MAR 20000002: ATHA/LS/WM HILLS

Received date: Jan 11, 2000

Public release date: Jan 12, 2001

20000002

JAN 11 2000

ASSESSMENT REPORT

Athabasca (AL07), Lesser Slave (AL08),
and Whitemud Hills (AL09) Properties
Volume 1 (Report, Appendix A through Appendix C)

ASHTON MINING OF CANADA INC.

PROVINCE OF ALBERTA
2000

CONFIDENTIAL UNTIL JANUARY 2001

Company:	Ashton Mining of Canada Inc.
Permit Agreement No.:	9397100001-939710097, 9397100401-9397100543, 9397110001-9397110094, 9398020003-9398020192 (inclusive)
Assessment Period:	October 17, 1997 to October 17, 1999
Location:	Northern Alberta
NTS:	73M, 74D, 74E, 83J, 83K, 83L, 83M, 83N, 83O, 83P, 84A, 84C, 84D, 84H and 84I
Legal Location:	Tp 77-104, Rg 1-26 West of 4th meridian, Tp 60-90, Rg 1-27 West of 5th meridian, Tp 66-88, Rg 1-8 West of 6th meridian
Author:	Dave Skelton, Terry Bursey
Date:	January 7, 2000

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

SUMMARY

The Athabasca, Lesser Slave and Whitemud Hills Properties are located in northern Alberta. The area is comprised of Cretaceous rocks that are centered around and overlie portions of the Buffalo Head Terrane basement, a Proterozoic structural province of the Canadian Shield. The properties also encompass portions of the Taltson, Rimbey and Ksituan magmatic arcs, and the Thorsby and Chinchaga magnetic low terranes. The region is currently the focus of extensive exploration efforts as a result of the discovery of diamondiferous kimberlites on the Buffalo Hills Property by Ashton in early 1997.

For the purpose of this assessment filing, three contiguous permit blocks (southern portions of the Athabasca, Lesser Slave and Whitemud properties) have been grouped. Portions of these properties are contiguous which will allow the spreading of expenditures pursuant to section 15.2 of the Metallic and Industrial Minerals Regulation. The remaining non-contiguous portions of the properties will be filed as stand alone permit groups. Exploration activities being applied for assessment purposes in this report include: heavy mineral sampling, regional fixed-wing magnetic surveys, detailed fixed-wing magnetic surveys and ground magnetic surveys. Total expenditures of $2,052,445.41 were incurred during these activities on the three properties in this assessment filing.

With this filing, Ashton has applied $2,052,445.41 to advance the 74 permits in good standing in the Athabasca, Lesser Slave and Whitemud Hills properties until the year 2001. A number of the original permits have been amended to a reduced size. The permits are as follows: Athabasca Property has 28 intact permits and 29 amended, Lesser Slave Property has nine amended permits and Whitemud Hills Property has eight amended permits. For a detailed discussion of the allocation of expenditures and the areas Ashton wishes to retain, please refer to the Explanation of Expenditure Allocation and the Expenditure Allocation Tables in Appendix A.

INTRODUCTION

This report represents work undertaken in the property area between October 1997 and October 1999 including heavy mineral till sampling, fixed-wing regional, detailed fixed-wing and ground magnetic geophysical surveys.

Regional airborne magnetic surveys were flown over the properties to identify target anomalies. These anomalies were prioritized based on possible kimberlite characteristics. Those chosen as indicative of kimberlites were followed-up with detailed fixed-wing and ground magnetic surveys as well as heavy mineral till sampling.

LOCATION AND ACCESS

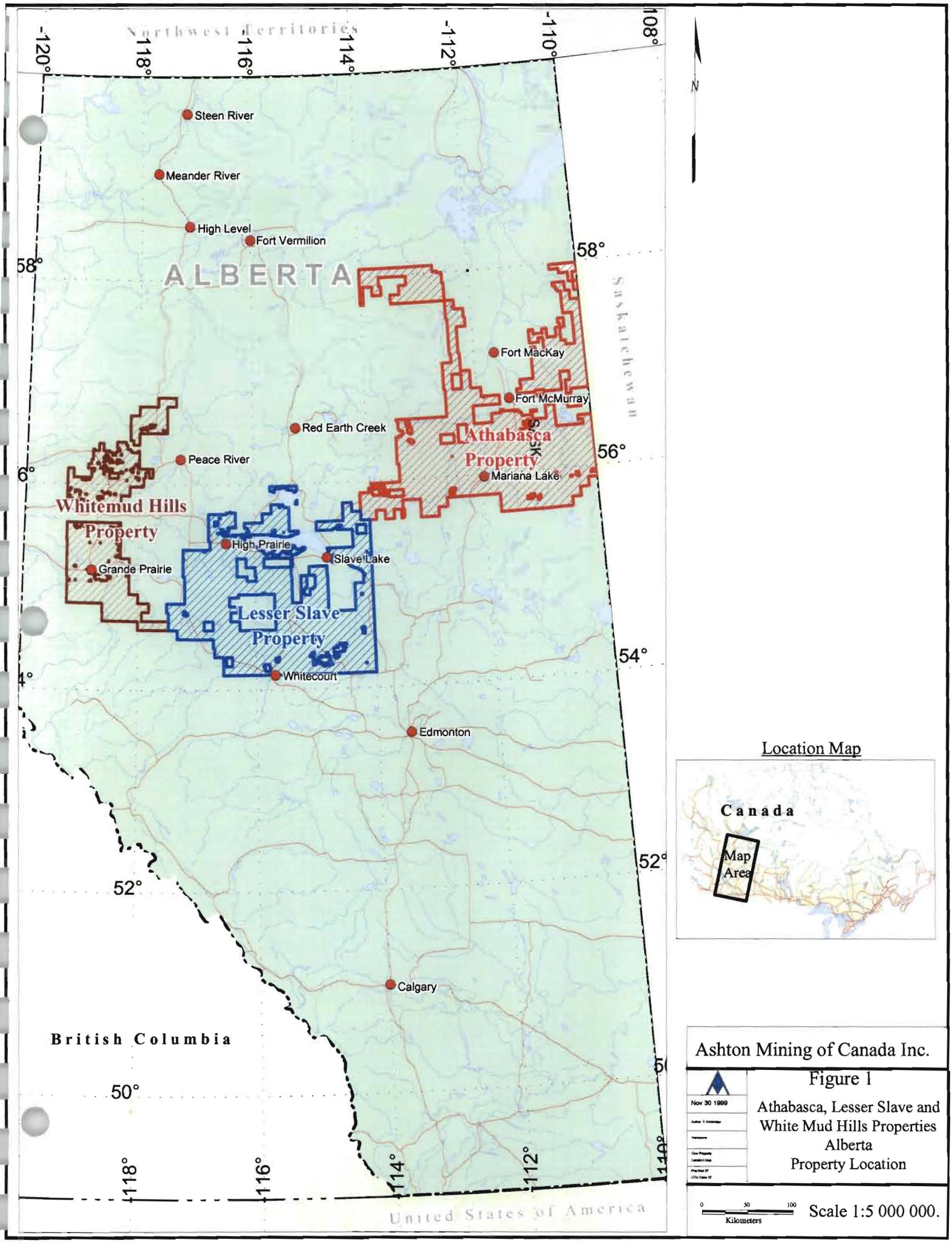
The Athabasca, Lesser Slave and Whitemud Hills Properties are located in northern Alberta roughly between 54° and 58° latitude (Figure 1) and cover portions of the following districts: Mackenzie, East Peace, Waptipi River, Smoky River, Waterways, Athabasca, Lakeland, Marten Hills, Lakeshore and Woodlands. Exploration was conducted from Fort McMurray on the Athabasca Property, Slave Lake and Whitecourt on the Lesser Slave Property and Grande Prairie and Peace River on the Whitemud Hills Property. Field crews utilised a combination of trucks, 4x4 RVs and helicopters to access work sites. Various provincial highways can be used to access these towns from Edmonton.

The permits are located on the NTS map sheets 73M, 74D, 74E, 83J, 83K, 83L, 83M, 83N, 83O, 83P, 84A, 84C, 84D, 84H and 84I. The legal locations are Tp 77-104, Rg 1-26 West of 4th meridian, Tp 60-90, Rg 1-27 West of 5th meridian, Tp 66-88, Rg 1-8 West of 6th meridian. The coordinates that encompass the permit group range from 54° N to 59° N and 110° W to 120°W.

PHYSIOGRAPHY

The area is characterized by mature coniferous trees and low-lying bogs with occasional shallow lakes. Large portions of the eastern permits are generally flat-lying with an average elevation of 500 to 550 meters. The southeastern portion of the permit group encompass the Swan Hills, Pelican Mountains and Birch Hills that have elevations as high as 1200 metres.

Glacial deposition occurred throughout the region during the Wisconsinan retreat of the Laurentide ice sheet. The recorded ice flow directions vary throughout the properties. Clay-rich till deposits dominate the western and southern parts of the property area. Lacustrine sediments and localized glaciofluvial gravels dominate the western part of the property and in localized areas throughout. Glacial sequences up to 150 meters deep have been recorded in boreholes in the southeastern Athabasca Property. The region is subject to a continental climate characterized by hot summers and cold winters.


Northwest Territories
Steen River
Meander River
High Level
Fort Vermilion
ALBERTA
Saskatchewan
Fort MacKay
Fort McMurray
Red Earth Creek
Athabasca
Property
Peace River
Mariana Lake
Whitemud Hills
Property
High Prairie
Slave Lake
Grande Prairie
Lesser Slave
Property
Whitecourt
Edmonton
Calgary
British Columbia
United States of America
-120°
-118°
-116°
-114°
-112°
-110°
-108°
58°
56°
54°
52°
50°
N
Location Map
Canada
Map
Area
Ashton Mining of Canada Inc.
Nov 30 1999
Figure 1
Athabasca, Lesser Slave and
White Mud Hills Properties
Alberta
Property Location
0
50
100
Kilometers
Scale 1:5 000 000.

PERMIT TABULATION

For the purpose of this assessment filing, three permit blocks (Athabasca, Lesser Slave and Whitemud Hills Properties) will be grouped together under one filing. Portions of each property are contiguous and have been grouped to allow the spreading of expenditures pursuant to section 15.2 of the Metallic and Industrial Minerals Regulation. The properties comprise 724 permits covering 6,523,788.63 hectares situated in northern Alberta, Canada (Appendix B).

Diamond exploration is being conducted on these three properties in joint venture with Alberta Energy Company Ltd. (35%), Ashton Mining of Canada Inc. (35%), and Pure Gold Minerals Inc. (30%). Ashton Mining of Canada Inc. is operator of exploration activities on behalf of the joint venture.

The permits comprising the Athabasca, Lesser Slave and Whitemud Hills Properties are registered in the name of 690688 Alberta Limited and Starwest Aviation Ltd. Alberta Limited and Starwest Aviation Ltd have designated Ashton as representative for the purpose of administering the permits. A copy of the Notice of Designation of Representative is included in Appendix B, along with a schedule of permits for each of the three properties.

REGIONAL GEOLOGY

BEDROCK GEOLOGY

Bedrock in Alberta ranges in age from Archean to Recent. Exposures are roughly divided into several broad belts crossing the province from the northeast to the southwest (Figure 2).

Undifferentiated Archean granitoids and metasedimentary rocks of the Churchill Structural Province are located in the northeast corner of Alberta. A flat-lying sequence of clastic Proterozoic Athabasca Group sediments up to 1,200 metres thick outcrops to the south of Lake Athabasca. The Shield rocks underlie a sequence of westerly-dipping Paleozoic strata comprising Middle and Upper Devonian marine shales, carbonates and evaporites. Near the edge of the Shield subsurface dissolution of the evaporitic units has resulted in extensive brecciation of Devonian strata. In central and western Alberta interbedded Paleozoic clastic marine sediments and carbonates from the Cambrian to the Permian are present in unconformity-bounded sequences up to 3,000 metres thick.

The Jurassic in Alberta was marked by cyclical marine transgressions as the continental margin became progressively active, resulting in interfingered marine and continental sediments. In the Northeastern Interior Plains marine to deltaic clastic Lower Cretaceous strata unconformably overlie Paleozoic rocks. Cretaceous sequences are found extensively throughout the province up to 2,000 metres thick in the subsurface.

Tertiary rocks overlie the Cretaceous strata in a belt along the foothills from southern Alberta to just south of Grand Prairie. Continental sedimentation continued into the Paleocene in response to uplift and erosion in the eastern Rocky Mountains. The final stages of uplift and sedimentation likely occurred during the Eocene to Oligocene epochs.

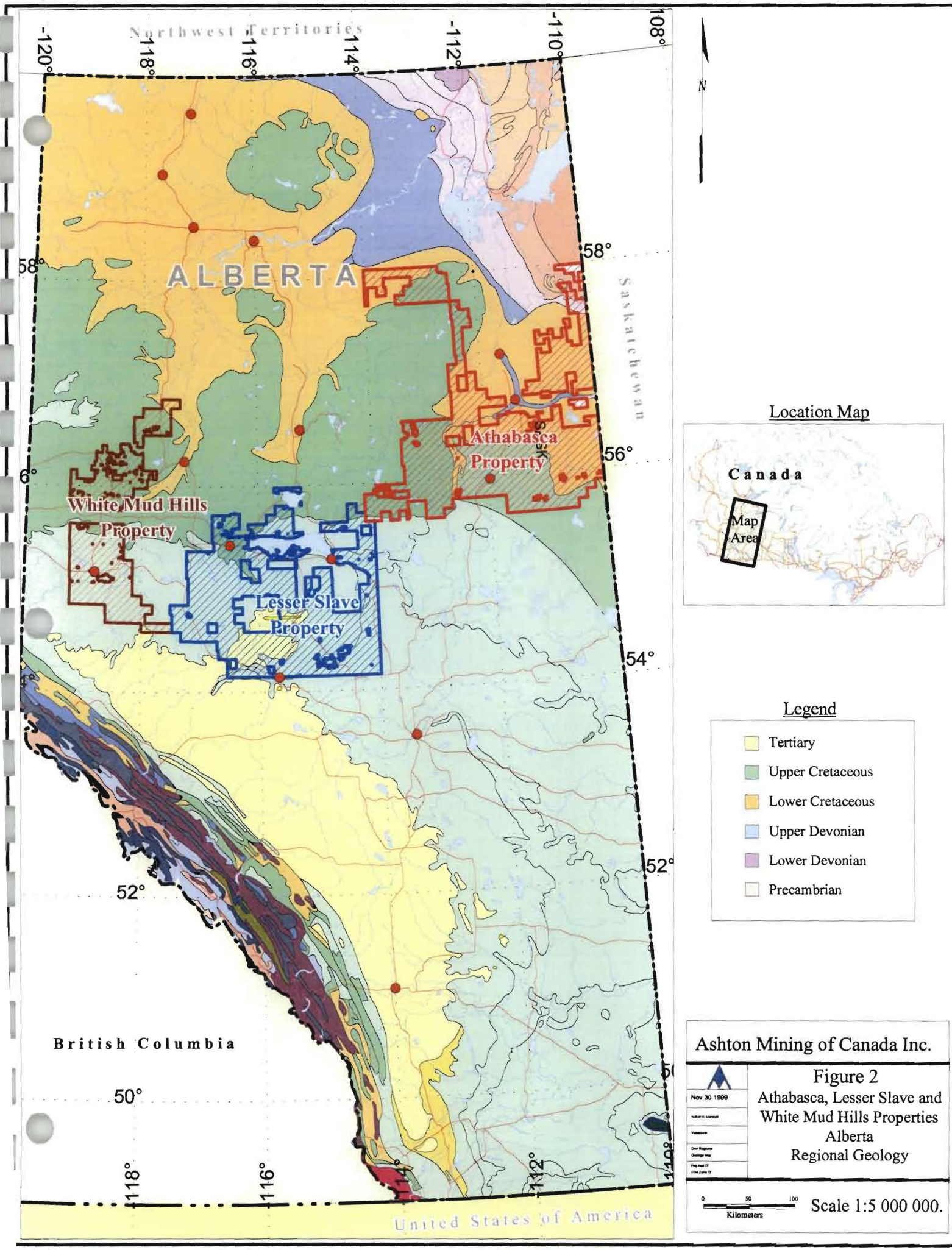
The Precambrian basement rocks of northern Alberta, interpreted as the western extension of the Churchill Structural Province, are subdivided into distinct tectono-metamorphic domains. These range from Archean to Early Proterozoic. Most of the basement in northern Alberta falls into one of two categories: accreted juvenile Proterozoic terrane or thermally reworked Archean units from the Rae Subprovince (Dufresne et al., 1996).

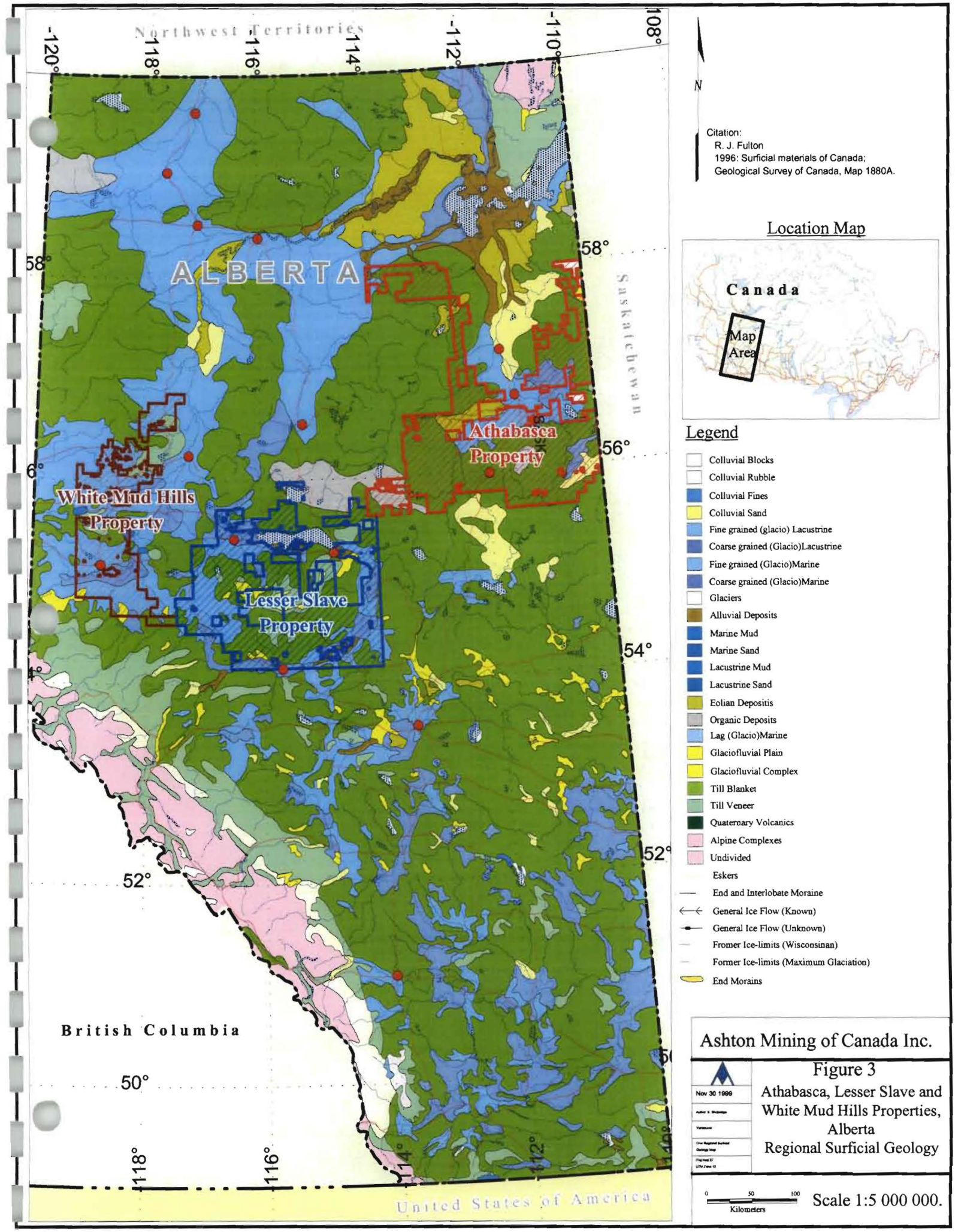
STRUCTURAL GEOLOGY

There are a number of regional structures influencing northern Alberta. The Great Slave Lake Shear Zone (GSLSZ), a crustal lineament striking northeast in the northwest corner of the province, was active about 1.9 Ga although tectonic movement probably continued intermittently into the Devonian. The Snowbird Tectonic Zone (STZ), striking northeast through the center of the province, is interpreted to bifurcate the underlying Churchill Structural Province into two distinct basement domains. The Peace River Arch is a complex, deeply-rooted structural feature characterized by uplift and subsidence which trends easterly between and subparallel to the STZ and GSLSZ. It was active from the Late Proterozoic to the Late Cretaceous (Dufresne et al., 1996).

QUATERNARY GEOLOGY

Episodic glacial advances from the north and east, off the Canadian Shield (Laurentide), and from the west out of the Cordilleran-Rocky Mountains, deposited a complex Quaternary sequence of glacial, fluvial and lacustrine deposits over most of the province (Figure 3). The interaction between the ice advances is poorly understood. Deposits attributed to Cordilleran-Rocky Mountain glacial advances have a minimum age of 720,000 years and may be older than 2,470,000 years. Deposits from the continental Laurentide advances are dated at 120,000 years or older (Dufresne et al., 1996).


Northwest Territories
ALBERTA
Saskatchewan
British Columbia
United States of America
Athabasca Property
White Mud Hills Property
Lesser Slave Property
-120°
-118°
-116°
-114°
-112°
-110°
-108°
58°
56°
54°
52°
50°
N
Location Map
Canada
Map Area
Legend
Tertiary
Upper Cretaceous
Lower Cretaceous
Upper Devonian
Lower Devonian
Precambrian
Ashton Mining of Canada Inc.
Nov 30 1999
Figure 2
Athabasca, Lesser Slave and White Mud Hills Properties
Alberta
Regional Geology
0 50 100
Kilometers
Scale 1:5 000 000.


Northwest Territories
ALBERTA
Saskatchewan
British Columbia
United States of America
Athabasca Property
White Mud Hills Property
Lesser Slave Property
-120°
-118°
-116°
-114°
-112°
-110°
-108°
58°
56°
54°
52°
50°
N
Citation:
R. J. Fulton
1996: Surficial materials of Canada;
Geological Survey of Canada, Map 1880A.
Location Map
Canada
Map Area
Legend
Colluvial Blocks
Colluvial Rubble
Colluvial Fines
Colluvial Sand
Fine grained (glacio) Lacustrine
Coarse grained (Glacio)Lacustrine
Fine grained (Glacio)Marine
Coarse grained (Glacio)Marine
Glaciers
Alluvial Deposits
Marine Mud
Marine Sand
Lacustrine Mud
Lacustrine Sand
Eolian Depositis
Organic Deposits
Lag (Glacio)Marine
Glaciofluvial Plain
Glaciofluvial Complex
Till Blanket
Till Veneer
Quaternary Volcanics
Alpine Complexes
Undivided
Eskers
End and Interlobate Moraine
General Ice Flow (Known)
General Ice Flow (Unknown)
Fromer Ice-limits (Wisconsinan)
Former Ice-limits (Maximum Glaciation)
End Morains
Ashton Mining of Canada Inc.
Nov 30 1999
Figure 3
Athabasca, Lesser Slave and White Mud Hills Properties, Alberta
Regional Surficial Geology
0 50 100
Kilometers
Scale 1:5 000 000.

PROPERTY GEOLOGY

ATHABASCA

Bedrock Geology

Most of the bedrock underlying the Athabasca permit block is of Cretaceous age with the Smoky Group (approx. 88-80 Ma) and the Labiche Formation (100-82 Ma), being the youngest units (Alberta Geological Survey, 1972) (Jackson *et. al.* 1981). Lower Cretaceous bedrock with an age range of 116 to 100 Ma is present in a zone centered on Fort McMurray in the central and eastern portions of the permit block (Figure 4). The following five Lower Cretaceous formations are present from oldest to youngest: the McMurray Formation, the Clearwater Formation, the Grand Rapids Formation, the Joli Fou Formation and the Pelican Formation. Archean bedrock of the Rae province consisting dominantly of granite and gneiss is present and exposed in the northeastern corner of the permit block. The Proterozoic Athabasca Sandstone underlies a very small zone in the extreme northeastern corner of the permit group. Devonian carbonate bedrock of the Waterways and Keg River Formations is present in an east-west trending belt just south of the Archean bedrock in the northeastern corner of the permit block.

Athabasca Surficial Geology

The majority of the property is overlain by morainal surficial material that was deposited from a north and northwesterly direction during the Laurentide glaciation (Figure 5). Glaciolacustrine deposits blanket large portions of the morainal material, especially where the topography is flat. However, often the glaciolacustrine sediments are less than one meter in depth. Thick sequences of glaciolacustrine silts and sands flank the Athabasca River basin. Glaciolacustrine clays are extensive in the lowlands centered over Fort McMurray. Glaciofluvial sediments occur sporadically within glaciolacustrine and morainal deposits. Glaciofluvial sands and gravels are extensive in the northeastern corner where very thick outwash sediments are deposited.

Ice Direction

Ice is thought to have moved into this area primarily from the northeast, but local variations do exist. It is also postulated that there was ice movement from the northwest.

Fifth Meridian

Zone 11 | Zone 12

Mikkwa Formation

Loon River Shale

Dunvegan Formation

Shaftesbury Formation

Smoky Group

Labiche Fm

Pelican Formation

Grand Rapids Formation

Joli Fou Formation

Clearwater Formation

McMurray Formation

Waterways Formation

Slave Point Formation

Grey foliated Granitoid

Manitou Falls Formation

Alkali feldspar-rich granitoid

Recrystallized mylonitic rocks

Eaglenest Lake

Sand Lake

Namur Lake

Athabasca River

Fort MacKay

Fort McMurray

Mariana Lake

Gordon Lake

Egg Lake

Bohn Lake

Cowper Lake

North Wabasca Lake

South Wabasca Lake

Sandy Lake

Pelican Lake

350000 mE | 400000 mE | 450000 mE | 500000 mE | 550000 mE

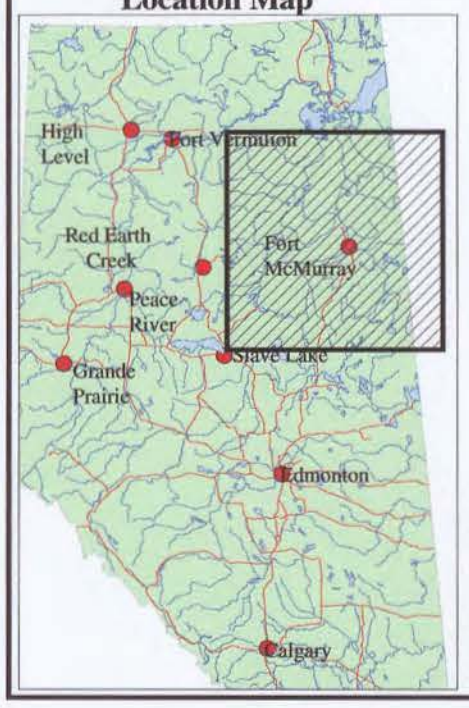
6450000 mN | 6400000 mN | 6350000 mN | 6300000 mN | 6250000 mN | 6200000 mN | 6150000 mN

6450000 m | 6400000 m | 6350000 m | 6300000 m | 6250000 m | 6200000 m | 6150000 m

Fifth Meridian

Zone 11 | Zone 12

Location Map



N

- Property Outline
- Claim Outline
- Highway
- ATS Grid
- UTM Grid

Base Map:

Geological Map of Alberta - 1999

This map is the latest compilation of the bedrock geology of Alberta by the Alberta Geological Survey. It is modified from the previous version by R. Green, 1972, Alberta Geological Survey, Alberta Research Council (which built on earlier versions by John A. Allan, published by the Alberta Research Council in the 1930's and 1940's).

Revisions since 1972 have incorporated new mapping data from work by the Alberta Geological Survey and the Geological Survey of Canada, and by the Canadian Society of Petroleum Geologists through the contribution of its membership to the Geological Atlas of the Western Canada Sedimentary Basin.

Geology Legend

- Wapiti Group
- Labiche Fm
- Smoky Group
- Dunvegan Fm
- Shaftesbury Fm
- Pelican Fm
- Joli Fou Fm
- Grand Rapids Fm
- Clearwater Fm
- McMurray Fm
- Waterways Fm
- Slave Point Fm
- Grey foliated Granitoid
- Recrystallized mylonitic rocks
- Alkali feldspar-rich granitoid
- Manitou Falls

Ashton Mining of Canada Inc.

Figure 4

Athabasca Property, Alberta Geology Map

Date: Dec 10 1999

Author: S Shobridge

Office: Vancouver

Drw: Athabasca Geology Map

Proj:Nad 27 UTM Zone 12

0 15 30 Kilometers

Scale 1:1 000 000

Fifth Meridian

Zone 11 Zone 12

Eaglenest Lake

Sand Lake

Athabasca River

Namur Lake

Fort MacKay

Fort McMurray

Gordon Lake

Wildhay Lake

Mariana Lake

Egg Lake

North Wabasca Lake

South Wabasca Lake

Sandy Lake

Pelican Lake

Bohn Lake

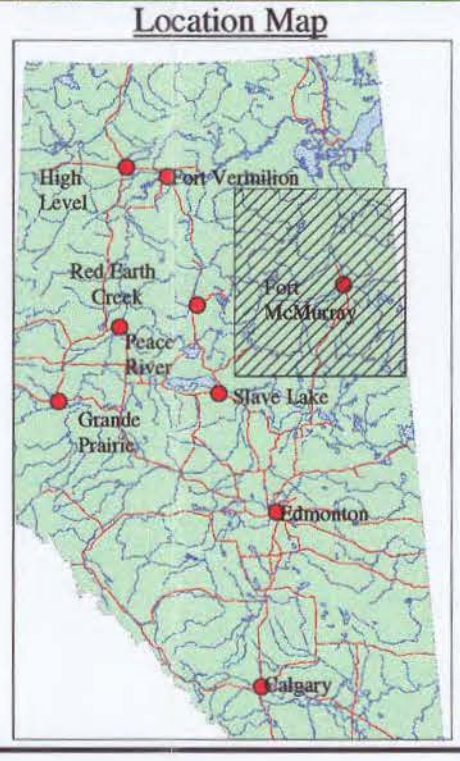
Cowper Lake

Fifth Meridian

Legend

- Colluvial Blocks
- Colluvial Rubble
- Colluvial Fines
- Colluvial Sand
- Fine grained (glacio) Lacustrine
- Coarse grained (Glacio)Lacustrine
- Fine grained (Glacio)Marine
- Coarse grained (Glacio)Marine
- Glaciers
- Alluvial Deposits
- Marine Mud
- Marine Sand
- Lacustrine Mud
- Lacustrine Sand
- Eolian Depositis
- Organic Deposits
- Lag (Glacio)Marine
- Glaciofluvial Plain
- Glaciofluvial Complex
- Till Blanket
- Till Veneer
- Quaternary Volcanics
- Alpine Complexes
- Undivided
- Eskers
- End and Interlobate Moraine
- General Ice Flow (Known)
- General Ice Flow (Unknown)
- Fromer Ice-limits (Wisconsinan)
- Former Ice-limits (Maximum Glaciation)
- End Morains

Location Map



- Property Outline
- Permit Outline
- Highway
- ATS Grid
- UTM Grid

N

Ashton Mining of Canada Inc.

Figure 5

Athabasca Property, Alberta Surficial Geology Map

Date: Dec. 9 1999

Author: S Shobridge

Office: Vancouver

Drw: Surficial Geology Map

Proj:Nad 27 UTM Zone 11

0 15 30 Kilometers

Scale 1:1 000 000

Citation:
R. J. Fulton
1996: Surficial materials of Canada;
Geological Survey of Canada, Map 1880A.

LESSER SLAVE

Bedrock Geology

Most of the permit block is underlain by basement rocks of the Early Proterozoic Buffalo Head Terrain (Figure 6). The southeastern portion of the permit block is underlain by sections of two basement terrains: the Thorsby Low and the Wabamun High. The southwestern portion of the block is underlain by basement rocks of the Chinchaga Low.

There are three principal mapped bedrock units on the Lesser Slave Lake permit block. The Cretaceous Smoky Group underlies the northern 20 percent of the permit group, the Tertiary Paskapoo Formation underlies 25 percent in the southwestern portion, and the Cretaceous Wapiti Formation underlies the remaining 55 percent. Principal bedrock lithologies in the area include; feldspathic clayey and calcareous cherty sandstone, bentonitic mudstone, coal, siltstone, shale and iron stone.

Surficial Geology

The majority of the permit block is overlain by morainal surficial material that was deposited from a north and northwesterly direction during the Laurentide glaciation. Extensive glaciolacustrine deposits are concentrated along the periphery of the permit block, including the lowlands of the Athabasca River basin and the plains northwest of Fox Creek and southwest of High Prairie (Figure 7). Glaciofluvial deposits are not extensive but are often found associated with glaciolacustrine sediments and morainal deposits.

A unique unit, mapped as pre-glacial gravels, is located in the Swan Hills area of the permit block. These gravels are easily identified by their unique flat topped terraced topography. The gravels consists principally of large well rounded sandstone and quartzite boulders and cobbles. These gravels are thought to be sourced from the Rocky Mountains and hence flowed northeast (Dufresne et al., 1996).

Fortunately, good quality 1:250,000 scale surficial geology maps exist for a large part of the permit group. Entire coverage for 83 J (St. Onge, 1973), the eastern half of 83 K (St. Onge, 1965), the western half of 83 N (Henderson, 1952) and the northern half of 83 O (Open File 1985-18). Ground truthing of mapped units generally proved the maps to be accurate. An exception was in certain areas mapped as lake sediments, where pits dug to depths beyond 50 to 70 centimeters often encountered till.

Ice direction

Few definitive ice direction indicators exist in the area. Ice stagnation in the latter stages of deglaciation likely obscurred many drumlinoid features. The surficial geology maps indicate a south - southwesterly iceflow in the eastern portion of the block and a south, possibly southeasterly flow in the western portion of the permit block. Southwesterly drumlinoid ridges were observed from a helicopter on the northern edge of NTS map sheet 83O/15.

Fifth Meridian

Zone 11 | Zone 12

Kaskapau Formation

Puskwaskau Formation

Smoky Group

Wapiti Group

Swan Hills Gravels

Scollard Formation

Paskapoo Formation

Utikuma Lake

Lesser Slave Lake

Snipe Lake

Meekwap Lake

Losegun Lake

Wabasca Lake

South Wabasca Lake

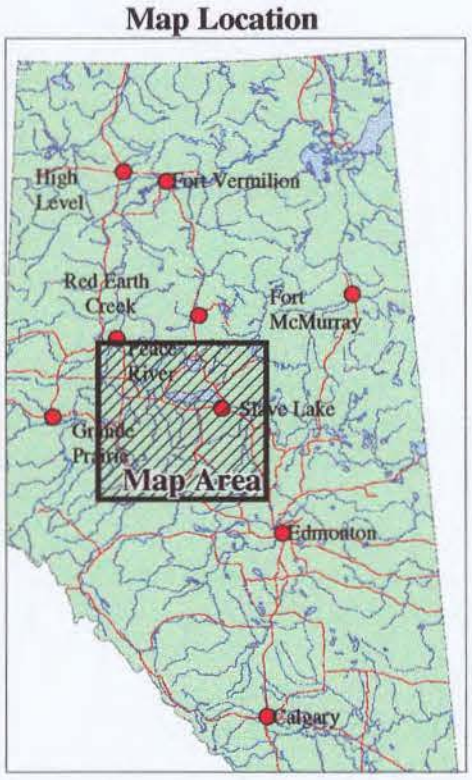
Athabasca River

High Prairie

Slave Lake

Whitecourt

Map Location



Geology Legend

- Swan Hills Gravels
- Paskapoo Formation
- Scollard Fm
- Wapiti Gp
- Labiche Fm
- Horseshoe Canyon Fm
- Belly River Gp
- Puskwaskau Fm
- Kaskapau Fm
- Smoky Gp
- Dunvegan Fm
- Shaftesbury Fm

N

Legend

- Property Outline
- Claim Outline
- Highway
- ATS Grid
- UTM Grid

Base Map:

Geological Map of Alberta - 1999
This map is the latest compilation of the bedrock geology of Alberta by the Alberta Geological Survey. It is modified from the previous version by R. Green, 1972, Alberta Geological Survey, Alberta Research Council (which built on earlier versions by John A. Allan, published by the Alberta Research Council in the 1930's and 1940's).
Revisions since 1972 have incorporated new mapping data from work by the Alberta Geological Survey and the Geological Survey of Canada, and by the Canadian Society of Petroleum Geologists through the contribution of its membership to the Geological Atlas of the Western Canada Sedimentary Basin.

Ashton Mining of Canada Inc.

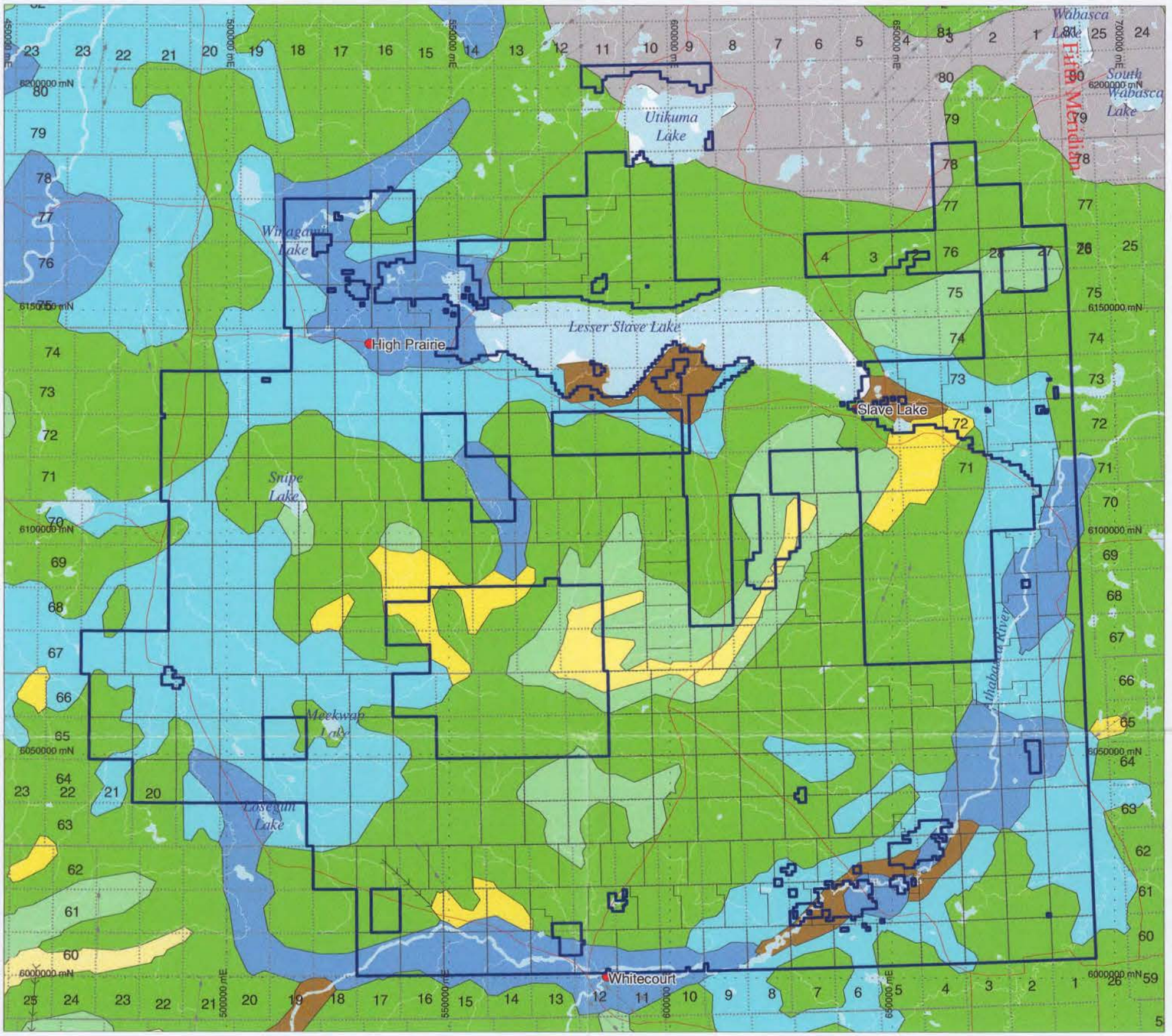
Figure 6

Lesser Slave Property, Alberta Geology Map

Date: Dec 6, 1999
Author:A. Marshall
Office: Vancouver
Drw: Property Geology Map
Proj:Nad 27 UTM Zone 11

0 15 30 Kilometers

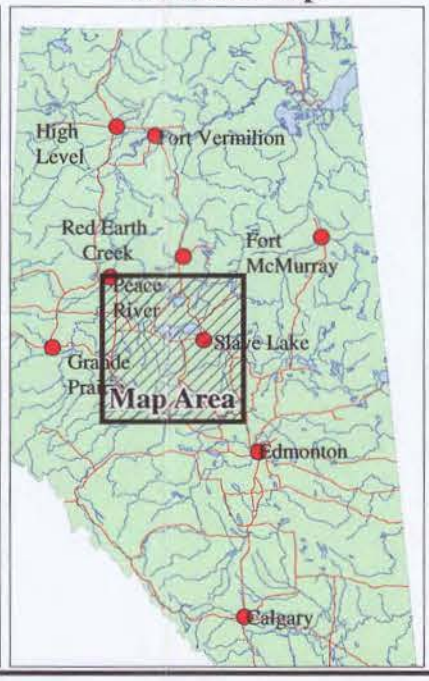
Scale 1:1 000 000



Legend

- Colluvial Blocks
- Colluvial Rubble
- Colluvial Fines
- Colluvial Sand
- Fine grained (glacio) Lacustrine
- Coarse grained (Glacio)Lacustrine
- Fine grained (Glacio)Marine
- Coarse grained (Glacio)Marine
- Glaciers
- Alluvial Deposits
- Marine Mud
- Marine Sand
- Lacustrine Mud
- Lacustrine Sand
- Eolian Depositis
- Organic Deposits
- Lag (Glacio)Marine
- Glaciofluvial Plain
- Glaciofluvial Complex
- Till Blanket
- Till Veneer
- Quaternary Volcanics
- Alpine Complexes
- Undivided
- Eskers
- End and Interlobate Moraine
- General Ice Flow (Known)
- General Ice Flow (Unknown)
- Fromer Ice-limits (Wisconsinan)
- Former Ice-limits (Maximum Glaciation)
- End Morains

Location Map



N

- Property Outline
- Permit Outline
- Highway
- ATS Grid
- UTM Grid

Ashton Mining of Canada Inc.

Figure 7

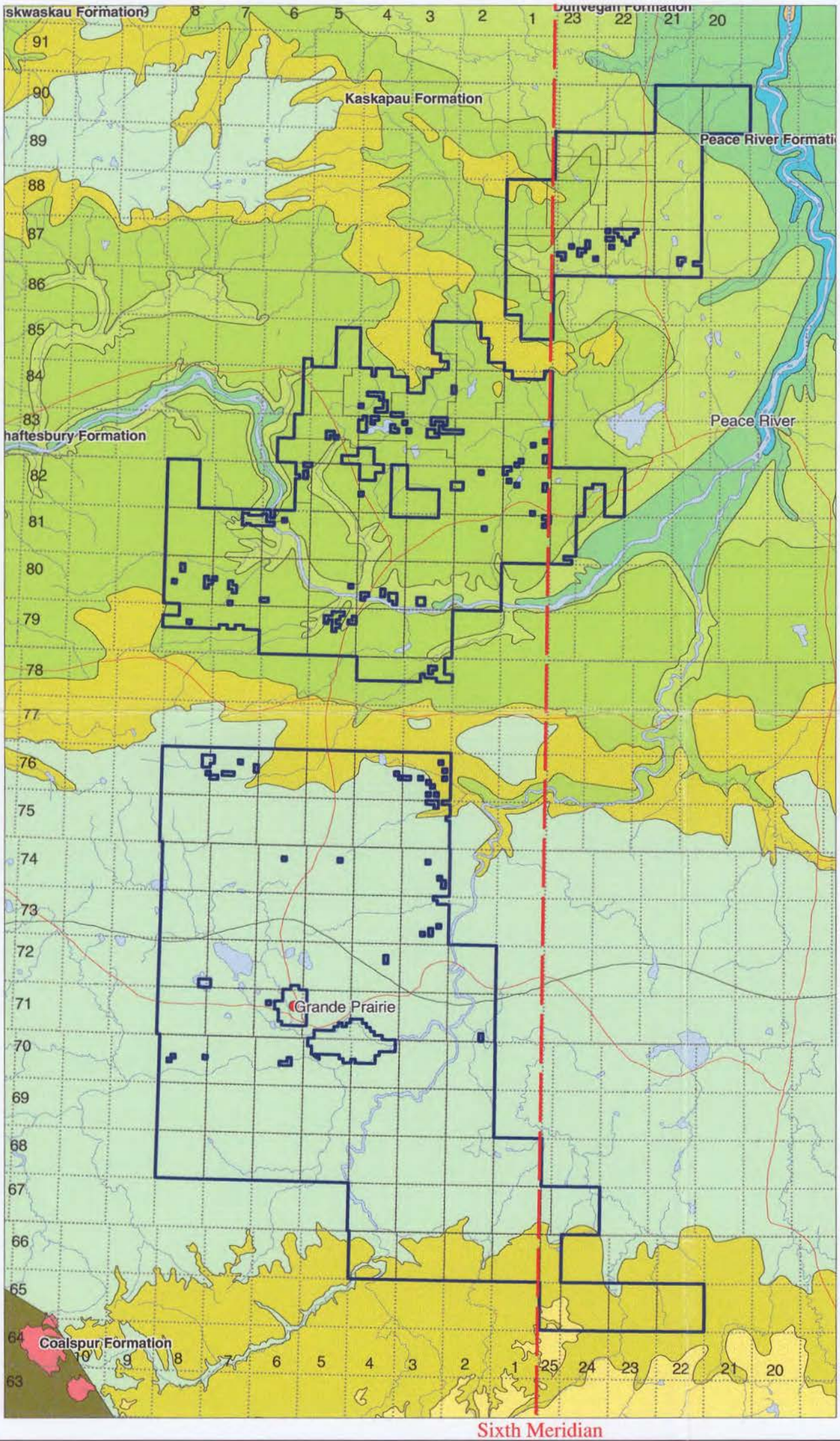
Lesser Slave Property, Alberta Surficial Geology Map

Date: Dec. 9 1999
Author: S Shobridge
Office: Vancouver
Drw: Surficial Geology Map
Proj:Nad 27 UTM Zone 11

0 15 30 Kilometers

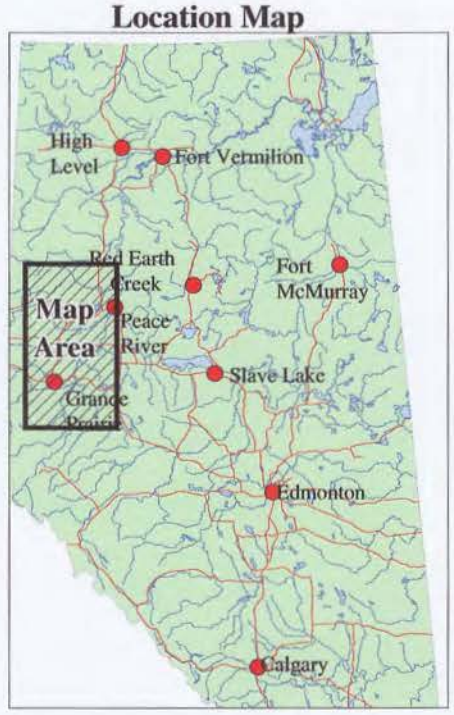
Scale 1:1 000 000

Citation:
R. J. Fulton
1996: Surficial materials of Canada;
Geological Survey of Canada, Map 1880A.



N

Location Map



- Property Outline
- Claim Outline
- Highway
- ATS Grid
- UTM Grid

Geology Legend

- Paskapoo Fm
- Scollard Fm
- Wapiti Group
- Puskwaskau Fm
- Kaskapau Fm
- Dunvegan Fm
- Shaftesbury Fm
- Peace River Formation
- Brazeau Fm
- Coalspur Fm

Base Map:

Geological Map of Alberta - 1999
This map is the latest compilation of the bedrock geology of Alberta by the Alberta Geological Survey.
It is modified from the previous version by R. Green, 1972, Alberta Geological Survey,
Alberta Research Council (which built on earlier versions by John A. Allan,
published by the Alberta Research Council in the 1930's and 1940's).
Revisions since 1972 have incorporated new mapping data from work
by the Alberta Geological Survey and the Geological Survey of Canada,
and by the Canadian Society of Petroleum Geologists through the contribution
of its membership to the Geological Atlas of the Western Canada Sedimentary Basin.

Ashton Mining of Canada Inc.

Date: Dec 10 1999

Author: S Shobridge

Office: Vancouver

Drw: Whitemud Hills Geology Map

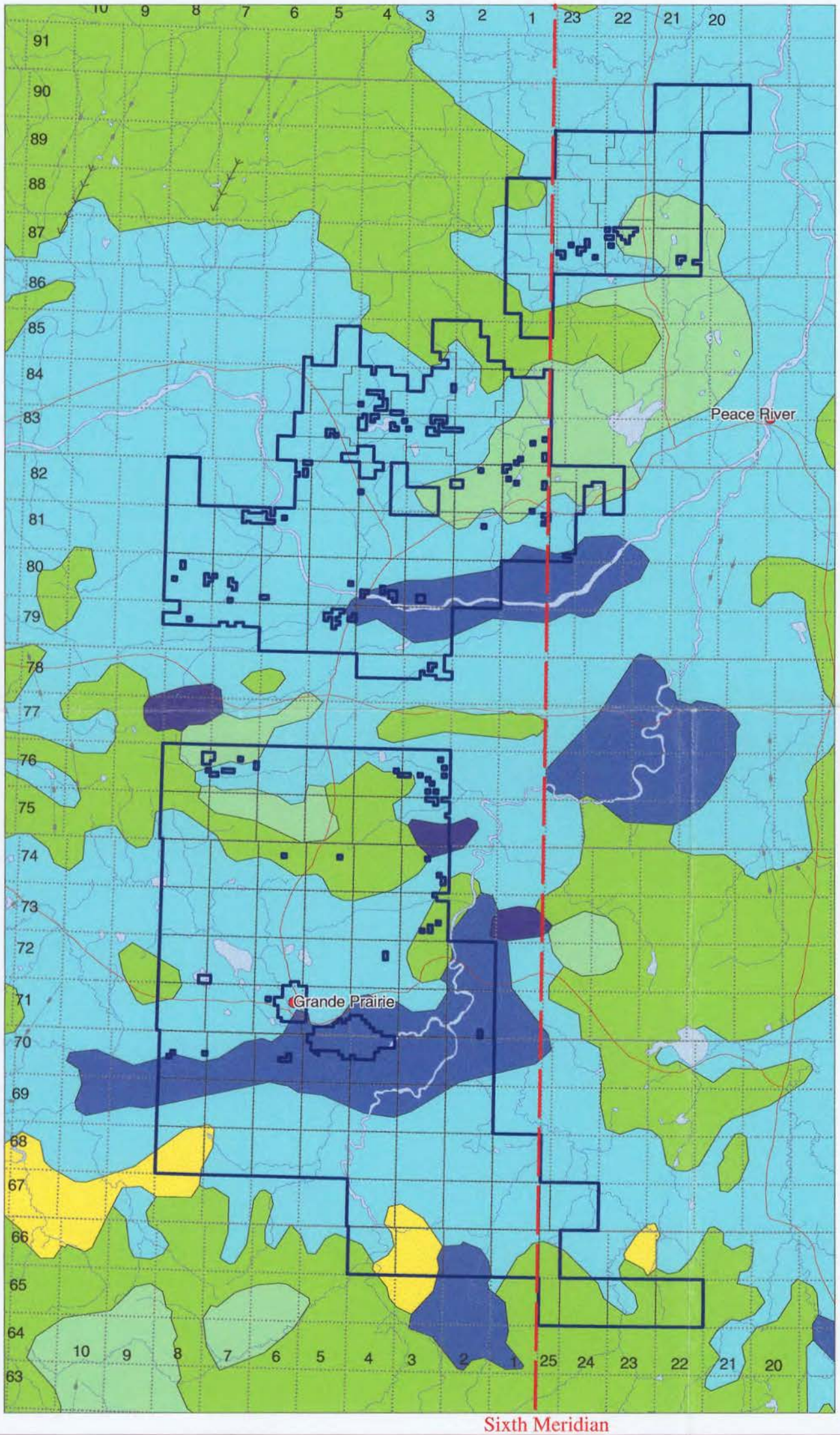
Proj:Nad 27
UTM Zone 12

Figure 8

Whitemud Hills Property, Alberta Geology Map

0 15 30
Kilometers

Scale 1:1 000 000



N

Location Map

Legend

- Property Outline
- Claim Outline
- Highway
- ATS Grid
- UTM Grid

Surficial Geology Legend

- Colluvial Blocks
- Colluvial Rubble
- Colluvial Fines
- Colluvial Sand
- Fine grained (glacio) Lacustrine
- Coarse grained (Glacio)Lacustrine
- Fine grained (Glacio)Marine
- Coarse grained (Glacio)Marine
- Glaciers
- Alluvial Deposits
- Marine Mud
- Marine Sand
- Lacustrine Mud
- Lacustrine Sand
- Eolian Depositis
- Organic Deposits
- Lag (Glacio)Marine
- Glaciofluvial Plain
- Glaciofluvial Complex
- Till Blanket
- Till Veneer
- Quaternary Volcanics
- Alpine Complexes
- Undivided
- Eskers
- End and Interlobate Moraine
- General Ice Flow (Known)
- General Ice Flow (Unknown)
- Fromer Ice-limits (Wisconsinan)
- Former Ice-limits (Maximum Glaciation)
- End Morains

Ashton Mining of Canada Inc.

Date: Dec 10 1999

Author: S Shobridge

Office: Vancouver

Drw: Whitemud Hills Geology Map

Proj:Nad 27 UTM Zone 12

Figure 9

Whitemud Hills Property, Alberta Surficial Geology Map

0 15 30 Kilometers

Scale 1:1 000 000

WHITEMUD HILLS

Bedrock Geology

Most of the bedrock underlying the Whitemud Hills permit block is of Cretaceous age (Figure 8) (Alberta Geological Survey, 1972). There are five Cretaceous Formations present: the Shaftesbury Formation (approximately 102 to 90 Ma.), the Dunvegan Formation (approximately 90 to 88 Ma.), the Smoky Group (approximately 88 to 80 Ma.), the Wapiti Formation (approximately 84 to 74.5 Ma.) and the Paskapoo Formation (approximately 65 Ma.) (Alberta Geological Survey, 1972) (Jackson *et. al.,* 1981). The dominant Cretaceous bedrock types are gray, feldspathic sandstone and dark gray shale.

Surficial Geology

All of the Whitemud Hills permit block has been subjected to continental glaciation by the Laurentide ice sheet which is thought to have moved into the area from the north and northeast during Wisconsin time. Approximately 15 percent of the permit block is mapped as till (Figure 9). Fine-grained lacustrine and glaciomarine sediments blanket approximately 80 percent of the permit block, primarily in the central and southern portions. Alluvial and eolian sediment is mapped in the southwestern corner and south-central portion of the permit block (Geological Survey of Canada, 1996). Areas described as being lacustrine are generally flat and the thickness of lacustrine sediment can be as much as 150 meters. The majority of the Whitemud Hills permit block appears to have less than 50 meters of glacial cover. Preglacial gravels are mapped in two areas in and adjacent to the permit block on the Smoky River at Watino and on the Simonette River 80 km to the southwest. The units consist of poorly sorted, clast-supported cobble gravel with the clasts being dominantly quartzite with rare chert, coal and sandstone (Liverman *et al.,* 1988). Outcrop is sparsely situated throughout the permit block and is usually best seen in deeply incised creek valleys.

Ice direction

The Laurentide ice sheet is thought to have moved into the area from the north and northeast during Wisconsin time. Locally, evidence suggests the ice sheet moved in a northwest-southeast and southerly direction through the Peace River area and in a southwesterly direction in the Grande Prairie area. There is some evidence to suggest that the ice flowed in northeasterly to easterly and southeasterly directions in the southwestern corner of the permit block (Mathews, 1980).

Fort McMurray

Fort MacKay

Mariana Lake

Eaglenest Lake

Sand Lake

Namur Lake

Gordon Lake

Villeneuve Lake

North Wabasca Lake

South Wabasca Lake

Sandy Lake

Pelican Lake

Egg Lake

Bolov Lake

Cowper Lake

Athabasca River

Map Location

N

Legend

- Relinquished Area
- Retained Areas
- Park
- Road

Ashton Mining of Canada Inc.

Athabasca Property, Alberta
Assessment Filing January 2000
Permits Retained,
Permits Amended,
and Permits Relinquished

Date: Jan 6, 2000	
Authors: S. Shobridge and Alex Marshall	
Office: Vancouver	
Drw: Permit Location Map Jan4 2000	
Proj: UTM Zone 12 Nad 27 for Canada	

0 5 10 Scale 1:300 000
Kilometers

WORK PERFORMED AND RESULTS

HEAVY MINERAL SAMPLING

The expenditures incurred from a total of 336 heavy mineral samples collected from the three properties are being applied for assessment purposes. A total of 168 was collected from the Athabasca Property, 138 from Lesser Slave Property and 30 from Whitemud Hills Property (Appendix C).

HEAVY MINERAL SAMPLING PROCEDURE

At each till sample site, two rice bags were filled with material weighing between 50 and 75 kg. In addition, two small bags weighing between 300 to 500 grams were collected, one for future reference of the sample material and one for geochemical analysis. Detailed notes were compiled for each sample site, including the following information; date, sample number, type, quality, weight, NTS map, UTM location, topography, texture, Munsell color, compaction, percentage matrix, reaction to hydrochloric acid, clast content and lithologies, size and roundness of clasts, mapped and observed Quaternary unit, mapped bedrock unit, remarks, and Ashton crew present. Till samples were washed and sieved at Ashton's field camp.

The resulting samples, weighing 20 to 25 kilograms, are transported to Ashton Mining of Canada's laboratory facilities in North Vancouver, B.C., where reduction by Wilfley shaking table and sieving produces an initial concentrate weighing about 500 grams in the 0.4 to 1.3 millimetre size range. This fraction is further reduced by heavy liquid separation to about 30 grams of heavy minerals. Each sample is then carefully examined under a binocular microscope and the kimberlitic indicator minerals are isolated. These indicator grains are counted, examined for surface features which may be indicative of transportation distance or provenance, and saved for additional testing if warranted.

The indicator mineral counts are plotted and a background value is established for the particular area under exploration. Anomalous concentrations are classified and these, together with the abrasion characteristics of the indicator minerals found and the local ice-flow direction, are used to trace potential kimberlite sources. Sample density in anomalous areas is increased to assist in the delineation of kimberlite targets.

HEAVY MINERAL RESULTS

Athabasca Property

Of the 168 samples collected, 58 returned positive counts. Generally counts are low not reaching higher than a total of six grains of combined olivine, chromite, picroilmenite, chrome diopside and pyrope. Positive results cluster along the northeastern property boundary, in the southwestern part of the property along the Athabasca River and east-central part of the property (Appendix C). No clear indicator trains have been identified as counts are low and the sample density is low. The ice direction is accepted as southwest, suggesting a source for the northwestern indicators as off-property.

Lesser Slave Property

Of the 138 samples collected, 73 returned positive results. The most abundant indicator returned was olivine and had counts ranging as high as 21. Chromite, picroilmenite, chrome diopside, peridotitic pyrope and eclogitic pyrope generally returned single isolated counts or low counts inconjuction with other indicators (Appendix C). The exception to this was sample AL08-0065 which returned 12 chromite grains. Positive results were scattered throughout the property, but show very broad patterns. High olivine counts were returned in the northwest, to a lesser degree in the northeastern part of the property and in the central southwestern part of the property. Good indicator trains are not apparent simply due to the low sample density.

Whitemud Hills Property

Of the 30 samples collected on the Whitemud Hills Property, 20 returned positive results. The most common indicator returned was olivine and commonly in conjunction with low to single counts of pyrope, chrome diopside, chromite or picroilmenite (Appendix C). Positive results are concentrated on the northern permit block and northeastern portion of the middle permit block. It is posible that these indicators source from known up-ice kimberlites discovered on the Buffalo Hills Property by Ashton.

FIXED-WING AIRBORNE GEOPHYSICS

The expenditures for six high resolution aeromagnetic surveys and two detailed surveys are being applied for the 1997-1999 assessment period. The fixed-wing survey over the Lesser Slave Property was flown by Geoterrex-Dighem Geophysics Ltd. and over the Athabasca Property by Sander Geophysics Ltd. The Athabasca survey consists of five individual high-resolution surveys, block A-B, block G, Wood Buffalo, Namur Lake and Gregoire Lake, and two postage stamp detailed surveys, all covered under two operation reports. The specifications of each survey are included in Appendix D.

Lesser Slave Lake Survey

The Lesser Slave Lake aeromagnetic survey was conducted between March 31 and June 9, 1998 by Geoterrex-Dighem (Appendix D). The survey was flown along north-south lines spaced at 400 metres with east-west 2000 metre spaced tie lines. It totaled 73,446 line-kilometers and was bound by the following coordinates: latitudes 54° 05′ and 56° 00′ and longitudes 117° 30′ and 114° 00′. The base of operations was Slave Lake, Alberta.

Athabasca Surveys

A fixed-wing aeromagnetic survey was conducted over the Athabasca Property between February 12 and April 8, 1998 by Sander Geophysics Ltd. covering the A-B and G blocks. The base of operations was Fort McMurray, Alberta. The surveys were flown at an altitude of 120 metres, with north-south traverse lines at 400 metre line spacing, and east-west control lines at 2000 metre spacing. The survey totaled 62,174.0 line kilometres (Appendix D).

A second survey flown by Saunders Geophysics Ltd. encompassed three regional blocks (Wood Buffalo, Namur Lake and Gregoire Lake) and two detailed blocks (postage stamp blocks 1 and 2).

The three high resolution surveys were flown with the following parameters: 120 metres survey altitude, north-south traverse lines with 400 metre spacing, and east-west control lines with 2000 metre spacing. The Wood Buffalo and Namur Lake surveys were flown between April 1 and 21, 1999 and totaled 12,564 line-kilometres, 9,202 and 3,663 kilometres respectively (share two common lines). The Gregoire Lake block was flown between May 6 and 24, 1999 and totaled 15,206 line-kilometres.

Detailed aeromagnetic surveys were completed by Sander Geophysics over two small blocks measuring five kilometers by five kilometers with the fixed-wing aircraft that was utilized for the aeromagnetic survey of the southeastern corner of the Athabasca Property. One of the blocks contained anomalies AB91-1B , AB92-1A and AB93-1B and the other contained anomalies AB74-1A and AB75-2A. The surveys were flown between May 27 and 29, 1999 and each survey consisted of 281 line-kilometres.

GROUND GEOPHYSICAL SURVEYS

The procedure for the ground magnetic surveys is to cut baselines and use survey pickets to locate the grid and UTM projection. Data was collected with a GEM Systems GSM-19 continuous reading magnetometer at two second reading intervals (approximately 2-3 metres) during the exploration programs. Twenty-five metre stations were flagged on all lines with biodegradable flagging tape as requested by Alberta Environmental Protection. Line spacing for these grids was typically 50 metres.

Athabasca Property

Ground magnetic surveys were performed over a total of seven targets on the Athabasca Property (Appendix D). Six targets, AB31, 32, 33, 34, 61 and 73, were surveyed between May 4 and May 21, 1999 and totaled 88 line-kilometres. The seventh target, AB91, was surveyed on September 13, 1999 and totaled 7.5 line-kilometres.

Lesser Slave Property

One ground magnetic survey was performed on the Lesser Slave Property between August 14 and 17, 1999 and totaled 12.1 line-kilometres.

CONCLUSIONS

The exploration to date on the Whitemud Hills, Lesser Slave and Athabasca properties has included airborne and ground geophysical surveying and regional heavy mineral sampling. Expenditures for approximately 176,800 line kilometers of geophysical data, in combination with those from the collection and processing of 333 heavy mineral samples, have been applied to maintain 74 mineral permits in good standing. All data will be reviewed and follow-up work performed in hopes of developing future drill targets.

BIBLIOGRAPHY

Alberta Geological Survey, 1972: Geological Map of Alberta. Alberta Geological Survey map, scale 1:1,267,000.

Bayrock, L.A., 1970: Surficial Geology Bitumount 74E. Research Council of Alberta Map. Scale: 1:250,000

Bayrock, L. A., 1971: Surficial geology of the Bitumount area, Alberta NTS 74E. Alberta Geological Survey Map 140, scale 1:250,000

Bayrock, L.A. and Reimchen, T.H.F., 1973: Surficial Geology Waterways 74D. Research Council of Alberta Map. Scale: 1:250,000

Bayrock, L. A., and Reimchen, T. F., 1974: Surficial geology of the Waterways area, NTS 74D. Alberta Geological Survey Map 148, scale 1:250,000.

Dufresne, M. B., Eccles, D. R., McKinstry, B., Schmitt, D. R., Fenton, M. M., Pawlowicz, J. G., and Edwards, W. A. D., 1996: The diamond potential of Alberta. Alberta Geological Survey Bulletin, no. 63, 158 p.

Dummet, H.T., Fipke, C.E. and Blusson, S.L.
1986 Diamond Exploration Geochemistry in the North American Cordillera; Geoexpo/86, Exploration in the North American Cordillera, I.L. Elliot and B.W. Smee, eds, Joint Publication of the Association of Exploration Geochemists and the Geological Society of Canada, pp. 168-176.

Dufresne, M. B., Olson, R.A., APEX Geoscience Ltd., Schmitt, D.R., University of Alberta, McInstry, B., Elad Enterprises Ltd., Eccles, D. R., Fenton, M.M., Pawlowicz, J.G., Edwards, W.A.D., Richardson, R.J.H., Alberta Geological Survey
1994 The Diamond Potential of Alberta., A Regional Synthesis of the Structural and Stratigraphic Setting, and Other Preliminary Indications of Diamond Potential. MDA Project M93-04-037, Alberta Research Council, Open File 1994-10

Geological Survey of Canada, 1996: Surficial Materials of Canada. Geological Survey of Canada Map 1880A, CD ROM version.

Green, R. and Copeland, F.L.
1972 Geological Map of Alberta, Alberta Geological Survey

Hamilton, W.N. and Olson, R.A.
1994 Mineral Resources of the Western Canada Sedimentary Basin. In G.M. Mossop and I. Shetsen (eds.) Atlas of the Western Canada Sedimentary Basin. Alberta Geological

Survey of the Alberta Research Council, and Canadian Society of Petroleum Geologists, p. 483-501.

Jackson, P. C., 1981: Geological Highway Map of Alberta. Canadian Society of Petroleum Geologists Geological Highway Map Series.

Mossop, G.D. and Shetson, I.
1994 Geological Atlas of the Western Canada Sedimentary Basin., Canadian Society of Petroleum Geologist and the Alberta Research Council

Pawlowicz, J. G., and Fenton, M. M., 1995: Drift thickness of Alberta. Alberta Geological Survey Map 227, scale 1:2,000,000.

Villeneuve, M. E., Ross, G. M., Thériault, R. J., Miles, W., Parrish, R. R., and Broome, J., 1993: Tectonic subdivisions and U-Pb geochronology of the crystalline basement of the Alberta Basin, western Canada. Geological Survey of Canada, Bulletin 447, 85 p.

Wheeler, J.O. and McFeely, P.
1991 Tectonic Assemblage Map of the Canadian Cordillera and adjacent parts of the United States: Geological Survey of Canada, Map 1712A, Scale 1:2 000 000.

CERTIFICATE OF QUALIFICATIONS - DAVE SKELTON

I, Dave Skelton, of [redacted] Vancouver, British Columbia, hereby certify that:

1. I am a graduate of the University of Western Ontario and hold a B.Sc. degree in geology,
2. I am presently employed as a project geologist with Ashton Mining of Canada Inc. at Unit 123, 930 West 1st Street, North Vancouver, B.C., V7P 3N4, and
3. I have been employed by various mining companies since 1986.
4. The information, conclusions and recommendations in this report are based on work in Alberta and on the property, in collaboration with colleagues involved in various aspects of exploration.

Dated at Vancouver, British Columbia, this 7th day of January 2000.

ASHTON MINING OF CANADA INC.

[redacted]

Dave Skelton, B.Sc.

CERTIFICATE OF QUALIFICATIONS - TERRY BURSEY

I, Terry Bursey, of [redacted] Vancouver, British Columbia hereby certify:

1. I am presently employed as a geologist with Ashton Mining of Canada Inc. at Unit 123, 930 West First Street, North Vancouver, B.C. V7P 3N4.
2. I am a graduate of Carleton University and hold a B.Sc., Hons degree in Geology, (1990).
3. I have been employed with various governmental geology divisions and the mineral exploration industry since 1987 and have practiced my profession since graduation.
4. That the information, conclusions and recommendations in this report are based on results of work in Alberta and on the property, in collaboration with colleagues involved in various aspects of exploration.

DATED at North Vancouver, British Columbia, this 6th day of January 2000.

ASHTON MINING OF CANADA INC.

[redacted]

Terry Bursey, B.Sc., Hons

APPENDIX A

EXPLANATION OF EXPENDITURE ALLOCATION
PROPERTY REFERENCE MAP
CONTIGUOUS BLOCK REFERENCE MAP
PROPERTY COST BREAKDOWN
EXPENDITURE ALLOCATION TABLE
WHITEMUD HILLS RETAINED PERMIT MAP
LESSER SLAVE RETAINED PERMITS MAP
ATHABASCA RETAINED PERMITS MAP

1.0 Explanation of Expenditure Allocation

The following is a summary of Ashton's filing intent with regards to each of the properties and their respective component blocks. Expenditures were not sufficient to retain all of the 724 permits and, as a result, 650 permits will be relinquished, 44 will be amended and 30 will remain intact. All contiguous permits will be grouped together.

2.0 WHITEMUD HILLS PROPERTY

The Whitemud Hills Property comprises 129 permits for a total of 1,142,410 hectares. The permits were acquired in 1997 and the first anniversary date was October 24, 1999. The property is divided into three separate, noncontiguous blocks with Block "A" being the most southern, Block "B" central, and Block "C" the most northern. Work was performed on all three blocks.

1.1 Block "A"

This block is contiguous with Block "D" of the Lesser Slave Property and Block "G" of the Athabasca property. The $11,480.75 spent in evaluating this property will be applied to contiguous permits on both the Lesser Slave and Athabasca Properties.

1.2 Block "B"

Expenditures totaling $8,610.00 have allowed Ashton to retain a total of 1722 hectares. Of this, Ashton will retain a total of 1600 hectares over 2 permits with the excess being applied as a credit towards future assessment periods. All retained permits will be amended to reflect a reduction in area while the balance of the permits in this block will be relinquished.

1.3 Block "C"

Expenditures totaling $9,541.56 have allowed Ashton to retain a total of 1908 hectares. Of this, Ashton will retain 1792 hectares over 6 permits with the excess being applied as a credit towards future assessment periods. All retained permits will be amended to reflect a reduction in area while the balance of the permits in this block will be relinquished.

2.0 LESSER SLAVE PROPERTY

The Lesser Slave Property comprises 270 permits for a total of 2,431,908.69 hectares. The permits were acquired in 1997 and the anniversary dates are November 20, 1999 and February 10, 2000. The property is divided into 7 separate, noncontiguous blocks with the three largest blocks having had worked performed on them during the term of the

permit. These blocks have been labeled "D," "E," and "F" with Block "D" being the most southern, Block "E" central, and Block "F" the most northern.

2.1 Block "D"

Expenditures totaling $810,727.18 have allowed Ashton to retain a total of 162,145 hectares. Of this, Ashton will maintain a total of 9216 hectares over 7 permits with all excess expenditures being applied to Block "G" of the Athabasca Property. Block "G" of the Athabasca property lies adjacent to Block "D" of the Lesser Slave Property. All retained permits will be amended to reflect a reduction in area while the balance of the permits in this block will be relinquished.

2.2 Block "E"

Expenditures totaling $38,304.47 have allowed Ashton to retain a total of 7660 hectares. Of this, Ashton will retain 7424 hectares over 2 permits with the excess being applied as a credit towards future assessment periods. All retained permits will be amended to reflect a reduction in area while the balance of the permits in this block will be relinquished.

2.3 Block "F"

Expenditures totaling $ 2,899.19 have allowed Ashton to retain 579 hectares. Regardless of this, however, all permits on this block will be relinquished.

3.0 ATHABASCA PROPERTY

The Athabasca Property comprises 325 permits for a total of 2,949,469.94 hectares. The permits were acquired in 1997 and anniversary dates are on October 17, 1999 and October 24, 1999. The property is divided into 5 separate, noncontiguous blocks with the three largest having had work performed on them during the term of the permit. These blocks have been labeled "G", "H", "I" with Block "G" being the most southern, Block "H" central, and Block "I" the most northern.

3.1 Block "G"

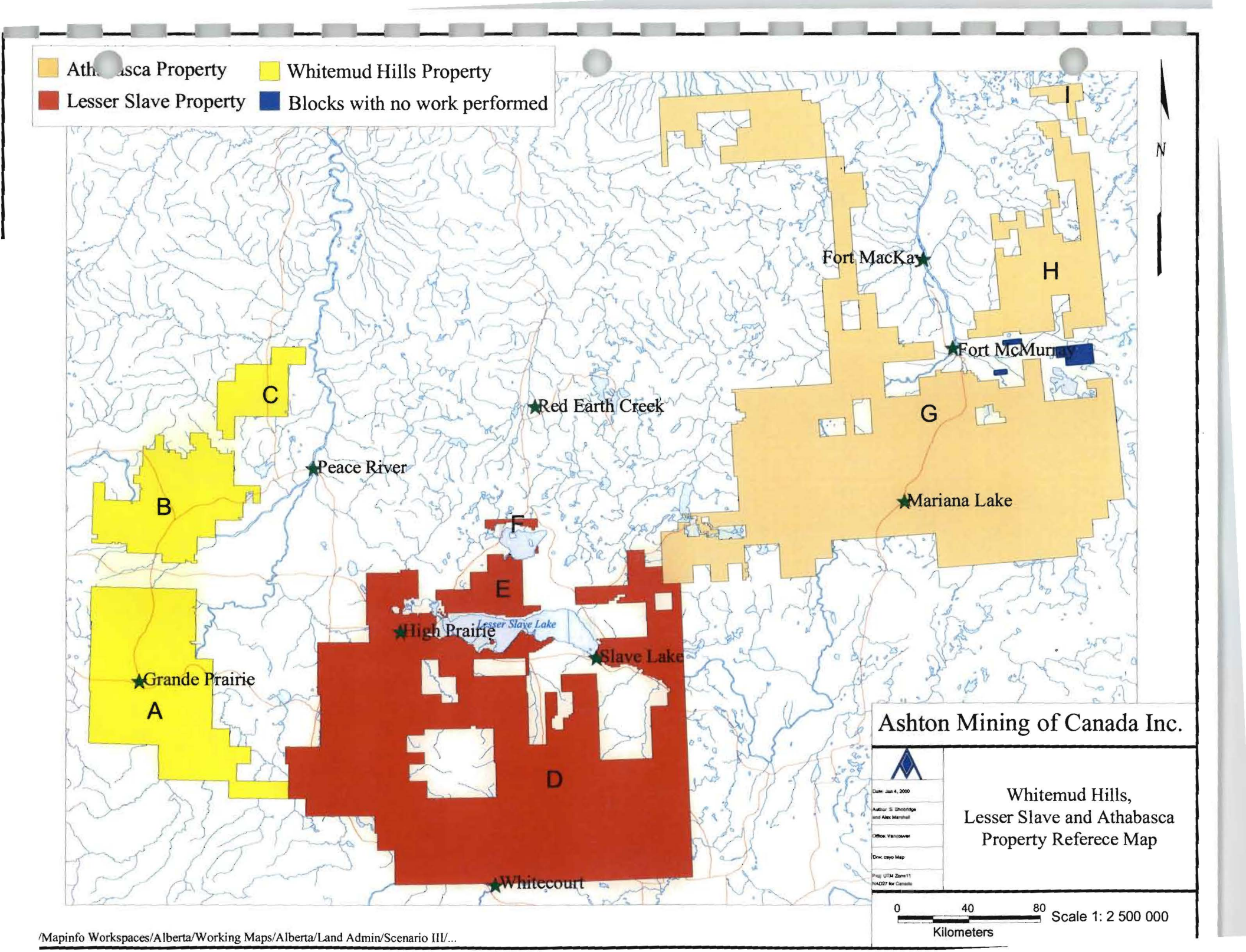
Athabasca Block "G" is contiguous to both Lesser Slave Block "D" and Whitemud Hills Block "A". Expenditures totaling $1,764,426 have allowed Ashton to retain a total of 352,885 hectares. Of this, Ashton will retain 352,624 hectares over 50 permits with the excess being applied to permit 9397100011. Some of the retained permits will remain intact while others will be amended to reflect a reduction in area. The balance of the permits in this block will be relinquished.

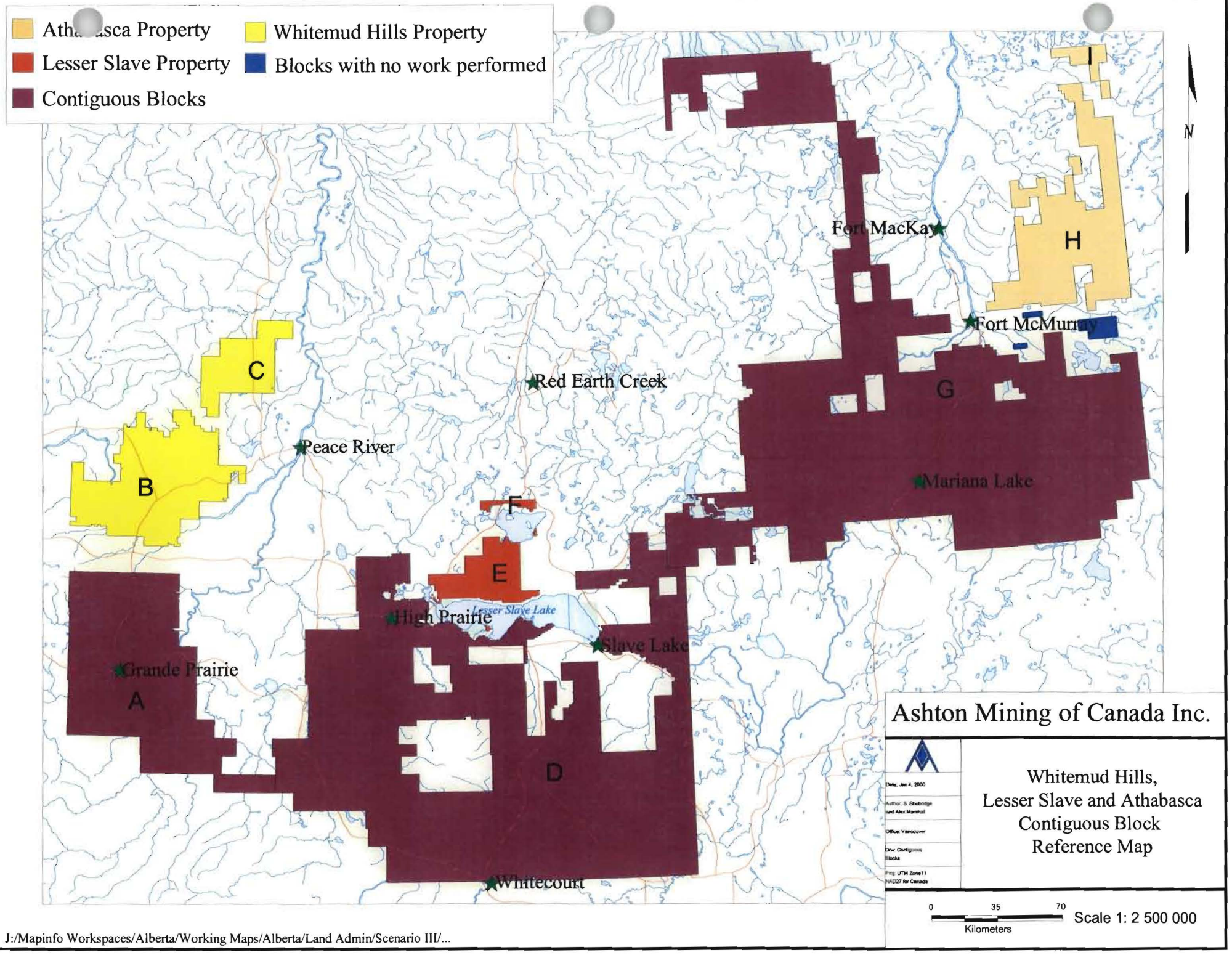
3.2 Block - "H"

Expenditures totaling $161,435.06 have allowed Ashton to retain a total of 32,287 hectares. Ashton will retain 32,256 hectares over 6 permits with the excess being applied as a credit towards future assessment periods. Some of the retained permits will remain intact while others will be amended to reflect a reduction in area. The balance of the permits in this block will be relinquished.

3.3 Block "I"

Expenditures totaling $21,147.66 have allowed Ashton to retain a total of 4,229 hectares. Of this, Ashton will be maintaining 4096 hectares over 1 permit with the excess being applied as a credit towards future assessment periods. All retained permits will be amended to reflect a reduction in area while the balance of the permits in this block will be relinquished.


Athabasca Property
Whitemud Hills Property
Lesser Slave Property
Blocks with no work performed
N
A
B
C
D
E
F
G
H
I
Fort MacKay
Fort McMurray
Red Earth Creek
Peace River
Mariana Lake
High Prairie
Lesser Slave Lake
Slave Lake
Grande Prairie
Whitecourt
Ashton Mining of Canada Inc.
Whitemud Hills,
Lesser Slave and Athabasca
Property Referece Map
0
40
80
Kilometers
Scale 1: 2 500 000
/Mapinfo Workspaces/Alberta/Working Maps/Alberta/Land Admin/Scenario III/...


Athabasca Property
Lesser Slave Property
Contiguous Blocks
Whitemud Hills Property
Blocks with no work performed
N
Fort MacKay
Fort McMurray
Red Earth Creek
Peace River
Mariana Lake
High Prairie
Lesser Slave Lake
Slave Lake
Grande Prairie
Whitecourt
A
B
C
D
E
F
G
H
I
Ashton Mining of Canada Inc.
Whitemud Hills,
Lesser Slave and Athabasca
Contiguous Block
Reference Map
0
35
70
Kilometers
Scale 1: 2 500 000
J:/Mapinfo Workspaces/Alberta/Working Maps/Alberta/Land Admin/Scenario III/...

Contiguous Permits - Blocks "A", "D", "G"

Total Expenditures

	Oct. 97 to Sept. 99 Total $
Whitemud Hills Block - "A"	$ 11,480.75
Lesser Slave Block - "D"	$ 810,727.18
Athabasca Block - "G"	$ 988,298.98
Total Expenditure	$ 1,810,506.91

Area Possible to Retain:

39.291 ***Townships***

362,101.38 ***Hectares***

Whitemud Hills, Lesser Slave, Athabasca Properties

Total Expenditures

Property		**Total $**
Whitemud Hills	$	29,632.87
Lesser Slave	$	851,930.84
Athabasca	$	1,170,881.70
Total Expenditure		
	$	2,052,445.41

Area Possible to Retain:	$	44.54	***Townships***
	$	410,489.08	***Hectares***

Whitemud Hills Property - Block "A"

Property Cost Breakdown

Geophysics, Sampling, Operational Costs

	Oct. 97 to Sept. 99 Total $
Airborne Geophysics	$ -
Detailed Geophysics	$ -
Ground Geophysics	$ -
HM Sampling	$ 5,666.04
HM Processing	$ 2,166.31
HM Observing	$ 2,576.34
Operational Costs	$ 1,072.07
Total Expenditure	$ 11,480.75

Area Possible to Retain: 0.249 ***Townships***

2296.15 ***Hectares***

Whitemud Hills Property - Block "B"

Property Cost Breakdown

Geophysics, Sampling, Operational Costs

	Oct. 97 to Sept. 99 Total $
Airborne Geophysics	$ -
Detailed Geophysics	$ -
Ground Geophysics	$ -
HM Sampling	$ 4,249.53
HM Processing	$ 1,624.73
HM Observing	$ 1,932.25
Operational Costs	$ 804.05
Total Expenditure	$ 8,610.56

Area Possible to Retain: 0.187 ***Townships***

1,722.11 ***Hectares***

Whitemud Hills Property - Block "C"

Property Cost Breakdown

Geophysics, Sampling, Operational Costs

	Oct. 97 to Sept. 99 Total $
Airborne Geophysics	$ 552.00
Detailed Geophysics	$ 251.00
Ground Geophysics	$ 128.00
HM Sampling	$ 4,249.53
HM Processing	$ 1,624.73
HM Observing	$ 1,932.25
Operational Costs	$ 804.05
Total Expenditure	$ 9,541.56

Area Possible to Retain: 0.207 ***Townships***

1,908.31 ***Hectares***

Lesser Slave Property - Block "D"

Property Cost Breakdown

Geophysics, Sampling, Operational Costs

		Oct. 97 to Sept. 99 Total $
Airborne Geophysics	$	659,033.46
Detailed Geophysics	$	17,711.00
Ground Geophysics	$	10,089.00
HM Sampling	$	69,705.05
HM Processing	$	21,371.66
HM Observing	$	27,340.86
Operational Costs	$	5,476.15
Total Expenditure	$	810,727.18

Area Possible to Retain: 17.594 ***Townships***

162,145.44 ***Hectares***

Lesser Slave Property - Block "E"

Property Cost Breakdown

Geophysics, Sampling, Operational Costs

		Oct. 97 to Sept. 99 Total $
Airborne Geophysics	$	31,734.35
Detailed Geophysics	$	-
Ground Geophysics	$	-
HM Sampling	$	3,696.48
HM Processing	$	1,133.35
HM Observing	$	1,449.89
Operational Costs	$	290.40
Total Expenditure	$	38,304.47

Area Possible to Retain: 0.831 ***Townships***

7,660.89 ***Hectares***

Lesser Slave Property - Block "F"

Property Cost Breakdown

Geophysics, Sampling, Operational Costs

	Oct. 97 to Sept. 99 Total $
Airborne Geophysics	$ 2,899.19
Detailed Geophysics	$ -
Ground Geophysics	$ -
HM Sampling	$ -
HM Processing	$ -
HM Observing	$ -
Operational Costs	$ -
Total Expenditure	$ 2,899.19

Area Possible to Retain: 0.063 ***Townships***

579.84 ***Hectares***

Athabasca Property - Block "G"

Property Cost Breakdown

Geophysics, Sampling, Operational Costs

	Oct. 97 to Sept. 99 Total $
Airborne Geophysics	$ 788,614.44
Detailed Geophysics	$ 13,990.35
Ground Geophysics	$ 52,130.00
HM Sampling	$ 86,083.96
HM Processing	$ 18,680.58
HM Observing	$ 18,083.72
Operational Costs	$ 10,715.93
Total Expenditure	$ 988,298.98

Area Possible to Retain: 21.447 ***Townships***

197,659.80 ***Hectares***

Athabasca Property - Block "H"

Property Cost Breakdown

Geophysics, Sampling, Operational Costs

		Oct. 97 to Sept. 99
		Total $
Airborne Geophysics	$	130,423.50
Detailed Geophysics	$	2,072.65
Ground Geophysics	$	-
HM Sampling	$	18,651.53
HM Processing	$	4,047.46
HM Observing	$	3,918.14
Operational Costs	$	2,321.79
Total Expenditure	$	161,435.06

Area Possible to Retain:

3.503 ***Townships***

32,287.01 ***Hectares***

Athabasca Property - Block "I"

Property Cost Breakdown

Geophysics, Sampling, Operational Costs

		Oct. 97 to Sept. 99 Total $
Airborne Geophysics	$	-
Detailed Geophysics	$	-
Ground Geophysics	$	-
HM Sampling	$	13,629.96
HM Processing	$	2,957.76
HM Observing	$	2,863.26
Operational Costs	$	1,696.69
Total Expenditure	$	21,147.66

Area Possible to Retain: 0.459 ***Townships***

4,229.53 ***Hectares***

Whitemud Hills Block - "A" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100401	6	01	068	1-36	9,216.00	Relinquished
9397100402	6	02	068	1-36	9,216.00	Relinquished
9397100403	6	03	068	1-36	9,216.00	Relinquished
9397100404	6	04	068	1-36	9,216.00	Relinquished
9397100405	6	05	068	1-36	9,216.00	Relinquished
9397100406	6	06	068	1-36	9,216.00	Relinquished
9397100407	6	07	068	1-36	9,216.00	Relinquished
9397100408	6	08	068	1-36	9,216.00	Relinquished
9397100409	6	02	069	1-36	9,216.00	Relinquished
9397100410	6	03	069	1-36	9,216.00	Relinquished
9397100411	6	04	069	1-36	9,216.00	Relinquished
9397100412	6	05	069	1-36	9,216.00	Relinquished
9397100413	6	06	069	1-36	9,216.00	Relinquished
9397100414	6	07	069	1-36	9,216.00	Relinquished
9397100415	6	08	069	1-36	9,216.00	Relinquished
9397100416	6	02	070	1-36	9,216.00	Relinquished
9397100417	6	03	070	1-36	9,216.00	Relinquished
9397100418	6	04	070	1-18; 19NP,SEP,SW; 20P; 21P; 22-24; 25S,NWP,NE; 26S,NP; 27NP,SE,SWP; 28SEP; 34NP; 35NP; 36E,WP Portion(s) lying outside Bear River Proposed Natural Area.	6,660.00	Relinquished

Whitemud Hills Block - "A" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100419	6	05	070	1-19; 20SW,L1,L2,L7,L8S,L8NW,L8NESW,L9NESE,L9NENW,L9NENE,L10SW,L10SESE,L10SESW,L10NWSW,L10NENE,L11S, L11NW,L11NESE,L11NESW,L11NENW,L12,L13S,L13NW,L13NESE,L13NESW,L14SWSE,L14SWSW,L14SWNW,L14NENW, L14NENE,L15,L16; 21; 22; 23S,NW,NEP; 24P; 29NWP; 30; 31EP,W; 32SWP Portions lying outside Bear River Proposed Natural Area.	6,479.00	Relinquished
9397100420	6	06	070	1-13; 14S,NWP,NE; 15S,NP; 16-22; 23N,SE,SWP; 24-36 Portion(s) lying outside O'Brien Provincial Park	9,149.00	Relinquished
9397100421	6	07	070	1-36	9,216.00	Relinquished
9397100422	6	08	070	1-16; 17S,NE; 18; 19; 20N,SW; 21-23; 24N,SW; 25-36	9,024.00	Relinquished
9397100423	6	02	071	1; 2E; 3-36	9,088.00	Relinquished
9397100424	6	03	071	1-36	9,216.00	Relinquished
9397100425	6	04	071	1; 2; 3SP,N; 4NP,SEP; 8NP,SEP; 9N,SE,SWP; 10-16; 17N,SE,SWP; 18SP,N; 19-36 Portion(s) lying outside Bear River Proposed Natural Area.	7,926.00	Relinquished
9397100426	6	05	071	4NP; 5W; 6; 7S,NE; 8-10; 11SP,NW,NEP; 12NW; 13-17; 18E; 19E; 20-29; 30E; 31E; 32-36 Portion(s) lying outside Bear River Proposed Natural Area.	7,210.00	Relinquished
9397100427	6	06	071	1-9; 10S,NW; 11S; 12S; 16-20; 21S,NW; 27NW; 28N,SW; 29N,SW; 30-33; 34W	5,824.00	Relinquished

Whitemud Hills Block - "A" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100428	6	07	071	1-36	9,216.00	Relinquished
9397100429	6	08	071	1-36	9,216.00	Relinquished
9397100430	6	02	072	1-36	9,216.00	Relinquished
9397100431	6	03	072	1-36	9,216.00	Relinquished
9397100432	6	04	072	1-22; 23S,NE; 24; 25; 26N,SE; 27-36	9,088.00	Relinquished
9397100433	6	05	072	1-36	9,216.00	Relinquished
9397100434	6	06	072	1N,SE; 2N,SW; 3-36	9,088.00	Relinquished
9397100435	6	07	072	1-5; 6E,WP; 7-36 Portion(s) lying outside Saskatoon Island Provincial Park	9,200.00	Relinquished
9397100436	6	08	072	1P; 2-36 Portion(s) lying outside Saskatoon Island Provincial Park	9,130.00	Relinquished
9397100437	6	03	073	1-8; 9N,SW; 10W; 11-13; 14N,SW; 15-34; 35SW	8,512.00	Relinquished
9397100438	6	04	073	1-36	9,216.00	Relinquished
9397100439	6	05	073	1-36	9,216.00	Relinquished
9397100440	6	06	073	1-36	9,216.00	Relinquished
9397100441	6	07	073	1-36	9,216.00	Relinquished
9397100442	6	08	073	1-36	9,216.00	Relinquished
9397100443	6	03	074	1-11; 12E; 13; 14N,SW; 15-26; 27N,SE; 28-36	8,960.00	Relinquished
9397100444	6	04	074	1-36	9,216.00	Relinquished
9397100445	6	05	074	1-25; 26N,SE; 27-36	9,152.00	Relinquished
9397100446	6	06	074	1-26; 27N,SE; 28-36	9,152.00	Relinquished
9397100447	6	07	074	1-36	9,216.00	Relinquished
9397100448	6	08	074	1-36	9,216.00	Relinquished
9397100449	6	03	075	1-23; 24S,NW; 25-33; 34S; 35E; 36S	8,768.00	Relinquished
9397100450	6	04	075	1-36	9,216.00	Relinquished
9397100451	6	05	075	1-36	9,216.00	Relinquished
9397100452	6	06	075	1-36	9,216.00	Relinquished

Whitemud Hills Block - "A" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100453	6	07	075	1-36	9,216.00	Relinquished
9397100454	6	08	075	1-36	9,216.00	Relinquished
9397100455	6	03	076	1; 2S,NE; 3S,NE; 4-9; 10S,NW; 11; 12; 13S,NE; 14; 15N,SE; 16S,NE; 17; 18S; 19-23; 24S,NE; 25; 26S,NW; 27-36	8,576.00	Relinquished
9397100456	6	04	076	1-12; 13S,NW; 14-23; 24N,SE; 25-36	9,088.00	Relinquished
9397100457	6	05	076	1-36	9,216.00	Relinquished
9397100458	6	06	076	1-36	9,216.00	Relinquished
9397100459	6	07	076	1-15; 16S; 17S,NW; 18N; 19-23; 24W,SEP; 25; 26; 27N,SW; 28; 29; 30E; 31-36 Portion(s) designated as Burnt River on a Township Plan approved and confirmed by the Surveyor General at Ottawa on 1920/11/22	8,577.00	Relinquished
9397100460	6	08	076	1-12; 13S,NW; 14-23; 24S; 26-36	8,768.00	Relinquished
9397110002	5	24	065	1-36	9,216.00	Relinquished
9397110003	5	25	065	1-36	9,216.00	Relinquished
9397110004	5	26	065	1-36	9,216.00	Relinquished
9397110005	5	27	65	1; 2; 3E,WF; 10E,WF; 11-14; 15E,WF; 22E,WF; 23-26; 27E,WF; 34E,WF; 35; 36	8,088.00	Relinquished
	5	27	66	1; 2; 3E,WF; 10E,WF; 11-14; 15E,WF; 22E,WF; 23-26; 27E,WF; 34E,WF; 35; 36		
9397110008	6	01	066	1-36	9,216.00	Relinquished
9397110009	6	02	066	1-36	9,216.00	Relinquished
9397110010	6	03	066	1-36	9,216.00	Relinquished
9397110011	6	04	066	1-36	9,216.00	Relinquished
9397110015	5	26	067	1-36	9,216.00	Relinquished

Whitemud Hills Block - "A" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397110016	5	27	067	1; 2EF; 11EF; 12; 13; 14EF; 23EF; 24; 25; 26EF; 35EF; 36	1,949.00	Relinquished
9397110017	6	01	067	1-36	9,216.00	Relinquished
9397110018	6	02	067	1-36	9,216.00	Relinquished
9397110019	6	03	067	1-36	9,216.00	Relinquished
9397110020	6	04	067	1-36	9,216.00	Relinquished

74 ***permits***

Whitemud Hills Block - "B" Retained & Amended Permits

PERMIT NUMBER	CURRENT ANNIVERSARY DATE	M	RN	TWP	ORIGINAL AREA (ha)	AMEND PERMIT	NEW AREA (ha)	ASSESSMENT REQUIREMENT	EXPENDITURES $	EXCESS (DEFICIT)	ASSESSMENT PERIOD 1	NEXT ANNIVERSARY
9397100475	24-Oct-99	6	01	081	8,960.00	Relinquish Sections: 1 to 24, 25 SW SE NE, 26 to 32, 35, 36 SW	512.000	$ 2,560.00	$ 2,560.00	$ -	paid	24-Oct-01
9397100484	24-Oct-99	6	01	082	8,704.00	Relinquish Sections: 1, 2, 5 NW & SW, 6 to 8, 11 to 19, 20 SW SE NW, 21 to 23, 24 NE SE, 25 to 29, 30 NE NW SW, 31 SE, 32 to 36	1088.000	$ 5,440.00	$ 6,050.56	$ 610.56	paid	24-Oct-01
2	***permits***				17,664.00	***Total:***	1,600.00	$ 8,000.00	$ 8,610.56	$ 610.56		

Whitemud Hills Block - "B" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100461	6	03	078	19; 20; 21NE; 22N; 23; 24; 26; 27SE; 28-35	8,192.00	Relinquished
	6	04	078	19-36		
9397100462	6	03	079	1-36	9,216.00	Relinquished
9397100463	6	04	079	1-36	9,216.00	Relinquished
9397100464	6	05	079	1-21; 22SE; 23; 24; 25NW; 26; 27SE; 28SE; 29-33; 34N; 35N,SE; 36	8,256.00	Relinquished
9397100465	6	06	079	1-36	9,216.00	Relinquished
9397100466	6	07	079	19; 20N; 21; 22N; 23-36	8,128.00	Relinquished
	6	08	079	19-21; 22S,NE; 23-28; 29S; 30S; 33-36		
9397100467	6	02	080	1-36	9,216.00	Relinquished
9397100468	6	03	080	1-3; 4S,NWP,NE; 5S,NW,NEP; 6; 7; 8N,SEP,SW; 9N,SE,SWP; 10-36 Portion(s) lying outside surrendered Indian Reserve No. 152A	9,105.00	Relinquished
9397100469	6	04	080	1; 2S,NW,NEP; 3-6; 7W Portion(s) lying outside Dunvegan Proposed Natural Area	8,877.00	Relinquished
	6	04	080	7W, SEP Portion(s) lying outside Lot 11, Group 1 as shown on a Settlement Plan of the Dunvegan Settlement approved and confirmed by the Surveyor General at Ottawa on 1910/08/24		
	6	04	080	7W, SEP,NEP; 8S Portion(s) lying outside Lot 10, Group 1 as shown on a Settlement Plan of the Dunvegan Settlement approved and confirmed by the Surveyor General at Ottawa on 1910/08/24		
	6	04	080	8S,NWP,NE; 9; 10S Portion(s) lying outside Dunvegan Provincial Park		

Whitemud Hills Block - "B" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	6	04	080	10S,NWP,NE; 11SP; 12-14; 15N,SE; 16-36 Portion(s) lying outside Dunvegan Proposed Natural Area		
9397100470	6	05	080	1-12; 13S,NE; 14-36	9,152.00	Relinquished
9397100471	6	06	080	1-5; 6S; 7-36	9,088.00	Relinquished
9397100472	6	07	080	1-3; 4N,SE; 5-8; 9S,NW; 10-15; 16NE; 17; 18; 19N,SE; 20-36	8,832.00	Relinquished
9397100473	6	08	080	1-12; 13SW; 14-16; 17S,NE; 18-23; 24N,SE; 25-27; 28E; 29-36	8,768.00	Relinquished
9397100474	5	26	081	1SW; 2S,NW; 3; 4EF; 9EF; 10-15; 16EF; 21EF; 22-27; 28EF; 33EF; 34-36	8,004.00	Relinquished
	5	26	082	1-3; 4EF; 9EF; 10-15; 16EF; 21EF; 22-24		
9397100476	6	02	081	1-26; 27N,SW; 28-36	9,152.00	Relinquished
9397100477	6	03	081	1-30; 31S,NP; 32S,NP; 33S,NP; 34S,NP; 35; 36 Portion(s) lying outside surrendered Beaver Indian Reserve No. 152	9,016.00	Relinquished
9397100478	6	04	081	1-34; 35S,NP; 36S,NP Portion(s) lying outside surrendered Beaver Indian Reserve No. 152	9,116.00	Relinquished
9397100479	6	05	081	1-36	9,216.00	Relinquished
9397100480	6	06	081	1-27; 28S,NW; 29N,SE; 32E; 33-36	8,968.00	Relinquished
	6	06	82	1; 2		
9397100481	6	06	081	30SEP,NWP,NE; 31N,SE,SWP Portion(s) lying outside Fourth Creek Natural Area	8,764.00	Relinquished
	6	07	081	1-24; 26L3,L4; 27W; 28-33; 34N,SW; 35N,L6-L8; 36N,L5-L8		
9397100482	6	08	081	1-36	9,216.00	Relinquished
9397100483	5	25	082	1; 2; 3E; 5WP; 6; 7; 8WP; 10E; 11-14; 15E; 17WP; 18; 19; 20SP,N; 21NP,SWP; 22E,NWP; 23-36 Portion(s) lying outside Duncans Indian Reserve No. 151A	8,945.00	Relinquished

Whitemud Hills Block - "B" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	5	26	082	25-27; 28EF; 33EF; 34-36		
9397100485	6	02	082	1-18; 20-33; 34N,SE; 35; 36	8,896.00	Relinquished
9397100486	6	03	082	1; 2; 11-14; 15NP; 16NP; 17NP; 18NP; 19-23; 24W; 25-36 Portion(s) lying outside surrendered Beaver Indian Reserve No. 152	9,044.00	Relinquished
	6	03	083	1-11		
9397100487	6	04	082	3-10; 15-17; 18N,SE; 19-22; 27; 28; 34; 35NP; 36NP Portion(s) lying outside surrendered Beaver Indian Reserve No. 152	8,494.00	Relinquished
	6	04	083	1-4; 9-18		
9397100488	6	05	082	1-36	9,216.00	Relinquished
9397100489	6	05	083	3-12; 14-18	9,152.00	Relinquished
	6	06	082	11-14; 23; 24; 25E; 26N,SE; 35; 36S		
	6	06	083	1-4; 9-16		
9397100490	6	08	082	3-10; 15-22; 27-34	6,144.00	Relinquished
9397100491	6	01	083	1S,NE; 2; 3; 4S,NE; 5N,SW; 6-11; 12N,SE; 13; 14; 15S,NW; 16-23; 24N,SE; 25-36	8,832.00	Relinquished
9397100492	6	02	083	1-29; 30N; 31-36	9,088.00	Relinquished
9397100493	6	03	083	12-20; 21S,NW; 22S; 23; 24; 25N; 26NE; 27N,SE; 28N,SE; 29; 30N,SE; 31-33; 34SE; 35SW; 36	9,024.00	Relinquished
	6	04	083	19-25; 26NE; 27-29; 31NW; 32W; 33S,NE; 34; 35; 36N,SW		
9397100494	6	05	083	13; 19; 20; 21SE; 22N,SE; 23-36	9,216.00	Relinquished
	6	05	084	3-10; 15-18		
	6	06	083	23-26; 35; 36		
9397100495	6	01	084	1-31; 36	8,704.00	Relinquished
	6	02	084	1; 12		

Whitemud Hills Block - "B" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100496	6	02	084	2-11; 13-36	9,216.00	Relinquished
	6	03	084	1; 12		
9397100497	6	03	084	2-11; 13-18; 21-23; 24W; 25-28; 34-36	8,896.00	Relinquished
	6	03	085	1; 11; 12		
	6	04	084	1N,SE; 2N; 11-14		
9397100498	6	04	084	3S,NE; 4S; 5; 6; 7N,SE; 8; 9; 10E; 15; 16SW; 17S; 18-31; 32W; 33; 34	9,152.00	Relinquished
	6	05	084	1; 2; 11-14; 23-26; 36		
9397100499	6	05	084	19-22; 27-35	8,960.00	Relinquished
	6	05	085	1-3; 10-15; 22-27		
	6	06	084	1; 12; 13; 24; 25; 36		
	6	06	085	1		
9397100501	6	02	085	1-10; 15-22; 28-33	9,216.00	Relinquished
	6	03	085	13-15; 22-27; 34-36		

38 ***permits***

Whitemud Hills Block - "C" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100500	6	01	085	25-28; 33-36	9,216.00	Relinquished
	6	01	086	1-4; 7-24; 28-33		
9397100502	6	01	086	25-27; 34-36	9,216.00	Relinquished
	6	01	087	1-30		
9397100506	6	01	087	31-36	9,216.00	Relinquished
	6	01	088	2-11; 14-23; 26-35		
9397100507	5	23	088	1-36	9,216.00	Relinquished
9397100508	5	24	088	5-36	8,960.00	Relinquished
	5	25	088	1; 12; 13		
9397100509	5	24	089	1-12	9,010.00	Relinquished
	5	25	088	23-26; 35; 36		
	5	25	089	1-12; 15-18		
	5	26	089	1EF; 12EF; 13EF		
9397100511	5	23	089	1-36	9,216.00	Relinquished
9397100512	5	24	089	13-29; 32-36	5,632.00	Relinquished
9397100513	5	24	089	30; 31	5,938.00	Relinquished
	5	25	089	13; 14; 19-36		
	5	26	089	24EF; 25EF; 36EF		

9 **permits**

Whitemud Hills Block -"C" Retained & Amended Permits

PERMIT NUMBER	CURRENT ANNIVERSARY DATE	M	RN	TWP	ORIGINAL AREA (ha)	AMEND PERMIT	NEW AREA (ha)	ASSESSMENT REQUIREMENT $	EXPENDITURES $	EXCESS (DEFICIT)	ASSESSMENT PERIOD	NEXT ANNIVERSARY
9397100503	24-Oct-99	5	23	087	8,896.00	Relinquish Sections: 1 to 6, 7 NE & SE, 8, 9, 10 SW, SE, NE, 11, 12 SW SE, 13, 14, 15 NW NE,16, 17, 18 NE SE, 19 to 36	256.00	$ 1,280.00	$ 1,376.93	$ 96.93	paid	24-Oct-01
9397100504	24-Oct-99	5	24	087	9,152.00	Relinquish Sections: 1 to 11, 12 NW & SW, 13 NW & SW, 14 to 17, 18 NE & SE, 19 SE, 20 NW & SW, 21 NE & SE 22 to 27, 28 SW, 29, 30 SW & SE, 31 SW SE NE, 32 SW, 34 SE, 35, 36	768.00	$ 3,840.00	$ 3,936.93	$ 96.93	paid	24-Oct-01
		5	24	088		Relinquish Sections: 1 to 4						
9397100505	24-Oct-99	5	25	087	9,199.00	Relinquish Sections: 1 to 12, 13 NW & SW, 14 NE NW SW, 15, 16 SE SW NW, 17 18 SW, 19, 20 SW SE NW, 21 NE NW SW, 22 SE NW, 23, 24 NW & SW, 25, 26, 27 NW NE SW, 28 to 36	256.00	$ 1,280.00	$ 1,376.93	$ 96.93	paid	24-Oct-01
		5	26	087		Relinquish: 1EF, 12EF, 13EF, 24EF, 25EF, 36EF						
9397100510	24-Oct-99	5	25	088	9,066.00	Relinquish Sections: 2 to 11, 14 to 22 27 to 30, 32 to 34	256.00	$ 1,280.00	$ 1,376.93	$ 96.93	paid	24-Oct-01

Whitemud Hills Block -"C" Retained & Amended Permits

PERMIT NUMBER	CURRENT ANNIVERSARY DATE	M	RN	TWP	ORIGINAL AREA (ha)	AMEND PERMIT	NEW AREA (ha)	ASSESSMENT REQUIREMENT $	EXPENDITURES $	EXCESS (DEFICIT)	ASSESSMENT PERIOD	NEXT ANNIVERSARY
		5	26	088		Relinquish: 1EF, 12EF, 13EF, 24 EF, 25EF, 36EF						
		6	01	088		Relinquish Sections: 1, 12, 13, 24, 25, 36						
9397100514	24-Oct-99	5	22	090	9,216.00	Relinquish Sections: 1 to 30, 31 NE & SE, 32 to 36	128.00	$ 640.00	$ 736.93	$ 96.93	paid	24-Oct-01
9397100515	24-Oct-99	5	23	090	9,216.00	Relinquish Sections: 1 to 35, 36 NW & SW	128.00	$ 640.00	$ 736.93	$ 96.93	paid	24-Oct-01
6	***permits***				54,745.00	***Total:***	1,792.00	$ 8,960.00	$ 9,541.56	$ 581.56		

Lesser Slave Block -"D" Retained & Amended Permits

PERMIT NUMBER	CURRENT ANNIVERSARY DATE	M	RN	TWP	ORIGINAL AREA (ha)	AMEND PERMIT	NEW AREA (ha)	ASSESSMENT REQUIREMENT $	EXPENDITURES $	EXCESS (DEFICIT)	ASSESSMENT PERIOD 1	NEXT ANNIVERSARY
9397110001	20-Nov-99	5	23	065	9,216.00	Relinquish Sections: 1, 2, 5 to 8, 11 to 36	1,024.00	$ 5,120.00	$ 5,120.00	$ -	paid	20-Nov-01
9397110072	20-Nov-99	5	05	076	8,960.00	Relinquish Sections: 2 to 26, 29 to 32, 35, 36	1,024.00	$ 5,120.00	$ 5,120.00	$ -	paid	20-Nov-01
9397110073	20-Nov-99	5	06	076	9,216.00	Relinquish Sections: 1 to 12, 15 to 20, 25, 26 29 to 36	2,048.00	$ 10,240.00	$ 10,240.00	$ -	paid	20-Nov-01
9398020080	10-Feb-00	5	10	064	9,216.00	Relinquish Sections: 1 to 14, 17 to 20, 23 to 36	1,024.00	$ 5,120.00	$ 5,120.00	$ -	paid	10-Feb-02
9398020152	10-Feb-00	5	06	069	9,216.00	Relinquish Sections: 1 to 18, 21 to 28, 31 to 36	1,024.00	$ 5,120.00	$ 5,120.00	$ -	paid	10-Feb-02
9398020154	10-Feb-00	5	08	069	8,960.00	Relinquish Sections: 19 to 21, 27 to 30, 33, 34	512.00	$ 2,560.00	$ 2,560.00	$ -	paid	10-Feb-02
		5	08	070		Relinquish Sections: 3, 4, 9, 10, 15 to 22, 27 to 34	1,536.00	$ 7,680.00	$ 7,680.00	$ -	paid	10-Feb-02
9398020172	10-Feb-00	5	07	071	9,216.00	Relinquish Sections: 1 to 9, 12, 13, 16 to 36	1,024.00	$ 5,120.00	$ 5,120.00	$ -	paid	10-Feb-02
7	***permits***				64,000.00	***Total:***	9,216.00	$ 46,080.00	$ 46,080.00	$ -		

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397110006	5	22	066	1-24; 25NP,SEP,SW; 26S,NP; 27-34; 35P; 36SP,NWP,NE Portion(s) lying outside Little Smoky-Iosegun Proposed Natural Area.	8,853.00	Relinquished
9397110007	5	23	066	1-36	9,216.00	Relinquished
9397110012	5	21	067	1-5; 6SP,NWP,NE; 7-36 Portion(s) lying outside Little Smoky-Iosegun Proposed Natural Area.	9,156.00	Relinquished
9397110013	5	22	067	1W,NEP; 2-36 Portion(s) lying outside Little Smoky-Iosegun Proposed Natural Area.	9,095.00	Relinquished
9397110014	5	23	067	1-36	9,216.00	Relinquished
9397110021	5	20	068	1-36	9,216.00	Relinquished
9397110022	5	21	068	1-36	9,216.00	Relinquished
9397110023	5	18	069	1-36	9,216.00	Relinquished
9397110024	5	19	069	1-36	9,216.00	Relinquished
9397110025	5	20	069	1-36	9,216.00	Relinquished
9397110026	5	21	069	1-36	9,216.00	Relinquished
9397110027	5	16	070	1-36	9,216.00	Relinquished
9397110028	5	17	070	1-36	9,216.00	Relinquished
9397110029	5	18	070	1-36	9,216.00	Relinquished
9397110030	5	19	070	1-36	9,216.00	Relinquished
9397110031	5	20	070	1-36	9,216.00	Relinquished
9397110032	5	21	070	1-36	9,216.00	Relinquished
9397110033	5	13	071	1-36	9,216.00	Relinquished
9397110034	5	16	071	1-36	9,216.00	Relinquished
9397110035	5	17	071	1-36	9,216.00	Relinquished
9397110036	5	18	071	1-36	9,216.00	Relinquished
9397110037	5	19	071	1-36	9,216.00	Relinquished
9397110038	5	20	071	1-36	9,216.00	Relinquished
9397110039	5	21	071	1-36	9,216.00	Relinquished
9397110040	5	13	072	1-36	9,216.00	Relinquished
9397110041	5	14	072	1-36	9,216.00	Relinquished

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397110042	5	16	072	1-36	9,216.00	Relinquished
9397110043	5	17	072	1-36	9,216.00	Relinquished
9397110044	5	18	072	1-36	9,216.00	Relinquished
9397110045	5	19	072	1-36	9,216.00	Relinquished
9397110046	5	20	072	1-36	9,216.00	Relinquished
9397110047	5	21	072	1-30; 31S,NE; 32-36	9,152.00	Relinquished
9397110048	5	11	073	1-13; 14NP,SE,SWP; 15SEP,L4P,L6P; 17SP,NWP; 18S,NW,NEP; 24NP,SE,SWP; 25SEP; 31; 32SP,NW,NEP Portion(s) lying outside Lesser Slave Lake	9,092.00	Relinquished
	5	11	074	5SP,NWP; 6S,NP Portion(s) lying outside Lesser Slave Lake		
	5	12	073	1-5; 8-11; 12S,NW,L9,L10,L16; 13N,SW,L1,L7,L8; 14; 15; 16NP,SE,SWP; 21SEP; 22NP,SE,SWP; 23S,NP; 24NP,SEP,SW; 36EP Portion(s) lying outside Driftpile Indian Reserve No. 150		
	5	12	074	1SP,NWP,NE Portion(s) lying outside Driftpile Indian Reserve No. 150		
	5	12	074	12SEP Portion(s) lying outside Lesser Slave Lake		
	5	12	074	12SWP Portion(s) lying outside Driftpile Indian Reserve No. 150 and lying outside Lesser Slave Lake		
9397110049	5	12	073	6; 7; 17NP,SEP,SW; 18; 19EP,W; 20SWP; 31SP,NWP Portion(s) lying outside Driftpile Indian Reserve No. 150	9,212.00	Relinquished
	5	13	073	1-31		
9397110050	5	14	073	1-36	9,216.00	Relinquished

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397110051	5	15	073	1-36	9,216.00	Relinquished
9397110052	5	16	073	1-36	9,216.00	Relinquished
9397110053	5	17	073	1-36	9,216.00	Relinquished
9397110054	5	18	073	1-36	9,216.00	Relinquished
9397110055	5	19	073	1-27; 28S; 29-36	9,088.00	Relinquished
9397110056	5	20	073	1-36	9,216.00	Relinquished
9397110057	5	21	073	1-36	9,216.00	Relinquished
9397110058	5	09	074	2SWP; 3SEP,SW; 4; 5; 7N; 8; 9; 18SE; 19SWP Portion(s) lying outside Lesser Slave Lake	4,002.00	Relinquished
	5	10	074	2; 3; 4S,NWP,NE; 5SP,NEP; 9SP,NEP; 10S,NWP,NE; 11-14; 15NP,SE,SWP; 22SEP; 23SP,NEP; 24NP,SEP,SW Portion(s) lying outside Lesser Slave Lake		
9397110059	5	13	073	32-34	9,108.00	Relinquished
	5	13	074	2SWP; 3SP,NWP; 4S,NW,NEP; 5-7; 8S,NP; 9SP,NWP; 17SWP; 18SP,NWP Portion(s) lying outside Lesser Slave Lake		
	5	14	074	1-6; 7SP; 8S,NP; 9-12; 13S Portion(s) lying outside Sucker Creek Indian Reserve No. 150A		
	5	14	074	13S,NP Portion(s) lying outside Little Grassy Proposed Natural Area and lying outside Lesser Slave Lake		
	5	14	074	14NP,SE,SWP Portion(s) lying outside Lesser Slave Lake		
	5	15	074	1-11; 12NP,SEP,SW; 17-19 Portion(s) lying outside Sucker Creek Indian Reserve No. 150A		
9397110060	5	14	075	6WP; 7WP; 18WP Portion(s) lying outside Sucker Creek Indian Reserve No. 150A	9,097.00	Relinquished

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	5	15	074	20-23; 24WP; 25WP; 26-35; 36WP Portion(s) lying outside Sucker Creek Indian Reserve No. 150A		
	5	15	075	1-4; 9-11; 12S,NE; 13; 14N,SE; 15-22; 23S,NW; 24SP; 26SW Portion(s) lying outside Buffalo Bay Wetlands for Tomorrow Project		
	5	16	075	13; 24W		
9397110061	5	16	074	1-36	9,216.00	Relinquished
9397110062	5	17	074	1-36	9,216.00	Relinquished
9397110063	5	18	074	1-36	9,216.00	Relinquished
9397110067	5	15	075	5-8	6,704.00	Relinquished
	5	16	075	1-12; 14-18; 19S,NW; 20S; 21S; 22; 23; 30W; 31N,SEP,SW Portion(s) lying outside Buffalo Bay Wetlands for Tomorrow Project		
9397110068	5	17	075	1-21; 22N,SW; 23; 24; 25E,WP; 27SW; 28-30; 31N; 32; 33W; 36SE,SWP,L9,L16 Portion(s) lying outside Jackpines Natural Area	7,681.00	Relinquished
9397110069	5	18	075	1-36	9,216.00	Relinquished
9397110070	5	03	076	1-36	9,216.00	Relinquished
9397110071	5	04	076	1-4; 7; 10-13; 17-36	7,424.00	Relinquished
9397110079	5	16	076	5W; 6; 7; 8NWP; 12WP Portion(s) lying outside Buffalo Bay Wetlands for Tomorrow Project	8,052.00	Relinquished
	5	16	076	12WP,SEP Portion(s) lying outside Buffalo Bay Wetlands for Tomorrow Project and lying outside Lot 89 of Big Prairie Settlement		

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	5	16	076	12WP,NEP; 13 Portion(s) lying outside Lot 89 of Big Prairie Settlement		
	5	16	076	14NP,SEP; 15NP; 16SP,NW,NEP; 17P; 18-21; 22N,SEP,SW; 23N,SE,SWP; 24-36 Portion(s) lying outside Buffalo Bay Wetlands for Tomorrow Project		
	5	16	077	1-6; 12		
9397110080	5	17	076	1; 2N; 3N; 4S,NW; 5-8; 9S; 10S,NE; 11-30; 31S,NWP,NE; 32-36 Portion(s) lying outside Winagami Lake Provincial Park	8,678.00	Relinquished
9397110081	5	18	076	1-24; 25S,NEP; 26WP,SE; 27-34; 35WP; 36EP Portion(s) lying outside Winagami Lake Provincial Park	8,667.00	Relinquished
9397110082	5	03	077	1-36	9,216.00	Relinquished
9397110086	5	16	077	7-11; 13-36	9,024.00	Relinquished
	5	16	078	1-6; 9SE		
9397110087	5	17	077	1-5; 6E,SWP; 7-19 Portion(s) lying outside Winagami Lake Provincial Park	9,074.40	Relinquished
	5	17	077	20SP,NWP,NE; 21-36 Portion(s) lying outside Heart River Dam Provincial Recreation Area		
9397110088	5	18	077	2WP; 3-36 Portion(s) lying outside Winagami Lake Provincial Park	8,803.00	Relinquished
9397110089	5	03	078	1-36	9,216.00	Relinquished
9398020003	5	01	060	1-36	9,216.00	Relinquished
9398020004	5	02	060	1-36	9,216.00	Relinquished
9398020005	5	03	060	1-36	9,216.00	Relinquished
9398020006	5	04	060	1-36	9,216.00	Relinquished
9398020007	5	05	060	1-36	9,216.00	Relinquished

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9398020008	5	06	060	1-31; 32N,SWP Portion(s) lying outside Bear Lake Natural Area; 33; 34; 35SEP Portion(s) lying outside Clear Lake Natural Area, SW, NE; 36	9,154.00	Relinquished
	5	06	061	3S		
9398020009	5	07	060	1-36	9,216.00	Relinquished
9398020010	5	8	060	1-36	9,216.00	Relinquished
9398020011	5	9	060	1-5; 6E,WP; 7-36 Portion(s) lying outside a watercourse sensitive habitat area	9,159.00	Relinquished
9398020012	5	10	060	Tract One: 1; 2; 3N,SW; 4; 8-36	9,152.00	Relinquished
	5	10	060	Tract Two: 5-7 ***(See note below for permitted substances)***		
9398020013	5	11	060	Tract One: 19-36	9,216.00	Relinquished
	5	11	060	Tract Two: 1-18 ***(See note below for permitted substances)***		
9398020014	5	12	060	Tract One: 5-8; 16; 17; 18S; 20-28; 29N,SE; 32-36	8,238.00	Relinquished
	5	12	060	Tract Two: 1; 2N,SEP,SW; 3; 4; 9-15 Portions(s) lying to the north of the right bank of the Athabasca River as shown on a Township Plan approved and confirmed by the Surveyor General at Ottawa on 1909/06/14 ***(See note below for permitted substances)***		
9398020015	5	13	060	1-12; 13S; 14S; 15-22; 27-33	9,216.00	Relinquished
	5	13	061	4-9; 17; 18		
9398020016	5	14	060	1-36	9,216.00	Relinquished
9398020017	5	15	060	1-36	9,216.00	Relinquished
9398020018	5	16	060	1-36	9,216.00	Relinquished

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9398020019	5	17	060	1-36	9,216.00	Relinquished
9398020020	5	01	061	1-36	9,216.00	Relinquished
9398020021	5	02	061	1S,NW; 2-36	9,152.00	Relinquished
9398020022	5	03	061	1-36	9,216.00	Relinquished
9398020023	5	04	061	1-36	9,216.00	Relinquished
9398020024	5	05	061	1-5; 6N,SW; 7-24; 28S,NW; 29; 30	8,128.00	Relinquished
	5	06	061	1; 2; 11; 12; 24N,SE; 25E		
9398020025	5	06	061	3N; 4S,NW; 5; 6; 31N,SW; 32NW; 33NE; 34W; 35SEP Portion(s) lying outside Zone 3 of the Athabasca River Sandhills Integrated Resource Plan	3,618.00	Relinquished
	5	07	061	1S; 2; 3; 11E; 12W; 14NW; 15NE; 22; 27S,NW; 33-35; 36SW		
9398020026	5	07	061	4; 5SE; 7W; 9NE; 18N,SW; 19-21; 28; 29; 31; 32	7,363.00	Relinquished
	5	08	061	1-3; 10-15; 22-27; 28N; 33; 34; 35S,NEP; 36 Portion(s) lying outside Goose Creek proposed natural area		
9398020027	5	08	061	4-9; 16-21; 28S; 29-32	9,216.00	Relinquished
	5	09	061	1-3; 10-15; 22-27; 28N; 33-36		
9398020028	5	09	061	4-9; 16-21; 28S; 29-32	9,216.00	Relinquished
	5	10	061	1-3; 10-15; 22-27; 28N; 33-36		
9398020029	5	10	061	4-9; 16-21; 28S; 29-32	9,216.00	Relinquished
	5	11	061	1-3; 10-15; 22-27; 28N; 33-36		
9398020030	5	11	061	4-9; 16; 17; 18S; 19NP; 20E,L3,L4,L6; 21; 28S; 29E,NWP,L3,L6; 30P; 31N,SEP; 32N,SE,SWP Portion(s) lying outside Carson-Pegasus Provincial Park	9,212.00	Relinquished

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	5	12	061	1-4; 9-12; 13S,NW; 14-16; 21-23; 24P; 25SP,NEP; 26-28; 33-36 Portion(s) lying outside Carson-Pegasus Provincial Park		
9398020031	5	12	061	5; 7; 8; 17-20; 29-32	9,216.00	Relinquished
	5	13	061	10-16; 19-36		
9398020032	5	14	061	1-36	9,216.00	Relinquished
9398020033	5	15	061	1-36	9,216.00	Relinquished
9398020034	5	16	061	1-36	9,216.00	Relinquished
9398020035	5	17	061	5-8; 17-20; 29-32	9,216.00	Relinquished
	5	17	062	3-10; 15-22; 27-34		
9398020036	5	01	062	1-36	9,216.00	Relinquished
9398020037	5	02	062	1-36	9,216.00	Relinquished
9398020038	5	03	062	1-36	9,216.00	Relinquished
9398020039	5	04	062	1-15; 16S,NW,NEP; 17S,NEP; 18S; 20SEP; 21SP; 22E,WP; 23-27; 28EP; 33N,SE Portion(s) lying outside Fort Assiniboine Sandhills Wildland Provincial Park	9,074.00	Relinquished
	5	04	062	34NP,SEP,SW; 35; 36 Portion(s) lying outside Vega natural area		
	5	05	061	25; 26S,NWP,NE; 35N,SE,SWP; 36E,WP Portion(s) lying outside Fort Assiniboine Sandhills Wildland Provincial Park		
	5	05	062	1; 2; 11S,NP; 12S,NWP,NE; 13SP; 35S Portion(s) lying outside Fort Assiniboine Sandhills Wildland Provincial Park		
	5	05	063	2S		
9398020040	5	05	061	27P; 28NE; 31; 32; 33P; 34SP,NEP Portion(s) lying outside Fort Assiniboine Sandhills Wildland Provincial Park	9,171.00	Relinquished

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	5	05	062	3SP,N; 4N,SEP,SW; 5-10; 17-20; 29-34 Portion(s) lying outside Fort Assiniboine Sandhills Wildland Provincial Park		
	5	05	063	2NW; 3; 10		
	5	06	061	36N,SE,SWP Portion(s) lying outside Holmes Crossing proposed natural area		
	5	06	062	1; 11-14; 23-26; 35; 36		
9398020041	5	06	062	2-9; 15-22; 27-34	9,216.00	Relinquished
	5	07	062	1; 2; 11-14; 23-26; 35; 36		
9398020042	5	07	062	3-6; 7SE,SWP,NEP; 8-10; 15-17; 18N; 19-22; 27-34 Portion(s) lying outside Noel Lake natural area	8,673.00	Relinquished
	5	08	062	1; 2N,SWP; 11; 12SW,L2,L7; 13; 14; 23-26; 35; 36 Portion(s) lying outside Goose Creek natural area		
9398020043	5	08	062	3-10; 15-22; 27-34	9,216.00	Relinquished
	5	09	062	1; 2; 11-14; 23-26; 35; 36		
9398020044	5	09	062	3-10; 15-22; 27-34	9,216.00	Relinquished
	5	10	062	1; 2; 11-14; 23-26; 35; 36		
9398020045	5	10	062	3-10; 15-22; 27-34	9,216.00	Relinquished
	5	11	062	1; 2; 11-14; 23-26; 35; 36		
9398020046	5	11	062	3-10; 15-22; 27-34	9,216.00	Relinquished
	5	12	062	1; 2; 11-14; 23-26; 35; 36		
9398020047	5	12	062	3-10; 15-22; 27-34	9,216.00	Relinquished
	5	13	062	1; 2; 11-14; 23-26; 35; 36		
9398020048	5	13	062	3-10; 15-22; 27-34	9,216.00	Relinquished
	5	14	062	1; 2; 11-14; 23-26; 35; 36		
9398020049	5	14	062	3-10; 15-22; 27-34	9,216.00	Relinquished

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	5	15	062	1; 2; 11-14; 23-26; 35; 36		
9398020050	5	15	062	3-10; 15-22; 27-34	9,216.00	Relinquished
	5	16	062	1; 2; 11-14; 23-26; 35; 36		
9398020051	5	16	062	3-10; 15-22; 27-34	9,216.00	Relinquished
	5	17	062	1; 2; 11-14; 23-26; 35; 36		
9398020052	5	18	062	1-36	9,216.00	Relinquished
9398020053	5	01	063	1-36	9,216.00	Relinquished
9398020054	5	02	063	1-36	9,216.00	Relinquished
9398020055	5	03	063	1-36	9,216.00	Relinquished
9398020056	5	04	063	1; 2; 3E,WP; 7EP,W; 8NP,SWP; 10P; 11SP,NWP,NE; 12-36 Portion(s) lying outside Fort Assiniboine Sandhills Wildland Provincial Park	9,174.00	Relinquished
	5	05	063	1N; 2NE; 11-15		
9398020057	5	05	063	4-9; 16-36	9,216.00	Relinquished
	5	05	064	1-3; 10-15		
9398020058	5	06	063	1-36	9,216.00	Relinquished
9398020059	5	07	063	1-31; 32S,NW,NEP; 33P; 34-36 Portion(s) lying outside centre of Alberta natural area	9,053.00	Relinquished
9398020060	5	08	063	1-36	9,216.00	Relinquished
9398020061	5	09	063	1-36	9,216.00	Relinquished
9398020062	5	10	063	1-36	9,216.00	Relinquished
9398020063	5	11	063	1-36	9,216.00	Relinquished
9398020064	5	12	063	1-36	9,216.00	Relinquished
9398020065	5	13	063	1-36	9,216.00	Relinquished
9398020066	5	14	063	1-36	9,216.00	Relinquished
9398020067	5	15	063	1-36	9,216.00	Relinquished
9398020068	5	16	063	1-36	9,216.00	Relinquished
9398020069	5	17	063	1-36	9,216.00	Relinquished
9398020070	5	18	063	1-36	9,216.00	Relinquished

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9398020071	5	01	064	1-36	9,216.00	Relinquished
9398020072	5	02	064	1-12; 13E; 15-22; 24E; 25E; 27-33; 34W; 36E,WP Portion(s) lying outside Hubert Lake proposed natural area	9,194.00	Relinquished
	5	02	065	1N,SE,SWP; 2N; 3N,SW; 4; 10-12 Portion(s) lying outside Hubert Lake proposed natural area		
9398020073	5	03	064	1-36	9,216.00	Relinquished
9398020074	5	04	064	1-36	9,216.00	Relinquished
9398020075	5	05	064	4-9; 16-36	9,216.00	Relinquished
	5	05	065	1-3; 10-15		
9398020076	5	06	064	1-36	9,216.00	Relinquished
9398020077	5	07	064	1-3; 4P; 5N,SW,L2P,L7,L8; 6-36 Portion(s) lying outside the centre of Alberta natural area	9,062.00	Relinquished
9398020078	5	08	064	1-36	9,216.00	Relinquished
9398020079	5	09	064	1-36	9,216.00	Relinquished
9398020081	5	11	064	1-36	9,216.00	Relinquished
9398020082	5	12	064	1-36	9,216.00	Relinquished
9398020083	5	13	064	1-36	9,216.00	Relinquished
9398020084	5	14	064	1-36	9,216.00	Relinquished
9398020085	5	15	064	1-36	9,216.00	Relinquished
9398020086	5	16	064	1-36	9,216.00	Relinquished
9398020087	5	17	064	1-36	9,216.00	Relinquished
9398020088	5	18	064	1-36	9,216.00	Relinquished
9398020089	5	19	064	1-36	9,216.00	Relinquished
9398020090	5	20	064	1-36	9,216.00	Relinquished
9398020091	5	21	064	1-36	9,216.00	Relinquished
9398020092	5	22	064	1-36	9,216.00	Relinquished
9398020093	5	01	065	1-36	9,216.00	Relinquished
9398020094	5	02	065	5-9; 13-36	9,216.00	Relinquished

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	5	02	066	1-3; 11-14		
9398020095	5	03	065	1-36	9,216.00	Relinquished
9398020096	5	04	065	1-36	9,216.00	Relinquished
9398020097	5	05	065	4-9; 16-36	9,216.00	Relinquished
	5	05	066	4-9; 16-18		
9398020098	5	06	065	1-36	9,216.00	Relinquished
9398020099	5	07	065	1-36	9,216.00	Relinquished
9398020100	5	08	065	1-36	9,216.00	Relinquished
9398020101	5	09	065	1-36	9,216.00	Relinquished
9398020102	5	10	065	1-36	9,216.00	Relinquished
9398020103	5	11	065	1-36	9,216.00	Relinquished
9398020104	5	16	065	1-36	9,216.00	Relinquished
9398020105	5	17	065	1-36	9,216.00	Relinquished
9398020106	5	18	065	1-36	9,216.00	Relinquished
9398020107	5	20	065	1-36	9,216.00	Relinquished
9398020108	5	21	065	1-36	9,216.00	Relinquished
9398020109	5	22	065	1-36	9,216.00	Relinquished
9398020110	5	01	066	1-36	9,216.00	Relinquished
9398020111	5	02	066	17-36	9,216.00	Relinquished
	5	02	067	1-16		
9398020112	5	02	066	4-10; 15; 16	9,216.00	Relinquished
	5	03	066	1-3; 10-15; 19-36		
9398020113	5	03	066	4-9; 16-18	9,216.00	Relinquished
	5	04	066	1-3; 10-15; 19-36		
9398020114	5	04	066	4-9; 16-18	9,216.00	Relinquished
	5	05	066	1-3; 10-15; 19-36		
9398020115	5	06	066	1-36	9,216.00	Relinquished
9398020116	5	07	066	1-36	9,216.00	Relinquished
9398020117	5	08	066	1-36	9,216.00	Relinquished
9398020118	5	09	066	1-36	9,216.00	Relinquished
9398020119	5	10	066	1-36	9,216.00	Relinquished
9398020120	5	11	066	1-36	9,216.00	Relinquished

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9398020121	5	17	066	1-36	9,216.00	Relinquished
9398020122	5	18	066	1-36	9,216.00	Relinquished
9398020123	5	19	066	1-36	9,216.00	Relinquished
9398020124	5	20	066	1-36	9,216.00	Relinquished
9398020125	5	21	066	1-29; 30NP,SE,SWP; 31SP,N; 32-36 Portion(s) lying outside Little Smoky-Iosegun proposed natural area	9,136.00	Relinquished
9398020126	5	01	067	1-36	9,216.00	Relinquished
9398020127	5	02	067	17-36	9,216.00	Relinquished
	5	02	068	1-16		
9398020128	5	06	067	1-36	9,216.00	Relinquished
9398020129	5	07	067	1-36	9,216.00	Relinquished
9398020130	5	07	068	1-10	9,216.00	Relinquished
	5	08	067	1-3; 10-15; 22-27; 34-36		
	5	08	068	1-6; 11; 12		
9398020131	5	08	067	4-9; 16-21; 28-33	9,216.00	Relinquished
	5	09	067	1-3; 10-15; 22-27; 34-36		
9398020132	5	09	067	4-9; 16-21; 28-33	9,216.00	Relinquished
	5	10	067	1-18		
9398020133	5	10	067	19-36	9,216.00	Relinquished
	5	10	068	1-18		
9398020134	5	11	067	1-36	9,216.00	Relinquished
9398020135	5	16	067	1-24	9,216.00	Relinquished
	5	17	067	1-12		
9398020136	5	17	067	13-36	9,216.00	Relinquished
	5	17	068	1-12		
9398020137	5	18	067	1-36	9,216.00	Relinquished
9398020138	5	19	067	1-36	9,216.00	Relinquished
9398020139	5	20	067	1-36	9,216.00	Relinquished
9398020140	5	01	068	1-36	9,216.00	Relinquished
9398020141	5	02	068	17-25; 27-36	9,216.00	Relinquished
	5	02	069	4-9; 16-21; 28-32		

