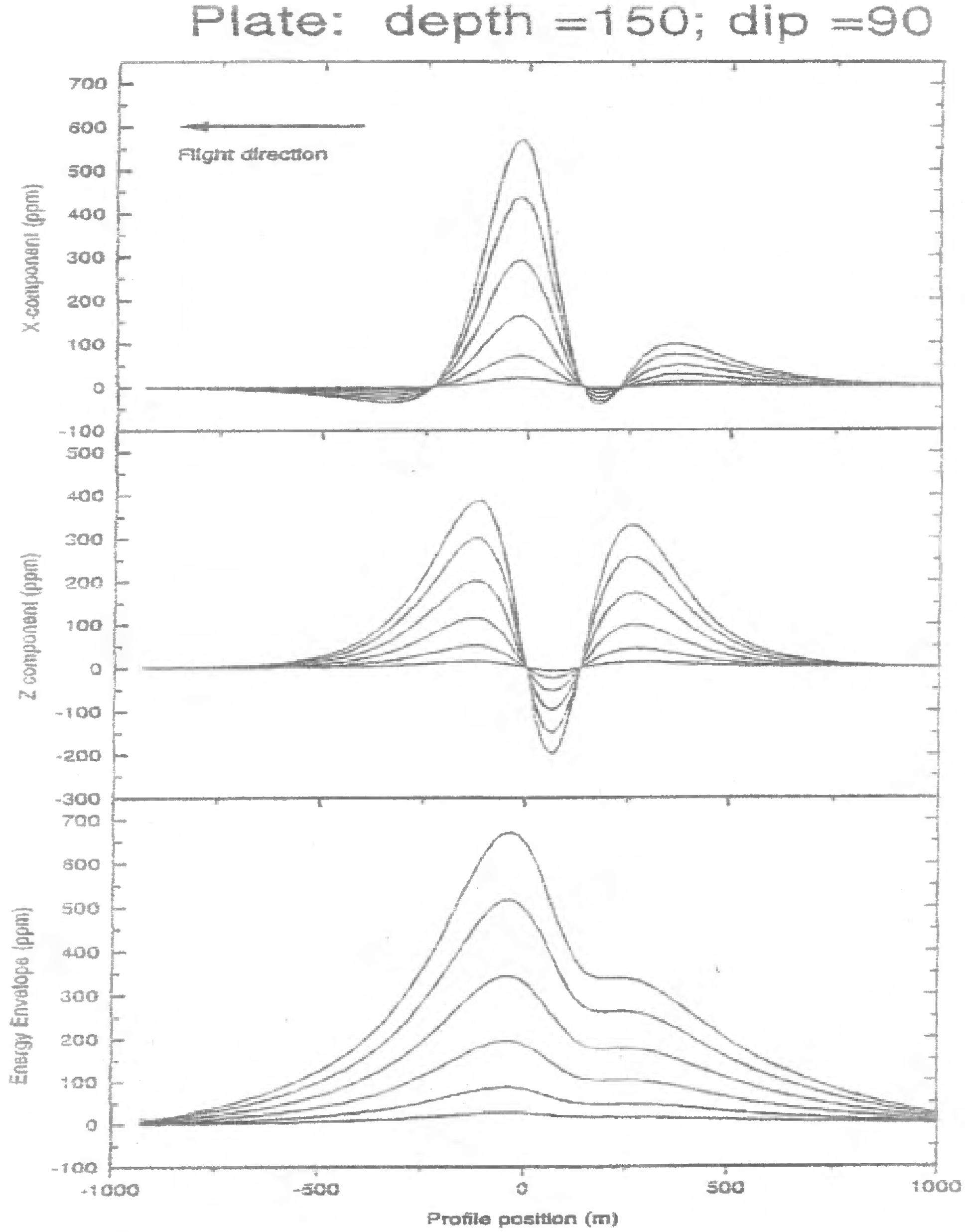
7000
6000
5000
4000
3000
2000
1000
0
-1000
-1000
-500
0
500
1000
Profile position (m)

Plate: depth =150; dip =45

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Flight direction
X-component (ppm)
Z component (ppm)
Energy Envelope (ppm)
Profile position (m)
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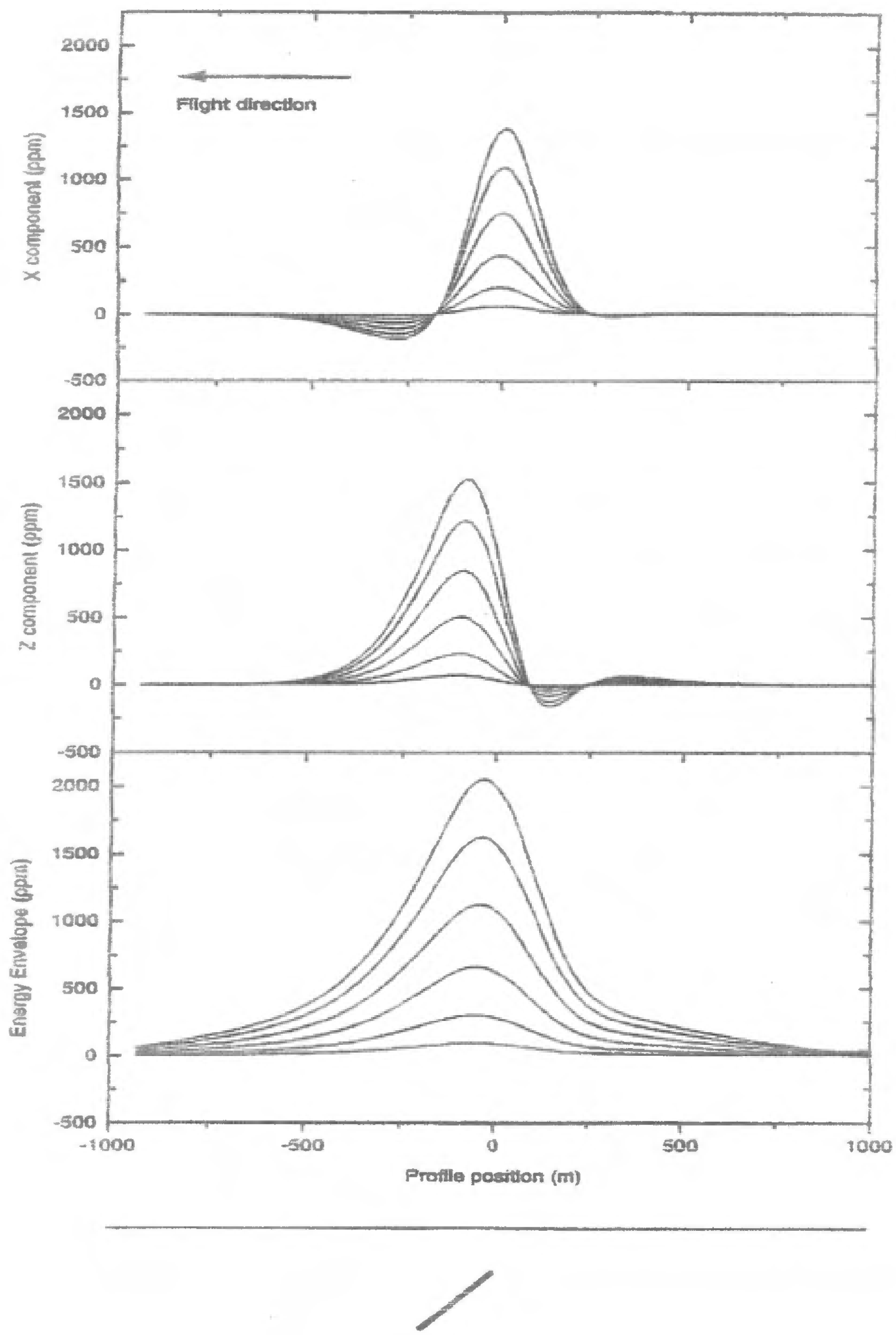
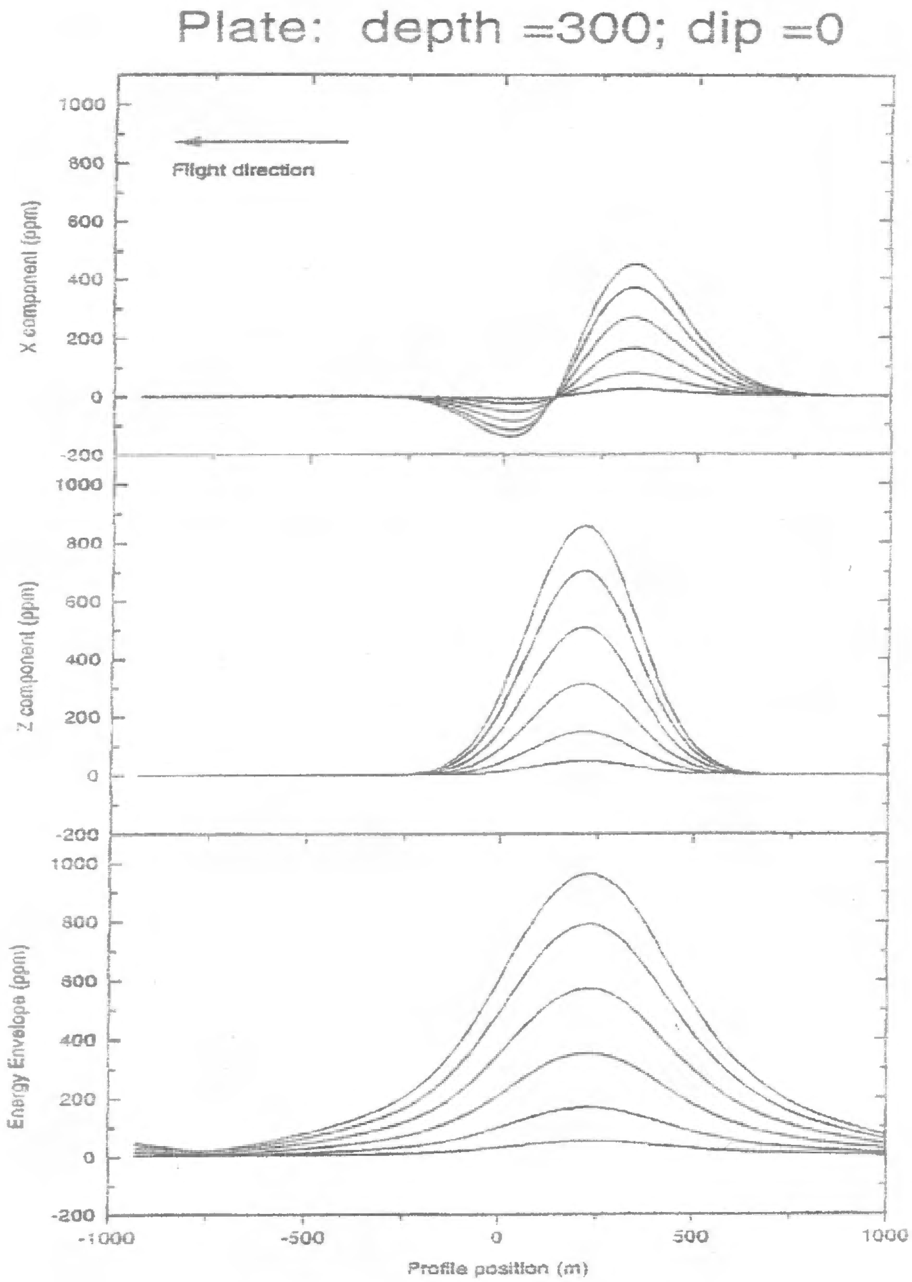
-500
0
500
1000

Plate: depth =150; dip =135

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Flight direction
X component (ppm)
Z component (ppm)
Energy Envelope (ppm)
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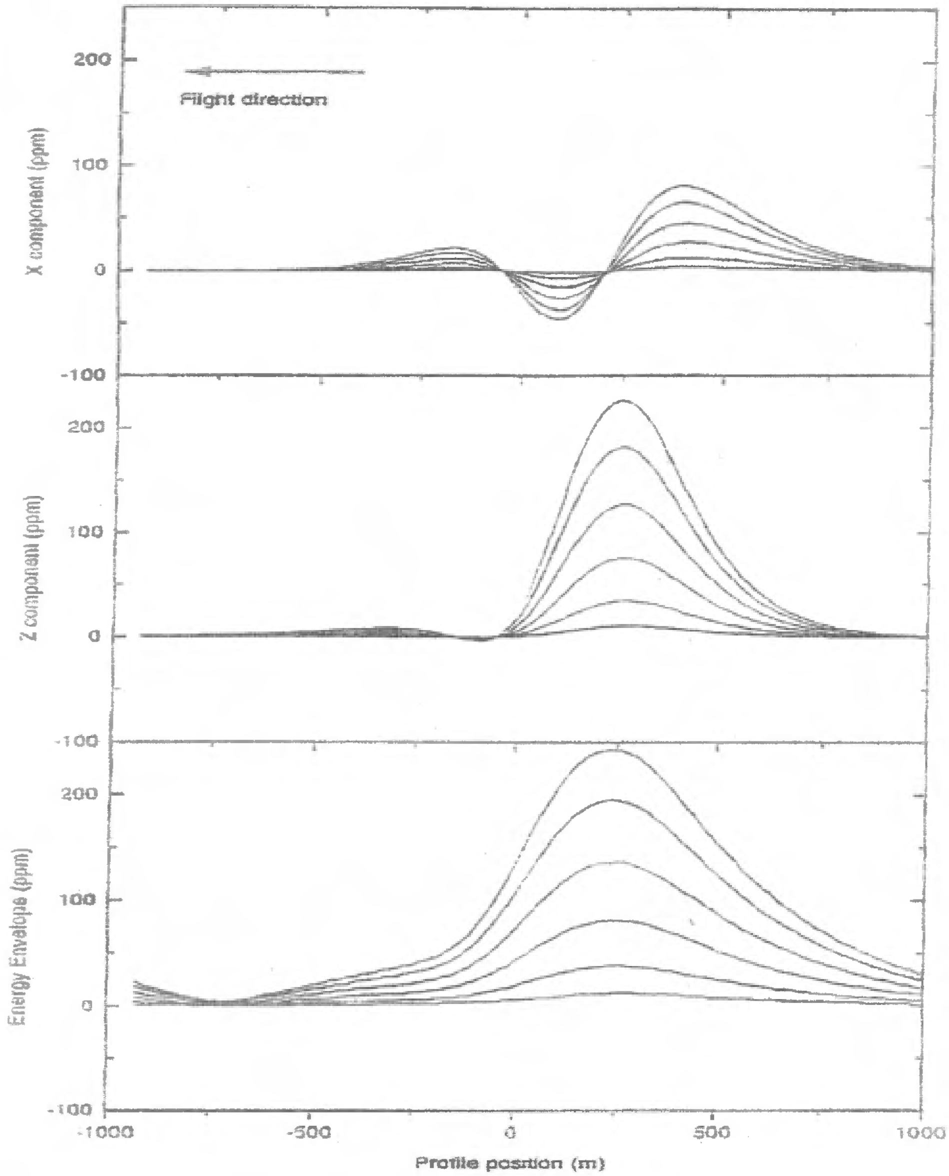
800
600
400
200
0
-200
-1000
-500
0
500
1000
Profile position (m)

Plate: depth =300; dip =45



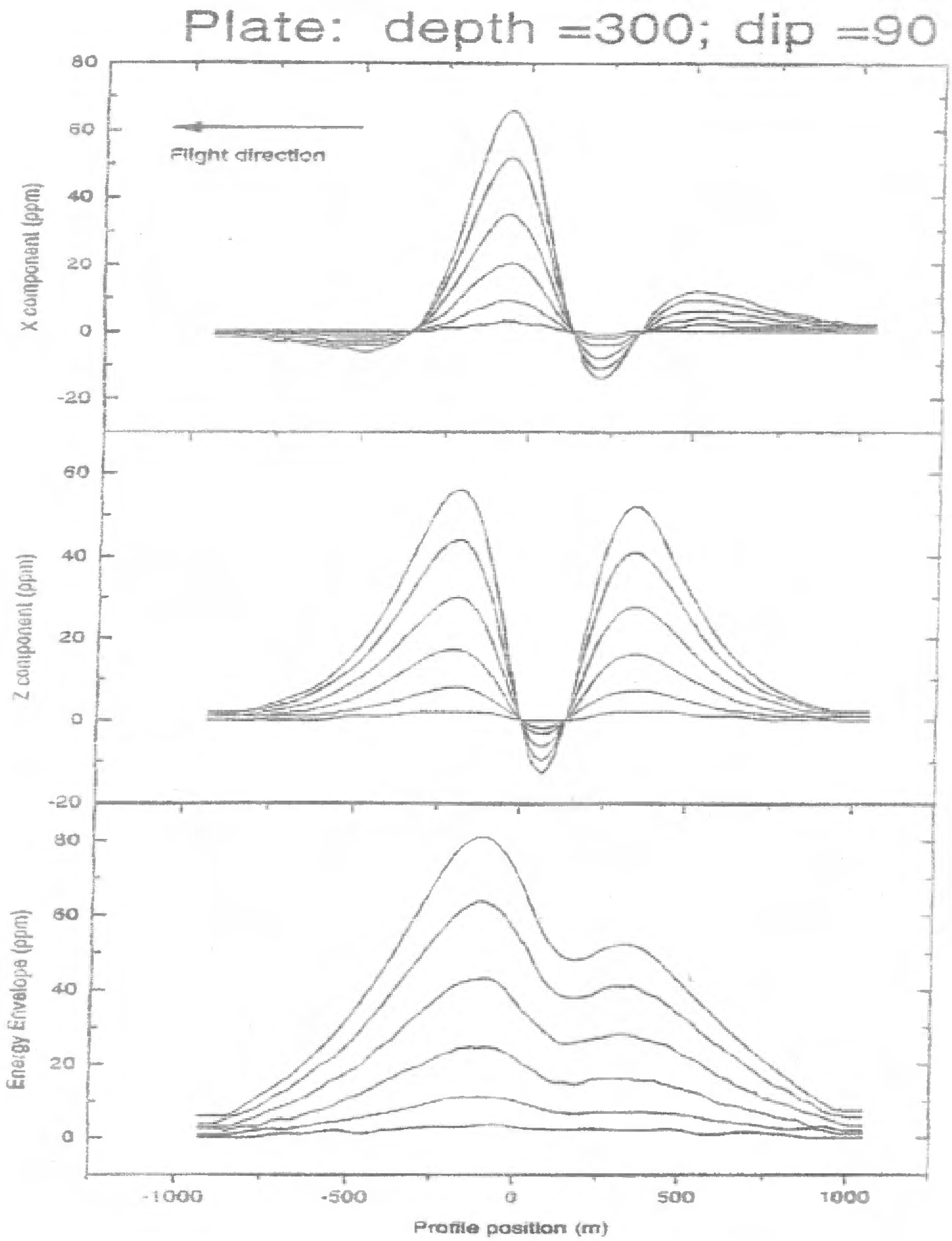
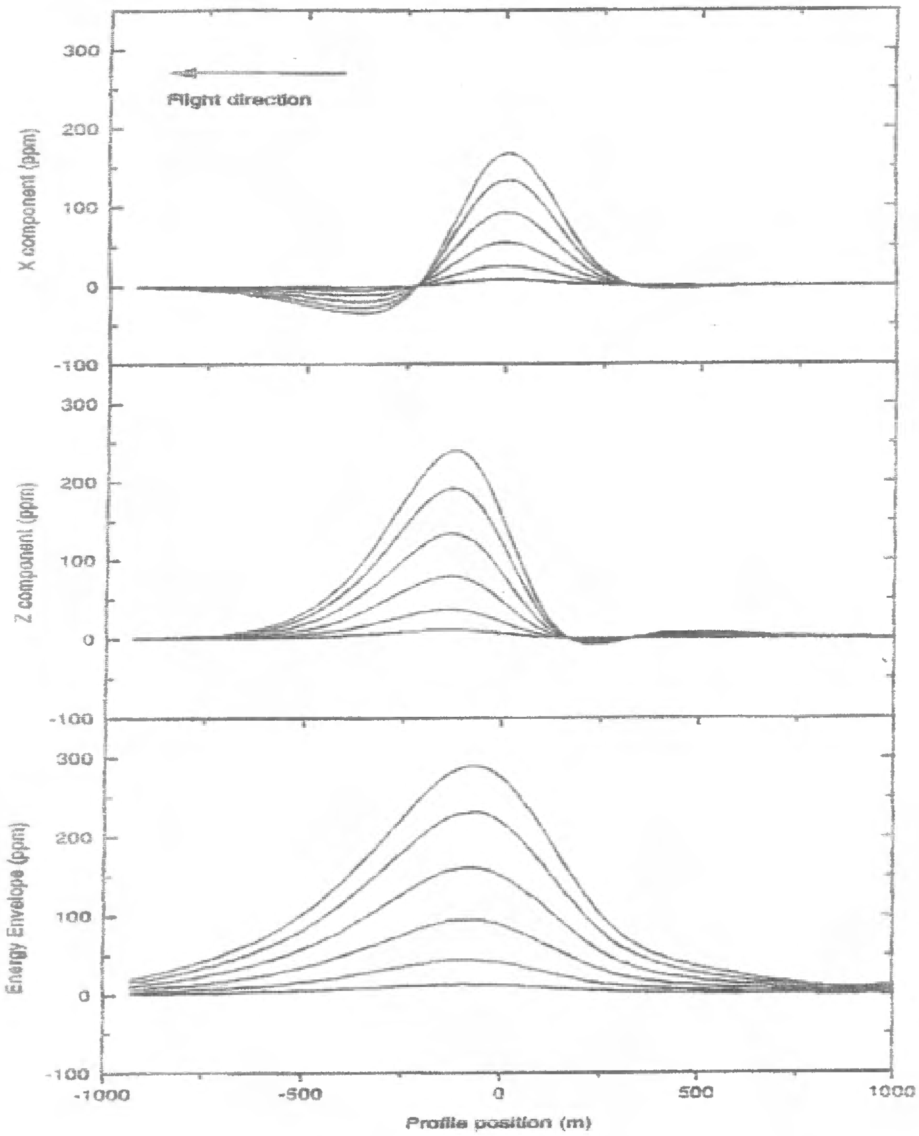


Plate: depth =300; dip =90
Flight direction
X component (ppm)
Z component (ppm)
Energy Envelope (ppm)
Profile position (m)

Plate: depth =300; dip =135



Appendix D

The Usefulness Of Multicomponent, Time-Domain Airborne Electromagnetic Measurement

GEOPHYSICS, VOL 61, NO. 1 (JANUARY-FEBRUARY 1996); P. 74-81, 17 FIGS.

The Usefulness Of Multicomponent, Time-Domain Airborne Electromagnetic Measurements

Richard S. Smith* and Pierre B. Keating ‡

ABSTRACT

Time-domain airborne electromagnetic (AEM) systems historically measure the inline horizontal (x) component. New versions of the electromagnetic systems are designed to collect two additional components [the vertical (z) and the lateral horizontal (y) component] to provide greater diagnostic information.

In areas where the geology is near horizontal, the z-component response provides greater signal to noise, particularly at late delay times. This allows the conductivity to be determined to greater depth. In a layered environment, the symmetry implies that the y component will be zero; hence a non-zero y component will indicate a lateral inhomogeneity.

Three components can be combined to give the "energy envelope" of the response. Over a vertical plate, the response profile of this envelope has a single positive peak and no side lobes. The shape of the energy envelope is dependent on the flight direction, but less so than the x component.

In the interpretation of discrete conductors, the z component data can be used to ascertain the dip and depth to the conductor using simple rules of thumb. When the profile line is perpendicular to the strike direction and over the center of the conductor, the y component will be zero; otherwise it appears to be a combination of the x and z components. The extent of contamination by the x and z components can be used to ascertain the strike direction and the lateral offset of the target respectively.

Having the z and y component data increases the total response when the profile line has not traversed the target. This increases the possibility of detecting a target located between adjacent flight lines or beyond a survey boundary.

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INTRODUCTION

The acquisition of multiple-component electromagnetic (EM) data is becoming more commonplace. In some techniques, such as those which use the plane-wave assumption (MT, CSAMT and VLF) more than one component has been acquired as a matter of routine for some time (see reviews by Vozoff, 1990, 1991; Zonge and Hughes, 1991; McNeill and Labson, 1991). Historically, commercially available controlled-waveform finite-source systems generally measure only one component. The only systems designed to acquire multiple component data are generally experimental [e.g., those described in the appendixes of Spies and Frischknecht (1991) or proprietary (the EMP system of Newmont Exploration).

Slingram EM systems, comprising a moving dipolar transmitter and a moving receiver, generally only measure one component of the response. Although the MaxMin system was designed with a capability to measure a second (minimum coupled) component, this capability is not used extensively in practice. The only systems that use two receiver coils in practice are those that measure the wavetilt or polarization ellipse (Frischknecht et al., 1991).

Historically, time-domain EM systems have been capable of collecting multicomponent data in a sequential manner by reorienting the sensor for each component direction. The usefulness of additional components is discussed by Macnae (1984) for the case of the UTEM system. Macnae concluded that, as extra time was required to acquire the additional components, this time was better spent collecting more densely spaced vertical-component data. The vertical-component, which is less subject to sferic noise, could subsequently be converted to the horizontal components using the Hilbert transform operators.

Recent instrument developments have been towards multicomponent systems. For example, commercially available ground-EM systems such as the Geonics PROTEM, the Zonge GDP-32 and the SIROTEM have been expanded to include multiple input channels that allow three (or more) components to be acquired simultaneously. There is also a version of the UTEM system currently being developed at Lamontagne Geophysics Ltd. These multichannel receivers require complimentary multicomponent sensors -- for ground-based systems these have been developed by Geonics Ltd and Zonge Engineering and Research Organization. The interpretation of fixed-source, multi-component ground-EM data is described in Barnett (1984) and Macnae (1984).

In the past, multi-component borehole measurements have been hindered by the lack of availability of multi-component sensor probes. Following the development of two prototype probes (Lee, 1986; Hodges et al., 1991), multi-component sensors are now available from Crone Geophysics and Exploration Ltd and Geonics. Three component UTEM and SIROTEM borehole sensors are also in development at Lamontagne and Monash University (Cull, 1993), respectively. Hodges et al. (1991) present an excellent discussion of techniques that can be used to interpret three-component borehole data.

Airborne systems such as frequency-domain helicopter electromagnetic methods acquire data using multiple sensors. However, each receiver has a corresponding transmitter that either operates at a different frequency or has a different coil orientation (Palacky and West, 1991). Hence, these systems are essentially multiple single-component systems. The exception to this rule is the now superseded Dighem III system (Fraser, 1972) which used one transmitter and three receivers

The only multicomponent airborne EM (AEM) system currently in operation is the SPECTREM system (Macnae, et al., 1991). This is a proprietary (owned and operated by Anglo-

American Corporation of South Africa Ltd.), based on the PROSPECT system (Annan, 1986). The Prospect system was originally designed to acquire the x, y and z components, but SPECTREM is apparently only collecting two components (x and z) at the time of writing. Other multi-component systems currently in development are:

i) the SALTMAP system,
ii) a helicopter time-domain system (Hogg, 1986), and
a new version of the GEOTEM® system (GEOTEM is a registered trademark of Geoterrex).

Apart from a few type curves in Hogg (1986), there is little literature available which describes how to interpret data from these systems.

This paper is intended to give an insight into the types of responses expected with the new multi-component AEM systems, and the information that can be extracted from the data. The insight could be of some assistance in interpreting data from multicomponent moving-source ground EM systems (should this type of data be acquired).

The use of multi-component data will be discussed for a number of different applications. For illustration purposes, this paper will use the transmitter-receiver geometry of the GEOTEM system (Figure 1), which is comparable to the other fixed-wing geometries (SPECTREM and SALTMAP). The GEOTEM system is a digital transient EM system utilizing a bipolar half-sinusoidal current waveform [more details are in Annan and Lockwood (1991)]. The sign convention used in this paper is shown in Figure 1, with the *y* component being into the page. In a practical EM system,

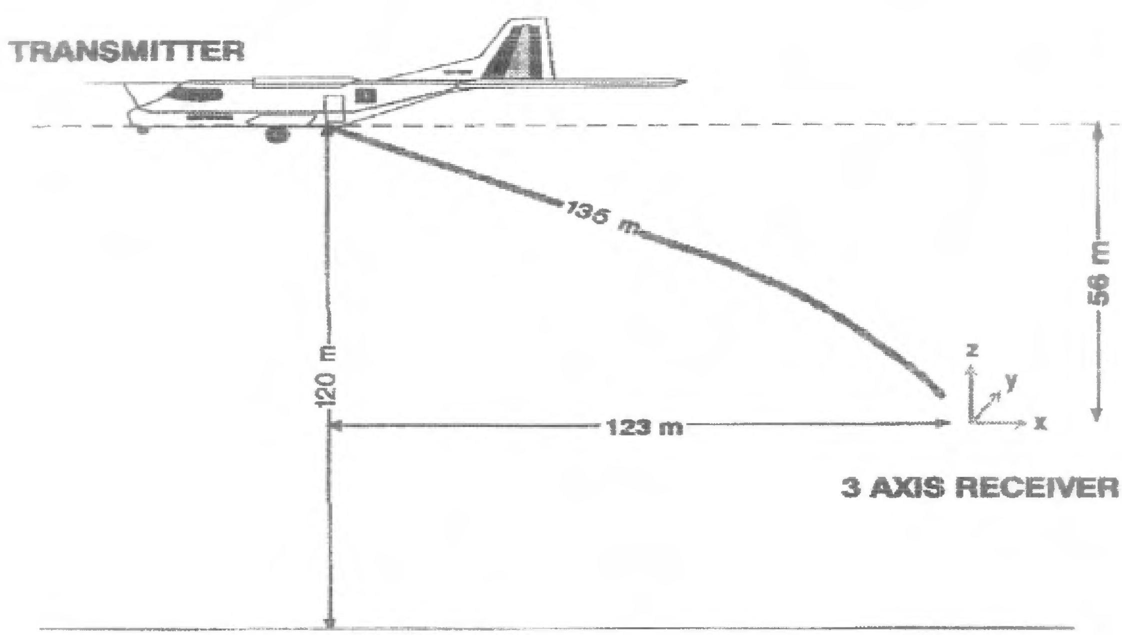

Figure 1: The geometric configuration of the GEOTEM system. The system comprises a transmitter on the aircraft and a receiver sensor in a "bird" towed behind the aircraft. The z direction is positive up, x is positive behind the aircraft, and y is into the page (forming a right-hand coordinate system).

SOUNDING IN LAYERED ENVIRONMENTS

In a layered environment, the induced current flow is horizontal (Morrison et al., 1969) so the z component of the secondary response (V_z) is much larger than the x component (V_x), particularly in resistive ground and/or at late delay times. At the same time, the sferic noise in the z direction is 5 to 10 times less than in the horizontal directions(Macnae, 1984; McCracken et al., 1986), so V_z has a greater signal-to-noise ratio. Figure 2 shows theoretical curves over two different, but similar, layered earth models. One model is a half-space of 500 Ω·m and the other is a 350 m thick layer of 500 Ω·m overlying a highly resistive basement. In this plot the data have been normalized by the total primary field. The z component (V_z) is 6 to 10 times larger than V_x, and both curves are above the noise level, at least for part of the measured transient. On this plot, a noise level of 30 ppm has been assumed, which would be a typical noise level for both components when the sferic activity is low. To distinguish between the response of the half-space and thick layer, the difference between the response of one model and the response of the other model must be greater than the noise level. Figure 3 shows this difference for both components. Only the V_z difference is above the noise level. Hence for the case shown, V_z is more useful than V_x for determining whether there is a resistive layer at 350 m depth. Because V_z is generally larger in a layered environment, the vertical component will generally be better at resolving the conductivity at depth.

In the above discussion, we have assumed that corrections have been made for the coil rotation. An alternative approach is to calculate and model the magnitude of the total field, as this quantity is independent of the receiver orientation. Macnae et al. (1991) used this strategy when calculating the conductivity depth sections for SPECTREM data.

The symmetry of the secondary field of a layered environment is such that the y component response (V_y) will always be zero. In fact, the V_y component will be zero whenever the conductivity structure on both sides of the aircraft is the same. A non-zero V_y is therefore useful in identifying off-

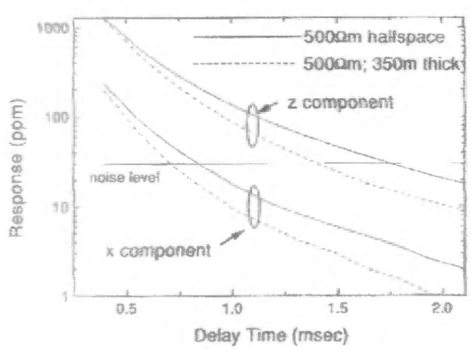

Figure 2: The response for a 500 Ω·m half-space (solid line) and a 500 Ω·m layer of thickness 350 m overlying a resistive half-space (dashed line). The z-component responses are the two curves with the larger amplitudes and the two x-component response curves are 6 to 10 times smaller than the corresponding z component. A noise level of 30 ppm is considered to be typical of both components in the absence of strong sferics.

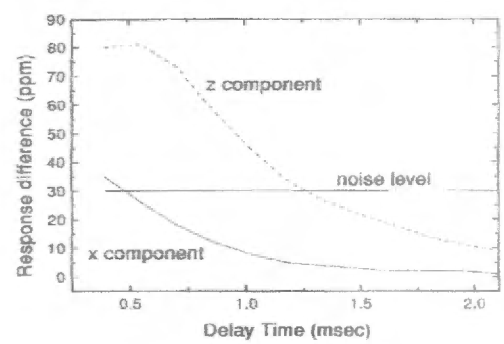

Figure 3: The difference in the response of each component for the half-space and thick layer models of Figure 2. Only the z component difference is above the noise level for a significant portion of the transient. Therefore, this is the only component capable of distinguishing between the responses of the two models.

DISCRETE CONDUCTORS

In our discrete conductor study, models have been calculated using a simple plate in free-space model (Dyck and West, 1984) to provide some insight into the geometry of the induced field. The extension to more complex models, such as those incorporating current gathering, will not be considered in this paper.

Historically, airborne transient electromagnetic (TEM) data have been used for conductor detection. The old INPUT system was designed to measure V_x because this component gave a large response when the receiver passed over the top of a vertical conductor. The bottom part of Figure 4 shows the response over a vertical conductor, which has been plotted at the receiver position. The V_x profile (smaller of the two solid lines) has a large peak corresponding with the conductor position. Note that there is also a peak at 200 m, just before the transmitter passes over the conductor, and a trailing edge negative to the left of the conductor. The z component (dashed line) has two peaks and a large negative trough just before the conductor. Because of the symmetry, the V_y response (dotted line) is zero.

All the peaks, troughs and negatives make the response of a single conductor complicated to display and hence interpret. The display can be simplified by plotting the "energy envelope" (EE) of the response. This quantity is defined as follows:

$$EE = \sqrt{V_x^2 + \overline{V}_x^2 + V_y^2 + \overline{V}_y^2 + V_z^2 + \overline{V}_z^2},$$

where $\overline{}$ denotes the Hilbert transform of the quantity. The energy envelope plotted on Figure 4 (the larger of the two solid curves) is almost symmetric, and would be a good quantity to present in plan form (as contours or as an image). For flat-lying conductors, the energy envelope has a maximum at the leading edge (just after the aircraft flies onto the conductor).

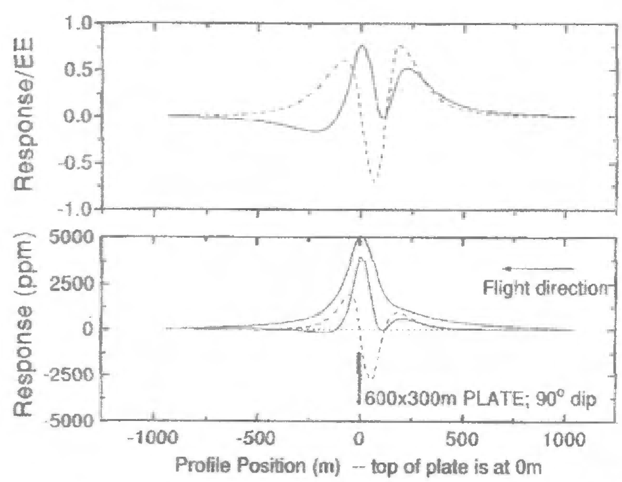

Figure 4: (Bottom) The response of a 600 by 300 m plate 120 m below an aircraft flying from right to left. The plotting point for the response is below the receiver. The x-component response is the smaller amplitude solid line, the z-component is the dashed line, and the y-component response is the dotted line. The larger amplitude solid line is the "energy envelope" of all three components. (Top) The z- and x-components normalized by the energy envelope. These and all subsequent curves are for a delay time of 0.4 ms after the transmitter current is turned off.

What little asymmetry remains in the energy envelope is a good indication of the coupling of the AEM system to the conductor. If the response profile for each component is normalized by the energy envelope, then the effect of system coupling will be removed (at least partially) and the profiles will appear more symmetric. For example, the top part of Figure 4 shows the Vx and Vz normalized by the energy envelope at each point. The size of the two x peaks and the two z peaks are now roughly comparable.

Dip determination

The response of a plate with a dip of 120° is shown on Figure 5. For the V_x/EE and V_z/EE profiles, the peak on the down dip side is larger. For shallow dips, it becomes difficult to identify both V_x/EE peaks, but the two positive V_z/EE peaks remain discernable. Plotting the ratio of the magnitudes of these two V_z/EE peaks, as has been done with solid squares on Figure 6, shows that the ratio is very close to the tangent of the dip divided by 2. Hence, calculating the ratio of the peak amplitudes (R) will yield the dip angle θ using the following formula:

$$\theta = 2 \tan^{-1}(R).$$

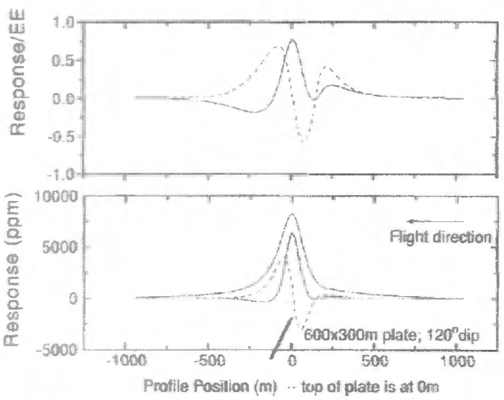

FIG. 5. (Bottom) same as Figure 4, except the plate is now dipping at 120°. On the top graph note that the down-dip (left) peak on the normalized z-component response is larger that the right peak (cf. Figure 4).

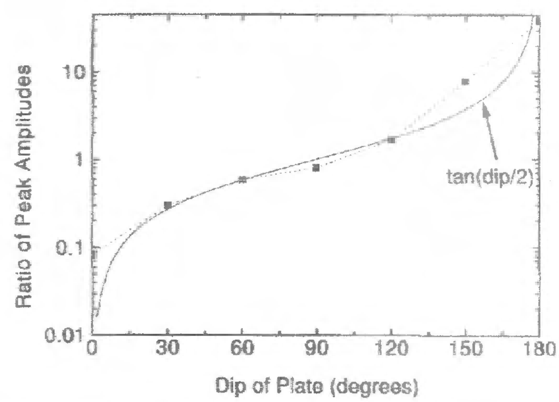

FIG. 6. The ratio of the peak amplitudes of the normalized z-component response (left/right) plotted with solid squares. The ratio plots very close to the tangent of half the dip angle θ of the plate.

Depth Determination

As the depth of the body increases, there is a corresponding increase in the distance between the two positive peaks in the V_z/EE profile. As an example of this, Figure 7 shows the case of a plate 150 m deeper than the plate of Figure 4. The peaks are now 450 m apart, as compared with 275 m on Figure 4. A plot of the peak-to-peak distances for a range of depths is shown on Figure 8 for plates with 60, 90 and 120° dips. Because the points follow a straight line, it can be concluded that for near vertical bodies (60° to 120° dips), the depth to the top of the body d can be determined from the measured peak-to-peak distances using the linear relationship depicted in Figure 8. The expected error would be about 25 m. Such an error is tolerable in airborne EM interpretation. More traditional methods for determining d analyze the rate of decay of the measured response (Palacky and West, 1973). Our method requires only the V_z/EE response profile at a single delay time. Analyzing this response profile for each delay time allows d to be determined as a function of delay time, and hence any migration of the current system in the conductor could be tracked.

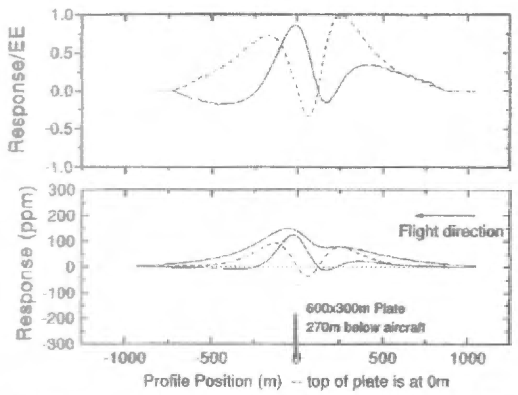

FIG. 7. The same as Figure 4, except the plate is now 270 m below the aircraft. Note that the distance between the z-component peaks is now much greater.

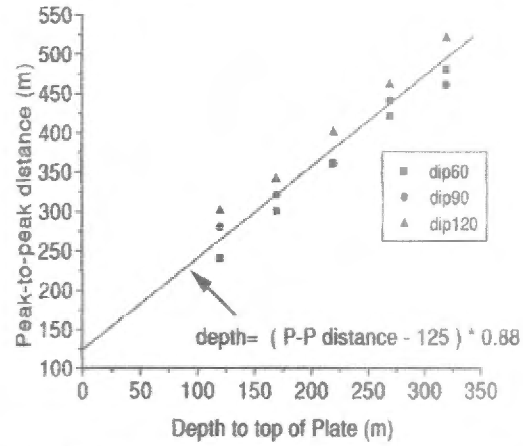

FIG. 8. The peak-to-peak distance as a function of plate depth for three different dip angles θ. A variation in dip of ±30° does not result in a large change in the peak-to-peak distance.

Strike and offset determination

The response shown in Figure 4 varies in cases when the plate has a strike different from 90° or the flight path is offset from the center of the plate.

Figure 9 shows the response for a plate with zero offset and Figure 10 shows the plate when it is offset by 150 m from the profile line. The calculated voltages V_z and V_x are little changed from the no offset case, but the V_y response, is no longer zero. In fact, the shape of the V_y curve appears to be the mirror image of the V_z curve.

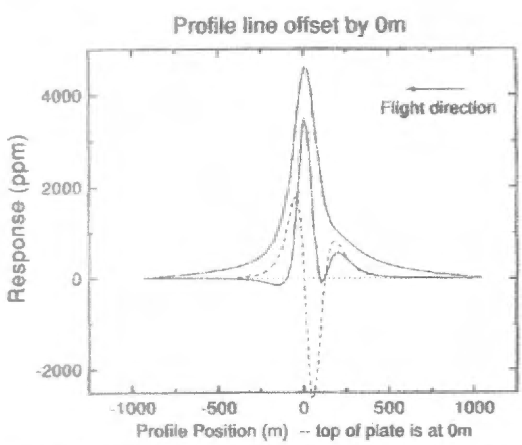

FIG. 9. The response of a 300 by 300 m plate traversed by a profile line crossing the center of the plate in a direction perpendicular to the strike of the plate (the strike angle ζ of the plate with respect to the profile line is 90°).

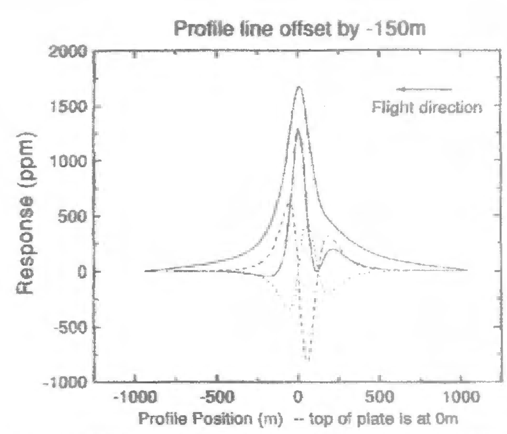

FIG. 10. Same as Figure 9, except the profile line has been offset from the center of the plate by −150 m in the y direction (equivalent to a +150 m displacement of the plate).

In the case when the plate strikes at 45°, the *y* component is similar in shape but opposite in sign to the *x*-component response (Figure 11).

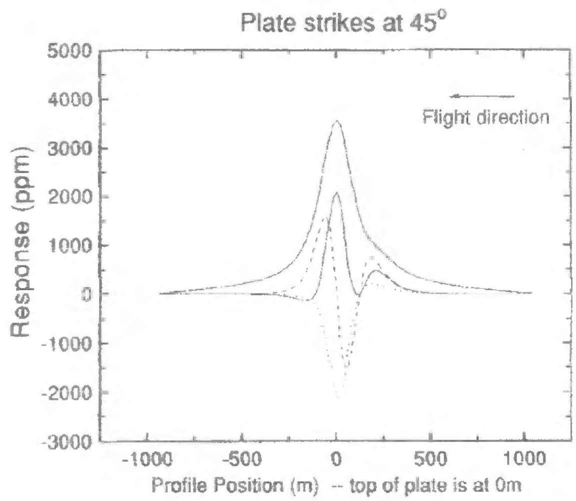

FIG. 11. Same as Figure 9, except the profile line traverses the plate such that the strike angle ζ of the plate, with respect to the profile line, is 45°.

These similarities can be better understood by looking at schematic diagrams of the secondary field from the plate. Figure 12 shows a plate and the field in section. For zero offset, the field is vertical (z only). As the offset increases, the aircraft and receiver moves to the right and the measured field rotates into the *y*-component.

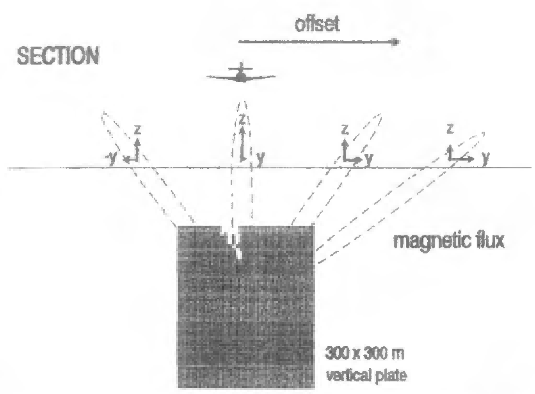

FIG. 12. A schematic diagram of the plate and the magnetic flux of the secondary field (section view). For increasing offset of the aircraft and receiver from the center of the plate, the magnetic field at the receiver rotates from the *z* to the *y* component.

The secondary field is depicted in plan view in Figure 13. Variable strike is simulated by leaving the plate stationary and changing the flight direction. When the strike of the plate is different from 90°, the effective rotation of the EM system means that the secondary field, which was previously measured purely in the *x* direction, is now also measured in the *y* direction.

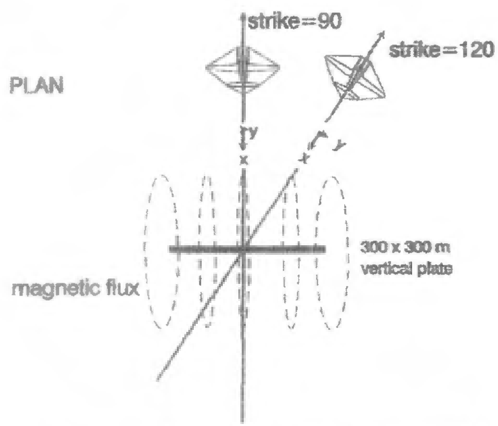

FIG. 13. A schematic diagram of the plate and the magnetic flux of the secondary field (plan view). Here varying strike is depicted by an equivalent variation of the flight direction. As the flight direction rotates from a strike angle of 90°, the receiver rotates so as to measure a greater response in the *y* direction.

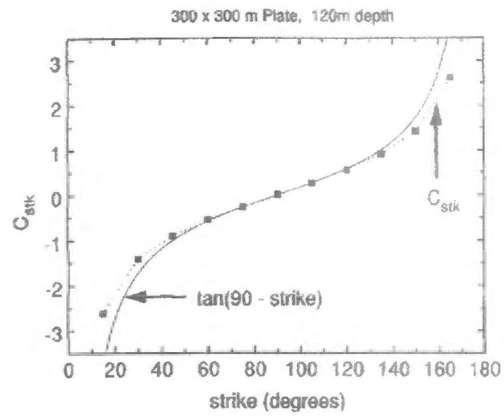

FIG. 14. The ratio $C_{stk} = V_y/V_x$ plotted as a function of varying strike angle (solid squares). The data agree very closely with the cotangent of the ξ.

The *y* component (V_y) can thus be considered to a be a mixture of V_x and V_z components,

$$V_y = C_{stk} V_x + C_{off} V_z ,$$

an equation that is only approximate. The response for a variety of strike angles and offset distances has been calculated and in each case the *y*-component response has been decomposed into the *x* and *z* components by solving for the constants of proportionality C_{stk} and C_{off}.

A plot of C_{stk} for the case of zero offset and varying strike direction ξ is seen on Figure 14. The values of C_{stk} determined from the data are plotted with solid squares and compared with the tan(90°- ξ). Because the agreement is so good, the formula

$$\xi = 90 - \tan^{-1}(C_{stk})$$

can be used to determine the strike. This relation was first obtained by Fraser (1972).

When the strike is fixed at 90°, and the offset varies, the corresponding values obtained for C_{off} have been plotted with solid squares on Figure 15. Again, there is good agreement with the arctangent of C_{off} and the angle φ between a vertical line and the line that joins the center of the top edge of the plate with the position where the aircraft traverse crosses the plate containing the plate. If an estimate of the distance to the top of the conductor *D* is already obtained using the method described above, or by the method described in Palacky and West (1973), then

$$D = \sqrt{(O2 + d2)} ,$$

(where *d* is the depth below surface). Hence, the offset distance *O* can be written as follows

$$O = d \tan(\varphi)$$
$$= d\, C_{off}$$

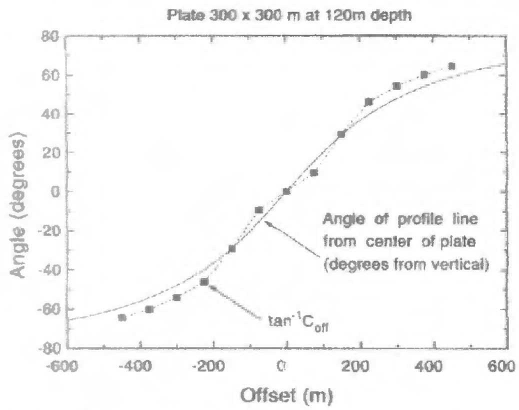

FIG. 15. The arctangent of $C_{off} = V_y/V_z$, plotted as a function of varying offset (solid squares). There is good agreement between this quantity and the angle φ between a vertical line and the line from the center of the top edge of the plate to the profile line.

$= C_{off}\sqrt{(D^2 - O^2)}$

which can be rearranged to give

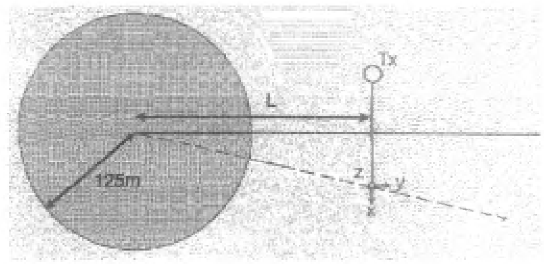

FIG. 16. Plan view of a flat-lying conductor (a circular loop with a radius of 125 m). The AEM system is offset a distance L from the center of the conductor in a direction perpendicular to the traverse direction. The traverse direction of the system is from the bottom to the top of the figure.

O

Lateral delectability

Figure 12 illustrates that V_y becomes relatively strong as the lateral displacement from the conductor is increased. Thus, if V_y is measured, then the total signal will remain above the noise level at larger lateral displacements of the traverse line from the conductor. This has been illustrated by assuming a flat-lying conductor, here approximated by a wire-loop circuit of radius 125 m (Figure 16). The *x*, *y* and *z* components of the response have been computed using the formula for the large-loop magnetic fields in Wait (1982). The results are plotted on Figure 17 as a function of increasing lateral displacement *L* of the transmitter/receiver from the center of the conductor. The transmitter and receiver are separated in a direction perpendicular *L* to simulate the case when the system is maximal coupled to the conductor, but the flight line misses the target by an increasing amount. The effect of varying the conductance or measurement time has been removed by normalizing the response to the total response measured when the system is at zero displacement. At displacements greater than 80 m, the *y* component is clearly larger than any other component. Assuming the same sensitivity and noise level for each component (which is a realistic assumption if the data are corrected for coil rotation and the sferic activity is low), it is clearly an advantage to measure V_y, as this will increase the chances of detecting the target when the flight line has not passed directly over the conductor.

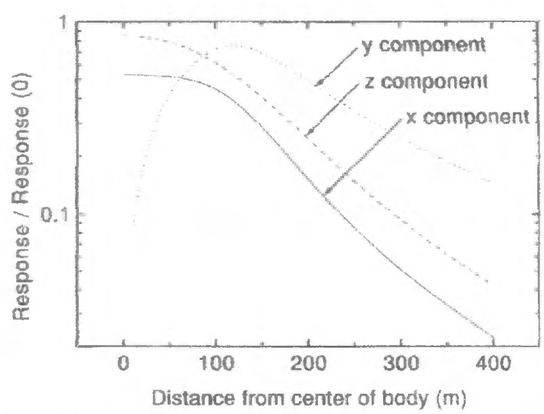

FIG. 17. The normalized response of the EM system plotted as a function of increasing offset distance L. The x component falls off most rapidly and the y component most slowly with increasing offset distance.

CONCLUSIONS

AEM systems measuring three components of the response can be used to infer more and/or better information than those systems that measure with only one component, i.e., V_x.

The z-component data enhances the ability of the AEM system to resolve layered structures as the z-component has a larger signal and a smaller proportion of sferic noise than any other component. If all the components are employed to correct for coil rotation, then the data quality and resolving power is increased further, as individual components are not contaminated by another component. Having better signal-to-noise and greater fidelity in the data will allow deeper layers to be interpreted with confidence.

A non-zero *y* component is helpful in identifying when the conductivity structure has a lateral inhomogeneity that is not symmetric about the flight line.

All components can be used to calculate the energy envelope, which is a valuable quantity to image The energy envelope has a single peak over a vertical conductor and two peaks over a dipping conductor (one at either end). The asymmetry in the response profile of each individual component can be reduced by normalizing each profile by the energy envelope.

All three components are of great use in determining the characteristics of discrete conductors. For example, the distance between the two positive peaks in the V_z/EE profile can be employed to determine the depth. Also, the ratio of the magnitude of the two V_z/EE peaks helps to ascertain the dip of the conductor. The *x* component has been used in the past for these purposes, but is not as versatile, as it requires the data at all delay times, or an ability to identify a very small peak

The *y* component can be utilized to extract information about the conductor that cannot be obtained from single component AEM data. The degree of mixing between the *y* and *z* components can give the lateral offset of the conductor (provided the depth is known), while the mixing between the *y* and *x* component gives the strike of a vertical conductor.

Finally, because the *y* component decreases most slowly with increasing lateral offset, this component gives an enhanced ability to detect a conductor positioned at relatively large lateral distances from the profile line, either between lines or beyond the edge of a survey boundary.

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Appendix E

Data Archive Description

Data Archive Description:

Survey Details

Survey Area Name	Pambrun and Twins Blocks
Job number	04402
Client	Bitterroot Resources Ltd.
Survey Company Name	Fugro Airborne Surveys
Flown and compiled dates	January 30th – February 14th, 2004
Archive Creation Date	April 5th, 2004

Survey Specifications

Traverse Line Azimuth	135°-315° (Pambrun Block) 045°-225° (Twins Block)
Traverse Line Spacing	200m
Tie Line Azimuth	045°-225° (Pambrun Block) 135°-315° (Twins Block)
Tie Line Spacing	2675m (Pambrun Block) 3625m (Twins Block)
Flying Elevation	120 m Mean Terrain Clearance
Average Aircraft Speed	65 m/s

Geodetic Information for map products

Projection:	Universal Transverse Mercator (UTM Zone 19N)
Datum:	NAD 27
Central meridian:	69° West
False Easting:	500000 metres
False Northing:	0 metres
Scale factor:	0.99960
UTM Zone	19 North
I.G.R.F. Model	2000
I.G.R.F. Correction Date	2004.15

Equipment Specifications:

Navigation

Differential GPS Receiver	NovAtel Propak 4E-3151-R 12 Channel
Aircraft	Casa (C-212-200)
Video Camera	Panasonic WV-CL302

Magnetics

Type	Scintrex CS-2 Cesium Vapour
Installation	Towed bird
Sensitivity	0.01 nT
Sampling	0.10 s

Electromagnetics

Type	GEOTEM®, 20 channel multicoil system
Installation	Vertical axis loop (231m^2 area with 6 turns) mounted on the aircraft. Receiver coils in a towed bird.
Coil Orientation	X, Y and Z
Frequency	90 Hz
Pulse Width	2 ms
Geometry	Tx-Rx horizontal separation of ~130 m Tx-Rx vertical separation of ~50 m
Sampling	0.25 s

System Configuration:

Pulse repetition rate	90Hz
Pulse width	2170μs
Offtime	3285μs
Receiver-transmitter horizontal separation	130m
Receiver-transmitter vertical separation	50m

Data Windows:

Channel	Start (p)	End (p)	Width (p)	Start (ms)	End (ms)	Width (ms)	Mid (ms)
1	4	9	6	0.13	0.391	0.26	0.26
2	10	22	13	0.391	0.955	0.564	0.673
3	23	35	13	0.955	1.519	0.564	1.237
4	36	48	13	1.519	2.083	0.564	1.801
5	49	53	5	2.083	2.3	0.217	2.192
6	54	55	2	2.3	2.387	0.087	2.344
7	56	57	2	2.387	2.474	0.087	2.431
8	58	59	2	2.474	2.561	0.087	2.517
9	60	62	3	2.561	2.691	0.13	2.626
10	63	65	3	2.691	2.821	0.13	2.756
11	66	69	4	2.821	2.995	0.174	2.908
12	70	73	4	2.995	3.168	0.174	3.082
13	74	77	4	3.168	3.342	0.174	3.255
14	78	83	6	3.342	3.602	0.26	3.472
15	84	90	7	3.602	3.906	0.304	3.754
16	91	97	7	3.906	4.21	0.304	4.058
17	98	104	7	4.21	4.514	0.304	4.362
18	105	112	8	4.514	4.861	0.347	4.688
19	113	120	8	4.861	5.208	0.347	5.035
20	121	128	8	5.208	5.556	0.347	5.382

ASCII Line Archive File Layout (AREA_ascii.xyz):

Field	Variable	Description	Units
1	Line	Line Number	
2	Fiducial	Seconds after midnight	sec.
3	Flight	Flight number	-
4	Date	Date of the survey flight	ddmmyy
5	Lat_NAD27	Latitude in NAD27	degrees
6	Long_NAD27	Longitude in NAD27	degrees
7	X_NAD27_UTM_Z19N	Easting (X) in NAD27 UTM Z 19N	m
8	Y_NAD27_UTM_Z19N	Northing (Y) in NAD27 UTM Z 19N	m
9	X_NAD83_UTM_Z19N	Easting (X) in NAD83 UTM Z 19N	m
10	Y_NAD83_UTM_Z19N	Northing (Y) in NAD83 UTM Z 19N	m
11	GPS_Z	Gps elevation (above WGS84 datum)	m
12	Radar	Radar altimeter	m
13	DTM	Terrain (above WGS84 datum)	m
14	Diurnal	Ground Magnetic Intensity	nT
15	TMI_raw	Raw Airborne Total Magnetic Intensity	nT
16	IGRF	Regional Magnetic Field	nT
17	RMI	Final Airborne Residual Magnetic Intensity	nT
18	Primary_field	Electromagnetic Primary Field	µV
19	Hz_monitor	Powerline Monitor (60 Hz)	µV
20	RMI_1VD	1st Vertical Derivative of the RMI	nT/m
21	Cond_ts	Conductance (Thin Sheet Model)	mS
22	TEE_DXZ10	Total Energy Envelope from dB/dt X & Z Coils Channel 10	pT/sec
23	TAU_BX10_20	Decay Constant (tau) from B Field X Coil Channels 10-20	µsec
24-43	x01-x20	Final dB/dt X-Coil Channels 1-20	pT/sec
44-63	y01-y20	Final dB/dt Y-Coil Channels 1-20	pT/sec
64-83	z01-z20	Final dB/dt Z-Coil Channels 1-20	pT/sec
84-103	Bx01-Bx20	Final B-Field X-coil Channels 1-20	fT
104-123	By01-By20	Final B-Field Y-coil Channels 1-20	fT
124-143	Bz01-Bz20	Final B-Field Z-coil Channels 1-20	fT

First sample of ASCII File Pambrun_ascii.xyz

```
        200101      65412.0      1      30204      51.712841      -70.812759      374759      5730438
374806      5730659      784.23      124.66      659.56      57105.93      55999.50      56994.29      -1029.24
998830      5282      -1      16      65      44096      -18471      -19398      -12352      41800
51495      13045      3794      1842      922      596      409      278      232      169
166      117      66      44      21      -19599      9083      13558      5842      -15265
-33198      -8721      -1422      -401      1173      600      -199      347      410      320
581      442      187      -91      740      80892      -32650      -36758      -22418      78053
105130      48963      14685      4810      2126      897      567      963      1063      669
556      420      215      -63      84      -9459      -7822      3948      12487      13065
3304      1217      670      544      336      467      362      288      376      370
183      219      332      389      414      4129      4075      -2624      -7374      -7200
-2847      -1626      -1382      -1260      -1232      -1257      -1169      -1158      -1171      -1152
-1229      -1171      -1174      -1132      -1103      -14398      -12689      10620      27949
28964      8913      3902      2239      1705      1154      1008      1021      1091      1218
1259      1031      1104      1152      1151      1397
```

First sample of ASCII File twins_ascii.xyz

```
        100101      63111.0      7      120204      50.844505      -70.591820      387929      5633523
387976      5633743      630.50      121.31      509.18      57123.40      56274.42      56745.11      -504.39
1037844      14821      -0      16      279      47517      1185      -2319      1935      32617
17719      -1006      -2723      -2325      -257      206      71      439      408      674
83      68      75      18      72      31704      -19      -1343      -1871      13459
51491      2594      1668      590      691      248      -672      283      -117      -256
449      -148      -18      192      602      302494      -8950      -39372      2910      252232
252810      28694      9865      4654      4610      1301      1776      1078      805      1057
334      660      386      397      98      -11715      -6289      6612      15638      10702
-1365      -1192      -830      -811      -699      -990      -750      -901      -872      -1072
-1180      -1312      -1295      -1219      -1407      -2463      -2801      96      7576      9615
2241      2375      2820      3115      3473      3723      3953      4147      4322      4457
4633      4724      4935      5024      5031      -16600      -32257      10842      70279
49355      8648      4643      4142      3449      3099      3003      2606      2338      2102
1860      1782      1582      1488      1688      2818
```

AREA Block Area Grid Archive File Description:

The grids are in Geosoft (*.grd) format. A grid cell size of 40 m was used for all area grids.

File	Description	Units
AREA_cond.grd	Apparent Conductance (Thin Sheet Model)	mS
AREA_rmi.grd	Residual Magnetic Intensity (RMI)	nT
AREA_1vd.grd	1st Vertical Derivative of the RMI	nT/m
AREA_tauBx10-20.grd	Decay Constant (tau) from B Field X Coil Channels 10-20	µsec
AREA_tee10.grd	Total Energy Envelope from dB/dt X & Z Coils Channel 10	pT/sec

Line List for Pambrun Block:

FLIGHT	LINE	PART	Start Fiducial	End Fiducial
1	2001	1	65412	65561
1	2002	1	65682	65815
1	2003	1	65942	66091
1	2004	1	66204	66336
1	2005	1	66457	66607
1	2006	1	66715	66845
1	2007	1	66969	67118
1	2008	1	67222	67356
1	2009	1	67467	67620
1	2010	1	67724	67860
1	2011	1	67990	68143
1	2012	1	68257	68392
1	2013	1	68519	68670
1	2014	1	68792	68928
1	2015	1	69056	69206
1	2016	1	69325	69460
1	2017	1	69592	69742
1	2018	1	69860	69995
1	2019	1	70126	70278
1	2020	1	70404	70537
2	2021	1	58455	58577
2	2022	1	58151	58335
2	2023	1	57879	57996
2	2024	1	57602	57773
2	2025	1	57330	57450
2	2026	1	57046	57223
2	2027	1	56783	56901
2	2028	1	56509	56685
2	2029	1	56256	56375
2	2030	1	55990	56167
2	2031	1	55670	55791
2	2032	1	55393	55567
2	2033	1	55109	55231
2	2034	1	54833	55008
2	2035	1	54519	54639
2	2036	1	54234	54405
2	2801	1	53982	54101
6	2802	1	67613	67736
6	2803	1	67348	67484
6	2804	1	67105	67225

Line List for Twins Block:

FLIGHT	LINE	PART	Start Fiducial	End Fiducial
7	1001	1	63111	63269
7	1002	1	63395	63535
7	1003	1	63684	63840
3	1004	1	71501	71639
3	1005	1	71772	71924
3	1006	1	72028	72166
3	1007	1	72279	72430
3	1008	1	72549	72688
3	1009	1	72793	72944
3	1010	1	73074	73214
3	1011	1	73355	73507
3	1012	1	73634	73772
3	1013	1	73888	74041
3	1014	1	74146	74285
3	1015	1	74393	74546
3	1016	1	74646	74782
3	1017	1	74885	75040
4	1018	1	55802	55948
4	1019	1	56067	56213
4	1020	1	56337	56482
4	1021	1	56602	56746
4	1022	1	56858	57005
4	1023	1	57120	57264
4	1024	1	57376	57521
4	1025	1	57636	57781
4	1026	1	57892	58035
4	1027	1	58156	58303
4	1028	1	58420	58563
4	1029	1	58673	58820
4	1030	1	58947	59090
4	1031	1	59207	59353
4	1032	1	59463	59607
4	1033	1	59731	59877
4	1034	1	59984	60128
4	1035	1	60237	60381
4	1036	1	60487	60740
4	1037	1	60865	61005
4	1038	1	61102	61248
4	1039	1	61371	61513
5	1040	1	59426	59572
5	1041	1	59698	59840
5	1042	1	59956	60102
5	1043	1	60222	60364

5	1044	1	60467	60612
5	1045	1	60755	60900
5	1046	1	61008	61149
5	1047	1	61254	61400
5	1048	1	61510	61650
5	1049	1	61768	61915
5	1050	1	62011	62149
5	1051	1	62280	62429
5	1052	1	62562	62701
5	1053	1	62808	62956
5	1054	1	63070	63213
5	1055	1	63327	63474
5	1056	1	63585	63729
5	1057	1	63845	63993
5	1058	1	64100	64240
5	1059	1	64356	64504
7	1060	1	61211	61347
7	1061	1	61491	61648
7	1062	1	61773	61910
6	1063	1	71761	71911
6	1064	1	71521	71659
6	1065	1	71238	71389
6	1066	1	70997	71134
6	1067	1	70721	70872
6	1068	1	70471	70605
6	1069	1	70158	70308
6	1070	1	69902	70037
6	1071	1	69595	69749
6	1072	1	69346	69481
6	1073	1	69053	69200
7	1801	1	64013	64168
7	1802	1	64296	64416
7	1803	1	62711	62930
7	1804	1	62422	62577
7	1805	1	62103	62226

Appendix F

TDEM ANOMALY SELECTION

Current approach to TDEM anomaly selection

The current routine for the selection and fitting of EM anomalies is still based on the University of Toronto plate program which fits the response (at the anomaly peak) from the X-coil channels to a vertical plate nomogram. Given that the current GEOTEM and MEGATEM system have evolved to offer the response from coils of 3 different orientations (X, Y and Z) and from dB/dt and B-Field, this approach to the classification of the anomalies is limited and no longer fully reflects all the information being measured by the system. The resulting shortcomings are:

- All anomaly peaks, from the x-coil response, are fitted to a vertical plate model of fixed dimensions, regardless of the nature of the conductive source. The derived CTP and depth-to-source values are then only valid if the conductor can be properly represented by a vertical plate. CTP and depth values derived from "non vertical plate" type conductors will be erroneous. In some conductive terrains, marked by prominent conductive overburden or surface alteration of other sorts, "non-vertical" type conductors may represent 90 % or more of the conductive response.
- The response from the conductor must deflect a minimum of 6 channels above the background to be fitted to the nomogram. CTP or depth-to-source values will not be calculated for a valid but weaker response (a weak or deep source).
- Only the response from the X-coil channels are used in the selection and fitting. A response appearing only on the Z-coil will not be identified. This is sometimes the case for a very deep source. As the depth to the conductor increases, although it may have considerable depth extent, the system becomes less sensitive to the vertical extent of the body and conductors will appear to be more flat-lying than vertical. As a result, as depth of burial increases, the coupling of the response may disappear on the X-coil response but will persist on the Z-coil response (see figure 1, anomalies A and B).
- The fitting of the response is only done from the amplitudes at the peak position of the anomaly and does not take-in the full shape of the anomaly or relate the difference in response between the X-coil and Z-coil. This does not allow for the distinction between vertical, flat-lying or dipping plates.

Fugro is presently working on the development of a new anomaly selection and classification routine which will use a window of data centered about the anomaly peak (to properly define the entire anomaly shape), using both the response from the X and Z coils and fitting to a suite of models from flat-lying to dipping to vertical plates and spheres. This will hopefully address all the above shortcomings of the present method.

Unfortunately the current anomaly fitting program must continue to be in use until this new routine is made available. Until such time, our approach is to present the full information being measured by the system within the confines of the present program's limitations. Some responses may not be visible on the regular channels of the dB/dt X-coil data but will be identified on either the B-Field response or the Z-coil response. The initial selection of the anomalies is still being derived from the X-coil channels of the dB/dt data but at the "review" stage (via a graphic screen editor), the response from all components (X and Z, dB/dt and B-Field) are examined. All significant responses from any of the components are inserted in the anomaly field. Since all anomaly edits are still being updated by the same routine, again only fitting the X-coil response from the dB/dt data, many of these "other" responses which have no measurable signature on the dB/dt X-coil data will only be flagged as an anomaly location with no measurable response suitable for fitting to the reference nomogram. Although improperly represented, these "other" anomalies, at the very least, are identified by their location in the EM anomaly database (listing) and on the anomaly map.

Figures 1 and 2 provide examples of a typical display of the channel data used when reviewing the EM anomaly selection. Given the limited space available on a computer screen, a good display can include every even numbered channel, 8 to 20 (in more resistive areas, often all off-time channels can be displayed) for X and Z for both dB/dt and B-Field, along with the Hz monitor and the radar altimeter (the EM primary field can also be very useful).

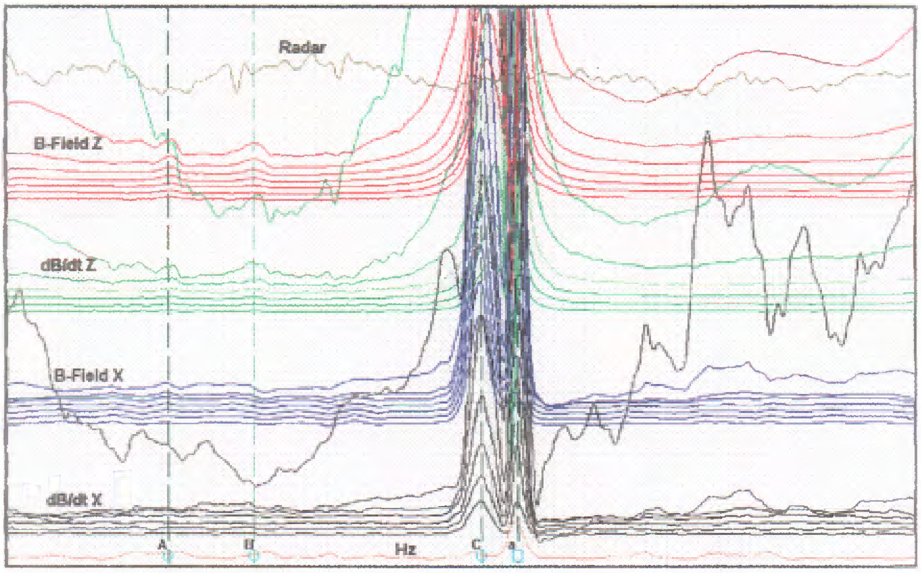


Figure 1

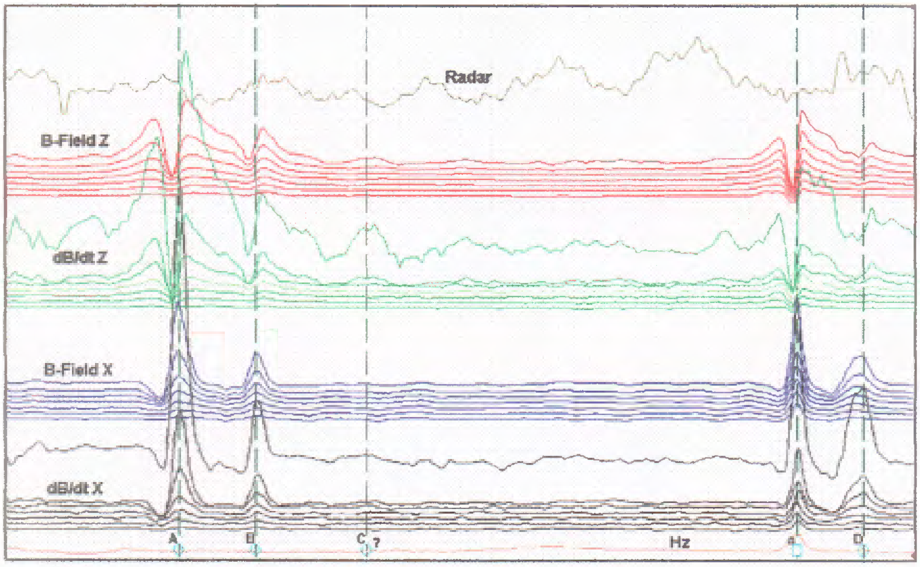


Figure 2

In **Figure 1**, anomalies identified as A and B could be indicative of a very deep source, where the coupling of the response is lost on the X-coil but persists on the Z-coil. The dB/dt X-coil response is devoid of any response while a weak response is visible of the Z-coil of the dB/dt response. Greater support for this selection is provided by the response on the B-Field. Although weak and very questionable on the X-coil (close to the noise level) the response is clearly marked on the Z-coil, as a low amplitude response of slow decay. This is a good indication of a high conductance body having a long time constant and therefore enhanced by the B-Field. These two anomalies may be prime targets for mineralization but will be indistinguishable from weak surface responses, as represented on the anomaly map or in the anomaly listing. Hence, the importance of always reviewing the EM anomaly selection against the data profiles.

In **Figure 2**, anomaly C? is similar to the responses discussed in Figure 1 above, in that it presents no measurable signature on the X-coil response (for both dB/dt and B-Field) but a weak response on the Z-coil response. The difference here however, is that the B-Field response does not show an enhancement of the response on the Z-coil but an attenuation. This is indicative of a conductive response with a short time constant and hence more likely a weak surficial source.

The anomalies discussed in Figures 1 and 2 have very similar characteristics on dB/dt X and Z and B-Field X and yet may reflect very different conductive sources, one being of potentially economic interest. The only distinguishing signature is offered by the B-Field Z-coil response. Be aware that these differences are not properly accounted for in the current anomaly selection and presentation process.

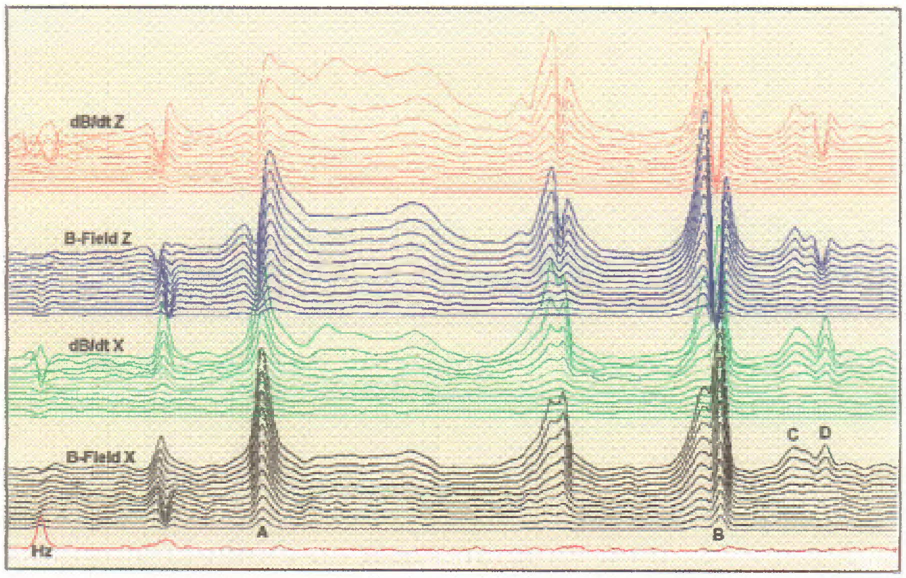


Figure 3

Figure 3 shows the importance of looking at the response with all components when evaluating the possible source of a conductive response. Anomalies identified as A and B look quite similar on the X-coil response and could both be interpreted as narrow, vertical conductors. However, looking at the response on the Z-coil clearly shows that anomaly A is the leading edge of a broad tabular body, better displayed on Z because of the enhanced coupling with the Z-coil, whereas anomaly B does reflect a narrow, near-vertical conductor. Anomalies C and D again look very similar on the response from the X-coil and could be interpreted as related to the same source. However, the response on the Z-coil indicates that the response at C is from a tabular or flat-lying source whereas the response at D is from a vertical source.

Appendix G

Map Product Grids

PAMBRUN BLOCK

Apparent Conductance from dB/dt X Coil

pb_cond

NUMBER OF ROWS & COLUMNS	320 320
PIVOTAL POSITION (X,Y)	374680.000 5723960.000
X SPACING BETWEEN GRID POINTS	40.000
Y SPACING BETWEEN GRID POINTS	40.000
Z FACTOR	0.000100 for integer base grids
Z UNITS	mS
STARTING / ENDING COLUMNS	1 320
STARTING / ENDING ROW	1 320
DATA MEAN VALUE	21.896
DATA MINIMUM	-20.549
DATA MAXIMUM	357.073

Residual Magnetic Intensity

pb_rmi

NUMBER OF ROWS & COLUMNS	320 320
PIVOTAL POSITION (X,Y)	374680.000 5723960.000
X SPACING BETWEEN GRID POINTS	40.000
Y SPACING BETWEEN GRID POINTS	40.000
Z FACTOR	0.010000 for integer base grids
Z UNITS	nT
STARTING / ENDING COLUMNS	1 320
STARTING / ENDING ROW	1 320
DATA MEAN VALUE	-455.507
DATA MINIMUM	-1541.690
DATA MAXIMUM	3409.700

Vertical Gradient of the Magnetics

pb_1vd

NUMBER OF ROWS & COLUMNS	320 320
PIVOTAL POSITION (X,Y)	374680.000 5723960.000
X SPACING BETWEEN GRID POINTS	40.000
Y SPACING BETWEEN GRID POINTS	40.000
Z FACTOR	0.000010 for integer base grids
Z UNITS	nT/m
STARTING / ENDING COLUMNS	1 320
STARTING / ENDING ROW	1 320
DATA MEAN VALUE	-0.022
DATA MINIMUM	-10.976
DATA MAXIMUM	32.196

DECAY CONSTANT OF B-FIELD X COIL CHANNELS 10-20

pb_tauBx10_20

NUMBER OF ROWS & COLUMNS	320 320
PIVOTAL POSITION (X,Y)	374680.000 5723960.000
X SPACING BETWEEN GRID POINTS	40.000
Y SPACING BETWEEN GRID POINTS	40.000
Z FACTOR	0.000100 for integer base grids
Z UNITS	us
STARTING / ENDING COLUMNS	1 320
STARTING / ENDING ROW	1 320
DATA MEAN VALUE	130.886
DATA MINIMUM	80.729
DATA MAXIMUM	2710.707

TOTAL ENERGY ENVELOPE OF DB/DT X AND Z COIL CHANNEL 10

pb_tee10

NUMBER OF ROWS & COLUMNS	320 320
PIVOTAL POSITION (X,Y)	374680.000 5723960.000
X SPACING BETWEEN GRID POINTS	40.000
Y SPACING BETWEEN GRID POINTS	40.000
Z FACTOR	0.000100 for integer base grids
Z UNITS	pT/s
STARTING / ENDING COLUMNS	1 320
STARTING / ENDING ROW	1 320
DATA MEAN VALUE	448.898
DATA MINIMUM	-1895.362
DATA MAXIMUM	22828.449

PAMBRUN BLOCK

Figure 1. Apparent Conductance of dB/dt X Coil

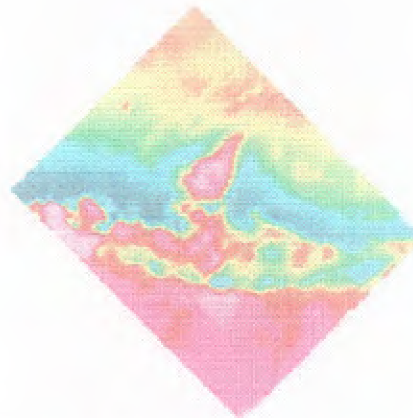


Figure 2. Residual Magnetic Intensity

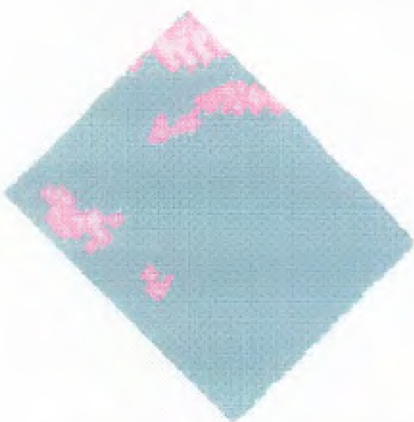


Figure 3. Decay Constant of B-Field X Coil Channels 10-20

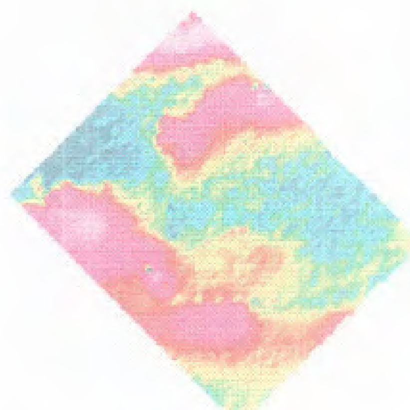


Figure 4. Total Energy Envelope of dB/dt X and Z Coil Channel 10

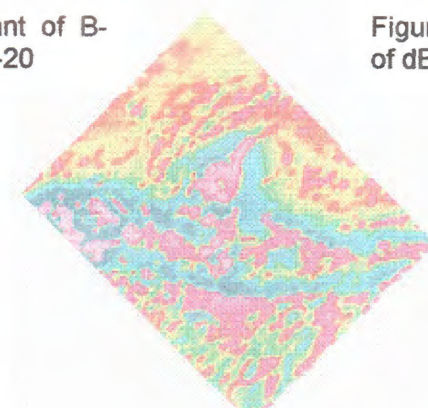


Figure 5. Vertical Gradient of Magnetics

TWINS BLOCK

Apparent Conductance from dB/dt X Coil

tw_cond

NUMBER OF ROWS & COLUMNS	576 320
PIVOTAL POSITION (X,Y)	375840.000 5627000.000
X SPACING BETWEEN GRID POINTS	40.000
Y SPACING BETWEEN GRID POINTS	40.000
Z FACTOR	0.000100 for integer base grids
Z UNITS	mS
STARTING / ENDING COLUMNS	1 320
STARTING / ENDING ROW	1 576
DATA MEAN VALUE	13.165
DATA MINIMUM	-2.538
DATA MAXIMUM	124.001

Residual Magnetic Intensity

tw_rmi

NUMBER OF ROWS & COLUMNS	576 320
PIVOTAL POSITION (X,Y)	375840.000 5627000.000
X SPACING BETWEEN GRID POINTS	40.000
Y SPACING BETWEEN GRID POINTS	40.000
Z FACTOR	0.010000 for integer base grids
Z UNITS	nT
STARTING / ENDING COLUMNS	1 320
STARTING / ENDING ROW	1 576
DATA MEAN VALUE	-457.751
DATA MINIMUM	-770.210
DATA MAXIMUM	1299.260

Vertical Gradient of the Magnetics

tw_1vd

NUMBER OF ROWS & COLUMNS	576 320
PIVOTAL POSITION (X,Y)	375840.000 5627000.000
X SPACING BETWEEN GRID POINTS	40.000
Y SPACING BETWEEN GRID POINTS	40.000
Z FACTOR	0.000001 for integer base grids
Z UNITS	nT/m
STARTING / ENDING COLUMNS	1 320
STARTING / ENDING ROW	1 576
DATA MEAN VALUE	-0.002
DATA MINIMUM	-5.135
DATA MAXIMUM	19.172

DECAY CONSTANT OF B-FIELD X COIL CHANNELS 10-20

tw_tauBx10_20

NUMBER OF ROWS & COLUMNS	576 320
PIVOTAL POSITION (X,Y)	375840.000 5627000.000
X SPACING BETWEEN GRID POINTS	40.000
Y SPACING BETWEEN GRID POINTS	40.000
Z FACTOR	0.000100 for integer base grids
Z UNITS	us
STARTING / ENDING COLUMNS	1 320
STARTING / ENDING ROW	1 576
DATA MEAN VALUE	169.747
DATA MINIMUM	80.729
DATA MAXIMUM	2991.332

TOTAL ENERGY ENVELOPE OF DB/DT X AND Z COIL CHANNEL 10

tw_tee10

NUMBER OF ROWS & COLUMNS	576 320
PIVOTAL POSITION (X,Y)	375840.000 5627000.000
X SPACING BETWEEN GRID POINTS	40.000
Y SPACING BETWEEN GRID POINTS	40.000
Z FACTOR	0.000100 for integer base grids
Z UNITS	pT/s
STARTING / ENDING COLUMNS	1 320
STARTING / ENDING ROW	1 576
DATA MEAN VALUE	409.612
DATA MINIMUM	-643.887
DATA MAXIMUM	13390.455

TWINS BLOCK

Figure 1. Apparent Conductance of dB/dt X Coil

Figure 2. Residual Magnetic Intensity

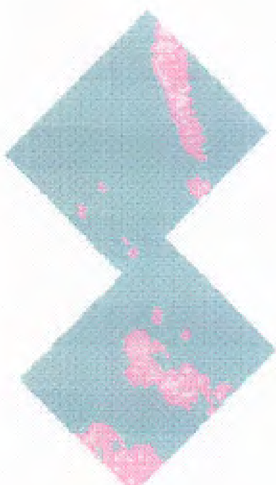


Figure 3. Decay Constant of B-Field X Coil Channels 10-20

Figure 4. Total Energy Envelope of dB/dt X and Z Coil Channel 10

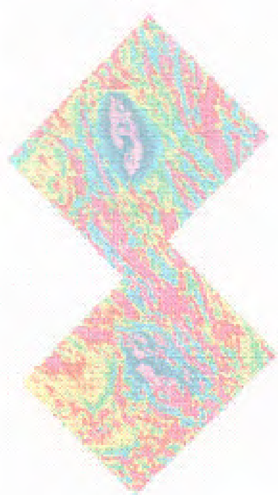


Figure 5. Vertical Gradient of Magnetics

Appendix II. Bitterroot Resources Ltd., Twins Block, Quebec, Airborne Geotem® and Magnetic Survey, Executed during January 30 –Feburary 14, 2004, Project #04402, Interpretation and Recommendations (by Jan Klein).

BITTERROOT RESOURCES Ltd.
TWINS BLOCK, QUEBEC
AIRBORNE GEOTEM® AND MAGNETIC SURVEY EXECUTED DURING JANUARY 30 –FEBURARY 14, 2004, PROJECT #04402.

INTERPRETATION AND RECOMMENDATIONS

The Twin Block is located[1] in an area of Archean gneisses within the Grenville Province ~100km south of the Grenville Front and directly north of Lac Monouane. The decision to survey this area with the Geotem® 90Hz/Magnetometer system was based on two twin bulls-eye sets of magnetic highs present near the center of the north and south portions of the survey grid.[2] Cu-Ni sulphides bearing peridotites could cause these highs.

The Geotem® 90Hz/Magnetometer survey[3] was flown along NW-SE lines 200m apart. The results of the survey provide a much improved and detailed magnetic map compared with the original regional GSC-QDM coverage. The northern twin bulls-eye anomaly becomes a single but complex zone. This complexity is clearly visible on the Vertical Gradient Magnetic map. The body occurs over high ground especially near its south end. The most important observation is that the source in non-conductive. This suggests that the source may be a barren more dioritic intrusive or a folded iron formation without any interconnected sulphides or important alterations or weathering zones. It is not a weathered or altered peridotite.

The southern of the two twin bulls-eye anomalies shows a different geophysical signature. It comprises several zones or bodies. Most of the anomaly occurs in a topographically low area with only the NW part occurring on higher ground. Its main axis is ~NW-SE while that of the body to the north is ~N170ºE. The main difference is that this magnetic anomaly has numerous highly conductive zones associated with it. It is most likely a UM or mafic body containing considerable amounts of sulphides.

The general magnetic trend in the southern part of the survey grid is NW-SE but it swings gradually to a more N-S trend towards the north. It is interesting to note that a strong linear magnetic body located ~1km to the SW of the northern twin bulls-eye anomaly does not show on the regional GSC-QDM map. This is a question of resolution (including factors like: line direction, line spacing and altitude of surveying). The regional survey missed this kind of anomalies.

[1] The Twin Block is located at 70º41'W - 50º53'N in NTS 22L15
[2] Taken from the Regional GSC – QDM airborne magnetic coverage, QDM Open File 99-01.
[3] For details see: LOGISTICS AND PROCESSING REPORT, Airborne Magnetic and GEOTEM® Survey, PAMBRUN and TWINS PROPERTIES, QUEBEC, CANADA, Job No. 04-402 for Bitterroot Resources Ltd, *by* Fugro Airborne Surveys, April 5, 2004

Resistive rocks underlie most of the area of the Twin Block survey grid. Some patches of weakly conductive overburden are mapped in low-lying areas. One cluster of weakly conductive intercepts is located on higher ground near ~UTM 379,500E – 5,639,300N in a weakly magnetic area. These types of responses are low priority for follow-up.

Several conductive zones and conductors were detected during the Geotem® 90Hz/ Magnetic survey that warrant attention (see Interpretation Map for locations):

Conductive Zones A1 and A2:

Zones A1 and A2 are located in the south corner of the survey grid and open in that direction. They are associated with areas of weak magnetic relief in topographically low-lying areas. The two zones are separated by a band of weaker conductors underlain by an E-W trending magnetic low. Several of the individual conductor intercepts can be interconnected between flight lines forming e.g. conductors A1-1, A1-2 and A2-1 to A2-5. The other intercepts appear a bit more scattered. Several of the intercepts along these conductors have been highlighted on the Interpretation Map; they are shallow. Most of the conductors in these two zones show conductances in the range of 20 – 60 Siemens. Intercepts line 1016-B (conductor A1-1), 1005-C (conductor A2-1) and 1008-B have a magnetic association and are recommended for follow-up.

Conductive and Magnetic Zones B1 to B3:

These complex zones most likely reflect UM or mafic intrusives with associated massive sulphide zones. The Vertical Gradient Map suggests that most of the conductor intercepts occur along the edges of the magnetic bodies. The northern part of Zone B1 occurs over higher ground. It is possible that it is separated by an ~E-W structure from the southern part. Two conductors B1-1 and B1-2 show possible continuations of conductive material between several flight lines. Some of the intercepts are shallow; conductances are as high as 83 Siemens. This is a very attractive area for follow-up.

Conductor C:

This conductor comprises a single intercept (line 1025-A) with an associated magnetic response. Its conductance is calculated at 43 Siemens with the conductor at a depth of 43m.

Conductive Zone D:

This conductive zone is made up of a small cluster of intercepts open to the SE. It may be associated with conductive zone E. Intercept line 1038-B is at a depth of 19m (conductance is 72 Siemens) and has a magnetic association.

Conductive Zone E:

Long conductive zone E is associated with low magnetic values in the south but higher ones in the north; the zone is open in that direction. The zone cuts very oblique across the magnetic trend giving the impression that it is a deformation related zone but its overall character is more that of a set of conductive horizons (=stratigraphic). It runs roughly parallel with a valley to its west. Conductor E1 may represent a wide conductive band within the zone. This is based on the position of intercepts on alternate flight lines. The most attractive intercept is line 1066-D, which has a good magnetic association and is relatively shallow at 23m.

Conclusions and Recommendations:

A Geotem® 90Hz/Magnetic survey over the Twins Block, Quebec confirmed different magnetic and possibly tectonic domains. The main objective of the survey was to determine if any conductances possibly caused by economic amounts of Ni-Cu sulphides are present near two twin bulls-eye magnetic anomalies (possibly complex peridotite intrusives) located in the center of the northern and southern parts of the survey grid. The northern magnetic high does not reveal any conductivity and may be caused by a diorite intrusive or complex iron formation. The southern anomaly shows considerable conductivity and may be caused by peridotite intrusives with associated concentrations of sulphides.

Five conductors or groups of conductive zones were delineated together with some lesser zones most likely caused by conductive overburden or zones of weak alteration.

Zones B1 to B3 are the most interesting; they comprise conductors with strong magnetic associations possibly caused by peridotite intrusives containing interesting amounts of massive to semi-massive sulphides. It is recommended to investigate these zones by means of prospecting, mapping, sampling and three small continuous grids of HLEM/Magnetic surveying. The objective of this work is to be able to select the optimum target(s) for trenching and/or drill testing. These grids comprise one-kilometer long base/tie lines with one kilometer long cross (survey) lines 200m apart (coincident with the airborne grid as indicated on the attached small proposed ground grid map). These grids sample the most important parts of the zones B1 to B3 (~16 line kilometers of survey). It should be noted that a Geotem® 90Hz/Magnetometer survey does not provide accurate enough information about these conductors (dip, depth, width, etc.) to permit drilling them directly.

Zones A1, A2 and E show a different character. The conductors in these zones show varying but in general weak magnetic associations. They show formational and structural signatures. It is recommended to test these zones with small geophysical grids (HLEM and magnetic) near line 1005-C (conductor A2-1) and line 1066-D (zone E). These grids consist each of three lines 200m apart and one kilometer long and will be centered over these intercepts: the lines to be oriented NE-SW.

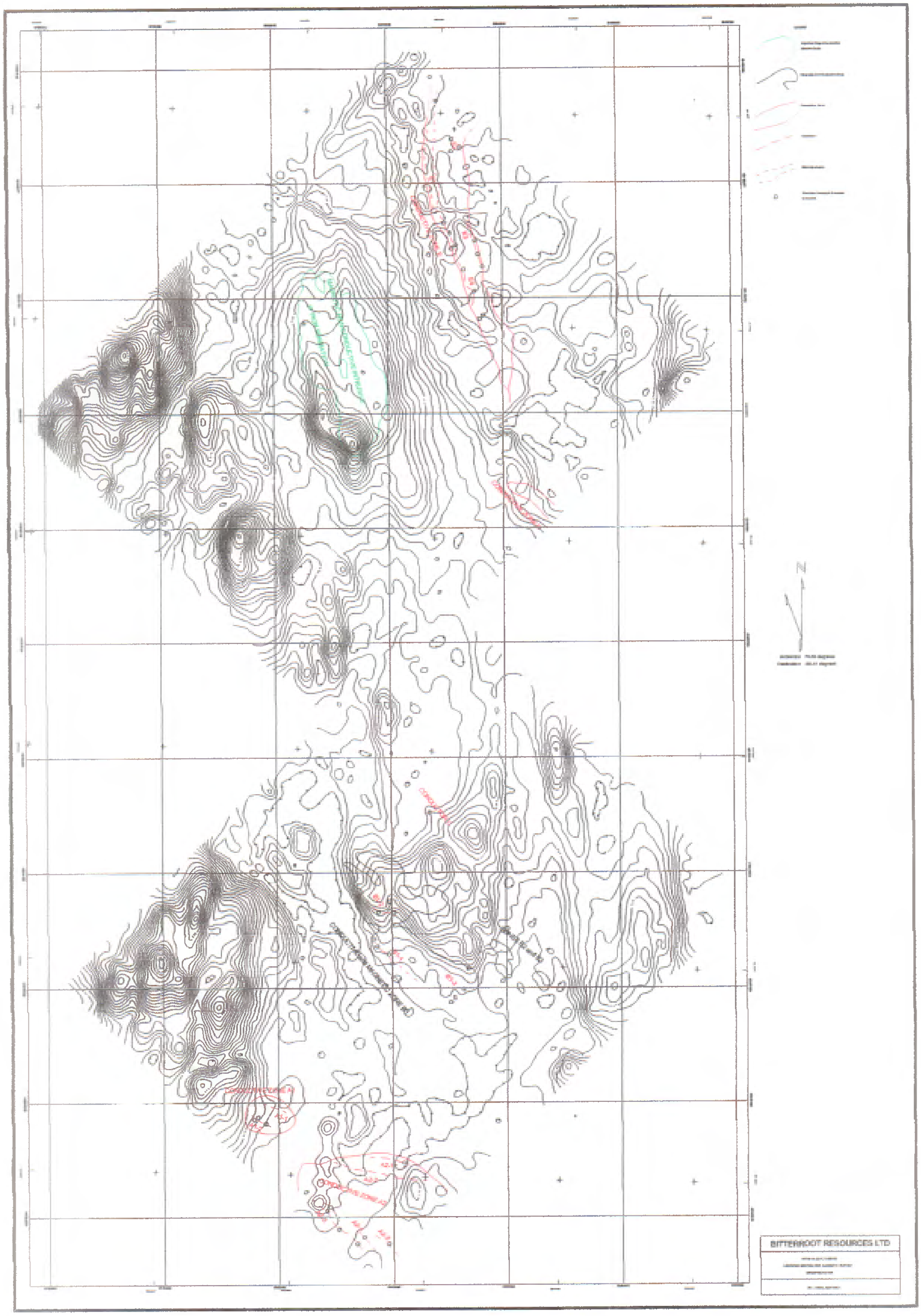
The HLEM will employ 50 and 100m coil separations over the centerlines of these grids and will record the results of five frequencies. Station interval is at a density of four stations per coil separation (e.g. =25m for the 100m cable length). The other two lines will be surveyed with that coil separation that provides the most diagnostic information along the centerline. The survey is to be executed using slope chained pickets. Magnetic data will be collected at intervals of 12.5m or denser near conductors showing strong magnetic gradients (e.g. parts of Zone B1). The grids should be prepared using differential GPS (in NAD27). A Time Domain EM system may replace the HLEM system but the latter is preferred.

A total of 25-30 line kilometers of HLEM/Magnetic surveying is recommended to test the most important Geotem® 90Hz/Magnetic targets on the Twins Block.

Respectfully submitted,

Jan Klein, M.Sc., P.Eng., P.Geo.
Consulting Geophysicist
Burnaby, B.C., 27 April 2004

Attachments: Interpretation and Digital Terrain Maps at a scale 1:20,000 and small figure showing the recommended ground geophysical grid for Zone B1.


BITTERROOT RESOURCES LTD

Appendix IV. Report Describing the Results of Horizontal Loop Electromagnetic, Magnetic and Gravity Surveys Conducted over Parts of the Twins Property, Quebec, Nts 22I15, During June and July 2004 (by Jan Klein).

REPORT DESCRIBING THE RESULTS OF HORIZONTAL LOOP ELECTROMAGNETIC, MAGNETIC AND GRAVITY SURVEYS CONDUCTED OVER PARTS OF THE TWINS PROPERTY, QUEBEC, NTS 22L15, DURING JUNE AND JULY 2004

ON BEHALF OF

BITTERROOT RESOURCES Ltd.

BY

JAN KLEIN, M.Sc., P.Eng., P.Geo.
CONSULTING GEOPHYSYCIST

BURNABY, B.C. **JULY 30, 2004**

SUMMARY:

This report describes the interpretation of the results of Ground Magnetic, Horizontal Loop Electromagnetic and Gravity surveys executed over four grids on the TWINS Property, Quebec. Recommendations have been made to drill test several conductors with a magnetic coincidence and elevated gravity response on the MAIN GRID and the slab like conductor on GRID C. Other targets show more a formational character and are downgraded.

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REPORT DESCRIBING THE RESULTS OF HORIZONTAL LOOP ELECTROMAGNETIC, MAGNETIC AND GRAVITY SURVEYS CONDUCTED OVER PARTS OF THE TWINS PROPERTY, QUEBEC, NTS 22L15, DURING JUNE AND JULY 2004 ON BEHALF OF BITTERROOT RESOURCES Ltd.

INTRODUCTION:

Fugro Airborne Surveys conducted on behalf of Bitterroot Resources Ltd. a Geotem® 90Hz/Magnetic survey over the TWINS property during January and February 2004. The survey was flown in a NE-SW direction using a line spacing of 200m. The results are described in a report by the staff of Fugro entitled: Logistics and Processing Report, Airborne Magnetic and Geotem® Survey Pambrun and Twins Properties Quebec, Canada, Job No. 04-402. Dated April 2004. An interpretive report was provided by this reviewer entitled: Bitterroot Resources Ltd., Twins Block, Quebec, Airborne Geotem® and Magnetic Survey executed during January 30 – February 14, 2004, Project #04402, Interpretation and Recommendations. Five conductors or groups of conductive zones were delineated together with some lesser zones the latter most likely caused by conductive overburden or by weak alteration. It was recommended to follow the most interesting parts of four of these conductors up using HLEM (50 and 100m c.s.) and magnetic techniques to establish a more precise location and determine width, depth to top and conductance of the various conductors resulting in optimized drill locations for testing. The airborne survey outlined also an interesting magnetic anomaly in the northern part of the grid. This anomaly was seen on the GSC-QDM airborne magnetic maps as a twin bulls-eye feature. The newer more detailed survey resulted in a single but complex zone. The anomaly occurs over high ground. The most important observation is that it is non-conductive. This suggests that the source may be a barren more dioritic plug or a folded iron formation.

A contract was awarded to Geosig Inc. Ste-Foy Quebec to execute Horizontal Loop Electromagnetic (HLEM), magnetic and a small amount of gravity surveying over selected portions of the most important Geotem® conductors. The Main Grid is centered at 70°40'W - 50°50'N (NTS 22L15). This work was conducted during June and July 2004. Some 56.4 line kilometers of magnetic, 47 line kilometers of HLEM and 280 stations of gravity data were collected. The contractor provided a logistical report entitled: Bitterroot Resources Ltd., Magnetic and Horizontal Loop Electromagnetic and Gravity Surveys, Twins Property, Manouane Lake Area, Quebec, NTS 22L15, Project 244.01, dated July 23rd, 2004, author Mr. Simon Tshimbalanga, eng. The field data were regularly emailed to the Bitterroot offices in West Vancouver, B.C. and to this reviewer for quality control and interpretation. Feedback was regularly provided to Geosig Inc. permitting some modifications of the fieldwork. The data is of good quality. The contractor's report describes field procedures and processing of data. This report describes the interpretation of the results.

PRESENTATION OF THE DATA:

The HLEM data was collected using coil separations of 50 and 100m along lines established with secant chaining. Five frequencies were employed on all survey lines: 222, 444, 888, 1777 and 3555 Hz measuring the In-Phase (IP) and Out-of-Phase (OP) components. The data is of good quality and consistent in terms of change from low to high frequency as can be expected of conductors in a non-conductive environment. Therefore only the profiles of the lowest and highest frequencies are displayed. The scales of the HLEM profiles vary from grid to grid as indicated on the various maps showing the data. Zero levels for IP and OP are plotted along the traverses. IP is shown as a solid line and the OP-component as a dashed line. The map scales are 1:5,000. The contractor provided the UTM coordinates for all stations (based on making GPS measurements at critical locations and interpolating for stations in the between). Magnetic data is presented in profile and as contour plots. The results are at various stations rather complex resulting in not easy understood contour plans. For this reason are some of the ground magnetic data sets upward continued to 70m and compared with the original airborne images. Some of the HLEM data collected over the Main Grid is also presented overlain on the Digital Terrain map.

A few gravity traverses were executed over the Main Grid to determine if excess masses are associated with the conductors. The gravity data was reduced and is displayed as bouguer gravity profiles for a density of 2.67gm/cc.

Appendix 1 lists the various maps attached to this report.

INTERPRETATION:

Four grids were surveyed with HLEM and magnetic techniques: the large Main Grid and Grids A2-1, C and E-2. The latter three comprise small grids of three lines 100m apart each. Four lines of gravity on the Main Grid complemented these techniques.

