MAR 19980024: BUFFALO HILLS

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Alberta Mineral Agreements

939-6080065,
939-6080066,
939-6080067,
939-7060148,
939-7060149

Assessment Work Report

Report on Logistics and Heavy Mineral Sampling of Cluster 1, Buffalo Hills Property

by

Jens F. Touborg, FGAC

for

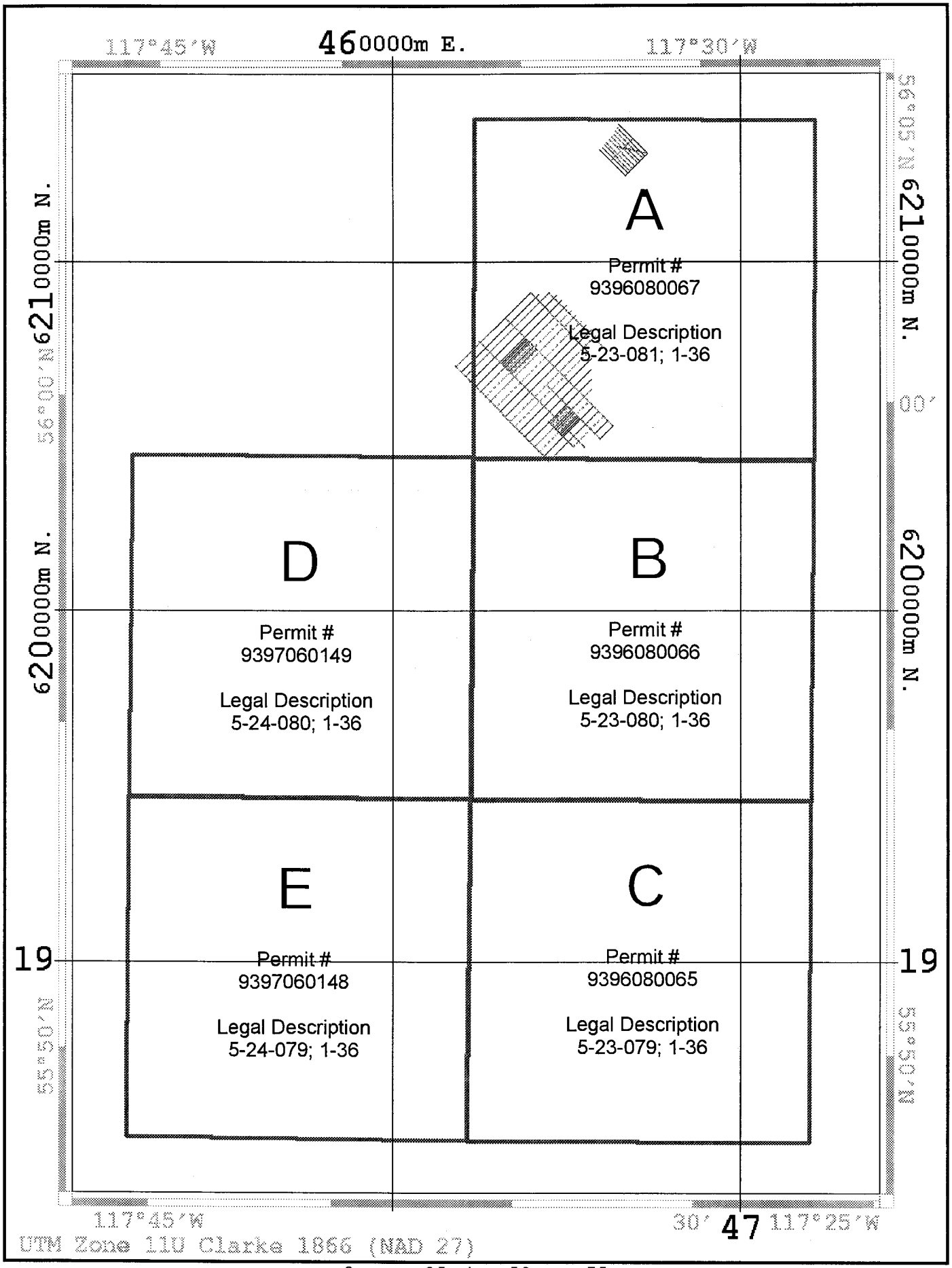
Primo Resources Ltd.

[redacted]

J. F. Touborg Consultants Inc.

November 25, 1998

Map 1



Primo Resources' Buffalo Hills Project, Alberta
Permit Area and Grid Line Map

Processed by
J. F. Touborg
Consultants Inc.

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This report is a follow-up to Geology and Structure of the Buffalo Hills, Touborg, 1998, and describes logistical aspects of the Cluster 1 grid work and heavy minerals sampling work carried out between September and November, 1998.

Summary and Conclusions

A 100 kilometre line grid with baseline oriented N45West and extending from a bend in Highway 740 to the Smoky River escarpment was installed for detailed ground control and map base for ground magnetic Max-Min electromagnetic, prospecting and heavy minerals soil sample surveys. The grid was tied into a UTM grid coordinate system to facilitate integration of airborne and ground magnetic data sets.

The line work was time consuming because of ongoing ploughing and cultivation activities and all grid station markers in farmer's fields were removed in October following the first phase of grid surveys. A portion of these flag posts were installed during November at the second phase Max-Min electromagnetic grid and soil sample surveys.

Negotiations to traverse farmer's fields within the greater Cluster 1 area were made with 10 landowners prior to grid surveys and a fee of $400.00/ quarter acre to allow for multiple foot traverses, line geophysical surveys and soil sampling was agreed on for a total cost of $10,000.00. It was further recognized that the grid work should be carried out with minimum interference of farming activities such as ploughing and cultivating.

A land use navigation image (Image 16) at 1:20,000 scale, merging Municipal land owner's and range road maps on an orthophoto base was created to expedite the installment of a 100 kilometre line grid oriented N45W with crosslines at N45East. The grid work was supervised by Ken Gibson of Coastlines Ltd. and 4.4 kilometres of baseline, 16.6 kilometres of tielines, and 79.0 kilometres of cross lines were put in with a transit. The grid was chained and picketed at 25 metre centres. In addition two detailed mini-grids with 50-metre line spacing were put in to facilitate magnetic orientation surveys in the magnetically noisy farmer's fields.

Following grid magnetic surveys and integration of airborne and ground data sets, a detailed anomaly sampling conforming with Max-Min electromagnetic survey profiles on NW and NE orientation was laid out.

Heavy Minerals Soil and Stream Sediment Sampling

A total of 198 samples (see Image 17), including:

a) 17 reconnaissance soil samples, # 1-17, each 5 kilograms, were collected from range road traverses prior to land use permits.
b) 53 grid samples, # 18-69, were obtained from sample profiles including 3 E-W lines spaces 1 kilometre apart with samples every 200 metres and one crossline with samples at 400-metre spaced points.
c) A total of 93 samples (PR 100-193), each 20 kilograms, were collected on 100 metre spaced points across four areas of magnetic anomalies.
d) A total of 8 stream sediment samples (SR 1-8) were taken along the Smoky River in order to investigate the drainage expression of Cluster 1.

Whilst rock exposed in cluster 1 are limited to one recent trench dugout at Koon Liefbrauers farm # 198, and highly fault disturbed scree along the Smoky river escarpment, the bulkous soil samples hold important clues to interpreting the subsurface geology and nature of the magnetic anomalies.

The geochemical samples are currently being processed for heavy mineral content such as olivine, garnet, clinopyroxene, ilmenite, and spinel for the purpose of identifying diamond or Kimberlite indicator minerals. The heavy minerals separation work will be followed up by microprobe, wet chemical analysis and rare earth spectrometric determinations to "window" the igneous kindred of the Cluster 1 intrusions and aid in drill targeting.

References

Newson, R., 1998. Alberta Mineral Agreement # 939-6080067 Assessment work Report on a Total Field Ground Magnetic Survey for Primo Resources

Touborg, J.F., 1998. Geology and Structure of the Buffalo Hills Property Assessment Report to Alberta Government.

J. F. TOUBORG CONSULTANTS INC.

Mineral Exploration Services – Radar, LANDSAT, Photogeology & Image Processing

Certificate of Qualifications

I, Jens Fris Touborg, of [redacted], Oakville, Ontario, L6J 4W4 am a graduate geologist and hold degrees of B.Sc. from the University of Uppsala, Sweeden, and an M.Sc. from the University of Copenhagen, Denmark, 1967.

I have been a Fellow of the Geological Association of Canada since 1972.

I have been engaged in private consulting business to the mining and oil industry since 1982 and worked nationally and internationally on major mining and exploration projects since 1968.

I have not received direct or indirectly, nor do I expect to receive any internal direct or indirect interest in the properties or any affiliates of them, nor do I beneficially own directly or indirectly any securities of Primo Resources as any official thereof.

I am familiar with the geology of the Peace Rive Arch from previous client work

I have been in charge of the project since May 1998.

I hereby consent to the use of this report in conjunction with the submission of a financing document to regulatory bodies and for other corporate purposes.

[redacted]

Jens F. Touborg
November 25, 1998

JFT Nov 25th 98

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Fax: 905-842-8296

Cluster 1 Ground Geophysics

Introduction

In October and November of 1998, Primo Resources commenced a ground geophysical program consisting of magnetometer surveying and selected line surveying with a horizontal loop electromagnetic (HLEM) system. The locale for the ground geophysical surveying was selected after consideration of satellite, geologic, and airborne magnetometer surveys. Ground geophysical surveying was completed in Block A, Permit # 9396080067 (Legal Description 5-23-081; 1-36) on two survey grids; the Cluster 1 grid and the North grid. The prime purpose of the geophysical surveys was to explore for kimberlite like explosive volcanic features.

Cluster 1 Grid

Geophysical surveying on the Cluster 1 grid included both magnetometer surveying and HLEM surveying on selected grid lines. The magnetometer survey was completed in October, 1998, the HLEM survey was completed as a second phase survey in November, 1998.

Magnetometer Survey

A total of 75.7 line-kilometres of grid was surveyed using a Scintrex Envimag proton precession magnetometer. A base station magnetometer was employed for recording the diurnal variation of the Earth's magnetic field and to allow for the removal all diurnal effects from the acquired data. Line spacing for the ground survey was a nominal 200 metres with magnetic observations obtained at a down line interval of 25 metres. In areas thought to be of interest the line spacing was closed to 100 metres; the down line observation interval was maintained at 25 metres.

The magnetic data was corrected for diurnal effects. Manual filtering of visible cultural effects was performed in the field by the magnetometer operator. A digital fourth difference filter was applied to further remove near surface cultural and operator effects. The data was then gridded using a minimum curvature algorithm and presented in plan form as a total magnetic intensity colour/contour map (Map 1).

HLEM Survey

A total of 18.85 line-kilometres of grid was surveyed using an Apex Parametrics Max-Min 2 Plus horizontal loop electromagnetic system over selected lines of the Cluster 1 grid. Initial testing of the HLEM system was completed on Line 200 North. Coil separations of 50 and 100 metres were employed with a survey station interval of 25 metres along line. Initial use was made of all five frequencies (222Hz, 444Hz, 888Hz, 1777Hz and 3555Hz) available on the system during the

testing stage. The number of frequencies to be observed was reduced to three (222Hz, 888Hz, and 3555Hz) for production surveying. The 100 metre coil separation was selected for production surveying as repeatable, low noise, measurements could consistently be obtained and the depth of investigation of the system was deemed sufficient for detection of a vertical conductive body at shallow depth.

The HLEM data was plotted in stacked profile form for both the in-phase and quadrature components of the measured EM field for all frequencies utilized. This data is included with this short report. Where it was deemed appropriate, 2-D modeling of the HLEM response for a vertical conductive body was attempted. The results of this modeling process are presented as depth sections on the appropriate profiles. Typically one model was obtained for each frequency at a given location.

Grid lines surveyed using the HLEM system and plotted in stacked frequency profile form are summarised as follows:

Line 200 N	5 frequencies	50 metre coil separation over 675 metres
Line 200 N	3 frequencies	50 metre coil separation over 1675 metres
Line 200 N	3 frequencies	100 metre coil separation over 1475 metres
Line 600 N	3 frequencies	100 metre coil separation over 1900 metres
Line 1000 N	3 frequencies	50 metre coil separation over 425 metres
Line 2000 S	3 frequencies	100 metre coil separation over 1725 metres
Line 2400 S	3 frequencies	100 metre coil separation over 1200 metres
Line 250 W	3 frequencies	100 metre coil separation over 1000 metres
Line 500 W	3 frequencies	100 metre coil separation over 2250 metres
Line 650 W	3 frequencies	100 metre coil separation over 1150 metres
Line 1000 W	3 frequencies	100 metre coil separation over 1425 metres
Line 1000 W	3 frequencies	100 metre coil separation over 1200 metres
Line 1300 W	3 frequencies	100 metre coil separation over 1000 metres
Line 1350 W	3 frequencies	100 metre coil separation over 1750 metres

The symbol convention used on all 3 frequency plots is:

box and line	222 Hz or 444 Hz as applicable
diamond and line	888 Hz
cross and line	3555 Hz

The symbol convention used on the 5 frequency plot is:

box and line	222 Hz
diamond and line	444 Hz
cross and line	888 Hz
"x" and line	1777 Hz
box with "x" and line	3555 Hz

North Grid

The North grid consists of 11 line-kilometres of ground magnetometer surveying along 10 survey lines. The nominal line separation was 100 metres with a down line station interval of 25 metres. A base station magnetometer was employed for recording the diurnal variation of the Earth's magnetic field and to allow for the removal all diurnal effects from the acquired data.

The magnetic data was corrected for diurnal effects. Manual filtering of visible cultural effects was performed in the field by the magnetometer operator. A digital fourth difference filter was applied to further remove near surface cultural and operator effects. The data was then gridded using a minimum curvature algorithm and presented in plan form as a total magnetic intensity colour/contour map (Map 2).

Respectfully submitted
Stratagex Ltd.

[redacted]

Rob Hearst, M.Sc., P.Geoph.
Senior Geophysicist

Toronto, Ontario
November, 1998

Statement of Qualifications

I, Robert Hearst, declare that:

1. I am a consulting geophysicist with residence in Toronto, Ontario and am presently employed in this capacity with Stratagex Ltd. of Toronto, Ontario.

2. I obtained an Honours Bachelor's Degree in Geophysics and Geology, from the University of Western Ontario at London, Ontario, in Spring 1983.

3. I obtained a Master's Degree in Geology, from McMaster University at Hamilton, Ontario, in Fall 1996.

4. I have practiced my profession continuously since June, 1983, in North America, South America, Africa, and Europe.

5. I am a member of the Prospectors and Developers Association of Canada, the Society of Exploration Geophysicists, the Canadian Exploration Geophysical Society, the Canadian Institute of Mining and Metallurgy, and a licensee of Association of Professional Engineers, Geologists and Geophysicists of the Northwest Territories.

6. I have no interest, nor do I expect to receive any interest in the properties or securities or Primo Resources.

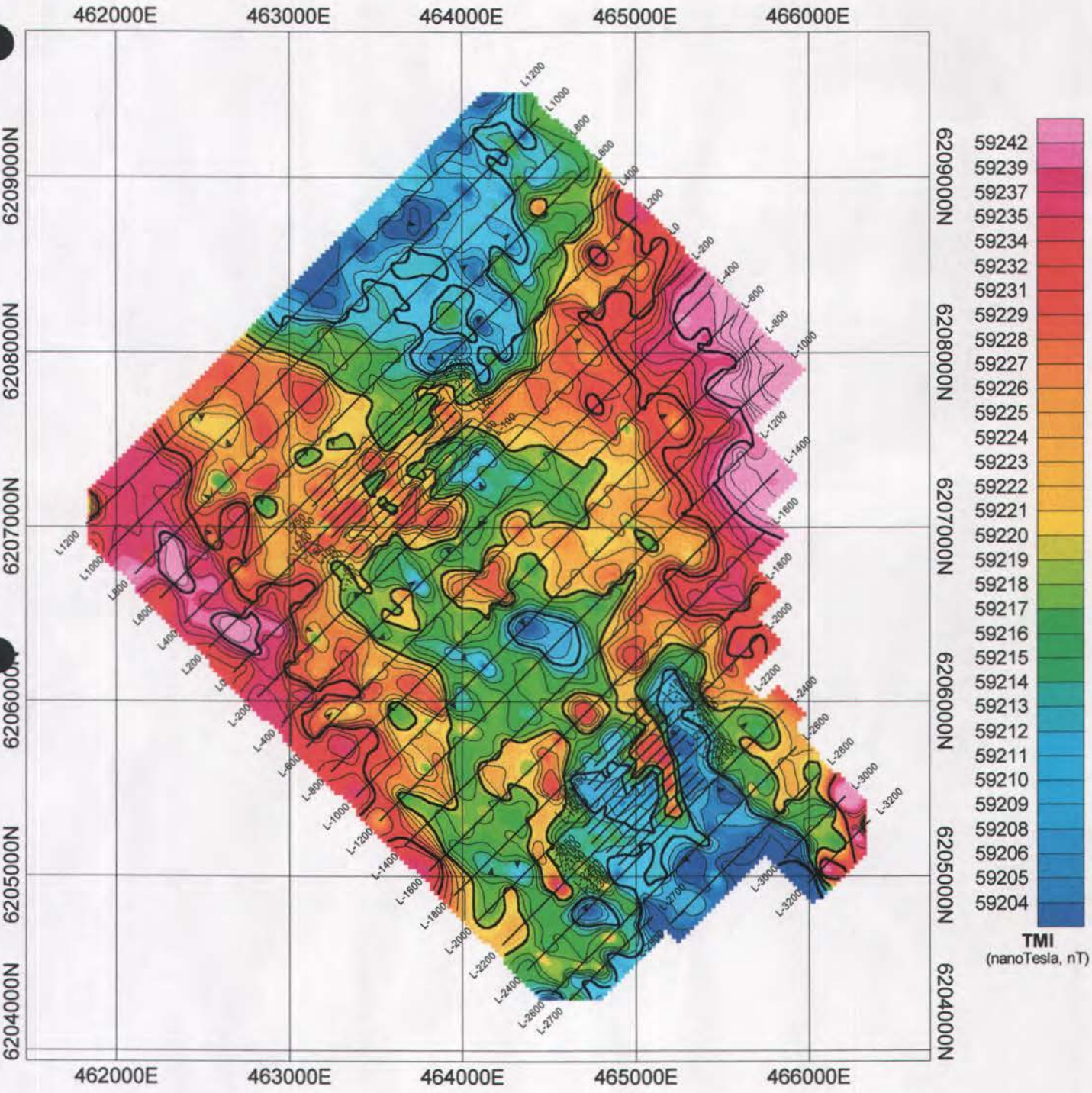
7. I reviewed this report and the plots contained. The statements made in this report represent my professional opinion based on my consideration of the information available to me at the time of writing this report.

Toronto, Ontario
November, 1998

[redacted]

Robert Hearst, M.Sc., P.Geoph.
Senior Geophysicist
Stratagex Ltd.

STRATAGEX LTD., Geophysical Consulting, Toronto



PRIMO RESOURCES

TOTAL MAGNETIC INTENSITY

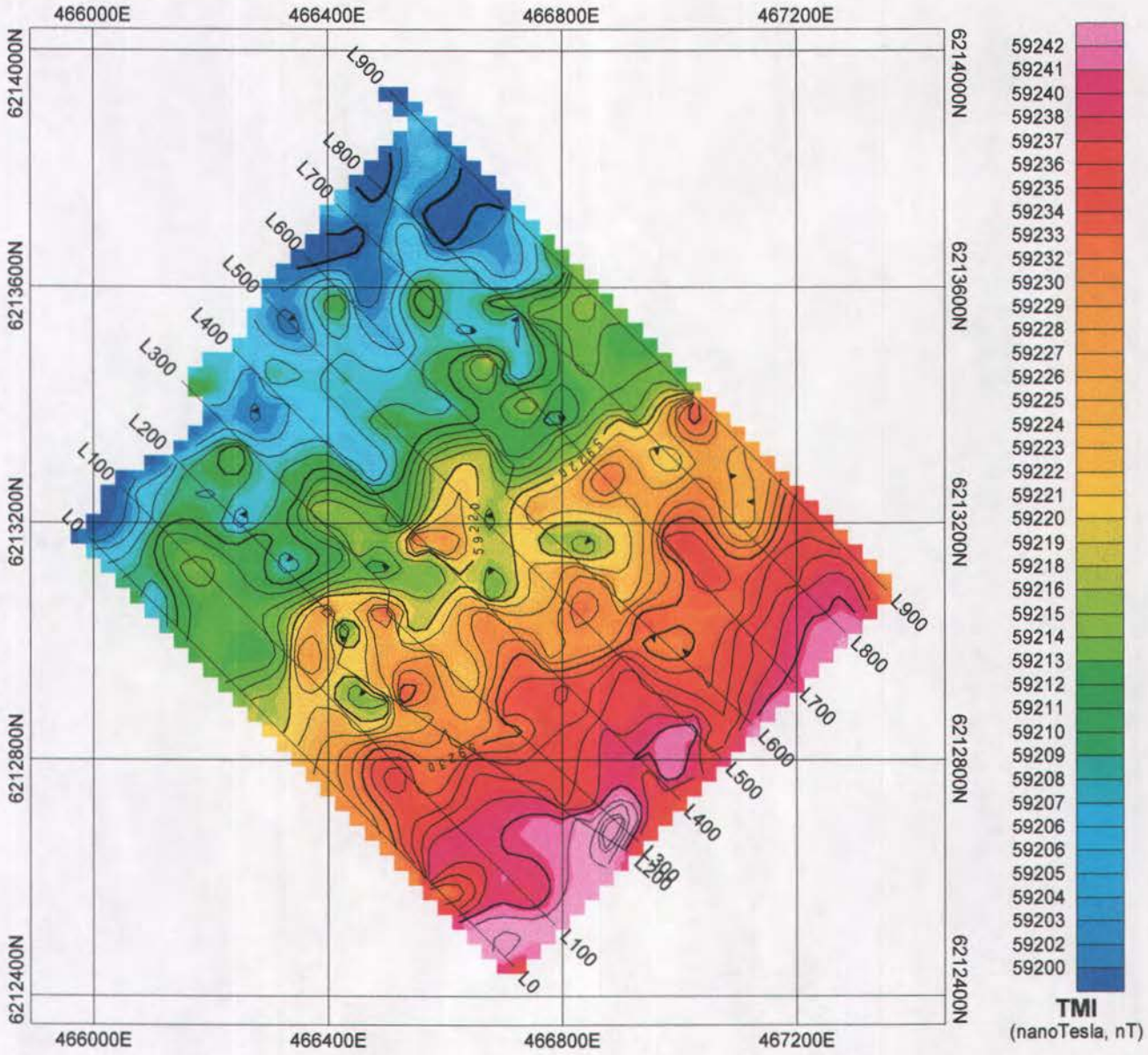
MAIN GRID, SMOKY RIVER PROJECT, ALBERTA

500 0.0 500 1000

(meters)

Contour Intervals: 2 nT, 10 nT, 50 nT, 250 nT

STRATAGEX LTD., Geophysical Consulting, Toronto



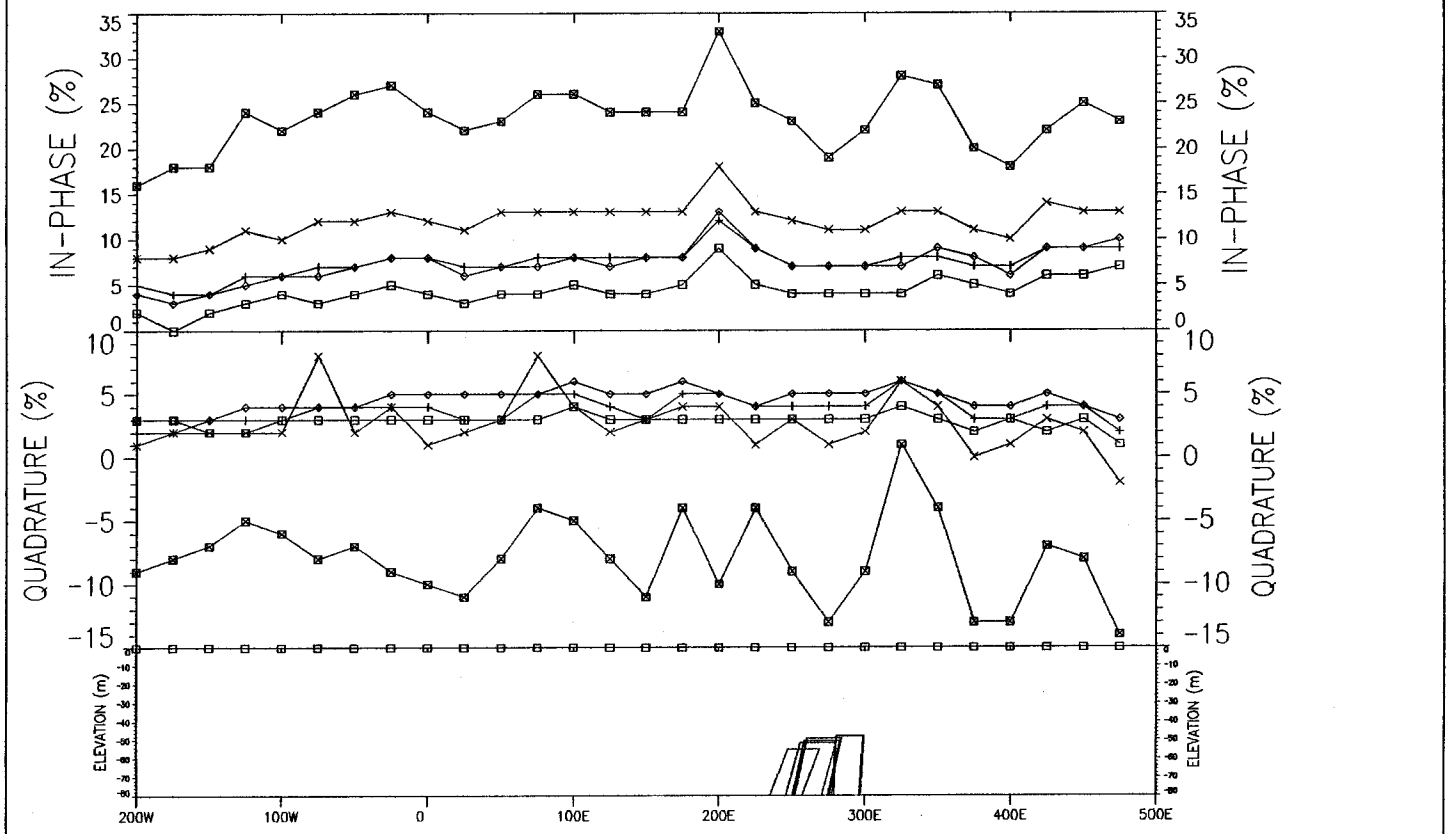
PRIMO RESOURCES

TOTAL MAGNETIC INTENSITY (TMI)

GRID2, SMOKY RIVER PROJECT, ALBERTA

250 0.0 250

(meters)

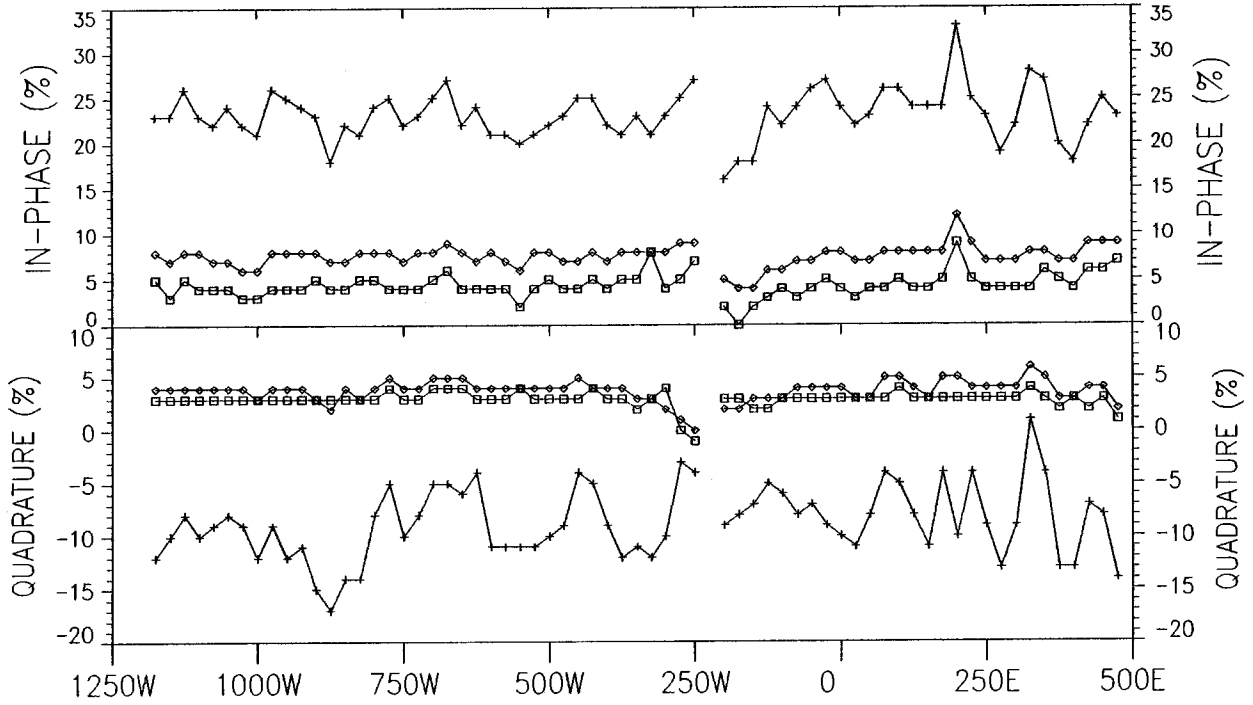


PRIMO RESOURCES

MAX-MIN HLEM SURVEY - L200N
COIL SEPARATION 50 METRES
SMOKY RIVER PROJECT, ALBERTA

Survey completed by Ralph Newson
November, 1998 using a Max-Min 2 Plus

Plotted by STRATAGEX LTD., Toronto

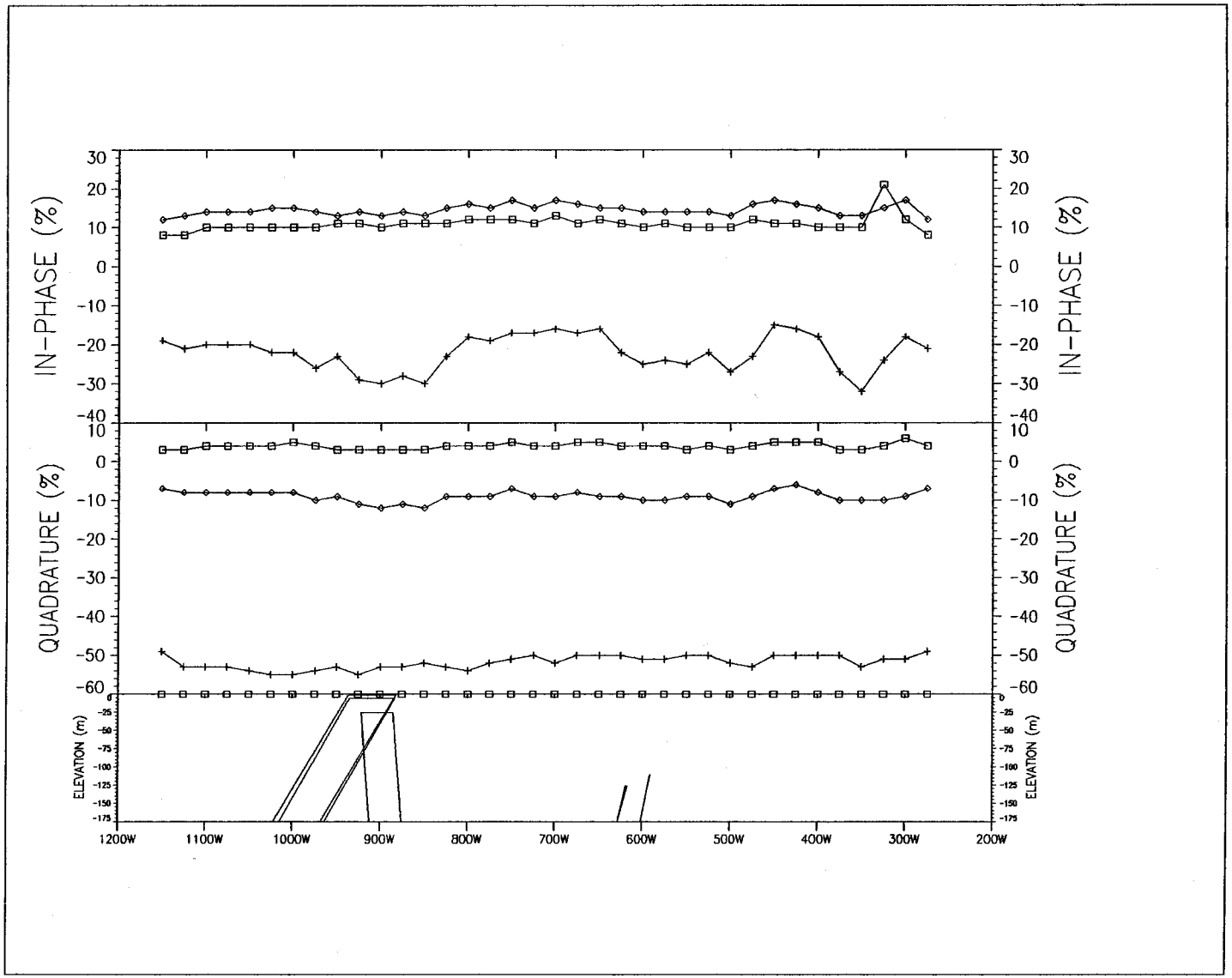


PRIMO RESOURCES

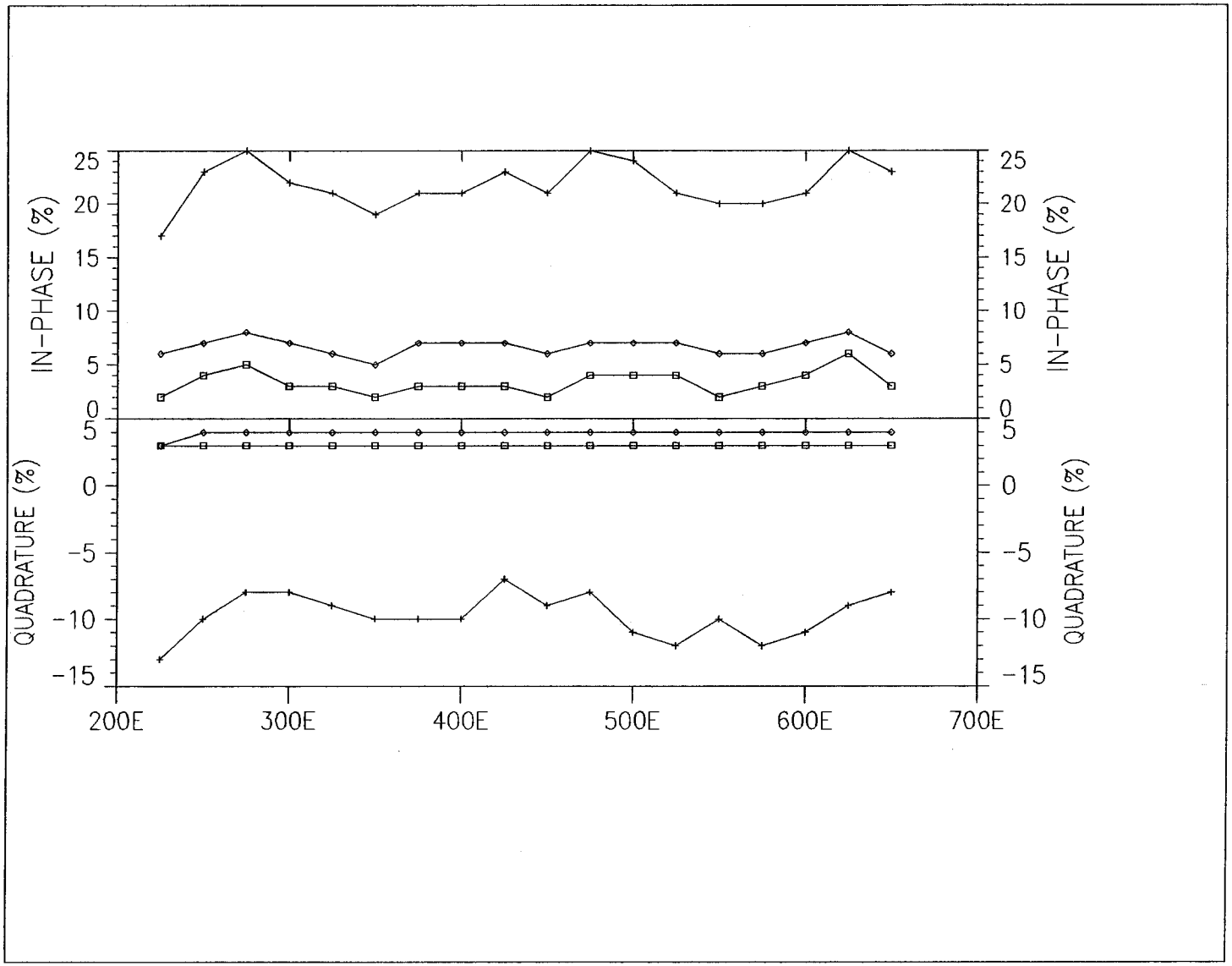
MAX-MIN HLEM SURVEY - L200N
COIL SEPARATION 50 METRES
SMOKY RIVER PROJECT, ALBERTA

Survey completed by Ralph Newson
November, 1998 using a Max-Min 2 Plus
Frequencies Read: 222Hz, 888Hz, 3555Hz

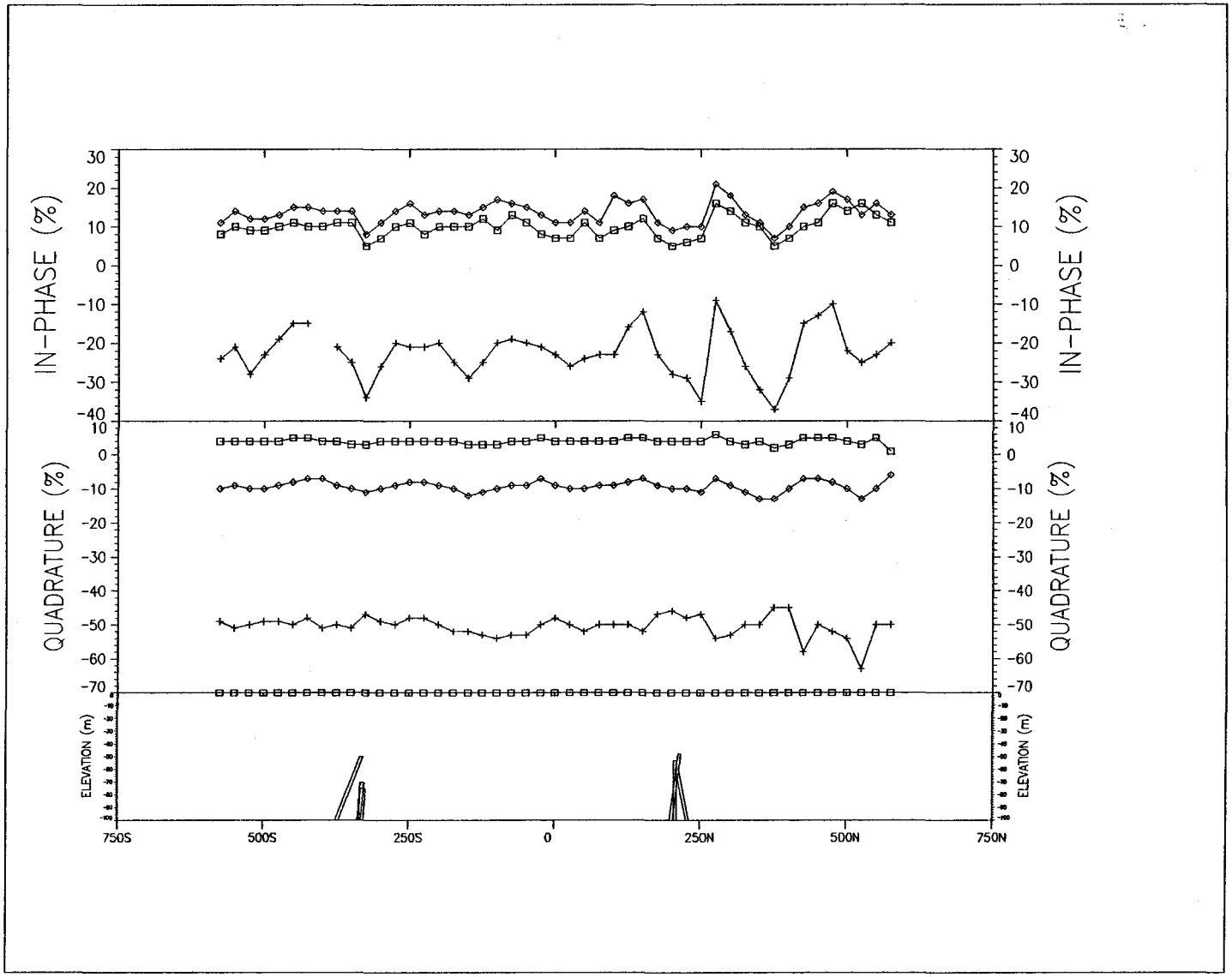
Plotted by STRATAGEX LTD., Toronto



PRIMO RESOURCES
MAX-MIN HLEM SURVEY – L200N COIL SEPARATION 100 METRES SMOKY RIVER PROJECT, ALBERTA
Survey completed by Ralph Newson November, 1998 using a Max-Min 2 Plus Frequencies Read: 222Hz, 888Hz, 3555Hz
Plotted by STRATAGEX LTD., Toronto



