MAR 20010002: SPIRIT RIVER

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INTERIM ASSESSMENT REPORT FOR THE SPIRIT RIVER PROPERTIES, PEACE RIVER, ALBERTA

Company Name:	**Grizzly Gold Inc. and Indocan Resources Inc.**
Permits:	**9398100001 to 9398100006 and 9398100008 to 9398100011**
Work Conducted Between	**July to October 2000**
Location of Permits:	**Peace River Area**

APEX Geoscience Ltd.

February, 2001

A.K. Noyes
M.B. Dufresne

INTERIM ASSESSMENT REPORT FOR THE SPIRIT RIVER PROPERTIES, PEACE RIVER, ALBERTA

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EXECUTIVE SUMMARY

APEX Geoscience Ltd. (APEX) was retained during the summer and fall of 2000 as consultants for Grizzly Gold Inc. and Indocan Resources Inc. to aid in assessing the diamond potential of their permits in the Spirit River area. Although diamond exploration at the permits is still in its early stages, the potential for discovering diamond-bearing kimberlites on Grizzly and Indocan's Spirit River properties is considered high based upon the regional geological setting in conjunction with the positive results obtained to date.

The Spirit River permits were originally staked by Mr. B. Testo in 1998, a prospector working on behalf of Grizzly Gold Inc. on the basis of previous diamond indicator counts during a 1997 sampling program. Grizzly and Indocan holds seven permits within the Spirit River area, which is located along the Peace River approximately 45 km east of the Alberta-British Columbia border.

Diamond indicator mineral pick results from the summer till and pan concentrate samples have been obtained. The remaining results from the fall samples are still pending. Out of a total of 11 samples, 29 possible diamond indicator minerals were picked which include possible chrome diopsides, eclogites, olivines and chromites. Mineral chemistry results on these diamond indicator minerals for all samples are still pending.

A recommended course of follow-up cannot be properly provided until all the results of the sampling program are received. It is anticipated, based on the picking results to date, that a small amount of further sampling may be required. In addition, several HRAM anomalies will require ground geophysics followed by drill testing.

INTRODUCTION

Terms of Reference

APEX Geoscience Ltd., (APEX), was retained during the summer and fall of 2000 as consultants on behalf of Grizzly Gold Inc. (Grizzly) and Indocan Resources Inc. (Indocan) to conduct and manage their exploration program at the Spirit River area permits. This evaluation has been prepared on the basis of published and unpublished material. The authors, A.K. Noyes and M.B. Dufresne, have personally visited the Spirit River permits.

Permit Location and Description

The Grizzly and Indocan hold a total of 10 permits encompassing 138,360 hectares along the Peace River approximately 45 km east of the Alberta-British Columbia border. These permits are located approximately 30 km north of the Town of Spirit River in northwestern Alberta (Figure 1). A legal description of the permits held by Grizzly and Indocan is provided in Appendix 1. The permits are within the 1:250,000 scale National Topographic System (NTS) map area 84D.

Accessibility, Climate and Local Resources

The Spirit River permits can be accessed via Highway 2, gravel roads and seismic cut lines. Numerous existing seasonal and year-round oil and gas roads exist throughout the property. Cut-lines and/or farm-grazing land exist where roads do not. Portions of the permit area may be accessed by four-wheel drive vehicles, quads and/or by foot. Accommodation, food, fuel and supplies can be obtained in the neighboring towns of Rycroft, Spirit River and Fairview.

The terrain in the area is predominantly farmland with large expansive swampy areas. Relief becomes extremely pronounced with relief changes of up to 300 m over short horizontal distance with near vertical faces separating anomalies from the access routes as the Peace River and tributaries are approached.

REGIONAL GEOLOGICAL SETTING

Precambrian

The Spirit River Property lies within the Western Canada Sedimentary Basin, north of the Peace River Arch (PRA). The property is underlain predominantly by the Ksituan near the eastern boundary and centered over the Peace River Arch, near the Chinchaga Low (Dufresne *et al.*, 1996). Precambrian

N
Bistcho Lake
Lake Athabasca
Lake Claire
High Level
Spirit River Mineral Permits
Manning
Fort McMurray
Grande Prairie
High Prairie
Slave Lake
Lesser Slave Lake
Cold Lake Air Weapons Range
Edmonton
Hanna
Calgary
Lethbridge
Legend
Provincial and/or National Parks
Provincial Highway
Cities
Rivers
Mineral Permits held by Spirit River Resources Corp.
SPIRIT RIVER RESOURCES CORP.
ALBERTA
MINERAL PERMIT LOCATIONS
0
100
200
Scale
Kilometres
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February, 2001

FIGURE 1.

rocks are, however, not exposed within the Spirit River area/ Naylor Hills region (NTS 84E).

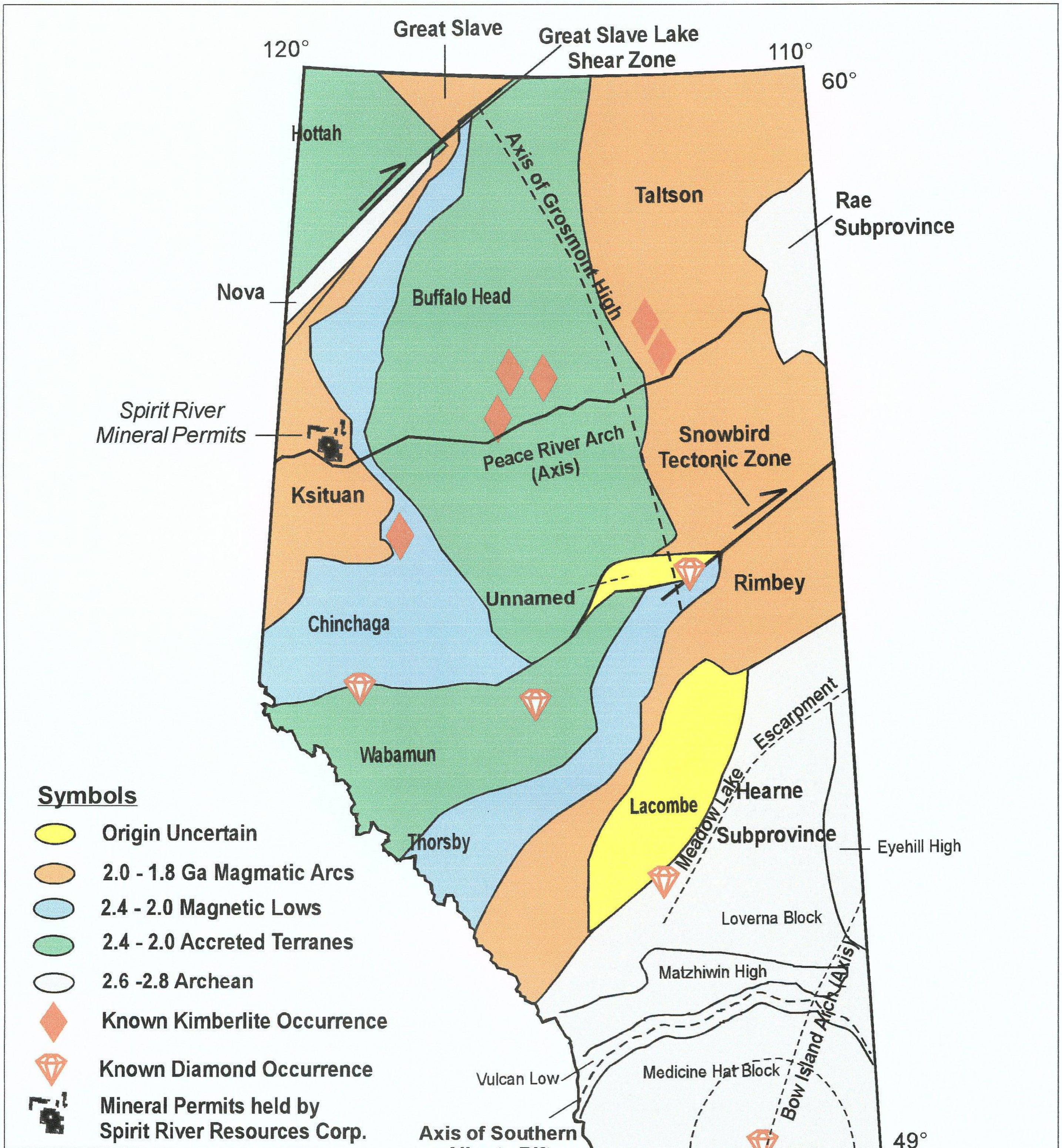
The Chinchaga Low curves in a northeasterly pattern, is attenuated within the Great Slave Lake Shear Zone (GSLSZ) and is truncated by the Hay River Fault (Figure 2). The Chinchaga Low comprises an area of low magnetic relief with a poorly developed aeromagnetic and gravity gradient fabric (Villeneuve *et al.,* 1993). Precambrian rocks intersected in drill core from the Chinchaga Low comprise metaplutonic and metasedimentary gneisses (Villeneuve *et al.*, 1993). The Chinchaga Terrane was accreted between 2.4 and 1.8 billion years (Ga) ago and, along with the BHT, forms the Buffalo Head Craton (Ross *et al.*, 1991, 1998). Due to the relatively stable history of these terranes since accretion, the Buffalo Head Craton and its margins are currently the focus of extensive diamond exploration in northern Alberta.

The Kitsuan Magmatic Arc (2.0 – 1.8 Ga) is a prominent magnetic high that forms a convex arc west and north of the Chinchaga Low. The internal magnetic fabric of the Kitsuan High is characterised by moderately elongate, positive domains separated by narrow lows (Villeneuve *et al.*, 1998). A low gravity gradient signature characterises the arc (Dufresne *et al.*, 1996). The sharpness of the boundaries suggests that the contact is likely magmatic rather than structural in origin. Drill core samples indicate that the Kitsuan is similar in age to the BHT and Chinchaga Low.

The eastern portion of the property lies in close proximity to the BHT which is host to diamondiferous kimberlites, including the Buffalo Hills kimberlite field. Part of the Churchill Structural Province's Rae Subprovince (Dufresne *et al.,* 1996), the BHT may represent Archean crust that has been thermally reworked during the Hudsonian (Proterozoic) Orogeny (Burwash *et al.*, 1962; Burwash and Culbert, 1976; Burwash *et al.*, 1994). Alternatively, it may be part of an accreted Proterozoic terrane that may or may not have an Archean component (Ross and Stephenson, 1989; Ross *et al.*, 1991; Villeneuve *et al.*, 1993). Numerous eclogitic garnets, eclogitic pyroxenes and chromium-bearing corundums along with kimberlites or related ultramafic intrusions are common in northern Alberta. The occurrence of these minerals may indicate the presence of a significant volume of accreted and subducted oceanic basalt and sedimentary protolith in the lower crust and/or upper mantle beneath the Ksituan, BHT, and Chinchaga Terranes (Dufresne *et al.,* 1996). Seismic refraction and reflection studies indicate that the crust in the Spirit River region is likely between 35 to 40 km thick, a favourable characteristic for the formation and preservation of diamonds in the upper mantle (Dufresne *et al.,* 1996).

Phanerozoic

Overlying the basement in the Spirit River region is a thick sequence of Phanerozoic rocks comprised mainly of Cretaceous sandstones and shales near



SPIRIT RIVER RESOURCES CORP.

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BASEMENT GEOLOGY

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(Modified after Ross *et al.*, 1991)

FIGURE 2.

surface (Glass, 1990). Bedrock exposure within the permit block is limited primarily to river and stream cuts and topographic highs. Table 1 describes the upper units found in the region. Further information pertaining to the distribution and character of these and older units can be obtained from well log data in government databases, and various geological and hydrogeological reports (Green *et al.*, 1970; Ozoray, 1982; Glass, 1990; Mossop and Shetsen, 1994).

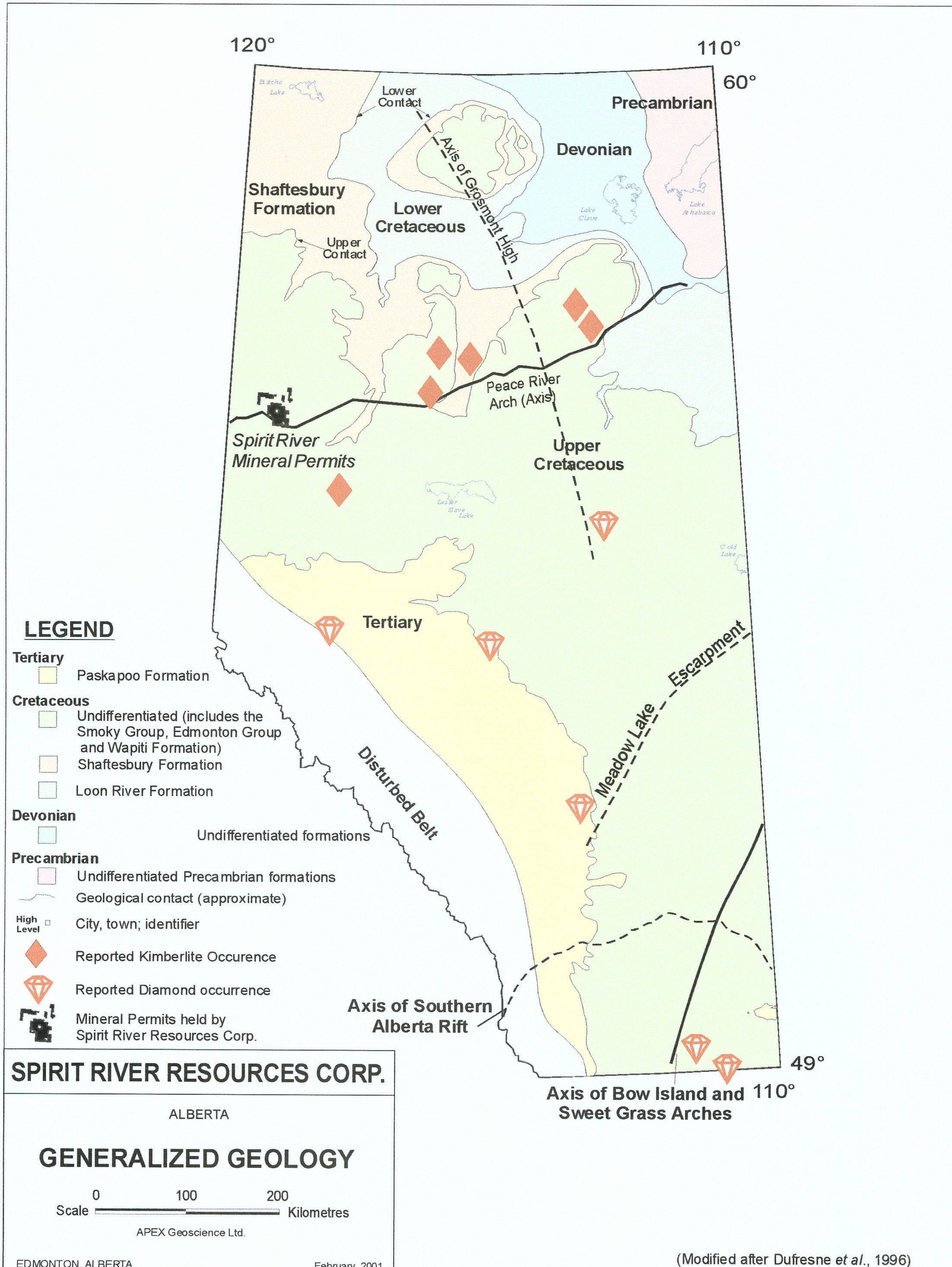
In general, the Cretaceous strata underlying the Spirit River Property comprises alternating units of marine and nonmarine sandstones, shales, siltstones, mudstones and bentonites. The oldest documented units exposed in the vicinity of the permit area belong to the Smoky Group, a sequence of Late Cretaceous, calcareous and noncalcareous shales (Figure 3).