MAIN GRID:

This grid covers Geotem® conductive and magnetic zones B1 to B3. These complex zones could reflect UM or mafic intrusives or highly folded gneisses with associated massive sulphide zones. The airborne vertical gradient map suggests that most of the conductor intercepts occur along the edges of the larger magnetic bodies. Most of the conductors are shallow especially those over higher ground; they display relatively high conductances.

The NW part of the grid was surveyed mainly with a 50m coil separation (for the conductors are shallow). This short coil separation (c.s.) provides a high resolution. Further to the SE was the longer 100m c.s. required to obtain good results. The conductor picture that developed is very similar to that of the airborne data. Conductors are often multiple or complex especially near the NW noses of the two large magnetic highs. This is clearly shown along lines 4000W and 4600W. The conductor pattern along the flanks of these magnetic highs is simpler; single or twin conductors are detected here. The HLEM pattern near the noses suggests very complex folding and/or faulting. This is supported by the HLEM data along a cross line (250S) cutting through the nose of one of the large magnetic highs at line 4000W. Most conductors show a high conductance (up to 1422 Siemens) they are in general thin (only a few meters wide). The conductors are at several locations surrounded by low conductive material as is displayed in the OP profiles. E.g. the third hole drilled at line 4600W station 180S collared in altered and mineralized mafic rocks (pyrite/pyrrhotite) this is where the OP component shows already negative amplitudes but the conductance is low for the IP component is near zero. The conductor(s) drill tested in this hole is located directly to the NE (or further down the hole). No dips can be estimated of these complex conductors for their shoulders (= positive part of the HLEM profiles) are enhanced by those of the neighboring conductors. The profile shapes of the conductors along the flanks of the magnetic highs suggest steep dips.

There is a strong cross correlation between conductivity and magnetic susceptibility. This is clearly shown for the more isolated conductors e.g. Conductor H line 4000W-840N, Conductor C line 2400W-1000N and Conductor F line 2600W- 200N. It suggests that the source(s) is a combination of pyrite and pyrrhotite. The character of the HLEM responses suggests in most cases a higher percentage pyrite than pyrrhotite. The HLEM data also indicates that these sulphides are present in the range from disseminated to true massive (= poor to very high conductance) sulphide zones. Magnetite will be a contributor to the magnetic but not to the EM response. The magnetic profiles suggest also that the amount of magnetic material between the conductors is less than that associated with or very close to them. Thus the amount of magnetic material along the edges of the two main airborne magnetic anomalies is higher than that in their centers. On close observation it appears that the magnetic sources of these two highs form as much a kind of NW facing horseshoe, as do the conductors. The strong variations in magnetic amplitudes along and between survey lines makes contouring (=gridding) difficult. The magnetic profiles provide a clearer picture and should be consulted when studying the HLEM results. The ground magnetic data was also upward continued to 70m to allow comparison with the airborne data. Both products are included with this report.

The HLEM interpretation is presented on an ideal grid plan (showing the actual stations) and on an UTM base map. The following is a brief description of the individual conductors or zones detected.

Zone A coincides with the large northwestern magnetic anomaly. Complex HLEM responses are seen along lines 4400W – 4800W near the base line. Conductances vary but are in general high (up to 696 Siemens). Conductor intercepts are interconnected between lines in a NW-SE direction. Other interconnections can be made and a wrapping around (=folded) possibility cannot be excluded. Which interconnection between various intercepts is chosen is not so important at this stage of exploration for the objective of the current (first) phase of drilling is to intersect conductors and evaluate their economic merit not to establish continuity. Additional HLEM or other EM may be required to unravel the pattern of conductive horizons at a later date. A gravity traverse along line 4600W shows a rather flat topped anomaly of ~1mgal to coincide with the zone of conductors and magnetic activity (from approx. station 175S to 500N, this includes Conductor J).

Zone B forms a NW directed horseshoe. Multiple conductors are seen along line 4000W centered on station 250S. A long cross line was surveyed supporting this interpretation. Lines 3800E and 3600E show clearly two sets of conductors along the NE and SW flanks of a large airborne magnetic high. There is a weak indication that these conductors dip steeply to the NE. Conductances are again variable and most conductors are only a few meters wide but often present as multiple zones 10 to 20m apart. Gravity traverses along line 3800E, 4000E and 250S show results similar to those across Zone A.

Conductors C, D, E, F, G and H are isolated (one-line) conductors even though they may include several parallel relatively closely spaced conductors. Conductors D and E are deeper and only properly seen in the 100m c.s. data. Conductor D has an associated strong positive response to the SW. This can be interpreted as the effect of the conductor(s) wrapping around the magnetic source close to the survey line.

Conductor I may be the continuation of the north arm of Zone B. Likewise can Conductor J be an offshoot of Zone A. Conductor group K shows somewhat lower conductances than most of the other conductors.

GRID A2-1:

This small three-line grid was selected to test a large area of formational looking airborne conductors. The, for follow-up, selected intercept (Geotem® line 1005-C) is somewhat unique for it has a defined magnetic coincidence. The ground grid could not cover the full extent of the conductor for swamp and lakes occur on its north side. The centerline shows a narrow 95 Siemens conductor at a depth of 22m. It has a clear magnetic coincidence (see profiles). The conductor is open to the east and west. The map showing a portion of the airborne magnetic data and the 100m c.s. 3555Hz HLEM profiles displays this coincidence well. The dip of the conductor is difficult to estimate for the north flank of the profiles is not available. There is however a suggestion of a dip to the south. No drill recommendation is made at this time for the conductor (at least 300m long) is thin.

GRID C:

A small three-line grid of east-west lines was surveyed over a single Geotem® conductor with magnetic coincidence (line 1025-A). The HLEM results show good responses along the centerline and a possible end-of-conductor response on the southern line. This indicates that it is indeed a conductor of short strike length (~100m). There is a suggestion from the 100m c.s. data that two conductors are present along the centerline but the results from the 50m c.s. give the impression that the HLEM responses are caused be a small flat lying slab or disk. The magnetic data supports this. The ground data is rather complex even after upward continuing it to 70m. The airborne data shows a magnetic high coincident with the conductors. It is thus suggested that the conductor is caused by a slightly flat oval shaped source with its major axis NW-SE. Depth to the top is difficult to estimate but is in the 10 to 20m range. The source appears to be located under a weak rise between two lakes. A weathered mafic plug or a kimberlite pipe may cause this combination of HLEM and magnetic responses. Drill testing may be done from line 400N station 25W, drill vertical. Alternatively two holes may be drilled from this location but directed to the west and east at -50°.

GRID E-2:

This three-line grid is located in the northern part of the airborne survey grid. It covers an interesting conductor intercept (line 1066-D) at the edge of the survey. It has a magnetic coincidence more so than the other intercepts in this area. The airborne conductors in this area display a strong formational character. The ground survey lines extend somewhat beyond that of the airborne survey. Three possibly multiple conductors were detected; they are open to the north and south. The target (Conductor B) and the one to its west (Conductor A) show a magnetic coincidence, which is the strongest for the target conductor. A third conductor was detected further to the east without a magnetic association. The individual conductors appear thin; conductances vary but are as high as 1100 Siemens for Conductor A and between 41 and 120 Siemens for the target conductor. Depths to the top of these conductors is from 26m in the east (Conductor C) to greater than 50m in the west (Conductor A). The stronger magnetic amplitude of Conductor B may indicate more pyrrhotite. These conductors appear formational.

TWINS NORTH MAGNETIC ANOMALY:

No ground geophysical surveys were executed over this major anomaly but it was scheduled to be drill tested; interpretive comments made recently by this reviewer are therefore included here.[1]

The northern magnetic anomaly on the TWINS project measures approx. 3000x1200m in a NNW direction. Its overall amplitude is about 2000nT. The positive part of the anomaly is surrounded be a nearly closed important low, which is a bit stronger on the east than on the west side. A fault runs in an ~N10°E direction through the center of the anomaly. The edges of this magnetic anomaly are rather sharp or abrupt suggesting that the source has defined edges. The shape of such anomaly is very reminiscent of that caused by intrusive plugs. The strong negative "halo" on all sides suggests however a limited depth rather than a great depth extend. The local magnetic inclination and declination (76°N - 21°W) would show only a negative on the NE side if this is a body of great depth extend. It is not assumed at this stage that remanence magnetism plays an important role. This

[1] The various maps provided with these comments can be found on the archival CD-Rom under: Other Maps as JPG or MapInfo/Twins North MapInfo for CJGreig.

suggests that the anomaly is caused by a funnel or mushroom shaped intrusive (=relatively thin edges but a central deep root).

There is a strong correlation between the positive part of this magnetic anomaly and local topography. Both weaken a bit to the north suggesting a dip in that direction. Two sets of profiles were created across the anomaly; these show this correlation clearly. A second interpretation of this anomaly is that it represents a sequence of banded ironstones-quartzites; other more magnetic resistant rocks cannot be excluded. The overall picture in this scenario is that of an old resistant mesa.

Two sets of derivatives support that the edges of the source are well defined. The 1st vertical derivative map indicates the edges while the potential field tilt highs correlate more with the centers of the most magnetic portions of the source.

The Geotem® results do not suggest that much conductivity is associated with the magnetic source. One weak feature was identified in the area of the magnetic anomaly; its EM-responses were too low to permit calculating its conductance or depth (line 1052-C at 381,657E- 5,641,683N). It is just along the side of one of the potential field tilt axis and along the east flank of the topographic high, which correlates with the southern part of the magnetic anomaly.

The best part to investigate this area, from a geophysical point of view, is between coordinates: 381,100 - 382,000E and 5,641,400 – 5,642,700N with emphasis on the area near the hilltop and the very weak conductor. The inclination of a drill hole to test this area will strongly depend on the outcome of a field investigation. A vertical hole may be the best when it is determined that this magnetic anomaly represents the sharp edged remnant of a relatively flat lying sequence. An inclined hole will be more suitable if it is determined that this is more a funnel shaped intrusive.

CONCLUSIONS AND RECOMMENDATIONS:

Ground follow up confirmed and refined the understanding of Geotem® conductors detected earlier this year. The conductors were assumed relatively shallow and the high-resolution HLEM technique employing 50 and 100m coil separations was used with success. The HLEM was complemented by ground magnetic surveying and selected gravity traverses over the Main Grid.

Several multiple conductors and zones were confirmed on the Main Grid. The conductors are up to several meters wide and come in multiple bands. Conductances vary but are in general high. It is assumed that pyrite and pyrrhotite are the main sources of conductivity with variable amounts of economic sulphides contributing also. These sulphides can be present in disseminated form or as massive bands. No differences can be seen between the conductors, most are therefore good targets for drill testing. Earlier was a set of drill targets presented and there is no need to modify that list at this stage (while drilling is in progress). The following drill sites were suggested:

1. Line 4000W, collar at station 870N, and drill -50°S along the line for 100m.

2. Line 4600W, collar at station 180S, and drill -50°N along the line for 300m.

3. Line 4600W, collar at station 20S, and drill -50°N along the line for 220m.

4. Line 3800W, collar at station 430S, and drill -50°N along the line for 100m.

5. Line 3800W, collar at station 100S, and drill -50°N along the line for 220m.

6. Line 250S, collar at station 4150W, and drill -50°E along the line for 175m.

7. Line 250S, collar at station 4010S, and drill -50°E along the line for 275m.

The results of this drill testing will dictate if further geophysical work is required and/or additional drilling can be done based on the data available.

The conductor on Grid C represents a flat slab or disk near he top of an intrusive e.g. mafic plug or the deeply weathered portion of a kimberlite pipe. Drill testing may be done from line 400N station 25W, drill vertical. Alternatively two inclined holes may be drilled from this location directed to the west and east at -50°.

Conductors A2-1 and E-2 are most likely caused by formational horizons. No drill holes are recommended to test these at this time. However, short gravity traverses should be surveyed prior to drilling to determine if excess masses are associated with them.

Respectfully submitted,

Jan Klein, M.Sc., P.Eng., P.Geo.
Consulting Geophysicist.
Burnaby July 30, 2004

APPENDIX 1

Maps (UTM based) forming part of this report:

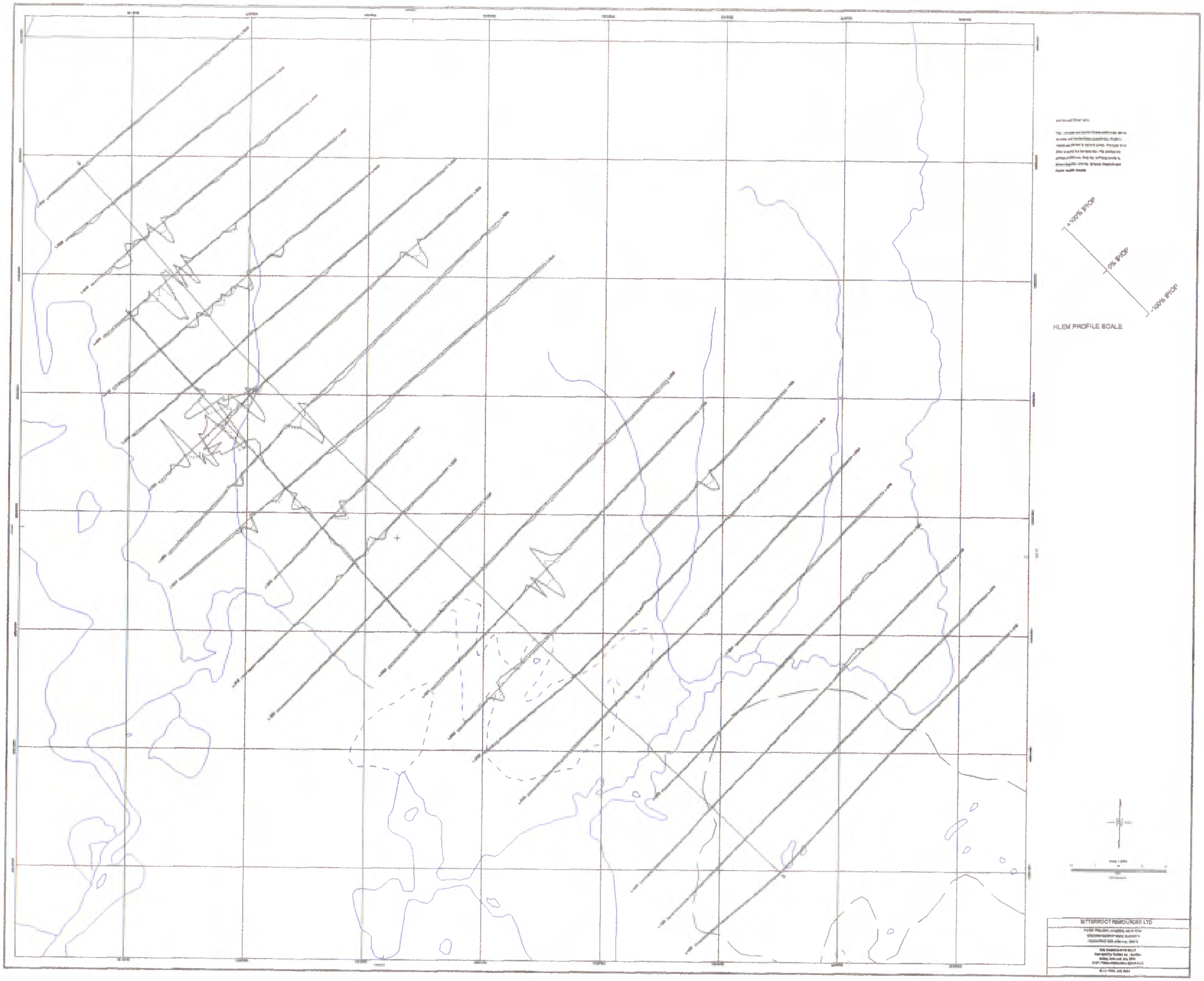
MAIN GRID:
HLEM profiles 50 and 100m c.s. 222 and 3555Hz (4 maps)
AMAG and DTM[2] image with grid (2 maps)
Ground magnetic profiles of grid and tie lines (2 maps)
HLEM profiles 50m c.s. with magnetic profiles (1 map)
Ground magnetic image and Upward Continuation to 70m (1 maps)
Gravity profiles (1map)
Interpretation (1 map)

GRID 2A:
HLEM profiles 50m c.s. 3555Hz and 100m c.s. 222 and 3555Hz (3 maps)
Ground magnetic profiles (1 map)
Ground magnetic image (1 map)
AMAG image with HLEM profiles 100m c.s. 3555Hz IP-component (1 map)
Interpretation (1 map)

GRID C:
HLEM profiles 50 and 100m c.s. 222 and 3555Hz (4 maps)
HLEM profiles 50 and 100m c.s. 3555Hz (1 map)
AMAG image with HLEM profiles 100m c.s. 3555Hz IP-component (1 maps)
Ground magnetic profiles of grid and tie line (1 maps)
Ground magnetic image and Upward Continuation to 70m (1 maps)
Interpretation (1 map)

GRID E2:
HLEM profiles 50 and 100m c.s. 222 and 3555Hz (3 maps)
GMAG image with HLEM profiles 100m c.s. 3555Hz IP-component (1 maps)
Ground magnetic profiles of grid and tie line (1 maps)
Ground magnetic image (1 maps)
Interpretation (1 map)

[2] AMAG=Airborne Magnetic, DTM=Digital Terrain Map.



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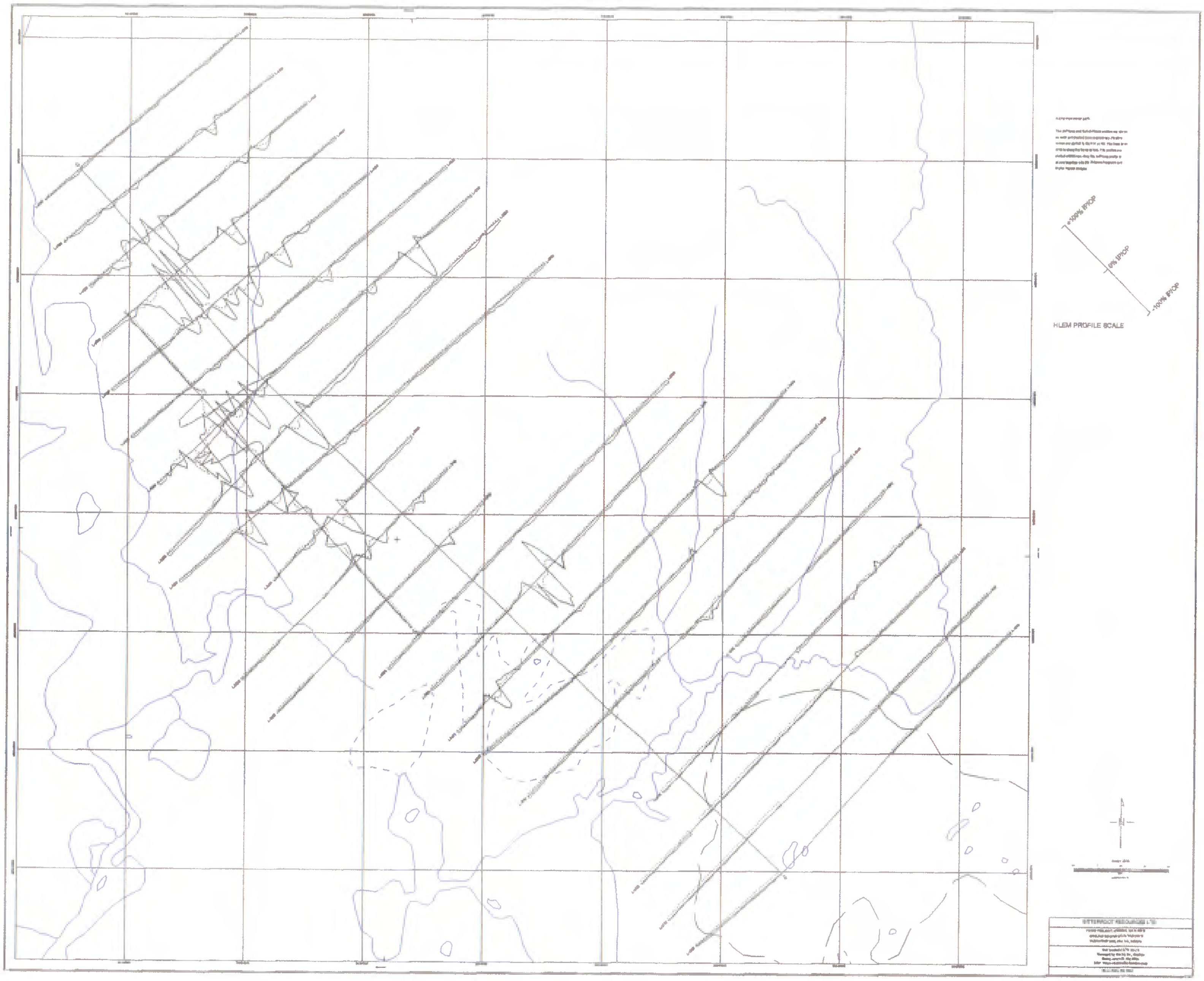
0% IP/OP
-100% IP/OP
HLEM PROFILE SCALE
BITTERROOT RESOURCES LTD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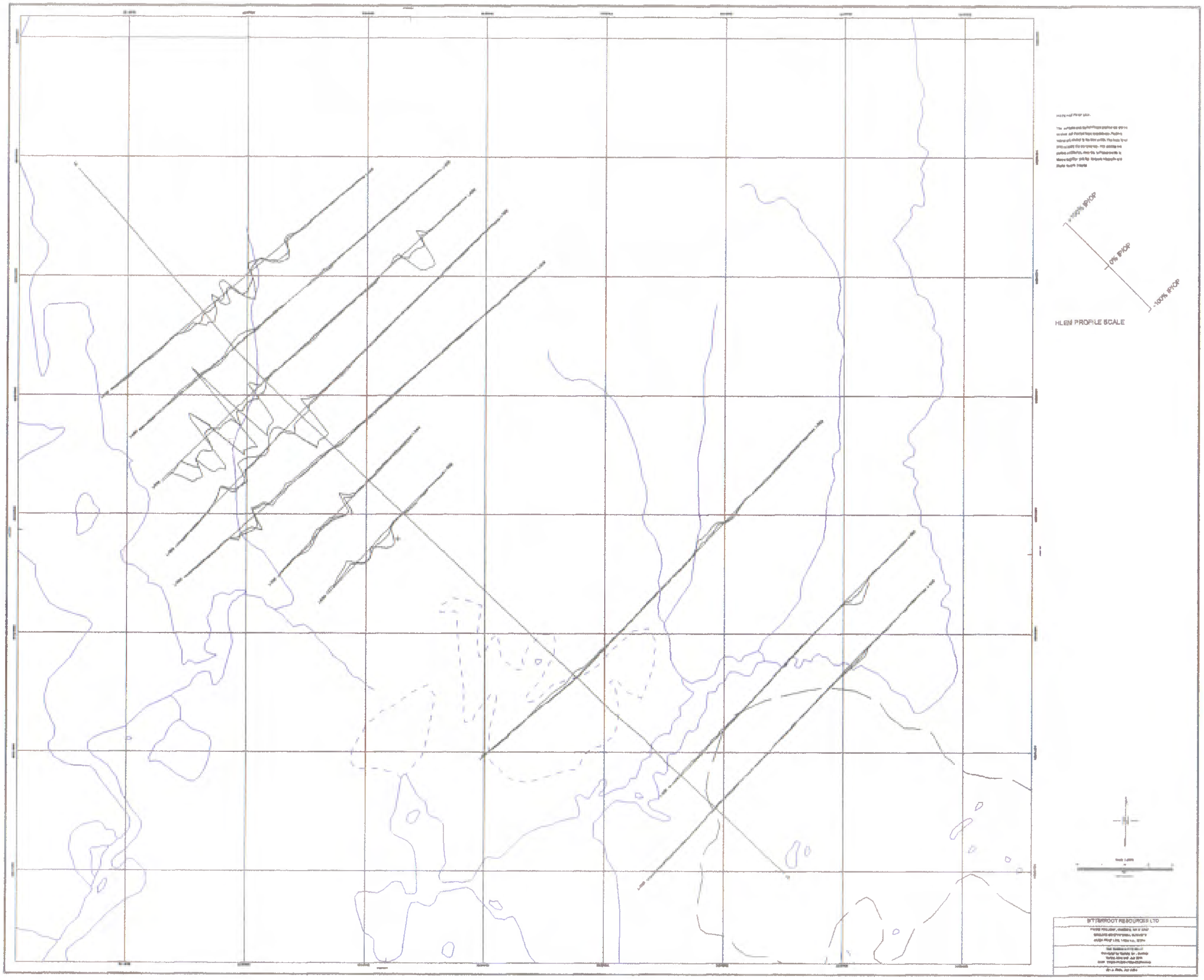

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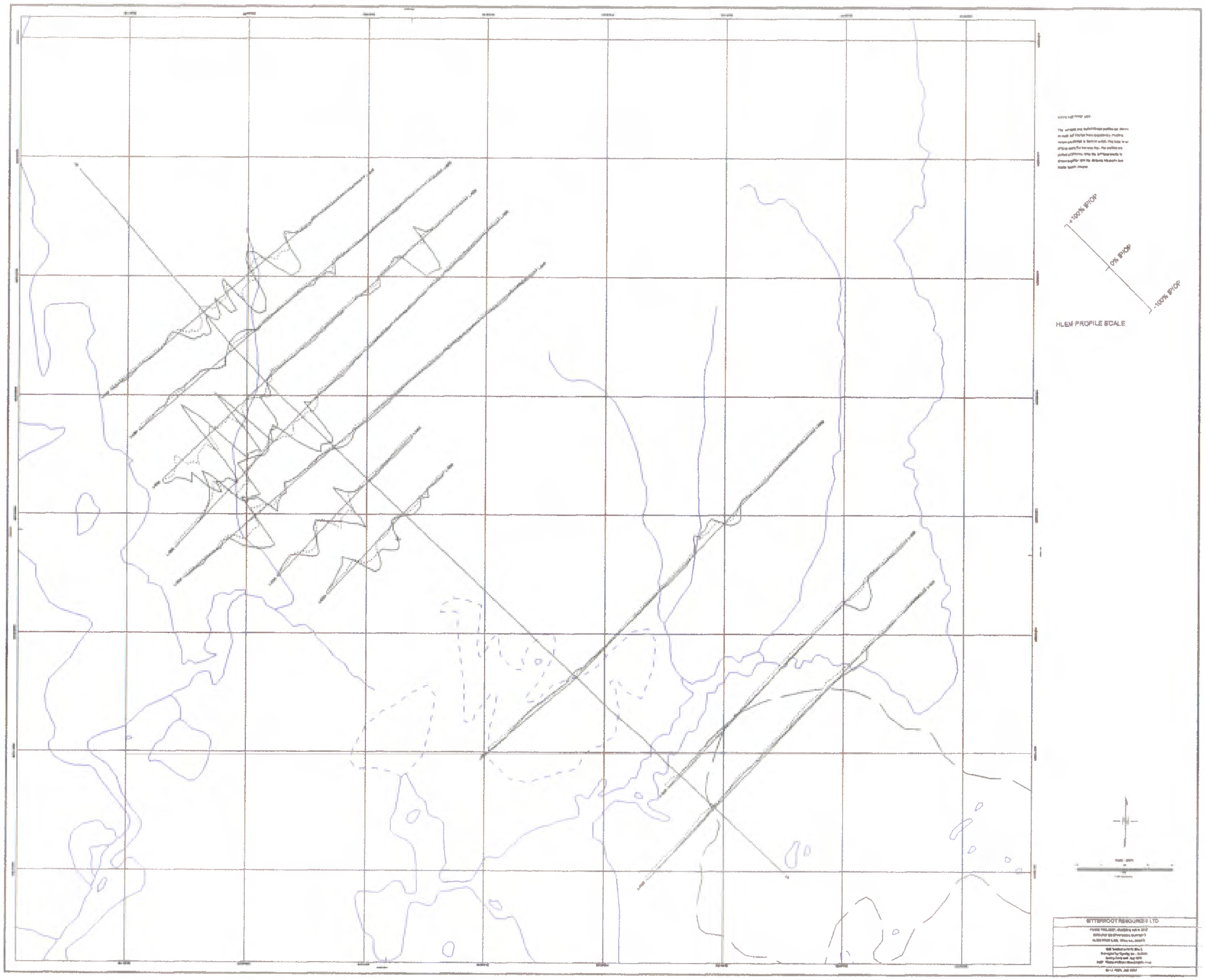
HLEM PROFILE SCALE
BITTERROOT RESOURCES LTD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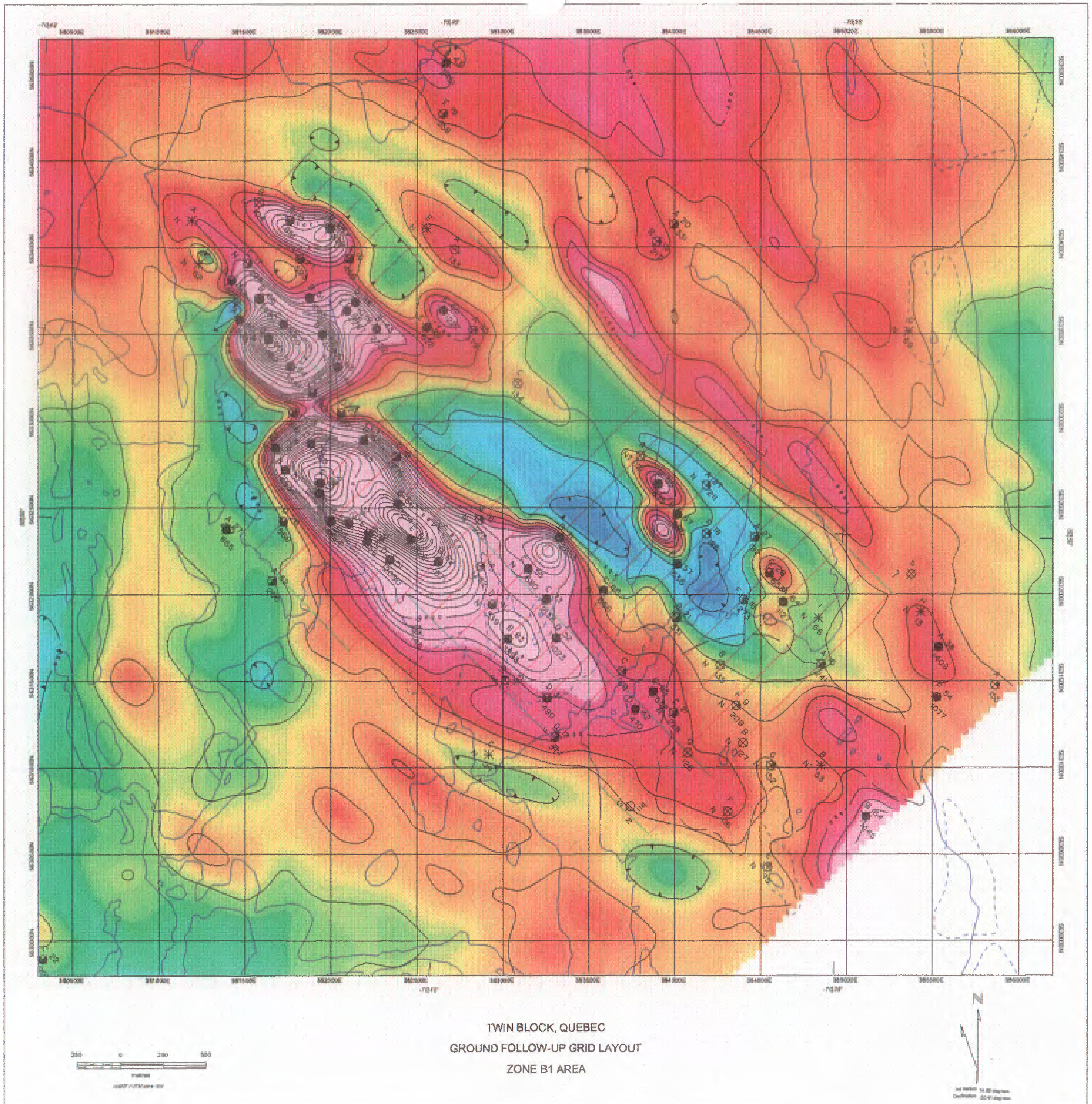
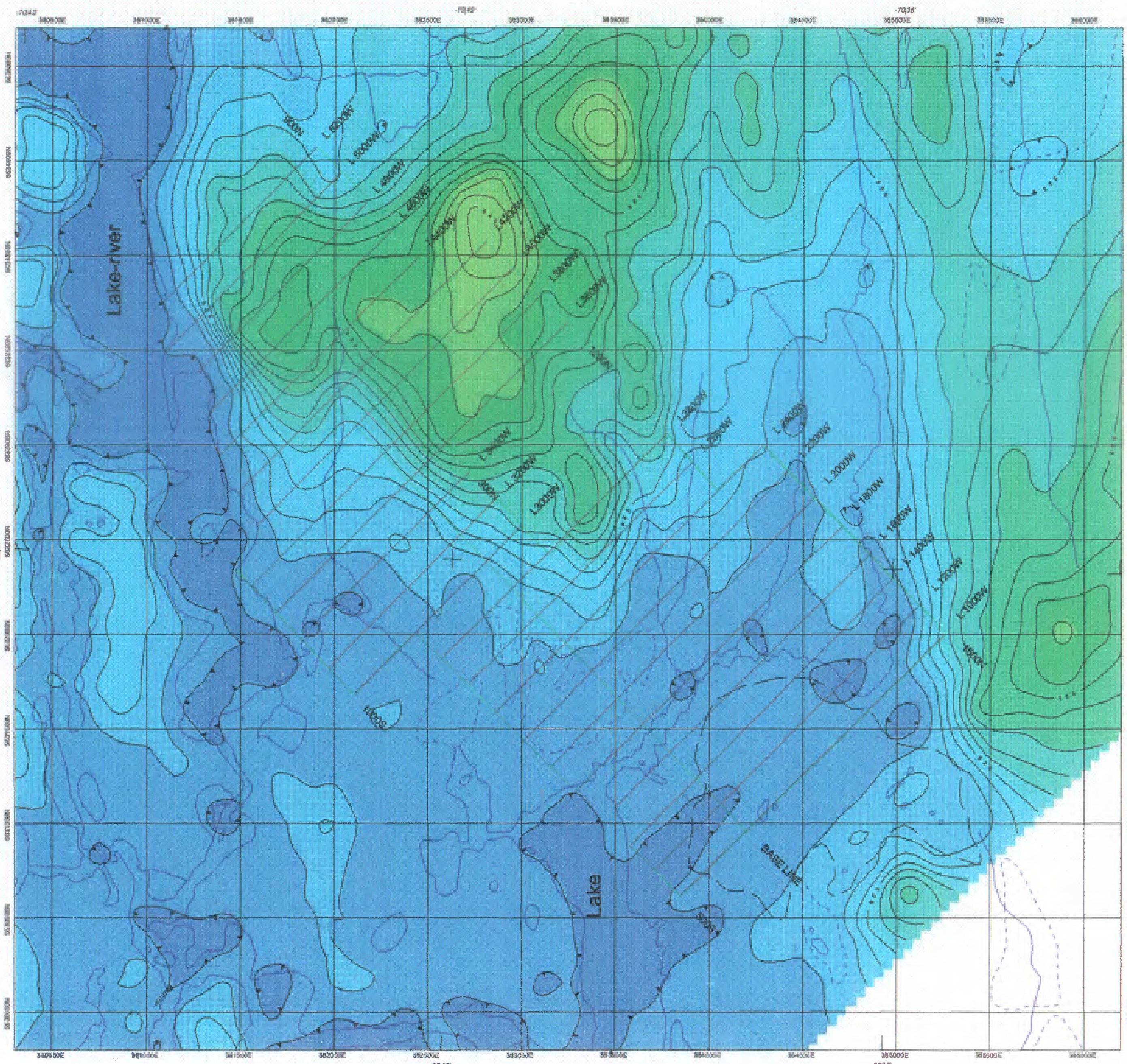
HLEM PROFILE SCALE
BITTERROOT RESOURCES LTD



TWIN BLOCK, QUEBEC

GROUND FOLLOW-UP GRID LAYOUT

ZONE B1 AREA

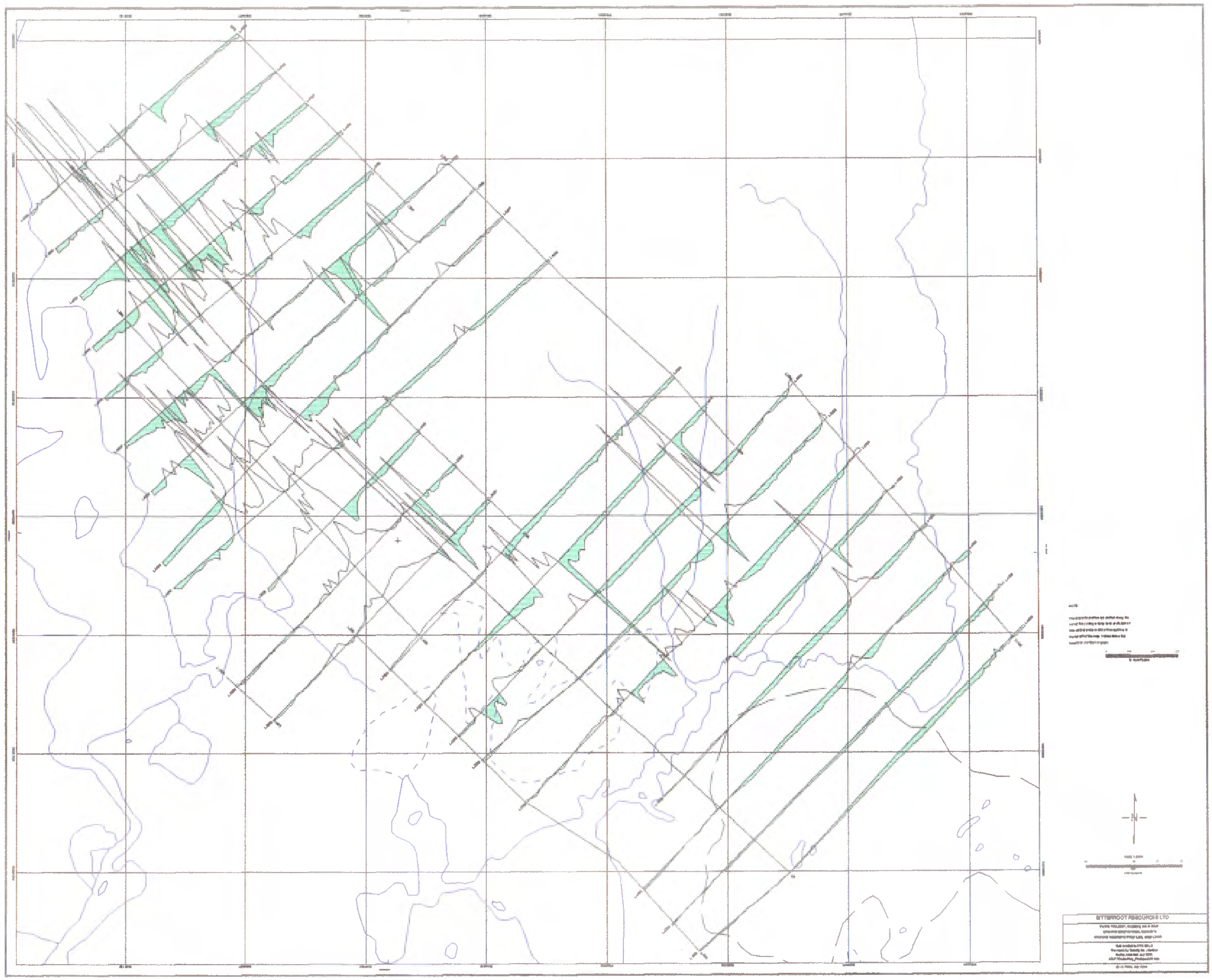


TWIN BLOCK, QUEBEC

GROUND FOLLOW-UP GRID LAYOUT

ZONE B1 AREA

DTM 5m contour interval derived from a recent AEM survey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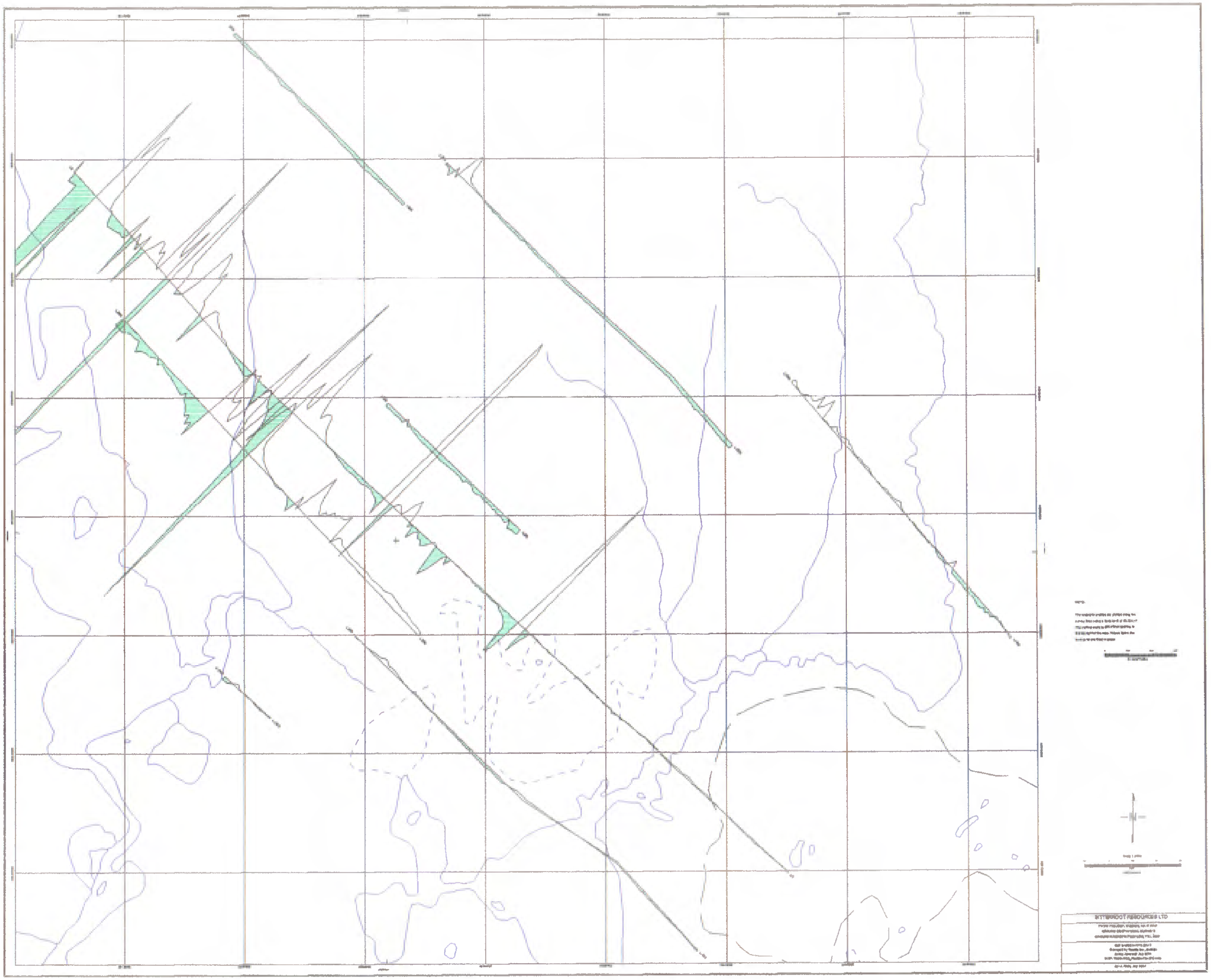
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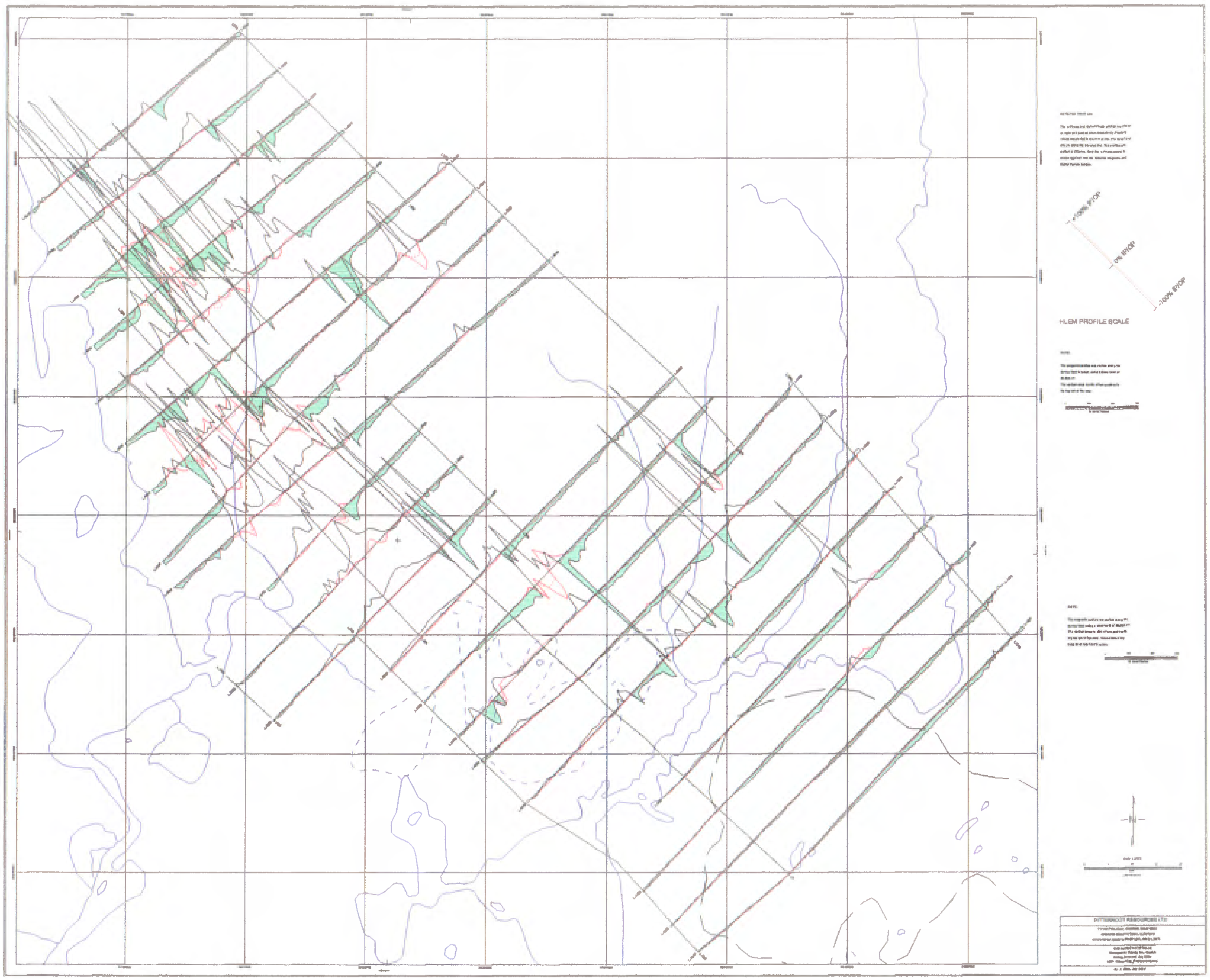
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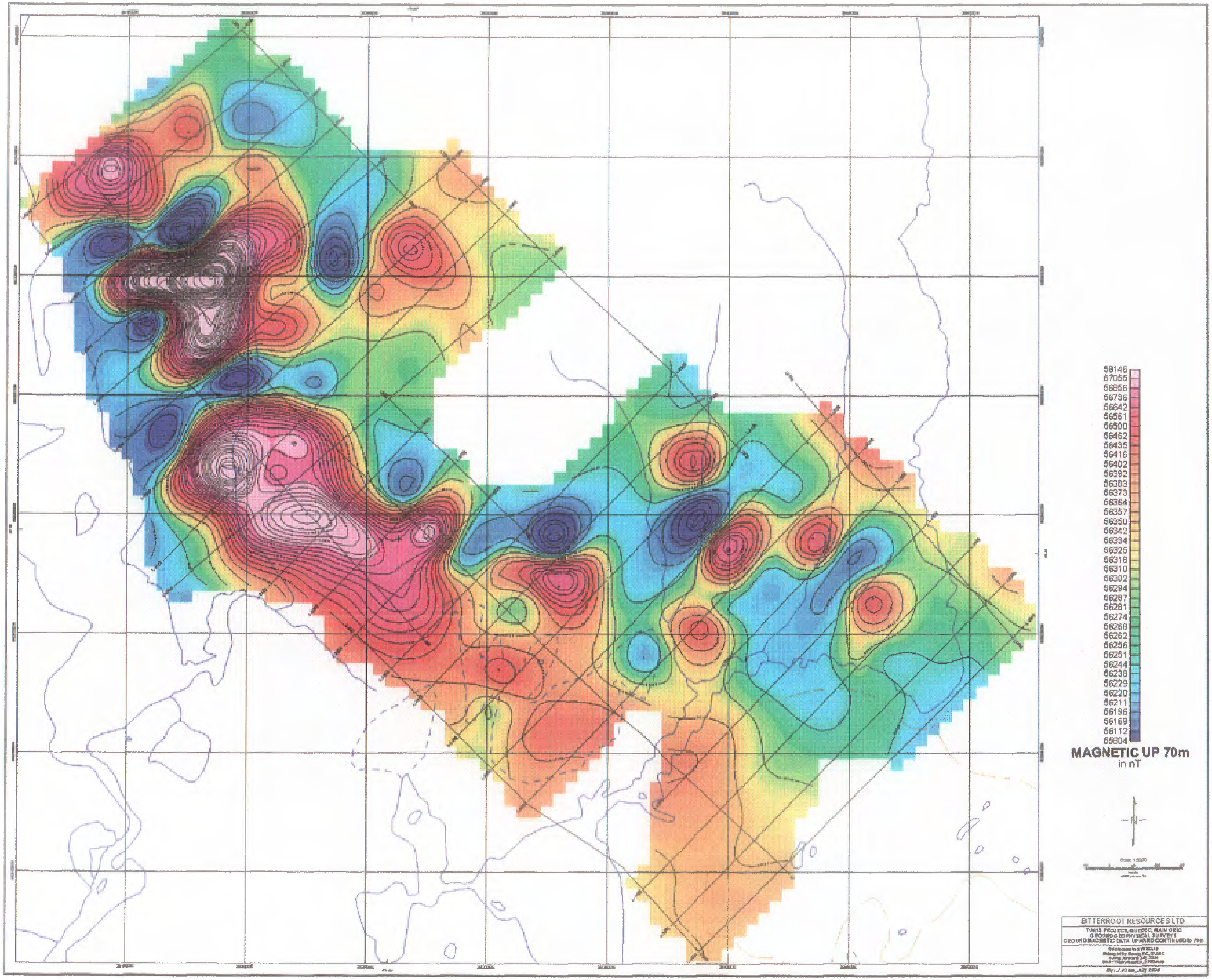
HLEM PROFILE SCALE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56302
56294
56287
56281
56274
56268
56262
56256
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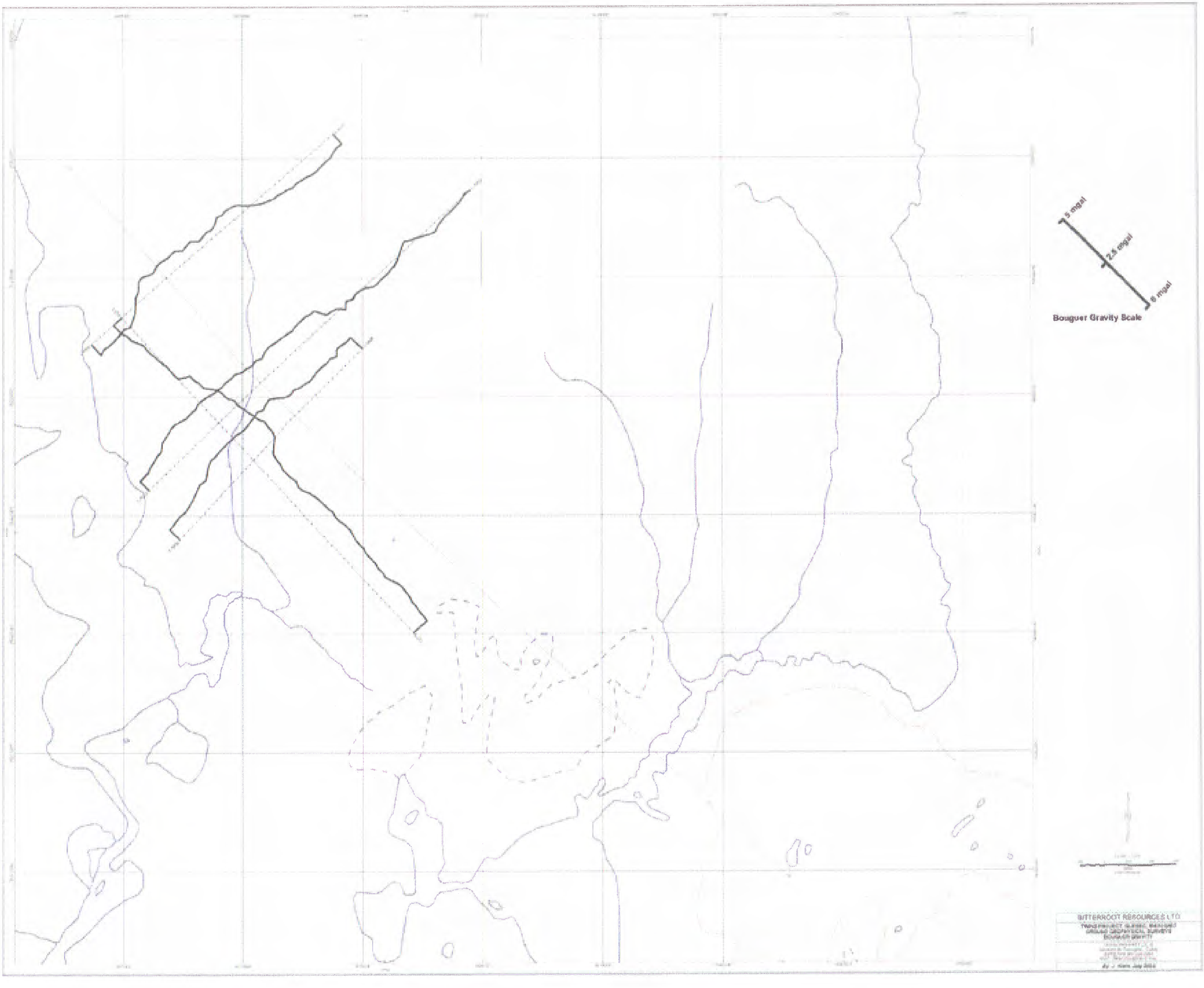
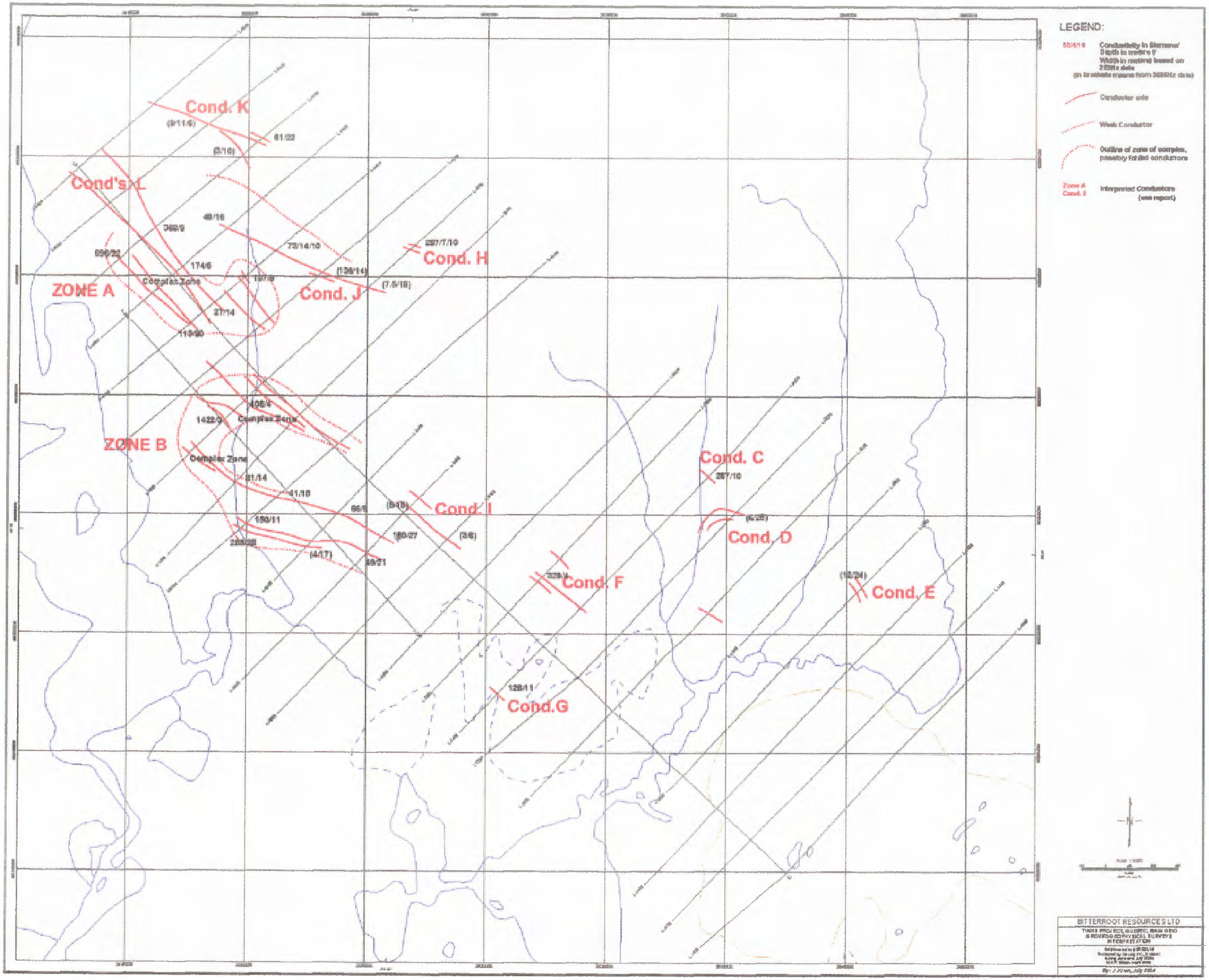
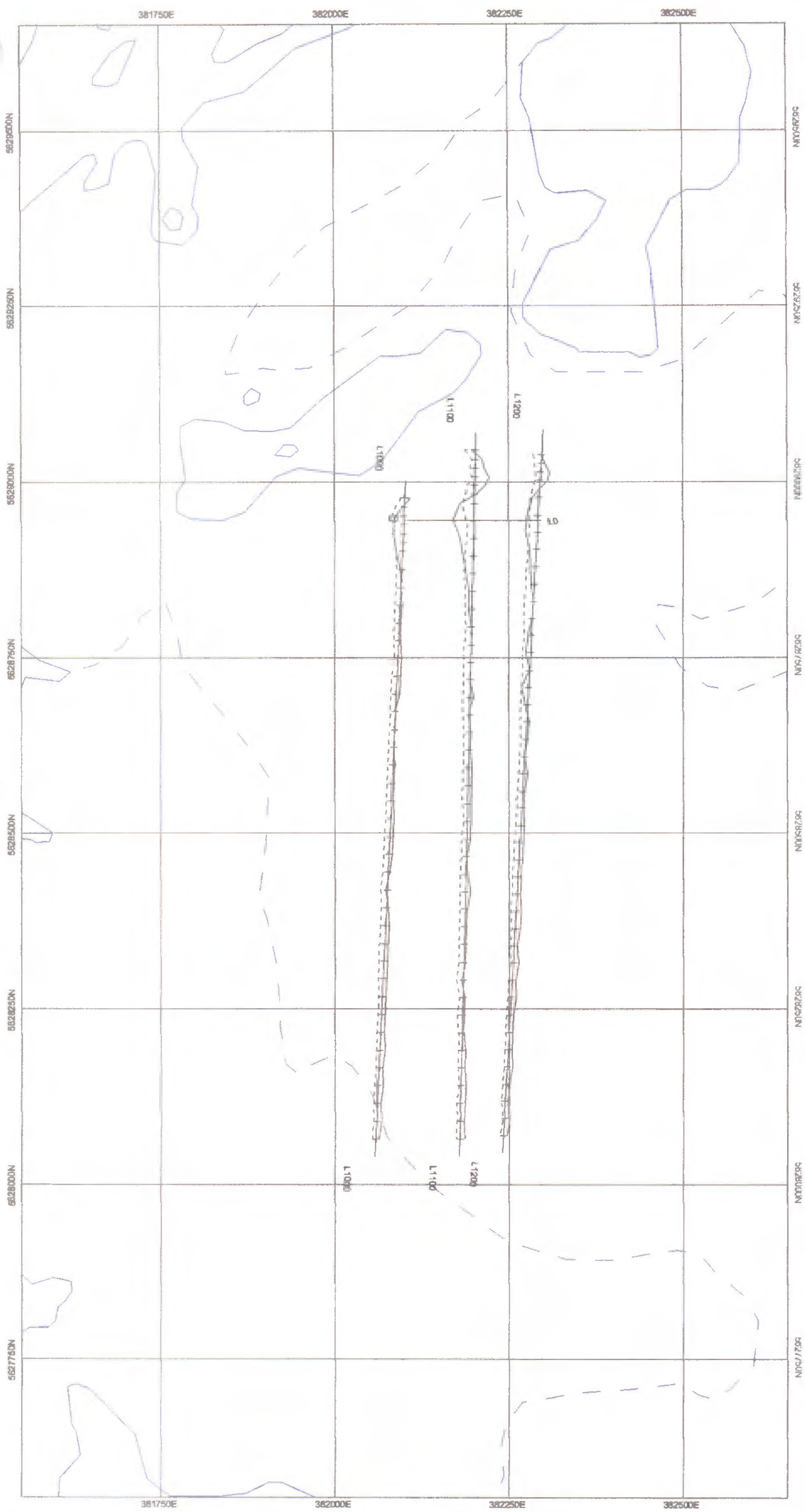
56112
55804
MAGNETIC UP 70m
in nT
BITTERROOT RESOURCES LTD


5 mgal
2.5 mgal
0 mgal
Bouguer Gravity Scale
BITTERROOT RESOURCES LTD.


LEGEND:
Conductor axis
Weak Conductor
Outline of zone of complex, possibly folded conductors
Zone A
Cond. E
Interpreted Conductors
(see report)
Cond. K
(9/11/6)
61/23
(3/16)
Cond's L
48/16
369/9
73/14/10
297/7/10
Cond. H
656/22
174/6
(136/14)
(7.5/18)
ZONE A
Complex Zone
Cond. J
27/14
113/20
1422/3
Complex Zone
ZONE B
Complex Zone
81/14
41/16
66/8
(5/18)
Cond. I
150/11
180/27
(3/6)
(4/17)
69/21
Cond. C
297/10
(6/26)
Cond. D
329/4
Cond. F
(12/24)
Cond. E
128/11
Cond.G
BITTERROOT RESOURCES LTD
By: J. Klein, July 2004



NOTE FOR PROFILES:

The In-Phase and Out-of-Phase profiles are shown as solid and dashed lines respectively. Positive values are plotted to the west. The base level (0%) is along the traverse line. The profiles are plotted at 20%/cm. Only the In-Phase profile is shown together with the Airborne Magnetic or Digital Terrain images.

+40 20 0 20 -40

% IP/OP

Scale 1:5000

50 0 50 100 150 200 250 300

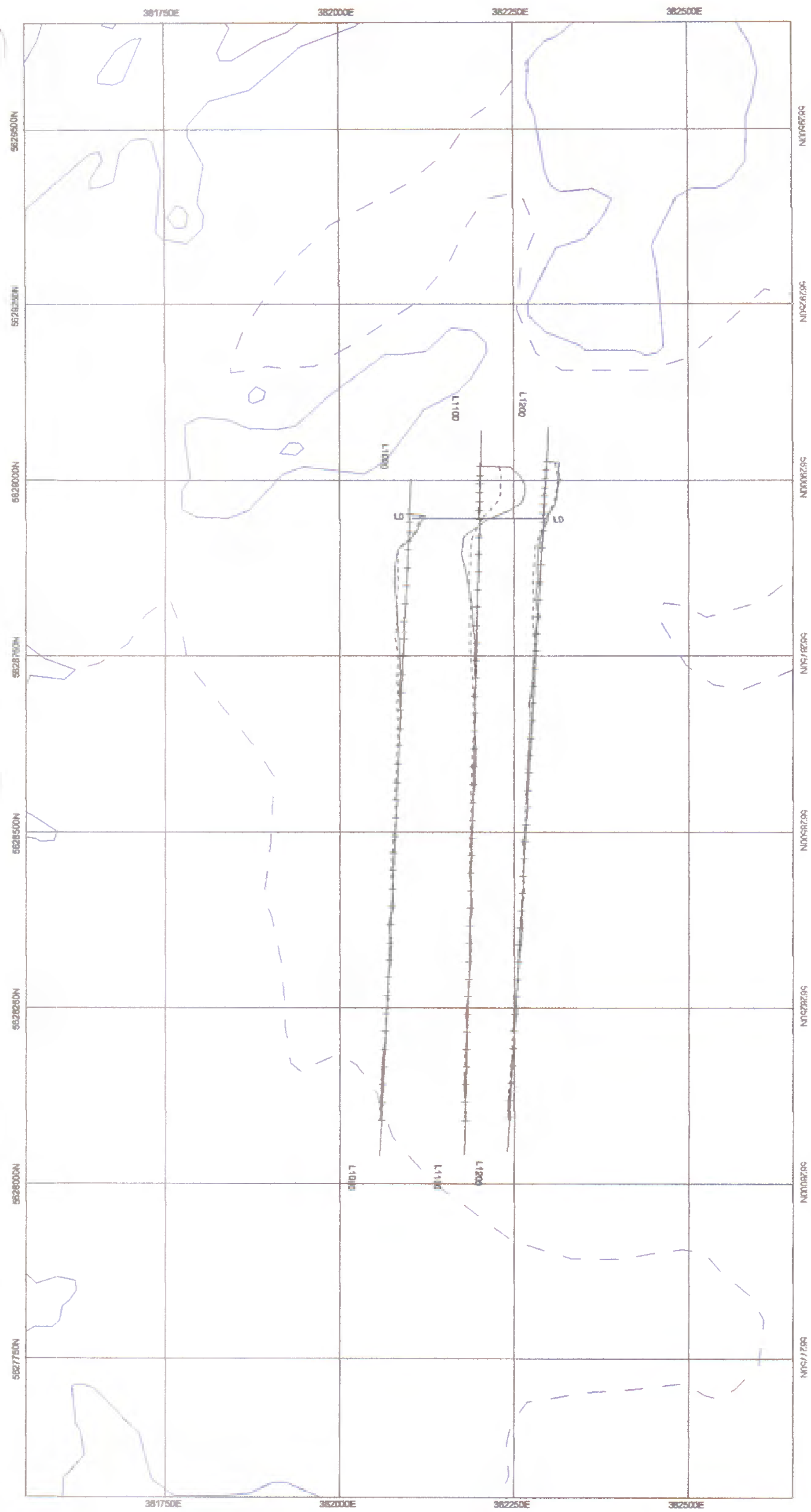
metres

BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, A-2 GRID
GROUND GEOPHYSICAL SURVEYS
HLEM PROFILES, 50m c.s., 3555Hz

Grid located in NTS 22L15
Surveyed by Geosig Inc, Quebec
during June and July 2004
MAP: TwA2-HLEM-50m-3555Hz.map

By: J. Klein, July 2004



NOTE FOR PROFILES:

The In-Phase and Out-of-Phase profiles are shown as solid and dashed lines respectively. Positive values are plotted to the west. The base level (0%) is along the traverse line. The profiles are plotted at 20%/cm. Only the In-Phase profile is shown together with the Airborne Magnetic or Digital Terrain images.

+40 20 0 20 -40

% IP/OP

Scale 1:5000

50 0 50 100 150 200 250 300

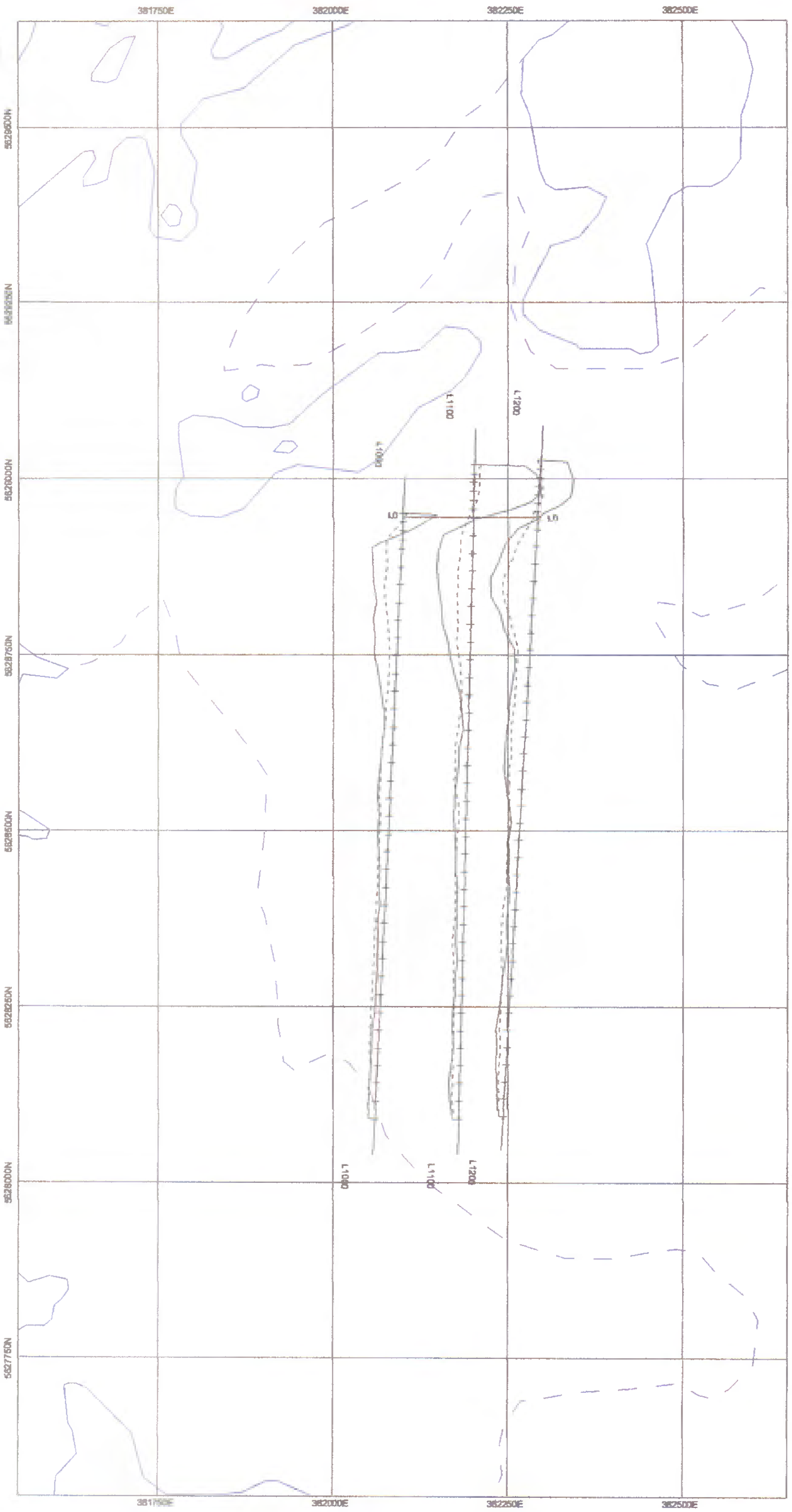
metres

BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, A-2 GRID
GROUND GEOPHYSICAL SURVEYS
HLEM PROFILES, 100m c.s., 222Hz

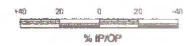
Grid located in NTS 22L15
Surveyed by Geosig Inc, Quebec
during June and July 2004
MAP: TwA2-HLEM-100m-222Hz.map

By: J. Klein, July 2004



NOTE FOR PROFILES:

The In-Phase and Out-of-Phase profiles are shown as solid and dashed lines respectively. Positive values are plotted to the west. The base level (0%) is along the traverse line. The profiles are plotted at 20%/cm. Only the In-Phase profile is shown together with the Airborne Magnetic or Digital Terrain images.



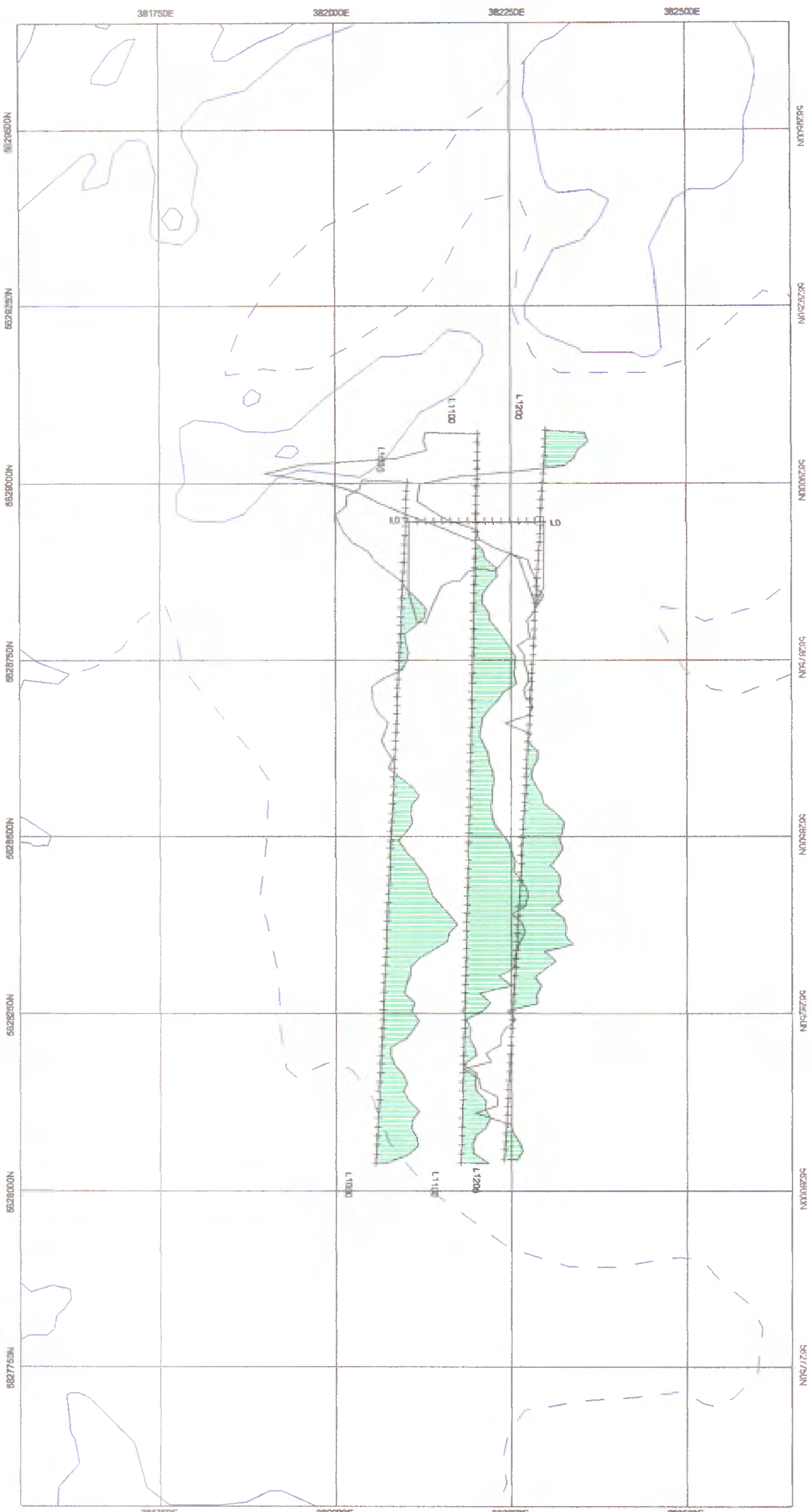
Scale 1:5000

BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, A-2 GRID
GROUND GEOPHYSICAL SURVEYS
HLEM PROFILES, 100m c.s., 3555Hz

Grid located in NTS 22L15
Surveyed by Geosig Inc, Quebec
during June and July 2004
MAP: TwA2-HLEM-100m-3555Hz.map

By: J. Klein, July 2004



NOTE:

The magnetic profiles are plotted along the survey lines using a base level of 56,300 nT. The vertical scale is 50 nT/cm positive to the left of the map. Values below the base level are filled in green.

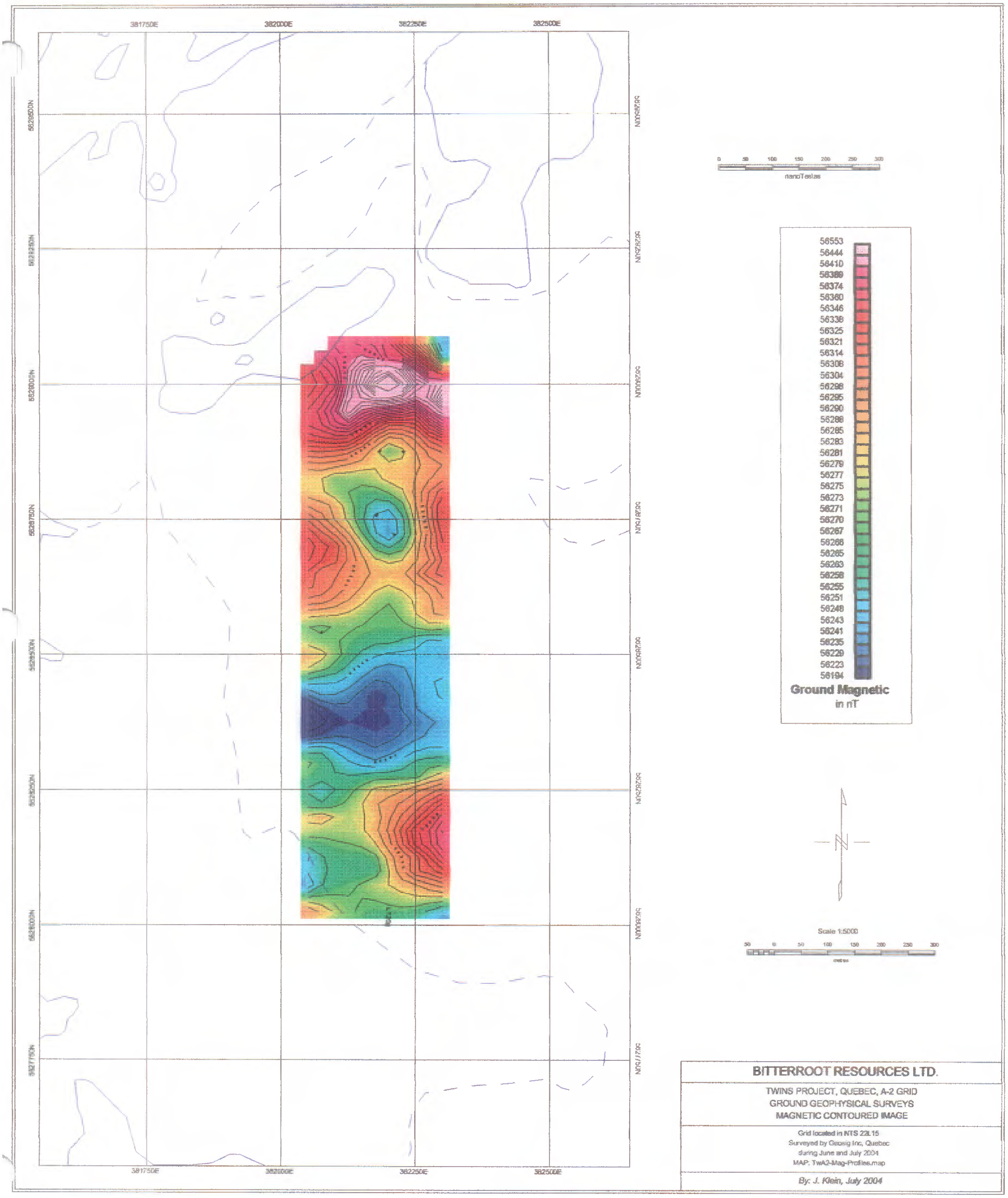
0 50 100 150 200 250 300
nanoTeslas

BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, A-2 GRID
GROUND GEOPHYSICAL SURVEYS
MAGNETIC PROFILES

Grid located in NTS 22L15
Surveyed by Geosig Inc, Quebec
during June and July 2004
MAP: TwA2-Mag-Profiles.map

By: J. Klein, July 2004

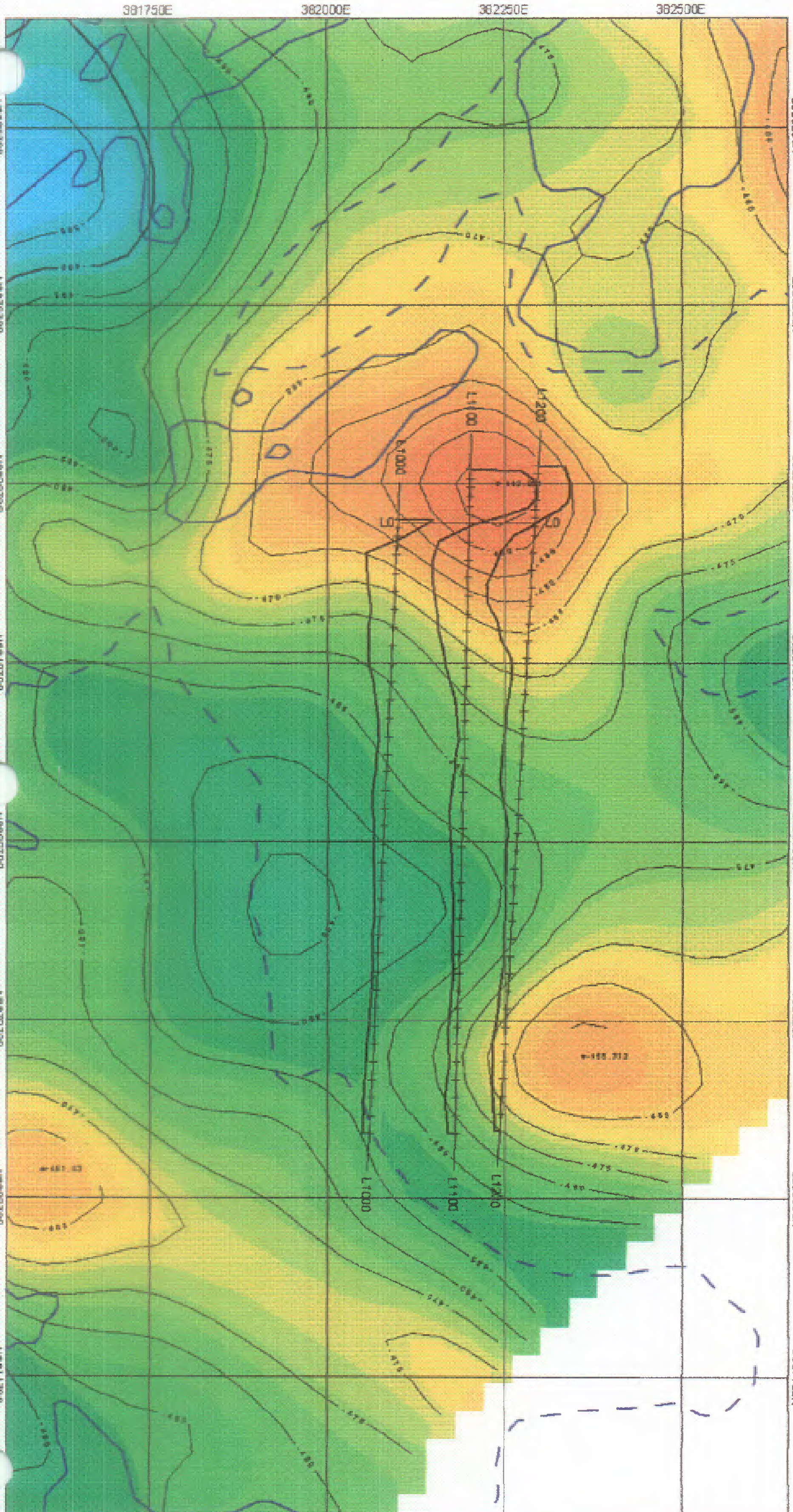


BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, A-2 GRID
GROUND GEOPHYSICAL SURVEYS
MAGNETIC CONTOURED IMAGE

Grid located in NTS 22L15
Surveyed by Geosig Inc, Quebec
during June and July 2004
MAP: TwA2-Mag-Profiles.map

By: J. Klein, July 2004



NOTE FOR PROFILES:

The In-Phase and Out-of-Phase profiles are shown as solid and dashed lines respectively. Positive values are plotted to the west. The base level (0%) is along the traverse line. The profiles are plotted at 20%/cm. Only the In-Phase profile is shown together with the Airborne Magnetic or Digital Terrain images.

+40 20 0 20 -40
% IP/OP

1299
-300
-370
-388
-400
-411
-418
-424
-430
-435
-439
-443
-447
-450
-453
-456
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-462
-464
-467
-469
-472
-474
-477
-480
-483
-486
-489
-492
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-499
-502
-506
-511
-516
-522
-529
-541
-572
-770

Airborne Magnetic
in nT

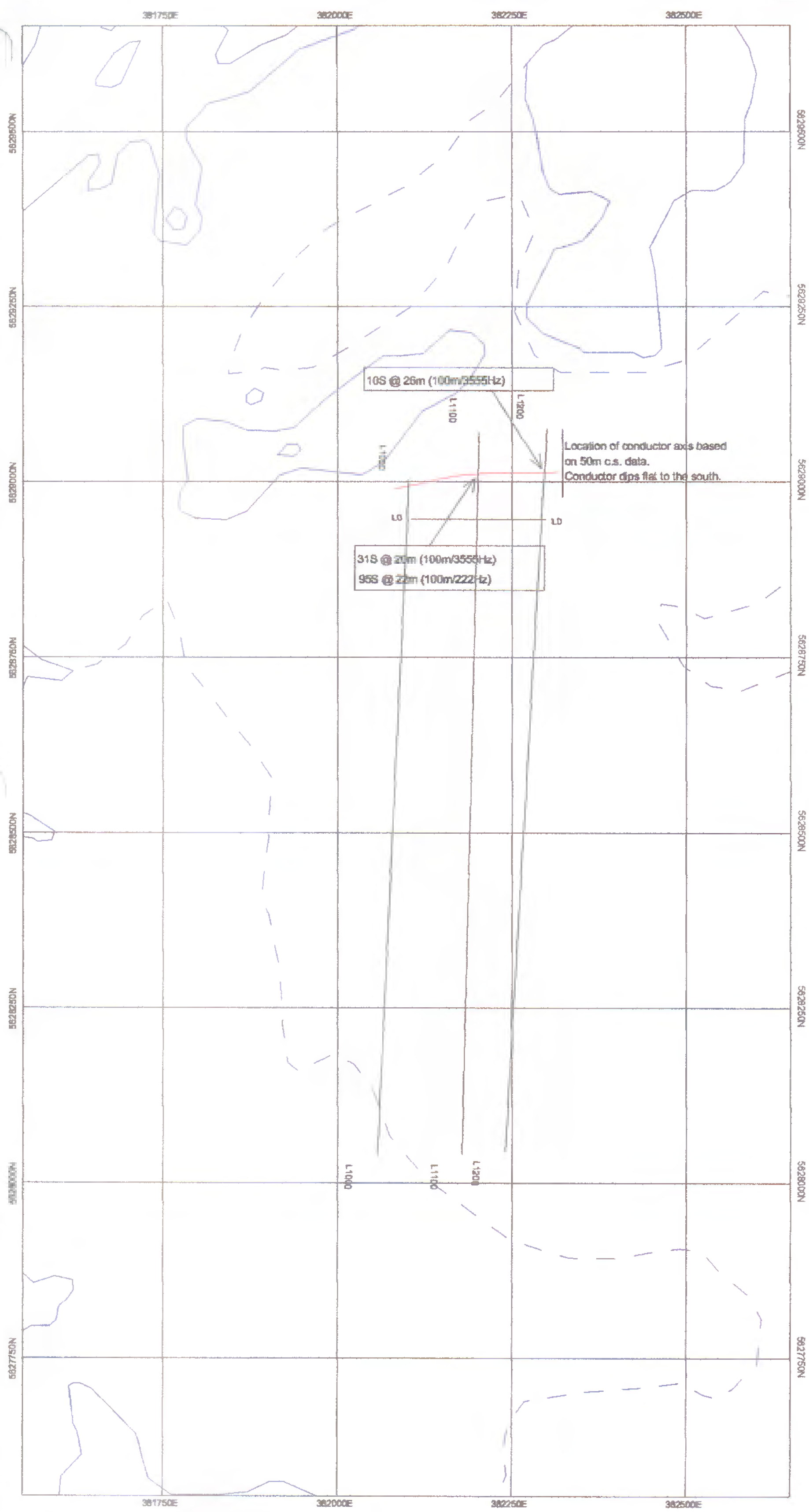
Scale 1:5000
50 0 50 100 150 200 250 300
metres

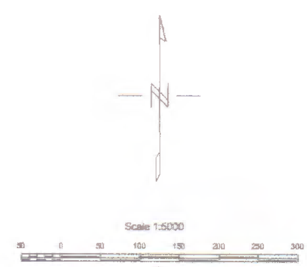
BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, A-2 GRID
GROUND GEOPHYSICAL SURVEYS
AMAG IMAGE and HLEM PROFILE, 100m c.s., 3555Hz IP

Grid located in NTS 22L15
Surveyed by Geosig Inc, Quebec
during June and July 2004
MAP: TwA2-AMAG HLEM-50m-3555IP.map

By: J. Klein, July 2004





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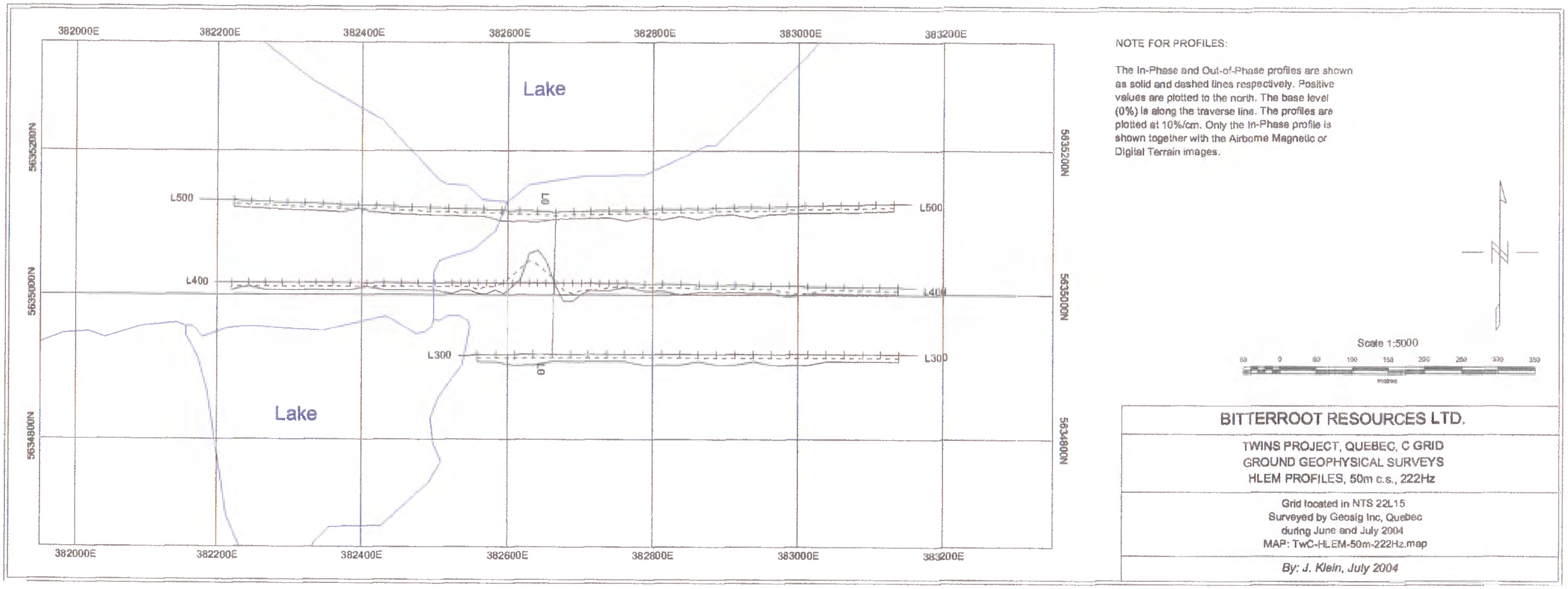
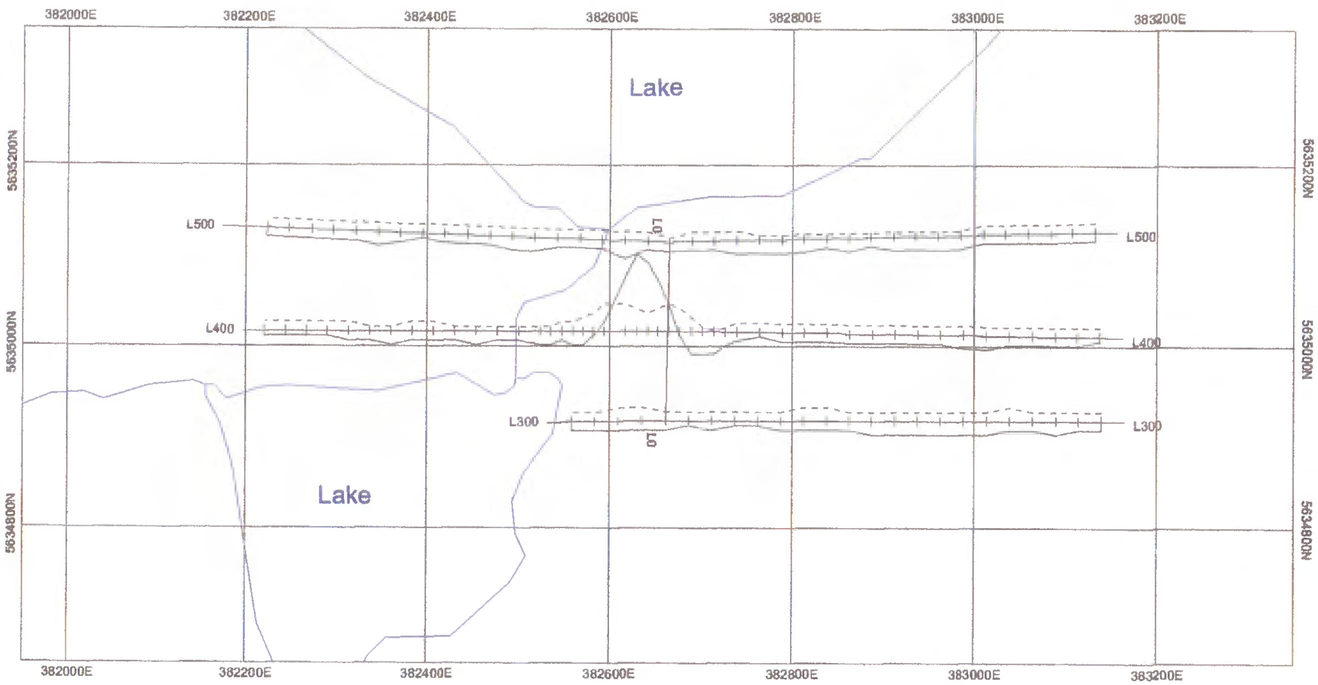
TWINS PROJECT, QUEBEC, A-2 GRID
GROUND GEOPHYSICAL SURVEYS
INTERPRETATION

Grid located in NTS 22L15
Surveyed by Geosig Inc, Quebec
during June and July 2004
MAP: TwA2-Interp.map

By: J. Klein, July 2004


382000E
382200E
382400E
382600E
382800E
383000E
383200E
5635200N
5635000N
5634800N
Lake
Lake
L500
L400
L300
NOTE FOR PROFILES:
The In-Phase and Out-of-Phase profiles are shown as solid and dashed lines respectively. Positive values are plotted to the north. The base level (0%) is along the traverse line. The profiles are plotted at 10%/cm. Only the In-Phase profile is shown together with the Airborne Magnetic or Digital Terrain images.
Scale 1:5000
metres
BITTERROOT RESOURCES LTD.
TWINS PROJECT, QUEBEC, C GRID
GROUND GEOPHYSICAL SURVEYS
HLEM PROFILES, 50m c.s., 222Hz
Grid located in NTS 22L15
Surveyed by Geosig Inc, Quebec
during June and July 2004
MAP: TwC-HLEM-50m-222Hz.map
By: J. Klein, July 2004



NOTE FOR PROFILES:

The In-Phase and Out-of-Phase profiles are shown as solid and dashed lines respectively. Positive values are plotted to the north. The base level (0%) is along the traverse line. The profiles are plotted at 10%/cm. Only the In-Phase profile is shown together with the Airborne Magnetic or Digital Terrain images.

Scale 1:5000

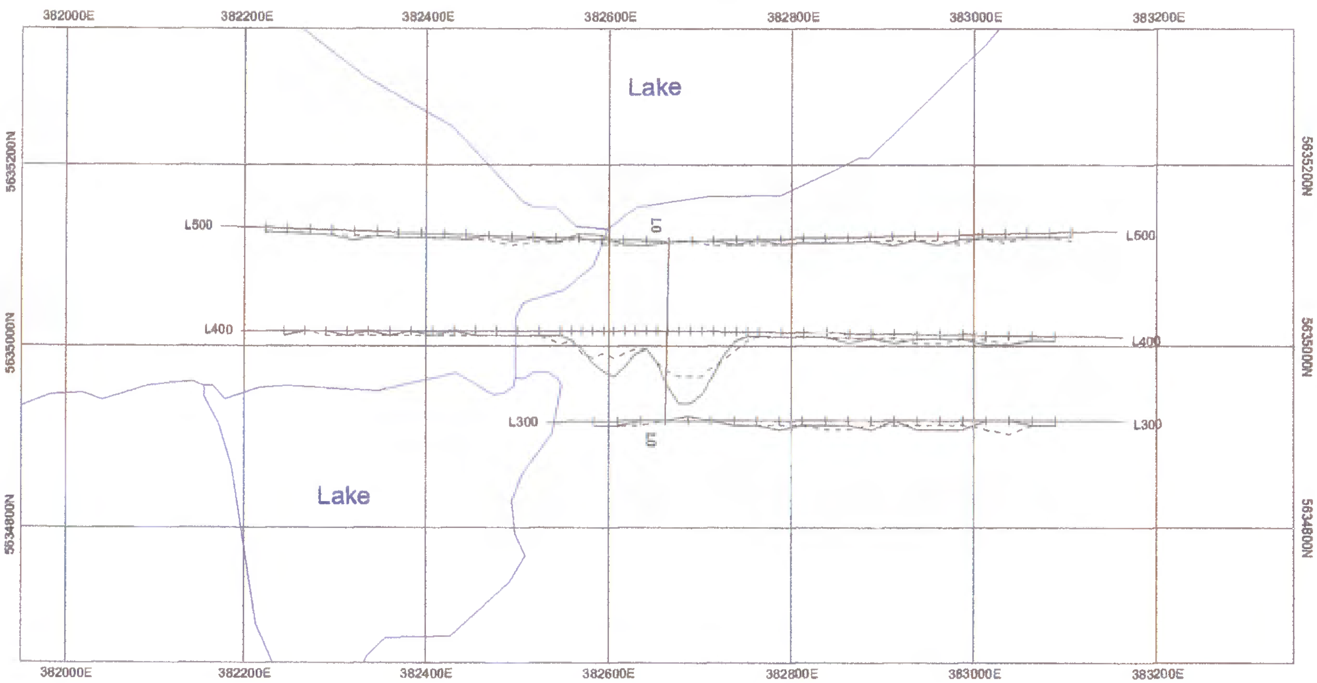
metres

BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, C GRID
GROUND GEOPHYSICAL SURVEYS
HLEM PROFILES, 50m c.s., 3555Hz

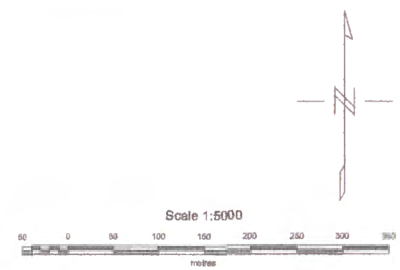
Grid located in NTS 22L15
Surveyed by Geosig Inc, Quebec
during June and July 2004
MAP: TwC-HLEM-50m-3555Hz.map

By: J. Klein, July 2004



NOTE FOR PROFILES:

The In-Phase and Out-of-Phase profiles are shown as solid and dashed lines respectively. Positive values are plotted to the north. The base level (0%) is along the traverse line. The profiles are plotted at 10%/cm. Only the In-Phase profile is shown together with the Airborne Magnetic or Digital Terrain images.

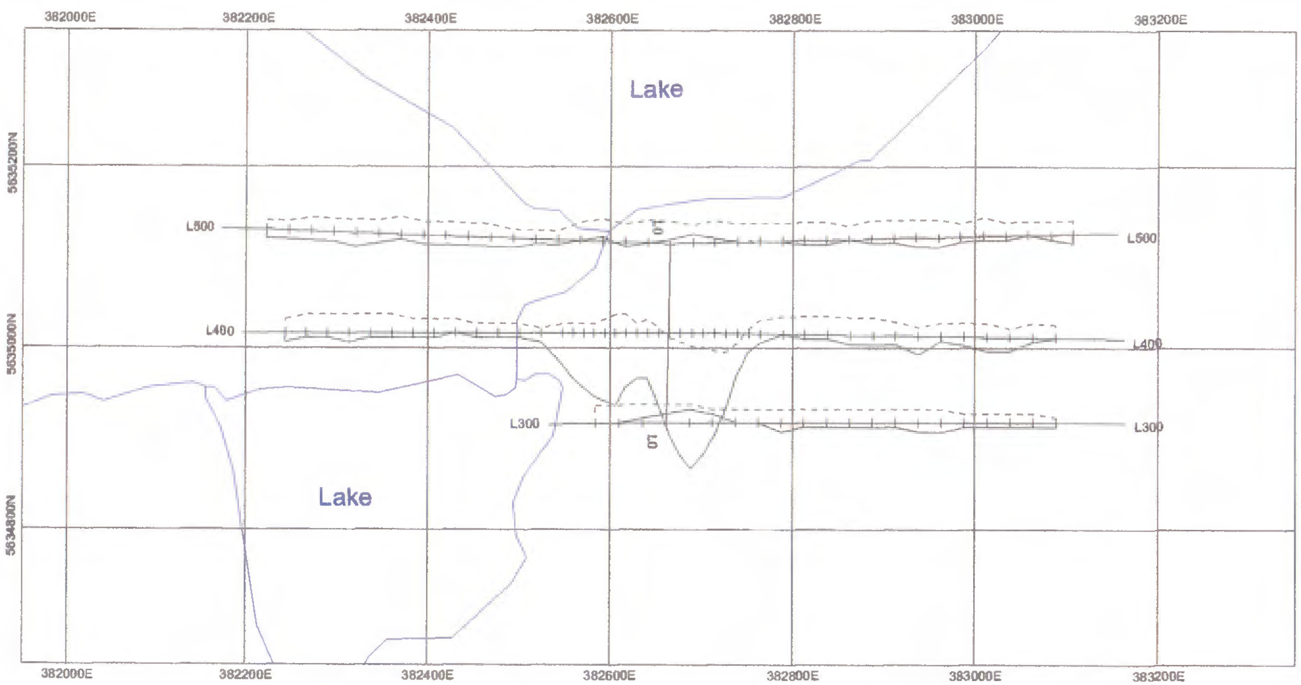


BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, C GRID
GROUND GEOPHYSICAL SURVEYS
HLEM PROFILES, 100m c.s., 222Hz

Grid located in NTS 22L15
Surveyed by Geosig Inc, Quebec
during June and July 2004
MAP: TwC-HLEM-100m-222Hz.map

By: J. Klein, July 2004



NOTE FOR PROFILES:

The In-Phase and Out-of-Phase profiles are shown as solid and dashed lines respectively. Positive values are plotted to the north. The base level (0%) is along the traverse line. The profiles are plotted at 10%/cm. Only the In-Phase profile is shown together with the Airborne Magnetic or Digital Terrain images.