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9398020142	5	06	068	1-36	9,216.00	Relinquished
9398020143	5	07	068	11-36	9,216.00	Relinquished
	5	07	069	1-10		
9398020144	5	08	068	7-10; 13-32; 33S	7,808.00	Relinquished
	5	08	069	5-8; 17; 18		
9398020145	5	10	068	19-36	9,216.00	Relinquished
	5	10	069	1-18		
9398020146	5	11	068	1-36	9,216.00	Relinquished
9398020147	5	16	068	25-36	9,216.00	Relinquished
	5	17	068	13-36		
9398020148	5	18	068	1-36	9,216.00	Relinquished
9398020149	5	19	068	1-36	9,216.00	Relinquished
9398020150	5	01	069	1-3; 10-15; 22-27; 33-36	9,216.00	Relinquished
	5	01	070	1-17		
9398020151	5	01	069	4-9; 16-21; 28-32	9,216.00	Relinquished
	5	02	069	1-3; 10-15; 22-27; 33-36		
9398020153	5	07	069	11-18; 21-26; 27S,NE; 34E; 35; 36	8,256.00	Relinquished
	5	07	070	1; 2; 3E; 10E; 11-14; 15E; 22E; 23-26; 27E; 34E; 35; 36		
9398020155	5	10	069	19-36	9,216.00	Relinquished
	5	10	070	1-3; 10-15; 22-27; 34-36		
9398020156	5	11	069	1-36	9,216.00	Relinquished
9398020157	5	12	069	1-36	9,216.00	Relinquished
9398020158	5	13	069	3-36	8,704.00	Relinquished
9398020159	5	14	069	1-36	9,216.00	Relinquished
9398020160	5	15	069	1-36	9,216.00	Relinquished
9398020161	5	16	069	1-36	9,216.00	Relinquished
9398020162	5	17	069	1-36	9,216.00	Relinquished
9398020163	5	01	070	18-29; 30S; 32-36	8,832.00	Relinquished
	5	01	071	1-3; 10-15; 22-27; 35; 36		
9398020164	5	06	070	1-36	9,216.00	Relinquished
9398020165	5	10	070	4-9; 16-21; 28-33	9,216.00	Relinquished

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	5	11	070	1-3; 10-15; 22-27; 34-36		
9398020166	5	11	070	4-9; 16-21; 28-33	9,216.00	Relinquished
	5	12	070	1-3; 10-15; 22-27; 34-36		
9398020167	5	12	070	4-9; 16-21; 28-33	9,216.00	Relinquished
	5	13	070	1-3; 10-15; 22-27; 34-36		
9398020168	5	13	070	4-9; 16-21; 28-33	9,216.00	Relinquished
	5	14	070	1-18		
9398020169	5	15	070	1-36	9,216.00	Relinquished
9398020170	5	01	071	4-9; 16-21; 28-34	8,698.00	Relinquished
	5	02	071	1NP,SEP; 11NP,SEP; 12N,SE,SWP; 13; 14E; 15NWP; 19NP; 20NP,SEP; 21SP,N; 22-29; 30N,SE,SWP; 34E; 35; 36 Portion(s) lying to the north and east of the northeasterly limit of Highway No. 2		
9398020171	5	06	071	1-36	9,216.00	Relinquished
9398020173	5	10	071	1-36	9,216.00	Relinquished
9398020174	5	11	071	1-36	9,216.00	Relinquished
9398020175	5	12	071	1-36	9,216.00	Relinquished
9398020176	5	01	072	1-27; 28N,SE,L3,L4S,L4NE,L5,L6; 29N,SW,L1S,L1NW,L2,L7W; 30-36	9,184.00	Relinquished
9398020177	5	02	071	31-33; 34W	9,216.00	Relinquished
	5	02	072	1-17; 18S; 20-29; 32-36		
9398020178	5	02	072	18N; 19; 30S,NE,L11-L13; 31	8,803.00	Relinquished
	5	03	071	25SEP,NWP,NE; 33NEP; 34SP,NWP,NE; 35; 36 Portion(s) lying to the north and east of the northeasterly limit of Highway No. 2		
	5	03	072	1; 2; 4NWP,L1P,L7P,L10P,L15,L16; 7NP; 8NP,SEP; 9-17; 18N,SE,SWP; 19-30; 34E; 35; 36 Portion(s) lying to the north and east of the northeasterly limit of Highway No. 2		

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9398020179	5	04	072	13SP,N; 14NP,SEP; 17-36 Portion(s) lying to the north and east of the northeasterly limit of Highway No. 2	9,074.00	Relinquished
	5	05	072	13; 14N; 22-29; 31; 32S,NE; 33W; 34SE,NW; 35; 36		
9398020180	5	09	072	6; 7; 18; 19; 30; 31	8,494.00	Relinquished
	5	09	073	6; 7		
	5	10	073	1-12; 13S; 14S; 15S; 16-20; 21W; 25NE; 27N; 28N; 29; 30SE,SWP; 32S,NWP,NE; 33; 34; 35N Portion(s) lying outside Lesser Slave Lake		
9398020181	5	01	073	1; 2; 3EP,W; 4-9; 10N,SEP,SW; 11-14; 15S,NE,L11,L12E,L13,L14; 16S,NW,L10W,L15,L16; 17-36 Portion(s) lying outside forest research plots	9,146.00	Relinquished
9398020182	5	02	073	1-36	9,216.00	Relinquished
9398020183	5	03	072	31-33; 34W	9,216.00	Relinquished
	5	03	073	1-17; 18S; 20-29; 32-36		
9398020184	5	03	073	18N; 19; 30; 31	9,216.00	Relinquished
	5	04	073	1-5; 8-17; 19N; 20-36		
9398020185	5	04	073	7; 18; 19S	9,150.29	Relinquished
	5	05	073	1S,NE; 2E; 3N,SW; 4N,SW; 5; 6N,SW; 7E,WP; 8-17 Portion(s) lying outside Lesser Slave Lake		
	5	05	073	18SP,NEP; 19SEP; 20-28 Portion(s) lying outside Lesser Slave Lake and Lesser Slave Lake Provincial Park		
	5	05	073	29P Portion(s) lying outside Lesser Slave Lake Provincial Park		

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	5	05	073	30NEP; 31SEP,NE; 32E; 33-36 Portion(s) lying outside Lesser Slave and Lesser Slave Lake Provincial Park		
	5	06	072	34NEP; 35NP,SEP; 36SP,N Portion(s) lying to the north and east of the northeasterly limit of Highway No. 2		
	5	06	073	1S, NP; 2NP,SEP,SW Portion(s) lying outside Lesser Slave Lake		
	5	06	073	3SP Portion(s) lying to the north and east of the northeasterly limit of Highway No. 2		
	5	06	073	12EP Portion(s) lying outside Lesser Slave Lake		
9398020186	5	08	073	19NP,SWP; 20NWP; 28NP,SWP; 29SP,N; 30-33; 34SWP,NW,NEP Portion(s) lying to the north and west of the northwesterly limit of Highway No. 2	8,164.00	Relinquished
	5	08	073	35NP Portion(s) lying to the north of the northerly limit of Highway No. 2		
	5	08	074	2SP,NWP; 3S,NW,NEP; 4; 5WP,SE Portion(s) lying outside Lesser Slave Lake		
	5	08	074	5NEP Portion(s) lying outside Assineau River Indian Reserve No. 150F		
	5	08	074	6SP; 8SWP; 9SP; 10SP Portion(s) lying outside Lesser Slave Lake		
	5	09	073	13NP; 14SP,NW,NEP; 15N,SEP,SW; 16-23; 24N,SEP,SW; 25-30; 31E; 32-34; 35S,NW Portion(s) lying to the north and west of the northwesterly limit of Highway No. 2		
	5	09	073	35NEP; 36S,NP Portion(s) lying outside Lesser Slave Lake		

Lesser Slave Block - "D" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9398020187	5	01	074	1-36	9,216.00	Relinquished
9398020188	5	02	074	1-36	9,216.00	Relinquished
9398020189	5	01	075	1-18; 22-27; 34-36	9,216.00	Relinquished
	5	01	076	1-3; 10-15		
9398020190	5	02	075	1-21; 28-33	9,216.00	Relinquished
	5	02	076	4-9; 16-18		
9398020191	5	01	076	19-36	9,216.00	Relinquished
	5	02	076	19-36		
9398020192	5	02	077	1-36	9,216.00	Relinquished

247 ***permits***

Lesser Slave Block - "E" Retained & Amended Permits

PERMIT NUMBER	CURRENT ANNIVERSARY DATE	M	RN	TWP	ORIGINAL AREA (ha)	AMEND PERMIT	NEW AREA (ha)	ASSESSMENT REQUIREMENT $	EXPENDITURES $	EXCESS (DEFICIT)	ASSESSMENT PERIOD 1	NEXT ANNIVERSARY
9397110090	20-Nov-99	5	10	078	7,522.00	***Maintain Sections:*** 7 to 9, 16 to 21, 28 NW SW SE, 29, 30 NE SE, 32 NE SE SW	3,072.00	$ 15,360.00	$ 15,952.24	$ 592.24	paid	20-Nov-01
9397110091	20-Nov-99	5	11	078	9,156.00	***Maintain Sections:*** 1 to 3, 10 to 15, 22 to 24, 25 NW & SW, 26, 27, 34, 35, 36 NW & SW	4,352.00	$ 21,760.00	$ 22,352.24	$ 592.24	paid	20-Nov-01
2	***permits***				16,678.00	**Total:**	7,424.00	$ 37,120.00	$ 38,304.47	$ 1,184.47		

******* NOTE: UNDER THE AMEND PERMIT SECTION THE INSTRUCTIONS ARE TO MAINTAIN SECTIONS *******

Lesser Slave Block - "E" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397110064	5	09	075	18N; 19; 20; 21N,L5-L8; 22L13; 25N,L5,L6; 26-36	9,184.00	Relinquished
	5	10	075	13N,L5-L8; 14N,L5-L8; 15N,L5-L8; 16N,L5-L8; 17N, L5-L8; 18N,L5-L8 20-29; 31; 32; 33N,SE,L3,L4S,L5N,L6; 34-36		
	5	11	075	13NE,L7,L8,L11,L14		
9397110065	5	10	075	19; 30	9,024.00	Relinquished
	5	11	075	19N,L5-L8; 20N,L5-L8; 21-28; 29S; 30S,NW; 31W; 33E; 34-36		
	5	12	075	24N; 25-36		
	5	13	075	25-27; 34-36		
9397110066	5	13	075	7NWP Portions lying outside Hilliard's Bay Provincial Park and lying outside Lesser Slave Lake	9,167.00	Relinquished
	5	13	075	20SEP; 28-33 Portions lying outside Lesser Slave Lake		
	5	14	075	10NWP Portions lying outside Lesser Slave Lake		
	5	14	075	12P Portions lying outside Hilliard's Bay Provincial Park and lying outside Lesser Slave Lake		
	5	14	075	15SP,N; 16SEP Portions lying outside Lesser Slave Lake		
	5	14	075	16SWP Portions lying outside Lesser Slave Lake and lying outside Sucker Creek Indian Reserve No. 150A		
	5	14	075	16NWP,NE; 17NEP Portions lying outside Lesser Slave Lake		
	5	14	075	19NWP Portions lying outside Buffalo Bay Wetlands for Tomorrow Project		
	5	14	075	19NEP Portions lying outside Buffalo Bay Wetlands for Tomorrow Project and lying outside Lesser Slave Lake		

Lesser Slave Block - "E" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	5	14	075	20SP,NWP,NE Portion(s) lying outside Lesser Slave Lake		
	5	14	075	21NP,SEP,SW; 22E,SWP; 25-27; 29SP Portion(s) lying outside Grouard Indian Reserve No. 230		
	5	14	075	29SP,NWP Portion(s) lying outside Grouard Indian Reserve No. 230 and Lot 27 of the Lesser Slave Lake Settlement		
	5	14	075	29SP,NEP Portion(s) lying outside Grouard Indian Reserve No. 230		
	5	14	075	30NP,SE Portion(s) lying easterly of the Buffalo Bay Wetlands for Tomorrow Project and lying outside Lot 27 of the Lesser Slave Lake Settlement		
	5	14	075	30NP,SE,SWP Portion(s) lying easterly of the Buffalo Bay Wetlands for Tomorrow Project		
	5	14	075	31SEP Portion(s) lying outside of the Buffalo Bay Wetlands for Tomorrow Project and lying outside the Hudson Bay Reserve of the Lesser Slave Lake Settlement		
	5	14	075	31NEP Portion(s) lying outside Buffalo Bay Wetlands for Tomorrow Project and lying outside the Hudson Bay Reserve of the Lesser Slave Lake Settlement and lying outside Freeman Indian Reserve No. 150B		
	5	14	075	32SEP,SW Portion(s) lying outside Grouard Indian Reserve No. 230		
	5	14	075	32SEP,SW,NWP Portion(s) lying outside Grouard Indian Reserve No. 229 and Freeman Indian Reserve No. 150B		

Lesser Slave Block - "E" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	5	14	075	32SEP,SW,NEP; 34-36 Portion(s) lying outside Grouard Indian Reserve No. 229		
	5	14	076	1-3; 4SP,N Portion(s) lying outside Grouard Indian Reserve No. 230		
	5	14	076	5SEP; 9-16 Portion(s) lying outside Grouard Indian Reserve No. 229		
	5	14	076	17SP,N; 18SP,N; 19-22 Portion(s) lying outside Buffalo Bay Wetlands for Tomorrow Project		
9397110074	5	10	076	1-36	9,216.00	Relinquished
9397110075	5	11	076	1-3; 4E; 5N; 6-36	9,216.00	Relinquished
	5	12	076	1		
9397110076	5	12	076	2-18; 24	9,216.00	Relinquished
	5	13	076	1-18		
9397110077	5	12	076	21-23; 25-29; 32-36	7,168.00	Relinquished
	5	12	077	1-12; 16-18		
9397110078	5	12	076	19; 20; 30; 31	9,216.00	Relinquished
	5	13	076	19-36		
	5	14	076	23-36		
9397110083	5	10	077	1-36	9,216.00	Relinquished
9397110084	5	11	077	1-26; 35; 36	7,168.00	Relinquished
9397110085	5	11	077	27-34	7,424.00	Relinquished
	5	12	077	13-15; 19-36		

11 ***permits***

Lesser Slave Block "F" - Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397110093	5	09	080	10NWP Portion(s) lying outside the No Surface Access portion of Utikuma Lake Wetalnds for Tomorrow Project and lying outside Utikuma Indian Reserve No. 155A	7,290.00	Relinquished
	5	09	080	10NEP; 11NP; 12NWP; 13SP,N; 14; 15E Portion(s) lying outside the No Surface Access portion of Utikuma Lake Wetalnds for Tomorrow Project		
	5	09	080	15E,WP; 16NEP; 19SP,N; 20SP,N; 21SP,N; 22-36 Portion(s) lying outside Utikuma Indian Reserve No. 155 A		
	5	10	080	25; 30SP,N; 31-36 Portion(s) lying outside Utikuma Indian Reserve No. 155		
9397110094	5	11	080	16N,L5-L8; 19-21; 25SP,N; 26SP,N; 27N,SEP,SW; 28-36 Portion(s) lying outside Utikuma Indian Reserve No. 155	3,971.00	Relinquished
9397110092	5	09	079	1; 2EP; 11EP; 12S,NWP,NE; 13SE,SWP,NEP; 24EP Portion(s) lying outside the No Surface Access portion of Utikuma Lake Wetalnds for Tomorrow Project	782.00	Relinquished

3 ***permits***

Athabasca Block - "G" Retained & Amended Permits

PERMIT NUMBER	CURRENT ANNIVERSARY DATE	M	RN	TWP	ORIGINAL AREA (ha)	AMEND PERMIT	NEW AREA (ha)	ASSESSMENT REQUIREMENT $	EXPENDITURES $	EXCESS (DEFICIT)	ASSESSMENT PERIOD 1	NEXT ANNIVERSARY
9397100011	17-Oct-99	4	22	077	9216.000		7,168.00	$ 35,840.00	$ 37,146.91	$ 1,306.91	paid	17-Oct-01
		4	23	077					$ -			
		4	23	078		Relinquish Sections: 19 to 26						
9397100012	17-Oct-99	4	24	077	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
9397100027	17-Oct-99	4	23	078	9216.000	Relinquish Sections: 27 to 36	3,584.00	$ 17,920.00	$ 17,920.00	$ -	paid	17-Oct-01
		4	24	078		Relinquish Sections: 21 to 28, 33 to 36,						
9397100047	17-Oct-99	4	17	079	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
		4	17	080								
9397100048	17-Oct-99	4	18	079	9216.000	Relinquish Sections: 6, 7, 18, 19, 30, 31	7,680.00	$ 38,400.00	$ 38,400.00	$ -	paid	17-Oct-01
9397100071	17-Oct-99	4	16	080	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
9397100072	17-Oct-99	4	17	080	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
		4	18	080								
9397100073	17-Oct-99	4	18	080	9216.000	Relinquish Sections: 6, 7, 18, 19, 30, 31	4,928.00	$ 24,640.00	$ 24,640.00	$ -	paid	17-Oct-01
		4	19	080		Relinquish Sections: 1, 2, 11, to 14, 23 to25, 26 NE SE SW, 36						
9397100095	17-Oct-99	4	16	081	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
9397100096	17-Oct-99	4	17	081	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
9397100097	17-Oct-99	4	18	081	9216.000	Relinquish Sections: 6, 7, 18, 19, 30, 31	7,680.00	$ 38,400.00	$ 38,400.00	$ -	paid	17-Oct-01
9397100116	17-Oct-99	4	15	082	9216.000	Relinquish Sections: 1 to 25, 28 to 33, 36	1,024.00	$ 5,120.00	$ 5,120.00	$ -	paid	17-Oct-01
9397100118	17-Oct-99	4	17	082	9216.000	Relinquish Sections: 3 to 10, 15 to 22, 27 to 34	3,072.00	$ 15,360.00	$ 15,360.00	$ -	paid	17-Oct-01
9397100139	17-Oct-99	4	16	083	9200.000	Intact	9,200.00	$ 46,000.00	$ 46,000.00	$ -	paid	17-Oct-01
9397100140	17-Oct-99	4	17	083	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01

Athabasca Block - "G" Retained & Amended Permits

PERMIT NUMBER	CURRENT ANNIVERSARY DATE	M	RN	TWP	ORIGINAL AREA (ha)	AMEND PERMIT	NEW AREA (ha)	ASSESSMENT REQUIREMENT $	EXPENDITURES $	EXCESS (DEFICIT)	ASSESSMENT PERIOD 1	NEXT ANNIVERSARY
9397100141	17-Oct-99	4	18	083	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
9397100142	17-Oct-99	4	19	083	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
9397100144	17-Oct-99	4	21	083	9216.000	Relinquish Sections: 1 to 18	4,608.00	$ 23,040.00	$ 23,040.00		paid	17-Oct-01
9397100161	17-Oct-99	4	16	084	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
9397100162	17-Oct-99	4	17	084	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
9397100163	17-Oct-99	4	18	084	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
9397100164	17-Oct-99	4	19	084	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
9397100165	17-Oct-99	4	20	084	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
9397100166	17-Oct-99	4	21	084	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
9397100182	17-Oct-99	4	16	085	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
		4	16	086								
9397100183	17-Oct-99	4	18	085	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
9397100184	17-Oct-99	4	19	085	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
9397100185	17-Oct-99	4	20	085	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
		4	21	085								
9397100186	17-Oct-99	4	20	085	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
		4	20	086								
		4	21	085								
		4	21	086								
9397100187	17-Oct-99	4	21	085	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
		4	22	085								
9397100188	17-Oct-99	4	21	085	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	17-Oct-01
		4	21	086								
		4	22	085								
		4	22	086								

Athabasca Block - "G" Retained & Amended Permits

PERMIT NUMBER	CURRENT ANNIVERSARY DATE	M	RN	TWP	ORIGINAL AREA (ha)	AMEND PERMIT	NEW AREA (ha)	ASSESSMENT REQUIREMENT $	EXPENDITURES $	EXCESS (DEFICIT)	ASSESSMENT PERIOD 1	NEXT ANNIVERSARY
9397100193	17-Oct-99	4	08	086	9130.000	Relinquish Sections: 3N; 4-9; 10NP,SEP; 11SEP,NWP,NE; 12SP,N; 13; 14; 15E,WP; 16S,NW,L10,L15; 17-20; 21EP; 22E,WP; 23; 24EP,W; 25SP,NWP; 26NP,SE,SWP; 27SP; 29, 32; 33W Portion(s) designated as Gregoire Lake	512.00	$ 2,560.00	$ 2,560.00	$ -	paid	17-Oct-01
		4	8	87		Relinquish Sectioins: 4S; 5-8; 17-20;29-31						
9397100194	17-Oct-99	4	09	086	9216.000	Relinquish Sections: 1 to 24, 26 to 35	512.00	$ 2,560.00	$ 2,560.00	$ -	paid	17-Oct-01
9397100197	17-Oct-99	4	11	086	9216.000	Relinquish Sections: 4 to 9, 16 to 21, 29, 30	512.00	$ 2,560.00	$ 2,560.00	$ -	paid	17-Oct-01
		4	12	086		Relinquish Sections: 1 to 3, 10 to 16, 21 to 27, 34 to 36						
9397100198	17-Oct-99	4	12	086	9216.000	Relinquish Sections: 4 to 9, 17 to 20, 30, 31	512.00	$ 2,560.00	$ 2,560.00	$ -	paid	17-Oct-01
		4	13	086		Relinquish Sections: 1 to 3, 10 to 16, 21 to 28, 33 to 36						
9397100205	17-Oct-99	4	19	087	9216.000	Relinquish Sections: 5 to 8, 17 to 20, 29 NW SW SE, 30, 31	1,088.00	$ 5,440.00	$ 5,440.00	$ -	paid	17-Oct-01

Athabasca Block - "G" Retained & Amended Permits

PERMIT NUMBER	CURRENT ANNIVERSARY DATE	M	RN	TWP	ORIGINAL AREA (ha)	AMEND PERMIT	NEW AREA (ha)	ASSESSMENT REQUIREMENT $	EXPENDITURES $	EXCESS (DEFICIT)	ASSESSMENT PERIOD 1	NEXT ANNIVERSARY
		4	20	086		Relinquish Sections: 21 to 28, 33 to 36						
		4	20	087		Relinquish Sections: 1, 2, 11 to 14, 24, 25, 36						
		4	21	086								
9397100208	17-Oct-99	4	09	087	9065.000	Relinquish Sections: 3 to 5, 8 to 10, 13 to 17, 20 to 29, 32 to 36	1,024.00	$ 5,120.00	$ 5,120.00	$ -	paid	17-Oct-01
		4	09	088		Relinquish Sections: 1, 2 NE SE WP, 3 NW SW EP, 4, 5, 6						
9397100216	17-Oct-99	4	20	087	9216.000	Relinquish Sections: 3, 10, 15, 22, 23, 26, 27, 34, 35	6,912.00	$ 34,560.00	$ 34,560.00	$ -	paid	17-Oct-01
		4	21	087								
9397100292	17-Oct-99	4	15	100	9184.000	Relinquish Sections: 1 to 6, 9 to 16, 19 to 28, 33 to 36	2,048.00	$ 10,240.00	$ 10,240.00	$ -	paid	17-Oct-01
9397100523	24-Oct-99	4	16	102	9216.000	Relinquish Sections: 1 to 6	7,680.00	$ 38,400.00	$ 38,400.00	$ -	paid	24-Oct-01
9397100524	24-Oct-99	4	17	102	9216.000	Relinquish Sections: 1 to 6	7,680.00	$ 38,400.00	$ 38,400.00	$ -	paid	24-Oct-01
9397100525	24-Oct-99	4	18	102	9216.000	Relinquish Sections: 1, 2	8,704.00	$ 43,520.00	$ 43,520.00	$ -	paid	24-Oct-01
9397100526	24-Oct-99	4	19	102	9216.000	Relinquish Sections: 5 to 8, 17 to 20, 29 to 32	6,144.00	$ 30,720.00	$ 30,720.00	$ -	paid	24-Oct-01
9397100529	24-Oct-99	4	16	103	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	24-Oct-01
9397100530	24-Oct-99	4	17	103	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	24-Oct-01
9397100531	24-Oct-99	4	18	103	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	24-Oct-01

Athabasca Block - "G" Retained & Amended Permits

PERMIT NUMBER	CURRENT ANNIVERSARY DATE	M	RN	TWP	ORIGINAL AREA (ha)	AMEND PERMIT	NEW AREA (ha)	ASSESSMENT REQUIREMENT $	EXPENDITURES $	EXCESS (DEFICIT)	ASSESSMENT PERIOD 1	NEXT ANNIVERSARY
9397100532	24-Oct-99	4	19	103	9216.000	Relinquish Sections: 4 to 9, 16 to 21, 28 to 33	4,608.00	$ 23,040.00	$ 23,040.00	$ -	paid	24-Oct-01
9397100536	24-Oct-99	4	16	104	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	24-Oct-01
		4	17	104								
9397100537	24-Oct-99	4	17	104	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,080.00	$ -	paid	24-Oct-01
		4	18	104								
9397100538	24-Oct-99	4	18	104	9216.000		6,912.00	$ 34,560.00	$ 34,560.00	$ -	paid	24-Oct-01
		4	19	104		Relinquish Sections: 4, 5, 8, 9, 16, 17, 21, 28, 33						
50	***permits***					***Total:***	352,624.00	$ 1,763,120.00	$ 1,764,426.91	$ 1,306.91		

Athabasca Block - "G" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100001	4	04	077	1-36	9,216.00	Relinquished
9397100002	4	05	077	1-36	9,216.00	Relinquished
9397100003	4	06	077	1-36	9,216.00	Relinquished
9397100004	4	07	077	1-36	9,216.00	Relinquished
9397100005	4	08	077	1-36	9,216.00	Relinquished
9397100006	4	09	077	1-36	9,216.00	Relinquished
9397100007	4	10	077	1-36	9,216.00	Relinquished
9397100008	4	11	077	1-36	9,216.00	Relinquished
9397100009	4	19	077	1-36	9,216.00	Relinquished
9397100010	4	20	077	1-36	9,216.00	Relinquished
9397100013	4	26	077	1-4; 5EF; 8EF; 9-16; 17EF; 20EF; 21-28; 29EF; 32EF; 33-36	9,155.62	Relinquished
	5	01	077	1; 2; 11-14; 23SE; 24; 25; 36		
9397100014	5	01	077	3-10; 15-22; 23N,SW; 26-35	9,216.00	Relinquished
	5	01	078	1-6; 9SE; 10-12		
9397100015	4	03	078	1-36	9,216.00	Relinquished
9397100016	4	04	078	1-36	9,216.00	Relinquished
9397100017	4	05	078	1-36	9,216.00	Relinquished
9397100018	4	06	078	1-36	9,216.00	Relinquished
9397100019	4	07	078	1-4; 6; 7; 10-15; 16S; 17-36	9,216.00	Relinquished
	4	08	078	1; 12; 13; 24S		
9397100020	4	08	078	2-6; 10; 11; 19; 20; 24N; 25-36	9,216.00	Relinquished
	4	09	078	1-3; 10-14; 15S; 23-26; 35; 36		
9397100021	4	09	078	4-9; 15N; 16-22; 27-34	9,216.00	Relinquished
	4	10	078	1; 2; 11-14; 22N; 23-27; 34-36		
9397100022	4	10	078	3-10; 15-21; 22S; 28-33	9,216.00	Relinquished
	4	10	079	1-14; 15E		
9397100023	4	11	078	1-36	9,216.00	Relinquished

Athabasca Block - "G" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100024	4	18	078	1-36	9,216.00	Relinquished
9397100025	4	19	078	1-36	9,216.00	Relinquished
9397100026	4	20	078	1-36	9,216.00	Relinquished
9397100028	4	24	078	6; 7; 17-20; 29-32	9,216.00	Relinquished
	4	25	078	1-5; 8-16; 21-28; 33-36		
9397100029	4	25	078	6; 7; 17-20; 29-32	9,122.88	Relinquished
	4	26	078	1-4; 5EF; 8EF; 9-16; 17EF; 20EF; 21-28; 33-36		
9397100030	4	26	078	29EF; 32EF	9,169.44	Relinquished
	5	01	078	7; 8; 9N,SW; 13-36		
	5	01	079	1-8; 9SW		
9397100031	4	02	079	1-36	9,216.00	Relinquished
9397100032	4	03	079	1-36	9,216.00	Relinquished
9397100033	4	04	079	1-36	9,216.00	Relinquished
9397100034	4	05	079	1-36	9,216.00	Relinquished
9397100035	4	06	079	25; 35; 36	768.00	Relinquished
9397100036	4	06	079	1-24; 26-34	9,216.00	Relinquished
	4	06	080	4-6		
9397100037	4	07	079	1-36	9,216.00	Relinquished
9397100038	4	08	079	1-36	9,216.00	Relinquished
9397100039	4	09	079	1-36	9,216.00	Relinquished
9397100040	4	10	079	15W; 16-36	9,216.00	Relinquished
	4	10	080	1-14; 15E		
9397100041	4	11	079	1-36	9,216.00	Relinquished
9397100042	4	12	079	1-36	9,216.00	Relinquished
9397100043	4	13	079	1-36	9,216.00	Relinquished
9397100044	4	14	079	1-36	9,216.00	Relinquished
9397100045	4	15	079	1-36	9,216.00	Relinquished
9397100046	4	16	079	1-30; 32-36	9,216.00	Relinquished

Athabasca Block - "G" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	4	17	079	1		
9397100049	4	19	079	1-36	9,216.00	Relinquished
9397100050	4	20	079	1-36	9,216.00	Relinquished
9397100051	4	21	079	1-36	9,216.00	Relinquished
9397100052	4	22	079	1; 2; 10-15; 20SP,NEP; 21-28; 29EP; 32EP; 33-36 Portion(s) lying outside Wabasca Indian Reserve No. 166	9,200.00	Relinquished
	4	22	080	3; 4; 5NP,SEP; 6NP; 7-10; 18S Portion(s) lying outside Wabasca Indian Reserve No. 166		
	4	23	080	1NP; 2NP; 3NP; 4NP; 9SE; 10-12; 13S; 14; 15; 22; 23 Portion(s) lying outside Wabasca Indian Reserve No. 166		
9397100053	4	22	079	3-9; 16; 17; 18S,NP; 19SEP Portion(s) lying outside Wabasca Indian Reserve No. 166	9,198.00	Relinquished
	4	23	079	1-12; 13S,NP; 14S,NP; 15S,NP; 16S,NWP,NE; 17S,NP; 18S,NP; 21SP; 22SWP Portion(s) lying outside Wabasca Indian Reserve No. 166		
	4	24	079	1; 2; 11; 12; 13S,NP; 14S,NW,NEP; 23EP,SW Portion(s) lying outside Wabasca Indian Reserve No. 166		
	4	24	079	23EP,SW,NWP Portion(s) lying outside North and South Wabasca Lakes Proposed Forest Recreation Area		
	4	24	079	26SEP Portion(s) lying outside North and South Wabasca Lakes Proposed Forest Recreation Area and portion(s) lying outside Wabasca Indian Reserve No. 166		

Athabasca Block - "G" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	4	24	079	26SWP,NW Portion(s) lying outside North and South Wabasca Lakes Proposed Forest Recreation Area		
	4	24	079	26NEP; 35EP,W Portion(s) lying outside Wabasca Indian Reserve No. 166		
9397100054	4	24	079	3-10; 15-18; 19S,NW,NEP; 20S,NP, 21S,NP; 22S,NP; 27SP,N; 28SP,N; 29; 30EP,W; 31SP,N; 32-34 Portion(s) lying outside North and South Wabasca Lakes Proposed Forest Recreation Area	9,078.00	Relinquished
	4	25	079	1; 2; 11-14; 23; 24; 25S,NP; 26S,NP Portion(s) lying outside North and South Wabasca Lakes Proposed Forest Recreation Area		
	4	25	079	34NEP; 35E,WP; 36N Portion(s) lying outside Indian Reserve No. 166D		
	4	25	079	36N,SEP,SW Portion(s) lying outside North and South Wabasca Lakes Proposed Forest Recreation Area		
9397100055	4	25	079	3-10; 15-22	9,216.00	Relinquished
	4	25	080	18; 30SP,NW,NEP Portion(s) lying outside Wabasca Indian Reserve No. 166B		
	4	26	079	1; 11E; 12-14; 23-26; 35		
	4	26	080	2; 3; 4EF; 9EF; 10; 11; 12SWP; 13-15; 16EF; 25SP,NWP,NE; 35SP,NWP,NE; 36N,SE,SWP Portion(s) lying outside Wabasca Indian Reserve No. 166B		
9397100056	4	26	079	2; 3; 4EF; 9EF; 10; 11W; 15; 16EF; 21EF; 22; 27; 28EF; 33EF; 34	9,174.00	Relinquished
	5	01	079	9N,SE; 10-36		
9397100057	4	01	080	1-20; 24-26; 28-36	9,216.00	Relinquished
	4	02	080	1; 12; 13; 24		

Athabasca Block - "G" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100058	4	02	080	2-11; 14-23; 25-36	9,216.00	Relinquished
	4	03	080	25; 26; 35; 36		
9397100059	4	03	080	1-6; 7L1; 8E,L3,L4,L6; 9-11; 15-22; 27-34	9,216.00	Relinquished
	4	04	080	1; 11NE; 12-14; 23-26; 35; 36		
9397100060	4	04	080	2-10; 11S,NW; 15-22; 27-34	9,216.00	Relinquished
	4	05	080	1; 2E; 11SE; 12; 13; 14N; 23-26; 35; 36		
9397100061	4	05	080	2W; 3E; 4SW,L2,L12,L13; 5-7; 8L1-L4; 9L4; 10EP,L6P; 11NP,SW; 15NE; 18; 19; 22E; 27E; 28NW,L15,L16; 29N,SW,L2,L7,L8; 30-34 Portion(s) lying outside Janvier Indian Reserve No. 194	9,145.00	Relinquished
	4	06	080	1-3; 10-15; 21E; 22-28; 33-36		
9397100062	4	06	080	7-9; 16-20; 21W; 29-32	9,216.00	Relinquished
	4	07	080	1-4; 9-16; 21-28; 33E; 34-36		
9397100063	4	07	080	5-8; 17-20; 29-32; 33W	9,216.00	Relinquished
	4	08	080	1-4; 9-16; 21-28; 33E; 34-36		
9397100064	4	08	080	5-8; 17-20; 29-32; 33W	9,216.00	Relinquished
	4	09	080	1-4; 9-16; 21-28; 33E; 34-36		
9397100065	4	09	080	5-8; 17-20; 29-32; 33W	8,704.00	Relinquished
	4	10	080	15W; 16-36		
9397100066	4	11	080	1-36	9,216.00	Relinquished
9397100067	4	12	080	1-36	9,216.00	Relinquished
9397100068	4	13	080	1-36	9,216.00	Relinquished
9397100069	4	14	080	1-36	9,216.00	Relinquished
9397100070	4	15	080	1-36	9,216.00	Relinquished
	4	19	080	1; 2; 11-14; 23-25; 26S,NE; 36		
9397100074	4	19	080	3-10; 15-22; 26NW; 27-35	9,216.00	Relinquished
	4	20	080	1; 2; 11-14; 23-25; 26S,NE; 36		
9397100075	4	20	080	3-10; 15-22; 26NW; 27-35	9,216.00	Relinquished

Athabasca Block - "G" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	4	21	080	1; 2; 11-14; 23-25; 26S,NE; 36		
9397100076	4	21	080	3-10; 15-22; 26NW; 27-35	9,216.00	Relinquished
	4	22	080	1; 2; 11-14; 23-25; 26S,NE; 36		
9397100077	4	22	080	15-17; 18N; 19-22; 26NW; 27-35	9,216.00	Relinquished
	4	22	081	1-15; 16S,NE		
	4	23	080	13N; 24; 25; 36		
9397100078	4	23	080	5NP; 6NP; 7; 8; 9N,SW; 16-21; 26-35 Portion(s) lying outside Wabasca Indian Reserve No. 166	9,188.00	Relinquished
	4	24	080	1NP Portion(s) lying outside Wabasca Indian Reserve No. 166		
	4	24	080	2SEP Portion(s) lying outside Wabasca Reserve No. 166 and portions lying outside North and South Wabasca Lakes Proposed Forest Recreation Area		
	4	24	080	2SWP,NW Portions lying outside North and South Wabasca Lakes Proposed Forest Recreation Area		
	4	24	080	2NEP Portion(s) lying outside Wabasca Indian Reserve No. 166		
	4	24	080	3SP,N; 10-15; 22-27; 34-36 Portions lying outside North and South Wabasca Lakes Proposed Forest Recreation Area		
9397100079	4	24	080	4SP,NWP,NE; 5-7; 8NP,SEP,SW; 9N,SE,SWP; 16; 17E,SWP Portions lying outside North and South Wabasca Lakes Proposed Forest Recreation Area	9,155.00	Relinquished
	4	24	080	17E,NWP; 18S,NP; 19SWP; 20E,WP; 21; 28; 29N,SE,SWP; 30SP,N; 31-33 Portion(s) lying outside Wabasca Indian Reserve No. 166A		

Athabasca Block - "G" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	4	25	080	1; 2; 3EP; 10EP; 11; 12; 13NP,SEP,SW; 14; 15; 22S,NWP,NE; 23 Portion(s) lying outside Wabasca Indian Reserve No. 166D		
	4	25	080	24WP; 25SP,N; 26; 27E Portion(s) lying outside Wabasca Indian Reserve No. 166A		
	4	25	080	27E,WP; 28P; 29E,WP; 31SP,NWP,NE; 32N,SE,SWP; 33-36 Portion(s) lying outside Wabasca Indian Reserve No. 166D		
9397100080	4	01	081	1-36	9,216.00	Relinquished
9397100081	4	02	081	1-36	9,216.00	Relinquished
9397100082	4	03	081	1-36	9,216.00	Relinquished
9397100083	4	04	081	1-36	9,216.00	Relinquished
9397100084	4	05	081	1-36	9,216.00	Relinquished
9397100085	4	06	081	1-36	9,216.00	Relinquished
9397100086	4	07	081	1-36	9,216.00	Relinquished
9397100087	4	08	081	1-36	9,216.00	Relinquished
9397100088	4	09	081	1-36	9,216.00	Relinquished
9397100089	4	10	081	1-36	9,216.00	Relinquished
9397100090	4	11	081	1-36	9,216.00	Relinquished
9397100091	4	12	081	1-36	9,216.00	Relinquished
9397100092	4	13	081	1-36	9,216.00	Relinquished
9397100093	4	14	081	1-36	9,216.00	Relinquished
9397100094	4	15	081	1-36	9,216.00	Relinquished
9397100098	4	19	081	1-36	9,216.00	Relinquished
9397100099	4	20	081	1-36	9,216.00	Relinquished
9397100100	4	21	081	1-36	9,216.00	Relinquished
9397100101	4	22	081	16NW; 17-36	9,216.00	Relinquished

Athabasca Block - "G" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	4	22	082	1-15; 16S,NE		
9397100102	4	01	082	1-36	9,216.00	Relinquished
9397100103	4	02	082	1-36	9,216.00	Relinquished
9397100104	4	03	082	1-36	9,216.00	Relinquished
9397100105	4	04	082	1-36	9,216.00	Relinquished
9397100106	4	05	082	1-36	9,216.00	Relinquished
9397100107	4	06	082	1-36	9,216.00	Relinquished
9397100108	4	07	082	1-36	9,216.00	Relinquished
9397100109	4	08	082	1-36	9,216.00	Relinquished
9397100110	4	09	082	1-36	9,216.00	Relinquished
9397100111	4	10	082	1-36	9,216.00	Relinquished
9397100112	4	11	082	1-36	9,216.00	Relinquished
9397100113	4	12	082	1-36	9,216.00	Relinquished
9397100114	4	13	082	1-36	9,216.00	Relinquished
9397100115	4	14	082	1-36	9,216.00	Relinquished
9397100117	4	16	082	1-36	9,216.00	Relinquished
9397100119	4	18	082	1-36	9,216.00	Relinquished
9397100120	4	19	082	1-36	9,216.00	Relinquished
9397100121	4	20	082	1-36	9,216.00	Relinquished
9397100122	4	21	82	1-36	9,216.00	Relinquished
9397100123	4	22	082	16NW; 17-36	9,216.00	Relinquished
	4	22	083	1-15; 16S,NE		
9397100124	4	01	083	1-36	9,216.00	Relinquished
9397100125	4	02	083	1-36	9,216.00	Relinquished
9397100126	4	03	083	1-36	9,216.00	Relinquished
9397100127	4	04	083	1-36	9,216.00	Relinquished
9397100128	4	05	083	1-36	9,216.00	Relinquished
9397100129	4	06	083	1-36	9,216.00	Relinquished
9397100130	4	07	083	1-36	9,216.00	Relinquished

Athabasca Block - "G" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100131	4	08	083	1-36	9,216.00	Relinquished
9397100132	4	09	083	1-36	9,216.00	Relinquished
9397100133	4	10	083	1-36	9,216.00	Relinquished
9397100134	4	11	083	1-36	9,216.00	Relinquished
9397100135	4	12	083	1-36	9,216.00	Relinquished
9397100136	4	13	083	1-36	9,216.00	Relinquished
9397100137	4	14	083	1-36	9,216.00	Relinquished
9397100138	4	15	083	1-36	9,216.00	Relinquished
9397100143	4	20	083	1-36	9,216.00	Relinquished
9397100145	4	22	083	16NW; 17-36	9,216.00	Relinquished
	4	22	084	1-15; 16S,NE		
9397100146	4	01	084	1-36	9,216.00	Relinquished
9397100147	4	02	084	1-36	9,216.00	Relinquished
9397100148	4	03	084	1-36	9,216.00	Relinquished
9397100149	4	04	084	1-36	9,216.00	Relinquished
9397100150	4	05	084	1-36	9,216.00	Relinquished
9397100151	4	06	084	1-36	9,216.00	Relinquished
9397100152	4	07	084	1-36	9,216.00	Relinquished
9397100153	4	08	084	1-36	9,216.00	Relinquished
9397100154	4	09	084	1-36	9,216.00	Relinquished
9397100155	4	10	084	1-36	9,216.00	Relinquished
9397100156	4	11	084	1-36	9,216.00	Relinquished
9397100157	4	12	084	1-36	9,216.00	Relinquished
9397100158	4	13	084	1-36	9,216.00	Relinquished
9397100159	4	14	084	1-36	9,216.00	Relinquished
9397100160	4	15	084	1-36	9,216.00	Relinquished
9397100167	4	22	084	16NW; 17-36	9,216.00	Relinquished
	4	22	085	5-8; 17-20; 29-33; 34N,SW		
	4	22	086	3; 4		

Athabasca Block - "G" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100168	4	01	085	1-3; 10-15; 19-36	9,216.00	Relinquished
	4	01	086	4-9; 16-18		
9397100169	4	01	085	4-9; 16-18	9,216.00	Relinquished
	4	02	085	1-18; 22-27; 34-36		
9397100170	4	02	085	19-21; 28-33	9,216.00	Relinquished
	4	03	085	1-18; 22-27; 34-36		
9397100171	4	3	85	19-21; 28-33	9,216.00	Relinquished
	4	4	85	1-18; 22-27; 34-36		
9397100172	4	04	085	19-21; 28-33	9,216.00	Relinquished
	4	05	085	1-18; 22-27; 34-36		
9397100173	4	05	085	19-21; 28-33	9,216.00	Relinquished
	4	05	086	4-9; 16-21; 28-33		
	4	06	086	22-27; 34-36		
9397100174	4	06	085	1-36	9,216.00	Relinquished
9397100175	4	07	085	1; 2; 11-16; 21-36	9,037.00	Relinquished
	4	07	086	4; 5; 6S,L9-L12; 7SP,NW,NEP; 8NP; 9S Portion(s) designated as Gregoire Lake		
	4	07	086	9S,NP; 16N,SE,SWP Portion(s) lying outside Gregoire Lake Provincial Park		
	4	07	086	17SP,NWP; 18P; 20; 21; 22W; 29; 30 Portion(s) designated as Gregoire Lake		
9397100176	4	09	085	1-36	9,216.00	Relinquished
9397100177	4	10	085	1-36	9,216.00	Relinquished
9397100178	4	11	085	1-36	9,216.00	Relinquished
9397100179	4	12	085	1-36	9,216.00	Relinquished
9397100180	4	13	085	1-36	9,216.00	Relinquished
9397100181	4	14	085	1-36	9,216.00	Relinquished
9397100189	4	01	086	1-3; 10-15; 19-36	9,216.00	Relinquished
	4	02	086	22-27; 34-36		
9397100190	4	05	086	1-3; 10-15; 22-27; 34-36	9,216.00	Relinquished

Athabasca Block - "G" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	4	05	087	1-18		
9397100191	4	06	086	1-21; 28-33	9,216.00	Relinquished
	4	07	086	1-3; 10-15		
9397100192	4	07	086	22E; 23-28; 31-36	9,088.00	Relinquished
	4	07	087	4-9; 16-18		
	4	08	086	33E; 34; 35		
	4	08	087	1-3; 4N; 9-16		
	4	08	087	4S; 5-8; 17-20; 29-31		
9397100195	4	10	086	1-36	9,216.00	Relinquished
9397100196	4	11	086	1-3; 10-15; 22-28; 31-36	9,216.00	Relinquished
	4	11	087	1-10; 15-18		
9397100199	4	13	086	4-9; 17-20; 29-32	9,216.00	Relinquished
	4	14	086	1-18; 23-25; 36		
9397100200	4	14	086	19-22; 26-35	9,216.00	Relinquished
	4	14	087	1-4; 9-16; 21-27; 34-36		
9397100201	4	15	087	4-9; 17; 18	9,216.00	Relinquished
	4	16	086	19-36		
	4	16	087	1-4; 9-14		
9397100202	4	17	086	1-36	9,216.00	Relinquished
9397100203	4	18	086	1-36	9,216.00	Relinquished
9397100204	4	19	086	1-36	9,216.00	Relinquished
9397100206	4	05	087	19-36	9,216.00	Relinquished
	4	05	088	1-18		
9397100207	4	07	087	33-36	1,024.00	Relinquished
9397100209	4	09	087	6; 7; 18; 19; 30; 31	9,216.00	Relinquished
	4	10	087	1-3; 10-15; 22-28; 31-36		
	4	10	088	1-8		
9397100210	4	10	087	4-9; 16-21; 29; 30	9,216.00	Relinquished
	4	11	087	11-14; 19-36		

Athabasca Block - "G" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100211	4	14	087	5-8; 17-20; 28-33	9,216.00	Relinquished
	4	15	087	1-3; 10-16; 21-28; 33-36		
9397100212	4	15	087	19; 20; 29-32	9,216.00	Relinquished
	4	16	087	15; 16; 20-29; 31-36		
	4	16	088	1-12		
9397100213	4	16	087	5-8; 17-19; 30	8,512.00	Relinquished
	4	17	087	1-4; 9-16; 21-28; 29NE; 32-36		
9397100214	4	17	087	5-8; 17-20; 29S,NW; 30; 31	9,216.00	Relinquished
	4	18	087	1-4; 9-16; 21-28; 29NE; 32-36		
9397100215	4	18	087	5-8; 17-20; 29S,NW; 30; 31	9,216.00	Relinquished
	4	19	087	1-4; 9-16; 21-28; 29NE; 32-36		
9397100217	4	21	087	4-9; 16-20; 29-33	9,216.00	Relinquished
	4	22	086	33		
	4	22	087	1-3; 10-15; 22-27; 33-36		
9397100218	4	02	088	1-36	9,216.00	Relinquished
9397100219	4	03	088	1-3; 10-15; 19-36	6,912.00	Relinquished
9397100220	4	14	088	1-36	9,216.00	Relinquished
9397100221	4	15	088	1-36	9,216.00	Relinquished
9397100222	4	16	088	13-36	9,216.00	Relinquished
	4	16	089	1-12		
9397100225	4	11	089	1-36	9,216.00	Relinquished
9397100226	4	12	89	1-31;32N, L1, L4, L5, L8; 33-36	9,216.00	Relinquished
9397100227	4	13	089	1-36	9,216.00	Relinquished
9397100228	4	14	089	1-36	9,216.00	Relinquished
9397100229	4	15	089	1-36	9,216.00	Relinquished
9397100230	4	16	089	13-36	9,216.00	Relinquished
	4	16	090	1-12		
9397100238	4	13	090	1-36	9,216.00	Relinquished
9397100239	4	14	090	1-36	9,216.00	Relinquished

Athabasca Block - "G" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100240	4	15	090	1-36	9,216.00	Relinquished
9397100241	4	16	090	13-36	9,216.00	Relinquished
	4	16	091	1-12		
9397100247	4	14	091	1-36	9,216.00	Relinquished
9397100248	4	16	091	13-36	9,216.00	Relinquished
	4	16	092	1-12		
9397100256	4	14	092	1-36	9,216.00	Relinquished
9397100257	4	15	092	25-36	9,216.00	Relinquished
	4	16	092	13-36		
9397100264	4	15	093	1-36	9,216.00	Relinquished
9397100265	4	16	093	1-36	9,216.00	Relinquished
9397100271	4	15	094	1-36	9,216.00	Relinquished
9397100276	4	15	095	1-36	9,216.00	Relinquished
9397100279	4	15	096	1-36	9,216.00	Relinquished
9397100282	4	15	097	1-36	9,216.00	Relinquished
	4	02	099	1-18		
9397100285	4	14	098	1-36	9,216.00	Relinquished
9397100286	4	15	098	1-36	9,216.00	Relinquished
	4	02	100	1-18		
9397100289	4	14	099	1-36	9,216.00	Relinquished
9397100290	4	15	099	1-36	9,216.00	Relinquished
9397100516	4	16	101	1-36	9,216.00	Relinquished
9397100517	4	17	101	1-36	9,216.00	Relinquished
9397100518	4	18	101	1-36	9,216.00	Relinquished
9397100519	4	19	101	1-36	9,216.00	Relinquished
9397100520	4	20	101	1-36	9,216.00	Relinquished
9397100521	4	21	101	1-36	9,216.00	Relinquished
9397100522	4	25	101	1; 2; 3EF; 10EF; 11-14; 15EF; 22EF; 23-26; 27EF; 34EF; 35; 36	6,336.00	Relinquished

Athabasca Block - "G" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	4	25	102	1; 2; 3EF; 10EF; 11-14; 15EF; 22EF; 23-26; 27EF; 34EF; 35; 36		
9397100527	4	20	102	1-36	9,216.00	Relinquished
9397100528	4	23	102	1-36	9,216.00	Relinquished
9397100533	4	23	103	1-36	9,216.00	Relinquished
9397100534	4	24	103	1-36	9,216.00	Relinquished
9397100535	4	24	104	6; 7; 18-20; 29-32	4,332.00	Relinquished
	4	25	103	1E,WF; 12E,WF; 13E,WF; 24E,WF; 25E,WF; 36E,WF		
	4	25	104	1E,WF; 12E,WF; 13E,WF; 24E,WF; 25E,WF; 36E,WF		
9397100539	4	19	104	6; 7; 18-20; 29-32	9,216.00	Relinquished
	4	20	104	1-5; 8-17; 21-28; 33-36		
9397100540	4	20	104	6; 7; 18-20; 29-32	9,216.00	Relinquished
	4	21	104	1-5; 8-17; 21-28; 33-36		
9397100541	4	21	104	6; 7; 18-20; 29-32	9,216.00	Relinquished
	4	22	104	1-5; 8-17; 21-28; 33-36		
9397100542	4	22	104	6; 7; 18-20; 29-32	9,216.00	Relinquished
	4	23	104	1-5; 8-17; 21-28; 33-36		
9397100543	4	23	104	6; 7; 18-20; 29-32	9,216.00	Relinquished
	4	24	104	1-5; 8-17; 21-28; 33-36		

225 ***permits***

Athabasca Block - "H" Retained & Amended Permits

PERMIT NUMBER	CURRENT ANNIVERSARY DATE	M	RN	TWP	ORIGINAL AREA (ha)	AMEND PERMIT	NEW AREA (ha)	ASSESSMENT REQUIREMENT $	EXPENDITURES $	EXCESS (DEFICIT)	ASSESSMENT PERIOD 1	NEXT ANNIVERSARY
9397100223	17-Oct-99	4	02	090	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,105.84	$ 25.84	paid	17-Oct-01
		4	03	089								
		4	03	090								
9397100232	17-Oct-99	4	02	090	9216.000	Intact	9,216.00	$ 46,080.00	$ 46,105.84	$ 25.84	paid	17-Oct-01
		4	02	091								
9397100235	17-Oct-99	4	07	090	4608.000	Relinquish Sections: 1 to 3, 10 to 15,	2,304.00	$ 11,520.00	$ 11,545.84	$ 25.84	paid	17-Oct-01
9397100236	17-Oct-99	4	07	090	9216.000	Relinquish Sections: 22 to 27, 34 to 36						
		4	07	091		Relinquish Sections: 1 to 3, 10 to 15	2,304.00	$ 11,520.00	$ 11,545.84	$ 25.84	paid	17-Oct-01
		4	08	091		Relinquish Sections: 1 to 3, 10 to 15						
9397100237	17-Oct-99	4	07	090	9216.000		2,304.00	$ 11,520.00	$ 11,545.84	$ 25.84	paid	17-Oct-01
		4	08	090		Relinquish Sections: 1 to 18, 22 to 27, 34 to 36						
9397100243	17-Oct-99	4	02	091	9216.000		6,912.00	$ 34,560.00	$ 34,585.84	$ 25.84	paid	17-Oct-01
		4	02	092		Relinquish Permits: 4 to 9, 16 to 18						
6	***permits***					***Total:***	32,256.00	$ 161,280.00	$ 161,435.06	$ 155.06		

Athabasca Block - "H" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100224	4	06	089	19-24	9,216.00	Relinquished
	4	06	090	7-36		
9397100231	4	01	090	1-36	9,216.00	Relinquished
9397100233	4	04	090	1-36	9,216.00	Relinquished
9397100234	4	05	090	1-36	9,216.00	Relinquished
9397100242	4	01	091	1-36	9,216.00	Relinquished
9397100244	4	04	091	1-36	9,216.00	Relinquished
9397100245	4	05	091	1-36	9,216.00	Relinquished
9397100246	4	06	091	1-36	9,216.00	Relinquished
9397100249	4	01	092	1-36	9,216.00	Relinquished
9397100250	4	02	092	1-3; 10-15; 19-36	9,216.00	Relinquished
	4	03	092	22-27; 34-36		
9397100251	4	03	092	1-21; 28-33	9,216.00	Relinquished
	4	04	092	1-3; 10-15		
9397100252	4	04	092	4-9; 16-36	9,216.00	Relinquished
	4	05	092	1-3; 10-15		
9397100253	4	05	092	19-36	9,216.00	Relinquished
	4	05	093	1-18		
9397100254	4	05	092	4-9; 16-18	9,216.00	Relinquished
	4	06	092	1-18; 22-27; 34-36		
9397100255	4	06	092	19-21; 28-33	9,216.00	Relinquished
	4	06	093	1-18; 22-27; 34-36		
9397100258	4	01	093	1-36	9,216.00	Relinquished
9397100259	4	02	093	1-36	9,216.00	Relinquished
9397100260	4	03	093	1-36	9,216.00	Relinquished
9397100261	4	04	093	1-36	9,216.00	Relinquished
9397100262	4	05	093	19-36	9,216.00	Relinquished
	4	05	094	1-18		
9397100263	4	06	093	19-21; 28-33	9,216.00	Relinquished

Athabasca Block - "H" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
	4	06	094	1-21; 28-33		
9397100266	4	01	094	1-36	9,216.00	Relinquished
9397100267	4	02	094	1-36	9,216.00	Relinquished
9397100268	4	03	094	1-21; 28-33	9,216.00	Relinquished
	4	04	094	1-3; 10-15		
9397100269	4	03	094	22-27; 34-36	9,216.00	Relinquished
	4	03	095	1-18		
	4	04	095	1-3; 10-15		
9397100270	4	04	094	4-9; 16-36	9,216.00	Relinquished
	4	05	094	22-27; 34-36		
9397100272	4	01	095	1-36	9,216.00	Relinquished
9397100273	4	03	095	19-21; 28-33	9,216.00	Relinquished
	4	03	096	4-9; 16-21; 28-33		
	4	04	095	22-27; 34-36		
9397100274	4	04	095	4-9; 16-21; 28-33	9,216.00	Relinquished
	4	05	095	1-3; 10-15; 22-27; 34-36		
9397100275	4	06	095	19-36	9,216.00	Relinquished
	4	06	096	4-9; 16-21; 28-33		
9397100277	4	01	096	1-36	9,216.00	Relinquished
9397100278	4	05	096	1-18; 22-27; 34-36	9,216.00	Relinquished
	4	06	096	1-3; 10-15		
9397100280	4	01	097	1-36	9,216.00	Relinquished
9397100281	4	03	097	1-3; 10-15; 21-28; 33-36	5,376.00	Relinquished
9397100283	4	01	098	1-36	9,216.00	Relinquished
9397100284	4	02	098	19-36	9,216.00	Relinquished
9397100287	4	01	099	1-36	9,216.00	Relinquished
9397100288	4	02	099	19-36	9,216.00	Relinquished
9397100291	4	02	100	19-36	6,912.00	Relinquished
	4	02	101	4-9; 16-18		

Athabasca Block - "H" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100294	4	02	101	19-21; 28-33	7,936.00	Relinquished
	4	03	101	1; 2; 10-15; 21-29; 32-36		

40 **permits**

Athabasca Block - "I" Relinquished Permits

PERMIT NUMBER	W of M	RN	TWP	SEC	AREA (ha)	Permit Status
9397100293	4	01	101	1-3; 10-15; 22-27; 34-36	4,608.00	Relinquish
9397100295	4	01	102	4-9; 16-21; 28-33	9,216.00	Relinquish
	4	01	103	1-18		
9397100297	4	02	103	4-9; 16-21; 28-33	9,216.00	Relinquish
	4	03	103	19-36		

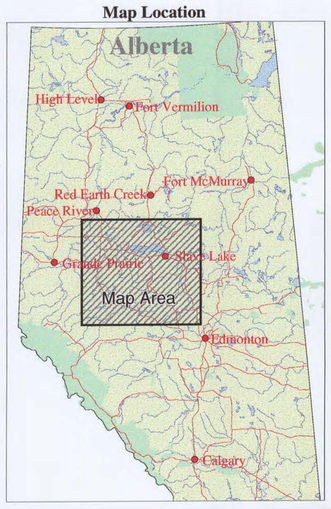
3 ***permits***

Athabasca Block - "I" Retained & Amended Permits

PERMIT NUMBER	CURRENT ANNIVERSARY DATE	M	RN	TWP	ORIGINAL AREA (ha)	AMEND PERMIT	NEW AREA (ha)	ASSESSMENT REQUIREMENT $	EXPENDITURES $	EXCESS (DEFICIT)	ASSESSMENT PERIOD 1	NEXT ANNIVERSARY
9397100296	17-Oct-99	4	01	103	9,216.00	Relinquish Sections: 30, 31	4,096.00	$ 20,480.00	$ 21,147.66	$ 667.66	paid	17-Oct-01
		4	02	103		Relinquish Sections: 1 to 3, 10 to 15, 22 to 27, 34 to 36						
1	*permit*					***Total:***	4,096.00	$ 20,480.00	$ 21,147.66	$ 667.66		

*Note: Townships and Ranges are West of the Fifth Meridian

Map Location



N

Legend

- Relinquished Area
- Retained Areas
- Park
- Road

Ashton Mining of Canada Inc.

Lesser Slave Property, Alberta
Assessment Filing January 2000
Permits Retained,
Permits Amended, and
Permits Relinquished

Date: Jan. 6, 2000

Authors: S. Shobridge and Alex Marshall

Office: Vancouver

Drw: Jan 4 2000 Permit Location Map

Proj: UTM Zone 11 Nad 27 for Canada

0 5 10 Kilometers

Scale 1: 300 000

N

9397100515 9397100514
9397100513 9397100512 9397100511
9397100509
9397100506 9397100510 9397100508 9397100507
9397100502 9397100505 9397100504 9397100503
9397100500
9397100501
9397100499 9397100498 9397100496 9397100495
9397100497
9397100494 9397100493 9397100492 9397100491
9397100489
9397100490 9397100488 9397100487 9397100486 9397100485 9397100484 9397100483
9397100482 9397100481 9397100480 9397100479 9397100478 9397100477 9397100476 9397100475 9397100474
9397100473 9397100472 9397100471 9397100470 9397100469 9397100468 9397100467
9397100466 9397100465 9397100464 9397100463 9397100462
9397100461
9397100460 9397100459 9397100458 9397100457 9397100456 9397100455
9397100454 9397100453 9397100452 9397100451 9397100450 9397100449
9397100448 9397100447 9397100446 9397100445 9397100444 9397100443
9397100442 9397100441 9397100440 9397100439 9397100438 9397100437
9397100436 9397100435 9397100434 9397100433 9397100432 9397100431 9397100430
9397100429 9397100428 9397100426 9397100425 9397100424 9397100423
9397100427
9397100422 9397100421 9397100420 9397100419 9397100418 9397100417 9397100416
9397100415 9397100414 9397100413 9397100412 9397100411 9397100410 9397100409
9397100408 9397100407 9397100406 9397100405 9397100404 9397100403 9397100402 9397100401
9397110016
9397110020 9397110019 9397110018 9397110017 9397110015
9397110011 9397110010 9397110009 9397110008
9397110005
9397110004 9397110003 9397110002

1 2 3 4 5 6 7 8 9
22 23 24 25
86 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71 70 69 68 67
89 88 87

Cardinal Lake
Peace River
Peace River
Smoky River
Bear Lake
Sturgeon Lake

Grande Prairie
Peace River

Legend

- Relinquished Area
- Retained Areas
- Park
- Road

Map Location

Ashton Mining of Canada Inc.

Date: Jan. 6, 2000	Whitemud Hills Property, Alberta Assessment Filing January 2000 Permits Retained, Permits Amended, and Permits Relinquished
Authors: S. Shobridge and Alex Marshall	
Office: Vancouver	
Drw: Jan4 2000 Permit Location Map	
Proj: UTM Zone 11 Nad 27 for Canada	

0 5 10 Kilometers

Scale 1: 300 000

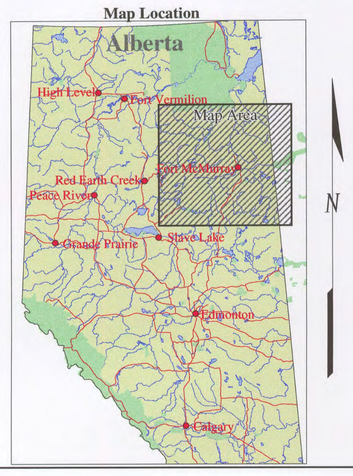
Ashton Mining of Canada Inc.

Athabasca Property, Alberta
Permit Location Map

Date: Dec. 3/1999
Author: S. Shobridge
Office: Vancouver
Drw: Permit Location Map
Proj:Nad 27 UTM Zone 12

0 5 10 Kilometers
Scale 1: 300 000

Map Location



Legend

- Property Outline
- Permit Outline
- Park
- Road

Fort MacKay
Fort McMurray
Mariana Lake
Eagle Lake
Saskatchewan
Fifth Meridian
Athabasca River
Eaglenest Lake
Sand Lake
Namur Lake
North Wabasca Lake
South Wabasca Lake
Sandy Lake
Pelican Lake
Willow Lake
Gordon Lake
Bohn Lake
Cowper Lake

*Note: Townships and Ranges are West of the Fifth Meridian

Map Location

Legend

- Property Outline
- Permit Outline
- Park
- Road

Ashton Mining of Canada Inc.

Lesser Slave Property,
Alberta
Permit Location Map

Date: Dec. 3/1999
Author: S. Shobridge
Office: Vancouver
Drw: Permit Location Map
Proj:Nad 27 UTM Zone 11

0 5 10 Kilometers
Scale 1: 300 000

APPENDIX B

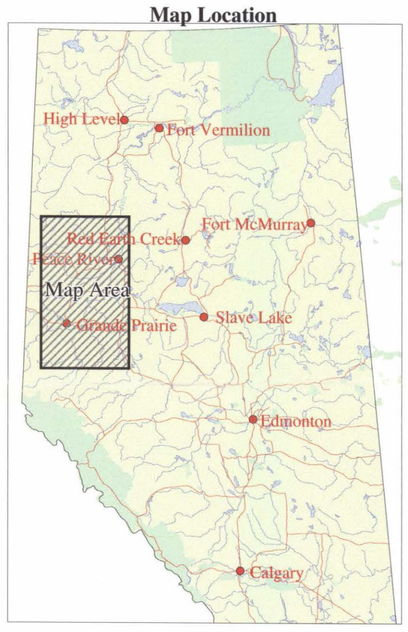
PERMIT LOCATION MAP
SCHEDULE OF METALLIC AND INDUSTRIAL MINERALS PERMITS
NOTICE OF DESIGNATION FOR ASSESSMENT PURPOSES

N

Legend

- Property Outline
- Permit Outline
- Park
- Road

Map Location



Ashton Mining of Canada Inc.

Date: Dec. 3/1999	White Mud Hills Property, Alberta Permit Location Map
Author: S. Shobridge	
Office: Vancouver	
Drw: Permit Location Map	
Proj:Nad 27 UTM Zone 11	

0 5 10 Kilometers

Scale 1: 300 000

Ashton Mining of Canada Inc.
Athabasca Project, Alberta
Metallic and Industrial Minerals Permits
12/2/99

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	COMMENCE DATE	EXPIRY DATE
9397100001	690688 ALBERTA LIMITED	4	04	077	1-36	9216.000	17-Oct-97	17-Oct-99
9397100002	690688 ALBERTA LIMITED	4	05	077	1-36	9216.000	17-Oct-97	17-Oct-99
9397100003	690688 ALBERTA LIMITED	4	06	077	1-36	9216.000	17-Oct-97	17-Oct-99
9397100004	690688 ALBERTA LIMITED	4	07	077	1-36	9216.000	17-Oct-97	17-Oct-99
9397100005	690688 ALBERTA LIMITED	4	08	077	1-36	9216.000	17-Oct-97	17-Oct-99
9397100006	690688 ALBERTA LIMITED	4	09	077	1-36	9216.000	17-Oct-97	17-Oct-99
9397100007	690688 ALBERTA LIMITED	4	10	077	1-36	9216.000	17-Oct-97	17-Oct-99
9397100008	690688 ALBERTA LIMITED	4	11	077	1-36	9216.000	17-Oct-97	17-Oct-99
9397100009	690688 ALBERTA LIMITED	4	19	077	1-36	9216.000	17-Oct-97	17-Oct-99
9397100010	690688 ALBERTA LIMITED	4	20	077	1-36	9216.000	17-Oct-97	17-Oct-99
9397100011	690688 ALBERTA LIMITED	4	22	077	7; 18; 30; 31	9216.000	17-Oct-97	17-Oct-99
		4	23	077	1; 12; 13; 24; 25; 36			
		4	23	078	1-26			
9397100012	690688 ALBERTA LIMITED	4	24	077	1-36	9216.000	17-Oct-97	17-Oct-99
9397100013	690688 ALBERTA LIMITED	4	26	077	1-4; 5EF; 8EF; 9-16; 17EF; 20EF; 21-28; 29EF; 32EF; 33-36	9155.620	17-Oct-97	17-Oct-99
		5	01	077	1; 2; 11-14; 23SE; 24; 25; 36			
9397100014	690688 ALBERTA LIMITED	5	01	077	3-10; 15-22; 23N,SW; 26-35	9216.000	17-Oct-97	17-Oct-99
		5	01	078	1-6; 9SE; 10-12			
9397100015	690688 ALBERTA LIMITED	4	03	078	1-36	9216.000	17-Oct-97	17-Oct-99
9397100016	690688 ALBERTA LIMITED	4	04	078	1-36	9216.000	17-Oct-97	17-Oct-99
9397100017	690688 ALBERTA LIMITED	4	05	078	1-36	9216.000	17-Oct-97	17-Oct-99
9397100018	690688 ALBERTA LIMITED	4	06	078	1-36	9216.000	17-Oct-97	17-Oct-99
9397100019	690688 ALBERTA LIMITED	4	07	078	1-4; 6; 7; 10-15; 16S; 17-36	9216.000	17-Oct-97	17-Oct-99
		4	08	078	1; 12; 13; 24S			
9397100020	690688 ALBERTA LIMITED	4	08	078	2-6; 10; 11; 19; 20; 24N; 25-36	9216.000	17-Oct-97	17-Oct-99
		4	09	078	1-3; 10-14; 15S; 23-26; 35; 36			
9397100021	690688 ALBERTA LIMITED	4	09	078	4-9; 15N; 16-22; 27-34	9216.000	17-Oct-97	17-Oct-99
		4	10	078	1; 2; 11-14; 22N; 23-27; 34-36			
9397100022	690688 ALBERTA LIMITED	4	10	078	3-10; 15-21; 22S; 28-33	9216.000	17-Oct-97	17-Oct-99
		4	10	079	1-14; 15E			
9397100023	690688 ALBERTA LIMITED	4	11	078	1-36	9216.000	17-Oct-97	17-Oct-99
9397100024	690688 ALBERTA LIMITED	4	18	078	1-36	9216.000	17-Oct-97	17-Oct-99
9397100025	690688 ALBERTA LIMITED	4	19	078	1-36	9216.000	17-Oct-97	17-Oct-99
9397100026	690688 ALBERTA LIMITED	4	20	078	1-36	9216.000	17-Oct-97	17-Oct-99
9397100027	690688 ALBERTA LIMITED	4	23	078	27-36	9216.000	17-Oct-97	17-Oct-99
		4	24	078	1-5; 8-16; 21-28; 33-36			
9397100028	690688 ALBERTA LIMITED	4	24	078	6; 7; 17-20; 29-32	9216.000	17-Oct-97	17-Oct-99
		4	25	078	1-5; 8-16; 21-28; 33-36			
9397100029	690688 ALBERTA LIMITED	4	25	078	6; 7; 17-20; 29-32	9122.880	17-Oct-97	17-Oct-99
		4	26	078	1-4; 5EF; 8EF; 9-16; 17EF; 20EF; 21-28; 33-36			
9397100030	690688 ALBERTA LIMITED	4	26	078	29EF; 32EF	9169.440	17-Oct-97	17-Oct-99
		5	01	078	7; 8; 9N,SW; 13-36			
		5	01	079	1-8; 9SW			
9397100031	690688 ALBERTA LIMITED	4	02	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100032	690688 ALBERTA LIMITED	4	03	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100033	690688 ALBERTA LIMITED	4	04	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100034	690688 ALBERTA LIMITED	4	05	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100035	690688 ALBERTA LIMITED	4	06	079	25; 35; 36	768.000	17-Oct-97	17-Oct-99
9397100036	690688 ALBERTA LIMITED	4	06	079	1-24; 26-34	9216.000	17-Oct-97	17-Oct-99
		4	06	080	4-6			
9397100037	690688 ALBERTA LIMITED	4	07	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100038	690688 ALBERTA LIMITED	4	08	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100039	690688 ALBERTA LIMITED	4	09	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100040	690688 ALBERTA LIMITED	4	10	079	, 15W; 16-36	9216.000	17-Oct-97	17-Oct-99
		4	10	080	1-14; 15E			
9397100041	690688 ALBERTA LIMITED	4	11	079	1-36	9216.000	17-Oct-97	17-Oct-99

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	COMMENCE DATE	EXPIRY DATE
9397100042	690688 ALBERTA LIMITED	4	12	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100043	690688 ALBERTA LIMITED	4	13	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100044	690688 ALBERTA LIMITED	4	14	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100045	690688 ALBERTA LIMITED	4	15	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100046	690688 ALBERTA LIMITED	4	16	079	1-30; 32-36	9216.000	17-Oct-97	17-Oct-99
		4	17	079	1			
9397100047	690688 ALBERTA LIMITED	4	17	079	2-12; 15E; 16-21; 22E; 27SE; 28-34	9216.000	17-Oct-97	17-Oct-99
		4	17	080	1-10; 11N,SW			
9397100048	690688 ALBERTA LIMITED	4	18	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100049	690688 ALBERTA LIMITED	4	19	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100050	690688 ALBERTA LIMITED	4	20	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100051	690688 ALBERTA LIMITED	4	21	079	1-36	9216.000	17-Oct-97	17-Oct-99
9397100052	690688 ALBERTA LIMITED	4	22	079	1; 2; 10-15; 20SP,NEP; 21-28; 29EP; 32EP; 33-36 Portion(s) lying outside Wabasca Indian Reserve No. 166	9200.000	17-Oct-97	17-Oct-99
		4	22	080	3; 4; 5NP,SEP; 6NP; 7-10; 18S Portion(s) lying outside Wabasca Indian Reserve No. 166			
		4	23	080	1NP; 2NP; 3NP; 4NP; 9SE; 10-12; 13S; 14; 15; 22; 23 Portion(s) lying outside Wabasca Indian Reserve No. 166			
9397100053	690688 ALBERTA LIMITED	4	22	079	3-9; 16; 17; 18S,NP; 19SEP Portion(s) lying outside Wabasca Indian Reserve No. 166	9198.000	17-Oct-97	17-Oct-99
		4	23	079	1-12; 13S,NP; 14S,NP; 15S,NP; 16S,NWP,NE; 17S,NP; 18S,NP; 21SP; 22SWP Portion(s) lying outside Wabasca Indian Reserve No. 166			
		4	24	079	1; 2; 11; 12; 13S,NP; 14S,NW,NEP; 23EP,SW Portion(s) lying outside Wabasca Indian Reserve No. 166			
		4	24	079	23EP,SW,NWP Portion(s) lying outside North and South Wabasca Lakes Proposed Forest Recreation Area			
		4	24	079	26SEP Portion(s) lying outside North and South Wabasca Lakes Proposed Forest Recreation Area and portion(s) lying outside Wabasca Indian Reserve No. 166			
		4	24	079	26SWP,NW Portion(s) lying outside North and South Wabasca Lakes Proposed Forest Recreation Area			
		4	24	079	26NEP; 35EP,W Portion(s) lying outside Wabasca Indian Reserve No. 166			
9397100054	690688 ALBERTA LIMITED	4	24	079	3-10; 15-18; 19S,NW,NEP; 20S,NP, 21S,NP; 22S,NP; 27SP,N; 28SP,N; 29; 30EP,W; 31SP,N; 32-34 Portion(s) lying outside North and South Wabasca Lakes Proposed Forest Recreation Area	9078.000	17-Oct-97	17-Oct-99
		4	25	079	1; 2; 11-14; 23; 24; 25S,NP; 26S,NP Portion(s) lying outside North and South Wabasca Lakes Proposed Forest Recreation Area			
		4	25	079	34NEP; 35E,WP; 36N Portion(s) lying outside Indian Reserve No. 166D			
		4	25	079	36N,SEP,SW Portion(s) lying outside North and South Wabasca Lakes Proposed Forest Recreation Area			
9397100055	690688 ALBERTA LIMITED	4	25	079	3-10; 15-22	9216.000	17-Oct-97	17-Oct-99
		4	25	080	18; 30SP,NW,NEP Portion(s) lying outside Wabasca Indian Reserve No. 166B			
		4	26	079	1; 11E; 12-14; 23-26; 35			
		4	26	080	2; 3; 4EF; 9EF; 10; 11; 12SWP; 13-15; 16EF; 25SP,NWP,NE; 35SP,NWP,NE; 36N,SE,SWP Portion(s) lying outside Wabasca Indian Reserve No. 166B			
9397100056	690688 ALBERTA LIMITED	4	26	079	2; 3; 4EF; 9EF; 10; 11W; 15; 16EF; 21EF; 22; 27; 28EF; 33EF; 34	9174.000	17-Oct-97	17-Oct-99
		5	01	079	9N,SE; 10-36			
9397100057	690688 ALBERTA LIMITED	4	01	080	1-20; 24-26; 28-36	9216.000	17-Oct-97	17-Oct-99
		4	02	080	1; 12; 13; 24			
9397100058	690688 ALBERTA LIMITED	4	02	080	2-11; 14-23; 25-36	9216.000	17-Oct-97	17-Oct-99
		4	03	080	25; 26; 35; 36			
9397100059	690688 ALBERTA LIMITED	4	03	080	1-6; 7L1; 8E,L3,L4,L6; 9-11; 15-22; 27-34	9216.000	17-Oct-97	17-Oct-99
		4	04	080	1; 11NE; 12-14; 23-26; 35; 36			
9397100060	690688 ALBERTA LIMITED	4	04	080	2-10; 11S,NW; 15-22; 27-34	9216.000	17-Oct-97	17-Oct-99
		4	05	080	1; 2E; 11SE; 12; 13; 14N; 23-26; 35; 36			
9397100061	690688 ALBERTA LIMITED	4	05	080	2W; 3E; 4SW,L2,L12,L13; 5-7; 8L1-L4; 9L4; 10EP,L6P; 11NP,SW; 15NE; 18; 19; 22E; 27E; 28NW,L15,L16; 29N,SW,L2,L7,L8; 30-34 Portion(s) lying outside Janvier Indian Reserve No. 194	9145.000	17-Oct-97	17-Oct-99
		4	06	080	1-3; 10-15; 21E; 22-28; 33-36			
9397100062	690688 ALBERTA LIMITED	4	06	080	7-9; 16-20; 21W; 29-32	9216.000	17-Oct-97	17-Oct-99
		4	07	080	1-4; 9-16; 21-28; 33E; 34-36			
9397100063	690688 ALBERTA LIMITED	4	07	080	5-8; 17-20; 29-32; 33W	9216.000	17-Oct-97	17-Oct-99
		4	08	080	1-4; 9-16; 21-28; 33E; 34-36			
9397100064	690688 ALBERTA LIMITED	4	08	080	5-8; 17-20; 29-32; 33W	9216.000	17-Oct-97	17-Oct-99
		4	09	080	1-4; 9-16; 21-28; 33E; 34-36			
9397100065	690688 ALBERTA LIMITED	4	09	080	5-8; 17-20; 29-32; 33W	8704.000	17-Oct-97	17-Oct-99
		4	10	080	15W; 16-36			
9397100066	690688 ALBERTA LIMITED	4	11	080	1-36	9216.000	17-Oct-97	17-Oct-99

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	COMMENCE DATE	EXPIRY DATE
9397100067	690688 ALBERTA LIMITED	4	12	080	1-36	9216.000	17-Oct-97	17-Oct-99
9397100068	690688 ALBERTA LIMITED	4	13	080	1-36	9216.000	17-Oct-97	17-Oct-99
9397100069	690688 ALBERTA LIMITED	4	14	080	1-36	9216.000	17-Oct-97	17-Oct-99
9397100070	690688 ALBERTA LIMITED	4	15	080	1-36	9216.000	17-Oct-97	17-Oct-99
9397100071	690688 ALBERTA LIMITED	4	16	080	1-36	9216.000	17-Oct-97	17-Oct-99
9397100072	690688 ALBERTA LIMITED	4	17	080	11SE; 12-36	9216.000	17-Oct-97	17-Oct-99
		4	18	080	1; 2; 11-14; 23-25; 26S,NE; 36			
9397100073	690688 ALBERTA LIMITED	4	18	080	3-10; 15-22; 26NW; 27-35	9216.000	17-Oct-97	17-Oct-99
		4	19	080	1; 2; 11-14; 23-25; 26S,NE; 36			
9397100074	690688 ALBERTA LIMITED	4	19	080	3-10; 15-22; 26NW; 27-35	9216.000	17-Oct-97	17-Oct-99
		4	20	080	1; 2; 11-14; 23-25; 26S,NE; 36			
9397100075	690688 ALBERTA LIMITED	4	20	080	3-10; 15-22; 26NW; 27-35	9216.000	17-Oct-97	17-Oct-99
		4	21	080	1; 2; 11-14; 23-25; 26S,NE; 36			
9397100076	690688 ALBERTA LIMITED	4	21	080	3-10; 15-22; 26NW; 27-35	9216.000	17-Oct-97	17-Oct-99
		4	22	080	1; 2; 11-14; 23-25; 26S,NE; 36			
9397100077	690688 ALBERTA LIMITED	4	22	080	15-17; 18N; 19-22; 26NW; 27-35	9216.000	17-Oct-97	17-Oct-99
		4	22	081	1-15; 16S,NE			
		4	23	080	13N; 24; 25; 36			
9397100078	690688 ALBERTA LIMITED	4	23	080	5NP; 6NP; 7; 8; 9N,SW; 16-21; 26-35 Portion(s) lying outside Wabasca Indian Reserve No. 166	9188.000	17-Oct-97	17-Oct-99
		4	24	080	1NP Portion(s) lying outside Wabasca Indian Reserve No. 166			
		4	24	080	2SEP Portion(s) lying outside Wabasca Reserve No. 166 and portions lying outside North and South Wabasca Lakes Proposed Forest Recreation Area			
		4	24	080	2SWP,NW Portions lying outside North and South Wabasca Lakes Proposed Forest Recreation Area			
		4	24	080	2NEP Portion(s) lying outside Wabasca Indian Reserve No. 166			
		4	24	080	3SP,N; 10-15; 22-27; 34-36 Portions lying outside North and South Wabasca Lakes Proposed Forest Recreation Area			
9397100079	690688 ALBERTA LIMITED	4	24	080	4SP,NWP,NE; 5-7; 8NP,SEP,SW; 9N,SE,SWP; 16; 17E,SWP Portions lying outside North and South Wabasca Lakes Proposed Forest Recreation Area	9155.000	17-Oct-97	17-Oct-99
		4	24	080	17E,NWP; 18S,NP; 19SWP; 20E,WP; 21; 28; 29N,SE,SWP; 30SP,N; 31-33 Portion(s) lying outside Wabasca Indian Reserve No. 166A			
		4	25	080	1; 2; 3EP; 10EP; 11; 12; 13NP,SEP,SW; 14; 15; 22S,NWP,NE; 23 Portion(s) lying outside Wabasca Indian Reserve No. 166D			
		4	25	080	24WP; 25SP,N; 26; 27E Portion(s) lying outside Wabasca Indian Reserve No. 166A			
		4	25	080	27E,WP; 28P; 29E,WP; 31SP,NWP,NE; 32N,SE,SWP; 33-36 Portion(s) lying outside Wabasca Indian Reserve No. 166D			
9397100080	690688 ALBERTA LIMITED	4	01	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100081	690688 ALBERTA LIMITED	4	02	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100082	690688 ALBERTA LIMITED	4	03	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100083	690688 ALBERTA LIMITED	4	04	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100084	690688 ALBERTA LIMITED	4	05	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100085	690688 ALBERTA LIMITED	4	06	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100086	690688 ALBERTA LIMITED	4	07	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100087	690688 ALBERTA LIMITED	4	08	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100088	690688 ALBERTA LIMITED	4	09	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100089	690688 ALBERTA LIMITED	4	10	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100090	690688 ALBERTA LIMITED	4	11	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100091	**690688 ALBERTA LIMITED**	**4**	**12**	**081**	**1-36**	**9216.000**	**17-Oct-97**	
9397100092	690688 ALBERTA LIMITED	4	13	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100093	690688 ALBERTA LIMITED	4	14	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100094	690688 ALBERTA LIMITED	4	15	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100095	690688 ALBERTA LIMITED	4	16	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100096	690688 ALBERTA LIMITED	4	17	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100097	690688 ALBERTA LIMITED	4	18	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100098	690688 ALBERTA LIMITED	4	19	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100099	690688 ALBERTA LIMITED	4	20	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100100	690688 ALBERTA LIMITED	4	21	081	1-36	9216.000	17-Oct-97	17-Oct-99
9397100101	690688 ALBERTA LIMITED	4	22	081	16NW; 17-36	9216.000	17-Oct-97	17-Oct-99
		4	22	082	1-15; 16S,NE			
9397100102	690688 ALBERTA LIMITED	4	01	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100103	690688 ALBERTA LIMITED	4	02	082	1-36	9216.000	17-Oct-97	17-Oct-99

PERMIT NUMBER	PERMIT HOLDER	W. of M	RN	TWP	SEC	HA	COMMENCE DATE	EXPIRY DATE
9397100104	690688 ALBERTA LIMITED	4	03	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100105	690688 ALBERTA LIMITED	4	04	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100106	690688 ALBERTA LIMITED	4	05	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100107	690688 ALBERTA LIMITED	4	06	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100108	690688 ALBERTA LIMITED	4	07	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100109	690688 ALBERTA LIMITED	4	08	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100110	690688 ALBERTA LIMITED	4	09	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100111	690688 ALBERTA LIMITED	4	10	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100112	690688 ALBERTA LIMITED	4	11	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100113	690688 ALBERTA LIMITED	4	12	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100114	690688 ALBERTA LIMITED	4	13	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100115	**690688 ALBERTA LIMITED**	**4**	**14**	**082**	**1-36**	**9216.000**	**17-Oct-97**	
9397100116	690688 ALBERTA LIMITED	4	15	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100117	690688 ALBERTA LIMITED	4	16	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100118	690688 ALBERTA LIMITED	4	17	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100119	690688 ALBERTA LIMITED	4	18	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100120	690688 ALBERTA LIMITED	4	19	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100121	690688 ALBERTA LIMITED	4	20	082	1-36	9216.000	17-Oct-97	17-Oct-99
9397100122	690688 ALBERTA LIMITED	4	21	82	1-36	9216.000	17-Oct-97	17-Oct-99
9397100123	690688 ALBERTA LIMITED	4	22	082	16NW; 17-36	9216.000	17-Oct-97	17-Oct-99
		4	22	083	1-15; 16S,NE			
9397100124	690688 ALBERTA LIMITED	4	01	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100125	690688 ALBERTA LIMITED	4	02	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100126	690688 ALBERTA LIMITED	4	03	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100127	690688 ALBERTA LIMITED	4	04	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100128	690688 ALBERTA LIMITED	4	05	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100129	690688 ALBERTA LIMITED	4	06	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100130	690688 ALBERTA LIMITED	4	07	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100131	690688 ALBERTA LIMITED	4	08	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100132	690688 ALBERTA LIMITED	4	09	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100133	690688 ALBERTA LIMITED	4	10	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100134	690688 ALBERTA LIMITED	4	11	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100135	690688 ALBERTA LIMITED	4	12	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100136	690688 ALBERTA LIMITED	4	13	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100137	690688 ALBERTA LIMITED	4	14	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100138	690688 ALBERTA LIMITED	4	15	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100139	690688 ALBERTA LIMITED	4	16	083	1-17; 18S,NW,L9,L10,L15; 19-36	9200.000	17-Oct-97	17-Oct-99
9397100140	690688 ALBERTA LIMITED	4	17	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100141	690688 ALBERTA LIMITED	4	18	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100142	690688 ALBERTA LIMITED	4	19	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100143	690688 ALBERTA LIMITED	4	20	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100144	690688 ALBERTA LIMITED	4	21	083	1-36	9216.000	17-Oct-97	17-Oct-99
9397100145	690688 ALBERTA LIMITED	4	22	083	16NW; 17-36	9216.000	17-Oct-97	17-Oct-99
		4	22	084	1-15; 16S,NE			
9397100146	690688 ALBERTA LIMITED	4	01	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100147	690688 ALBERTA LIMITED	4	02	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100148	690688 ALBERTA LIMITED	4	03	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100149	690688 ALBERTA LIMITED	4	04	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100150	690688 ALBERTA LIMITED	4	05	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100151	690688 ALBERTA LIMITED	4	06	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100152	690688 ALBERTA LIMITED	4	07	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100153	690688 ALBERTA LIMITED	4	08	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100154	690688 ALBERTA LIMITED	4	09	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100155	690688 ALBERTA LIMITED	4	10	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100156	690688 ALBERTA LIMITED	4	11	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100157	690688 ALBERTA LIMITED	4	12	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100158	690688 ALBERTA LIMITED	4	13	084	1-36	9216.000	17-Oct-97	17-Oct-99

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	COMMENCE DATE	EXPIRY DATE
9397100159	690688 ALBERTA LIMITED	4	14	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100160	690688 ALBERTA LIMITED	4	15	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100161	690688 ALBERTA LIMITED	4	16	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100162	690688 ALBERTA LIMITED	4	17	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100163	690688 ALBERTA LIMITED	4	18	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100164	690688 ALBERTA LIMITED	4	19	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100165	690688 ALBERTA LIMITED	4	20	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100166	690688 ALBERTA LIMITED	4	21	084	1-36	9216.000	17-Oct-97	17-Oct-99
9397100167	690688 ALBERTA LIMITED	4	22	084	16NW; 17-36	9216.000	17-Oct-97	17-Oct-99
		4	22	085	5-8; 17-20; 29-33; 34N,SW			
		4	22	086	3; 4			
9397100168	690688 ALBERTA LIMITED	4	01	085	1-3; 10-15; 19-36	9216.000	17-Oct-97	17-Oct-99
		4	01	086	4-9; 16-18			
9397100169	690688 ALBERTA LIMITED	4	01	085	4-9; 16-18	9216.000	17-Oct-97	17-Oct-99
		4	02	085	1-18; 22-27; 34-36			
9397100170	690688 ALBERTA LIMITED	4	02	085	19-21; 28-33	9216.000	17-Oct-97	17-Oct-99
		4	03	085	1-18; 22-27; 34-36			
9397100171	**690688 ALBERTA LIMITED**	**4**	**03**	**85**	**19-21; 28-33**	**9216.000**	**17-Oct-97**	
		4	**04**	**085**	**1-18; 22-27; 34-36**			
9397100172	690688 ALBERTA LIMITED	4	04	085	19-21; 28-33	9216.000	17-Oct-97	17-Oct-99
		4	05	085	1-18; 22-27; 34-36			
9397100173	690688 ALBERTA LIMITED	4	05	085	19-21; 28-33	9216.000	17-Oct-97	17-Oct-99
		4	05	086	4-9; 16-21; 28-33			
		4	06	086	22-27; 34-36			
9397100174	690688 ALBERTA LIMITED	4	06	085	1-36	9216.000	17-Oct-97	17-Oct-99
9397100175	690688 ALBERTA LIMITED	4	07	085	1; 2; 11-16; 21-36	9037.000	17-Oct-97	17-Oct-99
		4	07	086	4; 5; 6S,L9-L12; 7SP,NW,NEP; 8NP; 9S Portion(s) designated as Gregoire Lake			
		4	07	086	9S,NP; 16N,SE,SWP Portion(s) lying outside Gregoire Lake Provincial Park			
		4	07	086	17SP,NWP; 18P; 20; 21; 22W; 29; 30 Portion(s) designated as Gregoire Lake			
9397100176	690688 ALBERTA LIMITED	4	09	085	1-36	9216.000	17-Oct-97	17-Oct-99
9397100177	690688 ALBERTA LIMITED	4	10	085	1-36	9216.000	17-Oct-97	17-Oct-99
9397100178	690688 ALBERTA LIMITED	4	11	085	1-36	9216.000	17-Oct-97	17-Oct-99
9397100179	690688 ALBERTA LIMITED	4	12	085	1-36	9216.000	17-Oct-97	17-Oct-99
9397100180	690688 ALBERTA LIMITED	4	13	085	1-36	9216.000	17-Oct-97	17-Oct-99
9397100181	**690688 ALBERTA LIMITED**	**4**	**14**	**085**	**1-36**	**9216.000**	**17-Oct-97**	
9397100182	690688 ALBERTA LIMITED	4	18	085	1-3; 10-15; 22-27; 34-36	9216.000	17-Oct-97	17-Oct-99
		4	16	086	1-18			
9397100183	690688 ALBERTA LIMITED	4	18	085	1-36	9216.000	17-Oct-97	17-Oct-99
9397100184	690688 ALBERTA LIMITED	4	19	085	1-36	9216.000	17-Oct-97	17-Oct-99
9397100185	690688 ALBERTA LIMITED	4	20	085	1-31	9216.000	17-Oct-97	17-Oct-99
		4	21	085	1; 12; 24; 25; 36			
9397100186	690688 ALBERTA LIMITED	4	20	085	32-36	9216.000	17-Oct-97	17-Oct-99
		4	20	086	1-20; 30S,NW			
		4	21	085	34NE; 35			
		4	21	086	1-3; 10-13; 24; 25			
9397100187	690688 ALBERTA LIMITED	4	21	085	2-10; 16-20; 29; 30	9216.000	17-Oct-97	17-Oct-99
		4	22	085	1-4; 9-16; 21-28			
9397100188	690688 ALBERTA LIMITED	4	21	085	26-28; 31-33; 34S,NW	9216.000	17-Oct-97	17-Oct-99
		4	21	086	4-9; 16-20; 29-32			
		4	22	085	34SE; 35; 36			
		4	22	086	1; 2; 11-13; 24-27; 34-36			
9397100189	690688 ALBERTA LIMITED	4	01	086	1-3; 10-15; 19-36	9216.000	17-Oct-97	17-Oct-99
		4	02	086	22-27; 34-36			
9397100190	690688 ALBERTA LIMITED	4	05	086	1-3; 10-15; 22-27; 34-36	9216.000	17-Oct-97	17-Oct-99
		4	05	087	,1-18			
9397100191	690688 ALBERTA LIMITED	4	06	086	1-21; 28-33	9216.000	17-Oct-97	17-Oct-99
		4	07	086	1-3; 10-15			

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	COMMENCE DATE	EXPIRY DATE
9397100192	690688 ALBERTA LIMITED	4	07	086	22E; 23-28; 31-36	9088.000	17-Oct-97	17-Oct-99
		4	07	087	4-9; 16-18			
		4	08	086	33E; 34; 35			
		4	08	087	1-3; 4N; 9-16			
9397100193	690688 ALBERTA LIMITED	4	08	086	3N; 4-9; 10NP,SEP; 11SEP,NWP,NE; 12SP,N; 13; 14; 15E,WP; 16S,NW,L10,L15; 17-20; 21EP; 22E,WP; 23; 24EP,W; 25SP,NWP; 26NP,SE,SWP; 27SP; 29-32; 33W Portion(s) designated as Gregoire Lake	9130.000	17-Oct-97	17-Oct-99
		4	08	087	4S; 5-8; 17-20; 29-31			
9397100194	690688 ALBERTA LIMITED	4	09	086	1-36	9216.000	17-Oct-97	17-Oct-99
9397100195	690688 ALBERTA LIMITED	4	10	086	1-36	9216.000	17-Oct-97	17-Oct-99
9397100196	690688 ALBERTA LIMITED	4	11	086	1-3; 10-15; 22-28; 31-36	9216.000	17-Oct-97	17-Oct-99
		4	11	087	1-10; 15-18			
9397100197	690688 ALBERTA LIMITED	4	11	086	4-9; 16-21; 29; 30	9216.000	17-Oct-97	17-Oct-99
		4	12	086	1-3; 10-16; 21-28; 33-36			
9397100198	690688 ALBERTA LIMITED	4	12	086	4-9; 17-20; 29-32	9216.000	17-Oct-97	17-Oct-99
		4	13	086	1-3; 10-16; 21-28; 33-36			
9397100199	690688 ALBERTA LIMITED	4	13	086	4-9; 17-20; 29-32	9216.000	17-Oct-97	17-Oct-99
		4	14	086	1-18; 23-25; 36			
9397100200	690688 ALBERTA LIMITED	4	14	086	19-22; 26-35	9216.000	17-Oct-97	17-Oct-99
		4	14	087	1-4; 9-16; 21-27; 34-36			
9397100201	690688 ALBERTA LIMITED	4	15	087	4-9; 17; 18	9216.000	17-Oct-97	17-Oct-99
		4	16	086	19-36			
		4	16	087	1-4; 9-14			
9397100202	690688 ALBERTA LIMITED	4	17	086	1-36	9216.000	17-Oct-97	17-Oct-99
9397100203	690688 ALBERTA LIMITED	4	18	086	1-36	9216.000	17-Oct-97	17-Oct-99
9397100204	690688 ALBERTA LIMITED	4	19	086	1-36	9216.000	17-Oct-97	17-Oct-99
9397100205	690688 ALBERTA LIMITED	4	19	087	5-8; 17-20; 29S,NW; 30; 31	9216.000	17-Oct-97	17-Oct-99
		4	20	086	21-29; 30NE; 31-36			
		4	20	087	1; 2; 11-14; 24; 25; 36			
		4	21	086	36			
9397100206	690688 ALBERTA LIMITED	4	05	087	19-36	9216.000	17-Oct-97	17-Oct-99
		4	05	088	1-18			
9397100207	690688 ALBERTA LIMITED	4	07	087	33-36	1024.000	17-Oct-97	17-Oct-99
9397100208	690688 ALBERTA LIMITED	4	09	087	1-5; 8-17; 20-29; 32-36	9065.000	17-Oct-97	17-Oct-99
		4	09	088	1; 2E,WP; 3EP,W; 4-6 Portion(s) lying outside the Fort McMurray-Athabasca Oil Sands Integrated Resource Plan			
9397100209	690688 ALBERTA LIMITED	4	09	087	6; 7; 18; 19; 30; 31	9216.000	17-Oct-97	17-Oct-99
		4	10	087	1-3; 10-15; 22-28; 31-36			
		4	10	088	1-8			
9397100210	690688 ALBERTA LIMITED	4	10	087	4-9; 16-21; 29; 30	9216.000	17-Oct-97	17-Oct-99
		4	11	087	11-14; 19-36			
9397100211	690688 ALBERTA LIMITED	4	14	087	5-8; 17-20; 28-33	9216.000	17-Oct-97	17-Oct-99
		4	15	087	1-3; 10-16; 21-28; 33-36			
9397100212	690688 ALBERTA LIMITED	4	15	087	19; 20; 29-32	9216.000	17-Oct-97	17-Oct-99
		4	16	087	15; 16; 20-29; 31-36			
		4	16	088	1-12			
9397100213	690688 ALBERTA LIMITED	4	16	087	5-8; 17-19; 30	8512.000	17-Oct-97	17-Oct-99
		4	17	087	1-4; 9-16; 21-28; 29NE; 32-36			
9397100214	690688 ALBERTA LIMITED	4	17	087	5-8; 17-20; 29S,NW; 30; 31	9216.000	17-Oct-97	17-Oct-99
		4	18	087	1-4; 9-16; 21-28; 29NE; 32-36			
9397100215	690688 ALBERTA LIMITED	4	18	087	5-8; 17-20; 29S,NW; 30; 31	9216.000	17-Oct-97	17-Oct-99
		4	19	087	1-4; 9-16; 21-28; 29NE; 32-36			
9397100216	690688 ALBERTA LIMITED	4	20	087	3-10; 15-23; 26-35	9216.000	17-Oct-97	17-Oct-99
		4	21	087	1; 12; 13; 23-26; 35; 36			
9397100217	690688 ALBERTA LIMITED	4	21	087	4-9; 16-20; 29-33	9216.000	17-Oct-97	17-Oct-99
		4	22	086	33			
		4	22	087	,1-3; 10-15; 22-27; 33-36			
9397100218	690688 ALBERTA LIMITED	4	02	088	1-36	9216.000	17-Oct-97	17-Oct-99
9397100219	690688 ALBERTA LIMITED	4	03	088	1-3; 10-15; 19-36	6912.000	17-Oct-97	17-Oct-99

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	COMMENCE DATE	EXPIRY DATE
9397100220	690688 ALBERTA LIMITED	4	14	088	1-36	9216.000	17-Oct-97	17-Oct-99
9397100221	690688 ALBERTA LIMITED	4	15	088	1-36	9216.000	17-Oct-97	17-Oct-99
9397100222	690688 ALBERTA LIMITED	4	16	088	13-36	9216.000	17-Oct-97	17-Oct-99
		4	16	089	1-12			
9397100223	690688 ALBERTA LIMITED	4	02	090	4-9; 16-18	9216.000	17-Oct-97	17-Oct-99
		4	03	089	22-27; 34-36			
		4	03	090	1-3; 10-15; 22-27; 34-36			
9397100224	690688 ALBERTA LIMITED	4	06	089	19-24	9216.000	17-Oct-97	17-Oct-99
		4	06	090	7-36			
9397100225	690688 ALBERTA LIMITED	4	11	089	1-36	9216.000	17-Oct-97	17-Oct-99
9397100226	**690688 ALBERTA LIMITED**	**4**	**12**	**089**	**1-31; 32N, L1, L4, L5, L8; 33-36**	**9216.000**	**17-Oct-97**	
9397100227	690688 ALBERTA LIMITED	4	13	089	1-36	9216.000	17-Oct-97	17-Oct-99
9397100228	690688 ALBERTA LIMITED	4	14	089	1-36	9216.000	17-Oct-97	17-Oct-99
9397100229	690688 ALBERTA LIMITED	4	15	089	1-36	9216.000	17-Oct-97	17-Oct-99
9397100230	690688 ALBERTA LIMITED	4	16	089	13-36	9216.000	17-Oct-97	17-Oct-99
		4	16	090	1-12			
9397100231	690688 ALBERTA LIMITED	4	01	090	1-36	9216.000	17-Oct-97	17-Oct-99
9397100232	690688 ALBERTA LIMITED	4	02	090	1-3; 10-15; 19-36	9216.000	17-Oct-97	17-Oct-99
		4	02	091	1-3; 10-15			
9397100233	690688 ALBERTA LIMITED	4	04	090	1-36	9216.000	17-Oct-97	17-Oct-99
9397100234	690688 ALBERTA LIMITED	4	05	090	1-36	9216.000	17-Oct-97	17-Oct-99
9397100235	690688 ALBERTA LIMITED	4	07	090	1-18	4608.000	17-Oct-97	17-Oct-99
9397100236	690688 ALBERTA LIMITED	4	07	090	22-27; 34-36	9216.000	17-Oct-97	17-Oct-99
		4	07	091	1-18			
		4	08	091	1-3; 10-15			
9397100237	690688 ALBERTA LIMITED	4	07	090	19-21; 28-33	9216.000	17-Oct-97	17-Oct-99
		4	08	090	1-18; 22-27; 34-36			
9397100238	690688 ALBERTA LIMITED	4	13	090	1-36	9216.000	17-Oct-97	17-Oct-99
9397100239	690688 ALBERTA LIMITED	4	14	090	1-36	9216.000	17-Oct-97	17-Oct-99
9397100240	690688 ALBERTA LIMITED	4	15	090	1-36	9216.000	17-Oct-97	17-Oct-99
9397100241	690688 ALBERTA LIMITED	4	16	090	13-36	9216.000	17-Oct-97	17-Oct-99
		4	16	091	1-12			
9397100242	690688 ALBERTA LIMITED	4	01	091	1-36	9216.000	17-Oct-97	17-Oct-99
9397100243	690688 ALBERTA LIMITED	4	02	091	4-9; 16-36	9216.000	17-Oct-97	17-Oct-99
		4	02	092	4-9; 16-18			
9397100244	690688 ALBERTA LIMITED	4	04	091	1-36	9216.000	17-Oct-97	17-Oct-99
9397100245	690688 ALBERTA LIMITED	4	05	091	1-36	9216.000	17-Oct-97	17-Oct-99
9397100246	690688 ALBERTA LIMITED	4	06	091	1-36	9216.000	17-Oct-97	17-Oct-99
9397100247	690688 ALBERTA LIMITED	4	14	091	1-36	9216.000	17-Oct-97	17-Oct-99
9397100248	690688 ALBERTA LIMITED	4	16	091	13-36	9216.000	17-Oct-97	17-Oct-99
		4	16	092	1-12			
9397100249	690688 ALBERTA LIMITED	4	01	092	1-36	9216.000	17-Oct-97	17-Oct-99
9397100250	690688 ALBERTA LIMITED	4	02	092	1-3; 10-15; 19-36	9216.000	17-Oct-97	17-Oct-99
		4	03	092	22-27; 34-36			
9397100251	690688 ALBERTA LIMITED	4	03	092	1-21; 28-33	9216.000	17-Oct-97	17-Oct-99
		4	04	092	1-3; 10-15			
9397100252	690688 ALBERTA LIMITED	4	04	092	4-9; 16-36	9216.000	17-Oct-97	17-Oct-99
		4	05	092	1-3; 10-15			
9397100253	690688 ALBERTA LIMITED	4	05	092	19-36	9216.000	17-Oct-97	17-Oct-99
		4	05	093	1-18			
9397100254	690688 ALBERTA LIMITED	4	05	092	4-9; 16-18	9216.000	17-Oct-97	17-Oct-99
		4	06	092	1-18; 22-27; 34-36			
9397100255	690688 ALBERTA LIMITED	4	06	092	19-21; 28-33	9216.000	17-Oct-97	17-Oct-99
		4	06	093	1-18; 22-27; 34-36			
9397100256	690688 ALBERTA LIMITED	4	14	092	1-36	9216.000	17-Oct-97	17-Oct-99
9397100257	690688 ALBERTA LIMITED	4	15	092	25-36	9216.000	17-Oct-97	17-Oct-99
		4	16	092	13-36			

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	COMMENCE DATE	EXPIRY DATE
9397100258	690688 ALBERTA LIMITED	4	01	093	1-36	9216.000	17-Oct-97	17-Oct-99
9397100259	690688 ALBERTA LIMITED	4	02	093	1-36	9216.000	17-Oct-97	17-Oct-99
9397100260	690688 ALBERTA LIMITED	4	03	093	1-36	9216.000	17-Oct-97	17-Oct-99
9397100261	690688 ALBERTA LIMITED	4	04	093	1-36	9216.000	17-Oct-97	17-Oct-99
9397100262	**690688 ALBERTA LIMITED**	**4**	**05**	**093**	**19-36**	**9216.000**	**17-Oct-97**	
		4	**05**	**094**	**1-18**			
9397100263	690688 ALBERTA LIMITED	4	06	093	19-21; 28-33	9216.000	17-Oct-97	17-Oct-99
		4	06	094	1-21; 28-33			
9397100264	690688 ALBERTA LIMITED	4	15	093	1-36	9216.000	17-Oct-97	17-Oct-99
9397100265	690688 ALBERTA LIMITED	4	16	093	1-36	9216.000	17-Oct-97	17-Oct-99
9397100266	690688 ALBERTA LIMITED	4	01	094	1-36	9216.000	17-Oct-97	17-Oct-99
9397100267	690688 ALBERTA LIMITED	4	02	094	1-36	9216.000	17-Oct-97	17-Oct-99
9397100268	690688 ALBERTA LIMITED	4	03	094	1-21; 28-33	9216.000	17-Oct-97	17-Oct-99
		4	04	094	1-3; 10-15			
9397100269	690688 ALBERTA LIMITED	4	03	094	22-27; 34-36	9216.000	17-Oct-97	17-Oct-99
		4	03	095	1-18			
		4	04	095	1-3; 10-15			
9397100270	690688 ALBERTA LIMITED	4	04	094	4-9; 16-36	9216.000	17-Oct-97	17-Oct-99
		4	05	094	22-27; 34-36			
9397100271	690688 ALBERTA LIMITED	4	15	094	1-36	9216.000	17-Oct-97	17-Oct-99
9397100272	690688 ALBERTA LIMITED	4	01	095	1-36	9216.000	17-Oct-97	17-Oct-99
9397100273	690688 ALBERTA LIMITED	4	03	095	19-21; 28-33	9216.000	17-Oct-97	17-Oct-99
		4	03	096	4-9; 16-21; 28-33			
		4	04	095	22-27; 34-36			
9397100274	690688 ALBERTA LIMITED	4	04	095	4-9; 16-21; 28-33	9216.000	17-Oct-97	17-Oct-99
		4	05	095	1-3; 10-15; 22-27; 34-36			
9397100275	690688 ALBERTA LIMITED	4	06	095	19-36	9216.000	17-Oct-97	17-Oct-99
		4	06	096	4-9; 16-21; 28-33			
9397100276	690688 ALBERTA LIMITED	4	15	095	1-36	9216.000	17-Oct-97	17-Oct-99
9397100277	690688 ALBERTA LIMITED	4	01	096	1-36	9216.000	17-Oct-97	17-Oct-99
9397100278	690688 ALBERTA LIMITED	4	05	096	1-18; 22-27; 34-36	9216.000	17-Oct-97	17-Oct-99
		4	06	096	1-3; 10-15			
9397100279	690688 ALBERTA LIMITED	4	15	096	1-36	9216.000	17-Oct-97	17-Oct-99
9397100280	690688 ALBERTA LIMITED	4	01	097	1-36	9216.000	17-Oct-97	17-Oct-99
9397100281	690688 ALBERTA LIMITED	4	03	097	1-3; 10-15; 21-26; 33-36	5376.000	17-Oct-97	17-Oct-99
9397100282	690688 ALBERTA LIMITED	4	15	097	1-36	9216.000	17-Oct-97	17-Oct-99
9397100283	690688 ALBERTA LIMITED	4	01	098	1-36	9216.000	17-Oct-97	17-Oct-99
9397100284	690688 ALBERTA LIMITED	4	02	098	19-36	9216.000	17-Oct-97	17-Oct-99
		4	02	099	1-18			
9397100285	690688 ALBERTA LIMITED	4	14	098	1-36	9216.000	17-Oct-97	17-Oct-99
9397100286	690688 ALBERTA LIMITED	4	15	098	1-36	9216.000	17-Oct-97	17-Oct-99
9397100287	690688 ALBERTA LIMITED	4	01	099	1-36	9216.000	17-Oct-97	17-Oct-99
9397100288	690688 ALBERTA LIMITED	4	02	099	19-36	9216.000	17-Oct-97	17-Oct-99
		4	02	100	1-18			
9397100289	690688 ALBERTA LIMITED	4	14	099	1-36	9216.000	17-Oct-97	17-Oct-99
9397100290	690688 ALBERTA LIMITED	4	15	099	1-36	9216.000	17-Oct-97	17-Oct-99
9397100291	690688 ALBERTA LIMITED	4	02	100	19-36	6912.000	17-Oct-97	17-Oct-99
		4	02	101	4-9; 16-18			
9397100292	690688 ALBERTA LIMITED	4	15	100	1-10; 11S,NW,L10,L15; 12-36	9184.000	17-Oct-97	17-Oct-99
9397100293	690688 ALBERTA LIMITED	4	01	101	1-3; 10-15; 22-27; 34-36	4608.000	17-Oct-97	17-Oct-99
9397100294	690688 ALBERTA LIMITED	4	02	101	19-21; 28-33	7936.000	17-Oct-97	17-Oct-99
		4	03	101	1; 2; 10-15; 21-29; 32-36			
9397100295	690688 ALBERTA LIMITED	4	01	102	4-9; 16-21; 28-33	9216.000	17-Oct-97	17-Oct-99
		4	01	103	1-18			
9397100296	690688 ALBERTA LIMITED	4	01	103	19-36	9216.000	17-Oct-97	17-Oct-99
		4	02	103	1-3; 10-15; 22-27; 34-36			
9397100297	690688 ALBERTA LIMITED	4	02	103	4-9; 16-21; 28-33	9216.000	17-Oct-97	17-Oct-99

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	COMMENCE DATE	EXPIRY DATE
		4	03	103	19-36			
9397100516	690688 ALBERTA LIMITED	4	16	101	1-36	9216.000	24-Oct-97	24-Oct-99
9397100517	690688 ALBERTA LIMITED	4	17	101	1-36	9216.000	24-Oct-97	24-Oct-99
9397100518	690688 ALBERTA LIMITED	4	18	101	1-36	9216.000	24-Oct-97	24-Oct-99
9397100519	690688 ALBERTA LIMITED	4	19	101	1-36	9216.000	24-Oct-97	24-Oct-99
9397100520	690688 ALBERTA LIMITED	4	20	101	1-36	9216.000	24-Oct-97	24-Oct-99
9397100521	690688 ALBERTA LIMITED	4	21	101	1-36	9216.000	24-Oct-97	24-Oct-99
9397100522	690688 ALBERTA LIMITED	4	25	101	1; 2; 3EF; 10EF; 11-14; 15EF; 22EF; 23-26; 27EF; 34EF; 35; 36	6336.000	24-Oct-97	24-Oct-99
		4	25	102	1; 2; 3EF; 10EF; 11-14; 15EF; 22EF; 23-26; 27EF; 34EF; 35; 36			
9397100523	690688 ALBERTA LIMITED	4	16	102	1-36	9216.000	24-Oct-97	24-Oct-99
9397100524	690688 ALBERTA LIMITED	4	17	102	1-36	9216.000	24-Oct-97	24-Oct-99
9397100525	690688 ALBERTA LIMITED	4	18	102	1-36	9216.000	24-Oct-97	24-Oct-99
9397100526	690688 ALBERTA LIMITED	4	19	102	1-36	9216.000	24-Oct-97	24-Oct-99
9397100527	690688 ALBERTA LIMITED	4	20	102	1-36	9216.000	24-Oct-97	24-Oct-99
9397100528	690688 ALBERTA LIMITED	4	23	102	1-36	9216.000	24-Oct-97	24-Oct-99
9397100529	690688 ALBERTA LIMITED	4	16	103	1-36	9216.000	24-Oct-97	24-Oct-99
9397100530	690688 ALBERTA LIMITED	4	17	103	1-36	9216.000	24-Oct-97	24-Oct-99
9397100531	690688 ALBERTA LIMITED	4	18	103	1-36	9216.000	24-Oct-97	24-Oct-99
9397100532	690688 ALBERTA LIMITED	4	19	103	1-36	9216.000	24-Oct-97	24-Oct-99
9397100533	690688 ALBERTA LIMITED	4	23	103	1-36	9216.000	24-Oct-97	24-Oct-99
9397100534	690688 ALBERTA LIMITED	4	24	103	1-36	9216.000	24-Oct-97	24-Oct-99
9397100535	690688 ALBERTA LIMITED	4	24	104	6; 7; 18-20; 29-32	4332.000	24-Oct-97	24-Oct-99
		4	25	103	1E,WF; 12E,WF; 13E,WF; 24E,WF; 25E,WF; 36E,WF			
		4	25	104	1E,WF; 12E,WF; 13E,WF; 24E,WF; 25E,WF; 36E,WF			
9397100536	690688 ALBERTA LIMITED	4	16	104	1-9	9216.000	24-Oct-97	24-Oct-99
		4	17	104	1-5; 8-17; 21-28; 33-36			
9397100537	690688 ALBERTA LIMITED	4	17	104	6; 7; 18-20; 29-32	9216.000	24-Oct-97	24-Oct-99
		4	18	104	1-5; 8-17; 21-28; 33-36			
9397100538	690688 ALBERTA LIMITED	4	18	104	6; 7; 18-20; 29-32	9216.000	24-Oct-97	24-Oct-99
		4	19	104	1-5; 8-17; 21-28; 33-36			
9397100539	690688 ALBERTA LIMITED	4	19	104	6; 7; 18-20; 29-32	9216.000	24-Oct-97	24-Oct-99
		4	20	104	1-5; 8-17; 21-28; 33-36			
9397100540	690688 ALBERTA LIMITED	4	20	104	6; 7; 18-20; 29-32	9216.000	24-Oct-97	24-Oct-99
		4	21	104	1-5; 8-17; 21-28; 33-36			
9397100541	690688 ALBERTA LIMITED	4	21	104	6; 7; 18-20; 29-32	9216.000	24-Oct-97	24-Oct-99
		4	22	104	1-5; 8-17; 21-28; 33-36			
9397100542	690688 ALBERTA LIMITED	4	22	104	6; 7; 18-20; 29-32	9216.000	24-Oct-97	24-Oct-99
		4	23	104	1-5; 8-17; 21-28; 33-36			
9397100543	690688 ALBERTA LIMITED	4	23	104	6; 7; 18-20; 29-32	9216.000	24-Oct-97	24-Oct-99
		4	24	104	1-5; 8-17; 21-28; 33-36			
325 permits						***2,949,469.94 hectares 7,288,140.22 acres***		

Ashton Mining of Canada Inc.
Lesser Slave Project, Alberta
Metallic and Industrial Minerals Permits
11/26/99

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	ISSUE DATE	COMMENCE DATE	EXPIRY DATE
9397110001	690688 Alberta Limited	5	23	065	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110006	690688 Alberta Limited	5	22	066	1-24; 25NP,SEP,SW; 26S,NP; 27-34; 35P; 36SP,NWP,NE Portion(s) lying outside Little Smoky-Iosegun Proposed Natural Area.	8853.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110007	690688 Alberta Limited	5	23	066	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110012	690688 Alberta Limited	5	21	067	1-5; 6SP,NWP,NE; 7-36 Portion(s) lying outside Little Smoky-Iosegun Proposed Natural Area.	9156.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110013	690688 Alberta Limited	5	22	067	1W,NEP; 2-36 Portion(s) lying outside Little Smoky-Iosegun Proposed Natural Area.	9095.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110014	690688 Alberta Limited	5	23	067	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110021	690688 Alberta Limited	5	20	068	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110022	690688 Alberta Limited	5	21	068	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110023	**690688 Alberta Limited**	**5**	**18**	**069**	**1-36**	**9216.000**	**24-Nov-97**	**20-Nov-97**	
9397110024	690688 Alberta Limited	5	19	069	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110025	690688 Alberta Limited	5	20	069	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110026	690688 Alberta Limited	5	21	069	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110027	690688 Alberta Limited	5	16	070	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110028	690688 Alberta Limited	5	17	070	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110029	690688 Alberta Limited	5	18	070	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110030	690688 Alberta Limited	5	19	070	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110031	690688 Alberta Limited	5	20	070	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110032	690688 Alberta Limited	5	21	070	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110033	690688 Alberta Limited	5	13	071	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110034	690688 Alberta Limited	5	16	071	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110035	690688 Alberta Limited	5	17	071	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110036	690688 Alberta Limited	5	18	071	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110037	690688 Alberta Limited	5	19	071	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110038	690688 Alberta Limited	5	20	071	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110039	690688 Alberta Limited	5	21	071	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110040	690688 Alberta Limited	5	13	072	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110041	690688 Alberta Limited	5	14	072	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110042	690688 Alberta Limited	5	16	072	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110043	690688 Alberta Limited	5	17	072	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110044	690688 Alberta Limited	5	18	072	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110045	690688 Alberta Limited	5	19	072	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110046	690688 Alberta Limited	5	20	072	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110047	690688 Alberta Limited	5	21	072	1-30; 31S,NE; 32-36	9152.000	24-Nov-97	20-Nov-97	20-Nov-99

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	ISSUE DATE	COMMENCE DATE	EXPIRY DATE
9397110048	690688 Alberta Limited	5	11	073	1-13; 14NP,SE,SWP; 15SEP,L4P,L6P; 17SP,NWP; 18S,NW,NEP; 24NP,SE,SWP; 25SEP; 31; 32SP,NW,NEP Portion(s) lying outside Lesser Slave Lake	9092.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	11	074	5SP,NWP; 6S,NP Portion(s) lying outside Lesser Slave Lake				
		5	12	073	1-5; 8-11; 12S,NW,L9,L10,L16; 13N,SW,L1,L7,L8; 14; 15; 16NP,SE,SWP; 21SEP; 22NP,SE,SWP; 23S,NP; 24NP,SEP,SW; 36EP Portion(s) lying outside Driftpile Indian Reserve No. 150				
		5	12	074	1SP,NWP,NE Portion(s) lying outside Driftpile Indian Reserve No. 150				
		5	12	074	12SEP Portion(s) lying outside Lesser Slave Lake				
		5	12	074	12SWP Portion(s) lying outside Driftpile Indian Reserve No. 150 and lying outside Lesser Slave Lake				
9397110049	690688 Alberta Limited	5	12	073	6; 7; 17NP,SEP,SW; 18; 19EP,W; 20SWP; 31SP,NWP Portion(s) lying outside Driftpile Indian Reserve No. 150	9212.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	13	073	1-31				
9397110050	690688 Alberta Limited	5	14	073	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110051	690688 Alberta Limited	5	15	073	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110052	690688 Alberta Limited	5	16	073	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110053	690688 Alberta Limited	5	17	073	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110054	690688 Alberta Limited	5	18	073	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110055	690688 Alberta Limited	5	19	073	1-27; 28S; 29-36	9088.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110056	690688 Alberta Limited	5	20	073	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110057	690688 Alberta Limited	5	21	073	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110058	690688 Alberta Limited	5	09	074	2SWP; 3SEP,SW; 4; 5; 7N; 8; 9; 18SE; 19SWP Portion(s) lying outside Lesser Slave Lake	4002.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	10	074	2; 3; 4S,NWP,NE; 5SP,NEP; 9SP,NEP; 10S,NWP,NE; 11-14; 15NP,SE,SWP; 22SEP; 23SP,NEP; 24NP,SEP,SW Portion(s) lying outside Lesser Slave Lake				
9397110059	690688 Alberta Limited	5	13	073	32-34	9108.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	13	074	2SWP; 3SP,NWP; 4S,NW,NEP; 5-7; 8S,NP; 9SP,NWP; 17SWP; 18SP,NWP Portion(s) lying outside Lesser Slave Lake				
		5	14	074	1-6; 7SP; 8S,NP; 9-12; 13S Portion(s) lying outside Sucker Creek Indian Reserve No. 150A				
		5	14	074	13S,NP Portion(s) lying outside Little Grassy Proposed Natural Area and lying outside Lesser Slave Lake				
		5	14	074	14NP,SE,SWP Portion(s) lying outside Lesser Slave Lake				
		5	15	074	1-11; 12NP,SEP,SW; 17-19 Portion(s) lying outside Sucker Creek Indian Reserve No. 150A				
9397110060	690688 Alberta Limited	5	14	075	6WP; 7WP; 18WP Portion(s) lying outside Sucker Creek Indian Reserve No. 150A	9097.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	15	074	20-23; 24WP; 25WP; 26-35; 36WP Portion(s) lying outside Sucker Creek Indian Reserve No. 150A				
		5	15	075	1-4; 9-11; 12S,NE; 13; 14N,SE; 15-22; 23S,NW; 24SP; 26SW Portion(s) lying outside Buffalo Bay Wetlands for Tomorrow Project				
		5	16	075	13; 24W				
9397110061	690688 Alberta Limited	5	16	074	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110062	690688 Alberta Limited	5	17	074	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110063	**690688 Alberta Limited**	**5**	**18**	**074**	**1-36**	**9216.000**	**24-Nov-97**	**20-Nov-97**	
9397110064	690688 Alberta Limited	5	09	075	18N; 19; 20; 21N,L5-L8; 22L13; 25N,L5,L6; 26-36	9184.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	10	075	13N,L5-L8; 14N,L5-L8; 15N,L5-L8; 16N,L5-L8; 17N, L5-L8; 18N,L5-L8 20-29; 31; 32; 33N,SE,L3,L4S,L5N,L6; 34-36				
		5	11	075	13NE,L7,L8,L11,L14				
9397110065	690688 Alberta Limited	5	10	075	19; 30	9024.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	11	075	19N,L5-L8; 20N,L5-L8; 21-28; 29S; 30S,NW; 31W; 33E; 34-36				
		5	12	075	24N; 25-36				
		5	13	075	25-27; 34-36				
9397110066	690688 Alberta Limited	5	13	075	7NWP Portions lying outside Hilliard's Bay Provincial Park and lying outside Lesser Slave Lake	9167.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	13	075	20SEP; 28-33 Portions lying outside Lesser Slave Lake				
		5	14	075	10NWP Portions lying outside Lesser Slave Lake				
		5	14	075	12P Portions lying outside Hilliard's Bay Provincial Park and lying outside Lesser Slave Lake				
		5	14	075	15SP,N; 16SEP Portions lying outside Lesser Slave Lake				
		5	14	075	16SWP Portions lying outside Lesser Slave Lake and lying outside Sucker Creek Indian Reserve No. 150A				
		5	14	075	16NWP,NE; 17NEP Portions lying outside Lesser Slave Lake				
		5	14	075	19NWP Portions lying outside Buffalo Bay Wetlands for Tomorrow Project				
		5	14	075	19NEP Portions lying outside Buffalo Bay Wetlands for Tomorrow Project and lying outside Lesser Slave Lake				
		5	14	075	20SP,NWP,NE Portion(s) lying outside Lesser Slave Lake				
		5	14	075	21NP,SEP,SW; 22E,SWP; 25-27; 29SP Portion(s) lying outside Grouard Indian Reserve No. 230				
		5	14	075	29SP,NWP Portion(s) lying outside Grouard Indian Reserve No. 230 and Lot 27 of the Lesser Slave Lake Settlement				
		5	14	075	29SP,NEP Portion(s) lying outside Grouard Indian Reserve No. 230				

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	ISSUE DATE	COMMENCE DATE	EXPIRY DATE
		5	14	075	30NP,SE Portion(s) lying easterly of the Buffalo Bay Wetlands for Tomorrow Project and lying outside Lot 27 of the Lesser Slave Lake Settlement				
		5	14	075	30NP,SE,SWP Portion(s) lying easterly of the Buffalo Bay Wetlands for Tomorrow Project				
		5	14	075	31SEP Portion(s) lying outside of the Buffalo Bay Wetlands for Tomorrow Project and lying outside the Hudson Bay Reserve of the Lesser Slave Lake Settlement				
		5	14	075	31NEP Portion(s) lying outside Buffalo Bay Wetlands for Tomorrow Project and lying outside the Hudson Bay Reserve of the Lesser Slave Lake Settlement and lying outside Freeman Indian Reserve No. 150B				
		5	14	075	32SEP,SW Portion(s) lying outside Grouard Indian Reserve No. 230				
		5	14	075	32SEP,SW,NWP Portion(s) lying outside Grouard Indian Reserve No. 229 and Freeman Indian Reserve No. 150B				
		5	14	075	32SEP,SW,NEP; 34-36 Portion(s) lying outside Grouard Indian Reserve No. 229				
		5	14	076	1-3; 4SP,N Portion(s) lying outside Grouard Indian Reserve No. 230				
		5	14	076	5SEP; 9-16 Portion(s) lying outside Grouard Indian Reserve No. 229				
		5	14	076	17SP,N; 18SP,N; 19-22 Portion(s) lying outside Buffalo Bay Wetlands for Tomorrow Project				
9397110067	690688 Alberta Limited	5	15	075	5-8	6704.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	16	075	1-12; 14-18; 19S,NW; 20S; 21S; 22; 23; 30W; 31N,SEP,SW Portion(s) lying outside Buffalo Bay Wetlands for Tomorrow Project				
9397110068	690688 Alberta Limited	5	17	075	1-21; 22N,SW; 23; 24; 25E,WP; 27SW; 28-30; 31N; 32; 33W; 36SE,SWP,L9,L16 Portion(s) lying outside Jackpines Natural Area	7681.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110069	**690688 Alberta Limited**	**5**	**18**	**075**	**1-36**	**9216.000**	**24-Nov-97**	**20-Nov-97**	
9397110070	690688 Alberta Limited	5	03	076	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110071	690688 Alberta Limited	5	04	076	1-4; 7; 10-13; 17-36	7424.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110072	690688 Alberta Limited	5	05	076	2-36	8960.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110073	690688 Alberta Limited	5	06	076	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110074	690688 Alberta Limited	5	10	076	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110075	690688 Alberta Limited	5	11	076	1-3; 4E; 5N; 6-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	12	076	1				
9397110076	690688 Alberta Limited	5	12	076	2-18; 24	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	13	076	1-18				
9397110077	690688 Alberta Limited	5	12	076	21-23; 25-29; 32-36	7168.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	12	077	1-12; 16-18				
9397110078	690688 Alberta Limited	5	12	076	19; 20; 30; 31	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	13	076	19-36				
		5	14	076	23-36				
9397110079	690688 Alberta Limited	5	16	076	5W; 6; 7; 8NWP; 12WP Portion(s) lying outside Buffalo Bay Wetlands for Tomorrow Project	8052.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	16	076	12WP,SEP Portion(s) lying outside Buffalo Bay Wetlands for Tomorrow Project and lying outside Lot 89 of Big Prairie Settlement				
		5	16	076	12WP,NEP; 13 Portion(s) lying outside Lot 89 of Big Prairie Settlement				
		5	16	076	14NP,SEP; 15NP; 16SP,NW,NEP; 17P; 18-21; 22N,SEP,SW; 23N,SE,SWP; 24-36 Portion(s) lying outside Buffalo Bay Wetlands for Tomorrow Project				
		5	16	077	1-6; 12				
9397110080	690688 Alberta Limited	5	17	076	1; 2N; 3N; 4S,NW; 5-8; 9S; 10S,NE; 11-30; 31S,NWP,NE; 32-36 Portion(s) lying outside Winagami Lake Provincial Park	8678.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110081	690688 Alberta Limited	5	18	076	1-24; 25S,NEP; 26WP,SE; 27-34; 35WP; 36EP Portion(s) lying outside Winagami Lake Provincial Park	8667.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110082	690688 Alberta Limited	5	03	077	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110083	690688 Alberta Limited	5	10	077	1-36	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110084	690688 Alberta Limited	5	11	077	1-26; 35; 36	7168.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110085	690688 Alberta Limited	5	11	077	27-34	7424.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	12	077	13-15; 19-36				
9397110086	690688 Alberta Limited	5	16	077	7-11; 13-36	9024.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	16	078	1-6; 9SE				
9397110087	690688 Alberta Limited	5	17	077	1-5; 6E,SWP; 7-19 Portion(s) lying outside Winagami Lake Provincial Park	9074.400	24-Nov-97	20-Nov-97	20-Nov-99
		5	17	077	20SP,NWP,NE; 21-36 Portion(s) lying outside Heart River Dam Provincial Recreation Area				
9397110088	690688 Alberta Limited	5	18	077	2WP; 3-36 Portion(s) lying outside Winagami Lake Provincial Park	8803.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110089	690688 Alberta Limited	5	03	078	1-38	9216.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110090	690688 Alberta Limited	5	10	078	1-24; 25SP; 26SP; 27SP,NWP; 28S,NW,NEP; 29; 30E,WP; 31P; 32S,NWP,NE; 33SP,NWP; 34SWP Portion(s) lying outside the No Surface Access portion of Utikuma Lake Wetalnds for Tomorrow Project	7522.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110091	690688 Alberta Limited	5	11	078	1-24; 25EP,W; 26-35; 36EP,W Portion(s) lying outside the No Surface Access portion of Utikuma Lake Wetalnds for Tomorrow Project	9156.000	24-Nov-97	20-Nov-97	20-Nov-99
9397110092	690688 Alberta Limited	5	09	079	1; 2EP; 11EP; 12S,NWP,NE; 13SE,SWP,NEP; 24EP Portion(s) lying outside the No Surface Access portion of Utikuma Lake Wetalnds for Tomorrow Project	782.000	24-Nov-97	20-Nov-97	20-Nov-99

PERMIT NUMBER	PERMIT HOLDER	W6M	RN	TWP	SEC	HA	ISSUE DATE	COMMENCE DATE	EXPIRY DATE
9397110093	690688 Alberta Limited	5	09	080	10NWP Portion(s) lying outside the No Surface Access portion of Utikuma Lake Wetalnds for Tomorrow Project and lying outside Utikuma Indian Reserve No. 155A	7290.000	24-Nov-97	20-Nov-97	20-Nov-99
		5	09	080	10NEP; 11NP; 12NWP; 13SP,N; 14; 15E Portion(s) lying outside the No Surface Access portion of Utikuma Lake Wetalnds for Tomorrow Project				
		5	09	080	15E,WP; 16NEP; 19SP,N; 20SP,N; 21SP,N; 22-36 Portion(s) lying outside Utikuma Indian Reserve No. 155 A				
		5	10	080	25; 30SP,N; 31-36 Portion(s) lying outside Utikuma Indian Reserve No. 155				
9397110094	690688 Alberta Limited	5	11	080	16N,L5-L8; 19-21; 25SP,N; 26SP,N; 27N,SEP,SW; 28-36 Portion(s) lying outside Utikuma Indian Reserve No. 155	3971.000	24-Nov-97	20-Nov-97	20-Nov-99
9398020003	**Starwest Aviation Ltd.**	**5**	**01**	**060**	**1-36**	**9216.000**	**13-Feb-98**	**10-Feb-98**	
9398020004	**Starwest Aviation Ltd.**	**5**	**02**	**060**	**1-36**	**9216.000**	**13-Feb-98**	**10-Feb-98**	
9398020005	**Starwest Aviation Ltd.**	**5**	**03**	**060**	**1-36**	**9216.000**	**13-Feb-98**	**10-Feb-98**	
9398020006	**Starwest Aviation Ltd.**	**5**	**04**	**060**	**1-36**	**9216.000**	**13-Feb-98**	**10-Feb-98**	
9398020007	**Starwest Aviation Ltd.**	**5**	**05**	**060**	**1-36**	**9216.000**	**13-Feb-98**	**10-Feb-98**	
9398020008	**Starwest Aviation Ltd.**	**5**	**06**	**060**	**1-31; 32N,SWP Portion(s) lying outside Bear Lake Natural Area; 33; 34; 35SEP Portion(s) lying outside Clear Lake Natural Area, SW, NE; 36**	**9154.000**	**13-Feb-98**	**10-Feb-98**	
		5	**06**	**061**	**3S**				
9398020009	**Starwest Aviation Ltd.**	**5**	**07**	**060**	**1-36**	**9216.000**	**13-Feb-98**	**10-Feb-98**	
9398020010	Starwest Aviation Ltd.	5	8	060	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020011	Starwest Aviation Ltd.	5	9	060	1-5; 6E,WP; 7-36 Portion(s) lying outside a watercourse sensitive habitat area	9159.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020012	Starwest Aviation Ltd.	5	10	060	Tract One: 1; 2; 3N,SW; 4; 8-36	9152.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	10	060	Tract Two: 5-7 ***(See note below for permitted substances)***				
9398020013	Starwest Aviation Ltd.	5	11	060	Tract One: 19-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	11	060	Tract Two: 1-18 ***(See note below for permitted substances)***				
9398020014	Starwest Aviation Ltd.	5	12	060	Tract One: 5-8; 16; 17; 18S; 20-28; 29N,SE; 32-36	8238.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	12	060	Tract Two: 1; 2N,SEP,SW; 3; 4; 9-15 Portions(s) lying to the north of the right bank of the Athabasca River as shown on a Township Plan approved and confirmed by the Surveyor General at Ottawa on 1909/06/14 ***(See note below for permitted substances)***				
9398020015	Starwest Aviation Ltd.	5	13	060	1-12; 13S; 14S; 15-22; 27-33	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	13	061	4-9; 17; 18				
9398020016	Starwest Aviation Ltd.	5	14	060	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020017	Starwest Aviation Ltd.	5	15	060	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020018	Starwest Aviation Ltd.	5	16	060	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020019	Starwest Aviation Ltd.	5	17	060	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020020	Starwest Aviation Ltd.	5	01	061	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020021	Starwest Aviation Ltd.	5	02	061	1S,NW; 2-36	9152.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020022	Starwest Aviation Ltd.	5	03	061	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020023	Starwest Aviation Ltd.	5	04	061	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020024	Starwest Aviation Ltd.	5	05	061	1-5; 6N,SW; 7-24; 28S,NW; 29; 30	8128.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	06	061	1; 2; 11; 12; 24N,SE; 25E				
9398020025	Starwest Aviation Ltd.	5	06	061	3N; 4S,NW; 5; 6; 31N,SW; 32NW; 33NE; 34W; 35SEP Portion(s) lying outside Zone 3 of the Athabasca River Sandhills Integrated Resource Plan	3618.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	07	061	1S; 2; 3; 11E; 12W; 14NW; 15NE; 22; 27S,NW; 33-35; 36SW				
9398020026	Starwest Aviation Ltd.	5	07	061	4; 5SE; 7W; 9NE; 18N,SW; 19-21; 28; 29; 31; 32	7363.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	08	061	1-3; 10-15; 22-27; 28N; 33; 34; 35S,NEP; 36 Portion(s) lying outside Goose Creek proposed natural area				
9398020027	Starwest Aviation Ltd.	5	08	061	4-9; 16-21; 28S; 29-32	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	09	061	1-3; 10-15; 22-27; 28N; 33-36				
9398020028	Starwest Aviation Ltd.	5	09	061	4-9; 16-21; 28S; 29-32	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	10	061	1-3; 10-15; 22-27; 28N; 33-36				
9398020029	Starwest Aviation Ltd.	5	10	061	4-9; 16-21; 28S; 29-32	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	11	061	1-3; 10-15; 22-27; 28N; 33-36				
9398020030	Starwest Aviation Ltd.	5	11	061	4-9; 16; 17; 18S; 19NP; 20E,L3,L4,L6; 21; 28S; 29E,NWP,L3,L6; 30P; 31N,SEP; 32N,SE,SWP Portion(s) lying outside Carson-Pegasus Provincial Park	9212.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	12	061	1-4; 9-12; 13S,NW; 14-16; 21-23; 24P; 25SP,NEP; 26-28; 33-36 Portion(s) lying outside Carson-Pegasus Provincial Park				
9398020031	Starwest Aviation Ltd.	5	12	061	5; 7; 8; 17-20; 29-32	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	13	061	10-16; 19-36				
9398020032	Starwest Aviation Ltd.	5	14	061	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020033	Starwest Aviation Ltd.	5	15	061	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	ISSUE DATE	COMMENCE DATE	EXPIRY DATE
9398020034	Starwest Aviation Ltd.	5	16	061	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020035	Starwest Aviation Ltd.	5	17	061	5-8; 17-20; 29-32	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	17	062	3-10; 15-22; 27-34				
9398020036	Starwest Aviation Ltd.	5	01	062	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020037	Starwest Aviation Ltd.	5	02	062	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020038	Starwest Aviation Ltd.	5	03	062	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020039	Starwest Aviation Ltd.	5	04	062	1-15; 16S,NW,NEP; 17S,NEP; 18S; 20SEP; 21SP; 22E,WP; 23-27; 28EP; 33N,SE Portion(s) lying outside Fort Assiniboine Sandhills Wildland Provincial Park	9074.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	04	062	34NP,SEP,SW; 35; 36 Portion(s) lying outside Vega natural area				
		5	05	061	25; 26S,NWP,NE; 35N,SE,SWP; 36E,WP Portion(s) lying outside Fort Assiniboine Sandhills Wildland Provincial Park				
		5	05	062	1; 2; 11S,NP; 12S,NWP,NE; 13SP; 35S Portion(s) lying outside Fort Assiniboine Sandhills Wildland Provincial Park				
		5	05	063	2S				
9398020040	Starwest Aviation Ltd.	5	05	061	27P; 28NE; 31; 32; 33P; 34SP,NEP Portion(s) lying outside Fort Assiniboine Sandhills Wildland Provincial Park	9171.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	05	062	3SP,N; 4N,SEP,SW; 5-10; 17-20; 29-34 Portion(s) lying outside Fort Assiniboine Sandhills Wildland Provincial Park				
		5	05	063	2NW; 3; 10				
		5	06	061	36N,SE,SWP Portion(s) lying outside Holmes Crossing proposed natural area				
		5	06	062	1; 11-14; 23-26; 35; 36				
9398020041	Starwest Aviation Ltd.	5	06	062	2-9; 15-22; 27-34	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	07	062	1; 2; 11-14; 23-26; 35; 36				
9398020042	Starwest Aviation Ltd.	5	07	062	3-6; 7SE,SWP,NEP; 8-10; 15-17; 18N; 19-22; 27-34 Portion(s) lying outside Noel Lake natural area	8673.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	08	062	1; 2N,SWP; 11; 12SW,L2,L7; 13; 14; 23-26; 35; 36 Portion(s) lying outside Goose Creek natural area				
9398020043	Starwest Aviation Ltd.	5	08	062	3-10; 15-22; 27-34	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	09	062	1; 2; 11-14; 23-26; 35; 36				
9398020044	Starwest Aviation Ltd.	5	09	062	3-10; 15-22; 27-34	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	10	062	1; 2; 11-14; 23-26; 35; 36				
9398020045	Starwest Aviation Ltd.	5	10	062	3-10; 15-22; 27-34	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	11	062	1; 2; 11-14; 23-26; 35; 36				
9398020046	Starwest Aviation Ltd.	5	11	062	3-10; 15-22; 27-34	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	12	062	1; 2; 11-14; 23-26; 35; 36				
9398020047	Starwest Aviation Ltd.	5	12	062	3-10; 15-22; 27-34	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	13	062	1; 2; 11-14; 23-26; 35; 36				
9398020048	Starwest Aviation Ltd.	5	13	062	3-10; 15-22; 27-34	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	14	062	1; 2; 11-14; 23-26; 35; 36				
9398020049	Starwest Aviation Ltd.	5	14	062	3-10; 15-22; 27-34	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	15	062	1; 2; 11-14; 23-26; 35; 36				
9398020050	Starwest Aviation Ltd.	5	15	062	3-10; 15-22; 27-34	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	16	062	1; 2; 11-14; 23-26; 35; 36				
9398020051	Starwest Aviation Ltd.	5	16	062	3-10; 15-22; 27-34	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	17	062	1; 2; 11-14; 23-26; 35; 36				
9398020052	Starwest Aviation Ltd.	5	18	062	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020053	Starwest Aviation Ltd.	5	01	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020054	Starwest Aviation Ltd.	5	02	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020055	Starwest Aviation Ltd.	5	03	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020056	Starwest Aviation Ltd.	5	04	063	1; 2; 3E,WP; 7EP,W; 8NP,SWP; 10P; 11SP,NWP,NE; 12-36 Portion(s) lying outside Fort Assiniboine Sandhills Wildland Provincial Park	9174.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	05	063	1N; 2NE; 11-15				
9398020057	Starwest Aviation Ltd.	5	05	063	4-9; 16-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	05	064	1-3; 10-15				
9398020058	Starwest Aviation Ltd.	5	06	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020059	Starwest Aviation Ltd.	5	07	063	1-31; 32S,NW,NEP; 33P; 34-36 Portion(s) lying outside centre of Alberta natural area	9053.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020060	Starwest Aviation Ltd.	5	08	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020061	Starwest Aviation Ltd.	5	09	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020062	Starwest Aviation Ltd.	5	10	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020063	Starwest Aviation Ltd.	5	11	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020064	Starwest Aviation Ltd.	5	12	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020065	Starwest Aviation Ltd.	5	13	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	ISSUE DATE	COMMENCE DATE	EXPIRY DATE
9398020066	Starwest Aviation Ltd.	5	14	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020067	Starwest Aviation Ltd.	5	15	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020068	Starwest Aviation Ltd.	5	16	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020069	Starwest Aviation Ltd.	5	17	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020070	Starwest Aviation Ltd.	5	18	063	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020071	Starwest Aviation Ltd.	5	01	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020072	Starwest Aviation Ltd.	5	02	064	1-12; 13E; 15-22; 24E; 25E; 27-33; 34W; 36E,WP Portion(s) lying outside Hubert Lake proposed natural area	9194.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	02	065	1N,SE,SWP; 2N; 3N,SW; 4; 10-12 Portion(s) lying outside Hubert Lake proposed natural area				
9398020073	Starwest Aviation Ltd.	5	03	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020074	Starwest Aviation Ltd.	5	04	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020075	Starwest Aviation Ltd.	5	05	064	4-9; 16-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	05	065	1-3; 10-15				
9398020076	Starwest Aviation Ltd.	5	06	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020077	Starwest Aviation Ltd.	5	07	064	1-3; 4P; 5N,SW,L2P,L7,L8; 6-36 Portion(s) lying outside the centre of Alberta natural area	9062.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020078	Starwest Aviation Ltd.	5	08	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020079	Starwest Aviation Ltd.	5	09	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020080	Starwest Aviation Ltd.	5	10	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020081	Starwest Aviation Ltd.	5	11	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020082	Starwest Aviation Ltd.	5	12	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020083	Starwest Aviation Ltd.	5	13	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020084	Starwest Aviation Ltd.	5	14	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020065	Starwest Aviation Ltd.	5	15	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020086	Starwest Aviation Ltd.	5	16	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020087	Starwest Aviation Ltd.	5	17	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020088	Starwest Aviation Ltd.	5	18	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020089	Starwest Aviation Ltd.	5	19	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020090	Starwest Aviation Ltd.	5	20	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020091	Starwest Aviation Ltd.	5	21	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020092	Starwest Aviation Ltd.	5	22	064	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020093	Starwest Aviation Ltd.	5	01	065	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020094	Starwest Aviation Ltd.	5	02	065	5-9; 13-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	02	066	1-3; 11-14				
9398020095	Starwest Aviation Ltd.	5	03	065	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020096	Starwest Aviation Ltd.	5	04	065	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020097	Starwest Aviation Ltd.	5	05	065	4-9; 16-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	05	066	4-9; 16-18				
9398020098	Starwest Aviation Ltd.	5	06	065	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020099	Starwest Aviation Ltd.	5	07	065	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020100	Starwest Aviation Ltd.	5	08	065	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020101	**Starwest Aviation Ltd.**	**5**	**09**	**065**	**1-36**	**9216.000**	**13-Feb-98**	**10-Feb-98**	
9398020102	Starwest Aviation Ltd.	5	10	065	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020103	Starwest Aviation Ltd.	5	11	065	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020104	Starwest Aviation Ltd.	5	16	065	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020105	Starwest Aviation Ltd.	5	17	065	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020106	Starwest Aviation Ltd.	5	18	065	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020107	**Starwest Aviation Ltd.**	**5**	**20**	**065**	**1-36**	**9216.000**	**13-Feb-98**	**10-Feb-98**	
9398020108	Starwest Aviation Ltd.	5	21	065	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020109	Starwest Aviation Ltd.	5	22	065	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020110	Starwest Aviation Ltd.	5	01	066	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020111	Starwest Aviation Ltd.	5	02	066	17-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	02	067	1-16				
9398020112	Starwest Aviation Ltd.	5	02	066	4-10; 15; 16	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	03	066	1-3; 10-15; 19-36				
9398020113	Starwest Aviation Ltd.	5	03	066	4-9; 16-18	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	04	066	1-3; 10-15; 19-36				
9398020114	**Starwest Aviation Ltd.**	**5**	**04**	**066**	**4-9; 16-18**	**9216.000**	**13-Feb-98**	**10-Feb-98**	