The Late Cretaceous Shaftesbury Formation comprises marine shales with fish-scale bearing silts, thin bentonitic streaks and ironstones. The upper contact is conformable and transitional with the Dunvegan Formation. The Shaftesbury Formation may be exposed along river and stream cuts. Evidence of extensive volcanism during deposition of the Shaftesbury Formation exists in the form of numerous bentonitic horizons throughout the formation, especially within and near the Fish Scales horizon (Leckie *et al.*, 1992; Bloch *et al.*, 1993). The deposition of the Shaftesbury Formation is also contemporaneous with the deposition of the Crowsnest Formation volcanics of southwest Alberta (Olson *et al.*, 1994; Dufresne *et al.*, 1995) and with kimberlitic volcanism near Fort á la Corne in Saskatchewan (Lehnert –Thiel *et al.*, 1992; Scott Smith *et al.*, 1994)

TABLE 1
GENERALIZED STRATIGRAPHY

SYSTEM	**GROUP**	**FORMATION**	**AGE* (MA)**	**DOMINANT LITHOLOGY**
PLEISTOCENE			Recent	Glacial till and associated sediments
LATE CRETACEOUS		Wapiti	70 to 80	Sandstone, minor coal seams and conglomerate lenses
	Smoky	Puskwaskau	75 to 86	Shale, silty-shale and ironstone, First White Specks
		Bad Heart	86 to 88	Sandstone
		Kaskapau	88 to 92	Shale, silty-shale and ironstone; Second White Specks
		Dunvegan	92 to 95	Sandstone and siltstone
	Fort St. John	Shaftesbury	95 to 98	Shale, bentonites, Fish-Scale Member

*Ages approximated from Green *et al.* (1970).


120°
110°
60°
Lower Contact
Precambrian
Axis of Grosmont High
Devonian
Shaftesbury Formation
Lower Cretaceous
Lake Claire
Lake Athabasca
Upper Contact
Peace River Arch (Axis)
Spirit River Mineral Permits
Upper Cretaceous
Lesser Slave Lake
Cold Lake
Tertiary
Meadow Lake Escarpment
Disturbed Belt
Axis of Southern Alberta Rift
49°
110°
Axis of Bow Island and Sweet Grass Arches
LEGEND
Tertiary
Paskapoo Formation
Cretaceous
Undifferentiated (includes the Smoky Group, Edmonton Group and Wapiti Formation)
Shaftesbury Formation
Loon River Formation
Devonian
Undifferentiated formations
Precambrian
Undifferentiated Precambrian formations
Geological contact (approximate)
High Level
City, town; identifier
Reported Kimberlite Occurence
Reported Diamond occurrence
Mineral Permits held by Spirit River Resources Corp.
SPIRIT RIVER RESOURCES CORP.
ALBERTA
GENERALIZED GEOLOGY
0
100
200
Scale
Kilometres
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February, 2001
(Modified after Dufresne et al., 1996)

FIGURE 3.

Deltaic to marine, feldspathic sandstones, silty shales and laminated carbonaceous siltstones characterise the Dunvegan Formation. Where present, the unit is conformably overlain by shales of the Kaskapau Formation (Smoky Group). It should be noted that the Ashton pipes occur at or above the contact between the Kaskapau and the Dunvegan formations (Dufresne *et al.*, 1998).

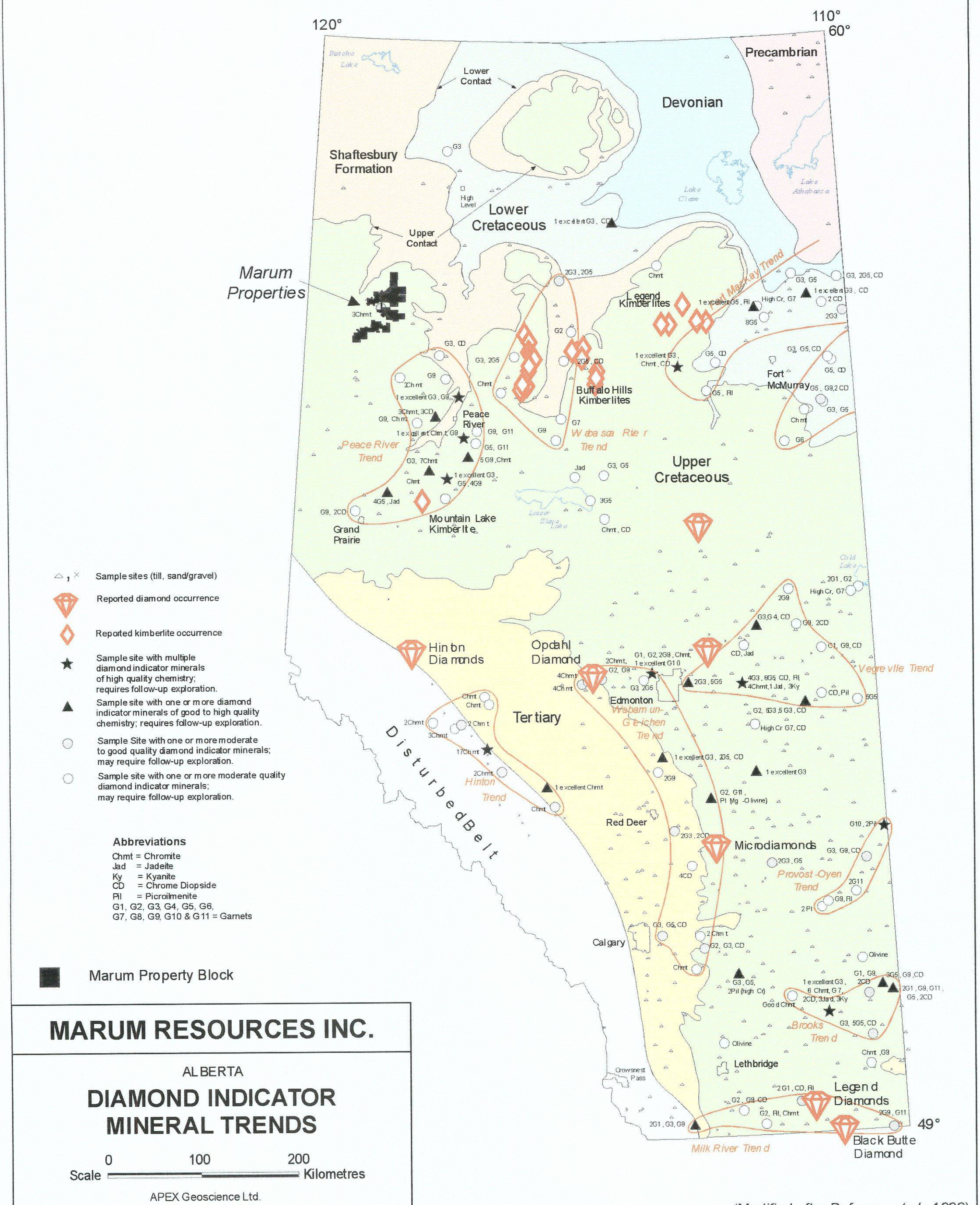
The Smoky Group is Late Cretaceous in age and is comprised of thinly bedded, marine, silty shale with occasional ironstone and claystone nodules and thin bentonite streaks. The group is divided into three formations: (a) a lower shale unit, Kaskapau, which includes the Second White Specks (SWS) marker unit; (b) a middle sandstone, named the Bad Heart; and, (c) an upper shale and sandstone, Puskwaskau, which contains the First White Specks (FWS) marker unit. The Kaskapau and the Puskwaskau formations both contain abundant ammonite fossils and ironstone concretions. Foraminifera are common in the lower arenaceous units of the Kaskapau (Glass, 1990). The Bad Heart Formation comprises medium to coarse-grained sandstone with interbedded shale and ironstone. Bad Heart Formation outcrops at about the 800 m asl mark along river and stream cuts throughout the area. The overlying Puskwaskau Formation is likely exposed in the upland regions and may be capped by sediments of the Wapiti Formation. The upper portion of the Smoky Group is correlative with the Lea Park Formation.

There is strong evidence of volcanism associated with the deposition of the Smoky Group in the vicinity of the PRA (Auston, 1998; Carlson *et al.*, 1998). Ashton's recently discovered Buffalo Head Hills kimberlites (Figure 4) intrude the Kaskapau, yielding emplacement ages of 86 to 88 Ma (Auston, 1998; Carlson *et al.*, 1998). In addition, recently discovered kimberlites in the Birch Mountains (Figure 4) by Kennecott Canada Exploration Inc. (Kennecott) in a joint venture with Montello Resources Ltd. (Montello) and Redwood Resources Inc. (Redwood) are reported to yield emplacement ages of about 82 Ma (Northern Miner, 1998).

The youngest bedrock unit in the Spirit River area is the Wapiti Formation of Late Cretaceous age. The unit comprises non-marine, thinly bedded to massive sandstone with minor coal seams and thin conglomerate lenses. Exposures of the Wapiti Formation appear to be restricted to upland regions forming caps of variable thickness. . The upper surface of the Wapiti Formation, when present, has been eroded by both glacial and fluvial processes.

Cenozoic

Data and information about the Tertiary and early Quaternary geology in northwestern Alberta are sparse and regional in nature. Prior to continental glaciation during the Pleistocene, most of Alberta, including the Spirit River region, had reached a mature stage of erosion. Extensive preglacial gravels related to the preglacial Peace River exist within the Spirit River properties.



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DIAMOND INDICATOR MINERAL TRENDS

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FIGURE 4

Large, broad paleochannels and their tributaries drained much of the region, flowing in an east to northeasterly direction (Dufresne *et al.*, 1996). No paleochannel is documented to exist within the Spirit River area. However, several topographic highs within the Clear Hills just northeast of Halverson Ridge are capped with sand and gravel deposits. The age of these units has not been verified and they may have been deposited during the late Tertiary or early Quaternary based upon their stratigraphic position and elevation (Edwards and Scafe, 1995; Dufresne *et al.*, 1996). Alternatively, the units may be glacial in origin with a much younger, Late Wisconsinan age.

During the Pleistocene, multiple southerly glacial advances of the Laurentide Ice Sheet across the region resulted in the deposition of ground moraine and associated sediments (Klassen, 1989; Dufresne *et al.,* 1996). The advance of glacial ice resulted in the erosion of the underlying substrate and modification of bedrock topography. Several of the upland regions in the Clear Hills appear to be streamlined, forming south and southwest trending ridges and drumlinoids. This pattern of movement is reflected in the distribution of diamond indicator minerals (DIMs) as seen in Figure 4.

Glacial ice is believed to have receded from the area between 15,000 and 12,000 years ago (Klassen, 1989). After the final glacial retreat, lacustrine clays and silts were deposited in low-lying regions along with extensive organic sediments. Rivers previously re-routed due to glaciation, re-established easterly to northeasterly drainage regimes similar to that of the pre-Pleistocene. Extensive colluvial sediments accompanied post-glacial river and stream incision.

The majority of the Spirit River properties are covered by drift of variable thickness, ranging from a discontinuous veneer about 5 to 10 m thick in the upland regions to more than 15 m along the Spirit River (Pawlowicz and Fenton, 1995a, b). Local drift thickness for the properties can not be easily delineated due to the sparcity of publicly available data for the region. Limited general information regarding bedrock topography and drift thickness in northern Alberta is available from the logs of holes drilled for petroleum, coal or groundwater exploration and from regional government compilations (Ozoray, 1982; Mossop and Shetsen, 1994; Pawlowicz and Fenton, 1995a, b; Dufresne *et al.*, 1996).

Structural Geology

In northern Alberta, the PRA is a region where younger Phanerozoic rocks overlying the Precambrian basement have undergone periodic vertical uplift and, possibly, compressive deformation from the Proterozoic into Tertiary (Cant, 1988; O'Connell *et al.*, 1990; Dufresne *et al.*, 1995, 1996). This pattern of long-lived, periodic uplift and subsidence has imposed a structural control on the deposition patterns of the Phanerozoic strata in northern Alberta. In addition, this periodic movement has resulted in a rectilinear pattern of faults that not only is responsible for structurally controlled oil and gas pools, but may have provided potential pathways for later deep-seated intrusive kimberlitic magmas.

During the mid-Cretaceous and Early Tertiary, compressive deformation occurred as a result of the orogenic event that eventually led to the formation of the Rocky Mountains. The PRA was emergent during this period, resulting in the reactivation of many prominent basement faults. The Phanerozoic rocks beneath the Spirit River Property lie north of the PRA. There is strong evidence that basement faults that have manifested themselves in the overlying Phanerozoic sedimentary succession may have controlled the emplacement of the Mountain Lake, the Buffalo Head Hills and the Birch Mountain kimberlites south and east of the Spirit River Property (Dufresne *et al.*, 1996; Leckie *et al.*, 1997). Structures observed on the Spirit River Property resulting from tectonic activity associated with movement along faults or even along contacts between different basement terranes could be pathways for kimberlitic volcanism. Airborne magnetic data for the Spirit River area shows the presence of numerous interpreted basement faults that are believed to extend into the overlying Phanerozoic succession and could be pathways for localised kimberlitic or related intrusions.

SUMMARY OF PREVIOUS EXPLORATION

Sampling

The property was staked in early 1998 by a prospector named Brian Testo on behalf of Grizzly Gold Inc. on a basis of abundant chrome diopsides recovered from a prior sample collected during 1997 in the region. Prior diamond exploration work was conducted during the early 1990's by TUL Petroleum who reported the existence of numerous indicator minerals in the region. TUL has since reduced its property holdings to about 9 sections of land in 3 blocks (5,760 acres) that are contained within Grizzly Gold's Spirit River property and a block of about 75,000 acres along the northern boundary of Grizzly Gold's Spirit River property.

The Alberta Geological Survey (AGS) conducted limited sampling in the region with the collection of 8 till samples from 1993 to 1994 in NTS 84D. Two of the samples each yielded a chrome diopside and a third sample yielded 2 chromites. One of the chrome diopsides recovered yielded high Cr (1.73 wt%) and low Fe and is likely derived from a kimberlite or related intrusion.

Two creek sediment samples collected by TUL from near the confluence of the Montagneuse River and the Peace River that were processed and analyzed by the AGS yielded a G9 chrome pyrope and two chrome diopsides (both with high Cr and low Fe). The sample sites are located either just on Grizzly Gold's property or are immediately adjacent to the northeast boundary of the property.

The prospector, Mr. B. Testo, collected two samples during late 1997 from a gravel pit south of the Peace River and near the northern boundary of the property. The samples were each about 50 lbs. in size. Both samples (97-09 and 97-10) were submitted to Mr. B. Doyle of Kennecott Canada Inc. A portion of the second sample (97-10) was sent as a check by the prospector, to the Saskatchewan Research Council (SRC) where it was processed for diamond indicator minerals during 1998. Mr. Doyle (pers. comm., 2000) reported that Kennecott recovered 7 pyrope garnets, 86 clinopyroxenes (likely chrome diopsides), 10 orthopyroxenes and 95 olivines in one sample and 28 clinopyroxenes (likely chrome diopsides), 10 orthopyroxenes, and 48 olivines in a second sample.

