ASSESSMENT REPORT
ON THE

1st BASE CLAIMS

Grass Lakes area

NTS 105 G-7
Lat. 61° 21' N, Long. 130° 50' W
Watson Lake Mining District

093647

For: Arcturus Resources Ltd.
609-475 Howe Street
Vancouver, B.C.
V6C 2B3

By: G.S. Davidson, P. Geol.
January 10, 1997

This report has been examined by the Geological Evaluation Unit under Section 53 (4) Yukon Quartz Mining Act and is allowed as representation work in the amount of $ 22,000 .

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

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

SUMMARY

The 1ST BASE property consists of 44 claims (921 hectares) located 200 kilometers northwest of Watson Lake and 10 kilometers southwest of the Kudz Ze Kayah deposit of Cominco. Access is by helicopter from the Campbell Highway located 35 kilometers to the northwest . Grass Lake lies 2 kilometers east of the claim block.

The property is within the Yukon Tanana Terrane in a series of quartz-mica schists and mafic volcanic rocks intruded by ultramafic sills and granitic bodies. The Tintina Fault is located southwest of the property marking the contact between the Cassiar Platform and the Yukon Tanana Terrane. The area is being explored for massive sulphide deposits formed in Paleozoic and Mesozoic sediments and metavolcanic rocks. Since 1993, over 15,000 claims have been staked in the region, centered around Wolverine Lake and North Lakes. Located 10 kilometers northeast of the 1st Base property, Cominco's Kudz Ze Kayah deposit has reserves of 14 million tonnes at 1.1 % Cu, 1.5 % Pb, 6.1 % Zn, 140 g/t Ag and 1.3 g/t Au.

The 1st Base claims were staked by Mr. Blake Macdonald on a target defined by an airomagnetic anomaly and prospecting knowledge. The target models are the Cominco volcanogenic massive sulphide body hosted in Paleozoic metasediments and the Wolverine Lake deposit, a strataform Pb-Zn-Cu massive sulphide occurring at the base of a felsic volcanic sequence. The model consists of massive to broken sulphides occurring in a carbonaceous metasedimentary to felsic metavolcanic and volcanoclastic horizon overlain by massive subvolcanic domes or sills of mafic to felsic volcanic rock. The sulphide mineralization is in fairly narrow elongated lenses.

An airborne geophysical survey (Aerodat Ltd.) over the 1st Base claims located several broad magnetic highs and EM conductors that were targeted by grid work. Magnetic lows were coincident with areas of quartz carbonate rock. Quartz sericite schist with variable amounts of pyrrhotite underlay magnetic highs.

In July-August, 1996 a 66 kilometer picket grid was established and 1356 soil samples were collected by a five man crew based at the Ketza Group camp on Grass Lake. Four areas of elevated copper-lead-zinc geochemical values were found in the south-central portion of the property. The most significant anomaly features copper values of greater than 250 ppm over a 300 x 400 meter area (Anomaly A) and elevated values in lead and zinc.

The writer mapped the claim geology on Aug. 31, Sept. 1 & 3, 1996. The mapping identified a thick metasedimentary sequence of quartz muscovite and quartz biotite schist in contact with a granodiorite batholith to the northwest. Within the schists rusty weathering horizons of quartz sericite schist and quartz carbonate alteration zones form gossans on cliff faces and talus slopes. Quartz carbonate veins and silicified layers of sericite schist host minor pyrrhotite, galena and sphalerite. Several moderate to strongly anomalous copper, lead and zinc geochemical anomalies were found on and bellow the gossan zones. Prospector JP Loiselle traversed the claims with a Beeb Mat electromagnetic device and collected 80 rock samples. He found minor galena, sphalerite and pyrrhotite mineralization in quartz and carbonate layers in the schists.

Ground geophysical surveys were performed by Llyod Geophysics Ltd. over geochemically anomalous portions of the grid in September, 1996. Two electromagnetic conductors of interest were located by the max-min survey.

Three targets for further evaluation were located by the 1996 work program. 1) Geochemical anomaly A corelates with a moderately conductive EM response obtained over a 400 meter length. This feature appears to have a northerly dip and is the best target for diamond drilling. 2)A HLEM conductor located at the east end of the property correlates with anomalous geochemistry and a magnetic high. 3) A magnetic dipole coincides with a strong geochemical anomaly and a small galena sphalerite showing.

The initial work program on the 1st Base claims has outlined some coincident geochemical and geophysical anomalies in a promising geological environment. There is good potential for finding base metal mineralization in these areas. Three targets require evaluation by mapping and sampling followed by diamond drilling or trenching if warranted. An exploration program of diamond drilling and surface exploration at a proposed budget of $220,000 is recommended for the 1st Base claims.

INTRODUCTION

The 1st Base property consists of 44 claims located in the central Yukon near Grass Lakes in the Pelly Mountains and the Watson Lake Mining District, Yukon Territory (NTS 105 G-7). The claims cover a high mountain ridge flanked by steep talus slopes and cliffs. An exploration program consisting of airborne and surface geophysics, grid development, soil geochemistry and geological mapping was supervised by B. Macdonald of the Ketza Group. This report reviews data and documents provided by B. Macdonald and information collected by the writer. The report is prepared for filing assessment on the claims.

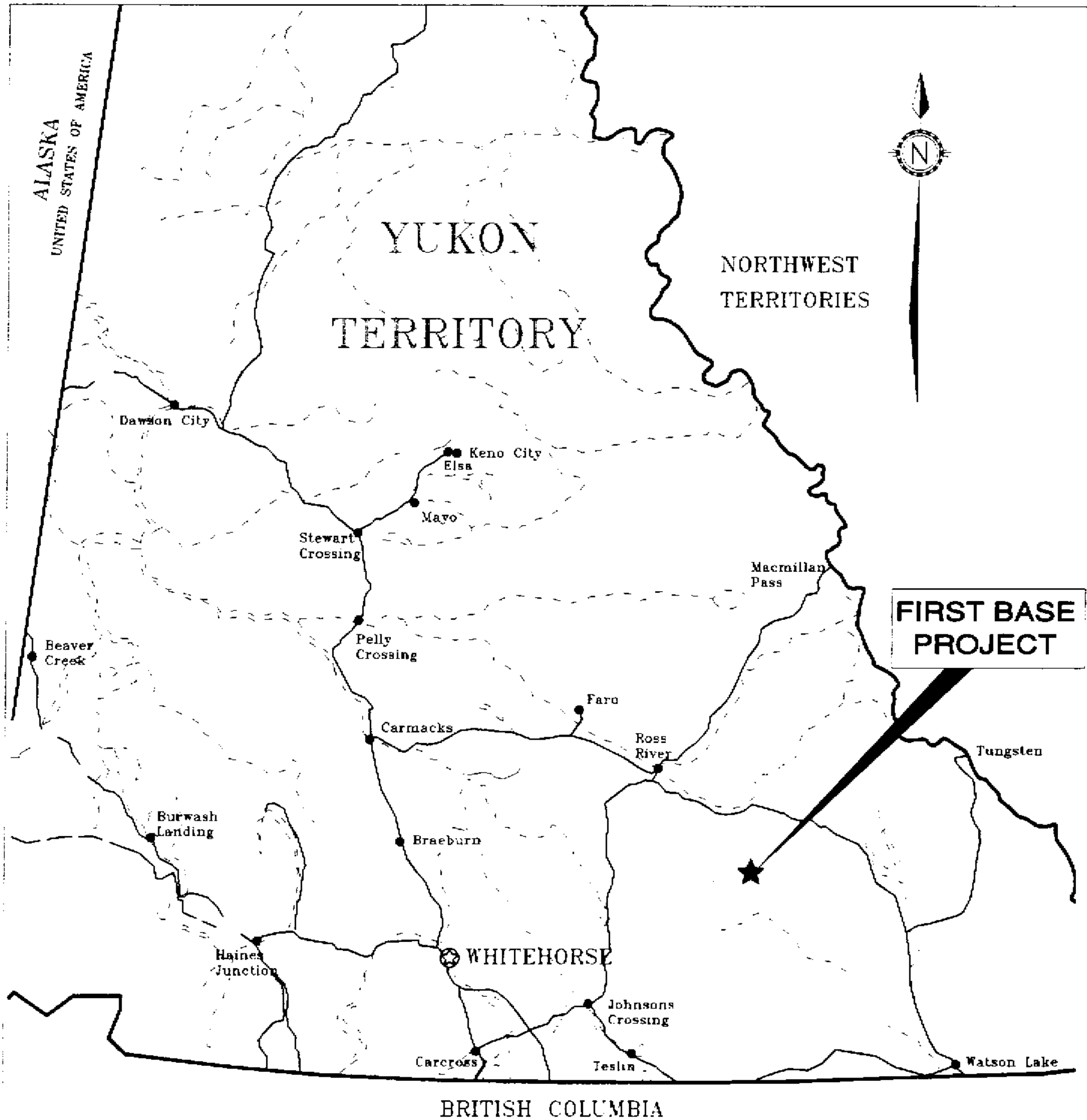
LOCATION AND ACCESS

The 1st Base property is located 2 kilometers west of Grass Lake and 200 kilometers northwest of Watson Lake on NTS Map Sheet 105 G-7 at geographical co-ordinates 61° 21' N and 130° 50' W. The 1st Base property was accessed by Trans North Air helicopter from the Ketza Group base camp on Grass Lake. Access to the camp was by charter float planes provided by Black Sheep Aviation of Whitehorse. Figures 1 and 2 show the property location. Logistically, Whitehorse, Ross River and Watson Lake provide supplies, accommodations and government services for the district and there is a government maintained airstrip near Finlayson Lake.

PHYSIOGRAPHY

The 1st Base property covers a high L-shaped series of ridges and mountain peaks. A long narrow north-south trending ridge occupies the central and northern portion of the claim block. This ridge is connected to an east-west trending ridge that lies in the southern part of the claim block. The general area features mountainous terrane with several peaks connected by precipitous ridges and flanked by steep talus slopes and cliff areas. The ridge tops are castilated to rounded rubble covered slopes. Elevations range between 1,300-2,099 meters (4,250-6,890 ft) a.s.l. Outcrop is widespread at higher elevations and talus slopes are common. Overburden on south and westerly facing slopes averages 5 meters while north facing slopes have more permafrost with an average of 10 meters.

The district has a northern interior climate marked by long cold winters and low annual precipitation. Exploration on the property can be performed from June until September.

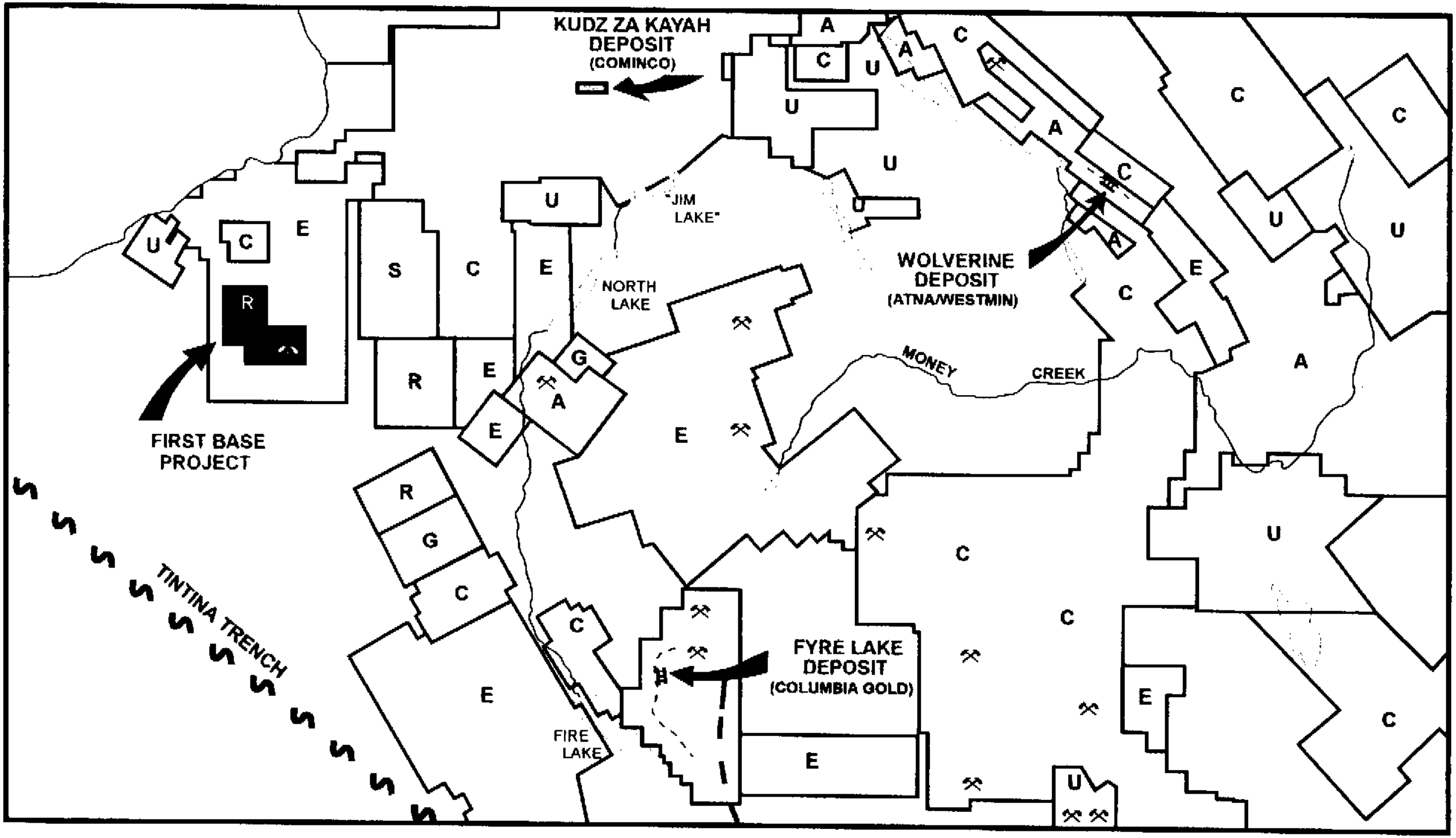


0 50 100 150 200km

SCALE: 1 : 4,000,000

COMPANY:	**ARCTURUS RESOURCES LTD.**
DRAWING TITLE:	**FIRST BASE PROJECT LOCATION MAP**
LOCATION:	**Grass Lakes, Yukon Territory**

DATE:	February 1997	*SCALE:*	1 : 4,000,000
DRAWN:	TerraCAD 96208	*GEOLOGIST:*	Graham Davidson
DATA:	NTS 105/G7	*FIGURE:*	1



KEY TO CLAIM OWNERSHIP

R - ARCTURUS RESOURCES

G - CONSOLIDATED SHOSHONI GOLD

C - COMINCO

A - ATNA/WESTMIN J.V.

E - EXPATRIATE RESOURCES

U - UNKNOWN OWNERSHIP

S - SUNSTATE RESOURCES LTD.

SCALE

0 2 4 6 8 10km

ARCTURUS RESOURCES LTD.

FIRST BASE PROJECT

Grass Lakes, Yukon Territory

SCALE	AS SHOWN		DATE	February 1997
NTS	NTS 105/G7	DRAWN TerraCAD 96055a4	FIGURE	2

PROPERTY

The 1st Base property consists of 44 contiguous mineral claims, as shown in Figure 3 and listed in Table 1.

TABLE 1
Claim Data

Claim Name	Grant Number	Expiry Date (* applied for)
1st BASE 1-28	YB51866-893	*Nov. 30, 2001
1st BASE 29-44	YB51894-909	*Nov. 30, 2001

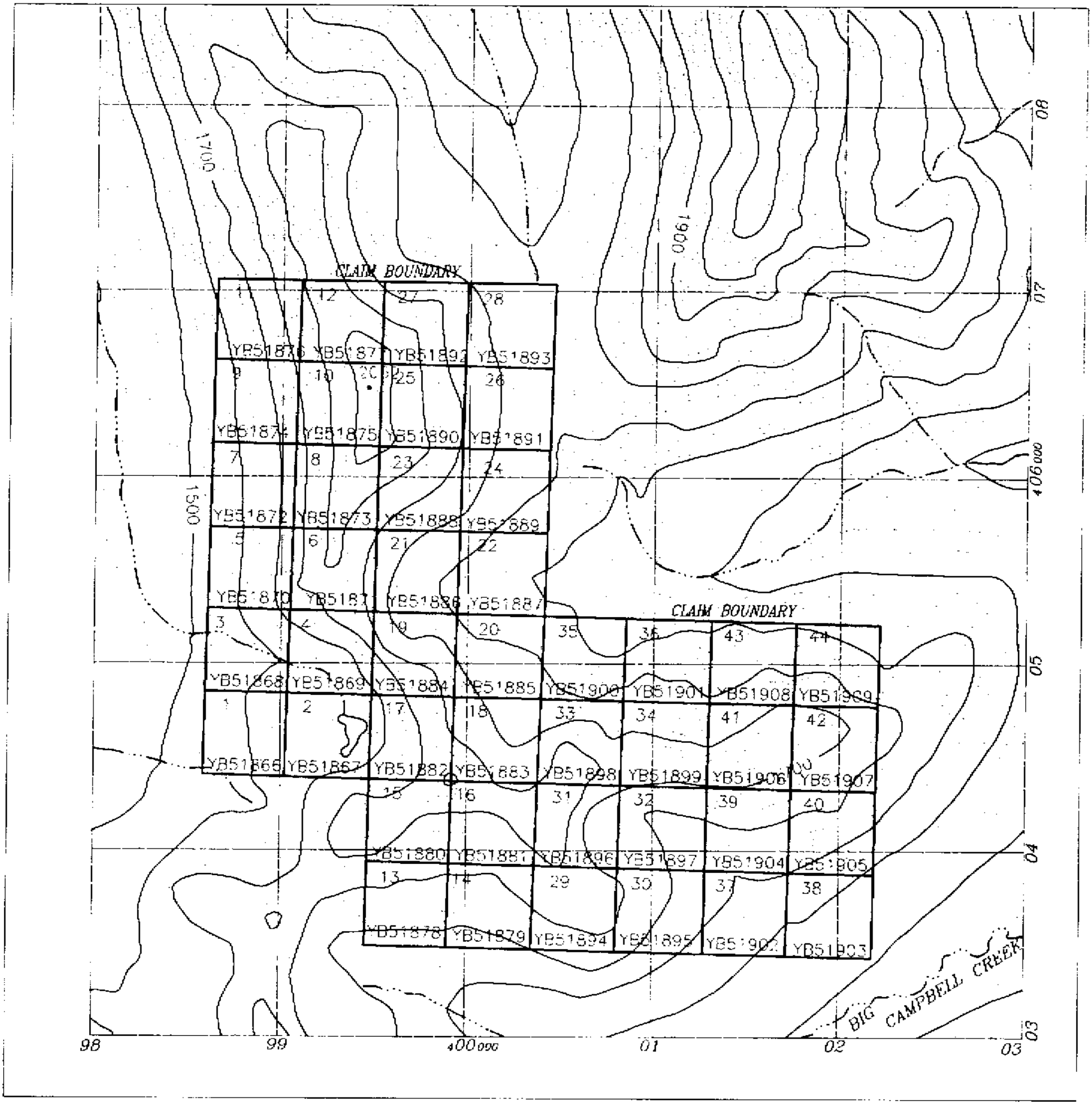
The 1st Base 1-44 claims were staked in November, 1995 and recorded in the office of the district mining recorder in Watson Lake on Nov. 30, 1995. The 1st Base 1-44 are registered to Arcturus Resources Ltd.

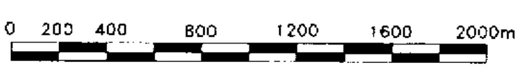
REGIONAL GEOLOGY

The rocks underlying the Finlayson area are mainly sedimentary and include various types of argillites, phyllites, slates, schists and quartzites of upper Proterozoic to Mississippian Selwyn Basin and Paleozoic metamorphic and volcanic rocks of the Slide Mountain and Yukon-Tanana Terranes. Conformable lenses and sills of greenstone, probably Triassic in age, occur in profusion in places in the metasediments and a few narrow lamprophyre and quartz-porphyry sills, probably Jurassic or younger, are present locally. Granitic bodies cut the metasediments and greenstones at several places. Near the granitic intrusions, characteristic skarn zones are developed in calcareous rocks of the metasedimentary sequence. In the late Mesozoic extensive thrust faulting accompanied the emplacement of Carboniferous and Permian dark green aphanitic basalt, dunite, peroxinite, peridotite, serpentinized equivalents and quartz carbonate rock.