PRIMO RESOURCES
MAX-MIN HLEM SURVEY - L1000N COIL SEPARATION 50 METRES SMOKY RIVER PROJECT, ALBERTA
Survey completed by Ralph Newson November, 1998 using a Max-Min 2 Plus Frequencies Read: 222Hz, 888Hz, 3555Hz
Plotted by STRATAGEX LTD., Toronto

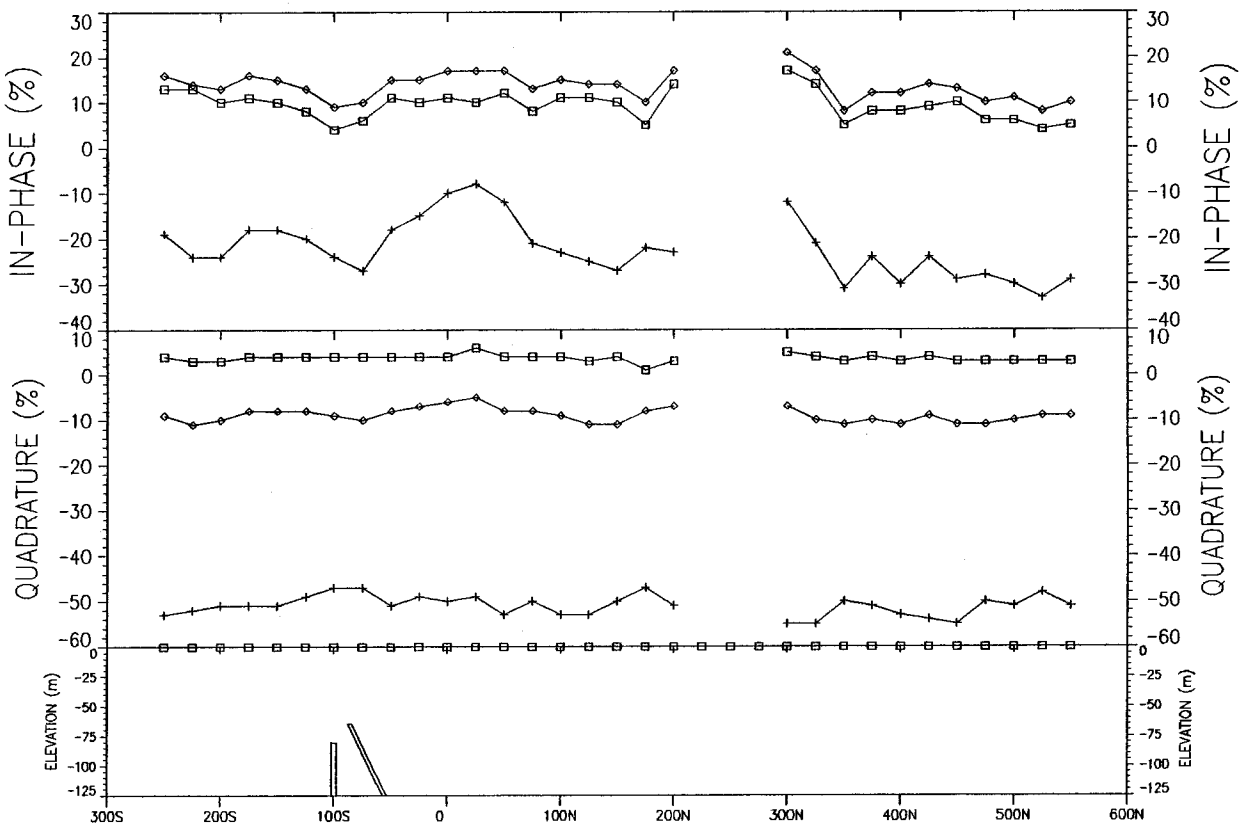


PRIMO RESOURCES

MAX-MIN HLEM SURVEY - L650W
COIL SEPARATION 100 METRES
SMOKY RIVER PROJECT, ALBERTA

Survey completed by Ralph Newson
November, 1998 using a Max-Min 2 Plus
Frequencies Read: 222Hz, 888Hz, 3555Hz

Plotted by STRATAGEX LTD., Toronto

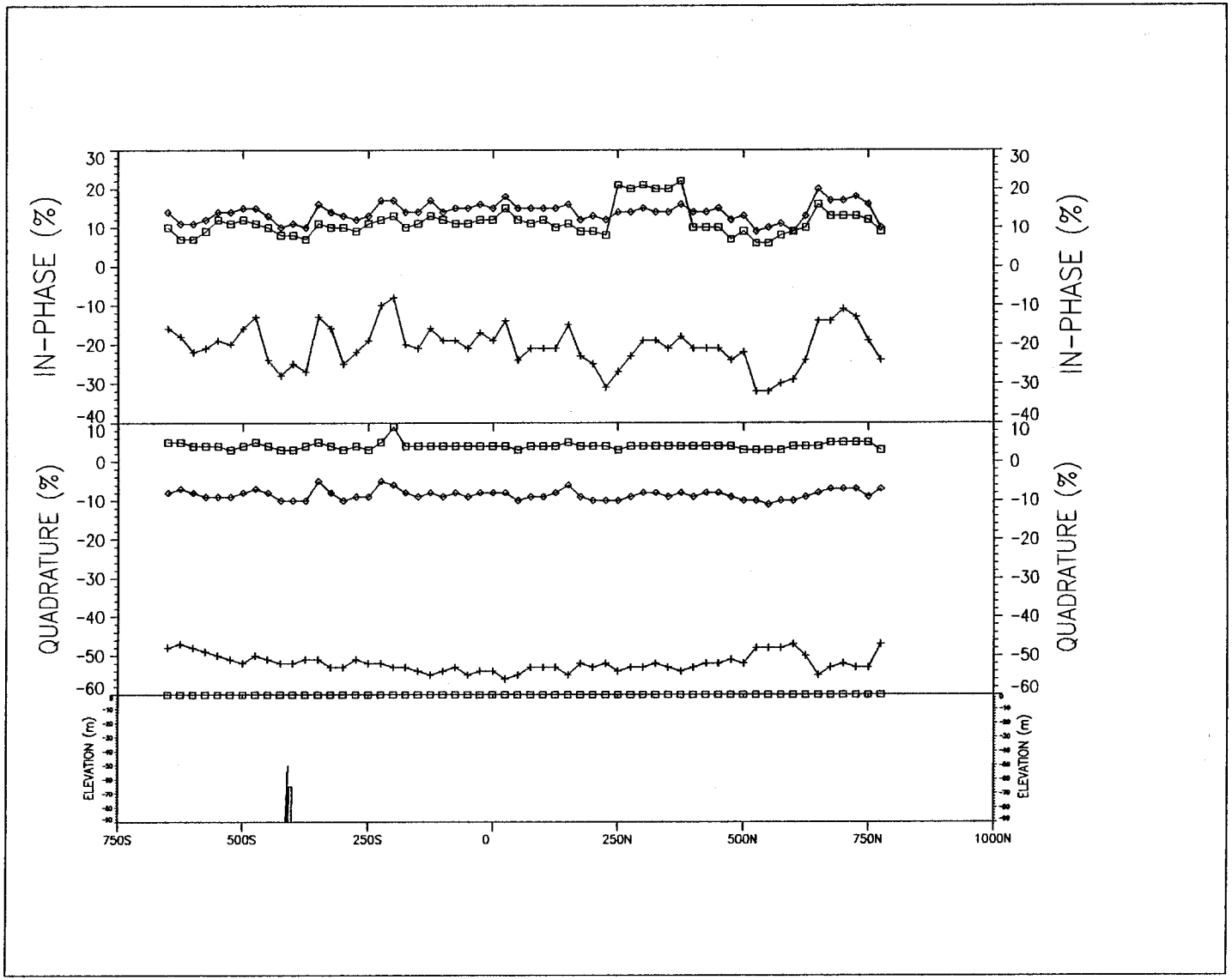


PRIMO RESOURCES

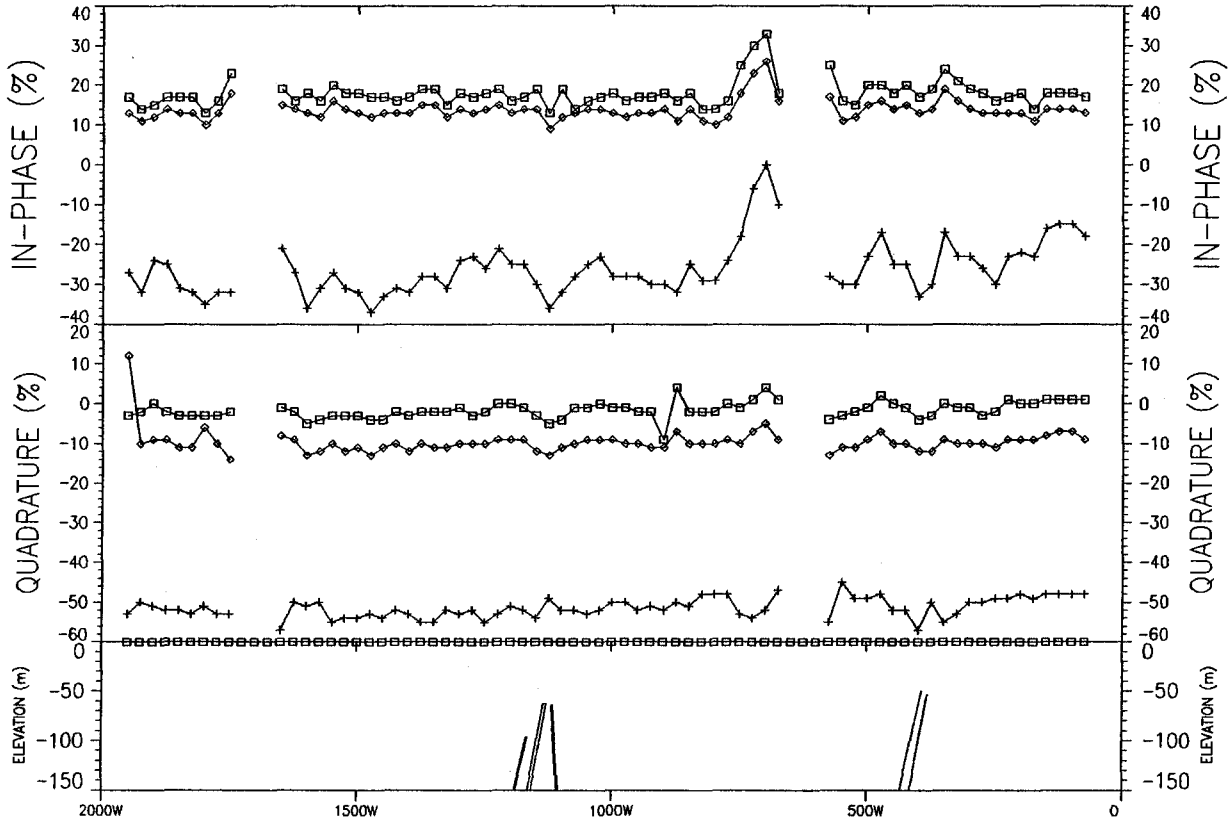
MAX-MIN HLEM SURVEY - L250W
COIL SEPARATION 100 METRES
SMOKY RIVER PROJECT, ALBERTA

Survey completed by Ralph Newson
November, 1998 using a Max-Min 2 Plus
Frequencies Read: 222Hz, 888Hz, 3555Hz

Plotted by STRATAGEX LTD., Toronto



PRIMO RESOURCES
MAX-MIN HLEM SURVEY - L1000W COIL SEPARATION 100 METRES SMOKY RIVER PROJECT, ALBERTA
Survey completed by Ralph Newson November, 1998 using a Max-Min 2 Plus Frequencies Read: 222Hz, 888Hz, 3555Hz
Plotted by STRATAGEX LTD., Toronto



PRIMO RESOURCES
MAX-MIN HLEM SURVEY - L600N COIL SEPARATION 100 METRES SMOKY RIVER PROJECT, ALBERTA
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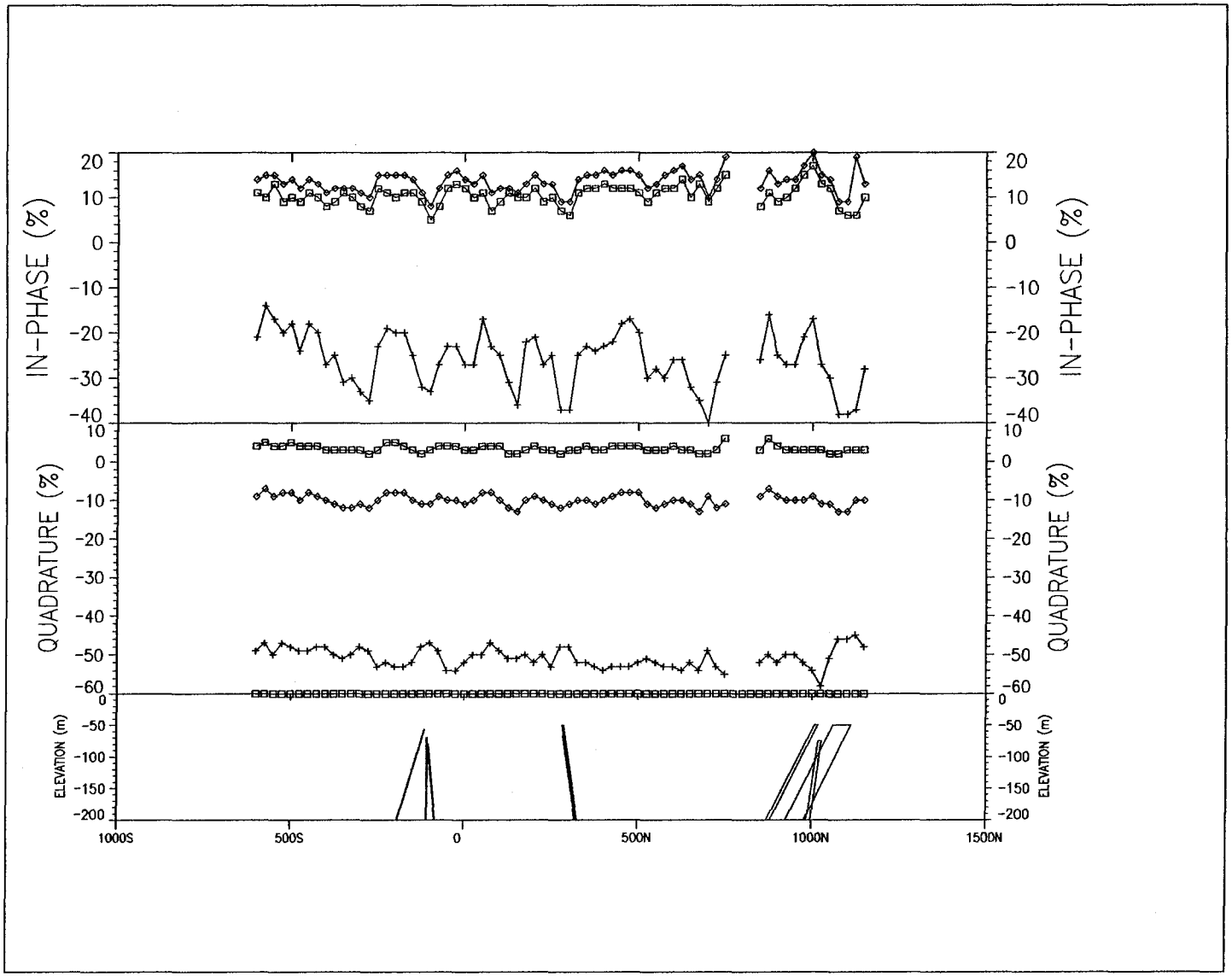

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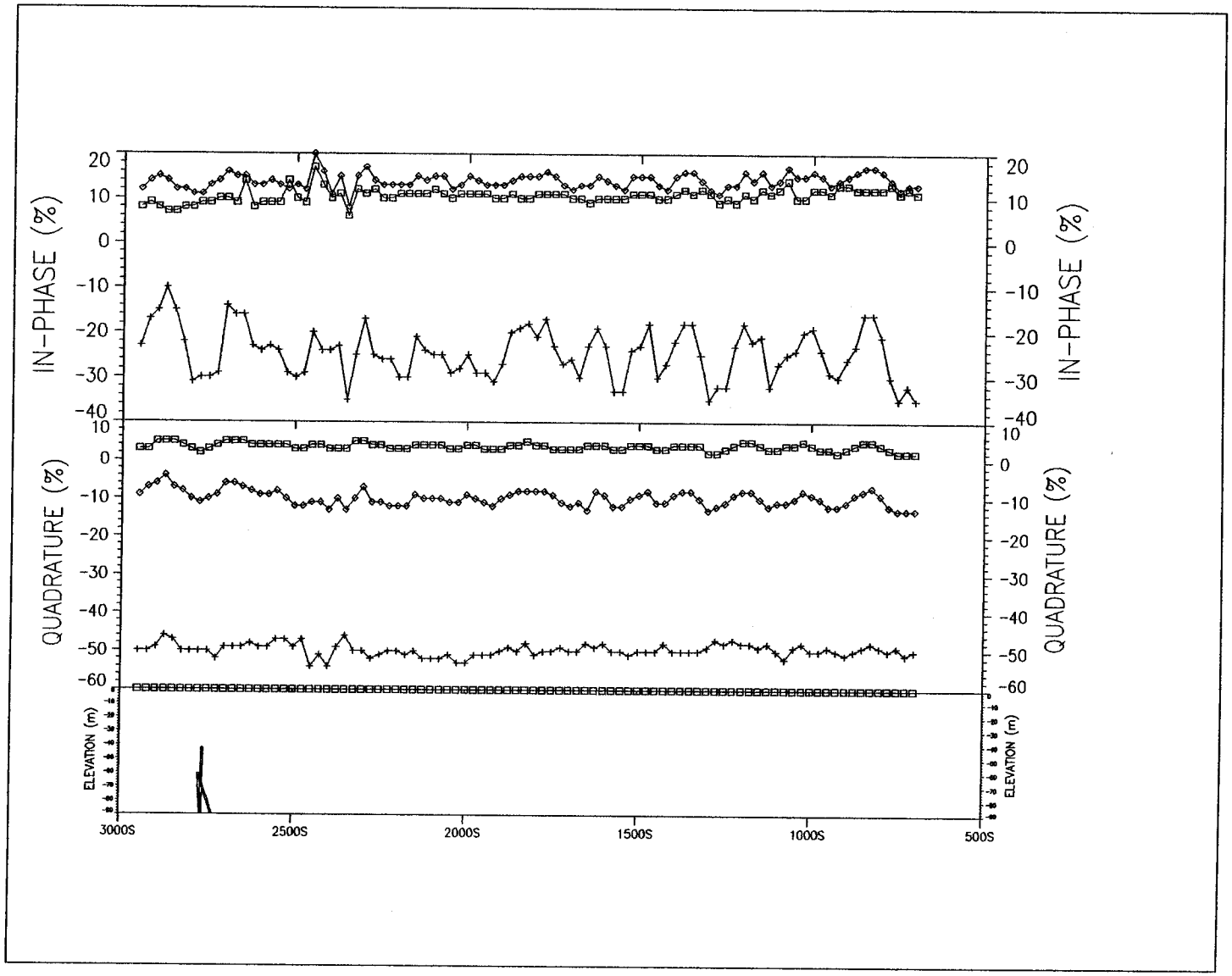
Plotted by STRATAGEX LTD., Toronto



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MAX-MIN HLEM SURVEY - L500W COIL SEPARATION 100 METRES SMOKY RIVER PROJECT, ALBERTA
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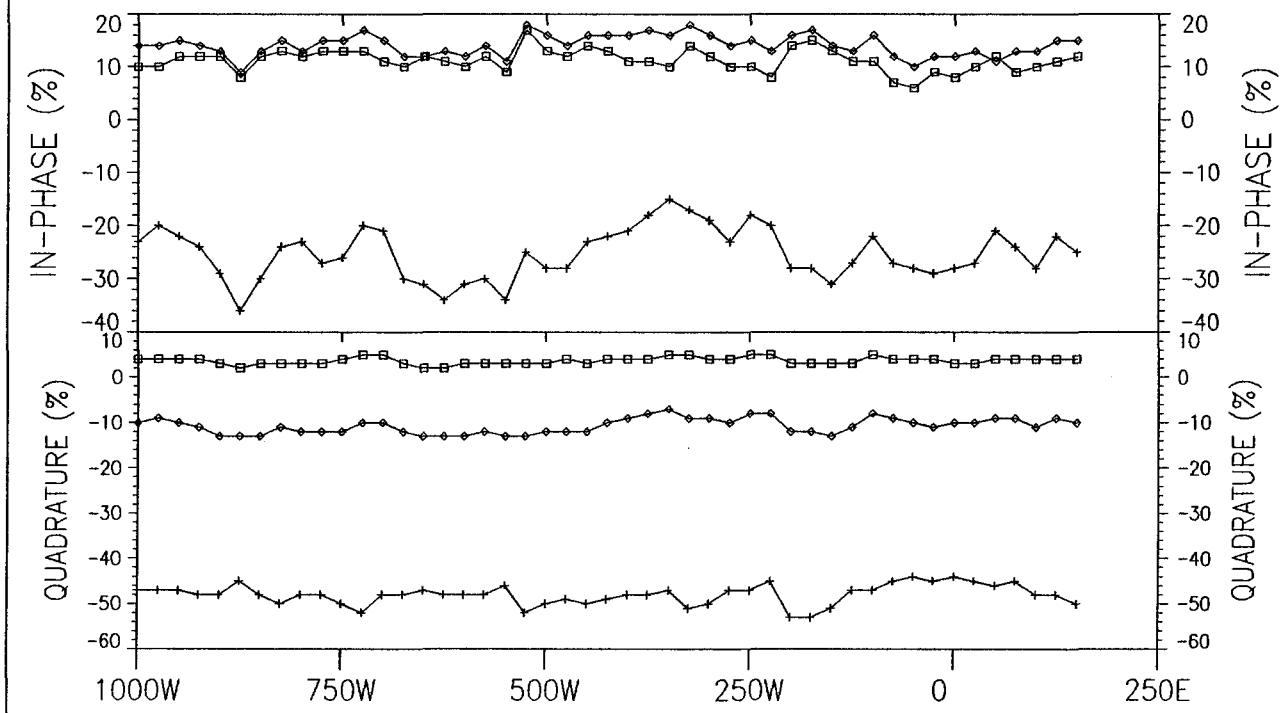
Plotted by STRATAGEX LTD., Toronto

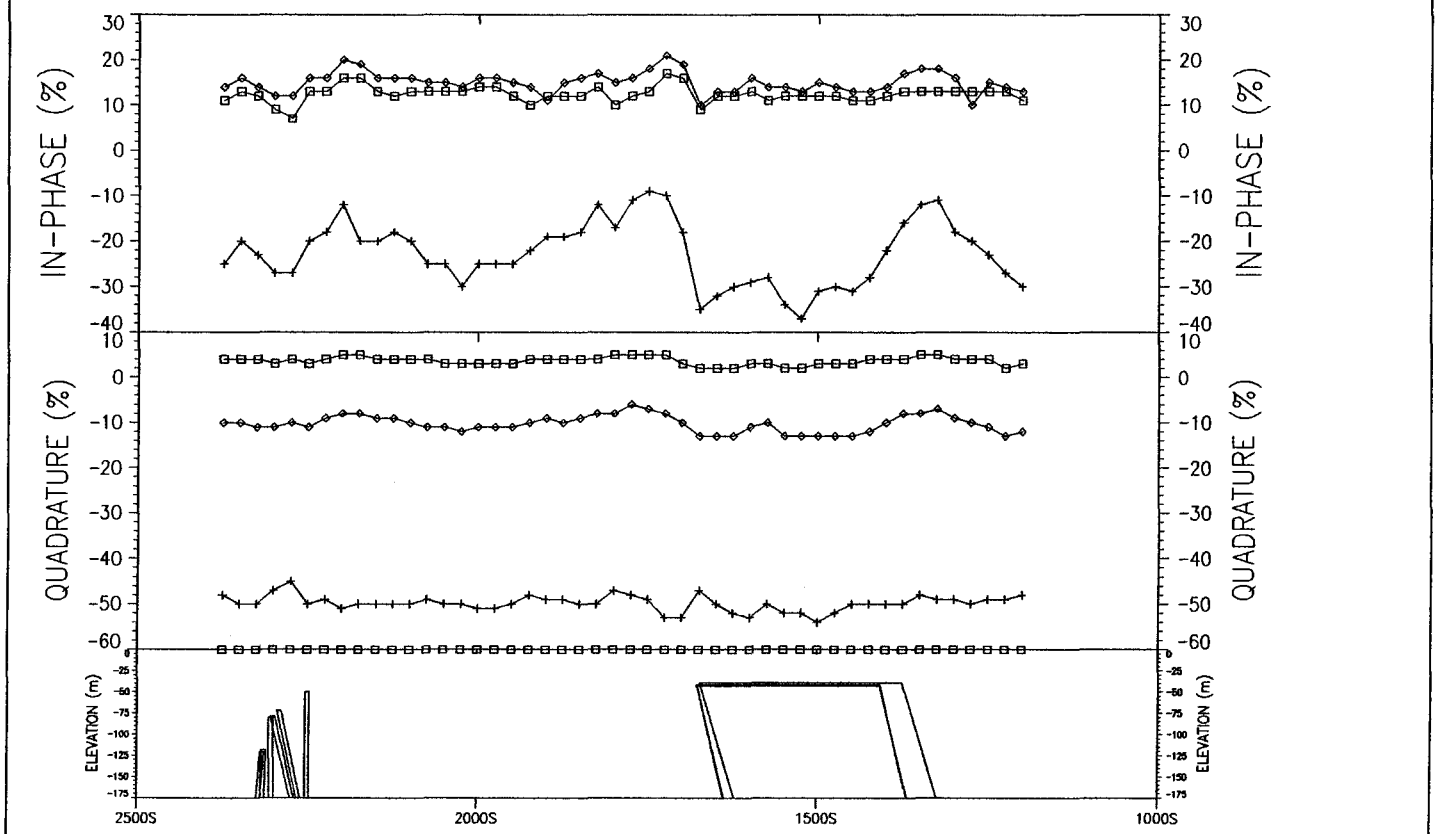


PRIMO RESOURCES

MAX-MIN HLEM SURVEY - L2400S
COIL SEPARATION 100 METRES
SMOKY RIVER PROJECT, ALBERTA

Survey completed by Ralph Newson
November, 1998 using a Max-Min 2 Plus
Frequencies Read: 222Hz, 888Hz, 3555Hz

Plotted by STRATAGEX LTD., Toronto



PRIMO RESOURCES
MAX-MIN HLEM SURVEY - L1000W COIL SEPARATION 100 METRES SMOKY RIVER PROJECT, ALBERTA
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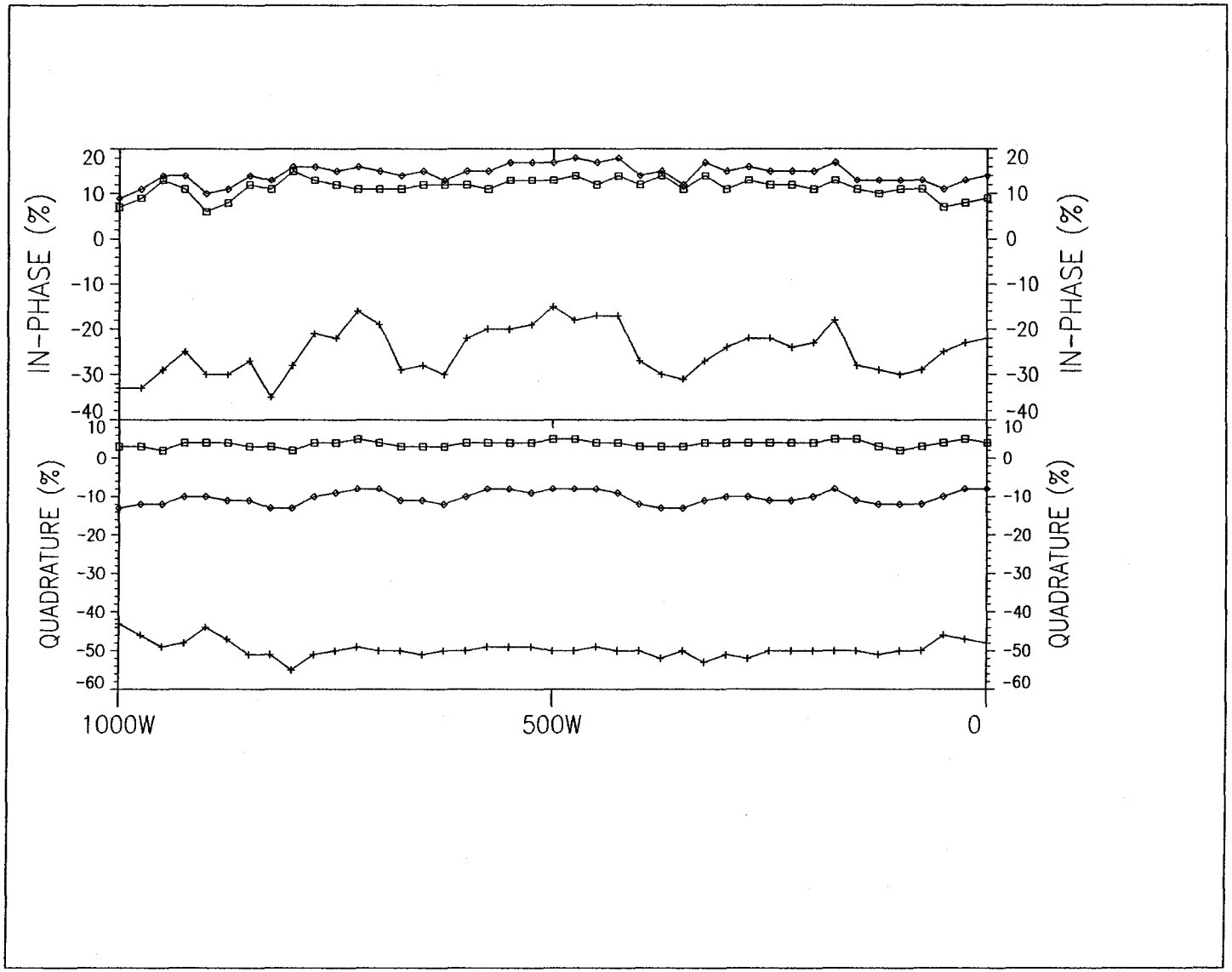

PRIMO RESOURCES
MAX-MIN HLEM SURVEY - L1300W COIL SEPARATION 100 METRES SMOKY RIVER PROJECT, ALBERTA
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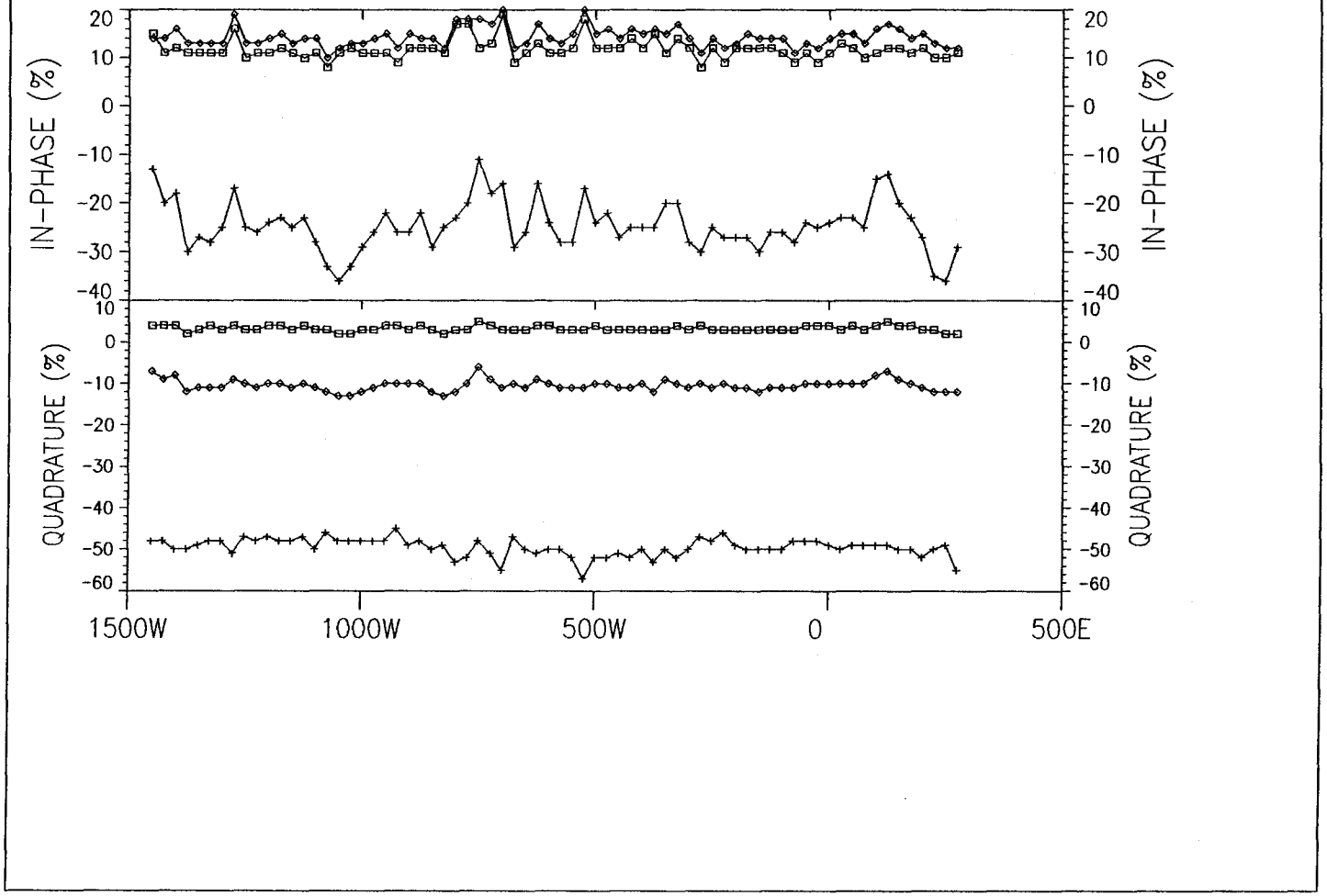

PRIMO RESOURCES
MAX-MIN HLEM SURVEY - L2000S COIL SEPARATION 100 METRES SMOKY RIVER PROJECT, ALBERTA
Survey completed by Ralph Newson November, 1998 using a Max-Min 2 Plus Frequencies Read: 222Hz, 888Hz, 3555Hz
Plotted by STRATAGEX LTD., Toronto

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Jens F. Touborg, FGAC

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November 18, 1998

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Magnetic, Landsat, Radar and Orthophoto Images **Image**

1.0 Summary

Primo Resources Ltd. Of Vancouver holds five exploration permits (#9396080067, 9396080066, 9396080065, 9397060149, 9397060148) in the Peace River Arch, an active Kimberlite and diamond exploration camp in NW Alberta. The property lies 20 kilometres SW of the town of Peace River around the Tangent oil field located between the Peace River to the West and Girouxville east of Smoky River. This report describes the results of a multidisciplinary and integrated exploration follow-up of a high-resolution airborne magnetic survey flown in the spring of 1998 to map basement structure and locate surface Kimberlite targets within a farmers field and prairie plateau terrain.

A potential Kimberlite cluster (1) 7 x 3 kilometres in area has been outlined at a giant fault junction on Permit 939608006, Township 81, Range 23, W5, at the intersection of four basement faults including a N20 West trending dextral fault which also hosts the Tangent oil field, a N70 East trending dextral system which parallels the Peace River Arch trend, a N70West trending conjugate system parallel to the Ft. St. John graben and the Smoky River N20-45 East trending dextral fault system. The three first mentioned systems are Precambrian growth faults which were periodically reactivated during Upper Devonian, Mississippian, Permian, and Cretaceous cratogenic pulses, but the NNE-SSW Smoky River trend is viewed as a younger, late Jurassic-Cretaceous Tertiary structure.

Work to date has focussed on bringing Cluster 1 to drill testing stage starting with

1) Magnetic interpretation of reprocessed, microlevelled total field, vertical gradient and horizontal gradient data sets to permit Euler Deconvolution solutions - a method to delineate near surface, 0-500 metres depth, cylindrical, pipe-shaped targets favourable for Kimberlite exploration
2) Interpreting digitally enhanced Landsat TM Principal component and satelliteborne Radar data sets using total field, shadowed total field, 1st vertical derivative, analytical signal, and Euler Deconvolution trend images as a guide to seeing structure at scales of 1:100,000 - 1:50,000 and 1:20,000.
3) Generating digital orthophoto mosaics from Cluster 1 and area 10-33 at the scale of 1:10,000 for detailed field reconnaissance, ground magnetic and heavy minerals soils sampling follow-up.
4) Researching oil field data sets at the Alberta Energy Core and GSC Libraries in Calgary
5) Field reconnaissance and ground prospecting to ground truth magnetic, remote sensing and photo based interpretations was carried out in July, September, October and November.
6) Establishing a 100 kilometre surveyed line grid at Cluster 1

Results of an eight man team effort, including geologists (2), geophysicists (2), prospectors (2), surveyor (1) and GIS-image processor (1) are:

1) Detailed prospect, and ground magnetic grid survey work on Cluster 1 to further investigate N45West trending airborne Euler deconvolution solutions extending from a flexure bend in the Smoky River to a road bend in Highway 740 has identified four

circular to half circular shaped magnetic lows and zoned complexes, each 800 - 1,200 metres in diameter, spaced 900 metres apart and bounded by N20West trending splays off the Tangent Normandville Fault. These inferred intrusions lie northeast of the Tangent oil field and they are separated from this by a N70East trending graben structure.

There is substantial evidence of surface volcanism at several localities, including a half circular zoned structure (Koon) off a bend in Highway 740 measuring 1 kilometre in diameter, suggesting a crater structure. A recent trench exposure of 5 feet of volcanic ash underlain by Lower Cretaceous mudstones of the Shaftesbury formation (assumed) and located adjacent to the above, supports the idea of volcanic regime.

