GEOLOGICAL MAP OF PART OF THE GEORGIE RIVER PROPERTY, SKEENA MINING DIVISION, B.C.

TENURE NOS. 250725, 250737,525949, 614843, 614923, 615123, 615144, 615163, 615243, 615263, 758982, 759002

NTS MAPSHEETS: 103O/09, 103O/16, 103P/12, 103P/13

TRIM MAP SHEETS: 103O.080, 103O.090, 103P.071, 103P.081

Latitude: 55° 46’ 37” N

Longitude: 130° 3’ 6” W

434,030 m E 6,181,740 m N

(Universal Transverse Mercator Zone 9; 1983 North American Datum)

prepared for

AURAMEX RESOURCE CORP.

by

P. Metcalfe, Ph.D. P.Geo.

Palatine Geological Ltd.

P.O. Box 289, Gabriola, B.C. V0R 1X0

25th January, 2011

Owner: Auramex Resource Corp.

SUMMARY

The Georgia River Property covers a 6,666 hectare area located 18 km south of Stewart B.C., on the steep eastern shore of the Portland Canal. This area has been a focus of exploration and development for at least 100 years, centred around the veins of the past-producing Georgia River Gold Mine, and including both the Glory Extension and Lydden vein-style mineral occurrences on the property and several occurrences immediately peripheral to it.

2010 fieldwork comprised geological mapping, augmented by a helicopter-borne magnetic and transient electromagnetic survey. With the exception of some short orientation traverses, mapping was carried out exclusively along the crest of Colling Ridge, to the northeast and southwest of the Georgia River Mine. The section examined exposes a sequence of dominantly pyroxene-phyric volcanic and derived volcanoclastic sedimentary rocks with minor medium grained igneous rocks. Finer grained sedimentary rocks predominate to the north; volcanic and coarse grained volcanic sedimentary rocks predominate to the south of the section.

The volcanosedimentary rocks are intruded by two suites of felsic rocks. The first, pre- or syn-kinematic suite is intruded into the country rock along the entire section, albeit with increasing abundance northward and comprises small irregular bodies of feldspar+quartz±hornblende phyric, commonly feldspar megaphyric granitoid: the "Colling Ridge Porphyry". The later, post-kinematic suite comprises prominently weathering dykes of an undeformed, unaltered hornblende+feldspar+biotite+quartz phyric granitoid: the "Four-Phase Porphyry". Phenocryst assemblages and previously measured isotopic ages of 189.8 Ma and 50.7 Ma identify these intrusions as part of the metallogenic Texas Creek Plutonic Suite and the Hyder Plutonic Suite, respectively.

The absence from Colling Ridge of volcanic rocks cognate with the Jurassic intrusions strongly suggests that the layered rocks are not of Texas Creek age. The 189.8 Ma age of the Colling Ridge Porphyry is a minimum age for the layered rocks, precluding their correlation with the Salmon River Formation. On the basis of the basic nature of the volcanic rocks and the predominance of pyroxene phenocrysts in their phenocryst assemblages, the layered rocks on Colling Ridge are assigned herein to the Stuhini Group.

The Colling Ridge section has undergone at least three and possibly four phases of deformation. The first deformation formed medium- to large-scale, northeast-vergent, moderate to tight folds about southeast trending axes, with moderately dipping southwest-facing limbs and steep, vertical and overturned northeast-facing limbs. Axial planes for this initial phase of folding strike southeast and dip moderately southwest. At least one major fold axis occurs 1 km northeast of the Georgia River Mine.

Initial folding was synchronous with, or closely followed by development of northeastward-vergent shear zones with moderate southwest dips. Shear strain was concentrated in a zone bounded to the northeast by the major fold axis and extending for roughly 2 km southwest; the north and south ends of the Colling Ridge section are nearly strain-free. The core to the high-strain zone extends southwest from the mine area for a distance of 1 km.

There is no evidence that the Colling Ridge Porphyry underwent folding; there is abundant evidence that intrusions of this suite underwent shearing in the high strain zone. Kinematic indicators suggest that the strain was brittle-ductile with reverse and dextral components of movement. The low-grade Au mineralization of the Main Vein at the Georgia River Mine is associated with this shearing, as is the weak to moderate, shear-hosted quartz veining and associated disseminated sulphide mineralization in the high strain zone, 500 m west of the mine.

Bedding and first-formed foliation are refolded, in relatively incompetent rocks, about north to north-northeast striking, near-vertical to steeply west-dipping axial planes. These are not commonly observed but parallel, brittle structures are present along the entire length of the section examined and have the same orientation as the cross-cutting Phase 2 veins hosting historic, higher grade Au mineralization in the mine. The north-striking structures are cut by post-kinematic dykes and appear to displace the southwest-dipping shear zones. However, the geometric relationship of the north-striking structures to the reverse/dextral shear zones suggests that the former may have formed as extension fractures during the initial phase of deformation. The north-striking structures were also reactivated as extension structures to east-northeast striking, sinistral post-mineral faults which displace the post-kinematic dykes. These sinistral faults represent the latest phase of deformation affecting the Colling Ridge section.

Results of the airborne magnetic survey are consistent with the geometry of the structures observed during fieldwork. The VTEM survey defined two anomalous areas along Colling Ridge, associated with high-strain zones. A third area of scattered, very weakly conductive anomalies surrounds the Lydden showing in the south of the property. A fourth, “singleton” anomaly lies along the projected trace of a probable structure identified from the air; low priorities are assigned to these last two anomalies.

It is recommended that future exploration (exclusive of the mine area) be directed towards ground-truthing both anomalous zones on Colling Ridge, prioritising the slightly stronger anomaly closer to the Georgia River Mine. Gridded surface lithochemistry is proposed to test alteration and mineralization exposed at surface. At the same time the structure should be tested below surface by sampling for Mobile Metal Ions, augmented by a three-dimensional induced polarisation survey. Contingent on encouragement from these surveys, exploratory drilling should be carried out to test both southeast and north-northeast-striking structures. The drill program should be prepared to test either structure set to considerable depth.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF PLATES

INTRODUCTION

The purpose of this report is to describe geological mapping carried out by the author in parts of the Georgie River property during a four-week period in August and September 2010.

Units of measure in this report are metric. Monetary amounts referred to are expressed in Canadian dollars unless otherwise stated. Unless noted in the caption, maps are presented in Universal Transverse Mercator (UTM) projection, using the 1983 North American Datum (NAD'83); the tenure lies in Zone 9.

PROPERTY LOCATION AND DESCRIPTION

Location of property

The 6,666 ha Georgie River property is situated immediately east of the Portland Canal, 18 km south of Stewart in NW British Columbia (Figure 1), centred on latitude 55° 46' 37" N and longitude 130° 3' 6" W (434,030 m E, 6,181,740 m N). The National Topographic System (NTS) map areas which include the mineral tenure are 103O/09, 103O/16, 103P/12 and 103P/13; similarly, the tenures lie at the junction of Terrain Resource Integrated Management (TRIM) map sheets 103O.080, 103O.090, 103P.071 and 103P.081.

Mineral tenure

The Georgie River property comprises seven Crown Granted Mineral Claims and twenty-four mineral tenures. Five of the mineral tenures are legacy mineral tenures resulting from the conversion of previously Crown Granted land; the remainder are electronic mineral tenures acquired online. Details of the mineral tenures are presented in Table 1 and those of the surviving Crown Granted Mineral Claims are presented in Table 2.

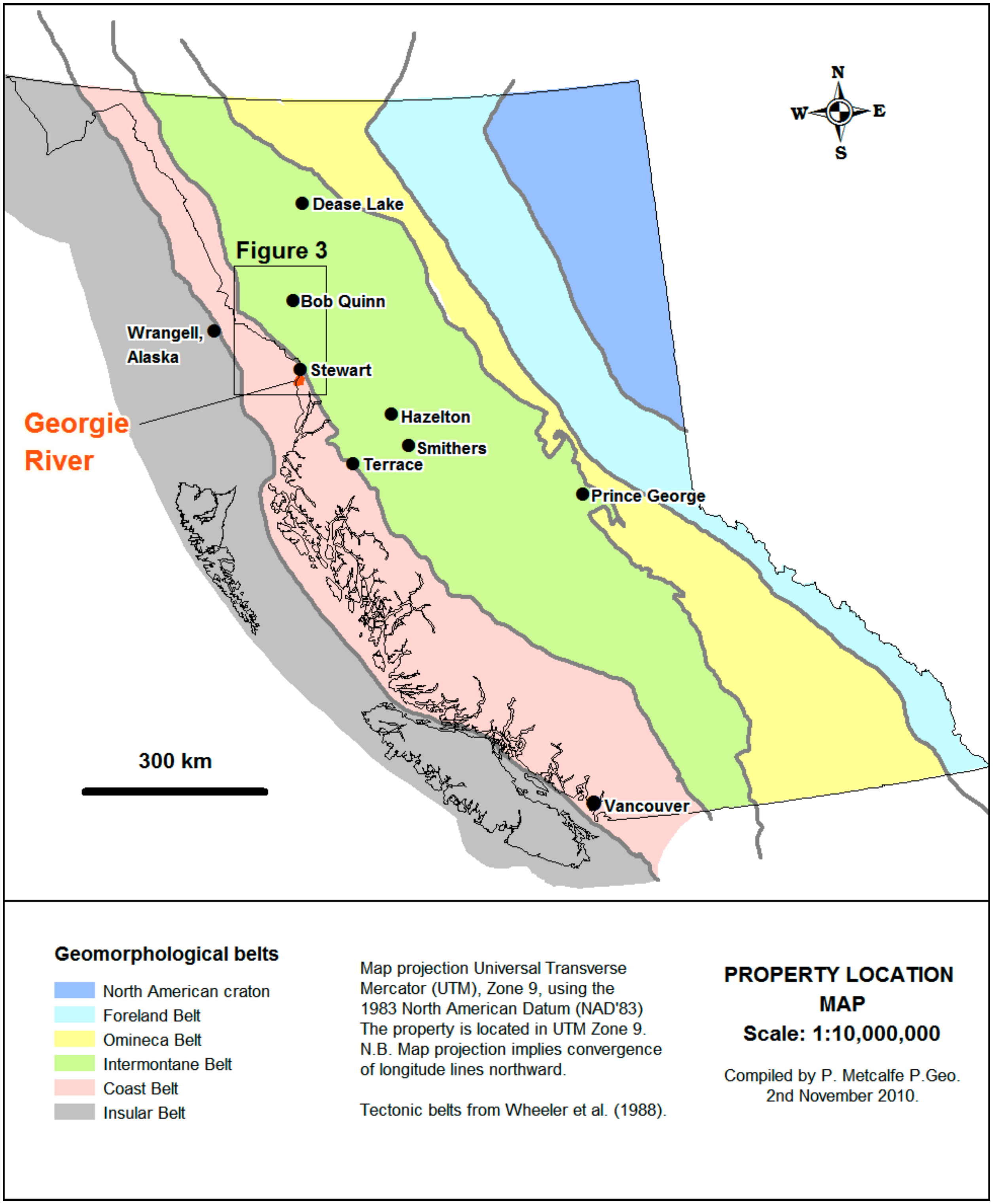


Figure 1. Location of mineral property, showing boundaries of Figure 3.

Table 1. Mineral tenure details

Tenure	Claim Name	Owner	Issue date	Expiry Date	Area (ha)
250721	Converted Crown Grant	Auramex Resource Corp.	02-Aug-1979	15-dec-2020	25
250723	Converted Crown Grant	Auramex Resource Corp.	02-Aug-1979	15-dec-2020	25
250725	Converted Crown Grant	Auramex Resource Corp.	02-Aug-1979	15-dec-2020	25
250736	Converted Crown Grant	Auramex Resource Corp.	02-Aug-1979	15-dec-2020	25
250737	Converted Crown Grant	Auramex Resource Corp.	02-Aug-1979	15-dec-2020	25
525948	GEORGIE GIRL 1	Auramex Resource Corp.	20-Jan-2006	15-dec-2014	455.583
525949	GEORGIE GIRL 2	Auramex Resource Corp.	20-Jan-2006	15-dec-2014	455.404
525950	GEORGIE GIRL 3	Auramex Resource Corp.	20-Jan-2006	15-dec-2014	345.951
614843		Auramex Resource Corp.	04-Aug-2009	15-dec-2014	400.226
614923	GEORGIA RIVER 1	Auramex Resource Corp.	04-Aug-2009	15-dec-2014	254.612
615123	COL 1	Auramex Resource Corp.	05-Aug-2009	15-dec-2014	454.957
615144	COL 2	Auramex Resource Corp.	05-Aug-2009	15-dec-2014	454.468
615163	COL 3	Auramex Resource Corp.	05-Aug-2009	15-dec-2014	454.564
615183	COL 4	Auramex Resource Corp.	05-Aug-2009	15-dec-2014	454.607
615203	COL 5	Auramex Resource Corp.	05-Aug-2009	15-dec-2014	454.915
615223	COL 6	Auramex Resource Corp.	05-Aug-2009	15-dec-2014	218.407
615243	COL 7	Auramex Resource Corp.	05-Aug-2009	15-dec-2014	454.731
615263	COL 8	Auramex Resource Corp.	05-Aug-2009	15-dec-2014	454.593
615283	COL 9	Auramex Resource Corp.	05-Aug-2009	15-dec-2014	236.427
615303	COL 10	Auramex Resource Corp.	05-Aug-2009	15-dec-2014	308.907
641783	GEORGIE GIRL 4	Auramex Resource Corp.	27-Sep-2009	15-dec-2014	437.144
641784	GEORGIE GIRL 5	Auramex Resource Corp.	27-Sep-2009	15-dec-2014	455.322
758982		Auramex Resource Corp.	27-Apr-2010	15-dec-2014	18.1799
759002		Auramex Resource Corp.	27-Apr-2010	15-dec-2014	145.439

Table 2. Description of Crown Grants

Cassiar District Lot No.	Name	Date of Issue	Owner
4437	GEORGIA	20/Sep/1920	
4438	GEORGIA NO. 1	20/Sep/1920	
4439	GEORGIA NO. 2	20/Sep/1920	
5150	GEM	01/Oct/1923	
5151	GEM NO. 1	01/Oct/1923	
5155	GOLDFIELDS NO. 3	03/Sep/1924	
5164	TOP FRACTION	21/Sep/1928	
5166	GOLD FRACTION	23/Sep/1928	

Physiography, climate and vegetation

The Georgie River Property covers an area in British Columbia's rugged Coast Mountains, an area characterised by steep slopes, and high rainfall. The property extends from sea level at its western boundary to as high as 1,700 m above sea level (a.s.l.) on its eastern boundary (Figure 2). Glaciation has incised the topography deeply, creating characteristic U-shaped valleys, with an alp, or break of slope, at elevations between 1000 m and 1200 m elevation a.s.l. Uplift of the Coast Mountains during periods of isostatic rebound has enabled overdeepening of the existing glaciated valleys by rivers and streams. This overdeepening is well-illustrated by the valley of the main (north) fork of the Georgie River which drains to the south and west from Glory Lake, near the centre of the property. The river valley isolates the 1360 m north-south height of land called Colling Ridge (Colling Range in older reports) from the main massif to the east. Both glaciated stream valleys and their fluvial successors often occupy zones of lithological weakness; this may be the case with Georgie River.

The area's climate is typical of the northern Coast Mountains. A Pacific maritime influence ensures relatively warm and consistently wet winters. Average temperatures at Stewart vary from –4°C in January to 15°C (exceptionally 30°C) in July. Annual rainfall in Stewart is 1843 mm, at least two-thirds of which falls during the winter months from September to February; at higher elevations it falls as snow. Despite this, all major and many subsidiary drainages flow throughout the year, except at alpine elevations. Fieldwork at higher elevations is usually possible until October but snow is possible at any time of year at nearly any elevation and, in years of heavy winter precipitation, snow-pack from the previous year might hinder exploration at higher elevations until as late in the year as September.

Vegetation is typical of the Pacific coast rain forest. Tree line on the property varies between 1000 and 1200 m a.s.l.; included in the category of "trees" (*i.e.*: below tree line) are numerous landslide slopes hosting moderately thick landslide alder, interspersed with minor Devil's Club. Timber stands between the landslide and avalanche slopes comprise spruce, hemlock, and cedar.

Above tree line the vegetation follows the progression common to the alpine of northwestern British Columbia, passing upslope through a zone of perennial and annual alpine flowering plants, and through a zone of heather; the western edge of the property is in tundra.

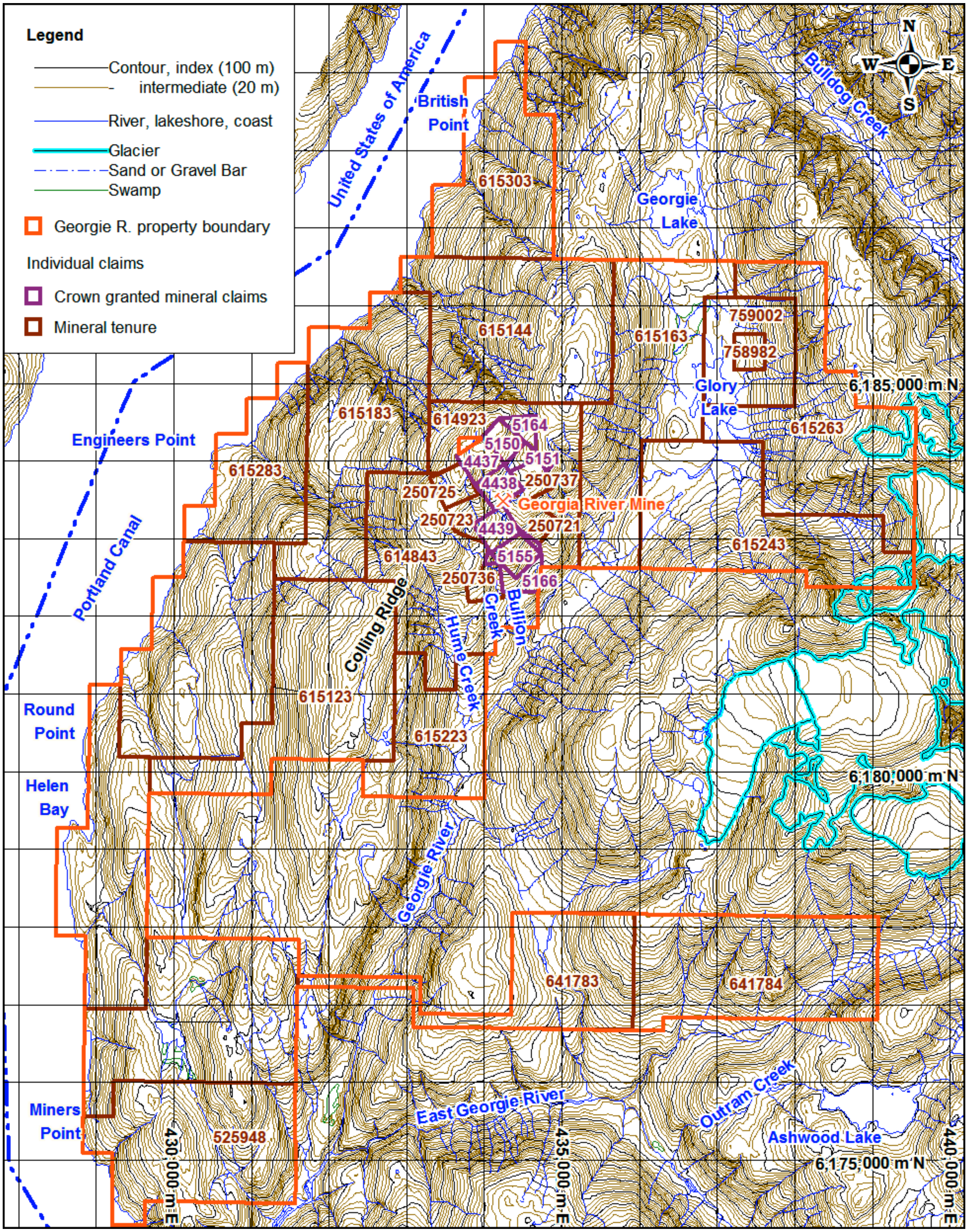


Figure 2. Topographic map of the mineral tenure, 1:75,000 scale.
Terrain Resource Integrated Management (TRIM) database.

Local resources and infrastructure

Over a hundred years before this report was written, Carmichael, the provincial Assayer for the Portland Canal District, wrote of the Portland Canal:

> *The importance of this arm, from a mining point of view, is that it gives deep seawater navigation to, and so renders easily accessible, a district in which the granites of the Coast Range came in contact with the sedimentary formations lying to the eastward and farther inland. This region of contact extends for the whole length of the Coast Range and, from its geological features, forms a zone of potential mineralization, as has been repeatedly pointed out in these reports and is here again emphasized.*
>
> (Carmichael 1906, p. H61)

Stewart, with its counterpart of Hyder, Alaska in the United States of America, are visible in clear weather from the top of Colling Ridge. Stewart has a history of mining well in excess of a hundred years and has celebrated both lean and "boom" years; presently, despite the recent financial bubble, the town is enjoying renewed prosperity directly related to the increase in mineral exploration. The town is accessible both from the sea and via a paved highway 333 km south to Smithers, therefore food, fuel and other supplies are either on hand or can be transported with minimal delay from the south.

As noted above, the Georgie River Property extends to tidewater. During and shortly after the Great War, a trail was constructed from the mouth of the Georgie River to the then-active Georgia[1] River Mine. The construction of the trail was assisted, in part, by the British Columbia Government (Clothier 1919). Few traces of this trail remain; present access to the property is by helicopter, Stewart airport being the nearest helicopter base at the time of writing, although parts of the shoreline on the property are accessible by boat. Communications in this area are made possible by satellite telephone and are limited by the steepness of valley sides; communications are excellent when above tree line. However, without a radio repeater, nearly all of the property is beyond the range of hand-held radio communication with Stewart.

[1] The reader will note the discrepancy between the spellings of the mine and the river from which the mine takes its name. All reports prior to 1953 refer to the river as the Georgia River, but the geographic name: "Georgie River", gazetted in that year, is now the formally assigned name of the river.

MINERAL OCCURRENCES AND HISTORY OF EXPLORATION

Mineral exploration in the Stewart-Anyox area began before Confederation and discovery of vein mineralization in the area was made at around the turn of the last century. Mining operations date back to the opening of the Anyox and Silbak Premier mines in 1914 and 1918, respectively. The earliest record of exploration in the area of the Georgie River property (Flewin 1906, Carmichael 1907, Conway 1911) refer to the discovery of mineralization (MINFILE 103O 016) near the southern end of the present Auramex property and the acquisition of the Black Knight and Black Knight No. 1 claims.

Mineralization discovered on and around the Auramex property itself has been in three principal areas. These will be described by mineral occurrence or area, followed by description of occurrences peripheral to the property. Notes on each mineral occurrence are based on the appropriate assessment reports and upon MINFILE (BC Geological Survey Branch 1991-2010).

Common to all the explored areas in the Georgie River watershed is a hiatus of data from exploration activity, beginning at the beginning of the Second World War and extending well into the second half of the last century. This may owe in part to the necessary reorganisation of the Ministry to prioritise production-based reporting, at the expense of exploration; in any case, the gap in data exists. The inception of the modern assessment reporting system in the late 1940s did not make incursion into the Georgie River area until the 1960s.

BLACK KNIGHT (BLUE POINT, VG)
MINFILE 103O 016

The discovery of the Black Knight has already been noted. The two claims (Black Prince Group) were located by Messrs. J. Stark and W. Flewin to cover "a showing of six feet of ore, four feet being galena and two feet zinc blende" and were later crown granted (as L3637 and L3656 to William Thomas Kergin, John Edmund Stark and George Rudge). Carmichael (1907) reported that a sample taken from the vein "appeared to be nearly solid galena and zinc blende, with little gangue matter and contained: lead, 43.0 % ; zinc, 28.0 %; silver, 16.4 oz. to the ton".

Conway (1911) reported that, during 1910, development work resulted in 275 feet of underground work, comprising "a large number", of open-cuts and prospect-shafts, etc. Conway reported anecdotal information of the vein width as "52 inches wide" and that it carried galena, blende, and iron-pyrite running from $16 to $50 per ton in silver and, lead. He further noted that:

"In the lower tunnel the zinc-blende shows a tendency to disappear, being replaced by chalcopyrite".

Despite such an encouraging start, the occurrence had no further work recorded in Ministry reports. Although the showing is noted by Kruchkowski (1985, 1986), the first record of fieldwork in the area is that of Kikauka (1990). Three areas were sampled, including the Lydden (see below), and a showing was found on a tributary draining the north bank of the Georgia River. Identified as the JJ, neither rock samples nor sediment samples returned high values. If this is indeed the Black Knight, it lies on Auramex ground; if in the published location (MINFILE 1991-2010), it is peripheral to the property.

LYDDEN (M.J., JO, JJ, LUXOR, MONTROSE)
MINFILE 103O 014

Clothier (1927) examined the M.J. group, comprising the L.J. Nos. 1 and 2, M.J. Nos. 1 and 2, and Little Pat Nos. 1 and 2 (non Crown Granted) claims owned by J. Lydden of Stewart, shortly after its discovery. The six claims were situated about 5.6 km (3½ miles) from the beach. The showings are noted as two or more quartz veins, mineralized with pyrrhotite and chalcopyrite, occurring in a quartz diorite or granodiorite. A sample of the mineralization returned only trace gold and 0.6 oz. silver to the ton, but 12 per cent copper.

The M.J. No. 1 claim covered all exposures of the mineralization. The lower exposures are at 640 m (2,100 feet), where two open-cuts were excavated about 30 m (100 feet) apart and the vein stripped between, showing its strike to be N. 60° W. and dip about 76° N.E. Clothier (*ibid.*) noted that "The lower of these cuts show 18 inches of nearly solid chalcopyrite . . . . The upper showings are at 2,350 feet (716 m), here exposing a foot or more (30 cm) well mineralized with chalcopyrite, standing perpendicularly along a ridge of granodiorite containing epidote striking N.30°W.; the mineralization is exposed for about 100 feet (30 m)".

Mandy (1932) noted that a cabin was situated about 3,000 feet from the main Georgia River trail at about altitude 1,800 feet (550 m). The showings were noted as quartz veins 2 to 30 inches (5-76 cm) in width, mineralized with chalcopyrite and pyrrhotite and hosted by quartz diorite.

The history of exploration of the Lydden Showing is described in some detail by Dunn (2006) and Dunn and Davis (2007); much of the post-1960 assessment work described herein is taken from these reports. In 1962 Newconex Explorations optioned claims covering the Lydden occurrence from a Mr. Alfred Teed of New Westminster, B.C. and carried out prospecting, geological mapping and a magnetometer survey (Sullivan 1962), outlining three zones of copper mineralization:

1. Disseminated copper to 0.46% on an andesite-mafic intrusive contact;
2. The Lydden showing, exposed for 27 m with elevated Cu values including a single value of 24 g/t gold and 10.27% copper over 0.6 metres and:
3. A 0.6 m wide zone on the west side of a feldspar porphyry dyke, located 150 m north and 60 m west of the Lydden showing, assaying 1.07% to 4.23% copper. In addition a magnetic anomaly 270 metres long and 80 metre wide was outlined north of the feldspar dyke.

In the area mapped, Sullivan noted three rock types: andesite, greenstone and diorite and suggested that the greenstone appeared to be the product of chloritic alteration of the andesite, further noting that: “The diorite intrudes both these units and like the andesite has undergone considerable chloritic alteration”. The geophysical work located a magnetic anomaly spatially associated with mineralization and extending north of the Lydden showing.

Knutson (1963) described geophysical, geological and geochemical work on the claims significantly to the north of the Lydden showing. At the south end of the 1963 grid a magnetic anomaly was located, extending to the south, possibly the other end of that located in 1962. However, geochemical results provided no encouragement

From 1963 to 1973 Zodiac Mines Ltd. and C & P Mining Co. Ltd. held the claims but no record of work has been found. The property lapsed in 1973, was reacquired by Mr. Sullivan and optioned to Inland Copper Ltd. who conducted a work program consisting of sampling the two main copper showings (Tully 1973). Sampling returned economic values in Cu (trace-0.6 g/t Au, 0.03-5.6 g/t Ag and 0.21-4.75% Cu) over widths from 0.9 to 1.5 metres coincident with the magnetic anomaly. Geochemical and geophysical surveys with follow-up drilling were recommended but were not carried out. In 1979 and 1980 J. Berkosha held the area but there is no public record of work.

In 1983 Pacific National Explorations Limited carried out geological mapping and sampling at the Lydden Showing itself, over the course of two days (Kruchkowski and Crimonese 1983). Their results essentially confirmed those of Sullivan (*op. cit.*). Further geological and geochemical work was recommended, but not carried out. In 1990 Navarre Resource Corporation carried out geological and geochemical work to the north of the Lydden Showing, in the area of its published location (Kikauka 1990). Further geological, geochemical and geophysical surveys were recommended with follow-up diamond drilling. Again, the property lapsed.

The latest work on the occurrence is that on the present mineral tenures, (Dunn 2006, Dunn and Davis 2007), comprising follow- up soil and rock sampling on the Lydden Showing and surrounding ground, confirming the results returned from previous studies. Dunn recommended a minimum of 500 metres of drilling to test the showing at depth.

Note on the location of the Lydden Showing

James (1929) reported that: "Owing to a misunderstanding as to the location of the (M.J.) property it was not examined . . . ." Time has not altered the nature of this problem; MINFILE occurrence 103O 014 is not at the location published. The original location (Sullivan 1962) is consistent with his claim location map and that reported by Dunn (2006, 2007). The published location is from subsequent exploration work elsewhere (Knutson 1963, Kikauka 1990, and from the location map in Kruchkowski and Crimonese (1983).

The correct location of the main Lydden showing is 431,265 m E, 6,176,925 m N (UTM Zone 9, NAD83).

GEORGIA RIVER MINE
MINFILE 103O 013

Mineralization on Colling Ridge was discovered at roughly the same time as that at the Lydden mineral occurrence; the subsequent acquisition of the John D., Guggenheim, J.P. Morgan, Danny, Lookout, Summit, Charlotte, and Hillside non-Crown granted mineral tenures by Danny Hume, Edward Fish and Clarence E. Jarvis of Stewart is recorded the following year (Conway 1912). These tenures became known as the Guggenheim Group.

An excellent summary of the early development of the Georgia River Mine (Alldrick *et al.* 1996), from Conway (*ibid*., 1915), Beaton (1916) Jack (1917) and Clothier (1918, 1919, 1921, 1923) is adapted in Table 3. In the penultimate of his reports, Clothier notes that a little work had been carried out, but with nothing to report; by 1922, all but two of the original claims had been dropped by the Georgia River Mining Company.

The first three Crown Granted mineral claims on Colling Ridge, Georgia, Georgia No.1 and Georgia No.2, were located on 20th September 1920; documents dating to 13th March 1924 show these claims registered in the names of the Georgia River Mining Company Limited (43.75% interest), Clarence E. Jarvis (25%), Edward Fish (25%) and Daniel Hume (6.25%). These preceded the acquisition of at least nineteen Crown Grants, acquired between 1923 and 1928 and registered in the name of Georgia River Gold Mines Limited; its successor company was Helena Gold Mines Limited. Little exploration activity was reported in the years immediately following these activities, other than upgrading and completion of the Georgia River trail to the mine site (Clothier 1926). Three years later, it was noted that: "Operations on the property have been at a standstill for a number of years, apparently because of a lack of funds . . . ." James (1929). A similar observation was made the following year (Mandy 1930).

Documentation of subsequent development and mining activity at the Georgia River Mine are described by Mandy (1931, 1933, 1937); the latest of these accounts presents a detailed account of development, including a mine plan and section. A total of 500 short tons (454 t) was mined in 1937, yielding 329 oz (10.2 kg) Au, 410 oz (12.75 kg) Ag and 7,301 lb. (3312 kg) Pb at an average grade of 0.658 oz/ton (22.56 gm/t) Au, 0.82 oz/ton (28.11 gm/t) Ag and 0.73 % Pb. Despite the renewed activity, Graham (1938) noted that there were no reserves of broken ore and subsequently that operations were suspended in 1937 and had not been resumed (Graham 1939).

Renewal of interest in the Georgia River Mine was probably triggered by the abrupt rise in gold prices in 1978. In 1980, E & B Explorations carried out an extensive exploration program including claim staking, grid layout, geological mapping, prospecting, trenching, underground mapping and sampling and diamond drilling (Kruchkowski 1980). The results of this exploration indicated an excellent exploration potential for the Georgia River Mine.

Table 3. Summary of exploration history, adapted from Alldrick *et al.* (1996)

Year	**Activity**
1912	Surface sampling and 17 ft (5.18 m) test shaft.
1913	16.76 m drift along Bullion vein.
1915	Bullion Vein drift advanced to 74.68 m; 10.67 m raise completed.
1916	Bullion Vein drift advanced to 362 ft (110.34 m); 35 ft (10.67 m) test winze on ore shoot.
1917	Bullion Vein drift advanced to 390 ft (118.87 m) &, raise breakthrough to surface. Bonanza ore assayed at 80.53 gm/t Au.
1918	Bullion Vein drift advanced to the 124.97 m; cross-cut driven west for 35 ft (10.67 m); winze deepened to 42 ft (12.80 m).
1920	Location of Georgia, Georgia #1 and Georgia #2 Crown Granted Mineral Claims
1922	Packhorse trail along Georgia River completed.
1923	Location of Gem and Gem #1 and Georgia #2 Crown Granted Mineral Claims
1924	Location of Goldfields, Goldfields #1, Goldfields #2, Goldfields #3, Sovereign, Sovereign #1 and Sovereign #2 Crown Granted Mineral Claims
1925	Georgia River Gold Mines incorporated; location of "June" group of Crown Granted Mineral Claims
1928	Wagon trail along Georgia River completed; location of Sovereign Fraction, Danny Fraction and Gem Fraction Crown Granted Mineral Claims
1929	Permanent camp completed; No.3 level advanced 520 ft (158.50 m) toward Southwest Vein.
1932	Cross-cut from Bullion vein intersects Southwest vein; drifted for 310 ft (94.48 m).
1933	9 holes totalling 929.64 m; no grade encouragement.
1936	Mill with 11 short tons (10 tonne) per day capacity completed.
1937	500 short tons (454 t) of stockpiled material processed at grades of 22.56 gm/t Au, 28.11 gm/t Ag and 0.73%Pb.
1939-1979	Hiatus
1979	6 BQ holes totalling 342.91 m test Southwest Vein near intersections with Main and Georgia veins.
1981	15 BQ holes (904.46 m) test Southwest and Georgia veins. 137 trenches completed. No2 level sampled.
1980	14 BQ holes (1105.17 m) test Southwest. Main and Georgia veins. Inferred (non-43-101 compliant) reserves calculated from results.
1988	15 BQ holes (2628.77 m) test Southwest. Main and Georgia veins. Inferred (non-43-101 compliant) reserves recalculated.
1989	8 BQ holes (1528.40 m) ten Southwest and Georgia veins. Inferred (non-43-101 compliant) reserves calculated for two ore shoots within Southwest Vein.
1990	15 BQTW holes (1556.66 m) test 8 geophysical targets, 3 minor veins and ore shoots within Southwest Vein.
1995	19 NQ holes on 15 m centres totalling 1840 m defined drill-indicated (non-43-101 compliant but probably correct) reserves in the two ore shoots within Southwest Vein.

Diamond drilling at the mine was recommended and subsequently carried out, as permitted by the availability of funds, over the next 15 years (Kruchkowski 1981, Kruchkowski and Konkin 1989, Kruchowski 1990, Bray and Rainsford 1990, Schatten 1995, Gruenwald 1996). Two of the exploration programs (Bray and Rainsford 1990, Schatten 1995) incorporated surface geophysical and geochemical surveys, combined with geological mapping.

On the basis of the work carried out to 1989, total combined (measured, indicated, inferred) reserves at Georgia River reported in 1989 were stated as 290,272 tonnes grading 28.7 grams per tonne gold (George Cross News Letter May 11, 1989). Drill indicated reserves reported in 1995 were 272,130 tonnes grading 27.7 grams per tonne gold (George Cross News Letter No.118 (June 20, 1995). Neither of these estimates complies with National Instrument 43-101.

In 2003, Mountain Boy Minerals Ltd. acquired an option on the Georgia River gold property from Exchequer Resource Corp. and drilled 20 holes for a total of 1010 m. (Wojdak 2004). Twelve other holes tested the northeast trending Southwest and Bullion veins, where the Gem Vein intersects them. These holes cut altered and silicified rocks but no significant gold values. An indicated resource of 130 000 tonnes grading 19.2 gm/t Au and an inferred resource of 53, 700 tonnes grading 16.9 gm/t Au was based on this latest drilling. Again, the resource is not compliant with National Instrument 43-101.

GLORY EXTENSION (CARDOZO, WOOD 5)
MINFILE 103P 184

One other mineral occurrence, the Glory Extension, lies on the property itself. This occurrence is one of a series including the Glory (103P 011), Glory Extension 2 (103O 006), B.C. Verde (103O 012) and Big Mike (103O 011), which compose a group of quartz sulphide vein occurrences peripheral to the Jurassic Bulldog Creek Pluton (see below). Discovery of the Glory showings was made in 1922 (Clothier 1923) and these occurrences were subsequently explored for low-grade, bulk tonnage potential (Clothier 1924, 1925), a radical concept at that time. Despite these activities, James (1928) was not encouraged by the grades encountered in the Glory Group and Mandy (1931) remarked: “Nothing of commercial, importance is exposed in the twenty-four different showings and workings examined on this property.” No further work was carried out on these occurrences until the 1980s.

In 1981, mineral tenures were acquired covering the Glory Extension and showings peripheral to it. Some at least of the old adits were located and two programs of geochemical sampling were carried out on the ground (Crimonese 1982, 1983). No further work is recorded for this area.

Occurrences peripheral to the property

Eight claims of the BC Verde group (103O 012) were staked at the north end of Colling Ridge (Clothier 1922). James (1928) noted the excavation of "several trenches and open-cuts" there; the trenches are still evident, but no further work is described on this occurrence.

At the Big Mike mineral occurrence (103O 011), Clothier (1927) described a short adit driven on a 0.3 m-wide quartz vein with pyrite, minor galena and sphalerite and traces of visible gold. No further work is reported until 1986, when a program of geological, geophysical, and geochemical surveying was carried out (Di Spirito *et al*. 1986). The mineral occurrence is hosted by the Early Jurassic Bulldog Creek intrusion (see below) and comprises a gold- and silver-bearing quartz vein. Rock samples from the main adit and open cut returned variable gold values, the highest value being 1.554 oz./ton (53.28 gm/t) Au across 40 cm. An airborne magnetic high exists in the area of the main adit, coincident with a weak, broad VLF-EM conductor extending about one kilometre from the main adit area.

The Pedro Georgia showing (103O 015) was the latest-described (James 1929) of the discoveries; however, exploration work in 1928 was carried out apparently on an existing adit. Subsequent exploration (Mandy 1932, 1934) identified a vein with structural similarity to and along strike from the workings of the Georgia River Mine. For this reason, the Pedro Georgia occurrence is the most interesting of those peripheral to the property. A total of four adits were worked during the early exploration.

An excellent summary of the exploration history is given by Robins (1991). From 1936 to 1983 the property remained dormant until Lonetree Resources acquired the ground. Stream sediment geochemistry, prospecting, sampling and mapping was carried out on the Pedro Georgia mineral occurrence from 1984 onwards (Kruchowski 1985, Ostensoe 1985, Kruchowski 1986, 1987, 1988a 1988b). Three of the four adits were discovered, reopened and sampled. The samples returned erratic grades as high as 4.088 opt (144.25 gm/t) Au in shear-hosted quartz veins with a gangue of quartz, calcite and chlorite.

GEOLOGICAL SETTING

Regional geology

The Georgie River property is located within the Intermontane Belt of the Canadian Cordillera on the western margin of the Stikine terrane (Stikinia). More specifically, it lies within an area extending north and northwest from a southern apex at the old mining camp of Anyox and which hosts more than 200 mineral occurrences of dominantly precious metal vein type, with related skarn, porphyry and massive sulphide occurrences. The area encompasses metamorphic and plutonic rocks of the Coast Plutonic Complex on the west, is dominated by Stikinia and includes part of the western margin of the Bowser Basin (Evenchick 1991a, 1991b) to the east (Figure 3). Named the Stewart Complex (Grove 1986), this area has enjoyed decreasing complexity with time and research (*e.g.*: Alldrick 1993, Alldrick *et al.* 1996, Anderson *et al*. 2003).

Northwestern Stikinia is underlain by rocks of at least five Palæozoic to Cainozoic tectonostratigraphic packages (Anderson *et al*. 2003). The three lower assemblages comprise multiple, overlapping Late Palæozoic and Early Mesozoic arc assemblages, of which the Late Triassic Stuhini Group is the latest product. These assemblages form a base for the Jurassic arc and basinal assemblages; the Jurassic and older rocks are intruded by the Palæogene post-kinematic granitoid intrusions of the Coast Plutonic Complex.