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	ISSUE DATE	COMMENCE DATE	EXPIRY DATE
		5	**05**	**066**	**1-3; 10-15; 19-36**				
9398020115	Starwest Aviation Ltd.	5	06	066	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020116	Starwest Aviation Ltd.	5	07	066	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020117	Starwest Aviation Ltd.	5	08	066	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020118	Starwest Aviation Ltd.	5	09	066	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020119	Starwest Aviation Ltd.	5	10	066	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020120	Starwest Aviation Ltd.	5	11	066	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020121	Starwest Aviation Ltd.	5	17	066	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020122	Starwest Aviation Ltd.	5	18	066	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020123	Starwest Aviation Ltd.	5	19	066	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020124	Starwest Aviation Ltd.	5	20	066	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020125	Starwest Aviation Ltd.	5	21	066	1-29; 30NP,SE,SWP; 31SP,N; 32-36 Portion(s) lying outside Little Smoky-Iosegun proposed natural area	9136.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020126	Starwest Aviation Ltd.	5	01	067	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020127	Starwest Aviation Ltd.	5	02	067	17-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	02	068	1-16				
9398020128	Starwest Aviation Ltd.	5	06	067	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020129	Starwest Aviation Ltd.	5	07	067	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020130	Starwest Aviation Ltd.	5	07	068	1-10	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	08	067	1-3; 10-15; 22-27; 34-36				
		5	08	068	1-6; 11; 12				
9398020131	Starwest Aviation Ltd.	5	08	067	4-9; 16-21; 28-33	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	09	067	1-3; 10-15; 22-27; 34-36		13-Feb-98	10-Feb-98	10-Feb-00
9398020132	Starwest Aviation Ltd.	5	09	067	4-9; 16-21; 28-33	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	10	067	1-18				
9398020133	Starwest Aviation Ltd.	5	10	067	19-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	10	068	1-18				
9398020134	Starwest Aviation Ltd.	5	11	067	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020135	Starwest Aviation Ltd.	5	16	067	1-24	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	17	067	1-12				
9398020136	Starwest Aviation Ltd.	5	17	067	13-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	17	068	1-12				
9398020137	Starwest Aviation Ltd.	5	18	067	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020138	Starwest Aviation Ltd.	5	19	067	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020139	Starwest Aviation Ltd.	5	20	067	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020140	Starwest Aviation Ltd.	5	01	068	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020141	Starwest Aviation Ltd.	5	02	068	17-25; 27-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	02	069	4-9; 16-21; 28-32				
9398020142	Starwest Aviation Ltd.	5	06	068	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020143	Starwest Aviation Ltd.	5	07	068	11-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	07	069	1-10				
9398020144	Starwest Aviation Ltd.	5	08	068	7-10; 13-32; 33S	7808.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	08	069	5-8; 17; 18				
9398020145	Starwest Aviation Ltd.	5	10	068	19-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	10	069	1-18				
9398020146	Starwest Aviation Ltd.	5	11	068	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020147	Starwest Aviation Ltd.	5	16	068	25-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	17	068	13-36				
9398020148	Starwest Aviation Ltd.	5	18	068	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020149	Starwest Aviation Ltd.	5	19	068	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020150	Starwest Aviation Ltd.	5	01	069	1-3; 10-15; 22-27; 33-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	01	070	1-17				
9398020151	Starwest Aviation Ltd.	5	01	069	4-9; 16-21; 28-32	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	02	069	1-3; 10-15; 22-27; 33-36				
9398020152	Starwest Aviation Ltd.	5	06	069	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020153	Starwest Aviation Ltd.	5	07	069	11-18; 21-26; 27S,NE; 34E; 35; 36	8256.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	07	070	1; 2; 3E; 10E; 11-14; 15E; 22E; 23-26; 27E; 34E; 35; 36				

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	ISSUE DATE	COMMENCE DATE	EXPIRY DATE
9398020154	Starwest Aviation Ltd.	5	08	069	19-21; 27-34	8960.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	08	070	3-10; 15-22; 27-34				
9398020155	Starwest Aviation Ltd.	5	10	069	19-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	10	070	1-3; 10-15; 22-27; 34-36				
9398020156	Starwest Aviation Ltd.	5	11	069	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020157	Starwest Aviation Ltd.	5	12	069	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020158	Starwest Aviation Ltd.	5	13	069	3-36	8704.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020159	Starwest Aviation Ltd.	5	14	069	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020160	Starwest Aviation Ltd.	5	15	069	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020161	Starwest Aviation Ltd.	5	16	069	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020162	Starwest Aviation Ltd.	5	17	069	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020163	Starwest Aviation Ltd.	5	01	070	18-29; 30S; 32-36	8832.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	01	071	1-3; 10-15; 22-27; 35; 36				
9398020164	Starwest Aviation Ltd.	5	06	070	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020165	Starwest Aviation Ltd.	5	10	070	4-9; 16-21; 28-33	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	11	070	1-3; 10-15; 22-27; 34-36				
9398020166	Starwest Aviation Ltd.	5	11	070	4-9; 16-21; 28-33	9216.000	13-Feb-98	10-Feb-98	
		5	12	070	1-3; 10-15; 22-27; 34-36				
9398020167	Starwest Aviation Ltd.	5	12	070	4-9; 16-21; 28-33	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	13	070	1-3; 10-15; 22-27; 34-36				
9398020168	Starwest Aviation Ltd.	5	13	070	4-9; 16-21; 28-33	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	14	070	1-18				
9398020169	Starwest Aviation Ltd.	5	15	070	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020170	Starwest Aviation Ltd.	5	01	071	4-9; 16-21; 28-34	8698.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	02	071	1NP,SEP; 11NP,SEP; 12N,SE,SWP; 13; 14E; 15NWP; 19NP; 20NP,SEP; 21SP,N; 22-29; 30N,SE,SWP; 34E; 35; 36 Portion(s) lying to the north and east of the northeasterly limit of Highway No. 2				
9398020171	Starwest Aviation Ltd.	5	06	071	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020172	Starwest Aviation Ltd.	5	07	071	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020173	Starwest Aviation Ltd.	5	10	071	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020174	Starwest Aviation Ltd.	5	11	071	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020175	Starwest Aviation Ltd.	5	12	071	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020176	Starwest Aviation Ltd.	5	01	072	1-27; 28N,SE,L3,L4S,L4NE,L5,L6; 29N,SW,L1S,L1NW,L2,L7W; 30-36	9184.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020177	Starwest Aviation Ltd.	5	02	071	31-33; 34W	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	02	072	1-17; 18S; 20-29; 32-36				
9398020178	Starwest Aviation Ltd.	5	02	072	18N; 19; 30S,NE,L11-L13; 31	8803.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	03	071	25SEP,NWP,NE; 33NEP; 34SP,NWP,NE; 35; 36 Portion(s) lying to the north and east of the northeasterly limit of Highway No. 2				
		5	03	072	1; 2; 4NWP,L1P,L7P,L10P,L15,L16; 7NP; 8NP,SEP; 9-17; 18N,SE,SWP; 19-30; 34E; 35; 36 Portion(s) lying to the north and east of the northeasterly limit of Highway No. 2				
9398020179	Starwest Aviation Ltd.	5	04	072	13SP,N; 14NP,SEP; 17-36 Portion(s) lying to the north and east of the northeasterly limit of Highway No. 2	9074.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	05	072	13; 14N; 22-29; 31; 32S,NE; 33W; 34SE,NW; 35; 36		13-Feb-98		
9398020180	Starwest Aviation Ltd.	5	09	072	6; 7; 18; 19; 30; 31	8494.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	09	073	6; 7				
		5	10	073	1-12; 13S; 14S; 15S; 16-20; 21W; 25NE; 27N; 28N; 29; 30SE,SWP; 32S,NWP,NE; 33; 34; 35N Portion(s) lying outside Lesser Slave Lake				
9398020181	Starwest Aviation Ltd.	5	01	073	1; 2; 3EP,W; 4-9; 10N,SEP,SW; 11-14; 15S,NE,L11,L12E,L13,L14; 16S,NW,L10W,L15,L16; 17-36 Portion(s) lying outside forest research plots	9146.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020182	Starwest Aviation Ltd.	5	02	073	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020183	Starwest Aviation Ltd.	5	03	072	31-33; 34W	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	03	073	1-17; 18S; 20-29; 32-36				
9398020184	Starwest Aviation Ltd.	5	03	073	18N; 19; 30; 31	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	04	073	1-5; 8-17; 19N; 20-36				
9398020185	Starwest Aviation Ltd.	5	04	073	7; 18; 19S	9150.290	13-Feb-98	10-Feb-98	10-Feb-00
		5	05	073	1S,NE; 2E; 3N,SW; 4N,SW; 5; 6N,SW; 7E,WP; 8-17 Portion(s) lying outside Lesser Slave Lake				
		5	05	073	18SP,NEP; 19SEP; 20-28 Portion(s) lying outside Lesser Slave Lake and Lesser Slave Lake Provincial Park				
		5	05	073	29P Portion(s) lying outside Lesser Slave Lake Provincial Park				
		5	05	073	30NEP; 31SEP,NE; 32E; 33-36 Portion(s) lying outside Lesser Slave and Lesser Slave Lake Provincial Park				

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	HA	ISSUE DATE	COMMENCE DATE	EXPIRY DATE
		5	06	072	34NEP; 35NP,SEP; 36SP,N Portion(s) lying to the north and east of the northeasterly limit of Highway No. 2				
		5	06	073	1S, NP; 2NP,SEP,SW Portion(s) lying outside Lesser Slave Lake				
		5	06	073	3SP Portion(s) lying to the north and east of the northeasterly limit of Highway No. 2				
		5	06	073	12EP Portion(s) lying outside Lesser Slave Lake				
9398020186	Starwest Aviation Ltd.	5	08	073	19NP,SWP; 20NWP; 28NP,SWP; 29SP,N; 30-33; 34SWP,NW,NEP Portion(s) lying to the north and west of the northwesterly limit of Highway No. 2	8164.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	08	073	35NP Portion(s) lying to the north of the northerly limit of Highway No. 2				
		5	08	074	2SP,NWP; 3S,NW,NEP; 4; 5WP,SE Portion(s) lying outside Lesser Slave Lake				
		5	08	074	5NEP Portion(s) lying outside Assineau River Indian Reserve No. 150F				
		5	08	074	6SP; 8SWP; 9SP; 10SP Portion(s) lying outside Lesser Slave Lake				
		5	09	073	13NP; 14SP,NW,NEP; 15N,SEP,SW; 16-23; 24N,SEP,SW; 25-30; 31E; 32-34; 35S,NW Portion(s) lying to the north and west of the northwesterly limit of Highway No. 2				
		5	09	073	35NEP; 36S,NP Portion(s) lying outside Lesser Slave Lake				
9398020187	Starwest Aviation Ltd.	5	01	074	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020188	Starwest Aviation Ltd.	5	02	074	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
9398020189	Starwest Aviation Ltd.	5	01	075	1-18; 22-27; 34-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	01	076	1-3; 10-15				
9398020190	Starwest Aviation Ltd.	5	02	075	1-21; 28-33	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
		5	02	076	4-9; 16-18				
9398020191	Starwest Aviation Ltd.	5	01	076	19-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
	Starwest Aviation Ltd.	5	02	076	19-36				
9398020192	Starwest Aviation Ltd.	5	02	077	1-36	9216.000	13-Feb-98	10-Feb-98	10-Feb-00
270 permits						2,431,908.69 ha			
						6,009,246.37 acres			

Note on permitted substances:

1. All permits EXCEPT 9398020012 to 9398020014 are for metallic and industrial minerals.

2. In the case Permits 9398020012 to 9398020014, permitted substances are defined as follows: metallic and industrial minerals EXCEPTING metallic and industrial minerals in the NORDEGG MBR as designated in ZD238-1 interval: 5 05.00 - 5 130.00 feet, key w

Whitemud Hills Property, Alberta
Metallic and Industrial Minerals Permits

PERMIT NUMBER	PERMIT HOLDER	W of M	RN	TWP	SEC	AREA (ha)	RECORDING DATE	EXPIRY DATE
9397100401	690688 ALBERTA LIMITED	6	01	068	1-36	9216.000	24-Oct-97	24-Oct-99
9397100402	690688 ALBERTA LIMITED	6	02	068	1-36	9216.000	24-Oct-97	24-Oct-99
9397100403	690688 ALBERTA LIMITED	6	03	068	1-36	9216.000	24-Oct-97	24-Oct-99
9397100404	690688 ALBERTA LIMITED	6	04	068	1-36	9216.000	24-Oct-97	24-Oct-99
9397100405	690688 ALBERTA LIMITED	6	05	068	1-36	9216.000	24-Oct-97	24-Oct-99
9397100406	690688 ALBERTA LIMITED	6	06	068	1-36	9216.000	24-Oct-97	24-Oct-99
9397100407	690688 ALBERTA LIMITED	6	07	068	1-36	9216.000	24-Oct-97	24-Oct-99
9397100408	690688 ALBERTA LIMITED	6	08	068	1-36	9216.000	24-Oct-97	24-Oct-99
9397100409	690688 ALBERTA LIMITED	6	02	069	1-36	9216.000	24-Oct-97	24-Oct-99
9397100410	690688 ALBERTA LIMITED	6	03	069	1-36	9216.000	24-Oct-97	24-Oct-99
9397100411	690688 ALBERTA LIMITED	6	04	069	1-36	9216.000	24-Oct-97	24-Oct-99
9397100412	690688 ALBERTA LIMITED	6	05	069	1-36	9216.000	24-Oct-97	24-Oct-99
9397100413	690688 ALBERTA LIMITED	6	06	069	1-36	9216.000	24-Oct-97	24-Oct-99
9397100414	690688 ALBERTA LIMITED	6	07	069	1-36	9216.000	24-Oct-97	24-Oct-99
9397100415	690688 ALBERTA LIMITED	6	08	069	1-36	9216.000	24-Oct-97	24-Oct-99
9397100416	690688 ALBERTA LIMITED	6	02	070	1-36	9216.000	24-Oct-97	24-Oct-99
9397100417	690688 ALBERTA LIMITED	6	03	070	1-36	9216.000	24-Oct-97	24-Oct-99
9397100418	690688 ALBERTA LIMITED	6	04	070	1-18; 19NP,SEP,SW; 20P; 21P; 22-24; 25S,NWP,NE; 26S,NP; 27NP,SE,SWP; 28SEP; 34NP; 35NP; 36E,WP Portion(s) lying outside Bear River Proposed Natural Area.	6660.000	24-Oct-97	24-Oct-99
9397100419	690688 ALBERTA LIMITED	6	05	070	1-19; 20SW,L1,L2,L7,L8S,L8NW,L8NESW,L9NESE,L9NENW,L9NENE,L10SW,L10SESE,L10SESW,L10NWSW,L10NENE,L11S, L11NW,L11NESE,L11NESW,L11NENW,L12,L13S,L13NW,L13NESE,L13NESW,L14SWSE,L14SWSW,L14SWNW,L14NENW, L14NENE,L15,L16; 21; 22; 23S,NW,NEP; 24P; 29NWP; 30; 31EP,W;	6479.000	24-Oct-97	24-Oct-99
9397100420	690688 ALBERTA LIMITED	6	06	070	1-13; 14S,NWP,NE; 15S,NP; 16-22; 23N,SE,SWP; 24-36 Portion(s) lying outside O'Brien Provincial Park	9149.000	24-Oct-97	24-Oct-99
9397100421	690688 ALBERTA LIMITED	6	07	070	1-36	9216.000	24-Oct-97	24-Oct-99
9397100422	690688 ALBERTA LIMITED	6	08	070	1-16; 17S,NE; 18; 19; 20N,SW; 21-23; 24N,SW; 25-36	9024.000	24-Oct-97	24-Oct-99
9397100423	690688 ALBERTA LIMITED	6	02	071	1; 2E; 3-36	9088.000	24-Oct-97	24-Oct-99
9397100424	690688 ALBERTA LIMITED	6	03	071	1-36	9216.000	24-Oct-97	24-Oct-99
9397100425	690688 ALBERTA LIMITED	6	04	071	1; 2; 3SP,N; 4NP,SEP; 8NP,SEP; 9N,SE,SWP; 10-16; 17N,SE,SWP; 18SP,N; 19-36 Portion(s) lying outside Bear River Proposed Natural Area.	7926.000	24-Oct-97	24-Oct-99
9397100426	690688 ALBERTA LIMITED	6	05	071	4NP; 5W; 6; 7S,NE; 8-10; 11SP,NW,NEP; 12NW; 13-17; 18E; 19E; 20-29; 30E; 31E; 32-36 Portion(s) lying outside Bear River Proposed Natural Area.	7210.000	24-Oct-97	24-Oct-99
9397100427	690688 ALBERTA LIMITED	6	06	071	1-9; 10S,NW; 11S; 12S; 16-20; 21S,NW; 27NW; 28N,SW; 29N,SW; 30-33; 34W	5824.000	24-Oct-97	24-Oct-99
9397100428	690688 ALBERTA LIMITED	6	07	071	1-36	9216.000	24-Oct-97	24-Oct-99
9397100429	690688 ALBERTA LIMITED	6	08	071	1-36	9216.000	24-Oct-97	24-Oct-99
9397100430	690688 ALBERTA LIMITED	6	02	072	1-36	9216.000	24-Oct-97	24-Oct-99
9397100431	690688 ALBERTA LIMITED	6	03	072	1-36	9216.000	24-Oct-97	24-Oct-99
9397100432	690688 ALBERTA LIMITED	6	04	072	1-22; 23S,NE; 24; 25; 26N,SE; 27-36	9088.000	24-Oct-97	24-Oct-99
9397100433	690688 ALBERTA LIMITED	6	05	072	1-36	9216.000	24-Oct-97	24-Oct-99
9397100434	690688 ALBERTA LIMITED	6	06	072	1N,SE; 2N,SW; 3-36	9088.000	24-Oct-97	24-Oct-99
9397100435	690688 ALBERTA LIMITED	6	07	072	1-5; 6E,WP; 7-36 Portion(s) lying outside Saskatoon Island Provincial Park	9200.000	24-Oct-97	24-Oct-99
9397100436	690688 ALBERTA LIMITED	6	08	072	1P; 2-36 Portion(s) lying outside Saskatoon Island Provincial Park	9130.000	24-Oct-97	24-Oct-99
9397100437	690688 ALBERTA LIMITED	6	03	073	1-8; 9N,SW; 10W; 11-13; 14N,SW; 15-34; 35SW	8512.000	24-Oct-97	24-Oct-99
9397100438	690688 ALBERTA LIMITED	6	04	073	1-36	9216.000	24-Oct-97	24-Oct-99
9397100439	690688 ALBERTA LIMITED	6	05	073	1-36	9216.000	24-Oct-97	24-Oct-99
9397100440	690688 ALBERTA LIMITED	6	06	073	1-36	9216.000	24-Oct-97	24-Oct-99
9397100441	690688 ALBERTA LIMITED	6	07	073	1-36	9216.000	24-Oct-97	24-Oct-99
9397100442	690688 ALBERTA LIMITED	6	08	073	1-36	9216.000	24-Oct-97	24-Oct-99
9397100443	690688 ALBERTA LIMITED	6	03	074	1-11; 12E; 13; 14N,SW; 15-26; 27N,SE; 28-36	8960.000	24-Oct-97	24-Oct-99
9397100444	690688 ALBERTA LIMITED	6	04	074	1-36	9216.000	24-Oct-97	24-Oct-99
9397100445	690688 ALBERTA LIMITED	6	05	074	1-25; 26N,SE; 27-36	9152.000	24-Oct-97	24-Oct-99

9397100446	690688 ALBERTA LIMITED	6	06	074	1-26; 27N,SE; 28-36	9152.000	24-Oct-97	24-Oct-99
9397100447	690688 ALBERTA LIMITED	6	07	074	1-36	9216.000	24-Oct-97	24-Oct-99
9397100448	690688 ALBERTA LIMITED	6	08	074	1-36	9216.000	24-Oct-97	24-Oct-99
9397100449	690688 ALBERTA LIMITED	6	03	075	1-23; 24S,NW; 25-33; 34S; 35E; 36S	8768.000	24-Oct-97	24-Oct-99
9397100450	690688 ALBERTA LIMITED	6	04	075	1-36	9216.000	24-Oct-97	24-Oct-99
9397100451	690688 ALBERTA LIMITED	6	05	075	1-36	9216.000	24-Oct-97	24-Oct-99
9397100452	690688 ALBERTA LIMITED	6	06	075	1-36	9216.000	24-Oct-97	24-Oct-99
9397100453	690688 ALBERTA LIMITED	6	07	075	1-36	9216.000	24-Oct-97	24-Oct-99
9397100454	690688 ALBERTA LIMITED	6	08	075	1-36	9216.000	24-Oct-97	24-Oct-99
9397100455	690688 ALBERTA LIMITED	6	03	076	1; 2S,NE; 3S,NE; 4-9; 10S,NW; 11; 12; 13S,NE; 14; 15N,SE; 16S,NE; 17; 18S; 19-23; 24S,NE; 25; 26S,NW; 27-36	8576.000	24-Oct-97	24-Oct-99
9397100456	690688 ALBERTA LIMITED	6	04	076	1-12; 13S,NW; 14-23; 24N,SE; 25-36	9088.000	24-Oct-97	24-Oct-99
9397100457	690688 ALBERTA LIMITED	6	05	076	1-36	9216.000	24-Oct-97	24-Oct-99
9397100458	690688 ALBERTA LIMITED	6	06	076	1-36	9216.000	24-Oct-97	24-Oct-99
9397100459	690688 ALBERTA LIMITED	6	07	076	1-15; 16S; 17S,NW; 18N; 19-23; 24W,SEP; 25; 26; 27N,SW; 28; 29; 30E; 31-36 Portion(s) designated as Burnt River on a Township Plan approved and confirmed by the Surveyor General at Ottawa on 1920/11/22	8577.000	24-Oct-97	24-Oct-99
9397100460	690688 ALBERTA LIMITED	6	08	076	1-12; 13S,NW; 14-23; 24S; 26-36	8768.000	24-Oct-97	24-Oct-99
9397100461	690688 ALBERTA LIMITED	6	03	078	19; 20; 21NE; 22N; 23; 24; 26; 27SE; 28-35	8192.000	24-Oct-97	24-Oct-99
		6	04	078	19-36			
9397100462	690688 ALBERTA LIMITED	6	03	079	1-36	9216.000	24-Oct-97	24-Oct-99
9397100463	690688 ALBERTA LIMITED	6	04	079	1-36	9216.000	24-Oct-97	24-Oct-99
9397100464	690688 ALBERTA LIMITED	6	05	079	1-21; 22SE; 23; 24; 25NW; 26; 27SE; 28SE; 29-33; 34N; 35N,SE; 36	8256.000	24-Oct-97	24-Oct-99
9397100465	690688 ALBERTA LIMITED	6	06	079	1-36	9216.000	24-Oct-97	24-Oct-99
9397100466	690688 ALBERTA LIMITED	6	07	079	19; 20N; 21; 22N; 23-36	8128.000	24-Oct-97	24-Oct-99
		6	08	079	19-21; 22S,NE; 23-28; 29S; 30S; 33-36			
9397100467	690688 ALBERTA LIMITED	6	02	080	1-36	9216.000	24-Oct-97	24-Oct-99
9397100468	690688 ALBERTA LIMITED	6	03	080	1-3; 4S,NWP,NE; 5S,NW,NEP; 6; 7; 8N,SEP,SW; 9N,SE,SWP; 10-36 Portion(s) lying outside surrendered Indian Reserve No. 152A	9105.000	24-Oct-97	24-Oct-99
9397100469	690688 ALBERTA LIMITED	6	04	080	1; 2S,NW,NEP; 3-6; 7W Portion(s) lying outside Dunvegan Proposed Natural Area	8877.000	24-Oct-97	24-Oct-99
		6	04	080	7W, SEP Portion(s) lying outside Lot 11, Group 1 as shown on a Settlement Plan of the Dunvegan Settlement approved and confirmed by the Surveyor General at Ottawa on 1910/08/24			
		6	04	080	7W, SEP,NEP; 8S Portion(s) lying outside Lot 10, Group 1 as shown on a Settlement Plan of the Dunvegan Settlement approved and confirmed by the Surveyor General at Ottawa on 1910/08/24			
		6	04	080	8S,NWP,NE; 9; 10S Portion(s) lying outside Dunvegan Provincial Park			
		6	04	080	10S,NWP,NE; 11SP; 12-14; 15N,SE; 16-36 Portion(s) lying outside Dunvegan Proposed Natural Area			
9397100470	690688 ALBERTA LIMITED	6	05	080	1-12; 13S,NE; 14-36	9152.000	24-Oct-97	24-Oct-99
9397100471	690688 ALBERTA LIMITED	6	06	080	1-5; 6S; 7-36	9088.000	24-Oct-97	24-Oct-99
9397100472	690688 ALBERTA LIMITED	6	07	080	1-3; 4N,SE; 5-8; 9S,NW; 10-15; 16NE; 17; 18; 19N,SE; 20-36	8832.000	24-Oct-97	24-Oct-99
9397100473	690688 ALBERTA LIMITED	6	08	080	1-12; 13SW; 14-16; 17S,NE; 18-23; 24N,SE; 25-27; 28E; 29-36	8768.000	24-Oct-97	24-Oct-99
9397100474	690688 ALBERTA LIMITED	5	26	081	1SW; 2S,NW; 3; 4EF; 9EF; 10-15; 16EF; 21EF; 22-27; 28EF; 33EF; 34-36	8004.000	24-Oct-97	24-Oct-99
		5	26	082	1-3; 4EF; 9EF; 10-15; 16EF; 21EF; 22-24			
9397100475	690688 ALBERTA LIMITED	6	01	081	1-24; 25S,NE; 26-35; 36SW	8960.000	24-Oct-97	24-Oct-99
9397100476	690688 ALBERTA LIMITED	6	02	081	1-26; 27N,SW; 28-36	9152.000	24-Oct-97	24-Oct-99
9397100477	690688 ALBERTA LIMITED	6	03	081	1-30; 31S,NP; 32S,NP; 33S,NP; 34S,NP; 35; 36 Portion(s) lying outside surrendered Beaver Indian Reserve No. 152	9016.000	24-Oct-97	24-Oct-99
9397100478	690688 ALBERTA LIMITED	6	04	081	1-34; 35S,NP; 36S,NP Portion(s) lying outside surrendered Beaver Indian Reserve No. 152	9116.000	24-Oct-97	24-Oct-99
9397100479	690688 ALBERTA LIMITED	6	05	081	1-36	9216.000	24-Oct-97	24-Oct-99
9397100480	690688 ALBERTA LIMITED	6	06	081	1-27; 28S,NW; 29N,SE; 32E; 33-36	8968.000	24-Oct-97	24-Oct-99
		6	06	82	1; 2			
9397100481	690688 ALBERTA LIMITED	6	06	081	30SEP,NWP,NE; 31N,SE,SWP Portion(s) lying outside Fourth Creek Natural Area	8764.000	24-Oct-97	24-Oct-99
		6	07	081	1-24; 26L3,L4; 27W; 28-33; 34N,SW; 35N,L6-L8; 36N,L5-L8			
9397100482	690688 ALBERTA LIMITED	6	08	081	1-36	9216.000	24-Oct-97	24-Oct-99
9397100483	690688 ALBERTA LIMITED	5	25	082	1; 2; 3E; 5WP; 6; 7; 8WP; 10E; 11-14; 15E; 17WP; 18; 19; 20SP,N; 21NP,SWP; 22E,NWP; 23-36 Portion(s) lying outside Duncans Indian Reserve No. 151A	8945.000	24-Oct-97	24-Oct-99
		5	26	082	25-27; 28EF; 33EF; 34-36			

9397100484	690688 ALBERTA LIMITED	6	01	082	1; 2; 3N,SW; 4-19; 20S,NW; 21-23; 24E; 25-29; 30N,SW; 31SE; 32-36	8704.000	24-Oct-97	24-Oct-99
9397100485	690688 ALBERTA LIMITED	6	02	082	1-18; 20-33; 34N,SE; 35; 36	8896.000	24-Oct-97	24-Oct-99
9397100486	690688 ALBERTA LIMITED	6	03	082	1; 2; 11-14; 15NP; 16NP; 17NP; 18NP; 19-23; 24W; 25-36 Portion(s) lying outside surrendered Beaver Indian Reserve No. 152	9044.000	24-Oct-97	24-Oct-99
		6	03	083	1-11			
9397100487	690688 ALBERTA LIMITED	6	04	082	3-10; 15-17; 18N,SE; 19-22; 27; 28; 34; 35NP; 36NP Portion(s) lying outside surrendered Beaver Indian Reserve No. 152	8494.000	24-Oct-97	24-Oct-99
		6	04	083	1-4; 9-18			
9397100488	690688 ALBERTA LIMITED	6	05	082	1-36	9216.000	24-Oct-97	24-Oct-99
9397100489	690688 ALBERTA LIMITED	6	05	083	3-12; 14-18	9152.000	24-Oct-97	24-Oct-99
		6	06	082	11-14; 23; 24; 25E; 26N,SE; 35; 36S			
		6	06	083	1-4; 9-16			
9397100490	690688 ALBERTA LIMITED	6	08	082	3-10; 15-22; 27-34	6144.000	24-Oct-97	24-Oct-99
9397100491	690688 ALBERTA LIMITED	6	01	083	1S,NE; 2; 3; 4S,NE; 5N,SW; 6-11; 12N,SE; 13; 14; 15S,NW; 16-23; 24N,SE; 25-36	8832.000	24-Oct-97	24-Oct-99
9397100492	690688 ALBERTA LIMITED	6	02	083	1-29; 30N; 31-36	9088.000	24-Oct-97	24-Oct-99
9397100493	690688 ALBERTA LIMITED	6	03	083	12-20; 21S,NW; 22S; 23; 24; 25N; 26NE; 27N,SE; 28N,SE; 29; 30N,SE; 31-33; 34SE; 35SW; 36	9024.000	24-Oct-97	24-Oct-99
		6	04	083	19-25; 26NE; 27-29; 31NW; 32W; 33S,NE; 34; 35; 36N,SW			
9397100494	690688 ALBERTA LIMITED	6	05	083	13; 19; 20; 21SE; 22N,SE; 23-36	9216.000	24-Oct-97	24-Oct-99
		6	05	084	3-10; 15-18			
		6	06	083	23-26; 35; 36			
9397100495	690688 ALBERTA LIMITED	6	01	084	1-31; 36	8704.000	24-Oct-97	24-Oct-99
		6	02	084	1; 12			
9397100496	690688 ALBERTA LIMITED	6	02	084	2-11; 13-36	9216.000	24-Oct-97	24-Oct-99
		6	03	084	1; 12			
9397100497	690688 ALBERTA LIMITED	6	03	084	2-11; 13-18; 21-23; 24W; 25-28; 34-36	8896.000	24-Oct-97	24-Oct-99
		6	03	085	1; 11; 12			
		6	04	084	1N,SE; 2N; 11-14			
9397100498	690688 ALBERTA LIMITED	6	04	084	3S,NE; 4S; 5; 6; 7N,SE; 8; 9; 10E; 15; 16SW; 17S; 18-31; 32W; 33; 34	9152.000	24-Oct-97	24-Oct-99
		6	05	084	1; 2; 11-14; 23-26; 36			
9397100499	690688 ALBERTA LIMITED	6	05	084	19-22; 27-35	8960.000	24-Oct-97	24-Oct-99
		6	05	085	1-3; 10-15; 22-27			
		6	06	084	1; 12; 13; 24; 25; 36			
		6	06	085	1			
9397100500	690688 ALBERTA LIMITED	6	01	085	25-28; 33-36	9216.000	24-Oct-97	24-Oct-99
		6	01	086	1-4; 7-24; 28-33			
9397100501	690688 ALBERTA LIMITED	6	02	085	1-10; 15-22; 28-33	9216.000	24-Oct-97	24-Oct-99
		6	03	085	13-15; 22-27; 34-36			
9397100502	690688 ALBERTA LIMITED	6	01	086	25-27; 34-36	9216.000	24-Oct-97	24-Oct-99
		6	01	087	1-30			
9397100503	690688 ALBERTA LIMITED	5	23	087	1-9; 10S,NE; 11; 12S; 13; 14; 15N; 16-36	8896.000	24-Oct-97	24-Oct-99
9397100504	690688 ALBERTA LIMITED	5	24	087	1-18; 19S,NW; 20-27; 28SW; 29; 30S; 31S,NE; 32SW; 34SE; 35; 36	9152.000	24-Oct-97	24-Oct-99
		5	24	088	1-4			
9397100505	690688 ALBERTA LIMITED	5	25	087	1-13; 14N,SW; 15; 16S,NW; 17; 18SW; 19; 20S,NW; 21N,SW; 22SE,NW; 23-26; 27N,SW; 28-36	9199.000	24-Oct-97	24-Oct-99
		5	26	087	1EF; 12EF; 13EF; 24EF; 25EF; 36EF			
9397100506	690688 ALBERTA LIMITED	6	01	087	31-36	9216.000	24-Oct-97	24-Oct-99
		6	01	088	2-11; 14-23; 26-35			
9397100507	690688 ALBERTA LIMITED	5	23	088	1-36	9216.000	24-Oct-97	24-Oct-99
9397100508	690688 ALBERTA LIMITED	5	24	088	5-36	8960.000	24-Oct-97	24-Oct-99
		5	25	088	1; 12; 13			
9397100509	690688 ALBERTA LIMITED	5	24	089	1-12	9010.000	24-Oct-97	24-Oct-99
		5	25	088	23-26; 35; 36			
		5	25	089	1-12; 15-18			
		5	26	089	1EF; 12EF; 13EF			
9397100510	690688 ALBERTA LIMITED	5	25	088	2-11; 14-22; 27-34	9066.000	24-Oct-97	24-Oct-99

		5	26	088	1EF; 12EF; 13EF; 24EF; 25EF; 36EF			
		6	01	088	1; 12; 13; 24; 25; 36			
9397100511	690688 ALBERTA LIMITED	5	23	089	1-36	9216.000	24-Oct-97	24-Oct-99
9397100512	690688 ALBERTA LIMITED	5	24	089	13-29; 32-36	5632.000	24-Oct-97	24-Oct-99
9397100513	690688 ALBERTA LIMITED	5	24	089	30; 31	5938.000	24-Oct-97	24-Oct-99
		5	25	089	13; 14; 19-36			
		5	26	089	24EF; 25EF; 36EF			
9397100514	690688 ALBERTA LIMITED	5	22	090	1-36	9216.000	24-Oct-97	24-Oct-99
9397100515	690688 ALBERTA LIMITED	5	23	090	1-36	9216.000	24-Oct-97	24-Oct-99
9397110002	690688 ALBERTA LIMITED	5	24	065	1-36	9216.000	20-Nov-97	24-Oct-99
9397110003	690688 ALBERTA LIMITED	5	25	065	1-36	9216.000	20-Nov-97	24-Oct-99
9397110004	690688 ALBERTA LIMITED	5	26	065	1-36	9216.000	20-Nov-97	24-Oct-99
9397110005	690688 Alberta Limited	5	27	65	1; 2; 3E,WF; 10E,WF, 11-14; 15E,WF; 22E,WF; 23-26; 27E,WF; 34E,WF; 35; 36	8088.000	20-Nov-97	20-Nov-99
		5	27	66	1; 2; 3E,WF; 10E,WF, 11-14; 15E,WF; 22E,WF; 23-26; 27E,WF; 34E,WF; 35; 36			
9397110008	690688 ALBERTA LIMITED	6	01	066	1-36	9216.000	20-Nov-97	24-Oct-99
9397110009	690688 ALBERTA LIMITED	6	02	066	1-36	9216.000	20-Nov-97	24-Oct-99
9397110010	690688 ALBERTA LIMITED	6	03	066	1-36	9216.000	20-Nov-97	24-Oct-99
9397110011	690688 ALBERTA LIMITED	6	04	066	1-36	9216.000	20-Nov-97	24-Oct-99
9397110015	690688 ALBERTA LIMITED	5	26	067	1-36	9216.000	20-Nov-97	24-Oct-99
9397110016	690688 ALBERTA LIMITED	5	27	067	1; 2EF; 11EF; 12; 13; 14EF; 23EF; 24; 25; 26EF; 35EF; 36	1949.000	20-Nov-97	24-Oct-99
9397110017	690688 ALBERTA LIMITED	6	01	067	1-36	9216.000	20-Nov-97	24-Oct-99
9397110018	690688 ALBERTA LIMITED	6	02	067	1-36	9216.000	20-Nov-97	24-Oct-99
9397110019	690688 ALBERTA LIMITED	6	03	067	1-36	9216.000	20-Nov-97	24-Oct-99
9397110020	690688 ALBERTA LIMITED	6	04	067	1-36	9216.000	20-Nov-97	24-Oct-99
129						*1,142,410.00*	*hectares*	
permits						*2,822,895.11*	*acres*	

(1) Chrono - Diana
(2) Caribou Mtns B.02
(3) Athabasca B.02
(4) Lesser Slave B.02
(5) Whitemud Hills B.02
(6) DCP Corresp.

ASHTON MINING OF CANADA INC.

VIA FACSIMILE

June 9, 1999

AEC West
3700 - 707 8th Avenue S.W.
Calgary, AB T2P 1H5
Attn: Ms. F. Maier & Mr. R. Pryde

Pure Gold Minerals Inc.
1255 West Pender Street
Vancouver, BC V6E 2V1
Attn: Mr. D. Sheldon & Mr. E. Beukman

Re: Cayo Lands - Notice of Designation of Representative

I have attached for your records, approved copies of the Notice of Designation of Representative for the following Metallic and Industrial Minerals permits comprising the Cayo Lands:

- 9397100001 to 9397100297
- 9397100401 to 9397100543
- 9397110001 to 9397110094
- 9398020003 to 9398020419.

These notices are sufficient to make Ashton the designated representative for these permits in place of Starwest Aviation Ltd. and 690688 Alberta Ltd.

If you have any questions, please don't hesitate to contact me at (604) 983-7750.

Best Regards,

ASHTON MINING OF CANADA INC.

[redacted]

Diana Primavesi
Land Administrator

/mg
Attachment
\\ashton1\exploration\correspond\diana\1999\alberta\approved designation of representative form - cayo lands.doc

NOTICE OF DESIGNATION, REPLACEMENT OR REVOCATION OF REPRESENTATIVE

FOR DEPARTMENT USE ONLY:

APPROVED
May 31 1999
for Minister of Energy

(Do not write above this line)

A. Full name of previous designated representative (enter "NONE" if this is a new designation by a sole lessee):

~~NONE~~ 690688 ALBERTA LTD.

B. LSAS client ID (optional):

C. Full name of new designated representative (enter "NONE" if this is a revocation by a sole lessee):

ASHTON MINING OF CANADA INC.

D. LSAS client ID (optional):

803-7908-001

E. Agreement(s) (type and number) affected by this notice:

METALLIC AND INDUSTRIAL MINERALS PERMITS: 9397100001 TO 9397100297, 9397100401 TO 9397100543 AND 9397110001 TO 9397110094

F. The previous designated representative and new designated representative authorize this notice by signing this form and confirm that the consent of all registered lessees of the agreements enumerated has been obtained. (Note: if the signature of the previous designated representative or the new designated representative cannot be obtained, all lessees must sign.)

G. This instrument may be executed in separate counterparts, and all of the executed counterparts shall together constitute one instrument and shall have the same force and effect as if all of the persons executing such counterparts had executed the same instrument.

H. Dated this 12 day of April 1999

I.

690688 ALBERTA LTD.	ASHTON MINING OF CANADA INC.
Previous Designated Representative	New Designated Representative
[redacted]	[redacted]
Signature	Signature
J Purdy DIRECTOR	Wayne Hillier, Vice President, Exploration
Printed name and capacity	Printed name and capacity

Note: the signature of the lessee is required if this is a new designation by a sole lessee

FORWARD COMPLETED FORM, IN DUPLICATE, TO: ??? **QUESTIONS** ???

Alberta Department of Energy
Minerals Tenure Branch
9945 - 108 Street
Edmonton, AB
T5K 2G6

OR

Alberta Department of Energy
Third Floor, Monenco Place
801 - 6th Avenue SW
Calgary, AB
T2P 3W2

Please phone during business hours
8:15 - 4:30, Monday to Friday
Ask for "Transfers"

Phone (403) 427-7749

Alberta ENERGY

NOTICE OF DESIGNATION, REPLACEMENT OR REVOCATION OF REPRESENTATIVE

R DEPARTMENT USE ONLY:

APPROVED
May 31/1999
for Minister of Energy

(Do not write above this line)

A. Full name of previous designated representative (enter "NONE" if this is a new designation by a sole lessee):
NONE STARWEST AVIATION LTD.

B. LSAS client ID (optional):

C. Full name of new designated representative (enter "NONE" if this is a revocation by a sole lessee):
ASHTON MINING OF CANADA INC.

D. LSAS client ID (optional):
803-7908-001

E. Agreement(s) (type and number) affected by this notice:
METALLIC AND INDUSTRIAL MINERALS PERMITS: 9398020003 TO 9398020419

F. The previous designated representative and new designated representative authorize this notice by signing this form and confirm that the consent of all registered lessees of the agreements enumerated has been obtained. (Note: if the signature of the previous designated representative or the new designated representative cannot be obtained, all lessees must sign.)

G. This instrument may be executed in separate counterparts, and all of the executed counterparts shall together constitute one instrument and shall have the same force and effect as if all of the persons executing such counterparts had executed the same instrument.

H. Dated this 12 day of April 1999

I. STARWEST AVIATION LTD.
Previous Designated Representative

[redacted]
Signature

J Purdy DIRECTOR
Printed name and capacity

ASHTON MINING OF CANADA INC.
New Designated Representative

[redacted]
Signature

Wayne Hillier, Vice President, Exploration
Printed name and capacity

Note: the signature of the lessee is required if this is a new designation by a sole lessee

FORWARD COMPLETED FORM, IN DUPLICATE, TO:

Alberta Department of Energy
Minerals Tenure Branch
[redacted] - 108 Street
[redacted]monton, AB
T5K 2G6

OR

Alberta Department of Energy
Third Floor, Monenco Place
801 - 6th Avenue SW
Calgary, AB
T2P 3W2

??? **QUESTIONS** ???

Please phone during business hours
8:15 - 4:30, Monday to Friday
Ask for "Transfers"

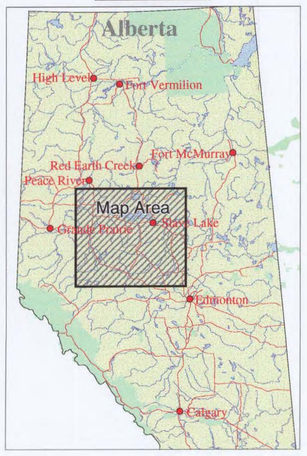
Phone (403) 427-7749
Fax (403) 422-1123
Web Site http://www.energy.gov.ab.ca

APPENDIX C

HEAVY MINERAL SAMPLING DATA
(ATHABASCA, LESSER SLAVE AND WHITEMUD HILLS PROPERTIES)
SAMPLE LOCATION MAPS
SAMPLE RESULTS MAPS
SAMPLE DESCRIPTION AND RESULTS TABLES

*Note: Townships and Ranges are West of the Fifth Meridian

Map Location



N

Pie Chart of Indicator Minerals
450
225
45

- Peridotitic Pyrope x 2
- Eclogitic Pyrope x 2
- Chrome Diopside x 2
- Chromite x 2
- Picroilmenite x 2
- Kimberlitic Olivine x 2

Legend

- Property Outline
- Permit Outline
- Park
- Road
- 1999 Sample Location
- 1998 Sample Location

Ashton Mining of Canada Inc.

Date: Dec.21/1999	Lesser Slave Property, Alberta Sample Results Map
Author: A. Marshall	
Office: Vancouver	
Drw: Permit Location Map	
Proj:Nad 27 UTM Zone 11	

0 5 10 Kilometers

Scale 1: 300 000

Alberta

Saskatchewan

Fifth Meridian

Fort MacKay

Fort McMurray

Mariana Lake

Eaglenest Lake

Sand Lake

Namur Lake

Willow Lake

Gordon Lake

Egg Lake

Bohn Lake

Cowper Lake

North Wabasca Lake

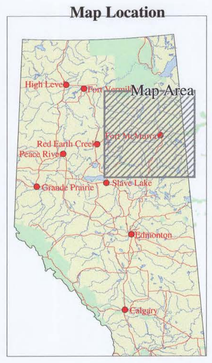
South Wabasca Lake

Sandy Lake

Pelican Lake

AL07-0121 AL07-0120 AL07-0124 AL07-0346 AL07-0348 AL07-0019 AL07-0123 AL07-0344 AL07-0343 AL07-0345 AL07-0340 AL07-0342 AL07-0125 AL07-0131 AL07-0137 AL07-0187 AL07-0154 AL07-0139 AL07-0151 AL07-0268 AL07-0296 AL07-0295 AL07-0294 AL07-0274 AL07-0297 AL07-0233 AL07-0234 AL07-0235 AL07-0338 AL07-0236 AL07-0276 AL07-0336 AL07-0337 AL07-0272 AL07-0103 AL07-0237 AL07-0339 AL07-0172 AL07-0161 AL07-0104 AL07-0335 AL07-0328 AL07-0312 AL07-0330 AL07-0327 AL07-0197 AL07-0326 AL07-0320 AL07-0314 AL07-0318 AL07-0196 AL07-0316 AL07-0315 AL07-0317 AL07-0321 AL07-0322 AL07-0319 AL07-0323 AL07-0324 AL07-0177 AL07-0174 AL07-0178 AL07-0179 AL07-0207 AL07-0208 AL07-0217 AL07-0218 AL07-0300 AL07-0302 AL07-0282 AL07-0281 AL07-0299 AL07-0145 AL07-0188 AL07-0230 AL07-0231 AL07-0232 AL07-0189 AL07-0200 AL07-0228 AL07-0224 AL07-0229 AL07-0223 AL07-0260 AL07-0190 AL07-0082 AL07-0178 AL07-0222 AL07-0253 AL07-0252 AL07-0250 AL07-0227 AL07-0248 AL07-0246 AL07-0242 AL07-0262 AL07-0263 AL07-0275 AL07-0301 AL07-0303 AL07-0198 AL07-0199 AL07-0245 AL07-0239 AL07-0244 AL07-0267 AL07-0238 AL07-0240 AL07-0269 AL07-0185 AL07-0096 AL07-0107 AL07-0109 AL07-0098 AL07-0097 AL07-0221 AL07-0213 AL07-0214 AL07-0220 AL07-0080 AL07-0079 AL07-0351 AL07-0355 AL07-0354 AL07-0353 AL07-0352 AL07-0010 AL07-0020 AL07-0292 AL07-0023 AL07-0021 AL07-0293 AL07-0288 AL07-0290 AL07-0289 AL07-0025 AL07-0013 AL07-0287 AL07-0286 AL07-0285 AL07-0284 AL07-0026 AL07-0024 AL07-0033 AL07-0034 AL07-0014 AL07-0038 AL07-0039 AL07-0040 AL07-0036 AL07-0037 AL07-0052 AL07-0051 AL07-0046 AL07-0049 AL07-0053 AL07-0062 AL07-0055 AL07-0054 AL07-0057 AL07-0058 AL07-0068 AL07-0059 AL07-0070 AL07-0016 AL07-0071 AL07-0008 AL07-0007 AL07-0218

Map Location



N

Pie Chart of Indicator Minerals

450
225
45

- Peridotitic Pyrope x 2
- Eclogitic Pyrope x 2
- Chrome Diopside x 2
- Chromite x 2
- Picroilmenite x 2
- Kimberlitic Olivine x 2

Legend

- Property Outline
- Permit Outline
- Park
- Road
- 1999 Sample Location
- 1998 Sample Location

Ashton Mining of Canada Inc.

Athabasca Property,
Alberta
Sample Results Map

Date: Dec.20/1999	
Author: A. Marshall	
Office: Vancouver	
Drw: Sample Location Map	
Proj:Nad 27 UTM Zone 12	

0 5 10 Kilometers

Scale 1: 300 000

N

AL09-0049
AL09-0048
AL09-0050
AL09-0051
AL09-0047
AL09-0056
AL09-0053
AL09-0054
AL09-0055
AL09-0042
AL09-0043
AL09-0044
AL09-0045
AL09-0040
AL09-0039
AL09-0038
AL09-0046
AL09-0041
AL09-0028
AL09-0027
AL09-0026
AL09-0021
AL09-0023
AL09-0022
AL09-0018
AL09-0019
AL09-0020
AL09-0004
AL09-0009
AL09-0002

Cardinal Lake
Peace River
Peace River
Smoky River
Bear Lake
Grande Prairie
Siurgeon Lake
Sixth Meridian

Pie Chart of Indicator Minerals

450
225
45

- Peridotitic Pyrope x 2
- Eclogitic Pyrope x 2
- Chrome Diopside x 2
- Chromite x 2
- Picroilmenite x 2
- Kimberlitic Olivine x 2

Legend

- Property Outline
- Permit Outline
- Park
- Road

Map Location

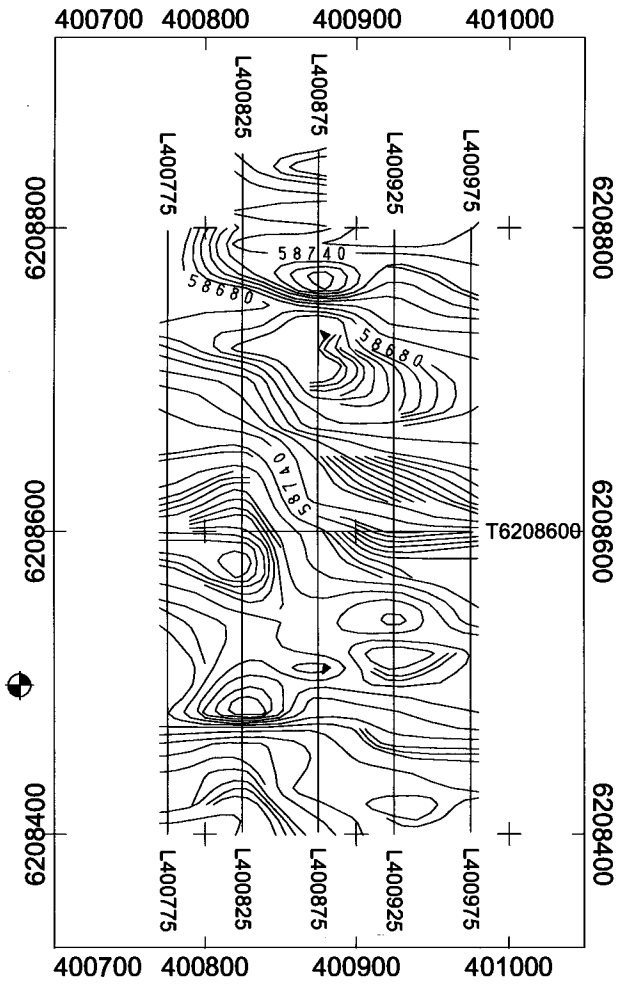
High Level
Fort Vermilion
Red Earth Creek
Fort McMurray
Peace River
Map Area
Grande Prairie
Slave Lake
Edmonton
Calgary

Ashton Mining of Canada Inc.

Date: Dec.21/1999	White Mud Hills Property, Alberta Sample Result Map
Author: A. Marshall	
Office: Vancouver	
Drw: Sample Result Map	
Proj:Nad 27 UTM Zone 11	

0 5 10 Kilometers

Scale 1: 300 000



Inclination 78 degrees
Declination 22 degrees

Legend

Line Spacing: 50 metres
Grid Interval: 10 metres
Contour Interval: 2, 10 nT

Datum: NAD 27 UTM zone 12

Data Acquisition:

Field Mag: GEM Systems GSM19 GW (#68588)
Base Mag: GEM Systems GSM19 W (#67577)
Operator: S. Jardine
Date: May 20, 1999
Kilometres: 2.2

Grid reference picket

Scale 1:5000

50 0 50 100 150 200

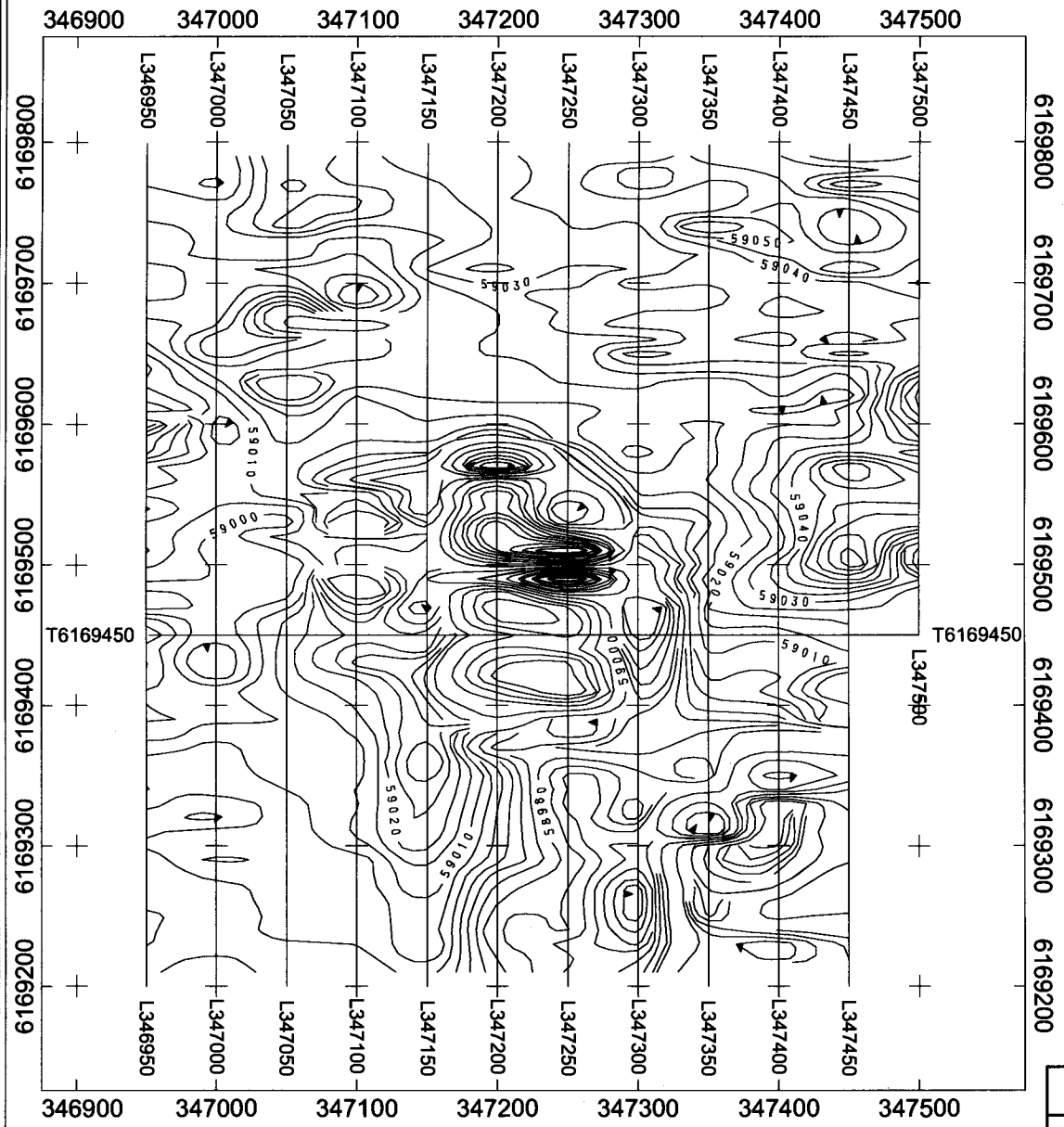
metres

Data is stored in:
\Geophysics\Athabasca\Ground\AB73

Ashton Mining of Canada Inc.

Detailed Ground Magnetic Survey
Athabasca - Anomaly 73
Total Field Contours

Non-Linear(2x2),Low Pass(10pt)



N

Inclination 76 degrees
Declination 24 degrees

Legend

Line Spacing: 50 metres
Grid Interval: 10 metres
Contour Interval 5, 10, 50 nT

Datum: NAD 27 UTM zone 12

Data Acquisition:

Field Mag: GEM Systems GSM19 GW (#68588)
Base Mag: GEM Systems GSM19 W (#67577)
Operator: C. Marchildon
Date: September 13, 1999
Kilometres: 7.5

Grid reference picket location:
Easting: 346780
Northing: 6169278

Scale 1:5000

50 0.0 50 100 150

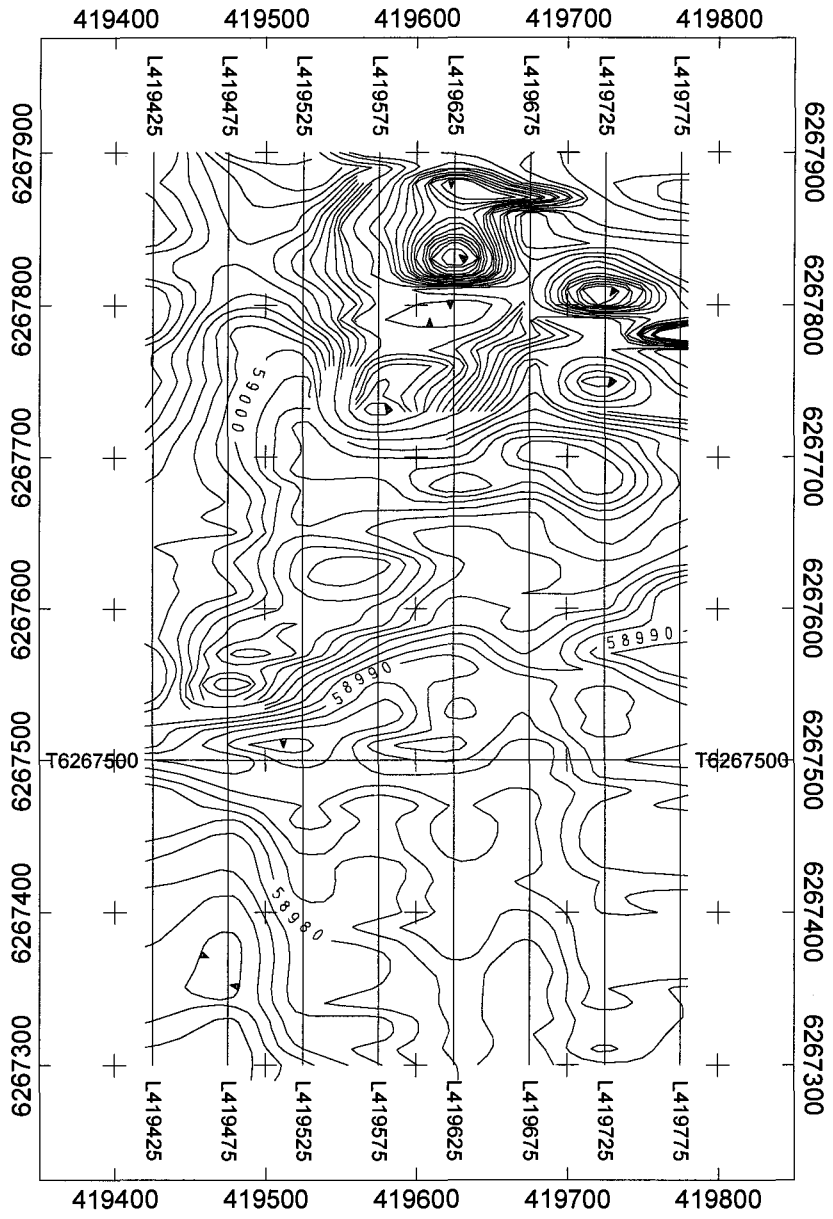
metres

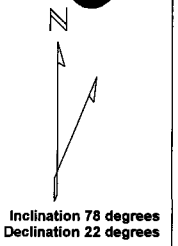
Data is stored in:
\Geophysics\Buffalo Hills\Ground\AB91

Ashton Mining of Canada Inc.

Detailed Ground Magnetic Survey
Athabasca - Anomaly 91
Total Field Contours

Non-Linear(2x2),Low Pass(10pt)





Legend

Line Spacing: 50 metres
Grid Interval: 10 metres
Contour Interval: 2, 10 nT

Datum: NAD 27 UTM zone 11

Data Acquisition:

Field Mag: GEM Systems GSM19 GW (#68588)
Base Mag: GEM Systems GSM19 W (#67577)
Operator: D. Willis
Date: May 17, 1999
Kilometres: 5.4

Grid reference picket - none

Scale 1:5000

50 0 50 100 150

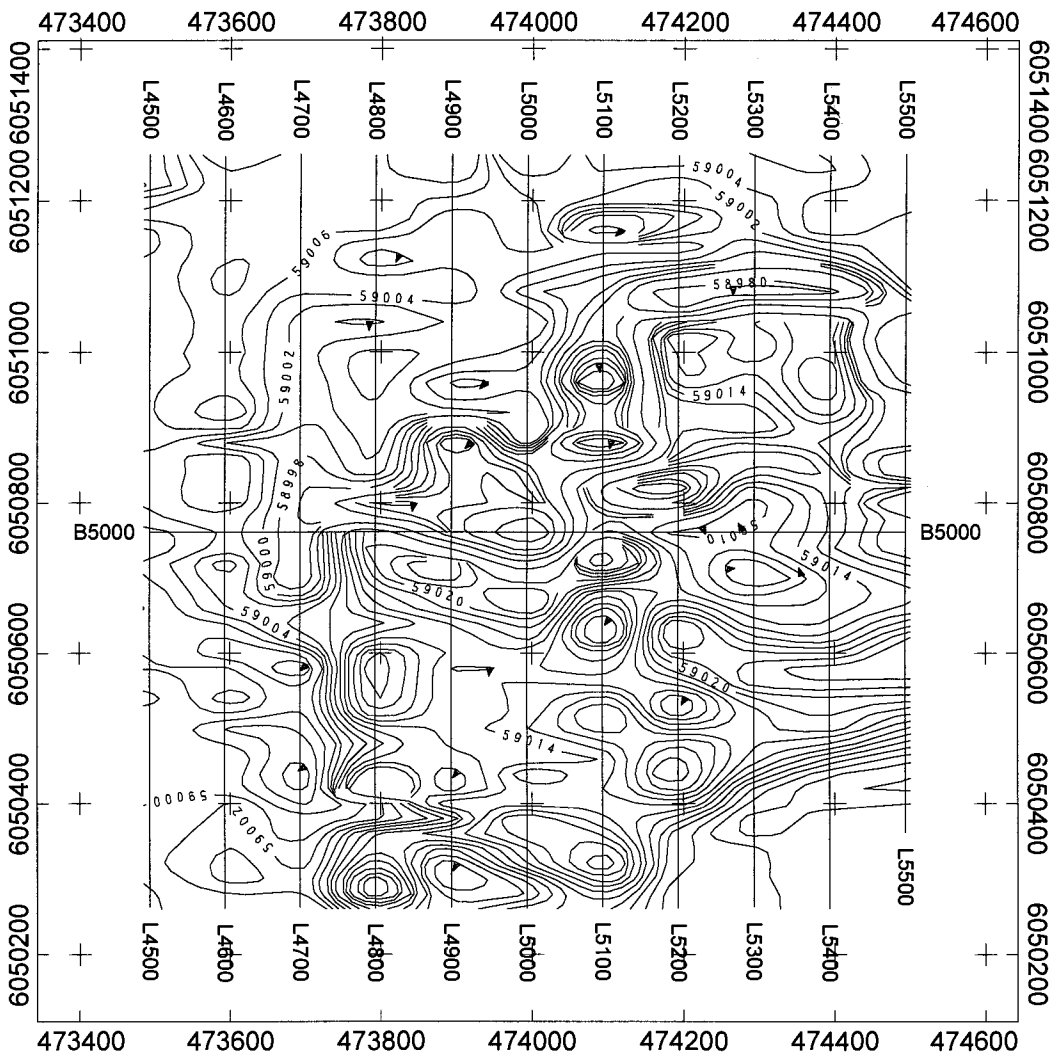
metres

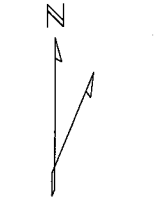
Data is stored in:
\Geophysics\Athabasca\Ground\AB34

Ashton Mining of Canada Inc.

Detailed Ground Magnetic Survey
Athabasca - Anomaly 34
Total Field Contours

Non-Linear(2x2),Low Pass(10pt)





Inclination 78 degrees
Declination 22 degrees

Legend

Line Spacing: 100 metres
Grid Interval: 20 metres
Contour Interval: 2, 10 nT

Datum: NAD 27 UTM zone 11

Data Acquisition:

Field Mag: GEM Systems GSM19 GW (#68588)
Base Mag: GEM Systems GSM19 W (#67577)
Operator: B. Chore
Date: August 17, 1998
Kilometres: 12.1

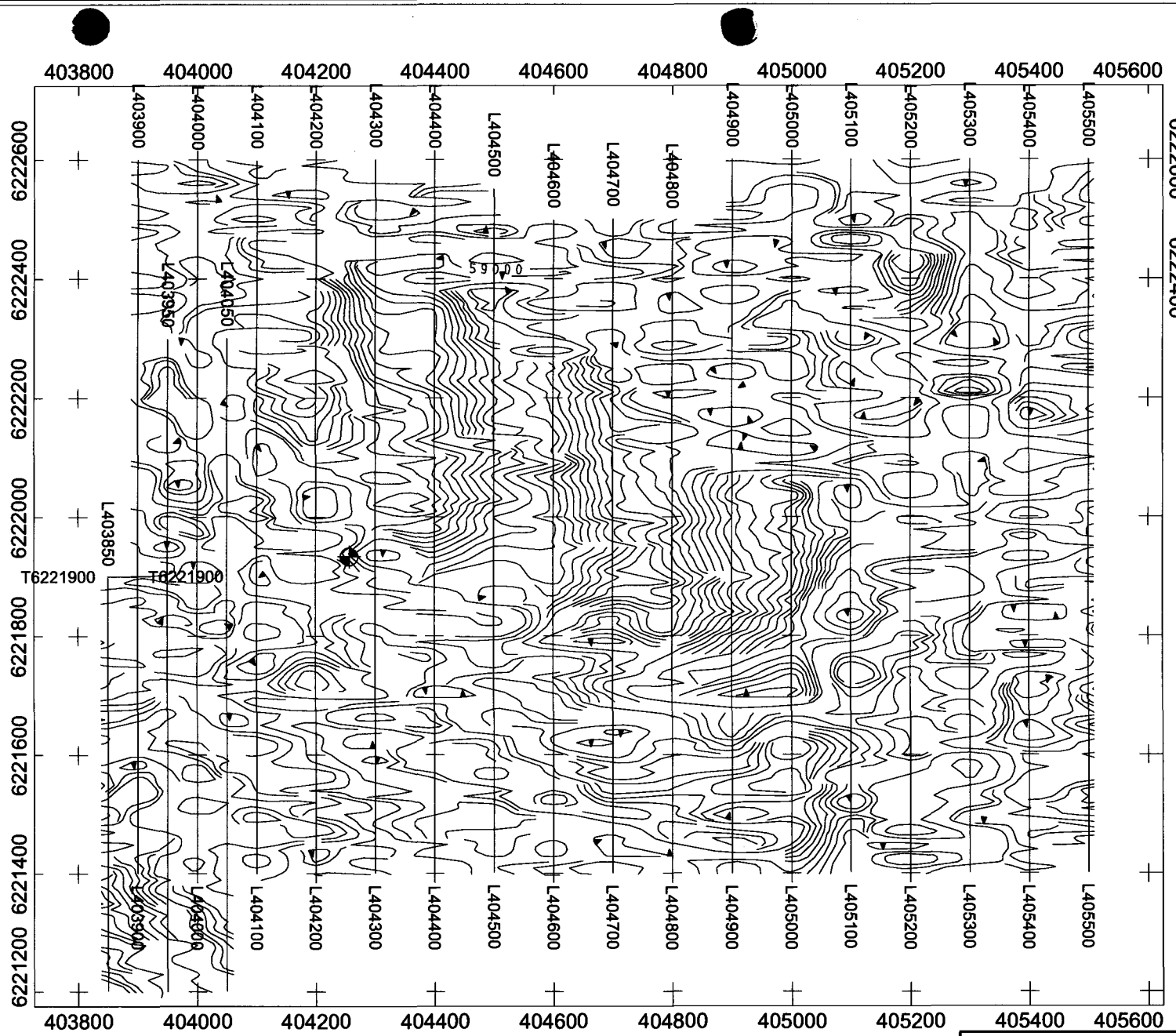
Scale 1:10000

Data is stored in:
C:\Geophysics\Lesser Slave\Anomaly LS1-2A

Ashton Mining of Canada, Inc.

Detailed Ground Magnetic Survey
Lesser Slave - Anomaly LS1-2A
Total Field Contours

Non-Linear(2x2),Low Pass(50pt)



N

Inclination 78 degrees
Declination 22 degrees

Legend

Line Spacing: 50 metres
Grid Interval: 10 metres
Contour Interval: 2, 10 nT

Datum: NAD 27 UTM zone 12

Data Acquisition:

Field Mag: GEM Systems GSM19 GW (#68588)
Base Mag: GEM Systems GSM19 W (#67577)
Operator: S. Jardine
Date: May 18-20, 1999
Kilometres: 23.4

Grid reference picket

Scale 1:10000

100 0 100 200 300 400

metres

Data is stored in:
\Geophysics\Athabasca\Ground\AB61

Ashton Mining of Canada Inc.

Detailed Ground Magnetic Survey
Athabasca - Anomaly 61
Total Field Contours

Non-Linear(2x2),Low Pass(10pt)

ASSESSMENT REPORT

Athabasca (AL07), Lesser Slave (AL08),
and Whitemud Hills (AL09) Properties
Volume 2 (Report, Appendix A through Appendix D)

ASHTON MINING OF CANADA INC.

PROVINCE OF ALBERTA
2000

CONFIDENTIAL UNTIL JANUARY 2001

Company:	Ashton Mining of Canada Inc.
Permit Agreement No.:	9397100001-939710097, 9397100401-9397100543, 9397110001-9397110094, 9398020003-9398020192 (inclusive)
Assessment Period:	October 17, 1997 to October 17, 1999
Location:	Northern Alberta
NTS:	73M, 74D, 74E, 83J, 83K, 83L, 83M, 83N, 83O, 83P, 84A, 84C, 84D, 84H and 84I
Legal Location:	Tp 77-104, Rg 1-26 West of 4th meridian, Tp 60-90, Rg 1-27 West of 5th meridian, Tp 66-88, Rg 1-8 West of 6th meridian
Author:	Dave Skelton, Terry Bursey
Date:	January 7, 2000

Geophysical Surveys Conducted by Ashton Mining of Canada Inc.

Cayo Lands	Ground Surveys		Airborne Surveys			
	Kilometres Surveyed	Targets / Blocks	Kilometres Surveyed	Targets / Blocks	Date	Contractor
Lesser Slave Property						
Fixed-Wing Magnetic Survey			73,446.00		Mar-June 98	Geoterrex-Dighem
Ground Magnetic Surveys	12.1	1			Aug-98	Ashton Personnel
Athabasca						
Fixed-Wing Magnetic Survey - Wood Buffalo			9,202.0	1	Apr-99	Sander Geophysics Ltd.
Fixed-Wing Magnetic Survey - Namur Lake			3,663.0	1	Apr-99	Sander Geophysics Ltd.
Fixed-Wing Magnetic Survey - Gregoire Lake			15,206.0	1	May-99	Sander Geophysics Ltd.
Fixed-Wing Magnetic Survey - A-B Block			49,071.0	1	Feb-Apr 98	Sander Geophysics Ltd.
Fixed-Wing Magnetic Survey - G Block			13,103.0	1	Feb-Apr 98	Sander Geophysics Ltd.
Fixed-Wing Detailed Magnetic Survey			562.0	5 / 2	May-99	Sander Geophysics Ltd.
Spring Ground Mag Program	88.0	6 / 4			May-99	Ashton Personnel
Summer Ground Mag Program	7.5	1			Sep-99	Ashton Personnel

All Properties Ground Magnetics KM **95.5** **101,517.0 KM of Airborne Geophysics**

Ground Magnetic Surveys Performed

Athabasca

# of Targets	Target #	Km Surveyed
1	31-32-33	
2	31-32-33	57.00
3	31-32-33	
4	34	5.40
5	61	23.40
6	73	2.20
7	91	7.50
	Total km	95.50
	Targets	7

Lesser slave

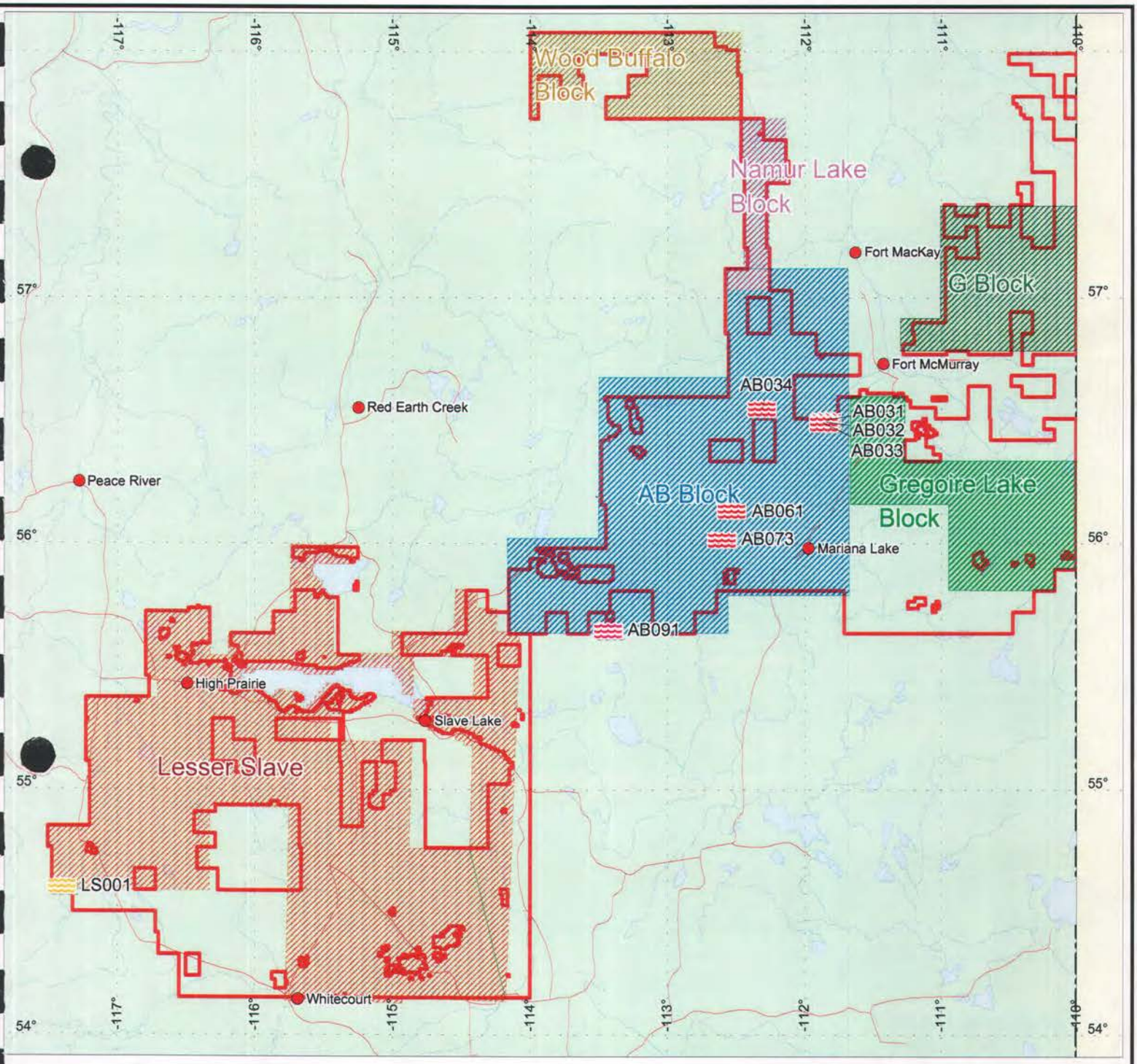
# of Targets	Target #	Km Surveyed
1	LS001	12.10
	Total km	12.10
	Targets	1

# of Targets	Target #	Km Surveyed
	Total km	0.00
	Targets	0

# of Targets	Target #	Km Surveyed
	Total km	0.00
	Targets	0

# of Targets	Target #	Km Surveyed
	Total km	0.00
	Targets	0

Total Number of Targets Surveyed 8
Total Km Surveyed 107.6



Location Map

N

- Airborne Geophysical Surveys
- Ground Geophysical Surveys Summer 1999
- Ground Geophysical Surveys Spring 1999
- Ground Geophysical Surveys Summer 1998
- Property outline

Ashton Mining of Canada Inc.

Nov 30 1999

Author: S Shoiridge

Vancouver

Drw: Property Location Map

Proj:Nad 27 UTM Zone 12

Athabasca and Lesser Slave Properties Alberta Geophysical Surveys

0 40 80 Kilometers

Scale 1:2 500 000

LOGISTICS and PROCESSING REPORT

of a
HIGH RESOLUTION AEROMAGNETIC SURVEY

over
LESSER SLAVE CLAIM GROUP, SLAVE LAKE, ALBERTA

for
ASHTON MINING OF CANADA INC.

Job N° 470
June, 1998
Ottawa, Ontario
D. Skubiski

CGG Geoterrex-Dighem

TABLE OF CONTENTS

APPENDICES

LIST OF FIGURES

INTRODUCTION

From March 31 to June 9, 1998 a total of 73,446 line kilometres of high resolution aeromagnetic data were flown over Lesser Slave Claim Group, Slave Lake, Alberta, for ASHTON MINING INC. by CGG GEOTERREX-DIGHEM (see figure 1).

The survey data was compiled and processed in the CGG Geoterrex-Dighem Ottawa office and is presented as maps of the total field magnetic values, the flight path, vertical gradient of the magnetics and digital terrain model, and corresponding digital archive files (line and grid data).

II

SURVEY OPERATIONS

Location of the Survey Area

The survey area is in the Slave Lake area in Alberta (within the survey outline), and encompasses one large survey block referred to as the Lessor Slave Claim Group. The survey area is bound by the following coordinates:

Lesser Slave Claim Group:
Latitudes 54°05'0"N and 56°00'00"N
Longitudes 117°30'0"W and 114°00'0"W

The base of operation was Slave Lake, Alberta (see figure 1).

Aircraft and Geophysical On-Board Equipment

Aircraft	Titan 404 and Caravan 208
Operator	CGG Geoterrex-Dighem
Registration	C-GGTA and C-FZLK
Survey Speed	165 knots/190 mph/85m/sec.
Magnetometer	Scintrex Cs-2 single cell cesium vapour, stinger mounted, sensitivity = 0.001 nT[1], sampling rate = 0.1 sec., ambient range 20,000 to 100,000 nT. The general noise envelope was kept below 0.15 nT.
Compensator	RMS AADC II, 27 term.
Digital Acquisition	CGG Geoterrex-Dighem GEODAS.

[1] One gamma is equivalent to the S.I. unit nanotesla (nT).

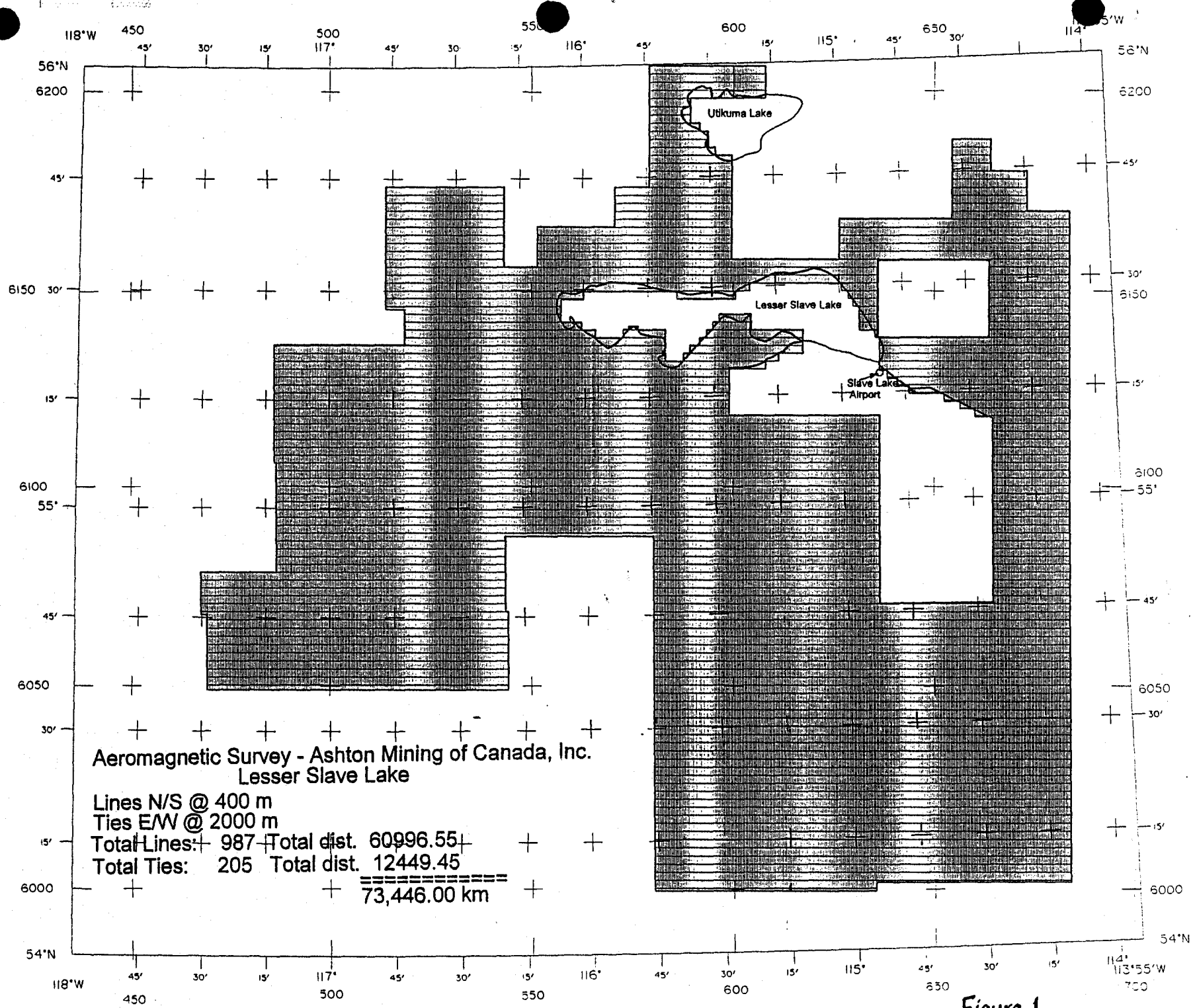

Utikuma Lake
Lesser Slave Lake
Slave Lake Airport
Aeromagnetic Survey - Ashton Mining of Canada, Inc.
Lesser Slave Lake
Lines N/S @ 400 m
Ties E/W @ 2000 m
Total Lines: 987 Total dist. 60996.55
Total Ties: 205 Total dist. 12449.45
73,446.00 km

Figure 1.

Analog Recorder	RMS GR-33, showing the total magnetic field at 2 vertical scales, plus two high-pass filtered traces emphasizing anomalies up to a 4 second period (arising from aircraft movements) from the uncompensated (HPUN) and compensated (HPTF) magnetic data, with a 3.9 second lag. Instrumental noise is revealed by the fourth difference trace, which has been divided by 16 to equate its amplitude with the total field noise. All three altimeters (radar, barometric and GPS) are also plotted. The absolute values of mag. (nT), radar and barometric altimeters (feet), GPS latitude and longitude (degrees and minutes) and GPS altitude (feet) are printed at the top of the page every 60 seconds.
Barometric Altimeter	Rosemount 1241M, sensitivity 0.5 m, 0.1 sec. recording interval.
Radar Altimeter	ERT 011, accuracy 1%, sensitivity 30 cm, range 0 to 3000 m, 0.1 sec. recording interval.
Camera/VCR/Monitor	Panasonic colour camera, model WV-CL302 with a wide angle lens, operating throughout all production. Panasonic VCR, model AG2400, and a Sony monitor.
Electronic Navigation	Sercel GPS receiver NR103, 0.6 sec. recording interval, with a resolution of 0.00001 degree and an accuracy of about ±10 m.

Base Station Equipment

Magnetometer:	Cesium Vapour, mounted in a magnetically quiet area, measuring the total intensity of the earth's magnetic field in units of 0.01 nT at intervals of 0.5 second, within a noise envelope of 0.10 nT.
GPS Receiver:	SERCEL NR103 V2.3, measuring all GPS channels, for up to 10 satellites, at 6 second intervals.
Computer:	Compaq laptop, model LTE 4/75 CX.
Converter:	Picodas, model MEP710 3/10901 GTS 780008.
Printer:	Kodak Diconix 150 plus.
Battery Backup.	

Field Office Equipment

Video Playback:	Panasonic Super VHS with an 8" BRULE Colour Monitor.

Computer:	Dell Latitude LM laptop with 800 MB hard drive.
Plotter:	Techjet GT 24" Calcomp.
Printer:	Hewlett Packard Deskjet 690C.
DAT Tape Drive:	Seagate, 90 metre tapes (1300 MG).
Hard Drive:	JAZ 1.5 gigabyte

Survey Specifications

Altitude: The mean terrain clearance was 100 m and the altitude tolerance was limited to ±10 m from nominal, over a distance greater than 5 km.

Magnetics: Not to exceed ±0.10 nT over a distance greater than 5 km or a cumulative total of greater than 10% of any line.

Diurnal variation: Diurnal variations were deemed excessive if amplitudes were in excess of 2.5 nT over a 2 minute chord.

Navigation: Survey spacing was flown along the following lines:
Line Spacing: 400 meters, North-South direction;
Tie Line Spacing: 2,000 metres, East-West direction.

No gaps between lines of greater than 440 metres over a 10 km distance and no lines were to cross.

Tests and Calibrations

Figure of Merit

The Figure of Merit (FOM) is a series of pitches (± 5°), rolls (± 10°), and yaws (± 5°) which induce noise in the magnetometer resulting from aircraft manoeuvres (due to the magnetic fields generated by the aircraft itself). This test was performed prior to start of production and repeated after replacement of any component affecting the magnetic properties of the aircraft. This test shows how well the installation is compensated. The results of a test flown on May 2, 1998 are tabled below:

FIGURE OF MERIT TEST - C-GGTA

Direction	Noise Envelope during: Pitch	Roll	Yaw	Sub-total
East	.09	.04	.08	.21 nT
North	.10	.10	.07	.27 nT
West	.17	.06	.13	.36 nT
South	.11	.07	.12	.30 nT
			Total F.O.M.	1.140 nT

The results of test 2 flown on May 21, 1998 are tabled below:

FIGURE OF MERIT TEST - C-GGTA

Direction	Noise Envelope during: Pitch	Roll	Yaw	Sub-total
East	.170	.095	.105	.370 nT
North	.130	.105	.10	.335 nT
West	.105	.090	.140	.335 nT
South	.135	.130	.110	.375 nT
			Total F.O.M.	1.415 nT

The results of a test flown on April 2, 1998 are tabled below:

FIGURE OF MERIT TEST - C-FZLK

Direction	Noise Envelope during: Pitch	Roll	Yaw	Sub-total
East	.100	.045	.055	.200 nT
North	.150	.060	.050	.260 nT
West	.060	.025	.050	.135 nT
South	.085	.040	.030	.155 nT
			Total F.O.M.	0.75 nT

The results of test 2 flown on May 9, 1998 are tabled below:

FIGURE OF MERIT TEST - C-FZLK

Direction	Noise Envelope during: Pitch	Roll	Yaw	Sub-total
East	.070	.040	.06	.170 nT
North	.060	.030	.04	.130 nT
West	.030	.050	.05	.130 nT
South	.030	.040	.030	.100 nT
			Total F.O.M.	.530 nT

Magnetic Cloverleaf (Bourget, Ontario, Canada)

This test compared the absolute value of the CGG Geoterrex-Dighem aircraft magnetometer in the four cardinal directions; it was flown on May 2, 1998. The aircraft passed directly over the same point, a good visual reference with a low magnetic gradient, twice for each direction. Results are tabled below.

HEADING TEST - C-GGTA

Direction	Total Field (after subtraction of base station)	Averaged Differences
North	3.40 nT	North minus South = 3.00 nT
East	8.60	
South	8.30	
West	10.00	
North	2.5	West minus East = -0.70 nT
East	12.0	
South	4.9	
West	9.2	

The results of a test flown on January 21, 1998 for C-FZLK are tabled below:

HEADING TEST - C-FZLK

Direction	Total Field (after subtraction of base station)	Averaged Differences
North	1.67 nT	North minus South = 0.16 nT
East	1.81	
South	2.06	
West	0.55	
North	2.34	West minus East = -0.64 nT
East	2.53	
South	2.27	
West	2.51	

Lag Test

The camera on-board the aircraft records its position, A, relative to the ground at time t_o. In fact the sensor will arrive over A at time t_1 greater than t_o. Furthermore, because of electronic delays, the reading performed at time t_1 will be recorded on the magnetic tape at time t_2 greater than t_1. The difference t_2-t_o represents the lag between the actual aircraft position and the position of the corresponding reading on the magnetic tape.

For C-GGTA, the test is performed by flying the aircraft in opposite directions over a well defined magnetic anomaly. A lag value of 0.6 seconds was taken into account at the processing stage by shifting the digital mag values back 6 sample intervals with regard to the fiducial field. For C-FZLK, the same test was done and the results were 1.0 seconds and shifting the digital mag values back to samples.

Electronic Navigation Test

For C-GGTA, the GPS navigation system was tested for systematic errors by comparing its position (after differential correction) with that of the on-board camera when flying a cloverleaf test over a readily visible point of known WGS co-ordinates. The ground GPS station antenna was used. An along-track offset, or lag, of 0.20 seconds was noted and corrected by shifting the GPS field with regard to the fiducial field. This test reveals errors of GPS positioning of no more than ±5 metres after the differential correction, GPS lag and adjustments for pilot error are applied. The same test was done for C-FZLK and the lag of 0.08 seconds was noted.

The exact co-ordinates of the GPS base station antenna were determined by running the GPS receiver for two full constellation passes (48 hours) and calculating the mean position of the

antenna. These co-ordinates were as follows: 55°16' 35.148"N latitude, 114°46' 24.977"W longitude and elevation of 590 m. During the survey, this mean position was constantly monitored.

Altimeter Calibration flights were performed over Lesser Slave Lake by C-FZLK on April 23, 1998 and by C-GGTA on May 9, 1998. The tests consisted of 20 second duration steps at altitudes of 200', 400', 600', 800' and 1,000' radar.

The results are shown in figures 2 to 5.

A further static altimeter test was performed by each aircraft parked on the same spot on the runway, for a period of 20 minutes. The GPS position data was processed and the DGPS Z value was compared.

C-FZLK performed this test on April 25, 1998. The result was 580 m (WGS 84), 606 m (Clarke 1866).

C-GGTA performed this test on May 10, 1998. The result was 579 m (WGS 84), 605 m (Clarke 1866).

Field Crew

The base of field operations was Slave Lake, Alberta.

Pilots:	S. Savage, S. Brannenbreg, M. Tapp, D. Wiens, D. Reeve, M. Williston
Electronics Operators:	G. Nasr, G. Payne, A. Proulx, L. Denner
Engineers:	M. Budzinski, D. Dawson
Data Processor/ Project Manager:	A. Pawlak, D. Skubiski

Production Statistics

The average daily production was 1034.5 km. Total flying hours was 459.9 for an average of 6.4 hours/day and an average production rate of 159.8 km/hr.

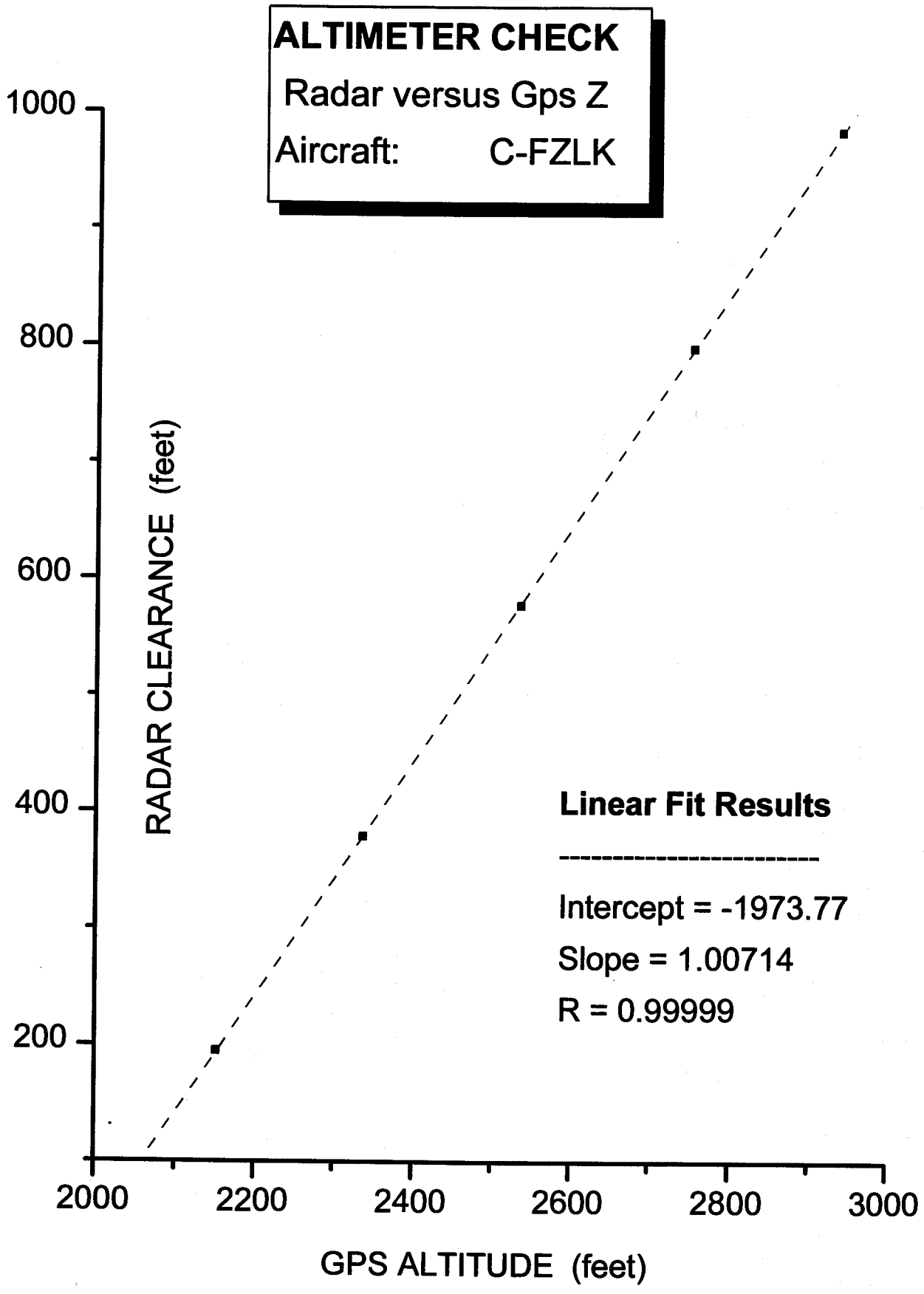

ALTIMETER CHECK
Radar versus Gps Z
Aircraft: C-FZLK
1000
800
600
400
200
RADAR CLEARANCE (feet)
2000
2200
2400
2600
2800
3000
GPS ALTITUDE (feet)
Linear Fit Results
Intercept = -1973.77
Slope = 1.00714
R = 0.99999

Figure 2

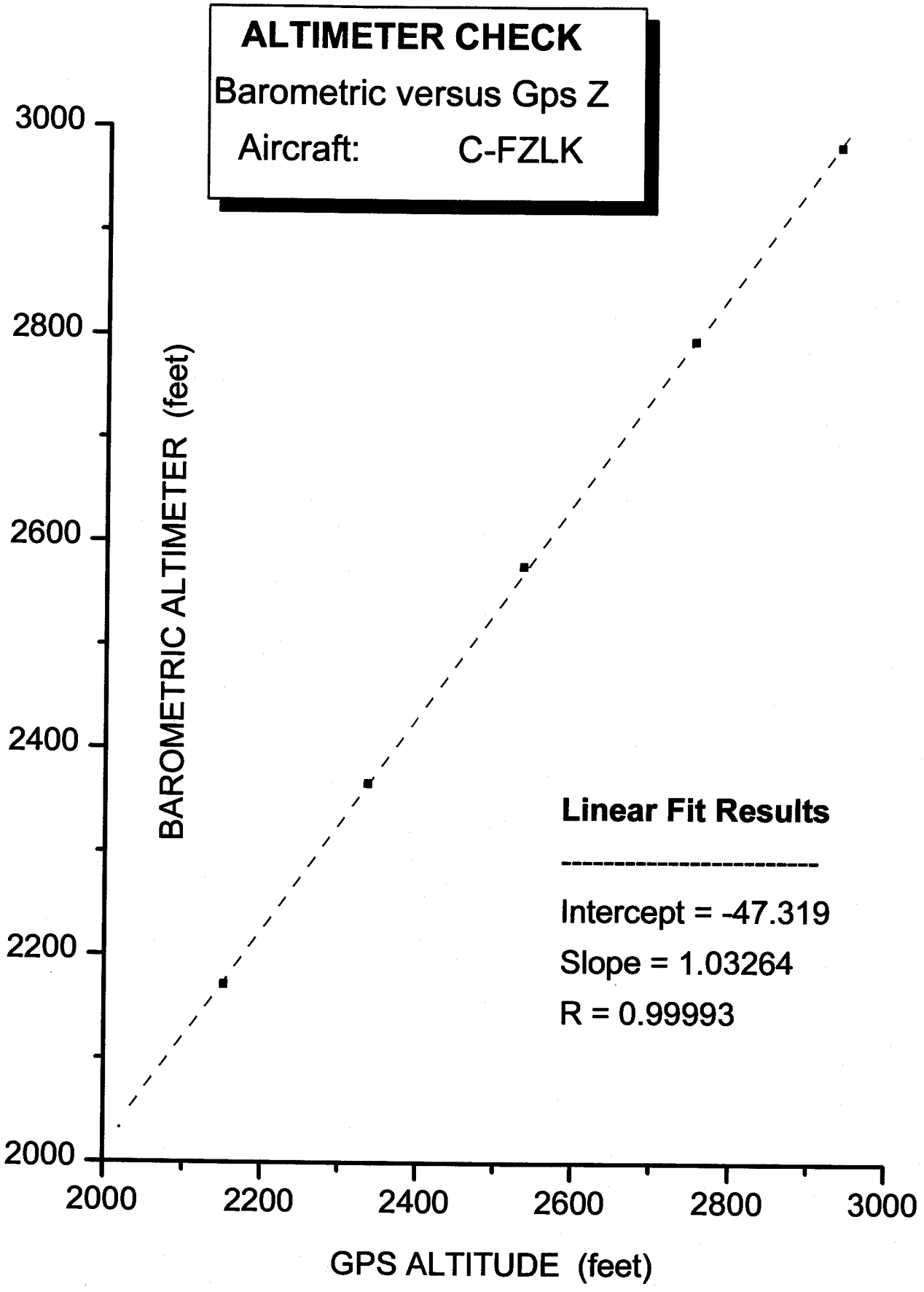

ALTIMETER CHECK
Barometric versus Gps Z
Aircraft: C-FZLK
3000
2800
2600
2400
2200
2000
BAROMETRIC ALTIMETER (feet)
2000
2200
2400
2600
2800
3000
GPS ALTITUDE (feet)
Linear Fit Results
Intercept = -47.319
Slope = 1.03264
R = 0.99993

Figure 3

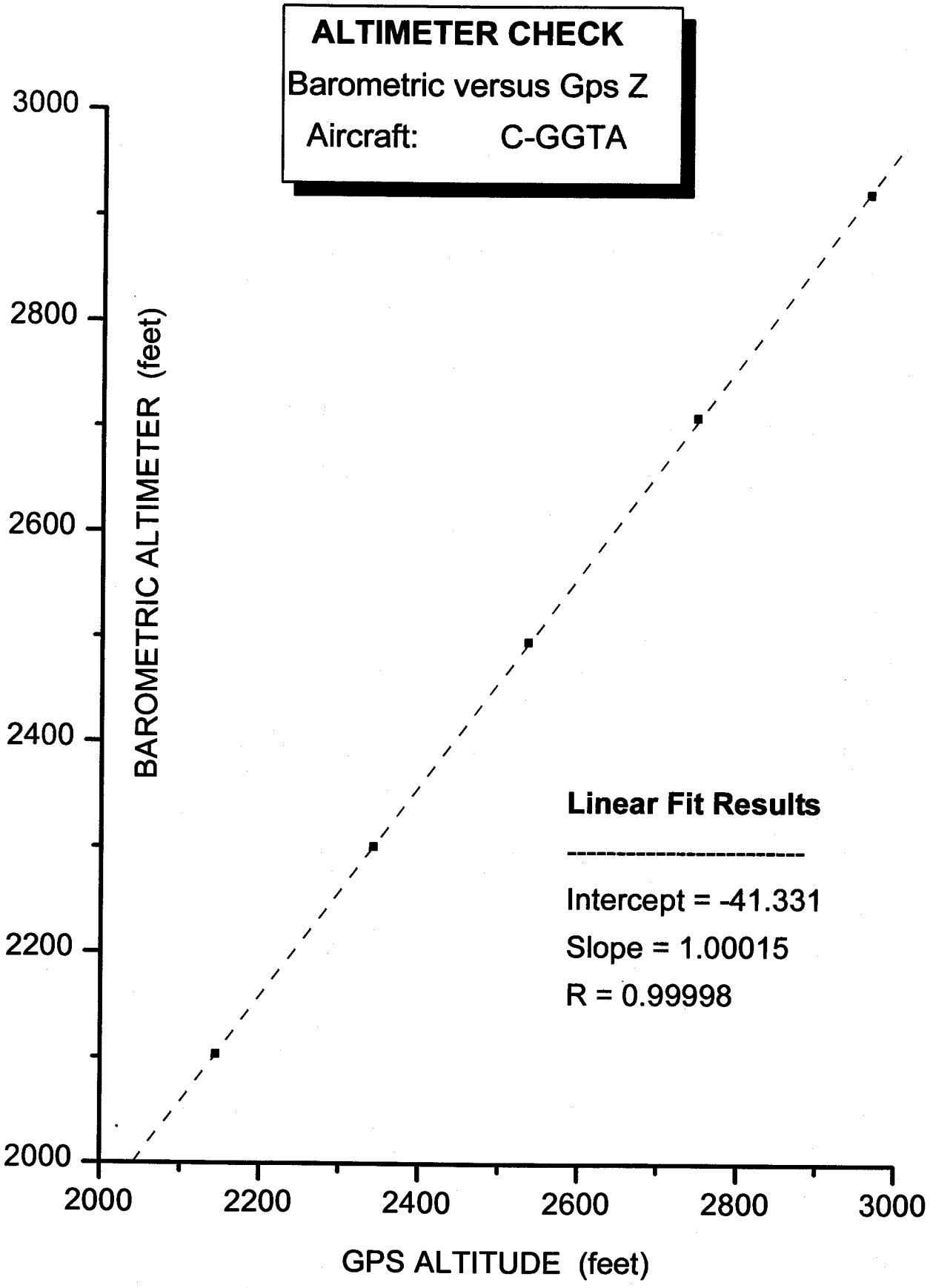

ALTIMETER CHECK
Barometric versus Gps Z
Aircraft: C-GGTA
3000
2800
2600
2400
2200
2000
BAROMETRIC ALTIMETER (feet)
2000
2200
2400
2600
2800
3000
GPS ALTITUDE (feet)
Linear Fit Results
Intercept = -41.331
Slope = 1.00015
R = 0.99998

Figure 4

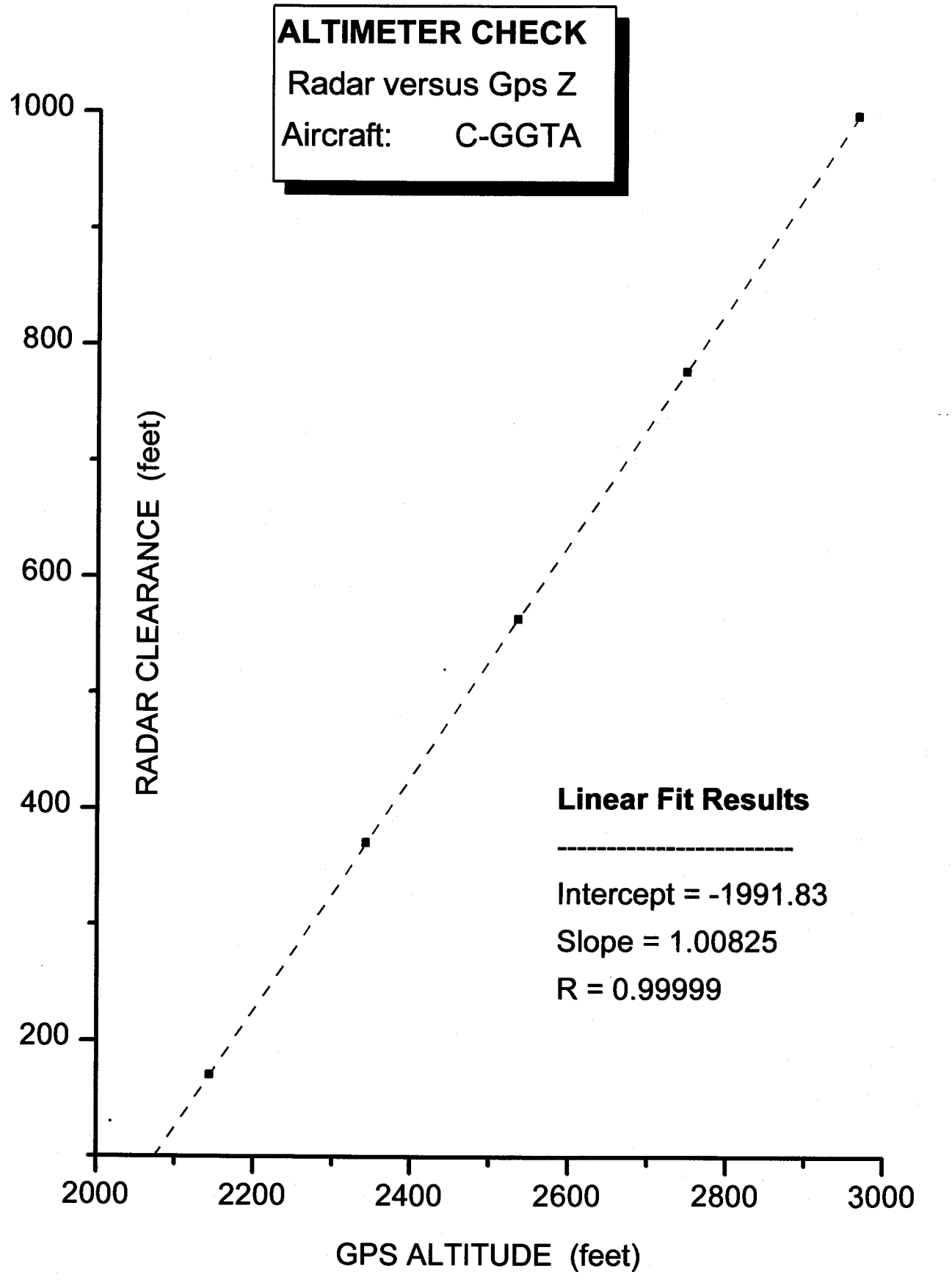

ALTIMETER CHECK
Radar versus Gps Z
Aircraft: C-GGTA
1000
800
600
400
200
RADAR CLEARANCE (feet)
2000
2200
2400
2600
2800
3000
GPS ALTITUDE (feet)
Linear Fit Results
Intercept = -1991.83
Slope = 1.00825
R = 0.99999

Figure 5

III

QUALITY CONTROL AND COMPILATION PROCEDURES

In the Field

After each flight, all analog records were examined as a preliminary assessment of the noise level of the recorded data, focusing on the hi-pass filtered traces generated from the magnetic data. Altimeter deviations from the prescribed flying altitudes were also closely examined as well as the general condition of the diurnal activity, as recorded on the base stations.

All digital data were verified for validity and continuity. The data from the aircraft and base station was transferred to the PC's hard disk. Basic statistics were generated for each parameter recorded (magnetics, altimetry, GPS positioning, time); these included the minimum, maximum and mean values, the standard deviation and any null values located. Editing of all recorded parameters for spikes or datum shifts was done using a fourth difference routine, followed by final data verification via an interactive graphics screen with on-screen editing and interpolation routines. Any of the recorded parameters could be plotted back at a suitable scale on the field plotter.

The quality of the navigation was controlled on a daily basis by recovering the flight path of the aircraft. The Trajecto correction procedure employs the raw ranges from the base station to create improved models of clock error, atmospheric error, satellite orbit, and selective availability. These models are used to improve the conversion of aircraft raw ranges to aircraft position. The Trajecto-corrected GPS was plotted back daily in the field on the plotter and checked for speed busts.

Checking all data for adherence to specifications was carried out in the field by the Geoterrex-Dighem field operations manager/data technician.

The GMAPS field software essentially duplicates our office capabilities.

To summarize the field compilation/validation procedures:

1. Read and reformat field discs (from both the air data and diurnal base stations) in the process of loading the digital data onto the field computer's hard disk.

2. Generate error listings and general statistics on all recorded parameters (altimetry, magnetics, navigation data) to verify continuity and validity.

3. Edit any bad values via a 4th difference routine or an interactive graphic screen editing program.

4. Apply all necessary adjustments for magnetic heading and system lag.

5. Apply all necessary conversions, units, sample rates, time adjustments and corrections to the digital navigation data (GPS).

6. Plot back the GPS flight path in UTM metres at any desired scale on the field plotter.

7. Calculate the average speed between each point (GPS).

8. Merge magnetics, altimetry and X, Y positions into a main file.

9. Level, grid and contour preliminary total field maps.

10. Back up all data and return to the office to finalize the processing.

In the Office

All necessary verification, editing and correction of flight path, altimetry and diurnal records was done in the field. The compilation and processing of the survey data from field to final digital and map products in Geoterrex-Dighem's Ottawa office was directly supervised at all stages by the Geophysical Processing Manager.

Details of Total Magnetic Field Compilation

Editing

Noise spikes down to about 0.10 nT were removed automatically and more complex errors were flagged by the program and corrected manually. There were many cultures as a result of pipelines and well locations in the area. These were not edited but have been identified on the field analogues and with a topographic/culture overlay on the final map products.

Diurnal Magnetic Variation Corrections

Ground station data was checked daily for man-made disturbances. Interference were noted and edited or filtered out.

Levelling

Introduction

The lines (traverse lines) and tie-lines (control lines) of an aeromagnetic survey form a network, and the points where they cross one another are called intersections. At each intersection, it is easy to interpolate the magnetic value on the line and on the control line from adjacent values. In theory, the two magnetic values at the intersection should be identical. In practice, they will usually be different as a result of:

1. time variation of the magnetic field;

2. heading effects. Our cloverleaf test revealed no significant heading effects;

3. altitude differences. Since the earth's magnetic field varies with altitude above the ground, any difference in flight altitude will cause a difference in magnetic value; and

4. position errors. These have little effect in areas of low magnetic gradients, but can introduce large differences in steep gradients.

In the levelling process, it is assumed that most of the required level adjustments will vary smoothly along each line or control line, in the same manner as the time variations of the magnetic field.

The total levelling adjustment was limited to one nT per kilometre; however, a few steeper gradients were inserted manually where elevation discrepancies occurred over high-gradient cultural magnetic sources.

There were some intersections which could not be fitted with smooth level adjustments on both line and control line. These were attributed to errors in the aircraft position, and the flight path was adjusted to change the L-T (line minus control line) value to one which could be fitted by smooth adjustments.

Mathematical Analysis

The network of traverse lines and control lines are assumed to lie in the X-Y plane (see figure 2). The position of an intersection "i" is then characterized by the coordinates (x,y) and times t^L and t^T. The measured magnetic field is characterized by a value on the vertical axis (Z axis) perpendicular to the X-Y plane. The difference between the magnetic field values on the line and the control line (the L-T difference) at intersection"i" is the misclosure M.

Outline of Process

The first stage of the levelling process is the calculation of the line and control line level adjustment at each intersection. These vary smoothly along a line or control line and define the levelled baseline of the magnetic profile. The line and control line level adjustments (A^L and A^T respectively) account for the diurnal. The level adjustments are calculated with two averaging operations, MOYA and MOYB (MOY is from the French work MOYENNE, meaning average). MOYA removes the slowly varying component of the misclosures, and MOYB removes the rapidly varying component. After MOYA and MOYB, at the "i" intersection, the misclosure remaining after adjustment, R, is given by

$$R = M + A^L - A^T \qquad \text{....(1)}$$

The next stage consists in tilting the line baseline by a maximum allowed tilt of T to reduce the misclosure R to zero.

If $|R| \leq T$, ...(2)

then $M + AA^L - A^T = O$ ...(3)

where $AA^L = A^L - R$ ...(4)

is the new line adjustment.

If the remaining misclosure R cannot be reduced to zero within the maximum allowed tilt T, the position of the intersection instead is shifted in the X-Y plane to the point closest to the intersection (within a maximum allowed displacement) where the relation

$$R + D^L - D^T = O \qquad ...(5)$$

is satisfied. D^L and D^T are the differences, (or magnetic value at the new intersection position minus the magnetic value at the original intersection position). The initial misclosure M is then corrected to give

$$M_{corr} = M + D^L - D^T \qquad ...(6)$$

such that $$M_{corr} + A^L - A^T = O \qquad ...(7)$$

If the remaining misclosure R cannot be reduced to zero within the maximum allowed displacement, the maximum allowed tilt is increased and the tilting calculation (equations 2 to 4) is reapplied. If R is still not reduced to zero, the maximum allowed displacement is also increased and a tilt and shift are applied simultaneously to the intersection. The position of the intersection is now shifted in the X-Y plane to a point where the relation

$$|R + D^L - D^T| \leq T \qquad ...(8)$$

is satisfied. The intersection can be moved to the closest point or to the point with the smallest tilt which satisfies equation (8). The first option is usually preferred. After tilting and shifting of the intersection, the misclosure and line compensations are corrected to give

$$M_{corr} + AA^L - A^T = O \qquad ...(9)$$

where $$AA^L = A^L - (R + D^L - D^T) \qquad ...(10)$$

is the new line level adjustment, and

$$M_{corr} = M + D^L - D^T \qquad ...(11)$$

is the corrected misclosure.

The intersection is flagged if it is closed using condition (8) (relaxed specifications). If the misclosure R at the intersection still cannot be reduced to zero under relaxed specifications, it is specially flagged as a "bad" intersection. This requires checking of the flight path recovery. The data set can then be re-levelled automatically or the bad intersection can be closed manually.

The levelling process can thus be summarized as follows:

Compensation:
MOYA on the control lines (run 1)
MOYA on the lines (run 1)
MOYA on the control lines (run 2)
MOYA on the lines (run 2)

MOYB on the lines
MOYB on the control lines (twice)

If necessary, Tight specifications:
Tilt the line baseline, or
Shift the position of the intersection

Relaxed specifications:
Tilt the line baseline, or
Shift the intersection and tilt the line baseline

If M ≠ O: Bad intersection.

The differences at the intersection points are tabulated by printed outputs from the computer program for each traverse line and control line in a readily comprehensible form.

Step 1: *Traverse Line Minus Control Line Printout*

BARO ALT CL	BARO ALT. TL	RADAR ALT. CL	RADAR ALT. TL	DIURNAL GRADIENT CL	DIURNAL GRADIENT TL	DIURNAL CL	DIURNAL TL	RAW MAG CL	RAW MAG TL

NO. CL	NO. TL	FLT NO. CL	FLT NO. TL	DIRECTION CL	DIRECTION TL	X metres	Y metres	FID CL	FID TL	SCAN CL	SCAN TL	DIURNAL TL-CL	MAG TL-CL

GRADIENT CL 21 values	GRADIENT TL 21 values

Step 2: *Final Levelling Analysis Printout*

CL No.	TL No.	ORIGINAL TL-CL	ORIGINAL CL LEVEL ADJUST.	ORIGINAL TL LEVEL ADJUST.	2ND TL-CL	DIFF. IN LEVEL ADJUST FROM PRECED. INT. (CL OR TL)	DIUR. DIFF. FROM PRECED. CL OR TL AT INT.	BARO. ALT. DIFF. TL-CL	MAG. GRADIENT INDICATOR (CL OR TL)

2ND TL LEVEL ADJUST	CL SHIFT	TL SHIFT	FLT. DIR. CL	FLT. DIR. TL	FINAL TL-CL	FINAL CL LEVEL ADJUST.	FINAL TL LEVEL ADJUST	DIFF IN FINAL LEVEL ADJUST FROM PRECED. INT (CL OR TL)

When final levelling adjustments were applied, all control lines and traverse lines yielded identical values at intersections.

Profile Enhancements

I.G.R.F.

The International Geophysical Reference Field was removed from all profiles before gridding, for the date 1998.34.

Gridding

The gridding from the profile data was done at a 100 m interval. An Akima gridding method was used and uses data from both lines and tie lines.

All blocks were gridded in UTM Clarke 1866 with a false northing of 0 m, a false easting of 500,000 and a scale factor of 0.9996. The central meridian used was 117°W.

Contouring

Contour maps were produced from these grids by a computer contouring program which faithfully reflects the final magnetic values at each grid point. Magnetic depressions are indicated by "tick-marks" placed around the inside of the contours expressing the locally low areas. The direction of the contour labelling faces up gradient.

Digital Terrain Model

The digital terrain model is computed by subtracting the radar altimeter from the GPS elevation. The resulting data is then levelled.

Vertical Gradient Calculation

The vertical gradient was calculated in the frequency domain from the final gridded values to enhance subtleties in the geological data. This was done by combining the transfer functions of the 1st vertical derivative and a low-pass filter (cut-off value = 0.114, roll-off value = 0.076). The low-pass filter was designed to attenuate the high frequencies representing non-geological signal, which are normally enhanced by the derivative operator.

Final Deliverables

Maps (1:100,000 scale) - (1:500,000 scale)

Magnetic total field (IGRF corrected) - 1 mylar copy, 1 colour copy, 1 black and white copy (1:100,000, 1:500,000).
Calculated Vertical gradient - 1 mylar copy, 1 colour copy, 1 black and white copy (1:100,000, 1:500,000).
Digital Terrain Model - 1 colour copy, 1 mylar copy, 1 black and white copy (1:500,000).
Flight Path - 1 black and white copy, 1 mylar copy with topographic/Culture Base Map (1:100,000).
Topographic/Culture Base Map (1:100,000).

Grids Presented in Geosoft ASCII Cost Exchange format

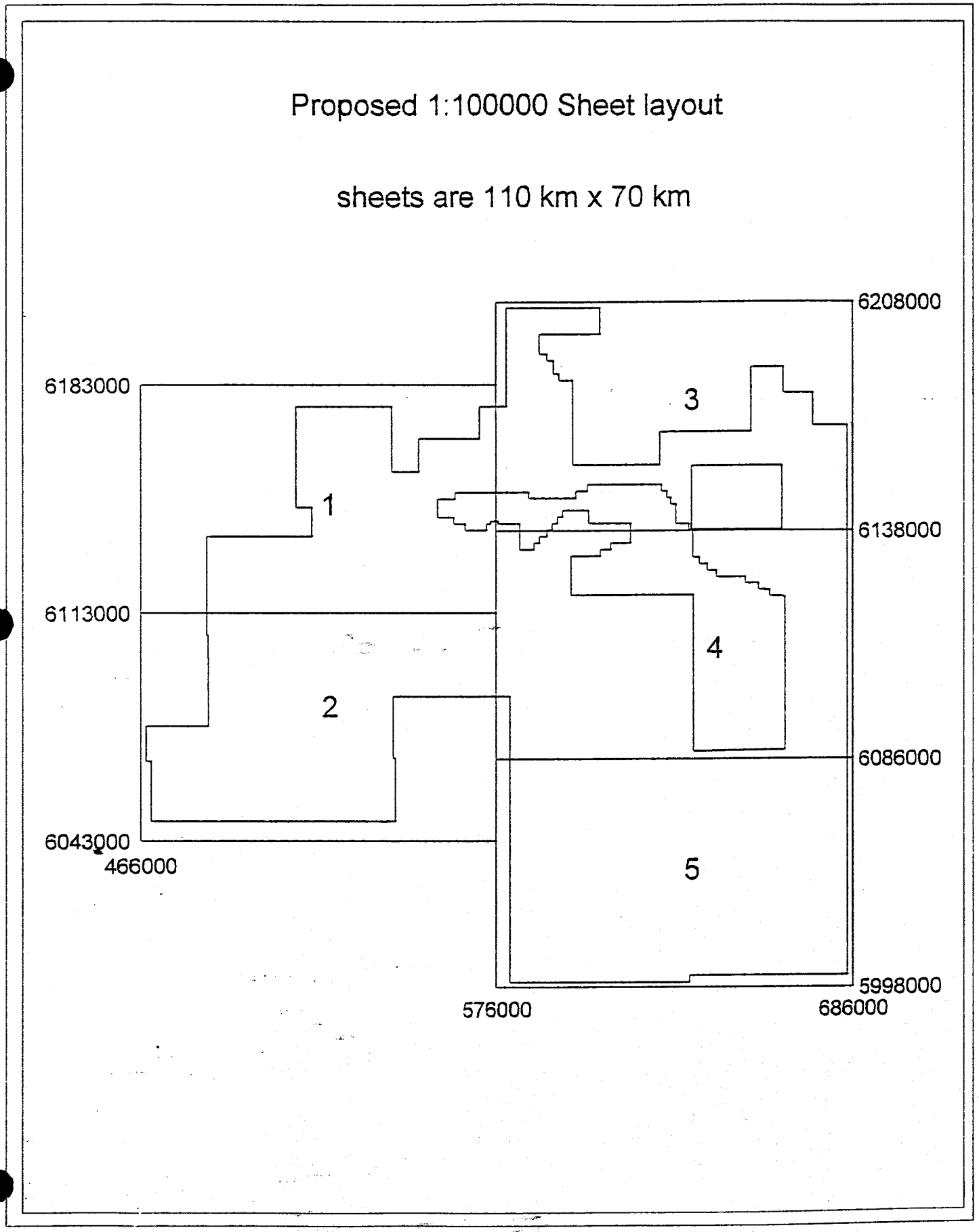
Total field (IGRF corrected).
Calculated Vertical Gradient
Digital Terrain Model

Digital Archive

Final archives of all line and grid data were prepared in Geosoft format, as specified in Appendix A. The medium was CD-ROM. A copy of the grids were also delivered in Vision format on CD-ROM.

Logistics and Processing Report

Two copies of this Logistics and Processing Report was delivered.



L:/470/cad/470km2.dgn Jun. 18, 1998 09:08:38

Figure 6.

APPENDIX A

Digital Archive Descriptor

FINAL DIGITAL ARCHIVE DESCRIPTION

CLIENT	:	ASHTON MINING OF CANADA INC.
AREA	:	LESSER SLAVE CLAIM GROUP
RECORDING MODE	:	GEOSOFT (22 I 11)
LOGICAL RECORD LENGTH	:	242 BYTE RECORD + CR + LF = 244 BYTES

DATA RECORD CONTENTS

PARAMETER	CHARACTERS	CONTENTS
1	1-11	UTM X (METERS)
2	12-22	UTM Y (METERS)
3	23-33	FIDUCIAL (SECONDS)
4	34-44	LATITUDE (DEGREES x 10*6)
5	45-55	LONGITUDE (DEGREES x 10*6)
6	56-66	RADAR ALTIMETER (FEET x 10)
7	67-77	BAROMETIC ALTIMETER (FEET x 10)
8	78-88	GPS ELEVATION (CM)
9	89-99	DIGITAL TERRAIN MODEL (METERS)
10	100-110	RAW AIR MAGNETICS UNCOMPENSATED (nT x 1000)
11	111-121	RAW AIR MAGNETICS COMPENSATED (nT x 1000)
12	122-132	AIR MAGNETICS PROCESSED (nT x 1000)
13	133-143	GROUND MAGNETICS (nT x 1000)
14	144-154	AIR MINUS GROUND MAGNETICS (nT x 1000)
15	155-165	LEVELLING ADJUSTMENTS (nT x 1000)
16	166-176	LEVELLED MAGNETICS (nT x 1000)
17	129-187	I. G. R. F. VALUES (nt x 1000)
18	188-198	LEVELLED MAGNETICS MINUS IGRF VALUES (nT X 1000)
19	199-209	DATE (DDMMYY)
20	210-220	FLIGHT NUMBER
21	221-231	GRID MICRO - LEVELLING ADJUSTMENTS (nT x 1000)
22	232-242	SPECIAL COUNTER (SECONDS x 10)
	243-243	CR BYTE
	244-244	LF BYTE

NOTES:

PROJECTION	:	UTM
SPHEROID	:	CLARKE 1866
CENTRAL MERIDIAN	:	117 DEGREES WEST
FALSE EASTING	:	500,000 METRES
FALSE NORTHING	:	0
SCALE FACTOR	:	.9996

1. THE FIDUCIAL VALUE IS THE TIME IN SECONDS PAST MIDNIGHT. EACH SECOND OF DATA IS ARCHIVED AS 10 SUCCESSIVE DATA SAMPLES WITH EACH OF THE SAMPLES FOR ONE SECOND HAVING THE SAME FIDUCIAL NUIMBER.

2. FIELD 22 SPECIAL COUNTER IS THE FIDUCIAL X 10 AND INCREASING BY 1

3. PROCESSED AIR MAGNETICS IS THE FINAL EDITED MAGNETIC FIELD, AFTER 4TH DIFFERENCE EDITING AND THE APPLICATION OF A 5 POINT RUNNING AVERAGE FILTER.