2) Range road reconnaissances of the entire property has identified three throughoing potential volcanic belts oriented N20East parallel to the NE arm of Smoky River and include the Koon, the Blakley - Smoky River, Area 3 in the NE central block and Cluster 2 in the SE. In addition, a volcanic caldera origin is inferred for a series of stacked, half circular shaped wetland-swamp trends, the larger being 15 kilometres in diameter and centred in Permit D NW of Tangent Village. It is thought that the property hosts a large segment not previously recognized.
3) Detailed work to correlate drainage trends with magnetic, remote sensing Landsat and Radar and photogeological data sets down to 1:10,000 scale reveals in Cluster 1 excellent correlation.
4) Detailed ground magnetic, max-min electromagnetic and profile heavy mineral surveys are underway to define drill targets in Cluster 1.
5) Several prospective areas, such as Cluster 2 in the SE and Area 3 in the NE - both hosting Euler Deconvolution solutions, merit exploration follow-up pending evaluation of Cluster 1 prospect.

Exploration synopsis, to put the Buffalo Hills prospect into a regional Kimberlite scenario is:
Pipe-shaped intrusives inferred from zoned magnetic lows around Euler deconvolution solutions in Cluster 1 are hosted within a giant fault intersection controlled by the N20East trending Tangent-Normandville fault; surface volcanic structures and trench outcrops of volcanic ash invite correlation with known bentonite clays of the Shaftesbury-Dunvegan formation (Lower Cretaceous age) observed in cliff sections along the Peace River east of the property.

The Buffallo Hills property lies within recognized regional structural uplifts: 1) the Hangwall site of the Tangent-Normandville fault extensional structure with the east side down and an apparent dextral throw, and 2) the Peace River Arch, a complex discordant fault segment in which the Precambrian basement is elevated 1,000 metres relative to the Western Canada basin.

Although heavy mineral analyses are pending, the Primo property lies within an area with documented Kimberlite finds, for example, the Mountain Lake and Ashton areas, each

30-40 kilometres away, and numerous indicator mineral locations described in Alberta Geological Bulletin 66, 1998.

Primo Resources' Buffalo Hills property is accessible by major highways from Grand Prairie and Peace River and Highway 740 extends through the property. Numerous range roads permit access across the entire property rendering favourable logistics.

2.0 The Property: Ownership, Location and Accessibility

The property consists of the Alberta Mineral Agreements 939-6080065, 939-6080066, 939-6080067, 939-7060148, and 939-7060149. It is in NTS area 83N 13 and 84C 4, near the intersection of 56° 00' north latitude, and 117° 34' west longitude, about 15 km south of the town of Grimshaw, or 20 km southwest of the town of Peace River. The cadastral survey description is as follows:

T79 R23 W5 Sections 1-36,
T80 R23 W5 Sections 1-36,
T81 R23 W5 Sections 1-36,
T79 R24 W5 Sections 1-36,
T80 R24 W5 Sections 1-36,

Ownership is registered in the name of Primo Resources Ltd. of Vancouver, B.C.

Paved provincial highway 740 passes through the property. Grid roads provide access to all parts of the surveyed grid, and no part of the grid is more than a few hundred metres from a road.

3.0 Work Carried Out
3.1 Regional Geology

The Primo property lies within the SE rim of the Peace River Arch, a complexly faulted and multiply reactivated structure extending N60East from the foothills in the Rockies to the Grossmont Barrier in the East for a strike length of 400 kilometres. Whilst the Arch is a recognized hydrocarbon producer and hosts numerous large oil and gas fields of Upper Devonian, Mississippian, Permian, and Triassic age, it is also being explored for diamondiferous Kimberlites of Lower Cretaceous, Mid-Upper Albian age as outlined in an abstract by Dale Leckie (formerly of Geological Survey of Canada see app. 2).

The Arch is a totally independent structural regime and it is discordant to Precambrian basement trends, to Paleozoic - Mesozoic - Cainozoic Western Canada Basin depositional trends and Cordilleran orogenic structures as shown on maps Fig. 3, 4, 5, & 7.

Precambrian Developments

The Precambrian geologic setting interpreted from regional aeromagnetics, drill cuttings and radioactive age determinations described in Ross (1970) places the property within the Buffalo Head Craton, a high-grade metamorphic basement complex of Archean - older Proterozoic age with zircon ages ranging from 2.322 to 1.9936a suggesting a younger thermal overprint.

Magnetics around the Primo property illustrate broad N20W trends curving to N-S to N20E against the Hay River Fault to the North. The Precambrian basement is buried 1500 - 1800 metres below surface within the Peace River Arch and it is elevated approximately 1,000 metres relative to the deep Western Canada Basin (Fig. 7). Whilst the Proterozoic and Lower Paleozoic history is little known, the arch was a highland in Mid-Upper Devonian time with reef limestones and tidal carbonates being deposited in a rim "The Leduc Reef" around Precambrian crystalline metamorphics as illustrated in Fig.3, 5.

A complex cratogenic fault development took place during the Devonian and Mississsippian and resulted in complete collapse of the Arch during Debolt time. Periodic fault reactivations continued through Upper Devonian, Mississipian, Permian and Cretaceous times and took place along N20West, N70East, N70West trends.

In the Primo area between the Shaftesbury ferrry site in the NW and the Tangent oil field - Smoky River - Normandville oil field in the SE region, a set of high resolution airborne magnetic data sets (see Map 2 and Appendix 1) reveal the existence of a major reactivated basement fault array oriented N20West and host to above mentioned hydrocarbon fields (see Map 2 and Figures 4 and 5).

Oil field research by Mountjoy *et al* (1988) has documented the existence of dolomitized tidal limestones of Upper Devonian - Wabamun age forming porosity traps along a large extensional fault east side down and coincident with the above mentioned Precambrian

structure. Age dating by the above authors reveal three major episodes of dolomitization concurrent with Upper Devonian, Early Carboniferous and Permian fault rejuvenations. Primo's exploration work confirms a Lower Cretaceous episode of volcanism, diatreme intrusions and extensional fault reactivations.

Jurassic - Lower Cretaceous Developments

Carbonates and shales of the Lower part of the Fernie formations were deposited on a stable platform in a broad NE trending zone prior to the onset of the Columbian orogeny. During Lower Cretaceous time, accentuated subsidence took place and is recorded in the Peace River formation illustrated in stratigraphic tables fig. 7&8. Detailed geological sections exposed in cliff profiles along the Peace, Hart and Smoky rivers suggest continued subsidence along pre-existing fault systems resulting in significant sea level fluctuations.

Referring to Fig. 8, the Harman member within the Peace River formation reflects offshore (deep) marine conditions but the overlying Cadotte member records tidal (near shore) sands, whilst a major unconformity separates the Cadotte from the overlying Paddy member. The latter has cut incised channels into the Cadotte during a fall in sea level. During Shaftesbury time, marine mudstones were deposited during a transgressive event and rise in sea level. A radioactive shale with organic fish remains, the "Fish Scale marker", was deposited at the top of the Peace River formation prior to the Colorado sea transgression.

With respect to the timing of Lower Cretaceous Kimberlite emplacement and volcanic activity, Dale Leckie (formerly of Geological Survey of Canada) in a recent address (Leckie, 1998, Appendix 2), places the Kimberlite activity in the Mid-Upper Albian time at the Shaftesbury - Dunvegan interval approximately 100 million years ago.

3.2 Airborne Geophysical Data

Airborne magnetic data sets (see images 1-5) obtained from a high resolution survey flown at 160 metres altitude above ground level on lines oriented N-S from the Terraquest Survey (see app. 1) were subjected to detailed quality control by Dr. Rob Hearst of Stratagex Ltd. in order to:

1) verify filtering out of cultural effects caused by farmers storage bins, machinery and oil field related structures such as pipelines, drill hole casings, oil tanks and gas plants
2) micro level total field, vertical and horizontal gradient data sets for detailed geophysical processing
3) illuminate structural trends by shadowing total field magnetic data
4) develop Euler deconvolution solutions to define near surface (0-500) metres in depth, pipe-shaped structures and potential Kimberlite exploration targets
5) Integrate airborne and ground magnetic data sets from Cluster 1 and area 10-33 exploration grids

In addition to the above, a digital topographic map was constructed from GPS airborne data sets to precisely define the centres of the Euler deconvolution solutions and permit merging of Landsat satelliteborne Radar, airphoto and magnetic and landowner data sets.

Geology and stucture interpreted from total field, 1st vertical derivative, analytical signal and Euler deconvolution solutions and viewed in a regional geologic oil field frame at 1:100,000 scale (see Map 2) features:

1) a Precambrian plutonic granitoid domain composed of five different entities such as:
   i) The Smoky River, deep-seated pluton in the NE corner of the property.
   ii) The Tangent-Normandville fault, a N20West striking magnetic low extending from east of Shaftesbury ferry site on the Peace River down west of Area 10-33 to Cluster 1 to the flexure in Smoky River and down SSE to cluster 2 in the SE property corner. The break is up to 5 kilometres in width and it is expressed in a wide array of magnetic linears. It hosts large hydrocarbon bearing dolomitized reservoirs of Wabamun age tidal limestones arranged in a broad N20West trending belt directly SW of Cluster 1.
   iii) The Tangent-Normandville fault separates the Smoky river Pluton from the Western Central circular, a 15 kilometre diameter magnetic high centred at 458,000E, 6,200,000N within a swamp and wetlands area NW of Tangent Village. This is a complex body with both a seep seated and shallow near surface volcanic intrusive component that coincides with a large-scale surface depression and possible Caldera structure. The body is truncated by N20-30East trending discontinuities associated with younger, Lower Cretaceous (inferred) volcanic activity and fault development.
   iv) A magnetic low to intermediate body approximately 5 kilometres in diameter roughly centred around Cluster 2 at 468,000E, 6,194,000N on the Smoky River suggests a separate intrusion. Two elongate areas of magnetic highs coinciding with river bends are viewed as heavy mineral concentrations of magnetite.

v) A large magnetic low in Permit E at the SE property corner bounds the central circular to the south. It has an inherent N70West trend suggesting a supracrustal gneiss belt.

The Euler deconvolution solutions (see map) group in three principal areas, Cluster 1, a 7x3 kilometre wide area extending from Smoky River flexural bend to NW to the Koon Liefbroer Farm and Highway 740 on the west side of Permit A. The Euler solutions occur in single solution or in clusters of 5 to 15 centres and there is a distinct alignment on both N20West subsidiary splays along the Tangent - Normandville fault and N70West trend. The latter is illustrated by a wide depression extending from the flexural bend in Smoky River to a dextral flexure in the Peace River.

3.3 Property Geology

Geological reconnaissance surveys carried out along range roads to ground-truth Landsat, Radar, photogeological nad magnetic interpretations in the greater Tangent-Normandville -Peace River - Smoky River area has identified a Lower Cretaceous (inferred) volcanic regime of surface volcanics and potential intrusive pipes within a N20East trending horst structure (inferred) extending from Eaglesham to Peace River and beyond. The evidence for a lower Cretaceous volcanism as seen in the field and interpreted from remote sensing, low level airphoto mosaics and magnetic data sets is as follows:

i) circular-curvilinear structures up to 1 kilometre in diameter occur intermittently along highway 740 and extend from northwest of Tangent Village to Koon Liefbroer farm and NW tip of cluster 1 to area 10-33 and beyond for a strike length in excess of 15 kilometres. Detailed grid magnetic and airphoto enhancements from the Koon structure (see Figure 5 and Images 6, 7 and 8) reveals a half-circular, concentric configuration with coincident layered magnetic structure and suggests a volcanic crater. A recently dug water storage trench at the Koon farm illustrates a 5-foot ash and volcanic tuff horizon overlying Cretaceous mudstones of supposed Shaftesbury formation. In addition, farmers located boulders of volcanic sinters and pumice, but these were not seen in outcrop.

ii) Detailed grid magnetic data sets from Cluster 1 viewed together with Aeromagnetic and photogeological data sets reveal the existence of a large N20West trending magnetic low approximately 1 kilometre wide extending from a bend in the Smoky River to the NW permit boundary along the Tangent-Normandville fault. It hosts three circular bull's eyes and zoned structures expressed in distinct magnetic lows suggesting near surface intrusive pipes and potential Kimberlite bodies. Whilst pyroxenite boulders were located on the ground, there are no outcrops in the flat farmers fields.
Area 10-33 (see maps 5, 6, Image 12A, 12B, 12C) is a large-scale circular structure 4-5 kilometres in diameter located in the NW corner of Permit A around Highway 740. Although the geology is far from understood, the body has a distinct internal layering of alternating sloughs with capping hills 100 x 400 metres in area suggesting a ring complex. In addition, oil well 10-33 contains drill cutting of a 50 metre breccia section of high metamorphic garnet amphibolite breccia in the top section and it is underlain by Cretaceous mud stones of the Shaftesbury formation suggesting a diatreme breccia. Details of preliminary mineralogical-petrological work is given in Appendices 3 and 4.

iii) Smoky River airborne magnetic data sets from the NE property corner viewed together with Landsat enhancements reveal the existence of magnetic belts with N20East trend east of Smoky River and suggest intrusive axes greater than 10 kilometres in strike.

iv) In the Central Circular area, Landsat enhancements, for example bands 4,5,2 or principal component composites illustrate large scale concentric moisture trends up to15 kilometres in diameter and centred in the lake area NW of Tangent Village.

Whilst the Aeromagnetic data suggest the existence of a large-scale near surface igneous body coincident with the surface wetlands depression, it is currently thought that the Central circular is a large-scale volcanic caldera depression with the central lake systems being the vent area.

With respect to Pleistocene and Quartarnary developments, the record is scanty, and it is the general impression that glacial cover is non-existent in the flat farmers' fields. The area is rich in subtle drainage features and all of these can be correlated with basement magnetic trends. It is recognized that a thin glacial cover may be present, but there is insufficient trench data or vertical profiles.

Structural developments

Multiple exploration data sets viewed at regional and detailed property scale from 1:100,000 down to 1:10,000 together with oil-gas field and ground prospecting information suggests that Cluster 1 lies at the intersection of 5 different entities including:

1) the Peace River N70East fault belt, a system of parallel fractures and growth fault trends contained in an eight kilometre wide array with distinct dextral offsets around the above river system.
2) The Tangent-Normandville fault belt, a N20West trending Precambrian growth fault system extending from Peace River East of Shaftesbury ferry site to area 10-33 to Cluster 1 to a flexural bend in Smoky River and down same to Cluster 2 to Normandville oil field SE of the property. The Tangent field lies SW of Cluster 1 with dolomitized porosity traps in Wabamun age Tidal limestones oriented N20West in subsidiary splays to the main fault (see Figures 5 and 7). Whilst magnetics suggest a Precambrian origin, the fault was periodically reactivated into Cretaceous - Tertiary time as illustrated by the fault bounded nature of magnetic lows and pipe-shaped anomalies in Cluster 1 and the strong drainage expression.
3) A N70West structure, a possible splay off the FT St. John graben (see Fig. 3) extends from large bend in Peace River to the Koon Circular down to Cluster 1 and terminates at the flexural bend in Smoky River.

In summary, the Cluster 1 pipe anomalies are located at a giant fault junction of three Precambrian or old Paleozoic growth faults, a younger N20East system of Lower Cretaceous faults and a large volcanic (?) caldera depression - the Central Circular to the southwest.

3.4 Cluster 1

The following addresses geological structure and exploration potential of Cluster 1 (see Maps 3 and 4, and Magnetic Images 6-11) and is based on integration of ground magnetic (Newson, 1998), airborne magnetic (Hearst, 1998), and orthophoto image data a sets at 1:10,000 scales and highlights are lists as follows:

1) the ground magnetic data are very noisy despite filtering of cultural artifacts and removal of spike anomalies. Nevertheless, a total field image merged with a black and white orthophotomosaic image illustrates a N20West trending magnetic low contained between the Smoky river magnetic high to the NE and the Central circular high to the SW similar to the vertical gradient airborne magnetic map.

The magnetic low is composed of a series of half circular to bull's eye zoned magnetic anomalies with a central low and fringing high, for example, the Koon, the Sipma, the Nemecz, and the Henderson sites. The centres are spaced 800-1,200 metres apart and the lows cover a 0.8 - 1.0 square kilometre area. The structural configuration suggests an en echelon dextral offset consistent with the regional setting.

The above picture is disturbed by a series of dextral faults oriented N75East and N75West with the WNW-ESE system being the stronger. At the Koon circular, in the West apex of the grid, a half circular-shaped zoned body 1.2 x 0.5 square kilometres in area is offset by N70West dextral faults and the structure is possible part of the Sipma circular.

In regards to the conjugate display of N70East and the N70West dextral systems, the Cluster 1 area is bounded to the south by a N70East trending dextral fault and ravine just SE of the grid, but there area several examples of alignment of subtle photogeological and magnetic N70East trends in the north half of the grid area.

In addition, there are examples of N45West trending magnetic faults with apparent dextral offsets and matching alignment with photolinears.

In summary, there is an excellent correlation between ground magnetic and drainage structures shown on low level orthophotomosaics - the most striking examples being the apparent volcanic crater structure at the Koon site and the four different fault trends. More important, it is documentation that major strucutres are expressed down to smallest 1:10,000 map scale.

3.5 Anomaly 10-33

A prospecting reconnaissance and photogeological study at 1:10,000 scale was carried out in the NW corner of License 9-39-6080067 to investigate a large diatreme and intrusive structure inferred from a find of high metamorphic garnet amphibolite rock seen in drill cutting from the top 55 metre section of oil well 10-33. In addition, a ground magnetic survey was carried out on an 800 x 800 metre grid around the oil well to further ground truth the diatreme model.

Results of work are:

Results of work shown in Maps 5, 6, Magnetic Images 12a, 12b, 12c and Appendix 3 and 4 are:
Map 5 at 1:10,000 scale is a photolineament map of the NW permit corner and surrounding lands and illustrates a large circular body 3.5 kilometres in diameter centred at UTM 466,000 E, 6,214,000 N and extending from the Don Freeland farm boundary to the Shaftesbury ferry site on the Peace River outside the property boundary. An intrusive origin is inferred from the general morphology, internal structure and occurrences of granitoid boulders on the Primo ground.

Whilst the intrusive is bounded to the West by a N20West fault structure, and large scale N70West and N20East systems along the south side, there are internal N20East trending structures subparallel to Highway 740 and throughgoing N70East trends external to Smoky River.

Field traverses to investigate an unusual alignment of sloughs in a half-circular configuration revealed a contrasting morphology of circular to rectangular depressions 350 x 150 metres in extent rimmed by small hills, suggesting a layered structure.

The top section of Well 10-33 was logged by Daniel Rota (see appenndix 3) and further mineralogical study was undertaken at the Saskatchewan Research Council (appendix 3B).

A ground magnetic survey on a 800 x 800 metre grid around well 10-33 was undertaken by Newson Consulting (Newson, 1998) with follow-up processing by Statagex Ltd. of Toronto, shown on Images 12a,b,c. Although the survey area is small and total field data Map 5a shows four different magnetic units with N20East strike parallel to photolineament trends, the analytical signal and 1st vertical derivative maps illustrate a circular body with pipe-like anomalies (Map 5b) and a radial fracture pattern (Map 5c)

The 10-33 area is viewed as a complex diatreme structure and additional prospecting and soil sampling in the grid area and adjoining lands is warranted to test the Kimberlite exploration potential.

4.0 Conclusions and Recommendations

The Buffalo Hills Property of Primo Resources Ltd. contains a cluster of pipe-shaped zoned magnetic lows which are hosted in a major uplift and reworked Precambrian growth fault also hosting major hydrocarbon fields in Upper Devonian dolomite reservoirs buried 1,500 metres below surface.

Currently detailed max-min electromagnetic and heavy mineral soil sample surveys are being carried out to test the surface signature of the above-mentioned pipe anomalies in Cluster 1. Pending results of these surveys, a follow-up shallow seismic reflection survey to model the shape of the intrusives prior to drill testing is planned

5.0 References

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J. F. TOUBORG CONSULTANTS INC.

Mineral Exploration Services – Radar, LANDSAT, Photogeology & Image Processing

Certificate of Qualifications

I, Jens Fris Touborg, of [redacted] Ontario, L6J 4W4 am a graduate geologist and hold degrees of B.Sc. from the University of Uppsala, Sweeden, and an M.Sc. from the University of Copenhagen, Denmark, 1967.

I have been a Fellow of the Geological Association of Canada since 1972.

I have been engaged in private consulting business to the mining and oil industry since 1982 and worked nationally and internationally on major mining and exploration projects since 1968.

I have not received direct or indirectly, nor do I expect to receive any internal direct or indirect interest in the properties or any affiliates of them, nor do I beneficially own directly or indirectly any securities of Primo Resources as any official thereof.

I am familiar with the geology of the Peace Rive Arch from previous client work

I have been in charge of the project since May 1998.

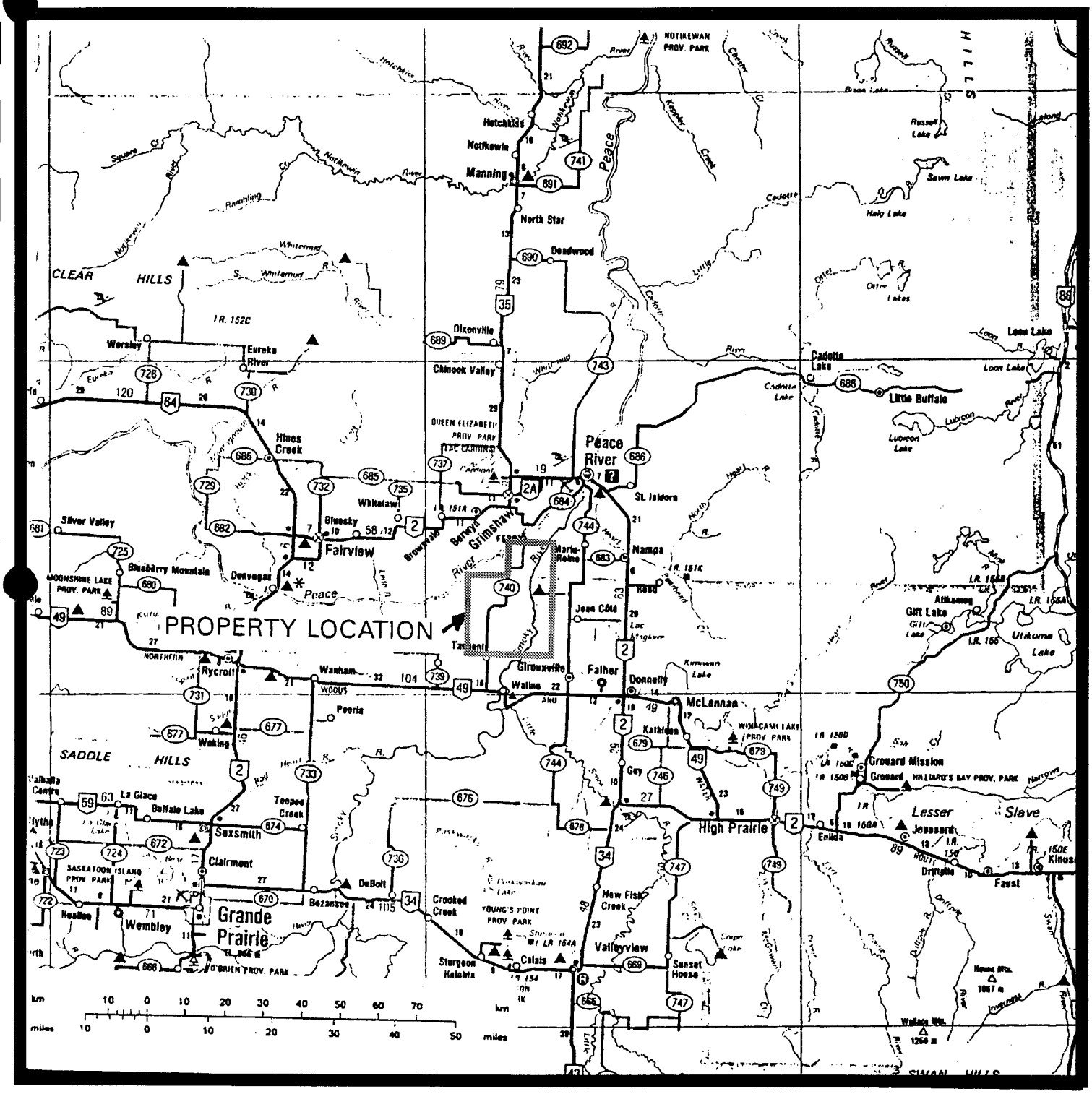
I hereby consent to the use of this report in conjunction with the submission of a financing document to regulatory bodies and for other corporate purposes.

[redacted]

Jens F. Touborg
November 18, 1998

243 Woodland Drive
Oakville, Ontario L6J 4W4
Tel: 905-842-6915
Fax: 905-842-8296

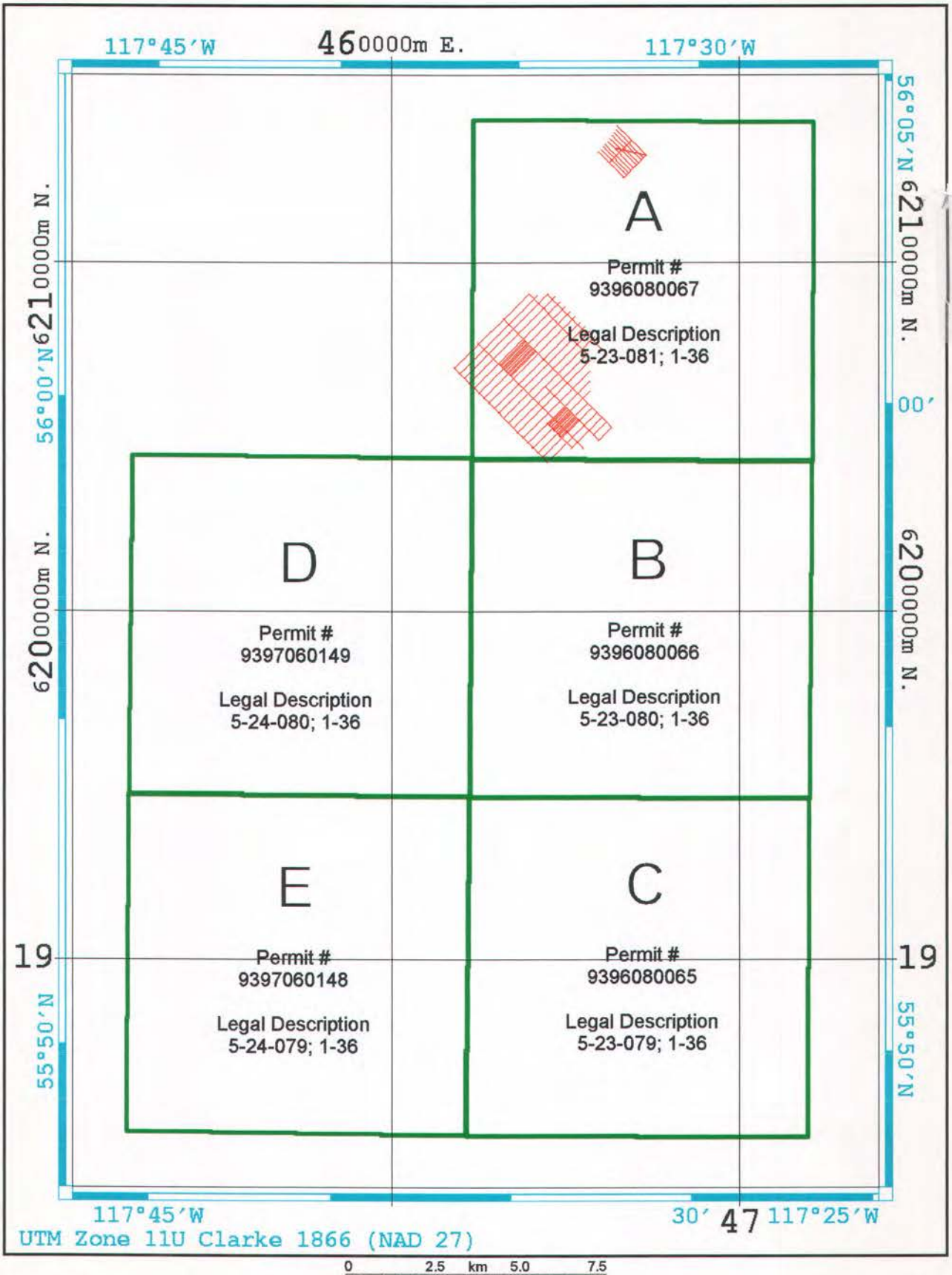
Figure 1



N

Primo Resources' Buffallo Hills Project, Alberta
Location Map

Figure 2



Primo Resources' Buffalo Hills Project, Alberta
Permit Area and Grid Line Map

Processed by
J. F. Touborg
Consultants Inc.

PEACE RIVER ARCH/BASIN
MAJOR FAULTS AND GASFIELDS

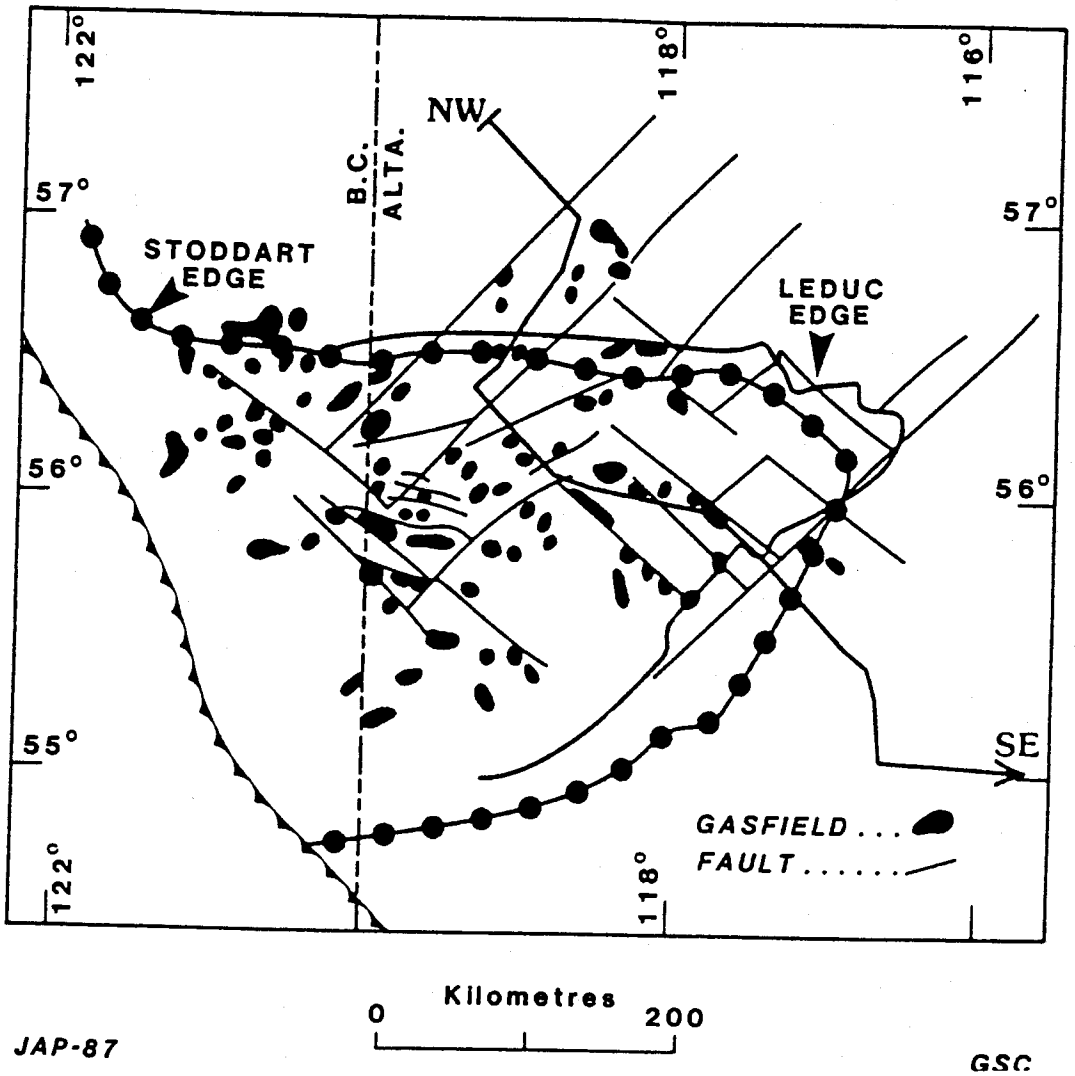
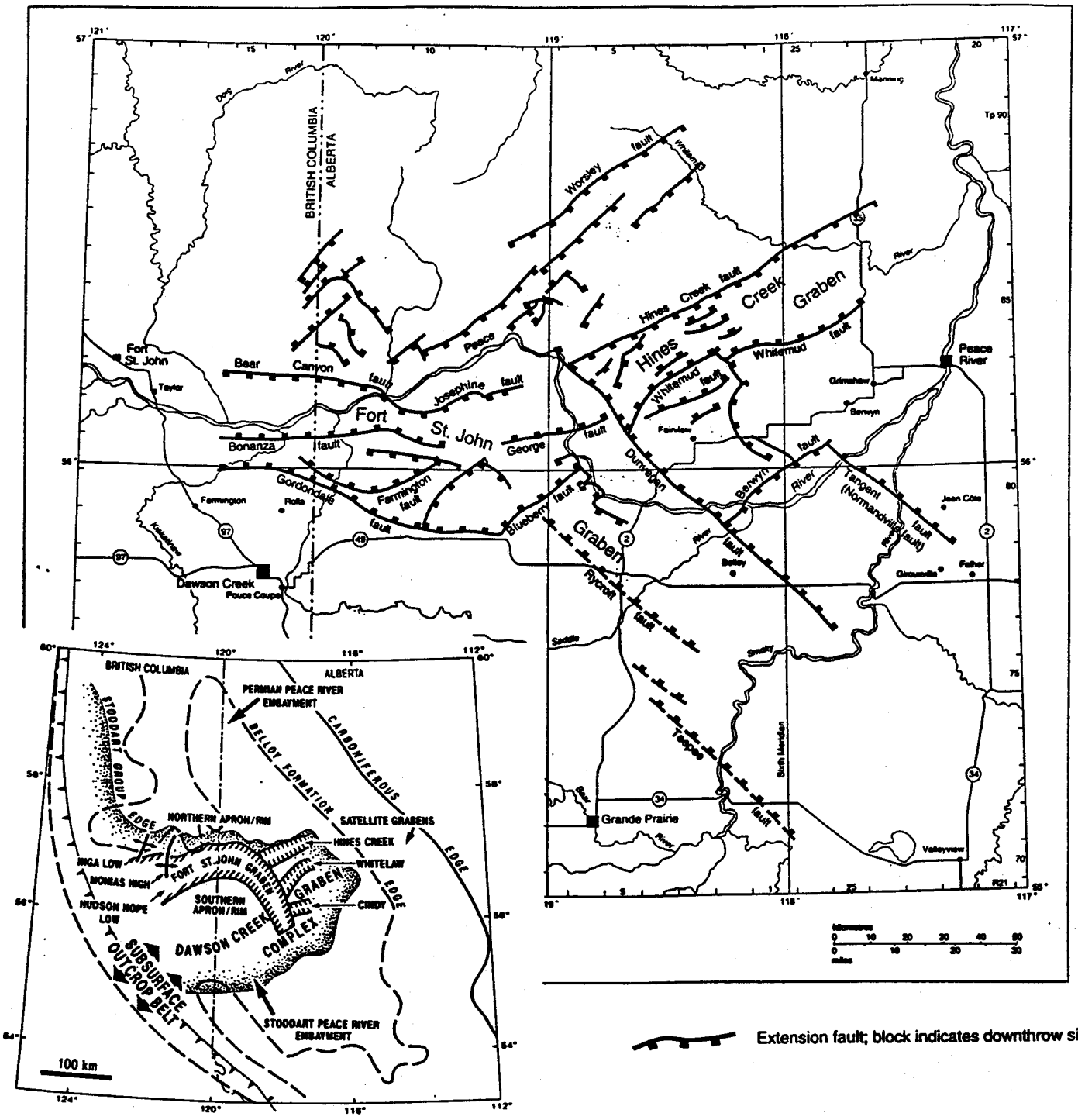


FIG 3



Major structures in the Peace River Embayment

Fig 4.

Figure 5

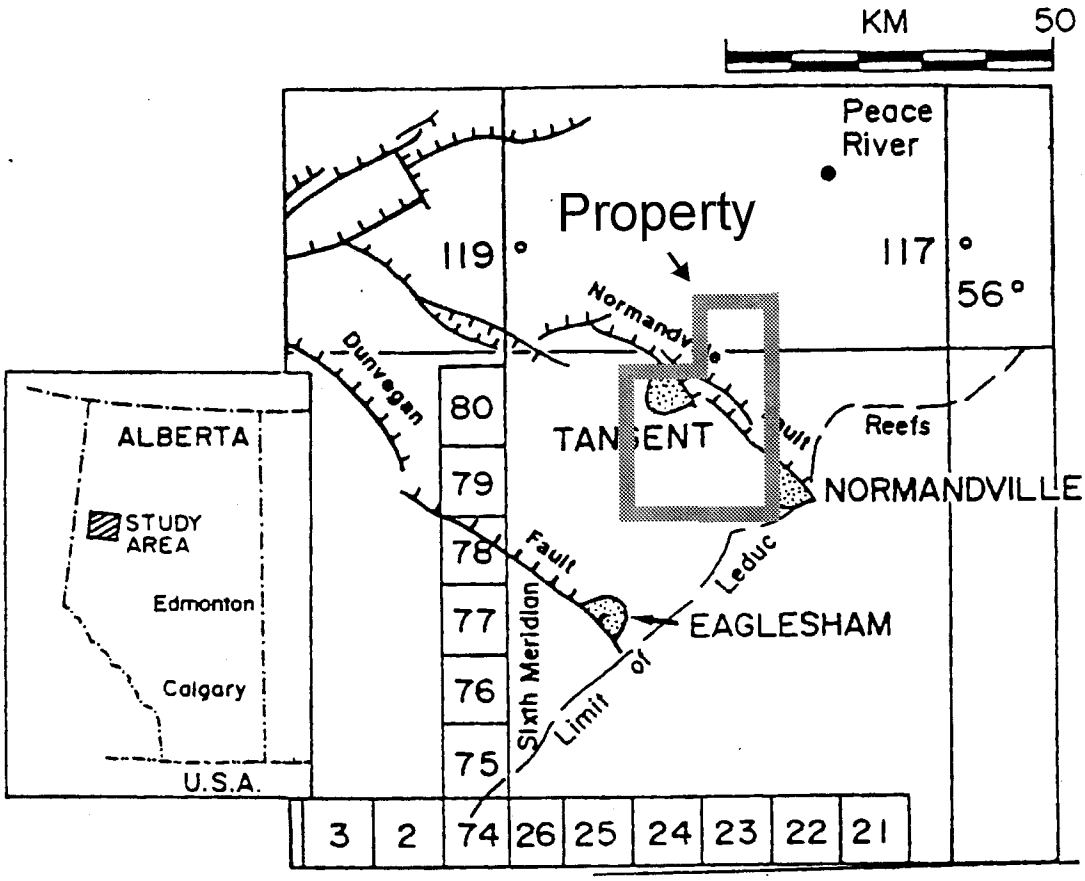


FIG. 5 – Location map of Normandville, Tangent and Eaglesham fields showing Dunvegan, Normandville and other major faults and basinward limit of Leduc reefs around the Peace River Arch.

From: Mountjoy *et al* (1988)

Figure 6

Primo Resources' Buffalo Hills Project, Alberta
Airphoto Ortho Mosaic of the Cluster 1 Area

Processed by
J. F. Touborg
Consultants Inc.