Scale 1:5000

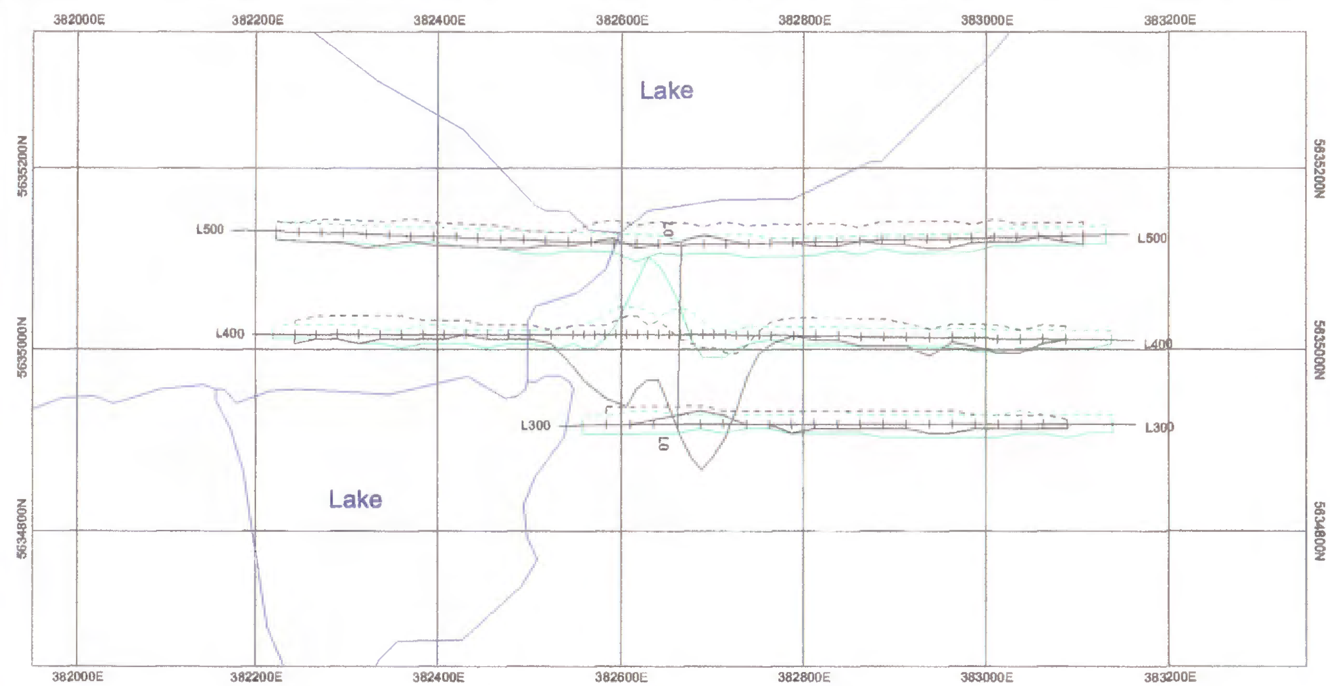
metres

BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, C GRID
GROUND GEOPHYSICAL SURVEYS
HLEM PROFILES, 100m c.s., 3555Hz

Grid located in NTS 22L15
Surveyed by Geosig Inc, Quebec
during June and July 2004
MAP: TwC-HLEM-100m-3555Hz.map

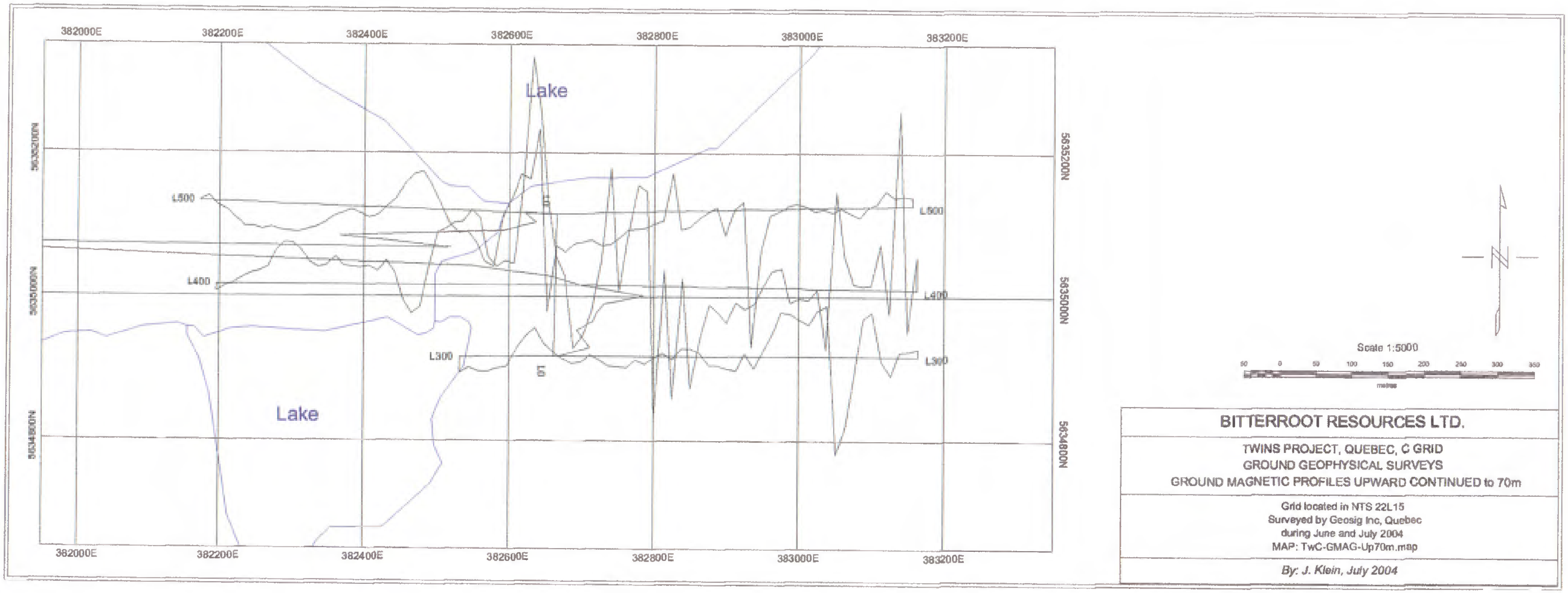
By: J. Klein, July 2004



NOTE FOR PROFILES:

The In-Phase and Out-of-Phase profiles are shown as solid and dashed lines respectively. Positive values are plotted to the north. The base level (0%) is along the traverse line. The profiles are plotted at 10%/cm. Only the In-Phase profile is shown together with the Airborne Magnetic or Digital Terrain images.
1000m c.s. = Black line.
50m c.s. = Green line.

BITTERROOT RESOURCES LTD.
TWINS PROJECT, QUEBEC, C GRID GROUND GEOPHYSICAL SURVEYS HLEM PROFILES, 50 and 100m c.s., 3555Hz
Grid located in NTS 22L15 Surveyed by Geosig Inc, Quebec during June and July 2004 MAP: TwC-HLEM-50-100m-3555Hz.map
By: J. Klein, July 2004

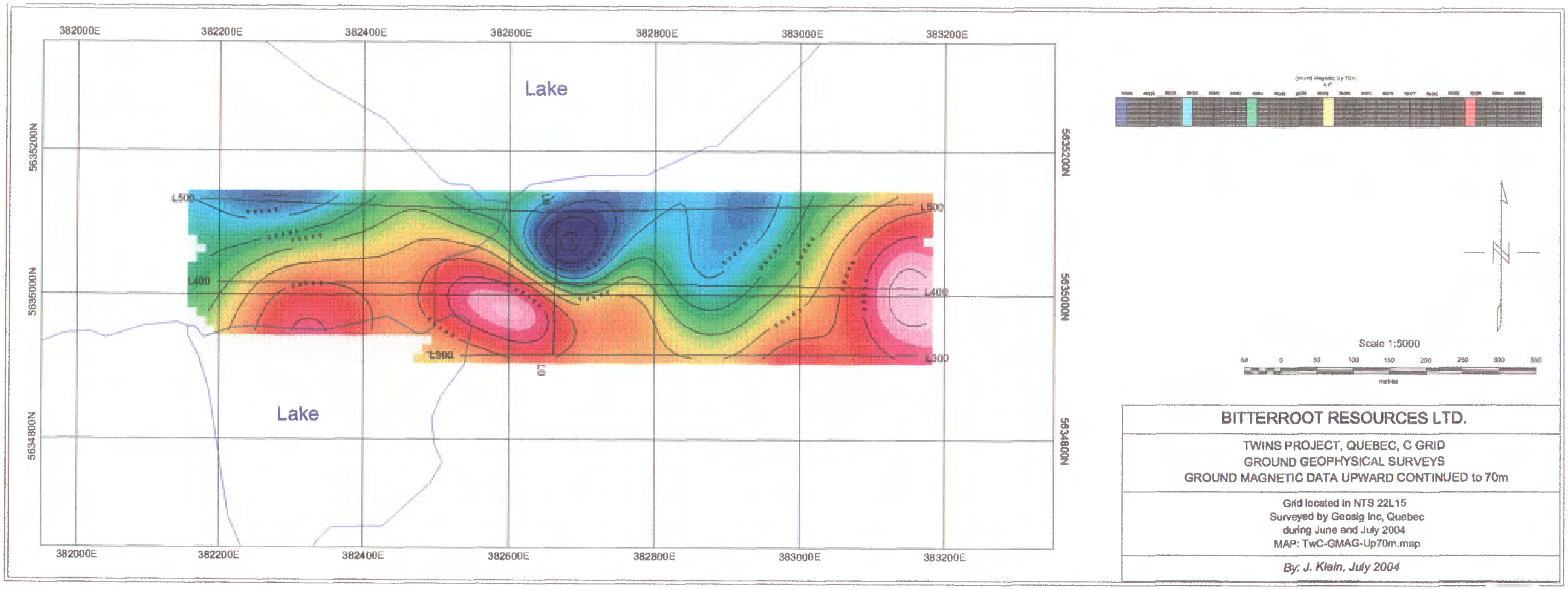


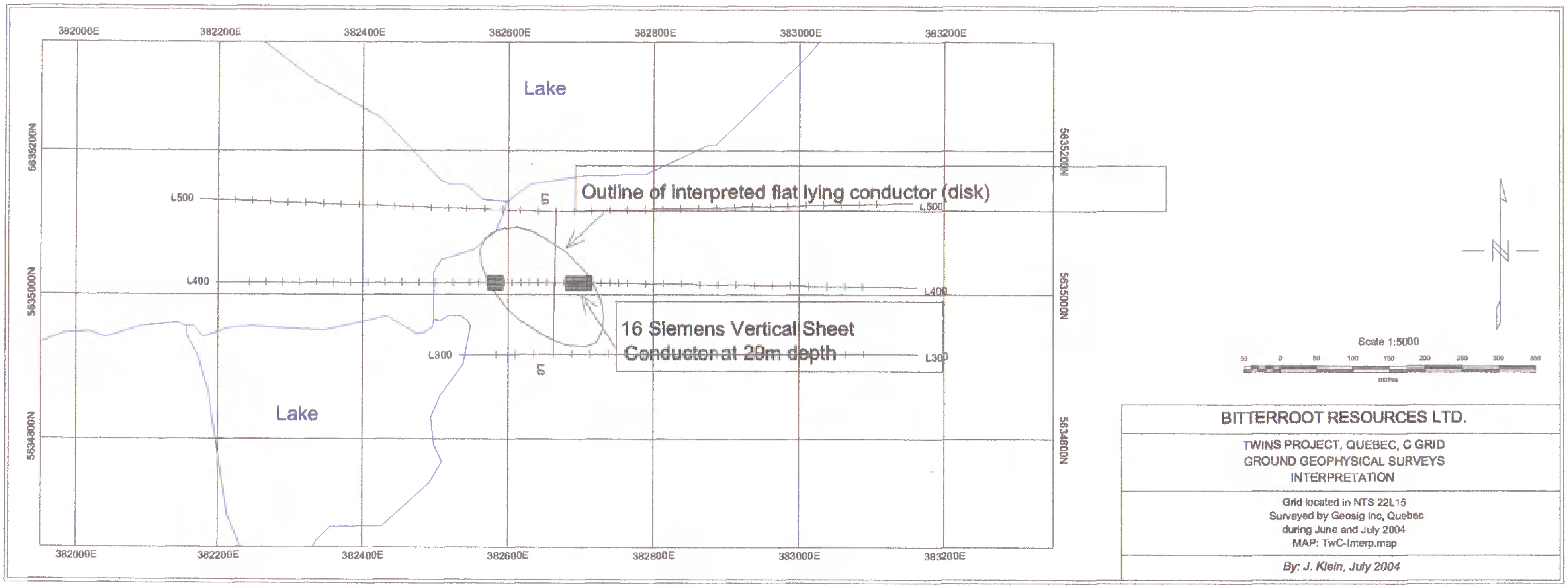
BITTERROOT RESOURCES LTD.

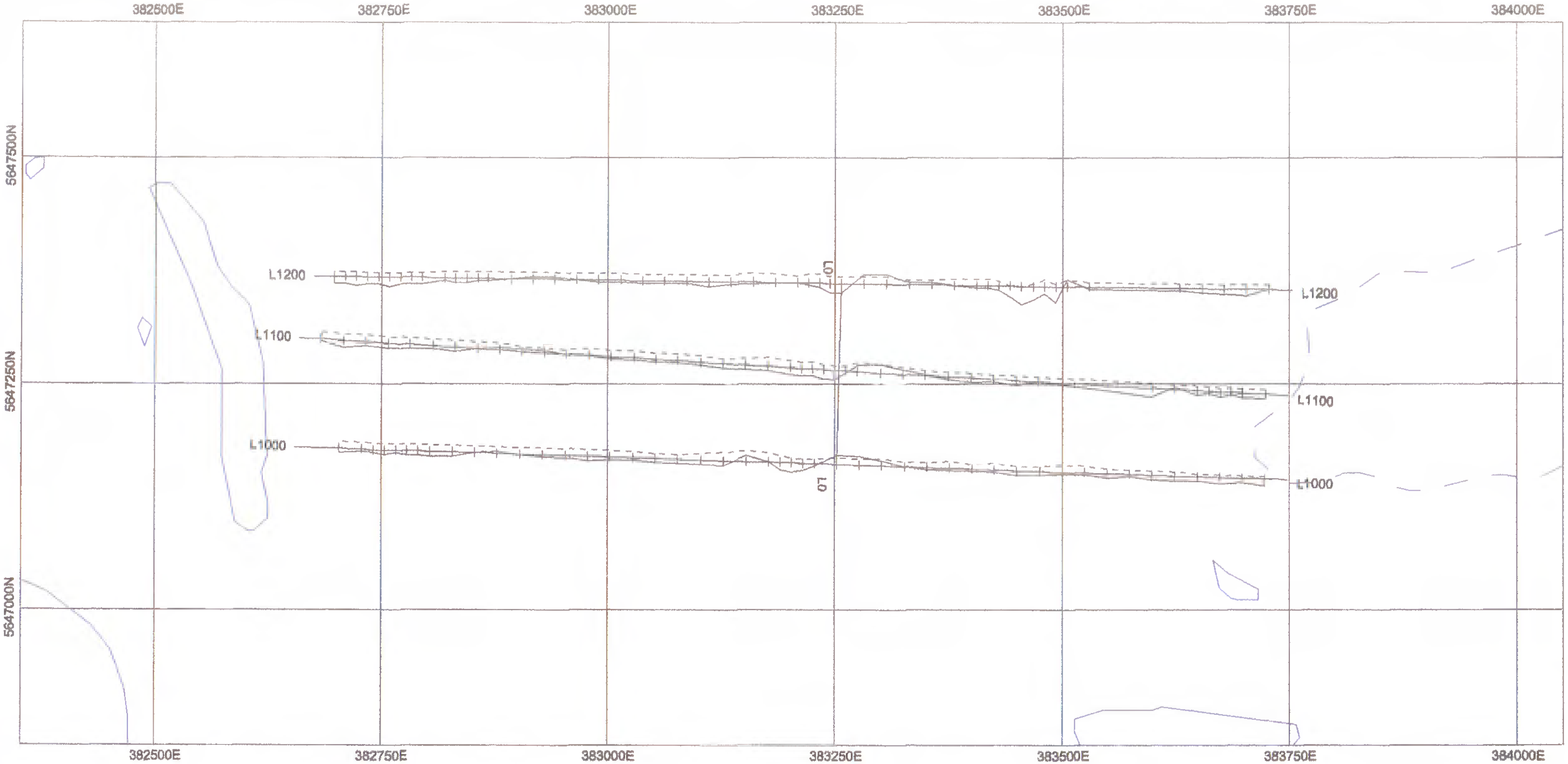
TWINS PROJECT, QUEBEC, C GRID
GROUND GEOPHYSICAL SURVEYS
GROUND MAGNETIC PROFILES UPWARD CONTINUED to 70m

Grid located in NTS 22L15
Surveyed by Geosig Inc, Quebec
during June and July 2004
MAP: TwC-GMAG-Up70m.map

By: J. Klein, July 2004


382000E
382200E
382400E
382600E
382800E
383000E
383200E
5635200N
5635000N
5634800N
Lake
Lake
L500
L400
L300
L0
Scale 1:5000
BITTERROOT RESOURCES LTD.
TWINS PROJECT, QUEBEC, C GRID
GROUND GEOPHYSICAL SURVEYS
GROUND MAGNETIC DATA UPWARD CONTINUED to 70m
Grid located in NTS 22L15
Surveyed by Geosig Inc, Quebec
during June and July 2004
MAP: TwC-GMAG-Up70m.map
By: J. Klein, July 2004


382000E
382200E
382400E
382600E
382800E
383000E
383200E
5635200N
5635000N
5634800N
Lake
Lake
L500
L400
L300
L0
Outline of interpreted flat lying conductor (disk)
16 Siemens Vertical Sheet
Conductor at 20m depth
Scale 1:5000
BITTERROOT RESOURCES LTD.
TWINS PROJECT, QUEBEC, C GRID
GROUND GEOPHYSICAL SURVEYS
INTERPRETATION
Grid located in NTS 22L15
Surveyed by Geosig Inc, Quebec
during June and July 2004
MAP: TwC-Interp.map
By: J. Klein, July 2004



NOTE FOR PROFILES:

The In-Phase and Out-of-Phase profiles are shown as solid and dashed lines respectively. Positive values are plotted to the north. The base level (0%) is along the traverse line. The profiles are plotted at 20%/cm. Only the In-Phase profile is shown together with the Airborne Magnetic or Digital Terrain images.

Scale 1:5000

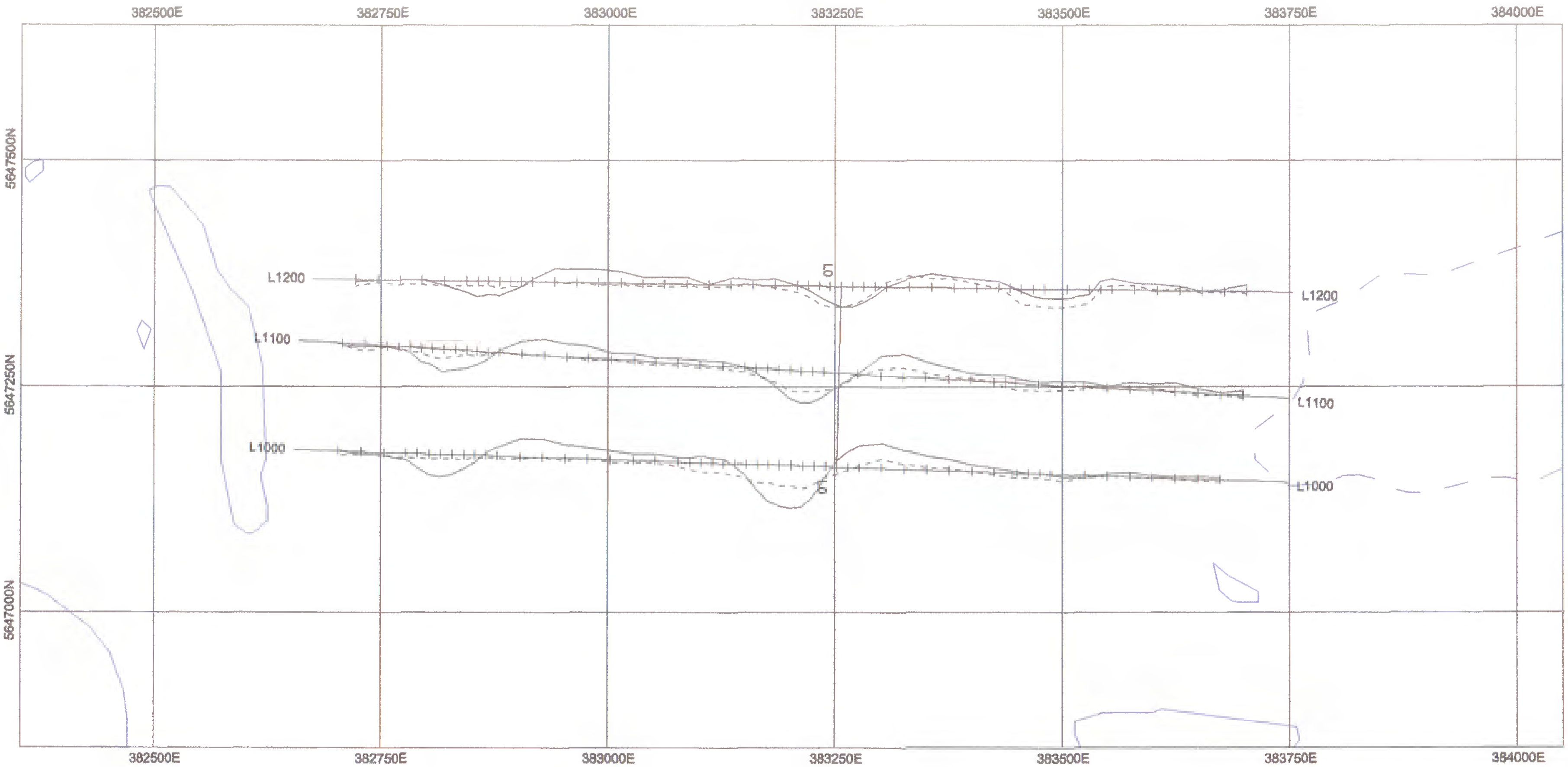
50 0 50 100 150 200 250 300
metres

BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, E-2 GRID
GROUND GEOPHYSICAL SURVEYS
HLEM PROFILES, 50m c.s., 3555Hz

Grid located in NTS 22L 15
Surveyed by Geosig Inc., Quebec
during June and July 2004
MAP: TwE2-HLEM-50m-3555Hz.map

by: J. Klein, July 2004



NOTE FOR PROFILES:

The In-Phase and Out-of-Phase profiles are shown as solid and dashed lines respectively. Positive values are plotted to the north. The base level (0%) is along the traverse line. The profiles are plotted at 20%/cm. Only the In-Phase profile is shown together with the Airborne Magnetic or Digital Terrain images.

Scale 1:5000

50 0 50 100 150 200 250 300

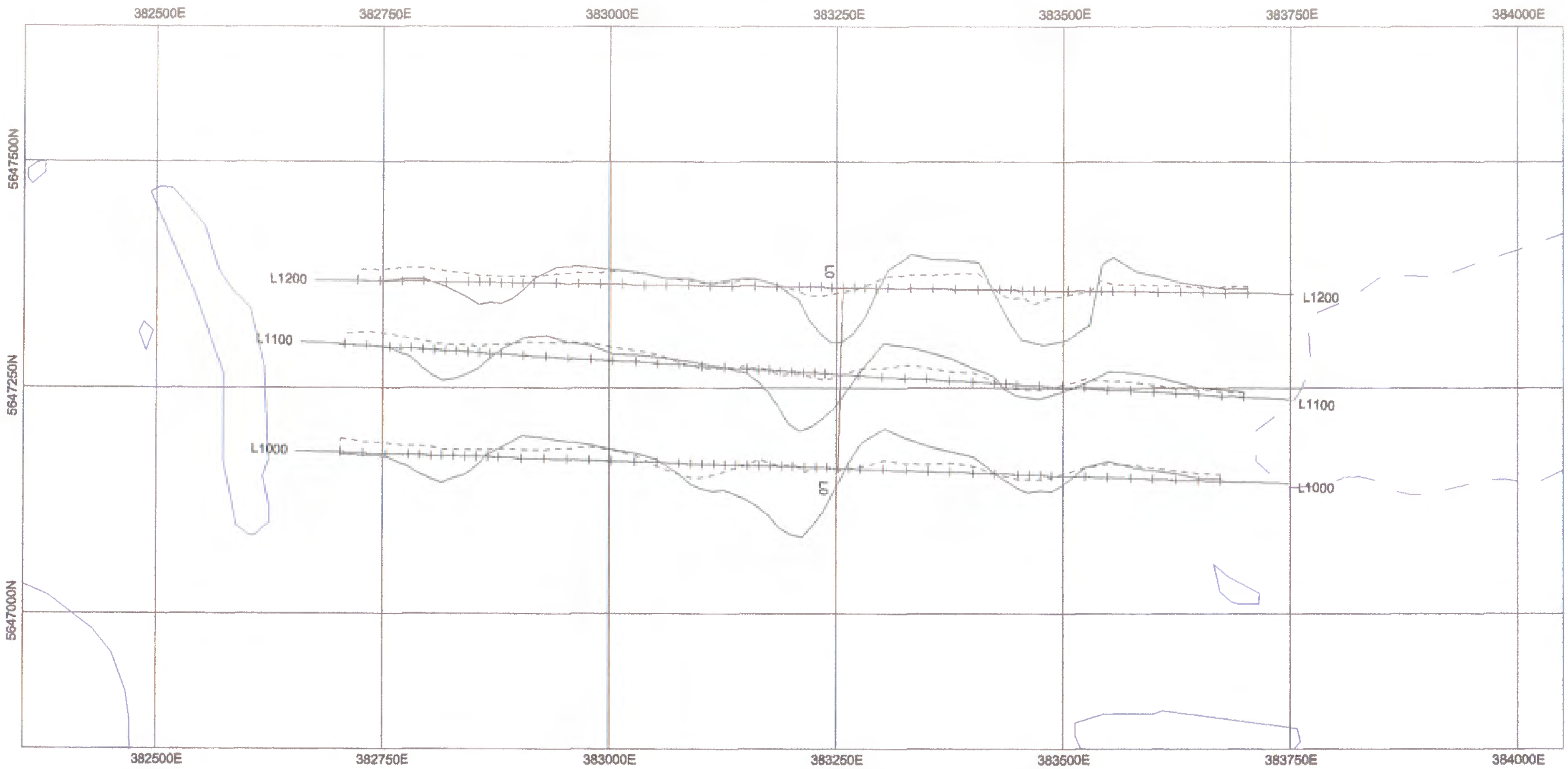
metres

BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, E-2 GRID
GROUND GEOPHYSICAL SURVEYS
HLEM PROFILES, 100m c.s., 222Hz

Grid located in NTS 22L 15
Surveyed by Geosig Inc., Quebec
during June and July 2004
MAP: TwE2-HLEM-100m-222Hz.map

by: J. Klein, July 2004



NOTE FOR PROFILES:

The In-Phase and Out-of-Phase profiles are shown as solid and dashed lines respectively. Positive values are plotted to the north. The base level (0%) is along the traverse line. The profiles are plotted at 20%/cm. Only the In-Phase profile is shown together with the Airborne Magnetic or Digital Terrain images.

Scale 1:5000

50 0 50 100 150 200 250 300

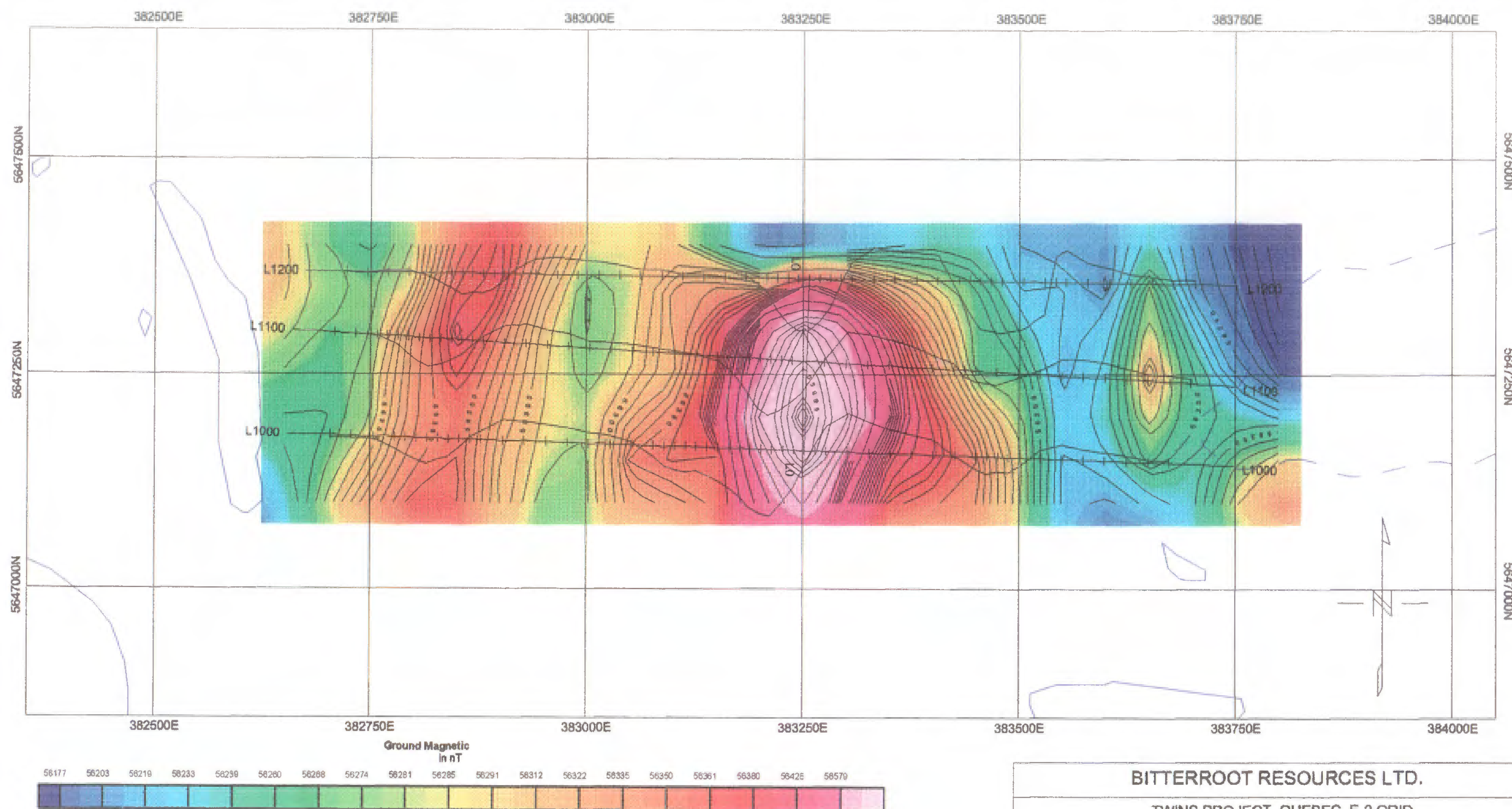
metres

BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, E-2 GRID
GROUND GEOPHYSICAL SURVEYS
HLEM PROFILES, 100m c.s., 3555Hz

Grid located in NTS 22L 15
Surveyed by Geosig Inc., Quebec
during June and July 2004
MAP: TwE2-HLEM-100m-3555Hz.map

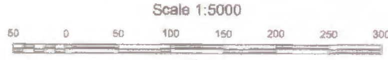
by: J. Klein, July 2004



NOTE FOR PROFILES:

The In-Phase and Out-of-Phase profiles are shown as solid and dashed lines respectively. Positive values are plotted to the north. The base level (0%) is along the traverse line. The profiles are plotted at 20%/cm. Only the In-Phase profile is shown together with the Airborne Magnetic or Digital Terrain images.

Scale 1:5000

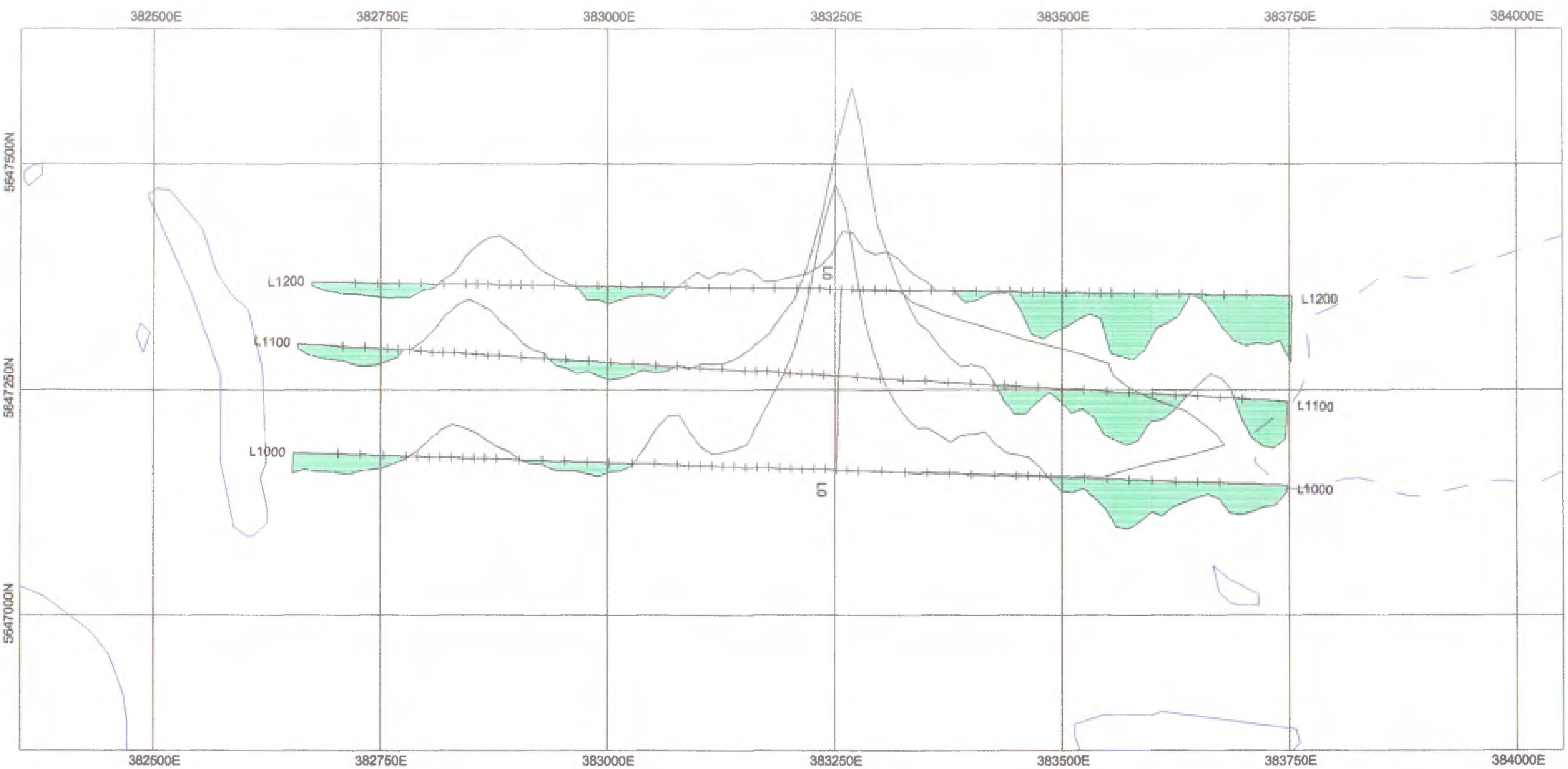


BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, E-2 GRID
GROUND GEOPHYSICAL SURVEYS
GROUND MAG and HLEM PROFILES, 100m c.s., 3555Hz

Grid located in NTS 22L 15
Surveyed by Geosig Inc., Quebec
during June and July 2004
MAP: TwE2-GMag-HLEM-100m-3555Hz.map

by: J. Klein, July 2004



NOTE:

The magnetic profiles are plotted along the survey lines using a base level of 56,300 nT. The vertical scale is 100 nT/cm positive to the top of the map. Values below the base level are filled in green.

Scale 1:5000

50 0 50 100 150 200 250 300

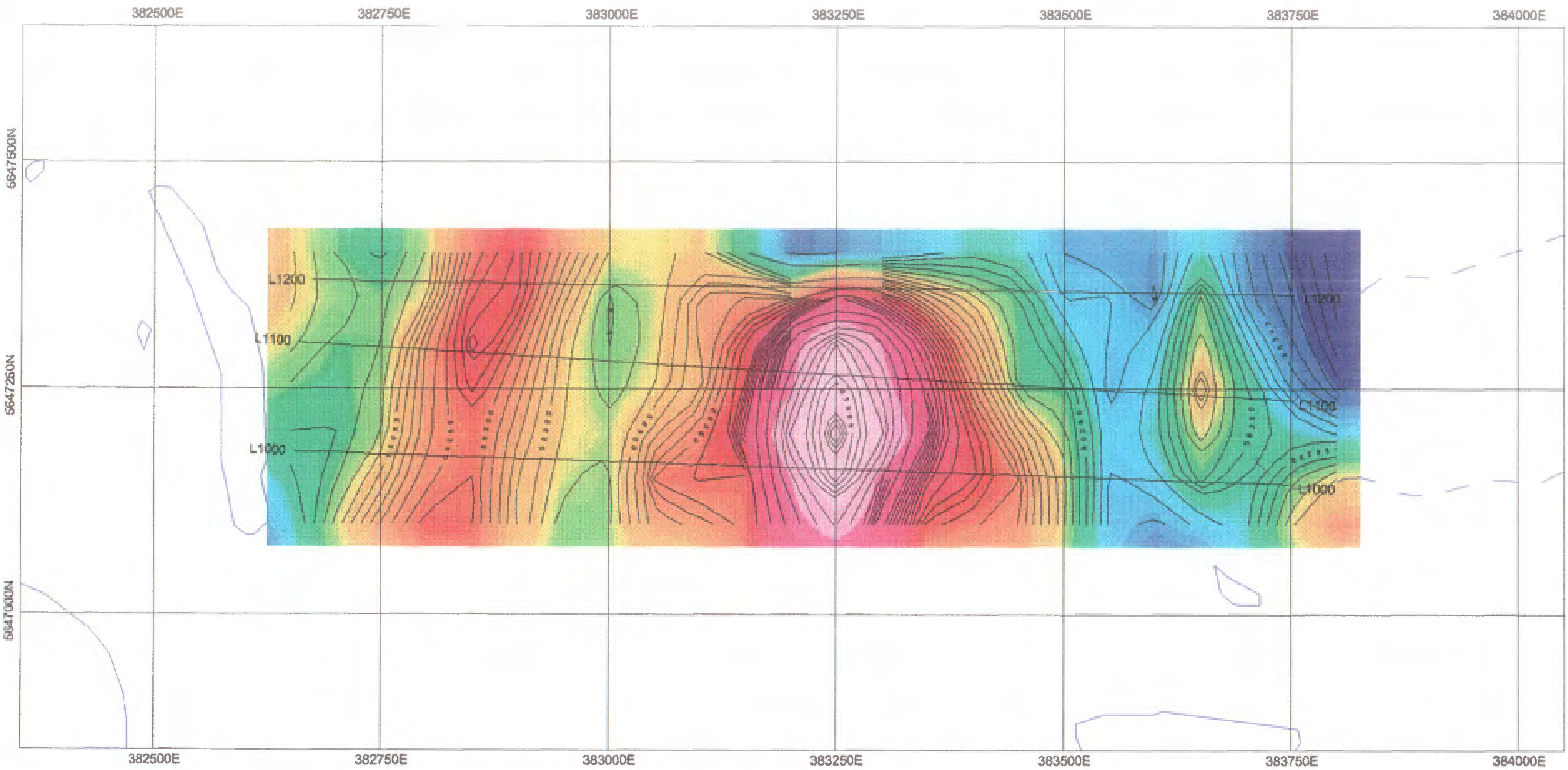
metres

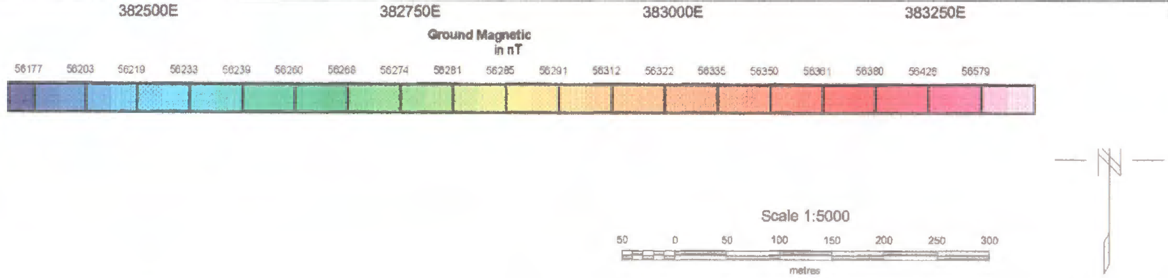
BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, E-2 GRID
GROUND GEOPHYSICAL SURVEYS
GROUND MAGNETIC PROFILES

Grid located in NTS 22L 15
Surveyed by Geosig Inc., Quebec
during June and July 2004
MAP: TwE2-GMAG-Profiles.map

by: J. Klein, July 2004



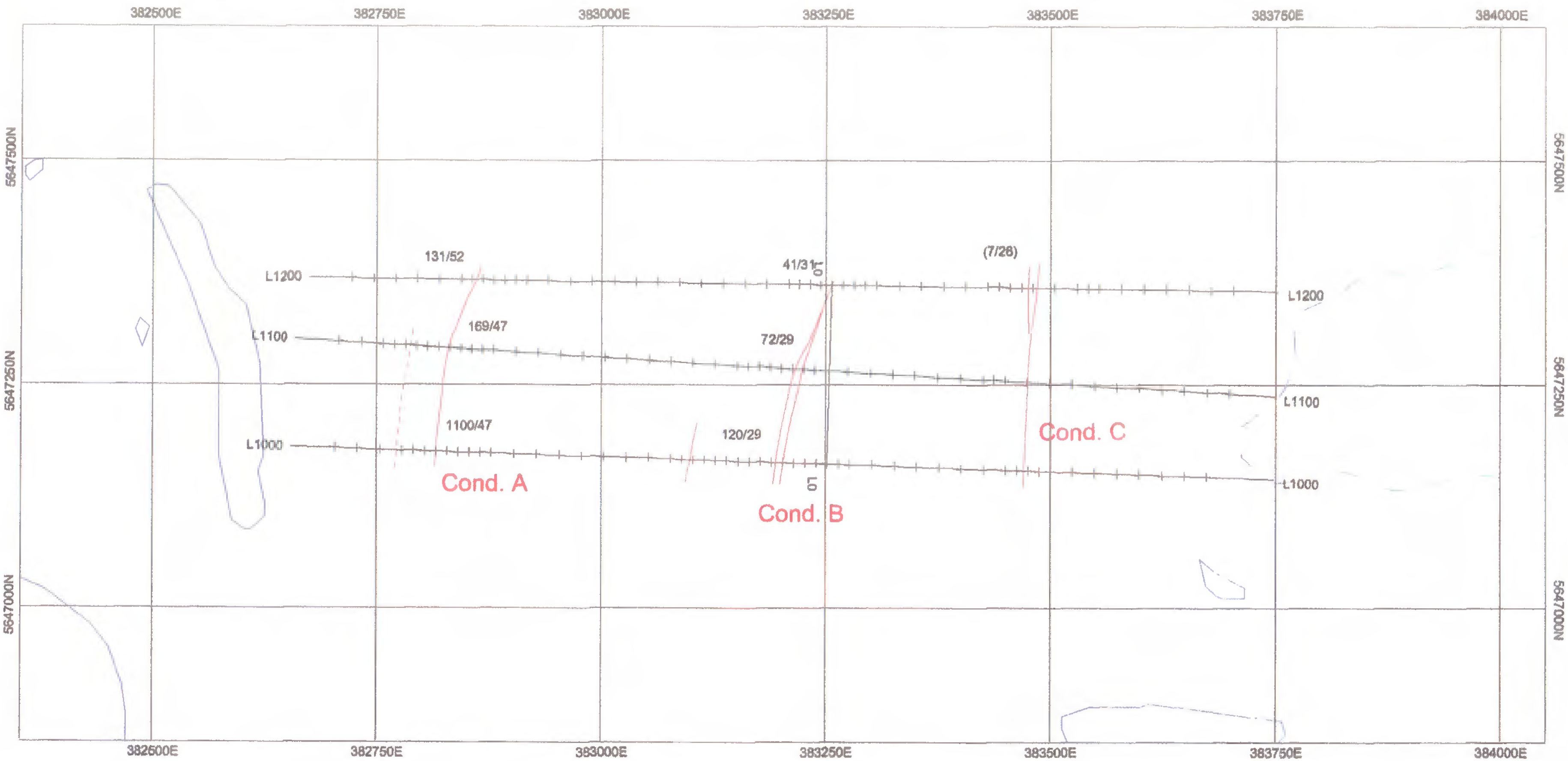


BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, E-2 GRID
GROUND GEOPHYSICAL SURVEYS
GROUND MAGNETIC IMAGE

Grid located in NTS 22L 15
Surveyed by Geosig Inc., Quebec
during June and July 2004
MAP: TwE2-GMAG-Profiles.map

by: J. Klein, July 2004



Legend:

110/45 Conductance in Siemens/Depth in meters (100m c.s., 222Hz)

(26/50) based on 3555Hz data

Conductor axis

Weak conductor

Cond. A Interpreted conductor

Scale 1:5000

50 0 50 100 150 200 250 300

metres

BITTERROOT RESOURCES LTD.

TWINS PROJECT, QUEBEC, E-2 GRID
GROUND GEOPHYSICAL SURVEYS
INTERPRETATION

Grid located in NTS 22L 15
Surveyed by Geosig Inc., Quebec
during June and July 2004
MAP: TwE2-Interp.map

by: J. Klein, July 2004

Appendix VI. Modal Abundances for Granitic Rocks from Drillcore, Twins property.

Hole	From	To	Name	Quartz	K-feld	Plag	Mafics	Notes
	62.82	63.00	bt granite	20	30	40	8	fine- to medium-grained
?	51.00	51.27	gt bt granite	40	20-25	35	3	1% garnet; fine- to medium-grained
1	28.80	29.18	bt tonalite	35	none	60	3	a coarse grained injection included (pegmatite?), has more quartz and less plag (still a tonalite)
1	29.18	29.41	bt tonalite	30-35	trace to 5	55-70	3-10	two different sides, dark side and light side; dark has more mafics and quartz, light side more plag rich with less k-feld; trace sulphides in both sides
1	158.67	159.00	bt granodiorite	50	10	35	6-7	fine to med grained; foliated
2	30.03	30.33	tonalite	45	1	45	6	K-feld up to 5% locally
2	51.00	51.23	bt granodiorite/tonalite	35	3	55	6	weakly foliated; k-feld up to 50% locally; trace sulphides; pinker rock
2	95.74	96.00	tonalite	40-45	5	45-50	3	trace, fine- to medium-grained garnets; trace sulphides (magnetite); up to 20% k-feld locally
2	137.24	137.57	bt qtz monzodiorite/gabbro	10	15	75	2	some biotite grains very coarse; medium- to coarse-grained; trace sulphides; trace red mineral
2	150.00	150.25	tonalite	35	1-5	60	3	also a pegmatite injection (?) with more quartz (less plag) and minimal k-feld
2	188.80	188.89?	bt tonalite	45	trace	55	2	finer-grained end more K-feld rich (up to 20% locally); coarse-grained centre mainly plag (up to 70%)
H3-4	93.00	93.30	bt granodiorite	45	10	40	5	k-feld likes the biotite; trace sulphides; cool crystals on end
3	258.00	258.30	bt granodiorite	35	10	50	5	trace sulphides; fine- to medium-grained
4	30.05	30.31	bt granite	50	15	30	3-5	trace sulphides; mod. foliated
4	47.80	48.00	bt granodiorite	35-45	10-25	30-50	3	trace sulphides; middle range has more quartz and more k-feldspar (45% and 25%)
4	60.00	60.18	gt bt tonalite	20	2	75	7	mafics up to 20% locally; 3% garnet; K-feldspar up to 10% locally; almost a quartz diorite/gabro. etc.
4	85.97	86.15	gt bt tonalite	45	3	50	1	up to 20% K-fledspar locally; fine-to medium-grained garnets; 1% sulphides
4	90.00	90.21	bt tonalite	40	1	50	8	1% sulphides
4?	114.08	114.25	bt tonalite/granodiorite	30	5	60	3	fine-grained with a coarse-grained injection(?); injection had a large biotite crystal; trace sulphides
4	117.00	117.15	bt granodiorite	30	20	45	5	fine to med grained; weakly developed-foliated
4	135.00	135.28	gt bt tonalite	45	3	50	1	
5	83.78	84.00	gt granodiorite	35-40	15	40-45	2	2% garnet; 2% sulphides (pyrrhotite, pyrite); some magnetite?
5	132.31	132.58	bt tonalite	35	1	60	3-5	trace sulphides; up to 15% K-feldspar locally
5	170.80	171.00	gt bt tonalite	25	3-5	60	9	fine-grained; trace garnets and sulphides; well developed foliation
5	200.76	201.00	bt tonalite	30	5	60	5	weakly foliated
6	33.86	34.18	bt granite	20	30	40	10	foliated; amphibole present
6	54.00	54.13	amph? bt tonalite	50	none	40	10	trace sulphides; amphibole identifcation is questionable
6	90.00	90.23	gt bt granodiorite	30-35	20	40-45	5	K-feldspar up to 30% locally (thus a granite); trace sulphides; red mineral in the middle of specimen; trace garnet; yellow mineral veinlet at end; medium-grained; moderate foliation

Hole	From	To	Name	Quartz	K-feld	Plag	Mafics	Notes
7	17.80	18.00	bt granite pegmatite	30-35	40	20-25	tr	1% sulphides; smaller piece had up to 3% biotite; up to 50% K-feldspar locally
7	95.43	95.59	bt granite	35	50	10	2	up to 30% plag locally; pegmatite injection(?) included (45plag, 20Kfeld, 35quartz, trace mafics, trace sulphides)
8	53.90	54.00	tonalite	35	tr-10	65	1	coarser and pinker section; fine-grained
8	90.00	90.14	gt bt granite	40	15	45	2-3	fine- to medium grained; trace garnet, up to 5% locally; trace sulphides, up to 2% locally; garnet and sulphides occur together
8	168.00	168.15	gt bt granodiorite	40	5	55	1	up to 50% k-feldspar locally; trace garnets and sulphides (fine-grained)
8	239.83	239.97	gt bt quartz-rich tonalite	70	trace	20	10	up to 15% mafics locally; k-feldspar stained a strange yellow colour, some spots up to 10% locally; trace garnets
8	246.00	246.18	gt bt tonalite	30-35	1	55	10	trace sulphides and garnet; fine-grained
8	247.73	247.96	gt bt granodiorite	35	15	40	8-10	ky?; trace fine- to medium-grained garnets; trace sulphides
8	263.83	264.00	tonalite	35-40	2	55-60	3	trace sulphides; weakly foliated
8	299.83	300.00	mag gt bt tonalite	35	tr - 5	55	3	fine-grained; moderately dev. Foliation; trace garnet and magnetite
8	347.84	348.00	bt granite	30	20	45	3-5	trace sulphides; foliated
8	336.00	336.15	tonalite	35	3	60	5	fine-grained; foliated; trace sulphides, pyrrhotite and medium-grained magnetite

Appendix VII. Soil Sample Locations and Analytical Data, Main Grid Area, Twins property.

Sample Number	UTM Easting	UTM Northing	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Ce ppm	Co ppm	Cr ppm	Cs ppm	Cu ppm	Fe %
CGBQ4S001	381636	5633863	0.12	0.59	2.3	<10	90	<0.05	0.73	0.09	0.13	3.41	185	1080	2.27	107	5.78
CGBQ4S002	382747	5635290	0.02	2.01	0.6	<10	10	0.3	0.08	0.11	0.06	15.6	2.8	32	0.22	2.6	1.59
CGBQ4S003	381985	5633983	0.03	0.36	0.4	<10	20	<0.05	0.22	0.05	0.05	0.76	31.7	480	0.23	42.8	2.14
SFBQ4S001	381417	5633715	0.05	3.67	0.8	<10	10	0.34	0.05	0.12	0.11	11.6	2.9	49	0.25	5.3	2.61
SFBQ4S002	381454	5633740	0.03	1.54	1.1	<10	10	0.12	0.07	0.09	0.11	10.3	2	29	0.25	2	2.08
SFBQ4S003	381495	5633782	0.02	0.69	0.2	<10	10	0.09	0.04	0.08	0.06	9.52	1.7	25	0.33	2	1.17
SFBQ4S004	381525	5633807	0.5	0.54	0.8	<10	20	0.07	0.07	0.11	0.05	10.3	2.7	17	0.56	9.9	1.42
SFBQ4S005	381562	5633836	0.59	1.2	0.4	<10	30	0.14	0.2	0.1	0.05	8.09	8.5	225	1.13	22.2	2.31
SFBQ4S006	381598	5633869	0.08	4.22	1.2	<10	10	0.45	0.06	0.07	0.14	12.3	1.3	47	0.26	3.9	3.43
SFBQ4S007	381635	5633900	0.03	4.84	1	<10	40	0.44	0.09	0.12	0.14	21.4	2.3	55	0.45	5.5	3.01
SFBQ4S008	381676	5633932	0.42	0.23	0.9	<10	110	0.08	0.02	0.5	0.15	12.6	1.8	3	0.08	16.4	0.13
SFBQ4S009	381715	5633968	0.04	2.29	0.5	<10	80	0.19	0.04	0.22	0.08	34.2	4.2	47	0.59	8.8	2.04
SFBQ4S010	381750	5633999	0.04	3.03	0.6	<10	20	0.22	0.03	0.1	0.05	18.5	2.1	40	0.33	4.1	2.51
SFBQ4S011	381788	5634030	0.01	0.7	<0.1	<10	10	0.08	0.09	0.07	0.01	11.6	0.6	12	0.41	1.8	0.3
SFBQ4S012	381826	5634055	0.01	1.28	0.3	<10	40	0.11	0.09	0.08	0.04	14.9	1.9	24	0.32	2.8	0.99
SFBQ4S013	381863	5634094	0.06	2.86	0.5	<10	20	0.27	0.08	0.08	0.06	24.2	2.2	35	0.46	6.7	2.02
SFBQ4S014	381902	5634127	0.07	2.63	1.2	<10	30	0.35	0.18	0.08	0.13	17.3	2.3	41	0.48	5.9	3.23
SFBQ4S015	381939	5634159	0.14	0.3	0.2	<10	30	0.06	0.05	0.11	0.09	8.51	0.4	11	0.36	7.1	0.26
SFBQ4S016	381971	5634189	0.01	0.63	0.3	<10	20	0.08	0.03	0.09	0.02	10.7	1.1	18	0.11	4.8	0.39
SFBQ4S017	382016	5634226	<0.01	1.08	0.1	<10	20	0.1	0.05	0.16	0.03	13.4	3.5	17	0.28	8.5	0.93
SFBQ4S018	382052	5634256	0.02	2.93	1.8	<10	210	0.37	<0.01	0.22	0.04	30.2	5.7	29	0.75	33.9	2.68
SFBQ4S019	382097	5634293	0.02	2.64	0.7	<10	20	0.27	0.02	0.19	0.02	28.2	2.4	34	0.3	11.2	1.78
SFBQ4S020	382128	5634325	0.05	0.38	0.4	<10	40	0.08	0.03	0.09	0.04	12.1	1.2	13	0.6	2.3	0.3
SFBQ4S021	382170	5634353	0.11	1.56	0.8	<10	20	0.22	0.14	0.05	0.15	12.7	1.8	25	0.66	3.8	3.29
SFBQ4S022	382206	5634391	0.01	0.67	0.6	<10	10	0.09	0.03	0.08	0.01	14.2	1	9	0.32	3.8	0.57
SFBQ4S023	382246	5634427	0.02	1.84	0.6	<10	10	0.17	0.01	0.12	0.04	17.3	1.1	20	0.11	3	1.38
SFBQ4S024	382285	5634460	0.04	1.16	0.3	<10	10	0.19	0.02	0.13	0.07	16.7	2.4	18	0.12	2.9	1.3

Sample Number	Ga ppm	Ge ppm	Hf ppm	Hg ppm	In ppm	K %	La ppm	Li ppm	Mg %	Mn ppm	Mo ppm	Na %	Nb ppm	Ni ppm	P ppm	Pb ppm
CGBQ4S001	2.6	0.16	<0.02	<0.01	0.008	0.02	1.9	2.8	3.06	501	0.99	<0.01	0.1	3070	250	12
CGBQ4S002	4.3	0.05	0.02	0.04	0.018	0.01	6.6	2.1	0.14	63	0.3	0.01	1.4	16.3	500	2.5
CGBQ4S003	1.7	0.05	<0.02	<0.01	<0.005	<0.01	0.4	3.8	0.56	94	0.73	<0.01	0.1	305	110	2.5
SFBQ4S001	11	0.06	0.1	0.07	0.023	0.02	5.2	2.6	0.18	83	0.29	0.01	2.4	9.6	760	5.8
SFBQ4S002	13	0.05	0.02	0.03	0.014	0.01	5	1.9	0.13	56	0.21	0.01	2	5.2	460	5.8
SFBQ4S003	4.1	<0.05	0.03	0.01	0.006	0.01	4.5	1.1	0.07	46	0.19	<0.01	1.4	4.5	100	2.9
SFBQ4S004	7.7	<0.05	0.03	<0.01	0.007	0.02	5	1.5	0.16	49	0.85	0.01	1.7	9.2	150	4.6
SFBQ4S005	4.6	0.05	<0.02	<0.01	0.009	0.03	4.1	6.9	0.52	97	0.34	<0.01	1.1	92.8	290	3
SFBQ4S006	11	0.09	0.13	0.21	0.05	0.01	5.9	1.1	0.06	29	0.58	<0.01	2.6	3.6	490	7.9
SFBQ4S007	6.8	0.07	0.17	0.17	0.044	0.03	9.8	2.3	0.14	47	0.54	<0.01	2.3	6.3	650	6.5
SFBQ4S008	0.5	<0.05	<0.02	0.09	<0.005	0.01	7.3	0.1	0.04	14	1.94	0.01	0.1	5.7	500	7.2
SFBQ4S009	7.4	0.09	0.04	0.06	0.024	0.13	16.8	4.1	0.35	75	0.44	0.01	1.8	13.7	840	5
SFBQ4S010	7.6	0.07	0.03	0.15	0.03	0.03	8.7	2.3	0.16	40	0.4	<0.01	1.4	5.1	650	4.8
SFBQ4S011	4.3	<0.05	0.02	0.04	0.01	0.02	5.6	0.6	0.05	19	0.13	0.01	0.7	2	150	4.1
SFBQ4S012	5	0.05	0.03	0.01	0.014	0.08	6.9	1.4	0.14	48	0.28	<0.01	1.2	4	260	5.5
SFBQ4S013	5.1	0.06	0.05	0.04	0.027	0.03	10.5	2.1	0.11	36	0.37	<0.01	1.7	5.6	410	6.4
SFBQ4S014	12	0.07	0.04	0.13	0.026	0.03	9.1	2.2	0.15	54	0.51	<0.01	2.5	6.5	630	6.2
SFBQ4S015	1.1	<0.05	<0.02	0.07	<0.005	0.02	4.4	0.4	0.02	14	1.12	0.01	0.2	2.4	280	11
SFBQ4S016	3.4	<0.05	<0.02	0.02	0.01	0.02	5.5	0.6	0.06	33	0.11	0.01	1.1	3.4	140	2.9
SFBQ4S017	2.7	<0.05	<0.02	0.04	0.008	0.04	6.9	2.4	0.25	42	0.16	<0.01	0.7	7	400	2.4
SFBQ4S018	5.2	0.1	0.03	0.06	0.015	0.41	15.6	7.3	0.99	397	0.24	0.01	2.5	20.3	800	2.7
SFBQ4S019	3.5	0.09	0.02	0.02	0.024	0.03	14.4	2.3	0.15	46	0.44	0.01	1.6	6.3	690	3.1
SFBQ4S020	3.1	<0.05	<0.02	0.02	0.008	0.05	7.4	1.1	0.11	37	0.25	<0.01	0.7	4.8	150	4.4
SFBQ4S021	20	0.06	0.08	0.11	0.024	0.04	6.7	1.2	0.07	27	0.85	<0.01	4	3.9	230	12
SFBQ4S022	2.1	0.06	<0.02	0.05	0.006	0.02	7.5	2.3	0.06	27	0.17	<0.01	0.6	2.6	170	3
SFBQ4S023	2.7	0.07	0.02	0.05	0.016	0.01	10	0.8	0.06	34	0.35	<0.01	1.6	2.3	410	1.8
SFBQ4S024	2.7	0.06	0.04	0.07	0.011	0.01	6.9	1.3	0.08	49	0.22	<0.01	1.2	5.1	410	3.3

Sample Number	Rb ppm	Re ppm	S %	Sb ppm	Sc ppm	Se ppm	Sn ppm	Sr ppm	Ta ppm	Te ppm	Th ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Y ppm	Zn ppm	Zr ppm
CGBQ4S001	2.7	<0.001	0.58	0.47	1.7	0.6	0.3	6.3	<0.01	0.24	<0.2	0.051	0.23	0.12	53	0.39	0.6	31	<0.5
CGBQ4S002	1.2	<0.001	0.03	0.32	3.2	0.5	0.3	5.4	0.01	0.01	1.8	0.071	<0.02	0.32	33	0.08	4.3	13	0.8
CGBQ4S003	0.4	<0.001	<0.01	0.2	0.6	0.3	<0.2	0.8	<0.01	0.09	<0.2	0.041	<0.02	<0.05	36	1.26	0.2	12	<0.5
SFBQ4S001	2.1	<0.001	0.02	0.31	4.5	0.9	0.4	6.1	0.04	0.01	2	0.13	<0.02	0.35	61	0.12	4.6	14	2.6
SFBQ4S002	1.8	<0.001	0.01	0.3	1.9	0.6	0.6	5.6	0.05	0.01	1.1	0.118	<0.02	0.19	57	0.07	2.3	10	0.7
SFBQ4S003	2.3	<0.001	<0.01	0.14	1.5	0.3	0.4	4.3	0.03	<0.01	1.4	0.092	<0.02	0.19	42	0.11	2.3	9	0.8
SFBQ4S004	2.3	<0.001	0.01	0.15	1.1	0.2	0.6	7.2	<0.01	0.02	1.5	0.134	<0.02	0.2	61	1.62	1.7	8	1
SFBQ4S005	2.7	<0.001	0.01	0.11	1.1	0.4	0.3	7.3	0.01	0.03	1.1	0.093	<0.02	0.15	39	0.09	1.2	20	0.5
SFBQ4S006	1.3	<0.001	0.03	0.14	7.2	1.3	0.5	4.1	0.08	0.02	1.9	0.111	<0.02	0.51	50	0.11	6.4	5	4.2
SFBQ4S007	2.4	<0.001	0.04	0.12	7.4	1.5	0.4	6.7	0.04	0.03	3.2	0.099	<0.02	0.61	39	0.13	6.6	11	4.6
SFBQ4S008	0.4	0.001	0.16	0.56	0.7	0.9	<0.2	51.8	0.01	0.01	<0.2	<0.005	<0.02	0.65	4	<0.05	2.9	7	<0.5
SFBQ4S009	8.3	<0.001	0.03	0.05	3	1.1	0.3	15	0.02	0.01	2	0.111	<0.02	0.88	42	0.23	5.2	16	1
SFBQ4S010	2.3	<0.001	0.03	<0.05	4.1	1.3	0.3	5.8	0.05	0.02	0.8	0.086	<0.02	0.46	41	0.07	4.7	12	0.9
SFBQ4S011	2.3	<0.001	0.02	0.06	0.8	0.4	0.3	6.3	0.01	<0.01	<0.2	0.038	<0.02	0.36	8	<0.05	1.9	3	0.5
SFBQ4S012	3.5	<0.001	0.02	0.07	1.8	0.5	0.3	5	0.01	<0.01	0.7	0.07	<0.02	0.47	19	<0.05	2.6	7	0.7
SFBQ4S013	3.1	<0.001	0.03	0.07	4.8	1.1	0.3	6	0.02	0.01	2.7	0.068	<0.02	0.73	35	0.08	5.7	8	1.6
SFBQ4S014	3	<0.001	0.03	0.07	3.6	1.2	0.5	6.2	0.07	0.02	2.1	0.131	<0.02	0.5	76	0.11	3.6	10	1.3
SFBQ4S015	1.7	<0.001	0.03	0.24	0.3	0.3	0.3	11	<0.01	<0.01	<0.2	0.015	<0.02	0.42	3	<0.05	1.2	6	<0.5
SFBQ4S016	1.7	<0.001	0.02	<0.05	1.3	0.4	0.3	6.8	0.01	<0.01	0.2	0.051	<0.02	0.26	12	0.06	2.1	3	<0.5
SFBQ4S017	2.8	<0.001	<0.01	<0.05	1.8	0.5	<0.2	6.5	0.01	0.01	0.8	0.062	<0.02	0.38	23	0.05	3.2	9	0.5
SFBQ4S018	12	<0.001	0.02	<0.05	3.3	1	0.2	11.2	0.02	0.01	1.3	0.172	<0.02	0.85	44	0.07	6.2	58	0.7
SFBQ4S019	2.7	<0.001	0.02	<0.05	3.7	1.1	0.2	6.9	0.04	0.01	0.8	0.071	<0.02	0.66	29	0.1	5.5	8	0.5
SFBQ4S020	4.6	<0.001	<0.01	0.23	0.9	0.2	0.3	7.2	<0.01	<0.01	0.2	0.057	<0.02	0.33	12	<0.05	1.8	9	0.5
SFBQ4S021	4.4	<0.001	0.01	0.1	2.8	0.8	1.1	5.2	0.03	0.01	2	0.25	0.02	0.36	113	0.09	3.4	5	2.3
SFBQ4S022	2.2	<0.001	<0.01	<0.05	1.2	0.2	0.2	5.9	0.01	<0.01	0.5	0.033	<0.02	0.3	13	0.07	2	4	0.5
SFBQ4S023	0.6	<0.001	<0.01	<0.05	2.3	0.6	0.2	5.6	0.05	<0.01	0.8	0.046	<0.02	0.35	28	0.06	4.4	4	0.5
SFBQ4S024	0.8	<0.001	<0.01	<0.05	2.2	0.4	0.2	6	0.02	<0.01	2	0.05	<0.02	0.26	21	0.05	3.5	7	0.9

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Date: 12-JUL-2004
Account: LJD

CERTIFICATE VA04040234

Project: Manouane
P.O. No.:
This report is for 27 Soil samples submitted to our lab in Vancouver, BC, Canada on 28-JUN-2004.

The following have access to data associated with this certificate:

MICHAEL CARR	CHARLES GREIG	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
LOG-22	Sample login - Rcd w/o BarCode
SCR-41	Screen to -180um and save both

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION
ME-MS41	50 element aqua regia ICP-MS

To: **BITTERROOT RESOURCES LTD.**
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Date: 12-JUL-2004
Account: LJD

Project: Manouane

CERTIFICATE OF ANALYSIS VA04040234

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	ME-MS41 Ag ppm 0.01	ME-MS41 Al % 0.01	ME-MS41 As ppm 0.1	ME-MS41 B ppm 10	ME-MS41 Ba ppm 10	ME-MS41 Be ppm 0.05	ME-MS41 Bi ppm 0.01	ME-MS41 Ca % 0.01	ME-MS41 Cd ppm 0.01	ME-MS41 Ce ppm 0.02	ME-MS41 Co ppm 0.1	ME-MS41 Cr ppm 1	ME-MS41 Cs ppm 0.05	ME-MS41 Cu ppm 0.2
CGBQ4S001		0.44	0.12	0.59	2.3	<10	90	<0.05	0.73	0.09	0.13	3.41	185	1080	2.27	106.5
CGBQ4S002		0.44	0.02	2.01	0.6	<10	10	0.3	0.08	0.11	0.06	15.55	2.8	32	0.22	2.6
CGBQ4S003		0.44	0.03	0.36	0.4	<10	20	<0.05	0.22	0.05	0.05	0.76	31.7	480	0.23	42.8
SFBQ4S001		0.24	0.05	3.67	0.8	<10	10	0.34	0.05	0.12	0.11	11.55	2.9	49	0.25	5.3
SFBQ4S002		0.18	0.03	1.54	1.1	<10	10	0.12	0.07	0.09	0.11	10.25	2	29	0.25	2
SFBQ4S003		0.28	0.02	0.69	0.2	<10	10	0.09	0.04	0.08	0.06	9.52	1.7	25	0.33	2
SFBQ4S004		0.28	0.5	0.54	0.8	<10	20	0.07	0.07	0.11	0.05	10.25	2.7	17	0.56	9.9
SFBQ4S005		0.28	0.59	1.2	0.4	<10	30	0.14	0.2	0.1	0.05	8.09	8.5	225	1.13	22.2
SFBQ4S006		0.16	0.08	4.22	1.2	<10	10	0.45	0.06	0.07	0.14	12.25	1.3	47	0.26	3.9
SFBQ4S007		0.18	0.03	4.84	1	<10	40	0.44	0.09	0.12	0.14	21.4	2.3	55	0.45	5.5
SFBQ4S008		0.24	0.42	0.23	0.9	<10	110	0.08	0.02	0.5	0.15	12.55	1.8	3	0.08	16.4
SFBQ4S009		0.28	0.04	2.29	0.5	<10	80	0.19	0.04	0.22	0.08	34.2	4.2	47	0.59	8.8
SFBQ4S010		0.26	0.04	3.03	0.6	<10	20	0.22	0.03	0.1	0.05	18.45	2.1	40	0.33	4.1
SFBQ4S011		0.36	0.01	0.7	<0.1	<10	10	0.08	0.09	0.07	0.01	11.55	0.6	12	0.41	1.8
SFBQ4S012		0.34	0.01	1.28	0.3	<10	40	0.11	0.09	0.08	0.04	14.9	1.9	24	0.32	2.8
SFBQ4S013		0.24	0.06	2.86	0.5	<10	20	0.27	0.08	0.08	0.06	24.2	2.2	35	0.46	6.7
SFBQ4S014		0.22	0.07	2.63	1.2	<10	30	0.35	0.18	0.08	0.13	17.25	2.3	41	0.48	5.9
SFBQ4S015		0.32	0.14	0.3	0.2	<10	30	0.06	0.05	0.11	0.09	8.51	0.4	11	0.36	7.1
SFBQ4S016		0.44	0.01	0.63	0.3	<10	20	0.08	0.03	0.09	0.02	10.65	1.1	18	0.11	4.8
SFBQ4S017		0.34	<0.01	1.08	0.1	<10	20	0.1	0.05	0.16	0.03	13.35	3.5	17	0.28	8.5
SFBQ4S018		0.36	0.02	2.93	1.8	<10	210	0.37	<0.01	0.22	0.04	30.2	5.7	29	0.75	33.9
SFBQ4S019		0.26	0.02	2.64	0.7	<10	20	0.27	0.02	0.19	0.02	28.2	2.4	34	0.3	11.2
SFBQ4S020		0.46	0.05	0.38	0.4	<10	40	0.08	0.03	0.09	0.04	12.05	1.2	13	0.6	2.3
SFBQ4S021		0.22	0.11	1.56	0.8	<10	20	0.22	0.14	0.05	0.15	12.65	1.8	25	0.66	3.8
SFBQ4S022		0.52	0.01	0.67	0.6	<10	10	0.09	0.03	0.08	0.01	14.2	1	9	0.32	3.8
SFBQ4S023		0.48	0.02	1.84	0.6	<10	10	0.17	0.01	0.12	0.04	17.3	1.1	20	0.11	3
SFBQ4S024		0.36	0.04	1.16	0.3	<10	10	0.19	0.02	0.13	0.07	16.65	2.4	18	0.12	2.9

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Date: 12-JUL-2004
Account: LJD

Project: Manouane

CERTIFICATE OF ANALYSIS VA04040234

Sample Description	Method / Analyte / Units / LOR	ME-MS41 Fe % 0.01	ME-MS41 Ga ppm 0.05	ME-MS41 Ge ppm 0.05	ME-MS41 Hf ppm 0.02	ME-MS41 Hg ppm 0.01	ME-MS41 In ppm 0.005	ME-MS41 K % 0.01	ME-MS41 La ppm 0.2	ME-MS41 Li ppm 0.1	ME-MS41 Mg % 0.01	ME-MS41 Mn ppm 5	ME-MS41 Mo ppm 0.05	ME-MS41 Na % 0.01	ME-MS41 Nb ppm 0.05	ME-MS41 Ni ppm 0.2
CGBQ4S001		5.78	2.55	0.16	<0.02	<0.01	0.008	0.02	1.9	2.8	3.06	501	0.99	<0.01	0.12	3070
CGBQ4S002		1.59	4.3	0.05	0.02	0.04	0.018	0.01	6.6	2.1	0.14	63	0.3	0.01	1.42	16.3
CGBQ4S003		2.14	1.68	0.05	<0.02	<0.01	<0.005	<0.01	0.4	3.8	0.56	94	0.73	<0.01	0.12	305
SFBQ4S001		2.61	11	0.06	0.1	0.07	0.023	0.02	5.2	2.6	0.18	83	0.29	0.01	2.35	9.6
SFBQ4S002		2.08	12.8	0.05	0.02	0.03	0.014	0.01	5	1.9	0.13	56	0.21	0.01	1.95	5.2
SFBQ4S003		1.17	4.08	<0.05	0.03	0.01	0.006	0.01	4.5	1.1	0.07	46	0.19	<0.01	1.4	4.5
SFBQ4S004		1.42	7.67	<0.05	0.03	<0.01	0.007	0.02	5	1.5	0.16	49	0.85	0.01	1.66	9.2
SFBQ4S005		2.31	4.6	0.05	<0.02	<0.01	0.009	0.03	4.1	6.9	0.52	97	0.34	<0.01	1.11	92.8
SFBQ4S006		3.43	11.35	0.09	0.13	0.21	0.05	0.01	5.9	1.1	0.06	29	0.58	<0.01	2.56	3.6
SFBQ4S007		3.01	6.81	0.07	0.17	0.17	0.044	0.03	9.8	2.3	0.14	47	0.54	<0.01	2.29	6.3
SFBQ4S008		0.13	0.48	<0.05	<0.02	0.09	<0.005	0.01	7.3	0.1	0.04	14	1.94	0.01	0.1	5.7
SFBQ4S009		2.04	7.37	0.09	0.04	0.06	0.024	0.13	16.8	4.1	0.35	75	0.44	0.01	1.82	13.7
SFBQ4S010		2.51	7.57	0.07	0.03	0.15	0.03	0.03	8.7	2.3	0.16	40	0.4	<0.01	1.44	5.1
SFBQ4S011		0.3	4.3	<0.05	0.02	0.04	0.01	0.02	5.6	0.6	0.05	19	0.13	0.01	0.73	2
SFBQ4S012		0.99	5.01	0.05	0.03	0.01	0.014	0.08	6.9	1.4	0.14	48	0.28	<0.01	1.19	4
SFBQ4S013		2.02	5.06	0.06	0.05	0.04	0.027	0.03	10.5	2.1	0.11	36	0.37	<0.01	1.68	5.6
SFBQ4S014		3.23	12.4	0.07	0.04	0.13	0.026	0.03	9.1	2.2	0.15	54	0.51	<0.01	2.46	6.5
SFBQ4S015		0.26	1.1	<0.05	<0.02	0.07	<0.005	0.02	4.4	0.4	0.02	14	1.12	0.01	0.24	2.4
SFBQ4S016		0.39	3.44	<0.05	<0.02	0.02	0.01	0.02	5.5	0.6	0.06	33	0.11	0.01	1.05	3.4
SFBQ4S017		0.93	2.72	<0.05	<0.02	0.04	0.008	0.04	6.9	2.4	0.25	42	0.16	<0.01	0.68	7
SFBQ4S018		2.68	5.23	0.1	0.03	0.06	0.015	0.41	15.6	7.3	0.99	397	0.24	0.01	2.52	20.3
SFBQ4S019		1.78	3.48	0.09	0.02	0.02	0.024	0.03	14.4	2.3	0.15	46	0.44	0.01	1.59	6.3
SFBQ4S020		0.3	3.14	<0.05	<0.02	0.02	0.008	0.05	7.4	1.1	0.11	37	0.25	<0.01	0.66	4.8
SFBQ4S021		3.29	20	0.06	0.08	0.11	0.024	0.04	6.7	1.2	0.07	27	0.85	<0.01	3.97	3.9
SFBQ4S022		0.57	2.09	0.06	<0.02	0.05	0.006	0.02	7.5	2.3	0.06	27	0.17	<0.01	0.6	2.6
SFBQ4S023		1.38	2.7	0.07	0.02	0.05	0.016	0.01	10	0.8	0.06	34	0.35	<0.01	1.57	2.3
SFBQ4S024		1.3	2.68	0.06	0.04	0.07	0.011	0.01	6.9	1.3	0.08	49	0.22	<0.01	1.23	5.1

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WEST VANCOUVER BC V7T 1P6

Date: 12-JUL-2004
Account: LJD

Project: Manouane

CERTIFICATE OF ANALYSIS VA04040234

Sample Description	Method / Analyte / Units / LOR	ME-MS41 P ppm 10	ME-MS41 Pb ppm 0.2	ME-MS41 Rb ppm 0.1	ME-MS41 Re ppm 0.001	ME-MS41 S % 0.01	ME-MS41 Sb ppm 0.05	ME-MS41 Sc ppm 0.1	ME-MS41 Se ppm 0.2	ME-MS41 Sn ppm 0.2	ME-MS41 Sr ppm 0.2	ME-MS41 Ta ppm 0.01	ME-MS41 Te ppm 0.01	ME-MS41 Th ppm 0.2	ME-MS41 Ti % 0.005	ME-MS41 Tl ppm 0.02
CGBQ4S001		250	12	2.7	<0.001	0.58	0.47	1.7	0.6	0.3	6.3	<0.01	0.24	<0.2	0.051	0.23
CGBQ4S002		500	2.5	1.2	<0.001	0.03	0.32	3.2	0.5	0.3	5.4	0.01	0.01	1.8	0.071	<0.02
CGBQ4S003		110	2.5	0.4	<0.001	<0.01	0.2	0.6	0.3	<0.2	0.8	<0.01	0.09	<0.2	0.041	<0.02
SFBQ4S001		760	5.8	2.1	<0.001	0.02	0.31	4.5	0.9	0.4	6.1	0.04	0.01	2	0.13	<0.02
SFBQ4S002		460	5.8	1.8	<0.001	0.01	0.3	1.9	0.6	0.6	5.6	0.05	0.01	1.1	0.118	<0.02
SFBQ4S003		100	2.9	2.3	<0.001	<0.01	0.14	1.5	0.3	0.4	4.3	0.03	<0.01	1.4	0.092	<0.02
SFBQ4S004		150	4.6	2.3	<0.001	0.01	0.15	1.1	0.2	0.6	7.2	<0.01	0.02	1.5	0.134	<0.02
SFBQ4S005		290	3	2.7	<0.001	0.01	0.11	1.1	0.4	0.3	7.3	0.01	0.03	1.1	0.093	<0.02
SFBQ4S006		490	7.9	1.3	<0.001	0.03	0.14	7.2	1.3	0.5	4.1	0.08	0.02	1.9	0.111	<0.02
SFBQ4S007		650	6.5	2.4	<0.001	0.04	0.12	7.4	1.5	0.4	6.7	0.04	0.03	3.2	0.099	<0.02
SFBQ4S008		500	7.2	0.4	0.001	0.16	0.56	0.7	0.9	<0.2	51.8	0.01	0.01	<0.2	<0.005	<0.02
SFBQ4S009		840	5	8.3	<0.001	0.03	0.05	3	1.1	0.3	15	0.02	0.01	2	0.111	<0.02
SFBQ4S010		650	4.8	2.3	<0.001	0.03	<0.05	4.1	1.3	0.3	5.8	0.05	0.02	0.8	0.086	<0.02
SFBQ4S011		150	4.1	2.3	<0.001	0.02	0.06	0.8	0.4	0.3	6.3	0.01	<0.01	<0.2	0.038	<0.02
SFBQ4S012		260	5.5	3.5	<0.001	0.02	0.07	1.8	0.5	0.3	5	0.01	<0.01	0.7	0.07	<0.02
SFBQ4S013		410	6.4	3.1	<0.001	0.03	0.07	4.8	1.1	0.3	6	0.02	0.01	2.7	0.068	<0.02
SFBQ4S014		630	6.2	3	<0.001	0.03	0.07	3.6	1.2	0.5	6.2	0.07	0.02	2.1	0.131	<0.02
SFBQ4S015		280	11	1.7	<0.001	0.03	0.24	0.3	0.3	0.3	11	<0.01	<0.01	<0.2	0.015	<0.02
SFBQ4S016		140	2.9	1.7	<0.001	0.02	<0.05	1.3	0.4	0.3	6.8	0.01	<0.01	0.2	0.051	<0.02
SFBQ4S017		400	2.4	2.8	<0.001	<0.01	<0.05	1.8	0.5	<0.2	6.5	0.01	0.01	0.8	0.062	<0.02
SFBQ4S018		800	2.7	12	<0.001	0.02	<0.05	3.3	1	0.2	11.2	0.02	0.01	1.3	0.172	<0.02
SFBQ4S019		690	3.1	2.7	<0.001	0.02	<0.05	3.7	1.1	0.2	6.9	0.04	0.01	0.8	0.071	<0.02
SFBQ4S020		150	4.4	4.6	<0.001	<0.01	0.23	0.9	0.2	0.3	7.2	<0.01	<0.01	0.2	0.057	<0.02
SFBQ4S021		230	11.8	4.4	<0.001	0.01	0.1	2.8	0.8	1.1	5.2	0.03	0.01	2	0.25	0.02
SFBQ4S022		170	3	2.2	<0.001	<0.01	<0.05	1.2	0.2	0.2	5.9	0.01	<0.01	0.5	0.033	<0.02
SFBQ4S023		410	1.8	0.6	<0.001	<0.01	<0.05	2.3	0.6	0.2	5.6	0.05	<0.01	0.8	0.046	<0.02
SFBQ4S024		410	3.3	0.8	<0.001	<0.01	<0.05	2.2	0.4	0.2	6	0.02	<0.01	2	0.05	<0.02

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To: BITTERROOT RESOURCES LTD.
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Date: 12-JUL-2004
Account: LJD

Project: Manouane

CERTIFICATE OF ANALYSIS VA04040234

Sample Description	Method Analyte Units LOR	ME-MS41 U ppm 0.05	ME-MS41 V ppm 1	ME-MS41 W ppm 0.05	ME-MS41 Y ppm 0.05	ME-MS41 Zn ppm 2	ME-MS41 Zr ppm 0.5
CGBQ4S001		0.12	53	0.39	0.56	31	<0.5
CGBQ4S002		0.32	33	0.08	4.31	13	0.8
CGBQ4S003		<0.05	36	1.26	0.21	12	<0.5
SFBQ4S001		0.35	61	0.12	4.61	14	2.6
SFBQ4S002		0.19	57	0.07	2.26	10	0.7
SFBQ4S003		0.19	42	0.11	2.31	9	0.8
SFBQ4S004		0.2	61	1.62	1.7	8	1
SFBQ4S005		0.15	39	0.09	1.21	20	0.5
SFBQ4S006		0.51	50	0.11	6.35	5	4.2
SFBQ4S007		0.61	39	0.13	6.61	11	4.6
SFBQ4S008		0.65	4	<0.05	2.9	7	<0.5
SFBQ4S009		0.88	42	0.23	5.2	16	1
SFBQ4S010		0.46	41	0.07	4.68	12	0.9
SFBQ4S011		0.36	8	<0.05	1.93	3	0.5
SFBQ4S012		0.47	19	<0.05	2.58	7	0.7
SFBQ4S013		0.73	35	0.08	5.74	8	1.6
SFBQ4S014		0.5	76	0.11	3.61	10	1.3
SFBQ4S015		0.42	3	<0.05	1.2	6	<0.5
SFBQ4S016		0.26	12	0.06	2.09	3	<0.5
SFBQ4S017		0.38	23	0.05	3.15	9	0.5
SFBQ4S018		0.85	44	0.07	6.23	58	0.7
SFBQ4S019		0.66	29	0.1	5.5	8	0.5
SFBQ4S020		0.33	12	<0.05	1.78	9	0.5
SFBQ4S021		0.36	113	0.09	3.39	5	2.3
SFBQ4S022		0.3	13	0.07	2.04	4	0.5
SFBQ4S023		0.35	28	0.06	4.4	4	0.5
SFBQ4S024		0.26	21	0.05	3.47	7	0.9

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o: BITTERROOT RESOURCES LTD.
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WEST VANCOUVER BC V7T 1P6

Finalized D 31-JUL-2004
Account: LJD

CERTIFICATE VA04048431

Project: Mistassini / Twins

P.O. No.:

This report is for 18 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 27-JUL-2004.

The following have access to data associated with this certificate:

MICHAEL CARR	CHARLES GREIG	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-31	Pulverize split to 85% <75 um
SPL-21	Split sample - riffle splitter
CRU-31	Fine crushing - 70% <2mm
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP41	34 Element Aqua Regia ICP-AES	ICP-AES
PGM-ICP23	Pt, Pd, Au 30g FA ICP	ICP-AES

To: **BITTERROOT RESOURCES LTD.**
ATTN: MICHAEL CARR
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

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WEST VANCOUVER BC V7T 1P6

Finalized Date: 31-JUL-2004
Account: LJD

Project: Mistassini / Twins

CERTIFICATE OF ANALYSIS   VA04048431

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-ICP41 Ag ppm 0.2	ME-ICP41 Al % 0.01	ME-ICP41 As ppm 2	ME-ICP41 B ppm 10	ME-ICP41 Ba ppm 10	ME-ICP41 Be ppm 0.5	ME-ICP41 Bi ppm 2	ME-ICP41 Ca % 0.01	ME-ICP41 Cd ppm 0.5	ME-ICP41 Co ppm 1	ME-ICP41 Cr ppm 1
BQ0095		0.64	0.008	<0.005	<0.001	0.9	4.61	2	<10	50	<0.5	3	0.34	<0.5	12	100
BQ0096		0.64	0.011	<0.005	<0.001	2.2	3.14	<2	<10	40	<0.5	4	0.44	<0.5	10	56
BQ0097		1.32	0.032	0.008	0.011	2.6	0.58	<2	<10	30	<0.5	6	1.12	<0.5	19	54
BQ0098		1.00	0.110	<0.005	0.005	2.8	0.62	<2	<10	20	<0.5	8	1.18	<0.5	42	108
BQ0099		1.60	0.011	<0.005	0.001	0.8	0.16	8	<10	<10	<0.5	4	0.44	<0.5	17	152
BQ0100		1.06	0.018	<0.005	0.001	1.3	0.62	2	<10	30	<0.5	4	0.53	<0.5	39	131
BQ0101		0.68	0.035	<0.005	0.001	2.1	0.56	<2	<10	10	<0.5	5	1.31	<0.5	150	131
BQ0102		0.40	0.005	<0.005	<0.001	1.1	0.66	8	<10	<10	<0.5	2	0.87	<0.5	9	245
BQ0103		0.78	0.008	<0.005	0.014	1.5	1.02	4	<10	90	<0.5	3	0.90	0.5	5	115
BQ0104		1.46	0.001	<0.005	<0.001	0.8	1.27	4	<10	120	<0.5	2	0.52	<0.5	6	138
BQ0105		0.78	0.011	<0.005	<0.001	1.4	1.52	2	<10	20	0.7	4	1.93	<0.5	16	94
BQ0106		1.62	0.029	<0.005	<0.001	1.2	1.52	6	<10	20	0.6	3	1.76	<0.5	39	158
BQ0107		1.56	0.016	<0.005	0.001	1.4	1.23	3	<10	20	<0.5	3	1.26	<0.5	9	192
BQ0108		1.50	0.024	<0.005	<0.001	1.2	1.12	<2	<10	100	<0.5	<2	0.63	<0.5	33	132
BQ0109		1.04	0.017	<0.005	0.001	1.6	1.02	<2	<10	80	<0.5	5	0.64	<0.5	28	113
BQ0110		0.56	0.008	<0.005	<0.001	1.7	1.50	<2	<10	90	<0.5	2	1.00	<0.5	12	168
BQ0111		1.62	0.059	<0.005	0.001	3.2	0.65	6	<10	10	<0.5	7	1.00	<0.5	26	62
BQ0112		1.30	0.005	0.005	<0.001	1.2	1.50	<2	<10	30	<0.5	<2	1.37	<0.5	20	151

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WEST VANCOUVER BC V7T 1P6

Finalized Date: 31-JUL-2004
Account: LJD

Project: Mistassini / Twins

CERTIFICATE OF ANALYSIS VA04048431

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Cu ppm 1	ME-ICP41 Fe % 0.01	ME-ICP41 Ga ppm 10	ME-ICP41 Hg ppm 1	ME-ICP41 K % 0.01	ME-ICP41 La ppm 10	ME-ICP41 Mg % 0.01	ME-ICP41 Mn ppm 5	ME-ICP41 Mo ppm 1	ME-ICP41 Na % 0.01	ME-ICP41 Ni ppm 1	ME-ICP41 P ppm 10	ME-ICP41 Pb ppm 2	ME-ICP41 S % 0.01	ME-ICP41 Sb ppm 2
BQ0095		176	21.6	20	<1	4.29	<10	3.45	1210	1	0.03	145	60	10	3.72	<2
BQ0096		317	30.9	10	<1	2.72	<10	2.33	1135	4	0.04	265	410	5	6.29	<2
BQ0097		332	29.9	<10	<1	0.19	10	0.78	640	5	0.10	304	180	5	7.54	<2
BQ0098		346	28.2	<10	<1	0.06	10	0.46	2170	6	0.05	279	120	6	7.48	<2
BQ0099		83	23.1	<10	<1	0.01	<10	0.41	1175	3	0.03	76	90	8	3.93	3
BQ0100		125	28.7	<10	1	0.05	10	0.27	3130	2	0.04	116	180	26	5.27	<2
BQ0101		193	28.6	<10	1	0.07	10	0.57	995	2	0.11	179	170	22	9.08	<2
BQ0102		37	9.34	<10	1	0.04	10	0.40	4080	1	0.05	104	230	4	1.66	<2
BQ0103		196	22.8	<10	<1	0.27	10	0.75	2620	1	0.10	198	260	10	6.47	<2
BQ0104		88	12.55	10	<1	0.54	20	0.89	1815	<1	0.10	87	380	9	3.66	<2
BQ0105		150	24.2	10	1	0.21	10	1.03	3020	2	0.24	116	260	15	5.00	<2
BQ0106		102	19.2	<10	3	0.20	10	0.95	3480	1	0.22	94	260	14	4.61	<2
BQ0107		146	19.4	<10	1	0.14	10	0.62	3750	2	0.16	118	290	8	4.61	<2
BQ0108		110	14.15	10	<1	0.55	10	0.66	1405	<1	0.12	110	320	8	4.37	3
BQ0109		156	17.8	<10	<1	0.44	10	0.59	1265	<1	0.12	158	310	11	5.68	<2
BQ0110		177	19.4	<10	<1	0.30	20	0.59	6290	2	0.07	154	320	12	5.15	2
BQ0111		424	33.5	<10	<1	0.09	10	0.45	1725	2	0.11	243	190	17	6.32	<2
BQ0112		135	15.3	<10	<1	0.19	20	0.62	4940	2	0.14	118	230	9	4.44	<2

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Finalized Date: 31-JUL-2004
Account: LJD

Project: Mistassini / Twins

CERTIFICATE OF ANALYSIS VA04048431

Sample Description	Method Analyte Units LOR	ME-ICP41 Sc ppm 1	ME-ICP41 Sr ppm 1	ME-ICP41 Ti % 0.01	ME-ICP41 Tl ppm 10	ME-ICP41 U ppm 10	ME-ICP41 V ppm 1	ME-ICP41 W ppm 10	ME-ICP41 Zn ppm 2
BQ0095		9	5	0.68	10	<10	114	<10	523
BQ0096		7	7	0.43	10	<10	64	<10	138
BQ0097		2	11	0.03	<10	<10	13	<10	33
BQ0098		2	22	0.02	<10	<10	14	<10	25
BQ0099		1	7	0.02	<10	<10	14	<10	67
BQ0100		1	5	0.04	<10	<10	23	<10	87
BQ0101		2	32	0.03	<10	<10	26	<10	51
BQ0102		1	15	0.03	<10	<10	20	<10	50
BQ0103		2	12	0.06	<10	<10	23	<10	50
BQ0104		2	12	0.12	<10	<10	26	<10	56
BQ0105		3	17	0.05	<10	<10	23	<10	102
BQ0106		3	15	0.05	<10	<10	23	<10	93
BQ0107		3	14	0.04	<10	<10	21	<10	75
BQ0108		3	12	0.11	<10	<10	25	<10	64
BQ0109		2	13	0.10	<10	<10	24	<10	50
BQ0110		2	20	0.08	<10	<10	24	10	45
BQ0111		2	36	0.03	<10	<10	28	<10	55
BQ0112		2	19	0.04	<10	<10	19	<10	45

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To: BITTERROOT RESOURCES LTD.
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WEST VANCOUVER BC V7T 1P6

Finalized Date: 2-AUG-2004
Account: LJD

CERTIFICATE VA04048315

Project: Mistassini

P.O. No.:

This report is for 19 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 27-JUL-2004.

The following have access to data associated with this certificate:

MICHAEL CARR	CHARLES GREIG	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-31	Pulverize split to 85% <75 um
SPL-21	Split sample - riffle splitter
CRU-31	Fine crushing - 70% <2mm
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP41	34 Element Aqua Regia ICP-AES	ICP-AES
PGM-ICP23	Pt, Pd, Au 30g FA ICP	ICP-AES

To: **BITTERROOT RESOURCES LTD.**
ATTN: MICHAEL CARR
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

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Finalized Date: 2-AUG-2004
Account: LJD

Project: Mistassini

CERTIFICATE OF ANALYSIS VA04048315

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-ICP41 Ag ppm 0.2	ME-ICP41 Al % 0.01	ME-ICP41 As ppm 2	ME-ICP41 B ppm 10	ME-ICP41 Ba ppm 10	ME-ICP41 Be ppm 0.5	ME-ICP41 Bi ppm 2	ME-ICP41 Ca % 0.01	ME-ICP41 Cd ppm 0.5	ME-ICP41 Co ppm 1	ME-ICP41 Cr ppm 1
BQ0046		4.34	0.002	<0.005	0.001	1.9	1.12	94	<10	30	<0.5	3	0.40	10.5	30	78
BQ0047		3.64	0.005	<0.005	<0.001	4.3	1.00	22	<10	20	<0.5	3	0.50	12.3	40	78
BQ0048		4.06	0.005	<0.005	<0.001	2.9	0.89	8	<10	20	<0.5	<2	0.65	13.0	42	70
BQ0049		2.82	0.001	<0.005	<0.001	0.5	0.53	7	<10	20	<0.5	<2	0.22	0.9	9	102
BQ0050		1.24	0.003	<0.005	<0.001	1.6	0.72	15	<10	20	<0.5	<2	2.04	1.8	21	80
BQ0051		1.06	0.008	<0.005	0.001	2.2	1.26	<2	<10	80	<0.5	3	2.26	4.4	37	116
BQ0052		0.84	0.004	<0.005	0.001	0.5	1.56	6	<10	100	<0.5	3	0.74	2.2	34	93
BQ0053		0.44	0.009	<0.005	0.006	2.7	0.94	8	<10	50	<0.5	4	0.40	<0.5	245	156
BQ0054		0.96	0.010	0.011	0.007	6.2	0.81	<2	<10	50	<0.5	6	0.68	28.4	226	64
BQ0055		0.84	0.004	<0.005	0.002	2.2	0.14	<2	<10	<10	<0.5	5	0.34	<0.5	18	17
BQ0056		0.90	0.007	0.009	<0.001	1.7	0.32	<2	<10	10	<0.5	4	1.11	<0.5	106	33
BQ0057		0.72	0.002	<0.005	<0.001	1.1	0.80	<2	<10	10	<0.5	6	1.04	<0.5	140	111
BQ0058		1.98	0.010	<0.005	<0.001	2.0	0.23	6	<10	<10	<0.5	8	0.52	<0.5	29	27
BQ0059		1.92	0.002	0.005	0.002	2.1	0.23	<2	<10	10	<0.5	9	0.29	<0.5	<1	18
BQ0060		0.56	0.001	0.006	0.001	2.1	0.36	7	<10	20	<0.5	4	0.36	<0.5	33	42
BQ0061		1.22	0.092	<0.005	0.005	1.7	0.26	3	<10	10	<0.5	5	0.34	<0.5	29	90
BQ0062		1.70	0.013	<0.005	0.001	0.3	0.50	<2	<10	<10	<0.5	2	0.98	<0.5	2	60
BQ0063		0.80	0.038	<0.005	<0.001	0.8	0.47	2	<10	<10	<0.5	3	1.01	<0.5	9	36
BQ0064		0.70	0.002	0.009	0.001	0.5	0.30	<2	<10	<10	<0.5	4	0.72	<0.5	9	69

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WEST VANCOUVER BC V7T 1P6

Finalized Date: 2-AUG-2004
Account: LJD

Project: Mistassini

CERTIFICATE OF ANALYSIS VA04048315

Sample Description	Method	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Analyte	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb
	Units	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm
	LOR	1	0.01	10	1	0.01	10	0.01	5	1	0.01	1	10	2	0.01	2
BQ0046		317	7.65	10	<1	0.32	10	0.88	233	4	0.06	114	310	18	5.51	2
BQ0047		664	7.34	10	<1	0.29	10	0.65	180	2	0.08	125	290	43	4.93	2
BQ0048		408	7.84	<10	<1	0.17	10	0.55	224	4	0.09	116	360	44	5.14	<2
BQ0049		74	3.08	<10	<1	0.17	20	0.27	176	1	0.13	24	260	55	1.88	<2
BQ0050		299	4.51	<10	<1	0.21	10	0.47	242	3	0.10	52	220	59	3.33	2
BQ0051		558	7.95	10	<1	0.57	10	0.97	367	3	0.09	112	540	163	6.77	2
BQ0052		172	7.55	10	<1	0.81	10	1.21	471	2	0.10	96	850	58	4.86	4
BQ0053		1300	34.4	<10	<1	0.62	10	0.56	355	3	0.09	700	460	15	8.81	2
BQ0054		1245	39.9	<10	1	0.27	<10	0.48	384	4	0.04	836	150	198	9.95	5
BQ0055		301	>50	<10	1	0.02	<10	0.11	478	5	0.02	299	60	28	6.55	3
BQ0056		303	45.8	<10	1	0.09	<10	0.31	699	2	0.06	243	60	20	>10.0	3
BQ0057		185	25.3	<10	<1	0.13	<10	0.77	1555	1	0.21	120	130	9	>10.0	4
BQ0058		359	>50	<10	<1	0.04	<10	0.22	548	3	0.06	267	90	29	7.71	3
BQ0059		388	>50	<10	<1	0.08	<10	0.20	598	4	0.04	283	50	30	6.02	<2
BQ0060		262	48.6	<10	1	0.16	<10	0.33	960	3	0.06	261	70	24	8.07	2
BQ0061		262	28.4	<10	<1	0.08	<10	0.28	577	2	0.05	164	70	10	7.60	5
BQ0062		73	29.4	<10	<1	0.09	10	0.57	2360	1	0.13	66	100	3	4.33	2
BQ0063		106	40.5	<10	4	0.07	10	0.49	2680	2	0.11	95	160	17	5.95	3
BQ0064		98	26.4	<10	1	0.04	10	0.45	1525	1	0.09	87	60	<2	5.98	3

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To: BITTERROOT RESOURCES LTD.
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 2-AUG-2004
Account: LJD

Project: Mistassini

CERTIFICATE OF ANALYSIS VA04048315

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Sc ppm 1	ME-ICP41 Sr ppm 1	ME-ICP41 Ti % 0.01	ME-ICP41 Tl ppm 10	ME-ICP41 U ppm 10	ME-ICP41 V ppm 1	ME-ICP41 W ppm 10	ME-ICP41 Zn ppm 2
BQ0046		5	8	0.03	<10	<10	33	<10	3630
BQ0047		5	8	0.02	<10	<10	29	<10	4770
BQ0048		5	7	0.02	<10	<10	35	<10	4730
BQ0049		3	10	0.01	<10	<10	9	<10	394
BQ0050		5	12	0.02	<10	<10	28	<10	656
BQ0051		11	29	0.07	<10	<10	62	<10	1635
BQ0052		14	18	0.12	<10	<10	84	<10	1005
BQ0053		7	10	0.17	<10	<10	62	<10	86
BQ0054		3	7	0.06	<10	<10	29	<10	9120
BQ0055		2	4	0.01	<10	<10	12	<10	3
BQ0056		2	14	0.02	<10	<10	13	<10	79
BQ0057		2	5	0.03	<10	<10	11	<10	76
BQ0058		2	6	0.01	<10	<10	12	<10	33
BQ0059		2	5	0.01	<10	<10	12	<10	24
BQ0060		2	5	0.02	<10	<10	12	<10	40
BQ0061		1	5	0.01	<10	<10	8	<10	43
BQ0062		1	14	0.03	<10	<10	18	<10	134
BQ0063		1	17	0.04	<10	<10	18	<10	144
BQ0064		1	7	0.02	<10	<10	18	10	96

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Finalized D[illegible]5-AUG-2004
Account: LJD

CERTIFICATE VA04048316

Project: Mistassini
P.O. No.:
This report is for 11 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 26-JUL-2004.
The following have access to data associated with this certificate:

MICHAEL CARR	CHARLES GREIG	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-31	Pulverize split to 85% <75 um
SPL-21	Split sample - riffle splitter
CRU-31	Fine crushing - 70% <2mm
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP41	34 Element Aqua Regia ICP-AES	ICP-AES
PGM-ICP23	Pt, Pd, Au 30g FA ICP	ICP-AES

To: **BITTERROOT RESOURCES LTD.**
ATTN: MICHAEL CARR
1080 GORDON AVE
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This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

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Finalized Date: 5-AUG-2004
Account: LJD

Project: Mistassini

CERTIFICATE OF ANALYSIS VA04048316

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-ICP41 Ag ppm 0.2	ME-ICP41 Al % 0.01	ME-ICP41 As ppm 2	ME-ICP41 B ppm 10	ME-ICP41 Ba ppm 10	ME-ICP41 Be ppm 0.5	ME-ICP41 Bi ppm 2	ME-ICP41 Ca % 0.01	ME-ICP41 Cd ppm 0.5	ME-ICP41 Co ppm 1	ME-ICP41 Cr ppm 1
BQ0001		0.80	0.052	<0.005	0.001	2.9	3.14	3	<10	20	<0.5	<2	0.74	<0.5	53	116
BQ0002		0.80	0.002	<0.005	<0.001	0.7	1.40	<2	<10	160	<0.5	<2	0.61	<0.5	8	94
BQ0003		2.18	0.007	<0.005	<0.001	0.5	2.13	<2	<10	120	<0.5	<2	0.91	<0.5	15	32
BQ0004		2.92	0.009	<0.005	<0.001	0.6	2.02	<2	<10	50	<0.5	<2	0.49	<0.5	22	71
BQ0005		1.94	0.010	<0.005	<0.001	0.6	1.80	<2	<10	30	<0.5	2	0.34	<0.5	33	29
BQ0006		1.58	<0.001	<0.005	<0.001	<0.2	0.92	<2	<10	70	<0.5	<2	0.79	<0.5	5	60
BQ0007		1.60	<0.001	<0.005	<0.001	0.2	0.95	6	<10	60	<0.5	<2	0.72	0.5	9	12
BQ0008		1.92	0.002	<0.005	<0.001	0.5	0.90	<2	<10	50	<0.5	<2	0.93	<0.5	6	59
BQ0009		2.16	<0.001	<0.005	<0.001	<0.2	1.16	4	<10	110	<0.5	<2	0.40	<0.5	8	12
BQ0010		1.16	<0.001	0.007	0.006	<0.2	0.90	<2	<10	10	<0.5	<2	1.16	<0.5	8	166
BQ0011		1.48	<0.001	<0.005	<0.001	<0.2	0.80	2	<10	70	<0.5	<2	0.37	<0.5	4	10

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Finalized Date: 5-AUG-2004
Account: LJD

Project: Mistassini

CERTIFICATE OF ANALYSIS VA04048316

Sample Description	Method	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Analyte	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb
	Units	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm
	LOR	1	0.01	10	1	0.01	10	0.01	5	1	0.01	1	10	2	0.01	2
BQ0001		266	13.85	10	1	0.69	20	2.09	693	2	0.03	112	740	74	8.48	2
BQ0002		37	2.91	10	1	0.72	10	0.87	388	7	0.05	15	320	27	0.45	<2
BQ0003		83	5.20	10	1	1.06	10	1.01	533	1	0.20	36	170	10	1.63	<2
BQ0004		113	7.32	10	1	1.32	10	1.16	578	1	0.11	26	470	5	3.01	<2
BQ0005		150	8.74	10	1	1.26	10	1.08	539	1	0.08	30	440	3	3.89	<2
BQ0006		22	3.00	<10	<1	0.42	20	0.78	424	1	0.13	13	410	7	0.42	<2
BQ0007		38	4.25	<10	<1	0.32	10	0.89	485	3	0.12	24	430	9	1.30	<2
BQ0008		40	5.90	<10	<1	0.26	10	0.88	622	1	0.15	27	370	6	2.39	<2
BQ0009		22	6.78	10	<1	0.64	10	1.06	670	2	0.09	16	420	5	1.24	<2
BQ0010		2	2.13	<10	<1	0.16	10	1.23	436	1	0.19	37	780	<2	0.11	<2
BQ0011		18	6.03	10	<1	0.38	10	0.66	583	1	0.08	13	350	4	1.42	<2

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Finalized Date: 5-AUG-2004
Account: LJD

Project: Mistassini

CERTIFICATE OF ANALYSIS VA04048316

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Sc ppm 1	ME-ICP41 Sr ppm 1	ME-ICP41 Ti % 0.01	ME-ICP41 Tl ppm 10	ME-ICP41 U ppm 10	ME-ICP41 V ppm 1	ME-ICP41 W ppm 10	ME-ICP41 Zn ppm 2
BQ0001		10	14	0.14	<10	<10	103	10	98
BQ0002		4	15	0.16	<10	<10	37	<10	58
BQ0003		3	58	0.23	<10	<10	57	<10	70
BQ0004		5	33	0.28	<10	<10	60	<10	77
BQ0005		5	21	0.25	<10	<10	57	<10	82
BQ0006		2	14	0.12	<10	<10	16	<10	29
BQ0007		2	19	0.09	<10	<10	19	<10	238
BQ0008		2	9	0.07	<10	<10	14	<10	45
BQ0009		2	6	0.11	<10	<10	24	<10	56
BQ0010		5	7	0.07	<10	<10	35	<10	22
BQ0011		2	6	0.09	<10	<10	23	<10	31

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Finalized D[illegible]7-AUG-2004
Account: LJD

CERTIFICATE VA04048432

Project: Mistassini / Twins

P.O. No.:

This report is for 46 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 27-JUL-2004.