4. THE LEVELLING ADJUSTMENTS WERE OBTAINED FROM THE TIE-TIELINE INTERSECTION ANALYSIS

5. THE GRID MICRO-LEVELLING ADJUSTMENTS REPRESENT THE FINAL RESIDUAL LEVELLING CORRECTIONS, OBTAINED DIRECTLY FROM THE GRIDDED VALUES AND IMPORTED INTO PROFILE DATABASE. THE CORRECTION MUST BE ADDED TO THE FINAL MAGNETICS (PARAMETER 18) TO RE-CREATE THE FINAL GRID.

```
Input grid file name....... magb.gtx
Job code................... 470
Creation date.............. 300698
Date of last change........ 300698
Number of rows & columns...   2112  2240
Pivotal position (X & Y)...     467500.000   5999100.000
X spacing...................        100.000
Y spacing...................        100.000
Z factor....................       0.001000
min value...................   58458.520
max value...................   59970.150
mean value..................   58099.500

Output GXF file name....... archive/grid/tf.grd


Grid conversion ended normally.

Data is stored in .001 nT
```

```
Input grid file name....... vd.gtx
Job code................... 470
Creation date.............. 300698
Date of last change........ 300698
Number of rows & columns...   2112  2176
Pivotal position (X & Y)...     467500.000   5999100.000
X spacing...................        100.000
Y spacing...................        100.000
Z factor....................       0.001000
min value...................     -848.660
max value...................     2040.201
mrean value.................         .683

Output GXF file name....... archive/grid/vd.grd


Grid conversion ended normally.

Data is stored in .001 nt/KM
```

```
Input grid file name....... dtm.gtx
Job code................... 470
Creation date.............. 220698
Date of last change........ 220698
Number of rows & columns...   2112  2176
Pivotal position (X & Y)...     467500.000   5999100.000
X spacing..................        100.000
Y spacing..................        100.000
Z factor...................       1.000000
min value..................      533.0
max value..................     1352.0
mean value.................      772.0

Output GXF file name....... archive/grid/dtm.grd


Grid conversion ended normally.

Data is stored in meters.
```

APPENDIX B

Production Record

C-FZLK AND CGGTA DAILY PRODUCTION REPORT

JOB NUMBER 470 **BASE** **SLAVE LAKE,ALBERTA**

DATE	FLT #	FLOWN, KM	TOTAL FLOWN, KM	BALANCE, KM		FLT TIME, HRS	TOTAL TIME, HRS	REMARKS	OPERA-TOR	DAYS ON SITE	DAILY AVER., KM	PRODUC-TION, KM/H
Mar. 31	1	0.0	0.0	73446.0		1.2	1.2	Test, crew and plane arrive on March 30	GN	2	0.0	0.0
Apr. 1	2	0.0	0.0	73446.0		1.3	2.5	Test	GN	3	0.0	0.0
Apr. 1	3	0.0	0.0	73446.0		1.0	3.5	Test	GN	3	0.0	0.0
Apr. 2	4	0.0	0.0	73446.0		2.0	5.5	F.O.M. .75 nT	GN	4	0.0	0.0
Apr. 3	5	875.0	875.0	72571.0		5.0	10.5	Production	GN	4	218.8	83.3
Apr. 3	6	420.0	1295.0	72151.0		2.0	12.5	Production	GN	5	259.0	103.6
Apr. 4	7	1010.0	2305.0	71141.0		5.0	17.5	Production, Able to use omni star GPS	GN	6	384.2	131.7
Apr. 5	8	1200.0	3505.0	72246.0		5.5	23.0	Production	GN	6	584.2	152.4
Apr. 5	9	0.0	3505.0	69941.0		2.0	25.0	Test	GN	7	500.7	140.2
Apr. 6	10	670.0	4175.0	69271.0		3.2	28.2	Production	GN	7	596.4	148.0
Apr. 6	11	224.0	4399.0	69047.0		1.8	30.0	Production	GN	8	549.9	146.6
Apr. 7	12	502.0	4901.0	68545.0		3.0	33.0	Production	GN	8	612.6	148.5
Apr.8		0.0	4901.0	68545.0		0.0	33.0	Pilot day off		9	544.6	148.5
Apr.9	13	1146.0	6047.0	67399.0		5.1	38.1	Production	GN	10	604.7	158.7
Apr.9	14	195.0	6242.0	67204.0		1.9	40.0	Production	GN	10	624.2	156.1
Apr.10	15	0.0	6242.0	67204.0		0.7	40.7	Returned for computer problems	GN	11	567.5	153.4
Apr.10	16	706.0	6948.0	66498.0		4.8	45.5	Production	GN	11	631.6	152.7
Apr.11		0.0	6948.0	66498.0		0.0	45.5	Rms printer broken ,Weather out cloud,rain,snow		12	579.0	152.7
Apr.12	17	0.0	6948.0	66498.0		0.4	45.9	Ground gps station crash	GN	13	534.5	151.4
Apr.12	18	754.0	7702.0	65744.0		5.2	51.1	Production	GN	13	592.5	150.7
Apr.13	19	607.0	8309.0	65137.0		5.2	56.3	Production	GN	14	593.5	147.6
Apr.13	20	126.0	8435.0	65011.0		1.8	58.1	Production	GN	14	602.5	145.2
Apr.14	21	579.0	9014.0	64432.0		3.9	62.0	Production	GN	15	600.9	145.4
Apr.15	22	347.0	9361.0	64085.0		3.1	65.1	Production	GN	16	585.1	143.8
Apr.16	Test	0.0	9361.0	64085.0		2.3	67.4	Pilot check ride S.Savage and M.Tapp		17	550.6	138.9
Apr.16	23	192.6	9553.6	63892.4		2.1	69.5	Production	GN	17	562.0	137.5
Apr.17	24	1188.0	10741.6	62704.4		5.2	74.7	Production	GN	18	596.8	143.8
Apr.17	25	474.0	11215.6	62230.4		2.3	77.0	Production	GN	18	623.1	145.7
Apr.18	26	1188.0	12403.6	61042.4		5.2	82.2	Production	GN	19	652.8	150.9
Apr.19	27	594.0	12997.6	60448.4		3.4	85.6	Production, high winds land in Whitecourt	GN	20	649.9	151.8
Apr.19	28	946.0	13943.6	59502.4		4.3	89.9	Production	GN	20	697.2	155.1
Apr.20	29	138.0	14081.6	59364.4		1.5	91.4	Production ,bad gps land at whitecourt	GN	21	670.6	154.1
Apr.20	30	0.0	14081.6	59364.4		0.6	92.0	Return home from whitecourt	GN	21	670.6	153.1
Apr.20	31	0.0	14081.6	59364.4		0.6	92.6	Production, Bad gps ,Return	GN	21	670.6	152.1
Apr.21	32	380.0	14461.6	58984.4		2.8	95.4	Production	GN	22	657.3	151.6
Apr.22	33	601.0	15062.6	58383.4		5.4	100.8	Production	GN,GP	23	654.9	149.4
Apr.22	34	202.0	15264.6	58181.4		2.0	102.8	Production	GN,GP	23	663.7	148.5
Apr. 23	35	346.0	15610.6	57835.4		3.0	105.8	Production ,returned due bad weather	GN,GP	24	650.4	147.5
Apr. 24	36	0.0	15610.6	57835.4		0.7	106.5	Production, called back for diurnal,wx out	GN.GP	25	624.4	146.6
Apr. 25	37	551.3	16161.9	57284.1		3.7	110.2	Production, Waitout diurnal in morning	GN,GP	26	621.6	146.7

C-FZLK AND CGGTA DAILY PRODUCTION REPORT

JOB NUMBER 470 **BASE SLAVE LAKE,ALBERTA**

DATE	FLT #	FLOWN, KM	TOTAL FLOWN, KM	BALANCE, KM		FLT TIME, HRS	TOTAL TIME, HRS	REMARKS	OPERA-TOR	DAYS ON SITE	DAILY AVER., KM	PRODUC-TION, KM/H
Apr. 26	38	413.0	16574.9	56871.1		3.9	114.1	Diurnal out morning, Production afternoon	GN,GP	27	613.9	145.3
Apr. 27	39	502.0	17076.9	56369.1		4.1	118.2	Production , return due to high winds	GN,GP	28	609.9	144.5
Apr .28	40	591.0	17667.9	55778.1		3.4	121.6	Production , return due to high winds	GN,GP	29	609.2	145.3
Apr. 28	41	394.0	18061.9	55384.1		3.4	125.0	Production , late afternoon	GN,GP	29	622.8	144.5
Apr. 29	42	462.0	18523.9	54922.1		2.6	127.6	Production, return due to high winds	GN,GP	30	617.5	145.2
Apr. 30	43	922.0	19445.9	54000.1		5.2	132.8	Production	GN,GP	31	627.3	146.4
Apr. 30	44	356.0	19801.9	53644.1		2.5	135.3	Production	GN,GP	31	638.8	146.4
May. 1	45	562.0	20363.9	53082.1		2.7	138.0	Production, stopped at Whitecourt Fire in Area	GN,GP	32	636.4	147.6
May. 1	46	832.0	21195.9	52250.1		4.0	142.0	Wait out Fire Takeoff at Whitecourt and Production	GN,GP	32	662.4	149.3
May. 2		0.0	21195.9	52250.1		0.0	142.0	Major diurnal storm all day		33	642.3	149.3
May. 3		0.0	21195.9	52250.1		0.0	142.0	Major diurnal storm all day ,Weather out		34	623.4	149.3
May. 4	47	768.0	21963.9	51482.1		5.3	147.3	Production ,wait diurnal storm	GN,GP	35	646.0	149.1
May. 5	48	202.0	22165.9	51280.1		2.6	149.9	Production ,early evening	GN,GP	36	615.7	147.9
May. 6	49	12.0	22177.9	51268.1		1.0	150.9	Production , return due to high winds	GN,GP	37	599.4	147.0
May. 7	50	590.0	22767.9	50678.1		5.1	156.0	Production	GN,GP	38	599.2	145.9
May. 7	51	0.0	22767.9	50678.1		0.8	156.8	Ferry to Peace River and get D. Weins		38	599.2	145.2
May. 7	52	0.0	22767.9	50678.1		0.9	157.7	Ferry back from Peace River also D. Reeve		38	599.2	144.4
May. 8	53	313.0	23080.9	50365.1		2.2	159.9	Production , Returned do to Diurnal	GN,GP	39	591.8	144.3
May. 8	54	463.0	23543.9	49902.1		3.3	163.2	Production	GP	39	603.7	144.3
May. 9	55	0.0	23543.9	49902.1		0.3	163.5	Production, return due to high winds	GN,GP	40	588.6	144.0
May. 9	56	0.0	23543.9	49902.1		1.1	164.6	Pilot training		40	588.6	143.0
May. 9	57	0.0	23543.9	49902.1		3.2	167.8	F.O.M.	GN,GP	40	588.6	140.3
May. 9	200	0.0	23543.9	49902.1		0.5	168.3	Pilot training		40	588.6	139.9
May. 9	201	0.0	23543.9	49902.1		0.3	168.6	Abort Flt, due to alternators	LD	40	588.6	139.6
May. 9	202	0.0	23543.9	49902.1		0.5	169.1	Altimeter test	LD	40	588.6	139.2
May. 10	58	946.0	24489.9	48956.1		5.2	174.3	Production	GN,GP	41	597.3	140.5
May. 10	59	749.0	25238.9	48207.1		4.3	178.6	Production	LD	41	615.6	141.3
May. 11	60	1146.0	26384.9	47061.1		5.6	184.2	Production	GP	42	628.2	143.2
May. 11	203	0.0	26384.9	47061.1		2.7	186.9	F.O.M. gps test 1.19 nT	LD	42	628.2	141.2
May. 11	204	0.0	26384.9	47061.1		0.5	187.4	Abort Flt, due to steering problem	LD	42	628.2	140.8
May. 11	61	0.0	26384.9	47061.1		1.8	189.2	Pilot training		42	628.2	139.5
May. 12	62	980.0	27364.9	46081.1		5.0	194.2	Production	GN	43	636.4	140.9
May. 12	205	1069.0	28433.9	45012.1		6.3	200.5	Production	LD	43	661.3	141.8
May. 13	63	857.0	29290.9	44155.1		4.9	205.4	Production , High Winds	GP	44	665.7	142.6
May. 13	206	691.0	29981.9	43464.1		3.7	209.1	Production , VCR Problem ,then High Winds	LD	44	681.4	143.4
May. 14	64	564.0	30545.9	42900.1		2.0	211.1	Production	GN	45	678.8	144.7
May. 14	65	414.0	30959.9	42486.1		3.3	214.4	Production ,base gps working	GN	45	688.0	144.4
May. 14	207	896.0	31855.9	41590.1		6.6	221.0	Production ,base gps working	LD	45	707.9	144.1
May. 15	66	1116.0	32971.9	40474.1		5.4	226.4	Production , NOTE GTA Pilot seat broken	GP	46	716.8	145.6
May. 15	67	800.0	33771.9	39674.1		5.1	231.5	Production,Plus refights NOTE change GTA cylinder	GN	46	734.2	145.9

C-FZLK AND CGGTA DAILY PRODUCTION REPORT

JOB NUMBER 470 **BASE** **SLAVE LAKE,ALBERTA**

DATE	FLT #	FLOWN, KM	TOTAL FLOWN, KM	BALANCE, KM		FLT TIME, HRS	TOTAL TIME, HRS	REMARKS	OPERA-TOR	DAYS ON SITE	DAILY AVER., KM	PRODUC-TION, KM/H
May. 16	68	1071.0	34842.9	38603.1		5.0	236.5	Production , work on GTA in Hanger	GP	47	741.3	147.3
May. 16	69	752.0	35594.9	37851.1		4.2	240.7	Production , called back for Diurnal	GN	47	757.3	147.9
May. 17	70	1190.0	36784.9	36661.1		5.1	245.8	Production ,NOTE GTA now needs parts	GP	48	766.4	149.7
May. 17	71	1190.0	37974.9	35471.1		5.0	250.8	Production	LD	48	791.1	151.4
May. 18	72	0.0	37974.9	35471.1		0.1	250.9	Production ,called back for Diurnal	GP	49	775.0	151.4
May. 18	73	952.0	38926.9	34519.1		4.1	255.0	Production , returned for Rain	GP	49	794.4	152.7
May. 18	74	1264.0	40190.9	33255.1		5.6	260.6	Production	GN	49	820.2	154.2
May. 19	75	1200.0	41390.9	32055.1		4.7	265.3	Production	GP	50	827.8	156.0
May. 19	76	1262.0	42652.9	30793.1		5.7	271.0	Production	GN	50	853.1	157.4
May. 20	77	1104.0	43756.9	29689.1		5.3	276.3	Production	GP	51	858.0	158.4
May. 20	78	964.0	44720.9	28725.1		5.1	281.4	Production	GN	51	876.9	158.9
May. 20	208	0.0	44720.9	28725.1		0.1	281.5	Test Flight	LD	51	876.9	158.9
May. 21	79	1045.0	45765.9	27680.1		5.2	286.7	Production	GP	52	880.1	159.6
May. 21	209	0.0	45765.9	27680.1		2.0	288.7	F.O.M 1.40nT ,OK by QC	LD	52	880.1	158.5
May. 21	210	1194.0	46959.9	26486.1		5.1	293.8	Production	LD	52	903.1	159.8
May. 21	80	902.0	47861.9	25584.1		5.0	298.8	Production	GN	52	920.4	160.2
May. 22	211	90.0	47951.9	25494.1		0.8	299.6	Production ,land due to fog	LD	53	904.8	160.1
May. 22	212	0.0	47951.9	25494.1		0.8	300.4	Production ,Ferry horne alternator Problem	LD	53	904.8	159.6
May. 22	81	1204.0	49155.9	24290.1		5.6	306.0	Production	GP	53	927.5	160.6
May. 23	82	239.0	49394.9	24051.1		1.2	307.2	Production ,called back for Diurnal	GN	54	914.7	160.8
May. 23	83	795.0	50189.9	23256.1		3.3	310.5	Production	GN	54	929.4	161.6
May. 23	84	1032.0	51221.9	22224.1		5.0	315.5	Production	GP	54	948.6	162.4
May. 23	213	1637.0	52858.9	20587.1		7.2	322.7	Production	LD	54	978.9	163.8
May. 23	214	0.0	52858.9	20587.1		1.4	324.1	Pilot training		54	978.9	163.1
May. 24	85	1150.0	54008.9	19437.1		5.2	329.3	Production	GN	55	982.0	164.0
May. 24	215	1630.0	55638.9	17807.1		7.2	336.5	Production	LD	55	1011.6	165.3
May. 24	216	0.0	55638.9	17807.1		1.5	338.0	Pilot training		55	1011.6	164.6
May. 24	217	0.0	55638.9	17807.1		0.9	338.9	Pilot training		55	1011.6	164.2
May. 24	86	1112.0	56750.9	16695.1		5.3	344.2	Production	GP	55	1031.8	164.9
May. 25	218	870.0	57620.9	15825.1		4.5	348.7	Production	LD	56	1028.9	165.2
May. 25	87	0.0	57620.9	15825.1		0.6	349.3	Pilot training		56	1028.9	165.0
May. 25	88	0.0	57620.9	15825.1		0.6	349.9	Pilot training		56	1028.9	164.7
May. 25	89	860.0	58480.9	14965.1		4.3	354.2	Production	GP	56	1044.3	165.1
May. 26	90	1040.0	59520.9	13925.1		5.5	359.7	Production	GN	57	1044.2	165.5
May. 26	219	1385.0	60905.9	12540.1		6.4	366.1	Production	LD	57	1068.5	166.4
May. 26	91	1005.0	61910.9	11535.1		5.3	371.4	Production	GP	57	1086.2	166.7
May. 26	92	0.0	61910.9	11535.1		1.2	372.6	Pilot training		57	1086.2	166.2
May. 27	220	930.0	62840.9	10605.1		6.5	379.1	Production and REFLTS	LD	58	1083.5	165.8
May. 27	93	1008.0	63848.9	9597.1		5.3	384.4	Production and REFLTS	GN	58	1100.8	166.1
May. 27	94	1119.0	64967.9	8478.1		5.8	390.2	Production and REFLTS	GP	58	1120.1	166.5

C-FZLK AND CGGTA DAILY PRODUCTION REPORT

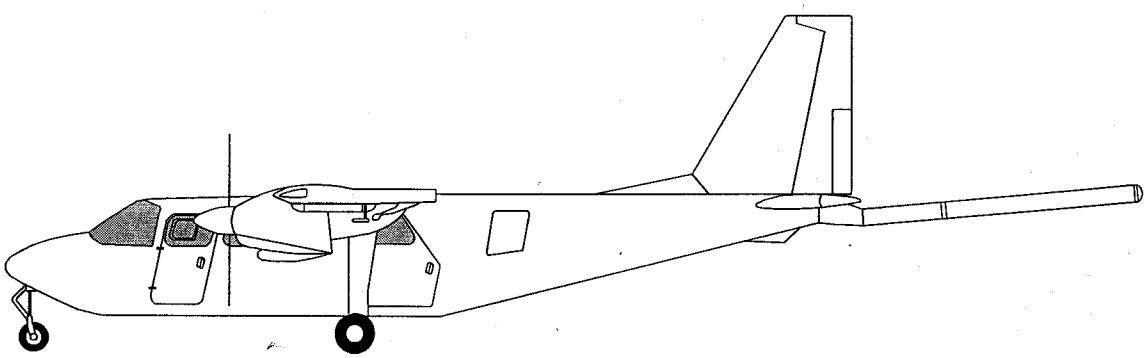
JOB NUMBER 470 **BASE SLAVE LAKE,ALBERTA**

DATE	FLT #	FLOWN, KM	TOTAL FLOWN, KM	BALANCE, KM		FLT TIME, HRS	TOTAL TIME, HRS	REMARKS	OPERA-TOR	DAYS ON SITE	DAILY AVER., KM	PRODUC-TION, KM/H
May. 28	95	0.0	64967.9	8478.1		0.8	391.0	CF-ZLK to Edmonton for checkup		59	1101.2	166.2
May. 28	96	0.0	64967.9	8478.1		0.8	391.8	CF-ZLK return from Edmonton		59	1101.2	165.8
May. 28	221	0.0	64967.9	8478.1		0.2	392.0	Test Flight		59	1101.2	165.7
May. 29	97	390.0	65357.9	8088.1		2.9	394.9	Production ,returned fog, CG-GTA gone to Ottawa	GP	60	1089.3	165.5
May. 30	98	280.0	65637.9	7808.1		2.5	397.4	Production ,called back for Diurnal	GP	61	1076.0	165.2
May. 31	99	510.0	66147.9	7298.1		3.1	400.5	Production ,Returned due to High Winds	GP	62	1066.9	165.2
June. 01		0.0	66147.9	7298.1		0.0	400.5	Weather out all day rain ,storms ,winds		63	1050.0	165.2
June. 02	100	370.0	66517.9	6928.1		5.6	406.1	Production and REFLTS	GN	64	1039.3	163.8
June. 02	101	416.0	66933.9	6512.1		2.4	408.5	Production	GN	64	1045.8	163.9
June. 03	102	0.0	66933.9	6512.1		0.7	409.2	Weather out	GN	65	1029.8	163.6
June. 03	103	1104.0	68037.9	5408.1		5.8	415.0	Production	GN	65	1046.7	163.9
June. 04	104	750.0	68787.9	4658.1		4.8	419.8	Production and REFLTS	GN	66	1042.2	163.9
June. 04	105	104.0	68891.9	4554.1		5.1	424.9	Production and REFLTS	GN	66	1043.8	162.1
June. 05	106	700.0	69591.9	3854.1		4.4	429.3	Production, Called back for Diurnal	GN	67	1038.7	162.1
June. 05	107	630.0	70221.9	3224.1		3.3	432.6	Production	GN	67	1048.1	162.3
June. 06	108	620.0	70841.9	2604.1		6.0	438.6	Production and REFLTS	GN	68	1041.8	161.5
June. 07	109	630.0	71471.9	1974.1		5.2	443.8	Production, and land at Whitecourt	GN	69	1035.8	161.0
June. 07	110	200.0	71671.9	1774.1		2.2	446.0	Production	GN	69	1038.7	160.7
June. 08	111	774.1	72446.0	1000.0		5.3	451.3	Production	GN	70	1034.9	160.5
June. 09	112	800.0	73246.0	200.0		5.7	457.0	Production	GN	71	1031.6	160.3
June. 09	113	200.0	73446.0	0.0		2.6	459.6	Production and last REFLT ,FINISHED	GN	71	1034.5	159.8
			73446.0	0.0			459.6					
			73446.0	0.0			459.6					

PROJECT REPORT

HIGH RESOLUTION AEROMAGNETIC SURVEY

FORT McMURRAY, ALBERTA - 1998



for

PURE GOLD RESOURCES, INC.

[redacted]

Kelly O'Connor, P.Eng

June1998

TABLE OF CONTENTS

List of Figures

Appendices

I. INTRODUCTION

Sander Geophysics Limited (SGL; see *Appendix I* for a company profile) conducted a high-resolution aeromagnetic survey in Fort McMurray, Alberta, for Pure Gold Resources, Inc. The survey was flown between February 12 and April 8, 1998. The survey consisted of two blocks, A-B and G. Seventy-four flights, totalling 49,071 were required to complete block A-B, while 22 flights totalling 13,103 line kilometres were required to complete block G.

II. SURVEY AREA

Block A-B

This block was situated west-southwest of Fort McMurray. The area extended from Fort MacKay in the north to the Pelican Mountain range in the south. Fort McMurray is at the eastern edge of the survey area and North Wabasca Lake is just inside the western edge. The survey area is relatively flat with approximately 300 m as the minimum elevation in the north and 1,000 m as the maximum elevation in the Pelican Mountains. There are several lakes in the area including South and North Wabasca Lakes, Sandy Lake, Pelican Lake and Algar Lake. The Athabasca River flows west from Fort McMurray to the middle of the survey area where it forks and flows south to the base of the survey area. Infrastructure in the area consists of the Syncrude and Suncor plants as well as several power lines and highway 63 through the south-east corner of the survey block.

The following corner coordinates, in NAD-27, define the boundaries of the Block A-B:

Corner	Latitude	Longitude
1	55°47'	111°40'
2	57°08'	111°40'
3	57°08'	112°33'
4	56°36'	112°33'
5	56°36'	113°30'
6	56°00'	113°30'
7	56°00'	114°10'
8	55°38'	114°10'

Corner	Latitude	Longitude
9	55°30'	112°33
10	55°47'	112°33'

The survey consisted of 385 traverse lines oriented north-south, and 184 orthogonal control lines. Coordinates of all of the lines flown are given in *Appendix II.*

Block G

This block was situated north-east of Fort McMurray. The southern boundary of the block is directly north of the Fort McMurray airport and the northern boundary is approximately 70 kilometres north of Fort McMurray. The eastern edge of the survey is just inside the Alberta-Saskatchewan border while the western edge is directly east of Fort McMurray. The survey block is centred on a hill with a maximum elevation of approximately 700 m; the minimum elevation in the survey area is approximately 300 m in the southern portion of the survey block. There are several small river valleys and lakes in the block. Infrastructure is minimal, there are a few power lines in the survey block but little else.

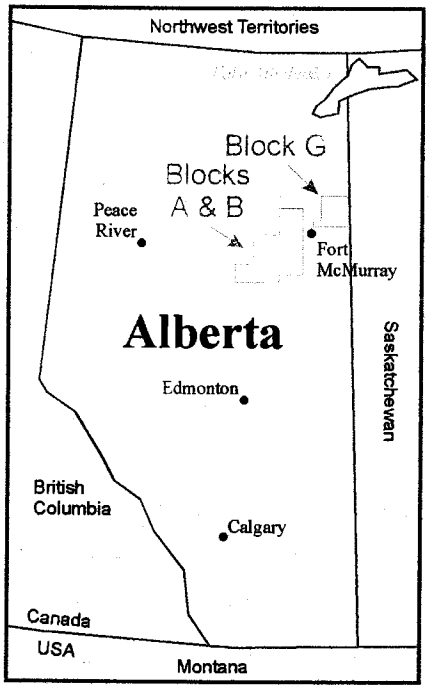
The following corner coordinates, in NAD-27 UTM zone 12N, define the boundaries of Block G:

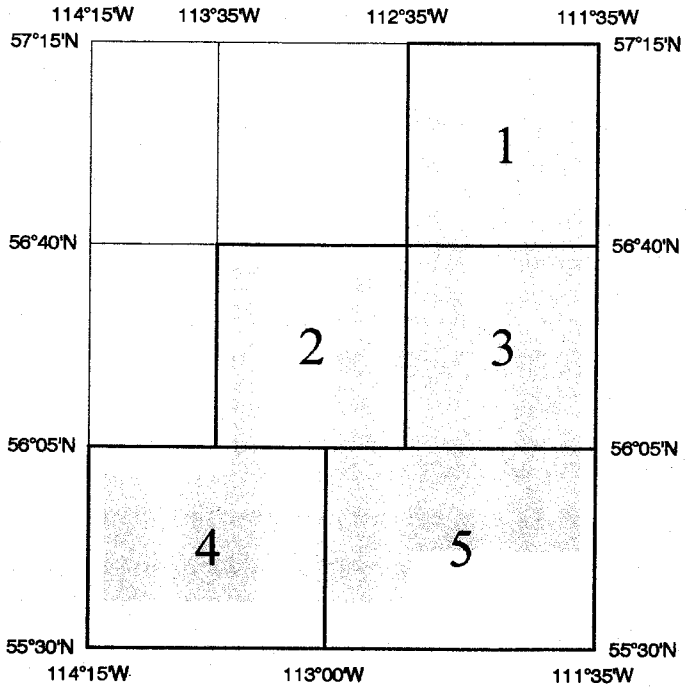
Corner	mW	mN
1	500000	6360000
2	509000	6360000
3	509000	629200
4	482000	629200
5	482000	6306500
6	500000	6306500

The survey consisted of 192 traverse lines oriented north-south, and 35 orthogonal control lines. Coordinates of all of the lines flown are given in *Appendix II.*

Figure 1

SURVEY AREAS





Sheet Index - Blocks A & B

III. SURVEY EQUIPMENT

The aircraft used for this survey were a Cessna 402B, registration C-GCKB, and a Britten Norman Islander, registration C-GSGX. Both the aircraft were equipped with identical survey hardware to ensure similar magnetic responses. A full list of survey equipment and their serial numbers can be found in *Appendix III*. SGL provided the following instrumentation for both surveys:

AERIAL AND GROUND MAGNETOMETERS

- *Geometrics Model G-822A (Cessna 402B)*
- *Scintrex Model CS-2 (Islander)*
- *Scintrex Model G3 (ground station)*

Both the ground and airborne systems used a non-oriented (strap-down) optically pumped cesium split-beam sensor. The ground station and Islander sensors were manufactured by Scintrex whereas the 402 sensor was manufactured by Geometrics. These magnetometers have a sensitivity of 0.01 nT, or better, and a range of 20,000 nT. Sensor noise is less than 0.02 nT. The total field magnetic measurements are digitally recorded at intervals of 0.1 second in the airborne system and 0.5 second in the ground system.

AUTOMATIC AEROMAGNETIC DIGITAL COMPENSATOR

- *RMS Model AADC 4000 MkII (Islander)*
- *RMS Model AADC 4000 MkIII (Cessna 402B)*

Both of the RMS compensator used are fully automatic, 27-term compensator system utilizing a 3-axis fluxgate magnetometer for heading information. Magnetic information is output to the serial port at a minimum of 0.1 second intervals, with a resolution of 0.001 nT. The system provides a complete real-time compensation of the aircraft manoeuvre noise.

NAVIGATION AND FLIGHT PATH RECOVERY SYSTEM

- *NovAtel GPSCard receiver*

Navigation and flight path recovery are provided by GPSNAV. The system utilizes a NovAtel GPSCard 3951R 12-channel GPS receiver mounted in a 486-based navigation computer with a sampling rate of 1.0 second. In addition to providing essential positional data, the GPSNAV system is used to guide the pilot along the desired flight lines at the optimal flight altitude. The navigation computer processes real-time differentially corrected

GPS (RTDGPS) data and compares that to the coordinates of a theoretical flight plan and flying surface.

AIRBORNE DATA ACQUISITION SYSTEM

- Sander NavDAS

The NavDAS is the latest version of airborne data acquisition computers developed by SGL. It records and displays all incoming data on a flat panel screen. Recording is done on vibration tolerant 230 MB Bernoulli cartridges. The time base (UTC) accuracy of the NavDAS system is automatically provided by the GPS receiver. The NavDAS incorporates a magnetometer coupler, an altimeter converter and a GPS receiver.

GROUND DATA ACQUISITION SYSTEM

- Sander GND-ACQ

The ground data acquisition computer also records and displays all the incoming data on a flat panel screen. The computer is a portable PC-486 with a Sander Cesium Magnetometer frequency counter to process the signal from the sensor. The noise level of the base station magnetometer is less than 0.1 nT. Recording is done on the internal hard disk of the computer. The magnetic data are recorded at a rate of 0.5 second. The GPS ground data are recorded using the same format as the airborne data. The time base (UTC) of both the ground and airborne systems is automatically provided by the GPS receiver. Data acquired by the ground system are printed on a line printer before and during each flight. The entire ground data acquisition system is fully automatic and is set for unattended recording and printing.

GPS BASE STATION RECEIVER

- NovAtel 3951R

The NovAtel GPSCard 12-channel receiver forms an integral part of the Sander GND-ACQ system. It provides averaged position and raw range information of all satellites in view, at intervals of 1.0 second. It also provides comparative navigation data during all production flights, allowing differential GPS (DGPS) coverage for the entire project.

VIDEO CAMERA AND RECORDER

- Panasonic NTS CCD WVD-5100HS

The video camera is mounted in the floor of the aircraft and oriented in such a way as to look vertically below while in flight. An intervalometer and fiducial marking system

required for flight path verification are incorporated. The video information was recorded on VHS video tapes for the entire survey. This information can be used to identify the sources of cultural noise in the magnetic data for later removal.

RADAR AND BAROMETRIC ALTIMETERS

- *King radar altimeter (Cessna 402B)*
- *TRT radar altimeter (Islander)*
- *Sander digital barometric pressure sensor (402 & Islander)*

Both the King and TRT radar altimeters have resolutions of 1 m, and accuracies of 2%; the King has a range of 1 to 2,500 ft. while the TRT has a range of 1 to 8,000 ft. The barometric pressure system has a resolution of 2 m, an accuracy of +/-4 m, and a range of 1 to 30,000 ft.

SURVEY AIRCRAFT

Two aircraft were used over the course of the survey:

- *Cessna 402B (C-GCKB)*

The 402 used is an all metal, low-wing aircraft powered by two Continental turbocharged engines that drive constant speed, fully feathering propellers. The aircraft is equipped with full de-icing equipment and sufficient avionics for IFR flight. The airframe was extensively modified to reduce the magnetic signature of the aircraft. For this project, the aircraft was configured with a single 2.5 m tail stinger made of a non-magnetic material to house the magnetometer sensor. The airplane has a Canadian registration C-GCKB and the entire aircraft and aeromagnetic system conform to Canadian Aeronautical Regulations.

- *Britten-Norman Islander BN2B-21 (C-GSGX)*

The Islander used is an all metal, high-wing, twin-engine, short take-off and landing aircraft powered by two fuel injected engines that drive constant speed, fully feathering propellers. The aircraft has fixed tricycle landing gear, extendable flaps and manually adjustable trim tabs on the rudder and elevator. The aircraft is equipped with de-icing equipment and sufficient avionics for IFR flight. The electrical system has been modified to reduce the magnetic field variations around the aircraft.

The aircraft has an aluminum and composite 2.5 m tail stinger designed to accommodate the magnetometer sensor and wiring. There is a camera hole in the belly and provisions for numerous other survey and navigation systems. The airplane has a Canadian registration C-GSGX and the entire aircraft and aeromagnetic system conform to Canadian Aeronautical Regulations.

A complete description of both the aircraft is given in *Appendix IV*.

DATA PROCESSING EQUIPMENT AND SOFTWARE

(a) Two Pentium computers, 133 MHz and 166 MHz, 4.2 and 3.0 Gigabyte hard drives, 4 mm tape drive

(b) Hitachi laptop computer, 75 MHz, 512 Mb hard drive

(c) Iomega Bernoulli 230 Mb disk drive

(d) Fujitsu DL3400 24 pin dot matrix printers

(e) SGL data processing and imaging software

(f) GPS processing software

IV. SURVEY SPECIFICATIONS

DATA RECORDING

The following parameters were recorded during the course of the survey:

(a) Aircraft altitude as measured by the barometric altimeter at intervals of 0.25 s;

(b) Terrain clearance provided by the radar altimeter at intervals of 0.25 s;

(c) A continuous video tape record of the terrain passing below the aircraft;

(d) Airborne GPS positional data (latitude, longitude, height, time and raw range from each satellite being tracked), recorded at intervals of 1.0 s;

(e) Time markers synchronously impressed on the video and digital data;

(f) Airborne total magnetic field recorded with a 0.1 s sampling rate;

(g) Ground total magnetic field recorded with a 0.5 s sampling rate; and

(h) Ground based GPS positional data (latitude, longitude, height, time and raw range from each satellite being tracked), recorded at intervals of 1.0s.

TECHNICAL SPECIFICATIONS

The following technical specifications were adhered to:

(a) *Geomagnetic diurnal variation*

Reflights would be required if the magnetic diurnal variation exceeded a maximum deviation of ± 2.50 nT from a curvilinear mean with the time span required to acquire 8 line km of data (2.5 minutes).

(b) *High frequency noise*

Reflights would be required if the high frequency noise envelope on the aeromagnetic data exceeded 0.25 nT for a continuous period of three minutes or more on a production line record.

(c) *Deviation from theoretical flight path*

Reflights would be required if the actual flight line deviated from the planned flight path by more than 40 m for a distance of more than 10 kilometres. In addition, deviations of more than 100 m from the planned flight path would require fill-in flight lines.

(d) *Deviation from theoretical altitude*

The contract specified that the aircraft would fly at the theoretical draped altitude except where topography or safety factors force the aircraft to fly higher. Any

deviation from this altitude of more than +/- 10 m for a distance of over 5 kilometres would require reflying.

(e) *Deviation from recovered flight path*

Any deviation in accuracy of the (post-flight) DGPS flight path accuracy of more than ± 5m (two-dimensional) RMS for more than seven kilometres would require reflights.

(f) *Video quality*

Reflights would be required if the flight video was not of acceptable quality.

FLIGHT LINE SPECIFICATIONS

	Block A-B		Block G	
	Traverse	Control	Traverse	Control
Line spacing:	400m	2000m	400m	2000m
Line direction:	N-S	E-W	N-S	E-W
Survey altitude:	120m (400') minimum AGL RA		120m (400') minimum AGL RA	

V. SYSTEM TESTS

MAGNETOMETER CALIBRATION

Calibrations of all the aircraft magnetometer systems were carried out at Bourget, Ontario. The results of the calibration flights are presented in *Figures 2a, and b.* The Islander calibration was performed on May 29, 1997. The average heading errors were found to be -0.8 nT in the north-south direction and 0.4 nT in the east-west direction. The absolute error was 0.4 nT. The Cessna 402B calibration was performed on September 12, 1997. The average heading errors were found to be 0.1 nT in the north-south direction and 0.1 nT in the east-west direction. The absolute error was 0.2 nT.

AADC COMPENSATION

Compensation tests determine the magnetic influence of aircraft manoeuvres and the effectiveness of the RMS AADC compensator. The 402 and Islander both carried out their compensation test flights over a magnetically quiet area over Lac La Loche approximately 100 kilometres east-southeast of Fort McMurray. Both aircraft performed pitches, rolls, and yaws, while flying in the four survey directions (north, east, south, west). The total compensated signal noise resulting from the twelve manoeuvres is referred to as the Figure of Merit (FOM). The 402 flew a successful compensation on February 10 with a FOM of 1.4 nT, while the Islander flew a successful compensation on February 12 with a FOM of 0.9 nT.

A second compensation flight was carried out in the Islander on February 25 after the magnetometer was changed in an attempt to correct for intermittent spiking. The FOM for this compensation was 0.875 nT. Similarly, a second compensation flight was carried out in the 402 after the engine change on April 1. The FOM for this compensation was 1.45 nT. Copies of all of the compensation flight traces can be found in *Appendix VIII.*

INSTRUMENTATION LAG

The system lags on the aircraft were checked during the magnetometer calibration flights by analysing two sets of data flown in opposite directions over a bridge in the Bourget test area. A well defined anomaly was obtained and allowed determination of the lag between the positional data and the magnetometer data . The lags were found to be 0.55 second and the delay was subsequently corrected during data compilation.

Figure 2a

AEROMAGNETIC SURVEY SYSTEM CALIBRATION AT BOURGET, ONTARIO

Aircraft type : Islander BN2
Registration : C-GSGX
Organization : Sander Geophysics Limited
Pilot : Walter Gillies
Co-Pilot : n/a
Instrument Operator : Mark Ovenden
Observer : n/a

Date : 29 May 1997
Height flown : 500 feet
Magnetometer type : Scintrex Cesium split beam with Compensator: RMS AADC
Sampling rate : 10/s
Data acquisition system : Sander Airborne AT computer
Camera : video
Camera sampling rate : continuous

Flt Dir/ Line #		GMT	Total field Aircraft T1	Grnd Stn Prev Min T2	Grnd Stn Subs Min T3	Interpolated Reading T4	Calculate T5	Error Value T6	Variation from Average
N	6	05:11:48 PM	55,948.3	56,507.5	56,507.6	56507.6	55951.6	-3.3	0.7
S	5	04:59:35 PM	55,945.5	56,505.6	56,505.6	56505.6	55949.6	-4.1	-0.2
E	1	04:35:15 PM	55,943.7	56,503.8	56,503.6	56503.8	55947.8	-4.1	-0.1
W	2	04:39:43 PM	55,943.6	56,503.9	56,504.0	56503.9	55947.9	-4.3	-0.4
N	8	05:28:34 PM	55,950.6	56,511.2	56,511.3	56511.2	55955.2	-4.6	-0.7
S	7	05:17:37 PM	55,950.2	56,508.4	56,508.5	56508.4	55952.4	-2.2	1.8
E	4	04:46:15 PM	55,944.0	56,504.1	56,504.3	56504.3	55948.3	-4.3	-0.3
W	3	04:50:26 PM	55,943.5	56,504.3	56,504.4	56504.3	55948.3	-4.7	-0.8
							Total :	-31.6	
							Average:	-3.9	

Average North-South Heading Error : -0.8 gammas

Average East-West Heading Error : 0.4 gammas

Figure 2b

AEROMAGNETIC SURVEY SYSTEM CALIBRATION AT BOURGET, ONTARIO

Aircraft type & Registration : Cessna 402 C-GCKB
Organization : Sander Geophysics Limited
Pilot : Carl Waymann
Co-Pilot: Will Heath
Instrument Operator : Will Heath
Observer : n/a

Date : 12 September 97
Height flown : 500 feet
Magnetometer type : Geometrics G-822A

Sampling rate : 2/s
Data acquisition system : Sander ADAC
Camera : video
Camera sampling rate : continuous

Flt Dir/	Line #	GMT	Total field Aircraft T1	Grnd Stn Prev Min T2	Grnd Stn Subs Min T3	Interpolated Reading T4	Calculated T5	Error Value T6	Variation from Average
N	6	06:52:55 PM	55,933.7	56,499.1	56,498.7	56,498.7	55,942.7	-9.0	-0.7
S	5	06:50:30 PM	55,933.6	56,499.0	56,499.4	56,499.2	55,943.2	-9.6	-0.1
E	1	06:39:57 PM	55,936.0	56,500.4	56,501.7	56,501.6	55,945.6	-9.7	-0.0
W	2	06:42:03 PM	55,937.9	56,503.5	56,502.2	56,503.4	55,947.4	-9.5	-0.2
N	8	06:58:55 PM	55,931.7	56,498.4	56,498.2	56,498.2	55,942.2	-10.5	0.8
S	7	06:55:52 PM	55,932.3	56,498.2	56,498.5	56,498.5	55,942.5	-10.2	0.5
E	3	06:44:15 PM	55,936.0	56,501.6	56,500.8	56,501.4	55,945.4	-9.4	-0.3
W	4	06:46:46 PM	55,934.7	56,500.7	56,500.2	56,500.3	55,944.3	-9.6	-0.0
							Total :	77.4	
							Average:	9.7	

Average North-South Heading Error : 0.1 gammas

Average East-West Heading Error : 0.1 gammas

RADAR ALTIMETER CALIBRATION

The radar altimeter in the 402 was tested on April 7th, 1998, by flying at various altitudes over the Fort McMurray airport runway. Data were recorded during passes at 200 ft, 400 ft, 600 ft and 800 ft AGL, as well as on the ground, after landing. The resultant radar altimeter and differentially corrected GPS heights were plotted on an XY graph *(Figure 3a)*.

The Islander flew a radar altimeter calibration on February 12, 1998. Similar to the 402 calibration, this was done by flying at various altitudes over the Fort McMurray airport runway. Data were recorded during passes at 200 ft, 400 ft, 600 ft and 800 ft AGL, as well as on the ground, after landing. As with the 402 data, the resultant radar altimeter and differentially corrected GPS heights were plotted on an XY graph *(Figure 3b)*. In both of the cases, the plot of the radar calibration data points was a close approximation to a straight line with a slope of 45°, indicating good calibration of the radar altimeters.

Figure 3a

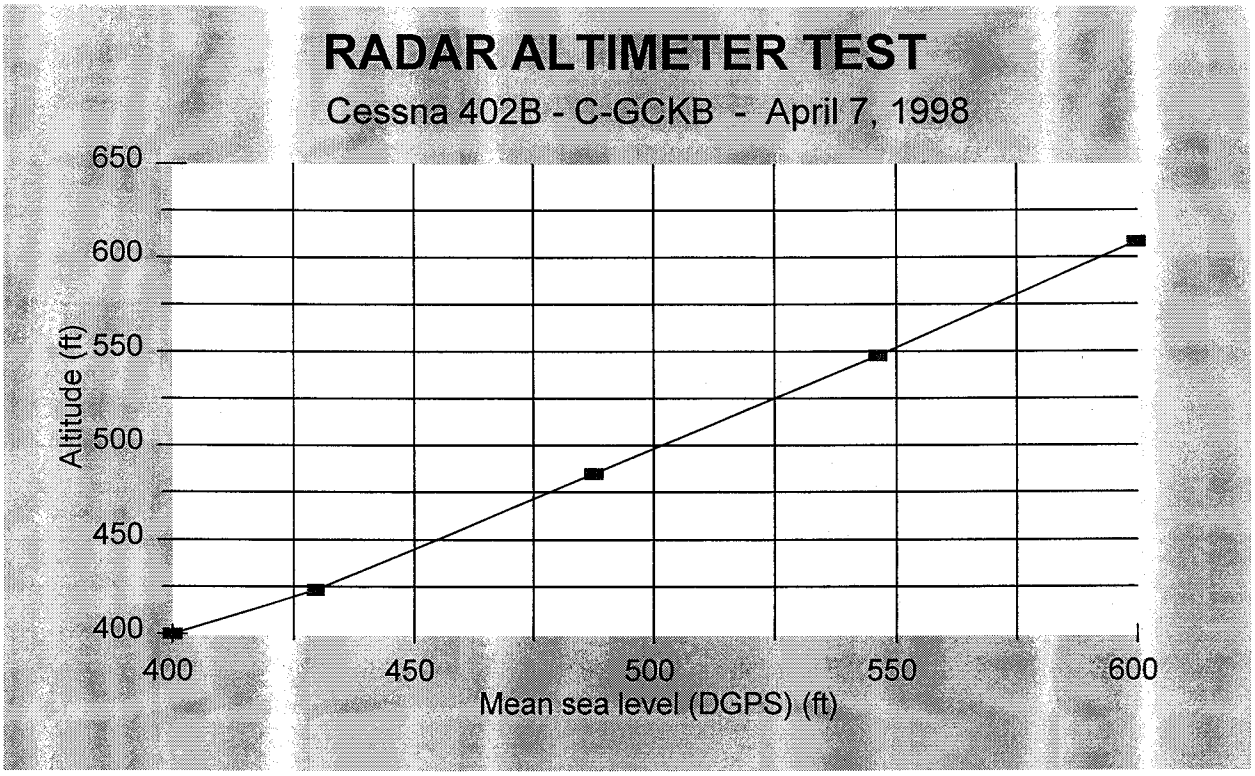
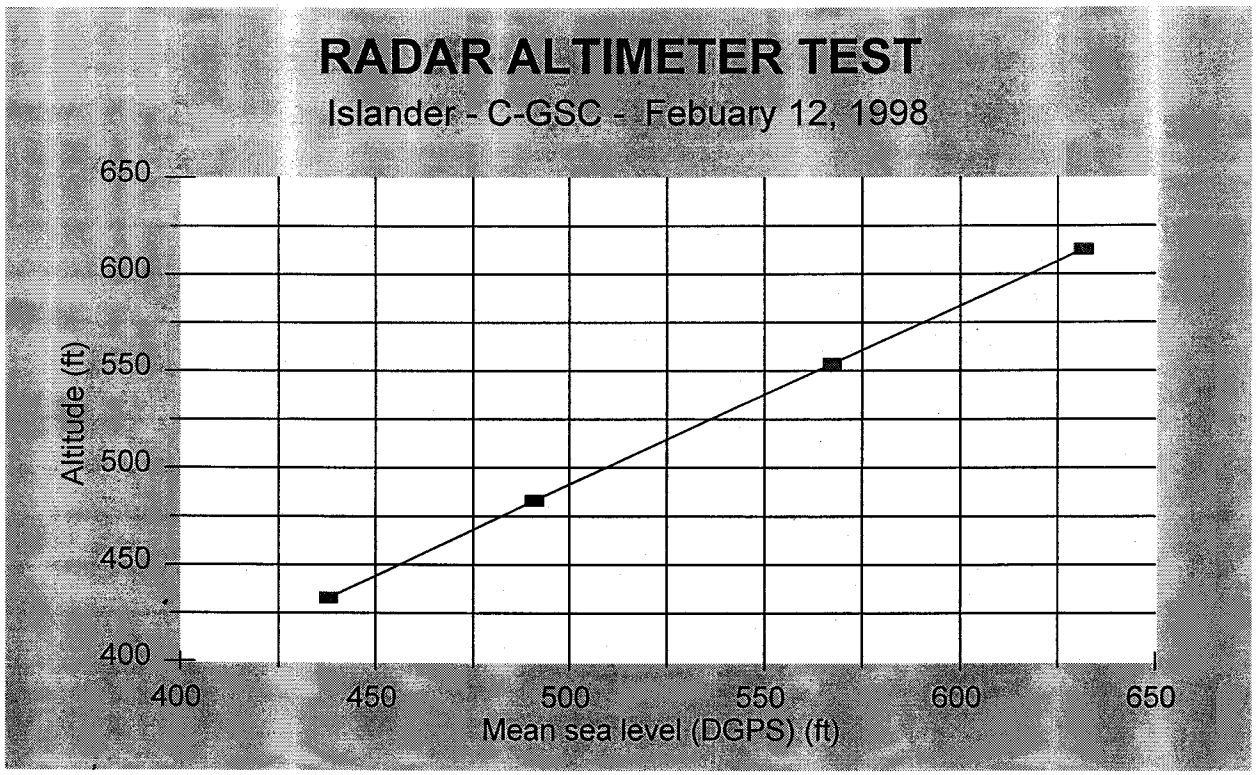


Figure 3b



VI. FIELD OPERATIONS

Operations were conducted from the Fort McMurray airport for the duration of the survey. The airport has one paved runways, 07, which measures 6000 ft. x 150 ft, and a full range of navigation amenities including NDB, VOR/DME and ILS. Brown's hangar was used for the duration of the survey, all maintenance was performed in the hangar.

A field office was established in the Mackenzie Park Inn, Room 203. The combined magnetic/GPS ground station was installed in the airport pump house with the magnetic sensor in a forest behind the pump house and the GPS antennae on the roof. The WGS-84 coordinates of the ground station were:

Latitude:	056:39:224.27N
Longitude:	111:13:35.982W
Elevation:	345.288 m

Ninety-six flights over a fifty-five day period were required to complete both survey blocks. Low fog in the Fort McMurray area was a major problem at the beginning of the survey. There were also a number of days lost due to aircraft maintenance and repair, as listed below:

	No flight (days)	Delayed flight (days)	Reflight required (flights)	Flight Aborted (flights)
Poor weather conditions	11	8		
Active geomagnetic activity	1	7		
Spiking on the Islander magnetic sensor			3	
Failure of Islander video system			3	
Repair of the heater in the Islander		1		
Problems with the navigation system in the 402	3			1
Repair of the acquisition system in the 402		1		
Engine change on the 402	12.5			

A listing of the completed flight lines is given in *Appendix V*, the weekly reports are in *Appendix VI*, and the Flight Logs are in *Appendix VII*.

FIELD PERSONNEL

The following technical personnel of Sander Geophysics Limited participated in field operations.

Project Manager:	Reed Archer
Field Operations Manager:	Kelly O'Connor
Data Processor:	Veronique Lavoie
Pilot-in-command:	Rene Beaulieu
Pilots:	Saeed Solhdoost Siegfried Hypolite John Evans Todd Lewis Dean Balaneski
Aircraft Engineer:	Craig Dennis Bill Haggart

The entire crew was present for the duration of the survey with the exception of Veronique Lavoie who arrived on March 4th to help Kelly O'Connor with day to day survey operations, John Evans who arrived on March 15th to help in the pilot rotation and Dean Balaneski who worked as a temporary co-pilot.

VII. DIGITAL DATA COMPILATION

All preliminary data compilation such as editing and filtering was performed in the field. Preliminary processing for on-site quality control was performed as each flight was completed. This included routine tracing of analog records and plotting of the DGPS flight path data. Preliminary maps of actual survey altitude and total magnetic intensity contours were also created and plotted in the field. Final data processing and map production were performed at SGL head office in Ottawa.

Figure4 summarizes the steps involved in processing the data obtained from the survey.

MAGNETOMETER DATA

The airborne magnetometer data, recorded at 10 Hz, were plotted and checked for spikes or noise. Ground magnetometer data were de-spiked automatically using a filter and spiker. All ground station magnetometer data were then filtered using a 67-point low pass filter (*Figure 5).* For final data, ground station magnetometer were IGRF corrected using the fixed ground station location (see Field Operations) and the record date for each flight.

The airborne magnetometer data were corrected for diurnal variations by subtracting the ground magnetometer values and adding the average value back in, using all the flights. Intersections between control and traverse lines were determined by a program which extracts the magnetic, altitude, and X and Y values, of the traverse and control lines at the intersection point. Each control line was then adjusted by a specific constant value to minimize for each traverse line:

$$\Sigma|i - a|$$

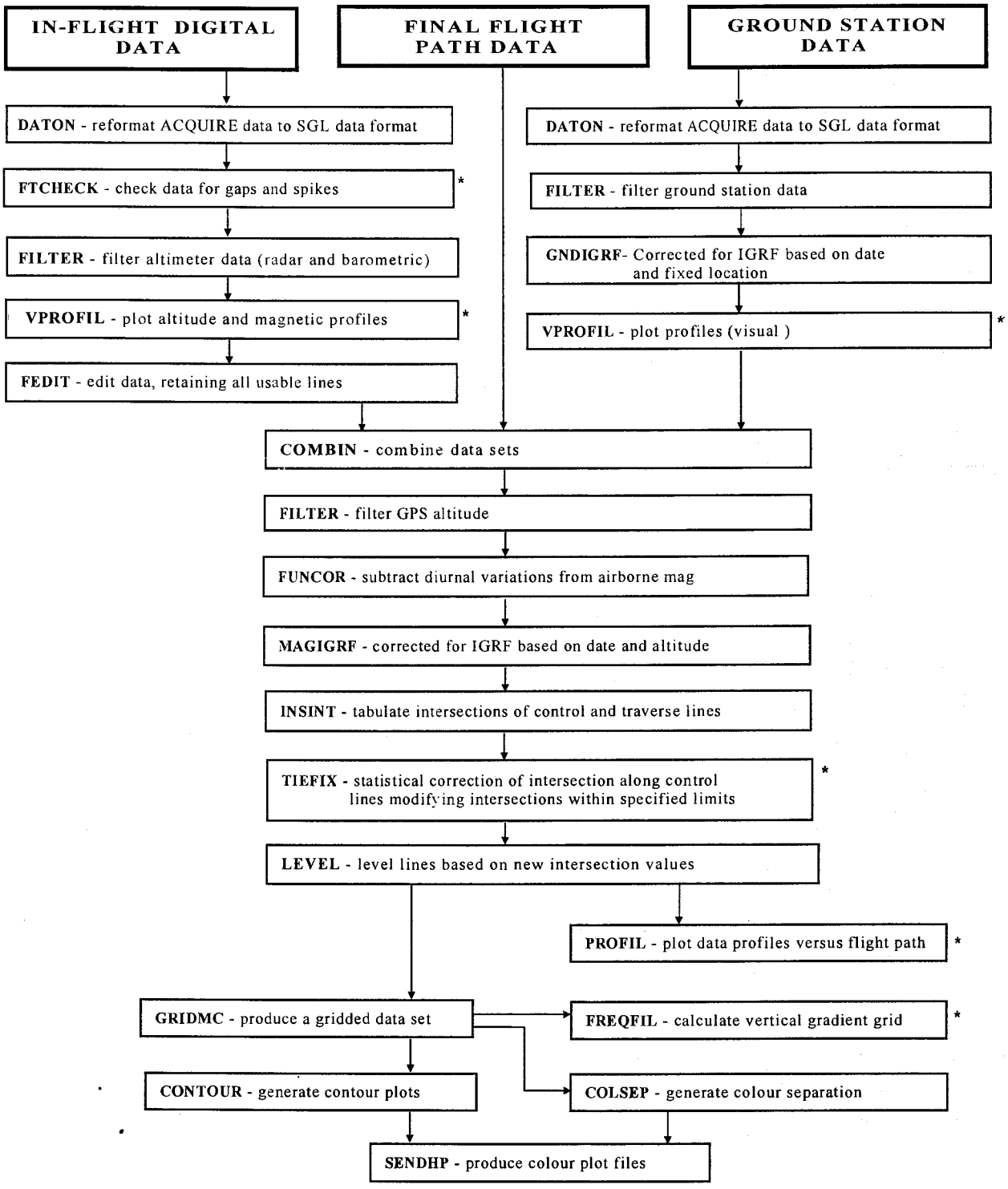
where, i = (*Individual intersection difference*)

a = (*Average intersection difference for that traverse line*)

Individual control lines were adjusted to minimize local intersection differences, using groups of 11 adjacent traverse lines. Line levelling was carried out by a program which interpolates and extrapolates levelling values for each point, based on the two closest levelling values. Both traverse and control lines were levelled, ensuring that all intersections tied perfectly.

Figure 4

MAGNETOMETER DATA PROCESSING



* *Quality Control Check*

Gridding was accomplished using the minimum curvature method, using a 100 m grid cell size. This method uses data from both control and traverse lines to create a two-dimensional grid equally incremented in X and Y directions. The algorithm produces a smooth grid by iteratively solving a set of difference equations, which minimizes the total second horizontal derivative, and attempts to honour input data (Briggs, I.C., 1974, Geophysics, v 39, no. 1).

RADAR ALTIMETER DATA

The terrain clearance measured by the radar altimeter in feet was recorded at 4 Hz and then converted to metres. The data were filtered to remove the high frequency noise using a 67-point filter (*Figure 5*). The filtered data were plotted and inspected for quality.

POSITIONAL DATA

A number of programs were executed for the compilation of navigation data in order to reformat and recalculate positions in differential mode. SGL's GPS data processing package, GPSoft was used to calculate DGPS positions from raw range data obtained from the moving (airborne) and stationary (ground) receivers. The general data flow for GPSoft is illustrated in *Figure 6*.

The final location of the GPS receiver was determined using a permanent GPS reference station in Calgary (PRDS) to differentially correct the recorded positional data. This technique provides a final receiver location with an accuracy of +/- 1 m. The entire airborne data set was then reprocessed differentially using the new ground station location.

Positional data were recorded in the WGS-84 datum and transformed to NAD-27-CAN. UTM data were calculated with the standard central meridian for Zone 12N. Elevation data were recorded in the WGS-84 datum and transformed to Mean Sea Level (MSL).

Figure 5

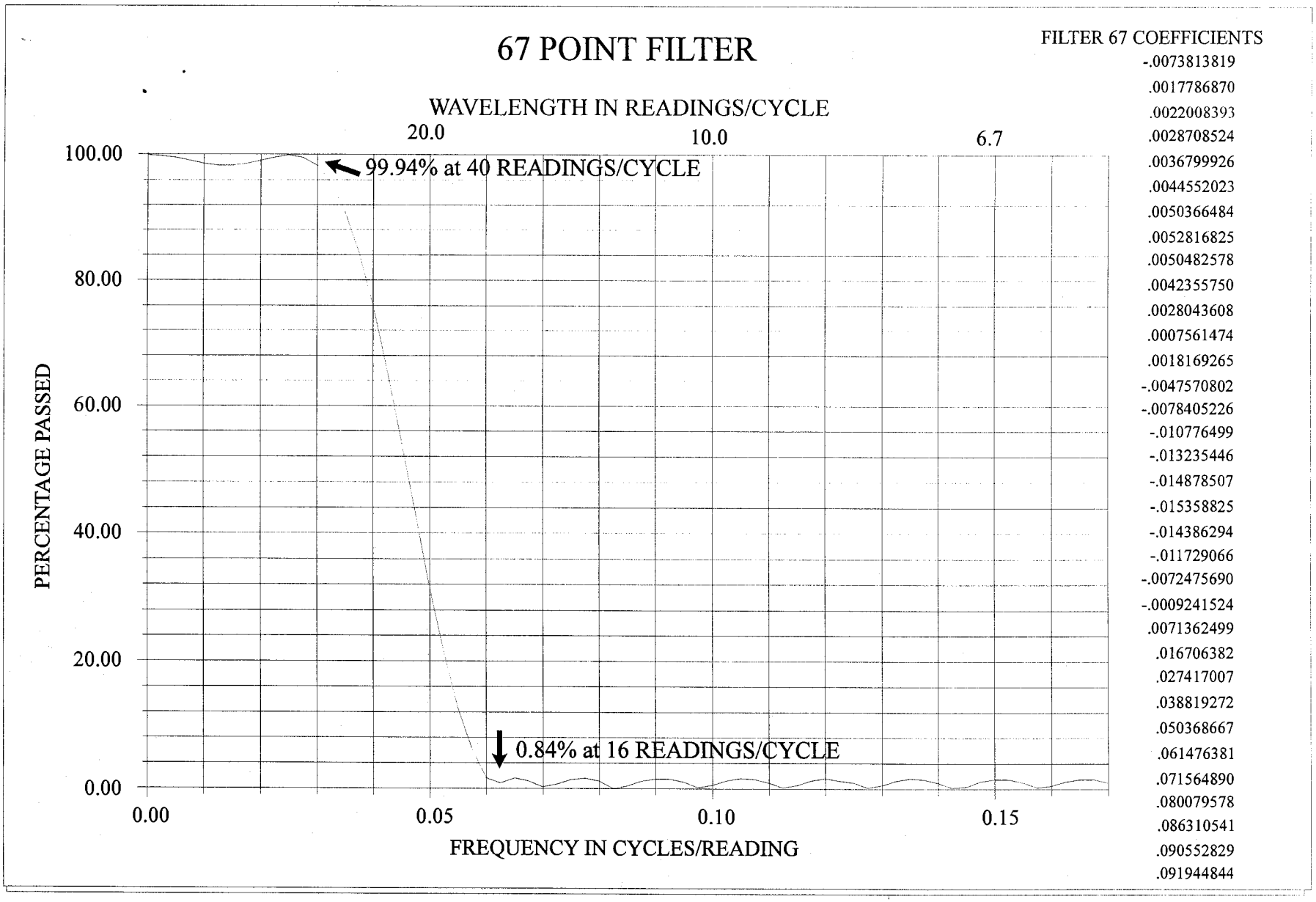
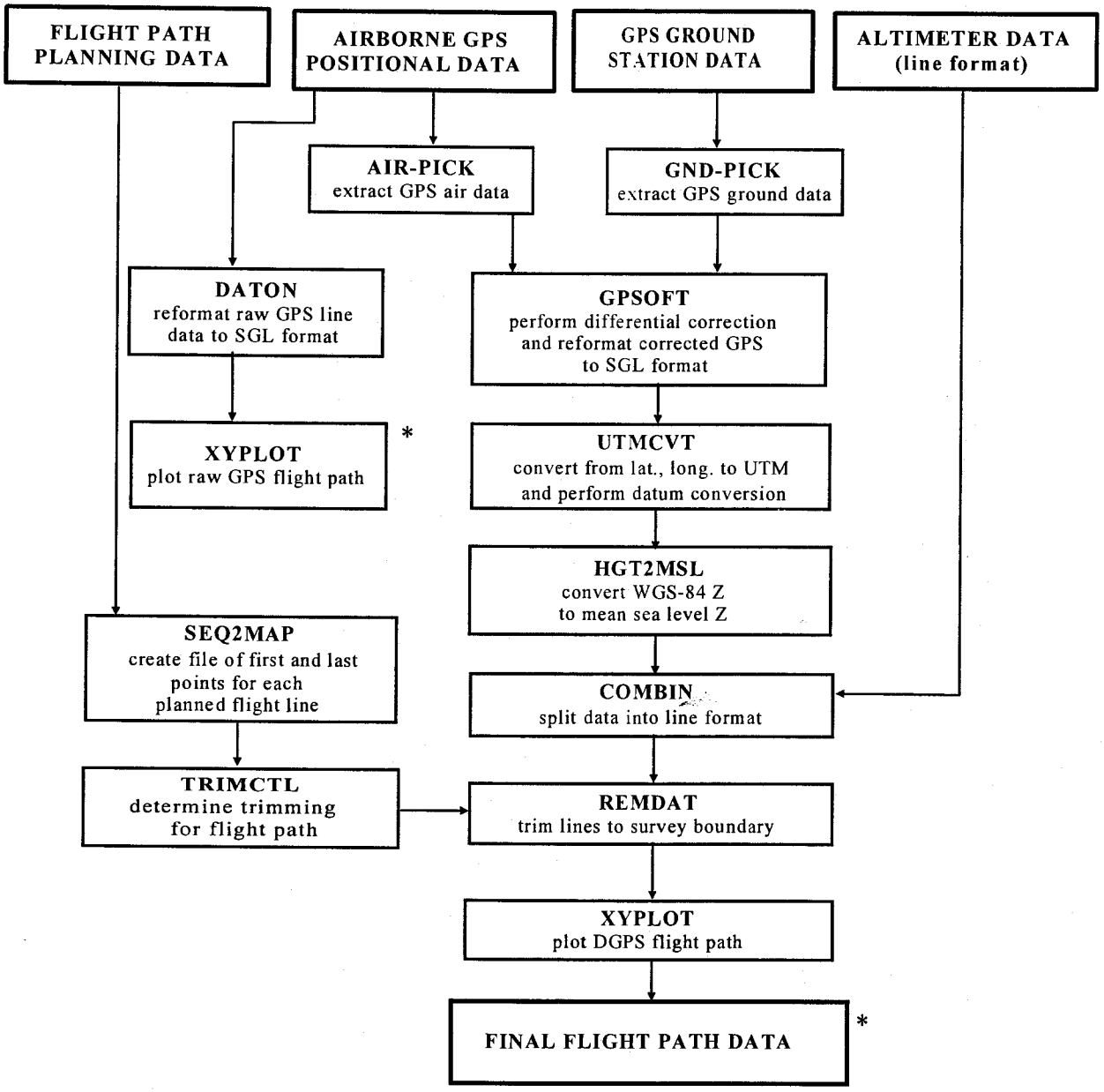

67 POINT FILTER
WAVELENGTH IN READINGS/CYCLE
20.0
10.0
6.7
99.94% at 40 READINGS/CYCLE
0.84% at 16 READINGS/CYCLE
PERCENTAGE PASSED
100.00
80.00
60.00
40.00
20.00
0.00
0.00
0.05
0.10
0.15
FREQUENCY IN CYCLES/READING
FILTER 67 COEFFICIENTS
-.0073813819
.0017786870
.0022008393
.0028708524
.0036799926
.0044552023
.0050366484
.0052816825
.0050482578
.0042355750
.0028043608
.0007561474
.0018169265
-.0047570802
-.0078405226
-.010776499
-.013235446
-.014878507
-.015358825
-.014386294
-.011729066
-.0072475690
-.0009241524
.0071362499
.016706382
.027417007
.038819272
.050368667
.061476381
.071564890
.080079578
.086310541
.090552829
.091944844

Figure 6

POSITIONAL DATA PROCESSING



* *Quality Control Check*

VIII. FINAL PRODUCTS

DIGITAL DATA

ASCII line data were delivered on CD. Figure 7 gives a description of the digital data format.

MAP PRODUCTS

The following map products were delivered:

Block A-B: (One set for preliminary data and one set for final data)

5 map sheets at a scale of 1:100, 000

1. Total Magnetic Intensity colour on paper with contour lines and flight lines.
2. First Vertical Derivative of the total magnetic intensity colour on paper with flight lines.

Block G: (One set for preliminary data and one for final data)

1 map sheet at a scale of 1:100, 000

1. Total Magnetic Intensity colour on paper with contour lines and flight lines.
2. First Vertical Derivative of the total magnetic intensity colour on paper with flight lines.

Figure 7
ASCII DIGITAL DATA FORMAT

LINE DATA:
Geosoft Format Line Data
Line numbers are represented as line number x 10 + reflight number.
All null values are replaced with a "*"

CHANNEL	CONTENTS	FORMAT	UNITS
UTM X	UTM X (12N)	I7	meters
UTM Y	UTM Y (12N)	I8	meters
RAW MAG	Raw Mag	F9.2	nanotesla
IGRF COR	IGRF Corrected Mag	F8.2	nanotesla
DC MAG	gnd &IGRF corr mag	F8.2	nanotesla
LEV MAG	Levelled Mag	F8.2	nanotesla
Diurnal Mag	Edited Ground Mag	F9.2	nanotesla
RA	Radar Altitude	F6.1	meters
MSL	DGPS Altitude (msl)	F7.1	meters
LONG	Longitude	F12.6	degrees
LAT	Latitude	F11.6	degrees
Time	Time UTC	F10.2	seconds
Day	Julian Day of Year	A7	days

Positional data is in NAD-27 for preliminary data and in NAD-27-CAN for final data.

The NAD-27-CAN datum uses the CLARKE-1866 ellipsoid (semi major axis = 6378206.2 and one over flattening = 294.979).

The transformation parameters to convert from WGS-84 to NAD-27-CAN are:

X shift = +10,
Y shift = -158,
Z shift = -187,
no rotation in X, Y, and Z,
no scale factor.

IX. PROJECT SUMMARY

PART I - SURVEY

SURVEY LOCATION

Survey Title:	High Resolution Aeromagnetic Survey - Fort McMurray, Alberta
Survey Location:	Fort McMurray, Alberta, Canada
Survey Duration:	12/02/98 - 08/04/98
Client:	PURE GOLD RESOURCES INC.
Address:	1225 West Pender Street Vancouver, British Columbia, V6E 2V1
Client Contact:	Nelson W. Baker Phone: (604) 687-2038 Fax: (604) 687-3141
Field Office Location:	MacKenzie Park Inn, room 203
Base Ground Station Location:	Airport pump house
Coordinates:	N56°39'24.27 W111°13'35.982 345.288 m WGS-84
Airports Used:	Fort McMurray Airport, Alberta

SURVEY SPECIFICATIONS

BLOCK A-B:

Magnetic Field:	Inclination: 78.1° Declination: 20.2° Total Field: -393.30 nT	
Datum - Raw Recorded Data:	WGS-84	
Datum - Delivered Data:	NAD-27-CAN	
Line Direction:	Traverse degrees true: 0°	Control: 90°
Survey Altitude:	120 m (400') minimum AGL RA	
Line Spacing:	Traverse: 400 m	Control: 2000 m
Total lkm flown:	49,071 lkm	
Survey Flight Numbers:	001-030 (CKB) and 101-144 (SGX)	
Flights not used:	025, and 116	
Survey Line Numbers:	Traverse: 1001-1385	Control: 101-184

BLOCK G:

Magnetic Field:	Inclination: 79.1° Declination: 19.1° Total Field: -400.58 nT	
Datum - Raw Recorded Data:	WGS-84	
Datum - Delivered Data:	NAD-27-CAN	
Line Direction:	Traverse degrees true: 0°	Control: 90°
Survey Altitude:	120 m (400') minimum AGL RA	
Line Spacing:	Traverse: 400 m	Control: 2000 m
Total lkm flown:	13,103 lkm	
Survey Flight Numbers:	301-312 (CKB) and 201-210 (SGX)	
Flights not used:	202, 205, 206, and 210	
Survey Line Numbers:	Traverse: 2001-2192	Control: 201-235

SURVEY SPECIFICATIONS (CONT'D)

Aircraft used:	C-GCKB Cessna 402B and C-GSGX B/N Islander		
Radar Altimeter:	King (402)	range:	1-2,500 ft.
	TRT (Islander)	range:	1-8,000 ft.
Barometric Altimeter:	Sander digital barometric pressure sensor	range:	1-30,00 ft
Magnetometer (Air):	Geometrics G-822A (402)	Sample rate:	10 Hz
	Scintrex CS-2 (Islander)	Sample rate:	10 Hz
Magnetometer (Ground):	Geometrics G3	Sample rate:	2 Hz
GPS Receiver (Air):	NovAtel 3951R, 12 channels		1 Hz
GPS Receiver (Ground):	NovAtel 3951R, 12 channels		1 Hz

FIELD PERSONNEL

Project Manager:	Reed Archer	Pilots:	Saeed Solhdoost
Field Operations Manager:	Kelly O'Connor		Siegfried Hypolite
Data Processor:	Veronique Lavoie		John Evans
Pilot-in-command:	Rene Beaulieu		Todd Lewis
			Dean Balaneski
		Aircraft Engineers:	Bill Haggart
			Craig Dennis

PART II - DATA PROCESSING

♦♦♦♦♦ DATA PROCESSING ♦♦♦♦♦					
PROCESSING FILE LOCATION					
	COMPUTER	DIRECTORY/ BATCH FILE NAME	COMMENTS	DONE	COMPILED BY
FIELD PROCESSING	Pent-11	d:\PGOLD_98.FM :\PGOLD_98.BG		Y Y	K.O. K.O.
ALTIMETER DATA		\ALT		Y	K.O.
GROUND MAG DATA		\GND		Y	K.O.
AIR MAG DATA		\MAG		Y	K.O.
MAJOR PROCESSING ITEMS					
MASTER CORNER FILES : mac.mcf and macg.mcf					
SURVEY ORIGIN: FM: 56N, 112.5W BG:57N 111W					
TRAVERSE/CONTROL LINE SPACING: 400m/2000m			DIURNALS SUBTRACTED: Y		
IGRF REMOVED: Y	DECORRUGATION PERFORMED: N		MAP NAMES: TMI and FVD		
ALTITUDE CORRECTIONS TO MAG DATA: N			DATA ROTATED: N		
INSINT - LIMIT TO MOVE INTERSECTION (READINGS): 2					
TIEFIX	ADJUSTCTL: Y	SHORT FIX: N	LENGTH: 11		
MAXIMUM INTERSECTION DEVIATION: FM: 2.85 BG: 7.97			MINIMUM TO MOVE: 1		
MOVINT: y	MINIMUM GRADIENT TO CORRECT: 0.991.0				
MAXIMUM DEVIATION FROM AVERAGE: 4.0					
CONTROL FILES TO ADJUST INTERSECTIONS: FAINT.CTL					

SPECIFIC DATA PROCESSED						
CH #	DATA	UNITS	INITIAL SAMPLE RATES	COMMENTS	FILTER/ SPIKER	FINAL TAPE (Y/N)
00	TIME	0.01 s	0.25	UTC seconds after midnight	-	Y
05	RA	0.1 m	0.25	Filtered radar altimeter	67Y	Y
07	BA	0.1 m	0.25	Filtered barometric alti.	131A	N
10	GND MAG	0.01 nT	0.50	Edited ground mag	67Y	Y
12	REM GRND MAG	0.01 nT	0.50	Edited remote ground mag	-	Y
13	IGRF GND MAG	0.01 nT	0.50	IGRF corrected ground mag	-	Y
14	IGRF COR GND	0.01 nT	0.50	IGRF corection on ground mag	-	Y
20	RAW MAG	0.01 nT	0.10	Edited aerial magnetometer	-	Y
21	IGRF MAG	0.01 nT	0.10	IGRF corrected magnetometer	-	Y
22	DIGRF CORR	0.01 nT	-	DIGRF Correction on mag	-	Y
23	DC MAG	0.01 nT	-	Diurnally and IGRF corrected mag		Y
24	LEV MAG	0.01 nT	-	Levelled mag	-	Y
60	RAW GPS LAT Y	m	1		-	N
61	RAW GPS LONG X	m	1		-	N
62	RAW GPS ALT Z	0.1 m	1		-	N
63	DGPS UTM Y	m	1	NAD-27-CAN (zone 12N)	-	Y
64	DGPS UTM X	m	1	NAD-27-CAN (zone 12N)	-	Y
65	DGPS ALT Z	0.1 m	1	MSL	-	Y

♦♦♦♦♦ FINAL PRODUCTS ♦♦♦♦♦			
MAPS			
GRID CELL SIZE: 100 m			
	SCALE	COMMENTS	
TOTAL MAG INT RADAR ALTIMETER	1:100,000 1:100,000		
DATA DELIVERY & ARCHIVE			
FORMAT: GEOSOFT	SAMPLING RATE: 4 Hz	FINAL FDT NAME: MG10	
DELIVERY BACK-UP MEDIUM: CD			NO. OF TAPES: 1
DATE FINAL PRODUCTS DELIVERED: June 1998			
SGL BACK-UP MEDIUM: 8mm data tape	NO.:		NO. OF TAPES: 1

END

APPENDICES

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

APPENDIX I

COMPANY PROFILE

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

SANDER GEOPHYSICS LIMITED

COMPANY PROFILE

Sander Geophysics Limited (SGL) specializes in high resolution airborne surveys for the oil and mining industries. The company carries out airborne magnetic, and radiometric surveys using fixed-wing aircraft and helicopters.

HISTORY

SGL was founded in 1956. The first airborne surveys were performed as early as 1958, and by 1967 airborne geophysical surveying had become the mainstay of the company. Operations have continued and expanded under the same ownership and management since 1956.

SERVICES

The company currently specializes in surveys using one or more of the following methods:

- Magnetic total field
- Magnetic gradient
- Radiometric
- VLF-EM

All surveys are performed using SGL's specially modified fixed-wing aircraft and helicopter.

The company has extensive experience in working in diverse geographical environments. Surveys have been flown in high mountains, offshore, over deserts and tropical jungle, from the Pampas of Argentina to the tundra of the Canadian Arctic, and to the South China sea.

Each field party is under the direction of a university graduate geophysicist. Field offices are equipped to provide flight path maps as well as contour and colour maps of the geophysical data. Immediate data processing is part of our standard quality control procedure, and provides our clients with rapid results for evaluation while the survey is in progress.

Among airborne geophysical surveying companies, SGL has long been in the lead in making optimal use of the Global Positioning System. We are now offering a flight management system GPSNav with SGDrape based on Real Time Differential GPS (RDGPS) to provide steering information to the pilot to an accuracy of 5 m in all three dimensions. This system allows us to produce a drape flying surface which is unique and optimal. It assures that adjacent flight lines and control lines are flown at the same level resulting in better geophysical maps.

INTERPRETIVE PRODUCTS

SGL offers a full range of data enhancement programs and provides complete interpretational services by experienced geoscientists.

- Vertical gradient contour and colour maps
- Shaded relief maps of any parameter
- Frequency slices - high-pass, low-pass or band-pass filtered total magnetic intensity
- Directional high-pass, low-pass or band-pass filtering
- Amplitude of the analytic signal
- Reduced-to-the-pole maps
- Upward or downward continued maps
- Three-dimensional modelling of magnetic grid data
- Processed gamma-ray spectrometer data

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

APPENDIX II

SURVEY LINE COORDINATES

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

HIGH SENSITIVITY AEROMAGNETIC SURVEY
FORT MCMURRAY, ALBERTA 1998
BLOCK A-B

SURVEY LINE COORDINATES
WGS-84

SEGMENT NO	START LAT	START LONG	END LAT	END LONG	LENGTH NM	LENGTH KM
C0101.0	N55:38.28	W112:32.83	N55:38.28	W114:10.16	54.93	101.73
C0102.0	N55:39.36	W112:32.83	N55:39.36	W114:10.16	54.91	101.69
C0103.0	N55:40.44	W112:32.83	N55:40.44	W114:10.16	54.88	101.64
C0104.0	N55:41.52	W112:32.83	N55:41.52	W114:10.16	54.86	101.59
C0105.0	N55:42.60	W112:32.83	N55:42.60	W114:10.16	54.83	101.55
C0106.0	N55:43.68	W112:32.83	N55:43.68	W114:10.16	54.81	101.50
C0107.0	N55:44.76	W112:32.83	N55:44.76	W114:10.16	54.78	101.45
C0108.0	N55:45.84	W112:32.83	N55:45.84	W114:10.16	54.75	101.41
C0109.0	N55:46.92	W111:39.67	N55:46.92	W114:10.16	84.62	156.72
C0110.0	N55:48.00	W111:39.67	N55:48.00	W114:10.16	84.59	156.65
C0111.0	N55:49.08	W111:39.67	N55:49.08	W114:10.16	84.55	156.58
C0112.0	N55:50.16	W111:39.67	N55:50.16	W114:10.16	84.51	156.51
C0113.0	N55:51.24	W111:39.67	N55:51.24	W114:10.16	84.47	156.44
C0114.0	N55:52.32	W111:39.67	N55:52.32	W114:10.16	84.43	156.36
C0115.0	N55:53.40	W111:39.67	N55:53.40	W114:10.16	84.39	156.29
C0116.0	N55:54.48	W111:39.67	N55:54.48	W114:10.16	84.35	156.22
C0117.0	N55:55.56	W111:39.67	N55:55.56	W114:10.16	84.31	156.15
C0118.0	N55:56.64	W111:39.67	N55:56.64	W114:10.16	84.27	156.07
C0119.0	N55:57.72	W111:39.67	N55:57.72	W114:10.16	84.23	156.00
C0120.0	N55:58.80	W111:39.67	N55:58.80	W114:10.16	84.19	155.93
C0121.0	N55:59.88	W111:39.67	N55:59.88	W114:10.16	84.16	155.86
C0122.0	N56:00.96	W111:39.67	N56:00.96	W113:30.29	61.83	114.51
C0123.0	N56:02.04	W111:39.67	N56:02.04	W113:30.29	61.80	114.46
C0124.0	N56:03.12	W111:39.67	N56:03.12	W113:30.29	61.77	114.40
C0125.0	N56:04.20	W111:39.67	N56:04.20	W113:30.29	61.74	114.35
C0126.0	N56:05.28	W111:39.67	N56:05.28	W113:30.29	61.72	114.30
C0127.0	N56:06.36	W111:39.67	N56:06.36	W113:30.29	61.69	114.24
C0128.0	N56:07.44	W111:39.67	N56:07.44	W113:30.29	61.66	114.19
C0129.0	N56:08.52	W111:39.67	N56:08.52	W113:30.29	61.63	114.14
C0130.0	N56:09.60	W111:39.67	N56:09.60	W113:30.29	61.60	114.08
C0131.0	N56:10.68	W111:39.67	N56:10.68	W113:30.29	61.57	114.03
C0132.0	N56:11.76	W111:39.67	N56:11.76	W113:30.29	61.54	113.98
C0133.0	N56:12.84	W111:39.67	N56:12.84	W113:30.29	61.51	113.92
C0134.0	N56:13.92	W111:39.67	N56:13.92	W113:30.29	61.49	113.87
C0135.0	N56:15.00	W111:39.67	N56:15.00	W113:30.29	61.46	113.82
C0136.0	N56:16.08	W111:39.67	N56:16.08	W113:30.29	61.43	113.76
C0137.0	N56:17.16	W111:39.67	N56:17.16	W113:30.29	61.40	113.71
C0138.0	N56:18.24	W111:39.67	N56:18.24	W113:30.29	61.37	113.66
C0139.0	N56:19.32	W111:39.67	N56:19.32	W113:30.29	61.34	113.60
C0140.0	N56:20.40	W111:39.67	N56:20.40	W113:30.29	61.31	113.55
C0141.0	N56:21.48	W111:39.67	N56:21.48	W113:30.29	61.28	113.50
C0142.0	N56:22.56	W111:39.67	N56:22.56	W113:30.29	61.26	113.44
C0143.0	N56:23.64	W111:39.67	N56:23.64	W113:30.29	61.23	113.39
C0144.0	N56:24.72	W111:39.67	N56:24.72	W113:30.29	61.20	113.34

SEGMENT NO	START LAT	START LONG	END LAT	END LONG	LENGTH NM	LENGTH KM
C0145.0	N56:25.80	W111:39.67	N56:25.80	W113:30.29	61.17	113.28
C0146.0	N56:26.88	W111:39.67	N56:26.88	W113:30.29	61.14	113.23
C0147.0	N56:27.96	W111:39.67	N56:27.96	W113:30.29	61.11	113.18
C0148.0	N56:29.04	W111:39.67	N56:29.04	W113:30.29	61.08	113.12
C0149.0	N56:30.12	W111:39.67	N56:30.12	W113:30.29	61.05	113.07
C0150.0	N56:31.20	W111:39.67	N56:31.20	W113:30.29	61.02	113.02
C0151.0	N56:32.28	W111:39.67	N56:32.28	W113:30.29	61.00	112.96
C0152.0	N56:33.36	W111:39.67	N56:33.36	W113:30.29	60.97	112.91
C0153.0	N56:34.44	W111:39.67	N56:34.44	W113:30.29	60.94	112.86
C0154.0	N56:35.52	W111:39.67	N56:35.52	W113:30.29	60.91	112.80
C0155.0	N56:36.60	W111:39.67	N56:36.60	W113:30.29	60.88	112.75
C0156.0	N56:37.68	W111:39.67	N56:37.68	W112:33.22	29.46	54.56
C0157.0	N56:38.76	W111:39.67	N56:38.76	W112:33.22	29.44	54.53
C0158.0	N56:39.84	W111:39.67	N56:39.84	W112:33.22	29.43	54.51
C0159.0	N56:40.92	W111:39.67	N56:40.92	W112:33.22	29.42	54.48
C0160.0	N56:42.00	W111:39.67	N56:42.00	W112:33.22	29.40	54.45
C0161.0	N56:43.08	W111:39.67	N56:43.08	W112:33.22	29.39	54.43
C0162.0	N56:44.16	W111:39.67	N56:44.16	W112:33.22	29.37	54.40
C0163.0	N56:45.24	W111:39.67	N56:45.24	W112:33.22	29.36	54.38
C0164.0	N56:46.32	W111:39.67	N56:46.32	W112:33.22	29.35	54.35
C0165.0	N56:47.40	W111:39.67	N56:47.40	W112:33.22	29.33	54.32
C0166.0	N56:48.48	W111:39.67	N56:48.48	W112:33.22	29.32	54.30
C0167.0	N56:49.56	W111:39.67	N56:49.56	W112:33.22	29.30	54.27
C0168.0	N56:50.64	W111:39.67	N56:50.64	W112:33.22	29.29	54.25
C0169.0	N56:51.72	W111:39.67	N56:51.72	W112:33.22	29.28	54.22
C0170.0	N56:52.80	W111:39.67	N56:52.80	W112:33.22	29.26	54.19
C0171.0	N56:53.88	W111:39.67	N56:53.88	W112:33.22	29.25	54.17
C0172.0	N56:54.96	W111:39.67	N56:54.96	W112:33.22	29.23	54.14
C0173.0	N56:56.04	W111:39.67	N56:56.04	W112:33.22	29.22	54.12
C0174.0	N56:57.12	W111:39.67	N56:57.12	W112:33.22	29.21	54.09
C0175.0	N56:58.20	W111:39.67	N56:58.20	W112:33.22	29.19	54.07
C0176.0	N56:59.28	W111:39.67	N56:59.28	W112:33.22	29.18	54.04
C0177.0	N57:00.36	W111:39.67	N57:00.36	W112:33.22	29.16	54.01
C0178.0	N57:01.44	W111:39.67	N57:01.44	W112:33.22	29.15	53.99
C0179.0	N57:02.52	W111:39.67	N57:02.52	W112:33.22	29.14	53.96
C0180.0	N57:03.60	W111:39.67	N57:03.60	W112:33.22	29.12	53.94
C0181.0	N57:04.68	W111:39.67	N57:04.68	W112:33.22	29.11	53.91
C0182.0	N57:05.76	W111:39.67	N57:05.76	W112:33.22	29.09	53.88
C0183.0	N57:06.84	W111:39.67	N57:06.84	W112:33.22	29.08	53.86
C0184.0	N57:07.92	W111:39.67	N57:07.92	W112:33.22	29.07	53.83
T1001.0	N55:46.82	W111:39.87	N57:08.12	W111:39.87	81.30	150.57
T1002.0	N55:46.82	W111:40.26	N57:08.16	W111:40.26	81.35	150.65
T1003.0	N55:46.82	W111:40.65	N57:08.16	W111:40.65	81.35	150.65
T1004.0	N55:46.82	W111:41.04	N57:08.16	W111:41.04	81.35	150.65
T1005.0	N55:46.82	W111:41.43	N57:08.16	W111:41.43	81.35	150.65
T1006.0	N55:46.82	W111:41.82	N57:08.16	W111:41.82	81.35	150.65
T1007.0	N55:46.82	W111:42.21	N57:08.16	W111:42.21	81.35	150.65
T1008.0	N55:46.82	W111:42.60	N57:08.16	W111:42.60	81.35	150.65
T1009.0	N55:46.82	W111:42.99	N57:08.16	W111:42.99	81.35	150.65
T1010.0	N55:46.82	W111:43.38	N57:08.16	W111:43.38	81.35	150.65

SEGMENT NO	START LAT	START LONG	END LAT	END LONG	LENGTH NM	LENGTH KM
T1011.0	N55:46.82	W111:43.77	N57:08.16	W111:43.77	81.35	150.65
T1012.0	N55:46.82	W111:44.16	N57:08.16	W111:44.16	81.35	150.65
T1013.0	N55:46.82	W111:44.56	N57:08.16	W111:44.56	81.35	150.65
T1014.0	N55:46.82	W111:44.95	N57:08.16	W111:44.95	81.35	150.65
T1015.0	N55:46.82	W111:45.34	N57:08.16	W111:45.34	81.35	150.65
T1016.0	N55:46.82	W111:45.73	N57:08.16	W111:45.73	81.35	150.65
T1017.0	N55:46.82	W111:46.12	N57:08.16	W111:46.12	81.35	150.65
T1018.0	N55:46.82	W111:46.51	N57:08.16	W111:46.51	81.35	150.65
T1019.0	N55:46.82	W111:46.90	N57:08.16	W111:46.90	81.35	150.65
T1020.0	N55:46.82	W111:47.29	N57:08.16	W111:47.29	81.35	150.65
T1021.0	N55:46.82	W111:47.68	N57:08.16	W111:47.68	81.35	150.65
T1022.0	N55:46.82	W111:48.07	N57:08.16	W111:48.07	81.35	150.65
T1023.0	N55:46.82	W111:48.46	N57:08.16	W111:48.46	81.35	150.65
T1024.0	N55:46.82	W111:48.86	N57:08.16	W111:48.86	81.35	150.65
T1025.0	N55:46.82	W111:49.25	N57:08.16	W111:49.25	81.35	150.65
T1026.0	N55:46.82	W111:49.64	N57:08.16	W111:49.64	81.35	150.65
T1027.0	N55:46.82	W111:50.03	N57:08.16	W111:50.03	81.35	150.65
T1028.0	N55:46.82	W111:50.42	N57:08.16	W111:50.42	81.35	150.65
T1029.0	N55:46.82	W111:50.81	N57:08.16	W111:50.81	81.35	150.65
T1030.0	N55:46.82	W111:51.20	N57:08.16	W111:51.20	81.35	150.65
T1031.0	N55:46.82	W111:51.59	N57:08.16	W111:51.59	81.35	150.65
T1032.0	N55:46.82	W111:51.98	N57:08.16	W111:51.98	81.35	150.65
T1033.0	N55:46.82	W111:52.37	N57:08.16	W111:52.37	81.35	150.65
T1034.0	N55:46.82	W111:52.76	N57:08.16	W111:52.76	81.35	150.65
T1035.0	N55:46.82	W111:53.16	N57:08.16	W111:53.16	81.35	150.65
T1036.0	N55:46.82	W111:53.55	N57:08.16	W111:53.55	81.35	150.65
T1037.0	N55:46.82	W111:53.94	N57:08.16	W111:53.94	81.35	150.65
T1038.0	N55:46.82	W111:54.33	N57:08.16	W111:54.33	81.35	150.65
T1039.0	N55:46.82	W111:54.72	N57:08.16	W111:54.72	81.35	150.65
T1040.0	N55:46.82	W111:55.11	N57:08.16	W111:55.11	81.35	150.65
T1041.0	N55:46.82	W111:55.50	N57:08.16	W111:55.50	81.35	150.65
T1042.0	N55:46.82	W111:55.89	N57:08.16	W111:55.89	81.35	150.65
T1043.0	N55:46.82	W111:56.28	N57:08.16	W111:56.28	81.35	150.65
T1044.0	N55:46.82	W111:56.67	N57:08.16	W111:56.67	81.35	150.65
T1045.0	N55:46.82	W111:57.06	N57:08.16	W111:57.06	81.35	150.65
T1046.0	N55:46.82	W111:57.46	N57:08.16	W111:57.46	81.35	150.65
T1047.0	N55:46.82	W111:57.85	N57:08.16	W111:57.85	81.35	150.65
T1048.0	N55:46.82	W111:58.24	N57:08.16	W111:58.24	81.35	150.65
T1049.0	N55:46.82	W111:58.63	N57:08.16	W111:58.63	81.35	150.65
T1050.0	N55:46.82	W111:59.02	N57:08.16	W111:59.02	81.35	150.65
T1051.0	N55:46.82	W111:59.41	N57:08.16	W111:59.41	81.35	150.65
T1052.0	N55:46.82	W111:59.80	N57:08.16	W111:59.80	81.35	150.65
T1053.0	N55:46.82	W112:00.19	N57:08.16	W112:00.19	81.35	150.65
T1054.0	N55:46.82	W112:00.58	N57:08.16	W112:00.58	81.35	150.65
T1055.0	N55:46.82	W112:00.97	N57:08.16	W112:00.97	81.35	150.65
T1056.0	N55:46.82	W112:01.36	N57:08.16	W112:01.36	81.35	150.65
T1057.0	N55:46.82	W112:01.75	N57:08.16	W112:01.75	81.35	150.65
T1058.0	N55:46.82	W112:02.15	N57:08.16	W112:02.15	81.35	150.65
T1059.0	N55:46.82	W112:02.54	N57:08.16	W112:02.54	81.35	150.65
T1060.0	N55:46.82	W112:02.93	N57:08.16	W112:02.93	81.35	150.65

SEGMENT NO	START LAT	START LONG	END LAT	END LONG	LENGTH NM	LENGTH KM
T1061.0	N55:46.82	W112:03.32	N57:08.16	W112:03.32	81.35	150.65
T1062.0	N55:46.82	W112:03.71	N57:08.16	W112:03.71	81.35	150.65
T1063.0	N55:46.82	W112:04.10	N57:08.16	W112:04.10	81.35	150.65
T1064.0	N55:46.82	W112:04.49	N57:08.16	W112:04.49	81.35	150.65
T1065.0	N55:46.82	W112:04.88	N57:08.16	W112:04.88	81.35	150.65
T1066.0	N55:46.82	W112:05.27	N57:08.16	W112:05.27	81.35	150.65
T1067.0	N55:46.82	W112:05.66	N57:08.16	W112:05.66	81.35	150.65
T1068.0	N55:46.82	W112:06.05	N57:08.16	W112:06.05	81.35	150.65
T1069.0	N55:46.82	W112:06.45	N57:08.16	W112:06.45	81.35	150.65
T1070.0	N55:46.82	W112:06.84	N57:08.16	W112:06.84	81.35	150.65
T1071.0	N55:46.82	W112:07.23	N57:08.16	W112:07.23	81.35	150.65
T1072.0	N55:46.82	W112:07.62	N57:08.16	W112:07.62	81.35	150.65
T1073.0	N55:46.82	W112:08.01	N57:08.16	W112:08.01	81.35	150.65
T1074.0	N55:46.82	W112:08.40	N57:08.16	W112:08.40	81.35	150.65
T1075.0	N55:46.82	W112:08.79	N57:08.16	W112:08.79	81.35	150.65
T1076.0	N55:46.82	W112:09.18	N57:08.16	W112:09.18	81.35	150.65
T1077.0	N55:46.82	W112:09.57	N57:08.16	W112:09.57	81.35	150.65
T1078.0	N55:46.82	W112:09.96	N57:08.16	W112:09.96	81.35	150.65
T1079.0	N55:46.82	W112:10.35	N57:08.16	W112:10.35	81.35	150.65
T1080.0	N55:46.82	W112:10.75	N57:08.16	W112:10.75	81.35	150.65
T1081.0	N55:46.82	W112:11.14	N57:08.16	W112:11.14	81.35	150.65
T1082.0	N55:46.82	W112:11.53	N57:08.16	W112:11.53	81.35	150.65
T1083.0	N55:46.82	W112:11.92	N57:08.16	W112:11.92	81.35	150.65
T1084.0	N55:46.82	W112:12.31	N57:08.16	W112:12.31	81.35	150.65
T1085.0	N55:46.82	W112:12.70	N57:08.16	W112:12.70	81.35	150.65
T1086.0	N55:46.82	W112:13.09	N57:08.16	W112:13.09	81.35	150.65
T1087.0	N55:46.82	W112:13.48	N57:08.16	W112:13.48	81.35	150.65
T1088.0	N55:46.82	W112:13.87	N57:08.16	W112:13.87	81.35	150.65
T1089.0	N55:46.82	W112:14.26	N57:08.16	W112:14.26	81.35	150.65
T1090.0	N55:46.82	W112:14.65	N57:08.16	W112:14.65	81.35	150.65
T1091.0	N55:46.82	W112:15.05	N57:08.16	W112:15.05	81.35	150.65
T1092.0	N55:46.82	W112:15.44	N57:08.16	W112:15.44	81.35	150.65
T1093.0	N55:46.82	W112:15.83	N57:08.16	W112:15.83	81.35	150.65
T1094.0	N55:46.82	W112:16.22	N57:08.16	W112:16.22	81.35	150.65
T1095.0	N55:46.82	W112:16.61	N57:08.16	W112:16.61	81.35	150.65
T1096.0	N55:46.82	W112:17.00	N57:08.16	W112:17.00	81.35	150.65
T1097.0	N55:46.82	W112:17.39	N57:08.16	W112:17.39	81.35	150.65
T1098.0	N55:46.82	W112:17.78	N57:08.16	W112:17.78	81.35	150.65
T1099.0	N55:46.82	W112:18.17	N57:08.16	W112:18.17	81.35	150.65
T1100.0	N55:46.82	W112:18.56	N57:08.16	W112:18.56	81.35	150.65
T1101.0	N55:46.82	W112:18.95	N57:08.16	W112:18.95	81.35	150.65
T1102.0	N55:46.82	W112:19.34	N57:08.16	W112:19.34	81.35	150.65
T1103.0	N55:46.82	W112:19.74	N57:08.16	W112:19.74	81.35	150.65
T1104.0	N55:46.82	W112:20.13	N57:08.16	W112:20.13	81.35	150.65
T1105.0	N55:46.82	W112:20.52	N57:08.16	W112:20.52	81.35	150.65
T1106.0	N55:46.82	W112:20.91	N57:08.16	W112:20.91	81.35	150.65
T1107.0	N55:46.82	W112:21.30	N57:08.16	W112:21.30	81.35	150.65
T1108.0	N55:46.82	W112:21.69	N57:08.16	W112:21.69	81.35	150.65
T1109.0	N55:46.82	W112:22.08	N57:08.16	W112:22.08	81.35	150.65
T1110.0	N55:46.82	W112:22.47	N57:08.16	W112:22.47	81.35	150.65

SEGMENT NO	START LAT	START LONG	END LAT	END LONG	LENGTH NM	LENGTH KM
T1111.0	N55:46.82	W112:22.86	N57:08.16	W112:22.86	81.35	150.65
T1112.0	N55:46.82	W112:23.25	N57:08.16	W112:23.25	81.35	150.65
T1113.0	N55:46.82	W112:23.64	N57:08.16	W112:23.64	81.35	150.65
T1114.0	N55:46.82	W112:24.04	N57:08.16	W112:24.04	81.35	150.65
T1115.0	N55:46.82	W112:24.43	N57:08.16	W112:24.43	81.35	150.65
T1116.0	N55:46.82	W112:24.82	N57:08.16	W112:24.82	81.35	150.65
T1117.0	N55:46.82	W112:25.21	N57:08.16	W112:25.21	81.35	150.65
T1118.0	N55:46.82	W112:25.60	N57:08.16	W112:25.60	81.35	150.65
T1119.0	N55:46.82	W112:25.99	N57:08.16	W112:25.99	81.35	150.65
T1120.0	N55:46.82	W112:26.38	N57:08.16	W112:26.38	81.35	150.65
T1121.0	N55:46.82	W112:26.77	N57:08.16	W112:26.77	81.35	150.65
T1122.0	N55:46.82	W112:27.16	N57:08.16	W112:27.16	81.35	150.65
T1123.0	N55:46.82	W112:27.55	N57:08.16	W112:27.55	81.35	150.65
T1124.0	N55:46.82	W112:27.94	N57:08.16	W112:27.94	81.35	150.65
T1125.0	N55:46.82	W112:28.34	N57:08.16	W112:28.34	81.35	150.65
T1126.0	N55:46.82	W112:28.73	N57:08.16	W112:28.73	81.35	150.65
T1127.0	N55:46.82	W112:29.12	N57:08.16	W112:29.12	81.35	150.65
T1128.0	N55:46.82	W112:29.51	N57:08.16	W112:29.51	81.35	150.65
T1129.0	N55:46.82	W112:29.90	N57:08.16	W112:29.90	81.35	150.65
T1130.0	N55:46.82	W112:30.29	N57:08.16	W112:30.29	81.35	150.65
T1131.0	N55:46.82	W112:30.68	N57:08.16	W112:30.68	81.35	150.65
T1132.0	N55:46.82	W112:31.07	N57:08.16	W112:31.07	81.35	150.65
T1133.0	N55:46.82	W112:31.46	N57:08.16	W112:31.46	81.35	150.65
T1134.0	N55:46.82	W112:31.85	N57:08.16	W112:31.85	81.35	150.65
T1135.0	N55:46.82	W112:32.24	N57:08.16	W112:32.24	81.35	150.65
T1136.0	N55:46.82	W112:32.64	N57:08.16	W112:32.64	81.35	150.65
T1137.0	N55:37.85	W112:33.03	N57:08.16	W112:33.03	90.32	167.26
T1138.0	N55:37.84	W112:33.42	N56:36.71	W112:33.42	58.87	109.03
T1139.0	N55:37.84	W112:33.81	N56:36.71	W112:33.81	58.87	109.03
T1140.0	N55:37.84	W112:34.20	N56:36.71	W112:34.20	58.87	109.03
T1141.0	N55:37.84	W112:34.59	N56:36.71	W112:34.59	58.87	109.03
T1142.0	N55:37.84	W112:34.98	N56:36.71	W112:34.98	58.87	109.03
T1143.0	N55:37.84	W112:35.37	N56:36.71	W112:35.37	58.87	109.03
T1144.0	N55:37.84	W112:35.76	N56:36.71	W112:35.76	58.87	109.03
T1145.0	N55:37.84	W112:36.15	N56:36.71	W112:36.15	58.87	109.03
T1146.0	N55:37.84	W112:36.54	N56:36.71	W112:36.54	58.87	109.03
T1147.0	N55:37.84	W112:36.93	N56:36.71	W112:36.93	58.87	109.03
T1148.0	N55:37.84	W112:37.33	N56:36.71	W112:37.33	58.87	109.03
T1149.0	N55:37.84	W112:37.72	N56:36.71	W112:37.72	58.87	109.03
T1150.0	N55:37.84	W112:38.11	N56:36.71	W112:38.11	58.87	109.03
T1151.0	N55:37.84	W112:38.50	N56:36.71	W112:38.50	58.87	109.03
T1152.0	N55:37.84	W112:38.89	N56:36.71	W112:38.89	58.87	109.03
T1153.0	N55:37.84	W112:39.28	N56:36.71	W112:39.28	58.87	109.03
T1154.0	N55:37.84	W112:39.67	N56:36.71	W112:39.67	58.87	109.03
T1155.0	N55:37.84	W112:40.06	N56:36.71	W112:40.06	58.87	109.03
T1156.0	N55:37.84	W112:40.45	N56:36.71	W112:40.45	58.87	109.03
T1157.0	N55:37.84	W112:40.84	N56:36.71	W112:40.84	58.87	109.03
T1158.0	N55:37.84	W112:41.23	N56:36.71	W112:41.23	58.87	109.03
T1159.0	N55:37.84	W112:41.63	N56:36.71	W112:41.63	58.87	109.03
T1160.0	N55:37.84	W112:42.02	N56:36.71	W112:42.02	58.87	109.03

SEGMENT NO	START LAT	START LONG	END LAT	END LONG	LENGTH NM	LENGTH KM
T1161.0	N55:37.84	W112:42.41	N56:36.71	W112:42.41	58.87	109.03
T1162.0	N55:37.84	W112:42.80	N56:36.71	W112:42.80	58.87	109.03
T1163.0	N55:37.84	W112:43.19	N56:36.71	W112:43.19	58.87	109.03
T1164.0	N55:37.84	W112:43.58	N56:36.71	W112:43.58	58.87	109.03
T1165.0	N55:37.84	W112:43.97	N56:36.71	W112:43.97	58.87	109.03
T1166.0	N55:37.84	W112:44.36	N56:36.71	W112:44.36	58.87	109.03
T1167.0	N55:37.84	W112:44.75	N56:36.71	W112:44.75	58.87	109.03
T1168.0	N55:37.84	W112:45.14	N56:36.71	W112:45.14	58.87	109.03
T1169.0	N55:37.84	W112:45.53	N56:36.71	W112:45.53	58.87	109.03
T1170.0	N55:37.84	W112:45.93	N56:36.71	W112:45.93	58.87	109.03
T1171.0	N55:37.84	W112:46.32	N56:36.71	W112:46.32	58.87	109.03
T1172.0	N55:37.84	W112:46.71	N56:36.71	W112:46.71	58.87	109.03
T1173.0	N55:37.84	W112:47.10	N56:36.71	W112:47.10	58.87	109.03
T1174.0	N55:37.84	W112:47.49	N56:36.71	W112:47.49	58.87	109.03
T1175.0	N55:37.84	W112:47.88	N56:36.71	W112:47.88	58.87	109.03
T1176.0	N55:37.84	W112:48.27	N56:36.71	W112:48.27	58.87	109.03
T1177.0	N55:37.84	W112:48.66	N56:36.71	W112:48.66	58.87	109.03
T1178.0	N55:37.84	W112:49.05	N56:36.71	W112:49.05	58.87	109.03
T1179.0	N55:37.84	W112:49.44	N56:36.71	W112:49.44	58.87	109.03
T1180.0	N55:37.84	W112:49.83	N56:36.71	W112:49.83	58.87	109.03
T1181.0	N55:37.84	W112:50.23	N56:36.71	W112:50.23	58.87	109.03
T1182.0	N55:37.84	W112:50.62	N56:36.71	W112:50.62	58.87	109.03
T1183.0	N55:37.84	W112:51.01	N56:36.71	W112:51.01	58.87	109.03
T1184.0	N55:37.84	W112:51.40	N56:36.71	W112:51.40	58.87	109.03
T1185.0	N55:37.84	W112:51.79	N56:36.71	W112:51.79	58.87	109.03
T1186.0	N55:37.84	W112:52.18	N56:36.71	W112:52.18	58.87	109.03
T1187.0	N55:37.84	W112:52.57	N56:36.71	W112:52.57	58.87	109.03
T1188.0	N55:37.84	W112:52.96	N56:36.71	W112:52.96	58.87	109.03
T1189.0	N55:37.84	W112:53.35	N56:36.71	W112:53.35	58.87	109.03
T1190.0	N55:37.84	W112:53.74	N56:36.71	W112:53.74	58.87	109.03
T1191.0	N55:37.84	W112:54.13	N56:36.71	W112:54.13	58.87	109.03
T1192.0	N55:37.84	W112:54.52	N56:36.71	W112:54.52	58.87	109.03
T1193.0	N55:37.84	W112:54.92	N56:36.71	W112:54.92	58.87	109.03
T1194.0	N55:37.84	W112:55.31	N56:36.71	W112:55.31	58.87	109.03
T1195.0	N55:37.84	W112:55.70	N56:36.71	W112:55.70	58.87	109.03
T1196.0	N55:37.84	W112:56.09	N56:36.71	W112:56.09	58.87	109.03
T1197.0	N55:37.84	W112:56.48	N56:36.71	W112:56.48	58.87	109.03
T1198.0	N55:37.84	W112:56.87	N56:36.71	W112:56.87	58.87	109.03
T1199.0	N55:37.84	W112:57.26	N56:36.71	W112:57.26	58.87	109.03
T1200.0	N55:37.84	W112:57.65	N56:36.71	W112:57.65	58.87	109.03
T1201.0	N55:37.84	W112:58.04	N56:36.71	W112:58.04	58.87	109.03
T1202.0	N55:37.84	W112:58.43	N56:36.71	W112:58.43	58.87	109.03
T1203.0	N55:37.84	W112:58.82	N56:36.71	W112:58.82	58.87	109.03
T1204.0	N55:37.84	W112:59.22	N56:36.71	W112:59.22	58.87	109.03
T1205.0	N55:37.84	W112:59.61	N56:36.71	W112:59.61	58.87	109.03
T1206.0	N55:37.84	W113:00.00	N56:36.71	W113:00.00	58.87	109.03
T1207.0	N55:37.84	W113:00.39	N56:36.71	W113:00.39	58.87	109.03
T1208.0	N55:37.84	W113:00.78	N56:36.71	W113:00.78	58.87	109.03
T1209.0	N55:37.84	W113:01.17	N56:36.71	W113:01.17	58.87	109.03
T1210.0	N55:37.84	W113:01.56	N56:36.71	W113:01.56	58.87	109.03

SEGMENT NO	START LAT	START LONG	END LAT	END LONG	LENGTH NM	LENGTH KM
T1211.0	N55:37.84	W113:01.95	N56:36.71	W113:01.95	58.87	109.03
T1212.0	N55:37.84	W113:02.34	N56:36.71	W113:02.34	58.87	109.03
T1213.0	N55:37.84	W113:02.73	N56:36.71	W113:02.73	58.87	109.03
T1214.0	N55:37.84	W113:03.12	N56:36.71	W113:03.12	58.87	109.03
T1215.0	N55:37.84	W113:03.52	N56:36.71	W113:03.52	58.87	109.03
T1216.0	N55:37.84	W113:03.91	N56:36.71	W113:03.91	58.87	109.03
T1217.0	N55:37.84	W113:04.30	N56:36.71	W113:04.30	58.87	109.03
T1218.0	N55:37.84	W113:04.69	N56:36.71	W113:04.69	58.87	109.03
T1219.0	N55:37.84	W113:05.08	N56:36.71	W113:05.08	58.87	109.03
T1220.0	N55:37.84	W113:05.47	N56:36.71	W113:05.47	58.87	109.03
T1221.0	N55:37.84	W113:05.86	N56:36.71	W113:05.86	58.87	109.03
T1222.0	N55:37.84	W113:06.25	N56:36.71	W113:06.25	58.87	109.03
T1223.0	N55:37.84	W113:06.64	N56:36.71	W113:06.64	58.87	109.03
T1224.0	N55:37.84	W113:07.03	N56:36.71	W113:07.03	58.87	109.03
T1225.0	N55:37.84	W113:07.42	N56:36.71	W113:07.42	58.87	109.03
T1226.0	N55:37.84	W113:07.82	N56:36.71	W113:07.82	58.87	109.03
T1227.0	N55:37.84	W113:08.21	N56:36.71	W113:08.21	58.87	109.03
T1228.0	N55:37.84	W113:08.60	N56:36.71	W113:08.60	58.87	109.03
T1229.0	N55:37.84	W113:08.99	N56:36.71	W113:08.99	58.87	109.03
T1230.0	N55:37.84	W113:09.38	N56:36.71	W113:09.38	58.87	109.03
T1231.0	N55:37.84	W113:09.77	N56:36.71	W113:09.77	58.87	109.03
T1232.0	N55:37.84	W113:10.16	N56:36.71	W113:10.16	58.87	109.03
T1233.0	N55:37.84	W113:10.55	N56:36.71	W113:10.55	58.87	109.03
T1234.0	N55:37.84	W113:10.94	N56:36.71	W113:10.94	58.87	109.03
T1235.0	N55:37.84	W113:11.33	N56:36.71	W113:11.33	58.87	109.03
T1236.0	N55:37.84	W113:11.72	N56:36.71	W113:11.72	58.87	109.03
T1237.0	N55:37.84	W113:12.11	N56:36.71	W113:12.11	58.87	109.03
T1238.0	N55:37.84	W113:12.51	N56:36.71	W113:12.51	58.87	109.03
T1239.0	N55:37.84	W113:12.90	N56:36.71	W113:12.90	58.87	109.03
T1240.0	N55:37.84	W113:13.29	N56:36.71	W113:13.29	58.87	109.03
T1241.0	N55:37.84	W113:13.68	N56:36.71	W113:13.68	58.87	109.03
T1242.0	N55:37.84	W113:14.07	N56:36.71	W113:14.07	58.87	109.03
T1243.0	N55:37.84	W113:14.46	N56:36.71	W113:14.46	58.87	109.03
T1244.0	N55:37.84	W113:14.85	N56:36.71	W113:14.85	58.87	109.03
T1245.0	N55:37.84	W113:15.24	N56:36.71	W113:15.24	58.87	109.03
T1246.0	N55:37.84	W113:15.63	N56:36.71	W113:15.63	58.87	109.03
T1247.0	N55:37.84	W113:16.02	N56:36.71	W113:16.02	58.87	109.03
T1248.0	N55:37.84	W113:16.41	N56:36.71	W113:16.41	58.87	109.03
T1249.0	N55:37.84	W113:16.81	N56:36.71	W113:16.81	58.87	109.03
T1250.0	N55:37.84	W113:17.20	N56:36.71	W113:17.20	58.87	109.03
T1251.0	N55:37.84	W113:17.59	N56:36.71	W113:17.59	58.87	109.03
T1252.0	N55:37.84	W113:17.98	N56:36.71	W113:17.98	58.87	109.03
T1253.0	N55:37.84	W113:18.37	N56:36.71	W113:18.37	58.87	109.03
T1254.0	N55:37.84	W113:18.76	N56:36.71	W113:18.76	58.87	109.03
T1255.0	N55:37.84	W113:19.15	N56:36.71	W113:19.15	58.87	109.03
T1256.0	N55:37.84	W113:19.54	N56:36.71	W113:19.54	58.87	109.03
T1257.0	N55:37.84	W113:19.93	N56:36.71	W113:19.93	58.87	109.03
T1258.0	N55:37.84	W113:20.32	N56:36.71	W113:20.32	58.87	109.03
T1259.0	N55:37.84	W113:20.71	N56:36.71	W113:20.71	58.87	109.03
T1260.0	N55:37.84	W113:21.11	N56:36.71	W113:21.11	58.87	109.03

SEGMENT NO	START LAT	START LONG	END LAT	END LONG	LENGTH NM	LENGTH KM
T1261.0	N55:37.84	W113:21.50	N56:36.71	W113:21.50	58.87	109.03
T1262.0	N55:37.84	W113:21.89	N56:36.71	W113:21.89	58.87	109.03
T1263.0	N55:37.84	W113:22.28	N56:36.71	W113:22.28	58.87	109.03
T1264.0	N55:37.84	W113:22.67	N56:36.71	W113:22.67	58.87	109.03
T1265.0	N55:37.84	W113:23.06	N56:36.71	W113:23.06	58.87	109.03
T1266.0	N55:37.84	W113:23.45	N56:36.71	W113:23.45	58.87	109.03
T1267.0	N55:37.84	W113:23.84	N56:36.71	W113:23.84	58.87	109.03
T1268.0	N55:37.84	W113:24.23	N56:36.71	W113:24.23	58.87	109.03
T1269.0	N55:37.84	W113:24.62	N56:36.71	W113:24.62	58.87	109.03
T1270.0	N55:37.84	W113:25.01	N56:36.71	W113:25.01	58.87	109.03
T1271.0	N55:37.84	W113:25.41	N56:36.71	W113:25.41	58.87	109.03
T1272.0	N55:37.84	W113:25.80	N56:36.71	W113:25.80	58.87	109.03
T1273.0	N55:37.84	W113:26.19	N56:36.71	W113:26.19	58.87	109.03
T1274.0	N55:37.84	W113:26.58	N56:36.71	W113:26.58	58.87	109.03
T1275.0	N55:37.84	W113:26.97	N56:36.71	W113:26.97	58.87	109.03
T1276.0	N55:37.84	W113:27.36	N56:36.71	W113:27.36	58.87	109.03
T1277.0	N55:37.84	W113:27.75	N56:36.71	W113:27.75	58.87	109.03
T1278.0	N55:37.84	W113:28.14	N56:36.71	W113:28.14	58.87	109.03
T1279.0	N55:37.84	W113:28.53	N56:36.71	W113:28.53	58.87	109.03
T1280.0	N55:37.84	W113:28.92	N56:36.71	W113:28.92	58.87	109.03
T1281.0	N55:37.84	W113:29.31	N56:36.71	W113:29.31	58.87	109.03
T1282.0	N55:37.84	W113:29.70	N56:36.71	W113:29.70	58.87	109.03
T1283.0	N55:37.84	W113:30.10	N56:36.71	W113:30.10	58.87	109.03
T1284.0	N55:37.84	W113:30.49	N56:00.16	W113:30.49	22.32	41.34
T1285.0	N55:37.84	W113:30.88	N56:00.16	W113:30.88	22.32	41.34
T1286.0	N55:37.84	W113:31.27	N56:00.16	W113:31.27	22.32	41.34
T1287.0	N55:37.84	W113:31.66	N56:00.16	W113:31.66	22.32	41.34
T1288.0	N55:37.84	W113:32.05	N56:00.16	W113:32.05	22.32	41.34
T1289.0	N55:37.84	W113:32.44	N56:00.16	W113:32.44	22.32	41.34
T1290.0	N55:37.84	W113:32.83	N56:00.16	W113:32.83	22.32	41.34
T1291.0	N55:37.84	W113:33.22	N56:00.16	W113:33.22	22.32	41.34
T1292.0	N55:37.84	W113:33.61	N56:00.16	W113:33.61	22.32	41.34
T1293.0	N55:37.84	W113:34.00	N56:00.16	W113:34.00	22.32	41.34
T1294.0	N55:37.84	W113:34.40	N56:00.16	W113:34.40	22.32	41.34
T1295.0	N55:37.84	W113:34.79	N56:00.16	W113:34.79	22.32	41.34
T1296.0	N55:37.84	W113:35.18	N56:00.16	W113:35.18	22.32	41.34
T1297.0	N55:37.84	W113:35.57	N56:00.16	W113:35.57	22.32	41.34
T1298.0	N55:37.84	W113:35.96	N56:00.16	W113:35.96	22.32	41.34
T1299.0	N55:37.84	W113:36.35	N56:00.16	W113:36.35	22.32	41.34
T1300.0	N55:37.84	W113:36.74	N56:00.16	W113:36.74	22.32	41.34
T1301.0	N55:37.84	W113:37.13	N56:00.16	W113:37.13	22.32	41.34
T1302.0	N55:37.84	W113:37.52	N56:00.16	W113:37.52	22.32	41.34
T1303.0	N55:37.84	W113:37.91	N56:00.16	W113:37.91	22.32	41.34
T1304.0	N55:37.84	W113:38.30	N56:00.16	W113:38.30	22.32	41.34
T1305.0	N55:37.84	W113:38.70	N56:00.16	W113:38.70	22.32	41.34
T1306.0	N55:37.84	W113:39.09	N56:00.16	W113:39.09	22.32	41.34
T1307.0	N55:37.84	W113:39.48	N56:00.16	W113:39.48	22.32	41.34
T1308.0	N55:37.84	W113:39.87	N56:00.16	W113:39.87	22.32	41.34
T1309.0	N55:37.84	W113:40.26	N56:00.16	W113:40.26	22.32	41.34
T1310.0	N55:37.84	W113:40.65	N56:00.16	W113:40.65	22.32	41.34

SEGMENT NO	START LAT	START LONG	END LAT	END LONG	LENGTH NM	LENGTH KM
T1311.0	N55:37.84	W113:41.04	N56:00.16	W113:41.04	22.32	41.34
T1312.0	N55:37.84	W113:41.43	N56:00.16	W113:41.43	22.32	41.34
T1313.0	N55:37.84	W113:41.82	N56:00.16	W113:41.82	22.32	41.34
T1314.0	N55:37.84	W113:42.21	N56:00.16	W113:42.21	22.32	41.34
T1315.0	N55:37.84	W113:42.60	N56:00.16	W113:42.60	22.32	41.34
T1316.0	N55:37.84	W113:43.00	N56:00.16	W113:43.00	22.32	41.34
T1317.0	N55:37.84	W113:43.39	N56:00.16	W113:43.39	22.32	41.34
T1318.0	N55:37.84	W113:43.78	N56:00.16	W113:43.78	22.32	41.34
T1319.0	N55:37.84	W113:44.17	N56:00.16	W113:44.17	22.32	41.34
T1320.0	N55:37.84	W113:44.56	N56:00.16	W113:44.56	22.32	41.34
T1321.0	N55:37.84	W113:44.95	N56:00.16	W113:44.95	22.32	41.34
T1322.0	N55:37.84	W113:45.34	N56:00.16	W113:45.34	22.32	41.34
T1323.0	N55:37.84	W113:45.73	N56:00.16	W113:45.73	22.32	41.34
T1324.0	N55:37.84	W113:46.12	N56:00.16	W113:46.12	22.32	41.34
T1325.0	N55:37.84	W113:46.51	N56:00.16	W113:46.51	22.32	41.34
T1326.0	N55:37.84	W113:46.90	N56:00.16	W113:46.90	22.32	41.34
T1327.0	N55:37.84	W113:47.29	N56:00.16	W113:47.29	22.32	41.34
T1328.0	N55:37.84	W113:47.69	N56:00.16	W113:47.69	22.32	41.34
T1329.0	N55:37.84	W113:48.08	N56:00.16	W113:48.08	22.32	41.34
T1330.0	N55:37.84	W113:48.47	N56:00.16	W113:48.47	22.32	41.34
T1331.0	N55:37.84	W113:48.86	N56:00.16	W113:48.86	22.32	41.34
T1332.0	N55:37.84	W113:49.25	N56:00.16	W113:49.25	22.32	41.34
T1333.0	N55:37.84	W113:49.64	N56:00.16	W113:49.64	22.32	41.34
T1334.0	N55:37.84	W113:50.03	N56:00.16	W113:50.03	22.32	41.34
T1335.0	N55:37.84	W113:50.42	N56:00.16	W113:50.42	22.32	41.34
T1336.0	N55:37.84	W113:50.81	N56:00.16	W113:50.81	22.32	41.34
T1337.0	N55:37.84	W113:51.20	N56:00.16	W113:51.20	22.32	41.34
T1338.0	N55:37.84	W113:51.59	N56:00.16	W113:51.59	22.32	41.34
T1339.0	N55:37.84	W113:51.99	N56:00.16	W113:51.99	22.32	41.34
T1340.0	N55:37.84	W113:52.38	N56:00.16	W113:52.38	22.32	41.34
T1341.0	N55:37.84	W113:52.77	N56:00.16	W113:52.77	22.32	41.34
T1342.0	N55:37.84	W113:53.16	N56:00.16	W113:53.16	22.32	41.34
T1343.0	N55:37.84	W113:53.55	N56:00.16	W113:53.55	22.32	41.34
T1344.0	N55:37.84	W113:53.94	N56:00.16	W113:53.94	22.32	41.34
T1345.0	N55:37.84	W113:54.33	N56:00.16	W113:54.33	22.32	41.34
T1346.0	N55:37.84	W113:54.72	N56:00.16	W113:54.72	22.32	41.34
T1347.0	N55:37.84	W113:55.11	N56:00.16	W113:55.11	22.32	41.34
T1348.0	N55:37.84	W113:55.50	N56:00.16	W113:55.50	22.32	41.34
T1349.0	N55:37.84	W113:55.89	N56:00.16	W113:55.89	22.32	41.34
T1350.0	N55:37.84	W113:56.29	N56:00.16	W113:56.29	22.32	41.34
T1351.0	N55:37.84	W113:56.68	N56:00.16	W113:56.68	22.32	41.34
T1352.0	N55:37.84	W113:57.07	N56:00.16	W113:57.07	22.32	41.34
T1353.0	N55:37.84	W113:57.46	N56:00.16	W113:57.46	22.32	41.34
T1354.0	N55:37.84	W113:57.85	N56:00.16	W113:57.85	22.32	41.34
T1355.0	N55:37.84	W113:58.24	N56:00.16	W113:58.24	22.32	41.34
T1356.0	N55:37.84	W113:58.63	N56:00.16	W113:58.63	22.32	41.34
T1357.0	N55:37.84	W113:59.02	N56:00.16	W113:59.02	22.32	41.34
T1358.0	N55:37.84	W113:59.41	N56:00.16	W113:59.41	22.32	41.34
T1359.0	N55:37.84	W113:59.80	N56:00.16	W113:59.80	22.32	41.34
T1360.0	N55:37.84	W114:00.19	N56:00.16	W114:00.19	22.32	41.34

SEGMENT NO	START LAT	START LONG	END LAT	END LONG	LENGTH NM	LENGTH KM
T1361.0	N55:37.84	W114:00.58	N56:00.16	W114:00.58	22.32	41.34
T1362.0	N55:37.84	W114:00.98	N56:00.16	W114:00.98	22.32	41.34
T1363.0	N55:37.84	W114:01.37	N56:00.16	W114:01.37	22.32	41.34
T1364.0	N55:37.84	W114:01.76	N56:00.16	W114:01.76	22.32	41.34
T1365.0	N55:37.84	W114:02.15	N56:00.16	W114:02.15	22.32	41.34
T1366.0	N55:37.84	W114:02.54	N56:00.16	W114:02.54	22.32	41.34
T1367.0	N55:37.84	W114:02.93	N56:00.16	W114:02.93	22.32	41.34
T1368.0	N55:37.84	W114:03.32	N56:00.16	W114:03.32	22.32	41.34
T1369.0	N55:37.84	W114:03.71	N56:00.16	W114:03.71	22.32	41.34
T1370.0	N55:37.84	W114:04.10	N56:00.16	W114:04.10	22.32	41.34
T1371.0	N55:37.84	W114:04.49	N56:00.16	W114:04.49	22.32	41.34
T1372.0	N55:37.84	W114:04.88	N56:00.16	W114:04.88	22.32	41.34
T1373.0	N55:37.84	W114:05.28	N56:00.16	W114:05.28	22.32	41.34
T1374.0	N55:37.84	W114:05.67	N56:00.16	W114:05.67	22.32	41.34
T1375.0	N55:37.84	W114:06.06	N56:00.16	W114:06.06	22.32	41.34
T1376.0	N55:37.84	W114:06.45	N56:00.16	W114:06.45	22.32	41.34
T1377.0	N55:37.84	W114:06.84	N56:00.16	W114:06.84	22.32	41.34
T1378.0	N55:37.84	W114:07.23	N56:00.16	W114:07.23	22.32	41.34
T1379.0	N55:37.84	W114:07.62	N56:00.16	W114:07.62	22.32	41.34
T1380.0	N55:37.84	W114:08.01	N56:00.16	W114:08.01	22.32	41.34
T1381.0	N55:37.84	W114:08.40	N56:00.16	W114:08.40	22.32	41.34
T1382.0	N55:37.84	W114:08.79	N56:00.16	W114:08.79	22.32	41.34
T1383.0	N55:37.84	W114:09.18	N56:00.16	W114:09.18	22.32	41.34
T1384.0	N55:37.84	W114:09.58	N56:00.16	W114:09.58	22.32	41.34
T1385.0	N55:37.84	W114:09.97	N56:00.16	W114:09.97	22.32	41.34

Total control line length = 4470.52 nautical miles
= 8279.41 kilometres.

Total traverse line length = 22025.62 nautical miles
= 40791.46 kilometres.

Total length of all lines = 26496.15 nautical miles
= 49070.86 kilometres.

HIGH SENSITIVITY AEROMAGNETIC SURVEY
FORT MCMURRAY, ALBERTA 1998
BLOCK G

SURVEY LINE COORDINATES
WGS-84

SEGMENT	START		END		LENGTH	
NO	LAT	LONG	LAT	LONG	NM	KM
C0201.0	N56:46.21	W110:01.95	N56:46.80	W111:18.09	41.81	77.43
C0202.0	N56:47.29	W110:01.92	N56:47.88	W111:18.06	41.79	77.39
C0203.0	N56:48.37	W110:01.89	N56:48.96	W111:18.03	41.77	77.36
C0204.0	N56:49.45	W110:01.86	N56:50.04	W111:18.01	41.75	77.32
C0205.0	N56:50.53	W110:01.84	N56:51.12	W111:17.98	41.73	77.28
C0206.0	N56:51.61	W110:01.81	N56:52.20	W111:17.95	41.71	77.24
C0207.0	N56:52.69	W110:01.78	N56:53.28	W111:17.92	41.69	77.21
C0208.0	N56:53.76	W110:01.75	N56:54.36	W111:17.90	41.67	77.17
C0209.0	N56:54.84	W110:01.72	N56:55.31	W111:00.81	32.32	59.86
C0210.0	N56:55.92	W110:01.70	N56:56.38	W111:00.78	32.31	59.83
C0211.0	N56:57.00	W110:01.67	N56:57.46	W111:00.76	32.29	59.80
C0212.0	N56:58.08	W110:01.64	N56:58.54	W111:00.73	32.27	59.77
C0213.0	N56:59.16	W110:01.61	N56:59.62	W111:00.70	32.26	59.74
C0214.0	N57:00.24	W110:01.58	N57:00.70	W111:00.67	32.24	59.71
C0215.0	N57:01.32	W110:01.55	N57:01.78	W111:00.64	32.23	59.69
C0216.0	N57:02.40	W110:01.53	N57:02.86	W111:00.62	32.21	59.66
C0217.0	N57:03.48	W110:01.50	N57:03.94	W111:00.59	32.20	59.63
C0218.0	N57:04.56	W110:01.47	N57:05.02	W111:00.56	32.18	59.60
C0219.0	N57:05.64	W110:01.44	N57:06.10	W111:00.53	32.17	59.57
C0220.0	N57:06.72	W110:01.41	N57:07.18	W111:00.50	32.15	59.54
C0221.0	N57:07.80	W110:01.38	N57:08.26	W111:00.47	32.13	59.51
C0222.0	N57:08.88	W110:01.36	N57:09.34	W111:00.45	32.12	59.48
C0223.0	N57:09.96	W110:01.33	N57:10.42	W111:00.42	32.10	59.45
C0224.0	N57:11.04	W110:01.30	N57:11.50	W111:00.39	32.09	59.43
C0225.0	N57:12.12	W110:01.27	N57:12.58	W111:00.36	32.07	59.40
C0226.0	N57:13.20	W110:01.24	N57:13.66	W111:00.33	32.06	59.37
C0227.0	N57:14.28	W110:01.21	N57:14.74	W111:00.31	32.04	59.34
C0228.0	N57:15.36	W110:01.18	N57:15.82	W111:00.28	32.03	59.31
C0229.0	N57:16.44	W110:01.16	N57:16.90	W111:00.25	32.01	59.28
C0230.0	N57:17.52	W110:01.13	N57:17.98	W111:00.22	31.99	59.25
C0231.0	N57:18.60	W110:01.10	N57:19.06	W111:00.19	31.98	59.22
C0232.0	N57:19.68	W110:01.07	N57:20.14	W111:00.16	31.96	59.19
C0233.0	N57:20.76	W110:01.04	N57:21.22	W111:00.14	31.95	59.17
C0234.0	N57:21.84	W110:01.01	N57:22.29	W111:00.11	31.93	59.14
C0235.0	N57:22.92	W110:00.99	N57:23.37	W111:00.08	31.92	59.11
T2001.0	N56:46.10	W110:02.15	N57:23.03	W110:01.18	36.93	68.40
T2002.0	N56:46.10	W110:02.54	N57:23.03	W110:01.58	36.93	68.40
T2003.0	N56:46.10	W110:02.94	N57:23.04	W110:01.98	36.94	68.41
T2004.0	N56:46.10	W110:03.34	N57:23.04	W110:02.37	36.94	68.41
T2005.0	N56:46.10	W110:03.73	N57:23.04	W110:02.77	36.94	68.41
T2006.0	N56:46.11	W110:04.13	N57:23.04	W110:03.16	36.94	68.42
T2007.0	N56:46.11	W110:04.53	N57:23.05	W110:03.56	36.94	68.42
T2008.0	N56:46.11	W110:04.92	N57:23.05	W110:03.96	36.95	68.43

SEGMENT NO	START LAT	START LONG	END LAT	END LONG	LENGTH NM	LENGTH KM
T2009.0	N56:46.11	W110:05.32	N57:23.05	W110:04.35	36.95	68.43
T2010.0	N56:46.11	W110:05.72	N57:23.06	W110:04.75	36.95	68.43
T2011.0	N56:46.11	W110:06.11	N57:23.06	W110:05.15	36.95	68.44
T2012.0	N56:46.11	W110:06.51	N57:23.06	W110:05.54	36.95	68.44
T2013.0	N56:46.11	W110:06.91	N57:23.07	W110:05.94	36.96	68.44
T2014.0	N56:46.11	W110:07.30	N57:23.07	W110:06.34	36.96	68.45
T2015.0	N56:46.11	W110:07.70	N57:23.07	W110:06.73	36.96	68.45
T2016.0	N56:46.12	W110:08.10	N57:23.07	W110:07.13	36.96	68.45
T2017.0	N56:46.12	W110:08.49	N57:23.08	W110:07.53	36.96	68.46
T2018.0	N56:46.12	W110:08.89	N57:23.08	W110:07.92	36.97	68.46
T2019.0	N56:46.12	W110:09.29	N57:23.08	W110:08.32	36.97	68.47
T2020.0	N56:46.12	W110:09.68	N57:23.09	W110:08.72	36.97	68.47
T2021.0	N56:46.12	W110:10.08	N57:23.09	W110:09.11	36.97	68.47
T2022.0	N56:46.12	W110:10.48	N57:23.09	W110:09.51	36.97	68.48
T2023.0	N56:46.12	W110:10.87	N57:23.10	W110:09.91	36.98	68.48
T2024.0	N56:46.12	W110:11.27	N57:23.10	W110:10.30	36.98	68.48
T2025.0	N56:46.13	W110:11.67	N57:23.10	W110:10.70	36.98	68.49
T2026.0	N56:46.13	W110:12.06	N57:23.11	W110:11.10	36.98	68.49
T2027.0	N56:46.13	W110:12.46	N57:23.11	W110:11.49	36.98	68.50
T2028.0	N56:46.13	W110:12.86	N57:23.11	W110:11.89	36.99	68.50
T2029.0	N56:46.13	W110:13.25	N57:23.11	W110:12.29	36.99	68.50
T2030.0	N56:46.13	W110:13.65	N57:23.12	W110:12.68	36.99	68.51
T2031.0	N56:46.13	W110:14.05	N57:23.12	W110:13.08	36.99	68.51
T2032.0	N56:46.13	W110:14.44	N57:23.12	W110:13.48	36.99	68.51
T2033.0	N56:46.13	W110:14.84	N57:23.13	W110:13.87	37.00	68.52
T2034.0	N56:46.14	W110:15.24	N57:23.13	W110:14.27	37.00	68.52
T2035.0	N56:46.14	W110:15.63	N57:23.13	W110:14.66	37.00	68.52
T2036.0	N56:46.14	W110:16.03	N57:23.14	W110:15.06	37.00	68.53
T2037.0	N56:46.14	W110:16.43	N57:23.14	W110:15.46	37.00	68.53
T2038.0	N56:46.14	W110:16.82	N57:23.14	W110:15.85	37.01	68.54
T2039.0	N56:46.14	W110:17.22	N57:23.15	W110:16.25	37.01	68.54
T2040.0	N56:46.14	W110:17.62	N57:23.15	W110:16.65	37.01	68.54
T2041.0	N56:46.14	W110:18.01	N57:23.15	W110:17.04	37.01	68.55
T2042.0	N56:46.14	W110:18.41	N57:23.15	W110:17.44	37.01	68.55
T2043.0	N56:46.14	W110:18.81	N57:23.16	W110:17.84	37.02	68.55
T2044.0	N56:46.15	W110:19.20	N57:23.16	W110:18.23	37.02	68.56
T2045.0	N56:46.15	W110:19.60	N57:23.16	W110:18.63	37.02	68.56
T2046.0	N56:46.15	W110:20.00	N57:23.17	W110:19.03	37.02	68.57
T2047.0	N56:46.15	W110:20.39	N57:23.17	W110:19.42	37.02	68.57
T2048.0	N56:46.15	W110:20.79	N57:23.17	W110:19.82	37.03	68.57
T2049.0	N56:46.15	W110:21.19	N57:23.18	W110:20.22	37.03	68.58
T2050.0	N56:46.15	W110:21.58	N57:23.18	W110:20.61	37.03	68.58
T2051.0	N56:46.15	W110:21.98	N57:23.18	W110:21.01	37.03	68.58
T2052.0	N56:46.15	W110:22.37	N57:23.18	W110:21.41	37.03	68.59
T2053.0	N56:46.16	W110:22.77	N57:23.19	W110:21.80	37.04	68.59
T2054.0	N56:46.16	W110:23.17	N57:23.19	W110:22.20	37.04	68.59
T2055.0	N56:46.16	W110:23.56	N57:23.19	W110:22.60	37.04	68.60
T2056.0	N56:46.16	W110:23.96	N57:23.20	W110:22.99	37.04	68.60
T2057.0	N56:46.16	W110:24.36	N57:23.20	W110:23.39	37.04	68.61
T2058.0	N56:46.16	W110:24.75	N57:23.20	W110:23.79	37.05	68.61
T2059.0	N56:46.16	W110:25.15	N57:23.21	W110:24.18	37.05	68.61

SEGMENT NO	START LAT	START LONG	END LAT	END LONG	LENGTH NM	LENGTH KM
T2060.0	N56:46.16	W110:25.55	N57:23.21	W110:24.58	37.05	68.62
T2061.0	N56:46.16	W110:25.94	N57:23.21	W110:24.98	37.05	68.62
T2062.0	N56:46.16	W110:26.34	N57:23.22	W110:25.37	37.05	68.62
T2063.0	N56:46.17	W110:26.74	N57:23.22	W110:25.77	37.06	68.63
T2064.0	N56:46.17	W110:27.13	N57:23.22	W110:26.17	37.06	68.63
T2065.0	N56:46.17	W110:27.53	N57:23.22	W110:26.56	37.06	68.64
T2066.0	N56:46.17	W110:27.93	N57:23.23	W110:26.96	37.06	68.64
T2067.0	N56:46.17	W110:28.32	N57:23.23	W110:27.35	37.06	68.64
T2068.0	N56:46.17	W110:28.72	N57:23.23	W110:27.75	37.07	68.65
T2069.0	N56:46.17	W110:29.12	N57:23.24	W110:28.15	37.07	68.65
T2070.0	N56:46.17	W110:29.51	N57:23.24	W110:28.54	37.07	68.65
T2071.0	N56:46.17	W110:29.91	N57:23.24	W110:28.94	37.07	68.66
T2072.0	N56:46.18	W110:30.31	N57:23.25	W110:29.34	37.07	68.66
T2073.0	N56:46.18	W110:30.70	N57:23.25	W110:29.73	37.08	68.66
T2074.0	N56:46.18	W110:31.10	N57:23.25	W110:30.13	37.08	68.67
T2075.0	N56:46.18	W110:31.50	N57:23.25	W110:30.53	37.08	68.67
T2076.0	N56:46.18	W110:31.89	N57:23.26	W110:30.92	37.08	68.68
T2077.0	N56:46.18	W110:32.29	N57:23.26	W110:31.32	37.08	68.68
T2078.0	N56:46.18	W110:32.69	N57:23.26	W110:31.72	37.09	68.68
T2079.0	N56:46.18	W110:33.08	N57:23.27	W110:32.11	37.09	68.69
T2080.0	N56:46.18	W110:33.48	N57:23.27	W110:32.51	37.09	68.69
T2081.0	N56:46.19	W110:33.88	N57:23.27	W110:32.91	37.09	68.69
T2082.0	N56:46.19	W110:34.27	N57:23.28	W110:33.30	37.09	68.70
T2083.0	N56:46.19	W110:34.67	N57:23.28	W110:33.70	37.10	68.70
T2084.0	N56:46.19	W110:35.07	N57:23.28	W110:34.10	37.10	68.71
T2085.0	N56:46.19	W110:35.46	N57:23.29	W110:34.49	37.10	68.71
T2086.0	N56:46.19	W110:35.86	N57:23.29	W110:34.89	37.10	68.71
T2087.0	N56:46.19	W110:36.26	N57:23.29	W110:35.29	37.10	68.72
T2088.0	N56:46.19	W110:36.65	N57:23.29	W110:35.68	37.11	68.72
T2089.0	N56:46.19	W110:37.05	N57:23.30	W110:36.08	37.11	68.72
T2090.0	N56:46.19	W110:37.45	N57:23.30	W110:36.48	37.11	68.73
T2091.0	N56:46.20	W110:37.84	N57:23.30	W110:36.87	37.11	68.73
T2092.0	N56:46.20	W110:38.24	N57:23.31	W110:37.27	37.11	68.73
T2093.0	N56:46.20	W110:38.64	N57:23.31	W110:37.67	37.12	68.74
T2094.0	N56:46.20	W110:39.03	N57:23.31	W110:38.06	37.12	68.74
T2095.0	N56:46.20	W110:39.43	N57:23.32	W110:38.46	37.12	68.75
T2096.0	N56:46.20	W110:39.83	N57:23.32	W110:38.86	37.12	68.75
T2097.0	N56:46.20	W110:40.22	N57:23.32	W110:39.25	37.12	68.75
T2098.0	N56:46.20	W110:40.62	N57:23.33	W110:39.65	37.13	68.76
T2099.0	N56:46.20	W110:41.02	N57:23.33	W110:40.05	37.13	68.76
T2100.0	N56:46.21	W110:41.41	N57:23.33	W110:40.44	37.13	68.76
T2101.0	N56:46.21	W110:41.81	N57:23.33	W110:40.84	37.13	68.77
T2102.0	N56:46.21	W110:42.21	N57:23.34	W110:41.24	37.13	68.77
T2103.0	N56:46.21	W110:42.60	N57:23.34	W110:41.63	37.14	68.78
T2104.0	N56:46.21	W110:43.00	N57:23.34	W110:42.03	37.14	68.78
T2105.0	N56:46.21	W110:43.40	N57:23.35	W110:42.43	37.14	68.78
T2106.0	N56:46.21	W110:43.79	N57:23.35	W110:42.82	37.14	68.79
T2107.0	N56:46.21	W110:44.19	N57:23.35	W110:43.22	37.14	68.79
T2108.0	N56:46.21	W110:44.59	N57:23.36	W110:43.61	37.15	68.79
T2109.0	N56:46.21	W110:44.98	N57:23.36	W110:44.01	37.15	68.80
T2110.0	N56:46.22	W110:45.38	N57:23.36	W110:44.41	37.15	68.80

SEGMENT NO	START LAT	START LONG	END LAT	END LONG	LENGTH NM	LENGTH KM
T2111.0	N56:46.22	W110:45.78	N57:23.36	W110:44.80	37.15	68.80
T2112.0	N56:46.22	W110:46.17	N57:23.37	W110:45.20	37.15	68.81
T2113.0	N56:46.22	W110:46.57	N57:23.37	W110:45.60	37.16	68.81
T2114.0	N56:46.22	W110:46.97	N57:23.37	W110:45.99	37.16	68.82
T2115.0	N56:46.22	W110:47.36	N57:23.38	W110:46.39	37.16	68.82
T2116.0	N56:46.22	W110:47.76	N57:23.38	W110:46.79	37.16	68.82
T2117.0	N56:46.22	W110:48.16	N57:23.38	W110:47.18	37.16	68.83
T2118.0	N56:46.22	W110:48.55	N57:23.39	W110:47.58	37.17	68.83
T2119.0	N56:46.23	W110:48.95	N57:23.39	W110:47.98	37.17	68.83
T2120.0	N56:46.23	W110:49.35	N57:23.39	W110:48.37	37.17	68.84
T2121.0	N56:46.23	W110:49.74	N57:23.40	W110:48.77	37.17	68.84
T2122.0	N56:46.23	W110:50.14	N57:23.40	W110:49.17	37.17	68.85
T2123.0	N56:46.23	W110:50.54	N57:23.40	W110:49.56	37.18	68.85
T2124.0	N56:46.23	W110:50.93	N57:23.40	W110:49.96	37.18	68.85
T2125.0	N56:46.23	W110:51.33	N57:23.41	W110:50.36	37.18	68.86
T2126.0	N56:46.23	W110:51.73	N57:23.41	W110:50.75	37.18	68.86
T2127.0	N56:46.23	W110:52.12	N57:23.41	W110:51.15	37.18	68.86
T2128.0	N56:46.24	W110:52.52	N57:23.42	W110:51.55	37.19	68.87
T2129.0	N56:46.24	W110:52.92	N57:23.42	W110:51.94	37.19	68.87
T2130.0	N56:46.24	W110:53.31	N57:23.42	W110:52.34	37.19	68.87
T2131.0	N56:46.24	W110:53.71	N57:23.43	W110:52.74	37.19	68.88
T2132.0	N56:46.24	W110:54.11	N57:23.43	W110:53.13	37.19	68.88
T2133.0	N56:46.24	W110:54.50	N57:23.43	W110:53.53	37.20	68.89
T2134.0	N56:46.24	W110:54.90	N57:23.43	W110:53.93	37.20	68.89
T2135.0	N56:46.24	W110:55.30	N57:23.44	W110:54.32	37.20	68.89
T2136.0	N56:46.24	W110:55.69	N57:23.44	W110:54.72	37.20	68.90
T2137.0	N56:46.24	W110:56.09	N57:23.44	W110:55.12	37.20	68.90
T2138.0	N56:46.25	W110:56.49	N57:23.45	W110:55.51	37.21	68.90
T2139.0	N56:46.25	W110:56.88	N57:23.45	W110:55.91	37.21	68.91
T2140.0	N56:46.25	W110:57.28	N57:23.45	W110:56.31	37.21	68.91
T2141.0	N56:46.25	W110:57.68	N57:23.46	W110:56.70	37.21	68.91
T2142.0	N56:46.25	W110:58.07	N57:23.46	W110:57.10	37.21	68.92
T2143.0	N56:46.25	W110:58.47	N57:23.46	W110:57.50	37.22	68.92
T2144.0	N56:46.25	W110:58.87	N57:23.47	W110:57.89	37.22	68.93
T2145.0	N56:46.25	W110:59.26	N57:23.47	W110:58.29	37.22	68.93
T2146.0	N56:46.25	W110:59.66	N57:23.47	W110:58.69	37.22	68.93
T2147.0	N56:46.26	W111:00.06	N57:23.47	W110:59.08	37.22	68.94
T2148.0	N56:46.26	W111:00.45	N57:23.48	W110:59.48	37.23	68.94
T2149.0	N56:46.26	W111:00.85	N57:23.48	W110:59.88	37.23	68.94
T2150.0	N56:46.26	W111:01.25	N56:54.35	W111:01.04	8.10	14.99
T2151.0	N56:46.26	W111:01.64	N56:54.35	W111:01.43	8.10	14.99
T2152.0	N56:46.26	W111:02.04	N56:54.35	W111:01.83	8.09	14.99
T2153.0	N56:46.26	W111:02.44	N56:54.35	W111:02.23	8.09	14.99
T2154.0	N56:46.26	W111:02.83	N56:54.35	W111:02.62	8.09	14.98
T2155.0	N56:46.26	W111:03.23	N56:54.35	W111:03.02	8.09	14.98
T2156.0	N56:46.26	W111:03.63	N56:54.35	W111:03.42	8.09	14.98
T2157.0	N56:46.27	W111:04.02	N56:54.36	W111:03.81	8.09	14.99
T2158.0	N56:46.27	W111:04.42	N56:54.36	W111:04.21	8.09	14.99
T2159.0	N56:46.27	W111:04.82	N56:54.36	W111:04.61	8.10	14.99
T2160.0	N56:46.27	W111:05.21	N56:54.37	W111:05.00	8.10	15.00
T2161.0	N56:46.27	W111:05.61	N56:54.37	W111:05.40	8.10	15.00

SEGMENT NO	START LAT	START LONG	END LAT	END LONG	LENGTH NM	LENGTH KM
T2162.0	N56:46.27	W111:06.01	N56:54.37	W111:05.80	8.10	15.00
T2163.0	N56:46.27	W111:06.40	N56:54.38	W111:06.19	8.10	15.01
T2164.0	N56:46.27	W111:06.80	N56:54.38	W111:06.59	8.11	15.01
T2165.0	N56:46.27	W111:07.20	N56:54.38	W111:06.99	8.11	15.02
T2166.0	N56:46.28	W111:07.59	N56:54.38	W111:07.38	8.11	15.02
T2167.0	N56:46.28	W111:07.99	N56:54.39	W111:07.78	8.11	15.02
T2168.0	N56:46.28	W111:08.39	N56:54.39	W111:08.18	8.11	15.03
T2169.0	N56:46.28	W111:08.78	N56:54.39	W111:08.57	8.12	15.03
T2170.0	N56:46.28	W111:09.18	N56:54.40	W111:08.97	8.12	15.03
T2171.0	N56:46.28	W111:09.58	N56:54.40	W111:09.37	8.12	15.04
T2172.0	N56:46.28	W111:09.97	N56:54.40	W111:09.76	8.12	15.04
T2173.0	N56:46.28	W111:10.37	N56:54.41	W111:10.16	8.12	15.05
T2174.0	N56:46.28	W111:10.77	N56:54.41	W111:10.56	8.13	15.05
T2175.0	N56:46.29	W111:11.16	N56:54.41	W111:10.95	8.13	15.05
T2176.0	N56:46.29	W111:11.56	N56:54.42	W111:11.35	8.13	15.06
T2177.0	N56:46.29	W111:11.96	N56:54.42	W111:11.75	8.13	15.06
T2178.0	N56:46.29	W111:12.35	N56:54.42	W111:12.14	8.13	15.06
T2179.0	N56:46.29	W111:12.75	N56:54.42	W111:12.54	8.14	15.07
T2180.0	N56:46.29	W111:13.15	N56:54.43	W111:12.94	8.14	15.07
T2181.0	N56:46.29	W111:13.54	N56:54.43	W111:13.33	8.14	15.08
T2182.0	N56:46.29	W111:13.94	N56:54.43	W111:13.73	8.14	15.08
T2183.0	N56:46.29	W111:14.34	N56:54.44	W111:14.13	8.14	15.08
T2184.0	N56:46.29	W111:14.73	N56:54.44	W111:14.52	8.15	15.09
T2185.0	N56:46.30	W111:15.13	N56:54.44	W111:14.92	8.15	15.09
T2186.0	N56:46.30	W111:15.53	N56:54.45	W111:15.31	8.15	15.09
T2187.0	N56:46.30	W111:15.92	N56:54.45	W111:15.71	8.15	15.10
T2188.0	N56:46.30	W111:16.32	N56:54.45	W111:16.11	8.15	15.10
T2189.0	N56:46.30	W111:16.72	N56:54.46	W111:16.50	8.16	15.11
T2190.0	N56:46.30	W111:17.11	N56:54.46	W111:16.90	8.16	15.11
T2191.0	N56:46.30	W111:17.51	N56:54.46	W111:17.30	8.16	15.11
T2192.0	N56:46.38	W111:17.91	N56:54.46	W111:17.69	8.09	14.98

Total control line length = 1201.11 nautical miles
= 2224.46 kilometres.