Metalliferous deposits discovered to date in northwestern Stikinia are associated mainly with Mesozoic arc assemblages and predominantly those of Jurassic age. Formation of the Jurassic island arcs and their associated mineralization occurred during four magmatic episodes, each from 5-10 Ma in duration and bracketed by Triassic-Jurassic, Early Jurassic, Middle Jurassic, and Cretaceous-Eocene deformations (Anderson *et al*. 2003). The magmatic episodes, together with examples of their derivative mineral deposits, are as follows:

1. Latest Triassic to earliest Jurassic (*ca*. 205-196 Ma) alkaline porphyry-related, deformed mesothermal Ag-Au veins (*e.g.*: Red Mountain);

2. Early Jurassic Texas Creek Plutonic Suite (*ca*. 196-187 Ma) alkaline porphyry-related epithermal, transitional and mesothermal Ag-Au veins and base and precious metal deposits (*e.g.*: Premier, Sulphurets, and Bronson Creek);

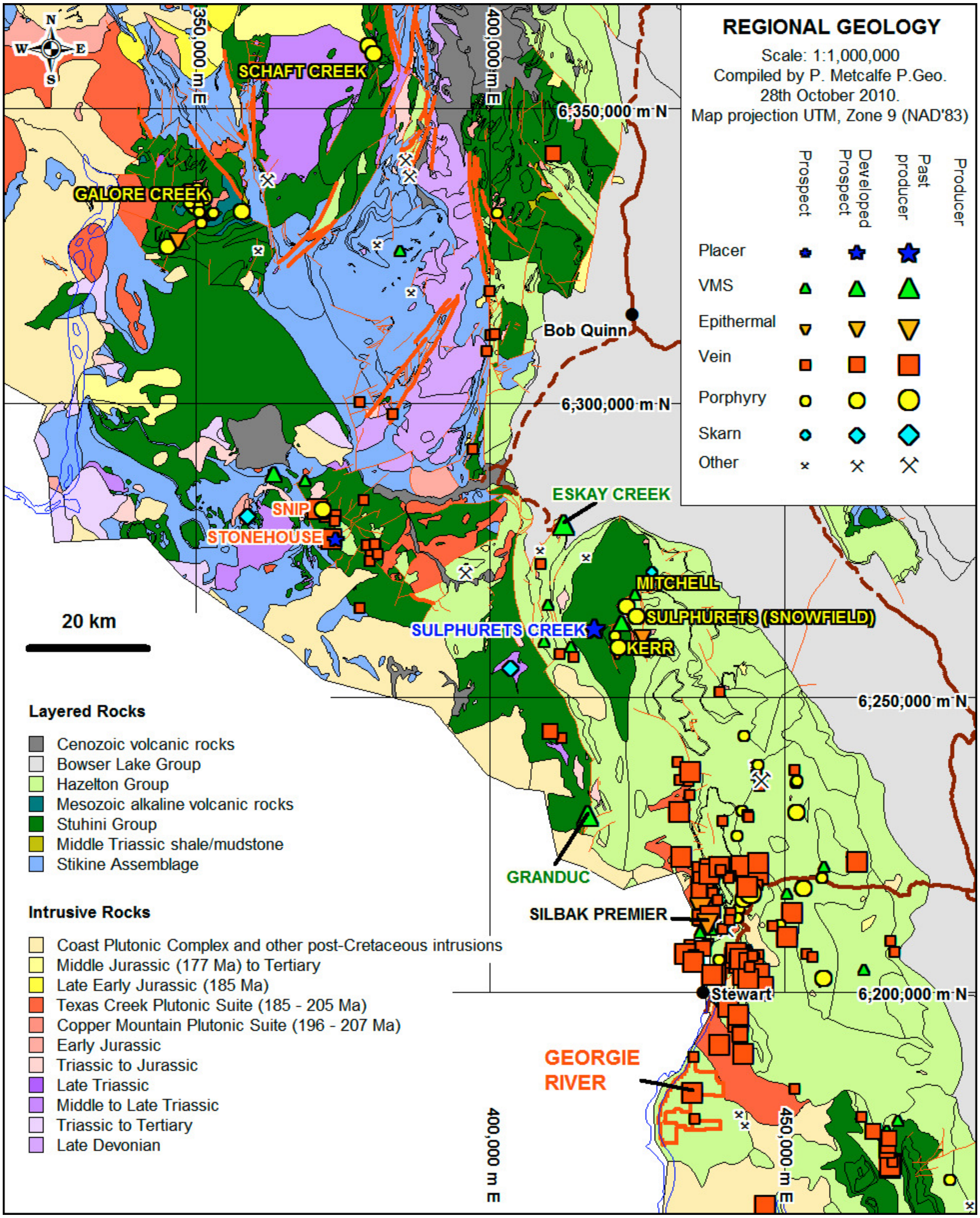


Figure 3. Generalised regional geology after Massey *et al.* (2005).

The red polygon near the south edge of the map is the property boundary. The Anyox mining camp (not shown) is 45 km south of the map's southern edge.

3. Latest Early Jurassic (*ca*. 185-183 Ma) small, poorly mineralized porphyry intrusions; and:
4. Middle Jurassic (*ca*. 175-172 Ma) calc-alkaline arc and tholeiitic back-arc magmatism and syn- and epigenetic, stratabound base and precious metal deposits (*e.g.*: Eskay Creek deposit) related to the back-arc basin formation.

Arc activity ended with deposition of the Middle and Upper Jurassic Bowser Lake Group sedimentary rocks. As noted above, the southwestern margin of Stikinia is bounded by the Palæogene post-kinematic Coast Plutonic Complex.

Property geology

The area was initially mapped by McConnell (1913); subsequent work (Grove 1986) identified the Mesozoic rocks underlying the property as part of a pendant in the Coast Plutonic Complex. The latest work (Evenchick *et al*. 1999, 2004) determined that the Jurassic (Texas Creek) isotopic age of the Bulldog Creek Stock, immediately north of the Georgie River property implied that the Mesozoic strata are connected to and therefore lie on the eastern margin of Stikinia, rather than within the Coast Plutonic Complex. A geological compilation of the property area, adapted from Evenchick *et al*. (*ibid*.) is shown in Figure 5.

Lithologies present on the property are identified (*ibid*.) as pyroxene-bearing flows intercalated with coarse volcaniclastic rocks, assigned to the upper Stuhini Group or lowermost Hazelton Group. The strata are metamorphosed to lower greenschist facies and biotite hornfels is locally present, particularly on Colling Ridge. The layered rocks are often foliated and both foliation and bedding are deformed by tight folds about southeast-trending axes. The stratified rocks also exhibit high strain zones characterised by foliation or cataclastic deformation, bounded by unfoliated rocks. Lack of stratigraphic data has precluded assessment of the timing of deformation. The layered rocks are intruded by the Early Jurassic Bulldog Creek Stock, the Early Jurassic Colling Ridge Porphyry and dykes of the Eocene Hyder Plutonic Suite.

Property mineralization

Mineralization encountered on the property by previous workers (see above) has been confined to vein and/or shear-hosted styles at documented occurrences. The timing of the mineralization at the Georgia River Mine was inferred to be of Tertiary age (Alldrick *et al*. 1996).

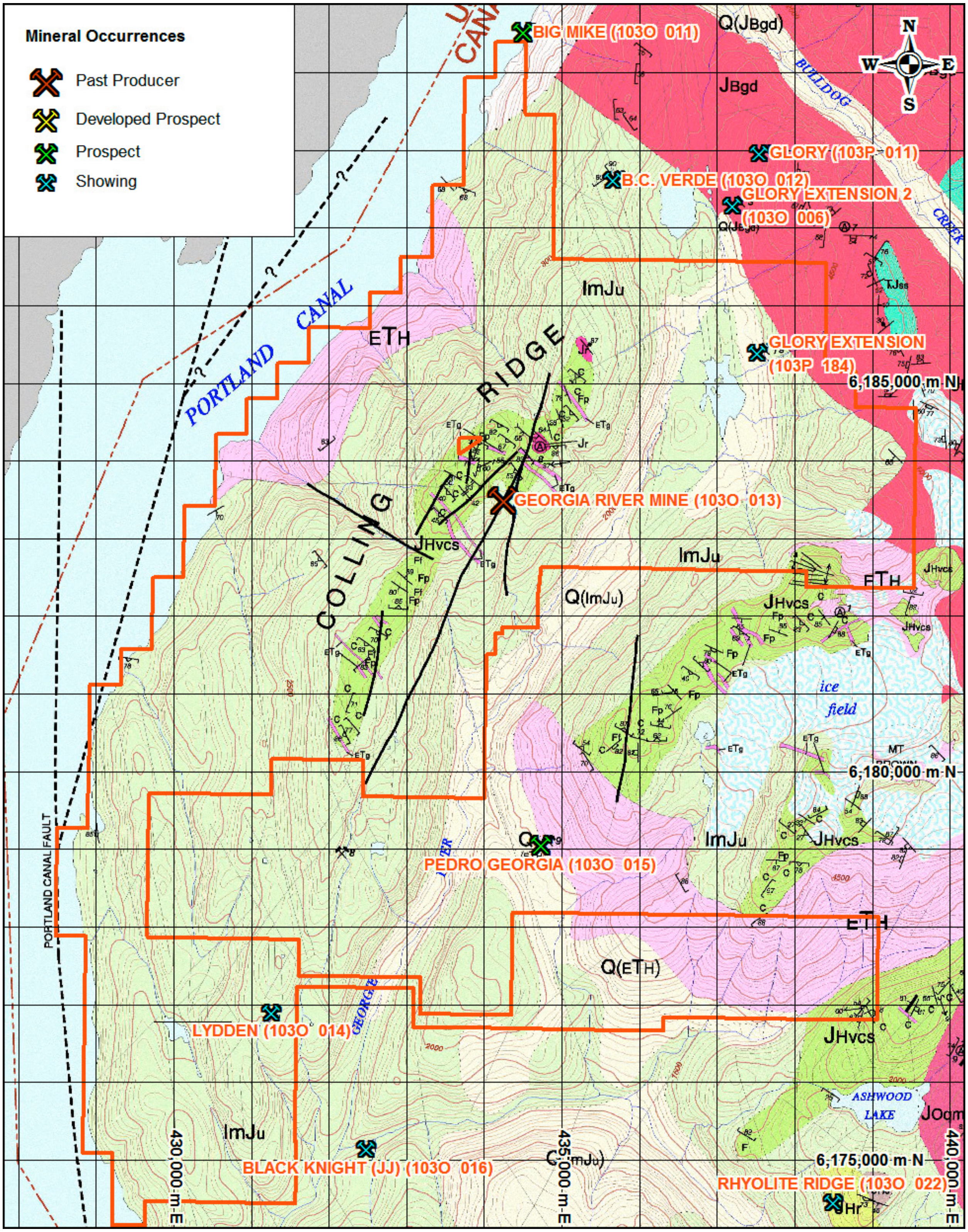


Figure 4. Geological map of the property (after Evenchick *et al.* 1999)
Geological legend in Figure 6. N.B.: The location of the Lydden mineral occurrence is shown here in its true position, 2 km south-southeast from its recorded location.

QUATERNARY

Q	*Glacial till, alluvium, colluvium; unit designators in parenthesis are assumed to underlie Quaternary sediments*

TERTIARY

PALEOCENE TO EOCENE

ETg	*Granitic dykes: equigranular to porphyritic, biotite, hornblende, or biotite-hornblende granite, granodiorite, quartz monzonite and monzodiorite dykes; quartz K-feldspar porphyritic rhyolite dykes; leucocratic plagioclase-hornblende dykes similar to the Larcom dyke swarm; latter dykes and all older units are cut by mafic dykes too thin and numerous to show*
ETH	*HYDER PLUTON: biotite-hornblende granite, locally K-feldspar megacrystic: may include minor granodiorite and quartz monzonite; minor areas may have only biotite or hornblende; sphene is common; b - biotite, h - hornblende, K - K-feldspar megacrystic*

JURASSIC

LOWER AND/OR MIDDLE JURASSIC
HAZELTON GROUP
AND RELATED EARLY TO MIDDLE JURASSIC INTRUSIVE ROCKS

lmJu	*Undivided volcanic, clastic and intrusive rock of the Georgie River area. Most is probably Jurassic volcanic, clastic, and lesser intrusive rock but minor outcrops of Tertiary granitic rock may be present, as may minor Triassic rocks*
JHr	*Rhyolite flow rock; massive, flow layered, spherulitic, or brecciated; white and rusty weathering; aphyric to weakly porphyritic; ca. 176 Ma*
JHs	*Rusty weathering siltstone and fine grained sandstone; minor medium grained feldspathic sandstone beds up to 1 m thick (turbidites) and rare felsic lithic pebble conglomerate*
JBgd	*BULLDOG CREEK PLUTON: hornblende-biotite granodiorite to quartz monzonite; epidote veins and chlorite and K-feldspar alteration; pink and green weathering; common fault breccia (181 +/- 8 K-Ar on hb)*
JOqm	*OUTRAM LAKE PORPHYRY: plagioclase, amphibole, and quartz porphyritic quartz monzonite to monzodiorite; plagioclase porphyritic, locally K-feldspar megacrystic; found as dykes within a few km of the large body near Outram Lake; dykes have intrusive contacts with JHvcs; ca. 189.5 Ma*
JHvcs	*Undivided volcanic conglomerate, volcanic sandstone, and intermediate to mafic aphyric to porphyritic flows: volcaniclastic rocks are unbedded, poorly sorted, matrix supported, heterolithic and monolithic volcanic conglomerate interbedded with immature, massive or poorly bedded sandstone and rare, thin sandstone/siltstone turbidite units; C - dominantly volcanic conglomerate and sandstone; F - dominantly intermediate and mafic flows; Ff - feldspar-phyric flows; Fp - pyroxene-pyric flows; T - tuff*

TRIASSIC OR EARLY OR MIDDLE JURASSIC

ŦJss	*Siliceous (tuffaceous?) siltstone and sandstone (Pendant in Bulldog Creek pluton)*

Figure 5. Geological legend for Figure 4 (Evenchick *et al.* 1999).

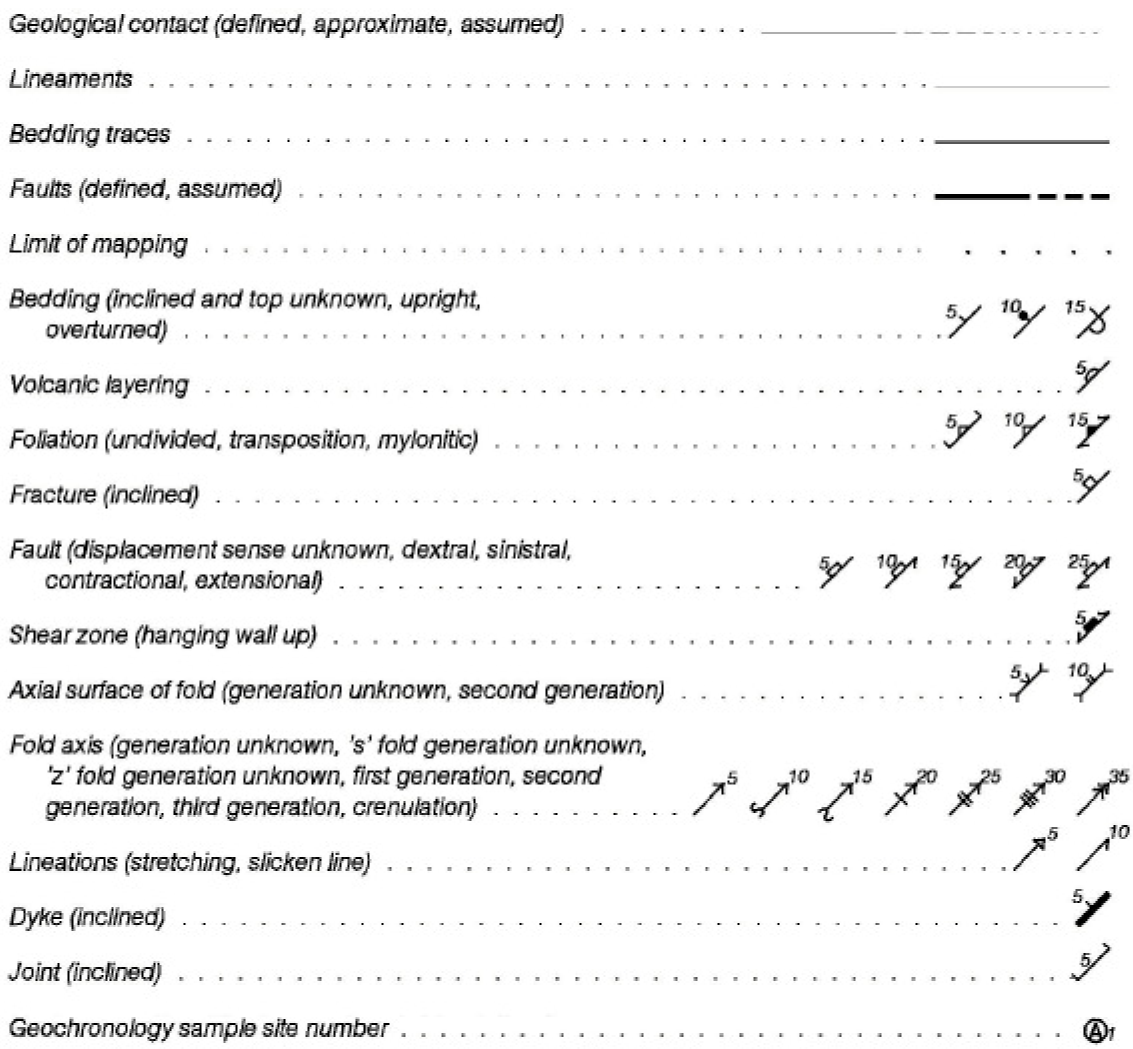


Figure 6. Geological symbols used in Figure 4 (Evenchick *et al.* 1999).

2010 FIELDWORK

Introduction

The purpose of fieldwork carried out in 2010 was to establish a coherent geological framework for mineralization encountered on the property. Initially, coverage of the property at a reconnaissance level was planned. However, it was discovered at the beginning of fieldwork that 2010 was a year of minimal snow pack, with the area along Colling Ridge almost entirely free of snow. This area had previously been mapped but at a reconnaissance level only (C. Evenchick pers. comm. 2010), therefore the fieldwork plan was amended to include comprehensive mapping of the exposed section along the crest of the ridge. The trend of the ridge crest (roughly 026) proved to be a reasonably good section through primary compositional layering (with strikes varying from 110 to 160).

Four other small areas were mapped during the course of fieldwork, one in the vicinity of the Lydden showing, a second near the Glory Extension adit and two more on the eastern slopes of the property, south of the Glory Extension. Owing to the comprehensive nature of mapping previously undertaken in the immediate vicinity of the Georgia River Mine (Kruchowski 1990, 1991), fieldwork in this area incorporated only the section of Colling Ridge immediately north of the mine. Activities in the mine area itself were confined to examination of some of the 1995-1996 core and location of some of the diamond drill hole collars and adit portals.

Field procedures

Topographic base

2009 fieldwork used a field topographic base consisting of TRIM vector topographic information superposed on digital orthophotos, both products purchased from the Government of British Columbia for each of the map areas 103O.080, 103O.090, 103P.071 and 103P.081. Maps produced with these data are by permission of the Government of British Columbia. The topographic information was augmented with spectral data from the LandSat missions for the purpose of fieldwork; none of the spectral data are reproduced herein.

Orthogonal (vertical) views and maps were generated using MapInfo® v.8.0, incorporating the TRIM and orthophoto data. Oblique views of the terrain were generated using Global Mapper®

v.11.01 to produce computer graphics images (CGIs), incorporating the DEM, orthophoto and several elements of the TRIM data.

Geological mapping

Access to the property was by helicopter from Stewart airport. Mapping was carried out by a team of two, comprising the author and Mr. S. Conley and took place from 13th August to 7th September, 2010. Mr. Conley prospected the area in the immediate vicinity of the mapping traverse and assisted with the mapping.

Field stations were located using Garmin GPS60 global positioning units. The stations were numbered alphanumerically and the quoted error of the global positioning unit, number of satellites sampled and signal strength were all recorded at each station, together with lithological and structural data. Samples for later assay were taken exclusively by Mr. Conley.

Map compilation

Waypoint locations were downloaded and integrated with the topographic database as error circles with a radius twice that of the recorded satellite error. Field stations were then repositioned within these error circles to conform to the outline of outcrops observed on the digital orthophotos. Outcrop extents were plotted accurately using the downloaded tracks from the GPS, save for inaccessible parts of cliff outcrops. Structural information was plotted using standard geological symbols adapted from the Geological Survey of Canada. The single exception to established procedure was that, where necessary, structural symbols were plotted along strike from the field station to avoid obscuring any data point, or small outcrops.

2010 AIRBORNE GEOPHYSICAL SURVEY

During the latter part of 2010 fieldwork, an airborne versatile time domain electromagnetic (VTEM) and aeromagnetic survey was carried out over a large part of the Georgie River property. The survey in its entirety is appended to this report (Appendix 1). The results of this survey are discussed below.

RESULTS OF 2010 MAPPING

Introduction

The fieldwork confirmed and somewhat augmented previous studies by Evenchick *et al*. (1999, 2004). The crest of Colling Ridge and the sections on the eastern edge of the property are underlain by a succession of pyroxene-phyric and/or uralitic hornblende–phyric mafic flows and related rocks, with a predominance of quartz-poor clastic sedimentary rocks containing chloritised relic clasts and mafic crystal fragments from the volcanic rocks. The area of the Lydden showing is underlain by a medium to coarse grained coherent igneous assemblage, inferred to be an intrusive assemblage and described separately.

Stratigraphic markers are absent from the sections examined. This absence, combined with the folding and high strain zones evident on Colling Ridge, precluded creation of a detailed stratigraphic column. Description of the geology of the various areas will follow general description of the layered rock lithologies encountered on the property and an even more generalised description of their relative abundance along the Colling Ridge section.

Areas investigated

Lydden Showing

A day and a half were spent at the Lydden mineral occurrence and in the general vicinity. The showing itself is as described in MINFILE and in previous reports (Dunn 2006, Dunn and Davis 2007). The single amendment to these works was the discovery of a coarse grained hornblende pyroxenite near the base of the cliffs to the northeast of the main showing. This lithology suggests that the intrusion hosting the Lydden occurrence is more mafic than diorite, probably gabbroic in composition. This interpretation is consistent with previous observations (R.V. Kirkham, pers. comm. 2010).

East side of Glory Lake (Glory Extension)

A total of 4 man-days were spent in reconnaissance work around the shore of Glory Lake, dominantly on its eastern side. The Glory Extension adit could not be located, but the general area is underlain by a bleached altered feldspar+quartz-phyric intrusion identified as the Bulldog Creek Pluton with weak to moderate jigsaw fit brecciation, partially healed with white and grey quartz and with now-weathered sulphide.. Microbrecciation is common and chloritisation of 30% mafic minerals is pervasive.

Roughly 1 km to the south of the recorded position of the Glory Extension, a rough section across the valley and up its eastern slope was investigated. The chief difference between this eastern slope section and that exposed on Colling Ridge is the absence of the clinopyroxene-phyric volcanic units described below; a single outcrop southwest of Glory Lake represents the westernmost extent of the pyroxene-phyric sequence. The country rocks east of the lake comprise massive wacke; minor hornblende+feldspar-phyric volcanoclastic units are intercalated with the wacke near the top of the section. Loss of exposure at the top of the section is owing to a northeast trending fault interpreted from orthophotos and from the airborne geophysical survey (Appendix I).

The section is intruded and deranged by dykes of Eocene hornblende+feldspar+biotite+quartz phyric granitoid, described below and by feldspar+hornblende phyric dykes assigned to the Bulldog Creek Pluton. The latter intrusion is distinguished by the presence of sphene microphenocrysts in trace amounts (see below).

The massive nature of the sedimentary and volcanoclastic units in the section precluded acquisition of sufficient structural data for map creation, or even to project units along strike. More geological investigation is needed in this area.

West slopes of Mount Brown

Less than half a day was spent on the western slopes of the Brown Mountain Range. Disseminated, oxidised sulphide mineralization was discovered near the margin of a Eocene hornblende+feldspar+biotite+quartz phyric granitoid dyke.

Colling Ridge section

A total of 22 man-days were spent mapping the Colling Ridge section. Mapping was conducted independently of the geophysical investigation described in Appendix I. As a consequence of the detailed work carried out in the vicinity of the Georgia River Mine (Kruchkowski 1981), activities there were confined to traversing north of the mine, for geological continuity. Two geological maps are presented as Plates 1 and 2.

Layered rocks

Layered rocks exposed on Colling Ridge comprise a series of volcanic and derived clastic sedimentary rocks. Lack of explicit marker horizons and demonstrable dislocation of the section by brittle and ductile structures (see below) preclude any measurement of a stratigraphic section. The general characteristics of the layered rocks will therefore be described by general lithologic type and distribution.

Volcanic and related intrusive rocks

Exposures of coherent volcanic rock (flows or sills) are, with one exception, restricted to the part of Colling Ridge south of the Georgia River Mine. This section contains as much as 20% coherent igneous rocks, dominantly fine grained and interpreted as flows or autobrecciated flows. The single exception occurs at the loss of exposure at the north end of the ridge. It is possible that the two areas represent limbs of a large folded structure, but not enough structural data exist to test this hypothesis.

The coherent volcanic rocks present a range of textures from aphanitic and aphyric to near porphyries. These lithologies weathers medium to light grey-green and commonly exhibit moderate to intense development of chlorite as a consequence of the regional lower greenschist facies metamorphism. The rocks are commonly non- to weakly magnetic.

With one exception, the most common and earliest formed phenocrysts in the volcanic rocks are mafic and exhibit equant crystal shapes. In the undeformed unit at the north end of the ridge, euhedra unique to clinopyroxene (augite) are clearly visible on weathered surfaces (Figure 7), in a felted micro-crystalline intergrowth of feldspar and mafic minerals. Amphibole cleavages are present in the crystals in some locations, suggesting uralitisation of the pyroxene, but clinopyroxene is the liquidus phase for the majority of the flows. This is extremely unusual in Lower Hazelton strata, following reassessment of the Unuk River Formation (Macdonald *et al*. 1993), but is common in the underlying Stuhini Group.

The coherent volcanic units are competent relative to the clastic sedimentary rocks, except locally where chloritisation is pervasive. In the latter case, the units have acquired a strong foliation with rotation and abrasion of the pyroxene phenocrysts, preserved as porphyroclasts. In the high strain zone west and south of the mine these units are protomylonites.

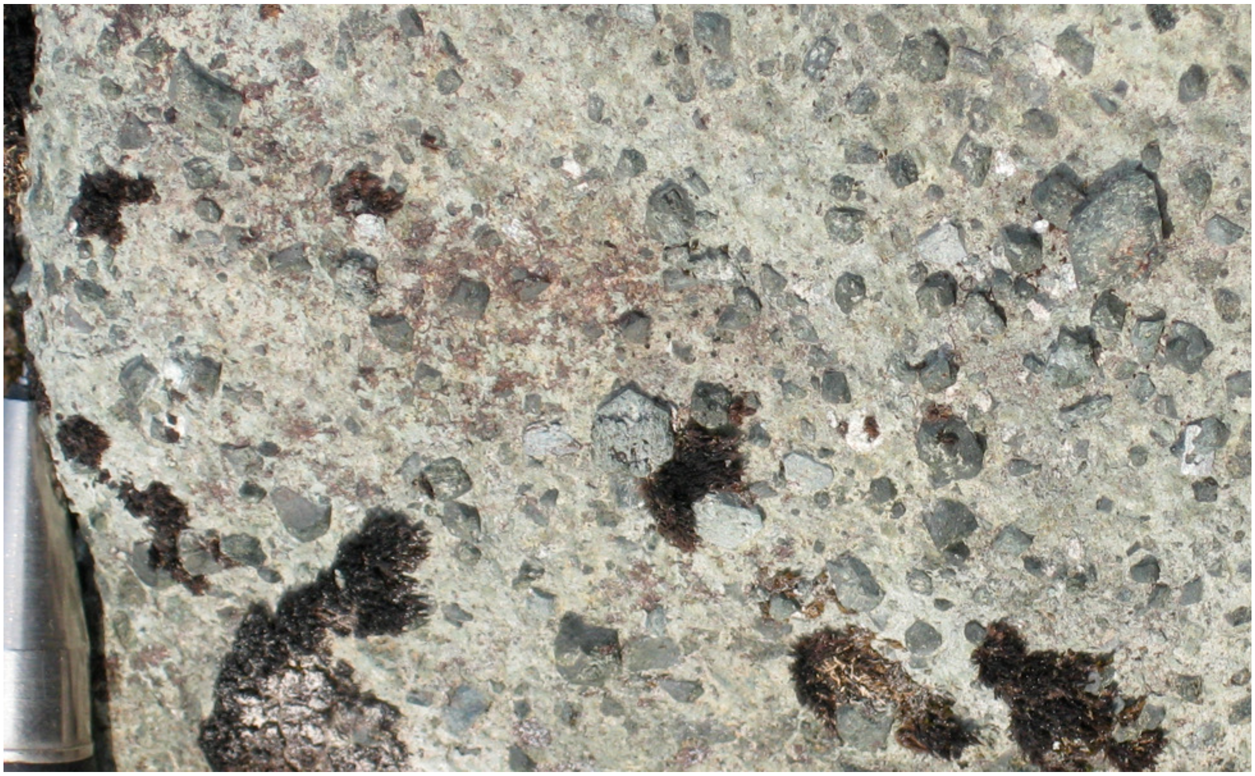


Figure 7. Typical appearance of undeformed clinopyroxene-phyric basalt in outcrop.
The image includes a {100} face typical of augite. In many locations along Colling Ridge, the phenocrysts are replaced by uralitic amphibole; there is also moderate to intense patchy to pervasive chloritisation of all mafic grains as a consequence of the greenschist metamorphism. Location: 435,346 m E, 6,186,501 m N (north end of Colling Ridge).

Brecciated rocks

The volcanic rocks include autobrecciated flow rocks, visible only in areas of low lichen. These form jigsaw fit and rotated clast breccias, generally clast supported in a rock flour matrix or, rarely, carbonate (calcite) cement. The metamorphic grade and extent of deformation generally have destroyed evidence of hot emplacement. Pillows are absent from the locations examined.

Possibly cognate intrusive rocks (Georgie River Pluton)

Greig and Hendrickson (2001) described a previously unrecognised body of coarser grained mesocratic to melanocratic rocks of dioritic or gabbroic composition on the Ashwood Property to the southeast of the Lydden mineral occurrence. Hanson (1935) noted more mafic and possibly older rocks in the vicinity of the Lydden showing. Lithologies to the northeast of the showing are explicitly of pyroxenitic or hornblenditic composition, suggesting the intrusion is more probably gabbroic in overall composition.

Lithologies similar to those of the Georgie River Pluton are intercalated with the volcanosedimentary rocks on Colling Ridge. The rocks are medium greenish grey, locally foliated and typically medium grained, although at least one section is as coarse-grained as a medium grained gabbro, allotriomorphic and comprising 40-45% anhedral equant mafic crystals as large as 2 mm, seriate with a fine grained holocrystalline interlocking groundmass of feldspar (40%) and mafic minerals (20%). The lithology is non-magnetic and generally contains no sulphide minerals. The bodies are interpreted as sills, of similar age to the mafic volcanic rocks and are possibly cognate with them. Clasts of this lithology are also present in the conglomerates at the southernmost end of the ridge section.

Volcanogenic clastic sedimentary rocks

The stratified rocks are dominated by clastic sedimentary rocks, ranging in grain size from argillite to boulder conglomerate and including mainly lithic grains (wackes) in the sand-sized and coarser units. Wacke and minor feldspathic wacke are most commonly exposed to the north of the Georgia River Mine; conglomerates and sedimentary breccias predominate in the section south of the mine. Carbonate in the sedimentary rocks is relatively rare, usually as part of a matrix for the coarser clastic rocks or cementing sedimentary breccias.

The finer grained lithologies (wacke to argillite) are massive to thinly bedded. Where bedding is visible, uncommon graded bedding can be used as an indicator of facing direction. North of the large fold axis immediately north of the mine, measured facing directions are exclusively north.

A single, distinctive lithology occurs in a thin 2-3 m thick bed or beds in the northern section. The lithology is dark green on broken surfaces owing to its high chlorite content and contains grit-sized clasts of relic pyroxene; some are subhedral but with rounded edges. Inspection of a cut surface confirmed field observations. The chloritised crystal fragments of relic clinopyroxene exhibit rounded reworked edges. The grit-sized grains are matrix supported in a fine grit to coarse wacke matrix. The reader will note that, in any lichen cover at all, this unit would be indistinguishable from a volcanic rock.

This unit was identified by the name "Green Volcanic Grit" in the present study, although the matrix supporting the pyroxene grains is more a coarse wacke. No bedding or sedimentary structures are visible in the unit. Although useful as a marker for local structures, the lithology may occur at several stratigraphic levels and cannot be used as a marker over larger scales.

The coarse clastic sedimentary rocks south of the mine present as monomictic to polymictic volcanic conglomerates to sedimentary breccias. Clast size varies from grit to large boulders, angularity from jagged to subrounded and both clast- and matrix-supported types are present. The matrices are of wacke, usually moderately and pervasively chloritised.

Clast lithologies in the coarser grained lithologies are dominated by mafic volcanic rocks identical to those in the intercalated volcanic units (*i.e.*: dominantly with equant phenocrysts of pyroxene or uralitic hornblende); the sequence is therefore almost entirely volcanosedimentary in origin. Clasts include the gabbro described above, particularly near the south end of the ridge and with decreasing abundance northward.

Intrusive rocks

Intrusive rocks encountered on the property, with the exception of the gabbroic or dioritic intrusive rocks described above, exhibit clear, cross-cutting contacts against the Stuhini Group section and have clearly different compositions and phenocryst assemblages. All the intrusive suites described in this section are well-constrained by U-Pb zircon isotopic ages, with consequent constraints on the age of the country rocks.

Colling Ridge Porphyry

Irregular bodies of a pre- to syn-kinematic intrusive suite are exposed along the entire length of Colling Ridge (Plates1 and 2) but are most common at the north end of the section. These intrusions are well constrained to the magmatic event of the Texas Creek Plutonic suite by U-Pb zircon isotopic age measurement of 189.8 ± 0.3 Ma (Evenchick *et al*. 2004) returned from a sample taken near the Georgia River Mine

The lithology closely resembles that of the Bulldog Creek Pluton, exposed on the east side of the Glory Lake valley. These small intrusions generally weather bone white, cream or beige, commonly with areas of oxidised sulphide and are pale iridescent green or grey on broken surfaces as a consequence of sericite alteration; fracture surfaces commonly exhibit a thin lining of chlorite. The rocks are generally non-magnetic, except where disintegration of mafic minerals has formed magnetite. In the high strain zone south and west of the mine and to some extent in the moderate strain zones bounding it, they exhibit a protomylonitic fabric defined by metamorphic or hydrothermal biotite, by elongation of microbrecciated quartzofeldspathic minerals and by rotation of large feldspar phenocrysts in a cataclastic matrix.

Lithologies in the suite are porphyritic, some bordering on feldspar porphyry; feldspar-megacrystic phases occur but are not common. Where present, euhedral to subhedral megacrysts of a white to pale pink untwinned feldspar as large as 40mm enclose chadacrysts of black prismatic hornblende, approximately 0.2mm long. Rocks commonly contain as much as 30% anhedral-subhedral, untwinned white feldspar as large as 2 mm and seriate with a microcrystalline, possibly aphanitic groundmass. Hornblende, where not replaced by alteration products, is as abundant as 5% whole rock (1-2mm). Intrusions of this suite may also include as much as 5% anhedral to subhedral quartz < 1mm.

Subhedral to euhedral sphene is an early formed microphenocryst in the Colling Ridge Porphyry in amounts as much as 2% whole rock. Sphene also presents an identical microphyric texture in the Bulldog Creek Pluton; this early crystallisation of sphene appears typical of the Texas Creek Plutonic Suite.

Cataclastic deformation of the quartzofeldspathic porphyry bodies occurs in the high strain zone south and west of the mine. Relic phenocrysts of quartz (5% anhedral <1 mm) and feldspar (10% anhedral, untwinned 0.5 – 2 mm) are recrystallized and enclosed by a pervasively foliated quartzofeldspathic groundmass, now a metamorphic/alteration matrix. Mafic phenocrysts are absent. Some areas of the rock contain coherent anhedra (<10 mm) interpreted as relic megacrysts of feldspar.

At the south end of Colling Ridge, a Colling Ridge Porphyry intrusion presents a pronounced chill margin against xenoliths of a volcanic unit. Brecciation of the country rock in the xenoliths has occurred and the breccia fragments are angular, with no visible rounding or evidence of soft sediment deformation. The country rock is interpreted as having been lithified prior to intrusion.

Bulldog Creek Pluton

The Bulldog Creek Pluton is not exposed on Colling Ridge. Nevertheless, the close similarity in lithology and U-Pb zircon isotopic age (193.0 ± 0.3 Ma; Evenchick *et al.* 2004) between this intrusion and the Colling Ridge Porphyry strongly suggests a genetic link. A brief description of the lithology is synthesised here, from the orientation traverse east of Glory Lake.

The intrusive rock is rusty to sandy brown or light to medium mottled grey on weathered surfaces, mottled beige on broken or sawn surfaces. The lithologies are weakly to non-magnetic, strongly porphyritic, allotriomorphic to hypidiomorphic and with a coherent microcrystalline groundmass. As with the Colling Ridge Porphyry, one of the first formed phenocrysts is euhedral to subhedral sphene, 0.2-1.0 mm, altered peripherally and along fractures to Ti oxide (leucoxene) and composing as much as 2% whole rock. The major phenocrysts comprise 10-30% subhedral relic prismatic hornblende, as large as 7 mm and seriate with a microcrystalline groundmass; as much as 30% subhedral feldspar, untwinned, probably plagioclase, as large as 7 mm with moderate pervasive sericite alteration. Quartz commonly composes as much as 5% whole rock as anhedra as large as 4 mm. Secondary phases comprise moderate pervasive sericite after feldspar and intense chloritisation of mafic phases with development of as much as 5% microcrystalline magnetite in the chlorite aggregates.

Four Phase Porphyry

Steeply dipping dykes of a prominently and light grey weathering lithology are ubiquitous in the areas mapped but particularly well exposed along the crest of Colling Ridge. The trend of the dykes is generally southeast, with steeply southwest-dipping irregular but almost completely undeformed contacts.

The dykes' lithology is non-magnetic, strongly porphyritic, weathers sandy or rusty brown and is beige or buff on broken surfaces, mottled with the black and white of the phenocrysts. Samples typically contain as much as 10% euhedral to subhedral prismatic hornblende, as large as 10 mm; as much as 10% euhedral to subhedral biotite as large as 5mm; as much as 5% subhedral, doubly terminated quartz, as large as 5mm and as much as 25% anhedral feldspar, as large as 7 mm. All phenocrysts are seriate with a microcrystalline groundmass; only feldspar and hornblende phenocrysts form near dyke margins. The lithology is a porphyry of granodioritic to quartz monzonitic composition with four phenocryst phases, hence the informal name. U-Pb isotopic age measurement (Friedman and Mortensen 2002) returned an Eocene age of 50.7 ± 0.1 Ma (Plate 2). On the basis of age, composition and mineralogy, these dykes are correlated with the Portland Dyke Swarm of the Hyder Plutonic Suite.

Magnetic mafic dykes

Dykes distinguishable by their distinctive sandy brown to ochre weathering and moderate to strong magnetism are not common on Colling Ridge, but exploit some of the late northeast-trending fractures north of the mine. The dyke rock is medium grey on broken and cut surfaces and is very weakly porphyritic; dark brown to black anhedral equant phenocrysts as large as 1mm are seriate with a microcrystalline groundmass and compose <1% whole rock. All save the larger phenocrysts are pervasively replaced by a golden brown mineral, possibly an oxidation rim similar to that on kaersutitic amphibole. Glomerocrysts of untwinned feldspar intergrown with prismatic amphibole have a maximum size of 1mm; component crystals are subhedral and 0.2 – 0.5 mm in length. The groundmass is undeformed and comprises a felted intergrowth of anhedral untwinned feldspar, 0.2 – 0.3mm and subhedral prismatic (almost acicular) hornblende, 0.2 – 0.4 mm; individual crystals may be as long as 1mm. The hornblende has a brownish cast and is tentatively identified as kaersutite. The timing of these intrusions is post-kinematic.

Metamorphism and alteration

Metamorphism in the areas examined is as described by Evenchick *et al.* (1999, 2004). The grade of metamorphism is greenschist facies in most areas. Chlorite development after mafic minerals is moderate in most areas and intense in areas where the initial phases of deformation have partially or completely destroyed the primary fabric of the layered rocks. The products of this metamorphism are also present in the Colling Ridge Porphyry, but are less evident owing to its quartzofeldspathic nature.

Near contacts of the Colling Ridge Porphyry with the layered rocks, Evenchick *et al.* (*ibid.*) noted a patchy biotite overprint. Where encountered in the present study, the biotite is associated with patchy, finely disseminated sulphide mineralization in the Colling Ridge Porphyry and wallrock; the biotite is therefore interpreted here as hydrothermal in origin.

Structural history

It is a truism that previous studies influence subsequent structural interpretation strongly, particularly where the latter involves any interpretation of linear structures using remote sensing techniques, as is the case here. The reader is therefore cautioned here against use of the interpreted structures marked “inferred” on Plate 1 for advanced exploration, without ground-truthing these structures.

At least three and possibly four phases of deformation have occurred in the Colling Ridge area, separating magmatic and mineralising events. Early deformational events were generally ductile in nature, although brittle (cataclastic) deformation occurred in more competent strata such as the Colling Ridge Porphyry. The latest deformational event was exclusively brittle in nature.

The first deformation formed medium- to large-scale, northeast-vergent, moderate to tight folds about southeast striking axes, with moderately dipping southwest-facing limbs and steep, vertical and overturned northeast-facing limbs. Axial planes strike southeast and dip moderately south. At least one major fold axis occurs 1 km northeast of the Georgia River Mine (Plate 1); this is the only explicit large-scale, first-generation fold defined in the course of the present study. The timing of this event relative to the intrusion of the Colling Ridge Porphyry is not presently known. This event is crucial to the formation of the high-grade veins at the Georgia River Mine, therefore more work is needed.

Initial folding was synchronous with, or closely followed by development of northeastward-vergent shear zones with moderate southwest dips. Shear strain was concentrated in a zone bounded to the northeast by the major fold axis and extending for roughly 2 km southwest; the north and south ends of the Colling Ridge section are nearly strain-free. The core to the high-strain zone extends southwest from the mine area for a distance of 1 km. The timing of folding and shearing as separate or roughly coincident events is problematic because the irregular contacts of the Colling Ridge Porphyry show no sign of folding, although this may owe to its greater competence. However, there is abundant evidence that intrusions of this suite underwent shearing in the high strain zone. Kinematic indicators suggest that the strain was brittle-ductile with reverse and dextral components of movement. The low-grade Au mineralization of the

Main Vein at the Georgia River Mine is associated with this shearing, as is the weak to moderate, shear-hosted quartz veining and associated disseminated sulphide mineralization in the high strain zone, discovered during this study 500 m west of the mine.

The bedding and first-formed foliation in less competent layered rocks are refolded about north to north-northeast striking, near-vertical to steeply west-dipping axial planes. These are not commonly observed but parallel, brittle structures are present along the entire length of the section examined and are interpreted as developing in the high-strain zones at fold axes. They have the same orientation as the cross-cutting Phase 2 veins hosting historic, higher grade Au mineralization in the mine.

The north-striking structures are cut by post-kinematic dykes and appear to displace the southwest-dipping shear zones. However, the geometric relationship of the north-striking structures to the reverse/dextral shear zones suggests that the former may have formed as extension fractures during the initial phase of deformation. It is possible, therefore, that initial mineralization in the Georgia River Mine occurred along both southeast and south trending structural sets.