The following have access to data associated with this certificate:

MICHAEL CARR	CHARLES GREIG	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-31	Pulverize split to 85% <75 um
SPL-21	Split sample - riffle splitter
CRU-31	Fine crushing - 70% <2mm
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP41	34 Element Aqua Regia ICP-AES	ICP-AES
PGM-ICP23	Pt, Pd, Au 30g FA ICP	ICP-AES

To: **BITTERROOT RESOURCES LTD.**
ATTN: MICHAEL CARR
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

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Finalized Date: 7-AUG-2004
Account: LJD

Project: Mistassini / Twins

CERTIFICATE OF ANALYSIS VA04048432

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-ICP41 Ag ppm 0.2	ME-ICP41 Al % 0.01	ME-ICP41 As ppm 2	ME-ICP41 B ppm 10	ME-ICP41 Ba ppm 10	ME-ICP41 Be ppm 0.5	ME-ICP41 Bi ppm 2	ME-ICP41 Ca % 0.01	ME-ICP41 Cd ppm 0.5	ME-ICP41 Co ppm 1	ME-ICP41 Cr ppm 1
BQ0012		1.64	0.007	<0.005	0.008	<0.2	0.71	<2	<10	70	<0.5	<2	0.69	<0.5	6	61
BQ0013		1.90	0.003	<0.005	0.004	0.3	0.85	<2	<10	100	<0.5	<2	0.31	<0.5	7	61
BQ0014		1.56	0.003	<0.005	0.004	0.2	0.94	<2	<10	100	<0.5	<2	0.92	<0.5	5	71
BQ0015		1.60	0.004	<0.005	0.002	<0.2	0.85	<2	<10	70	<0.5	<2	1.61	<0.5	7	64
BQ0016		1.46	0.001	<0.005	<0.001	<0.2	1.11	<2	<10	110	<0.5	<2	0.36	<0.5	5	81
BQ0017		2.08	0.004	<0.005	<0.001	0.4	0.73	<2	<10	70	<0.5	2	0.47	<0.5	12	85
BQ0018		1.68	0.003	<0.005	<0.001	0.2	0.74	<2	<10	100	<0.5	<2	0.38	<0.5	3	58
BQ0019		0.58	<0.001	<0.005	<0.001	<0.2	1.06	<2	<10	180	<0.5	<2	0.41	<0.5	3	79
BQ0020		2.82	0.002	<0.005	<0.001	<0.2	0.86	<2	<10	210	<0.5	<2	0.75	<0.5	5	108
BQ0021		1.44	0.004	<0.005	<0.001	0.5	1.53	<2	<10	90	<0.5	2	0.65	0.7	8	71
BQ0022		0.92	0.102	<0.005	<0.001	0.9	0.98	<2	<10	80	<0.5	5	0.38	<0.5	8	56
BQ0023		1.34	0.001	<0.005	<0.001	<0.2	1.28	<2	<10	200	<0.5	<2	0.23	<0.5	5	81
BQ0024		1.78	0.005	<0.005	<0.001	0.5	1.22	<2	<10	40	<0.5	3	0.25	<0.5	21	78
BQ0025		0.84	0.001	<0.005	<0.001	0.2	1.65	<2	<10	140	0.8	<2	1.42	<0.5	4	78
BQ0026		1.10	0.002	<0.005	<0.001	<0.2	1.14	<2	<10	130	<0.5	<2	0.27	<0.5	4	152
BQ0027		1.46	0.004	<0.005	<0.001	0.2	1.93	<2	<10	60	<0.5	<2	0.44	<0.5	6	56
BQ0028		0.78	0.001	<0.005	<0.001	<0.2	1.74	<2	<10	50	<0.5	<2	0.38	<0.5	18	59
BQ0029		1.08	<0.001	<0.005	<0.001	0.2	1.06	<2	<10	130	<0.5	<2	0.28	<0.5	5	112
BQ0030		1.32	0.004	<0.005	<0.001	0.4	0.96	<2	<10	50	<0.5	4	0.97	<0.5	52	46
BQ0031		1.52	0.003	<0.005	<0.001	<0.2	1.38	<2	<10	110	<0.5	<2	1.14	<0.5	5	110
BQ0032		1.68	0.007	<0.005	<0.001	0.2	1.45	<2	<10	100	<0.5	<2	0.90	<0.5	5	96
BQ0033		1.48	0.011	<0.005	<0.001	0.3	1.24	<2	<10	130	<0.5	<2	0.88	<0.5	6	72
BQ0034		1.42	0.002	<0.005	<0.001	<0.2	1.34	<2	<10	150	<0.5	<2	0.93	<0.5	5	86
BQ0035		0.76	0.004	<0.005	<0.001	<0.2	1.76	<2	<10	160	<0.5	<2	1.16	<0.5	7	159
BQ0036		0.58	0.018	<0.005	<0.001	0.6	2.00	<2	<10	40	<0.5	<2	1.10	<0.5	8	71
BQ0037		1.48	0.001	<0.005	<0.001	<0.2	2.37	<2	10	590	<0.5	<2	0.86	<0.5	3	91
BQ0038		0.88	0.001	<0.005	<0.001	<0.2	4.03	<2	<10	1320	<0.5	<2	0.57	<0.5	5	55
BQ0039		1.84	<0.001	<0.005	<0.001	<0.2	1.81	<2	10	280	0.5	<2	1.98	<0.5	4	80
BQ0040		2.10	0.002	<0.005	<0.001	<0.2	1.58	<2	<10	200	<0.5	<2	1.15	<0.5	5	78
BQ0041		1.70	<0.001	<0.005	<0.001	<0.2	1.20	<2	<10	210	<0.5	<2	1.06	<0.5	7	92
BQ0042		1.48	0.001	<0.005	<0.001	<0.2	1.92	<2	<10	460	<0.5	<2	1.29	<0.5	4	81
BQ0043		1.76	0.002	<0.005	<0.001	<0.2	1.71	<2	<10	200	<0.5	<2	1.35	<0.5	4	73
BQ0044		1.94	0.003	<0.005	<0.001	<0.2	1.65	2	<10	140	<0.5	<2	1.26	<0.5	5	88
BQ0045		0.70	0.004	<0.005	<0.001	0.3	2.97	<2	<10	40	0.7	<2	1.95	<0.5	12	31
BQ0065		1.58	0.443	<0.005	<0.001	6.9	1.40	<2	<10	40	<0.5	75	1.91	23.9	34	136
BQ0066		1.40	0.005	<0.005	<0.001	0.3	1.68	3	<10	100	<0.5	2	1.14	1.5	24	150
BQ0067		2.16	0.004	<0.005	<0.001	0.2	1.56	<2	<10	110	<0.5	<2	1.38	<0.5	37	95
BQ0068		1.52	0.008	<0.005	<0.001	0.5	2.70	8	<10	30	<0.5	2	1.14	<0.5	32	150
BQ0069		0.72	0.024	<0.005	<0.001	0.3	1.20	<2	<10	60	<0.5	3	1.38	<0.5	41	89
BQ0070		0.60	0.006	<0.005	<0.001	8.1	1.80	2	<10	50	<0.5	5	19.8	8.7	15	53

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Finalized Date: 7-AUG-2004
Account: LJD

Project: Mistassini / Twins

CERTIFICATE OF ANALYSIS VA04048432

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Cu ppm 1	ME-ICP41 Fe % 0.01	ME-ICP41 Ga ppm 10	ME-ICP41 Hg ppm 1	ME-ICP41 K % 0.01	ME-ICP41 La ppm 10	ME-ICP41 Mg % 0.01	ME-ICP41 Mn ppm 5	ME-ICP41 Mo ppm 1	ME-ICP41 Na % 0.01	ME-ICP41 Ni ppm 1	ME-ICP41 P ppm 10	ME-ICP41 Pb ppm 2	ME-ICP41 S % 0.01	ME-ICP41 Sb ppm 2
BQ0012		19	5.68	<10	<1	0.31	10	0.51	608	1	0.07	13	390	<2	1.65	<2
BQ0013		49	8.76	<10	<1	0.47	10	0.66	572	1	0.07	25	360	<2	2.97	<2
BQ0014		39	7.84	10	<1	0.48	10	0.71	791	2	0.08	23	370	<2	2.63	<2
BQ0015		27	6.71	<10	<1	0.33	10	0.63	934	3	0.08	16	360	3	2.71	<2
BQ0016		12	7.02	10	<1	0.50	10	0.80	883	1	0.07	12	410	2	1.04	<2
BQ0017		71	11.30	<10	<1	0.30	10	0.52	602	2	0.08	31	350	2	3.79	<2
BQ0018		59	8.59	<10	<1	0.39	10	0.57	505	2	0.07	24	340	<2	2.72	<2
BQ0019		8	4.10	10	<1	0.69	10	0.87	514	4	0.07	13	380	<2	0.43	<2
BQ0020		12	3.35	<10	1	0.51	10	0.89	379	7	0.09	38	560	<2	0.71	<2
BQ0021		178	8.27	10	<1	0.72	10	1.18	765	3	0.08	20	300	8	2.96	<2
BQ0022		229	18.6	10	<1	0.46	10	0.74	683	1	0.07	31	200	4	4.03	<2
BQ0023		54	5.82	10	<1	0.81	10	0.92	660	2	0.06	11	370	<2	1.44	2
BQ0024		166	9.88	10	<1	0.76	10	0.76	619	1	0.06	20	260	3	4.29	<2
BQ0025		43	5.88	10	<1	0.90	60	1.07	999	<1	0.10	12	1520	7	1.38	<2
BQ0026		45	5.26	10	<1	0.83	10	0.72	640	3	0.06	19	390	<2	1.56	<2
BQ0027		82	6.98	10	<1	1.44	<10	1.18	905	1	0.08	13	670	2	2.02	<2
BQ0028		63	6.60	10	<1	1.29	20	0.97	902	<1	0.07	12	890	<2	2.09	<2
BQ0029		70	6.25	10	<1	0.66	20	0.82	719	2	0.07	14	330	<2	1.56	<2
BQ0030		169	10.75	<10	<1	0.43	10	0.74	725	4	0.09	21	310	<2	4.97	<2
BQ0031		55	6.61	10	<1	0.23	20	0.51	1500	1	0.10	12	420	4	1.14	<2
BQ0032		137	8.34	10	<1	0.61	10	0.72	808	3	0.06	24	400	8	2.35	<2
BQ0033		146	8.77	10	<1	0.47	10	0.56	804	1	0.08	25	360	7	2.40	<2
BQ0034		39	6.55	10	<1	0.50	20	0.53	1055	1	0.09	10	450	3	0.73	<2
BQ0035		77	6.78	10	<1	0.55	50	0.78	2070	3	0.10	18	590	3	1.46	<2
BQ0036		260	11.75	10	<1	0.85	80	1.06	1700	2	0.13	34	640	3	3.57	<2
BQ0037		12	5.69	10	<1	1.48	190	1.38	1145	1	0.10	10	760	5	0.28	<2
BQ0038		7	7.32	20	<1	3.25	170	2.61	915	1	0.09	10	1340	5	0.08	<2
BQ0039		19	4.96	10	<1	0.52	90	0.94	1335	2	0.18	13	550	3	0.25	<2
BQ0040		10	11.90	10	<1	0.39	20	0.78	1880	3	0.13	13	280	<2	0.08	<2
BQ0041		71	14.10	<10	<1	0.29	30	0.66	2370	3	0.09	24	400	12	0.61	<2
BQ0042		56	8.40	10	<1	0.75	20	1.00	2410	2	0.11	8	320	2	0.59	<2
BQ0043		81	11.15	<10	<1	0.41	20	0.89	1895	1	0.16	9	340	3	0.90	<2
BQ0044		71	9.17	10	<1	0.29	10	0.71	1735	2	0.14	12	350	2	1.08	<2
BQ0045		238	11.40	10	1	1.38	50	1.82	1725	2	0.15	42	1660	19	2.76	<2
BQ0065		550	8.57	10	<1	0.62	10	1.13	656	10	0.06	96	400	288	5.73	<2
BQ0066		95	7.77	10	<1	0.79	10	1.26	1335	3	0.09	58	610	75	3.04	<2
BQ0067		97	8.29	<10	<1	0.64	10	1.14	1635	1	0.09	53	530	22	3.23	<2
BQ0068		172	11.25	10	<1	1.36	10	1.96	1255	1	0.07	81	600	95	4.87	<2
BQ0069		156	9.30	<10	<1	0.60	20	1.07	510	2	0.05	92	410	5	4.05	<2
BQ0070		3890	5.14	10	<1	0.55	50	1.96	845	8	0.04	42	310	1655	3.4	<2

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Finalized Date: 7-AUG-2004
Account: LJD

Project: Mistassini / Twins

CERTIFICATE OF ANALYSIS VA04048432

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Sc ppm 1	ME-ICP41 Sr ppm 1	ME-ICP41 Ti % 0.01	ME-ICP41 Tl ppm 10	ME-ICP41 U ppm 10	ME-ICP41 V ppm 1	ME-ICP41 W ppm 10	ME-ICP41 Zn ppm 2
BQ0012		2	7	0.09	<10	<10	22	<10	26
BQ0013		2	4	0.11	<10	<10	22	<10	52
BQ0014		2	9	0.11	<10	<10	22	<10	36
BQ0015		2	16	0.09	<10	<10	17	<10	70
BQ0016		1	4	0.12	<10	<10	23	<10	37
BQ0017		2	5	0.08	<10	<10	22	<10	39
BQ0018		2	5	0.09	<10	<10	18	<10	40
BQ0019		2	6	0.14	<10	<10	23	<10	32
BQ0020		2	13	0.13	<10	<10	30	<10	27
BQ0021		2	8	0.11	<10	<10	21	<10	374
BQ0022		1	7	0.08	<10	<10	29	<10	156
BQ0023		3	6	0.15	<10	<10	28	<10	176
BQ0024		3	6	0.14	<10	<10	22	<10	122
BQ0025		7	82	0.17	<10	<10	30	<10	136
BQ0026		2	10	0.18	<10	<10	30	<10	83
BQ0027		3	16	0.31	<10	<10	45	<10	130
BQ0028		4	13	0.29	<10	<10	40	<10	94
BQ0029		2	5	0.13	<10	<10	28	<10	60
BQ0030		2	15	0.09	<10	20	31	<10	69
BQ0031		1	8	0.07	<10	<10	15	<10	54
BQ0032		2	12	0.14	<10	<10	23	<10	97
BQ0033		2	10	0.11	<10	<10	20	<10	97
BQ0034		2	10	0.14	<10	<10	25	<10	65
BQ0035		6	15	0.12	<10	<10	24	<10	57
BQ0036		8	15	0.19	<10	<10	32	<10	75
BQ0037		11	38	0.28	<10	<10	54	<10	100
BQ0038		7	37	0.61	<10	<10	113	<10	192
BQ0039		12	36	0.14	<10	<10	34	<10	75
BQ0040		2	42	0.08	<10	<10	21	<10	89
BQ0041		2	206	0.08	<10	<10	22	<10	74
BQ0042		6	72	0.11	<10	<10	21	<10	72
BQ0043		2	40	0.08	<10	<10	16	<10	69
BQ0044		2	14	0.07	<10	<10	14	<10	51
BQ0045		15	71	0.24	<10	<10	51	<10	127
BQ0065		5	17	0.14	<10	<10	58	<10	5980
BQ0066		8	12	0.21	<10	<10	78	<10	825
BQ0067		4	11	0.18	<10	<10	53	<10	183
BQ0068		10	12	0.24	<10	<10	87	<10	503
BQ0069		5	17	0.14	<10	<10	44	<10	193
BQ0070		8	45	0.12	<10	<10	46	<10	2910

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CERTIFICATE OF ANALYSIS VA04048432

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-ICP41 Ag ppm 0.2	ME-ICP41 Al % 0.01	ME-ICP41 As ppm 2	ME-ICP41 B ppm 10	ME-ICP41 Ba ppm 10	ME-ICP41 Be ppm 0.5	ME-ICP41 Bi ppm 2	ME-ICP41 Ca % 0.01	ME-ICP41 Cd ppm 0.5	ME-ICP41 Co ppm 1	ME-ICP41 Cr ppm 1
BQ0071		0.84	0.020	<0.005	<0.001	3.8	2.93	<2	<10	50	0.9	2	3.02	27.4	116	45
BQ0072		1.56	0.015	<0.005	<0.001	1.1	1.65	<2	<10	30	<0.5	<2	1.47	7.1	74	68
BQ0073		0.82	0.003	<0.005	<0.001	1.4	0.74	<2	<10	40	<0.5	<2	0.51	5.6	46	104
BQ0074		1.64	0.008	<0.005	<0.001	0.5	1.26	<2	<10	40	<0.5	<2	0.30	1.2	52	148
BQ0075		1.46	0.009	<0.005	<0.001	5.6	1.86	<2	<10	40	<0.5	<2	4.37	19.8	61	139
BQ0076		1.40	0.010	<0.005	0.001	1.2	1.39	<2	<10	40	<0.5	<2	0.90	1.8	79	203

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CERTIFICATE OF ANALYSIS VA04048432

Sample Description	Method Analyte Units LOR	ME-ICP41 Cu ppm 1	ME-ICP41 Fe % 0.01	ME-ICP41 Ga ppm 10	ME-ICP41 Hg ppm 1	ME-ICP41 K % 0.01	ME-ICP41 La ppm 10	ME-ICP41 Mg % 0.01	ME-ICP41 Mn ppm 5	ME-ICP41 Mo ppm 1	ME-ICP41 Na % 0.01	ME-ICP41 Ni ppm 1	ME-ICP41 P ppm 10	ME-ICP41 Pb ppm 2	ME-ICP41 S % 0.01	ME-ICP41 Sb ppm 2
BQ0071		440	12.80	10	1	0.14	10	1.04	459	2	0.30	142	790	2630	8.89	<2
BQ0072		513	10.45	10	<1	0.58	<10	1.14	627	2	0.10	100	780	507	5.10	<2
BQ0073		368	6.74	<10	<1	0.20	<10	0.47	387	1	0.04	65	220	285	3.71	<2
BQ0074		343	9.23	<10	<1	0.89	10	0.89	503	<1	0.06	179	570	13	3.64	<2
BQ0075		937	10.70	10	<1	0.54	10	1.60	1760	2	0.08	196	300	476	5.03	<2
BQ0076		552	16.5	<10	<1	0.44	<10	1.09	595	1	0.10	341	230	30	7.32	<2

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Sample Description	Method Analyte Units LOR	ME-ICP41 Sc ppm 1	ME-ICP41 Sr ppm 1	ME-ICP41 Ti % 0.01	ME-ICP41 Tl ppm 10	ME-ICP41 U ppm 10	ME-ICP41 V ppm 1	ME-ICP41 W ppm 10	ME-ICP41 Zn ppm 2
BQ0071		10	93	0.17	<10	<10	82	<10	9480
BQ0072		11	11	0.32	<10	<10	123	<10	3070
BQ0073		4	5	0.11	<10	<10	42	<10	1865
BQ0074		9	8	0.21	<10	<10	78	<10	739
BQ0075		13	39	0.16	<10	<10	92	<10	6280
BQ0076		10	7	0.18	<10	<10	90	<10	821

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Finalized Date: 23-AUG-2004
Account: LJD

CERTIFICATE VA04052563

Project: Mistassinai
P.O. No.:
This report is for 100 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 9-AUG-2004.

The following have access to data associated with this certificate:

MICHAEL CARR	CHARLES GREIG	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-31	Pulverize split to 85% <75 um
SPL-21	Split sample - riffle splitter
CRU-31	Fine crushing - 70% <2mm
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP41	34 Element Aqua Regia ICP-AES	ICP-AES
PGM-ICP23	Pt, Pd, Au 30g FA ICP	ICP-AES

To: **BITTERROOT RESOURCES LTD.**
ATTN: MICHAEL CARR
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

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CERTIFICATE OF ANALYSIS VA04052563

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-ICP41 Ag ppm 0.2	ME-ICP41 Al % 0.01	ME-ICP41 As ppm 2	ME-ICP41 B ppm 10	ME-ICP41 Ba ppm 10	ME-ICP41 Be ppm 0.5	ME-ICP41 Bi ppm 2	ME-ICP41 Ca % 0.01	ME-ICP41 Cd ppm 0.5	ME-ICP41 Co ppm 1	ME-ICP41 Cr ppm 1
BQO193		1.66	0.001	<0.005	0.010	<0.2	0.99	<2	<10	<10	<0.5	5	0.97	<0.5	3	209
BQO194		1.78	<0.001	<0.005	0.001	<0.2	1.50	<2	<10	40	<0.5	2	1.45	<0.5	4	264
BQO195		1.66	<0.001	<0.005	<0.001	<0.2	1.46	<2	<10	110	<0.5	<2	1.42	<0.5	3	265
BQO196		0.66	<0.001	<0.005	<0.001	0.3	1.65	<2	<10	50	<0.5	3	1.92	<0.5	4	186
BQO197		0.28	<0.001	<0.005	<0.001	<0.2	1.18	<2	<10	120	<0.5	<2	0.60	<0.5	8	125
BQO198		1.62	0.001	<0.005	<0.001	0.2	1.56	<2	<10	120	<0.5	<2	1.42	<0.5	2	201
BQO199		1.34	<0.001	<0.005	<0.001	<0.2	1.66	4	<10	130	<0.5	3	1.18	<0.5	4	236
BQO200		1.38	<0.001	<0.005	<0.001	<0.2	0.88	3	<10	80	<0.5	<2	0.61	<0.5	4	252
BQO201		1.30	<0.001	<0.005	<0.001	<0.2	0.75	2	<10	70	<0.5	<2	0.50	<0.5	5	228
BQO202		1.14	<0.001	<0.005	<0.001	<0.2	0.77	<2	<10	90	<0.5	<2	0.62	<0.5	4	220
BQO203		1.24	<0.001	<0.005	<0.001	<0.2	0.80	<2	<10	70	<0.5	<2	0.78	<0.5	2	216
BQO204		0.38	<0.001	<0.005	<0.001	<0.2	1.03	<2	<10	110	<0.5	<2	0.58	<0.5	6	168
BQO205		2.04	<0.001	<0.005	<0.001	<0.2	1.32	<2	<10	50	<0.5	<2	1.28	<0.5	6	273
BQO206		1.42	<0.001	<0.005	<0.001	<0.2	1.16	<2	<10	140	<0.5	2	1.02	<0.5	5	235
BQO207		1.40	<0.001	<0.005	<0.001	0.2	1.26	<2	<10	130	<0.5	<2	1.26	<0.5	5	202
BQO208		1.00	<0.001	<0.005	<0.001	<0.2	1.34	<2	<10	110	<0.5	<2	0.89	<0.5	10	246
BQO209		1.62	<0.001	<0.005	<0.001	<0.2	1.65	<2	<10	30	<0.5	2	1.72	1.1	6	206
BQO210		1.64	0.001	<0.005	<0.001	<0.2	1.38	3	<10	30	<0.5	2	1.62	<0.5	3	242
BQO211		0.34	<0.001	<0.005	<0.001	<0.2	1.03	<2	<10	110	<0.5	<2	0.66	<0.5	7	166
BQO212		0.46	<0.001	<0.005	<0.001	<0.2	1.22	<2	<10	110	<0.5	3	1.17	<0.5	1	235
BQO213		1.40	<0.001	<0.005	<0.001	<0.2	1.44	<2	<10	120	<0.5	3	1.10	<0.5	7	260
BQO214		0.56	0.001	<0.005	<0.001	0.3	1.64	<2	<10	30	<0.5	<2	1.62	1.2	8	232
BQO215		1.66	<0.001	<0.005	<0.001	<0.2	1.29	2	<10	230	<0.5	<2	1.14	<0.5	9	176
BQO216		1.58	<0.001	<0.005	<0.001	<0.2	1.08	<2	<10	170	<0.5	<2	0.90	<0.5	9	159
BQO217		0.86	<0.001	<0.005	<0.001	0.2	1.10	<2	<10	130	<0.5	<2	0.53	<0.5	4	209
BQO218		0.22	0.005	<0.005	<0.001	0.5	1.46	<2	<10	30	<0.5	3	0.39	<0.5	3	251
BQO219		1.34	<0.001	<0.005	<0.001	<0.2	1.06	<2	<10	100	<0.5	<2	0.58	<0.5	3	217
BQO220		1.16	0.002	<0.005	<0.001	0.2	1.22	<2	<10	50	<0.5	2	1.16	<0.5	11	196
BQO221		1.38	<0.001	<0.005	<0.001	<0.2	1.08	<2	<10	140	<0.5	<2	0.74	<0.5	6	196
BQO222		0.34	<0.001	<0.005	0.001	<0.2	1.05	<2	<10	120	<0.5	<2	0.69	<0.5	8	150
BQO223		1.70	<0.001	<0.005	<0.001	<0.2	1.92	<2	<10	1020	<0.5	<2	0.85	<0.5	13	257
BQO224		0.54	<0.001	<0.005	<0.001	0.2	1.07	<2	<10	80	<0.5	<2	0.73	<0.5	42	231
BQO225		1.30	<0.001	<0.005	<0.001	<0.2	1.35	<2	<10	90	<0.5	2	1.26	<0.5	2	270
BQO226		1.10	<0.001	<0.005	0.001	<0.2	2.79	<2	<10	1440	<0.5	<2	0.82	<0.5	21	278
BQO227		1.10	<0.001	<0.005	<0.001	0.2	1.27	3	<10	50	<0.5	<2	1.18	<0.5	3	232
BQO228		1.44	<0.001	0.006	<0.001	<0.2	0.98	<2	<10	60	<0.5	<2	0.84	<0.5	2	243
BQO229		1.34	0.003	<0.005	0.001	0.3	1.72	<2	<10	160	<0.5	<2	1.88	<0.5	16	172
BQO230		0.36	<0.001	<0.005	<0.001	<0.2	1.10	<2	<10	140	<0.5	<2	0.63	<0.5	7	160
BQO231		1.20	<0.001	<0.005	0.001	<0.2	1.19	<2	<10	60	<0.5	<2	2.02	<0.5	14	184
BQO232		1.38	<0.001	<0.005	<0.001	<0.2	0.98	<2	<10	130	<0.5	<2	0.95	<0.5	3	241

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Phone: 604 984 0221 Fax: 604 984 0218

To: BITTERROOT RESOURCES LTD.
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 23-AUG-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052563

Sample Description	Method	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Analyte	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb
	Units	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm
	LOR	1	0.01	10	1	0.01	10	0.01	5	1	0.01	1	10	2	0.01	2
BQO193		32	21.4	<10	1	0.07	10	0.52	3700	2	0.12	21	240	4	1.64	<2
BQO194		21	11.00	<10	<1	0.16	10	0.62	3400	4	0.16	22	340	5	1.02	<2
BQO195		11	9.92	10	<1	0.23	20	0.69	2590	2	0.17	21	430	3	0.85	<2
BQO196		60	15.0	<10	1	0.28	10	1.08	3120	2	0.31	63	310	5	4.36	3
BQO197		5	2.36	10	1	0.68	10	0.77	343	1	0.11	19	400	<2	0.05	<2
BQO198		26	15.2	10	<1	0.41	10	0.84	2980	2	0.21	34	320	3	2.24	<2
BQO199		13	9.56	10	<1	0.53	20	0.71	1985	2	0.14	19	410	<2	0.56	<2
BQO200		14	4.43	10	<1	0.35	20	0.37	814	1	0.10	19	420	<2	0.30	<2
BQO201		7	3.57	<10	<1	0.29	20	0.34	699	4	0.09	21	400	<2	0.13	<2
BQO202		4	3.62	<10	2	0.26	20	0.35	646	2	0.11	12	400	<2	0.02	2
BQO203		3	4.04	<10	2	0.21	20	0.33	805	1	0.12	9	410	<2	0.02	<2
BQO204		4	2.04	<10	<1	0.56	10	0.63	279	1	0.11	12	440	<2	0.03	<2
BQO205		25	7.33	10	<1	0.20	10	0.47	1615	3	0.15	18	340	<2	0.79	<2
BQO206		20	6.96	<10	<1	0.42	10	0.49	1255	2	0.10	18	360	<2	1.72	<2
BQO207		24	8.00	10	2	0.46	10	0.58	1430	3	0.11	21	310	<2	2.25	<2
BQO208		32	9.72	10	<1	0.62	10	0.57	1550	2	0.11	20	380	3	2.73	<2
BQO209		25	14.5	10	1	0.24	10	0.67	3620	4	0.19	18	330	19	2.05	<2
BQO210		24	18.3	10	1	0.17	10	0.69	3380	2	0.17	17	230	5	1.95	<2
BQO211		3	2.58	<10	1	0.51	10	0.62	338	2	0.11	14	430	<2	0.09	<2
BQO212		25	12.15	10	<1	0.32	10	0.58	2230	2	0.10	16	320	<2	1.96	<2
BQO213		23	10.35	10	<1	0.47	10	0.66	2080	4	0.13	19	360	102	2.14	<2
BQO214		35	10.05	10	1	0.27	10	0.73	2250	1	0.17	24	350	65	2.66	<2
BQO215		5	2.45	10	1	0.82	20	0.99	404	2	0.10	26	780	<2	0.07	<2
BQO216		12	2.11	<10	<1	0.75	20	0.89	355	2	0.09	24	910	<2	0.10	<2
BQO217		21	6.95	10	1	0.62	10	0.57	1230	1	0.11	26	340	2	1.73	<2
BQO218		105	16.4	<10	1	0.88	10	0.62	3150	3	0.05	107	370	4	5.08	<2
BQO219		15	6.92	10	<1	0.56	10	0.55	1355	1	0.10	21	330	<2	1.24	<2
BQO220		44	11.00	10	1	0.33	20	0.58	2110	2	0.17	59	350	5	3.71	<2
BQO221		18	6.71	10	1	0.51	20	0.52	1220	1	0.11	31	350	<2	1.65	<2
BQO222		2	2.02	<10	1	0.52	10	0.66	293	2	0.12	16	430	<2	0.04	<2
BQO223		7	3.20	10	2	1.16	20	1.84	586	1	0.12	72	690	<2	0.07	<2
BQO224		22	7.57	<10	1	0.46	20	0.56	1540	1	0.11	44	430	3	2.98	<2
BQO225		16	7.01	10	<1	0.32	30	0.54	3640	3	0.10	18	630	2	0.37	<2
BQO226		2	3.67	10	2	1.94	10	3.03	415	2	0.13	126	650	4	0.02	<2
BQO227		25	9.47	10	1	0.28	20	0.59	2550	1	0.13	32	480	<2	1.07	<2
BQO228		8	6.59	10	1	0.29	20	0.44	1570	2	0.12	18	410	<2	0.27	<2
BQO229		31	5.05	10	<1	0.68	10	1.50	1005	1	0.23	26	1100	4	1.32	<2
BQO230		4	2.09	<10	<1	0.62	10	0.69	306	1	0.11	17	430	<2	0.04	<2
BQO231		43	2.95	<10	1	0.39	10	1.42	706	1	0.22	28	1080	2	0.24	<2
BQO232		11	5.17	10	1	0.47	20	0.53	1275	3	0.12	21	380	<2	0.58	<2

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1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 23-AUG-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052563

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Sc ppm 1	ME-ICP41 Sr ppm 1	ME-ICP41 Ti % 0.01	ME-ICP41 Tl ppm 10	ME-ICP41 U ppm 10	ME-ICP41 V ppm 1	ME-ICP41 W ppm 10	ME-ICP41 Zn ppm 2
BQO193		1	19	0.05	10	<10	19	<10	37
BQO194		1	19	0.05	<10	<10	16	<10	33
BQO195		2	14	0.08	<10	<10	21	<10	44
BQO196		2	15	0.06	<10	<10	17	<10	88
BQO197		3	21	0.21	<10	<10	35	<10	50
BQO198		2	10	0.08	<10	<10	21	<10	76
BQO199		2	8	0.11	<10	<10	22	<10	49
BQO200		2	9	0.12	<10	<10	21	<10	36
BQO201		2	7	0.12	<10	<10	23	<10	80
BQO202		2	7	0.11	<10	<10	23	<10	40
BQO203		2	9	0.09	<10	<10	19	<10	33
BQO204		3	23	0.19	<10	<10	35	<10	43
BQO205		2	8	0.07	10	<10	21	<10	88
BQO206		2	9	0.10	<10	<10	17	<10	73
BQO207		2	11	0.10	<10	<10	18	<10	52
BQO208		2	9	0.11	10	<10	19	<10	40
BQO209		2	24	0.05	10	<10	18	<10	566
BQO210		1	27	0.05	<10	<10	19	<10	66
BQO211		3	20	0.17	<10	<10	34	<10	44
BQO212		2	17	0.07	<10	<10	23	<10	43
BQO213		2	13	0.11	<10	<10	24	<10	149
BQO214		2	9	0.07	<10	<10	18	<10	671
BQO215		3	31	0.18	<10	<10	41	<10	67
BQO216		2	25	0.16	<10	<10	37	<10	49
BQO217		2	9	0.13	<10	<10	23	<10	120
BQO218		4	6	0.15	10	<10	25	<10	170
BQO219		2	8	0.12	<10	<10	22	<10	320
BQO220		2	6	0.08	<10	<10	19	<10	510
BQO221		2	11	0.13	<10	<10	22	<10	581
BQO222		3	20	0.18	<10	<10	33	<10	46
BQO223		4	16	0.25	<10	<10	60	<10	67
BQO224		3	11	0.14	<10	<10	30	<10	376
BQO225		2	20	0.11	<10	<10	23	<10	61
BQO226		6	14	0.29	<10	<10	81	<10	54
BQO227		2	12	0.09	<10	<10	32	<10	72
BQO228		2	14	0.10	<10	<10	27	<10	50
BQO229		8	26	0.17	<10	<10	71	<10	53
BQO230		3	19	0.19	<10	<10	35	<10	44
BQO231		8	21	0.14	<10	<10	64	<10	38
BQO232		3	17	0.13	<10	<10	25	<10	50

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Finalized Date: 23-AUG-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052563

Sample Description	WEI-21	PGM-ICP23	PGM-ICP23	PGM-ICP23	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
Method / Analyte / Units / LOR	Recvd Wt. / kg / 0.02	Au / ppm / 0.001	Pt / ppm / 0.005	Pd / ppm / 0.001	Ag / ppm / 0.2	Al / % / 0.01	As / ppm / 2	B / ppm / 10	Ba / ppm / 10	Be / ppm / 0.5	Bi / ppm / 2	Ca / % / 0.01	Cd / ppm / 0.5	Co / ppm / 1	Cr / ppm / 1
BQO233	1.36	0.003	<0.005	<0.001	0.3	0.93	4	<10	130	<0.5	2	0.93	<0.5	3	195
BQO234	1.40	0.061	<0.005	<0.001	0.3	0.98	<2	<10	150	<0.5	<2	0.83	<0.5	4	211
BQO235	1.32	<0.001	<0.005	<0.001	0.2	0.99	<2	<10	260	<0.5	<2	0.93	<0.5	3	242
BQO236	0.48	<0.001	<0.005	<0.001	<0.2	1.15	<2	<10	120	<0.5	<2	0.66	<0.5	8	174
BQO237	1.40	<0.001	<0.005	<0.001	<0.2	0.91	<2	<10	100	<0.5	2	1.06	<0.5	3	229
BQO238	1.56	<0.001	<0.005	<0.001	0.2	1.10	<2	<10	120	<0.5	<2	0.94	<0.5	3	220
BQO239	0.20	0.008	<0.005	<0.001	1.7	1.62	<2	<10	50	0.6	5	1.97	<0.5	3	223
BQO240	0.44	<0.001	<0.005	<0.001	<0.2	1.18	2	<10	140	<0.5	<2	0.71	<0.5	8	185
BQO241	0.36	0.007	<0.005	0.002	0.2	4.30	2	<10	50	<0.5	<2	0.25	<0.5	10	133
BQO242	0.82	<0.001	<0.005	<0.001	<0.2	1.16	<2	<10	140	<0.5	<2	0.54	<0.5	<1	118
BQO243	1.40	0.001	<0.005	0.001	0.5	3.86	3	<10	70	<0.5	<2	0.29	<0.5	37	602
BQO244	1.44	<0.001	<0.005	0.001	0.2	1.92	<2	<10	270	<0.5	<2	0.77	<0.5	<1	69
BQO245	0.42	<0.001	<0.005	<0.001	<0.2	1.13	<2	<10	150	<0.5	<2	0.69	<0.5	7	190
BQO246	0.32	<0.001	<0.005	<0.001	<0.2	1.01	<2	<10	120	<0.5	<2	0.54	<0.5	7	121
BQO247	1.66	<0.001	<0.005	<0.001	<0.2	1.36	<2	<10	130	<0.5	<2	1.42	<0.5	5	217
BQO248	1.34	<0.001	<0.005	<0.001	<0.2	1.03	<2	<10	90	<0.5	<2	1.06	<0.5	4	231
BQO249	1.40	<0.001	<0.005	<0.001	<0.2	1.36	<2	<10	170	<0.5	<2	0.64	<0.5	3	225
BQO250	1.96	<0.001	<0.005	<0.001	<0.2	1.04	<2	<10	90	<0.5	<2	0.80	<0.5	9	54
BQO251	1.02	<0.001	<0.005	<0.001	<0.2	0.92	<2	<10	150	<0.5	<2	0.53	<0.5	3	42
BQO252	0.74	<0.001	<0.005	<0.001	<0.2	1.28	<2	<10	100	<0.5	<2	0.85	<0.5	2	108
BQO253	0.42	<0.001	<0.005	<0.001	<0.2	1.14	<2	<10	100	<0.5	<2	0.80	<0.5	7	74
BQO254	1.22	<0.001	<0.005	<0.001	<0.2	1.38	<2	<10	70	<0.5	3	1.54	<0.5	10	114
BQO255	1.20	<0.001	<0.005	<0.001	<0.2	1.55	<2	<10	30	<0.5	<2	1.50	<0.5	8	103
BQO256	1.56	<0.001	<0.005	<0.001	<0.2	1.26	<2	<10	40	<0.5	<2	1.10	<0.5	5	135
BQO257	1.50	0.002	<0.005	<0.001	<0.2	1.42	<2	<10	70	<0.5	2	1.07	<0.5	6	100
BQO258	1.44	0.001	<0.005	<0.001	<0.2	1.28	<2	<10	60	<0.5	<2	1.11	<0.5	5	158
BQO259	1.54	<0.001	<0.005	<0.001	<0.2	1.27	<2	<10	100	<0.5	2	0.89	<0.5	5	96
BQO260	1.52	0.001	<0.005	<0.001	<0.2	1.30	<2	<10	120	<0.5	<2	0.64	<0.5	3	108
BQO261	1.74	0.006	<0.005	<0.001	0.2	1.25	<2	<10	30	<0.5	4	0.59	<0.5	12	112
BQO262	0.42	<0.001	<0.005	<0.001	<0.2	1.00	2	<10	100	<0.5	<2	0.62	<0.5	7	112
BQO263	0.88	<0.001	<0.005	<0.001	<0.2	1.46	<2	<10	170	<0.5	<2	0.35	<0.5	4	143
BQO264	1.18	0.006	<0.005	<0.001	0.2	0.65	<2	<10	20	<0.5	4	0.70	<0.5	5	150
BQO265	1.68	0.012	<0.005	<0.001	0.7	0.68	2	<10	30	<0.5	11	0.71	<0.5	49	95
BQO266	0.50	0.019	<0.005	<0.001	0.9	0.40	<2	<10	20	<0.5	12	0.60	<0.5	29	40
BQO267	0.82	0.005	<0.005	<0.001	0.2	1.34	<2	<10	40	<0.5	6	0.80	<0.5	2	75
BQO268	1.62	0.006	<0.005	<0.001	0.6	0.56	5	<10	40	<0.5	6	0.45	<0.5	14	122
BQO269	0.76	<0.001	<0.005	<0.001	<0.2	1.02	<2	<10	110	<0.5	<2	0.82	<0.5	5	95
BQO270	1.56	0.013	<0.005	<0.001	1.0	0.85	<2	<10	50	<0.5	5	0.55	<0.5	5	148
BQO271	0.44	<0.001	<0.005	<0.001	<0.2	1.08	<2	<10	110	<0.5	<2	0.60	<0.5	7	115
BQO272	1.44	0.007	<0.005	0.001	0.3	0.07	<2	<10	10	<0.5	4	0.55	<0.5	7	134

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Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052563

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Cu ppm 1	ME-ICP41 Fe % 0.01	ME-ICP41 Ga ppm 10	ME-ICP41 Hg ppm 1	ME-ICP41 K % 0.01	ME-ICP41 La ppm 10	ME-ICP41 Mg % 0.01	ME-ICP41 Mn ppm 5	ME-ICP41 Mo ppm 1	ME-ICP41 Na % 0.01	ME-ICP41 Ni ppm 1	ME-ICP41 P ppm 10	ME-ICP41 Pb ppm 2	ME-ICP41 S % 0.01	ME-ICP41 Sb ppm 2
BQO233		26	6.53	10	1	0.51	20	0.47	1340	1	0.08	30	380	2	1.44	<2
BQO234		36	6.32	10	<1	0.57	20	0.47	1090	2	0.09	39	380	<2	1.92	2
BQO235		22	4.44	<10	1	0.67	20	0.48	1020	1	0.07	24	340	4	1.04	<2
BQO236		4	2.16	10	<1	0.60	10	0.69	295	2	0.13	19	430	<2	0.04	<2
BQO237		14	5.11	<10	1	0.42	20	0.46	1130	2	0.11	24	340	<2	0.77	<2
BQO238		17	6.07	10	1	0.56	20	0.53	1235	2	0.11	24	360	<2	1.08	<2
BQO239		179	18.1	10	2	0.41	10	1.02	1680	2	0.25	91	210	7	5.04	<2
BQO240		3	2.36	10	1	0.62	10	0.73	319	2	0.14	18	470	<2	0.03	<2
BQO241		112	10.40	20	3	3.68	<10	3.06	975	1	0.08	205	80	2	2.11	3
BQO242		2	1.82	10	<1	0.68	<10	0.65	309	1	0.10	18	190	7	0.05	<2
BQO243		31	8.87	20	2	3.09	<10	2.90	1060	2	0.08	97	210	3	1.85	2
BQO244		2	3.16	10	1	1.12	<10	1.34	500	1	0.12	15	540	<2	0.14	<2
BQO245		4	2.19	10	1	0.62	10	0.71	305	2	0.12	18	460	<2	0.02	<2
BQO246		2	1.84	<10	<1	0.57	10	0.64	237	1	0.10	13	430	<2	0.01	<2
BQO247		10	6.85	10	1	0.60	20	0.58	1730	2	0.10	13	360	<2	1.34	<2
BQO248		9	6.50	10	1	0.43	20	0.43	1435	2	0.07	14	420	<2	1.16	<2
BQO249		6	6.44	10	<1	0.72	20	0.58	1480	1	0.09	13	380	<2	0.57	<2
BQO250		9	6.83	10	<1	0.49	20	0.46	1050	<1	0.07	8	380	<2	1.38	<2
BQO251		5	4.76	<10	<1	0.52	10	0.41	787	1	0.04	4	260	10	0.79	<2
BQO252		6	6.27	10	<1	0.57	20	0.56	1125	1	0.12	11	400	<2	0.69	<2
BQO253		1	2.01	10	<1	0.51	10	0.69	289	1	0.15	15	450	2	0.04	<2
BQO254		29	10.95	10	1	0.41	20	0.53	1565	1	0.15	20	330	<2	3.44	<2
BQO255		22	9.31	10	1	0.33	20	0.59	1700	1	0.18	15	430	<2	2.12	<2
BQO256		15	9.83	10	<1	0.31	10	0.48	1385	1	0.13	13	370	<2	1.47	<2
BQO257		31	10.55	10	2	0.44	20	0.60	1835	2	0.14	17	390	<2	3.30	<2
BQO258		23	11.35	10	<1	0.38	20	0.55	1635	1	0.13	19	400	<2	2.76	<2
BQO259		13	7.91	10	1	0.53	20	0.60	1315	1	0.13	13	380	<2	1.80	<2
BQO260		16	7.59	10	<1	0.79	20	0.74	1310	1	0.10	15	450	<2	2.19	<2
BQO261		48	13.35	<10	<1	0.76	10	0.77	1310	2	0.08	39	350	2	5.70	<2
BQO262		2	1.82	10	1	0.51	10	0.61	260	<1	0.11	14	410	<2	0.04	<2
BQO263		9	5.65	10	2	1.13	20	0.79	1040	2	0.07	43	810	<2	1.37	<2
BQO264		36	8.98	<10	1	0.29	30	0.40	1435	<1	0.04	22	290	<2	4.06	<2
BQO265		124	28.9	<10	<1	0.21	<10	0.49	1045	3	0.09	68	200	13	8.63	<2
BQO266		190	42.9	<10	<1	0.09	<10	0.19	1425	2	0.03	99	160	21	9.06	<2
BQO267		71	16.9	<10	3	0.67	10	0.74	1020	1	0.11	49	470	5	5.74	4
BQO268		102	22.7	<10	1	0.28	10	0.26	720	2	0.02	64	260	8	7.26	<2
BQO269		7	2.30	<10	<1	0.68	10	0.52	408	1	0.09	12	370	<2	0.37	<2
BQO270		164	25.6	<10	2	0.36	10	0.30	3640	4	0.03	68	210	6	8.19	<2
BQO271		3	1.87	<10	<1	0.56	10	0.63	262	<1	0.13	15	410	<2	0.06	<2
BQO272		59	17.4	<10	1	0.01	<10	0.10	970	1	0.01	31	50	2	4.91	<2

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To: BITTERROOT RESOURCES LTD.
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 23-AUG-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052563

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Sc ppm 1	ME-ICP41 Sr ppm 1	ME-ICP41 Ti % 0.01	ME-ICP41 Tl ppm 10	ME-ICP41 U ppm 10	ME-ICP41 V ppm 1	ME-ICP41 W ppm 10	ME-ICP41 Zn ppm 2
BQO233		2	17	0.13	<10	<10	26	<10	51
BQO234		3	25	0.14	<10	<10	26	<10	53
BQO235		2	16	0.14	<10	<10	23	<10	56
BQO236		3	22	0.20	<10	<10	38	<10	45
BQO237		2	11	0.11	<10	<10	20	<10	66
BQO238		3	12	0.13	<10	<10	25	<10	60
BQO239		5	25	0.06	<10	<10	25	<10	76
BQO240		3	23	0.20	<10	<10	38	<10	46
BQO241		8	14	0.60	<10	<10	102	<10	182
BQO242		2	20	0.11	<10	<10	18	<10	43
BQO243		7	14	0.48	<10	<10	86	<10	209
BQO244		3	25	0.18	<10	<10	26	<10	77
BQO245		3	20	0.20	<10	<10	39	<10	53
BQO246		3	18	0.18	<10	<10	33	<10	41
BQO247		2	12	0.13	<10	<10	19	<10	50
BQO248		2	30	0.10	<10	<10	19	<10	41
BQO249		2	8	0.15	<10	<10	27	<10	49
BQO250		1	6	0.11	<10	<10	18	<10	44
BQO251		1	8	0.13	<10	<10	18	<10	104
BQO252		2	7	0.13	<10	<10	22	<10	48
BQO253		3	25	0.19	<10	<10	35	<10	45
BQO254		2	12	0.09	<10	<10	22	<10	45
BQO255		2	8	0.09	<10	<10	19	<10	42
BQO256		2	6	0.08	10	<10	26	<10	42
BQO257		2	9	0.10	<10	<10	19	<10	42
BQO258		2	8	0.10	<10	<10	25	<10	49
BQO259		2	9	0.13	<10	<10	21	<10	49
BQO260		2	7	0.16	<10	<10	24	<10	59
BQO261		3	6	0.16	<10	<10	38	<10	67
BQO262		2	18	0.17	<10	<10	33	<10	40
BQO263		9	8	0.30	<10	<10	118	<10	58
BQO264		1	40	0.09	<10	<10	15	<10	34
BQO265		2	5	0.05	10	<10	17	<10	45
BQO266		1	4	0.03	20	<10	13	<10	16
BQO267		4	16	0.17	<10	<10	50	<10	67
BQO268		2	8	0.07	<10	<10	21	<10	35
BQO269		3	17	0.16	<10	<10	27	<10	110
BQO270		2	7	0.09	10	<10	18	10	72
BQO271		3	22	0.18	<10	<10	34	<10	40
BQO272		<1	12	0.01	<10	<10	6	<10	79

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1080 GORDON AVE
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Finalized Date: 23-AUG-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052563

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-ICP41 Ag ppm 0.2	ME-ICP41 Al % 0.01	ME-ICP41 As ppm 2	ME-ICP41 B ppm 10	ME-ICP41 Ba ppm 10	ME-ICP41 Be ppm 0.5	ME-ICP41 Bi ppm 2	ME-ICP41 Ca % 0.01	ME-ICP41 Cd ppm 0.5	ME-ICP41 Co ppm 1	ME-ICP41 Cr ppm 1
BQO273		0.86	0.045	0.005	0.001	0.2	0.10	<2	<10	10	<0.5	4	0.87	<0.5	1	81
BQO274		1.40	<0.001	<0.005	0.001	0.2	2.65	<2	<10	290	<0.5	<2	0.31	<0.5	21	228
BQO275		1.16	0.004	<0.005	<0.001	0.4	1.03	<2	<10	50	<0.5	<2	0.44	<0.5	16	106
BQO276		0.52	0.001	<0.005	<0.001	<0.2	0.13	<2	<10	10	<0.5	<2	15.6	<0.5	10	50
BQO277		1.28	0.004	<0.005	<0.001	0.7	0.81	<2	<10	30	<0.5	<2	0.42	2.7	20	103
BQO278		0.26	0.001	<0.005	<0.001	0.4	1.02	2	<10	160	<0.5	<2	0.87	<0.5	7	91
BQO279		0.86	0.004	<0.005	0.001	0.6	1.70	<2	10	60	<0.5	3	0.57	<0.5	22	93
BQO280		0.40	0.001	<0.005	<0.001	<0.2	1.06	<2	<10	130	<0.5	<2	0.53	<0.5	8	82
BQO281		1.44	0.001	<0.005	0.001	<0.2	2.19	<2	<10	310	<0.5	<2	0.22	<0.5	16	214
BQO282		1.62	0.009	<0.005	<0.001	0.3	1.78	<2	<10	90	<0.5	2	0.49	<0.5	17	128
BQO283		1.18	0.001	<0.005	<0.001	<0.2	0.52	<2	<10	60	<0.5	<2	0.29	<0.5	7	100
BQO284		1.54	0.006	<0.005	<0.001	0.3	1.44	<2	<10	90	<0.5	2	1.68	<0.5	16	114
BQO285		1.22	0.029	0.009	0.002	0.8	0.20	<2	<10	<10	<0.5	8	0.64	<0.5	21	55
BQO286		1.56	0.016	<0.005	0.001	0.3	0.09	<2	<10	<10	<0.5	5	0.45	<0.5	10	72
BQO287		1.76	0.059	<0.005	0.001	0.4	0.21	<2	<10	<10	<0.5	6	0.38	<0.5	16	44
BQO288		1.48	0.004	<0.005	0.001	0.2	1.27	<2	<10	100	<0.5	<2	1.26	<0.5	7	100
BQO289		1.44	0.010	<0.005	<0.001	0.2	1.25	<2	<10	70	<0.5	2	1.52	<0.5	11	65
BQO290		1.52	0.012	<0.005	<0.001	0.3	1.24	<2	<10	70	<0.5	3	1.64	<0.5	22	99
BQO291		0.32	0.001	<0.005	<0.001	<0.2	1.08	<2	<10	130	<0.5	<2	0.55	<0.5	8	72
BQO292		1.02	0.007	<0.005	0.001	0.5	1.16	<2	<10	70	<0.5	<2	1.08	<0.5	19	115

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Finalized Date: 23-AUG-2004
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Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052563

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Cu ppm 1	ME-ICP41 Fe % 0.01	ME-ICP41 Ga ppm 10	ME-ICP41 Hg ppm 1	ME-ICP41 K % 0.01	ME-ICP41 La ppm 10	ME-ICP41 Mg % 0.01	ME-ICP41 Mn ppm 5	ME-ICP41 Mo ppm 1	ME-ICP41 Na % 0.01	ME-ICP41 Ni ppm 1	ME-ICP41 P ppm 10	ME-ICP41 Pb ppm 2	ME-ICP41 S % 0.01	ME-ICP41 Sb ppm 2
BQO273		95	26.5	<10	1	<0.01	10	0.11	1405	1	0.01	32	120	12	5.03	<2
BQO274		43	3.78	10	<1	1.54	20	1.70	299	3	0.06	78	500	<2	0.41	<2
BQO275		67	4.96	10	<1	0.40	10	0.63	231	3	0.06	42	370	3	2.76	<2
BQO276		18	2.67	<10	<1	0.08	10	0.16	1155	2	0.02	25	130	9	1.85	<2
BQO277		74	5.10	<10	<1	0.20	10	0.40	164	3	0.06	49	210	6	3.24	<2
BQO278		40	2.16	<10	<1	0.44	10	1.06	401	1	0.06	23	1060	4	0.98	<2
BQO279		110	7.33	10	1	0.36	10	0.86	244	3	0.04	66	590	12	4.72	<2
BQO280		2	1.76	10	<1	0.58	10	0.66	278	1	0.10	12	430	<2	0.03	<2
BQO281		36	3.56	10	2	1.42	10	1.34	227	5	0.08	65	400	<2	0.74	<2
BQO282		46	5.52	10	2	0.88	10	1.04	573	3	0.12	24	420	6	2.64	<2
BQO283		78	2.44	<10	1	0.36	20	0.18	128	2	0.06	16	50	5	1.06	<2
BQO284		79	11.50	<10	1	0.60	10	0.66	1215	1	0.13	57	640	3	4.18	<2
BQO285		298	40.2	<10	<1	0.01	10	0.09	698	3	0.02	132	90	25	6.12	<2
BQO286		102	21.8	<10	1	0.01	<10	0.18	586	1	0.03	43	90	2	4.27	<2
BQO287		147	29.9	<10	<1	0.03	<10	0.17	866	1	0.03	59	100	4	5.49	<2
BQO288		56	12.20	<10	1	0.37	10	0.53	2300	1	0.14	36	500	<2	3.85	<2
BQO289		61	12.35	<10	2	0.38	20	0.49	1640	1	0.14	32	450	<2	3.64	<2
BQO290		97	17.4	<10	1	0.49	10	0.52	1735	1	0.12	49	390	3	5.47	<2
BQO291		5	2.05	<10	<1	0.59	10	0.67	280	1	0.11	14	420	<2	0.11	<2
BQO292		123	23.3	<10	<1	0.37	10	0.50	1555	<1	0.11	65	330	2	6.85	<2

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CERTIFICATE OF ANALYSIS VA04052563

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Sc ppm 1	ME-ICP41 Sr ppm 1	ME-ICP41 Ti % 0.01	ME-ICP41 Tl ppm 10	ME-ICP41 U ppm 10	ME-ICP41 V ppm 1	ME-ICP41 W ppm 10	ME-ICP41 Zn ppm 2
BQO273		<1	13	0.02	10	<10	14	<10	204
BQO274		8	10	0.30	<10	<10	97	<10	116
BQO275		5	14	0.05	<10	<10	32	<10	219
BQO276		2	409	0.01	<10	<10	3	<10	114
BQO277		3	11	0.01	<10	<10	25	<10	802
BQO278		5	12	0.10	<10	<10	39	<10	99
BQO279		3	76	0.02	<10	<10	30	<10	124
BQO280		3	19	0.18	<10	<10	35	<10	42
BQO281		7	22	0.26	<10	<10	86	<10	103
BQO282		6	53	0.22	<10	<10	50	<10	106
BQO283		1	10	0.06	<10	20	16	<10	22
BQO284		7	16	0.20	10	<10	65	<10	121
BQO285		1	17	0.01	10	<10	13	<10	36
BQO286		<1	13	0.01	10	<10	8	<10	184
BQO287		1	11	0.02	<10	<10	13	<10	259
BQO288		2	11	0.11	10	<10	25	<10	122
BQO289		2	13	0.10	<10	<10	23	<10	162
BQO290		2	13	0.11	<10	<10	23	<10	174
BQO291		3	20	0.19	<10	<10	35	<10	44
BQO292		1	6	0.08	<10	<10	21	<10	163

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Finalized Da[illegible]3-AUG-2004
Account: LJD

CERTIFICATE VA04052564

Project: Mistassinai
P.O. No.:
This report is for 139 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 9-AUG-2004.

The following have access to data associated with this certificate:

MICHAEL CARR	CHARLES GREIG	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-31	Pulverize split to 85% <75 um
SPL-21	Split sample - riffle splitter
CRU-31	Fine crushing - 70% <2mm
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP41	34 Element Aqua Regia ICP-AES	ICP-AES
PGM-ICP23	Pt, Pd, Au 30g FA ICP	ICP-AES

To: **BITTERROOT RESOURCES LTD.**
ATTN: MICHAEL CARR
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This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

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CERTIFICATE OF ANALYSIS VA04052564

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-ICP41 Ag ppm 0.2	ME-ICP41 Al % 0.01	ME-ICP41 As ppm 2	ME-ICP41 B ppm 10	ME-ICP41 Ba ppm 10	ME-ICP41 Be ppm 0.5	ME-ICP41 Bi ppm 2	ME-ICP41 Ca % 0.01	ME-ICP41 Cd ppm 0.5	ME-ICP41 Co ppm 1	ME-ICP41 Cr ppm 1
BQO293		0.78	0.092	<0.005	<0.001	0.7	0.66	5	<10	20	<0.5	3	0.70	<0.5	41	66
BQO294		1.22	0.011	<0.005	0.001	0.5	1.38	2	<10	80	<0.5	<2	0.96	<0.5	14	96
BQO295		0.78	0.005	<0.005	<0.001	<0.2	1.27	3	<10	140	<0.5	<2	0.81	<0.5	7	78
BQO296		1.40	0.012	<0.005	<0.001	<0.2	1.28	5	<10	130	<0.5	<2	0.89	<0.5	7	126
BQO297		0.58	0.018	<0.005	0.001	0.3	2.64	2	<10	30	0.7	<2	1.15	<0.5	9	176
BQO298		1.24	0.007	<0.005	<0.001	<0.2	1.59	<2	<10	140	0.6	<2	1.22	<0.5	5	177
BQO299		1.44	0.018	<0.005	<0.001	<0.2	1.04	<2	<10	100	<0.5	<2	0.69	<0.5	12	97
BQO300		0.36	<0.001	<0.005	<0.001	<0.2	1.20	<2	<10	90	<0.5	<2	0.98	<0.5	8	126
BQO301		1.28	0.018	<0.005	<0.001	<0.2	1.17	3	<10	60	<0.5	<2	0.51	<0.5	12	95
BQO302		1.38	0.100	0.006	<0.001	0.2	1.18	2	<10	50	<0.5	<2	0.86	<0.5	10	136
BQO303		1.24	0.014	0.005	0.001	0.2	1.32	3	<10	50	<0.5	<2	0.26	<0.5	19	118
BQO304		2.00	0.007	<0.005	<0.001	<0.2	1.12	2	<10	210	<0.5	<2	0.43	<0.5	6	199
BQO305		0.54	0.006	<0.005	<0.001	<0.2	0.63	2	<10	80	<0.5	<2	0.24	<0.5	2	122
BQO306		0.50	0.012	0.006	0.001	0.7	0.74	3	<10	20	<0.5	<2	0.82	<0.5	139	136
BQO307		1.16	0.019	<0.005	<0.001	0.2	0.99	6	<10	80	<0.5	<2	1.78	<0.5	16	116
BQO308		1.96	0.003	0.005	0.001	1.3	0.20	4	<10	20	<0.5	6	0.76	<0.5	115	63
BQO309		0.36	<0.001	0.012	0.001	<0.2	1.20	2	<10	110	<0.5	<2	0.70	<0.5	9	119
BQO310		1.24	0.003	<0.005	0.001	0.2	0.08	5	<10	10	<0.5	<2	0.58	<0.5	2	88
BQO311		1.22	0.012	0.007	0.001	0.8	0.29	7	<10	30	<0.5	2	0.75	<0.5	26	61
BQO312		1.40	0.010	<0.005	<0.001	0.4	1.40	4	<10	70	0.5	<2	1.21	<0.5	3	104
BQO313		0.92	<0.001	<0.005	<0.001	<0.2	1.41	3	<10	210	0.6	<2	1.32	<0.5	7	98
BQO314		1.48	0.001	<0.005	<0.001	0.3	1.51	2	<10	180	0.6	<2	1.40	<0.5	7	106
BQO315		1.58	<0.001	<0.005	<0.001	<0.2	1.47	<2	<10	160	<0.5	<2	1.24	<0.5	7	158
BQO316		1.26	0.002	<0.005	0.001	0.2	1.77	3	<10	150	<0.5	<2	1.31	<0.5	6	97
BQO317		1.28	0.002	<0.005	<0.001	<0.2	1.53	<2	<10	120	<0.5	<2	1.22	<0.5	7	131
BQO318		0.42	<0.001	<0.005	<0.001	<0.2	1.09	<2	<10	100	<0.5	<2	0.60	<0.5	8	104
BQO319		0.26	0.005	0.005	0.001	0.5	0.50	2	<10	30	0.6	<2	0.64	<0.5	32	94
BQO320		2.52	0.003	<0.005	<0.001	0.2	1.33	2	<10	100	<0.5	<2	1.68	<0.5	7	112
BQO321		1.46	0.002	<0.005	<0.001	<0.2	1.45	4	<10	30	<0.5	<2	1.66	<0.5	14	112
BQO322		1.34	0.002	<0.005	<0.001	<0.2	1.40	<2	<10	90	<0.5	<2	1.17	<0.5	3	109
BQO323		0.62	0.016	0.007	0.001	0.9	1.04	10	<10	20	<0.5	<2	1.12	<0.5	67	68
BQO324		1.38	0.001	<0.005	<0.001	<0.2	1.19	3	<10	90	<0.5	<2	1.48	<0.5	4	114
BQO325		1.22	0.002	<0.005	<0.001	<0.2	1.20	<2	<10	80	<0.5	<2	1.25	<0.5	3	136
BQO326		1.36	0.004	<0.005	<0.001	0.2	1.21	<2	<10	70	<0.5	<2	1.10	<0.5	21	124
BQO327		0.44	0.004	0.008	0.001	0.9	0.45	8	<10	20	<0.5	5	0.75	<0.5	143	78
BQO328		1.40	<0.001	<0.005	<0.001	<0.2	1.19	<2	<10	130	<0.5	<2	1.16	<0.5	5	144
BQO329		0.28	<0.001	<0.005	<0.001	<0.2	1.07	<2	<10	100	<0.5	<2	0.59	<0.5	8	138
BQO330		1.28	0.016	<0.005	0.001	0.2	1.42	2	<10	70	<0.5	<2	1.25	<0.5	7	113
BQO331		0.80	0.013	0.007	0.002	0.8	0.68	<2	<10	10	<0.5	3	0.36	<0.5	103	68
BQO332		1.44	0.004	<0.005	<0.001	<0.2	1.18	<2	<10	70	<0.5	<2	0.91	<0.5	10	114

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1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 23-AUG-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052564

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Cu ppm 1	ME-ICP41 Fe % 0.01	ME-ICP41 Ga ppm 10	ME-ICP41 Hg ppm 1	ME-ICP41 K % 0.01	ME-ICP41 La ppm 10	ME-ICP41 Mg % 0.01	ME-ICP41 Mn ppm 5	ME-ICP41 Mo ppm 1	ME-ICP41 Na % 0.01	ME-ICP41 Ni ppm 1	ME-ICP41 P ppm 10	ME-ICP41 Pb ppm 2	ME-ICP41 S % 0.01	ME-ICP41 Sb ppm 2
BQO293		205	33.9	<10	<1	0.13	10	0.23	1185	1	0.06	96	230	3	8.58	<2
BQO294		119	20.8	<10	<1	0.52	10	0.57	1795	<1	0.12	51	400	<2	5.50	<2
BQO295		24	8.27	10	<1	0.58	10	0.57	1275	1	0.09	15	540	<2	1.92	<2
BQO296		22	8.61	10	1	0.50	10	0.67	1810	<1	0.14	14	450	2	1.78	<2
BQO297		104	17.7	10	<1	1.73	30	1.79	1645	5	0.13	41	1390	2	5.36	<2
BQO298		29	7.48	10	<1	0.66	20	0.95	1605	3	0.18	21	820	3	2.08	<2
BQO299		36	10.95	10	1	0.44	10	0.53	1620	1	0.10	18	430	<2	3.09	<2
BQO300		1	1.98	10	<1	0.42	10	0.71	271	<1	0.12	12	420	<2	0.03	<2
BQO301		42	11.65	10	<1	0.64	10	0.62	1495	1	0.08	20	440	<2	3.16	<2
BQO302		60	13.75	10	<1	0.49	10	0.61	1690	<1	0.12	28	410	3	4.30	<2
BQO303		38	11.15	10	<1	0.88	10	0.71	1300	1	0.06	20	440	2	3.65	<2
BQO304		13	5.19	10	<1	0.82	10	0.60	882	2	0.08	14	480	2	1.19	<2
BQO305		7	1.74	<10	<1	0.39	<10	0.34	245	1	0.06	8	190	3	0.47	<2
BQO306		102	25.9	<10	<1	0.36	<10	0.43	654	4	0.07	57	290	<2	>10.0	<2
BQO307		37	7.55	<10	<1	0.35	10	0.63	947	3	0.12	34	700	4	3.55	<2
BQO308		313	>50	<10	<1	0.08	<10	0.12	1620	<1	0.01	90	40	2	>10.0	<2
BQO309		3	2.00	10	<1	0.53	10	0.71	297	1	0.13	15	440	<2	0.05	<2
BQO310		42	23.0	<10	<1	<0.01	<10	0.16	2770	<1	0.01	13	90	<2	2.86	<2
BQO311		126	36.3	<10	<1	0.06	<10	0.28	2200	<1	0.04	40	150	<2	7.52	<2
BQO312		63	14.25	<10	<1	0.52	20	0.68	4580	1	0.09	26	460	3	4.83	<2
BQO313		16	4.71	10	<1	0.63	20	0.67	1140	2	0.12	21	720	4	0.56	<2
BQO314		24	5.53	10	<1	0.55	20	1.08	1175	1	0.08	20	1060	3	1.14	<2
BQO315		12	5.99	10	<1	0.75	10	0.61	1285	1	0.09	14	540	2	1.03	<2
BQO316		22	6.04	10	<1	0.66	20	1.06	997	2	0.06	16	470	11	1.88	<2
BQO317		13	4.64	10	1	0.64	10	0.75	1155	1	0.09	12	540	4	1.06	<2
BQO318		7	1.71	<10	<1	0.53	10	0.64	252	1	0.13	12	430	5	0.01	<2
BQO319		90	18.6	<10	<1	0.11	30	0.11	245	7	0.07	63	80	9	6.74	<2
BQO320		25	10.65	10	<1	0.67	10	0.70	1980	<1	0.10	18	490	2	3.67	<2
BQO321		21	12.55	10	<1	0.69	10	0.82	2630	2	0.12	17	410	<2	5.85	<2
BQO322		25	7.38	10	<1	0.83	20	0.85	1860	1	0.10	15	440	5	3.15	<2
BQO323		131	42.0	<10	<1	0.62	10	0.44	1180	3	0.05	89	190	4	>10.0	<2
BQO324		10	8.02	10	<1	0.64	20	0.60	1960	<1	0.09	10	370	2	1.78	<2
BQO325		15	9.22	10	<1	0.59	20	0.57	1810	<1	0.09	11	340	<2	2.09	<2
BQO326		29	13.20	10	<1	0.68	20	0.55	1630	1	0.09	24	310	<2	5.87	<2
BQO327		156	49.7	<10	<1	0.23	<10	0.17	608	2	0.02	76	100	<2	>10.0	<2
BQO328		17	6.78	10	<1	0.75	20	0.44	1465	2	0.07	18	400	4	2.06	<2
BQO329		3	1.87	<10	<1	0.55	10	0.65	252	<1	0.11	14	430	<2	0.09	<2
BQO330		30	12.65	<10	<1	0.68	20	0.76	2680	4	0.12	22	290	5	5.73	<2
BQO331		97	41.6	<10	<1	0.45	<10	0.28	757	2	0.03	61	110	4	>10.0	<2
BQO332		17	7.87	<10	<1	0.73	20	0.71	2020	1	0.10	12	340	6	4.20	<2

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1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 23-AUG-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052564

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Sc ppm 1	ME-ICP41 Sr ppm 1	ME-ICP41 Ti % 0.01	ME-ICP41 Tl ppm 10	ME-ICP41 U ppm 10	ME-ICP41 V ppm 1	ME-ICP41 W ppm 10	ME-ICP41 Zn ppm 2
BQO293		1	8	0.04	<10	<10	22	10	148
BQO294		2	7	0.12	<10	<10	29	<10	189
BQO295		2	6	0.15	<10	<10	30	<10	112
BQO296		3	6	0.15	<10	<10	30	<10	63
BQO297		5	12	0.30	<10	<10	58	<10	126
BQO298		4	20	0.17	<10	<10	36	<10	70
BQO299		2	5	0.13	<10	<10	30	<10	59
BQO300		2	29	0.15	<10	<10	33	<10	41
BQO301		2	5	0.15	<10	<10	31	<10	63
BQO302		2	6	0.13	<10	<10	32	<10	66
BQO303		3	5	0.19	<10	<10	34	<10	76
BQO304		4	8	0.20	<10	<10	32	<10	72
BQO305		1	9	0.09	<10	<10	14	<10	27
BQO306		3	9	0.10	<10	<10	27	<10	36
BQO307		5	17	0.22	<10	<10	56	<10	45
BQO308		<1	13	0.02	<10	<10	12	<10	88
BQO309		3	29	0.19	<10	<10	37	<10	44
BQO310		<1	18	0.01	<10	<10	8	<10	196
BQO311		<1	17	0.03	<10	<10	15	<10	254
BQO312		1	11	0.11	<10	<10	22	<10	176
BQO313		4	65	0.19	<10	<10	44	<10	59
BQO314		3	68	0.16	<10	<10	31	<10	55
BQO315		3	17	0.19	<10	<10	34	<10	66
BQO316		3	94	0.15	<10	<10	31	<10	240
BQO317		3	45	0.17	<10	<10	32	<10	57
BQO318		3	27	0.18	<10	<10	34	<10	50
BQO319		<1	115	0.01	<10	<10	9	<10	32
BQO320		3	17	0.15	<10	<10	32	<10	91
BQO321		2	20	0.14	<10	<10	27	<10	119
BQO322		2	19	0.15	<10	<10	19	<10	104
BQO323		2	17	0.08	<10	<10	20	<10	70
BQO324		3	17	0.13	<10	<10	24	<10	101
BQO325		3	13	0.12	<10	<10	25	<10	93
BQO326		2	14	0.12	<10	<10	16	<10	123
BQO327		1	7	0.02	<10	<10	12	<10	20
BQO328		3	14	0.14	<10	<10	18	<10	64
BQO329		3	22	0.18	<10	<10	34	<10	43
BQO330		2	15	0.10	<10	<10	15	<10	99
BQO331		1	6	0.05	<10	<10	12	<10	51
BQO332		2	17	0.12	<10	<10	16	<10	93

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CERTIFICATE OF ANALYSIS VA04052564

Sample Description	Method Analyte Units LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-ICP41 Ag ppm 0.2	ME-ICP41 Al % 0.01	ME-ICP41 As ppm 2	ME-ICP41 B ppm 10	ME-ICP41 Ba ppm 10	ME-ICP41 Be ppm 0.5	ME-ICP41 Bi ppm 2	ME-ICP41 Ca % 0.01	ME-ICP41 Cd ppm 0.5	ME-ICP41 Co ppm 1	ME-ICP41 Cr ppm 1
BQO333		1.36	0.005	<0.005	<0.001	<0.2	1.25	2	<10	70	<0.5	<2	1.08	<0.5	5	88
BQO334		1.80	0.018	<0.005	0.001	0.6	0.40	<2	<10	20	<0.5	3	0.70	<0.5	58	92
BQO335		1.04	0.025	<0.005	0.001	0.6	0.63	<2	<10	40	<0.5	4	0.76	<0.5	36	63
BQO336		1.04	0.006	<0.005	<0.001	<0.2	1.01	<2	<10	80	0.9	<2	0.83	<0.5	5	108
BQO337		1.52	0.032	0.005	0.001	0.6	0.41	<2	<10	20	<0.5	4	0.55	<0.5	129	62
BQO338		1.28	0.013	<0.005	<0.001	0.5	1.10	4	<10	70	<0.5	<2	0.39	<0.5	15	90
BQO339		1.44	0.009	0.007	<0.001	0.5	1.12	3	<10	60	<0.5	<2	0.68	<0.5	25	113
BQO340		0.38	<0.001	<0.005	<0.001	<0.2	1.25	5	<10	120	<0.5	<2	0.53	<0.5	8	116
BQO341		0.80	0.001	<0.005	<0.001	<0.2	0.81	<2	<10	40	<0.5	<2	0.56	<0.5	6	112
BQO342		0.12	0.007	<0.005	0.001	2.0	1.84	5	<10	60	<0.5	<2	2.30	<0.5	5	128
BQO343		0.84	<0.001	<0.005	<0.001	0.2	1.12	3	<10	110	<0.5	<2	1.03	3.2	9	126
BQO344		0.24	0.005	0.006	<0.001	1.0	1.01	<2	<10	80	<0.5	<2	0.94	<0.5	64	81
BQO345		1.28	0.001	<0.005	<0.001	0.3	1.02	4	<10	100	<0.5	<2	1.31	<0.5	13	108
BQO346		0.80	0.001	<0.005	<0.001	0.2	1.27	6	<10	190	<0.5	<2	1.22	<0.5	10	154
BQO347		0.22	0.002	0.011	0.001	1.7	0.50	3	<10	50	<0.5	<2	0.85	<0.5	16	60
BQO348		0.74	0.001	<0.005	0.001	<0.2	0.96	<2	<10	100	<0.5	<2	1.00	<0.5	12	140
BQO349		1.78	0.001	0.008	0.006	<0.2	1.33	<2	<10	190	<0.5	<2	1.20	<0.5	14	118
BQO350		1.84	0.001	<0.005	<0.001	0.2	1.15	2	<10	130	<0.5	<2	1.04	<0.5	16	89
BQO351		1.38	0.001	<0.005	0.002	<0.2	2.64	5	<10	280	<0.5	<2	0.22	<0.5	21	225
BQO352		0.54	0.048	<0.005	0.002	1.4	0.41	2	<10	40	<0.5	4	0.29	<0.5	30	33
BQO353		1.40	0.007	<0.005	0.001	0.2	1.21	<2	<10	70	<0.5	<2	1.50	<0.5	7	90
BQO354		1.42	0.002	<0.005	0.001	0.3	1.25	6	<10	40	<0.5	<2	1.92	<0.5	5	77
BQO355		1.78	0.003	<0.005	<0.001	0.4	1.80	6	<10	40	<0.5	<2	1.94	<0.5	10	78
BQO356		0.42	<0.001	<0.005	<0.001	<0.2	1.16	3	<10	120	<0.5	<2	0.58	<0.5	7	76
BQO357		1.58	<0.001	<0.005	<0.001	<0.2	1.09	4	<10	120	<0.5	<2	1.24	<0.5	5	100
BQO358		0.20	0.014	0.006	<0.001	1.4	0.78	<2	<10	40	<0.5	3	1.06	<0.5	4	66
BQO359		1.04	0.001	<0.005	<0.001	0.3	0.95	5	<10	100	<0.5	2	1.10	<0.5	19	83
BQO360		1.18	0.003	<0.005	0.001	0.3	1.20	6	<10	70	<0.5	<2	1.05	<0.5	56	104
BQO361		1.48	0.007	<0.005	0.001	0.6	1.13	2	<10	40	<0.5	<2	1.04	<0.5	31	100
BQO362		1.40	0.003	<0.005	<0.001	<0.2	1.20	2	<10	110	<0.5	<2	0.50	<0.5	5	98
BQO363		1.36	0.007	<0.005	<0.001	<0.2	1.40	4	<10	50	<0.5	<2	0.37	<0.5	6	105
BQO364		1.38	0.009	<0.005	0.001	0.3	1.27	9	<10	30	<0.5	2	0.30	<0.5	5	134
BQO365		0.28	<0.001	<0.005	<0.001	<0.2	1.08	2	<10	130	<0.5	<2	0.60	<0.5	8	101
BQO366		0.86	0.008	<0.005	<0.001	0.3	1.27	<2	<10	20	<0.5	<2	0.75	<0.5	18	153
BQO367		1.04	0.008	<0.005	0.001	0.4	1.15	3	<10	30	<0.5	<2	0.90	<0.5	9	133
BQO368		1.22	0.032	<0.005	<0.001	1.1	0.07	3	<10	10	<0.5	13	0.98	<0.5	178	64
BQO369		1.92	0.006	<0.005	<0.001	1.5	0.42	<2	<10	50	<0.5	9	0.38	<0.5	5	51
BQO370		0.98	0.016	<0.005	<0.001	1.3	0.73	5	<10	60	<0.5	13	0.17	<0.5	<1	24
BQO371		1.18	0.084	<0.005	<0.001	0.7	1.46	2	<10	10	<0.5	7	0.63	<0.5	17	120
BQO372		0.78	0.005	<0.005	<0.001	0.2	1.32	<2	<10	50	<0.5	<2	0.51	<0.5	<1	90

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To: BITTERROOT RESOURCES LTD.
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 23-AUG-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052564

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Cu ppm 1	ME-ICP41 Fe % 0.01	ME-ICP41 Ga ppm 10	ME-ICP41 Hg ppm 1	ME-ICP41 K % 0.01	ME-ICP41 La ppm 10	ME-ICP41 Mg % 0.01	ME-ICP41 Mn ppm 5	ME-ICP41 Mo ppm 1	ME-ICP41 Na % 0.01	ME-ICP41 Ni ppm 1	ME-ICP41 P ppm 10	ME-ICP41 Pb ppm 2	ME-ICP41 S % 0.01	ME-ICP41 Sb ppm 2
BQO333		18	8.38	<10	<1	0.81	20	0.72	2760	1	0.07	13	400	3	3.80	<2
BQO334		91	36.6	<10	1	0.20	<10	0.29	1465	1	0.03	52	60	<2	>10.0	<2
BQO335		116	36.5	<10	<1	0.28	<10	0.27	3150	1	0.02	61	170	6	>10.0	<2
BQO336		37	12.30	<10	<1	0.47	10	0.46	2960	<1	0.10	27	340	7	5.16	<2
BQO337		112	44.8	<10	<1	0.17	<10	0.22	1450	<1	0.04	52	90	<2	>10.0	<2
BQO338		91	25.2	<10	1	0.80	10	0.56	471	1	0.07	59	600	<2	7.03	<2
BQO339		52	13.95	<10	<1	0.71	10	0.59	596	1	0.07	36	620	2	7.02	<2
BQO340		3	2.02	<10	<1	0.68	10	0.72	323	1	0.14	14	430	<2	0.04	<2
BQO341		18	2.26	<10	<1	0.50	20	0.39	490	1	0.07	10	590	<2	0.84	<2
BQO342		56	11.80	10	<1	0.58	10	0.82	2000	1	0.26	29	670	2	5.24	<2
BQO343		65	3.22	<10	<1	0.68	20	0.38	449	3	0.08	18	540	20	0.88	<2
BQO344		759	19.6	<10	<1	0.65	10	0.33	421	3	0.05	146	470	23	5.90	<2
BQO345		143	3.96	<10	<1	0.55	20	0.34	420	3	0.08	22	560	17	1.50	<2
BQO346		95	3.96	<10	<1	0.78	20	0.41	698	2	0.10	19	550	5	0.96	<2
BQO347		519	27.9	<10	<1	0.24	30	0.12	402	2	0.05	209	220	<2	4.87	<2
BQO348		44	3.81	<10	<1	0.60	20	0.28	515	2	0.10	27	540	2	1.32	<2
BQO349		39	4.47	10	<1	0.78	10	0.49	699	1	0.08	22	470	3	1.14	<2
BQO350		51	4.89	<10	1	0.66	10	0.43	562	2	0.07	30	470	<2	1.57	<2
BQO351		50	4.48	10	<1	1.84	20	1.38	759	2	0.07	75	510	5	0.94	<2
BQO352		232	43.5	<10	<1	0.24	<10	0.20	559	1	0.02	84	90	5	7.16	<2
BQO353		35	8.51	<10	<1	0.46	20	0.74	1675	<1	0.13	15	390	4	4.99	<2
BQO354		40	8.76	<10	1	0.42	20	0.59	1765	1	0.10	14	390	14	5.13	<2
BQO355		46	18.7	10	<1	0.30	20	0.63	2690	1	0.17	11	410	16	4.26	<2
BQO356		3	1.88	<10	<1	0.59	10	0.67	290	<1	0.15	11	420	2	0.05	<2
BQO357		18	8.81	10	<1	0.32	20	0.43	1575	1	0.10	8	350	23	2.28	<2
BQO358		657	29.3	<10	<1	0.26	10	0.34	436	3	0.09	77	230	<2	5.98	<2
BQO359		51	5.68	<10	<1	0.56	20	0.33	571	2	0.06	23	410	3	2.52	<2
BQO360		46	8.67	<10	<1	0.69	10	0.43	1010	1	0.07	22	360	2	4.18	<2
BQO361		128	12.50	<10	<1	0.68	20	0.42	1155	2	0.07	39	540	3	4.47	<2
BQO362		16	6.13	10	<1	0.72	20	0.56	790	1	0.09	13	420	3	1.77	<2
BQO363		33	8.10	<10	<1	0.98	20	0.68	823	1	0.08	17	410	<2	3.46	<2
BQO364		35	8.48	10	<1	0.88	20	0.78	1120	<1	0.07	21	410	<2	3.60	<2
BQO365		2	1.87	<10	1	0.57	10	0.66	247	<1	0.15	13	420	<2	0.03	<2
BQO366		41	11.05	<10	<1	0.78	20	0.82	1675	<1	0.07	28	380	11	5.68	<2
BQO367		39	11.95	<10	3	0.44	10	0.69	3130	1	0.07	32	360	7	4.88	<2
BQO368		142	39.4	<10	2	0.01	10	0.08	341	3	0.01	65	100	38	>10.0	<2
BQO369		218	46.5	<10	2	0.22	<10	0.30	1030	2	0.03	124	100	57	5.10	<2
BQO370		322	>50	<10	2	0.59	<10	0.58	502	26	0.02	140	60	57	4.54	<2
BQO371		81	19.8	<10	1	0.79	10	0.97	3420	10	0.07	45	240	21	7.08	2
BQO372		27	7.38	10	1	0.81	10	0.94	936	3	0.08	16	400	5	2.11	4

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Finalized Date: 23-AUG-2004
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Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052564

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Sc ppm 1	ME-ICP41 Sr ppm 1	ME-ICP41 Ti % 0.01	ME-ICP41 Tl ppm 10	ME-ICP41 U ppm 10	ME-ICP41 V ppm 1	ME-ICP41 W ppm 10	ME-ICP41 Zn ppm 2
BQO333		1	22	0.13	<10	<10	17	<10	107
BQO334		<1	11	0.03	<10	<10	14	<10	72
BQO335		1	11	0.05	<10	<10	18	<10	72
BQO336		1	20	0.11	<10	<10	12	<10	97
BQO337		1	14	0.04	<10	<10	22	<10	75
BQO338		8	9	0.23	<10	<10	66	<10	83
BQO339		7	16	0.20	<10	<10	60	<10	78
BQO340		3	27	0.20	<10	<10	38	<10	47
BQO341		3	10	0.15	<10	<10	36	<10	58
BQO342		9	48	0.25	<10	<10	86	<10	113
BQO343		3	12	0.17	<10	<10	33	<10	1585
BQO344		3	9	0.15	<10	<10	30	<10	286
BQO345		3	16	0.14	<10	<10	28	<10	286
BQO346		4	17	0.20	<10	<10	36	<10	186
BQO347		2	18	0.06	<10	<10	16	<10	137
BQO348		4	15	0.16	<10	<10	32	<10	135
BQO349		3	13	0.18	<10	<10	32	<10	75
BQO350		3	12	0.16	<10	<10	29	<10	68
BQO351		10	14	0.30	<10	<10	99	<10	110
BQO352		1	6	0.04	<10	<10	14	<10	41
BQO353		2	41	0.11	<10	<10	20	<10	109
BQO354		2	23	0.09	<10	<10	19	<10	101
BQO355		2	22	0.07	<10	<10	30	<10	337
BQO356		3	28	0.18	<10	<10	34	<10	48
BQO357		2	20	0.09	<10	<10	22	<10	240
BQO358		2	8	0.06	<10	<10	15	<10	47
BQO359		2	12	0.14	<10	<10	23	<10	64
BQO360		2	10	0.14	<10	<10	21	<10	87
BQO361		2	21	0.14	<10	<10	23	<10	69
BQO362		2	18	0.16	<10	<10	30	<10	64
BQO363		3	12	0.17	<10	<10	30	<10	85
BQO364		2	11	0.16	<10	<10	27	<10	90
BQO365		3	26	0.17	<10	<10	35	<10	43
BQO366		2	14	0.13	<10	<10	23	<10	96
BQO367		2	15	0.08	<10	<10	18	<10	95
BQO368		1	7	<0.01	<10	<10	5	<10	23
BQO369		1	4	0.02	<10	<10	10	<10	38
BQO370		1	2	0.02	<10	<10	15	<10	70
BQO371		1	9	0.09	<10	<10	21	10	142
BQO372		2	12	0.12	<10	<10	24	<10	122

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Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052564

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-ICP41 Ag ppm 0.2	ME-ICP41 Al % 0.01	ME-ICP41 As ppm 2	ME-ICP41 B ppm 10	ME-ICP41 Ba ppm 10	ME-ICP41 Be ppm 0.5	ME-ICP41 Bi ppm 2	ME-ICP41 Ca % 0.01	ME-ICP41 Cd ppm 0.5	ME-ICP41 Co ppm 1	ME-ICP41 Cr ppm 1
BQO373		0.90	0.050	0.007	0.002	1.2	0.54	<2	<10	50	<0.5	3	1.04	<0.5	<1	84
BQO374		0.64	<0.001	<0.005	<0.001	<0.2	0.57	<2	<10	130	<0.5	<2	1.08	<0.5	2	88
BQO375		0.44	<0.001	<0.005	0.001	<0.2	1.13	<2	<10	150	<0.5	<2	0.67	<0.5	8	92
BQO376		0.34	<0.001	<0.005	<0.001	<0.2	0.94	<2	<10	100	<0.5	<2	0.62	<0.5	6	115
BQO377		1.38	<0.001	<0.005	0.001	0.2	1.56	<2	<10	330	<0.5	3	4.01	<0.5	70	41
BQO378		1.54	<0.001	<0.005	0.001	<0.2	2.21	4	<10	1540	<0.5	<2	3.46	<0.5	39	98
BQO379		1.76	<0.001	0.006	0.002	<0.2	1.92	3	<10	560	<0.5	<2	5.08	<0.5	28	61
BQO380		1.78	<0.001	<0.005	0.002	<0.2	1.25	6	<10	570	<0.5	<2	3.86	<0.5	37	106
BQO381		1.62	<0.001	<0.005	0.002	<0.2	1.50	7	<10	840	<0.5	<2	2.92	<0.5	31	288
BQO382		1.36	<0.001	<0.005	0.003	<0.2	1.92	<2	<10	250	<0.5	<2	2.86	<0.5	46	196
BQO383		1.66	<0.001	<0.005	<0.001	<0.2	1.77	3	<10	190	<0.5	<2	3.15	<0.5	46	54
BQO384		0.32	<0.001	<0.005	<0.001	<0.2	0.99	2	<10	110	<0.5	<2	0.73	<0.5	7	125
BQO385		1.70	<0.001	<0.005	<0.001	<0.2	1.40	6	<10	150	<0.5	<2	3.28	<0.5	54	49
BQO386		1.88	<0.001	0.005	<0.001	<0.2	1.60	5	<10	120	<0.5	<2	3.44	<0.5	68	70
BQO387		1.54	<0.001	<0.005	<0.001	<0.2	1.92	<2	<10	250	<0.5	<2	2.70	<0.5	64	96
BQO388		1.36	<0.001	<0.005	0.001	<0.2	3.06	3	<10	840	<0.5	<2	1.66	<0.5	59	432
BQO389		1.44	<0.001	<0.005	0.002	0.8	2.18	5	<10	390	<0.5	<2	2.60	<0.5	74	460
BQO390		1.82	0.009	0.012	0.028	0.6	1.86	3	<10	1580	<0.5	<2	2.93	<0.5	51	75
BQO391		1.58	<0.001	0.005	0.003	<0.2	3.25	6	<10	2550	<0.5	<2	2.84	<0.5	42	83
BQO392		1.38	<0.001	<0.005	0.003	<0.2	2.15	5	<10	1700	<0.5	<2	3.15	<0.5	41	92
BQO393		1.52	0.001	0.011	0.007	<0.2	2.25	<2	<10	860	<0.5	<2	3.33	<0.5	47	79
BQO394		0.36	<0.001	<0.005	0.001	<0.2	1.06	<2	<10	110	<0.5	<2	0.75	<0.5	8	125
BQO395		1.86	<0.001	0.006	0.003	<0.2	1.49	<2	<10	210	<0.5	<2	3.18	<0.5	67	131
BQO396		1.64	<0.001	0.010	0.007	0.2	1.35	2	<10	320	<0.5	<2	3.42	<0.5	44	58
BQO397		1.48	<0.001	<0.005	0.002	<0.2	1.42	<2	<10	240	<0.5	<2	3.49	<0.5	39	78
BQO398		1.52	0.002	<0.005	0.002	<0.2	1.62	<2	<10	310	<0.5	<2	3.23	<0.5	38	78
BQO399		1.50	0.001	<0.005	0.002	<0.2	1.72	<2	<10	1030	<0.5	<2	3.03	<0.5	30	73
BQO400		1.66	0.001	<0.005	0.001	<0.2	1.91	<2	<10	1190	<0.5	<2	3.62	<0.5	33	71
BQO401		1.22	0.001	<0.005	0.002	<0.2	1.52	<2	<10	1410	<0.5	<2	3.45	<0.5	27	71
BQO402		1.48	0.001	<0.005	0.001	<0.2	2.09	<2	<10	1820	<0.5	<2	2.54	<0.5	33	138
BQO403		0.70	0.001	<0.005	0.001	<0.2	1.85	<2	<10	1260	<0.5	<2	2.45	<0.5	27	76
BQO404		1.54	0.001	<0.005	<0.001	<0.2	2.02	<2	<10	390	0.5	<2	3.89	<0.5	20	49
BQO405		0.40	<0.001	<0.005	0.001	<0.2	1.23	<2	<10	130	<0.5	<2	0.58	<0.5	9	76
BQO406		1.04	0.001	<0.005	0.002	<0.2	1.76	3	<10	1080	<0.5	<2	3.15	<0.5	32	69
BQO407		0.88	0.001	<0.005	0.002	<0.2	2.04	<2	<10	1440	<0.5	<2	2.52	<0.5	29	65
BQO408		0.72	<0.001	<0.005	0.001	<0.2	1.57	<2	<10	1050	<0.5	<2	3.02	<0.5	24	64
BQO409		0.76	0.003	<0.005	0.001	<0.2	2.16	<2	<10	1400	<0.5	<2	2.84	<0.5	28	51
BQO410		1.62	<0.001	<0.005	0.001	<0.2	1.62	2	<10	1480	<0.5	<2	3.01	<0.5	33	63
BQO411		1.62	0.004	0.005	0.012	<0.2	2.18	<2	<10	250	<0.5	<2	3.12	<0.5	41	67
BQO412		1.58	<0.001	0.005	0.002	<0.2	2.21	<2	<10	170	<0.5	<2	3.04	<0.5	46	80

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Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Cu ppm 1	ME-ICP41 Fe % 0.01	ME-ICP41 Ga ppm 10	ME-ICP41 Hg ppm 1	ME-ICP41 K % 0.01	ME-ICP41 La ppm 10	ME-ICP41 Mg % 0.01	ME-ICP41 Mn ppm 5	ME-ICP41 Mo ppm 1	ME-ICP41 Na % 0.01	ME-ICP41 Ni ppm 1	ME-ICP41 P ppm 10	ME-ICP41 Pb ppm 2	ME-ICP41 S % 0.01	ME-ICP41 Sb ppm 2
BQO373		180	29.7	<10	1	0.16	10	0.36	949	1	0.04	82	130	25	5.50	<2
BQO374		3	1.28	<10	<1	0.09	10	0.33	327	<1	0.06	6	240	5	0.16	<2
BQO375		2	1.94	10	1	0.58	10	0.69	304	<1	0.15	12	440	2	0.02	<2
BQO376		3	1.72	<10	<1	0.47	10	0.61	243	<1	0.10	11	430	2	0.01	<2
BQO377		346	12.30	10	1	1.18	20	2.27	405	<1	0.16	32	>10000	12	0.60	<2
BQO378		81	7.38	10	1	1.79	10	2.97	389	<1	0.19	44	>10000	7	0.21	<2
BQO379		99	6.43	10	<1	0.85	10	2.39	617	<1	0.35	54	>10000	5	0.17	<2
BQO380		210	9.44	10	1	0.71	10	1.66	500	<1	0.17	53	9410	8	0.46	<2
BQO381		108	6.96	10	1	1.12	10	1.97	428	<1	0.13	78	7240	7	0.34	<2
BQO382		192	11.35	10	1	1.55	10	2.42	480	<1	0.13	82	8310	10	0.58	<2
BQO383		127	12.45	10	2	1.51	20	2.34	380	<1	0.10	39	>10000	11	0.68	<2
BQO384		3	1.85	<10	2	0.45	10	0.64	267	<1	0.13	12	490	2	0.02	<2
BQO385		136	16.6	10	1	1.07	10	1.96	381	<1	0.11	37	9830	14	0.70	<2
BQO386		203	15.8	10	2	1.31	10	2.20	340	<1	0.11	47	>10000	12	0.86	<2
BQO387		200	10.60	10	1	1.78	20	2.43	267	<1	0.08	95	9200	9	0.55	<2
BQO388		205	8.94	10	2	2.99	10	4.11	395	<1	0.10	318	4820	10	0.35	<2
BQO389		753	10.00	10	1	2.13	10	3.04	305	<1	0.08	309	8360	9	0.47	<2
BQO390		779	11.00	10	3	1.70	10	2.59	276	<1	0.09	107	9970	11	0.18	<2
BQO391		38	5.32	10	2	3.21	20	4.02	369	<1	0.09	81	9860	9	0.04	<2
BQO392		86	6.25	10	1	2.10	20	2.89	281	<1	0.09	55	>10000	6	0.09	<2
BQO393		305	5.52	10	1	2.22	20	2.99	269	<1	0.09	77	>10000	6	0.28	<2
BQO394		3	1.98	10	2	0.49	10	0.68	278	<1	0.14	15	510	2	0.01	<2
BQO395		431	9.95	10	2	1.22	20	2.20	361	<1	0.13	142	9480	12	0.70	<2
BQO396		377	8.21	10	<1	0.81	30	1.65	514	<1	0.22	48	9090	7	0.69	<2
BQO397		246	8.87	10	<1	0.88	20	1.77	498	<1	0.17	35	>10000	8	0.54	<2
BQO398		229	8.31	10	2	1.32	30	1.99	488	<1	0.13	39	>10000	7	0.59	<2
BQO399		166	6.32	10	1	1.37	30	1.94	398	<1	0.13	33	9660	8	0.25	<2
BQO400		175	6.91	10	2	1.24	30	2.13	594	<1	0.26	31	9480	<2	0.32	<2
BQO401		133	6.96	10	<1	1.00	20	1.86	523	<1	0.20	24	9580	<2	0.22	<2
BQO402		132	7.08	10	<1	1.97	30	2.39	495	<1	0.12	55	8030	<2	0.20	<2
BQO403		245	6.51	10	1	1.73	40	1.96	511	<1	0.13	28	7610	3	0.29	<2
BQO404		31	5.15	10	1	0.77	20	2.04	740	<1	0.44	14	7430	<2	0.06	<2
BQO405		6	2.09	10	<1	0.74	10	0.80	336	1	0.14	15	530	<2	0.04	<2
BQO406		210	6.23	10	<1	1.56	30	2.04	472	<1	0.15	31	>10000	<2	0.22	<2
BQO407		227	5.93	10	1	1.85	30	2.08	563	<1	0.16	28	7880	<2	0.17	<2
BQO408		49	7.32	10	1	1.16	30	1.83	529	<1	0.18	20	9020	<2	0.04	<2
BQO409		121	6.26	10	1	1.79	20	2.10	644	<1	0.20	23	7920	2	0.15	<2
BQO410		165	8.05	10	<1	1.29	20	1.92	427	<1	0.13	29	9500	<2	0.28	<2
BQO411		284	7.87	10	1	1.78	20	2.32	497	<1	0.16	32	>10000	2	0.76	<2
BQO412		291	8.49	10	<1	1.88	20	2.38	449	<1	0.14	36	>10000	<2	0.86	<2

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To: BITTERROOT RESOURCES LTD.
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 23-AUG-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052564

Sample Description	Method Analyte Units LOR	ME-ICP41 Sc ppm 1	ME-ICP41 Sr ppm 1	ME-ICP41 Ti % 0.01	ME-ICP41 Tl ppm 10	ME-ICP41 U ppm 10	ME-ICP41 V ppm 1	ME-ICP41 W ppm 10	ME-ICP41 Zn ppm 2
BQO373		1	18	0.02	<10	<10	10	10	69
BQO374		1	32	<0.01	<10	<10	9	<10	33
BQO375		3	25	0.18	<10	<10	36	<10	45
BQO376		3	19	0.16	<10	<10	33	<10	41
BQO377		9	366	0.28	<10	<10	555	<10	189
BQO378		8	414	0.31	<10	<10	266	<10	75
BQO379		15	424	0.32	<10	<10	233	<10	76
BQO380		10	356	0.32	<10	<10	362	<10	87
BQO381		9	315	0.36	<10	<10	240	<10	69
BQO382		10	323	0.42	<10	<10	401	<10	124
BQO383		8	431	0.34	<10	<10	473	<10	108
BQO384		3	24	0.16	<10	<10	35	<10	41
BQO385		10	391	0.28	<10	<10	584	<10	108
BQO386		9	388	0.30	<10	<10	552	<10	84
BQO387		5	256	0.36	<10	<10	425	10	67
BQO388		4	178	0.54	<10	<10	295	<10	87
BQO389		5	304	0.40	<10	<10	376	<10	168
BQO390		6	322	0.33	<10	<10	437	<10	73
BQO391		4	301	0.42	<10	<10	151	<10	69
BQO392		5	253	0.31	<10	<10	220	<10	51
BQO393		5	338	0.31	<10	<10	169	<10	49
BQO394		3	25	0.17	<10	<10	37	<10	43
BQO395		8	261	0.33	<10	<10	377	10	65
BQO396		9	312	0.34	<10	<10	296	<10	109
BQO397		7	496	0.30	<10	<10	352	<10	98
BQO398		5	344	0.39	<10	<10	324	<10	99
BQO399		5	373	0.36	<10	<10	232	<10	95
BQO400		8	509	0.41	<10	<10	245	<10	105
BQO401		7	432	0.35	<10	<10	258	<10	103
BQO402		4	299	0.46	<10	<10	244	<10	113
BQO403		3	284	0.45	<10	<10	222	<10	104
BQO404		11	383	0.37	<10	<10	168	<10	80
BQO405		3	26	0.21	<10	<10	36	<10	51
BQO406		4	327	0.37	<10	<10	215	<10	91
BQO407		4	280	0.48	<10	<10	186	<10	106
BQO408		6	270	0.38	<10	<10	271	<10	100
BQO409		5	288	0.48	<10	<10	202	<10	104
BQO410		5	330	0.42	<10	<10	305	<10	105
BQO411		6	457	0.52	<10	<10	268	<10	94
BQO412		6	462	0.48	<10	<10	311	<10	95

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1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 23-AUG-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052564

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-ICP41 Ag ppm 0.2	ME-ICP41 Al % 0.01	ME-ICP41 As ppm 2	ME-ICP41 B ppm 10	ME-ICP41 Ba ppm 10	ME-ICP41 Be ppm 0.5	ME-ICP41 Bi ppm 2	ME-ICP41 Ca % 0.01	ME-ICP41 Cd ppm 0.5	ME-ICP41 Co ppm 1	ME-ICP41 Cr ppm 1
BQO413		1.66	<0.001	<0.005	0.002	<0.2	1.98	<2	<10	330	<0.5	<2	3.24	<0.5	43	73
BQO414		1.58	<0.001	<0.005	0.002	<0.2	1.85	<2	<10	430	<0.5	<2	2.73	<0.5	36	70
BQO415		0.90	<0.001	0.008	0.002	<0.2	2.00	2	<10	350	<0.5	<2	2.52	<0.5	35	66
BQO416		1.62	<0.001	<0.005	0.001	<0.2	1.35	<2	<10	1300	<0.5	<2	2.64	<0.5	22	63
BQO417		1.58	0.001	<0.005	0.001	<0.2	1.25	<2	<10	980	<0.5	<2	2.55	<0.5	19	46
BQO418		1.00	0.001	<0.005	0.001	<0.2	1.48	<2	<10	920	<0.5	<2	3.12	<0.5	22	48
BQO419		0.46	<0.001	<0.005	<0.001	<0.2	2.00	2	<10	850	<0.5	<2	3.24	<0.5	27	58
BQO420		0.84	<0.001	<0.005	0.002	<0.2	1.84	<2	<10	580	0.6	<2	2.33	<0.5	21	163
BQO421		0.26	<0.001	0.005	0.006	<0.2	1.06	<2	<10	110	<0.5	<2	0.55	<0.5	8	85
BQO422		0.84	<0.001	<0.005	<0.001	<0.2	1.90	<2	<10	670	<0.5	<2	1.86	<0.5	24	68
BQO423		1.68	<0.001	<0.005	<0.001	<0.2	2.56	4	<10	330	0.5	<2	3.70	<0.5	26	172
BQO424		1.12	0.001	<0.005	0.002	<0.2	1.62	<2	<10	290	<0.5	<2	1.92	<0.5	18	320
BQO425		1.08	0.003	<0.005	0.002	<0.2	1.70	<2	<10	770	<0.5	<2	2.64	<0.5	20	84
BQO426		1.44	<0.001	<0.005	0.001	<0.2	1.61	4	<10	920	<0.5	<2	2.81	<0.5	25	64
BQO427		1.36	<0.001	<0.005	0.006	<0.2	1.55	<2	<10	1540	<0.5	<2	2.54	<0.5	23	57
BQO428		1.20	<0.001	<0.005	0.002	<0.2	2.08	<2	<10	790	<0.5	<2	2.58	<0.5	33	93
BQO429		1.12	<0.001	<0.005	0.001	<0.2	2.25	<2	<10	820	0.5	<2	2.69	<0.5	26	121
BQO430		0.32	<0.001	<0.005	<0.001	<0.2	1.00	<2	<10	120	<0.5	<2	0.53	<0.5	7	83
BQO431		0.88	<0.001	<0.005	<0.001	<0.2	2.41	<2	<10	590	0.6	<2	3.07	<0.5	27	171

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WEST VANCOUVER BC V7T 1P6

Finalized Date: 23-AUG-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052564

Sample Description	Method	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41	ME-ICP41
	Analyte	Cu	Fe	Ga	Hg	K	La	Mg	Mn	Mo	Na	Ni	P	Pb	S	Sb
	Units	ppm	%	ppm	ppm	%	ppm	%	ppm	ppm	%	ppm	ppm	ppm	%	ppm
	LOR	1	0.01	10	1	0.01	10	0.01	5	1	0.01	1	10	2	0.01	2
BQ0413		212	9.44	10	1	1.62	20	2.28	479	<1	0.14	32	>10000	<2	0.55	<2
BQ0414		140	8.31	10	<1	1.60	10	2.04	408	<1	0.11	33	9930	<2	0.41	<2
BQ0415		209	6.53	10	1	1.77	20	2.14	426	<1	0.13	32	8860	2	0.52	<2
BQ0416		100	6.28	10	<1	1.08	20	1.56	389	<1	0.13	22	8410	<2	0.12	<2
BQ0417		68	4.50	10	<1	0.82	20	1.36	421	<1	0.19	15	7070	<2	0.13	<2
BQ0418		123	4.93	10	<1	0.88	30	1.60	580	<1	0.26	16	8050	3	0.19	<2
BQ0419		329	6.21	10	<1	1.44	40	2.07	688	<1	0.27	25	8490	3	0.09	<2
BQ0420		183	3.83	10	1	1.06	10	2.19	542	<1	0.24	69	2960	5	0.03	<2
BQ0421		5	1.88	<10	<1	0.63	10	0.72	302	<1	0.11	12	440	<2	0.03	<2
BQ0422		130	4.44	10	<1	1.28	20	1.94	531	<1	0.21	50	3500	<2	0.23	<2
BQ0423		42	5.59	10	<1	0.77	10	2.53	782	<1	0.45	67	3140	3	0.06	<2
BQ0424		18	2.62	10	<1	0.69	10	2.25	387	<1	0.25	147	2120	<2	0.03	<2
BQ0425		98	3.71	10	<1	1.16	20	1.75	503	<1	0.22	43	7140	4	0.14	<2
BQ0426		193	4.71	10	<1	0.97	20	1.74	533	<1	0.23	34	6750	<2	0.28	<2
BQ0427		64	5.54	10	<1	1.26	30	1.71	496	<1	0.16	19	7120	2	0.11	<2
BQ0428		257	5.66	10	<1	1.64	20	2.26	585	<1	0.19	112	6660	2	0.39	<2
BQ0429		120	4.84	10	<1	1.44	20	2.61	627	<1	0.27	76	4600	<2	0.22	<2
BQ0430		4	1.74	<10	<1	0.57	10	0.64	249	1	0.10	11	480	<2	0.03	<2
BQ0431		104	5.17	10	<1	1.18	20	2.79	711	<1	0.32	68	4950	2	0.15	<2

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Finalized Date: 23-AUG-2004
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CERTIFICATE OF ANALYSIS VA04052564

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Sc ppm 1	ME-ICP41 Sr ppm 1	ME-ICP41 Ti % 0.01	ME-ICP41 Tl ppm 10	ME-ICP41 U ppm 10	ME-ICP41 V ppm 1	ME-ICP41 W ppm 10	ME-ICP41 Zn ppm 2
BQO413		6	490	0.42	<10	<10	375	<10	113
BQO414		4	468	0.39	<10	<10	326	<10	101
BQO415		4	315	0.48	<10	<10	227	<10	89
BQO416		4	299	0.36	<10	<10	238	<10	87
BQO417		5	322	0.32	<10	<10	160	<10	72
BQO418		6	391	0.37	<10	<10	160	<10	80
BQO419		8	314	0.39	<10	<10	205	<10	105
BQO420		8	178	0.30	<10	<10	107	<10	65
BQO421		3	22	0.19	<10	<10	33	<10	47
BQO422		6	332	0.40	<10	<10	120	<10	78
BQO423		16	209	0.36	<10	<10	172	<10	80
BQO424		5	101	0.27	<10	<10	63	<10	52
BQO425		6	178	0.35	<10	<10	98	<10	66
BQO426		6	272	0.37	<10	<10	144	<10	77
BQO427		4	263	0.40	<10	<10	182	<10	88
BQO428		5	253	0.47	<10	<10	165	<10	92
BQO429		8	192	0.43	<10	<10	140	<10	79
BQO430		2	25	0.18	<10	<10	34	<10	41
BQO431		9	223	0.41	<10	<10	148	<10	86

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Finalized Date: 3-SEP-2004
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CERTIFICATE VA04052562

Project: Mistassinai

P.O. No.:

This report is for 65 Drill Core samples submitted to our lab in Vancouver, BC, Canada on 9-AUG-2004.