The claims lie north of the Tintina Fault, a large transcurrent Late Cretaceous to Tertiary fault system that caused at least 450 km of displacement. During the Eocene volcanism and sedimentation deposited sequences of basalt, rhyolite, felsic tuff and conglomerate in the Tintina depression. Late Tertiary uplift and faulting preserved Eocene volcanoclastic rocks in structurally complex grabens. Epithermal style gold and silver mineralization occurs at fault intersections in these grabens.

Metasedimentary rocks in the Grass Lakes area strike 125^{o} and dip 40-50^{o} southwest. The most recent geological map of the area was compiled by Templeman-Kluit as Open File 486. Figure 4 shows the area geology and the Table of Formations is presented in Table II.





SCALE: 1 : 31,680

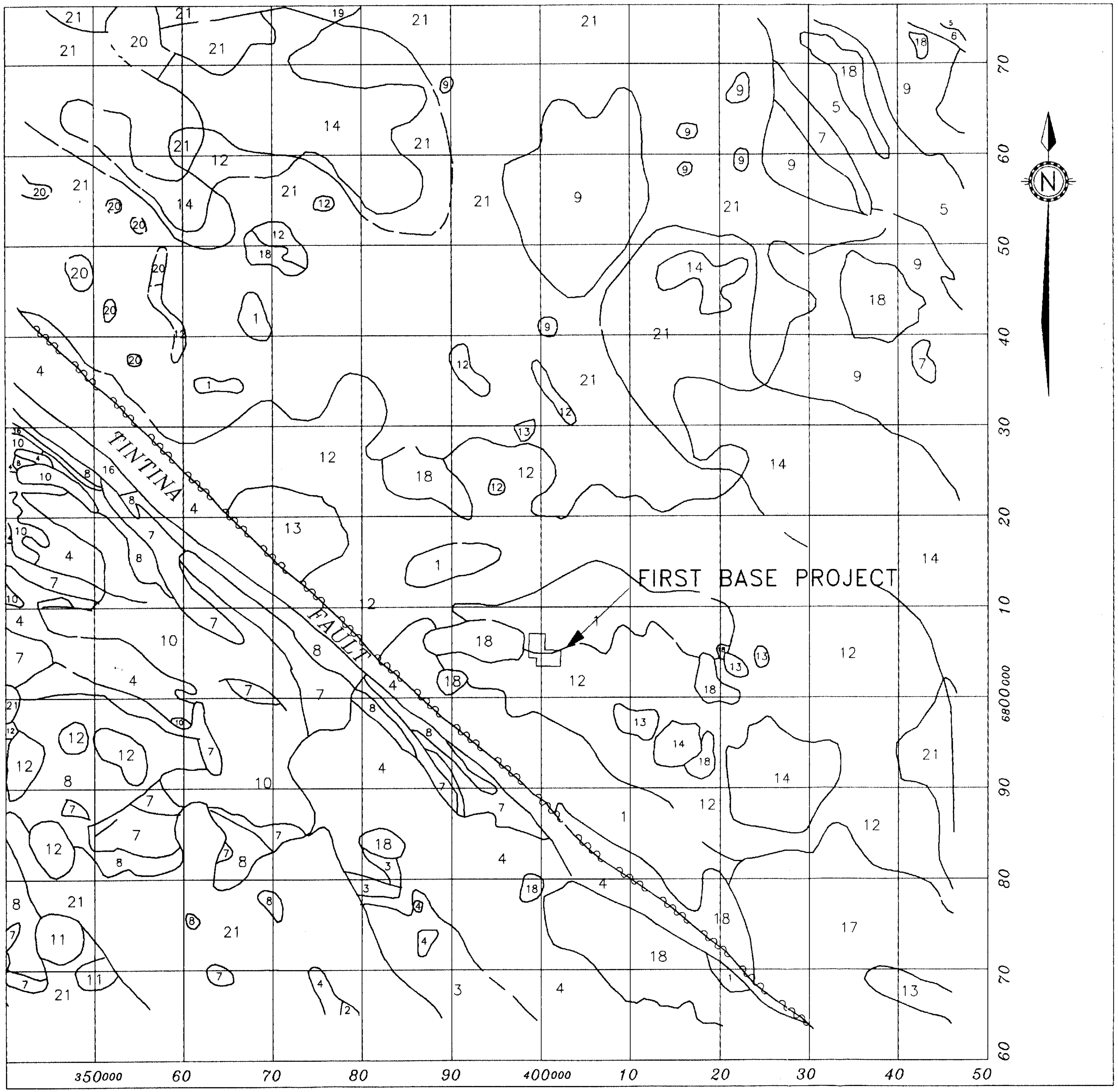
COMPANY: **ARCTURUS RESOURCES LTD.**

DRAWING TITLE:

FIRST BASE CLAIMS 1- 44

LOCATION: **Grass Lakes, Yukon Territory**

DATE:	February 1997	*SCALE:*	1 : 31,680
DRAWN:	TerraCAD 96231-A4	*GEOLOGIST:*	Graham Davidson
DATA:	NTS 105/07	*FIGURE:*	3



QUARTERNARY

PLEISTOCENE AND RECENT

21	Qs	64*	Glacial and surficial deposits

TERTIARY

PLIOCENE

20	Pv	62	Basalt

CRETACEOUS

19	Kqdp	52	Granodioritic and monzonitic porphyry
18	Kqm	52	Quartz monzonite, granodiorite; Cassiar quartz monzonite, alaskite

TRIASSIC

17	Tgdn	42	Foliated hornblende granodiorite, quartz
16	Tcg	42	Polymictic conglomerate

PENNSYLVANIAN AND PERMIAN

15	PPAt	35	Chert

CARBONIFEROUS AND PERMIAN

14	CPAV	35	ANVIL RANGE GROUP: andesite, basalt, slate, chert, limestone
13	CPub	35	Serpentinite, diorite, pyroxenite, peridotite
12	CPsn	35	Schist, gneiss; includes BIG SALMON METAMORPHIC COMPLEX
11	CPv	35	Andesite, basalt, chert, tuff

MISSISSIPPIAN

10	Mvp	31	Black slate, chert, acidic volcanics

DEVONIAN AND MISSISSIPPIAN

9	DME	29	EARN GROUP: undivided; shale, chert arenite, conglomerate
8	DMS	29	SYLVESTER GROUP: shale, chert arenite, basic volcanic rocks

SILURIAN AND DEVONIAN

7	SDcq	24	Dolomite, quarzite, argillite

ORDOVICIAN, SILURIAN AND LOWER DEVONIAN

6	OSDR	19	ROAD RIVER: black graptolitic shale, chert

CAMBRIAN AND ORDOVICIAN

5	COp	14	Shale, limestone
4	COK	14	KECHIKA GROUP: phyllite, limestone

LOWER CAMBRIAN

3	lCAq	11	ATAN GROUP: quartzite, shale, phyllite
2	lCq	11	Quartzite, shale

HADRYNIAN

1	Hsn	07	Schist, gneiss, quartzite

*A mnemonic code assigned to rock types and recorded as part of field observations.

Geological Boundary............................

Fault..

0 5 10 20 30 km

SCALE: 1 : 500,000

Geology base and legend are derived from:

Gabrielse, H., Tempelman-Kluit, D.J., Blusson, S.L. and Campbell, R.B. (1980) Map 1398A, MacMillan River, Yukon – District of Mackenzie – Alaska, NTS Sheet 105, Geological Survey of Canada, Energy, Mines and Resources Canada. 1:1,000,000 Scale.

COMPANY:

ARCTURUS RESOURCES LTD.

DRAWING TITLE:

FIRST BASE CLAIMS REGIONAL GEOLOGY

LOCATION: East - Central Yukon

DATE:	February 1997	SCALE:	1 : 500,000
DRAWN:	TerraCAD 97017	GEOLOGIST:	Graham Davidson
DATA:	NTS 105/G	FIGURE:	4

TABLE II - TABLE OF FORMATIONS

(adapted from Templeman-Kluit, 1977)

Quaternary

Q-Undifferentiated, unconsolidated gravels, sands and clays

Tertiary

QTvb-Basalt

Tscg-Sandstone, conglomerate, shale

Tgfp-Quartz-feldspar porphyritic rhyolite

Cretaceous

Kg-Buff to grey dykes, sills and small plugs of aplite and granite; locally quartz, feldspar and/or biotite phyric; minor arsenopyrite

Kl-Fine- to coarse-grained, light grey, biotite lamprophyre dykes, locally feldspathic

Triassic

Trd-Fine- to medium-grained greenstone (meta-diorite, meta-gabbro)

Carboniferous & Permian

CPav-Anvil Allocthan, amphibolite, greenstone, basalt, gabbro

CPas-Serpentinite

Precambrian-Lower Cambrian

PPK-Klondike schist, quartz muscovite and quartz biotite schist and gneissic equivalents.

HISTORY

The Finlayson area was first explored by Robert Campbell of the Hudsons Bay Company in 1840. A post was established by the HBC at Francis Lake in the 1850's. Prospectors entered the country via the Liard River system around 1880 looking for placer gold deposits. Minor amounts were found along bars in the Finlayson River. Lode prospecting began in the 1950's and intensified in the 1960's with the discovery of the Anvil Pb-Zn deposit.

The potential for massive sulphide deposits led to several staking rushes in the Finlayson and Pelly River areas. A few narrow zones of sulphide mineralization were discovered on claims around Wolverine Lake and at the Pelly Banks. In the 1980's the potential for gold mineralization along the Tintina Fault sparked a staking rush spearheaded by companies of the Pezim group. The Grew Creek and Canamax gold deposits formed by Tertiary epithermal activity were found near Ross River.

In 1993 Cominco discovered massive sulphide float in a valley bottom near the North Lakes. Follow-up geochemistry and geophysics identified a promising anomaly that was drilled in 1994 and 1995 delineating the Kudz ze Kayah massive sulphide deposit. Cominco has staked about 10,000 claims in the district since the discovery of mineralization. Westmin Resources Ltd. entered the picture by optioning Atna Resources Ltd. properties around Wolverine Lake in Jan. 1995. Westmin continued with an aggressive program of claim staking through the district and now holds about 3,000 claims. Westmin announced a massive sulphide discovery at the south end of Wolverine Lake in the summer of 1995. Another major player in the area, Expatriate Resources has also acquired about 3,000 claims.

Prior exploration in the area of the 1st Base claims is reported in the Yukon Minfile. A few narrow galena bearing quartz-carbonate veins were discovered on a high ridge west of Grass Lakes in the 1970's. No further work was performed on the occurrence.

1996 EXPLORATION PROGRAM

INTRODUCTION

An airborne geophysical survey was completed over the claims in July, 1996 by SJ Geophysics Ltd. Coverage of the claim area on lines spaced 200 meters apart required 85 line kilometers of airborne survey. The airborne magnetic and EM survey results were plotted on a color compilation map, Figure 14. The airborne survey shows several northeast-southwest trending weak to moderate strength EM conductors and patchy magnetic highs mainly on a broad ridge in the southern potion of the claims. Magnetic lows are present in topographically lower areas, primarily in the northeast portion of the 1st Base claims.

Surface exploration in 1996 was initiated in late July with the development of 66 kilometers of picket line grid across accessible areas of the property. Two baselines, one kilometer apart were run at 090° (grid east) with grid location 25+00N, 25+00E located at the number 1 claim posts of 1st Base 33 and 34 claims. Grid lines at 100 or 200 meter intervals were run from the baselines using laths to mark the lines at 25 meter intervals. A total of 1356 soil samples were collected at 50 meter intervals from a poorly developed B soil horizon or from C horizon if necessary. Talus slopes and outcrops were not soil sampled leaving some gaps in the coverage.

Prospector JP Loiselle spent a month traversing the claim area with a Beep Mat instrument and collected 80 rock samples. The writer was accompanied by Mr. Loiselle while mapping the claims and has examined his samples. Mr. G. Macdonald also examined some of the samples.

In September, 1996 ground geophysical surveys (7.6 line kilometers) were performed by Llyod Geophysical Ltd. on geochemical anomalous portions of the grid.

Personnel and contractors who worked on the 1st Base claims are:

Grid development and geochemistry:
Brandon Macdonald; Barclay Macdonald; G. Adamson; D. Godwin; Z. Witham; M. Jackson, P. Atkinson

Supervision. geological mapping and prospecting:
Blake Macdonald, supervisor; G. Davidson, geologist; G. Macdonald, geologist; JP Loiselle, prospector

Geophysical surveys:
SJ Geophysics Ltd. airborne survey
Llyod Geophysics Ltd., magnetometer and max-min surveys

PROPERTY GEOLOGY

The rocks exposed on the 1st Base claims are Paleozoic to Cambrian metamorphic rocks intruded by granitic intrusions and volcanic dykes. The most common rock types are quartz muscovite and quartz biotite schist which outcrops along the ridges as massive gray weathering castilated blocks and beds that strike 010° and dip 10-30° west. A few horizons of rusty weathering quartz sericite schist occur in the sequence. The sericite schist outcrops on a dip slope on the south side of the claims. Schist containing bands of quartz carbonate outcrops in areas of low magnetism.

Intrusive rocks are of very limited extent in the claim area however a large body of granodiorite lies to the west. A few outcrops of granodiorite occur at the northwestern edge of the claims in the valley floor. A narrow dacitic dyke intrudes the schists in the central claim area. Silicification of the schist, quartz carbonate veining and graphitic schist occur around the dyke. Figure 5 shows the property geology and the following units were identified:

- Dacite dyke (Dv): fine grained green dyke, hematite staining, quartz carbonate veining

- Granodiorite (Gd): medium grained gray granodiorite

- Quartz muscovite-biotite schist (PQMs): bedded, light to dark grey quartz mica schist containing minor disseminated pyrite and pyrrohtite, graphitic fracture faces, locally brecciated with minor white quartz and carbonate veining, weak to heavy limonite staining.

- Quartz sericite schist (PQSs): bedded, rusty weathering, schist containing minor pyrite and pyrrhotite on faces. Minor galena and sphalerite in quartz bands in the schist.

- Quartz carbonate (PQc): layers in schist of white to gray rock, containing minor galena.

MINERALIZATION

Detailed prospecting of the claims found only minor occurrences of galena and sphalerite. Of 80 samples collected, 6 contained minor galena and sphalerite. Most of the samples were quartz bands in schist containing minor pyrrhotite and pyrite, or barren white bull quartz. The writer examined two small galena sphalerite showings consisting of medium grained sulphide veins in carbonate bands within the schist. The showing locations are marked on Figure 5.

GEOCHEMISTRY

Copper, lead and zinc geochemical results are shown in figures 7, 8 & 9. The geochemistry outlined four moderate strength anomalies labeled A-D on the Compilation Map, Figure 6. The response for copper ranges from a minimum of 2ppm to 1430ppm. A moderate anomaly 400 x 1400 meters of > 100ppm copper trends northwest-southeast in the south center area of the claims. This anomaly contains three zones of strongly anomalous copper values. The most significant of these (Anomaly A) is a 300 x 400 meter area of >250ppm copper centered at L24+00E, 21+00N. Anomalous lead and zinc values at Anomaly A are over a smaller area but reach peak values of 930ppm lead and ppm zinc. A second strong zone (Anomaly B) in the broad copper anomaly is centered at L17+00E, 26+00N. Copper values reach a peak of 950ppm while lead and zinc values are strongly anomalous and cover a larger area at Anomaly B. Lead values peak at 2040ppm and zinc reaches a high of ppm.

Anomaly C is a patchy copper response on a north facing slope above Camp Creek. Coincident moderate strength lead and zinc anomalies are centered at L28+00E, 29+00N. Anomaly D at the east end of the grid has a moderate strength copper and zinc response centered at L36+00E, 31+00N.

GEOPHYSICAL SURVEYS

Magnetometer and electomagnetic survey results are summarized on the compilation map, Figure 6. The airborne magnetic survey showed several areas of high magnetism. Field examination of these areas found schists containing 1-5% disseminated pyrrhotite. Magnetic lows correlate to areas underlain by schist containing quartz carbonate bands and no pyrrhotite.

The results of the ground geophysical surveys have been evaluated by M. Power, P. Geoph. in a memo presented in Appendix II. In summary, the magnetic survey outlined a magnetic gradient of 400 nT showing a few spot highs and lows. A magnetic dipole at L16+00E, 25+70N coincides with a galena sphalerite showing and geochemical anomaly B. Overburden is fairly shallow in this area and it may be possible to expose bedrock by blast trenching. Expanded magnetometer coverage is also suggested around the dipole.

The max-min (HLEM) survey located two significant conductive responses. Conductor A from L28+00E, 22+70N to L25+00E, 22+30N appears to be a northerly dipping tabular conductor with footwall alteration on the south side of the conductor axis. The western end of conductor A coincides with a strong copper-lead-zinc geochemical feature (anomaly A).

Conductor B extends from L38+00E, 29+50N to L36+00E, 30+00N with a response resembling a northerly dipping tabular feature. A moderate copper-zinc geochemical anomaly (anomaly D) correlates with conductor B.

DISCUSSION AND RECOMMENDATIONS

The geochemical, geophysical and mapping work on the 1st Base claims have outlined several promising areas that may host massive sulphide mineralization. Anomalous geochemical features A to D and geophysical conductors A and B are the main targets for future evaluation as follows:

Target I: copper geochemical values >250ppm over a 400 x 300 meter area, strong lead and zinc geochemical values and a strong HLEM response (conductor A). This target should be examined to establish local geology, strike and dip, and for potential sulphide mineralization. Diamond drilling is recommended if sulphide mineralization is found in the target area. If the geology is found to be northerly dipping or if the conductor is covered in overburden the target should be drilled from sites located at grid co-ordinates L26+00E, 22+75N and L28+00E, 23+20N with drill hole orientation of -60° on a 180° azimuth. If the geology is contrary to the dip interpreted from the HLEM survey then drill sites and orientation should be repositioned.

Target II: moderately anomalous copper and zinc geochemistry (anomaly D), and HLEM conductor B. Geological follow-up is recommended to evaluate the feature with the possibility of blast trenching or drilling if warranted.

Target III: copper-lead-zinc geochemical anomaly B coincides with a magnetic dipole at L16+00E, 25+70N. Ground mapping and sampling followed by blast trenching or drilling if warranted.

The following exploration program is recommended.

PROPOSED EXPLORATION PROGRAM

Surface examination of geochemical and geophysical anomalies followed by diamond drilling or trenching at two to four sites. Mobilization of a lightweight diamond drill or a Kubota back hoe by helicopter from the Cominco camp located 20 kilometers east of the 1st Base claims.

Diamond drilling, 400m or Kubota trenching	**45,000**
Geological supervision	**15,000**
Surface exploration	**7,500**
Geophysical surveys	**10,000**
Camp and support	**25,000**
Transportation, helicopter, 75 hours	**56,250**
floatplane	**20,000**
Geochemistry, assays	**2,250**
Report & assessment	**9,000**
Contingency, 15%	**30,000**
TOTAL	**$220,000**

CERTIFICATE

I, GRAHAM DAVIDSON, of the City of Whitehorse in the Yukon Territory, HEREBY CERTIFY:

1. That I am a consulting geologist and that I participated in the work program reviewed in this report.

2. That I am a graduate of the University of Western Ontario (H. BSc., Geology, 1981).

3. That I am registered as a Professional Geologist by the Association of Professional Engineers, Geologists and Geophysicists of Alberta (No.42038).

4. That I have been engaged in mineral exploration for fourteen years in the Yukon, the Northwest Territories and British Columbia.

SIGNED at Whitehorse, Yukon, this 10th day of January, 1997.

G.S. DAVIDSON, P. Geol.