Total traverse line length = 5874.06 nautical miles
= 10878.76 kilometres.

Total length of all lines = 7075.17 nautical miles
= 13103.22 kilometres.

APPENDIX III

SURVEY EQUIPMENT LIST

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

HIGH RESOLUTION AEROMAGNETIC SURVEY
FORT Mc MURRAY ALBERTA - 1998
EQUIPMENT LIST

AIRCRAFT CESSNA 402B -C-GCKB

Item Name	Serial Number	Description	Manufacturer
Compensator	8705281	AADC II Compensator-dual input	RMS
Magnetometer	75189	G-822A Cesium Magnetometer	Geometrics
Computer	ADAC-002	Acquisition Computer	SGL
Computer	ADAC-014	Acquisition Computer	SGL
Receiver-DGPS	630613	Model6300A	Omnistar
Radar Altimeter	15542	Model KRA 10A	King
Baro Sensor	520762	TJF 1727-01	Sensotec
VCR	H5HB00017	Model 2400	Panasonic
Video Camera	42A00100	Model 5100HS	Panasonic
Flat Panel Display	71-154769	Model LMV10	Datalux
Monitor	G5K001574	Model EM 10	Elmo

AIRCRAFT BN- 2 ISLANDER - C-GSGX

Compensator	9504705	AADC II Compensator dual input	RMS
Magnetometer	75188	G-822A Cesium Magnetometer	Geometrics
Computer	ADAC-006	Acquisition Computer	SGL
Receiver-DGPS	630395	Model 6300A	Omnistar
Radar Altimeter	3575	Model ARINC 429	TRT
Baro Sensor	462078	TJF 1727-01	Sensotec
Video Camera	N953744	CV950N Colour Camera	Costar
VCR	K6WA10021	AG720	Panasonic
Flat Panel Display	71-154626	Model LMV10	Datalux
Monitor	521814	4" LCD Colour monitor	Marshall

GROUND STATION

Item Name	Serial Number	Description	Manufacturer
Computer	GND-12	Lunchbox	SGL
Magnetometer	8609102	G3 Cesium Magnetometer	Scintrex
Printer	KARP70615	Ground Station Printer	Microbilt
Antenna	CGA95140229	GPS Antenna Model #511	Novatel
Coupler	CMC006	Cesium Mag Coupler	SGL

SPARE

Magnetometer	9405003	CS-2 Cesium Magnetometer	Scintrex
Magnetometer	8806101	H-8 Cesium Magnetometer	Scintrex

OFFICE EQUIPMENT

Processing Computer	PENT-11	32 MB ram	
Processing Computer	PENT-16	32 MB ram	
Computer Laptop	NOTE-12	P120/16MB 1.26HD	Toshiba
Monitor	02569	Syncmaster 3 NE 14"	Samsung
Monitor	H8UC100618	VGA 4967 14"	Samsung
Printer	MA515073	DL-3450	Fujitsu
Printer	MA376618	DL-3400	Fujitsu
VCR/TV	K7MD00042	AG500R	Panasonic
Fax/Phone	UMG-06240	Faxphone 18	Canon

APPENDIX IV

SURVEY AIRCRAFT

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

GEOPHYSICAL SURVEY AIRCRAFT

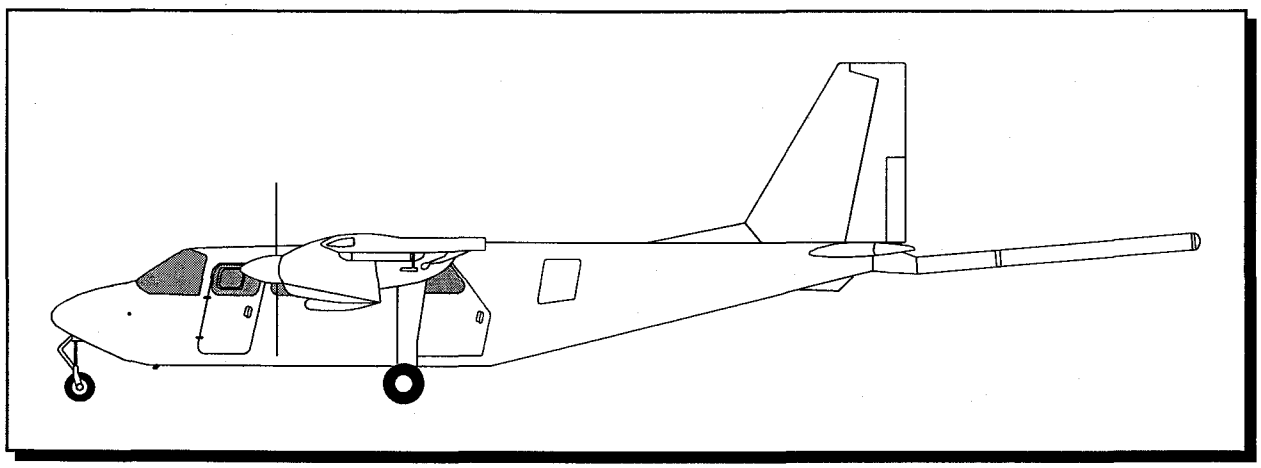
BRITTEN-NORMAN ISLANDER BN2B-21

Registration: C-GSGX
Serial # 596

The BN-2B Islander is an all metal, high wing, twin-engine, short take-off and landing aircraft powered by two fuel injected engines which drive constant speed, fully feathering propellers. The aircraft has fixed tricycle landing gear, extendable flaps and manually adjustable trim tabs on the rudder and elevator. The aircraft is equipped with de-icing equipment and sufficient avionics for instrument flying. Because of its low takeoff speed, high wing, ample propeller clearance, and sturdy fixed landing gear, the Islander is capable of operating from relatively short and rough airstrips. Its excellent low speed capabilities enable it to safely contour much steeper terrain than most other fixed wing aircraft. Supplementary fuel can be added for trans-oceanic flight.

The aircraft has an aluminum and composite 2.5 m tail stinger designed to accommodate the magnetometer sensor and wiring. The stinger can be easily removed and the aircraft returned to its original configuration. There is a camera hole in the belly and provisions for numerous other survey and navigation systems.

The electrical system has been modified to reduce the magnetic field variations around the aircraft.



SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

GEOPHYSICAL SURVEY AIRCRAFT

CESSNA 402B

(with a Robertson STOL kit and a Vortex Generator kit)

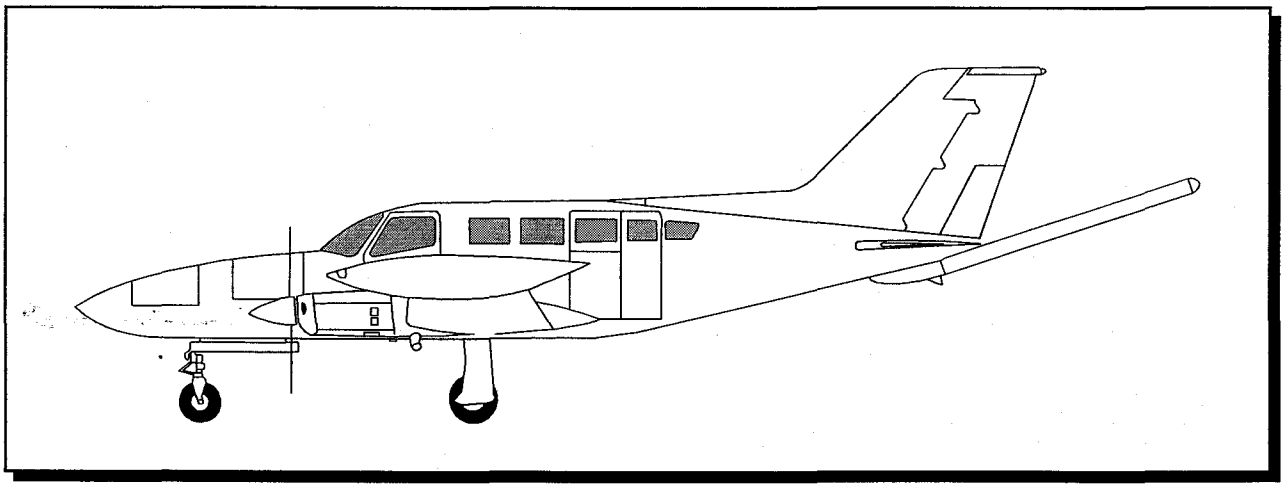
Registration: C-GCKB
Serial # 402B-0865

The model 402B Utililiner is an all metal, low wing, twin-engined aircraft powered by two turbocharged engines that drive constant speed, fully feathering propellers. The aircraft has fully retractable tricycle landing gear, extendable flaps and manually adjustable trim tabs on the primary controls for all three flight axes. The Robertson STOL kit incorporates the extendable flap system. The aircraft is equipped with full de-icing equipment and sufficient avionics for instrument flying. Supplementary fuel can be added for trans-oceanic flight.

The aircraft has a rigid aluminum and composite material 2.5 m tail stinger designed to accommodate the magnetometer sensor and wiring and a 1.5 m nose stinger designed to accommodate VLF coils or other sensors. These stingers can be easily removed and the aircraft returned to its original configuration. There is a camera hole in the belly of the aircraft and provisions for numerous other survey and navigation systems.

The airframe has been extensively modified to reduce the magnetic signature of the aircraft by replacing ferromagnetic parts with those made from special non-magnetic stainless steel or aluminum. Several wiring changes have also been made to the electrical system to reduce the magnetic field variations around the aircraft.

The Robertson STOL and vortex generator kits enhance the flight characteristics of the 402B by reducing the stall speed and enabling the aircraft to be operated more safely from shorter runways. The STOL kit is very useful for surveys which require low airspeeds, drape flying over rough topography or very low level flying.



SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

APPENDIX V

SURVEY LOG

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

HIGH SENSITIVITY AEROMAGNETIC SURVEY
FORT McMURRAY, ALBERTA 1998
BLOCK A-B

SURVEY LOG
NAD-27

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
101.00	7453100	7575275	300554	402713	6166688	6170142	15	60	1998
102.00	8135175	8254800	300656	402761	6168678	6172140	18	65	1998
103.00	8262550	8385725	300750	402809	6170681	6174152	18	65	1998
104.00	8420725	8539000	300824	402837	6172667	6176128	18	65	1998
105.00	8552425	8676100	300931	402889	6174679	6178163	18	65	1998
106.00	8685425	8803200	301009	402942	6176698	6180134	18	65	1998
107.00	8810950	8935375	301109	402984	6178691	6182159	18	65	1998
108.00	6150850	6270200	301207	403025	6180695	6184181	19	66	1998
109.00	6279900	6472250	301298	458644	6181782	6186150	19	66	1998
110.00	6482800	6667125	301372	458653	6183816	6188153	19	66	1998
111.00	6676225	6865800	301466	458668	6185843	6190157	19	66	1998
112.00	6874575	7059000	301573	458688	6187816	6192168	19	66	1998
113.00	7069100	7257975	301650	458716	6189808	6194150	19	66	1998
114.00	7270225	7449825	301748	458735	6191806	6196171	20	68	1998
115.00	5649675	5841900	301848	458744	6193834	6198169	11	56	1998
116.00	6881175	7056225	301927	458770	6195832	6200173	5	45	1998
117.00	5854175	6065600	302021	458784	6197821	6202169	5	45	1998
118.00	6988700	7169575	302123	458799	6199880	6204165	3	44	1998
119.00	6000475	6191975	302197	458820	6201832	6206174	3	44	1998
120.00	7199725	7394100	302427	458805	6203807	6208191	1	43	1998
121.00	6243700	6294600	302390	345462	6208399	6210172	1	43	1998
121.01	7255925	7395300	345065	458864	6205801	6208420	21	70	1998
122.00	6653450	6790550	343895	458883	6207837	6210493	11	56	1998
123.00	5830750	5974450	343971	458903	6209862	6212499	28	77	1998
124.00	8377650	8516675	344036	458924	6211821	6214489	812	56	1998
125.00	8450200	8594700	344099	458933	6213864	6216498	15	60	1998
126.00	5659400	5797800	344174	458953	6215853	6218484	16	61	1998
127.00	6719825	6859925	344243	458977	6217870	6220499	16	61	1998
128.00	7393450	7528075	344316	459007	6219877	6222476	17	61	1998
129.00	6016825	6193425	344387	459023	6221872	6224499	119	66	1998
130.00	6227850	6415600	344463	459041	6223865	6226511	119	66	1998
131.00	6426650	6605100	344536	459058	6225862	6228496	119	66	1998
132.00	6614100	6799350	344612	459085	6227895	6230515	119	66	1998
133.00	6810500	6990000	344678	459100	6229888	6232503	119	66	1998
134.00	6999650	7181950	344762	459116	6231892	6234524	119	66	1998
135.00	7687325	7870525	344837	459144	6233883	6236508	120	66	1998
136.00	6010500	6147275	344899	459161	6235880	6238529	28	77	1998
137.00	8072475	8255975	344981	459184	6237876	6240520	120	66	1998
138.00	8697000	8886500	345042	459193	6239902	6242545	118	65	1998
139.00	8512375	8685500	345116	459209	6241897	6244515	118	65	1998
140.00	8270750	8453300	345189	459229	6243892	6246543	120	66	1998
141.00	6164125	6309050	345267	459246	6245939	6248542	28	77	1998
142.00	8656575	8834175	345343	459280	6247923	6250536	120	66	1998
143.00	8843000	9010500	345419	459284	6249880	6252529	120	66	1998
144.00	9021950	9197875	345486	459316	6251919	6254537	120	66	1998
145.00	5445150	5612150	345554	459328	6253898	6256516	115	64	1998

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
146.00	5622600	5816825	345639	459347	6255906	6258541	115	64	1998
147.00	6342175	6519850	345697	459375	6257920	6260545	121	67	1998
148.00	6528875	6716825	345780	459397	6259932	6262539	121	67	1998
149.00	6333375	6468100	345855	459411	6261944	6264569	28	77	1998
150.00	6476750	6620875	345924	459418	6263955	6266556	28	77	1998
151.00	6631150	6766250	345992	459442	6265924	6268545	28	77	1998
152.00	7511100	7686625	346076	459469	6267940	6270550	118	65	1998
153.00	7697200	7881625	346144	459488	6269957	6272555	118	65	1998
154.00	7890925	8065650	346208	459508	6271917	6274560	118	65	1998
155.00	8076475	8260650	346295	459519	6273953	6276554	118	65	1998
156.00	8269750	8354150	404698	459550	6275944	6276850	118	65	1998
157.00	8364875	8454325	404746	459569	6277962	6278849	118	65	1998
158.00	8371750	8463975	404792	459581	6279952	6280856	113	62	1998
159.00	8280000	8362350	404848	459606	6281945	6282843	113	62	1998
160.00	8178875	8269550	404888	459621	6283974	6284862	113	62	1998
161.00	8085250	8168225	404924	459647	6285946	6286865	113	62	1998
162.00	7984575	8074500	404980	459659	6287971	6288882	113	62	1998
163.00	7887300	7970525	405023	459681	6289980	6290903	113	62	1998
164.00	7788500	7878525	405073	459697	6291989	6292883	113	62	1998
165.00	7693650	7777425	405113	459721	6293986	6294857	113	62	1998
166.00	7593100	7682200	405157	459732	6295998	6296871	113	62	1998
167.00	7499325	7583550	405200	459763	6297988	6298880	113	62	1998
168.00	7401500	7490325	405244	459776	6299988	6300878	113	62	1998
169.00	7306175	7390525	405299	459792	6302001	6302876	113	62	1998
170.00	7207450	7296275	405334	459817	6303991	6304898	113	62	1998
171.00	7112950	7197725	405378	459836	6306007	6306904	113	62	1998
172.00	7015375	7103400	405422	459849	6308010	6308891	113	62	1998
173.00	6917875	7002850	405480	459875	6310030	6310880	113	62	1998
174.00	6821025	6908575	405523	459896	6312000	6312897	113	62	1998
175.00	6725575	6810875	405567	459919	6314022	6314899	113	62	1998
176.00	7460700	7533025	405621	459927	6316043	6316921	10	53	1998
177.00	6893625	6954600	405665	459960	6318013	6318926	9	53	1998
178.00	5983775	6055075	405701	459976	6320029	6320909	9	53	1998
179.00	7955425	8020950	405746	459992	6322044	6322927	8	51	1998
180.00	8456500	8519375	405792	460012	6324040	6324935	6	45	1998
181.00	7571550	7640350	405831	460035	6326024	6326919	6	45	1998
182.00	8569450	8632100	405886	460044	6328046	6328929	4	44	1998
183.00	7683750	7752350	405936	460064	6330035	6330942	4	44	1998
184.00	7910675	7975550	405967	460078	6332065	6332927	2	43	1998
1001.00	7599675	7766000	458868	459865	6231773	6332467	105	47	1998
1001.01	8281000	8369700	458396	458875	6181561	6232010	108	56	1998
1002.00	7802400	7948750	458464	459448	6231751	6332560	105	47	1998
1002.01	8182550	8257200	457983	458475	6181573	6232027	108	56	1998
1003.00	8058300	8187375	457584	458289	6181568	6254114	101	43	1998
1003.01	7711200	7834300	458265	459086	6253793	6332560	141	84	1998
1004.00	8201050	8426925	457170	458674	6181716	6332560	101	43	1998
1005.00	7962525	8126300	457247	458274	6231781	6332576	105	47	1998
1005.01	8084600	8172250	456751	457254	6181576	6232010	108	56	1998
1006.00	7108800	7367075	456347	457902	6181580	6332580	103	44	1998
1007.00	7380900	7515400	455926	456879	6181592	6274132	103	44	1998
1007.01	7584700	7670025	456879	457507	6273821	6332574	903	44	1998
1008.00	7689875	7941025	455524	457134	6181594	6332588	903	44	1998
1009.00	7961800	8180775	455118	456709	6181609	6332585	903	44	1998

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1010.00	8198725	8452100	454712	456341	6181600	6332586	903	44	1998
1011.00	8464450	8679400	454308	455915	6181615	6332589	903	44	1998
1012.00	6815325	7061250	453891	455524	6181612	6332603	104	45	1998
1013.00	7078700	7308725	453486	455125	6181626	6332603	104	45	1998
1014.00	7320025	7565625	453086	454728	6181616	6332610	104	45	1998
1015.00	7582200	7813475	452656	454336	6181634	6332615	104	45	1998
1016.00	7823950	8070325	452259	453961	6181638	6332622	104	45	1998
1017.00	8080775	8311975	451838	453554	6181637	6332615	104	45	1998
1018.00	8154600	8306900	451989	453155	6231847	6332628	105	47	1998
1018.01	7918950	7994300	451417	452028	6181635	6232074	108	56	1998
1019.00	8323825	8487400	451597	452766	6231896	6332624	105	47	1998
1019.01	7817000	7905225	451035	451596	6181648	6232127	108	56	1998
1020.00	8512100	8663875	451202	452365	6231848	6332637	105	47	1998
1020.01	7712250	7787900	450600	451208	6181648	6232176	108	56	1998
1021.00	5884200	6148900	450232	451977	6181654	6332632	106	51	1998
1022.00	6159950	6394100	449781	451581	6181659	6332637	106	51	1998
1023.00	6406125	6668350	449401	451183	6181668	6332654	106	51	1998
1024.00	6686825	6923850	448985	450783	6181663	6332649	106	51	1998
1025.00	6936500	7191750	448581	450393	6181678	6332655	106	51	1998
1026.00	7202500	7447125	448187	450007	6181674	6332663	106	51	1998
1027.00	5671050	5929300	447766	449607	6181688	6332674	107	56	1998
1028.00	7962400	8202625	447357	449202	6181689	6332671	141	84	1998
1029.00	7438550	7691250	446941	448795	6181694	6332674	108	56	1998
1030.00	8394700	8626475	446551	448409	6181691	6332682	108	56	1998
1031.00	7649300	7890425	446123	448058	6181710	6332685	109	57	1998
1032.00	7903750	8138775	445725	447620	6181710	6332697	109	57	1998
1033.00	8149275	8389050	445321	447246	6181713	6332688	109	57	1998
1034.00	8402100	8635200	444910	446835	6181715	6332708	109	57	1998
1035.00	8648625	8890700	444502	446451	6181723	6332711	109	57	1998
1036.00	7470000	7721600	444105	446044	6181724	6332707	110	60	1998
1037.00	7732025	7974675	443646	445659	6181730	6332721	110	60	1998
1038.00	7990275	8235825	443268	445256	6181735	6332721	110	60	1998
1039.00	8247175	8494925	442859	444873	6181740	6332725	110	60	1998
1040.00	8507875	8750650	442459	444471	6181749	6332729	110	60	1998
1041.00	8761925	9012025	442061	444083	6181750	6332741	110	60	1998
1042.00	5647550	5902050	441642	443701	6181761	6332744	111	61	1998
1043.00	5915125	6158575	441231	443290	6181768	6332741	111	61	1998
1044.00	6171475	6425750	440824	442898	6181773	6332759	111	61	1998
1045.00	6439150	6682175	440409	442507	6181776	6332752	111	61	1998
1046.00	6694425	6942925	440016	442107	6181785	6332771	111	61	1998
1047.00	6955750	7200050	439599	441732	6181784	6332770	111	61	1998
1048.00	8488975	8664500	439182	441315	6181800	6332764	7	47	1998
1049.00	8288775	8477200	438793	440920	6181812	6332789	7	47	1998
1050.00	8099500	8276625	438376	440521	6181817	6332774	7	47	1998
1051.00	7898800	8087675	437982	440142	6181807	6332796	7	47	1998
1052.00	7706775	7884725	437561	439732	6181814	6332797	7	47	1998
1053.00	7504825	7695400	437147	439345	6181817	6332806	7	47	1998
1054.00	7779900	8026700	436733	438969	6181829	6332808	112	61	1998
1055.00	8039275	8282275	436314	438557	6181834	6332815	112	61	1998
1056.00	8295825	8543075	435924	438159	6181838	6332820	112	61	1998
1057.00	8554350	8796450	435512	437781	6181847	6332833	112	61	1998
1058.00	7218150	7464825	435106	437375	6181852	6332831	114	63	1998
1059.00	7477175	7710775	434661	436982	6181858	6332845	114	63	1998

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1060.00	7721375	7971500	434278	436596	6181860	6332849	114	63	1998
1061.00	7981675	8221850	433857	436206	6181875	6332847	114	63	1998
1062.00	8233625	8478550	433474	435810	6181873	6332856	114	63	1998
1063.00	8491100	8733775	433063	435406	6181885	6332864	114	63	1998
1064.00	8293800	8532125	432650	434999	6181885	6332875	122	67	1998
1065.00	8553350	8804325	432230	434616	6181903	6332884	122	67	1998
1066.00	8818400	9054125	431837	434234	6181903	6332884	122	67	1998
1067.00	9061825	9296400	431402	433825	6181903	6332881	122	67	1998
1068.00	6379850	6626875	431010	433443	6181909	6332902	123	68	1998
1069.00	6639550	6882475	430602	433043	6181929	6332895	123	68	1998
1070.00	6896850	7142850	430199	432651	6181933	6332910	123	68	1998
1071.00	7156975	7399400	429784	432256	6181933	6332916	123	68	1998
1072.00	7998200	8236475	429386	431913	6181948	6332924	124	68	1998
1073.00	8249250	8486400	428975	431453	6181955	6332933	124	68	1998
1074.00	8498600	8736100	428558	431068	6181954	6332937	124	68	1998
1075.00	7582950	7792350	428160	430672	6181956	6332941	125	70	1998
1076.00	7804275	8055025	427744	430279	6181966	6332939	125	70	1998
1077.00	8066900	8287100	427327	429902	6181973	6332959	125	70	1998
1078.00	7481650	7692825	426902	429490	6181991	6332959	126	71	1998
1079.00	7875875	8120550	426510	429116	6181995	6332973	726	71	1998
1080.00	8133075	8339825	426143	428692	6181997	6332970	726	71	1998
1081.00	8351875	8599550	425688	428313	6182005	6332974	726	71	1998
1082.00	5819175	6046300	425315	427915	6182017	6332991	127	72	1998
1083.00	6058050	6280500	424877	427527	6182026	6332987	127	72	1998
1084.00	7554675	7791675	424483	427112	6182023	6333004	128	72	1998
1085.00	7804850	8022475	424041	426725	6182029	6333014	128	72	1998
1086.00	8035450	8271450	423657	426345	6182033	6333015	128	72	1998
1087.00	8283225	8498125	423237	425948	6182041	6333015	128	72	1998
1088.00	8509750	8745600	422834	425547	6182062	6333031	128	72	1998
1089.00	7327225	7594625	422436	425161	6182064	6333032	129	73	1998
1090.00	7606250	7818175	421962	424751	6182066	6333037	129	73	1998
1091.00	7829950	8102375	421619	424371	6182079	6333054	129	73	1998
1092.00	8116375	8328175	421191	423976	6182084	6333064	129	73	1998
1093.00	8342000	8616875	420803	423588	6182092	6333066	129	73	1998
1094.00	8629150	8840125	420346	423187	6182091	6333067	129	73	1998
1095.00	7268200	7519850	419964	422786	6182107	6333084	130	76	1998
1096.00	7531475	7760350	419569	422406	6182116	6333083	130	76	1998
1097.00	7774525	8023850	419161	422011	6182123	6333102	130	76	1998
1098.00	8036675	8264425	418742	421629	6182134	6333102	130	76	1998
1099.00	8277375	8526400	418393	421228	6182137	6333106	130	76	1998
1100.00	8538400	8764125	417943	420808	6182143	6333120	130	76	1998
1101.00	5913900	6177125	417541	420420	6182148	6333133	131	77	1998
1102.00	8623975	8803500	417118	420022	6182153	6333129	14	57	1998
1103.00	8429450	8611525	416705	419653	6182168	6333145	14	57	1998
1104.00	8230175	8410225	416295	419244	6182168	6333148	14	57	1998
1105.00	8032725	8215750	415897	418847	6182176	6333145	14	57	1998
1106.00	7837200	8018150	415495	418453	6182198	6333158	14	57	1998
1107.00	7639550	7824100	415073	418068	6182209	6333163	14	57	1998
1108.00	6837275	7013550	414672	417669	6182221	6333180	13	57	1998
1109.00	6640700	6825400	414268	417259	6182208	6333183	13	57	1998
1110.00	6449675	6624925	413841	416867	6182232	6333187	13	57	1998
1111.00	6246575	6434325	413445	416480	6182226	6333197	13	57	1998
1112.00	6056100	6230125	413027	416076	6182238	6333212	13	57	1998

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1113.00	5852775	6042800	412627	415695	6182252	6333212	13	57	1998
1114.00	8560325	8745150	412222	415294	6182266	6333227	10	53	1998
1115.00	8369250	8548775	411831	414888	6182274	6333224	10	53	1998
1116.00	8171950	8354975	411402	414508	6182269	6333238	10	53	1998
1117.00	7976525	8158950	411009	414082	6182276	6333257	10	53	1998
1118.00	7774300	7957375	410583	413679	6182286	6333267	10	53	1998
1119.00	7576425	7761750	410169	413328	6182293	6333261	10	53	1998
1120.00	6679950	6859325	409759	412920	6182301	6333278	9	53	1998
1121.00	6480350	6666700	409346	412526	6182314	6333276	9	53	1998
1122.00	6287075	6466825	408951	412142	6182316	6333290	9	53	1998
1123.00	6086275	6273475	408537	411722	6182337	6333300	9	53	1998
1124.00	8465075	8649700	408146	411367	6182337	6333312	8	51	1998
1125.00	8264275	8449625	407707	410957	6182349	6333325	8	51	1998
1126.00	8068700	8253675	407338	410561	6182367	6333327	8	51	1998
1127.00	8253200	8434625	406892	410172	6182374	6333335	6	45	1998
1128.00	8052025	8236650	406498	409806	6182383	6333335	6	45	1998
1129.00	7860200	8040850	406057	409405	6182395	6333361	6	45	1998
1130.00	7662025	7847850	405685	408993	6182399	6333366	6	45	1998
1131.00	8375650	8549000	405285	408578	6182400	6333360	4	44	1998
1132.00	8171000	8363600	404874	408183	6182408	6333384	4	44	1998
1133.00	7981600	8157625	404457	407791	6182427	6333393	4	44	1998
1134.00	7775600	7969225	404052	407418	6182424	6333401	4	44	1998
1135.00	8408625	8598475	403649	407003	6182440	6333209	2	43	1998
1136.00	8223200	8398125	403235	406616	6182636	6333421	2	43	1998
1137.00	7985625	8197325	402452	406232	6165821	6333203	2	43	1998
1138.00	6232600	6386800	402017	404507	6165817	6275095	131	77	1998
1139.00	6404050	6598425	401623	404105	6165819	6275093	131	77	1998
1140.00	6610575	6765275	401220	403687	6165830	6275103	131	77	1998
1141.00	6780000	6973125	400798	403320	6165841	6275115	131	77	1998
1142.00	6984975	7139350	400381	402915	6165842	6275119	131	77	1998
1143.00	7906375	8100700	399976	402526	6165862	6275138	132	77	1998
1144.00	8115075	8271000	399564	402109	6165862	6275150	132	77	1998
1145.00	8287450	8478550	399168	401707	6165874	6275150	132	77	1998
1146.00	8489625	8645100	398763	401301	6165891	6275154	132	77	1998
1147.00	8660350	8853750	398341	400897	6165899	6275175	132	77	1998
1148.00	8864500	9019075	397950	400517	6165915	6275173	132	77	1998
1149.00	5729025	5902275	397531	400146	6165922	6275191	133	78	1998
1150.00	5916225	6085550	397123	399689	6165932	6275196	133	78	1998
1151.00	6098900	6270150	396710	399310	6165942	6275215	133	78	1998
1152.00	6284300	6456575	396310	398917	6165944	6275224	133	78	1998
1153.00	6469800	6636125	395892	398519	6165959	6275234	133	78	1998
1154.00	6650650	6827000	395471	398111	6165973	6275231	133	78	1998
1155.00	6838125	7000975	395073	397719	6165971	6275251	133	78	1998
1156.00	7016000	7195900	394636	397310	6165984	6275261	133	78	1998
1157.00	7967225	8127775	394259	396927	6165994	6275271	134	78	1998
1158.00	8142300	8323700	393850	396517	6166007	6275283	134	78	1998
1159.00	8336600	8498675	393418	396125	6166023	6275289	134	78	1998
1160.00	8510075	8686900	393020	395724	6166020	6275294	134	78	1998
1161.00	8700150	8862775	392626	395318	6166036	6275310	134	78	1998
1162.00	8898875	9074600	392187	394914	6166050	6275314	134	78	1998
1163.00	5893100	6064000	391793	394511	6166048	6275331	135	81	1998
1164.00	6078800	6247850	391374	394109	6166069	6275333	135	81	1998
1165.00	6263150	6434875	390953	393713	6166080	6275340	135	81	1998

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1166.00	6448450	6617775	390545	393298	6166085	6275361	135	81	1998
1167.00	6633175	6802075	390168	392940	6166100	6275366	135	81	1998
1168.00	6818250	6987250	389735	392521	6166113	6275383	135	81	1998
1169.00	7565475	7738225	389332	392117	6166116	6275388	136	81	1998
1170.00	7748600	7919575	388898	391706	6166130	6275395	136	81	1998
1171.00	7934350	8110850	388518	391334	6166132	6275409	136	81	1998
1172.00	8152400	8322825	388080	390907	6166148	6275423	136	81	1998
1173.00	8335425	8513100	387681	390509	6166157	6275427	136	81	1998
1174.00	8525650	8694750	387268	390101	6166161	6275442	136	81	1998
1175.00	5663800	5850375	386874	389709	6166184	6275448	137	82	1998
1176.00	5863775	6019625	386475	389306	6166196	6275463	137	82	1998
1177.00	6035975	6226025	386032	388906	6166206	6275464	137	82	1998
1178.00	6239175	6394050	385636	388527	6166219	6275478	137	82	1998
1179.00	6410900	6601850	385205	388095	6166225	6275485	137	82	1998
1180.00	6614275	6768925	384832	387713	6166231	6275496	137	82	1998
1181.00	6784875	6973550	384406	387311	6166241	6275512	137	82	1998
1182.00	6984825	7141350	383995	386936	6166250	6275529	137	82	1998
1183.00	7786525	7976200	383586	386555	6166266	6275534	138	82	1998
1184.00	7988650	8140475	383178	386120	6166285	6275539	138	82	1998
1185.00	8153525	8348025	382765	385715	6166282	6275552	138	82	1998
1186.00	8360600	8512075	382348	385315	6166301	6275565	138	82	1998
1187.00	8526250	8719300	381939	384915	6166309	6275573	138	82	1998
1188.00	8732550	8883075	381540	384512	6166325	6275591	138	82	1998
1189.00	8894850	9090525	381133	384142	6166324	6275594	138	82	1998
1190.00	9114300	9264075	380713	383727	6166337	6275606	138	82	1998
1191.00	6125300	6307175	380282	383294	6166360	6275625	139	83	1998
1192.00	6321250	6480525	379897	382941	6166364	6275635	139	83	1998
1193.00	6495050	6675625	379474	382516	6166382	6275645	139	83	1998
1194.00	6690500	6850775	379074	382130	6166388	6275651	139	83	1998
1195.00	6425200	6597875	378667	381716	6166397	6275668	142	86	1998
1196.00	7542475	7717950	378269	381314	6166404	6275679	121	67	1998
1197.00	7356525	7529900	377848	380918	6166430	6275682	121	67	1998
1198.00	7167275	7343425	377451	380505	6166441	6275694	121	67	1998
1199.00	6979400	7153400	377025	380165	6166449	6275718	121	67	1998
1200.00	6874825	7054000	376607	379714	6166450	6275721	139	83	1998
1201.00	7066275	7226075	376207	379342	6166470	6275729	139	83	1998
1202.00	8023500	8204325	375782	378913	6166476	6275749	140	83	1998
1203.00	8217650	8380650	375398	378550	6166492	6275765	140	83	1998
1204.00	8392000	8571800	374977	378130	6166497	6275772	140	83	1998
1205.00	8583900	8746600	374583	377722	6166525	6275775	140	83	1998
1206.00	8758150	8938175	374142	377323	6166521	6275785	140	83	1998
1207.00	8951400	9115575	373739	376934	6166541	6275798	140	83	1998
1208.00	6612125	6776225	373347	376522	6166557	6275809	142	86	1998
1209.00	6789425	6969000	372927	376110	6166562	6275834	142	86	1998
1210.00	6981375	7145900	372511	375723	6166577	6275845	142	86	1998
1211.00	7158600	7334725	372108	375316	6166579	6275858	142	86	1998
1212.00	7348125	7511700	371697	374908	6166606	6275857	142	86	1998
1213.00	5713725	5877775	371281	374521	6166615	6275867	144	87	1998
1214.00	8432125	8607600	370866	374123	6166628	6275889	143	86	1998
1215.00	8620475	8785775	370460	373726	6166631	6275902	143	86	1998
1216.00	8797625	8974000	370028	373325	6166654	6275915	143	86	1998
1217.00	5889475	6061150	369617	372911	6166667	6275919	144	87	1998
1218.00	6074650	6238400	369206	372518	6166671	6275931	144	87	1998

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1219.00	6255775	6428000	368832	372152	6166691	6275943	144	87	1998
1220.00	6440975	6605100	368390	371725	6166689	6275964	144	87	1998
1221.00	6621500	6792550	368025	371346	6166711	6275969	144	87	1998
1222.00	6804400	6968000	367597	370925	6166716	6275979	144	87	1998
1223.00	6984675	7156150	367183	370511	6166727	6275999	144	87	1998
1224.00	7263200	7400700	366774	370114	6166740	6276010	30	78	1998
1225.00	7122400	7252400	366338	369725	6166769	6276015	30	78	1998
1226.00	6973450	7110375	365951	369320	6166770	6276028	30	78	1998
1227.00	6833475	6962575	365527	368914	6166786	6276053	30	78	1998
1228.00	6684400	6821700	365155	368500	6166807	6276062	30	78	1998
1229.00	6542325	6673075	364733	368085	6166807	6276064	30	78	1998
1230.00	6392950	6529000	364327	367707	6166829	6276073	30	78	1998
1231.00	6248275	6381525	363909	367316	6166840	6276095	30	78	1998
1232.00	8313950	8458900	363476	366945	6166849	6276102	29	77	1998
1233.00	7003800	7130675	363078	366493	6166862	6276128	26	76	1998
1234.00	6855800	6993225	362681	366108	6166871	6276136	26	76	1998
1235.00	6715600	6843225	362256	365719	6166890	6276137	26	76	1998
1236.00	6566275	6703875	361836	365351	6166909	6276160	26	76	1998
1237.00	6425075	6552925	361411	364916	6166924	6276163	26	76	1998
1238.00	6274550	6412525	361020	364528	6166926	6276173	26	76	1998
1239.00	6133800	6260175	360637	364162	6166943	6276185	26	76	1998
1240.00	5974050	6117150	360196	363727	6166952	6276201	26	76	1998
1241.00	8467700	8589400	359767	363324	6166961	6276219	29	77	1998
1242.00	8164075	8286325	359370	362935	6166982	6276236	29	77	1998
1243.00	8011150	8155200	358977	362533	6166988	6276254	29	77	1998
1244.00	7875775	7998550	358561	362132	6166999	6276262	29	77	1998
1245.00	7718850	7864100	358145	361730	6167019	6276274	29	77	1998
1246.00	7581025	7704450	357745	361321	6167042	6276295	29	77	1998
1247.00	7425725	7570075	357358	360915	6167037	6276302	29	77	1998
1248.00	8572000	8698375	356928	360504	6167052	6276304	27	76	1998
1249.00	8415275	8557900	356513	360115	6167063	6276336	27	76	1998
1250.00	8275175	8402700	356107	359717	6167081	6276342	27	76	1998
1251.00	8119550	8261575	355721	359322	6167095	6276348	27	76	1998
1252.00	7977025	8106175	355284	358921	6167107	6276357	27	76	1998
1253.00	7823850	7965600	354868	358532	6167117	6276383	27	76	1998
1254.00	8644100	8767300	354445	358151	6167140	6276386	24	72	1998
1255.00	8479225	8617050	354062	357758	6167157	6276397	24	72	1998
1256.00	8341875	8465225	353653	357326	6167162	6276424	24	72	1998
1257.00	8058000	8181925	353244	356904	6167188	6276439	24	72	1998
1258.00	7907450	8046525	352854	356527	6167190	6276449	24	72	1998
1259.00	7770050	7894725	352386	356138	6167218	6276452	24	72	1998
1260.00	7617700	7756975	351989	355746	6167231	6276481	24	72	1998
1261.00	6411600	6538400	351597	355338	6167230	6276486	23	72	1998
1262.00	6262575	6399150	351216	354955	6167250	6276502	23	72	1998
1263.00	6120275	6247950	350773	354510	6167268	6276510	23	72	1998
1264.00	5972225	6108500	350363	354146	6167274	6276537	23	72	1998
1265.00	8192250	8330725	349956	353746	6167299	6276548	24	72	1998
1266.00	8471950	8610275	349553	353309	6167312	6276551	22	71	1998
1267.00	8336825	8460850	349138	352952	6167323	6276564	22	71	1998
1268.00	8184775	8324925	348707	352534	6167333	6276594	22	71	1998
1269.00	8049075	8172750	348299	352103	6167351	6276591	22	71	1998
1270.00	7896450	8037425	347874	351709	6167362	6276618	22	71	1998
1271.00	7758825	7883675	347493	351360	6167374	6276626	22	71	1998

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1272.00	7607500	7747475	347102	350929	6167402	6276639	22	71	1998
1273.00	7467750	7594200	346673	350553	6167401	6276647	22	71	1998
1274.00	8337200	8464975	346231	350137	6167415	6276668	21	70	1998
1275.00	8185475	8324975	345824	349756	6167430	6276681	21	70	1998
1276.00	8045850	8173575	345435	349319	6167455	6276706	21	70	1998
1277.00	7895225	8034525	345066	348931	6167463	6276719	21	70	1998
1278.00	7755375	7882925	344607	348528	6167481	6276724	21	70	1998
1279.00	7603550	7743225	344228	348134	6167496	6276744	21	70	1998
1280.00	7463475	7591400	343806	347720	6167511	6276750	21	70	1998
1281.00	8251525	8379925	343400	347341	6167524	6276774	20	68	1998
1282.00	8104400	8239325	342979	346904	6167536	6276789	20	68	1998
1283.00	7961875	8090450	342588	346544	6167556	6276802	20	68	1998
1284.00	7897675	7949600	342169	343671	6167565	6209048	20	68	1998
1285.00	7837150	7885000	341717	343272	6167588	6209060	20	68	1998
1286.00	7774550	7826450	341341	342848	6167603	6209079	20	68	1998
1287.00	7713025	7760875	340950	342451	6167604	6209078	20	68	1998
1288.00	7646775	7699300	340518	342051	6167635	6209112	20	68	1998
1289.00	7583025	7631150	340127	341619	6167641	6209109	20	68	1998
1290.00	7516775	7568950	339740	341245	6167657	6209140	20	68	1998
1291.00	7947800	8000075	339310	340822	6167675	6209142	817	61	1998
1292.00	7888500	7935550	338879	340416	6167685	6209161	817	61	1998
1293.00	7800950	7853125	338486	340027	6167699	6209184	17	61	1998
1294.00	7739425	7786900	338082	339616	6167716	6209183	17	61	1998
1295.00	7674900	7727375	337638	339201	6167735	6209205	17	61	1998
1296.00	7614075	7661350	337243	338792	6167744	6209220	17	61	1998
1297.00	7547775	7600625	336844	338393	6167755	6209241	17	61	1998
1298.00	6654525	6701550	336442	337988	6167781	6209259	16	61	1998
1299.00	6589975	6641975	336043	337541	6167785	6209270	16	61	1998
1300.00	6528625	6575700	335602	337178	6167819	6209282	16	61	1998
1301.00	6464475	6516875	335217	336771	6167828	6209290	16	61	1998
1302.00	6387300	6434075	334763	336358	6167848	6209315	16	61	1998
1303.00	6321825	6374525	334386	335961	6167863	6209338	16	61	1998
1304.00	6259950	6306775	333973	335555	6167869	6209354	16	61	1998
1305.00	6196000	6248725	333565	335146	6167887	6209360	16	61	1998
1306.00	6136375	6183275	333142	334737	6167898	6209380	16	61	1998
1307.00	6071225	6124125	332743	334326	6167920	6209387	16	61	1998
1308.00	6009350	6056000	332342	333930	6167940	6209416	16	61	1998
1309.00	5945200	5998850	331911	333508	6167954	6209414	16	61	1998
1310.00	5885575	5931925	331470	333103	6167964	6209448	16	61	1998
1311.00	5818275	5872125	331098	332746	6167985	6209459	16	61	1998
1312.00	8314250	8367050	330700	332309	6167989	6209467	15	60	1998
1313.00	8254250	8301050	330301	331888	6168024	6209478	15	60	1998
1314.00	8189725	8243075	329879	331474	6168022	6209501	15	60	1998
1315.00	8128350	8175300	329454	331076	6168057	6209509	15	60	1998
1316.00	8062000	8115275	329048	330666	6168053	6209541	15	60	1998
1317.00	8001525	8048275	328631	330268	6168085	6209556	15	60	1998
1318.00	7935200	7988975	328241	329867	6168097	6209557	15	60	1998
1319.00	7872875	7919625	327819	329456	6168108	6209583	15	60	1998
1320.00	7806275	7860425	327427	329043	6168130	6209597	15	60	1998
1321.00	7747700	7794250	327010	328622	6168145	6209617	15	60	1998
1322.00	7682300	7736350	326601	328249	6168158	6209629	15	60	1998
1323.00	7616275	7662800	326186	327829	6168183	6209638	15	60	1998
1324.00	8308550	8354600	325767	327419	6168187	6209660	812	56	1998

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1325.00	8240225	8294625	325359	327045	6168213	6209682	812	56	1998
1326.00	8178400	8224350	324953	326603	6168223	6209697	812	56	1998
1327.00	8114300	8167625	324541	326196	6168234	6209705	812	56	1998
1328.00	8056175	8102275	324125	325824	6168262	6209720	812	56	1998
1329.00	7988500	8042775	323721	325416	6168273	6209749	812	56	1998
1330.00	7927025	7973025	323255	324984	6168284	6209763	812	56	1998
1331.00	7828650	7884000	322902	324590	6168308	6209780	12	56	1998
1332.00	7754925	7801050	322472	324152	6168316	6209788	12	56	1998
1333.00	7687625	7743750	322081	323795	6168337	6209807	12	56	1998
1334.00	7627125	7672950	321648	323358	6168352	6209833	12	56	1998
1335.00	7561025	7616075	321259	322965	6168371	6209853	12	56	1998
1336.00	6579850	6625400	320848	322535	6168388	6209851	11	56	1998
1337.00	6511200	6565025	320458	322164	6168401	6209884	11	56	1998
1338.00	6452050	6497450	320024	321722	6168436	6209893	11	56	1998
1339.00	6387150	6440925	319605	321341	6168436	6209912	11	56	1998
1340.00	6326475	6371700	319206	320929	6168454	6209932	11	56	1998
1341.00	6257925	6312625	318803	320533	6168468	6209951	11	56	1998
1342.00	6199100	6244225	318358	320117	6168493	6209967	11	56	1998
1343.00	6132500	6187475	317982	319712	6168504	6209973	11	56	1998
1344.00	6073100	6117925	317562	319311	6168530	6209991	11	56	1998
1345.00	6004750	6060500	317168	318889	6168544	6210023	11	56	1998
1346.00	5945425	5990325	316730	318479	6168571	6210024	11	56	1998
1347.00	5878100	5934200	316343	318063	6168582	6210055	11	56	1998
1348.00	6797300	6845125	315906	317640	6168600	6210072	5	45	1998
1349.00	6733775	6785425	315490	317283	6168621	6210071	5	45	1998
1350.00	6675225	6723175	315055	316870	6168629	6210090	5	45	1998
1351.00	6612075	6663750	314710	316499	6168651	6210109	5	45	1998
1352.00	6552175	6600350	314245	316068	6168661	6210135	5	45	1998
1353.00	6487075	6538975	313893	315657	6168684	6210158	5	45	1998
1354.00	6427400	6475750	313457	315232	6168702	6210174	5	45	1998
1355.00	6345875	6397850	313049	314852	6168723	6210192	5	45	1998
1356.00	6285150	6333750	312620	314417	6168729	6210204	5	45	1998
1357.00	6221175	6273475	312228	314055	6168748	6210227	5	45	1998
1358.00	6160125	6208575	311816	313619	6168768	6210233	5	45	1998
1359.00	6095175	6148100	311404	313237	6168783	6210265	5	45	1998
1360.00	6912150	6960375	310986	312777	6168812	6210265	3	44	1998
1361.00	6849100	6901050	310636	312373	6168814	6210298	3	44	1998
1362.00	6790625	6838800	310196	312019	6168832	6210299	3	44	1998
1363.00	6725550	6777700	309765	311597	6168849	6210323	3	44	1998
1364.00	6662225	6710175	309356	311174	6168870	6210339	3	44	1998
1365.00	6598000	6650600	308960	310772	6168900	6210353	3	44	1998
1366.00	6539550	6587125	308547	310381	6168911	6210387	3	44	1998
1367.00	6472275	6525525	308120	309966	6168934	6210400	3	44	1998
1368.00	6410025	6457475	307731	309568	6168955	6210421	3	44	1998
1369.00	6343700	6397025	307302	309130	6168968	6210435	3	44	1998
1370.00	6284525	6331725	306903	308732	6168981	6210445	3	44	1998
1371.00	6215300	6268675	306485	308338	6168993	6210478	3	44	1998
1372.00	7134925	7180475	306094	307929	6169151	6210452	1	43	1998
1373.00	7069725	7123325	305693	307541	6169032	6210336	1	43	1998
1374.00	7011125	7056700	305278	307116	6169244	6210487	1	43	1998
1375.00	6946725	7000050	304882	306675	6169076	6210323	1	43	1998
1376.00	6890525	6936225	304434	306306	6169269	6210557	1	43	1998
1377.00	6826525	6880025	304046	305891	6169118	6210419	1	43	1998

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1378.00	6766925	6812700	303629	305501	6169347	6210567	1	43	1998
1379.00	6701500	6755100	303212	305093	6169175	6210463	1	43	1998
1380.00	6642525	6688425	302788	304670	6169269	6210642	1	43	1998
1381.00	6577525	6631700	302403	304283	6169198	6210584	1	43	1998
1382.00	6518100	6563600	302018	303872	6169300	6210681	1	43	1998
1383.00	6450725	6505650	301581	303458	6169217	6210613	1	43	1998
1384.00	6389925	6435075	301200	303049	6169461	6210698	1	43	1998
1385.00	6310500	6365475	300756	302656	6169252	6210588	1	43	1998

HIGH SENSITIVITY AEROMAGNETIC SURVEY
FORT McMURRAY, ALBERTA 1998
BLOCK G

SURVEY LOG
NAD-27

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
201.00	7570500	7686900	481540	559181	6291980	6292722	204	89	1998
202.00	7695100	7823525	481578	559177	6293995	6294730	204	89	1998
203.00	7837725	7953525	481615	559175	6295994	6296743	204	89	1998
204.00	7968150	8096800	481647	559185	6297988	6298727	204	89	1998
205.00	8107250	8222525	481689	559182	6300000	6300740	204	89	1998
206.00	8232300	8360275	481721	559180	6301994	6302734	204	89	1998
207.00	8371125	8487550	481763	559187	6304009	6304754	204	89	1998
208.00	8501025	8627875	481786	559177	6306001	6306748	204	89	1998
209.00	8661025	8750850	499128	559175	6308001	6308459	204	89	1998
210.00	8774025	8870950	499166	559183	6309984	6310477	204	89	1998
211.00	8883475	8973975	499193	559187	6312014	6312467	204	89	1998
212.00	8988675	9084875	499228	559178	6314005	6314484	204	89	1998
213.00	6592650	6665650	499248	559169	6315979	6316460	303	93	1998
214.00	6510000	6584025	499270	559185	6318003	6318514	303	93	1998
215.00	6427050	6500850	499309	559184	6320030	6320511	303	93	1998
216.00	6332575	6406000	499338	559181	6322012	6322505	303	93	1998
217.00	6251025	6324725	499360	559172	6324045	6324465	303	93	1998
218.00	6169650	6242950	499388	559186	6326071	6326534	303	93	1998
219.00	6087200	6161525	499434	559174	6328049	6328531	303	93	1998
220.00	6007300	6079700	499447	559186	6330048	6330521	303	93	1998
221.00	5924800	5999650	499483	559172	6332004	6332520	303	93	1998
222.00	5841250	5914000	499516	559183	6334054	6334477	303	93	1998
223.00	5755925	5830550	499538	559179	6336039	6336513	303	93	1998
224.00	5662025	5734700	499572	559180	6338051	6338478	303	93	1998
225.00	7557125	7628525	499590	559175	6340052	6340482	302	92	1998
226.00	7640550	7716200	499632	559179	6342059	6342466	302	92	1998
227.00	7727925	7799625	499661	559181	6344069	6344504	302	92	1998
228.00	7806725	7881775	499691	559175	6346052	6346514	302	92	1998
229.00	7891675	7963600	499719	559181	6348048	6348552	302	92	1998
230.00	5494950	5568600	499741	559168	6350070	6350492	309	97	1998
231.00	8059475	8131925	499775	559173	6352083	6352552	302	92	1998
232.00	8146225	8219050	499786	559172	6354116	6354528	302	92	1998
233.00	8228375	8301750	499824	559172	6356100	6356570	302	92	1998
234.00	8310100	8382550	499857	559170	6358051	6358518	302	92	1998
235.00	8395650	8467825	499880	559172	6360131	6360533	302	92	1998
2001.00	5594450	5683125	558975	559045	6291967	6360579	309	97	1998
2002.00	5693450	5771875	558572	558639	6291967	6360570	309	97	1998
2003.00	5782075	5870550	558166	558226	6291974	6360569	309	97	1998
2004.00	5758200	5868950	557770	557825	6291954	6360573	207	91	1998
2005.00	5875975	5978875	557362	557426	6291965	6360583	207	91	1998
2006.00	5986700	6098275	556962	557027	6291959	6360572	207	91	1998
2007.00	6105275	6209600	556562	556619	6291947	6360574	207	91	1998
2008.00	6216700	6327950	556151	556238	6291941	6360585	207	91	1998
2009.00	6333575	6438125	555749	555834	6291943	6360576	207	91	1998
2010.00	6446200	6556950	555324	555432	6291936	6360578	207	91	1998

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
2011.00	6563775	6668475	554915	555033	6291941	6360580	207	91	1998
2012.00	6676175	6785450	554542	554638	6291925	6360585	207	91	1998
2013.00	6792225	6897825	554136	554244	6291938	6360581	207	91	1998
2014.00	5772200	5852425	553740	553841	6291919	6360576	301	92	1998
2015.00	5865125	5953300	553325	553441	6291923	6360578	301	92	1998
2016.00	5965550	6045900	552919	553044	6291918	6360570	301	92	1998
2017.00	6069950	6157175	552532	552669	6291913	6360574	301	92	1998
2018.00	6168650	6249375	552080	552278	6291923	6360585	301	92	1998
2019.00	6261300	6349825	551699	551880	6291918	6360584	301	92	1998
2020.00	6365600	6445275	551329	551447	6291910	6360577	301	92	1998
2021.00	6457350	6546550	550925	551049	6291913	6360577	301	92	1998
2022.00	6557675	6636100	550495	550679	6291901	6360575	301	92	1998
2023.00	6649025	6739225	550086	550256	6291900	6360595	301	92	1998
2024.00	6753025	6830750	549710	549852	6291907	6360577	301	92	1998
2025.00	6841475	6931875	549302	549472	6291892	6360579	301	92	1998
2026.00	5887600	5965900	548910	549082	6291898	6360578	309	97	1998
2027.00	5976425	6065275	548490	548677	6291885	6360589	309	97	1998
2028.00	6075400	6153600	548084	548288	6291880	6360599	309	97	1998
2029.00	6165000	6253850	547693	547882	6291885	6360584	309	97	1998
2030.00	6266275	6343950	547272	547500	6291886	6360600	309	97	1998
2031.00	6356475	6445500	546870	547104	6291872	6360593	309	97	1998
2032.00	6458425	6535875	546448	546686	6291878	6360592	309	97	1998
2033.00	6546500	6636375	546093	546326	6291866	6360590	309	97	1998
2034.00	7896100	7985225	545688	545937	6291872	6360590	312	98	1998
2035.00	7805125	7884725	545270	545487	6291864	6360590	312	98	1998
2036.00	7704875	7793700	544840	545095	6291857	6360590	312	98	1998
2037.00	7613225	7693450	544432	544704	6291864	6360595	312	98	1998
2038.00	7510775	7600150	544054	544337	6291859	6360593	312	98	1998
2039.00	7413050	7493400	543623	543898	6291861	6360596	312	98	1998
2040.00	6449525	6537825	543227	543526	6291864	6360612	311	98	1998
2041.00	6356200	6435325	542863	543105	6291848	6360611	311	98	1998
2042.00	6255675	6343350	542431	542721	6291855	6360610	311	98	1998
2043.00	6166450	6245925	542032	542336	6291854	6360608	311	98	1998
2044.00	6068250	6156250	541641	541927	6291846	6360609	311	98	1998
2045.00	5978750	6058125	541190	541549	6291857	6360621	311	98	1998
2046.00	5878225	5967375	540801	541130	6291836	6360618	311	98	1998
2047.00	5790050	5868775	540397	540762	6291845	6360604	311	98	1998
2048.00	5690300	5779450	539989	540329	6291845	6360608	311	98	1998
2049.00	5601025	5679600	539594	539899	6291841	6360627	311	98	1998
2050.00	5499300	5589350	539202	539536	6291837	6360612	311	98	1998
2051.00	8250850	8341775	538814	539154	6291830	6360619	310	97	1998
2052.00	8162175	8240000	538380	538729	6291844	6360613	310	97	1998
2053.00	8059500	8150625	537960	538338	6291830	6360636	310	97	1998
2054.00	7961725	8039400	537591	537961	6291821	6360630	310	97	1998
2055.00	7857375	7949300	537179	537537	6291829	6360622	310	97	1998
2056.00	7766000	7844125	536758	537134	6291834	6360628	310	97	1998
2057.00	7661475	7752925	536354	536722	6291834	6360636	310	97	1998
2058.00	7572825	7650950	535977	536324	6291833	6360628	310	97	1998
2059.00	7468400	7560450	535586	535976	6291823	6360634	310	97	1998
2060.00	7308300	7398175	535151	535581	6291817	6360649	312	98	1998
2061.00	7273500	7365625	534771	535154	6291821	6360644	310	97	1998
2062.00	7184100	7262800	534368	534761	6291815	6360649	310	97	1998
2063.00	8170600	8261675	533963	534363	6291824	6360651	308	96	1998

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
2064.00	8078800	8155575	533530	533975	6291820	6360640	308	96	1998
2065.00	7976400	8067400	533145	533587	6291812	6360657	308	96	1998
2066.00	7886775	7964050	532720	533172	6291810	6360652	308	96	1998
2067.00	7782050	7875325	532331	532769	6291803	6360658	308	96	1998
2068.00	7693075	7769500	531939	532351	6291810	6360656	308	96	1998
2069.00	7588750	7681325	531529	531989	6291803	6360671	308	96	1998
2070.00	7499550	7576575	531120	531574	6291802	6360665	308	96	1998
2071.00	7394950	7489050	530712	531189	6291811	6360670	308	96	1998
2072.00	7307100	7383800	530339	530774	6291808	6360676	308	96	1998
2073.00	7201925	7295625	529901	530407	6291807	6360666	308	96	1998
2074.00	7112450	7189700	529506	530022	6291807	6360684	308	96	1998
2075.00	6515275	6603800	529085	529602	6294334	6360685	307	96	1998
2076.00	6424975	6503150	528672	529213	6291811	6360687	307	96	1998
2077.00	6324125	6413775	528280	528801	6291811	6360691	307	96	1998
2078.00	6235000	6314075	527901	528398	6291801	6360682	307	96	1998
2079.00	6135175	6224700	527484	528028	6291802	6360693	307	96	1998
2080.00	6045975	6125625	527057	527619	6291809	6360688	307	96	1998
2081.00	5946850	6036175	526684	527201	6291809	6360692	307	96	1998
2082.00	5856775	5936675	526278	526822	6291795	6360695	307	96	1998
2083.00	5756050	5846400	525877	526415	6291805	6360711	307	96	1998
2084.00	5665450	5745200	525457	525982	6291797	6360710	307	96	1998
2085.00	5551825	5642125	525053	525679	6291796	6360706	307	96	1998
2086.00	5462175	5541625	524643	525243	6291790	6360717	307	96	1998
2087.00	8523550	8603075	524256	524804	6291795	6360719	306	94	1998
2088.00	8424050	8514150	523823	524404	6291801	6360709	306	94	1998
2089.00	8332175	8411100	523478	524033	6291806	6360722	306	94	1998
2090.00	8232625	8323125	523025	523641	6291791	6360731	306	94	1998
2091.00	8130725	8210225	522665	523281	6291801	6360724	306	94	1998
2092.00	8031225	8121625	522226	522816	6291792	6360727	306	94	1998
2093.00	7938225	8017575	521843	522454	6291798	6360734	306	94	1998
2094.00	7833300	7924800	521429	522053	6291803	6360744	306	94	1998
2095.00	7740900	7820825	521014	521679	6291792	6360743	306	94	1998
2096.00	7636800	7727975	520629	521272	6291794	6360744	306	94	1998
2097.00	7538900	7619150	520216	520869	6291795	6360738	306	94	1998
2098.00	7437900	7528475	519783	520480	6291802	6360748	306	94	1998
2099.00	6923125	7002300	519448	520055	6291787	6360765	305	94	1998
2100.00	6824025	6912925	518995	519660	6291802	6360764	305	94	1998
2101.00	6732950	6812900	518576	519281	6291797	6360770	305	94	1998
2102.00	6634750	6723200	518161	518872	6291789	6360770	305	94	1998
2103.00	6543300	6623725	517789	518473	6291795	6360764	305	94	1998
2104.00	6446875	6534675	517377	518082	6291794	6360779	305	94	1998
2105.00	6352775	6433075	516985	517673	6291795	6360770	305	94	1998
2106.00	6253275	6341550	516571	517262	6291801	6360790	305	94	1998
2107.00	6160525	6241375	516188	516874	6291808	6360785	305	94	1998
2108.00	6062300	6151575	515780	516476	6291798	6360786	305	94	1998
2109.00	5969550	6050550	515365	516121	6291792	6360798	305	94	1998
2110.00	5869225	5958425	514963	515687	6291794	6360794	305	94	1998
2111.00	8055475	8140975	514563	515319	6291806	6360799	304	93	1998
2112.00	7955675	8040075	514136	514894	6291807	6360799	304	93	1998
2113.00	6812800	6899075	513772	514496	6291808	6360812	303	93	1998
2114.00	6719800	6802225	513315	514151	6291811	6360824	303	93	1998
2115.00	5380700	5459475	512929	513720	6291806	6360830	311	98	1998
2116.00	6856200	6977225	512534	513308	6291797	6360832	209	92	1998

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
2117.00	6751075	6849025	512132	512903	6291802	6360838	209	92	1998
2118.00	6620550	6741425	511727	512506	6291797	6360835	209	92	1998
2119.00	6515575	6613650	511294	512102	6291802	6360834	209	92	1998
2120.00	6382200	6502600	510919	511717	6291811	6360844	209	92	1998
2121.00	6274275	6373700	510511	511321	6291806	6360843	209	92	1998
2122.00	6147450	6267625	510105	510916	6291805	6360856	209	92	1998
2123.00	6039575	6139850	509714	510515	6291807	6360866	209	92	1998
2124.00	5913925	6031775	509306	510143	6291812	6360859	209	92	1998
2125.00	5803675	5907050	508891	509741	6291807	6360859	209	92	1998
2126.00	5680600	5795750	508486	509316	6291812	6360876	209	92	1998
2127.00	5571500	5673900	508089	508935	6291811	6360871	209	92	1998
2128.00	8754100	8862800	507647	508548	6291821	6360879	208	91	1998
2129.00	8627350	8733150	507262	508122	6291823	6360893	208	91	1998
2130.00	8511425	8620000	506882	507739	6291821	6360897	208	91	1998
2131.00	8399425	8505825	506469	507344	6291811	6360894	208	91	1998
2132.00	8282750	8391800	506079	506945	6291815	6360899	208	91	1998
2133.00	8169400	8276500	505669	506565	6291827	6360901	208	91	1998
2134.00	7186700	7267400	505247	506160	6291815	6360916	312	98	1998
2135.00	7939100	8046575	504846	505755	6291820	6360913	208	91	1998
2136.00	7823025	7930925	504459	505365	6291831	6360921	208	91	1998
2137.00	7708025	7816550	504049	504967	6291833	6360923	208	91	1998
2138.00	7590075	7697300	503644	504582	6291826	6360935	208	91	1998
2139.00	7475650	7584825	503218	504155	6291831	6360938	208	91	1998
2140.00	6912025	7032625	502802	503761	6291833	6360942	203	89	1998
2141.00	6799850	6900725	502431	503347	6291840	6360945	203	89	1998
2142.00	9086450	9194100	502031	502982	6291837	6360953	201	87	1998
2143.00	8967825	9075450	501611	502574	6291840	6360956	201	87	1998
2144.00	8849500	8955625	501215	502172	6291840	6360967	201	87	1998
2145.00	8728625	8838150	500820	501783	6291842	6360974	201	87	1998
2146.00	8609750	8715475	500417	501381	6291842	6360975	201	87	1998
2147.00	8488425	8599075	500002	500980	6291840	6360987	201	87	1998
2148.00	8324450	8429250	499601	500593	6291844	6360981	201	87	1998
2149.00	8200350	8312975	499206	500193	6291854	6360996	201	87	1998
2150.00	6740525	6762975	498787	499017	6291846	6306958	203	89	1998
2151.00	6707475	6733350	498393	498603	6291848	6306951	203	89	1998
2152.00	6679025	6701250	497992	498201	6291859	6306947	203	89	1998
2153.00	6645850	6671725	497583	497815	6291850	6306951	203	89	1998
2154.00	6616775	6638950	497188	497404	6291867	6306956	203	89	1998
2155.00	6581775	6607650	496781	497014	6291865	6306955	203	89	1998
2156.00	6553825	6576225	496371	496590	6291863	6306946	203	89	1998
2157.00	6520075	6545700	495972	496193	6291861	6306961	203	89	1998
2158.00	6490625	6513275	495576	495803	6291872	6306967	203	89	1998
2159.00	6457075	6482950	495138	495387	6291872	6306971	203	89	1998
2160.00	6428300	6451000	494763	494985	6291870	6306987	203	89	1998
2161.00	6394025	6419750	494346	494584	6291873	6306983	203	89	1998
2162.00	6365775	6388500	493944	494181	6291882	6306992	203	89	1998
2163.00	6331325	6356975	493540	493775	6291887	6306994	203	89	1998
2164.00	6302300	6325025	493143	493382	6291880	6307006	203	89	1998
2165.00	6267875	6293625	492733	492955	6291889	6307006	203	89	1998
2166.00	6238400	6261200	492346	492569	6291896	6307019	203	89	1998
2167.00	6205025	6230800	491932	492169	6291896	6307024	203	89	1998
2168.00	6175375	6198175	491522	491779	6291887	6307033	203	89	1998
2169.00	6141650	6167500	491127	491366	6291901	6307035	203	89	1998

LINE	START TIME	END TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
2170.00	6112425	6135100	490706	490961	6291897	6307046	203	89	1998
2171.00	6077150	6103100	490309	490568	6291906	6307051	203	89	1998
2172.00	6047900	6070550	489911	490163	6291899	6307049	203	89	1998
2173.00	6013275	6039025	489506	489755	6291911	6307069	203	89	1998
2174.00	5983900	6006525	489084	489358	6291907	6307067	203	89	1998
2175.00	5949225	5975050	488683	488954	6291914	6307082	203	89	1998
2176.00	5919525	5942325	488294	488562	6291915	6307088	203	89	1998
2177.00	5885275	5911125	487882	488153	6291918	6307089	203	89	1998
2178.00	5855300	5878000	487501	487749	6291925	6307104	203	89	1998
2179.00	5820175	5846175	487084	487334	6291920	6307098	203	89	1998
2180.00	5790000	5812850	486646	486945	6291934	6307117	203	89	1998
2181.00	5754650	5780550	486267	486528	6291934	6307117	203	89	1998
2182.00	5724400	5747550	485839	486146	6291932	6307129	203	89	1998
2183.00	5689825	5715725	485478	485727	6291939	6307134	203	89	1998
2184.00	5658825	5681975	485030	485320	6291936	6307140	203	89	1998
2185.00	5624225	5650100	484656	484963	6291954	6307145	203	89	1998
2186.00	5593800	5616925	484262	484521	6291957	6307155	203	89	1998
2187.00	5558625	5584700	483829	484134	6291950	6307157	203	89	1998
2188.00	5529425	5552325	483447	483712	6291957	6307168	203	89	1998
2189.00	5493900	5520200	483036	483310	6291959	6307180	203	89	1998
2190.00	5464400	5487100	482634	482912	6291974	6307186	203	89	1998
2191.00	5417325	5443700	482230	482498	6291969	6307195	203	89	1998
2192.00	5388125	5410675	481829	482098	6292101	6307194	203	89	1998

APPENDIX VI

WEEKLY REPORTS

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

SGL WEEKLY PROGRESS REPORT (WEEK OF February 9 TO February 15 1998)

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	2104	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	6497	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	42,574	LKM
TOTAL SIZE:	49,071	% COMPLETE:	13.23999918	%

AIRCRAFT TYPE: BN ISLANDER REGISTRATION: C-GSGX

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Hypolite	Beaulieu	Sohldost	Lewis
MON	09\02		1.3				1.5	
GEOMAG: Quiet to unsettled WEATHER: Overcast with above average temperatures REMARKS: Kelly O'Connor arrived to replace Maurice Coyle. Flew a compensation flight, not usable due to high freqency noise.								
TUE	10/02		0.9				1.1	1.1
GEOMAG: Quiet to unsettled WEATHER: Clear and warm REMARKS: Installed new navigation software, flew a calibration, still unusable due to noise.								
WED	11/02							
GEOMAG: Extremely active WEATHER: Fog in morning, low clouds all day REMARKS: No flight due to weather and ground magnetics. Fixed the focus on the video camera.								
THU	12/02	101	5.0	300			5.4	5.4
GEOMAG: Quiet WEATHER: Overcast, 2°C REMARKS: Compensation flight in AM, FOM 0.9 nT. Spikes on the air mag caused several lkm's to be unusable.								
FRI	13/02	102, 103	6.6	904			7.0	7.0
GEOMAG: Quiet WEATHER: Clear, 3°C REMARKS: Spikes on air mag caused flight 102 to be aborted. Connection tightened in boom, flight 103 full production flight.								
SAT	14/02	104	4.9	900			5.1	5.1
GEOMAG: Quiet WEATHER: Clear, 6°C REMARKS: Full production flight								
SUN	15/02							
GEOMAG: Not recorded WEATHER: Low fog all day, -2°C REMARKS: No flight due to low clouds								
TOTALS			18.7	2104	0	0	20.1	18.6

SGL WEEKLY PROGRESS REPORT (WEEK OF February 9 TO February 15, 1998

SUMMARY AND REMARKS:

Production began in Fort McMurray this week. Poor weather prevented survey flights on Wednesday and Sunday. A loose connection between the magnetometer pre-amplifier and a cable was fixed on Friday morning. This loose connection caused a portion of Thursdays flight to be lost due to spiking.

Kelly O'Connor
Sander Geophysics Limited.

SGL WEEKLY PROGRESS REPORT (WEEK OF February 9 TO February 15 1998)

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	4393	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	6497	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	42,574	LKM
TOTAL SIZE:	49,071	% COMPLETE:	13.23999918	%

AIRCRAFT TYPE: CESSNA 402B REGISTRATION: C-GCKB

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Hypolite	Beaulieu	Sohldost	Lewis
MON	09\02		1.2		1.4			
GEOMAG: Quiet to unsettled WEATHER: Overcast with above average temperatures REMARKS: Kelly O'Connor arrived to replace Maurice Coyle. Flew a compensation flight, not usable due to high freqency noise. Flew radar altimeter test.								
TUE	10/02		1.0			1.2		
GEOMAG: Quiet to unsettled WEATHER: Clear and warm REMARKS: Installed new navigation software, flew a calibration Figure of Merit 1.4 nT.								
WED	11/02							
GEOMAG: Extremely active WEATHER: Fog in morning, low clouds all day REMARKS: No flight due to weather and ground magnetics								
THU	12/02	001, 002	7.0	1413	7.4	7.4		
GEOMAG: Quiet WEATHER: Overcast, 2°C REMARKS: Spikes in the ground station trace caused half a line in the first flight to be unusable.								
FRI	13/02	003, 004	7.3	1518	7.7	7.7		
GEOMAG: Quiet WEATHER: Clear, 3°C REMARKS: Two full production flights								
SAT	14/02	005, 006	7.1	1462	7.5	7.5		
GEOMAG: Quiet WEATHER: Clear, 6°C REMARKS: Two full production flights								
SUN	15/02							
GEOMAG: Not Recorded WEATHER: Low fog all day REMARKS: No flight due to low clouds								
TOTALS			23.6	4393	24	23.8	0	0

SGL WEEKLY PROGRESS REPORT (WEEK OF February 9 TO February 15, 1998

SUMMARY AND REMARKS:

Production began in Fort McMurray this week. High frequency noise in Monday's compensation caused it to be unusable. Poor weather on Wednesday and Sunday made flights impossible. Two full production flights were flown on each of Thursday, Friday and Saturday.

Kelly O'Connor
Sander Geophysics Limited

SGL WEEKLY PROGRESS REPORT (WEEK OF February 16 TO February 22 1998)

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	1504	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	11081	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	37,990	LKM
TOTAL SIZE:	49,071	% COMPLETE:	22.58	%

AIRCRAFT TYPE: BN ISLANDER REGISTRATION: C-GSGX

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Hypolite	Beaulieu	Sohldost	Lewis
MON	16\02	105	3.7	600			3.9	3.9
GEOMAG: Quiet WEATHER: Overcast, very low cloud REMARKS: Flight was delayed until early afternoon. Lines had to be broken off in south due to low clouds								
TUE	17/02							
GEOMAG: Quiet to unsettled WEATHER: Low ceiling throughout day, 0°C REMARKS. No flight due to low clouds								
WED	18/02							
GEOMAG Active WEATHER: Low clouds throught day, 3°C REMARKS: No flight due to low clouds and active mag								
THU	19/02							
GEOMAG: Quiet WEATHER: Low ceiling, 0°C REMARKS: No flight due to low ceiling								
FRI	20/02	106	5.0	904	5.2		5.2	
GEOMAG: Quiet to unsettled WEATHER: Overcast REMARKS: Full production flight in AM								
SAT	21/02							
GEOMAG: Not recorded WEATHER: Low ceiling throughout day REMARKS: No flight due to low ceiling								
SUN	22/02							
GEOMAG: Quiet WEATHER: Overcast, 2°C REMARKS: No flight due to pilot illness								
TOTALS			8.7	1504	5.2	0	9.1	3.9

SUMMARY AND REMARKS:

Production was slow this week due to low ceilings in the survey area. Pilot illness prevented flights late in the week .

Kelly O'Connor
Sander Geophysics Limited

SGL WEEKLY PROGRESS REPORT (WEEK OF February 16 TO February 22 1998)

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	3080	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	11091	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	37,990	LKM
TOTAL SIZE:	49,071	% COMPLETE:	22.58	%

AIRCRAFT TYPE: CESSNA 402B REGISTRATION: C-GCKB

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Hypolite	Beaulieu	Sohldost	Lewis
MON	16\02	007	4.0	904	4.2	4.2		
GEOMAG: Quiet WEATHER: Overcast, very low clouds REMARKS: Flight delayed until afternoon due to fog, Full production flight in PM.								
TUE	17/02							
GEOMAG: Quiet to unsettled WEATHER: Low ceiling throughout day REMARKS: No flight due to low clouds								
WED	18/02							
GEOMAG: Active WEATHER: Low clouds throught day, 3°C REMARKS: No flight due to low clouds and active mag								
THU	19/02							
GEOMAG: Quiet WEATHER: Low ceiling, 0°C REMARKS: No flight due to low ceiling								
FRI	20/02	008	2.6	506	2.8			2.8
GEOMAG: Quiet to unsettled WEATHER: Overcast REMARKS: Full production flight in PM								
SAT	21/02							
GEOMAG: Not recorded WEATHER: Low ceiling throughout day REMARKS: No flight due to low ceiling								
SUN	22/02	009, 010	7.3	1670	7.7		3.4	4.3
GEOMAG: Quiet WEATHER: Overcast, 2°C REMARKS: Two full production flights								
TOTALS			13.9	3080	14.7	4.2	3.4	7.1

SUMMARY AND REMARKS:

Production was slow this week due to low ceilings in the survey area.

Kelly O'Connor
Sander Geophysics Limited

SGL WEEKLY PROGRESS REPORT (WEEK OF February 23 TO March 1 1998)

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	2424	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	17552	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	31,519	LKM
TOTAL SIZE:	49,071	% COMPLETE:	35.77	%

AIRCRAFT TYPE: BN ISLANDER REGISTRATION: C-GSGX

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Hypolite	Beaulieu	Sohldost	Lewis
MON	23\02			0			0	
GEOMAG: Quiet to unsettled WEATHER: Overcast, very low clouds REMARKS: No flight due to low clouds.								
TUE	24/02			0			0	
GEOMAG: Quiet to unsettled WEATHER: Low ceiling throughout day REMARKS: No flight due to low clouds.								
WED	25/02	107, 108	7.1	770			7.5	7.5
GEOMAG: Quiet WEATHER: Clear in AM, partly cloudy in PM, -3°C REMARKS: Flight 107 aborted due to spiking in magnetometer. Changed mag, re-calibrated, FOM 0.875 nT.								
THU	26/02	109	4.3	750			4.5	4.5
GEOMAG: Quiet WEATHER: Partly cloudy, -2°C REMARKS: Changed cable to mag sensor due to continued spiking.								
FRI	27/02			0				
GEOMAG: Quiet WEATHER: Low ceiling throughout day REMARKS: No flight due to low clouds								
SAT	28/02			0			REST	REST
GEOMAG: Not recorded WEATHER: Low clouds and fog REMARKS: Pilot rest day								
SUN	01/03		5.4	904			5.6	5.6
GEOMAG: Quiet to Unsettled WEATHER: Fog in AM, Clear in PM REMARKS: Flight delayed until PM due to fog.								
TOTALS			21.8	2424	5.2	0	17.6	17.6

SGL WEEKLY PROGRESS REPORT (WEEK OF February 23 TO March 1 1998)

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	4051	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	17402	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	31,669	LKM
TOTAL SIZE:	49,071	% COMPLETE:	35.46	%

AIRCRAFT TYPE: CESSNA 402B REGISTRATION: C-GCKB

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Hypolite	Beaulieu	Sohldost	Lewis
MON	23\02		0.4		0.6	0		0.6
GEOMAG: Quiet to unsettled WEATHER: Overcast, very low clouds REMARKS: Flight aborted due to low clouds in survey area. Afternoon flights cancelled due to low clouds.								
TUE	24/02		0.2		0.4	0.4		0
GEOMAG: Quiet to unsettled WEATHER: Low ceiling throughout day REMARKS: Flight aborted due to low clouds and fog. Afternoon flight cancelled due to low clouds.								
WED	25/02	011, 012	7.5	1490	7.9	7.9		
GEOMAG: Quiet WEATHER: Clear in AM, high clouds in PM, -3°C REMARKS: Two full production flights								
THU	26/02	013, 014	7.9	1808	8.3	8.3		0
GEOMAG: Quiet WEATHER: Partly cloudy, -2°C REMARKS: Two full production flights								
FRI	27/02							
GEOMAG: Quiet WEATHER: Low clouds throughout day REMARKS: No flight due to low clouds								
SAT	28/02				REST	REST		
GEOMAG: Not recorded WEATHER: Low clouds and fog REMARKS: Pilot rest day								
SUN	01/03	015	4.0	753	4.2	4.2		0
GEOMAG: Quiet to Unsettled WEATHER: Fog in AM, Clear in PM REMARKS: Flight delayed until PM due to fog.								
TOTALS			20	4051	21.4	20.8	0	0.6

SUMMARY AND REMARKS:

Production continued to be slow this week due to low ceilings in the survey area. Local temperatures rereturned to near normal which may improve our chances of higher production next week.

Kelly O'Connor
Sander Geophysics Limited

SGL WEEKLY PROGRESS REPORT (WEEK OF March 2 TO 8, 1998)

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	7593	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	27785	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	21,306	LKM
TOTAL SIZE:	49,071	% COMPLETE:	56.58	%

AIRCRAFT TYPE: BN ISLANDER REGISTRATION: C-GSGX

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Hypolite	Beaulieu	Sohldost	Lewis
MON	02/03	111, 112	8.6	1507			9	9
GEOMAG: Unsettled WEATHER: Clear, 3°C REMARKS: Two full production flights								
TUE	03/03	113	5.6	976			5.8	5.8
GEOMAG: Quiet to unsettled WEATHER: Fog in AM, cleared in PM, -6°C. REMARKS: Flight delayed due to fog								
WED	04/03	114	5.0	904			5.2	5.2
GEOMAG: Mag storm in AM, unsettled in PM WEATHER: Cloudy, -7°C. REMARKS: Flight 114 delayed due to magnetic storm.								
THU	05/03	115, 116	6.1	226	4.8	1.7	4.8	1.7
GEOMAG: Quiet WEATHER: Low cloud in AM, clear in PM, -8°C. REMARKS: Flight 116 returned early due to fog in survey area. No video on flight 116, lost production.								
FRI	06/03	117, 118	8.5	1014	1.5		5.9	4.4
GEOMAG: Quiet WEATHER: Clear, -20°C REMARKS: Flight 117 returned early to check video, flight 118 full production flight.								
SAT	07/03	119, 120	9.6	1529			0	0
GEOMAG: Quiet WEATHER: Clear, -17°C REMARKS: Two full production flights.								
SUN	08/03	121, 122	7.9	1378		3.7	4.6	4.6
GEOMAG: Quiet WEATHER: Clear, -25°C REMARKS: Two full production flights								
TOTALS			47.3	7593	6.3	5.4	44.3	39.7

SGL WEEKLY PROGRESS REPORT (WEEK OF March 2 TO 8 , 1998)

SUMMARY AND REMARKS:

Production went well this week. The Islander was double crewed due to problems with the 402 acquisition computer. Siegfried Hypolite left for a vacation on Saturday. He will be replaced by Dean Balaneski for the duration of his vacation. Dean flew in the Islander on Sunday afternoon for a total of 3.7 hours.

Kelly O'Connor
Sander Geophysics Limited.

SGL WEEKLY PROGRESS REPORT (WEEK OF March 2 TO March 8 1998)

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	2620	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	27765	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	21,306	LKM
TOTAL SIZE:	49,071	% COMPLETE:	56.58	%

AIRCRAFT TYPE: Cessna 402 REGISTRATION: C-GCKB

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Hypolite	Beaulieu	Sohidost	Balanesk
MON	02/03	016, 017	6.8	1127	7.2	7.2		
GEOMAG: Unsettled WEATHER: Clear, 3°C REMARKS: Flight 017 aborted due to problems with the GPS card.								
TUE	03/03							
GEOMAG: Quiet to unsettled WEATHER: Fog in AM, cleared in PM, -6°C. REMARKS: Tried unsuccessfully to fix GPS problem in acquisition system.								
WED	04/03							
GEOMAG: Mag storm in AM, unsettled in PM WEATHER: Cloudy, -7°C. REMARKS: Veronique Lavoie arrived with new GPS card, installed it unsucessfully in aircraft.								
THU	05/03							
GEOMAG: Quiet WEATHER: Low cloud in AM, clear in PM, -8°C. REMARKS: Continued our attempt to fix the GPS problem in the aircraft. A new acquisition computer was sent from Ottawa to try to fix our problem.								
FRI	06/03	018	3.2	609	3.4	3.4		
GEOMAG: Quiet WEATHER: Clear, -20°C REMARKS: Installed new acquisition computer succesfully. Flight 018 full production flight.								
SAT	07/03	019	3.9	984		4.1		4.1
GEOMAG: Quiet WEATHER: Clear, -17°C REMARKS: Flight 019 full production flight. Acquisition computer crashed prior to flight 020, replaced it and tested it on ground. System OK.								
SUN	08/03							
GEOMAG: Quiet WEATHER: Clear, -26°C REMARKS: Acquisition computer crashed prior to flight 020 (again).								
TOTALS			13.9	2620	10.6	14.7	0	4.1

SUMMARY AND REMARKS:

Problems with the acquisition computer limited production this week. Siegfried Hypolite left on vacation on Sunday, he has been replaced by Dean Balaneski, co-pilot, for the duration of his vacation.

Kelly O'Connor
Sander Geophysics Limited.

SGL WEEKLY PROGRESS REPORT (WEEK OF March 9 TO March 15 1998) PAGE 1

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	3715	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	36728	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	13,343	LKM
TOTAL SIZE:	49,071	% COMPLETE:	72.81	%

AIRCRAFT TYPE: Cessna 402 REGISTRATION: C-GCKB

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Balaneski	Beaulieu	Sohldost	Lewis
MON	09/03	020		772				
GEOMAG: Quiet WEATHER: Clear, -20°C REMARKS: Fixed acquisition computer Full production flight.								
TUE	10/03				REST	REST	REST	REST
GEOMAG: Not recorded WEATHER: REMARKS: Pilot rest day.								
WED	11/03	021		763				
GEOMAG: Active to Stormy WEATHER: Clear, -15°C REMARKS: Flight delayed due to magnetic storm								
THU	12/03	022		872				
GEOMAG: Unsettled WEATHER: Low ceiling in AM, clear in PM, -15°C REMARKS: Flight delayed due to low ceiling.								
FRI	13/03	023, 024		1308				
GEOMAG: Unsettled to Active WEATHER: Clear, -6°C REMARKS: Flight 023 aborted due to active mag, flight 024 full production flight.								
SAT	14/03							
GEOMAG: Unsettled WEATHER: Overcast, -2°C REMARKS:								
SUN	15/03							
GEOMAG: Unsettled to Active in AM WEATHER: Overcast, freezing drizzle, snow REMARKS: Flight aborted due to poor weather conditions								
TOTALS				3715				

SGL WEEKLY PROGRESS REPORT (WEEK OF March 9 TO 15, 1998)

PAGE 1

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	4218	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE	35728	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	13,343	LKM
TOTAL SIZE:	49,071	% COMPLETE:	72.81	%

AIRCRAFT TYPE: BN ISLANDER REGISTRATION: C-GSGX

DAY	DD/MM	FLI#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Hypolite	Beaulieu	Sohldost	Lewis
MON	09/03	123, 124		1055				
GEOMAG: Quiet WEATHER: Clear, -20°C REMARKS: Two full production flights.								
TUE	10/03				REST	REST	REST	REST
GEOMAG: Not recorded WEATHER: REMARKS: Pilot rest day.								
WED	11/03	125		603				
GEOMAG: Active to Stormy WEATHER: Clear, -15°C REMARKS: Flight delayed due to magnetic storm.								
THU	12/03	126		602				
GEOMAG: Unsettled WEATHER: Low ceiling in AM, clear in PM, -15°C REMARKS: Flight delayed due to low ceiling. Computer rebooted during flight, problem with acquisition software								
FRI	13/03	127, 128		1054				
GEOMAG: Unsettled to Active WEATHER: Clear, -10°C REMARKS: Flight 127 aborted due to active mag. flight 128 full production flight.								
SAT	14/03	129		904				
GEOMAG: Unsettled WEATHER: Overcast, -2°C REMARKS: Flight delayed due to low ceiling								
SUN	15/03							
GEOMAG: Unsettled to Active in AM WEATHER: Overcast, freezing drizzle, snow REMARKS: No flight due to poor weather conditions								
TOTALS				4218				

SUMMARY AND REMARKS:

Production went well this week. Active magnetics and poor weather kept flights to a minimum on every day but Monday. John Evans, pilot, arrived on Sunday to join the crew.

Kelly O'Connor
Sander Geophysics Limited.

SGL WEEKLY PROGRESS REPORT (WEEK OF March 16 TO March 22 1998) PAGE 1

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	3270	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	43905	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	5,166	LKM
TOTAL SIZE:	49,071	% COMPLETE:	89.47	%

AIRCRAFT TYPE: Cessna 402 REGISTRATION: C-GCKB

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Evans	Beaulieu	Sohldost	Lewis
MON	16/03							
GEOMAG: Unsettled WEATHER: Low ceiling throughout day REMARKS: No flight due to weather								
TUE	17/03	026, 027	7.5	1526	7.9	7.9		
GEOMAG: Quiet WEATHER: Clear, 0°C REMARKS: Two full production flights								
WED	18/03	028, 029	7.2	872		7.6		7.6
GEOMAG: Quiet WEATHER: Clear, 2°C REMARKS: Flight 028 contained some reflights, flight 029 full production flight.								
THU	19/03	030	4.0	872		4.2		4.2
GEOMAG: Quiet WEATHER: Clear, high clouds in PM, 6°C REMARKS: Only one flight possible due to impending engine change								
FRI	20/03							
GEOMAG: Quiet to Unsettled WEATHER: Low clouds in survey area REMARKS: Engine change								
SAT	21/03							
GEOMAG: Active to Stormy WEATHER: Clear, high clouds, 6°C REMARKS: Engine change								
SUN	22/03							
GEOMAG: Quiet WEATHER: Clear, high puffy clouds REMARKS: Engine change								
TOTALS				3270	7.9	19.7		11.8

SUMMARY AND REMARKS:

Production came to a halt this week as the aircraft was grounded on Thursday for an engine change. Poor weather on Monday caused that days flights to be cancelled; both Tuesday and Wednesday were very productive with two full flights on each day.

Kelly O'Connor
Sander Geophysics Limited.

SGL WEEKLY PROGRESS REPORT (WEEK OF March 16 TO 22, 1998)

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	5087	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	43905	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	5,166	LKM
TOTAL SIZE:	49,071	% COMPLETE:	89.47	%

AIRCRAFT TYPE: BN ISLANDER REGISTRATION: C-GSGX

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Beaulieu	Evans	Sohldost	Lewis
MON	16/03							
GEOMAG: Unsettled WEATHER: Low ceiling throughout day REMARKS: No flight due to weather								
TUE	17/03	130	5.3	904			5.7	5.7
GEOMAG: Quiet WEATHER: Clear, -5°C REMARKS: Flight 130 delayed due to problems with the aircraft heater.								
WED	18/03	131, 132	8.2	1349		8.6	8.6	
GEOMAG: Quiet WEATHER: Clear, 2°C REMARKS: Flight 026 contained some relights, flight 029 full production flight.								
THU	19/03	133, 134	8.9	1526		9.3	9.3	
GEOMAG: Quiet WEATHER: Clear, high clouds in PM, 8°C REMARKS: Two full production flights								
FRI	20/03							
GEOMAG: Quiet to Unsettled WEATHER: Low clouds in survey area REMARKS: Flight 135 aborted due to low clouds.								
SAT	21/03							
GEOMAG: Active to Stormy WEATHER: Clear, high clouds, 6°C REMARKS: No flight due to active mag.								
SUN	22/03	135	8.0	1308	8.4	4.2		4.2
GEOMAG: Quiet WEATHER: Clear, high puffy clouds REMARKS: Two full production flights								
TOTALS				5087	8.4	22.1	23.6	9.9

SGL WEEKLY PROGRESS REPORT (WEEK OF March 16 TO 22 , 1998)

SUMMARY AND REMARKS:

Poor weather prohibited flight on Monday and Friday; Problems with the heater in the aircraft caused Tuesdays flight to be delayed; active ground magnetics caused Saturday's flights to be cancelled. Wednesday, Thursday and Sunday were all very productive, with two full flights each day. Saeed Solhdoost, pilot, left on vacation on Saturday, Siegfried Hypolite arrived on Sunday to replace him.

Kelly O'Connor
Sander Geophysics Limited.

SGL WEEKLY PROGRESS REPORT (WEEK OF March 23 TO March 29, 1998) *PAGE 1*

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	5087	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	49071	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	0	LKM
TOTAL SIZE:	49,071	% COMPLETE:	100	%

AIRCRAFT TYPE: BN ISLANDER REGISTRATION: C-GSGX

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Hypolite	Beaulieu	Evans	Lewis
MON	23/03	137, 138	10.1	1744	5.2	5.3	5.3	5.2
GEOMAG: Unsettled WEATHER: Clear blue sky, 6°C REMARKS: Two full production flights								
TUE	24/03	139, 140	8.3	1308	4.7	4.2	4.2	4.7
GEOMAG: Quiet with Stormy intervals WEATHER: Overcast, 2°C REMARKS: Flight 139 delayed due to stormy mag								
WED	25/03	141	2.6	Reflights	2.8			2.8
GEOMAG: Active WEATHER: Clear, 6°C REMARKS: Flight 141 delayed due to active mag, reflights only								
THU	26/03					1.0	1.0	
GEOMAG: Active with stormy intervals WEATHER: Clear, low level turbulence REMARKS: Training flights in AM, no flight in PM due to active mag and turbulence								
FRI	27/03	142, 143	7.5	1090	7.9	REST	REST	7.9
GEOMAG: Quiet to unsettled WEATHER: Clear, 8°C REMARKS: Two full production flights								
SAT	28/03	144, 201	9.2	945, 552	4.5	5.3	5.3	4.5
GEOMAG: Quiet WEATHER: Clear, showers in PM, 5°C REMARKS: Finished original block, second flight started on Block "G"								
SUN	29/03	202	5.0	964	5.2		5.2	
GEOMAG: Quiet with active intervals WEATHER: High clouds, 8°C, high winds REMARKS: Block "G" production, some reflights may be needed due to active mag. No flight in PM due to active mag and winds.								
TOTALS			42.7	5087	30.3	15.8	21	25.1

APPENDIX VII

FLIGHT LOGS

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
311	08.04.98	Start	1450	3.6	2988	+7°C
		Finish	1885	3.8		

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	SH/TL					
Weather	VFR					
Disk #						
First File	098 #1440					

General comments:

Line #	From	To	Comments	
T2115	S	N	F ✓	1
T2050	N	S	B ✓	2
T2049	S	N	F ✓	3
T2048	N	S	B ✓	4
T2047	S	N	F ✓	5
T2046	N	S	B ✓	6
T2045	S	N	F ✓	7
T2044	N	S	B ✓	8
T2043	S	N	F ✓	9
T2042	N	S	B ✓	10
T2041	S	N	F ✓	11
T2040	N	S	B ✓	12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
310	7/4/98	Start	1945		29.87	+12°C
		Finish	2324		29.83	+11°C

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	SH/J.E.					
Weather	500 VFR					
Disk #						
First File	0975 1939					

General comments: TIN 3.7
FLT 3.9

Line #	From	To	Comments	
T2062	S	N	F ✓	1
T2061	N	S	B ✓	2
T2060	S	N	F ✓	3
T2059	N	S	B ✓	4
T2058	S	N	F ✓	5
T2057	N	S	B ✓	6
T2056	S	N	F ✓	7
T2055	N	S	B ✓	8
T2054	S	N	F ✓	9
T2053	N	S	B ✓	10
T2052	S	N	F ✓	11
T2051	N	S	B ✓	12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

6

PROJECT: Ft McMurray

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
309	07.01.98	Start	14:58		29.89	5°C
		Finish	18:51		29.88	9

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	SH/TC					
Weather	UFE					
Disk #	2					
First File	097 1454					

General comments:

Line #	From	To	Comments	
C230	W	E	B ✓	1
T2001	N	S	B ✓	2
T2002	S	N	F ✓	3
T2003	N	S	B ✓	4
T2026	S	N	F ✓	5
T2027	N	S	B ✓	6
T2028	S	N	F ✓	7
T2029	N	S	B ✓	8
T2030	S	N	F ✓	9
T2031	N	S	B ✓	10
T2032	S	N	F ✓	11
T2033	N	S	B ✓	12
T2034	S	N	F	13
T2035	N	S	B	14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date
308	6-04-98

	Hr	Min	Baro Alt	Temp
Flight Start	1935	3.7	2995	+10°C
Finish	2315	3.9		

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	SH/JE					
Weather						
Disk #						
First File	096 @ 1988					

General comments:

Line #	From	To	Comments	
T2074	S	N	F —	1
T2073	N	S	B —	2
T2072	S	N	F —	3
T2071	N	S	B —	4
T2070	S	N	F —	5
T2069	N	S	B —	6
T2068	S	N	F —	7
T2067	N	S	B —	8
T2066	S	N	F —	9
T2065	N	S	B —	10
T2064	S	N	F —	11
T2063	N	S	B —	12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
307	6-04-98	Start	14	58	3.6	2999	+5C
		Finish	18	35	3.8	2996	+11C

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	SH / TL					
Weather	Clear.					
Disk #						
First File	0936 1450					

General comments:

Line #	From	To	Comments	
T2087	S	N	F	1
T2085	N	S	B	2
T2084	S	N	F	3
T2083	N	S	B	4
T2082	S	N	F	5
T2081	N	S	B	6
T2080	S	N	F	7
T2079	N	S	B	8
T2078	S	N	F	9
T2077	N	S	B	10
T2076	S	N	F	11
T2075	N	S	B	12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

AIR 3.6 FLT 3.8

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
305	4/4/98	2015	0006	C-GCKB	SH/SE		094 \ 2822

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR	30 ⓪	250/10		LGT	29.91	+10°C
	STOP	"					29.90	+9°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T2098	S-N	F	✓				
T2097	N-S	B	✓				
T2096	S-N	F	✓				
T2095	N-S	B	✓				
T2094	S-N	F	✓				
T2093	N-S	B	✓				
T2092	S-N	F	✓				
T2091	N-S	B	✓				
T2090	S-N	F	✓				
T2089	N-S	B	✓				
T2088	S-N	F	✓				
T2087	N-S	B	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~[illegible]~~ FORT McMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
305	4-4-98	15:51 1936	3.7 3.9	C-GCKB	SH/TL	2	014A 1543

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					29.89	+7°C
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T2001	S-N	F					
T2002	N-S	B					
T2003	S-N	F					
T2104	N-S	B F	✓				
T2105	S-N	F B	✓				
T2106	N-S	B F	✓				
T2107	S-N	F B	✓				
T2108	N-S	B F	✓				
T2109	S-N	F B	✓				
T2110	N-S	B F	✓				
T2111	S-N	F B	✓				
T2112	N-S	B F	✓				
T2201	N-S	B	✓				
T2202	S-N	F	✓				
T2204	N-S	B	✓				

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
304	3/4/98	Start	2115		29.97	+7°C
		Finish				

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	SH/JE					
Weather	Cloudy.					
Disk #						
First File	0933 & 2109					

General comments:

Line #	From	To	Comments	
T2001	S	N	F S → 8 Nm from N.	1
T2002	N	S	B 11 Nm from N → S.	2
T2003	S	N	F	3
T2112	N	S	B ✓	4
T2111	S	N	F ✓	5
T2110	N	S	B	6
T2109	S	N	F	7
T2108	N	S	B	8
T2107	S	N	F	9
T2106	N	S	B	10
T2105	S	N	F	11
T2104	N	S	B	12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
303	3/4/98	Start	15:28	3.8	3008	+1°C
		Finish	19:20	4.0	2993	

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	SH / JE					
Weather	Cloudy.					
Disk #						
First File	093 @ 1529					

General comments:

Line #	From	To	Comments	
C0224	B W	E	B ✓	1
C0223	F E	W	F ✓	2
C0222	B W	E	B ✓	3
C0221	F E	W	F ✓	4
C0220	B W	E	B ✓	5
C0219	F E	W	F ✓	6
C0218	B W	E	B ✓	7
C0217	F E	W	F ✓	8
C0216	B W	E	B ✓	9
C0215	F E	W	F ✓	10
C0214	B W	E	B ✓	11
C0213	F E	W	F ✓	12
T2114	S	N	F ✓	13
T2113	N	S	B ✓	14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
302	02-04-98	20:44 00:11	3.4 3.6	C-G~~GCKB~~	SH/JE		092$E040

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START						3000	+11°C
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
~~C225~~	~~W-E~~	B	✓				
C226	E-W	F	✓				
C227	W-E	B	✓				
C228	E-W	F	✓				
C229	W-E	B	✓				
~~C~~230	E-W	F	✓				
C231	W-E	B	✓				
C232	E-W	F	✓				
C233	W-E	B	✓				
C234	E-W	F	✓				
C235	W-~~E~~	B	✓				
T							

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT McMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
301	02-04-98	15:40. 19:31	3.8 4.0	C-GCHB	SH/JE		092 01527

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START						30.00	+1°C
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T2014	S-N	F	✓				
T2015	N-S	B	✓				
T2016	S-N	F	✓				
T2017	N-S	B	✓				
T2018	S-N	F	✓				
T2019	N-S	B	✓				
T2020	S-N	F	✓				
T2021	N-S	B	✓				
T2022	S-N	F	✓				
T2023	N-S	B	✓				
T2024	S-N	F	✓				
T2025	N-S	B	✓				
~~T2026~~	~~S-N~~	~~F~~					
~~T2027~~	~~N-S~~	~~B~~					
T2028							

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MCMURRAY LAB 1997~~ 2
FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
210	02-04-98	20:~~54~~ 00:47	4.~~0~~ 4.~~2~~	GSGX	RB/TC		0129 2059

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					30.00	11°C
	STOP						30.00	13°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
~~0225~~ ~~2444~~	~~W-E~~ ~~E-W~~	~~F~~ ~~B~~					
0213	W/E	B	✓				
0214	E/W	F	✓				
0215	W-E	B	✓				
0216	E-W	F	✓				
0217	W-E	B	✓				
0218	E-W	F	✓				
0219	W-E	B	✓				
0220	E-W	F	✓				
0221	W-E	B	✓				
0222	E-W	F	✓				
0223	W-E	B	✓				
0224	E-W	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
209	02.04.98	15:26 17:32	4.2 4.4	GSGX	RB/TL	1	092 # 1517

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					30.02	1°C
	STOP						30.01	11°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
2127	S-N	F	✓				
2126	N-S	B	✓				
2125	S-N	F	✓				
2124	N-S	B	✓				
2123	S-N	F	✓				
2122	N-S	B	✓				
2121	S-N	F	✓				
2120	N-S	B	✓				
2119	S-N	F	✓				
2118	N-S	B	✓				
2116	S-N	F	✓				
2115	N-S	B	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
20870	01.04.98	2038 0053	4.3 4.5	GSGX	RB/TC	1	091$2034

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					29.89	+8°C
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
2139	S/N	F	✓				
2138	N/S	B	✓				
2137	N/S	F	✓				
2136	S/N	B	✓				
2135	N/S	F	✓				
2134	S/N	B	✓				
2133	N/S	F	✓				
2132	S/N	B	✓				
2131	N/S	F	✓				
2130	S/N	B	✓				
2129	N/S	F	✓				
2128	S/N	B	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
207	01.04.98	17:32 15:36	3.9 4.1	GSGX	RB/TC	1	091 @ 1527

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					29.92	+2°C
	STOP						29.90	+7°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T2004	S-N	F	✓				
T2005	N-S	B	✓				
T2006	S-N	F	✓				
T2007	N-S	B	✓				
T2009	S-N	F	✓				
T2009	N-S	B	✓				
T2010	S-N	F	✓				
T2011	N-S	B	✓				
T2012	S-N	F	✓				
T2013	N-S	B	✓				
~~T2014~~	~~S-N~~						

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
206	31.03.98	20:22 01:13	4.8 5.0	GSGX	SH/TC		0930\2017

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START						2975	+10°C
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
0225	W-E	B	✓				
C0226	E-W	F	✓				
C0227	W-E	B	✓				
C0228	E-W	F	✓				
C0229	W-E	B	✓				
C0230	E-W	F	✓				
C0231	W-E	B	✓				
C0232	E-W	F	✓				
C0233	W-E	B	✓				
C0234	E-W	F	✓				
C0235	W-E	B	✓				
T2001	N-S	B	✓				
T2002	S-N	F	✓				
T2003	N-S	B	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

4.0 4.2

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
205	31/05/98	1529	1927	GSCX	RB/JE		090$1521

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					29.70	+5°C
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
0213	W/E	B	✓				
0214	E/W	F	✓				
0215	W/E	B	✓				
0216	E/W	F	✓				
0217	W/E	B	✓				
0218	E/W	F	✓				
0219	W/E	B	✓				
0220	E/W	F	✓				
0221	W/E	B	✓				
0222	E/W	F	✓				
0223	W/E	B	✓				
0224	E/W	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

AIR 4.5 4.7 FLT

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
204	30/3/98	2052	0127	C-GSGX	SH/JE		0894 2842

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					29.47	+8°C
	STOP						29.50	+10°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
C0201	~~E-W~~ W-E	B	✓				
C0202	E-W	F	✓				
C0203	W-E	B	✓				
C0204	E-W	F	✓				
C0205	W-E	B	✓				
C0206	E-W	F	✓				
C0207	W-E	B	✓				
C0208	E-W	F	✓				
C0209	W-E	B	✓				
C0210	E-W	F	✓				
C0211	W-E	B	✓				
C0212	E-W	F	✓				

cont

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
203	30.03.98			GSG X	RB/TC	1	

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START							
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
2162	S-N	F	✓				
2161	N-S	B	✓				
2160	S-N	F	✓				
2159	N-S	B	✓				
2158	S-N	F	✓				
2157	N-S	B	✓				
2156	S-N	F	✓				
2155	N-S	B	✓				
2154	S-N	F	✓				
2153	N-S	B	✓				
2152	S-N	F	✓				
2151	N-S	B	✓				
2150	S-N	F	✓				
2141	S-N	F	✓				
2140	N-S	B	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

CONT.

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
203	30·03·98			GSGX	RB/TL	1	

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START							
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
2177	N-S	B	✓				
2176	S-N	F	✓				
2175	N-S	B	✓				
2174	S-N	F	✓				
2173	N-S	B	✓				
2172	S-N	F	✓				
2171	N-S	B	✓				
2170	S-N	F	✓				
2169	N-S	B	✓				
2168	S-N	F	✓				
2167	N-S	B	✓				
2166	S-N	F	✓				
2165	N-S	B	✓				
2164	S-N	F	✓				
2163	N-S	B	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~
FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
203	30.03.98	14:53 19:40	4.8 5.0	GSGX	RB / TC	1	0891447

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					29.51	-1°C
	STOP						29.47	7°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T2192	S-N	F	✓				
T2191	N-S	B	✓				
T2190	S-N	F	✓				
T2189	N-S	B	✓				
T2188	S-N	F	✓				
2187	N-S	B	✓				
2186	S-N	F	✓				
2185	N-S	B	✓				
2184	S-N	F	✓				
2183	N-S	B	✓				
2182	S-N	F	✓				
2181	N-S	B	✓				
2180	S-N	F	✓				
2179	N-S	B	✓				
2178	S-N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
202	29-03-98	14:58 15:58	5.0 5.2	C-GSGX	SH/JE		0884448

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START						972	-2°C
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T2141	S-N	F	✓				
T2140	N-S	B	✓				
T2139	S-N	F	✓				
T2138	N-S	B	✓				
T2137	S-N	F	✓				
T2136	N-S	B	✓				
T2135	S-N	F	✓				
T2134	N-S	B	✓				
T2133	S-N	F	✓				
T2132	N-S	B	✓				
T2131	S-N	F	✓				
T2130	N-S	B	✓				
T2129	S-N	F	✓				
T2128	N-S	B	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

22:48 3.0 3.2

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
201	28·03·98	~~21 10~~	01:39	GSGX	SH/TL	1	0271.2236

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					2983	+4°C
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T2149 ~~T2001~~	S-N	F	✓				
T2148	N-S	B	✓				
T2147	S-N	F	✓				
T2146	N-S	B	✓				
T2145	S-N	F	✓				
T2144	N-S	B	✓				
T2143	S-N	F	✓				
T2142	N-S	B	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

AIR 5.1 FLT 5.3

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
144	28/3/98	1520	2025	C-GSGX	RB/JE		387 & 1547

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					29.80	-6°C.
	STOP	"					29.83	0°C.

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
1213	N-S	B	✓				
1217	S-N	F	✓				
1218	N-S	B	✓				
1219	S-N	F	✓				
1220	N-S	B	✓				
1221	S-N	F	✓				
1222	N-S	B	✓				
1223	S-N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

3.1 3.3

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
143	27·03·98	22:20	01:27	GSCGX	SH/TC	Bois 4	2569 2218

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					29.50	7°C
	STOP						29.56	5°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T1213	N-S	B	✓				
T1214	S-N	F	✓				
T1215	N-S	B	✓				
T1216	S-N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~

FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
142	26.03.98	16:56 2120	4.4 4.6	~~SH/TC~~ GSXM	SH/TC	B015	086Ø1646 086Ø1746

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START						29.49	+3 +10 °C
	STOP						29.48	+7° C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T1195	N-S	B	✓				
T1208	S-N	F	✓				
T1209	N-S	B	✓				
T1210	S-N	F	✓				
T1211	N-S	B	✓				
T1212	S N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
141	25·03·98	2.6 21:06	2.8 23:41	GSGX	SH/TL	4	084 2100 084 2305 – 1195B

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					29.22	8°C
	STOP						29.21	8°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T1003	N-S	B		✓	St	36 End	
T1028	S-N	F		✓			
T1195	N-S	B					
T1208	N-S	F					

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB. 1997~~ FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
140	24.03.98	21:46		GSGX	SH/TL	4	003 $2140

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	24 km	3000				29.38	+3
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
1202	N-S	B	✓				
1203	S-N	F	✓				
1204	N-S	B	✓				
1205	S-N	F	✓				
1206	N-S	B	✓				
1207	S-N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
139	24/3/97	1630	2032	CGSGX	RB/JE		

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	20 @ 6+					29.46	-1°C
	STOP						29.40	+1°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
1191	N-S	B	✓				
1192	S-N	F	✓				
1193	N-S	B	✓				
1194	S-N	F	✓				
1200	N-S	B	✓				
1201	S-N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

5.0 5.2

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
F138	23·03·98	01:09	02:11	GSGX	SH/TL	1	0821 2163

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					29.86	+6°C
	STOP						29.72	+1°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T1183	N-S	B	✓				
T1184	S-N	F	✓				
T1185	N-S	B	✓				
T1186	S-N	F	✓				
T1187	N-S	B	✓				
T1188	S-N	F	✓				
T1189	N-S	B	✓				
T1190	S-N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB - 1997~~ FORT MCMURRAY, 1998

5.1 5.3

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
137	98/03/23	1514	2017	GSGX	RB/JC		080 $ 1504

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					29.99	-5°C
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
1175	S	B	✓				
1176	N	F	✓				
1177	S	B	✓				
1178	N	F	✓				
1179	S	B	✓				
1180	N	F	✓				
1181	S	B	✓				
1182	N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

4.0 4.2

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
136	22.03.98	20:34	00:36	GSGR	RB/TC	4	001 2033

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					30.16	+4°C
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T1169	N-S	B	✓				
T1170	S-N	F	✓				
T1171	N-S	B	✓				
T1172	S-N	F	✓				
T1173	N-S	B	✓				
T1174	S-N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB - 1997~~ FORT MCMURRAY, 1998

~~0~~ 4.0 4.2 JC/RS

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
135	22/3/98	1557	1954	C-GSGX	[redacted]		081 $ 1548

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START						30.20	-6° C
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
1163	~~S~~	B	✓				
1164	N	F	✓				
1165	S	B	✓				
1166	N	F	✓				
1167	S	B	✓				
1168	N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

AIR 3.9 FLT 4.1

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
134	19.3.98	21:43	0137	GSGX	SS/JE		078 $2135

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					29.96	7 °C
	STOP						29.96	4 °C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
1157	N-S	B	✓				
1158	S-N	F	✓				
1159	N-S	B	✓				
1160	S-N	F	✓				
1161	N-S	B	✓				
1162	S-N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

AIR 5.0 ELT 5.2

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
133	19/3/98	1526	2024	C-GSGX	SS/JE		OR $ 1513

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					30 00	-7°C
	STOP						29.96	+11°C.

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
1149	N-S	B	✓				
1150	S-N	F	✓				
1151	N-S	B	✓				
1152	S-N	F	✓				
1153	N-S	B	✓				
1154	S-N	F	✓				
1155	N-S	B	✓				
1156	S-N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

3.9 AIR 4.1 FLT

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
132.	18.3.98	21:32	01:28	G SGX	SS/JE		077 $2140

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					30.16	2°C
	STOP						30.12	0°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
1143	N-S	B	✓				
1144	S-N	F	✓				
1145	N-S	B	✓				
1146	S-N	F	✓				
1147	N-S	B	✓				
1148	S-N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

AK 43 45 FLT.

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
131	18.03.98	1557	2014	C-GSGX	SS/JE		077:01535

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR.					30.24	-3°C
	STOP						30.18	3°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
1101	N-S	B	✓				
1138	S-N	F	✓				
1139	N-S	B	✓				
1140	S-N	F	✓				
1141	N-S	B	✓				
1142	S-N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

(C) 3 0.3 0.5 5h 5.2

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
130	17.02.98	~~1552~~ 1945	1606 00:45	GSGX	SS/TL	4	776 # 1941

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"

	VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
START	VFR	CLR	—	—	—	30.34	-2°C
STOP						30.28	+3°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T1095	N-S	B	✓				
T1096	S-N	F	✓				
T1097	~~S-N~~ N-S	B	✓				
T1098	S-N	F	✓				
T1099	N-S	B	✓				
T1100	S-N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

5.0 5.2

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
129	14·03·98	19:58	00:56	GSGX	SS/TL	1	0739 1590

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	OK	6000	110/5-10			30.13	-10°C
	STOP						30.06	-4°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T1089	N-S	B	✓				
T1090	S-N	F	✓				
T1091	N-S	B	✓				
T1092	S-N	F	✓				
T1093	N-S	B	✓				
T1094	S-N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

23"48
2300 RPM

PROJECT: ~~MEDICINE HAT, AB 1997~~

4.2 4.4

FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
128	13.~~08~~.98	20:37	00:49	GSG X	SS/TL		072 $2031

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					30.42	-10 °C
	STOP						30.32	-8 °C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T1084	N-S	AB	✓				
T1085	S-N	BF	✓				
T1086	N-S	AB	✓				
T1087	S-N	BF	✓				
1088	N-S	AB	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

2.1 2.3

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
127	13·03·98	15:48	17:55	GSGX	SS/TL		07281538

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR	Sct 25000	—	-	-	30.46	-21
	STOP						30.46	-17

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T1082	N-S	B	✓				
T1083	S-N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~KEROSENE HAT, AB 1997~~ FORT MCMURRAY, 1998

3.9 / 4.1
AIR / FLT

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
126	12·03·98	20:22	00:16	GSGX	SS/TL	4	071/2012

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	VFR					30.13	-9 °C
	STOP						30:18	

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T1078	N-S	B	✓				
T1079	S-N	F	✓				071/2140
T1080	N-S	B	✓				
T1081	S-N	F	✓				

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: Ft McMurray

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
125	11.03.98	Start	19:56	4.2	29.92	-8
		Finish	20:10	4.4		

Aircraft	BWE	CKB	WZG	(SGX)	SGZ	SGL
Crew	SS/TC					
Weather	High overcast					
Disk #	1					
First File	0703 1951					

General comments:

Line #	From	To	Comments	
T1057	N	S	B ✓	1
T1075	S	N	F ✓	2
T1076	N	S	✓	3
T1077	S	N	F ✓	4
T1078	N	S	B ✓	5
				6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~ FORT MCMURRAY, 1998

AIR 3.1 FLT 3.3

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
124	09/03/98	21:49	00:55	GSGX	SS/TL	1	068 / 2141

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	5km					30.73	-15 °C
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T1072	N-S	B	✓				
T1073	S-N	F	✓				
T1074	N-S	B	✓				

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: Ft McMurray

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
123	09/03/98	Start	17:19	3.6	30.72	-28
		Finish	20:58	3.8	30.77	-15

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	SS/TC					
Weather	CLR					
Disk #	4					
First File	0681 1708					

General comments:

Line #	From	To	Comments	
T1068	N	S	B ✓	1
T1069	S	N	F ✓	2
T1070	N	S	B ✓	3
T1071	S	N	F ✓	4
				5
				6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1998~~ FORT MCMURRAY, 1998

35 37

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
122	98/03/08	2237	0210	GSGX	RB/DB		0673 (2230 MT)

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	15	CLR	27 05			30.68	-25
	STOP							

J
RWY 25

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
T1064	N/S	B	✓				
T1065	S/N	F	✓				
T1066	N/S	B	✓				
T1067	S/N	F	✓				

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MEDICINE HAT, AB 1997~~

AIR 4.4 FLT 4.B FORT MCMURRAY, 1998

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
121	08.3.98	~~0~~ 17:30	21.56	GSGX	SS/TL		067 $ 1719

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START						30.71	-24°C
	STOP						30.68	-18°C

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
C1147	E	W					
C1148	W	E					
C1149	E	W					
T1199	N	S					
1198	S	N					
1197	N	S					
1196	S	N					

SANDER GEOPHYSICS FLIGHT LOG

PROJECT: ~~MERIDIAN 5 HAT, AB 1997~~ FORT MCMURRAY, 1998

4.7 4.9

FLIGHT NO.	DATE	FLIGHT START	FLIGHT END	AIRCRAFT	CREW	DISK NO.	FIRST FILE
120	07/03/98	21:06	01:47	GSGX	SS/TC	3	066 @ 2100

NOTE SIGNIFICANT WEATHER CHANGE DURING FLIGHT IN "COMMENTS"		VISIBILITY	CLOUDS	WIND	PRECIP	TURBULENCE	BARO	TEMP
	START	+P6	Few 6500	270/5	—	—	30.52	-18°C
	STOP							

LINE NO.	DIRECTION	FWD/BCK	C	P	P/START DIST/FROM	P/STOP DIST/FROM	COMMENT
C0135	E-W	F	✓				
C0136	W-E	B	✓				
C0136	E-W	F	✓				
C0140	W-E	B	✓				
C0141	E-W	F	✓				
C0142	W-E	B	✓				
C0143	E-W	F	✓				
C0144	W-E	B	✓				

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
118	06/03/92	Start	20:46	4.2	30.30	-10
		Finish	20:58	4.9		

Aircraft	BWE / CKB / WZG / (SGX) / SGZ / SGL
Crew	SS/TL
Weather	VFR /Bkn 6500
Disk #	
First File	065H2040

General comments:

Line #	From	To	Comments	
C0152	E	W	F ✓	1
C0153	W	E	B ✓	2
C0154	E	W	F ✓	3
C0155	W	E	B ✓	4
C0156	E	W	F ✓	5
C0157	W	E	B ✓	6
C0139	E	W	F ✓	7
C0138	W	E	B ✓	8
~~T[illegible]~~	~~[illegible]~~	~~[illegible]~~	~~[illegible]~~	9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date
117	06/03

Flight	Hr	Min	Baro Alt	Temp
Start	18:22	1.3	3034	-16°
Finish	19:42	1.5		

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	SS / SH					
Weather	Clear					
Disk #						
First File	065 $ 1814					

General comments:

Line #	From	To	Comments	
C0150	E	W	F	1
C0151	W	E	B	2
C0152	E	W	F	3
C0153	W	E	B	4
C0154	E	W	F	5
C0155	W	E	B	6
C0156	E	W	F	7
C0157	W	E	B	8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
116	05/03/98	Start	20	33	3035	-18°C
		Finish	01	10	3033	-20°C

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	SH / SS					
Weather	Cloudy					
Disk #						
First File	064 # 2028					

General comments: 4.6 4.8

Line #	From	To	Comments	
C0140	E	W	F✓	1
C0141	W	E	✓	2
C0142	E	W	✓	3
C0143	W	E	✓	4
C0144	E	W	✓	5
C0147	W	E	✓	6
C0148	E	W	✓	7
C0149	W	E	✓	8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Data	Flight	Hr	Min	Baro Alt	Temp
115	05/03/98	Start	14 48		30.35	-14°C
		Finish	16 21			

General comments: 1.5 1.7

Aircraft	BWE	CKB	WZC	SGX	SGZ	SGL
Crew	Bienlien / Lewis					
Weather	OOC @400					
Disk #						
First File	064 @ 1437					

Line #	From	To	Comments	
~~C 0145~~ C 0147	E	W	RJ	1
C 0146	W	E	BJ	2
				3
				4
				5
				6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
114	01/03/98	Start	19	40	3023	-4°C
		Finish	00	39		

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	Saldoost / Lewis					
Weather	~~BCS~~ 3000 OVC 15+					
Disk #						
First File	063 #1929					

General comments: 5.0 AIR 5.2 FLT

Line #	From	To	Comments
T1058	N	S	B ✓
T1059	S	N	F ✓
T1060	N	S	B ✓
T1061	S	N	F ✓
T1062	N	S	B ✓
T1063	S	N	✓

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: PGOLD_97.SK

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
113	03/07/98	Start	12:04	56	30.16	-8
		Finish	2B:40	5.8		

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	Solhdvost/Lewis						
Weather	OVC						
Disk #	1						
First File	~~062B1753~~ 062B1826						

General comments:

Line #	From	To	Comments
~~C0150~~	E	W	F
~~C0149~~			
C0175	E	W	F ✓
C0174	~~E~~W	~~W~~E	B ✓
C0173	E	W	F ✓
C0172	W	E	B ✓
C0170	~~B~~ F ~~B~~	~~W~~ W ~~E~~	F ✓
~~C0160~~ C0170	~~B~~ W	~~B~~	B ✓
C0169	E	W	F ✓
C0168	W	E	B ✓
C0167	~~B~~E	W	F ✓
C0166	W	E	B ✓
C0165	E	W	F ✓
C0164	W	E	B ✓
C0163	E	W	F ✓
C0162	W	E	B ✓
C0161	E	W	F ✓
C0160	W	E	B ✓
C0159	E	W	F ✓
C0158	W	E	B ✓

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: PGOLD_97.SK

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
112	02/03/98	Start	21	14	3020	-8 °C
		Finish	00	50	3018	-2 °C

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	Saldoost/Lewis						
Weather	VFR						
Disk #							
First File	0615\2106						

General comments: 3.6 + IR 3.8

Line #	From	To	Comments
T1054	N	S	BV ✓
T1055	S	N	✓
1056	N	S	✓
1057	S	N	✓

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
110	02/03/98	Start	15:22		30.27	-8
		Finish	20:23			

General comments: 5h

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	Solheim/Lewis					
Weather	VFR					
Disk #	1					
First File	061 @ 1512					

Line #	From	To	Comments	
T1042	N	S	B✓	1
T1043	S	N	F✓	2
T1044	N	S	B✓	3
T1045	S	N	F✓	4
T1046	N	S	B✓	5
T1047	S	N	F✓	6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: PGOLD_97.SK

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
110	01/03/98	Start	20	25	3038	-10°C
		Finish	01	49	3032	-12°C

Aircraft	BWE	CKB	WZG	(SGX)	SGY	SGZ	SGL
Crew	Saltheoost/Lewis						
Weather	VFR						
Disk #	3						
First File	060 $2013						

General comments: AIR 5.4 ; 5.6 FLT

Line #	From	To	Comments
T1036	N	S	B ✓
T1037	S	N	F ✓
T1038	N	S	✓
T1039	S	N	✓
T1040	N	S	✓
T1041	S	N	✓

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
		Start	20	52	29.99	0
109	26/02/98	Finish	01	11		

Aircraft	BWE	CKB	WZG	(SGX)	SGZ	SGL
Crew	Saldcost / Lewis					
Weather	VFR					
Disk #	3					
First File	05+$2042					

General comments: 4.3
4.5

Line #	From	To	Comments
1031	N	S	B ✓
1032	S	N	F ✓
1033	N	S	B ✓
1034	S	N	✓
1035	N	S	✓

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
108	25/02/98	Start	19:38		29.88	-18
		Finish	00 21			

Aircraft	BWE	CKB	WZG	(SGX)	SGZ	SGL
Crew	Saldaost / Lewis					
Weather	VFR					
Disk #	3					
First File	056 @ 2020					

General comments: 4.7 4.9

Line #	From	To	Comments
1029	N	S	B ✓
1020	S	N	START → 30 NM ✓
1019	N	S	30 NM → START ✓
1018	S	N	START → 41 ✓
1005	N	S	41 → START ✓
1002	S	N	START → 29.3 NM ✓
1001	N	S	29.3 NM → START ✓
1030	S	N	F ✓

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: Ft McMurray

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
107	25/02/98	Start	15:30	2.4	29.86	-3
		Finish	17:47	2.6		

General comments: 2.4

Aircraft	BWE	CKB	WZG	(SGX)	SGZ	SGL
Crew	Salhdoost / Lewis					
Weather	SKC					
Disk #	1					
First File	056 # 1516					

Line #	From	To	Comments	
1027	N	S	B ✓	1
1028	S	N	F ✓	2
1029	N	S	B	3
				4
				5
				6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: 790-7206

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
106	20.298	Start	15	57	2973	-10°C
		Finish	21	00	2964	+2°C

Aircraft	BWE	CKB	WZG	(SGX)	SGZ	SGL
Crew	SOLIDOST / HIPOLITE					
Weather	VFR					
Disk #						
First File	051 #1546					

General comments: 5.0 5.2

Line #	From	To	Comments	
1021	N	S	✓	1
1022	S	N	✓	2
1023	N	S	✓	3
1024	S	N	✓	4
1025	N	S	✓	5
1026	S	N	✓	6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

211 MSL AVS Runway

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: C4mm

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
105	98/02/16	Start	20	46	2983	-6 °C
		Finish	00	26	29.82	-2

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	Saldoost / Lewis					
Weather	OVC 1000					
Disk #	#1					
First File	047 #2039					

General comments: 3.7

Line #	From	To	Comments	
1001	N	S	B ~~580~~ end - 23.35	1
1002	S	N	F ~~580~~ (23.35 - end.	2
1005	N	S	B 3 end - 34.75	3
1018	S	N	F 25.9 - end	4
1019	N	S	B end - 24.0	5
1020	S	N	F 24.0 - end.	6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: C4mm

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
104	98/02/14	Start	18	37	29.36	+1
		Finish	23	33		+2

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	Saltdoost / Lewis					
Weather	VFR					
Disk #	3					
First File	045$ 1833					

General comments: $ 4.9 09

Line #	From	To	Comments	
1012	N	S	B ✓	1
1013	S	N	F ✓	2
1014	N	S	B ✓	3
1015	S	N	F ✓	4
1016	N	S	B ✓	5
1017	S	N	F ✓	6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: CYMM

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
103	98/02/13	Start	19	28	29.37	-2
		Finish	00	25		
			5	02		

Aircraft	BWE	CKB	WZG	SGX (circled)	SGZ	SGL
Crew	Salhdoost / Lewis					
Weather	OOC					
Disk #	1					
First File	044$ 1922					

General comments:

Line #	From	To	Comments	
1006	N	S	B ✓	1
1007	S	N	F ✓	2
1008	N	S	B ✓	3
1009	S	N	F ✓	4
1010	N	S	B ✓	5
1011	S	N	F ✓	6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: CYMM

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
102	98/02/13	Start	16	15	29.40	-2
		Finish	17	52		

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	Saltwood / Lewis					
Weather	OK					
Disk #	3					
First File	044 # 1607					

General comments: 1 37
1.6hrs

Line #	From	To	Comments	
1005	N	S	B ✓	1
1006	S	N	F NOT COMPLETE	2
				3
				4
				5
				6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: CYMM

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
001	98/02/12	Start	20:14		29.70	0
		Finish	23:47			

3.5

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	Saltdoost / Lewis					
Weather	VFR					
Disk #						
First File	043 #2011					

General comments:

Line #	From	To	Comments
1001	N	S	B. /
1002	S	N	F ✓
1003	N	S	B ✓
1004	S	N	F ✓

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: Ft McMurray

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
030	19·03·98	Start	16:55	11.8	29.98	~2°C
		Finish	20:58	4.3	29.96	+7 °C

Aircraft	BWE (CKB) WZG SGX SGZ SGL
Crew	RB/TC
Weather	VFR
Disk #	3
First File	070 & 1646

General comments:

Line #	From	To	Comments	
1231	N	S	B ✓	1
1230	S	N	F ✓	2
1229	N	S	B ✓	3
1228	S	N	F ✓	4
1227	N	S	B ✓	5
1226	S	N	F ✓	6
1225	N	S	B ✓	7
1224	S	N	F ✓	8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: FORT McMURRAY

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
		Start	2009	4.2	30.19	5°C
029	18-03-98	Finish	0019	4.4		

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	RB/TC					
Weather	VFR					
Disk #						
First File	077$1959					

General comments:

Line #	From	To	Comments	
1247	N	S	B ✓	1
1246	S	N	F ✓	2
1245	N	S	B ✓	3
1244	S	N	F ✓	4
1243	N	S	B ✓	5
1242	S	N	F ✓	6
1232	N	S	B ✓	7
1241	S	N	F ✓	8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
028	18-03-98	Start	15:52		30.26	−7°C
		Finish	18:55	3.2	30.22	+4°C
			3.0			

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	RB/TC					
Weather	VFR					
Disk #	4					
First File	077@1541					

General comments:

Line #	From	To	Comments	
C0133	E	W	F ✓	1
C0136	W	E	B ✓	2
C0141	E	W	F ✓	3
C0149	W	E	B ✓	4
C0150	E	W	F ✓	5
C0151	W	E	B ✓	6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
027	17/03/98	Start	2215		30.32	0°C
		Finish	0037			

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	RBTJE					
Weather	VFR (CLR)					
Disk #						
First File	076 $ 2139					

General comments:

Line #	From	To	Comments	
1253	N	S	B	1
1252	S	N	F	2
1251	N	S	B	3
1250	S	N	F	4
1249	N	S	B	5
1248	S	N	F	6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date		Hr	Min	Baro Alt	Temp
026	94/03/17	Flight				
		Start	~~1607~~	4.1	30.36	-14
		Finish	2014	4.3		

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	RB/JG					
Weather						
Disk #						
First File	0[illegible]					

General comments:

Line #	From	To	Comments	
1240	N	S	B ✓	1
1239	S	N	F ✓	2
1238	N	S	B ✓	3
1237	S	N	F ✓	4
1236	N	S	B ✓	5
1235	S	N	F ✓	6
1234	N	S	B ✓	7
1233	S	N	F ✓	8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: 225/40 TRACES CAR/WET with SLIC
250/36 SNOW 3 miles BR

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
025	15.3.98	Start	17	49	2985	-4°C
		Finish	19	06	2985	-4°C

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew						
Weather						

General comments: 1.3 1.5

Disk #

First File 074$1741

Line #	From	To	Comments	
~~1105~~	~~N~~	S		1
T1100	N	S	B	2
1099				3
				4
				5
				6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

L RWY07

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
024	03/13/98	Start	20:42	4.2	30.42	-10
		Finish	0:52	4.4	30.34	-7

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	RB DB					
Weather	CLR					
Disk #						
First File	072#2037.ALR					

General comments:

Line #	From	To	Comments
T1260	N	S	B ✓
T1259	S	N	P ✓
T1258	N	S	B ✓
T1257	S	N	F ✓
T1265	N	S	B ✓
T1256	S	N	F ✓
T1255	N	S	B ✓
T1254	S	N	F ✓

20000002

JAN 11 2000

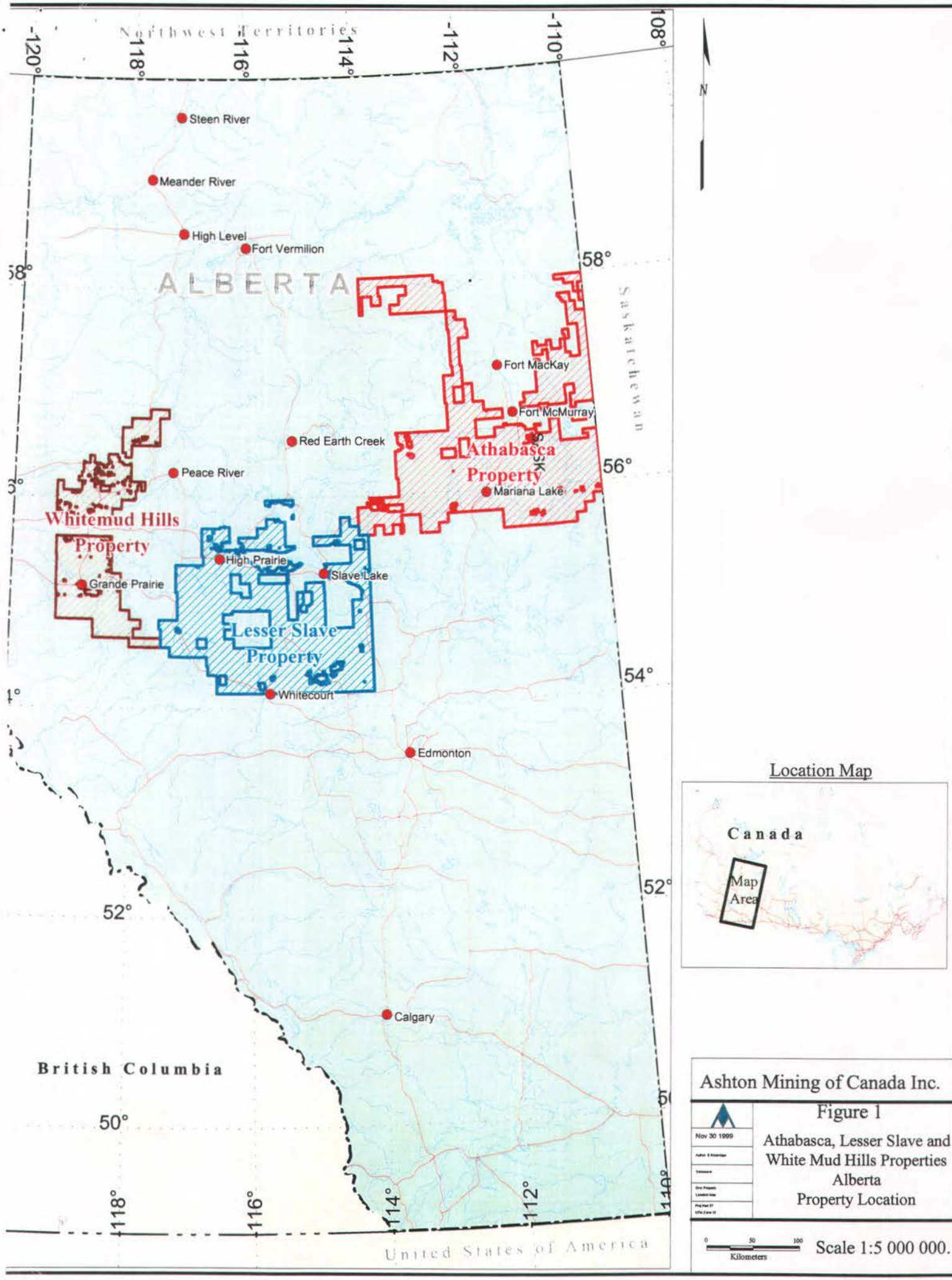
ASSESSMENT REPORT
Athabasca (AL07), Lesser Slave (AL08),
and Whitemud Hills (AL09) Properties
Volume 1 (Report, Appendix A through Appendix C)

ASHTON MINING OF CANADA INC.