The following have access to data associated with this certificate:

MICHAEL CARR	CHARLES GREIG	

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
PUL-31	Pulverize split to 85% <75 um
SPL-21	Split sample - riffle splitter
CRU-31	Fine crushing - 70% <2mm
LOG-22	Sample login - Rcd w/o BarCode

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
ME-ICP41	34 Element Aqua Regia ICP-AES	ICP-AES
ME-ICP06	Whole Rock Package - ICP-AES	ICP-AES
OA-GRA05	Loss on Ignition at 1000C	WST-SEQ
PGM-ICP23	Pt, Pd, Au 30g FA ICP	ICP-AES
ME-MS81	38 element fusion ICP-MS	ICP-MS

To: **BITTERROOT RESOURCES LTD.**
ATTN: MICHAEL CARR
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

This is the Final Report and supersedes any preliminary report with this certificate number. Results apply to samples as submitted. All pages of this report have been checked and approved for release.

Signature:

ALS Chemex

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CERTIFICATE OF ANALYSIS VA04052562

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-MS81 Ag ppm 1	ME-MS81 Ba ppm 0.5	ME-MS81 Ce ppm 0.5	ME-MS81 Co ppm 0.5	ME-MS81 Cr ppm 10	ME-MS81 Cs ppm 0.1	ME-MS81 Cu ppm 5	ME-MS81 Dy ppm 0.1	ME-MS81 Er ppm 0.1	ME-MS81 Eu ppm 0.1	ME-MS81 Ga ppm 1
H1-1		0.34	0.010	<0.005	<0.001	<1	690	82.5	38.9	470	4.4	20	5.0	2.5	2.2	22
H2-1		0.26	0.001	0.010	0.003	<1	463	161.5	52.1	950	4.8	<5	6.6	3.0	3.3	18
H2-2		0.32	0.003	<0.005	0.001	<1	1365	83.2	42.5	470	9.1	91	4.5	2.1	2.1	18
H2-A		0.38	0.001	<0.005	0.001	<1	521	33.3	32.7	680	5.0	<5	2.5	1.5	0.5	21
H3-6		0.46	0.001	<0.005	<0.001	<1	533	25.4	38.2	200	2.8	<5	2.9	1.7	1.0	19
H3-7		0.42	<0.001	<0.005	<0.001	<1	473	22.8	50.6	70	1.5	27	6.8	4.4	1.5	21
H3-8		0.34	0.001	<0.005	0.002	<1	159.0	12.6	54.6	180	0.1	30	4.1	3.0	1.0	18
H3-9		0.58	0.001	<0.005	0.003	1	111.5	10.7	44.4	220	0.2	77	4.2	3.0	0.8	18
H3-10		0.76	0.001	0.010	0.009	<1	260	4.6	115.0	3260	0.4	101	1.7	1.2	0.3	22
H3-11		0.40	0.001	0.012	0.011	<1	285	12.2	71.1	130	0.1	20	4.0	2.3	1.0	19
H3-12		0.44	<0.001	0.012	0.011	<1	130.0	12.0	99.9	250	0.2	102	4.0	2.2	1.2	19
H3-15		0.44	0.001	0.009	0.007	<1	143.0	6.0	60.6	1170	3.9	31	2.3	1.4	0.5	12
H3-15A		0.46	0.002	0.014	0.018	<1	35.8	12.6	76.5	1520	2.4	126	3.1	1.8	0.8	13
H3-16		0.26	<0.001	0.008	0.005	<1	43.6	5.9	76.4	2280	0.5	<5	2.2	1.3	0.5	11
H3-17		0.34	<0.001	0.005	0.004	<1	12.5	3.1	93.2	2230	0.1	71	1.1	0.6	0.1	7
H3-18		0.38	<0.001	<0.005	<0.001	<1	2370	15.4	91.8	1420	72.5	11	0.8	0.4	0.2	13
H3-19		0.44	0.001	0.011	0.019	<1	305	1.6	105.0	2440	36.9	<5	0.7	0.5	<0.1	7
H3-20		0.38	<0.001	0.005	0.006	<1	203	1.5	109.0	2470	35.9	5	0.9	0.7	<0.1	6
H3-21		0.46	<0.001	<0.005	<0.001	<1	739	11.9	76.4	120	113.0	<5	1.2	0.6	<0.1	16
H3-22		0.40	<0.001	<0.005	0.008	<1	9.9	2.6	63.0	2350	0.6	5	1.2	0.7	0.2	7
H3-23		0.28	<0.001	0.008	0.009	<1	283	0.9	106.0	2640	36.0	6	0.3	0.2	<0.1	7
H3-24		0.28	0.002	<0.005	0.005	<1	5.3	3.1	89.1	2090	0.2	163	1.2	0.7	0.3	7
H3-25		0.42	0.001	<0.005	0.008	<1	14.4	3.7	119.0	2160	0.3	116	1.7	1.0	0.6	9
H3-26		0.28	<0.001	0.008	0.008	<1	106.0	5.4	90.9	1720	3.5	<5	1.6	1.1	0.4	12
H3-27		0.28	0.002	0.013	0.005	<1	53.9	6.1	99.5	2060	1.0	<5	1.6	1.1	0.5	12
H3-28		0.46	<0.001	0.005	<0.001	<1	117.0	8.5	58.3	1090	2.8	<5	2.8	1.6	0.4	17
H3-29		0.44	<0.001	0.014	0.013	<1	83.3	7.0	82.1	1200	0.7	12	2.3	1.6	0.7	15
H3-30		0.28	<0.001	0.011	0.005	<1	41.2	12.8	97.8	1500	2.2	<5	6.0	3.5	0.8	20
H3-31		0.44	<0.001	0.017	0.014	<1	199.0	12.0	103.5	1400	0.7	<5	1.2	0.8	0.5	11
H3-32		0.38	0.001	0.020	0.021	<1	60.9	5.2	100.5	2670	0.4	11	2.9	1.8	0.7	15
H3-33		0.34	<0.001	0.016	0.013	<1	129.0	3.9	87.9	1670	5.9	67	1.9	1.2	0.3	13
H3-34		0.50	<0.001	0.013	0.007	<1	55.1	5.4	89.8	3060	0.2	<5	1.7	1.1	0.6	14
H3-35		0.32	<0.001	0.007	0.008	<1	39.5	9.0	95.0	1880	1.6	<5	4.2	2.4	0.7	20
H3-36		0.34	<0.001	<0.005	0.001	<1	106.5	10.4	50.9	210	<0.1	136	3.9	2.6	0.9	18
H3-37		0.36	<0.001	<0.005	0.002	<1	151.0	12.4	52.9	190	0.2	14	3.7	2.5	0.9	19
H3-38		0.34	<0.001	<0.005	0.003	<1	59.3	10.4	50.1	180	0.1	5	4.1	2.8	1.1	17
H3-39		0.34	0.002	0.010	0.007	<1	53.3	2.1	94.2	1890	<0.1	47	1.1	0.7	0.4	11
H3-40		0.40	0.006	<0.005	0.004	<1	52.7	3.9	91.8	1800	<0.1	117	1.1	0.6	0.5	7
H3-41		0.34	<0.001	0.008	0.010	<1	155.5	1.7	93.0	2050	36.5	87	1.1	0.6	0.2	9
H3-42		0.42	<0.001	0.005	0.010	<1	206	1.3	107.0	2190	77.8	67	1.2	0.7	0.3	9

Comments: Cr >2000 ppm will cause a low bias on V-MS81

ALS Chemex
EXCELLENCE IN ANALYTICAL CHEMISTRY
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To: BITTERROOT RESOURCES LTD.
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 3-SEP-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052562

Sample Description	Method Analyte Units LOR	ME-MS81 Gd ppm 0.1	ME-MS81 Hf ppm 1	ME-MS81 Ho ppm 0.1	ME-MS81 La ppm 0.5	ME-MS81 Lu ppm 0.1	ME-MS81 Mo ppm 2	ME-MS81 Nb ppm 1	ME-MS81 Nd ppm 0.5	ME-MS81 Ni ppm 5	ME-MS81 Pb ppm 5	ME-MS81 Pr ppm 0.1	ME-MS81 Rb ppm 0.2	ME-MS81 Sm ppm 0.1	ME-MS81 Sn ppm 1	ME-MS81 Sr ppm 0.1
H1-1		7.6	4	0.9	38.1	0.2	<2	8	42.3	70	<5	10.6	82.0	8.5	2	182.0
H2-1		12.3	5	1.1	71.2	0.3	<2	9	83.6	175	<5	20.3	89.1	15.2	2	108.0
H2-2		7.6	4	0.8	37.5	0.2	<2	8	43.9	79	<5	10.6	145.0	9.1	2	471
H2-A		3.0	2	0.5	15.6	0.2	<2	5	16.8	102	<5	4.0	107.0	3.4	1	139.0
H3-6		3.3	3	0.5	10.3	0.2	<2	5	14.4	118	11	3.4	39.9	3.3	1	339
H3-7		5.9	4	1.4	8.7	0.6	<2	6	16.9	70	5	3.4	21.6	4.8	1	266
H3-8		3.2	2	0.9	4.8	0.4	<2	3	8.3	87	7	1.8	8.7	2.4	1	206
H3-9		3.1	2	0.9	4.1	0.4	<2	3	7.5	69	14	1.6	10.9	2.5	2	230
H3-10		1.4	1	0.3	1.6	0.1	<2	1	3.3	1135	10	0.6	12.6	1.0	4	190.0
H3-11		3.7	2	0.8	4.3	0.3	<2	3	9.6	146	<5	1.8	13.2	3.0	1	150.5
H3-12		3.5	2	0.8	3.9	0.2	<2	3	8.9	274	7	1.8	11.6	2.9	1	218
H3-15		2.2	1	0.5	1.1	0.1	49	4	5.2	335	<5	1.0	16.5	1.7	1	40.5
H3-15A		2.8	1	0.6	4.4	0.2	<2	2	9.0	410	7	1.8	12.0	2.6	1	29.9
H3-16		1.8	1	0.4	2.5	0.1	<2	2	4.2	556	5	0.8	6.1	1.3	1	47.4
H3-17		1.0	1	0.2	1.3	<0.1	<2	1	2.4	767	<5	0.4	3.1	0.6	1	37.7
H3-18		1.5	1	0.1	6.7	<0.1	<2	3	7.5	1300	8	1.8	244	1.6	1	64.4
H3-19		0.4	1	0.1	<0.5	0.1	<2	1	1.0	1620	<5	0.2	74.2	0.3	1	97.6
H3-20		0.7	<1	0.2	<0.5	0.1	<2	1	1.2	1815	<5	0.2	72.8	0.4	1	77.4
H3-21		1.6	2	0.2	4.6	<0.1	<2	2	6.7	283	<5	1.5	268	1.5	1	139.5
H3-22		0.9	<1	0.2	0.7	0.1	<2	5	2.3	1295	<5	0.4	1.9	0.8	1	41.0
H3-23		0.3	1	<0.1	<0.5	<0.1	<2	1	0.5	1530	<5	0.1	134.0	0.1	1	32.5
H3-24		1.1	1	0.2	0.7	0.1	<2	1	2.8	1045	<5	0.5	1.4	0.7	1	23.7
H3-25		1.4	1	0.3	<0.5	0.1	<2	1	3.7	986	11	0.6	2.8	1.2	2	32.7
H3-26		1.1	1	0.4	1.6	0.2	<2	2	2.8	694	7	0.6	38.0	0.8	5	39.2
H3-27		1.1	1	0.4	2.4	0.1	<2	1	2.9	749	9	0.7	12.4	0.7	8	68.0
H3-28		2.3	1	0.6	2.3	0.2	<2	5	6.3	436	13	1.3	29.2	1.9	3	120.0
H3-29		1.7	1	0.5	2.2	0.2	<2	2	4.3	473	14	0.9	7.6	1.2	3	269
H3-30		4.6	1	1.1	3.0	0.4	<2	8	11.0	553	11	2.1	7.7	3.7	5	50.6
H3-31		1.3	1	0.3	5.3	0.1	<2	1	5.4	480	11	1.4	5.7	1.0	4	172.5
H3-32		1.9	1	0.6	1.6	0.2	<2	2	3.8	548	32	0.7	8.2	1.2	4	480
H3-33		1.4	1	0.4	1.1	0.2	4	2	2.6	622	8	0.5	48.9	0.8	3	45.2
H3-34		1.4	1	0.3	2.6	0.2	18	1	3.5	711	12	0.7	7.9	1.0	6	242
H3-35		3.5	1	0.9	1.8	0.3	<2	5	8.9	845	8	1.5	11.5	2.9	7	22.2
H3-36		2.8	2	0.8	3.4	0.4	<2	3	7.4	95	16	1.5	6.0	2.2	3	249
H3-37		2.8	2	0.8	4.1	0.3	<2	3	8.0	107	19	1.7	11.0	2.3	4	210
H3-38		3.0	2	0.9	3.7	0.4	2	3	7.2	92	17	1.5	5.0	2.1	3	230
H3-39		1.0	1	0.2	<0.5	0.1	<2	1	2.0	953	10	0.3	2.5	0.6	3	80.1
H3-40		1.0	<1	0.2	1.2	0.1	<2	1	2.8	805	11	0.5	1.3	0.8	1	94.8
H3-41		0.7	1	0.2	<0.5	0.1	<2	1	1.4	919	10	0.3	78.5	0.6	1	28.8
H3-42		0.9	1	0.2	<0.5	0.1	<2	1	1.6	1155	24	0.2	103.5	0.6	1	28.1

Comments: Cr >2000 ppm will cause a low bias on V-MS81

ALS Chemex

EXCELLENCE IN ANALYTICAL CHEMISTRY

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To: BITTERROOT RESOURCES LTD.
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 3-SEP-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052562

Sample Description	Method / Analyte / Units / LOR	ME-MS81 Ta ppm 0.5	ME-MS81 Tb ppm 0.1	ME-MS81 Th ppm 1	ME-MS81 Tl ppm 0.5	ME-MS81 Tm ppm 0.1	ME-MS81 U ppm 0.5	ME-MS81 V ppm 5	ME-MS81 W ppm 1	ME-MS81 Y ppm 0.5	ME-MS81 Yb ppm 0.1	ME-MS81 Zn ppm 5	ME-MS81 Zr ppm 0.5	ME-ICP41 Ag ppm 0.2	ME-ICP41 Al % 0.01	ME-ICP41 As ppm 2
H1-1		0.6	1.0	6	<0.5	0.3	3.7	222	<1	24.0	2.0	146	141.0	<0.2	3.08	2
H2-1		<0.5	1.5	8	<0.5	0.3	3.0	201	<1	30.8	2.0	157	189.0	<0.2	1.58	3
H2-2		<0.5	0.9	6	<0.5	0.2	1.9	201	1	23.6	1.7	95	157.5	<0.2	2.22	<2
H2-A		0.5	0.4	1	<0.5	0.2	0.5	199	1	14.4	1.4	148	62.3	<0.2	2.45	3
H3-6		<0.5	0.5	1	<0.5	0.2	<0.5	172	<1	15.0	1.4	326	89.4	<0.2	1.91	3
H3-7		<0.5	1.1	1	<0.5	0.6	<0.5	399	<1	38.1	4.2	154	116.0	<0.2	0.72	<2
H3-8		<0.5	0.6	<1	<0.5	0.4	<0.5	379	<1	24.8	2.9	143	63.5	0.2	1.60	<2
H3-9		<0.5	0.6	<1	<0.5	0.4	<0.5	371	3	24.1	2.8	205	63.2	<0.2	0.47	<2
H3-10		<0.5	0.2	<1	<0.5	0.1	<0.5	132	<1	10.8	1.1	274	25.2	0.4	1.52	2
H3-11		<0.5	0.7	<1	<0.5	0.3	<0.5	336	2	20.4	2.2	229	71.8	<0.2	0.62	<2
H3-12		<0.5	0.6	<1	<0.5	0.3	<0.5	331	1	19.6	1.8	156	66.4	<0.2	0.83	<2
H3-15		<0.5	0.4	<1	<0.5	0.1	<0.5	160	22	11.4	1.2	121	38.0	<0.2	0.54	2
H3-15A		<0.5	0.5	<1	<0.5	0.2	<0.5	223	14	15.6	1.5	138	40.4	<0.2	0.86	<2
H3-16		<0.5	0.3	<1	<0.5	0.1	<0.5	107	7	11.5	1.1	160	35.3	<0.2	0.41	<2
H3-17		<0.5	0.1	<1	<0.5	0.1	<0.5	<5	7	5.9	0.5	193	16.8	<0.2	0.18	<2
H3-18		<0.5	0.1	<1	<0.5	<0.1	<0.5	64	<1	4.2	0.3	100	45.8	<0.2	6.16	2
H3-19		<0.5	0.1	<1	<0.5	<0.1	<0.5	<5	<1	4.2	0.5	92	12.7	<0.2	2.15	<2
H3-20		<0.5	0.1	<1	<0.5	0.1	<0.5	<5	<1	5.1	0.6	93	13.2	<0.2	2.05	<2
H3-21		<0.5	0.2	1	<0.5	<0.1	<0.5	65	<1	5.7	0.4	77	66.4	<0.2	6.28	3
H3-22		<0.5	0.2	<1	<0.5	0.1	<0.5	<5	<1	7.3	0.7	71	10.4	<0.2	0.27	2
H3-23		<0.5	<0.1	<1	<0.5	<0.1	<0.5	<5	1	2.0	0.2	94	15.5	<0.2	2.65	2
H3-24		<0.5	0.2	<1	<0.5	0.1	<0.5	23	<1	6.8	0.7	69	15.7	<0.2	0.42	<2
H3-25		<0.5	0.2	<1	<0.5	0.1	<0.5	<5	1	9.9	0.8	88	25.8	<0.2	0.23	<2
H3-26		<0.5	0.2	1	<0.5	0.1	3.6	72	1	10.6	1.1	114	21.0	<0.2	1.54	<2
H3-27		<0.5	0.2	<1	<0.5	0.1	0.7	75	1	11.0	1.1	97	28.9	<0.2	0.76	<2
H3-28		0.7	0.4	<1	<0.5	0.2	2.2	44	<1	18.2	1.6	65	32.7	<0.2	0.95	<2
H3-29		<0.5	0.3	<1	<0.5	0.2	<0.5	182	<1	14.7	1.5	108	29.0	<0.2	0.46	2
H3-30		1.1	0.8	1	<0.5	0.5	3.1	85	<1	36.2	3.1	176	26.5	<0.2	0.91	2
H3-31		<0.5	0.2	<1	<0.5	0.1	<0.5	108	<1	7.7	0.8	168	22.6	<0.2	0.52	<2
H3-32		<0.5	0.4	<1	<0.5	0.2	<0.5	72	<1	16.8	1.6	179	26.6	<0.2	0.90	<2
H3-33		<0.5	0.2	<1	<0.5	0.2	<0.5	96	14	12.4	1.3	120	28.2	<0.2	2.12	2
H3-34		<0.5	0.2	<1	<0.5	0.2	<0.5	<5	1	10.4	1.1	138	25.0	<0.2	0.47	<2
H3-35		<0.5	0.7	<1	<0.5	0.4	<0.5	54	<1	25.7	2.3	210	30.4	<0.2	0.67	<2
H3-36		<0.5	0.6	<1	<0.5	0.4	<0.5	363	1	24.2	2.5	138	62.3	<0.2	1.44	<2
H3-37		<0.5	0.5	1	<0.5	0.4	<0.5	351	1	23.4	2.4	183	65.9	<0.2	0.66	<2
H3-38		<0.5	0.5	<1	<0.5	0.4	<0.5	353	<1	24.7	2.8	132	57.7	<0.2	1.54	5
H3-39		<0.5	0.1	<1	<0.5	0.1	<0.5	<5	<1	5.9	0.5	377	25.3	<0.2	0.27	<2
H3-40		<0.5	0.1	<1	<0.5	0.1	<0.5	<5	<1	6.2	0.6	128	17.1	0.3	0.18	<2
H3-41		<0.5	0.1	<1	<0.5	0.1	<0.5	<5	<1	5.9	0.6	109	17.0	<0.2	2.07	2
H3-42		<0.5	0.1	<1	<0.5	0.1	<0.5	<5	<1	7.0	0.6	112	23.5	<0.2	2.10	3

Comments: Cr >2000 ppm will cause a low bias on V-MS81

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Finalized Date: 3-SEP-2004
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CERTIFICATE OF ANALYSIS VA04052562

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 B ppm 10	ME-ICP41 Ba ppm 10	ME-ICP41 Be ppm 0.5	ME-ICP41 Bi ppm 2	ME-ICP41 Ca % 0.01	ME-ICP41 Cd ppm 0.5	ME-ICP41 Co ppm 1	ME-ICP41 Cr ppm 1	ME-ICP41 Cu ppm 1	ME-ICP41 Fe % 0.01	ME-ICP41 Ga ppm 10	ME-ICP41 Hg ppm 1	ME-ICP41 K % 0.01	ME-ICP41 La ppm 10	ME-ICP41 Mg % 0.01
H1-1		<10	560	0.6	<2	1.66	<0.5	20	174	22	4.16	10	<1	1.67	30	2.69
H2-1		<10	300	0.6	<2	2.25	<0.5	15	242	1	2.20	10	<1	1.08	60	1.92
H2-2		<10	370	0.6	<2	1.35	<0.5	26	220	100	3.69	10	<1	1.74	30	2.40
H2-A		<10	390	<0.5	<2	1.20	<0.5	13	256	1	4.13	10	<1	1.74	10	2.52
H3-6		<10	300	<0.5	<2	2.57	<0.5	16	66	2	2.81	10	<1	0.94	10	1.72
H3-7		<10	210	<0.5	<2	0.93	<0.5	14	21	29	1.94	<10	<1	0.22	10	0.51
H3-8		<10	30	<0.5	<2	2.04	<0.5	22	60	35	2.74	<10	<1	0.24	<10	1.26
H3-9		<10	10	<0.5	<2	0.76	<0.5	25	29	100	1.79	<10	<1	0.06	<10	0.36
H3-10		<10	30	0.6	2	2.28	<0.5	84	607	130	3.85	<10	<1	0.13	<10	0.96
H3-11		<10	40	<0.5	<2	1.18	<0.5	18	27	26	1.38	<10	<1	0.10	<10	0.63
H3-12		<10	10	<0.5	<2	1.34	<0.5	45	54	118	2.09	<10	<1	0.09	<10	0.94
H3-15		<10	120	<0.5	<2	0.39	<0.5	15	110	36	0.89	<10	<1	0.28	<10	0.85
H3-15A		<10	30	<0.5	<2	1.20	<0.5	39	223	148	2.44	<10	<1	0.23	<10	1.58
H3-16		<10	20	<0.5	<2	0.85	<0.5	9	193	4	0.79	<10	<1	0.15	<10	0.78
H3-17		<10	10	<0.5	<2	0.59	<0.5	50	134	95	1.54	<10	<1	0.06	<10	0.47
H3-18		<10	2320	1.3	<2	0.64	<0.5	65	1070	13	4.17	10	<1	5.63	10	10.30
H3-19		<10	280	<0.5	<2	0.29	<0.5	36	1310	4	1.95	<10	<1	1.63	<10	4.58
H3-20		<10	180	<0.5	<2	0.33	<0.5	39	1250	5	2.11	<10	<1	1.37	<10	4.91
H3-21		<10	620	<0.5	<2	0.10	<0.5	55	90	1	3.24	10	1	4.98	<10	9.59
H3-22		<10	10	<0.5	<2	0.89	<0.5	6	170	5	0.45	<10	<1	0.04	<10	1.02
H3-23		10	250	<0.5	<2	0.17	<0.5	59	1820	7	3.07	10	<1	2.33	<10	7.27
H3-24		<10	<10	<0.5	<2	1.20	<0.5	54	276	198	2.06	<10	<1	0.05	<10	1.66
H3-25		<10	<10	<0.5	<2	0.35	<0.5	51	114	148	1.16	<10	<1	0.06	<10	0.51
H3-26		<10	80	<0.5	<2	1.43	<0.5	22	449	2	2.13	<10	<1	0.65	<10	2.44
H3-27		<10	30	<0.5	<2	0.76	<0.5	12	251	2	1.08	<10	<1	0.29	<10	1.12
H3-28		<10	70	<0.5	<2	0.77	<0.5	13	268	3	1.44	<10	<1	0.50	<10	1.38
H3-29		<10	10	<0.5	<2	0.62	<0.5	10	122	15	0.81	<10	<1	0.10	<10	0.63
H3-30		<10	10	<0.5	<2	1.44	<0.5	16	287	2	1.65	<10	<1	0.18	<10	1.38
H3-31		<10	30	<0.5	<2	0.96	<0.5	10	155	4	0.92	<10	<1	0.07	<10	0.74
H3-32		<10	10	<0.5	<2	1.51	<0.5	19	489	13	1.54	<10	<1	0.12	<10	0.61
H3-33		<10	110	<0.5	<2	1.70	<0.5	31	489	77	2.78	<10	<1	0.83	<10	2.99
H3-34		<10	<10	<0.5	<2	0.73	<0.5	6	250	4	0.61	<10	<1	0.06	<10	0.58
H3-35		<10	20	<0.5	<2	0.75	<0.5	10	214	2	0.99	<10	<1	0.21	<10	1.03
H3-36		<10	20	<0.5	<2	1.84	<0.5	24	80	152	3.46	<10	<1	0.21	<10	1.26
H3-37		<10	70	<0.5	<2	0.62	<0.5	15	35	15	1.44	<10	<1	0.23	<10	0.69
H3-38		<10	10	<0.5	<2	1.99	<0.5	19	75	5	3.44	<10	<1	0.27	<10	1.28
H3-39		<10	10	<0.5	<2	1.60	<0.5	37	120	59	1.18	<10	<1	0.03	<10	0.49
H3-40		<10	40	<0.5	<2	1.24	<0.5	74	102	167	2.68	<10	<1	0.01	<10	0.54
H3-41		<10	160	<0.5	<2	1.06	<0.5	54	864	95	3.31	<10	<1	1.12	<10	4.53
H3-42		<10	180	<0.5	<2	0.39	<0.5	38	833	71	1.76	<10	<1	1.39	<10	3.82

Comments: Cr >2000 ppm will cause a low bias on V-MS81

ALS Chemex
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To: BITTERROOT RESOURCES LTD.
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 3-SEP-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052562

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Mn ppm 5	ME-ICP41 Mo ppm 1	ME-ICP41 Na % 0.01	ME-ICP41 Ni ppm 1	ME-ICP41 P ppm 10	ME-ICP41 Pb ppm 2	ME-ICP41 S % 0.01	ME-ICP41 Sb ppm 2	ME-ICP41 Sc ppm 1	ME-ICP41 Sr ppm 1	ME-ICP41 Ti % 0.01	ME-ICP41 Tl ppm 10	ME-ICP41 U ppm 10	ME-ICP41 V ppm 1	ME-ICP41 W ppm 10
H1-1		563	1	0.16	40	2690	3	0.11	<2	12	26	0.29	<10	<10	104	<10
H2-1		401	1	0.05	72	4140	<2	<0.01	<2	3	29	0.22	<10	<10	53	<10
H2-2		444	1	0.08	55	2540	2	0.10	<2	4	35	0.35	<10	<10	98	<10
H2-A		637	1	0.04	45	950	<2	0.01	2	10	10	0.28	<10	<10	82	<10
H3-6		643	1	0.12	59	810	4	<0.01	<2	6	22	0.22	<10	<10	62	<10
H3-7		239	1	0.08	25	840	2	0.06	<2	7	7	0.14	<10	<10	70	<10
H3-8		709	1	0.26	46	340	2	0.11	<2	18	14	0.23	<10	<10	124	<10
H3-9		187	1	0.06	76	520	2	0.60	2	6	6	0.08	<10	<10	38	<10
H3-10		480	2	0.20	1225	50	12	1.70	<2	5	37	0.07	<10	<10	49	<10
H3-11		401	<1	0.09	55	370	2	0.10	<2	4	6	0.13	<10	<10	47	<10
H3-12		442	<1	0.18	182	370	<2	0.34	<2	7	9	0.22	<10	<10	72	<10
H3-15		84	33	0.05	118	<10	<2	0.12	<2	2	3	0.07	<10	<10	18	<10
H3-15A		202	1	0.15	285	260	<2	0.76	<2	5	6	0.09	<10	<10	45	<10
H3-16		182	<1	0.03	77	120	<2	<0.01	<2	2	9	0.04	<10	<10	19	<10
H3-17		134	<1	<0.01	613	180	<2	0.76	<2	1	7	0.02	<10	<10	7	<10
H3-18		223	2	0.22	1075	240	3	0.08	<2	6	58	0.21	<10	<10	124	<10
H3-19		144	1	0.19	852	10	5	0.02	<2	5	92	0.13	<10	<10	56	<10
H3-20		228	1	0.22	1045	120	5	0.01	<2	6	72	0.13	<10	<10	52	<10
H3-21		67	2	0.44	226	330	4	<0.01	<2	4	25	0.13	<10	<10	54	<10
H3-22		116	<1	0.05	120	10	<2	<0.01	<2	1	6	0.01	<10	<10	7	<10
H3-23		375	1	0.15	1250	<10	3	0.05	<2	5	26	0.14	<10	<10	64	<10
H3-24		212	1	0.10	869	130	2	0.75	<2	2	6	0.03	<10	<10	19	<10
H3-25		74	<1	0.03	773	70	<2	0.49	<2	1	2	0.02	<10	<10	8	<10
H3-26		462	<1	0.19	205	120	<2	<0.01	<2	5	6	0.08	<10	<10	46	<10
H3-27		210	<1	0.07	112	180	<2	<0.01	<2	3	6	0.04	<10	<10	23	<10
H3-28		286	<1	0.07	118	190	<2	<0.01	<2	3	5	0.05	<10	<10	26	<10
H3-29		176	<1	0.04	143	130	<2	0.04	<2	3	7	0.03	<10	<10	20	<10
H3-30		472	<1	0.10	106	90	<2	<0.01	<2	4	6	0.04	<10	<10	31	<10
H3-31		256	<1	0.07	59	160	<2	<0.01	<2	3	16	0.03	<10	<10	21	<10
H3-32		348	<1	0.12	153	170	2	0.02	<2	6	38	0.09	<10	<10	45	<10
H3-33		512	2	0.17	299	160	2	0.17	<2	7	10	0.09	<10	<10	56	<10
H3-34		149	9	0.04	58	90	4	<0.01	<2	2	13	0.02	<10	<10	17	<10
H3-35		224	1	0.05	111	170	2	<0.01	<2	3	4	0.04	<10	<10	19	<10
H3-36		957	1	0.25	59	390	4	0.44	<2	19	16	0.18	<10	<10	113	<10
H3-37		336	<1	0.07	40	320	2	0.14	<2	7	5	0.10	<10	<10	48	<10
H3-38		975	3	0.28	37	380	2	0.03	<2	20	14	0.19	<10	<10	130	<10
H3-39		244	<1	0.04	831	50	3	0.60	2	1	32	0.02	<10	<10	8	<10
H3-40		157	1	0.03	1110	40	<2	1.63	2	1	41	0.01	<10	<10	7	<10
H3-41		217	1	0.39	756	10	4	0.48	<2	4	18	0.08	<10	<10	56	<10
H3-42		135	1	0.29	748	30	3	0.13	<2	2	17	0.10	<10	<10	44	<10

Comments: Cr >2000 ppm will cause a low bias on V-MS81

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To: BITTERROOT RESOURCES LTD.
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 3-SEP-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052562

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Zn ppm 2	ME-ICP06 SiO2 % 0.01	ME-ICP06 Al2O3 % 0.01	ME-ICP06 Fe2O3 % 0.01	ME-ICP06 CaO % 0.01	ME-ICP06 MgO % 0.01	ME-ICP06 Na2O % 0.01	ME-ICP06 K2O % 0.01	ME-ICP06 Cr2O3 % 0.01	ME-ICP06 TiO2 % 0.01	ME-ICP06 MnO % 0.01	ME-ICP06 P2O5 % 0.01	ME-ICP06 SrO % 0.01	ME-ICP06 BaO % 0.01	ME-ICP06 LOI % 0.01
H1-1		82	54.1	13.40	10.85	6.51	8.04	1.62	2.45	0.06	0.84	0.21	0.70	0.02	0.07	1.21
H2-1		56	46.7	8.89	10.60	14.50	12.25	1.54	1.81	0.11	0.81	0.24	0.94	0.01	0.05	1.45
H2-2		62	52.2	12.50	9.33	8.72	8.23	2.94	3.23	0.05	0.80	0.16	0.59	0.05	0.15	1.32
H2-A		73	48.9	12.15	13.10	7.51	10.35	2.56	2.56	0.09	0.71	0.24	0.23	0.02	0.06	1.75
H3-6		166	49.6	16.90	8.26	9.29	6.36	4.05	1.56	0.02	0.76	0.19	0.27	0.04	0.06	2.71
H3-7		41	57.0	13.65	12.35	6.60	3.64	3.72	0.67	0.01	1.96	0.22	0.17	0.03	0.05	0.47
H3-8		59	52.9	15.15	10.30	9.48	5.99	3.12	0.78	0.02	0.99	0.26	<0.01	0.02	0.02	0.83
H3-9		20	53.4	15.25	9.65	11.00	5.51	2.99	0.64	0.03	0.99	0.22	0.17	0.03	0.01	0.59
H3-10		78	46.2	11.40	12.95	15.45	8.22	1.70	0.62	0.39	0.43	0.34	0.01	0.02	0.03	2.03
H3-11		41	51.9	13.40	11.75	9.41	6.97	3.19	0.67	0.02	1.28	0.33	0.09	0.02	0.03	0.78
H3-12		41	51.6	12.90	10.60	10.85	7.66	3.43	0.49	0.04	1.26	0.28	0.10	0.03	0.01	0.59
H3-15		14	47.6	8.80	11.80	9.43	17.55	1.68	0.53	0.16	0.81	0.21	<0.01	<0.01	0.02	1.42
H3-15A		24	46.0	8.16	13.50	9.81	17.20	1.63	0.46	0.20	0.82	0.20	0.07	<0.01	<0.01	2.05
H3-16		15	49.0	7.32	11.75	10.70	16.25	1.54	0.54	0.28	0.60	0.25	0.02	0.01	<0.01	1.49
H3-17		13	51.1	3.76	11.85	11.00	18.55	0.81	0.32	0.30	0.35	0.29	0.02	0.01	<0.01	1.73
H3-18		70	44.6	10.75	8.73	1.14	24.3	0.29	6.39	0.17	0.40	0.09	0.03	0.01	0.28	3.09
H3-19		22	49.4	4.66	11.50	0.73	27.7	0.39	1.87	0.32	0.27	0.19	<0.01	0.01	0.03	2.70
H3-20		29	49.6	4.77	11.85	0.84	27.6	0.42	1.70	0.33	0.28	0.19	<0.01	0.01	0.02	2.82
H3-21		63	44.0	13.75	7.12	0.98	23.5	1.04	6.28	0.02	0.29	0.04	<0.01	0.02	0.08	2.71
H3-22		7	51.7	4.98	6.43	11.30	21.1	1.18	0.18	0.30	0.26	0.14	<0.01	0.01	<0.01	2.45
H3-23		47	48.7	5.10	10.95	1.30	27.3	0.30	2.73	0.36	0.30	0.20	<0.01	<0.01	0.03	3.38
H3-24		13	48.9	5.35	10.65	10.40	20.4	1.18	0.21	0.28	0.38	0.22	<0.01	<0.01	<0.01	2.17
H3-25		4	49.1	7.56	11.75	10.80	17.40	1.60	0.29	0.30	0.43	0.25	0.05	<0.01	<0.01	0.87
H3-26		33	48.3	10.10	11.40	10.55	15.15	1.59	1.22	0.24	0.36	0.29	0.06	0.01	0.01	1.32
H3-27		14	46.6	11.25	11.95	11.10	14.00	1.86	0.96	0.28	0.41	0.26	0.07	0.01	0.01	1.28
H3-28		19	56.5	11.30	7.39	7.58	9.21	2.78	0.92	0.15	0.22	0.19	0.05	0.01	0.01	2.03
H3-29		11	48.4	12.65	11.30	11.35	10.45	2.44	0.83	0.17	0.48	0.27	0.05	0.03	0.01	1.30
H3-30		35	47.5	9.78	12.05	10.75	12.55	1.66	0.79	0.21	0.36	0.34	0.03	0.01	<0.01	2.23
H3-31		19	47.2	8.49	12.05	15.55	12.10	1.44	0.67	0.21	0.45	0.36	0.04	0.02	0.02	1.09
H3-32		36	48.4	13.80	10.90	16.05	6.37	2.23	0.57	0.39	0.58	0.29	0.06	0.06	0.01	0.99
H3-33		41	45.6	11.20	11.20	10.25	14.80	1.51	1.46	0.23	0.41	0.24	0.03	0.01	0.02	2.70
H3-34		16	48.1	12.35	9.80	14.30	10.90	2.02	0.89	0.44	0.45	0.23	0.01	0.03	0.01	1.00
H3-35		27	46.5	9.67	12.05	11.10	13.75	1.27	1.04	0.28	0.44	0.29	0.05	<0.01	<0.01	1.92
H3-36		54	52.4	14.60	10.85	9.07	5.41	3.21	0.79	0.03	0.92	0.35	0.08	0.03	0.01	0.84
H3-37		33	51.8	15.20	10.05	7.92	6.00	4.17	0.92	0.03	0.94	0.30	0.07	0.03	0.02	1.07
H3-38		61	53.4	14.15	12.20	8.90	5.37	3.37	0.87	0.03	0.90	0.36	0.10	0.03	0.01	0.95
H3-39		27	46.0	7.71	11.70	14.40	14.10	1.44	0.48	0.29	0.44	0.32	0.04	0.01	0.01	2.33
H3-40		10	46.8	5.63	9.57	13.80	17.40	1.33	0.28	0.26	0.30	0.21	0.02	0.01	0.01	2.57
H3-41		33	45.0	7.70	10.65	6.06	22.5	1.48	1.37	0.30	0.31	0.15	0.01	<0.01	0.02	2.71
H3-42		30	47.1	7.41	10.90	3.47	23.0	1.10	1.71	0.31	0.30	0.16	0.04	<0.01	0.02	2.32

Comments: Cr >2000 ppm will cause a low bias on V-MS81

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Finalized Date: 3-SEP-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052562

Sample Description	Method / Analyte / Units / LOR	ME-ICP06 / Total / % / 0.01
H1-1		100.0
H2-1		99.9
H2-2		100.5
H2-A		100.0
H3-6		100.0
H3-7		100.5
H3-8		99.9
H3-9		100.5
H3-10		99.8
H3-11		99.8
H3-12		99.8
H3-15		100.0
H3-15A		100.0
H3-16		99.8
H3-17		100.0
H3-18		100.5
H3-19		99.8
H3-20		100.5
H3-21		99.8
H3-22		100.0
H3-23		100.5
H3-24		100.0
H3-25		100.5
H3-26		100.5
H3-27		100.0
H3-28		98.3
H3-29		99.7
H3-30		98.3
H3-31		99.7
H3-32		100.5
H3-33		99.7
H3-34		100.5
H3-35		98.4
H3-36		98.6
H3-37		98.5
H3-38		100.5
H3-39		99.3
H3-40		98.2
H3-41		98.3
H3-42		97.8

Comments: Cr >2000 ppm will cause a low bias on V-MS81

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CERTIFICATE OF ANALYSIS VA04052562

Sample Description	Method / Analyte / Units / LOR	WEI-21 Recvd Wt. kg 0.02	PGM-ICP23 Au ppm 0.001	PGM-ICP23 Pt ppm 0.005	PGM-ICP23 Pd ppm 0.001	ME-MS81 Ag ppm 1	ME-MS81 Ba ppm 0.5	ME-MS81 Ce ppm 0.5	ME-MS81 Co ppm 0.5	ME-MS81 Cr ppm 10	ME-MS81 Cs ppm 0.1	ME-MS81 Cu ppm 5	ME-MS81 Dy ppm 0.1	ME-MS81 Er ppm 0.1	ME-MS81 Eu ppm 0.1	ME-MS81 Ga ppm 1
H3-43		0.36	<0.001	0.011	0.009	<1	122.0	1.3	101.5	1930	45.6	55	0.9	0.6	0.1	9
H3-44		0.42	<0.001	0.013	0.028	<1	140.0	6.9	60.3	870	7.8	8	3.5	1.9	1.1	18
H3-45		0.38	<0.001	<0.005	0.005	<1	96.8	2.4	109.5	2590	3.6	51	0.6	0.3	0.2	6
H3-46		0.40	0.001	<0.005	0.004	<1	150.5	17.9	123.0	2120	1.6	42	1.4	0.7	0.4	5
H3-47		0.38	<0.001	0.005	0.020	<1	343	16.2	131.5	3180	6.7	52	0.9	0.5	0.4	6
H3-48		0.36	<0.001	0.009	0.005	<1	363	30.9	112.5	2640	5.3	41	1.0	0.5	0.7	6
H3-49		0.52	0.002	0.008	0.008	<1	144.5	28.3	122.5	2340	0.9	108	1.2	0.6	0.9	7
H3-50		0.56	<0.001	<0.005	0.007	<1	160.5	6.2	102.5	1880	4.3	45	1.5	0.8	0.4	7
H4-1		0.28	<0.001	<0.005	<0.001	<1	174.5	35.4	46.4	100	0.1	41	4.6	2.7	1.7	19
H4-2		0.32	<0.001	<0.005	0.008	<1	1020	146.0	51.9	750	5.2	5	5.3	2.3	3.4	14
H4-3		0.30	<0.001	<0.005	<0.001	<1	114.5	36.6	40.9	70	0.1	9	4.8	2.8	1.8	21
H4-4		0.42	<0.001	<0.005	<0.001	<1	49.4	20.7	46.8	30	0.3	72	6.6	4.1	1.9	20
H4-5		0.32	<0.001	<0.005	<0.001	<1	103.0	21.8	46.2	70	<0.1	29	5.7	3.6	1.5	21
H4-6		0.42	<0.001	0.007	0.012	<1	110.0	5.6	90.8	1760	8.3	50	1.6	1.0	0.5	14
H4-7		0.36	0.005	0.008	0.007	1	152.5	4.4	79.4	1940	26.2	38	1.1	0.6	0.4	9
H4-8		0.30	<0.001	<0.005	0.003	<1	926	79.6	55.3	920	13.0	<5	5.0	1.7	2.5	14
H4-9		0.48	0.003	0.006	<0.001	<1	277	93.6	42.3	60	0.8	182	4.2	2.0	2.6	18
H4-10		0.28	<0.001	<0.005	<0.001	<1	219	151.5	23.9	50	0.3	<5	6.7	3.1	4.4	19
H6-1		0.32	<0.001	<0.005	<0.001	<1	2080	60.8	71.1	70	0.4	122	3.6	1.4	2.5	14
H6-2		0.32	0.001	<0.005	<0.001	<1	593	145.5	48.9	160	0.1	175	8.5	3.6	4.2	10
H6-3		0.38	<0.001	<0.005	0.001	<1	2000	145.5	55.8	120	0.3	66	8.8	3.8	4.5	17
H6-4		0.38	<0.001	<0.005	0.001	<1	2480	119.0	79.6	100	0.4	260	7.4	3.1	4.3	14
H6-5		0.38	<0.001	<0.005	<0.001	<1	2020	128.5	57.8	150	0.6	99	7.6	3.6	3.6	17
H6-6		0.36	<0.001	<0.005	0.001	<1	236	88.8	62.6	1560	0.2	5	4.2	1.9	2.5	16
H6-7		0.36	<0.001	<0.005	<0.001	<1	1440	152.5	60.4	100	0.4	256	9.5	4.4	4.4	19

Comments: Cr >2000 ppm will cause a low bias on V-MS81

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: BITTERROOT RESOURCES LTD.
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 3-SEP-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052562

Sample Description	Method / Analyte / Units / LOR	ME-MS81 Gd ppm 0.1	ME-MS81 Hf ppm 1	ME-MS81 Ho ppm 0.1	ME-MS81 La ppm 0.5	ME-MS81 Lu ppm 0.1	ME-MS81 Mo ppm 2	ME-MS81 Nb ppm 1	ME-MS81 Nd ppm 0.5	ME-MS81 Ni ppm 5	ME-MS81 Pb ppm 5	ME-MS81 Pr ppm 0.1	ME-MS81 Rb ppm 0.2	ME-MS81 Sm ppm 0.1	ME-MS81 Sn ppm 1	ME-MS81 Sr ppm 0.1
H3-43		0.7	<1	0.2	<0.5	0.1	<2	1	1.4	1225	17	0.2	59.6	0.5	1	17.3
H3-44		3.0	2	0.7	1.2	0.2	<2	4	7.2	190	47	1.2	59.7	2.3	2	35.0
H3-45		0.6	1	0.1	0.6	<0.1	<2	1	1.3	926	9	0.2	17.6	0.4	1	58.1
H3-46		1.6	1	0.2	8.8	0.1	<2	1	8.5	1060	9	2.1	6.1	1.6	1	144.5
H3-47		1.3	1	0.2	7.3	<0.1	<2	1	7.8	1225	9	1.9	26.5	1.5	1	165.5
H3-48		1.6	1	0.2	16.6	<0.1	<2	1	13.2	1015	7	3.5	18.9	1.9	1	103.5
H3-49		2.0	1	0.2	12.2	<0.1	<2	1	13.2	1080	7	3.4	3.5	2.3	1	286
H3-50		1.1	1	0.3	2.7	0.1	7	2	3.4	886	7	0.7	19.1	0.9	1	71.7
H4-1		4.6	3	0.9	15.8	0.3	<2	6	20.0	37	16	4.6	13.4	4.6	1	259
H4-2		10.6	5	0.9	63.5	0.2	<2	6	76.1	160	9	18.2	105.0	13.6	1	346
H4-3		4.9	3	0.9	15.9	0.4	<2	6	21.3	24	15	4.8	5.9	4.8	2	274
H4-4		5.2	4	1.4	7.6	0.6	<2	5	14.7	44	7	3.0	7.5	4.5	2	132.5
H4-5		4.7	3	1.2	8.3	0.5	<2	5	14.2	52	12	3.0	6.3	4.0	1	233
H4-6		1.3	1	0.3	2.1	0.1	<2	2	3.5	950	11	0.7	39.3	1.1	1	27.2
H4-7		0.9	1	0.2	0.7	0.1	<2	1	2.7	797	13	0.5	156.5	0.7	1	18.4
H4-8		10.8	3	0.7	31.8	0.1	2	5	49.4	263	11	10.7	274	12.8	2	91.1
H4-9		8.0	3	0.7	37.8	0.2	<2	15	52.6	52	23	12.4	33.2	9.7	4	149.5
H4-10		13.0	4	1.2	61.3	0.3	<2	27	84.8	56	11	20.1	18.4	15.5	3	307
H6-1		7.7	1	0.6	23.5	0.1	2	2	41.0	54	<5	9.0	48.5	8.9	1	561
H6-2		16.0	2	1.4	58.5	0.3	<2	2	94.0	48	<5	20.6	7.0	18.6	1	736
H6-3		15.4	2	1.4	62.0	0.3	<2	4	87.8	49	<5	20.7	37.4	18.3	2	589
H6-4		13.8	1	1.2	45.0	0.2	<2	2	76.4	49	13	17.4	44.9	16.0	2	626
H6-5		14.5	3	1.3	52.3	0.3	<2	4	80.6	53	6	18.6	53.0	16.8	2	426
H6-6		8.2	3	0.7	34.6	0.2	<2	5	54.7	568	5	13.0	16.7	10.4	2	239
H6-7		16.8	3	1.5	64.2	0.4	<2	8	96.2	46	<5	22.3	40.5	19.2	2	505

Comments: Cr >2000 ppm will cause a low bias on V-MS81

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Finalized Date: 3-SEP-2004
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CERTIFICATE OF ANALYSIS VA04052562

Sample Description	Method	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-MS81	ME-ICP41	ME-ICP41	ME-ICP41
	Analyte	Ta	Tb	Th	Tl	Tm	U	V	W	Y	Yb	Zn	Zr	Ag	Al	As
	Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	ppm	%	ppm
	LOR	0.5	0.1	1	0.5	0.1	0.5	5	1	0.5	0.1	5	0.5	0.2	0.01	2
H3-43		<0.5	0.1	<1	<0.5	0.1	<0.5	<5	<1	5.9	0.6	115	16.8	<0.2	1.68	<2
H3-44		<0.5	0.5	<1	<0.5	0.2	1.8	223	84	19.6	1.6	122	66.3	<0.2	1.24	<2
H3-45		<0.5	0.1	<1	<0.5	<0.1	<0.5	<5	1	3.8	0.4	65	22.4	<0.2	0.96	3
H3-46		<0.5	0.2	<1	<0.5	0.1	0.5	<5	<1	7.2	0.6	70	15.4	0.2	0.28	<2
H3-47		<0.5	0.1	<1	<0.5	<0.1	1.1	<5	<1	5.3	0.4	82	20.3	<0.2	0.89	<2
H3-48		<0.5	0.2	2	<0.5	<0.1	<0.5	<5	1	4.7	0.4	68	17.6	<0.2	0.71	<2
H3-49		<0.5	0.2	<1	<0.5	<0.1	0.7	<5	4	6.2	0.5	50	20.2	<0.2	0.40	<2
H3-50		<0.5	0.2	<1	<0.5	0.1	0.5	<5	<1	7.3	0.7	70	18.4	<0.2	0.63	<2
H4-1		<0.5	0.8	1	<0.5	0.4	<0.5	305	<1	22.6	2.4	85	100.5	<0.2	1.40	<2
H4-2		<0.5	1.3	7	<0.5	0.2	1.7	151	<1	22.8	1.6	206	154.0	<0.2	2.37	<2
H4-3		<0.5	0.8	1	<0.5	0.4	<0.5	332	<1	24.6	2.4	92	108.5	<0.2	0.74	<2
H4-4		<0.5	1.0	1	<0.5	0.6	<0.5	320	<1	34.7	3.9	89	101.5	<0.2	1.62	<2
H4-5		<0.5	0.9	1	<0.5	0.5	<0.5	449	<1	32.1	3.5	112	94.8	<0.2	0.88	2
H4-6		<0.5	0.2	<1	<0.5	0.1	<0.5	29	<1	9.5	0.9	122	28.2	<0.2	0.97	<2
H4-7		<0.5	0.1	<1	0.6	0.1	<0.5	<5	<1	7.1	0.6	447	22.7	0.3	3.14	<2
H4-8		<0.5	1.3	6	0.6	0.2	1.4	99	<1	23.4	1.2	525	104.5	<0.2	2.97	2
H4-9		0.6	0.9	3	<0.5	0.2	0.6	214	<1	22.8	1.5	146	107.5	<0.2	1.46	2
H4-10		1.2	1.5	5	<0.5	0.4	1.4	281	<1	34.5	2.3	323	144.0	<0.2	2.67	3
H6-1		<0.5	0.9	<1	<0.5	0.1	<0.5	829	<1	15.0	0.9	184	22.5	0.2	1.93	3
H6-2		<0.5	2.0	1	<0.5	0.4	0.7	353	<1	37.6	2.4	122	50.6	0.2	0.50	<2
H6-3		<0.5	2.0	1	<0.5	0.4	<0.5	649	<1	38.6	2.6	211	54.4	<0.2	1.40	4
H6-4		<0.5	1.7	1	<0.5	0.3	<0.5	660	<1	31.0	1.9	185	38.1	0.2	1.84	<2
H6-5		<0.5	1.8	1	<0.5	0.3	<0.5	637	1	36.6	2.4	209	62.4	<0.2	1.51	2
H6-6		<0.5	1.0	1	<0.5	0.2	<0.5	138	<1	21.4	1.5	142	120.0	<0.2	1.23	<2
H6-7		<0.5	2.1	1	<0.5	0.4	<0.5	588	<1	45.3	3.2	217	73.0	<0.2	1.30	3

Comments: Cr >2000 ppm will cause a low bias on V-MS81

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To: BITTERROOT RESOURCES LTD.
1080 GORDON AVE
WEST VANCOUVER BC V7T 1P6

Finalized Date: 3-SEP-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052562

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 B ppm 10	ME-ICP41 Ba ppm 10	ME-ICP41 Be ppm 0.5	ME-ICP41 Bi ppm 2	ME-ICP41 Ca % 0.01	ME-ICP41 Cd ppm 0.5	ME-ICP41 Co ppm 1	ME-ICP41 Cr ppm 1	ME-ICP41 Cu ppm 1	ME-ICP41 Fe % 0.01	ME-ICP41 Ga ppm 10	ME-ICP41 Hg ppm 1	ME-ICP41 K % 0.01	ME-ICP41 La ppm 10	ME-ICP41 Mg % 0.01
H3-43		<10	120	<0.5	<2	0.40	<0.5	40	675	61	1.70	<10	<1	0.97	<10	2.76
H3-44		<10	110	<0.5	<2	0.63	<0.5	15	195	5	1.86	<10	<1	1.00	<10	1.70
H3-45		<10	90	<0.5	<2	1.58	<0.5	46	1020	58	3.96	<10	<1	0.41	<10	3.56
H3-46		<10	130	<0.5	<2	0.58	<0.5	71	496	47	3.16	<10	<1	0.15	<10	5.61
H3-47		<10	320	<0.5	<2	0.56	<0.5	68	1090	57	4.06	<10	<1	0.52	<10	5.40
H3-48		<10	350	<0.5	<2	0.35	<0.5	46	560	45	2.15	<10	<1	0.37	10	2.67
H3-49		<10	110	<0.5	<2	1.35	<0.5	68	970	129	3.40	<10	<1	0.10	10	1.98
H3-50		<10	150	<0.5	<2	0.41	<0.5	39	442	58	1.36	<10	<1	0.39	<10	1.64
H4-1		<10	60	<0.5	<2	1.78	<0.5	19	42	50	3.42	10	<1	0.39	10	1.18
H4-2		<10	690	<0.5	<2	1.93	<0.5	21	309	5	2.91	<10	<1	1.54	50	2.86
H4-3		<10	30	<0.5	<2	1.05	<0.5	9	20	13	1.62	<10	<1	0.12	10	0.56
H4-4		<10	30	<0.5	<2	1.69	<0.5	21	12	84	4.38	10	<1	0.37	<10	1.20
H4-5		<10	10	<0.5	<2	1.10	<0.5	11	22	35	2.21	<10	<1	0.07	10	0.57
H4-6		<10	100	<0.5	<2	0.48	<0.5	28	336	65	1.52	<10	<1	0.61	<10	1.39
H4-7		<10	160	<0.5	<2	0.55	0.6	56	1100	44	4.30	10	<1	2.36	<10	5.00
H4-8		<10	420	<0.5	<2	0.78	<0.5	32	561	1	3.66	10	<1	3.44	20	3.66
H4-9		<10	150	<0.5	<2	1.88	<0.5	14	31	224	5.12	10	<1	0.37	40	0.71
H4-10		<10	80	0.8	<2	3.06	<0.5	10	22	5	5.52	10	<1	0.52	50	1.38
H6-1		<10	170	<0.5	<2	2.61	<0.5	50	31	154	12.25	10	<1	1.76	10	2.26
H6-2		<10	330	<0.5	<2	4.08	<0.5	23	39	200	2.98	<10	<1	0.21	30	0.94
H6-3		<10	1620	<0.5	<2	2.64	<0.5	23	46	79	5.90	10	<1	1.14	20	1.53
H6-4		<10	130	<0.5	<2	2.87	<0.5	52	54	339	8.96	10	<1	1.54	10	2.02
H6-5		<10	1720	<0.5	<2	2.45	<0.5	25	58	112	5.54	10	<1	1.52	20	1.66
H6-6		<10	160	<0.5	<2	1.68	<0.5	13	276	4	1.71	<10	<1	0.56	20	1.94
H6-7		<10	1040	<0.5	<2	2.61	<0.5	26	30	255	4.12	10	<1	1.13	30	1.44

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Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Mn ppm 5	ME-ICP41 Mo ppm 1	ME-ICP41 Na % 0.01	ME-ICP41 Ni ppm 1	ME-ICP41 P ppm 10	ME-ICP41 Pb ppm 2	ME-ICP41 S % 0.01	ME-ICP41 Sb ppm 2	ME-ICP41 Sc ppm 1	ME-ICP41 Sr ppm 1	ME-ICP41 Ti % 0.01	ME-ICP41 Tl ppm 10	ME-ICP41 U ppm 10	ME-ICP41 V ppm 1	ME-ICP41 W ppm 10
H3-43		93	1	0.20	762	10	3	0.22	<2	3	6	0.09	<10	<10	35	<10
H3-44		136	1	0.09	58	330	<2	0.02	<2	3	5	0.21	<10	<10	51	70
H3-45		446	2	0.09	616	80	2	0.27	<2	4	41	0.06	<10	<10	53	<10
H3-46		325	<1	0.04	993	210	<2	0.27	<2	1	89	0.03	<10	<10	24	<10
H3-47		340	1	0.14	1020	90	4	0.35	<2	3	142	0.07	<10	<10	57	<10
H3-48		187	<1	0.10	825	110	4	0.31	<2	2	57	0.06	<10	<10	32	<10
H3-49		186	1	0.10	983	120	3	0.69	<2	2	238	0.04	<10	<10	56	<10
H3-50		110	<1	0.08	654	130	<2	0.24	<2	1	28	0.06	<10	<10	32	<10
H4-1		513	1	0.26	22	930	2	0.19	<2	11	16	0.25	<10	<10	100	<10
H4-2		463	1	0.15	86	3200	3	0.02	<2	6	56	0.24	<10	<10	64	<10
H4-3		226	1	0.12	9	940	<2	0.07	<2	5	10	0.15	<10	<10	50	<10
H4-4		447	1	0.39	26	790	<2	0.19	<2	14	9	0.27	<10	<10	124	<10
H4-5		234	<1	0.16	18	810	<2	0.11	<2	7	9	0.11	<10	<10	76	<10
H4-6		148	<1	0.08	466	130	<2	0.20	<2	2	3	0.08	<10	<10	26	<10
H4-7		257	3	0.09	735	70	5	0.95	<2	2	10	0.15	<10	<10	64	<10
H4-8		633	1	0.05	182	2250	<2	0.01	<2	3	14	0.33	<10	<10	86	<10
H4-9		580	1	0.20	21	2460	2	0.22	<2	3	29	0.15	<10	<10	58	<10
H4-10		1355	1	0.32	26	3770	4	0.06	<2	10	61	0.26	<10	<10	108	<10
H6-1		315	2	0.08	43	>10000	<2	0.72	2	4	460	0.32	<10	<10	472	<10
H6-2		297	<1	0.14	29	>10000	2	0.66	2	6	560	0.12	<10	<10	87	<10
H6-3		316	1	0.15	25	9670	2	0.17	<2	4	395	0.32	<10	<10	223	<10
H6-4		357	1	0.11	35	>10000	4	0.89	<2	5	453	0.41	<10	<10	340	<10
H6-5		274	1	0.10	28	9780	<2	0.13	<2	2	285	0.36	<10	<10	212	<10
H6-6		249	<1	0.25	132	1580	<2	0.02	<2	4	74	0.18	<10	<10	39	<10
H6-7		325	1	0.12	24	9840	3	0.30	<2	3	353	0.32	<10	<10	132	<10

Comments: Cr >2000 ppm will cause a low bias on V-MS81

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Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052562

Sample Description	Method / Analyte / Units / LOR	ME-ICP41 Zn ppm 2	ME-ICP06 SiO2 % 0.01	ME-ICP06 Al2O3 % 0.01	ME-ICP06 Fe2O3 % 0.01	ME-ICP06 CaO % 0.01	ME-ICP06 MgO % 0.01	ME-ICP06 Na2O % 0.01	ME-ICP06 K2O % 0.01	ME-ICP06 Cr2O3 % 0.01	ME-ICP06 TiO2 % 0.01	ME-ICP06 MnO % 0.01	ME-ICP06 P2O5 % 0.01	ME-ICP06 SrO % 0.01	ME-ICP06 BaO % 0.01	ME-ICP06 LOI % 0.01
H3-43		26	49.3	6.94	11.00	4.05	21.0	1.16	1.15	0.28	0.29	0.16	<0.01	<0.01	0.01	2.31
H3-44		33	47.6	9.86	12.25	8.56	13.45	1.96	1.38	0.12	0.91	0.17	0.10	<0.01	0.02	1.72
H3-45		15	45.6	4.00	12.70	4.08	25.1	0.43	0.53	0.40	0.36	0.20	0.05	0.01	0.01	5.30
H3-46		20	46.6	3.26	12.50	3.70	28.4	0.54	0.23	0.32	0.30	0.19	0.08	0.02	0.02	3.03
H3-47		20	47.0	3.27	13.65	1.78	29.0	0.33	0.62	0.47	0.31	0.21	0.04	0.02	0.04	2.74
H3-48		9	49.9	3.74	12.65	2.31	27.5	0.42	0.48	0.41	0.36	0.22	0.03	0.01	0.04	1.49
H3-49		8	47.6	3.96	13.00	5.77	25.2	0.70	0.20	0.37	0.35	0.21	0.01	0.04	0.02	2.29
H3-50		9	50.5	4.18	12.95	3.57	24.6	0.57	0.51	0.32	0.30	0.21	0.03	0.01	0.02	1.47
H4-1		34	51.5	13.55	13.60	8.67	5.55	3.33	1.18	0.02	1.42	0.22	0.19	0.03	0.02	0.70
H4-2		107	45.6	10.65	10.70	13.05	12.95	1.40	2.38	0.12	0.81	0.23	0.71	0.04	0.12	1.31
H4-3		19	52.0	13.90	13.20	9.43	5.46	2.77	0.77	0.01	1.46	0.23	0.21	0.03	0.01	0.33
H4-4		46	51.2	13.50	16.45	6.92	4.87	4.09	0.67	<0.01	1.88	0.20	0.17	0.02	0.01	0.23
H4-5		24	51.2	13.90	15.95	8.26	4.51	2.95	0.54	0.01	1.84	0.22	0.19	0.03	0.01	0.18
H4-6		27	48.5	8.31	11.55	9.88	14.90	1.22	0.97	0.27	0.45	0.22	0.07	<0.01	0.01	1.18
H4-7		392	46.4	7.67	11.05	6.93	18.60	0.58	2.77	0.31	0.33	0.18	<0.01	<0.01	0.02	3.14
H4-8		373	47.6	9.34	10.35	9.28	13.25	0.91	4.41	0.13	0.66	0.29	0.55	0.01	0.11	1.48
H4-9		49	40.0	13.20	24.9	10.00	4.59	1.58	1.32	0.01	1.04	0.53	0.55	0.02	0.03	0.50
H4-10		157	39.2	15.15	21.1	10.80	4.65	1.86	1.46	0.01	1.52	0.75	0.81	0.04	0.03	1.03
H6-1		123	32.8	4.65	28.2	14.20	10.50	0.45	2.05	0.01	2.60	0.27	2.23	0.07	0.24	0.53
H6-2		32	44.9	2.58	13.20	22.1	11.20	1.08	0.34	0.02	0.64	0.30	2.99	0.09	0.07	1.02
H6-3		92	38.8	5.03	20.9	15.75	10.20	1.08	1.46	0.01	2.34	0.32	2.05	0.07	0.22	-0.47
H6-4		108	37.1	4.62	21.7	15.60	10.40	0.67	1.74	0.01	2.32	0.29	2.29	0.08	0.28	0.41
H6-5		94	39.6	4.71	20.2	16.10	10.95	0.93	1.75	0.02	2.24	0.32	2.06	0.05	0.23	-0.24
H6-6		34	45.0	8.67	9.85	12.90	15.40	1.74	1.26	0.18	0.98	0.18	0.31	0.03	0.03	1.05
H6-7		76	40.7	5.20	19.25	15.40	9.83	1.44	1.54	0.01	2.13	0.32	2.20	0.07	0.18	0.95

Comments: Cr >2000 ppm will cause a low bias on V-MS81

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To: BITTERROOT RESOURCES LTD.
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Finalized Date: 3-SEP-2004
Account: LJD

Project: Mistassinai

CERTIFICATE OF ANALYSIS VA04052562

Sample Description	Method Analyte Units LOR	ME-ICP06 Total % 0.01
H3-43		97.7
H3-44		98.1
H3-45		98.8
H3-46		99.2
H3-47		99.5
H3-48		99.6
H3-49		99.7
H3-50		99.2
H4-1		100.0
H4-2		100.0
H4-3		99.8
H4-4		100.0
H4-5		99.8
H4-6		97.5
H4-7		98.0
H4-8		98.4
H4-9		98.3
H4-10		98.4
H6-1		98.8
H6-2		100.5
H6-3		98.7
H6-4		97.5
H6-5		99.4
H6-6		97.6
H6-7		99.2

Comments: Cr >2000 ppm will cause a low bias on V-MS81

Appendix VIII. Diamond Drill Logs for Drillholes BQ01-BQ08, Twins property.

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG | HOLE NO. DDHBQ01 | PAGE 1 of 5

Project: Mistassini/Twins (South)	NTS: NAD 27	Date Collared: July 10/04	Date Completed: July 12/04	Drilled By: Chibogamau	Assayed By: Chemex	Logged By: Nick Thomas
Coordinates: 381793/5632972	Elevation: 525	Azimuth: 45	Dip: -50	Total Length: 175m	Checked By: C. Greig & S. Flasha	
Drillhole Purpose / Target: Nickel/Copper			Down Hole Survey: -51			

From	To	Description	Sample Collection				Mineralization Estimates										Assay Results				
			Sample	From	To	Interval	Pyrrhotite		Chalcopyrite		Pyrite		Magnetite		Other		Ni	Cu	Co	Pt	Pd
(m)	(m)		Number	(m)	(m)	(m)	Style	%	Style	%	Style	%	Style	%	Style	%					
0.00	7.00	OVERBURDEN																			
7.00	12.70	SPOTTED GNEISS - garnet biotite quartzofeldspathic gneiss - fine- to medium-grained																			
		biotite (5-10%) aggregates yield a mottled texture, weakly developed foliation (0-16 degrees to CA)																			
		7.36 - 8.10m } mineralized					dis	1													
		8.10 - 8.42m } mineralized					fol	1-3													
		8.42 - 10.71m } mineralized					dis	1			dis	tr									
		9.97 - 10.15m biotite pegmatite																			
							blb	tr													
12.70	32.57	MIXED GNEISS - sections defined by the following titles:																			
		BIOTITE QUARTZOFELDSPATHIC GNEISS (with trace muscovite)					dis	tr													
		fine- to medium-grained, 5-10% biotite																			
		weak to moderate foliation, texturally similar to 'spotted' gneiss.																			
		BIOTITE PEGMATITE																			
		pink colour noted with some feldspar (potassic alt?)																			
		GRANODIORITE more leucocratic at contact of pegmatite above																			
		1-3% biotite with a weakly developed foliation (20 degrees to CA)																			
		12.70-13.50m BIOTITE GRANODIORITE GNEISS biotite 1-3%					dis	tr													
		fine grained, leucocratic (25 on colour scale) rock																			
		section starts and ends with foliation parallel, 1cm wide pegmatite layers (25 degrees to CA)																			
		13.50-13.70m BIOTITE GRANODIORITE GNEISS biotite 10%					dis	tr													
		fine- to medium-grained with weakly developed foliation																			
		13.70-13.90m BIOTITE PEGMATITE																			
		contacts roughly parallel to foliation of surrounding gneiss																			
		13.90-14.70m BIOTITE GRANODIORITE GNEISS biotite 10%					dis	tr													
		weakly developed foliation 25 degrees to CA																			
		14.70-15.01m BIOTITE PEGMATITE					blb	tr													
		15.01 - 16.00m BIOTITE GRANODIORITE GNEISS biotite 1-3%																			
		fine- to medium-grained, more leucocratic than 13.90-14.70 gneiss																			
		weakly developed foliation, with centimetre-scale pegmatite (injection?)																			
		16.00-16.44m BIOTITE PEGMATITE contact warped: from 28 to 35 degrees either side of the core axis					blb	tr					blb	tr							
		16.44-18.85m BIOTITE GRANODIORITE GNEISS biotite 3%																			
		fine-grained, weakly developed foliation (parallel to CA)																			
		centimetre-scale pegmatite injections noted at contacts																			
		may just be pegmatitic at the contacts?																			
		18.85-19.76m BIOTITE GRANODIORITE GNEISS biotite 10%																			
		fine-grained, moderately well developed foliation and compositional layering throughout interval																			
		19.76-23.46m BIOTITE GRANODIORITE GNEISS 3% biotite																			
		fine- to medium-grained with weakly developed foliation																			
		local chlorite alteration of biotite on fractures																			
		centimetre-scale pegamtite injections/layers/segregations noted																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG | HOLE NO DDHBQ01 |

Project: Mistassini/Twins (South) | NTS: NAD 27 | Date Collared: July 10/04 | Date Completed: July 12/04 | Drilled By: Chibogamau | Assayed By: Chemex | Logged By: Nick Thomas

Coordinates: 381793/5632972 | Elevation: 525 | Azimuth: 45 | Dip: -50 | Total Length: 175m | Checked By: C Greig & S. Flasha

Drillhole Purpose / Target: Nickel/Copper | Down Hole Survey: -51

From (m)	To (m)	Description	Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
		23.46-24.52m BIOTITE PEGMATITE																			
		contact subparallel to CA																			
		24.52-25.28m BIOTITE QUARTZOFELDSPATHIC GNEISS biotite 3%																			
		weakly developed foliation (12 degrees to CA)																			
		25.28-25.52m BIOTITE PEGMATITE																			
		14cm wide pegmatite injection/layer/segregation																			
		upper and lower contacts at 20 degrees to CA																			
		25.52-28.60m BIOTITE QUARTZOFELDSPATHIC GNEISS																			
		28.60-29.00m BIOTITE PEGMATITE																			
		29.00-29.38m BIOTITE QUARTZOFELDSPATHIC GNEISS biotite 3%					dis	tr													
		weakly developed foliation																			
		29.38-29.86m BIOTITE QUARTZOFELDSPATHIC GNEISS biotite 10%																			
		fine-grained, moderately well developed foliation parallel to core axis on upper and lower contacts																			
		29.86-30.12m BIOTITE QUARTZOFELDSPATHIC GNEISS same as 29.00-29.38m																			
		weakly developed foliation																			
		30.12-30.40m BIOTITE PEGMATITE same as 23.46-24.52m																			
		30.40-31.40m BIOTITE QUARTZOFELDSPATHIC GNEISS same as 29.00-29.38m					dis	tr													
		31.40-32.55m BIOTITE PEGMATITE same as 23.46-24.52m																			
32.55	54.50	BIOTITE QUARTZOFELDSPATHIC GNEISS																			
		interval shows increased biotite from typical 5-10% to 10-15%																			
		weak to moderately well developed compostional layering at low angles to CA and																			
		centimetre-scale layers (injections?) of pegmatite																			
		32.55-34.03m BIOTITE QUARTZOFELDSPATHIC GNEISS					dis	tr													
		moderately well developed foliation, fine-grained																			
		biotite; 25% near lower contact with pegmatite																			
		34.03-34.43m BIOTITE PEGMATITE									dis	tr									
		lower contact (14 degrees to CA)																			
		34.43-36.33m BIOTITE QUARTZOFELDSPATHIC GNEISS same as 32.55-34.03m									dis	tr									
		36.33-37.10m BIOTITE PEGMATITE																			
		upper and lower contacts sub-parallel to CA																			
		37.10-54.50m @ BIOTITE QUARTZOFELDSPATHIC GNEISS 'spotted' appearance					dis	tr			dis	tr									
		biotite 10-15% with moderately well developed compositional layering																			
		decimetre- to centimetre-scale pegmatite injections/layers/segregations																			
		46.48-54.50m garnet present; fine- to coarse-grained, trace to 1% locally																			
		46.00-54.50m pegmatite injections/layers/segregations throughout interval; 4/m					dis	tr													
		millimetre- to centimetre-scale, with contacts sub-parallel to core axis																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG	HOLE NO DDHBQ01	PAGE 3 of 5

Project: Mistassini/Twins (South)	NTS: NAD 27	Date Collared: July 10/04	Date Completed: July 12/04	Drilled By: Chibogamau	Assayed By: Chemex
Logged By: Nick Thomas					
Coordinates: 381793/5632972	Elevation: 525	Azimuth: 45	Dip: -50	Total Length: 175m	Checked By: C. Greig & S. Flasha
Drillhole Purpose / Target: Nickel/Copper			Down Hole Survey: -51		

From (m)	To (m)	Description	Sample Collection: Sample Number	From (m)	To (m)	Interval (m)	Mineralization Estimates: Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Assay Results: Ni	Cu	Co	Pt	Pd
54.50	76.20	GARNET BIOTITE QUARTZO FELDSPATHIC GNIESS 5-10% biotite, locally 15%					dis	tr			dis	tr									
		fine- to medium-grained, weakly developed foliation sub-parallel to CA																			
		centimetre-scale pegmatite injections/layers/segregations (1/m), parallel to foliation																			
		trace fine-grained, locally 3%																			
76.20	80.68	GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS					fol	tr			dis	tr									
		77.03-80.68m pt; disseminated and in blebs; interval strongly magnetic					fol	10			fol	3									
		local centimetre/decimetre scale sub circular garnet clusters; 5-10% locally																			
		interval very magnetic																			
		decimeter-scale pegmatite layers/injections/segregations throughout section (2/m) associated with sulphides																			
		mm scale, foliation parallel pyrite layer at 78.20m																			
80.68	89.30	GARNET AMPHIBOLE BIOTITE QUARTZOFELDSPATHIC GNEISS biotite 30%					dis	tr			dis	tr									
		fine-grained, with moderately well developed foliation (9 degrees to CA)																			
		decimetre- to centimetre-scale pegmatite layers (2/m)																			
		amphibole 5%																			
		garnet 1-3%, medium-grained																			
89.30	98.54	GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS biotite 5%					dis	tr													
		same as 54.50m																			
		fine- to medium-grained, moderately well developed foliation																			
		generally not very magnetic																			
		moderately well-developed compositional layering; a true gneiss																			
		96.10-98.54m weak muscovite/chlorite alteration																			
98.54	119.00	GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS biotite 5-10%																			
		weakly developed foliation																			
		fine- to medium-grained																			
		garnet 1%																			
		98.54-112.84m GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS																			
		fine- to medium-grained with weakly developed foliation																			
		biotite 10% garnet 2%																			
		garnet rare after 121.84m																			
		99.45-99.68m BIOTITE PEGMATITE					dis	tr			dis	tr									
		injection?																			
		103.00-103.58m PEGMATITE	BQ0001	103.03	103.58	0.45	lay	3			lay	10									
		centimetre-scale pyrite and pyrrhotite layers, parallel to foliation																			
		pyrrhotite 3% pyrite 10%																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG | HOLE NO DDHBQ01 |

Project: Mistassini/Twins (South) | NTS: NAD 27 | Date Collared: July 10/04 | Date Completed: July 12/04 | Drilled By: Chibogamau | Assayed By: Chemex | Logged By: Nick Thomas

Coordinates: 381793/5632972 | Elevation: 525 | Azimuth: 45 | Dip: -50 | Total Length: 175m | Checked By: C. Greig & S. Flasha

Drillhole Purpose / Target: Nickel/Copper | Down Hole Survey: -51

From (m)	To (m)	Description	Sample Collection: Sample Number	From (m)	To (m)	Interval (m)	Mineralization Estimates: Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Assay Results: Ni	Cu	Co	Pt	Pd
		103.58-104.17m GARNET BIOTITE QUARTZOFELDSPATHIC GNIESS	BQ0002	103.58	103.98	0.40	dis	tr			dis	tr									
		biotite 5%, trace garnet; fine-grained, weakly developed foliation (18 degrees to CA)																			
		one, 20cm layer of pegmatite within interval																			
		104.17-105.8m GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS	BQ0003	103.98	105.80	1.82	fol	3			fol	2									
		gneiss with centimetre-scale pegmatite injections, running sub-parallel to CA pyrrhotite																			
		and pyrite in millimetre-scale foliation parallel layers generally magnetic throughout interval																			
		biotite 15%, 20% locally																			
		108.5-110.6m GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS	BQ0004	108.53	110.62	2.09	fol	3			fol	2									
		fine- to medium-grained with weakly developed foliation mineralization is with biotite																			
		on foliation strongly magnetic																			
		112.06-113.43m GARNET BIOTITE QUARTZOFELDSPTHIC GNEISS	BQ0005	112.09	113.44	1.35	fol	1			fol	1									
		same as 108.5-110.6m; mm scale foliation parallel layers of pyrite and pyrrhotite																			
		113.43-119.0m AMPHIBOLE BIOTITE QUARTZOFELDSPATHIC GNEISS					fol	tr			fol	tr									
		fine- to medium-grained with weakly developed foliation; foliation parallel mm scale pt and py																			
		local centimetre-scale pegmatite																			
119.00	132.00	SPOTTED GNEISS					dis	tr													
		non-foliated or weakly developed foliation (5 degrees to CA); centimetre-scale																			
		pegmatite injections/layers/segregations sub-parallel to core axis; millimetre- to centimetre																			
		aggregates of biotite (5-10%) give rock "spotted" appearance; weakly magnetic interval																			
132.00	133.87	BIOTITE PEGMATITE					dis	tr													
		biotite 40-50% of mode; non-foliated; mm scale fractures and cm scale vugs																			
		contain calcite and biotite																			
133.87	155.46	SPOTTED GNEISS same as 119.0-132.0m					fol	tr			fol	tr									
		weakly developed foliation(14 degrees to CA); mm to cm scale pegmatite (injections?) througho	BQ0113	145.21	145.53	0.32															
		interval (1/m); 138.20m -pyrite and pyrrhotite occur with biotite in 0.5 cm wide, foliation parallel l	BQO280	145.21	145.53	0.32															
		***blank samples taken from 145.21 - 150.55m interval	BQ0133	145.53	145.78	0.25															
			BQO291	145.53	145.78	0.25															
			BQO262	147.00	147.30	0.30															
			BQ0144	147.00	147.30	0.30															
			BQ0146	146.00	146.33	0.33															
			BQO300	146.00	146.33	0.33															
			BQ0153	146.37	146.70	0.33															
		(blank samples)	BQO318	146.37	146.70	0.33															
			BQO309	146.33	146.37	0.04															
			BQ0162	146.33	146.37	0.04															
			BQO329	146.70	146.90	0.20															
			BQ0171	146.70	146.90	0.20															
			BQ0177	147.30	147.62	0.32															

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG | HOLE NO DDHBQ01 | PAGE 5 of 5

Project: Mistassini/Twins (South) | NTS: NAD 27 | Date Collared: July 10/04 | Date Completed: July 12/04 | Drilled By: Chibogamau | Assayed By: Chemex | Logged By: Nick Thomas

Coordinates: 381793/5632972 | Elevation: 525 | Azimuth: 45 | Dip: -50 | Total Length: 175m | Checked By: C. Greig & S. Flasha

Drillhole Purpose / Target: Nickel/Copper | Down Hole Survey: 51

			Sample Collection				Mineralization Estimates										Assay Results				
From	To	Description	Sample	From	To	Interval	Pyrrhotite		Chalcopyrite		Pyrite		Magnetite		Other		Ni	Cu	Co	Pt	Pd
(m)	(m)		Number	(m)	(m)	(m)	Style	%	Style	%	Style	%	Style	%	Style	%					
			BQO271	147.30	147.62																
			BQ0183	147.80	148.07																
		(blank samples cont.)	BQO340	147.80	148.07																
			BQO405	148.07	148.38																
			BQ0190	148.07	148.38																
			BQO197	148.38	148.58																
			BQO421	148.38	148.58																
			BQO204	148.58	148.87																
			BQO430	148.58	148.87																
			BQO211	148.87	149.12																
			BQO222	149.42	149.67																
			BQO384	149.42	149.67																
			BQO230	149.67	150.00																
			BQO375	149.67	150.00																
			BQO236	146.90	147.00																
			BQO356	150.00	150.32																
			BQO240	150.00	150.32																
			BQO245	150.55	150.88																
			BQO246	150.32	150.55																
			BQO365	150.32	150.55																
			BQO394	149.12	149.42																
			BQO253	149.12	149.42																
		139.40-140.62m "SPOTTED" GNEISS									dis	tr									
		weakly developed foliation (35 degrees to CA)																			
		feldspar pinking (potassic alteration ??) and biotite altered to chlorite in this interval																			
		centimetre-scale injections/layers/segregations of pegmatite																			
155.46	156.92	BIOTITE PEGMATITE																			
		pegmatite shows graphic texture																			
		massive biotite 70% locally																			
		upper contact at 13 degrees to CA																			
		local vugs show euhedral calcite grains																			
156.92	175.00	SPOTTED GNEISS same as 119.0-132.0m																			
		weakly developed compositional layering (9 degrees to core axis).																			
		centimetre-scale pegmatite injections/layers/segregations parallel with foliation																			
		166.46m - 3 centimetre wide pegmatite cross-cuts foliation																			
	175.00	EOH																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG			HOLE NO. DDHBQ02	PAGE 1 of 9
Project: Mistassini/Twins (South)	NTS: NAD 27	Date Collared: July 12/04	Date Completed: July 13/04	Drilled By: Chibogamau
Assayed By: Chemex	Logged By: Nick Thomas			
Coordinates: 381694/5633488	Elevation: 555	Azimuth: 45	Dip: -50	Total Length: 195m
Checked By: C. Greig &				
Drillhole Purpose / Target:	S Flasha			

Flag	From (m)	To (m)	Description		Sample Number	Sample From (m)	Sample To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
	0.00	2.80		OVERBURDEN																			
	2.80	5.53		BIOTITE AMPHIBOLITE					blb	tr					euh	tr							
				amphibole 10% - locally 35% feldspar 50-60% biotite 5-10%																			
				medium-grained weakly developed foliation																			
				trace pyrite, pyrrhotite and magnetite																			
				centimetre- to decimetre-scale biotite pegmatite injections 53 degrees to CA																			
				pegmatite pinkish, massive and very coarse grained throughout interval																			
				foliation stronger at pegmatite contacts Reference Sample No. 001																			
	5.53	7.04		GRANODIORITE																			
				fine-grained biotite granodiorite, 56 degrees to CA; unfoliated to weakly foliated, 30 degrees to CA																			
				Reference Sample No.004																			
			5.76-5.94m	AMPHIBOLITE									dis	tr									
				upper contact is 46 degrees to CA lower gradational to granodiorite																			
				trace disseminated pyrite with biotite grains																			
	7.04	7.32		BIOTITE AMPHIBOLITE same as 2.80-5.53m																			
				weakly developed foliation brief section																			
				upper contact is 43 degrees to CA; lower contact is 58 degrees to CA (not parallel to upper)																			
				biotite 80% for 8cm at 7.24m - this section is strongly magnetic											dis	8							
	7.32	9.72		BIOTITE GRANITE									dis	tr									
				medium- to coarse-grained; pinkish massive, trace diss py associated with the biotite																			
				grades into next section Reference Sample No.002																			
	9.72	27.68		AMPHIBOLE BIOTITE QUARTZOFELDSPATHIC GNEISS																			
				fine-grained weakly- to moderately-foliated																			
				moderate compositional layering on millimetre- to centimetre-scale, 50 degrees to CA																			
				biotite amphibile is subordinate in section																			
				pyrite and pyrrhotite with minor calcopyrite associated, often with amphibolite sections																			
				interstitial sulphides common in amphibolite sections																			
			9.68-10.80m	AMPHIBOLE BIOTITE QUARTZO FELDSPATHIC GNEISS	BQ0006	9.68	10.80		dis	1					blb	tr							
				fine- to medium-grained calcite at granite contact					int	1													
				mineralization mainly in centimetre-scale bands of amphbolite at 10.0-10.5m																			
				centimetre-scale granodiorite bands																			
			10.80-12.00m	AMPHIBOLE BIOTITE QUARTZO FELDSPATHIC GNEISS	BQ0007	10.80	12.00	1.20															
				fine- to medium-grained																			
				banded - centimetre-scale amphibolites show increased pyrrhotite																			
				12 cm wide amphibolite band at 11.13m																			
				band of parallel pyrrhotite is <1cm (massive)					mas	3													
				remaining pyrrhotite is disseminated through centimetre-scale amphibolite bands																			
				pyrrhotite sometimes forms an interstitial matrix to the amphibole, otherwise					int	tr													
				the bands are parallel					dis	tr													

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ02

Project Mistassini/Twins (South)	NTS: NAD 27	Date Collared: July 12/04	Date Completed: July13/04	Drilled By: Chibogamau	Assayed By: Chemex
Coordinates 381694/5633488	Elevation 555	Azimuth 45	Dip -50	Total Length 195m	Logged By: Nick Thomas
Drillhole Purpose / Target		S.Flasha			Checked By C. Greig &

Flag	From (m)	To (m)	Description		Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
			12.00-13.36m	BIOTITE AMPHIBOLITE	BQ0008	12.00	13.36	1.36	int	3	dis	tr	int	1									
				medium-grained, and unfoliated																			
				majority of interval is unbanded																			
				pyrrhotite 3-5% locally from 12.35-12.57cm																			
				pyrrhotite's interstitial nature could be evidence for primary deposition																			
				(pyrrhotite forms matrix to amphibole after pyroxene (euhedral crystal))																			
				flecks of chalcopyrite noted with the pyrrhotite at 12.38m and 13.28m																			
			13.36-15.00m	MAGNETITE AMPHIBOLE BIOTITE QUARTZOFELDSPATHIC GNEISS	BQ0009	13.36	15.00	1.66	fol	1			fol	1	dis	1							
				moderate foliation, weak compositional layering (millimetre- to centimetre-scale)																			
				subhedral medium- to coarse-grained magnetite seen throughout interval																			
				pyrrhotite with amphibole and biotite on layers/foliations - millimetre-scale																			
				60 degrees to CA																			
			15.00-15.81m	BIOTITE AMPHIBOLITE	BQ0010	15.00	15.81	0.81	fol	tr			dis	tr	dis	tr							
				medium- grained, green coloured interval																			
				amphibole 50% biotite 20% feldspar 25%																			
				weakly developed foliation at upper and lower contacts (40 degrees to CA)																			
				lower contact shows traces of dis, foliation parallel pyrrhotite																			
			15.81-16.88m	GARNET MAGNETITE BIOTITE QUARTZOFELDSPATHIC GNEISS	BQ0011	15.81	16.88	1.07	fol	1			fol	1	dis	tr							
				millimetre-scale, weak compositional layering; pyrite and pyrrhotite form foliation																			
				parallel mm- scale layers with minimal interconnectivity between grains the layers are																			
				not laterally continuous; fine grained dis magnetite present from beginning of interval to																			
				16.52; garnet appears at 16.40m, and continues down hole in millimetre- scale clusters																			
			16.88-18.00m	GARNET AMPHIBOLE BIOTITE QUARTZOFELDSPATHIC GNEISS	BQ0012	16.88	18.00	1.12															
				fine- to medium-grained, weak compositional layering																			
				millimetre- scale pyrite and pyrrotite foliation parallel layers (46 degrees to CA)																			
				layer at 17.62m (<1cm) is laterally continous and has interconnected grains																			
				3cm wide layer po and py at 17.01m; discontinuous laterally																			
				trace of disseminated pyrrhotite throughout interval																			
				fine-grained diseminated garnet (1% throughout interval)																			
			18.00-19.31m	GARNET AMPHIBOLE BIOTITE QUARTZOFELDSPATHIC GNEISS	BQ0013	18.00	19.31	1.31	fol	3%			fol	1%									
				centimetre-scale (less than 2cm), foliation parallel layers of pyrrhotite and pyrite (mainly																			
				pyrrhotite) throughout interval), laterally continuous (44 degrees to CA)																			
				18.80-19.31 layers of pyrrhotite and pyrite make up 25% of the mode																			
			19.31-20.40m	GARNET AMPHIBOLE BIOTITE QUARTZOFELDSPATHIC GNEISS	BQ0014	19.31	20.40	1.09	fol	1%			dis	tr	dis	tr							
				millimetre- scale foliation parallel layers of pyrrhotite and pyrite																			
				connectivity noted at 19.32m; 1 cm wide layer																			
				calcareous, vuggy, foliation parallel veinlet at 19.66m (48 degrees to CA)																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ02	PAGE 3 of 9		
Project Mistassini/Twins (South)	NTS: NAD 27	Date Collared: July 12/04	Date Completed: July13/04
Drilled By Chibogamau	Assayed By Chemex	Logged By: Nick Thomas	
Coordinates: 381694/5633488	Elevation: 555	Azimuth: 45	Dip: -50
Total Length: 195m	Checked By C. Greig & S.Flasha		
Drillhole Purpose / Target			

Flag	From (m)	To (m)	Description	Sample Collection: Sample Number	Sample Collection: From (m)	Sample Collection: To (m)	Sample Collection: Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
			20.17-20.40 AMPHIBOLITE																			
			disseminated pyrrhotite and pyrite parallel to foliation (10% of interval)					dis	5%			dis	5%									
			20.40- 21.62 GT AMPH BT QTZ FLD GNS	BQ0015	20.40	21.62	1.22	fol	2%			fol	tr									
			fine- to medium-grained, weak compositional layering																			
			millimetre- scale foliation parallel layers of pyrrhotite																			
			centimetre- scale bands of pyrrhotite, pyrite and magnetite																			
			20.95-21.10m cm- scale layers of pyrite, pyrrhotite (20% locally) and magnetite with poor connectivity																			
			between grains																			
			21.62- 22.60 BT GNT QTZ FLD GNS	BQ0016	21.62	22.60	0.98	dis	tr			dis	tr	blb	tr							
			fine- to medium-grained, weak compositional layering																			
			garnet rich interval (locally up to 30%) and foliation parallel																			
			traces of blebby magnetite associated with the garnet																			
			pyrrhotite and pyrite finely disseminated throughout the interval																			
			22.60- 23.99 GT BT QTZ FLD GNS	BQ0017	22.60	23.99	1.39	int	2%			int	2%									
			fine to medium grained, moderately well developed foliation (22 degrees to CA)																			
			22.60- 23.22 foliation parallel pyrrhotite and pyrite appear interstitial to the silicates (crystallized later)					int	10%			int	5%									
			poor connectivity between grains in the sulphides																			
			24.00- 25.12 GT BT QTZ FLD GNS	BQ0018	24.00	25.12	1.12	lay	5%			dis	tr									
			fine grained, weak compositional layering (33 degrees to CA)																			
			millimetre-scale layers of foliation parallel pyrrhotite plus pyrite with moderate connectivity																			
			between grains; stongly magnetic interval , could produce magnetic anomaly																			
			24.82-25.02 layers of millimetre-scale pyrrhotite (40-45% of interval)					lay	42%			blb	tr									
			25.12-25.76 BT QTZ FLD GNEISS GRADING INTO AMPHIBOLITE																			
			fine grained, weak compositional layering in gneiss																			
			grades into unfoliated amphibolite																			
			centimetre-scale cross-cutting pegmatite (injections?), two in interval, with traces of																			
			blebby pyrrhotite																			
			25.76-27.86 AMPH BT QTZ FLD GNS	BQ0020	25.76	27.86	2.30	dis	tr			dis	tr									
			fine grained, weakly foliated																			
			trace of disseminated pyrite and pyrrhotite																			
	27.86	36.94	AMPH BT GRANODIORITE 5% biotite					dis	tr			dis	tr	dis	tr							
			fine- to medium-grained, weakly foliated																			
			lower contact grades into pink, coarse grained granite																			
	36.94	37.66	AMPH BT GRANITE									dis	tr									
			pink coloured, coarse grained, non-foliated, non-magnetic																			
			lower contact distinct, but wavy																			
			xenoliths of granodiorite host rock at lower contact																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

Project Mistassini/Twins (South)	NTS: NAD 27	Date Collared: July 12/04	Date Completed: July13/04
Drilled By: Chibogamau	Assayed By: Chemex	Logged By: Nick Thomas	Checked By: C. Greig &
Coordinates: 381694/5633488	Elevation: 556	Azimuth: 45	Dip: -50
Total Length: 195m	Drillhole Purpose / Target	S Flasha	

Flag	From (m)	To (m)		Description	Sample Collection: Sample Number	From (m)	To (m)	Interval (m)	Mineralization Estimates: Pyrrhotite Style	%	Chalcopyrite Style	%	Pyrite Style	%	Magnetite Style	%	Other Style	%	Assay Results: Ni	Cu	Co	Pt	Pd
	37.66	41.80		AMPH BT GRANODIORITE																			
				fine- to medium-grained, weakly foliated																			
				upper contact is distinct, but wavy																			
				lower contact is also distinct, and parallel to foliation; sub-parallel to CA																			
				cm-scale pegmatite layer at lower contact shares the same colour and mineralogy																			
				as the pink granite and is most likely related																			
	41.80	46.23		AMPH BT GRANODIORITE																			
				fine- to medium-grained, weakly foliated; lower contact intruded by pegmatite and																			
				pink coloured granite: shows granite to be younger																			
	46.23	48.36		AMPH BT GRANITE																			
				pink coloured, coarse grained, non-foliated, non-magnetic																			
			46.52-47.52	interval is highly fractured with moderate chlorite alt; bleached appearance																			
	48.36	86.10		AMPH BT GRANODIORITE 5-10% bt																			
				fine- to medium-grained, weakly foliated																			
				majority of interval is granodiorite; smaller intervals break down as follows:																			
			53.43-55.35	weak chlorite alteration of granodiorite																			
			61.00-61.33	crosscutting pegmatite intrudes granodiorite																			
				weak foliation in granodiorite at 64.25m measures 64 degrees to CA																			
			66.00-67.40	AMPH BT GRANITE																			
				pink coloured, coarse grained, non-foliated, non-magnetic																			
				upper and lower contacts irregular																			
			70.36-71.31	PEGMATITE																			
				distinct upper (46 degrees to CA) and lower contacts (56 degrees to CA)																			
			73.16-73.42	PEGMATITE																			
				upper contact undefined; lower contact at 40 degrees to CA)																			
				foliation measured in granodiorite at 76.00m is 59 degrees to CA																			
			79.20-79.70	cm-scale granite intrusions 3/m																			
			79.85-79.86	qtz vein with chlorite alteration of granodiorite on contacts																			
			81.08-81.56	AMPH BT GRANITE																			
				pink coloured, coarse grained, non-foliated, non-magnetic																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ02

Project Mistassini/Twins (South)	NTS: NAD 27	Date Collared: July 12/04	Date Completed: July13/04	Drilled By Chibogamau	Assayed By: Chemex	Logged By: Nick Thomas
Coordinates: 381694/5633488	Elevation: 555	Azimuth: 45	Dip: -50	Total Length: 195m		Checked By: C. Greig &
Drillhole Purpose / Target			S Flasha			

Flag	From (m)	To (m)	Description	Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
	86.10	95.26	(GT) AMPH BT QTZ FLD GNS																			
			fine grained, moderately well developed foliation, with varying amounts of amphibole																			
			and garnet throughout interval																			
			86.10-87.15 AMPH BT QTZ FLD GNS	BQ0021	86.10	87.15	1.05	itsl	3%			itsl	1%									
			fine grained, moderately well developed foliation																			
			amphibole up to 60% locally in decimetre- scale sections																			
			pyrrhotite and pyrite occur in more amphibolitic sections of interval; generally																			
			occurring interstitially to the amphibole creating layers with poor interconnectivity																			
			87.15-87.77 AMPH BT QTZ FLD GNS																			
			fine grained, moderately well developed foliation																			
			87.15-87.25 local centimetre-scale layer of magnetite parallel to foliation																			
			87.15-87.77 pyrrhotite occurs interstitially (with good connectivity) in mm- scale layers parallel to	BQ0022	87.15	87.77	0.62	fol	8%	dis	tr			blb	2%							
			foliation (30 degrees to CA) and is strongly magnetic																			
			interval could explain magnetic anomoly																			
			87.77-88.76 GT AMPH BT QTZ FLD GNS	BQ0023	87.77	88.76	0.99	itsl	2%	itsl	tr	itsl	1%									
			fine grained, moderately well developed foliation																			
			pyrrhotite, pyrite, and chalcopyrite co-exist interstitially locally in mm-scale layers																			
			88.76-90.00 AMPH BT QTZ FLD GNS	BQ0024	88.76	90.00	1.24	itsl	10%			itsl	10%	dis	tr							
			fine grained, moderately well developed foliation (17 degrees to CA)																			
			88.76-89.29 unfoliated blebby pyrrhotite and pyrite																			
			89.29-90.00 lightly disseminated pyrrhotite and magnetite flattened with foliation																			
			90.00-90.56 GT AMPH BT QTZ FLD GNS	BQ0025	90.00	90.56	0.56	blb	5%			blb	2%									
			fine grained, weakly developed foliation (24 degrees to CA)																			
			90.12-90.56 amphibole makes up 60% of the interval with blebby pyrite and pyrrhotite																			
			scattered throughout; upper contact of interval 24 degrees to CA																			
			90.26-90.56 gneiss with foliation parallel disseminated pyrrhotite, locally 10%																			
			93.48-94.23 BT GRANITE PEGMATITE AND GT AMPH BT QTZ FLD GNS	BQ0026	93.48	94.23	0.79	blb	3%			blb	tr									
			93.48- 93.75 28 cm wide pegmatite with blebby to semi-massive pyrrhotite plus flecky pyrite and																			
			chalcopyrite																			
			93.76- 94.23 gt amph bt qtz fld gns, fine grained with weakly developed foliation (56 degrees to CA);																			
			with a trace of finely disseminated pyrrhotite throughtout interval																			
			94.23- 95.26 AMPH BT QTZ FLD GNS	BQ0027	94.23	95.26	1.03	fol	3%			fol	tr									
			fine grained with moderate compostional layering																			
			foliation parallel layers of pyrrhotite (mm- scale) with generally poor interconnectivity																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG		HOLE NO. DDHBQ02	PAGE 6 of 9
Project: Mistassini/Twins (South)	NTS: NAD 27	Date Collared: July 12/04	Date Completed: July 13/04
Drilled By: Chibogamau	Assayed By: Chemex	Logged By: Nick Thomas	
Coordinates: 381694/5633488	Elevation: 555	Azimuth: 45	Dip: -50
Total Length: 195m	Checked By: C. Greig &		
Drillhole Purpose / Target	S Flasha		

Flag	From (m)	To (m)	Description		Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
			95.50- 95.82	BT GRANITE PEGMATITE					itsl	3%					blb	tr							
				layer is parallel to the foliation in the surrounding gneiss, with the upper contact at 44																			
				degrees to the CA and the lower contact at 39 degrees to the CA;																			
				locally a trace of interstitial pyrrhotite in pegmatite interval																			
															blb	tr							
	95.25	99.42		GT AMPH BT QTZ FLD GNS																			
				fine grainded with weak compositional layering																			
				some intervals are more amphibole rich and could be classified amphibolites																			
			95.25-95.83	GT AMPH BT QTZ FLD GNS	BQ0028	95.25	95.83	0.58	fol	2%			blb	2%									
				fine grained gneiss with weak compositional layering; one percent garnet throughout																			
				interval; blebby pyrite with 8cm wide pegmatite at 95.25m																			
			95.35-95.80	foliation parallel (53 degrees to CA) pyrrhotite and pyrite, less than 1cm wide layers with																			
				poor interconnectivity																			
			97.72-98.52	GT AMPH BT QTZ FLD GNS	BQ0029	97.72	98.52	0.80	fol	3%			fol	tr	blb	tr							
				fine grained gneiss with weak compositional layering, disseminated, blebby magnetite;																			
				foliation parallel pyrrhotite and pyrite forming mm- to cm- scale layers																			
			98.52-99.42	AMPH BT QTZ FLD GNS	BQ0030	98.52	99.42	0.90	itsl	4%			itsl	2%	blb	tr							
				fine grained and weak to moderately foliated;																			
				interstitial pyrite and pyrrhotite throughout interval with higher percentages in the more																			
				amphibole rich zone (99.20-99.42)																			
	99.42	133.50		(5-10%) BT GRANODIORITE																			
				medium grained and non foliated																			
				cm- to dm-scale coarse grained granite and (or) pegmatite injections(?) throughout																			
				interval (2/m)																			
			125.37-125.90	green, calcareous, lithified gouge on fractured core 11 degrees to CA																			
	133..50	134.65		AMPH BT QTZ FLD GNS																			
				fine grained with moderately developed compositional layering																			
				contacts are parallel to foliation (45 degrees to CA)																			
	134.65	152.19		(5-10%) BT GRANODIORITE																			
				medium grained with moderate compositional layering (57 degrees to CA)																			
	152.19	153.22		(5-10%) BT GRANODIORITE																			
				moderately well-developed foliation; cm- scale pegmatite layers (3/m); cm-scale																			
				amphibole rich (locally 75%), cm-scale zones in granodiorite at pegmatite																			
				contacts																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ02 |