Intrusion of the Four Phase Porphyry dykes took place along a southeast striking structural set, commonly subparallel to the shear structures but not uncommonly more steeply inclined. This may have occurred during a period of extension, reactivating the shear zones but with normal sense of movement. It should be noted that the few kinematic indicators observed in the shear zones indicate reverse movement, therefore normal movement is an unsupported hypothesis.

Intrusion of the post-kinematic Four Phase Porphyry dykes was followed by late faulting along east-northeast striking faults which displace the dykes in a sinistral sense. The geometry of the north-striking structures relative to these late faults is such that they were probably reactivated a second time as extension structures during this latest brittle deformation event. Post-ore remobilization of mineralization might therefore have occurred, which would account for the wildly variable Au:Ag ratios noted by Alldrick *et al.* (1996) at the Georgia River Mine and the occurrence of Pb of Jurassic age in the east-northeast-trending structures (*ibid.*) which (on surface) clearly displace the Tertiary dykes.

INTERPRETATION, CONCLUSIONS AND RECOMMENDATIONS

The area of Colling Ridge, north and south of the past-producing Georgia River Mine is underlain by a sequence of volcanic and volcanosedimentary rocks characterised by an abundance of relic or uralitised pyroxene. This sequence is presently of unknown thickness and includes sections of coherent igneous rock south of the mine which are interpreted as flows, with minor pyroxene phyric gabbroic dykes, interpreted as intravolcanic intrusions, possibly cognate with the extrusive rocks.

The country rocks are intruded by three intrusive suites, two of them possibly related. The 193 Ma Bulldog Creek Pluton is not exposed on Colling Ridge, but intrudes a clastic sedimentary sequence on the east side of the Glory Lake valley. This lithology closely resembles the 189 Ma Colling Ridge Porphyry; both contain first-formed microphenocrysts of sphene and major phenocryst assemblages comprising feldspar, relic hornblende and minor quartz. Both intrusive events compose part of the metallogenic Early Jurassic Texas Creek Plutonic Suite.

Post-kinematic hornblende+biotite+feldspar+quartz-phyric granitoid dykes are associated with the Eocene to Palæocene Hyder Intrusive Suite. These represent the last widespread magmatic event in the area; the dykes are largely unaltered.

The Early Jurassic igneous bodies intruding the Colling Ridge layered rocks provide an age constraint of greater than 189 Ma for the age of the layered rocks, precluding correlation with the Salmon River Formation. Alldrick *et al*. (1986) assigned these rocks to the Late Triassic Stuhini Group; Evenchick *et al.* (2004) assigned them to the lowermost Hazelton or, possibly the uppermost Stuhini Group. Their basic composition (*ibid.*), pyroxene phenocryst-rich nature of a significant proportion of the volcanic units and quartz-absent nature of all the volcanogenic rocks indicates that they are not cognate with the Jurassic intrusions and were probably deposited and lithified a significant period before the Colling Ridge Porphyry magmatism.. Supracrustal rocks possibly cognate with the Colling Ridge Porphyry were not observed during the course of the present study and are inferred to have been removed by erosion. The tentative correlation of Late Triassic Stuhini Group is therefore made for the layered rocks.

Polyphase regional deformation folded the country rocks along northeast-vergent axial planes, followed by reverse/dextral shearing exploiting the weakened ground at fold hinges and involving the Colling Ridge Porphyry. A zone of high strain release extends from 1 km west of the Georgia River Mine to 750 m. northwest of the mine along the crest of Colling Ridge, a distance of 1 km. The boundaries of the high-strain zone are roughly parallel to the shearing and the rocks in the zone have undergone moderate to intense mylonitisation.

Dextral (northward) vergence of the shearing was possibly associated with dilation of the fertile, north striking veins at the Georgia River Mine; mineralization of the low-grade southwest dipping shear zones and of the steeply dipping north trending veins could have occurred at the same time. Further evidence suggests that the north-striking veins were remobilized as extension veins for sinistral movement on late-stage, east-northeast striking brittle faults.

Results from an airborne magnetic and VTEM survey carried out synchronously with the mapping are consistent with the results of the mapping. Two moderately conductive zones located during the survey lie along high-strain zones located during geological mapping, one of them explicitly associated with disseminated sulphide mineralization.

Testing of the conductive zones and the high-strain zone on Colling Ridge, using a combination of Mobile Metal Ion sampling and a three-dimensional induced polarisation survey is recommended prior to drill testing the geophysical anomalies.

ACKNOWLEDGEMENTS

The author thanks Dr. Carol Evenchick of the Geological Survey of Canada for her help and advice before, during and after the mapping and for permission to use the map published as Open File 2996 as a base for Figures 4 to 6. The author takes full responsibility for any misinterpretation of her work herein.

REFERENCES

Alldrick, D.J., 1993: Geology and Metallogeny of the Stewart mining Camp, Northwestern British Columbia; British Columbia Ministry of Energy, Mines and Petroleum Resources, Geological Survey Branch Bulletin 85, 105p., 2 maps.

Alldrick, D.J., Mawani, Z.M.S., Mortensen, J.K. and Childe, F., 1996: Mineral deposit studies in the Stewart District (NTS 103O/P and 104A/B); *in*: Exploration in British Columbia 1995, Part B - Geological descriptions of properties. British Columbia Ministry of Energy, Mines and Petroleum Resources, pp. 89-109.

Anderson, R.G., 1989: A stratigraphic, plutonic and structural framework for the Iskut River Map Area, Northwestern British Columbia; *in*: Current Research, Part E. Geological Survey Of Canada Paper 89-1E, pp. 145-154.

Anderson, RG., 1993: A Mesozoic stratigraphic and plutonic framework for northwestern Stikinia (Iskut River area), northwestern British Columbia, Canada; *in:* Dunne, G. and McDougall, K. (eds.): Mesozoic Paleogeography of the Western United States-II; Society of Economic Palaeontologists and Mineralogists, Pacific Section, vol. 71, pp. 477-494.

Anderson, R.G., Simpson, K., Alldrick, D., Nelson, J. and Stewart, M., 2003: Evolving ideas on the Jurassic tectonic history of northwestern Stikinia, Canadian Cordillera; Geological Society of America Abstracts with Programs, Vol. 35, No. 6, September 2003, p.89.

Beaton, W., 1916: Georgia River Property (Portland Canal Mining Division); *in*: Robertson, W.F.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1915, being an account of mining operations for gold, coal, etc., in the Province (British Columbia Bureau of Mines, 1916), p.K71.

Bray, A.D. and Rainsford, D., 1990: Geology, Geochemistry, Geophysical and Diamond Drilling Program at the Georgia River Property; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 20653, 165p., 9 maps, 21 sects.

British Columbia Geological Survey Branch, 1991-2010: MINFILE; http://minfile.gov.bc.ca

British Columbia Geological Survey Branch, 1999-2010: The Map Place; http://www.em.gov.bc.ca/Mining/Geolsurv/MapPlace

Carmichael, H., 1907: Black Knight claim, Portland Canal District, Skeena Mining Division; *in*: Robertson, W.F.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1910, being an account of mining operations for gold, coal, etc., in the Province (British Columbia Bureau of Mines, 1917), p.H67.

Clothier, G.A., 1918: Georgia River Mining Co. (Portland Canal Mining Division); *in*: Robertson, W.F.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1917, being an account of mining operations for gold, coal, etc., in the Province (British Columbia Bureau of Mines, 1918), p.F66.

Clothier, G.A., 1919: Guggenheim Group (Portland Canal Mining Division); *in*: Robertson, W.F.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1918, being an account of mining operations for gold, coal, etc., in the Province (British Columbia Bureau of Mines, 1919), pp.K-75-76.

Clothier, G.A., 1921: Guggenheim Group (Portland Canal Mining Division); *in*: Robertson, W.F.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1920, being an account of mining operations for gold, coal, *etc*., in the Province (British Columbia Bureau of Mines, 1921), p.N53.

Clothier, G. A., 1922: Portland Canal (proper) Section (Portland Canal Mining Division); *in*: Robertson, W.F.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1921, being an account of mining operations for gold, coal, *etc*., in the Province (British Columbia Bureau of Mines, 1922), p.G60.

Clothier, G.A., 1923: Portland Canal (proper) Section (Portland Canal Mining Division); *in*: Robertson, W.F.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1922, being an account of mining operations for gold, coal, *etc*., in the Province (British Columbia Bureau of Mines, 1923), pp. N65-N66.

Clothier, G.A., 1924: Portland Canal (proper) Section (Portland Canal Mining Division); *in*: Robertson, W.F.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1923, being an account of mining operations for gold, coal, *etc*., in the Province (British Columbia Bureau of Mines, 1924), pp. A67-A68.

Clothier, G.A., 1925: Portland Canal (proper) Section (Portland Canal Mining Division); *in*: Galloway, J.D.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1924, being an account of mining operations for gold, coal, *etc*., in the Province (British Columbia Bureau of Mines, 1925), p.B58.

Clothier, G. A., 1926: Portland Canal Section (Portland Canal Mining Division); in: Galloway, J.D.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1925, being an account of mining operations for gold, coal, etc., in the Province (British Columbia Bureau of Mines, 1926), p. A79.

Clothier, G.A., 1927: Big Mike and M.J. (respectively Portland Canal and Georgia River Sections, Portland Canal Mining Division); *in*: Galloway, J.D.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1926, being an account of mining operations for gold, coal, etc., in the Province (British Columbia Bureau of Mines, 1927), pp.A85-A86.

Conway, J., 1911: Maple Bay (Portland Canal Mining Division); *in*: Robertson, W.F.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1910, being an account of mining operations for gold, coal, etc., in the Province (British Columbia Bureau of Mines, 1911), p.K61.

Conway, J., 1912: Georgia River (Portland Canal Mining Division); *in*: Robertson, W.F.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1911, being an account of mining operations for gold, coal, etc., in the Province (British Columbia Bureau of Mines, 1912), p.K72.

Conway, J., 1915: Georgia River (Portland Canal Mining Division); *in*: Robertson, W.F.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1914, being an account of mining operations for gold, coal, etc., in the Province (British Columbia Bureau of Mines, 1915), pp.K153-K154.

Crimonese, D. 1982: Geochemical report on the CARDOZO 1 - 3 and FRANKFURTER 1 - 2 mineral claims, Portland Canal area, Skeena Mining Division; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 10300, 22p., 4 maps.

Crimonese, D. 1983: Geochemical report on the CARDOZO 2 AND FRANKFURTER 1 – 2 mineral claims, Portland Canal area Skeena Mining Division; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 11082, 14p. 1 map.

Dunn, D.St.C., 2006: Report on geology and geochemistry of the Georgie River Property (Georgie Girl 1,2,3), Skeena Mining Division, British Columbia; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 28961, 10p. plus appendices; 1 map.

Dunn, D.St.C. and Davis, C.F., 2007: Report on geology and geochemistry, Georgie River Property (Georgie Girl 1,2, 3), Skeena Mining Division, British Columbia; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 28961, 12p. plus appendices; 6 maps.

Evenchick, C.A., 1991a: Geometry, evolution, and tectonic framework of the Skeena Fold Belt, north-central British Columbia; Tectonics, v. 10, no. 3, pp. 527-546.

Evenchick, C.A., 1991b: Structural relationships of the Skeena Fold Belt west of the Bowser Basin, northwest British Columbia; Canadian Journal of Earth Sciences, v. 28, p. 973-983.

Evenchick, C.A., McNicoll, V.J. and Snyder, L.D., 2004: Stratigraphy, geochronology, and geochemistry of the Georgie River area, northwest British Columbia, and implications for mineral exploration; Canadian Journal of Earth Sciences, v. 41, pp. 199-216.

Evenchick, C.A., Snyder, L.D., and McNicoll, V.J., 1999: Geology of Hastings Arm West half (103P/12W) and parts of 103P/13,1030/9 and 1030/16, British Columbia; Geological Survey of Canada, Open File 2996, 1:50,000 scale.

Flewin, J., 1906: Portland Canal District, Skeena Mining Division; *in*: Robertson, W.F.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1905, being an account of mining operations for gold, coal, etc., in the Province (British Columbia Bureau of Mines, 1906), pp.J79-J80.

Friedman, R.M. and Mortensen, J.K., 2002: U-Pb zircon and titanite dating in support of British Columbia Geological Survey regional mapping studies *in*: Geological Fieldwork 2001; British Columbia Ministry Of Energy, Mines and Petroleum Resources Paper 2002-1, pp. 135-149.

Galloway, J.D., 1932: Lode-gold deposits of British Columbia; British Columbia Department of Mines Bulletin No. 1932-1, 144p.

Graham, C., 1938: Georgia River Area; *in*: Mandy, J.T.; North-Western Mineral Survey District (No. 1); Annual report of the Minister of Mines of the Province of British Columbia for the year ended 31st December 1937, Part B, p.B42.

Graham, C., 1939: Georgia River Area; *in*: Mandy, J.T.; North-Western Mineral Survey District (No. 1); Annual report of the Minister of Mines of the Province of British Columbia for the year ended 31st December 1938, Part B, p.B26.

Greig, C. J., and Hendrickson, G.A 2001: Geological and Geochemical Report on the Praxis Property (Praxis 1-17 Claims), August 2000, Georgie River Area (NTS. 103P/12, 103O/9, 103P/13), Skeena Mining Division, Northwestern British Columbia; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 26552, 32p. plus appendices; 4 maps.

Grove, E.W., 1986: Geology and mineral deposits of the Unuk River-Salmon River-Anyox area; British Columbia Ministry of Energy, Mines and Petroleum Resources Bulletin 63, 434 p.

Gruenwald, W., 1996: Assessment report on the Georgia River Project - 1996 diamond drilling program, Stewart, B.C.; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 24704, 20p. plus appendices; 9 sects.

Hanson, G. 1935: Portland Canal Area, British Columbia; Geological Survey of Canada, Memoir 175, 179p.

Hanson, G., McConnell, R.G., O'Neill, J.J. and Schofield, S.J., 1935: Portland Canal Area, Cassiar District, British Columbia; Geological Survey of Canada, "A" Series Map 307A,; 1 sheet.

Jack, P. S., 1917: Georgia River (Portland Canal Mining Division); *in*: Robertson, W.F.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1916, being an account of mining operations for gold, coal, etc., in the Province (British Columbia Bureau of Mines, 1917), p.K85.

James, H.T., 1928: Georgia River Section (Portland Canal Mining Division); *in*: Galloway, J.D.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1927, being an account of mining operations for gold, coal, *etc*., in the Province (British Columbia Bureau of Mines, 1928), pp. C80-C82.

James, H.T., 1929: Georgia River Section (Portland Canal Mining Division); *in*: Galloway, J.D.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1928, being an account of mining operations for gold, coal, *etc*., in the Province (British Columbia Bureau of Mines, 1929), pp. C90-C92.

Kikauka, A., 1990: Geological and geochemical report on the VG 1,2,3 claim group, Georgie R. in the Skeena Mining Division; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 20697, 31p.

Knutson, R.A., 1963: A report on the geophysical and geochemical surveys on the JO group of mineral claims, Stewart, B.C. ; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 00522, 7p. plus appendices; 3 maps.

Kruchkowski, E.R., 1980: Drill Report Georgia #l Crown Granted Claim, Stewart Area, Skeena Mining Division, B.C.; appended to British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 08547, 47p. plus appendices.

Kruchkowski, E.R., 1981: Report on 1981 Diamond Drilling, Georgia River Project, Stewart Area, Skeena Mining Division, B.C.; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 08547, 59p. plus appendices; 19 maps, 15 sects.

Kruchkowski, E.R., 1985: Report on Bonus 1-5 claims Stewart, British Columbia; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 13350, 18p. plus appendices; 2 maps

Kruchkowski, E.R., 1986: Report on BONUS 1-5 claims Stewart, British Columbia; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 15107, 20p. plus appendices; 3 maps.

Kruchkowski, E.R., 1987: Report on BONUS claims Stewart, British Columbia; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 16405, 26p. plus appendices; 4 maps.

Kruchkowski, E.R., 1988a: Property report, BONUS claims, Stewart, British Columbia; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 17705, 21p. plus appendices; 4 maps.

Kruchkowski, E.R., 1988b: Property report, BONUS claims, Stewart, British Columbia; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 18933, 22p. plus appendices; 4 maps.

Kruchkowski, E.R., 1990: Drill report, Georgia River Project, Stewart, British Columbia; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 19983, 40p. plus appendices; 1 map, 7 sects.

Kruchkowski, E.R. and Crimonese, D.M., 1983: Assessment Report; geological work on the following claims: LUXOR 1 #3832(3), LUXOR 2 #3B33(3), located 17 air kilometers south of Stewart, B.C.; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 12630, 16p. plus appendices.

Kruchkowski, E.R. and Konkin, K.J.,1989: Drilling Report on the Georgia River Group; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 19049, 37p. plus appendices; 1 map, 7 sects.

Macdonald, A.J., Lewis, P.D., Ettlinger, A.D., Bartsch, R.D., Miller, B.D. and Logan, J.M., 1993: Basaltic rocks of the Middle Jurassic Salmon River Formation, northwestern British Columbia (104A, B, G); *in*: Geological Fieldwork 1992; British Columbia Ministry Of Energy, Mines and Petroleum Resources Paper 1993-1, pp.307-314.

McConnell, R.G., 1913: Portions of Portland Canal and Skeena Mining Divisions, Skeena District, British Columbia; Geological Survey of Canada, Memoir no. 32, 101p.

McLeod, I. and McNeil, H., 2004: Prospectors, Promoters and Hard Rock Miners, Tales from the Stewart, BC and Hyder, Alaska Camps; Publ. SH Co. Ltd., Kelowna B.C., 186p.

Mandy, J.T., 1930: Georgia River Gold Mines, Ltd. (Portland Canal Mining Division); *in*: Galloway, J.D.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1929, being an account of mining operations for gold, coal, *etc*., in the Province (British Columbia Bureau of Mines, 1930), pp.C91-C92.

Mandy, J.T., 1931: Georgia River Section (Portland Canal Mining Division); in: Galloway, J.D.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1930, being an account of mining operations in the Province (British Columbia Bureau of Mines, 1931), pp.A101- A102.

Mandy, J.T., 1932: Montrose (Georgia River Section, Portland Canal Mining Division); *in*: Galloway, J.D.; Annual Report of the Minister of Mines of British Columbia for the year ending 31st December, 1931, being an account of mining operations for gold, coal, *etc*., in the Province (British Columbia Bureau of Mines, 1932), p.A41.

Mandy, J.T., 1933: Georgia River Gold Mines, Ltd. (Portland Canal Mining Division); *in*: Galloway, J.D.; Annual Report of the Minister of Mines of British Columbia for the year ended 3lst December, 1932, being an account of mining operations in the Province. (British Columbia Bureau of Mines, 1933), p.A57.

Mandy, J.T., 1937: Helena Gold Mines, Ltd. (Portland Canal Mining Area); *in*: Galloway, J.D.; Annual Report of the Minister of Mines of British Columbia for the year ended 3lst December, 1936, being an account of mining operations in the Province. (British Columbia Bureau of Mines, 1937), pp.B4-B10, 1 map, 1sect

Massey, N.W.D., MacIntyre, D.G., Desjardins, P.J. and Cooney, R.T., 2005: Digital Geology Map of British Columbia: Whole Province, B.C.; Ministry of Energy and Mines, Geofile 2005-1.

Ostensoe, E., 1985: Report of geological, geochemical and geophysical work on BONUS l-5 claims, Georgie River area, Stewart Mining District, Skeena Mining Division, British Columbia; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 13860, 19p. plus appendices; 1 map.

Robins, J.E., 1991: Prospecting report on the PEDRO #l and PEDRO #2 mineral claims, Skeena Mining Division; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 21790, 25p.

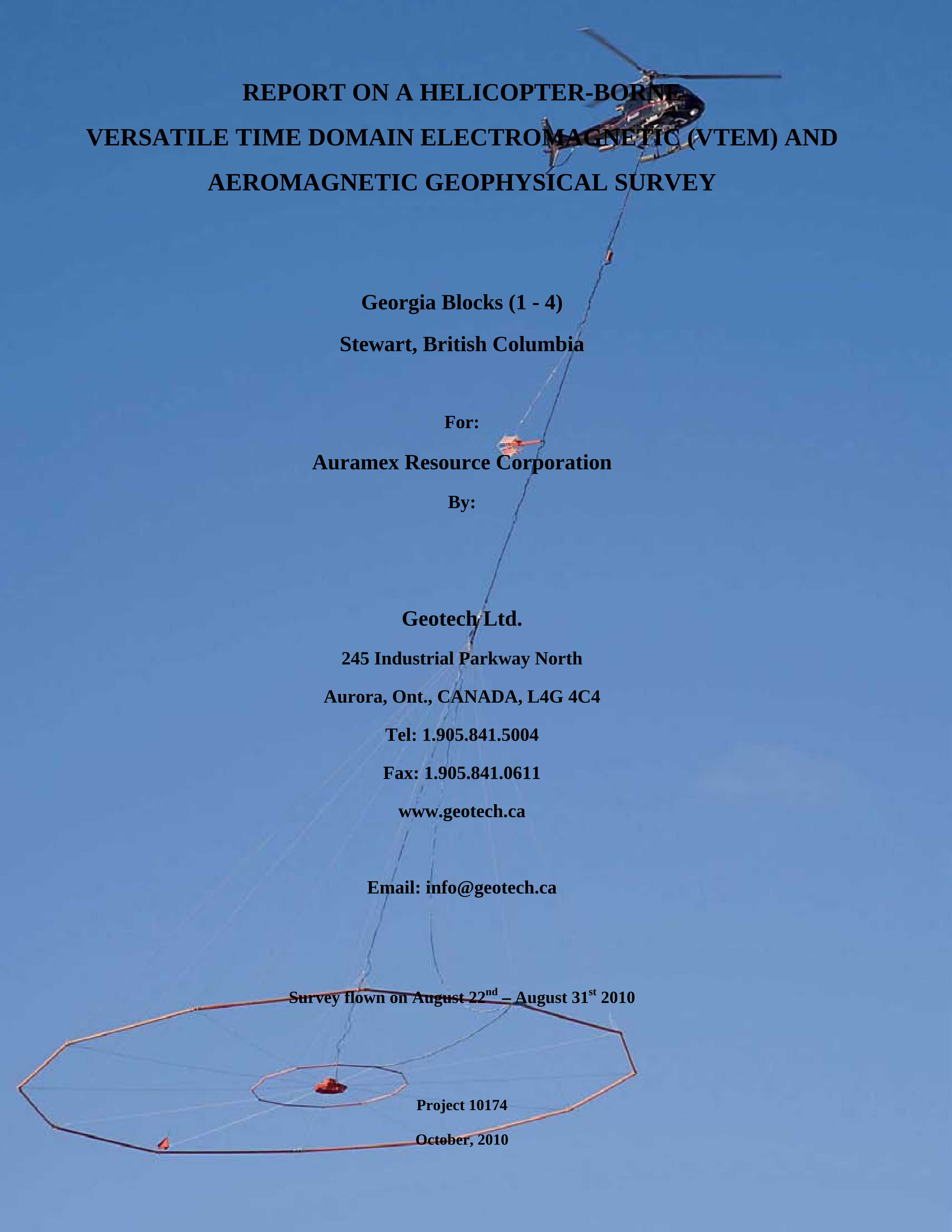
Schatten, M., 1995: Assessment Report on the Georgia River Property - 1995 Drill Program Skeena Mining Division, B.C. ; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 24100, 29p. plus appendices; 4 maps, 14 sects.

Sullivan, J., 1962: A geological and geophysical report on the JO group of mineral claims, Stewart, B.C.; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 00489, 9p. plus appendices; 3 maps.

Tully, D.W., 1973: Report on the J C #1-24 and JJ #1-2 claims, Georgie River - Portland Canal area, Stewart, British Columbia, Skeena Mining Division; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 04820, 18p.

Wojdak, P., 2004: Northwest region; *in*: Wojdak, P. (ed.); Exploration and mining in British Columbia 2003; British Columbia Ministry of Energy and Mines (Mining and Minerals Division), p.12.

APPENDIX I: 2010 AIRBORNE GEOPHYSICAL SURVEY



REPORT ON A HELICOPTER-BORNE VERSATILE TIME DOMAIN ELECTROMAGNETIC (VTEM) AND AEROMAGNETIC GEOPHYSICAL SURVEY

Georgia Blocks (1 - 4)

Stewart, British Columbia

For:

Auramex Resource Corporation

By:

Geotech Ltd.

245 Industrial Parkway North

Aurora, Ont., CANADA, L4G 4C4

Tel: 1.905.841.5004

Fax: 1.905.841.0611

www.geotech.ca

Email: info@geotech.ca

Survey flown on August 22nd – August 31st 2010

Project 10174

October, 2010

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

REPORT ON A HELICOPTER-BORNE VERSATILE TIME DOMAIN ELECTROMAGNETIC (VTEM) and AEROMAGNETIC SURVEY

Georgia Blocks 1 to 4
Stewart, British Columbia

Executive Summary

On August 22nd to 31st 2010, Geotech Ltd. carried out a helicopter-borne geophysical survey over the Georgia Blocks 1-4 situated 11 km south of Stewart, BC, Canada.

Principal geophysical sensors included a versatile time domain electromagnetic (VTEM) system, and a cesium magnetometer. Ancillary equipment included a GPS navigation system and a radar altimeter. A total of 705.1 line-kilometres were planned to be flown.

The survey operations were based out of the Ripley Creek Inn located in the Stewart, BC. In-field data quality assurance and preliminary processing were carried out on a daily basis during the acquisition phase. Preliminary and final data processing, including generation of final digital data and map products were undertaken from the office of Geotech Ltd. in Aurora, Ontario.

The processed survey results are presented as electromagnetic stacked profiles of the B-field Z Component and dB/dt Z, and as colour grids of a B-Field Z Component Channel, Total Magnetic Intensity (TMI) & Time Constant (TAU).

Digital data includes all electromagnetic and magnetic products, plus ancillary data including the waveform.

The survey report describes the procedures for data acquisition, processing, final image presentation and the specifications for the digital data set. Formal interpretation has been included in Appendix H.

1. INTRODUCTION

1.1 General Considerations

Geotech Ltd. performed a helicopter-borne geophysical survey over the Georgia Blocks 1-4 located in Stewart, British Columbia (Figure 1 & 2).

Wayne Crocker represented Auramex Resource Corporation during the data acquisition and data processing phases of this project.

The geophysical surveys consisted of helicopter borne EM using the versatile time-domain electromagnetic (VTEM) system with Z component measurements and aeromagnetics using a cesium magnetometer. A total of 726.1 line-km of geophysical data were acquired during the survey. The survey area is shown in Figure 2 and Figure 3.

The crew was based out of the Ripley Creek Inn, Stewart, BC for the acquisition phase of the survey. Survey flying started August 22nd and ended August 31st 2010.

Data quality control and quality assurance, and preliminary data processing were carried out on a daily basis during the acquisition phase of the project. Final data processing followed immediately after the end of the survey. Final reporting, data presentation and archiving were completed from the Aurora office of Geotech Ltd. in October, 2010.

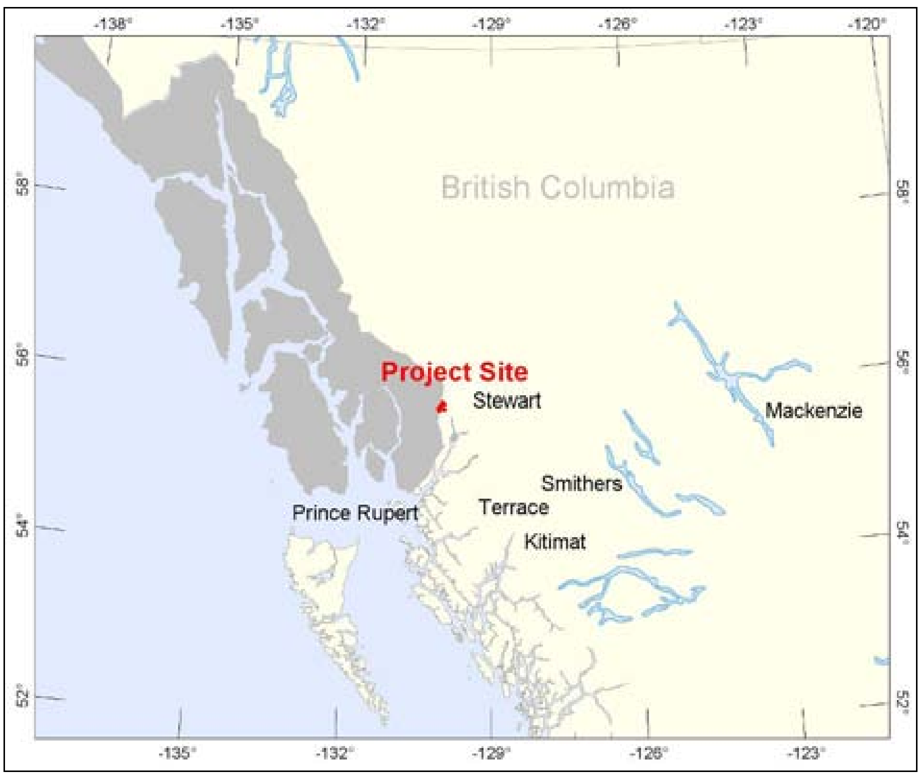


Figure 1 - Property Location

1.2 Survey and System Specifications

The survey block is located approximately 11 kilometres South of the Stewart, BC which was where the Magnetic Base Station was located (Figure 2 & 3).

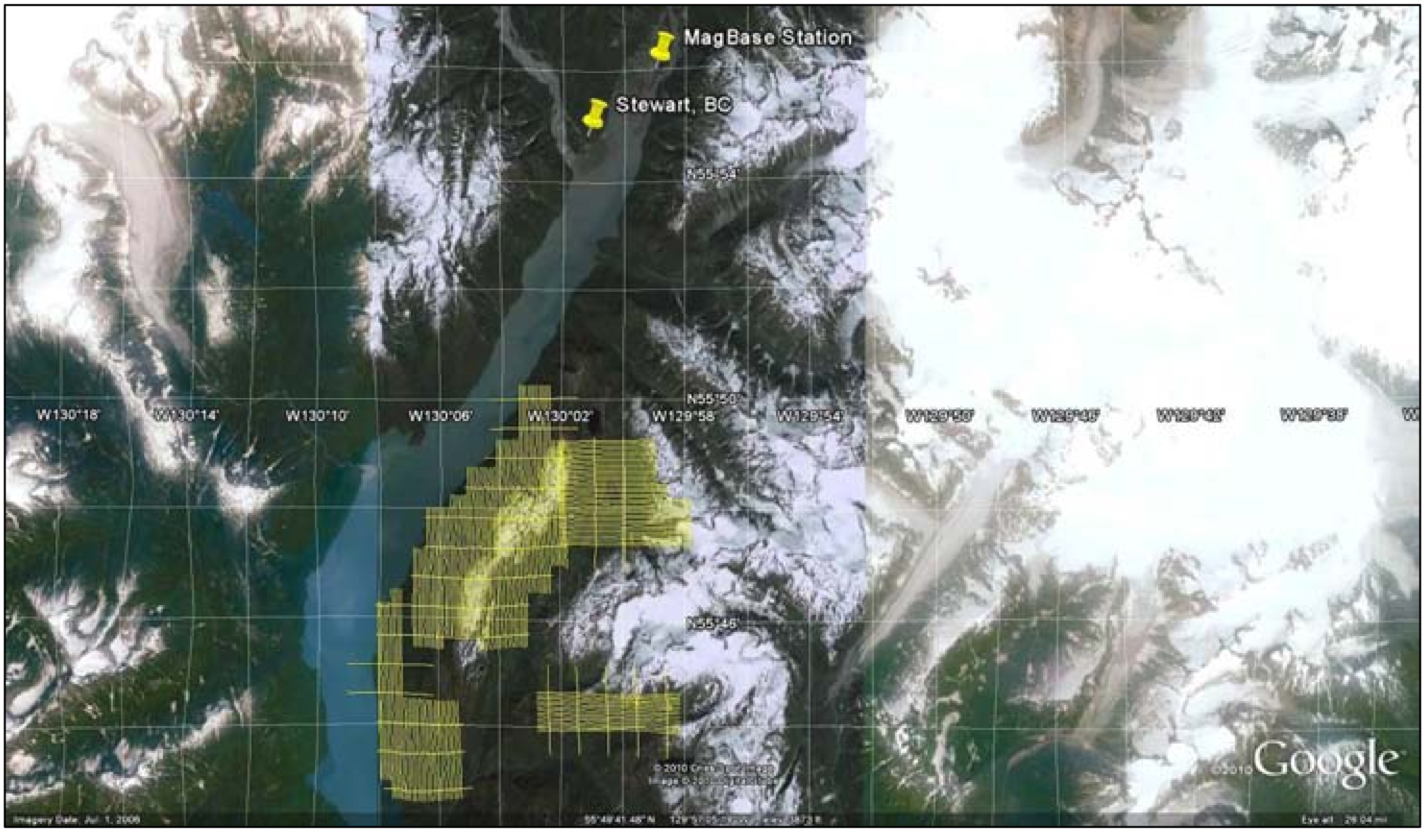


Figure 2 – The blocks, showing the magnetic base station location on Google Earth

The Georgia Blocks 1 & 2 were flown in a North to South (N 0° E / N 180° E) direction with traverse line spacing of 100 metres as depicted in Figure 3. Tie lines were flown perpendicular to the traverse lines at a spacing of 1000 (N 90° E / N 270° E). Georiga Blocks 3 & 4 were flown in an East to West (90° E / N 270° E). Tie lines were flown perpendicular to the tranverse lines at a spacing of 1000.For more detailed information on the flight spacing and direction see Table 1.

1.3 Topographic Relief and Cultural Features

Topographically, the block exhibits a high relief with an elevation ranging from 0 to 1730 metres above sea level over a total area of 61.8 square kilometres (Figure 3). There are numerous waterbodies surrounding the survey area including the Portland Canal located on the western side of the area. There are no visible sign of culture as the block is located on a permanatly glaciated surface; the closest populated area is Stewart BC located 11 kilometers North of the Block.

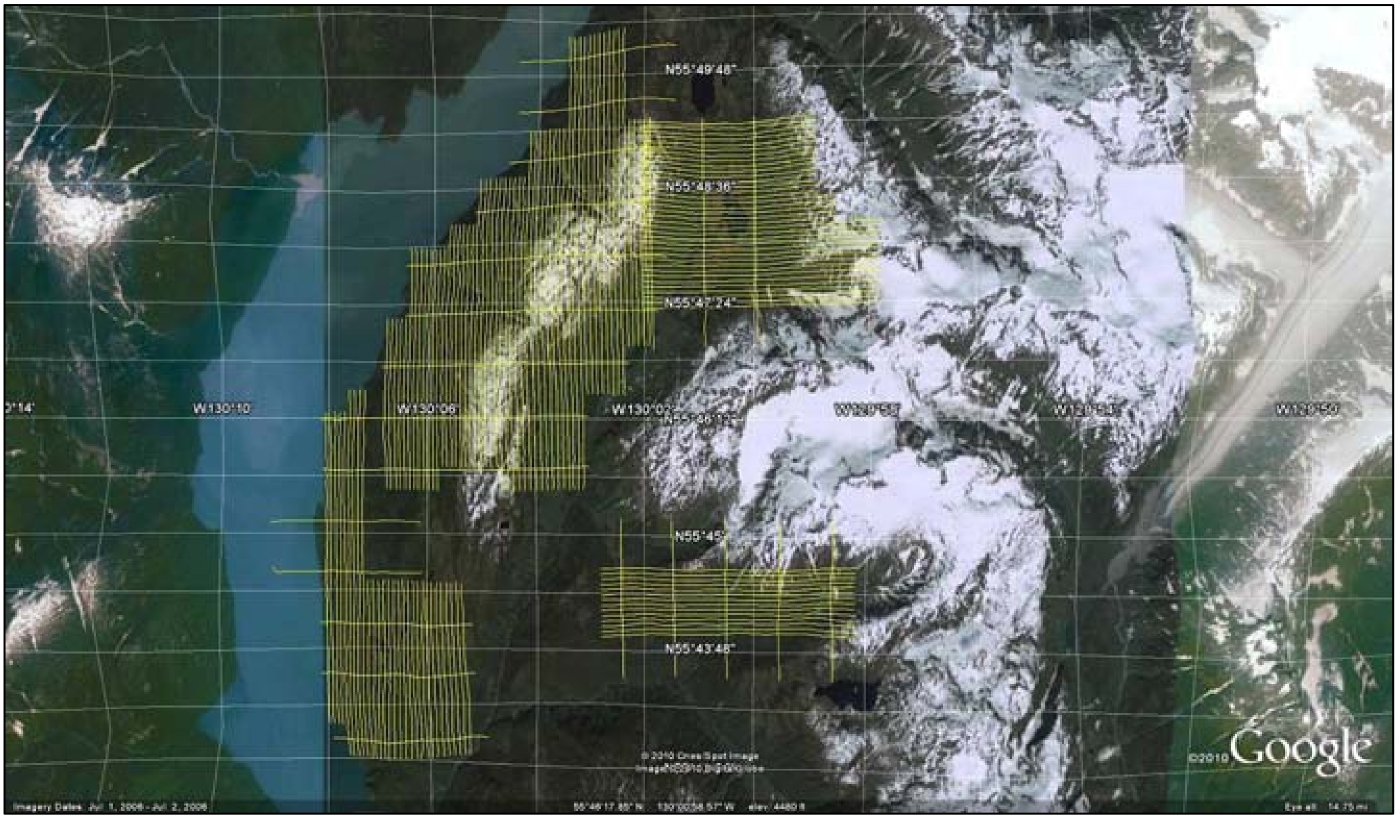


Figure 3 – Flight path over a Google Earth Image.

The blocks are covered by numerous mining claims, which are shown in Appendix A, and are plotted on all maps. The survey area is covered by NTS (National Topographic Survey) of Canada sheet 103o09, 103o16, 103p12, 103p13.

2. DATA ACQUISITION

2.1 Survey Area

The survey block (see Figure 3 and Appendix A) and general flight specifications are as follows:

Table 1 - Survey Specifications

Survey blocks	Line spacing (m)	Area (Km^2)	Planned Line-km	Line-km flown	Flight direction	Line numbers
Block 1	Traverse: 100	29.5	298.7	305.2	N 0° E	L5000 - L5520
	Tie: 1000		37.0	38.7	N 90° E	T5900 - T5980
Block 2	Traverse: 100	12.5	127.5	131.0	N 0° E	L6000 - L6280
	Tie: 1000		15.0	15.6	N 90° E	T5900 - T5980
Block 3	Traverse: 100	13.3	132.8	138.8	N 90° E	L7000 - L7350
	Tie: 1000		12.7	13.2	N 0° E	T7900 - T7920
Block 4	Traverse: 100	6.5	66.4	68.0	N 90° E	L8000 - L8130
	Tie: 1000		15.0	15.6	N 0° E	T8900 - T8940
TOTAL		**61.8**	**705.1**	**726.1**		

Survey block boundaries co-ordinates are provided in Appendix B.

2.2 Survey Operations

Survey operations were based out of the Ripley Creek Inn, Stewart, BC for August 22nd–31st, 2010. The following table shows the timing of the flying.

Table 2 - Survey schedule

Date	Flight #	Block	Crew location	Comments
Aug-22-10	1	Area1	Stewart BC	86km flown limited production due to weather
Aug-23-10			Stewart BC	No Production stand by for client
Aug-24-10			Stewart BC	No Production due to weather
Aug-25-10			Stewart BC	No Production due to weather
Aug-26-10			Stewart BC	No Production due to weather
Aug-27-10	2	Area2	Stewart BC	107 km flown
Aug-28-10	3,4	Area1/2	Stewart BC	285 km flown
Aug-29-10	5,6,7	Area3/4	Stewart BC	139 km flown
Aug-30-10	8	Area3	Stewart BC	64km flown -limited Production due to weather
Aug-31-10			Stewart BC	No Production due to weather – remaining 61kms will not be flown – flying is complete

2.3 Flight Specifications

During the survey of the block the helicopter was maintained at a mean altitude of 125 metres above the ground with a nominal survey speed of 80 km/hour. This allowed for a nominal EM bird terrain clearance of 90 metres and a magnetic sensor clearance of 112 metres.

An operator on board was monitoring the system integrity. He also maintained a detailed flight log during the survey, tracking the times of the flight as well as any unusual geophysical or topographic feature.

On return of the aircrew to the base camp the survey data was transferred from a compact flash card (PCMCIA) to the data processing computer. The data were then uploaded via ftp to the Geotech office in Aurora for daily quality assurance and quality control by qualified personnel.

2.4 Aircraft and Equipment

2.4.1 Survey Aircraft

The survey was flown using a Bighorn Helicopter (Astar) 350 B3 helicopter, registration C-GABH. The helicopter is owned by Geotech Ltd. and operated by Geotech Aviation Ltd. out of North Bay, Ontario. Installation of the geophysical and ancillary equipment was carried out by Geotech Ltd crew.

2.4.2 Electromagnetic System

The electromagnetic system was a Geotech Time Domain EM (VTEM) system. The configuration is as indicated in Figure 4 below.

The VTEM Receiver and transmitter coils are concentric-coplanar and Z-direction oriented. All loops were towed at a mean distance of 35 metres below the aircraft as shown in Figure 4 and Figure 6. The receiver decay recording scheme is shown diagrammatically in Figure 5.

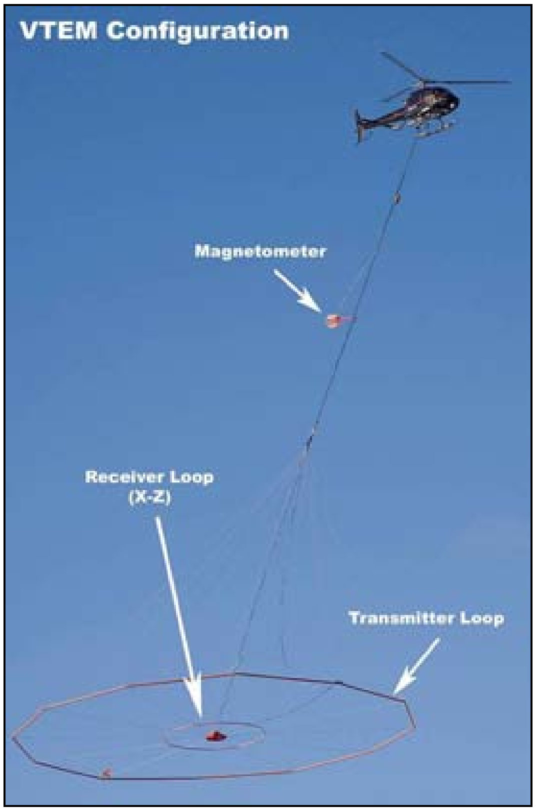


Figure 4 - VTEM Configuration, with magnetometer.