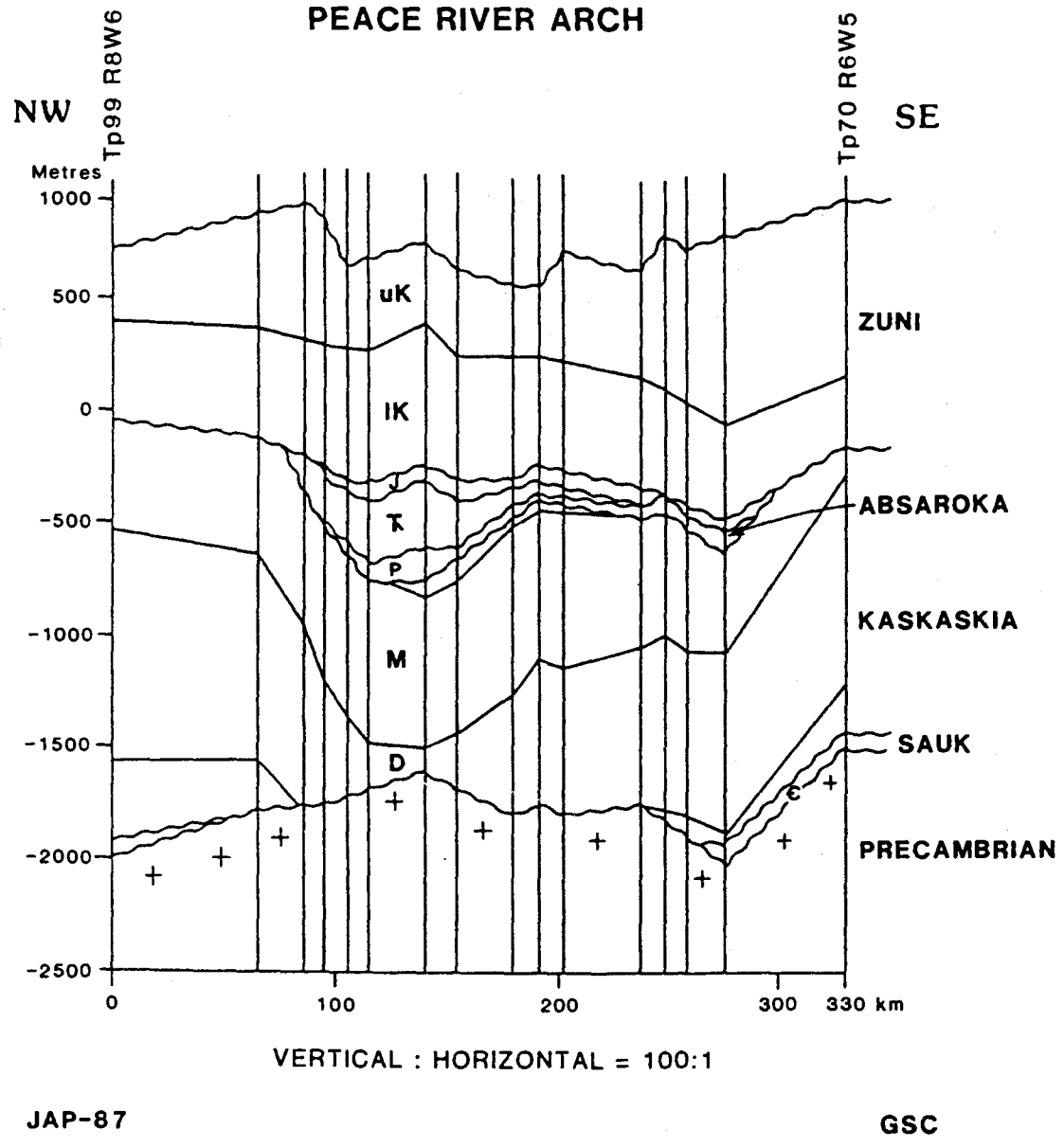
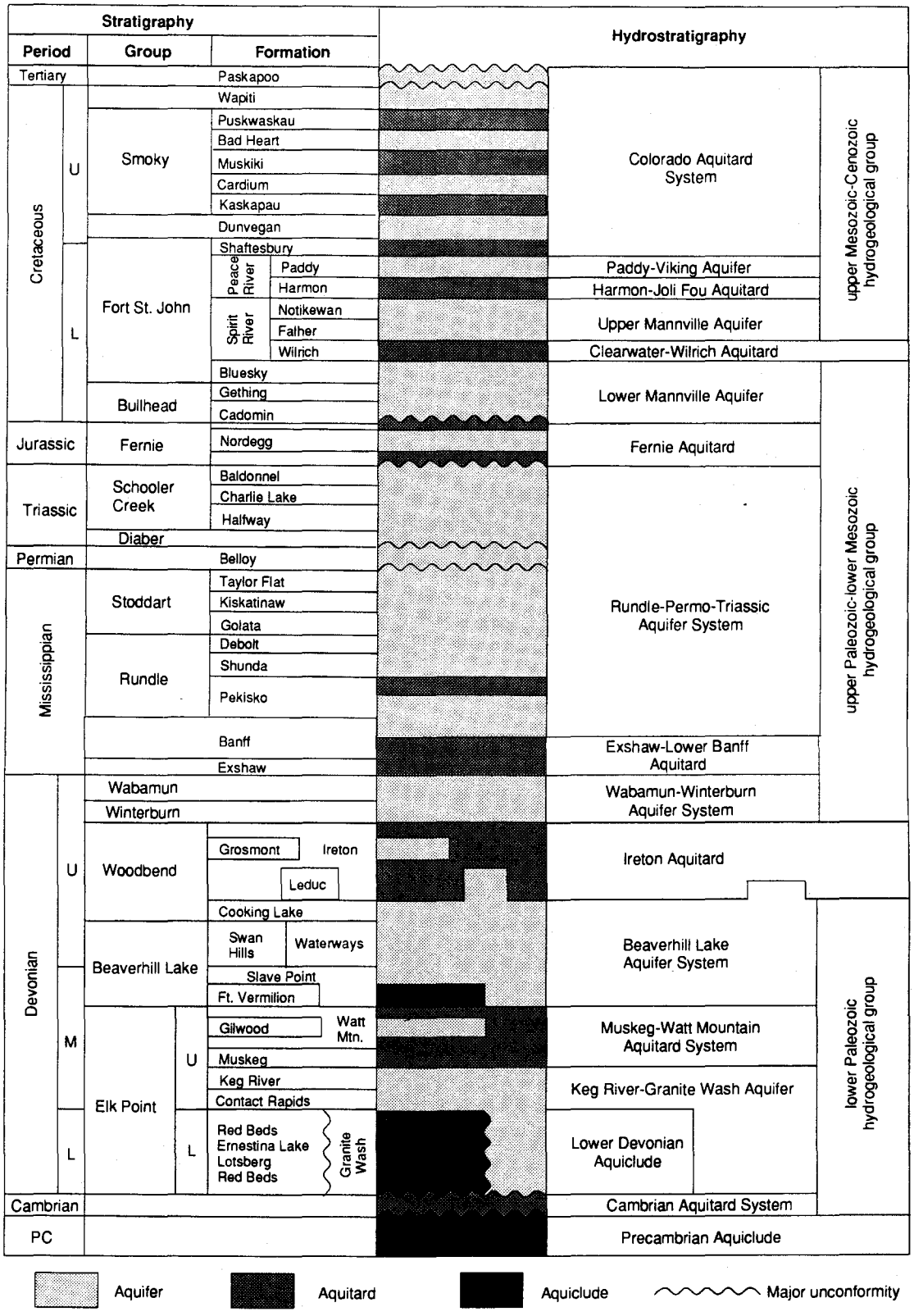
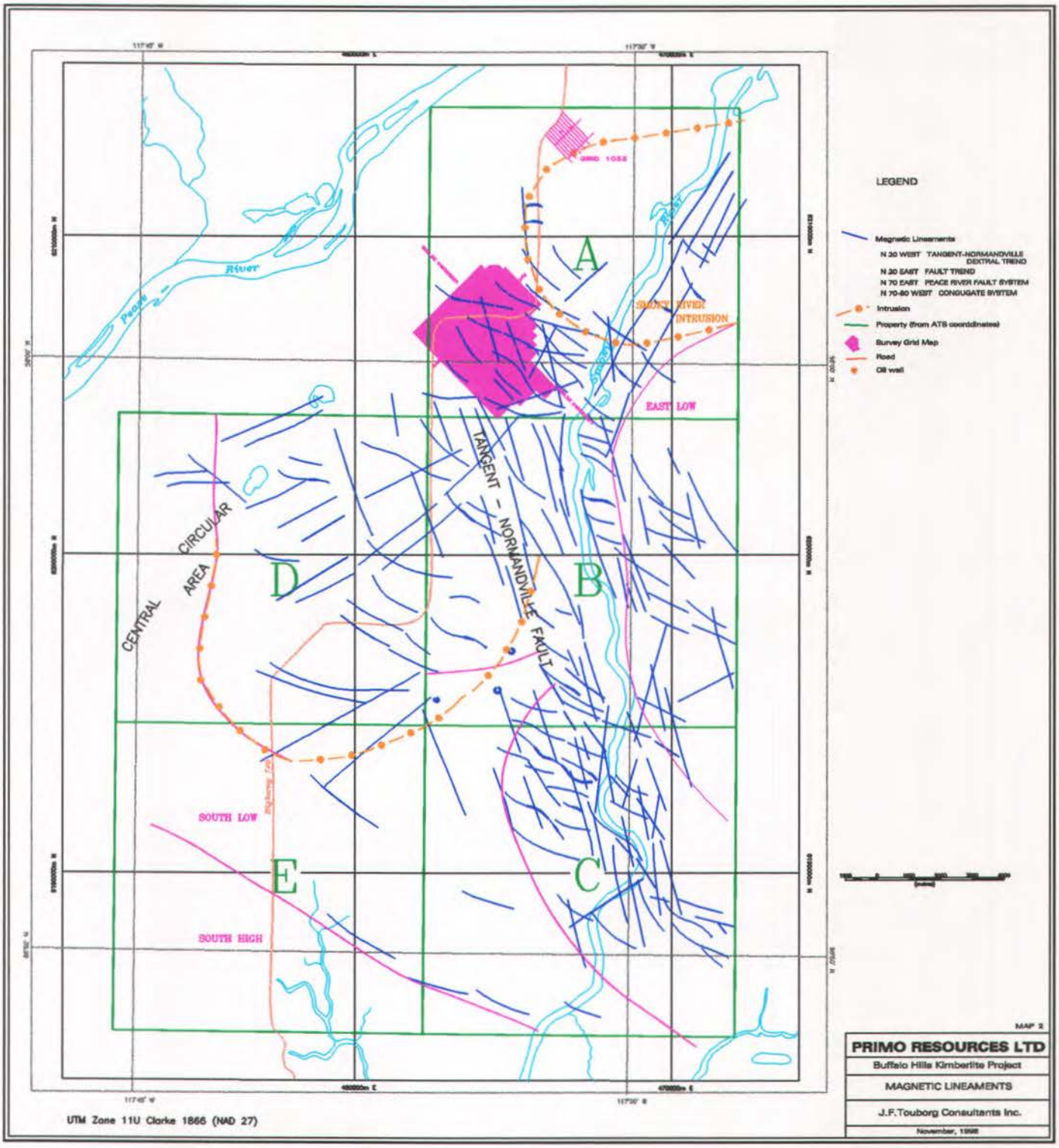


Fig. 7 *Northwest-southeast section across Peace River Arch. Only major depositional units shown. Sloss (1963) sequences on right for comparison purposes. C, Cambrian; D, Devonian; M, Mississippian; P, Permian; T, Triassic; J, Jurassic; IK, Lower Cretaceous; uK, Upper Cretaceous.*

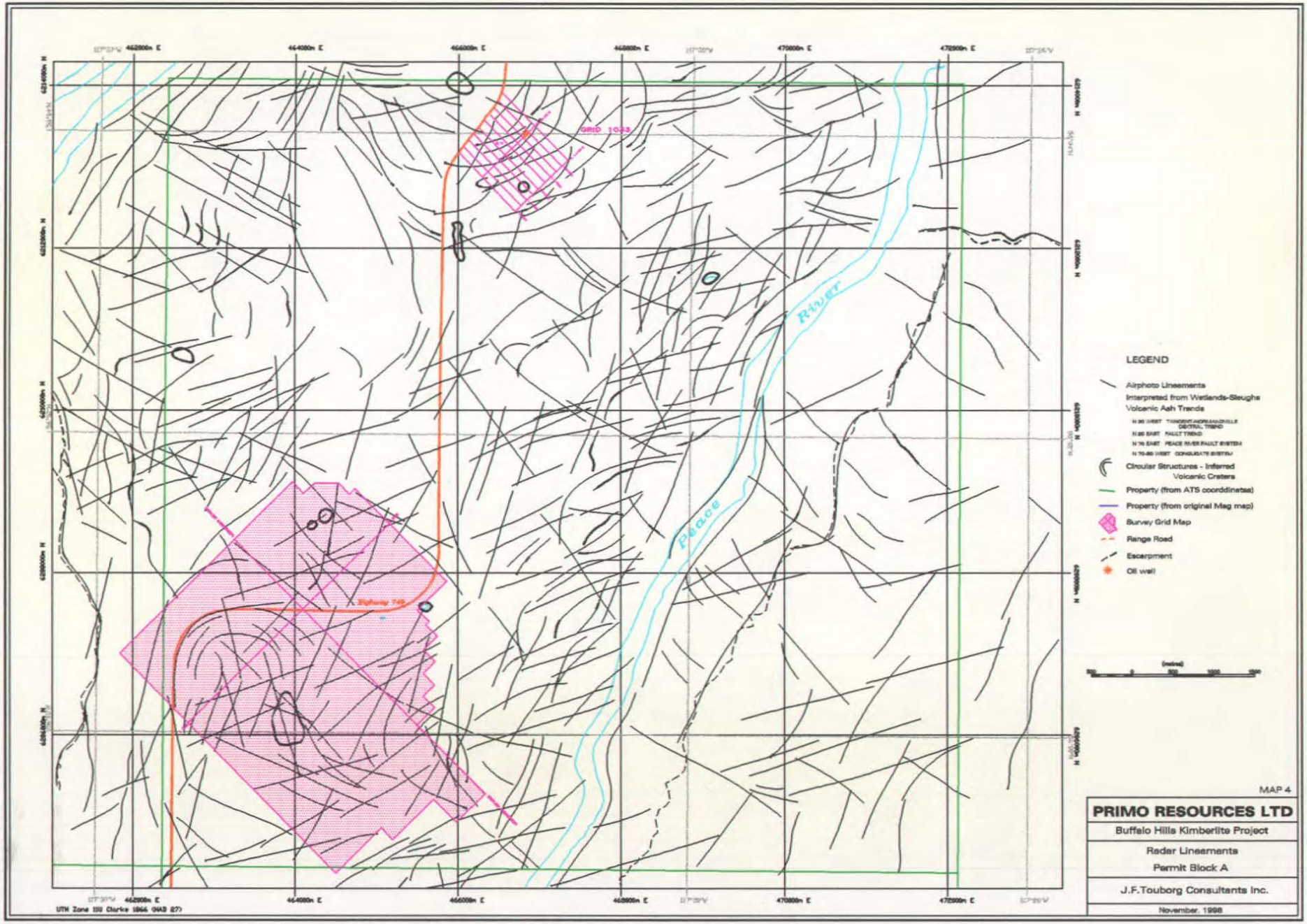
Table 1. Generalized stratigraphy and hydrostratigraphy, Peace River Arch area.



F68


LEGEND
Magnetic Lineaments
N 30 WEST TANGENT-NORMANDVILLE DEXTRAL TREND
N 20 EAST FAULT TREND
N 70 EAST PEACE RIVER FAULT SYSTEM
N 70-80 WEST CONGUGATE SYSTEM
Intrusion
Property (from ATS coordinates)
Survey Grid Map
Road
Oil well
Peace River
SMOKY RIVER INTRUSION
EAST LOW
TANGENT - NORMANDVILLE FAULT
CIRCULAR AREA
CENTRAL
SOUTH LOW
SOUTH HIGH
A
B
C
D
E
UTM Zone 11U Clarke 1866 (NAD 27)
MAP 2
PRIMO RESOURCES LTD
Buffalo Hills Kimberlite Project
MAGNETIC LINEAMENTS
J.F.Touborg Consultants Inc.
November, 1998


A
B
C
D
E
CENTRAL CIRCULAR AREA
TANGENT - NORMANDVILLE FAULT
OIL WELL 10-33
117°45' W
117°30' W
460000m E
470000m E
6210000m N
6200000m N
6190000m N
LEGEND
Circular structure-Volcanic craters
Rader Lineaments Sleughs-Wetlands
Near surface magnetic anomalies from Euler deconvolution solutions Cluster 1,2
Claim bounderies
N 20 WEST TANGENT-NORMANDVILLE FAULT
N 65 EAST PEACE RIVER DEXTRAL FAULTS
N 65 WEST CONJUGATE FAULTS
N 20 EAST CONGUGATE FAULTS
UTM Zone 11U Clarke 1866 (NAD 27)
MAP 3
PRIMO RESOURCES LTD
Buffalo Hills Kimberlite Project
Rader and Landsat Lineaments
J.F.Touborg Consultants Inc.
November, 1996



MAP 4

PRIMO RESOURCES LTD

Buffalo Hills Kimberlite Project

Radar Lineaments

Permit Block A

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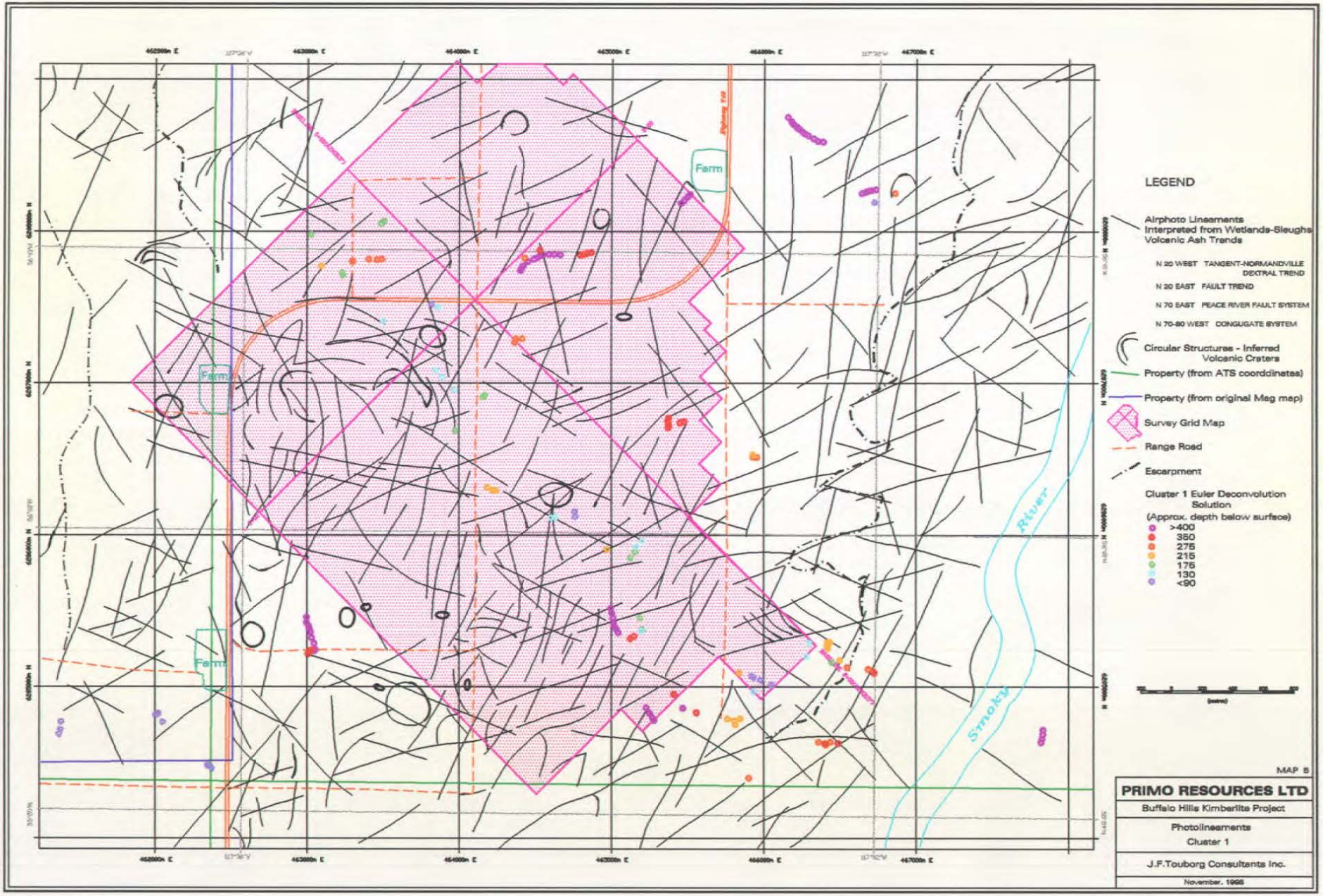

LEGEND
Airphoto Lineaments
Interpreted from Wetlands-Sleughs
Volcanic Ash Trends
N 20 WEST TANGENT-NORMANDVILLE DEXTRAL TREND
N 20 EAST FAULT TREND
N 70 EAST PEACE RIVER FAULT SYSTEM
N 70-80 WEST CONGUGATE SYSTEM
Circular Structures - Inferred Volcanic Craters
Property (from ATS coorddinates)
Property (from original Mag map)
Survey Grid Map
Range Road
Escarpment
Cluster 1 Euler Deconvolution Solution
(Approx. depth below surface)
>400
350
275
215
175
130
<90
Farm
Smoky River
MAP 5
PRIMO RESOURCES LTD
Buffalo Hills Kimberlite Project
Photolineaments
Cluster 1
J.F.Touborg Consultants Inc.
November, 1995

MAP 6

PRIMO RESOURCES LTD

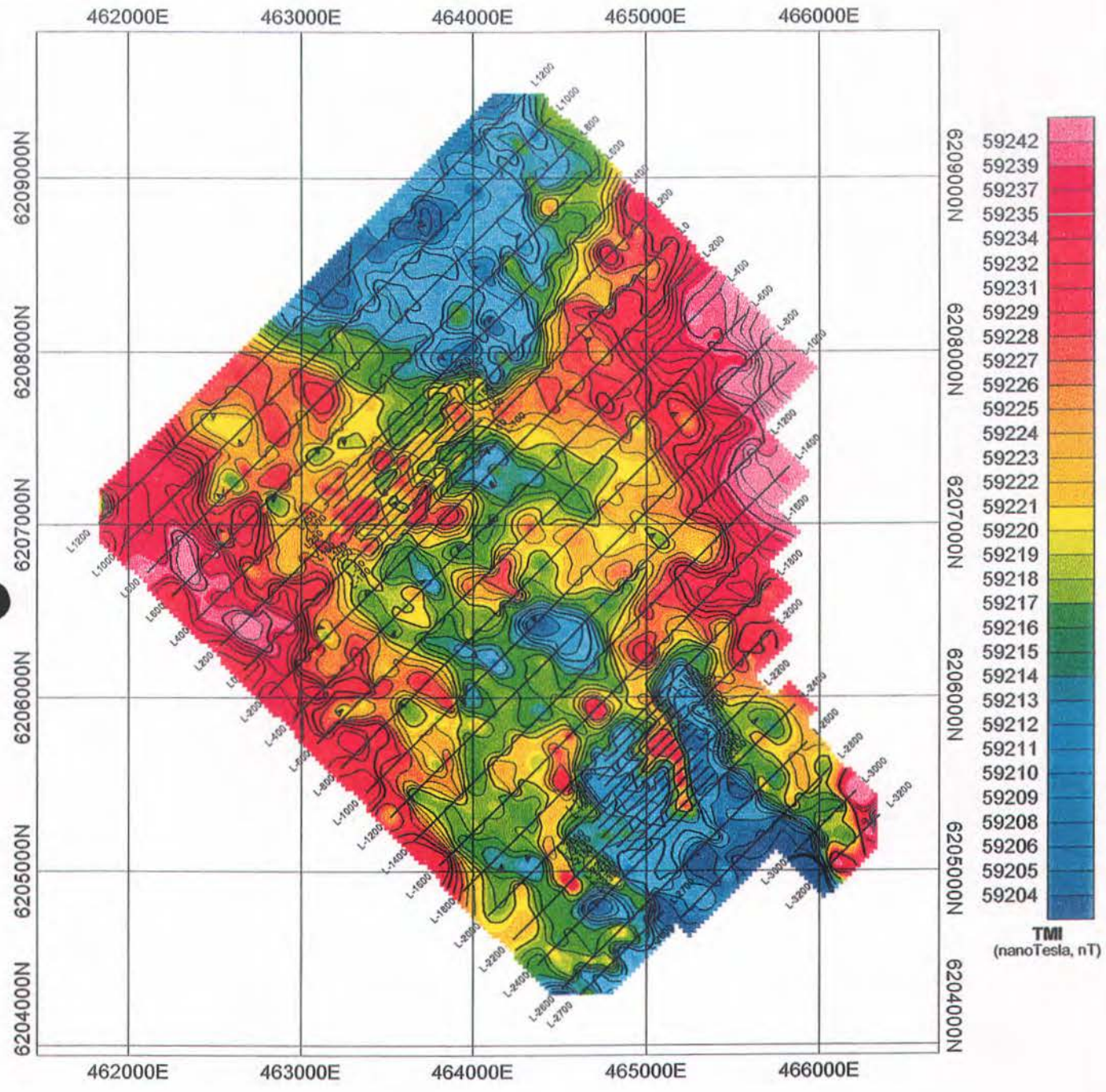
Buffalo Hills Kimberlite Project

Airphoto Lineaments and 10-33 Diatreme Area

J.F.Touborg Consultants Inc.

NOVEMBER, 1998

STRATAGEX LTD., Geophysical Consulting, Toronto



PRIMO RESOURCES

TOTAL MAGNETIC INTENSITY

MAIN GRID, SMOKY RIVER PROJECT, ALBERTA

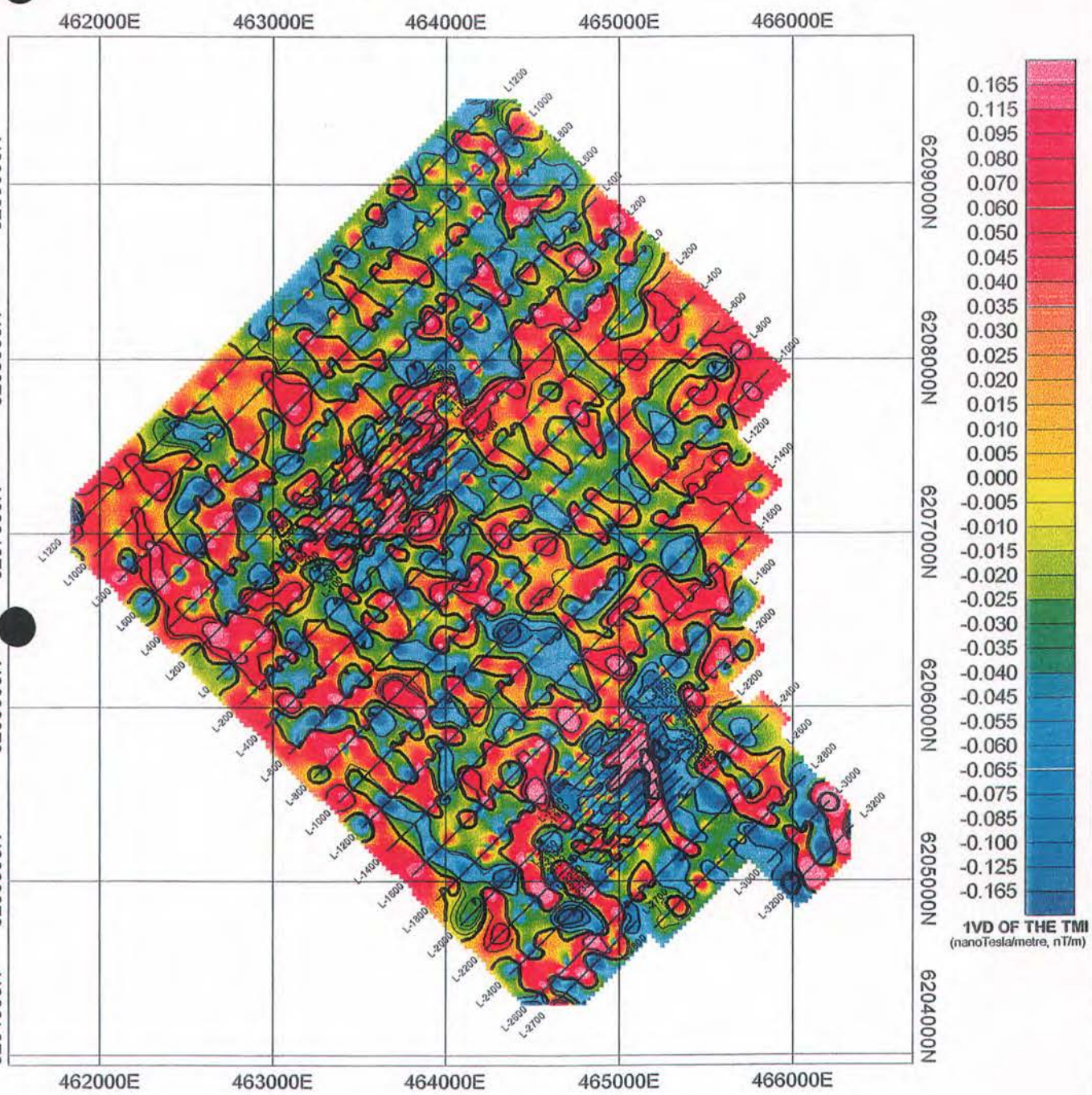
500 0.0 500 1000

(meters)

Contour Intervals: 2 nT, 10 nT, 50 nT, 250 nT

IMAGE 6

STRATAGEX LTD., Geophysical Consulting, Toronto



PRIMO RESOURCES

FIRST VERTICAL DERIVATIVE OF THE TMI

MAIN GRID, SMOKY RIVER PROJECT, ALBERTA

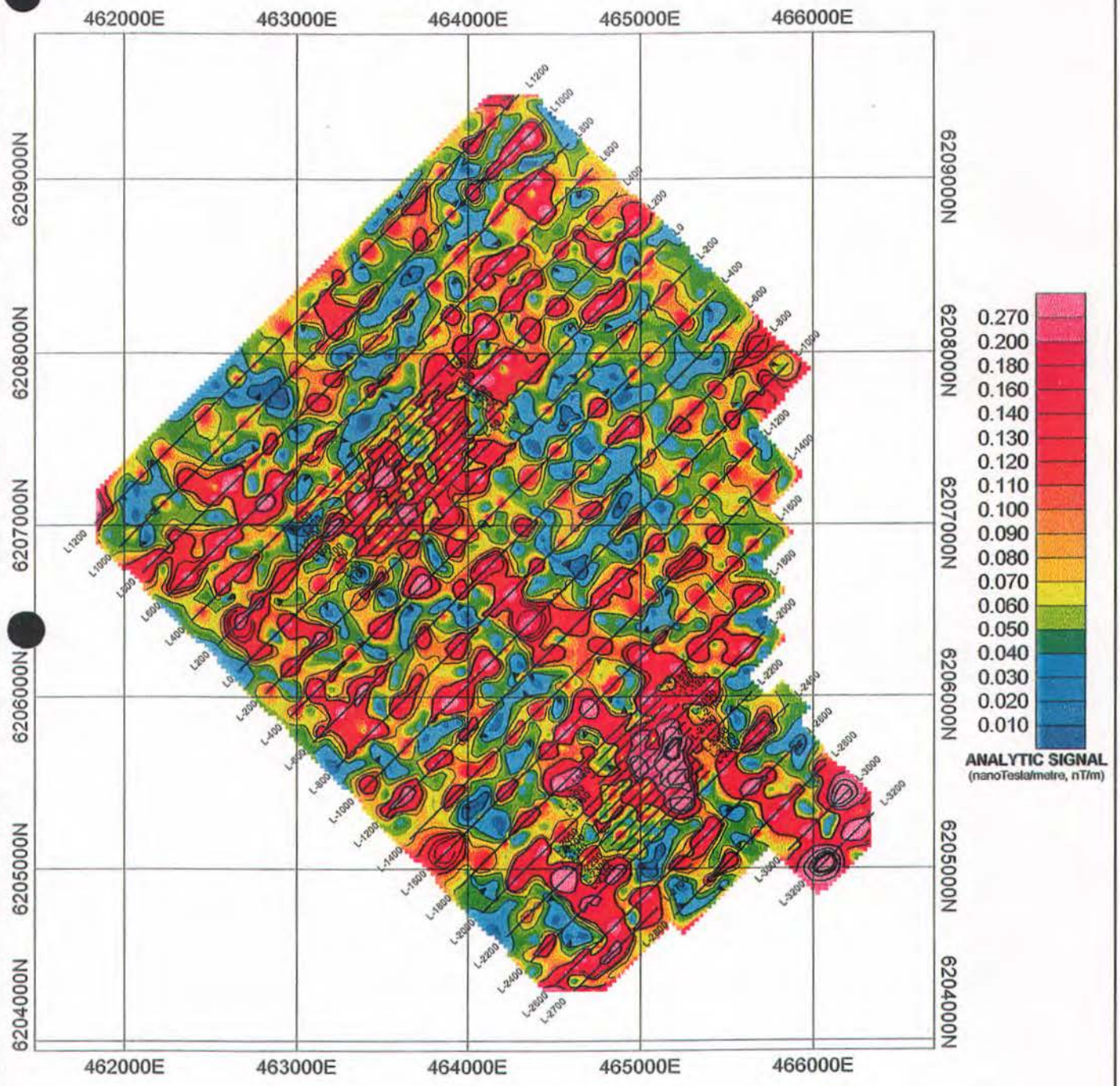
500 0.0 500 1000

(meters)

Contour Intervals: 0.01 nT/m, 0.05 nT/m, 0.2 nT/m

IMAGE 7

STRATAGEX LTD., Geophysical Consulting, Toronto



PRIMO RESOURCES

ANALYTIC SIGNAL OF THE TMI

MAIN GRID, SMOKY RIVER PROJECT, ALBERTA

500 0.0 500 1000

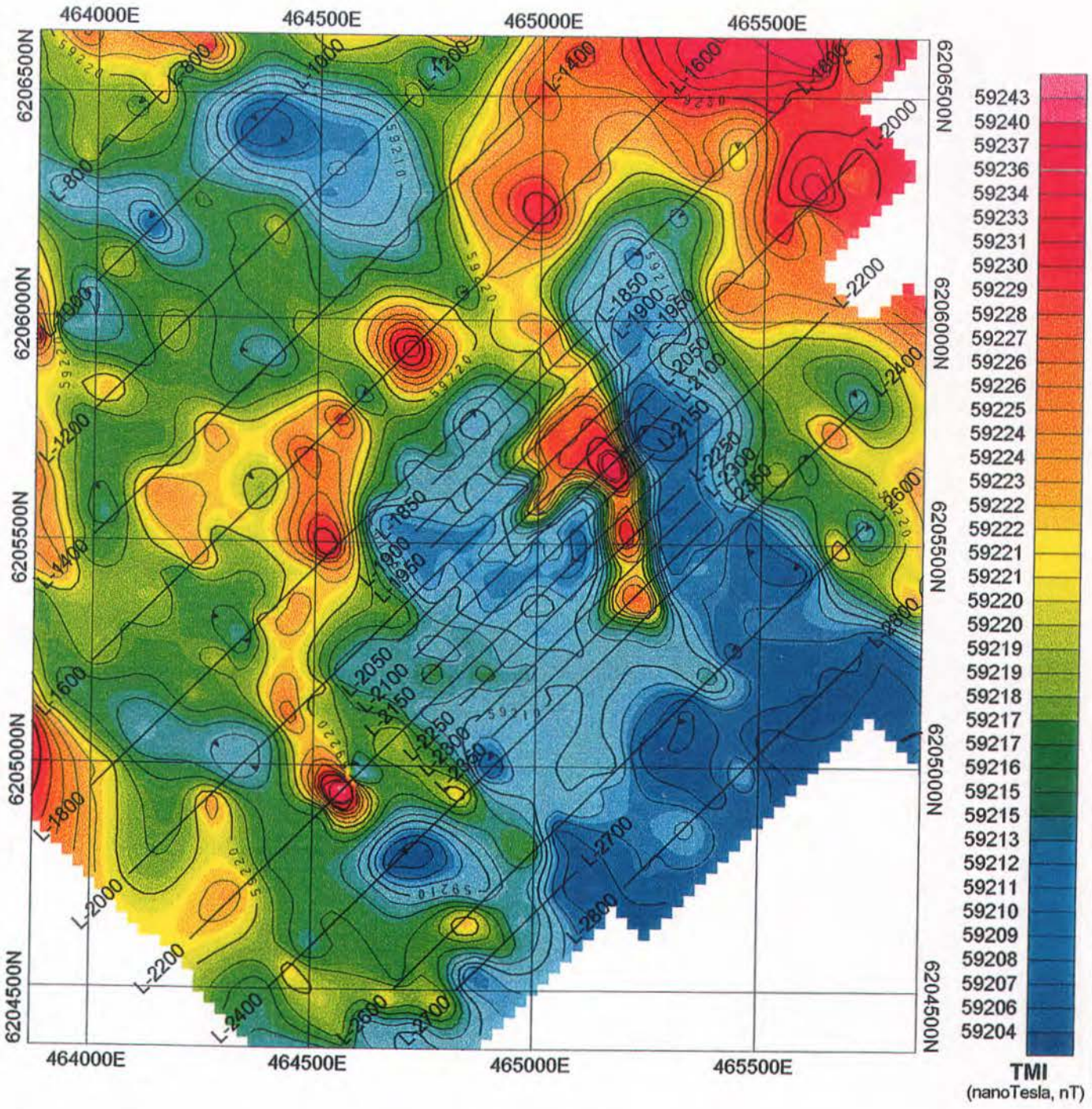
(meters)

N

Contour Intervals: 0.02 nT/m, 0.1 nT/m and 0.5 nT/m

IMAGE 8

STRATAGEX LTD., Geophysical Consulting, Toronto



PRIMO RESOURCES

TOTAL MAGNETIC INTENSITY

HENDERSON CIRCULAR, SMOKY RIVER PROJECT, ALBERTA

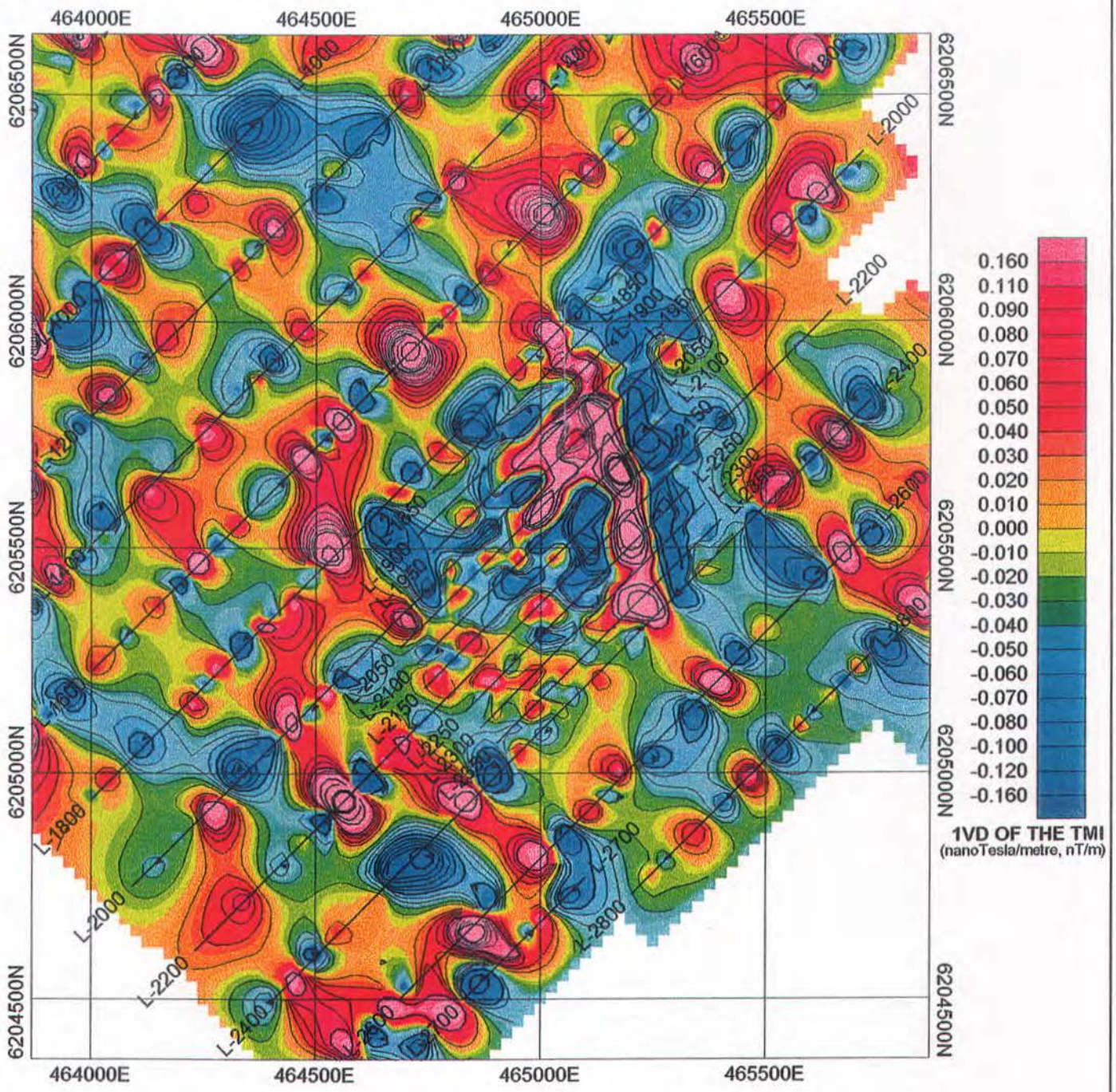
250 0.0 250

(meters)