A two-day field visit during March 31st and April 1st, 2000 was conducted by APEX. Three samples (0MDP007 to 0MDP009) were collected from two gravel pits in the southeast corner of the property. The second gravel pit sampled (0MDP008 and 0MDP009) was the pit originally sampled by the prospector, Mr. B. Testo.

Geophysics

During the period March 31 to May 31 a high resolution fixed wing airborne magnetic (HRAM) survey was conducted by Spectra Exploration Geoscience Corp. (Spectra) and 2 days of fieldwork and sampling were conducted at Grizzly and Indocan Spirit River diamond property. A copy of the operations report provided by Spectra is included in Appendix 2. The HRAM survey for Blocks 1 and 2 yielded a number of discreet magnetic anomalies that are the result of (a) culture such as oil wells, farms and towns, (b) accumulations of magnetic minerals in preglacial sand and gravel deposits, and (c) unexplained point anomalies that could be the result of kimberlites or related intrusions. At least 6 high priority and 12 medium priority magnetic anomalies, including several magnetic lows, which represent excellent targets for possible kimberlites were identified by the HRAM survey. Sampling by APEX Geoscience Ltd. personnel confirmed the presence of diamond indicator minerals in preglacial sand and gravel deposits indicating that the area is highly prospective for the presence of kimberlites.

A total of 4,307 line kilometers of magnetic data in 2 blocks at a crossline spacing of 250 m and tieline spacing of 1,000 m were collected. The magnetic survey was flown with a drape of about 100 m above ground surface (Appendix 2). Preliminary magnetic data was received during early May. The final leveled and processed magnetic data including a full set of maps was received May 18, 2000. The data has since been reviewed in a preliminary fashion in order to identify a number of possible targets for kimberlites. APEX selected prospective magnetic anomalies on the basis of a review of the map and profile data. Prospective targets are shown on maps in Appendix 3.

Results

Samples 97-09 processed by Kennecott yielded 7 pyrope garnets, 86 clinopyroxenes (likely chrome diopsides), 10 orthopyroxenes and 95 olivines. Sample 97-10 yielded 28 clinopyroxenes, 10 orthopyroxenes, and 48 olivines. These samples results are highly anomalous and suggest that the body that yielded these indicator minerals is likely a kimberlite or related intrusion that sampled the mantle and therefore may have diamond potential. The number of indicator minerals obtained from the two samples, particularly coming from a river gravel, is highly suggestive that source for the indicator minerals is proximal to the sample site.

The check portion of sample 97-10 that was submitted to the SRC yielded a number of possible chromites but no silicate indicator minerals. A total of 16 of the 18 oxide grains that were submitted for microprobe analysis were confirmed as chromites. Several of the chromites yielded high concentrations of Ti and Cr likely indicative of derivation from a kimberlite or closely related intrusion. The different results obtained for sample 97-10 from Kennecott and the SRC is attributed to original sample inhomogeneity or to the fact that the sample was in the back of a vehicle for several days during transport prior to dividing the sample into tow portions for submittal to Kennecott and the SRC.

The 3 samples (0MDP007 to 0MDP009) were sent to the Saskatchewan Research Council (SRC) where they were processed and have since been initially picked for possible diamond indicator minerals. Sample 0MDP007 yielded 39 possible chrome diopsides, 2 possible eclogitic garnets, 1 possible olivine and 2 possible chromites. Sample 0MDP008 yielded 15 possible chrome diopsides, 4 possible eclogitic garnets and 2 possible grains of olivine. Sample 0MDP009 yielded 17 possible chrome diopsides. It is highly likely that some or all of these diamond indicator minerals were originally derived from a kimberlite or closely related intrusion.

The samples were collected by personnel from APEX Geoscience Ltd. (APEX) from pit exposures of the gravels and were collected without the aid of a backhoe for excavation. The sample results confirm the presence of diamond indicator minerals, including difficult to preserve minerals such as olivine, in the preglacial gravel deposits of the area even though no pyrope garnets were recovered from the three confirmatory samples. The original samples collected by the prospector, which yielded pyrope garnets, were collected from the bottom of the gravel deposit with the aid of a trench dug by a backhoe.

The presence of abundant possible chrome diopside and possible olivine is highly suggestive that the source rocks for these indicator minerals are nearby, possibly within 10 to 15 km. Olivine and chrome diopside do not usually survive for any great distance in drainage systems. The gravel deposits are pregalcial in nature and were formed from the Peace River prior to glaciation. The gravels display cross bedding and pebble imbrication that clearly indicate a southeasterly directed channel flow in the Paleo Peace River. As a result, the source for the indicator minerals is likely somewhere to the west or northwest of the gravel pit in block 1, which was targeted for HRAM surveys.

The HRAM surveys for Blocks 1 and 2 yield a number of discreet magnetic anomalies that are the result of (a) culture such as oil wells, farms and towns, (b) accumulations of magnetic minerals in preglacial sand and gravel deposits, and (c) unexplained point anomalies that could be the result of kimberlites or related intrusions.

A total of 43 unexplained magnetic anomalies were identified on Block 1 and a total of 15 unexplained magnetic anomalies were identified on Block 2. The total of 58 unexplained magnetic anomalies include a number of anomalies that could be due to kimberlites or related intrusions. A total magnetic intensity map outlining these anomalies is included in Appendix 3. However, follow-up exploration will likely relate a number of the anomalies to culture that has not been identified on the overlay maps or preglacial sand and gravel deposits. There are at least 6 high priority and 12 medium priority magnetic anomalies, including several magnetic lows, which represent excellent targets for possible kimberlites.

The HRAM survey indicates that the predominant trend for the sand and gravel deposits is northwest to southeast, with some minor indications of southwest to northeast. These trends will be highly useful in identifying potential source areas for their contained indicator minerals.

2000 PERMIT EXPLORATION

Personnel and Logistics

An initial sampling program was conducted during July and a follow-up sampling program was conducted in early October. A total of 40 man-days were spent within the permits. Microprobe analyses are pending for the July samples and DIM pick results and microprobe analyses are pending for the October samples.

Exploration

Exploration within the Spirit River permits consisted of sampling down-ice of geophysical targets of high, moderate and low priority. The targets were accessed either by foot and/or use of a Quad, sampled at roadsides or in creeks and drainage areas. A total of 57 till samples (0MLT) and 29 pan concentrate 7 samples (0MLH and 0CSS) were collected. Numerous geophysical anomalies were eliminated as potential targets as they were due to culture (i.e. pipelines, farms). Several of the geophysical picks could not be checked due to inaccessibility because of the harshness of the terrain or the presence of impassable swamp. Sample locations are shown in Figure 5 and a detailed listing of sample descriptions is provided in Appendix 4.

An interesting topographical feature was found and was sampled for diamond indicator minerals. The feature was a small hill possessing a depression in the center. Sample (0MLT118) was collected in the center of the depression and sample 0MLT119 was taken on the outer rim. Photographs of this feature are shown in Appendix 5. The samples were shipped to the Saskatchewan Research Council (SRC) in Saskatoon for heavy mineral concentrate analyses.

During the fall exploration season, the second APEX crew accessed target anomalies via a boat along the Peace River and its tributaries to obtain pan concentrate samples. These areas were previously inaccessible via roads.

Results

Diamond indicator results from the 0MLT100 to 0MLT156 and 0MLH100 to 0MLH102 samples have been received to date and pick results from samples 0CSS001 to 0CSS026 are still pending. From 11 samples, a total of 29 indicator minerals were picked which include 12 possible chrome-diopsides, 7 possible eclogites, 2 possible olivines and 8 possible chromites. Diamond indicator pick results are listed in Appendix 6. Mineral chemistry results from these samples (0MLT and 0MLH) are still pending.

Expenditures

The total expenditures for the summer and fall 2000 fieldwork season is $109,905.67. The cost of the HRAM survey was $42, 700.00. Expenditures by APEX for the fieldwork and analyses conducted to date are $53,405.67, including an estimated $13,800.00 for the pending analyses. A summary of these expenditures is listed in Appendix 7.

CONCLUSIONS AND RECOMMENDATIONS

A recommended course of follow up cannot be properly provided until all the results of the sampling programs are received. It is anticipated, based on the picking results to date, that a small amount of further sampling may be required. In addition, several HRAM anomalies will require ground geophysics followed by drill testing. A recommended program and budget will be provided upon receipt of all the sampling results.

APEX Geoscience Ltd.

Andrea K. Noyes, M.Sc.

PERMIT TO PRACTICE
APEX Geoscience Ltd.
Signature
Date Feb 2001
PERMIT NUMBER: P-5824
The Association of Professional Engineers, Geologists and Geophysicists of Alberta

PROFESSIONAL GEOLOGIST ALBERTA
MICHAEL B. DUFRESNE

Michael B. Dufresne, M.Sc., P.Geol.

February, 2001
Edmonton, Alberta

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CERTIFICATION

I, M.B. DUFRESNE OF [redacted] EDMONTON, ALBERTA, CERTIFY AND DECLARE THAT I AM A GRADUATE OF THE UNIVERSITY OF NORTH CAROLINA AT WILMINGTON WITH A B.SC. DEGREE IN GEOLOGY (1983) AND A GRADUATE OF THE UNIVERSITY OF ALBERTA WITH A M.SC. DEGREE IN ECONOMIC GEOLOGY (1987). I AM REGISTERED AS A PROFESSIONAL GEOLOGIST WITH THE ASSOCIATION OF PROFESSIONAL ENGINEERS, GEOLOGISTS AND GEOPHYSICISTS OF ALBERTA.

MY EXPERIENCE INCLUDES SERVICE AS AN EXPLORATION GEOLOGIST WITH THE DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT, YUKON, FROM 1983 TO 1985. FROM 1986 TO 1993, I HAVE CONDUCTED AND DIRECTED PROPERTY EXAMINATIONS AND EXPLORATION PROGRAMS ON BEHALF OF COMPANIES AS A GEOLOGIST IN THE EMPLOY OF R.A. OLSON CONSULTING LTD. AND ITS PREDECESSOR COMPANY TRIGG, WOOLLETT, OLSON CONSULTING LTD. OF EDMONTON, ALBERTA. SINCE JANUARY 1994, I HAVE CONDUCTED AND DIRECTED PROPERTY EXAMINATIONS, PROPERTY EVALUATIONS AND EXPLORATION PROGRAMS ON BEHALF OF COMPANIES AS A PRINCIPAL IN APEX GEOSCIENCE LTD.

I HAVE NO INTEREST, DIRECT OR INDIRECT, IN THE PROPERTIES THAT ARE THE SUBJECT OF THIS REPORT OR SECURITIES OF GRIZZLY GOLD INC. AND INDOCAN RESOURCES INC., NOR DO I EXPECT TO RECEIVE SUCH INTEREST. AS WELL, APEX GEOSCIENCE LTD. HAS NO INTEREST, DIRECT OR INDIRECT, IN THE PROPERTIES, OR SECURITIES OF GRIZZLY GOLD INC. AND INDOCAN RESOURCES INC., NOR DOES IT EXPECT TO RECEIVE SUCH INTEREST.

THIS REPORT ENTITLED "INTERIM ASSESSMENT REPORT FOR THE SPIRIT RIVER PROPERTIES, PEACE RIVER, ALBERTA" WAS WRITTEN UNDER MY SUPERVISION AND IS BASED UPON THE STUDY OF PUBLISHED AND UNPUBLISHED DATA. I HAVE PERFORMED A FIELD EXAMINATION OF THE SPIRIT RIVER PROPERTIES, AND HAVE CONDUCTED CONSIDERABLE FIELDWORK IN THE REGIONS SURROUNDING THESE PROPERTIES.

I HEREBY GRANT GRIZZLY GOLD INC. AND INDOCAN RESOURCES INC., PERMISSION TO USE THIS REPORT AS AN INTERIM ASSESSMENT REPORT FOR THE SPIRIT RIVER PROPERTIES.

M.B. DUFRESNE, M.SC., P.GEOL.

FEBRUARY, 2001
EDMONTON, ALBERTA

CERTIFICATION

I, A.K. NOYES OF [redacted], EDMONTON, ALBERTA, CERTIFY AND DECLARE THAT I AM A GRADUATE OF THE UNIVERSITY OF WESTERN ONTARIO WITH A B.SC. DEGREE IN GEOLOGY (1997) AND A GRADUATE OF THE UNIVERSITY OF ALBERTA WITH AN M.SC. DEGREE IN GEOLOGY (2000).

MY EXPERIENCE INCLUDES SERVICE AS A GEOLOGICAL ASSISTANT WITH MONOPROS LTD., YELLOWKNIFE, NORTHWEST TERRITORIES DURING THE SUMMERS OF 1996 TO 1999. SINCE JUNE 2000, I HAVE BEEN EMPLOYED BY APEX GEOSCIENCE LTD. AS AN EXPLORATION GEOLOGIST.

I HAVE NO INTEREST, DIRECT OR INDIRECT, IN THE PROPERTIES THAT ARE SUBJECT OF THIS REPORT OR SECURITIES OF GRIZZLY GOLD INC. AND INDOCAN RESOURCES INC., NOR DO I EXPECT TO RECEIVE SUCH INTEREST. AS WELL, APEX GEOSCIENCE LTD. HAS NO INTEREST, DIRECT OR INDIRECT, IN THE PROPERTIES, OR SECURITIES OF GRIZZLY GOLD INC. AND INDOCAN RESOURCES INC., NOR DOES IT EXPECT TO RECEIVE SUCH INTEREST.

THIS REPORT ENTITLED "INTERIM ASSESSMENT REPORT FOR THE SPIRIT RIVER PROPERTIES, PEACE RIVER, ALBERTA" IS BASED UPON STUDY OF PUBLISHED AND UNPUBLISHED DATA AND FIELD EXAMINATIONS CONDUCTED THEREON. I HAVE NOT PERSONALLY VISITED THE PROPERTIES THAT ARE THE SUBJECT OF THIS REPORT.

I HEREBY GRANT GRIZZLY GOLD INC. AND INDOCAN RESOURCES INC., PERMISSION TO USE THIS REPORT AS AN INTERIM ASSESSMENT REPORT FOR THE SPIRIT RIVER PROPERTIES.

A.K. NOYES, M.SC.

FEBRUARY, 2001
EDMONTON, ALBERTA

APPENDIX 1

LEGAL DESCRIPTIONS

APPENDIX 1

LEGAL DESCRIPTIONS

Permit Number	Commencement of term	Permit Holder	Area (Ha)	Legal Description
9398100001	October 8, 1998	Grizzly Gold Inc.	9176	**6-06-82:** 3-6; 8; 9S, NWP, NE; 10; 15; 16E, WP; 17; 19; 20EP, W; 21; 22; 27; 28; 29S, NWP, NE; 30-34. **6-06-83:** 5; 6E, WP; 7N, SE, SWP; 8. **6-07-82:** 1; 2; 11; 12; 14; 23-25; 36. **6-07-83:** 1; 12.
9398100002	October 8, 1998	Grizzly Gold Inc.	9216	**6-07-82:** 3-10; 15-22; 26-35. **6-08-82:** 1; 2; 11-14; 23-26.
9398100003	October 8, 1998	Grizzly Gold Inc.	8960	**6-06-83:** 17-22; 27-30; 32-34. **6-06-84:** 2; 6; 7; 18. **6-07-83:** 2; 3; 10; 11; 13; 14; 23-26; 35; 36. **6-07-84:** 1; 2; 11-14.
9398100004	October 8, 1998	Grizzly Gold Inc.	9216	**6-07-83:** 4-9; 15-22. **6-08-82:** 35; 36. **6-08-83:** 1-7; 10-18; 21-24.
9398100005	October 8, 1998	Grizzly Gold Inc.	9216	**6-07-83:** 27; 28; 33; 34. **6-07-84:** 3-10; 15-22; 27-30. **6-08-83:** 25;26; 35; 36. **6-08-84:** 1; 2; 11-14; 23; 24.
9398100006	October 8, 1998	Grizzly Gold Inc.	8704	**6-08-83:** 19; 20; 27-34. **6-08-84:** 3-10; 15-18; 21; 22; 25-28. **6-09-84:** 10-15.
9398100008	October 8, 1998	Grizzly Gold Inc.	6144	**6-06-85:** 2; 10-15; 22; 27; 34; 35. **6-06-86:** 2;3; 10; 11; 14-16; 21-23; 26-28.
9398100009	October 8, 1998	Grizzly Gold Inc.	2304	**6-07-85:** 1; 11-14; 23-26.
9398100010	October 8, 1998	Grizzly Gold Inc.	4608	**6-08-85:** 15-22; 25-30. **6-09-85:** 13; 24; 25; 36.
9398100011	October 8, 1998	Grizzly Gold Inc.	8704	**6-09-85:** 14; 19-23; 26-35. **6-10-84:** 23-26; 35; 36. **6-10-85:** 1; 2; 11-14; 23-26; 35; 36.