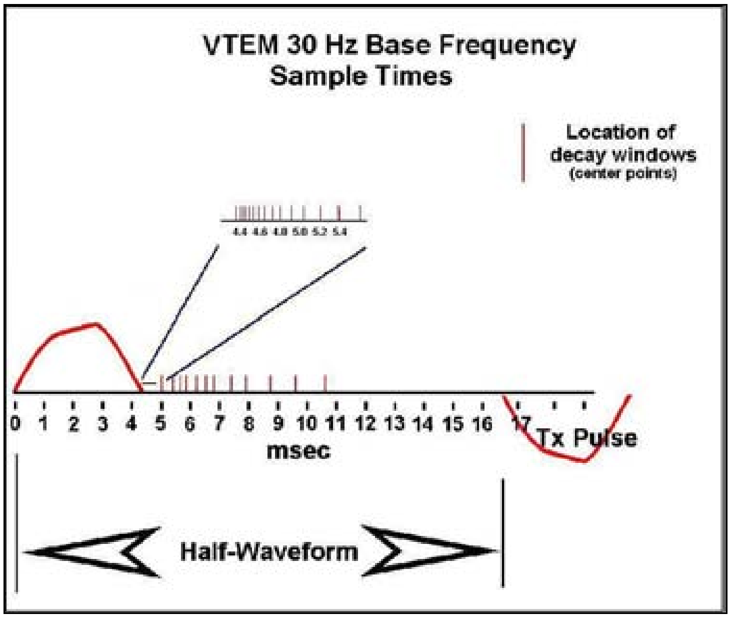


Figure 5 - VTEM Waveform & Sample Times

The VTEM decay sampling scheme is shown in Table 3 below. Thirty-two time measurement gates were used for the final data processing in the range from 96 to 7036 μ sec, as shown in 3.

Table 3 - Decay Sampling Scheme

VTEM Decay Sampling Scheme				
Index	**Middle**	**Start**	**End**	**Window**
	Microseconds			
14	96	90	103	13
15	110	103	118	15
16	126	118	136	18
17	145	136	156	20
18	167	156	179	23
19	192	179	206	27
20	220	206	236	30
21	253	236	271	35
22	290	271	312	40
23	333	312	358	46
24	383	358	411	53
25	440	411	472	61
26	505	472	543	70
27	580	543	623	81
28	667	623	716	93
29	766	716	823	107
30	880	823	945	122
31	1,010	945	1,086	141
32	1,161	1,086	1,247	161
33	1,333	1,247	1,432	185
34	1,531	1,432	1,646	214
35	1,760	1,646	1,891	245
36	2,021	1,891	2,172	281
37	2,323	2,172	2,495	323
38	2,667	2,495	2,865	370
39	3,063	2,865	3,292	427
40	3,521	3,292	3,781	490
41	4,042	3,781	4,341	560
42	4,641	4,341	4,987	646
43	5,333	4,987	5,729	742
44	6,125	5,729	6,581	852
45	7,036	6,581	7,560	979

VTEM system parameters:

Survey Helicopter	
Model	AS 350 – B3
Registration	C-GABH
Operating Company	Bighorn Helicopters
Nominal survey speed (km/h)	80
Average terrain clearance (m)	125
VTEM Transmitter	
Coil diameter (m)	17.6
Number of turns	4
Pulse repetition rate (Hz)	30
Peak current (Amp)	250
Duty cycle (%)	20
Peak dipole moment (nIA)	243,285
Pulse width (ms)	3.396
Average terrain clearance (m)	91
Z-coil Receiver	
Coil diameter (m)	1.2
Number of turns	100
Effective area (m2)	113.1
Sampling interval (s)	0.1
Average terrain clearance (m)	91
Magnetometer	
Type	Geometrics
Model	Optically pumped cesium vapour
Sensitivity (nT)	0.02
Sampling interval (s)	0.1
Cable length (m)	13
Average terrain clearance (m)	112
Radar Altimeter	
Type	Terra TRA 3000/TRI 40
Position	Beneath cockpit
Sampling interval (s)	0.2
GPS navigation system	
Type	NovAtel
Model	CDGPS enabled OEM4-G2-3151W
Antenna position	Helicopter tail
Sampling interval (s)	0.2
Base Station Magnetometer/GPS	

Type	Geometrics
Model	Cesium vapour
Sensitivity (nT)	0.001
Sampling interval (s)	1

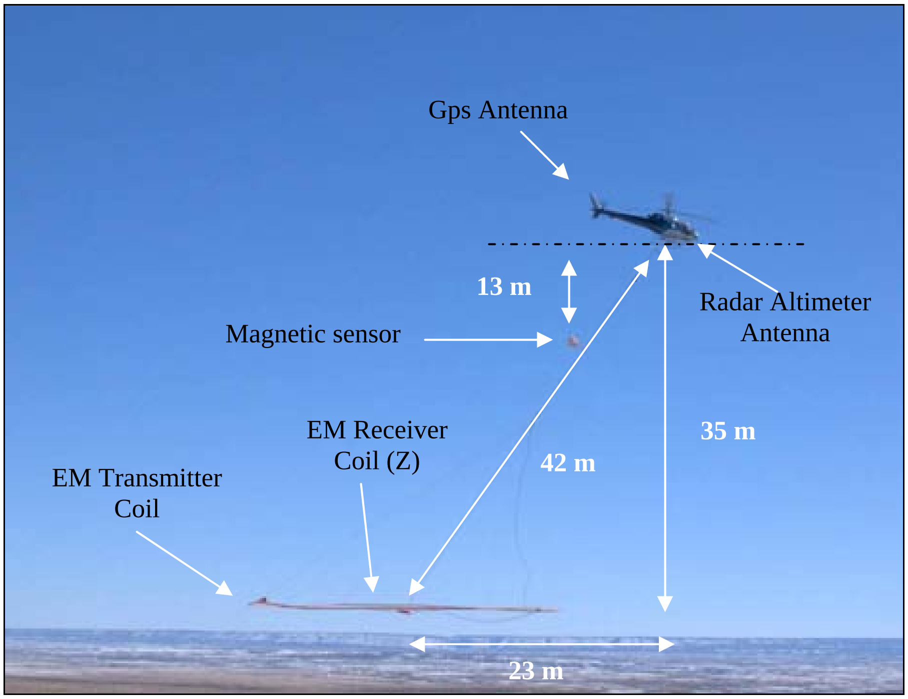


Figure 6 - VTEM System Configuration

2.4.3 Airborne magnetometer

The magnetic sensor utilized for the survey was Geometrics optically pumped caesium vapour magnetic field sensor mounted 13 metres below the helicopter, as shown in Figure 6. The sensitivity of the magnetic sensor is 0.02 nanoTesla (nT) at a sampling interval of 0.1 seconds.

2.4.4 Radar Altimeter

A Terra TRA 3000/TRI 40 radar altimeter was used to record terrain clearance. The antenna was mounted beneath the bubble of the helicopter cockpit (Figure 6).

2.4.5 GPS Navigation System

The navigation system used was a Geotech PC104 based navigation system utilizing a NovAtel's CDGPS (Canada-Wide Differential Global Positioning System Correction Service) enable OEM4-G2-3151W GPS receiver, Geotech navigate software, a full screen display with controls in front of the pilot to direct the flight and an NovAtel GPS antenna mounted on the helicopter tail (Figure 6). As many as 11 GPS and two CDGPS satellites may be monitored at any one time. The positional accuracy or circular error probability (CEP) is 1.8 m, with CDGPS active, it is 1.0 m. The co-ordinates of the block were set-up prior to the survey and the information was fed into the airborne navigation system.

2.4.6 Digital Acquisition System

A Geotech data acquisition system recorded the digital survey data on an internal compact flash card. Data is displayed on an LCD screen as traces to allow the operator to monitor the integrity of the system. The data type and sampling interval as provided in Table 4.

Table 4 - Acquisition Sampling Rates

DATA TYPE	SAMPLING
TDEM	0.1 sec
Magnetometer	0.1 sec
GPS Position	0.2 sec
Radar Altimeter	0.2 sec

2.5 Base Station

A combined magnetometer/GPS base station was utilized on this project. A Geometrics Caesium vapour magnetometer was used as a magnetic sensor with a sensitivity of 0.001 nT. The base station was recording the magnetic field together with the GPS time at 1 Hz on a base station computer.

The base station magnetometer sensor was installed at the Stewart Airport (055° 56.1021' N, 129° 59.0178' W); away from electric transmission lines and moving ferrous objects such as motor vehicles (Figure 2). The base station data were backed-up to the data processing computer at the end of each survey day.

3. PERSONNEL

The following Geotech Ltd. personnel were involved in the project.

Field:

Project Manager:	Darren Tuck (office)
Data QA/QC:	Neil Fiset (office)
Crew chief:	Alex Smirnov

The survey pilot and the mechanical engineer were employed directly by the helicopter operator – Geotech Aviation.

Pilot:	Chris Perry

Office:

Preliminary Data Processing:	Neil Fiset
Final Data Processing:	Marta Orta
Final Data QA/QC:	Marta Orta
EM Anomalies & Interpretation:	Alex Prikhodko
Reporting/Mapping:	Corrie Laver

Data acquisition phase was carried out under the supervision of Andrei Bagrianski, P. Geo, Surveys Manager. Processing phase was carried out under the supervision of Harish Kumar & Alex Prikhodko.The customer relations were looked after by Paolo Berardelli.

4. DATA PROCESSING AND PRESENTATION

Data compilation and processing were carried out by the application of Geosoft OASIS Montaj and programs proprietary to Geotech Ltd.

4.1 Flight Path

The flight path, recorded by the acquisition program as WGS 84 latitude/longitude, was converted into the NAD83 Datum, UTM Zone 9 North coordinate system in Oasis Montaj.

The flight path was drawn using linear interpolation between x, y positions from the navigation system. Positions are updated every second and expressed as UTM easting's (x) and UTM northing's (y).

4.2 Electromagnetic Data

A three stage digital filtering process was used to reject major sferic events and to reduce system noise. Local sferic activity can produce sharp, large amplitude events that cannot be removed by conventional filtering procedures. Smoothing or stacking will reduce their amplitude but leave a broader residual response that can be confused with geological phenomena. To avoid this possibility, a computer algorithm searches out and rejects the major sferic events.

The signal to noise ratio was further improved by the application of a low pass linear digital filter. This filter has zero phase shift which prevents any lag or peak displacement from occurring, and it suppresses only variations with a wavelength less than about 1 second or 15 metres. This filter is a symmetrical 1 sec linear filter.

The results are presented as stacked profiles of EM voltages for the time gates, in linear - logarithmic scale for the B-field Z component and dB/dt responses in the Z components. B-field Z component time channel recorded at 1.010 milliseconds after the termination of the impulse is also presented as contour color image.

VTEM Lite has one receiver coil orientations. Z-axis coil is oriented parallel to the transmitter coil axis and both are horizontal to the ground. This coil configuration provides information on the position, depth, dip and thickness of a conductor. The responses are free from a system geometric effect and can be easily compared to model type curves in most cases. Generalized modeling results of VTEM data, are shown in Appendix E.

Z component data produce double peak type anomalies for "thin" subvertical targets and single peak for "thick" targets.

The limits and change-over of "thin-thick" depends on dimensions of a TEM system the system's height and depth of a target. For example see Appendix E, Fig.E-16.

Graphical representations of the VTEM transmitter input current and the output voltage of the receiver coil are shown in Appendix C.

4.3 Electromagnetic Anomaly selection

The EM data were subjected to an anomaly recognition process using all time domain geophysical channels and using both the B-Field and dB/dt profiles.

Each individual conductor pick is represented by an anomaly symbol classified according to calculated conductance[1]. Identified anomalies were classified into one of five categories (Figure 9). The anomaly symbol is accompanied by postings denoting the calculated dB/dt conductance, calculated dB/dt decay constant (Tau)[2], and the dip direction for all dipping thin-plates[3]. Each symbol is also given an identification letter label, unique to each flight line. The anomaly symbol legend is given below.

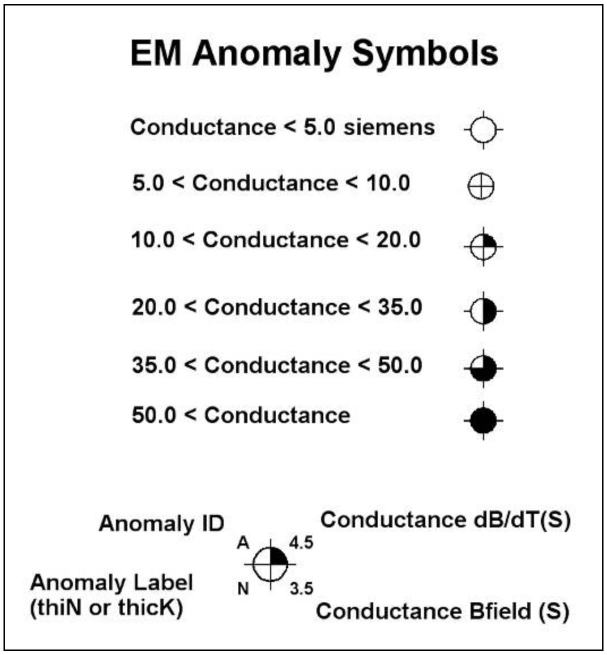


Figure 7 - EM Anomaly Symbols

EM anomaly symbols are presented in all final maps, i.e. VTEM profiles, total magnetic intensity and spectrometric grids. The anomalous responses have been picked on each line, reviewed and edited by the interpreter on a line by line basis to discriminate between bedrock, overburden and culture conductors. The VTEM anomalies and calculated parameters have been created in XYZ format as per table 6. The identified time domain electromagnetic VTEM anomalies are listed in Appendix G

[3]Note: Conductance values were obtained from the dB/dt and B-Field EM time constants (Tau) whose relationships to Tau were calculated using the oblate spheroid model of McNeill (1980).

[2] Note: An explanation of the EM time constant (Tau) approach to VTEM data is provided in Appendix F.

[3] Note: For vertically dipping thin plates (i.e., producing symmetric double peak anomalies – see Appendix E) and prism-like (single peak anomaly), a dip direction was assigned.

4.4 Magnetic Data

The processing of the magnetic data involved the correction for diurnal variations by using the digitally recorded ground base station magnetic values. The base station magnetometer data was edited and merged into the Geosoft GDB database on a daily basis. The aeromagnetic data was corrected for diurnal variations by subtracting the observed magnetic base station deviations.

Tie line levelling was carried out by adjusting intersection points along traverse lines. A micro-levelling procedure was applied to remove persistent low-amplitude components of flight-line noise remaining in the data.

The corrected magnetic data was interpolated between survey lines using a random point gridding method to yield x-y grid values for a standard grid cell size of approximately 25 metres at the mapping scale. The Minimum Curvature algorithm was used to interpolate values onto a rectangular regular spaced grid.

5. DELIVERABLES

5.1 Survey Report

The survey report describes the data acquisition, processing, and final presentation of the survey results. The survey report is provided in two paper copies and digitally in PDF format.

5.2 Maps

Final maps were produced at scale of 1:10,000 for best representation of the survey size and line spacing. The coordinate/projection system used was NAD 83 Datum, UTM Zone 9 North. All maps show the mining claims, flight path trace and topographic data; latitude and longitude are also noted on maps.

The preliminary and final results of the survey are presented as EM profiles, a late-time gate gridded EM channel, and a color magnetic TMI contour map. The following maps are presented on paper;

- VTEM dB/dt profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
- VTEM B-field late time Z Component Channel 31, Time Gate 1.010 ms color image.(This grid was microleveled)
- VTEM B-Field profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
- Total magnetic intensity (TMI) color image and contours.
- VTEM dB/dt & B-Field Calculated Time Constant (TAU) with contours of anomaly areas of the Calculated Vertical Derivative of TMI
- Calculated Vertical Gradient (CVG)

5.3 Digital Data

- Two copies of the data and maps on DVD were prepared to accompany the report. Each DVD contains a digital file of the line data in GDB Geosoft Montaj format as well as the maps in Geosoft Montaj Map and PDF format.

- DVD structure.

Data contains databases, grids and maps, as described below.
Report contains a copy of the report and appendices in PDF format.

Databases in Geosoft GDB format, containing the channels listed in Table 5.

Table 5 - Geosoft GDB Data Format

Channel name	Units	Description
X:	metres	UTM Easting NAD83 Zone 9 North
Y:	metres	UTM Northing NAD83 Zone 9 North
Longitude:	Decimal Degrees	WGS 84 Longitude data
Latitude:	Decimal Degrees	WGS 84 Latitude data
Z:	metres	GPS antenna elevation (above Geoid)
Radar:	metres	helicopter terrain clearance from radar altimeter
Radarb:	metres	Calculated EM bird terrain clearance from radar altimeter
DEM:	metres	Digital Elevation Model
Gtime:	Seconds of the day	GPS time
Mag1:	nT	Raw Total Magnetic field data
Basemag:	nT	Magnetic diurnal variation data
Mag2:	nT	Diurnal corrected Total Magnetic field data
Mag3:	nT	Levelled Total Magnetic field data
SFz[14]:	pV/(A*m^4)	Z dB/dt 96 microsecond time channel
SFz[15]:	pV/(A*m^4)	Z dB/dt 110 microsecond time channel
SFz[16]:	pV/(A*m^4)	Z dB/dt 126 microsecond time channel
SFz[17]:	pV/(A*m^4)	Z dB/dt 145 microsecond time channel
SFz[18]:	pV/(A*m^4)	Z dB/dt 167 microsecond time channel
SFz[19]:	pV/(A*m^4)	Z dB/dt 192 microsecond time channel
SFz[20]:	pV/(A*m^4)	Z dB/dt 220 microsecond time channel
SFz[21]:	pV/(A*m^4)	Z dB/dt 253 microsecond time channel
SFz[22]:	pV/(A*m^4)	Z dB/dt 290 microsecond time channel
SFz[23]:	pV/(A*m^4)	Z dB/dt 333 microsecond time channel
SFz[24]:	pV/(A*m^4)	Z dB/dt 383 microsecond time channel
SFz[25]:	pV/(A*m^4)	Z dB/dt 440 microsecond time channel
SFz[26]:	pV/(A*m^4)	Z dB/dt 505 microsecond time channel
SFz[27]:	pV/(A*m^4)	Z dB/dt 580 microsecond time channel
SFz[28]:	pV/(A*m^4)	Z dB/dt 667 microsecond time channel
SFz[29]:	pV/(A*m^4)	Z dB/dt 766 microsecond time channel
SFz[30]:	pV/(A*m^4)	Z dB/dt 880 microsecond time channel
SFz[31]:	pV/(A*m^4)	Z dB/dt 1010 microsecond time channel
SFz[32]:	pV/(A*m^4)	Z dB/dt 1161 microsecond time channel
SFz[33]:	pV/(A*m^4)	Z dB/dt 1333 microsecond time channel
SFz[34]:	pV/(A*m^4)	Z dB/dt 1531 microsecond time channel
SFz[35]:	pV/(A*m^4)	Z dB/dt 1760 microsecond time channel
SFz[36]:	pV/(A*m^4)	Z dB/dt 2021 microsecond time channel
SFz[37]:	pV/(A*m^4)	Z dB/dt 2323 microsecond time channel
SFz[38]:	pV/(A*m^4)	Z dB/dt 2667 microsecond time channel
SFz[39]:	pV/(A*m^4)	Z dB/dt 3063 microsecond time channel
SFz[40]:	pV/(A*m^4)	Z dB/dt 3521 microsecond time channel
SFz[41]:	pV/(A*m^4)	Z dB/dt 4042 microsecond time channel
SFz[42]:	pV/(A*m^4)	Z dB/dt 4641 microsecond time channel
SFz[43]:	pV/(A*m^4)	Z dB/dt 5333 microsecond time channel
SFz[44]:	pV/(A*m^4)	Z dB/dt 6125 microsecond time channel
SFz[45]:	pV/(A*m^4)	Z dB/dt 7036 microsecond time channel
BFz	(pV*ms)/(A*m^4)	Z B-Field data for time channels 14 to 45
PLM:		60 Hz power line monitor
TauSF	milliseconds	Time Constant (Tau) calculated from dB/dt data
CVG	nT/m	Calculated Magnetic Vertical Gradient
Nchan_TauSFz:		Last channel where the Tau algorithm stops calculation, dB/dt data

Electromagnetic B-field and dB/dt Z component data is found in array channel format between indexes 14 – 45, as described above.

- Databases of selected anomalies in Geosoft GDB format, contains the channels described in Table 6.

Table 6 - Geosoft database for selected EM anomalies

Channel name	Units	Description
X:	metres	NAD83 / UTM zone 9N
Y:	metres	NAD83 / UTM zone 9N
Line		Line number
AnCondBF	siemens	Apparent conductance, calculated from B-field data (Siemens)
AnCondSF	siemens	Apparent conductance calculated from dB/dt data (Siemens)
TauBF	milliseconds	Time Constant (Tau) calculated from B-Filed data
TauSF	milliseconds	Time Constant (Tau) calculated from dB/dt data
Labels		Letter indicating the Anomaly ID
Grade		

- Database of the VTEM Waveform "10174_waveform_final.gdb" in Geosoft GDB format, containing the following channels:

Time: Sampling rate interval, 5.2083 microseconds
Rx_Volt: Output voltage of the receiver coil (Volt)
Tx_Current: Output current of the transmitter (Amp)

- Grids in Geosoft GRD format, as follows:

BFz31: B-Field Z Component Channel 31 (Time Gate 1.010 ms) - This grid was microleveled
MAG: Total magnetic intensity (nT)
TAUSFz: dB/dt Calculated Time Constant (TAU)
TauBFz: B-Field Calculated Time Constant (TAU)
CVG: Calculated Vertical Gradient

A Geosoft .GRD file has a .GI metadata file associated with it, containing grid projection information. A grid cell size of 25 metres was used.

- Maps at 1:10,000 in Geosoft MAP format, as follows:

10174_10k_dBdtz: dB/dt profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
10174_10k_bfield: B-field profiles Z Component, Time Gates 0.220 – 7.036 ms in linear – logarithmic scale.
10174_10k_BFz31: B-field late time Z Component Channel 31, Time Gate 1.010 ms color image.(This grid was microleveled)
10174_10k_TMI: Total magnetic intensity (TMI) color image and contours.

10174_10k_TauBFz: B-Field Time Constant (TAU)

10174_10K_TAUSFz_CVG_contours: dB/dt Calculated Time Contant (TAU) with contours of anomaly areas of the Calculated Vertical Derivative of TMI

10174_10k_CVG: Calculated Vertical Gradient

Maps are also presented in PDF format.

1:50,000 topographic vectors were taken from the NRCAN Geogratis database at; http://geogratis.gc.ca/geogratis/en/index.html.

- A Google Earth file *10174_Auramex.kml* showing the flight path of the block is included. Free versions of Google Earth software from: http://earth.google.com/download-earth.html

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

A helicopter-borne versatile time domain electromagnetic (VTEM) geophysical survey has been completed over the Georgia Blocks 1-4, near Stewart, British Columbia.

The total area coverage is 61.8 km^2. Total survey line coverage is 726.1 line kilometres. The principal sensors included a Time Domain EM system and a magnetometer. Results have been presented as stacked profiles, and contour color images at a scale of 1:10,000. Formal interpretation has been included in Appendix F.

6.2 Recommendations

A summary interpretation, in support of the EM anomaly picking, Time Constant (Tau), calculated vertical magnetic derivative, Resistivity Depth Sections and Maxwell plate modelling that were preformed is included in the report.

The survey was successful in delineating EM anomaly sources at least on 5 anomaly zones which are recommended to following up. The anomalous areas are recommended for drill testing on the basis of RDI sections and Maxwell modelling as it may represent most likely mineralized zones
Respectfully submitted[6],

Marta Orta
Geotech Ltd.

Alex Prikhodko
Geotech Ltd.

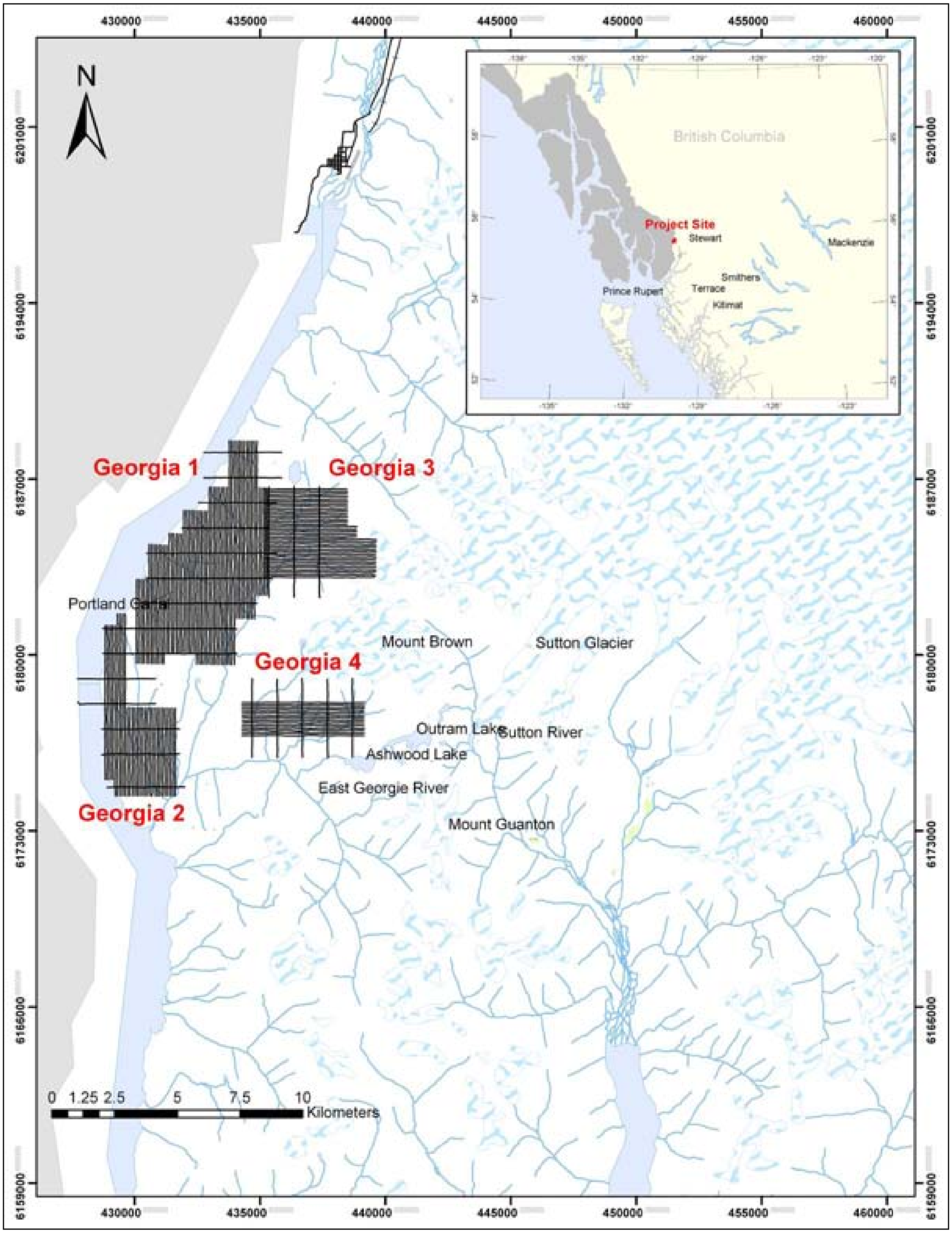
Harish Kumar
Geotech Ltd.

November 2010

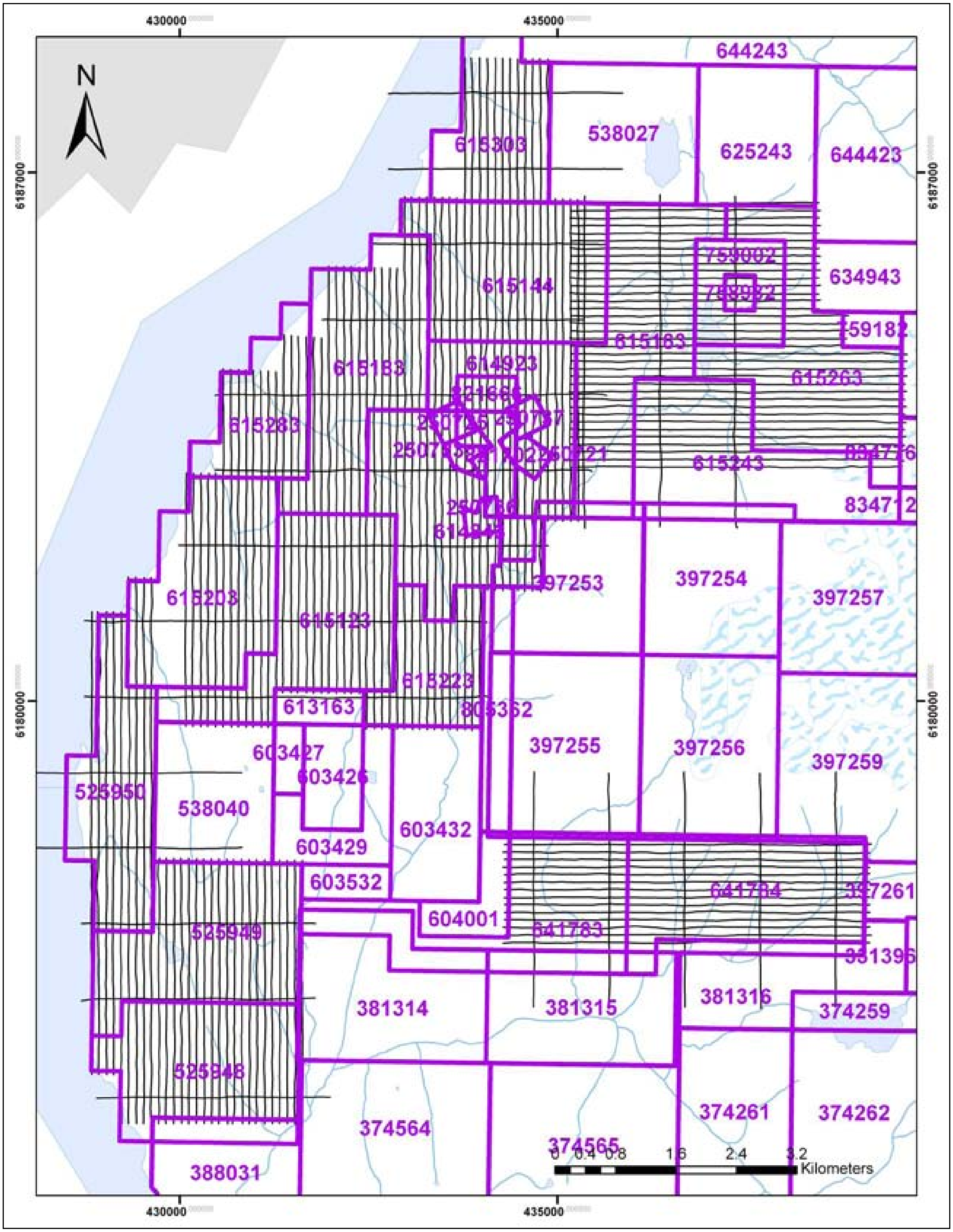
[6]Final data processing of the EM and magnetic data were carried out by Marta Orta, from the office of Geotech Ltd. in Aurora, Ontario, under the supervision of Harish Kumar, Assitant Manager of Data Processing and Alexander Prikhodko, P.Geo., PhD, Senior Geophysicist, VTEM Interpretation Supervisor.

APPENDIX A

SURVEY BLOCK LOCATION MAP



Survey Overview of the Block



Mining Claims for the Block

APPENDIX B

SURVEY BLOCK COORDINATES
(WGS 84, UTM Zone 9 North)

Georgia 1

X	Y
434914.5	6188455
434914.5	6186600
435278.5	6186595
435278.5	6182421
434824.4	6182427
434824.4	6181500
434026.3	6181511
434026.3	6179657
432429.3	6179681
432429.3	6180144
431252.7	6180163
431252.7	6179699
430076	6179718
430076	6182964
430520.1	6182957
430520.1	6184349
431286.7	6184305
431286.7	6184800
431966.8	6184748
431967.4	6185710
432904.4	6185680
432904.4	6186630
433712.2	6186618
433712.2	6188473

Georgia 2

X	Y
429713.8	6181579
429314.2	6181585
429314.2	6181122
428823.6	6181128
428823.6	6175100
429216.3	6175094
429220.3	6174445
431665.8	6174445
431665.8	6177838
429713.8	6177869

Georgia 3

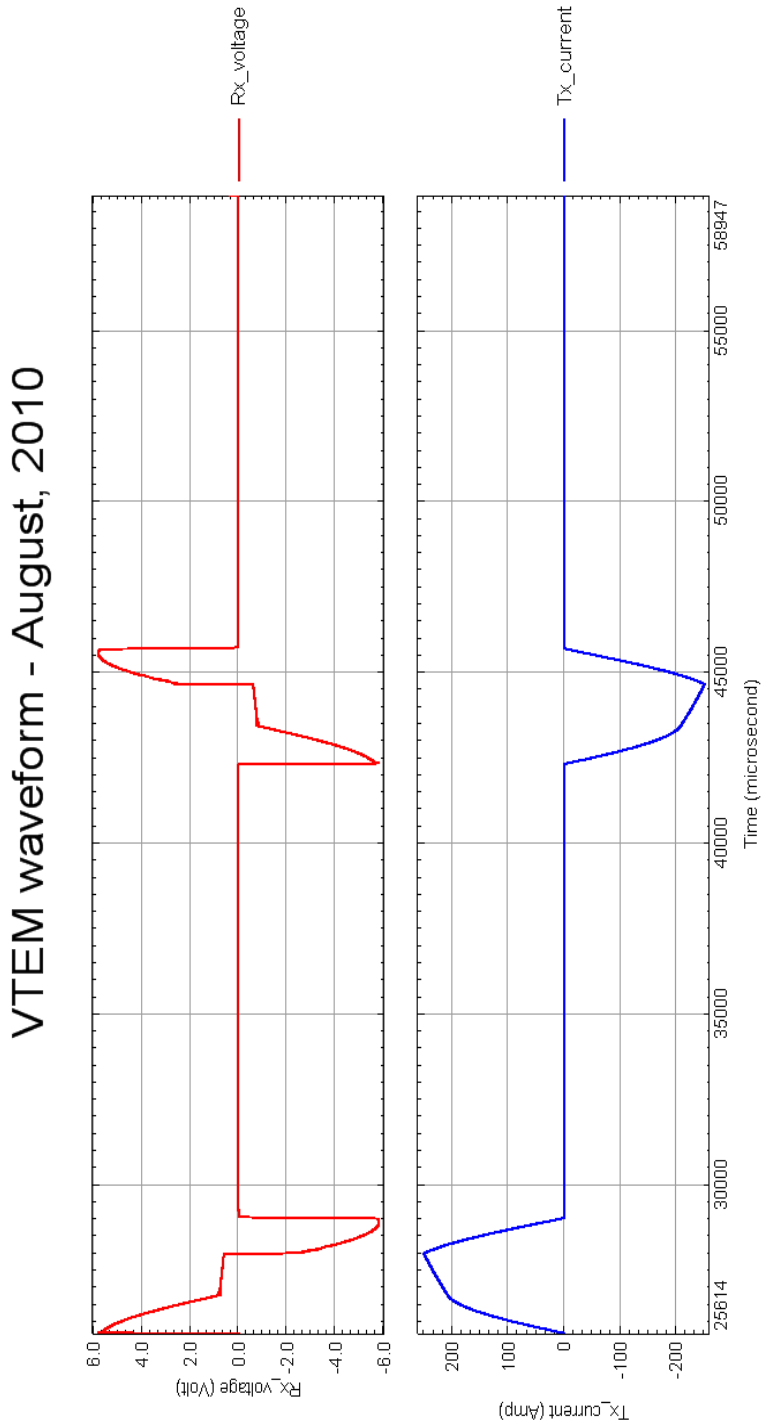
X	Y
435278.5	6186595
438411.3	6186595
438411.3	6185158
438783.3	6185158
438776.8	6184689
439560.3	6184689
439528	6182359
435278.5	6182359

Georgia 4

X	Y
439088.2	6178183
434348.5	6178183
434348.5	6176800
439088.2	6176800

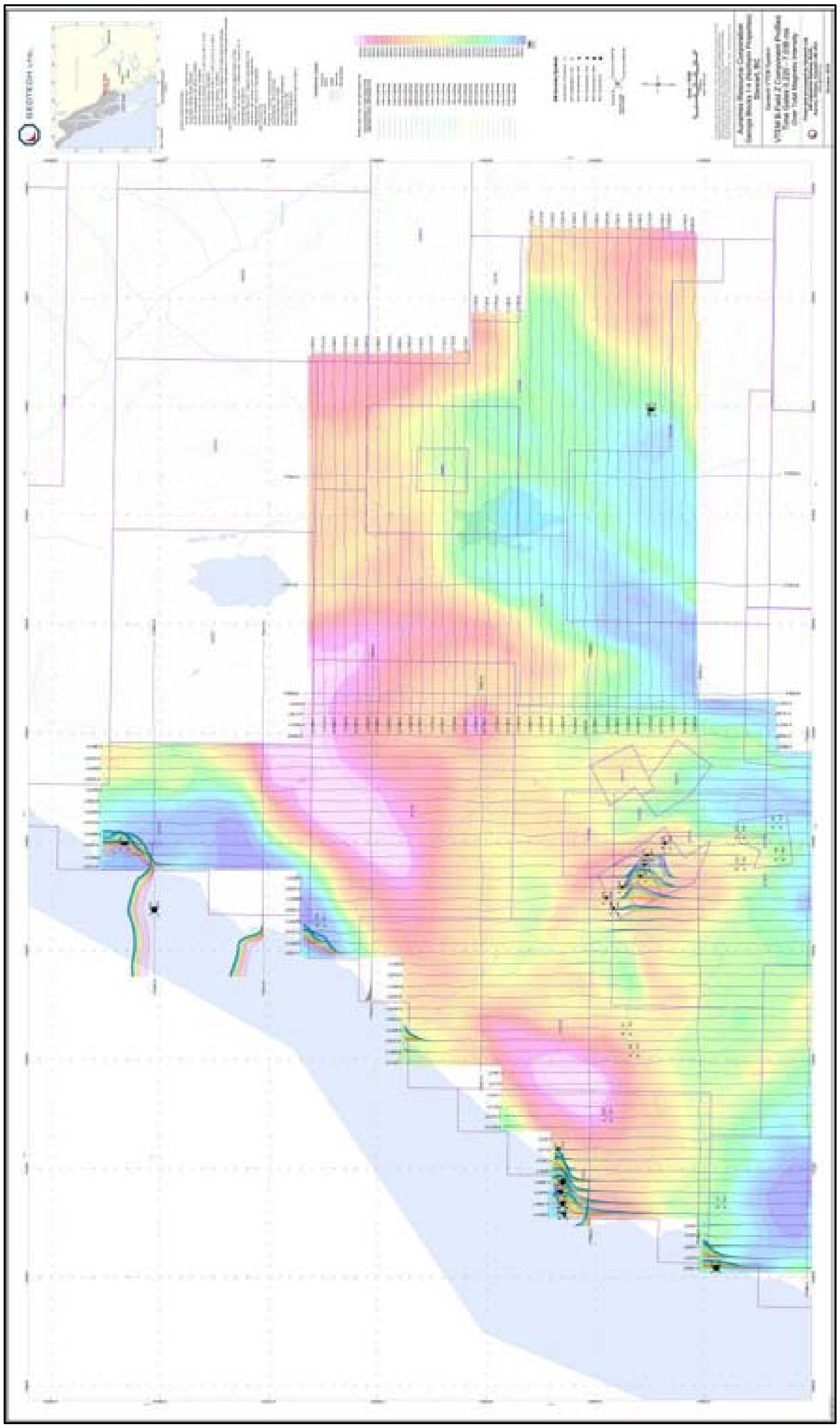
APPENDIX C

VTEM WAVEFORM



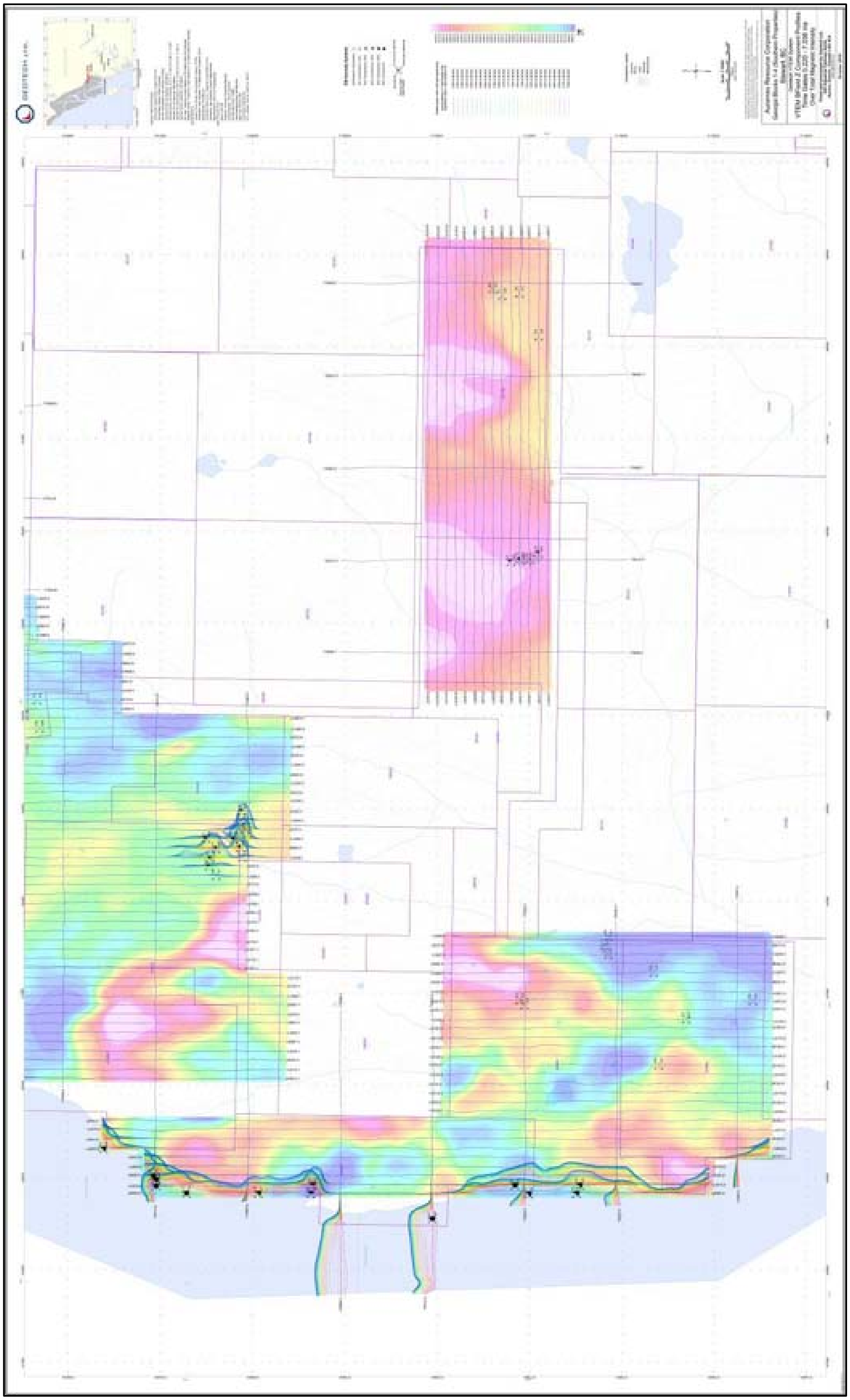
APPENDIX D

GEOPHYSICAL MAPS[1]