Project: Mistassini/Twins (South) | NTS: NAD 27 | Date Collared: July 12/04 | Date Completed: July13/04 | Drilled By: Chibogamau | Assayed By: Chemex | Logged By: Nick Thomas

Coordinates: 381694/5633488 | Elevation: 555 | Azimuth: 45 | Dip: -50 | Total Length: 195m | Checked By: C. Greig & S Flasha

Drillhole Purpose / Target:

Flag	From (m)	To (m)		Description	Sample Number	Sample Collection From (m)	Sample Collection To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
	153.22	167.18		MIXED GNEISS AND AMPHIBOLITE																			
				breaks down as follows																			
			153.22-154.24	GT AMPHIBOLITE (garnet 35%, amphibole 30%, fld 25%)																			
				alternating pink and green coloured rock (colour index: 50); fine-grained with moderately																			
				well developed foliation; garnet occurs in cm-scale concentrated layers (up to 75% locally);																			
				pyrrhotite is found disseminated in less garnet rich, more amphibole rich portions of the	BQ0031	153.22	154.24	102.00	dis	1%					blb	1%							
				interval; magnetite occurs in mm-scale (1 cm wide at the most) blebs throughout the interval																			
			154.24-155.45	GT AMPH BT QTZ FLD GNS																			
				fine-grained with well developed compositional layering (50 degrees to CA); pyrrhotite and	BQ0032	154.24	155.45	1.21	dis	2%					blb 1%								
				pyrite occur disseminated throughout the interval forming mm-scalelayers with poor																			
				interconnectivity between grains; magnetite occurs in mm-scale blebs throughout interval																			
			155.45-156.46	GT AMPH BT QTZ FLD GNS (garnet 5%, amphibole 15%, bt 20%)	BQ0033	155.45	156.46	1.01	lay	3%			lay	tr									
				fine-grained with well developed compositional layering (80 degrees to CA);																			
				more mesocratic looking than previous interval (colour index of 30)																			
				pyrrhotite (plus pyrite) occur in mm-scale, discontinuous layers (3/10cm) in the garnet and																			
				amphibole rich zones and finely disseminated throughout the rest of the interval																			
			156.46-157.44	AMPH GT BT QTZ FLD GNS (garnet 3%, biotite 30%, amph 7%)	BQ0034	156.46	157.44	0.98	dis	2%			dis	1%									
				fine- to medium- grained with moderately well-developed compositional layering (57 degrees																			
				to CA); pyrrhotite and pyrite occur finely disseminated (1%) throughout the interval;																			
			156.61-156.73	pyrrhotite and pyrite occur as dicontinuous, poorly interconnected layers (less than																			
				3cm wide) in garnet and amphibole rich zones																			
			157.44-157.92	GT AMPH BT QTZ FLD GNS (garnet 10%, amph 10%, biotite 10%)	BQ0035	157.44	157.92	0.48	lay	2%													
				fine- to medium- grained with moderately well-developed compositional layering (54 degrees																			
				to CA); pyrrhotite occurs disseminated throughout the interval;																			
			157.58-156.73	and in discontiuous layers; up to 7% sulphides locally																			
			157.92-158.25	BT GT AMPHIBOLITE (amphibole 30%, garnet 15%, biotite 10%)	BQ0036	157.92	161.13	0.33	dis	3%													
				fine-grained with well developed foliation (61degrees to CA);																			
				pyrrhotite occurs finely disseminated throughout interval, locally interconnected																			
				interstitially, forming discontinuous layers																			
			158.25-159.28	GT AMPHBT QTZ FLD GNS	BQ0037	158.25	159.28	1.03	dis	tr			dis	tr	blb	tr							
				fine-grained with well developed compositional layering (54 degrees to CA);																			
				local cm- scale layers of finely disseminated garnet (5/m);																			
				disseminated pyrite and pyrrhotite throughout interval; blebby magnetite more																			
				concentrated in garnet rich layers																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG — HOLE NO. DDHBQ02

Project Mistassini/Twins (South) | NTS: NAD 27 | Date Collared: July 12/04 | Date Completed July13/04 | Drilled By Chibogamau | Assayed By Chemex | Logged By: Nick Thomas

Coordinates 381694/5633488 | Elevation: 555 | Azimuth 45 | Dip -50 | Total Length 195m | Checked By C. Greig &

Drillhole Purpose / Target | S Flasha

Flag	From (m)	To (m)	Description	Sample Collector: Sample Number	From (m)	To (m)	Interval (m)	Mineralization Estimates: Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Assay Results: Ni	Cu	Co	Pt	Pd
			159.28-159.92 BT GRANITE PEGMATITE	BQ0038	159.28	159.92	0.64					dis	tr									
			non-foliated																			
			trace of finely disseminated pyrite																			
			159.92-161.13 BT GT AMPHIBOLITE (amphibole 40%, biotite 5%, garnet 10%)	BQ0039	159.92	161.13	1.21					dis	tr									
			green coloured (CI: 50), generally fine-grained, and weakly foliated (47 degrees to CA)																			
			local cm-scale pegmatite layers (injections?) 3/m)																			
			garnet occurs as irregular cm-scale clusters.																			
			trace of finely disseminated pyrite throughout interval																			
			161.13-162.48 BT GT AMPHIBOLITE	BQ0040	161.13	162.48	1.35							blb	5%							
			green and pink alternating layers of rock (colour index of 50), with well developed foliation (45																			
			degrees to CA); fine grained, inter-layered garnet and amphibole rich layers (mm- to cm-																			
			scale); up to 1 cm-scale blebs of magnetite disseminated throughout interval																			
			162.48-163.48 BT GT AMPHIBOLITE (amphibole 30% garnet 20%)	BQ0041	162.48	163.48	1.00															
			green and pink alternating layers of rock(colour index 50) with well developed foliation (56																			
			degrees to CA); fine grained; millimetre -scale pink (garnet) layers and green (amphibolite)																			
			layers occur inter-layered throughout interval																			
			trace disseminated pyrrhotite and pyrite throughout interval					dis	tr			dis	tr	blb	2							
			blebby and rare discontinous, millimetre-scale layers of magnetite throughout interval																			
			163.48-164.37 BT GT AMPHIBOLITE (amphibole 20%, garnet 10%, biotite5%)	BQ0042	163.48	164.37	0.89															
			green and pink coloured, moderately well-developed foliation (57 degrees to CA)																			
			fine-grained; centimetre-scale, discordant to foliation, pegmatite (injections?) (2m);																			
			trace disseminated pyrite and magnetite throughout interval									dis	tr	dis	tr							
			164.90-165.95 BT GT AMPHIBOLITE (amphibole 30%, garnet 15%, biotite 10%)	BQ0043	164.90	165.95	0.95	dis	2					blb	7							
			green and pink coloured, moderately well-developed foliation (56 degrees to CA)																			
			fine-grained; alternating centimetre-scale garnet (pink) and amphibolite layers																			
			finely disseminated and millimetre-scale blebs of magnetite throughout interval (~7%);																			
			finely-disseminated pyrhhotite, flattened with foliation, throughout interval																			
			165.95-167.15 BT GT AMPHIBOLITE																			
			fine-grained, green and pink, moderately well-developed foliation (53 degrees to CA)	BQ0044	165.95	167.15	1.20	dis	tr					blb	8							
			alternating centimetre- to millimetre-scale garnet (pink) and amphibolie (green) layers																			
			trace pyrhhotite finely disseminated throughout interval																			
			finely disseminated and millimetre-scale blebs with discontinuous layer (millimetre-																			
			scale) 2/m																			
			164.37-164.90 BT AMPHIBOLITE (biotite 50%, amphibole 20%, garnet 3%)	BQ0045	164.37	164.90	0.53	blb	2	blb	tr	blb	tr									
			fine-grained with very coarse-grained biotite; massive and non-foliated;																			
			interval is broken up; chlorite alteration and calcite on fractures (~10/m);																			
			blebby pyrrhotite, pyrite and chalcopyrite in contact with abundant massive biotite																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ02 | PAGE 9 of 9

Project: Mistassini/Twins (South) | NTS: NAD 27 | Date Collared: July 12/04 | Date Completed: July13/04 | Drilled By: Chibogamau | Assayed By: Chemex | Logged By: Nick Thomas

Coordinates: 381694/5633488 | Elevation: 555 | Azimuth: 45 | Dip: -50 | Total Length: 195m | Checked By: C. Greig &

Drillhole Purpose / Target: | S Flasha

Flag	From (m)	To (m)	Description		Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
	167.15	195.00		AMPH BT GRANODIORITE (biotite 5%, amphibole 2%)																			
				generally white coloured, fine- to medium-grained, weakly developed foliation (contacts																			
				upper amphibolite at 53 degrees to CA)																			
			172.52-173.60	PEGMATITE																			
				wavy contact sub-parallel to CA																			
			186.16-186.28	BT AMPHIBOLITE (amphibole 45%, biotite 15%)																			
				moderately well-developed foliation (46 degrees to CA), CI 45																			
				centimetre-scale vugs with calcite crystals																			
			190.31-191.31	BT AMPHIBOLITE (amphibole 30%, biotite 20%)																			
				green interval, medium-grained, well-developed foliation (44 degrees to CA)																			
				decimetre-scale pegmatite (injection?) sub-parallel to foliation																			
			193.20-194.60	PEGMATITE																			
				decimetre-scale amphibolite intersections 2/m																			
		194.60		EOH																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG	HOLE NO. DDHBQ03	PAGE 1 of 15
Project Mistassini/Twins (South) · NTS: NAD27 · Date Collared: July 14/04 · Date Completed: July19/04 · Drilled By Chibogamau	Assayed By Chemex	Logged By Nick Thomas
Coordinates 381547 / 5633383 · Elevation: 535 · Azimuth: 45 · Dip: -50 · Total Length: 363m		Checked By C. Greig & S.Flasha
Drillhole Purpose / Target · Down Hole Survey		

Flag	From (m)	To (m)	Description	Sample Number	Sample Collection From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
	0.00	5.00	OVERBURDEN																			
	5.00	15.00	BT AMPH QTZ FLD GNS																			
			(chlorite 25%, calcite 10%, pyrite 5-10%, biotite 3%, pyrrhotite 3%, graphite? trace)																			
			strongly hydrothermaly altered; the alteration is the most recent occurrence as																			
			the regional metamorphism has been overprinted hyrothermal assemblage seen in the																			
			altered zone: calcite, chlorite, pyrite and pyrrhotite; weakly developed foliation (38 degrees																			
			to core axis); trace of silver flaky mineral: believed to be graphite	BQ0046	5.00	9.00	4.00	dis	3			d/u	10									
			pyrite: disseminated and in millimetre-scale units that cross-cut foliation (18 degrees to CA)	BQ0047	9.00	12.00	3.00	dis	3			d/u	10									
			pyrrhotite: displays some euhedral crystals grown in softer wall rock	BQ0048	12.00	15.00	3.00	dis	3			d/u	10									
	15.00	20.70	QUARTZITE? (quartz 90%, pyrite 8%, biotite 3% calcite trace, chlorite trace);																			
			sugary textured, very fine- to fine grained silica rich unit; quartz vein?; shows some compositiona	BQ0049	15.00	17.24	2.24	dis	3			d/u	8									
			layering (14 degrees to CA); calcite/chlorite/pyrite hydrothermal alteration,	BQ0050	17.24	18.30	1.06	dis	3			d/u	8									
			not as pervasive as upper unit but all fractures have calcite present with pyrite and chlorite	BQ0051	18.30	19.03	0.74	dis	3			d/u	8									
			pyrite seems to have formed with the more biotite-rich millimetre- to centimetre-scale layers	BQ0052	19.03	19.68	0.65	dis	3			d/u	8									
			of the original rock; this also occurs in veinlets on the millimetre-scale that cross-cuts foliation																			
			18.99-19.02m semi-massive pyrite with minor calcite vein, 3cm wide (56 to CA)																			
	20.70	47.02	GT AMPH BT QTZ FLD GNS																			
			the quartzite?/quartz vein? Described above grades into a softer gneiss unit with an increased																			
			amount of biotite (~10%); fine-grained, weakly developed foliation (34 degrees to CA) with varying																			
			amounts of amphibole and garnet																			
			23.65-24.87 VEIN BRECCIA	BQ0065	23.65	24.87	1.22					dis	5									
			or vein at low angle to core axis (~20-30 degrees to CA); open spaces with euhedral calcite																			
			and pyrite throughout section; reddish-brown mineral with pyrite at 24.15-24.25m, may be																			
			hematite? occurs as blebs within brecciated section of vein; pyrite also occurs as bleb in																			
			breccia and heavily disseminated throughout interval																			
			29.68-30.72 AMPH GT BT QTZ FLD GNS (biotite 10%, garnet 8%, amph 8%)	BQ0066	29.68	30.72	1.04	dis	3			dis	5									
			fine-grained, weakly developed foliation (35 degrees to CA); pyrrhotite lightly																			
			disseminated throughout; flattened in sections with a more pronounced foliation																			
			30.72-32.12 BT GT AMPH QTZ FLD GNS (amph 30%, garnet 10%, biotite5%)	BQ0067	30.72	32.12	1.40	dis	1			dis	1									
			pink and grren colour, fine-grained, weakly developed foliation (72 degrees to CA)																			
			there is an increased amount of amphibolite throughout the interval (30%)																			
			pyrrhotite and pyrite are lightly disseminated throughout with rare blebs (millimetre-scale)																			
			31.42-34.07 shows general increase in amphibolite (30%)																			
			32.12-34.07 BT GT AMPH QTZ FLD GNS (amph 30%, garnet 10%, biotite5%)	BQ0068	32.12	34.07	1.95	dis	2			dis	2									
			green colour, fine- to medium-grained, non-foliated to weakly developed foliation (36 degrees to																			
			CA); finely disseminated pyrrhotite and pyrite; grains are flattened with with foliation when present																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG HOLE NO. DDHBQ03

Project: Mistassini/Twins (South)	NTS: NAD27	Date Collared: July 14/04	Date Completed: July19/04	Drilled By: Chibogamau
Assayed By: Chemex	Logged By: Nick Thomas	Coordinates: 381547 / 5633383	Elevation: 535	Azimuth: 45
Dip: -50	Total Length: 363m	Checked By: C Greig & S Flasha	Drillhole Purpose / Target	Down Hole Survey

Flag	From (m)	To (m)	Description	Sample Collection: Sample Number	From (m)	To (m)	Interval (m)	Mineralization Estimates: Pyrrhotite Style	%	Chalcopyrite Style	%	Pyrite Style	%	Magnetite Style	%	Other Style	%	Assay Results: Ni	Cu	Co	Pt	Pd
			36.51-36.99 AMPH BT QTZ FLD GNS (biotite 10%, amphibolite 5%)	BQ0069	36.51	36.99	0.48	dis	4			dis	tr									
			fine-grained, moderately developed foliation (33 degrees to CA)																			
			pyrrhotite heavily disseminated throughout the interval, locally interconnected																			
			but discontinuous																			
			42.25-42.81 CALCITE VEIN BRECCIA	BQ0070	42.25	42.81	0.56	dis	1													
			same assemblage as previous breccia (23.65-24.67), calcite, chlorite and pyrite																			
			chlorite alteration remnants of protolith gneiss (centimetre-scale) make up																			
			breccia fragments; millimetre-scale euhedral pyrite clusters occur with calcite																			
	48.02	49.70	META-DIORITE DYKE? (amphibolite 30%, biotite 10%)																			
			medium-grained, weakly developed foliation (34 degrees to CA), equigranular																			
			(intrusive?) biotite amphibolite quartzofeldspathic rock																			
	49.70	58.60	BT QTZ FLD GNS (biotite 3-5%)																			
			leucocratic (CI 10 or less), fine-grained, weakly devedoped foliation (47 degrees to CA)																			
			biotite increases down hole towards the contact - sharp contact (50 degrees to CA)																			
	58.60	60.16	GT BT AMPH QTZ FLD GNS																			
			medium-grained, weakly layered, amphibolitic rock; garnet occurs as 'spotted'																			
			subcircular patches (millimetre-scale)																			
			58.60-59.15 GT BT AMPH QTZ FLD GNS (amph 20%, biotite 20%, garnet 5%)	BQ0071	58.60	59.15	0.55	d/b	3			blb	1									
			rock sample as described above (58.60-60.16); pyrrhotite and pyrite																			
			occur finely disseminated throughout and locally in centimetre-scale, semi-massive layers																			
			59.15-60.16 GT BT AMPH QTZ FLD GNS (amph 20%, biotite 20%, garnet 5%)	BQ0072	59.15	60.16	1.01	lay	3			lay	1									
			rock sample as described above (58.60-60.16); pyrite and pyrrhotite finely disseminated																			
			throughout interval; discontinuous layers of sulphide (centimetre-scale) mainly pyrrhotite																			
	60.16	74.60	GT BT AMPH QTZ FLD GNS (amph 20%, biotite 20%, garnet 5%)																			
			medium-grained, well developed compositional layering (42 degrees to CA)																			
			garnet occurs as 'spotted' sub-circular patches (as above)																			
			local centimetre-scale pegmatite (injections?) 1/m																			
			63.42-64.08 PEGMATITE																			
			injection? 40% garnet locally at contacts pyrite and pyrrhotite occur as millimetre- to																			
			centimetre-scale blebs; interconnected; locally trace of rare chalcopyrite within pyrrhotite blebs																			
			the wallrock on the lower pegmatite contact is mineralized with disseminated																			
			pyrrhotite and pyrite for 4 centimetres to 64.08m																			
	74.60	96.60	BT GRANODIORITE (biotite 15%)																			
			medium-grained, weakly developed foliation (~46 degrees to CA)																			
			generally mineralized throughout interval																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG | HOLE NO. DDHBQ03 |

Project Mistassini/Twins (South)	NTS NAD27	Date Collared: July 14/04	Date Completed: July 19/04	Drilled By Chibogamau	Assayed By Chemex
Coordinates 381547 / 5633383	Elevation 535	Azimuth 45	Dip -50	Total Length 363m	Logged By Nick Thomas
Drillhole Purpose / Target		Down Hole Survey			Checked By C. Greig & S.Flasha

Flag	From (m)	To (m)	Description		Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
			87.65-87.95	pegmatite (injection?); contact discordant to local foliation									dis	tr									
			94.45-95.50	heavily disseminated pyrrhotite plus pyrite in granodiorite					dis	5			dis	2									
			94.50-94.85	layer of semi-massive pyrrhotite plus pyrite (and local to rare chalcopyrite)	BQ0053	94.45	94.85	0.40	mas	50	dis	tr	mas	2									
			94.85-96.00	increased development of compositional layering down hole in this interval, 50 degrees to CA;	BQ0074	94.85	96.00	1.15	dis/l	3	dis	tr	dis	tr									
				centimetre-scale layers of pegmatite (injections?) 3/m; finely disseminated pyrrhotite;																			
				flattened paralle to foliation; local interconectivity of pyrrhotite grains into discontinuous																			
				layers; trace disseminated chalcopyrite, pyrite with pyrrhotite layers (biotite 15%, amph tr%)																			
	96.60	102.52		GT BT AMPHIBOLITE																			
				CI of 50, with varying amounts of sulphides:																			
			96.00-96.55	semi-massive to massive sulphide (pyrrhotite, pyrite and rare chalcopyrite);	BQ0054	96.00	96.55	0.55	mas	70	flk	tr	mas	2									
				with locally involved amphibolite, biotite and feldspar; strongly magnetic																			
				2 centimetre-thick granodiorite layer included in interval;																			
			96.55-97.52	BT AMPHIBOLITE (amph 35%, biotite 5%, garnet 3%)	BQ0075	96.56	97.52	0.97	lay	4			dis	1									
				fine-grained with local fine-grained garnet, millimetre-scale compositional layers (42 degrees																			
				to CA); heavily disseminated pyrrhotite plus pyrite, flattened in direction of foliation and																			
				locally interconnected into discontinuous layers; local centimetre-scale																			
				calcite/chlorite/pyrite veins; weakly magnetic																			
			99.09-100.03	GT BT AMPHIBOLITE (amph 35%, biotite 5%, garnet 3%)	BQ0076	99.09	100.03	0.94	dis/l	12			dis/l	2									
				fine-grained; weakly developed foliation (56 degrees to CA)																			
				heavily disseminated pyrrhotite plus pyrite interconnected locally, generating																			
				discontinuous layer; 8 millimetre-wide continuous layer of pyrrhotite at 90.2 metres																			
	102.54	103.30		AMPH BT GRANODIORITE (biotite 10%, amphibole 5%)																			
				fine- to medium-grained; weakly developed foliation (52 degrees to foliation);																			
				upper and lower contacts gradational; non-magnetic; unmineralized																			
	103.30	121.00		GT BT AMPHIBOLITE																			
				CI variable (30-40); medium-grained; weakly developed foliation (46 degrees to CA); generally					dis	tr													
				weakly magnetic; up to 10% garnet locally; centimetre- to decimetre-scale pegmatite layers																			
				(injections?), roughly parallel to layering throughout interval; 0.5 centimetre-wide continuous																			
				layer of pyrrhotite at 109.45																			
	121.00	125.70		(AMPH) BT GRANODIORITE																			
				CI 20; non-magnetic; gradational contact up the hole with amphibolite; garnet																			
				fades to rare up to upper contact of granodiorite																			
	125.70	127.00		BT AMPHIBOLITE																			
				CI 60-70; weakly magnetic; trace disseminated pyrrhotite plus pyrite; cut by a 20cm pegmatite																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ03

Project Mistassini/Twins (South)	NTS: NAD27	Date Collared: July 14/04	Date Completed: July19/04	Drilled By Chibogamau	Assayed By Chemex
Coordinates 381547 / 5633383	Elevation: 535	Azimuth 45	Dip: -50	Total Length 363m	Logged By Nick Thomas
Drillhole Purpose / Target		Down Hole Survey			Checked By C Greig & S.Flasha

Flag	From (m)	To (m)	Description	Sample Collector: Sample Number	From (m)	To (m)	Interval (m)	Mineralization Estimates: Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Assay Results: Ni	Cu	Co	Pt	Pd
	127.00	129.20	(AMPH) BT GRANODIORITE same as 121.00-125.70																			
	129.20	135.30	BT AMPHIBOLITE CI 50; moderately well developed compositional layering, outlined primarily by millimetre-scale calcareous units that are generally parallel to the foliation (46 dgerees to CA); also locally discordant; units are in textoral equilibrium with the host rocks (pre- or syn-metamorphic); a fine-grained green mineral (diopside?) is also present in trace amounts, most visibly in the core cross-section																			
	135.00	135.35	AMPHIBOLITE gradational increase in CI, up to 60-70%; weakly magnetic; disseminated pyrrhotite increasing over interval																			
			135.32-136.34 GT AMPHIBOLITE CI 70; garnet rare before 135.62																			
	135.35	136.40	GT AMPHIBOLITE discontinuous, patchy garnet (15-20%) and heavily disseminated sulphide (5-10%); local quartz veins or pegmatite of centimetre-scale thickness, containing local blebs of semi-massive pyrrhotite and pyrite (total sulphides 15%); trace flecky chalcopyrite within pyrrhotite; interval weakly magnetic	BQ0077	135.35	136.40	1.05	dis	7	flk	tr	dis	7									
	136.40	136.70	massive to semi-massive pyrrhotite with fine-grained flecks of chalcopyrite throughout interval (<<1%); strongly magnetic (explains magnetic and conductive anomaly)	BQ0055	136.40	136.70	0.30	mas	80	flk	<<1											
	136.70	137.75	GT AMPHIBOLITE discontinuous, patchy garnet (10%); heavily disseminated to semi-massive pyrrhotite and pyrite; weakly developed foliation (36 degrees to CA)	BQ0078	136.70	137.75	1.05	d/sm	3			dis	tr									
	137.75	138.42	BT AMPHIBOLITE (biotite 5%) fine-grained; weakly developed foliation (38 degrees to CA); unmineralized																			
	138.42	139.61	GT BT AMPHIBOLITE (biotite 10%, garnet < 10%) fine-grained; weakly developed foliation; discontinuous patchy garnet (<10%); pyrrhotite lightly disseminated throughout interval, flattened with foliation; blebby to semi- massive pyrrhotite at 138.61 to 138.63, occuring with x-cutting quartz vein; centimetre-scale blebby pyrrhotite at 139.35	BQ0079	138.42	139.61	1.19	b/d	4			dis	1									
	139.61	140.30	MASSIVE SULPHIDE pyrrhotite and pyrite; pyrite occurs as blebs with massive pyrrhotite	BQ0056	139.58	140.08	0.50	mas	80			b/m	5									

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

Project: Mistassini/Twins (South) | NTS: NAD27 | Date Collared: July 14/04 | Date Completed: July 19/04 | Drilled By: Chibogamau | Assayed By: Chemex | Logged By: Nick Thomas

Coordinates: 381547 / 5633383 | Elevation: 535 | Azimuth: 45 | Dip: -50 | Total Length: 363m | Checked By: C. Greig & S.Flasha

Drillhole Purpose / Target: | Down Hole Survey:

Flag	From (m)	To (m)	Description		Sample Number	Sample From (m)	Sample To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
	140.30	140.55		SEMI-MASSIVE SULPHIDE	BQ0057	140.08	140.53	0.45	s-m	30			s-m	10									
				interconnected layers of pyrrhotite and pyrite																			
	140.55	143.55		MASSIVE SULPHIDE	BQ0058	140.53	141.53	1.00	mas	80	flk	tr	mas	3									
				magnetic and conductive anomalies explained	BQ0059	141.53	142.53	1.00	mas	88	flk	tr	flk	1									
					BQ0060	142.53	142.89	0.36	mas	80	flk	tr	blb	2									
					BQ0061	142.89	143.51	0.62	mas	80	flk	tr	blb	2									
	143.55	145.43		GT BT AMPHIBOLITE	BQ0062	143.51	144.51	1.00	dis/l	5					dis/l	10							
				CI 45-60; fine-grained, variable amounts of garnet (0-30% locally) and biotite generally less	BQ0063	144.51	144.98	0.47	dis/l	5					blb	4							
				abundant than amphibole; magnetite and pyrrhotite occur heavily disseminated and interconnect	BQ0064	144.98	145.45	0.47	dis/l	4					dis	3							
				to form layers locally if foliated; semi-massive where no fabric has been developed; strongly																			
				magnetic; metre-scale quartz veins 3/m throughout interval																			
	145.43	146.43		GT BT AMPHIBOLITE	BQ0080	145.43	146.43	1.00	dis		flk	tr	dis		dis								
				same rock type as 143.55-145.43; disseminated pyrrhotite, pyrite and magnetite																			
				flattened with foliation interconnected to form layers on the millietre-scale;																			
				centimetre-scale layer pyrrhotite (trace chalcopyrite) at 147.27																			
	146.43	147.43		GT BT AMPHIBOLITE (garnet 5%)	BQ0081	146.43	147.43	1.00	dis/l				dis/l		bands								
				same rock type as 143.55-145.43 with an increasing percentage of quartz-																			
				feldspar (more gneissic looking); well developed foliation (67 degrees to CA);																			
				pyrrhotite plus pyrite disseminatedand interconnected in layers; magnetite																			
				in rounded clusters, generally more concentrated in leucocratic bands																			
	147.45	180.89		(PO, BT) MAG GT AMPH GTZ FELD GNS																			
				generally, a more leucocratic interval with metre-scale intervals of																			
				amphibolite or granodiorite																			
			147.44-148.17	GT MAG AMPH BT QTZ FLD GNS (garnet 3%, amph 15%)	BQ0163	147.44	148.17	0.73	dis	4					dis	8							
				fine-grained; well layered; strongly magnetic; heavily disseminated magnetite																			
				and pyrrhotite forming wispy millimetre-scale discontinuous layers; blebby																			
				magnetite (millimetre-scale)																			
			148.17-149.18	GT MAG AMPH BT QTZ FLD GNS	BQ0164	148.17	149.18	1.01	dis	3			dis	1	dis	4							
				well layered, garnet amphibole-rich millimetre-scale layers, generally more																			
				leucocratic than previous sample, heavily disseminated pyrrhotite and																			
				magnetite; pyrite concentrated in amphibole garnet layers; millimetre-scale																			
				blebby magnetite throughout interval, strongly magnetic																			
			149.18-150.29	GT MAG AMPH BT QTZ FLD GNS	BQ0165	149.18	150.29	1.11	dis	2			dis	1	dis	2							
				rock type similar to previous sample, with the addition of three, decimetre-																			
				scale pegmatites with local patchy sulphides; strongly magnetic																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

Project: Mistassini/Twins (South)	NTS: NAD27	Date Collared: July 14/04	Date Completed: July 19/04	Drilled By: Chibogamau	Assayed By: Chemex
Coordinates: 381547 / 5633383	Elevation: 535	Azimuth: 45	Dip: -50	Total Length: 363m	Logged By: Nick Thomas
Drillhole Purpose / Target		Down Hole Survey			Checked By: C. Greig & S.Flasha

Flag	From (m)	To (m)		Description	Sample Number	Sample Collection From (m)	Sample Collection To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
			150.29-151.66	MAG GT AMPH BT QTZ FLD GNS	BQ0166	150.29	151.66	1.27	dis	1			dis	tr	blb	3							
				inter-layered garnet-rich, amphibole-rich and leucocratic layers (millimetre- to centimetre-scale);																			
				12cm wide amphibolite interval at 161.02 with heavily disseminated pyrrhotite; generally,																			
				magnetite is found in millimetre-scale blebs and discontinuous layers throughout the interval;																			
				pyrrhotite and graphite in trace amounts																			
			151.66-152.42	generally a more leucocratic unmineralized interval with a homogeneous texture	BQ0167	151.66	152.42	0.86	lay	2			lay	tr	lay	tr							
				(sediment?) the layer is punctuated by an amphibole-rich, 12cm wide zone that has millimetre-																			
				scale wispy layers of pyrrhotite and and lesser pyrite and magnetite																			
			149.88-150.30	interval with 3 decimetre-scale pegmatite (injection?)					blb	tr													
			151.58-152.60	mostly granodiorite with decimetre-scale garnet biotite amphibolite with					dis	tr													
				disseminated pyrite																			
			152.66-156.00	(MAG) GT BT AMPHIBOLITE	BQ0168	152.42	153.48	1.06	dis	3			dis	1	dis	20							
				fine-grained; weakly developed foliation (66 degrees to CA); strongly magnetic (magnetite up to	BQ0169	153.48	154.48	1.00	dis	4	dis	tr	dis	tr	dis	15							
				10% locally); disseminated pyrrhotite (and pyrite), flattened with foliation; locally, magnetite	BQ0170	154.48	155.55	1.07	dis	3			dis	tr	blb	15							
				in layers parallel to foliation, mainly in millimetre-scale sub-circular blebs, throughout the interval	BQ0172	155.55	156.41	0.86	dis	4			dis	1	blb	15							
			159.00-159.56	same as 156.00- with trace disseminated pyrite and pyrrhotite	BQ0082	159.00	159.56	0.56	dis	tr			dis	tr	blb	3							
					BQ0176	159.56	160.46	0.90	dis	1			dis	tr	blb	5							
			156.41-161.56	AMPH GT MAG BT QTZ FLD GNS	BQ0173	156.41	156.95	0.54	dis	tr			dis	tr	blb	3							
				leucocratic interval (30 = CS) with scattered millimetre-scale magnetite blebs	BQ0174	156.95	157.69	0.74	dis	tr			dis	tr	blb	3							
				(<1cm), total about 3% or more	BQ0175	157.69	159.02	1.32	dis	tr			dis	tr	blb	3							
			161.56-161.93	(GT) BT AMPHIBOLITE	BQ0083	161.56	161.93	0.37	lay	10					blb	2							
				blebby magnetite; disseminated pyrrhotite, interconnected into discontinuous	BQ0178	160.46	161.37	0.94	lay	2			lay	1	blb	2							
				layers (foliation parallel, 64 degrees to CA)																			
			161.93-163.03	AMPH GT BT QTZ FLD GNS	BQ0179	161.93	163.03	1.10	dis	2			dis	1	blb	2							
				fine-grained; well developed foliation (57 degrees to CA); disseminated																			
				pyrrhotite plus pyrite in locally connected millimetre-scale layers; blebby																			
				magentite throughout in 1%																			
			163.03-164.19	GRANODIORITE																			
				163.04-163.32 blebs and semi-massive magnetite with quartz, garnet and	BQ0084	163.04	163.32	0.28							s-m	20							
				ganodiorite host rock																			
			163.32-164.09	generally unmineralized granodiorite; local centimetre-scale disseminated	BQ0180	163.32	164.09	0.77	dis	tr					blb	1							
				interval of pyrrhotite and blebby magnetite throughout interval	BQ0181	164.09	165.24	1.15	lay	2			dis	tr	blb	1							

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ03

Project: Mistassini/Twins (South) | NTS: NAD27 | Date Collared: July 14/04 | Date Completed: July19/04 | Drilled By: Chibogamau | Assayed By: Chemex | Logged By: Nick Thomas

Coordinates: 381547 / 5633383 | Elevation: 535 | Azimuth: 45 | Dip: -50 | Total Length: 363m | Checked By: C. Greig & S.Flasha

Drillhole Purpose / Target | Down Hole Survey

Flag	From (m)	To (m)	Description	Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
			164.19-168.62 (MAG) AMPH BT GT GNS	BQ0182	165.24	166.28	1.04	lay	tr					blb	2							
			mafic variation in this interval from 10-50 CI; disseminated pyrite and local	BQ0184	166.28	167.27	0.99	lay	tr					blb	2							
			layers, millimetre-scale blebby magnetite locally (generally weakly magnetic)	BQ0185	167.27	168.24	0.93	lay	tr					dis	tr							
				BQ0186	168.24	169.07	0.83	lay	1			dis	tr									
			168.62-170.04 GRANODIORITE (predominantly)	BQ0187	169.07	170.08	0.99							dis	tr							
			gneiss grades into this unit moving downhole																			
			170.04-176.40 AMPH GT BT GNS - BT MAG GT AMPHIBOLITE	BQ0188	170.08	171.22	1.15	dis	2													
			grades from gneiss to amphibolite down the hole, magnetite (>30%) is in the	BQ0189	171.22	172.22	1.00	dis	5					dis	5							
			more amphibolitic intervals (from 172.35 to 180.46)	BQ0191	172.22	173.22	1.00	dis	5					dis	10							
				BQ0192	173.22	174.24	1.02	lay	5					lay	10							
			170.00-176.40 rocks in this interval have alternating garnet and amphibole layers with	BQ0193	174.24	175.25	1.01	lay	5					lay	10							
			magnetite concentrations in the centimetre- to decimetre-scale amphibole	BQ0194	175.25	176.41	1.16	dis	2					dis	8							
			layers; strongly magnetic interval																			
			176.47-180.89 (PO,BT) MAG GT AMPH QTZ FLD GNS	BQ0195	176.47	177.59	1.12	lay	1					blb	2							
			more leucocratic (but variably layered); magnetite occurs in blebs (1cm or less)	BQ0196	177.59	178.00	0.41	dis	5					blb	2							
			in the garnet-rich and more leucocratic layers; and as discontinuous layers in																			
			the amphibole-rich layers; pyrrhotite disseminated throughout																			
			175.42-177.52 millimetre-scale amphibolite layers are often discordant as well as parallel																			
			to the foliation, they are in equilibrium with the surrounding rock; amphibolite																			
			layers look like meta-units																			
			178.00-178.95 heavily disseminated sulphides (30%), flattened within the foliation (56 degrees to	BQ0085	178.00	178.95	0.95	fol/m	25			dis	2	dis	2							
			CA) creating discontinuous layers to semi-massive centimetre-scale bands	BQ0198	178.95	180.00	1.05	dis	5			dis	tr	lay	10							
			of pyrrhotite (plus pyrite and magnetite)	BQ0199	180.00	180.88	0.88	dis	2			dis	tr	blb	8							
	180.89	183.78	AMPH GT BT QTZ FLD GNS	BQ0200	180.88	181.88	1.00	dis	tr													
			fine-grained; well developed foliation (58 degrees to CA) (compositional	BQ0201	181.88	182.91	0.97	dis	tr			dis	tr									
			layering); increases in garnet and amphibole down-hole	BQ0202	182.91	183.78	0.87							dis	tr							
	183.78	184.40	GRANITE	BQ0203	183.78	184.68	0.90							blb	1							
			coarse-grained; foliation parallel to contacts; non-foliated; local millimetre-																			
			scale bebs of magnetite																			
	184.40	192.40	(PO, BT) MAG GT AMPH QTZ FLD GNS	BQ0205	184.68	186.00	1.32	dis	2					blb	2							
			30-40 CI; fine-grained, well developed compositional layering alternating	BQ0206	186.00	187.01	1.01	dis	3			dis	tr	blb	1							
			centimetre-scale garnet and amphibolite layers; magnetite in bands within the	BQ0207	187.01	188.00	0.99	dis	2			dis	1	blb	tr							
			amphibole-rich layers; magnetite occurs in blebs in the more leucocratic	BQ0208	188.00	188.70	0.70	dis	2			dis	1	blb	1							
			layers	BQ0209	188.70	189.70	1.00	dis	1			dis	tr	lay	5							
				BQ0210	189.70	190.71	1.01	dis	3			dis	tr	lay	8							
				BQ0212	190.71	191.02	0.29	dis	2			dis	tr	pch	8							
				BQ0213	191.02	192.00	0.98	fol	3			dis	tr									
				BQ0214	192.00	192.36	0.36	fol	3			dis	tr	blb	5							

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG			HOLE NO DDHBQ03
Project Mistassini/Twins (South)	NTS: NAD27	Date Collared: July 14/04	Date Completed July 19/04
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Coordinates 381547 / 5633383	Elevation: 535	Azimuth: 45	Dip: -50
Total Length 363m	Checked By C Greig & S Flasha		
Drillhole Purpose / Target	Down Hole Survey		

Flag	From (m)	To (m)		Description	Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
	184.40	192.40		(PO BT) MAG GT AMPH QTZ FLD GNS	BQ0205	184.68	186.00	1.32	dis	2					blb	2							
				30-40 CI; fine-grained, well developed compositional layering; alternating	BQ0206	186.00	187.01	1.01	dis	3			dis	tr	blb	1							
				centimetre-scale garnet and amphibolite layers; magnetite in bands within the	BQ0207	187.01	188.00	0.99	dis	2			dis	1	blb	tr							
				amphibole-rich layers; magnetite occurs in blebs in the more leucocratic	BQ0208	188.00	188.70	0.70	dis	2			dis	1	blb	1							
				layers	BQ0209	188.70	189.70	1.00	dis	1			dis	tr	lay	5							
					BQ0210	189.70	190.71	1.01	dis	3			dis	tr	lay	8							
					BQ0212	190.71	191.02	0.29	dis	2			dis	tr	pch	8							
					BQ0213	191.02	192.00	0.98	fol	3			dis	tr									
					BQ0214	192.00	192.36	0.36	fol	3			dis	tr	blb	5							
	192.40	194.96		AMPH BT GRANODIORITE	BQ0215	192.36	193.66	1.30					dis	tr									
				medium-grained; weakly developed foliation (52 degrees to CA)	BQ0216	193.66	194.84	1.20					dis	tr									
					BQ0210	189.70	190.71	1.01	dis	3			dis	tr	lay	8							
					BQ0212	190.71	191.02	0.29	dis	2			dis	tr	pch	8							
					BQ0213	191.02	192.00	0.98	fol	3			dis	tr									
					BQ0214	192.00	192.36	0.36	fol	3			dis	tr	blb	5							
					BQ0215	192.36	193.66	1.30					dis	tr									
					BQ0216	193.66	194.84	1.20					dis	tr									
	194.96	203.96		GT AMPH BT QTZ FLD GNS	BQ0217	194.86	195.57	0.71	dis	2			dis	tr	blb	1							
				fine-grained; weakly developed compositional layering; amphibolite/garnet	BQ0218	195.57	195.72	0.15	s-m	50			flk	3	pch	3							
				3% overall with local decimetre- to centimetre-scale garnet/amphibolite	BQ0219	195.72	196.72	1.00	lay	1			flk	tr									
				rich intervals; pyrite and pyrrhotite disseminated throughout interval with local	BQ0220	196.72	197.51	0.79	lay	4			dis	2	blb	2							
				poor connectivity millimetre-scale layers between grains; blebs of magnetite	BQ0221	197.51	198.54	1.03	lay	2			lay	2	pch	2							
				throughout interval	BQ0223	198.54	199.76	1.22	lay	3			lay	2	blb	1							
			195.56-195.62	interstitial pyrrhotite and pyrite within coarse-grained granite (injection?) layer																			
			201.30-203.09	GT BT AMPHIBOLITE	BQ0086	201.30	202.09	0.79	lay	25			lay	12									
				layered semi-massive sulphides (pyrrhotite and pyrite) for 10 centimetres;	BQ0225	202.09	203.11	1.02					dis	tr									
				layers wavy and sub-parallel to CA; interval puntuated by 7cm biotite and	BQ0226	203.11	203.92	0.81					dis	tr									
				amphibolite (inmineralized) with very pale trace acicular amphibole (hornblendite?)																			
	203.96	235.40		BT AMPHIBOLITE																			
				coarse-grained, equant crystal, amphibole pseudomorphing pyroxene crystals (85%); biotite																			
				generally 5% but ~70% locally; non-foliated appearance; locally contains moderately abundant																			
				(20%) very pale coloured acicular amphibole (204.00-204.44); rocks containing pale																			
				amphiboles may have more magnesium and may have contained orthopyroxene																			
				and or olivine; rocks in this inteval have a very high colour index (50-80)																			
			205.76-206.60	BT AMPHIBOLITE (HORNBLENDITE?)																			
				somewhat gradational contact (10-15 degrees to CA); greater proportion of biotite (20-30%);																			
				the more biotite-rich variety of the biotite amphibolite is strongly crenulated near the lower																			
				contact, possibly by detachment along millimetre- to centimetre-scale calcite vein;																			
				dominant amphibole is the pale-coloured variety (as at 204.00-204.44)																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG		HOLE NO. DDHBQ03	PAGE 9 of 15
Project Mistassini/Twins (South)	NTS: NAD27	Date Collared: July 14/04	Date Completed: July 19/04
Drilled By: Chibogamau	Assayed By: Chemex	Logged By: Nick Thomas	Checked By: C. Greig & S.Flasha
Coordinates: 381547 / 5633383	Elevation: 535	Azimuth: 45	Dip: -50
Total Length: 363m	Drillhole Purpose / Target	Down Hole Survey	

Flag	From (m)	To (m)	Description		Sample Number	Sample From (m)	Sample To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
			206.98-213.19	BT HORNBLENDITE					dis	1			dis	1									
				local 5-30 centimetre thick intervals of dismembered granitic pegmatite; pegmatite intervals																			
				contain and are associated with relatively abundant biotite (often making up more of the mode																			
				than quartz/feldspar); both hordnblendite(?) and biotite-rich parts contain relatively																			
				abundant pyrrhotite (1%); interval is weakly magnetic																			
			206.98-207.21	pegmatite (quartz vein) containing sparse sulphides (<1%)																			
			208.66	midpoint of sub-centimetre quartz vein, with distinctive white weathering																			
				mineral associated with contacts; iddingsitized/titanite/sphene																			
			213.19-213.56	BT AMPHIBOLITE																			
				fine-grained; biotite (phlogopitic) amphibolite, consisting of about 10% mica and the remainder																			
				amphibole, including hornblende (?) and anthophyllite/tremolite(??) with the latter increasing																			
				in abundance toward the lower contact (45 degrees to CA)																			
			213.56-215.88	MICACEOUS AMPHIBOLITE-PHLOGOPITE																			
				anthophyllite/tremolite rock; medium- to very coarse-grained with possible																			
				talcose foliation surfaces (47 degrees to CA)																			
			215.88-216.65	MICA AMPHIBOLITE																			
				dull grey to green colour; fine grained, compact rock; a large portion of the interval consists of																			
				vivid apple green (?) coloured minerals, mainly amphibole (?); 217.41-217.82 has relatively																			
				abundant phlogopitic mica levels; moderately well-developed foliation (51 degrees to CA)																			
			218.36-219.51	BT HORNBLENDITE(?)																			
				fine- to medium-grained (slightly coarser than the units immediately above); darker-coloured																			
				amphibole (dark-green to black); present an relatively sparse micas (3% or less); lower contact																			
				gradational, chosen somewhat arbitrarily to coincide with the first obvious appearance																			
				of interstitial fluid (intercumulus?) which also appears to coincide with a slight increase																			
				in grain size (from fine- to medium-grained to medium-grained)																			
			219.51-235.40	BT HORNBLENDITE																			
				interstitial fluid included (amphibolitized feldspathic pyroxenite and local																			
				gabbro); typified by moderate textural and compositional variations; locally																			
				weakly layered; typically medium-grained, locally medium- to coarse grained																			
				feldspar content may vary from 0 (amphibolitized pyroxenite) to as much as																			
				50% (amphibolitized gabbro), typically about 15%																			
			223.75-223.91	granite dyklet; interstitial contact																			
			225.00-227.00	granite dyklets centimetre-scale 3/m																			
			235.40-234.66	2cm and 10 cm thick granitic dyklets																			
			233.1	purple/beet coloured mineral in calcite veinlet; very fine-grained																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

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Coordinates: 381547 / 5633383 | Elevation: 535 | Azimuth: 45 | Dip: -50 | Total Length: 363m | Checked By: C. Greig & S Flasha

Drillhole Purpose / Target | Down Hole Survey

Flag	From (m)	To (m)	Description		Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
	234.66	271.98		GRANODIORITE (with 10-15% biotite, upper contact 66 degrees to CA) fine- to medium-grained; weakly- (majority) to moderately-well-developed foliation (67-74 degrees to CA); locally 'spotted' granodiorite gneiss; granodiorite intruded by centimetre-scale pink granite (1-3/m); smaller granite pegmatites generally foliated parallel, larger decimetre-scale pegmatites discordant to foliation																			
			244.90-247.33	GRANODIORITE fine-to medium-grained; non-foliated; upper contact with coarser-grained granodiorite is fairly distinct and somewhat concordant with the local foliation, lower contact distinct but discordant to foliation, petering out in sub-parallel injections; interval is probably a later stage of the same magma (granodiorite)																			
	271.98	279.94		BT AMPHIBOLITE to AMPH GNEISS																			
			271.98-272.28	medium-grained, (biotite?) hornblendite; CI 80+																			
			272.28-273.12	AMPHIBOLITE CI 50; variably layered; relatively abundant disseminated pyrrhotite on the upper contact (1-2%), flattened parallel to foliation; local pegmatite layering at 35 degrees to CA																			
			273.12-274.97	BT AMPHIBOLITE (biotite 5-10%) CI 30-40; well layered; irregular upper and lower cuts; weakly magnetic at best; sparse disseminated pyrrhotite and pyrite; 273.81-274.19 biotite garnet pegmatite					dis	tr			dis	tr									
			274.97-278.19	AMPHIBOLITE CI 40-50; medium-grained; gradational lower contactat 20-25 degrees to CA; 25.35-275.75 scattered (up to 3%) medium-grained, sub-rounded clusters of garnet																			
			278.19-279.24	BT AMPHIBOLITE with sulphides and common accessory titanite (sphene); lower contact at 20-25 degrees to CA; relatively abundant amount of disseminated to patchy sulphides (<1 to 1% pyrrhotite, pyrite and sub-ordinate chalcopyrite)					pch	1	flk	tr	pch	1									
			279.24-279.94	(BT) AMPHIBOLITE with trace garnet fine- to medium-grained; wavy layered with local millimetre-scale leucocratic layers toward lower contact, 5-10cm thick fine-grained biotite granodiorite layer about 10-15cm above lower contact, clearly discordant (granodiorite below intrudes amphibolite)																			
	279.94	286.04		BT GRANODIORITE (biotite 5-10%) folded to slightlt gneissic; lower contact 54 degrees to CA																			
			279.94-283.76	centimetre- to decimetre-scale, fine- to medium-grained dyklets; centimetre-scale dyklets are 2/3m, parallel to foliation (47degrees to CA)																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

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Coordinates: 381547 / 5633383	Elevation: 535	Azimuth: 45	Dip: -50	Total Length: 363m		Checked By: C. Greig & S Flasha
Drillhole Purpose / Target			Down Hole Survey			

Flag	From (m)	To (m)		Description	Sample Number	Sample From (m)	Sample To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
	279.94	286.04		BT GRANODIORITE (biotite 5-10%) folded to slightlt gneissic; lower contact 54 degrees to CA																			
			279.94-283.76	centimetre- to decimetre-scale, fine- to medium-grained dyklets; centimetre-scale dyklets are 2/3m, parallel to foliation (47degrees to CA)																			
			283.58-283.78	BT GRANITE PEGMATITE distinct but discordant contacts																			
	286.04	286.38		BT AMPHIBOLITE (amphibole 30%, biotite 10%) green rock (CI 40); fine- to medium-grained; weakly developed foliation; distinct contacts: upper contact 49 degrees to CA, lower contact 42 degrees to CA																			
	286.38	287.11		BT GRANODIORITE medium-grained; moderately well foliated (short interval): upper contact 42 degrees to CA, lower contact 24 degrees to CA																			
	287.11	289.15		BT AMPHIBOLITE (biotite 5%?) locally moderately developed foliation (10-15 degrees to CA); non-magnetic; unmineralized																			
	289.15	292.70		BT GRANODIORITE upper contact 32 degrees to CA, lower contact 40 degrees to CA																			
	292.70	293.50		BT AMPHIBOLITE short interval; slightly more leucocratic; same as 287.11-289.15; non-magnetic; trace disseminated pyrite; inclusion of amphibolite in granodiorite at amphibolite lower contact									dis	tr									
	293.50	294.30		BT GRANODIORITE same as 292.70-293.50; upper contact at 30 degrees to CA, lower contact at 18 degrees to CA																			
	294.30	296.85		AMPHIBOLITE relatively fine-grained (fine- to medium-grained); well mineralized (up to 2-3% or more on average); disseminated and local interstitial sulphides: moderately- to strongly-magnetic; possible/probable calc-silicate developed within sample interval in association with sulphides (<<5%); assemblage includes garnet, epidote, calcite (and possible diopside?)	BQ0087	294.23	295.17	0.95	dis	2	dis	tr	dis	1									
			295.24-296.85	BT AMPHIBOLITE (biotite 15-20 %) medium-grained, variably biotite-rich, local biotite pegmatite, common warped/wavy locally folded, millimetre-scale quartz feldspar (?) layers; disseminated sulphides throughout interval, most typically associated with epidote					dis	1			dis	tr									
	296.85	300.39		(HBL) BT GRANODIOITE GNS centimetre-scale discordant to foliation (contacts indistinct); coarse-grained; generally weakly developed foliation (65 degrees to CA)																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG — HOLE NO. DDHBQ03 —

Project: Mistassini/Twins (South) | NTS: NAD27 | Date Collared: July 14/04 | Date Completed: July19/04 | Drilled By: Chibogamau | Assayed By: Chemex | Logged By: Nick Thomas

Coordinates: 381547 / 5633383 | Elevation: 535 | Azimuth: 45 | Dip: -50 | Total Length: 363m | Checked By: C. Greig & S Flasha

Drillhole Purpose / Target | Down Hole Survey

Flag	From (m)	To (m)	Description		Sample Number	Sample Collection From (m)	To (m)	Interval (m)	Pyrrhotite Style	%	Chalcopyrite Style	%	Pyrite Style	%	Magnetite Style	%	Other Style	%	Ni	Cu	Co	Pt	Pd
	300.39	313.48		BT AMPHIBOLITE																			
				CI 40-90; fine- to medium-grained, weakly developed foliation (65 degrees to CA)																			
			300.39-305.08	BT AMPHIBOLITE																			
				CI 40; fine-grained; non-foliated to weakly developed foliation (65 degrees to CA)																			
			302.70-303.67	heavily disseminated pyrrhotite with pyrite and chalcopyrite in trace amounts,	BQ0088	302.70	303.67	0.97	dis	4	dis	tr	dis	tr									
				flattened with foliation forming discontinuous layers locally																			
			303.67-304.55	lighty- to heavily-disseminated pyrrhotite with pyrite and chalcopyrite in trace amounts	BQ0089	303.67	304.55	0.78	dis	3	dis	tr	dis	tr									
			303.82	amphibole after pyroxene																			
			304.55	in what was once 80% pyroxene (protolith feldspar pyroxenite) - 1% interstitial;																			
				contact runs sub-parallel to CA; layer is only 2 inches thick																			
			304.55-305.12	BT AMPHIBOLITE																			
				finely- to heavily-disseminated pyrrhotite; foliation parallel creating discontinuous layers;	BQ0090	304.55	305.12	0.57	dis	5	dis	tr	blb	tr									
				trace flaky chalcopyrite with pyrrhotite or ringing blebs of pyrite																			
			305.35-306.61	recrystallized and re-equilibrated millimetre- to centimetre-scale carbonate (calcite) units																			
			306.61-308.70	BT AMPHIBOLITE (biotite 15-20%)																			
				biotite, anthophyllite, actinolite or more likely green hornblende?; CI 100; predominantly																			
				medium-green in colour but with pale greenish patches made up of an abundant																			
				colourless fibrous to acicular mineral; also an amphibole (anthophyllite?)																			
			308.70-309.07	BT ANTHOPHYLLITE HBL (actinolite?)																			
				amphibolite with a high colour index, as per previous interval, but containing																			
				relatively continuous millimetre-scale biotite-rich layers																			
			309.07-309.76	BT ANTHOPHYLLITE HBL (actinolite?) AMPHIBOLITE																			
				finer-grained; high colour index; interval shows a decrease in biotite and anthophyllite(?) downhole																			
			309.76-313.47	AMPHIBOLITE																			
				generally coarse-grained, non-foliated, protolith probably a feldspar pyroxenite; weakly magnetic																			
	313.47	317.10		(pegmatite) BT GRANITE																			
				coarse-grained, discordant upper contact with irregular orientation, clearly intrusive into																			
				amphibolite; variably foliated with locally well-devolped proto-mylonitic foliation; includes																			
				very common septa and/or inclusions of amphibolite (high colour index 90+) with highly irregular cuts																			
			intervals:	amphibolitic septa and/or amphibolite inclusion-rich zones are typically veined																			
				with granite, relatively biotite-rich, containing sparse pyrrhotite and pyrite:																			
				313.69-313.81 313.89-314.12 314.86-315.32 316.09-316.4 316.87-317.10																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ03 |

Project Mistassini/Twins (South)	NTS: NAD27	Date Collared: July 14/04	Date Completed July19/04	Drilled By Chibogamau	Assayed By Chemex
Coordinates 381547 / 5633383	Elevation: 535	Azimuth 45	Dip: -50	Total Length 363m	
Drillhole Purpose / Target			Down Hole Survey		

Logged By Nick Thomas
Checked By C Greig & S Flasha

Flag	From (m)	To (m)	Description		Sample Number	Sample Collection From (m)	To (m)	Interval (m)	Pyrrhotite Style	%	Chalcopyrite Style	%	Pyrite Style	%	Magnetite Style	%	Other Style	%	Ni	Cu	Co	Pt	Pd
	317.10	318.24		BT GRANITE																			
				medium- to coarse-grained; local 'graphic' textures; generally non-foliated																			
	318.24	318.82		BT AMPHIBOLITE																			
				CI 100; medium- to coarse-grained; probable poikilitic/poikiloblastic tremolite/anthophyllite/ actinolite(?); contains local granitic dykes/layers sub-parallel to CA; biotite relatively abundant along contacts																			
	318.82	319.78		BT GRANITE and GRANITE PEGMATITE																			
				medium-grained																			
			319.17-319.78	BT AMPHIBOLITE																			
				CI 100; sub-equal amounts of pegmatite to the amphibolite; upper cut dyke-like at about 30 degrees to the CA																			
	319.78	332.35		BT AMPHIBOLITE																			
				CI 100; very coarse-grained poikiloblastic/poikilitic biotite amphibolite; partially serpentinized, containing common cummingtonite/anthophyllite; strongly magnetic (magnetite generated via process of serpentinization); dense, very high specific gravity																			
			330.22-332.35	paler weathering (bleached) biotite-rich amphibolite; may be in more fine-grained felted masses in this interval																			
	332.35	334.20		BT GRANITE																			
				pegmatitic at both contacts; upper contact at 90 to CA, lower contact at 80 to CA																			
	334.20	334.70		BT GRANODIORITE																			
				very fine-grained; most likely older than the granite																			
	334.70	339.07		BT GRANITE	BQ0241	334.73	334.78	0.25	pch	5	flk	tr	fl	1									
				medium-grained; common biotite granite pegmatite sections, which locally contain abundant	BQ0242	334.78	336.55	1.77					dis	tr									
				sulphides; pyrrhotite>pyrite>>chalcopyrite with chalcopyrite locally and partially rimming	BQ0243	336.55	337.53	0.98	pch	2			pch	1									
				pyrite where it is in contact with pyrrhotite; note: block error! interval is actually 0.5m shorter	BQ0244	337.93	339.06	1.13	dis	tr			dis	tr									
			336.50-337.93	BT GRANITE PEGMATITE																			
				commonly associated with sulphides (pyrrhotite and pyrite)																			
			336.50-337.86	relatively biotite poor upper section																			
			336.86-337.93	biotite pegmatite with pyrrhotite and pyrite; relatively heavy sulphides (average about 15-20% interstitial to biotite and locally intergrown with it)																			
			337.53-337.93	pyrrhotite mainly, with flecky trace chalcopyrite; strongly magnetic	BQ0095	337.53	337.93	0.40	int	15	flk	tr											

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG | HOLE NO. DDHBQ03 | PAGE 14 of 15

Project: Mistassini/Twins (South)	NTS: NAD27	Date Collared: July 14/04	Date Completed: July19/04	Drilled By: Chibogamau	Assayed By: Chemex	Logged By: Nick Thomas
Coordinates: 381547 / 5633383	Elevation: 535	Azimuth: 45	Dip: -50	Total Length: 363m		Checked By: C. Greig & S.Flasha
Drillhole Purpose / Target			Down Hole Survey			

Flag	From (m)	To (m)	Description		Sample Collection: Sample Number	From (m)	To (m)	Interval (m)	Mineralization Estimates: Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Assay Results: Ni	Cu	Co	Pt	Pd
	339.07	350.67		(PY,PO) AMPH QTZ FLD																			
				sulphides appear to show net and semi-massive textures, and very loacally																			
				appear to be contained within silicates; well layered with layering outlined																			
				by compositional variation amongst constituent silicate; layering generally																			
				45 degrees to CA up to 343.50, then clearly warped in and out of CA (near-																			
				parallel to CA) from up to 348.1; upper contact has greatest abundance of sulphides																			
			339.07-339.45	semi-massive pyrrhotite in biotite pegmatite	BQ0096	339.07	339.45	0.38	s-m	40	flk	tr											
			339.45-340.21	semi-massive in amphibolite, trace blebby magnetite	BQ0097	339.45	340.21	0.76	lay	35					blb	tr							
			340.21-340.75	gt amphibolite with semi-massive pyrrhotite and flecky chalcopyrite	BQ0098	340.21	340.75	0.54	s-m	40	flk	tr	s-m	3									
			340.75-341.75	mag amphibolite; heavily disseminated pyrrhotite and pyrite; layered magnetite	BQ0099	340.75	341.75	1.00	dis	5			dis	1	lay	5							
			341.75-342.32	gt mag amphibolite, heavily disseminated sulphides	BQ0100	341.75	342.32	0.57	dis	4			dis	2	lay	3							
			342.32-342.69	mag amphibolite; layered sulphides	BQ0101	342.32	342.69	0.37	lay	3			lay	3	blb	1							
			342.69-342.95	(mag) gt amphibolite; finely disseminated sulphides	BQ0102	342.69	342.95	0.26	dis	1			dis	tr	dis	2							
			342.95-343.41	gt amphibolite; millimetre-scale layered sulphides	BQ0103	342.95	343.41	0.46	lay	10			flk	2	blb	2							
			343.41-344.41	gt amphibolite; millimetre-scale layered sulphides	BQ0104	343.41	344.41	1.00	lay	3					blb	2							
			344.41-345.00	gt amphibolite; millimetre-scale layered sulphides	BQ0105	344.41	345.00	0.59	lay	4					blb	2							
			345.00-346.00	mag gt amphibolite; layered sulphides	BQ0106	345.00	346.00	1.00	lay	3					lay	5							
			346.00-347.00	mag amphibolite; layered and interstitial sulphides; blebby magnetite	BQ0107	346.00	347.00	1.00	lay	4					lay	10							
			347.00-348.00	amph bt qtz fld gns; milimetre-scale layered sulphide	BQ0108	347.00	348.00	1.00	lay	2			lay	1									
			348.00-348.66	amph bt qtz fld gns; layered sulphide	BQ0109	348.00	348.66	0.66	lay	2													
			343.35-340.73 and 347.12-348.70	CI 20-30; relatively leucocratic; generally quartz and feldspar(?) rich																			
			348.30	foliation 40 degrees to CA																			
			348.90	foliation 40 degrees to CA																			
			348.96-349.53	amphibole (50%?) sulphide (pyrrhotite>>pyrite about 40%) and magnetite																			
				(10%) predominatly in this interval; sulphides more or less semi-massive																			
				corresponds with non-foliated disrupted (milled?) rocks																			
			348.66-348.96	gt amphibolite; layered sulphides	BQ0110	348.66	348.96	0.40	lay	5					blb	tr							
			348.96-349.86	gt amphibolite; interstitial sulphides	BQ0111	348.96	349.86	0.90	int	30			int	1	int	tr							
			349.86-350.64	gt amphibolite; layered sulphides	BQ0112	349.86	350.64	0.78	lay	10			flk	tr	blb	2							
	350.67	354.73		GT BT MAG AMPH QTZ FLD																			
				locally layered with layering at about 45 degrees to CA - similar to upper cut; lower cut is 35																			
				degrees to CA; millimetre-scale magnetite porphyroblasts common (13%) (range up to 5mm);																			
				sulphide content quite variable (pyrite, pyrrhotite) as it is commonly patchy, may be as much																			
				as 2% in total																			
			351.10-351.68	gt amphibolite, interstitial sulphides	BQ0091	351.10	351.68	0.58	int	2					blb	tr							
			352.44-353.26	gt amph bt qtz fld gns; heavily disseminated	BQ0092	352.44	353.26	0.82	dis	2					blb	1							
			353.23-354.80	gt amphibolite; layered sulphides and blebby magnetite	BQ0093	353.23	354.80	1.47	lay	2					blb	1							

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG	HOLE NO. DDHBQ03	PAGE 15 of 15

Project: Mistassini/Twins (South)	NTS: NAD27	Date Collared: July 14/04	Date Completed: July 19/04	Drilled By: Chibogamau	Assayed By: Chemex	Logged By: Nick Thomas
Coordinates: 381547 / 5633383	Elevation: 535	Azimuth: 45	Dip: -50	Total Length: 363m		Checked By: C. Greig & S Flasha
Drillhole Purpose / Target			Down Hole Survey			

Flag	From (m)	To (m)	Description	Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
	354.73	356.68	AMPHIBOLITE																			
			CI 40-45 although relatively mafic-rich (CI >90) within 10-15cm of upper																			
			contact where it is also relatively sulphide-rich (1%)																			
	356.68	362.89	PY PO MAG BT AMPH QTZ FLD GNS																			
			basically the same mode as interval 339.07-350.67 but with a much lower																			
			CI (10-20); moderatley well layered (50 degrees to CA) and parallel with the																			
			lower contact																			
		362.89	END OF HOLE																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG		HOLE NO DDHBQ04	PAGE 1 of 5
Project: Mistassini/Twins (South)	NTS: NAD27	Date Collared: July 19/04	Date Completed: July 21/04
Drilled By: Chibogamau	Assayed By: Chemex	Coordinates: 381871 / 5633668	Elevation: 556
Azimuth: 45	Dip: -50	Total Length: 179m	Logged By: Nick Thomas & Charles Greig
Checked By: S. Flasha	Drillhole Purpose / Target:	Down Hole Survey:	

Flag	From (m)	To (m)		Description	Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
	0.00	2.45		OVERBURDEN																			
	2.45	4.43		BT GT AMPHIBOLITE (amph 30%, biotite 3%, garnet ~2%)																			
				green-black rock (CI 40-50); medium-grained; weakly developed foliation																			
				(48 degrees to CA); moderately magnetic																			
	4.43	8.35		BT GRANODIORITE (biotite 5-8%)																			
				local centimetre-scale concordant and discordant granite and/or (granite) pegmatite dyklets 2/m																			
	8.35	39.22		MIXED GRANODIORITE and GRANITE/GRANITE PEGMATITE																			
				generally section is pink, medium- to coarse-grained granite; interval seems																			
				to be predominantly granite interfingering and assimilating the granodiorite to																			
				the point where the granodiorite is rarely uninterrupted for longer than 5cm																			
			9.10-15.44	pink, medium- to coarse-grained granite with moderate hydrothermal (chlorite? clay?) alteration																			
			15.96-16.30	GRANITE PEGMATITE																			
				pink; irregular contacts; upper contact with coarse-grained granite somewhat gradational; lower																			
				contact in granodiorite is 25 degrees to CA, which is interfingered with granite (injection?)																			
			21.76-21.79	2cm-wide calcite quartz epidote vein intrudes pink granite; frothy looking																			
				open spaces noted in vein, fractures local to vein have powder alteration product (clay?)																			
			32.00-39.22	section is dominated by granodiorite with less pink medium-to coarse-grained granite																			
				intrusions; generally, granite veins are centimetre-scale and parallel with foliation,																			
				3/m; the contacts are rarely distinct and are recognizable by their pink colour																			
	39.22	45.51		BT AMPHIBOLITE (amph 40%, biotite 5%)																			
				fine- to medium-grained; dark green coloured rock (CI 50-60); weakly developed foliation																			
				(48 degrees to foliation); weakly magnetic; generally unmineralized; the upper contact																			
				with the granodiorite is 58 degrees to the CA, the lower contact is at 52 degrees to the CA																			
	45.51	50.88		BT GRANODIORITE (biotite 5%)																			
				fine-grained; moderately well developed foliation; at 48.21 there is a 4cm																			
				wide foliation parallel layer of amphibolite 50 degrees to the CA, 48.91-49.44																			
				centimetre- to decimetre-scale, discordant to foliation, pegmatite dykes																			
	50.88	52.38		ANTH BT HBL AMPHIBOLITE (hbl(?) 60%, biotite 15%, fld 10%, anth 3%)					dis	tr			dis	tr									
				light- to medium-green (CI 70-80); medium- to coarse-grained, carbonate																			
				at the lower conatct. 2cm wide calcite vein at 51.40; locally coarse-grained																			
				hornblende(?) crystals pseudomorph pyroxene; protolith may have been																			
				pyroxenite; upper contact at 43 degrees to CA, lower contact at 44 degrees to CA																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG | HOLE NO. DDHBQ04

Project: Mistassini/Twins (South) | NTS: NAD27 | Date Collared: July 19/04 | Date Completed: July 21/04 | Drilled By: Chibogamau | Assayed By: Chemex

Coordinates: 381871 / 5633668 | Elevation: 556 | Azimuth: 45 | Dip: -50 | Total Length: 179m | Logged By: Nick Thomas & Charles Greig | Checked By: S. Flasha

Drillhole Purpose / Target | Down Hole Survey

Flag	From (m)	To (m)	Description		Sample Collection: Sample Number	From (m)	To (m)	Interval (m)	Mineralization Estimates: Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Assay Results: Ni	Cu	Co	Pt	Pd
	52.38	53.00		GRANITE PEGMATITE																			
				20cm section at the upper contact is 75% biotite; lower contact is somewhat																			
				wavy and indistinct; pegmatite intruded granodiorite																			
	53.00	55.57		BT GRANODIORITE (biotite 10%)																			
				interval contains mostly concordant, parallel to foliation, centimetre-scale																			
				granite pegmatite dykes, 2/m; unmineralized																			
	55.57	73.98		GT BT QTZ FLD GNS																			
				fine-grained, well developed compositional layering; protolith for this rock is debatable; varied																			
				thickness in layering, usually seen with gneissic sedimentary rocks (i.e. the layering is very uniform																			
				as if perhaps the protolith was intrusive); garnet is present and rare at the lower contact,																			
				but generally between 3-5%																			
	73.98	79.57		BT GT AMPHIBOLITE																			
				CI 50-60; medium- to coarse-grained; weakly developed foliation (51 degrees																			
				to CA); upper contact somewhat gradational withy amounts of amphibole and																			
				garnet increasing dramatically to mark contact; lower contact the same in reverse																			
			79.31-79.85	sample taken at gradational contact between amphibolite above and gneiss below; lightly	BQ0094	79.31	79.85	0.54	dis	4													
				disseminated pyrrhotite (up to 4%) with a randomly oriented fine-grained, silvery, metallic																			
				looking mineral; seems to have a needle-like habit in sides of core (graphite?)																			
	79.57	87.25		(+/- PO and GT) BT QTZ FLD GNS (biotite 5%)																			
				biotite amounts fluctuate throughout interval																			
			83.50-85.40	interval with increased biotite (15%); garnet 10% in evenly distributed sub-rounded																			
				clusters; amphibole 5%; mineralized interval starts where the garnet and																			
				amphibole become rare and there is less biotite present																			
			80.64-81.00	heavily disseminated pyrrhotite in layers parallel to foliation, but with poor interconnectivity	BQ0114	80.64	81.00	0.36	dis	6													
				between gneiss; randomly oriented fine-grained silvery mineral; same habit as above (graphite?)																			
			81.22-81.78	semi-massive to heavily disseminated pyrrhotite with traces of flecky chalcopyrite	BQ0115	81.22	81.78	0.56	s-m	10	flk	tr											
				intergrown with the pyrrhotite																			
			82.08-82.94	generally, the sulphides (pyrrhotite) occur interstitially; locally pyrrhotite is semi-massive or in lay	BQ0116	82.08	82.94	0.86	int	25													
			83.02-83.48	semi-massive pyrrhotite throughout the interval, pyrrhotite occurs as foliated parallel layers	BQ0117	83.02	83.48	0.46	s-m	30													
				at the beginning and end of this interval (centimetre-scale); biotite and garnet percentages																			
				both increase following this sample section																			
			86.70-87.10	pyrrhotite occurs as foliation parallel layers up to 1cm thick, with good lateral continuity	BQ0118	86.70	87.10	0.60	lay	20													

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ04 —

Project: Mistassini/Twins (South)	NTS: NAD27	Date Collared: July 19/04	Date Completed: July 21/04	Drilled By: Chibogamau
Assayed By: Chemex				
Coordinates: 381871 / 5633668	Elevation: 556	Azimuth: 45	Dip: -50	Total Length: 179m
Logged By: Nick Thomas & Charles Greig	Checked By: S. Flasha			
Drillhole Purpose / Target			Down Hole Survey	

Flag	From (m)	To (m)		Description	Sample Number	Sample From (m)	Sample To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
	87.25	95.46		BT GRANODIORITE					blb	tr													
				fine-grained; well developed foliation (47 degrees to CA); foliation parallel to the centimetre-scale																			
				pegmatite layers (injections?) with 10cm amphibole at contacts (2/m); trace blebby pyrrhotite																			
			95.45-95.96	BT AMPHIBOLITE																			
				heavily disseminated pyrrhotite and pyrite forming poorly interconnected	BQ0121	95.45	95.96	0.51	dis	7			dis	3									
				layers; local blebby pyrrhotite in 2cm wide pegmatite layer at 95.95																			
	95.46	102.64		GT BT AMPHIBOLITE (amph 35%, biotite 10%, garnet 5-8%)																			
				CI 45; fine- to medium-grained; well developed foliation; lower contact 54																			
				degrees to CA; upper contact 40 degrees to CA; generally garnet occurs																			
				in evenly distributed sub-rounded millimetre-scale clusters (5-8%)																			
	102.64	104.06		BT GRANODIORITE (biotite 5%)																			
				fine-grained; well developed foliation																			
	104.06	105.89		GT BT AMPHIBOLITE																			
				same as 95.46-102.64; upper contact 54 degrees to CA																			
			103.54-103.62	8cm wide foliation parallel pegmatite layer																			
			103.62-103.89	layered sulphides, pyrrhotite>>chalcopyrite; semi-massive locally in two 2cm bands with good	BQ0122	103.62	103.89	0.27	s-m	20	flk	tr											
				interconnectivity between grains and good layered continuity, could give a magnetic/conductive																			
				anomaly																			
	105.89	108.49		BT AMPHIBOLITE (biotite 20%)																			
				medium-green, CI 90 (locally down to 60); generally amphibole 70% pseudo-																			
				morphing coarse pyroxene crystals; moving downhole in the amphibolite, approaching																			
				the next granodiorite contact, biotite becomes the dominant material, probably																			
				from pyroxene to chlorite to biotite; hydrothermally (to chlorite) from the intrusion																			
				then to biotite from regional metamorphism; evidence of inclusions of amphibolite in																			
				granodiorite (or qtz fld veins) suggests the granodiorite intruded the amphibolite																			
	108.49	114.96		BT GRANODIORITE																			
				centimetre-scale foliation parallel injections(?) of pink, coarse-grained granite 10/m																			
	114.96	116.83		BT AMPHIBOLITE (amph 60%, biotite 40%)									dis	tr									
				green and black rock (CI 100); well developed foliation (55 derees to foliation); moderately flaky																			
				and soft; trace disseminated pyrite throughout interval; non-magnetic																			
	116.83	117.97		BT GRANODIORITE																			
				two 1cm wide granite(?) dyklets; local potassic(?) alteration gives rock a green-pinkish colour;																			
				epidote in veinlet with pink potassicaly altered(?) granodiorite surrounding it (1cm wide)																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ04 | PAGE 4 of 5

Project: Mistassini/Twins (South) | NTS: NAD27 | Date Collared: July 19/04 | Date Completed: July 21/04 | Drilled By: Chibogamau | Assayed By: Chemex

Coordinates: 381871 / 5633668 | Elevation: 556 | Azimuth: 45 | Dip: -50 | Total Length: 179m | Logged By: Nick Thomas & Charles Greig | Checked By: S. Flasha

Drillhole Purpose / Target | Down Hole Survey

Flag	From (m)	To (m)	Description	Sample Collection: Sample Number	From (m)	To (m)	Interval (m)	Mineralization Estimates: Pyrrhotite Style	%	Chalcopyrite Style	%	Pyrite Style	%	Magnetite Style	%	Other Style	%	Assay Results: Ni	Cu	Co	Pt	Pd
	117.97	119.25	GT BT AMPHIBOLITE (amph 75%, biotite 20%, garnet 1%)																			
			may be septa of the previous bt amphibolite (114.96-116.83); upper contact 28																			
			degrees to CA, lower contact 45 degrees to CA																			
			119.48 5cm wide inclusion of bt amphibolite in granodiorite																			
	119.25	150.18	BT GRANODIORITE (biotite 10%)																			
			fine- to medium-grained; moderately well developed foliation (59 degrees to																			
			CA); lower contact ay 56 degrees to CA, millimetre- to centimetre-scale																			
			granite layers (injected?) throughout the interval (2/m); concordant to foliation																			
	150.18	157.96	GT BT AMPHIBOLITE (amphibole 30%, biotite 5%)																			
			CI 30-40; local centimetre- to decimetre-scale amphibole/garnet-rich layers																			
			often associated with sulphide mineralization																			
			151.39-152.24 GT BT AMPHIBOLITE	BQ0123	151.39	152.24	0.95	dis	1			dis	tr									
			lightly disseminated pyrite throughout interval; blebby pyrrhotite much																			
			greater than pyrite associated with centimetre-scale pegmatite intruding interval																			
			152.24-153.06 discontinuous layered sulphides; locally semi-massive pyrrotite and pyrite	BQ0124	152.24	153.06	0.82	lay	3			lay	1									
			(pyrrhotite>>pyrite); layers associated with amphibole-rich millimetre-scale																			
			layers; garnet 10% throughout interval; moderately magnetic																			
			153.06-153.88 CI 20; more leucocratic interval; from 153.44 to end of interval, protolith may be granodiorite,	BQ0125	153.06	153.88	0.82	dis	2			dis	tr									
			otherwise rock would be classified as a biotite quartzofeldspathic gneiss; weakly magnetic;																			
			lightly to locally heavily disseminated pyrrhotite and pyrite; parallel to foliation (46 degrees to CA)																			
			153.88-155.08 GT BT AMPHIBOLITE (amph 20%, biotite 20%, garnet 5%)	BQ0126	153.88	155.08	1.20	lay	1			lay	tr									
			lightly disseminated pyrrhotite and pyrite (pyrite<<pyrrhotite), locally parallel to foliation																			
			in millimetre-scale discontinuous layers and/or blebs; CI 40; weakly magnetic																			
	157.96	159.67	BT GRANODIORITE (biotite 10%)																			
			centimetre-scale granite injection(?)/pegmatite injection(?); mostly concordant																			
			but locally discordant; granite/pegamtite came later																			
	159.67	165.00	GT BT AMPHIBOLITE																			
			CI 60-80; garnet (10%) occurs mainly in finely disseminated, fine-grained layers																			
			and local sub-circular clusters; local amphibole pseudomorphs of coarse-																			
			grained pyroxene suggest rock was once a pyroxenite; non-magnetic																			
			162.12-163.65 biotite-rich interval: biotite 40%, amphibole 40%, feldspar 20%; non-magnetic																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

Project: Mistassini/Twins (South) | NTS: NAD27 | Date Collared: July 19/04 | Date Completed: July 21/04 | Drilled By: Chibogamau | Assayed By: Chemex

Coordinates: 381871 / 5633668 | Elevation: 556 | Azimuth: 45 | Dip: -50 | Total Length: 179m | Logged By: Nick Thomas & Charles Greig | Checked By: S. Flasha

Drillhole Purpose / Target | Down Hole Survey

Flag	From (m)	To (m)	Description		Sample Collection: Sample Number	From (m)	To (m)	Interval (m)	Mineralization Estimates: Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Assay Results: Ni	Cu	Co	Pt	Pd
	165.00	165.73		GRANITE PEGMTITE																			
				inclusions of biotite amphiblite noted at each of the irregular contacts,																			
				suggesting pegmatite intruded the body (thus the pegmatite is younger)																			
	165.73	170.32		GT BT AMPHIBOLITE CI 50-80																			
			165.73-165.86	amphibole-rich interval at upper contact with pegmatite; amphibole pseudomorphs																			
				of pyroxene: CI 80																			
			166.27-167.14	amphibole-rich interval with more evidence of pyroxene being the protolith:					dis	tr													
				generally, the interval has a colour index of 50-60; feldspar(?) making up the																			
				leucocratic mode; amphibole 40-60%, biotite 20%, garnet 15%, feldspar 25%;																			
				166.80-167.10 anthophyllite(?) [amphibole] laths, randomy oriented, fine-grained;																			
				locally moderate magnetism																			
	170.32	171.29		BT GRANODIORITE																			
				medium-grained; weakly developed foliation; centimetre-scale granite																			
				injections(?) throughout interval, parallel to foliation; upper contact 61 degrees																			
				to CA, lower contact 48 degrees to CA																			
	171.29	178.60		GT BT AMPHIBOLITE (amph 40%, garnet 20%, biotite 20%)																			
				decimetre-scale inter-layered amphibole/garnet-rich layers with more																			
				leucocratic (less amphibole/garnet-rich) layers; local centimetre-scale																			
				granite injections(?) occasionally discordant to foliation, clearly intrusives;																			
				locally weakly magnetic																			
			174.82-178.60	lightly to locally heavily disseminated pyrrhotite and pyrite and centimetre-scale																			
				discordant pegmatite with blebby sulphides and biotite pegmatite																			
			177.34-178.60	(PO) GT BT AMPHIBOLITE (amph 60%, garnet 10%, biotite 5%)	BQ0127	177.34	178.60	1.26	dis	4			dis	1									
				CI 80; heavily disseminated pyrrhotite and pyrite; strongly magnetic interval;																			
				local centimetre-scale discordant granite pegmatite; amphibolite pseudomorphs																			
				pyroxene throughout interval; protolith was pyroxenite																			
	178.60	178.87		BT GRANODIORITE																			
				trace pyrrhotite and pyrite																			
	178.87			EOH																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

Project: Mistassini/Twins (South) | NTS: NAD 27 | Date Collared: July 21/04 | Date Completed: July 23/04 | Drilled By: Chibogamau | Assayed By: Chemex

Coordinates | Elev. | Azimuth | Dip | Total Length: 224m | Logged By: Nick Thomas & Charles Greig | Checked By: S. Flasha

Drillhole Purpose / Target | Down Hole Survey

From (m)	To (m)	Rock Codes	Description: Relationship / Structure (Type, Intensity) / Alteration (Type, Intensity) / Planar Features (contacts, foliation, veining, etc.) (at, type, deg, at, type, deg)	Sample Number	Sample From (m)	Sample To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
7.74	81.79		MAG GT AMPH BT QTZ FLD GNS																			
			mainly fine-grained with local coarse-grained garnet clusters; large interval of fairly leucocratic																			
			rocks, generally well layered ranging from a layer thickness of millimetre-scale up to one																			
			metre (metasediments?); garnet occurs throughought the interval at 3-5%, but can locally		382149	5632828	520	45	-50	223.6												
			be as low as 0% or as high as 30%; amphibole varies greatly locally throughout the interval																			
			from layer to layer (0-40%); sulphides generally occur in millimetre-scale layers, often in																			
			association with amphibole, as does magnetite; magnetite is often found																			
			in millimetre-scale blebes in the more leucocratic garnet bearing layers																			
		7.74-17.64	MAG GT AMPH BT QTZ FELD GNS					dis	tr					blb	1							
			fine-grained; well layered, millimetre- to centimetre-scale rock with trace graphite (?); 11.30-11.84 one																			
			layer of garnet and biotite (5%each), hydrothermally altered; 16.95-17.30 bleached looking,																			
			sericized(?) zone with millimetre-scale fractures containing chlorite and calcite (18/int), 45 degrees																			
			to CA																			
		17.64-17.92	GRANITE PEGMATITE																			
			irregular contacts																			
		17.92-21.94	GT AMPH BT QTZ FLD GNS																			
			fine-grained; well developed layering; millimetre- to centimetre-scale layers																			
			(67 degrees to CA); 19.68-19.92 pale green, hydrothermally altered zone;									vnlt	tr									
		19.68-19.92	pale green, hydrothermally altered zone; chlorite and calcite on the fractures; saucertized (?)																			
			feldspar throughout the intrusion; trace of pyrite with fractures; fractures 44 degrees to CA																			
		21.31-21.61	GT AMPH BT QTZ FLD GNS																			
			well layered, generally on the millimetre-scale; local wispy pyrrhotite layers with flecky pyrite,																			
			discontinuous laterally; light disseminations of pyrrhotite and pyrite throughout the interval																			
		21.95-22.30	GRANITE PEGMATITE (quartz vein?)																			
			inclusions of surrounding gneiss within vein, trace blbs of pyrrhotite with flecky pyrite																			
		22.30-32.30	MAG AMPH GT BT QTZ FLD GNS					lay	tr			lay	tr	blb	3							
			fine-grained with local coarse-grained garnet clusters; well developed layers from millimetre- to																			
			centimetre-scale, 60 dgerees to CA; 20-30 CI; local centimetre-scale pegmatite layers																			
			(injections?) 1/m; finely disseminated blebs and/or millimetre-scale layered magnetite																			
			throughout interval; layers coincide with more mafic/amphibole-rich layers; rock is moderately																			
			magnetic throughout interval, trace of pyrrhotite and pyrite in wispy layers, up																			
			to 1cm wide (discontinuous)																			
		32.30-37.05	MAG AMPH GT BT QTZ FLD GNS					blb	tr			blb	tr	blb								
			generally unlayered interval with weakly developed foliation (64 degrees to CA); quartzofeldspathic																			
			portion of mode has a whiter appearance, but mafics have a slight increase; CI 30; millimetre-																			
			scale, blebby magnetite >> pyrrhotite>>pyrite, throughout interval; rock is moderately																			
			magnetic; majority of garnet is fine-grained, locally in sub-rounded clusters of up to 10%																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ05

Project Mistassini/Twins (South)	NTS	Date Collared July 21/04	Date Completed July 23/04	Drilled By Chibogamau
Assayed By Chemex				
Coordinates	Elev	Azimuth	Dip:	Total Length 224m
Logged By Nick Thomas & Charles Greig	Checked By S. Flasha			
Drillhole Purpose / Target			Down Hole Survey	

Flag	From (m)	To (m)	Rock Codes	Description / Relationship / Structure / Alteration / Planar Features	Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
			37.05-62.48	MAG AMPH GT BT QTZ FLD GNS																			
				fine-grained with coarse-grained magnetite and garnet clustres; generally well																			
				layered (50 degrees to CA on average), millimetre- to decimetre-scale layers																			
			37.50-40.01	centimetre- to decimetre-scale granite pegmatite layers; 2/m; contacts are																			
				generally indistinct and not parallel to foltaion; two layers are 30cm thick																			
			48.59-49.20	fine-grained; well layered interval of gt amph bt qtz fld gns with sulphides; pyrrhotite occurs in wi	BQ0129	48.59	49.20	0.61	lay	3			lay	1									
				millimetre-scale, foliation parallel layers, with poor interconnectivity between grains and laterally																			
				discontinuous; local 2cm wide semi-massive pyrrhotite at 48.63; moderately magnetic																			
			53.95-54.56	same rocks as previous sample (48.69-49.20) with the addition of blebby	BQ0130	53.95	54.56	0.61	lay	1			lay	tr	blb	1							
				magnetite; rock is also moderately magnetic																			
			54.56-55.68	MAG AMPH GT QTZ FLD GNS	BQ0131	54.56	55.68	1.12	s-m	2	s-m	tr			blb	1							
				fine-grained, poorly layered; weakly developed foliation; blebby magnetite and disseminated																			
				pyrrhotite and pyrite; locally patchy, semi-massive pyrrhotite and pyrite, 3 less than 1cm wide																			
				patches between 55.04 and 55.18; millimetre-scale blebby magnetite																			
			55.68-56.64	MAG GT BT AMPH QTZ FLD GNS	BQ0132	55.68	57.34	0.96	s-m	4			flk	1	blb	2							
				centimetre-scale, semi-massive clots and blebs of pyrrhotite and pyrite with																			
				blebby magnetite; 55.83-56.16 amphibolite interval (30% amphibole); strongly magnetic																			
			56.64-57.34	GT AMPH MAG QTZ FLD GNS	BQ0134	56.64	57.34	0.71	lay	3			flk	tr	blb	2							
				fine-grained; well layered; millimetre-scale wispy layers; pyrrhotite with flecky pyrite; millimetre-																			
				scale clots and millimetre-scale blebs of magnetite and pyrrhotite; strongly magnetic interval;																			
				5cm of pegmatite with heavily disseminated/layered pyrrhotite and pyrite at upper contact (56.92)																			
			57.34-58.08	same description as above but no pegmatite	BQ0135	57.34	58.08	0.69	lay	1			flk	tr	blb	1							
			58.08-58.75	GT AMPH BT QTZFLD GNS	BQ0136	58.08	58.75	0.67	lay	tr			blb	tr	blb	2							
				fine-grained; well layered; millimetre- to centimetre-scale blebby magnetite, pyrite and pyrrhotite																			
				(mag>>py>>pt) with wispy foliation parallel to the pyrrhotite layers (millimetre-scale)																			
			58.75-59.42	GRANITE PEGMATITE	BQ0137	58.75	59.42	0.67	blb	tr			blb	tr	s-m	1							
				semi-massive magnetite and millimetre-scale blebby pyrrhotite and pyrite;																			
				slight increase of biotite and amphibole at the upper and lower contact (both																			
				of which are discordant to the local foliation)																			
			59.42-60.50	GT AMPH BT QTZ FLD GNS	BQ0138	59.42	60.50	1.08	lay	4			flk	1	blb	1							
				well layered, fine-grained, sulphides in millimetre-scale (<0.5cm) layers are mainly pyrrhotite with																			
				flecky pyrite; good interconnectivity between grains with moderate lateral continuity																			
				could create conductive anomaly??																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

Project: Mistassini/Twins (South)	NTS	Date Collared: July 21/04	Date Completed: July 23/04	Drilled By: Chibogamau	Assayed By: Chemex
Coordinates	Elev.	Azimuth	Dip	Total Length: 224m	Logged By: Nick Thomas & Charles Greig	Checked By: S. Flasha
Drillhole Purpose / Target			Down Hole Survey		

Flag	From (m)	To (m)	Rock Codes	Relationship	Description	Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
			60.50-61.50		same as the previous description with the exception of a mineralized 2-4cm granite dyklet at 61.36m that contains blebby pyrrhotite with flecky pyrite	BQ0139	60.50	61.50	1.00	lay	3			flk	1	blb	tr							
			61.50-62.48		AMPH GT BT QTZ FLD GNS weakly layered interval; centimetre-scale layers (six in all), less than 2cm wide, of poorly interconnected pyrrhotite grains, flecky pyrite; local blebby magnetite	BQ0140	61.50	62.48	0.98	lay	1			flk	tr	blb	tr							
			62.48-63.10		GT BT AMPHIBOLITE CI 50; moderately magnetic; medium-grained, weakly developed foliation (66 degrees to CA); 2cm x 4cm inclusion(?) within interval is ringed by pyrrhotite and pyrite and then by magnetite (millimetre-scale ringing)	BQ0141	62.48	63.10	0.62	lay	tr			lay	tr	lay	1							
			63.10-64.40		GT AMPH BT QTZ FLD GNS fine-grained; well developed foliation; moderately magnetic; centimetre-scale layers of amphibole-rich rock, associated with the sulphides; heavily disseminated only in the layers (14 in the interval)	BQ0142	63.10	64.40	1.30	lay	1			lay	tr	blb	tr							
			64.40-65.44		GT AMPH BT QTZ FLD GNS same as the previous interval with a slight increase in sulphide layers	BQ0143	64.40	65.44	1.04	lay	2			lay	1	blb	tr							
			65.44-66.40		GT AMPH BT QTZ FLD GNS fine-grained; well layered (50 degrees to CA); millimetre-scale amphibole rich layers contain wispy sulphides (pyrrhotite>>pyrite); blebs of magnetite throughout interval	BQ0145	65.44	66.40	0.96	lay	3%			smas	8	blb	tr							
			66.40-66.50		semi-massive pyrite; with pyrrhotite and garnet abundant locally at lower contact in foliation parallel layers	BQ0159	66.40	66.50	0.10					smas	80									
			66.47-67.52		;as per 65.44-66.40	BQ0147	66.47	67.52	1.05	lay	3			lay	1	blb	tr							
			67.32-68.52		GT AMPH BT QTZ FLD GNS fine-grained; well-layered (one 30 cm wide layer); generally layers of sulphides are wispy and mm-scale; pyrrhotite>>pyrite with calcite and a trace of epidote (hydrothermal alteration?); layers are foliation parallel	BQ0148	67.32	68.52	1.18	lay	1			lay	1	blb	tr							
			68.52-69.19		;as per 67.32-68.52 with strongly disseminated pyrrhotite and pyrite	BQ0149	68.52	69.19	0.53	dis	tr			dis	tr									
				68.52-68.67	GRANITE PEGMATITE discordant to foliation																			
			69.19-69.46		heavily disseminated and layered pyrrhotite and blebby pyrite with increased percentage amphibole (15%) and garnet (5%); strongly magnetic																			
			69.46-70.32		as per 67.32-68.52, fine-grained; well-developed foliation (58% to core axis)	BQ0150	69.46	70.32	0.86	dis	2			dis	1									

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ05	PAGE 4		
Project: Mistassini/Twins (South)	NTS: NAD27	Date Collared: July 21/04	Date Completed: July 23/04
Drilled By: Chibogamau	Assayed By: Chemex	Logged By: Nick Thomas	Checked By: C. Greig & S.Flasha
Coordinates: 382149 / 5632828	Elevation: 520	Azimuth: 45	Dip: -50
Total Length: 224 m	Drillhole Purpose / Target	Down Hole Survey: -44 degrees	

From (m)	To (m)	Description	Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
		70.32-71.08 hydrothermally altered zone: light green colour and broken core, saussterized feldspar throughou chlorite, calcite and traces of pyrite as well; fractures are generally oriented at 45 degrees to core axis; patchy pyrite and pyrrhotite and heavily disseminated pyrrhotite from 70.75 to 71.08	BQ0151	70.32	71.08	0.77	dis	4			blb	2									
		71.08-72.32 GT AMPH BT QTZ FLD GNS fine-grained; poorly layered; moderatley foliated; sulphides occur in wispy mm-scale layers in the mm- to cm- scale amphibole-rich layers; locally up to 30 cm wide	BQ0152	71.08	72.32	1.23	lay	1			flk	tr									
		73.72-74.17 as per 71.08-72.32	BQ0161	73.72	74.17	0.45	lay	5			flk	tr	blb	1							
		72.32-81.79 weak hydrothermal alteration; chlorite and calcite occur on fractures oriented 45 degrees to core axis (2/m)																			
81.79	87.24	GT AMPH BT QTZ FLD GNS homogenous; fine grained; moderately well foliated with no pronounced lyering; it appears to be possibly intrusive (?) in origin or a very thick layer of sediments (?); local mm-scale granite veinlets oriented sub-parallel to core axis (1/m); upper contact is gradational, but also blurred by cross-cutting chlorite/calcite veinlets; lower contact into granite pegmatite is irregular; it is intruded by the pegmatite																			
87.24	88.17	GRANITE PEGMATITE two cm-scale septa of amphibolite from the underlying unit near lower contact of interval; pyrrhotite occurs as patches and blebs within the pegmatite and is heavily disseminated, as is magnetite, within the amphibolite septa	BQ0154	87.30	88.23	0.93	blb	4			flk	tr	dis	1							
88.17	91.75	GT BT AMPHIBOLITE colour index from 40-50; fine grained; weakly foliated with poor compostional layering; garnet occurs as sub-rounded, mm-scale clusters throughout int.; garnet 10%; amphibole 30%; biotite 10%																			
		88.20-89.76 ;as per 88.17 to 91.75; with heavily disseminated pyrrhotite>>>pyrite that form discontinuous layers parallel to a weak foliation; blebby clots of pyrrhotite and pyrite(mm-scale) occur in cm-scale, cross-cutting pegmatite dikelets; strongly magnetic	BQ0155	88.20	89.76	1.56	dis	5			dis	2									
		89.90-90.75 BT PO GT AMPHIBOLITE fine grained with weakly developed foliation; generally up to 25% garnet; 25% amphibole; heavily disseminated pyrrhotite and blebs of magnetite throughout interval; locally pyrrhotite is semi-massive with flecks of pyrite rimming it	BQ0156	89.90	90.75	0.95	dis	15			flk	3	blb	3							
		90.75-91.79 ;as per 89.90-90.75, with heavily disseminated pyrrhotite, blebs of magnetite and cm-scale (up t 2 cm) blebs of pyrrhotite and pyrite occurring with the five, cm-scale granite pegmatite dyklets (?) found throughout the interval; contacts with pegmatite are discordant and irregular	BQ0157	90.75	91.79	1.04	dis	10			blb	1	blb	1							
91.79	94.19	GT BT AMPH QTZ FLD GNS interval shows general decrease in colour index with less sulphides pyrrhotite occurs in wispy, discontinuous, mm-scale layers and blebs associated with more amphibole and garnet-rich layers; magnetite occurs as mm-scale blebs on the edges of the pyrrhotite layers and in the more leucocratic portions of the interval	BQ0158	91.79	92.73	0.96					blb	1									

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

Project: Mistassini/Twins (South) | NTS: NAD27 | Date Collared: July 21/04 | Date Completed: July 23/04 | Drilled By: Chibogamau | Assayed By: Chemex | Logged By: Nick Thomas

Coordinates: 382149 / 5632828 | Elevation: 520 | Azimuth: 45 | Dip: -50 | Total Length: 224 m | Checked By: C. Greig & S.Flasha

Drillhole Purpose / Target | Down Hole Survey: -44 degrees

From (m)	To (m)	Description	Sample Number	Sample Collection From (m)	To (m)	Interval (m)	Pyrrhotite Style	%	Chalcopyrite Style	%	Pyrite Style	%	Magnetite Style	%	Other Style	%	Ni	Cu	Co	Pt	Pd
94.19	128.13	MAG GT AMPH BT QTZ GNS generally fine grained with coarse grained magnetite and fine coarse grained garnet throughout interval; colour index ranges from 20-40 ; on average is around 30; layers alternate between mm- to cm-scale quartz/feldspar layers and amphibole/garnet-rich layers with biotite; granite pegmatite layers from cm- dm- scale: discordant to foliation (1/m); sulphides most often reside with the more amphibole/garnet-rich layers and can reach up to 20% locally; magnetite occurs generally as mm- to cm-scale blebs throughout interval																			
		;colour index 30; local discontinuous pathchy and heavily disseminated pyrrhotite and pyrite with disseminated magnetite	BQ0247	94.50	95.66	1.16	pch	2			dis	1	dis	3							
		;two cm-scale granite dikelets within this interval; local heavily disseminated pyrrhotite, magnetite and pyrite flecks	BQ0248	95.66	96.67	1.01	dis	1			flk	tr	dis	2							
		;poorly layered, randomly oriented cm-scale zones of garnet and amphibole; sulphides associated with amphibole mainly; pyrrhotite occurs in mm-scale discontinous layers	BQ0249	96.67	97.70	1.03	lay	1					dis	1							
		;as per BQ0249; with local cm-scale patchy pyrrhotite	BQ0250	97.70	99.10	1.40	pch	2			flk	tr	dis	1							
		;granite pegmatite; foliation parallel upper contact at 39 degrees to core axis; septa of gneiss in between two dikes; interstitial sulphides and blebs of magnetite contacts	BQ0251	99.10	99.85	0.75	itsl	3			itsl	1	blb	tr							
		;as per 94.19 to 128.13; decrease in sulphides over interval	BQ0252	99.85	100.39	0.54							blb	1							
		;well layered (mm-scale) gneiss; local heavily disseminatated and patchy pyrrhotite with flecks of pyrite	BQ0254	100.39	101.19	0.80	pch	4			flk	2	blb	3							
		;colour index aprroximately 30; increased amphibole (20%), garnet (15%) and magnetite (4%); local discontinuous layers of pyrrhotite and mm-scale magnetite blebs	BQ0255	111.58	112.41	0.83	lay	4			lay	1	blb	4							
		;as per BQ0254; but with local pegmatite disruptions (cm-scale, 3/m) ;	BQ0256	112.41	113.40	0.99	lay	3			flk	tr	pch	3							
		;heavily disseminated pyrrhotite with local semi-massive to patchy pyrrhotite and pyrite	BQ0257	120.57	121.61	1.04	smas	15			smas	3	dis	3							
		;heavily disseminated pyrrhotite with lesser pyrite and blebs of magneite throughout interval; 2, cm-scale granite injections(?) within interval	BQ0258	123.09	124.08	0.99	dis	4			dis	1	blb	4							
		;wispy layers of pyrrhotite in the amphibole-rich layers, with flecks of associated pyrite; well developed foliation oriented 70 degrees to core axis	BQ0259	124.08	125.20	1.12	lay	3			flk	1	blb	2							
		;nine, cm-scale layers of coarse grained quartz and feldspar; foliation from fits them; they appear to be somewhat pre-deformation; the host rocks are as per 94.41-128.13	BQ0260	125.20	126.25	1.05	dis	4			dis	2	blb	2							

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

Project: Mistassini/Twins (South) | NTS: NAD27 | Date Collared: July 21/04 | Date Completed: July 23/04 | Drilled By: Chibogamau | Assayed By: Chemex | Logged By: Nick Thomas

Coordinates: 382149 / 5632828 | Elevation: 520 | Azimuth: 45 | Dip: -50 | Total Length: 224 m | Checked By: C. Greig & S. Flasha

Drillhole Purpose / Target | Down Hole Survey: -44 degrees

From (m)	To (m)		Description	Sample Number	Sample Collection From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
			;well layered section of garnet amphibole biotite quartzofeldspathic gneiss; mm-scale amphibole layers have layered pyrrhotite and pyrite associated with them (69 degrees to CA); as well as calcite and epidote; local chalcopyrite or tarnished pyrite(?) at 126.27;	BQ0261	126.25	127.44	1.19	lay	8	dis	tr	lay	4	blb	tr							
			;more leucocratic interval (20 on colour index); local heavily disseminated pyrrhotite and pyrite; traces of magnetite in blebs	BQ0263	127.44	128.10	0.66	dis	tr			dis	tr	blb	tr							
128.13	131.82		GT AMPH BT QTZ FLD GNS WITH SEMI-MASSIVE TO MASSIVE SULPHIDES																			
			;mineralized section at contact with granodiorite; patchy to massive sulphides septa of host rock within sulphides contains heavily disseminated pyrrhotite																			
			;quartz with lesser feldspar vein(?); interlayered with garnet and biotite for first 30cm, then becomes mainly quartz with calcite, pyrite and epidote on fractures	BQ0264	128.10	128.96	0.86	ltsl	5			dis	2									
			;semi-massive pyrrhotite and pyrite with quartz vein (?); and and dm-scale amphibole and garnet rich wallrock	BQ0265	128.96	129.99	1.03	smas	40			smas	5									
			;massive pyrrhotite and pyrite with traces quartz and amphibole	BQ0266	129.99	130.26	0.27	mas	90			mas	5									
			;well foliated garnet amphibole biotite quartzofeldspathic gneiss (CI 30); with heavily disseminate pyrrhotite and locally lightly disseminated pyrite associated with epidote and calcite;	BQ0267	130.26	130.81	0.55	dis	20			dis	1									
			;semi-massive to locally massive sulphides in a quartz vein (?) with local biotite and garnet patches	BQ0268	130.81	131.84	1.03	smas	60			flk	2									
131.82	145.08		GRANODIORITE																			
			medium grained with well developed foliation (average 60 degrees to core axis) unit is interlayered with mm- to cm-scale injections (?) of pink granite/granite pegmatite 3 to 5/m																			
		138.65-138.71	;foliation parallel amphibolite layer 65 degrees to core axis																			
145.08	148.88		BT AMPHIBOLITE (30% bt, 20% amph)																			
			colour index of approximately 60; fine to medium grained; very well developed foliation (28 degrees to CA); calcite and chlorite (?) throughout interval; cm-scale granite pegmatite layers (injections?) at upper and lower contacts as well as at 145.42 m., non-magnetic upper and lower contacts are discordant to foliation																			
148.88	149.48		GT BT QTZ FLD GNS (30% bt, 1-4% gt)																			
			very well developed foliation oriented 53 degrees to core axis, homogeneous unit similar to granodiorite with increased biotite; could be a slightly different more biotite-rich phase of granodiorite																			
149.48	150.31		GRANODIORITE																			
			;as per 131.82																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ05

Project: Mistassini/Twins (South)	NTS: NAD27	Date Collared: July 21/04	Date Completed: July 23/04
Drilled By: Chibogamau	Assayed By: Chemex	Logged By: Nick Thomas	
Coordinates: 382149 / 5632828	Elevation: 520	Azimuth: 45	Dip: -50
Total Length: 224 m	Checked By: C. Greig & S.Flasha		
Drillhole Purpose / Target	Down Hole Survey: -44 degrees		