REFERENCES

Johnston S. & Mortenson J.,1994; Regional setting of porphyry Cu-Mo deposits, volcanogenic massive sulphide deposits, and mesothermal gold deposits in the Yukon-Tanana terrane, Yukon

Temple Man Kluit D., 1975, Open File 486

Yukon Minfile, DIAND, 1995

1st BASE-STATEMENT OF COSTS Period: July 12-September 16, 1996

Personnel:	
Project Supervisor	
Blake Macdonald, 26 days @ $350/day	9,450.00
Geologists	
Glen Macdonald, senior geologist, 3 days @ $400/day	1,200.00
Graham Davidson, geological mapping, 2 days @ 300/day	600.00
Prospector	
J.P. Loiselle, 31 days @ $250/day	7,750.00
Linecutters & soil samplers	
Brandon Macdonald, 35 days @ $180/day	5,940.00
Greg Adamson, 37 days @ $150/day	5,100.00
Dylan Godwin, 23 days @ $150/day	3,000.00
Zackery Witham, 14.5 days @ $150/day	2,025.00
Barclay Macdonald, 8 days @ $150/day	1,050.00
Matt Jackson, 9 days @ $150/day	1,050.00
Monty, 2 day @ $150/day	300.00
Phil Atkinson, 1 day @ $220/day	220.00
Cook	
Carol Matsen, 35days @ $190/day	6,650.00
Total Wages	**46,195.00**
Transportation: Float planes, Black Sheep Aviation Ltd.	12,266.27
Helicopter, Trans North Air Ltd.	23,078.38
Total Transport	**35,344.65**
Supplies and expediting:	3,730.06
Camp mob and demob:	7,522.47
Camp costs:	8,770.74
Communications:	2,808.12
Total Camp	**22,831.39**
Truck and fuel:	2,549.44
Analytical services: Camtech Labs Inc.	9,033.20
Geophysical surveys: Aerodat-SJ Geophysical Ltd.	5,457.00
Llyod Geophysics Inc.	
Report and drafting:	3,500.00
TOTAL COSTS	**$119,453.68**

APPENDIX I

ASSAY CERTIFICATES

CanTech *Laboratories Inc.*

4200B - 10 Street N.E.
Calgary, Alberta
Canada T2E 6K3
Tel (403) 250-1901
Fax (403) 250-8265

KETZA GROUP
Suite 609, 475 Howe Street
Vancouver, B.C.
V6C 2B3

Attention: Blake Macdonald

Certificate of Analysis

Work Order: 9791A-96
Date: August 20, 1996

Sample Number			Cu ppm	Pb ppm	Zn ppm
12E	1700	N	14	4	21
12E	1750	N	31	12	93
12E	1800	N	34	23	124
12E	1850	N	15	5	23
12E	1900	N	100	69	162
12E	1950	N	99	28	113
12E	2000	N	15	90	219
12E	2050	N	40	<2	135
12E	2100	N	52	8	182
12E	2150	N	55	8	165
12E	2200	N	65	153	243
12E	2250	N	15	12	41
12E	2300	N	27	7	84
12E	2350	N	25	4	89
12E	2400	N	34	3	78
12E	2450	N	77	16	156
12E	2500	N	89	24	417
12E	2550	N	98	46	240
12E	2600	N	81	14	201
12E	2650	N	MS	MS	MS
12E	2700	N	69	51	191
12E	2750	N	20	3	64
12E	2800	N	92	75	287
12E	2850	N	26	70	180
12E	2900	N	14	2	88
12E	2950	N	49	41	330
12E	3000	N	45	16	132
18E	1700	N	25	4	46
18E	1750	N	7	4	13
18E	1800	N	69	159	450
18E	1850	N	24	46	83
18E	1900	N	20	24	86
18E	1950	N	55	117	396
18E	2000	N	48	53	267
18E	2050	N	31	141	179
18E	2100	N	36	124	285
18E	2150	N	36	50	182
18E	2200	N	79	35	83
18E	2250	N	28	42	101
18E	2300	N	29	62	328
18E	2350	N	53	535	1510
18E	2400	N	64	121	152
18E	2450	N	97	46	270
18E	2500	N	58	31	88
18E	2550	N	905	335	319
18E	2600	N	203	139	1080
18E	2650	N	64	40	1740
18E	2700	N	82	71	798
18E	2750	N	117	750	642
18E	2800	N	94	370	750

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Work Order: 9791A-96
Date: August 20, 1996

Sample Number			Cu ppm	Pb ppm	Zn ppm
18E	2850	N	79	275	446
18E	2900	N	88	350	788
18E	2950	N	76	146	875
18E	3000	N	68	255	395
22E	1700	N	16	8	38
22E	1750	N	59	35	174
22E	1800	N	5	3	11
22E	1850	N	72	27	247
22E	1900	N	100	51	115
22E	1950	N	89	130	118
22E	2000	N	145	21	74
22E	2050	N	146	22	70
22E	2100	N	138	11	43
22E	2150	N	126	13	64
22E	2200	N	101	14	76
22E	2250	N	46	161	498
22E	2300	N	158	54	1040
22E	2350	N	135	575	1250
22E	2400	N	170	46	812
22E	2450	N	87	148	725
22E	2500	N	138	46	850
22E	2550	N	45	32	344
22E	2600	N	89	16	153
22E	2650	N	109	40	178
22E	2700	N	91	28	182
22E	2750	N	87	112	196
22E	2800	N	90	64	261
22E	2850	N	189	26	197
22E	2900	N	156	19	189
22E	2950	N	72	8	204
22E	3000	N	218	45	510
22E	3050	N	155	28	312
22E	3100	N	184	40	348
22E	3150	N	115	152	565
22E	3200	N	19	16	37
22E	3250	N	42	14	59
22E	3300	N	43	49	93
22E	3350	N	19	18	74
22E	3400	N	21	13	56
22E	3450	N	18	15	71
22E	3500	N	26	23	94
14E	1700	N	55	55	290
14E	1750	N	16	11	39
14E	1800	N	26	17	72
14E	1850	N	33	17	99
14E	1900	N	35	16	103
14E	1950	N	107	28	98
14E	2000	N	12	6	10
14E	2050	N	34	18	86
14E	2100	N	47	12	40

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Sample Number			Cu ppm	Pb ppm	Zn ppm
14E	2150	N	98	19	73
14E	2200	N	287	24	37
14E	2250	N	62	5	132
14E	2300	N	29	20	108
14E	2350	N	50	4	107
14E	2400	N	64	8	124
14E	2450	N	80	11	101
14E	2500	N	178	31	284
14E	2550	N	69	26	191
14E	2600	N	66	47	192
14E	2650	N	94	214	550
14E	2700	N	167	316	850
14E	2750	N	130	117	282
14E	2800	N	129	27	156
14E	2850	N	57	11	178
14E	2900	N	76	52	205
14E	2950	N	130	50	536
14E	3000	N	69	335	540
28E	1700	N	20	15	55
28E	1750	N	50	67	175
28E	1800	N	13	6	42
28E	1850	N	12	7	31
28E	1900	N	35	98	104
28E	1950	N	8	3	17
28E	2000	N	4	<2	6
28E	2050	N	26	17	82
28E	2100	N	57	9	108
28E	2150	N	37	22	83
28E	2200	N	14	8	50
28E	2250	N	63	28	131
28E	2300	N	4	2	4
28E	2350	N	31	68	305
28E	2400	N	16	22	139
28E	2450	N	23	36	435
28E	2500	N	50	121	410
28E	2550	N	14	35	121
28E	2600	N	16	33	230
28E	2650	N	25	83	341
28E	2700	N	18	16	90
28E	2750	N	25	24	516
28E	2800	N	82	555	925
28E	2850	N	209	350	830
28E	2900	N	254	265	849
28E	2950	N	176	235	418
28E	3000	N	19	7	43
28E	3050	N	100	45	247
28E	3100	N	94	18	129
28E	3150	N	59	5	161
28E	3200	N	166	4	120
28E	3250	N	170	8	197

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Sample Number			Cu ppm	Pb ppm	Zn ppm
28E	3300	N	105	5	126
28E	3350	N	81	8	115
28E	3400	N	34	46	64
28E	3450	N	102	10	161
28E	3500	N	69	7	162
20W	1600	S	72	2	50
20W	1650	S	75	2	58
20W	1700	S	81	<2	57
20W	1750	S	54	2	35
20W	1800	S	52	3	35
20W	1850	S	47	10	45
20W	1900	S	40	24	108
20W	1950	S	48	18	110
20W	2000	S	25	11	83
20W	2050	S	85	24	249
20W	2100	S	MS	MS	MS
20W	2150	S	91	46	364
22W	1600	S	69	2	75
22W	1650	S	78	2	73
22W	1700	S	60	4	60
22W	1750	S	75	3	45
22W	1800	S	73	8	78
22W	1850	S	27	8	57
22W	1900	S	47	6	75
22W	1950	S	42	11	80

Sample Number			Cu ppm	Pb ppm	Zn ppm
22W	2000	S	45	14	92
22W	2050	S	38	2	39
22W	2100	S	96	44	293
16E	2000	N	29	63	118
16E	2050	N	49	41	415
16E	2100	N	59	43	245
16E	2150	N	25	194	220
16E	2200	N	30	220	645
16E	2250	N	52	165	738
16E	2300	N	67	146	1100
16E	2350	N	86	255	804
16E	2400	N	104	250	1250
16E	2450	N	101	295	875
16E	2500	N	156	40	460
16E	2550	N	31	12	100
16E	2600	N	82	146	2020
16E	2650	N	98	2040	3350
16E	2700	N	54	84	293
16E	2750	N	161	156	1180
16E	2800	N	216	23	142
16E	2850	N	33	19	61
16E	2900	N	68	12	167
16E	2950	N	204	100	365
16E	3000	N	78	49	167
24E	1700	N	43	28	88

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Sample Number			Cu ppm	Pb ppm	Zn ppm
24E	1750	N	19	14	47
24E	1800	N	40	13	113
24E	1850	N	42	14	82
24E	1900	N	169	63	229
24E	1950	N	128	51	120
24E	2000	N	917	107	710
24E	2050	N	184	930	494
24E	2100	N	402	31	192
24E	2150	N	558	67	245
24E	2200	N	344	23	92
24E	2250	N	175	12	128
24E	2300	N	140	69	462
24E	2350	N	134	78	486
24E	2400	N	193	38	285
24E	2450	N	110	15	143
24E	2500	N	54	24	174
24E	2550	N	300	81	412
24E	2600	N	92	28	210
24E	2650	N	80	27	81
24E	2700	N	66	24	60
24E	2750	N	67	25	138
24E	2800	N	89	23	350
24E	2850	N	160	17	240
24E	2900	N	171	6	122
24E	2950	N	314	150	322

Sample Number			Cu ppm	Pb ppm	Zn ppm
24E	3000	N	168	17	286
24E	3050	N	163	11	149
24E	3100	N	132	32	188
24E	3150	N	38	6	57
24E	3200	N	90	18	177
24E	3250	N	117	22	186
24E	3300	N	122	21	234
24E	3350	N	13	12	59
24E	3400	N	11	4	17
24E	3450	N	21	12	78
24E	3500	N	17	4	25
30E	1700	N	5	2	9
30E	1750	N	34	3	64
30E	1800	N	74	7	42
30E	1850	N	25	4	23
30E	1900	N	8	<2	20
30E	1950	N	24	5	54
30E	2000	N	5	5	10
30E	2050	N	8	4	22
30E	2100	N	38	10	88
30E	2150	N	25	11	90
30E	2200	N	3	<2	6
30E	2250	N	18	9	43
30E	2300	N	19	10	53
30E	2350	N	47	49	314

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Sample Number			Cu ppm	Pb ppm	Zn ppm
30E	2400	N	42	55	326
30E	2450	N	47	46	256
30E	2500	N	35	50	294
30E	2550	N	6	10	74
30E	2600	N	17	51	200
30E	2650	N	11	23	103
30E	2700	N	38	38	175
30E	2750	N	20	6	34
30E	2800	N	48	163	346
30E	2850	N	184	75	1610
30E	2900	N	262	76	2440
30E	2950	N	388	74	1890
30E	3000	N	28	35	153
30E	3050	N	26	45	161
30E	3100	N	64	35	310
30E	3150	N	19	14	66
30E	3200	N	46	10	103
30E	3250	N	25	7	64
30E	3300	N	14	5	39
30E	3350	N	38	4	104
30E	3400	N	123	11	236
30E	3450	N	28	8	27
30E	3500	N	MS	MS	MS
32W	1600	S	47	4	71
32W	1650	S	24	3	34
32W	1700	S	75	8	156
32W	1750	S	88	13	170
32W	1800	S	103	14	210
32W	1850	S	109	14	190
32W	1900	S	144	27	282
32W	1950	S	72	36	220
32W	2000	S	69	15	170
32W	2050	S	100	52	198
32W	2100	S	106	76	252
32W	2150	S	106	39	318
32W	2200	S	30	8	47
32W	2250	S	39	5	99
32W	2300	S	100	95	198
32W	2350	S	89	22	180
32W	2400	S	73	21	214
32W	2450	S	35	13	86
32W	2500	S	38	5	48
32W	2550	S	84	71	323
32W	2600	S	47	51	227
32W	2650	S	25	5	70
32W	2700	S	69	8	124
32W	2750	S	26	7	92
32W	2800	S	77	79	440
32W	2850	S	66	87	339
32W	2900	S	102	40	210

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Sample Number			Cu ppm	Pb ppm	Zn ppm
28W	2650	S	MS	MS	MS
28W	2700	S	111	97	440
28W	2750	S	138	81	645
28W	2800	S	220	51	318
28W	2850	S	154	354	980
28W	2900	S	145	359	1010
20E	1700	N	43	11	22
20E	1750	N	27	12	73
20E	1800	N	4	2	11
20E	1850	N	45	11	67
20E	1900	N	10	<2	25
20E	1950	N	140	6	102
20E	3050	N	9	3	49
20E	3100	N	33	29	114
20E	3150	N	102	20	160
20E	3200	N	86	18	124
20E	3250	N	16	17	35
20E	3300	N	24	10	113
20E	3350	N	22	32	104
20E	3400	N	19	18	59
20E	3450	N	59	68	237
20E	3500	N	32	42	93
20E	3550	N	23	17	56
20E	3600	N	25	13	76
20E	3650	N	32	12	91
20E	3700	N	13	3	35
20E	3750	N	31	19	112
20E	3800	N	15	6	57
20E	3850	N	10	13	54
20E	3900	N	9	4	25
20E	3950	N	26	12	71
20E	4000	N	28	11	86
20E	4050	N	20	6	54
20E	4100	N	22	5	78
20E	4150	N	26	10	84
20E	4200	N	21	7	73
20E	4250	N	23	6	63
20E	4300	N	26	8	90
20E	4350	N	23	9	62
20E	4400	N	10	5	21
20E	4450	N	49	18	151
20E	4500	N	25	6	57
20E	4550	N	47	13	136
20E	4600	N	25	9	64
20E	4650	N	16	5	32
20E	4700	N	27	11	63
20E	4750	N	9	12	15
20E	4800	N	6	3	12
20E	4850	N	9	4	26
20E	4900	N	12	13	31

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Sample Number			Cu ppm	Pb ppm	Zn ppm
20E	4950	N	35	8	97
20E	5000	N	25	3	79
20E	5050	N	24	15	97
20E	5100	N	15	7	27
20E	5150	N	26	12	51
20E	5200	N	58	31	121
20E	5250	N	41	16	101
20E	5300	N	34	25	76
36E	2350	N	21	20	93
36E	2400	N	24	27	100
36E	2450	N	14	11	76
36E	2500	N	30	16	132
36E	2550	N	19	12	118
36E	2600	N	48	4	150
36E	2650	N	15	8	116
36E	2700	N	36	39	171
36E	2750	N	48	147	630
36E	2800	N	33	56	172
36E	2850	N	81	26	133
36E	2900	N	117	15	176
36E	2950	N	344	28	334
36E	3000	N	355	92	520
36E	3050	N	350	44	690
36E	3100	N	265	43	495
36E	3150	N	250	40	490

Sample Number			Cu ppm	Pb ppm	Zn ppm
36E	3200	N	178	37	430
36E	3250	N	170	32	405
36E	3300	N	191	42	420
36E	3350	N	172	36	425
36E	3400	N	133	33	335
36E	3450	N	130	25	213
36E	3500	N	302	64	256

CanTech Laboratories, Inc.

Signed: [signature]
Richard Magner
Laboratory Supervisor

CanTech *Laboratories Inc.*

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Sample Number			Cu ppm	Pb ppm	Zn ppm	Sample Number			Cu ppm	Pb ppm	Zn ppm
36E	1700	N	34	29	113	24W	2150	S	58	5	62
36E	1750	N	26	15	78	30W	2950	S	61	<2	50
36E	1800	N	27	10	77	30W	3000	S	72	10	123
36E	1850	N	2	<2	4	30W	3050	S	163	23	295
36E	1900	N	16	5	41	30W	3100	S	138	29	470
36E	1950	N	8	<2	28	30W	3150	S	95	21	312
28W	2950	S	132	288	925	30W	3200	S	49	21	198
28W	3000	S	260	51	962	30W	3250	S	45	26	237
28W	3050	S	286	40	291	30W	3300	S	118	49	303
28W	3100	S	352	27	395	26W	1600	S	147	10	154
28W	3150	S	297	14	399	26W	1650	S	145	14	153
28W	3200	S	255	23	379	26W	1700	S	220	34	208
28W	3250	S	250	15	302	26W	1750	S	178	29	124
28W	3300	S	292	34	408	26W	1800	S	94	15	158
24W	1600	S	72	53	230	26W	1850	S	85	11	151
24W	1650	S	66	21	183	26W	1900	S	35	10	101
24W	1700	S	43	20	134	26W	1950	S	109	8	185
24W	1750	S	MS	MS	MS	26W	2000	S	44	62	225
24W	1800	S	33	32	111	26W	2050	S	40	16	316
24W	1850	S	89	20	215	26W	2100	S	135	11	191
24W	1900	S	72	11	128	26W	2950	S	171	235	1220
24W	1950	S	68	7	157	26W	3000	S	225	336	630
24W	2000	S	47	10	94	26W	3050	S	322	68	677
24W	2050	S	69	22	146	26W	3100	S	296	30	348
24W	2100	S	112	17	234	26W	3150	S	455	238	629

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Sample Number			Cu ppm	Pb ppm	Zn ppm
26W	3200	S	330	70	690
26W	3250	S	323	72	802
26W	3300	S	273	59	536
20E	2000	N	74	8	95
20E	2050	N	90	13	68
20E	2100	N	106	12	92
20E	2150	N	53	12	67
20E	2200	N	27	27	164
20E	2250	N	13	20	63
20E	2300	N	50	102	318
20E	2350	N	57	153	330
20E	2400	N	49	24	144
20E	2450	N	201	79	2030
20E	2500	N	186	135	895
20E	2550	N	82	196	510
20E	2600	N	131	85	568
20E	2650	N	MS	MS	MS
20E	2700	N	92	94	505
20E	2750	N	80	89	403
20E	2800	N	89	66	398
20E	2850	N	188	630	1790
20E	2900	N	101	361	706
20E	2950	N	34	50	151
20E	3000	N	18	16	69
26E	1700	N	26	12	68

Sample Number			Cu ppm	Pb ppm	Zn ppm
26E	1750	N	25	21	70
26E	1800	N	28	44	82
26E	1850	N	63	90	212
26E	1900	N	45	30	260
26E	1950	N	35	33	135
26E	2000	N	163	47	336
26E	2050	N	64	18	199
26E	2100	N	412	73	570
26E	2150	N	293	55	372
26E	2200	N	141	25	319
26E	2250	N	46	21	123
26E	2300	N	20	7	86
26E	2350	N	99	38	202
26E	2400	N	103	27	167
26E	2450	N	93	44	206
26E	2500	N	70	27	177
26E	2550	N	62	14	124
26E	2600	N	37	19	95
26E	2650	N	25	67	116
26E	2700	N	10	38	125
26E	2750	N	11	19	86
26E	2800	N	32	36	195
26E	2850	N	13	9	43
26E	2900	N	87	70	249
26E	2950	N	59	42	230

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Work Order: 9791B-96
Date: August 22, 1996

Sample Number			Cu ppm	Pb ppm	Zn ppm
26E	3000	N	90	29	161
26E	3050	N	89	38	260
26E	3100	N	68	10	162
26E	3150	N	93	31	217
26E	3200	N	81	21	172
26E	3250	N	29	2	73
26E	3300	N	11	2	14
26E	3350	N	79	7	111
26E	3400	N	20	52	104
26E	3450	N	18	10	45
26E	3500	N	67	33	170
32E	1700	N	25	8	82
32E	1750	N	2	3	23
32E	1800	N	6	4	22
32E	1850	N	15	3	45
32E	1900	N	16	5	47
32E	1950	N	7	4	28
32E	2000	N	9	2	23
32E	2050	N	22	6	69
32E	2100	N	28	7	93
32E	2150	N	9	8	48
32E	2200	N	16	7	68
32E	2250	N	15	10	46
32E	2300	N	15	13	59
32E	2350	N	19	2	63
32E	2400	N	10	7	37
32E	2450	N	25	20	71
32E	2500	N	18	12	66
32E	2550	N	10	14	68
32E	2600	N	10	8	85
32E	2650	N	5	9	53
32E	2700	N	9	9	71
32E	2750	N	16	14	117
32E	2800	N	159	75	503
32E	2850	N	32	39	259
32E	2900	N	29	36	286
32E	2950	N	61	78	391
32E	3000	N	45	67	367
32E	3050	N	50	43	243
32E	3100	N	32	27	155
32E	3150	N	47	52	249
32E	3200	N	51	33	243
32E	3250	N	114	27	232
32E	3300	N	6	4	27
32E	3350	N	13	7	59
32E	3400	N	5	<2	29
32E	3450	N	29	3	93
32E	3500	N	49	11	118
34E	1700	N	30	6	96
34E	1750	N	MS	MS	MS