APPENDIX 2

SPECTRA OPERATIONS REPORT

OPERATIONS REPORT

SPIRIT RIVER, ALBERTA
HIGH RESOLUTION AEROMAG SURVEY

Project 0007

For
APEX GEOSCIENCE LTD,
Edmonton, Alberta, Canada

By
SPECTRA AVIATION SERVICES CORP. Calgary, Alberta, Canada

March 2000

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1.0 INTRODUCTION

This report describes the specifications and operations of an airborne geophysical survey carried out for Apex Geoscience Ltd. by Spectra Aviation Services Corp. during February, 2000. Spectra Aviation Services is a wholly owned subsidiary of Spectra Exploration Geoscience Corp., and is located at Suite 2610, 520 - 5th Avenue SW, Calgary, Alberta T2P 3R7. Telephone (403) 777-9280, fax (403) 777-9289, and email: spectra@nucleus.com.

The purpose of a survey of this type was to acquire high resolution, high sensitivity aeromagnetic data over two Project Areas near Peace River, Alberta. The end result of the HRAM data processing was to provide detailed maps to assess the area for anomalies and magnetic features pertaining to their relevance in minerals exploration.

To achieve this purpose, the survey areas were systematically traversed by an aircraft carrying geophysical instruments along parallel flight lines (traverses) spaced 250 meters apart in an East-West alignment. Tie – lines were flown normal to the traverses spaced at 1,000m. The nominal flying height was a best – fit draped 100 meters above the terrain surface.

2.0 SURVEY AREA

The survey areas are located near Peace River, Alberta, and are bounded by the following UTM coordinates:

Corner No.	Longitude (W)	Latitude (N)
1	362584	6244431
2	376638	6244031
3	376539	6240631
4	381438	6240491
5	381304	6235700
6	386381	6235561
7	386241	6229307
8	382880	6229398
9	382761	6226070
10	386642	6225965
11	386375	6214919
12	365580	6215491
13	365893	6225536
14	358477	6225774
15	358951	6241146

1	346759	6256265
2	360435	6255828
3	360379	6254128
4	370490	6253806
5	370433	6250951
6	367261	6251050
7	367116	6246413
8	350811	6246956
9	350577	6240311
10	346225	6240430
11	346759	6256265

A flight line map of the project area is attached in the Appendix to this report. Note that the Project Area is extended by 500 m to eliminate any "edge effects" on the processed data within the Project Area.

3.0 EQUIPMENT SPECIFICATIONS

3.1 AIRCRAFT

The survey was carried out using Spectra's Piper Navajo PA 31-310C aircraft, registration C-FYTT, configured with a specially-designed rigid-mount tail boom for geophysical survey operations. The aircraft is equipped with a high sensitivity magnetometer and a full on-board real time compensation recording computer, and related equipment. It is a twin engine aircraft with full avionics, including real time GPS.

The aircraft has been extensively modified to conduct airborne geophysical surveys. Considerable effort has been made to remove all ferruginous materials near the sensor and to ensure that the aircraft electrical systems do not create any noise. With these modifications this aircraft represents one of the quietest magnetic platforms in the industry with a figure of merit of 1.5 nT compensated at this survey location using G.S.C. standards.

The aircraft is operated by Spectra Aviation Services Corp. under full M.O.T approval and certification for specialty flying including airborne geophysical surveys. The aircraft is maintained at base operations by a regulatory AMO Facility, Baker Aviation Inc. and in the field by a Spectra Aviation Services Corp. AME in association with Baker Aviation, AMO.

The following table list the relevant aircraft flight parameters for conducting HRAM surveys. In addition, there is an aircraft specifications sheet in the Appendix.

TYPE	R/N	TSO-* HOURS	FUEL CAPACITY	CRUISE (kts)	SURVEY ENDURANCE
PIPER NAVAJO	C-FYTT	LE 1,662 RE 50	192 gallons, AVGAS 100/130	176 knots survey:160 stall: 71	5.5 hours
PIPER NAVAJO	C-FZHG	LE 328 RE 204	242 gallons** AVGAS 100/130	176 knots survey:160 stall: 71	6.5 hours

Normal Climb/Descent Gradient	1,445 FPM ***
Survey Fuel Consumption	~ 30.5 gph

* TSO = Time Since Overhaul
** This aircraft has Nayak wing-locker tanks for additional duration.
*** This is best rate of climb at SL at gross weight as indicated in the Piper pilots operating manual; short duration rate of climb is much higher, dependent on outside temperature.

3.2 AIRBORNE GEOPHYSICAL EQUIPMENT

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

Cesium Vapor Magnetometer:

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

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

Manufacturer	Bartington Instruments Ltd.
Model	MAG-03MC
Internal Noise	at 1 Hz - 1 kHz; 0.6 nT rms
Bandwidth	0 to 1 kHz maximally flat, -12 dB/octave roll off beyond 1 kHz
Frequency Response	1 HZ - 100 Hz: +/- 0.5% 100 Hz - 500 Hz: +/- 1.5% 500 Hz - 1 kHz: +/- 5.0%
Calibration Accuracy:	+/- 0.5%
Orthogonality	+/- 0.5% worst case
Package Alignment	+/- 0.5% over full temperature range
Scaling Error	absolute: +/- 0.5% between axes: +/- 0.5%

Video Camera (camera mounted in belly of aircraft):

Manufacturer	Sanyo
Model	VDC-2982 (colour)
Specifications	1/2", 470 hr, 1.3LX. 12VDC, C/CS,EI/ES, backlite comp
Lens	Pentax, F1.8-360, auto iris

Video Recorder (strapped to computer rack/floor plate):

Manufacturer	Orion
Model	TV / Video combination

Radar Altimeter:

Manufacturer	King
Model	KRA-10A
Accuracy	5% up to 2,500 feet
Calibrate Accuracy	1%
Output	Analogue for pilot; Converted to digital for data acquisition

Barometric Altimeter:

Manufacturer	Sensym
Model	LX18001AN
Source	Coupled to aircraft pitot static system

Differential GPS Receiver (# 511 aircraft certified antenna mounted on top of the cabin roof):

Manufacturer	Novatel
Model	Novatel Card for magnetic system; King KLN-89B for pilot (interfaced)
Serial Number	GPS 511
Type	Continuous tracking, L1 frequency, C/A code (SPS), 12 channel (independent)
Position Sensitivity	once per second

Accuracy	position (SA implemented) 100 meters, position (no SA) 30 m, velocity 0.1 knot, time recovery 1 pps, 100 nsec pulse width
Data Recording	all GPS data and positional data logged by Picodas Unit

Navigation Interface (with pilot and operator readouts):

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

Data Acquisition System :

Manufacturer	Picodas Group Inc.
Model	PDAS 1000 – Helimag & PNAV / PDAS 2000
Operating System	MS-DOS
Microprocessor	80486dx - 66 CPU
Coprocessor	Intel 8048dx
Memory	On board up to 8 MB, page interleaving, shadow RAM for BIOS, support EMS 4.0
Clock	real time; hardware implementation of MC14618 in the integrated peripherals controller
I/O Slots	5 AT and 3 PC compatible slots
Display	Electro – luminescent 640x400 pixels
Graphic Display	Scrolling analog chart simulation with up to 5 windows operator selectable; freeze display capability to hold image for inspection
Recording Media	Standard 540 Mbyte hard disk with extra shock mounts; Standard 1.44 Mbyte floppy disk; Standard tape backup
Sampling	Selectable for each input type; 1, 0.5, 0.25, 0.2 or 0.1 seconds
Inputs	12 differential analog input with 16 bit resolution
Serial Ports	2 RS-232C (expandable)
Parallel Ports	Ten definable 8 bit I/O; Two definable 8 bit outputs

The Helimag also contains the magnetometer processor boards, one for each cesium vapor magnetometer installed

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

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

Other Boards:

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

Power Supplies:

1) Power Distribution Unit manufactured by Picodas Group Inc. interfaces with the aircraft power and provides filtered and continuous power at 27.5 VDC to all components.
2) The Helimag contains a 32 volt DC cesium sensor switching power supply for the cesium vapor magnetometers in conjunction with real time magnetometer compensation; also enables interfacing the fluxgate magnetometer and the barometric altimeter; also provides clean power for radar altimeter and ancillary equipment (PC notebook, printer)

3.3 MAGNETOMETER BASE STATION

High sensitivity base station data are provided by a cesium vapor magnetometer, data logging onto a PC 486sx notebook and time synchronization with ground GPS receiver.

Magnetic Sensor:

Identical to magnetometer in aircraft

Magnetic Processor:

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

Logging Software:

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

3.4 GPS BASE STATION

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

Manufacturer	Novatel

Model	Novatel Card
Type	Continuous tracking, L1 frequency, C/A code (SPS), 10 channel (independent)
Position Update	once per second
Accuracy	with SA implemented 100 meters, no SA 30 meters, velocity 0.1 knot, time recovery 1 pps, 100 nsec pulse width
Data Recording	all GPS raw and positional data logged by PDAS 1000

4.0 SURVEY SPECIFICATIONS

4.1 LINES AND DATA

Survey area coverage	3,212 line km Area 1; 1,095 Line km Area 2
Line Direction	090-270 degrees azimuth
Line Interval	250 meters
Tie Line Interval	1,000 meters - flown orthogonal to survey lines
Terrain Clearance	100 meters, +/- 10 m, optimum drape mode
Average ground speed	70-80 meters/second
Data point interval:	Magnetic: 7-8 meters relative ground spacing per sample point

4.2 TOLERANCES

Line spacing: At no point did the traverse or control lines deviate more than 15% of the nominal spacing from the pre-plot line locations.

Terrain clearance: 75% of the entire survey was within +/- 10 m of the nominal survey elevation of 100 meters drape mode. 85% of the entire survey was within +/- 20 m of the nominal survey elevation and 100% of the survey was within +/- 30 m of the nominal survey elevation.

Diurnal magnetic variation: A maximum deviation of +/- 2.50 nT from a curvilinear mean within the time span required to acquire 10 line kilometers of data at the specified minimum sampling interval.

Missing data: Any lines with channels missing from the database or video that was not viewable was reflown

4.3 NAVIGATION AND RECOVERY

The satellite navigation system is used to ferry to the survey site and to survey along each line using latitude/longitude coordinates. The survey coordinates of the survey outline for navigation purposes and flight path recovery were calculated from the Project Area coordinates listed above, and optimized for most efficient data acquisition.

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

The navigational and flight path recovery positioning is based on the 1:50,000 NTS maps, which are referenced to the Clarke 1866 ellipsoid.

A video camera recorded the ground image along the flight path. A video screen in the aircraft cabin enabled the operator to monitor the accuracy of the flight path during the survey. This system also provided a backup system and verification for flight path recovery.

4.4 OPERATIONAL LOGISTICS

The main base of operations for the Spirit River HRAM survey was Peace River, Alberta. The base station magnetometer and GPS equipment were located at the Peace River airport, approximately 100ft west of the Highland Helicopter hanger. The coordinates for the base station were: 56^0 13' 47.9"N, 117^0 27' 01.2; 573.98 m ASL.

The field crew consisted of: Doris Giles – Survey Pilot
Jeremy Weber – Equipment Operator/Field Data Processor

The processing crew was: Jim Genereux – Project Manager
Paul Klein – Senior Processor, Quality Control
Erwin Ebner – Consulting Geophysicist

The survey crew arrived in Peace River on April 15, 2000, to set up the base station and establish local support facilities. The first data acquisition flight for the survey was made on April 17, and completed on April 30. There were a total of 16 flights, including ferry and survey flights, compensation, scrubbed missions, and reflights. The figure of merit (FOM) was measured at 1.5 nT for C-FYTT, and the results of the project FOM are in the Appendix.

After each mission the flight crew forwarded the digital data files via FTP to the Calgary office for Quality Control of each flight line, and preliminary data processing. Each line of data was plotted in paper profile format displaying rawmag, groundmag, noise, 4th difference RA, barometric altimeter, Lat./Long. These, with the digital review, were the basis for the data QC. Any flight lines that exceeded the survey specifications due to aircraft positioning, diurnal variations or noise were noted for reflight, and forwarded to the flight crew.

5.0 DATA PROCESSING

Initially, a preliminary QC was performed by our field crew, checking on all recorded parameters and procedures. The data were sent immediately after collection to Spectra's Calgary office via a secure FTP site. The preliminary processing during the survey consisted of the following:

1) Software program C3NAV (by Picodas) was applied to the base and aircraft GPS data in order to provide post-flight compensated GPS location of the flight path.
2) Program C3NAV2TBL (by Geosoft) to produce two table files (UTM-X -Y -Z, and LAT/LON)
3) Use READMAG (by Picodas) on raw binary base (diurnal) magnetic data to create BASEMAG table.
4) Import all flight and base data.
5) Edit BASEMAG channel to remove any occasional spikes and linearly interpolate across the gaps. (Occasionally we filter the BASEMAG with a low pass filter to remove high frequency near surface and local disturbances; this was specifically requested not to be performed).
6) When required, establish table of mean terrain clearances at intersection locations from tie line data to provide elevation guidance for survey line navigation. Grid differences in elevations at intersections of tie and survey lines to provide quality check on elevation control and tag any for reflight.
7) Edit flight path channels to remove any spikes and linearly interpolate gaps.
8) Edit RAWMAG channel to remove any spikes and linearly interpolate gaps.
9) Create new channel as MAGDC = (MAG1 - BASEMAG) + base constant.
10) Perform lag correction and heading correction to MAGDC channel: lag is 0.6 seconds
11) Perform tie line leveling using all the survey line data to level the tie lines

12) Perform survey line leveling using the leveled tie lines; final leveled channel is labeled LEVMAGDC
13) All data were viewed on the screen on a line by line basis using the interactive Montaj database to inspect for quality, required tolerances and data integrity.
14) Produce preliminary flight path map and gridded magnetic intensity map including shadowing.
15) Plot analog charts of MAG1 and MAGDC in output format, for data quality.
16) Plot survey line and tie line flight paths and profiles for quality control inspection.
17) Produce final map suite deliverables.

5.1 DATA PRODUCTS

The following 1:50,000 scale map products were generated for Apex Geoscience Ltd.