From (m)	To (m)		Description	Sample Number	Sample Collection From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
150.31	161.81		GT BT QTZ FLD GNS																			
			;as per 148.88; well-developed compostional layering (58 degrees to CA); cm-scale granite layers generally concordant to foliation (or foliation wraps around granite layers); 6/m																			
			;traces of pyrite and sericite on fractures	BQ0274	160.80	161.80	1.00	dis	tr			vnlt	tr									
		156.79-156.88	;somewhat alligned with foliation; very coarse-grained laths of a white mineral (up to 2 cm long, 2 mm wide); ten crystals visible within interval (plagioclase?)																			
161.81	165.04		BRITTLE DUCTILE FAULT ZONE																			
			altered interval with local fault breccia; generally light grey rock with greenish-white foliation parallel fracture veinlets (40-50/ m); sericite, calcite, pyrite and chlorite is the common assemblage with pyrrhotite and graphite locally																			
		162.70-163.10	;large, 40 cm wide, later stage (post deformation), calcite/quartz vein with local trace amounts of pyrrhotite, pyrite and epidote, cross-cuts foliation																			
			;interval of mixed granite layers (cm-scale) and biotite, quartz/feldspar gneiss; foliation parallel (58 degrees to CA); mm-scale fracture filled veinlets with calcite, sericite, pyrite, and chlorite; local heavily disseminated pyrrhotite in wallrock; traces of graphite	BQ0275	161.81	162.70	0.89	dis	3			vnlt	2									
			;calcite and quartz vein, 40 cm wide; local patchy pyrrhotite and pyrite associated with quartz-rich portions of vein; epidote with quartz at upper contact; 2 cm wide patches	BQ0276	162.70	163.10	1.40	pch	1			pch	<1									
			;interval of mm- to cm-scale granite layers mixed with biotite quartzofeldpathic gneiss; foliation parallel, mm-scale fracture filled veinlets with calcite, sericite pyrite and graphite; local heavily disseminated pyrrhotite	BQ0277	163.10	164.10	1.00	dis	2			vnlt	3									
			;silica rich layer (quartzite?) with 2 % biotite, lightly disseminated pyrrhotite and and graphite; interval is void of calcite/ sericite/ pyrite veinlets	BQ0278	164.10.	164.30	0.20	dis	tr													
			;highly fractured; fault breccia; healed but crumbly; sericite, graphite, pyrite, chlorite make up alteration assemblage; calcite in fractures uphole and downhole from breccia	BQ0279	164.30	165.04	0.74					vnlt	3									
165.04	179.30		GT BT QTZ FLD GNS	BQ0281	165.04	165.16	1.12					vnlt	tr									
			;as per 150.31 m; medium grained with well-developed compostional layering (65 degrees to CA); homogeneous texture with biotite around 30%; decreasing amount of biotite downhole (to about 15%); garnet decreasing downhole as well (from 2% to rare); this interval may be a different phase of the granodiorite; throughout the interval cm-scale granite layers run parallel to foliation or at least cause the foliation to follow their orientation locally; 4/m																			
			;interval with chlorite alteration of biotite by mm-scale calcite/pyrite veinlets; local veinlets have 1/2 cm thick pyrite accumulations; lightly disseminated pyrite and lesser pyrrhotite are found throughout the interval	BQ0282	178.16	179.30	1.14	dis	1			vnlt	2									

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

Project: Mistassini/Twins (South)	NTS: NAD27	Date Collared: July 21/04	Date Completed: July 23/04	Drilled By: Chibogamau	Assayed By: Chemex
Coordinates: 382149 / 5632828	Elevation: 520	Azimuth: 45	Dip: -50	Total Length: 224 m	Logged By: Nick Thomas
Drillhole Purpose / Target		Down Hole Survey: -44 degrees			Checked By: C. Greig & S.Flasha

From (m)	To (m)	Description	Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
179.30	223.63	BT GRANODIORITE (10% bt)									dis	tr									
		previous unit grades into the 'typical' granodiorite at approximately 179.30 m; chosen because of a lower abundance of biotite and a lack of well-developed compositional layering; interval continues to have cm-scale layers of granite and less frequently, granite pegmatite, cross-cut the general foliation (55 degrees to core axis); local hydrothermally driven alteration with the typical calcite, chlorite, sericite assemblage with rare pyrite disseminations; local pinking of granodiorite (potassic alteration?) surrounding the fractures which are oriented at 40 degrees to core axis; occurrances at 184.00-184.20 and 181.96-182.10																			
	223.63	EOH																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG		HOLE NO. DDHBQ06	

Project: Mistassini/Twins (South) | NTS: NAD 27 | Date Collared: July 23/04 | Date Completed: July 24/04 | Drilled By: Chibogamau | Assayed By: Chemex

Coordinates: 381453 / 5641687 | Elevation: 625 | Azimuth: N/A | Dip: 90 | Total Length: 99m | Logged By: Nick Thomas & Charles Greig | Checked By: C. Greig

Drillhole Purpose / Target | Down Hole Survey

				Sample Collection				Mineralization Estimates										Assay Results				
From	To	Description		Sample	From	To	Interval	Pyrrhotite		Chalcopyrite		Pyrite		Magnetite		Other		Ni	Cu	Co	Pt	Pd
(m)	(m)			Number	(m)	(m)	(m)	Style	%	Style	%	Style	%	Style	%	Style	%					
0.00	2.84		(casing; more or less in bedrock from the beginning according to the drillers)	BQ0377	2.84	3.81	0.97							dis	20%							
				BQ0378	3.81	4.81	1.00							dis	20%							
2.84	23.53		(MAGNETITE) BIOTITE AMPHIBOLITE	BQ0379	4.81	5.90	1.09					dis	tr	dis	20%							
			colour index approaching 100; strongly magnetic; fine grained;	BQ0380	5.90	6.98	1.08							dis	20%							
			consisting primarily of biotite, a very vivid green mineral (possibly chromium	BQ0381	6.98	7.98	1.00							dis	20%							
			diopside?), amphibole(magnesium rich(?) locally as porphyroblasts up to	BQ0382	7.98	9.02	1.04					vnlt	tr	dis	20%							
			0.5 cm in diameter), and perhaps a little plagioclase feldspar; compositional	BQ0383	9.02	10.02	1.00							dis	20%							
			variations which yielded weakly-expressed layering are related principally to	BQ0385	10.02	11.02	1.00							dis	20%							
			variations in the proportions of biotite (difficult to estimate quantities);	BQ0386	11.02	12.38	1.36							dis	20%							
			locally contains sparsely disseminated pyrite (<<1%); variably but more or	BQ0387	12.38	13.38	1.00							dis	20%							
			less moderately well foliated, with foliation generally at about 50 degrees to	BQ0388	13.38	14.42	1.04							dis	20%							
			core axis, or a little bit greater	BQ0389	14.42	15.42	1.00							dis	20%							
				BQ0390	15.42	16.47	1.05							dis	20%							
		6.00 m.:	25-30 cm of granite pegmatite	BQ0391	16.47	17.47	1.00							dis	20%							
				BQ0392	17.47	18.37	0.90							dis	15%							
		13.12 to 13.26 m:	leucocratic layer (leuco-quartz diorite)	BQ0393	18.37	19.23	0.86							dis	20%							
				BQ0395	19.23	20.50	1.27					dis	tr	dis	20%							
		16.56 to 17.31 m:	generally weakly magnetic and generally more biotite rich; clearly contains a	BQ0396	20.50	21.72	1.22					dis	tr	dis	20%							
			small amount of plagioclase feldspar (5-10%)	BQ0397	21.72	22.78	1.06							dis	20%							
				BQ0398	22.78	23.53	0.75							dis	20%							
		17.31 to 17.57 m:	leucocratic layer (leuco-quartz diorite?)																			
		18.37 :m	2 cm thick leucrcratic layer; magnetism week up-hole from this point, from																			
			18.25 to 18.37m																			
		19.50 to 21.00 m:	sparse (<<1%) disseminated pyrite																			
		21.25 m:	5 cm thick leucocratic layer																			
		21.30 to 21.56 m:	medium-grained, with a "meta feldspathic pyroxenite" look, with <5% feldspar and																			
			hornblende (after pyroxene?); still strongly magnetic																			
23.53	27.48		BIOTITE AMPHIBOLE QUARTZ DIORITE (with accesory titanite).																			
			with several more strongly magnetic amphibole-rich layers (e.g., 24.35 m (<5cm), 24.83 to 24.92m);																			
			contacts between units for intervals from 27.48 to 48.06 m are at 75-80 degrees to core axis																			
27.48	31.90		(MAGNETITE) BIOTITE AMPHIBOLITE	BQ0399	27.84	28.42	0.58							dis	20%							
			colour index approaching 100; modertely to strongly magnetic fine-grained	BQ0400	28.42	29.44	1.02							dis	20%							
			consisting primarily of biotite, a very vivid green mineral	BQ0401	29.66	30.41	0.75							dis	20%							
			(possibly Cr-diopside?), amphibole (Mg-rich(?)), and about 5% plagioclase	BQ0402	30.41	31.41	1.00							dis	20%							
			feldspar;	BQ0403	31.41	31.89	0.48							dis	20%							
31.90	35.52		BIOTITE HORNBLENDE GRANODIORITE (quartz diorite?)																			
			weakly foliated at best; contains local cm-scale, more leucocratic																			
			layers/dykes and cm-scale amphibolitic inclusions and (or) septa																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG HOLE NO DDHBQ06

Project: Mistassini/Twins (South) | NTS: NAD 27 | Date Collared: July 23/04 | Date Completed: July 24/04 | Drilled By: Chibogamau | Assayed By: Chemex

Coordinates: 381453 / 5641687 | Elevation: 625 | Azimuth: N/A | Dip: 90 | Total Length: 99m | Logged By: Nick Thomas & Charles Greig | Checked By: C. Greig

Drillhole Purpose / Target | Down Hole Survey

From (m)	To (m)	Description	Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
35.52	37.11	(MAGNETITE) BIOTITE AMPHIBOLITE	BQ0404	35.52	36.52	1.00							dis	20%							
		with one, 12 cm thick leucocratic layer centred on 35.91	BQ0406	36.52	37.11	0.59							dis	20%							
37.11	37.67	(BIOTITE) HORNBLENDE QUARTZ DIORITE OR GRANODIORITE																			
		marginal pegmatite on lower contact, which is at a high angle (75 degrees to CA)																			
37.67	38.25	MAGNETITE BIOTITE AMPHIBOLITE	BQ0407	37.67	38.25	0.58							dis	20%							
		as per previous intervals: includes several mm- to cm- scale leucocratic layers and one discontinuous mm-scale pyrite (+/- chalcopyrite) layer, associated with weakly disseminated pyrite and chalcopyrite																			
38.25	39.68	BIOTITE HORNBLENDE GRANODIORITE																			
		with several cm-scale inclusions/layers of "ultramafic" rock (one of 10 cm at 39.24)																			
39.68	40.13	MAGNETITE FELDSPAR (approximately 5%) BIOTITE AMPHIBOLITE	BQ0408	39.68	40.13	0.45							dis	20%							
		as per 27.48 to 31.90																			
40.13	40.38	(BIOTITE) HORNBLENDE GRANODIORITE/QUARTZ DIORITE																			
40.38	40.73	MAGNETITE BIOTITE AMPHIBOLITE	BQ0409	40.38	40.73	0.35							dis	20%							
40.73	40.90	(BIOTITE) HORNBLENDE GRANODIORITE/QUARTZ DIORITE																			
40.90	41.36	MAGNETITE FELDSPAR (approximately 5%) BIOTITE AMPHIBOLITE																			
41.36	42.37	(BIOTITE) HORNBLENDE GRANODIORITE/ QUARTZ DIORITE																			
42.37	48.06	FELDSPATHIC (approximately 5% or more?) BIOTITE AMPHIBOLITE																			
		contacts between units for intervals from 27.48 to 48.06 m are at 75-80 degrees to CA																			
		42.37 to 43.49 m: very fine-grained (feldspathic?) biotite amphibolite, still strongly	BQ0410	42.37	43.35	0.98							dis	20%							
		magnetic	BQ0411	43.55	44.35	0.80							dis	20%							
		47.69 m: 5-6 cm leucocratic layer	BQ0412	44.35	45.03	0.68							dis	20%							
			BQ0413	45.48	46.48	1.00							dis	20%							
		47.74 to 48.06 m: more biotite-rich (up to 30%)	BQ0414	46.48	47.46	0.98							dis	20%							
			BQ0415	47.46	48.06	0.60							dis	20%							
48.06	48.87	LEUCODIORITE(?) with layers of biotite amphibolite and red-brown	BQ0416	48.88	49.91	1.03							dis	20%							
		accessory sphene or garnet (1% or less)																			
48.87	51.80	FELDSPATHIC BIOTITE AMPHIBOLITE	BQ0417	50.14	51.14	1.00							dis	20%							
		50.87 to 51.01 m: relatively equigranular (biotite hornblende) granodiorite/quartz diorite	BQ0418	51.14	51.80	0.66							dis	20%							
51.80	53.15	BIOTITE HORNBLENDE GRANODIORITE/QUARTZ DIORITE																			
		with several mm- to cm- scale more leucocratic and amphibolitic layers																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ06				PAGE 3 of 4
Project: Mistassini/Twins (South)	NTS: NAD 27	Date Collared: July 23/04	Date Completed: July 24/04	Drilled By: Chibogamau
Assayed By: Chemex				
Coordinates: 381453 / 5641687	Elevation: 625	Azimuth: N/A	Dip: 90	Total Length: 99m
Logged By: Nick Thomas & Charles Greig	Checked By: C. Greig			
Drillhole Purpose / Target		Down Hole Survey		

From (m)	To (m)	Description	Sample Number	Sample Collection From (m)	To (m)	Interval (m)	Pyrrhotite Style	%	Chalcopyrite Style	%	Pyrite Style	%	Magnetite Style	%	Other Style	%	Ni	Cu	Co	Pt	Pd
53.15	53.35	BIOTITE AMPHIBOLITE	BQ0419	53.15	53.45	0.30							dis	20%							
		with less than 5% fledspar																			
53.35	55.80	BIOTITE AMPHIBOLE GRANODIORITE/QUARTZ DIORITE																			
		moderately magnetic: colour index approximately 20																			
55.80	56.70	BIOTITE HORNBLENDE GRANODIORITE/QUARTZ DIORITE																			
		contact at 70-80 degrees to core axis																			
56.70	57.20	BIOTITE AMPHIBOLITE	BQ0420	56.70	57.37	0.67							dis	20%							
		weakly magnetic with common mm-scale leucocratic layers																			
57.20	66.70	BIOTITE HORNBLENDE GRANODIORITE/QUARTZ DIORITE																			
		moderately well foliated (70-80 degrees to core axis) with accessory garnet (brown sphene) and																			
		epidote; mon-magnetic, with mm- cm-scale amphibole-rich layers near upper and lower contacts																			
		which are also at a high angle to the core axis																			
66.70	71.12	BIOTITE AMPHIBOLITE and BIOTITE HORNBLENDE GRANODIORITE/QUARTZ DIORITE																			
		interlayered in layers from millimetre-scale up to 30cm thick; generally	BQ0422	66.70	67.30	0.60							dis	20%							
		weakly magnetic	BQ0423	69.77	70.83	1.06					dis	tr	dis	20%							
71.12	71.95	BIOTITE AMPHIBOLITE																			
		weakly magnetic; biotite up to 30-40%(?); these rocks still contain the vivid green-coloured mineral																			
71.95	74.73	BIOTITE AMPHIBOLITE and BIOTITE HORNBLENDE GRANODIORITE/QUARTZ DIORITE																			
		interlayered in layers from millimetre-scale up to 30cm thick; generally	BQ0424	71.03	71.93	0.90					dis	tr	dis	20%							
		weakly magnetic; with a greater proportion of leucocratic rocks near the	BQ0425	72.00	72.80	0.80							dis	20%							
		lower part of the interval																			
74.73	77.80	BIOTITE AMPHIBOLITE	BQ0426	74.02	75.00	0.98							dis	20%							
		with approximately 15% mm- to cm- scale leucocratic layers	BQ0427	75.24	76.24	1.00					dis	tr	dis	20%							
			BQ0428	76.24	77.06	0.82							dis	20%							
			BQ0429	77.06	77.80	0.74					dis	tr	dis	20%							
77.80	79.26	BIOTITE HORNBLENDE GRANODIORITE/QUARTZ DIORITE																			
79.26	79.90	70/30 BIOTITE AMPHIBOLITE and LEUCOCRATIC METAPLUTONIC LAYERS	BQ0431	79.26	79.90	0.64							dis	20%							
79.90	84.06	BIOTITE(?) HORNBLENDE GRANODIORITE/QUARTZ DIORITE																			
		moderately well-foliated and locally layered (at approximately 70 degrees to																			
		core axis); local garnet, non-magnetic																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO DDHBQ06

Project Mistassini/Twins (South) | NTS: NAD 27 | Date Collared: July 23/04 | Date Completed July 24/04 | Drilled By Chibogamau | Assayed By: Chemex

Coordinates: 381453 / 5641687 | Elevation: 625 | Azimuth: N/A | Dip: 90 | Total Length 99m | Logged By: Nick Thomas & Charles Greig | Checked By: C. Greig

Drillhole Purpose / Target | Down Hole Survey

From (m)	To (m)	Description	Sample Number	From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
84.06	89.07	HORNBLENDE QUARTZ DIORITE relatively leucocratic (colour index typically <10); non-magnetic; local more amphibole-rich layers (still with colour index <30); foliation/layering weakly developed at approximately 65 degrees to core axis																			
89.87	99.00	HORNBLENDE QUARTZ DIORITE "pinked" and leucocratic; otherwise as per previous interval; "pinking" is alteration of fledspar, and is probably related to calcite-chlorite-rich mm-scale veinlets sub-parallel to core axis																			
	99.00	EOH																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ07 | PAGE 1 of 4

Property / Project: Mistassini/Twins | NTS NAD 27 | Date Collared: July 24/2004 | Date Completed: July 25/04 | Drilled By: Chibogamou | Assayed By: Chemex

Coordinates: 382709 / 5633642 | Elevation: 565 | Azimuth: 225 | Dip: -50 | Total Length: 129 m | Logged By: Nick Thomas & Charles Greig | Checked By: C. Greig

Drillhole Purpose / Target | Down Hole Survey: -52 degrees

From (m)	To (m)	Description	Sample Collection: Sample Number	From (m)	To (m)	Interval (m)	Mineralization Estimates: Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Assay Results: Ni	Cu	Co	Pt	Pd
0.00	4.55	OVERBURDEN																			
4.55	9.68	BIOTITE AMPHIBOLE GARNET QUARTZOFELDSPATHIC GNEISS fine to medium grained with well developed mm-scale layering oriented at 20 degrees to CA; garnet occurs as mm-scale, subrounded clusters and makes up approximately 5% of the mode; amphibole 20%, and biotite 3%; rocks were most likely sedimentary in origin; cm-scale, coarse grained, discordant granite dykes with wavy, irregular contacts occur throughout the interval (2/m)																			
9.68	10.07	GRANITE PEGMATITE white, quartz rich; moderately well-developed foliation (40 degrees to core axis); generally the interval is biotite poor (approximately 2%) but locally gets up to 80% at the upper contact; traces of blebby pyrrhotite noted at lower, irregular contact					blb	tr													
10.07	12.10	BIOTITE AMPHIBOLE GARNET QUARTZOFELDSPATHIC GNEISS as per 4.55 to 9.68 m.																			
12.10	13.00	GRANITE PEGMATITE as per 9.68 to 10.07m. ; local, greenish saussuritization of feldspar; mm-scale blebby pyrrhotite with flecks of chalcopyrite throughout interval	BQ0283	12.08	13.01	0.93	blb	1%	flk	tr											
13.00	15.45	BIOTITE AMPHIBOLE GARNET QUARTZOFELDSPATHIC GNEISS as per 4.55 to 9.68 with wavy layering oriented from sub-parallel to core axis to approximately 40 degrees to core axis																			
15.45	18.33	GRANITE PEGMATITE as per 9.68 to 10.07; with local blebs of pyrrhotite (trace overall); upper contact occurs at 35 degrees to CA; lower contact at 32 degrees to CA; both show cm-scale concentrations of biotite																			
18.33	52.17	BIOTITE AMPHIBOLE GARNET QUARTZOFELDSPATHIC GNEISS quartz and feldspar vary in totals from 40 to 60%, garnet 10%, amphibole varies from 30 to 40% and biotite stays somewhat constant, making up 10% of the mode; interval is characterized by brown garnet (whole garnet?) which range in size up to about 1cm; the garnet is commonly surrounded by mm-scale, quartzofeldspathic depletion haloes/coronas; the discontinuous foliation is commonly bent or warped around the garnet aggregates which may contribute to the "wavy" "soupy" or relatively "fluidized" appearance and character of these rocks																			
52.17	52.52	GRANITE PEGMATITE upper contact at 22 degrees to core axis; lower contact at 18 degrees to core axis. trace of disseminated pyrrhotite at contacts					dis	tr													

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

Property / Project: Mistassini/Twins	NTS NAD 27	Date Collared: July 24/2004	Date Completed: July 25/04	Drilled By: Chibogamou	Assayed By: Chemex
Coordinates: 382709 / 5633642	Elevation: 565	Azimuth: 225	Dip: -50	Total Length: 129 m	Logged By: Nick Thomas & Charles Greig
Drillhole Purpose / Target		Down Hole Survey: -52 degrees			Checked By: C. Greig

From (m)	To (m)	Description	Sample Collection: Sample Number	From (m)	To (m)	Interval (m)	Mineralization Estimates: Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Assay Results: Ni	Cu	Co	Pt	Pd
52.52	57.37	BIOTITE AMPHIBOLE GARNET QUARTZOFELDSPATHIC GNEISS as per 18.33 to 52.17																			
57.37	57.80	GRANITE PEGMATITE upper contact is foliation parallel, oriented 30 degrees to core axis; lower contact is discordant to foliation and irregular																			
57.80	57.99	BIOTITE AMPHIBOLE GARNET QUARTZOFELDSPATHIC GNEISS as per 18.33 to 52.17m.																			
57.99	59.57	AMPHIBOLITE medium grained with a colour index approximately 50; weakly developed foliation oriented approximately 15 degrees to core axis; rock was possibly a recrystallized basalt or basaltic andisite dike; "fizzes" when exposedd to HCl acid; non-magnetic																			
59.57	61.96	BIOTITE AMPHIBOLE GARNET QUARTZOFELDSPATHIC GNEISS as per 18.33-52.17; contact with inderlying unit parallel to core axis for approximate-ly 1 metre; foliation averages about 10 degrees to core axis																			
61.96	65.26	BIOTITE HORNBLENDE GRANODIORITE fine grained with coarse grained biotite books randomly spaced throughout interval (10%); 15% hornblende; colour index is approximately 30; weakly developed folaition oriented 17 degrees to core axis; cm-scale coarse grained granite dyklets roughly parallel to foliation (1/m); gradational lower contact with quartz feldspar gneissic rocks underlying																			
65.26	65.95	BIOTITE AMPHIBOLE GARNET QUARTZOFELDSPATHIC GNEISS gradational lower contact; rock desription as per 18.33 to 52.17m																			
65.95	66.41	BIOTITE HORNBLENDE GRANODIORITE medium grained with weakly developed foliation; trace disseminated pyrrhotite at upper contact; rock is non-magnetic																			
66.41	66.67	BIOTITE AMPHIBOLE GARNET QUARTZOFELDSPATHIC GNEISS ;as per 18.33-52.17m. with the addition of trace amounts of finely disseminated pyrrhotite; rock is weakly magnetic																			
66.67	67.47	BIOTITE HORNBLENDE GRANODIORITE ;as per 65.95 to 66.41 m. with the addition of lightly disseminated pyrrhotiteand pyrite					dis	tr			dis	tr									
67.47	68.46	BIOTITE MAGNETITE AMPHIBOLE GARNET QUARTZOFELDSPATHIC GNEISS ;as per 18.33 to 52.17 with the addition of lightly disseminated pyrrhotite, pyrite and magnetite					dis	tr			dis	tr	dis	tr							

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG | HOLE NO. DDHBQ07 |

Property / Project: Mistassini/Twins	NTS NAD 27	Date Collared: July 24/2004	Date Completed: July 25/04	Drilled By: Chibogamou	Assayed By: Chemex	
Coordinates: 382709 / 5633642	Elevation: 565	Azimuth: 225	Dip: -50	Total Length: 129 m	Logged By: Nick Thomas & Charles Greig	Checked By: C. Greig
Drillhole Purpose / Target			Down Hole Survey: -52 degrees			

From	To	Description	Sample Collection				Mineralization Estimates										Assay Results				
			Sample	From	To	Interval	Pyrrhotite		Chalcopyrite		Pyrite		Magnetite		Other		Ni	Cu	Co	Pt	Pd
(m)	(m)		Number	(m)	(m)	(m)	Style	%	Style	%	Style	%	Style	%	Style	%					
68.46	69.13	BIOTITE GRANODIORITE/ GRANITE																			
		fine grained with weakly developed foliation and well defined upper and lower foliation																			
		parallel contacts; upper contact is at 23 degrees to core axis; lower contact is oriented																			
		24 degrees to core axis. 2cm wide coarse grained granite dykelet roughly parallel																			
		to foliation at 68.72m																			
69.13	76.84	BIOTITE MAGNETITE AMPHIBOLE GARNET QUARTZOFELDSPATHIC GNEISS					blb	tr			flk	tr									
		;as per 18.33-52.17; cm-scale discordant quartz veins(?) with blebby and patchy																			
		pyrrhotite and lesser pyrite; 2/m. for last 2 m. of the interval																			
76.84	78.53	BIOTITE GRANODIORITE/ GRANITE																			
		relatively leucocratic; "gradational" lower contact parallel to foliation and at																			
		approximately 40 degrees to core axis; lightly disseminated pyrrhotite and pyrite																			
		from 77.30, increasing in percentage downhole into underlying package	BQ0284	78.04	79.15	1.11	dis	4%			vnlt	tr									
78.53	79.15	PARAGNEISS OR INCLUSION RICH GRANODIORITE																			
		fine-medium grained and relatively biotite, garnet, pyrrhotite and amphibole-rich																			
		rocks: possibly "remobilized" paragneiss wallrocks or inclusion rich granodiorite;																			
		heavily disseminated pyrrhotite in latter half of interval; pyrite occurs on foliation																			
		parallel (34 degrees to core axis) veinlets with calcite and chlorite (2/m.)																			
79.15	79.80	SEMI-MASSIVE SULPHIDES	BQ0285	79.15	79.80	0.65	smas	70%	flk	tr	vnlt	tr	dis	3%							
		with subordinate garnet, magnetite, quartz, amphibole, pyrite and chalcopyrite;																			
		strongly magnetic																			
79.80	81.70	QUARTZ VEINS	BQ0286	79.80	80.80	1.00	lay	3%			pch	tr	lay	4%							
		locally ribboned at 45 degrees to core axis and typically less; in equilibrium with	BQ0287	80.80	81.87		lay	3%			pch	tr	lay	4%							
		layers of amphibole and lesser magnetite, pyrrhotite and pyrite; strongly magnetic																			
81.70	86.72	BIOTITE MAGNETITE AMPHIBOLE QUARTZO FELDSPATHIC GNEISS	BQ0288	81.87	82.87	1.00	lay	7%			flk	1%	lay	5%							
		;relatively sulphide rich; (averages 15% or more) ; pyrrhotite and magnetite in	BQ0289	82.87	83.87	1.00	lay	6%			lay	2%	lay	5%							
		discontinuous mm-scale, foliation parallel layers with sub-ordinate pyrite; interlayered	BQ0290	83.87	84.87	1.00	lay	10%			lay	2%	lay	5%							
		with amphibole and garnet and quartzo feldspathic layers (24 degrees to core axis);	BQ0292	84.87	85.52	0.65	lay	8%			lay	2%	lay	5%							
		strongly magnetic	BQ0293	85.52	85.96	0.44	smas	60%			pch	3%	lay	8%							
			BQ0294	85.96	86.76	0.80	lay	25%			pch	1%	blb	3%							
86.72	87.28	GARNETIFEROUS MARGINAL "CONTACT ROCK"	BQ0295	86.76	87.30	0.54	lay	3%			flk	tr	blb	2%							
		contact and foliation at approximately 45 degrees to core axis, local mm-scale																			
		(up to 1/2 cm.) blebs of magnetite, strongly magnetic																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ07 |

Property / Project: Mistassini/Twins	NTS NAD 27	Date Collared: July 24/2004	Date Completed: July 25/04	Drilled By: Chibogamou
Coordinates: 382709 / 5633642	Elevation: 565	Azimuth: 225	Dip: -50	Total Length: 129 m
Drillhole Purpose / Target		Down Hole Survey: -52 degrees	Logged By: Nick Thomas & Charles Greig	Assayed By: Chemex
				Checked By: C. Greig

From (m)	To (m)		Description	Sample Number	Sample Collection From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
87.28	102.83		LEUCOCRATIC BIOTITE GRANODIORITE																			
			colour index < 10; weakly foliated and non-magnetic mm-scale to cm-scale																			
			coarse grained and pegmatitic granite dyklets (3/m); roughly parallel to foliation																			
			(25-30 degrees to core axis on average); intruding granodiorite; 20-30 cm. pegmatite																			
			layer marks the lower contact																			
102.83	115.20		GARNET BIOTITE PYRRHOTITE AMPHIBOLE MAGNETITE QUARTZOFELDSPATHIC GNEISS																			
			foliation to core axis angle is approximately 30-45 degrees; generally fine-grained	BQ0296	103.65	104.65	1.00	lay	1%			lay	tr	blb	3%							
			with coarse grained magnetite and local sub-rounded garnet clusters; well																			
			developed compositional layering; moderately magnetic from "blebby" magnetite																			
			and pyrrhotite layers; local semi-massive and layered sulphides	BQ0297	104.63	105.04	0.41	smas	50%			pch	3%									
		104.63-105.04	sulphides occur within a biotite and amphibole rich layer that lies roughly parallel	BQ0298	105.04	105.97	0.93	dis	2%			dis	1%	blb	2%							
			to the core axis briefly (the layer of sulphides is not as thick as the interval	BQ0299	109.39	110.40	1.01	dis	3%			dis	1%	blb	8%							
			suggests	BQ0301	110.40	111.34	0.94	lay	2%			dis	tr	blb	5%							
				BQ0302	111.34	112.34	1.00	lay	4%			dis	2%	blb	5%							
				BQ0303	112.34	113.22	0.88	lay	3%			dis	1%	blb	2%							
		114.00-115.04	foliation parallel (46 degrees to core axis) calcite, epidote, pyrite fractures with	BQ0304	114.00	115.20	1.20					dis	1%	blb	tr							
			open spaces (10/m)																			
115.20	121.38		BIOTITE GRANODIORITE																			
			;as per87.20-102.83m., weakly foliated with cm- to dm-scale, coarse grained.																			
			granite or granite pegmatite																			
121.38	121.84		BIOTITE GRANODIORITE/ GRANITE	BQ0305	121.15	121.55	0.40	blb	1%			blb	tr									
			locally blebby to typically semi-massive pyrrhotite and pyrite subordinate to granite;	BQ0306	121.55	121.88	0.33	smas	30%			smas	10%									
			irregular upper and lower contacts																			
121.84	126.25		GARNET BIOTITE PYRRHOTITE AMPHIBOLE MAGNETITE QUARTZOFELDSPATHIC GNEISS																			
			;as per 102.83 to 115.20 with less suphides and rare magnetite; relatively more	BQ0307	121.99	122.73	0.74	dis	3%			dis	1%									
			leucocratic and less magnetic generally; foliation apoproximately 40 degrees to																			
			core axis and well developed; approximate mineral percentages: garnet 3%,																			
			biotite 5%, and amphibole 10%																			
126.25	129.00		BIOTITE GRANODIORITE/ GRANITE																			
			;as per 87.20 to 102.83; weakly foliated with mm- to cm-scale layers (injections?)																			
			of coarse grained granite; upper contact occurs at 63 degrees to core axis																			
	129.00		EOH																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG HOLE NO. DDHBQ08

Project: Mistassini /Twins	NTS NAD 27	Date Collared: July 25/04	Date Completed: July 29/04	Drilled By: Chibogamau
Assayed By: Chemex				
Coordinates: 381926 / 5632594	Elevation: 515	Azimuth: 45	Dip: -50	Total Length: 351 m
Logged By: Nick Thomas & Charles Greig	Checked By: C. Greig			
Drillhole Purpose / Target		Down Hole Survey: -44 degrees		

From (m)	To (m)	Description	Sample Number	Sample Collection From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
0.00	7.50	OVERBURDEN (9m. of casing)																			
7.50	55.09	BIOTITE GRANITE																			
		leucocratic, with a colour index of 10: variably foliated (generally weakly to moderately)																			
		; medium grained; cut locally by cm-scale, medium to coarse grained, pink granite																			
		dykelets (1/m); generally unaltered (chloritized in uppermost part of interval) and not																			
		mineralized and non-magnetic, except for in lower most 5-10 cm. at contact (which is at 55-60																			
		degrees to core axis), where there is a relative, abundant (1 % or more) of disseminated pyrite	BQ0269	54.50	55.09	0.59	dis	<1%													
55.09	56.05	SEMI-MASSIVE SULPHIDES	BQ0270	55.09	56.05	0.96	sm	30%			pch	3%									
		pyrite and pyrrhotite with variable quantities (up to 40%) of red/brown garnet within																			
		probable biotite granite; locally well-layered on the mm-scale, although very disrupted																			
		textures (milled?) common near upper contact																			
56.05	57.50	somewhat broken core, consisting of very discontinuous, cm-scale (and locally mm-																			
		scale) layers of two basic varieties:																			
		QUARTZ-RICH VEINS/DYKLETS; (qtz/fld?) very fine-grained veins/ dyklets	BQ0272	56.05	57.05	1.00	lay	5%			lay	2%	lay	5%							
		PYRITE PYRRRHOTITE MAGNETITE AMPHIBOLE LAYERS AND PATCHES;	BQ0273	57.05	57.50	0.45	lay	6%			pch	2%	dis	5%							
		with local to common open space (weathered out carbonate?) ;																			
		the minerals in both constituent lithologic varieties appear to be in equilibrium with																			
		one another; style 1 predominates (60 vs. 40); sulphide and oxide (magnetite)																			
		abundance overall may be on the order of 5-10%, with amphibole-rich layers consisting																			
		locally of semi-massive suphides																			
57.50	58.50	MASSIVE SULPHIDES	BQ0308	57.50	58.46	0.96	mas	70%			mas	25%									
		pyrite and pyrrhotite with approximately 10-15% (?) scattered mm-scale quartzofeldpathic																			
		and amphibole inclusions																			
58.50	59.21	QUARTZ-RICH VEINS/DYKLETS; (qtz/fld?) very fine-grained veins/ dyklets	BQ0308	58.46	59.25	0.79	lay	2%			dis	tr	lay	6%							
		PYRITE PYRRRHOTITE MAGNETITE AMPHIBOLE LAYERS AND PATCHES;	BQ0310	59.25	59.94	0.69	lay	2%			pch	5%	lay	10%							
		as per intervals 58.50-59.21 and 56.04 to 57.50, but with a predoninance of more																			
		amphibole rich variety of layers (55 degrees to core axis); probably as much as 25-30%																			
		sulphides																			
59.76	62.21	(BIOTITE) PYRITE PYRRHOTITE GARNET MAGNETITE AMPHIBOLE QUARTZOFELDSPATHIC GNEISS																			
		well layered, with layers at about 55 degrees to core axis; strongly magnetic; character-																			
		istic garnet aggregates range in diameter up to 0.5cm or more locally; display local	BQ0312	59.94	60.89	0.95	lay	4%			dis	2%									
		"pock-marks" or open spaces (probably related to weathered out carbonate) of up to																			
		0.5 cm or more; downhole, this lithology becomes more leucocratic, and is less																			
		rich in garnet, amphibole and magnetite																			
62.21	69.85	LEUCOCRATIC GARNET AMPHIBOLE QUARTZOFELDSPATHIC GNEISS																			
		colour index approximately 10; fine- medium-grained; garnet less abundant than above																			
		interval but locally in patchy aggragates approaching 1 cm in diameter																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG | HOLE NO DDHBQ08 |

Project: Mistassini /Twins	NTS NAD 27	Date Collared: July 25/04	Date Completed: July 29/04	Drilled By: Chibogamau	Assayed By: Chemex
Coordinates: 381926 / 5632594	Elevation: 515	Azimuth: 45	Dip: -50	Total Length: 351 m.	Logged By: Nick Thomas & Charles Greig
Checked By: C. Greig					
Drillhole Purpose / Target			Down Hole Survey: -44 degrees		

From (m)	To (m)		Description	Sample Collection: Sample Number	From (m)	To (m)	Interval (m)	Mineralization Estimates: Pyrrhotite Style	%	Chalcopyrite Style	%	Pyrite Style	%	Magnetite Style	%	Other Style	%	Assay Results: Ni	Cu	Co	Pt	Pd
69.85	72.70		(AMPHIBOLE) GARNET MAGNETITE BIOTITE QUARTZOFELDSPATHIC GNEISS	BQ0313	72.00	72.68	0.68	dis	tr					dis	tr							
			moderately will layered, at about 60 degrees to core axis. moderately magnetic; similar																			
			to previous intervals of paragneiss only generally finer grained; garnet less common																			
			and in smaller aggragates; gradational upper contact; (69.85m is fairly arbitrary)																			
72.70	77.43		GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS	BQ0314	72.68	74.68	1.57					vnlt	1%									
			variably fractured and veined (hair-like chlorite (very dark; possibly a manganiferous	BQ0315	74.25	75.55	1.30	dis	tr			dis	tr									
			mineral) pyrite and calcite veinlets, locally up to a mm or two thick);	BQ0316	75.55	76.50	0.95	dis	tr			vnlt	1%									
			locally broken core (brittlely faulted) with most broken part in uppermost 0.5m of	BQ0317	76.50	77.42	0.92					vnlt	tr	blb	tr							
			interval; contact downhole with pegmatite is at about 30 degrees to core axis																			
77.43	80.95		GRANITE PEGMATITE	BQ0319	79.03	79.20	0.17	sm	20%			pch	4%	blb	1%							
			with local irregular patches and (or) blebs of magnetite and pyrrhotite as much as																			
			3 cm across; sulphides and magnetite total no more than 1%																			
80.95	102.52		GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS																			
			relatively leucocratic with a colour index of <10; minor/local cm- scale layers which																			
			are relatively rich in amphibole and garnet and which also carry sulphides																			
		97.43-97.77m.:	AMPHIBOLITE																			
			fine grained; non-magnetic; contains garnet, diopside,																			
			hornblende (magnesium amphibole?) and feldspar (colour index approximately 60)																			
102.52	106.56		GRANITE PEGMATITE																			
			contains one 20-25 cm thick layer of paragneiss centred on 104.75 m (with approximately 3%																			
			disseminated pyrrhotite over 24cm); downhole contact at 45 degrees to CA																			
106.56	108.40		GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS					dis	1%			dis	tr									
			relatively leucocratic; contains local irregular cm- and mm-scale patches and layers																			
			with relatively abundent (typically about 30%) garnet, amphibole, sulphides and magnetite																			
108.40	127.12		GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS	BQ0320	114.02	115.73	1.71	pch	2%			dis	1%	lay	4%							
			well layered, but layers are semi-continuous, and with layering at approximately 40-50																			
			degrees to core axis; more garnet, magnetite and amphibole-rich; up to 1-3% (?)																			
			sulphides and oxides in total (?), occurring as disseminations and irregular patches;																			
			colour index of about 20-30; strongly magnetic																			
		123.19-124.19 m.	mm-scale layers of pyrrhotite, magnetite and calcite in association with amphibole and	BQ0321	123.19	124.19	1.00	dis	5%			lay	3%	lay	2%							
		124.19-125.46 m.	garnet-rich layers of the gneiss (43 degrees to core axis)	BQ0322	124.19	125.14	0.96	dis	5%			lay	2%	ly	1%							
		125.14-125.46 m.	semi-massive pyrrhotite and pyrite with scattered leucocratic and garnet patches	BQ0323	125.14	125.46	1.00	sm	30%			smas	30%	dis	5%							
		125.46-126.46	disseminated pyrrhotite and pyrite and layered magnetite (mm- scale); calcite	BQ0324	125.46	126.46	1.00	dis	1%			dis	3%	dis	1%							
			associated with the sulphides																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

Project: Mistassini / Twins | NTS NAD 27 | Date Collared: July 25/04 | Date Completed: July 29/04 | Drilled By: Chibogamau | Assayed By: Chemex

Coordinates: 381926 / 5632594 | Elevation: 515 | Azimuth: 45 | Dip: -50 | Total Length: 351 m | Logged By: Nick Thomas & Charles Greig | Checked By: C. Greig

Drillhole Purpose / Target | Down Hole Survey: -44 degrees

From (m)	To (m)	Description	Sample Number	Sample Collection From (m)	Sample Collection To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
		126.46 to 127.34 m. same as BQ0324	BQ0325	126.46	127.34	0.88	dis	1%			dis	2%	dis	1%							
		BQ0321- BQ0325: most of the mineralization occurrs in mm-scale carbonate-rich layers																			
		or with patchy carbonate in the semi-massive sulphides; layers are																			
		often pock-marked where weathered and are associated with																			
		amphibole and garnet which could indicated replacement skarn (?)																			
127.12	141.05	GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS	BQ0326	130.87	131.87	1.00	dis	1%			dis	<1%	dis	2%							
		more or less similar to previuos interval (108.40 to 127.12m) but with lower colour	BQ0327	131.87	132.09	0.22	sm	60%			smas	20%	dis	2%							
		index (about 10) and generally with a lower abundance of amphibole and disseminated	BQ0328	132.09	133.09	1.00	pch	2%			pch	1%	lay	1%							
		sulphides and magnetite: moderately to strongly magnetic																			
		131.87 to 132.08 m. semi-massive pyrrhotite and pyrite with patchy carbonate, quartz/feldspar and garnet																			
141.05	149.75	GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS	BQ0330	143.35	144.20	0.85	dis	tr			dis	5%	dis	3%							
		a general increase in colour index (20-25), again probably related to the relative increase																			
		in the proprtortions of amphibole, garnet, magnetite and sulphides																			
		;the sulphides have a strong association with the open space, weathered-out																			
		carbonate (?)																			
		144.18 to 144.62 m. semi-massive to massive pyrite, pyrrhotite and subordinate magnetite	BQ0331	144.20	144.67	0.47	mas	30%			mas	60%	pch	5%							
			BQ0322	144.67	145.67	1.00	sm	20%			smas	30%	pch	5%							
		145.44 to 151.70 m. semi massive, heavily disseminated, and massive pyrrhotite, subordinate pyrite and	BQ0333	145.67	146.64	0.97	sm	20%			smas	30%	pch	5%							
		magnetite with locally abundant amphibole and garnet; strongly magnetic	BQ0334	146.64	147.64	1.00	sm	30%			smas	30%	dis	5%							
			BQ0335	147.64	148.25	0.61	sm	20%			smas	20%	pch	8%							
		149.84 to 149.92 intriguing brecciated core; with a moderately magnetic matrix material of	BQ0336	148.25	149.03	0.80	lay	5%			lay	3%	lay	3%							
		uncertain composition and a brownish/black colour (very fine-grained)	BQ0337	149.03	149.83	0.80	sm	30%			smas	40%	dis	3%							
		sulphides?) which contains mm- and sub-mm-scale rounded sulphides;	BQ0342	149.83	149.91	0.08	dis	10%			dis	1%									
			BQ0338	149.91	150.73	0.82	sm	40%			pch	10%	dis	1%							
149.75	169.65	BIOTITE GRANITE	BQ0339	150.73	151.73	1.00	dis	10%			dis	8%	dis	1%							
		fine grained, relatively leucocratic, with a colour index of around 10 or less; weakly	BQ0341	151.73	152.36	0.63	dis	tr			dis	tr									
		magnetic at best; contact at about 50 degrees to core axis; weak layering about 45																			
		degrees to core axis																			
169.66	237.49	GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS																			
		relatively leucocratic garnet-bearing fine-grained; layering is at 45-60 degrees to core																			
		axis;																			
		;weakly mineralized interval, disseminated pyrrhotite in gneiss overlying the more	BQ0343	182.19	182.84	0.65	dis	1%			dis	tr									
		heavily mineralized zone.																			
		;semi-massive to patchy pyrrhotite with subordinate pyrite; locally "rimmed" by	BQ0344	182.84	183.00	0.16	sm	15%	flk	1%	pch	4%									
		chalcopyrite; majority of interval is the gneiss described above (169.65 to 237.49)																			
		sulphides occur roughly parallel to foliation (60 degrees to core axis)																			
		;mm-scale layers (5/m) of pyrrhotite with subordinate chalcopyrite in gneiss;	BQ0345	183.00	184.00	1.00	lay	2%	flk	tr	dis	<1%									
		layers occur parallel to foliation (66 degrees to core axis)																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG		HOLE NO. DDHBQ08	PAGE 4 of 7
Project: Mistassini /Twins	NTS NAD 27	Date Collared: July 25/04	Date Completed: July 29/04
Drilled By: Chibogamau	Assayed By: Chemex		
Coordinates: 381926 / 5632594	Elevation: 515	Azimuth: 45	Dip: -50
Total Length: 351 m	Logged By: Nick Thomas & Charles Greig	Checked By: C. Greig	
Drillhole Purpose / Target		Down Hole Survey: -44 degrees	

From (m)	To (m)		Description	Sample Collection: Sample Number	From (m)	To (m)	Interval (m)	Mineralization Estimates: Pyrrhotite Style	%	Chalcopyrite Style	%	Pyrite Style	%	Magnetite Style	%	Other Style	%	Assay Results: Ni	Cu	Co	Pt	Pd
			,interval of garnet biotite quartzofeldpathic gneiss with local mm-scale layer	BQ0346	196.73	197.30	0.58	lay	1%	flk	tr											
			of pyrrhotite and subordinate chalcopyrite																			
			,semi-massive pyrrhotite with intergrown cm-scale euhedral pyrite; chalcopyrite is found	BQ0347	197.3	197.44	0.14	sm	60%	flk	tr	pch	2%									
			marginally to the patchy pyrite in trace amounts																			
			,mm-scale foliation parallel layers of pyrrhotite (7 degrees to core axis); good interconnectivity	BQ0348	197.44	198.00	0.56	lay	1%	lay	tr											
			between grains; chalcopyrite is found in trace amounts marginal to the																			
			pyrrhotite on two layers within the interval																			
		210.00-210.13	amphibole and biotite rich layer within the gneissic package; colour index approximately																			
			50; fine-medium grained; foliation parallel upper and lower contacts oriented 63 degrees																			
			to core axis; non-magnetic																			
		211.91-214.74	,finely disseminated to locally heavily disseminated pyrite and pyrrhotite with a trace of	BQ0349	211.91	213.39	1.48	dis	2%			dis	1%									
			chalcopyrite within the pyrite	BQ0350	213.39	214.74	1.35	dis	2%	dis	tr	dis	1%									
237.49	240.28		AMPHIBOLE BIOTITE QUARTZOFELDSPATHIC GNEISS																			
			well layered , relatively biotite (and amphibole?) rich; gradational lower contact parallel																			
			to foliation and at 65 degrees to core axis																			
240.28	244.06		BIOTITE GRANODIORITE																			
			medium grained and well foliated																			
244.06	248.43		AMPHIBOLE BIOTITE QUARTZOFELDSPATHIC GNEISS	BQ0351	247.41	248.42	1.01															
			well layered , relatively biotite (and amphibole?) rich; gradational lower contact parallel																			
			to foliation and at 65 degrees to core axis																			
248.43	248.72		MASSIVE PYRRHOTITE AND SUBORDINATE PYRITE	BQ0352	248.42	248.68	0.26	mas	75%			pch	5%									
			with randomly scattered mm- to cm-scale leucocratic patches, often "pock-marked"																			
248.72	250.49		GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS (PARAGNEISS)	BQ0353	248.68	249.71	0.97	lay	2%			lay	4%	lay	4%							
			local (about 1%) "pock marks" or open spaces (weathered out carbonate) which	BQ0354	249.71	250.67	0.96	lay	1%			lay	2%	lay	2%							
			occur in discontinuous, foliation parallel layers (70 degrees to core axis)																			
			associated with pyrrhotite, pyrite,epidote, amphibole, garnet and magnetite																			
			(approximately 25/m for 1.5 m																			
250.49	251.93		GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS																			
			relatively leucocratic																			
251.93	254.74		BIOTITE GRANITE																			
			fine grained leucocratic biotite granite; contact up hole and down hole at about 50																			
			degrees to core axis																			
254.74	257.90		GARNET AMPHIBOLE QUARTZOFELDSPATHIC GNEISS																			
			relatively garnet- and amphibole-rich (+or- sulphides); well-layered with highly variable																			

BITTERROOT RESOURCES LTD. DIAMOND D[illegible] LOG | HOLE NO. DDHBQ08 | PAGE [illegible]

Project: Mistassini /Twins	NTS NAD 27	Date Collared: July 25/04	Date Completed: July 29/04	Drilled By: Chibogamau	Assayed By: Chemex
Coordinates: 381926 / 5632594	Elevation: 515	Azimuth: 45	Dip -50	Total Length: 351 m	Logged By: Nick Thomas & Charles Greig	Checked By: C Greig
Drillhole Purpose / Target			Down Hole Survey: -44 degrees		

From (m)	To (m)	Description	Sample Number	Sample Collection From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
		colour index (from 30-70)																			
		mm-scale layers of magnetite with lightly disseminated pyrrhotite and	BQ0355	254 73	255 82	1.09	dis	6%			dis	2%	lay	8%							
		pyrite; and local patchy pyrrhotite, magnetite and pyrite; associated with																			
		garnet and amphibole-rich layers oriented 47 degrees to core axis																			
		colour index approximately 30-40; less sulphides and associated magneitite, garnet	BQ0357	255.82	256.87	1.05	dis	3%			dis	1%	dis	4%							
		and amphibole																			
257.90	265.53	BIOTITE GRANITE	BQ0358	265.55	265.67	0.12	sm	65%	flk	tr	pch	3%									
		fine-grained with a 10-12 cm thick layer of semi-massive sulphides (mainly pyrrhotite)																			
		at downhole contact, which is at 65 degrees to core axis																			
265.53	285.01	GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS	BQ0359	279.32	280.11	0.79	lay	2%			lay	<1%									
		relatively leucocratic; local cm-scale layers (<3 cm wide) of pyrrhotite and subordinate																			
		pyrite (4 layers within sample interval)																			
285.01	285.73	GRANITE PEGMATITE																			
		with cm-scale inclusions of gneiss within it; contacts are discordant to foliation which																			
		is oriented at about 55 degrees to core axis																			
285.73	338.52	GARNET BIOTITE QUARTZOFELDSPATHIC GNEISS																			
		increasing amounts of biotite (?) and amphibole (+ or - sulphides) dowwnhole (up to 15-20%);																			
		local cm- to dc-scale pegmatite layers up to 30 cm thick; layering typically at 50 degrees to CA.																			
		but decreasing to about 40 degrees at 336 m and to about 30-35 degrees at about 339.5 m.																			
		289.83 to 290.72 m GNEISS; locally layered sulphides; mm- cm-scale; mainly pyrrhotite with subordinate pyrite																			
		associated with garnet- and amphibole-rich layers	BQ00360	289.83	290.72	0.89	lay	2%			lay	1%									
		294.58 to 295.30 m GRANITE PEGMATITE																			
		308.55 to 308.78 m GRANITE PEGMATITE																			
		311.68 to 312.40 m AMPHIBOLITE; medium grained; equigranular; colour index of approximately 40																			
		308.92 to 310.02 GNEISS; cm-scale (<6 cm wide) layers of pyrrhotite and subordinate pyrite roughly parallel																			
		to foliation which is oriented 40 degrees to core axis; 6 layers within the interval	BQ0361	308.92	3310.02	1.10	lay	4%			lay	1%									
		314.56 to 314.75 GRANITE PEGMATITE																			
		324.98 to 325.12 AMPHIBOLITE; medium- coarse-grained; colour index approximately 85																			
333.52	342.75	(GARNET) MAGNETITE BIOTITE AMPHIBOLE QUARTZOFELDSPATHIC GNEISS	BQ0376	333.53	335.53	2.00	lay	1%			lay	tr	blb	4%							
		more or less similar to the previous interval, but with relatively abundant (?) magnetite																			
		(approximately 2-5%), or perhaps magnetite is coarser-grained; sulphide content																			
		increases downhole and darker mineralogic constituents become increasingly																			
		conceentrated in mm-scale layers toward downhole end of this interval; pyrrhotite																			
		and pyrite are associated with these layers strongly magneitc																			

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG			HOLE NO. DDHBQ08	PAGE 6 of 7
Project: Mistassini / Twins	NTS: NAD 27	Date Collared: July 25/04	Date Completed: July 29/04	Drilled By: Chibogamau
Coordinates: 381926 / 5632594	Elevation: 515	Azimuth: 45	Dip: -50	Total Length: 351 m
Logged By: Nick Thomas & Charles Greig	Assayed By: Chemex	Checked By: C. Greig		
Drillhole Purpose / Target	Down Hole Survey: -44 degrees			

From (m)	To (m)	Description	Sample Number	Sample Collection From (m)	To (m)	Interval (m)	Pyrrhotite Style	Pyrrhotite %	Chalcopyrite Style	Chalcopyrite %	Pyrite Style	Pyrite %	Magnetite Style	Magnetite %	Other Style	Other %	Ni	Cu	Co	Pt	Pd
		;mm-scale pyrrhotite and magnetite layers associated with amphibole, garnet, and biotite layers of gneiss; also, calcite, pyrite and epidote, foliation parallel (34 degrees to core axis) veinlets; 2 occurances near the end of the interval	BQ0362	338.63	339.66	1.03	lay	4%			dis	1%	lay	5%							
		;foliation changing from 12 to 32 degrees to core axis; sulphides occur in layers; with carbonate, garnet, epidote and magnetite strongloy associated; interval shows "pock-marked" texture	BQ0363	339.66	340.68	1.02	lay	3%			lay	3%	lay	3%							
		;foliation changing from 32 to 20 degrees to core axis; sulphides occur in layers; with carbonate, garnet, epidote and magnetite strongly associated; interval shows "pock-marked" texture	BQ0364	340.68	341.71	1.03	lay	3%			lay	3%	lay	3%							
		;foliation 20 degrees to core axis; sulphides occur in layers; with carbonate, garnet, epidote and magnetite strongly associated; interval shows "pock-marked" texture	BQ0366	341.71	342.41	0.70	lay	3%			lay	3%	dis	1%							
		;sulphides occur as mm-scale layers; mostly as pyrrhotite with amphibole, biotite, garnet and carbonate; local veinlets of chlorite and carbonate crosscut foliation and have a random orientation (later stage alteration); fine-grained, garnet-rich zone in last 10 cm of interval	BQ0367	342.41	343.07	0.66	lay	5%			lay	4%	dis	1%							
342.75	346.97	SULPHIDE-RICH SECTION massive, semi-massive, patchy, layered and disseminated style mineralization																			
		;semi-massive pyrrhotite and pyrite of roughly equal proportions; local patchy magnetite; amphibole and leucocratic patches make up the remainder of interval	BQ0368	343.07	343.75	0.68	sm	30%			smas	30%	pch	2%							
		;massive pyrrhotite with subordinate patchy pyrite and disseminated magnetite; "pock marked" texture locally; patches of amphibole and leucocratic patches (mm- cm-scale)	BQ0369	343.75	344.75	1.00	mas	80%			pch	5%	dis	3%							
		;as per BQ0369 with increased biotite/chlorite books occurring within leucocratic patches; generally less pyrite	BQ0370	344.75	345.30	0.55	mas	85%			pch	tr	dis	1%							
		;semi-massive and layered pyrrhotite, inter-layered chlorite, amphibole garnet and quartz/feldspar throughout majority of interval. pyrite is dominant sulphide in last 10 cm of interval	BQ0371	345.30	346.06	0.76	sm	20%			dis	3%	pch	2%							
		;finely disseminated pyrrhotite and patchy magnetite with orthogneissic or paragneissic host rocks	BQ0372	346.06	346.63	0.57	dis	3%					pch	1%							
		;semi-massive and layered pyrrhotite with disseminated pyrite and patchy magnetite; circular mm- sub-mm-scale blebs of amphibole within the sulphides are inter-layered with quartz/feldspar- and amphibole-rich, mm- cm-scale layers	BQ0373	346.63	347.19	0.56	sm	40%	3%	pch	dis	3%	pch	2%							

BITTERROOT RESOURCES LTD. DIAMOND DRILL LOG

HOLE NO. DDHBQ08 | PAGE 7 of 7

Project: Mistassini /Twins | NTS: NAD 27 | Date Collared: July 25/04 | Date Completed: July 29/04 | Drilled By: Chibogamau | Assayed By: Chemex

Coordinates: 381926 / 5632594 | Elevation: 615 | Azimuth: 45 | Dip: -50 | Total Length: 351 m | Logged By: Nick Thomas & Charles Greig | Checked By: C. Greig

Drillhole Purpose / Target | Down Hole Survey: -44 degrees

From	To	Description	Sample Collection				Mineralization Estimates										Assay Results				
			Sample	From	To	Interval	Pyrrhotite		Chalcopyrite		Pyrite		Magnetite		Other		Ni	Cu	Co	Pt	Pd
(m)	(m)		Number	(m)	(m)	(m)	Style	%	Style	%	Style	%	Style	%	Style	%					
346.97	351.00	BIOTITE (HORNBLENDE) GRANITE	BQ0374	347.19	347.73						dis	tr									
		fine- to medium-grianed with local cm- to dm-scale pegmatite layers; upper contact																			
		with sulphides is 50 degrees to core axis																			
	351.00	EOH																			

Appendix IX. Analytical Data, Diamond Drillcore Samples, Twins property.

Hole Number	Sample Number	From (m)	To (m)	Au ppm	Pt ppm	Pd ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
DDHBQ01	BQ0001	103.03	103.58	0.052	<0.005	0.001	2.9	3.1	3	<10	20	<0.5	<2	0.74	<0.5	53	116	266	13.9	10	1	0.69	20	2.09	693	2	0.03	112	740	74	8.48	2	10	14	0.14	<10	<10	103	10	98
DDHBQ01	BQ0002	103.58	103.98	0.002	<0.005	<0.001	0.7	1.4	<2	<10	160	<0.5	<2	0.61	<0.5	8	94	37	2.91	10	1	0.72	10	0.87	388	7	0.05	15	320	27	0.45	<2	4	15	0.16	<10	<10	37	<10	58
DDHBQ01	BQ0003	103.98	105.80	0.007	<0.005	<0.001	0.5	2.1	<2	<10	120	<0.5	<2	0.91	<0.5	15	32	83	5.2	10	1	1.06	10	1.01	533	1	0.2	36	170	10	1.63	<2	3	58	0.23	<10	<10	57	<10	70
DDHBQ01	BQ0004	108.53	110.62	0.009	<0.005	<0.001	0.6	2	<2	<10	50	<0.5	<2	0.49	<0.5	22	71	113	7.32	10	1	1.32	10	1.16	578	1	0.11	26	470	5	3.01	<2	5	33	0.28	<10	<10	60	<10	77
DDHBQ01	BQ0005	112.09	113.44	0.01	<0.005	<0.001	0.6	1.8	<2	<10	30	<0.5	2	0.34	<0.5	33	29	150	8.74	10	1	1.26	10	1.08	539	1	0.08	30	440	3	3.89	<2	5	21	0.25	<10	<10	57	<10	82
DDHBQ01	BQ0113	145.21	145.53	<0.001	<0.005	<0.001	<0.2	1	<2	<10	140	<0.5	<2	0.5	<0.5	8	35	4	1.78	<10	1	0.8	10	0.68	277	<1	0.11	12	440	<2	0.05	<2	3	18	0.18	<10	<10	36	<10	43
DDHBQ01	BQ0280	145.21	145.53	0.001	<0.005	<0.001	<0.2	1.1	<2	<10	130	<0.5	<2	0.53	<0.5	8	82	2	1.76	10	<1	0.58	10	0.66	278	1	0.1	12	430	<2	0.03	<2	3	19	0.18	<10	<10	35	<10	42
DDHBQ01	BQ0133	145.53	145.78	0.001	<0.005	<0.001	<0.2	1.1	<2	<10	130	<0.5	<2	0.56	<0.5	8	43	5	2.02	<10	<1	0.58	10	0.69	283	<1	0.12	11	440	<2	0.13	<2	3	21	0.18	<10	<10	36	<10	42
DDHBQ01	BQ0291	145.53	145.78	0.001	<0.005	<0.001	<0.2	1.1	<2	<10	130	<0.5	<2	0.55	<0.5	8	72	5	2.05	<10	<1	0.59	10	0.67	280	1	0.11	14	420	<2	0.11	<2	3	20	0.19	<10	<10	35	<10	44
DDHBQ01	BQ0182	145.78	146.00	<0.001	<0.005	<0.001	<0.2	1.1	3	<10	130	<0.5	<2	0.63	<0.5	9	39	2	2.11	10	<1	0.55	10	0.7	284	<1	0.1	10	460	<2	0.12	<2	3	19	0.18	<10	<10	37	<10	43
DDHBQ01	BQ0309	145.78	146.00	<0.001	0.012	0.001	<0.2	1.2	2	<10	110	<0.5	<2	0.7	<0.5	9	119	3	2	10	<1	0.53	10	0.71	297	1	0.13	15	440	<2	0.05	<2	3	29	0.19	<10	<10	37	<10	44
DDHBQ01	BQ0148	146.00	146.33	0.001	<0.005	<0.001	<0.2	1.1	2	<10	90	<0.5	<2	0.89	<0.5	8	61	2	2.11	10	1	0.45	10	0.73	272	<1	0.12	10	430	<2	0.12	<2	3	24	0.18	<10	<10	35	<10	41
DDHBQ01	BQ0300	146.00	146.33	<0.001	<0.005	<0.001	<0.2	1.2	<2	<10	90	<0.5	<2	0.98	<0.5	8	126	1	1.98	10	<1	0.42	10	0.71	271	<1	0.12	12	420	<2	0.03	<2	2	29	0.15	<10	<10	33	<10	41
DDHBQ01	BQ0153	146.37	146.70	0.001	<0.005	<0.001	<0.2	1	6	<10	120	<0.5	<2	0.56	<0.5	7	35	1	1.89	<10	1	0.52	10	0.62	244	<1	0.1	11	470	<2	0.08	<2	2	18	0.17	<10	<10	33	<10	39
DDHBQ01	BQ0318	146.37	146.70	<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	100	<0.5	<2	0.6	<0.5	8	104	7	1.71	<10	<1	0.53	10	0.64	252	1	0.13	12	430	5	0.01	<2	3	27	0.18	<10	<10	34	<10	50
DDHBQ01	BQ0171	146.70	146.90	<0.001	<0.005	<0.001	<0.2	1	3	<10	120	<0.5	<2	0.6	<0.5	8	33	2	2.57	10	<1	0.56	10	0.68	297	<1	0.09	11	490	<2	0.1	<2	2	16	0.18	<10	<10	35	<10	43
DDHBQ01	BQ0329	146.70	146.90	<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	100	<0.5	<2	0.59	<0.5	8	138	3	1.87	<10	<1	0.55	10	0.65	252	<1	0.11	14	430	<2	0.09	<2	3	22	0.18	<10	<10	34	<10	43
DDHBQ01	BQ0236	146.90	147.00	<0.001	<0.005	<0.001	<0.2	1.2	<2	<10	120	<0.5	<2	0.66	<0.5	8	174	4	2.16	10	<1	0.6	10	0.69	295	2	0.13	19	430	<2	0.04	<2	3	22	0.2	<10	<10	38	<10	45
DDHBQ01	BQ0144	147.00	147.30	0.001	<0.005	0.001	<0.2	1	<2	<10	100	<0.5	<2	0.61	<0.5	7	31	2	1.79	<10	<1	0.49	10	0.6	244	<1	0.11	9	440	<2	0.07	<2	3	18	0.16	<10	<10	33	<10	39
DDHBQ01	BQ0262	147.00	147.30	<0.001	<0.005	<0.001	<0.2	1	2	<10	100	<0.5	<2	0.62	<0.5	7	112	2	1.82	10	1	0.51	10	0.61	260	<1	0.11	14	410	<2	0.04	<2	2	18	0.17	<10	<10	33	<10	40
DDHBQ01	BQ0177	147.30	147.62	<0.001	<0.005	<0.001	<0.2	1	<2	<10	120	<0.5	<2	0.56	<0.5	8	34	2	2.19	10	1	0.56	10	0.62	270	<1	0.1	11	460	<2	0.06	<2	3	19	0.18	<10	<10	36	<10	42
DDHBQ01	BQ0271	147.30	147.62	<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	110	<0.5	<2	0.6	<0.5	7	115	3	1.87	<10	<1	0.56	10	0.63	262	<1	0.13	15	410	<2	0.06	<2	3	22	0.18	<10	<10	34	<10	40
DDHBQ01	BQ0183	147.80	148.07	0.001	<0.005	0.001	<0.2	1	<2	<10	130	<0.5	<2	0.49	<0.5	8	35	3	2.03	<10	1	0.63	10	0.66	295	<1	0.09	11	450	<2	0.03	<2	2	16	0.19	<10	<10	36	<10	45
DDHBQ01	BQ0340	147.80	148.07	<0.001	<0.005	<0.001	<0.2	1.3	5	<10	120	<0.5	<2	0.53	<0.5	8	116	3	2.02	<10	<1	0.68	10	0.72	323	1	0.14	14	430	<2	0.04	<2	3	27	0.2	<10	<10	38	<10	47
DDHBQ01	BQ0190	148.07	148.38	<0.001	<0.005	<0.001	<0.2	1.2	5	<10	140	<0.5	<2	0.63	<0.5	9	40	6	2.37	10	<1	0.73	10	0.81	356	<1	0.12	12	500	<2	0.07	<2	3	21	0.22	<10	<10	37	<10	56
DDHBQ01	BQ0405	148.07	148.38	<0.001	<0.005	0.001	<0.2	1.2	<2	<10	130	<0.5	<2	0.58	<0.5	9	76	6	2.09	10	<1	0.74	10	0.8	336	1	0.14	15	530	<2	0.04	<2	3	26	0.21	<10	<10	36	<10	51
DDHBQ01	BQ0197	148.38	148.58	<0.001	<0.005	<0.001	<0.2	1.2	<2	<10	120	<0.5	<2	0.6	<0.5	8	125	5	2.38	10	1	0.68	10	0.77	343	1	0.11	19	400	<2	0.05	<2	3	21	0.21	<10	<10	35	<10	50
DDHBQ01	BQ0421	148.38	148.58	<0.001	0.005	0.006	<0.2	1.1	<2	<10	110	<0.5	<2	0.55	<0.5	8	85	5	1.88	<10	<1	0.63	10	0.72	302	<1	0.11	12	440	<2	0.03	<2	3	22	0.19	<10	<10	33	<10	47
DDHBQ01	BQ0204	148.58	148.87	<0.001	<0.005	<0.001	<0.2	1	<2	<10	110	<0.5	<2	0.58	<0.5	6	168	4	2.04	<10	<1	0.56	10	0.63	279	1	0.11	12	440	<2	0.03	<2	3	23	0.19	<10	<10	35	<10	43
DDHBQ01	BQ0430	148.58	148.87	<0.001	<0.005	<0.001	<0.2	1	<2	<10	120	<0.5	<2	0.53	<0.5	7	83	4	1.74	<10	<1	0.57	10	0.64	249	1	0.1	11	480	<2	0.03	<2	2	25	0.18	<10	<10	34	<10	41
DDHBQ01	BQ0211	148.87	149.12	<0.001	<0.005	<0.001	<0.2	1	<2	<10	110	<0.5	<2	0.66	<0.5	7	166	3	2.58	<10	1	0.51	10	0.62	338	2	0.11	14	430	<2	0.09	<2	3	20	0.17	<10	<10	34	<10	44
DDHBQ01	BQ0253	149.12	149.42	<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	100	<0.5	<2	0.8	<0.5	7	74	1	2.01	10	<1	0.51	10	0.69	289	1	0.15	15	450	2	0.04	<2	3	25	0.19	<10	<10	35	<10	45
DDHBQ01	BQ0394	149.12	149.42	<0.001	<0.005	0.001	<0.2	1.1	<2	<10	110	<0.5	<2	0.75	<0.5	8	125	3	1.98	10	2	0.49	10	0.68	278	<1	0.14	15	510	2	0.01	<2	3	25	0.17	<10	<10	37	<10	43
DDHBQ01	BQ0222	149.42	149.67	<0.001	<0.005	0.001	<0.2	1.1	<2	<10	120	<0.5	<2	0.69	<0.5	8	150	2	2.02	<10	1	0.52	10	0.66	293	2	0.12	16	430	<2	0.04	<2	3	20	0.18	<10	<10	33	<10	46
DDHBQ01	BQ0384	149.42	149.67	<0.001	<0.005	<0.001	<0.2	1	2	<10	110	<0.5	<2	0.73	<0.5	7	125	3	1.85	<10	2	0.45	10	0.64	267	<1	0.13	12	490	2	0.02	<2	3	24	0.16	<10	<10	35	<10	41
DDHBQ01	BQ0230	149.67	150.00	<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	140	<0.5	<2	0.63	<0.5	7	160	4	2.09	<10	<1	0.62	10	0.69	306	1	0.11	17	430	<2	0.04	<2	3	19	0.19	<10	<10	35	<10	44
DDHBQ01	BQ0375	149.67	150.00	<0.001	<0.005	0.001	<0.2	1.1	<2	<10	150	<0.5	<2	0.67	<0.5	8	92	2	1.94	10	1	0.58	10	0.69	304	<1	0.15	12	440	2	0.02	<2	3	25	0.18	<10	<10	36	<10	45
DDHBQ01	BQ0240	150.00	150.32	<0.001	<0.005	<0.001	<0.2	1.2	2	<10	140	<0.5	<2	0.71	<0.5	8	185	3	2.36	10	1	0.62	10	0.73	319	2	0.14	18	470	<2	0.03	<2	3	23	0.2	<10	<10	38	<10	46
DDHBQ01	BQ0356	150.00	150.32	<0.001	<0.005	<0.001	<0.2	1.2	3	<10	120	<0.5	<2	0.58	<0.5	7	76	3	1.88	<10	<1	0.59	10	0.67	290	<1	0.15	11	420	2	0.05	<2	3	28	0.18	<10	<10	34	<10	48
DDHBQ01	BQ0245	150.55	150.88	<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	150	<0.5	<2	0.69	<0.5	7	190	4	2.19	10	1	0.62	10	0.71	305	2	0.12	18	460	<2	0.02	<2	3	20	0.2	<10	<10	39	<10	53
DDHBQ01	BQ0246	150.32	150.55	<0.001	<0.005	<0.001	<0.2	1	<2	<10	120	<0.5	<2	0.54	<0.5	7	121	2	1.84	<10	<1	0.57	10	0.64	237	1	0.1	13	430	<2	0.01	<2	3	18	0.18	<10	<10	33	<10	41
DDHBQ01	BQ0365	150.32	150.55	<0.001	<0.005	<0.001	<0.2	1.1	2	<10	130	<0.5	<2	0.6	<0.5	8	101	2	1.87	<10	1	0.57	10	0.66	247	<1	0.15	13	420	<2	0.03	<2	3	26	0.17	<10	<10	35	<10	43
DDHBQ02	BQ0006	9.68	10.80	<0.001	<0.005	<0.001	<0.2	0.9	<2	<10	70	<0.5	<2	0.79	<0.5	5	60	22	3	<10	<1	0.42	20	0.78	424	1	0.13	13	410	7	0.42	<2	2	14	0.12	<10	<10	16	<10	29
DDHBQ02	BQ0007	10.80	12.00	<0.001	<0.005	<0.001	0.2	1	6	<10	60	<0.5	<2	0.72	0.5	9	12	38	4.25	<10	<1	0.32	10	0.89	485	3	0.12	24	430	9	1.3	<2	2	19	0.09	<10	<10	19	<10	238
DDHBQ02	BQ0008	12.00	13.36	0.002	<0.005	<0.001	0.5	0.9	<2	<10	50	<0.5	<2	0.93	<0.5	6	59	40	5.9	<10	<1	0.26	10	0.88	622	1	0.15	27	370	6	2.39	<2	2	9	0.07	<10	<10	14	<10	45
DDHBQ02	BQ0009	13.36	15.00	<0.001	<0.005	<0.001	<0.2	1.2	4	<10	110	<0.5	<2	0.4	<0.5	8	12	22	6.78	10	<1	0.64	10	1.06	670	2	0.09	16	420	5	1.24	<2	2	6	0.11	<10	<10	24	<10	56
DDHBQ02	BQ0010	15.00	15.81	<0.001	0.007	0.006	<0.2	0.9	<2	<10	10	<0.5	<2	1.16	<0.5	8	166	2	2.13	<10	<1	0.16	10	1.23	436	1	0.19	37	780	<2	0.11	<2	5	7	0.07	<10	<10	35	<10	22
DDHBQ02	BQ0011	15.81	16.88	<0.001	<0.005	<0.001	<0.2	0.8	2	<10	70	<0.5	<2	0.37	<0.5	4	10	18	6.03	10	<1	0.38	10	0.66	583	1	0.08	13	350	4	1.42	<2	2	6	0.09	<10	<10	23	<10	31
DDHBQ02	BQ0012	16.88	18.00	0.007	<0.005	0.008	<0.2	0.7	<2	<10	70	<0.5	<2	0.69	<0.5	6	61	19	5.88	<10	<1	0.31	10	0.51	608	1	0.07	13	390	<2	1.65	<2	2	7	0.09	<10	<10	22	<10	26
DDHBQ02	BQ0013	18.00	19.31	0.003	<0.005	0.004	0.3	0.9	<2	<10	100	<0.5	<2	0.31	<0.5	7	61	49	8.76	<10	<1	0.47	10	0.66	572	1	0.07	25	360	<2	2.97	<2	2	4	0.11	<10	<10	22	<10	52
DDHBQ02	BQ0014	19.31	20.40	0.003	<0.005	0.004	0.2	0.9	<2	<10	100	<0.5	<2	0.92	<0.5	5	71	39	7.84	10	<1	0.48	10	0.71	791	2	0.08	23	370	<2	2.63	<2	2	9	0.11	<10	<10	22	<10	36
DDHBQ02	BQ0015	20.40	21.62	0.004	<0.005	0.002	<0.2	0.9	<2	<10	70	<0.5	<2	1.61	<0.5	7	64	27	6.71	<10	<1	0.33	10	0.63	934	3	0.08	16	360	3	2.71	<2	2	16	0.09	<10	<10	17	<10	70
DDHBQ02	BQ0016	21.62	22.60	0.001	<0.005	<0.001	<0.2	1.1	<2	<10	110	<0.5	<2	0.36	<0.5	5	81	12	7.02	10	<1	0.5	10	0.8	883	1	0.07	12	410	2	1.04	<2	1	4	0.12	<10	<10	23	<10	37
DDHBQ02	BQ0017	22.60	23.99	0.004	<0.005	<0.001	0.4	0.7	<2	<10	70	<0.5	2	0.47	<0.5	12	85	71	11.3	<10	<1	0.3	10	0.52	602	2	0.08	31	350	2	3.79	<2	2	5	0.08	<10	<10	22	<10	39
DDHBQ02	BQ0018	24.00	25.12	0.003	<0.005	<0.001	0.2	0.7	<2	<10	100	<0.5	<2	0.38	<0.5	3	58	59	8.59	<10	<1	0.39	10	0.57	505	2	0.07	24	340	<2	2.72	<2	2	5	0.09	<10	<10	18	<10	40
DDHBQ02	BQ0019	25.12	25.76	<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	180	<0.5	<2	0.41	<0.5	3	79	8	4.1	10	<1	0.69	10	0.87	514	4	0.07	13	380	<2	0.43	<2	2	6	0.14	<10	<10	23	<10	32
DDHBQ02	BQ0020	25.76	27.86	0.002	<0.005	<0.001	<0.2	0.9	<2	<10	210	<0.5	<2	0.75	<0.5	5	108	12	3.35	<10	1	0.51	10	0.89	379	7	0.09	38	560	<2	0.71	<2	2	13	0.13	<10	<10	30	<10	27
DDHBQ02	BQ0021	86.10	87.15	0.004	<0.005	<0.001	0.5	1.5	<2	<10	90	<0.5	2	0.65	0.7	8	71	178	8.27	10	<1	0.72	10	1.18	765	3	0.08	20	300	8	2.96	<2	2	8	0.11	<10	<10	21	<10	374

Hole Number	Sample Number	From (m)	To (m)	Au ppm	Pt ppm	Pd ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
DDHBQ02	BQ0022	87.15	87.77	0.102	<0.005	<0.001	0.9	1	<2	<10	80	<0.5	5	0.38	<0.5	8	56	229	18.6	10	<1	0.46	10	0.74	683	1	0.07	31	200	4	4.03	<2	1	7	0.08	<10	<10	29	<10	156
DDHBQ02	BQ0023	87.77	88.76	0.001	<0.005	<0.001	<0.2	1.3	<2	<10	200	<0.5	<2	0.23	<0.5	5	81	54	5.82	10	<1	0.81	10	0.92	660	2	0.06	11	370	<2	1.44	2	3	6	0.15	<10	<10	28	<10	176
DDHBQ02	BQ0024	88.76	90.00	0.005	<0.005	<0.001	0.5	1.2	<2	<10	40	<0.5	3	0.25	<0.5	21	78	166	9.88	10	<1	0.76	10	0.76	619	1	0.06	20	260	3	4.29	<2	3	6	0.14	<10	<10	22	<10	122
DDHBQ02	BQ0025	90.00	90.56	0.001	<0.005	<0.001	0.2	1.7	<2	<10	140	0.8	<2	1.42	<0.5	4	78	43	5.88	10	<1	0.9	60	1.07	999	<1	0.1	12	1520	7	1.38	<2	7	82	0.17	<10	<10	30	<10	136
DDHBQ02	BQ0026	93.48	94.23	0.002	<0.005	<0.001	<0.2	1.1	<2	<10	130	<0.5	<2	0.27	<0.5	4	152	45	5.26	10	<1	0.83	10	0.72	640	3	0.06	19	390	<2	1.56	<2	2	10	0.18	<10	<10	30	<10	83
DDHBQ02	BQ0027	94.23	95.26	0.004	<0.005	<0.001	0.2	1.9	<2	<10	60	<0.5	<2	0.44	<0.5	6	56	82	6.98	10	<1	1.44	<10	1.18	905	1	0.08	13	670	2	2.02	<2	3	16	0.31	<10	<10	45	<10	130
DDHBQ02	BQ0028	95.25	95.83	0.001	<0.005	<0.001	<0.2	1.7	<2	<10	50	<0.5	<2	0.38	<0.5	18	59	63	6.6	10	<1	1.29	20	0.97	902	<1	0.07	12	890	<2	2.09	<2	4	13	0.29	<10	<10	40	<10	94
DDHBQ02	BQ0029	97.72	98.52	<0.001	<0.005	<0.001	0.2	1.1	<2	<10	130	<0.5	<2	0.28	<0.5	5	112	70	6.25	10	<1	0.66	20	0.82	719	2	0.07	14	330	<2	1.56	<2	2	5	0.13	<10	<10	28	<10	60
DDHBQ02	BQ0030	98.52	99.42	0.004	<0.005	<0.001	0.4	1	<2	<10	50	<0.5	4	0.97	<0.5	52	46	169	10.8	<10	<1	0.43	10	0.74	725	4	0.09	21	310	<2	4.97	<2	2	15	0.09	<10	20	31	<10	69
DDHBQ02	BQ0031	153.22	154.24	0.003	<0.005	<0.001	<0.2	1.4	<2	<10	110	<0.5	<2	1.14	<0.5	5	110	55	6.61	10	<1	0.23	20	0.51	1500	1	0.1	12	420	4	1.14	<2	1	8	0.07	<10	<10	15	<10	54
DDHBQ02	BQ0032	154.24	155.45	0.007	<0.005	<0.001	0.2	1.5	<2	<10	100	<0.5	<2	0.9	<0.5	5	96	137	8.34	10	<1	0.61	10	0.72	808	3	0.06	24	400	8	2.35	<2	2	12	0.14	<10	<10	23	<10	97
DDHBQ02	BQ0033	155.45	156.46	0.011	<0.005	<0.001	0.3	1.2	<2	<10	130	<0.5	<2	0.88	<0.5	6	72	146	8.77	10	<1	0.47	10	0.56	804	1	0.08	25	360	7	2.4	<2	2	10	0.11	<10	<10	20	<10	97
DDHBQ02	BQ0034	156.46	157.44	0.002	<0.005	<0.001	<0.2	1.3	<2	<10	150	<0.5	<2	0.93	<0.5	5	86	39	6.55	10	<1	0.5	20	0.53	1055	1	0.09	10	450	3	0.73	<2	2	10	0.14	<10	<10	25	<10	65
DDHBQ02	BQ0035	157.44	157.92	0.004	<0.005	<0.001	<0.2	1.8	<2	<10	160	<0.5	<2	1.16	<0.5	7	159	77	6.76	10	<1	0.55	50	0.78	2070	3	0.1	18	590	3	1.46	<2	6	15	0.12	<10	<10	24	<10	57
DDHBQ02	BQ0036	157.92	161.13	0.018	<0.005	<0.001	0.6	2	<2	<10	40	<0.5	<2	1.1	<0.5	8	71	260	11.8	10	<1	0.85	80	1.06	1700	2	0.13	34	640	3	3.57	<2	8	15	0.19	<10	<10	32	<10	75
DDHBQ02	BQ0037	158.25	159.28	0.001	<0.005	<0.001	<0.2	2.4	<2	10	590	<0.5	<2	0.86	<0.5	3	91	12	5.89	10	<1	1.48	190	1.38	1145	1	0.1	10	760	5	0.28	<2	11	38	0.28	<10	<10	54	<10	100
DDHBQ02	BQ0038	159.28	159.92	0.001	<0.005	<0.001	<0.2	4	<2	<10	1320	<0.5	<2	0.57	<0.5	5	55	7	7.32	20	<1	3.25	170	2.61	915	1	0.09	10	1340	5	0.08	<2	7	37	0.61	<10	<10	113	<10	192
DDHBQ02	BQ0039	159.92	161.13	<0.001	<0.005	<0.001	<0.2	1.8	<2	10	280	0.5	<2	1.98	<0.5	4	80	19	4.96	10	<1	0.52	90	0.94	1335	2	0.18	13	550	3	0.25	<2	12	36	0.14	<10	<10	34	<10	75
DDHBQ02	BQ0040	161.13	162.48	0.002	<0.005	<0.001	<0.2	1.6	<2	<10	200	<0.5	<2	1.15	<0.5	5	78	10	11.9	10	<1	0.39	20	0.78	1880	3	0.13	13	280	<2	0.08	<2	2	42	0.08	<10	<10	21	<10	89
DDHBQ02	BQ0041	162.48	163.48	<0.001	<0.005	<0.001	<0.2	1.2	<2	<10	210	<0.5	<2	1.06	<0.5	7	92	71	14.1	<10	<1	0.29	30	0.66	2370	3	0.09	24	400	12	0.61	<2	2	206	0.08	<10	<10	22	<10	74
DDHBQ02	BQ0042	163.48	164.37	0.001	<0.005	<0.001	<0.2	1.9	<2	<10	460	<0.5	<2	1.29	<0.5	4	81	56	8.4	10	<1	0.75	20	1	2410	2	0.11	8	320	2	0.59	<2	6	72	0.11	<10	<10	21	<10	72
DDHBQ02	BQ0043	164.90	165.95	0.002	<0.005	<0.001	<0.2	1.7	<2	<10	200	<0.5	<2	1.35	<0.5	4	73	81	11.2	<10	<1	0.41	20	0.89	1895	1	0.16	9	340	3	0.9	<2	2	40	0.08	<10	<10	16	<10	69
DDHBQ02	BQ0044	165.95	167.15	0.003	<0.005	<0.001	<0.2	1.7	2	<10	140	<0.5	<2	1.26	<0.5	5	88	71	9.17	10	<1	0.29	10	0.71	1735	2	0.14	12	350	2	1.06	<2	2	14	0.07	<10	<10	14	<10	51
DDHBQ02	BQ0045	164.37	164.90	0.004	<0.005	<0.001	0.3	3	<2	<10	40	0.7	<2	1.95	<0.5	12	31	238	11.4	10	1	1.38	50	1.82	1725	2	0.15	42	1660	19	2.76	<2	15	71	0.24	<10	<10	51	<10	127
DDHBQ03	BQ0046	5.00	9.00	0.002	<0.005	0.001	1.9	1.1	94	<10	30	<0.5	3	0.4	11	30	78	317	7.65	10	<1	0.32	10	0.88	233	4	0.06	114	310	18	5.51	2	5	8	0.03	<10	<10	33	<10	3630
DDHBQ03	BQ0047	9.00	12.00	0.005	<0.005	<0.001	4.3	1	22	<10	20	<0.5	3	0.5	12	40	78	664	7.34	10	<1	0.29	10	0.65	180	2	0.08	125	290	43	4.93	2	5	8	0.02	<10	<10	29	<10	4770
DDHBQ03	BQ0048	12.00	15.00	0.005	<0.005	<0.001	2.9	0.9	8	<10	20	<0.5	<2	0.65	13	42	70	408	7.84	<10	<1	0.17	10	0.55	224	4	0.09	116	360	44	5.14	<2	5	7	0.02	<10	<10	35	<10	4730
DDHBQ03	BQ0049	15.00	17.24	0.001	<0.005	<0.001	0.5	0.5	7	<10	20	<0.5	<2	0.22	0.9	9	102	74	3.08	<10	<1	0.17	20	0.27	176	1	0.13	24	260	56	1.88	<2	3	10	0.01	<10	<10	9	<10	394
DDHBQ03	BQ0050	17.24	18.30	0.003	<0.005	<0.001	1.6	0.7	15	<10	20	<0.5	<2	2.04	1.8	21	80	299	4.51	<10	<1	0.21	10	0.47	242	3	0.1	52	220	59	3.33	2	5	12	0.02	<10	<10	28	<10	656
DDHBQ03	BQ0051	18.30	19.03	0.008	<0.005	0.001	2.2	1.3	<2	<10	60	<0.5	3	2.26	4.4	37	116	558	7.95	10	<1	0.57	10	0.97	367	3	0.09	112	540	163	6.77	2	11	29	0.07	<10	<10	62	<10	1635
DDHBQ03	BQ0052	19.03	19.68	0.004	<0.005	0.001	0.5	1.6	6	<10	100	<0.5	3	0.74	2.2	34	93	172	7.55	10	<1	0.81	10	1.21	471	2	0.1	96	850	58	4.86	4	14	18	0.12	<10	<10	84	<10	1005
DDHBQ03	BQ0065	23.65	24.87	0.443	<0.005	<0.001	6.9	1.4	<2	<10	40	<0.5	75	1.91	24	34	136	550	8.57	10	<1	0.62	10	1.13	656	10	0.06	96	400	288	5.73	<2	5	17	0.14	<10	<10	58	<10	5980
DDHBQ03	BQ0066	29.68	30.72	0.005	<0.005	<0.001	0.3	1.7	3	<10	100	<0.5	2	1.14	1.5	24	150	95	7.77	10	<1	0.79	10	1.26	1335	3	0.09	58	610	75	3.04	<2	8	12	0.21	<10	<10	78	<10	825
DDHBQ03	BQ0067	30.72	32.12	0.004	<0.005	<0.001	0.2	1.6	<2	<10	110	<0.5	<2	1.38	<0.5	37	95	97	8.29	<10	<1	0.64	10	1.14	1635	1	0.09	53	530	22	3.23	<2	4	11	0.18	<10	<10	53	<10	183
DDHBQ03	BQ0068	32.12	34.07	0.008	<0.005	<0.001	0.5	2.7	8	<10	30	<0.5	2	1.14	<0.5	32	150	172	11.3	10	<1	1.36	10	1.96	1255	1	0.07	81	600	95	4.87	<2	10	12	0.24	<10	<10	87	<10	503
DDHBQ03	BQ0069	36.51	36.99	0.024	<0.005	<0.001	0.3	1.2	<2	<10	60	<0.5	3	1.38	<0.5	41	89	156	9.3	<10	<1	0.6	20	1.07	510	2	0.05	92	410	5	4.05	<2	5	17	0.14	<10	<10	44	<10	193
DDHBQ03	BQ0070	42.25	42.81	0.006	<0.005	<0.001	8.1	1.8	2	<10	50	<0.5	5	19.8	8.7	15	53	3890	5.14	10	<1	0.55	50	1.96	846	8	0.04	42	310	1655	3.4	<2	8	45	0.12	<10	<10	46	<10	2910
DDHBQ03	BQ0071	58.60	59.15	0.02	<0.005	<0.001	3.8	2.9	<2	<10	50	0.9	2	3.02	27	116	45	440	12.8	10	1	0.14	10	1.04	458	2	0.3	142	790	2630	8.89	<2	10	93	0.17	<10	<10	82	<10	9480
DDHBQ03	BQ0072	59.15	60.16	0.015	<0.005	<0.001	1.1	1.7	<2	<10	30	<0.5	<2	1.47	7.1	74	68	513	10.5	10	<1	0.58	<10	1.14	627	2	0.1	100	780	507	5.1	<2	11	11	0.32	<10	<10	123	<10	3070
DDHBQ03	BQ0073	63.42	64.08	0.003	<0.005	<0.001	1.4	0.7	<2	<10	40	<0.5	<2	0.51	5.6	46	104	368	6.74	<10	<1	0.2	<10	0.47	387	1	0.04	65	220	285	3.71	<2	4	5	0.11	<10	<10	42	<10	1865
DDHBQ03	BQ0053	94.45	94.85	0.009	<0.005	0.006	2.7	0.9	8	<10	50	<0.5	4	0.4	<0.5	245	156	1300	34.4	<10	<1	0.62	10	0.56	355	3	0.09	700	460	15	8.81	2	7	10	0.17	<10	<10	62	<10	86
DDHBQ03	BQ0074	94.85	96.00	0.008	<0.005	<0.001	0.5	1.3	<2	<10	40	<0.5	<2	0.3	1.2	52	148	343	9.23	<10	<1	0.89	10	0.89	503	<1	0.06	179	570	13	3.64	<2	9	8	0.21	<10	<10	78	<10	739
DDHBQ03	BQ0054	96.00	96.55	0.01	0.011	0.007	6.2	0.8	<2	<10	50	<0.5	6	0.68	28	226	64	1245	39.9	<10	1	0.27	<10	0.48	384	4	0.04	836	150	198	9.95	5	3	7	0.06	<10	<10	29	<10	9120
DDHBQ03	BQ0075	96.55	97.52	0.009	<0.005	<0.001	5.6	1.9	<2	<10	40	<0.5	<2	4.37	20	61	139	937	10.7	10	<1	0.54	10	1.6	1760	2	0.08	196	300	476	5.03	<2	13	39	0.16	<10	<10	92	<10	6280
DDHBQ03	BQ0119	97.52	99.11	0.002	<0.005	0.002	0.3	1.6	3	<10	120	<0.5	<2	1.57	<0.5	33	75	97	4.63	<10	1	0.4	<10	1.38	1005	1	0.19	67	370	11	1.32	<2	18	9	0.21	<10	<10	116	<10	170
DDHBQ03	BQ0076	99.09	100.03	0.01	<0.005	0.001	1.2	1.4	<2	<10	40	<0.5	<2	0.9	1.8	79	203	552	16.5	<10	<1	0.44	<10	1.09	595	1	0.1	341	230	30	7.32	<2	10	7	0.18	<10	<10	90	<10	821
DDHBQ03	BQ0077	135.35	136.40	0.004	0.005	0.003	0.4	1	<2	<10	50	<0.5	<2	1.47	<0.5	9	104	53	9.09	<10	<1	0.11	10	0.82	2430	1	0.15	84	180	<2	3.93	<2	5	31	0.13	<10	<10	41	<10	44
DDHBQ03	BQ0055	136.40	136.70	0.004	<0.005	0.002	2.2	0.1	<2	<10	<10	<0.5	5	0.34	<0.5	18	17	301	>50	<10	1	0.02	<10	0.11	478	5	0.02	299	60	28	6.55	3	2	4	0.01	<10	<10	12	<10	3
DDHBQ03	BQ0078	136.70	137.75	0.004	0.01	0.008	0.4	0.9	5	<10	20	<0.5	<2	1.31	<0.5	21	62	95	10.7	<10	<1	0.07	<10	0.73	2270	1	0.12	130	270	<2	4.94	2	5	14	0.13	<10	<10	39	<10	35
DDHBQ03	BQ0120	137.75	138.42	<0.001	0.006	0.012	0.2	1.2	4	<10	30	<0.5	<2	1.81	<0.5	30	121	45	2.88	<10	1	0.15	<10	1.36	963	<1	0.28	112	360	2	0.34	<2	10	15	0.21	<10	<10	82	<10	69
DDHBQ03	BQ0079	138.42	139.61	0.003	0.01	0.006	0.4	1.2	3	<10	30	<0.5	<2	2.22	<0.5	15	67	44	6.67	<10	<1	0.09	<10	0.91	3110	1	0.17	104	390	<2	2.76	<2	5	38	0.15	<10	<10	49	<10	46
DDHBQ03	BQ0056	139.58	140.08	0.007	0.009	<0.001	1.7	0.3	<2	<10	10	<0.5	4	1.11	<0.5	106	33	303	45.8	<10	1	0.09	<10	0.31	699	2	0.06	243	60	20	>10.0	3	2	14	0.02	<10	<10	13	<10	79
DDHBQ03	BQ0057	140.08	140.53	0.002	<0.005	<0.001	1.1	0.8	<2	<10	10	<0.5	6	1.04	<0.5	140	111	185	25.3	<10	<1	0.13	<10	0.77	1555	1	0.21	120	130	9	>10.0	4	2	5	0.03	<10	<10	11	<10	76
DDHBQ03	BQ0058	140.53	141.53	0.01	<0.005	<0.001	2	0.2	6	<10	<10	<0.5	8	0.52	<0.5	29	27	359	>50	<10	<1	0.04	<10	0.22	548	3	0.06	267	90	29	7.71	3	2	6	0.01	<10	<10	12	<10	33
DDHBQ03	BQ0059	141.53	142.53	0.002	0.005	0.002	2.1	0.2	<2	<10	10	<0.5	9	0.29	<0.5	<1	18	388	>50	<10	<1	0.08	<10	0.2	598	4	0.04	283	50	30	6.02	<2	2	5	0.01	<10	<10	12	<10	24
DDHBQ03	BQ0060	142.53	142.89	0.001	0.006	0.001	2.1	0.4	7	<10	20	<0.5	4	0.36	<0.5	33	42	262	48.6	<10	1	0.16	<10	0.33	960	3	0.06	261	70	24	8.07	2	2	5	0.02	<10	<10	12	<10	40
DDHBQ03	BQ0061	142.89	143.51	0.092	<0.005	0.005	1.7	0.3	3	<10	10	<0.5	5	0.34	<0.5	29	90	262	28.4	<10	<1	0.08	<10	0.28	577	2	0.05	164	70	10	7.6	5	1	5	0.01	<10	<10	8	<10	43
DDHBQ03	BQ0062	143.51	144.51	0.013	<0.005	0.001	0.3	0.5	<2	<10	<10	<0.5	2	0.98	<0.5	2	60	73	29.4	<10	<1	0.09	10	0.57	2360	1	0.13	66	100	3	4.33	2	1	14	0.03	<10	<10	18	<10	134

Hole Number	Sample Number	From (m)	To (m)	Au ppm	Pt ppm	Pd ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
DDHBQ03	BQ0063	144.51	144.98	0.038	<0.005	<0.001	0.8	0.5	2	<10	<10	<0.5	3	1.01	<0.5	9	36	106	40.5	<10	4	0.07	10	0.49	2680	2	0.11	95	160	17	5.95	3	1	17	0.04	<10	<10	18	<10	144
DDHBQ03	BQ0064	144.98	145.45	0.002	0.009	0.001	0.5	0.3	<2	<10	<10	<0.5	4	0.72	<0.5	9	69	98	26.4	<10	1	0.04	10	0.45	1525	1	0.09	87	60	<2	5.98	3	1	7	0.02	<10	<10	18	10	96
DDHBQ03	BQ0080	145.43	146.43	0.003	<0.005	<0.001	0.6	0.9	3	<10	40	<0.5	<2	1.02	<0.5	12	58	100	25.8	<10	1	0.23	10	0.86	2740	3	0.12	88	230	85	5.73	2	1	11	0.06	<10	<10	22	<10	376
DDHBQ03	BQ0081	146.43	147.43	0.004	<0.005	<0.001	2.7	1.4	8	<10	70	<0.5	<2	1.49	28	15	29	112	17.7	10	<1	0.47	10	1.18	2340	1	0.13	67	290	431	4.53	2	2	16	0.08	<10	<10	24	<10	9350
DDHBQ03	BQ0163	147.44	148.17	0.002	<0.005	<0.001	0.2	1.3	<2	<10	80	<0.5	2	1.32	<0.5	3	41	23	14.6	10	1	0.45	10	0.92	2660	1	0.19	26	350	5	1.94	<2	2	10	0.09	<10	<10	24	<10	102
DDHBQ03	BQ0164	148.17	149.18	0.002	<0.005	<0.001	<0.2	1.2	2	<10	70	<0.5	2	1.46	<0.5	3	74	15	9.88	10	1	0.34	10	0.73	2440	1	0.19	19	370	3	1.36	<2	2	14	0.09	<10	<10	22	<10	49
DDHBQ03	BQ0165	149.18	150.29	0.001	<0.005	<0.001	<0.2	1	<2	<10	30	<0.5	<2	1.43	<0.5	2	37	7	8.37	<10	<1	0.24	20	0.54	2140	1	0.14	9	230	4	0.81	<2	1	16	0.05	<10	<10	15	<10	35
DDHBQ03	BQ0166	150.29	151.66	0.002	<0.005	<0.001	<0.2	1.3	4	<10	90	<0.5	2	1.33	<0.5	2	42	7	9.16	<10	1	0.29	20	0.65	1840	1	0.18	9	430	3	0.73	<2	2	12	0.09	<10	<10	21	<10	38
DDHBQ03	BQ0167	151.66	152.42	0.002	<0.005	<0.001	<0.2	1.1	2	<10	190	<0.5	<2	0.51	<0.5	5	89	9	7.55	10	<1	0.8	20	0.55	1340	1	0.12	15	430	3	0.99	<2	2	13	0.15	<10	<10	25	<10	27
DDHBQ03	BQ0168	152.42	153.48	0.005	<0.005	<0.001	<0.2	1	5	<10	50	<0.5	3	1.29	<0.5	2	27	23	19.2	10	<1	0.17	10	0.64	2090	2	0.15	18	300	4	2.23	<2	1	14	0.06	<10	<10	21	<10	38
DDHBQ03	BQ0169	153.48	154.48	0.006	<0.005	<0.001	0.2	1.2	2	<10	40	<0.5	3	1.26	<0.5	4	41	26	15	<10	<1	0.18	10	0.68	2700	2	0.17	16	300	4	2.47	<2	1	11	0.05	<10	<10	15	<10	37
DDHBQ03	BQ0170	154.48	155.55	0.002	<0.005	<0.001	<0.2	1.3	3	<10	60	<0.5	<2	1.3	<0.5	3	73	8	10.3	10	1	0.24	10	0.7	2410	1	0.18	9	390	2	0.95	<2	2	11	0.07	<10	<10	19	<10	33
DDHBQ03	BQ0172	155.55	156.41	0.005	<0.005	<0.001	0.2	1.4	2	<10	60	<0.5	3	1.38	<0.5	6	42	24	14.6	10	1	0.29	10	0.79	1935	1	0.18	11	320	3	2.41	<2	2	8	0.07	<10	<10	22	<10	26
DDHBQ03	BQ0082	159.00	159.56	0.001	<0.005	<0.001	<0.2	1.3	2	<10	90	<0.5	<2	1.12	<0.5	5	39	11	9.09	10	<1	0.37	20	0.63	1500	1	0.16	11	380	<2	0.88	<2	2	10	0.09	<10	<10	22	<10	90
DDHBQ03	BQ0176	159.56	160.46	0.003	<0.005	0.001	<0.2	1.4	<2	<10	120	<0.5	<2	1.22	<0.5	3	74	10	10.9	10	1	0.46	10	0.64	1760	2	0.17	7	440	5	0.91	<2	2	13	0.1	<10	<10	24	<10	50
DDHBQ03	BQ0173	156.41	156.95	0.005	<0.005	<0.001	<0.2	1.1	<2	<10	130	<0.5	2	0.72	<0.5	3	96	7	8.49	10	1	0.41	10	0.56	1475	1	0.11	7	340	3	0.66	<2	2	13	0.1	<10	<10	20	<10	24
DDHBQ03	BQ0174	156.95	157.69	0.006	<0.005	<0.001	<0.2	1.3	2	<10	90	<0.5	<2	1.16	<0.5	2	32	8	10.1	10	1	0.33	20	0.62	1615	1	0.15	7	390	<2	0.76	<2	2	9	0.08	<10	<10	23	<10	32
DDHBQ03	BQ0175	157.69	159.02	<0.001	<0.005	<0.001	<0.2	1.1	3	<10	160	<0.5	<2	0.78	<0.5	2	43	3	6.79	10	<1	0.47	20	0.52	1050	1	0.12	5	420	3	0.23	<2	2	12	0.11	<10	<10	19	<10	26
DDHBQ03	BQ0083	161.56	161.93	0.007	<0.005	<0.001	0.4	1.3	<2	<10	40	<0.5	<2	1.31	<0.5	20	86	74	19.2	<10	<1	0.25	10	0.67	1705	3	0.18	39	270	34	5.39	<2	2	9	0.05	<10	<10	21	<10	369
DDHBQ03	BQ0178	160.46	161.37	0.002	<0.005	<0.001	<0.2	1.1	<2	<10	130	<0.5	<2	0.96	<0.5	3	47	11	7.5	10	<1	0.41	20	0.51	1225	1	0.14	9	410	4	0.92	<2	2	13	0.1	<10	<10	22	<10	51
DDHBQ03	BQ0179	161.93	163.03	0.003	<0.005	<0.001	<0.2	1.3	5	<10	130	<0.5	<2	0.38	<0.5	2	89	12	7.12	10	<1	0.82	10	0.6	988	1	0.08	13	360	32	1.06	<2	2	11	0.14	<10	<10	22	<10	138
DDHBQ03	BQ0084	163.04	163.32	0.004	<0.005	<0.001	<0.2	0.8	<2	<10	150	<0.5	<2	0.36	<0.5	4	33	13	14.8	10	<1	0.34	10	0.34	1080	1	0.06	9	270	<2	0.95	2	1	7	0.09	<10	<10	19	<10	203
DDHBQ03	BQ0180	163.32	164.09	<0.001	<0.005	<0.001	<0.2	1	3	<10	390	<0.5	<2	0.47	<0.5	2	41	3	4.14	<10	<1	0.62	10	0.46	683	1	0.07	10	400	<2	0.25	<2	2	12	0.14	<10	<10	19	<10	43
DDHBQ03	BQ0181	164.09	165.24	0.003	<0.005	0.001	<0.2	1.3	4	<10	100	<0.5	<2	1.91	<0.5	6	76	17	7.64	10	<1	0.33	20	0.81	1730	1	0.18	24	660	5	1.62	<2	3	35	0.08	<10	<10	24	<10	48
DDHBQ03	BQ0182	165.24	166.28	0.005	<0.005	0.002	<0.2	1.3	4	<10	160	<0.5	<2	1.37	<0.5	4	102	3	5.37	10	1	0.45	10	0.59	1200	1	0.15	11	430	2	0.18	<2	2	24	0.1	<10	<10	19	<10	37
DDHBQ03	BQ0184	166.28	167.27	0.001	<0.005	<0.001	<0.2	1.2	4	<10	160	<0.5	2	1.04	<0.5	5	47	4	5.36	10	<1	0.32	20	0.48	791	1	0.13	10	440	<2	0.29	<2	2	13	0.1	<10	<10	18	<10	43
DDHBQ03	BQ0185	167.27	168.24	<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	300	<0.5	<2	0.56	<0.5	4	93	1	3.71	10	1	0.56	20	0.48	631	3	0.1	11	410	<2	0.03	<2	2	14	0.14	<10	<10	20	<10	66
DDHBQ03	BQ0186	168.24	169.07	0.001	<0.005	<0.001	<0.2	0.9	2	<10	250	<0.5	<2	0.48	<0.5	4	34	13	4.43	<10	<1	0.47	10	0.46	527	1	0.08	9	330	<2	0.66	<2	1	9	0.1	<10	<10	16	<10	108
DDHBQ03	BQ0187	169.07	170.08	<0.001	<0.005	<0.001	<0.2	0.9	5	<10	230	<0.5	<2	0.27	<0.5	3	43	1	1.94	<10	1	0.52	10	0.42	314	7	0.09	4	270	2	0.02	<2	2	15	0.12	<10	<10	17	<10	82
DDHBQ03	BQ0188	170.08	171.22	<0.001	<0.005	<0.001	<0.2	1.4	3	<10	190	<0.5	<2	1	<0.5	4	89	16	6.97	10	1	0.46	10	0.65	1155	2	0.16	13	380	<2	0.72	<2	2	12	0.1	<10	<10	18	<10	122
DDHBQ03	BQ0189	171.22	172.22	0.001	<0.005	<0.001	<0.2	1.3	5	<10	150	<0.5	<2	1.23	<0.5	7	33	29	7.33	10	1	0.27	10	0.56	1210	1	0.14	15	400	3	1.42	<2	1	7	0.08	<10	<10	14	<10	90
DDHBQ03	BQ0191	172.22	173.22	<0.001	<0.005	<0.001	<0.2	1.4	<2	<10	40	<0.5	2	1.39	<0.5	3	80	19	10.6	10	<1	0.16	10	0.56	2210	1	0.16	12	340	2	0.83	<2	1	15	0.06	<10	<10	16	<10	87
DDHBQ03	BQ0192	173.22	174.24	<0.001	<0.005	0.001	<0.2	1.1	<2	<10	30	<0.5	<2	1.32	<0.5	4	28	24	9.38	<10	1	0.13	10	0.54	1820	1	0.14	10	360	<2	1.06	<2	1	19	0.04	<10	<10	13	<10	34
DDHBQ03	BQ0193	174.24	175.25	0.001	<0.005	0.01	<0.2	1	<2	<10	<10	<0.5	5	0.97	<0.5	3	209	32	21.4	<10	1	0.07	10	0.52	3700	2	0.12	21	240	4	1.64	<2	1	19	0.05	10	<10	19	<10	37
DDHBQ03	BQ0194	175.25	176.41	<0.001	<0.005	0.001	<0.2	1.5	<2	<10	40	<0.5	2	1.45	<0.5	4	264	21	11	<10	<1	0.16	10	0.62	3400	4	0.16	22	340	5	1.02	<2	1	19	0.05	<10	<10	16	<10	33
DDHBQ03	BQ0195	176.47	177.59	<0.001	<0.005	<0.001	<0.2	1.5	<2	<10	110	<0.5	<2	1.42	<0.5	3	265	11	9.92	10	<1	0.23	20	0.69	2590	2	0.17	21	430	3	0.85	<2	2	14	0.08	<10	<10	21	<10	44
DDHBQ03	BQ0196	177.59	178.00	<0.001	<0.005	<0.001	0.3	1.7	<2	<10	50	<0.5	3	1.92	<0.5	4	186	60	15	<10	1	0.28	10	1.08	3120	2	0.31	63	310	5	4.36	3	2	15	0.06	<10	<10	17	<10	88
DDHBQ03	BQ0085	178.00	178.95	0.019	0.005	0.001	0.6	1.1	6	<10	60	<0.5	<2	1.11	<0.5	7	44	103	19.8	<10	<1	0.21	10	0.61	2680	3	0.17	108	360	<2	6.6	<2	2	12	0.05	<10	<10	12	<10	54
DDHBQ03	BQ0198	178.95	180.00	0.001	<0.005	<0.001	0.2	1.6	<2	<10	120	<0.5	<2	1.42	<0.5	2	201	26	15.2	10	<1	0.41	10	0.84	2980	2	0.21	34	320	3	2.24	<2	2	10	0.08	<10	<10	21	<10	76
DDHBQ03	BQ0199	180.00	180.88	<0.001	<0.005	<0.001	<0.2	1.7	4	<10	130	<0.5	3	1.18	<0.5	4	236	13	9.56	10	<1	0.53	20	0.71	1985	2	0.14	19	410	<2	0.56	<2	2	8	0.11	<10	<10	22	<10	49
DDHBQ03	BQ0200	180.88	181.88	<0.001	<0.005	<0.001	<0.2	0.9	3	<10	60	<0.5	<2	0.61	<0.5	4	252	14	4.43	10	<1	0.35	20	0.37	814	1	0.1	19	420	<2	0.3	<2	2	9	0.12	<10	<10	21	<10	36
DDHBQ03	BQ0201	181.88	182.91	<0.001	<0.005	<0.001	<0.2	0.8	2	<10	70	<0.5	<2	0.5	<0.5	5	228	7	3.57	<10	<1	0.29	20	0.34	699	4	0.09	21	400	<2	0.13	<2	2	7	0.12	<10	<10	23	<10	80
DDHBQ03	BQ0202	182.91	183.78	<0.001	<0.005	<0.001	<0.2	0.8	<2	<10	90	<0.5	<2	0.62	<0.5	4	220	4	3.62	<10	2	0.26	20	0.35	646	2	0.11	12	400	<2	0.02	2	2	7	0.11	<10	<10	23	<10	40
DDHBQ03	BQ0203	183.78	184.68	<0.001	<0.005	<0.001	<0.2	0.8	<2	<10	70	<0.5	<2	0.76	<0.5	2	216	3	4.04	<10	2	0.21	20	0.33	805	1	0.12	9	410	<2	0.02	<2	2	9	0.09	<10	<10	19	<10	33
DDHBQ03	BQ0205	184.68	186.00	<0.001	<0.005	<0.001	<0.2	1.3	<2	<10	50	<0.5	<2	1.28	<0.5	6	273	25	7.33	10	<1	0.2	10	0.47	1615	3	0.15	18	340	<2	0.79	<2	2	8	0.07	10	<10	21	<10	88
DDHBQ03	BQ0206	186.00	187.01	<0.001	<0.005	<0.001	<0.2	1.2	<2	<10	140	<0.5	2	1.02	<0.5	5	235	20	6.96	<10	<1	0.42	10	0.49	1255	2	0.1	18	360	<2	1.72	<2	2	9	0.1	<10	<10	17	<10	73
DDHBQ03	BQ0207	187.01	188.00	<0.001	<0.005	<0.001	0.2	1.3	<2	<10	130	<0.5	<2	1.26	<0.5	5	202	24	8	10	2	0.48	10	0.58	1430	3	0.11	21	310	<2	2.25	<2	2	11	0.1	<10	<10	18	<10	52
DDHBQ03	BQ0208	188.00	188.70	<0.001	<0.005	<0.001	<0.2	1.3	<2	<10	110	<0.5	<2	0.89	<0.5	10	246	32	9.72	10	<1	0.62	10	0.57	1550	2	0.11	20	380	3	2.73	<2	2	9	0.11	10	<10	19	<10	40
DDHBQ03	BQ0209	188.70	189.70	<0.001	<0.005	<0.001	<0.2	1.7	<2	<10	30	<0.5	2	1.72	1.1	6	206	25	14.5	10	1	0.24	10	0.67	3620	4	0.19	18	330	19	2.05	<2	2	24	0.05	10	<10	18	<10	566
DDHBQ03	BQ0210	189.70	190.71	0.001	<0.005	<0.001	<0.2	1.4	3	<10	30	<0.5	2	1.62	<0.5	3	242	24	18.3	10	1	0.17	10	0.69	3380	2	0.17	17	230	5	1.95	<2	1	27	0.05	<10	<10	19	<10	66
DDHBQ03	BQ0212	190.71	191.02	<0.001	<0.005	<0.001	<0.2	1.2	<2	<10	110	<0.5	3	1.17	<0.5	1	235	25	12.2	10	<1	0.32	10	0.58	2230	2	0.1	16	320	<2	1.96	<2	2	17	0.07	<10	<10	23	<10	43
DDHBQ03	BQ0213	191.02	192.00	<0.001	<0.005	<0.001	<0.2	1.4	<2	<10	120	<0.5	3	1.1	<0.5	7	260	23	10.4	10	<1	0.47	10	0.66	2080	4	0.13	19	360	102	2.14	<2	2	13	0.11	<10	<10	24	<10	149
DDHBQ03	BQ0214	192.00	192.36	0.001	<0.005	<0.001	0.3	1.6	<2	<10	30	<0.5	<2	1.62	1.2	8	232	35	10.1	10	1	0.27	10	0.73	2250	1	0.17	24	350	65	2.68	<2	2	9	0.07	<10	<10	18	<10	671
DDHBQ03	BQ0215	192.36	193.66	<0.001	<0.005	<0.001	<0.2	1.3	2	<10	230	<0.5	<2	1.14	<0.5	9	176	5	2.45	10	1	0.82	20	0.99	404	2	0.1	26	780	<2	0.07	<2	3	31	0.18	<10	<10	41	<10	67
DDHBQ03	BQ0216	193.66	194.84	<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	170	<0.5	<2	0.9	<0.5	9	159	12	2.11	<10	<1	0.75	20	0.89	355	2	0.09	24	910	<2	0.1	<2	2	25	0.16	<10	<10	37	<10	49
DDHBQ03	BQ0217	194.86	195.57	<0.001	<0.005	<0.001	0.2	1.1	<2	<10	130	<0.5	<2	0.53	<0.5	4	209	21	6.95	10	1	0.62	10	0.57	1230	1	0.11	26	340	2	1.73	<2	2	9	0.13	<10	<10	23	<10	120
DDHBQ03	BQ0218	195.57	195.72	0.005	<0.005	<0.001	0.5	1.5	<2	<10	30	<0.5	3	0.39	<0.5	3	251	105	16.4	<10	1	0.88	10	0.62	3150	3	0.05	107	370	4	5.08	<2	4	6	0.15	10	<10	25	<10	170
DDHBQ03	BQ0219	195.72	196.72	<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	100	<0.5	<2	0.58	<0.5	3	217	15	6.92	10	<1	0.56	10	0.55	1355	1	0.1	21	330	<2	1.24	<2	2	8	0.12	<10	<10	22	<10	320