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Sample Number			Cu ppm	Pb ppm	Zn ppm
34E	1800	N	<2	<2	8
34E	1850	N	3	2	9
34E	1900	N	7	5	25
34E	1950	N	16	15	75
34E	2000	N	24	13	77
34E	2050	N	13	8	50
34E	2100	N	15	9	51
34E	2150	N	2	2	5
34E	2200	N	3	4	10
34E	2250	N	2	3	5
34E	2300	N	6	5	26
34E	2350	N	7	6	36
34E	2400	N	4	3	20
34E	2450	N	13	6	57
34E	2500	N	15	7	64
34E	2550	N	18	8	81
34E	2600	N	51	13	163
34E	2650	N	10	21	51
34E	2700	N	9	15	82
34E	2750	N	15	14	80
34E	2800	N	11	10	93
34E	2850	N	11	9	86
34E	2900	N	25	13	71
34E	2950	N	MS	MS	MS
34E	3000	N	146	50	314

Sample Number			Cu ppm	Pb ppm	Zn ppm
34E	3050	N	70	71	478
34E	3100	N	77	51	273
34E	3150	N	90	40	228
34E	3200	N	106	22	180
34E	3250	N	547	10	166
34E	3300	N	186	18	151
34E	3350	N	170	46	152
34E	3400	N	165	31	231
34E	3450	N	189	29	226
34E	3500	N	34	23	139
38E	1700	N	51	4	38
38E	1750	N	46	8	123
38E	1800	N	28	7	90
38E	1850	N	78	17	137
38E	1900	N	35	11	94
38E	1950	N	30	6	69
38E	2000	N	34	8	120
38E	2050	N	MS	MS	MS
38E	2100	N	43	11	125
38E	2150	N	2	2	12
38E	2200	N	21	9	104
38E	2250	N	16	8	74
38E	2300	N	20	12	94
38E	2350	N	6	5	38
38E	2400	N	10	10	38

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Sample Number			Cu ppm	Pb ppm	Zn ppm
38E	2450	N	20	8	80
38E	2500	N	27	5	105
38E	2550	N	23	3	100
38E	2600	N	38	29	148
38E	2650	N	12	4	27
38E	2700	N	46	8	46
38E	2750	N	121	3	39
38E	2800	N	82	10	163
38E	2850	N	107	33	257
38E	2900	N	104	40	182
38E	2950	N	598	51	459
38E	3000	N	102	8	382
38E	3050	N	91	9	174
38E	3100	N	72	21	250
38E	3150	N	335	82	547
38E	3200	N	82	40	258
38E	3250	N	79	30	292
38E	3300	N	95	24	235
38E	3350	N	122	47	359
38E	3400	N	154	32	507
38E	3450	N	240	45	500
38E	3500	N	135	56	404
39E	1700	N	42	10	121
39E	1750	N	41	8	107
39E	1800	N	36	8	116

Sample Number			Cu ppm	Pb ppm	Zn ppm
39E	1850	N	42	9	102
39E	1900	N	32	9	103
39E	1950	N	4	2	15
39E	2000	N	45	6	69
39E	2050	N	10	<2	37
39E	2100	N	MS	MS	MS
39E	2150	N	5	9	24
39E	2200	N	4	3	16
39E	2250	N	10	2	22
39E	2300	N	7	4	17
39E	2350	N	4	5	9
39E	2400	N	3	4	8
39E	2450	N	6	4	12
39E	2500	N	17	8	38
39E	2550	N	4	2	5
39E	2600	N	5	3	12
39E	2650	N	40	13	107
39E	2700	N	12	4	19
39E	2750	N	45	15	200
39E	2800	N	65	33	261
39E	2850	N	30	16	96
39E	2900	N	47	14	198
39E	2950	N	41	13	255
39E	3000	N	140	39	277
40E	3050	N	232	52	296

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Sample Number			Cu ppm	Pb ppm	Zn ppm
40E	3100	N	65	20	201
40E	3150	N	51	8	127
40E	3200	N	38	9	139
40E	3250	N	11	5	46
40E	3300	N	32	18	73
40E	3350	N	11	6	23
40E	3400	N	16	11	46
40E	3450	N	13	12	35
40E	3500	N	10	5	22

Sample Number	Cu ppm	Pb ppm	Zn ppm

CanTech Laboratories, Inc.

Signed: ____________
Richard Magner
Laboratory Supervisor

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Work Order: 9797-96
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Sample Number		Cu ppm	Pb ppm	Zn ppm
8E	2600 N	60	9	178
8E	2650 N	64	10	189
8E	2700 N	72	49	355
8E	2750 N	44	8	78
8E	2800 N	24	10	93
8E	2850 N	15	9	44
8E	2900 N	80	2	51
8E	2950 N	68	<2	75
8E	3000 N	65	6	49
8E	3050 N	46	4	54
8E	3100 N	60	3	55
8E	3150 N	11	<2	86
8E	3200 N	39	17	124
8E	3250 N	63	79	740
8E	3300 N	MS	MS	MS
8E	3350 N	31	23	204
8E	3400 N	45	43	515
8E	3450 N	52	67	750
8E	3500 N	44	26	214
8E	3550 N	73	11	82
8E	3600 N	44	33	102
8E	3650 N	MS	MS	MS
8E	3700 N	141	550	585
8E	3750 N	112	23	162
8E	3800 N	46	11	275
8E	3850 N	16	7	45
8E	3900 N	69	12	172
8E	3950 N	52	21	138
8E	4000 N	68	19	114
8E	4050 N	64	20	150
8E	4100 N	69	16	124
8E	4150 N	154	12	135
8E	4200 N	41	22	86
8E	4250 N	57	17	108
8E	4300 N	39	9	96
8E	4350 N	24	8	102
8E	4400 N	27	8	73
8E	4450 N	28	5	70
8E	4500 N	50	4	105
8E	4550 N	37	5	88
8E	4600 N	38	<2	109
8E	4650 N	32	<2	83
8E	4700 N	32	18	79
8E	4750 N	28	3	91
8E	4800 N	33	3	69
8E	4850 N	25	<2	73
8E	4900 N	26	<2	49
8E	4950 N	31	<2	70
17E	1700 N	4	<2	15
17E	1750 N	18	20	100

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Sample Number		Cu ppm	Pb ppm	Zn ppm
17E	1800 N	38	94	224
17E	1850 N	56	140	600
17E	1900 N	21	29	109
17E	1950 N	24	108	135
17E	2000 N	138	320	870
17E	2050 N	24	51	151
17E	2100 N	83	910	865
17E	2150 N	18	48	95
17E	2200 N	132	190	420
17E	2250 N	30	145	395
17E	2300 N	26	101	245
17E	2350 N	25	155	495
17E	2400 N	72	280	1250
17E	2450 N	100	170	1050
17E	2500 N	156	360	5700
17E	2550 N	78	108	840
17E	2600 N	218	350	3400
17E	2650 N	93	61	1940
17E	2700 N	490	1620	1720
17E	2750 N	91	620	815
17E	2800 N	145	770	925
17E	2850 N	111	375	615
17E	2900 N	86	210	515
17E	2950 N	56	96	1070
17E	3000 N	68	34	207

Sample Number		Cu ppm	Pb ppm	Zn ppm
19E	1700 N	23	32	115
19E	1750 N	56	17	112
19E	1800 N	51	12	98
19E	1850 N	70	8	138
19E	1900 N	110	13	165
19E	1950 N	256	29	171
19E	2000 N	79	44	158
19E	2050 N	44	43	99
19E	2100 N	154	124	195
19E	2150 N	33	95	244
19E	2200 N	55	67	126
19E	2250 N	72	53	202
19E	2300 N	38	61	590
19E	2350 N	30	63	199
19E	2400 N	22	26	70
19E	2450 N	33	63	203
19E	2500 N	8	10	108
19E	2550 N	250	98	1940
19E	2600 N	250	185	665
19E	2650 N	163	90	625
19E	2700 N	175	520	2130
19E	2750 N	89	180	900
19E	2800 N	90	305	575
19E	2850 N	96	315	685
19E	2900 N	40	56	210

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Sample Number		Cu ppm	Pb ppm	Zn ppm
19E	2950 N	72	130	490
19E	3000 N	71	180	685
21E	1700 N	16	9	42
21E	1750 N	71	26	216
21E	1800 N	64	11	59
21E	1850 N	42	26	74
21E	1900 N	87	31	196
21E	1950 N	91	16	111
21E	3050 N	64	83	360
21E	3100 N	20	8	98
21E	3150 N	18	11	93
21E	3200 N	94	17	175
21E	3250 N	244	14	222
21E	3300 N	14	9	56
21E	3350 N	51	19	123
21E	3400 N	37	32	114
21E	3450 N	118	120	210
21E	3500 N	53	37	144
23E	1700 N	39	27	118
23E	1750 N	39	26	73
23E	1800 N	69	104	121
23E	1850 N	86	180	118
23E	1900 N	53	53	84
23E	1950 N	78	28	99
23E	2000 N	515	26	149
23E	2050 N	440	78	189
23E	2100 N	555	48	191
23E	2150 N	260	8	96
23E	2200 N	295	16	206
23E	2250 N	129	49	620
23E	2300 N	132	140	630
23E	2350 N	182	101	580
23E	2400 N	235	40	375
23E	2450 N	320	41	460
23E	2500 N	93	39	830
23E	2550 N	570	15	137
23E	2600 N	49	26	73
23E	2650 N	39	25	41
23E	2700 N	56	146	208
23E	2750 N	47	50	198
23E	2800 N	148	92	228
23E	2850 N	169	17	248
23E	2900 N	190	17	252
23E	2950 N	196	50	355
23E	3000 N	173	42	271
23E	3050 N	174	35	314
23E	3100 N	128	29	257
23E	3150 N	250	32	317
23E	3200 N	54	11	263
23E	3250 N	142	180	615

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Sample Number		Cu ppm	Pb ppm	Zn ppm
23E	3300 N	51	80	260
23E	3350 N	13	15	60
23E	3400 N	13	19	52
23E	3450 N	14	13	45
23E	3500 N	17	8	64
25E	1700 N	36	21	75
25E	1750 N	26	60	73
25E	1800 N	20	20	75
25E	1850 N	27	18	122
25E	1900 N	57	30	204
25E	1950 N	61	34	111
25E	2000 N	550	104	280
25E	2050 N	395	101	395
25E	2100 N	1060	126	855
25E	2150 N	155	49	270
25E	2200 N	100	160	303
25E	2250 N	425	45	205
25E	2300 N	175	66	445
25E	2350 N	143	93	495
25E	2400 N	75	24	244
25E	2450 N	101	35	296
25E	2500 N	61	41	235
25E	2550 N	105	56	237
25E	2600 N	160	10	114
25E	2650 N	37	16	80
25E	2700 N	22	550	560
25E	2750 N	31	66	167
25E	2800 N	46	130	324
25E	2850 N	91	14	181
25E	2900 N	98	11	170
25E	2950 N	169	13	200
25E	3000 N	325	76	425
25E	3050 N	106	27	143
25E	3100 N	82	39	228
25E	3150 N	76	30	211
25E	3200 N	66	64	244
25E	3250 N	72	34	236
25E	3300 N	69	39	244
25E	3350 N	54	28	163
25E	3400 N	58	34	192
25E	3450 N	48	46	126
25E	3500 N	23	19	53
27E	1700 N	23	17	96
27E	1750 N	49	135	355
27E	1800 N	37	63	136
27E	1850 N	59	81	181
27E	1900 N	20	10	47
27E	1950 N	28	15	70
27E	2000 N	37	17	85
27E	2050 N	32	24	65

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27E	2100 N	60	28	146
27E	2150 N	21	14	71
27E	2200 N	53	41	142
27E	2250 N	29	8	66
27E	2300 N	21	10	72
27E	2350 N	143	51	172
27E	2400 N	61	39	244
27E	2450 N	23	78	149
27E	2500 N	31	184	161
27E	2550 N	43	64	253
27E	2600 N	38	57	355
27E	2650 N	34	55	375
27E	2700 N	33	49	875
27E	2750 N	29	41	555
27E	2800 N	43	95	985
27E	2850 N	305	103	565
27E	2900 N	177	245	715
27E	2950 N	33	107	395
27E	3000 N	79	101	370
27E	3050 N	43	41	156
27E	3100 N	124	12	115
27E	3150 N	81	5	101
27E	3200 N	112	11	118
27E	3250 N	150	5	124
27E	3300 N	102	9	145
27E	3350 N	107	5	144
27E	3400 N	176	11	188
27E	3450 N	1430	20	605
27E	3500 N	55	58	51
29E	1700 N	26	<2	49
29E	1750 N	18	6	45
29E	1800 N	22	8	69
29E	1850 N	39	4	38
29E	1900 N	36	11	48
29E	1950 N	27	16	71
29E	2000 N	9	11	23
29E	2050 N	31	23	126
29E	2100 N	30	16	74
29E	2150 N	32	14	87
29E	2200 N	33	12	102
29E	2250 N	32	15	93
29E	2300 N	94	31	269
29E	2350 N	21	27	140
29E	2400 N	49	38	256
29E	2450 N	55	38	316
29E	2500 N	24	106	330
29E	2550 N	17	47	321
29E	2600 N	21	97	333
29E	2650 N	24	67	291
29E	2700 N	34	12	1090*

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Sample Number		Cu ppm	Pb ppm	Zn ppm
29E	2750 N	58	29	515
29E	2800 N	MS	MS	MS
29E	2850 N	93	365	1000
29E	2900 N	246	170	1080
29E	2950 N	117	445	910
29E	3000 N	151	465	640
31E	1700 N	140	25	121
31E	1750 N	42	13	108
31E	1800 N	51	9	93
31E	1850 N	19	6	22
31E	1900 N	30	10	61
31E	1950 N	42	20	124
31E	2000 N	11	<2	20
31E	2050 N	9	2	16
31E	2100 N	26	28	63
31E	2150 N	9	2	15
31E	2200 N	29	16	66
31E	2250 N	22	11	59
31E	2300 N	20	18	46
31E	2350 N	15	15	58
31E	2400 N	39	16	154
31E	2450 N	50	22	149
31E	2500 N	70	11	177
31E	2550 N	31	34	115
31E	2600 N	20	16	68

Sample Number		Cu ppm	Pb ppm	Zn ppm
31E	2650 N	21	17	81
31E	2700 N	19	21	93
31E	2750 N	20	16	83
31E	2800 N	34	16	119
31E	2850 N	MS	MS	MS
31E	2900 N	MS	MS	MS
31E	2950 N	75	105	265
31E	3000 N	58	47	247
40 46E	1700 N	57	12	95
46E	1750 N	77	10	106
46E	1800 N	66	12	111
46E	1850 N	70	8	91
46E	1900 N	63	5	7
46E	1950 N	MS	MS	MS
46E	2000 N	5	<2	7
46E	2050 N	38	6	83
46E	2100 N	MS	MS	MS
46E	2150 N	9	2	17
46E	2200 N	21	7	40
46E	2250 N	30	15	99
46E	2300 N	11	<2	33
46E	2350 N	40	18	103
46E	2400 N	31	<2	78
46E	2450 N	21	50	84
46E	2500 N	7	<2	23

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Sample Number		Cu ppm	Pb ppm	Zn ppm
46E	2550 N	37	71	246
46E	2600 N	21	9	105
46E	2650 N	28	13	102
46E	2700 N	30	17	97
46E	2750 N	38	22	164
46E	2800 N	49	20	177
46E	2850 N	71	24	255
46E	2900 N	37	18	157
46E	2950 N	14	7	33
46E	3000 N	134	320	725

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Signed:__________________
Richard Magner,
Laboratory Manager

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Date: September 5, 1996

Sample Number	Cu ppm	Pb ppm	Zn ppm
BAS 1E 0 S	25	3	83
BAS 1E 1 S	22	<2	91
BAS 1E 2 S	102	4	149
BAS 1E 3 S	73	15	159
BAS 1E 4 S	58	20	128
BAS 1E 5 S	38	45	164
BAS 1E 6 S	48	10	189
BAS 1E 7 S	67	11	102
BAS 1E 8 S	20	10	119
BAS 1E 9 S	24	28	136
BAS 1E 10 S	33	24	141
BAS 1E 11 S	17	5	65
BAS 1E 12 S	16	2	106
BAS 1E 13 S	29	<2	82
BAS 1E 14 S	17	<2	88
BAS 1E 15 S	15	12	83
BAS 1E 16 S	16	14	91
BAS 1E 17 S	16	5	57
BAS 1E 18 S	19	7	78
BAS 1E 19 S	2	2	11
BAS 1E 20 S	4	<2	13
BAS 1E 21 S	3	2	18
BAS 1E 22 S	11	10	51
BAS 1E 23 S	7	2	24
BAS 1E 24 S	2	<2	34
BAS 1E 25 S	22	5	67
BAS 1E 26 S	16	5	66
BAS 1E 26 .+50S	18	8	103
BAS 1E 27 S(S)	15	7	112
BAS 1E 27 S	26	5	95
BAS 1E 28 S	6	6	29
BAS 1E 29 S	18	3	56
BAS 1E 30 S	MS	MS	MS
BAS 1E 31 S	17	11	53
BAS 1E 32 S	12	9	40
BAS 1E 33 S	21	7	51
BAS 1E 34 S	31	5	97
BAS 1E 35 S	40	4	104
KET 1E 0 S	25	7	80
KET 1E 1 S	27	6	101
KET 1E 2 S	27	11	83
KET 1E 3 S	13	2	83
KET 1E 4 S	17	9	72
KET 1E 5 S	4	2	24
KET 1E 6 S	21	<2	83
KET 1E 7 S	14	12	48
KET 1E 8 S	5	5	23
KET 1E 9 S	6	<2	12
KET 1E 10 S	4	<2	8
KET 1E 11 S	4	<2	21

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Sample Number	Cu ppm	Pb ppm	Zn ppm
KET 1E 12 S	6	<2	33
KET 1E 13 S	7	<2	36
KET 1E 14 S	4	2	16
KET 1E 15 S	7	<2	25
KET 1E 16 S	8	<2	25
KET 1E 17 S	55	12	139
KET 1E 18 S	15	<2	18
KET 1E 19 S	49	5	97
KET 1E 20 S	14	8	57
KET 1E 21 S	8	3	27
KET 1E 22 S	44	8	56
KET 1E 23 S	28	4	74
KET 1E 24 S	17	7	59
KET 1E 25 S	3	<2	8
KET 1E 26 S	10	<2	31
KET 1E 27 S	115	<2	136
KET 1E 28 S	268	<2	256
BAS 4E 0 S	13	3	39
BAS 4E 1 S	4	<2	4
BAS 4E 2 S	7	3	17
BAS 4E 3 S	6	<2	23
BAS 4E 3 .+66S	38	12	118
BAS 4E 4 S	15	7	49
BAS 4E 5 S	11	3	40
BAS 4E 6 S	14	9	38
BAS 4E 7 S	75	19	144
BAS 4E 8 S	81	32	187
BAS 4E 9 S	65	12	144
BAS 4E 10 S	63	<2	110
BAS 4E 11 S	66	7	130
BAS 4E 12 S	68	11	175
BAS 4E 13 S	31	8	52
BAS 4E 14 S	43	2	62
BAS 4E 15 S	36	21	79
BAS 4E 16 S	36	6	89
BAS 4E 17 S	60	7	101
BAS 4E 18 S	28	4	63
BAS 4E 19 S	33	5	73
BAS 4E 20 S	8	2	15
BAS 4E 21 S	MS	MS	MS
BAS 4E 22 S	16	2	64
BAS 4E 23 S	7	4	16
BAS 4E 24 S	12	5	25
BAS 4E 25 S	12	6	33
BAS 4E 25 .+27S	78	25	142
BAS 4E 26 S	9	<2	125
BAS 4E 27 S	86	23	141
BAS 4E 28 S	73	30	180
BAS 4E 29 S	15	14	44
BAS 4E 30 S	22	12	56