- Total Magnetic Intensity map, reduced to pole, with Flight Path overlay
- 1st Vertical Derivative of TMI
- Vertical and Horizontal Gradient maps of TMI
- Band-pass maps and depth to source maps
- Shallow Target Enhancement map of TMI

In addition, a CD-ROM of all digital files has been delivered for any client-specific data processing of the HRAM data. As well, all flight videos and profiles of all lines plotted on 11" x 17" fanfold paper form part of the deliverables.

6.0 SUMMARY

An airborne high sensitivity, high resolution magnetic survey has been carried out at 100 meter drape mode elevation, 250 meter line intervals and with data sample stations at 7 -8 meters along the lines. Tie lines were spaced at 1,000 meters. A high sensitivity base magnetic station recorded the diurnal activity throughout the survey and a base GPS station was used to correct range errors in the GPS flight path recovery. Airborne recorded data included one fully compensated magnetometer located in rear stinger, radar altimeter, barometric altimeter and all attendant GPS data. The magnetic data have been processed, gridded and provided on CD-ROM, and hard-copy plotted at 50,000 scale.

SPECTRA AVIATION SERVICES CORP.

Jim Genereux, P. Geo.
President

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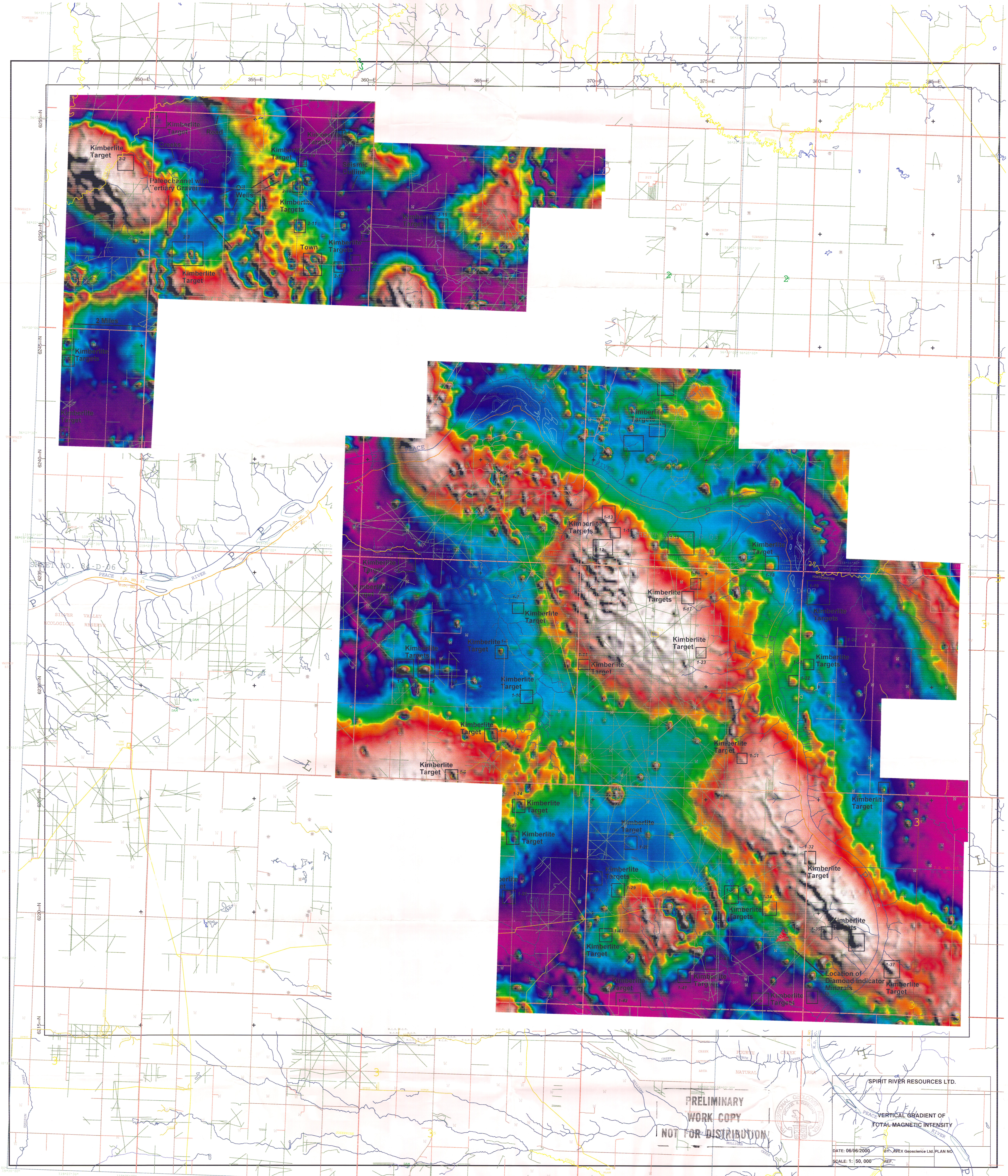
SASKATCHEWAN

Association of Professional Engineers & Geoscientists
of Saskatchewan
CERTIFICATE OF AUTHORIZATION
Spectra Exploration Geoscience Corp.
Number C1070
Permission to Consult held by:

Discipline	Sk. Reg. No.	Signature
PGeo	10633	

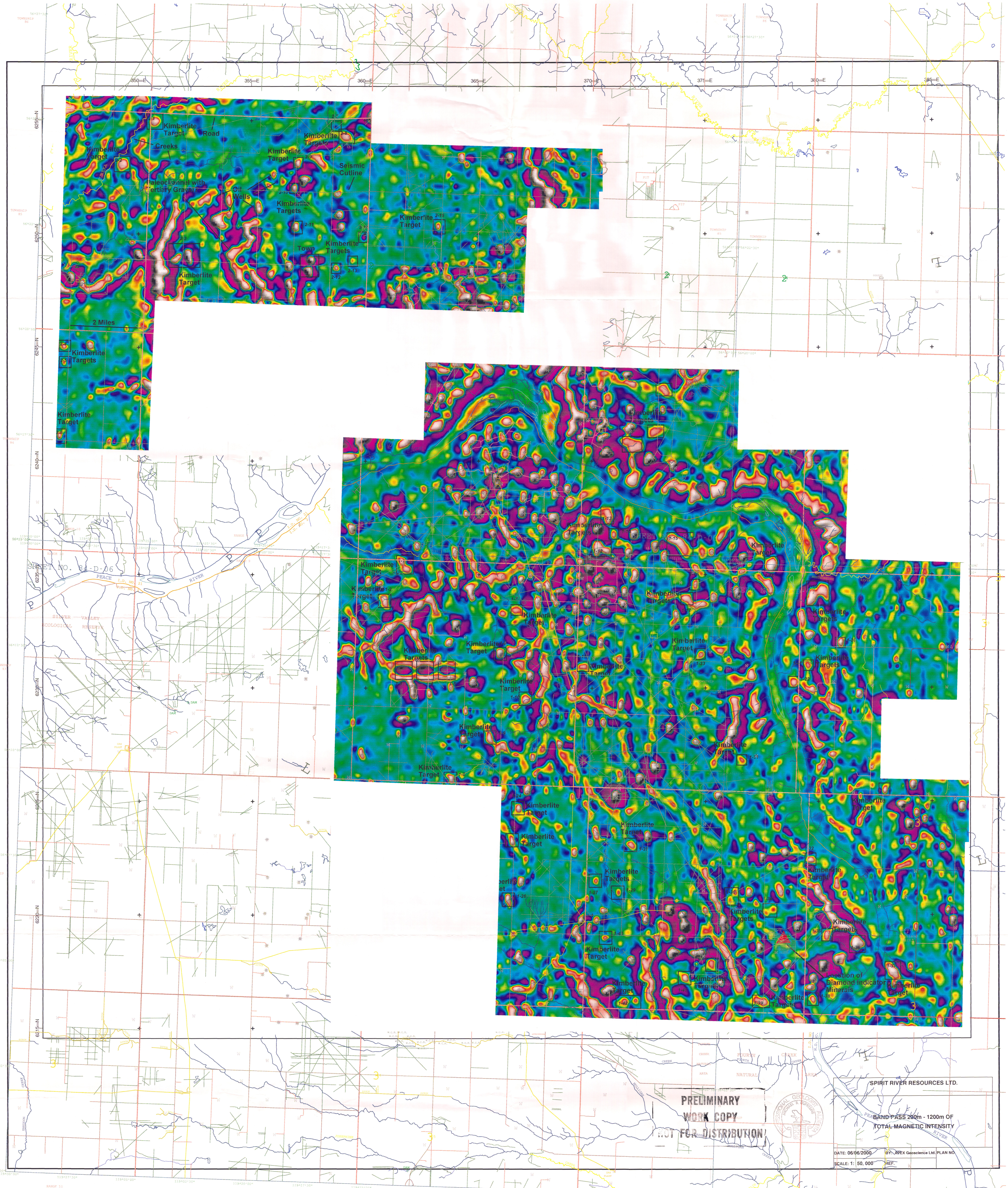
APPENDIX 3

TOTAL MAGNETIC INTENSITY MAP



SHEET NO. 84-D-03

SHEET NO. 84-D-02



SHEET NO. 84-D-03

SHEET NO. 84-D-02

APPENDIX 4

SAMPLE LOCATIONS AND DESCRIPTIONS

APPENDIX 4

SAMPLE LOCATIONS

July Samples

Sample Name	Easting	Northing	Sample Name	Easting	Northing
0MLT100	375949	6219000	0MLT130	364007	6234668
0MLT101	371227	6215846	0MLT131	364384	6235557
0MLT102	372461	6215842	0MLT132	379384	6228426
0MLT103	372584	6217351	0MLT133	368330	6251653
0MLT104	366558	6224493	0MLT134	368342	6252781
0MLT105	366101	6221871	0MLT135	367562	6252903
0MLT106	366427	6220430	0MLT136	365852	6252368
0MLT107	367223	6219518	0MLT137	372989	6243353
0MLT108	366408	6219264	0MLT138	373949	6242034
0MLT109	369030	6226372	0MLT139	360466	6252888
0MLT110	369856	6224881	0MLT140	359374	6254012
0MLT111	369856	6225635	0MLT141	359016	6254233
0MLT112	370414	6224159	0MLT142	359261	6254404
0MLT113	369303	6230619	0MLT143	359236	6254812
0MLT114	368068	6233171	0MLT144	352818	6247246
0MLT115	367999	6231347	0MLT145	355259	6246414
0MLT116	385485	6218643	0MLT146	354912	6251494
0MLT117	384883	6222010	0MLT147	353661	6251201
0MLT118	383819	6231821	0MLT148	350349	6249805
0MLT119	383777	6231780	0MLT149	350208	6247173
0MLT120	383650	6231542	0MLT150	350129	6244100
0MLT121	385378	6233289	0MLT151	348849	6250008
0MLT122	381241	6218397	0MLT152	349291	6247544
0MLT123	376112	6214992	0MLT153	350971	6246433
0MLT124	375682	6228443	0MLT154	350831	6246707
0MLT125	376500	6227942	0MLT155	346419	6243595
0MLT126	373674	6227160	0MLT156	347546	6218177
0MLT127	374565	6221050	0MLH100	372733	6219022
0MLT128	374548	6220364	0MLH101	363061	6248650
0MLT129	363676	6235592	0MLH102	334217	6243450

October Samples

Sample Name	Easting	Northing	Sample Name	Easting	Northing
OCSS001	379540	6213592	OCSS014	361103	6240276
OCSC002	378918	6213446	OCSS015	358034	6237817
OCSS003	379263	6224561	OCSS016	351511	6234934
OCSS004	378300	6229900	OCSS017	362300	6247337
OCSS005	378456	6233623	OCSS018	372722	6219206
OCSS006	379577	6235424	OCSS019	372712	6218572
OCSS007	378568	6236534	OCSS020	372710	6219238
OCSS008	377738	6232184	OCSS021	372972	6219158
OCSS009	380625	6216191	OCSS022	377995	6219112
OCSS010	375176	6238101	OCSS023	378159	6220389
OCSS011	371014	6230321	OCSS024	378200	6221173
OCSS012	367671	6241915	OCSS025	376825	6221779
OCSS013	370633	6238776	OCSS026	376825	6221779

SURVEY TYPE: Till CLIENT & PROJECT: Indocan AREA & / or PHOTO: 84D/6 COLLECTOR(S): AN/ML DATE: July 26/

NTS	YEAR	INIT.	SAMPLE TYPE	NUMBER	LOCATION (Zone)	(Grid Coord. or UTM.) UTM East	UTM North	ROCK TYPE	WTHR	VEGETATION
	00	ML	T	151	11V	348849	6250008		Clr	Dec; Forest
	00	ML	T	152	11V	349291	6247544		Clr	Grs; Field
	00	ML	T	153	11V	350971	6246433		Clr	Grs; Field
	00	ML	T	154	11V	350831	6246707		Clr	Grs; Field

NUMBER	VEG. INT.	RELIEF	CONTAMINATION	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	ORIGINAL SAMPLE NO.
151		Low		80cm	5cm	A	Mst	grey	Clay	
152		Low		1.1m	15cm	A	Mst	dk. grey	Clay	
153		Low		1m	20cm	A	Mst	dk. grey	Clay	
154		Low		1m	20cm	A	Mst	dk grey	Clay	

REMARKS (151): compacted clay, 90% clay 5% silt ≤ 5% clasts

REMARKS (152): no visible clasts, 1km from road, compacted clay, 90% clay, 5% silt ≤ 5% clasts

REMARKS (153): no visible clasts, 90% clay 5% silt ≤ 5% clasts.

REMARKS (154): very compact clay, no visible clasts, silt pockets found within clay 80% clay 15% silt ≤ 5% clasts

GEOCHEMICAL SOIL AND TILL SAMPLE CARD

APEX Geoscience Ltd.