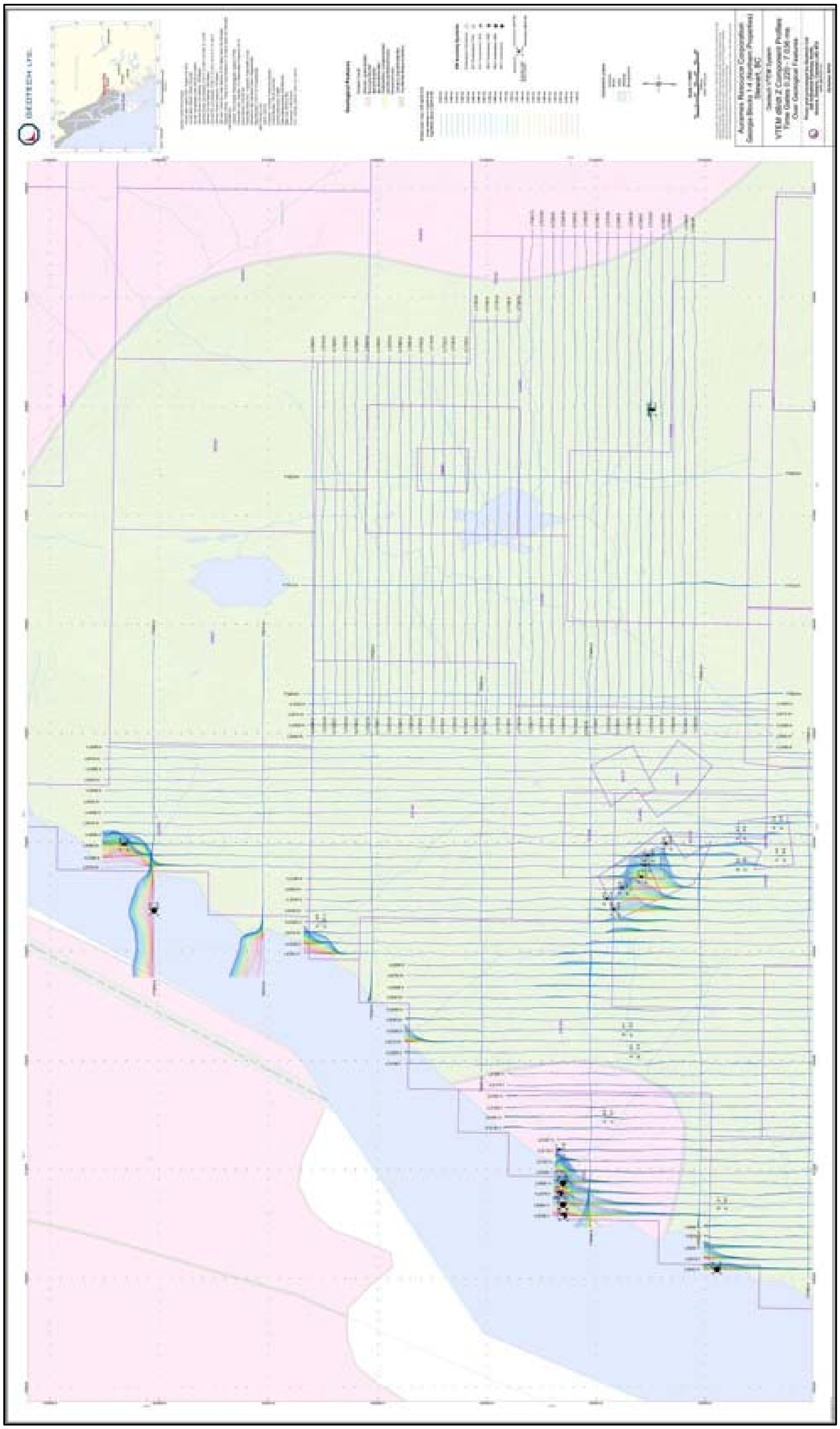


VTEM B-Field Z Component Profiles, Time Gates 0.220 to 7.036 ms (Northern Plate)

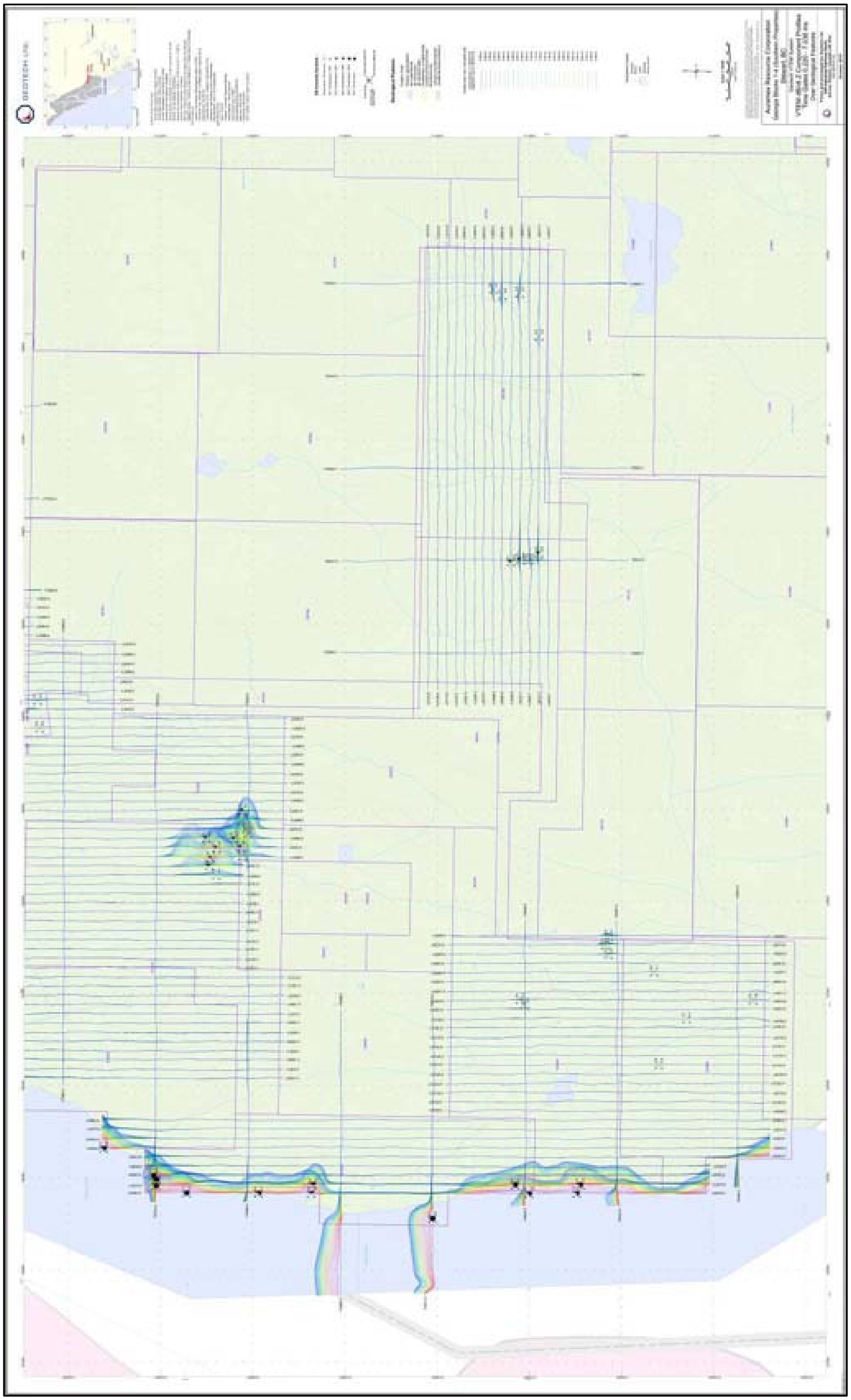
[1] Full size geophysical maps are also available in PDF format on the final DVD



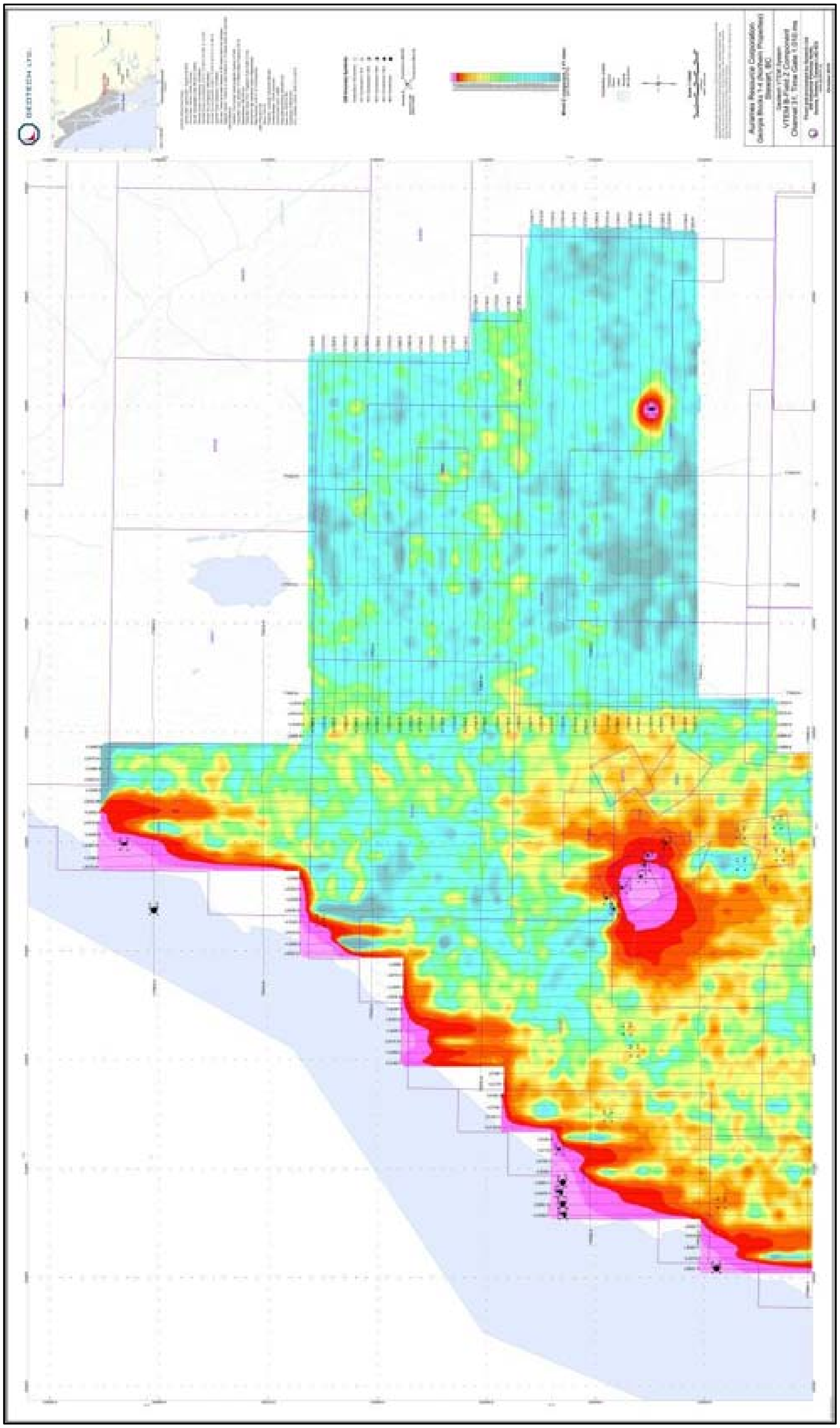
VTEM B-Field Z Component Profiles, Time Gates 0.220 to 7.036 ms (Southern Plate)



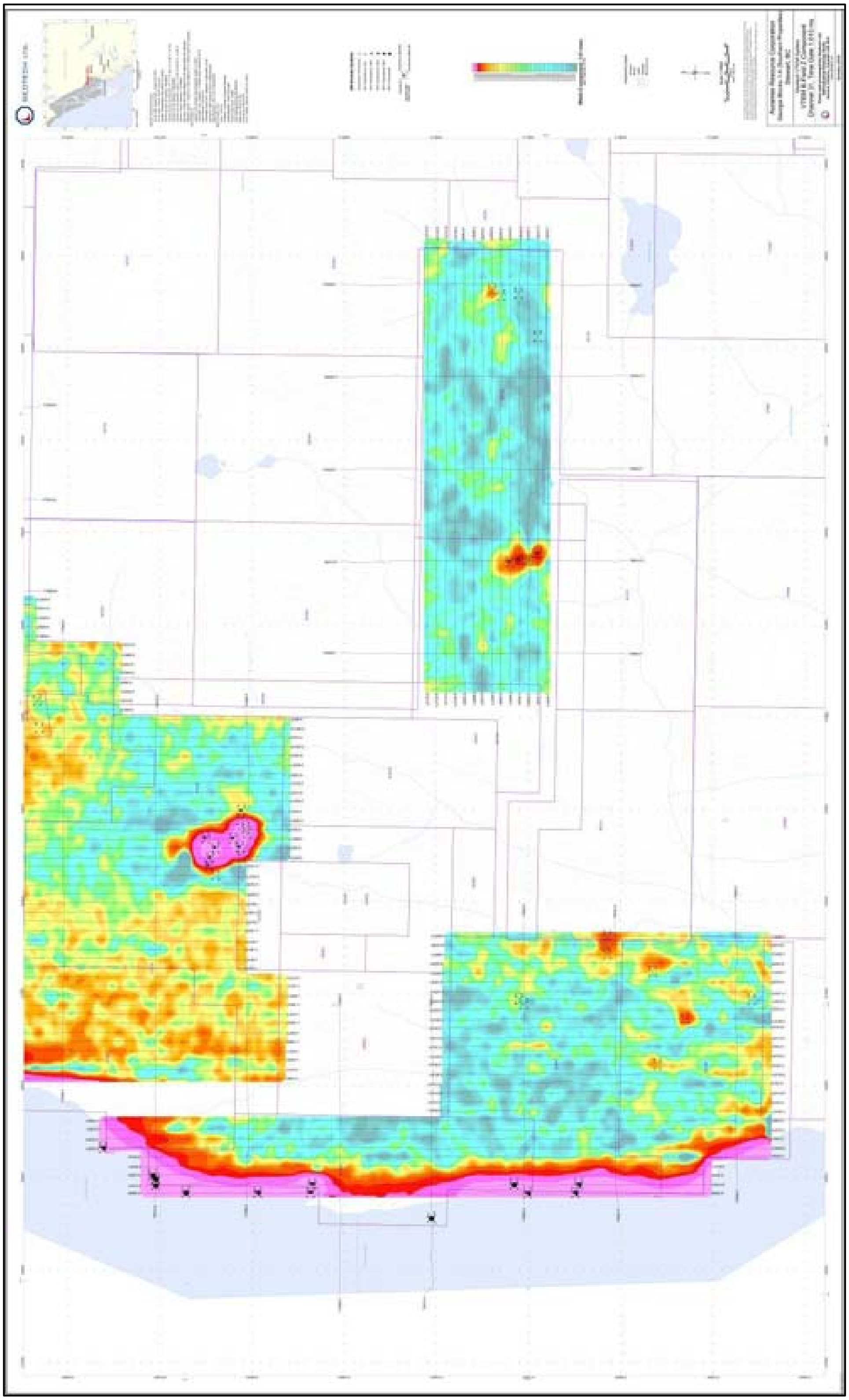
VTEM dB/dt Z Component Profiles, Time Gates 0.220 to 7.036 ms (Northern Plate)



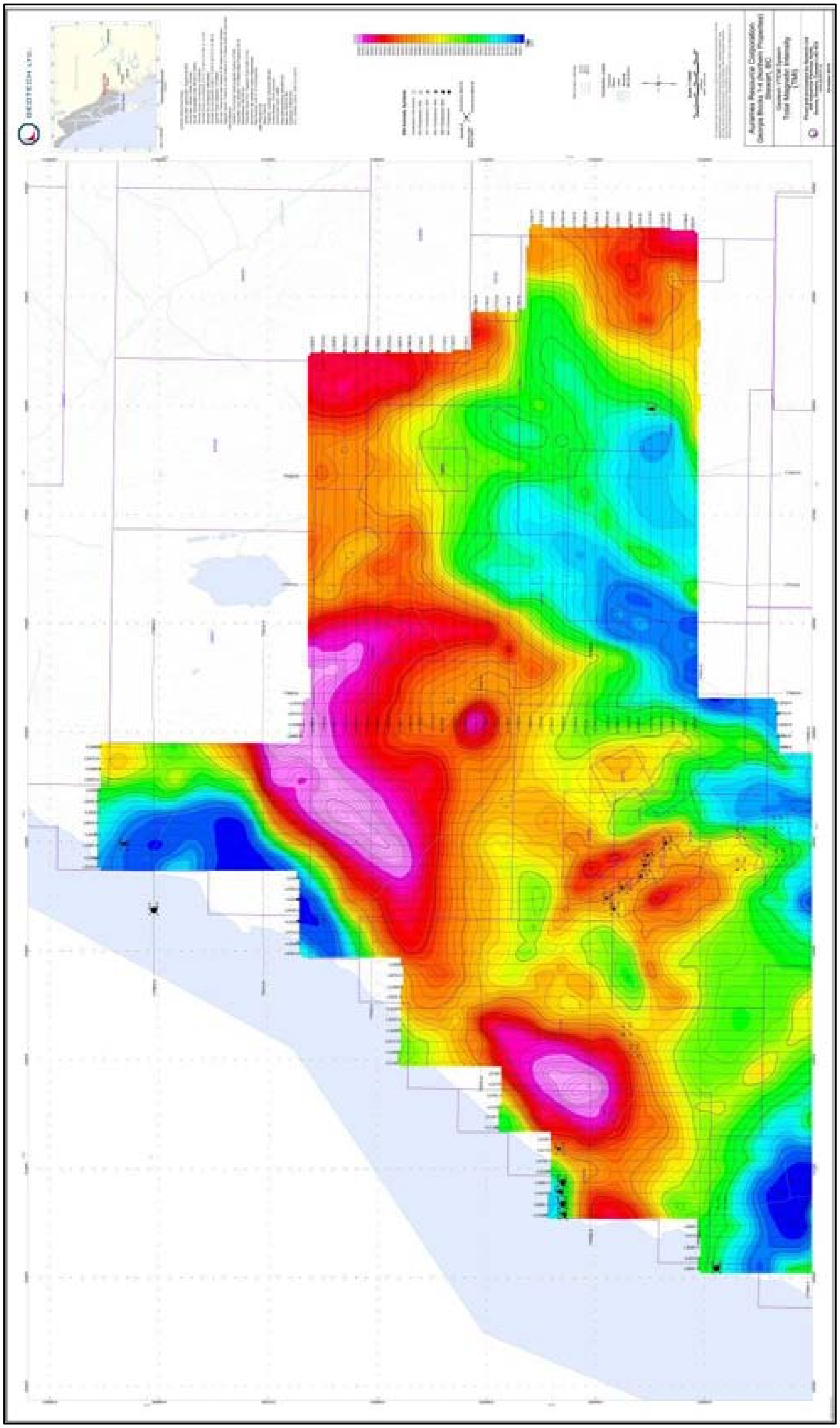
VTEM dB/dt Z Component Profiles, Time Gates 0.220 to 7.036 ms (Southern Plate)



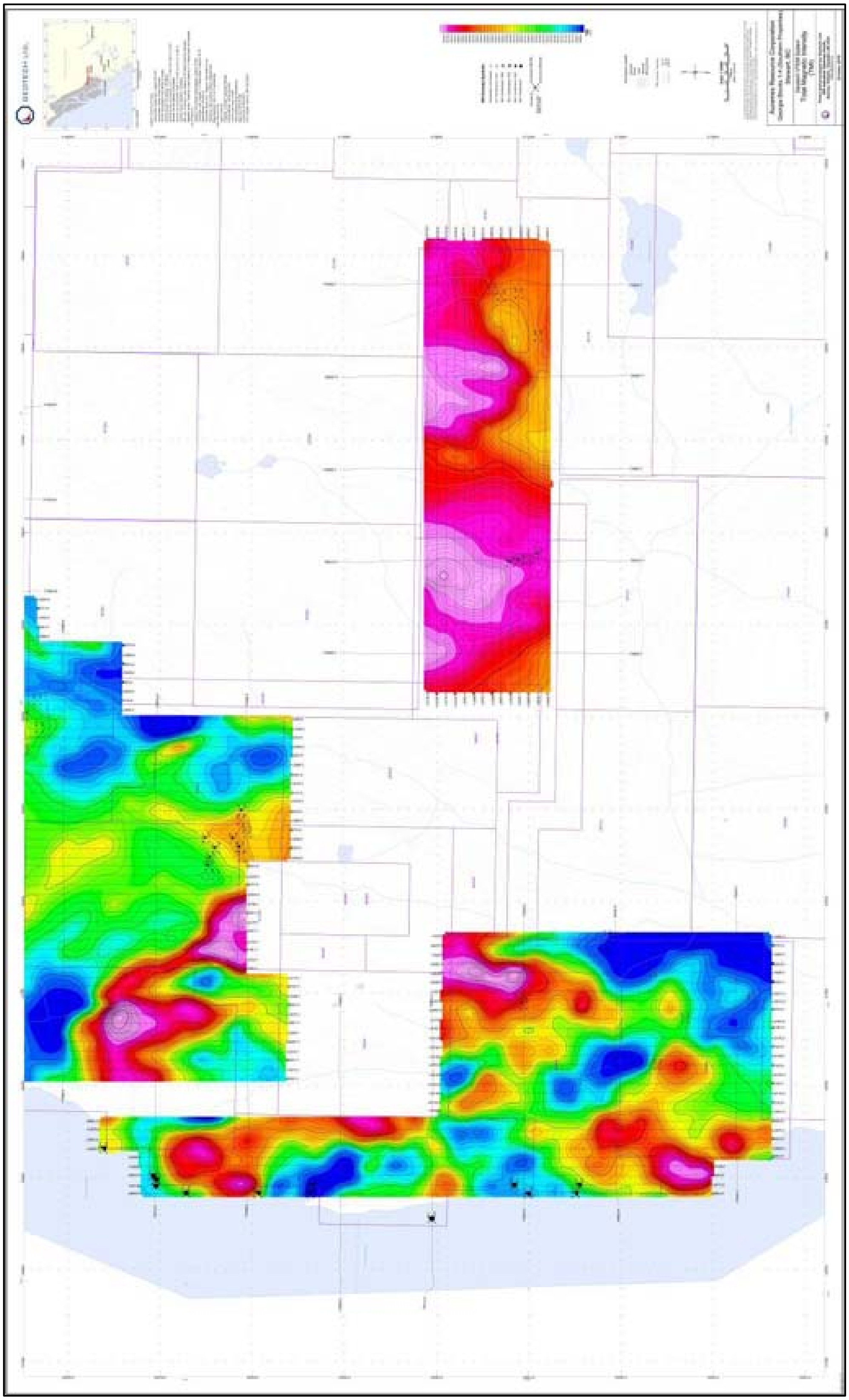
VTEM B-Field Z Component Channel 31, Time Gate 1.010 ms (Northern Plate) (This grid was microleveled)



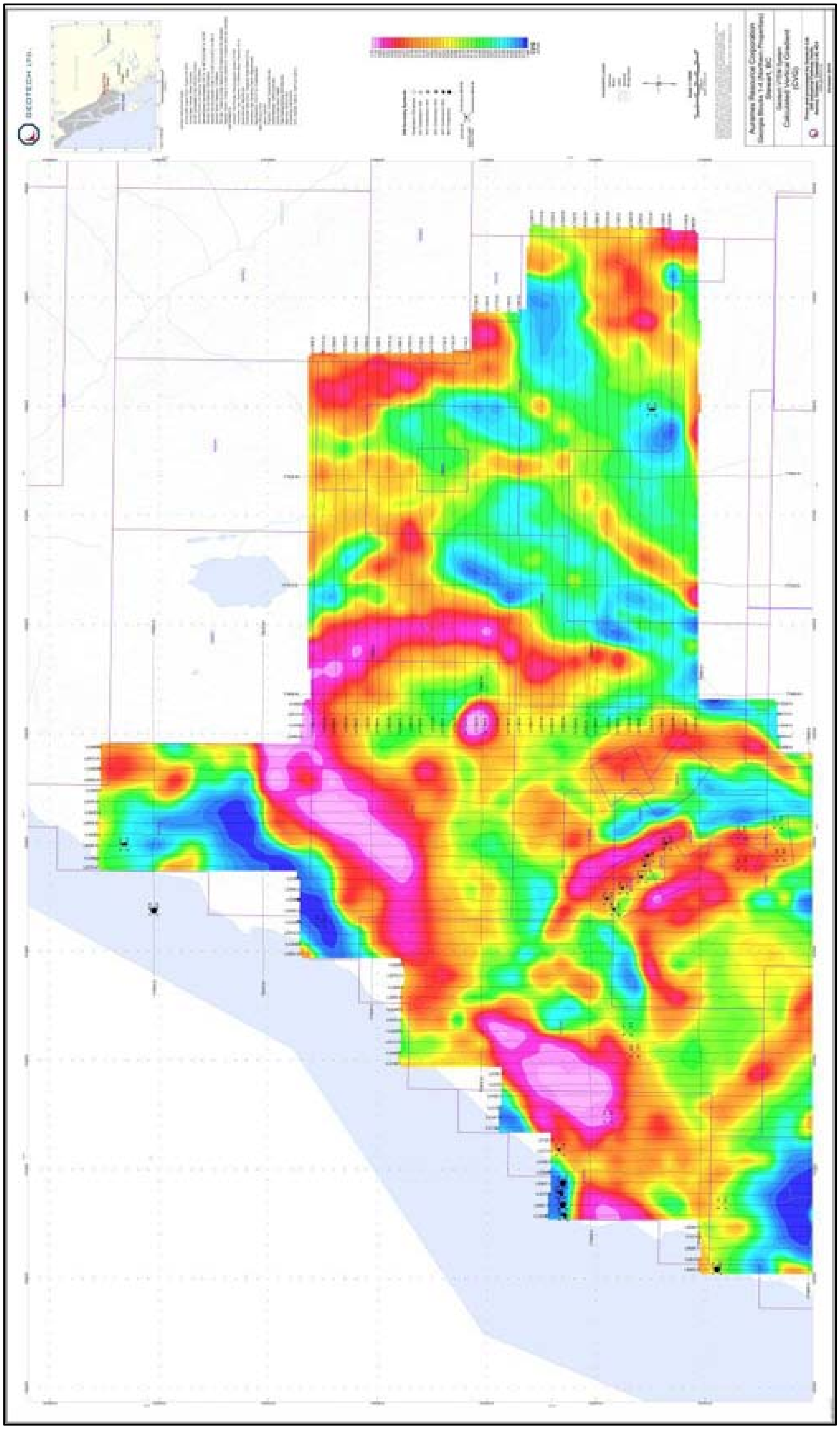
VTEM B-Field Z Component Channel 31, Time Gate 1.010 ms (SouthernPlate) (This grid was microleveled)



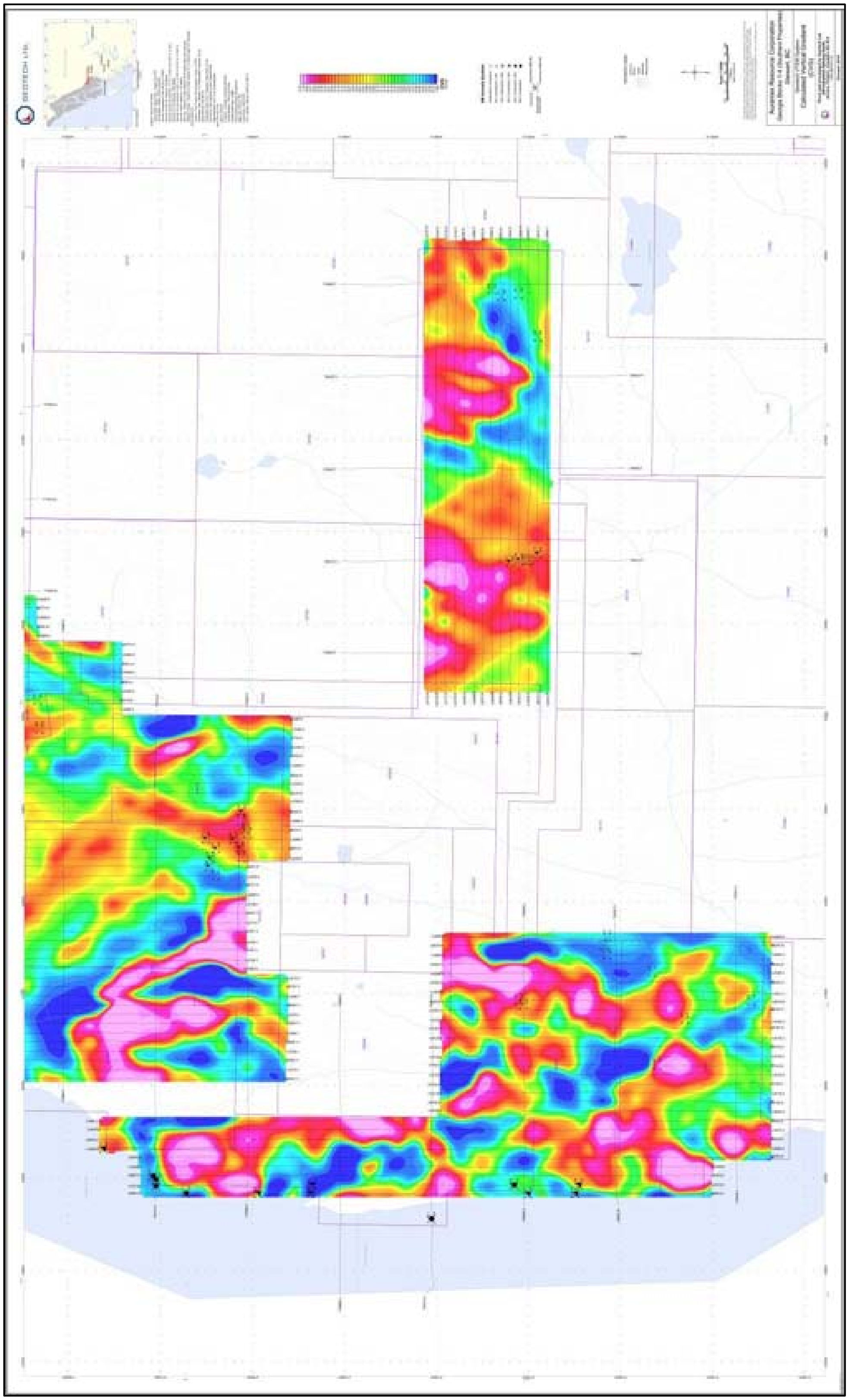
Total Magnetic Intensity (TMI) (Northern Plate)



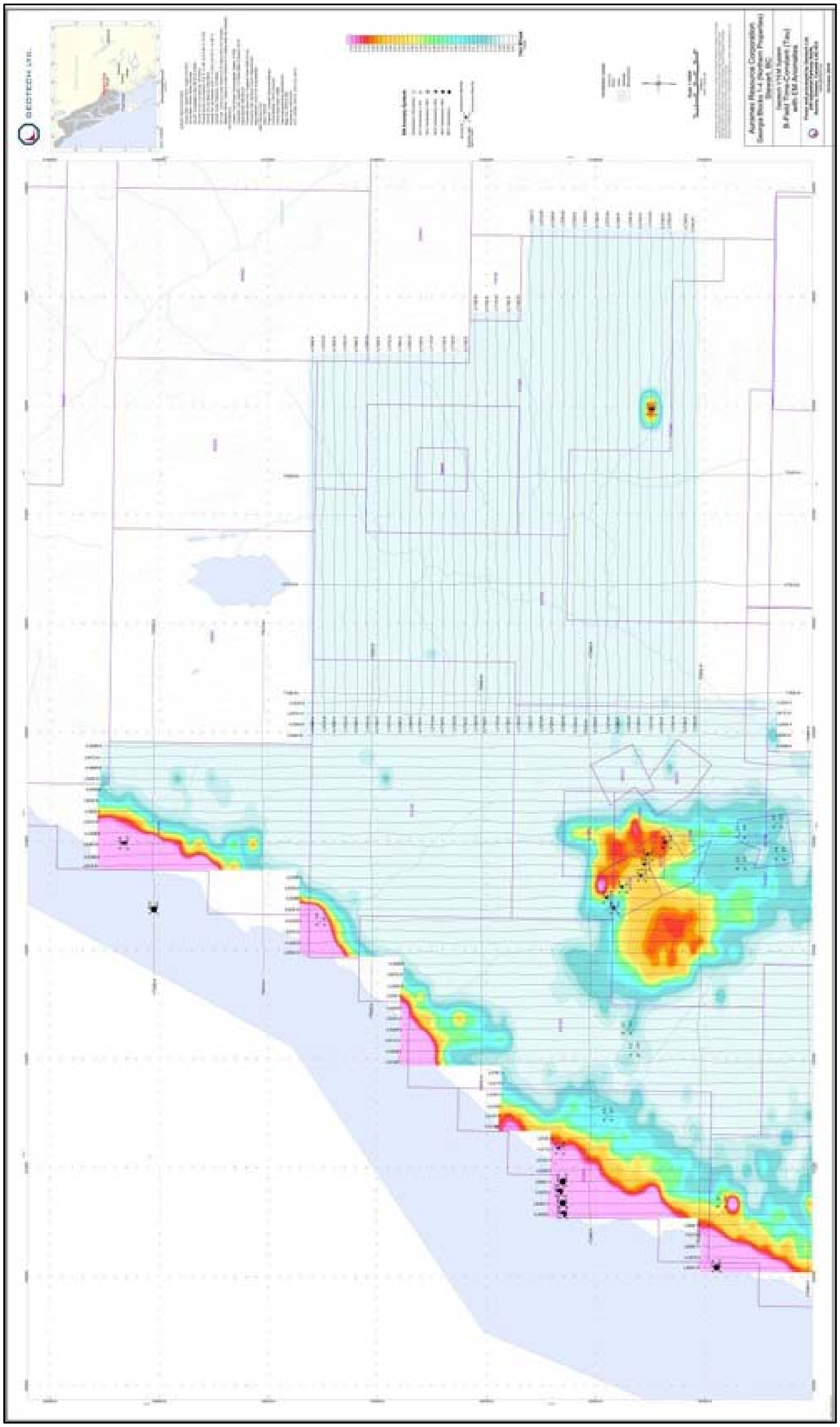
Total Magnetic Intensity (TMI) (Southern Plate)



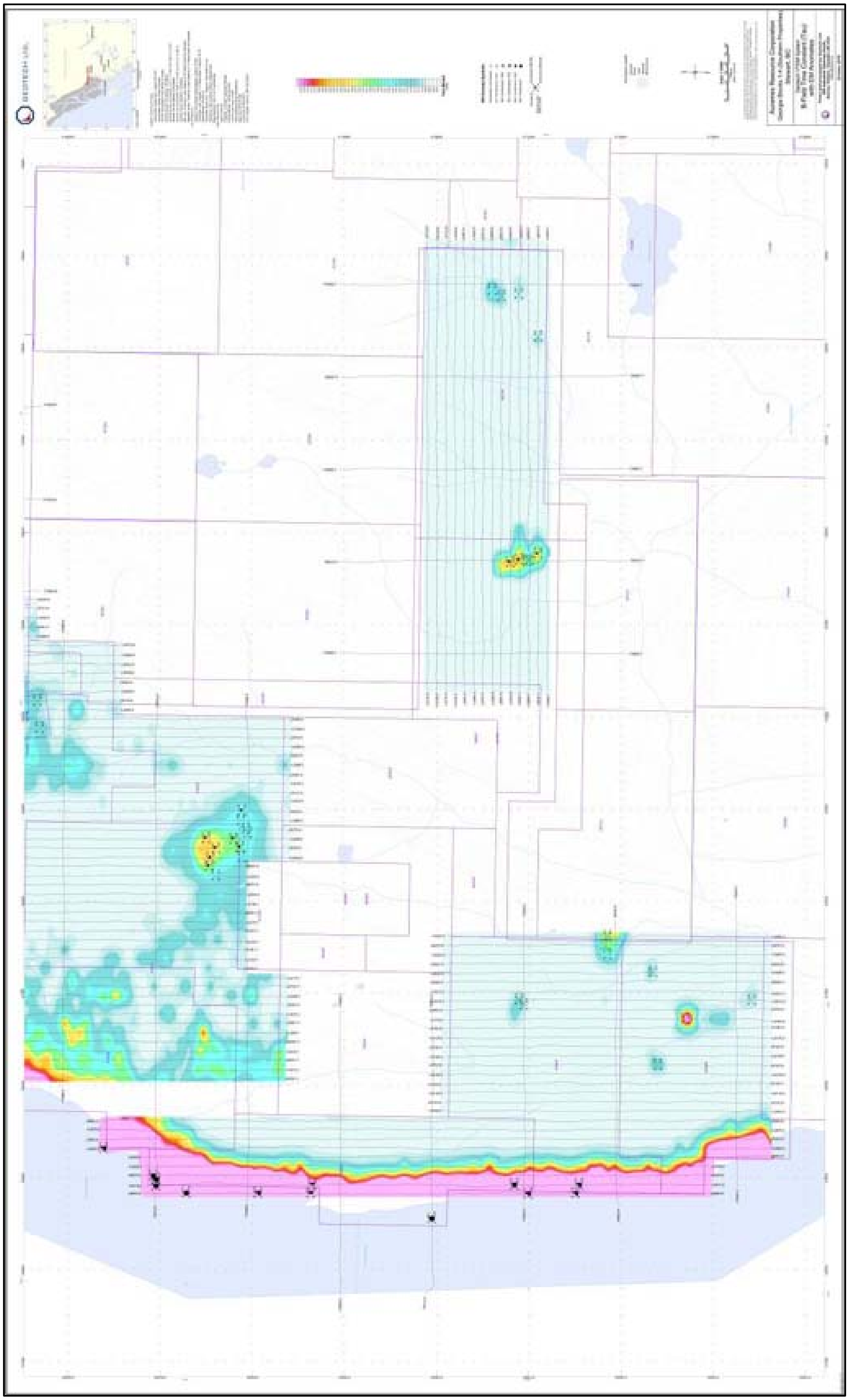
Calculated Vertical Gradient (CVG) (Northern Plate)



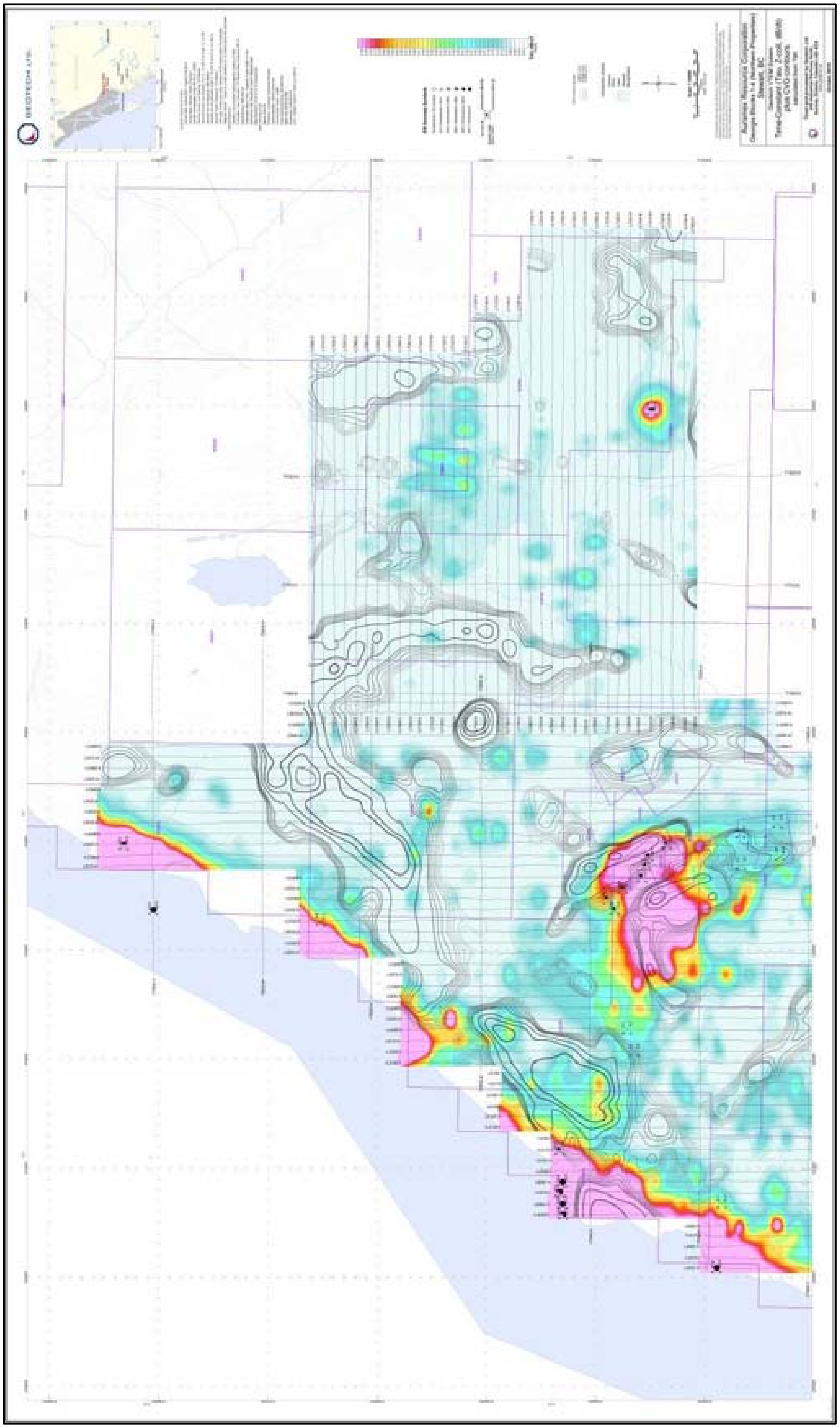
Calculated Vertical Gradient (CVG) (Southern Plate)



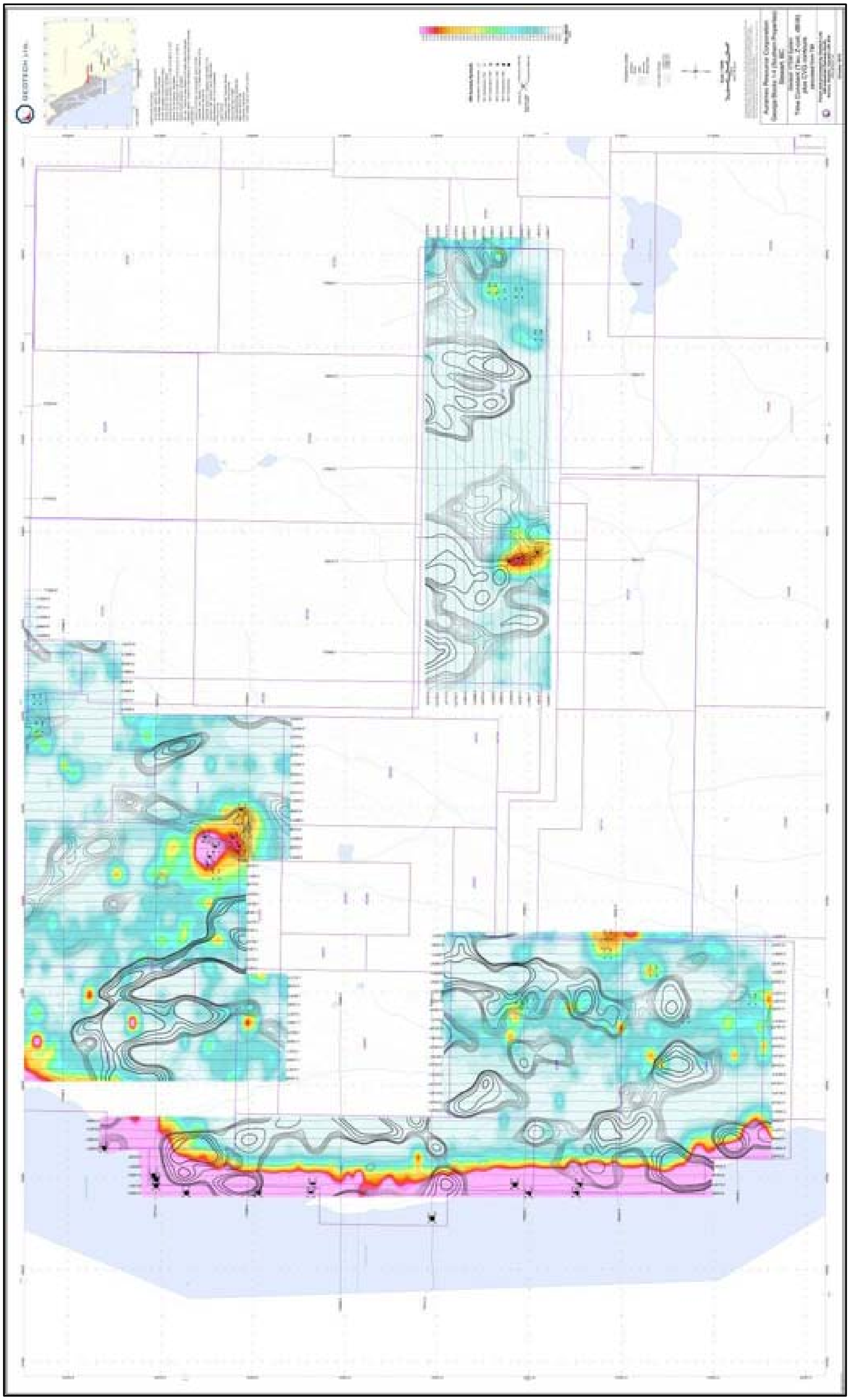
B-Field Time Constant (TauBF) (Northern Plate)



B-Field Time Constant (TauBF) (Southern Plate)



Time Constant (Tau, Z-coil, dB/dt) plus CVG Contours (Northern Plate)



Time Constant (Tau, Z-coil, dB/dt) plus CVG Contours (Southern Plate)

APPENDIX E

GENERALIZED MODELING RESULTS OF THE VTEM SYSTEM

Introduction

The VTEM system is based on a concentric or central loop design, whereby, the receiver is positioned at the centre of a 17.6 metres diameter transmitter loop that produces a dipole moment up to 243,285 nIA at peak current. The wave form is a bi-polar, modified square wave with a turn-on and turn-off at each end. With a base frequency of 30 Hz, the duration of each pulse is approximately 3.3 milliseconds followed by an off time where no primary field is present.