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Sample Number	Cu ppm	Pb ppm	Zn ppm
BAS 4E 31 S	11	9	31
BAS 4E 32 S	7	2	14
BAS 4E 33 S	11	2	21
BAS 4E 34 S	6	2	14
BAS 4E 35 S	7	3	13
BAS 4E 36 S	83	3	85
KET 3E 0 N	70	15	161
KET 3E 1 N	47	55	149
KET 3E 2 N	18	6	96
KET 3E 3 N	120	19	322
KET 3E 4 N	68	7	148
KET 3E 5 N	104	18	103
KET 3E 6 N	7	<2	28
KET 3E 7 N	24	29	38
KET 3E 8 N	72	26	76
KET 3E 9 N	75	54	266
KET 3E 10 N	100	39	306
KET 3E 11 N	141	35	262
KET 3E 12 N	51	20	100
KET 3E 13 N	50	24	135
KET 4E 0 S	24	45	79
KET 4E 1 S	31	42	72
KET 4E 2 S	69	31	238
KET 4E 3 S	74	41	197
KET 4E 4 S	72	104	232
KET 4E 5 S	101	166	930
KET 4E 6 S	40	42	124
KET 4E 7 S	34	41	95
KET 4E 8 S	50	12	114
KET 4E 9 S	52	14	85
KET 4E 10 S	45	15	76
KET 4E 11 S	34	13	65
KET 4E 12 S	29	16	72
KET 4E 13 S	58	3	100
KET 4E 14 S	62	4	81
KET 4E 15 S	70	<2	72
KET 4E 16 S	55	<2	56
KET 4E 17 S	79	<2	33
KET 4E 18 S	41	<2	40
KET 4E 19 S	53	19	71
KET 4E 20 S	53	<2	18
KET 4E 21 S	160	<2	34
KET 4E 22 S	225	<2	35
KET 4E 23 S	322	<2	47
KET 4E 24 S	430	<2	38
KET 4E 25 S	59	5	52
KET 4E 26 S	145	6	36
KET 4E 27 S	68	4	33
22W 2800 S	50	18	138
22W 2850 S	36	54	274

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Sample Number	Cu ppm	Pb ppm	Zn ppm	Sample Number	Cu ppm	Pb ppm	Zn ppm
22W 2900 S	25	15	99	4E 2750 N	57	93	288
22W 2950 S	38	18	126	4E 2800 N	90	34	303
22W 3000 S	35	32	174	4E 2850 N	14	8	37
22W 3050 S	21	16	142	4E 2900 N	66	13	212
22W 3100 S	89	138	812	4E 2950 N	119	7	102
22W 3150 S	104	106	654	4E 3000 N	10	7	49
22W 3200 S	102	250	430	4E 3050 N	62	6	84
22W 3250 S	87	69	385	4E 3100 N	55	7	83
22W 3300 S	MS	MS	MS	4E 3150 N	42	31	148
24W 2700 S	244	21	239	4E 3200 N	37	3	50
24W 2750 S	218	7	217	4E 3250 N	33	4	54
24W 2800 S	187	12	220	4E 3300 N	57	10	84
24W 2850 S	63	15	227	4E 3350 N	62	15	128
24W 2900 S	73	27	159	4E 3400 N	85	420	665
24W 2950 S	27	70	114	4E 3450 N	32	18	63
24W 3000 S	93	230	1890	4E 3500 N	26	10	49
24W 3050 S	56	215	1045	4E 3550 N	67	16	158
24W 3100 S	167	140	835	4E 3600 N	58	26	166
24W 3150 S	MS	MS	MS	4E 3650 N	39	19	81
24W 3200 S	118	230	2390	4E 3700 N	53	19	121
24W 3250 S	MS	MS	MS	4E 3750 N	62	42	163
24W 3300 S	128	170	840	4E 3800 N	52	24	139
4E 2600 N	64	61	231	4E 3850 N	29	3	26
4E 2650 N	38	23	152	4E 3900 N	45	23	119
4E 2700 N	27	30	188	4E 3950 N	32	19	108

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Sample Number	Cu ppm	Pb ppm	Zn ppm
4E 4000 N	47	39	139
4E 4050 N	28	31	100
4E 4100 N	37	24	124
4E 4150 N	41	19	104
4E 4200 N	46	13	129
4E 4250 N	46	11	115
4E 4300 N	41	9	107
4E 4350 N	59	14	110
4E 4400 N	42	14	121
4E 4450 N	17	8	52
4E 4500 N	43	15	115
4E 4550 N	MS	MS	MS
4E 4600 N	50	7	102
4E 4650 N	45	10	105
4E 4700 N	30	5	68
4E 4750 N	30	4	70
4E 4800 N	45	10	75
4E 4850 N	15	7	32
4E 4900 N	52	11	88
4E 4950 N	MS	MS	MS
4E 5000 N	35	<2	89
4E 5050 N	35	5	81
4E 5100 N	29	<2	80
4E 5150 N	31	<2	57
4E 5200 N	27	6	72

Sample Number	Cu ppm	Pb ppm	Zn ppm
4E 5250 N	28	4	66
4E 5300 N	34	2	75
6E 2600 N	137	51	296
6E 2650 N	45	39	192
6E 2700 N	27	65	167
6E 2750 N	19	8	18
6E 2800 N	8	2	5
6E 2850 N	8	3	8
6E 2900 N	37	12	104
6E 2950 N	12	4	8
6E 3000 N	118	13	106
6E 3050 N	59	5	66
6E 3100 N	64	6	82
6E 3150 N	57	5	55
6E 3200 N	30	10	56
6E 3250 N	50	24	234
6E 3300 N	33	7	97
6E 3350 N	42	4	77
6E 3400 N	47	8	101
6E 3450 N	49	9	100
6E 3500 N	60	9	137
6E 3550 N	96	12	99
6E 3600 N	64	26	150
6E 3650 N	44	14	101
6E 3700 N	100	52	258

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Sample Number		Cu ppm	Pb ppm	Zn ppm
13E	1700 N	68	12	153
13E	1750 N	74	14	155
13E	1800 N	50	6	44
13E	1850 N	23	11	68
13E	1900 N	24	22	120
13E	1950 N	13	9	70
13E	2000 N	19	91	41
13E	2050 N	11	18	21
13E	2100 N	26	88	90
13E	2150 N	27	15	133
13E	2200 N	33	6	138
13E	2250 N	45	7	127
13E	2300 N	27	9	126
13E	2350 N	54	5	119
13E	2400 N	22	14	68
13E	2450 N	46	19	163
13E	2500 N	59	15	166
13E	2550 N	51	7	192
13E	2600 N	44	24	165
13E	2650 N	59	22	190
13E	2700 N	97	33	271
13E	2750 N	96	192	660
13E	2800 N	91	52	225
13E	2850 N	76	17	201
13E	2900 N	78	23	243

Sample Number		Cu ppm	Pb ppm	Zn ppm
13E	2950 N	147	37	610
13E	3000 N	59	28	232
15E	1700 N	18	23	108
15E	1750 N	18	24	86
15E	1800 N	49	70	222
15E	1850 N	39	89	362
15E	1900 N	26	48	158
15E	1950 N	20	40	103
15E	2000 N	95	84	2300
15E	2050 N	41	63	162
15E	2100 N	26	91	182
15E	2150 N	48	100	510
15E	2200 N	23	66	229
15E	2250 N	11	45	112
15E	2300 N	44	106	460
15E	2350 N	61	120	1710
15E	2400 N	18	8	212
15E	2450 N	83	53	520
15E	2500 N	24	23	107
15E	2550 N	51	27	123
15E	2600 N	161	17	84
15E	2650 N	53	37	590
15E	2700 N	126	280	1310
15E	2750 N	86	81	92
15E	2800 N	32	16	111

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Sample Number		Cu ppm	Pb ppm	Zn ppm
15E	2850 N	23	6	72
15E	2900 N	26	4	86
15E	2950 N	14	16	155
BL	15N-0+30E	29	144	207
26W	2400 S	144	13	185
26W	2450 S	89	25	149
26W	2500 S	136	24	181
26W	2550 S	117	16	249
26W	2600 S	84	29	510
26W	2650 S	131	48	500
26W	2700 S	138	54	880
26W	2750 S	61	98	810
26W	2800 S	174	355	1450
26W	2850 S	69	79	610
26W	2900 S	124	530	2340
27W	2000 S	119	16	158
27W	2050 S	71	18	126
27W	2100 S	148	25	218
27W	2150 S	205	16	172
27W	2200 S	117	21	155
27W	2250 S	44	23	151
27W	2300 S	MS	MS	MS
27W	2350 S	146	15	204
27W	2400 S	131	38	580
27W	2450 S	126	19	255

Sample Number		Cu ppm	Pb ppm	Zn ppm
27W	2500 S	89	33	363
27W	2550 S	69	76	410
27W	2600 S	98	78	475
27W	2650 S	93	30	414
27W	2700 S	111	300	1150
27W	2750 S	104	83	810
27W	2800 S	149	156	1220
27W	2850 S	203	540	2020
27W	2900 S	137	650	2100
21E	2000 N	104	41	66
21E	2050 N	174	18	55
21E	2100 N	147	9	57
21E	2150 N	122	13	65
21E	2200 N	50	29	186
21E	2250 N	76	19	155
21E	2300 N	39	47	268
21E	2350 N	54	132	540
21E	2400 N	252	355	4200
21E	2450 N	33	32	181
21E	2500 N	174	198	1490
21E	2550 N	145	162	1300
21E	2600 N	254	24	710
21E	2650 N	270	15	152
21E	2700 N	100	16	204
21E	2750 N	108	31	199

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Sample Number		Cu ppm	Pb ppm	Zn ppm
29E	3050 N	39	28	77
29E	3100 N	35	26	102
29E	3150 N	27	5	51
29E	3200 N	63	16	104
29E	3250 N	93	10	128
29E	3300 N	53	7	77
29E	3350 N	47	8	122
29E	3400 N	15	10	225
29E	3450 N	480	34	570
29E	3500 N	12	9	32
31E	3050 N	40	67	233
31E	3100 N	84	17	174
31E	3150 N	MS	MS	MS
31E	3200 N	22	11	64
31E	3250 N	64	9	171
31E	3300 N	68	19	135
31E	3350 N	73	27	254
31E	3400 N	191	13	281
31E	3450 N	164	13	278
31E	3500 N	102	12	183
33E	2000 N	10	7	23
33E	2050 N	38	16	110
33E	2100 N	22	11	104
33E	2150 N	15	8	51
33E	2200 N	14	8	53
33E	2250 N	20	12	86
33E	2300 N	3	2	5
33E	2350 N	17	14	66
33E	2400 N	28	9	127
33E	2450 N	19	8	81
33E	2500 N	24	11	204
33E	2550 N	3	8	20
33E	2600 N	14	14	75
33E	2650 N	21	22	99
33E	2700 N	12	14	73
33E	2750 N	15	18	110
33E	2800 N	19	13	141
33E	2850 N	39	81	326
33E	2900 N	33	64	167
33E	2950 N	37	40	179
33E	3000 N	61	42	266
33E	3050 N	172	21	228
33E	3100 N	37	50	263
33E	3150 N	88	63	404
33E	3200 N	91	39	315
33E	3250 N	98	27	207
33E	3300 N	86	23	205
33E	3350 N	103	25	209
33E	3400 N	27	9	72
33E	3450 N	13	6	81

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Sample Number		Cu ppm	Pb ppm	Zn ppm
33E	3500 N	25	8	71
35E	1700 N	36	4	54
35E	1750 N	62	14	145
35E	1800 N	8	5	12
35E	1850 N	39	16	158
35E	1900 N	45	14	226
35E	1950 N	19	12	66
35E	2000 N	4	20	11
35E	2050 N	17	16	60
35E	2100 N	18	23	58
35E	2150 N	17	7	27
35E	2200 N	17	6	52
35E	2250 N	20	6	42
35E	2300 N	10	4	36
35E	2350 N	4	2	14
35E	2400 N	4	3	12
35E	2450 N	15	15	66
35E	2500 N	10	7	32
35E	2550 N	23	9	74
35E	2600 N	12	12	42
35E	2650 N	7	4	37
35E	2700 N	17	18	99
35E	2750 N	17	23	88
35E	2800 N	21	19	108
35E	2850 N	25	27	162

Sample Number		Cu ppm	Pb ppm	Zn ppm
35E	2900 N	52	54	176
35E	2950 N	101	74	186
35E	3000 N	314	83	278
35E	3050 N	152	78	700
35E	3100 N	81	28	318
35E	3150 N	116	28	270
35E	3200 N	148	28	298
35E	3250 N	216	47	238
35E	3300 N	131	36	270
35E	3350 N	146	31	190
35E	3400 N	280	29	770
35E	3450 N	199	132	680
35E	3500 N	87	16	165
37E	1700 N	68	23	171
37E	1750 N	53	10	124
37E	1800 N	79	15	151
37E	1850 N	41	8	98
37E	1900 N	32	7	68
37E	1950 N	21	<2	27
37E	2000 N	2	<2	12
37E	2050 N	3	<2	14
37E	2100 N	65	3	95
37E	2150 N	9	2	34
37E	2200 N	25	10	91
37E	2250 N	22	9	106

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Sample Number		Cu ppm	Pb ppm	Zn ppm
37E	2300 N	11	2	41
37E	2350 N	<2	<2	11
37E	2400 N	16	44	68
37E	2450 N	20	9	115
37E	2500 N	33	11	104
37E	2550 N	16	10	105
37E	2600 N	23	7	76
37E	2650 N	26	4	69
37E	2700 N	19	4	48
37E	2750 N	23	8	118
37E	2800 N	48	38	180
37E	2850 N	85	47	284
37E	2900 N	179	40	291
37E	2950 N	324	206	790
37E	3000 N	410	15	450
37E	3050 N	370	69	850
37E	3100 N	485	144	670
37E	3150 N	352	75	500
37E	3200 N	348	300	1500
37E	3250 N	278	68	610
37E	3300 N	124	8	90
37E	3350 N	64	7	128
37E	3400 N	172	25	359
37E	3450 N	139	23	356
37E	3500 N	171	24	364

Sample Number		Cu ppm	Pb ppm	Zn ppm
39E	3050 N	138	35	301
39E	3100 N	212	25	211
39E	3150 N	129	27	244
39E	3200 N	131	15	255
39E	3250 N	298	78	590
39E	3300 N	186	72	600
39E	3350 N	89	11	162
39E	3400 N	MS	MS	MS
39E	3450 N	MS	MS	MS
39E	3500 N	107	29	141

CanTech Laboratories, Inc.

Signed: ____________
Richard Magner, B.Sc.
Manager

APPENDIX II

GEOPHYSICAL MEMO

1.0 INTRODUCTION

This report is an interpretation of horizontal loop electromagnetic (HLEM) and magnetic field data collected on the First Base Property held by Arcturus Resources Ltd.

2.0 HLEM THEORY AND INTERPRETATION PROCEDURES

The horizontal loop EM method is well described in standard texts such as Telford *et. al.* (1990) and Ketola and Puranen (1967). This section summarizes the key features of the HLEM method and describes the interpretation algorithms used in this survey program.

The HLEM method involves the use of a pair of separated horizontal coils (Figure 1). Most commonly, the surveys are conducted in the frequency domain. In this method, a sine wave of variable frequency is sent through one of the coils to create a time-varying vertical magnetic dipole source. The second coil is a receiver which detects both the primary signal from the transmitting coil and a secondary signal created by magnetic induction in a conductive target in the earth. There are two variants of the method in the frequency domain are the Slingram or conventional HLEM method and the Genie method.

The Slingram method (normally referred to as HLEM) requires that a sample of the transmitted signal be sent along a wire to the receiver where it is used to synchronize the phase of the receiver with the transmitter. This permits the receiver to remove the effect of the transmitter signal (primary field) and to split the remaining secondary field into two components. One component represents the portion of the secondary field which is synchronized or in-phase with the primary field (in-phase component). The second component is the portion of the secondary field which lags the primary field by one quarter cycle (90°) (quadrature component). The ratio of the in-phase to quadrature components is used to determine the electrical conductance of a target.

HLEM instruments remove the primary field from the signal to leave only the secondary field. By convention, a secondary field in the same direction as the primary field is recorded as positive while a secondary field in the opposite direction to the primary field is recorded as negative. HLEM data is commonly plotted as profiles with the reading plotted at the midpoint between the transmitter and receiver. The reason for this is that the response from a steeply dipping conductor, the most common target of this method, is strongest when the two coils straddle the conductor. Normally, the in-phase response is plotted as a solid line and the quadrature response as a dashed line.

The HLEM response of a flat lying body is shown in Figure 2(a). Magnetic field lines

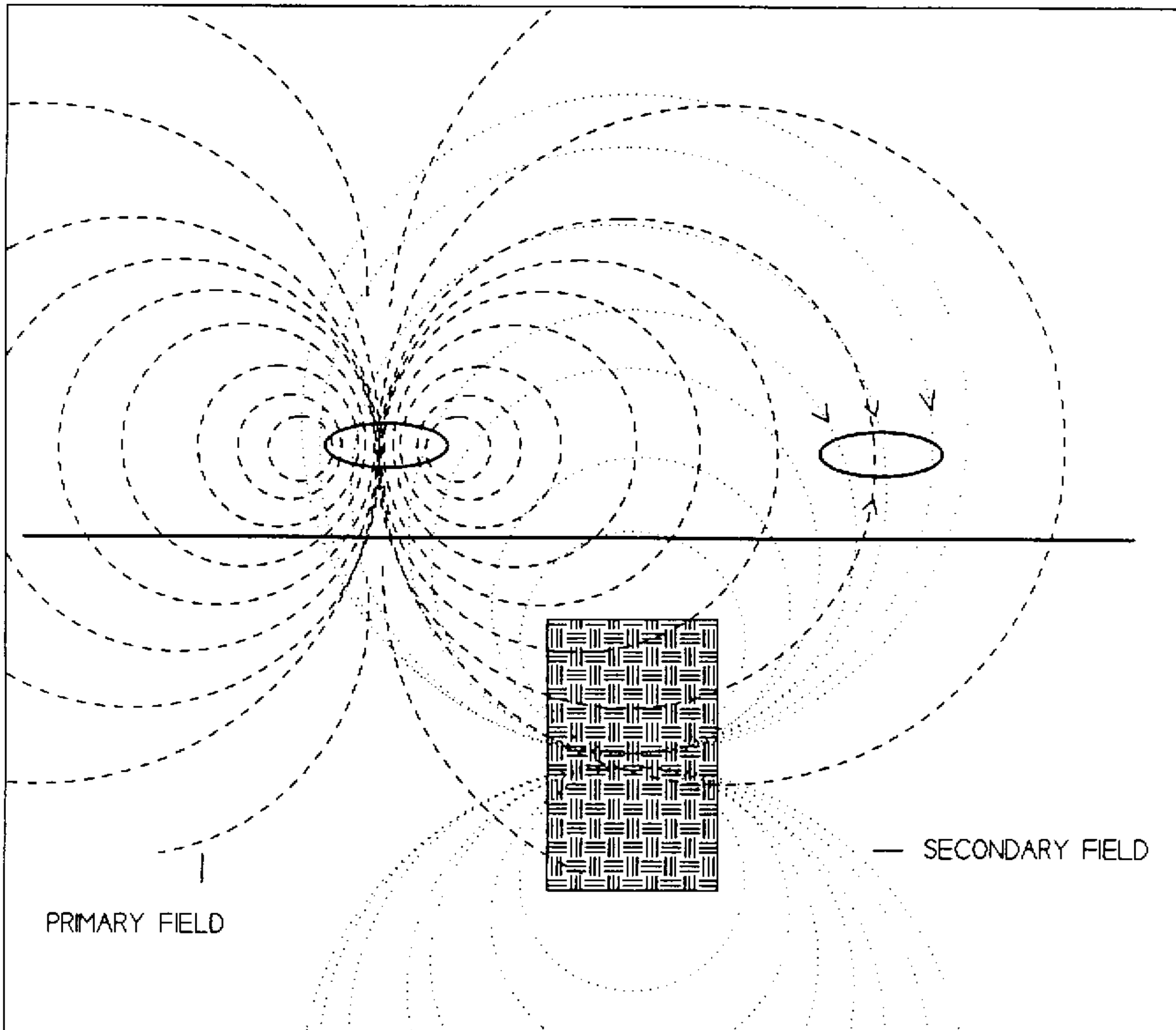


Figure 1. HLEM source field. The field from the transmitter loop produces an oscillating vertical magnetic dipole. This induces a secondary field in a conductive body in the earth. At the receiver coil, both the primary field and secondary field are received.