SAMPLE TYPES: S - Soil; T,U,V - Glacial : till, undifferentiated, esker; W - Frost boil; X,Y,Z - Other (define)

99230

SURVEY TYPE: Till CLIENT & PROJECT: Indocan AREA & / or PHOTO: 84D/6 COLLECTOR(S): AN/ML DATE: July 27/0

84D13

NTS	YEAR	INIT.	SAMPLE TYPE	NUMBER	LOCATION (Zone)	UTM East	UTM North	ROCK TYPE	WTHR	VEGETATION
	00	ML	T	155	11V					
	00	ML	T	156	11V	347546	6218177		Cldy	Grs; Field

NUMBER	VEG. INT.	RELIEF	CONTAMINATION	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	ORIGINAL SAMPLE NO.
155										
156		Med		1m	—	/	Wet	Yel; Brn	Clay	

REMARKS (155):

REMARKS (156): sampled topo high, till very different in colour from what we usually get, no visible clasts, 90% clay 5% silt ≤ 5% clasts

REMARKS:

REMARKS:

GEOCHEMICAL SOIL AND TILL SAMPLE CARD

SURVEY TYPE: Till | CLIENT & PROJECT: 99230 Indocan | AREA & / or PHOTO: 84D/6 | COLLECTOR(S): AN/ML | DATE: July 24/0

NTS	YEAR	INIT.	SAMPLE TYPE	NUMBER	LOCATION	(Grid Coord. or UTM.)	ROCK TYPE	WTHR	VEGETATION
	00	ML	T	144	11V	352818 6247246		X	X Grs, Field

VEG. INT.	RELIEF	CONTAMINATION	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	ORIGINAL SAMPLE NO.
	X Low		1m	20cm	A	X Mst	dk grey	X Clay	

REMARKS: Slightly compacted, small oxidized pockets, no visible clasts 90% clay 5% silt < 5% clasts

NTS	YEAR	INIT.	SAMPLE TYPE	NUMBER	LOCATION	(Grid Coord. or UTM.)	ROCK TYPE	WTHR	VEGETATION
	00	ML	T	145	11V	355259 6246414		X	X Grs, Field (July 25)

VEG. INT.	RELIEF	CONTAMINATION	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	ORIGINAL SAMPLE NO.
	X Low		90cm	15cm	A	X Mst	dk grey/blk	X Clay	

REMARKS: topo depression, subrounded cobbles, oxidized pockets, semi-Compacted, poor quality till, 85% clay 5% silt 10% clasts

NTS	YEAR	INIT.	SAMPLE TYPE	NUMBER	LOCATION	(Grid Coord. or UTM.)	ROCK TYPE	WTHR	VEGETATION
	00	ML	T	146	11V	354912 6251494		X	X Grs, Field

VEG. INT.	RELIEF	CONTAMINATION	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	ORIGINAL SAMPLE NO.
	X Low		1.2 ~~m~~ m	25cm	A	X Mst	dk gray ~~Blk~~	X Clay	

REMARKS: ~~topo depr~~ clay grades from brown to dk grey with depth + also becomes more compact, no visible clasts, poor quality 90% clay 5% silt ≤5% clasts

NTS	YEAR	INIT.	SAMPLE TYPE	NUMBER	LOCATION	(Grid Coord. or UTM.)	ROCK TYPE	WTHR	VEGETATION
	00	ML	T	147	11V	353661 6251201		X	X Grs, Field

VEG. INT.	RELIEF	CONTAMINATION	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	ORIGINAL SAMPLE NO.
	X Low		1.5m	—	—	X Mst/Dry	dk grey	X Clay	

REMARKS: pockets of tan silt w/ small clasts, rounded pebbles present, clay is crumbly towards bottom 70% clay 5% sand 10% silt 15% clasts

GEOCHEMICAL SOIL AND TILL SAMPLE CARD

APEX Geoscience Ltd.

SAMPLE TYPES: S - Soil; T,U,V - Glacial : till, undifferentiated, esker; W - Frost boil; X,Y,Z - Other (define)

SURVEY TYPE: Till | CLIENT & PROJECT: 99230 Indocan | AREA & / or PHOTO: 84D/6 | COLLECTOR(S): AN/ML | DATE: July 25/0

NTS	YEAR	INIT.	SAMPLE TYPE	NUMBER	LOCATION	(Grid Coord. or UTM.)	ROCK TYPE	WTHR	VEGETATION
	00	ML	T	148	11V	350349 6249805		X	X Grs, field

VEG. INT.	RELIEF	CONTAMINATION	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	ORIGINAL SAMPLE NO.
	X Low		1.1m	20cm	A	X Mst	dk. grey	X Clay	

REMARKS: no visible clasts, poor quality sample, 90% clay 5% silt ≤ 5% clasts

NTS	YEAR	INIT.	SAMPLE TYPE	NUMBER	LOCATION	(Grid Coord. or UTM.)	ROCK TYPE	WTHR	VEGETATION
	00	ML	T	149	11V	350208 6247173		X	X Grs, Field

VEG. INT.	RELIEF	CONTAMINATION	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	ORIGINAL SAMPLE NO.
	X Low		70cm	5cm	A	X Mst	dk. grey	X Clay	

REMARKS: center of anomaly is swampy, sticky clay, few rounded pebbles, 85% clay 5% silt 10% clasts

NTS	YEAR	INIT.	SAMPLE TYPE	NUMBER	LOCATION	(Grid Coord. or UTM.)	ROCK TYPE	WTHR	VEGETATION
	00	ML	T	150	11V	350129 6244100		X	X Grs, ditch

VEG. INT.	RELIEF	CONTAMINATION	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	ORIGINAL SAMPLE NO.
	X Low		1.1m	15cm	A	X Mst	dk. grey	X Clay	

REMARKS: Swamp nearby, no visible clasts, clay is ductile (clay comes out in rolls) 90% clay 5% silt ≤5% clasts

NTS	YEAR	INIT.	SAMPLE TYPE	NUMBER	LOCATION	(Grid Coord. or UTM.)	ROCK TYPE	WTHR	VEGETATION

VEG. INT.	RELIEF	CONTAMINATION	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	ORIGINAL SAMPLE NO.

REMARKS:

GEOCHEMICAL SOIL AND TILL SAMPLE CARD

APEX Geoscience Ltd.

SURVEY TYPE: Till CLIENT & PROJECT: Indocan AREA & / or PHOTO: 84D/6 COLLECTOR(S): AN/ML DATE: July 22/0

YEAR	INIT.	S.TYPE	NUMBER	LOCATION	(Grid Coord. or UTM.) East	North	WTHR	VEGETATION	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION
00	ML	T	136	11V	365852	6252368	Clr	Grs, field	Low	75cm	15cm	A	Mst	dk grey to blk	Clay

REMARKS: poor quality sample, no visible clasts, 90% clay 5% silt ≤5% clasts sampled in a lowlying area

July 23/0

YEAR	INIT.	S.TYPE	NUMBER	LOCATION	East	North	WTHR	VEGETATION	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION
00	ML	T	137	11V	372989	6243353	Clr	Grs, ditch	Low	1.2m	20cm	A	Mst	dk grey	Clay

REMARKS: swampy area, patches of oxidized material, silt pockets, rounded pebbles, 85% clay 10% silt 5% clasts

YEAR	INIT.	S.TYPE	NUMBER	LOCATION	East	North	WTHR	VEGETATION	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION
00	ML	T	138	11V	373949	6242034	Clr	Dec, Swamp	Low	1m	15cm	A	Dry	dk grey	Clay

REMARKS: compacted clay @ bottom, no clasts visible, 90% clay 5% silt ≤5% clasts

YEAR	INIT.	S.TYPE	NUMBER	LOCATION	East	North	WTHR	VEGETATION	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION
00	ML	T	139	11V	360466	6252888	Clr	Dec, Swamp	Low	1.1m	–	–	Wet	grey	Clay

REMARKS: No clasts visible, 90% clay 5% silt ≤5% clasts, sampled in a depression surrounded by little mounds

GEOCHEMICAL SOIL AND TILL SAMPLE CARD

SAMPLE TYPES: S - Soil; T,U,V - Glacial : till, undifferentiated, esker; W - Frost boil; X,Y,Z - Other (define)

APEX Geoscience Ltd.

SURVEY TYPE: Till CLIENT & PROJECT: 99230 Indocan AREA & / or PHOTO: 84D/6 COLLECTOR(S): AN/ML DATE: July 24/0

YEAR	INIT.	S.TYPE	NUMBER	LOCATION	East	North	WTHR	VEGETATION	VEG. INT. / RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION
00	ML	T	140	11V	359374	6254062	Clr	Con, forest	W.F., Low	70cm	–	–	Mst	grey/brn	Clay

REMARKS: balls of silt within clay, semi-compacted till, no visible clasts 80% clay 15% silt ≤5% clasts

YEAR	INIT.	S.TYPE	NUMBER	LOCATION	East	North	WTHR	VEGETATION	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION
00	ML	T	141	11V	359016	6254233	Clr	Grs, field	Low	50cm	10cm	A	Dry	grey	Clay

REMARKS: slightly compacted, rounded pebbles seen at upper units, few organics in sample 90% clay 5% silt ≤5% clasts

YEAR	INIT.	S.TYPE	NUMBER	LOCATION	East	North	WTHR	VEGETATION	VEG. INT. / RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION
00	ML	T	142	11V	359261	6254404	Clr	Con, forest	W.F., Low	1m	15cm	A	Mst	dk. grey	Clay

REMARKS: organics → moss+roots, few clasts, 90% clay 5% silt 5% clasts

YEAR	INIT.	S.TYPE	NUMBER	LOCATION	East	North	WTHR	VEGETATION	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION
00	ML	T	143	11V	359236	6254812	Clr	Grs, field	Low	1m	15cm	A	Mst	grey	Clay

REMARKS: very compacted clay at bottom, no visible clasts, few organics 90% clay 5% silt ≤5% clasts

SURVEY TYPE: Till CLIENT & PROJECT: Indocan AREA & / or PHOTO: 84D/3 COLLECTOR(S): AN/ML DATE: July 21/0

YEAR	INIT.	S.T.	NUMBER	LOCATION (Zone)	UTM E	UTM N	ROCK TYPE	WTHR	VEGETATION	VEG. INT.	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION
00	ML	T	127	11V	374565	6221050		X	Grs X, Swamp X, Field		Low X	1m	15cm	A	Mst X	dark grey	Clay X
00	ML	T	128	11V	374548	6220364		X	Grs X, field		Low X	1m	10cm	A	Mst X	dk grey/brn	Clay X
00	ML	T	129	11V	363676	6235592		X	Dec X, Swamp X	Mod X	Low X	60cm	—	—	Mst X	dk. grey	Clay X
00	ML	T	130	11V	364007	6234668		X	Dec X, ravine	W.F. X	High X	1m	—	—	Dry X	dk grey	Clay X

REMARKS (127): abundant pebbles → rounded w/ few subangular, small sand pockets found towards bottom of hole 55% clay 10% silt 5% sand 30% c

REMARKS (128): Cobble + pebble sized clasts → rounded to subrounded, silt pockets 65% clay 10% silt 25% clasts

REMARKS (129): clasts seen in upper layers, 80% clay 10% silt, 10% clasts

REMARKS (130): few pebbles → quarzite, rounded, 80% clay 10% silt 10% clasts SW of anomaly

GEOCHEMICAL SOIL AND TILL SAMPLE CARD APEX Geoscience Ltd.

SAMPLE TYPES: S - Soil; T,U,V - Glacial : till, undifferentiated, esker; W - Frost boil; X,Y,Z - Other (define)

99230

SURVEY TYPE: Till CLIENT & PROJECT: Indocan AREA & / or PHOTO: 84D/3 COLLECTOR(S): AN/ML DATE: July 21/0

YEAR	INIT.	S.T.	NUMBER	LOCATION (Zone)	UTM E	UTM N	ROCK TYPE	WTHR	VEGETATION	VEG. INT.	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION
00	ML	T	131	11V	364384	6235557		X	Dec X, Swamp X	Mod X, W.F. X	Low X	60cm	—	—	Dry X	lt brn/grey	Clay X
00	ML	T	132	11V	379384	6228426		X	Dec X, ravine	Mod X	High X	1m	—	—	Dry X	dk grey	Clay X
00	ML	T	133	11V	368330	6251653	84D/6	X	Grs X, ditch		Low X	90cm	—	—	Mst X	dk grey	Clay X
00	ML	T	134	11V	368342	6252281		X	Grs X, ditch		Low X	80cm	—	—	Mst X	dk grey/blk	Clay X

REMARKS (131): few clasts, silt pockets found towards bottom of hole, 75% clay 15% silt 10% clasts

84D/2 July 22/0

REMARKS (132): slope of ravine, 400m to bottom, till sheet, compacted, abundant pebbles rounded to subrounded 70% clay 10% silt 20% cla

REMARKS (133): anomaly could be culture, flat topo, rounded pebbles, pockets of sand + oxidized material 80% clay 5% sand 5% silt 10% clasts

REMARKS (134): 600m north of 133, cobbles found in top layers but not deeper down, pockets of brown silt towards bottom, 80% clay 15% silt 5% clasts.

GEOCHEMICAL SOIL AND TILL SAMPLE CARD APEX Geoscience Ltd.

SURVEY TYPE: Till CLIENT & PROJECT: Indocan AREA & / or PHOTO: 84D/2 COLLECTOR(S): ML/AN DATE: July 18

NTS	YEAR	INIT.	S/T/E	NUMBER	LOCATION	Grid Coord. or UTM. (East)	(North)	DEPTH	THKNS	HORIZ.	RELIEF	MOISTURE	SEDIMENT COLOUR	COMPOSITION	VEGETATION
	00	ML	T	120	11V	383650	6231542	80cm			Low	Mst	Brn	Clay	Field
	00	ML	T	121	11V	385378	6233289	1m	30cm	A	Low	Mst	Dk. grey/brn	Clay	Field
	00	ML	T	122	11V	381241	6218397	1m			High	Mst	Brn	Clay	ravine
	00	ML	T	123	11V	376112	6214992	1m	15cm	A	Low	Mst	Brn	Clay	

REMARKS (120): farmers field, 125m south of road 3, 400m SW of crater sample, no visible clasts, possibly not a good sample, 90% clay 5% silt ≤5% clasts

REMARKS (121): SW of moderate anomaly which is probably culture → old barns, poor quality sample, no visible clasts 90% clay 5% silt ≤5% clasts

REMARKS (122): sampled within a dry creek bed, poor sample quality, 500m SW of a small bridge

REMARKS (123): dk grey clay half way down hole + last 30cm was brown clay 90% clay 5% silt ≤5% clasts, poor quality sample, no visible clasts

GEOCHEMICAL SOIL AND TILL SAMPLE CARD

SAMPLE TYPES: S - Soil; T,U,V - Glacial : till, undifferentiated, esker; W - Frost boil; X,Y,Z - Other (define)

APEX Geoscience Ltd.

99230

SURVEY TYPE: Till CLIENT & PROJECT: Indocan AREA & / or PHOTO: 84D/3 COLLECTOR(S): AN/ML DATE: July 20

NTS	YEAR	INIT.	S/T/E	NUMBER	LOCATION	Grid Coord. or UTM. (East)	(North)	DEPTH	THKNS	HORIZ.	RELIEF	MOISTURE	SEDIMENT COLOUR	COMPOSITION
	00	ML	T	124	11V	375682	6228443	1.1m	/	/	Low	Mst	lt brown	Clay
	00	ML	T	125	11V	376500	6227942	1m	5cm	A	Low	Mst	dark grey	Clay
	00	ML	T	126	11V	373674	6227160	80cm	5cm	A	Low	Mst	light / Brn	Clay

REMARKS (124): possible old paleochannel, abundant clasts → pebbles + cobbles, rounded, 70% clay 15% silt 15% clasts, possibly good till

REMARKS (125): pebble sized clasts, slight topo high in swamp 80% clay 10% silt 10% clasts, ravine close by

REMARKS (126): abundant clasts → rounded, pebbles + cobbles; maybe waterlain sediment 50% clay 30% silt 20% clasts

REMARKS:

GEOCHEMICAL SOIL AND TILL SAMPLE CARD

SURVEY TYPE: Till CLIENT & PROJECT: Indocan AREA & / or PHOTO: 84D/3 COLLECTOR(S): ML/AN DATE: July 17

NTS	YEAR	INIT.	SAMPLE TYPE	NUMBER	LOCATION (Zone)	(Grid Coord. or UTM.)		DEPTH	THKNS	HORIZ.	SEDIMENT COLOUR
	00	ML	T	112	11V	370414	6224159	1m	5cm	A	Dk grey/brn
	00	ML	T	113	11V	369303	6230619	1.2m	30cm	A	Grey
	00	ML	T	114	11V	368068	6233171	0.8m	5cm	A	Grey/brown
	00	ML	T	115	11V	367999	6231347	1m	7cm	A	Dk brn/grey

REMARKS (112): in poplar forest surrounded by swamp, pebble sized clasts → rounded, sedimentary; 80% clay 10% silt 10% clasts

REMARKS (113): 30m into bush from road, sampled on high ridge surrounded by swamp, 50% clay 40% silt 10% clasts.