Contour Intervals: 2 nT, 10 nT, 50 nT, 250 nT

IMAGE 9A

STRATAGEX LTD., Geophysical Consulting, Toronto



PRIMO RESOURCES

FIRST VERTICAL DERIVATIVE OF THE TMI

HENDERSON CIRCULAR, SMOKY RIVER PROJECT, ALBERTA

250 0.0 250

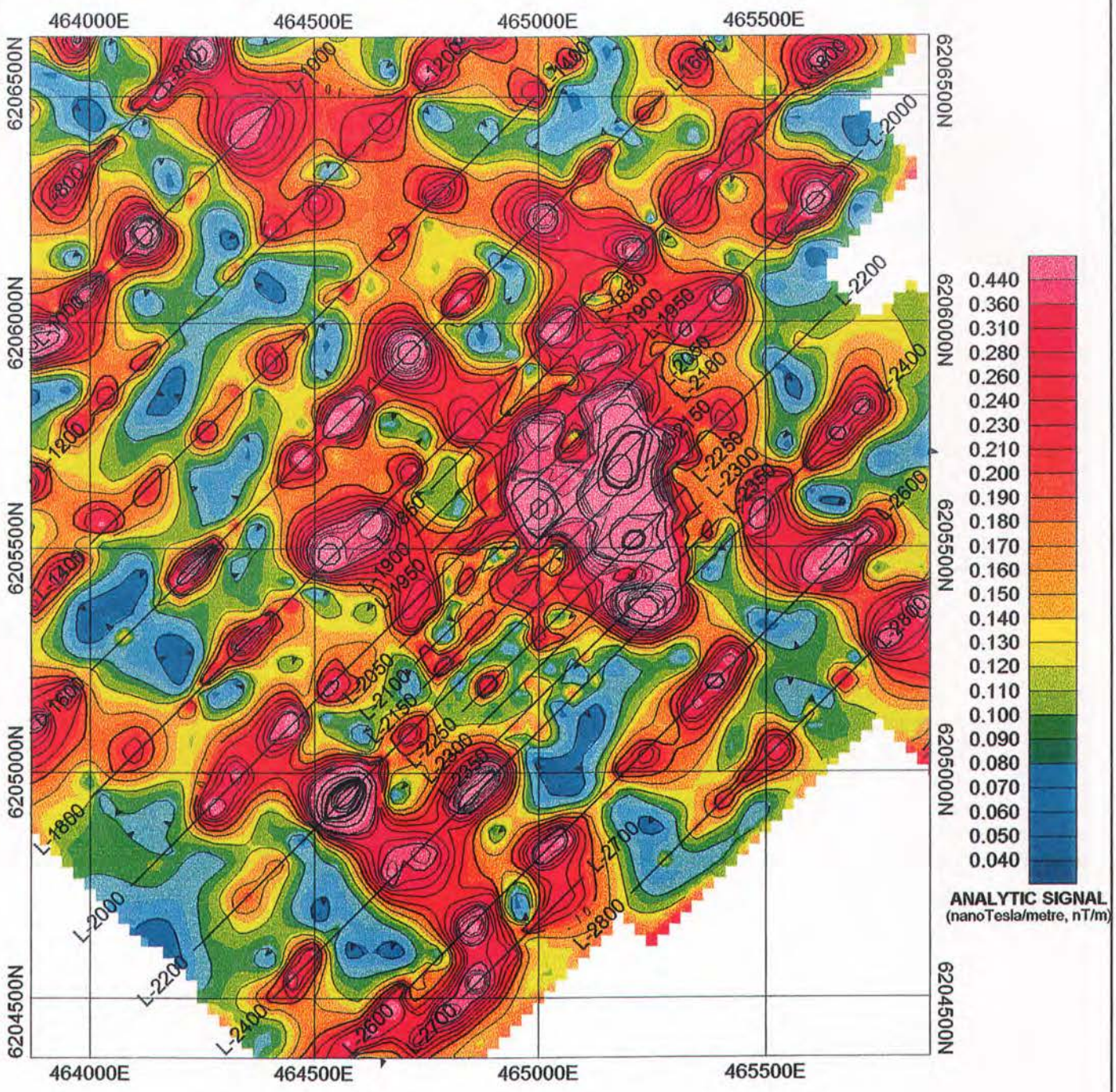
(meters)

Contour Intervals: 0.01 nT/m, 0.05 nT/m, 0.2 nT/m

N

IMAGE 93

STRATAGEX LTD., Geophysical Consulting, Toronto



PRIMO RESOURCES

ANALYTIC SIGNAL OF THE TMI

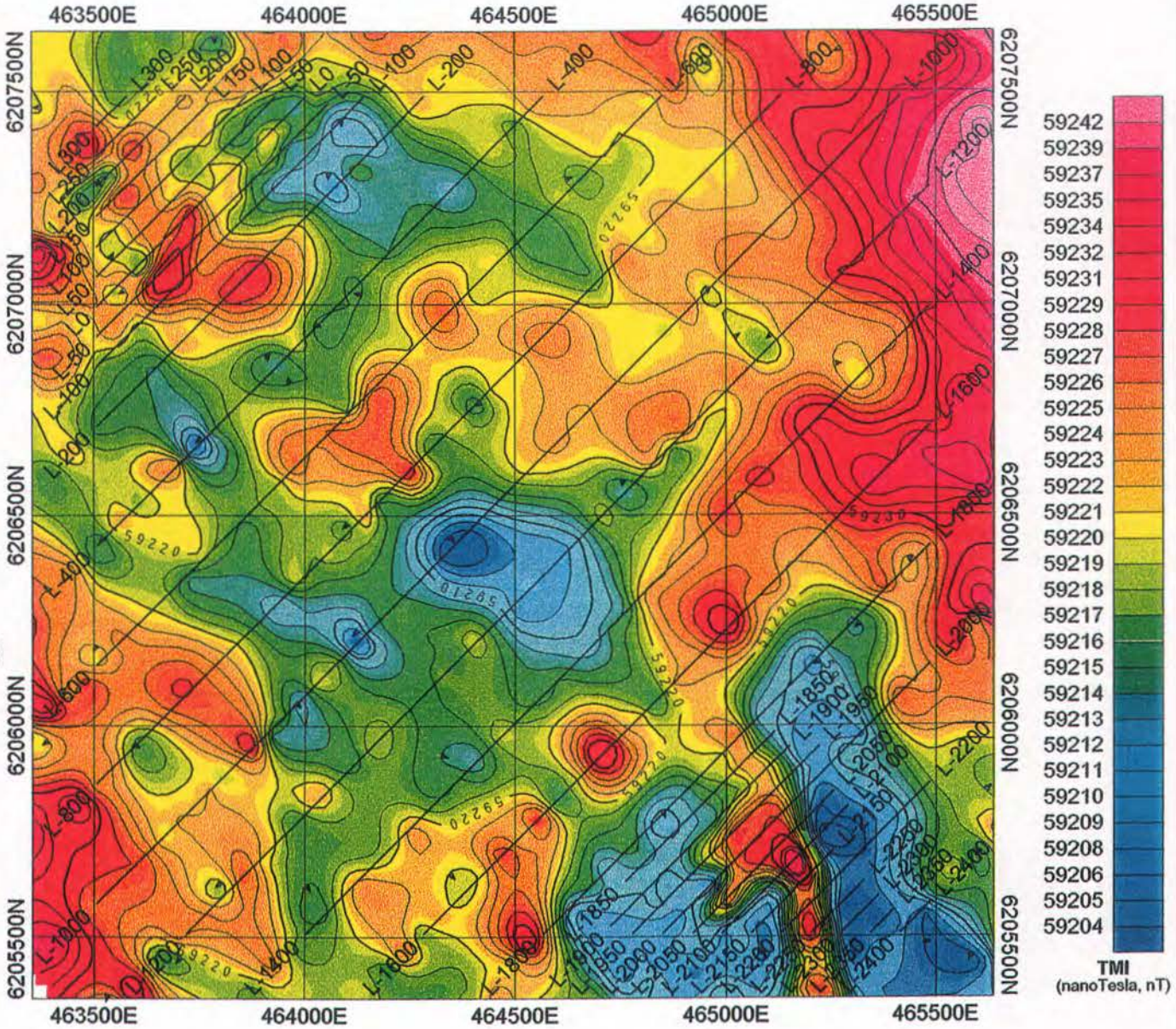
HENDERSON CIRCULAR, SMOKY RIVER PROJECT, ALBERTA

250 0.0 250

(meters) Contour Intervals: 0.02 nT/m, 0.1 nT/m and 0.5 nT/m

IMAGE 9C

STRATAGEX LTD., Geophysical Consulting, Toronto



PRIMO RESOURCES

TOTAL MAGNETIC INTENSITY

NEMECZ CIRCULAR, SMOKY RIVER PROJECT, ALBERTA

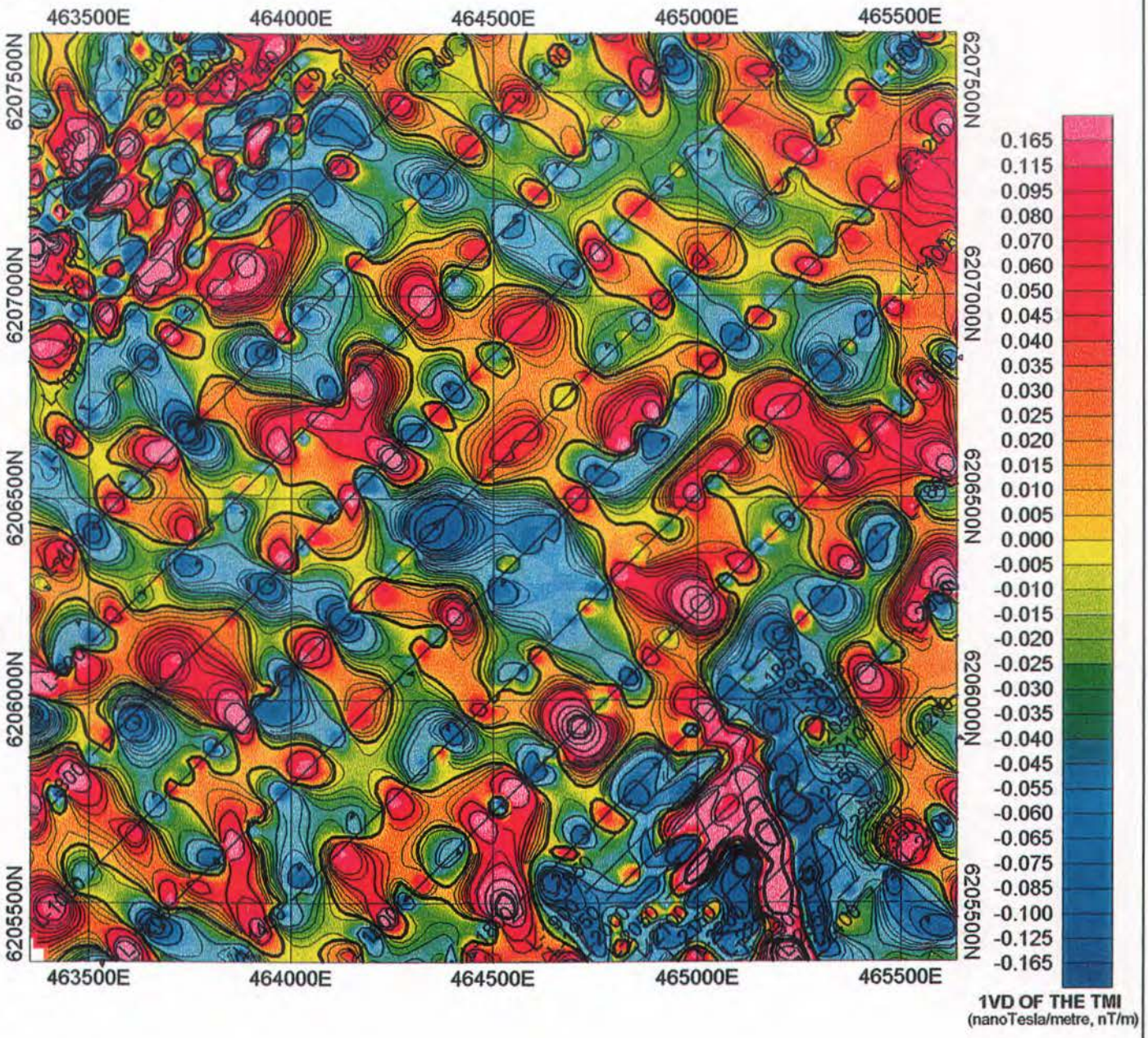
250 0.0 250 500

(meters)

Contour Intervals: 2 nT, 10 nT, 50 nT, 250 nT

Image 10

STRATAGEX LTD., Geophysical Consulting, Toronto



PRIMO RESOURCES

FIRST VERTICAL DERIVATIVE OF THE TMI

NEMECZ CIRCULAR, SMOKY RIVER PROJECT, ALBERTA

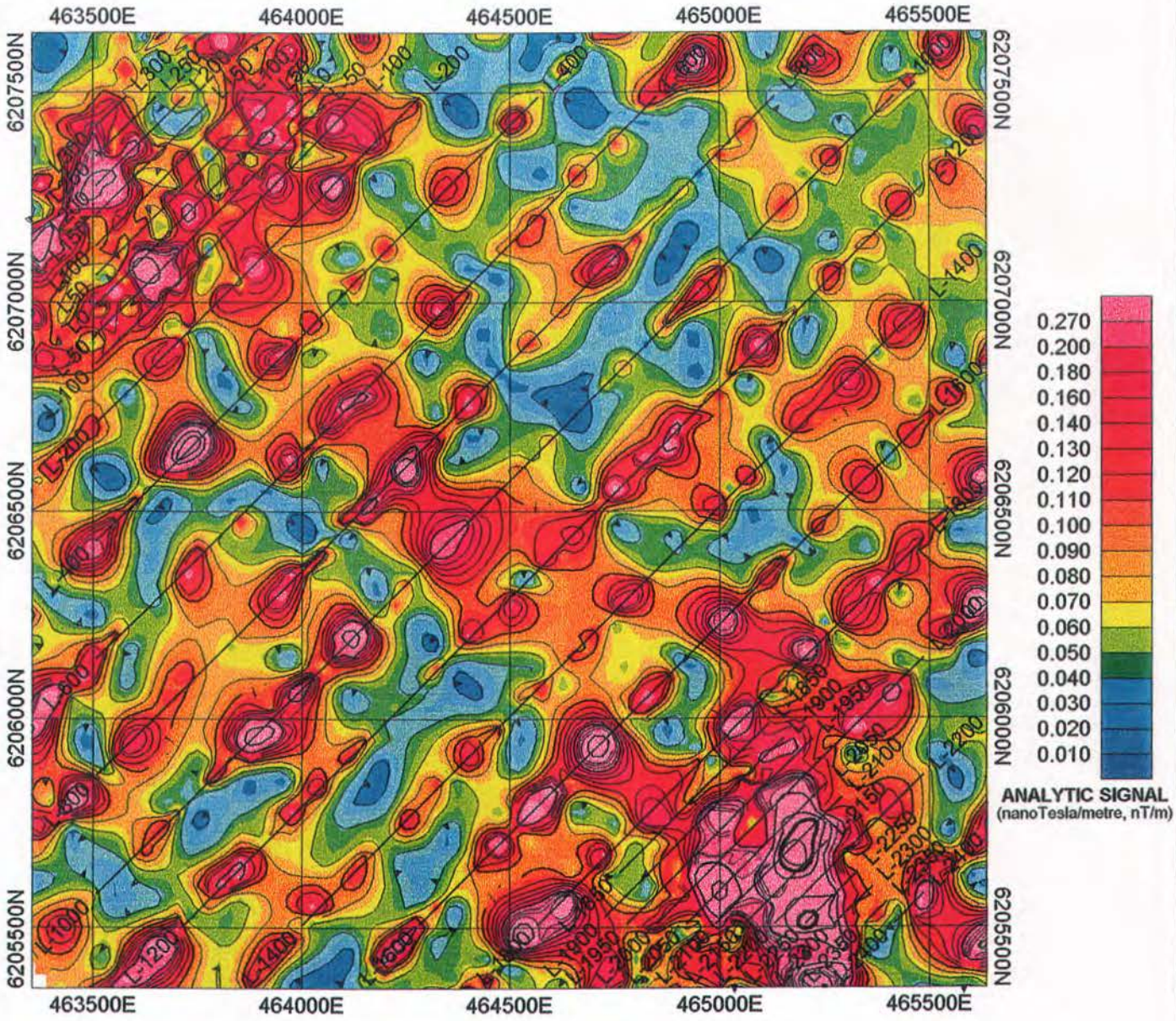
250 0.0 250 500

(meters)

Contour Intervals: 0.01 nT/m, 0.05 nT/m, 0.2 nT/m

IMAGE 10B

STRATAGEX LTD., Geophysical Consulting, Toronto



PRIMO RESOURCES

ANALYTIC SIGNAL OF THE TMI

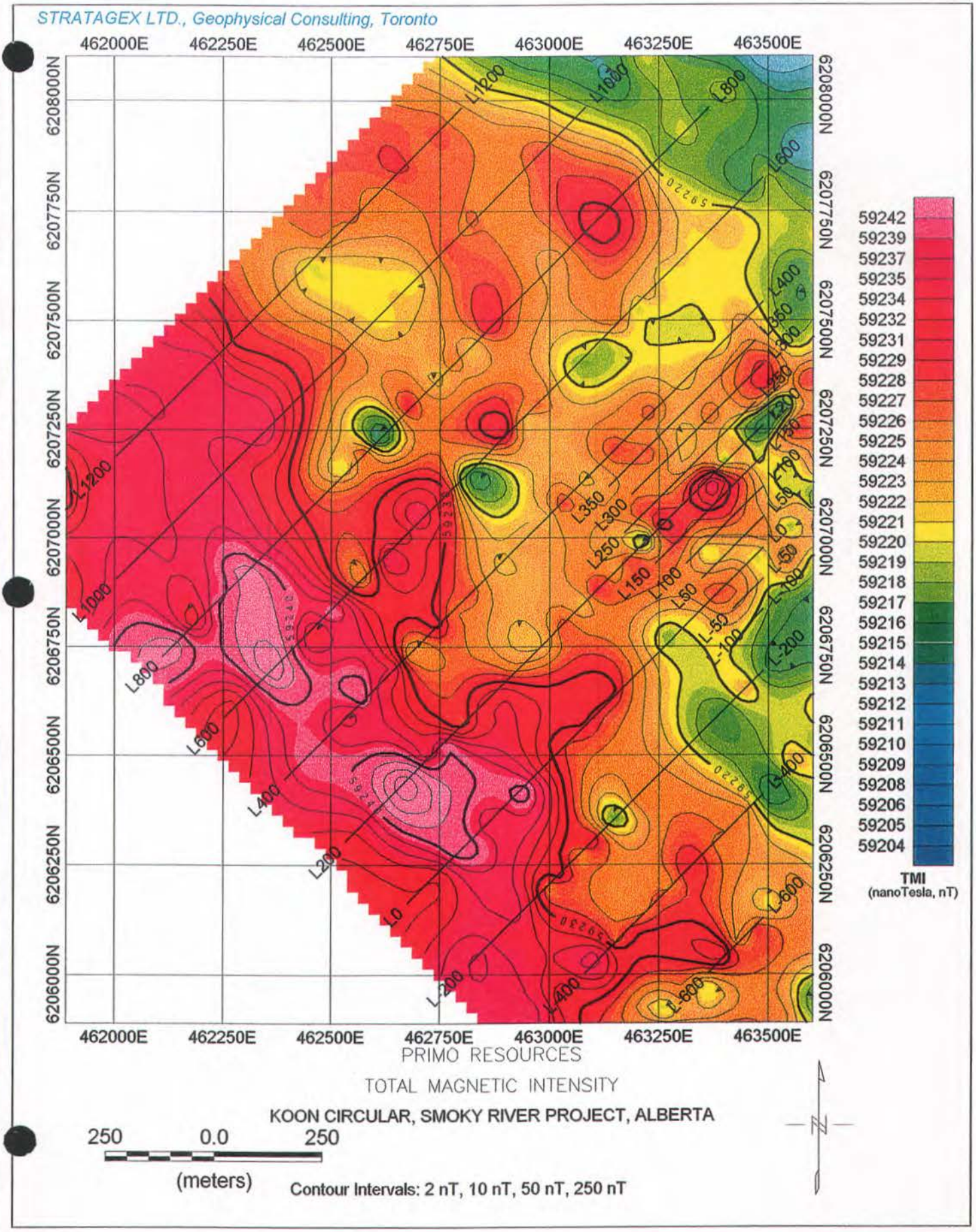
NEMECZ CIRCULAR, SMOKY RIVER PROJECT, ALBERTA

250 0.0 250 500

(meters)

Contour Intervals: 0.02 nT/m, 0.1 nT/m and 0.5 nT/m

IMAGE 10C


STRATAGEX LTD., Geophysical Consulting, Toronto
462000E
462250E
462500E
462750E
463000E
463250E
463500E
6208000N
6207750N
6207500N
6207250N
6207000N
6206750N
6206500N
6206250N
6206000N
59242
59239
59237
59235
59234
59232
59231
59229
59228
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59226
59225
59224
59223
59222
59221
59220
59219
59218
59217
59216
59215
59214
59213
59212
59211
59210
59209
59208
59206
59205
59204
TMI
(nanoTesla, nT)
PRIMO RESOURCES
TOTAL MAGNETIC INTENSITY
KOON CIRCULAR, SMOKY RIVER PROJECT, ALBERTA
250
0.0
250
(meters)
Contour Intervals: 2 nT, 10 nT, 50 nT, 250 nT

IMAGE IIA

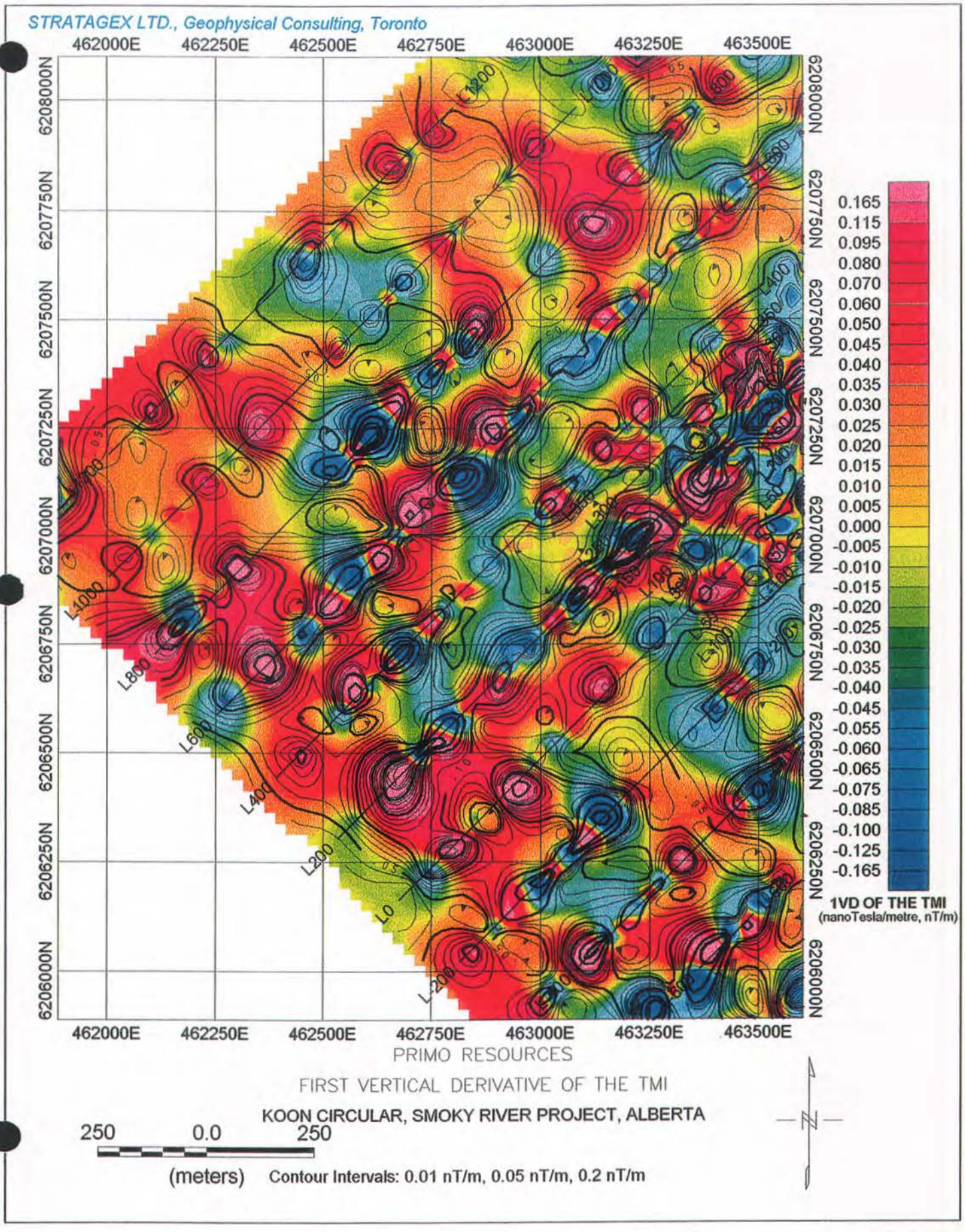

STRATAGEX LTD., Geophysical Consulting, Toronto
462000E
462250E
462500E
462750E
463000E
463250E
463500E
6208000N
6207750N
6207500N
6207250N
6207000N
6206750N
6206500N
6206250N
6206000N
L1200
L1000
L800
L600
L400
L200
L0
L-200
0.165
0.115
0.095
0.080
0.070
0.060
0.050
0.045
0.040
0.035
0.030
0.025
0.020
0.015
0.010
0.005
0.000
-0.005
-0.010
-0.015
-0.020
-0.025
-0.030
-0.035
-0.040
-0.045
-0.055
-0.060
-0.065
-0.075
-0.085
-0.100
-0.125
-0.165
1VD OF THE TMI
(nanoTesla/metre, nT/m)
PRIMO RESOURCES
FIRST VERTICAL DERIVATIVE OF THE TMI
KOON CIRCULAR, SMOKY RIVER PROJECT, ALBERTA
250
0.0
250
(meters)
Contour Intervals: 0.01 nT/m, 0.05 nT/m, 0.2 nT/m

IMAGE 11B

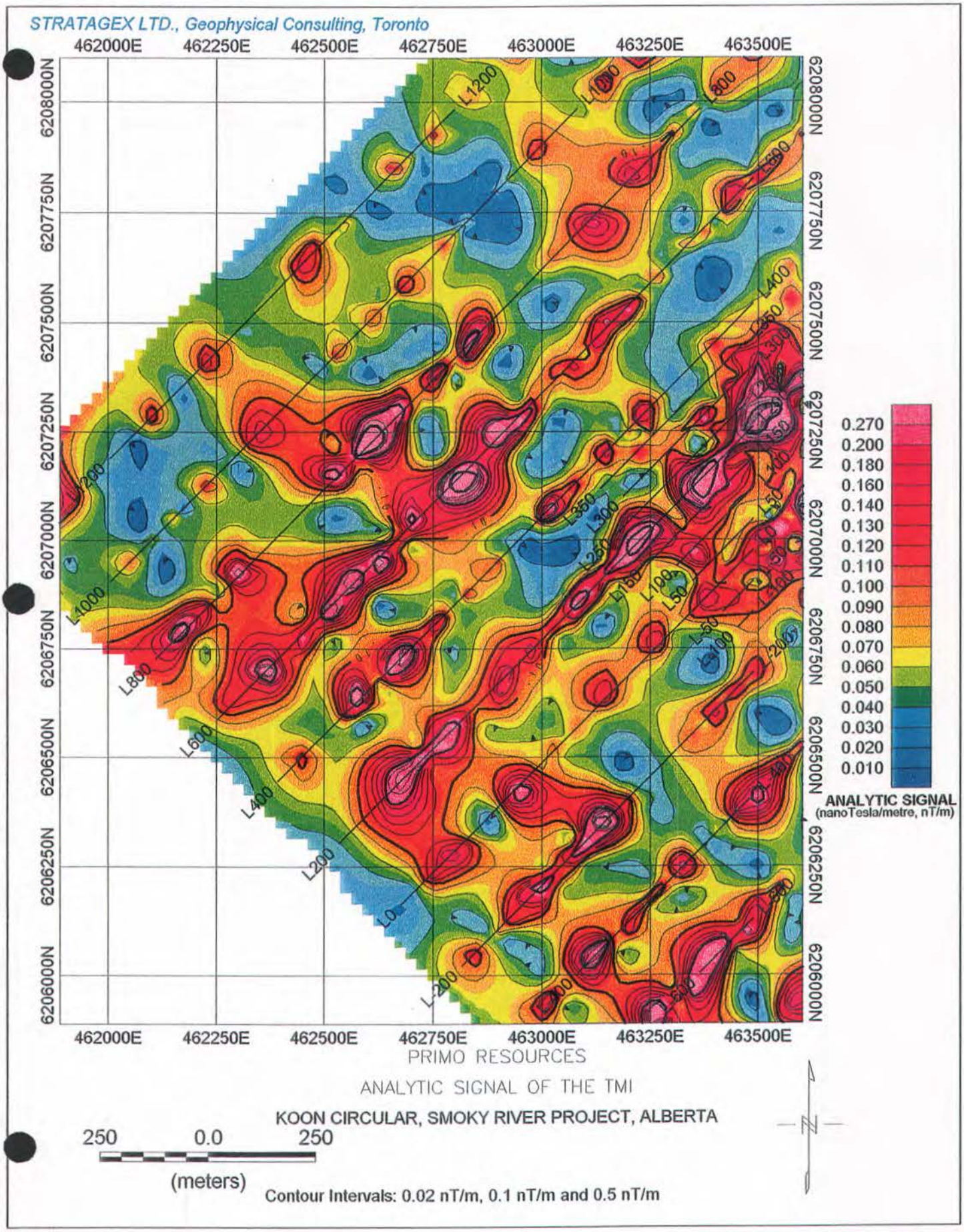
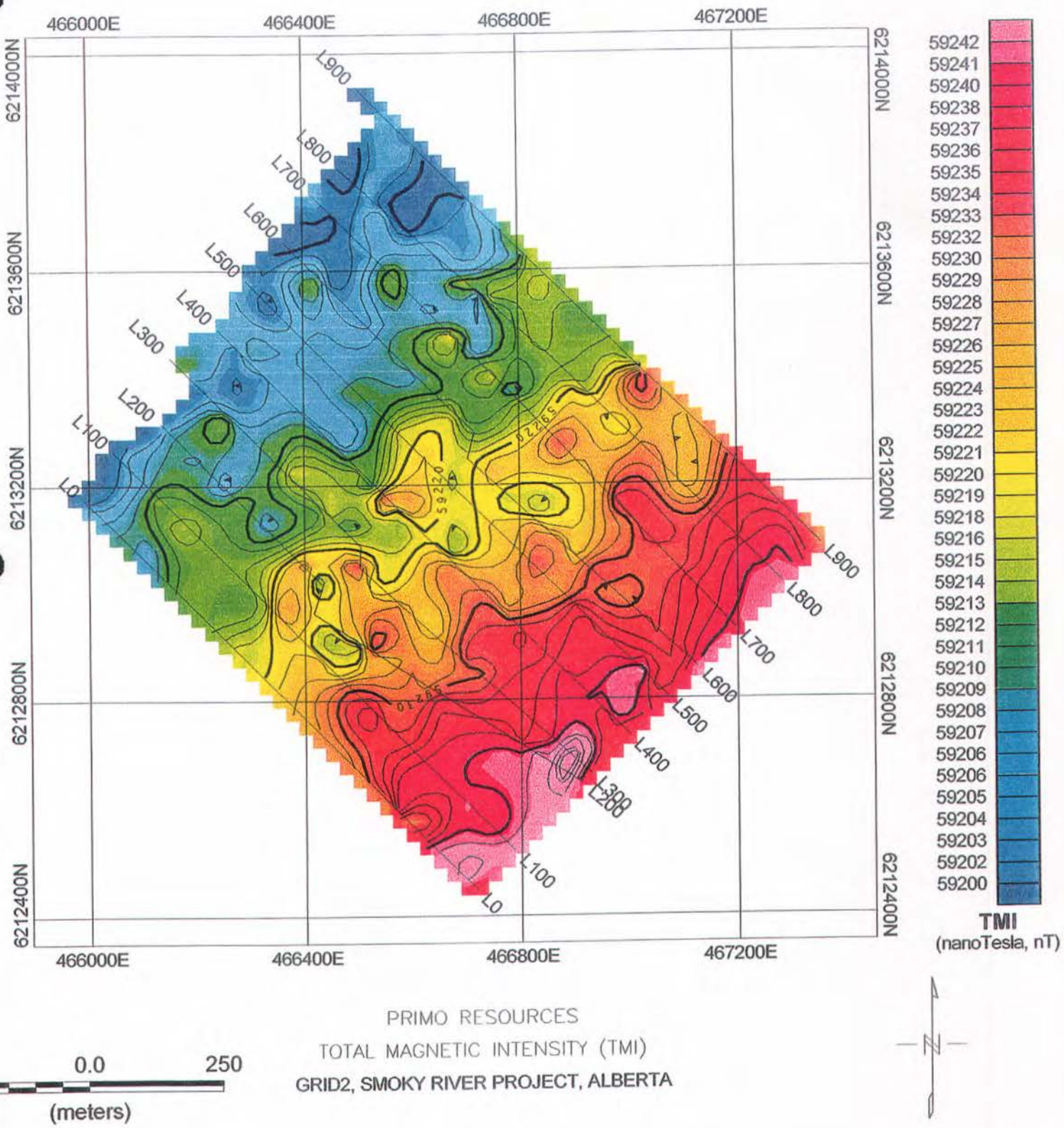

STRATAGEX LTD., Geophysical Consulting, Toronto
462000E
462250E
462500E
462750E
463000E
463250E
463500E
6208000N
6207750N
6207500N
6207250N
6207000N
6206750N
6206500N
6206250N
6206000N
L1200
L1000
L800
L600
L400
L200
L0
L-200
L4000
L350
L300
L250
L150
L100
L50
0.270
0.200
0.180
0.160
0.140
0.130
0.120
0.110
0.100
0.090
0.080
0.070
0.060
0.050
0.040
0.030
0.020
0.010
ANALYTIC SIGNAL
(nanoTesla/metre, nT/m)
PRIMO RESOURCES
ANALYTIC SIGNAL OF THE TMI
KOON CIRCULAR, SMOKY RIVER PROJECT, ALBERTA
250
0.0
250
(meters)
Contour Intervals: 0.02 nT/m, 0.1 nT/m and 0.5 nT/m

IMAGE 11


466000E
466400E
466800E
467200E
6214000N
6213600N
6213200N
6212800N
6212400N
L900
L800
L700
L600
L500
L400
L300
L200
L100
L0
59220
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59212
59211
59210
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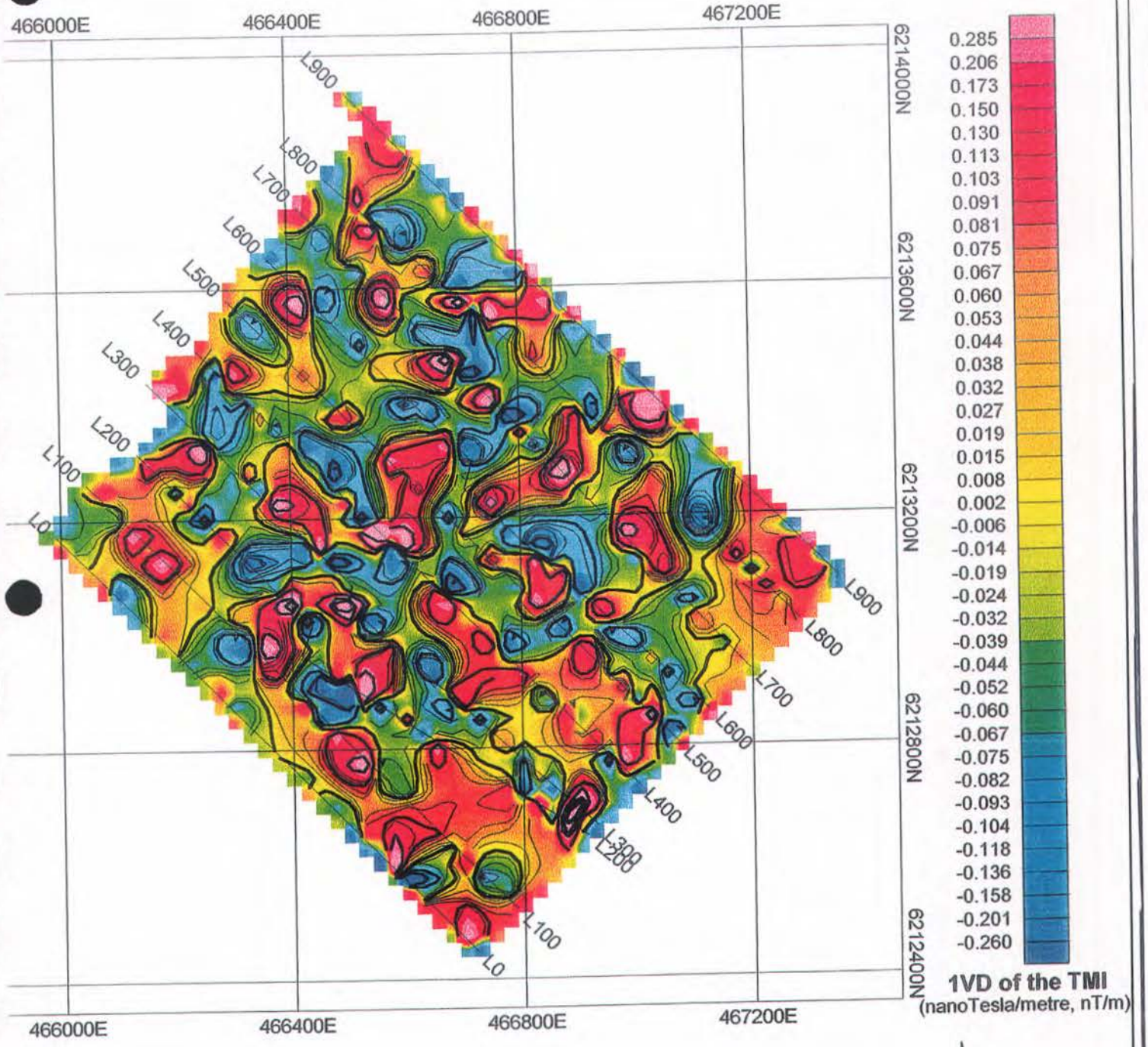
59206
59205
59204
59203
59202
59200
TMI
(nanoTesla, nT)
PRIMO RESOURCES
TOTAL MAGNETIC INTENSITY (TMI)
GRID2, SMOKY RIVER PROJECT, ALBERTA
0.0
250
(meters)
N

IMAGE 12A



PRIMO RESOURCES

FIRST VERTICAL DERIVATIVE OF THE TMI

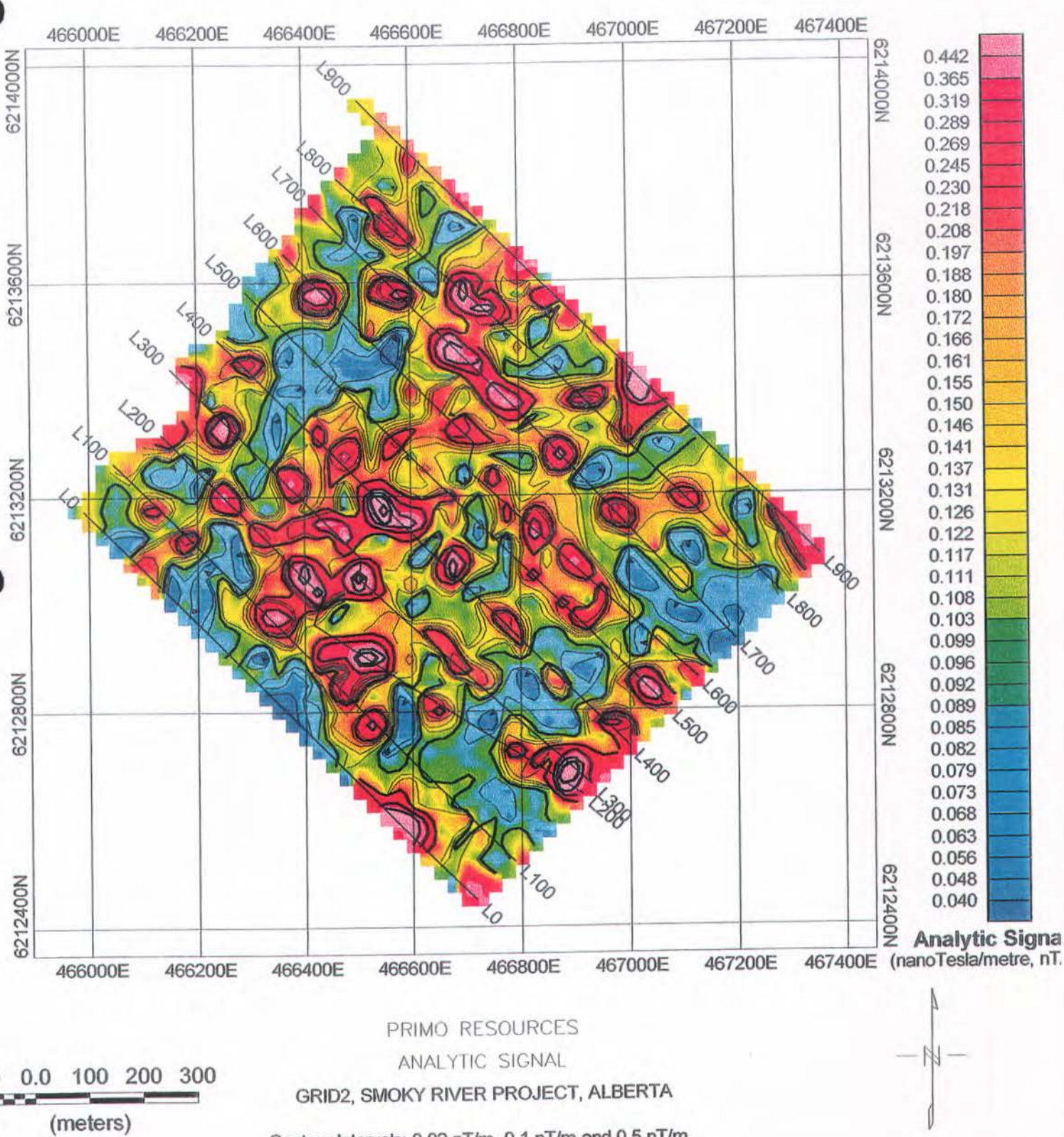
GRID2, SMOKY RIVER PROJECT, ALBERTA

0.0 250

(meters)

Contour Intervals: 0.02 nT/m, 0.1 nT/m and 0.5 nT/m

IMAGE 12B


466000E
466200E
466400E
466600E
466800E
467000E
467200E
467400E
6214000N
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6213200N
6212800N
6212400N
L900
L800
L700
L600
L500
L400
L300
L200
L100
L0
0.442
0.365
0.319
0.289
0.269
0.245
0.230
0.218
0.208
0.197
0.188
0.180
0.172
0.166
0.161
0.155
0.150
0.146
0.141
0.137
0.131
0.126
0.122
0.117
0.111
0.108
0.103
0.099
0.096
0.092
0.089
0.085
0.082
0.079
0.073
0.068
0.063
0.056
0.048
0.040
Analytic Signa
(nanoTesla/metre, nT.
100 0.0 100 200 300
(meters)
PRIMO RESOURCES
ANALYTIC SIGNAL
GRID2, SMOKY RIVER PROJECT, ALBERTA
Contour Intervals: 0.02 nT/m, 0.1 nT/m and 0.5 nT/m

IMAGE 12C

A-994

REPORT

HIGH RESOLUTION AEROMAGNETIC SURVEY

SMOKY RIVER PROJECT

PEACE RIVER AREA

ALBERTA

for

PRIMO RESOURCES LTD.

by

TERRAQUEST LTD.
Toronto, Canada

May 8, 1998

App 1

TABLE OF CONTENTS

1.0 INTRODUCTION

This report describes the specifications and operations of an airborne geophysical survey carried out for PRIMO RESOURCES LTD., 1738 - 609 Granville Street, Vancouver, BC, V7Y 1G5. The survey was performed by TERRAQUEST LTD., 100-1373 Queen Victoria Avenue, Mississauga, ON, L5H 3H2, telephone (905)274-1795 and fax (905)274-3936.