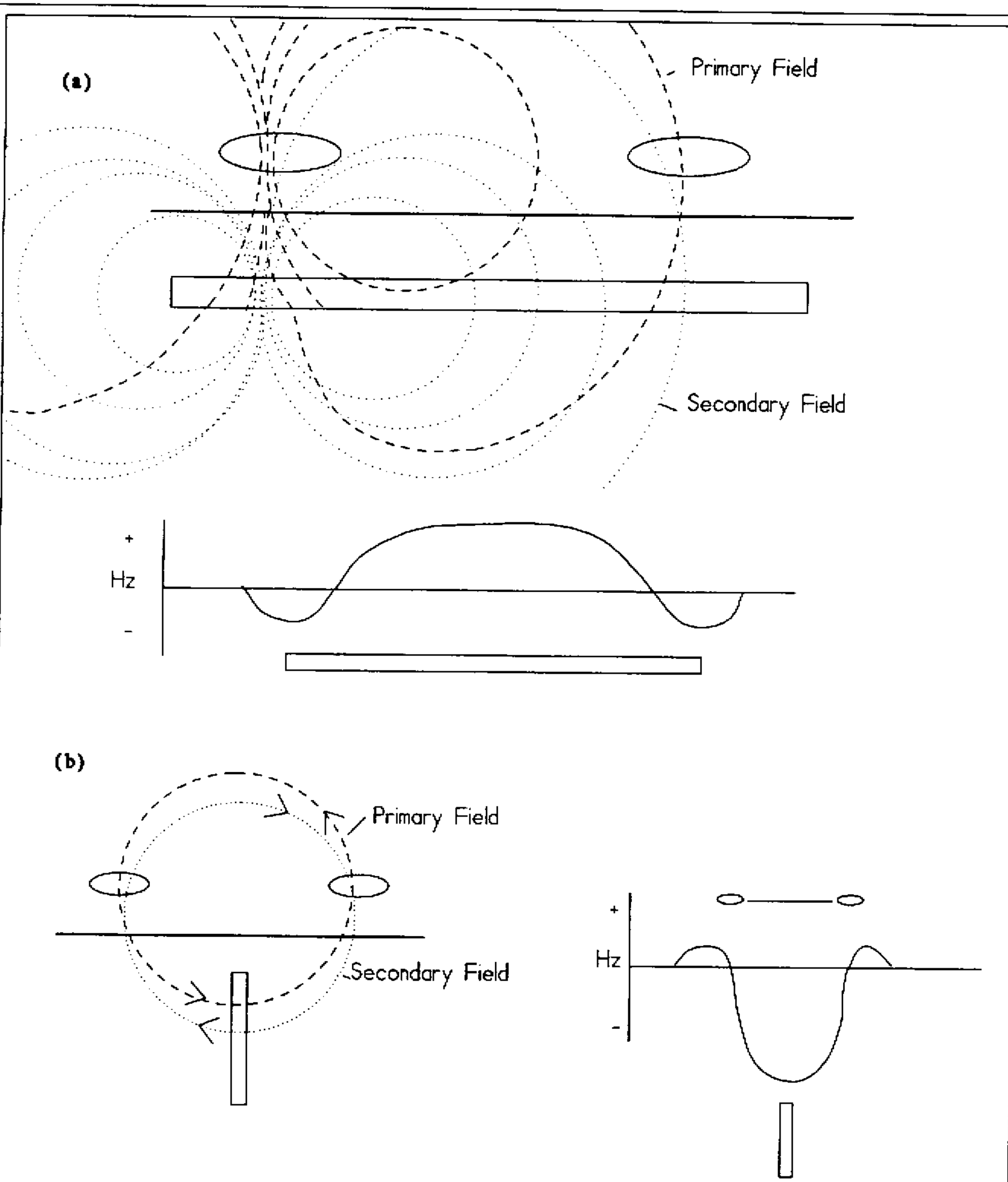


Figure 2. HLEM responses. (a) Response over a flat lying conductor consists of a positive response. (b) Response over a dipping conductor consists of a negative response.

(flux) are directed primarily into the region beneath the transmitter loop. Lenz's Law dictates that the induced secondary field will oppose the primary field. Consequently, at the receiver, both the primary and secondary field will be in the same direction. As a result, the response from a flat lying conductor consists of a positive response over the target. At the edge of the conductor, there is a negative response which occurs when both coils are straddling the edge of the conductor. When either the transmitter or receiver coil is over the edge of the conductor, there is no secondary field and the response is zero. As the depth to the flat lying conductor increases, the strength of the response is attenuated. The effective depth of investigation of the HLEM method for flat lying conductors is approximately 1.5 times the coil spacing.

The HLEM response of a steeply dipping conductor is shown in Figure 2(b). Field lines from the transmitter are horizontal at a point midway between the two coils and in this orientation, cut the conductor at right angles creating the best coupling. Lenz's Law dictates that the secondary field will oppose the primary field and at the receiver coil, the secondary field is in the opposite direction to the primary field. As a result, the response when profiling over a steeply dipping conductor consists of a trough with peak negative value occurring when the coils straddle the conductor. The flanking positive peaks result from induction effects as the pair of coils are close to but not straddling the conductor. When either of the coils is directly over the target, the response is zero because the primary field is not well coupled with the target (ie it is perpendicular to the edge of the conductor) and little secondary field is created.

A dipping tabular conductor can be specified by the dip and dip direction, depth to top, target width and electrical conductance (conductivity thickness product or σt). The effect of varying these parameters is shown in Figure 3 for the case of a response from a single isolated HLEM conductor. Asymmetry in the positive shoulders indicates the dip direction and the ratio of the positive shoulder responses can be used to estimate the dip (Figure 3(a)). The strength of the response is largely determined by the depth to the top of the conductor. Increasing the depth to the top of the conductor decreases the amplitude of the response but does not otherwise change the shape of the response (Figure 3(b)). The effective depth of investigation of the HLEM method for steeply dipping targets is approximately one half the coil spacing. If the conductor is wide, the location of the zero crossovers, normally equal to the coil spacing, will increase. If the width reaches approximately one half the coil spacing, the trough of the response for shallow targets will start to deflect slightly to the positive. If the width of the target approaches that of the coil spacing, the positive return in the trough will be apparent at any depth to target (Figure 3(c)). As noted above, the electrical conductance controls the ratio of the in-phase to quadrature response. Weak targets show only a quadrature response. As the target conductance increases the strength of the in-phase component will increase. Very high conductance targets are characterized by strong in-phase responses and weak to very weak quadrature responses (Figure 3(d)).

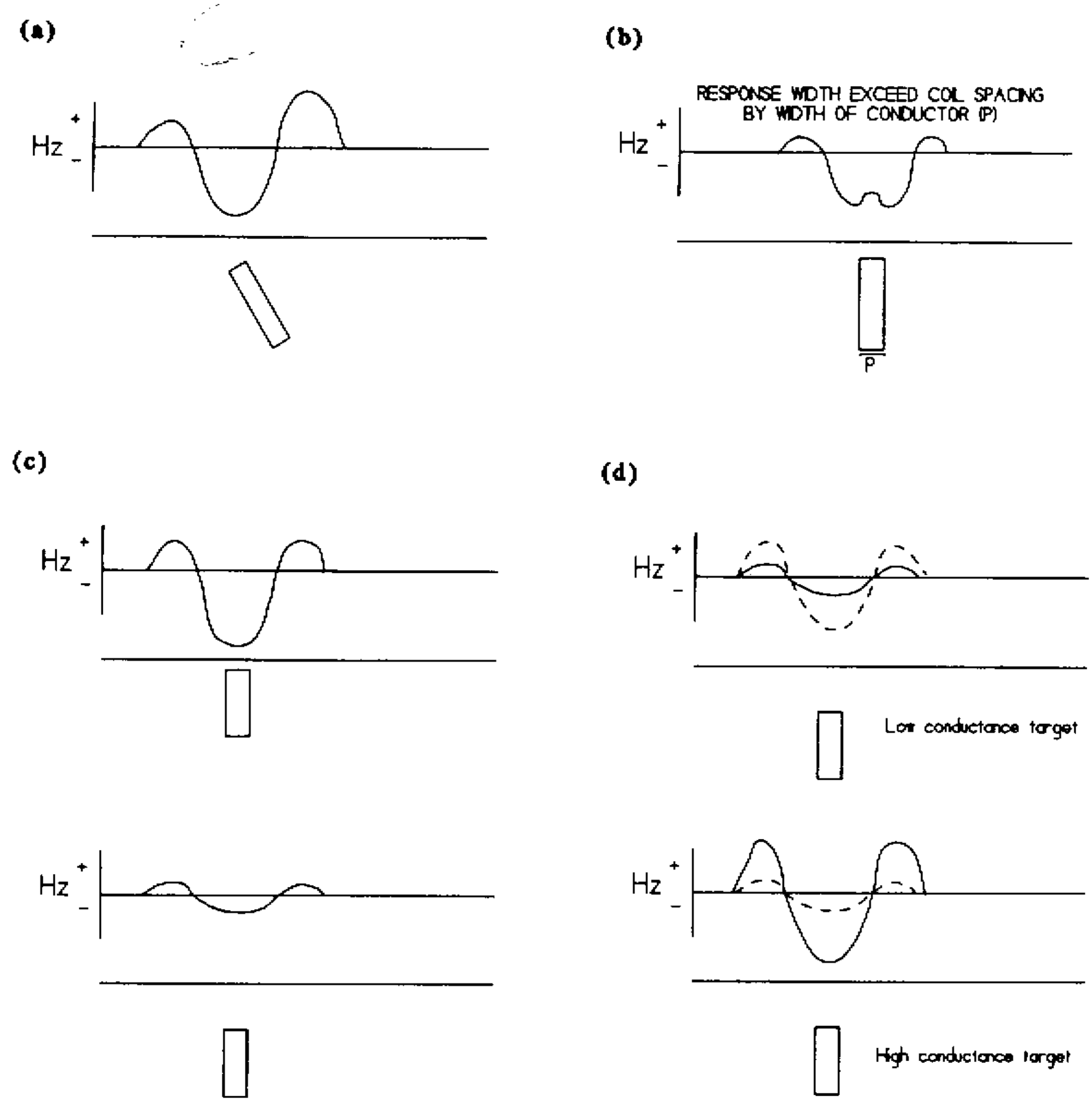
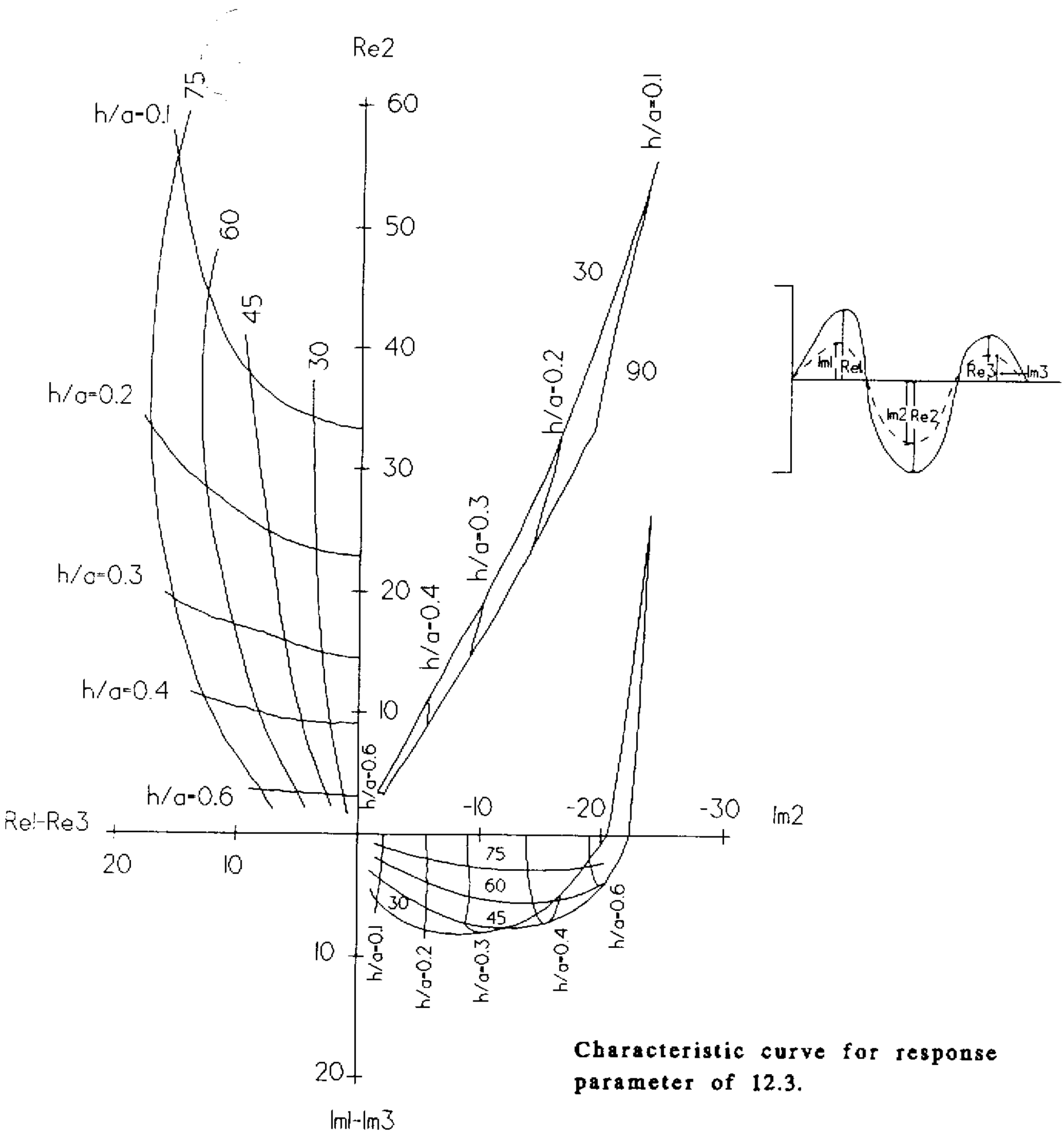


Figure 3. HLEM response of dipping tabular conductors. (a) Effect of dip on HLEM response. (b) Effect of depth. (c) Effect of conductor width. (d) Effect of conductance.



Characteristic curve for response parameter of 12.3.

Figure 4. Characteristic curves for a dipping tabular conductor from Ketola and Puranen (1967). Critical measurements of the response shown in the upper right are extracted and plotted to determine the geometry and conductance of the target.

Interpretation procedures for HLEM data are dependent upon the model to which the data is to be fitted. In most cases, the characteristic shape of the response will dictate the likely overall geometry of the source and thus the model to which the response should be fitted. Flat lying targets can be directly modelled with computerized calculations of target responses. Dipping tabular body responses on the other hand cannot be numerically modelled and must either be approximated through finite-element models or interpreted using characteristic curves. Characteristic curves for tabular dipping conductors incorporate several key features of the responses described in Figure 3 into simple charts. These responses are derived from model experiments. The ratio of positive shoulders responses and the ratio of in-phase to quadrature peak negative values are the commonly used features of the response. An example of these charts is shown in Figure 4.

The data contained in this report was interpreted using characteristic curves developed by Ketola and Puranen (1967). The procedure, normally done by hand, has been automated in proprietary software (MMPLOT) developed by Amerok Geosciences Ltd. The characteristics of each response are entered into a computer program which creates a batch plotting file. The data is plotted directly on a CADD diagram with each of the characteristic curves on a different layer. The operator is able to quickly match the data to the curve which best fits the data by selecting different characteristic curves (ie. by changing layers). Where the data falls between two curves, the conductance and depth to top parameters can be interpolated but the dip cannot be reliably interpolated.

3.0 INTERPRETATION

The HLEM data supplied to the author is presumed to have been corrected for topographic effects. Total magnetic field data is presumed to have been fully corrected for temporal geomagnetic variation. The magnetic data appears to have been plotted relative to a datum of perhaps 50,000 nT.

Two conductor trends consisting of anomalies with apparent line-to-line response coherence are apparent in the data. One other significant single line anomalous response was noted. These are discussed in turn. All interpretations of HLEM conductance were performed with the 3520 Hz data.

Conductor **A** extends from L2800E 2270N to L2500E 2230N. The response resembles that of a dipping tabular conductor with a negative trough flanked by subsidiary positive peaks. Response asymmetry is normally used to determine the dip direction and this should be checked against the shift in conductor axis location with frequency. Both the location of the larger flanking positive response and the apparent shift of the peak negative value with decreasing frequency should be in the same direction to ensure that the interpretation is reliable. For example, a conductor dipping to the north should have a larger positive shoulder on the north side of the peak negative value and the apparent location of the peak negative value should shift to the north with decreasing frequency. Conductor **A** shows an unusual response in that the shift of peak negative location with decreasing frequency is to the north and the positive peak responses are on the south side in some cases. In addition the shape of the in-phase and quadrature responses differ and on line 2600E and 2700E they differ significantly. On all responses, the location of the peak negative response shifts uniformly to the north with decreasing frequency by a small amount (5 to 25 m). Taken together the response suggests that conductor may be a north-dipping tabular conductor with footwall alteration on the south side of the conductor axis. The in-phase to quadrature ratio is diagnostic of the target conductance and the observed ratios indicate that the target has a low conductance (0.36 to 2.2 Siemens (S)). There is no magnetic anomaly associated with this conductor. Interpreted conductor parameters are summarized below for each intersection:

Apex location	**Depth to top (m)**	**Dip / dip direction**	**Excess width (m)**	**Conductance (S)**
L2900E 2260N	40	not interpretable	10	0.63
L2800E 2270N	15	not interpretable	5	0.36
L2700E 2175N	25	65°N	20	0.72
L2600E 2225N	50	75°S	10	2.2
L2500E 2230N	30	60-90° N	0	0.36

This conductor is reportedly coincident with strong base metal geochemical anomalies and is of economic interest. The dip of the target should be inferred from available geological data and the interpreted dip not relied upon unless no other information is available. The apex location indicates the apparent location of the top of the conductor to within ± 13 m and the excess width is an indication of the possible width of the conductor.

Conductor **B** extends from L3800E 2950N to L3600E 3000N. The response consists of a negative trough flanked by subisidiary positive peaks. The response resembles that of a dipping tabular conductor. The width of the response and the presence of a slight postive return in the negative response indicates that the target may have substantial width. Positive magnetic field anomalies lie 25 to 38 m south of the conductor axis. These magnetic responses are not intimately associated with the conductor response. Interpreted conductor parameters for Conductor **B** are tabulated below:

Apex location	Depth to top (m)	Dip / dip direction	Excess width (m)	Conductance (S)
L3800E 2950N	unknown	not interpretable	20	uninterpretable but less than 0.63 S.
L3700E 2965N	35	75-90° N	10	0.63
L3600E 3000N	40	75° N	50	0.72

This target has a very low conductance and would not normally be of interest in the abence of supporting geochemical or geological data. The geophysical response suggests that it is not caused by a large body of massive sulphides.

A single weak conductor response is recorded on 14080 Hz at L3600E 2575N; it appears to be of no interest. A negative in-phase response with no associated quadrature response at L1600E 2550N on 880 and 3520 Hz appears to be caused by a non-conductive dipping tabular magnetic source.

4.0 CONCLUSIONS AND RECOMMENDATIONS

Conductor **A** is of interest because of its geochemical and geophysical response. The apparent electrical conductances are low, lying at or below the limit commonly recorded for volcanogenic massive sulphide deposits. The discrepancy between peak negative trough location shift and response asymmetry suggests that the footwall rocks are altered, thereby increasing their electrical conductivity. The conductor appears to be dipping to the north but this should be checked against mapped geology in siting any drill holes. The best location to test this anomaly would be at L2800E 2270N where the conductor is shallow and the response is best defined. Any drill hole should extend at least 25 m beyond the apparent conductor axis location to account for the inherent error in conductor location arising from the station spacing.

Conductor **B** is a weak conductor associated with a strong magnetic field anomaly. It appears to bound a thin magnetic rock unit lying immediately south of the conductor axis. This anomaly may be of interest if there is an associated geochemical response but it does not appear to have a conductance in the range expected of a massive sulphide occurrence.

There is no evidence of a large flat-lying conductor in the responses collected on this grid. The rocks in the area of Conductor **A** appear to be relatively more conductive than those in other areas of the grid based on the overall shift in the in-phase and quadrature base levels.

Respectfully submitted,
AMEROK GEOSCIENCES LTD.