Hole Number	Sample Number	From (m)	To (m)	Au ppm	Pt ppm	Pd ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
DDHBQ03	BQ0220	196.72	197.51	0.002	<0.005	<0.001	0.2	1.2	<2	<10	50	<0.5	2	1.16	<0.5	11	196	44	11	10	1	0.33	20	0.58	2110	2	0.17	59	350	5	3.71	<2	2	6	0.08	<10	<10	19	<10	510
DDHBQ03	BQ0221	197.51	198.54	<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	140	<0.5	<2	0.74	<0.5	6	196	18	6.71	10	1	0.51	20	0.52	1220	1	0.11	31	350	<2	1.65	<2	2	11	0.13	<10	<10	22	<10	581
DDHBQ03	BQ0223	198.54	199.76	<0.001	<0.005	<0.001	<0.2	1.9	<2	<10	1020	<0.5	<2	0.85	<0.5	13	257	7	3.2	10	2	1.16	20	1.84	586	1	0.12	72	690	<2	0.07	<2	4	16	0.25	<10	<10	60	<10	87
DDHBQ03	BQ0086	201.30	202.09	0.019	0.008	0.019	0.9	1	<2	<10	10	<0.5	<2	0.58	<0.5	164	162	88	19.5	<10	<1	0.55	10	1.18	716	2	0.1	149	270	<2	>10.0	2	2	5	0.06	<10	<10	19	<10	126
DDHBQ03	BQ0225	202.09	203.11	<0.001	<0.005	<0.001	<0.2	1.4	<2	<10	90	<0.5	2	1.26	<0.5	2	270	16	7.01	10	<1	0.32	30	0.54	3640	3	0.1	18	630	2	0.37	<2	2	20	0.11	<10	<10	23	<10	61
DDHBQ03	BQ0226	203.11	203.92	<0.001	<0.005	0.001	<0.2	2.8	<2	<10	1440	<0.5	<2	0.82	<0.5	21	278	2	3.67	10	2	1.94	10	3.03	415	2	0.13	126	650	4	0.02	<2	6	14	0.29	<10	<10	81	<10	54
DDHBQ03	BQ0087	294.23	295.17	0.014	0.01	0.018	0.7	0.9	<2	<10	10	0.5	<2	1.31	<0.5	84	552	342	7.19	<10	<1	0.13	10	0.77	686	1	0.16	625	500	3	3.96	<2	8	19	0.19	<10	<10	43	<10	74
DDHBQ03	BQ0088	302.70	303.67	0.021	<0.005	0.01	1.2	1.1	2	<10	50	<0.5	<2	0.99	<0.5	102	669	781	11.1	<10	<1	0.41	<10	1.15	610	2	0.18	992	240	<2	4.77	<2	10	8	0.2	<10	<10	74	<10	126
DDHBQ03	BQ0089	303.67	304.55	0.035	<0.005	0.009	0.9	1.3	5	<10	10	<0.5	2	1.92	<0.5	90	379	564	9.18	<10	1	0.13	<10	1.06	575	2	0.27	849	370	9	4.01	<2	8	54	0.14	<10	<10	63	<10	106
DDHBQ03	BQ0090	304.55	305.12	0.024	0.009	0.008	0.7	0.6	<2	<10	<10	<0.5	3	1.38	<0.5	80	151	464	9.2	<10	1	0.06	<10	0.65	335	1	0.15	718	350	5	4.14	<2	4	33	0.12	<10	<10	36	<10	56
DDHBQ03	BQ0241	334.73	334.78	0.007	<0.005	0.002	0.2	4.3	2	<10	50	<0.5	<2	0.25	<0.5	10	133	112	10.4	20	3	3.68	<10	3.06	975	1	0.08	205	80	2	2.11	3	8	14	0.6	<10	<10	102	<10	182
DDHBQ03	BQ0242	334.78	336.55	<0.001	<0.005	<0.001	<0.2	1.2	<2	<10	140	<0.5	<2	0.54	<0.5	<1	118	2	1.82	10	<1	0.68	<10	0.65	309	1	0.1	18	190	7	0.05	<2	2	20	0.11	<10	<10	18	<10	43
DDHBQ03	BQ0243	336.55	337.53	0.001	<0.005	0.001	0.5	3.9	3	<10	70	<0.5	<2	0.29	<0.5	37	602	31	8.87	20	2	3.09	<10	2.9	1060	2	0.08	97	210	3	1.85	2	7	14	0.48	<10	<10	86	<10	209
DDHBQ03	BQ0244	337.93	339.06	<0.001	<0.005	0.001	0.2	1.9	<2	<10	270	<0.5	<2	0.77	<0.5	<1	69	2	3.16	10	1	1.12	<10	1.34	500	1	0.12	15	540	<2	0.14	<2	3	25	0.18	<10	<10	26	<10	77
DDHBQ03	BQ0095	337.53	337.93	0.008	<0.005	<0.001	0.9	4.6	2	<10	50	<0.5	3	0.34	<0.5	12	100	176	21.6	20	<1	4.29	<10	3.45	1210	1	0.03	145	60	10	3.72	<2	9	5	0.68	10	<10	114	<10	523
DDHBQ03	BQ0096	339.07	339.45	0.011	<0.005	<0.001	2.2	3.1	<2	<10	40	<0.5	4	0.44	<0.5	10	56	317	30.9	10	<1	2.72	<10	2.33	1135	4	0.04	265	410	5	6.29	<2	7	7	0.43	10	<10	64	<10	138
DDHBQ03	BQ0097	339.45	340.21	0.032	0.008	0.011	2.6	0.6	<2	<10	30	<0.5	6	1.12	<0.5	19	54	332	29.9	<10	<1	0.19	10	0.78	640	5	0.1	304	180	5	7.54	<2	2	11	0.03	<10	<10	13	<10	33
DDHBQ03	BQ0098	340.21	340.75	0.11	<0.005	0.005	2.8	0.6	<2	<10	20	<0.5	8	1.18	<0.5	42	108	346	28.2	<10	<1	0.08	10	0.46	2170	6	0.05	279	120	8	7.48	<2	2	22	0.02	<10	<10	14	<10	25
DDHBQ03	BQ0099	340.75	341.75	0.011	<0.005	0.001	0.8	0.2	8	<10	<10	<0.5	4	0.44	<0.5	17	152	83	23.1	<10	<1	0.01	<10	0.41	1175	3	0.03	76	90	8	3.93	3	1	7	0.02	<10	<10	14	<10	67
DDHBQ03	BQ0100	341.75	342.32	0.018	<0.005	0.001	1.3	0.8	2	<10	30	<0.5	4	0.53	<0.5	39	131	125	28.7	<10	1	0.05	10	0.27	3130	2	0.04	116	180	26	5.27	<2	1	5	0.04	<10	<10	23	<10	87
DDHBQ03	BQ0101	342.32	342.69	0.035	<0.005	0.001	2.1	0.6	<2	<10	10	<0.5	5	1.31	<0.5	150	131	193	28.6	<10	1	0.07	10	0.57	995	2	0.11	179	170	22	9.08	<2	2	32	0.03	<10	<10	26	<10	51
DDHBQ03	BQ0102	342.69	342.95	0.005	<0.005	<0.001	1.1	0.7	8	<10	<10	<0.5	2	0.87	<0.5	9	245	37	9.34	<10	1	0.04	10	0.4	4080	1	0.05	104	230	4	1.66	<2	1	15	0.03	<10	<10	20	<10	50
DDHBQ03	BQ0103	342.95	343.41	0.008	<0.005	0.014	1.5	1	4	<10	90	<0.5	3	0.9	0.5	5	115	196	22.8	<10	<1	0.27	10	0.75	2620	1	0.1	198	260	10	6.47	<2	2	12	0.06	<10	<10	23	<10	50
DDHBQ03	BQ0104	343.41	344.41	0.001	<0.005	<0.001	0.8	1.3	4	<10	120	<0.5	2	0.52	<0.5	6	138	88	12.6	10	<1	0.54	20	0.89	1815	<1	0.1	87	380	9	3.66	<2	2	12	0.12	<10	<10	26	<10	56
DDHBQ03	BQ0105	344.41	345.00	0.011	<0.005	<0.001	1.4	1.5	2	<10	20	0.7	4	1.93	<0.5	16	94	150	24.2	10	1	0.21	10	1.03	3020	2	0.24	116	260	15	5	<2	3	17	0.05	<10	<10	23	<10	102
DDHBQ03	BQ0106	345.00	346.00	0.029	<0.005	<0.001	1.2	1.5	6	<10	20	0.6	3	1.76	<0.5	39	158	102	19.2	<10	3	0.2	10	0.95	3480	1	0.22	94	260	14	4.61	<2	3	15	0.05	<10	<10	23	<10	93
DDHBQ03	BQ0107	346.00	347.00	0.016	<0.005	0.001	1.4	1.2	3	<10	20	<0.5	3	1.26	<0.5	9	192	146	19.4	<10	1	0.14	10	0.62	3750	2	0.16	118	290	8	4.61	<2	3	14	0.04	<10	<10	21	<10	75
DDHBQ03	BQ0108	347.00	348.00	0.024	<0.005	<0.001	1.2	1.1	<2	<10	100	<0.5	<2	0.63	<0.5	33	132	110	14.2	10	<1	0.55	10	0.66	1405	<1	0.12	110	320	8	4.37	3	3	12	0.11	<10	<10	25	<10	64
DDHBQ03	BQ0109	348.00	348.66	0.017	<0.005	0.001	1.6	1	<2	<10	80	<0.5	5	0.64	<0.5	28	113	156	17.8	<10	<1	0.44	10	0.59	1265	<1	0.12	158	310	11	5.68	<2	2	13	0.1	<10	<10	24	<10	50
DDHBQ03	BQ0110	348.66	348.96	0.008	<0.005	<0.001	1.7	1.5	<2	<10	90	<0.5	2	1	<0.5	12	168	177	19.4	<10	<1	0.3	20	0.59	6290	2	0.07	154	320	12	5.15	2	2	20	0.08	<10	<10	24	10	45
DDHBQ03	BQ0111	348.96	349.86	0.059	<0.005	0.001	3.2	0.7	6	<10	10	<0.5	7	1	<0.5	26	62	424	33.5	<10	<1	0.09	10	0.45	1725	2	0.11	243	190	17	6.32	<2	2	36	0.03	<10	<10	28	<10	55
DDHBQ03	BQ0112	349.86	350.64	0.005	0.005	<0.001	1.2	1.5	<2	<10	30	<0.5	<2	1.37	<0.5	20	151	135	15.3	<10	<1	0.19	20	0.62	4940	2	0.14	118	230	9	4.44	<2	2	19	0.04	<10	<10	19	<10	45
DDHBQ03	BQ0091	351.10	351.68	0.004	<0.005	<0.001	0.9	1.2	5	<10	30	<0.5	3	1.17	<0.5	9	44	97	9.53	<10	1	0.21	10	0.56	2830	1	0.14	77	390	6	3.17	<2	2	11	0.06	<10	<10	19	<10	43
DDHBQ03	BQ0092	352.44	353.26	0.008	<0.005	<0.001	0.9	1	<2	<10	80	<0.5	3	0.81	<0.5	14	75	76	11.2	<10	1	0.31	10	0.49	1025	1	0.14	81	410	4	3.3	<2	3	19	0.1	<10	<10	26	<10	52
DDHBQ03	BQ0093	353.23	354.80	0.004	<0.005	<0.001	0.6	1.1	4	<10	20	<0.5	2	1.18	<0.5	6	28	66	9.58	<10	<1	0.2	20	0.57	1415	1	0.18	63	410	3	2.79	<2	2	12	0.05	<10	<10	25	<10	48
DDHBQ03	BQ0224	350.72	351.09	<0.001	<0.005	<0.001	0.2	1.1	<2	<10	80	<0.5	<2	0.73	<0.5	42	231	22	7.57	<10	1	0.48	20	0.56	1540	1	0.11	44	430	3	2.98	<2	3	11	0.14	<10	<10	30	<10	376
DDHBQ03	BQ0227	351.67	352.44	<0.001	<0.005	<0.001	0.2	1.3	3	<10	50	<0.5	<2	1.18	<0.5	3	232	25	9.47	10	1	0.28	20	0.59	2550	1	0.13	32	480	<2	1.07	<2	2	12	0.09	<10	<10	32	<10	72
DDHBQ03	BQ0228	353.21	353.21	<0.001	0.008	<0.001	<0.2	1	<2	<10	60	<0.5	<2	0.84	<0.5	2	243	8	6.59	10	1	0.29	20	0.44	1570	2	0.12	18	410	<2	0.27	<2	2	14	0.1	<10	<10	27	<10	50
DDHBQ03	BQ0229	354.80	355.82	0.003	<0.005	0.001	0.3	1.7	<2	<10	160	<0.5	<2	1.88	<0.5	16	172	31	5.05	10	<1	0.68	10	1.5	1005	1	0.23	26	1100	4	1.32	<2	8	28	0.17	<10	<10	71	<10	53
DDHBQ03	BQ0231	355.82	356.66	<0.001	<0.005	0.001	<0.2	1.2	<2	<10	60	<0.5	<2	2.02	<0.5	14	184	43	2.95	<10	1	0.39	10	1.42	706	1	0.22	28	1060	2	0.24	<2	8	21	0.14	<10	<10	64	<10	38
DDHBQ03	BQ0232	356.67	357.67	<0.001	<0.005	<0.001	<0.2	1	<2	<10	130	<0.5	<2	0.95	<0.5	3	241	11	5.17	10	1	0.47	20	0.53	1275	3	0.12	21	380	<2	0.58	<2	3	17	0.13	<10	<10	25	<10	50
DDHBQ03	BQ0233	357.67	358.68	0.003	<0.005	<0.001	0.3	0.9	4	<10	130	<0.5	2	0.93	<0.5	3	195	26	6.53	10	1	0.51	20	0.47	1340	1	0.08	30	380	2	1.44	<2	2	17	0.13	<10	<10	26	<10	51
DDHBQ03	BQ0234	358.68	359.69	0.061	<0.005	<0.001	0.3	1	<2	<10	150	<0.5	<2	0.83	<0.5	4	211	36	6.32	10	<1	0.57	20	0.47	1090	2	0.09	39	380	<2	1.92	2	3	25	0.14	<10	<10	26	<10	53
DDHBQ03	BQ0235	359.69	360.70	<0.001	<0.005	<0.001	0.2	1	<2	<10	260	<0.5	<2	0.93	<0.5	3	242	22	4.44	<10	1	0.67	20	0.48	1020	1	0.07	24	340	4	1.04	<2	2	16	0.14	<10	<10	23	<10	56
DDHBQ03	BQ0237	360.70	361.70	<0.001	<0.005	<0.001	<0.2	0.9	<2	<10	100	<0.5	2	1.06	<0.5	3	229	14	5.11	<10	1	0.42	20	0.48	1130	2	0.11	24	340	<2	0.77	<2	2	11	0.11	<10	<10	20	<10	66
DDHBQ03	BQ0238	361.70	362.70	<0.001	<0.005	<0.001	0.2	1.1	<2	<10	120	<0.5	<2	0.94	<0.5	3	220	17	6.07	10	1	0.56	20	0.53	1235	2	0.11	24	360	<2	1.08	<2	3	12	0.13	<10	<10	25	<10	60
DDHBQ03	BQ0239	362.70	362.82	0.008	<0.005	<0.001	1.7	1.8	<2	<10	50	0.6	5	1.97	<0.5	3	223	179	18.1	10	2	0.41	10	1.02	1680	2	0.25	91	210	7	5.04	<2	5	25	0.06	<10	<10	25	<10	76
DDHBQ04	BQ0094	79.31	79.85	0.004	<0.005	<0.001	0.4	1.1	2	<10	30	<0.5	2	0.63	<0.5	20	75	127	8.78	10	<1	0.75	10	1.03	596	5	0.08	43	670	3	4.77	<2	8	6	0.15	<10	<10	58	<10	118
DDHBQ04	BQ0114	80.64	81.00	0.004	<0.005	<0.001	0.5	0.8	<2	<10	30	<0.5	2	0.3	<0.5	31	72	213	11.9	<10	<1	0.49	10	0.6	304	2	0.09	68	480	3	6.05	<2	5	8	0.11	10	<10	38	<10	79
DDHBQ04	BQ0115	81.22	81.78	0.019	<0.005	0.001	0.9	0.8	5	<10	50	<0.5	3	0.38	<0.5	37	39	271	15	<10	<1	0.49	10	0.59	357	2	0.07	88	710	6	6.42	<2	7	6	0.14	<10	<10	48	<10	140
DDHBQ04	BQ0116	82.08	82.94	0.011	<0.005	0.001	1.2	0.6	2	<10	30	<0.5	4	0.39	<0.5	53	49	365	21.6	<10	<1	0.32	<10	0.41	325	2	0.06	127	550	8	6.44	<2	6	9	0.13	10	<10	61	<10	89
DDHBQ04	BQ0117	83.02	83.48	0.016	<0.005	0.003	1.3	0.5	<2	<10	20	<0.5	7	1.04	<0.5	63	54	556	28.1	<10	<1	0.15	<10	0.31	465	1	0.07	158	650	16	6.05	<2	3	13	0.14	10	<10	43	<10	50
DDHBQ04	BQ0118	86.70	87.10	0.007	<0.005	0.001	0.6	1	4	<10	60	<0.5	<2	1.9	<0.5	79	72	415	10.4	<10	<1	0.21	10	0.38	290	2	0.14	319	510	7	4.7	<2	3	66	0.15	<10	<10	29	<10	408
DDHBQ04	BQ0121	95.45	95.96	0.008	<0.005	0.001	0.7	0.7	9	<10	40	<0.5	3	2.88	<0.5	68	60	255	9.28	<10	<1	0.25	10	0.69	394	2	0.1	215	470	3	4.11	<2	4	51	0.14	<10	<10	32	<10	60
DDHBQ04	BQ0122	103.62	103.89	0.056	<0.005	0.002	1.4	0.8	3	<10	30	<0.5	4	0.56	<0.5	29	88	502	19.6	<10	1	0.28	<10	0.68	427	2	0.08	202	360	10	6.34	<2	11	7	0.15	10	<10	86	<10	194
DDHBQ04	BQ0123	151.39	152.24	0.005	<0.005	<0.001	0.3	2.1	<2	<10	200	0.5	<2	2.78	<0.5	30	23	52	5.78	10	1	0.52	40	1.03	892	1	0.21	21	2810	15	0.75	4	8	69	0.23	<10	<10	91	<10	331
DDHBQ04	BQ0124	152.24	153.06	0.018	<0.005	<0.001	0.4	2.3	<2	<10	90	0.5	2	2.7	<0.5	51	20	207	8.98	10	2	0.6	40	1.19	957	1	0.28	45	2700	12	2.73	<2	10	44	0.25	<10	<10	97	<10	248
DDHBQ04	BQ0125	153.06	153.88	0.005	<0.005	<0.001	<0.2	1.5	4	<10	100	<0.5	<2	0.67	<0.5	20	62	114	4.8	10	1	1.07	30	0.77	407	1	0.12	28	1920	8	1.19	<2	10	31	0.32	<10	<10	102	<10	178

Hole Number	Sample Number	From (m)	To (m)	Au ppm	Pt ppm	Pd ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
DDHBQ04	BQ0126	153.88	155.08	0.003	<0.005	<0.001	<0.2	2	<2	<10	140	<0.5	<2	1.83	<0.5	25	22	121	5.96	10	1	0.97	50	1.1	822	1	0.2	29	3110	11	1.18	<2	8	32	0.31	<10	<10	103	<10	470
DDHBQ04	BQ0127	177.34	178.60	0.005	<0.005	<0.001	0.2	2.4	<2	<10	120	0.6	2	2.82	<0.5	23	25	97	8.21	10	1	0.57	40	1.42	1550	2	0.31	31	2640	7	1.86	<2	7	39	0.24	<10	<10	79	<10	195
DDHBQ05	BQ0129	48.59	49.20	0.004	<0.005	<0.001	<0.2	1	<2	<10	40	<0.5	3	0.52	<0.5	4	34	30	7.49	<10	<1	0.71	20	0.5	652	1	0.08	12	480	2	2.7	<2	2	12	0.16	<10	<10	27	<10	51
DDHBQ05	BQ0130	53.95	54.56	0.005	<0.005	<0.001	<0.2	0.9	2	<10	80	<0.5	2	0.24	<0.5	4	55	20	7.02	10	<1	0.61	10	0.47	804	1	0.07	9	390	3	1.78	<2	2	10	0.16	<10	<10	29	<10	56
DDHBQ05	BQ0131	54.56	55.68	0.005	<0.005	<0.001	<0.2	1.1	2	<10	80	<0.5	2	0.29	<0.5	6	83	18	7.68	10	<1	0.7	20	0.57	933	1	0.11	13	450	2	2.05	<2	3	10	0.17	<10	<10	31	<10	47
DDHBQ05	BQ0132	55.68	57.34	0.006	<0.005	<0.001	0.2	1.4	<2	<10	30	<0.5	3	0.76	<0.5	21	48	35	12.1	10	<1	0.82	20	0.87	927	1	0.11	18	780	4	3.92	<2	4	10	0.17	10	<10	46	<10	59
DDHBQ05	BQ0134	56.64	57.34	0.004	<0.005	<0.001	<0.2	1.2	3	<10	50	<0.5	3	0.38	<0.5	5	83	20	8.08	10	<1	0.77	20	0.63	969	1	0.09	11	470	<2	2.08	<2	3	14	0.16	<10	<10	31	<10	50
DDHBQ05	BQ0135	57.34	58.08	0.001	<0.005	<0.001	<0.2	1.3	<2	<10	70	<0.5	<2	0.44	<0.5	4	42	15	7.24	10	<1	0.92	20	0.78	916	1	0.08	9	540	<2	1.74	<2	3	8	0.17	<10	<10	34	<10	59
DDHBQ05	BQ0136	58.08	58.75	0.002	<0.005	<0.001	<0.2	1.1	<2	<10	130	<0.5	<2	0.23	<0.5	7	55	10	5.5	10	<1	0.72	20	0.54	733	1	0.08	7	410	3	1.3	<2	2	9	0.17	<10	<10	26	<10	48
DDHBQ05	BQ0137	58.75	59.42	<0.001	<0.005	<0.001	<0.2	0.4	4	<10	70	<0.5	<2	0.44	<0.5	2	146	7	5.26	<10	1	0.18	<10	0.25	323	2	0.05	8	190	2	0.79	<2	1	5	0.05	<10	<10	17	<10	34
DDHBQ05	BQ0138	59.42	60.50	0.003	<0.005	<0.001	<0.2	1.4	3	<10	30	<0.5	3	0.28	<0.5	7	44	26	9.34	10	1	1.02	10	0.81	1170	1	0.07	15	470	<2	2.88	<2	3	6	0.18	<10	<10	35	<10	69
DDHBQ05	BQ0139	60.50	61.50	0.003	<0.005	<0.001	<0.2	1.2	2	<10	30	<0.5	3	0.32	<0.5	4	47	25	8.86	10	1	0.79	10	0.65	892	1	0.08	12	410	2	2.8	<2	2	10	0.16	<10	<10	29	<10	65
DDHBQ05	BQ0140	61.50	62.48	0.003	<0.005	<0.001	<0.2	1.2	<2	<10	40	<0.5	2	0.42	<0.5	10	107	14	6.19	10	1	0.75	20	0.61	829	2	0.11	9	450	<2	2.16	<2	3	18	0.17	<10	<10	28	<10	55
DDHBQ05	BQ0141	62.48	63.10	0.003	<0.005	0.001	<0.2	2.2	2	<10	320	0.5	<2	2.12	<0.5	10	104	5	6.7	10	<1	1.18	30	1.64	841	<1	0.2	21	2330	<2	0.77	<2	8	16	0.27	<10	<10	85	<10	142
DDHBQ05	BQ0142	63.10	64.40	0.003	<0.005	<0.001	<0.2	1.3	6	<10	60	<0.5	<2	0.57	<0.5	5	55	15	6.78	10	1	0.84	20	0.71	741	1	0.1	10	490	4	2.21	<2	3	21	0.18	<10	<10	33	<10	80
DDHBQ05	BQ0143	64.40	65.44	0.003	<0.005	<0.001	<0.2	1.3	3	<10	70	<0.5	3	0.66	<0.5	15	91	16	7.31	10	1	0.73	20	0.7	1095	2	0.1	12	510	4	2.8	<2	3	12	0.15	<10	<10	32	<10	80
DDHBQ05	BQ0145	65.44	66.40	0.004	<0.005	<0.001	<0.2	1.1	<2	<10	80	<0.5	2	0.57	<0.5	3	51	20	8.41	<10	<1	0.56	20	0.56	882	1	0.1	11	400	3	2.68	<2	2	11	0.14	<10	<10	27	<10	78
DDHBQ05	BQ0159	66.40	66.50	0.024	<0.005	<0.001	0.8	0.5	<2	<10	10	<0.5	15	0.51	<0.5	120	21	35	31.9	<10	1	0.13	<10	0.23	434	2	0.07	18	100	17	>10.0	<2	1	14	0.03	<10	<10	16	<10	35
DDHBQ05	BQ0147	66.47	67.52	0.009	<0.005	<0.001	0.2	1.3	<2	<10	50	<0.5	2	1.02	<0.5	8	37	27	8.97	<10	1	0.49	20	0.55	1230	1	0.15	15	430	5	4.05	<2	2	51	0.14	<10	<10	24	<10	61
DDHBQ05	BQ0148	67.32	68.52	0.004	<0.005	<0.001	<0.2	1.2	<2	<10	70	<0.5	<2	0.8	<0.5	4	48	21	7.89	10	1	0.64	20	0.58	977	1	0.1	13	400	4	2.92	<2	2	14	0.15	<10	<10	26	<10	64
DDHBQ05	BQ0149	68.52	69.19	0.003	<0.005	<0.001	<0.2	1	3	<10	90	<0.5	2	0.81	<0.5	9	104	20	5.05	<10	1	0.61	10	0.44	801	2	0.09	8	400	5	1.89	<2	2	17	0.14	<10	<10	24	<10	55
DDHBQ05	BQ0150	69.46	70.32	0.005	<0.005	<0.001	<0.2	1.1	<2	<10	40	<0.5	2	1.17	<0.5	3	36	18	6.32	10	1	0.71	20	0.6	948	1	0.06	10	490	2	2.48	<2	3	27	0.16	<10	<10	30	<10	55
DDHBQ05	BQ0151	70.32	71.08	0.003	<0.005	<0.001	0.3	1.3	3	<10	100	<0.5	3	2.07	<0.5	<1	33	20	9.21	10	1	0.3	10	0.58	1275	1	0.06	11	370	4	3.1	<2	2	36	0.05	<10	<10	20	<10	74
DDHBQ05	BQ0152	71.08	72.32	0.005	<0.005	<0.001	<0.2	1.2	2	<10	60	<0.5	3	0.52	<0.5	5	78	21	9.21	<10	1	0.71	20	0.73	1215	1	0.1	12	380	<2	2.45	<2	2	7	0.13	<10	<10	24	<10	99
DDHBQ05	BQ0161	73.72	74.17	<0.001	<0.005	<0.001	0.3	1.2	<2	<10	40	<0.5	4	1.54	<0.5	1	61	48	19	10	1	0.31	10	0.71	2000	2	0.12	28	400	4	5.25	<2	3	12	0.09	10	<10	34	<10	94
DDHBQ05	BQ0154	87.30	88.23	0.002	<0.005	<0.001	0.2	0.9	<2	<10	50	<0.5	3	1.11	<0.5	7	64	26	8.82	<10	1	0.27	10	0.45	1730	2	0.09	11	310	3	2.98	<2	1	6	0.06	<10	<10	13	<10	38
DDHBQ05	BQ0155	88.20	89.76	0.004	<0.005	<0.001	<0.2	1.3	4	<10	40	<0.5	6	1.48	<0.5	25	91	31	12.1	10	1	0.32	10	0.61	2260	2	0.15	15	370	4	4.06	<2	2	8	0.08	10	<10	20	<10	52
DDHBQ05	BQ0156	89.90	90.75	0.006	<0.005	<0.001	0.4	1.3	4	<10	20	<0.5	8	1.54	<0.5	19	26	54	18.8	10	2	0.27	10	0.61	2440	2	0.15	23	300	6	5.6	<2	1	6	0.06	<10	<10	22	<10	51
DDHBQ05	BQ0157	90.75	91.79	0.004	<0.005	0.001	0.2	1.3	<2	<10	40	<0.5	6	1.52	<0.5	10	51	32	11.7	<10	1	0.3	10	0.59	2580	2	0.14	15	330	5	3.67	<2	1	7	0.07	<10	<10	16	<10	49
DDHBQ05	BQ0158	91.79	92.73	0.002	<0.005	<0.001	0.2	1.5	2	<10	110	<0.5	3	1.11	<0.5	3	86	22	10.2	10	1	0.59	10	0.71	1895	1	0.14	12	350	3	2.62	<2	2	7	0.11	<10	<10	19	<10	59
DDHBQ05	BQ0247	94.50	95.66	<0.001	<0.005	<0.001	<0.2	1.4	<2	<10	130	<0.5	<2	1.42	<0.5	5	217	10	6.85	10	1	0.6	20	0.58	1730	2	0.1	13	360	<2	1.34	<2	2	12	0.13	<10	<10	19	<10	50
DDHBQ05	BQ0248	95.66	96.67	<0.001	<0.005	<0.001	<0.2	1	<2	<10	90	<0.5	<2	1.06	<0.5	4	231	9	6.5	10	1	0.43	20	0.43	1435	2	0.07	14	420	<2	1.16	<2	2	30	0.1	<10	<10	19	<10	41
DDHBQ05	BQ0249	96.67	97.70	<0.001	<0.005	<0.001	<0.2	1.4	<2	<10	170	<0.5	<2	0.64	<0.5	3	225	6	6.44	10	<1	0.72	20	0.58	1480	1	0.09	13	380	<2	0.57	<2	2	8	0.15	<10	<10	27	<10	49
DDHBQ05	BQ0250	97.70	99.10	<0.001	<0.005	<0.001	<0.2	1	<2	<10	90	<0.5	<2	0.8	<0.5	9	54	9	6.63	10	<1	0.49	20	0.46	1050	<1	0.07	6	360	<2	1.38	<2	1	6	0.11	<10	<10	18	<10	44
DDHBQ05	BQ0251	99.10	99.85	<0.001	<0.005	<0.001	<0.2	0.9	<2	<10	150	<0.5	<2	0.53	<0.5	3	42	5	4.78	<10	<1	0.52	10	0.41	787	1	0.04	4	260	10	0.79	<2	1	8	0.13	<10	<10	18	<10	104
DDHBQ05	BQ0252	99.85	100.39	<0.001	<0.005	<0.001	<0.2	1.3	<2	<10	100	<0.5	<2	0.85	<0.5	2	108	6	6.27	10	<1	0.57	20	0.56	1125	1	0.12	11	400	<2	0.69	<2	2	7	0.13	<10	<10	22	<10	48
DDHBQ05	BQ0254	100.39	101.19	<0.001	<0.005	<0.001	<0.2	1.4	<2	<10	70	<0.5	3	1.54	<0.5	10	114	29	11	10	1	0.41	20	0.53	1565	1	0.15	20	330	<2	3.44	<2	2	12	0.09	<10	<10	22	<10	45
DDHBQ05	BQ0255	111.58	112.41	<0.001	<0.005	<0.001	<0.2	1.6	<2	<10	30	<0.5	<2	1.5	<0.5	8	103	22	9.31	10	1	0.33	20	0.59	1700	1	0.18	15	430	<2	2.12	<2	2	8	0.09	<10	<10	19	<10	42
DDHBQ05	BQ0256	112.41	113.40	<0.001	<0.005	<0.001	<0.2	1.3	<2	<10	40	<0.5	<2	1.1	<0.5	5	135	15	9.83	10	<1	0.31	10	0.48	1385	1	0.13	13	370	<2	1.47	<2	2	6	0.08	10	<10	26	<10	42
DDHBQ05	BQ0257	120.57	121.61	0.002	<0.005	<0.001	<0.2	1.4	<2	<10	70	<0.5	2	1.07	<0.5	6	100	31	10.6	10	2	0.44	20	0.6	1835	2	0.14	17	390	<2	3.3	<2	2	9	0.1	<10	<10	19	<10	42
DDHBQ05	BQ0258	123.09	124.08	0.001	<0.005	<0.001	<0.2	1.3	<2	<10	60	<0.5	<2	1.11	<0.5	5	158	23	11.4	10	<1	0.38	20	0.55	1635	1	0.13	19	400	<2	2.76	<2	2	8	0.1	<10	<10	25	<10	49
DDHBQ05	BQ0259	124.08	125.20	<0.001	<0.005	<0.001	<0.2	1.3	<2	<10	100	<0.5	2	0.89	<0.5	5	96	13	7.91	10	1	0.53	20	0.6	1315	1	0.13	13	380	<2	1.8	<2	2	9	0.13	<10	<10	21	<10	49
DDHBQ05	BQ0260	125.20	126.25	0.001	<0.005	<0.001	<0.2	1.3	<2	<10	120	<0.5	<2	0.64	<0.5	3	108	16	7.59	10	<1	0.79	20	0.74	1310	1	0.1	15	450	<2	2.19	<2	2	7	0.16	<10	<10	24	<10	59
DDHBQ05	BQ0261	126.25	127.44	0.006	<0.005	<0.001	0.2	1.3	<2	<10	30	<0.5	4	0.59	<0.5	12	112	48	13.4	<10	<1	0.76	10	0.77	1310	2	0.08	39	350	2	5.7	<2	3	6	0.16	<10	<10	38	<10	67
DDHBQ05	BQ0263	127.44	128.10	<0.001	<0.005	<0.001	<0.2	1.5	<2	<10	170	<0.5	<2	0.35	<0.5	4	143	9	5.65	10	2	1.13	20	0.79	1040	2	0.07	43	810	<2	1.37	<2	9	8	0.3	<10	<10	118	<10	58
DDHBQ05	BQ0264	128.10	128.96	0.006	<0.005	<0.001	0.2	0.7	<2	<10	20	<0.5	4	0.7	<0.5	5	150	38	8.98	<10	1	0.29	30	0.4	1435	<1	0.04	22	290	<2	4.06	<2	1	40	0.09	<10	<10	15	<10	34
DDHBQ05	BQ0265	128.96	129.99	0.012	<0.005	<0.001	0.7	0.7	2	<10	30	<0.5	11	0.71	<0.5	49	95	124	28.9	<10	<1	0.21	<10	0.49	1045	3	0.09	68	200	13	8.63	<2	2	5	0.05	10	<10	17	<10	45
DDHBQ05	BQ0266	129.99	130.26	0.019	<0.005	<0.001	0.9	0.4	<2	<10	20	<0.5	12	0.6	<0.5	29	40	190	42.9	<10	<1	0.09	<10	0.19	1425	2	0.03	99	160	21	9.06	<2	1	4	0.03	20	<10	13	<10	16
DDHBQ05	BQ0267	130.26	130.81	0.005	<0.005	<0.001	0.2	1.3	<2	<10	40	<0.5	6	0.8	<0.5	2	75	71	18.9	<10	3	0.67	10	0.74	1020	1	0.11	49	470	5	5.74	4	4	16	0.17	<10	<10	50	<10	67
DDHBQ05	BQ0268	130.81	131.84	0.006	<0.005	<0.001	0.6	0.6	5	<10	40	<0.5	8	0.45	<0.5	14	122	102	22.7	<10	1	0.28	10	0.26	720	2	0.02	64	260	8	7.26	<2	2	8	0.07	<10	<10	21	<10	35
DDHBQ05	BQ0274	160.80	161.80	<0.001	<0.005	0.001	0.2	2.7	<2	<10	290	<0.5	<2	0.31	<0.5	21	228	43	3.78	10	<1	1.54	20	1.7	299	3	0.06	78	500	<2	0.41	<2	8	10	0.3	<10	<10	97	<10	116
DDHBQ05	BQ0275	161.81	162.70	0.004	<0.005	<0.001	0.4	1	<2	<10	50	<0.5	<2	0.44	<0.5	16	106	67	4.96	10	<1	0.4	10	0.63	231	3	0.08	42	370	3	2.78	<2	5	14	0.05	<10	<10	32	<10	219
DDHBQ05	BQ0276	162.70	163.10	0.001	<0.005	<0.001	<0.2	0.1	<2	<10	10	<0.5	<2	15.6	<0.5	10	50	18	2.67	<10	<1	0.08	10	0.16	1155	2	0.02	25	130	9	1.85	<2	2	409	0.01	<10	<10	3	<10	114
DDHBQ05	BQ0277	163.10	164.10	0.004	<0.005	<0.001	0.7	0.8	<2	<10	30	<0.5	<2	0.42	2.7	20	103	74	5.1	<10	<1	0.2	10	0.4	164	3	0.06	49	210	6	3.24	<2	3	11	0.01	<10	<10	25	<10	802
DDHBQ05	BQ0278	164.10	164.30	0.001	<0.005	<0.001	0.4	1	2	<10	160	<0.5	<2	0.87	<0.5	7	91	40	2.16	<10	<1	0.44	10	1.06	401	1	0.06	23	1060	4	0.96	<2	5	12	0.1	<10	<10	39	<10	99
DDHBQ05	BQ0279	164.30	165.04	0.004	<0.005	0.001	0.6	1.7	<2	10	60	<0.5	3	0.57	<0.5	22	93	110	7.33	10	1	0.36	10	0.86	244	3	0.04	66	590	12	4.72	<2	3	76	0.02	<10	<10	30	<10	124
DDHBQ05	BQ0281	165.04	165.16	0.001	<0.005	0.001	<0.2	2.2	<2	<10	310	<0.5	<2	0.22	<0.5	16	214	36	3.56	10	2	1.42	10	1.34	227	5	0.08	65	400	<2	0.74	<2	7	22	0.26	<10	<10	86	<10	103
DDHBQ05	BQ0282	178.16	179.30	0.009	<0.005	<0.001	0.3	1.8	<2	<10	90	<0.5	2	0.49	<0.5	17	128	46	5.52	10	2	0.88	10	1.04	573	3	0.12	24	420	6	2.64	<2	6	53	0.22	<10	<10	50	<10	106

Hole Number	Sample Number	From (m)	To (m)	Au ppm	Pt ppm	Pd ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
DDHBQ06	BQ0377	2.84	3.81	<0.001	<0.005	0.001	0.2	1.6	<2	<10	330	<0.5	3	4.01	<0.5	70	41	346	12.3	10	1	1.18	20	2.27	405	<1	0.16	32	>1000	12	0.6	<2	9	366	0.28	<10	<10	555	<10	189
DDHBQ06	BQ0378	3.81	4.81	<0.001	<0.005	0.001	<0.2	2.2	4	<10	1540	<0.5	<2	3.46	<0.5	39	98	81	7.38	10	1	1.79	10	2.97	389	<1	0.19	44	>1000	7	0.21	<2	8	414	0.31	<10	<10	266	<10	75
DDHBQ06	BQ0379	4.81	5.90	<0.001	0.006	0.002	<0.2	1.9	3	<10	560	<0.5	<2	5.08	<0.5	28	61	99	6.43	10	<1	0.85	10	2.39	617	<1	0.35	54	>1000	5	0.17	<2	15	424	0.32	<10	<10	233	<10	76
DDHBQ06	BQ0380	5.90	6.98	<0.001	<0.005	0.002	<0.2	1.3	6	<10	570	<0.5	<2	3.86	<0.5	37	106	210	9.44	10	1	0.71	10	1.66	500	<1	0.17	53	9410	8	0.46	<2	10	356	0.32	<10	<10	362	<10	87
DDHBQ06	BQ0381	6.98	7.98	<0.001	<0.005	0.002	<0.2	1.5	7	<10	840	<0.5	<2	2.92	<0.5	31	288	108	6.96	10	1	1.12	10	1.97	428	<1	0.13	78	7240	7	0.34	<2	9	315	0.36	<10	<10	240	<10	69
DDHBQ06	BQ0382	7.98	9.02	<0.001	<0.005	0.003	<0.2	1.9	<2	<10	250	<0.5	<2	2.86	<0.5	46	196	192	11.4	10	1	1.55	10	2.42	480	<1	0.13	82	8310	10	0.58	<2	10	323	0.42	<10	<10	401	<10	124
DDHBQ06	BQ0383	9.02	10.02	<0.001	<0.005	<0.001	<0.2	1.8	3	<10	190	<0.5	<2	3.15	<0.5	46	54	127	12.5	10	2	1.51	20	2.34	380	<1	0.1	39	>1000	11	0.68	<2	8	431	0.34	<10	<10	473	<10	108
DDHBQ06	BQ0385	10.02	11.02	<0.001	<0.005	<0.001	<0.2	1.4	6	<10	150	<0.5	<2	3.28	<0.5	54	49	136	16.8	10	1	1.07	10	1.96	381	<1	0.11	37	9830	14	0.7	<2	10	391	0.28	<10	<10	584	<10	108
DDHBQ06	BQ0386	11.02	12.38	<0.001	0.005	<0.001	<0.2	1.6	5	<10	120	<0.5	<2	3.44	<0.5	66	70	203	15.8	10	2	1.31	10	2.2	340	<1	0.11	47	>1000	12	0.86	<2	9	388	0.3	<10	<10	552	<10	84
DDHBQ06	BQ0387	12.38	13.38	<0.001	<0.005	<0.001	<0.2	1.9	<2	<10	250	<0.5	<2	2.7	<0.5	64	96	200	10.6	10	1	1.76	20	2.43	267	<1	0.08	95	9200	9	0.55	<2	5	256	0.36	<10	<10	425	10	67
DDHBQ06	BQ0388	13.38	14.42	<0.001	<0.005	0.001	<0.2	3.1	3	<10	840	<0.5	<2	1.66	<0.5	59	432	205	8.94	10	2	2.99	10	4.11	395	<1	0.1	318	4820	10	0.35	<2	4	178	0.54	<10	<10	295	<10	87
DDHBQ06	BQ0389	14.42	15.42	<0.001	<0.005	0.002	0.8	2.2	5	<10	390	<0.5	<2	2.6	<0.5	74	460	753	10	10	1	2.13	10	3.04	305	<1	0.08	309	8360	9	0.47	<2	5	304	0.4	<10	<10	376	<10	168
DDHBQ06	BQ0390	15.42	16.47	0.009	0.012	0.028	0.6	1.9	3	<10	1580	<0.5	<2	2.93	<0.5	51	75	779	11	10	3	1.7	10	2.59	276	<1	0.09	107	9970	11	0.18	<2	6	322	0.33	<10	<10	437	<10	73
DDHBQ06	BQ0391	16.47	17.47	<0.001	0.005	0.003	<0.2	3.3	8	<10	2550	<0.5	<2	2.84	<0.5	42	83	38	5.32	10	2	3.21	20	4.02	369	<1	0.09	81	9860	9	0.04	<2	4	301	0.42	<10	<10	151	<10	69
DDHBQ06	BQ0392	17.47	18.37	<0.001	<0.005	0.003	<0.2	2.2	5	<10	1700	<0.5	<2	3.15	<0.5	41	92	86	6.25	10	1	2.1	20	2.89	281	<1	0.09	55	>1000	6	0.09	<2	5	253	0.31	<10	<10	220	<10	51
DDHBQ06	BQ0393	18.37	19.23	0.001	0.011	0.007	<0.2	2.3	<2	<10	860	<0.5	<2	3.33	<0.5	47	79	305	5.52	10	1	2.22	20	2.99	269	<1	0.09	77	>1000	6	0.28	<2	5	338	0.31	<10	<10	169	<10	49
DDHBQ06	BQ0395	19.23	20.50	<0.001	0.006	0.003	<0.2	1.5	<2	<10	210	<0.5	<2	3.18	<0.5	67	131	431	9.95	10	2	1.22	20	2.2	361	<1	0.13	142	9480	12	0.7	<2	8	261	0.33	<10	<10	377	10	65
DDHBQ06	BQ0396	20.50	21.72	<0.001	0.01	0.007	0.2	1.4	2	<10	320	<0.5	<2	3.42	<0.5	44	58	377	8.21	10	<1	0.81	30	1.65	514	<1	0.22	48	9090	7	0.69	<2	9	312	0.34	<10	<10	296	<10	109
DDHBQ06	BQ0397	21.72	22.78	<0.001	<0.005	0.002	<0.2	1.4	<2	<10	240	<0.5	<2	3.49	<0.5	39	78	246	8.87	10	<1	0.88	20	1.77	498	<1	0.17	35	>1000	8	0.54	<2	7	496	0.3	<10	<10	352	<10	98
DDHBQ06	BQ0398	22.78	23.53	0.002	<0.005	0.002	<0.2	1.6	<2	<10	310	<0.5	<2	3.23	<0.5	38	78	229	8.31	10	2	1.32	30	1.99	488	<1	0.13	39	>1000	7	0.59	<2	5	344	0.39	<10	<10	324	<10	99
DDHBQ06	BQ0399	27.48	28.42	0.001	<0.005	0.002	<0.2	1.7	<2	<10	1030	<0.5	<2	3.03	<0.5	30	73	168	6.32	10	1	1.37	30	1.94	398	<1	0.13	33	9660	8	0.25	<2	5	373	0.36	<10	<10	232	<10	95
DDHBQ06	BQ0400	28.42	29.44	0.001	<0.005	0.001	<0.2	1.9	<2	<10	1190	<0.5	<2	3.62	<0.5	33	71	175	6.91	10	2	1.24	30	2.13	594	<1	0.26	31	9480	<2	0.32	<2	8	509	0.41	<10	<10	245	<10	105
DDHBQ06	BQ0401	29.66	30.41	0.001	<0.005	0.002	<0.2	1.5	<2	<10	1410	<0.5	<2	3.45	<0.5	27	71	133	6.98	10	<1	1	20	1.86	523	<1	0.2	24	9580	<2	0.22	<2	7	432	0.35	<10	<10	258	<10	103
DDHBQ06	BQ0402	30.41	31.41	0.001	<0.005	0.001	<0.2	2.1	<2	<10	1820	<0.5	<2	2.54	<0.5	33	138	132	7.08	10	<1	1.97	30	2.39	495	<1	0.12	55	8030	<2	0.2	<2	4	299	0.46	<10	<10	244	<10	113
DDHBQ06	BQ0403	31.41	31.89	0.001	<0.005	0.001	<0.2	1.9	<2	<10	1260	<0.5	<2	2.45	<0.5	27	76	245	6.51	10	1	1.73	40	1.96	511	<1	0.13	28	7610	3	0.29	<2	3	284	0.45	<10	<10	222	<10	104
DDHBQ06	BQ0404	35.52		0.001	<0.005	<0.001	<0.2	2	<2	<10	390	0.5	<2	3.89	<0.5	20	49	31	5.15	10	1	0.77	20	2.04	740	<1	0.44	14	7430	<2	0.06	<2	11	383	0.37	<10	<10	168	<10	80
DDHBQ06	BQ0406		37.11	0.001	<0.005	0.002	<0.2	1.8	3	<10	1080	<0.5	<2	3.15	<0.5	32	69	210	6.23	10	<1	1.58	30	2.04	472	<1	0.15	31	>1000	<2	0.22	<2	4	327	0.37	<10	<10	215	<10	91
DDHBQ06	BQ0407	37.67	38.25	0.001	<0.005	0.002	<0.2	2	<2	<10	1440	<0.5	<2	2.52	<0.5	29	65	227	5.93	10	1	1.85	30	2.08	563	<1	0.16	28	7880	<2	0.17	<2	4	280	0.48	<10	<10	186	<10	106
DDHBQ06	BQ0408	39.68	40.13	<0.001	<0.005	0.001	<0.2	1.6	<2	<10	1050	<0.5	<2	3.02	<0.5	24	64	49	7.32	10	1	1.16	30	1.83	529	<1	0.18	20	9020	<2	0.04	<2	6	270	0.38	<10	<10	271	<10	100
DDHBQ06	BQ0409	40.38	40.73	0.003	<0.005	0.001	<0.2	2.2	<2	<10	1400	<0.5	<2	2.84	<0.5	28	51	121	6.26	10	1	1.79	20	2.1	644	<1	0.2	23	7920	2	0.15	<2	5	288	0.48	<10	<10	202	<10	104
DDHBQ06	BQ0410	42.37	43.35	<0.001	<0.005	0.001	<0.2	1.6	2	<10	1480	<0.5	<2	3.01	<0.5	33	63	165	8.05	10	<1	1.29	20	1.92	427	<1	0.13	29	9500	<2	0.28	<2	5	330	0.42	<10	<10	305	<10	105
DDHBQ06	BQ0411	43.35	44.35	0.004	0.005	0.012	<0.2	2.2	<2	<10	250	<0.5	<2	3.12	<0.5	41	67	284	7.87	10	1	1.78	20	2.32	497	<1	0.16	32	>1000	2	0.76	<2	6	457	0.52	<10	<10	268	<10	94
DDHBQ06	BQ0412	44.35	45.03	<0.001	0.005	0.002	<0.2	2.2	<2	<10	170	<0.5	<2	3.04	<0.5	46	80	291	8.49	10	<1	1.88	20	2.38	449	<1	0.14	36	>1000	<2	0.86	<2	6	462	0.48	<10	<10	311	<10	95
DDHBQ06	BQ0413	45.48	46.48	<0.001	<0.005	0.002	<0.2	2	<2	<10	330	<0.5	<2	3.24	<0.5	43	73	212	9.44	10	1	1.62	20	2.28	479	<1	0.14	32	>1000	<2	0.55	<2	6	490	0.42	<10	<10	375	<10	113
DDHBQ06	BQ0414	46.48	47.46	<0.001	<0.005	0.002	<0.2	1.9	<2	<10	430	<0.5	<2	2.73	<0.5	36	70	140	8.31	10	<1	1.6	10	2.04	408	<1	0.11	33	9930	<2	0.41	<2	4	468	0.39	<10	<10	326	<10	101
DDHBQ06	BQ0415	47.46	48.06	<0.001	0.008	0.002	<0.2	2	2	<10	350	<0.5	<2	2.52	<0.5	35	66	209	6.53	10	1	1.77	20	2.14	426	<1	0.13	32	8860	2	0.52	<2	4	315	0.48	<10	<10	227	<10	89
DDHBQ06	BQ0416	48.88	49.91	<0.001	<0.005	0.001	<0.2	1.4	<2	<10	1300	<0.5	<2	2.64	<0.5	22	63	100	6.28	10	<1	1.08	20	1.56	389	<1	0.13	22	8410	<2	0.12	<2	4	299	0.36	<10	<10	238	<10	87
DDHBQ06	BQ0417	50.14	51.14	0.001	<0.005	0.001	<0.2	1.3	<2	<10	980	<0.5	<2	2.55	<0.5	19	46	68	4.5	10	<1	0.82	20	1.36	421	<1	0.19	15	7070	<2	0.13	<2	5	322	0.32	<10	<10	160	<10	72
DDHBQ06	BQ0418	51.14	51.80	0.001	<0.005	0.001	<0.2	1.5	<2	<10	920	<0.5	<2	3.12	<0.5	22	48	123	4.93	10	<1	0.88	30	1.6	580	<1	0.26	16	8050	3	0.19	<2	8	391	0.37	<10	<10	160	<10	80
DDHBQ06	BQ0419	53.15	53.46	<0.001	<0.005	<0.001	<0.2	2	2	<10	850	<0.5	<2	3.24	<0.5	27	58	329	6.21	10	<1	1.44	40	2.07	688	<1	0.27	25	8490	3	0.09	<2	8	314	0.39	<10	<10	205	<10	105
DDHBQ06	BQ0420	56.70	57.37	<0.001	<0.005	0.002	<0.2	1.8	<2	<10	580	0.6	<2	2.33	<0.5	21	163	183	3.83	10	1	1.06	10	2.19	542	<1	0.24	69	2960	5	0.03	<2	8	178	0.3	<10	<10	107	<10	65
DDHBQ06	BQ0422	66.70	67.30	<0.001	<0.005	<0.001	<0.2	1.9	<2	<10	670	<0.5	<2	1.86	<0.5	24	68	130	4.44	10	<1	1.26	20	1.94	531	<1	0.21	50	3500	<2	0.23	<2	6	332	0.4	<10	<10	120	<10	78
DDHBQ06	BQ0423	69.77	70.83	<0.001	<0.005	<0.001	<0.2	2.6	4	<10	330	0.5	<2	3.7	<0.5	26	172	42	5.59	10	<1	0.77	10	2.53	782	<1	0.45	67	3140	3	0.06	<2	16	209	0.36	<10	<10	172	<10	80
DDHBQ06	BQ0424	71.03	71.93	0.001	<0.005	0.002	<0.2	1.6	<2	<10	290	<0.5	<2	1.92	<0.5	18	320	18	2.62	10	<1	0.69	10	2.25	387	<1	0.25	147	2120	<2	0.03	<2	5	101	0.27	<10	<10	63	<10	52
DDHBQ06	BQ0425	72.00	72.80	0.003	<0.005	0.002	<0.2	1.7	<2	<10	770	<0.5	<2	2.64	<0.5	20	84	98	3.71	10	<1	1.16	20	1.75	503	<1	0.22	43	7140	4	0.14	<2	6	178	0.35	<10	<10	98	<10	66
DDHBQ06	BQ0426	74.02	75.00	<0.001	<0.005	0.001	<0.2	1.6	4	<10	920	<0.5	<2	2.81	<0.5	25	64	193	4.71	10	<1	0.97	20	1.74	533	<1	0.23	34	6750	<2	0.28	<2	6	272	0.37	<10	<10	144	<10	77
DDHBQ06	BQ0427	75.24	76.24	<0.001	<0.005	0.006	<0.2	1.6	<2	<10	1540	<0.5	<2	2.54	<0.5	23	57	64	5.54	10	<1	1.26	30	1.71	496	<1	0.16	19	7120	2	0.11	<2	4	263	0.4	<10	<10	182	<10	88
DDHBQ06	BQ0428	76.24	77.06	<0.001	<0.005	0.002	<0.2	2.1	<2	<10	790	<0.5	<2	2.58	<0.5	33	93	257	5.66	10	<1	1.64	20	2.26	585	<1	0.19	112	6660	2	0.39	<2	5	253	0.47	<10	<10	165	<10	92
DDHBQ06	BQ0429	77.06	77.80	<0.001	<0.005	0.001	<0.2	2.3	<2	<10	820	0.5	<2	2.69	<0.5	26	121	120	4.84	10	<1	1.44	20	2.61	627	<1	0.27	76	4600	<2	0.22	<2	8	192	0.43	<10	<10	140	<10	79
DDHBQ06	BQ0431	79.26	79.90	<0.001	<0.005	<0.001	<0.2	2.4	<2	<10	590	0.6	<2	3.07	<0.5	27	171	104	5.17	10	<1	1.18	20	2.79	711	<1	0.32	68	4950	2	0.15	<2	9	223	0.41	<10	<10	148	<10	86
DDHBQ07	BQ0283	12.08	13.01	0.001	<0.005	<0.001	<0.2	0.5	<2	<10	60	<0.5	<2	0.29	<0.5	7	100	78	2.44	<10	1	0.36	20	0.18	128	2	0.06	16	50	5	1.06	<2	1	10	0.06	<10	20	16	<10	22
DDHBQ07	BQ0284	78.04	79.15	0.006	<0.005	<0.001	0.3	1.4	<2	<10	90	<0.5	2	1.68	<0.5	16	114	79	11.5	<10	1	0.6	10	0.66	1215	1	0.13	57	640	3	4.18	<2	7	16	0.2	10	<10	65	<10	121
DDHBQ07	BQ0285	79.15	79.80	0.029	0.009	0.002	0.8	0.2	<2	<10	<10	<0.5	8	0.64	<0.5	21	55	298	40.2	<10	<1	0.01	10	0.09	698	3	0.02	132	90	25	6.12	<2	1	17	0.01	10	<10	13	<10	36
DDHBQ07	BQ0286	79.80	80.80	0.016	<0.005	0.001	0.3	0.1	<2	<10	<10	<0.5	5	0.45	<0.5	10	72	102	21.8	<10	1	0.01	<10	0.18	586	1	0.03	43	90	2	4.27	<2	<1	13	0.01	10	<10	8	<10	184
DDHBQ07	BQ0287	80.80	81.87	0.059	<0.005	0.001	0.4	0.2	<2	<10	<10	<0.5	6	0.38	<0.5	16	44	147	29.9	<10	<1	0.03	<10	0.17	866	1	0.03	59	100	4	5.49	<2	1	11	0.02	<10	<10	13	<10	259
DDHBQ07	BQ0288	81.87	82.87	0.004	<0.005	0.001	0.2	1.3	<2	<10	100	<0.5	<2	1.26	<0.5	7	100	56	12.2	<10	1	0.37	10	0.53	2300	1	0.14	36	500	<2	3.85	<2	2	11	0.11	10	<10	25	<10	122
DDHBQ07	BQ0289	82.87	83.87	0.01	<0.005	<0.001	0.2	1.3	<2	<10	70	<0.5	2	1.52	<0.5	11	65	61	12.4	<10	2	0.38	20	0.49	1640	1	0.14	32	450	<2	3.64	<2	2	13	0.1	<10	<10	23	<10	162
DDHBQ07	BQ0290	83.87	84.87	0.012	<0.005	<0.001	0.3	1.2	<2	<10	70	<0.5	3	1.64	<0.5	22	99	97	17.4	<10	1	0.49	10	0.52	1735	1	0.12	49	390	3	5.47	<2	2	13	0.11	<10	<10	23	<10	174

Hole Number	Sample Number	From (m)	To (m)	Au ppm	Pt ppm	Pd ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
DDHBQ07	BQ0292	84.87	85.52	0.007	<0.005	0.001	0.5	1.2	<2	<10	70	<0.5	<2	1.08	<0.5	19	115	123	23.3	<10	<1	0.37	10	0.5	1555	<1	0.11	65	330	2	6.85	<2	1	6	0.08	<10	<10	21	<10	163
DDHBQ07	BQ0293	85.52	85.96	0.092	<0.005	<0.001	0.7	0.7	5	<10	20	<0.5	3	0.7	<0.5	41	66	205	33.9	<10	<1	0.13	10	0.23	1185	1	0.06	96	230	3	8.58	<2	1	8	0.04	<10	<10	22	10	148
DDHBQ07	BQ0294	85.96	86.76	0.011	<0.005	0.001	0.5	1.4	2	<10	80	<0.5	<2	0.96	<0.5	14	96	119	20.8	<10	<1	0.52	10	0.57	1795	<1	0.12	51	400	<2	5.5	<2	2	7	0.12	<10	<10	29	<10	189
DDHBQ07	BQ0295	86.76	87.30	0.005	<0.005	<0.001	<0.2	1.3	3	<10	140	<0.5	<2	0.81	<0.5	7	78	24	8.27	10	<1	0.58	10	0.57	1275	1	0.09	15	540	<2	1.92	<2	2	6	0.15	<10	<10	30	<10	112
DDHBQ07	BQ0296	103.65	104.63	0.012	<0.005	<0.001	<0.2	1.3	5	<10	130	<0.5	<2	0.89	<0.5	7	126	22	8.61	10	1	0.5	10	0.67	1810	<1	0.14	14	450	2	1.78	<2	3	6	0.15	<10	<10	30	<10	63
DDHBQ07	BQ0297	104.63	105.04	0.018	<0.005	0.001	0.3	2.6	2	<10	30	0.7	<2	1.15	<0.5	9	176	104	17.7	10	<1	1.73	30	1.79	1645	5	0.13	41	1390	2	5.36	<2	5	12	0.3	<10	<10	58	<10	126
DDHBQ07	BQ0298	105.04	105.97	0.007	<0.005	<0.001	<0.2	1.6	<2	<10	140	0.6	<2	1.22	<0.5	5	177	29	7.48	10	<1	0.66	20	0.95	1605	3	0.18	21	820	3	2.08	<2	4	20	0.17	<10	<10	36	<10	70
DDHBQ07	BQ0299	109.39	110.40	0.018	<0.005	<0.001	<0.2	1	<2	<10	100	<0.5	<2	0.69	<0.5	12	97	36	11	10	1	0.44	10	0.53	1620	1	0.1	18	430	<2	3.09	<2	2	5	0.13	<10	<10	30	<10	59
DDHBQ07	BQ0301	110.40	111.34	0.018	<0.005	<0.001	<0.2	1.2	3	<10	60	<0.5	<2	0.51	<0.5	12	95	42	11.7	10	<1	0.64	10	0.62	1495	1	0.08	20	440	<2	3.16	<2	2	5	0.15	<10	<10	31	<10	63
DDHBQ07	BQ0302	111.34	112.34	0.1	0.006	<0.001	0.2	1.2	2	<10	50	<0.5	<2	0.86	<0.5	10	136	60	13.8	10	<1	0.49	10	0.61	1690	<1	0.12	28	410	3	4.3	<2	2	6	0.13	<10	<10	32	<10	66
DDHBQ07	BQ0303	112.34	113.22	0.014	0.005	0.001	0.2	1.3	3	<10	50	<0.5	<2	0.26	<0.5	19	118	38	11.2	10	<1	0.88	10	0.71	1300	1	0.06	20	440	2	3.65	<2	3	5	0.19	<10	<10	34	<10	76
DDHBQ07	BQ0304	114.00	115.20	0.007	<0.005	<0.001	<0.2	1.1	2	<10	210	<0.5	<2	0.43	<0.5	6	199	13	5.19	10	<1	0.82	10	0.6	882	2	0.08	14	480	2	1.19	<2	4	8	0.2	<10	<10	32	<10	72
DDHBQ07	BQ0305	121.15	121.55	0.006	<0.005	<0.001	<0.2	0.6	2	<10	80	<0.5	<2	0.24	<0.5	2	122	7	1.74	<10	<1	0.39	<10	0.34	245	1	0.06	8	190	3	0.47	<2	1	9	0.09	<10	<10	14	<10	27
DDHBQ07	BQ0306	121.55	121.88	0.012	0.006	0.001	0.7	0.7	3	<10	20	<0.5	<2	0.82	<0.5	139	136	102	25.9	<10	<1	0.38	<10	0.43	654	4	0.07	57	290	<2	>10.0	<2	3	9	0.1	<10	<10	27	<10	36
DDHBQ07	BQ0307	121.88	122.73	0.019	<0.005	<0.001	0.2	1	6	<10	80	<0.5	<2	1.78	<0.5	16	116	37	7.55	<10	<1	0.35	10	0.63	947	3	0.12	34	700	4	3.55	<2	5	17	0.22	<10	<10	56	<10	45
DDHBQ08	BQ0269	54.50	55.09	<0.001	<0.005	<0.001	<0.2	1	<2	<10	110	<0.5	<2	0.82	<0.5	5	95	7	2.3	<10	<1	0.68	10	0.52	408	1	0.09	12	370	<2	0.37	<2	3	17	0.16	<10	<10	27	<10	110
DDHBQ08	BQ0270	55.09	56.05	0.013	<0.005	<0.001	1	0.9	<2	<10	50	<0.5	5	0.55	<0.5	5	148	164	25.6	<10	2	0.36	10	0.3	3640	4	0.03	68	210	6	8.19	<2	2	7	0.09	10	<10	18	10	72
DDHBQ08	BQ0272	56.05	57.05	0.007	<0.005	0.001	0.3	0.1	<2	<10	10	<0.5	4	0.55	<0.5	7	134	59	17.4	<10	1	0.01	<10	0.1	970	1	0.01	31	50	2	4.91	<2	<1	12	0.01	<10	<10	6	<10	79
DDHBQ08	BQ0273	57.05	57.50	0.045	0.005	0.001	0.2	0.1	<2	<10	10	<0.5	4	0.87	<0.5	1	81	95	26.5	<10	1	<0.01	10	0.11	1405	1	0.01	32	120	12	5.03	<2	<1	13	0.02	10	<10	14	<10	204
DDHBQ08	BQ0308	57.50	58.46	0.003	0.005	0.001	1.3	0.2	4	<10	20	<0.5	6	0.76	<0.5	115	63	313	>50	<10	<1	0.08	<10	0.12	1620	<1	0.01	90	40	2	>10.0	<2	<1	13	0.02	<10	<10	12	<10	88
DDHBQ08	BQ0310	58.46	59.25	0.003	<0.005	0.001	0.2	0.1	5	<10	10	<0.5	<2	0.58	<0.5	2	88	42	23	<10	<1	<0.01	<10	0.16	2770	<1	0.01	13	90	<2	2.86	<2	<1	18	0.01	<10	<10	8	<10	196
DDHBQ08	BQ0311	59.25	59.94	0.012	0.007	0.001	0.8	0.3	7	<10	30	<0.5	2	0.75	<0.5	26	61	126	36.3	<10	<1	0.06	<10	0.28	2200	<1	0.04	40	150	<2	7.52	<2	<1	17	0.03	<10	<10	15	<10	254
DDHBQ08	BQ0312	59.94	60.89	0.01	<0.005	<0.001	0.4	1.4	4	<10	70	0.5	<2	1.21	<0.5	3	104	63	14.3	<10	<1	0.52	20	0.66	4580	1	0.09	26	460	3	4.63	<2	1	11	0.11	<10	<10	22	<10	176
DDHBQ08	BQ0313	72.00	72.68	<0.001	<0.005	<0.001	<0.2	1.4	3	<10	210	0.6	<2	1.32	<0.5	7	98	16	4.71	10	<1	0.63	20	0.67	1140	2	0.12	21	720	4	0.56	<2	4	65	0.19	<10	<10	44	<10	59
DDHBQ08	BQ0314	72.68	74.25	0.001	<0.005	<0.001	0.3	1.5	2	<10	180	0.6	<2	1.4	<0.5	7	106	24	5.53	10	<1	0.55	20	1.08	1175	1	0.08	20	1060	3	1.14	<2	3	68	0.16	<10	<10	31	<10	55
DDHBQ08	BQ0315	74.25	75.55	<0.001	<0.005	<0.001	<0.2	1.5	<2	<10	160	<0.5	<2	1.24	<0.5	7	158	12	5.99	10	<1	0.75	10	0.61	1285	1	0.09	14	540	2	1.03	<2	3	17	0.19	<10	<10	34	<10	66
DDHBQ08	BQ0316	75.55	76.50	0.002	<0.005	0.001	0.2	1.8	3	<10	150	<0.5	<2	1.31	<0.5	6	97	22	6.04	10	<1	0.66	20	1.06	997	2	0.06	16	470	11	1.88	<2	3	94	0.15	<10	<10	31	<10	240
DDHBQ08	BQ0317	76.50	77.42	0.002	<0.005	<0.001	<0.2	1.5	<2	<10	120	<0.5	<2	1.22	<0.5	7	131	13	4.64	10	1	0.64	10	0.75	1155	1	0.09	12	540	4	1.06	<2	3	45	0.17	<10	<10	32	<10	57
DDHBQ08	BQ0319	79.03	79.20	0.005	0.005	0.001	0.5	0.5	2	<10	30	0.6	<2	0.64	<0.5	32	94	90	18.6	<10	<1	0.11	30	0.11	245	7	0.07	63	80	9	6.74	<2	<1	115	0.01	<10	<10	9	<10	32
DDHBQ08	BQ0320	114.02	115.73	0.003	<0.005	<0.001	0.2	1.3	2	<10	100	<0.5	<2	1.68	<0.5	7	112	25	10.7	10	<1	0.67	10	0.7	1980	<1	0.1	18	490	2	3.67	<2	3	17	0.15	<10	<10	32	<10	91
DDHBQ08	BQ0321	123.19	124.19	0.002	<0.005	<0.001	<0.2	1.5	4	<10	30	<0.5	<2	1.66	<0.5	14	112	21	12.6	10	<1	0.69	10	0.82	2630	2	0.12	17	410	<2	5.85	<2	2	20	0.14	<10	<10	27	<10	119
DDHBQ08	BQ0322	124.19	125.14	0.002	<0.005	<0.001	<0.2	1.4	<2	<10	90	<0.5	<2	1.17	<0.5	3	109	25	7.38	10	<1	0.83	20	0.65	1860	1	0.1	15	440	5	3.15	<2	2	19	0.15	<10	<10	19	<10	104
DDHBQ08	BQ0323	125.14	125.46	0.016	0.007	0.001	0.9	1	10	<10	20	<0.5	<2	1.12	<0.5	67	68	131	42	<10	<1	0.62	10	0.44	1180	3	0.05	89	190	4	>10.0	<2	2	17	0.08	<10	<10	20	<10	70
DDHBQ08	BQ0324	125.46	126.46	0.001	<0.005	<0.001	<0.2	1.2	3	<10	90	<0.5	<2	1.48	<0.5	4	114	10	8.02	10	<1	0.64	20	0.8	1960	<1	0.09	10	370	2	1.78	<2	3	17	0.13	<10	<10	24	<10	101
DDHBQ08	BQ0325	126.46	127.34	0.002	<0.005	<0.001	<0.2	1.2	<2	<10	80	<0.5	<2	1.25	<0.5	3	136	15	9.22	10	<1	0.59	20	0.57	1810	<1	0.09	11	340	<2	2.09	<2	3	13	0.12	<10	<10	25	<10	93
DDHBQ08	BQ0326	130.87	131.87	0.004	<0.005	<0.001	0.2	1.2	<2	<10	70	<0.5	<2	1.1	<0.5	21	124	29	13.2	10	<1	0.68	20	0.55	1630	1	0.09	24	310	<2	5.87	<2	2	14	0.12	<10	<10	16	<10	123
DDHBQ08	BQ0327	131.87	132.09	0.004	0.008	0.001	0.9	0.5	8	<10	20	<0.5	5	0.75	<0.5	143	78	156	49.7	<10	<1	0.23	<10	0.17	608	2	0.02	78	100	<2	>10.0	<2	1	7	0.02	<10	<10	12	<10	20
DDHBQ08	BQ0328	132.09	133.09	<0.001	<0.005	<0.001	<0.2	1.2	<2	<10	130	<0.5	<2	1.16	<0.5	5	144	17	6.78	10	<1	0.75	20	0.44	1466	2	0.07	18	400	4	2.06	<2	3	14	0.14	<10	<10	18	<10	64
DDHBQ08	BQ0330	143.35	144.20	0.016	<0.005	0.001	0.2	1.4	2	<10	70	<0.5	<2	1.25	<0.5	7	113	30	12.7	<10	<1	0.68	20	0.76	2680	4	0.12	22	290	5	5.73	<2	2	15	0.1	<10	<10	15	<10	99
DDHBQ08	BQ0331	144.20	144.67	0.013	0.007	0.002	0.8	0.7	<2	<10	10	<0.5	3	0.36	<0.5	103	68	97	41.8	<10	<1	0.45	<10	0.28	757	2	0.03	61	110	4	>10.0	<2	1	6	0.05	<10	<10	12	<10	51
DDHBQ08	BQ0332	144.67	145.67	0.004	<0.005	<0.001	<0.2	1.2	<2	<10	70	<0.5	<2	0.91	<0.5	10	114	17	7.87	<10	<1	0.73	20	0.71	2020	1	0.1	12	340	6	4.2	<2	2	17	0.12	<10	<10	16	<10	93
DDHBQ08	BQ0333	145.67	146.64	0.005	<0.005	<0.001	<0.2	1.3	2	<10	70	<0.5	<2	1.08	<0.5	5	88	18	8.38	<10	<1	0.81	20	0.72	2760	1	0.07	13	400	3	3.8	<2	1	22	0.13	<10	<10	17	<10	107
DDHBQ08	BQ0334	146.64	147.64	0.018	<0.005	0.001	0.6	0.4	<2	<10	20	<0.5	3	0.7	<0.5	58	92	91	38.6	<10	1	0.2	<10	0.29	1465	1	0.03	52	60	<2	>10.0	<2	<1	11	0.03	<10	<10	14	<10	72
DDHBQ08	BQ0335	147.64	148.25	0.025	<0.005	0.001	0.6	0.6	<2	<10	40	<0.5	4	0.76	<0.5	36	63	116	36.5	<10	<1	0.28	<10	0.27	3150	1	0.02	61	170	6	>10.0	<2	1	11	0.05	<10	<10	18	<10	72
DDHBQ08	BQ0336	148.25	149.03	0.006	<0.005	<0.001	<0.2	1	<2	<10	80	0.9	<2	0.83	<0.5	5	108	37	12.3	<10	<1	0.47	10	0.46	2960	<1	0.1	27	340	7	5.16	<2	1	20	0.11	<10	<10	12	<10	97
DDHBQ08	BQ0337	149.03	149.83	0.032	0.005	0.001	0.6	0.4	<2	<10	20	<0.5	4	0.55	<0.5	129	62	112	44.8	<10	<1	0.17	<10	0.22	1450	<1	0.04	52	90	<2	>10.0	<2	1	14	0.04	<10	<10	22	<10	75
DDHBQ08	BQ0342	149.83	149.91	0.007	<0.005	0.001	2	1.8	5	<10	60	<0.5	<2	2.3	<0.5	5	128	56	11.8	10	<1	0.58	10	0.82	2000	1	0.28	29	670	2	5.24	<2	9	48	0.25	<10	<10	86	<10	113
DDHBQ08	BQ0338	149.91	150.73	0.013	<0.005	<0.001	0.5	1.1	4	<10	70	<0.5	<2	0.39	<0.5	15	90	91	25.2	<10	1	0.8	10	0.56	471	1	0.07	59	600	<2	7.03	<2	8	9	0.23	<10	<10	66	<10	83
DDHBQ08	BQ0339	150.73	151.73	0.009	0.007	<0.001	0.5	1.1	3	<10	60	<0.5	<2	0.68	<0.5	25	113	52	14	<10	<1	0.71	10	0.59	596	1	0.07	36	620	2	7.02	<2	7	16	0.2	<10	<10	60	<10	78
DDHBQ08	BQ0341	151.73	152.36	0.001	<0.005	<0.001	<0.2	0.8	<2	<10	40	<0.5	<2	0.56	<0.5	6	112	18	2.28	<10	<1	0.5	20	0.39	490	1	0.07	10	590	<2	0.84	<2	3	10	0.15	<10	<10	36	<10	58
DDHBQ08	BQ0343	182.19	182.84	<0.001	<0.005	<0.001	0.2	1.1	3	<10	110	<0.5	<2	1.03	3.2	9	126	65	3.22	<10	<1	0.68	20	0.38	449	3	0.08	18	540	20	0.88	<2	3	12	0.17	<10	<10	33	<10	1585
DDHBQ08	BQ0344	182.81	183.00	0.005	0.006	<0.001	1	1	<2	<10	80	<0.5	<2	0.94	<0.5	64	81	759	19.6	<10	<1	0.65	10	0.33	421	3	0.05	146	470	23	5.9	<2	3	9	0.15	<10	<10	30	<10	286
DDHBQ08	BQ0345	183.00	184.00	0.001	<0.005	<0.001	0.3	1	4	<10	100	<0.5	<2	1.31	<0.5	13	108	143	3.96	<10	<1	0.55	20	0.34	420	3	0.08	22	560	17	1.5	<2	3	16	0.14	<10	<10	28	<10	286
DDHBQ08	BQ0346	196.73	197.30	0.001	<0.005	<0.001	0.2	1.3	6	<10	190	<0.5	<2	1.22	<0.5	10	154	95	3.96	<10	<1	0.78	20	0.41	698	2	0.1	19	550	5	0.96	<2	4	17	0.2	<10	<10	36	<10	186
DDHBQ08	BQ0347	197.30	197.44	0.002	0.011	0.001	1.7	0.5	3	<10	50	<0.5	<2	0.85	<0.5	16	60	519	27.9	<10	<1	0.24	30	0.12	402	2	0.05	209	220	<2	4.87	<2	2	18	0.06	<10	<10	16	<10	137
DDHBQ08	BQ0348	197.44	198.00	0.001	<0.005	0.001	<0.2	1	<2	<10	100	<0.5	<2	1	<0.5	12	140	44	3.81	<10	<1	0.6	20	0.28	515	2	0.1	27	540	2	1.32	<2	4	15	0.16	<10	<10	32	<10	135
DDHBQ08	BQ0349	211.91	213.39	0.001	0.008	0.006	<0.2	1.3	<2	<10	190	<0.5	<2	1.2	<0.5	14	118	39	4.47	10	<1	0.78	10	0.49	699	1	0.08	22	470	3	1.14	<2	3	13	0.18	<10	<10	32	<10	75
DDHBQ08	BQ0350	213.39	214.74	0.001	<0.005	<0.001	0.2	1.2	2	<10	130	<0.5	<2	1.04	<0.5	16	89	51	4.89	<10	1	0.66	10	0.43	562	2	0.07	30	470	<2	1.57	<2	3	12	0.16	<10	<10	29	<10	68

Hole Number	Sample Number	From (m)	To (m)	Au ppm	Pt ppm	Pd ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
DDHBQ08	BQ0351	247.41	248.42	0.001	<0.005	0.002	<0.2	2.6	5	<10	280	<0.5	<2	0.22	<0.5	21	225	50	4.48	10	<1	1.84	20	1.38	759	2	0.07	75	510	5	0.94	<2	10	14	0.3	<10	<10	99	<10	110
DDHBQ08	BQ0352	248.42	248.68	0.048	<0.005	0.002	1.4	0.4	2	<10	40	<0.5	4	0.29	<0.5	30	33	232	43.5	<10	<1	0.24	<10	0.2	559	1	0.02	84	90	5	7.16	<2	1	6	0.04	<10	<10	14	<10	41
DDHBQ08	BQ0353	248.68	249.71	0.007	<0.005	0.001	0.2	1.2	<2	<10	70	<0.5	<2	1.5	<0.5	7	90	35	8.51	<10	<1	0.46	20	0.74	1675	<1	0.13	15	390	4	4.99	<2	2	41	0.11	<10	<10	20	<10	109
DDHBQ08	BQ0354	249.71	250.67	0.002	<0.005	0.001	0.3	1.3	6	<10	40	<0.5	<2	1.92	<0.5	5	77	40	8.76	<10	1	0.42	20	0.59	1765	1	0.1	14	390	14	5.13	<2	2	23	0.09	<10	<10	19	<10	101
DDHBQ08	BQ0355	254.73	255.82	0.003	<0.005	<0.001	0.4	1.8	6	<10	40	<0.5	<2	1.94	<0.5	10	78	46	18.7	10	<1	0.3	20	0.63	2690	1	0.17	11	410	16	4.26	<2	2	22	0.07	<10	<10	30	<10	337
DDHBQ08	BQ0357	255.82	256.87	<0.001	<0.005	<0.001	<0.2	1.1	4	<10	120	<0.5	<2	1.24	<0.5	5	100	18	8.81	10	<1	0.32	20	0.43	1575	1	0.1	8	350	23	2.26	<2	2	20	0.09	<10	<10	22	<10	240
DDHBQ08	BQ0358	265.55	265.67	0.014	0.006	<0.001	1.4	0.8	<2	<10	40	<0.5	3	1.06	<0.5	4	66	657	29.3	<10	<1	0.26	10	0.34	436	3	0.09	77	230	<2	5.98	<2	2	8	0.06	<10	<10	15	<10	47
DDHBQ08	BQ0359	279.32	280.11	0.001	<0.005	<0.001	0.3	1	5	<10	100	<0.5	2	1.1	<0.5	19	83	51	5.68	<10	<1	0.56	20	0.33	571	2	0.06	23	410	3	2.52	<2	2	12	0.14	<10	<10	23	<10	64
DDHBQ08	BQ0360	289.83	290.72	0.003	<0.005	0.001	0.3	1.2	6	<10	70	<0.5	<2	1.05	<0.5	56	104	46	8.67	<10	<1	0.69	10	0.43	1010	1	0.07	22	360	2	4.18	<2	2	10	0.14	<10	<10	21	<10	87
DDHBQ08	BQ0361	308.92	310.02	0.007	<0.005	0.001	0.6	1.1	2	<10	40	<0.5	<2	1.04	<0.5	31	100	128	12.5	<10	<1	0.68	20	0.42	1155	2	0.07	39	540	3	4.47	<2	2	21	0.14	<10	<10	23	<10	69
DDHBQ08	BQ0376	333.53	335.53	0.003	<0.005	<0.001	<0.2	1.2	2	<10	110	<0.5	<2	0.5	<0.5	5	98	16	6.13	10	<1	0.72	20	0.56	790	1	0.09	13	420	3	1.77	<2	2	18	0.16	<10	<10	30	<10	64
DDHBQ08	BQ0362	338.63	339.66	0.007	<0.005	<0.001	<0.2	1.4	4	<10	50	<0.5	<2	0.37	<0.5	6	105	33	8.1	<10	<1	0.98	20	0.68	823	1	0.08	17	410	<2	3.46	<2	3	12	0.17	<10	<10	30	<10	85
DDHBQ08	BQ0363	339.66	340.68	0.009	<0.005	0.001	0.3	1.3	9	<10	30	<0.5	2	0.3	<0.5	5	134	35	8.48	10	<1	0.88	20	0.78	1120	<1	0.07	21	410	<2	3.6	<2	2	11	0.16	<10	<10	27	<10	90
DDHBQ08	BQ0364	340.68	341.71	<0.001	<0.005	<0.001	<0.2	1.1	2	<10	130	<0.5	<2	0.6	<0.5	8	101	2	1.87	<10	1	0.57	10	0.66	247	<1	0.15	13	420	<2	0.03	<2	3	26	0.17	<10	<10	35	<10	43
DDHBQ08	BQ0366	341.71	342.41	0.008	<0.005	<0.001	0.3	1.3	<2	<10	20	<0.5	<2	0.75	<0.5	18	153	41	11.1	<10	<1	0.78	20	0.82	1675	<1	0.07	28	380	11	5.68	<2	2	14	0.13	<10	<10	23	<10	96
DDHBQ08	BQ0367	342.41	343.17	0.008	<0.005	0.001	0.4	1.2	3	<10	30	<0.5	<2	0.9	<0.5	9	133	39	12	<10	3	0.44	10	0.69	3130	1	0.07	32	360	7	4.88	<2	2	15	0.08	<10	<10	18	<10	95
DDHBQ08	BQ0368	343.07	345.75	0.032	<0.005	<0.001	1.1	0.1	3	<10	10	<0.5	13	0.98	<0.5	178	64	142	39.4	<10	2	0.01	10	0.08	341	3	0.01	65	100	38	>10.0	<2	1	7	<0.01	<10	<10	5	<10	23
DDHBQ08	BQ0369	343.75	344.75	0.006	<0.005	<0.001	1.5	0.4	<2	<10	50	<0.5	9	0.38	<0.5	5	51	218	46.5	<10	2	0.22	<10	0.3	1030	2	0.03	124	100	57	5.1	<2	1	4	0.02	<10	<10	10	<10	38
DDHBQ08	BQ0370	344.75	345.30	0.016	<0.005	<0.001	1.3	0.7	5	<10	60	<0.5	13	0.17	<0.5	<1	24	322	>50	<10	2	0.59	<10	0.58	502	26	0.02	140	60	57	4.54	<2	1	2	0.02	<10	<10	15	<10	70
DDHBQ08	BQ0371	345.30	346.06	0.084	<0.005	<0.001	0.7	1.5	2	<10	10	<0.5	7	0.63	<0.5	17	120	81	19.8	<10	1	0.79	10	0.97	3420	10	0.07	45	240	21	7.08	2	1	9	0.09	<10	<10	21	10	142
DDHBQ08	BQ0372	346.06	346.63	0.005	<0.005	<0.001	0.2	1.3	<2	<10	50	<0.5	<2	0.51	<0.5	<1	90	27	7.38	10	1	0.81	10	0.94	936	3	0.08	16	400	5	2.11	4	2	12	0.12	<10	<10	24	<10	122
DDHBQ08	BQ0373	346.63	347.19	0.05	0.007	0.002	1.2	0.5	<2	<10	50	<0.5	3	1.04	<0.5	<1	84	180	29.7	<10	1	0.16	10	0.36	949	1	0.04	82	130	25	5.5	<2	1	18	0.02	<10	<10	10	10	69
DDHBQ08	BQ0374	347.19	347.73	<0.001	<0.005	<0.001	<0.2	0.6	<2	<10	130	<0.5	<2	1.08	<0.5	2	88	3	1.28	<10	<1	0.09	10	0.33	327	<1	0.06	6	240	5	0.16	<2	1	32	<0.01	<10	<10	9	<10	33

Appendix X. Analytical Data, Blank Samples, Twins property.

Sample Number	From (m)	To (m)	From (m)	To (m)	Au ppm	Pt ppm	Pd ppm	Ag ppm	Al %	As ppm	B ppm	Ba ppm	Be ppm	Bi ppm	Ca %	Cd ppm
BQ0113	145.21	145.53			<0.001	<0.005	<0.001	<0.2	1	<2	<10	140	<0.5	<2	0.5	<0.5
BQO280	145.21	145.53			0.001	<0.005	<0.001	<0.2	1.1	<2	<10	130	<0.5	<2	0.53	<0.5
BQ0133	145.53	145.78			0.001	<0.005	<0.001	<0.2	1.1	<2	<10	130	<0.5	<2	0.56	<0.5
BQO291	145.53	145.78			0.001	<0.005	<0.001	<0.2	1.1	<2	<10	130	<0.5	<2	0.55	<0.5
BQO262	147.00	147.30			<0.001	<0.005	<0.001	<0.2	1	2	<10	100	<0.5	<2	0.62	<0.5
BQ0144	147.00	147.30			0.001	<0.005	0.001	<0.2	1	<2	<10	100	<0.5	<2	0.61	<0.5
BQ0146	146.00	146.33			0.001	<0.005	<0.001	<0.2	1.1	2	<10	90	<0.5	<2	0.89	<0.5
BQO300	146.00	146.33			<0.001	<0.005	<0.001	<0.2	1.2	<2	<10	90	<0.5	<2	0.98	<0.5
BQ0153	146.37	146.70			0.001	<0.005	<0.001	<0.2	1	6	<10	120	<0.5	<2	0.56	<0.5
BQO318	146.37	146.70			<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	100	<0.5	<2	0.6	<0.5
BQO309	146.33	146.37	145.78	146.00	<0.001	0.012	0.001	<0.2	1.2	2	<10	110	<0.5	<2	0.7	<0.5
BQ0162	146.33	146.37	145.78	146.00	<0.001	<0.005	<0.001	<0.2	1.1	3	<10	130	<0.5	<2	0.63	<0.5
BQO329	146.70	146.90			<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	100	<0.5	<2	0.59	<0.5
BQ0171	146.70	146.90			<0.001	<0.005	<0.001	<0.2	1	3	<10	120	<0.5	<2	0.6	<0.5
BQ0177	147.30	147.62			<0.001	<0.005	<0.001	<0.2	1	<2	<10	120	<0.5	<2	0.58	<0.5
BQO271	147.30	147.62			<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	110	<0.5	<2	0.6	<0.5
BQ0183	147.80	148.07			0.001	<0.005	0.001	<0.2	1	<2	<10	130	<0.5	<2	0.49	<0.5
BQO340	147.80	148.07			<0.001	<0.005	<0.001	<0.2	1.3	5	<10	120	<0.5	<2	0.53	<0.5
BQO405	148.07	148.38			<0.001	<0.005	0.001	<0.2	1.2	<2	<10	130	<0.5	<2	0.58	<0.5
BQ0190	148.07	148.38			<0.001	<0.005	<0.001	<0.2	1.2	5	<10	140	<0.5	<2	0.63	<0.5
BQO197	148.38	148.58			<0.001	<0.005	<0.001	<0.2	1.2	<2	<10	120	<0.5	<2	0.6	<0.5
BQO421	148.38	148.58			<0.001	0.005	0.006	<0.2	1.1	<2	<10	110	<0.5	<2	0.55	<0.5
BQO204	148.58	148.87			<0.001	<0.005	<0.001	<0.2	1	<2	<10	110	<0.5	<2	0.58	<0.5
BQO430	148.58	148.87			<0.001	<0.005	<0.001	<0.2	1	<2	<10	120	<0.5	<2	0.53	<0.5
BQO211	148.87	149.12			<0.001	<0.005	<0.001	<0.2	1	<2	<10	110	<0.5	<2	0.66	<0.5
NA	148.87	149.12														
BQO222	149.42	149.67			<0.001	<0.005	0.001	<0.2	1.1	<2	<10	120	<0.5	<2	0.69	<0.5
BQO384	149.42	149.67			<0.001	<0.005	<0.001	<0.2	1	2	<10	110	<0.5	<2	0.73	<0.5
BQO230	149.67	150.00			<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	140	<0.5	<2	0.63	<0.5
BQO375	149.67	150.00			<0.001	<0.005	0.001	<0.2	1.1	<2	<10	150	<0.5	<2	0.67	<0.5
BQO236	146.90	147.00	147.62	147.80	<0.001	<0.005	<0.001	<0.2	1.2	<2	<10	120	<0.5	<2	0.66	<0.5
NA	146.90	147.00	147.62	147.80												
BQO356	150.00	150.32			<0.001	<0.005	<0.001	<0.2	1.2	3	<10	120	<0.5	<2	0.58	<0.5
BQO240	150.00	150.32			<0.001	<0.005	<0.001	<0.2	1.2	2	<10	140	<0.5	<2	0.71	<0.5
NA	150.55	150.88														
BQO245	150.55	150.88			<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	150	<0.5	<2	0.69	<0.5
BQO246	150.32	150.55			<0.001	<0.005	<0.001	<0.2	1	<2	<10	120	<0.5	<2	0.54	<0.5
BQO365	150.32	150.55			<0.001	<0.005	<0.001	<0.2	1.1	2	<10	130	<0.5	<2	0.6	<0.5
BQO394	149.12	149.42			<0.001	<0.005	0.001	<0.2	1.1	<2	<10	110	<0.5	<2	0.75	<0.5
BQO253	149.12	149.42			<0.001	<0.005	<0.001	<0.2	1.1	<2	<10	100	<0.5	<2	0.8	<0.5

Sample Number	Co ppm	Cr ppm	Cu ppm	Fe %	Ga ppm	Hg ppm	K %	La ppm	Mg %	Mn ppm	Mo ppm	Na %	Ni ppm	P ppm	Pb ppm	S %	Sb ppm	Sc ppm	Sr ppm	Ti %	Tl ppm	U ppm	V ppm	W ppm	Zn ppm
BQ0113	8	35	4	1.78	<10	1	0.6	10	0.68	277	<1	0.11	12	440	<2	0.05	<2	3	18	0.18	<10	<10	36	<10	43
BQO280	8	82	2	1.76	10	<1	0.58	10	0.66	278	1	0.1	12	430	<2	0.03	<2	3	19	0.18	<10	<10	35	<10	42
BQ0133	8	43	5	2.02	<10	<1	0.58	10	0.69	283	<1	0.12	11	440	<2	0.13	<2	3	21	0.18	<10	<10	36	<10	42
BQO291	8	72	5	2.05	<10	<1	0.59	10	0.67	280	1	0.11	14	420	<2	0.11	<2	3	20	0.19	<10	<10	35	<10	44
BQO262	7	112	2	1.82	10	1	0.51	10	0.61	260	<1	0.11	14	410	<2	0.04	<2	2	18	0.17	<10	<10	33	<10	40
BQ0144	7	31	2	1.73	<10	<1	0.49	10	0.6	244	<1	0.11	9	440	<2	0.07	<2	3	18	0.16	<10	<10	33	<10	39
BQ0146	8	61	2	2.11	10	1	0.45	10	0.73	272	<1	0.12	10	430	<2	0.12	<2	3	24	0.16	<10	<10	35	<10	41
BQO300	8	126	1	1.98	10	<1	0.42	10	0.71	271	<1	0.12	12	420	<2	0.03	<2	2	29	0.15	<10	<10	33	<10	41
BQ0153	7	35	1	1.89	<10	1	0.52	10	0.62	244	<1	0.1	11	470	<2	0.08	<2	2	18	0.17	<10	<10	33	<10	39
BQO318	8	104	7	1.71	<10	<1	0.53	10	0.64	252	1	0.13	12	430	5	0.01	<2	3	27	0.18	<10	<10	34	<10	50
BQO309	9	119	3	2	10	<1	0.53	10	0.71	297	1	0.13	15	440	<2	0.05	<2	3	29	0.19	<10	<10	37	<10	44
BQ0162	9	39	2	2.11	10	<1	0.55	10	0.7	284	<1	0.1	10	460	<2	0.12	<2	3	19	0.18	<10	<10	37	<10	43
BQO329	8	138	3	1.87	<10	<1	0.55	10	0.65	252	<1	0.11	14	430	<2	0.09	<2	3	22	0.18	<10	<10	34	<10	43
BQ0171	8	33	2	2.57	10	<1	0.56	10	0.68	297	<1	0.09	11	490	<2	0.1	<2	2	16	0.18	<10	<10	35	<10	43
BQ0177	8	34	2	2.19	10	1	0.56	10	0.62	270	<1	0.1	11	460	<2	0.06	<2	3	19	0.18	<10	<10	36	<10	42
BQO271	7	115	3	1.87	<10	<1	0.56	10	0.63	262	<1	0.13	15	410	<2	0.06	<2	3	22	0.18	<10	<10	34	<10	40
BQ0183	8	35	3	2.03	<10	1	0.63	10	0.66	295	<1	0.09	11	450	<2	0.03	<2	2	16	0.19	<10	<10	36	<10	45
BQO340	8	116	3	2.02	<10	<1	0.68	10	0.72	323	1	0.14	14	430	<2	0.04	<2	3	27	0.2	<10	<10	38	<10	47
BQO405	9	76	8	2.09	10	<1	0.74	10	0.8	336	1	0.14	15	530	<2	0.04	<2	3	26	0.21	<10	<10	36	<10	51
BQ0190	9	40	6	2.37	10	<1	0.73	10	0.81	356	<1	0.12	12	500	<2	0.07	<2	3	21	0.22	<10	<10	37	<10	56
BQO197	8	125	5	2.36	10	1	0.68	10	0.77	343	1	0.11	19	400	<2	0.05	<2	3	21	0.21	<10	<10	35	<10	50
BQO421	8	85	5	1.88	<10	<1	0.63	10	0.72	302	<1	0.11	12	440	<2	0.03	<2	3	22	0.19	<10	<10	33	<10	47
BQO204	8	168	4	2.04	<10	<1	0.56	10	0.63	279	1	0.11	12	440	<2	0.03	<2	3	23	0.19	<10	<10	35	<10	43
BQO430	7	83	4	1.74	<10	<1	0.57	10	0.64	249	1	0.1	11	480	<2	0.03	<2	2	25	0.18	<10	<10	34	<10	41
BQO211	7	166	3	2.58	<10	1	0.51	10	0.62	338	2	0.11	14	430	<2	0.09	<2	3	20	0.17	<10	<10	34	<10	44
NA																									
BQO222	8	150	2	2.02	<10	1	0.52	10	0.66	293	2	0.12	16	430	<2	0.04	<2	3	20	0.18	<10	<10	33	<10	46
BQO384	7	125	3	1.85	<10	2	0.45	10	0.64	267	<1	0.13	12	490	2	0.02	<2	3	24	0.16	<10	<10	35	<10	41
BQO230	7	160	4	2.09	<10	<1	0.62	10	0.69	306	1	0.11	17	430	<2	0.04	<2	3	19	0.19	<10	<10	35	<10	44
BQO375	8	92	2	1.94	10	1	0.58	10	0.69	304	<1	0.15	12	440	2	0.02	<2	3	25	0.18	<10	<10	36	<10	45
BQO236	8	174	4	2.16	10	<1	0.6	10	0.69	295	2	0.13	19	430	<2	0.04	<2	3	22	0.2	<10	<10	38	<10	45
NA																									
BQO356	7	76	3	1.88	<10	<1	0.59	10	0.67	290	<1	0.15	11	420	2	0.05	<2	3	28	0.18	<10	<10	34	<10	48
BQO240	8	185	3	2.36	10	1	0.62	10	0.73	319	2	0.14	18	470	<2	0.03	<2	3	23	0.2	<10	<10	38	<10	46
NA																									
BQO245	7	190	4	2.19	10	1	0.62	10	0.71	305	2	0.12	18	460	<2	0.02	<2	3	20	0.2	<10	<10	39	<10	53
BQO246	7	121	2	1.84	<10	<1	0.57	10	0.64	237	1	0.1	13	430	<2	0.01	<2	3	18	0.18	<10	<10	33	<10	41
BQO365	8	101	2	1.87	<10	1	0.57	10	0.66	247	<1	0.15	13	420	<2	0.03	<2	3	26	0.17	<10	<10	35	<10	43
BQO394	8	125	3	1.98	10	2	0.49	10	0.68	278	<1	0.14	15	510	2	0.01	<2	3	25	0.17	<10	<10	37	<10	43
BQO253	7	74	1	2.01	10	<1	0.51	10	0.69	289	1	0.15	15	450	2	0.04	<2	3	25	0.19	<10	<10	35	<10	45