During turn-on and turn-off, a time varying field is produced (dB/dt) and an electro-motive force (emf) is created as a finite impulse response. A current ring around the transmitter loop moves outward and downward as time progresses. When conductive rocks and mineralization are encountered, a secondary field is created by mutual induction and measured by the receiver at the centre of the transmitter loop.

Measurements are made during the on and off-time, when only the secondary field (representing the conductive targets encountered in the ground) is present.

Efficient modeling of the results can be carried out on regularly shaped geometries, thus yielding close approximations to the parameters of the measured targets. The following is a description of a series of common models made for the purpose of promoting a general understanding of the measured results.

General Modeling Concepts

A set of models has been produced for the Geotech VTEM® system with explanation notes (see models C1 to C18). The Maxwell ™ modeling program (EMIT Technology Pty. Ltd. Midland, WA, AU) used to generate the following responses assumes a resistive half-space.The reader is encouraged to review these models, so as to get a general understanding of the responses as they apply to survey results. While these models do not begin to cover all possibilities, they give a general perspective on the simple and most commonly encountered anomalies.
When producing these models, a few key points were observed and are worth noting as follows:

- For near vertical and vertical plate models, the top of the conductor is always located directly under the centre low point between the two shoulders in the classic **M** shaped response.

- As the plate is positioned at an increasing depth to the top, the shoulders of the **M** shaped response, have a greater separation distance.
- When faced with choosing between a flat lying plate and a prism model to represent the target (broad response) some ambiguity is present and caution should be exercised.

- With the concentric loop system and Z-component receiver coil, virtually all types of conductors and most geometries are most always well coupled and a response is generated (see Figures C17 & C18). Only concentric loop systems can map such wide varieties of target geometries.

Variation of Plate Depth

Geometries represented by plates of different strike length, depth extent, dip, plunge and depth below surface can be varied with characteristic parameters like conductance of the target, conductance of the host and conductivity/thickness and thickness of the overburden layer.

Diagrammatic models for a vertical plate are shown in Figures C-1 & C-2 and C-5 & C-6 at two different depths, all other parameters remaining constant. With this transmitter-receiver geometry, the classic **M** shaped response is generated. Figures C-1 and C-2 show a plate where the top is near surface. Here, amplitudes of the duel peaks are higher and symmetrical with the zero centre positioned directly above the plate. Most important is the separation distance of the peaks. This distance is small when the plate is near surface and widens with a linear relationship as the plate (depth to top) increases. Figures C-5 and C-6 show a much deeper plate where the separation distance of the peaks is much wider and the amplitudes of the channels have decreased.

Variation of Plate Dip

As the plate dips and departs from the vertical position, the peaks become asymmetrical. Figures C-3 & C-4 and C-7 and C-8 show a near surface plate dipping 80º at two different depths. Note that the direction of dip is toward the high shoulder of the response and the top of the plate remains under the centre minimum.

As the dip increases, the aspect ratio (Min/Max) decreases and this aspect ratio can be used as an empirical guide to dip angles from near 90º to about 30º. The method is not sensitive enough where dips are less than about 30º. For example, for a plate dipping 45º, the minimum shoulder starts to vanish. In Figures C-9 & C-10 and C-11 & C-12, a flat lying plate is shown, relatively near surface. Note that the twin peak anomaly has been replaced by a symmetrical shape with large, bell shaped, channel amplitudes which decay relative to the conductance of the plate.

In the special case where two plates are positioned to represent a synclinal structure. Note that the main characteristic is that the centre amplitudes are higher (approximately double) compared to the high shoulder of a single plate. This model is very representative of tightly folded formations where the conductors where once flat lying.

Variation of Prism Dip

Finally, with thicker, prism models, another algorithm is required to represent current on the plate. A plate model is considered to be infinitely thin with respect to thickness and incapable of representing the current in the thickness dimension. A prism model is constructed to deal with this problem, thereby, representing the thickness of the body more accurately.

Figures C-13 & C-14 and C-15 & C-16 show the same prism at the same depths with variable dips. Aside from the expected differences asymmetry prism anomalies show a characteristic change from a double-peaked anomaly to single peak signatures.

I. THIN PLATE

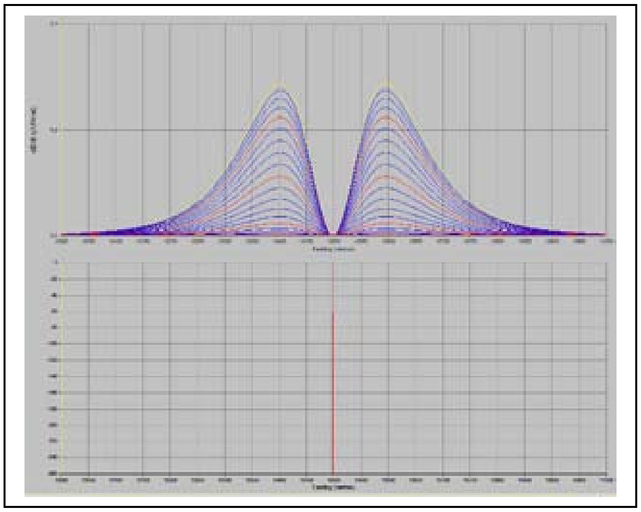


Figure C-1: dB/dt response of a shallow vertical thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

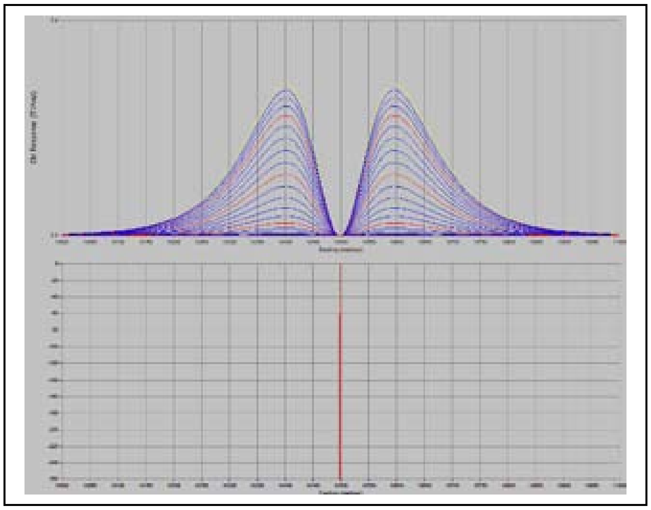


Figure C-2: B-field response of a shallow vertical thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment.

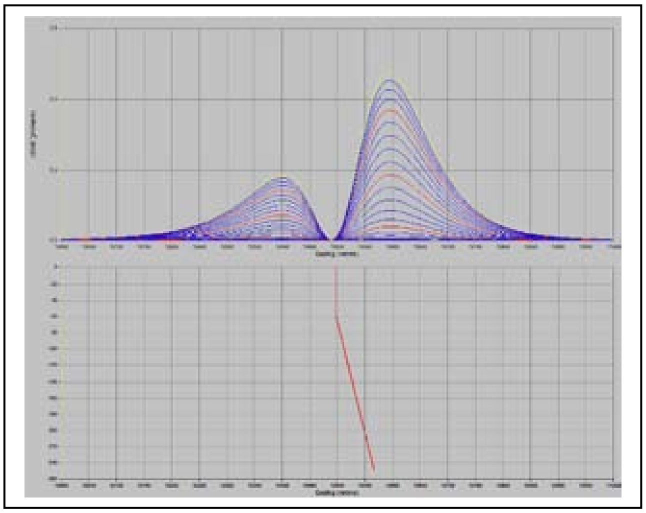


Figure C-3: dB/dt response of a shallow skewed thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

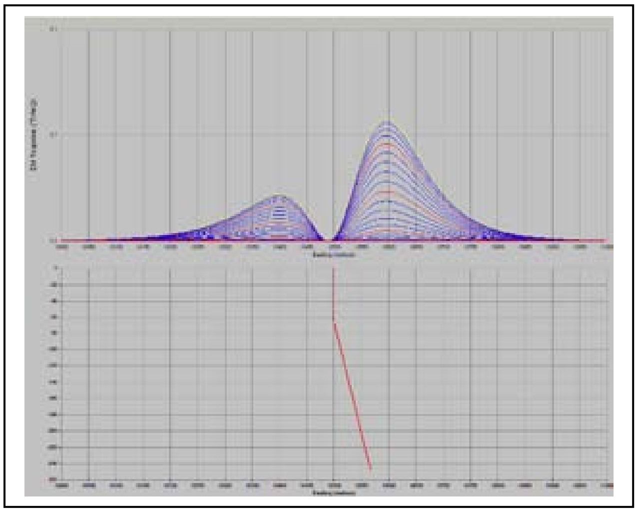


Figure C-4: B-field response of a shallow skewed thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment.

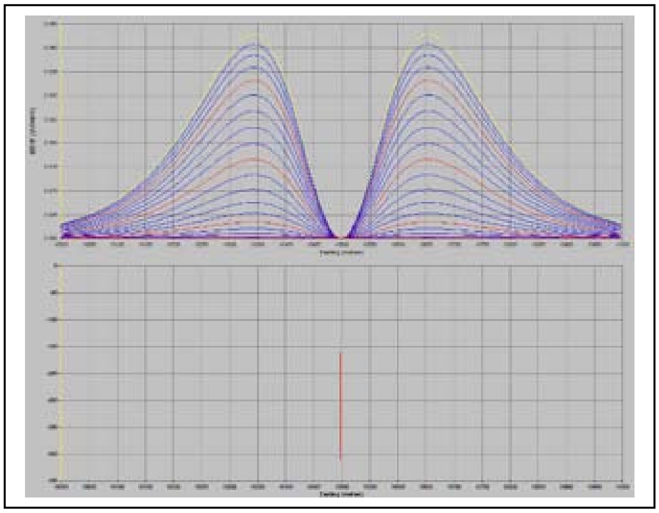


Figure C-5: dB/dt response of a deep vertical thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

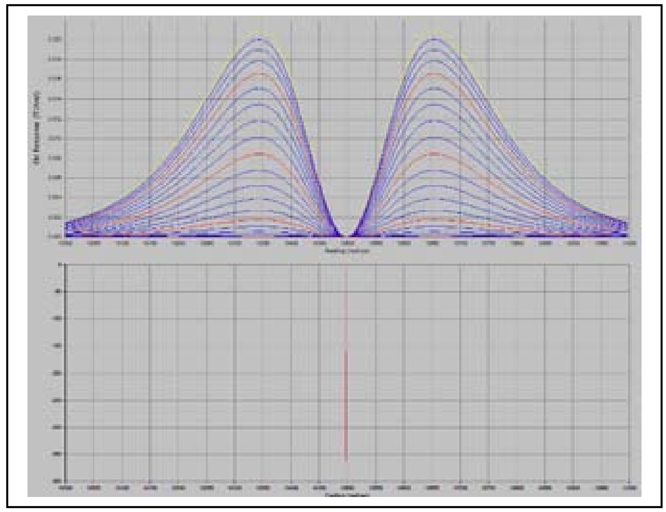


Figure C-6: B-Field response of a deep vertical thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment.

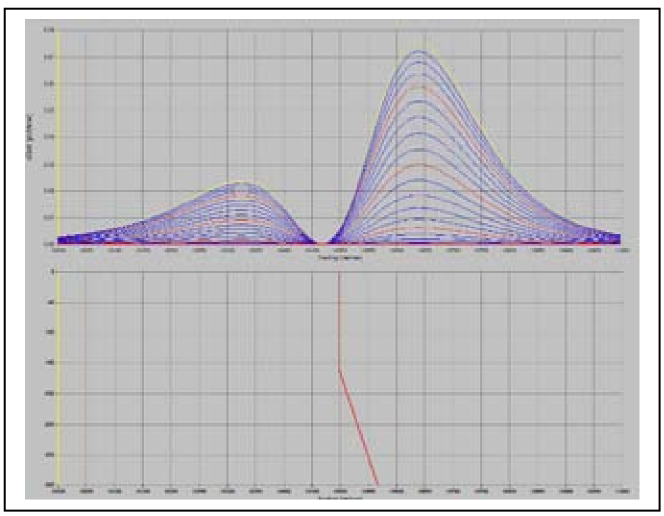


Figure C-7: dB/dt response of a deep skewed thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

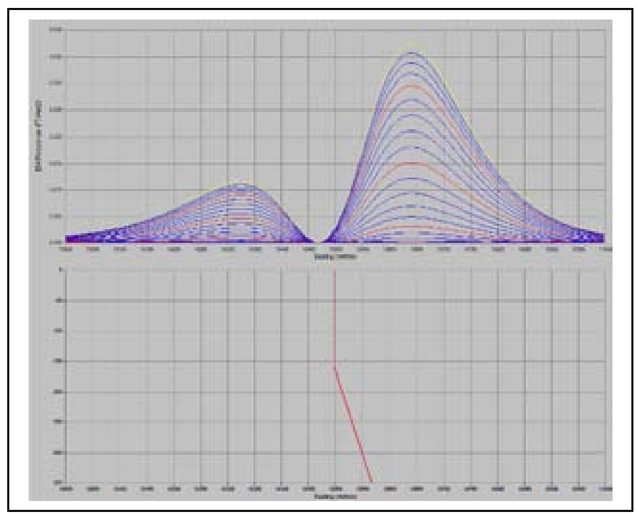


Figure C-8: B-field response of a deep skewed thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment.

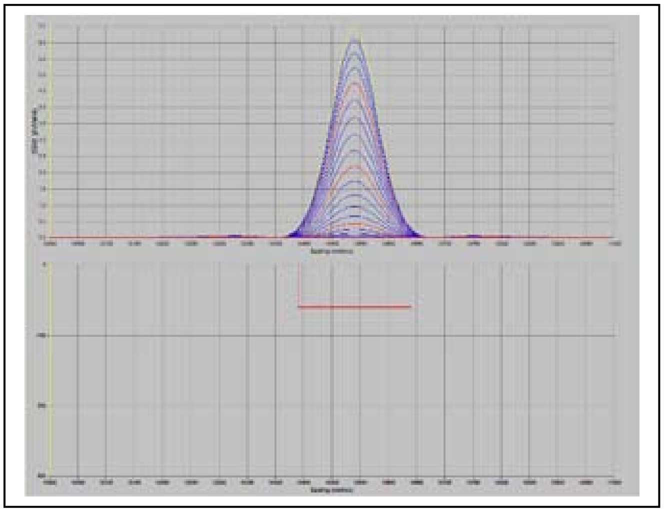


Figure C-9: dB/dt response of a shallow horizontal thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

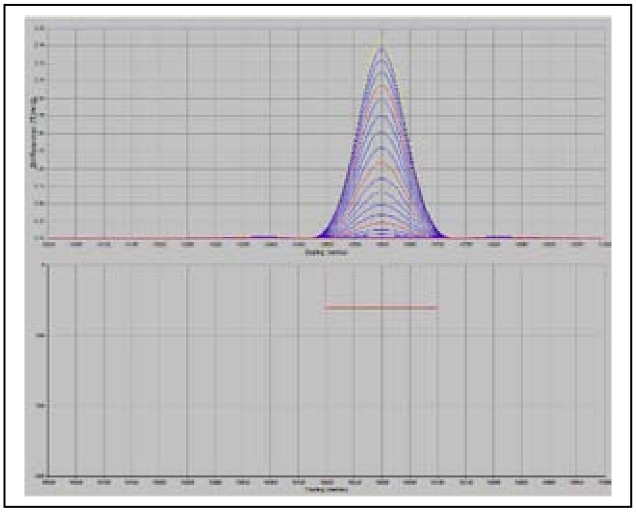


Figure C-10: B-Field response of a shallow horizontal thin plate. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment.

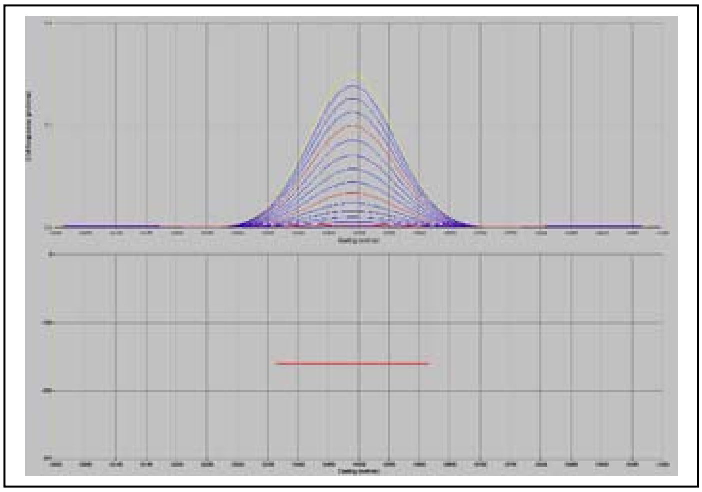


Figure C-11: dB/dt response of a deep horizontal thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

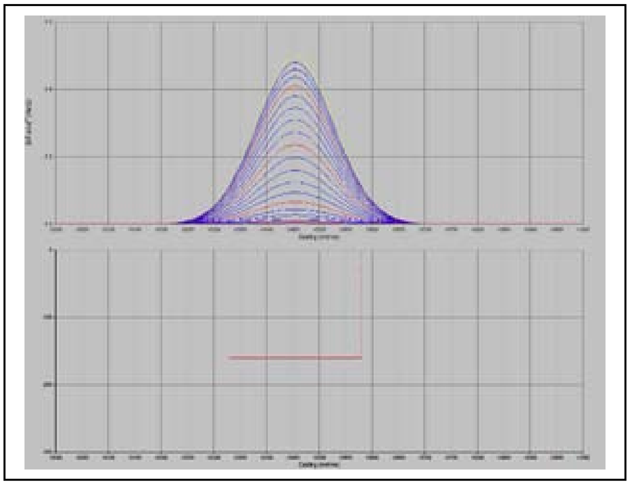


Figure C-12: B-Field response of a deep horizontal thin plate. Depth=200 m, CT=20 S. The EM response is normalized by the dipole moment.

II. THICK PLATE

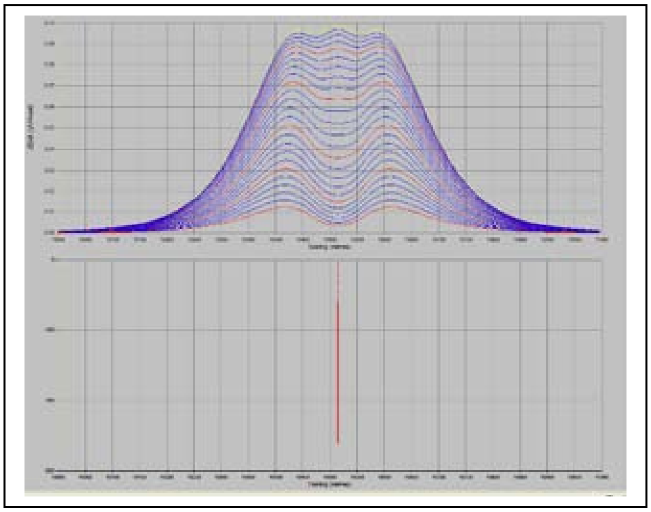


Figure C-13: dB/dt response of a shallow vertical thick plate. Depth=100 m, C=12 S/m, thickness=20 m. The EM response is normalized by the dipole moment and the Rx area.

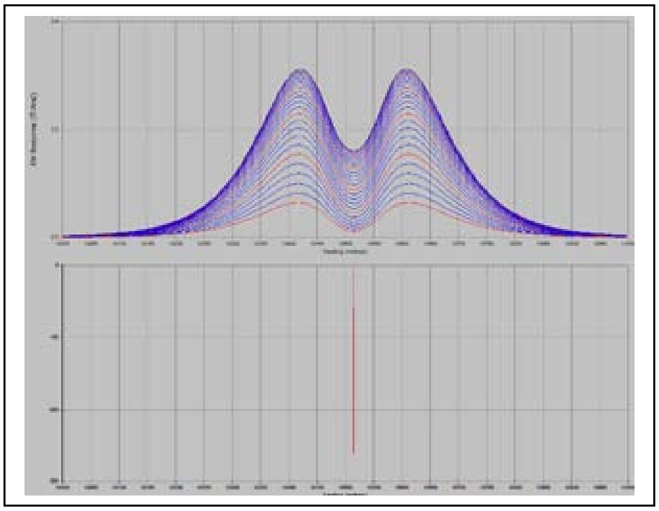


Figure C-14: B-Field response of a shallow vertical thick plate. Depth=100 m, C=12 S/m, thickness= 20 m. The EM response is normalized by the dipole moment.

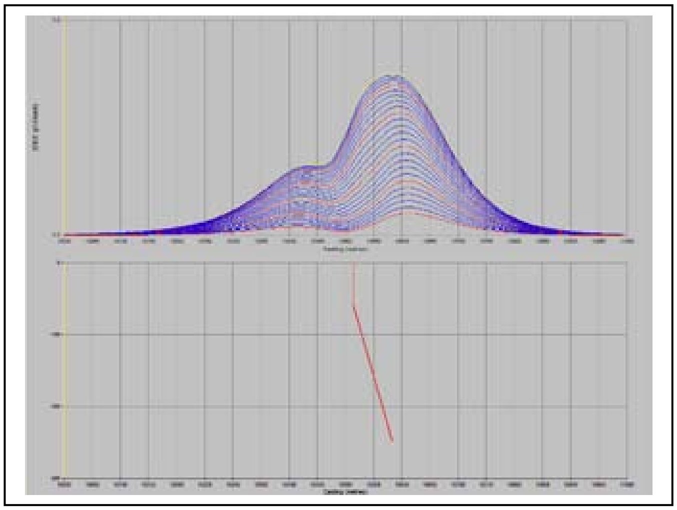


Figure C-15: dB/dt response of a shallow skewed thick plate. Depth=100 m, C=12 S/m, thickness=20 m. The EM response is normalized by the dipole moment and the Rx area.

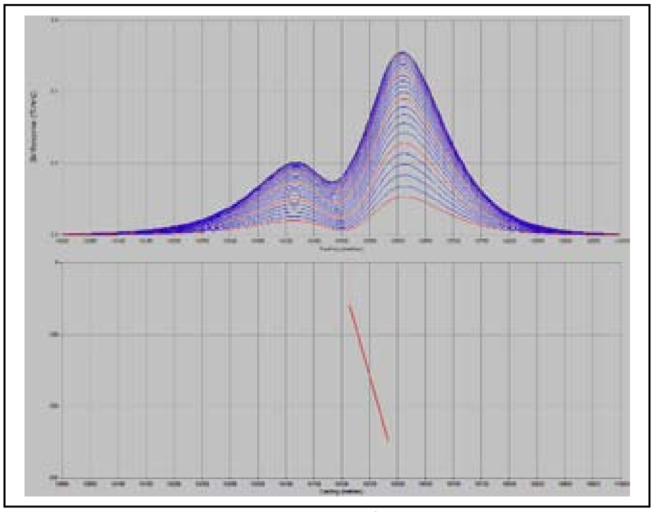


Figure C-16: B-Field response of a shallow skewed thick plate. Depth=100 m, C=12 S/m, thickness=20 m. The EM response is normalized by the dipole moment.

III. MULTIPLE THIN PLATES

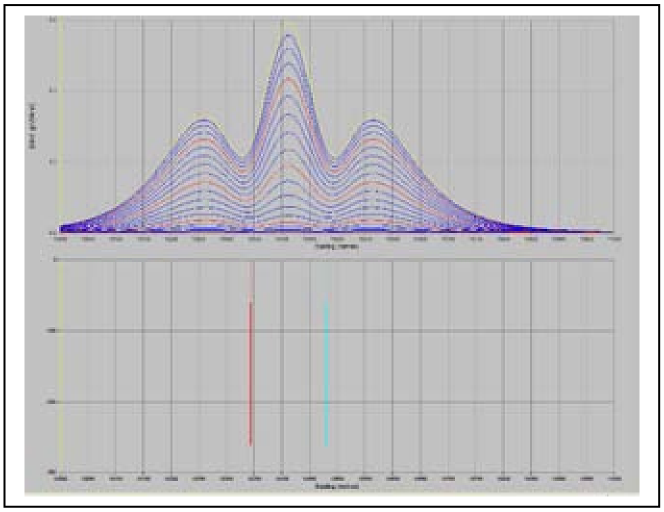


Figure C-17: dB/dt response of two vertical thin plates. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment and the Rx area.

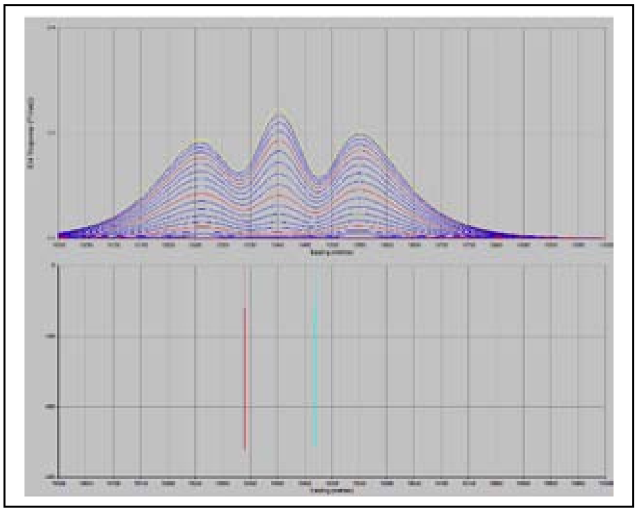


Figure C-18: B-Field response of two vertical thin plates. Depth=100 m, CT=20 S. The EM response is normalized by the dipole moment.

APPENDIX F

EM TIME CONSTANT (TAU) ANALYSIS

Estimation of time constant parameter[1] in transient electromagnetic method is one of the steps toward the extraction of the information about conductances beneath the surface from TEM measurements.

The most reliable method to discriminate or rank conductors from overburden, background or one and other is by calculating the EM field decay time constant (TAU parameter), which directly depends on conductance despite their depth and accordingly amplitude of the response.

Theory

As established in electromagnetic theory, the magnitude of the electro-motive force (emf) induced is proportional to the time rate of change of primary magnetic field at the conductor. This emf causes eddy currents to flow in the conductor with a characteristic transient decay, whose Time Constant (Tau) is a function of the conductance of the survey target or conductivity and geometry (including dimensions) of the target. The decaying currents generate a proportional secondary magnetic field, the time rate of change of which is measured by the receiver coil as induced voltage during the Off time.

The receiver coil output voltage ($\mathbf{e_0}$) is proportional to the time rate of change of the secondary magnetic field and has the form,

$$e_0 \; \alpha \; (1 / \tau) \; e^{-(t/\tau)}$$

Where,
τ = L/R is the characteristic time constant of the target (TAU)
R = resistance
L = inductance

From the expression, conductive targets that have small value of resistance and hence large value of τ yield signals with small initial amplitude that decays relatively slowly with progress of time. Conversely, signals from poorly conducting targets that have large resistance value and small τ, have high initial amplitude but decay rapidly with time[1] (Fig. F1).

[1] McNeill, JD, 1980, "Applications of Transient Electromagnetic Techniques", Technical Note TN-7 page 5, Geonics Limited, Mississauga, Ontario.

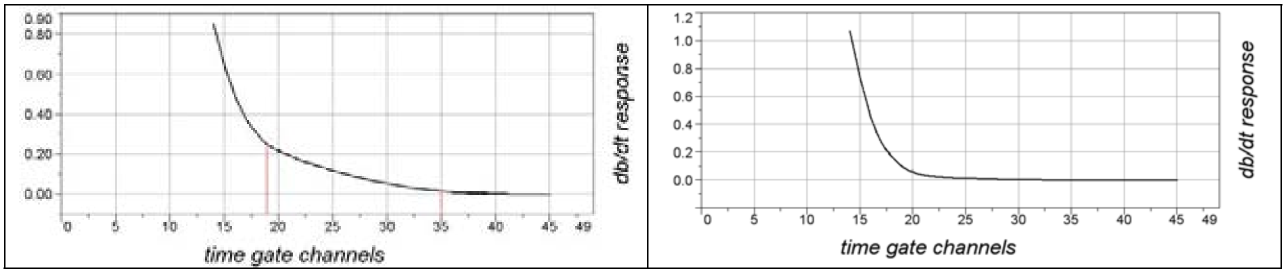


Figure F1 Left – presence of good conductor, right – poor conductor.

EM Time Constant (Tau) Calculation

The EM Time-Constant (TAU) is a general measure of the speed of decay of the electromagnetic response and indicates the presence of eddy currents in conductive sources as well as reflecting the "conductance quality" of a source. Although TAU can be calculated using either the measured dB/dt decay or the calculated B-field decay, dB/dt is commonly preferred due to better stability (S/N) relating to signal noise. Generally, TAU calculated on base of early time response reflects both near surface overburden and poor conductors whereas, in the late ranges of time, deep and more conductive sources, respectively. For example early time TAU distribution in an area that indicates conductive overburden is shown in Figure 2.

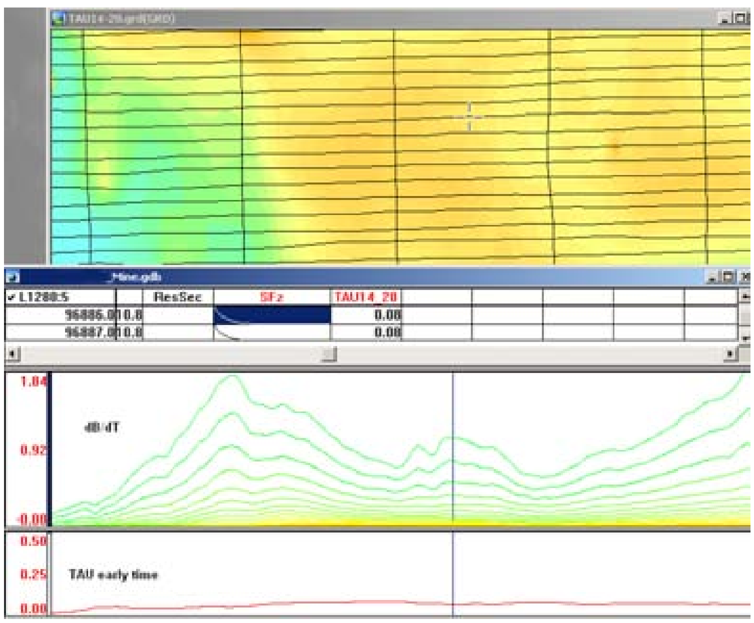


Figure F2 – Map of early time TAU. Area with overburden conductive layer and local sources.

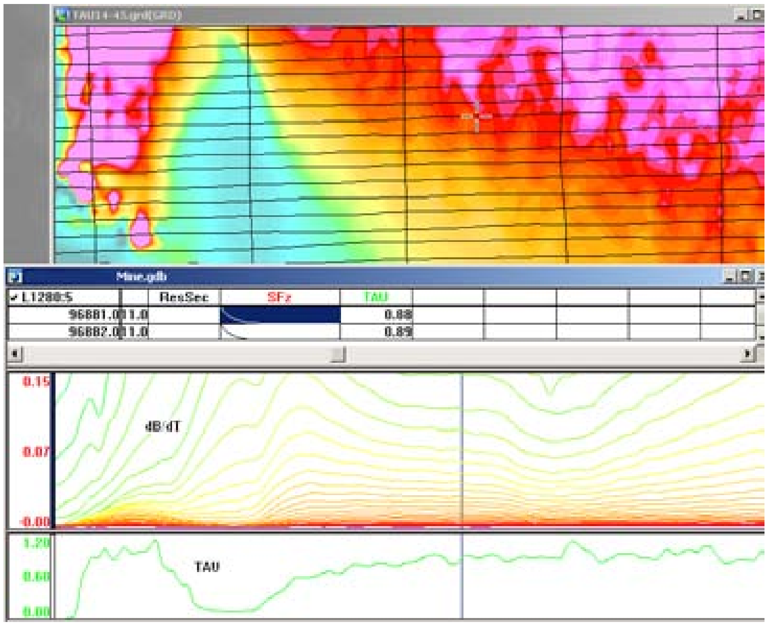


Figure F3 – Map of full time range TAU with EM anomaly due to deep highly conductive target.

There are many advantages of TAU maps:

- TAU depends only on one parameter (conductance) in contrast to response magnitude;
- TAU is integral parameter, which covers time range and all conductive zones and targets are displayed independently of their depth and conductivity on a single map.
- Very good differential resolution in complex conductive places with many sources with different conductivity.
- Signs of the presence of good conductive targets are amplified and emphasized independently of their depth and level of response accordingly.

In the example shown in Figure 4 and 5, three local targets are defined, each of them with a different depth of burial, as indicated on the resistivity depth image (RDI). All are very good conductors but the deeper target (number 2) has a relatively weak dB/dt signal yet also features the strongest total TAU (Figure 4). This example highlights the benefit of TAU analysis in terms of an additional target discrimination tool.

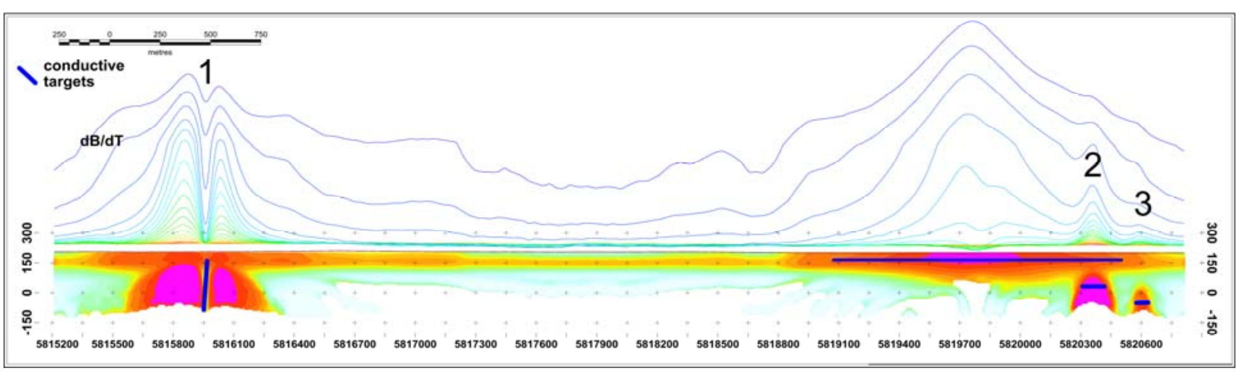


Figure F4 – dB/dt profile and RDI with different depths of targets.

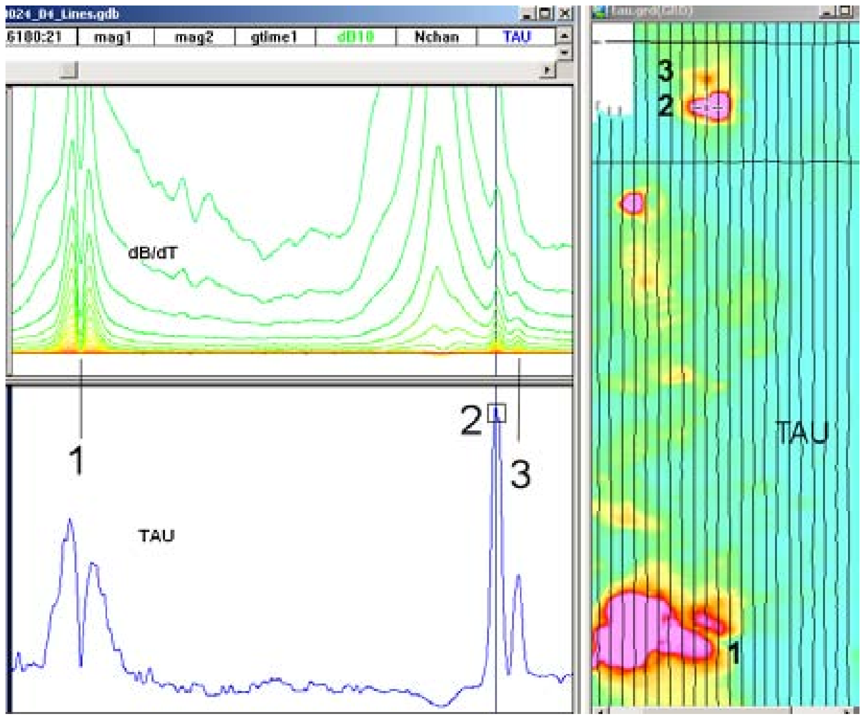


Figure F5 – Map of total TAU and dB/dt profile.