M.A. Power P.Geo. P.Geoph.
Geophysicist

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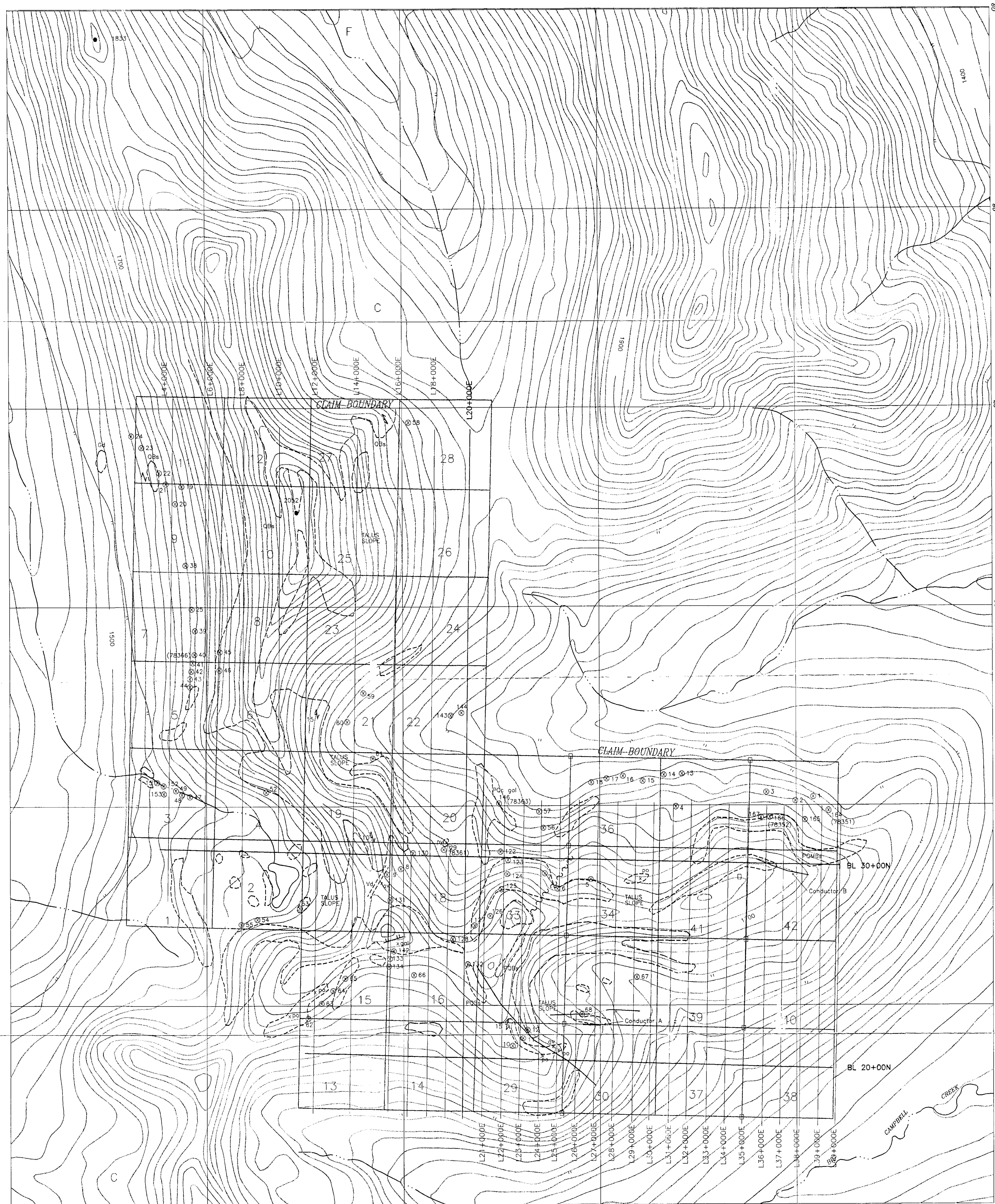
Telford, W.M., L.P. Geldart and R.E. Sheriff (1990) Applied Geophysics (2nd Edition) New York: Cambridge University Press.

Ketola, M. and M. Puranen (1967) Type curves for the interpretation of Slingram (horizontal loop) anomalies over tabular bodies. Geological Survey of Finland Report of Investigations No. 1.

Varre, T. (1990) Apex Parametrics Maxmin I-9 manual. Uxbridge: Apex Parametrics.



SYMBOLS

- Outcrop area
- Fault
- Foliation strike and dip
- x qv – Quartz vein
- x po – Pyrrhotite
- x py – Pyrite
- x gal – Galena
- ⊗142 – Rock Sample Site and Number
- (78354) – (Assay #)
- Claim posts
- Grid lines

LEGEND

- Vd – Dacite dyke
- Gd – Granodiorite
- PQSs – Quartz sericite schist
- PQMBs – Quartz muscorite biotite schist
- PQc – Quartz carbonate rock

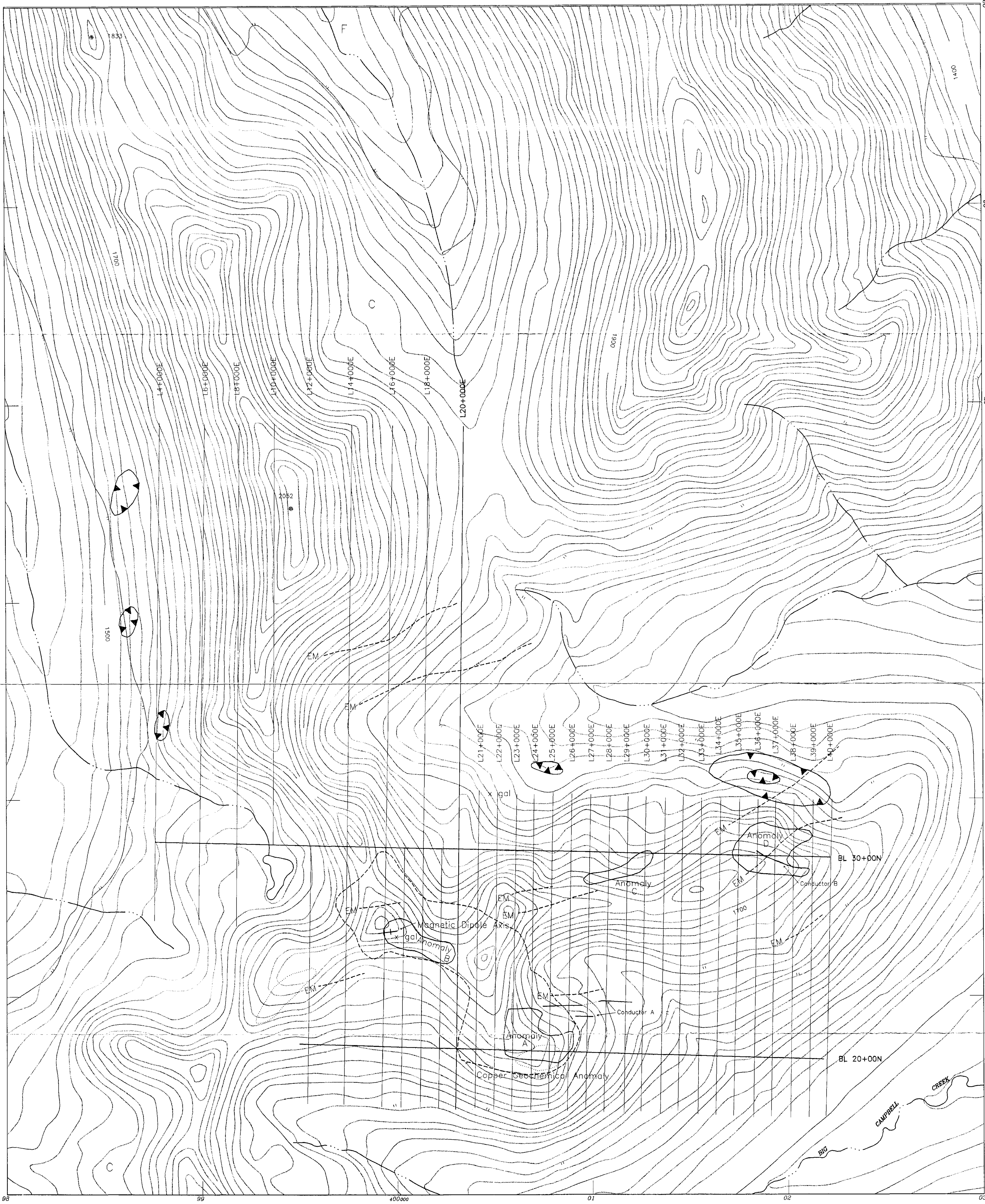
COMPANY: ARCTURUS RESOURCES LTD.

093647

DRAWING TITLE: FIRST BASE CLAIMS GEOLOGY AND GRID PLAN

LOCATION: Grass Lakes, Yukon Territory

DATE:	February 1997	SCALE:	1 : 10,000
DRAWN:	TerraCAD 96231B	GEOLOGIST:	Graham Davidson
DATA:	NTS 105/G7	FIGURE:	5



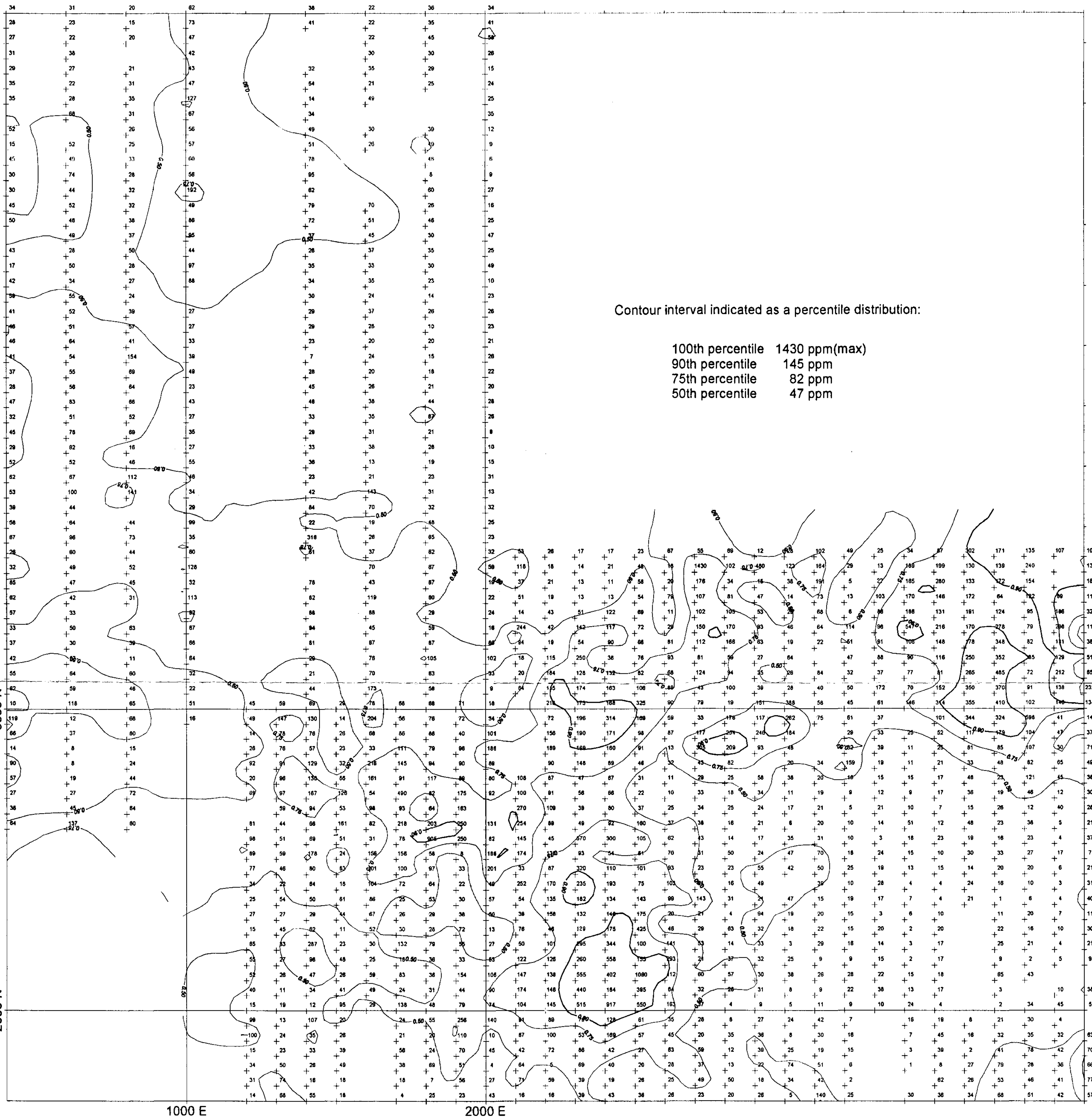
SYMBOLS

- EM - - - - - – *Airborne EM Conductor*
- *Airborne Magnetic Low*
- *Airborne Magnetic High*
- Conductor A – *Ground HLEM Conductor*
- Anomaly B – *Copper, Lead, Zinc Geochemical Anomaly*
- x gal – *Galena–Sphalerite showing*
- *Magnetic Dipole*

0 100 200 400 600 800 1000

SCALE: 1:10000

COMPANY:	ARCTURUS RESOURCES LTD.		
DRAWING TITLE:	093647 FIRST BASE CLAIMS COMPILATION MAP (2)		
LOCATION:	Grass Lakes, Yukon Territory		
DATE:	February 1997	SCALE:	1 : 10,000
DRAWN:	TerraCAD 96231C	GEOLOGIST:	Graham Davidson
DATA:	NTS 105/G7	FIGURE:	6



Company: Arcturus Resources

Project:

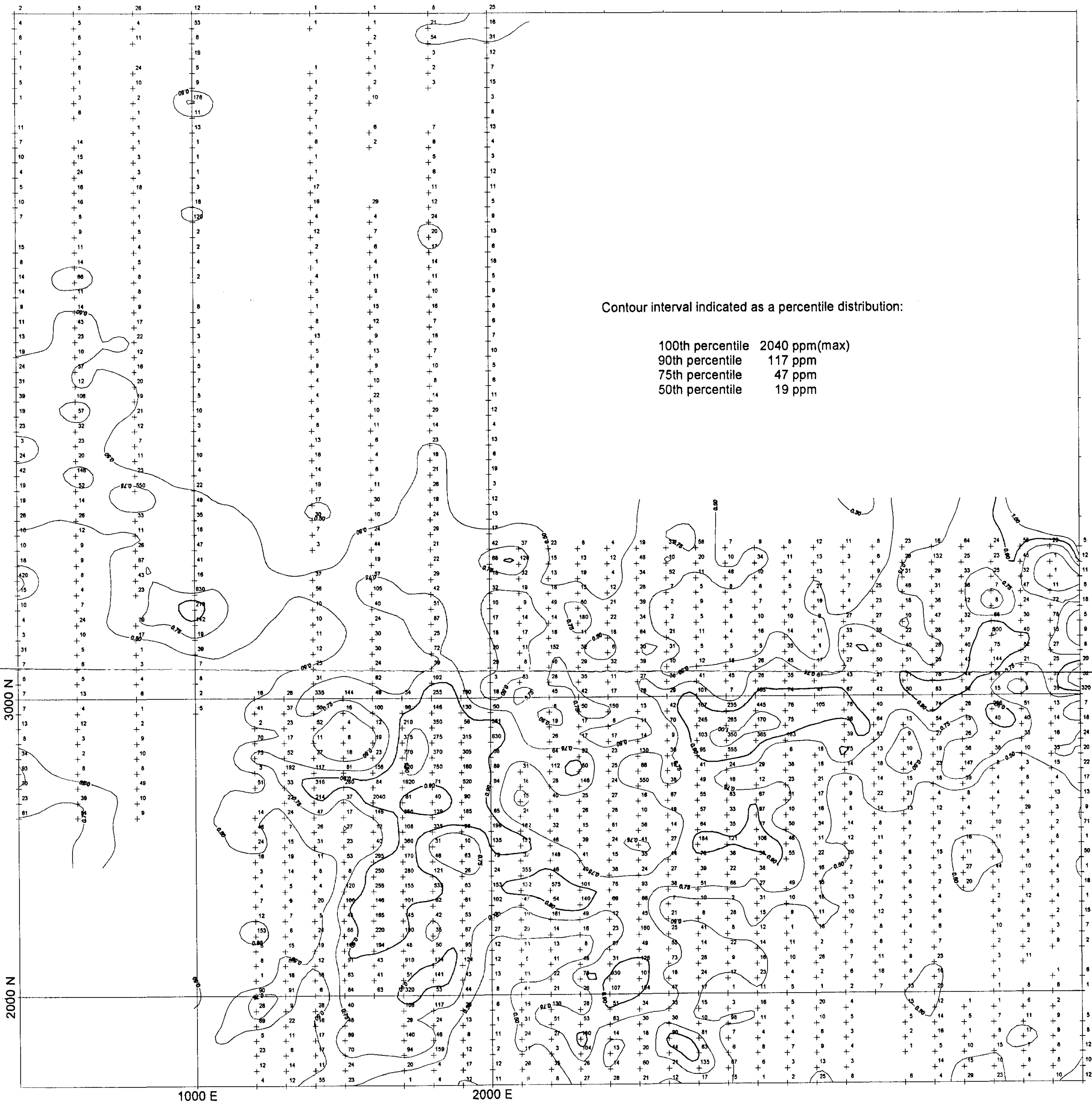
FIRST BASE PROJECT
COPPER GEOCHEMISTRY (PPM)

③

Location: Grass Lakes, Yukon

Date: February 1997	Scale: 1:10000
Drawn: TerraCAD FIR-CU-OVER.SRF	7

093647



Company: Arcturus Resources

Project:

FIRST BASE PROJECT
LEAD GEOCHEMISTRY (PPM)

(4)

Location: Grass Lakes, Yukon

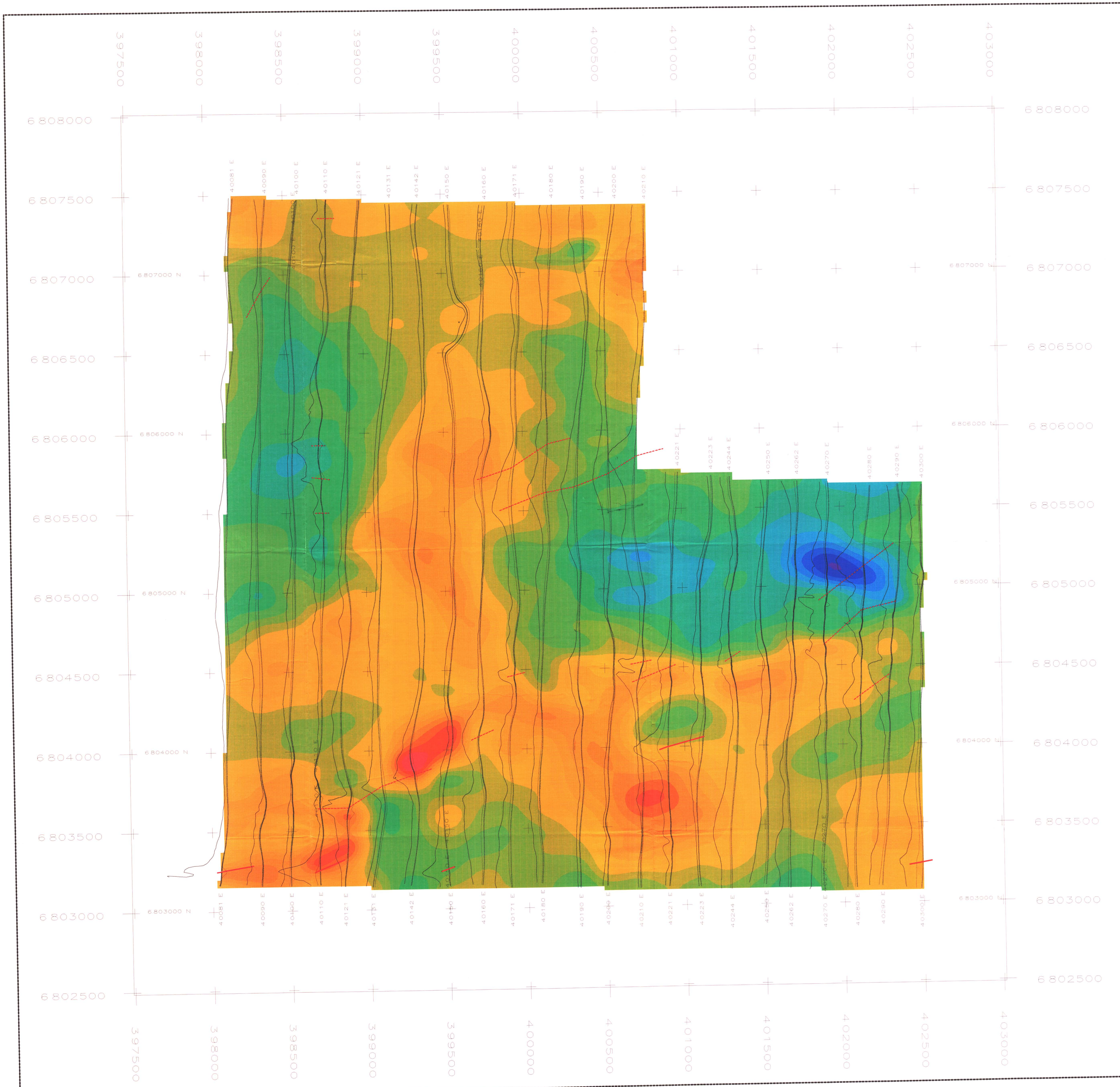
Date: February 1997	Scale: 1:10000
Drawn: TerraCAD FIR-PB-OVER.SRF	8

093647

Company:	Arcturus Resources
Project:	**FIRST BASE PROJECT ZINC GEOCHEMISTRY (PPM)**
Location	Grass Lakes, Yukon
Date: February 1997	*Scale:* 1:10000
Drawn: TerraCAD FIR-ZN-OVER.SRF	9

5

093647



Weak EM anomalies possibly due to topography

Medium strength anomalies

58230.00
58225.02
58220.02
58215.02
58210.02
58205.02
58200.02
58195.02
58190.01
58185.01
58180.01
58175.01
58170.00
58165.00
58160.00
58155.00
58150.00
58145.00
58140.00

093647

ARCTURUS RESOURCES LTD.