PROVINCE OF ALBERTA
2000

CONFIDENTIAL UNTIL JANUARY 2001

Company:	Ashton Mining of Canada Inc.
Permit Agreement No.:	9397100001-939710097, 9397100401-9397100543, 9397110001-9397110094, 9398020003-9398020192 (inclusive)
Assessment Period:	October 17, 1997 to October 17, 1999
Location:	Northern Alberta
NTS:	73M, 74D, 74E, 83J, 83K, 83L, 83M, 83N, 83O, 83P, 84A, 84C, 84D, 84H and 84I
Legal Location:	Tp 77-104, Rg 1-26 West of 4th meridian, Tp 60-90, Rg 1-27 West of 5th meridian, Tp 66-88, Rg 1-8 West of 6th meridian
Author:	Dave Skelton, Terry Bursey
Date:	January 7, 2000



Location Map

Ashton Mining of Canada Inc.

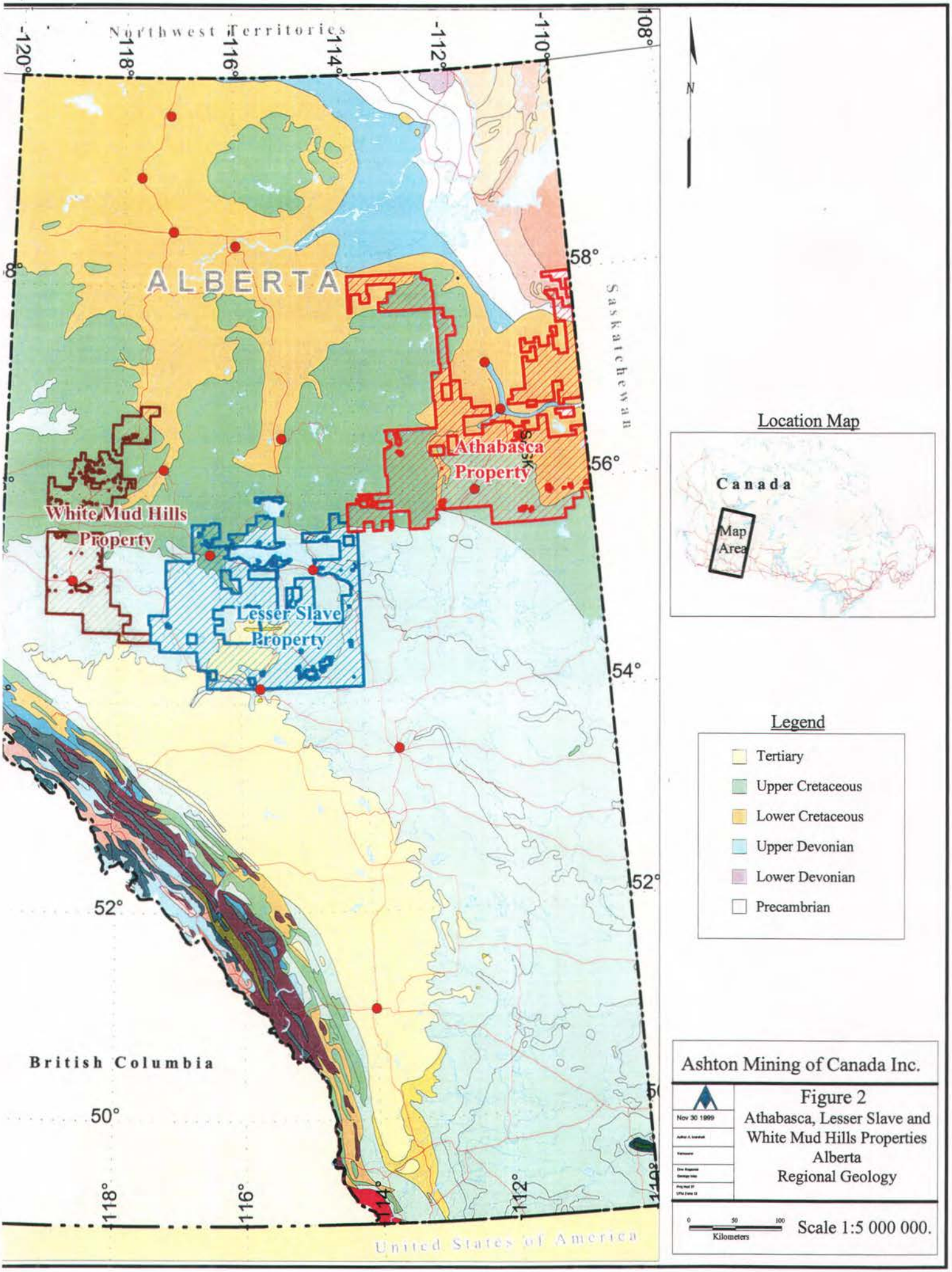
Figure 1

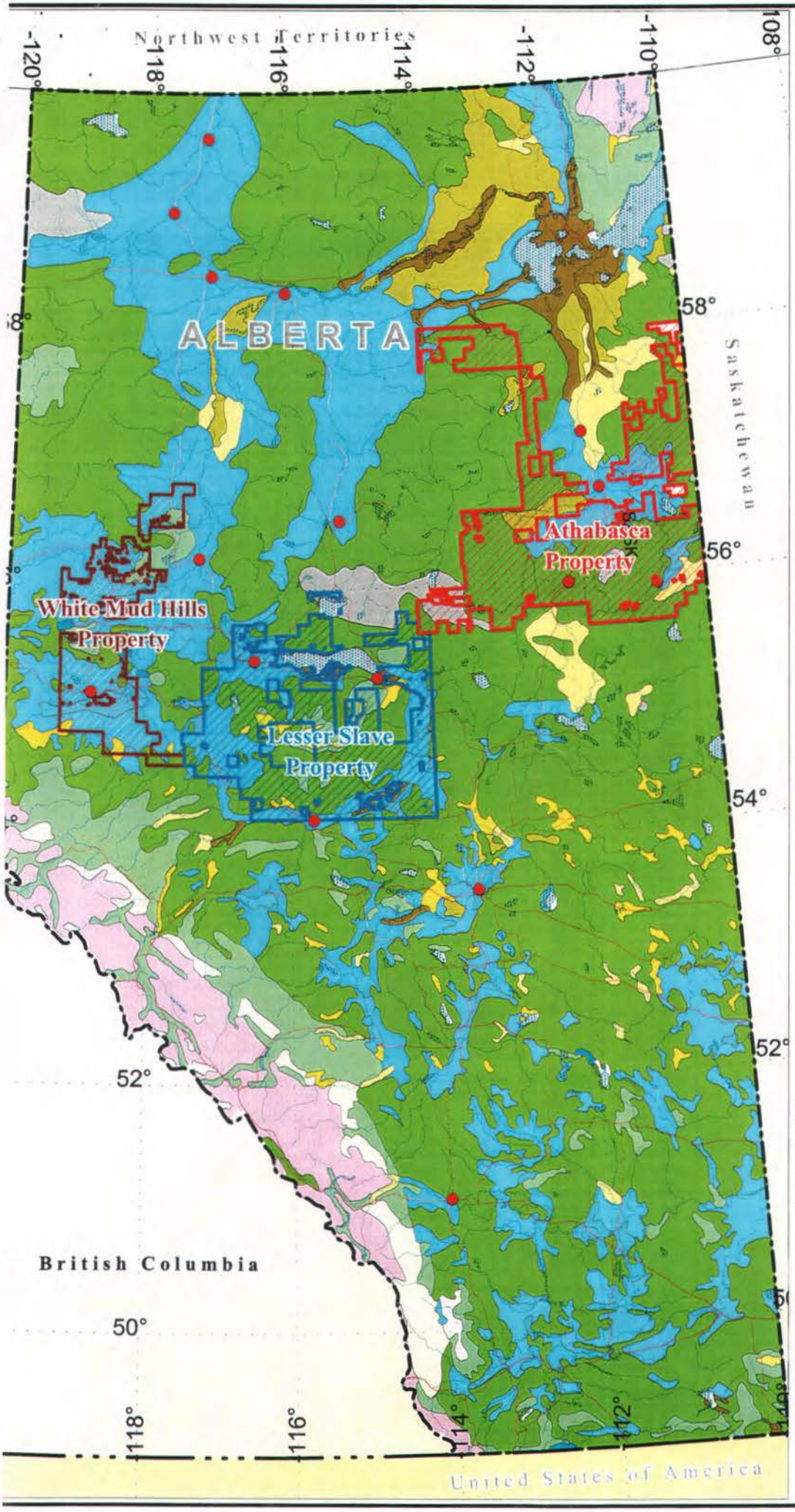
Athabasca, Lesser Slave and White Mud Hills Properties
Alberta
Property Location

Nov 30 1999

0 50 100
Kilometers

Scale 1:5 000 000.


Northwest Territories
ALBERTA
Saskatchewan
British Columbia
United States of America
Athabasca Property
White Mud Hills Property
Lesser Slave Property
-120°
-118°
-116°
-114°
-112°
-110°
-108°
58°
56°
54°
52°
50°
N
Location Map
Canada
Map Area
Legend
Tertiary
Upper Cretaceous
Lower Cretaceous
Upper Devonian
Lower Devonian
Precambrian
Ashton Mining of Canada Inc.
Nov 30 1999
Figure 2
Athabasca, Lesser Slave and White Mud Hills Properties
Alberta
Regional Geology
0 50 100
Kilometers
Scale 1:5 000 000.



N

Citation:
R. J. Fulton
1996: Surficial materials of Canada;
Geological Survey of Canada, Map 1880A.

Location Map

Legend

- Colluvial Blocks
- Colluvial Rubble
- Colluvial Fines
- Colluvial Sand
- Fine grained (glacio) Lacustrine
- Coarse grained (Glacio)Lacustrine
- Fine grained (Glacio)Marine
- Coarse grained (Glacio)Marine
- Glaciers
- Alluvial Deposits
- Marine Mud
- Marine Sand
- Lacustrine Mud
- Lacustrine Sand
- Eolian Depositis
- Organic Deposits
- Lag (Glacio)Marine
- Glaciofluvial Plain
- Glaciofluvial Complex
- Till Blanket
- Till Veneer
- Quaternary Volcanics
- Alpine Complexes
- Undivided
- Eskers
- End and Interlobate Moraine
- General Ice Flow (Known)
- General Ice Flow (Unknown)
- Fromer Ice-limits (Wisconsinan)
- Former Ice-limits (Maximum Glaciation)
- End Morains

Ashton Mining of Canada Inc.

Nov 30 1999

Figure 3
Athabasca, Lesser Slave and White Mud Hills Properties, Alberta
Regional Surficial Geology

0 50 100
Kilometers

Scale 1:5 000 000.

Fifth Meridian

Zone 11 | Zone 12

Kaskapau Formation

Puskwaskau Formation

Smoky Group

Wapiti Group

Swan Hills Gravels

Scollard Formation

Paskapoo Formation

Utikuma Lake

Lesser Slave Lake

Wabasca Lake

South Wabasca Lake

Meekwap Lake

Lovegun Lake

Snipe Lake

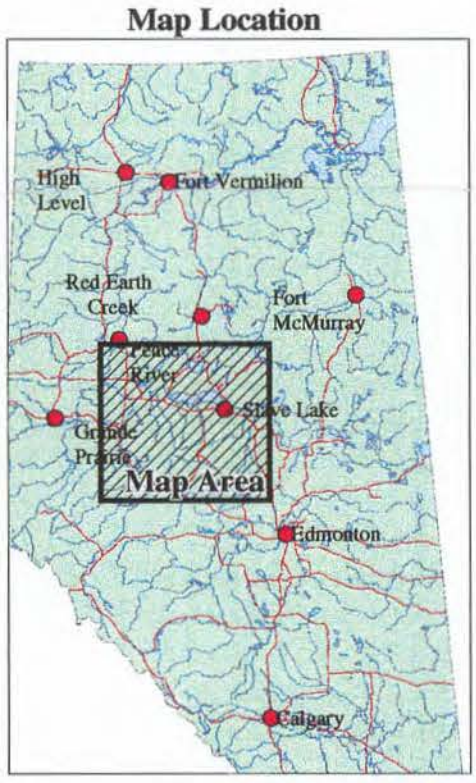
Athabasca River

High Prairie

Slave Lake

Whitecourt

Map Location



Geology Legend

- Swan Hills Gravels
- Paskapoo Formation
- Scollard Fm
- Wapiti Gp
- Labiche Fm
- Horseshoe Canyon Fm
- Belly River Gp
- Puskwaskau Fm
- Kaskapau Fm
- Smoky Gp
- Dunvegan Fm
- Shaftesbury Fm

N

Legend

- Property Outline
- Claim Outline
- Highway
- ATS Grid
- UTM Grid

Base Map:

Geological Map of Alberta - 1999
This map is the latest compilation of the bedrock geology of Alberta by the Alberta Geological Survey. It is modified from the previous version by R. Green, 1972, Alberta Geological Survey, Alberta Research Council (which built on earlier versions by John A. Allan, published by the Alberta Research Council in the 1930's and 1940's).
Revisions since 1972 have incorporated new mapping data from work by the Alberta Geological Survey and the Geological Survey of Canada, and by the Canadian Society of Petroleum Geologists through the contribution of its membership to the Geological Atlas of the Western Canada Sedimentary Basin.

Ashton Mining of Canada Inc.

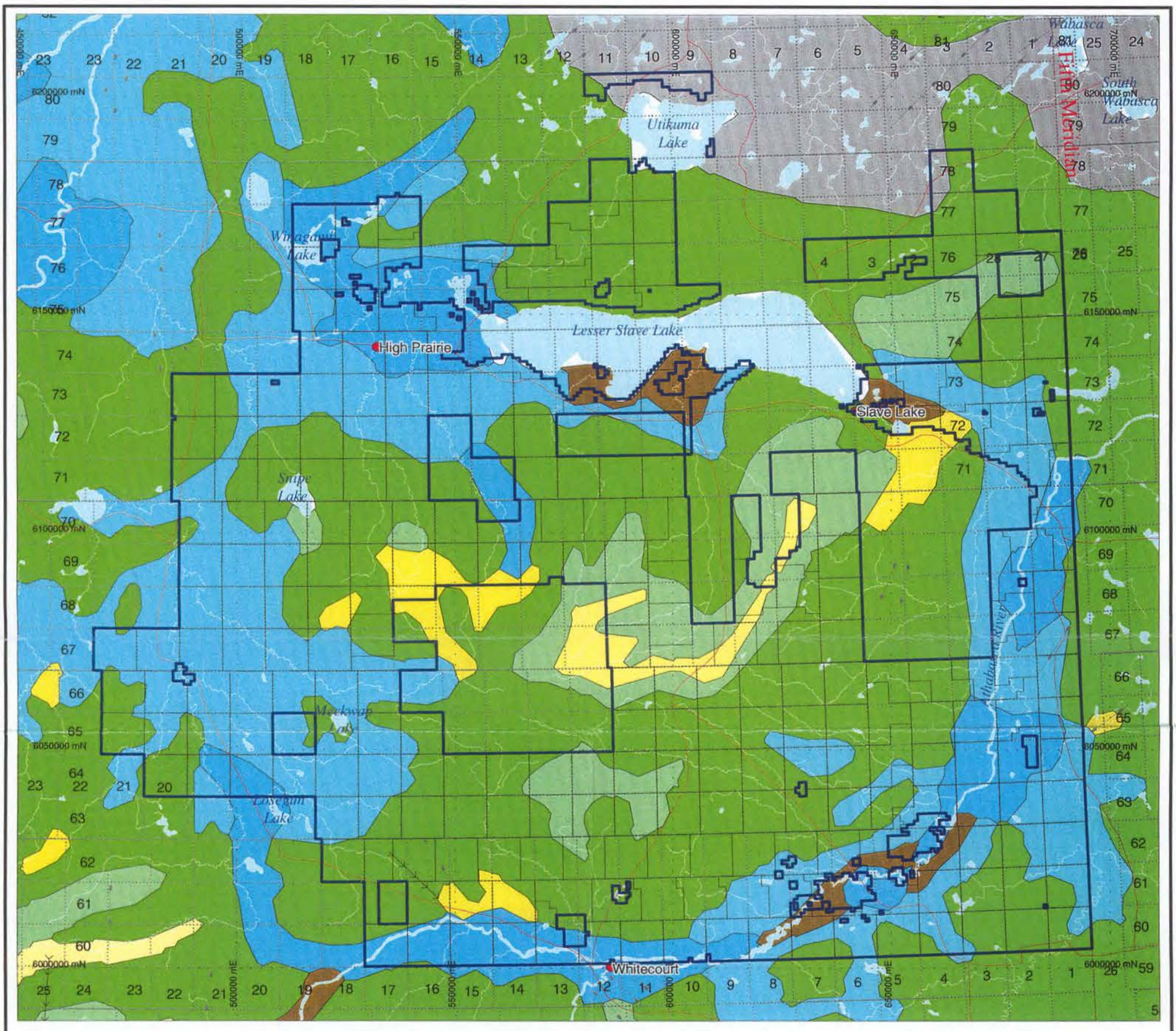
Figure 6

Lesser Slave Property, Alberta Geology Map

Date: Dec 6, 1999
Author:A. Marshall
Office: Vancouver
Drw: Property Geology Map
Proj:Nad 27 UTM Zone 11

0 15 30 Kilometers

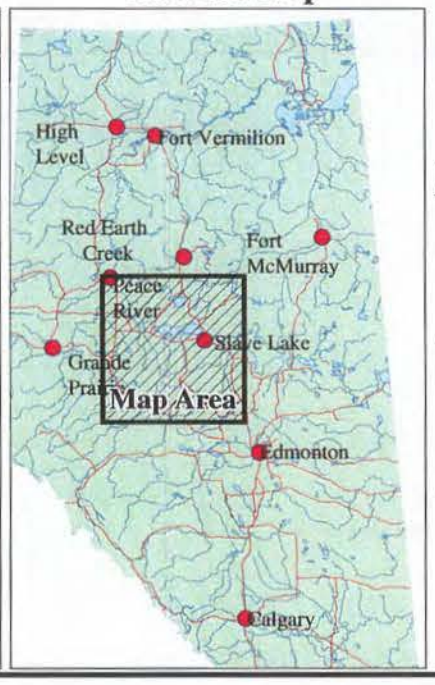
Scale 1:1 000 000



Legend

- Colluvial Blocks
- Colluvial Rubble
- Colluvial Fines
- Colluvial Sand
- Fine grained (glacio) Lacustrine
- Coarse grained (Glacio)Lacustrine
- Fine grained (Glacio)Marine
- Coarse grained (Glacio)Marine
- Glaciers
- Alluvial Deposits
- Marine Mud
- Marine Sand
- Lacustrine Mud
- Lacustrine Sand
- Eolian Depositis
- Organic Deposits
- Lag (Glacio)Marine
- Glaciofluvial Plain
- Glaciofluvial Complex
- Till Blanket
- Till Veneer
- Quaternary Volcanics
- Alpine Complexes
- Undivided
- Eskers
- End and Interlobate Moraine
- General Ice Flow (Known)
- General Ice Flow (Unknown)
- Fromer Ice-limits (Wisconsinan)
- Former Ice-limits (Maximum Glaciation)
- End Morains

Location Map



N

- Property Outline
- Permit Outline
- Highway
- ATS Grid
- UTM Grid

Ashton Mining of Canada Inc.

Figure 7

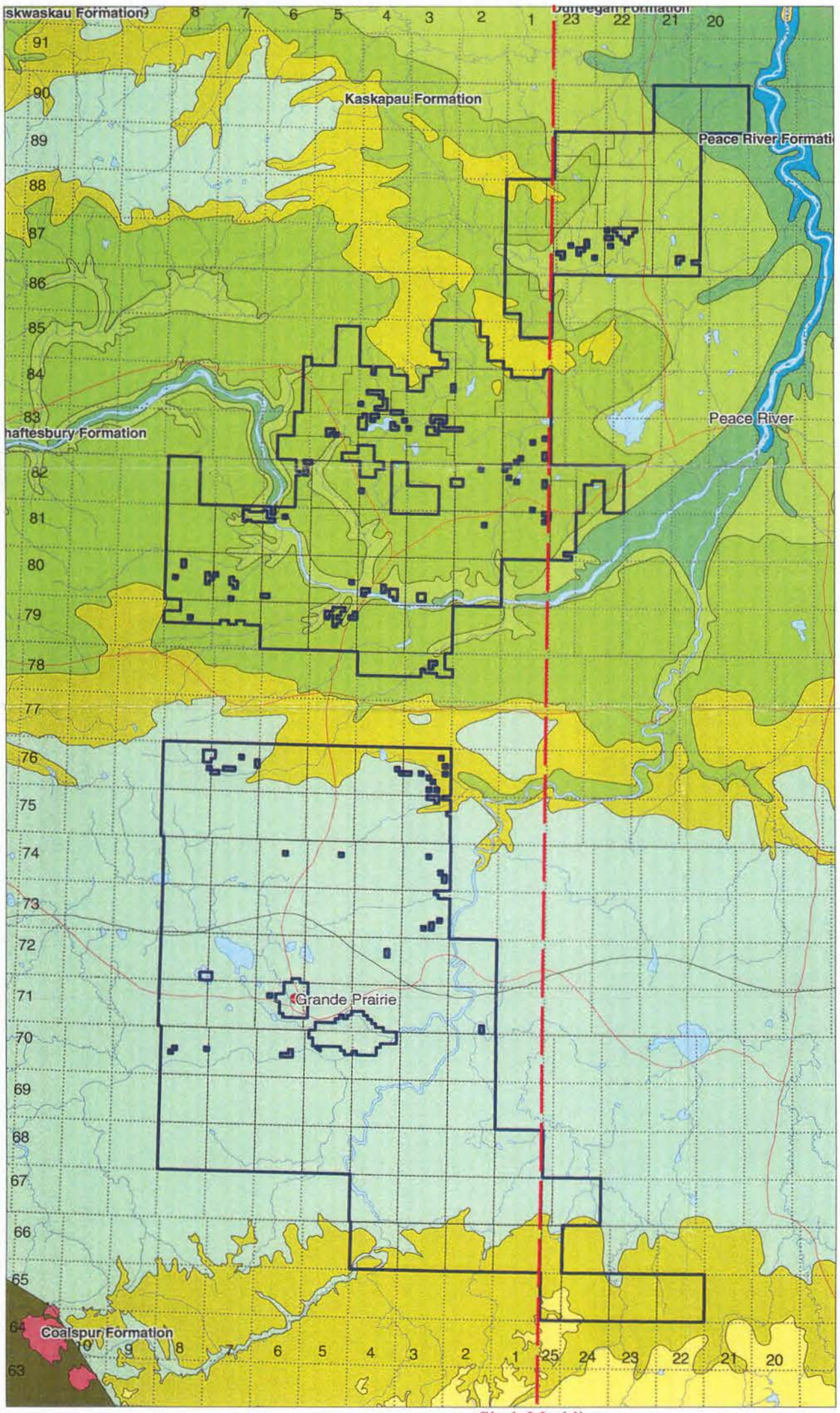
Lesser Slave Property, Alberta Surficial Geology Map

Date: Dec. 9 1999
Author: S Shobridge
Office: Vancouver
Drw: Surficial Geology Map
Proj:Nad 27 UTM Zone 11

0 15 30 Kilometers

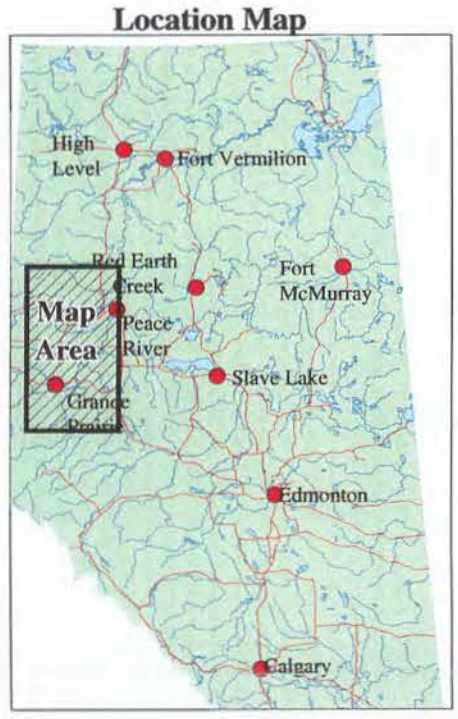
Scale 1:1 000 000

Citation:
R. J. Fulton
1996: Surficial materials of Canada;
Geological Survey of Canada, Map 1880A.



N

Location Map



- Property Outline
- Claim Outline
- Highway
- ATS Grid
- UTM Grid

Geology Legend

- Paskapoo Fm
- Scollard Fm
- Wapiti Group
- Puskwaskau Fm
- Kaskapau Fm
- Dunvegan Fm
- Shaftesbury Fm
- Peace River Formation
- Brazeau Fm
- Coalspur Fm

Base Map:

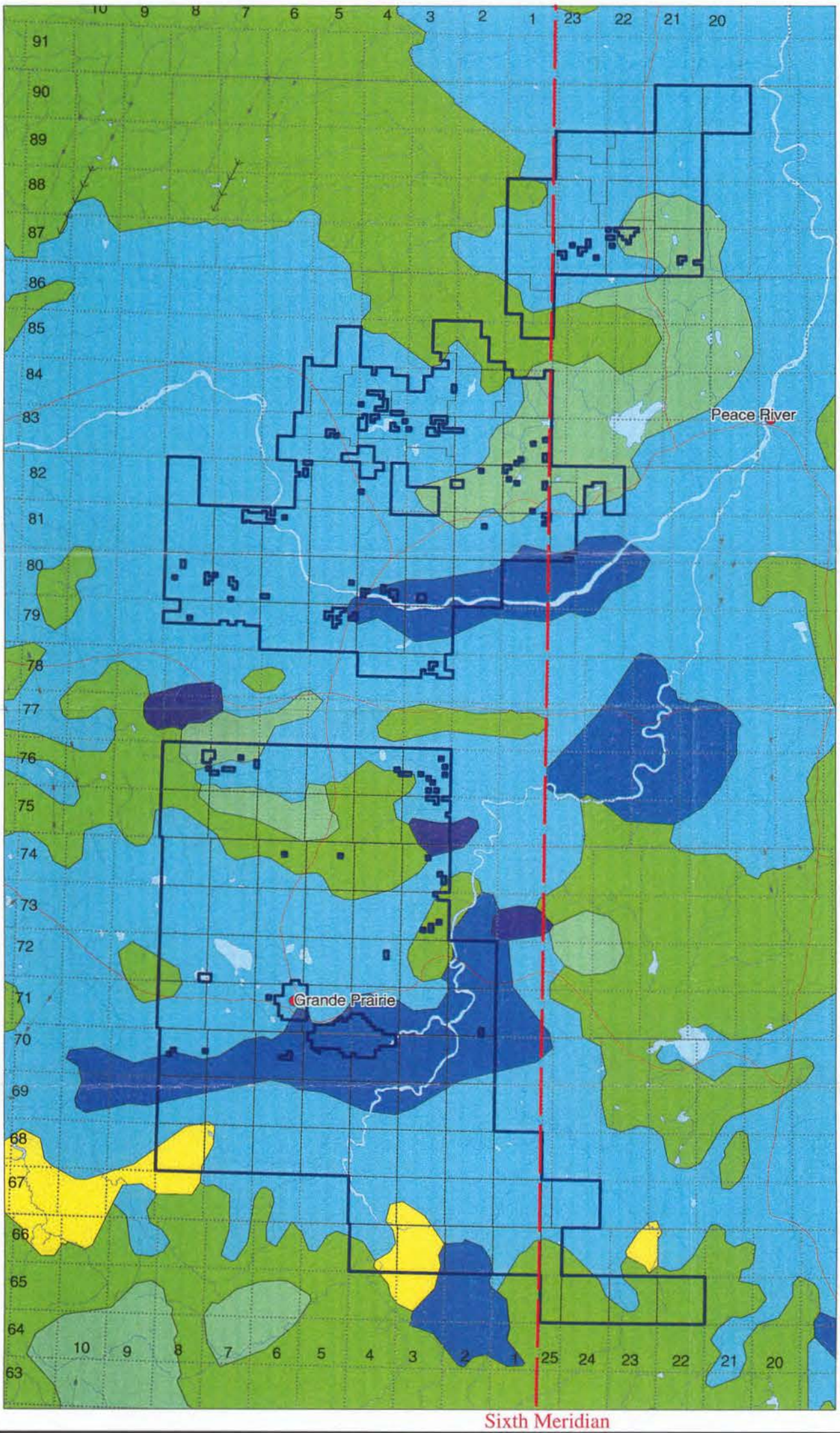
Geological Map of Alberta - 1999
This map is the latest compilation of the bedrock geology of Alberta by the Alberta Geological Surv
It is modified from the previous version by R. Green, 1972, Alberta Geological Survey,
Alberta Research Council (which built on earlier versions by John A. Allan,
published by the Alberta Research Council in the 1930's and 1940's).
Revisions since 1972 have incorporated new mapping data from work
by the Alberta Geological Survey and the Geological Survey of Canada,
and by the Canadian Society of Petroleum Geologists through the contribution
of its membership to the Geological Atlas of the Western Canada Sedimentary Basin.

Ashton Mining of Canada Ir

Date: Dec 10 1999	Figure 8
Author: S Shobridge	Whitemud Hills Property, Alberta Geology Map
Office: Vancouver	
Drw: Whitemud Hills Geology Map	
Proj:Nad 27 UTM Zone 12	

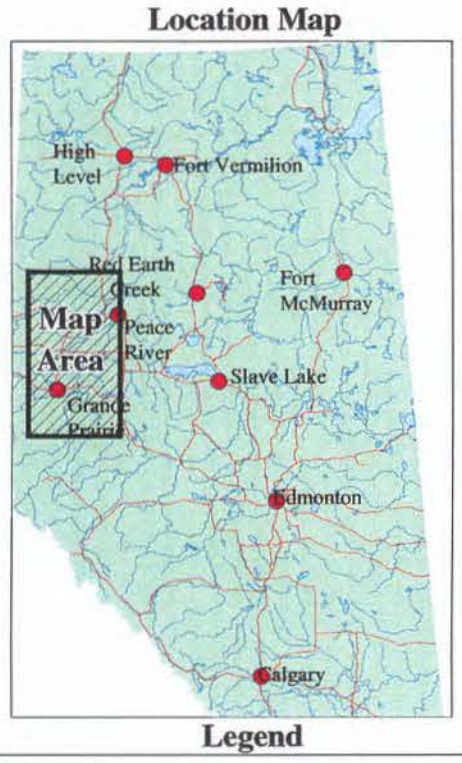
0 15 30 Kilometers

Scale 1:1 000 000



N

Location Map



Legend

- Property Outline
- Claim Outline
- Highway
- ATS Grid
- UTM Grid

Surficial Geology Legend

- Colluvial Blocks
- Colluvial Rubble
- Colluvial Fines
- Colluvial Sand
- Fine grained (glacio) Lacustrine
- Coarse grained (Glacio)Lacustrine
- Fine grained (Glacio)Marine
- Coarse grained (Glacio)Marine
- Glaciers
- Alluvial Deposits
- Marine Mud
- Marine Sand
- Lacustrine Mud
- Lacustrine Sand
- Eolian Depositis
- Organic Deposits
- Lag (Glacio)Marine
- Glaciofluvial Plain
- Glaciofluvial Complex
- Till Blanket
- Till Veneer
- Quaternary Volcanics
- Alpine Complexes
- Undivided
- Eskers
- End and Interlobate Moraine
- General Ice Flow (Known)
- General Ice Flow (Unknown)
- Fromer Ice-limits (Wisconsinan)
- Former Ice-limits (Maximum Glaciation)
- End Morains

Ashton Mining of Canada In

Date: Dec 10 1999	Figure 9
Author: S Shobridge	Whitemud Hills Property, Alberta Surficial Geology Map
Office: Vancouver	
Drw: Whitemud Hills Geology Map	
Proj:Nad 27 UTM Zone 12	

0 15 30 Kilometers

Scale 1:1 000 000

Fifth Meridian

Zone 11 Zone 12

Eaglenest Lake

Sand Lake

Athabasca River

Namur Lake

Fort MacKay

Fort McMurray

Gordon Lake

Willow Lake

North Wabasca Lake

South Wabasca Lake

Sandy Lake

Pelican Lake

Egg Lake

Mariana Lake

Bohn Lake

Cowper Lake

Fifth Meridian

Legend

- Colluvial Blocks
- Colluvial Rubble
- Colluvial Fines
- Colluvial Sand
- Fine grained (glacio) Lacustrine
- Coarse grained (Glacio)Lacustrine
- Fine grained (Glacio)Marine
- Coarse grained (Glacio)Marine
- Glaciers
- Alluvial Deposits
- Marine Mud
- Marine Sand
- Lacustrine Mud
- Lacustrine Sand
- Eolian Depositis
- Organic Deposits
- Lag (Glacio)Marine
- Glaciofluvial Plain
- Glaciofluvial Complex
- Till Blanket
- Till Veneer
- Quaternary Volcanics
- Alpine Complexes
- Undivided
- Eskers
- End and Interlobate Moraine
- General Ice Flow (Known)
- General Ice Flow (Unknown)
- Fromer Ice-limits (Wisconsinan)
- Former Ice-limits (Maximum Glaciation)
- End Morains

Location Map

- Property Outline
- Permit Outline
- Highway
- ATS Grid
- UTM Grid

N

Ashton Mining of Canada Inc.

Figure 5

Athabasca Property, Alberta Surficial Geology Map

Date: Dec. 9 1999

Author: S Shobridge

Office: Vancouver

Drw: Surficial Geology Map

Proj:Nad 27 UTM Zone 11

0 15 30 Kilometers

Scale 1:1 000 000

Citation:
R. J. Fulton
1996: Surficial materials of Canada;
Geological Survey of Canada, Map 1880A.

Fifth Meridian

Zone 11 | Zone 12

Mikkwa Formation

Loon River Shale

Dunvegan Formation

Shaftesbury Formation

Smoky Group

Labiche Fm

Pelican Formation

Grand Rapids Formation

Joli Fou Formation

Clearwater Formation

McMurray Formation

Waterways Formation

Slave Point Formation

Grey foliated Granitoid

Manitou Falls Formation

Alkali feldspar-rich granitoid

Recrystallized mylonitic rocks

Eaglenest Lake

Sand Lake

Namur Lake

Athabasca River

Fort MacKay

Fort McMurray

Gordon Lake

Wilson Lake

Egg Lake

Mariana Lake

North Wabasca Lake

South Wabasca Lake

Sandy Lake

Pelican Lake

Bohn Lake

Cowper Lake

6450000 mN

6400000 mN

6350000 mN

6300000 mN

6250000 mN

6200000 mN

6150000 mN

350000 mE

400000 mE

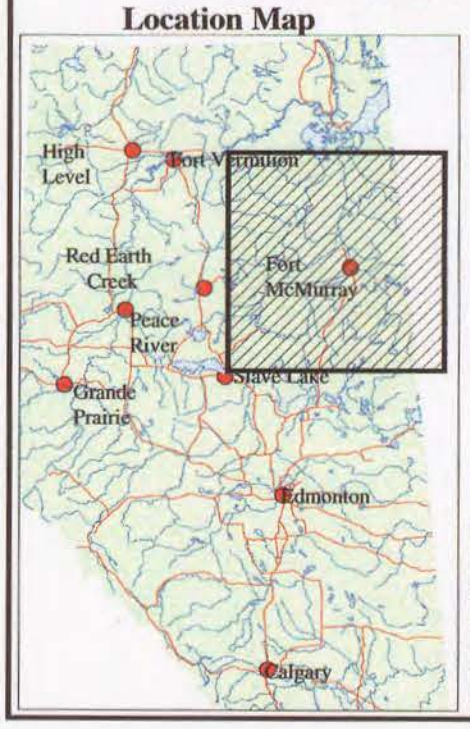
450000 mE

500000 mE

550000 mE

Fifth Meridian

Location Map



N

- Property Outline
- Claim Outline
- Highway
- ATS Grid
- UTM Grid

Base Map:

Geological Map of Alberta - 1999

This map is the latest compilation of the bedrock geology of Alberta by the Alberta Geological Survey. It is modified from the previous version by R. Green, 1972, Alberta Geological Survey, Alberta Research Council (which built on earlier versions by John A. Allan, published by the Alberta Research Council in the 1930's and 1940's).

Revisions since 1972 have incorporated new mapping data from work by the Alberta Geological Survey and the Geological Survey of Canada, and by the Canadian Society of Petroleum Geologists through the contribution of its membership to the Geological Atlas of the Western Canada Sedimentary Basin.

Geology Legend

- Wapiti Group
- Labiche Fm
- Smoky Group
- Dunvegan Fm
- Shaftesbury Fm
- Pelican Fm
- Joli Fou Fm
- Grand Rapids Fm
- Clearwater Fm
- McMurray Fm
- Waterways Fm
- Slave Point Fm
- Grey foliated Granitoid
- Recrystallized mylonitic rocks
- Alkali feldspar-rich granitoid
- Manitou Falls

Ashton Mining of Canada Inc.

Figure 4

Athabasca Property, Alberta
Geology Map

Date:	Dec 10 1999
Author:	S Shobridge
Office:	Vancouver
Drw:	Athabasca Geology Map
Proj:	Nad 27 UTM Zone 12

0 15 30 Kilometers

Scale 1:1 000 000

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
023	03/13/98	Start	16:06	2.4		
		Finish	18:40	2.8		

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	RB DB					
Weather	CLR					
Disk #						
First File	072 1556 ATR					

General comments:

Line #	From	To	Comments
T1264	N	S	B ✓
T1263	S	N	F ✓
T1262	N	S	B ✓
T1261	S	N	F ✓
~~T1260~~	~~N~~	~~S~~	~~B~~
~~T1259~~	S	~~N~~	~~F~~

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
022	03/12/98	Start	2014	4.2	29.84	-10
		Finish	00:26	4.4	30.17	-7

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	RB DB					
Weather	OVERCAST					
Disk #						
First File	071#2038.HDR					

General comments:

Line #	From	To	Comments	
T1273	N	S	B ✓	1
T1272	S	N	F ✓	2
T1271	N	S	B ✓	3
T1270	S	N	F ✓	4
T1269	N	S	B ✓	5
T1268	S	N	F ✓	6
T1267	N	S	B ✓	7
T1266	S	N	F ✓	8
~~T1265~~	~~N~~	~~S~~	~~B ✓~~	9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

K

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
021	98/03/11	Start	19:50	4.1	29.91	-5
		Finish	23.58	4.3	29.84	

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	RB/DB					
Weather	HIGH OVERCAST					
Disk #						
First File	070411939.AIR					

General comments:

Line #	From	To	Comments	
C101	E	W	F ✓	1
T1280	S	N	F ✓	2
T1279	N	S	B ✓	3
T1278	S	N	F ✓	4
T1277	N	S	B ✓	5
T1276	S	N	F ✓	6
T1275	N	S	B ✓	7
T1274	S	N	F ✓	8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

G.

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
020	98/03/09	Start	19:58	3.8	~~30.71~~	~~-24~~ -17
		Finish	23:48	4.0	30.78	

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	RB / DB					
Weather	CLR					
Disk #						
First File	068#1939 AIR					

General comments:

Line #	From	To	Comments	
C0114.	E	W	E ✓	1
T1290	N	S	B ✓	2
T1289	S	N	F ✓	3
T1288	N	S	B ✓	4
T1287	S	N	F ✓	5
T1286	N	S	B ✓	6
T1285	S	N	F ✓	7
T1284	N	S	B	8
T1283	S	N	F	9
T1282	N	S	B ✓	10
T1281	S	N	F ✓	11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
014	98/03/07	Start	1639	3.9	30.50	-24°C
		Finish	2033	4.1		

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	RB/DB					
Weather	CLR					
Disk #						
First File	060B1623.A98					

General comments:

Line #	From	To	Comments	
Co105	E	W	F ✓	1
Co109	W	E	B ✓	2
Co116	E	W	F ✓	3
Co118	W	E	B ✓	4
Co112	E	W	F ✓	5
Co113	W	E	B ✓	6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
018	94/03/06	Start	~~21 20~~	2208	30.30	-2°C
		Finish		01 20		

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	RBYSN					
Weather	OVERCAST					
Disk #						
First File	065$2203					

General comments: 3.2 3.4

Line #	From	To	Comments	
C0102	E	W	F ✓	1
C0103	W	E	B ✓	2
C0104	E	W	F ✓	3
C0105	W	E	B ✓	4
C0106	E	W	F ✓	5
C0107	W	E	B ✓	6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
312	8-04-98	Start	20.50	2.6	2386	+7°C
		Finish	22:27	2.8		

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	SH/JE					
Weather	Cloudy.					
Disk #						
First File	0358	1943				

General comments:

Line #	From	To	Comments	
T2134	S	N	F ✓	1
T2060	N	S	B ✓	2
T2039	S	N	F ✓	3
T2038	N	S	B ✓	4
T2037	S	N	F ✓	5
T2036	N	S	B ✓	6
T2035	S	N	F ✓	7
T2034	N	S	B ✓	8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SUMMARY AND REMARKS:

Production was completed on Block "G" this week. The crew demobilized on Thursday and left Fort McMurray on Friday, with the exception of Bill Haggart, AME, who remained to continue mechanical work on the aircraft.

Kelly O'Connor
Sander Geophysics Limited.

SGL WEEKLY PROGRESS REPORT (WEEK OF April 6 TO April 12, 1998)

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	4471	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	13103	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	0	LKM
TOTAL SIZE:	13,103	% COMPLETE:	100	%

AIRCRAFT TYPE: Cessna 402 REGISTRATION: C-GCKB

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Hypolite	Beaulieu	Evans	Lewis
MON	06/04	307, 308		1644				
GEOMAG: Quiet WEATHER: Clear, 13°C REMARKS: Two full production flights								
TUE	07/04	309, 310		1634				
GEOMAG: Quiet WEATHER: Overcast, 10°C REMARKS: Two full production flights								
WED	08/04	311, 312		1193				
GEOMAG: Quiet WEATHER: Overcast, 14°C, light rain REMARKS: Finished original production and reflights								
THU	09/04							
GEOMAG: WEATHER: Clear, 14°C REMARKS: Demobilized								
FRI	10/04							
GEOMAG: WEATHER: REMARKS:								
SAT	11/04							
GEOMAG: WEATHER: REMARKS:								
SUN	12/04							
GEOMAG: WEATHER: REMARKS:								
TOTALS				4471				

SUMMARY AND REMARKS:

Production went well this week. The original survey block was finished and Block "G", north of Fort McMurray, was started. The Islander had two crews flying it all week as the 402 was down for a double engine change.

Block "G" consists of 13103 lkm's of which 1516 were flown this week for a total of 11%.

Kelly O'Connor
Sander Geophysics Limited.

SGL WEEKLY PROGRESS REPORT (WEEK OF March 23 TO March 29, 1998) *PAGE 1*

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	0	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	49071	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	0	LKM
TOTAL SIZE:	49,071	% COMPLETE:	100	%

AIRCRAFT TYPE: Cessna 402 REGISTRATION: C-GCKB

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Hypolite	Beaulieu	Sohldost	Lewis
MON	23/03							
GEOMAG: Unsettled WEATHER: Clear blue sky, 6°C REMARKS: Engine Change								
TUE	24/03							
GEOMAG: Quiet with Stormy intervals WEATHER: Overcast, 2°C REMARKS: Engine Change								
WED	25/03							
GEOMAG: Active WEATHER: Clear, 6°C REMARKS: Engine Change								
THU	26/03							
GEOMAG: Active with stormy intervals WEATHER: Clear, low level turbulence REMARKS: Engine Change								
FRI	27/03							
GEOMAG: Quiet to unsettled WEATHER: Clear, 8°C REMARKS: Engine Change								
SAT	28/03							
GEOMAG: Quiet WEATHER: Clear, some showers in PM, 5°C REMARKS: Engine Change								
SUN	29/03							
GEOMAG: WEATHER: REMARKS:								
TOTALS								

SUMMARY AND REMARKS:

The 402 was down for an engine change this week.

Kelly O'Connor
Sander Geophysics Limited.

SGL WEEKLY PROGRESS REPORT (WEEK OF March 30 TO April 5, 1998)

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	4172	LKM
CLIENT:	Pura Gold Resources	TOTAL TO DATE:	8632	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	4,471	LKM
TOTAL SIZE:	13,103	% COMPLETE:	65.88	%

AIRCRAFT TYPE: Cessna 402 REGISTRATION: C-GCKB

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Hypolite	Beaulieu	Evans	Lewis
MON	30/03							
GEOMAG: Quiet WEATHER: Clear, 8°C REMARKS: Engine change								
TUE	31/03		0.8			1.0		
GEOMAG: Quiet WEATHER: Clear, 8°C REMARKS: Engine change finished, successful test flight								
WED	01/04		1.9		2.3		0.6	
GEOMAG: Quiet WEATHER: Clear, 10°C, windy REMARKS: Compensation flight, FOM 1.45 nT								
THU	02/04	301, 302	7.2	1471	7.6		7.6	
GEOMAG: Quiet WEATHER: Some high puffy clouds, 12°C, windy REMARKS: Two full production flights								
FRI	03/04	303, 304	5.4	1057	5.8		5.8	REST
GEOMAG: Quiet WEATHER: Clear in AM, overcast with thuderclouds in PM, 11°C REMARKS:								
SAT	04/04	305, 306	7.3	1644	7.7		3.7	3.6
GEOMAG: Quiet with unsettled periods WEATHER: Clear with cummulus clouds in PM, 10°C REMARKS: Two full production flights								
SUN	05/04				REST		REST	
GEOMAG: Not recorded WEATHER: Clear, 12°C REMARKS: Pilot rest day								
TOTALS			22.6	4172	23.4	1	17.7	25.1

SUMMARY AND REMARKS:

The engine change was completed on Tuesday with a successful test flight on Tuesday afternoon. A compensation flight was flown on Wednesday with a figure of merit of 1.45 nT. The remainder of the week was very productive.

Kelly O'Connor
Sander Geophysics Limited.

SGL WEEKLY PROGRESS REPORT (WEEK OF March 30 TO April 5, 1998)

LOCATION:	Fort McMurray, Alberta	PRODUCTION THIS WEEK:	3908	LKM
CLIENT:	Pure Gold Resources	TOTAL TO DATE:	8,632	LKM
TYPE OF SURVEY:	MAG	TOTAL REMAINING:	4,471	LKM
TOTAL SIZE:	13,103	% COMPLETE:	65.88	%

AIRCRAFT TYPE: BN ISLANDER REGISTRATION: C-GSGX

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOTS FLIGHT TIMES			
					Hypolite	Beaulieu	Evans	Lewis
MON	30/03	203, 204	9.3	1639	4.7	5.0	4.7	5.0
GEOMAG: Quiet WEATHER: Clear, 8°C REMARKS: Two full production flights								
TUE	31/03	205, 206	8.8	0	5.0	4.2	4.3	6.0
GEOMAG: Quiet WEATHER: Clear, 8°C REMARKS: No production due to lack of video								
WED	01/04	207, 208	8.2	1443		8.6		8.6
GEOMAG: Quiet WEATHER: Clear, 10°C, windy REMARKS: Two full production flights								
THU	02/04	209, 210	8.3	826		8.7		8.7
GEOMAG: Quiet WEATHER: Some high puffy clouds, 12°C, windy REMARKS: No video flight 210								
FRI	03/04							
GEOMAG: Quiet WEATHER: Clear in AM, overcast with thunderclouds in PM, 11°C REMARKS: No flight due to lack of pilots								
SAT	04/04							
GEOMAG: Quiet with unsettled periods WEATHER: Clear with cummulus clouds in PM, 10°C REMARKS: No flight due to lack of pilots								
SUN	05/04							
GEOMAG: Not recorded WEATHER: Clear, 12°C REMARKS: Pilot rest day								
TOTALS			34.6	3908	9.7	26.6	8.9	25.1

SGL WEEKLY PROGRESS REPORT (WEEK OF March 30 TO April 5, 1998)

SUMMARY AND REMARKS:

Problems with the video system limited production on Tuesday and Thursday. René Beaulieu left Friday on vacation therefore the Islander was grounded from Friday on due to a lack of pilots.

Kelly O'Connor
Sander Geophysics Limited.

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
017	02/03/98	Start	2016	2.9	3062	-1
		Finish	2305	3.1		

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	RB/SH					
Weather	Clear.					
Disk #						
First File	061\2012					

General comments:

Line #	From	To	Comments	
C0128	E	W	F ✓	1
T1297	N	S	B ✓	2
T1296	S	N	F ✓	3
T1295	N	S	B ✓	4
T1294	S	N	F ✓	5
T1293	N	S	B ✓	6
T1292	S	N	F ✓ 061\2152	7
T1291	N	S	B ✓	8
T1290	S	N	F	9
T1289	N	S	B	10
T1288	S	N	F	11
T1287	N	S	B	12
T1286	S	N	F	13
T1285	N	S	B	14
T1284	S	N	F	15
C0129	W	E	B	16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
016	02/03/98	Start	15:26	39	3087	-16°C
		Finish	19:18	41		

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	RB/SH					
Weather	Clear					
Disk #						
First File	061 § 1541					

General comments:

Line #	From	To	Comments	
C0126	E	W	F ✓	1
T1311	N	S	B ✓	2
T1310	S	N	F ✓	3
T1309	N	S	B ✓	4
T1308	S	N	F ✓	5
T1307	N	S	B ✓	6
T1306	S	N	F ✓	7
T1305	N	S	B ✓	8
T1304	S	N	F ✓	9
T1303	N	S	B ✓	10
T1302	S	N	F ✓	11
T1301	N	S	B ✓	12
T1300	S	N	F ✓	13
T1298	N	S	B ✓	14
T1298	S	N	F ✓	15
C0126	W	E	B	16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
015	01/03/97	Start	2011	4.0	3037	+1°C
		Finish	0008	4.2		

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	RB/SH					
Weather	Clear					
Disk #						
First File	060 @ 2004					

General comments:

Line #	From	To	Comments	
C0101	E	W	F ✓	1
T1323	S	N	F ✓	2
T1322	N	S	B ✓	3
T1321	S	N	F ✓	4
T1320	N	S	B ✓	5
T1319	S	N	F ✓	6
T1318	N	S	B ✓	7
T1317	S	N	F ✓	8
T1316	N	S	B ✓	9
T1315	S	N	F ✓	10
T1314	N	S	B ✓	11
T1313	S	N	F ✓	12
T1312	N	S	B ✓	13
T1311	S	N	F ✓	14
C0125	W	E	B ✓	15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
014	98/02/26	Start	2052	3.9	30.04	-2°C
		Finish	0048	4.1		

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	SH/RB					
Weather	VFR					
Disk #						
First File	057 $ 2047					

General comments:

Line #	From	To	Comments	
T1107	N	S	B ✓	1
T1106	S	N	F ✓	2
T1105	N	S	B ✓	3
T1104	S	N	F ✓	4
T1103	N	S	B ✓	5
T1102	S	N	F ✓	6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
013	98/02/26	Start	1550	4.0	30.04	-7°C
		Finish	1950	4.2		

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	SH / RB					
Weather	OVERCAST / SNOW SHOWERS					
Disk #						
First File	057 / 1602					

General comments:

Line #	From	To	Comments	
T1113	N	S	B ✓	1
T1112	S	N	F ✓	2
T1111	N	S	B ✓	3
T1110	S	N	F ✓	4
T1109	N	S	B ✓	5
T1108	S	N	F ✓	6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
012	25/02/93	Start	20:12	37	29.81	-1°C
		Finish	23:56	39		

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	RB/SH					
Weather	Clear					
Disk #						
First File	056 § 2010					

General comments:

Line #	From	To	Comments	
C0123	~~E~~	~~W~~	F ⌐	1
T01335	N	S	B ⌐	2
T 1334	S	N	F ⌐	3
T 1333	N	S	B ⌐	4
T 1332	S	N	F ⌐	5
T 1331	N	S	B ⌐	6
T 1330	S	N	F ⌐ 056 § 2158	7
T 1329	N	S	B ⌐	8
T 1328	S	N	F ⌐	9
T 1327	N	S	B ⌐	10
T 1326	S	N	F ⌐	11
T 1325	N	S	B ⌐	12
T 1324	S	N	F ⌐	13
C0124	W	E	B ⌐	14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
011	24/02/98	Start	15 19	3-8		-3
		Finish	15:07	6.0	29.86	-8

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	~~H~~ RB/SH					
Weather	Clear					
Disk #						
First File	056 $ 1513					

General comments:

Line #	From	To	Comments	
C0115	E	W	F ✓	1
T1347	N	S	B ✓	2
T1346	S	N	F ✓	3
T1345	N	S	B ✓	4
T1344	S	N	F ✓	5
T1343	N	S	B ✓	6
T1342	S	N	F ✓	7
T1341	N	S	B ✓	8
T1340	S	N	F ✓	9
T1339	N	S	B ✓	10
T1338	S	N	F ✓	11
T1337	N	S	B ✓	12
T1336	S	N	F ✓	13
C0122	W	E	B ✓	14
				15
				16
				17
				18
				19

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: Ft McMurray

Flight #	Date
010	22/03/98

Flight	Hr	Min	Baro Alt	Temp
Start	20	32	29.99	-1
Finish	00	35		

Aircraft	BWE CKB WZG SGX SGZ SGL
Crew	Hyslop / Lewis
Weather	~~CAX~~ 1400BKN 2500 OVC
Disk #	3
First File	0539 2022

General comments: 4.1
4.3

Line #	From	To	Comments	
C0176	~~E~~	~~W~~	F ✓	1
T 1119	N	S	B ✓	2
T 1118	S	N	F ✓	3
T 1117	N	S	B ✓	4
T 1116	S	N	F ✓	5
T 1115	N	S	B ✓	6
T 1114	S	N	F ✓	7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
009	22-02	Start	16	23	29.33	36 °F
		Finish	19	34	29.39	27 °F

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	HYPOLITE/SOLIDOOST					
Weather	1500 4500					
Disk #						
First File	~~0~~ 0539/1612					

General comments:

Line #	From	To	Comments	
C0178	E	W	F	1
T1123	N	S	B T1123	2
T1122	S	N	F	3
T1121	N	S		4
T1120	S	N		5
C0177	W	E		6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: Ft McMurray

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
008	20-02-98	Start	21:50	26	29.68	7°C
		Finish	00:30	28	29.48	

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	Hypolite / Lewis					
Weather	VFR					
Disk #	4					
First File	051\$2144.ASR					

General comments: 2.6

Line #	From	To	Comments	
C0179	E	W	F ✓	1
T1126	N	S	B ✓	2
T1125	S	N	F ✓	3
T1124	N	S	B ✓	4
				5
				6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
007	16-02-98	Start	2025	4.0	29.84	0°C
		Finish	2025	4.2		

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	SH / RB					
Weather	OVERCAST 1000					
Disk #						
First File	047 $ 2017					

General comments:

Line #	From	To	Comments	
C0179	E	W	LOW CEILING CONTINUITY FINISH	1
~~T1126~~				2
~~T1127~~				3
~~T1128~~				4
~~T1129~~				5
T1053	N	S	B ✓	6
T1052	S	N	F ✓	7
T1051	~~N~~	S	B ✓	8
T1050	S	N	F ✓	9
T1049	N	S	B ✓	10
T1048	S	N	F ✓	11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
006	14-02	Start	20 46	51	29:34	+6°C
		Finish	23 54	33		

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	RB / SH					
Weather	Clear					
Disk #						
First File	045 $ 2043					

General comments:

Line #	From	To	Comments	
C0181	E	W	F ~	1
T1130	N	S	B ~	2
T1129	S	N	F ~	3
T1128	N	S	B ~	4
T1127	S	N	F ~	5
C0180	W	E	B ~	6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date
005	14-02

Flight	Hr	Min	Baro Alt	Temp
Start	16:54	4.0	9956	-1°C
Finish	20:54	4.2		

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	RB/SH					
Weather	Clear					
Disk #						
First File	045$1612					

General comments:

Line #	From	To	Comments	
C0117	E	W	BF	1
T1359	N	S	B	2
T1358	S	N	F	3
T1357	N	S	B	4
T1356	S	N	F	5
T1355	N	S	B	6
T1354	S	N	F	7
T1353	N	S	B	8
T1352	S	N	F	9
T1351	N	S	B	10
T1350	S	N	F	11
T1349	N	S	B	12
T1348	S	N	F	13
C0116	W	E	B	14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
004	13-02	Start	20:59	3.2	2938	
		Finish	00:10	3.4		

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	RB/SH					
Weather	Cloudy.					
Disk #						
First File	044\2056					

General comments:

Line #	From	To	Comments	
C0183	E	W	F	1
T1134	N	S	B	2
T1133	S	N	F	3
T1132	N	S	B	4
T1131	S	N	F	5
C0182	W	E	B	6
				7
				8
				9
				10
				11
				12
				13
				14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
003	98/02/13	Start	1606	4.1	29.40	-2°C
		Finish	2012	4.3		

Aircraft	BWE	(CKB)	WZG	SGX	SGZ	SGL
Crew	SH / RB					
Weather	OVERCAST					
Disk #						
First File	~~044\$1557~~ 044\$1631					

General comments:

Line #	From	To	Comments	
0119	E	W	044\$1636	1
1371	W	S	B ✓	2
1370	S	N	F ✓	3
1369	N	S	B —	4
1368	S	N	F ✓	5
1367	N	S	B ✓	6
1366	S	N	F ✓	7
1365	N	S	B ✓	8
1364	S	N	F ✓	9
1363	N	S	B ✓	10
1362	S	N	F ✓	11
1361	N	S	B ✓	12
1360	S	N	F ✓	13
0118	W	E	B ✓	14
				15
				16
				17
				18
				19
				20

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT:

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
002	12-02-94	Start	2142	2.6	29.66	+1°C
		Finish	0019	2.8		

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	SH/RB					
Weather	VFR					
Disk #						
First File	043$2136					

General comments:

Line #	From	To	Comments
0184	E	W	F ✓
1137	N	S	B ✓
1136	S	N	F ✓
1135	N	S	B ✓

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: FORT Mc MURRAY PURE GOLD

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
001	12 FEB	Start	4.4	1628	29.76	-2 °C
		Finish	4.6	2049		

Aircraft	BWE	CKB	WZG	SGX	SGZ	SGL
Crew	SH/RB					
Weather	CLR					
Disk #						
First File	043 $1652					

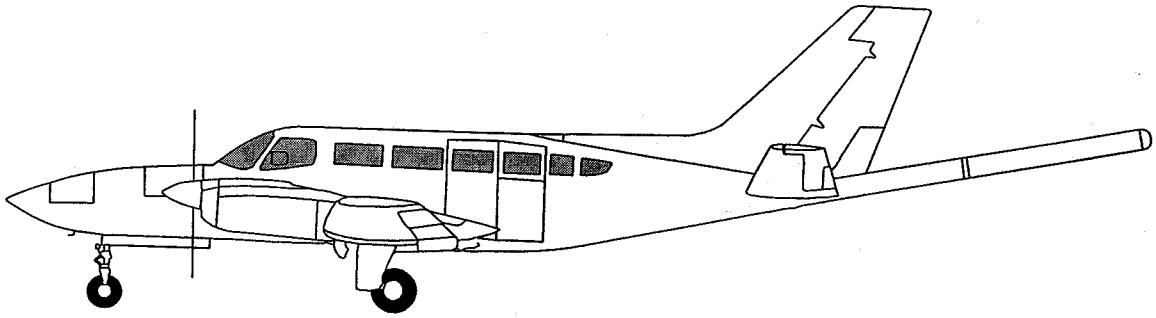
General comments:

Line #	From	To	Comments
0121	E	W	F ✓
1385	N	S	B ✓
1384	S	N	F ✓
1383	N	S	B ✓
1382	S	N	F ✓
1381	N	S	B ✓
1380	S	N	F ✓
1379	N	S	B ✓
1378	S	N	F ✓
1377	N	S	B ✓
1376	S	N	F ✓
1375	N	S	B ✓
1374	S	N	F ✓
1373	N	S	B ✓
1372	S	N	F ✓
0120	W	E	B ✓

PROJECT REPORT

FIXED WING AEROMAGNETIC SURVEY

ATHABASCA BLOCKS - 1999



for

ASHTON MINING OF CANADA INC.

Kelly O'Connor, B.Sc. P.Eng.

July, 1999

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

EXPLORATION *RESEARCH* *INTERPRETATION*

TABLE OF CONTENTS

List of Figures

Appendices

I. INTRODUCTION

Sander Geophysics Limited (SGL; see *Appendix I* for a company profile) conducted a high resolution aeromagnetic survey over three blocks located in Northern Alberta for Ashton Mining of Canada Inc. The Wood Buffalo and Namur Lake Blocks were flown between April 1st and 21st, 1999. Fifteen flights, totalling 12564 line kilometres, were required to complete data acquisition in the survey blocks. The Gregoire Lake Block was flown between May 6th and 24th, 1999. Fifteen flights, totalling 15206 line kilometres, were required to complete data acquisition in the survey block. Two postage stamp blocks were also flown southwest of Fort McMurray. These blocks were flown between May 27th and 29th. Each of these blocks consisted of 281 line kilometres, four flights were required to complete data acquisition.

II. SURVEY AREA

Wood Buffalo and Namur Lake Blocks

The survey was originally specified as two separate areas, the Wood Buffalo and the Namur Lake blocks, sharing a common point (57:43.80N 112:28.20W). For survey flight planning two common lines were chosen, a traverse line along 57:43.80N and a control line along 112:28.20W, to join the two survey blocks. The Wood Buffalo block was approximately rectangular, 90 kilometres wide by 40 kilometres high, of which some of the areas in the southwest corner were not flown. The area was located directly south of Wood Buffalo National Park. The elevations range from 1000 ft (300 m) in the northwest area of the survey block to 2800 ft (850 m) in the Birch Mountain Range in the east. The Namur Lake block was also an approximate rectangle, 20 kilometres wide by 80 kilometres high, located between Namur Lake to the west and the Athabasca River to the east. Both blocks are sparsely populated with several rivers and lakes throughout, including the Birch River in the Wood Buffalo Block and Sand Lake in the Namur Lake Block.

The following coordinates, in NAD-27-CAN datum, define the Wood Buffalo survey area:

Corner	Latitude	Longitude
1	057:43.80N	114:00.00W
2	058:04.80N	114:00.00W
3	058:04.80N	112:28.20W
4	057:43.80N	112:28.20W
5	057:43.80N	113:27.00W
6	057:49.20N	113:27.00W
7	057:49.20N	113:16.80W
8	057:54.00N	113:16.80W
9	057:54.00N	113:09.00W
10	057:59.40N	113:09.00W
11	057:59.40N	113:37.20W
12	057:49.20N	113:37.20W
13	057:49.20N	113:56.40W
14	057:43.80N	113:56.40W

The following coordinates, in NAD-27-CAN datum, define the Namur Lake survey area:

Corner	Latitude	Longitude
1	057:01.80N	112:34.80W
2	057:07.20N	112:34.80W
3	057:07.20N	112:26.40W
4	057:33.00N	112:26.40W
5	057:33.00N	112:28.20W
6	057:43.80N	112:28.20W
7	057:43.800N	112:08.40W
8	057:27.00N	112:08.40W
9	057:27.000N	112:15.60W
10	057:01.80N	112:15.60W

The survey consisted of 275 traverse lines oriented north-south, and 160 orthogonal control lines. A list of all planned lines with their coordinates are given in *Appendix II.*

Gregoire Lake Block

The Gregoire Lake survey block was located in a rectangular area 100 kilometres wide by 90 kilometres high southeast of Fort McMurray. The block consisted of a large square in the southeast joined with an "L" shaped block in the northwest. The elevation varies from approximately 1500 ft (450 m) in the northwest and east to 2500 ft (760 m) in the centre of the block. There are several lakes and rivers throughout the block including Hangingstone River in the west and Garson Lake in the northeast. There is significant infrastructure throughout the block including pipelines, oil fields, a rail line and Alberta highway 63.

The following coordinates, in NAD-27-CAN datum, define the Gregoire Lake survey area:

Corner	Latitude	Longitude
1	56:35.00N	111:40.00W
2	56:35.00N	111:16.00W
3	56:20.00N	111:16.00W
4	56:20.00N	110:00.00W
5	55:53.00N	110:00.00W
6	55:53.00N	110:09.00W
7	55:48.00N	110:09.00W
8	55:48.00N	110:56.00W
9	56:09.00N	110:56.00W
10	56:09.00N	111:40.00W

The survey consisted of 257 traverse lines oriented north-south, and 145 orthogonal control lines. A list of all planned lines with their coordinates are given in *Appendix II.*

Postage Stamp Blocks

Two small "Postage Stamp" blocks were flown over possible targets southwest of Fort McMurray. Both blocks were 5 km by 5 km squares, Block 1 was approximately 170 kilometres from Fort McMurray while Block 2 was approximately 115 kilometres from Fort McMurray. Block 1 was situated near the top of a hill with an approximate altitude of 3000 ft (900 m) whereas block 2 was located in the oxbow of the Athabasca River with the river valley on the eastern edge and a plateau approximately 1500 ft (450 m) high along the western edge.

The following coordinates, in NAD-27-CAN datum (Zone 11), define the Postage Stamp blocks:

Block 1

Corner	Easting	Northing
1	723000	6169500
2	728000	6169500
3	728000	6174500
4	723000	6174500

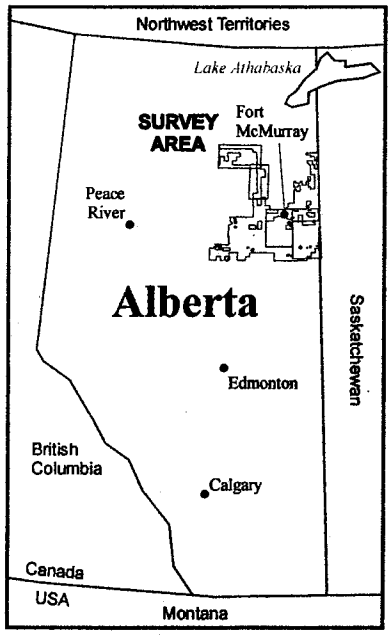
Block 2

Corner	Easting	Northing
1	768100	6205000
2	773100	6205000
3	773100	6210000
4	768100	6210000

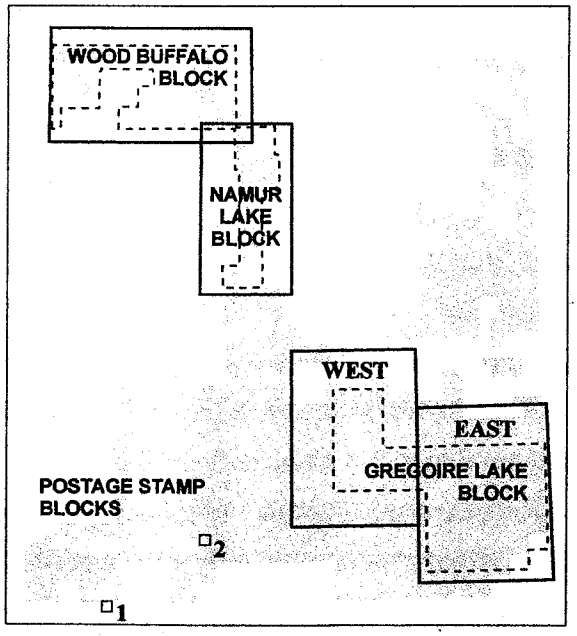
Each of these postage stamp blocks consisted of 51 traverse lines oriented east-west and 5 control lines oriented north-south. A list of all planned lines with their coordinates are given in *Appendix II.*

Figure 1

SURVEY AREA LOCATION



Location Map



– – – Survey Boundary

Property of Ashton Mining of Canada Inc.

III. SURVEY EQUIPMENT

SGL's CESSNA 404, registration C-GBWE was used to fly the entire survey. A full list of survey equipment and their serial numbers can be found in *Appendix III.* SGL provided the following instrumentation for this survey:

AERIAL AND GROUND MAGNETOMETERS

- *GEOMETRICS Model G-822A (air)*
- *SCINTREX Model G3 (ground)*

Both the ground and airborne systems used a non-oriented (strap-down) optically pumped cesium split-beam sensor. These magnetometers have a sensitivity of 0.01 nT, or better, and a range of 20,000 nT. Sensor noise is less than 0.02 nT. The total field magnetic measurements are digitally recorded at intervals of 0.1 second in the airborne system and 0.5 second in the ground system.

AUTOMATIC AEROMAGNETIC DIGITAL COMPENSATOR (AADC)

- *RMS Model AADC 4000 MkII*

The RMS compensator is a fully automatic, 27-term compensator systems utilizing 3-axis fluxgate magnetometers for heading information. Magnetic information is output to the serial port at a minimum of 0.1 second intervals, with a resolution of 0.001 nT. The system provides a complete real-time compensation of the aircraft manoeuvre noise.

NAVIGATION AND FLIGHT PATH RECOVERY SYSTEM

- *GPSNAV Software*
- *NovAtel 3951R GPSCard Receiver*
- *OMNISTAR 6300 DGPS Receiver*

Navigation and flight path recovery are provided by GPSNAV system which utilizes a NovAtel GPSCard 3951R 12-channel GPS receiver mounted in a 486-based navigation computer with a sampling rate of 1.0 second. In addition to providing essential positional data, the GPSNAV system is used to guide the pilot along the desired flight lines at the optimal flight altitude. The navigation computer processes real-time differentially corrected GPS (RTDGPS) data from the OMNISTAR 6300 system and compares that to the coordinates of a theoretical flight plan and flying surface.

AIRBORNE DATA ACQUISITION SYSTEM

- Sander NavDAS

The NavDAS is the latest version of airborne data acquisition computers developed by SGL. It records and displays all incoming data on a flat panel screen. Recording is done on vibration tolerant IOMEGA JAZ cartridges. The time base (UTC) accuracy of the NavDAS system is automatically provided by the GPS receiver. The NavDAS incorporates a magnetometer sensor coupler, an altimeter converter and a GPS receiver.

GROUND DATA ACQUISITION SYSTEM

- Sander GND-ACQ

The ground data acquisition computer records all the incoming data and displays it on a flat panel screen. The computer is a portable PC-486 with a Sander Cesium Magnetometer Frequency Counter to process the signal from the sensor. The noise level of the base station magnetometer is less than 0.1 nT. Recording is done on the internal hard disk of the computer. The magnetic data are recorded at a rate of 0.5 second. The GPS ground data are recorded using the same format as the airborne data. The time base (UTC) of both the ground and airborne systems is automatically provided by the GPS receiver. Data acquired by the ground system are printed on a line printer before and during each flight. The entire ground data acquisition system is fully automatic and is set for unattended recording and printing.

GPS BASE STATION RECEIVER

- NovAtel 3951R

The NovAtel GPSCard 12-channel receiver forms an integral part of the Sander GND-ACQ system. It provides averaged position and raw range information of all satellites in view, at intervals of 1.0 second. It also provides comparative navigation data during all production flights, allowing differential GPS (DGPS) coverage for the entire project.

VIDEO CAMERA AND RECORDER

- Panasonic NTS CCD WVD-5100HS

The video camera is mounted in the floor of the aircraft and oriented in such a way as to look vertically below while in flight. An intervalometer and fiducial marking system required for flight path verification are incorporated. The video information was recorded on VHS video tapes for the entire survey. This information can be used to identify the sources of cultural noise in the magnetic data for later removal.

RADAR AND BAROMETRIC ALTIMETERS

- TRT Radar Altimeter

The TRT radar altimeter has a resolution of 0.5 m, an accuracy of 1% and a range of 1 to 10,000 ft. The barometric pressure system has a resolution of 2 m, an accuracy of +/-4 m, and a range of 1 to 30,000 ft.

SURVEY AIRCRAFT

- Cessna 404 (C-GBWE)

The 404 used is an all metal, low wing, twin-engined aircraft powered by two turbocharged engines that drive constant speed, fully feathering propellers. The aircraft has fully retractable tricycle landing gear, extendable flaps and manually adjustable trim tabs on the primary controls for all three flight axes. The aircraft is equipped with full de-icing equipment and sufficient avionics for instrument flying. The aircraft has a rigid aluminum and composite material 2.5 m tail stinger designed to accommodate a magnetometer sensor and wiring. There is a camera hole in the belly of the aircraft and provisions for numerous other survey and navigation systems. The airframe has been extensively modified to reduce the magnetic signature of the aircraft by replacing ferromagnetic parts with those made from special non-magnetic stainless steel or aluminum materials. Several wiring changes have also been made to the electrical system to reduce magnetic field variations around the aircraft.

A complete description of the aircraft is given in *Appendix IV*.

DATA PROCESSING EQUIPMENT AND SOFTWARE

(a) Pentium processing computer, 166 MHz, 8 Gb hard drive
(b) Toshiba 330CDT laptop computer, 266 MHz, 3.8 Gb hard drive
(c) HP1000 colour printer
(d) SGL data processing and imaging software
(e) GPS processing software

IV. SURVEY SPECIFICATIONS

DATA RECORDING

The following parameters were recorded during the course of the survey:

(a) Aircraft altitude as measured by the barometric altimeter at intervals of 0.25 second;

(b) Terrain clearance provided by the radar altimeter at intervals of 0.25 second;

(c) A continuous video tape record of the terrain passing below the aircraft;

(d) Airborne GPS positional data (latitude, longitude, height, time and raw range from each satellite being tracked), recorded at intervals of 1.0 second;

(e) Time markers synchronously impressed on the video and digital data;

(f) Airborne total magnetic field recorded with a 0.1 s sampling rate;

(g) Ground total magnetic field recorded with a 0.5 s sampling rate; and

(h) Ground based GPS positional data (latitude, longitude, height, time and raw range from each satellite being tracked), recorded at intervals of 1.0 s.

TECHNICAL SPECIFICATIONS

The following technical specifications were adhered to:

(a) ***Geomagnetic diurnal variation***

Airborne survey data shall not be acceptable when gathered during magnetic storms or short-term disturbances of magnetic activity at the ground station used that exceed 2.5 nT from a linear chord over 2 minutes.

(b) ***High frequency noise***

Reflights would be required if the high frequency noise envelope on the aeromagnetic data exceeded 0.1 nT for more than 1 kilometre of any line.

(c) ***Deviation from theoretical flight path***

Reflights would be required if a gap greater than 5% the nominal line spacing between two adjacent lines occurred over a distance greater than 5 kilometres.

(d) ***Deviation from theoretical altitude***

The contract specified that any deviations greater than ±10 m from the planned surface for more than 5 kilometres.

(d) ***Aircraft Speed***

The aircraft speed was to be as constant as possible between 75 and 85 m/s.

A list of all the lines reflown and the reasons for reflight is given in *Appendix V.*

FLIGHT LINE SPECIFICATIONS

Wood Buffalo and Namur Lake

	Traverse	Control
Line spacing:	400 m	2000 m
Line direction:	north-south	east-west
Survey altitude:	120 m drape minimum AGL Differential GPS	

Gregoire Lake

	Traverse	Control
Line spacing:	400 m	2000 m
Line direction:	north-south	east-west
Survey altitude:	120 m above ground (radar altimeter)	

Postage Stamp Blocks 1 and 2

	Traverse	Control
Line spacing:	100 m	1200 m
Line direction:	east-west	north-south
Survey altitude:	100 m above ground (radar altimeter)	

V. SYSTEM TESTS

MAGNETOMETER CALIBRATION

Calibration of the aircraft magnetometer systems was carried out at Bourget, Ontario, on March 25, 1999. The results of the calibration flight are presented in *Figure 2*. The average heading errors were found to be 1.78 nT in the north-south direction and -0.76 nT in the east-west direction. The absolute error was 1.02 nT.

AADC COMPENSATION

Compensation tests determine the magnetic influence of aircraft manoeuvres and the effectiveness of the RMS AADC compensator. Several compensation flights were flown over the course of all of the survey blocks as there was considerable mechanical work done on the aircraft during the survey. The compensation flights of the geophysical aircraft Cessna 404, C-GBWE were carried out over a magnetically quiet area approximately 20 nm northwest of Fort McMurray. During these compensations the aircraft performed pitches, rolls, and yaws, while flying in the four cardinal headings (north, east, south, west).

The first compensation was flown on April 1, 1999 after correcting problems with the left alternator. The total compensated signal noise resulting from the twelve manoeuvres (referred to as the Figure of Merit - FOM) was 1.3 nT. A second calibration was flown on April 3 after the right alternator was replaced. The FOM for this calibration was 1.1 nT. The aircraft magnetometer was changed on May 4 as the original magnetometer produced intermittent spikes during survey flight. The compensation that ensued, on May 6, produced an FOM of 1.0 nT. Further alternator problems near the end of the survey caused mechanical work to be performed and consequently another compensation to be flown on May, 27. The FOM for this final compensation was 1.1 nT. A copy of all of the compensation flight plots can be found in *Appendix VIII.*

INSTRUMENTATION LAG

The system lag on the aircraft was checked during the magnetometer calibration flights by analysing two sets of data flown in opposite directions over a bridge in the Bourget test area. The well defined anomaly allowed the determination of the lag between the positional data and the magnetometer data. The lag was found to be 0.65 second and the delay was subsequently corrected during data compilation.

Figure 2

AEROMAGNETIC SURVEY SYSTEM CALIBRATION AT BOURGET, ONTARIO

Aircraft type : Cessna 404
Registration : C-GBWE
Organization : Sander Geophysics Limited
Pilot : Randy Forwell
Co-Pilot : Jan Kristiansen
Instrument Operator : Mark Ovenden

Date : March 25, 1999
Height flown : 500 feet
Magnetometer type : GEOMETRICS G-822A
Compensator: RMS AADC II (sampling rate: 10/s)
Data acquisition system : Sander ADAC computer
Camera : video (sampling rate: continuous)

Dir	Line #	GMT	Total field Aircraft T1	Grnd Stn Prev Min T2	Grnd Stn Subs Min T3	Interpolated Reading T4	Calculated T5	Error Value T6	Variation from Average
N	6	05:13:24 PM	55,741.6	56,293.5	56,294.2	56293.6	55737.6	4.0	1.7
S	5	05:03:55 PM	55,732.9	56,285.6	56,286.7	56285.9	55729.9	3.0	0.7
E	1	04:49:35 PM	55,731.3	56,286.1	56,285.9	56285.9	55729.9	1.3	-1.0
W	2	04:52:29 PM	55,730.6	56,286.2	56,283.9	56285.4	55729.4	1.2	-1.1
N	8	05:20:03 PM	55,739.0	56,292.7	56,290.7	56292.1	55736.1	3.0	0.6
S	7	05:16:49 PM	55,731.9	56,285.9	56,287.8	56287.5	55731.5	0.4	-2.0
E	3	04:55:44 PM	55,731.6	56,285.5	56,285.4	56285.5	55729.5	2.1	-0.3
W	4	04:58:19 PM	55,732.9	56,285.7	56,284.5	56285.2	55729.2	3.7	1.4
							Total :	18.8	
							Average:	2.3	

Note: It was extremely windy and tracking was only within +/- 25m

Average North-South Heading Error: 1.78
Average East-West Heading Error :-0.76

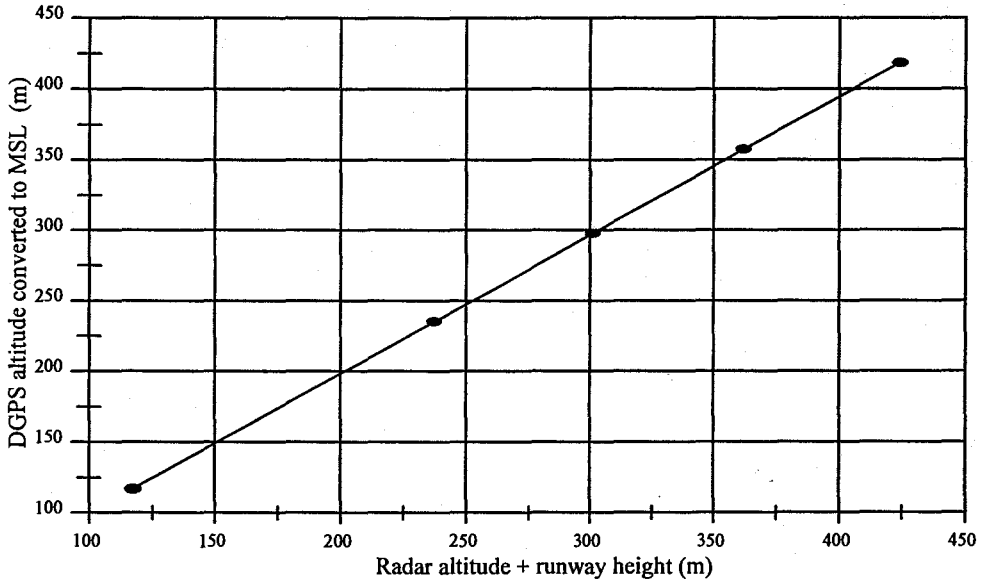
RADAR ALTIMETER CALIBRATION

The radar altimeter in the aircraft was tested on March 23 1999, by flying at altitudes of 400 ft, 600 ft, 800 ft, and 1000 ft AGL over the airport runway in Ottawa, Ontario. The stated elevation of the airport is 374 ft (113 m). The resultant radar altimeter plus runway heights versus differentially corrected GPS heights converted to mean sea level altitude were plotted on an XY graph *(Figure 3)*. The plot of the radar calibration data points revealed a close approximation to a straight line with a slope of 0.9823, indicating good calibration of the radar altimeter.

Figure 3

RADAR ALTIMETER TEST C-GBWE

Flown on Mar 23/99 in Ottawa



VI. FIELD OPERATIONS

Operations were conducted from the Fort McMurray Airport for the duration of the survey. A field office was established in the River Valley Manor, Room 405.

The combined magnetic/GPS ground station was installed at the airport pump house. The magnetic sensor was situated in a small forest behind the pump house, while the GPS antennae was located on the pump house roof. The position of the GPS antenna of the ground station was:

Latitude (WGS-84):	56:39.4033 N
Longitude (WGS-84):	111:13.5961W
Elevation (GRS-80 ellipsoid):	344.317 m

Several factors lowered the production rate on this project, low clouds, high winds, active ground magnetics and aircraft maintenance. The following chart shows the number of days where production was delayed or where there was no production at all, and the cause of the delay. The average production per day on the Wood Buffalo and Namur Lake blocks was 502 line kilometers while the average production per day on the Gregoire Lake and postage stamp blocks was 630 line kilometres.

Cause	Mechanical	Weather	Ground mag	Ground mag days delayed
Wood Buffalo	5.5	4	1	3
Gregoire Lake	1	7.5	1.5	1

FIELD PERSONNEL

The following technical personnel of Sander Geophysics Limited participated in field operations.

Project Manager:	Reed Archer
Field Operations Manager/ Data Processor:	Kelly O'Connor
Pilot-in-command:	Randy Forwell
Copilot:	Todd Lewis
Aircraft Maintenance Engineer	Leo Breault (Wood Buffalo & Namur lake) Bill Haggart (Gregoire Lake)

VII. DIGITAL DATA COMPILATION

All preliminary data compilation such as editing and filtering was performed in the field. Preliminary processing for on-site quality control was performed as each flight was completed. Final data processing and map production were performed at the SGL head office in Ottawa.

Figure4 summarizes the steps involved in processing the data obtained from the survey.

MAGNETOMETER DATA

The airborne magnetometer data, recorded at 10 Hz, were plotted and checked for spikes or noise. Ground magnetometer data were de-spiked automatically using a filter and spiker. All ground station magnetometer data were then filtered using a 67-point low pass filter (*Figure 5).* Ground station magnetometer data were IGRF corrected using the fixed ground station location (*see Section VI - Field Operations*) and the recorded date for each flight. The airborne magnetometer data were IGRF corrected using the location, altitude and date of each point. IGRF values were calculated using the 1995 IGRF parameter file. The airborne magnetometer data were then corrected for diurnal variations by subtracting the ground magnetometer values and adding the average value back in (-179 nT for Wood Buffalo and Namur Lake, -200 nT for Gregoire Lake).

The airborne magnetometer data was recorded with the low-pass filter on the RMS compensator turned off. The acquired magnetometer data was then filtered using a 2^{nd} order low-pass tangent butterworth filter with a break frequency of 0.9 Hz. This filtered channel was then used for final levelling. Both the filtered and unfiltered channels were included in the final data set.

Intersections between control and traverse lines were determined by a program which extracts the magnetic, altitude, and X and Y values, of the traverse and control lines at the intersection point. Each control line was then adjusted by a specific constant value to minimize for each traverse line:

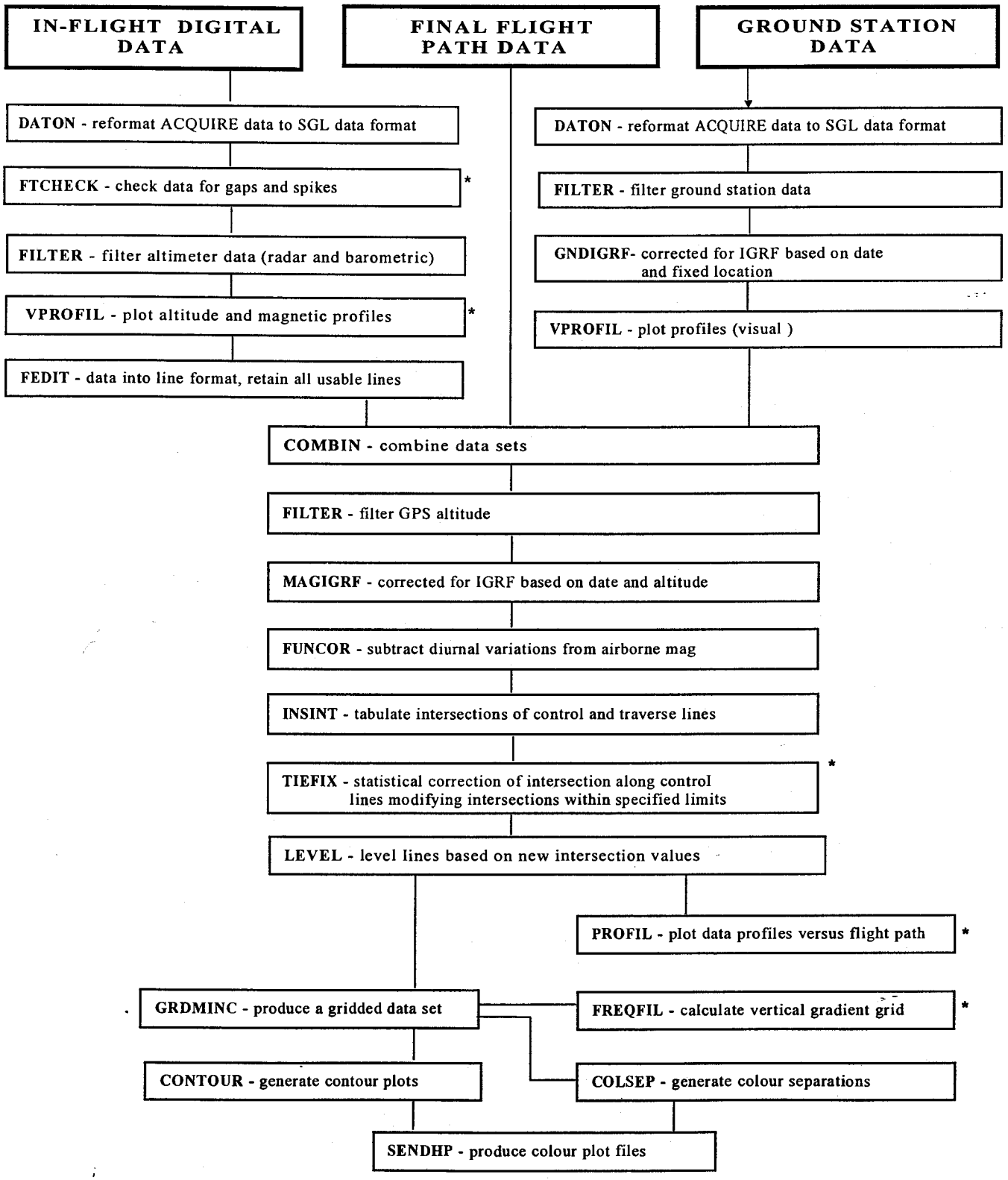
$$\Sigma|i - a|$$

where, i = (*Individual intersection difference*)
a = (*Average intersection difference for that traverse line*)

Line levelling was carried out by a program which interpolates and extrapolates levelling values for each point, based on the two closest levelling values. Both traverse and control lines were levelled, ensuring that all intersections tied perfectly.

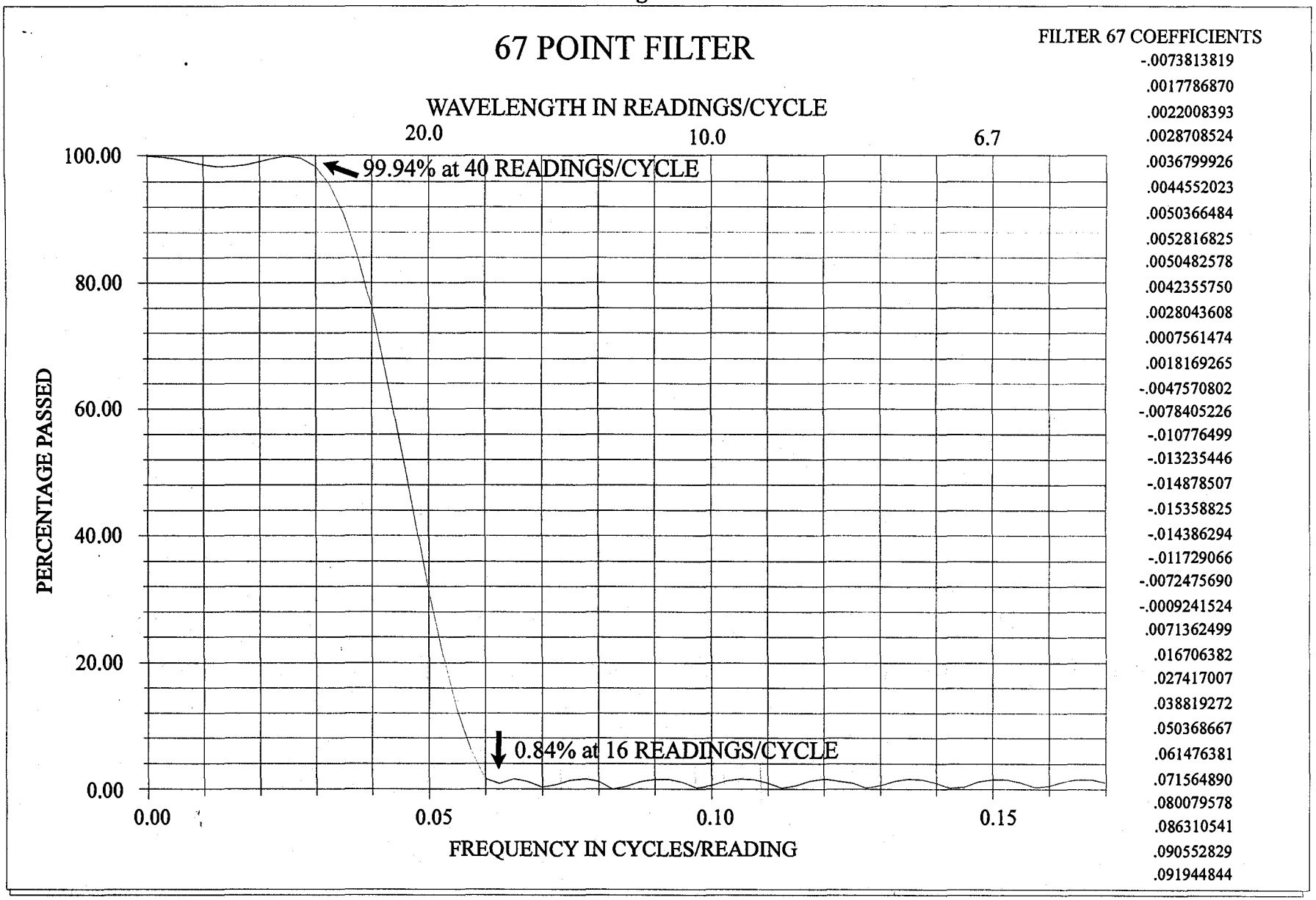
Figure 4

MAGNETOMETER DATA PROCESSING



* *Quality Control Check*

Figure 5


67 POINT FILTER
WAVELENGTH IN READINGS/CYCLE
20.0
10.0
6.7
99.94% at 40 READINGS/CYCLE
0.84% at 16 READINGS/CYCLE
PERCENTAGE PASSED
100.00
80.00
60.00
40.00
20.00
0.00
0.00
0.05
0.10
0.15
FREQUENCY IN CYCLES/READING
FILTER 67 COEFFICIENTS
-.0073813819
.0017786870
.0022008393
.0028708524
.0036799926
.0044552023
.0050366484
.0052816825
.0050482578
.0042355750
.0028043608
.0007561474
.0018169265
-.0047570802
-.0078405226
-.010776499
-.013235446
-.014878507
-.015358825
-.014386294
-.011729066
-.0072475690
-.0009241524
.0071362499
.016706382
.027417007
.038819272
.050368667
.061476381
.071564890
.080079578
.086310541
.090552829
.091944844

Gridding was accomplished using the minimum curvature method, with a 100 m grid cell size for Wood Buffalo, Namur Lake, and Gregoire Lake; and a 25 cm grid cell size for the Postage Stamp Blocks. This method uses data from both control and traverse lines to create a two-dimensional grid equally incremented in X and Y directions. The algorithm produces a smooth grid by iteratively solving a set of difference equations, which minimizes the total second horizontal derivative, and attempts to honour input data (Briggs, I.C., 1974, Geophysics, v 39, no. 1).

RADAR ALTIMETER DATA

The terrain clearance measured by the radar altimeter, in metres, was recorded at 4 Hz. The data were filtered to remove high frequency noise using a 67-point filter (*Figure 5*). The filtered data were plotted and inspected for quality.

POSITIONAL DATA

A number of programs were executed for the compilation of navigation data in order to reformat and recalculate positions in differential mode. SGL's GPS data processing package, GPSoft was used to calculate DGPS positions from raw range data obtained from the moving (airborne) and stationary (ground) receivers. The general data flow for GPSoft is illustrated in *Figure 6*.

The accurate location of the GPS antenna was determined using a permanent GPS reference station in Yellowknife, NWT to differentially correct the SGL ground station position data. This technique provides a final receiver location with an accuracy of better than 1 m. The entire airborne data set was processed differentially using the calculated ground station location.

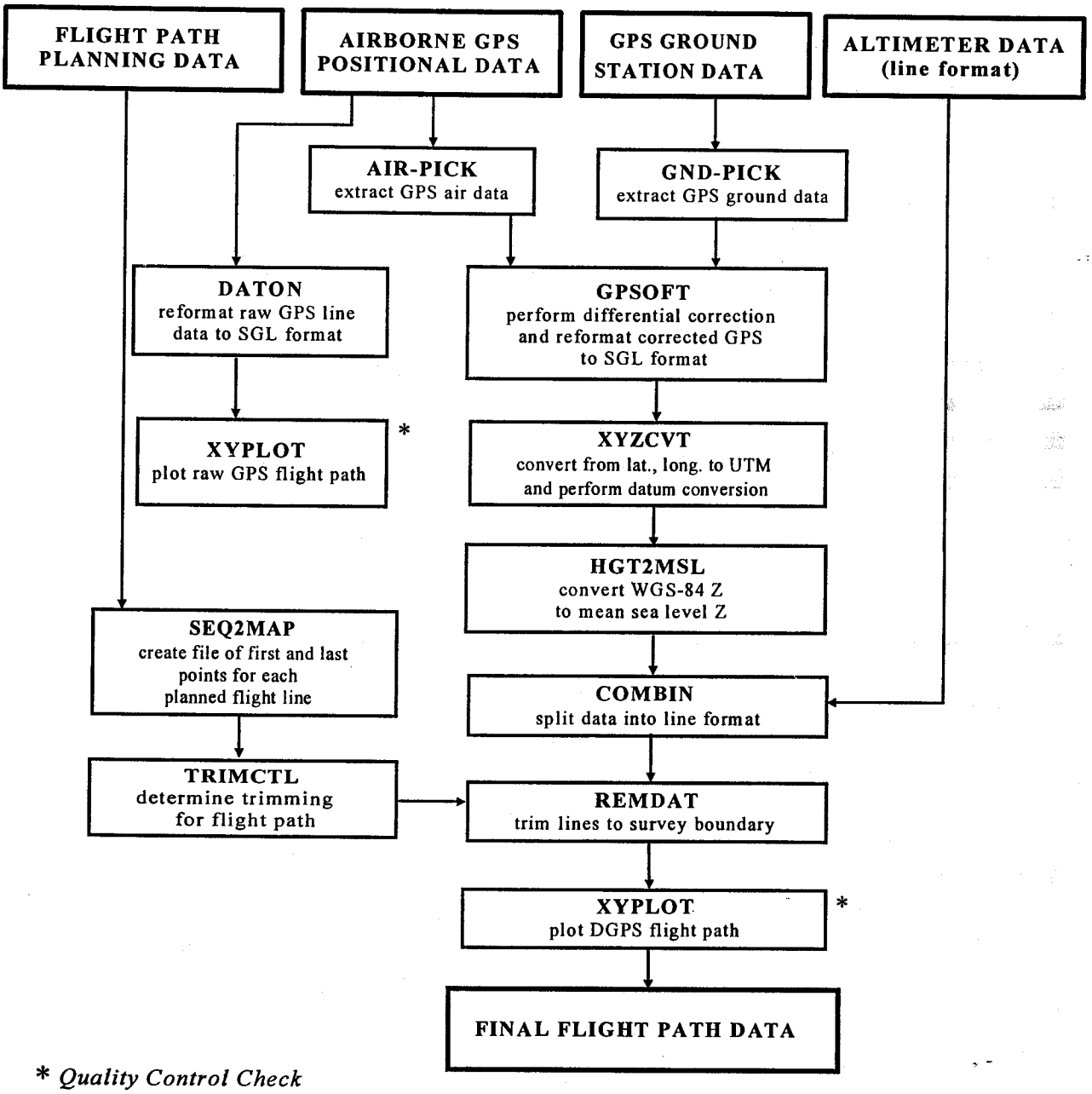
Positional data were recorded in the WGS-84 datum and transformed to NAD-27-CAN datum. Parameters for the datum are:

Ellipsoid:	International (Clarke-1866)
Semimajor axis:	6378206.4
1/flattening:	294.979
Shift to WGS-84:	dx = -10, dy = 158, dz = 187
UTM Zone	12N, Central Meridian 111° West

Elevation data were recorded in the WGS-84 datum and transformed to Mean Sea Level (MSL) using the OSU91A30 model.

Figure 6

POSITIONAL DATA PROCESSING



* *Quality Control Check*

DATA PROCESSING PERSONNEL

Data processing at head office was performed by Stefan Elieff and Kelly O'Connor. Cartographic work was performed by Jeff Kertesz.

VIII. FINAL PRODUCTS

DIGITAL DATA

(Figure 7 describes the digital data format.)

Wood Buffalo and Namur Lake

One CD-ROM containing the following files was delivered:

Geosoft Format ASCII Line Data

ASC-NL.XYZ	Namur Lake Block
ASC-WB.XYZ	Wood Buffalo Block

Geosoft Binary Format Grids

DTM.GRD	Digital Terrain Model - Wider Region
DTM-NL.GRD	Digital Terrain Model - Namur Lake Block
DTM-WB.GRD	Digital Terrain Model - Wood Buffalo Block
DTM-WBNL.GRD	Digital Terrain Model - Both Blocks
FVD-NL.GRD	First Vertical Derivative - Namur Lake Block
FVD-WB.GRD	First Vertical Derivative - Wood Buffalo Block
FVD-WBNL.GRD	First Vertical Derivative - Both Blocks
TER-NL.GRD	Calculated Terrain - Namur Lake Block
TER-WB.GRD	Calculated Terrain - Wood Buffalo Block
TER-WBNL.GRD	Calculated Terrain - Both Blocks
TMI-NL.GRD	Total Magnetic Intensity - Namur Lake Block
TMI-WB.GRD	Total Magnetic Intensity - Wood Buffalo Block
TMI-WBNL.GRD	Total Magnetic Intensity - Both Blocks

DXF Files of DTM Contours and, Cultural and Geographic Features

NAMURLAK.DXF	Namur Lake Block
WOODBUFF.DXF	Wood Buffalo Block

RTL Plot Files

FVD-NL.RTL	First Vertical Derivative - Namur Lake Block
FVD-WB.RTL	First Vertical Derivative - Wood Buffalo Block
TMI-NL.RTL	Total Magnetic Intensity - Namur Lake Block
TMI-WB.RTL	Total Magnetic Intensity - Wood Buffalo Block

Gregoire Lake

Three CD-ROMs containing the following files were delivered:

Geosoft Format ASCII Line Data

ASCGREG1.XYZ	Full Wood Buffalo Block

Geosoft Binary Format Grids

DTM.GXF	Digital Terrain Model
FVD.GXF	First Vertical Derivative
TER.GXF	Calculated Terrain
TMI.GXF	Total Magnetic Intensity

RTL Plot Files

FVD.RTL	First Vertical Derivative
TMI.RTL	Total Magnetic Intensity

The following file was delivered at a later date:

DXF File of DTM Contours and, Cultural and Geographic Features

DTMGREG.DXF

Postage Stamp Blocks

Three CD-ROMs containing the following files were delivered:

Geosoft Format ASCII Line Data

ASCPOST.XYZ	Both Postage Stamp Blocks

Geosoft Binary Format Grids

DTM.GXF	Digital Terrain Model
FVD.GXF	First Vertical Derivative
TER.GXF	Calculated Terrain
TMI.GXF	Total Magnetic Intensity

RTL Plot Files

FVD1.RTL	First Vertical Derivative - Block 1
FVD2.RTL	First Vertical Derivative - Block 2
TMI1.RTL	Total Magnetic Intensity - Block 1
TMI2.RTL	Total Magnetic Intensity - Block 2

Figure 7
ASCII DIGITAL DATA FORMAT

Line Data:

FORMAT DESCRIPTION FOR LINES.ASC
Record length: 148 bytes

Channel	Contents	Columns	Format
UTM x NAD-27, Zone 12N	metres	1-10	I10
UTM y NAD-27, Zone 12N	metres	11-20	I10
Longitude NAD-27	decimal degrees	21-32	F12.6
Latitude NAD-27	decimal degrees	33-43	F11.6
Fiducial	seconds	44-53	F10.2
Radar height	metres	54-63	I10
Barometer height	metres	64-73	I10
GPS elevation (mean sea level)	metres	74-83	I10
Ground magnetics	nT	84-93	F10.2
Uncorrected TMI	nT	94-103	F10.2
TMI filtered	nT	104-113	F10.2
IGRF value	nT	114-123	F10.2
Final TMI (levelled)	nT	124-133	F10.2
Calculated terrain	m	134-143	I10
Flight number		144-148	A5

MAP PRODUCTS

The following map products (two laminated copies of the following) were delivered:

Wood Buffalo and Namur Lake

At 1:100,000 - 2 map sheets (Wood Buffalo and Namur Lake) to cover the entire survey area

1. Total magnetic intensity colour map with contours superimposed
2. First vertical derivative of the TMI colour map with contours superimposed

Gregoire Lake

At 1:100,000 - 2 map sheets (east and west) to cover the entire survey area

1. Total magnetic intensity colour map with contours superimposed
2. First vertical derivative of the TMI colour map with contours superimposed

Postage Stamp Blocks

At 1:10,000 - 1 map sheet for each block

1. Total magnetic intensity colour map with contours superimposed
2. First vertical derivative of the TMI colour map with contours superimposed

IX. PROJECT SUMMARY

PART I - SURVEY

SURVEY LOCATION

Survey Title:	Fixed Wing Aeromagnetic Survey - Athabasca Blocks (Wood Buffalo, Namur Lake and Gregoire Lake)
Survey Location:	Fort McMurray, Alberta
Survey Duration:	01/04/99 - 29/05/99
Client:	Ashton Mining of Canada Inc.
Address:	Unit 123-930 W 1st Street, Vancouver, BC V7P 3N4
Client Contact:	Brooke Clements Phone: (604)-983-7750 Fax: (604)-987-7107
Field Office Location:	River Valley Manor, Room 405, Fort McMurray, AB
Base Ground Station Location:	Pump house, Fort McMurray Airport
GPS Antennae Position:	N56°39.4045' W111°13.5997' 345.288 m (WGS-84)
Airports Used:	Fort McMurray, Alberta

SURVEY SPECIFICATIONS

Magnetic Field:	Inclination: 78.26° Declination: 19.4° Total Field: 59660 nT	
Datum - Raw Recorded Data:	WGS-84	
Datum - Delivered Data:	NAD-27-CAN	

Wood Buffalo and Namur Lake Blocks

Line Direction:	Traverse: 0°	Control: 90°
Total lkm Flown:	12564 lkm	
Survey Altitude:	120 m Minimum AGL Draped	
Survey Flight Numbers:	1-15	
Flights Not Used:	none	
Line Spacing:	Traverse: 400 m	Control: 2000 m
Survey Line Numbers:	Traverse: 996-1275	Control: 101-160

Gregoire Lake Block

Line Direction:	Traverse: 0°	Control: 90°
Total lkm Flown:	15206 lkm	
Survey Altitude:	120 m Minimum AGL RA	
Survey Flight Numbers:	1-15	
Flights Not Used:	none	
Line Spacing:	Traverse: 400 m	Control: 2000 m
Survey Line Numbers:	Traverse: 1001-1257	Control: 101-145

Postage Stamp Blocks

Line Direction:	Traverse: 90°	Control: 0°
Total lkm Flown:	562 lkm	
Survey Altitude:	100 m Minimum AGL RA	
Survey Flight Numbers:	16 - 18	
Flights Not Used:	none	
Line Spacing:	Traverse: 100 m	Control: 1200 m
Survey Line Numbers:	Traverse: 2001-2051	Control: 201-205 (Block 1)
	Traverse: 3001-3051	Control: 301-305 (Block 2)

SURVEY AIRCRAFT AND EQUIPMENT

Aircraft Used:	Cessna 404 Reg. C-GBWE		
Radar Altimeter:	TRT	range: 0-10,000 ft.	
Barometric Altimeter:	Sander BA 012		
Magnetometer (Air):	Geometrics G-822A	Sample rate:	10 Hz
Magnetometer (Ground):	Scintrex G3	Sample rate:	2 Hz
GPS Receiver (Air):	NovAtel 3951R, 12 channels		1 Hz
GPS Receiver (Ground):	NovAtel 3951R, 12 channels		1 Hz

FIELD PERSONNEL

Project Manager:	Reed Archer	Pilot-in-Command:	RandyForwell
Field Party Chief/ Data Processor:	Kelly O'Connor	Copilot:	Todd Lewis
		Aircraft Maintenance Engineer:	Leo Breault
			Bill Haggart

IX. PROJECT SUMMARY

PART II - DATA PROCESSING

DATA PROCESSING - Wood Buffalo and Namur Lake				
PROCESSING FILE LOCATION				
	Computer	Directory / batch file	Done	Compiled by
Field processing	Pent-16	D:\ASHATH99.AB	Y	Kelly O'Connor
Altimeter data	Pent-15	E:\..\ALT	Y	Stefan Ellief
Air mag data	Pent-15	E:\..\MAG	Y	Stefan Ellief
Gnd mag data	Pent-15	E:\..\GND	Y	Stefan Ellief

MAJOR PROCESSING ITEMS			
Master Corner File: E:\PLAN\FMFINAL.MCF		Map names: FMA, FMN, FMS	
Traverse / Control lines spacing: 400 m /2k m		Survey Origin: 58:00N, 113:00W	
Diurnals subtracted: Y	IGRF removed: Y	Decorrugation performed: N	
Altitude correction to mag data: N		Data rotated: N	
INSINT - limit to move intersection (readings): 2			
TIEFIX	ADJUSTCTL: Y	SHORT FIX: Y	Length: 7
Maximum intersection deviation: 6.75		Maximum to move: 1.0	
Control files to adjust intersections: FAINT3.CTL			

SPECIFIC DATA PROCESSED

Ch #	Data	Units	Sample rate	Comments	Spiker/ filter	Final tape
0	Time	0.01 s	0.1	UTC secs after midnight		Y
5	RA	0.10 m	0.25	Filtered radar altimeter	67Y	Y
7	BA	0.10 m	0.25	Filtered barometric altimeter	67Y	N
10	GND_MAG	0.01 nT	0.5	Edited ground mag		N
11	GND_FILT	0.01 nT	0.5	Filtered ground mag	67Y	N
12	GND_IGRF	0.01 nT	0.5	IGRF corrected ground mag		Y
20	AIR_MAG	0.01 nT	0.1	Raw, edited		Y
21	MAG_IGRF	0.01 nT	0.1	IGRF corrected		Y
22	IGRF	0.01 nT	0.1	IGRF correction		N
23	AIR_MAG_DC	0.01 nT	0.1	Diurnals removed		Y

Ch #	Data	Units	Sample rate	Comments	Spiker/ filter	Final tape
24	AIR_FILT	0.01 nT	0.1	Recursive filter used		N
25	MAG_LEV	0.01 nT	0.1	Final, levelled		Y
60	GPS_LAT Y	10^{-7} deg	0.1	Raw, WGS-84		N
61	GPS_LONG X	10^{-7} deg	1	Raw, WGS-84		N
62	GPS_ALT Z	0.10 m	1	Raw, ellipsoid GRS-80	21C	N
63	DGPS_UTM Y	1.0 m	1	NAD-27-USA-WEST, zone 10N		Y
64	DGPS_UTM X	1.0 m	1	NAD-27-USA-WEST, zone 10N		Y
65	DGPS_UTM Z	0.10 m	1	Ellipsoid GRS-80	21C	N
53	DGPS_LAT Y	10^{-7} deg	1	NAD-27		Y
54	DGPS_LONG X	10^{-7} deg	1	NAD-27		Y
68	MSL	0.10 m	1	Mean Sea Level		Y

FINAL PRODUCTS	Delivered July, 1999	Media: CD	Qty: 1
MAPS	***Scale***	***Comments***	
Total Magnetic Intensity (2 map sheets)	1:100,000	colour with contours	
First Vertical Derivative of TMI (2 map sheets)	1:100,000	colour with contours	
GRIDS	***Format***	***Grid cell size (m)***	
Total Magnetic Intensity	Geosoft	100	
First Vertical Derivative of TMI	Geosoft	100	
Derived Topography	Geosoft	100	
DIGITAL LINE DATA	***Format***	***Sampling rate***	
File: LINES.ASC	Geosoft ASCII XYZ	10 Hz	

SGL BACK-UP MEDIUM:	8 mm tape	No.	No. of tapes: 1

DATA PROCESSING - Gregoire Lake

PROCESSING FILE LOCATION

	Computer	Directory / batch file	Done	Compiled by
Field processing	Pent-16	D:\ASHATH99.AB	Y	Kelly O'Connor
Altimeter data	Pent-16	D:\..\ALT	Y	Kelly O'Connor
Air mag data	Pent-16	D:\..\MAG	Y	Kelly O'Connor
Gnd mag data	Pent-16	D:\..\GND	Y	Kelly O'Connor

MAJOR PROCESSING ITEMS

Master Corner File: D:\PLAN\GLNADU2.MCF		Map names: ALL, EAST, WEST	
Traverse / Control lines spacing: 400 m /2k m		Survey Origin: 56:00N, 111:00W	
Diurnals subtracted: Y	IGRF removed: Y	Decorrugation performed: N	
Altitude correction to mag data: N		Data rotated: N	
INSINT - limit to move intersection (readings): 2			
TIEFIX	ADJUSTCTL: Y	SHORT FIX: Y	Length: 7
Maximum intersection deviation: 10.0		Maximum to move: 0.25	
Control files to adjust intersections: FAINT2.CTL			

SPECIFIC DATA PROCESSED

Ch #	Data	Units	Sample rate	Comments	Spiker/ filter	Final tape
0	Time	0.01 s	0.1	UTC secs after midnight		Y
5	RA	0.10 m	0.25	Filtered radar altimeter	67Y	Y
7	BA	0.10 m	0.25	Filtered barometric altimeter	67Y	N
10	GND_MAG	0.01 nT	0.5	Edited ground mag		N
11	GND_FILT	0.01 nT	0.5	Filtered ground mag	67Y	N
12	GND_IGRF	0.01 nT	0.5	IGRF corrected ground mag		Y
20	AIR_MAG	0.01 nT	0.1	Raw, edited		Y
21	MAG_IGRF	0.01 nT	0.1	IGRF corrected		Y
22	IGRF	0.01 nT	0.1	IGRF correction		N
23	AIR_MAG_DC	0.01 nT	0.1	Diurnals removed		Y
24	AIR_FILT	0.01 nT	0.1	Recursive filter used		N
25	MAG_LEV	0.01 nT	0.1	Final, levelled		Y

Ch #	Data	Units	Sample rate	Comments	Spiker/ filter	Final tape
60	GPS_LAT Y	10^{-7} deg	0.1	Raw, WGS-84		N
61	GPS_LONG X	10^{-7} deg	1	Raw, WGS-84		N
62	GPS_ALT Z	0.10 m	1	Raw, ellipsoid GRS-80	21C	N
63	DGPS_UTM Y	1.0 m	1	NAD-27-USA-WEST, zone 10N		Y
64	DGPS_UTM X	1.0 m	1	NAD-27-USA-WEST, zone 10N		Y
65	DGPS_UTM Z	0.10 m	1	Ellipsoid GRS-80	21C	N
53	DGPS_LAT Y	10^{-7} deg	1	NAD-27		Y
54	DGPS_LONG X	10^{-7} deg	1	NAD-27		Y
68	MSL	0.10 m	1	Mean Sea Level		Y

FINAL PRODUCTS	Delivered July, 1999	Media: CD	Qty: 3
MAPS	***Scale***	***Comments***	
Total Magnetic Intensity (2 map sheets)	1:100,000	colour with contours	
First Vertical Derivative of TMI (2 map sheets)	1:100,000	colour with contours	
GRIDS	***Format***	***Grid cell size (m)***	
Total Magnetic Intensity	Geosoft	100	
First Vertical Derivative of TMI	Geosoft	100	
Derived Topography	Geosoft	100	
DIGITAL LINE DATA	***Format***	***Sampling rate***	
File: LINES.ASC	Geosoft ASCII XYZ	10 Hz	

SGL BACK-UP MEDIUM:	8 mm tape	No.	No. of tapes: 1

DATA PROCESSING - Postage Stamp Blocks

PROCESSING FILE LOCATION

	Computer	Directory / batch file	Done	Compiled by
Field processing	Pent-16	D:\BLOCK1.AB D:\BLOCK2.AB	Y	Kelly O'Connor
Altimeter data	Pent-16	D:\..\ALT	Y	Kelly O'Connor
Air mag data	Pent-16	D:\..\MAG	Y	Kelly O'Connor
Gnd mag data	Pent-16	D:\..\GND	Y	Kelly O'Connor

MAJOR PROCESSING ITEMS

Master Corner File: D:\PLAN\B1NADU.MCF D:\PLAN\B2NADU.MCF			Map names: ALL, EAST, WEST
Traverse / Control lines spacing: 400 m /2k m			Survey Origin: 56:00N, 111:00W
Diurnals subtracted: Y	IGRF removed: Y		Decorrugation performed: N
Altitude correction to mag data: N			Data rotated: N
INSINT - limit to move intersection (readings): 2			
TIEFIX	ADJUSTCTL: Y	SHORT FIX: N	Length: 5
Maximum intersection deviation: 10.0			Maximum to move: 0.25
Control files to adjust intersections: FAINT2.CTL			

SPECIFIC DATA PROCESSED

Ch #	Data	Units	Sample rate	Comments	Spiker/ filter	Final tape
0	Time	0.01 s	0.1	UTC secs after midnight		Y
5	RA	0.10 m	0.25	Filtered radar altimeter	67Y	Y
7	BA	0.10 m	0.25	Filtered barometric altimeter	67Y	N
10	GND_MAG	0.01 nT	0.5	Edited ground mag		N
11	GND_FILT	0.01 nT	0.5	Filtered ground mag	67Y	N
12	GND_IGRF	0.01 nT	0.5	IGRF corrected ground mag		Y
20	AIR_MAG	0.01 nT	0.1	Raw, edited		Y
21	MAG_IGRF	0.01 nT	0.1	IGRF corrected		Y
22	IGRF	0.01 nT	0.1	IGRF correction		N
23	AIR_MAG_DC	0.01 nT	0.1	Diurnals removed		Y
24	AIR_FILT	0.01 nT	0.1	Recursive filter used		N

Ch #	Data	Units	Sample rate	Comments	Spiker/ filter	Final tape
25	MAG_LEV	0.01 nT	0.1	Final, levelled		Y
60	GPS_LAT Y	10^{-7} deg	0.1	Raw, WGS-84		N
61	GPS_LONG X	10^{-7} deg	1	Raw, WGS-84		N
62	GPS_ALT Z	0.10 m	1	Raw, ellipsoid GRS-80	21C	N
63	DGPS_UTM Y	1.0 m	1	NAD-27-USA-WEST, zone 10N		Y
64	DGPS_UTM X	1.0 m	1	NAD-27-USA-WEST, zone 10N		Y
65	DGPS_UTM Z	0.10 m	1	Ellipsoid GRS-80	21C	N
53	DGPS_LAT Y	10^{-7} deg	1	NAD-27		Y
54	DGPS_LONG X	10^{-7} deg	1	NAD-27		Y
68	MSL	0.10 m	1	Mean Sea Level		Y

FINAL PRODUCTS	Delivered July, 1999	Media: CD	Qty: 3
MAPS	***Scale***	***Comments***	
Total Magnetic Intensity (2 map sheets)	1:10,000	colour with contours	
First Vertical Derivative of TMI (2 map sheets)	1:10,000	colour with contours	
GRIDS	***Format***	***Grid cell size (m)***	
Total Magnetic Intensity	Geosoft	25	
First Vertical Derivative of TMI	Geosoft	25	
Derived Topography	Geosoft	25	
DIGITAL LINE DATA	***Format***	***Sampling rate***	
File: LINES.ASC	Geosoft ASCII XYZ	10 Hz	

SGL BACK-UP MEDIUM:	8 mm tape	No.	No. of tapes: 1

APPENDICES

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

APPENDIX I

COMPANY PROFILE

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

SANDER GEOPHYSICS LIMITED

COMPANY PROFILE

Sander Geophysics Limited (SGL) specializes in high resolution airborne surveys for environmental mapping, and petroleum and mining exploration. The company carries out airborne magnetic, and radiometric surveys using fixed-wing aircraft and helicopters.

HISTORY

SGL was founded in 1956. The first airborne surveys were performed as early as 1958, and by 1967 airborne geophysical surveying had become the mainstay of the company. Operations have continued and expanded under the same ownership and management since 1956.

SERVICES

The company currently specializes in surveys using one or more of the following methods:

- Magnetic total field
- Magnetic gradient
- Radiometric
- VLF-EM

All surveys are performed using SGL's specially modified fixed-wing aircraft and helicopter.

The company has extensive experience in working in diverse geographical environments. Surveys have been flown in high mountains, offshore, over deserts and tropical jungle, from the Pampas of Argentina to the tundra of the Canadian Arctic, and to the South China sea.

Each field party is under the direction of a university graduate geophysicist. Field offices are equipped to provide flight path maps as well as contour and colour maps of the geophysical data. Immediate data processing is part of our standard quality control procedure, and provides our clients with rapid results for evaluation while the survey is in progress.

Among airborne geophysical surveying companies, SGL has long been in the lead in making optimal use of the Global Positioning System. We are now offering a flight management system GPSNav with SGDrape based on Real Time Differential GPS (RDGPS) to provide steering information to the pilot to an accuracy of 5 m in all three dimensions. This system allows us to produce a drape flying surface which is unique and optimal. It ensures that adjacent flight lines and control lines are flown at the same level resulting in better geophysical maps.

INTERPRETIVE PRODUCTS

SGL offers a full range of data enhancement programs and provides complete interpretational services by experienced geoscientists.

- Vertical gradient contour and colour maps
- Shaded relief maps of any parameter
- Frequency slices - high-pass, low-pass or band-pass filtered total magnetic intensity
- Directional high-pass, low-pass or band-pass filtering
- Amplitude of the analytic signal
- Reduced-to-the-pole maps
- Upward or downward continued maps
- Three-dimensional modelling of magnetic grid data
- Processed gamma-ray spectrometer data

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

SGL AIRCRAFT

SGL owns and operates the following geophysical aircraft.

Aircraft	Endurance in Survey Mode (hrs with reserves)	Maximum Gross Weight (kg)
Cessna 208B Grand Caravan (3)	6	3,977
Cessna 402B	6	2,864
Cessna 404 Titan	8	3,818
Queenair B80	6	4,000
BN Islander	8	3,000
AS 350D Astar	5	1,950

All our aircraft are equipped for magnetic and radiometric surveys. Extensive modifications have been made to the fixed-wing aircraft to reduce their magnetic effect. Typical Figures of Merit for SGL's fixed-wing aircraft are less than 1 nT in most regions of the world.

FACILITIES

The company's head office and aircraft maintenance hangar is located at the Macdonald-Cartier International Airport in Ottawa, Canada. SGL maintains a complete electronics workshop with test equipment consistent with the research and development, and production of geophysical instruments.

SGL has successfully processed all data acquired during the past 25 years. The company has an ongoing program of researching, developing, and refining a full suite of software for geophysical data processing.

SGL's cartographic department is now fully digital with a 36" wide drum colour scanner, raster/vector editing software, several colour plotters and a laminator.

R & D

SGL is dedicated to research and development. Nearly one-third of the company's resources are devoted to developing new and more efficient instrumentation for airborne geophysical surveying.

In recent years, SGL has been engaged in an R & D project to design an airborne gravimetry system which will offer much better resolution and stability than the existing systems.

SGL SURVEY EQUIPMENT

Magnetometers

Sensors: **Scintrex** CS-2 & H8 optically-pumped, cesium split beam
Geometrics G-822A

Compensator: **RMS**
27-term automatic airborne digital compensator

Gamma-ray Spectrometers

Detectors: **Bicron**
NaI parallelepipedic crystals, 60 litres total

Spectrometer: **Exploranium** GR-820
dual 256-channel analyzers

Data Acquisition

Computer: **Sander NavDAS**
micro computer based system with **Bernoulli** or **Jaz** drives

Navigation & Flight Path Recovery

GPS: **NovAtel 3951R**
12-channel receiver
post-flight or real-time DGPS

Glonass: **Ashtech** GPS/Glonass GG24 receiver

Video tracking: **Panasonic**
CCD video camera

KEY PERSONNEL

President:
George W. Sander, Ph.D., P.Eng.

Chief Geophysicist:
Stephan Sander, M.Sc.

Operations Manager:
Reed Archer, B.Sc.

Data Processing Manager:
Luise Archer, M.Sc.

Chief, R & D:
Stephen Ferguson, M.Sc.

Aeronautical Operations:
Malcolm Imray, M.Sc., P.Eng.