The EM Time Constants for dB/dt and B-field were calculated using the "sliding Tau" in-house program developed at Geotech2. The principle of the calculation is based on using of time window (4 time channels) which is sliding along the curve decay and looking for latest time channels which have a response above the level of noise and decay. The EM decays are obtained from all available decay channels, starting at the latest channel. Time constants are taken from a least square fit of a straight-line (log/linear space) over the last 4 gates above a pre-set signal threshold level (Figure F6). Threshold settings are pointed in the "label" property of TAU database channels. The sliding Tau method determines that, as the amplitudes increase, the time-constant is taken at progressively later times in the EM decay. Conversely, as the amplitudes decrease, Tau is taken at progressively earlier times in the decay. If the maximum signal amplitude falls below the threshold, or becomes negative for any of the 4 time gates, then Tau is not calculated and is assigned a value of "dummy" by default.

[2] by A.Prikhodko

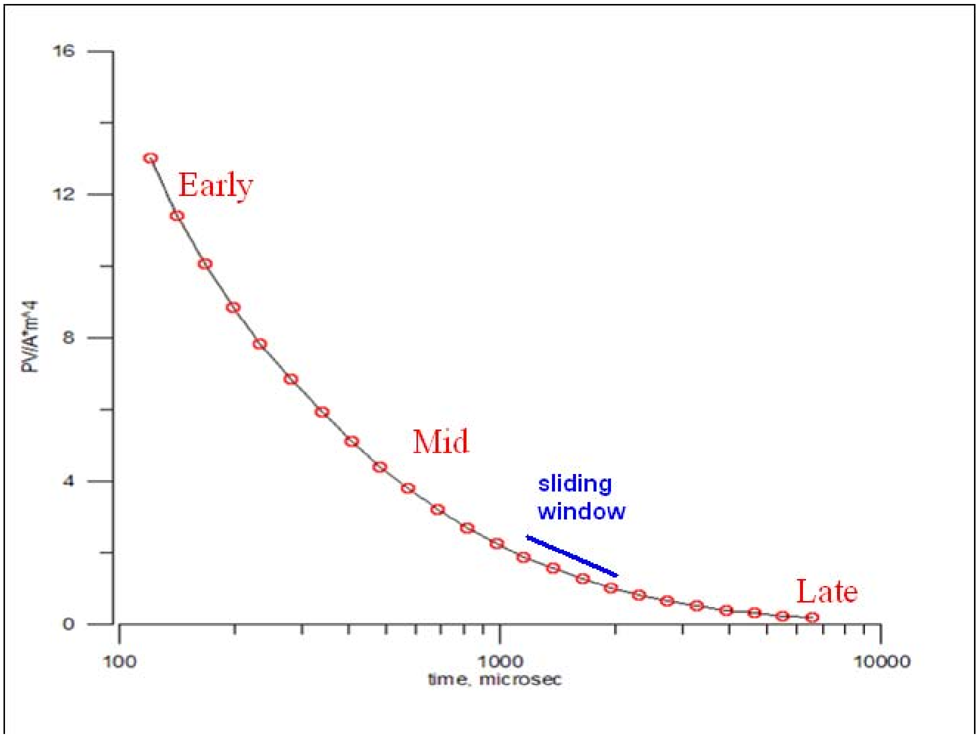


Figure F6 - Typical dB/dt decays of Vtem data

Alexander Prikhodko, PhD, P.Geo
Geotech Ltd.

September 2010

APPENDIX G

ELECTROMAGNETIC ANOMALY LISTING

x	y	Line	AnConBF	AnConSF	Anom_ID	Anom_Labels	AnTAUBF	AnTAUSF	Grade
430083.4	6182890	L5000	95.03501	67.79325	K	A	5.109409	3.644798	6
430574.7	6184293	L5050	77.23884	45.43933	K	A	4.152626	2.442975	5
430675.4	6184301	L5060	61.15691	74.56657	K	A	3.288006	4.008955	6
430680.2	6182841	L5060	10.11345	4.1331	K	B	0.543734	0.22221	1
430779.6	6184327	L5070	72.96419	40.46847	K	A	3.922806	2.175724	5
430873.5	6184301	L5080	63.79009	76.96063	K	A	3.429575	4.137668	6
431168.4	6184324	L5110	17.79547	10.69707	K	A	0.956746	0.575111	3
431476.4	6183884	L5140	6.718344	6.538133	K	A	0.361201	0.351513	2
432072.3	6183642	L5200	3.549031	4.19226	N	A	0.190808	0.22539	1
432275.6	6180394	L5220	4.06205	4.426326	K	A	0.21839	0.237974	1
432272.9	6183709	L5220	5.20371	4.123173	K	B	0.279769	0.221676	1
432377.5	6180470	L5230	11.21293	10.68489	K	A	0.602846	0.574457	3
432476.7	6180112	L5240	7.829636	8.432966	K	A	0.420948	0.453385	2
432463.1	6180451	L5240	13.87478	13.29247	K	B	0.745956	0.714649	3
432570.1	6180393	L5250	13.64662	16.12177	K	A	0.733689	0.866762	3
432578.9	6180131	L5250	8.567561	10.52479	K	B	0.460622	0.565849	3
432671.5	6180201	L5260	10.92254	12.49166	K	A	0.587234	0.671595	3
432677.3	6180500	L5260	15.88082	15.1004	K	B	0.853808	0.811849	3
432778.4	6180068	L5270	4.858071	5.953901	K	A	0.261187	0.320102	2
432874.3	6180121	L5280	6.359583	6.767074	K	A	0.341913	0.363821	2
432975.2	6180110	L5290	5.402236	11.41944	K	A	0.290443	0.613948	3
433267.4	6186517	L5320	51.10993	5.587072	K	A	2.747846	0.30038	2
433373.8	6183821	L5330	15.79592	16.10476	N	A	0.849243	0.865847	3
433471.4	6183887	L5340	14.82651	16.87154	N	A	0.797124	0.907072	3
433569.2	6183745	L5350	16.0987	16.56328	N	A	0.865521	0.890499	3
433672.7	6183572	L5360	13.51656	15.16786	K	A	0.726697	0.815476	3
433777	6183537	L5370	11.06543	11.00278	K	A	0.594915	0.591547	3
433785.1	6182663	L5370	2.22075	2.209091	K	B	0.119395	0.118768	1
433873.2	6182307	L5380	6.39055	3.604337	K	A	0.343578	0.193782	1
433865.8	6183510	L5380	20.06104	17.09858	K	B	1.078551	0.919278	3
433969.5	6188320	L5390	74.16279	28.36335	K	A	3.987247	1.524911	4
433976.4	6183345	L5390	18.83023	13.50125	K	B	1.012378	0.725874	3
434072	6182667	L5400	8.864472	3.656565	K	A	0.476584	0.19659	1
434169.4	6182331	L5410	2.194395	3.203727	K	A	0.117978	0.172243	1
428833.5	6180716	L6000	76.9964	57.67932	K	A	4.139592	3.101039	6
428831.2	6179937	L6000	64.09978	45.48382	K	B	3.446225	2.445367	5
428829.7	6179366	L6000	35.88506	34.18219	K	C	1.929304	1.837752	4
428823.2	6177005	L6000	57.59234	44.68849	K	D	3.096362	2.402607	5
428829.1	6176489	L6000	57.20948	47.54231	K	E	3.075779	2.556038	5
428919.5	6176453	L6010	52.98762	43.51134	K	A	2.848797	2.339319	5
428920.5	6177155	L6010	80.30509	50.38643	K	B	4.317478	2.708948	6
428921.1	6179346	L6010	35.33836	26.17911	K	C	1.899912	1.407479	4
428910.8	6181045	L6010	92.65606	66.9909	K	D	4.981509	3.601661	6
429020.8	6181073	L6020	73.69733	53.73508	K	A	3.962222	2.888983	6

429314.2	6181615	L6050	44.9427	35.54225	K	A	2.416274	1.910874	5
430221.3	6175599	L6140	4.414552	5.834005	K	A	0.237342	0.313656	2
430721.2	6175299	L6190	67.73402	0.710597	K	A	3.641614	0.038204	1
430920.5	6174577	L6210	2.988044	5.902614	K	A	0.160648	0.317345	2
430926.7	6177102	L6210	4.349127	4.462798	K	B	0.233824	0.239935	1
431227.7	6175649	L6240	3.654234	5.393717	K	A	0.196464	0.289985	2
431419	6176144	L6260	8.681977	5.296574	K	A	0.466773	0.284762	2
431520.6	6176179	L6270	7.217052	7.08446	K	A	0.388014	0.380885	2
431616.3	6176142	L6280	9.663117	9.484627	K	A	0.519522	0.509926	2
437957.2	6183485	L7310	24.46087	33.62614	K	A	1.3151	1.807857	4
435763.2	6176898	L8010	14.48633	11.37006	K	A	0.778835	0.611293	3
438116.1	6176896	L8010	3.815526	3.985215	K	B	0.205136	0.214259	1
435694.9	6176989	L8020	6.102745	6.044577	K	A	0.328105	0.324977	2
435695.7	6177102	L8030	14.85971	11.9142	K	A	0.798909	0.640548	3
438581.2	6177107	L8030	2.155912	2.879701	K	B	0.115909	0.154823	1
435670.7	6177199	L8040	18.6391	10.68092	K	A	1.002102	0.574243	3
438558.1	6177294	L8050	2.865816	3.105691	K	A	0.154076	0.166973	1
438625.2	6177394	L8060	8.142006	8.856398	K	A	0.437742	0.47615	2
433374	6188048	T5900	98.9674	63.58512	K	A	5.320828	3.418555	6
428979.5	6181042	T5970	90.16228	66.79793	K	A	4.847434	3.591286	6
432731.5	6180053	T5980	4.982712	5.436437	K	A	0.267888	0.292282	2
428555.8	6178051	T6910	18.89697	64.0641	K	A	1.015966	3.444307	6
430871.7	6177049	T6920	5.317866	5.512559	K	A	0.285907	0.296374	2
435684.4	6177020	T8910	11.64944	9.975732	K	A	0.626314	0.53633	2

APPENDIX H

7. Summary Interpretation

The VTEM-Mag survey objective on the area is the detection and location conductive targets prospective for Cu-Pb-Zn (Ag, Au) mineralization which is part of exhalative volcanogenic massive sulfides (VMS). Interpretation of the data includes the next procedures: anomaly picking, EM Time-constant (Tau) analysis, RDI sections calculation, Maxwell plate modeling and calculation of Vertical Gradient of Magnetic field (CVG). The results of this interpretation are summarized in the following sections.

7.1 EM anomaly picking

The EM data were subjected to an anomaly recognition process using all time domain geophysical channels and using both the B-Field and dB/dt profiles. The resulting EM anomaly picks are presented as overlays on the maps.

Each individual conductor pick is represented by an anomaly symbol classified according to calculated conductance (Figure 2)[1]. Identified anomalies were classified into one of six (Fig.1). The anomaly symbol is accompanied by postings denoting the calculated from B-field and dB/dT decay constant (Tau)[2] conductance in acceptance of conductive half space model. The anomaly symbol legend is given below.

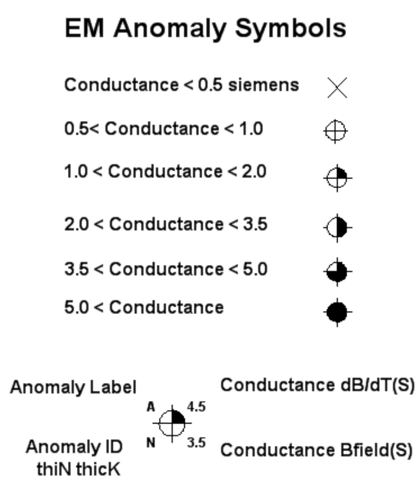


Figure 1 - EM Anomaly Symbols

The anomalous responses have been picked on each line, reviewed and edited by an interpreter on a line by line basis to discriminate between bedrock, overburden and culture conductors.

[1] Note: The conductances were obtained from the dB/dt and B-Field EM time constant (Tau) whose relationship was calculated using the half space model which close to infinite elliptical cylinder, and S=k x TAU, where k~5-8. (McNeil, J.D. (1980). Applications of transit electromagnetic techniques, Technical note TN-7, Geonics Ltd., Mississauga, ON, 17 pp).

[2] Note: An explanation of the EM time constant (Tau) calculation for VTEM data is provided in Appendix F.

The new channels were created in each of the Geosoft “XYZ” tables for the block. The identified time domain electromagnetic VTEM anomalies are listed in Appendix G.

According to preliminary analysis of TEM profiles the majority of the VTEM responses can be interpreted as having a flat dip to the west-south layer similar conductor and with the top edge of the conductor being relatively close to the surface. The anomaly picks correspond to the top edges (Fig.2).

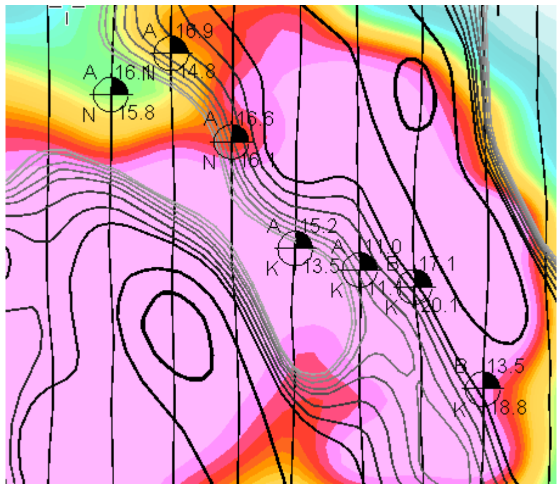


Figure 2 – VTEM pick anomalies for conductive targets ranged on conductance.

7.2 TAU parameter calculation

The processed VTEM survey results are presented as calculated dB/dt and Bfield time constants (Tau), which are indicators of target conductance.

An explanation of the EM time constant (Tau) calculation is provided in Appendix F. TAU dB/dt map is presented on Figure 3. The map is accompanied by CVG (calculated vertical gradient of TMI) anomaly contours for tracing of EM-MAG anomalies correlation. Some of the TEM anomalies are correlated with gradient of magnetic field (Fig 3).

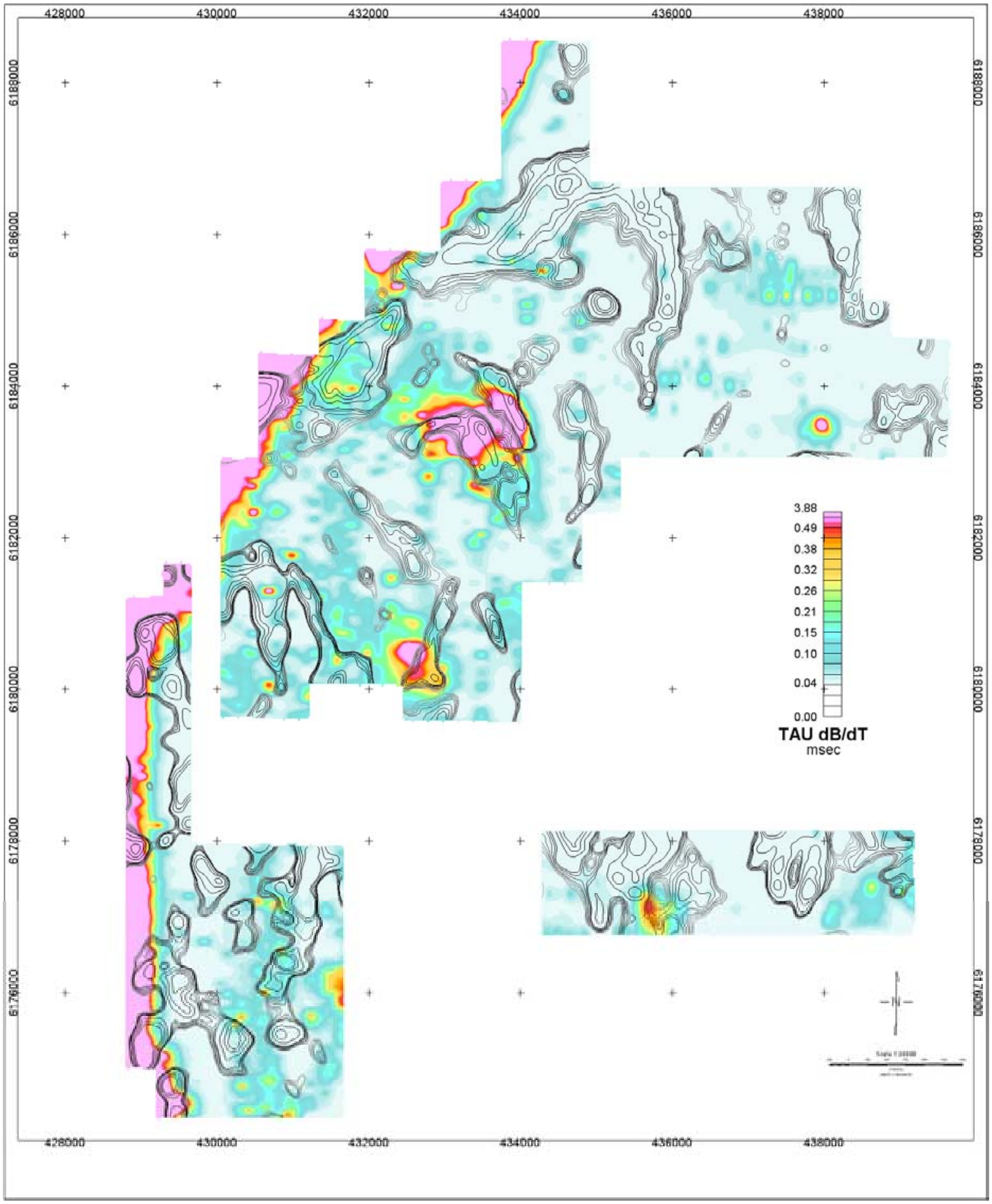


Figure 3 – TAU dB/dT – CVG map

7.3 Resistivity Depth Imaging

The basis of TEM data presentation with depth is described in Appendix D. Results of the 1d fast transformation provide with the fist geometry approximation, approximate depth of conductive targets and depth of investigation which depends on conductance of rocks.

7.4 Maxwell plate modeling

Reliable and prospective VTEM anomalies and anomaly zones were modeled using EMIT Maxwell software with implementation of multiple plates modeling algorithm. General modeling concepts are in Appendix E.

7.5 Results of interpretation

The complex analysis and the modeling was done for five anomaly zones (Fig.4). Three of them have a close association with magnetic sources.

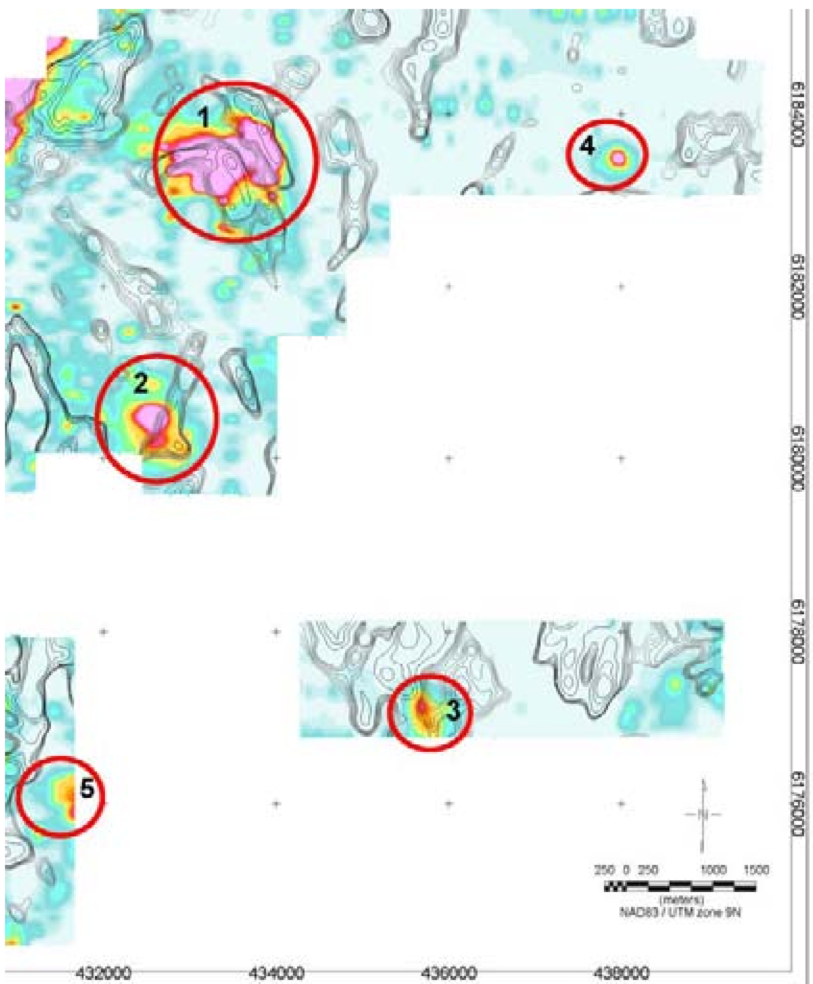


Fig. 4 Anomaly zones and targets which are subjects of detail interpretation.

Anomaly zone 1.

The biggest conductive zone on the area is confined by magnetic sources and on base of RDI sections has flat dipping layer geometry (Fig.5).

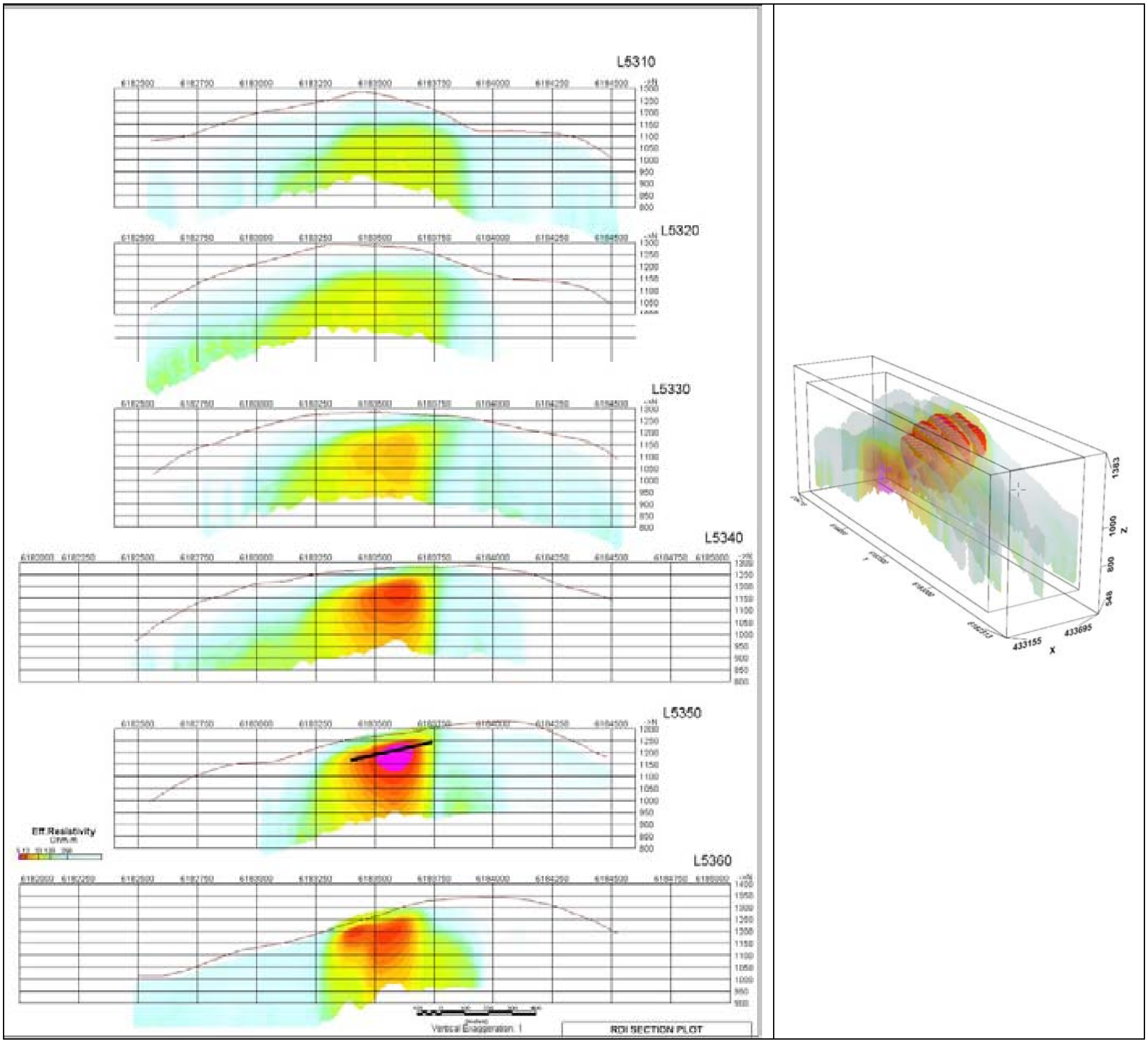


Fig. 5. RDI sections for 1st zone, 2d and 3d views. Lines 5310-5360.
Conductive target is dipping "thick" plate with strong correlation with magnetic anomalies.

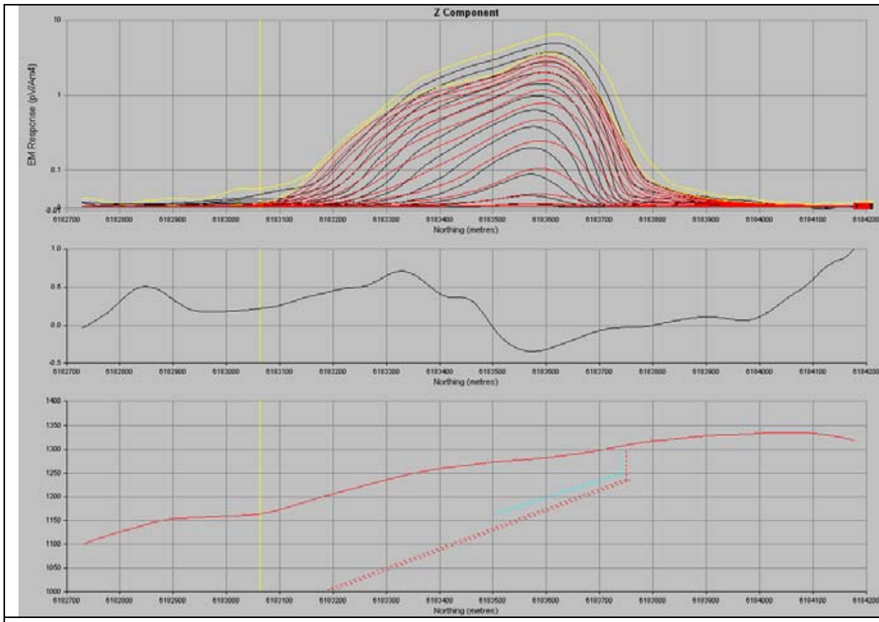


Fig.6 Results of Maxwell plate modeling. Line 5350 line.

Parameters of recommended drillhole:
X 433600, Y 6183550, Dip 60, Az 0, Length 180

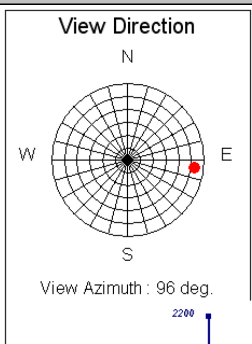
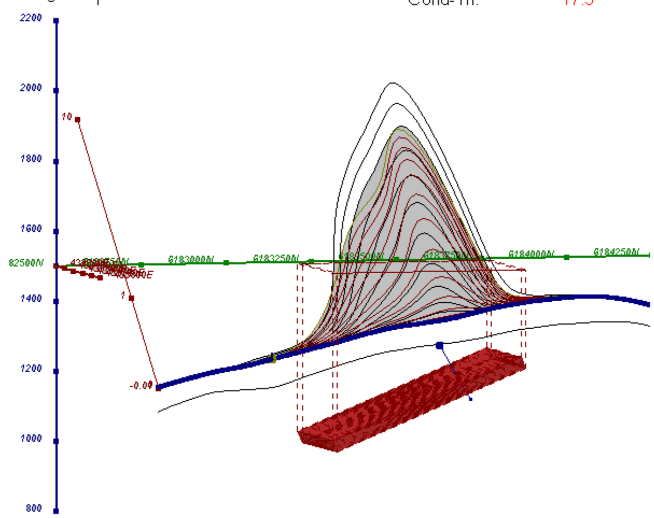


PLATE PARAMETERS

Name	1
X	433580
Y	6183750
Z	1235
Length	400
Depth Extent	600
Dip	22.5
Dip Dir.	180
Plunge	0
Cond-Th.	17.5



Anomaly zone 2.

The conductive zone corresponds to a contact with magnetic source and on base of RDI sections has "thick" plate geometry which is very close to the surface (Fig.7).

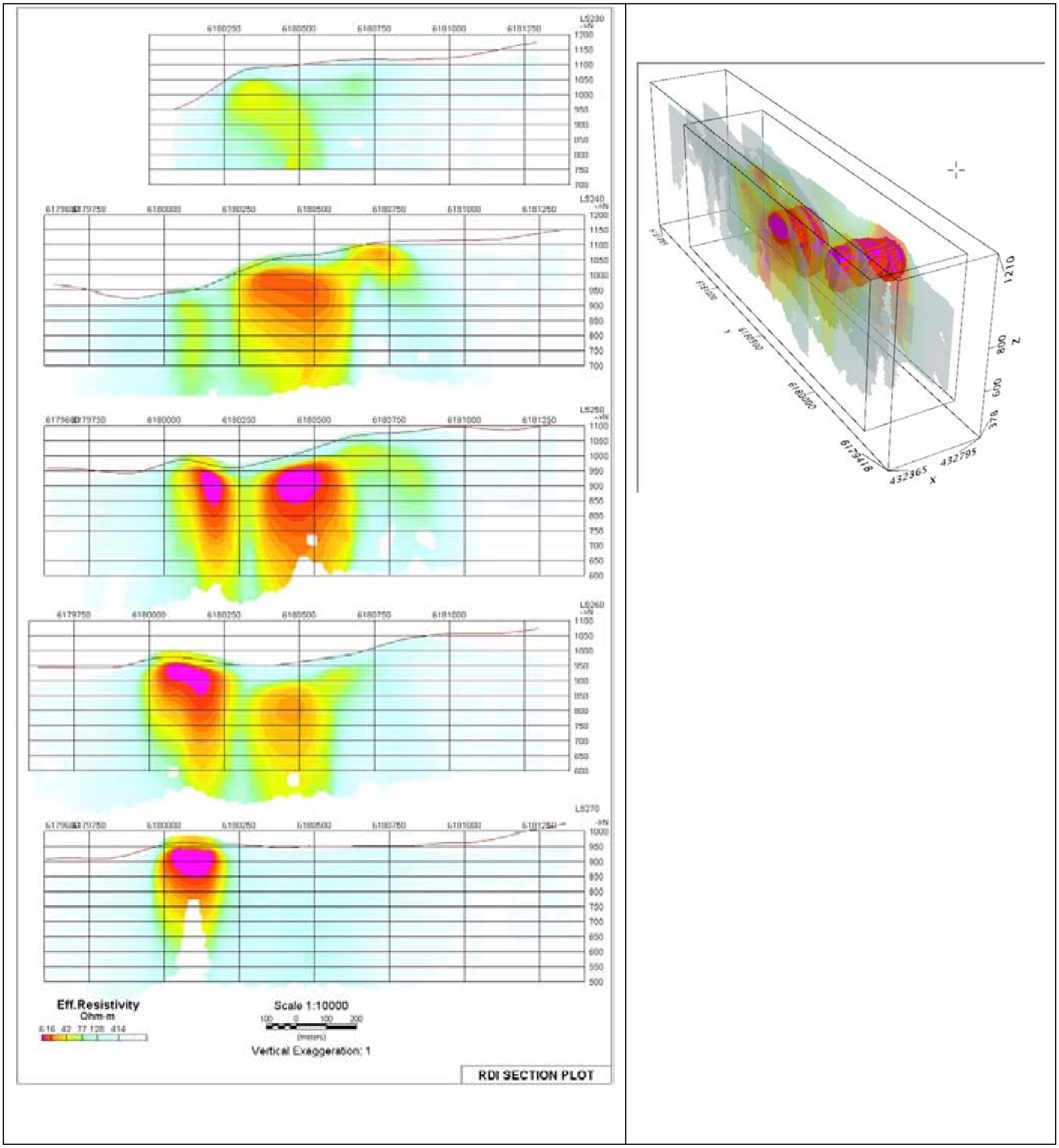
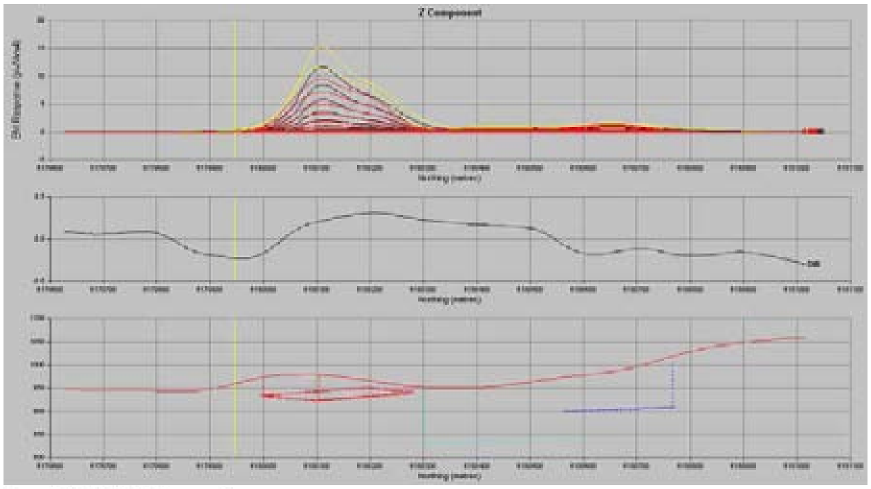


Fig. 7. RDI sections for 2nd zone, 2d and 3d views. Lines 5230-5270.



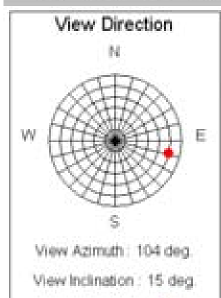


PLATE PARAMETERS

Name	1	2	3	4
X	432695	432590	432630	432675
Y	6180000	6180300	6180765	6180105
Z	935	830	910	925
Length	400	350	300	400
Depth Extent	200	300	200	180
Dip	-5	-2.5	2.5	-5
Dip Dir.	357.5	359.676	179.6761	359.676
Plunge	0	0	0	0
Cond-Th.	15	12	15	15

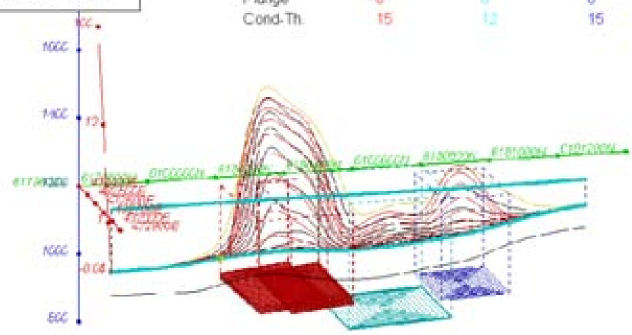
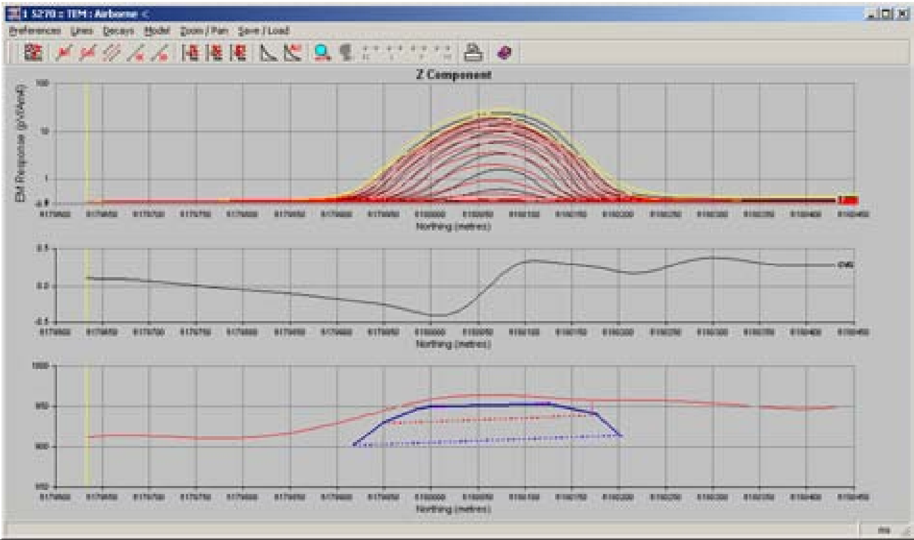


Fig.8 Results of Maxwell plate modeling. Line 5260 line.

Fig.9 Results of Maxwell plate modeling. Line 5270 line.

The target is approximated by 3 subhorizontal plates but most likely they are jointed into one big conductive zone. Surface of the target is outlined on the top picture.



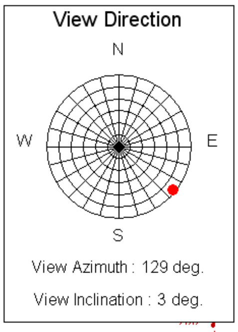
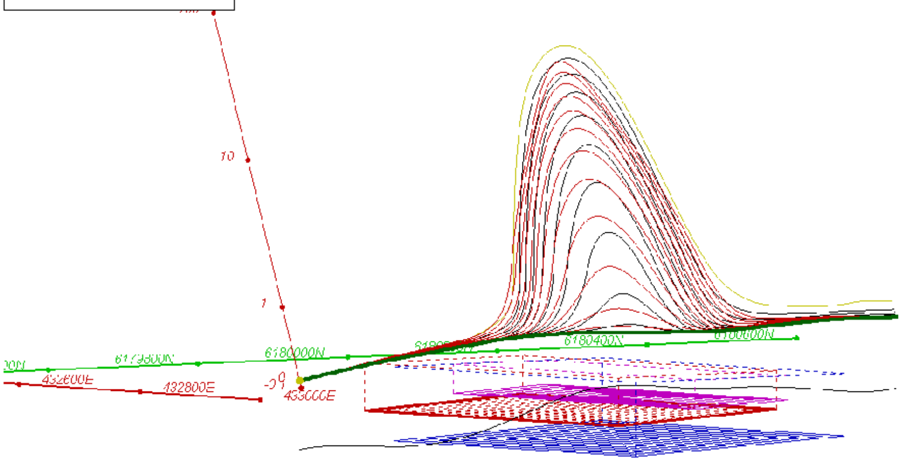


PLATE PARAMETERS

Name	1	3	4
X	432690	432775	432775
Y	6180170	6180200	6180125
Z	940	915	955
Length	400	400	400
Depth Extent	220	280	125
Dip	2.5	2.5	2.5
Dip Dir.	177.5	179.8718	179.8718
Plunge	0	0	0
Cond-Th.	20	12	12



Anomaly zone 3.

The conductive zone corresponds to a contact with magnetic source (Fig.10) and on base of RDI sections has steeply dipping “thick” plate geometry with top edge on ~150 m depth (Fig.11).

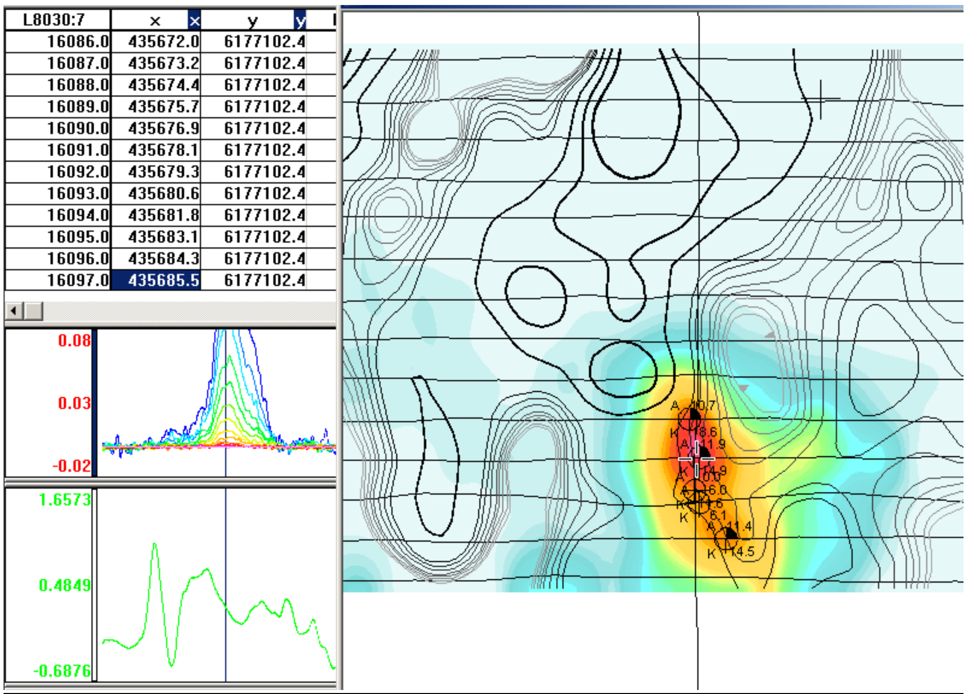


Fig.10 Anomaly zone 3.