The purpose of a survey of this type is acquire high resolution, high sensitivity aeromagnetic data in order to map both the near surface and basement rocks and structures in the survey area to guide exploration for kimberlites.

To achieve this purpose the survey area was systematically traversed by an aircraft carrying geophysical instruments along parallel flight lines spaced at even intervals, 60 metres above the terrain surface, and aligned so as to intersect the regional geology and structure in a way to provide the optimum contour patterns of geophysical data.

2.0 SURVEY AREA

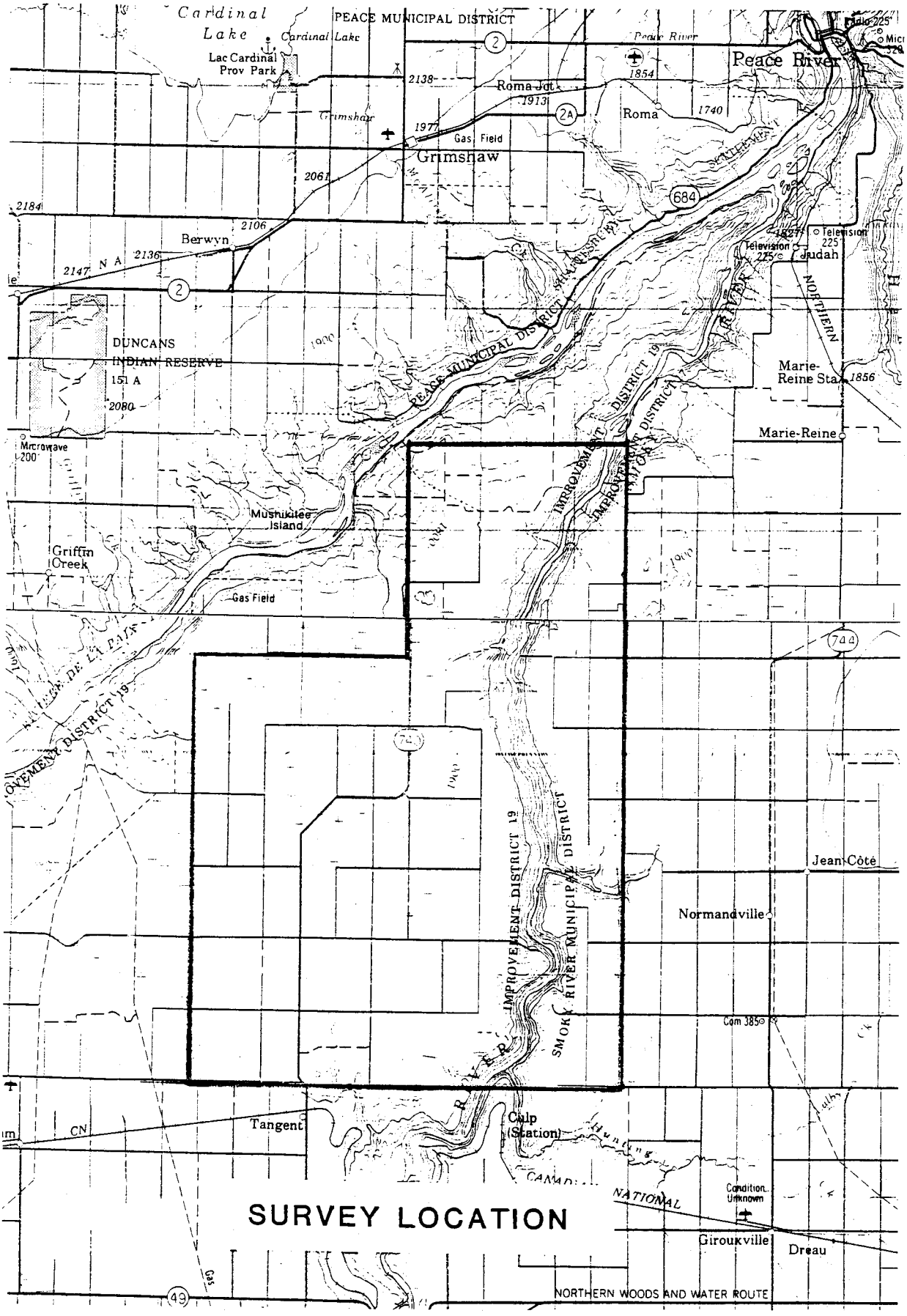
The survey area is located in central Alberta, 20 kilometres south of the town of Peace River, straddled about the Smoky River valley. It covers 5 townships as follows:

Twp 79, Ranges 23 and 24
Twp 80, Ranges 23 and 24
Twp 81, Range 23

The central latitude and longitude coordinates are approximately 55 degrees 55 minutes north, and 117 degrees 37 minutes west. The N.T.S. references are 83C/3 and 4, and 84N/13 and 14. The UTM corner coordinates are as follows:

452500	6185200	corner 1
452700	6204500	corner 2
462500	6204500	corner 3
462400	6214000	corner 4
472300	6214000	corner 5
472100	6185000	corner 6

The survey area is underlain by a thick sedimentary basin which is host to hydrocarbons; numerous oil wells have been drilled in this area. The sediments generally have insignificant magnetic signatures, however some subtle responses may be obtained from iron rich sediments. Structures and intrusives may also possess significant magnetic responses. The strongest magnetic values are generally derived from the Precambrian basement.


Cardinal Lake
PEACE MUNICIPAL DISTRICT
Cardinal Lake
Lac Cardinal Prov Park
Peace River
Peace River
Roma Jct
Roma
Grimshaw
Gas Field
Grimshaw
Berwyn
DUNCANS INDIAN RESERVE 151 A
Microwave
Television 225
Judah
Marie-Reine Sta
Marie-Reine
Mushikitee Island
Griffin Creek
Gas Field
PEACE MUNICIPAL DISTRICT
IMPROVEMENT DISTRICT 19
IMPROVEMENT DISTRICT 19
SMOKY RIVER
NORTHERN
Jean-Côté
Normandville
Com 385
Tangent
CN
Calp (Station)
Condition Unknown
Girouxville
Dreau
NATIONAL
NORTHERN WOODS AND WATER ROUTE
SURVEY LOCATION

3.0 EQUIPMENT SPECIFICATIONS

3.1 AIRCRAFT

The survey was carried out using a Cessna 206 aircraft, registration C-GGLS, which carries three high sensitivity magnetometers. It is equipped with long range tanks, outboard tanks (total 9 hours range), balloon tires, cargo door and full avionics.

The aircraft has been extensively modified to support a tail stinger and two wing tip extensions. The transverse separation between the wing tip magnetic sensors is 13.5 metres and the longitudinal separation to the tail sensor is 7.2 metres. Considerable effort has been made to remove all ferruginous materials near the sensors and to ensure that the aircraft electrical system does not create any noise. With these modifications this aircraft is the only horizontal gradient system commercially available in North America, and also represents one of the quietest magnetic platforms in the industry with a figure of merit of 9 nT uncompensated and 1.22 nT compensated at this survey location using G.S.C. standards.

The aircraft is owned and operated by Terraquest Ltd. under full M.O.T approval and certification for specialty flying including airborne geophysical surveys. The aircraft is maintained at base of operations by a regulatory AMO facility, Leggat Aviation Inc. and in the field by a Terraquest Ltd. AME in association with an approved AMO.

3.2 AIRBORNE GEOPHYSICAL EQUIPMENT

The airborne geophysical system has three high sensitivity, cesium vapour magnetometers. Ancillary support equipment include tri-axial fluxgate magnetometer, video camera, video recorder, radar altimeter, barometric altimeter, GPS receiver and a navigation system which includes a left/right indicator and a screen showing survey area with real time flight path. All data is collected and stored by the data acquisition system. The following provides the detailed equipment specifications.

Cesium Vapour Magnetometers:

Model	CS-2
Manufacturer	Scintrex
Resolution	0.001 nT counting @ 0.1 per second
Sensitivity	+/- 0.005 nT
Dynamic Range	15,000 to 100,000 nT
Fourth Difference	0.02 nT

Tri-Axial Magnetic Field Sensor (for compensation, mounted in the forepart of tail stinger):

Model	MAG-03MC
Manufacturer	Bartington Instruments Ltd.
Internal Noise	at 1 Hz - 1 kHz; 0.6 nT rms
Bandwidth	0 to 1 kHz maximally flat, -12 dB/octave roll off beyond 1 kHz
Frequency Response	1 Hz - 100 Hz: +/- 0.5%; 100 Hz - 500 Hz: +/- 1.5% 500 Hz - 1 kHz: +/- 5.0%

Calibration Accuracy:	+/- 0.5%
Orthogonality	+/- 0.5% worst case
Package Alignment	+/- 0.5% over full temperature range
Scaling Error	absolute: +/- 0.5% between axes: +/- 0.5%

Video Camera (camera mounted in belly of aircraft):

Model	VDC-2982 (colour)
Manufacturer	Sanyo
Serial Number	698000-30
Specifications	1/2", 470hr, 1.3LX, 12VDC, C/CS, EI/ES, backlite comp
Lens	Rainbow, 2/3", 4.87 mm, F1.8-360, auto iris,

Video Recorder (mounted in rack):

Model	AG 2400 (commercial grade)
Manufacturer	Panasonic
Serial Number	C8TA00281

Radar Altimeter:

Model	KA-131
Manufacturer	King
Serial Number	071-1114-00
Accuracy	5% up to 2,500 feet
Calibrate Accuracy	1%
Output	Analogue for pilot; Converted to digital for data acquisition

Barometric Altimeter:

Model	LX18001AN
Manufacturer	Sensym
Source	Coupled to aircraft pitot static system

Navigation Interface (mounted in rack with pilot and operator readouts):

Model	PNAV 2001
Manufacturer	Picodas Group Inc.
Data Input	Real time processing of GPS output data
Pilot Readout	Left/Right indicator
Operator Readout	Screen Modes: map, survey and line
Data Recording	All data recorded in real time by PDAS 1000

Data Acquisition System (mounted in rack):

Model	PDAS 1000
Manufacturer	Picodas Group Inc.
Operating System	MS-DOS
Microprocessor	80486dx - 66 CPU
Coprocessor	Intel 80486dx
Memory	On board up to 8 MB, page interleaving, shadow RAM for BIOS,

	support EMS 4.0
Clock	real time, hardware implementation of MC14618 in the integrated peripherals controller
I/O slots	5 AT and 3 PC compatible slots
Display	Electro-luminescent 640x400 pixels
Graphic Display	Scrolling analog chart simulation with up to 5 windows operator selectable; freeze display capability to hold image for inspection
Recording Media	Standard 540 Mbyte hard disk with extra shock mounts; Standard 1.44 Mbyte floppy disk; Standard tape backup
Sampling	Selectable for each input type; 1, 0.5, 0.25, 0.2 or 0.1 seconds
Inputs	12 differential analog input with 16 bit resolution
Serial Ports	2 RS-232C (expandable)
Parallel Ports	Ten definable 8 bit I/O; Two definable 8 bit outputs

The PDAS 1000 also contains the magnetometer processor boards, one for each cesium vapour magnetometer:

Model	PCB
Manufacturer	Picodas Group Inc.
Input Range	20,000 - 100,000 nT
Resolution	0.001 nT
Bandwidth	0.7, 1 or 2 Hz
Microprocessor	TMS 9995
Firmware	8 KBit EPROM board resident
Internal Crystal	18,432 KHz
Absolute Crystal Accuracy	<0.01%
Host Interfacing	8 KByte dual port memory
Address Selection	Within 20 bit addressing in 8 KByte software selectable steps
Input Signal	TTL, CMOS, Open collector compatible or sine wave & decoupler
Input Impedance	TTL > 1KOhm

Magnetic compensation for aircraft and heading effects is done in real time. Raw magnetic values are also stored and thus if desired, compensation with different variables can be run at a later time.

Other Boards:

1) Differential GPS Receiver:

Model	GPS Card 3951
Manufacturer	Novatel
Antenna	Model 511
Position Update	0.2 second for navigation
Accuracy	position (SA implemented) 100 metres position (no SA) 30 m velocity 0.1 knot time recovery 1pps, 100 nsec pulse width
Data Recording	all GPS data and positional data logged by PDAS1000

2) Analog Processor — PCB - provides separate A/D converter for each analog input with no multiplexing; each channel is sampled at a rate of 1,000 samples per second with digital processing applied

Power Supplies:

1) PC6B converter to convert the 13.75 volt aircraft power to 27.5 volts DC.
2) Power Distribution Unit manufactured by Picodas Group Inc. located in the instrument rack interfaces with the aircraft power and provides filtered and continuous power at 13.75 and 27.5 vDC to all rack components.
3) The PDAS-1000A contains three 32 volt DC cesium sensor switching power supplies for the cesium vapour magnetometers in conjunction with real time magnetometer compensation; also enables interfacing the fluxgate magnetometer and the barometric altimeter; also provides clean power for radar altimeter and ancillary equipment.

3.3 MAGNETIC BASE STATION

High sensitivity base station data are provided by a cesium vapour magnetometer, data logging onto a PC 386sx notebook and time synchronization with ground GPS receiver.

Magnetic Sensor:

identical to magnetometer in aircraft

Magnetic Processor:

Model	MEP-710
Manufacturer	Picodas Group Inc.
Input Range	20,000 - 100,000 nT
Resolution	0.001 nT
Resolution (fdd)	1 pT
Bandwidth	0.7, 1 or 2 Hz
Microprocessor	TMS 9995
Firmware	8 KBit EPROM board resident
Internal Crystal	18,432 KHz
Absolute Crystal Accuracy	<0.01%
Host Interfacing	8 KByte dual port memory
Address Selection	Within 20 bit addressing in 8 KByte software selectable steps
Input Signal	TTL, CMOS, Open collector compatible or sine wave with decoupler
Input Impedance	TTL>1KOhm
Clock Stability	2 ppm per year
Absolute accuracy correction	+/- 999x10e-6

Logging Software:

Logging software by Picodas Group Inc. version 5.02 to IBM compatible PC with RS-232 input; supports real time graphics, automatic startup, compressed data storage, selectable start/stop times, plotting of data to screen or printer at user selected scales, and fourth digital difference and diurnal quality flags.

3.4 GPS BASE STATION

Ground GPS data was collected on a separate notebook to perform post flight differential correction to the flight path. The ground GPS base station equipment is described below:

Model	MX 4200D
Manufacturer	Magnavox
Serial Number	5057
Type	Continuous tracking, L1 freq., C/A code (SPS), 6 channel (independent)
Receiver Sensitivity	-143 dBm Costas threshold
Position Update	once per second
Accuracy	with SA implemented 100 metres, no SA 30 metres, velocity 0.1 knot, time recovery 1pps, 100 nsec pulse width

3.5 IN-FIELD COMPUTING FACILITIES

The following equipment were supplied for in field preliminary processing including base station logging and GPS differential calculations:

- two 486DX/66 and two 386SX/25 notebooks, External Colorado tape drive
- one colour and two black and white printers
- pentium notebook for processing database, data transmittal

Software included C3NAV by Picodas Group Inc for GPS differential corrections, and MONTAJ suite of software by Geosoft Inc. to provide binary database functions, tie line levelling, mapping and imaging.

4.0 SURVEY SPECIFICATIONS

4.1 LINES AND DATA

Survey area coverage	132 survey lines	3,224.6 km
	15 tie lines	251.1 km
	total	3,475.7 km
Line direction	360 degrees azimuth	
Line interval	150 metres	
Tie line direction	90 degrees azimuth	
Tie line interval	2 kilometres	
Terrain clearance	60 metres, drape mode	
Average ground speed	60 metres/second	
Data point interval	6 metres	

4.2 TOLERANCES

Line spacing: No gaps wider than 15% of the nominal line spacing for a distance of more than 12 kilometres. Also at no point shall the traverse or control lines deviate more than +/- 150 metres from the pre-plot line locations.

Terrain clearance: In general the true flight altitude must be less than +/- 15 metres for a distance of over 5 kilometres from the norm drape level of the survey. This survey has specific requirements with regard altitude control; the critical element is the difference in altitude between the survey line and the control line, referred to as elevation misties. Generally the misties should be less than +/- 10 metres absolute although some deviation is allowable in more rugged terrain as follows: 90% must be less than +/- 10 metres, and 100% less than +/- 20 metres.

Diurnal magnetic variation: A maximum deviation of +/- 2.50 nT from a curvilinear mean within the time span required to acquire 9 line kilometres of data at the specified minimum sampling interval.

4.3 NAVIGATION AND RECOVERY

The satellite navigation system was used to ferry to the survey site and to survey along each line using latitude/longitude coordinates. The coordinates of the survey outline for navigation purposes and flight path recovery were supplied by the client.

The navigation accuracy is variable depending on the number and condition of the satellites, however it is generally less than twenty five metres and typically in the ten to fifteen metre range. Post flight differential correction of the flight path, which corrects for satellite range errors, improves the accuracy of the flight path recovery to approximately within one to three metres.

The navigational and flight path recovery positioning is based on the latitude and longitude of the corners provided. The datum shift from WGS84 to local is North American 1927, Canada, Clarke 1966 as follows: DX=10, DY=-158, DZ=-187.

A video camera recorded the ground image along the flight path. A video screen in the cockpit enabled the operator to monitor the accuracy of the flight path during the survey. This system also provided a backup system, verification for flight path recovery and a means for identifying cultural anomalies.

4.4 OPERATIONAL LOGISTICS

The main base of operations with the base station magnetometer and GPS equipment was set up just west of the airport at Peace River, well away from cultural interference. The exact coordinates of the GPS antenna were 56 degrees 14 minutes 42.40 seconds north and 117 degrees 17 minutes and 56.76 seconds west at an elevation of 301.8 metres above the Clarke 1866 datum.

In-field data processing was performed by the field crew and encompassed downloading base station and aircraft data, applying differential GPS corrections, applying diurnal corrections, combining all data into a database. The data underwent preliminary examination on the screen to verify the data on a line by line basis. Each evening the data were transmitted via an FTP site to a Terraquest Ltd. geophysicist in Calgary who created flight path and geophysical images and inspected all the data.

The survey was flown by 7 flights (G028, G032-G037) over 12 days from March 20, 1998 to March 31, 1998. The survey flight log is shown in Appendix I and the Line Listing in Appendix II.

5.0 DATA PROCESSING

Preliminary processing was performed by Terraquest Ltd. personnel, checking on all parameters and procedures. The processing of the tail magnetic data during the survey consisted of the following:

1) Software program C3NAV (by Picodas) was applied to the base and aircraft GPS data in order to provide post-flight compensated GPS locations of the flight path.
2) Program C3NAV2TBL (by Geosoft) to produce two table files (UTM-X -Y -Z, and Lat/Lon)
3) Use BASEDUMP (Picodas) on raw binary base (diurnal) magnetic data to create GNDMAG table
4) Create jobfile database in MONTAJ (Geosoft) for airborne data and import corrected flight path and GNDMAG
5) Edit GNDMAG channel to remove any occasional spikes and linearly interpolate across the gaps.
6) Establish table of mean terrain clearances at intersection locations from tie line data to provide elevation guidance for survey line navigation. Grid differences in elevations at intersections of tie and survey lines provide a quality check on elevation control and are used to tag any for reflight.
7) Edit flight path channels to remove any spikes and linearly interpolate gaps.
8) Edit RAWMAG channel (compensated tail magnetometer referred to as CMAG3 in aircraft Picodas format) to remove any spikes and linearly interpolate gaps
9) Create new channel as RMAGDC = RAWMAG - GNDMAG + base constant
10) Perform lag correction to RMAGDC channel; lag is 0.6 seconds
11) Perform tie line levelling by using all the survey line data to level the tie lines
12) Perform survey line levelling using the levelled tie lines; channel labelled LEVMAGDC
13) All data were viewed on the screen on a line by line basis using the interactive MONTAJ database
14) Produce preliminary flight path map and gridded magnetic intensity map including shadowing to detect any irregularities.
15) Plot analog charts of RAWMAG and MAGDC in requested format, inspect for data quality and ship along with digital data to client.

Following quality control and de-mobilization, the data were subjected to more advanced level of processing and levelling as follows. The final microlevelling and inspection were carried out by a geophysicist in Calgary. These processing steps were as follows:

1) Plot survey line and tie line flight paths and profiles for quality control inspection.
2) Prepare grid of final intensity levelled tie line data and shadow it at low sun angle to check quality of tie line co-levelling.
3) Prepare grid of final intensity levelled survey line data, shadow it at low sun angle and calculate a horizontal gradient grid, both used to check the quality of tie line level corrections.
4) In MONTAJ inspect raw, diurnal corrected, and final levelled mag simultaneously on each line to determine cause of any poor tie line levelling.
5) Eliminate tie/survey intersections that are not usable due to excessive tie line diurnal noise and/or culture.
6) Eliminate duplicated data from reflights if required.
7) Prepare new levelling correction table and apply it.
8) Repeat steps 3) to 6) as often as is necessary to achieve highest quality data set.
9) Any equipment noise or obvious cultural response that interferes with the final product is filtered or edited.
10) Micro-level final total intensity grid to remove small line level errors.
11) Prepare Vertical Gradient grids using 2D FFT operator on the Total Intensity grid. Note that all gridded products are based solely on the tail magnetometer and have a cell size of 40 metres.
12) Contour data
13) Prepare the Horizontal Gradient vectors from the recorded data by 1) subtracting the wing tip sensors and dividing by their separation to get the transverse gradient, 2) subtract the mean of the wing tip sensors from the trail sensor and dividing by the separation to get the longitudinal gradient, and 3) combining the transverse and longitudinal gradients to obtain the horizontal gradient.
14) Digital images of well locations obtained from Geocad, Calgary
15) Cultural editing was based solely on verification from video image, digital well locations and published topographic maps to identify the cultural source, otherwise all other data have not been edited. At these locations, the anomaly was removed and the gap was splined across to fill in the data.
16) The data were levelled and fully processed again [as per 8) above] to achieve the final edited database.
17) Map surrounds compiled and combined with scanned topography; final plotting and archiving on CD-ROM

There are some important concepts that should be highlighted with regard to cultural editing.

1) The possibility exists that a kimberlite pipe coincides with an observed cultural source, in which case the pipe would have probably been edited out. For this reason the original database is supplied along with the decultured data base.

2) Single cultural anomalies are relatively easy to edit out. Several cultural source in close proximity become increasingly difficult because they overwhelm the

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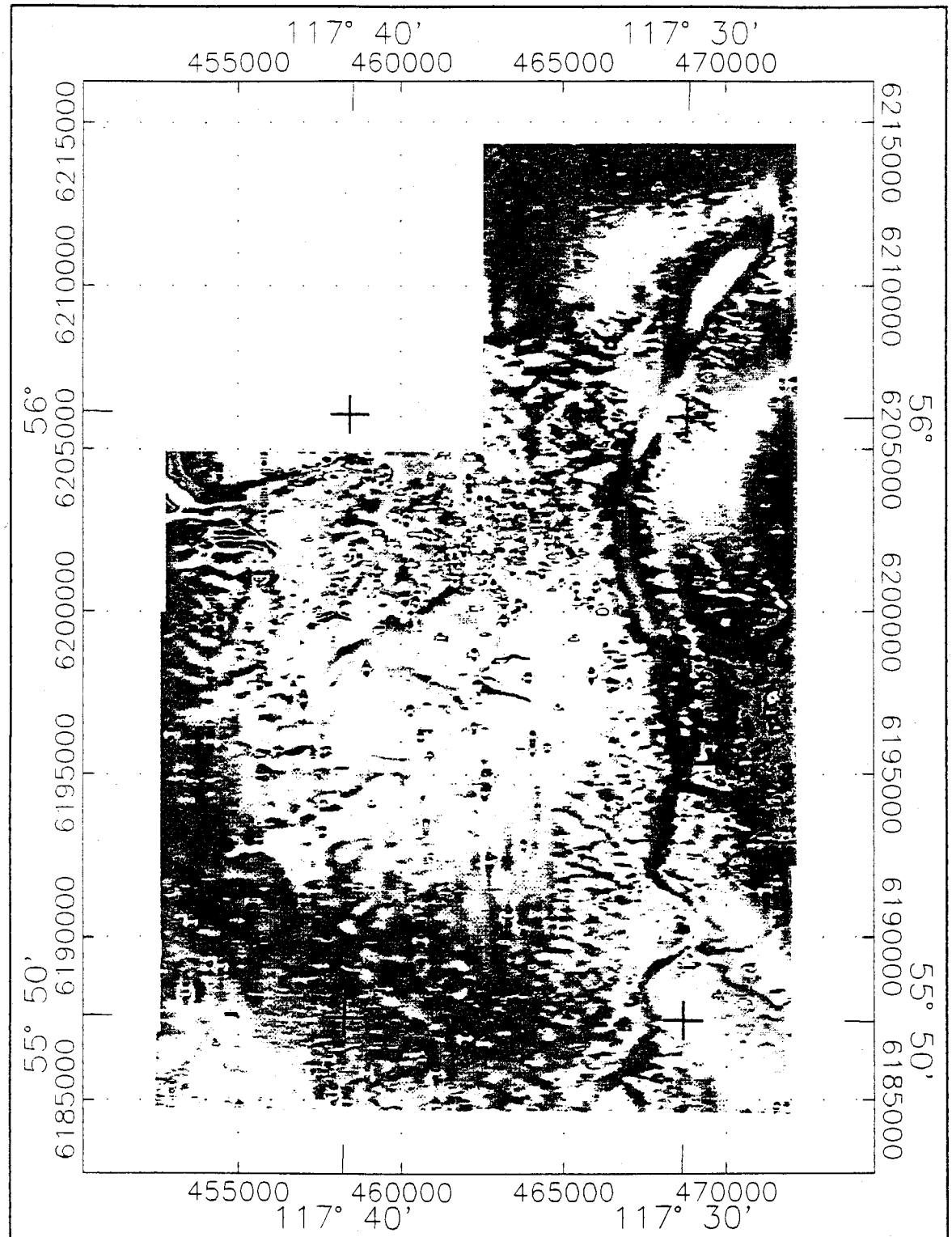
Total Magnetic Intensity

(no cultural editing)



PRIMO RESOURCES LTD.

Vertical Magnetic Gradient

(no cultural editing)

geologic signal, which in some places cannot be determined. Cultural editing of a pipe line has a major affect on the gridded data. This makes the last stage of levelling very difficult since a common base cannot be determined and the resulting map may at places not look as smooth as the unedited gridded data.

Page size plots of the total intensity and the vertical magnetic gradient without cultural editing are included within this report. The effect of the oil wells is quite significant across most of the survey area, and quite detrimental to the magnetic images in the north central part of the survey.

Grant, F. S. and Spector A., 1970: Statistical Models for Interpreting Aeromagnetic Data; Geophysics, Vol 35
Grant, F. S. 1972: Review of Data Processing and Interpretation Methods in Gravity and Magnetics; Geophy. 37-4
Spector, A., 1968: Spectral Analysis of Aeromagnetic maps; unpublished thesis; University of Toronto.

6.0 INTERPRETATION

6.1 TECHNIQUES

The total magnetic intensity data is inspected for any circular anomalies that might represent kimberlite pipes. These constitute first priority targets (T) and should be the main focus of the ground follow up. These can generally be further characterized by the horizontal gradient vectors to provide greater resolution (see following paragraphs on horizontal gradient interpretation).

Next the magnetic stratigraphy is interpreted qualitatively from the contours of the vertical magnetic gradient; these units are shown as magnetic stratigraphic units (Units 3, 4 and 8) in an otherwise quiet background. Once the general trends of the stratigraphy have been established, it becomes easier to resolve any circular anomalies by their contrasting shape or amplitude. It is important to recognize that not all kimberlite pipes possess strong magnetic responses, therefore subtle changes in the magnetic pattern may be very important.

The ability of the vertical magnetic gradient to resolve the detail of the magnetostratigraphy and structure in an otherwise smooth total intensity, is indicative of a good quality data set, lack of cultural interference (or successful editing), and diligent line levelling and data processing. The data have not been filtered which would have reduced the high degree of resolution.

The following comments are offered to assist in the interpretation of the horizontal gradient vectors since this product is not common place in the industry. Most of the experience obtained with horizontal gradiometry has been in Precambrian environments where the source bodies are at surface and with generally vertical orientation. Types of HG vector responses include the following:

1) point of convergence where the vectors point to the centre of small or point sources; sometimes edges of intrusives may appear as point sources

2) zone of divergence in the absence of a strong magnetic source, vectors sometimes show divergence away from magnetic lows
3) flip-over where a sequence of vectors on one side of the flight line flip over to the other side of the flight line directly over the centre of the causative body which is at an angle to the flight line; this can be used to pinpoint the precise centre or edge of magnetic body or structure
4) fence of vectors occur in response to larger bodies; fences on adjacent lines generally indicate large, deeper sources

Variations and combinations of these may occur. A few examples are outlined:

1) As the lateral distance between the aircraft and a pinpoint source increases, the degree of convergence decreases faster than the amplitude, for example, the flight line close to a pin point source would show strong convergence but the second flight line away would still show significant amplitude but probably little or no convergence (straight or parallel vectors)

2) Flip-overs only occur where the causative body is at an angle with the flight line; if it is at right angles, the transverse component will be insignificant.

3) A near surface, pinpoint source in the vicinity of a large and deeper source would be characterized by fence vectors with a local minor undulation in an otherwise uniform fence. This can be an effective tool in the identification of subtle near surface sources in regions of deeper-derived high gradients. Similarly, distortions in otherwise uniform points of convergence or flip-overs may represent changes in orientation of the body or influences from more than one source. As with all potential field representations, the entire magnetic field must be recognized, with all its components and their interactions.

This survey environment is characterized by four main sources as follows:

1) cultural sources at surface, characterized by variable amplitudes and very high frequency; HG vectors show very strong convergence and often large amplitude
2) kimberlite sources at or near surface, characterized by moderate to high amplitude and frequencies; HG vectors generally converge on edges or centre depending on size and composition; often detected on several lines
3) geologic sources within the sedimentary basin, including concentrations of iron rich sediments and dikes, characterized by moderate total intensity amplitudes, the HG vectors occur over many lines with the appearance of several rows of "fences" which swirl toward the source (in previous surveys the HG component appeared to have a detection limit of 200-300 metres).
4) geologic sources from the deep basement, characterized by smooth total intensity contours, vertical gradient contours capable of resolving distinct magnetostratigraphy, and probably little or no HG component.

Correlation of the known digital well locations with the horizontal gradient is not consistent for any of these survey blocks. Most of the digital well locations are approximately 75 metres (+/- 25 metres) east of the vector point of converge. The airborne geophysical data and video images correlate well with the scanned topography including known cultural sources (eg

bridges, pipe line). It is probable that some shift resides with the digital well data, however Terraquest Ltd. did not apply an artificial shift since it has not been proven.

Note that the gridded data has been decultured but the horizontal gradient has not. Consequently there are several places where the two formats are not consistent. Further, the vertical gradient plot, which was derived from the edited or decultured dataset, may display patterns that do not represent the original or true patterns. Specific patterns of the horizontal gradient vectors can also be used to help identify cultural sources.

Classification of anomalies/targets is as follows:

- **T** priority target based primarily on total intensity data
- **t** small amplitude detected only by horizontal and vertical gradient components
- **w** contours of vertical gradient and vectors of horizontal gradient (non-decultured) responses, but coincide with known oil well locations; in most situations this type of response may be residual from partial deculturing, but in a few cases, the magnetic responses appear to have greater depth and therefore have been included as a potential target

Note that most horizontal gradient responses in areas of edited gridded data about known cultural sources have been ignored since the horizontal gradient data have not been edited.

Quantitative interpretation such as MagMod modelling or Euler deconvolution is recommended for the more interesting targets.

6.2 INTERPRETATION

The contours of total magnetic intensity are generally smooth, characteristic of most sedimentary basins, with a range of just over 700 nT. The strongest responses have a relief of 200 to 300 nT and occur to the north and northeast; the remaining portion of the survey block has a gentle relief of about 5 to 20 nT over 500 metres. The data have been contoured successfully down to 5 nT levels and are characteristic of deep sedimentary basins.

The stronger responses to the north and northeast are interpreted to be derived from mafic intrusives (Unit 3), most likely at significant depth as they do not possess any significant horizontal gradient component. The very weak total field magnetic responses to the southwest possess moderate scale features as defined by the vertical gradient. These responses are interpreted to be derived from more felsic intrusives or volcanics (Unit 4), also probably at depth. Magnetic units within this area are identified as unit 4m.

The vertical magnetic gradient has an east-west, striped pattern with remarkable continuity considering the low range in responses. These horizons are interpreted as alternating magnetic (Unit 8) and non-magnetic lithologies within the sedimentary basin, probably related to paleochannels. Note that these horizons disappear in the vicinity of Smoky River and its tributaries. These valleys are incised approximately 15 to 25 metres; therefore it is assumed that most of these horizons occur within that depth. Most horizons contain some horizontal

gradient component, also indicating a shallow source. The magnetic horizons become overwhelmed in the vicinity of the intrusives.

Numerous northeast (020 degrees) trending structures have been interpreted from displacements in the magnetic unit 8 horizons. A second set at approximately 150 degrees occurs primarily in the northwest part of the survey area. Two arcuate faults occur to the east, and appear to be down faulted to the east since the magnetic unit 8 horizons display progressively lower total magnetic intensities. This is consistent with the shallow interpretation for the unit 8 horizons.

The high frequency detail provided by the horizontal gradient also responds well to cultural sources. The digital oil well locations (obtained from GeoCad) are approximately 70 metres east of the vector points of convergence. It is believed that the GeoCad locations are in error and may be slightly displaced.

Fourteen first priority target (**T**) have been identified with reliefs ranging from 5 to 20 nT. Most show dipolar characteristics on the vertical gradient plot, typical of kimberlites. The horizontal gradient vectors provide extra detail between the flight lines. These targets should be modelled quantitatively and investigated on the ground.

Thirty three second priority targets (**t**) are interpreted primarily from the horizontal and vertical gradient data. Those that do not coincide with magnetic unit 8 possess greater potential for kimberlite origins. All warrant ground follow up. If any are successful, then the data should be re-examined for similar, less well-defined targets.

Three third priority targets (**w**) have been interpreted in the vicinity of oil wells on the presumption that not all of the magnetic responses at these locations are due to the well. Also, it should always be borne in mind that an anomaly may be related to any combination of sources; this possiblity opens up many responses to different interptretations.