APPENDIX II

SURVEY LINE COORDINATES

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

FIXED WING AEROMAGNETIC SURVEY
ATHABASCA BLOCKS - 1999

APPENDIX II
SURVEY LINE COORDINATES

START		END		SEGMENT	LENGTH
LAT	LONG	LAT	LONG	NO	NM

WOOD BUFFALO AND NAMUR LAKE

*** CONTROL LINES ***

N57:01.62	W112:15.48	N57:01.62	W112:34.99	C0101.0	10.62
N57:02.70	W112:15.48	N57:02.70	W112:34.99	C0102.0	10.61
N57:03.78	W112:15.48	N57:03.78	W112:34.99	C0103.0	10.61
N57:04.86	W112:15.48	N57:04.86	W112:34.99	C0104.0	10.60
N57:05.94	W112:15.48	N57:05.94	W112:34.99	C0105.0	10.60
N57:07.02	W112:15.48	N57:07.02	W112:34.99	C0106.0	10.59
N57:08.10	W112:15.48	N57:08.10	W112:26.45	C0107.0	5.95
N57:09.18	W112:15.48	N57:09.18	W112:26.45	C0108.0	5.95
N57:10.26	W112:15.48	N57:10.26	W112:26.45	C0109.0	5.95
N57:11.34	W112:15.48	N57:11.34	W112:26.45	C0110.0	5.94
N57:12.42	W112:15.48	N57:12.42	W112:26.45	C0111.0	5.94
N57:13.50	W112:15.48	N57:13.50	W112:26.45	C0112.0	5.94
N57:14.58	W112:15.48	N57:14.58	W112:26.45	C0113.0	5.94
N57:15.66	W112:15.48	N57:15.66	W112:26.45	C0114.0	5.93
N57:16.74	W112:15.48	N57:16.74	W112:26.45	C0115.0	5.93
N57:17.82	W112:15.48	N57:17.82	W112:26.45	C0116.0	5.93
N57:18.90	W112:15.48	N57:18.90	W112:26.45	C0117.0	5.93
N57:19.98	W112:15.48	N57:19.98	W112:26.45	C0118.0	5.92
N57:21.06	W112:15.48	N57:21.06	W112:26.45	C0119.0	5.92
N57:22.14	W112:15.48	N57:22.14	W112:26.45	C0120.0	5.92
N57:23.22	W112:15.48	N57:23.22	W112:26.45	C0121.0	5.91
N57:24.30	W112:15.48	N57:24.30	W112:26.45	C0122.0	5.91
N57:25.38	W112:15.48	N57:25.38	W112:26.45	C0123.0	5.91
N57:26.46	W112:15.48	N57:26.46	W112:26.45	C0124.0	5.91
N57:27.54	W112:08.56	N57:27.54	W112:26.45	C0125.0	9.62
N57:28.62	W112:08.56	N57:28.62	W112:26.45	C0126.0	9.62
N57:29.70	W112:08.56	N57:29.70	W112:26.45	C0127.0	9.61
N57:30.78	W112:08.56	N57:30.78	W112:26.45	C0128.0	9.61
N57:31.86	W112:08.56	N57:31.86	W112:26.45	C0129.0	9.60
N57:32.94	W112:08.56	N57:32.94	W112:28.48	C0130.0	10.69
N57:34.02	W112:08.56	N57:34.02	W112:28.48	C0131.0	10.68
N57:35.10	W112:08.56	N57:35.10	W112:28.48	C0132.0	10.68
N57:36.18	W112:08.56	N57:36.18	W112:28.48	C0133.0	10.67
N57:37.26	W112:08.56	N57:37.26	W112:28.48	C0134.0	10.67
N57:38.34	W112:08.56	N57:38.34	W112:28.48	C0135.0	10.66
N57:39.42	W112:08.56	N57:39.42	W112:28.48	C0136.0	10.66

START		END		SEGMENT	LENGTH
LAT	LONG	LAT	LONG	NO	NM
N57:40.50	W112:08.56	N57:40.50	W112:28.48	C0137.0	10.65
N57:41.58	W112:08.56	N57:41.58	W112:28.48	C0138.0	10.65
N57:42.66	W112:08.56	N57:42.66	W112:28.48	C0139.0	10.64
N57:43.74	W112:08.56	N57:43.74	W113:27.04	C0140.0	41.90
*** TRAVERSE LINES ***					
N57:27.00	W112:08.76	N57:43.84	W112:08.76	T1001.0	16.84
N57:27.00	W112:09.17	N57:43.84	W112:09.17	T1002.0	16.84
N57:27.00	W112:09.58	N57:43.84	W112:09.58	T1003.0	16.84
N57:27.00	W112:09.98	N57:43.84	W112:09.98	T1004.0	16.84
N57:27.00	W112:10.39	N57:43.84	W112:10.39	T1005.0	16.84
N57:27.00	W112:10.80	N57:43.84	W112:10.80	T1006.0	16.84
N57:27.00	W112:11.20	N57:43.84	W112:11.20	T1007.0	16.84
N57:27.00	W112:11.61	N57:43.84	W112:11.61	T1008.0	16.84
N57:27.00	W112:12.02	N57:43.84	W112:12.02	T1009.0	16.84
N57:27.00	W112:12.42	N57:43.84	W112:12.42	T1010.0	16.84
N57:27.00	W112:12.83	N57:43.84	W112:12.83	T1011.0	16.84
N57:27.00	W112:13.24	N57:43.84	W112:13.24	T1012.0	16.84
N57:27.00	W112:13.64	N57:43.84	W112:13.64	T1013.0	16.84
N57:27.00	W112:14.05	N57:43.84	W112:14.05	T1014.0	16.84
N57:27.00	W112:14.46	N57:43.84	W112:14.46	T1015.0	16.84
N57:27.00	W112:14.86	N57:43.84	W112:14.86	T1016.0	16.84
N57:27.00	W112:15.27	N57:43.84	W112:15.27	T1017.0	16.84
N57:01.51	W112:15.68	N57:43.84	W112:15.68	T1018.0	42.33
N57:01.51	W112:16.08	N57:43.84	W112:16.08	T1019.0	42.33
N57:01.51	W112:16.49	N57:43.84	W112:16.49	T1020.0	42.33
N57:01.51	W112:16.90	N57:43.84	W112:16.90	T1021.0	42.33
N57:01.51	W112:17.30	N57:43.84	W112:17.30	T1022.0	42.33
N57:01.51	W112:17.71	N57:43.84	W112:17.71	T1023.0	42.33
N57:01.51	W112:18.12	N57:43.84	W112:18.12	T1024.0	42.33
N57:01.51	W112:18.52	N57:43.84	W112:18.52	T1025.0	42.33
N57:01.51	W112:18.93	N57:43.84	W112:18.93	T1026.0	42.33
N57:01.51	W112:19.34	N57:43.84	W112:19.34	T1027.0	42.33
N57:01.51	W112:19.74	N57:43.84	W112:19.74	T1028.0	42.33
N57:01.51	W112:20.15	N57:43.84	W112:20.15	T1029.0	42.33
N57:01.51	W112:20.56	N57:43.84	W112:20.56	T1030.0	42.33
N57:01.51	W112:20.96	N57:43.84	W112:20.96	T1031.0	42.33
N57:01.51	W112:21.37	N57:43.84	W112:21.37	T1032.0	42.33
N57:01.51	W112:21.78	N57:43.84	W112:21.78	T1033.0	42.33
N57:01.51	W112:22.18	N57:43.84	W112:22.18	T1034.0	42.33
N57:01.51	W112:22.59	N57:43.84	W112:22.59	T1035.0	42.33
N57:01.51	W112:23.00	N57:43.84	W112:23.00	T1036.0	42.33
N57:01.51	W112:23.40	N57:43.84	W112:23.40	T1037.0	42.33
N57:01.51	W112:23.81	N57:43.84	W112:23.81	T1038.0	42.33
N57:01.51	W112:24.22	N57:43.84	W112:24.22	T1039.0	42.33
N57:01.51	W112:24.62	N57:43.84	W112:24.62	T1040.0	42.33

START		END		SEGMENT	LENGTH
LAT	LONG	LAT	LONG	NO	NM
N57:01.51	W112:25.03	N57:43.84	W112:25.03	T1041.0	42.33
N57:01.51	W112:25.44	N57:43.84	W112:25.44	T1042.0	42.33
N57:01.51	W112:25.84	N57:43.84	W112:25.84	T1043.0	42.33
N57:01.51	W112:26.25	N57:43.84	W112:26.25	T1044.0	42.33
N57:01.51	W112:26.66	N57:07.20	W112:26.66	T1045.0	5.69
N57:32.83	W112:26.66	N57:43.84	W112:26.66	T1045.1	11.02
N57:01.51	W112:27.06	N57:07.20	W112:27.06	T1046.0	5.69
N57:32.83	W112:27.06	N57:43.84	W112:27.06	T1046.1	11.02
N57:01.51	W112:27.47	N57:07.20	W112:27.47	T1047.0	5.69
N57:32.83	W112:27.47	N57:43.84	W112:27.47	T1047.1	11.02
N57:01.51	W112:27.88	N57:07.20	W112:27.88	T1048.0	5.69
N57:32.83	W112:27.88	N57:43.84	W112:27.88	T1048.1	11.02
N57:01.51	W112:28.28	N57:07.20	W112:28.28	T1049.0	5.69
N57:32.83	W112:28.28	N58:05.44	W112:28.28	T1049.1	32.61
N57:01.51	W112:28.69	N57:07.20	W112:28.69	T1050.0	5.69
N57:01.51	W112:29.10	N57:07.20	W112:29.10	T1051.0	5.69
N57:01.51	W112:29.50	N57:07.20	W112:29.50	T1052.0	5.69
N57:01.51	W112:29.91	N57:07.20	W112:29.91	T1053.0	5.69
N57:01.51	W112:30.32	N57:07.20	W112:30.32	T1054.0	5.69
N57:01.51	W112:30.72	N57:07.20	W112:30.72	T1055.0	5.69
N57:01.51	W112:31.13	N57:07.20	W112:31.13	T1056.0	5.69
N57:01.51	W112:31.54	N57:07.20	W112:31.54	T1057.0	5.69
N57:01.51	W112:31.94	N57:07.20	W112:31.94	T1058.0	5.69
N57:01.51	W112:32.35	N57:07.20	W112:32.35	T1059.0	5.69
N57:01.51	W112:32.76	N57:07.20	W112:32.76	T1060.0	5.69
N57:01.51	W112:33.16	N57:07.20	W112:33.16	T1061.0	5.69
N57:01.51	W112:33.57	N57:07.20	W112:33.57	T1062.0	5.69
N57:01.51	W112:33.98	N57:07.20	W112:33.98	T1063.0	5.69
N57:01.51	W112:34.38	N57:07.20	W112:34.38	T1064.0	5.69
N57:01.51	W112:34.79	N57:07.20	W112:34.79	T1065.0	5.69

GREGOIRE LAKE

*** CONTROL LINES ***

N55:47.46	W110:08.80	N55:47.46	W110:56.48	C0101.0	26.81
N55:48.54	W110:08.80	N55:48.54	W110:56.48	C0102.0	26.79
N55:49.62	W110:08.80	N55:49.62	W110:56.48	C0103.0	26.78
N55:50.70	W110:08.80	N55:50.70	W110:56.48	C0104.0	26.77
N55:51.78	W110:08.80	N55:51.78	W110:56.48	C0105.0	26.76
N55:52.86	W109:59.80	N55:52.86	W110:56.48	C0106.0	31.79
N55:53.94	W109:59.80	N55:53.94	W110:56.48	C0107.0	31.77
N55:55.02	W109:59.80	N55:55.02	W110:56.48	C0108.0	31.76
N55:56.10	W109:59.80	N55:56.10	W110:56.48	C0109.0	31.74
N55:57.18	W109:59.80	N55:57.18	W110:56.48	C0110.0	31.73
N55:58.26	W109:59.80	N55:58.26	W110:56.48	C0111.0	31.72
N55:59.34	W109:59.80	N55:59.34	W110:56.48	C0112.0	31.70

START		END		SEGMENT	LENGTH
LAT	LONG	LAT	LONG	NO	NM
N56:00.42	W109:59.80	N56:00.42	W110:56.48	C0113.0	31.69
N56:01.50	W109:59.80	N56:01.50	W110:56.48	C0114.0	31.67
N56:02.58	W109:59.80	N56:02.58	W110:56.48	C0115.0	31.66
N56:03.66	W109:59.80	N56:03.66	W110:56.48	C0116.0	31.64
N56:04.74	W109:59.80	N56:04.74	W110:56.48	C0117.0	31.63
N56:05.82	W109:59.80	N56:05.82	W110:56.48	C0118.0	31.61
N56:06.90	W109:59.80	N56:06.90	W110:56.48	C0119.0	31.60
N56:07.98	W109:59.80	N56:07.98	W110:56.48	C0120.0	31.58
N56:09.06	W109:59.80	N56:09.06	W111:40.26	C0121.0	55.95
N56:10.14	W109:59.80	N56:10.14	W111:40.26	C0122.0	55.93
N56:11.22	W109:59.80	N56:11.22	W111:40.26	C0123.0	55.90
N56:12.30	W109:59.80	N56:12.30	W111:40.26	C0124.0	55.88
N56:13.38	W109:59.80	N56:13.38	W111:40.26	C0125.0	55.85
N56:14.46	W109:59.80	N56:14.46	W111:40.26	C0126.0	55.82
N56:15.54	W109:59.80	N56:15.54	W111:40.26	C0127.0	55.80
N56:16.62	W109:59.80	N56:16.62	W111:40.26	C0128.0	55.77
N56:17.70	W109:59.80	N56:17.70	W111:40.26	C0129.0	55.75
N56:18.78	W109:59.80	N56:18.78	W111:40.26	C0130.0	55.72
N56:19.86	W109:59.80	N56:19.86	W111:40.26	C0131.0	55.69
N56:20.94	W111:15.64	N56:20.94	W111:40.26	C0132.0	13.65
N56:22.02	W111:15.64	N56:22.02	W111:40.26	C0133.0	13.64
N56:23.10	W111:15.64	N56:23.10	W111:40.26	C0134.0	13.63
N56:24.18	W111:15.64	N56:24.18	W111:40.26	C0135.0	13.63
N56:25.26	W111:15.64	N56:25.26	W111:40.26	C0136.0	13.62
N56:26.34	W111:15.64	N56:26.34	W111:40.26	C0137.0	13.61
N56:27.42	W111:15.64	N56:27.42	W111:40.26	C0138.0	13.61
N56:28.50	W111:15.64	N56:28.50	W111:40.26	C0139.0	13.60
N56:29.58	W111:15.64	N56:29.58	W111:40.26	C0140.0	13.59
N56:30.66	W111:15.64	N56:30.66	W111:40.26	C0141.0	13.59
N56:31.74	W111:15.64	N56:31.74	W111:40.26	C0142.0	13.58
N56:32.82	W111:15.63	N56:32.82	W111:40.26	C0143.0	13.58
N56:33.90	W111:15.63	N56:33.90	W111:40.26	C0144.0	13.57
N56:34.98	W111:15.63	N56:34.98	W111:40.26	C0145.0	13.56

*** TRAVERSE LINES ***

N55:52.76	W110:00.00	N56:20.00	W110:00.00	T1001.0	27.25
N55:52.76	W110:00.39	N56:20.00	W110:00.39	T1002.0	27.25
N55:52.76	W110:00.78	N56:20.00	W110:00.78	T1003.0	27.25
N55:52.76	W110:01.17	N56:20.00	W110:01.17	T1004.0	27.25
N55:52.76	W110:01.56	N56:20.00	W110:01.56	T1005.0	27.25
N55:52.76	W110:01.95	N56:20.00	W110:01.95	T1006.0	27.25
N55:52.76	W110:02.34	N56:20.00	W110:02.34	T1007.0	27.25
N55:52.76	W110:02.73	N56:20.00	W110:02.73	T1008.0	27.25
N55:52.76	W110:03.12	N56:20.00	W110:03.13	T1009.0	27.25
N55:52.76	W110:03.52	N56:20.00	W110:03.52	T1010.0	27.25
N55:52.76	W110:03.91	N56:20.00	W110:03.91	T1011.0	27.25

START		END		SEGMENT	LENGTH
LAT	LONG	LAT	LONG	NO	NM
N55:52.76	W110:04.30	N56:20.00	W110:04.30	T1012.0	27.25
N55:52.76	W110:04.69	N56:20.00	W110:04.69	T1013.0	27.25
N55:52.76	W110:05.08	N56:20.00	W110:05.08	T1014.0	27.25
N55:52.76	W110:05.47	N56:20.00	W110:05.47	T1015.0	27.25
N55:52.76	W110:05.86	N56:20.00	W110:05.86	T1016.0	27.25
N55:52.76	W110:06.25	N56:20.00	W110:06.25	T1017.0	27.25
N55:52.76	W110:06.64	N56:20.00	W110:06.64	T1018.0	27.25
N55:52.76	W110:07.03	N56:20.00	W110:07.03	T1019.0	27.25
N55:52.76	W110:07.42	N56:20.00	W110:07.43	T1020.0	27.25
N55:52.76	W110:07.82	N56:20.00	W110:07.82	T1021.0	27.25
N55:52.76	W110:08.21	N56:20.00	W110:08.21	T1022.0	27.25
N55:52.76	W110:08.60	N56:20.00	W110:08.60	T1023.0	27.25
N55:47.36	W110:08.99	N56:20.00	W110:08.99	T1024.0	32.65
N55:47.36	W110:09.38	N56:20.00	W110:09.38	T1025.0	32.65
N55:47.36	W110:09.77	N56:20.00	W110:09.77	T1026.0	32.65
N55:47.36	W110:10.16	N56:20.00	W110:10.16	T1027.0	32.65
N55:47.36	W110:10.55	N56:20.00	W110:10.55	T1028.0	32.65
N55:47.36	W110:10.94	N56:20.00	W110:10.94	T1029.0	32.65
N55:47.36	W110:11.33	N56:20.00	W110:11.33	T1030.0	32.65
N55:47.36	W110:11.72	N56:20.00	W110:11.72	T1031.0	32.65
N55:47.36	W110:12.11	N56:20.00	W110:12.12	T1032.0	32.65
N55:47.36	W110:12.51	N56:20.00	W110:12.51	T1033.0	32.65
N55:47.36	W110:12.90	N56:20.00	W110:12.90	T1034.0	32.65
N55:47.36	W110:13.29	N56:20.00	W110:13.29	T1035.0	32.65
N55:47.36	W110:13.68	N56:20.00	W110:13.68	T1036.0	32.65
N55:47.36	W110:14.07	N56:20.00	W110:14.07	T1037.0	32.65
N55:47.36	W110:14.46	N56:20.00	W110:14.46	T1038.0	32.65
N55:47.36	W110:14.85	N56:20.00	W110:14.85	T1039.0	32.65
N55:47.36	W110:15.24	N56:20.00	W110:15.24	T1040.0	32.65
N55:47.36	W110:15.63	N56:20.00	W110:15.63	T1041.0	32.65
N55:47.36	W110:16.02	N56:20.00	W110:16.02	T1042.0	32.65
N55:47.36	W110:16.41	N56:20.00	W110:16.42	T1043.0	32.65
N55:47.36	W110:16.81	N56:20.00	W110:16.81	T1044.0	32.65
N55:47.36	W110:17.20	N56:20.00	W110:17.20	T1045.0	32.65
N55:47.36	W110:17.59	N56:20.00	W110:17.59	T1046.0	32.65
N55:47.36	W110:17.98	N56:20.00	W110:17.98	T1047.0	32.65
N55:47.36	W110:18.37	N56:20.00	W110:18.37	T1048.0	32.65
N55:47.36	W110:18.76	N56:20.00	W110:18.76	T1049.0	32.65
N55:47.36	W110:19.15	N56:20.00	W110:19.15	T1050.0	32.65
N55:47.36	W110:19.54	N56:20.00	W110:19.54	T1051.0	32.65
N55:47.36	W110:19.93	N56:20.00	W110:19.93	T1052.0	32.65
N55:47.36	W110:20.32	N56:20.00	W110:20.32	T1053.0	32.65
N55:47.36	W110:20.71	N56:20.00	W110:20.72	T1054.0	32.65
N55:47.36	W110:21.11	N56:20.00	W110:21.11	T1055.0	32.65
N55:47.36	W110:21.50	N56:20.00	W110:21.50	T1056.0	32.65
N55:47.36	W110:21.89	N56:20.00	W110:21.89	T1057.0	32.65
N55:47.36	W110:22.28	N56:20.00	W110:22.28	T1058.0	32.65

START		END		SEGMENT	LENGTH
LAT	LONG	LAT	LONG	NO	NM
N55:47.36	W110:22.67	N56:20.00	W110:22.67	T1059.0	32.65
N55:47.36	W110:23.06	N56:20.00	W110:23.06	T1060.0	32.65
N55:47.36	W110:23.45	N56:20.00	W110:23.45	T1061.0	32.65
N55:47.36	W110:23.84	N56:20.00	W110:23.84	T1062.0	32.65
N55:47.36	W110:24.23	N56:20.00	W110:24.23	T1063.0	32.65
N55:47.36	W110:24.62	N56:20.00	W110:24.62	T1064.0	32.65
N55:47.36	W110:25.01	N56:20.00	W110:25.02	T1065.0	32.65
N55:47.36	W110:25.40	N56:20.00	W110:25.41	T1066.0	32.65
N55:47.36	W110:25.80	N56:20.00	W110:25.80	T1067.0	32.65
N55:47.36	W110:26.19	N56:20.00	W110:26.19	T1068.0	32.65
N55:47.36	W110:26.58	N56:20.00	W110:26.58	T1069.0	32.65
N55:47.36	W110:26.97	N56:20.00	W110:26.97	T1070.0	32.65
N55:47.36	W110:27.36	N56:20.00	W110:27.36	T1071.0	32.65
N55:47.36	W110:27.75	N56:20.00	W110:27.75	T1072.0	32.65
N55:47.36	W110:28.14	N56:20.00	W110:28.14	T1073.0	32.65
N55:47.36	W110:28.53	N56:20.00	W110:28.53	T1074.0	32.65
N55:47.36	W110:28.92	N56:20.00	W110:28.92	T1075.0	32.65
N55:47.36	W110:29.31	N56:20.00	W110:29.31	T1076.0	32.65
N55:47.36	W110:29.70	N56:20.00	W110:29.71	T1077.0	32.65
N55:47.36	W110:30.10	N56:20.00	W110:30.10	T1078.0	32.65
N55:47.36	W110:30.49	N56:20.00	W110:30.49	T1079.0	32.65
N55:47.36	W110:30.88	N56:20.00	W110:30.88	T1080.0	32.65
N55:47.36	W110:31.27	N56:20.00	W110:31.27	T1081.0	32.65
N55:47.36	W110:31.66	N56:20.00	W110:31.66	T1082.0	32.65
N55:47.36	W110:32.05	N56:20.00	W110:32.05	T1083.0	32.65
N55:47.36	W110:32.44	N56:20.00	W110:32.44	T1084.0	32.65
N55:47.36	W110:32.83	N56:20.00	W110:32.83	T1085.0	32.65
N55:47.36	W110:33.22	N56:20.00	W110:33.22	T1086.0	32.65
N55:47.36	W110:33.61	N56:20.00	W110:33.61	T1087.0	32.65
N55:47.36	W110:34.00	N56:20.00	W110:34.01	T1088.0	32.65
N55:47.36	W110:34.40	N56:20.00	W110:34.40	T1089.0	32.65
N55:47.36	W110:34.79	N56:20.00	W110:34.79	T1090.0	32.65
N55:47.36	W110:35.18	N56:20.00	W110:35.18	T1091.0	32.65
N55:47.36	W110:35.57	N56:20.00	W110:35.57	T1092.0	32.65
N55:47.36	W110:35.96	N56:20.00	W110:35.96	T1093.0	32.65
N55:47.36	W110:36.35	N56:20.00	W110:36.35	T1094.0	32.65
N55:47.36	W110:36.74	N56:20.00	W110:36.74	T1095.0	32.65
N55:47.36	W110:37.13	N56:20.00	W110:37.13	T1096.0	32.65
N55:47.36	W110:37.52	N56:20.00	W110:37.52	T1097.0	32.65
N55:47.36	W110:37.91	N56:20.00	W110:37.91	T1098.0	32.65
N55:47.36	W110:38.30	N56:20.00	W110:38.31	T1099.0	32.65
N55:47.36	W110:38.70	N56:20.00	W110:38.70	T1100.0	32.65
N55:47.36	W110:39.09	N56:20.00	W110:39.09	T1101.0	32.65
N55:47.36	W110:39.48	N56:20.00	W110:39.48	T1102.0	32.65
N55:47.36	W110:39.87	N56:20.00	W110:39.87	T1103.0	32.65
N55:47.36	W110:40.26	N56:20.00	W110:40.26	T1104.0	32.65
N55:47.36	W110:40.65	N56:20.00	W110:40.65	T1105.0	32.65

START		END		SEGMENT	LENGTH
LAT	LONG	LAT	LONG	NO	NM
N55:47.36	W110:41.04	N56:20.00	W110:41.04	T1106.0	32.65
N55:47.36	W110:41.43	N56:20.00	W110:41.43	T1107.0	32.65
N55:47.36	W110:41.82	N56:20.00	W110:41.82	T1108.0	32.65
N55:47.36	W110:42.21	N56:20.00	W110:42.21	T1109.0	32.65
N55:47.36	W110:42.60	N56:20.00	W110:42.61	T1110.0	32.65
N55:47.36	W110:42.99	N56:20.00	W110:43.00	T1111.0	32.65
N55:47.36	W110:43.39	N56:20.00	W110:43.39	T1112.0	32.65
N55:47.36	W110:43.78	N56:20.00	W110:43.78	T1113.0	32.65
N55:47.36	W110:44.17	N56:20.00	W110:44.17	T1114.0	32.65
N55:47.36	W110:44.56	N56:20.00	W110:44.56	T1115.0	32.65
N55:47.36	W110:44.95	N56:20.00	W110:44.95	T1116.0	32.65
N55:47.36	W110:45.34	N56:20.00	W110:45.34	T1117.0	32.65
N55:47.36	W110:45.73	N56:20.00	W110:45.73	T1118.0	32.65
N55:47.36	W110:46.12	N56:20.00	W110:46.12	T1119.0	32.65
N55:47.36	W110:46.51	N56:20.00	W110:46.51	T1120.0	32.65
N55:47.36	W110:46.90	N56:20.00	W110:46.90	T1121.0	32.65
N55:47.36	W110:47.29	N56:20.00	W110:47.30	T1122.0	32.65
N55:47.36	W110:47.69	N56:20.00	W110:47.69	T1123.0	32.65
N55:47.36	W110:48.08	N56:20.00	W110:48.08	T1124.0	32.65
N55:47.36	W110:48.47	N56:20.00	W110:48.47	T1125.0	32.65
N55:47.36	W110:48.86	N56:20.00	W110:48.86	T1126.0	32.65
N55:47.36	W110:49.25	N56:20.00	W110:49.25	T1127.0	32.65
N55:47.36	W110:49.64	N56:20.00	W110:49.64	T1128.0	32.65
N55:47.36	W110:50.03	N56:20.00	W110:50.03	T1129.0	32.65
N55:47.36	W110:50.42	N56:20.00	W110:50.42	T1130.0	32.65
N55:47.36	W110:50.81	N56:20.00	W110:50.81	T1131.0	32.65
N55:47.36	W110:51.20	N56:20.00	W110:51.20	T1132.0	32.65
N55:47.36	W110:51.59	N56:20.00	W110:51.60	T1133.0	32.65
N55:47.36	W110:51.99	N56:20.00	W110:51.99	T1134.0	32.65
N55:47.36	W110:52.38	N56:20.00	W110:52.38	T1135.0	32.65
N55:47.36	W110:52.77	N56:20.00	W110:52.77	T1136.0	32.65
N55:47.36	W110:53.16	N56:20.00	W110:53.16	T1137.0	32.65
N55:47.36	W110:53.55	N56:20.00	W110:53.55	T1138.0	32.65
N55:47.36	W110:53.94	N56:20.00	W110:53.94	T1139.0	32.65
N55:47.36	W110:54.33	N56:20.00	W110:54.33	T1140.0	32.65
N55:47.36	W110:54.72	N56:20.00	W110:54.72	T1141.0	32.65
N55:47.36	W110:55.11	N56:20.00	W110:55.11	T1142.0	32.65
N55:47.36	W110:55.50	N56:20.00	W110:55.50	T1143.0	32.65
N55:47.36	W110:55.89	N56:20.00	W110:55.90	T1144.0	32.65
N55:47.36	W110:56.29	N56:20.00	W110:56.29	T1145.0	32.65
N56:08.96	W110:56.68	N56:20.00	W110:56.68	T1146.0	11.05
N56:08.96	W110:57.07	N56:20.00	W110:57.07	T1147.0	11.05
N56:08.96	W110:57.46	N56:20.00	W110:57.46	T1148.0	11.05
N56:08.96	W110:57.85	N56:20.00	W110:57.85	T1149.0	11.05
N56:08.96	W110:58.24	N56:20.00	W110:58.24	T1150.0	11.05
N56:08.96	W110:58.63	N56:20.00	W110:58.63	T1151.0	11.05
N56:08.96	W110:59.02	N56:20.00	W110:59.02	T1152.0	11.05

START		END		SEGMENT	LENGTH
LAT	LONG	LAT	LONG	NO	NM
N56:08.96	W110:59.41	N56:20.00	W110:59.41	T1153.0	11.05
N56:08.96	W110:59.80	N56:20.00	W110:59.80	T1154.0	11.05
N56:08.96	W111:00.19	N56:20.00	W111:00.19	T1155.0	11.05
N56:08.96	W111:00.59	N56:20.00	W111:00.59	T1156.0	11.05
N56:08.96	W111:00.98	N56:20.00	W111:00.98	T1157.0	11.05
N56:08.96	W111:01.37	N56:20.00	W111:01.37	T1158.0	11.05
N56:08.96	W111:01.76	N56:20.00	W111:01.76	T1159.0	11.05
N56:08.96	W111:02.15	N56:20.00	W111:02.15	T1160.0	11.05
N56:08.96	W111:02.54	N56:20.00	W111:02.54	T1161.0	11.05
N56:08.96	W111:02.93	N56:20.00	W111:02.93	T1162.0	11.05
N56:08.96	W111:03.32	N56:20.00	W111:03.32	T1163.0	11.05
N56:08.96	W111:03.71	N56:20.00	W111:03.71	T1164.0	11.05
N56:08.96	W111:04.10	N56:20.00	W111:04.10	T1165.0	11.05
N56:08.96	W111:04.49	N56:20.00	W111:04.49	T1166.0	11.05
N56:08.96	W111:04.89	N56:20.00	W111:04.89	T1167.0	11.05
N56:08.96	W111:05.28	N56:20.00	W111:05.28	T1168.0	11.05
N56:08.96	W111:05.67	N56:20.00	W111:05.67	T1169.0	11.05
N56:08.96	W111:06.06	N56:20.00	W111:06.06	T1170.0	11.05
N56:08.96	W111:06.45	N56:20.00	W111:06.45	T1171.0	11.05
N56:08.96	W111:06.84	N56:20.00	W111:06.84	T1172.0	11.05
N56:08.96	W111:07.23	N56:20.00	W111:07.23	T1173.0	11.05
N56:08.96	W111:07.62	N56:20.00	W111:07.62	T1174.0	11.05
N56:08.96	W111:08.01	N56:20.00	W111:08.01	T1175.0	11.05
N56:08.96	W111:08.40	N56:20.00	W111:08.40	T1176.0	11.05
N56:08.96	W111:08.79	N56:20.00	W111:08.79	T1177.0	11.05
N56:08.96	W111:09.19	N56:20.00	W111:09.19	T1178.0	11.05
N56:08.96	W111:09.58	N56:20.00	W111:09.58	T1179.0	11.05
N56:08.96	W111:09.97	N56:20.00	W111:09.97	T1180.0	11.05
N56:08.96	W111:10.36	N56:20.00	W111:10.36	T1181.0	11.05
N56:08.96	W111:10.75	N56:20.00	W111:10.75	T1182.0	11.05
N56:08.96	W111:11.14	N56:20.00	W111:11.14	T1183.0	11.05
N56:08.96	W111:11.53	N56:20.00	W111:11.53	T1184.0	11.05
N56:08.96	W111:11.92	N56:20.00	W111:11.92	T1185.0	11.05
N56:08.96	W111:12.31	N56:20.00	W111:12.31	T1186.0	11.05
N56:08.96	W111:12.70	N56:20.00	W111:12.70	T1187.0	11.05
N56:08.96	W111:13.09	N56:20.00	W111:13.09	T1188.0	11.05
N56:08.96	W111:13.48	N56:20.00	W111:13.49	T1189.0	11.05
N56:08.96	W111:13.88	N56:20.00	W111:13.88	T1190.0	11.05
N56:08.96	W111:14.27	N56:20.00	W111:14.27	T1191.0	11.05
N56:08.96	W111:14.66	N56:20.00	W111:14.66	T1192.0	11.05
N56:08.96	W111:15.05	N56:20.00	W111:15.05	T1193.0	11.05
N56:08.96	W111:15.44	N56:20.00	W111:15.44	T1194.0	11.05
N56:08.96	W111:15.83	N56:35.09	W111:15.83	T1195.0	26.13
N56:08.96	W111:16.22	N56:35.09	W111:16.22	T1196.0	26.13
N56:08.96	W111:16.61	N56:35.09	W111:16.61	T1197.0	26.13
N56:08.96	W111:17.00	N56:35.09	W111:17.00	T1198.0	26.13
N56:08.96	W111:17.39	N56:35.09	W111:17.39	T1199.0	26.13

START		END		SEGMENT	LENGTH
LAT	LONG	LAT	LONG	NO	NM
N56:08.96	W111:17.78	N56:35.09	W111:17.79	T1200.0	26.13
N56:08.96	W111:18.18	N56:35.09	W111:18.18	T1201.0	26.13
N56:08.95	W111:18.57	N56:35.09	W111:18.57	T1202.0	26.13
N56:08.95	W111:18.96	N56:35.09	W111:18.96	T1203.0	26.13
N56:08.95	W111:19.35	N56:35.09	W111:19.35	T1204.0	26.13
N56:08.95	W111:19.74	N56:35.09	W111:19.74	T1205.0	26.13
N56:08.95	W111:20.13	N56:35.09	W111:20.13	T1206.0	26.13
N56:08.95	W111:20.52	N56:35.09	W111:20.52	T1207.0	26.13
N56:08.95	W111:20.91	N56:35.09	W111:20.91	T1208.0	26.13
N56:08.95	W111:21.30	N56:35.09	W111:21.30	T1209.0	26.13
N56:08.95	W111:21.69	N56:35.09	W111:21.69	T1210.0	26.13
N56:08.95	W111:22.08	N56:35.09	W111:22.09	T1211.0	26.13
N56:08.95	W111:22.48	N56:35.09	W111:22.48	T1212.0	26.13
N56:08.95	W111:22.87	N56:35.09	W111:22.87	T1213.0	26.13
N56:08.95	W111:23.26	N56:35.09	W111:23.26	T1214.0	26.13
N56:08.95	W111:23.65	N56:35.09	W111:23.65	T1215.0	26.13
N56:08.95	W111:24.04	N56:35.09	W111:24.04	T1216.0	26.13
N56:08.95	W111:24.43	N56:35.09	W111:24.43	T1217.0	26.13
N56:08.95	W111:24.82	N56:35.09	W111:24.82	T1218.0	26.13
N56:08.95	W111:25.21	N56:35.09	W111:25.21	T1219.0	26.13
N56:08.95	W111:25.60	N56:35.09	W111:25.60	T1220.0	26.13
N56:08.95	W111:25.99	N56:35.09	W111:25.99	T1221.0	26.13
N56:08.95	W111:26.38	N56:35.09	W111:26.38	T1222.0	26.13
N56:08.95	W111:26.78	N56:35.09	W111:26.78	T1223.0	26.13
N56:08.95	W111:27.17	N56:35.09	W111:27.17	T1224.0	26.13
N56:08.95	W111:27.56	N56:35.09	W111:27.56	T1225.0	26.13
N56:08.95	W111:27.95	N56:35.09	W111:27.95	T1226.0	26.13
N56:08.95	W111:28.34	N56:35.09	W111:28.34	T1227.0	26.13
N56:08.95	W111:28.73	N56:35.09	W111:28.73	T1228.0	26.13
N56:08.95	W111:29.12	N56:35.09	W111:29.12	T1229.0	26.13
N56:08.95	W111:29.51	N56:35.09	W111:29.51	T1230.0	26.13
N56:08.95	W111:29.90	N56:35.09	W111:29.90	T1231.0	26.13
N56:08.95	W111:30.29	N56:35.09	W111:30.29	T1232.0	26.13
N56:08.95	W111:30.68	N56:35.09	W111:30.68	T1233.0	26.13
N56:08.95	W111:31.07	N56:35.09	W111:31.08	T1234.0	26.13
N56:08.95	W111:31.47	N56:35.09	W111:31.47	T1235.0	26.13
N56:08.95	W111:31.86	N56:35.09	W111:31.86	T1236.0	26.13
N56:08.95	W111:32.25	N56:35.09	W111:32.25	T1237.0	26.13
N56:08.95	W111:32.64	N56:35.09	W111:32.64	T1238.0	26.13
N56:08.95	W111:33.03	N56:35.09	W111:33.03	T1239.0	26.13
N56:08.95	W111:33.42	N56:35.09	W111:33.42	T1240.0	26.13
N56:08.95	W111:33.81	N56:35.09	W111:33.81	T1241.0	26.13
N56:08.95	W111:34.20	N56:35.09	W111:34.20	T1242.0	26.13
N56:08.95	W111:34.59	N56:35.09	W111:34.59	T1243.0	26.13
N56:08.95	W111:34.98	N56:35.09	W111:34.98	T1244.0	26.13
N56:08.95	W111:35.37	N56:35.09	W111:35.38	T1245.0	26.13
N56:08.95	W111:35.77	N56:35.09	W111:35.77	T1246.0	26.13

START		END		SEGMENT	LENGTH
LAT	LONG	LAT	LONG	NO	NM
N56:08.95	W111:36.16	N56:35.09	W111:36.16	T1247.0	26.13
N56:08.95	W111:36.55	N56:35.09	W111:36.55	T1248.0	26.13
N56:08.95	W111:36.94	N56:35.09	W111:36.94	T1249.0	26.13
N56:08.95	W111:37.33	N56:35.09	W111:37.33	T1250.0	26.13
N56:08.95	W111:37.72	N56:35.09	W111:37.72	T1251.0	26.13
N56:08.95	W111:38.11	N56:35.09	W111:38.11	T1252.0	26.13
N56:08.95	W111:38.50	N56:35.09	W111:38.50	T1253.0	26.13
N56:08.95	W111:38.89	N56:35.09	W111:38.89	T1254.0	26.13
N56:08.95	W111:39.28	N56:35.09	W111:39.28	T1255.0	26.13
N56:08.95	W111:39.67	N56:35.09	W111:39.68	T1256.0	26.13
N56:08.95	W111:40.07	N56:35.09	W111:40.07	T1257.0	26.13

POSTAGE STAMP BLOCKS - BLOCK I

*** CONTROL LINES ***

N55:37.27	W113:27.47	N55:40.07	W113:27.22	C0201.0	2.81
N55:37.24	W113:26.33	N55:40.04	W113:26.07	C0202.0	2.81
N55:37.20	W113:25.18	N55:40.01	W113:24.93	C0203.0	2.81
N55:37.17	W113:24.04	N55:39.97	W113:23.78	C0204.0	2.81
N55:37.14	W113:22.90	N55:39.94	W113:22.64	C0205.0	2.81

*** TRAVERSE LINES ***

N55:37.33	W113:27.56	N55:37.19	W113:22.80	T2001.0	2.70
N55:37.38	W113:27.56	N55:37.24	W113:22.79	T2002.0	2.70
N55:37.43	W113:27.55	N55:37.30	W113:22.79	T2003.0	2.70
N55:37.49	W113:27.55	N55:37.35	W113:22.78	T2004.0	2.70
N55:37.54	W113:27.54	N55:37.40	W113:22.78	T2005.0	2.70
N55:37.60	W113:27.54	N55:37.46	W113:22.77	T2006.0	2.70
N55:37.65	W113:27.53	N55:37.51	W113:22.77	T2007.0	2.70
N55:37.70	W113:27.53	N55:37.56	W113:22.76	T2008.0	2.70
N55:37.76	W113:27.52	N55:37.62	W113:22.76	T2009.0	2.70
N55:37.81	W113:27.52	N55:37.67	W113:22.75	T2010.0	2.70
N55:37.87	W113:27.51	N55:37.73	W113:22.75	T2011.0	2.70
N55:37.92	W113:27.51	N55:37.78	W113:22.74	T2012.0	2.70
N55:37.97	W113:27.50	N55:37.83	W113:22.74	T2013.0	2.70
N55:38.03	W113:27.50	N55:37.89	W113:22.73	T2014.0	2.70
N55:38.08	W113:27.49	N55:37.94	W113:22.73	T2015.0	2.70
N55:38.14	W113:27.49	N55:38.00	W113:22.72	T2016.0	2.70
N55:38.19	W113:27.48	N55:38.05	W113:22.72	T2017.0	2.70
N55:38.24	W113:27.48	N55:38.10	W113:22.71	T2018.0	2.70
N55:38.30	W113:27.47	N55:38.16	W113:22.71	T2019.0	2.70
N55:38.35	W113:27.47	N55:38.21	W113:22.70	T2020.0	2.70
N55:38.41	W113:27.46	N55:38.27	W113:22.70	T2021.0	2.70
N55:38.46	W113:27.46	N55:38.32	W113:22.69	T2022.0	2.70
N55:38.51	W113:27.45	N55:38.37	W113:22.69	T2023.0	2.70

START		END		SEGMENT	LENGTH
LAT	LONG	LAT	LONG	NO	NM
N55:38.57	W113:27.45	N55:38.43	W113:22.68	T2024.0	2.70
N55:38.62	W113:27.45	N55:38.48	W113:22.68	T2025.0	2.70
N55:38.67	W113:27.44	N55:38.54	W113:22.67	T2026.0	2.70
N55:38.73	W113:27.44	N55:38.59	W113:22.67	T2027.0	2.70
N55:38.78	W113:27.43	N55:38.64	W113:22.66	T2028.0	2.70
N55:38.84	W113:27.43	N55:38.70	W113:22.66	T2029.0	2.70
N55:38.89	W113:27.42	N55:38.75	W113:22.65	T2030.0	2.70
N55:38.94	W113:27.42	N55:38.81	W113:22.65	T2031.0	2.70
N55:39.00	W113:27.41	N55:38.86	W113:22.64	T2032.0	2.70
N55:39.05	W113:27.41	N55:38.91	W113:22.64	T2033.0	2.70
N55:39.11	W113:27.40	N55:38.97	W113:22.63	T2034.0	2.70
N55:39.16	W113:27.40	N55:39.02	W113:22.63	T2035.0	2.70
N55:39.21	W113:27.39	N55:39.07	W113:22.62	T2036.0	2.70
N55:39.27	W113:27.39	N55:39.13	W113:22.62	T2037.0	2.70
N55:39.32	W113:27.38	N55:39.18	W113:22.62	T2038.0	2.70
N55:39.38	W113:27.38	N55:39.24	W113:22.61	T2039.0	2.70
N55:39.43	W113:27.37	N55:39.29	W113:22.61	T2040.0	2.70
N55:39.48	W113:27.37	N55:39.34	W113:22.60	T2041.0	2.70
N55:39.54	W113:27.36	N55:39.40	W113:22.60	T2042.0	2.70
N55:39.59	W113:27.36	N55:39.45	W113:22.59	T2043.0	2.70
N55:39.65	W113:27.35	N55:39.51	W113:22.59	T2044.0	2.70
N55:39.70	W113:27.35	N55:39.56	W113:22.58	T2045.0	2.70
N55:39.75	W113:27.34	N55:39.61	W113:22.58	T2046.0	2.70
N55:39.81	W113:27.34	N55:39.67	W113:22.57	T2047.0	2.70
N55:39.86	W113:27.33	N55:39.72	W113:22.57	T2048.0	2.70
N55:39.92	W113:27.33	N55:39.78	W113:22.56	T2049.0	2.70
N55:39.97	W113:27.32	N55:39.83	W113:22.56	T2050.0	2.70
N55:40.02	W113:27.32	N55:39.88	W113:22.55	T2051.0	2.70

POSTAGE STAMP BLOCKS - BLOCK II

*** CONTROL LINES ***

N55:54.99	W112:42.52	N55:57.79	W112:42.21	C0301.0	2.81
N55:54.95	W112:41.37	N55:57.75	W112:41.06	C0302.0	2.81
N55:54.91	W112:40.22	N55:57.71	W112:39.91	C0303.0	2.81
N55:54.87	W112:39.07	N55:57.67	W112:38.76	C0304.0	2.81
N55:54.83	W112:37.92	N55:57.63	W112:37.61	C0305.0	2.81

*** TRAVERSE LINES ***

N55:55.05	W112:42.61	N55:54.88	W112:37.82	T3001.0	2.70
N55:55.10	W112:42.61	N55:54.93	W112:37.81	T3002.0	2.70
N55:55.16	W112:42.60	N55:54.99	W112:37.80	T3003.0	2.70
N55:55.21	W112:42.60	N55:55.04	W112:37.80	T3004.0	2.70
N55:55.26	W112:42.59	N55:55.09	W112:37.79	T3005.0	2.70

START		END		SEGMENT	LENGTH
LAT	LONG	LAT	LONG	NO	NM
N55:55.32	W112:42.58	N55:55.15	W112:37.79	T3006.0	2.70
N55:55.37	W112:42.58	N55:55.20	W112:37.78	T3007.0	2.70
N55:55.43	W112:42.57	N55:55.26	W112:37.77	T3008.0	2.70
N55:55.48	W112:42.57	N55:55.31	W112:37.77	T3009.0	2.70
N55:55.53	W112:42.56	N55:55.36	W112:37.76	T3010.0	2.70
N55:55.59	W112:42.55	N55:55.42	W112:37.76	T3011.0	2.70
N55:55.64	W112:42.55	N55:55.47	W112:37.75	T3012.0	2.70
N55:55.69	W112:42.54	N55:55.53	W112:37.74	T3013.0	2.70
N55:55.75	W112:42.54	N55:55.58	W112:37.74	T3014.0	2.70
N55:55.80	W112:42.53	N55:55.63	W112:37.73	T3015.0	2.70
N55:55.86	W112:42.52	N55:55.69	W112:37.73	T3016.0	2.70
N55:55.91	W112:42.52	N55:55.74	W112:37.72	T3017.0	2.70
N55:55.96	W112:42.51	N55:55.80	W112:37.71	T3018.0	2.70
N55:56.02	W112:42.51	N55:55.85	W112:37.71	T3019.0	2.70
N55:56.07	W112:42.50	N55:55.90	W112:37.70	T3020.0	2.70
N55:56.13	W112:42.49	N55:55.96	W112:37.70	T3021.0	2.70
N55:56.18	W112:42.49	N55:56.01	W112:37.69	T3022.0	2.70
N55:56.23	W112:42.48	N55:56.06	W112:37.68	T3023.0	2.70
N55:56.29	W112:42.48	N55:56.12	W112:37.68	T3024.0	2.70
N55:56.34	W112:42.47	N55:56.17	W112:37.67	T3025.0	2.70
N55:56.40	W112:42.46	N55:56.23	W112:37.67	T3026.0	2.70
N55:56.45	W112:42.46	N55:56.28	W112:37.66	T3027.0	2.70
N55:56.50	W112:42.45	N55:56.33	W112:37.65	T3028.0	2.70
N55:56.56	W112:42.45	N55:56.39	W112:37.65	T3029.0	2.70
N55:56.61	W112:42.44	N55:56.44	W112:37.64	T3030.0	2.70
N55:56.66	W112:42.43	N55:56.50	W112:37.64	T3031.0	2.70
N55:56.72	W112:42.43	N55:56.55	W112:37.63	T3032.0	2.70
N55:56.77	W112:42.42	N55:56.60	W112:37.62	T3033.0	2.70
N55:56.83	W112:42.42	N55:56.66	W112:37.62	T3034.0	2.70
N55:56.88	W112:42.41	N55:56.71	W112:37.61	T3035.0	2.70
N55:56.93	W112:42.41	N55:56.77	W112:37.61	T3036.0	2.70
N55:56.99	W112:42.40	N55:56.82	W112:37.60	T3037.0	2.70
N55:57.04	W112:42.39	N55:56.87	W112:37.59	T3038.0	2.70
N55:57.10	W112:42.39	N55:56.93	W112:37.59	T3039.0	2.70
N55:57.15	W112:42.38	N55:56.98	W112:37.58	T3040.0	2.70
N55:57.20	W112:42.38	N55:57.03	W112:37.58	T3041.0	2.70
N55:57.26	W112:42.37	N55:57.09	W112:37.57	T3042.0	2.70
N55:57.31	W112:42.36	N55:57.14	W112:37.56	T3043.0	2.70
N55:57.37	W112:42.36	N55:57.20	W112:37.56	T3044.0	2.70
N55:57.42	W112:42.35	N55:57.25	W112:37.55	T3045.0	2.70
N55:57.47	W112:42.35	N55:57.30	W112:37.55	T3046.0	2.70
N55:57.53	W112:42.34	N55:57.36	W112:37.54	T3047.0	2.70
N55:57.58	W112:42.33	N55:57.41	W112:37.53	T3048.0	2.70
N55:57.63	W112:42.33	N55:57.47	W112:37.53	T3049.0	2.70
N55:57.69	W112:42.32	N55:57.52	W112:37.52	T3050.0	2.70
N55:57.74	W112:42.32	N55:57.57	W112:37.51	T3051.0	2.70

APPENDIX III

SURVEY EQUIPMENT LIST

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

FIXED WING AEROMAGNETIC SURVEY
ATHABASCA BLOCKS - 1999

APPENDIX III
EQUIPMENT LIST

Item Name	Serial Number	Description	Manufacturer
AIRCRAFT CESSNA 404 TITAN - BWE-404			
Compensator	8804338	AADC II Compensator dual input	RMS
Magnetometer	75117	G-822A Cesium Magnetometer	Geometrics
Computer	ADAC-016	Acquisition Computer	SGL
Receiver	CGP95080013	G.P.S. 3951R 12 Channel card	Novatel
Receiver-DGPS	ZE360949	Model 3000LR	Omnistar
Radar Altimeter	1127	Model ARINC 429	TRT
Baro Sensor	459304	TJF 1727-01	Sensotec
Video Camera	52A00133	5100HS	Panasonic
VCR	K6WA10030	AG 720	Panasonic
Flat Panel Display	83-186740	Model LMV10	Datalux
Monitor	521805	4" LCD Colour monitor	Marshall
GROUND STATION #1			
Computer	GND-23	Lunchbox	SGL
Receiver	CGP96450148	G.P.S. 3951R 12 Channel card	Novatel
Magnetometer	9405003	CS-2 Cesium Magnetometer	Scintrex
Printer	MA410204	DL 3400	Fujitsu
Antenna	CGA95000017	G.P.S. Antenna Model #501	Novatel
Coupler	CMC005	Cesium Mag Coupler	SGL
SPARE GROUND STATION			
Computer	GND-22	Lunchbox	SGL
Receiver	CGP96450092	G.P.S. 3951R 12 Channel card	Novatel
Magnetometer	75231	G-822A Cesium Magnetometer	Geometrics
Antenna	CGA95140229	G.P.S. Antenna Model #501	Novatel
Coupler	CMC013	Cesium Mag Coupler	SGL

Item Name	Serial Number	Description	Manufacturer
OFFICE EQUIPMENT			
Processing Computer	PENT-16	32 MB ram	
Computer Laptop	NOTE-12		Hitachi
Monitor	02569	Model KD-1460	KDS
Jazz Drive	WCMU310YB	1 GB 3.5" internal	Iomega
Tape Drive-8mm	7045818	8205XL	Exabyte
Osciloscope	B010336	DMM-LCD scope	Tektronix
Printer	MA212078	DL 3400	Fujitsu
VCR/TV	K7MD00042	AG500R	Panasonic
Fax/Phone	UMG-06240	Faxphone 18	Canon
UPS	S95035602062	Smart -700	APS

APPENDIX IV

SURVEY AIRCRAFT
(Cessna 404, Titan C-GBWE)

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

GEOPHYSICAL SURVEY AIRCRAFT

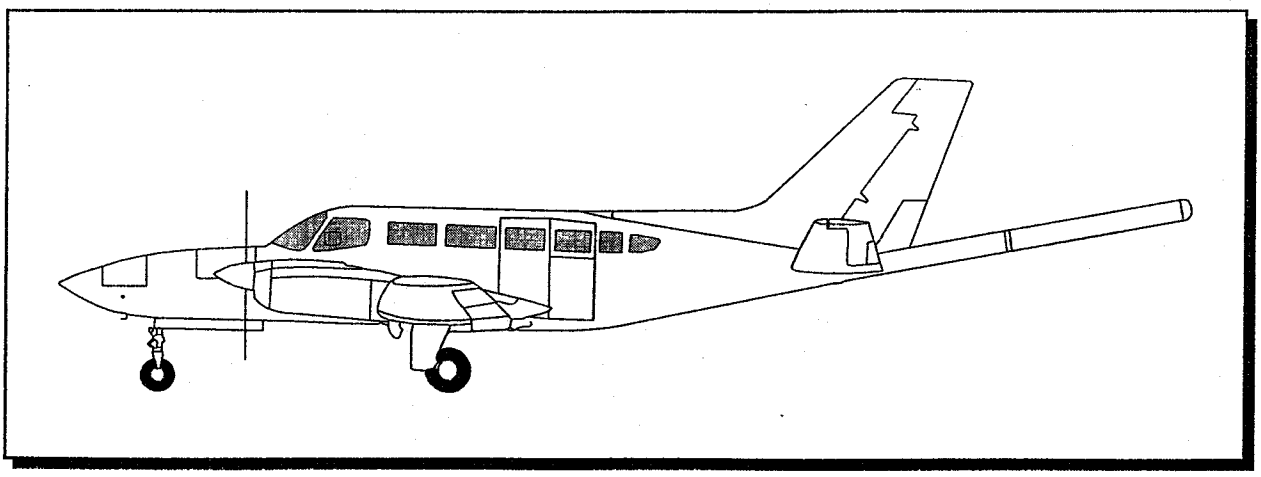
CESSNA 404 TITAN

Registration: C-GBWE
Serial # 404-0624

The model 404 Titan Courier is an all metal, low wing, twin-engined aircraft powered by two turbocharged engines that drive constant speed, fully feathering propellers. The aircraft has fully retractable tricycle landing gear, extendable flaps and manually adjustable trim tabs on the primary controls for all three flight axes. The aircraft is equipped with full de-icing equipment and sufficient avionics for instrument flying. Supplementary fuel can be added for trans-oceanic flight.

The aircraft has a rigid aluminum and composite material 2.5 m tail stinger designed to accommodate a magnetometer sensor and wiring. This tail stinger can be easily removed and the aircraft returned to its original configuration. There is a camera hole in the belly of the aircraft and provisions for numerous other survey and navigation systems.

The airframe has been extensively modified to reduce the magnetic signature of the aircraft by replacing ferromagnetic parts with those made from special non-magnetic stainless steel or aluminum. Several wiring changes have also been made to the electrical system to reduce the magnetic field variations around the aircraft.



SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

CESSNA 404 SPECIFICATIONS

Crew capacity:	• 2 pilots, 1 operator (optional)		
Fuselage:	• semi-monocoque		
Wings:	• cantilever, low wing		
	• outboard ailerons with trim tab		
	• single-slotted inboard flaps		
Tail:	• conventional stabilizers		
	• elevators and rudder with trim tabs		
Powerplants:	• 2 Teledyne Continental GTSIO-520-M, 375 hp, six cylinder, horizontally-opposed, air-cooled, fuel-injected, turbocharged, reciprocating engines		
	• 2 three-blade, fully-feathering, constant-speed propellers		
Systems:	• dual flight controls with IFR instruments and avionics		
	• integrated flight control system with 3 axis autopilot		
	• full airframe and propeller de-icing		
	• weather radar		
Dimensions:	• wing span	46 ft. 8 in.	14.23 m
	• exterior length	39 ft. 6 in.	12.05 m plus stinger
	• exterior height	13 ft. 3 in.	4.04 m
	• interior usable length	11 ft. 3 in.	3.40 m
	• interior usable width	4 ft. 6 in.	1.40 m
	• interior height	4 ft. 3 in.	1.30 m
	• fuel capacity, no ferry tank	344 US gallons	1,300 l usable
	• removable aux fuel tank	53 US gallons	200 l
	• removable ferry tanks	150 US gallons	567 l
	• type of aviation fuel	100 LL Avgas	
Weights:	• empty	5,410 lbs.	2,454 kg
	• maximum take off	8,400 lbs.	3,810 kg
Performance:	(sea level, standard day, maximum takeoff weight, no aux or ferry fuel tanks)		
	• range at 65% power	1,380 nm	2,550 km plus reserve
	• cruise airspeed 65% power	167 kts.	309 km/hr
	• fuel flow at 65% power	38 US gallons/hr.	144 l/hr
	• stall airspeed	70 kts.	130 km/hr
	• service ceiling	25,000 ft.	7,625 m
	• minimum required runway length	3,500 ft.	1,067 m
	• two engine rate of climb	1,650 ft/min.	503 m/min
	• maximum sustained climb gradient	460 ft/nm	76 m/km
	• single engine rate of climb	230 ft/min.	70 m/min
Maximum endurance:	• 8 hours 25 minutes plus 45 minutes reserve at 65% power		
Engine overhaul:	• 1,600 hours		
Propeller overhaul:	• 1,600 hours or 5 years		

PROVISIONS FOR GEOPHYSICAL SURVEYING

- **Tail stinger**, 2.54 m long and 21 cm in diameter, capable of housing a 5.5 kg sensor
- **HF radio**
- **Video Camera Mount** with 8 cm diameter glass covered opening in the belly of the aircraft
- **2 instrument racks**, standard 48 cm (19 inch) width
- **Radar altimeter,** 0-3,000 m
- **Electrical power capacity** 28 VDC at 200 amp
- **Static inverter**, 115 VAC - 400 hz
- **Provisions to mount an Inertial Navigation System**
- **Provisions to mount a GPS receiver and antenna plus data link for real time corrections**
- **Provisions to mount gamma-ray spectrometer** with up to 63 litres (3,840 in^3) of detector crystals

APPENDIX V

REFLIGHTS LIST

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

FIXED WING AEROMAGNETIC SURVEY
ATHABASCA BLOCKS - 1999

APPENDIX V
Reflights List

Wood Buffalo and Namur Lake

Line Number	ground mag	noise	video	flight path	Altitude	speed
122					x	x
124					x	x
125.01		x			x	x
129.01						x
141			x		x	
142			x			
143			x			
144			x			
149		x				
149.00 (2)	x					
153		x				
154		x				
996					x	
997					x	
998					x	
999					x	
1024		x				
1026		x				
1045.1					x	
1046.1					x	
1051						x
1052.1		x			x	
1125		x				
1169						x
1170						x
1171					x	x
1172						x

Line Number	ground mag	noise	video	flight path	Altitude	speed
1173					x	x
1174					x	x
1185						x
1186					x	x
1187					x	x
1188					x	x
1214		x				x
1227		x				
1261					x (partial)	
1262					x (partial)	
1264					x (partial)	
1274						x

Gregoire Lake

Line Number	ground mag	noise	video	flight path	altitude	speed
1038	x					
1058		x (partial)				
1074		x				
1080		x				
1150	x					
1170	x					
1187	x					
1188	x					
1198		x				
1218		x (partial)				
1219		x (partial)				
1220		x (partial)				
1221		x (partial)				
1222		x				
1240		x (partial)				
1241		x (partial)				

APPENDIX VI

SURVEY LOG

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

FIXED WING AEROMAGNETIC SURVEY
ATHABASCA BLOCKS - 1999

APPENDIX VI
SURVEY LOG

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
WOOD BUFFALO AND NAMUR LAKE									
CONTROL LINES									
101.00	7917975	7945325	403876	423799	6320875	6321313	2	94	1999
102.00	7880325	7908165	403917	423841	6322887	6323291	2	94	1999
103.00	7843945	7871295	403965	423874	6324890	6325309	2	94	1999
104.00	7806855	7834605	404012	423913	6326888	6327301	2	94	1999
105.00	7767305	7794695	404058	423946	6328851	6329291	2	94	1999
106.00	7728345	7756245	404102	423987	6330889	6331309	2	94	1999
107.00	7695555	7710985	412765	424023	6332891	6333125	2	94	1999
108.00	7669886	7685526	412803	424064	6334897	6335124	2	94	1999
109.00	7645256	7660036	412847	424096	6336894	6337124	2	94	1999
110.00	7621316	7636366	412890	424135	6338912	6339125	2	94	1999
111.00	7597836	7612856	412935	424172	6340910	6341147	2	94	1999
112.00	7574076	7588916	412973	424210	6342911	6343117	2	94	1999
113.00	7550656	7565676	413018	424243	6344904	6345146	2	94	1999
114.00	7526956	7541796	413060	424284	6346923	6347144	2	94	1999
115.00	7502896	7518066	413102	424322	6348932	6349153	2	94	1999
116.00	7478446	7493056	413146	424359	6350933	6351145	2	94	1999
117.00	7451166	7466486	413190	424396	6352938	6353147	2	94	1999
118.00	7426296	7440696	413230	424434	6354822	6355165	2	94	1999
119.00	7403336	7418476	413272	424471	6356921	6357172	2	94	1999
120.00	7378737	7393357	413317	424508	6358922	6359154	2	94	1999
121.00	7355257	7370377	413359	424541	6360961	6361171	2	94	1999
122.02	5972542	5987942	413401	424578	6362948	6363181	15	111	1999
123.00	7306807	7322537	413439	424616	6364947	6365167	2	94	1999
124.01	9329800	9345960	413483	425285	6366948	6367172	14	110	1999
125.00	7244427	7266347	413528	428903	6368879	6369175	2	94	1999
125.02	9291350	9298100	428858	433632	6368803	6368887	14	110	1999
126.00	7206717	7232457	413567	433600	6370754	6371176	2	94	1999
127.00	8625187	8646547	413608	429008	6372886	6373183	1	91	1999
127.01	6671354	6677644	428858	433703	6372810	6372886	7	103	1999
128.00	8587907	8615807	413652	433693	6374831	6375196	1	91	1999
129.00	8556048	8577697	413696	429040	6376893	6377192	1	91	1999
129.02	9258740	9265580	428973	433765	6376813	6376892	14	110	1999
130.00	8515858	8546938	411708	433598	6378836	6379223	1	91	1999
131.00	8481298	8505548	411753	429137	6380892	6381249	1	91	1999
131.01	6613704	6619954	428997	433836	6380817	6380911	7	103	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
132.00	8439308	8470028	411794	433797	6382832	6383253	1	91	1999
133.00	8398808	8423548	411842	429239	6384905	6385257	1	91	1999
133.01	6592144	6599224	429088	433898	6384830	6384914	7	103	1999
134.00	8361608	8389438	411885	431907	6386868	6387253	1	91	1999
135.00	8323858	8351828	411925	431939	6388867	6389251	1	91	1999
136.00	8285248	8314318	411970	431978	6390869	6391255	1	91	1999
137.00	8246949	8273088	412016	432006	6392876	6393268	1	91	1999
138.00	8197599	8227259	412054	432046	6394873	6395277	1	91	1999
139.00	8156759	8183519	412102	432073	6396880	6397268	1	91	1999
140.00	7538310	7652260	354036	432109	6398889	6400958	1	91	1999
140.10	6579764	6585824	320958	325183	6402114	6402298	3	96	1999
141.01	5585591	5668561	354113	412784	6401264	6402960	11	108	1999
141.10	6567544	6573554	321046	325274	6404107	6404294	3	96	1999
142.01	5596114	5682694	354184	412830	6403264	6404973	8	104	1999
142.10	6553104	6559044	321134	325355	6406116	6406302	3	96	1999
143.01	7440789	7522959	354260	412870	6405271	6406982	8	104	1999
143.10	6539864	6545854	321223	325443	6408120	6408305	3	96	1999
144.02	8184183	8266172	354326	412917	6407265	6408965	14	110	1999
144.10	6525285	6531035	321311	325535	6410120	6410301	3	96	1999
145.00	8050409	8129299	354398	412957	6409287	6410977	1	91	1999
145.10	6485655	6518115	321405	344529	6411350	6412294	3	96	1999
146.00	6870708	6940768	364129	413001	6411275	6412641	2	94	1999
146.10	6437975	6470275	321492	344607	6413341	6414315	3	96	1999
147.00	6949888	7016748	364193	413046	6413276	6414658	2	94	1999
147.10	6397695	6429915	321582	344690	6415346	6416315	3	96	1999
148.00	7027378	7097398	364261	413089	6415289	6416643	2	94	1999
148.10	6344255	6376555	321671	344769	6417344	6418311	3	96	1999
149.02	5624545	5705835	364329	413134	6417286	6418634	6	102	1999
149.10	6304905	6336985	321756	344841	6419365	6420312	3	96	1999
150.00	7629971	7694061	364398	413178	6419295	6420650	3	96	1999
150.10	6263675	6296075	321845	344923	6421358	6422304	3	96	1999
151.00	7549711	7611691	372490	413219	6421310	6422381	3	96	1999
151.10	6223295	6255275	321937	344997	6423369	6424327	3	96	1999
152.00	7487281	7540791	372557	413262	6423335	6424389	3	96	1999
152.10	6181625	6214325	322026	345077	6425366	6426314	3	96	1999
153.01	6251767	6309877	372620	413307	6425300	6426399	5	100	1999
153.10	6141935	6173575	322112	345150	6427355	6428339	3	96	1999
154.00	5943000	6000690	372003	413349	6427306	6428397	4	97	1999
154.10	6100595	6133795	322203	345964	6429339	6430334	3	96	1999
155.00	6060150	6106600	378224	413389	6429317	6430230	2	94	1999
155.01	7244082	7320942	322291	378286	6430227	6432307	3	96	1999
156.00	5966575	6090705	322385	413434	6431279	6434340	3	96	1999
157.00	7102793	7234022	322474	413479	6433296	6436338	3	96	1999
158.00	6968743	7093883	322557	413523	6435331	6438349	3	96	1999
159.00	6830014	6959703	322649	413566	6437334	6440341	3	96	1999
160.00	6664384	6792604	322736	413613	6439331	6442355	3	96	1999
996.02	6002912	6028282	433309	433603	6367716	6385342	15	111	1999
997.02	6040272	6065612	432925	433207	6367724	6385351	15	111	1999
998.02	6076882	6101542	432513	432801	6367730	6385353	15	111	1999
999.01	8430963	8455383	432100	432398	6367740	6385363	13	109	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
TRAVERSE LINES									
1000.00	6426465	6450565	431697	431990	6367741	6385371	7	103	1999
1001.00	6220545	6264285	431294	431834	6367750	6399192	7	103	1999
1002.00	6329805	6373035	430889	431425	6367753	6399200	7	103	1999
1003.00	6722994	6768514	430476	431007	6367765	6399206	7	103	1999
1004.00	6273525	6318605	430065	430605	6367771	6399212	7	103	1999
1005.00	6165325	6211135	429656	430204	6367777	6399215	7	103	1999
1006.00	6058915	6103745	429249	429806	6367785	6399225	7	103	1999
1007.00	5950925	5996365	428839	429412	6367788	6399233	7	103	1999
1008.00	5839676	5885335	428438	428994	6367801	6399238	7	103	1999
1009.00	5731766	5777726	428001	428580	6367804	6399248	7	103	1999
1010.00	5625766	5670056	427623	428189	6367810	6399253	7	103	1999
1011.00	6112835	6156885	427230	427801	6367824	6399262	7	103	1999
1012.00	6006065	6049455	426816	427382	6367828	6399267	7	103	1999
1013.00	5895335	5940415	426419	426980	6367838	6399278	7	103	1999
1014.00	5786336	5831136	426010	426581	6367841	6399282	7	103	1999
1015.00	5678896	5722786	425596	426214	6367853	6399293	7	103	1999
1016.00	5572366	5617936	425190	425778	6366701	6399297	7	103	1999
1017.00	8024720	8071400	424769	425360	6366689	6399302	3	96	1999
1018.00	5898150	6011800	423485	424954	6320588	6399312	2	94	1999
1019.00	5809156	5918685	423085	424555	6320588	6399317	3	96	1999
1020.00	5783780	5896230	422675	424156	6320598	6399327	4	97	1999
1021.00	8110792	8219592	422266	423742	6320604	6399336	5	100	1999
1022.00	5458272	5567222	421858	423358	6320616	6399344	11	108	1999
1023.00	7718465	7833435	421453	422940	6320624	6399352	11	108	1999
1024.01	8050573	8163133	421031	422544	6320631	6399359	14	110	1999
1025.00	7483899	7591968	420625	422129	6320639	6399369	10	107	1999
1026.01	6534408	6647268	420194	421729	6320644	6399375	13	109	1999
1027.00	7590170	7698879	419812	421374	6320652	6399384	9	105	1999
1028.00	5465355	5579045	419388	420923	6320665	6399392	9	105	1999
1029.00	7539499	7646329	418981	420521	6320673	6399399	8	104	1999
1030.00	5466555	5581894	418550	420116	6320682	6399403	8	104	1999
1031.00	5444217	5559507	418137	419705	6320684	6399412	7	103	1999
1032.00	7164765	7273715	417754	419299	6320695	6399423	906	102	1999
1033.00	6922355	7030815	417324	418903	6320706	6399426	906	102	1999
1034.00	6682196	6791336	416917	418504	6320709	6399440	906	102	1999
1035.00	6420897	6529277	416503	418107	6320717	6399447	906	102	1999
1036.00	6169448	6279918	416086	417686	6320727	6399457	906	102	1999
1037.00	7282075	7395585	415673	417276	6320736	6399464	906	102	1999
1038.00	7040375	7155075	415262	416901	6320741	6399472	906	102	1999
1039.00	6800636	6913495	414864	416471	6320752	6399477	906	102	1999
1040.00	6542097	6671126	414437	416077	6320762	6399488	906	102	1999
1041.00	6289628	6412407	414039	415682	6320766	6399493	906	102	1999
1042.00	6032018	6158708	413627	415279	6320779	6399502	906	102	1999
1043.00	5489945	5597165	413215	414870	6320784	6399514	6	102	1999
1044.00	6098988	6210147	412791	414465	6320795	6399518	5	100	1999
1045.00	7967345	7982615	412399	412619	6320806	6331551	2	94	1999
1045.12	5916653	5946263	413621	414064	6378898	6399526	15	111	1999
1046.00	8014615	8029865	411939	412216	6320813	6331564	2	94	1999
1046.12	5872113	5901463	413216	413661	6378906	6399541	15	111	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1047.00	8066045	8081325	411571	411812	6320820	6331569	2	94	1999
1047.10	7933690	7962590	412811	413259	6378918	6399546	3	96	1999
1048.00	8112505	8127825	411146	411401	6320832	6331577	2	94	1999
1048.10	7853800	7882890	412408	412847	6378926	6399554	3	96	1999
1049.00	8161445	8176815	410755	410981	6320840	6331589	2	94	1999
1049.10	7603971	7687290	411998	413345	6378936	6439637	7	103	1999
1050.00	8222705	8237725	410330	410567	6320849	6331595	2	94	1999
1050.10	6807443	6865343	412019	412930	6398978	6439645	7	103	1999
1051.02	5767713	5783193	409915	410168	6320857	6331609	15	111	1999
1051.10	6959203	7016073	411635	412527	6398990	6439654	7	103	1999
1052.00	8041685	8055975	409506	409739	6320865	6331611	2	94	1999
1052.11	8333793	8391683	411223	412167	6398993	6439659	13	109	1999
1053.00	8090545	8104805	409107	409350	6320873	6331622	2	94	1999
1053.10	7261562	7319542	410828	411723	6399008	6439667	7	103	1999
1054.00	8136555	8150605	408695	408926	6320884	6331632	2	94	1999
1054.10	7391891	7451601	410392	411324	6399015	6439682	7	103	1999
1055.00	8185215	8199295	408304	408525	6320894	6331639	2	94	1999
1055.10	7539571	7597831	410018	410914	6399022	6439686	7	103	1999
1056.00	8247235	8261245	407879	408115	6320900	6331648	2	94	1999
1056.10	6874053	6930563	409604	410522	6399035	6439696	7	103	1999
1057.00	7414285	7428915	407439	407691	6320914	6331658	906	102	1999
1057.10	7025233	7083342	409210	410127	6399041	6439708	7	103	1999
1058.00	7465335	7480864	407035	407297	6320922	6331672	906	102	1999
1058.10	7175982	7233102	408798	409724	6399050	6439716	7	103	1999
1059.00	7518864	7534194	406615	406870	6320927	6331677	906	102	1999
1059.10	7327062	7383131	408409	409352	6399059	6439725	7	103	1999
1060.00	7568804	7584244	406238	406466	6320941	6331689	906	102	1999
1060.10	7458051	7514231	408006	408992	6399070	6439733	7	103	1999
1061.00	7622274	7637094	405797	406052	6320946	6331694	906	102	1999
1061.10	5603175	5662825	407615	408539	6399077	6439744	9	105	1999
1062.00	7438855	7455245	405401	405644	6320954	6331706	906	102	1999
1062.10	5744095	5804225	407192	408134	6399087	6439750	9	105	1999
1063.00	7490124	7506764	404978	405242	6320969	6331719	906	102	1999
1063.10	5883514	5943304	406805	407734	6399093	6439760	9	105	1999
1064.00	7543154	7559014	404577	404829	6320973	6331726	906	102	1999
1064.10	6041614	6101114	406381	407326	6399105	6439768	9	105	1999
1065.00	7596534	7612544	404166	404412	6320986	6331738	906	102	1999
1065.10	6182053	6240873	405970	406931	6399113	6439775	9	105	1999
1066.00	5672295	5731315	405578	406519	6399126	6439790	9	105	1999
1067.00	5815925	5872904	405177	406132	6399136	6439796	9	105	1999
1068.00	5952434	6008794	404772	405731	6399144	6439805	9	105	1999
1069.00	6111334	6169043	404358	405332	6399154	6439816	9	105	1999
1070.00	6251913	6308073	403966	404938	6399163	6439824	9	105	1999
1071.00	6383823	6439502	403568	404544	6399169	6439836	9	105	1999
1072.00	6519532	6576012	403147	404139	6399184	6439847	9	105	1999
1073.00	6674742	6730561	402756	403752	6399190	6439857	9	105	1999
1074.00	6807881	6864341	402347	403342	6399200	6439864	9	105	1999
1075.00	6943561	6999801	401945	402935	6399209	6439875	9	105	1999
1076.00	6317983	6375193	401547	402532	6399222	6439887	9	105	1999
1077.00	6447432	6507342	401139	402129	6399232	6439892	9	105	1999
1078.00	6604872	6664622	400744	401746	6399243	6439900	9	105	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1079.00	6740101	6799441	400334	401337	6399251	6439917	9	105	1999
1080.00	6873901	6933751	399925	400939	6399392	6439926	9	105	1999
1081.00	7024290	7082690	399527	400549	6399268	6439931	9	105	1999
1082.00	7159150	7218570	399132	400142	6399279	6439944	9	105	1999
1083.00	7292970	7351420	398709	399751	6399290	6439956	9	105	1999
1084.00	7432490	7489480	398311	399342	6399304	6439965	9	105	1999
1085.00	6580621	6639401	397910	398932	6399314	6439971	10	107	1999
1086.00	6713510	6772730	397510	398540	6399323	6439984	10	107	1999
1087.00	7093970	7150170	397112	398146	6399332	6439996	9	105	1999
1088.00	7227640	7284320	396695	397741	6399344	6440002	9	105	1999
1089.00	7361800	7419030	396290	397341	6399353	6440014	9	105	1999
1090.00	7497060	7553840	395890	396968	6399367	6440022	9	105	1999
1091.00	6648550	6702430	395496	396549	6399376	6440032	10	107	1999
1092.00	6782560	6837050	395076	396159	6399387	6440046	10	107	1999
1093.00	6947010	7002160	394672	395744	6399397	6440057	10	107	1999
1094.00	7079120	7133410	394284	395343	6399406	6440068	10	107	1999
1095.00	7245790	7301869	393864	394961	6399416	6440076	10	107	1999
1096.00	7380249	7436159	393481	394553	6399423	6440089	10	107	1999
1097.00	8179854	8235833	393055	394155	6399439	6440100	13	109	1999
1098.00	6881080	6939040	392658	393750	6399446	6440109	10	107	1999
1099.00	7012100	7070000	392256	393333	6399457	6440117	10	107	1999
1100.00	7179810	7236830	391860	392945	6399470	6440134	10	107	1999
1101.00	7310509	7371269	391464	392553	6399478	6440140	10	107	1999
1102.00	8245413	8302373	391043	392153	6399491	6440152	13	109	1999
1103.00	8110524	8168904	390589	391757	6399502	6440161	13	109	1999
1104.00	7976124	8035464	390244	391351	6399514	6440172	13	109	1999
1105.00	7818575	7877065	389844	390947	6399521	6440188	13	109	1999
1106.00	7683975	7742515	389438	390558	6399533	6440198	13	109	1999
1107.00	7547435	7605025	389031	390155	6399549	6440210	13	109	1999
1108.00	7412775	7471685	388635	389755	6399558	6440215	13	109	1999
1109.00	8044134	8101094	388227	389354	6399567	6440230	13	109	1999
1110.00	7885175	7941604	387805	388957	6399576	6440237	13	109	1999
1111.00	7751995	7808605	387426	388563	6399594	6440249	13	109	1999
1112.00	7616955	7673965	387011	388156	6399605	6440264	13	109	1999
1113.00	7480295	7537455	386606	387769	6399614	6440271	13	109	1999
1114.00	7345545	7402915	386207	387347	6399625	6440284	13	109	1999
1115.00	7178906	7236436	385788	386961	6399633	6440294	13	109	1999
1116.00	7042246	7099956	385397	386552	6399651	6440308	13	109	1999
1117.00	6907967	6966077	384997	386153	6399663	6440319	13	109	1999
1118.00	6768307	6825577	384587	385755	6399667	6440331	13	109	1999
1119.00	5952361	6009521	384184	385372	6399682	6440346	12	109	1999
1120.00	7277686	7337075	383794	384960	6399696	6440351	13	109	1999
1121.00	7109566	7168636	383377	384560	6399702	6440367	13	109	1999
1122.00	6975047	7034016	382969	384159	6399714	6440379	13	109	1999
1123.00	6839027	6897857	382573	383757	6399729	6440387	13	109	1999
1124.00	6699918	6758307	382173	383346	6399737	6440398	13	109	1999
1125.01	9089700	9148280	381760	382964	6399752	6440415	14	110	1999
1126.00	7597936	7656156	381367	382566	6399764	6440424	11	108	1999
1127.00	7464376	7524116	380959	382147	6399774	6440434	11	108	1999
1128.00	7333607	7392116	380564	381768	6399785	6440448	11	108	1999
1129.00	7199897	7257407	380153	381342	6399800	6440461	11	108	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1130.00	7046408	7104517	379750	380958	6399814	6440473	11	108	1999
1131.00	6913598	6972768	379346	380565	6399825	6440486	11	108	1999
1132.00	7532576	7589726	378931	380165	6399837	6440493	11	108	1999
1133.00	7400266	7455826	378530	379762	6399847	6440511	11	108	1999
1134.00	7267277	7324227	378124	379373	6399860	6440519	11	108	1999
1135.00	7133297	7190467	377737	378979	6399872	6440531	11	108	1999
1136.00	6982898	7037828	377325	378565	6399884	6440543	11	108	1999
1137.00	6846148	6902858	376918	378168	6399900	6440552	11	108	1999
1138.00	6711589	6767039	376498	377767	6399910	6440566	11	108	1999
1139.00	6577949	6634799	376114	377355	6399924	6440578	11	108	1999
1140.00	6433380	6488869	375710	376968	6399937	6440591	11	108	1999
1141.00	6281320	6336230	375310	376571	6399950	6440606	11	108	1999
1142.00	6149490	6204280	374913	376165	6399957	6440620	11	108	1999
1143.00	6778478	6836558	374503	375767	6399973	6440630	11	108	1999
1144.00	6644349	6702439	374098	375381	6399982	6440646	11	108	1999
1145.00	6496869	6555399	373696	374987	6399997	6440656	11	108	1999
1146.00	6365290	6423900	373302	374565	6400008	6440665	11	108	1999
1147.00	6213520	6272370	372890	374191	6400021	6440683	11	108	1999
1148.00	6080280	6140000	372486	373781	6400037	6440692	11	108	1999
1149.00	5922810	5982200	372080	373366	6400049	6440706	11	108	1999
1150.00	5793771	5822721	371677	372338	6400060	6420687	11	108	1999
1150.10	5763781	5782391	372574	372982	6428235	6440717	11	108	1999
1151.00	7374640	7402489	371282	371923	6400075	6420699	8	104	1999
1151.10	7347000	7364130	372143	372570	6428255	6440732	8	104	1999
1152.00	7207980	7236100	370860	371531	6400088	6420713	8	104	1999
1152.10	7179930	7195900	371806	372167	6429345	6440742	8	104	1999
1153.00	6012120	6041700	370459	371136	6400097	6420723	11	108	1999
1153.10	6053340	6069190	371423	371781	6429359	6440761	11	108	1999
1154.00	5832231	5860801	370053	370731	6400111	6420741	11	108	1999
1154.10	5895980	5911880	371017	371358	6429369	6440770	11	108	1999
1155.00	5697141	5725271	369652	370327	6400128	6420753	11	108	1999
1155.10	5736771	5752811	370612	370978	6429388	6440786	11	108	1999
1156.00	7246680	7276830	369258	369929	6400136	6420765	8	104	1999
1156.10	7289490	7305920	370207	370589	6429395	6440794	8	104	1999
1157.00	7108180	7138890	368860	369517	6400150	6420779	8	104	1999
1157.10	7151720	7168190	369792	370170	6429412	6440811	8	104	1999
1158.00	6967950	6998230	368451	369128	6400164	6420793	8	104	1999
1158.10	7010820	7027550	369397	369779	6429424	6440825	8	104	1999
1159.00	6821720	6851910	368036	368718	6400177	6420802	8	104	1999
1159.10	6864710	6881280	369000	369376	6429435	6440838	8	104	1999
1160.00	6687241	6717261	367640	368321	6400191	6420818	8	104	1999
1160.10	6730081	6747161	368606	368981	6429452	6440849	8	104	1999
1161.00	6549241	6579681	367243	367915	6400205	6420830	8	104	1999
1161.10	6592351	6608931	368209	368583	6429464	6440863	8	104	1999
1162.00	6413462	6443932	366834	367521	6400218	6420841	8	104	1999
1162.10	6456892	6474002	367808	368183	6429480	6440875	8	104	1999
1163.00	8992650	9022160	366440	367117	6400232	6420857	14	110	1999
1163.10	7036720	7052560	367399	367782	6429492	6440886	8	104	1999
1164.00	6916400	6944410	366026	366719	6400247	6420872	8	104	1999
1164.10	6888750	6904530	367009	367395	6429504	6440902	8	104	1999
1165.00	6783521	6811530	365622	366311	6400257	6420887	8	104	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1165.10	6755781	6771681	366602	366968	6429515	6440913	8	104	1999
1166.00	6644581	6672011	365219	365910	6400269	6420900	8	104	1999
1166.10	6616581	6632531	366198	366582	6429529	6440929	8	104	1999
1167.00	6510751	6538651	364811	365510	6400287	6420913	8	104	1999
1167.10	6482881	6498681	365802	366188	6429543	6440944	8	104	1999
1168.00	6373862	6401522	364418	365103	6400295	6420924	8	104	1999
1168.10	6346082	6362012	365399	365786	6429558	6440952	8	104	1999
1169.01	8956490	8985190	364000	364704	6400310	6420936	14	110	1999
1169.10	6243952	6259902	364996	365377	6429575	6440967	8	104	1999
1170.01	8930650	8945470	363602	363978	6400327	6410934	14	110	1999
1170.10	6197472	6213182	364592	364988	6429585	6440984	8	104	1999
1171.01	8899340	8914540	363204	363563	6400337	6410951	14	110	1999
1171.10	6140383	6156293	364192	364581	6429598	6440995	8	104	1999
1172.01	8870780	8886110	362799	363164	6400354	6410961	14	110	1999
1172.10	6294312	6310402	363790	364180	6429612	6441007	8	104	1999
1173.01	8842400	8857750	362395	362762	6400365	6410975	14	110	1999
1173.10	6322062	6338852	363391	363787	6429626	6441024	8	104	1999
1174.01	8811440	8826640	361988	362348	6400384	6410987	14	110	1999
1174.10	6267802	6284612	362987	363388	6429637	6441036	8	104	1999
1175.00	6204190	6219690	361578	361966	6400394	6411007	2	94	1999
1175.10	6219992	6236702	362596	362985	6429655	6441054	8	104	1999
1176.00	6250910	6266990	361185	361548	6400410	6411017	2	94	1999
1176.10	6172723	6189012	362195	362589	6429670	6441063	8	104	1999
1177.00	6308760	6324740	360793	361159	6400421	6411033	2	94	1999
1177.10	6116693	6133223	361809	362185	6429679	6441077	8	104	1999
1178.00	6405810	6421880	360395	360749	6400435	6411049	2	94	1999
1178.10	6065503	6082253	361393	361784	6429697	6441090	8	104	1999
1179.00	6454230	6470240	359989	360335	6400451	6411062	2	94	1999
1179.10	6011543	6028293	360996	361392	6429707	6441108	8	104	1999
1180.00	6524569	6540579	359555	359921	6400466	6411075	2	94	1999
1180.10	5962293	5979103	360575	360982	6429722	6441117	8	104	1999
1181.00	6572649	6588689	359162	359531	6400476	6411087	2	94	1999
1181.10	5913673	5930343	360190	360595	6429735	6441135	8	104	1999
1182.00	6622149	6638179	358751	359136	6400494	6411100	2	94	1999
1182.10	5863384	5880343	359786	360190	6429750	6441149	8	104	1999
1183.00	6672229	6688499	358335	358737	6400506	6411118	2	94	1999
1183.10	6090573	6106713	359394	359788	6429762	6441160	8	104	1999
1184.00	6736339	6752339	357973	358330	6400521	6411132	2	94	1999
1184.10	6036513	6052983	358989	359383	6429781	6441176	8	104	1999
1185.01	8782681	8797971	357560	357931	6400535	6411142	14	110	1999
1185.10	5986723	6003143	358593	358994	6429792	6441189	8	104	1999
1186.01	8752761	8768461	357153	357530	6400548	6411157	14	110	1999
1186.10	5937703	5953873	358184	358641	6429805	6441208	8	104	1999
1187.01	8727441	8742061	356749	357123	6400565	6411175	14	110	1999
1187.10	5888433	5904623	357782	358190	6429821	6441216	8	104	1999
1188.01	8701111	8716281	356359	356722	6400575	6411187	14	110	1999
1188.10	5836784	5853434	357378	357778	6429837	6441236	8	104	1999
1189.00	6697789	6711779	355954	356315	6400592	6411202	2	94	1999
1189.10	5769694	5786354	356984	357389	6429852	6441248	8	104	1999
1190.00	6760529	6774509	355539	355912	6400607	6411217	2	94	1999
1190.10	5875764	5893894	356580	356984	6429862	6441261	6	102	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1191.00	6787289	6803038	355126	355525	6400623	6411231	2	94	1999
1191.10	5754874	5772944	356178	356582	6429877	6441274	6	102	1999
1192.00	6813278	6827468	354750	355110	6400636	6411242	2	94	1999
1192.10	5803884	5821844	355788	356183	6429896	6441289	6	102	1999
1193.00	6839918	6855408	354316	354719	6400651	6411259	2	94	1999
1193.10	5810444	5826864	355386	355801	6429910	6441305	8	104	1999
1194.01	5725994	5741554	354992	355414	6429926	6441317	8	104	1999
1195.00	5849834	5864354	354574	354990	6429938	6441336	6	102	1999
1196.00	5781344	5796504	354188	354604	6429949	6441345	6	102	1999
1197.00	5730384	5744904	353787	354186	6429964	6441365	6	102	1999
1198.00	7938293	7954213	353369	353805	6429981	6441377	5	100	1999
1199.00	7886853	7902833	352980	353400	6429996	6441395	5	100	1999
1200.00	7838373	7854123	352584	352994	6430007	6441410	5	100	1999
1201.00	7788363	7804173	352177	352606	6430027	6441422	5	100	1999
1202.00	7711124	7726824	351778	352203	6430043	6441434	5	100	1999
1203.00	7961303	7978213	351378	351816	6430053	6441451	5	100	1999
1204.00	7912583	7929473	350983	351393	6430066	6441469	5	100	1999
1205.00	7862423	7879063	350591	351025	6430087	6441479	5	100	1999
1206.00	7813483	7830403	350172	350608	6430101	6441495	5	100	1999
1207.00	7734884	7751463	349777	350200	6430111	6441515	5	100	1999
1208.00	7684154	7701104	349364	349794	6430131	6441530	5	100	1999
1209.00	6992685	7007905	348954	349414	6430145	6441544	5	100	1999
1210.00	6939685	6954215	348578	349012	6430160	6441555	5	100	1999
1211.00	6866495	6881365	348171	348610	6430179	6441575	5	100	1999
1212.00	6816636	6831365	347774	348207	6430192	6441589	5	100	1999
1213.00	6749586	6764606	347378	347815	6430205	6441604	5	100	1999
1214.01	8653521	8669171	346973	347429	6430218	6441620	14	110	1999
1215.00	6889675	6906655	346574	347015	6430234	6441634	5	100	1999
1216.00	6839825	6856875	346184	346617	6430254	6441649	5	100	1999
1217.00	6791646	6810396	345744	346225	6429155	6441666	5	100	1999
1218.00	6721536	6739796	345296	345812	6429194	6441679	5	100	1999
1219.00	7019405	7066455	344233	345416	6411054	6441697	5	100	1999
1220.00	7126505	7173165	343825	345002	6411074	6441713	5	100	1999
1221.00	7243215	7289585	343412	344621	6411088	6441726	5	100	1999
1222.00	7348105	7394295	343026	344212	6411106	6441741	5	100	1999
1223.00	7453804	7499604	342611	343810	6411118	6441757	5	100	1999
1224.00	7569194	7614474	342216	343415	6411133	6441773	5	100	1999
1225.00	7076225	7117415	341816	343024	6411150	6441791	5	100	1999
1226.00	7193705	7234965	341402	342611	6411172	6441801	5	100	1999
1227.01	8596731	8641731	341010	342225	6411185	6441819	14	110	1999
1228.00	7298675	7340145	340583	341813	6411202	6441837	5	100	1999
1229.00	7404025	7445684	340184	341415	6411218	6441849	5	100	1999
1230.00	7515614	7557584	339796	341015	6411228	6441872	5	100	1999
1231.00	7623854	7665674	339398	340623	6411249	6441885	5	100	1999
1232.00	6638166	6678476	338996	340221	6411266	6441897	5	100	1999
1233.00	6529156	6569986	338555	339831	6411278	6441920	5	100	1999
1234.00	6423667	6465177	338187	339418	6411299	6441934	5	100	1999
1235.00	8090534	8132853	337798	339019	6411309	6441951	4	97	1999
1236.00	7990334	8032574	337383	338633	6411327	6441965	4	97	1999
1237.00	7876154	7918834	336982	338216	6411347	6441984	4	97	1999
1238.00	7774545	7816965	336581	337823	6411364	6441996	4	97	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1239.00	6473957	6519246	336173	337441	6411379	6442013	5	100	1999
1240.00	6369317	6414097	335769	337064	6411392	6442031	5	100	1999
1241.00	8039604	8081754	335347	336630	6411412	6442048	4	97	1999
1242.00	7939854	7982014	334968	336223	6411430	6442060	4	97	1999
1243.00	7825784	7867774	334559	335823	6411444	6442082	4	97	1999
1244.00	7723345	7766065	334152	335432	6411460	6442094	4	97	1999
1245.00	7620095	7662155	333764	335028	6411478	6442115	4	97	1999
1246.00	7502835	7545275	333366	334631	6411493	6442127	4	97	1999
1247.00	7400365	7442415	332927	334224	6411510	6442147	4	97	1999
1248.00	7299095	7341445	332561	333835	6411526	6442164	4	97	1999
1249.00	7196186	7237605	332155	333437	6411548	6442180	4	97	1999
1250.00	7671715	7714255	331745	333041	6411558	6442195	4	97	1999
1251.00	7559985	7602525	331341	332631	6411579	6442215	4	97	1999
1252.00	7450595	7493305	330944	332265	6411595	6442227	4	97	1999
1253.00	7349325	7392085	330545	331821	6411608	6442247	4	97	1999
1254.00	7247815	7291135	330147	331427	6411628	6442261	4	97	1999
1255.00	7137456	7181106	329734	331034	6411642	6442281	4	97	1999
1256.00	7034986	7078026	329328	330620	6411659	6442295	4	97	1999
1257.00	6934286	6977556	328934	330263	6411681	6442315	4	97	1999
1258.00	6834817	6878067	328528	329836	6411694	6442329	4	97	1999
1259.00	6719927	6763187	328126	329422	6411716	6442347	4	97	1999
1260.00	6609348	6653017	327720	329080	6411733	6442367	4	97	1999
1261.00	7102906	7127986	327844	328642	6424002	6442386	4	97	1999
1261.01	8539511	8556691	327328	327856	6411750	6424087	14	110	1999
1262.00	7002006	7026936	327444	328243	6424055	6442401	4	97	1999
1262.01	8507201	8525191	326919	327448	6411764	6424128	14	110	1999
1263.00	6885627	6926956	326514	327843	6411781	6442416	4	97	1999
1264.00	6798457	6820367	326732	327442	6426067	6442432	4	97	1999
1264.01	8463722	8485092	326119	326743	6411802	6426130	14	110	1999
1265.00	6669137	6710417	325700	327045	6411819	6442455	4	97	1999
1266.00	6547108	6601528	324893	326641	6401822	6442467	4	97	1999
1267.00	6413438	6468168	324464	326251	6401838	6442487	4	97	1999
1268.00	6278359	6333338	324078	325848	6401856	6442504	4	97	1999
1269.00	6146069	6201639	323660	325439	6401872	6442525	4	97	1999
1270.00	6476318	6535138	323267	325065	6401895	6442543	4	97	1999
1271.00	6344898	6403938	322854	324648	6401911	6442558	4	97	1999
1272.00	6209529	6268459	322446	324260	6401926	6442575	4	97	1999
1273.00	6072459	6131659	322050	323837	6401943	6442591	4	97	1999
1274.01	8382042	8440392	321654	323454	6401961	6442611	14	110	1999
1275.00	8310862	8368512	321242	323051	6401984	6442626	14	110	1999

GREGOIRE LAKE

CONTROL LINES

101.00	7676173	7747753	503647	553675	6182595	6182932	4	130	1999
102.00	7585353	7656043	503648	553650	6184603	6184943	4	130	1999
103.00	7505364	7576873	503646	553623	6186614	6186946	4	130	1999
104.00	7427914	7497294	503648	553598	6188611	6188959	4	130	1999
105.00	7337604	7410004	503643	553576	6190621	6190959	4	130	1999
106.00	7244494	7325814	503642	562923	6192620	6193086	4	130	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
107.00	7153095	7236915	503637	562894	6194608	6195083	4	130	1999
108.00	7061285	7144185	503635	562864	6196620	6197151	4	130	1999
109.00	6969115	7053865	503633	562836	6198626	6199093	4	130	1999
110.00	6876745	6959995	503631	562804	6200623	6201099	4	130	1999
111.00	6782485	6869415	503633	562776	6202632	6203099	4	130	1999
112.00	6690765	6772595	503628	562750	6204641	6205093	4	130	1999
113.00	6595826	6682815	503631	562718	6206641	6207095	4	130	1999
114.00	6502036	6586376	503626	562693	6208637	6209115	4	130	1999
115.00	6407736	6494486	503625	562662	6210648	6211114	4	130	1999
116.00	6316197	6398776	503621	562632	6212645	6213117	4	130	1999
117.00	6222967	6307367	503619	562605	6214654	6215116	4	130	1999
118.00	6124367	6209057	503620	562577	6216644	6217142	4	130	1999
119.00	6030888	6115677	503615	562549	6218655	6219125	4	130	1999
120.00	5936358	6021298	503617	562514	6220665	6221125	4	130	1999
121.00	5776978	5927428	458283	562486	6222658	6223134	4	130	1999
122.00	5616579	5765438	458301	562456	6224665	6225148	4	130	1999
123.00	5455499	5605149	458321	562430	6226666	6227142	4	130	1999
124.00	7083897	7232747	458345	562405	6228677	6229154	3	129	1999
125.00	6926248	7075997	458365	562371	6230674	6231145	3	129	1999
126.00	6768988	6916718	458382	562342	6232679	6233151	3	129	1999
127.00	6610689	6761168	458402	562316	6234685	6235145	3	129	1999
128.00	6452699	6600459	458419	562286	6236681	6237157	3	129	1999
129.00	6296620	6443950	458442	562257	6238684	6239157	3	129	1999
130.00	6137670	6287660	458459	562230	6240696	6241158	3	129	1999
131.00	5977530	6127340	458476	562201	6242700	6243158	3	129	1999
132.00	5480231	5518611	458498	484054	6244735	6244920	5	131	1999
133.00	5929770	5965540	458518	484068	6246734	6246914	3	129	1999
134.00	5884270	5921560	458534	484070	6248728	6248920	3	129	1999
135.00	5838161	5874060	458555	484078	6250744	6250937	3	129	1999
136.00	5792651	5830371	458578	484085	6252731	6252933	3	129	1999
137.00	5745891	5783091	458594	484095	6254756	6254930	3	129	1999
138.00	5700631	5737041	458615	484104	6256754	6256951	3	129	1999
139.00	5654841	5691381	458636	484114	6258760	6258939	3	129	1999
140.00	5609361	5645321	458652	484120	6260761	6260951	3	129	1999
141.00	5563431	5599981	458676	484122	6262765	6262942	3	129	1999
142.00	5516822	5553222	458694	484135	6264770	6264942	3	129	1999
143.00	5467692	5505172	458711	484138	6266777	6266952	3	129	1999
144.00	5419642	5455392	458732	484152	6268749	6268954	3	129	1999
145.00	5370932	5407612	458750	484156	6270788	6270958	3	129	1999

TRAVERSE LINES

1001.00	6772760	6846240	561902	562633	6192785	6243515	13	142	1999
1002.00	6692441	6762410	561492	562222	6192776	6243507	13	142	1999
1003.00	6526591	6597961	561066	561822	6192774	6243504	13	142	1999
1004.00	6367472	6439791	560680	561408	6192768	6243495	13	142	1999
1005.00	6202032	6272972	560279	561012	6192761	6243492	13	142	1999
1006.00	6041533	6114212	559870	560588	6192752	6243482	13	142	1999
1007.00	5877103	5948963	559462	560188	6192745	6243477	13	142	1999
1008.00	6607701	6680071	559073	559788	6192742	6243475	13	142	1999
1009.00	6446441	6518211	558695	559371	6192734	6243469	13	142	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1010.00	6283822	6356762	558272	558970	6192734	6243461	13	142	1999
1011.00	6120782	6192512	557874	558569	6192723	6243454	13	142	1999
1012.00	5958393	6030553	557464	558157	6192719	6243448	13	142	1999
1013.00	5797353	5869283	557072	557765	6192712	6243446	13	142	1999
1014.00	5633784	5706934	556655	557344	6192712	6243438	13	142	1999
1015.00	7577366	7647166	556260	556919	6192701	6243435	12	141	1999
1016.00	7414837	7484796	555860	556546	6192699	6243431	12	141	1999
1017.00	7255527	7325867	555460	556109	6192692	6243425	12	141	1999
1018.00	7088638	7159757	555053	555709	6192690	6243421	12	141	1999
1019.00	5715414	5788404	554647	555300	6192679	6243412	13	142	1999
1020.00	5549694	5624334	554229	554891	6192677	6243407	13	142	1999
1021.00	7495606	7568956	553829	554478	6192671	6243401	12	141	1999
1022.00	7334117	7406197	553422	554080	6192669	6243399	12	141	1999
1023.00	7171497	7246407	553019	553676	6192662	6243397	12	141	1999
1024.00	7778893	7865332	552626	553380	6182642	6243389	4	130	1999
1025.00	6983118	7069878	552229	552970	6182640	6243384	12	141	1999
1026.00	6792979	6882008	551820	552566	6182635	6243377	12	141	1999
1027.00	6602589	6689479	551419	552155	6182625	6243375	12	141	1999
1028.00	6407940	6496640	551014	551755	6182619	6243369	12	141	1999
1029.00	6220780	6306600	550611	551345	6182615	6243364	12	141	1999
1030.00	6023640	6116460	550208	550937	6182615	6243359	12	141	1999
1031.00	6892258	6975408	549820	550518	6182611	6243354	12	141	1999
1032.00	6697339	6782739	549410	550105	6182606	6243346	12	141	1999
1033.00	6508519	6593949	549006	549716	6182596	6243346	12	141	1999
1034.00	6313680	6398330	548600	549304	6182594	6243343	12	141	1999
1035.00	6124850	6211200	548196	548923	6182589	6243338	12	141	1999
1036.00	5925500	6011770	547799	548477	6182583	6243334	12	141	1999
1037.00	5733401	5818491	547396	548072	6182579	6243330	12	141	1999
1038.00	6391819	6478189	546994	547677	6182573	6243326	15	144	1999
1039.00	7916827	8001297	546591	547259	6182572	6243319	11	140	1999
1040.00	7723718	7809828	546195	546849	6182567	6243314	11	140	1999
1041.00	7536289	7620788	545779	546446	6182565	6243313	11	140	1999
1042.00	5827901	5916290	545387	546037	6182557	6243306	12	141	1999
1043.00	5634371	5723051	544990	545629	6182555	6243298	12	141	1999
1044.00	5439052	5528152	544562	545215	6182552	6243296	12	141	1999
1045.00	7819578	7907207	544175	544800	6182544	6243290	11	140	1999
1046.00	7628168	7716528	543752	544397	6182540	6243287	11	140	1999
1047.00	7439879	7527189	543365	543996	6182536	6243287	11	140	1999
1048.00	7246690	7334189	542949	543594	6182529	6243279	11	140	1999
1049.00	7054960	7144540	542561	543169	6182530	6243275	11	140	1999
1050.00	6850940	6938400	542164	542761	6182524	6243271	11	140	1999
1051.00	6659451	6746630	541756	542359	6182520	6243267	11	140	1999
1052.00	6466771	6555031	541353	541955	6182519	6243266	11	140	1999
1053.00	7343129	7429829	540955	541548	6182515	6243263	11	140	1999
1054.00	7153370	7238910	540546	541147	6182506	6243257	11	140	1999
1055.00	6945760	7032120	540157	540723	6182508	6243249	11	140	1999
1056.00	6756450	6841940	539741	540311	6182501	6243245	11	140	1999
1057.00	6562951	6647261	539330	539909	6182500	6243245	11	140	1999
1058.00	6400201	6458081	538940	539309	6202687	6243242	11	140	1999
1058.01	6248940	6277400	539309	539503	6182497	6202917	15	144	1999
1059.00	6171382	6260182	538538	539091	6182487	6243238	11	140	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1060.00	5976623	6062413	538129	538692	6182488	6243232	11	140	1999
1061.00	8464253	8550623	537733	538270	6182482	6243233	10	139	1999
1062.00	8271863	8357823	537321	537858	6182478	6243227	10	139	1999
1063.00	8083364	8168984	536923	537469	6182472	6243222	10	139	1999
1064.00	6271292	6360372	536520	537037	6182471	6243221	11	140	1999
1065.00	6076873	6163142	536120	536645	6182469	6243216	11	140	1999
1066.00	5877243	5966593	535715	536226	6182468	6243214	11	140	1999
1067.00	8367503	8454483	535314	535821	6182459	6243211	10	139	1999
1068.00	8176654	8263594	534906	535434	6182455	6243207	10	139	1999
1069.00	7987504	8074474	534508	534998	6182454	6243203	10	139	1999
1070.00	7797185	7883045	534083	534594	6182449	6243199	10	139	1999
1071.00	7604345	7691035	533698	534189	6182451	6243197	10	139	1999
1072.00	7413475	7498435	533298	533787	6182447	6243196	10	139	1999
1073.00	7221166	7308046	532899	533369	6182442	6243188	10	139	1999
1074.00	6146490	6234010	532493	532958	6182437	6243183	15	144	1999
1075.00	7891035	7977134	532085	532551	6182434	6243183	10	139	1999
1076.00	7701245	7788475	531698	532145	6182434	6243183	10	139	1999
1077.00	7506645	7593605	531291	531734	6182431	6243175	10	139	1999
1078.00	7318206	7405835	530886	531335	6182424	6243176	10	139	1999
1079.00	7121926	7211466	530477	530919	6182426	6243170	10	139	1999
1080.00	6933377	6980497	530274	530512	6182419	6214874	10	139	1999
1080.01	6317100	6358069	530082	530287	6214602	6243169	15	144	1999
1081.00	6737297	6824727	529677	530101	6182418	6243168	10	139	1999
1082.00	8004400	8091480	529262	529700	6182416	6243161	9	137	1999
1083.00	7812451	7899320	528871	529279	6182410	6243162	9	137	1999
1084.00	7624701	7710841	528457	528882	6182410	6243156	9	137	1999
1085.00	7430642	7517582	528063	528478	6182410	6243156	9	137	1999
1086.00	6835907	6922477	527661	528052	6182406	6243155	10	139	1999
1087.00	6641088	6728798	527261	527650	6182403	6243153	10	139	1999
1088.00	7908580	7995000	526852	527232	6182396	6243149	9	137	1999
1089.00	7718571	7804271	526443	526839	6182400	6243142	9	137	1999
1090.00	7529082	7615121	526053	526421	6182391	6243141	9	137	1999
1091.00	7336232	7422192	525640	526024	6182390	6243141	9	137	1999
1092.00	7142353	7230433	525243	525613	6182387	6243141	9	137	1999
1093.00	6951994	7037413	524833	525208	6182389	6243139	9	137	1999
1094.00	6760664	6848084	524428	524782	6182387	6243132	9	137	1999
1095.00	6570715	6656455	524036	524377	6182384	6243128	9	137	1999
1096.00	6378315	6466965	523631	523976	6182382	6243130	9	137	1999
1097.00	7240693	7327232	523229	523578	6182380	6243130	9	137	1999
1098.00	7045973	7132283	522825	523171	6182375	6243122	9	137	1999
1099.00	6856854	6943774	522387	522749	6182373	6243124	9	137	1999
1100.00	6664355	6750224	522018	522352	6182368	6243118	9	137	1999
1101.00	6475815	6561835	521603	521934	6182370	6243117	9	137	1999
1102.00	6279645	6368175	521205	521531	6182368	6243116	9	137	1999
1103.00	9056044	9141284	520818	521126	6182367	6243110	8	136	1999
1104.00	8867924	8953084	520412	520700	6182363	6243112	8	136	1999
1105.00	8677385	8763005	519996	520302	6182364	6243112	8	136	1999
1106.00	8490715	8576145	519605	519893	6182358	6243109	8	136	1999
1107.00	8301355	8387075	519193	519494	6182354	6243108	8	136	1999
1108.00	6184935	6271765	518789	519069	6182359	6243103	9	137	1999
1109.00	8961824	9047354	518374	518668	6182352	6243104	8	136	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1110.00	8771455	8857394	517978	518252	6182355	6243099	8	136	1999
1111.00	8584865	8669065	517564	517847	6182347	6243099	8	136	1999
1112.00	8394855	8479965	517178	517441	6182348	6243096	8	136	1999
1113.00	8207996	8292835	516760	517031	6182348	6243093	8	136	1999
1114.00	8017206	8103376	516367	516624	6182346	6243097	8	136	1999
1115.00	5461794	5548383	515955	516214	6182342	6243090	7	136	1999
1116.00	7829447	7915087	515562	515800	6182339	6243093	8	136	1999
1117.00	7450258	7535318	515158	515402	6182342	6243091	8	136	1999
1118.00	7637727	7723857	514760	514991	6182344	6243090	8	136	1999
1119.00	8113586	8198946	514371	514578	6182341	6243087	8	136	1999
1120.00	7923257	8010046	513962	514169	6182336	6243089	8	136	1999
1121.00	5560113	5646583	513562	513765	6182338	6243085	7	136	1999
1122.00	7733427	7820777	513164	513357	6182335	6243082	8	136	1999
1123.00	7544148	7629288	512741	512957	6182330	6243081	8	136	1999
1124.00	7354418	7440508	512361	512558	6182333	6243082	8	136	1999
1125.00	7162729	7249679	511950	512137	6182332	6243081	8	136	1999
1126.00	7677065	7763535	511533	511726	6182328	6243079	905	131	1999
1127.00	7489215	7574345	511139	511311	6182326	6243077	905	131	1999
1128.00	7296086	7381805	510729	510904	6182329	6243079	905	131	1999
1129.00	7104146	7191356	510333	510497	6182327	6243078	905	131	1999
1130.00	7258739	7344628	509937	510088	6182326	6243074	8	136	1999
1131.00	7068649	7154349	509522	509681	6182323	6243075	8	136	1999
1132.00	7583455	7667975	509119	509276	6182323	6243070	905	131	1999
1133.00	7392115	7477465	508724	508865	6182320	6243073	905	131	1999
1134.00	7200806	7287196	508327	508481	6182320	6243072	905	131	1999
1135.00	7008657	7094746	507915	508049	6182324	6243070	905	131	1999
1136.00	6813657	6899447	507500	507655	6182321	6243071	905	131	1999
1137.00	6620908	6706808	507116	507249	6182317	6243067	905	131	1999
1138.00	6429318	6515568	506700	506826	6182318	6243069	905	131	1999
1139.00	6233739	6319929	506299	506415	6182317	6243068	905	131	1999
1140.00	6016980	6104040	505905	506009	6182317	6243064	5	131	1999
1141.00	6908297	6994987	505493	505596	6182320	6243070	905	131	1999
1142.00	6715198	6802877	505099	505193	6182318	6243068	905	131	1999
1143.00	6524358	6612288	504699	504772	6182316	6243065	905	131	1999
1144.00	6331199	6418498	504274	504366	6182315	6243068	905	131	1999
1145.00	6113420	6199719	503878	503960	6182314	6243067	5	131	1999
1146.00	5978770	6008230	503482	503519	6222379	6243065	5	131	1999
1147.00	5899260	5929050	503080	503115	6222377	6243065	5	131	1999
1148.00	5822490	5851810	502681	502712	6222382	6243064	5	131	1999
1149.00	5741820	5771660	502270	502309	6222375	6243063	5	131	1999
1150.00	6073530	6101420	501869	501907	6222375	6243066	15	144	1999
1151.00	5587540	5617500	501457	501496	6222380	6243060	5	131	1999
1152.00	5939570	5969780	501065	501095	6222376	6243065	5	131	1999
1153.00	5859340	5889300	500664	500695	6222378	6243060	5	131	1999
1154.00	5780470	5810180	500264	500289	6222380	6243060	5	131	1999
1155.00	5704110	5733700	499855	499891	6222380	6243059	5	131	1999
1156.00	5626820	5655780	499443	499487	6222376	6243066	5	131	1999
1157.00	5547330	5577140	499052	499081	6222376	6243061	5	131	1999
1158.00	5747384	5777244	498645	498670	6222379	6243065	11	140	1999
1159.00	5673134	5702644	498240	498262	6222381	6243063	11	140	1999
1160.00	5598644	5628474	497838	497866	6222375	6243066	11	140	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1161.00	5787623	5816913	497433	497462	6222376	6243062	11	140	1999
1162.00	5709674	5738884	497032	497055	6222381	6243061	11	140	1999
1163.00	5635834	5665334	496625	496654	6222378	6243064	11	140	1999
1164.00	5561894	5591164	496216	496251	6222380	6243065	11	140	1999
1165.00	6527998	6557458	495817	495849	6222378	6243066	10	139	1999
1166.00	6454988	6484248	495394	495451	6222379	6243066	10	139	1999
1167.00	6379229	6408359	495003	495035	6222378	6243065	10	139	1999
1168.00	6120985	6149635	494591	494646	6222379	6243070	9	137	1999
1169.00	6565698	6594788	494198	494253	6222379	6243063	10	139	1999
1170.00	6028210	6057800	493791	493852	6222382	6243067	15	144	1999
1171.00	6418628	6447278	493382	493432	6222379	6243065	10	139	1999
1172.00	6339609	6369529	492934	493030	6222384	6243068	10	139	1999
1173.00	6083385	6113185	492578	492619	6222381	6243070	9	137	1999
1174.00	6005756	6035426	492167	492221	6222382	6243070	9	137	1999
1175.00	5928266	5958126	491769	491815	6222388	6243074	9	137	1999
1176.00	5851406	5881116	491363	491415	6222388	6243072	9	137	1999
1177.00	5767467	5796766	490962	491006	6222386	6243074	9	137	1999
1178.00	5692917	5722547	490550	490620	6222391	6243073	9	137	1999
1179.00	6044596	6073986	490151	490204	6222391	6243076	9	137	1999
1180.00	5967826	5997296	489743	489810	6222393	6243073	9	137	1999
1181.00	5889776	5918756	489340	489400	6222392	6243077	9	137	1999
1182.00	5803586	5832836	488936	488995	6222390	6243075	9	137	1999
1183.00	5730227	5760017	488532	488598	6222392	6243079	9	137	1999
1184.00	5655417	5685087	488125	488196	6222395	6243079	9	137	1999
1185.00	5780758	5811168	487714	487793	6222396	6243081	6	134	1999
1186.00	5701348	5730268	487325	487396	6222396	6243082	6	134	1999
1187.00	5985670	6014580	486908	486981	6222394	6243084	15	144	1999
1188.00	5942160	5971900	486503	486575	6222399	6243083	15	144	1999
1189.00	5465549	5494859	486096	486186	6222402	6243086	6	134	1999
1190.00	5821168	5849858	485689	485785	6222398	6243088	6	134	1999
1191.00	5741178	5769968	485283	485365	6222400	6243084	6	134	1999
1192.00	5660338	5688748	484880	484965	6222407	6243089	6	134	1999
1193.00	5581809	5611128	484475	484566	6222405	6243089	6	134	1999
1194.00	5504389	5533249	484080	484164	6222405	6243090	6	134	1999
1195.00	5388229	5456699	483674	483876	6222409	6271082	6	134	1999
1196.00	5857968	5927427	483259	483460	6222413	6271082	6	134	1999
1197.00	5573867	5643607	482857	483066	6222411	6271083	9	137	1999
1198.00	8225907	8294747	482461	482676	6222415	6271089	14	143	1999
1199.00	8387836	8457266	482062	482274	6222415	6271090	14	143	1999
1200.00	8542346	8612126	481651	481883	6222418	6271091	14	143	1999
1201.00	5817450	5886180	481238	481468	6222416	6271095	15	144	1999
1202.00	5936877	6004157	480835	481081	6222419	6271093	6	134	1999
1203.00	8854025	8921825	480435	480692	6222422	6271093	14	143	1999
1204.00	8306707	8376746	480029	480262	6222421	6271099	14	143	1999
1205.00	8466166	8534256	479620	479856	6222430	6271099	14	143	1999
1206.00	5734480	5805660	479225	479471	6222431	6271102	15	144	1999
1207.00	8778455	8847965	478801	479057	6222430	6271103	14	143	1999
1208.00	6012847	6082537	478413	478660	6222430	6271107	6	134	1999
1209.00	8932525	9001435	478008	478261	6222435	6271107	14	143	1999
1210.00	9088135	9157305	477601	477864	6222433	6271107	14	143	1999
1211.00	9243895	9313754	477197	477463	6222439	6271108	14	143	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1212.00	9397434	9466074	476780	477054	6222438	6271112	14	143	1999
1213.00	9553894	9623133	476382	476668	6222439	6271118	14	143	1999
1214.00	6090297	6159027	475979	476286	6222444	6271121	6	134	1999
1215.00	9040905	9080425	475583	475751	6222448	6250959	14	143	1999
1215.01	5696801	5725750	475736	475863	6250617	6271118	15	144	1999
1216.00	9164655	9234445	475179	475474	6222451	6271125	14	143	1999
1217.00	9323324	9389904	474778	475065	6222455	6271123	14	143	1999
1218.00	5457265	5498694	474487	474687	6242676	6271128	11	140	1999
1218.01	5641521	5670591	474363	474493	6222458	6242924	15	144	1999
1219.00	6236679	6277699	474084	474259	6242691	6271131	10	139	1999
1219.01	5601901	5631611	473961	474098	6222455	6242918	15	144	1999
1220.00	6198207	6238627	473675	473868	6242614	6271130	6	134	1999
1220.01	5555591	5583991	473553	473689	6222463	6242871	15	144	1999
1221.00	5357601	5399191	473273	473475	6242715	6271138	5	131	1999
1221.01	5511301	5541211	473152	473286	6222461	6242961	15	144	1999
1222.00	9475054	9542924	472750	473058	6222467	6271137	14	143	1999
1223.00	7264777	7334067	472326	472678	6222467	6271138	3	129	1999
1224.00	6931218	7000678	471934	472269	6222466	6271139	2	127	1999
1225.00	6773749	6841948	471531	471853	6222473	6271146	2	127	1999
1226.00	6617079	6686429	471132	471485	6222471	6271146	2	127	1999
1227.00	6458900	6526800	470705	471066	6222476	6271148	2	127	1999
1228.00	6296330	6365940	470320	470666	6222484	6271154	2	127	1999
1229.00	6139140	6206910	469919	470270	6222481	6271159	2	127	1999
1230.00	6851368	6921598	469494	469864	6222488	6271161	2	127	1999
1231.00	6695349	6765169	469097	469470	6222488	6271161	2	127	1999
1232.00	6536870	6606829	468687	469054	6222491	6271167	2	127	1999
1233.00	6379350	6450200	468293	468664	6222493	6271165	2	127	1999
1234.00	6216270	6285640	467895	468275	6222494	6271174	2	127	1999
1235.00	6061000	6130050	467485	467869	6222501	6271171	2	127	1999
1236.00	5899651	5970270	467078	467468	6222503	6271177	2	127	1999
1237.00	5741641	5812561	466682	467071	6222507	6271177	2	127	1999
1238.00	5583772	5653182	466267	466651	6222512	6271179	2	127	1999
1239.00	5418072	5490132	465870	466263	6222512	6271184	2	127	1999
1240.00	7577658	7620098	465623	465857	6242715	6271188	1	126	1999
1240.01	5450561	5479291	465464	465622	6222514	6242911	15	144	1999
1241.00	6010000	6051260	465223	465464	6242675	6271193	2	127	1999
1241.01	5406101	5436501	465058	465241	6222521	6242994	15	144	1999
1242.00	5821891	5889711	464655	465069	6222521	6271196	2	127	1999
1243.00	5662962	5731501	464256	464658	6222527	6271201	2	127	1999
1244.00	5507032	5574752	463844	464274	6222532	6271203	2	127	1999
1245.00	7660467	7714597	463431	463773	6222534	6261008	1	126	1999
1245.01	5362532	5377992	463765	463854	6260816	6271206	15	144	1999
1246.00	7499498	7569758	462997	463455	6222534	6271213	1	126	1999
1247.00	7340028	7408198	462596	463056	6222539	6271214	1	126	1999
1248.00	7183899	7251469	462195	462679	6222543	6271215	1	126	1999
1249.00	7029550	7096799	461810	462263	6222550	6271220	1	126	1999
1250.00	6873670	6940530	461412	461856	6222549	6271227	1	126	1999
1251.00	6715890	6784030	461005	461458	6222552	6271230	1	126	1999
1252.00	7419888	7489958	460615	461066	6222555	6271233	1	126	1999
1253.00	7260029	7330309	460204	460658	6222565	6271234	1	126	1999
1254.00	7106849	7175269	459791	460259	6222564	6271237	1	126	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
1255.00	6950060	7018480	459385	459861	6222571	6271239	1	126	1999
1256.00	6794150	6863050	458990	459459	6222575	6271248	1	126	1999
1257.00	6632720	6702120	458576	459061	6222575	6271253	1	126	1999

POSTAGE STAMP BLOCKS - BLOCK I

CONTROL LINES

201.00	7086386	7094036	723076	723123	6169303	6174711	18	149	1999
202.00	7103826	7112156	724290	724320	6169303	6174706	18	149	1999
203.00	7124296	7132436	725492	725520	6169299	6174706	18	149	1999
204.00	7141386	7149286	726700	726721	6169305	6174706	18	149	1999
205.00	7161756	7170026	727899	727927	6169304	6174707	18	149	1999

TRAVERSE LINES

2001.00	7067687	7075517	722904	728109	6169480	6169511	18	149	1999
2002.00	7015647	7023687	722901	728113	6169542	6169619	18	149	1999
2003.00	6959527	6967707	722903	728103	6169688	6169715	18	149	1999
2004.00	6905037	6913197	722902	728107	6169788	6169811	18	149	1999
2005.00	6864877	6873137	722901	728111	6169879	6169921	18	149	1999
2006.00	6828667	6836417	722902	728104	6169982	6170008	18	149	1999
2007.00	7042047	7049827	722901	728105	6170091	6170119	18	149	1999
2008.00	6988287	6996407	722900	728108	6170194	6170207	18	149	1999
2009.00	6931157	6939487	722902	728111	6170279	6170322	18	149	1999
2010.00	6884237	6891067	722903	728105	6170388	6170413	18	149	1999
2011.00	6845947	6852767	722901	728104	6170484	6170511	18	149	1999
2012.00	6811067	6817997	722900	728107	6170595	6170615	18	149	1999
2013.00	6780077	6787077	722899	728105	6170691	6170722	18	149	1999
2014.00	6746768	6753828	722901	728106	6170793	6170813	18	149	1999
2015.00	6710658	6717858	722900	728107	6170886	6170917	18	149	1999
2016.00	6666168	6673438	722901	728105	6170993	6171021	18	149	1999
2017.00	6635318	6642368	722901	728109	6171094	6171119	18	149	1999
2018.00	6603318	6610498	722902	728105	6171194	6171214	18	149	1999
2019.00	6569318	6576598	722901	728105	6171285	6171333	18	149	1999
2020.00	6536328	6543628	722905	728105	6171388	6171417	18	149	1999
2021.00	6504568	6511748	722899	728107	6171496	6171522	18	149	1999
2022.00	6471439	6478618	722900	728108	6171605	6171631	18	149	1999
2023.00	6439559	6446619	722903	728106	6171687	6171744	18	149	1999
2024.00	6408169	6415419	722901	728110	6171793	6171833	18	149	1999
2025.00	6375829	6383149	722900	728103	6171885	6171935	18	149	1999
2026.00	6342369	6349479	722905	728103	6171996	6172020	18	149	1999
2027.00	6309529	6316749	722903	728104	6172088	6172125	18	149	1999
2028.00	6277049	6284499	722905	728109	6172184	6172224	18	149	1999
2029.00	6246029	6253279	722903	728106	6172292	6172316	18	149	1999
2030.00	6212339	6219619	722900	728104	6172390	6172427	18	149	1999
2031.00	6177099	6184559	722905	728106	6172494	6172523	18	149	1999
2032.00	6794877	6802927	722902	728108	6172592	6172625	18	149	1999
2033.00	6763528	6771558	722903	728108	6172688	6172733	18	149	1999
2034.00	6727248	6735548	722905	728108	6172793	6172822	18	149	1999
2035.00	6682348	6690298	722899	728105	6172895	6172922	18	149	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
2036.00	6650868	6658338	722902	728104	6172999	6173016	18	149	1999
2037.00	6618788	6626508	722900	728102	6173094	6173122	18	149	1999
2038.00	6586768	6594448	722903	728101	6173180	6173224	18	149	1999
2039.00	6552028	6559788	722903	728105	6173300	6173321	18	149	1999
2040.00	6519178	6527028	722903	728104	6173398	6173420	18	149	1999
2041.00	6487868	6495648	722904	728103	6173484	6173521	18	149	1999
2042.00	6455519	6463549	722905	728102	6173591	6173623	18	149	1999
2043.00	6423299	6431429	722900	728106	6173695	6173719	18	149	1999
2044.00	6390839	6399219	722901	728107	6173786	6173828	18	149	1999
2045.00	6358949	6367089	722902	728107	6173901	6173925	18	149	1999
2046.00	6325769	6333559	722900	728106	6173994	6174019	18	149	1999
2047.00	6293489	6301199	722903	728108	6174097	6174119	18	149	1999
2048.00	6261069	6268769	722906	728105	6174197	6174222	18	149	1999
2049.00	6227099	6234999	722899	728105	6174290	6174323	18	149	1999
2050.00	6193799	6201339	722904	728109	6174400	6174437	18	149	1999
2051.00	6159130	6166709	722901	728102	6174496	6174531	18	149	1999

POSTAGE STAMP BLOCKS - BLOCK II

CONTROL LINES

301.00	813807	824297	393214	393780	6197160	6203683	17	148	1999
302.00	835806	845696	394427	394996	6197172	6203713	17	148	1999
303.00	852006	861896	395593	396200	6196915	6203491	17	148	1999
304.00	869006	878696	396811	397387	6196920	6203519	17	148	1999
305.00	885806	895296	398059	398546	6196777	6203203	17	148	1999

TRAVERSE LINES

3001.00	5744303	5754693	392512	398748	6197512	6198107	16	147	1999
3002.00	5779903	5789993	392526	398769	6197608	6198352	16	147	1999
3003.00	5808703	5818793	392647	398763	6197718	6198598	16	147	1999
3004.00	5834903	5844793	392594	398798	6197777	6198553	16	147	1999
3005.00	5861703	5871793	392615	398779	6197916	6198733	16	147	1999
3006.00	5888903	5898993	392642	398774	6198007	6198790	16	147	1999
3007.00	5914303	5924392	392611	398775	6198096	6198870	16	147	1999
3008.00	5940502	5950592	392751	398776	6198205	6199071	16	147	1999
3009.00	5971302	5981792	392739	398883	6198305	6199265	16	147	1999
3010.00	6005002	6015492	392741	398827	6198415	6199271	16	147	1999
3011.00	6033502	6043792	392640	398888	6198512	6199295	16	147	1999
3012.00	6093102	6102692	392633	398859	6198616	6199263	16	147	1999
3013.00	6068900	6078400	392576	398921	6198689	6199205	18	149	1999
3014.00	6041700	6051100	392660	398989	6198814	6199526	18	149	1999
3015.00	6150502	6160392	392667	398867	6198945	6199592	16	147	1999
3016.00	6177702	6187992	392768	398931	6198997	6199752	16	147	1999
3017.00	6204302	6213992	392855	398888	6199095	6199923	16	147	1999
3018.00	6229901	6239991	392805	398893	6199209	6200035	16	147	1999
3019.00	6255501	6265791	392825	398884	6199324	6200073	16	147	1999
3020.00	6281901	6291791	392843	398916	6199436	6200252	16	147	1999
3021.00	6310101	6319991	392810	398970	6199511	6200208	16	147	1999
3022.00	6339701	6349591	392810	399025	6199609	6200388	16	147	1999

MLINE	TIME	TIME	MIN X	MAX X	MIN Y	MAX Y	FLT	DAY	YEAR
3023.00	6367501	6376991	392745	398960	6199710	6200262	16	147	1999
3024.00	6396901	6406391	392903	399101	6199771	6200775	16	147	1999
3025.00	6424901	6434591	392659	399131	6199884	6200547	16	147	1999
3026.00	6455501	6465191	392834	399021	6200005	6200807	16	147	1999
3027.00	6481901	6491591	392815	399072	6200099	6200881	16	147	1999
3028.00	6507301	6517391	392846	399144	6200211	6201018	16	147	1999
3029.00	6534301	6544200	392887	399142	6200293	6201071	16	147	1999
3030.00	6559500	6569600	392875	399068	6200400	6201243	16	147	1999
3031.00	6585700	6595800	392868	399103	6200490	6201253	16	147	1999
3032.00	6611500	6621400	392873	399104	6200606	6201344	16	147	1999
3033.00	6639300	6649200	392813	399085	6200686	6201343	16	147	1999
3034.00	264808	275198	392822	399142	6200782	6201305	17	148	1999
3035.00	284008	293298	392819	399239	6200896	6201464	17	148	1999
3036.00	304808	315098	392840	399137	6201011	6201606	17	148	1999
3037.00	333608	343298	392844	399160	6201092	6201913	17	148	1999
3038.00	363408	373298	392760	399081	6201237	6201824	17	148	1999
3039.00	394408	404298	392812	399197	6201281	6201980	17	148	1999
3040.00	423408	433298	392825	399198	6201413	6202046	17	148	1999
3041.00	453608	463498	392853	399239	6201498	6202017	17	148	1999
3042.00	486408	496698	392953	399209	6201603	6202504	17	148	1999
3043.00	6014900	6024600	392849	399206	6201706	6202209	18	149	1999
3044.00	5987100	5996800	392914	399126	6201791	6202577	18	149	1999
3045.00	568807	578697	392904	399114	6201910	6202694	17	148	1999
3046.00	596807	606497	392960	399161	6202008	6202773	17	148	1999
3047.00	658207	667897	392946	399118	6202107	6202867	17	148	1999
3048.00	686207	696097	392883	399153	6202210	6202907	17	148	1999
3049.00	716907	726897	392966	399183	6202262	6203201	17	148	1999
3050.00	747607	757497	392939	399164	6202421	6203071	17	148	1999
3051.00	777207	787097	393075	399195	6202533	6203357	17	148	1999

APPENDIX VII

WEEKLY REPORTS

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

SGL WEEKLY PROGRESS REPORT (WEEK OF March 22 TO 28, 1999)

LOCATION:	Fort McMurray, Alberta (Wood Buffalo &Namur Lake)	PRODUCTION THIS WEEK:	0	LKM
CLIENT:	Ashton Mining	TOTAL TO DATE:	0	LKM
TYPE OF SURVEY:	Aeromagnetic	TOTAL REMAINING:	12,417	LKM
TOTAL SIZE:	12417	% COMPLETE:	0	%

AIRCRAFT TYPE: Cessna 404 REGISTRATION: C-GBWE

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Forwell	Lewis		
MON	22/03							
GEOMAG: WEATHER: REMARKS:								
TUE	23/03							
GEOMAG: WEATHER: REMARKS:								
WED	24/03							
GEOMAG: WEATHER: REMARKS:								
THU	25/03							
GEOMAG: WEATHER: REMARKS:								
FRI	26/03							
GEOMAG: WEATHER: REMARKS: Kelly O'Connor, geophysicist, and Todd Lewis, pilot, arrive in Fort McMurray								
SAT	27/03							
GEOMAG: Quiet WEATHER: Clear in AM, clouding over with snow in PM REMARKS: Set up ground station. Randy Forwell, pilot, and Leo Breault, AME, arrived with aircraft in Fort McMurray.								
SUN	28/03							
GEOMAG: WEATHER: Some clouds in AM, clouds building with snow in PM REMARKS: Changed alternator and fixed suction in aircraft. No flight due to maintenance and weather.								
TOTALS			0	0	0	0	0	0

SUMMARY AND REMARKS:

The field crew mobilized to Fort McMurray this week. A problem with the left alternator caused it to be replaced on Sunday. A planned compensation flight was cancelled on Sunday afternoon due to weather. The aircraft is now operational and should begin survey flying early next week, weather permitting.

Kelly O'Connor
Sander Geophysics Ltd.

SGL WEEKLY PROGRESS REPORT (WEEK OF March 29 TO April 4, 1999)

LOCATION:	Fort McMurray, Alberta (Wood Buffalo &Namur Lake)	PRODUCTION THIS WEEK:	1754	LKM
CLIENT:	Ashton Mining	TOTAL TO DATE:	1754	LKM
TYPE OF SURVEY:	Aeromagnetic	TOTAL REMAINING:	10,663	LKM
TOTAL SIZE:	12417	% COMPLETE:	14	%

AIRCRAFT TYPE: Cessna 404 REGISTRATION: C-GBWE

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Forwell	Lewis		
MON	29/03		1.5		1.9	1.9		
GEOMAG: Active WEATHER: Clear REMARKS: Problems detected with left alternator.								
TUE	30/03							
GEOMAG: Active with Unsettled periods WEATHER: Clear REMARKS: Continued problems with left alternator.								
WED	31/03		1.1		1.5	1.5		
GEOMAG: Quiet WEATHER: Clear in AM, clouding over with snow in PM REMARKS: Replaced alternator. Flew calibration unsuccessfully in PM.								
THU	01/03	001	5.2	650	5.8	5.8		
GEOMAG: Quiet WEATHER: Some high clouds REMARKS: Successful calibration in AM, FOM 1.3 nT, production flight of control lines in PM. Found oil leaking from right alternator.								
FRI	02/03							
GEOMAG: Quiet WEATHER: Clear REMARKS: No flight due to problems with the right alternator.								
SAT	03/03		0.8		1.0	1.0		
GEOMAG: Quiet WEATHER: Clear REMARKS: Replaced right alternator. Flew successful calibration in PM, FOM 1.1 nT.								
SUN	04/03	002	7.2	1104	7.4	7.4		
GEOMAG: Unsettled WEATHER: Overcast REMARKS: Full production flight.								
TOTALS			15.8	1754	17.6	17.6	0	0

SUMMARY AND REMARKS:

Production was slow this week due to continued alternator problems and active ground mag. A successful calibration and production flight were flown on Thursday prior to a problem being detected with the right alternator. This problem was corrected on Saturday and a successful calibration was then carried out. A full production flight was flown on Sunday.

Kelly O'Connor
Sander Geophysics Ltd.

SGL WEEKLY PROGRESS REPORT (WEEK OF April 5 TO 11, 1999)

LOCATION:	Fort McMurray, Alberta (Wood Buffalo &Namur Lake)	PRODUCTION THIS WEEK:	3569	LKM
CLIENT:	Ashton Mining	TOTAL TO DATE:	5323	LKM
TYPE OF SURVEY:	Aeromagnetic	TOTAL REMAINING:	7,094	LKM
TOTAL SIZE:	12417	% COMPLETE:	43	%

AIRCRAFT TYPE: Cessna 404 REGISTRATION: C-GBWE

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Forwell	Lewis		
MON	05/04							
GEOMAG: Quiet WEATHER: Low clouds and snow all day REMARKS: Pilot rest day. No flight due to weather.								
TUE	06/04	003	7.4	1289	7.6	7.6		
GEOMAG: Quiet with some unsettled periods WEATHER: Clear REMARKS: Full production flight, some problems with differential GPS.								
WED	07/04	004	7.6	1277	7.8	7.8		
GEOMAG: Quiet WEATHER: Clear REMARKS: Full production flight.								
THU	08/04							
GEOMAG: Quiet WEATHER: Overcast REMARKS: No flight due to weather								
FRI	09/04							
GEOMAG: Quiet WEATHER: Low clouds and snow REMARKS: No flight due to weather								
SAT	10/04	005	7.0	1003	7.2	7.2		
GEOMAG: Unsettled with Active periods WEATHER: Clear in AM, clouding over in PM REMARKS: Full production flight, some lines may need to be reflown due to active ground mag.								
SUN	11/04		0.7		0.9	0.9		
GEOMAG: Active to Unsettled WEATHER: Clear, some high clouds, windy REMARKS: Flight delayed due to unsettled mag, then aborted due to turbulence								
TOTALS			22.7	3569	23.5	23.5	0	0

SUMMARY AND REMARKS:

Production was slow this week due to weather and active ground mag. Low clouds and snow caused scheduled flights on Monday, Thursday and Friday to be cancelled. Active ground magnetics delayed the flight on Sunday. A flight was attempted in early afternoon but aborted due to mechanical turbulence.

Kelly O'Connor
Sander Geophysics Ltd.

SGL WEEKLY PROGRESS REPORT (WEEK OF April 12 TO 18, 1999)

LOCATION:	Fort McMurray, Alberta (Wood Buffalo & Namur Lake)	PRODUCTION THIS WEEK:	6709	LKM
CLIENT:	Ashton Mining	TOTAL TO DATE:	12032	LKM
TYPE OF SURVEY:	Aeromagnetic	TOTAL REMAINING:	532	LKM
TOTAL SIZE:	12564	% COMPLETE:	96	%

AIRCRAFT TYPE: Cessna 404 REGISTRATION: C-GBWE

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Forwell	Lewis		
MON	12/04	006	6.7	1157	6.9	6.9		
GEOMAG: Quiet WEATHER: Windy, high clouds REMARKS: Full production flights, some lines may need to be reflown due to wind.								
TUE	13/04	007	7.1	1142	7.3	7.3		
GEOMAG: Quiet WEATHER: Some wind, clear REMARKS: Full production flight.								
WED	14/04	008	6.9	1071	7.1	7.1		
GEOMAG: Quiet WEATHER: Some wind, clear, some high clouds REMARKS: Full production flight.								
THU	15/04	009	7.0	1323	7.2	7.2		
GEOMAG: Quiet WEATHER: Light wind REMARKS: Full production flight								
FRI	16/04							
GEOMAG: Active with unsettled periods WEATHER: Light wind, clear REMARKS: No flight due to active ground mag								
SAT	17/04	010	4.1	708	4.3	4.3		
GEOMAG: Quiet with unsettled periods WEATHER: Some wind, high clouds, sunny REMARKS: Flight delayed due to unsettled ground mag								
SUN	18/04	011	7.3	1308	7.5	7.5		
GEOMAG: Quiet WEATHER: Clear, calm REMARKS: Full production flight								
TOTALS			39.1	6709	40.3	40.3	0	0

SUMMARY AND REMARKS:

The new total project size reflects the small addition on the eastern border of the survey block and one new line on the western border to completely cover the survey area. Production went well this week with the exception of Friday which had no flight due to active ground magnetics.

Kelly O'Connor
Sander Geophysics Ltd.

SGL WEEKLY PROGRESS REPORT (WEEK OF April 19 TO 25, 1999)

LOCATION:	Fort McMurray, Alberta (Wood Buffalo & Namur Lake)	PRODUCTION THIS WEEK:	532	LKM
CLIENT:	Ashton Mining	TOTAL TO DATE:	12564	LKM
TYPE OF SURVEY:	Aeromagnetic	TOTAL REMAINING:	0	LKM
TOTAL SIZE:	12564	% COMPLETE:	100	%

AIRCRAFT TYPE: Cessna 404 REGISTRATION: C-GBWE

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Forwell	Lewis		
MON	19/04	012, 013		532				
GEOMAG: Unsettled with some active periods WEATHER: Overcast REMARKS: Flight 012 aborted due to active mag. The original survey block was completed during flight 013.								
TUE	20/04	014						
GEOMAG: Stormy in AM, unsettled in PM WEATHER: Clear in AM, clouding over in PM, slight wind REMARKS: Flight 014 delayed until late afternoon, all reflights								
WED	21/04							
GEOMAG: Unsettled WEATHER: Clear REMARKS: Finished reflights, began packing for demobilization.								
THU	22/04							
GEOMAG: Not Recorded WEATHER: Sunny, 15 degrees REMARKS: Crew demobilized.								
FRI	23/04							
GEOMAG: WEATHER: REMARKS:								
SAT	24/04							
GEOMAG: WEATHER: REMARKS:								
SUN	25/04							
GEOMAG: WEATHER: REMARKS:								
TOTALS			0	532	0	0	0	0

SGL WEEKLY PROGRESS REPORT (WEEK OF April 19 TO 25, 1999)

SUMMARY AND REMARKS:

Production was completed this week and the crew demobilized.

Kelly O'Connor
Sander Geophysics Ltd.

SGL WEEKLY PROGRESS REPORT (WEEK OF May 3 TO 9, 1999)

LOCATION:	Fort McMurray, Alberta (Gregoire Lake)	PRODUCTION THIS WEEK:	2868	LKM
CLIENT:	Ashton Mining	TOTAL TO DATE:	2868	LKM
TYPE OF SURVEY:	Aeromagnetic	TOTAL REMAINING:	12,338	LKM
TOTAL SIZE:	15206	% COMPLETE:	19	%

AIRCRAFT TYPE: Cessna 404 REGISTRATION: C-GBWE

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Forwell	Lewis		
MON	03/05							
GEOMAG: Not recorded WEATHER: Overcast, rain REMARKS: Crew remobilized to Fort McMurray.								
TUE	04/05							
GEOMAG: Quiet WEATHER: Overcast, low clouds all day, thunderstorms REMARKS: Set up ground station, de-inhibited aircraft, no flight due to low clouds.								
WED	05/05		0.7		0.9	0.9		
GEOMAG: Unsettled in AM, quiet in PM WEATHER: Overcast, low clouds REMARKS: Calibration flight attempted in PM, aborted due to clouds.								
THU	06/05	001	4.1	677	4.5	4.5		
GEOMAG: Quiet with some unsettled periods WEATHER: Clear REMARKS: Calibration flight in AM, FOM 1.0 nT, production flight in PM								
FRI	07/05	002	4.7	978	4.9	4.9		
GEOMAG: Quiet WEATHER: Clear, very windy REMARKS: Flight cut short due to high winds								
SAT	08/05							
GEOMAG: Quiet WEATHER: Overcast, low clouds throughout day, extreme winds REMARKS: No flight due to high winds								
SUN	09/05	003	5.6	1213	5.8	5.8		
GEOMAG: Quiet WEATHER: Clear, cold REMARKS: Full production flight, control lines								
TOTALS			15.1	2868	16.1	16.1	0	0

SUMMARY AND REMARKS:

Crew remobilized to Fort McMurray and began production on Gregoire Lake extension.

Production was somewhat slow this week due to poor weather.

Kelly O'Connor
Sander Geophysics Ltd.

SGL WEEKLY PROGRESS REPORT (WEEK OF May 10 TO 16, 1999)

LOCATION:	Fort McMurray, Alberta (Gregoire Lake)	PRODUCTION THIS WEEK:	4862	LKM
CLIENT:	Ashton Mining	TOTAL TO DATE:	7730	LKM
TYPE OF SURVEY:	Aeromagnetic	TOTAL REMAINING:	7,476	LKM
TOTAL SIZE:	15206	% COMPLETE:	51	%

AIRCRAFT TYPE: Cessna 404 REGISTRATION: C-GBWE

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Forwell	Lewis		
MON	10/05	004	7.5	1499	7.7	7.7		
GEOMAG: Quiet WEATHER: Overcast, light winds REMARKS: Full production flight								
TUE	11/05	005	7.0	1418	7.2	7.2		
GEOMAG: Quiet WEATHER: High overcast, some wind REMARKS: Full production flight								
WED	12/05							
GEOMAG: Unsettled WEATHER: Low clouds, some rain, windy REMARKS: Now flight due to poor weather								
THU	13/05							
GEOMAG: Major storm in AM, unsettled in PM WEATHER: Rain, wind, low clouds, some hail REMARKS: No flight due to active mag and poor weather								
FRI	14/05	006	2.7	494	2.9	2.9		
GEOMAG: Quiet with unsettled periods WEATHER: Low clouds, rain, wind in PM REMARKS: Flight 006 cut short due to poor weather								
SAT	15/05							
GEOMAG: Quiet with unsettled periods WEATHER: Low clouds and rain all day REMARKS: No flight due to weather								
SUN	16/05	007, 008	7.3	1451	7.7	7.7		
GEOMAG: Quiet WEATHER: Low clouds in AM, clearing in PM, some wind REMARKS: Flight 007 cut short due to weather, flight 008 full production flight.								
TOTALS			24.5	4862	25.5	25.5	0	0

SGL WEEKLY PROGRESS REPORT (WEEK OF May 10 TO 16, 1999)

SUMMARY AND REMARKS:

Production was somewhat slow this week due to poor weather. Rain and low clouds caused flights on Wednesday, Thursday and Saturday to be cancelled and caused Friday's flight to be cut short.

Kelly O'Connor
Sander Geophysics Ltd.

SGL WEEKLY PROGRESS REPORT (WEEK OF May 17 TO 23, 1999)

LOCATION:	Fort McMurray, Alberta (Gregoire Lake)	PRODUCTION THIS WEEK:	7476	LKM
CLIENT:	Ashton Mining	TOTAL TO DATE:	15206	LKM
TYPE OF SURVEY:	Aeromagnetic	TOTAL REMAINING:	0	LKM
TOTAL SIZE:	15206	% COMPLETE:	100	%

AIRCRAFT TYPE: Cessna 404 REGISTRATION: C-GBWE

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Forwell	Lewis		
MON	17/05	009	7.5	1534	7.9	7.9		
GEOMAG: Quiet with unsettled periods WEATHER: Clear, some clouds REMARKS: Full production flight								
TUE	18/05							
GEOMAG: Active with unsettled periods WEATHER: Some clouds and rain showers REMARKS: No flight due to active mag								
WED	19/05	010	6.9	1329	7.1	7.1		
GEOMAG: Unsettled WEATHER: Mostly clear, some cloud cover REMARKS: Full production flight								
THU	20/05	011	7.5	1531	7.7	7.7		
GEOMAG: Unsettled with quiet periods WEATHER: Clear in AM, some clouds in PM REMARKS: Full production flight								
FRI	21/05	012	4.8	1389	5.0	5.0		
GEOMAG: Quiet WEATHER: Clear, some wind REMARKS: Full production flight								
SAT	22/05	013	6.9	861	7.1	7.1		
GEOMAG: Quiet with some unsettled periods WEATHER: Clouds forming, some thunderstorms, wind in PM REMARKS: Flight cut short due to wind								
SUN	23/05	014	4.1	832	4.3	4.3		
GEOMAG: Unsettled WEATHER: Clear, blue sky, wind REMARKS: Flight delayed due to active mag								
TOTALS			37.7	7476	39.1	39.1	0	0

SGL WEEKLY PROGRESS REPORT (WEEK OF May 17 TO 23, 1999)

SUMMARY AND REMARKS:

Production on the original survey block was completed this week. Reflights will be flown at the beginning of next week as well as two small postage stamp infill blocks.

Kelly O'Connor
Sander Geophysics Ltd.