REMARKS (114): Sampled S of anomaly that could be culture, sampled on slope of a small hill, pebbles → subrounded, compacted @ bottom 80% c/15% st/5% c

REMARKS (115): S of anomaly - culture?, pebble sized clasts - rounded to subroun 80% clay 10% silt 10% clasts, lots of organics

GEOCHEMICAL SOIL AND TILL SAMPLE CARD

SAMPLE TYPES: S - Soil; T,U,V - Glacial : till, undifferentiated, esker; W - Frost boil; X,Y,Z - Other (define)

APEX Geoscience Ltd.

99230

SURVEY TYPE: Till CLIENT & PROJECT: Indocan AREA & / or PHOTO: 84D/2 COLLECTOR(S): ML/AN DATE: July 18/0

NTS	YEAR	INIT.	SAMPLE TYPE	NUMBER	LOCATION (Zone)	(Grid Coord. or UTM.)		VEGETATION	DEPTH	THKNS	HORIZ.	SEDIMENT COLOUR
	00	ML	T	116	11V	385485	6218643	Field	1m	15cm	A	lt brn/grey
	00	ML	T	117	11V	384883	6222016	Field	1m	20cm	A	
	00	ML	T	118	11V	383819	6231821		1.2m			grey/brown
	00	ML	T	119	11V	383777	6231780		1m			

REMARKS (116): weak anomaly - probably farm - south of a mound, no clasts visible 85% clay 10% silt ≤ 5% clasts, 50m from road

REMARKS (117): farmers field SW of weak anomaly with no visible, compacted till white pockets of silt (?) found @ bottom of hole, 85% clay 10% silt ≤ 5% clasts

REMARKS (118): Small hill with crater in middle, sample taken in crater, very compacted till, few clasts seen @ shallow depths → see notes in book (AN) for more

REMARKS (119): sample of SW side of rim, very compact till, no visible clasts, ~75m from MLT118 90% clay 5% silt ≤ 5% clasts

GEOCHEMICAL SOIL AND TILL SAMPLE CARD

APEX Geoscience Ltd.

99230

SURVEY TYPE: Till CLIENT & PROJECT: Indocan AREA & / or PHOTO: 84D13 COLLECTOR(S): ML/AN DATE: July 15,

YEAR	INIT.	S/T	NUMBER	LOCATION (Zone)	Grid Coord. or UTM. (East)	(North)	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	WTHR	VEGETATION
00	ML	T	104	11V	372584	6217351	Low	1m	20cm	A	Mst	Grey	Clay	Cly	Grs

REMARKS: sample taken in farmers field SW of high anomaly which is a farm, coal fragments, 80% clay 15% silt 5% clasts

July 16/0

YEAR	INIT.	S/T	NUMBER	LOCATION (Zone)	Grid Coord. or UTM. (East)	(North)	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	WTHR	VEGETATION
00	ML	T	105	11V	366101	6221871	Low	1m	10cm	A	Mst	Grey	Clay	Cly	Grs

REMARKS: sampled in farmers field @ edge of plot beside ridge of shrubs, 10% clasts Sampled SW of a topo high, abundant clasts, few pebbles 80% clay 10% silt

YEAR	INIT.	S/T	NUMBER	LOCATION (Zone)	Grid Coord. or UTM. (East)	(North)	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	WTHR	VEGETATION
00	ML	T	106	11V	366427	6220430	Low	1m	5cm	A	Mst	black/brown	Clay	Cly	Grs

REMARKS: taken 10m from road, SW of high topo, silty/sandy unit found at bottom of hole (tan) 50% clay 25% silt 10% sand 5% clasts

YEAR	INIT.	S/T	NUMBER	LOCATION (Zone)	Grid Coord. or UTM. (East)	(North)	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	WTHR	VEGETATION
00	ML	T	107	11V	368047	6219518	Low	1m	10cm	A	Mst	Grey	Clay	Cly	Grs

REMARKS: 300m from road, sandy + pebble unit 50cm thick - oxidized, no clasts visible 90% clay 5% silt ≤5% clasts, topo high may be a glacial sediment deposit

GEOCHEMICAL SOIL AND TILL SAMPLE CARD

SAMPLE TYPES: S - Soil; T,U,V - Glacial : till, undifferentiated, esker; W - Frost boil: X,Y,Z - Other (define)

APEX Geoscience Ltd.

99230

SURVEY TYPE: Till CLIENT & PROJECT: Indocan AREA & / or PHOTO: 84D13 COLLECTOR(S): ML/AN DATE: July 16/0

YEAR	INIT.	S/T	NUMBER	LOCATION (Zone)	Grid Coord. or UTM. (East)	(North)	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	WTHR	VEGETATION
00	ML	T	108	11V	367223	6219264	Low	70cm	10cm	A	Mst	Dk. Grey	Clay	Cly	Dec/Grs

REMARKS: 10m from roadside 20cm leached zone, S of topo high 90% clay 5% silt ≤5% clasts

YEAR	INIT.	S/T	NUMBER	LOCATION (Zone)	Grid Coord. or UTM. (East)	(North)	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	WTHR	VEGETATION
00	ML	T	109	11V	366408	6226372	Low	1m	—		Mst	Dk. Grey	Clay	Cly	Grs

REMARKS: farmers field, no clasts till about 90cm → sedimentary, 85% clay 10% silt 5% clasts

YEAR	INIT.	S/T	NUMBER	LOCATION (Zone)	Grid Coord. or UTM. (East)	(North)	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	WTHR	VEGETATION
00	ML	T	110	11V	369030	6224881	Low	60cm	10cm	A	Mst	Grey	Clay	Cly	Grs

REMARKS: field, pretty good till, abundant clasts 80% clay 10% silt 10% clasts sampled South of high anomaly

YEAR	INIT.	S/T	NUMBER	LOCATION (Zone)	Grid Coord. or UTM. (East)	(North)	RELIEF	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	WTHR	VEGETATION
00	ML	T	111	11V	369856	6225635	Low	60cm	10cm	A	Wet	Grey/brown	Clay	Cly	Swamp

REMARKS: 10m from road, poor sample quality, south of weak anomaly no clasts seen 85% clay 10% silt ≤5% clasts

SURVEY TYPE: Pan Con CLIENT & PROJECT: Indocan 99230 AREA & / or PHOTO: COLLECTOR(S): AN/ML DATE: July 15/0

NTS	YEAR	INIT.	SAMP TYPE	NUMBER	LOCATION (Zone)	(Grid Coord. or UTM.) East	North	ROCK TYPE	WTHR	VEGETATION
	00	ML	H	100	11V	372733	6219022		X Clr/Cldy	X Con/Dec; ravine
84D/06	00	ML	H	101	11V	363061	6248650		X Clr	X Dec; ravine
	00	ML	H	102	11V	334217	6243450		X Cldy	

VEG. INT.	RELIEF	CONTAMINATION	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	ORIGINAL SAMPLE NO.
	X Low/Med	stream sediment	/	/	/	X Wet	Grey	X Sand/Silt	
	X Low/Med		/	/	/	X Wet	X Brn	X Sand, X Silt	
	X Med		/	/	/	X Wet	X Brn	X Silt	

REMARKS (100): ~ 1km south of a gas plant, stream 1m wide, slow to moderate flow, steep banks, lots of sedimentary + quartzite clasts. July 26/0

REMARKS (101): 2m wide creek, water is low at the moment -> little flow, well rounded to subangular pebbles July 2

REMARKS (102): variable clast types -> quartzites, granites, mafic, river is 10-15 m wide, mod-slow flow rate; sample covers two anomalies

REMARKS:

GEOCHEMICAL SOIL AND TILL SAMPLE CARD

SAMPLE TYPES: S - Soil; T,U,V - Glacial : till, undifferentiated, esker; W - Frost boil; X,Y,Z - Other (define)

APEX Geoscience Ltd.

SURVEY TYPE: TILL CLIENT & PROJECT: Indocan AREA & / or PHOTO: 84D/3 COLLECTOR(S): AN/ML DATE: July 14/0

NTS	YEAR	INIT.	SAMP TYPE	NUMBER	LOCATION (Zone)	(Grid Coord. or UTM.) East	North	ROCK TYPE	WTHR	VEGETATION
	00	ML	T	100	11V	375949	6219008		X Clr	X Grs
	00	ML	T	101	11V	371227	6215846		X Cldy	X Grs
	00	ML	T	102	11V	372461	6215842		X Cldy	X Dec; ravine
	00	ML	T	103	11V	372584	6217351		X Cldy	X Dec; ravine

VEG. INT.	RELIEF	CONTAMINATION	DEPTH	THKNS	HORIZ.	MOISTURE	SEDIMENT COLOUR	COMPOSITION	ORIGINAL SAMPLE NO.
X Mod	X Low		1m	20cm	A	X Mst	Gry/blk	X Clay	
	X Low		1m	20cm	A	X Wet	Gry	X Clay	
	X Med		1m	5cm	A	X Wet	Grey	X Clay	
	X Med		/	/	/	X Dry	tan	X Clay	

REMARKS (100): sampled in small clearing, 90% clay 5-7% silt 5-7% clasts July 15/0

REMARKS (101): farmers field 15m from dirt road, 90% clay 10% silt, no clasts found, not out of leached zone, culvert nearby + large iron machinery

REMARKS (102): 10m deep ravine, 85% clay 10% silt 5% clasts, 10cm leached zone, few organics -> coal.

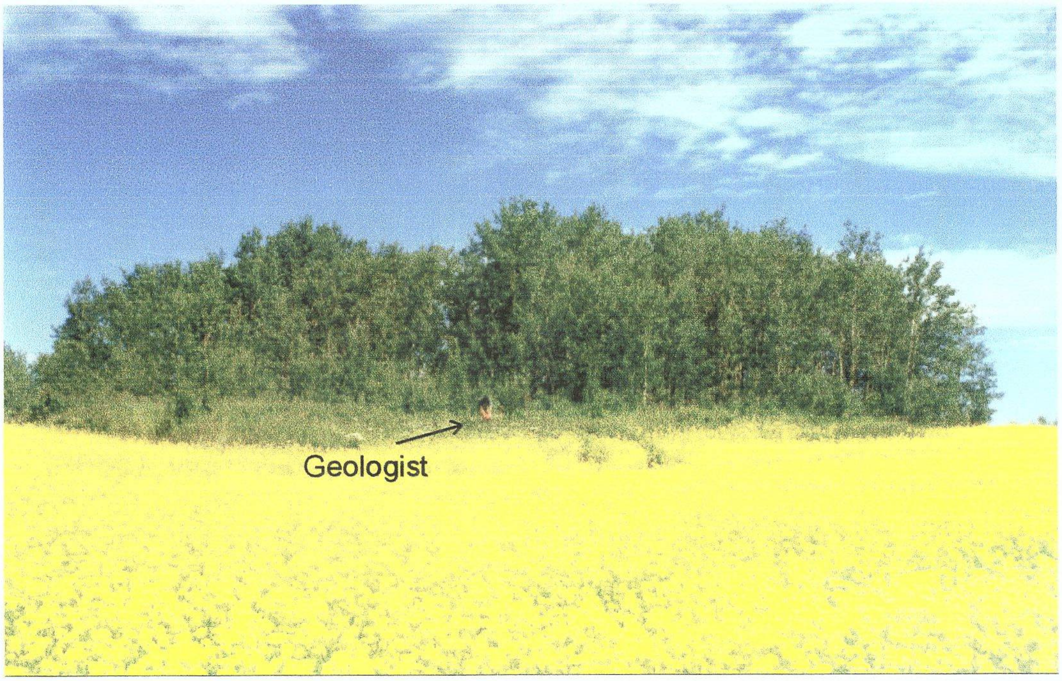
REMARKS (103): - washed out bank in steep ravine, 30cm, very clay rich, inter bedded light + dark bands of clay 85% clay 10% silt 5% clasts

GEOCHEMICAL SOIL AND TILL SAMPLE CARD

APEX Geoscience Ltd.

APPENDIX 5

PHOTOS



Photograph of the small hill with depression at center. Geologist for scale.

Photograph looking down into the poplar tree growth within depression.

APPENDIX 6

DIAMOND INDICATOR PICK RESULTS

Indicator Mineral Grain Description **Group: AP00.14**

Lower 1 Fraction

REP- Repicked Sample B-Blank DEF-Definite POS-Possible

No.	Sample Name	Pyrope Gt.		Cr. Diop.		Eclog.	Olivine	Picked	Others
		DEF	POS	DEF	POS	POS	POS	%	picked by
1	0MLT-100	0	0	0	0	0	0	100	0
	Comments:								BFM
2	0MLT-101	0	0	0	0	0	0	100	0
	Comments:								BB
3	OMLT-102	0	0	0	0	0	0	100	0
	Comments:								bfm
4	OMLT-103	0	0	0	0	0	0	100	0
	Comments:								BFM
5	OMLT-104	0	0	0	0	0	0	100	0
	Comments:								BFM
6	0MLT-105	0	0	0	0	0	0	100	0
	Comments:								BFM
7	0MLT-106	0	0	0	0	0	0	100	0
	Comments:								BFM
8	0MLT-107	0	0	0	0	0	0	100	0
	Comments:								BFM
9	0MLT-108	0	0	0	0	0	0	100	0
	Comments:								BFM
10	0MLT-109	0	0	0	1	0	0	100	0
	Comments:								BFM
11	OMLT-110	0	0	0	0	0	0	100	0
	Comments:								BFM
12	OMLT-111	0	0	0	0	0	0	100	0
	Comments:								BFM
	Comments:								

Indicator Mineral Grain Description **Group: AP00.14**

Lower 2 Fraction

REP- Repicked Sample B-Blank DEF-Definite POS-Possible

No.	Sample Name	Picroilmenite		Chromite		% Picked	Others
		DEF	POS	DEF	POS		picked by
1	0MLT-100	0	0	0	0	100	0
	Comments:						BFM
2	0MLT-101	0	0	0	0	100	0
	Comments: NO LW2 FOR THIS SAMPLE						bfm
3	OMLT-102	0	0	0	0	100	0
	Comments: NO LW2 FOR THIS SAMPLE						bfm
4	OMLT-103	0	0	0	0	100	0
	Comments: NO LW2 FOR THIS SAMPLE						bfm
5	OMLT-104	0	0	0	0	100	0
	Comments:						BFM
6	0MLT-105	0	0	0	0	100	0
	Comments:						PT
7	0MLT-106	0	0	0	0	100	0
	Comments:						PT
8	0MLT-107	0	0	0	0	100	0
	Comments:						PT
9	0MLT-108	0	0	0	0	100	0
	Comments: NO LW2 FOR THIS SAMPLE						bfm
10	0MLT-109	0	0	0	0	100	0
	Comments:						BFM
11	OMLT-110	0	0	0	0	30	0
	Comments:						BFM
12	OMLT-111	0	0	0	0	60	0
	Comments:						BFM
	Comments:						

Indicator Mineral Grain Description **Group: AP00.14**

Lower 1 Fraction

REP- Repicked Sample B-Blank DEF-Definite POS-Possible

No.	Sample Name	Pyrope Gt.		Cr. Diop.		Eclog.	Olivine	Picked	Others
		DEF	POS	DEF	POS	POS	POS	%	picked by
1	0MLT-112	0	0	0	0	0	0	100	0
	Comments:								BFM
2	0MLT-113	0	0	0	0	0	0	100	0
	Comments:								BFM
3	0MLT-114	0	0	0	0	0	0	100	0
	Comments:								BFM
4	0MLT-115	0	0	0	0	0	0	100	0
	Comments:								BFM
5	0MLT-116	0	0	0	0	0	0	100	0
	Comments:								BFM
6	OMLT-117	0	0	0	0	0	0	100	0
	Comments:								BFM
7	0MLT-118	0	0	0	0	0	0	100	0
	Comments:								BFM
8	OMLT-119	0	0	0	0	0	0	100	0
	Comments:								BFM
9	0MLT-120	0	0	0	0	0	0	100	0
	Comments:								BFM
10	0MLT-121	0	0	0	0	0	0	100	0
	Comments:								BFM
11	0MLT-122	0	0	0	0	0	0	100	0
	Comments:								BFM
12	OMLT-123	0	0	0	0	0	0	100	0
	Comments:								BFM
	REP 0MLT-114	0	0	0	0	0	0	100	0
	Comments:								pms