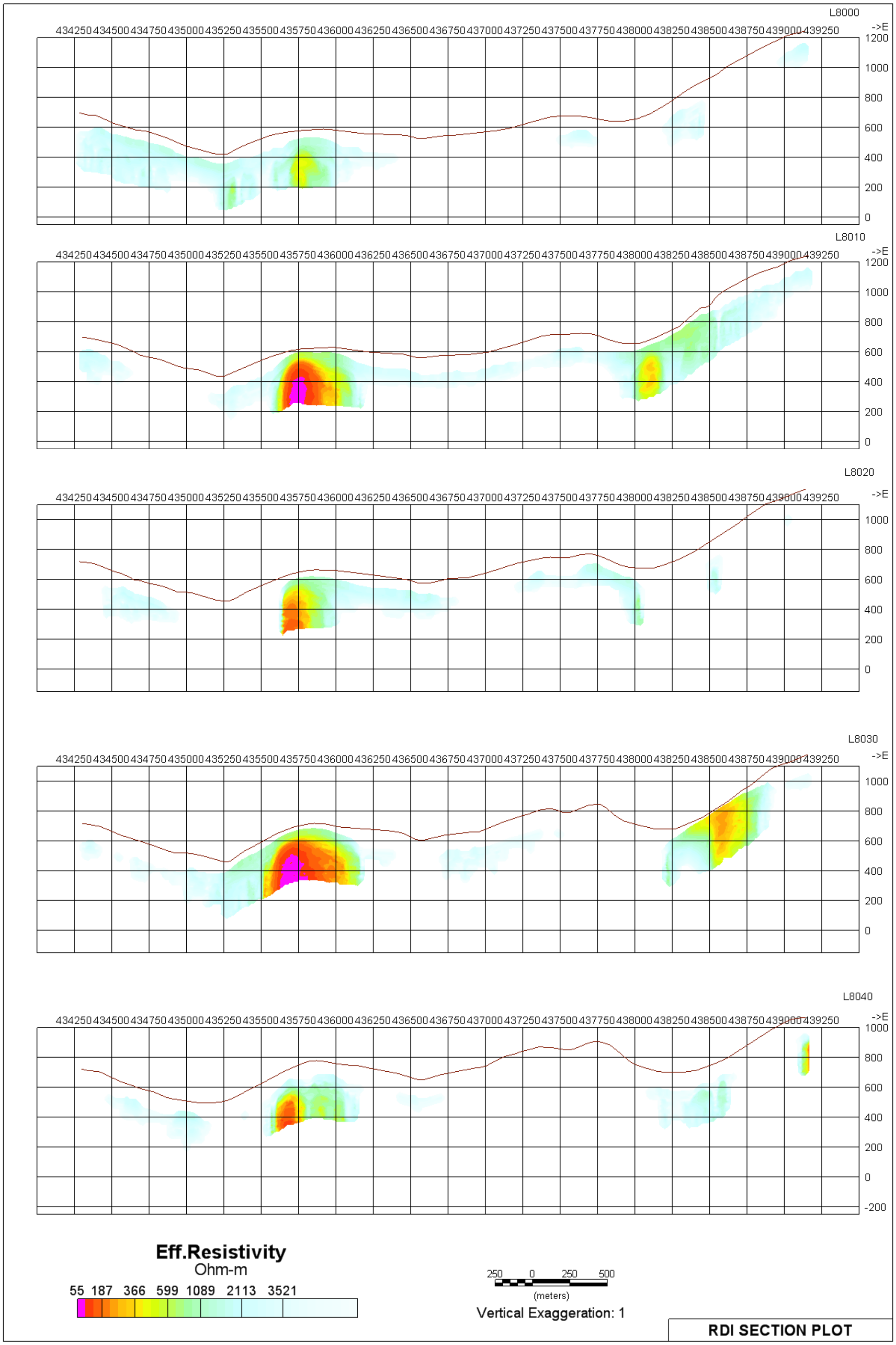
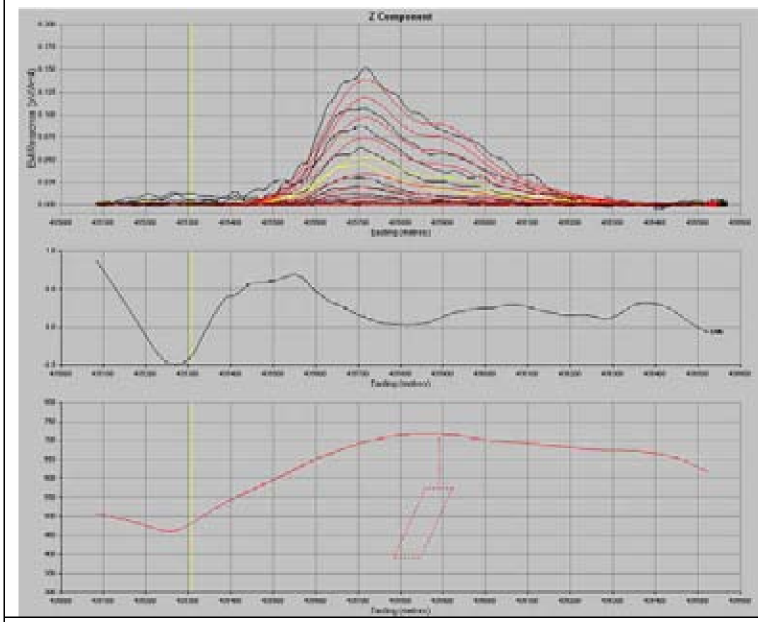
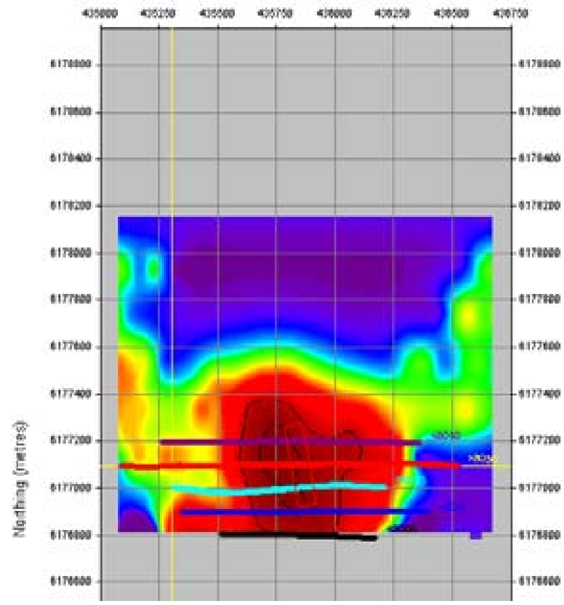


Fig.11. RDI sections for 3rd zone. Lines 8000-8040.





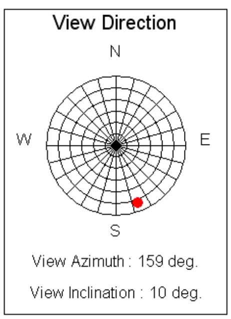


PLATE PARAMETERS

Name	1
X	435890
Y	6177105
Z	575
Length	350
Depth Extent	200
Dip	67.5
Dip Dir.	260
Plunge	0
Cond-Th.	27

Depth to the top edge 145 m

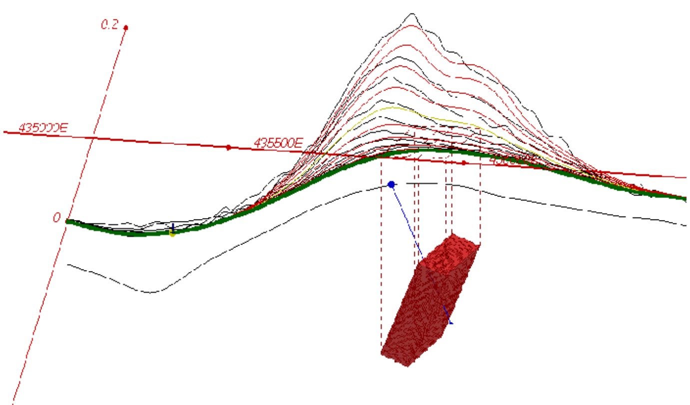


Fig.12 Results of Maxwell plate modeling. Line 8030 line.

Parameters of recommended drillhole:
X 435770, Y 6177098, Dip 65, Az 90, Length 300 m

Anomaly zone 4.

The target is relatively small and local. Apparently epicenter of the target is crossed by 7310 line (Fig. 13).

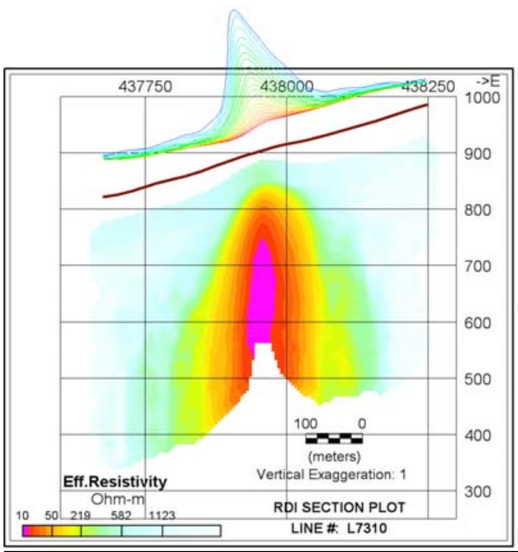
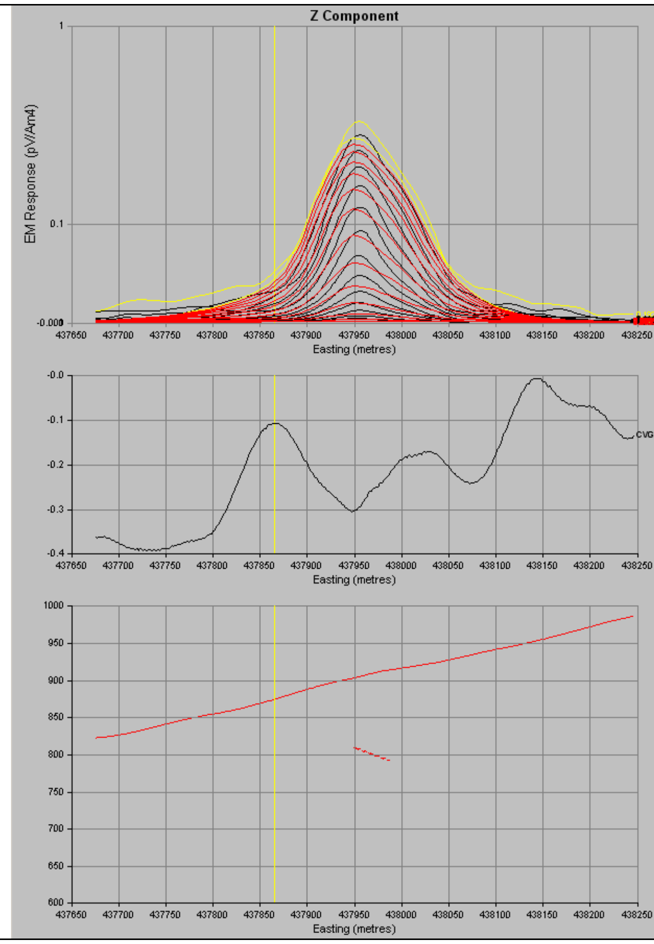
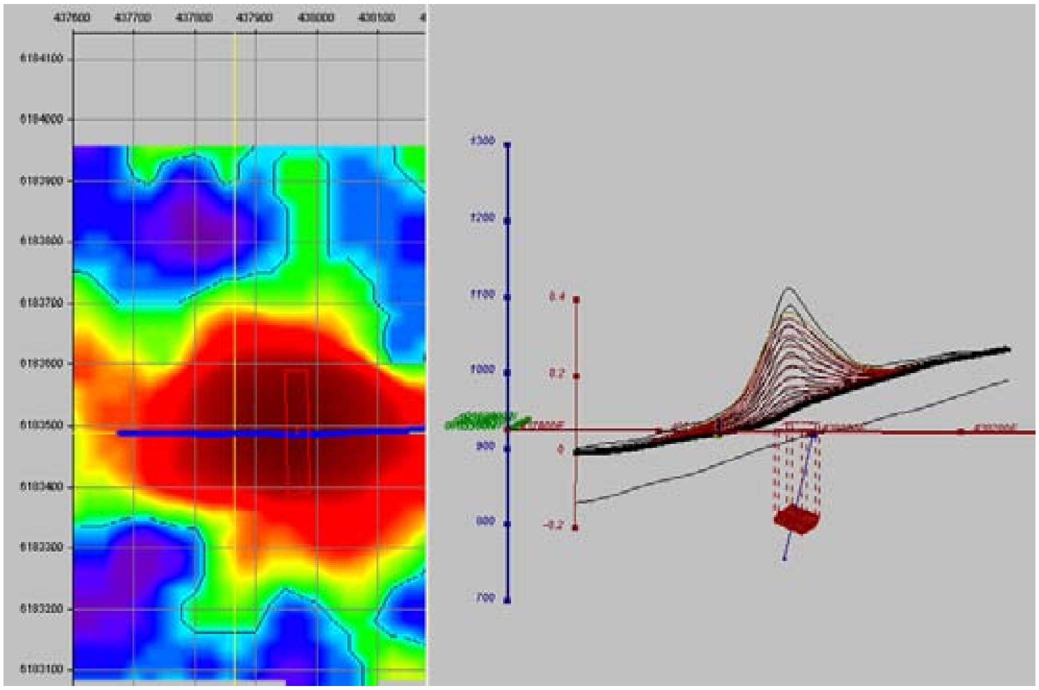


Fig.13 RDI section at the 4th target on 7310 line.





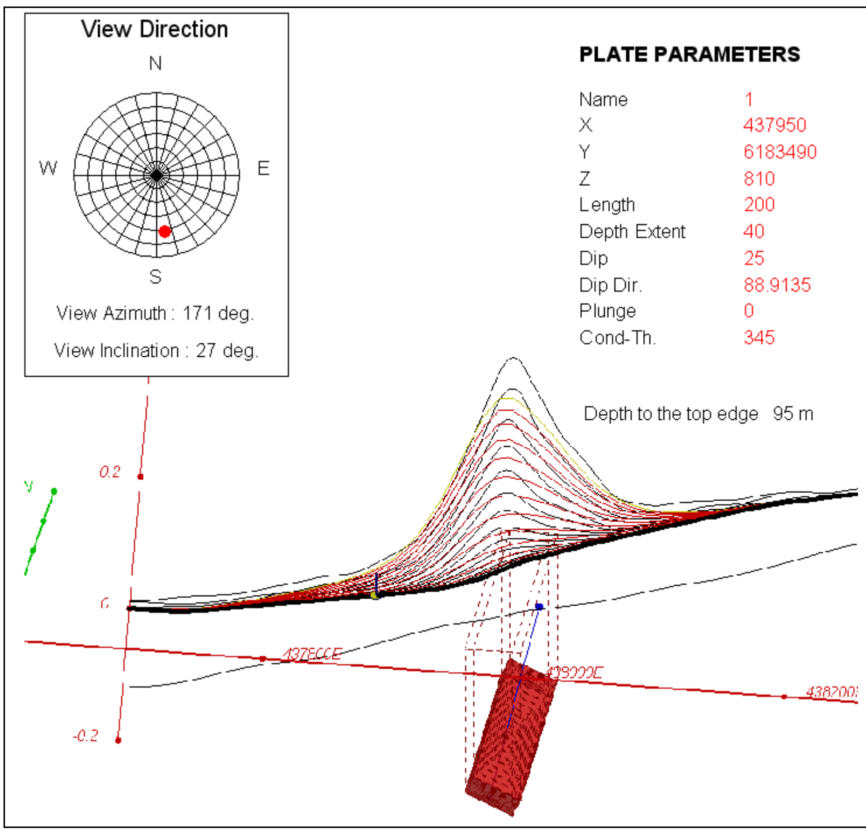


Fig. 14. Results of Maxwell plate modeling. Line 7310. Top edge of the target is on around 100 m depth looks like conductive bar, but deep continuing is possible.

Parameters of recommended drillhole:
X 437990, Y 6183487, Dip 77, Az 270, Length 170 m

Anomaly zone 5.

The anomaly is on the border of the area and the results of modeling are not very reliable.

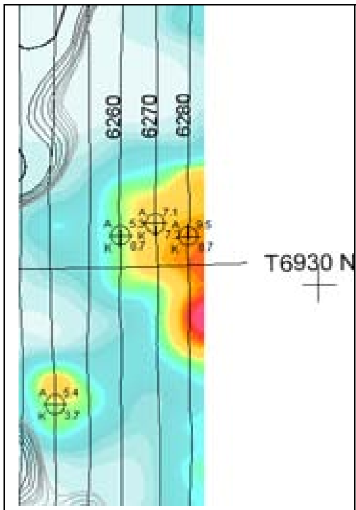


Fig.15 Anomaly zone 5

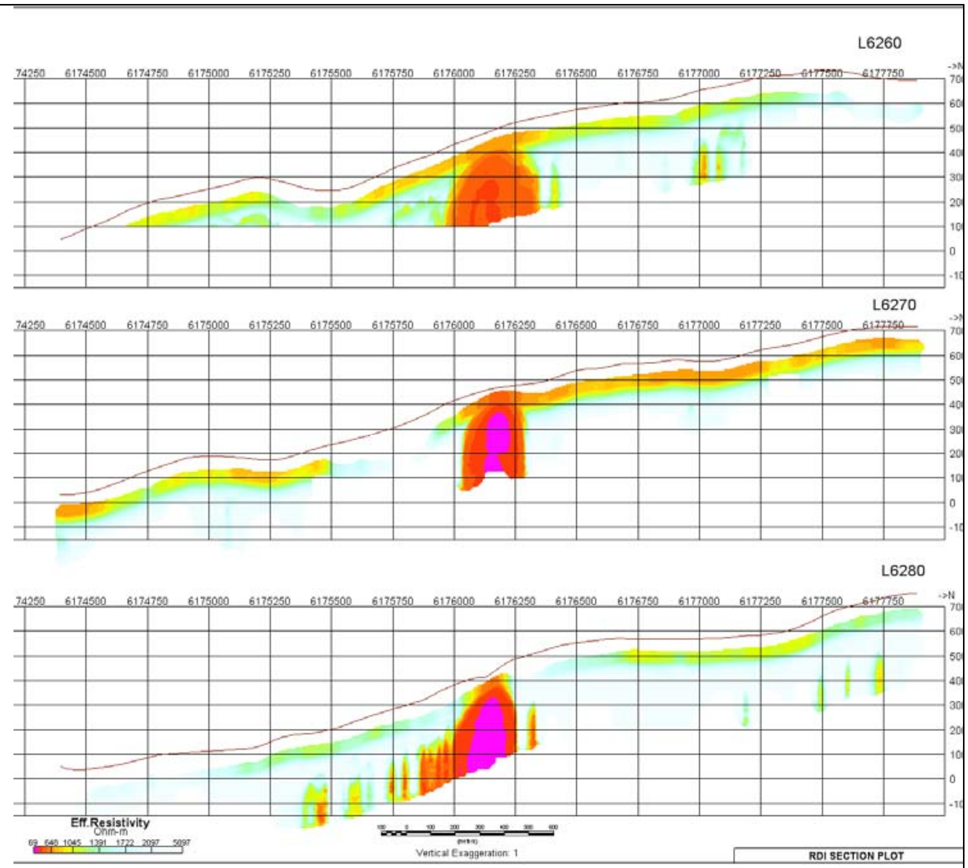


Fig.16 RDI sections for anomaly zone 5.

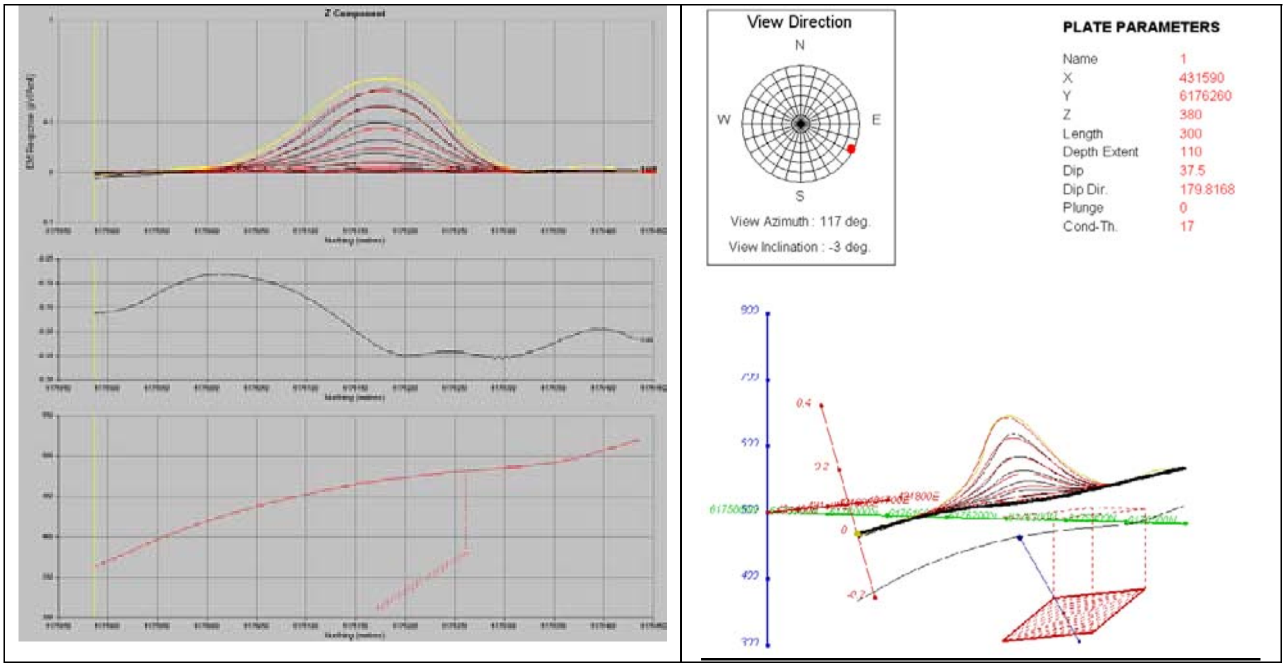


Fig.17. Results of Maxwell plate modeling. Line 6270.

8. CONCLUSIONS AND RECOMMENDATIONS

A helicopter-borne versatile time domain electromagnetic (VTEM) geophysical survey has been completed over the Georgia Blocks 1-4 (British Columbia).

The total area coverage is 61.8 km^2. Total survey line coverage is 726.1 line kilometres. The principal sensors included a Versatile Time Domain EM system (VTEM) and a magnetometer. Results have been presented as stacked profiles, and contour color images at a scale of 1:10,000

A summary interpretation, in support of the EM anomaly picking, Time Constant (Tau), calculated vertical magnetic derivative, Resistivity Depth Sections and Maxwell plate modelling that were preformed is included in the report.

The survey was successful in delineating EM anomaly sources at least on 5 anomaly zones which are recommended to following up. The anomalous areas are recommended for drill testing on the basis of RDI sections and Maxwell modelling as it may represent most likely mineralized zones.

APPENDIX II: STATEMENT OF QUALIFICATIONS

I, PAUL METCALFE, do hereby state:

1. That I am a resident of British Columbia, with a business address at P.O. Box 289, Gabriola, B.C. V0R 1X0;
2. That I am a graduate of the University of Durham (B.Sc. Hons. *Dunelm*. 1977), a graduate of the University of Manitoba (M.Sc. 1981) and a graduate of the University of Alberta (Ph.D. 1987);
3. That I am a member, in good standing, of the Association of Professional Engineers and Geoscientists of the Province of British Columbia;
4. That I have worked as a geologist for a total of 32 years since my graduation from the University of Durham, including employment as a postdoctoral research fellow by the Mineral Deposits Research Unit at the University of British Columbia and at the Geological Survey of Canada;
5. That my experience since graduation from Durham has been entirely within the western cordillera of North, Central and South America and has given me considerable knowledge of Cordilleran geology, and of geological and geochemical exploration techniques and:
6. That have several years' experience working in northwestern Stikinia.

DATED at Vancouver, British Columbia this 26th day of January, 2010.

"P. Metcalfe"

Dr. Paul Metcalfe P.Geo.

APPENDIX III: STATEMENT OF COSTS

Item	Total Days	Rate	Total
P Metcalfe	31.5	600.00	18,900.00
S Conley	30	350.00	10,500.00
W Crocker	2	600.00	1,200.00
R Kirkham	2.8	800.00	2,240.00
A Walus	1	500.00	500.00
Mob/Demob			3,042.31
Room & Board		9,014.85	9,014.85
Helicopter		23,995.27	23,995.27
Sample processing to date			0.00
Geophysics (Geotech)			126,754.51
Expendables and small tools			423.39
Mapping and Geological Information System			
Smart Map Services			2,364.00
Maps			1,600.00
Data & Reporting			7,500.00
Total			**208,034.33**

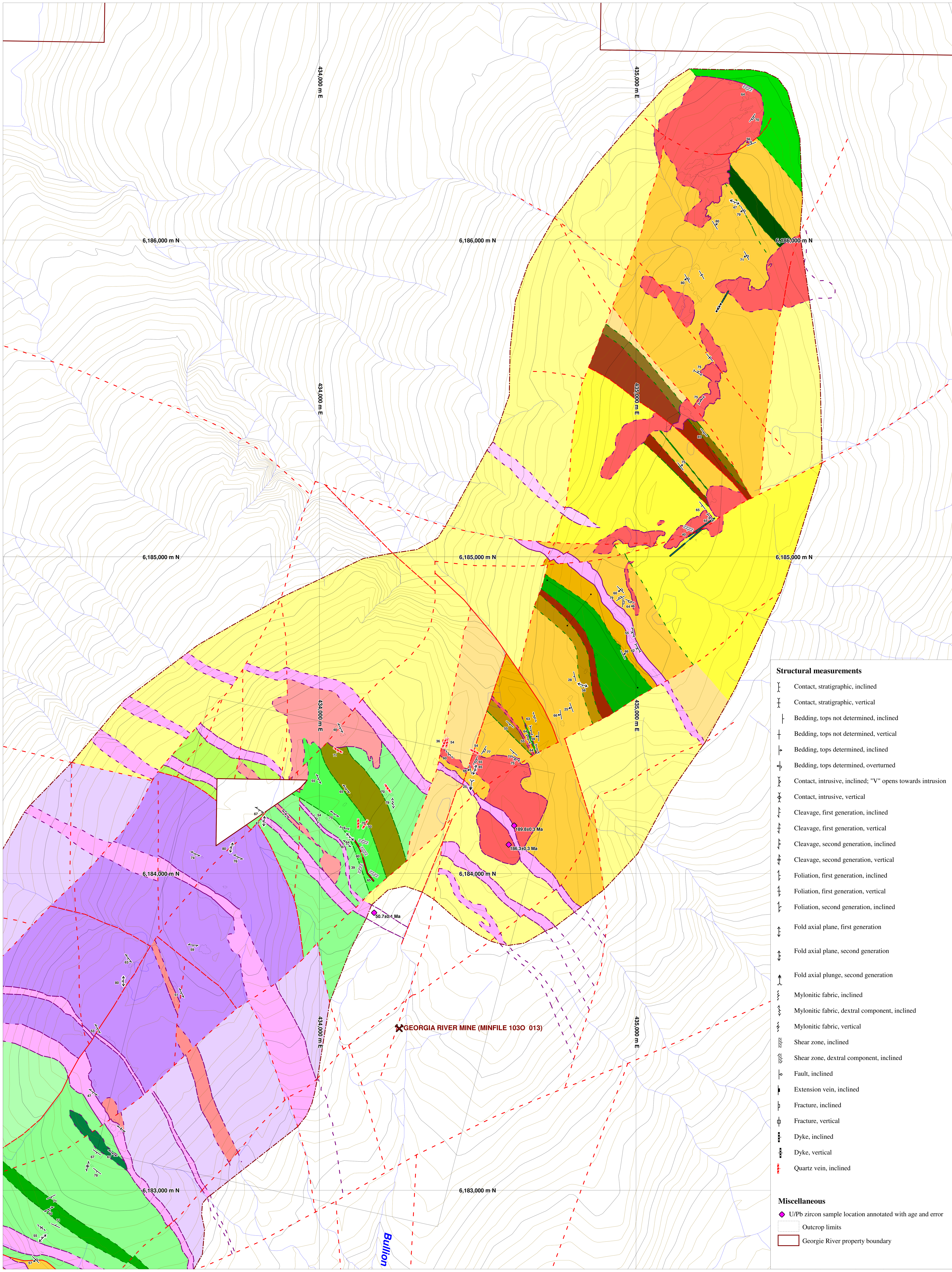


Plate 1
Geological map of northern part of Colling Ridge
Scale:1:5,000

LEGEND

Eocene (Hyder Plutonic Suite)
Four Phase Porphyry

Feldspar+hornblende+quartz+biotite porphyry

Post-Early Jurassic (metamorphic age)
after Early Jurassic (intrusive) and Late Triassic lithologies

Felsic protomylonite, feldspar+relic hornblende phyric, feldspar porphyroclasts
Chlorite blastomylonite; relic chloritised volcanic/volcanoclastic rock lenses
Chlorite blastomylonite (inferred)

Early Jurassic Texas Creek Plutonic Suite
Colling Ridge Porphyry

Feldspar porphyry; altered hornblende, minor quartz, trace sphene phenocrysts

Latest Triassic (inferred)
Cognate pyroxene-phyric sills and dykes

Gabbro or diorite

Age not known

Lithology not known, probably felsic

Late Triassic Stuhini Group (inferred)
Layered fragmental rocks

Argillite/siltstone, hydrothermal biotite at contact with Colling Ridge Porphyry
Wacke, massive/thinly bedded, may include siltstone or conglomerate lenses
Wacke (inferred)
Wacke with intercalated felspathic wacke, thinly bedded
Wacke, coarse, dark brownish grey weathering
Wacke, minor mylonite
Wacke, minor mylonite (inferred)
Green Volcanic Grit; coarse wacke to grit with coarse rounded pyroxene grains
Volcanic grit
Volcanic grit (inferred)
Volcanic conglomerate, mafic or mafic-phyric clasts; rare wacke/siltstone
Volcanic conglomerate
Volcanic conglomerate (inferred)
Volcanogenic clastic sedimentary rocks, undivided
Volcanogenic clastic sedimentary rocks, undivided (inferred)
Volcanogenic clastic sedimentary rocks, undivided, foliated, minor mylonite

Coherent volcanic and related (autobrecciated) rocks

Coherent basic volcanic rocks
Coherent volcanic rock or autobreccia, mafic-phyric
Coherent basic volcanic rocks, pyroxene-phyric
Coherent basic volcanic rock with siltstone interbeds

Linear features

Contact, stratigraphic, defined
Contact, stratigraphic, approximate
Contact, stratigraphic, inferred
Contact, intrusive, defined
Contact, intrusive, approximate
Contact, intrusive, inferred
Basic dyke, defined
Basic dyke, inferred
Quartz vein, defined
Quartz vein, approximate
Contact, faulted, defined
Contact, faulted, approximate
Contact, faulted, inferred
Trace of high strain zone, defined
Trace of high strain zone, inferred
Fold axial trace, inferred
Limit of mapping
Limit of 1981 mapping (Kruchowski)

Map projection: Universal Transverse Mercator (UTM) Zone 9. 1983 North American Datum (NAD'83).
Grid North (used in map): 359.12 True (i.e. west of True North)
2010 magnetic declination: 21.02 True
Above azimuths derived from Geographic Magnetic Calculator (Geomag v.2.5.0.0; U.S.G.S. 2000).
Topographic vector data modified from the British Columbia Terrain Resource Integrated Management (TRIM) database.
Major contour (black) interval 100 m
Minor contour (brown) interval 20 m

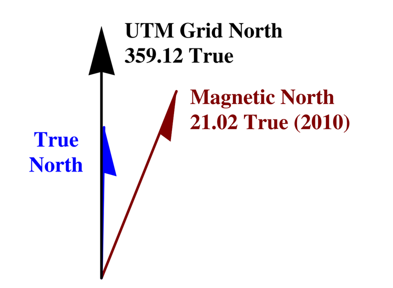
Bedrock mapping carried out from 13th August, 2010 to 7th September, 2010
Compilation date 24th January, 2011
Published to accompany Assessment Report for B.C. Mineral Titles Online Event 4786393

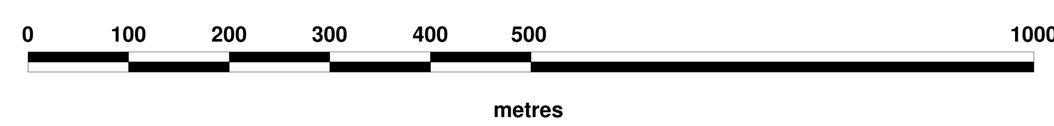
References

Evenchick, C.A., McNicoll, V.J. and Snyder, L.D., 2004: Stratigraphy, geochronology, and geochemistry of the Georgie River area, northwest British Columbia, and implications for mineral exploration; Canadian Journal of Earth Sciences, v. 41, pp. 199-216.

Evenchick, C.A., Snyder, L.D., and McNicoll, V.J., 1999: Geology of Hastings Arm West half (103P/12W) and parts of 103P/13,1030/9 and 1030/16, British Columbia; Geological Survey of Canada, Open File 2996, 1:50,000 scale.

Kruchkowski, E.R., 1981: Report on 1981 Diamond Drilling, Georgia River Project, Stewart Area, Skeena Mining Division, B.C.; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 08547, 59p. plus appendices; 19 maps, 15 sects.





Paul Metcalfe
24th January, 2011

Plate 1 of 2
Plate 2 overlaps from south

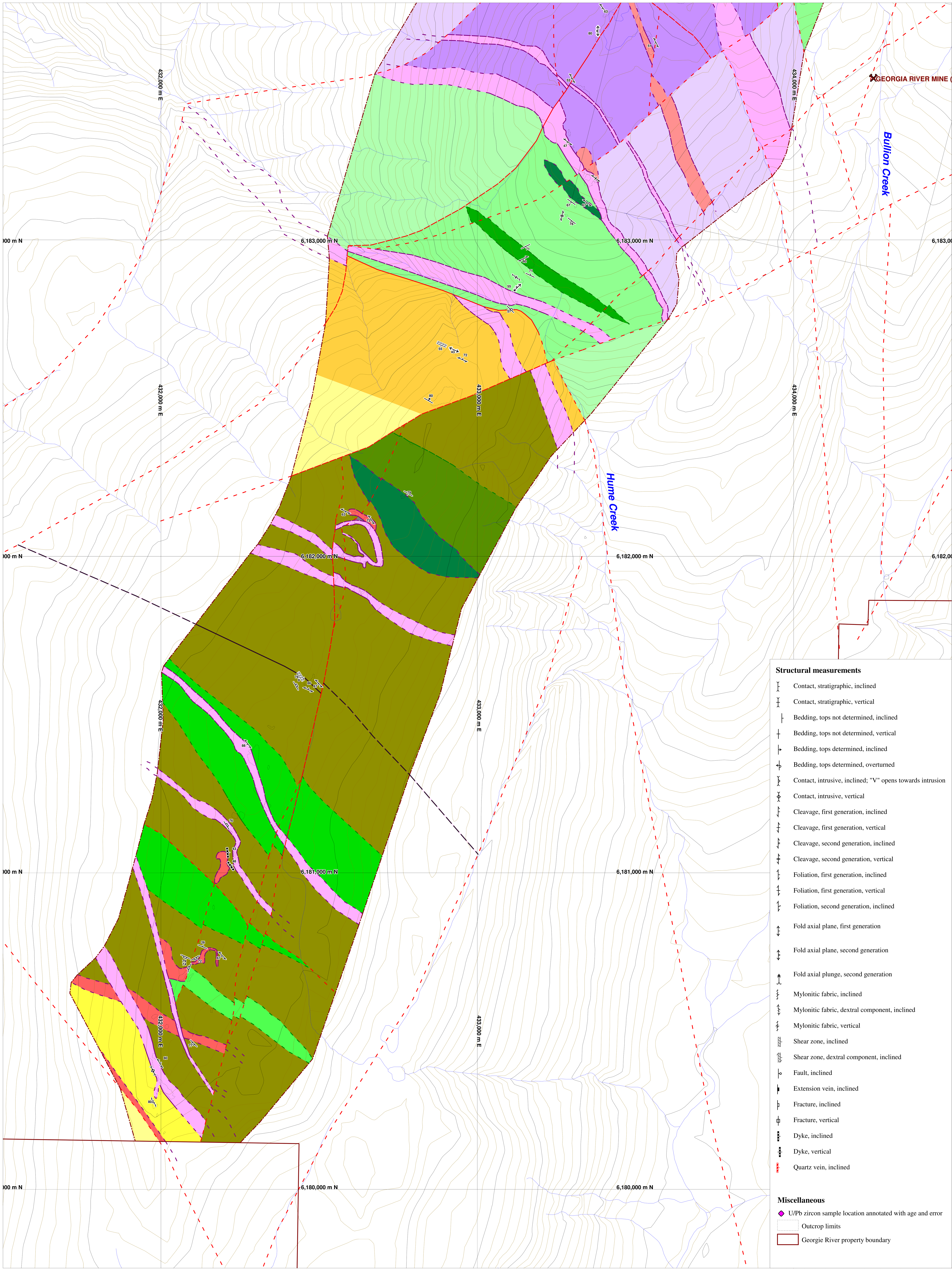


Plate 2
Geological map of southern part of Colling Ridge
Scale:1:5,000

LEGEND

Eocene (Hyder Plutonic Suite)
Four Phase Porphyry

- Feldspar+hornblende+quartz+biotite porphyry

Post-Early Jurassic (metamorphic age)
after Early Jurassic (intrusive) and Late Triassic lithologies

- Felsic protomylonite, feldspar+relic hornblende phyric, feldspar porphyroclasts
- Chlorite blastomylonite; relic chloritised volcanic/volcanoclastic rock lenses
- Chlorite blastomylonite (inferred)

Early Jurassic Texas Creek Plutonic Suite
Colling Ridge Porphyry

- Feldspar porphyry; altered hornblende, minor quartz, trace sphene phenocrysts

Latest Triassic (inferred)
Cognate pyroxene-phyric sills and dykes

- Gabbro or diorite

Age not known

- Lithology not known, probably felsic

Late Triassic Stuhini Group (inferred)
Layered fragmental rocks

- Argillite/siltstone, hydrothermal biotite at contact with Colling Ridge Porphyry
- Wacke, massive/thinly bedded, may include siltstone or conglomerate lenses
- Wacke (inferred)
- Wacke with intercalated felspathic wacke, thinly bedded
- Wacke, coarse, dark brownish grey weathering
- Wacke, minor mylonite
- Wacke, minor mylonite (inferred)
- Green Volcanic Grit; coarse wacke to grit with coarse rounded pyroxene grains
- Volcanic grit
- Volcanic grit (inferred)
- Volcanic conglomerate, mafic or mafic-phyric clasts; rare wacke/siltstone
- Volcanic conglomerate
- Volcanic conglomerate (inferred)
- Volcanogenic clastic sedimentary rocks, undivided
- Volcanogenic clastic sedimentary rocks, undivided (inferred)
- Volcanogenic clastic sedimentary rocks, undivided, foliated, minor mylonite

Coherent volcanic and related (autobrecciated) rocks

- Coherent basic volcanic rocks
- Coherent volcanic rock or autobreccia, mafic-phyric
- Coherent basic volcanic rocks, pyroxene-phyric
- Coherent basic volcanic rock with siltstone interbeds

Linear features

- Contact, stratigraphic, defined
- Contact, stratigraphic, approximate
- Contact, stratigraphic, inferred
- Contact, intrusive, defined
- Contact, intrusive, approximate
- Contact, intrusive, inferred
- Basic dyke, defined
- Basic dyke, inferred
- Quartz vein, defined
- Quartz vein, approximate
- Contact, faulted, defined
- Contact, faulted, approximate
- Contact, faulted, inferred
- Trace of high strain zone, defined
- Trace of high strain zone, inferred
- Fold axial trace, inferred
- Limit of mapping
- Limit of 1981 mapping (Kruchowski)

Structural measurements

- Contact, stratigraphic, inclined
- Contact, stratigraphic, vertical
- Bedding, tops not determined, inclined
- Bedding, tops not determined, vertical
- Bedding, tops determined, inclined
- Bedding, tops determined, overturned
- Contact, intrusive, inclined; "V" opens towards intrusion
- Contact, intrusive, vertical
- Cleavage, first generation, inclined
- Cleavage, first generation, vertical
- Cleavage, second generation, inclined
- Cleavage, second generation, vertical
- Foliation, first generation, inclined
- Foliation, first generation, vertical
- Foliation, second generation, inclined
- Fold axial plane, first generation
- Fold axial plane, second generation
- Fold axial plunge, second generation
- Mylonitic fabric, inclined
- Mylonitic fabric, dextral component, inclined
- Mylonitic fabric, vertical
- Shear zone, inclined
- Shear zone, dextral component, inclined
- Fault, inclined
- Extension vein, inclined
- Fracture, inclined
- Fracture, vertical
- Dyke, inclined
- Dyke, vertical
- Quartz vein, inclined

Miscellaneous

- U/Pb zircon sample location annotated with age and error
- Outcrop limits
- Georgie River property boundary

Map projection: Universal Transverse Mercator (UTM) Zone 9. 1983 North American Datum (NAD'83).
Grid North (used in map): 359.12 True (i.e. west of True North)
2010 magnetic declination: 21.02 True
Above azimuths derived from Geographic Magnetic Calculator (Geomag v.2.5.0.0; U.S.G.S. 2000).
Topographic vector data modified from the British Columbia Terrain Resource Integrated Management (TRIM) database.
Major contour (black) interval 100 m
Minor contour (brown) interval 20 m

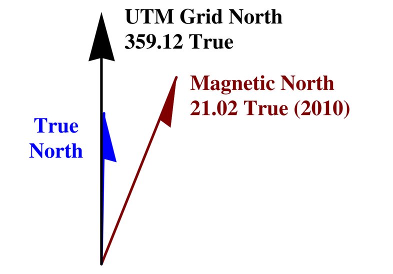
Bedrock mapping carried out from 13th August, 2010 to 7th September, 2010
Compilation date 24th January, 2011
Published to accompany Assessment Report for B.C. Mineral Titles Online Event 4786393

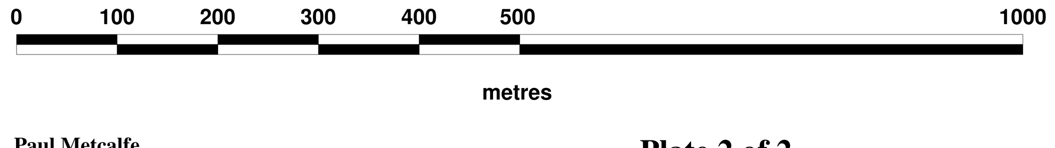
References

Evenchick, C.A., McNicoll, V.J. and Snyder, L.D., 2004: Stratigraphy, geochronology, and geochemistry of the Georgie River area, northwest British Columbia, and implications for mineral exploration; Canadian Journal of Earth Sciences, v. 41, pp. 199-216.

Evenchick, C.A., Snyder, L.D., and McNicoll, V.J., 1999: Geology of Hastings Arm West half (103P/12W) and parts of 103P/13,1030/9 and 1030/16, British Columbia; Geological Survey of Canada, Open File 2996, 1:50,000 scale.

Kruchkowski, E.R., 1981: Report on 1981 Diamond Drilling, Georgia River Project, Stewart Area, Skeena Mining Division, B.C.; British Columbia Ministry of Energy, Mines and Petroleum Resources Assessment Report 08547, 59p. plus appendices; 19 maps, 15 sects.





Paul Metcalfe
24th January, 2011

Plate 1 overlaps from north