SGL WEEKLY PROGRESS REPORT (WEEK OF May 24 TO 30, 1999)

LOCATION:	Fort McMurray, Alberta (Gregoire Lake & Postage Stamp Blocks)	PRODUCTION THIS WEEK:	562	LKM
CLIENT:	Ashton Mining	TOTAL TO DATE:	15768	LKM
TYPE OF SURVEY:	Aeromagnetic	TOTAL REMAINING:	0	LKM
TOTAL SIZE:	15768	% COMPLETE:	100	%

AIRCRAFT TYPE: Cessna 404 REGISTRATION: C-GBWE

DAY	DD/MM	FLT#	FLT HRS	PROD. LKM	PILOT'S FLIGHT TIMES			
					Forwell	Lewis		
MON	24/05	015	3.7		3.9	3.9		
GEOMAG: Quiet with unsettled periods WEATHER: Clear, hot, windy REMARKS: Reflights on original block								
TUE	25/05							
GEOMAG: Active with unsettled periods WEATHER: Hot, windy, thunderstorms in PM REMARKS: Pilot rest day								
WED	26/05		1.1		1.3	1.3		
GEOMAG: Unsettled with quiet periods WEATHER: Mostly clear, some cloud cover REMARKS: Flight 016 aborted due to alternator problems, fixed in PM								
THU	27/05	016, 017	6.7	260	7.1	7.1		
GEOMAG: Quiet with some unsettled periods WEATHER: Hazy, warm, some wind REMARKS: Compensation, FOM = 1.1 nT. Production on postage stamp block 2.								
FRI	28/05		1.4		1.6	1.6		
GEOMAG: Quiet with unsettled periods WEATHER: Windy in AM, thunderstorms in PM REMARKS: Flight 018 aborted in AM due to wind, flight cancelled in PM due to thunderstorms								
SAT	29/05	018	4.4	302	4.6	4.6		
GEOMAG: Quiet WEATHER: Big puffy clouds, some wind REMARKS: Finished postage stamp blocks 1 and 2								
SUN	30/05							
GEOMAG: Not recorded WEATHER: Not recorded REMARKS: Demobilized								
TOTALS			17.3	562	18.5	18.5	0	0

SUMMARY AND REMARKS:

Reflights on the original survey block were flown early this week. Weather delayed production of the postage stamp blocks. These blocks were completed on Saturday and the crew demobilized on Sunday.

Kelly O'Connor
Sander Geophysics Ltd.

APPENDIX VIII

AADC COMPENSATION PLOT

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

APPENDIX IX

FLIGHT LOGS

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

(Wood Buffalo & Namur Lake)

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
15	21/04/99	Start	15:35	1.8	30.06	5/-2
		Finish	17 23	2.0		

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	111 $ 1529						

General comments: C

Line #	From	To	Comments
C0101	E	W	F / R
T1051.0	S	N	F / R
T1046.10	S	N	F / R
1045.1	N	S	B T
C0122	W	E	B T
T996	S	N	F T
998	N	S	B R
997	C	N	F T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
14 pg2	20/04/99	Start	21:53	5.4	2993	12/0
		Finish	03:18	5.6	2993	11/-1

General comments: R 170/2 11 615.2 OB

Aircraft	(BWF)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	110 /2148						

Line #	From	To	Comments
✓ 1163	N	S	B T
✓ 1125	S	N	F T
~~9998~~	N	S	B
129	W	E	B R
125	E	W	F R
124	E	W	B F R
✓ 122	W	E	B / R
✓ T998	S	N	F T
✓ T997	N	S	B T
✓ T996	S	N	F T
✓ ~~T1050~~	~~N~~	~~S~~	~~B~~
✓ T1046.1	N	S	B T
T1046.1	S	N	F / R
1051.0	N	S	B ✓

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
14	2d04/99	Start	21:53		29.93	12/0
		Finish				

General comments: m

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RP/TL						
Weather	VFR						
Disk #							
First File	110 # 2148						

Line #	From	To	Comments
C0101	E	W	F ✓ R
T1024	S	N	F ✓ R
C0144	E	W	F T
T1275	S	N	F T
T1274	N	S	B ✓ R
1264	S	N	F ✓ R
1262	N	S	B ✓ R
1261	S	N	F ✓ R
1227	S	N	F T
1214	N	S	B T
1180	N	S	B T
1197	S	N	F T
1186	N	S	B ✓ R
1185	S	N	F ✓ R
1174	N	S	B ✓ R
1173	S	N	F ✓ R
1172	N	S	B ✓ R
1171	S	N	F ✓ R
1170	N	S	B T
1169	S	N	F T

SANDER GEOPHYSICS LTD. | **FLIGHT LOG** | **PROJECT: ASHTON FT MAC 1999**

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
13	19/04/99	Start	17:51	6.0	29.94	11/-2
		Finish	23:52	6.2		

General comments: F Jacks

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RFTL						
Weather	VFR						
Disk #							
First File	109 / 1746						

Line #	From	To	Comments
✓ 1026	S	N	F T
1124	S	N	F / R
1118	N	S	B / R
1123	S	N	F / R
✓ 1117	N	S	B T
✓ 1122	S	N	F T
✓ 1116	N	S	B T
1121	S	N	F / R
1115	N	S	B / R
1120	S	N	F / R
✓ 1114	N	S	B T
✓ 1108	S	N	F T
✓ 1113	N	S	B T
1107	S	N	F / R
1112	N	S	B / R
1106	S	N	F / R
✓ 1111	N	S	B T
✓ 1105	S	N	F T
✓ 1110	N	S	B T
1104	S	N	F / R

1109	N	S	B /	R
1103	S	N	F /	R
✓ 1097	N	S	B	T
✓ 1102	S	N	F	T
✓ 1052.1	N	S	B	T
999.0	N	S	B /	R

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
12	19/04/99	Start	15:05	2.2	29.84	6/-4
		Finish	16:16	2.4	29.84	9/-2

General comments: @ E

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TZ						
Weather	VFR						
Disk #							
First File	109 $ 1501						

Line #	From	To	Comments
C0101	E	W	F / R
T1024	S	N	F / R
C0144	E	W	F / T
✓ 1125	S	N	F T
✓ 1119	N	S	B / R
1124	S	N	F R
1118	N	S	B R
1123	S	N	F
1117	N	S	B
1122	S	N	F
1116	N	S	B

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
11	18/04/99	Start	14:41		30.14	0/-7
Pg 2		Finish				

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TC						
Weather	VFR						
Disk #							
First File	108 $ 1436						

General comments:

Line #	From	To	Comments
1144	N	S	B T
1138	S	N	F/R
1143	N	S	B/R
1137	S	N	F/R
1131	N	S	B T
1136	S	N	F T
1130	N	S	B T
1135	S	N	F/R
1129	N	S	B/R
1134	S	N	F/R
1128	N	S	B T
1133	S	N	F T
1127	N	S	B T
1132	S	N	F/R
1126	N	S	B/R
1023	N	S	B T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
11	12/04/99	Start	14:41		30.14	01-6
		Finish				

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	1085	1436					

General comments: B

Line #	From	To	Comments
C0101	E	W	F R
T1022	S	N	F R
C0141	E	W	F T
1155.0	S	N	F T
1155.1	S	N	F T
1150.1	N	S	B T
1150.0	N	S	B T
1154.0	S	N	F R
1154.1	S	N	F R
1149.0	N	S	B R
1153.0	S	N	F R
1153.1	S	N	F R
1148.0	N	S	B T
1142	S	N	F T
1147.0	N	S	B T
1141.0	S	N	F R
1146.	N	S	B R
1140	S	N	F R
1145	N	S	B T
1139	S	N	F T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
10	17/04/99	Start	17:19		29.97	10/-1
		Finish				

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	107 & 1714						

General comments: 25° F

Line #	From	To	Comments
T0101	E	W	F R
T1026.0	S	N	F R
~~Cal 1~~	E	W	B R
✓ T1075	S	N	F T
✓ T1091	N	S	B T
✓ 1086	S	N	F T
✓ 1092	N	S	B R
1098	S	N	F R
1093	W	S	B R
✓ 1079	S	N	F T
✓ 1094	N	S	B T
✓ 1100	S	N	F T
1095	N	S	B R
1101	S	N	F R
1096	N	S	B R
1025	N	S	B T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
09	15 APR 99	Start	14:43		30.47	9/-10
		Finish				

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	Cloudy						
Disk #							
First File							

General comments: I 320/6

141
144

Line #	From	To	Comments
1080	S	N	F ✓ R
1075	N	S	B ✓ R
1081	S	N	F ✓ R
✓ 1087	N	S	B T
✓ 1082	S	N	F T
✓ 1088	N	S	B T
1083	S	N	F ✓ R
1089	N	S	B ✓ R
1084	S	N	F ✓ R
✓ 1090	N	S	B T
1027	N	S	B ✓ T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
09	15/04/99	Start	14:43		30.54	-21.7
		Finish				

General comments: B

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	105 & 1437						

	Line #	From	To	Comments
✓	C0101	E	W	F T
✓	T1028	S	N	F T
✓	1061.1	S	N	F / R
	1066.0	N	S	B / R
	1062.1	S	N	F / R
✓	1067.0	N	S	B T
✓	1063.1	S	N	F T
✓	1068.0	N	S	B T
✓	1064.1	S	N	F / R
	1069.0	N	S	B / R
	1065.1	S	N	F / R
✓	1070.0	N	S	B T
✓	1076.0	S	N	F T
✓	1071.0	N	S	B T
	1077	S	N	F / R
	1072	N	S	B / R
	1078	S	N	F / R
✓	1073	N	S	B T
✓	1079	S	N	F T
✓	1074	N	S	B T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date		Flight	Hr	Min	Baro Alt	Temp
08 pg 3	14/04/99		Start	14:41		30.31	1/-7
			Finish				

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF / TL						
Weather	V/E						
Disk #							
First File	1046 1434						

General comments:

Line #	From	To	Comments
✓ TL159.0	S	N	F T
✓ TL159.1	S	N	F T
✓ 1164.1	N	S	B R
1164.0	N	S	B R
1158.0	S	N	F R
1158.1	S	N	F / R
✓ 1163.1	N	S	B T
✓ 1163.0	N	S	B T ?
✓ 1157.0	S	N	F T
✓ 1157.1	S	N	F T
1152.1	N	S	B R
1152.0	N	S	B R
1156.0	S	N	F / R
1156.1	S	N	F R
✓ 1151.1	N	S	B T
✓ 1151.0	N	S	B T
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
143	E	W	B / T
1029	N	S	B / R

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
08 pg 2	14/04/99	Start	14:41		30.31	1/-7°C
		Finish				

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TC						
Weather	VFR						
Disk #							
First File	1045 1434						

General comments:

Line #	From	To	Comments
T1170.1	N	S	B T
T1175.1	S	N	F T
T1169.1	N	S	B T
T1174.1	S	N	F T
1172.1	N	S	B T
1173.1	S	N	F/R
1168.1	N	S	B/R
1168.0	N	S	B/R
T1162.0	S	N	F/R
T1162.1	S	N	F/R
T1167.1	N	S	B T
T1167.0	N	S	B T
T1161.0	S	N	F T
T1161.1	S	N	F T
1166.1	N	S	B/R
1166.0	N	S	B/R
1160.0	S	N	F/R
1160.1	S	N	F/R
1165.1	N	S	B T
1165.0	N	S	B T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
08	14/04/99	Start	14:41		30.31	11-7
		Finish				

General comments: B 2S .

Aircraft	(BWE) CKB WZG SGX SGY SGZ SGL
Crew	RF/TL
Weather	VFR
Disk #	
First File	104$1434

	Line #	From	To	Comments
	C101	E	W	F T
✓	T1030	S	N	F T
	C142	E	W	F/R
	T1194	S	N	F/R
	T1187.1	N	S	B/R
	T1193.1	S	N	F/R
	T1188.1	N	S	B/R
✓	T1182.1	S	N	F T
✓	T1187.1	N	S	B T
✓	1181.1	S	N	F T
✓	1186.1	N	S	B T
✓	1180.1	S	N	F T
✓	1185.1	N	S	B T
✓	1179.1	S	N	F/R
	1184.1	N	S	B/R
	1178.1	S	N	F/R
	1183.1	N	S	B/R
	1177.1	S	N	F/R
	T1171.1	N	S	B R
✓	T1196.1	S	N	F T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp	Aircraft	(BWE) CKB WZG SGX SGY SGZ SGL
07	13/04/99	Start	14:39	7.1	29.83	3/-8	Crew	RF/TL
		Finish	21:45	7.3	29.50	4/-4	Weather	VFR
							Disk #	
							First File	

General comments: J 276/12 15 30F 65 B 21

Line #	From	To	Comments
T0997	S	N	F ✓ R
T0999	N	S	B ✓ R
T0998	S	N	F ✓ R
C0133	E	W	F ✓ R START -1.5 nm. - 3 nm from start
C0131	W	E	B ✓ R
✓ C0129	E	W	F T T1049.1 N S B T
✓ C0127	W	E	B T
✓ C0125	E	W	F T
✓ 1003	S	N	F T
✓ 1050.1	S	N	F T
1056.1	N	S	B R
T1051.1	S	N	F ✓ R
T1057.1	N	S	B ✓ R
T1052.1	S	N	F ✓ R
✓ T1058.1	N	S	B T
✓ T1053.1	S	N	F T
✓ 1059.1	N	S	B T
✓ 1054.1	S	N	F T
1060.1	N	S	B ✓ R
1055.1	S	N	F R

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
07	13/04/99	Start	14:39		29.83	3/-8
		Finish				

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	103#1432						

General comments: C 250/7

Line #	From	To	Comments
C0101	E	W	F/R
T1031	S	N	F/R ✓ 996 S N
~~C0102~~	~~E~~	~~W~~	~~F~~
T1016	N	S	B T
T1010	S	N	F T
1015	N	S	B T
1009	S	N	F T
1014	N	S	B T
1008	S	N	F/R
T1013	N	S	B/R
T1007	S	N	F/R
T1012	N	S	B/R
T1006	S	N	F/R
T1011	N	S	B T
T1005	S	N	F T
T1001	N	S	B T
1004	S	N	F T
1002	N	S	B T
~~1003~~ 996	S	N	F/R
T1006	N	S	B/R

SANDER GEOPHYSICS LTD. | **FLIGHT LOG** | **PROJECT: ASHTON FT MAC 1999**

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
06	12/04/99	Start	14:48	6.7	29.62	5/-6
		Finish	21:34	6.9		

General comments: 120 140 140 130 150

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	102#1441						

Line #	From	To	Comments T1042 102# 1638
COL01	E	W	F/R
T1043	S	N	F/R
COL49	E	W	F/T
T1197	S	N	F-T
T1191.1	N	S	B-T
T1196	S	N	F-T
T1198.0	N	S	B/T
T1195	S	N	F-T
T1190-1	N	S	B/R
T1042	N	S	B-R
T1036	S	N	F T
1041	N	S	B T
1035	S	N	F/R
T1040	N	S	B/R
T1034	S	N	F T
T1039	N	S	B T
1033	S	N	F/R
T1038	N	S	B R
T1032	S	N	F T
T1037	N	S	B T

T1057.0	S	N	F/R			
T1062.0	N	S	B/R			
T1058.0	S	N	F/R			
T1063.0	N	S	B/R			
T1059.0	S	N	F/R			
T1064.0	N	S	B R			
T1060.0	S	N	F/R			
T1065.0	N	S	B T			
T1061.0	S	N	F T			

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
05	10/04/99	Start				+3°C
		Finish				

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File							

General comments:

Line #	From	To	Comments
T1225	S	N	F/R
T1220	N	S	B/R
✓ T1226	S	N	F T
✓ T1221	N	S	B T
✓ T1228	S	N	F T
✓ 1222	N	S	B T
✓ 1229	S	N	F T
1223	N	S	B/R
1230	S	N	F/R
1224	N	S	B/R
1231	S	N	F/R
T1208	N	S	B/R
✓ T1202	S	W	F T
✓ T1207	N	S	B T
✓ T1201	S	N	F T
✓ 1206	N	S	B T
✓ 1200	S	N	F T
✓ 1205	N	S	B T
✓ 1199	S	N	F R
1204	N	S	B/R
T1198	S	N	F B/ R
T1203	N	S	B / R
C0199.0	W	E	B / R
T1021	N	S	B T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp	Aircraft	(BWE) CKB WZG SGX SGY SGZ SGL
05	10/04/99	Start	16:30		30.00	-1/-5	Crew	RF/TL
		Finish					Weather	VFR

General comments: 15F 90F 15 — ~~C153~~/149 (AD)

Disk #

First File

Line #	From	To	Comments
~~T1031~~ C0101	SE	NW	F ✓ R
T1044	S	N	F R
✓ C0153	E	W	F T
✓ 1240	N	S	B T
✓ 1234	S	N	F T
✓ 1239	N	S	B T
✓ 1233	S	N	F R
1227	N	S	B ✓ R
T1232	S	N	F ✓ R
T1228	N	S	B ✓ R
T1213	S	N	F ✓ R
✓ T1217	N	S	B T
✓ T1212	S	N	F T
✓ 1216	N	S	B T
✓ 1211	S	N	F T
✓ 1215	N	S	B T
✓ 1210	S	N	F T
✓ 1214	N	S	B ✓ R
1209	S	N	F ✓ R
1209	N	S	B ✓ R

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date		Hr	Min	Baro Alt	Temp
04	02/04/99	Flight Start	15:44	7.6	29.50	13/-4
		Finish	23:23	7.8		

General comments: 2501 9 / 95 m

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather							
Disk #							
First File							

Line #	From	To	Comments
T1255	N	S	B R
T1249	S	N	F R
T1254	N	S	B T
T1248	S	N	F T
1253	N	S	B T
1247	S	N	F T
1252	N	S	B R
1246	S	N	F R
T1245	N	S	B R
T1251	S	N	F R
T1244	S	N	B T
T1250	N	S	B T
1238	N	S	B T
1243	S	N	F T
1237	N	S	B R
1242	S	N	F R
T1236	N	S	B R
T1241	S	N	F R
T1235	N	S	B T
C0127	W	E	B T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
04	07/04/99	Start	15:44		29.46	4/-5
		Finish				

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR CAVOK						
Disk #							
First File	097#1538						

General comments: E 35

Line #	From	To	Comments
T1020	S	N	F / R
C0154.0	E	W	F T
T1273	~~N~~	~~S~~	B T
1269	S	N	F / RT
1272	N	S	B / R
T1268	S	N	F / R
T1271	N	S	B / R
T1267	S	N	F T 64670 HT ON
T1270	N	S	B T
T1266	S	N	F T
1260	N	S	B / R
T1265	S	N	F / R
T1259	N	S	B / R
T1264	S	N	F R
T1258	N	S	B T
T1263	S	N	F T
T1257	N	S	B T
1262	S	N	F T
1256	N	S	B / R
1261	S	N	F / R

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
23	06/04/99	Start				
P7 2		Finish				

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather							
Disk #							
First File							

General comments:

Line #	From	To	Comments
46 C0158.0	W	E	B T
48 C0157.0	E	W	F T
20 C0155.0	W	E C	B R 48 - 19
22 C0154.0	W	E	B R
22 C0153.0	E	W	F R
22 C0152.0	W	E	B T
22 C0151.0	E	W	F T
22 C0150.0	W	E	B T
22 C0149.0	E	W	F R
11 T1048.1	N	S	B R
11 T1047.1	S	N	F R
11 T1046.1	N	S	B T
11 T1045.1	S	N	F R
66 T1017	N	S	B T
C127	E	W	F T TEST LINE

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
003	06/04/99	Start	15:44		29.56	21.6
		Finish				

General comments: D 230/4 25

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TC						
Weather	VFR						
Disk #							
First File	0961538 1605						

Line #	From	To	Comments
T1019	S	N	F / R
C0156	E	W	F T
154.1	W	E	B T
153.1	E	W	F / R
C0152.1	W	E	B / R
C0151.1	E	W	F / R
C0150.1	W	E	B / R
C0149.1	E	W	F / R
C0148.1	W	E	B / R
C0147.1	E	W	F T
C0146.1	W	E	B T
C0145.1	E	W	F T
144.1	W	E	B T
143.1	E	W	F T
142.1	W	E	B T
141.1	E	W	F T
140.1	W	E	B T
1274	S	N	F T
C0160	W	E	B R
C0159	E	W	F R /

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
02	04/04/98	Start				
		Finish				

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TC						
Weather							
Disk #							
First File							

General comments:

Line #	From	To	Comments
T1046.0	S	N	F ✓ R
T1052.0	N	S	B ✓ R
T1047.0	S	N	F ✓ R
T1053.0	N	S	B ✓ R
✓ T1048.0	S	N	F T
✓ T1054.0	N	S	B T
✓ 1049	S	N	F T
✓ 1055	N	S	B T
✓ 1050	S	N	F T
✓ 1056	N	S	R T

SANDER GEOPHYSICS LTD.				FLIGHT LOG			PROJECT: ASHTON FT MAC 1999							
Flight # 002 pg 3	Date 04/04/99	Flight	Hr	Min	Baro Alt	Temp	Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
		Start					Crew	RF ITL						
		Finish					Weather							
General comments:							Disk #							
							First File							

Line #	From	To	Comments
C0118	E	W	F/R
C0117	W	E	B/R
C0116	E	W	F/R
C0115	W	E	B T
C0114	E	W	F T
113	W	E	B T
112	E	W	F T
111	W	E	B T
110	E	W	F T
C0109	W	E	B/R
C0108	E	W	F/R
C0107	W	E	B/R
C0106	E	W	F/R
C0105	W	E	B/R
C0104	E	W	F/R
C0103	W	E	B T
C0102	E	W	F T
C0101	W	E	B T
1045	S	N	F/R
1051	N	S	B/R

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
01	06/05/99	Start	19:19	3.3	30.09	10/-1
		Finish	21:34	3.5	30.04	14/-2

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	126 | 1010						

General comments: G 230/3 40F

T 250/2 60F

Line #	From	To	Comments
T1257	N	S	B/R
T1251	S	N	F/R
T1256	N	S	B. T
T1250	S	N	F T
1255	N	S	B/R
1249	S	N	F/R
1254	N	S	B/T
1248	S	N	F/T
1253	N	S	B/R
1247	S	N	F/R
1252	N	S	B T
1246	S	N	F T
1240	N	S	B/R
1245	S	N	F/R
~~1243~~ 1244			

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
CO2 PS 2	04/04/99	Start	16:04	7.2	29.88	-2/-9
		Finish	23:15	7.4	29.69	3/-5

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather							
Disk #							
First File							

General comments:
J 030/10 G16
15 30F 675 80 CNC

Line #	From	To	Comments
T1188.0	N	S	B ✓ R
T1183.0	S	N	F ✓ R
T1189.0	N	S	B ✓ R
T1184.0	S	N	F ✓ R+T
T1190.0	N	S	B T
1191	S	N	F T
1192	N	S	B T
1193	S	N	F T
C0146	W	E	B R T
C0147	E	W	F R
C0148	W	E	B ✓ R
C0127	~~E~~ W	~~W~~ E	B ✓ R TEST
C0126	E	W	F ✓ R
C0125	W	E	B T
124	E	W	F T
123	W	E	B T
122	E	W	F T
121	W	E	B T
120	E	W	F R ✓
C0119	W	E	B R ✓

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
002	04/04/99	Start	16:04		29.88	-2/-9
		Finish				

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	C948 1559						

General comments:

Line #	From	To	Comments
T1018	S	N	F R ✓
C0155	E	W	F T 0-19 FLOWN 19-48 TO FLY
1170 T1170	N	S	B T ✓
1175 T1175	S	N	F T ✓
1169 T1169	N	S	B T ✓
1176 T1176	S	N	F R ✓
T1171.0	N	S	B R ✓
T1177.0	S	N	F R ✓
T1172.0	N	S	B R ✓
T1178.0	S	N	F R ✓
T1173.0	N	S	B R ✓
✓ T1178.0	S	N	F T
✓ T1174.0	N	S	B T
✓ 1179	S	N	F T
✓ 1185	N	S	B T
✓ 1180	S	N	F T
✓ 1186	N	S	B T
✓ 1181	S	N	F R ✓
T1187.0	N	S	B R ✓
T1182.0	S	N	F R ✓

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
001	01/04/99	Start	20:26		30.07	+9°C
		Finish			29.99	+9°C

General comments: H

Aircraft: (BWE) CKB WZG SGX SGY SGZ SGL

Crew: RF TL

Weather: VFR TURBULENT

Disk #

First File: 091 0024

Line #	From	To	Comments
C140	E	W	F ✓ R
C0141	W	E	B ✓ T HEATER ON 076750 770122 ½ way
C0142	E	W	F ✓ R NO VIDEO
C0143	W	E	B ✓ R NO VIDEO
C0144	E	W	F ✓ R T video change? @ 800818 ½ way
C0145	W	E	B ✓ T
C0139	W	E	B ✓ R
C0138	E	W	F ✓ R
C0137	W	E	B ✓ R
C0136	E	W	F T
C0135	W	E	B T
C0134	E	W	F T
C0133	W	E	B ✓ R
C0132	E	W	F ✓ R
C0131	W	E	B ✓ R
C0130	E	W	F T
C0129	W	E	B T
C0128	E	W	F T
C0127	W	E	B ✓ R TEST LINE

(Gregoire Lake & Postage Stamp Blocks)

SANDER GEOPHYSICS LIMITED
260 Hunt Club Road, Ottawa, Ontario, K1V 1C1 Canada
Phone: (613) 521-9626 Fax: (613) 521-0215 E-mail: info@sgl.com Website: www.sgl.com

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
18/19	29/05/99	Start	16 09			
		Finish				

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	R.A/T.L.						
Weather	VFR						
Disk #							
First File							

General comments:

Line #	From	To	Comments
2014	W	E	F / R
✓ 2033	E	W	B T
✓ 2013	W	E	F T
✓ 2032	E	W	B T
✓ 2012	W	E	F T
✓ 2006	E	W	B T
2011	W	E	F / R
2005	E	W	B / R
2010	W	E	F / R
2004	E	W	B / R
2009	W E	E	B / R
✓ 2003	E	W	B T
✓ 2008	W E	E W	B T
✓ 2002	E	W	B T
✓ 2007	W E	E W	B T
✓ 2001	E	W	B T
C0201	S	N	F / R
C0202	N	S	B / R
C02-03	S	N	F / R
C0204	N	S	B / R
C0205	S	N	F R

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
199	20/05/99	Start	16:09			
		Finish				

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RFTC						
Weather	VOK						
Disk #							
First File							

General comments:

Line #	From	To	Comments
2024	W	E	F/R
2043	F	W	B T
2023	W	E	F T
2042	E	W	B T
2022	W	E	F T
2041	E	W	B T
2021	W	E	F/R
2040	E	W	B/R
2020	W	E	F/R
2039	E	W	B/R
2019	W	E	F/R
2038	E	W	B T
2018	W	E	F T
2037	E	W	B T
2017	W	E	F T
2036	E	W	B T
2016	W	E	F/R
2035	E	W	B/R
2015	W	E	F/R
2034	E	W	B/R

SANDER GEOPHYSICS LTD. | **FLIGHT LOG** | **PROJECT: ASHTON FT MAC 1999**

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
19	29 MAY 99	Start	1609			
		Finish				

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RP/TL						
Weather							
Disk #							
First File	149 & 1601						

General comments:

Line #	From	To	Comments
C0145	E	W	F T TEST LINE
3044	E	W	B T
3043	E	W	B T
3014	E	W	B T
3013	E	W	B T
2051	E	W	B / R
2031	W	E	F ✓ R
2050	E	W	B ✓ R
2030	W	E	F ✓ R
2049	E	W	B ✓ R
2029	W	E	F ✓ R
2048	E	W	B T
2028	W	E	F T
2047	E	W	B T
2027	W	E	F T
2046	E	W	B T
2026	W	E	F ✓ R
2045	E	W	B ✓ R
2025	W	E	F ✓ R
2044	E	W	B ✓ R

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
18	28/05/99	Start	16:15	1.4	29 71	10/6
	~~[illegible]~~	Finish	17:38	1.6	29 70	14/1

General comments: ~~F [illegible]~~ ~~30F [illegible]~~ 2 30.10 8/4

D 31615 10F 155 C50B

Aircraft	(BWE) circled	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File							

Line #	From	To	Comments
C0145	E	W	F R test line
T2001	E	W	B

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
17	27/05/99	Start	00:16		29.73	18/3
		Finish			29.70	18/4

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	148 / 0011						

General comments: N

P 020/2

Line #	From	To	Comments
3034	E	W	B/T
3035	W	E	F/T
3036	E	W	B/T
3037	E	W	B/R
3038	E	W	B/R
3039	E	W	B/R
3040	E	W	B/R
3041	E	W	B/R
3042	E	W	B/R
3043	E	W	B T
3044	E	W	B T
3045	E	W	B T
3046	E	W	B T
3047	E	W	B T
3048	E	W	B/R
3049	E	W	B/R
3050	E	W	B/R
3051	E	W	B/R
C0301	N	S	B/R
C0302	S	N	F T

✓ C0303 N S T

✓ C0304 S N T

✓ C0305 N S T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
16	27 MAY 99	Start			29.80	17/-1
		Finish				

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF / TL						
Weather							
Disk #							
First File							

General comments: 26012

G

Line #	From	To	Comments
✓ 3020	E	W	B T
3021	E	W	B ✓ R
3022	E	W	B ✓ R
3023	E	W	B ✓ R
3024	E	W	B ✓ R
3025	E	W	B ✓ R
3026	E	W	B ✓ R
✓ 3027	E	W	B T
✓ 3028	E	W	B T
✓ 3029	E	W	B T
✓ 3030	E	W	B T
✓ 3031	E	W	B T
✓ 3032	E	W	B T
3033	E	W	B ✓ R C0145 B test line
~~3034~~	~~E~~	~~W~~	~~B R~~
~~3035~~	~~E~~	~~W~~	~~B R~~
~~3036~~	~~E~~	~~W~~	~~B R~~
~~3037~~	~~E~~	~~W~~	~~B R~~
~~3038~~	~~E~~	~~W~~	~~B R~~
3039	E	W	B

SANDER GEOPHYSICS LTD. | **FLIGHT LOG** | **PROJECT: ASHTON FT MAC 1999**

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
16	27/05/99	Start	14:48	4.1	29.83	11/-4
		Finish	18:55	4.7	29.83	13/-4

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	~~1446~~ ~~1437~~						

General comments: C 250 12620 250 23018 11/-1/25

D 260 12620 250F

Line #	From	To	Comments
			149 1534
C0145	E	W	F ✓ Cal flt First File 147 1434
T3001	E	W	B / R
3002	E	W	B / R
3003	E	W	B T
3004	E	W	B T
3005	E	W	B T
3006	E	W	B T
3007	E	W	B T
3008	E	W	B T
3009	E	W	B / R
3010	E	W	B / R
3011	E	W	B / R
3012	E	W	B / R
3013	E	W	B / R
3014	E	W	B / R
3015	E	W	B T
3016	E	W	B T
3017	E	W	B T
3018	E	W	B T
3019	E	W	B T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
15	24/05/99	Start	14:41	3.7	30.02	13/6
		Finish	17:24	3.9	29.93	23/6

General comments: B 15 62B 95B 100/10

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	1443 1435						

Line #	From	To	Comments
C0145	E	W	F / R test line
T1245	N	S	B / R northern Half 6nm
1241	~~S~~ N	~~N~~ S	B / R Southern Half 12nm
1240	~~N~~ S	~~S~~ N	~~B~~ F / R " " 12nm
1221	N	S	B / R Southern Half 12nm
✓ 1220	S	N	F T " " 12nm
✓ 1219	N	S	B T " " 12nm
✓ 1218	S	N	F T " " 12nm
✓ 1215	S	N	F T Northern Half 13nm.
1206	N	S	B / R
1201	S	N	F / R
1188	N	S	B / R
✓ 1187	S	N	F T
✓ 1170	N	S	B T
✓ 1150	S	N	F T
1074	N	S	B / R
1058	S	N	F / R Southern half
1080	S	N	F / R Northern half
1039	N	S	B / T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
14	23/05/99	Start	22:39	4.1	30.01	20/1
		Finish	02:47	4.3	30.07	19/3

Aircraft	BWE CKB WZG SGX SGY SGZ SGL
Crew	RF/TL
Weather	VFR
Disk #	
First File	143 2230

General comments: J 260/10

N 79

Line #	From	To	Comments
C0145	W	E	B / R test line
1198	N	S	B / R
1204	S	N	F / R
✓ 1199	N	S	B T
✓ 1205	S	N	F T
1208	N	S	B / R
1206	S	N	F / R
✓ 1201	N	S	B T
✓ 1207	S	N	F T
1203	N	S	B / R
1209	S	N	F / R
✓ 1215	N	S	B T
✓ 1210	S	N	F T
1216	N	S	B / R
1211	S	N	F / R
✓ 1217	N	S	B T
✓ 1212	S	N	F T
1213	S	N	B / R
1222	N	S	B / R

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
13	22/05/99	Start	14:51		29.98	11/7
		Finish			29.92	19/0

Aircraft	(BWE) circled	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	142 $1709 (2:30)						

General comments: C 180/2
H 050/10G16 47B 250B

Line #	From	To	Comments
C0145	W	E	B T ✓ test line
1020	N	S	B ✓ R
✓ 1014	S	N	F ✓ R
✓ 1019	N	S	B T
✓ 1013	S	N	F T
1007	N	S	B ✓ R
1012	S	N	F ✓ R
✓ 1006	N	S	B T
✓ 1011	S	N	F T
1005	N	S	B ✓ R
1010	S	N	F ✓ R
✓ 1004	N	S	B T
✓ 1009	S	N	F T
1003	N	S	B ✓ R
✓ 1008	S	N	F R
✓ 1002	N	S	B T
✓ 1001	S	N	F T
5098	S	N	F R
[illegible] (struck out)	N	S	B

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
12	21/05/99	Start	14:40		30.02	9
		Finish				

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TY						
Weather	VFR						
Disk #							
First File	141433.						

General comments:

Line #	From	To	Comments
✓ 1017	S	N	F T
✓ 1022	N	S	B T
1016	S	N	F/R
1021	N	S	B/R
✓ 1015	S	N	F T
~~1020~~	N	B	B
~~1014~~	S	B	F

SANDER GEOPHYSICS LTD. | **FLIGHT LOG** | **PROJECT: ASHTON FT MAC 1999**

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
12	21/05/99	Start	14:40		3002	+09
		Finish				

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	1418 1433						

General comments:

Line #	From	To	Comments
C0145	E	W	F T TEST LINE
✓ 1044	N	S	B T
1038	S	N	F/R
1043	N	S	B/R
✓ 1037	S	N	F T
✓ 1042	N	S	B T TAPE CHANGE
1036	S	N	F/R
1030	N	S	B/R
✓ 1035	S	N	F T
✓ 1029	N	S	B T
1034	S	N	F/R
1028	N	S	B/R
✓ 1033	S	N	F T TAPE CHANGE
✓ 1027	N	S	B T
1032	S	N	F/R
1026	N	S	B/R
✓ 1031	S	N	F T
✓ 1025	N	S	B T
1018	S	N	F/R TAPE CHANGE
1023	N	S	F/R " "

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
11 Pg 2	20 MAY/99	Start	15 00	7.5	30.10	7/2
		Finish	22:30	7.7		

General comments:

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather							
Disk #							
First File							

Line #	From	To	Comments
1055	S	N	F/R
1049	N	S	B/R
✓ 1054	S	N	F T
✓ 1048	N	S	B T
1053	S	N	F/R TAPE CHANGE
1047	N	S	B/R
✓ 1041	S	N	F T
✓ 1046	N	S	B T
1040	S	N	F R
✓ 1045	N	S	B R
✓ 1039	S	N	F T

SANDER GEOPHYSICS LTD. | **FLIGHT LOG** | **PROJECT: ASHTON FT MAC 1999**

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
11	20/05/99	Start	15:00		30.10	7/2
		Finish				

General comments: C

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	140 & 1451						

Line #	From	To	Comments
C0145	W	E	B T TEST LINE
1218	N	S	B T
1164	S	N	F T
1160	N	S	B T
1163	S	N	F T
1159	N	S	B T
1162	S	N	F R
1158	N	S	B R
1161	S	N	F R
1066	N	S	B R
1060	S	N	F T
1065	N	S	B T TAPE CHANGE
1059	S	N	F R
1064	N	S	B R
1058	S	N	F T
1052	N	S	B T
1057	S	N	F R
1051	N	S	B R
1056	S	N	F T TAPE CHANGE
1050	N	S	B T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
10 pg2	19/05/99	Start	17:08	6.9	30.00	7/3
		Finish	00:20	7.1	30.02	11/3

General comments: L 12015 34B 07

Aircraft	(BWE) CKB WZG SGX SGY SGZ SGL
Crew	RF/TL
Weather	VFR
Disk #	
First File	139 $1700

	Line #	From	To	Comments
✓	1076	S	N	F T
✓	1070	N	S	B T
	1075	S	N	F R
	1069	N	S	B R
✓	1063	S	N	F T
✓	1068	N	S	B T
	1062	S	N	P R
	1067	N	S	B R
✓	1061	S	N	P T

SANDER GEOPHYSICS LTD.	FLIGHT LOG	PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
10	19/05/99	Start	17:08		30.00	7/3
		Finish				

Aircraft	BWE (circled)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	139 $ 1700						

General comments: E 090/4 18 ψ

Line #	From	To	Comments
C0145	E	W	BF/R test line
~~1172~~ 1219	N	S	B/R
1172	S	N	F/R
1167	N	S	B/R
1171	S	N	F/R
✓ 1166	N	S	B T
✓ 1170	S	N	F T
✓ 1165	N	S	B T
✓ 1169	S	N	F T
✓ 1087	N	S	B T
1081	S	N	F/R
1086	N	S	B/R
✓ 1080	S	N	F T
✓ 1074	N	S	B T
1079	S	N	F/R
1073	N	S	B R
✓ 1078	S	N	F T
✓ 1072	N	S	B T
1077	S	N	F/R
1071	N	S	B/R

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
9B	17 MAY/99	Start	15:25	7.2		
		Finish	22:40	7.4		

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RE TL						
Weather	VFR						
Disk #							
First File	1057 1443						

General comments:

Line #	From	To	Comments
1100	S	N	F / R
1094	N	S	B / R
1099	S	N	F T
1093	N	S	B T
1098	S	N	F / R
1092	N	S	B / R
1097	S	N	F T
1091	N	S	B T
1085	S	N	F / R
1090	N	S	B / R
1088	S	N	F T
1089	N	S	B T
1083	S	N	F / R
1088	N	S	B / R
1082	S	N	F T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
09 A&B	17/05/99	Start	1449	0.3	30.09	1/-1
		Finish	15:07	0.5		

General comments: 0 020/4 15 90F 250F 15:25

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TC						
Weather	VFR						
Disk #							
First File	137 & 1443						

Line #	From	To	Comments
C0145	E	W	F R test line FLT 9A
T1177	N	S	B R Towers 0540 70 FLT 9B
T1184	S	N	F T
1178	N	S	B T
1183	S	N	F T
1177	N	S	B T
1182	S	N	F T
1176	N	S	B R
1181	S	N	F R
1175	N	S	B R
1180	S	N	F R
1174	N	S	B R
1179	S	N	F R
1173	N	S	B T
1168	S	N	F T
1108	N	S	B T
1102	S	N	B R
1096	N	S	B R
1101	S	N	F T
1095	N	S	B T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
08	16/05/99	Start	19:27	6.1	30.07	5/0
		Finish		6.3		

General comments: H 270/3 80ft QB

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	136 $ 2004 (53 min)						

Line #	From	To	Comments
✓ 1131	N	S	B T
✓ 1125	S	N	F T
1130	N	S	B/R
1124	S	N	F/R
✓ 1117	N	S	B T
✓ 1123	S	N	F T
1118	N	S	B R
1122	S	N	F R
✓ 1116	N	S	B T
✓ 1120	S	N	F T
1114	N	S	B R
1119	S	N	F R
✓ 1113	N	S	B T
✓ 1107	S	N	F T
1112	N	S	B R
1106	S	N	F R
✓ 1111	N	S	B T
✓ 1105	S	N	F T
1110	N	S	B R
1104	S	N	F R

✓ 1109 N S B

✓ 1103 S N F

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
07	16/05/99	Start	14:48	1.2	30 05	3/0
		Finish	15 58	1.4		

General comments: 32017 12B 730

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File							

Line #	From	To	Comments
C0145	W	E	B / R Test line
~~1115~~ 1119	N	S	B / R
1121	S	N	F / R
~~1132~~			
1120			

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
06	14/05/99	Start	14:45	2.9	29.95	4/2
		Finish		2.7	29.91	10/5

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	134 \$1437						

General comments: E F 270/2 15

Line #	From	To	Comments
C0145	W	E	B TEST LINE
T1195	N	S	B T
1189	S	N	F T
1194	N	S	B T
1188	S	N	F/R
1193	N	S	B/R
1187	S	N	F/R
1192	N	S	B/R
1186	S	N	F/R
1191	N	S	B/R
1185	S	N	F T
1190	N	S	B T
1196	S	N	F T
1202	N	S	B T
1208	S	N	F/R
1214	N	S	B/R
1220	S	N	F/R

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp	Aircraft	BWE (circled)	CKB	WZG	SGX	SGY	SGZ	SGL
05 pg 2	11/15/99	Start	14:44	7.0	30.17	5/-2	Crew	RF/RL						
		Finish	21:45	7.2	30.01	13/-5	Weather	VFR						

General comments: [illegible]

Disk #

First File 13161438

	Line #	From	To	Comments
✓	1143	S	N	F T
	1137	N	S	B/R
	1142	S	N	F/R
✓	1136	N	S	B T
✓	1141	S	N	F/T
	1135	N	S	B/R
	1129	S	N	F/R
✓	1134	N	S	B T
✓	1128	S	N	F T
	1133	N	S	B/R
	1127	S	N	F/R
✓	1132	N	S	B T
✓	1126	S	N	F T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
05	11/05/99	Start	14:44		30.17	5/-2
		Finish				

General comments: C 80B 120B 250C

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	131\1438						

Line #	From	To	Comments
C0145	E	W	F R ✓ Test line
T1221	N	S	B R ✓
C0132	W	E	B R ✓
T ~~1155~~ 1157	N	S	B R ✓
✓ T 1151	S	N	F T
✓ T1156	N	S	B T
✓ 1150	S	N	F T
✓ 1155	N	S	B T
✓ 1149	S	N	F T
1154	N	S	B ✓R
1148	S	N	F ✓R
1153	N	S	B ✓R
1147	S	N	F ✓R
1152	N	S	B ✓R
✓ 1146	S	N	F T
✓ 1140	N	S	B T
✓ 1145	S	N	F T
1139	N	S	B ✓R 131\1716 (Lost RAM) reboot
1144	S	N	F ✓R
✓ 1138	N	S	B T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
04	10/05/99	Start	14:41		30:31	4/-5
pg 2		Finish				

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RS / TL						
Weather	VFR						
Disk #							
First File	150 \$ 1433						

General comments:

Line #	From	To	Comments
C0105	W	E	B/R
✓ C0104	E	W	F T
✓ C0103	W	E	B T
✓ C0102	E	W	F T
C0101	W	E	B/R
T1024	S	N	F/R

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
04	10/05/99	Start	14:41		30.71	41-5
		Finish		7.7		

General comments: C 0901.2

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TC						
Weather	VFR						
Disk #							
First File	130 @ 1433						

Line #	From	To	Comments
C0145	E	W	F TEST
✓ T122	N	S	B T
✓ C123	W	E	B ✓ T/R
122	E	W	F R ✓
✓ C0121	W	E	B T
✓ C0120	E	W	F T
C0119	W	E	B/R
C0118	E	W	F R
C0117	W	E	B/R
✓ C0116	E	W	F T
✓ C0115	W	E	B T
✓ C0114	E	W	F T
✓ C0113	W	E	B ✓ R
C0112	E	W	F/R
C0111	W	E	B ✓ R
✓ C0110	E	W	F T
✓ C0109	W	E	B T
✓ C0108	E	W	F T
C0107	W	W	B ✓ R
C0106	F	E	F ✓ R

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
03 Pg 2	09/05/99	Start	14:50	5.6	30.16	4/0
		Finish	20:27	5.8		

Aircraft	(BWE)	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	1298 1443						

General comments:

Line #	From	To	Comments
C024	E	W	F R/T
✓1223	S	N	F ✓T

SANDER GEOPHYSICS LTD.

FLIGHT LOG

PROJECT: ASHTON FT MAC 1999

Flight #	Date	Flight	Hr	Min	Baro Alt	Temp
03	09/05/99	Start	14:50		30.16	4/0
		Finish				

General comments: B 130/4 CAVOK

Aircraft	BWE	CKB	WZG	SGX	SGY	SGZ	SGL
Crew	RF/TL						
Weather	VFR						
Disk #							
First File	129 \$ 143						

Line #	From	To	Comments
C0145	E	W	B F / R
C0144	E W	E	B / R
C0143	E	W	F F / R
C0142	W	E	B / R
C0141	E	W	F / R
C0140	W	E	B T
C0139	E	W	F T
138	W	E	B T
137	E	W	F T
136	W	E	B T
135	E	W	F / R
134	W	E	B / R
C0133	E	W	F / R
C0132	W	E	B / R
C0130	E	W	F T
C0129	W	E	B T
C0128	E	W	F / R
C0127	W	E	B R/T
C0126	E	W	F T
125	W	E	B / R

Athabasca Property, Alberta
Sample Description Table

Sample No	Type	Easting	Northing	Zone	Date	Topography
AL07-0008	Glacio-Fluvial	516504	6307335	12	11-Jul-98	flat
AL07-0010	Glacio-Fluvial	531010	6424865	12	13-Jul-98	top of linear mound
AL07-0013	Glacio-Fluvial	547974	6411988	12	13-Jul-98	on top of hill
AL07-0014	Glacio-Fluvial	547613	6397094	12	13-Jul-98	on top of esker
AL07-0016	Glacio-Fluvial	547149	6319183	12	13-Jul-98	on top of small hill
AL07-0019	Till	383594	6400053	12	14-Jul-98	top of linear ridge
AL07-0020	Glacio-Fluvial	545887	6421522	12	15-Jul-98	hilly
AL07-0021	Esker	555078	6419032	12	15-Jul-98	rolling to hilly
AL07-0023	Glacio-Fluvial	543982	6418797	12	15-Jul-98	flat to rolling
AL07-0025	Glacio-Fluvial	542265	6411998	12	15-Jul-98	flat with local hills
AL07-0026	Glacio-Fluvial	549550	6409250	12	15-Jul-98	gently rolling
AL07-0029	Glacio-Fluvial	554303	6403447	12	16-Jul-98	gently rolling to hilly
AL07-0033	Glacio-Fluvial	522375	6402148	12	16-Jul-98	hilly
AL07-0034	Glacio-Fluvial	527722	6397835	12	16-Jul-98	hilly
AL07-0036	Esker	531804	6390189	12	17-Jul-98	top of esker
AL07-0037	Glacio-Fluvial	535709	6386031	12	17-Jul-98	hilly
AL07-0038	Glacio-Fluvial	540730	6391727	12	17-Jul-98	flat to gently rolling
AL07-0039	Glacio-Fluvial	546405	6391916	12	17-Jul-98	flat to gently rolling
AL07-0040	Glacio-Fluvial	547749	6390990	12	17-Jul-98	hilly
AL07-0046	Glacio-Fluvial	551888	6375180	12	18-Jul-98	hilly
AL07-0049	Glacio-Fluvial	544411	6370526	12	18-Jul-98	hilly
AL07-0051	Glacio-Fluvial	545550	6377250	12	18-Jul-98	hilly
AL07-0052	Glacio-Fluvial	540250	6381375	12	18-Jul-98	hilly
AL07-0053	Esker	548331	6362990	12	19-Jul-98	gently rolling
AL07-0055	Glacio-Fluvial	557063	6352039	12	19-Jul-98	rolling
AL07-0056	Glacio-Fluvial	555125	6344810	12	19-Jul-98	hilly
AL07-0057	Glacio-Fluvial	553745	6340488	12	19-Jul-98	hilly to undulating
AL07-0058	Glacio-Fluvial	551419	6335221	12	19-Jul-98	undulating to rolling
AL07-0059	Glacio-Fluvial	548017	6327497	12	19-Jul-98	undulating to rolling
AL07-0062	Glacio-Fluvial	530500	6359650	12	21-Jul-98	undulating
AL07-0068	Glacio-Fluvial	525187	6333590	12	21-Jul-98	gently undulating
AL07-0070	Glacio-Fluvial	544582	6325653	12	22-Jul-98	undulating
AL07-0071	Glacio-Fluvial	549219	6316452	12	22-Jul-98	undulating to hilly
AL07-0074	Glacio-Fluvial	558750	6303700	12	22-Jul-98	undulating
AL07-0079	Till	557179	6258610	12	23-Jul-98	flat to gently rolling
AL07-0080	Glacio-Fluvial	554117	6243418	12	23-Jul-98	flat to gently rolling
AL07-0082	Till	440696	6226552	12	24-Jul-98	flat
AL07-0096	Till	525143	6211149	12	25-Jul-98	gentle hills
AL07-0097	Till	527380	6229090	12	25-Jul-98	gentle hills
AL07-0098	Till	524979	6233849	12	25-Jul-98	gentle hills
AL07-0103	Till	392748	6229416	12	13-Jul-98	flat
AL07-0104	Till	370088	6197420	12	13-Jul-98	flat
AL07-0107	Glacio-Fluvial	531143	6200835	12	14-Jul-98	gentle hills

Sample No	Type	Easting	Northing	Zone	Date	Topography
AL07-0109	Glacio-Fluvial	545075	6209935	12	14-Jul-98	relatively flat
AL07-0120	Till	416191	6421027	12	16-Jul-98	relatively flat
AL07-0121	Till	396429	6426276	12	16-Jul-98	gentle hills
AL07-0123	Till	392022	6401700	12	16-Jul-98	gentle rolling hills
AL07-0124	Till	366071	6414162	12	16-Jul-98	gentle rolling hills
AL07-0125	Till	412972	6352675	12	17-Jul-98	relatively flat
AL07-0131	Till	415766	6314575	12	18-Jul-98	low and boggy
AL07-0137	Till	442065	6294006	12	19-Jul-98	low hills
AL07-0139	Glacio-Fluvial	431511	6274149	12	19-Jul-98	gentle hills
AL07-0145	Glacio-Fluvial	454964	6257225	12	21-Jul-98	low hills
AL07-0151	Till	374849	6256367	12	22-Jul-98	gently rolling
AL07-0154	Glacio-Fluvial	386234	6275678	12	22-Jul-98	low hills
AL07-0161	Till	351334	6203472	12	23-Jul-98	small hills
AL07-0172	Till	423779	6240498	12	25-Jul-98	gentle hills
AL07-0174	Glacio-Fluvial	426000	6188000	12	26-Jul-98	gently rolling
AL07-0177	Till	419697	6200468	12	27-Jul-98	low hills
AL07-0178	Till	451321	6220215	12	27-Jul-98	low hills
AL07-0179	Till	465330	6214190	12	27-Jul-98	low hills
AL07-0185	Till	502725	6208723	12	28-Jul-98	gently rolling
AL07-0187	Till	450670	6294290	12	29-Jul-98	relatively flat
AL07-0188	Till	444272	6244596	12	29-Jul-98	rolling hills
AL07-0189	Till	460949	6239870	12	29-Jul-98	rolling hills
AL07-0190	Till	454870	6228950	12	29-Jul-98	rolling hills
AL07-0196	Till	395250	6197450	12	08-Jun-99	steep river bank
AL07-0197	Till	400150	6203290	12	08-Jun-99	flat
AL07-0198	Till	483376	6248348	12	09-Jun-99	on top of ridge, hummocky
AL07-0199	Till	486650	6247700	12	09-Jun-99	near top of gentle hill, hummocky
AL07-0200	Till	461579	6238366	12	09-Jun-99	flat
AL07-0207	Till	440207	6187461	12	27-Jul-98	flat to undulating
AL07-0208	Till	452238	6189087	12	27-Jul-98	relatively flat
AL07-0213	Till	546247	6229716	12	28-Jul-98	gentle hills
AL07-0214	Glacio-Fluvial	553300	6227630	12	28-Jul-98	gently rolling
AL07-0217	Till	493178	6194800	12	28-Jul-98	gently rolling
AL07-0218	Till	489025	6291947	12	29-Jul-98	undulating
AL07-0219	Till	559446	6292219	12	29-Jul-98	undulating
AL07-0220	Till	549725	6240455	12	29-Jul-98	rolling
AL07-0221	Till	505221	6231661	12	29-Jul-98	rolling
AL07-0222	Till	464707	6244732	12	09-Jun-99	flat to gently rolling
AL07-0223	Till	474868	6234550	12	10-Jun-99	flat w small hummocks
AL07-0224	Till	472890	6235750	12	10-Jun-99	flat w small hummocks
AL07-0227	Till	471365	6237445	12	10-Jun-99	gently rolling to hummocky
AL07-0228	Till	465800	6236117	12	10-Jun-99	flat w gentle hummocks
AL07-0229	Till	469175	6234500	12	10-Jun-99	gently rolling
AL07-0230	Till	454970	6239495	12	11-Jun-99	hummocky
AL07-0231	Till	454970	6239505	12	11-Jun-99	hummocky
AL07-0232	Till	457767	6239822	12	11-Jun-99	gently rolling hummocky
AL07-0233	Till	391753	6245750	12	14-Jun-99	flat but sample on dry high pt w tall vegetation

Sample No	Type	Easting	Northing	Zone	Date	Topography
AL07-0234	Till	393224	6240878	12	14-Jun-99	flat but sample on dry high pt w mature large trees
AL07-0235	Glacio-Fluvial	388262	6239074	12	14-Jun-99	flat, small elev ridge, possible esker
AL07-0236	Glacio-Fluvial	395975	6237869	12	14-Jun-99	flat
AL07-0237	Glacio-Fluvial	404625	6242008	12	14-Jun-99	flat
AL07-0238	Till	510966	6209639	12	15-Jun-99	flat - gently rolling
AL07-0239	Till	488896	6245416	12	16-Jun-99	flat - gently rolling
AL07-0240	Glacio-Fluvial	509303	6207494	12	16-Jun-99	felt - gently rolling
AL07-0242	Till	479290	6230424	12	15-Jun-99	hummocky, sampled on large hummocky
AL07-0244	Till	492299	6240230	12	15-Jun-99	rolling
AL07-0245	Till	477219	6247137	12	16-Jun-99	flat to gently rolling
AL07-0246	Till	487700	6235362	12	15-Jun-99	gently rolling
AL07-0248	Till	482263	6238043	12	15-Jun-99	mod rolling
AL07-0250	Till	479528	6241750	12	15-Jun-99	flat
AL07-0252	Till	474436	6242369	12	15-Jun-99	flat - gently rolling
AL07-0253	Till	472040	6244460	12	16-Jun-99	mod rolling - up on hill above swampy area
AL07-0260	Till	460380	6233825	12	15-Jun-99	rolling
AL07-0262	Till	481510	6258750	12	15-Jun-99	flat
AL07-0263	Till	477320	6252857	12	16-Jun-99	gently incline slope towards creek
AL07-0267	Till	508110	6211860	12	18-Jun-99	rolling
AL07-0268	Till	363092	6256222	12	18-Jun-99	flat, sampled on very slight high point with large trees.
AL07-0269	Till	507080	6206440	12	18-Jun-99	Rolling
AL07-0272	Glacio-Fluvial	375420	6233781	12	18-Jun-99	Flat, (sample taken on ridge-esker)
AL07-0274	Till	376117	6249562	12	18-Jun-99	flat
AL07-0275	Till	487250	6254146	12	21-Jun-99	flat to gently hummocky
AL07-0276	Till	393100	6236777	12	19-Jun-99	
AL07-0281	Till	442277	6257243	12	19-Jun-99	flat
AL07-0282	Till	445838	6259276	12	19-Jun-99	flat
AL07-0284	Glacio-Fluvial	552755	6410059	12	20-Jun-99	moderately rolling hills
AL07-0285	Glacio-Fluvial	549224	6410457	12	20-Jun-99	moderately rolling
AL07-0286	Glacio-Fluvial	554633	6411470	12	20-Jun-99	near high point of gentle slope
AL07-0287	Glacio-Fluvial	553941	6412304	12	20-Jun-99	moderately rolling
AL07-0288	Glacio-Fluvial	553568	6417043	12	20-Jun-99	near top of moderate, gentle hill
AL07-0289	Glacio-Fluvial	553559	6415392	12	20-Jun-99	rolling hills
AL07-0290	Glacio-Fluvial	550411	6415901	12	20-Jun-99	ridged gravels rolling - hummocky with large hills - possible end moraine ridge where sampled
AL07-0292	Glacio-Fluvial	553172	6419421	12	20-Jun-99	flat hill top
AL07-0293	Glacio-Fluvial	549336	6417136	12	20-Jun-99	ridged, end moraines?
AL07-0294	Till	360387	6250907	12	21-Jun-99	flat
AL07-0295	Till	358446	6253955	12	21-Jun-99	flat
AL07-0296	Till	364079	6255553	12	21-Jun-99	flat
AL07-0297	Till	376835	6248052	12	21-Jun-99	flat
AL07-0299	Till	445177	6256806	12	21-Jun-99	flat
AL07-0300	Till	442981	6260263	12	21-Jun-99	flat
AL07-0301	Till	480685	6252625	12	22-Jun-99	hilly
AL07-0302	Till	447248	6260143	12	22-Jun-99	flat to gently hummock, sampled on higher ground with alder

Sample No	Type	Easting	Northing	Zone	Date	Topography
AL07-0303	Till	482660	6249920	12	22-Jun-99	hilly
AL07-0312	Till	400374	6205335	12	24-Jun-99	flat
AL07-0314	Till	391473	6199330	12	24-Jun-99	flat - small group of poplar in swamp
AL07-0315	Till	397146	6195990	12	24-Jun-99	Gently hummocky
AL07-0316	Till	392362	6196594	12	24-Jun-99	flat
AL07-0317	Till	401200	6191250	12	24-Jun-99	flat with very slight high point
AL07-0318	Till	393531	6198408	12	24-Jun-99	flat
AL07-0319	Till	408965	6185456	12	25-Jun-99	Gentle topo high in flat area
AL07-0320	Till	394951	6201835	12	24-Jun-99	flat
AL07-0321	Till	414386	6191247	12	25-Jun-99	flat
AL07-0322	Till	415766	6189987	12	25-Jun-99	flat
AL07-0323	Till	416110	6185225	12	25-Jun-99	gentle knob within muskeg and flat swamp load
AL07-0324	Till	410615	6182293	12	25-Jun-99	flat
AL07-0326	Till	405940	6202257	12	25-Jun-99	flat
AL07-0327	Till	392100	6203300	12	25-Jun-99	flat with very gentle high point
AL07-0328	Till	400364	6206137	12	25-Jun-99	flat
AL07-0330	Till	395500	6204400	12	25-Jun-99	flat with slight hummocky high point
AL07-0335	Till	389950	6216050	12	25-Jun-99	flat
AL07-0336	Till	391525	6235152	12	25-Jun-99	flat
AL07-0337	Till	395734	6235007	12	25-Jun-99	flat
AL07-0338	Till	394527	6239196	12	25-Jun-99	flat
AL07-0339	Till	412810	6242082	12	25-Jun-99	flat
AL07-0340	Till	418047	6367039	12	27-Jun-99	flat
AL07-0342	Till	418268	6364901	12	26-Jun-99	slightly rolling
AL07-0343	Till	410700	6390574	12	26-Jun-99	rolling
AL07-0344	Glacio-Fluvial	413364	6392180	12	27-Jun-99	ridge in flat area likely an esker
AL07-0345	Till	415256	6389095	12	26-Jun-99	rolling
AL07-0346	Till	397204	6415856	12	27-Jun-99	flat to very gently rolling
AL07-0348	Till	398654	6415121	12	26-Jun-99	slightly rolling
AL07-0351	Till	342986	6166290	12	13-Sep-99	Rolling - ridged topography
AL07-0352	Till	345210	6165406	12	13-Sep-99	hilly sample taken on south western side of peak on east\west siesmis amongst in cut bank
AL07-0353	Till	347448	6165200	11	12-Sep-99	rolling terrain on south east side of hill
AL07-0354	Till	349843	6165617	12	13-Sep-99	elevated ridge, hilly south east side of hill, sample taken on cut block
AL07-0355	Till	348724	6166461	11	12-Sep-99	rolling terrain with mature pine, aspen and spruce

Total # of Samples 168

Athabasca Property, Alberta
Sample Results Table

Sample number	Total Diamonds	Total Peridotic Pyrope	Total Eclogitic Pyrope	Total Chrome Diopside	Total Chromite	Total Picro-ilmenite	Total Kimberlitic Olivine	Total Indicator Minerals
AL07-0008	0	0	0	0	0	0	0	0
AL07-0010	0	0	0	0	0	0	0	0
AL07-0013	0	0	0	0	0	0	1	1
AL07-0014	0	0	0	0	0	0	0	0
AL07-0016	0	0	0	0	0	0	0	0
AL07-0019	0	0	0	0	0	0	0	0
AL07-0020	0	0	0	0	0	0	0	0
AL07-0021	0	0	0	0	0	0	0	0
AL07-0023	0	0	0	0	0	0	0	0
AL07-0025	0	0	0	0	0	0	0	0
AL07-0026	0	0	0	0	0	0	0	0
AL07-0029	0	0	0	0	0	0	0	0
AL07-0033	0	0	0	0	0	0	0	0
AL07-0034	0	0	0	0	0	0	0	0
AL07-0036	0	0	0	0	0	0	0	0
AL07-0037	0	0	0	0	1	1	0	2
AL07-0038	0	0	0	0	0	0	0	0
AL07-0039	0	0	1	0	0	0	0	1
AL07-0040	0	0	0	0	0	0	0	0
AL07-0046	0	0	0	0	1	0	0	1
AL07-0049	0	0	0	0	0	0	0	0
AL07-0051	0	0	0	0	1	0	0	1
AL07-0052	0	0	0	0	0	0	0	0
AL07-0053	0	0	0	0	1	0	1	2
AL07-0055	0	0	0	0	0	0	0	0
AL07-0056	0	0	0	1	0	0	0	1
AL07-0057	0	0	0	0	0	0	6	6
AL07-0058	0	0	0	0	0	0	0	0
AL07-0059	0	0	0	0	0	0	0	0
AL07-0062	0	0	0	0	0	0	0	0
AL07-0068	0	0	0	0	0	0	2	2
AL07-0070	0	0	1	0	0	0	0	1
AL07-0071	0	0	0	0	0	0	0	0
AL07-0074	0	0	0	0	0	0	0	0
AL07-0079	0	0	0	0	1	0	0	1
AL07-0080	0	0	0	0	0	0	0	0
AL07-0082	0	0	0	0	0	0	0	0
AL07-0096	0	0	0	0	0	0	0	0
AL07-0097	0	0	0	0	0	0	0	0
AL07-0098	0	0	0	0	0	0	0	0
AL07-0103	0	0	0	0	0	0	0	0
AL07-0104	0	0	0	0	2	0	1	3

Sample number	Total Diamonds	Total Peridotic Pyrope	Total Eclogitic Pyrope	Total Chrome Diopside	Total Chromite	Total Picro-ilmenite	Total Kimberlitic Olivine	Total Indicator Minerals
AL07-0107	0	1	0	0	0	0	0	1
AL07-0109	0	0	0	0	0	1	0	1
AL07-0120	0	0	0	0	0	0	0	0
AL07-0121	0	0	0	0	0	0	0	0
AL07-0123	0	0	0	0	0	0	0	0
AL07-0124	0	0	0	0	0	0	0	0
AL07-0125	0	0	0	0	1	0	0	1
AL07-0131	0	0	0	0	0	0	1	1
AL07-0137	0	0	0	0	0	0	0	0
AL07-0139	0	1	0	0	0	0	0	1
AL07-0145	0	0	0	0	0	0	0	0
AL07-0151	0	0	0	0	0	0	2	2
AL07-0154	0	0	0	0	0	0	1	1
AL07-0161	0	0	0	0	0	0	0	0
AL07-0172	0	0	0	0	0	0	0	0
AL07-0174	0	0	0	1	0	0	0	1
AL07-0177	0	0	0	0	1	0	0	1
AL07-0178	0	0	0	0	0	1	0	1
AL07-0179	0	0	0	0	0	0	0	0
AL07-0185	0	0	0	0	1	0	0	1
AL07-0187	0	0	0	0	0	0	0	0
AL07-0188	0	0	0	0	0	0	0	0
AL07-0189	0	0	0	0	0	1	0	1
AL07-0190	0	0	0	0	0	1	1	2
AL07-0196	0	0	0	0	0	0	0	0
AL07-0197	0	0	1	0	0	0	0	1
AL07-0198	0	0	0	0	1	0	0	1
AL07-0199	0	0	0	0	0	0	0	0
AL07-0200	0	0	0	0	1	0	0	1
AL07-0207	0	0	0	0	0	0	1	1
AL07-0208	0	0	0	0	0	0	0	0
AL07-0213	0	0	0	0	0	0	0	0
AL07-0214	0	0	0	0	0	1	0	1
AL07-0217	0	0	0	0	0	0	0	0
AL07-0218	0	0	0	0	0	0	0	0
AL07-0219	0	0	0	1	0	0	0	1
AL07-0220	0	0	0	0	0	0	0	0
AL07-0221	0	0	0	0	0	0	0	0
AL07-0222	0	0	0	0	0	0	0	0
AL07-0223	0	0	0	0	1	1	0	2
AL07-0224	0	1	0	0	0	0	0	1
AL07-0227	0	0	0	0	1	0	0	1
AL07-0228	0	0	0	0	0	0	0	0
AL07-0229	0	0	0	0	0	0	0	0
AL07-0230	0	0	0	0	0	0	0	0
AL07-0231	0	0	0	0	0	0	0	0
AL07-0232	0	0	0	0	0	0	3	3

Sample number	Total Diamonds	Total Peridotic Pyrope	Total Eclogitic Pyrope	Total Chrome Diopside	Total Chromite	Total Picro-ilmenite	Total Kimberlitic Olivine	Total Indicator Minerals
AL07-0233	0	0	0	0	0	0	1	1
AL07-0234	0	0	0	0	0	0	0	0
AL07-0235	0	0	0	0	0	0	0	0
AL07-0236	0	0	0	0	0	0	0	0
AL07-0237	0	0	0	0	0	0	0	0
AL07-0238	0	0	0	0	0	0	0	0
AL07-0239	0	1	0	0	0	0	0	1
AL07-0240	0	0	0	0	0	0	0	0
AL07-0242	0	0	0	0	0	0	0	0
AL07-0244	0	1	0	0	1	0	0	2
AL07-0245	0	0	0	0	0	0	0	0
AL07-0246	0	0	0	0	0	0	1	1
AL07-0248	0	1	0	0	0	0	0	1
AL07-0250	0	0	0	0	0	0	0	0
AL07-0252	0	0	0	0	0	0	0	0
AL07-0253	0	0	0	0	0	0	0	0
AL07-0260	0	0	0	0	0	0	0	0
AL07-0262	0	0	0	0	0	0	0	0
AL07-0263	0	0	0	0	0	0	0	0
AL07-0267	0	0	0	0	0	0	0	0
AL07-0268	0	0	0	0	0	0	0	0
AL07-0269	0	0	0	0	0	0	0	0
AL07-0272	0	0	0	0	1	0	0	1
AL07-0274	0	0	0	0	0	0	1	1
AL07-0275	0	0	0	0	0	0	0	0
AL07-0276	0	0	0	0	0	0	0	0
AL07-0281	0	0	0	0	0	0	0	0
AL07-0282	0	0	0	0	0	0	0	0
AL07-0284	0	0	0	0	0	0	0	0
AL07-0285	0	0	0	0	0	0	0	0
AL07-0286	0	0	0	0	1	0	0	1
AL07-0287	0	0	0	0	0	0	0	0
AL07-0288	0	0	0	0	0	0	0	0
AL07-0289	0	0	0	0	0	0	0	0
AL07-0290	0	0	0	0	0	0	0	0
AL07-0292	0	0	0	1	0	0	0	1
AL07-0293	0	0	0	0	0	0	0	0
AL07-0294	0	0	0	0	0	0	0	0
AL07-0295	0	0	0	0	0	0	0	0
AL07-0296	0	0	0	0	0	0	0	0
AL07-0297	0	0	0	0	0	1	0	1
AL07-0299	0	0	0	0	0	0	0	0
AL07-0300	0	0	0	0	0	0	0	0
AL07-0301	0	0	0	0	0	1	0	1
AL07-0302	0	0	0	0	0	0	0	0
AL07-0303	0	0	0	1	3	0	0	4
AL07-0312	0	0	0	0	0	0	0	0

Sample number	Total Diamonds	Total Peridotic Pyrope	Total Eclogitic Pyrope	Total Chrome Diopside	Total Chromite	Total Picro-ilmenite	Total Kimberlitic Olivine	Total Indicator Minerals
AL07-0314	0	0	0	0	0	0	1	1
AL07-0315	0	0	0	0	0	0	0	0
AL07-0316	0	0	0	2	0	0	1	3
AL07-0317	0	0	0	0	0	0	0	0
AL07-0318	0	0	0	0	0	0	0	0
AL07-0319	0	1	0	0	0	1	0	2
AL07-0320	0	0	0	0	0	0	0	0
AL07-0321	0	0	0	0	0	0	0	0
AL07-0322	0	0	0	0	0	0	1	1
AL07-0323	0	0	0	0	0	0	0	0
AL07-0324	0	0	0	0	0	0	0	0
AL07-0326	0	0	0	0	0	0	0	0
AL07-0327	0	0	0	0	0	0	1	1
AL07-0328	0	0	0	0	0	0	3	3
AL07-0330	0	0	0	0	0	0	0	0
AL07-0335	0	0	0	0	0	0	0	0
AL07-0336	0	0	0	0	0	0	0	0
AL07-0337	0	0	0	0	0	0	0	0
AL07-0338	0	0	0	0	0	0	0	0
AL07-0339	0	0	0	0	0	0	0	0
AL07-0340	0	0	0	0	0	0	0	0
AL07-0342	0	0	0	0	0	1	1	2
AL07-0343	0	0	0	0	0	1	0	1
AL07-0344	0	0	0	0	0	1	0	1
AL07-0345	0	0	0	0	0	0	0	0
AL07-0346	0	0	0	0	0	0	0	0
AL07-0348	0	0	0	0	0	0	0	0
AL07-0351	0	1	0	0	0	0	0	1
AL07-0352	0	0	0	0	0	0	0	0
AL07-0353	0	0	0	0	0	0	0	0
AL07-0354	0	0	1	1	1	0	0	3
AL07-0355	0	0	0	0	0	0	0	0

Total # of Samples 168

Lesser Slave Property, Alberta
Sample Description Table

Sample No	Type	Easting	Northing	Zone	Date	Topography
AL08-0002	Till	638785	6159420	11	05-May-98	hummocky
AL08-0006	Till	537310	6165930	11	08-May-98	flat, regional plateau
AL08-0007	Till	594947	6033936	11	09-May-98	rolling to hummocky
AL08-0010	Pre-Glacial	583950	5988340	11	10-May-98	hilltop
AL08-0017	Till	657760	6053150	11	20-May-98	flat
AL08-0040	Till	592715	6061280	11	28-May-98	rolling to hummocky
AL08-0041	Till	593680	6063300	11	28-May-98	rolling to dissected
AL08-0043	Pre-Glacial	604250	6067425	11	28-May-98	flat
AL08-0057	Till	595035	6010080	11	03-Jun-98	rolling
AL08-0058	Till	590475	6015650	11	03-Jun-98	rolling to hummocky
AL08-0062	Till	608950	6066375	11	08-Jun-98	flat to rolling
AL08-0063	Till	614300	6063550	11	08-Jun-98	rolling to hummocky
AL08-0064	Till	615115	6070700	11	08-Jun-98	rolling to hummocky
AL08-0065	Till	638750	6042725	11	09-Jun-98	rolling to hummocky
AL08-0066	Till	622240	6053723	11	09-Jun-98	rolling to hummocky
AL08-0067	Till	611452	6059147	11	10-Jun-98	rolling to hummocky
AL08-0068	Till	613400	6061200	11	10-Jun-98	rolling to hummocky
AL08-0073	Till	585227	6181156	11	13-Jun-98	hummocky
AL08-0075	Till	669822	6161114	11	14-Jun-98	gently rolling
AL08-0088	Till	639257	6108703	11	20-Jun-98	gently rolling
AL08-0100	Till	618383	6109563	11	07-Jul-98	rolling to hilly
AL08-0113	Till	548645	6018575	11	26-May-98	rolling to hummocky
AL08-0125	Till	539730	6018850	11	04-Jun-98	low hills
AL08-0126	Till	539480	6026800	11	04-Jun-98	low hills
AL08-0129	Till	652962	6016717	11	05-Jun-98	low hills
AL08-0130	Till	669510	6030050	11	05-Jun-98	low hills
AL08-0131	Till	680670	6017170	11	05-Jun-98	low hills
AL08-0132	Till	522660	6053495	11	08-Jun-98	flat
AL08-0133	Till	526560	6059950	11	08-Jun-98	gentle hills
AL08-0134	Glacio-Fluvial	521025	6056900	11	08-Jun-98	gentle hills
AL08-0135	Till	536725	6034275	11	09-Jun-98	low hills
AL08-0136	Till	542100	6037275	11	09-Jun-98	gentle hills
AL08-0137	Till	547600	6041940	11	09-Jun-98	low hills dotted with swa
AL08-0138	Till	542309	6051816	11	10-Jun-98	gentle hills
AL08-0139	Glacio-Fluvial	559940	6040520	11	10-Jun-98	hilly
AL08-0150	Till	567790	6121300	11	15-Jun-98	flat
AL08-0151	Pre-Glacial	574960	6131200	11	16-Jun-98	flat
AL08-0153	Till	568500	6115450	11	16-Jun-98	flat
AL08-0170	Till	614330	6110725	11	07-Jul-98	gently rolling hills
AL08-0173	Till	485731	6046699	11	15-Sep-98	relatively flat
AL08-0175	Till	483879	6045721	11	16-Sep-98	undulating to hummocky
AL08-0176	Till	474676	6055747	11	16-Sep-98	gently rolling

Sample No	Type	Easting	Northing	Zone	Date	Topography
AL08-0177	Till	473694	6058786	11	16-Sep-98	undulating to hummocky
AL08-0178	Till	469706	6062340	11	16-Sep-98	relatively flat
AL08-0186	Till	527410	6026100	11	19-May-99	Hummocky terrain, sample obtained along edge of river cut
AL08-0187	Till	527410	6026100	11	19-May-99	Hummocky terrain, sample taken in incised river cut-bank
AL08-0189	Till	527330	6026650	11	19-May-99	Top of small ridge
AL08-0190	Till	526720	6022900	11	19-May-99	V. gentle ridge, near high point of area
AL08-0191	Till	587294	6010790	11	20-May-99	Hummocky, sample obtained on edge of small ridge at depth of 1-1.5m
AL08-0192	Till	527650	6030400	11	21-May-99	Mod. Flat with gentle hummocks
AL08-0193	Till	531150	6032500	11	21-May-99	Near Top of gentle ridge, hummocky terrain
AL08-0194	Till	501200	6039925	11	21-May-99	Sample taken at 1.5m depth in hand dug pit next to road decent (basal?) till obtained
AL08-0195	Till	530210	6018350	11	22-May-99	Gently rolling sampled a small (2m) ridge (hummock), that tends 60
AL08-0196	Till	521820	6025495	11	22-May-99	Rolling terrain w/hummocks. Sample obtained on top of small ridge
AL08-0197	Till	517775	6028650	11	22-May-99	Del. Flat, near Top of gentle ridge
AL08-0198	Till	529370	6007525	11	22-May-99	Gently rolling, near top of hill
AL08-0199	Till	532370	6022580	11	22-May-99	Top of small hill, gently rolling
AL08-0200	Till	533250	6021750	11	22-May-99	Gently rolling
AL08-0202	Till	689540	6093255	11	04-Jun-98	flat
AL08-0203	Glacio-Fluvial	689540	6093255	11	04-Jun-98	flat
AL08-0204	Till	611120	6133299	11	10-Jun-98	rolling hills
AL08-0205	Till	671950	6154450	11	13-Jun-98	rolling hills
AL08-0207	Till	632215	6158800	11	13-Jun-98	gently rolling
AL08-0208	Till	676150	6179150	11	18-Jun-98	gently rolling
AL08-0213	Till	524365	6123700	11	19-Jun-98	flat
AL08-0216	Till	512747	6081575	11	21-Jun-98	very gentle rolling hills
AL08-0217	Till	511188	6100636	11	21-Jun-98	gently rolling hills
AL08-0221	Till	508095	6133520	11	22-Jun-98	relatively flat
AL08-0223	Till	539005	6126175	11	23-Jun-98	North sloping surface on large hill
AL08-0224	Till	535720	6123550	11	23-Jun-98	top of gentle regional hi
AL08-0231	Till	589245	6183257	11		Top of small ridge
AL08-0233	Till	592141	6182947	11		Top of Small Hill
AL08-0237	Till	589352	6169817	11		Flat and Swampy
AL08-0240	Till	599477	6063498	11		Top of Hill
AL08-0241	Till	601521	6063497	11		Small Valley
AL08-0242	Till	604334	6063892	11		Top of Hill
AL08-0243	Till	606688	6063145	11		Top of Hill
AL08-0245	Till	606869	6059285	11		Small Hills
AL08-0246	Till	606806	6058532	11		Gentle Hills
AL08-0247	Till	609694	6060000	11		Small Hills
AL08-0248	Till	608320	6062000	11		Gentle Hills
AL08-0250	Till	613898	6018165	11		Gentle Hills
AL08-0251	Till	615520	6020365	11		Gentle Hills

Sample No	Type	Easting	Northing	Zone	Date	Topography
AL08-0252	Till	621076	6024738	11		Gentle Hills
AL08-0253	Till	624534	6026207	11		Gentle Hills
AL08-0254	Till	628750	6026650	11		Gentle to rolling hills
AL08-0256	Till	580644	6039064	11	10-May-98	Hmckylg,hmcks(500mdiam)
AL08-0257	Till	634546	6095442	11	10-May-98	hummocky, North-S drainage apx200mW
AL08-0259	Till	641330	6046400	11	23-May-99	Steeply rolling, hummocky terrain
AL08-0260	Till	638600	6046930	11	23-May-99	Sampled 2-3 m ridge (esker like), in Flat area with outcrop, small hummocks
AL08-0261	Till	638750	6042724	11	23-May-99	Steeply rolling ridges
AL08-0262	Till	640450	6043200	11	23-May-99	Gently rolling, near top of moderate incline
AL08-0263	Till	642800	6044500	11	23-May-99	Gently rolling
AL08-0267	Till	584325	6021020	11	24-May-99	Near top of gentle hill
AL08-0268	Till	580800	6022000	11	24-May-99	Rolling , near top of hill
AL08-0269	Till	590675	6060120	11	25-May-99	Rolling, near top of steep ridge
AL08-0270	Till	592810	6057110	11	25-May-99	Rolling, hummocky
AL08-0271	Till	586700	6055200	11	25-May-99	Rolling - Hummocky
AL08-0272	Till	590090	6056650	11	25-May-99	Broad, gently rolling
AL08-0274	Till	482350	6071450	11	25-May-99	very gently rolling
AL08-0275	Till	481300	6068260	11	26-May-99	Gently rolling
AL08-0276	Till	478700	6068930	11	26-May-99	very gently rolling
AL08-0277	Till	484200	6068500	11	26-May-99	Flat to gently rolling
AL08-0278	Till	487010	6094800	11	26-May-99	Sampled at 1.8m along a road-cut Silty till west? very few clasts is possibly lake sediments derived till, or v soft card rich bedrock derived till
AL08-0279	Till	486560	6103850	11	26-May-99	Gently rolling ,near top of v gentle hill
AL08-0282	Till	519440	6117775	11	26-May-99	Gently rolling
AL08-0283	Till	486050	6116800	11	27-May-99	Mod flat with gentle hummocks Sampled
AL08-0284	Till	522200	6072150	11	27-May-99	mod flat with gentle hummocks
AL08-0285	Till	511430	6074750	11	27-May-99	Mod Flat
AL08-0286	Till	516770	6077520	11	27-May-99	mod flat, near top of gentle hill
AL08-0287	Till	520150	6082675	11	27-May-99	sampled in hand-dug pit 0,8-1,0m at same location as geophysical anomaly L5191. Likely an old oil site as ground is disturbed by heavy equipment. Good till
AL08-0288	Till	521140	6081500	11	27-May-99	Rolling, near top of small hill
AL08-0290	Till	520358	6080552	11	27-May-99	Rolling topography, on slight hill up out of fluvial flood plain
AL08-0291	Till	518960	6080450	11	27-May-99	Gently rolling
AL08-0293	Till	615100	6100090	11	29-May-99	Rolling terrain
AL08-0295	Till	614221	6099698	11	29-May-99	rolling, on slight slope (5 towards s)
AL08-0296	Till	614175	6100950	11	29-May-99	Rolling
AL08-0297	Till	559171	6158939	11	30-May-99	mod flat (very, very gentle slope)
AL08-0298	Till	560225	6160100	11	30-May-99	mod-flat to v, gently rolling
AL08-0299	Till	562388	6156785	11	30-May-99	mod flat w/gentle hummocky
AL08-0300	Till	535182	6111229	11	30-May-99	rolling/gently sloping
AL08-0301	Till	537590	6110400	11	30-May-99	gentle incline facing n
AL08-0302	Till	563200	6096000	11	01-Jun-99	flat to gentle hummocky

Sample No	Type	Easting	Northing	Zone	Date	Topography
AL08-0303	Till	561721	6096332	11	01-Jun-99	Flat to v gently hummocky numerous swamps
AL08-0304	Pre-Glacial	629748	6111249	11	01-Jun-99	Flank of ridge, leading to plateau, (hear bottom of flank close to stream)
AL08-0305	Pre-Glacial	529525	6112175	11	01-Jun-99	Broad depressed drainage, ridge and plateau's, stepped topography
AL08-0306	Till	633425	6094800	11	01-Jun-99	Hummocky - rolling
AL08-0307	Till	671597	6062269	11	01-Jun-99	raised plateau - flat lying with very gentle hummocks
AL08-0308	Till	660725	6064575	11	01-Jun-99	moderate, flat very gentle slope <2%, toward south
AL08-0309	Till	587763	6057575	11	01-Jun-99	rolling - hummocky
AL08-0312	Till	651626	6017327	11	02-Jun-99	Gently rolling
AL08-0313	Till	651375	6016100	11	02-Jun-99	gently rolling with hummocks
AL08-0314	Till	641090	6002425	11	02-Jun-99	flat with gentle hummocks
AL08-0315	Pre-Glacial	591079	6089178	11	03-Jun-99	steep rolling hills, sampled on a 15° slope towards the north (340°)
AL08-0318	Pre-Glacial	591956	6077467	11	03-Jun-99	steep rolling hills
AL08-0319	Till	598100	6042650	11	04-Jun-99	hilly
AL08-0320	Till	600010	6043675	11	04-Jun-99	hilly
AL08-0321	Till	600710	6044575	11	04-Jun-99	hilly

Total # of Samples 138

Lesser Slave Property, Alberta
Sample Results Table

Sample number	Total Diamonds	Total Peridotic Pyrope	Total Eclogitic Pyrope	Total Chrome Diopside	Total Chromite	Total Picro-ilmenite	Total Kimberlitic Olivine	Total Indicator Minerals
AL08-0002	0	0	0	0	0	0	4	4
AL08-0006	0	0	0	0	0	0	7	7
AL08-0007	0	0	3	0	0	1	3	7
AL08-0010	0	0	0	0	0	0	0	0
AL08-0017	0	0	0	0	0	0	0	0
AL08-0040	0	0	0	0	0	0	3	3
AL08-0041	0	0	0	0	0	0	4	4
AL08-0043	0	0	0	0	0	0	2	2
AL08-0057	0	0	0	0	0	0	0	0
AL08-0058	0	0	0	0	0	0	0	0
AL08-0062	0	0	0	0	0	0	0	0
AL08-0063	0	0	0	0	0	0	3	3
AL08-0064	0	0	0	0	0	0	0	0
AL08-0065	0	0	0	0	12	0	0	12
AL08-0066	0	0	0	0	0	0	0	0
AL08-0067	0	0	0	0	0	0	0	0
AL08-0068	0	0	0	0	0	0	0	0
AL08-0073	0	0	0	0	0	0	1	1
AL08-0075	0	0	0	0	0	0	5	5
AL08-0088	0	0	0	0	0	0	2	2
AL08-0100	0	0	0	0	0	0	0	0
AL08-0113	0	0	0	0	0	0	1	1
AL08-0125	0	0	0	0	0	0	0	0
AL08-0126	0	0	0	0	0	0	0	0
AL08-0129	0	0	0	0	1	0	2	3
AL08-0130	0	0	0	0	0	0	2	2
AL08-0131	0	0	0	0	0	0	0	0
AL08-0132	0	0	0	0	0	1	1	2
AL08-0133	0	0	0	0	1	0	2	3
AL08-0134	0	0	0	0	0	0	0	0
AL08-0135	0	0	0	0	0	0	1	1
AL08-0136	0	0	0	0	0	0	0	0
AL08-0137	0	0	0	0	0	0	2	2
AL08-0138	0	0	0	0	0	0	0	0
AL08-0139	0	0	0	0	0	0	0	0
AL08-0150	0	0	0	0	0	0	4	4
AL08-0151	0	0	0	0	0	0	2	2
AL08-0153	0	0	0	0	0	0	17	17
AL08-0170	0	0	0	0	0	0	0	0
AL08-0173	0	0	0	0	0	0	0	0
AL08-0175	0	0	0	0	0	0	0	0
AL08-0176	0	0	0	0	0	0	1	1

Sample number	Total Diamonds	Total Peridotic Pyrope	Total Eclogitic Pyrope	Total Chrome Diopside	Total Chromite	Total Picro-ilmenite	Total Kimberlitic Olivine	Total Indicator Minerals
AL08-0177	0	0	0	0	0	0	0	0
AL08-0178	0	0	0	0	0	0	0	0
AL08-0186	0	0	2	0	1	0	1	4
AL08-0187	0	0	0	0	0	0	0	0
AL08-0189	0	0	0	0	1	0	1	2
AL08-0190	0	0	0	0	0	0	3	3
AL08-0191	0	0	0	0	0	0	0	0
AL08-0192	0	0	0	0	0	0	1	1
AL08-0193	0	0	0	0	0	2	1	3
AL08-0194	0	0	0	0	0	0	0	0
AL08-0195	0	0	0	0	0	0	3	3
AL08-0196	0	0	0	0	0	0	0	0
AL08-0197	0	0	0	0	0	0	0	0
AL08-0198	0	0	0	0	0	0	0	0
AL08-0199	0	0	0	0	0	0	0	0
AL08-0200	0	0	0	0	0	0	1	1
AL08-0202	0	0	0	0	0	0	0	0
AL08-0203	0	0	0	0	0	0	1	1
AL08-0204	0	1	0	0	0	0	3	4
AL08-0205	0	0	0	0	0	0	0	0
AL08-0207	0	0	0	0	0	0	2	2
AL08-0208	0	0	0	0	0	0	0	0
AL08-0213	0	0	0	0	0	0	3	3
AL08-0216	0	0	0	0	0	0	0	0
AL08-0217	0	0	0	0	0	0	3	3
AL08-0221	0	1	0	0	0	0	1	2
AL08-0223	0	0	0	0	1	0	21	22
AL08-0224	0	0	0	0	0	0	5	5
AL08-0231	0	0	0	1	0	1	0	2
AL08-0233	0	0	0	0	0	0	0	0
AL08-0237	0	0	0	0	0	0	1	1
AL08-0240	0	0	0	0	0	0	1	1
AL08-0241	0	0	0	0	0	0	0	0
AL08-0242	0	0	0	0	0	0	2	2
AL08-0243	0	0	0	0	0	0	0	0
AL08-0245	0	0	0	0	0	0	2	2
AL08-0246	0	0	0	0	0	0	2	2
AL08-0247	0	0	0	0	0	0	0	0
AL08-0248	0	0	0	0	0	0	0	0
AL08-0250	0	0	0	0	0	0	0	0
AL08-0251	0	0	0	0	0	0	0	0
AL08-0252	0	0	0	0	0	0	0	0
AL08-0253	0	0	0	0	0	0	0	0
AL08-0254	0	0	0	0	0	0	1	1
AL08-0256	0	0	0	0	0	0	0	0
AL08-0257	0	0	0	0	0	0	0	0
AL08-0259	0	1	0	1	0	0	0	2

Sample number	Total Diamonds	Total Peridotic Pyrope	Total Eclogitic Pyrope	Total Chrome Diopside	Total Chromite	Total Picro-ilmenite	Total Kimberlitic Olivine	Total Indicator Minerals
AL08-0260	0	0	0	0	2	0	3	5
AL08-0261	0	0	0	0	0	0	1	1
AL08-0262	0	0	0	0	0	0	0	0
AL08-0263	0	0	0	0	0	0	0	0
AL08-0267	0	0	0	0	0	0	3	3
AL08-0268	0	0	0	0	0	0	0	0
AL08-0269	0	0	0	0	0	0	0	0
AL08-0270	0	0	0	0	0	0	0	0
AL08-0271	0	0	0	0	1	0	0	1
AL08-0272	0	0	0	0	0	0	1	1
AL08-0274	0	0	0	0	0	0	1	1
AL08-0275	0	0	0	0	0	0	0	0
AL08-0276	0	0	0	0	0	0	0	0
AL08-0277	0	0	0	0	1	0	0	1
AL08-0278	0	0	0	0	0	0	0	0
AL08-0279	0	0	0	0	0	0	2	2
AL08-0282	0	1	0	0	0	0	1	2
AL08-0283	0	0	0	0	0	0	7	7
AL08-0284	0	0	0	0	1	0	0	1
AL08-0285	0	0	0	0	0	0	0	0
AL08-0286	0	0	0	0	0	0	0	0
AL08-0287	0	0	0	0	0	0	1	1
AL08-0288	0	0	0	0	0	0	1	1
AL08-0290	0	0	2	0	0	0	0	2
AL08-0291	0	0	0	0	0	0	0	0
AL08-0293	0	0	0	0	0	0	1	1
AL08-0295	0	0	0	0	0	0	0	0
AL08-0296	0	0	0	0	0	0	0	0
AL08-0297	0	0	0	0	0	0	7	7
AL08-0298	0	0	0	0	0	0	0	0
AL08-0299	0	0	0	0	0	0	0	0
AL08-0300	0	0	0	0	0	0	2	2
AL08-0301	0	0	0	0	0	0	5	5
AL08-0302	0	0	0	0	0	0	1	1
AL08-0303	0	0	0	0	0	0	0	0
AL08-0304	0	0	0	0	0	0	0	0
AL08-0305	0	0	0	0	0	0	2	2
AL08-0306	0	0	0	0	0	0	7	7
AL08-0307	0	0	0	0	0	1	0	1
AL08-0308	0	0	0	0	0	0	1	1
AL08-0309	0	0	0	0	1	0	0	1
AL08-0312	0	0	0	0	0	0	0	0
AL08-0313	0	0	0	0	0	0	1	1
AL08-0314	0	0	0	0	0	0	1	1
AL08-0315	0	0	0	0	1	0	0	1
AL08-0318	0	0	0	0	0	0	0	0
AL08-0319	0	0	0	0	0	0	0	0

Sample number	Total Diamonds	Total Peridotic Pyrope	Total Eclogitic Pyrope	Total Chrome Diopside	Total Chromite	Total Picro-ilmenite	Total Kimberlitic Olivine	Total Indicator Minerals
AL08-0320	0	0	1	0	1	0	14	16
AL08-0321	0	0	0	0	0	0	0	0

Total # of Samples 138

Whitemud Hills Property, Alberta
Sample Description Table

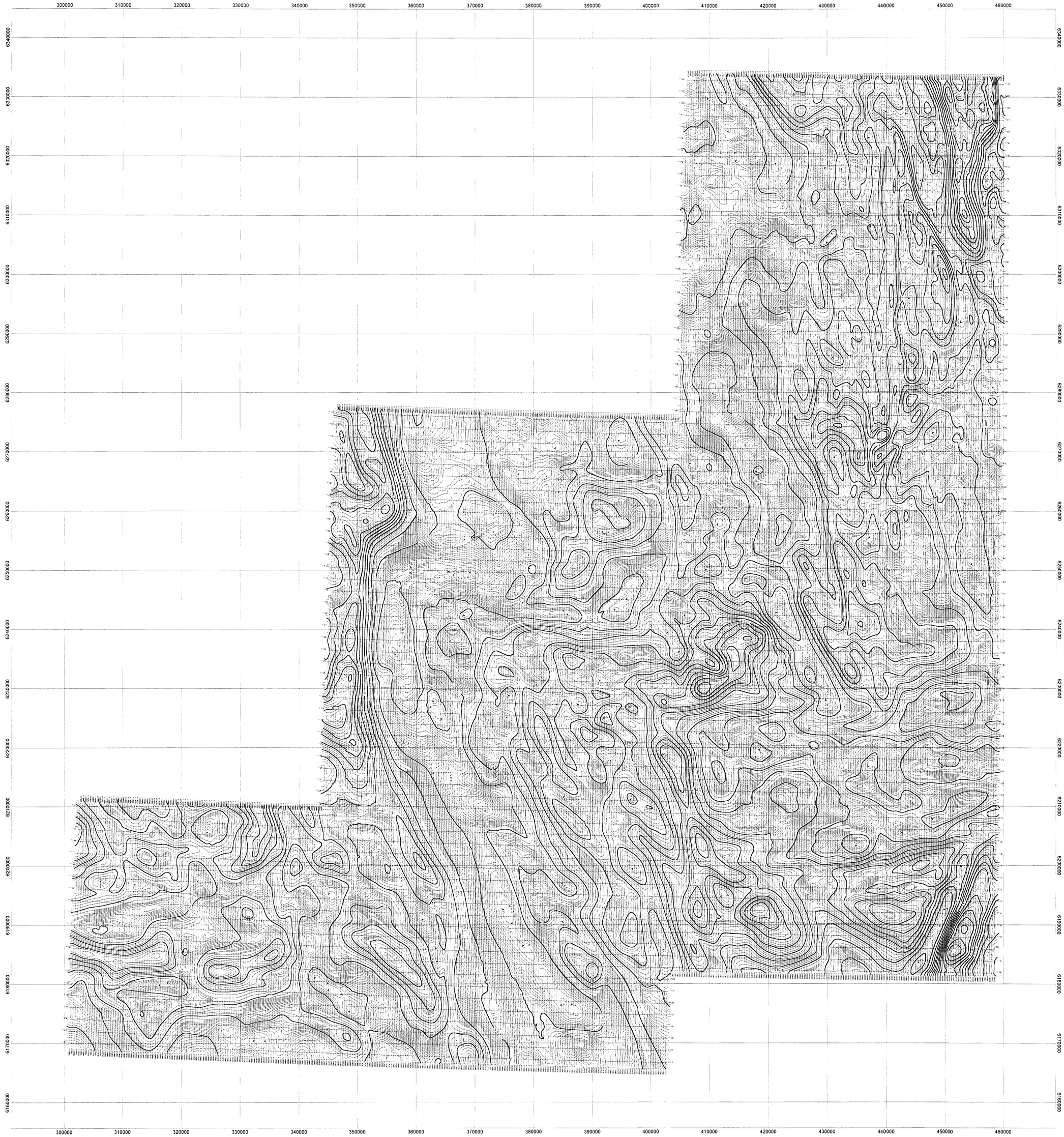
Sample No	Type	Easting	Northing	Zone	Date	Topography
AL09-0002	Till	447568	6049439	11	17-Sep-98	HILLY
AL09-0004	Till	420640	6072375	11	18-Sep-98	Gently rolling
AL09-0009	Glacio-Fluvial	400330	6061013	11	19-Sep-98	Reltvly flat
AL09-0018	Till	354980	6121450	11	22-Sep-98	Local hill top
AL09-0019	Till	361450	6122100	11	22-Sep-98	Gentle hill
AL09-0020	Till	360600	6117670	11	22-Sep-98	Gentle hill
AL09-0021	Till	413905	6135400	11	22-Sep-98	Gently rolling
AL09-0022	Till	413750	6124145	11	22-Sep-98	Gentle rolling hills
AL09-0023	Till	413860	6130630	11	21-Sep-98	Gently rolling
AL09-0026	Till	389453	6150275	11	23-Sep-98	Reltvly flat
AL09-0027	Till	379690	6153330	11	23-Sep-98	Rollg to hilly
AL09-0028	Till	363550	6157700	11	23-Sep-98	Hilly
AL09-0038	Till	449550	6217488	11	28-Sep-98	Flat
AL09-0039	Till	449638	6221856	11	28-Sep-98	Flat
AL09-0040	Till	443096	6220781	11	28-Sep-98	Ol(hue5Y4/3)sndy,slty lmT
AL09-0041	Till	432975	6215073	11	28-Sep-98	Rel flat
AL09-0042	Till	422242	6248186	11	28-Sep-98	Gentle hills
AL09-0043	Till	425975	6238890	11	28-Sep-98	Rel flat
AL09-0044	Till	433130	6229275	11	28-Sep-98	Rel flat
AL09-0045	Till	425074	6221049	11	28-Sep-98	Flat
AL09-0046	Till	418300	6214850	11	28-Sep-98	Flat
AL09-0047	Till	447450	6272110	11	29-Sep-98	Rel flat
AL09-0048	Till	439933	6278250	11	29-Sep-98	Gently rolling
AL09-0049	Till	436553	6280232	11	29-Sep-98	Gently rolling
AL09-0050	Till	435695	6272675	11	29-Sep-98	Rel flat to gent rolling
AL09-0051	Till	444166	6272077	11	30-Sep-98	Rel flat
AL09-0053	Till	452360	6269400	11	30-Sep-98	Reltvly flat
AL09-0054	Till	457250	6269075	11	30-Sep-98	Reltvly flat
AL09-0055	Till	460470	6267684	11	30-Sep-98	Flat
AL09-0056	Till	457717	6274531	11	30-Sep-98	Rel flat w/ loc knolls

Total # of Samples 30

Whitemud Hills Property, Alberta
Sample Results Table

Sample number	Total Diamonds	Total Peridotic Pyrope	Total Eclogitic Pyrope	Total Chrome Diopside	Total Chromite	Total Picro-ilmenite	Total Kimberlitic Olivine	Total Indicator Minerals
AL09-0002	0	0	0	0	0	0	0	0
AL09-0004	0	0	0	0	4	0	4	8
AL09-0009	0	0	0	0	0	0	0	0
AL09-0018	0	0	0	0	0	0	1	1
AL09-0019	0	0	0	0	1	0	0	1
AL09-0020	0	0	0	0	0	0	0	0
AL09-0021	0	0	0	1	0	0	2	3
AL09-0022	0	0	0	0	1	0	1	2
AL09-0023	0	0	0	0	0	0	5	5
AL09-0026	0	0	0	0	0	0	0	0
AL09-0027	0	0	0	0	0	0	0	0
AL09-0028	0	0	0	0	0	0	4	4
AL09-0038	0	0	0	0	2	0	0	2
AL09-0039	0	0	0	0	0	0	0	0
AL09-0040	0	0	0	1	0	0	0	1
AL09-0041	0	2	0	1	0	0	2	5
AL09-0042	0	0	0	0	0	0	1	1
AL09-0043	0	0	0	0	0	0	0	0
AL09-0044	0	0	0	0	1	0	0	1
AL09-0045	0	0	1	0	0	0	4	5
AL09-0046	0	0	0	0	0	0	6	6
AL09-0047	0	0	0	0	0	0	0	0
AL09-0048	0	0	0	0	0	0	0	0
AL09-0049	0	0	0	0	0	0	0	0
AL09-0050	0	1	0	0	1	0	5	7
AL09-0051	0	0	0	0	1	0	3	4
AL09-0053	0	0	0	0	0	0	3	3
AL09-0054	0	0	0	0	0	0	2	2
AL09-0055	0	0	0	0	0	1	3	4
AL09-0056	0	0	0	0	0	0	5	5

Total # of Samples 30



Legend

Survey Specifications:

Aircraft Altitude: 120m AGL
Primary Line Spacing: 400m
Primary Line Direction: South-North
Control Line Spacing: 2000m
Control Line Direction: East-West
Datum: NAD-27-CAN
UTM Zone: 12N

Equipment:

Magnetometer Sensors: Geomatics G 822A/
Scintrex CS-2 Cesium Vapour
Magnetometer Sensitivity: 0.01nT
Aircraft Positioning: Differential GPS
GPS Reciever: NovAtel 3951R, 12 channel
Aircraft: Cessna 402, C-GCKB;
BN2 Islander, C-GSGX

Grid Cell Size: 100m
Contour Intervals: 5, 25, 100nT

Scale 1:250000

5000 0 5000 10000 15000
metre

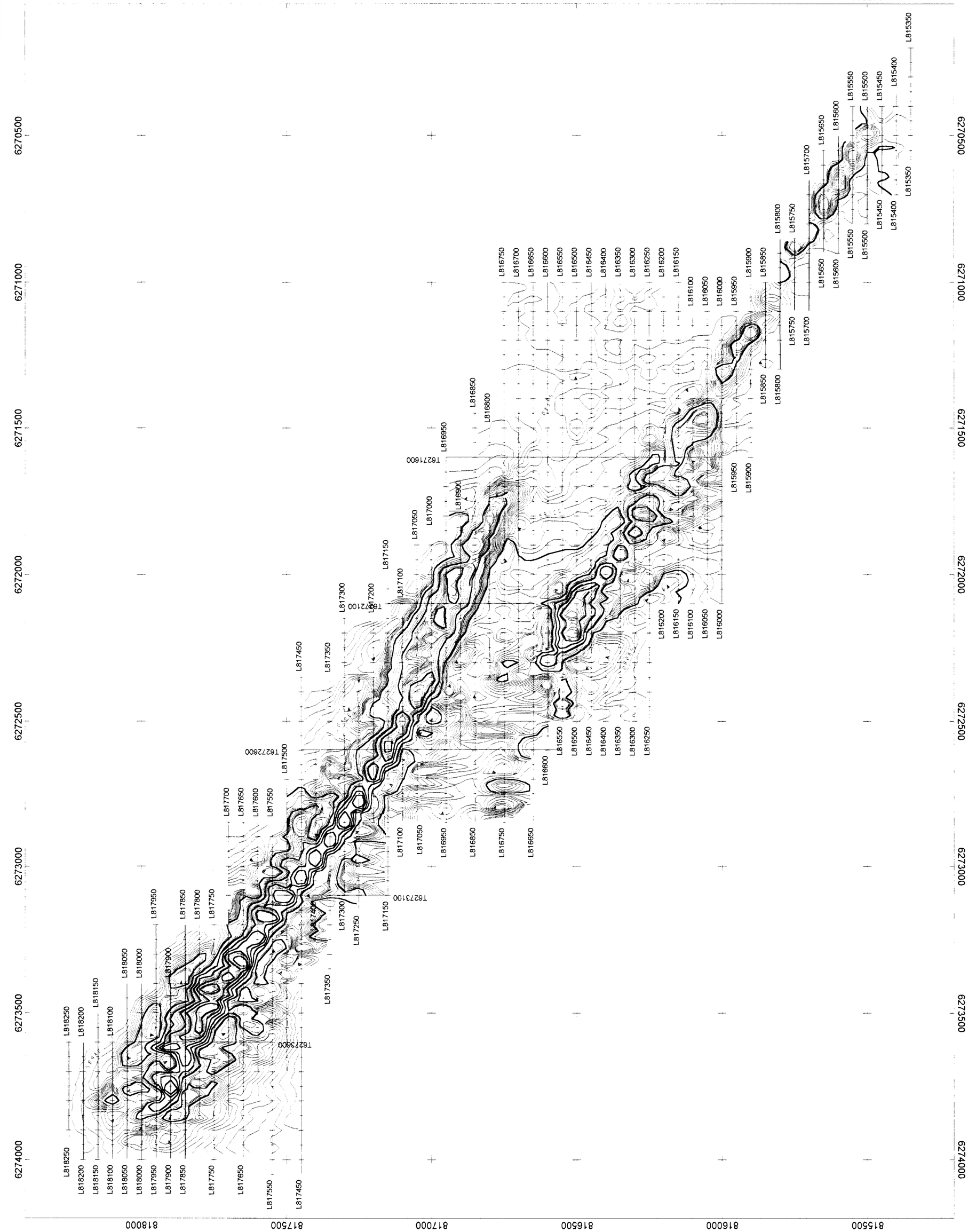
ASHTON MINING OF CANADA INC.

Athabasca Property, Alberta
AB Block
Fixed-Wing Airborne Magnetic Survey

Total Field Contours

2000002

Data is stored in
\Geophysics\Athabasca\Ground\AB31-32-33



Map Plotted: 3 June 1999

Scale 1:10000

100 0 100 200 300 400 500 600 700
metres

Ashton Mining of Canada Inc.

Detailed Ground Magnetic Survey
Athabasca - Anomaly 31-32-33
Total Field Contours

Non-Linear(2x2),Low Pass(10pt)

Inclination 78 degrees
Declination 22 degrees

Legend

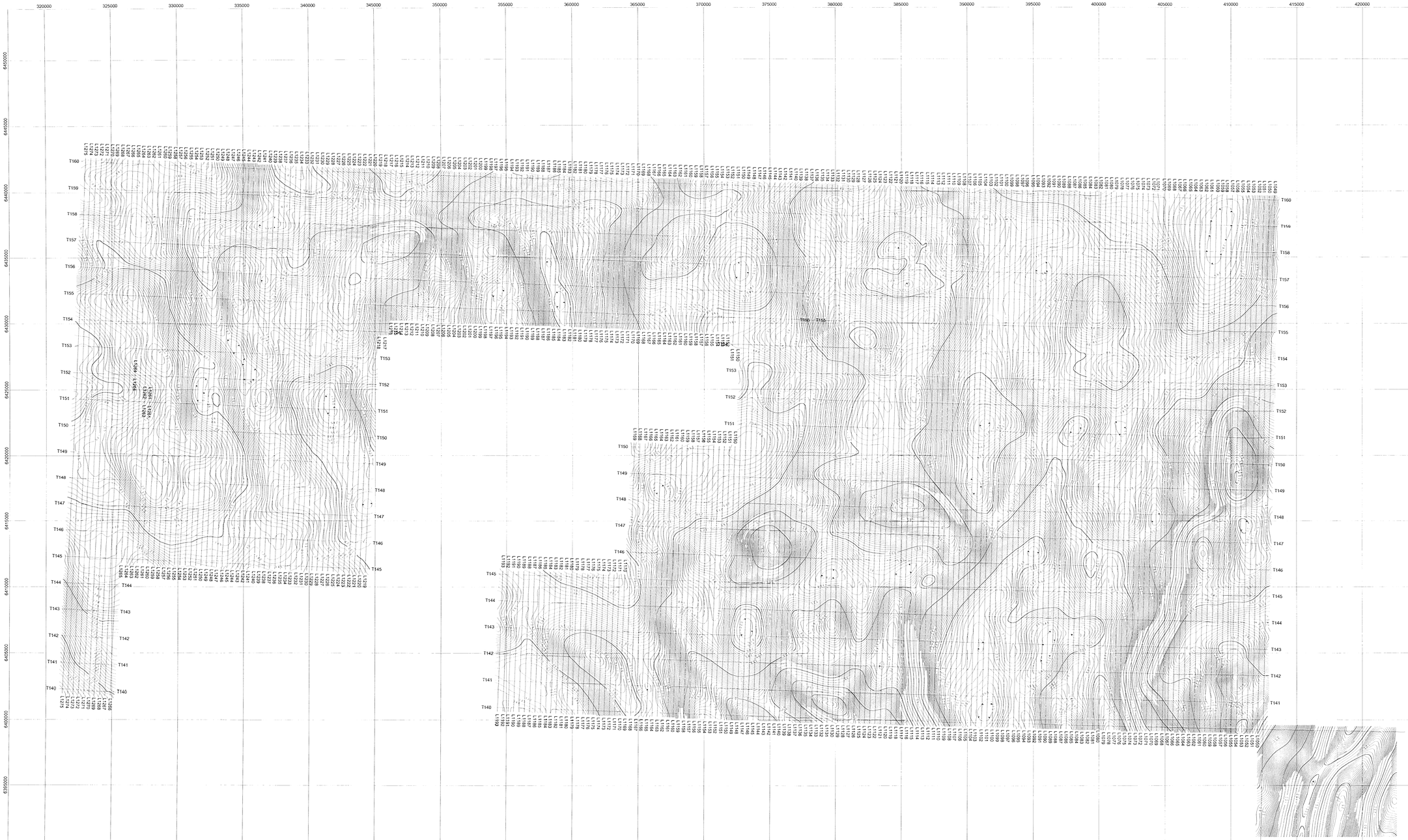
Line Spacing: 100 metres (50m infill)
Grid Interval: 20 metres
Contour Interval:5, 20, 100 nT

Datum: NAD 27 UTM zone 11

Data Acquisition:

Field Mag: GEM Systems GSM19 GW (68588)
Base Mag: GEM Systems GSM19 W (67577)
Operator: B. Chore
Date: May 1999
Kilometers: 56.5

Grid reference pickets



Legend

Survey Specifications:

Aircraft Altitude: 120m AGL draped
Primary Line Spacing: 400m
Primary Line Direction: South-North
Control Line Spacing: 2000m
Control Line Direction: East-West
Datum: NAD 27 CAN
UTM Zone: 12N

Equipment:

Magnetometer Sensors: Geomatics G 822A
Cesium Vapour
Magnetometer Sensitivity: 0.01nT
Aircraft Positioning: Differential GPS
GPS Receiver: NovAtel 3951R, 12 channel
Aircraft: Cessna 404, C GIWE

Grid Cell Size: 100m
Contour Intervals: 5, 25, 100nT

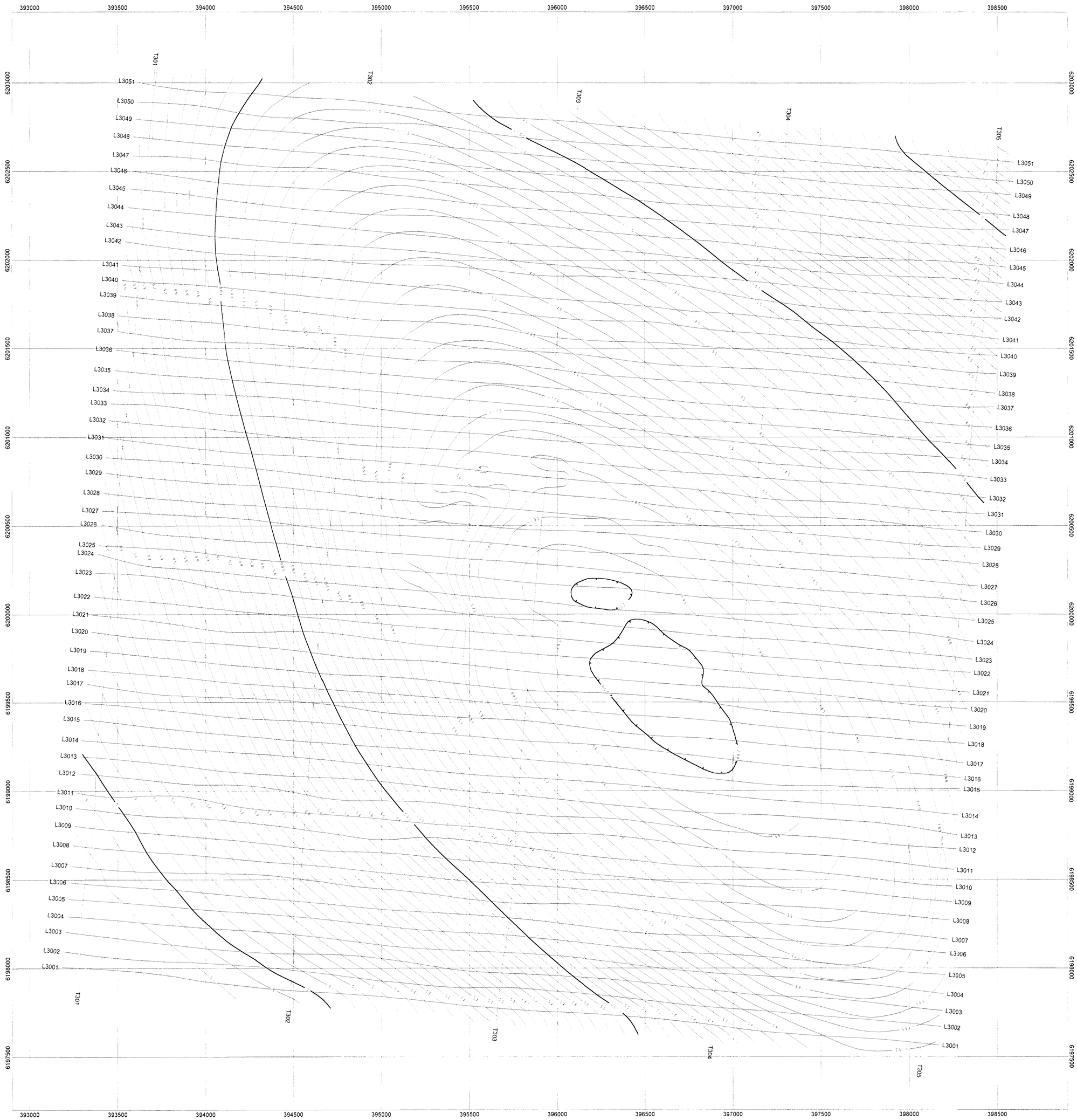
Scale 1:100000

2000 0 2000 4000 6000
metres

ASHTON MINING OF CANADA INC.

Athabasa Property, Alberta
Wood Buffalo Block
Fixed-Wing Airborne Magnetic Survey

Total Field Contours



Legend

Survey Specifications:

Aircraft Altitude: 120m AGL
Primary Line Spacing: 100m
Primary Line Direction: East-West
Control Line Spacing: 1000m
Control Line Direction: North-South
Datum: NAD-27-CAN
UTM Zone: 12N

Equipment:

Magnetometer Sensors: Geomatics G 822A Cesium Vapour
Magnetometer Sensitivity: 0.01nT
Aircraft Positioning: Differential GPS
GPS Reciever: NovAtel 3951R, 12 channel
Aircraft: Cessna 404, C-GBWE

Grid Cell Size: 25m
Contour Intervals: 5, 25, 100nT

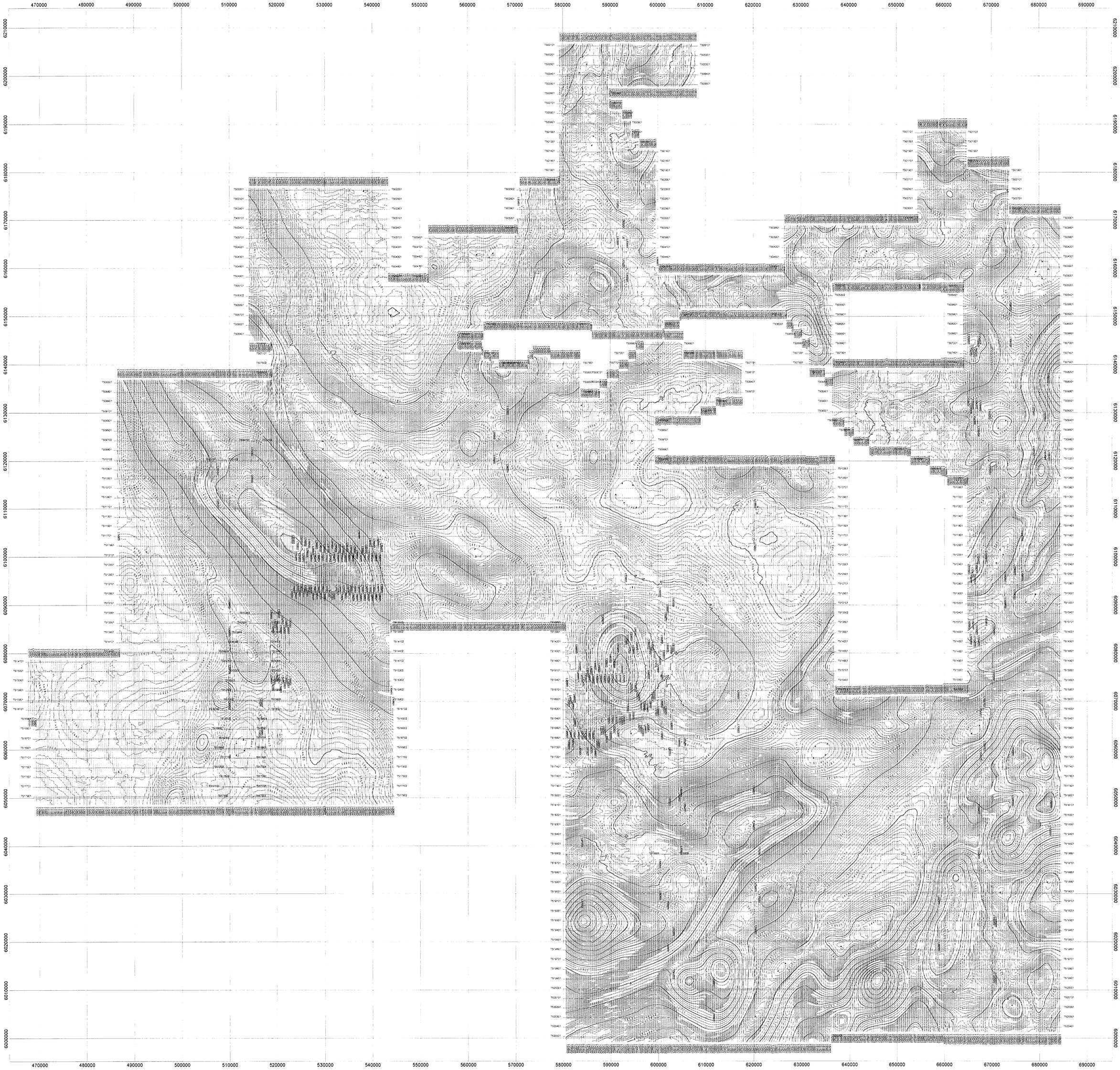
Scale 1:10000

200 0 200 400 600
metre

ASHTON MINING OF CANADA INC.

Athabasca Property, Alberta
Anomalies 74 & 75
Detailed Airborne Magnetic Survey

Total Field Contours



Scale 1:300000

5000 0 5000 10000 15000 20000

metre

Legend

Survey Parameters:

Line Spacing: 400m
Line Direction: North-South
Tie Line Spacing: 2000m
Tie Line Direction: East-West
Flying Elevation: 100m Mean Terrain Clearance
Aircraft Speed: 80m/second
Positional Control: Differential GPS
Aircraft used: CG-GTA Cessna Titan 404
UTM Zone: 11

Equipment Specifications:

Magnotometer:
Type: Scintrex(CS2) Cesium Vapour
Compesator: RMS AADC 27 Term
Installation: Stinger Mounted
Sensitivity: .001 nT
Sampling: 10 Hz

Navigation:
GPS Receiver: Sercel NR 103 10 channel
High Resolution Video: Panasonic WV-CL 302 Camera With Wide Angle Lens

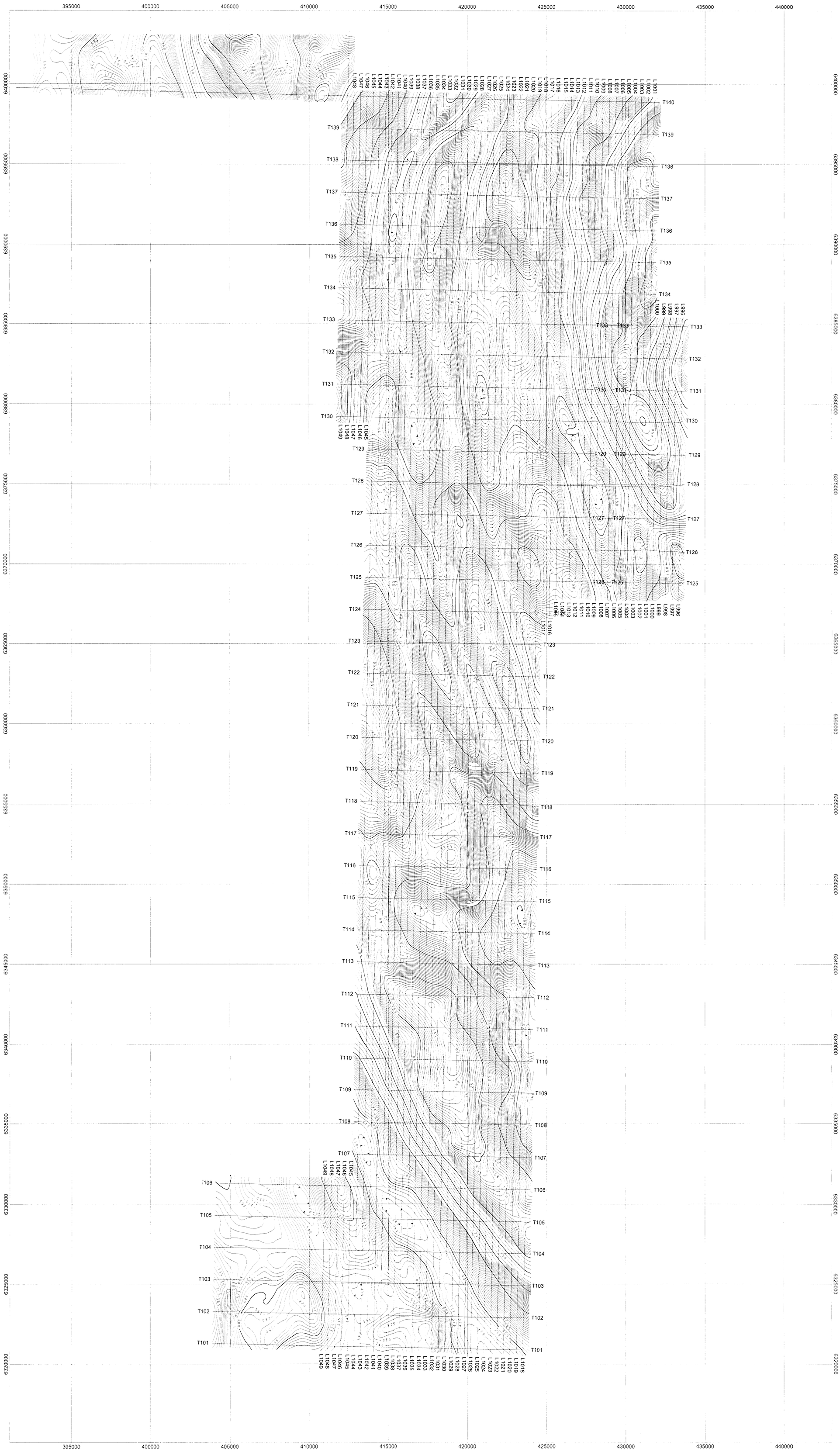
Contour Interval: 5, 25, 100 nT

ASHTON MINING OF CANADA INC.

Lesser Slave Property, Alberta
Fixed-Wing Airborne Magnetic Survey
Survey By: Geoterrex

Total Field Contours

20000002



Legend

Survey Specifications:

Aircraft Altitude: 120m AGL draped
Primary Line Spacing: 400m
Primary Line Direction: South-North
Control Line Spacing: 2000m
Control Line Direction: East-West
Datum: NAD-27-CAN
UTM Zone: 12N

Equipment:

Magnetometer Sensors: Geomatics G 822A Cesium Vapour
Magnetometer Sensitivity: 0.01nT
Aircraft Positioning: Differential GPS
GPS Reciever: NovAtel 3951R, 12 channel
Aircraft: Cessna 404, C-GBWE

Grid Cell Size: 100m
Contour Intervals: 5, 25, 100nT

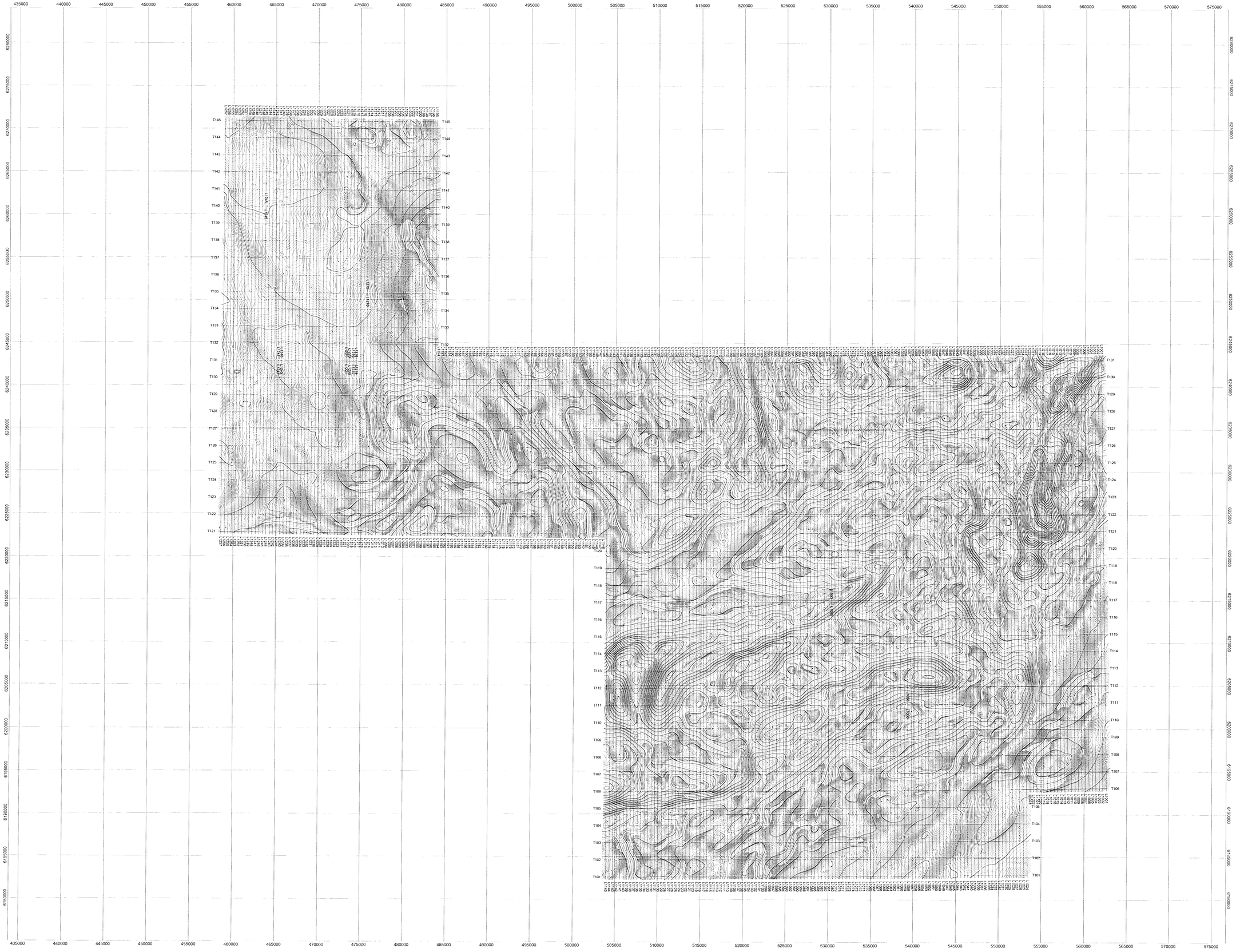
Scale 1:100000

2000 0 2000 4000 6000
metre

ASHTON MINING OF CANADA INC.

Athabasca Property, Alberta
Namur Lake Block
Fixed-Wing Airborne Magnetic Survey

Total Field Contours



Legend

Survey Specifications:

Aircraft Altitude: 120m AGL
Primary Line Spacing: 400m
Primary Line Direction: North-South
Control Line Spacing: 2000m
Control Line Direction: East-West
Datum: NAD 27-CAN
UTM Zone: 12N

Equipment:

Magnetometer Sensors: Geomatics G 822A
Cesium Vapour
Magnetometer Sensitivity: 0.01nT
Aircraft Positioning: Differential GPS
GPS Receiver: Novatel 2951R, 12 channel
Aircraft: Cessna 404, C GBWE

Grid Cell Size: 100m
Contour Intervals: 5, 25, 100nT

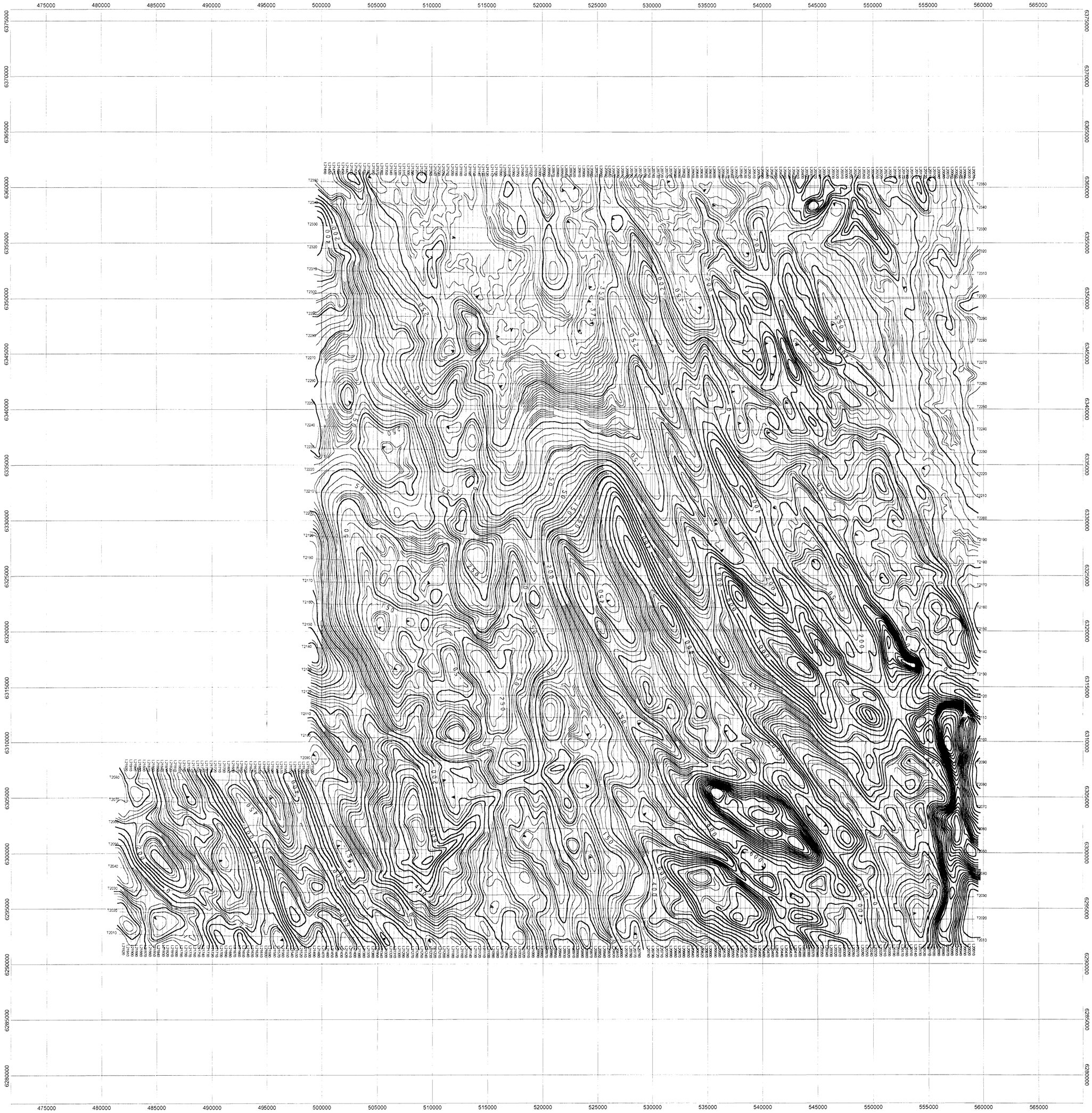
Scale 1:150000

2500 0 2500 5000 7500 10000
metre

ASHTON MINING OF CANADA INC.

Athabasca Property, Alberta
Gregoire Lake Block
Fixed-Wing Airborne Magnetic Survey

Total Field Contours



Legend

Survey Specifications:

Aircraft Altitude: 120m AGL
Primary Line Spacing: 400m
Primary Line Direction: South-North
Control Line Spacing: 2000m
Control Line Direction: East-West
Datum: NAD-27-CAN
UTM Zone: 12N

Equipment:

Magnetometer Sensors: Geomatics G 822A/
Scintrex CS-2 Cesium Vapour
Magnetometer Sensitivity: 0.01nT
Aircraft Positioning: Differential GPS
GPS Reciever: NovAtel 3951R, 12 channel
Aircraft: Cessna 402, C-GCKB;
BN2 Islander, C-GSGX

Grid Cell Size: 100m
Contour Intervals: 5, 25, 100nT

Scale 1:150000

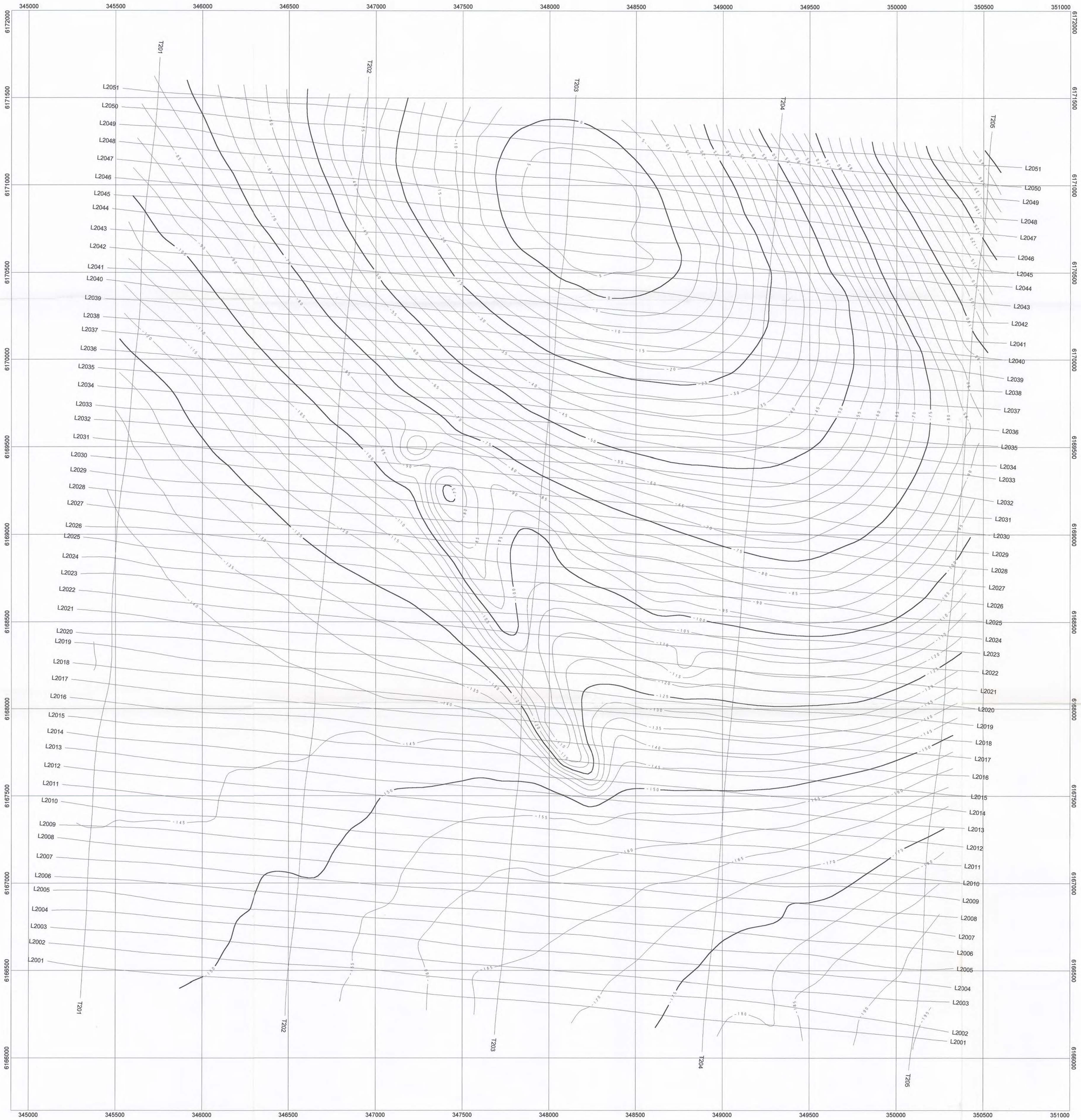
2500 0 2500 5000 7500 10000
metre

ASHTON MINING OF CANADA INC.

Athabasca Property, Alberta
G Block
Fixed-Wing Airborne Magnetic Survey

Total Field Contours

2000002



Legend

Survey Specifications:

Aircraft Altitude: 120m AGL
Primary Line Spacing: 100m
Primary Line Direction: East-West
Control Line Spacing: 1000m
Control Line Direction: North-South
Datum: NAD-27-CAN
UTM Zone: 12N

Equipment:

Magnetometer Sensors: Geomatics G 822A
Cesium Vapour
Magnetometer Sensitivity: 0.01nT
Aircraft Positioning: Differential GPS
GPS Reciever: NovAtel 3951R, 12 channel
Aircraft: Cessna 404, C-GBWE

Grid Cell Size: 25m
Contour Intervals: 5, 25, 100nT

Scale 1:10000

200 0 200 400 600
metre

ASHTON MINING OF CANADA INC.

Athabasca Property, Alberta
Anomalies 91, 92, & 93
Detailed Airborne Magnetic Survey

Total Field Contours