8.0 SUMMARY

An airborne high sensitivity, high resolution magnetic survey has been carried out at 60 metre terrain clearance, 150 metre line intervals and with data sample stations at 6 metres along the lines. Ties lines were spaced at 2 kilometres. A high sensitivity base magnetic station recorded the diurnal activity throughout the survey and a base GPS station was used to correct range errors in the GPS flight path recovery. Airborne recorded data included three fully compensated magnetometers (one located in a rear stinger and two in wing tip pods), radar altimeter, barometric altimeter and all attendant GPS data. Data quality control was carried out in the field and concurrently in Calgary. The magnetic data have been edited for known cultural interference, processed, gridded (cell size 40 metres), plotted and provided in colour and black and white on mylar, and archived on CD-ROM. Final products at a scale of 1:25,000 include total magnetic intensity, horizontal gradient vectors superimposed over contours of vertical derivative, and a qualitative interpretation map, all with flight path, digital images of topography and well locations.

The survey has successfully identified fourteen strong anomalies with near surface sources that are interpreted as first priority targets for kimberlite pipes. The horizontal and vertical gradient data provide significant detail and resolution on these features. Thirty three weaker anomalies detected only by the horizontal and vertical gradient data, also possess near surface sources without any obvious cultural association. Three third priority targets are interpreted that coincide with or are in proximity to well sites. Quantitative modelling and ground follow up are recommended on all targets.

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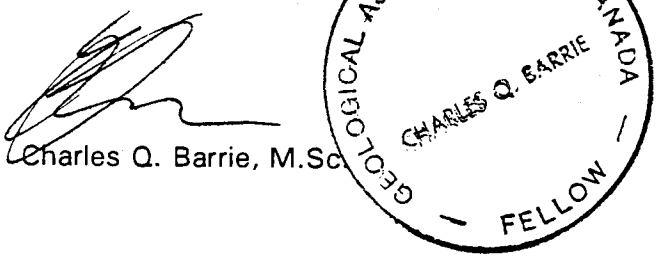


Charles Q. Barrie, M.Sc.

APPENDIX IV

CERTIFICATE OF QUALIFICATION

I, Charles Q. Barrie, certify that I:

1. am registered as a Fellow with the Geological Association of Canada and work as a Professional Geologist.

2. hold an honours B.Sc. degree in Geology from McMaster University, obtained in 1977.

3. hold an M.Sc. degree in Geology from Dalhousie University, obtained in 1980.

4. am a member of the Prospectors and Developers Association of Canada.

5. am a member of the Canadian Institute of Mining, Metallurgy and Petroleum.

6. have worked seasonally as a geological student in the mining industry for five years, and continuously as a geologist for seventeen years.

7. am employed by and am an owner of Terraquest Ltd., specializing in high sensitivity airborne geophysical surveys.

8. and that the accompanying report has been prepared from airborne data collected by Terraquest Ltd. exclusively for PRIMO RESOURCES LTD. I do not have any interest in the property nor have I visited the property.

Mississauga, Ontario
May 8, 1998

Signed,

[redacted]

Charles Q. Barrie, M.Sc.

APPENDIX I

FLIGHT LOG: Project A-994, Smoky River
AIRCRAFT: Cessna U206, Reg C-GGLS

Date	Flight	Lines flown	Comments
Mar.20	G028	L10 - 1380	L10, L210 reflown as L11, L211
Mar.24	G032	L390 - 660	
Mar.24	G033	L670 - 840	L670 had to avoid tower
Mar.26	G034	L850 - 910	Mag too noisy due to turbulence
Mar.28	G035	L920 -1150	
Mar.28	G036	L1160 - 1130	
Mar.31	G037	L850 - 910 T5010 - 5160	reflights of G034 tie lines

APPENDIX II

Line List for SMOKY RIVER Grid (A994)

type	line	X-min	X-max	Y-min	Y-max
line	11	452518	452524	6184918	6187040
line	20	452642	452673	6184810	6199902
line	30	452798	452856	6184887	6204888
line	40	452960	453000	6184867	6204841
line	50	453095	453150	6184795	6204868
line	60	453261	453300	6184815	6204896
line	70	453397	453437	6184840	6204822
line	80	453546	453588	6184835	6204882
line	90	453692	453738	6184910	6204786
line	100	453841	453899	6184794	6204848
line	110	453986	454037	6184896	6204897
line	120	454152	454198	6184854	6204893
line	130	454301	454336	6184893	6204866
line	140	454439	454502	6184850	6204820
line	150	454572	454640	6184795	6204801
line	160	454742	454798	6184793	6204878
line	170	454883	454930	6184896	6204895
line	180	455059	455102	6184775	6204872
line	190	455167	455238	6184890	6204816
line	200	455353	455401	6184830	6204900
line	210	455499	455562	6184845	6204809
line	221	455642	455687	6184795	6204808
line	230	455794	455840	6184803	6204898
line	240	455940	456004	6184838	6204860
line	250	456098	456133	6184842	6204895
line	260	456238	456284	6184877	6204858
line	270	456403	456435	6184772	6204790
line	280	456558	456612	6184887	6204860
line	290	456716	456743	6184821	6204778
line	300	456863	456898	6184867	6204877
line	310	457009	457042	6184838	6204882
line	320	457165	457195	6184761	6204899
line	330	457307	457343	6184823	6204786
line	340	457439	457495	6184823	6204841
line	350	457588	457626	6184857	6204809
line	360	457742	457796	6184762	6204833

line	370	457905	457950	6184827	6204841
line	380	458025	458080	6184764	6204837
line	391	458159	458207	6184845	6204880
line	400	458315	458358	6184824	6204857
line	410	458491	458524	6184819	6204842
line	420	458646	458687	6184763	6204878
line	430	458783	458824	6184815	6204785
line	440	458944	459002	6184817	6204767
line	450	459078	459134	6184777	6204847
line	460	459242	459295	6184813	6204812
line	470	459394	459429	6184765	6204871
line	480	459543	459587	6184804	6204872
line	490	459709	459756	6184806	6204842
line	500	459861	459896	6184834	6204896
line	510	459990	460042	6184821	6204867
line	520	460128	460190	6184815	6204827
line	530	460302	460332	6184799	6204891
line	540	460456	460487	6184732	6204788
line	550	460596	460643	6184786	6204802
line	560	460765	460809	6184716	6204838
line	570	460901	460939	6184765	6204900
line	580	461048	461086	6184729	6204848
line	590	461190	461223	6184741	6204843
line	600	461372	461397	6184786	6204851
line	610	461492	461540	6184864	6204876
line	620	461661	461702	6184801	6204848
line	630	461789	461849	6184774	6204875
line	640	461933	461983	6184824	6204809
line	650	462100	462132	6184731	6204832
line	660	462246	462278	6184741	6204881
line	670	462372	462436	6184809	6204878
line	680	462541	462609	6184815	6214209
line	690	462685	462736	6184758	6214228
line	700	462839	462879	6184807	6214290
line	710	462985	463055	6184755	6214329
line	720	463126	463190	6184739	6214234
line	730	463298	463355	6184814	6214290
line	740	463444	463486	6184752	6214318
line	750	463578	463643	6184709	6214259
line	760	463745	463814	6184786	6214217
line	770	463893	463975	6184729	6214330
line	780	464043	464097	6184702	6214339
line	790	464190	464255	6184756	6214339
line	800	464336	464399	6184797	6214311
line	810	464490	464550	6184775	6214327
line	820	464636	464721	6184711	6214305
line	830	464777	464855	6184684	6214258

line	840	464921	464998	6184685	6214248
line	850	465102	465155	6184784	6214317
line	860	465227	465286	6184741	6214333
line	870	465395	465461	6184784	6214245
line	880	465559	465611	6184732	6214237
line	890	465692	465759	6184793	6214237
line	900	465834	465905	6184714	6214235
line	910	465994	466059	6184683	6214270
line	920	466135	466196	6184733	6214317
line	930	466311	466345	6184794	6214282
line	940	466441	466483	6184748	6214261
line	950	466586	466642	6184746	6214256
line	960	466715	466807	6184702	6214311
line	970	466908	466961	6184704	6214330
line	980	467031	467090	6184742	6214247
line	990	467180	467223	6184721	6214286
line	1000	467341	467409	6184667	6214245
line	1010	467482	467532	6184713	6214284
line	1020	467650	467703	6184649	6214328
line	1030	467800	467848	6184720	6214248
line	1040	467957	468007	6184715	6214308
line	1050	468093	468146	6184681	6214321
line	1060	468231	468284	6184680	6214331
line	1070	468397	468451	6184743	6214319
line	1080	468547	468598	6184674	6214349
line	1090	468682	468722	6184723	6214325
line	1100	468841	468880	6184743	6214322
line	1110	468995	469043	6184658	6214291
line	1120	469135	469195	6184744	6214227
line	1130	469302	469357	6184632	6214286
line	1140	469459	469500	6184681	6214338
line	1150	469613	469661	6184745	6214320
line	1160	469741	469789	6184630	6214278
line	1170	469880	469968	6184624	6214238
line	1180	470017	470080	6184667	6214288
line	1190	470180	470230	6184735	6214310
line	1200	470328	470390	6184736	6214235
line	1210	470501	470546	6184724	6214287
line	1220	470637	470689	6184674	6214312
line	1230	470789	470841	6184733	6214287
line	1240	470929	471010	6184675	6214233
line	1250	471098	471145	6184642	6214245
line	1260	471242	471279	6184666	6214233
line	1270	471382	471433	6184732	6214249
line	1280	471560	471603	6184729	6214231
line	1290	471679	471744	6184610	6214264
line	1300	471845	471900	6184696	6214281

line	1310	471989	472028	6184659	6214258
line	1320	472149	472188	6192272	6214311
tie	5010	462536	472188	6213990	6214019
tie	5020	462469	472202	6211983	6212005
tie	5030	462518	472170	6209979	6210027
tie	5040	462529	472208	6207967	6208019
tie	5050	462497	472242	6205965	6205993
tie	5060	452790	472197	6203969	6204012
tie	5070	452730	472091	6201977	6202011
tie	5080	452736	472167	6199975	6200017
tie	5090	452655	472068	6197995	6198024
tie	5100	452661	472147	6195968	6196051
tie	5110	452702	472092	6193976	6194026
tie	5120	452651	472037	6191950	6192005
tie	5130	452566	472115	6189978	6190017
tie	5140	452607	472090	6187954	6188003
tie	5150	452576	471979	6185963	6186003

Survey Lines: 132
Tie Lines: 15

APPENDIX III

PERSONNEL

Field:	Pilot	Mike Forgac
	Operator/Technician	Mike Abbot
	Geophysicist	Dr. Shuchun Du
Office:	Manager	Charles Barrie
	Geophysicist/Processor	Dr. Shuchun Du

Line List for SMOKY RIVER Grid (A994)

type	line	X-min	X-max	Y-min	Y-max
line	11	452518	452524	6184918	6187040
line	20	452642	452673	6184810	6199902
line	30	452798	452856	6184887	6204888
line	40	452960	453000	6184867	6204841
line	50	453095	453150	6184795	6204868
line	60	453261	453300	6184815	6204896
line	70	453397	453437	6184840	6204822
line	80	453546	453588	6184835	6204882
line	90	453692	453738	6184910	6204786
line	100	453841	453899	6184794	6204848
line	110	453986	454037	6184896	6204897
line	120	454152	454198	6184854	6204893
line	130	454301	454336	6184893	6204866
line	140	454439	454502	6184850	6204820
line	150	454572	454640	6184795	6204801
line	160	454742	454798	6184793	6204878
line	170	454883	454930	6184896	6204895
line	180	455059	455102	6184775	6204872
line	190	455167	455238	6184890	6204816
line	200	455353	455401	6184830	6204900
line	210	455499	455562	6184845	6204809
line	221	455642	455687	6184795	6204808
line	230	455794	455840	6184803	6204898
line	240	455940	456004	6184838	6204860
line	250	456098	456133	6184842	6204895
line	260	456238	456284	6184877	6204858
line	270	456403	456435	6184772	6204790
line	280	456558	456612	6184887	6204860
line	290	456716	456743	6184821	6204778
line	300	456863	456898	6184867	6204877
line	310	457009	457042	6184838	6204882
line	320	457165	457195	6184761	6204899
line	330	457307	457343	6184823	6204786
line	340	457439	457495	6184823	6204841
line	350	457588	457626	6184857	6204809
line	360	457742	457796	6184762	6204833
line	370	457905	457950	6184827	6204841
line	380	458025	458080	6184764	6204837
line	391	458159	458207	6184845	6204880
line	400	458315	458358	6184824	6204857
line	410	458491	458524	6184819	6204842

line	420	458646	458687	6184763	6204878
line	430	458783	458824	6184815	6204785
line	440	458944	459002	6184817	6204767
line	450	459078	459134	6184777	6204847
line	460	459242	459295	6184813	6204812
line	470	459394	459429	6184765	6204871
line	480	459543	459587	6184804	6204872
line	490	459709	459756	6184806	6204842
line	500	459861	459896	6184834	6204896
line	510	459990	460042	6184821	6204867
line	520	460128	460190	6184815	6204827
line	530	460302	460332	6184799	6204891
line	540	460456	460487	6184732	6204788
line	550	460596	460643	6184786	6204802
line	560	460765	460809	6184716	6204838
line	570	460901	460939	6184765	6204900
line	580	461048	461086	6184729	6204848
line	590	461190	461223	6184741	6204843
line	600	461372	461397	6184786	6204851
line	610	461492	461540	6184864	6204876
line	620	461661	461702	6184801	6204848
line	630	461789	461849	6184774	6204875
line	640	461933	461983	6184824	6204809
line	650	462100	462132	6184731	6204832
line	660	462246	462278	6184741	6204881
line	670	462372	462436	6184809	6204878
line	680	462541	462609	6184815	6214209
line	690	462685	462736	6184758	6214228
line	700	462839	462879	6184807	6214290
line	710	462985	463055	6184755	6214329
line	720	463126	463190	6184739	6214234
line	730	463298	463355	6184814	6214290
line	740	463444	463486	6184752	6214318
line	750	463578	463643	6184709	6214259
line	760	463745	463814	6184786	6214217
line	770	463893	463975	6184729	6214330
line	780	464043	464097	6184702	6214339
line	790	464190	464255	6184756	6214339
line	800	464336	464399	6184797	6214311
line	810	464490	464550	6184775	6214327
line	820	464636	464721	6184711	6214305
line	830	464777	464855	6184684	6214258
line	840	464921	464998	6184685	6214248
line	850	465102	465155	6184784	6214317
line	860	465227	465286	6184741	6214333

line	870	465395	465461	6184784	6214245
line	880	465559	465611	6184732	6214237
line	890	465692	465759	6184793	6214237
line	900	465834	465905	6184714	6214235
line	910	465994	466059	6184683	6214270
line	920	466135	466196	6184733	6214317
line	930	466311	466345	6184794	6214282
line	940	466441	466483	6184748	6214261
line	950	466586	466642	6184746	6214256
line	960	466715	466807	6184702	6214311
line	970	466908	466961	6184704	6214330
line	980	467031	467090	6184742	6214247
line	990	467180	467223	6184721	6214286
line	1000	467341	467409	6184667	6214245
line	1010	467482	467532	6184713	6214284
line	1020	467650	467703	6184649	6214328
line	1030	467800	467848	6184720	6214248
line	1040	467957	468007	6184715	6214308
line	1050	468093	468146	6184681	6214321
line	1060	468231	468284	6184680	6214331
line	1070	468397	468451	6184743	6214319
line	1080	468547	468598	6184674	6214349
line	1090	468682	468722	6184723	6214325
line	1100	468841	468880	6184743	6214322
line	1110	468995	469043	6184658	6214291
line	1120	469135	469195	6184744	6214227
line	1130	469302	469357	6184632	6214286
line	1140	469459	469500	6184681	6214338
line	1150	469613	469661	6184745	6214320
line	1160	469741	469789	6184630	6214278
line	1170	469880	469968	6184624	6214238
line	1180	470017	470080	6184667	6214288
line	1190	470180	470230	6184735	6214310
line	1200	470328	470390	6184736	6214235
line	1210	470501	470546	6184724	6214287
line	1220	470637	470689	6184674	6214312
line	1230	470789	470841	6184733	6214287
line	1240	470929	471010	6184675	6214233
line	1250	471098	471145	6184642	6214245
line	1260	471242	471279	6184666	6214233
line	1270	471382	471433	6184732	6214249
line	1280	471560	471603	6184729	6214231
line	1290	471679	471744	6184610	6214264
line	1300	471845	471900	6184696	6214281
line	1310	471989	472028	6184659	6214258

line	1320	472149	472188	6192272	6214311
tie	5010	462536	472188	6213990	6214019
tie	5020	462469	472202	6211983	6212005
tie	5030	462518	472170	6209979	6210027
tie	5040	462529	472208	6207967	6208019
tie	5050	462497	472242	6205965	6205993
tie	5060	452790	472197	6203969	6204012
tie	5070	452730	472091	6201977	6202011
tie	5080	452736	472167	6199975	6200017
tie	5090	452655	472068	6197995	6198024
tie	5100	452661	472147	6195968	6196051
tie	5110	452702	472092	6193976	6194026
tie	5120	452651	472037	6191950	6192005
tie	5130	452566	472115	6189978	6190017
tie	5140	452607	472090	6187954	6188003
tie	5150	452576	471979	6185963	6186003

Survey Lines: 132
Tie Lines: 15

Primo Resources Ltd

Smoky River Aeromagnetic Anomaly Sheet

Preliminary

Anomaly Number	Rating out of 5		General Comments
T1	4		Minor Anomaly, can be seen on the Total field map
T2	4		Minor Anomaly, can be seen on the Total field map
T3	4		Minor Anomaly, can be seen on the Total field map
T4	3		Possibly part of NW - SE trend
T5	4		Good Target - good Horizontal Vector, but could be cultural ????
T6	2		Part of a trend
T7	4		Similar to T14 good target, distinct anomaly
T8	4		Good target but rather close to a well ???
T9	2		Part of a trend
T10	4		Good target but could be an oil well
T11	2		Not very distinct
	Targets T5,T7,T12,T14,T16,T17,T18 called Area A1		
T12	4		Small amplitude, good target +/- 6 nT
T13	2		minor target
T14	4		Similar to T7 good target, distinct anomaly
T15	2		Oblong, minor anomaly
T16	3		Part of a trend ???
T17	3		Small anomaly, low amplitude
T18	3		Small anomaly, low amplitude
T19	3		Small anomaly, more of an indentation in the TF, check for culture
T20	2		Small offset target could be part of N-S trend ending at T9 ??
T21	1		Minor target
T22	3		Small anomaly could a well ??

T23	3		Indentation in the Total field ???
T24	3		Large anomaly part of a disturbed zone ???
	Target's T25 to T32 called Area A2		
T25	5		Very good detached anomaly visible on two lines culture ???
T26	4		Could be part of T25
T27	3		Extension of T25 and T26
T28	3		Offset from T27
T29	3		Small detached target
T30	3		Good Target
T31	3		Small amplitude target
T32	3		Close to Oil well, total field is disturbed
T33	3		Good (small) detached target, could be a well
T34	2		Minor target
T35	4		Good detached target
T36	2		Swelling, low priority
T37	2		Minor target
T38	2		Minor target
T39	3		Swelling could be culture
T40	4		Good target
T41	?		
T42	2		Trend feature
T43	2		small anomaly could be just bad data close to a tie line
T44	1		????
T45	3		Small offset distinct anomaly
T46	3		Small amplitude, distinct, can be seen in the total field (2f-lines)
T47	2		Small TM anomaly
T48	1		?????
T49	3		Oil well or target ???
T50	4		Good detached target (but could be Oil well)
T51	2		Could be a trend
	End of Data		

Channels in the A993all.xyz File

Channel	Format	Description
X1	F11.2	UTM X (North America 1927, Canada)
Y1	F11.2	UTM Y (North America 1927, Canada)
FID	F10.2	Fiducial
GTIME	F10.2	GPS Time
DATE	F10.2	Julian Day of the Year
MAGDC	F10.2	Diurnal Corrected Tail Mag
MAGLEL	F10.2	Leveled MAGDC (before Deculturing)
EDITLEL	F10.2	Leveled MAGDC (after Deculturing)
CMA1	F10.2	Raw Mag (Left Wing-Tip)
CMA2	F10.2	Raw Mag (Right Wing-Tip)
CMA3	F10.2	Raw Mag (Tail)
BMAGF	F10.2	Diurnal
IGRF	F10.2	IGRF (Inc=76.7; Dec=22.24; Ele=600)
GPSZ	F7.1	GPS Altitude (DGPS corrected)
RADALT	F7.1	Radar Altitude
LONDIFF	F12.6	Lontitude (DGPS corrected)
LATDIFF	F12.6	Latitude (DGPS corrected)
GRADXX	F10.4	Horizontal Gradient - X Component
GRADYY	F10.4	Horizontal Gradient - Y Component

FLIGHT LOG

Project: A994 **Grid: SMOKY RIVER**
Flown: March, 1998 **Aircraft: Cessna U206**

Date	Flight	Line	Comments
Mar. 20	G028	L10 - L1380	L10, L210 reflown as L11, L211
Mar. 24	G032	L390 - L660	
Mar. 24	G033	L670 - L840	L670 had to avoid a tower
Mar. 26	G034	L850 - L910	Mag too noisy due to Turbulance
Mar. 28	G035	L920 - 1150	
Mar. 28	G036	L1160 - 1130	
Mar. 31	G037	L850 - 910	reflights of G034
		T5010 - 5160	tie lines

Cretaceous Diamond-Bearing Kimberlites in the Mannville, Colorado, and Wapiti Groups of Western Canada - Not Only is There Gas and Oil, there are Diamonds as well!

Dale Leckie
Chief Geologist
Wascana Energy Inc.

September 22, 1998, 11:30 am
Calgary Convention Centre

TICKETS:
$20.00 + GST. Cutoff date for ticket sales is 1:00 PM September 17 through the CSPG office or through a ticket sales representative.

Diamonds have been reported in Western Canada for decades, but the first kimberlite was not discovered until 1988 at Sturgeon Lake, central Saskatchewan. This discovery lead to increased exploration for kimberlite pipes. Cretaceous diamond-bearing kimberlites have now been documented at three localities in Western Canada: 1) central Saskatchewan in the Fort la Corne area; 2) Mountain Lake on the southern periphery of the Peace River Arch in northwest Alberta; and 3) in the Buffalo Head Hills on the Peace River Arch. These kimberlites were emplaced primarily as crater facies into marine and non-marine landscapes of what was to become sediment of the Mannville, Wapiti and Colorado groups.

In central Saskatchewan, kimberlite swarms occur at the base, top and throughout Mannville Group sediments. Several kimberlite pipes in spatially distinct clusters occur in the Fort la Corne area. By 1994, there were 44 confirmed (drilled) pipes and more than 27 additional geophysically defined drill targets. Reported diamond grades range from 0 to <23c/100t based on sample weights of <10t. The first part of the talk will summarize results of a core study of kimberlites emplaced into Mannville and Lower Colorado sediments. One core through a swarm of kimberlites has been studied by the integration of sedimentology, volcanology, mineralogy, geochemistry, palynology, micropaleontology, organic petrology and radiometric dating. This multidisciplinary approach has allowed the following specific topics to be addressed: 1) the timing of kimberlite emplacement, 2) the distinction between primary pyroclastic kimberlite and reworked pyroclastic rocks, 3) the paleoenvironmental setting during emplacement, 4) the types and number of kimberlite eruptive phases, 5) the geometry of the pipes, 6) the occurrence of diamonds in the kimberlite, and 7) the thermal effects of emplacement. Only crater facies have been observed with no hypabyssal feeder dykes having been found yet.

Four varieties of kimberlite occur, all originating from subaerial volcanism: 1) fluvial-reworked kimberlite within the Mannville Group; 2) kimberlite lapillistone airfall deposits; 3) kimberlite olivine crystal-tuff airfall deposits; and 4) marine wave-reworked kimberlite. The bulk of the volcanism formed conformable airfall deposits on terrestrial sediments of the Mannville Group, resulting in the development of positive relief tephra cones. Marine transgression associated with the Colorado Group partially beveled the top of the kimberlite tephra cone. The kimberlite airfall deposits contain microdiamonds, 5 to 25 µm in diameter. Wave-reworked deposits of the tuff cone concentrated kimberlitic heavy minerals including a macrodiamond fragment. Tmax and vitrinite reflectance values of coaly matter in kimberlites indicate that these deposits, although originally derived from magma at high temperatures, did not thermally affect incorporated surficially-derived clasts or the country rock during emplacement. A U-Pb perovskite radiometric date of 101 ± 2 Ma from a kimberlite lapillistone is internally consistent with biostratigraphic studies which place the kimberlite volcanism as post Middle Albian and syn- to pre-Late Albian.

The second part of this talk will compare and contrast the occurrence of placer diamond deposits from South Africa with the potential for similar deposits in Western Canada. Given the abundant documented and reported occurrences of kimberlites in Western Canada, it is worthwhile to assess the concept of reworked placer concentrations of diamonds in the region. By way of comparison, in South Africa, diamond-bearing fluvial placer deposits vary from 0.008 to 99 km2 in size, and have produced ~35,500,000 carats. Deposits of this size are fairly small and would be easy to miss in the Canadian landscape. Potential exploration areas will be suggested with explanations why. Probably the bottom line for fluvial placer exploration is "if there is no gravel, there are no diamonds".

SPEAKER BIOGRAPHY
Dale Leckie is Chief Geologist with Wascana Energy Inc. Until spring, 1998, he was a Research Scientist with the Geological Survey of Canada. Dale's main interests are the application of new geological technologies to the exploration and development of resources.

App 2

PRIMO RESOURCES LTD.

(PRI.VSE)

#1738 - 609 Granville St., Vancouver, BC V7Y 1G5
Phone: 604-689-4048 * Fax: 604-689-4078 * Toll Free: 1-800-917-7466
E-Mail: primo@lynx.bc.ca * Website: www.primo-res.com

September 29, 1998

Mr. Ben Grossberndt
Supervisor, Core Library
Alberta Energy and Utilities Board
640 - 5th Avenue
Calgary, AB
T2P 3G4

Re: Well 00/10-33-081-23W5/0

Dear Ben:

Further to our recent conversation in regards to doing electron microprobe analysis of 5 samples from the near surface (top 170 feet) of the above well, I submit a request on behalf of Primo Resources and state the following:

1) Primo Resources is conducting exploration for Kimberlite-hosted diamonds in the Peace River - Tangent area and we are currently conducting ground follow-up of an airborne magnetic survey including ground magnetic and soil sample surveys.

2) a key aspect of the exploration follow-up is the identification of Kimberlite indicator minerals such as pyrope garnet Cr bearing pyroxenes and ilmenites which are diagnostic for Kimberlite volcanism.

Well $# 00/10-33-081-23 W5/0 contains a 170 metre section of a fragmental volcanic formation and detailed logging reveals the existence of numerous intervals of coarse fragmentals with the said indicator minerals.

App 3

3) In order to document the existence of critical indicator minerals and specifically the mineral chemistry of the garnets, pyroxenes, ilmenites and others, Primo Resources proposes to arrange for a selection of 5 representative samples from the section and have polished sections prepared for microprobe analysis at a university laboratory. Whilst the data would be kept confidential until release from Primo, it is critical for our exploration efforts to build up a detailed mineralogical log and determine if we are in the right Kimberlite environment favourable for hosting diamonds.

My associate, Daniel Rota, a well site geologist residing in Calgary, is undertaking the detailed logging and he will select the sample interval.

Your truly,

[redacted]

Jens F. Touborg, Touborg Consultants

[redacted]

Kenneth A. Cabianca, President
Primo Resources Ltd.

cc: Dr. Andy Okulich
Geological Survey of Canada

Daniel Rota
560 Coach Grove Road SW
Calgary, Alta., T3H-1J4
Telephone, (Fax): 403-242-31276

October 13th 1998

Jens F Touborg Consultant Inc.
243 Woodland Drive
Oakville, Ont, L6J-4W4
Fax: 905-842-8296

Dear Mr. Touborg

To Your request I have examined the upper sequence of hole HB N Tang 10-33 (LS 10-33-81-23W5) from drill chips which had been stored with the Alberta .Energy and Utilities Board. Examination was conducted with reflected light only since at this stage only drill cuttings and no thin sections are available.

Only the upper section (0-180 feet) have been described. in details. The mineralogical composition of the interval is very consistent with slight variation in the percentage of the components. Because of the inadequacy of the reflected light to identify opaque minerals it was not possible to exactly to differentiate the pyroxenes as well as determining the percentages of ilmenite and magnetite. Garnets composition is also uncertain however the current thin sections work conducted by the Saskatchewan Research Council should answer these questions.

0-180' **Granite:** pinkish, Phaneritic, fine to coarsely crystallized 80% clear, milky and pink quartz, 15% pink undifferentiated feldspar, abundant red garnets, 5% pyroxene, ilmenite, magnetite. Occasional pyrite. Minor biotite and sericite was also identified at particular intervals (30-40, 110-120)

The underlying sedimentary sequence begins in the sample (170-180). The upper sedimentary formation consists of dark brownish grey aphanatic soft mudstone which alternating with shale and sandstone.

In conclusion the sample examination tends to indicate that the lower Cretaceous sedimentary sequence was covered by a younger acidic flow. which could have occurred during the late Cretaceous.

[redacted]

App 3

technology is our business

Saskatchewan Research Council
15 Innovation Blvd.
Saskatoon, SK Canada S7N 2X8
Ph: 306-933-5400 Fax: 306-933-7896
Internet: http://www.src.sk.ca

October 13, 1998

To: Dr. J. Touborg
Primo

Fr: Allan Holsten
Saskatchewan Research Council
Geoanalytical Services

Re: Mineral Grains in Vials

Examination of the mineral grains by Dr. Irvine Annesley are list below. . .

Vail #	Description
10-20	Garnet amphibolite
30-40	Garnet amphibolite, amphibolite
60-70	Mafic volcanic, amphibolite
100-110	Mafic volcanic, amphibolite
140-150	Garnet amphibolite, amphibolite

I observed pyrite, almandine, quartz, magnetite and haematite in these samples. I didn't find any diamond indicator minerals. Dr Annesley could not see any explosive features in any of the mafic fragments indicating a non diatreme source.

App 4

Appendix 5

Notes on Image Processing and Digital Mapping Used in the Primo Resources' Buffalo Hills Project.

The software used in the image analysis tasks in the project was EASI/PACE version 6.2.2 from PCI Geomatics Group, Richmond Hill, Ontario.

The first stage of the image analysis process involved establishing a base on which to layer images. The base was the 1:50,000 scale National Topographic Series maps of the area.

Two 1:50,000 scale National Topographic Series NAD 27 topographic maps 83N/13, 83N/14 were scanned at a resolution of approximately 6 ground metres per pixel. The images of the maps were geocorrected to NAD 27 datum UTM coordinates and mosaicced, to create a 5-metre resolution image.

The geocorrected image of the NTS maps was then used as the base to which the 28.5 metre resolution Thematic mapper imagery was geocorrected. All enhanced images (ratios, principal component images) were created from the geocorrected image data set.

The raw Radarsat imagery was first processed to reduce the speckle of the imagery, and then to compress the range of pixel values from approximately 16,000 to approximately 256, with a focus on maximizing the range of pixel values in the study area. PCI task with a 3x3 filter was used to reduce the speckle.

The raw Radarsat imagery was first filtered using a 3x3 median filter to reduce the speckle of the imagery. The range of pixel values in the image were then compressed from approximately 16,000 to approximately 256, with a focus on maximizing the range of pixel values in the study area. The imagery was then geometrically corrected to the geocorrected Landsat imagery. The spatial resolution of the geometrically corrected Radar imagery was 15 metres.

Black and white aerial photographs acquired in the summer of 1988 at a contact scale of 1:40,000 were scanned at a ground resolution of approximately 2 metres per pixel. The photographs were geometrically corrected using orthophoto software (also from PCI Geomatics) to the geocorrected Landsat image, with reference to a digital elevation data set based on 1:20,000 scale maps available from AltaLis Ltd. in Alberta. The output orthophoto had a spatial resolution of 5 metres in the regional image and 2 metres in the detailed areas of interest.

Property ownership maps were scanned at 200 dots per inch, and geocorrected using UTM coordinates of Alberta Township Survey intersections seen on the maps. The Alberta Township Survey coordinates were converted to UTM coordinates using software available from the Alberta Geological Survey over the internet at the following internet address: http://www.ags.gov.ab.ca/ext/cgi/code/crtog/CVATSLL_FRM.EXE. The same software was used to convert the Alberta Township Survey coordinates of the license blocks to UTM coordinates so that they could be overlaid on the images.

117°45' W
460000m E
117°30' W
470000m E
6210000m N
56°00' N
OIL WELL
10-33
AREA 3
A
River
Peace
Smoky
CLUSTER 1
CIRCULAR
AREA
CENTRAL
D
B
HIGHWAY 740
6200000m N
CLUSTER 2
E
C
TANGENT - NORMANDVILLE FAULT
6190000m N
55°50' N

LEGEND

Circular structure-
Volcanic craters

Radar Lineaments
Sleughs-Wetlands

Near surface magnetic
anomalies from Euler
deconvolution solutions
Cluster 1,2

Claim boundaries

N 20 WEST	TANGENT-NORMANDVILLE FAULT
N 65 EAST	PEACE RIVER DEXTRAL FAULTS
N 65 WEST	CONJUGATE FAULTS
N 20 EAST	CONGUGATE FAULTS

SCALE 1 : 50 000

1000 0 1000 2000 3000 4000
(metres)

UTM Zone 11U Clarke 1866 (NAD 27)

MAP 3

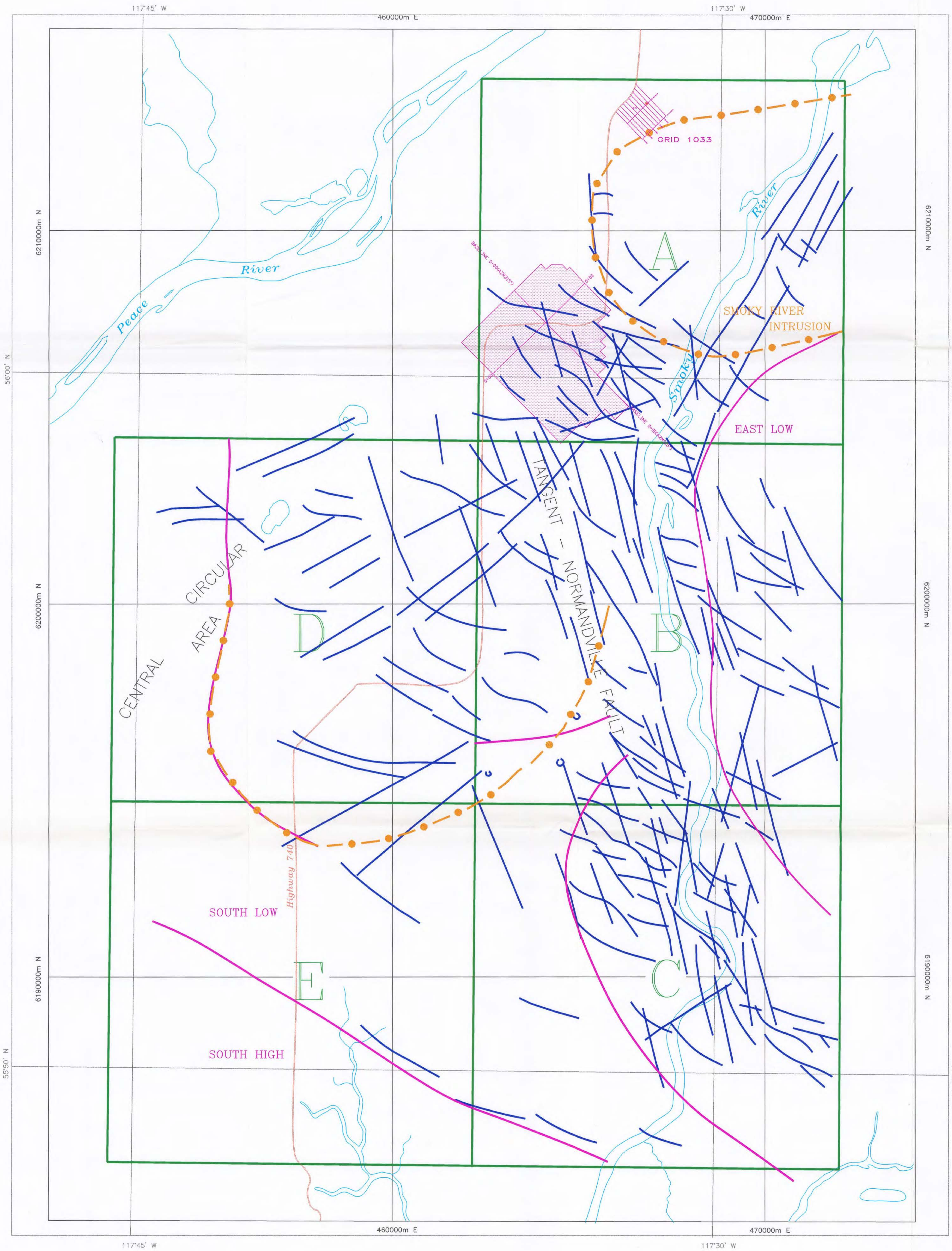
PRIMO RESOURCES LTD

Buffalo Hills Kimberlite Project

Radar and Landsat
Lineaments

J.F.Touborg Consultants Inc.

November, 1998



LEGEND

Magnetic Lineaments

N 20 WEST TANGENT-NORMANDVILLE DEXTRAL TREND

N 20 EAST FAULT TREND

N 70 EAST PEACE RIVER FAULT SYSTEM

N 70-80 WEST CONGUGATE SYSTEM

Intrusion

Property (from ATS coorddinates)

Survey Grid Map

Road

Oil well

SCALE 1 : 50 000

1000 0 1000 2000 3000 4000 (metres)

UTM Zone 11U Clarke 1866 (NAD 27)

MAP 2

PRIMO RESOURCES LTD

Buffalo Hills Kimberlite Project

MAGNETIC LINEAMENTS

J.F.Touborg Consultants Inc.

November, 1998

117°37'W 462000m E 464000m E 466000m E 468000m E 117°30'W 470000m E 472000m E 117°26'W

6214000m N 56°04'N

6212000m N

6210000m N 56°02'N

6208000m N

6206000m N 56°00'N

GRID 1033

Highway 740

River

Peace

LEGEND

- Airphoto Lineaments Interpreted from Wetlands-Sleughs
- Volcanic Ash Trends
  - N 20 WEST TANGENT-NORMANDVILLE DEXTRAL TREND
  - N 20 EAST FAULT TREND
  - N 70 EAST PEACE RIVER FAULT SYSTEM
  - N 70-80 WEST CONGUGATE SYSTEM
- Circular Structures - Inferred Volcanic Craters
- Property (from ATS coorddinates)
- Property (from original Mag map)
- Survey Grid Map
- Range Road
- Escarpment
- Oil well

SCALE 1 : 20 000 (metres)

500 0 500 1000 1500

MAP 4

PRIMO RESOURCES LTD

Buffalo Hills Kimberlite Project

Radar Lineaments

Permit Block A

J.F.Touborg Consultants Inc.

November, 1998

117°37'W 462000m E 464000m E 466000m E 468000m E 117°30'W 470000m E 472000m E 117°26'W

UTM Zone 11U Clarke 1866 (NAD 27)

117°35'00"W 464000m E. 117°34'00"W 465000m E. 117°33'00"W 466000m E. 32' 467000m E. 31' 468000m E. 30' 469000m E. 117°29'00"W

6215000m N. 56°05'00"N

56°04'00"N

56°03'00"N.

6212000m N.

Peace River

Highway 740

No data

Escarpment to Smoky River

GRID 1033

Don Freeland Farm

TL 18+00N

TL 14+00N

TL 10+00N

TL 6+00N

TL 2+00N

0+00E

2+00E

4+00E

6+00E

8+00E

Δ 72

LEGEND

- Airphoto Lineaments
- Aligment of Sleughs
  - N 20 WEST TANGENT - NORMANDVILLE DEXTRAL FAULT TREND
  - N 20 EAST FAULT TREND
  - N 70 EST PEACE RIVER DEXTRAL FAULT SYSTEM
  - N 70 WEST CONGUGATE FAULT SYSTEM
- Property Boundary
- Range Roads
- Oil well 10-33

SCALE 1 : 10 000

(metres) 200 0 200 400 600 800

UTM Zone 11U Clarke 1866 (NAD 27)

MAP 6

PRIMO RESOURCES LTD

Buffalo Hills Kimberlite Project

Airphoto Lineaments and 10-33 Diatreme Area

J.F.Touborg Consultants Inc.