9/20/00

Indicator Mineral Grain Description **Group: AP00.14**

Lower 2 Fraction

REP- Repicked Sample B-Blank DEF-Definite POS-Possible

No.	Sample Name	Picroilmenite		Chromite		% Picked	Others
		DEF	POS	DEF	POS		picked by
1	0MLT-112	0	0	0	0	65	0
	Comments:						BFM
2	0MLT-113	0	0	0	0	100	0
	Comments:						PT
3	0MLT-114	0	0	0	2	100	0
	Comments:						PT
4	0MLT-115	0	0	0	0	100	0
	Comments:						PT
5	0MLT-116	0	0	0	0	100	0
	Comments: NO LW2 FOR THIS SAMPLE						bfm
6	OMLT-117	0	0	0	0	100	0
	Comments: NO LW2 FOR THIS SAMPLE						bfm
7	0MLT-118	0	0	0	0	100	0
	Comments: NO LW2 FOR THIS SAMPLE						bfm
8	OMLT-119	0	0	0	0	100	0
	Comments:						PT
9	0MLT-120	0	0	0	0	100	0
	Comments:						PT
10	0MLT-121	0	0	0	1	100	0
	Comments:						BFM
11	0MLT-122	0	0	0	0	100	0
	Comments: NO LW2 FOR THIS SAMPLE						bfm
12	OMLT-123	0	0	0	0	100	0
	Comments:						PMS
	REP 0MLT-114	0	0	0	0	100	0
	Comments:						PMS

9/20/00

Indicator Mineral Grain Description **Group: AP00.14**

Lower 1 Fraction

REP- Repicked Sample B-Blank DEF-Definite POS-Possible

No.	Sample Name	Pyrope Gt.		Cr. Diop.		Eclog.	Olivine	Picked	Others
		DEF	POS	DEF	POS	POS	POS	%	picked by
1	0MLT-124	0	0	0	0	1	1	100	0
	Comments:								BFM
2	0MLT-125	0	0	0	0	0	0	100	0
	Comments:								BFM
3	0MLT-126	0	0	0	0	0	0	100	0
	Comments:								bfm
4	0MLT-127	0	0	0	0	0	0	100	0
	Comments:								bfm
5	OMLT-128	0	0	0	1	1	0	100	0
	Comments:								bfm
6	OMLT-129	0	0	0	0	0	0	100	0
	Comments:								bfm
7	OMLT-130	0	0	0	0	0	0	100	0
	Comments:								bfm
8	OMLT-131	0	0	0	0	0	0	100	0
	Comments:								bfm
9	OMLT-132	0	0	0	0	1	0	100	0
	Comments:								bfm
10	OMLT-133	0	0	0	0	0	0	100	0
	Comments:								bfm
11	OMLT-134	0	0	0	0	0	0	100	0
	Comments:								bfm
12	OMLT-135	0	0	0	0	0	0	100	0
	Comments:								bfm
	Comments:								

Indicator Mineral Grain Description **Group: AP00.14**

Lower 2 Fraction

REP- Repicked Sample B-Blank DEF-Definite POS-Possible

No.	Sample Name	Picroilmenite		Chromite		% Picked	Others
		DEF	POS	DEF	POS		picked by
1	0MLT-124	0	0	0	0	90	0
	Comments:						PMS
2	0MLT-125	0	0	0	0	100	0
	Comments:						PMS
3	0MLT-126	0	0	0	0	100	0
	Comments:						PT
4	0MLT-127	0	0	0	1	50	0
	Comments:						PMS
5	OMLT-128	0	0	0	1	55	0
	Comments:						PMS
6	OMLT-129	0	0	0	0	100	0
	Comments: NO LW2 FOR THIS SAMPLE						bfm
7	OMLT-130	0	0	0	0	100	0
	Comments:						PMS
8	OMLT-131	0	0	0	0	100	0
	Comments: NO LW2 FOR THIS SAMPLE						bfm
9	OMLT-132	0	0	0	0	30	0
	Comments:						PT
10	OMLT-133	0	0	0	0	100	0
	Comments:						PT
11	OMLT-134	0	0	0	0	100	0
	Comments:						PT
12	OMLT-135	0	0	0	1	100	0
	Comments:						PT
	Comments:						

Indicator Mineral Grain Description

Group: AP00.14

Lower 1 Fraction

REP- Repicked Sample B-Blank DEF-Definite POS-Possible

No.	Sample Name	Pyrope Gt.		Cr. Diop.		Eclog.	Olivine	Picked	Others
		DEF	POS	DEF	POS	POS	POS	%	picked by
1	0MLT-136	0	0	0	0	0	0	0	0
	Comments:								bfm
2	0MLT-137	0	0	0	0	0	0	100	0
	Comments:								bfm
3	0MLT-138	0	0	0	0	0	0	100	0
	Comments:								bfm
4	0MLT-139	0	0	0	0	0	0	100	0
	Comments:								BFM
5	0MLT-140	0	0	0	0	0	0	100	0
	Comments:								BFM
6	0MLT-141	0	0	0	0	0	0	100	0
	Comments:								BFM
7	0MLT-142	0	0	0	0	0	0	100	0
	Comments:								BFM
8	0MLT-143	0	0	0	0	0	0	100	0
	Comments:								BFM
9	0MLT-144	0	0	0	0	0	0	100	0
	Comments:								BFM
10	0MLT-145	0	0	0	0	0	0	100	0
	Comments:								BFM
11	0MLT-146	0	0	0	0	0	0	100	0
	Comments:								BFM
12	0MLT-147	0	0	0	0	0	0	100	0
	Comments:								BFM
	REP 0MLT-147	0	0	0	0	0	0	100	0
	Comments:								pms

9/20/00

Indicator Mineral Grain Description Group: AP00.14

Lower 2 Fraction

REP- Repicked Sample B-Blank DEF-Definite POS-Possible

No.	Sample Name	Picroilmenite		Chromite		% Picked	Others
		DEF	POS	DEF	POS		picked by
1	0MLT-136	0	0	0	0	100	0
	Comments:						PT
2	0MLT-137	0	0	0	0	100	0
	Comments:						PMS
3	0MLT-138	0	0	0	0	100	0
	Comments: NO LW2 FOR THIS SAMPLE						bfm
4	0MLT-139	0	0	0	0	100	0
	Comments:						PMS
5	0MLT-140	0	0	0	0	100	0
	Comments:						pms
6	0MLT-141	0	0	0	0	100	0
	Comments:						pms
7	0MLT-142	0	0	0	0	100	0
	Comments:						pms
8	0MLT-143	0	0	0	0	100	0
	Comments:						pms
9	0MLT-144	0	0	0	0	100	0
	Comments:						pms
10	0MLT-145	0	0	0	0	100	0
	Comments:						pms
11	0MLT-146	0	0	0	0	100	0
	Comments:						pms
12	0MLT-147	0	0	0	0	100	0
	Comments:						pt
	REP 0MLT-147	0	0	0	0	100	0
	Comments:						pms

9/20/00

Indicator Mineral Grain Description **Group: AP00.14**

Lower 1 Fraction

REP- Repicked Sample B-Blank DEF-Definite POS-Possible

No.	Sample Name	Pyrope Gt.		Cr. Diop.		Eclog.	Olivine	Picked	Others
		DEF	POS	DEF	POS	POS	POS	%	picked by
1	0MLT-148	0	0	0	0	0	0	100	0
	Comments:								BFM
2	OMLT-149	0	0	0	0	0	0	100	0
	Comments								BFM
3	0MLT-150	0	0	0	0	0	0	100	0
	Comments:								BFM
4	0MLT-151	0	0	0	0	0	0	100	0
	Comments:								BFM
5	OMLT-152	0	0	0	0	0	0	100	0
	Comments:								BFM
6	0MLT-153	0	0	0	0	0	0	100	0
	Comments:								BFM
7	OMLT-154	0	0	0	0	0	0	100	0
	Comments:								BFM
8	0MLT-155	0	0	0	0	0	0	100	0
	Comments:								BFM
9	0MLT-156	0	0	0	0	0	0	100	0
	Comments:								BFM
10	0MLH-100	0	0	0	8	2	0	100	0
	Comments:								BFM
11	0MLH-101	0	0	0	1	2	1	100	0
	Comments:								BFM
12	OMLH-102	0	0	0	1	0	0	100	1
	Comments: 1 other possible Uvaravite/Chrome Diopside								BFM
	REP 0MLH-101	0	0	0	0	0	0	100	0
	Comments:								pms

9/20/00

Indicator Mineral Grain Description **Group: AP00.14**

Lower 2 Fraction

REP- Repicked Sample B-Blank DEF-Definite POS-Possible

No.	Sample Name	Picroilmenite		Chromite		% Picked	Others
		DEF	POS	DEF	POS		picked by
1	0MLT-148	0	0	0	0	100	0
	Comments:						pt
2	OMLT-149	0	0	0	0	100	0
	Comments						pms
3	0MLT-150	0	0	0	0	100	0
	Comments: no LW2 for this sample						bfm
4	0MLT-151	0	0	0	0	100	0
	Comments:						pms
5	OMLT-152	0	0	0	0	100	0
	Comments:						pms
6	0MLT-153	0	0	0	0	100	0
	Comments:						pt
7	OMLT-154	0	0	0	0	100	0
	Comments:						pt
8	0MLT-155	0	0	0	0	100	0
	Comments:						pt
9	0MLT-156	0	0	0	0	100	0
	Comments:						pt
10	0MLH-100	0	0	0	0	30	0
	Comments:						pt
11	0MLH-101	0	0	0	2	10	0
	Comments:						pt
12	OMLH-102	0	0	0	0	15	0
	Comments:						pms
	REP 0MLH-101	0	0	0	2	10	0
	Comments:						PMS

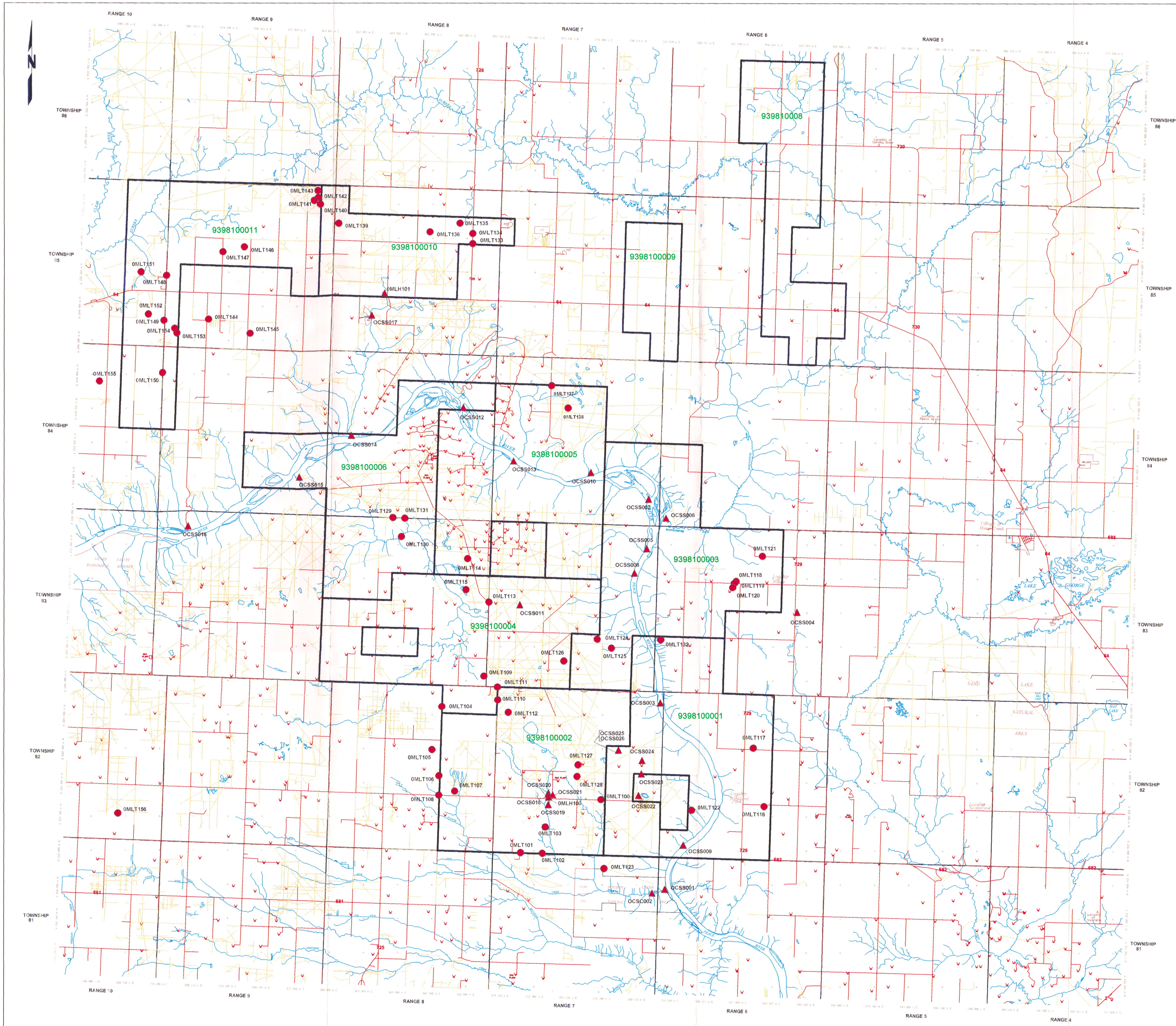
APPENDIX 7

EXPLORATION EXPENDITURES

APPENDIX 7

EXPLORATION EXPENDITURES

ITEM	ACTUAL COST
Salaries	
Salaries for Geologists	$25,418.00
Administration and Consulting Fees	$3,179.15
ACAD time for figures	$1,640.00
Sub-total	**$30,237.15**
Field Related Costs	
Airborne Geophysical Survey	$42,700.00
Food/Accomodation	$3,556.76
Fuel/Mileage	$2,849.39
Equipment rental (ATV's, trailer, boat)	$2,021.25
Field Supplies	$283.40
Sub-total	**$51,410.80**
Non-Field Costs	
Data Purchase	$1,825.69
Analytical Costs	$12,632.03
Sub-total	**$14,457.72**
Total Exploration Costs	**$96,105.67**
ACCRUED COSTS	
Pending Sample Analyses	$13,800.00
TOTAL EXPENDITURES	**$109,905.67**



LEGEND

- Lakes
- Rivers
- Roads
- Trails
- Wells
- Till Samples, Identifier
- Pan Concentrate, Identifier
- Property Boundary

INDOCAN RESOURCES INC.

SPIRIT RIVER PROJECT
SAMPLE LOCATIONS

Scales 0 2000 4000 6000 8000 Metres

1 : 100000

APEX Geoscience Ltd.

EDMONTON, ALBERTA FEBRUARY, 2001

Feb. 7, 2001

FIGURE 5