FIRST BASE PROPERTY

AIRBORNE MAGNETICS
4175 COPLANER EM
COMPILATION

YUKON TERRITORY NTS: 105 G/8

SCALE IN METRES

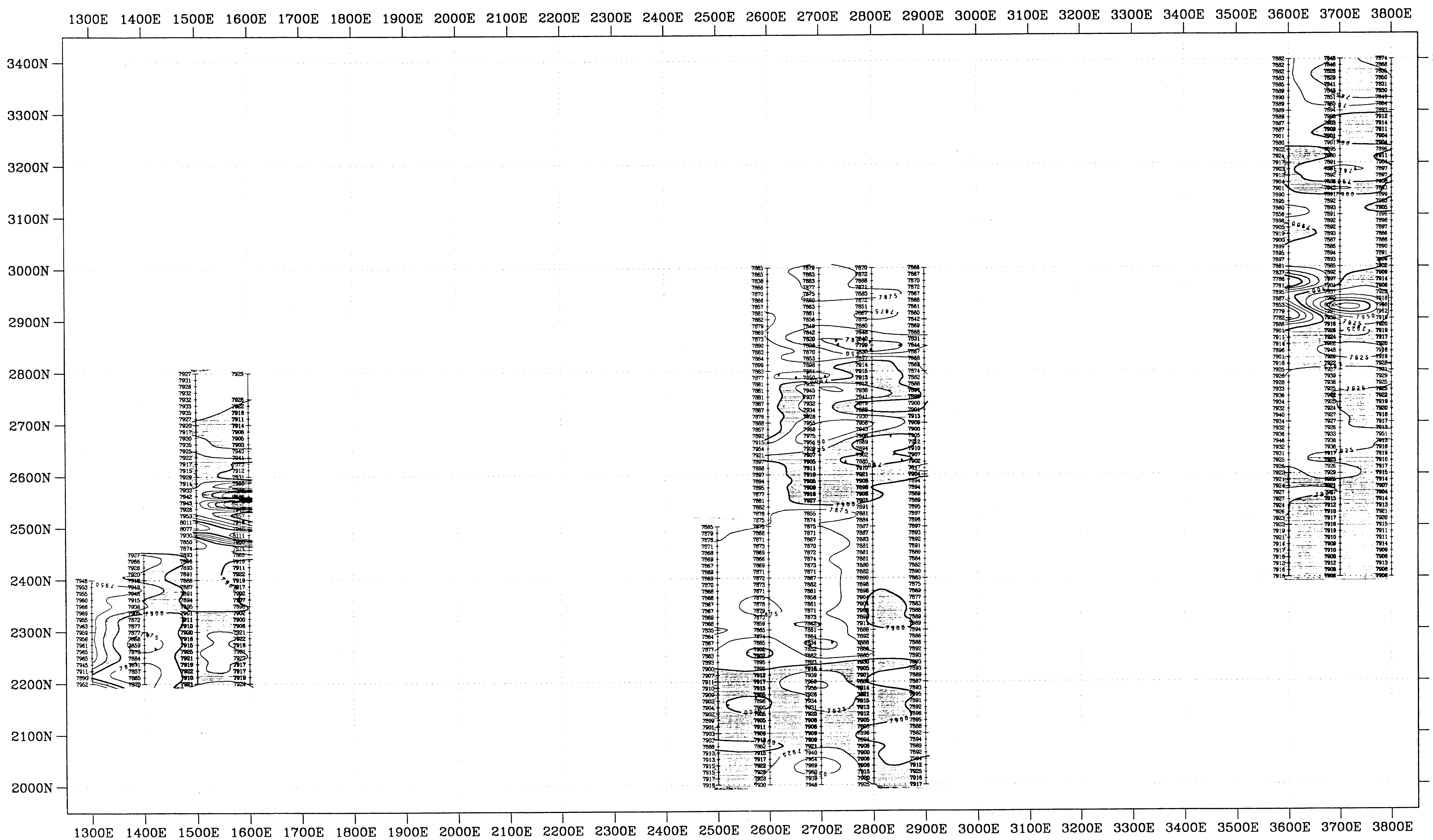
200 0 200 400 600

(6)

July 1996 Plate G1

SJ Geophysics Ltd.

FIG #10



LEGEND

CONTOUR INTERVALS

——	25 nT
——	100 nT
——	500 nT

Station Separation: 12.5 metres

INSTRUMENT

SCINTREX ENVI-MAGNETOMETER SYSTEM

Scale 1:5000

100 0 100 200 300 400

(metres)

7925
7900
7875
7850
7825

nT

093647

ARCTURUS RESOURCES LTD.

FIRST BASE PROJECT
YUKON TERRITORY

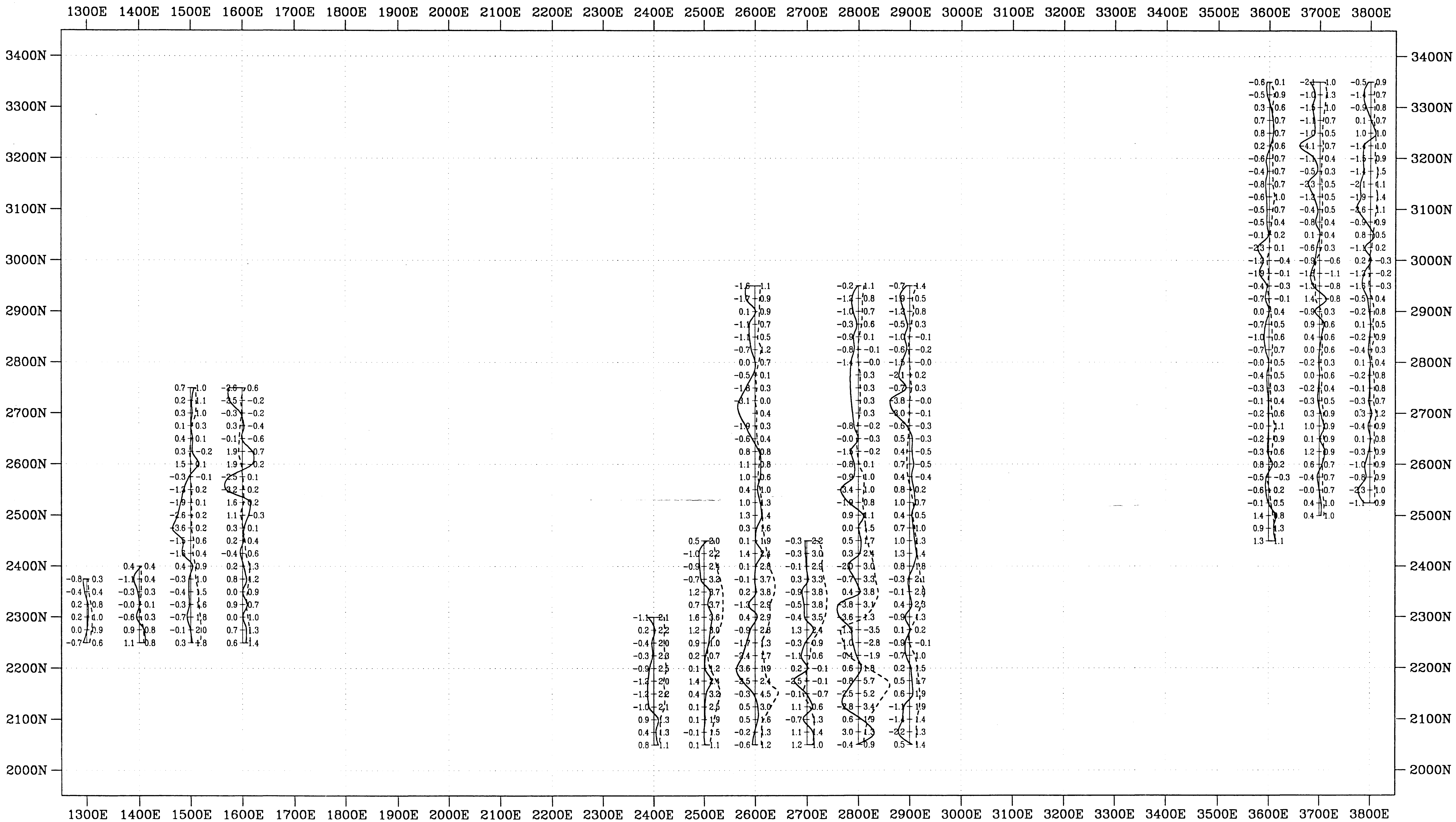
TOTAL FIELD MAGNETCIS LAKE GRID

Scale 1:5000 Drawing No: 98398-01

7

LLOYD GEOPHYSICS INC.

FIG. II

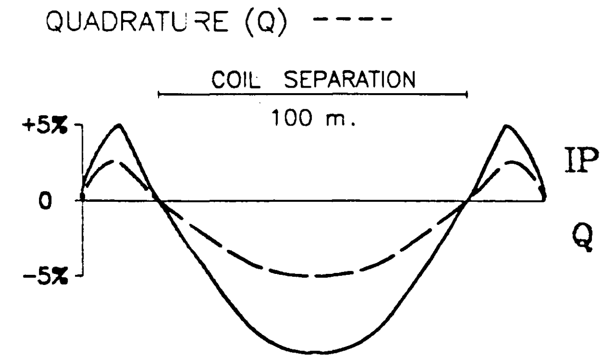


MAX-MIN HORIZONTAL LOOP LEGEND

1 cm. = 5 %

IN PHASE (IP) ——

QUADRATURE (Q) ----



Scale 1:5000

100 0 100 200 300 400

(metres)

093647

ARCTURUS RESOURCES LTD.

FIRST BASE PROJECT
YUKON TERRITORY

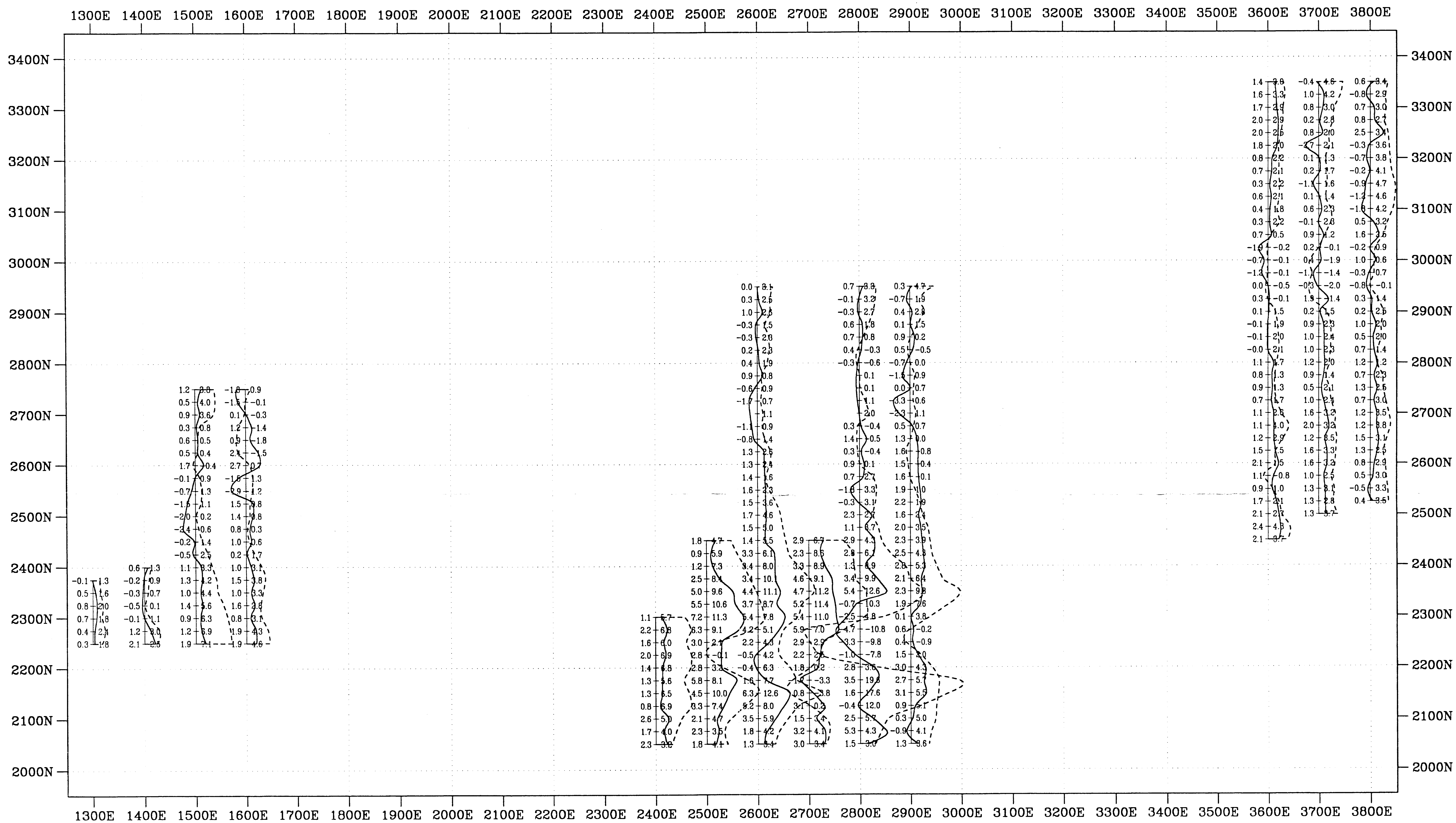
HLEM PROFILES
880 Hz

(8)

Scale 1:5000 Drawing No: 96398-02

LLOYD GEOPHYSICS INC.

FIG. 12



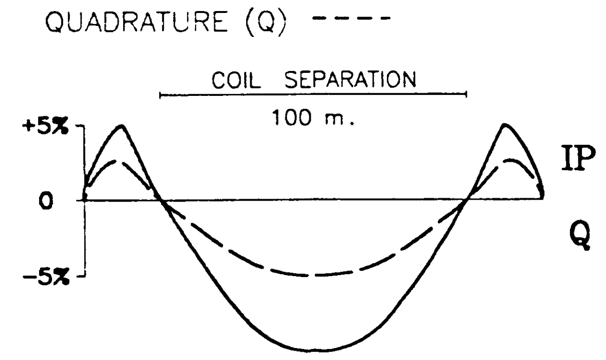
093647

MAX-MIN HORIZONTAL LOOP LEGEND

1 cm. = 5 %

IN PHASE (IP) ———

QUADRATURE (Q) - - - -



Scale 1:5000

100 0 100 200 300 400

(metres)

ARCTURUS RESOURCES LTD.

FIRST BASE PROJECT
YUKON TERRITORY

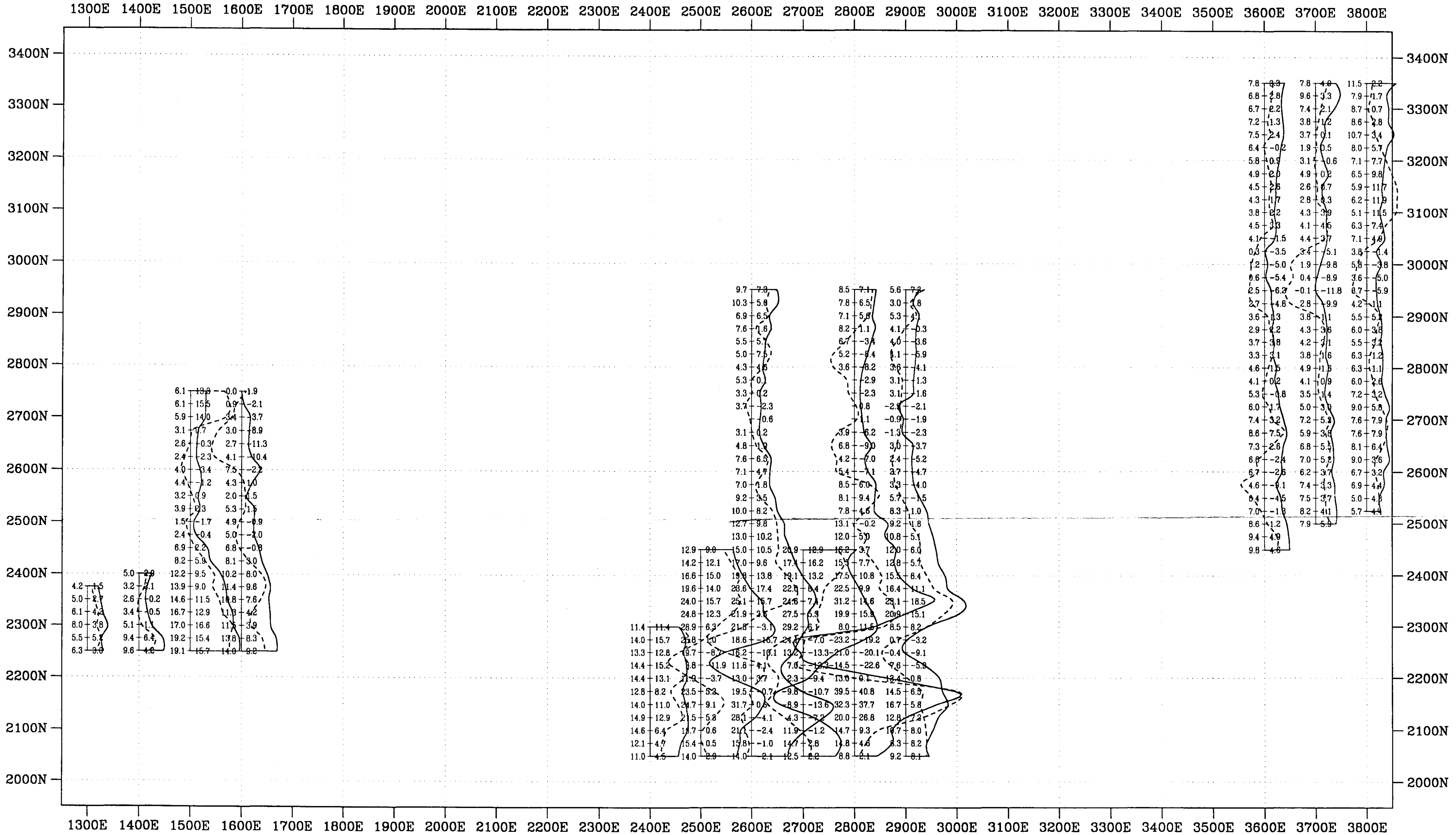
HLEM PROFILES
3520 Hz

(9)

Scale 1:5000 Drawing No: 98398-03

LLOYD GEOPHYSICS INC.

FIG. 13

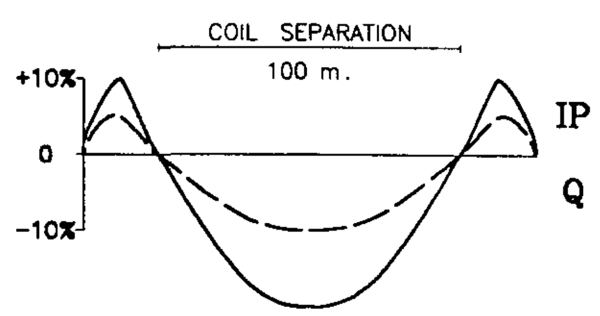


MAX-MIN HORIZONTAL LOOP LEGEND

1 cm. = 10 %

IN PHASE (IP) ———

QUADRATURE (Q) - - - -



Scale 1:5000

100 0 100 200 300 400 (metres)

093647

ARCTURUS RESOURCES LTD.

FIRST BASE PROJECT
YUKON TERRITORY

HLEM PROFILES
14080 Hz

(10)

Scale 1:5000 Drawing No: 96398-04

LLOYD GEOPHYSICS INC.

FIG. 14