NOVEMBER, 1998

462000m E
117°36'W
463000m E
464000m E
465000m E
466000m E
117°32'W
467000m E

6208000m N 56°01'N
6207000m N
6206000m N 56°00'N
6205000m N
55°59'N

BASELINE 0+00(AZM 315°)
Highway 740
Farm
Farm
Farm
Smoky River

LEGEND

Airphoto Lineaments
Interpreted from Wetlands-Sleughs
Volcanic Ash Trends

N 20 WEST TANGENT-NORMANDVILLE DEXTRAL TREND

N 20 EAST FAULT TREND

N 70 EAST PEACE RIVER FAULT SYSTEM

N 70-80 WEST CONGUGATE SYSTEM

Circular Structures - Inferred Volcanic Craters

Property (from ATS coorddinates)

Property (from original Mag map)

Survey Grid Map

Range Road

Escarpment

Cluster 1 Euler Deconvolution Solution
(Approx. depth below surface)

- >400
- 350
- 275
- 215
- 175
- 130
- <90

SCALE 1 : 10 000
(metres) 200 0 200 400 600 800

MAP 5

PRIMO RESOURCES LTD

Buffalo Hills Kimberlite Project

Photolineaments
Cluster 1

J.F.Touborg Consultants Inc.

November, 1998

Image 15

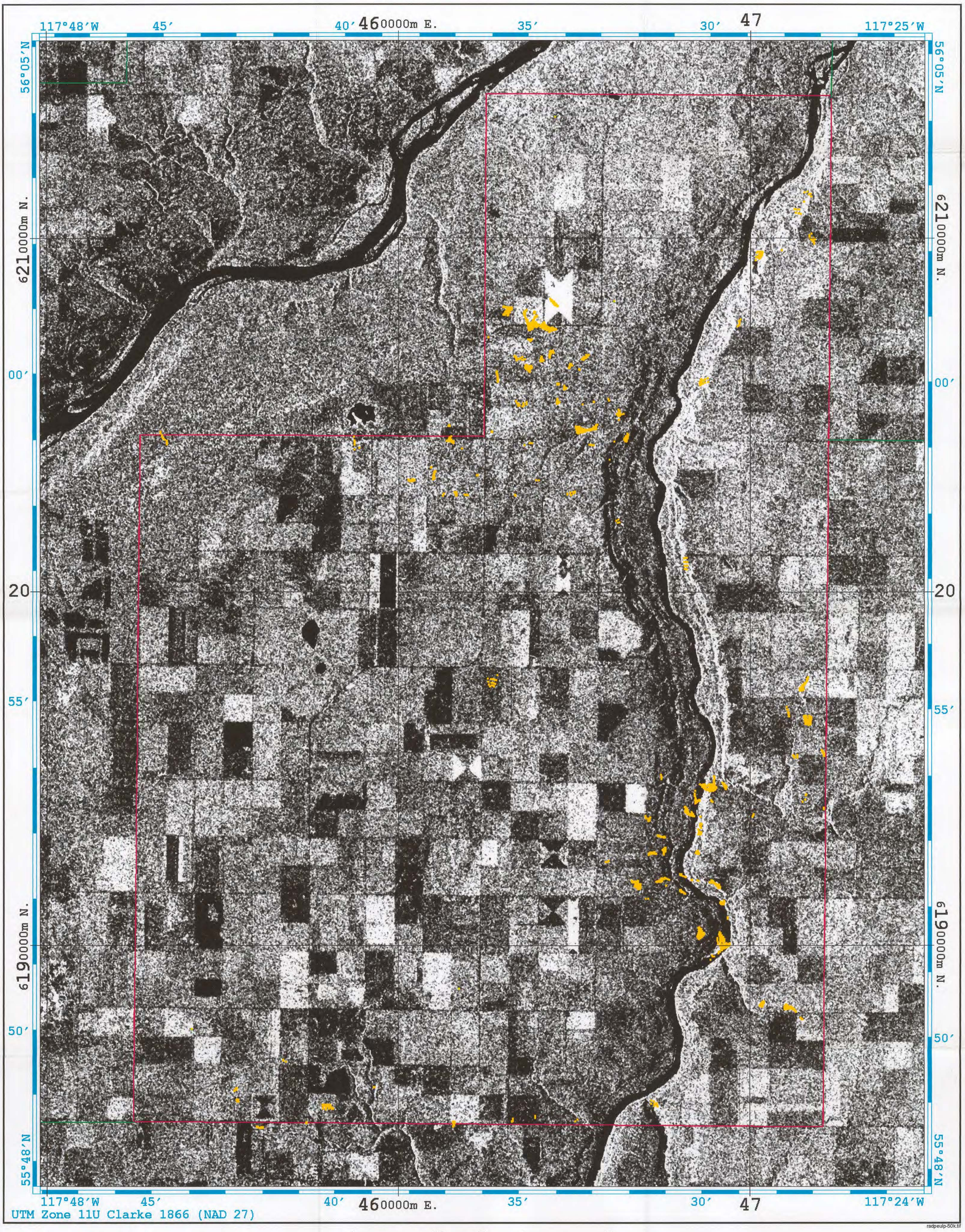
Ortho Rectified Air Photo Mosaic with Euler Deconvolution and Survey Grid Map Overlay of Primo Resources Cluster 1 Peace River Area, Alberta

Legend
- Property (from ATS Coordinates)
- Property (from original Mag map)

N

Processed by
J. F. Touborg
Consultants Inc.

117°37'15"W 462000m E. 36' 63 35' 64 34' 65 33' 66 32' 467000m E. 31' 117°30'45"W
09 56°01'30"N 6207000m N.
08 01'
00'
6205000m N. 55°59'00"N
04
117°37'15"W 463000m E. 36' 64 35' 65 34' 66 33' 467000m E. 32' 31' 117°30'45"W
UTM Zone 11U Clarke 1866 (NAD 27)
0 0,5 1 1,5 1:10,000 km ph



radpeulp-50k.tif

0 2.5 km 5 7.5

1:50,000

N

Legend
Main Property
Euler Deconvolution Solution Points

Image 14

Radarsat Standard Beam Mode Image of the Primo Resources' Smoky River Properties, near Peace River, Alberta Recorded on August 30, 1997

Processed by
J. F. Touborg
Consultants Inc.

117°45′W

460000m E.

117°30′W

56°05′N

621000m N.

56°00′N

620000m N.

55°50′N

619000m N.

Area A1

Area A2

T1 (4/5)
T2 (4/5)
T3 (4/5)
T4 (3/5)
T5 (4/5)
T6 (2/5)
T7 (2/5)
T8 (4/5)
T9 (2/5)
T10 (4/5)
T11 (2/5)
T12 (4/5)
T13 (2/5)
T14 (4/5)
T15 (4/5)
T15 (2/5)
T16 (3/5)
T17 (3/5)
T18 (2/5)
T19 (3/5)
T20 (2/5)
T21 (2/5)
T21 (1/5)
T22 (2/5)
T22 (3/5)
T23 (3/5)
T24 (3/5)
T25 (5/5)
T26 (4/5)
T27 (3/5)
T28 (3/5)
T29 (3/5)
T30 (3/5)
T31 (3/5)
T32 (3/5)
T33 (3/5)
T34 (2/5)
T35 (4/5)
T36 (2/5)
T37 (2/5)
T38 (2/5)
T39 (3/5)
T40 (4/5)
T41 (1/5)
T42 (2/5)
T43 (2/5)
T44 (1/5)
T45 (3/5)
T46 (3/5)
T47 (2/5)
T48 (1/5)
T49 (3/5)
T50 (4/5)
T51 (2/5)
T??

19

19

30′ 47

117°25′W

UTM Zone 11U Clarke 1866 (NAD 27)

t432-50k.tif

0 2.5 km 5 7.5

1:50,000

N

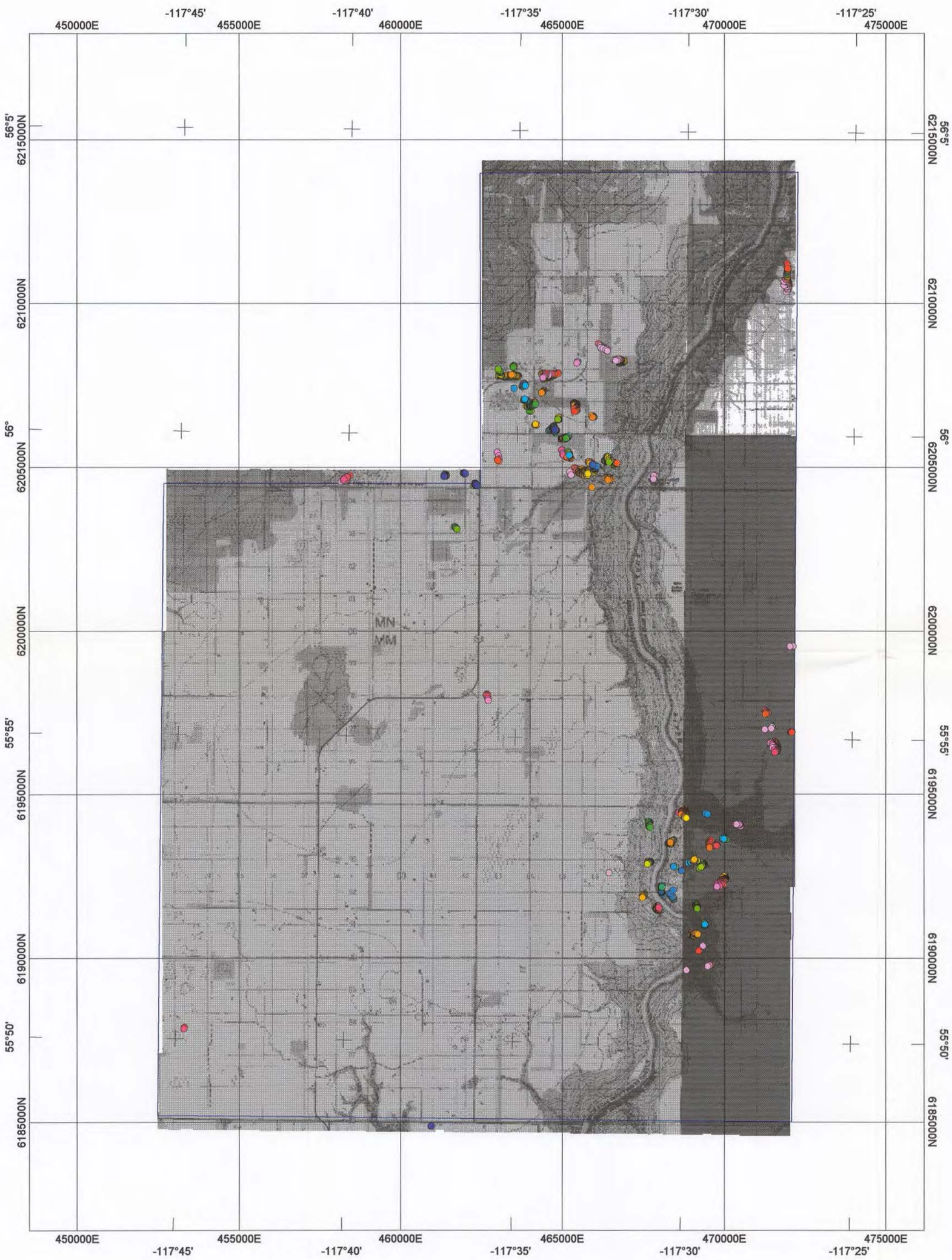
Legend

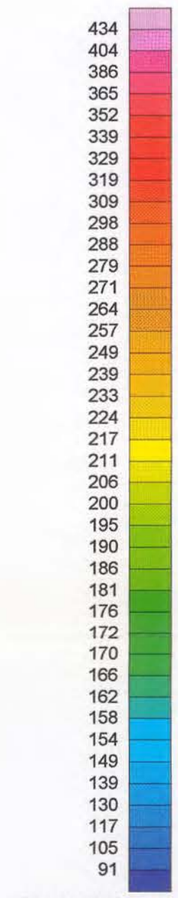
— Survey Area Boundary

Image 13

Landsat TM Image of the Peace River Area, Alberta
Principal Components 1,2,4
Image Date: June 4, 1985
with Magnetic Targets Interpreted from Airborne Magnetic Survey

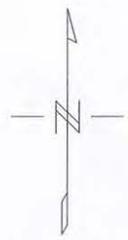
Processed by
J. F. Touborg
Consultants Inc.





Depth Below Surface
(m)

S.I. = 2.0



Scale 1:100000

1000 0.0 1000 2000 3000 4000 5000 6000 7000

(meters)

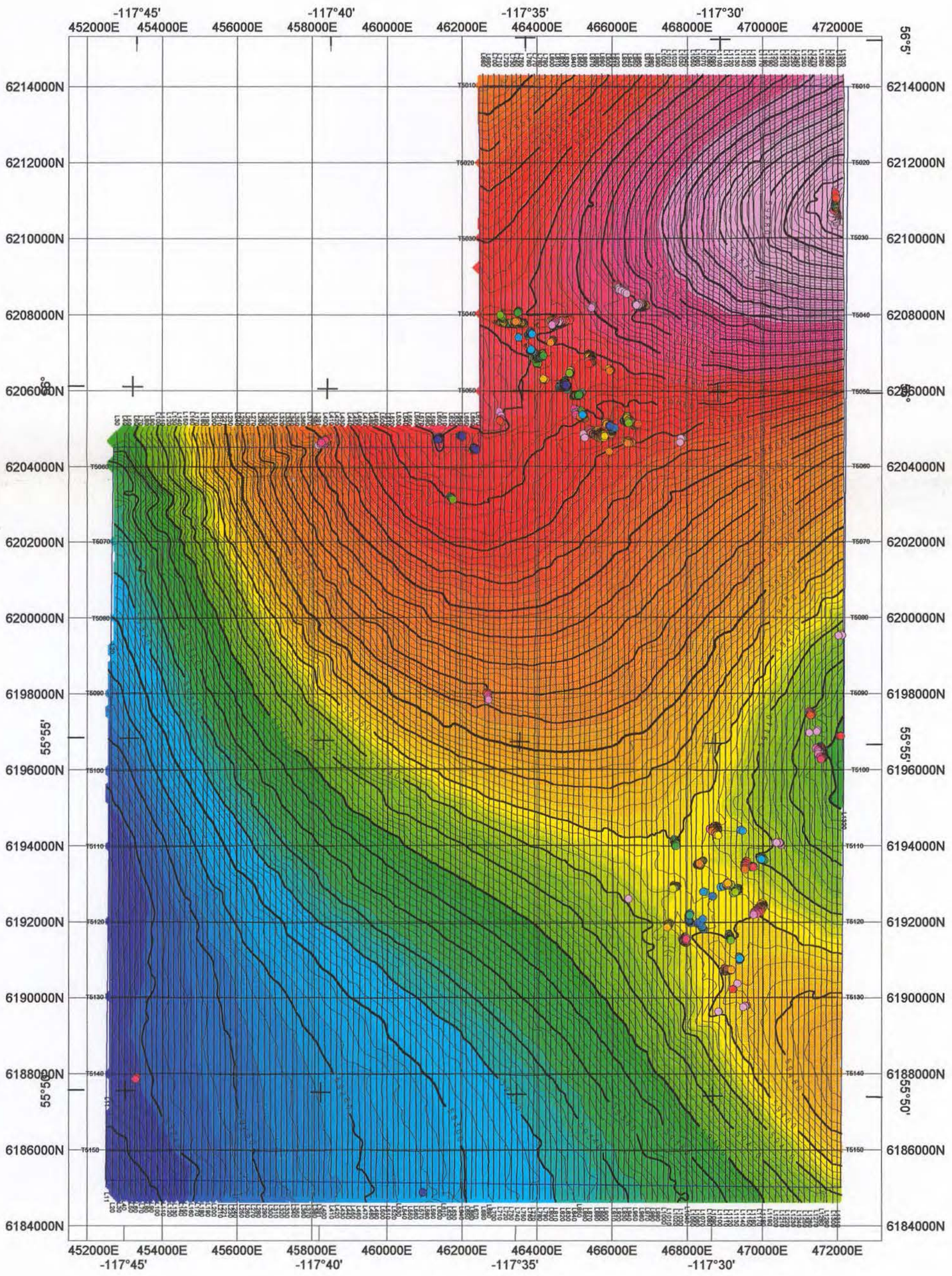
PRIMO RESOURCES LTD.

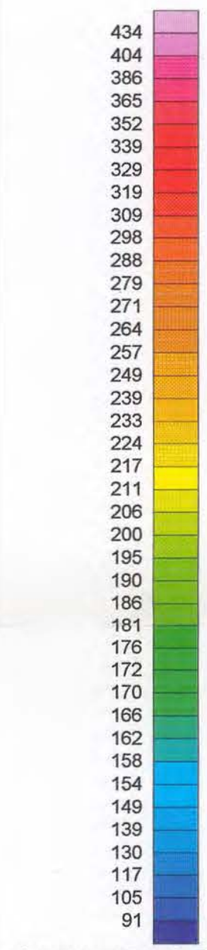
EULER DECONVOLUTION SOLUTIONS
SMOKY RIVER PROJECT
ALBERTA

Topographic base supplied by Jens Touborg and Associates.

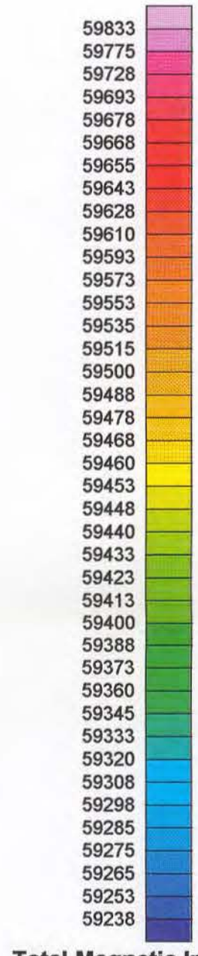
STRATAGEX LTD., Geophysical Consulting, Toronto

IMAGE 1

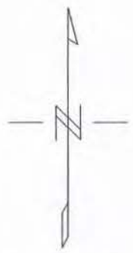




Apparent Depth Estimate
(m, metres below surface)



Total Magnetic Intensity
(nT, nanoTesla)



Scale 1:100000

1000 0.0 1000 2000 3000 4000 5000 6000 7000

(meters)

Contour Intervals: 5 nT, 20 nT, 100 nT and 500 nT

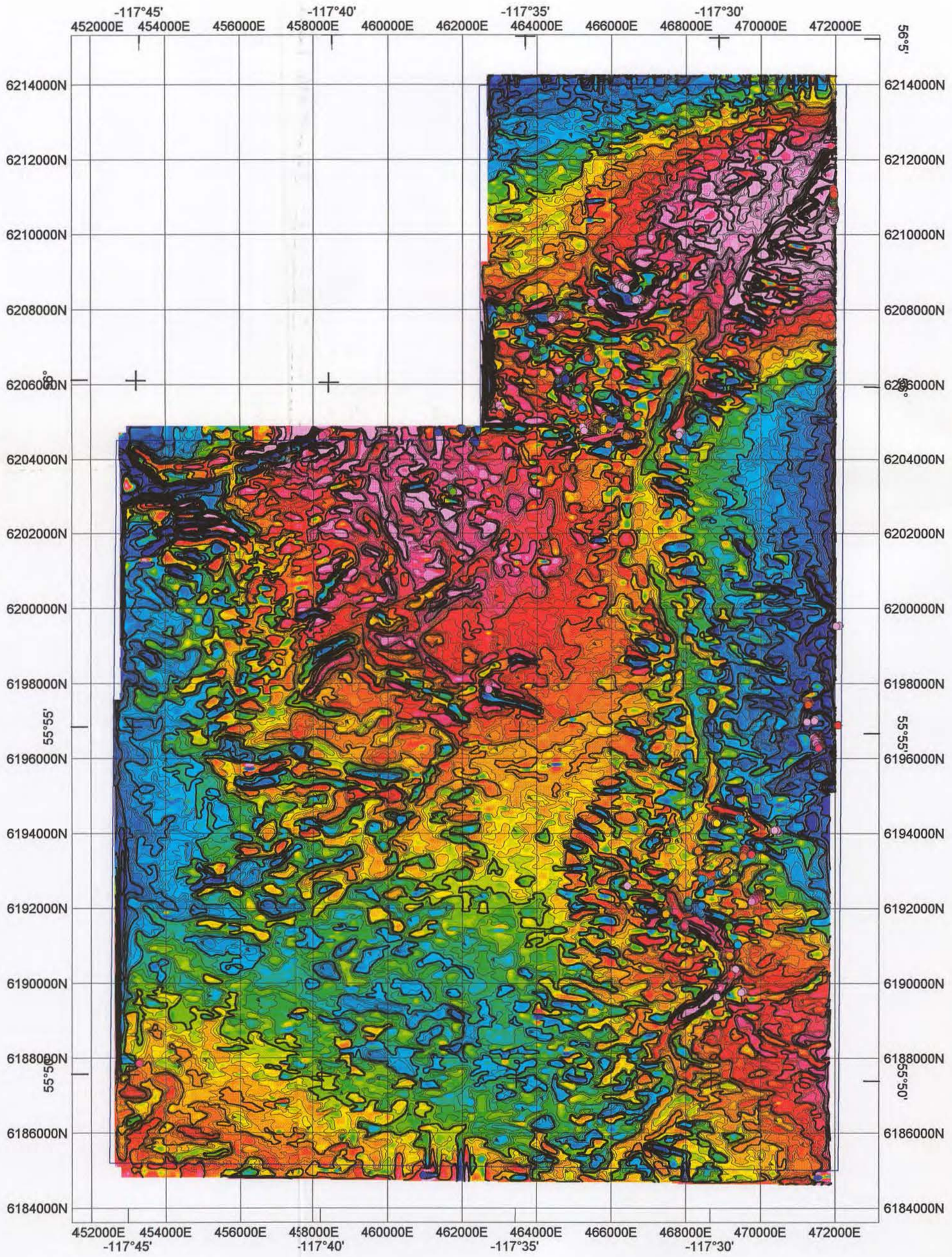
PRIMO RESOURCES LTD.

TOTAL MAGNETIC INTENSITY
WITH EULER DECONVOLUTION SOLUTIONS, S.i.=2.0
SMOKY RIVER PROJECT, ALBERTA

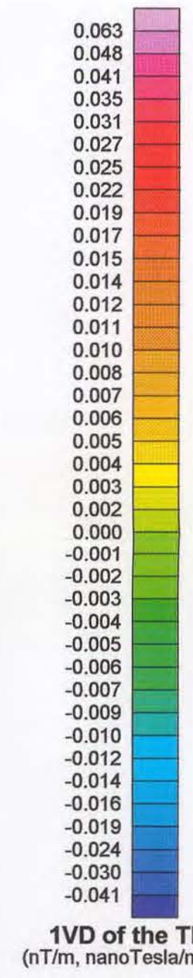
Aeromagnetic survey completed by Terraquest Inc., 1998.
Nominal aircraft mean terrain clearance was 100 metres.

STRATAGEX LTD., Geophysical Consulting, Toronto

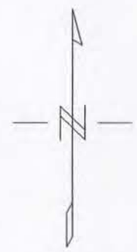
IMAGE 2



Depth Below Surface
(m, metre)



1VD of the TMI
(nT/m, nanoTesla/metre)



Scale 1:100000

1000 0.0 1000 2000 3000 4000 5000 6000 7000

(meters)

Contour Intervals: 0.002 nT/m, 0.01 nT/m and 0.05 nT/m

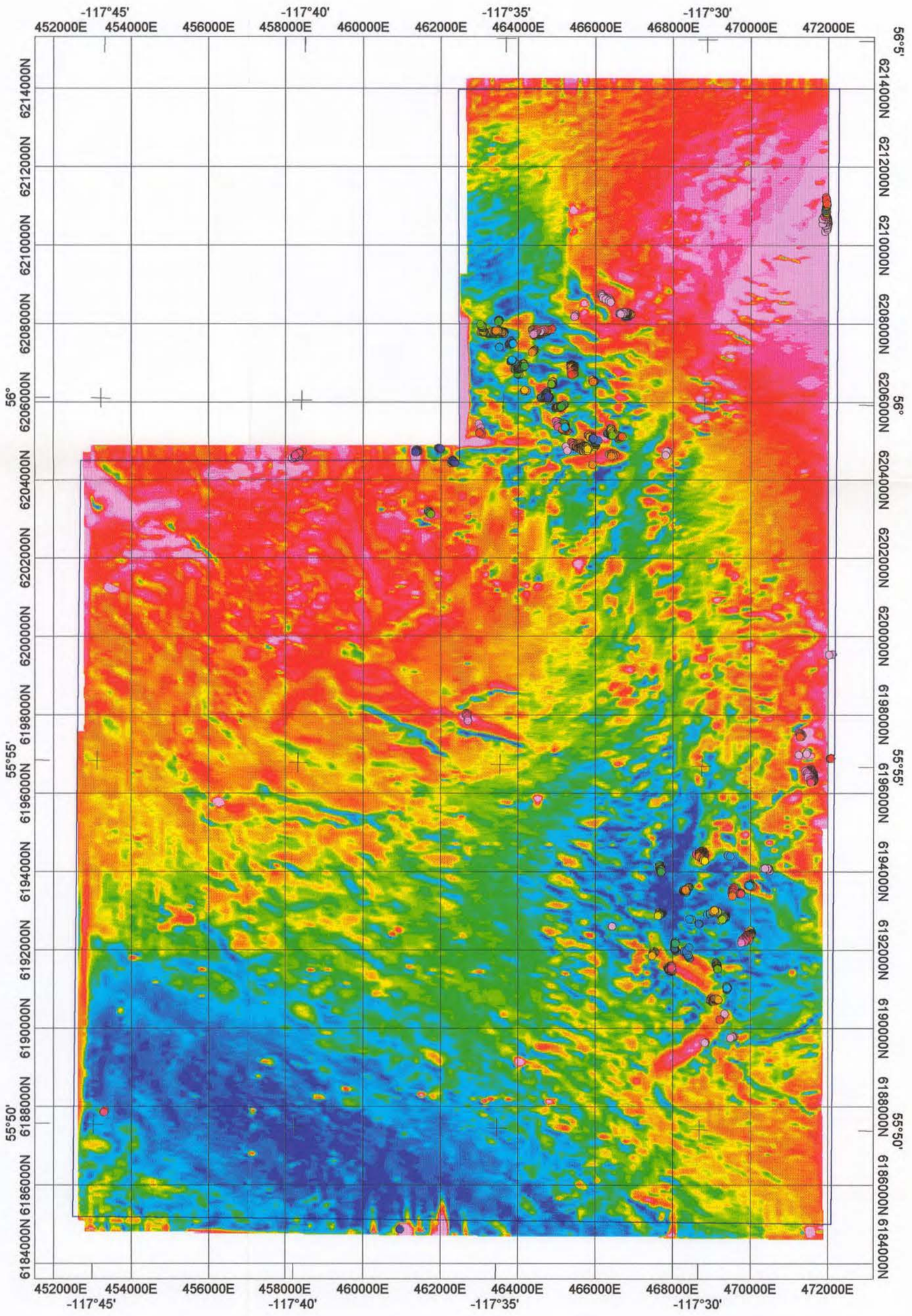
PRIMO RESOURCES LTD.

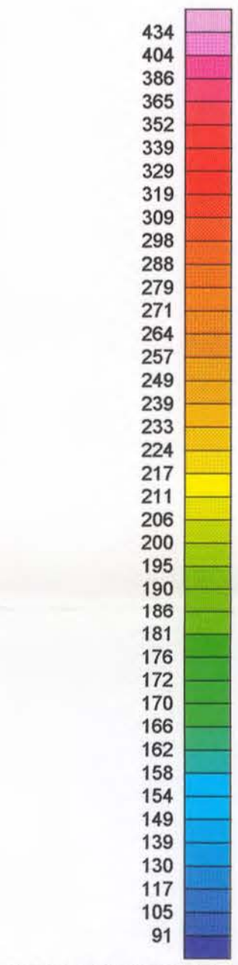
CALCULATED FIRST VERTICAL DERIVATIVE OF THE TOTAL MAGNETIC INTENSITY SMOKY RIVER PROJECT, ALBERTA

Aeromagnetic survey completed by Terraquest Inc., 1998.
Nominal aircraft mean terrain clearance was 100 metres.
Euler deconvolution solutions plotted for a
structural index (S.I.) of 2.0 (vertical cylinder)

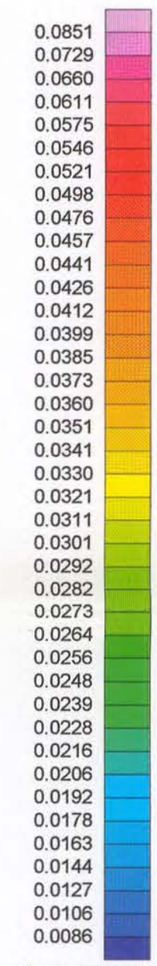
STRATAGEX LTD., Geophysical Consulting, Toronto

IMAGE 3

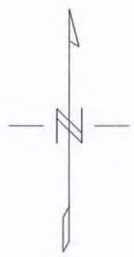




Apparent Depth Below Surface
(m, metres)



Analytic Signal
(nT, nanoTesla)



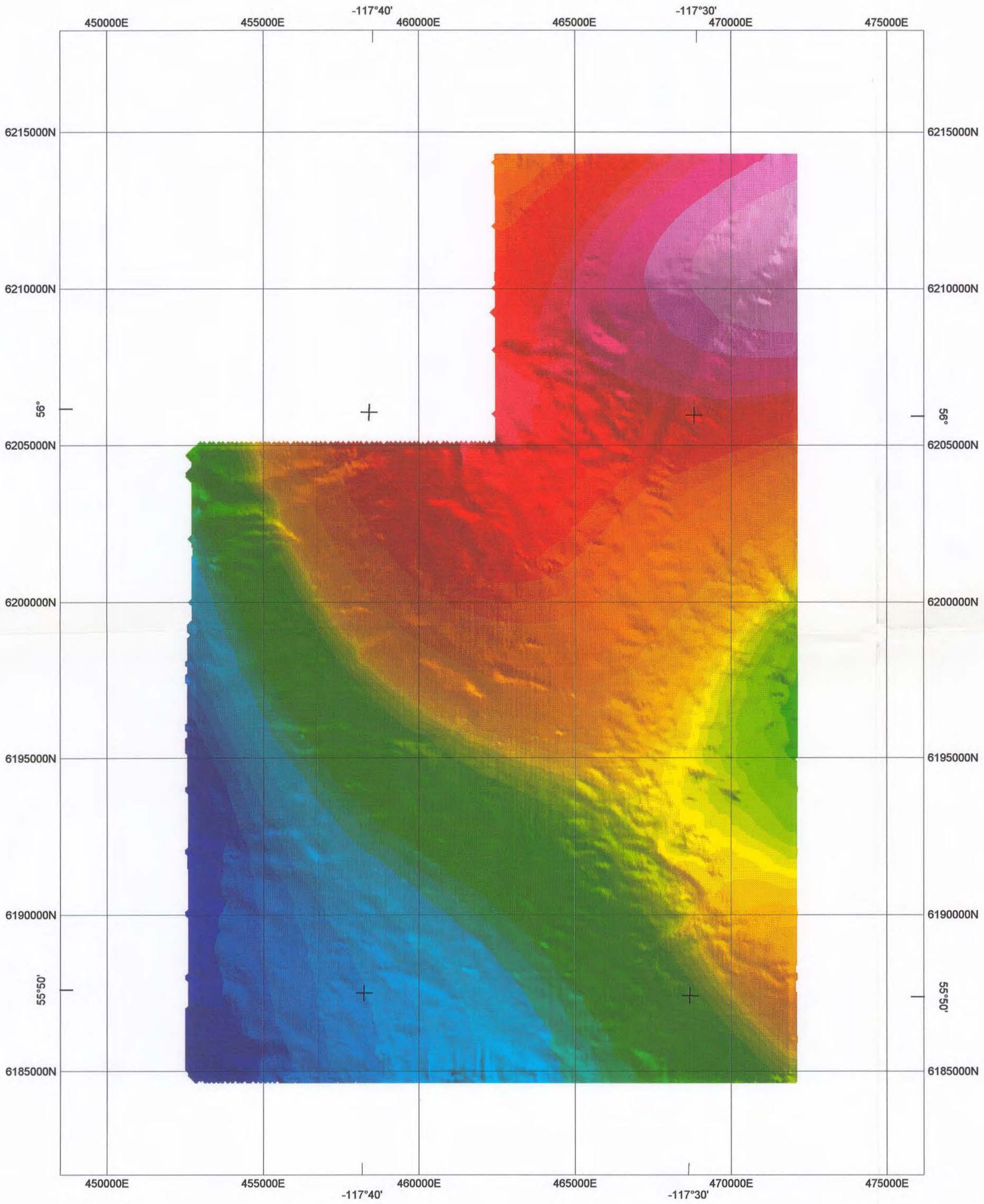
Scale 1:100000

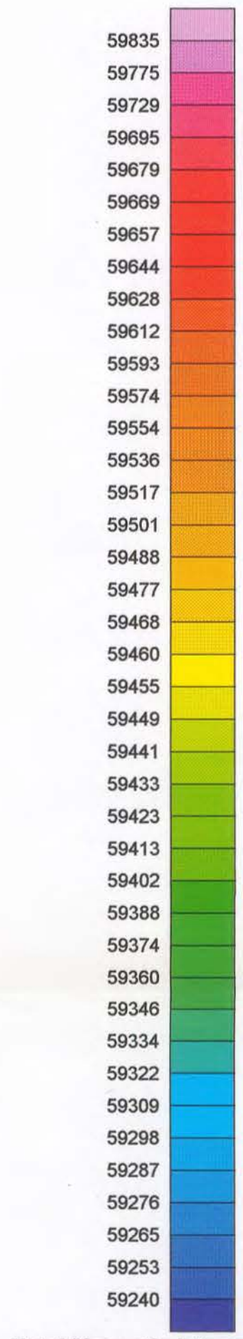
1000 0.0 1000 2000 3000 4000 5000 6000 7000

(meters)

PRIMO RESOURCES LTD.
EULER DECONVOLUTION SOLUTIONS AND ANALYTIC SIGNAL OF THE TMI SMOKY RIVER PROJECT, ALBERTA
Aeromagnetic survey completed by Terraquest Inc.
STRATAGEX LTD., Geophysical Consulting, Toronto

IMAGE 4





Total Magnetic Intensity (TMI)
(nanoTesla, nT)

Scale 1:100000

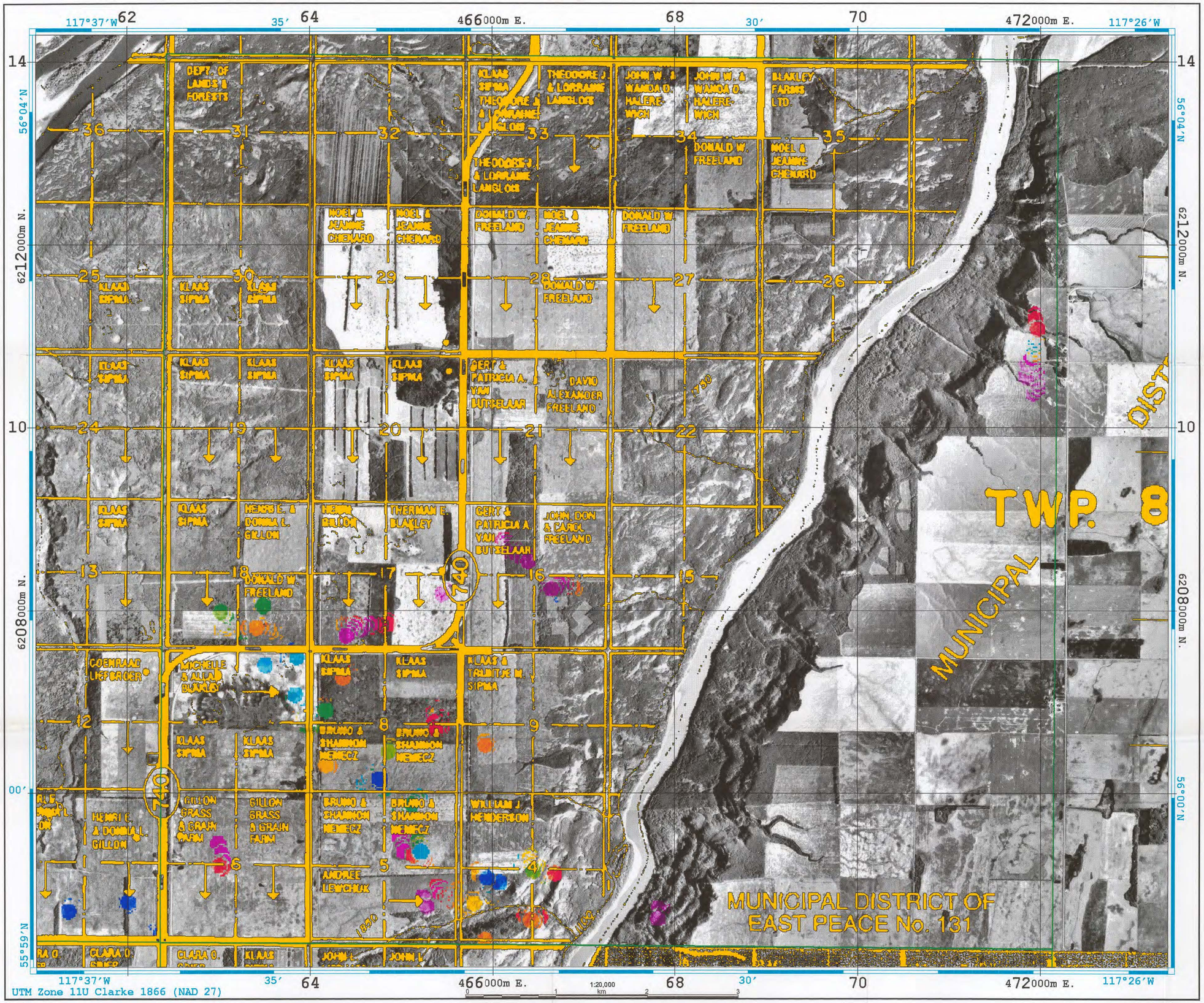
1000 0.0 1000 2000 3000 4000 5000 6000 7000

(meters)

PRIMO RESOURCES
TOTAL MAGNETIC INTENSITY **FALSE SHADOW ILLUMINATION MAP** **SMOKY RIVER PROJECT, ALBERTA**
Airborne magnetic survey flown by Terraquest Surveys False shadow inclination: 45 degrees False shadow declination: 45 degrees
STRATAGEX LTD. Geophysical Consulting, Toronto

IMAGE 5

Image 16



MIN9824

Ortho Rectified
Air Photo Mosaic
of
Primo Resources
Buffalo Hills Project
Permit Block A,
Peace River Area,
Alberta

Legend
Property

19980024

N

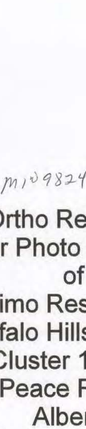
Processed by
J. F. Touborg
Consultants Inc.

Image 17

m109824

Ortho Rectified Air Photo Mosaic of Primo Resources Buffalo Hills Project Cluster 1 Area Peace River, Alberta Coloured with Total Magnetic Intensity and Overlaid with Survey Grid and Soil Sample Points

Legend
- Property (from ATS Coordinates)
- Survey grid
- x Sample points



Processed by
J. F. Touborg
Consultants Inc.

117°37'15"W 462000m E. 36' 63 35' 64 34' 65 33' 66 32' 467000m E. 31' 117°30'45"W

56°01'00"N 6207000m N.

59' 04 00'

55°58'30"N 6205000m N. 03

UTM Zone 11U Clarke 1866 (NAD 27)

1:10,000

0 0.5 1 1.5 km